# ai² Synthesis Module

# O3R/W

# Owner's Manual
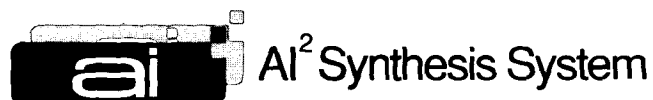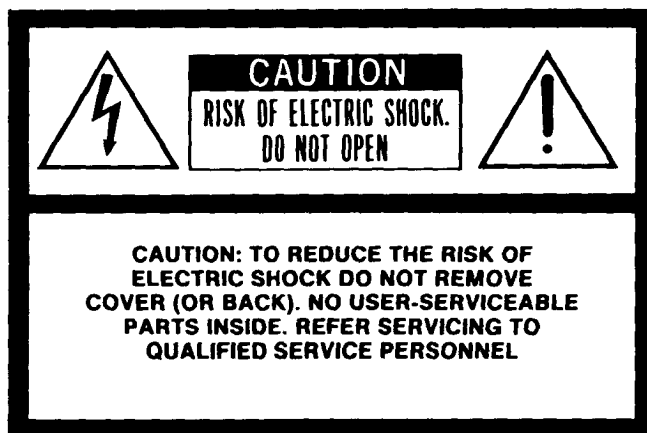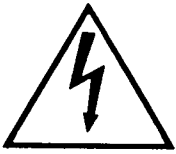
AI² Synthesis System

# 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

**CAUTION**
RISK OF ELECTRIC SHOCK.
DO NOT OPEN

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

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

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

## 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.

*Thank you for purchasing the Korg 03R/W ai² 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 AI² 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.

# TABLE OF CONTENTS

# 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 **INT/CARD, 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 1/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**
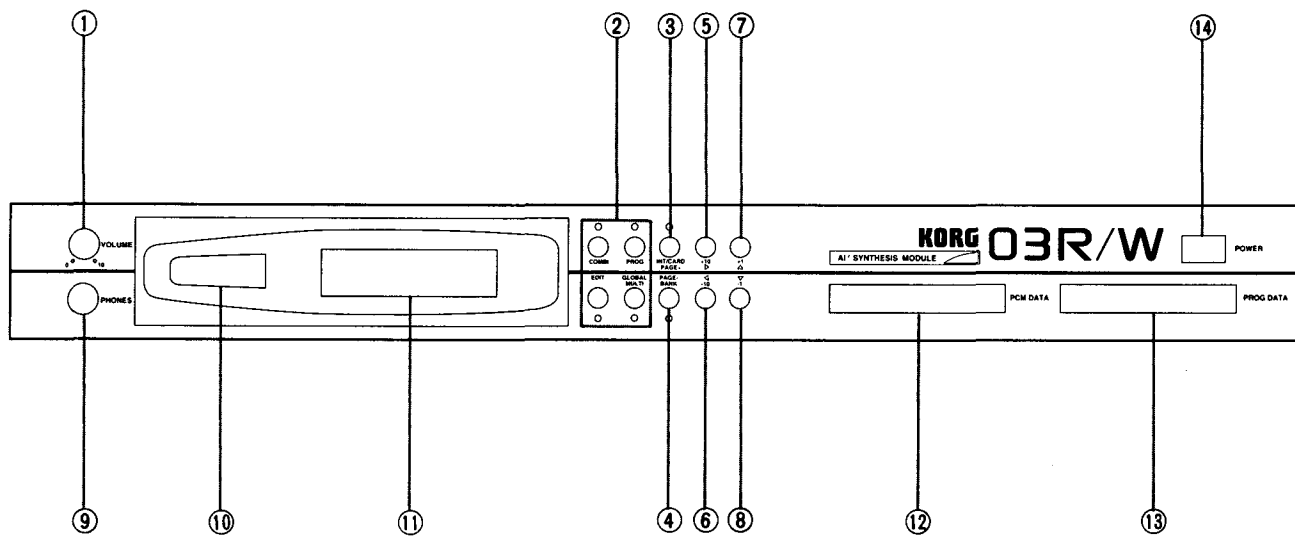
# REAR PANEL

① **REMOTE jack**

② **MIDI THRU jack**

③ **MIDI OUT jack**

④ **MIDI IN jack**

⑤ **OUTPUT jack (1/L, 2/R, 3, 4)**
These are the audio outputs of the 03R/W. The output to
each jack is determined by various parameters.
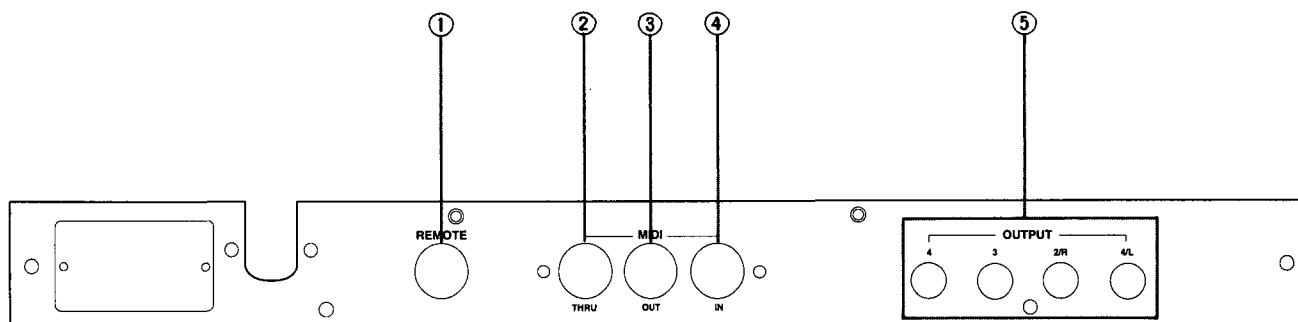
## CONNECTIONS

(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.

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

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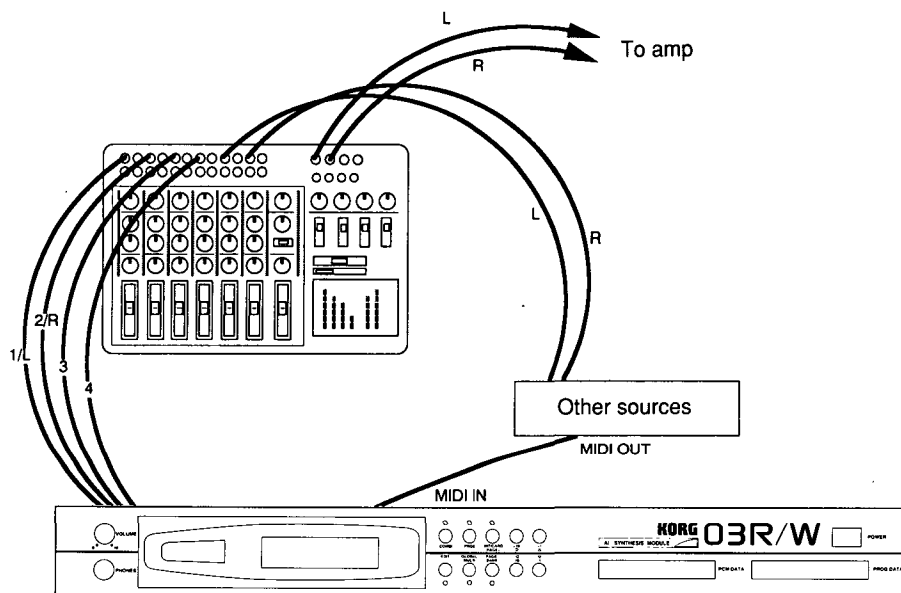
● The 03R/W will respond to Note messages transmitted to MIDI IN for all notes C-1 — G9 (note numbers 0 —127).
(For some Programs, the high range may not sound.)

| 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

4-channel digital audio signals
(internal connections)

4-channel digital
audio output

| Synthesizer section <br><br> maximum (multi mode 16) timbres, 32 voices | — A —→ <br> — B —→ <br> — C —→ <br> — D —→ | Effect section <br><br> 2 stereo effect systems | — 1/L ➤ <br> — 2/R ➤ <br> — 3 —→ <br> — 4 —→ |
|---|---|---|---|
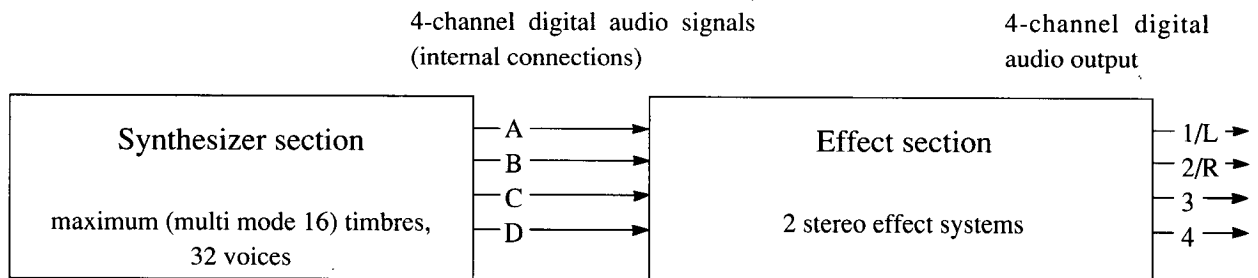
# ABOUT GM (GENERAL MIDI)

● **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

* 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 △ and ▽ key to change the value.

## PROGRAM

# P

## COMBINATION

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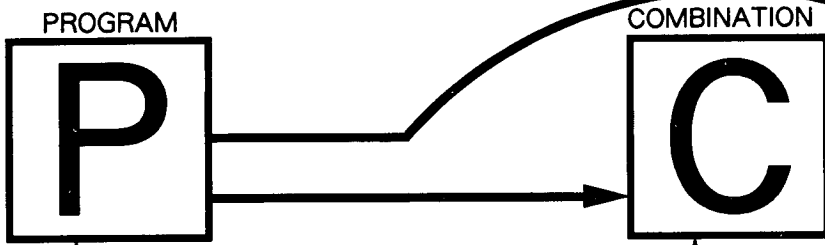
- A Program is defined as a simple synthesized sound.
- Programs can be selected from A00-A99 (internal memory) or C00-D99 (card), G01-G129 (ROM).

### Single Program

### Double Program
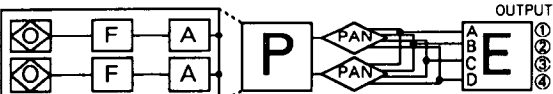
### Programs using a Drum Kit

- Select one of the ROM Drums (1-4) and two Drum Kits from the bank used for the Program.
- It is preferable to use the Drum Kit panpots which have been selected for eace Instrument setting in the Drum Kit (Global mode P6, P7).

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

### Multisound (Source Waveform)

The Oscillator permits the selection of 00-254 Multisounds.

- Multisounds can also be selected from a PCM Card.
- Refer to the page on 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 panpots, are edited in Global mode (P6, P7).

EX.
① BASS DRUM1
② SNARE 2
③ MID TOM
④ OPEN HI HAT
⑤ CRASH CYMBAL 2
⑥ BASS DRUM 2
⑦ SNARE 1
⑧ LO TOM
⑨ HI TOM
⑩ CLOSED HI HAT
⑪ CRASH CYMBAL 1
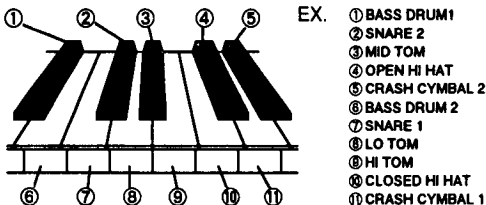
- A Combination is several Programs which have been combined. Each Program is put in a "container" called a "Timbre" (eight Timbres are provided).
- Combinations have theirown effects settings; settings mode for individual programs will be ignored.
- Combinations can be selected from A00-A99 (internal 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 panpots are set for each Timbre. The settings made in Edit Program can also be used.

#### Sample:A Combination Using Two Programs

For a Single OSC Program

For a Double OSC Program

Layer

Split

Split Layer
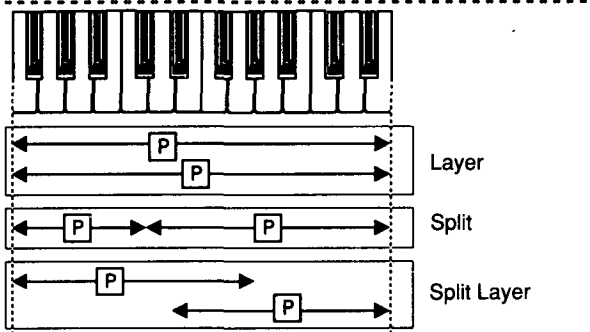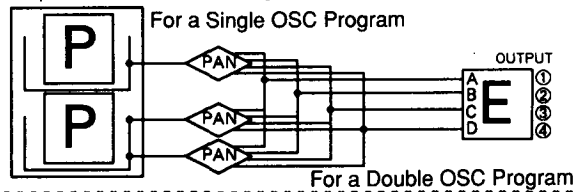
#### Sample:A Combination Using Multiple Programs

In this example, ALL and PROG were not specified in the panpots for all of the Timbres.

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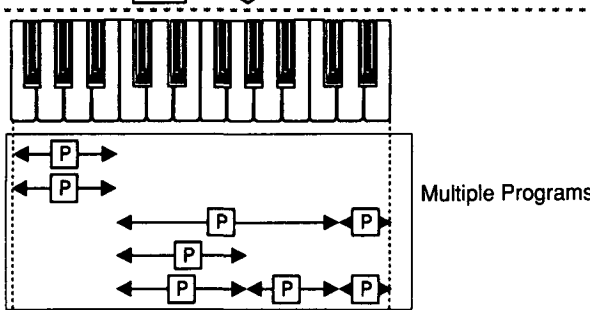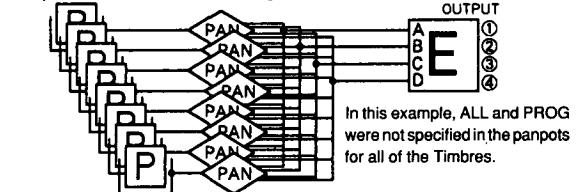
**Settings made thus far are done in the Edit Combination mode.**

OUTPUT
4    3    2/R    1/L
④    ③    ②     ①

PAN  PANPOTS

A        A:B        B        C        C+D        D        ALL

to effects    to effects    to effects    to effects    to effects    to effects    to effects

A→           —A→          A             A             A             A             A→
B            B→            B→            B             B             B             B→
C            C             C             C→            C→            C             C
D            D             D             D             D→            D→            D→

The volume balance can be          The same volume is          The same volume is as-
adjusted between 1:9—9:1.          assigned to C and D.        signed to A, B, C, and D.

OUTPUT
A ①
B ②
C ③
D ④

E  EFFECTS    A page is provided in each mode to set Effect 1 (E1) and Effect 2 (E2).

SERIAL                        PARALLEL                      PARALLEL2

A →EFFECT → EFFECT → 1/L      A →EFFECT → 1/L               A → EFFECT → 1/L
B →  1        2    → 2/R      B →  1    → 2/R               B →  1    → 2/R

         PAN3                        PAN3                        PAN3
C →           → 3             C →EFFECT   → 3               C →EFFECT   → 3
D →PAN4       → 4             D →  2  PAN4 → 4              D →  2  PAN4 → 4

# 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.

```
A00:Orchestra
A00 A01 A02 A03
```

● 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.)

# 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.
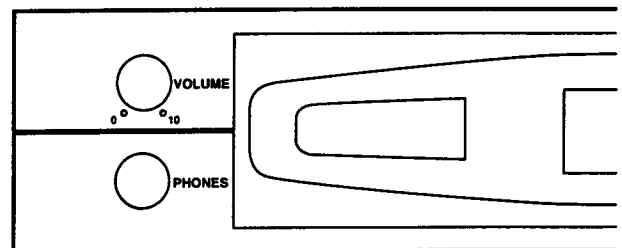
# PLAYING A PROGRAM (A SINGLE SOUND)

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 mactch 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.

```
SONG0:ROCK SHOW
```

Note:

*The sound of the song will be changed if the data for the Timbres are modified. Begin by using Global mode* 5C *to load preset data.*

Press these keys.
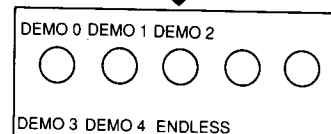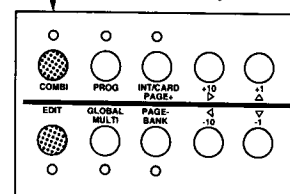
# KEY FUNCTIONS

The function of each key on the 03R/W varies depending on the mode.

**Mode select keys**
The lit key indicates the current mode. The 03R/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 03R/W varies depending on the mode.

| Key | Combination mode, Program mode (Inscribed in White) | Edit Combination mode, Edit Program mode, Multi mode, Global mode (Inscribed in Blue) |
| --- | --- | --- |
| 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 (Multisound) 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.

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1. In Program mode, select the sound you wish to edit.
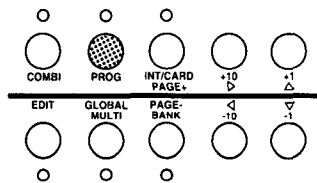
Please refer to Reference guide section
1: Program Mode (p.14).

---

2. In Edit Program mode, create the desired sound, and write it into memory.
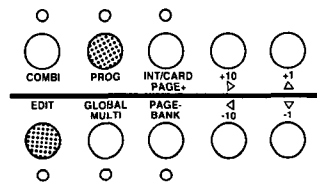
Please refer to Reference guide section
2: Edit Program Mode (p.15).

---

3. In Combination mode, select the Combination to which you want to add the sound.
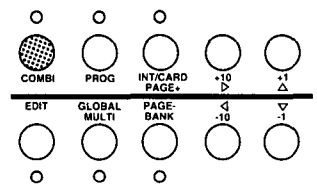
Please refer to Reference guide section 4: Combination Mode (p.68).

---

4. In Edit Combination mode, create a Combination using the Program you created.
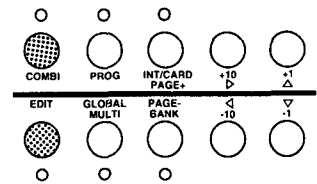
Please refer to Reference guide section
5: Edit Combination mode (p.69).

# 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] | [Bank G] |
|---|---|
| 100 Combinations, | 129 Programs (ROM) |
| 100 Programs, | |
| 2 Drum Kits, | |
| 1 Global Data | |

**<<PROG card>>**
The data in a PROG card (512Kbit RAM card) is organized in two BANKs (C,D).

| [Bank C] | [Bank D] |
|---|---|
| 100 Combinations, | 100 Combinations |
| 100 Programs, | 100 Programs |
| 1 Global Data, | 1 Global Data, |
| 2 Drum Kits 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 |
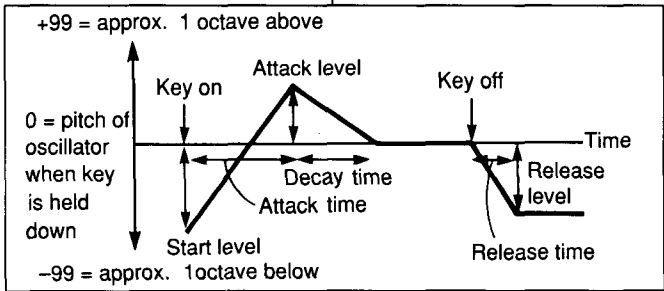
* When you use a new card, first save the data using the Global mode setting 5B . This will allow you to load data, read a Program from the card, and write a Program onto the card.

## HOW TO READ A DISPLAY PAGE CHART

**3A-3C PITCH EG (Pitch EG)** ———— ①

```
03A PITCH EG    >  03B PITCH EG    0  03C PTCH.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. ③ |
| | 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. |

④ ⑤ ⑥ ⑦

(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 INT/CARD 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 [15A] (when OSC Mode = SINGLE, DRUMS) or [21A] (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 RE1 is connected, the numeric keypad is used to select pages (when the RE1 is connected).

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

```
┌─────────────────────────────────────────────────────────────────────┐
│  OSC1 PITCH MG          VDF1 EG              VDA1 EG                   │
│  Modulates the pitch    Modifies the tone    Modifies the volume      │
│  (add vibrato)          over time            over time                │
│         │                    │                    │                   │
│         ▼                    ▼                    ▼                   │
│  OSC1                   VDF1                 VDA1                      │
│  Specifies the wave-  → Specifies the tone → Specifies the volume     │
│  form type and basic    of OSC1             of OSC1                   │
│  pitch                                                                │
│         ▲                    ▲                                        │  EFFECT
│  PITCH EG               VDF MG                                         │  Effect settings for
│  Modifies the pitch     Modulates the tone                            │  Program mode
│  over time              (adds a wah-wah                               │
│                         effect)                                       │
│                                                                       │
│         ──────── only in Double mode ────────                         │
│  OSC2                   VDF2                 VDA2                      │
│  Specifies the wave-  → Specifies the tone → Specifies the volume     │
│  form type, basic pitch of OSC2             of OSC2                   │
│  and the pitch in rela-                                               │  Dynamic Modulation
│  tion to OSC1                                                         │  Controls effects in
│         ▲                    ▲                    ▲                   │  realtime
│  OSC2 PITCH MG          VDF2 EG              VDA2 EG                  │
│  Modulate the pitch     Modifies the tone    Modifies the volume      │
│  (adds vibrato)         over time            over time                │
│                                                                       │
└──────────────────────── The Basic Sound ─────────────────────────────┘

                                  ▲

┌───────────────────────────────────────────────────────────────────────┐
│  Velocity Sensing   KBD Tracking     After Touch      Joy Stick     Assignable Pedal │
│  or Sensitivity     How keyboard     How aftertouch   How the joystick  How the assign-│
│  How key veloc-     note position will  will affect the  will affect the  able pedal will│
│  ity will affect the  affect the sound  sound          sound          affect the sound  │
│  sound                                                                  │
└────────────────────────────── Performance Effects ─────────────────────┘
```

# 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 | |
|---|---|---|---|---|
| SINGLE, DRUMS | DOUBLE | | | |
| 0A—0B | 0A—0B | OSC Mode<br>Assign/Hold | Oscillator mode<br>Number of voices to sound, and Hold settings | |
| 1A—1C | 1A—1C | OSC1 Multi Sound<br>Level/Octave<br>EG Intensity/Pan | Oscillator 1 waveform<br>Level, Octave<br>Depth of the pitch change over time, output destination | |
| — | 2A—2E | OSC2 Multi Sound<br>Level/Octave<br>EG Intensity/Pan<br>Interval/Detune<br>Delay | Oscillator 2 waveform<br>Level, Octave<br>Depth of the pitch change over time, output destination<br>Interval (by semitone) and detune (by cent) relative to OSC1<br>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<br>EG<br>Emphasis | VDF1 cutoff frequency (Controls brilliance of tone)<br>Specifies changes in cutoff frequency over time.<br>Emphasis effect | |
| — | 5A—5E | VDF2 Cutoff<br>EG<br>Emphasis | VDF2 cutoff frequency (Controls brilliance of tone)<br>Specifies changes in cutoff frequency over time<br>Emphasis effect | Ⓓ |
| 4A—4E | 6A—6E | VDF1 Velocity Sense<br>Keyboard Tracking | How key velocity affects VDF1 EG cutoff frequency and time<br>How key position affects VDF1 EGcutoff frequency and time | |
| — | 7A—7E | VDF2 Velocity Sense<br>Keyboard Tracking | How key velocity affects VDF2 EG Time<br>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<br>Keyboard Tracking | How key velocity affects VDA1 EG cutoff frequency and time<br>How key position affects VDA1 EG cutoff frequency and time | |
| — | 11A—11E | VDA2 Velocity Sense<br>Keyboard Tracking | How key velocity affects VDA2 EG cutoff frequency and time<br>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<br>Joy Stick Control | After Touch control<br>Joy Stick control | |
| 10A<br>—<br>14C | 16A<br>—<br>20C | | Effect settings | |
| 15A—15B | 21A—21B | | Writes a Program<br>Renames a Program | |

\* Ⓓ  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  │
└─────────────────────┴─────────────────────┘
```

| | OSC Mode | | Tone generator mode |
|---|---|---|---|
| 0A | | SINGLE | One oscillator mode (single) |
| | | DOUBLE | Two oscillator mode (double) |
| | | DRUMS | Drums mode (drums) |
| 0B ASN | Assign | | The number of voices to sound |
| | | POLY | Plays chords of up to the maximum number of voices. |
| | | MONO | Plays only one note at a time. |
| HLD | Hold | OFF/ON | 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 Kit1 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 >│01B OSC1       θ│01C OSC1          <
  000:Piano      │Level99  OCT 8'│EGint+00 Pan=5:5
```

| | | | |
|---|---|---|---|
| 1A | Multisound<br><br>Drum Kit | 0 — 254, C00 —<br><br>Drum Kit 1,2<br>ROM Drum Kit 1—4 | Selects the OSC1 Multisound (basic waveform) (when the OSC Mode is SINGLE or DOUBLE).<br>Selects the Drum Kit (when OSC Mode is DRUMS)<br>Drum Kit (RAM)<br>Drum Kit (ROM) |
| 1B Level | OSC Level | 0 — 99 | Volume of oscillator 1 |
| OCT | Octave | 32'<br>16'<br>8'<br>4' | Specifies the octave of oscillator 1.<br>2 octaves lower<br>1 octave lower<br>Normal pitch<br>1 octave higher |
| 1C EGint | Pitch EG Intensity | –99 — +99 | The depth of the pitch change over time |
| Pan | Pan | A,9:1— 1:9,B.<br>C,C+D,D,ALL | The output destination of oscillator 1 |

▼ When the 0A 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 △ 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 ⊖ Level99 OCT16' | 02C OSC2 ⊖ EGint+00 Pan=5:5 | 02D OSC2 ⊖ Intvl+00 Detn+03 | 02E OSC2 < Delay=00 |
|---|---|---|---|---|

| 2A | Multisound | 0 — 254, C00 — Drum Kit 1,2 | Select a Multisound for OSC2 Drum Kit (RAM) |
|---|---|---|---|
| | | ROM Drum Kit 1—4 | Drum Kit (ROM) |
| 2B Level | OSC Level | 0 — 99 | Oscillator 2 volume |
| OCT | Octave | | Specify the octave of oscillator 2 |
| | | 32' | 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 1cent) 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 0A 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    θ  03C PTCH.EG Vel<
SL+00 AT00 AL+00  DT00   RT00 RL+00  Levl=+99 Tim=+00
```

| | | | |
|---|---|---|---|
| 3A SL | Start Level | –99 — +99 | These parameters determine pitch 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 | 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 Intensity parameter for OSC1 in 1C and for OSC2 in 2C.

▼For positive (+) values of EG Level Vel.Sense (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 "+":

▼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 "+":
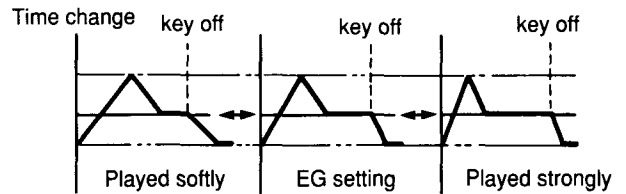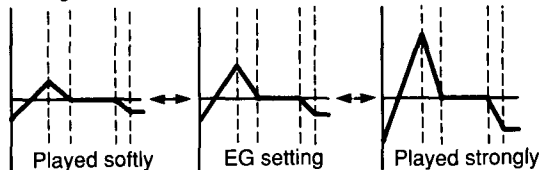
## 4A-4E VDF1 Cutoff, EG, Emphasis

| 04A VDF 1           > | 04B VDF1 EG      θ | 04C VDF1 EG      θ | 04D VDF1 EG      θ | 04E Emphasis 1 < |
|---|---|---|---|---|
| Fc=19   EGint=65 | AT09 AL+08 DT00 | BP+00 ST00 SL+00 | RT00 RL+00 | Int=00   Vel=+00 |

| | | | |
|---|---|---|---|
| 4A Fc | VDF Cutoff | 0 — 99 | VDF1 cutoff frequency (tonal brightness) |
| EG int | EG Intensity | 0 — 99 | The depth of tonal change produced by the VDF1 EG |
| 4B AT | Attack Time | 0 — 99 | How the VDF1 cutoff will change over time |
| 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.
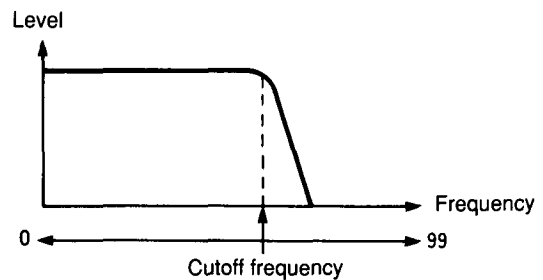
* Emphasis is an effect that makes the sound stand out more clearly.

▼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        > | 05B VDF2 EG      θ | 05C VDF2 EG      θ | 05D VDF2 EG      θ | 05E Emphasis 2 < |
|--------------------|--------------------|--------------------|--------------------|------------------|
| Fc=19   EGint=65   | AT09 AL+08 DT00    | BP+00 ST00 SL+00   | RT00 RL+00         | Int=00   Vel=+00 |

▼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> | 06B VDF1 V.SENSθ | 06C VDF1 K.TRK θ | 06D VDF1 K.TRK θ | 06E VDF1 K.TRK < |
|---|---|---|---|---|
| EGint+77 EGtm00 | AT0 DT0 ST0 RT0 | KeyF#4 Mode= ALL | Int=+00 EGtm=00 | AT0 DT0 ST0 RT0 |

| | | | | |
|---|---|---|---|---|
| 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 01/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 "+":
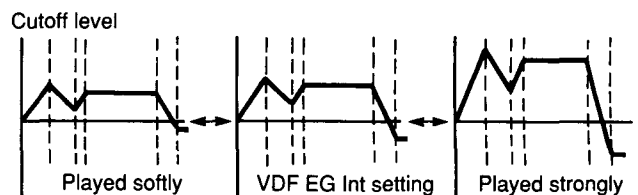
Cutoff level



Played softly    VDF EG Int setting    Played strongly

▼EG Time (EG time velocity sensitivity) determines how 01/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 ± (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

key off          key off          key off



Played          VDF EG          Played
softly          setting          strongly

▼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.
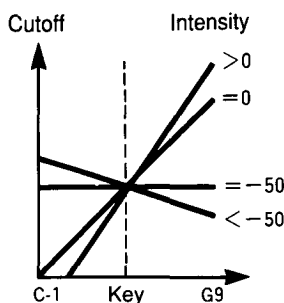


▼KBD Tracking Mode specifies the area over which keyboard tracking will occur. When this parameter is OFF, the 6D keyboard tracking Intensity and EG Time Keyboard Track are disabled.
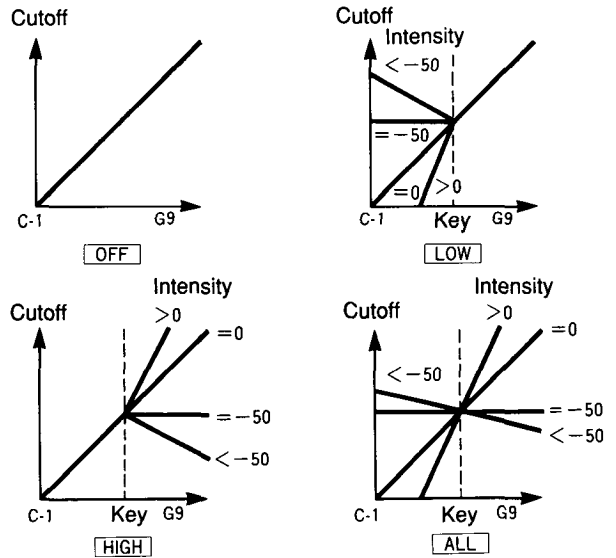


▼If "+" is set for EG Time (EG time keyboard track), notes higher than the 6C key will have shorter VDF EG times (Attack/Decay/Slope/Release Time). For a setting of "–", higher notes above the key will have longer VDF EG times. The key specified in 6C and the "Keyboard Tracking Mode" determine the range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

- When EG time = +



- When all parameters are set to "+":

Time change

key off          key off          key off



When lower notes          VDF EG          When higher
are played          setting          notes are
played

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

| 07A VDF2 V.SENS><br>EGint+33 EGtm00 | 07B VDF2 V.SENSθ<br>AT0 DT0 ST0 RT0 | 07C VDF2 K.TRK θ<br>KeyC-1 Mode= ALL | 07D VDF2 K.TRK θ<br>Int=+00 EGtm=00 | 07E VDF2 K.TRK <<br>AT0 DT0 ST0 RT0 |
|---|---|---|---|---|

▼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    ><br>AT00 AL99   DT15 | 08B VDA1 EG    θ<br>BP20   ST88 SL00 | 08C VDA1 EG    <<br>RT60 |
|---|---|---|

| 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 | |
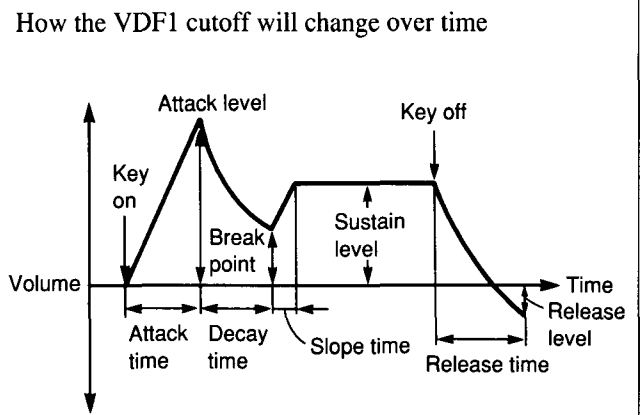
▼The VDA EG determines how volume will change over
time.
* The VDA (Variable Digital Amplifier) is the section that
modifies the volume of the waveform.

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

| 09A VDA2 EG    ><br>AT00 AL99   DT15 | 09B VDA2 EG    θ<br>BP20   ST88 SL00 | 09C VDA2 EG    <<br>RT60 |
|---|---|---|

▼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><br>Amp=+99 EGtm=00 | 10B VDA1 V.SENSθ<br>ATO DTO STO RTO | 10C VDA1 K.TRK θ<br>KeyC#1 Mode= OFF | 10D VDA1 K.TRK θ<br>Amp=+00 EGtm=00 | 10E VDA1 K.TRK <<br>ATO DTO STO RTO |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| 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<br>LOW<br>HIGH<br>ALL | The range over which keyboard tracking will occur<br>Keyboard tracking will not occur<br>Keyboard tracking will occur for the low note range<br>Keyboard tracking will occur for the high note range<br>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.
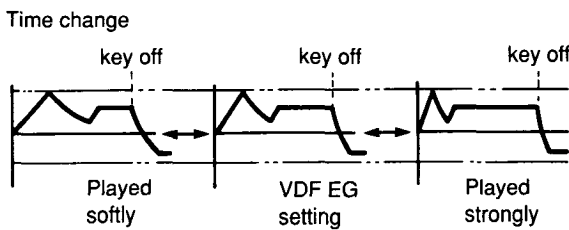
▼EG Time (EG time velocity sensitivity) determines how 01/W (or similar) keyboard velocity will affect the VDA EG time. For a setting of "+", strongly played notes will have a shorter VDA EG Time (Attack/Decay/Slope/Release Time). For a setting of "–", strongly played notes will have a longer time.

* 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 "+":

Time change    key off         key off            key off

| Played softly | VDA EG setting | Played strongly |
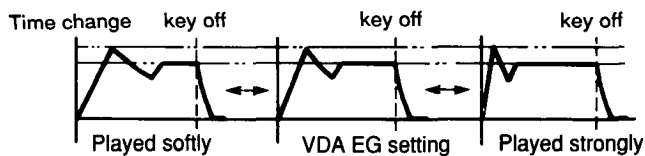
\* VDA Keyboard Tracking determines how the key position will affect VDA volume.

▼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).

Volume
level

OSC level
setting

VDA keyboard tracking > 0
VDA keyboard tracking = 0
VDA keyboard tracking < 0
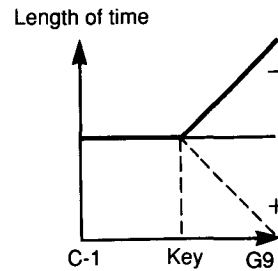Interval

C-1 ◄————————► G9
Center key
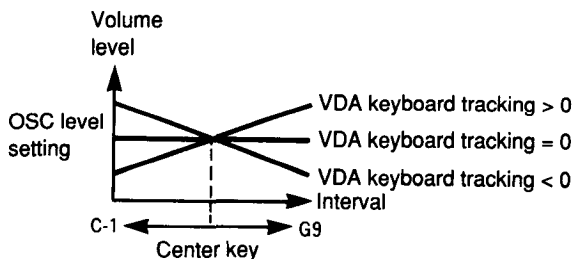
▼KBD Tracking Mode determines the range over which keyboard tracking will occur. When this parameter is set to "OFF", the 10D Keyboard Tracking and EG Time Keyboard Track are disabled.
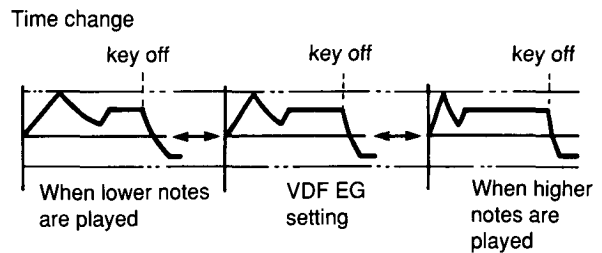
Level
C-1          G9
OFF

Level
–99
0
+99
C-1    Key    G9
VDA level
LOW

Level
+99
0
–99
VDA level
C-1    Key    G9
HIGH

Level
–99          +99
0
+99          –99
C-1    Key    G9
ALL
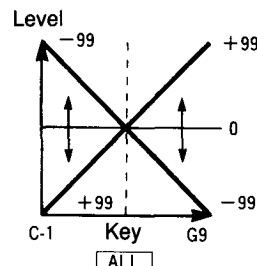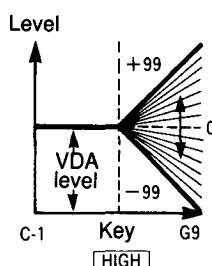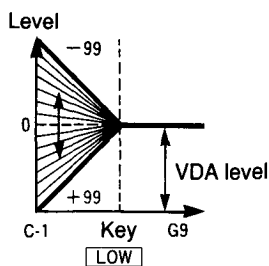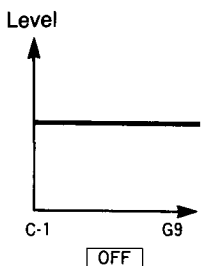
▼If EG Time (EG time keyboard track) is set to "+", notes higher than the 10C key will have shorter VDA EG Times (Attack/Decay/Slope/Release Time). For a setting of "–", higher notes above the key will have longer VDA EG Time. The key specified in 10C and the Keyboard Tracking Mode determine the range which is affected.

- If every parameter is set to "+"

Time change    key off         key off            key off

| When lower notes are played | VDA EG setting | When higher notes are played |
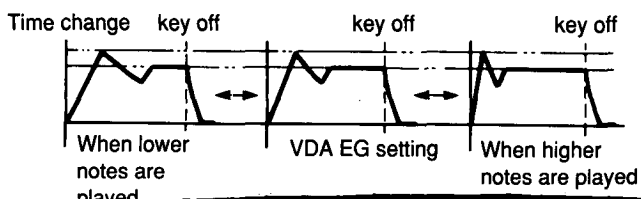
☆In DOUBLE mode, you can create a "positional crossfade" effect by setting an identical keyboard tracking key for both oscillators 1 and 2, and giving them opposite "+" and "–" settings.

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

VDA2 Keyboard Tracking < 0
Volume
VDA1 Keyboard Tracking > 0
99

OSC Level
setting

0
Interval

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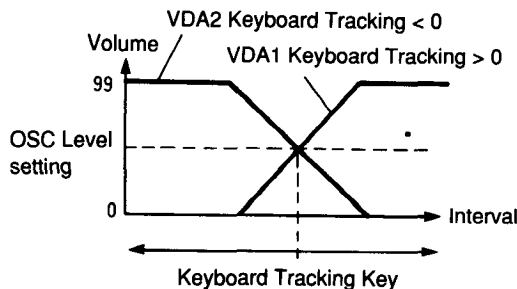
## 11A-11E VDA2 Velocity Sense, Keyboard Tracking (only for DOUBLE mode)

| 11A VDA2 V.SENS><br>Amp=+99 EGtm=00 | 11B VDA2 V.SENSθ<br>ATO DTO STO RTO | 11C VDA2 K.TRK θ<br>KeyF1  Mode= OFF | 11D VDA2 K.TRK θ<br>Amp=+00 EGtm=00 | 11E VDA2 K.TRK <<br>ATO DTO STO RTO |
|---|---|---|---|---|

▼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 > | 12B PITCH 1 MG θ | 12C PITCH 1 MG θ | 12D PMG1 FREQ θ | 12E PMG1 INT < |
|---|---|---|---|---|
| TRI  Frq00 Int00 | Delay00 FadeIn00 | K.Sync:OFF | K.TRK+00  A+J=0 | Aft=00  JoyUP=00 |

| | Waveform | | Selects the modulation waveform | |
|---|---|---|---|---|
| 12A | | TRI | Triangle ∧∨ | |
| | | SAW ↑ | Sawtooth 1 /VI | |
| | | SAW ↓ | Sawtooth 2 IVI | |
| | | SQR | Square ⊓⊔ | |
| | | RAND | Random | |
| Frq | 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   /VI   upward sawtooth wave
- Saw Down   IVI   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:



0 ◄—————————————————————► 99
Frequency
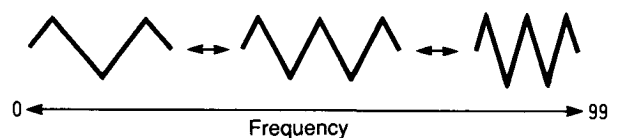
▼Delay determines the time delay from when a key on the keyboard (such as the 01/W) connected to MIDI IN is pressed to when modulation begins.

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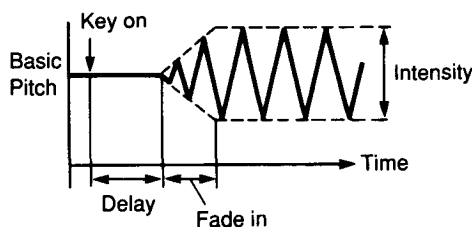


▼Intensity determines the depth of the modulation.
- When Triangle wave is selected:



▼If Key Sync is set ON, the modulation waveform will be restarted for each new note played on the MIDI keyboard connected to the 03R/W's MIDI IN (such as the 01/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 > <br> TRI   Frq00 Int00 | 13B PITCH 2 MG θ <br> Delay00 FadeIn00 | 13C PITCH 2 MG θ <br> K.Sync:OFF | 13D PMG2 FREQ  θ <br> K.TRK+00   A+J=0 | 13E PMG2 INT   < <br> Aft=00   JoyUP=00 |
|---|---|---|---|---|

▼These parameters determine the Pitch MG for oscillator 2.
- The details are the same as for 12A - 12E.
☆ 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
```

| | Waveform | | Selects the modulation waveform |
|---|---|---|---|
| 14A | | TRI | Triangle $\wedge\!\vee$ |
| | | SAW ↑ | Sawtooth 1 |
| | | SAW ↓ | Sawtooth 2 |
| | | SQR | Square |
| | | RAND | Random |
| Frq | Frequency | 0 — 99 | Speed of modulation |
| Int | Intensity | 0 — 99 | Depth of modulation |
| 14B Delay | Delay | 0 — 99 | Delay from when key is pressed to when modulation begins |
| OSC | OSC Select | | Selects which VDF modulation to use |
| | | OFF | No modulation effect |
| | | OSC1 | Modulation will affect only VDF1 |
| | | OSC2 | Modulation will affect only VDF2 |
| | | BOTH | Modulation will affect both VDF1 and VDF2 |
| 14C K.Sync | Key Sync | OFF | Modulation will apply to all notes in the same way |
| | | ON | 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 VDF1 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 01/W) when it is pressed.
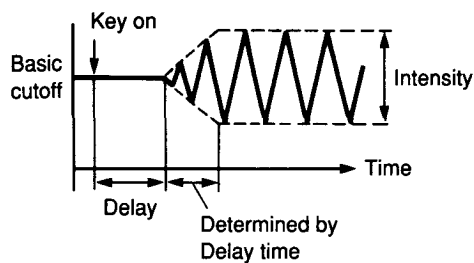
## 15A-15D After Touch, Joy Stick Control

| 15A AFT CTRL      > | 15B AFT CTRL      0 | 15C J.STK Down 0 | 15D BEND CTRL    < |
|---------------------|---------------------|------------------|--------------------|
| P.Bend+12 Fc+00     | VDF.MG00 Amp+00     | VDF.MG=99        | P.Bend+00 VDF+00   |

| | | | |
|---|---|---|---|
| 15A P.Bend | After Touch Bend | –12 — +12 | The maximum effect that aftertouch will have on pitch (up to ±1 octave) |
| Fc | 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.
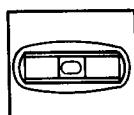


EX: 01/W Joystick

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:



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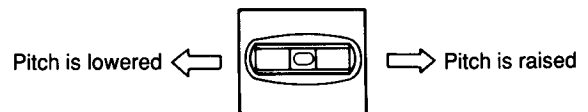
▼Joy Stick VDF Sweep Int. (intensity) specifies how the VDF cutoff will change when the joystick is moved to left or right. For positive values, moving the joystick to the right will raise the cutoff value. Negative values will have the opposite effect.



Cutoff is lowered ⇐   ⇒ Cutoff is raised
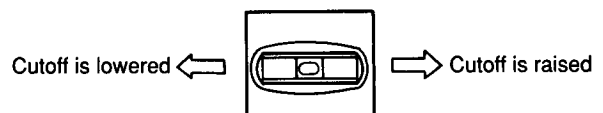
## 16A-20C Effect

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

• The panpot (A-D) settings made for each oscillator will be input to the effects.

• Although an effect can been 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>A00     OK?  A00:E.Piano
```

| | | Destination Prog. No. | A00—A99, C00—C999,D00—D99 | Program number of write destination |
|---|---|---|---|---|
| 21A | Write | | | |
| | 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 ◁ , ▷, △, and ▽ keys for 21B .

The ◁ and ▷ keys are used to move the cursor, and the △ 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 △ or ▽ key is pressed, the character selected will change in the order shown in this illustration.

```
 !"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNOPQRSTUVWXYZ[¥]^_
`abcdefghijklmnopqrstuvwxyz{|}→←
```

(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 △.

- 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 △ 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**
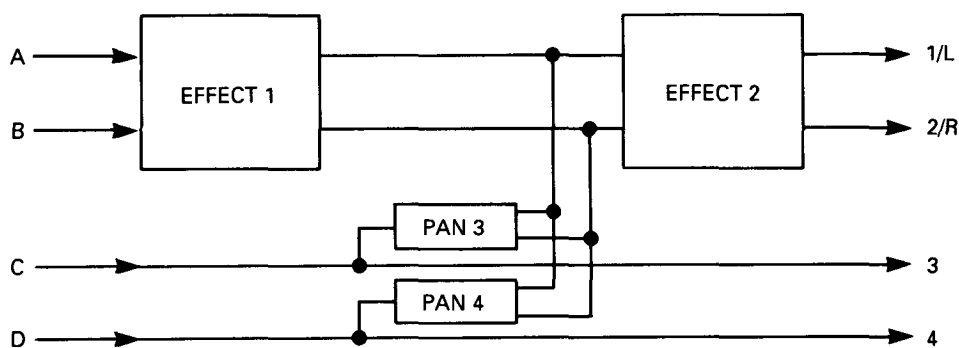


In Serial mode, two effects 1 and 2 are applied to inputs A and B, and the signals will be output to 1/L and 2/R. The signals input from C and D will be output directly to outputs 3 and 4. Alternatively, it is possible to mix the input signal from C and D into the two inputs of Effect 2.

☆ 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**

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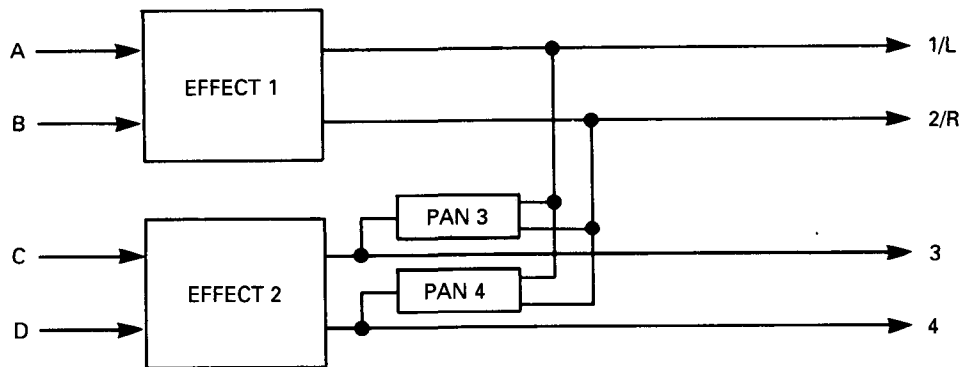
In Parallel mode, separate effects are applied to inputs A and B and inputs C and D, and the signals are output respectively to 1/L and 2/R, and 3 and 4. You can also mix the output of 3 and 4 into the output of 1/L and 2/R.

**Placement = Parallel 2**

A → → EFFECT 1 → 1/L
B → → → 2/R
PAN 3
C → EFFECT 2 → 3
PAN 4
D → → 4
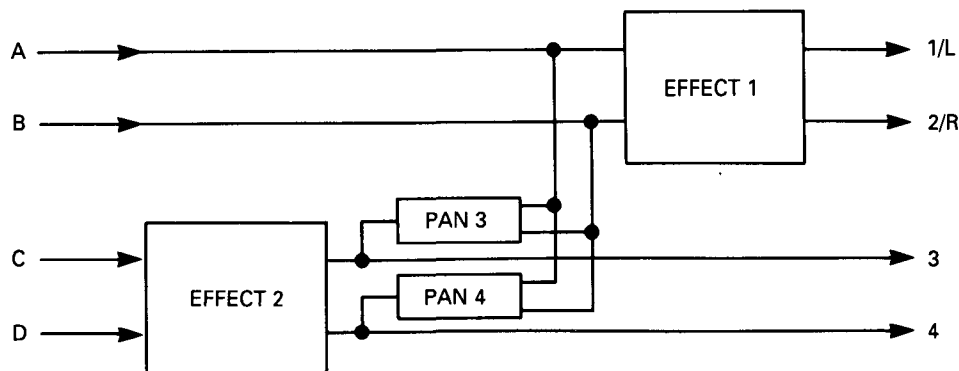
Effect 1 is applied to input from A and B.
Effect 2 is applied to input from C and D, and these signals can then be input to Effect 1.

☆ 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.

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

☆ 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.

The pages available for setting Effects will differ according 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 > | 07B Hall          θ | 07C Hall          < |
|------------------|---------------------|---------------------|
| Hall         OFF | DRY:EFF=75:25       | Src:JS(+Y)    I+10  |

## 7A-7D Effect 1

| 7A | Effect Type | 00 | No effect is used |
| | | 01 — 47 | Select the Effect Type |
| | Switch | OFF, ON | Switches the effect ON or OFF |
| 7B | Dry: Effect Balance | DRY, 99: 1 — 1: 99, FX | Sound and Effect balance |
| 7C Src | Dynamic Modulation Source | | Effect Dynamic Modulation Control Source |
| | | NONE | Not used |
| | | JS (+Y) | Joystick (+Y) |
| | | JS (–Y) | Joystick (–Y) |
| | | AFTT | After Touch |
| | | PEDAL 1 | Foot Pedal 1 |
| | | PEDAL 2 | Foot Pedal 2 |
| | | VDA EG | VDA EG |
| I | Dynamic Modulation Intensity | –15 — +15 | Specifies the depth of Effect Dynamic Modulation |

- When you select a new effect type, the effect parameters (8A—8D, 10A— 10D) 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 PANPOTθ  11C COPY EFF    <
Parallel           3= OFF   4=40:60  COMBI   A00    OK?
```

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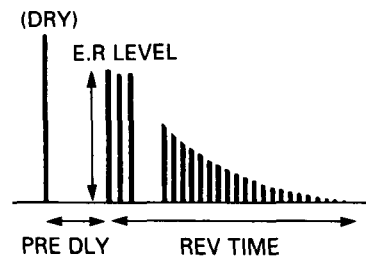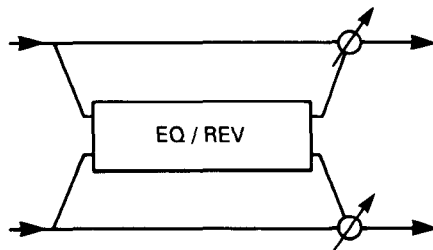


## 1. HALL

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          θ  │10C Hall          <  │
│Time3.2s H.Dmp30     │P.Dly060ms  E.R62    │EQ.L-04dB H+00dB     │
└─────────────────────┴─────────────────────┴─────────────────────┘
```

| | | | |
|---|---|---|---|
| 10A Time | Reverb Time | 0.2 — 9.9 [sec] (HALL type)<br>0.2 — 4.9 [sec] (ROOM type)<br>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 |
| 10B 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)<br>1 — 10 (PLATE type) | The level of 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 | –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.
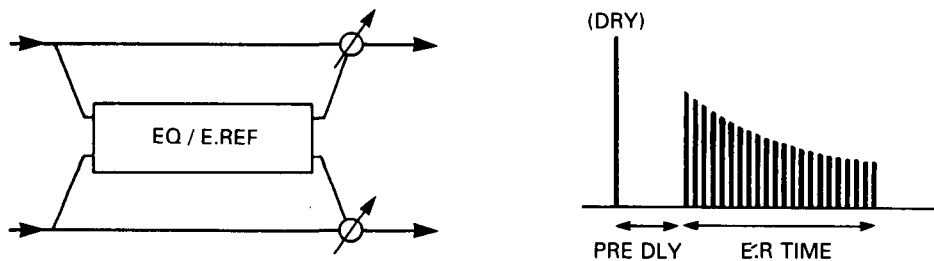


## 10. EARLY REFLECTION I

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-tape effects.

```
10A EarlyRef1  > 10B EarlyRef1  θ 10C EarlyRef    <
E.R Time=220ms   Pre Delay= 015ms EQ.L+03dB H-05dB
```

| | | | |
|---|---|---|---|
| 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 | −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.



· STEREO DELAY      · CROSS DELAY

```
10A StereoDly  > | 10B StereoDly  θ | 10C StereoDly  <
D.TimeL=250 R260 | FB-40     H.Dmp30 | 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.Dmp | 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:FX Balance.

# *DUAL MONO DELAY*

## 15. DUAL MONO DELAY

This is composed of two independent mono delays.
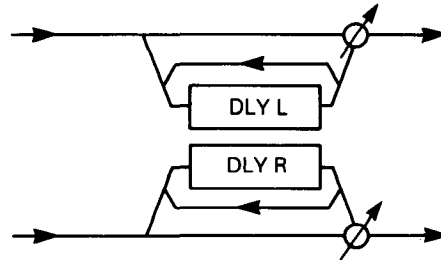


| 10A D.M Dly(L) ><br>D.Time=250ms | 10B D.M Dly(L) θ<br>FB+50      H.Dmp10 | 10C D.M Dly(R) θ<br>D.Time=260ms | 10D D.M Dly(R) <<br>FB+50      H.Dmp10 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 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.Dmp | 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.Dmp | 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.
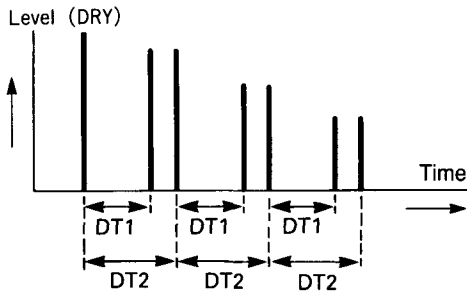


When DT1 < DT2
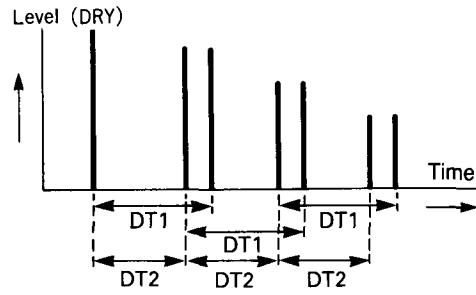


When DT1 > DT2

## 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
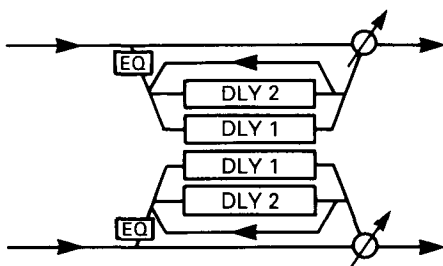
• MULTI TAP DELAY III

```
10A M.TapDly1   >  10B M.TapDly1   θ  10C M.TapDly1   <
D1T300   D2T400     FB+50             EQ.L+00dB H+00dB
```

| 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:FX 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
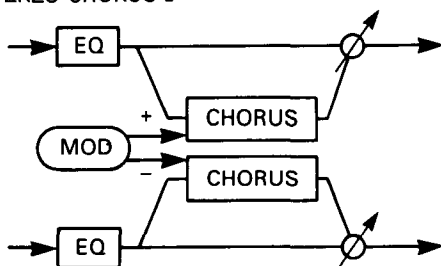


• STEREO CHORUS II
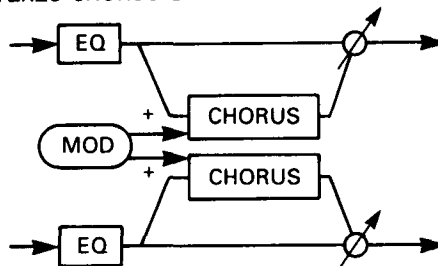
```
10A Chorus 1     >│10B Chorus 1    θ│10C Chorus 1     <
D.Time=010ms TRI│Mod60 M.SP0.30Hz│EQ.L+00dB H+00dB
```

| | | | | |
|---|---|---|---|---|
| 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.Cho.   >  | 10B Quad.Cho.   θ | 10C Quad.Cho.   θ | 10D Quad.Cho.   < |
|--------------------|-------------------|-------------------|-------------------|
| D.TimeL=011 R023   | Mod50    ModSP=33 | ModShape=T+00     | EQ.L+00dB H+00dB  |

| 10A D.Time L | Delay Time L | 0 — 250 [ms] | The time from the direct sound to the processed sound of the left channel |
|---|---|---|---|
| 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 | ModSpeed | 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.
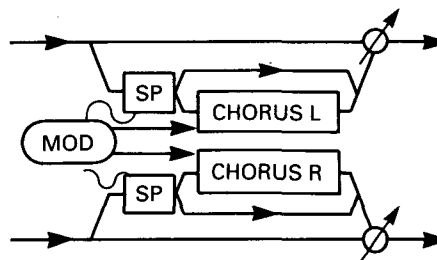
```
10A Harmo.Cho.  > 10B Harmo.Cho. θ 10C Harmo.Cho. <
D.TimeL=022 R046  Mod99    ModSP=35  F.Split Point=01
```

| | | | |
|---|---|---|---|
| 10A D.TimeL | 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.Sptilt 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.
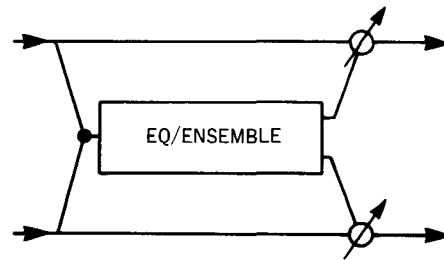
```
10A Symp.Ens.    >   10B Symp.Ens.   <
Mod80                EQ.L+00dB H+00dB
```

| | | | |
|---|---|---|---|
| 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 cymbals, 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.
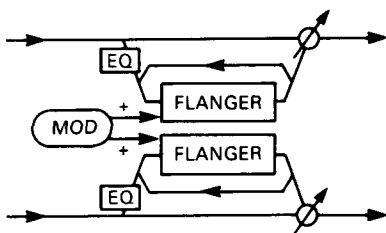
• STEREO FLANGER I          • STEREO FLANGER II          • CROSSOVER FLANGER
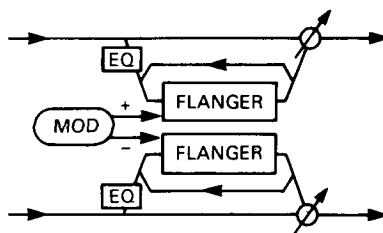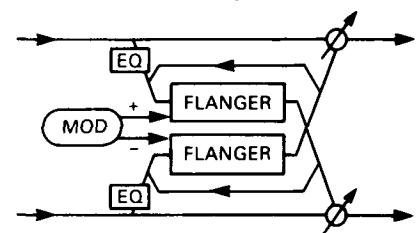
```
10A Flanger 1   > 10B Flanger 1  θ 10C Flanger 1  <
D.Time005 Res-85  Mod99    ModSP=20 EQ.L+00dB H+00dB
```

| | | | | |
|---|---|---|---|---|
| 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.
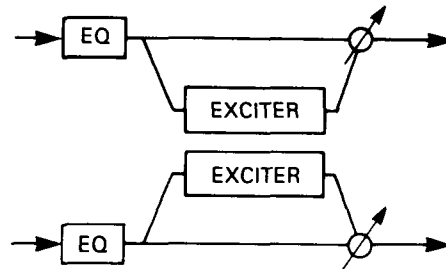


```
10A Exciter      >│10B Exciter      θ│10C Exciter      <
Blend=+50         │Emph Point=05     │EQ.L+04dB H+00dB
```

| 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    θ | 10C Enhancer    θ | 10D              < |
|-------------------|-------------------|-------------------|--------------------|
| Harm Density=80   | Hot Spot=01       | S.W=50 D.Time=25  | EQ.L+01dB H+01dB   |

| | | | |
|---|---|---|---|
| 10A Harm Density Density | Density | 0 — 99 | The depth of the exciter effect |
| 10B Hot Spot 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 |
| 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 |

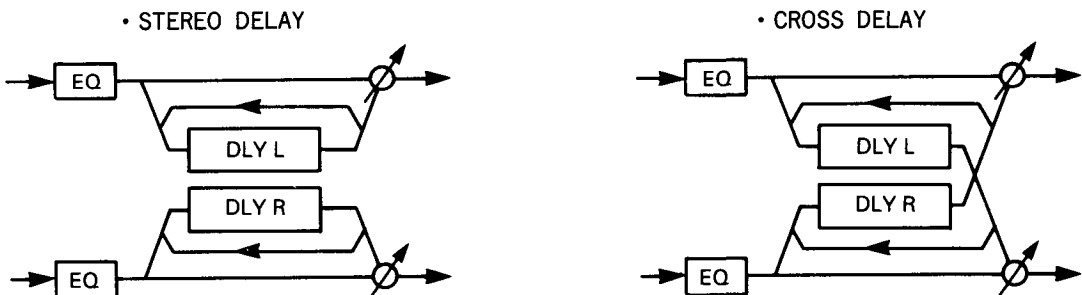For this effect, you can use Dynamic Modulation to control the Dry: FX Balance.

# DISTORTION

## 30. DISTORTION

This effect distorts the sound and adds a wah effect. It is effective for solos.
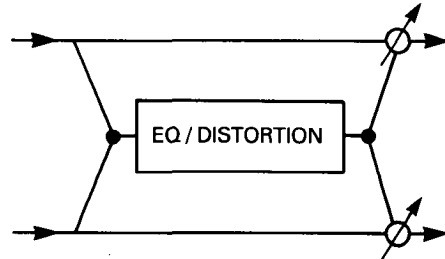
## 31. OVER DRIVE

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.
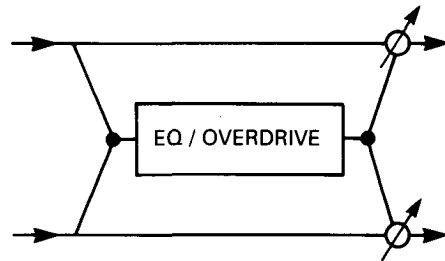
```
10A Dist        > 10B Dist        0 10C Dist        <
Drive=111 Res=80  H.Spot05 Level10  EQ.L+02dB H-12dB
```

| | | | | |
|---|---|---|---|---|
| 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
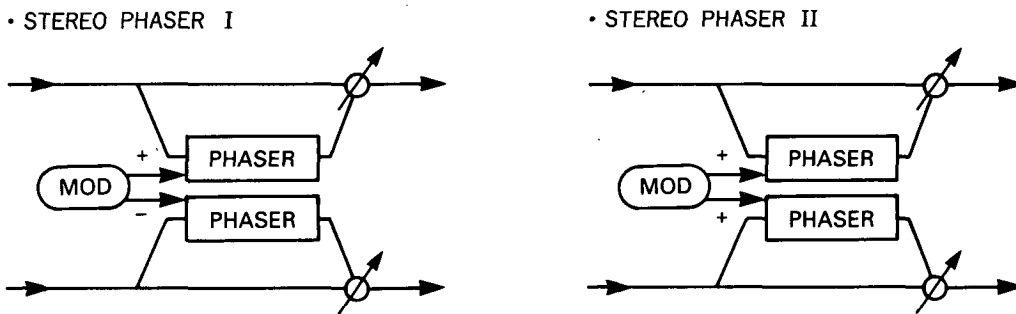
```
10A Phaser 1    >  10B Phaser 1    0  10C Phaser 1    <
Manual=99          Mod60 M.SP0.69Hz  FB-75         SIN
```

| | | | | |
|---|---|---|---|---|
| 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 | |
| | M.SP | 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     > 10B Rot.Spk      θ 10C Rot.Spk      <
Vibrato Depth=09  Acceleration=04   Speed S=25 F=70
```

| | | | |
|---|---|---|---|
| 10A Vibrato Depth | Vibrato Depth | 0 — 15 | The depth of the vibrato. This corresponds to varying the horn diameter of the rotating speaker. |
| 10B Accleration | 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
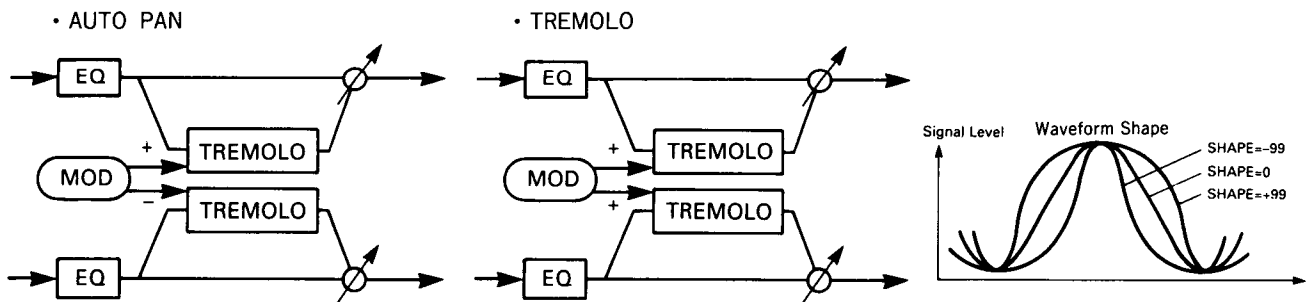


```
10A Auto  Pan     >  10B Auto  Pan     θ  10C Auto  Pan     <
SIN   ModShape+99    Mod80 M.SP1.59Hz      EQ.L+00dB H+00dB
```

| | | | |
|---|---|---|---|
| 10A | Mod Waveform | SIN<br>TRI | Selects the modulation waveform<br>Sine<br>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    θ | 10C Para. EQ    θ | 10D Para. EQ    < |
|---|---|---|---|
| LowFrq12 Gain+12 | MidFrq08 Gain+12 | MidWidth=50 | Hi Frq20 Gain+12 |

| | | | |
|---|---|---|---|
| 10A Low Frq | 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 Frq | 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 Frq | 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 wah 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.

• CHORUS-DELAY                    • FLANGER-DELAY
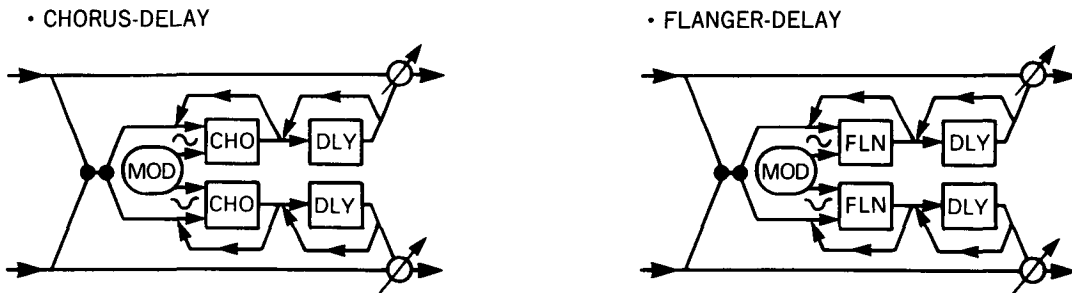


```
10A Chor-Dly    > 10B Chor-Dly    0 10C Chor-Dly    <
Cho.DT11ms FB+10  Cho.Mod50 M.SP30  Dly.DT110   FB-10
```

• 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.x. "40. DELAY/HALL is selected for Effect1, and"43. DELAY/FLANGER" is selected for Effect2.

```
              FX 1
       ┌──────────────┐
  A ──▶│    DELAY     │──────────────●──────▶ 1/L
       ├──────────────┤
  B ──▶│    HALL      │───────────●────────▶ 2/R
       └──────────────┘
              FX 2        ┌───────┐
       ┌──────────────┐─┐ │ PAN 3 │
  C ──▶│    DELAY     │─●─└───────┘
       ├──────────────┤        ────▶ 3
                         ┌───────┐
  D ──▶│   FLANGER    │─┐│ PAN 4 │
       └──────────────┘─●└───────┘──────────▶ 4
```
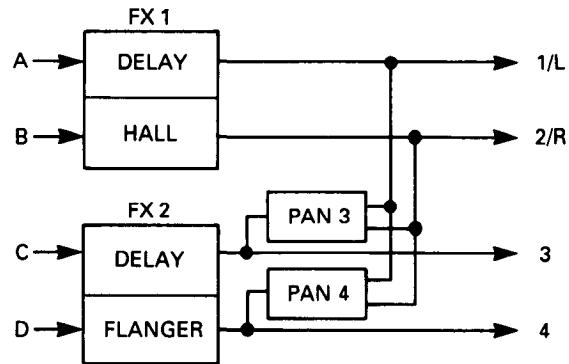
* Please refer sections 1—34 for the contents of effects.

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

• 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)    > 10B Delay(L)    θ 10C Chorus(R)  θ 10D Chorus(R)   <
Time250ms  FB+50 H.Dmp10           Mod60 M.SP0.30Hz  TRI
```

• 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 |
| 10D | 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.
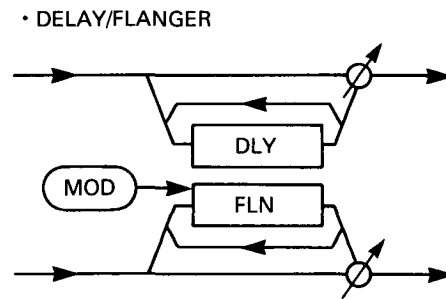
• DELAY/FLANGER



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

• 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.



| 10A Delay(L)    > | 10B Dist(R)      0 | 10C Dist(R)      < |
|---|---|---|
| Time250ms   FB+40 | Drive=111 Res=75 | H.Spot50 Level05 |

• 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 |
| Lvel | 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)    > | 10B Delay(L)    θ | 10C Phaser(R)    θ | 10D Phaser(R)    < |
|---|---|---|---|
| Time250ms   FB+50 | H.Dmp10 | Mod60 M.SP0.69Hz | FB-75 |

• 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 |

• PHASER

| 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/ROTARY SPEAKER

## 47. DELAY/ROTARY SPEAKER

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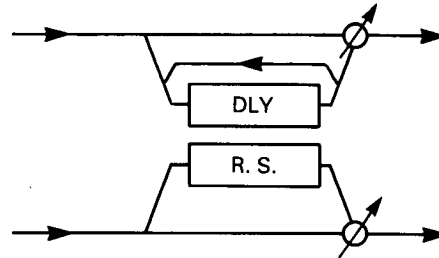


```
10A Delay(L)    > 10B Rot.SP(R)   θ 10C Rot.SP(R)   <
Time250ms   FB+40 Acceleration=04   Speed S=25 F=70
```

• 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) |

• ROTARY SPEAKER

| 10B Acceleration | Acceleration | 1 — 15 | The rate at which the speed will change between Slow and Fast |
|---|---|---|---|
| 10C 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.

# Effecter 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 | // [3.1] | // [15] | // [23] |
| 3 | Concert Hall | // [3.3] | // [80] | // [46] |
| 4 | Room | 0.2~4.9 [1.3] | // [8] | // [68] |
| 5 | Large Room | // [2.4] | // [25] | // [51] |
| 6 | Live Stage | // [2.2] | // [12] | // [81] |
| 7 | Wet Plate | 0~99 [59] | // [29] | 1~10 [7] |
| 8 | Dry Plate | // [30] | // [26] | // [5] |
| 9 | Spring Reverb | // [25] | // [0] | // [3] |
| | **EARLY REFLECTION** | **E.R Time** | | **Pre Delay** |
| 10 | Early Reflection 1 | 100~800 [220] | | 0~200 [0] |
| 11 | // 2 | // [180] | | // [30] |
| 12 | // 3 | // [300] | | // [90] |
| | **STEREO DELAY** | **Delay Time L** | **Delay Time R** | **Feedback** |
| 13 | Stereo Delay | 0~500 [185] | 0~500 [370] | -99~+99 [-40] |
| 14 | Cross Delay | // [190] | // [380] | // [+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 | // 2 | // [200] | | // [400] |
| 18 | // 3 | // [250] | | // [500] |
| | **CHORUS** | **Delay Time** | **Mod Speed** | **Mod Depth** |
| 19 | Stereo Chorus 1 | 0~200 [3] | 0.03~30 [0.33] | 0~99 [99] |
| 20 | // 2 | // [2] | // [0.42] | // [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 | // [2] | // [24] | ● // [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 [20] |
| 26 | // 2 | // [24] | // [99] | ● // [42] |
| 27 | Cross Over Flanger | // [1] | // [60] | ● // [22] |
| | **EXCITER** | **Blend** | | **Emphatic Point** |
| 28 | Exciter | -99~+99 [60] | | 1~10 [01] |
| | **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 [99] | 0~99 [07] |
| 31 | Over Drive | // [85] | ● // [70] | // [63] |
| | **PHASER** | **Manual** | **Mod Speed** | **Mod Depth** |
| 32 | Stereo Phaser 1 | 0~99 [98] | ●0.03~30 [0.24] | 0~99 [97] |
| 33 | // 2 | // [96] | ● // [0.24] | // [96] |
| | **ROTARY SPEAKER** | **Vibrato Depth** | | **Acceleration** |
| 34 | Rotary Speaker   * | 0~15 [2] | | 1~15 [12] |
| | **TREMOLO** | **Mod Waveform** | **Mod Wave Shape** | **Mod Speed** |
| 35 | Auto Pan | SIN,TRI [TRI] | -99~+99 [96] | 0.03~30 [0.21] |
| 36 | Tremolo | // [TRI] | // [-99] | // [3.9] |
| | **PARAMETRIC EQ** | **Low Freq** | **Low Gain** | **Mid Freq** |
| 37 | Parametric EQ | 0~29 [15] | -12~+12 [+06] | ●0~99 [50] |
| | **COMBINATION SERIAL** | **Flg/Cho Delay** | **Flg/Cho F·Back** | **Mod Speed** |
| 38 | Chorus-Delay | 0~50 [24] | -99~+99 [24] | 1~99 [12] |
| 39 | Flanger-Delay | // [1] | // [80] | // [04] |
| | **COMBINATION PARALLEL** | **Delay Time** | **Feedback** | **High Damp** |
| 40 | Delay/Hall | 0~500 [30] | -99~+99 [0] | 0~99 [0] |
| 41 | Delay/Room | // [20] | // [0] | // [0] |
| | | **Delay Time** | **Feedback** | **High Damp** |
| 42 | Delay/Chorus | 0~500 [220] | -99~+99 [15] | 0~99 [50] |
| | | **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 | // [350] | // [50] | |
| | | **Delay Time** | **Feedback** | **High Damp** |
| 46 | Delay/Phaser | 0~500 [300] | -99~+99 [+15] | 0~99 [60] |

| D | E | F | G | H |
|---|---|---|---|---|
| **High Damp** | | **EQ Low** | **EQ High** | **Dry:FX Balance** |
| 0~99 [31] | | -12~+12 [-03] | -12~+12 [-01] | ●DRY~FX [80:20] |
| // [32] | | // [-1] | // [-3] | ● // [80:20] |
| // [41] | | // [-2] | // [-4] | ● // [80:20] |
| // [36] | | // [+1] | // [+2] | ● // [78:22] |
| // [32] | | // [-1] | // [+2] | ● // [78:22] |
| // [36] | | // [-5] | // [-4] | ● // [75:25] |
| // [51] | | // [0] | // [-4] | ● // [80:20] |
| // [47] | | // [2] | // [2] | ● // [80:20] |
| // [30] | | // [2] | // [-4] | ● // [78:22] |
| | | **EQ Low** | **EQ High** | **Dry:FX Balance** |
| | | -12~+12 [-4] | -12~+12 [-4] | ●DRY~FX [68:32] |
| | | // [+1] | // [0] | ● // [65:35] |
| | | // [0] | // [0] | ● // [75:25] |
| **High Damp** | | **EQ Low** | **EQ High** | **Dry:FX Balance** |
| 0~99 [10] | | -12~+12 [0] | -12~+12 [0] | ●DRY~FX [80:20] |
| // [10] | | // [0] | // [0] | ● // [80:20] |
| **Dry:FX Balance L** | **Delay Time R** | **Feedback R** | **High Damp R** | **Dry:FX Balance R** |
| DRY~FX [50:50] | 0~500 [40] | -99~+99 [0] | 0~99 [0] | ●DRY~FX [35:65] |
| **Feedback** | | **EQ Low** | **EQ High** | **Dry:FX Balance** |
| -99~+99 [30] | | -12~+12 [0] | -12~+12 [0] | ●DRY~FX [80:20] |
| // [0] | | // [0] | // [0] | ● // [70:30] |
| // [20] | | // [0] | // [0] | ● // [75:25] |
| **Mod Waveform** | | **EQ Low** | **EQ High** | **Dry:FX Balance** |
| SIN,TRI [TRI] | | -12~+12 [+4] | -12~+12 [+4] | ●DRY~FX [50:50] |
| // [TRI] | | // [+3] | // [+4] | ● // [60:40] |
| **Mod Depth** | **Mod Waveform** | **EQ Low** | **EQ High** | **Dry:FX Balance** |
| 0~99 [50] | T+10~S+10 [00] | -12~+12 [0] | -12~+12 [0] | DRY~FX [50:50] |
| // [99] | // [0] | // [0] | // [0] | // [50:50] |
| **Mod Speed** | **Mod Depth** | **Filter Split Point** | | **Dry:FX Balance** |
| ●1~99 [36] | 0~99 [99] | 0~18 [3] | | DRY~FX [25:75] |
| | | **EQ Low** | **EQ High** | **Dry:FX Balance** |
| | | -12~+12 [0] | -12~+12 [0] | ●DRY~FX [67:33] |
| | **Resonance** | **EQ Low** | **EQ High** | **Dry:FX Balance** |
| | -99~+99 [80] | -12~+12 [0] | -12~+12 [0] | DRY~FX [50:50] |
| | // [36] | // [0] | // [0] | // [50:50] |
| | // [80] | // [0] | // [0] | // [50:50] |
| | | **EQ Low** | **EQ High** | **Dry:FX Balance** |
| | | -12~+12 [+3] | -12~+12 [+3] | ●DRY~FX [50:50] |
| **Delay Time** | | **EQ Low** | **EQ High** | **Dry:FX Balance** |
| 1~99 [25] | | -12~+12 [0] | -12~+12 [0] | ●DRY~FX [50:50] |
| **EQ Low** | **EQ High** | **Out Level** | | **Dry:FX Balance** |
| -12~+12 [0] | -12~+12 [0] | 0~99 [6] | | DRY~FX [50:50] |
| // [0] | // [0] | // [8] | | // [50:50] |
| **Feedback** | **Mod Waveform** | | | **Dry:FX Balance** |
| -99~+99 [96] | SIN,TRI [TRI] | | | DRY~FX [50:50] |
| // [90] | // [SIN] | | | // [50:50] |
| | **Slow Speed** | | **Fast Speed** | **Dry:FX Balance** |
| | 1~99 [25] | | 1~99 [69] | DRY~FX [34:66]  * |
| **Mod Depth** | | **EQ Low** | **EQ High** | **Dry:FX Balance** |
| 0~99 [96] | | -12~+12 [0] | -12~+12 [0] | ●DRY~FX [20:80] |
| // [99] | | // [0] | // [0] | ● // [50:50] |
| **Mid Gain** | **Mid Width** | **High Freq** | **High Gain** | **Dry:FX Balance** |
| -12~+12 [+06] | 0~99 [50] | 0~29 [12] | -12~+12 [06] | DRY~FX [50:50] |
| **Mod Depth** | **Delay Time** | **Feedback** | | **Dry:FX Balance** |
| 0~99 [75] | 0~450 [120] | -99~+99 [16] | | ●DRY~FX [60:40] |
| // [99] | // [300] | // [30] | | ● // [50:50] |
| **Dry:FX Balance** | **Reverb Time** | **Pre Delay** | **High Damp** | **Dry:FX Balance** |
| ●DRY~FX [FX] | 0.2~9.9 [3.0] | 0~150 [68] | 0~99 [34] | ●DRY~FX [70:30] |
| ● // [FX] | 0.2~4.9 [1.1] | // [0] | // [28] | ● // [65:35] |
| **Dry:FX Balance** | **Mod Speed** | **Mod Depth** | **Mod Waveform** | **Dry:FX Balance** |
| ●DRY~FX [170:30] | 0.03~30 [0.39] | 0~99 [99] | SIN,TRI [TRI] | ●DRY~FX [50:50] |
| **Dry:FX Balance** | **Mod Speed** | **Mod Depth** | **Feedback** | **Dry:FX Balance** |
| ●DRY~FX [70:30] | 0.03~30 [0.21] | 0~99 [96] | -99~+99 [-75] | ●DRY~FX [50:50] |
| **Dry:FX Balance** | **Drive** | **Hot Spot** | **Resonance** | **Out Level** |
| DRY~FX [79:21] | 1~111 [105] | 1~99 [99] | 0~99 [07] | 1~99 [10] |
| // [75:25] | // [65] | // [90] | // [63] | // [20] |
| **Dry:FX Balance** | **Mod Speed** | **Mod Depth** | **Feedback** | **Dry:FX Balance** |
| ●DRY~FX [60:40] | 0.03~30 [0.69] | 0~99 [99] | -99~+99 [+99] | ●DRY~FX [25:75] |
| **Dry:FX Balance** | | | | |

# 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 03R/W.

- 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

**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 13A 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 RE1 operations).



Key Window

Timbre 1
Timbre 2
Timbre 3
Timbre 4
Timbre 5
Timbre 6
Timbre 7
Timbre 8

Keyboard range played by each Timbre

Effects
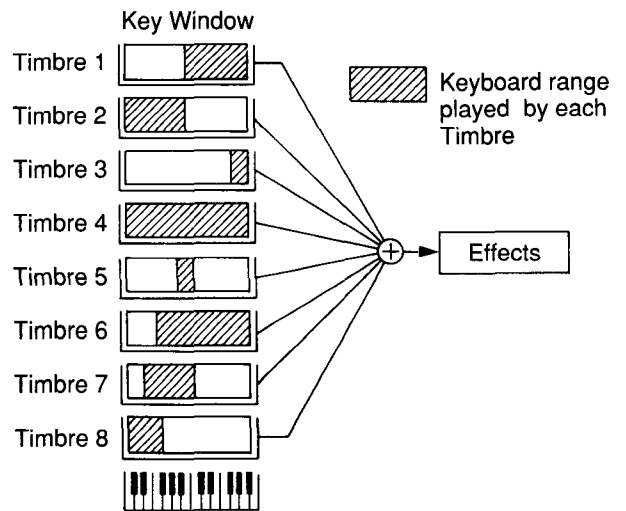
# FUNCTIONS IN EDIT COMBINATION MODE

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<br>Key Window Bottom | Top key of keyboard range played by each Timbre<br>Bottom key of keyboard range played by each Timbre |
| 4A—4D | Vel Window Top<br>Vel Window Bottom | Top velocity value of velocity switch for each Timbre<br>Bottom velocity value of velocity switch for each Timbre |
| 5A—5D | Transpose<br>Detune | Transpose setting of each Timbre<br>Detune setting of each Timbre |
| 6A—6D | Program Change Filter<br>Damper Switch Filter<br>After Touch Filter<br>Control Change Filter | Program Change message receive switch for each Timbre<br>Damper Switch message receive switch for each Timbre<br>Aftertouch message receive switch for each Timbre<br>Control Change message receive switch for each Timbre |
| 7A—7B | Panpot | Panpot of each Timbre |
| 8A—12C | | Effect settings |
| 13A—13B | Write Combination<br>Rename Combination | Write a Combination into memory<br>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
```

| | | | | Selects a Program for each Timbre |
|---|---|---|---|---|
| 0A | | Timbre 1 Program | OFF/ Program 00-99 of the same Bank as for the Combination/G01-129 | |
| | | 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.

• Programs selected for Combinations

| Internal | Card | Card |
|---|---|---|
| **Bank A** 100 Combi / 100 Prog | **Bank C** 100 Combi / 100 Prog | **Bank D** 100 Combi / 100 Prog |
| **Bank G** 129 Prog | **Bank G** 129 Prog | **Bank G** 129 Prog |
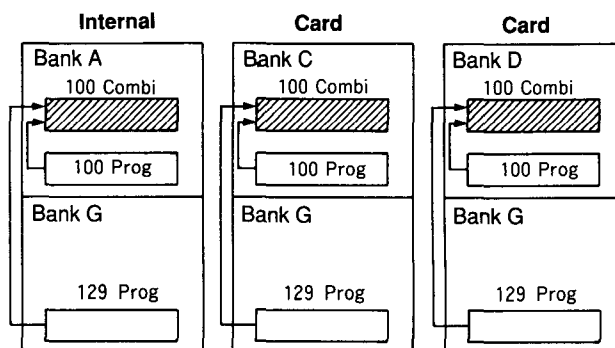
## 1A-1B Level

```
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 6A — 6D 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 θ | 03C KW BTM 1-4 θ | 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 |

| | | | | |
|---|---|---|---|---|
| 3A | | 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 | |
| 3B | | Timbre 5 Top | C-1 — G9 | |
| | | Timbre 6 Top | C-1 — G9 | |
| | | Timbre 7 Top | C-1 — G9 | |
| | | Timbre 8 Top | C-1 — G9 | |
| 3C | | 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 | |
| 3D | | 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.

The range over which the Timbre will sound

Key Window Bottom          Key Window Top
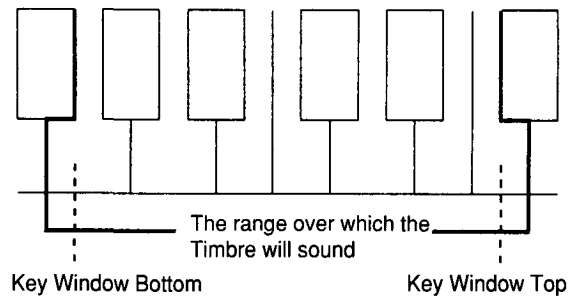
## 4A-4D Velocity Window Top/Bottom

| 04A VW TOP 1-4 ><br>127 127 127 127 | 04B VW TOP 5-8 θ<br>127 127 127 127 | 04C VW BTM 1-4 θ<br>001 001 001 001 | 04D VW BTM 5-8 <<br>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.x. Velocity Window Bottom = 25
  Velocity Window Top = 100

Volume level

0 ——————→ 127   Velocity

Sound range
Over 25   Under 100
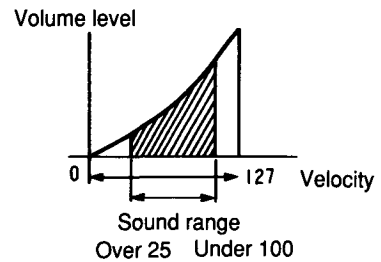
## 5A-5D Key Transpose/Detune

| 05A TRANS 1-4 > | 05B TRANS 5-8 θ | 05C DETUNE 1-4 θ | 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        0 | 06C AFTER TOUCH0 | 06D CONTROL CHG< |
|---|---|---|---|
| E E D D E E E | E E E E E E E | E E E E E E E | E E E E E E E |

| | | | | |
|---|---|---|---|---|
| 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 2B 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,All,PRG | Specifies the audio output of each Timbre. |
|----|---|----------------|------------------------------|----------------------------------------|
|    |   | Timbre 2 Panpot | A:9:1—1:9B, C,C+D,D,All,PRG | |
|    |   | Timbre 3 Panpot | A:9:1—1:9B, C,C+D,D,All,PRG | |
|    |   | Timbre 4 Panpot | A:9:1—1:9B, C,C+D,D,All,PRG | |
| 7B | | Timbre 5 Panpot | A:9:1—1:9B, C,C+D,D,All,PRG | |
|    |   | Timbre 6 Panpot | A:9:1—1:9B, C,C+D,D,All,PRG | |
|    |   | Timbre 7 Panpot | A:9:1—1:9B, C,C+D,D,All,PRG | |
|    |   | Timbre 8 Panpot | A:9:1—1:9B, C,C+D,D,All,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 >|13B RENAME     <
Write>A00   OK?|A00:Organ
```

| 13A | | | A00 — A99<br>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 3B 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.

```
 !"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNOPQRSTUVWXYZ[¥]^_
`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

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 03R/W as a 16-channel MIDI tone generator by connecting a computer or sequencer to the MIDI IN terminal of the 03R/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 ⎡5B⎤ .)
  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 03R/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 03R/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 — 0D | Program | Program of each Track |
| 1A — 1D | Level | Volume of each Track |
| 2A — 2D | Panpot | Pan setting of each Track |
| 3A — 3D | Transpose | Transpose setting of each Track |
| 4A — 4D | Detune | Detune setting of each Track |
| 5A — 5D | Pitch Bend Range | Pitch bend range of each Track |
| 6A — 6D | 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

## 0A-0D Program

| 00A PROG 1-4 > <br> A00 A01 A02 A03 | 00B PROG 5-8 θ <br> A04 A05 A06 A07 | 00C PROG 9-12θ <br> A08 A09 A10 A11 | 00D PROG 13-16< <br> 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.

- Programs that can be selected in Multi mode



Internal
Bank A
Multi
100 Prog
Bank G
129 Prog
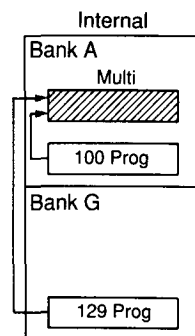
## 1A-1D Level

| 01A LEVEL 1-4 > 127 127 127 127 | 01B LEVEL 5-8 θ 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 8:2 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,<br>C,C+D,D,All,PRG | Specifies the audio output of each Track |
| | | Track 2 Panpot | A,9:1—1:9,B,<br>C,C+D,D,All,PRG | |
| | | Track 3 Panpot | A,9:1—1:9,B,<br>C,C+D,D,All,PRG | |
| | | Track 4 Panpot | A,9:1—1:9,B,<br>C,C+D,D,All,PRG | |
| 2B | | Track 5 Panpot | A,9:1—1:9,B,<br>C,C+D,D,All,PRG | |
| | | Track 6 Panpot | A,9:1—1:9,B,<br>C,C+D,D,All,PRG | |
| | | Track 7 Panpot | A,9:1—1:9,B,<br>C,C+D,D,All,PRG | |
| | | Track 8 Panot | A,9:1—1:9,B,<br>C,C+D,D,All,PRG | |
| 2C | | Track 9 Panpot | A,9:1—1:9,B,<br>C,C+D,D,All,PRG | |
| | | Track 10 Panpot | A,9:1—1:9,B,<br>C,C+D,D,All,PRG | |
| | | Track 11 Panpot | A,9:1—1:9,B,<br>C,C+D,D,All,PRG | |
| | | Track 12 Panpot | A,9:1—1:9,B,<br>C,C+D,D,All,PRG | |
| 2D | | Track 13 Panpot | A,9:1—1:9,B,<br>C,C+D,D,All,PRG | |
| | | Track 14 Panpot | A,9:1—1:9,B,<br>C,C+D,D,All,PRG | |
| | | Track 15 Panpot | A,9:1—1:9,B,<br>C,C+D,D,All,PRG | |
| | | Track 16 Panot | A,9:1—1:9,B,<br>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 | 03R/W panpot | MIDI pan data | 03R/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 drum kit 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 9-120 | 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 coarse tune setting.

## 4A-4D Detune

| 04A DETUNE 1-4 > | 04B DETUNE 5-8 θ | 04C DETUNE 9-12θ | 04D DETUNE13-16< |
|---|---|---|---|
| +00 +00 +00 +00 | +00 +00 +00 +00 | +00 +00 +50 -50 | +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 | |
| | | Trakc 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 θ | 05C BEND 9-12θ | 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 01R/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 θ | 06C P.CHG 9-12θ | 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

In this mode you can make settings that affect the entire 03R/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 Transpone | −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.

VALUE



MIDI IN AFTER TOUCH



03R/W VALUE

MIDI IN VELOCITY
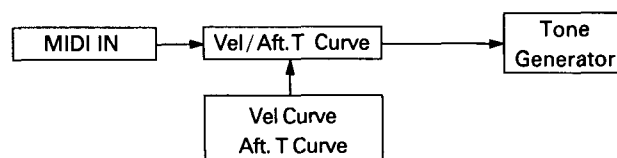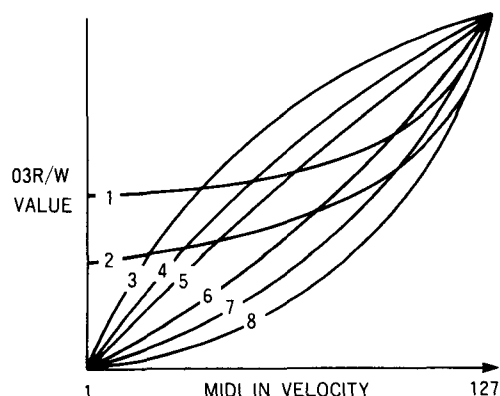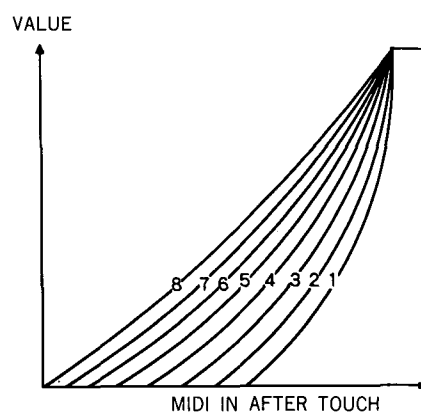
## 1A-1E Scale Type/User Scale

| 01A SCALE TYPE > User Scale | 01B User Scale θ C+00 C#+00 D+00 | 01C User Scale θ D#+00 E+00 F+00 | 01D User Scale θ F#+00 G+00 G#+00 | 01E User Scale < A+00 A#+00 B+00 |
|---|---|---|---|---|

| 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 basic temperament (scale) used by the 03R/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 0A , 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> 02B MIDI FILTERθ 02C MIDI FILTER<
CH= 1 NoteR:ALL  PRG:ENA AFT:ENA  CTRL:ENA   EX:DIS
```

| | | | |
|---|---|---|---|
| 2A CH | MIDI Channel | 1 — 16 | Selects the channel on which the 03R/W will receive or transmit MIDI data. (Global channel) |
| Note R | Note Receive | EVN, ODD, ALL | Note data filter |
| 2B 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 | |
| 2C 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 03R/W).

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

▼Note Receive determines the data to be filtered. (EVEN: 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 03R/Ws connected via MIDI to each other. This is normally set to ALL.

- "ALL" is the default setting when the power is turned on.

```
      ┌OUT              IN▼ ┌THRU          IN▼
┌──────┴─────┐      ┌────┴──┴────┐     ┌────┴─────┐
│  Keyboard  │      │   03R/W    │     │  03R/W   │
└────────────┘      └────────────┘     └──────────┘
                         EVEN                ODD
```
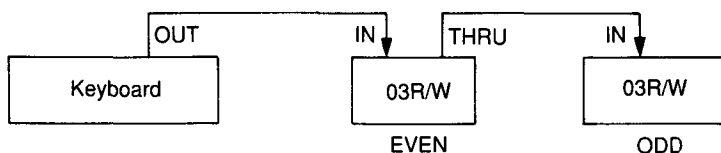
\* These parameters, ⬛2B⬛ and ⬛2C⬛ , allow you to disable reception and transmission of specified types of MIDI data. (This is known as "filtering".)

▼ 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.

Program Change/Bank Change Receive Conditions

| | | DIS | ENA | Prg | NUM |
|---|---|---|---|---|---|
| PROG mode | Program number | × | o | o | △ |
| COMBI mode | Combination number | × | o | × | △ |
| | Program number (for each Timbre) | × | o | o | △ |
| MULTI mode | Program number (for each Track) | × | o | o | △ |

×...Not received
△...Only Program changes are received
o...Both Program changes and Bank changes are received

▼ 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. Refer to MIDI MINI TEXT for more details.

▼ 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".

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

| 03A PROTECT      > | 03B PROTECT      θ | 03C PAGE MEMORY< |
|--------------------|--------------------|------------------|
| PROGRAM:OFF        | COMBINATION:OFF    |        OFF       |

| | | | |
|------|------|------|------|
| 3A | Program Memory Protect | OFF, INT, CARD, ALL | Memory protect for Progi m 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 RE1 is connected.

## 4A MIDI Data Dump

| 4A | Dump Data | PROGRAM | Transmits all Program parameters. |
|---|---|---|---|
| | | COMBINATION | Transmits all Combination parameters. |
| | | MULTI | 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 2C 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, 3C). Transmission time is less than 0.1 seconds.
* DRUM KIT transmits all drum data in Bank A. 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 11.0 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/WFD) which can save 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. You may also refer to the separate volume MIDI MINI TEXT.

*7. GLOBAL MODE*

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

| 05A CARD Load  > | 05B Save CARD  θ | 05C PRESET DATA< |
|---|---|---|
| from BANK C  OK? | to BANK C  OK? | LOAD  OK? |

| 5A | | Load from Card | Bank C, D | Loads all Program/Combination/Drum data/Multi setup data/Global data from card. |
| --- | --- | --- | --- | --- |
| | | | OK? | Executes loading. |
| 5B | | 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. |
| 5C | | 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.

▼ 5A 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 △ to execute the loading operation.

☆ Programs C00 — 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.

▼ 5B 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 s 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.

▼ 5C 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 △ 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 θ 06C DECAY/PAN   θ 06D EX ASSIGN   <
002:KikRock1      D#4 T+019  L+65 Decay+00 Pan= A   EX1
```

| 6A | # | Index | 0 — 59 | Index which assigns the drum sound you wish to edit |
|----|---|-------|--------|-----------------------------------------------------|
|    |   | Inst | ---, 000 — 113 C00 — | Select a drum sound |
| 6B |   | Inst Key | C0 — G8 | 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 |
| 6C | Decay | Inst Decay | –99 — +99 | Decay time adjustment for each sound |
|    | Pan | Inst Pan | A, 9:1 — 1:9,B,C C+D,D,ALL | Output selection |
| 6D |   | Inst Exclusive Assign | - - -,EX1 — EX9, SLF | 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 8A 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 panpot 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 1/L, 2/R, or the headphones.
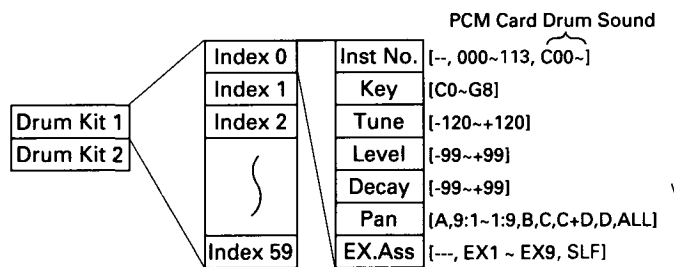
▼Index selects the drum index to edit. You can think of the Index as being a container in which a single drum is placed.
- An index for which no drum sound is assigned will be indicated by "No Assign" in the upper right corner of the display.

  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 upper right 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 △ 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 (C0-G8) 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 — +120 (in steps of 10 cents, ±1 octave).

▼Level sets the value relative to the oscillator level setting in Program mode, over a range of –99 — +99.

▼Decay sets the value relative to the VDA EG decay setting in Program mode, over a range of –99 — +99.

▼Pan (= effect input) specifies the output; A, A:B(9:1 — 1:9), B, C, C+D, D, ALL (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 SLF (self) is selected, the sound for the same note number (a sound made during playback by oneself) will be produced.

ex.



H.H. ⌐ SNARE1

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

## 7A–7D Drum Kit2

```
┌─────────────────┬─────────────────┬─────────────────┬─────────────────┐
│07A DRUM2   #01 >│07B KEY/TUNE/L θ│07C DECAY/PAN  θ│07D EX ASSIGN  <│
│032:CYM-HTOP     │C0     T+009 L+08│Decay+00 Pan=5:5│---             │
└─────────────────┴─────────────────┴─────────────────┴─────────────────┘
```

* 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 03R/W.
① Connect the 03R/W rear panel REMOTE jack and the RE1 REMOTE jack, using the cable included with the RE1.
② Turn the 03R/W power on. Power will be applied to the RE1 at the same time, and the RE1 will be able to control the 03R/W.

**Note:** While the RE1 is connected, the 03R/W will display "Remote Control", and none of its keys will function.

### RE1 OPERATION

◆Function key operations◆
The function key corresponding to each mode will light (except for Demo Play).
Affix the RE1 stickers included with the 03R/W.

| 03R/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 △ and ▽ keys.
- If a Program card is inserted into the slot on the 03R/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 △ and ▽ keys, and the sliders A-H 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 sliders or the ▽ 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.

◆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 03R/W.)
 II : You can also select the page using the 0 — 9 keys.
③ Press a key A—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 △ key and ▽ key will modify the parameter value. (These keys function in the same way as the △ and ▽ keys of the 03R/W.)
 II : Moving a slider A—H will modify the parameter displayed in the LCD above the slider. (You do not need to press a key A — 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 F1 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<br><br>`CMB-A00   00:PROG SELECT     T1=Init Prog`<br>`A00   A01   A02   A03   A04   A05   A06   A07` | Cursor Keys A—H correspond to Timbres 1 —8.<br>(same up to panpot 7.) | 0A, 0B |
| 1 | Output Level<br><br>`CMB-A00   10:OUTPUT LEVEL    T1=Init Prog`<br>`127   127   127   127   127   127   127   127` | | 1A, 1B |
| 2 | MIDI Channel<br><br>`CMB-A00   20:MIDI CH         T1=Init Prog`<br>`1G    2    3    4    5    6    7    8` | | 2A, 2B |
| 3-0 | Key Window Top<br><br>`CMB-A00   30:K.WINDOW TOP    T1=Init Prog`<br>`G9    G9    G9    G9    G9    G9    G9    G9` | | 3A, 3B |
| 3-1 | Key Window Bottom<br><br>`CMB-A00   31:K.WINDOW BTM    T1=Init Prog`<br>`C-1   C-1   C-1   C-1   C-1   C-1   C-1   C-1` | | 3C, 3D |
| 4-0 | Velocity Window Top<br><br>`CMB-A00   40:V.WINDOW TOP    T1=Init Prog`<br>`127   127   127   127   127   127   127   127` | | 4A, 4B |
| 4-1 | Velocity Window Bottom<br><br>`CMB-A00   41:V.WINDOW BTM    T1=Init Prog`<br>`001   001   001   001   001   001   001   001` | | 4C, 4D |
| 5-0 | Transpose<br><br>`CMB-A00   50:TRANSPOSE       T1=Init Prog`<br>`+00   +00   +00   +00   +00   +00   +00   +00` | | 5A, 5B |

| PAGE | | | 03R/W PAGE |
|---|---|---|---|
| 5-1 | Detune<br><br>`CMB-A00   51:DETUNE           T1=Init Prog`<br>`+00  +00  +00  +00  +00  +00  +00  +00` | | 5C, 5D |
| 6-0 | MIDI Program Change Filter<br><br>`CMB-A00   60:MIDI PROG CHG T1=Init Prog`<br>`ENA  ENA  ENA  ENA  ENA  ENA  ENA  ENA` | | 6A |
| 6-1 | Damper Filter<br><br>`CMB-A00   61:DAMPER          T1=Init Prog`<br>`ENA  ENA  ENA  ENA  ENA  ENA  ENA  ENA` | | 6B |
| 6-2 | After Touch Filter<br><br>`CMB-A00   62:AFTER TOUCH    T1=Init Prog`<br>`ENA  ENA  ENA  ENA  ENA  ENA  ENA  ENA` | | 6C |
| 6-3 | Control Change Filter<br><br>`CMB-A00   63:CTRL CHANGE    T1=Init Prog`<br>`ENA  ENA  ENA  ENA  ENA  ENA  ENA  ENA` | | 6D |
| 7 | Panpot<br><br>`CMB-A00   70:PANPOT          T1=Init Prog`<br>`5:5  5:5  5:5  5:5  5:5  5:5  5:5  5:5` | | 7A, 7B |
| 8-0 | Effect 1 Type, Dynamic Modulation<br><br>`CMB-A00   80:EFFECT 1`<br>`06:Live Stage     :OFF  D.Mod:JS(+Y) I+15` | | 8A, 8C |
| 8-1 | Effect 1 Parameter<br><br>`CMB-A00   81:FX1 LiveStage Reverb Time[s]`<br>`2.0  D020 E60  HD20        L+03 H+00 60:40` | Parameters vary depending on the Effect type. Refer to the Effect section for details. | 8B, 8A — 9C (D) |
| 8-2 | Effect 2 Type, Dynamic Modulation<br><br>`CMB-A00   82:EFFECT 2`<br>`37:ParametricEQ  :ON   D.Mod JS(-Y) I-10` | | 10A, 10C |
| 8-3 | Effect 2 Parameter<br><br>`CMB-A00   83:FX2 Para. EQ  Gain Low [db]`<br>`LF12 G+12 M08  G+12 W50  HF20 G+12   FX` | Parameters vary depending on the Effect type. Refer to the Effect section for details. | 10B, 11A — 11C (D) |

| PAGE | | | 03R/W PAGE |
|---|---|---|---|
| 8-4 | Effect Placement<br><br>`CMB-A00  84:EFFECT PLACEMENT`<br>`Parallel         3= OFF      4=99:01` | | 12A, 12B |
| 8-5 | Copy Effect<br><br>`CMB-A00  85:Copy Effect    Piano 16'`<br>` from [ COMBI ]      A00        [COPY]` | Select the copy source B — F, then press the G key [COPY] to copy. | 12C |
| 9 | Combination Write, Rename<br><br>`CMB-A00  90:WRITE/RENAME   Init Bomb`<br>`          [WRITE]-> A00     [<] [>]` | • Use Keys F (◁) and G (▷) to select a character, then use the △ and ▽ keys to change the characters for sliders F — H.<br>• Use E to select the write destination, then press C [WRITE] to write. | 13A, 13B |

## PROGRAM MODE

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

```
PROG  A00 Init Prog
O+00 L+00 F+00 I+00 T+00 A+00 R+00 E+00
```

Use keys 0-9, the △ and ▽ keys, and the sliders A-H 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 sliders or the ▽ 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 ■     ⒟ : Displayed only when OSC Mode = DOUBLE

| PAGE | | | 03R/W PAGE |
|---|---|---|---|
| 0-0 | OSC Mode<br><br>```<br>PRG-A00  00:OSC BASIC      OSC Mode<br>MODE:DOUBLE     Assign:POLY    Hold:OFF<br>``` | Some pages are not displayed when the mode is set to SINGLE or DRUMS. | 0A, 0B |
| 0-1 | OSC1 Multi Sound<br><br>```<br>PRG-A00  01:OSC1 M.SOUND   Multisound<br>  000:Piano        L99  8'  EGint+00 Pan5:5<br>``` | | 1A — 1C<br>• |
| 0-2<br>Ⓓ | OSC2 Multi Sound<br><br>```<br>PRG-A00  02:OSC2 M.SOUND   Multisound<br>  000:Piano        L99  8'  EGint+00 Pan5:5<br>``` | | 2A — 2C |
| 0-3<br>Ⓓ | OSC2 Interval/Detune/Delay<br><br>```<br>PRG-A00  03:OSC 2          Interval<br>  Interval=+00    Detune=+00    Delay=00<br>``` | | 2D, 2E |
| 0-4 | Pitch EG<br><br>```<br>PRG-A00  04:PITCH EG      Start Level<br>S+00 AT00 A+00 DT00 RT00 R+00 L+00 T+00<br>``` | | 3A — 3C |
| 1-0 | VDF1 Cutoff/Emphasis<br><br>```<br>PRG-A00  10:VDF1/EMPHASIS<br>Cutoff=99 EGInt=00 EMPint=00 EMPVel=+00<br>``` | | 4A, 4E |
| 1-1 | VDF1 EG<br><br>```<br>PRG-A00  11:VDF1 EG        Attack Time<br>AT00 A+00 DT00 B+00 ST00 S+00 RT00 R+00<br>``` | | 4B — 4D |
| 1-2 | VDF1 Velocity Sense<br><br>```<br>PRG-A00  12:VDF1 V.SENS    EG Intensity<br>EGint=+00 EGtime=00 AT0  DT0  ST0  RT0<br>``` | | 6A, 6B |
| 1-3 | VDF1 Keyboard Tracking<br><br>```<br>PRG-A00  13:VDF1 KBD TRK   Center Key<br>C#4   ALL F+00 EGtm00 AT0  DT0  ST0  RT0<br>``` | | 6C — 6E |

| PAGE | | | 03R/W PAGE |
|------|---|---|------------|
| 2-0 Ⓓ | VDF2 Cutoff/Emphasis<br><br>```<br>PRG-A00   20:VDF2/EMPHASIS<br>Cutoff=99 EGint=00 EMPint=00 EMPvel=+00<br>``` | | 5A, 5E |
| 2-1 Ⓓ | VDF2 EG<br><br>```<br>PRG-A00   21:VDF2 EG        Attack Time<br>AT00 A+00 DT00 B+00 ST00 S+00 RT00 R+00<br>``` | | 5B — 5D |
| 2-2 Ⓓ | VDF2 Velocity Sense<br><br>```<br>PRG-A00   22:VDF2 V.SENS    EG Intensity<br>EGint=+00 EGtime=00 AT0   DT0   ST0   RT0<br>``` | | 7A, 7B |
| 2-3 Ⓓ | VDF2 Keyboard Tracking<br><br>```<br>PRG-A00   23:VDF2 KBD TRK   Center Key<br>F1    ALL F+00 EGtm00 AT0   DT0   ST0   RT0<br>``` | | 7C — 7E |
| 3-0 | VDA1 EG<br><br>```<br>PRG-A00   30:VDA1 EG        Attack Time<br>AT00 AL00 DT00 BP00 ST00 SL00 RT00<br>``` | | 8A — 8C |
| 3-1 | VDA1 Velocity Sense<br><br>```<br>PRG-A00   31:VDA1 V.SENS    Amplitude<br>     A+00 EGtime=00 AT0   DT0   ST0   RT0<br>``` | | 10A, 10B |
| 3-2 | VDA1 Keyboard Tracking<br><br>```<br>PRG-A00   32:VDA1 KBD TRK   Center Key<br>C#3   OFF A+00 EGtm00 AT0   DT0   ST0   RT0<br>``` | | 10C — 10E |
| 4-0 Ⓓ | VDA2 EG<br><br>```<br>PRG-A00   40:VDA2 EG        Attack Time<br>AT00 AL00 DT00 BP00 ST00 SL00 RT00<br>``` | | 9A — 9C |
| 4-1 Ⓓ | VDA2 Velocity Sense<br><br>```<br>PRG-A00   41:VDA2 V.SENS    Amplitude<br>     A+00 EGtime=00 AT0   DT0   ST0   RT0<br>``` | | 11A, 11B |
| 4-2 Ⓓ | VDA2 Keyboard Tacking<br><br>```<br>PRG-A00   42:VDA2 KBD TRK   Center Key<br>B3    OFF A+00 EGtm00 AT0   DT0   ST0   RT0<br>``` | | 11C — 11E |

| PAGE | | | 03R/W PAGE |
|---|---|---|---|
| 5-0 | Pitch1 MG<br><br>`PRG-A00   50:PITCH 1 MG      Waveform`<br>`TRI  F00  I00  D00  F.in00   K.sync:OFF` | | 12A — 12C |
| 5-1 | Pitch MG1 Frequency Modulation<br><br>`PRG-A00   51:PTMG1 FQ MOD`<br>`   KBD.TRACK=+00      After+JoyUp=0` | | 12D |
| 5-2 | Pitch MG1 Intensity Modulation<br><br>`PRG-A00   52:PTMG1 Int MOD`<br>`   AfterTouch=00    JoyStick Up=00` | | 12E |
| 6-0<br>Ⓓ | Pitch2 MG<br><br>`PRG-A00   60:PITCH 2 MG      Waveform`<br>`TRI  F00  I00  D00  F.in00   K.sync:OFF` | | 13A — 13C |
| 6-1<br>Ⓓ | Pitch MG2 Frequency Modulation<br><br>`PRG-A00   61:PTMG2 FQ MOD`<br>`   KBD.TRACK=+00      After+JoyUp=0` | | 13D |
| 6-2<br>Ⓓ | Pitch MG2 Intensity Modulation<br><br>`PRG-A00   62:PTMG2 Int MOD`<br>`   AfterTouch=00    JoyStick Up=00` | | 13E |
| 7-0 | VDF MG<br><br>`PRG-A00   70:VDF MG          Waveform`<br>`TRI  F00  I00  D00 OSC:BOTH  K.sync:OFF` | | 14A — 14C |
| 7-1 | After Touch Control<br><br>`PRG-A00   71:AFTER TOUCH    Pitch`<br>`P.Bend+12  Fc+00    VDF.MG00    Amp+00` | | 15A, 15B |
| 7-2 | Joy Stick Control<br><br>`PRG-A00   72:J.S Down/Bend Pitch Bend`<br>` VDF.MG=99     Pitch Bend+00    VDF+00` | | 15C, 15D |
| 8-0 | Effect1 Type, Dynamic Modulation<br><br>`PRG-A00   80:EFFECT 1`<br>`06:Live Stage     :OFF  D.Mod:JS(+Y) I+15` | | 16A, 16C |

| PAGE | | | 03R/W PAGE |
|---|---|---|---|
| 8-1 | Effect Parameter<br><br>`PRG-A00  81:FX1 LIVESTAGE Reverb Time[s]`<br>`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<br><br>`PRG-A00  82:EFFECT 2`<br>`37:ParametricEQ  :ON   D.Mod:JS(-Y) I-10` | | 18A, 18C |
| 8-3 | Effect2 Parameter<br><br>`PRG-A00  83:FX2 Para. EQ   Gain Low [db]`<br>`LF12 G+12 M08  G+12 W50  HF20 G+12  FX` | Parameters will differ depending on the Effect type. Refer to the Effect section for details. | 18B, 19A — 19C (D) |
| 8-4 | Effect Placement<br><br>`PRG-A00  84:EFFECT PLACE`<br>`Parallel         3= OFF   4= OFF` | | 20A, 20B |
| 8-5 | Copy Effect<br><br>`PRG-A00  85:Copy Effect   Piano 16'`<br>` from [ PROG ]    A00       [COPY]` | Select the copy source B — F, then press the G key [COPY] to copy. | 20C |
| 9 | Program Write/Rename<br><br>`PRG-A00  90:WRITE/RENAME   Init Bomb`<br>`       [WRITE]-> A00    [<]  [>]` | • Use Keys F (◁) and G (▷) to select a character, then use the △ and ▽ keys to change the characters for sliders F — H.<br>• 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)<br><br>```<br>MULTI      00:PROGRAM 1-8    T01=Clarinet<br>G72  G19  G65  G09  G08   OFF   OFF   OFF<br>``` | Cursor keys A —H correspond to Tracks 1 —8. (Same as for page X-0 up to 6-0 Prog Change.) | 0A, 0B |
| 0-1 | Program Select (Track 9 — 16)<br><br>```<br>MULTI      01:PROGRAM 9-16  T10=GM DrumKit<br>OFF  129  A10  A11  A12  A13  A14  A15<br>``` | Cursor keys A —H correspond to Tracks 9 —16. (Same as for page X-1 up to 6-1 Prog Change.) | 0C, 0D |
| 1-0 | Output Level (Track 1 — 8)<br><br>```<br>MULTI      10:LEVEL   1-8    T01=Clarinet<br>100  100  100  127  099  127  127  127<br>``` | | 1A, 1B |
| 1-1 | Output Level (Track 9 — 16)<br><br>```<br>MULTI      11:LEVEL   9-16  T10=GM DrumKit<br>127  100  127  127  127  127  127  127<br>``` | | 1C, 1D |
| 2-0 | Panpot (Track 1 — 8)<br><br>```<br>MULTI      20:PANPOT  1-8    T01=Clarinet<br>5:5  5:5  5:5  5:5  5:5  5:5  5:5  5:5<br>``` | | 2A, 2B |
| 2-1 | Panpot (Track 9 — 16)<br><br>```<br>MULTI      21:PANPOT  9-16  T10=GM DrumKit<br>5:5  PRG  5:5  5:5  5:5  5:5  5:5  5:5<br>``` | | 2C, 2D |
| 3-0 | Transpose (Track 1 — 8)<br><br>```<br>MULTI      30:TRANS   1-8    T01=Clarinet<br>+00  +00  +00  +00  +00  +00  +00  +00<br>``` | | 3A, 3B |
| 3-1 | Transpose (Track 9 — 16)<br><br>```<br>MULTI      31:TRANS   9-16  T10=GM DrumKit<br>+00  +00  +00  +00  +00  +00  +00  +00<br>``` | | 3C, 3D |
| 4-0 | Detune (Track 1 — 8)<br><br>```<br>MULTI      40:DETUNE  1-8    T01=Clarinet<br>+00  +00  +00  +00  +00  +00  +00  +00<br>``` | | 4A, 4B |

| PAGE | | | 03R/W PAGE |
|---|---|---|---|
| 4-1 | Detune (Track 9 — 16)<br><br>```<br>MULTI      41:DETUNE   9-16   T10=GM DrumKit<br>+00   +00   +00   +00   +00   +00   +00   +00<br>``` | | 4C, 4D |
| 5-0 | Pitch Bend Range (Track 1 — 8)<br><br>```<br>MULTI      50:BEND      1-8    T01=Clarinet<br>+02   +02   +02   +02   +02   +02   +02   +02<br>``` | | 5A, 5B |
| 5-1 | Pitch Bend Range (Track 9 — 16)<br><br>```<br>MULTI      51:BEND      9-16   T10=GM DrumKit<br>+02   +00   +02   +02   +02   +02   +02   +02<br>``` | | 5C, 5D |
| 6-0 | Program Change Filter (Track 1 — 8)<br><br>```<br>MULTI      60:PROGRAM 1-8    T01=Clarinet<br>ENA   ENA   ENA   ENA   ENA   ENA   ENA   ENA<br>``` | | 6A, 6B |
| 6-1 | Program Change Filter (Track 9 — 16)<br><br>```<br>MULTI      61:PROGRAM 9-16   T10=GM DrumKit<br>ENA   DIS   ENA   ENA   ENA   ENA   ENA   ENA<br>``` | | 6C, 6D |
| 8-0 | Effect1 Type, Dynamic Modulation<br><br>```<br>MULTI      80:EFFECT 1<br>06:Live Stage     :OFF   D.Mod JS(+Y) I+15<br>``` | | 7A, 7C |
| 8-1 | Effect1 Parameter<br><br>```<br>MULTI      81:FX1 LiveStage Reverb Time[s]<br>2.0  D020 E60  HD20          L+03 H+00 60:40<br>``` | Parameters vary depending on the Effect type. Refer to the Effect section for details. | 7B, 8A — 8C (D) |
| 8-2 | Effect2 Type, Dynamic Modulation<br><br>```<br>MULTI      82:EFFECT 2<br>37:ParametricEQ  :ON    D.Mod JS(-Y) I-10<br>``` | | 9A, 9C |
| 8-3 | Effect2 Parameter<br><br>```<br>MULTI      83:FX2 Para. EQ   Frequency Low<br>LF12 G+12 M08   G+12 W50  HF20 G+12  FX<br>``` | Parameters vary depending on the Effect type. Refer to the Effect section for details. | 9B, 10A — 10C (D) |
| 8-4 | Effect Placement<br><br>```<br>MULTI      84:EFFECT PLACE<br>Parallel            3= OFF     4=99:01<br>``` | | 11A, 11B |

| PAGE | | | 03R/W PAGE |
|------|---|---|------|
| 8-5 | Copy Effect<br><br>```
MULTI      85:Copy Effect    Piano 16'
 from [ PROG  ]     A00       [COPY]
``` | Select the copy source B — F, then press the G key [COPY] to copy. | 11C |

# ■ GLOBAL MODE ■

| PAGE | | | 03R/W PAGE |
|------|---|---|------------|
| 0-0 | Master Tune, Transpose<br><br>```<br>GLOBAL    00:TUNE/TRANS<br>Master Tune=+00       Transpose=+00<br>``` | | 0A |
| 0-1 | Velocity Curve, After Touch Curve<br><br>```<br>GLOBAL    01:CURVE<br>Velocity=5            After Touch=1<br>``` | | 0B |
| 1-0 | Scale Type<br><br>```<br>GLOBAL    10:SCALE TYPE<br>          User Scale<br>``` | You can set the keys using G or H when Pure Major or Pure Minor is selected for the Scale Type. | 1A |
| 1-1 | User Scale<br><br>```<br>USER    +00  +00        +00  +00  +00<br>[#]     +00  +00  +00  +00  +00  +00  +00<br>``` | 1-0 Scale type is displayed only for User Scale.<br>Keys B - H and sliders B-H correspond to note names C-B. Every time you press key A , the pitch will be raised in chromatic steps. The settings for the black keys are made by slider A. | 1B — 1E |
| 2-0 | Global MIDI Channel<br><br>```<br>GLOBAL    20:MIDI GLOBAL<br>Channel= 1            NoteR:ALL<br>``` | | 2A |
| 2-1 | MIDI Filtering<br><br>```<br>GLOBAL    21:MIDI FILTER    CMB/PRG Change<br>PROG:ENA  AFTT:ENA  CTRL:ENA  EXCL:DIS<br>``` | | 2B, 2C |
| 3-0 | Memory Protect<br><br>```<br>GLOBAL    30:MEMORY PROTECT<br>PROGRAM:OFF            COMBINATION:OFF<br>``` | | 3A, 3B |
| 3-1 | Page Memory<br><br>```<br>GLOBAL    31:PAGE MEMORY<br>          Page Memory:OFF<br>``` | | 3C |
| 4 | MIDI Data Dump<br><br>```<br>GLOBAL    40:MIDI DUMP<br>     PROGRAM                    [DUMP]<br>``` | Use A — F to select data to be dumped, then press G [DUMP] to send the data. During data dump, "Don't Active" will appear on the display. | 4A |

| PAGE | | | 03R/W PAGE |
|---|---|---|---|
| 5 | Card Load<br><br>```<br>GLOBAL   50:LOAD FROM CARD<br>    BANK C                  [LOAD]<br>``` | Use A — F to select the Bank to load to, then press G [LOAD] to load the data. | 5A |
| 6 | Card Save<br><br>```<br>GLOBAL   60:SAVE TO CARD<br>    BANK D                  [SAVE]<br>``` | Use A — F to select the Bank to save to, then press G [SAVE] to save the data. | 5B |
| 7 | Preset Data Load<br><br>```<br>GLOBAL   70:PRESET DATA<br>                        [LOAD]<br>``` | Press G [LOAD] to load preset data. | 5D |
| 8 | Drum Kit 1<br><br>```<br>GLOBAL   80:DRUM KIT1      CYM-HTOP<br>#32  105  D#4  +019 L+65 D+00  A    EX1<br>``` | (Common to 8 and 9-0)<br>A: Index<br>B: Instrument<br>C: Key<br>D: Tune<br>E: Level<br>F: Decay<br>G: Pan<br>H: EX Assign | 6A — 6D |
| 9-0 | Drum Kit 2<br><br>```<br>GLOBAL   90:DRUM KIT2      CowBeLLo<br>#59  032  C0   +009 L+08 D+00 5:5   ---<br>``` | | 7A — 7D |
| 9-1 | Copy Drum Kit<br><br>```<br>GLOBAL   91:Copy Drum Kit<br>   from [ROM1] --> [A2]        [COPY]<br>``` | 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     81:FX1 No Effect
```

---

**01 — 09     :Reverb**

```
MULTI     81:FX1 Hall       Reverb Time[s]
3.2   D060 E62  HD30       L-04 H+00 75:25
```

| | | | |
|---|---|---|---|
| A | :Reverb Time | B | :Pre Delay |
| C | :Early ReflectionLevel | D | :High Damp |
| E | :—— | F | :Equalizer Low |
| G | :Equalizer High | H | :Effect Balance |

---

**10 — 12     :Early Reflection**

```
MULTI     81:FX1 EarlyRef1     E.R Time
220ms        D015        L+03 H-05 67:33
```

| | | | |
|---|---|---|---|
| A | :Ealy Reflection Time | B | :—— |
| C | :Pre Delay | D | :—— |
| E | :—— | F | :Equalizer Low |
| G | :Equalizer High | H | :Effect Balance |

---

**13, 14       :Stereo Delay**

```
MULTI     81:FX1 StereoDly    Time L [ms]
L250 R260 F-40 HD30        L+00 H+00 75:25
```

| | | | |
|---|---|---|---|
| A | :Delay Time Left | B | :Delay Time Right |
| C | :Feedback | D | :High Damp |
| E | :—— | F | :Equalizer Low |
| G | :Equalizer High | H | :Effect Balance |

---

**15          :Dual Mono Delay**

```
MULTI     81:FX1 Dual Dly     Time L [ms]
250   F+50 HD10 70:30 260 F+50 HD10 70:30
```

| | | | |
|---|---|---|---|
| A | :Delay Time Left | B | :Feedback Left |
| C | :High Damp Left | D | :Effect Balance Left |
| E | :Delay Time Right | F | :Feedback Right |
| G | :High Damp Right | H | :Effect Balance Right |

---

**16 — 18     :Multi Tap Delay**

```
MULTI     81:FX1 M.TapDly1    Delay Time 1
D1T300     D2T400     F+50 L+00 H+00 50:50
```

| | | | |
|---|---|---|---|
| A | :Delay Time 1 | B | :—— |
| C | :Delay Time 2 | D | :—— |
| E | :Feedback | F | :Equalizer Low |
| G | :Equalizer High | H | :Effect Balance |

---

**19, 20       :Chorus**

```
MULTI     81:FX1 Chorus 1      Time [ms]
D010 S0.30 M60  TRI        L+00 H+00 60:40
```

| | | | |
|---|---|---|---|
| A | :Delay Time | B | :Mod Speed |
| C | :Mod Depth | D | :Mod Waveform |
| E | :—— | F | :Equalizer Low |
| G | :Equalizer High | H | :Effect Balance |

---

**21, 22       :Chorus**

```
MULTI     81:FX1 Quad.Cho.  Dly Time Left
L011 R023 S33   D50   T+00 L+00 H+00 50:50
```

| | | | |
|---|---|---|---|
| A | :Delay Time Left | B | :Delay Time Right |
| C | :Mod Speed | D | :Mod Depth |
| E | :Mod Shape | F | :Equalizer Low |
| G | :Equalizer High | H | :Effect Balance |

---

**23          :Harmonic Chorus**

```
MULTI     81:FX1 Harmo.Cho  Dly Time Left
DL022 DR046     S35  D99  FSP01        FX
```

| | | | |
|---|---|---|---|
| A | :Delay Time Left | B | :Delay Time Right |
| C | :—— | D | :Mod Speed |
| E | :Mod Depth | F | :Filter Split Point |
| G | :—— | H | :Effect Balance |

| 24 :Symphonic Ensemble | A :Mod Depth | B :—— |
|---|---|---|
| | C :—— | D :—— |
| ``` MULTI     81:FX1 Symp.Ens.  Mod Depth M80                  L+00 H+00 50:50 ``` | E :—— | F :Equalizer Low |
| | G :Equalizer High | H :Effect Balance |

| 25 - 27 :Flanger | A :Delay Time | B :Mod Depth |
|---|---|---|
| | C :Mod Speed | D :—— |
| ``` MULTI     81:FX1 Flanger 1 Delay Time T005 D99  Speed20   R-85 L+00 H+00 20:80 ``` | E :Resonance | F :Equalizer Low |
| | G :Equalizer High | H :Effect Balance |

| 28 :Exciter | A :Blend | B :—— |
|---|---|---|
| | C :Emphatic Point | D :—— |
| ``` MULTI     81:FX1 Exciter   Blend B+50       EP05        L+04 H+00   FX ``` | E :—— | F :Equalizer Low |
| | G :Equalizer High | H :Effect Balance |

| 29 :Enhancer | A :Harmonic Density | B :Hot Spot |
|---|---|---|
| | C :Stereo Width | D :Delay Time |
| ``` MULTI     81:FX1 Enhancer   Harmo Density HD80 HS01 SW50 D25     L+01 H+01   FX ``` | E :—— | F :Equalizer Low |
| | G :Equalizer High | H :Effect Balance |

| 30, 31 :Distortion | A :Drive (Edge) | B :Hot Spot |
|---|---|---|
| | C :Resonance | D :Equalizer Low |
| ``` MULTI     81:FX1 Dist      Drive (edge) D111 HS05 R80  L+02 H-12 O10      50:50 ``` | E :Equalizer High | F :Out Level |
| | G :—— | H :Effect Balance |

| 32, 33 :Phaser | A :Manual | B :Mod Speed |
|---|---|---|
| | C :Mod Depth | D :Feedback |
| ``` MULTI     81:FX1 Phaser 1  Manual MN99 SO.69 M60 F-75 SIN '       25:75 ``` | E :Mod Waveform | F :—— |
| | G :—— | H :Effect Balance |

| 34 :Rotary Speaker | A :Vibrato Depth | B :—— |
|---|---|---|
| | C :Acceleration | D :Slow Speed |
| ``` MULTI     81:FX1 Rot.Spk    Vibrato Depth VIB09     ACC04 SLW25   FST70      FX ``` | E :—— | F :Fast Speed |
| | G :—— | H :Effect Balance |

| 35, 36 :Tremolo | A :Mod Waveform | B :Mod Shape |
|---|---|---|
| | C :Mod Speed | D :Mod Depth |
| ``` MULTI     81:FX1 Auto Pan   Waveform  SIN S+99 S1.59 M80     L+00 H+00   FX ``` | E :—— | F :Equalizer Low |
| | G :Equalizer High | H :Effect Balance |

| 37 :Parametric Equalizer | A :Low Freq | B :Low Gain |
|---|---|---|
| | C :Mid Freq | D :Mid Gain |
| ``` MULTI     81:FX1 Para. EQ   Frequency Low LF12 G+12 M08  G+12 W50  HF20 G+12  FX ``` | E :Mid Width | F :High Freq |
| | G :High Gain | H :Effect Balance |

| 38, 39 :Combination Effect Serial | • CHORUS, FLANGER | |
|---|---|---|
| | A :Delay Time | B :Feedback |
| | C :Mod Speed | D :Mod Depth |
| ``` MULTI     81:FX1 Chor-Dly  Delay Time T11  FB+10 S30 D50  T110 F-10      70:30 ``` | • DELAY | |
| | E :Delay Time | F :Feedback |
| | G :—— | H :Effect Balance |

| | | |
|---|---|---|
| 40, 41　　　　:Delay/Reverb<br><br>```<br>MULTI     81:FX1 Dly/Hall    Dly Time [ms]<br>D250 F+50 HD10 70:30 3.5 D055 HD40 60:40<br>``` | • DELAY<br>Ⓐ :Delay Time　Ⓑ :Feedback<br>Ⓒ :High Damp　Ⓓ :Effect Balance<br>• HALL, ROOM<br>Ⓔ :Reverb Time　Ⓕ :Pre Delay<br>Ⓖ :High Damp　Ⓗ :Effect Balance |
| 42　　　　:Delay/Chorus<br><br>```<br>MULTI     81:FX1 Dly/Cho.  Mod Speed [Hz]<br>D250 F+50 HD10 70:30 0.30 M60 TRI    40:60<br>``` | • DELAY<br>Ⓐ :Delay Time　Ⓑ :Feedback<br>Ⓒ :High Damp　Ⓓ :Effect Balance<br>• CHORUS<br>Ⓔ :Mod Speed　Ⓕ :Mod Depth<br>Ⓖ :Mod Waveform　Ⓗ :Effect Balance |
| 43　　　　:Delay/Flanger<br><br>```<br>MULTI     81:FX1 DlyFlnger  Mod Depth<br>D250 F+50 HD10   DRY  0.18 M70 F-75   DRY<br>``` | • DELAY<br>Ⓐ :Delay Time　Ⓑ :Feedback<br>Ⓒ :High Damp　Ⓓ :Effect Balance<br>• FLANGER<br>Ⓔ :Mod Speed　Ⓕ :Mod Depth<br>Ⓖ :Feedback　Ⓗ :Effect Balance |
| 44, 45　　　　:Delay/Distortion<br><br>```<br>MULTI     81:FX1 Dly/Dist  Drive<br>DT250     FB+40 60:40 E111 HS50 R75 D05<br>``` | • DELAY<br>Ⓐ :Delay Time　Ⓑ :——<br>Ⓒ :Feedback　Ⓓ :Effect Balance<br>• DISTORTION, OVER DRIVE<br>Ⓔ :Drive (Edge)　Ⓕ :Hot Spot<br>Ⓖ :Resonance　Ⓗ :Dist Level |
| 46　　　　:Delay/Phaser<br><br>```<br>MULTI     81:FX1 Dly/Phase Mod Speed [Hz]<br>D250 F+50 HD10 70:30 0.69 M60 F-75 25:75<br>``` | • DELAY<br>Ⓐ :Delay Time　Ⓑ :Feedback<br>Ⓒ :High Damp　Ⓓ :Effect Balance<br>• PHASER<br>Ⓔ :Mod Speed　Ⓕ :Mod Depth<br>Ⓖ :Feedback　Ⓗ :Effect Balacne |
| 47　　　　:Delay/Rotary Speaker<br><br>```<br>MULTI     81:FX1 Dly/R.SP    Acceleration<br>D250 FB+40     60:40 AC04 S25 F70  30:70<br>``` | .• DELAY<br>Ⓐ :Delay Time　Ⓑ :Feedback<br>Ⓒ :——　Ⓓ :Effect Balance<br>• ROTARY SPEAKER<br>Ⓔ :Acceleration　Ⓕ :Slow Speed<br>Ⓖ :Fast Speed　Ⓗ :Effect Balance |

# ■ DEMO MODE ■

```
        SONG0:ROCK SHOW
```

# 03R/W MIDI IMPLEMENTATION

## 1. TRANSMITTED DATA    ( DEMO PLAYING DATA is not transmitted )

### 1-1 CHANNEL MESSAGES

| Status | Second | Third | Description | ENA |
|--------|--------|-------|-------------|-----|
| 1011 gggg | 0000 0000 | 00mm mmmm | Bank Select(MSB) ( by Combi, Prog Change )✳2 | P |
| 1011 gggg | 0010 0000 | 0000 00bb | Bank Select(LSB) ( by Combi, Prog Change )✳2 | P |
| 1011 gggg | 0000 0110 | 0vvv vvvv | Data Entry (MSB) ( by R.E Slider ) ✳1 | ER |
| 1011 gggg | 0010 0110 | 0vvv vvvv | Data Entry (LSB) ( by R.E Slider ) ✳1 | ER |
| 1011 gggg | 0110 0000 | 0000 0000 | Data Increment ( by △ Key ) ✳1 | E |
| 1011 gggg | 0110 0001 | 0000 0000 | Data Decrement ( by ▽ Key ) ✳1 | E |
| 1100 gggg | 0ppp pppp | ---- ---- | Program Change ( by Combi.Prog Change ) | P |
|  |  |  | ppp pppp=0~99 ( Bank A.C.D ) |  |
|  |  |  | =0~127 ( Bank G of Prog ) |  |

gggg : MIDI Channel No.(0~15).  Always Global Channel.

ENA = A : Always Enabled
      C : Enabled when Control Filter is ENA
      P : Enabled when Program Filter is ENA
      T : Enabled when After Touch Filter is ENA
      E : Enabled when Exclusive Filter is ENA
      R : Enabled when Remote Editor is connected
      ER : E and R

✳1 : E.Prog. Combi. E.Combi. Multi. Global( Drum Page ) Mode Only

✳2:mm,bb = 00,00:Bank A
           00,01:Bank G(01~128:PROG Mode Only)
           00,02:Bank C
           00,03:Bank D
           3E,00:Bank G(129:PROG Mode Only)

### 1-2 SYSTEM REALTIME MESSAGES

| Status | Description |
|--------|-------------|
| 1111 1110 | Active Sensing |

### 1-3 UNIVERSAL SYSTEM EXCLUSIVE MESSAGES (DEVICE INQUIRY)

| Byte | Description | |
|------|-------------|---|
| 1111 0000 (F0) | Exclusive Status | |
| 0111 1110 (7E) | Non Realtime Message | |
| 0000 gggg (0g) | GLOBAL MIDI CHANNEL ( DEVICE ID ) | |
| 0000 0110 (06) | INQUIRY MESSAGE | |
| 0000 0010 (02) | IDENTITY REPLY | |
| 0100 0010 (42) | KORG ID | ( MANUFACTURERS ID ) |
| 0011 0000 (30) | 03R/W ID | ( FAMILY CODE (LSB)) |
| 0000 0000 (00) |  | ( - - (MSB)) |
| 0000 0000 (00) |  | ( MEMBER CODE (LSB)) |
| 0000 0000 (00) |  | ( - - (MSB)) |
| 0✳✳✳ ✳✳✳✳ (✳✳) | ROM No.   1~ | ( Minor Ver. (LSB)) |
| 0000 0000 (00) |  | ( - - (MSB)) |
| 0✳✳✳ ✳✳✳✳ (✳✳) | SOFT VER.  1~ | ( Major Ver. (LSB)) |
| 0000 0000 (00) |  | ( - - (MSB)) |
| 1111 0111 (F7) | END OF EXCLUSIVE | |

Transmits when INQUIRY MESSAGE REQUEST Received

## 1-4 03R/W SYSTEM EXCLUSIVE MESSAGES  ( Both Transmitted and Received )

```
 1st Byte = 1111 0000 (F0) : Exclusive Status
 2nd Byte = 0100 0010 (42) : KORG   ID
 3rd Byte = 0011 gggg (3g) : Format ID g:Global ch.      EX.Header
 4th Byte = 0011 0000 (30) : 03R/W ID
 5th Byte = 0fff ffff (ff) : Function Code
 6th Byte = 0ddd dddd (dd) : Data
            :                      :
            :                      :
LastByte = 1111 0111 (F7) : End of Exclusive ...... EOX
```

### Function Code List

| Func | Description | R | C | D | E |
|------|-------------|---|---|---|---|
| 42 | MODE DATA | ○ | | | |
| 47 | ALL DRUM SOUND (PCM CARD) NAME DUMP | ○ | | | |
| 45 | ALL MULTISOUND (PCM CARD) NAME DUMP | ○ | | | |
| 4E | MODE CHANGE | | ○ | | |
| 41 | PARAMETER CHANGE | | ○ | | |
| 53 | DRUM KIT PARAMETER CHANGE | | ○ | | |
| 40 | PROGRAM PARAMETER DUMP | ○ | ○ | | |
| 4C | ALL PROGRAM PARAMETER DUMP | ○ | | ○ | |
| 49 | COMBINATION PARAMETER DUMP | ○ | ○ | | |
| 4D | ALL COMBINATION PARAMETER DUMP | ○ | | ○ | |
| 55 | MULTI SETUP DATA DUMP | ○ | | ○ | |
| 51 | GLOBAL DATA DUMP | ○ | | ○ | |
| 52 | DRUMS DATA DUMP | ○ | | ○ | |
| 50 | ALL DATA(GLB.DRM.CMB.PRG.MLT) DUMP | ○ | | ○ | |
| 26 | RECEIVED MESSAGE FORMAT ERROR | ○ | | | ○ |
| 23 | DATA LOAD COMPLETED | | | | ○ |
| 24 | DATA LOAD ERROR | | | | ○ |
| 21 | WRITE COMPLETED | | | | ○ |
| 22 | WRITE ERROR | | | | ○ |

Transmitted when
R : Request Message is received
C : Mode or No. is changed by SW
D : Data dump by SW ( Don't respond to Exclusive ENA.DIS)
E : EX.Message received

# 2. RECOGNIZED RECEIVE DATA

## 2-1 CHANNEL MESSAGES

| Status | Second | Third | Description | | ENA |
|--------|--------|-------|-------------|---|-----|
| 1000 nnnn | 0kkk kkkk | 0xxx xxxx | Note Off | | A |
| 1001 nnnn | 0kkk kkkk | 0000 0000 | Note Off | | A |
| 1001 nnnn | 0kkk kkkk | 0vvv vvvv | Note On | vvv vvvv=1〜127 | A |
| 1011 nnnn | 0000 0000 | 0bbb bbbb | Bank Select(MSB) | *1 | P |
| 1011 nnnn | 0000 0001 | 0vvv vvvv | Modulation 1 | ( Pitch Modulation ) | C |
| 1011 nnnn | 0000 0010 | 0vvv vvvv | Modulation 2 | ( VDF Modulation ) | C |
| 1011 nnnn | 0000 0110 | 0vvv vvvv | Data Entry (MSB) | *2.4 | E |
| 1011 nnnn | 0000 0111 | 0vvv vvvv | Volume | | C |
| 1011 nnnn | 0000 1010 | 0vvv vvvv | Panpot | | C |
| 1011 nnnn | 0000 1011 | 0vvv vvvv | Expression | | C |
| 1011 gggg | 0000 1100 | 0vvv vvvv | Effect1 Control | | C |
| 1011 gggg | 0000 1101 | 0vvv vvvv | Effect2 Control | | C |
| 1011 nnnn | 0010 0000 | 0sss ssss | Bank Select(LSB) | *1 | P |
| 1011 nnnn | 0010 0110 | 0vvv vvvv | Data Entry (LSB) | *2.4 | E |
| 1011 nnnn | 0100 0000 | 00xx xxxx | Damper Off | | C |
| 1011 nnnn | 0100 0000 | 01xx xxxx | Damper On | | C |
| 1011 gggg | 0101 1011 | 00xx xxxx | Effect1 Off | | C |
| 1011 gggg | 0101 1011 | 01xx xxxx | Effect1 On | | C |
| 1011 gggg | 0101 1100 | 00xx xxxx | Effect2 Off | | C |
| 1011 gggg | 0101 1100 | 01xx xxxx | Effect2 On | | C |
| 1011 nnnn | 0110 0000 | 0000 0000 | DATA Increment | *2.4 | E |
| 1011 nnnn | 0110 0001 | 0000 0000 | DATA Decrement | *2.4 | E |
| 1011 nnnn | 0110 0100 | 0000 00rr | RPN Parameter No. (LSB) | *4.5 | E |
| 1011 nnnn | 0110 0101 | 0000 0000 | RPN Parameter No. (MSB) | *4.5 | E |
| 1011 nnnn | 0111 1000 | 0000 0000 | All Sound Off | | A |
| 1011 nnnn | 0111 1001 | 0000 0000 | Reset All Controllers | | C |
| 1011 nnnn | 0111 1011 | 0000 0000 | All Notes Off | | A |
| 1011 nnnn | 0111 110x | 0000 0000 | (All Notes Off) | | A |
| 1011 nnnn | 0111 1110 | 000m mmmm | (All Notes Off) | m mmmm=0〜16 | A |
| 1011 nnnn | 0111 1111 | 0000 0000 | (All Notes Off) | | A |
| 1100 nnnn | 0ppp pppp | ---- ---- | Program,Combination Change | *3.4 | P |
| 1101 nnnn | 0vvv vvvv | ---- ---- | Channel Pressure | ( After Touch ) | T |
| 1110 nnnn | 0bbb bbbb | 0bbb bbbb | Bender Change | | C |

nnnn : MIDI Channel No.(0〜15)  Usually Global Channel.
　　　　　　　　　　　　　　　 When in Combi/Multi Mode. each timbre's/Track's channel.

gggg : － 　　 － 　　 － 　　 － 　　Always Global Channel.

　x : Random

ENA ‥‥‥ Same as TRANSMITTED DATA

*1 : bb,ss = xx,00 : Bank A
　　　　　　 xx,01 : － G
　　　　　　 xx,02 : － C　　When In MULTI Mode
　　　　　　 xx,03 : － D

　　　　[ 38(39),xx : Bank G 01〜128 Select
　　　　  3A〜3D,xx : － 　 G 01〜128 Off
　　　　  3E .xx : － 　 G 129 Select
　　　　  3F .xx : － 　 G 129 Off ]

*2 : Prog. E.Prog. Combi. E.Combi. Global( Drum Page ) Mode Only

*3 : If received value is beyond of 99, assigned a new value by subtracting 100.
　　　ex. When in Bank A,and Received Prog No. is 110. Program A-10 is selected.

*4 : After Processing (While Exclusive ENA).
　　　Transmits Exclusive Message[DATA LOAD COMPLETED]or[DATA LOAD ERROR].

*5 : rr = 0 : Track Pitch Bend Sensitivity ( MULTI Mode only )
　　　　= 1 : － 　 Fine Tune ( When in MULTI Mode‥‥Detune. PROG Mode‥‥Master Tune )
　　　　= 2 : － 　 Coarse Tune ( = Transpose )( MULTI Mode only )

## 2-2 SYSTEM REALTIME MESSAGES

| Status | Description |
|--------|-------------|
| 1111 1110 | Active Sensing |

## 2-3 UNIVERSAL SYSTEM EXCLUSIVE MESSAGE

| Byte | Description | |
|------|-------------|---|
| 1111 0000 (F0) | EXCLUSIVE STATUS | |
| 0111 1110 (7E) | NON REALTIME MESSAGE | |
| 0ggg gggg (gg) | MIDI CHANNEL | *6 |
| 0000 aaaa (0a) | SUB ID 1 | *7 |
| 0000 00bb (0b) | SUB ID 2 | *7 |
| 1111 0111 (F7) | END OF EXCLUSIVE | |

*6 ggg gggg = 0〜F : Receive if Global Channel
　　　　　　　 = 7F 　 : Receive any Channel

*7 aaaa.bb = 06,01: INQUIRY MESSAGE
　　　　　　 = 09,01: GENERAL MIDI MODE ON
　　　　　　 = 09,02: 　 － 　 － 　 － 　 OFF

## 2-4 SYSTEM EXCLUSIVE MESSAGES

### Function Code List

| Func | Description | G | C | P | M | No. |
|------|-------------|---|---|---|---|-----|
| 12 | MODE REQUEST | ○ | ○ | ○ | ○ | 42 |
| 1F | ALL DRUM SOUND (PCM CARD)NAME DUMP REQUEST | ○ | ○ | ○ | ○ | 47 |
| 16 | ALL MULTISOUND (PCM CARD)NAME DUMP REQUEST | ○ | ○ | ○ | ○ | 45 |
| 10 | PROGRAM PARAMETER DUMP REQUEST | | | ○ | | 40 |
| 1C | ALL PROGRAM PARAMETER DUMP REQUEST | ◎ | ○ | ○ | ○ | 4C |
| 19 | COMBINATION PARAMETER DUMP REQUEST | | ○ | | | 49 |
| 1D | ALL COMBINATION PARAMETER DUMP REQUEST | ◎ | ○ | ○ | ○ | 4D |
| 06 | MULTI SETUP DATA DUMP REQUEST | ◎ | ○ | ○ | ○ | 55 |
| 0E | GLOBAL DATA DUMP REQUEST | ◎ | ○ | ○ | ○ | 51 |
| 0D | DRUMS DATA DUMP REQUEST | ◎ | ○ | ○ | ○ | 52 |
| 0F | ALL DATA(GLOB,DRUM,COMB,PROG,MULT) DUMP REQ | ◎ | ○ | ○ | ○ | 50 |
| 11 | PROGRAM WRITE REQUEST | | | ○ | | 21 |
| 1A | COMBINATION WRITE REQUEST | | ○ | | | 21 |
| 40 | PROGRAM PARAMETER DUMP | | | ○ | | 23 |
| 4C | ALL PROGRAM PARAMETER DUMP | ◎ | ○ | ○ | ○ | 23 |
| 49 | COMBINATION PARAMETER DUMP | | ○ | | | 23 |
| 4D | ALL COMBINATION PARAMETER DUMP | ◎ | ○ | ○ | ○ | 23 |
| 55 | MULTI SETUP DATA DUMP | ◎ | ○ | ○ | ○ | 23 |
| 51 | GLOBAL DATA DUMP | ◎ | ○ | ○ | ○ | 23 |
| 52 | DRUMS DATA DUMP | ◎ | ○ | ○ | ○ | 23 |
| 50 | ALL DATA(GLOBAL,DRUMS,COMBI,PROG,MULTI) DUMP | ◎ | ○ | ○ | ○ | 23 |
| 4E | MODE CHANGE | ○ | ○ | ○ | ○ | 23 |
| 41 | PARAMETER CHANGE | | ○ | ○ | | 23 |
| 53 | DRUM KIT PARAMETER CHANGE | ○ | | | | 23 |

Receive when in
　G : GLOBAL Mode
　　　(◎‥‥Does not respond to Exclusive ENA.DIS in DATA DUMP Page)
　C : COMBI. E.COMBI Mode
　P : PROG. E.PROG Mode
　M : MULTI Mode

No. : MIDI Out Function No.
　　　(transmitted after the message has been received.)

# 3. MIDI EXCLUSIVE FORMAT (R:Receive, T:Transmit)

## (1) MODE REQUEST                                                       R

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0001 0010 | MODE REQUEST | 12H |
| 1111 0111 | EOX | |

Receives this message, and transmits Func=42 message.

## (2) PROGRAM PARAMETER DUMP REQUEST                                      R

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0001 0000 | PROGRAM PARAMETER DUMP REQUEST | 10H |
| 1111 0111 | EOX | |

Receives this message, and transmits Func=40 or Func=24 message.

## (3) ALL DRUM SOUND (PCM CARD) NAME DUMP REQUEST                         R

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0001 1111 | ALL DRUM SOUND NAME DUMP REQUEST | 1FH |
| 0000 0000 | | |
| 1111 0111 | EOX | |

Receives this message, and transmits Func=47 or Func=24 message.

## (4) ALL MULTISOUND (PCM CARD) NAME DUMP REQUEST                         R

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0001 0110 | ALL MULTISOUND NAME DUMP REQUEST | 16H |
| 0000 0000 | | |
| 1111 0111 | EOX | |

Receives this message, and transmits Func=45 or Func=24 message.

## (5) ALL PROGRAM PARAMETER DUMP REQUEST                                  R

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0001 1100 | ALL PROGRAM PARAMETER DUMP REQUES | 1CH |
| 0000 0000 | | |
| 1111 0111 | EOX | |

Receives this message, and transmits Func=4C or Func=24 message.

## (6) COMBINATION PARAMETER DUMP REQUEST                                  R

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0001 1001 | COMBINATION PARAMETER DUMP REQUEST 19H | |
| 1111 0111 | EOX | |

Receives this message, and transmits Func=49 or Func=24 message.

## (7) ALL COMBINATION PARAMETER DUMP REQUEST                             R

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0001 1101 | ALL COMBI. PARAMETER DUMP REQUEST | 1DH |
| 0000 0000 | | |
| 1111 0111 | EOX | |

Receives this message, and transmits Func=4D or Func=24 message.

## (8) MULTI SETUP DATA DUMP REQUEST                                       R

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0000 0110 | MULTI SETUP DATA DUMP REQUEST | 06H |
| 0000 0000 | | |
| 1111 0111 | EOX | |

Receives this message, and transmits Func=55 or Func=24 message.

## (9) GLOBAL DATA DUMP REQUEST                                            R

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0000 1110 | GLOBAL DATA DUMP REQUEST | 0EH |
| 0000 0000 | | |
| 1111 0111 | EOX | |

Receives this message, and transmits Func=51 or Func=24 message.

## (10) DRUMS DATA DUMP REQUEST                                            R

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0000 1101 | DRUMS DATA DUMP REQUEST | 0DH |
| 0000 0000 | | |
| 1111 0111 | EOX | |

Receives this message, and transmits Func=52 or Func=24 message.

## (11) ALL DATA(GLOB, DRUM, COMB, PROG, MULT) DUMP REQUEST  R

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0000 1111 | ALL DATA(GLB, CMB, PRG, MLT) DUMP REQ 0FH | |
| 0000 0000 | | |
| 1111 0111 | EOX | |

Receives this message, and transmits Func=50 or Func=24 message.

## (12) PROGRAM WRITE REQUEST                                              R

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0001 0001 | PROGRAM WRITE REQUEST | 11H |
| 0000 00bb | Write Program Bank | (NOTE 1) |
| 0ppp pppp | Write Program No. (0-99) | |
| 1111 0111 | EOX | |

Receives this message, writes the data and transmits Func=21 or Func=22 message.

## (13) COMBINATION WRITE REQUEST                                          R

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0001 1010 | COMBINATION WRITE REQUEST | 1AH |
| 0000 00bb | Write Combination Bank | (NOTE 1) |
| 0ppp pppp | Write Combination No. (0-99) | |
| 1111 0111 | EOX | |

Receives this message, writes the data and transmits Func=21 or Func=22 message.

## (14) PROGRAM PARAMETER DUMP     R, T

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0100 0000 | PROGRAM PARAMETER DUMP | 40H |
| 0ddd dddd | Data | (NOTE 2,3) |
| ⋮ | ⋮ | |
| 1111 0111 | EOX | |

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=10 message, and transmits this message & data.
When the Program No. is changed by SW, transmits this message & data.

## (15) ALL PROGRAM PARAMETER DUMP     R, T

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0100 1100 | ALL PROGRAM PARAMETER DUMP | 4CH |
| 0000 0000 | | |
| 0ddd dddd | Data | (NOTE 2,4) |
| ⋮ | ⋮ | |
| 1111 0111 | EOX | |

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=1C message, and transmits this message & data.
Transmits this message & data when DATA DUMP is executed.

## (16) COMBINATION PARAMETER DUMP     R, T

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0100 1001 | COMBINATION PARAMETER DUMP | 49H |
| 0ddd dddd | Data | (NOTE2,5) |
| ⋮ | ⋮ | |
| 1111 0111 | EOX | |

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=19 message, and transmits this message & data.
When the Combi No. is changed by SW, transmits this message & data.

## (17) ALL COMBINATION PARAMETER DUMP     R, T

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0100 1101 | ALL COMBINATION PARAMETER DUMP | 4DH |
| 0000 0000 | | |
| 0ddd dddd | Data | (NOTE 2,6) |
| ⋮ | ⋮ | |
| 1111 0111 | EOX | |

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=1D message, and transmits this message & data.
Transmits this message & data when DATA DUMP is executed.

## (18) MULTI SETUP DATA DUMP     R, T

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0101 0101 | MULTI SETUP DATA DUMP | 55H |
| 0000 0000 | | |
| 0ddd dddd | Data | (NOTE 2,7) |
| ⋮ | ⋮ | |
| 1111 0111 | EOX | |

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=06 message, and transmits this message & data.
Transmits this message & data when DATA DUMP is executed.

## (19) GLOBAL DATA DUMP     R, T

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0101 0001 | GLOBAL DATA DUMP | 51H |
| 0000 0000 | | |
| 0ddd dddd | Data | (NOTE 2,8) |
| ⋮ | ⋮ | |
| 1111 0111 | EOX | |

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=0E message, and transmits this message & data.
Transmits this message & data when DATA DUMP is executed.

## (20) DRUMS DATA DUMP     R, T

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0101 0010 | DRUMS DATA DUMP | 52H |
| 0000 0000 | | |
| 0ddd dddd | Data | (NOTE 2,9) |
| ⋮ | ⋮ | |
| 1111 0111 | EOX | |

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=0D message, and transmits this message & data.
Transmits this message & data when DATA DUMP is executed.

## (21) ALL DATA(GLOBAL, DRUMS, COMBI, PROG, MULTI) DUMP     R, T

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0101 0000 | ALL DATA(GLB, DRM, CMB, PRG, MLT) DUMP | 50H |
| 0000 0000 | | |
| 0ddd dddd | Data | (NOTE 2,10) |
| ⋮ | ⋮ | |
| 1111 0111 | EOX | |

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=0F message, and transmits this message & data.
Transmits this message & data when DATA DUMP is executed.

## (22) MODE CHANGE     R, T

| Byte | Description | |
|---|---|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0100 1110 | MODE CHANGE | 4EH |
| 000r 0mmm | Mode Data | (NOTE 11) |
| 0000 0000 | | |
| 1111 0111 | EOX | |

Receives this message & data, changes the Mode, and transmits Func=23 or Func=24.
When the Mode is changed by SW, transmits this message & data.

## (23) PARAMETER CHANGE R, T

| Byte | Description | |
|------|-------------|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0100 0001 | PARAMETER CHANGE | 41H |
| 0ppp pppp | Parameter No. | (TABLE 6, 7, 9) |
| 0vvv vvvv | Value (LSB bit6-0) | (NOTE 12) |
| 0vvv vvvv | Value (MSB bit13-7) | (NOTE 12) |
| 1111 0111 | EOX | |

Receives this message & data, and transmits Func=23 or Func=24 message.
When the Parameter No. is changed by SW, transmits this message & data.

## (24) DRUM-KIT PARAMETER CHANGE R, T

| Byte | Description | |
|------|-------------|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0101 0011 | DRUM KIT PARAMETER CHANGE | 53H |
| 0000 0000 | | |
| 0sss ssss | Index No. | (TABLE 8-1) |
| 0000 0ppp | Parameter No. | (TABLE 8-2) |
| 0vvv vvvv | Value (LSB bit6~0) | (NOTE 12) |
| 0vvv vvvv | Value (MSB bit13~7) | (NOTE 12) |
| 1111 0111 | EOX | |

Receives this message & data, and transmits Func=23 or Func=24 message.

## (25) ALL DRUM SOUND (PCM CARD) NAME T

| Byte | Description | |
|------|-------------|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0100 0111 | ALL DRUM SOUND NAME | 47H |
| 0000 0000 | | |
| 0nnn nnnn | Number of Drum Sound | (NOTE 13-1) |
| 0ddd dddd | Data | (NOTE 13-2) |
| : | : | |
| 1111 0111 | EOX | |

Receives Func=1F message, and transmits this message & data or transmits Func=24 message.

## (26) ALL MULTISOUND (PCM CARD) NAME T

| Byte | Description | |
|------|-------------|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0100 0101 | ALL MULTISOUND NAME | 45H |
| 0000 0000 | | |
| 0nnn nnnn | Number of Multisound | (NOTE 14-1) |
| 0ddd dddd | Data | (NOTE 14-2) |
| : | : | |
| 1111 0111 | EOX | |

Receivs Func=16 message, and transmits this message & data or transmits Func=24 message.

## (27) MODE DATA T

| Byte | Description | |
|------|-------------|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0100 0010 | MODE DATA | 42H |
| 000r 0mmm | Mode Data | (NOTE 11) |
| 0000 0000 | | |
| 00cc 00vv | Prog Card Variation | (NOTE 15) |
| 0000 01cc | PCM Card Status | (NOTE 16) |
| 1111 0111 | EOX | |

Receives Func=12 message, and transmits this message & data.

## (28) MIDI IN DATA FORMAT ERROR T

| Byte | Description | |
|------|-------------|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0010 0110 | MIDI IN DATA FORMAT ERROR | 26H |
| 1111 0111 | EOX | |

Transmits this message when there is an error in the MIDI IN message (ex. data length).

## (29) DATA LOAD COMPLETED T

| Byte | Description | |
|------|-------------|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0010 0011 | DATA LOAD COMPLETED | 23H |
| 1111 0111 | EOX | |

Transmits this message when DATA LOAD, PROCESSING have been completed.

## (30) DATA LOAD ERROR T

| Byte | Description | |
|------|-------------|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0010 0100 | DATA LOAD ERROR | 24H |
| 1111 0111 | EOX | |

Transmits this message when DATA LOAD, PROCESSING have not been completed (ex. protected).

## (31) WRITE COMPLETED T

| Byte | Description | |
|------|-------------|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0010 0001 | WRITE COMPLETED | 21H |
| 1111 0111 | EOX | |

Transmits this message when DATA WRITE MIDI has been completed.

## (32) WRITE ERROR T

| Byte | Description | |
|------|-------------|---|
| F0, 42, 3n, 30 | EXCLUSIVE HEADER | |
| 0010 0010 | WRITE ERROR | 22H |
| 1111 0111 | EOX | |

Transmits this message when DATA WRITE MIDI has not been completed.

NOTE 1 : PROGRAM.COMBINATION BANK
            bb=0 : Bank A
               1 : None
               2 : Bank C
               3 : Bank D

NOTE 2 :
    DUMP DATA CONVERT n=0~        for NOTE 3, 4, 5, 6, 7, 8, 9, 10, 13-2, 14-2

    DATA ( 1set = 8bit x 7Byte )
    b7    ~    b0   b7    ~    b0   b7         b0   b7    ~    b0
    [ | | | | | | | ] [ | | | | | | | ] [ | | |...| | | ] [ | | | | | | | ]
       7n+0              7n+1            7n+2 ... 7n+5         7n+6

    MIDI DATA ( 1set = 7bit x 8Byte )
    b7b7b7b7b7b7    b6    ~    b0   b6    ~    b0   b6    ~    b0
    [0| | | | | | ] [0| | | | | | ] [0| | | | | ] [0| | | | | | ]
    7n+6,5,4,3,2,1,0    7n+0            7n+1 ... 7n+5       7n+6

NOTE 3 : PROGRAM PARAMETER (IN CURRENT BUFFER) DUMP FORMAT        ( See TABLE 1 , NOTE 2 )
            [Parameter No.00], ......, [Parameter No.163]
                    164Byte = 7x23+3 → 8x23+(1+3) = 188Byte

NOTE 4 : ALL PROGRAM PARAMETER (IN INTERNAL MEMORY) DUMP FORMAT       ( See NOTE 2 )
            [Prog A00 (164Byte)], ......, [Prog A99 (164Byte)]
                    164x100Byte = 7x2342+6 → 8x2342+(1+6) = 18743Byte     ( 6.0Sec )

NOTE 5 : COMBINATION PARAMETER (IN CURRENT BUFFER) DUMP FORMAT        ( See TABLE 2 , NOTE 2 )
            [Parameter No.00], ......, [Parameter No.127]
                    128Byte = 7x18+2 → 8x18+(1+2) = 147Byte

NOTE 6 : ALL COMBINATION PARAMETER (IN INTERNAL MEMORY) DUMP FORMAT       (See NOTE 2 )
            [Combi A00 (128Byte)], ......, [Combi A99 (128Byte)]
                    128x100Byte = 7x1828+4 → 8x1828+(1+4) = 14629Byte     ( 4.7Sec )

NOTE 7 : MULTI SETUP DATA (IN INTERNAL MEMORY) DUMP FORMAT        ( See TABLE 5 , NOTE 2 )
            [Multi Setup Data ( 29 Byte)]
                    29Byte = 7x4+1 → 8x4+(1+1) = 34Byte

NOTE 8 : GLOBAL DATA (IN INTERNAL MEMORY) DUMP FORMAT        ( See TABLE 3 , NOTE 2 )
            [Global Data (21Byte)]
                    21=7x3+0 → 8x3 = 24Byte

NOTE 9 : DRUMS DATA (IN INTERNAL MEMORY) DUMP FORMAT        ( See TABLE 4 , NOTE 2 )
            [Drum Kit Data (7x60x2Byte)]
                    840Byte =7x120+0 → 8x120 = 960Byte        ( 0.3Sec )

NOTE 10 : ALL DATA (GLOBAL.DRUMS.COMBI.PROG.MULTI) DUMP FORMAT        ( See NOTE 2 )
            [Global Data],                                    ( See NOTE 8 )
            [Drums Data],                                     ( See NOTE 9 )
            [All Combination Parameter Data],                 ( See NOTE 6 )
            [All Program Parameter Data],                     ( See NOTE 4 )
            [Multi Setup Data]                                ( See NOTE 7 )
                    21+840+12800+16400+29Byte = 7x4298+4 → 8x4298+(1+4) = 34389Byte     ( 11.0Sec )

NOTE 11 : r = 0 : Normal
              = 1 : Remote Controlled

          mmm = 0 : COMBINATION        3 : EDIT PROG.
                1 : EDIT COMBI.         4 : MULTI
                2 : PROGRAM             5 : GLOBAL

NOTE 12 : VALUE DATA FORMAT  ( Use at PARAMETER CHANGE. DRUM KIT PARAMETER CHANGE )

            Bit15-13 of Value Data is the Sign Flag, and each bit has the same value

    Value Data  [ | | | | | | | | ]        [ | | | | | | | | ]

    MIDI Data   [0| | | | | | | ]    [0| | | | | | | ]

NOTE 13-1 : NUMBER OF DRUMSOUND
            nnn nnnn = 1 ~ 100

NOTE 13-2 : ALL DRUM SOUND (PCM CARD) NAME DATA FORMAT
            [Drum Sound 1 Name (10Byte)], ......, [Drum Sound n Name (10Byte)]
            n : Drum Sound Number

NOTE 14-1 : NUMBER OF MULTISOUND
            nnn nnnn = 1 ~ 100

NOTE 14-2 : ALL MULTISOUND (PCM CARD) NAME DATA FORMAT
            [Multisound 1 Name (10Byte)], ......, [Multisound n Name (10Byte)]
            n : Multisound Number

NOTE 15 :cc.vv = 0,0 : Card Off
              = 0,1 : NG Card (ROM)
              = 0,2 :  -  -   (RAM)
              = 1,0 : ROM Card
              = 2,0 : RAM Card (Protect Off)
              = 3,0 :  -  -  (  -    On )

NOTE 16 :  cc = 0 : Card Off
              = 1 : NG Card In
              = 2 : PCM Card In

## PROGRAM PARAMETER (TABLE 1)

| No. | PARAMETER | DATA(Hex) : VALUE |
|---|---|---|
| 00 | PROGRAM NAME (Head) | 20~7F : ' ' ~ ' ← ' |
| ⋮ | | |
| 09 | PROGRAM NAME (Tail) | |
| | OSCILLATOR | |
| 10 | OSCILLATOR MODE | 0, 1, 2    *1 |
| 11 | ASSIGN | bit0=0:POL. =1:MON |
| | HOLD | bit1=0:OFF. =1:ON |
| 12 | OSC-1 MULTISOUND | 00~FE : 00~254 |
| 13 | OSC-1 M. SOUND BANK | 0~F:Int.10~:Ext |
| 14 | OSC-1 OCTAVE | FE~01 : 32'~4' |
| 15 | OSC-2 MULTISOUND | 00~FE : 00~254 |
| 16 | OSC-2 M. SOUND BANK | 0~F:Int.10~:Ext |
| 17 | OSC-2 OCTAVE | FE~01 : 32'~4' |
| 18 | INTERVAL | F4~0C : -12~12 |
| 19 | DETUNE | CE~32 : -50~50 |
| 20 | DELAY START | 00~63 : 00~99 |
| | PITCH EG | |
| 21 | START LEVEL | 9D~63 : -99~99 |
| 22 | ATTACK TIME | 00~63 : 00~99 |
| 23 | ATTACK LEVEL | 9D~63 : -99~99 |
| 24 | DECAY TIME | 00~63 : 00~99 |
| 25 | RELEASE TIME | 00~63 : 00~99 |
| 26 | RELEASE LEVEL | 9D~63 : -99~99 |
| 27 | TIME VELOCITY SENSE | 9D~63 : -99~99 |
| 28 | LEVEL VELOCITY SENSE | 9D~63 : -99~99 |
| | CUTOFF MG | |
| 29 | WAVE FORM | bit0~2 : 0~4 *2 |
| | OSC-1 MG ENABLE | bit5=0:OFF. =1:ON |
| | OSC-2 MG ENABLE | bit6=0:OFF. =1:ON |
| | KEY SYNC | bit7=0:OFF. =1:ON |
| 30 | FREQUENCY | 00~63 : 00~99 |
| 31 | DELAY | 00~63 : 00~99 |
| 32 | INTENSITY | 00~63 : 00~99 |
| | AFTER TOUCH | |
| 33 | PITCH BEND RANGE | F4~0C : -12~12 |
| 34 | VDF CUTOFF | 9D~63 : -99~99 |
| 35 | VDF MG INT | 00~63 : 00~99 |
| 36 | VDA AMPLITUDE | 9D~63 : -99~99 |
| | JOY STICK | |
| 37 | PITCH BEND RANGE | F4~0C : -12~12 |
| 38 | VDF SWEEP INT. | 9D~63 : -99~99 |
| 39 | VDF MG INT. | 00~63 : 00~99 |
| | OSC-1 PITCH EG | |
| 40 | PITCH EG INT | 9D~63 : -99~99 |
| | OSC-1 PITCH MG | |
| 41 | WAVE FORM | bit0~2 : 0~4 *2 |
| | KEY SYNC | bit7=0:OFF. =1:ON |
| 42 | FREQUENCY | 00~63 : 00~99 |
| 43 | DELAY | 00~63 : 00~99 |
| 44 | FADE IN | 00~63 : 00~99 |
| 45 | INTENSITY | 00~63 : 00~99 |
| 46 | FREQ MOD BY KBD TRK | 9D~63 : -99~99 |
| 47 | INTENSITY MOD BY AT | 00~63 : 00~99 |
| 48 | INTENSITY MOD BY JS | 00~63 : 00~99 |
| 49 | FREQ MOD BY AT+JS | 00~09 : 0~9 |

| No. | PARAMETER | DATA(Hex) : VALUE |
|---|---|---|
| | VDF-1 | |
| 50 | CUTOFF VALUE | 00~63 : 00~99 |
| 51 | KBD TRACK KEY | 00~7F : C-1~G9 |
| 52 | CUTOFF KBD TRACK | 9D~63 : -99~99 |
| 53 | EG INTENSITY | 00~63 : 00~99 |
| 54 | EG TIME KBD TRACK | 00~63 : 00~99 |
| 55 | EG TIME VEL. SENSE | 00~63 : 00~99 |
| 56 | EG INT. VEL. SENSE | 9D~63 : -99~99 |
| | VDF-1 EG | |
| 57 | ATTACK TIME | 00~63 : 00~99 |
| 58 | ATTACK LEVEL | 9D~63 : -99~99 |
| 59 | DECAY TIME | 00~63 : 00~99 |
| 60 | BREAK POINT | 9D~63 : -99~99 |
| 61 | SLOPE TIME | 00~63 : 00~99 |
| 62 | SUSTAIN LEVEL | 9D~63 : -99~99 |
| 63 | RELEASE TIME | 00~63 : 00~99 |
| 64 | RELEASE LEVEL | 9D~63 : -99~99 |
| | VDA-1 | |
| 65 | OSCILLATOR LEVEL | 00~63 : 00~99 |
| 66 | KBD TRACK KEY | 00~7F : C-1~G9 |
| 67 | AMP. KBD TRACK INT. | 9D~63 : -99~99 |
| 68 | AMP. VELOCITY SENSE | 9D~63 : -99~99 |
| 69 | EG TIME KBD TRACK | 00~63 : 00~99 |
| 70 | EG TIME VEL. SENSE | 00~63 : 00~99 |
| | VDA-1 EG | |
| 71 | ATTACK TIME | 00~63 : 00~99 |
| 72 | ATTACK LEVEL | 00~63 : 00~99 |
| 73 | DECAY TIME | 00~63 : 00~99 |
| 74 | BREAK POINT | 00~63 : 00~99 |
| 75 | SLOPE TIME | 00~63 : 00~99 |
| 76 | SUSTAIN LEVEL | 00~63 : 00~99 |
| 77 | RELEASE TIME | 00~63 : 00~99 |
| | OSC-1 EG TIME KBD TRACK. VEL. SW & POLARITY | |
| 78 | F. EG TIME K. T SW&POL | bit0~7    *3 |
| 79 | F. EG TIME VEL. SW&POL | bit0~7    *3 |
| 80 | A. EG TIME K. T SW&POL | bit0~7    *3 |
| 81 | A. EG TIME VEL. SW&POL | bit0~7    *3 |
| 82 | ( RESERVE ) | 00 |
| | EMPHASIS-1 | |
| 83 | INTENSITY | 00~63 : 00~99 |
| 84 | VELOCITY SENSE | 9D~63 : -99~99 |
| | VDF-1, VDA-1 KBD TRACK MODE | |
| 85 | F-1, A-1 KBD TRACK MODE | *4 |
| | OSC-1 PAN | |
| 86 | PAN | 00~0E    *5 |
| | OSC-2 PARAMETER | |
| 87 | SAME AS OSC-1(40~86) | |
| ⋮ | | |
| 133 | | |
| 134 | ( RESERVE ) | 00 |
| | EFFECT PARAMETER | |
| 135 | | |
| ⋮ | | *9 |
| 163 | | |

## COMBINATION PARAMETER (TABLE2)

| No. | PARAMETER | DATA(Hex) : VALUE |
|---|---|---|
| | COMBINATION CONTROLLER | |
| 00 | COMBI. NAME (Head) | 20~7F : ' ' ~ ' ← ' |
| ⋮ | | |
| 09 | COMBI. NAME (Tail) | |
| 10 | ( RESERVE ) | 00 |
| | EFFECT PARAMETER | |
| 11 | | |
| ⋮ | | *9 |
| 39 | | |
| | TIMBRE 1 PARAMETER | |
| 40 | PROGRAM NO. | *6 |
| 41 | OUTPUT LEVEL | 00~7F : 00~127 |
| 42 | TRANSPOSE | E8~18 : -24~24 |
| 43 | DETUNE | CE~32 : -50~50 |
| 44 | PAN | 00~0F    *5 |
| 45 | KEY WINDOW TOP | 00~7F : C-1~G9 |
| 46 | KEY WINDOW BOTTOM | 00~7F : C-1~G9 |
| 47 | VEL. WINDOW TOP | 01~7F : 01~127 |
| 48 | VEL. WINDOW BOTTOM | 01~7F : 01~127 |
| 49 | CONTROL FILTER | bit0~3    *7 |
| 50 | MIDI CHANNEL | bit0~3 : 1~16 |
| | TIMBRE MODE | bit4=0:ON. =1:OFF |
| | TIMBRE 2~8 PARAMETER | |
| 51 | SAME AS TIMBRE 1(40~50) x 7 | |
| ⋮ | | |
| 127 | | |

## GLOBAL PARAMETER (TABLE3)

| No. | PARAMETER | DATA(Hex) : VALUE |
|---|---|---|
| | GLOBAL PARAMETER | |
| 00 | MASTER TUNE | CE~32 : -50~50 |
| 01 | KEY TRANSPOSE | F4~0C : -12~12 |
| 02~04 | ( RESERVE ) | 00 |
| 05 | SCALE TYPE | 00~04    *8 |
| 06 | PURE TYPE KEY | 00~0B : C~B |
| 07 | USER SCALE | CE~32 : -50~50 |
| ⋮ | | |
| 18 | | |
| 19 | VELOCITY CURVE | 0~7 : 1~8 |
| 20 | AFTER TOUCH CURVE | 0~7 : 1~8 |

## DRUMS PARAMETER (TABLE4)

| No. | PARAMETER | DATA(Hex) : VALUE |
|---|---|---|
| | DRUM KIT A:1-INDEX#0 | |
| 00 | INST NO. | 00:OFF. 01~6F:INT. 70~:CARD |
| 01 | KEY | 0C~73 : C0~G8 |
| 02 | PAN | *10 |
| 03 | TUNE | 88~78 : -120~120 |
| 04 | LEVEL | CE~32 : -50~50 |
| 05 | DECAY | CE~32 : -50~50 |
| 06 | ( RESERVE ) | 00 |
| | DRUM KIT A:1-INDEX#1 ~ DRUM KIT A:2-#59 | |
| 07 | SAME AS DRUM KIT A:1-#0(00~06) | |
| ⋮ | | x(60x2-1) |
| 839 | | |

## MULTI SETUP DATA (TABLE5)

| No. | PARAMETER | DATA(Hex) : VALUE |
|---|---|---|
| | EFFECT PARAMETER | |
| 00 | | |
| ⋮ | | *9 |
| 28 | | |

*1 : 0 : SINGLE
     1 : DOUBLE
     2 : DRUMS

*2 : 0 : TRIANGLE
     1 : UP SAW
     2 : DOWN SAW
     3 : SQUARE
     4 : RANDOM

*3 : bit0 : ATTACK TIME SW        =0:OFF. =1:ON
     bit1 : DECAY TIME              "
     bit2 : SLOPE TIME              "
     bit3 : RELEASE TIME            "
     bit4 : ATTACK TIME POLARITY =0:+. =1:-
     bit5 : DECAY TIME              "
     bit6 : SLOPE TIME              "
     bit7 : RELEASE TIME            "

*4 : bit0,1 ··· VDF
     bit4,5 ··· VDA
        0 : OFF
        1 : LOW
        2 : HIGH
        3 : ALL

                A   B
*5 : 00 : 10:00

     0A : 00:10

     0B : C
     0C : C+D
     0D : D
     0E : ALL
     0F : PRG

*6   00~63 : 00~99 of Bank A.C.D
     64~E4 : Bank G01~G129

*7   bit0 : PROGRAM CHANGE =0:DIS. =1:ENA
     bit1 : DAMPER                "
     bit2 : AFTER TOUCH           "
     bit3 : CONTROL CHANGE        "

*8 : 0 : EQUAL TEMP
     1 : EQUAL TEMP 2
     2 : PURE MAJOR
     3 : PURE MINOR
     4 : USER PROGRAM

## *9 EFFECT PARAMETER

| No. | PARAMETER | DATA(Hex) : VALUE |
|---|---|---|
| (00) | Effect 1 Type No. | 0,1~2F:OFF, 1~47 |
| (01) | -    2    - | 0,1~2F:OFF, 1~47 |
| (02) | -  1 L-Ch E. Balnc | 00~64 : 00~100 |
| (03) | -  1 R-Ch  - | 00~64 : 00~100 |
| (04) | -  2 L-Ch  - | 00~64 : 00~100 |
| (05) | -  2 R-Ch  - | 00~64 : 00~100 |
| (06) | Output 3 Pan | 00,01~65    *9-1 |
| (07) | -    4    - | 00,01~65    *9-1 |
| (08) | Effect 1/0 | bit5~0    *9-2 |
| (09) | Effect 1 Parameter | |
| ⋮ | | *9-3 |
| (16) | | |
| (17) | Effect 1 Mod Source | 00~06    *9-4 |
| (18) | Effect 1 Mod Amount | F1~0F : -15~15 |
| (19) | Effect 2 Parameter | |
| ⋮ | | *9-3 |
| (26) | | |
| (27) | Effect 2 Mod Source | 00~06    *9-4 |
| (28) | Effect 2 Mod Amount | F1~0F : -15~15 |

*9-1 : 00 : Off      *9-2 :
       01 : R        bit0=0:Efct1 L-Ch Off.=1:On
       02 : 01:99    bit1=0: - 1 R-Ch Off.=1:On
                     bit2=0: - 2 L-Ch Off.=1:On
       64 : 99:01    bit3=0: - 2 R-Ch Off.=1:On
       65 : L        bit4,5=0:Serial 1:Parallel
                              2:Parallel2

*9-3 : Effect Parameter (8Byte) 47 Type

| offset | PARAMETER | DATA(Hex) : VALUE |
|---|---|---|
| 1~3:Hall, ( 4,5:Room.   6:Live Stage ) | | |
| (00) | Reverb Time | 00~61(2F):0.2~9.9(4.9) |
| (01) | ( NUL ) | 00 |
| (02) | High Damp | 00~63 : 00~99 |
| (03) | Pre Delay | 00~C8 : 00~200 |
| (04) | E. R Level | 00~63 : 00~99 |
| (05) | ( NUL ) | 00 |
| (06) | EQ High | F4~0C : -12~12 |
| (07) | EQ Low | F4~0C : -12~12 |

Don't display NUL from here, and that must be 00

7:Wet Plate, 8:Dry Plate. 9:Spring

| | | |
|---|---|---|
| (00) | Pre Delay(L) | 00~C8 : 00~200 |
| (01) | -   - (H) | |
| (02) | E. R Level | 01~0A : 01~10 |
| (03) | Reverb Time | 00~63 : 00~99 |
| (04) | High Damp | 00~63 : 00~99 |
| (06) | EQ Low | F4~0C : -12~12 |
| (07) | EQ High | F4~0C : -12~12 |

10~12:Early Reflection 1, 2, 3

| | | |
|---|---|---|
| (00) | E. R Time | 00~46 : 100~800 |
| (01) | Pre Delay | 00~C8 : 00~200 |
| (06) | EQ High | F4~0C : -12~12 |
| (07) | EQ Low | F4~0C : -12~12 |

### 13:Stereo Delay, 14:Cross Delay

| | | |
|---|---|---|
| (00) | Delay Time L (L) | 00~1F4 : 00~500 |
| (01) | -   - (H) | |
| (02) | Feed Back | 9D~63 : -99~99 |
| (03) | High Damp | 00~63 : 00~99 |
| (04) | Delay Time R (L) | 00~1F4 : 00~500 |
| (05) | -   - (H) | |
| (06) | EQ High | F4~0C : -12~12 |
| (07) | EQ Low | F4~0C : -12~12 |

### 15:Dual Delay

| | | |
|---|---|---|
| (00) | Delay Time L (L) | 00~1F4 : 00~500 |
| (01) | -   - (H) | |
| (02) | Feed Back  L | 9D~63 : -99~99 |
| (03) | High Damp  L | 00~63 : 00~99 |
| (04) | Delay Time R (L) | 00~1F4 : 00~500 |
| (05) | -   - (H) | |
| (06) | Feed Back  R | 9D~63 : -99~99 |
| (07) | High Damp  R | 00~63 : 00~99 |

### 16~18:Multi Tap Delay 1, 2, 3

| | | |
|---|---|---|
| (00) | Delay Time 1(L) | 00~1F4 : 00~500 |
| (01) | -   - (H) | |
| (02) | Delay Time 2(L) | 00~1F4 : 00~500 |
| (03) | -   - (H) | |
| (04) | Feed back | 9D~63 : -99~99 |
| (06) | EQ Low | F4~0C : -12~12 |
| (07) | EQ High | F4~0C : -12~12 |

### 19, 20:Stereo Chorus 1, 2

| | | |
|---|---|---|
| (00) | Mod Depth | 00~63 : 00~99 |
| (01) | Mod Speed | 00~D8    *9-3-2 |
| (02) | MG Status    *9-3-3 | bit0=0:Sin. =1:Tri / bit1 ← 1 / bit2 ← 0 |
| (04) | Delay Time | 00~C8 : 00~200 |
| (06) | EQ High | F4~0C : -12~12 |
| (07) | EQ Low | F4~0C : -12~12 |

### 21:Quadrature Chorus. 22:X Over Chorus

| | | |
|---|---|---|
| (00) | Delay Time L | 00~FA : 00~250 |
| (01) | Delay Time R | 00~FA : 00~250 |
| (02) | Mod Speed | 01~63 : 01~99 |
| (03) | Mod Depth | 00~63 : 00~99 |
| (04) | Mod Waveform | EB~14    *9-3-4 |
| (06) | EQ Low | F4~0C : -12~12 |
| (07) | EQ High | F4~0C : -12~12 |

### 23:Harmonic Chorus

| | | |
|---|---|---|
| (00) | Delay Time L (L) | 00~1F4 : 00~500 |
| (01) | -   - (H) | |
| (02) | Delay Time R (L) | 00~1F4 : 00~500 |
| (03) | -   - (H) | |
| (04) | Mod Speed | 01~63 : 01~99 |
| (05) | Mod Depth | 00~63 : 00~99 |
| (06) | Filter Split Point | 00~12 : 00~18 |

### 24:Symphonic Ensemble

| | | |
|---|---|---|
| (00) | Mod Depth | 00~63 : 00~99 |
| (06) | EQ High | F4~0C : -12~12 |
| (07) | EQ Low | F4~0C : -12~12 |

### 25, 26:Flanger1, 2. 27:X Over Flanger

| | | |
|---|---|---|
| (00) | Delay Time | 00~C8 : 00~200 |
| (01) | Mod Depth | 00~63 : 00~99 |
| (02) | Mod Speed | 01~63 : 01~99 |
| (03) | Resonance | 9D~63 : -99~99 |
| (06) | EQ Low | F4~0C : -12~12 |
| (07) | EQ High | F4~0C : -12~12 |

### 28:Exciter

| | | |
|---|---|---|
| (00) | Blend | 9D~63 : -99~99 |
| (01) | Emphatic Point | 00~09 : 01~10 |
| (06) | EQ High | F4~0C : -12~12 |
| (07) | EQ Low | F4~0C : -12~12 |

### 29:Enhancer

| | | |
|---|---|---|
| (00) | Harmonic Density | 01~63 : 01~99 |
| (01) | Hot Spot | 01~14 : 01~20 |
| (02) | Stereo Width | 00~63 : 00~99 |
| (03) | Delay | 01~63 : 01~99 |
| (06) | EQ Low | F4~0C : -12~12 |
| (07) | EQ High | F4~0C : -12~12 |

### 30:Distortion, 31:Over Drive

| | | |
|---|---|---|
| (00) | Drive (Edge) | 01~6F : 01~111 |
| (01) | Hot Spot | 00~63 : 00~99 |
| (02) | Resonance | 00~63 : 00~99 |
| (03) | Out Level | 00~63 : 00~99 |
| (06) | EQ Low | F4~0C : -12~12 |
| (07) | EQ High | F4~0C : -12~12 |

### 32, 33:Phaser 1. (2)

| | | |
|---|---|---|
| (00) | Mod Depth | 00~63 : 01~99 |
| (01) | Mod Speed | 00~D8    *9-3-2 |
| (02) | MG Status    *9-3-3 | bit0=0:Sin. =1:Tri / bit1 ← 1. (0) / bit2 ← 0 |
| (03) | Feedback | 9D~63 : -99~99 |
| (04) | Manual | 00~63 : 00~99 |

### 34:Rotary Speaker

| | | |
|---|---|---|
| (00) | Vibrato Depth | 00~0F : 00~15 |
| (01) | Acceleration | 01~0F : 01~15 |
| (02) | Slow Speed | 01~63 : 01~99 |
| (03) | Fast Speed | 01~63 : 01~99 |

### 35:Auto Pan. (36:Tremolo)

| | | |
|---|---|---|
| (00) | Depth | 00~63 : 00~99 |
| (01) | Speed | 00~D8    *9-3-2 |
| (02) | MG Status    *9-3-3 | bit0=0:Sin. =1:Tri / bit1 ← 1. (0) / bit2 ← 0 |
| (03) | Shape | 9D~63 : -99~99 |
| (06) | EQ High | F4~0C : -12~12 |
| (07) | EQ Low | F4~0C : -12~12 |

### 37:Parametric EQ

| | | |
|---|---|---|
| (00) | Low Freq | 00~1D : 00~29 |
| (01) | Low Gain | F4~0C : -12~12 |
| (02) | Mid Freq | 00~63 : 00~99 |
| (03) | Mid Gain | F4~0C : -12~12 |
| (04) | Mid Width | 00~63 : 00~99 |
| (05) | High Freq | 00~1D : 00~29 |
| (06) | High Gain | F4~0C : -12~12 |

### 38:Chorus-Delay, 39:Flanger-Delay

| | | |
|---|---|---|
| (00) | Delay Time | 00~32 : 00~50 |
| (01) | Mod Speed | 01~63 : 01~99 |
| (02) | Mod Depth | 00~63 : 00~99 |
| (03) | Feed back | 9D~63 : -99~99 |
| (04) | Delay Time | 00~E1 : 00~450 |
| (05) | Feed back | 9D~63 : -99~99 |

### 40:Delay / Hall

| | | |
|---|---|---|
| (00) | Delay Time (L) | 00~1F4 : 00~500 |
| (01) | Delay Time (H) | |
| (02) | Feed Back | 9D~63 : -99~99 |
| (03) | High Damp | 00~63 : 00~99 |
| (04) | Reverb Time | 00~61 : 0.2~9.9 |
| (06) | High Damp | 00~63 : 00~99 |
| (07) | Pre Delay | 00~96 : 00~150 |

### 41:Delay / Room

| | | |
|---|---|---|
| (00) | Delay Parameter | *9-3-1 |
| ⋮ | | |
| (03) | | |
| (04) | Reverb Time | 00~2F : 0.2~4.9 |
| (06) | High Damp | 00~63 : 00~99 |
| (07) | Pre Delay | 00~96 : 00~150 |

### 42:Delay / Chorus. ( 43:Delay / Flanger )

| | | |
|---|---|---|
| (00) | Delay Parameter | *9-3-1 |
| ⋮ | | |
| (03) | | |
| (04) | Depth | 00~63 : 00~99 |
| (05) | Speed | 00~D8    *9-3-2 |
| (06) | MG Status    *9-3-3 | bit0=0:S. =1:T (←0) / bit1 ← 0 / bit2 ← 0. (←1) |
| (07) | Feed Back | 0. (9D~63:-99~99) |

### 44:Delay / Distortion, 45:Delay / Over Drive

| | | |
|---|---|---|
| (00) | Delay Time (L) | 00~1F4 : 00~500 |
| (01) | -   - (H) | |
| (02) | Feed back | 9D~63 : -99~99 |
| (03) | Drive | 01~6F : 01~111 |
| (04) | Hot Spot | 01~63 : 01~99 |
| (05) | Resonance | 00~63 : 00~99 |
| (06) | Out Level | 01~63 : 01~99 |

### 46:Delay / Phaser

| | | |
|---|---|---|
| (00) | Delay Parameter | *9-3-1 |
| ⋮ | | |
| (03) | | |
| (04) | Depth | 00~63 : 00~99 |
| (05) | Speed | 00~D8    *9-3-2 |
| (06) | Feedback | 9D~63 : -99~99 |

### 47:Delay / Rotary Speaker

| | | |
|---|---|---|
| (00) | Delay Time (L) | 00~1F4 : 00~500 |
| (01) | -   - (H) | |
| (02) | Feed back | 9D~63 : -99~99 |
| (03) | Acceleration | 01~0F : 01~15 |
| (04) | Slow Speed | 01~63 : 01~99 |
| (05) | Fast Speed | 01~63 : 01~99 |

*9-3-1 : Delay Parameter
          Same as 40-(00)~(03)

*9-3-2 : Data(Hex)  Value[Hz]
          00~63   0.03~ 3.00  (0.03step)
          64~C7   3.1 ~13.0   (0.1 step)
          C8~D8   14  ~30.0   ( 1 step )

*9-3-3 : MG Status
          bit0 : Wave Form  =0:Sin.  =1:Tri
          bit1 : Phase       =0:0° ,  =1:180°
          bit2 : Wave Shape =0: Normal
                             =1: for Flanger

*9-3-4 : Waveform
          EB : T+10
          FF : T-10
          00 : S-10
          14 : S+10

*9-4 : Dynamic Modulation Source
        0 : None
        1 : Joy Stick (+Y)  ( Bn.01.vv )
        2 : Joy Stick (-Y)  ( Bn.02.vv )
        3 : After Touch     ( Dn.vv )
        4 : Ass Pedal 1     ( Bn.0C.vv )
        5 : Ass Pedal 2     ( Bn.0D.vv )
        6 : VDA EG

*10 : bit0~3 = 00 : 10:00
                 ⋮
              0A : 00:10
              0B : C
              0C : C+D
              0D : D
              0E : ALL
              0F : PRG

      bit4~7 = 00 : EX Off
               01 : EX Group1
                 ⋮
               09 : EX Group9
               0A : SLF

PROGRAM PARAMETERS  PARAMETER No. for PARAMETER CHANGE  (TABLE 6)

| No. | PARAMETER | No. of TABLE 1 |
|---|---|---|
| | OSCILLATOR | |
| 00 | OSC MODE | 10 |
| 01 | ASSIGN | 11 bit0 |
| 02 | HOLD | 11 bit1 |
| | PITCH EG | |
| 03 | START LEVEL | 21 |
| 04 | ATTACK TIME | 22 |
| 05 | ATTACK LEVEL | 23 |
| 06 | DECAY TIME | 24 |
| 07 | RELEASE TIME | 25 |
| 08 | RELEASE LEVEL | 26 |
| 09 | LEVEL VELOCITY SENSE | 28 |
| 10 | TIME VELOCITY SENSE | 27 |
| | CUTOFF MG | |
| 11 | WAVE FORM | 29bit0-2 |
| 12 | FREQUENCY | 30 |
| 13 | INTENSITY | 32 |
| 14 | DELAY | 31 |
| 15 | OSC SELECT | 29bit5,6 |
| 16 | KEY SYNC | 29 bit7 |
| | AFTER TOUCH | |
| 17 | PITCH BEND RANGE | 33 |
| 18 | VDF CUTOFF | 34 |
| 19 | VDF MG INT | 35 |
| 20 | VDA AMPLITUDE | 36 |
| | JOY STICK | |
| 21 | VDF MG INT | 39 |
| 22 | PITCH BEND RANGE | 37 |
| 23 | VDF SWEEP INT | 38 |
| | OSC-1 | |
| 24 | MULTISOUND | 12,13 |
| 25 | LEVEL | 65 |
| 26 | OCTAVE | 14 |
| 27 | PITCH EG INT | 40 |
| 28 | PANPOT | 86 |
| | VDF-1 | |
| 29 | CUTOFF | 50 |
| 30 | EG INTENSITY | 53 |
| | EMPHASIS-1 | |
| 31 | INTENSITY | 83 |
| 32 | VELOCITY SENSE | 84 |
| | VDF-1 EG | |
| 33 | ATTACK TIME | 57 |
| 34 | ATTACK LEVEL | 58 |
| 35 | DECAY TIME | 59 |
| 36 | BREAK POINT | 60 |
| 37 | SLOPE TIME | 61 |
| 38 | SUSTAIN LEVEL | 62 |
| 39 | RELEASE TIME | 63 |
| 40 | RELEASE LEVEL | 64 |
| 41 | EG INT BY VEL SENSE | 56 |
| 42 | EG TIME BY VEL SENSE | 55 |

| No. | PARAMETER | No. of TABLE 1 |
|---|---|---|
| | VDF-1 EG TIME MOD BY VEL SENSE | |
| 43 | ATTACK TIME | 79bit0,4 |
| 44 | DECAY TIME | 79bit1,5 |
| 45 | SLOPE TIME | 79bit2,6 |
| 46 | RELEASE TIME | 79bit3,7 |
| | VDF-1 KBD TRACK | |
| 47 | KEY | 51 |
| 48 | MODE | 85bit0,1 |
| 49 | CUTOFF | 52 |
| 50 | EG TIME | 54 |
| | VDF-1 EG TIME MOD BY KBD TRACK | |
| 51 | ATTACK TIME | 78bit0,4 |
| 52 | DECAY TIME | 78bit1,5 |
| 53 | SLOPE TIME | 78bit2,6 |
| 54 | RELEASE TIME | 78bit3,7 |
| | VDA-1 EG | |
| 55 | ATTACK TIME | 71 |
| 56 | ATTACK LEVEL | 72 |
| 57 | DECAY TIME | 73 |
| 58 | BREAK POINT | 74 |
| 59 | SLOPE TIME | 75 |
| 60 | SUSTAIN LEVEL | 76 |
| 61 | RELEASE TIME | 77 |
| 62 | VELOCITY SENSE | 68 |
| 63 | EG TIME VEL SENSE | 70 |
| | VDA-1 EG TIME MOD BY VEL SENSE | |
| 64 | ATTACK TIME | 81bit0,4 |
| 65 | DECAY TIME | 81bit1,5 |
| 66 | SLOPE TIME | 81bit2,6 |
| 67 | RELEASE TIME | 81bit3,7 |
| | VDA-1 KBD TRACK | |
| 68 | KEY | 66 |
| 69 | MODE | 85bit4,5 |
| 70 | INT | 67 |
| 71 | EG TIME | 69 |
| | VDA-1 EG TIME MOD BY KBD TRACK | |
| 72 | ATTACK TIME | 80bit0,4 |
| 73 | DECAY TIME | 80bit1,5 |
| 74 | SLOPE TIME | 80bit2,6 |
| 75 | RELEASE TIME | 80bit3,7 |
| | OSC-1 PITCH MG | |
| 76 | WAVE FORM | 41bit0-2 |
| 77 | FREQUENCY | 42 |
| 78 | INTENSITY | 45 |
| 79 | DELAY | 43 |
| 80 | FADE IN | 44 |
| 81 | KEY SYNC | 41 bit7 |
| 82 | FREQ MOD BY KBD TRACK | 46 |
| 83 | FREQ MOD BY AT+JS | 49 |
| 84 | INTENSITY MOD BY A.T | 47 |
| 85 | INTENSITY MOD BY J.S | 48 |

| | OSC-2 | |
|---|---|---|
| 86 | INTERVAL | 18 |
| 87 | DETUNE | 19 |
| 88 | DELAY START | 20 |
| | OSC-2 PARAMETER | |
| 89 | SAME AS OSC-1(24~85) | 87 |
| ⋮ | | ⋮ |
| 150 | | 133 |
| | EFFECT PARAMETER | |
| 151 | | |
| ⋮ | ( TABLE 6-1 ) | |
| 179 | | |

## COMBINATION PARAMETER

PARAM No. for PARAM CHANGE  (TABLE 7)
n = 0~7 ( : Timbre 1~8 )

| No. | PARAMETER | No. of TABLE 2 |
|---|---|---|
| 0+n | PROGRAM No. | 40+11n |
| 8+n | LEVEL | 41+11n |
| 16+n | MIDI CHANNEL | 50+11n |
| 24+n | KEY WINDOW TOP | 45+11n |
| 32+n | KEY WINDOW BOTTOM | 46+11n |
| 40+n | VEL WINDOW TOP | 47+11n |
| 48+n | VEL WINDOW BOTTOM | 48+11n |
| 56+n | TRANSPOSE | 42+11n |
| 64+n | DETUNE | 43+11n |
| 72+n | PROG CHANGE FILTER | 49+11nb0 |
| 80+n | DAMPER FILTER | 49+11nb1 |
| 88+n | AFTER TOUCH FILTER | 49+11nb2 |
| 96+n | CTRL CHANGE FILTER | 49+11nb3 |
| 104+n | PANPOT | 44+11n |
| | EFFECT PARAMETER | |
| 112 | | |
| ⋮ | ( TABLE 6-1 ) | |
| 140 | | |

## MULTI PARAMETER (TABLE 9)

n = 0~15 ( : Track 1~16 )

| No. | PARAMETER |
|---|---|
| 0+n | PROGRAM No. |
| 16+n | LEVEL |
| 32+n | PANPOT |
| 48+n | TRANSPOSE |
| 64+n | DETUNE |
| 80+n | PITCH BEND RANGE |
| 96+n | PROG CHANGE FILTER |
| | EFFECT PARAMETER |
| 112 | |
| ⋮ | ( TABLE 6-1 ) |
| 140 | |

## EFFECT PARAMETER ( TABLE 6-1 )

| No. of TABLE6.7 | | | PARAMETER |
|---|---|---|---|
| PROG | COMB | MULT | (Param 1~7:) |
| 151 | 112 | 112 | EFFECT 1 TYPE |
| 152 | 113 | 113 | EFFECT 2 TYPE |
| 153 | 114 | 114 | EFFECT 1 OFF/ON |
| 154 | 115 | 115 | EFFECT 2 OFF/ON |
| 155 | 116 | 116 | OUT3 PANPOT |
| 156 | 117 | 117 | OUT4 PANPOT |
| 157 | 118 | 118 | PLACEMENT |
| | EFFECT 1 | | |
| 158 | 119 | 119 | DYNAMIC MOD SOURCE |
| 159 | 120 | 120 | DYNAMIC MOD INT |
| 160 | 121 | 121 | Parameter 1 |
| 161 | 122 | 122 | Parameter 2 |
| 162 | 123 | 123 | Parameter 3 |
| 163 | 124 | 124 | Parameter 4 |
| 164 | 125 | 125 | Parameter 5 |
| 165 | 126 | 126 | Parameter 6 |
| 166 | 127 | 127 | Parameter 7 |
| 167 | 128 | 128 | Balance 1 |
| 168 | 129 | 129 | Balance 2 |
| | EFFECT 2 | | |
| 169 | 130 | 130 | SAME AS EFFECT 1 |
| ⋮ | ⋮ | ⋮ | ( 158~168 ) |
| 179 | 140 | 140 | ( 119~129 ) |

## DRUM KIT PARAMETER

INDEX No. for DRUM PARAM CHANGE (TABLE8-1)

| INDEX No. | INDEX |
|---|---|
| | DRUM KIT 1 |
| 00 | INDEX 00 |
| ⋮ | ⋮ |
| 59 | INDEX 59 |
| | DRUM KIT 2 |
| 60 | INDEX 00 |
| ⋮ | |
| 119 | INDEX 59 |

PARAM No. for DRUM PARAM CHANGE (TABLE8-2)

| PARAM No. | PARAMETER |
|---|---|
| 0 | INDEX No. |
| 1 | INST No. |
| 2 | KEY |
| 3 | TUNE |
| 4 | LEVEL |
| 5 | DECAY |
| 6 | PAN |
| 7 | EXCLUSIVE ASSIGN |

# Program Change MIDI In (X:Channel)

# 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 Korg 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 03R/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 | AI$^2$ 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?<br>- Has the master volume been turned up?<br>- Are any of the level-related parameters set to 0?<br>- Are you playing an area of the notes which will not sound due to split settings or the pitch range?<br>- Is the keyboard or sequencer connected correctly using a MIDI cable?<br>- Does the MIDI channel on the keyboard or sequencer match properly? |
| Cannot save data to card | - Has the Memory protect (Global mode 3A and 3B) function been turned ON?<br>- Is the card protect switch ON?<br>- Is the card a ROM card?<br>- Is the card inserted correctly? |
| Cannot load data from card | - Has the Memory protect (Global mode 3A and 3B) function been turned ON?<br>- Is the card inserted correctly?<br>- Does the card contain data? |
| Writing to internal memory disabled | - Has the Memory protect (Global mode 3A and 3B) function been turned ON?<br>- Are you attempting to write to ROM (Programs G01-G129)? |
| The sound is not correct | - Is the inserted PCM data card the one you used when creating the sound?<br>- Is the inserted PROG data card the one you used when creating the Combination?<br>- 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?<br>- Is the data loaded correctly to the sequencer?<br>- Has Multi mode been selected?<br>- 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?<br>- Is the MIDI channel correct?<br>- Is the Filtering in the Global mode set to "DIS"? |

# 03R/W MEMORY CONFIGURATION

**03R/W**       **MIDI Implementation Chart**

| 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 | × | ○ 9n, V= 1 ~127 | |
| | Note OFF | × | × | |
| After | Key's | × | × | |
| Touch | Ch's | × | ○ | *4 |
| Pitch Bender | | × | ○ | *1 |
| Control | 0, 32 | ○ | ○ | Bank (MBS, 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 Cntrl   *1 |
| | 64 | × | ○ | Damper   *1 |
| Change | 91, 92 | × | ○ | FX 1,2 ON/OFF   *1 |
| | 96, 97 | ○ | ○ | Data Increment/Decrement   *2 |
| | 100, 101 | × | ○ | RPN (LSB, MSB)   *2 |
| | 120 | × | ○ | All Sound Off |
| | 121 | × | ○ | Reset All Cntrls |
| Program | | ○ 0 ~127 | ○ 0 ~127 | *3 |
| Change: True # | | ******** | 0 ~127 | *5 |
| System Exclusive | | ○ | ○ | *2 |
| System Common | :Song Pos | × | × | |
| | :Song Sel | × | × | |
| | :Tune | × | × | |
| 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

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

# DRUM SOUND

| | | | | | |
|---|---|---|---|---|---|
| 000 Fat Kick | 017 Ambi.Snare | 034 CloseSynHH | 051 Mute Conga | 068 Zap 2 | 085 MetalBell1 | 102 Flutter |
| 001 Rock Kick | 018 Rev Snare | 035 Open SynHH | 052 Maracas | 069 Stick Hit | 086 MetalBell2 | 103 Timpani |
| 002 Ambi.Kick | 019 RollSnare1 | 036 Ride Edge | 053 L-Shaker | 070 Scratch Hi | 087 Gamelan 1 | 104 Taiko |
| 003 Crisp Kick | 020 RollSnare2 | 037 Ride Cup | 054 S-Shaker | 071 Scratch Lo | 088 Gamelan 2 | 105 Music Box1 |
| 004 Punch Kick | 021 Rock Snare | 038 Tom | 055 Cabasa | 072 ScratchDbl | 089 Pole | 106 Music Box2 |
| 005 Real Kick | 022 GatedSnare | 039 ProcessTom | 056 MuteTriang | 073 Castanet | 090 TubulBel 1 | 107 Tron Up |
| 006 Dance Kick | 023 HouseSnare | 040 Syn Tom 1 | 057 OpenTriang | 074 FingerSnap | 091 TubulBel 2 | 108 Clicker 1 |
| 007 Gated Kick | 024 Syn Snare1 | 041 Syn Tom 2 | 058 Tambourine | 075 Industry | 092 Gong | 109 Clicker 2 |
| 008 ProcesKick | 025 Syn Snare2 | 042 Agogo | 059 Cowbell | 076 Rev Thing | 093 Gt Scratch | 110 Clicker 3 |
| 009 Metal Kick | 026 Fist | 043 Lo Bongo | 060 R-Timbal | 077 Kalimba | 094 Spectrum a | 111 Crickets |
| 010 Syn Kick 1 | 027 Side Stick | 044 Hi Bongo | 061 Hi Timbal | 078 Marimba 1 | 095 Spectrum b | 112 Crash 2 |
| 011 Syn Kick 2 | 028 Syn Rim | 045 Slap Bongo | 062 Lo Timbal | 079 Marimba 2 | 096 Carton Box | 113 Orch Hit |
| 012 Snare 1 | 029 CrshCymbal | 046 Claves | 063 WoodBlockH | 080 Marimba 3 | 097 Stadium | |
| 013 Snare 2 | 030 Tite HH | 047 Syn Claves | 064 WoodBlockM | 081 Log Drum 1 | 098 Pop | |
| 014 PicloSnare | 031 Close HH | 048 Open Conga | 065 WoodBlockL | 082 Log Drum 2 | 099 Belltree | |
| 015 Soft Snare | 032 Open HH | 049 Slap Conga | 066 Hand Claps | 083 Snap | 100 Tri Roll | |
| 016 TightSnare | 033 Pedal HH | 050 Palm Conga | 067 Zap 1 | 084 BrightBell | 101 Slurp | |

# PRESET PROGRAM NAME LIST

| | | | | |
|---|---|---|---|---|
| 00 Ephemerals | 01 Tine Pad | 02 Orch Brass | 03 Galaxies | 04 RosewoodGt |
| 10 Air Rider | 11 DWGS EP | 12 Orch Trpts | 13 Borealis | 14 Alan's Run |
| 20 OxygenMask | 21 Perc.Org 1 | 22 Brass Band | 23 50's SciFi | 24 ZingString |
| 30 AirFlight | 31 Spit Organ | 32 Trombone 2 | 33 Lore | 34 Harmonics1 |
| 40 Pitzpan | 41 Big Organ | 42 Fanfare | 43 AlienVisit | 44 Strategy |
| 50 DopplerPad | 51 Drawbars | 52 Brass 2 | 53 Bell Rise | 54 Blue Moon |
| 60 Lub Pad | 61 Piano Pad | 62 Mute Ens. | 63 Jet Stream | 64 FeedBacker |
| 70 The Void | 71 Gospel Org | 72 Muted Bone | 73 Crickets | 74 PedalSteel |
| 80 Hyperborea | 81 Whirly | 82 SFZ Brass | 83 Steam | 84 Mr. Clean |
| 90 UnderWater | 91 OrganTrem | 92 PerkySaxes | 93 Flutter | 94 Harmonics2 |
| | | | | |
| 05 VS Bells | 06 XFade Bass | 07 TheStrings | 08 Tasian | 09#ProducrKit |
| 15 Gendar | 16 Thumb Bass | 17 ChamberEns | 18 Tidal Wave | 19 Orch Perc |
| 25 SolarBells | 26 RezzzzBass | 27 Woodwind | 28 Lub Pole | 29 Log Drums |
| 35 Bell Tree | 36 Tech Bass | 37 Choir L+R | 38 Raw Deal | 39 Mr. Gong |
| 45 Gamelan | 46 E.Bass 3 | 47 Heavenly | 48 BellShower | 49 #FreezeDrum 55 |
| EtherBells | 56 A.Bass 1 | 57 Soft Pad | 58 WS Analog | 59# VeloGated |
| 65 Baby'sGone | 66 OctaveBass | 67 Vox Voice | 68 RezzzzPad | 69# Percussion |
| 75 DigiMallet | 76 Seq.Bass | 77 ArcoAttack | 78 TempleBell | 79# Velo Perc |
| 85 Bell Box | 86 B.Bass | 87 Air Vox | 88 NuclearSun | 89 Drum Hit |
| 95 New Bell | 96 SynthBass3 | 97 SweetReeds | 98 MonoLead | 99 PadPiano 1 |

# GM PROGRAM LIST

| | | | | |
|---|---|---|---|---|
| 001 Piano | 011* Music Box | 021 Positive | 031* Wah Guitar | 041* Violin |
| 002 BritePiano | 012* Vibes | 022* Musette | 032* RockMonics | 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 Tines | 015 Tubular | 025 ClassicGtr | 035* Pick Bass | 045* TremeloStr |
| 006 Digi Piano | 016* Santur | 026 A.Guitar | 036 Fretless | 046 Pizzicato |
| 007 Harpsicord | 017* Full Organ | 027* JazzGuitar | 037* SlapBass 1 | 047 Harp |
| 008 Clav | 018* Perc Organ | 028 Clean Gtr | 038* SlapBass 2 | 048 Timpani |
| 009* Celeste | 019* BX-3 Organ | 029 MuteGuitar | 039 SynthBass1 | 049 Marcato |
| 010* Glocken | 020 ChurchPipe | 030* Over Drive | 040* SynthBass2 | 050 SlowString |
| | | | | |
| 051* Analog Pad | 061* FrenchHorn | 071 BasoonOboe | 081* SquareWave | 091* Poly Pad |
| 052 String Pad | 062 Brass 1 | 072 Clarinet | 082* Saw Wave | 092 Ghost Pad |
| 053 Choir | 063* SynBrass 1 | 073* Piccolo | 083* SynCaliope | 093* BowedGlass |
| 054* Do Voice | 064* SynBrass 2 | 074 Flute | 084* Syn Chiff | 094* Metal Pad |
| 055* Voices | 065 SopranoSax | 075* Recorder | 085* Charang | 095* Halo Pad |
| 056 Orch Hit | 066 Alto Sax | 076 Pan Flute | 086* Air Chorus | 096 Sweep |
| 057 Trumpet | 067 Tenor Sax | 077 Bottle | 087* Rezzo 4ths | 097* Ice Rain |
| 058 Trombone 1 | 068 Bari Sax | 078* Shakuhachi | 088* Bass&Lead | 098* SoundTrack |
| 059* Tuba | 069 Sweet Oboe | 079 Whistle | 089* Fantasia | 099* Crystal |
| 060 Muted Trpt | 070 EnglishHrn | 080 Ocarina | 090 Warm Pad | 100* Atmosfear |
| | | | | |
| 101* Brightness | 111* Fiddle | 121 Fret Noise | | |
| 102* Goblin | 112 Shannai | 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* Banjoe | 116 Woodblock | 126* Helicopter | | |
| 107* Shamisen | 117* Taiko | 127* Stadium!!! | | |
| 108* Koto | 118 A.Tom | 128* GunShot | | |
| 109 Kalimba | 119* Synth Tom | 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 | MillerTime |
| 10 | Bass&Piano | 11 | LegatoReed | 12 | XpressBass | 13 | Full Pipes | 14 | Salsa Band |
| 20 | Piano&Strg | 21 | Crescendo | 22 | 12 Stereo | 23 | ClickOrgan | 24 | Sax Band |
| 30 | Piano Pad | 31 | StringReed | 32 | Bass Suite | 33 | Mixture | 34 | Plungers |
| 40 | Bass&EP 1 | 41 | HarpString | 42 | CountryJam | 43 | Tremolo | 44 | Big Band |
| 50 | LayerPiano | 51 | OrchSwitch | 52 | IMissJimi | 53 | SplitOrgan | 54 | SweetMutes |
| 60 | Pop Clav | 61 | Delicato | 62 | Percolator | 63 | ThePhantom | 64 | Trpt.Brass |
| 70 | Power Comp | 71 | Overture | 72 | MetalAlloy | 73 | Jazz Hits | 74 | BrassSwell |
| 80 | DynoPiano | 81 | Concerto | 82 | RockShow!! | 83 | Woodwinds | 84 | Gig Brass |
| 90 | The Gospel | 91 | Madrigal | 92 | Lead & Pad | 93 | OrchReeds | 94 | Sax Heaven |
| | | | | | | | | | |
| 05 | Botswana | 06 | Marcato | 07 | ChinaBell | 08 | Pollen | 09 | Death Star |
| 15 | LostTemple | 16 | Chamber | 17 | Warm Bells | 18 | PowerOfTwo | 19 | HitTheDust |
| 25 | Shogun | 26 | AnaStrings | 27 | VeloVoxBel | 28 | Awakening | 29 | Eternia |
| 35 | Bavaria | 36 | Double Bow | 37 | Lub Bells | 38 | Dreaming | 39 | Vectors |
| 45 | BugForest | 46 | Pizz & Bow | 47 | Bass&Vibes | 48 | TheSweeper | 49 | HyperBaby |
| 55 | Ethno Geo | 56 | Amadeus | 57 | Fantasy | 58 | BiggerIdea | 59 | Nebulae |
| 65 | Ice Bell | 66 | SilkString | 67 | RainChimes | 68 | Sea Horses | 69 | LightBeams |
| 75 | Maraborne | 76 | BigStrings | 77 | VoxGamelan | 78 | TheRedSun | 79 | Dagobar |
| 85 | TheBushmen | 86 | SuperVoice | 87 | LayerDrms1 | 88 | Snowfall | 89 | Sea Storm |
| 95 | Polka Box | 96 | Acappella | 97 | LayerDrms2 | 98 | Ruff&Ready | 99 | PInetarium |

# GM DRUM LIST

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 27 | Zap 2 | 28 | Syn Snare2 | 29 | Scratch Lo | 30 | Scratch Hi | 31 | Stick Hit |
| 32 | ----- | 33 | Syn Rim | 34 | MetalBell2 | 35 | Punch Kick | 36 | Ambi Kick |
| 37 | Side Stick | 38 | Rock Snare | 39 | Hand Claps | 40 | Snare2 | 41 | Tom |
| 42 | Tite HH | 43 | Tom | 44 | Pedal HH | 45 | Tom | 46 | Open HH |
| 47 | Tom | 48 | Tom | 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 | Slap Conga | 63 | Open Conga | 64 | Open Conga | 65 | Hi Timbal | 66 | Lo Timbal |
| 67 | Agogo | 68 | Agogo | 69 | L-Shaker | 70 | Maracas | 71 | Flutter |
| 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 Wesll
Song 2: Back Fast
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 inlernal demo sequences for the 01/W-FD, 01/W, and the 01/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 variely of Korg 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 Gamelan | 111 Mute Tromb | 148 Lore NT | 185 WoodBlock2 | 222 Open Conga |
| 001 E. Piano 1 | 038 Gtr Harm 1 | 075 Pole | 112 Trumpet | 149 Crickets | 186 Vibe Hit | 223 Slap Conga |
| 002 E. Piano1LP | 039 Gtr Harm 2 | 076 Pole LP | 113 Trumpet LP | 150 Crickts NT | 187 Syn Claves | 224 Palm Conga |
| 003 E. Piano 2 | 040 DistGuitar | 077 Tubular | 114 Mute TP | 151 MagicBell | 188 A. Tom | 225 Mute Conga |
| 004 E. Piano2LP | 041 Dist GtrLP | 078 Gong 1 | 115 Mute TP LP | 152 Tron Up | 189 Syn Tom | 226 Maracas |
| 005 Hard EP | 042 Sitar | 079 Gong 1 LP | 116 Brass 1 | 153 TronUp LP | 190 Zap 1 | 227 MuteTriang |
| 006 Hard EP LP | 043 Banjo | 080 Gong 2 | 117 Brass 2 | 154 TronUp NT | 191 Zap 2 | 228 OpenTriang |
| 007 Soft EP | 044 Shamisen | 081 Gong 2 LP | 118 StringEns. | 155 Flutter | 192 Industry 1 | 229 Scratch Hi |
| 008 Soft EP LP | 045 Koto | 082 Split Bell | 119 StrEns. LP1 | 156 Flutter LP | 193 Industr1NT | 230 Scratch Lo |
| 009 PianoPad 1 | 046 Harp | 083 Tuned bell | 120 StrEns. LP2 | 157 Tap 1 | 194 Industry 2 | 231 ScratchDbl |
| 010 P. Pad 1 LP | 047 A. Bass 1 | 084 Harmonica | 121 StrEns. LP3 | 158 Tap 2 | 195 Industr2NT | 232 Mini 1a |
| 011 PianoPad 2 | 048 A. Bass 2 | 085 HardFlute1 | 122 AnaStrings | 159 Tap 3 | 196 Rev Thing | 233 VS 102 |
| 012 P. Pad 2 LP | 049 A. Bass2 LP | 086 HardFlute2 | 123 PWM | 160 Tap 4 | 197 FingerSnap | 234 VS 58 |
| 013 Clav | 050 A. Bass 3 | 087 Pan Flute | 124 Violin | 161 Tap 5 | 198 FngrSnapNT | 235 VS 71 |
| 014 Clav LP | 051 A. Bass3 LP | 088 PanFluteLP | 125 Cello | 162 Tap 6 | 199 Pop | 236 VS 72 |
| 015 Harpsicord | 052 Fretless | 089 Shakuhachi | 126 Pizzicato | 163 Orch Hit | 200 Tambourine | 237 VS 88 |
| 016 HarpsicdLP | 053 FretlessLP | 090 Bottle | 127 Voice | 164 Snare Cast | 201 Hand Claps | 238 VS 89 |
| 017 PercOrgan1 | 054 E. Bass 1 | 091 Bassoon | 128 Choir | 165 Syn Snare | 202 HandClpsNT | 239 13-35 |
| 018 PercOrg1LP | 055 E. Bass 2 | 092 Oboe | 129 Soft Choir | 166 Rev Snare | 203 Castanet | 240 DWGS Clav |
| 019 PercOrgan2 | 056 E. Bass 3 | 093 EnglishHrn | 130 Air Vox | 167 Fist | 204 CastanetNT | 241 DWGSOrgan1 |
| 020 PercOrg2LP | 057 E. Bass3 LP | 094 Eng. HornLP | 131 Chorello | 168 CrshCymbal | 205 Snap | 242 DWGSOrgan2 |
| 021 Organ 1 | 058 Slap Bass1 | 095 BassonOboe | 132 Doo Vox | 169 Orch Perc | 206 Slurp | 243 DWGS E. P. 1 |
| 022 Organ 1 LP | 059 SlpBass1LP | 096 BsonOboeLP | 133 Syn Vox | 170 Hi Hat | 207 Slurp NT | 244 DWGS E. 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 Lub Wave | 172 Bell Ride | 209 Side Stick | 246 Ramp |
| 025 PipeOrgan1 | 062 SynthBass2 | 099 Bari. Sax | 136 Ether Bell | 173 Ping Ride | 210 SideStckNT | 247 Square |
| 026 PipeOrg1LP | 063 Tech Bass | 100 Bari. SaxLP | 137 Ghostly | 174 ProccesTom | 211 Syn Rim | 248 Pulse 25% |
| 027 PipeOrgan2 | 064 TechBassLP | 101 Tenor Sax | 138 Spectrum | 175 Timpani | 212 Syn Rim NT | 249 Pulse 16% |
| 028 Accordion | 065 Kalimba | 102 T. Sax LP | 139 Stadium | 176 Timpani LP | 213 L-Shaker | 250 Pulse 8% |
| 029 AcordionLP | 066 Music Box | 103 Alto Sax | 140 Stadium NT | 177 Cabasa | 214 Open HH | 251 Pulse 4% |
| 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 | |

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