05R/W

AI² SYNTHESIS MODULE

GENERAL MIDI INSTRUMENT

Owner's Manual

AI² Synthesis System

KORG

Ⓔ ①

THE FCC REGULATION WARINING

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

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

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the US Government Printing Office, Washington, D.C.20402, stock No. 004-000-00345-4.

CANADA

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

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

Thank you for purchasing the Korg 05R/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 supplied AC adaptor 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.

■ Keeping foreign matter out of your equipment

- Never set a cup, vase, or any other container with liquid in it on top of this equipment. If liquid gets into the equipment, it could cause a breakdown, fire, or electrical shock.
- Be careful not to let metal objects get into the equipment. If something does slip into the equipment, turn off the power switch and unplug the AC adaptor from the wall outlet. Then contact your nearest Korg dealer or the store where the equipment was purchased.

How to use this manual

● First, read the "Quick guide" and the "Basic operation" sections while actually operating the 05R/W.
- This will help you to understand the basics of operating the 05R/W. Follow the directions to learn the function of each key and display.

● Next, glance through the "Application section".
- This will give you an idea of the possibilities of the 05R/W, and points to remember.

● When necessary, refer to the explanations for each function you need to use.

Features of the 05R/W

1. All-digital AI² synthesis system

From the tone generator (a capacity of 6 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 05R/W contains 340 built-in Multisounds (multi-sampled PCM waveforms), providing a wide variety of ingredients for flexible sound creation, allowing you to create sounds that were not possible before.

3. Combinations allow flexible performance possibilities

A total of 100 combinations can be used to combine sounds for performance. The 05R/W will function as an 8-timbre tone generator, making it an ideal addition to any sequencing system.

4. Editable Drum Kits

The 05R/W provides 164 drum sounds. Settings and tuning for each drum sound can be stored in two Drum Kits. There are also 8 ROM Drum kits availble.

5. Conforming to GM (Multi mode)

Since the 05R/W conforms to the GM (General MIDI) standard in Multi mode, you can play the 05R/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 05R/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. A wide range of scale types is available

In addition to the conventional equal temperament and pure temperament forms of tuning, a wide variety of scales are available, such as the Arabic, Werkmeister III, Kirnberger III, and Indonesian scales.

8. Equipped with a personal computer interface

A computer interface is provided which enables direct connection to the serial ports of computers from the Macintosh series, and the IBM-PC series (or a compatible computer), in addition to the MIDI jacks.

The packing material used for the 05R/W can be recycled and is environmentally safe.

The backup battery

The 05R/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.

* Program, Combination, and Multisound names that appear on the displays in this manual may be different to those that appear on the 05R/W.

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FRONT PANEL

(For the explanation of each key, refer to page 18.)

① **MASTER VOLUME**

② **Mode select keys**
COMBI key = Combination, Edit combination mode
PROG key = Program, Edit Program mode
EDIT key = Edit Combination, Edit Program modes
GLOBAL/MULTI key = Global, Multi mode

③ **BANK, PAGE + key**

④ **PAGE – key**

⑤ **+10, ▶key**

⑥ **–10, ◀key**

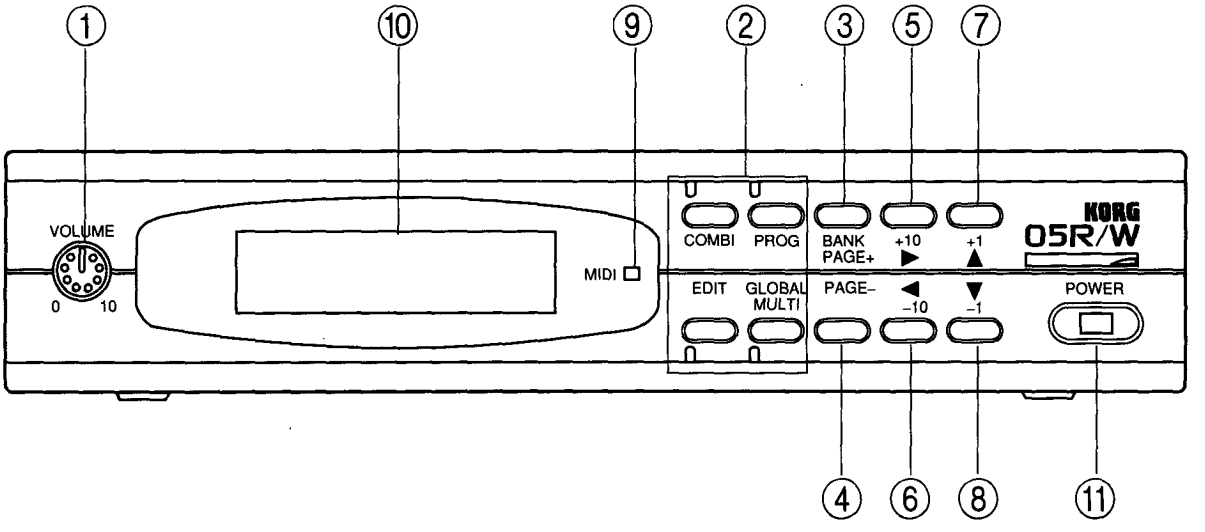
⑦ **+1, ▲ key**

⑧ **–1, ▼ key**

⑨ **MIDI indicator**

⑩ **Display**

⑪ **Power switch**



REAR PANEL

① **DC IN**
The dedicated AC adapter is connected here.

② **TO HOST jack**
A computer can be connected to this jack, using a dedicated connection cable.

③ **MIDI THRU jack**

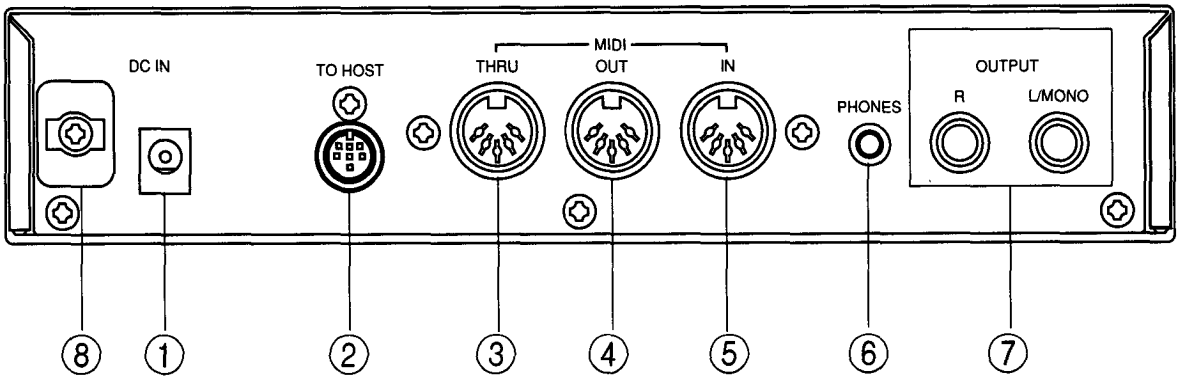
④ **MIDI OUT jack**

⑤ **MIDI IN jack**

⑥ **PHONES jack (Stereo mini jack)**
Headphones can be connected to this jack.

⑦ **OUTPUT jacks (L/MONO, R)**
These are the sound output jacks for the 05R/W.

⑧ **AC Adaptor Cord Holder**
Fit the AC adaptor cord through this receptacle to prevent it from being accidentally unplugged.



SETTING UP

(1) First, make sure that the 05R/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) Connect the included AC adaptor to the rear panel power connector, and connect the other end to an AC outlet.

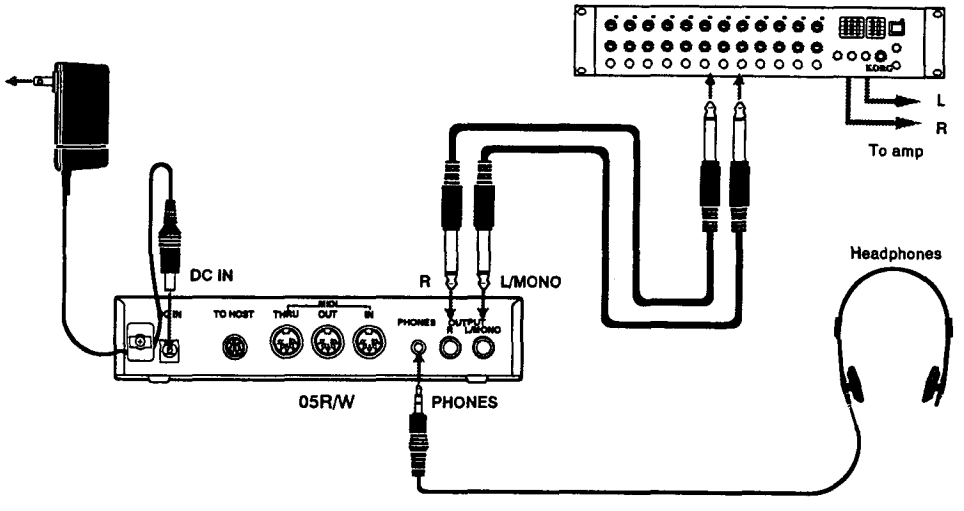
Connections With Audio Equipment

Connections with the OUTPUT jacks

Using an audio cable, connect the INPUT jacks of an amp, mixer, or another unit of equipment to the OUTPUT jacks on the 05R/W.
When connecting to a mono amp, connect the L/MONO jack only.

Connections with the PHONES jack

Connect a pair of stereo headphones here.



Connections Using MIDI

Using the MIDI cables, connect the 05R/W to the MIDI equipment.
There are three MIDI jacks: Out, In, and Thru. Information originating from the 05R/W is transmitted through the Out jack, while information from other equipment is received through the In jack. The Thru (Through) jack is used to pass on information which has been received at the In jack to another instrument without modifying it.

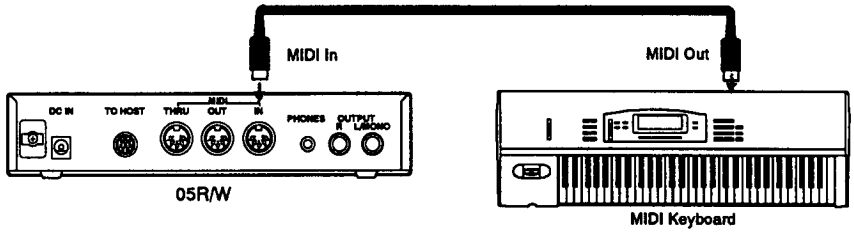
- The 05R/W will respond to all note data received at the MIDI In jack (note numbers 0 to 127). (Depending on the timbre, there may be times when no sound is produced in the high ranges.)

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

Range which can be output on a normal 61-key (5-octave) keyboard

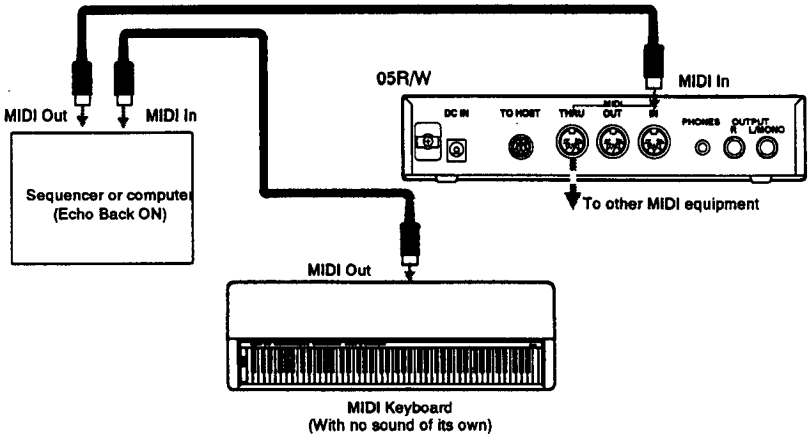
(1) and (2) below show examples of how equipment can be set up. Various other methods of connecting equipment are also possible, depending on the equipment included in the system configuration.

(1) Connecting the 05R/W directly to a MIDI keyboard
Using a MIDI cable, connect the MIDI In jack on the 05R/W to the MIDI Out jack on the MIDI keyboard.



(2) Using the 05R/W in a system with a MIDI keyboard (that has no tone generator) and a sequencer (or computer)
Using MIDI cables, connect the MIDI In jack on the 05R/W and the MIDI Out jack on the sequencer (or, with a computer, the MIDI interface) and the MIDI In jack or of the sequencer (MIDI interface) to the MIDI Out jack on the MIDI keyboard.

☞ A MIDI interface is needed to connect the MIDI jacks on the 05R/W to a computer. (For instructions on connecting the computer and the MIDI interface, please refer to their respective instruction manuals.)
☞ When data is being input to the sequencer (or Computer) by a MIDI keyboard, set up the sequencer so that data from the sequencer's MIDI In jack is echoed back to the MIDI Out jack. (For more detailed information, please refer to the instruction manual for the sequencer, etc.)



Connections With an IBM PC (or Compatible) Computer

The following two methods can be used to control the 05R/W using an IBM PC (or compatible) computer.

(1) Connect the MIDI interface to the serial port on the IBM PC (or compatible) computer. Connect the MIDI jacks on the MIDI interface to those of the 05R/W.

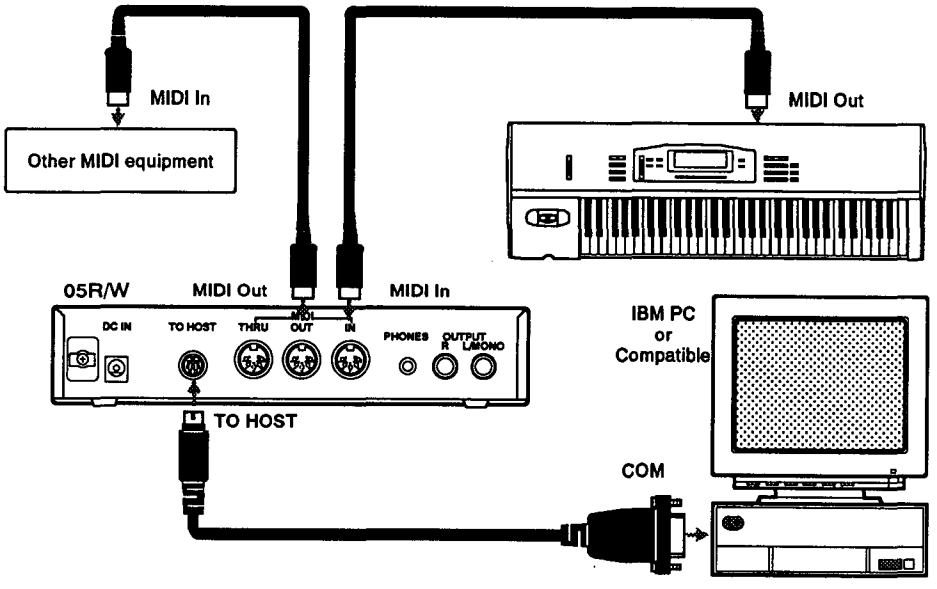
☞ Please refer to "Connections Using MIDI (2)" (page 5).

(2) Connect the serial port (COM port) on the IBM PC (or compatible) computer directly to the TO HOST jack on the 05R/W.

When the 05R/W is connected to the serial port (COM port) on the IBM PC (or compatible) computer, it can be used as a MIDI interface.

The 05R/W produces sound for both data input from the MIDI In jack and data input from the TO HOST jack. (The Echo Back function should be set to the "Off" position.) Data input from the TO HOST jack is echoed to the MIDI Out jack.

* There may be times when this type of connection cannot be used, depending on the type of computer and the type of application (sequencer) being used. With applications that do not support Windows MME (Multimedia Extension), this connection may not be possible, unless the application specifically supports the 05R/W.



* When connecting the 05R/W directly to an IBM PC (or compatible) computer, a dedicated connection cable (AG-001: Option) is used.

If the connector on the computer end is a 25-pin connector, use a 9-pin to 25-pin converter adaptor.

1. Using the dedicated connection cable, connect the TO HOST port on the 05R/W to the serial port (COM1 or COM2) on the IBM PC (or compatible) computer.
2. Press the GLOBAL/MULTI key to enter the Global Mode. If the Multi Mode appears instead, press the GLOBAL/MULTI key once again to switch to the Global Mode (in Global Mode, the LED for the GLOBAL/MULTI key flashes, and in Multi Mode it lights continuously).
3. Using the PAGE– and ► keys, select the [0D] PC I/F CLK and use the ▲ key to set a value of "38.4 kBPS".

☞ For instructions on installing the KORG MIDI Driver, please refer to the section "Installing the KORG MIDI Driver in MS Windows" on page 124.

Connections With an Apple Macintosh

The following two methods can be used to control the 05R/W using an Apple Macintosh computer.

(1) Connect the MIDI interface to the modem port or the printer port on the Apple Macintosh computer. Connect the MIDI jacks on the MIDI interface to those of the 05R/W.

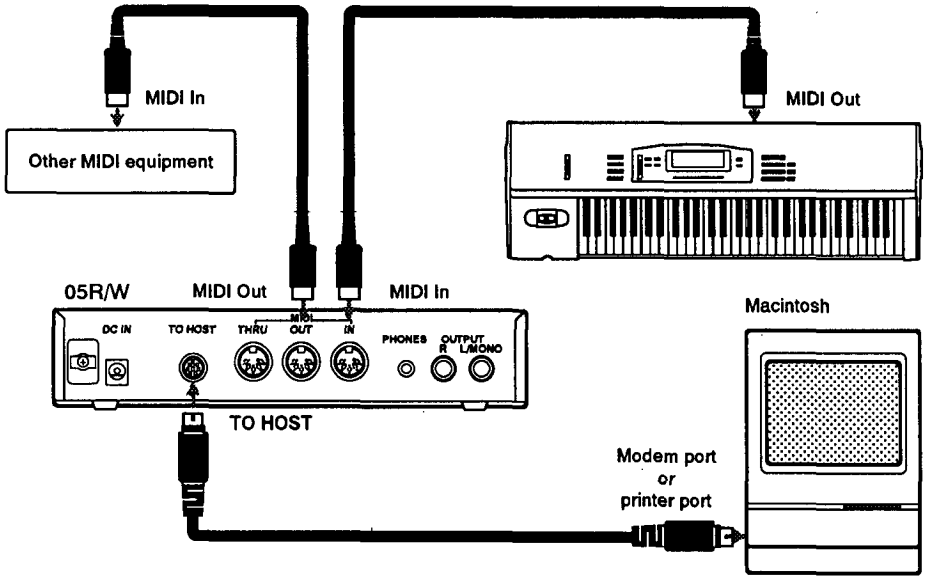
☞ Please refer to "Connections Using MIDI (2)" (page 5).

(2) Connect the modem port or printer port on the Apple Macintosh computer directly to the TO HOST jack on the 05R/W.

When the 05R/W is connected to the modem port or printer port on the Apple Macintosh series computer, it can be used as a MIDI interface.

The 05R/W produces sound for both data input from the MIDI In jack and data input from the TO HOST jack.

* There may be times when this type of connection cannot be used, depending on the type of computer and the type of application (sequencer) being used.



* When connecting the 05R/W directly to an Apple Macintosh series computer, a dedicated connection cable (AG-002: Option) is used.

1. Using the dedicated connection cable, connect the TO HOST port on the 05R/W to the modem port or printer port on the Apple Macintosh series computer.
2. Press the GLOBAL/MULTI key to enter the Global Mode. If the Multi Mode appears instead, press the GLOBAL/MULTI key once again to switch to the Global Mode (in Global Mode, the LED for the GLOBAL/MULTI key flashes, and in Multi Mode it lights continuously).
3. Using the PAGE– and ► keys, select the 0D PC I/F CLK and use the ▲ key to set a value of "31.25 kBPS".
4. If the application (sequencer) being used has a clock setting, set it to 1 MHz.

☞ Using the KORG MIDI Driver enables the tone generator of the 05R/W and the MIDI Out port to be handled as separate MIDI output sources. For instructions on installing the KORG MIDI Driver, please refer to the section "Installing the KORG MIDI Driver on a Macintosh Computer" on page 127.

TURNING ON THE POWER

The procedure outlined below should be followed when turning on the power, in order to prevent damage to speakers from a sudden surge in input.

1. Turn the Master Volume on the 05R/W all the way down. Also turn down the volumes of any amps or other equipment connected to the 05R/W to the minimum level.

2. Turn on the power to the 05R/W and any other external sound sources.

3. Turn on the power to any playback equipment such as speakers or amplifiers.

4. Gradually increase the Master Volume to adjust the sound volume. Then adjust the sound volume of any other audio playback equipment being used.

☞ The 05R/W has an extremely broad dynamic range. When the AUX IN jack of a stereo system is being used for playback in a household environment, the volume should be kept low whenever possible, in order to prevent speaker damage.

5. When turning off the power, lower the amp volume before turning off the power to the 05R/W.

ABOUT MIDI

MIDI is the name for the standardized interface determined by the Japan MIDI Standard Conference and the U.S. MMA (MIDI Manufacturers Association) to link electronic instruments together. It is supported today by musical instrument manufacturers throughout the world, and is used in an extremely broad range of applications.

Normally, with MIDI, events such as "press a key" and "change the sound" are converted into digital signals which can then be transmitted and received in real time. (Because of this, in contrast to audio signals, switching cables or making other hardware changes during performance will interrupt the signal transmission, and the music will not be played correctly.) MIDI also makes it possible to send sound data from a computer to the musical instrument all at once, in a "package" called a "bulk dump".

There are three types of MIDI jacks: Out, In, and Thru. Information from the MIDI equipment is transmitted through the Out jack, while information from other equipment is received through the In jack. The Thru jack is used to pass on information which has been received through the In jack to another instrument without modifying it.

MIDI connections are made between the Out or Thru jack of one instrument and the In jack of another instrument. MIDI data is transmitted in only one direction: from the Out or Thru jack, by means of a 5-pin MIDI cable, to the In jack of the other instrument.

MIDI data for up to 16 channels can be transmitted with a single MIDI cable. One channel is used for the performance of an instrument sound for one part.

The 05R/W is equipped with a function which allows it to take MIDI signals sent from the serial port of a computer and convert them into performance data. If the computer and software being used can accommodate the output of MIDI signals through the serial port, there is no need for a MIDI interface. With connections using the serial port, both MIDI In signals and MIDI Out signals can be transmitted with a single cable.

ABOUT GM (GENERAL MIDI)

The GM (General MIDI) system is a set of shared tone generator specifications agreed upon for MIDI usage by the Japan MIDI Standard Conference and the U.S. MMA, in order to allow performance data with a high level of compatibility to be created using any type of tone generator. As the minimum range supported by GM tone generators, the GM system defines basic specifications such as the number of voices (performance), sound mapping (sound set), and mapping of rhythm sounds on the keyboard (percussion maps).
The question of what kind of sound will be produced in relation to the sound name with a particular tone generator has been left up to each individual tone generator manufacturer. The types of built-in effects and configuration also differ from one tone generator to another. For this reason, performances will inevitably sound different to some degree on different tone generators. Naturally, sounds and specifications must be determined to some extent, so that tone generator manufacturers can maintain sufficient compatibility with existing GM sound generators, but it is also important that programmers cooperate in the search for higher compatibility, testing various types of GM tone generators and compromising where necessary as they create their programs, in order to further compatibility between models of different manufacturers. If you are programming your own MIDI sequence data to be distributed as GM system data, we hope that the question of compatibility will be given sufficient consideration.

- When MIDI data is produced for copyrighted compositions, please be aware that the data cannot be distributed without the permission of the person holding the copyright.
- The Multi Mode of the 05R/W corresponds to Level 1 of the GM system. Sounds (GM sound sets) used on tracks other than GM Track 10 (channel 10) are provided in the 05R/W programs G01 to 128, while sounds which can be played back on Track 10 (GM percussion maps) are provided in program G129.

<Using Non-GM Performance Data>

- Data written for the MS Extended MIDI function will play back properly if channels 13-16 are muted. (The MIDI Mapper application can also be used to enter Extended MIDI settings.)

- MIDI data which can be received by tone generators accommodating the GM system are listed below.
  - Note Off
  - Note On
  - Control Change No. 1: Pitch Modulation
  - Control Change Nos. 6 and 38: Data Entry
  - Control Change No. 7: Volume
  - Control Change No. 10: Panpot
  - Control Change No. 11: Expression
  - Control Change No. 64: Damper Pedal
  - Control Change Nos. 100 and 101: RPN (Registered Parameter Number) *
  - Control Change No. 121: Reset All Controllers
  - Control Change No. 123: All Notes Off
  - Program Change
  - After Touch
  - Pitch Bend
  - Universal Exclusive GM Mode On

  * RPN No. 0: Pitch Bend Range
    No. 1: Fine Tune
    No. 2: Coarse Tune

- The 05R/W can receive the following messages, in addition to those listed left.
  - Control Change Nos. 0 and 32: Program Bank Select
  - Control Change No. 2: VDF Modulation
  - Control Change No. 4: Pedal (for switching scales)
  - Control Change Nos. 12 and 13: Effect Control
  - Control Change No. 72: Release Time
  - Contr ol Change No. 73: Attack Time
  - Control Change No. 74: Brightness
  - Control Change No. 91: Reverb Depth
  - Control Change Nos. 92 and 94: Effect 1 and 2 On/Off
  - Control Change No. 93: Chorus Depth
  - Control Change Nos. 96 and 97: Data Increment/Decrement
  - Control Change No. 120: All Sounds Off
  - Active Sensing
  - Universal Exclusive Master Volume
  - Universal Exclusive Master Balance

* Bank Select, VDF Modulation, Scale switching by Pedal, Effect Control, and Effect On/Off are designed exclusively for the 05R/W, and are not compatible with any other GM equipment.

- The 05R/W is provided with, in addition to the drum sounds for key numbers 35 to 81 which are defined as percussion maps, the various drum sounds for key numbers 28 to 31, 33, 34, and 82 to 87.
- The 05R/W assigns certain drum sounds exclusively to key numbers 42, 44, and 46, key numbers 71 and 72, key numbers 73 and 74, key numbers 78 and 79, key numbers 80 and 81, and key numbers 86 and 87. Sounds in these particular groups are played monophonically, but sounds in other groups and sounds provided as accessories in any group are played back as polyphonic sounds.
- Programs used in the GM system are numbered 1 to 128, and these numbers correspond to MIDI program change numbers 0 to 127.
- If the PRG filter in the Global mode is set to "ENA" or "PRG", the Program Bank Select messages can be used to carry out the operations listed below. These are extensions designed specifically for the 05R/W, and the method for using the Bank Select may be different from that on other GM equipment. Consequently, when performing ordinary GM scores and sequence data conforming to them, we recommend setting the PRG filter to "NUM".

• Built-in RAM sounds can be called out on any channel (track) ..... ①
• Sounds other than the GM tracks can be called out on channel 10 ..... ②
• Any channel (track) can be set so that no sound is produced ..... ③
• GM drum sounds can be called out on channels other than channel 10 ..... ④

		Bank No.	(Recommended Value)	Examples
①	Bank A Program	1 (: Bank A)	(1)	Bn 00 00 20 00 Cn pp
②	GM Sound Set	7169 ~7424	(7169)	Bn 00 38 20 00 Cn pp
③	OFF	7425~7936, 8065~8192	(8192)	Bn 00 3F 20 7F Cn 7F
④	GM Percussion	7937~8064	(7937)	Bn 00 3E 20 00 Cn pp

n: MIDI channel
pp: Program number

THESE VALUES ARE IN HEX.

	Controller 0	Controller 32
①	0	0
②	56	0
③	63	127
④	62	0

THESE VALUES ARE DECIMAL

USING GM DURING PLAYBACK

It is easy to play back GM-compatible sequence data on the 05R/W.

(1) Connect the MIDI Out jack of a sequencer containing GM playback data to the MIDI In of the 05R/W. (Refer to the sequencer user's manual for instructions on loading and playing back GM data.)

(2) Press the 05R/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 blink.)

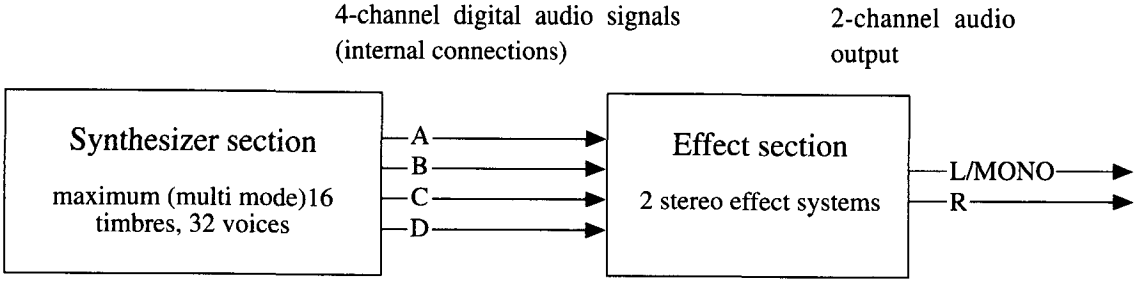
(3) Start the sequencer. Playback will begin when the 05R/W receives the MIDI data from the sequencer. It is possible to change setting values during playback. Refer to p. 91 "6. MULTI MODE" for details.

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

0B Trans ..... +00
0C Vel 3
Aft 3
1A Scale Type ..... Equal temp
2A Note R ..... All
2B , 2C MIDI Filter ..... PRG is NUM, 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.

HOW THE 05R/W IS ORGANIZED



Configuration of a PROGRAM

•A Program is defined as a simple synthesized sound.
•Programs can be selected from A00-99(RAM) or G01-136(ROM).

● Single Program (Select "SINGLE" in [0A] OSC mode of Edit Program mode.)

Oscillator (OSC)

The Oscillator permits the selection of Multisounds 00-339.
•Refer to "Multisound name" on the attached "VOICE NAME LIST" for a list of the available Multisounds.

F VDF

VDF (Variable Digital Filter) is used to control the tone.

A VDA

VDA (Variable Digital Amplifier) is used to control the volume.

A Multisound can be processed by various means to create a program.

PAN (Panpot) sets the balance of the oscillator volume level output for A and B to a value of OFF or 0:31-31:0. → A, B

Send C sets the balance of the oscillator volume level output for C to a value of 0-9. → C

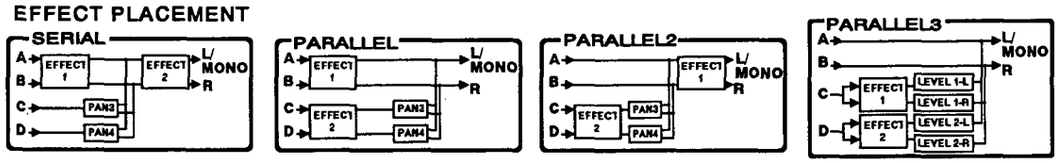
Send D sets the balance of the oscillator volume level output for D to a value of 0-9. → D

EFFECTS

The 05R/W has two systems of stereo digital multi-effect units. Each effect unit can produce a wide variety of effects. Select one of the four effect placements shown above.

→ L/MONO, R

EFFECT PLACEMENT



● Double Program (Select "DOUBLE" in 0A OSC mode of Edit Program mode.)

Oscillator1 (OSC1)

The Oscillator permits the selection of Multisounds 00-339.
•Refer to "Multisound name" on the attached "VOICE NAME LIST" for a list of the available Multisounds.

F VDF1

VDF (Variable Digital Filter) is used to control the tone.

A VDA1

VDA (Variable Digital Amplifier) is used to control the volume.

A Multisound can be processed by various means to create a program.

Oscillator2 (OSC2)

The Oscillator permits the selection of Multisounds 00-339.

F VDF2

VDF (Variable Digital Filter) is used to control the tone.

A VDA2

VDA (Variable Digital Amplifier) is used to control the volume.

PAN (Panpot) sets the balance of the oscillator1 volume level output for A and B to a value of OFF or 0:31-31:0. → A, B

Send C sets the balance of the oscillator1 volume level output for C to a value of 0-9. → C

Send D sets the balance of the oscillator1 volume level output for D to a value of 0-9. → D

PAN (Panpot) sets the balance of the oscillator2 volume level output for A and B to a value of OFF or 0:31-31:0. → A, B

Send C sets the balance of the oscillator2 volume level output for C to a value of 0-9. → C

Send D sets the balance of the oscillator2 volume level output for D to a value of 0-9. → D

EFFECTS

THe 05R/W has two systems of stereo digital multi-effect units. Each effect unit can produce a wide variety of effects. Select one of the four effect placements shown above.

→ L/MONO, R

● Programs using Drum Kits (Select "DRUMS" in [0A] OSC Mode of Edit Program mode.)

D Drum Kit

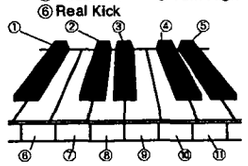
※The instrument settings, including the panpots of RAM Drum Kits, are edited in Global mode (P6,7).

- Select any Drum Kit from Drum Kit 1,2 (RAM) and Drum Kit 1 - 3 (ROM). See the "Drum Kit Map" on the attached "VOICE NAME LIST."
- A Drum Kit is a collection of drum sounds assigned on the keyboard. Each Drum Kit has 80 containers called "Indexes." Drum sounds are assigned to these indexes, and the key and panpot settings are established for each index.

Drum sounds

Select a desirable drum sound (00-163) from the sound waveforms (such as bass drum, tom, hi-hat, etc.) to use as the basis for each drum sound.
Refer to "Drum Sound Name" on the attached sheet "VOICE NAME LIST" for the drum sounds available.

ex)
① Roll Snare1
② Side Stick
③ Hand Claps
④ Tite HH
⑤ Pedal HH
⑥ Real Kick
⑦ ProcesKick
⑧ Rock Snare
⑨ LightSnare
⑩ Tom Low
⑪ Tom High



F VDF

VDF (Variable Digital Filter) is used to control the tone.

A VDA

VDA (Variable Digital Amplifier) is used to control the volume.

You can edit the parameters of the Drum Programs to create your own Programs. The Oscillator mode of the Drum Programs is the same as that of the Single programs, except for the sound source.

PAN (Panpot) is output for each Drum Kit instrument according to the PAN setting in Global mode. You cannot set the PAN in Edit Program mode. → A, B

Send C is output for each Drum Kit instrument according to the Send C setting in Global mode. Changing the value of Send C in Edit Program mode will change the output level of all instruments proportionally. → C

Send D is output for each Drum Kit instrument according to the Send D setting in Global mode. Changing the value of Send D in Edit Program mode will change the output level of all instruments proportionally. → D

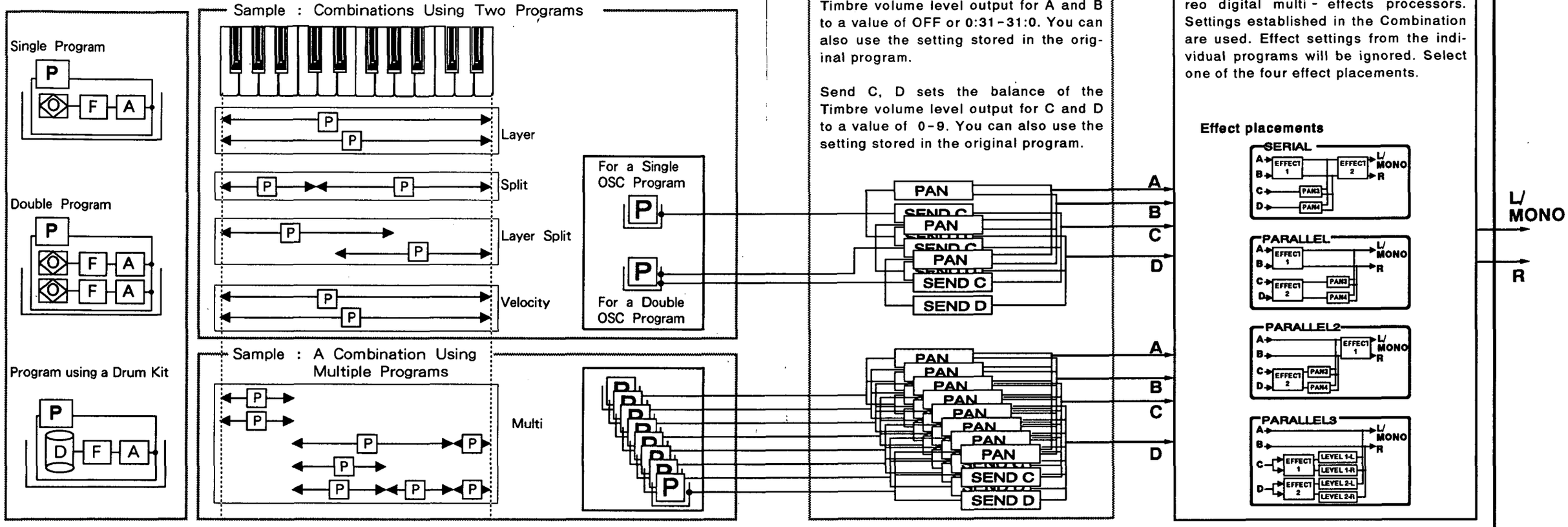
EFFECTS

The 05R/W has two systems of stereo digital multi-effect units. Each effect unit can produce a wide variety of effects. Select one of the four effect placements shown above.

→ L/MONO, R

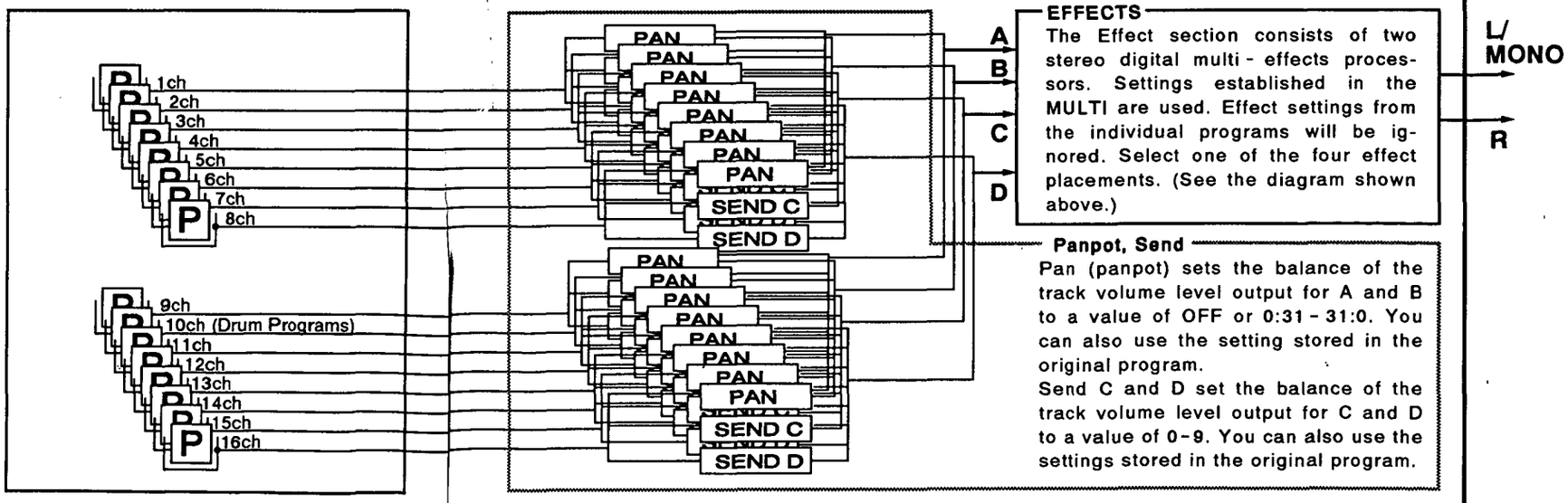
Configuration of a COMBINATION

- A Combination is made up of up to 8 individual Programs. The programs are entered one at a time via the Timbres (of which there are 8).
- Combinations can be selected from 00-99.



Configuration of a MULTI

In MULTI mode, you can use the 05R/W as a MIDI sound module with 16 channels (one for each track). Since the MULTI mode conforms to the GM Specification, you can play performance data created for GM applications.



PLAYING A DEMO SONG

The 05R/W contains demonstration sequences.

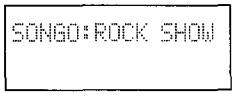
(1) Press the COMBI and EDIT keys simultaneously.

(2) Pressing the COMBI, PROG or EDIT key will start playback of demo song.
Pressing the GLOBAL/MULTI key will play the demo songs continuously. Pressing the other keys will play the respective songs once through, and stop automatically at the end of the song.

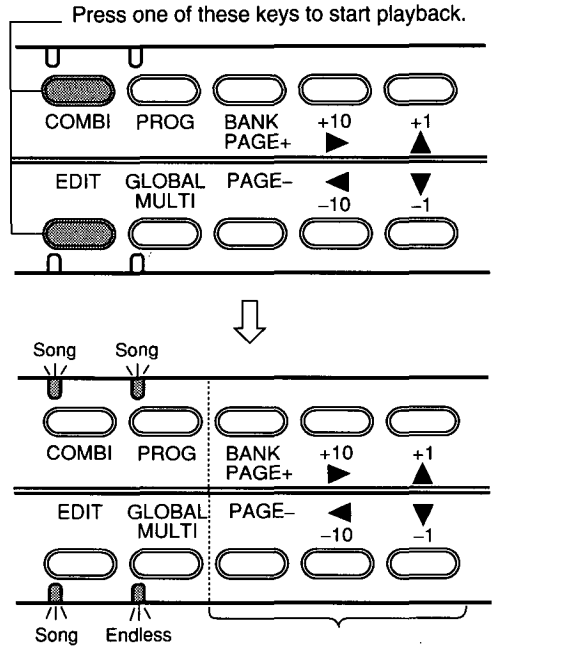
• In order to stop the playback, press any key.

(3) Press any of the keys PAGE +, PAGE –, ▶, ▲, ◀,▼, to go back to the previous mode.

• The MIDI data of the demo songs is not output.



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



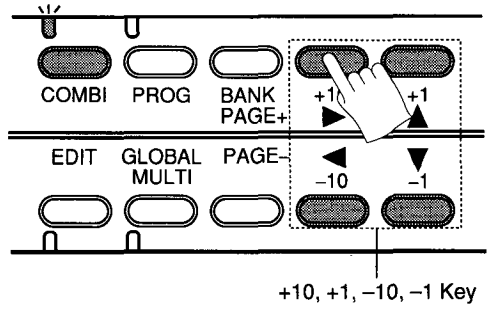
PLAYING A COMBINATION OF SEVERAL PROGRAMS

There are 100 Combinations. (Refer to the preset Combination name list)

(1) Press the COMBI key (Combination mode).

(2) Use the +10, +1, –10, and –1 keys to select the Combination (00 – 99) you wish to play.

(3) Play the keyboard which is connected to the MIDI IN connector of the 05R/W, and you will hear the Combination you selected in step (2).

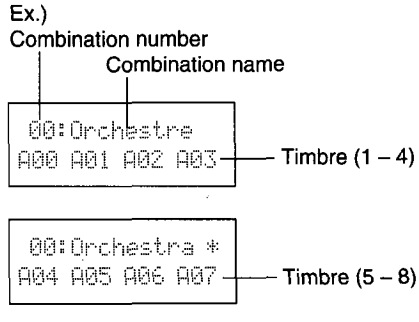


About the display

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

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

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



PLAYING A PROGRAM (A SINGLE SOUND)

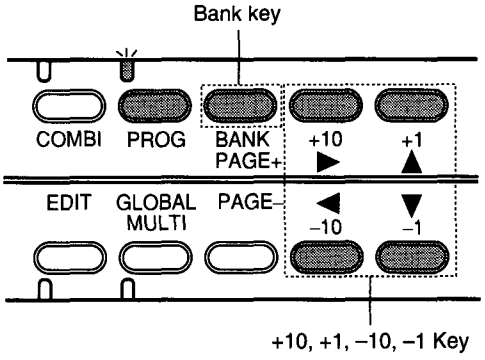
There are 236 Programs (Bank A: 00 – 99, Bank G: 01 – 136). Among the GM standard ROM data used for Programs in Bank G: 01 – 128 are Timbre programs, and 129 – 136 are Drum programs.

In Drum programs, a different voice is assigned for each note number.

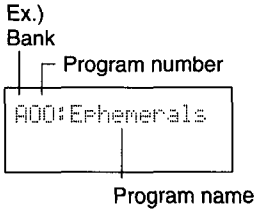
(1) Press the PROG key (Program mode).

(2) Use the BANK, +10, +1, –10, –1 keys to select the Program (A00 – A99, G01 – 136) you wish to play.

(3) Play the keyboard connected to the MIDI IN terminal of the 05R/W, and you will hear the Program you selected in step (2).
The keyboard MIDI channel must match the 05R/W Global MIDI channel (the channel set in Global mode 2A), otherwise no sound will be produced.



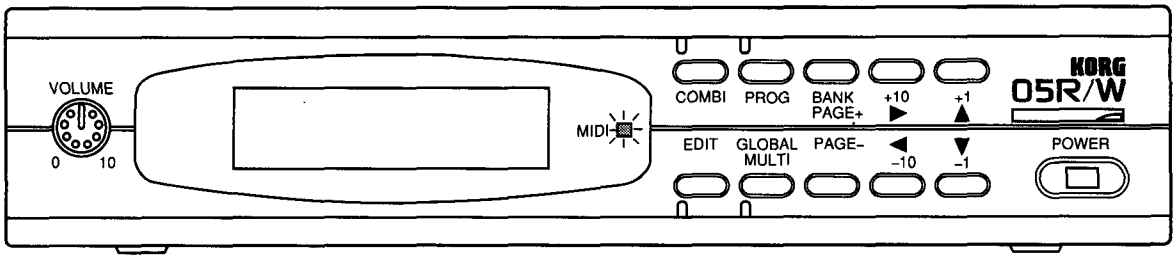
About the display



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

ABOUT THE MIDI INDICATOR

When the 05R/W is receiving MIDI data, the MIDI indicator will light up.



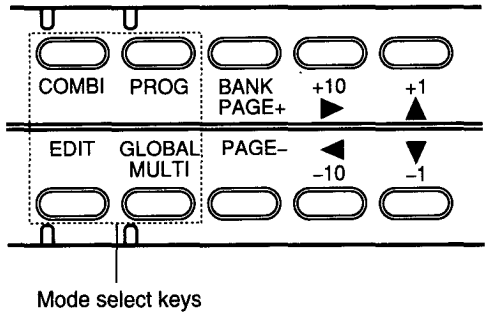
KEY FUNCTIONS

The function of each key on the 05R/W varies depending on the mode.

Mode select keys

The 05R/W has 6 modes. Press the following keys to enter each mode.

- **Combination mode**
  Press the COMBI key
- **Edit Combination mode**
  Press the COMBI key, then press the EDIT key.
- **Program mode**
  Press the PROG key.
- **Edit Program mode**
  Press the PROG key, then 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.)

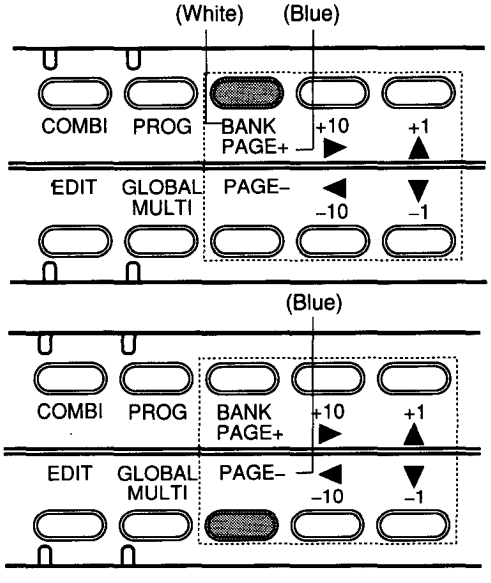


Mode select keys

The LED flashes.
The follwing keys work differently in the COMBI and PROG Modes from the way they work in the EDIT COMBI, EDIT PROG, MULTI, and GLOBAL Modes. (The different operations are indicated on the front panel in white and blue, respectively.)

ABOUT THE BANK/PAGE+ KEY

- In PROG Mode [BANK]
  Each time this key is pressed, the program bank switches between A and G.
- In E. COMBI, E. PROG, MULTI, and GLOBAL Modes [PAGE+]
  This goes forward to the next page of parameters being edited.

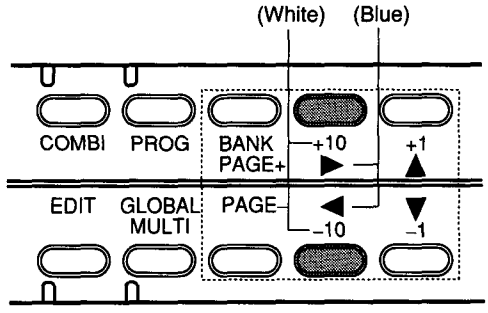


ABOUT THE PAGE– KEY

- In COMBI and PROG modes, this key has no function.
- In E. COMBI, E. PROG, MULTI, and GLOBAL Modes [PAGE–]
  This goes back to the previous page of parameters being edited.

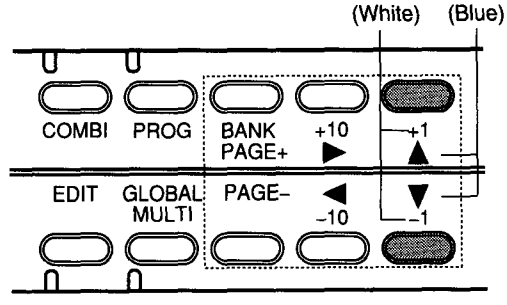
+10/► KEY AND – 10/◄ KEY

- In COMBI and PROG Modes [+10, –10]
  These are used to increment or decrement the combination and program number by 10 in each direction.
- In E. COMBI, E. PROG, MULTI, and GLOBAL Modes [►, ◄]
  These are used to select the parameters in a bank. The ► key is used to advance to the next parameter, and the ◄ key to return to the previous parameter.



ABOUT THE +1/▲ KEY AND –1/▼ KEY

- In COMBI and PROG Modes [+1, –1]
  These are used to increment or decrement the combination and program number by 1 in each direction.
- In E. COMBI, E. PROG, MULTI, and GLOBAL Modes [▲, ▼]
  These are used to specify parameter values. Pressing the ▲ key increases the value by 1, and pressing the ▼ key decreases the value by 1. Holding the key down changes the value continuously. Also, holding down the ▲ key and pressing the ▼ key increases the value in increments of 10, while reversing the keys decreases the value by 10 each time.

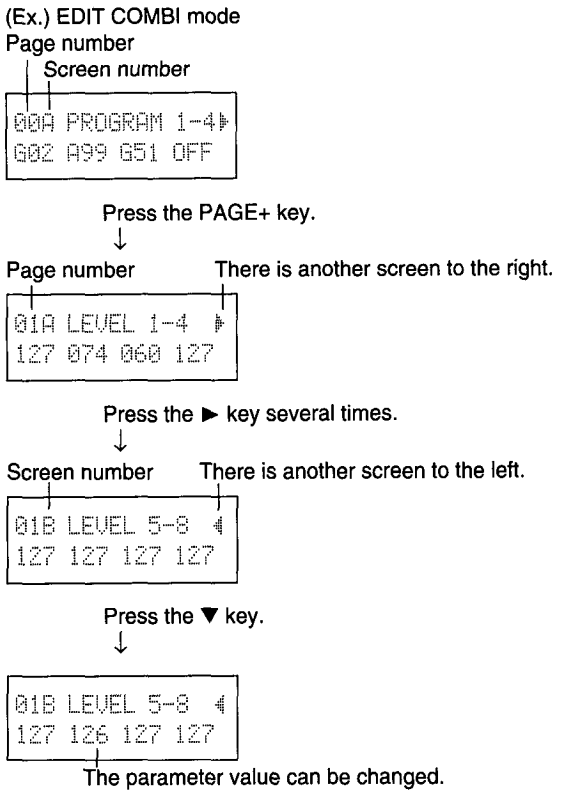


Key	Combination mode, Program mode (Printed in White)	Edit Combination mode, Edit Program mode, Multi mode, Global mode (Printed in Blue)
BANK/PAGE+	Switches the Program Bank between A ↔ G [BANK]	Allows you to go to the next page. [PAGE+]
+10/►	Adds 10 to the number of the Combination or Program. [+10]	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. [▲]
PAGE–	No Function	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. [▼]

ABOUT DISPLAYS IN E. COMBI, E. PROG, MULTI, AND GLOBAL MODES

The selected parameter flashes.

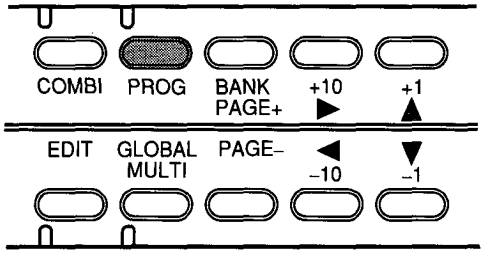
The "0A" and other displays at the left end of the upper line indicate the page number of that screen (the lefthand value) and the screen number within that page (the letter A, B, etc. on the right). The "▶" arrow displayed at the right end of the upper line indicates that another screen exists farther to the right, while the "◀" arrow indicates another screen to the left.



HOW TO CREATE YOUR OWN SOUNDS

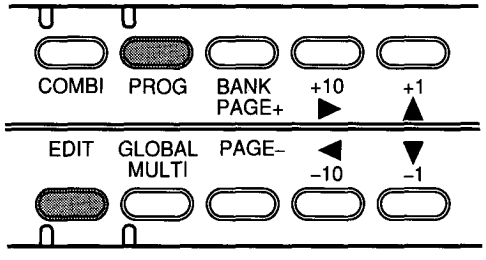
This section will explain the process of creating your own sounds on the 05R/W.

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



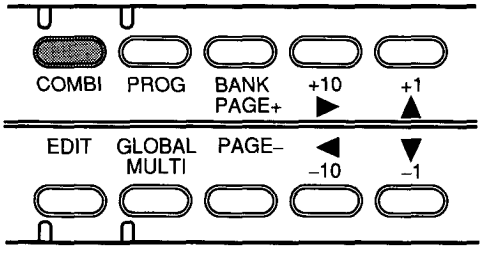
Please refer to Reference guide section
1: Program Mode (p.24).

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



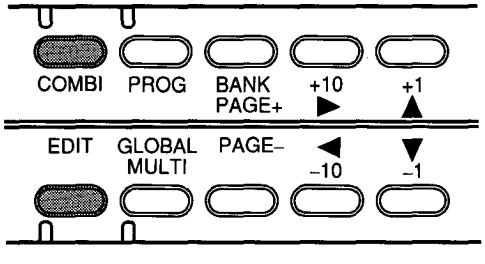
Please refer to Reference guide section
2: Edit Program Mode (p.25).

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.79).

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



Please refer to Reference guide section
5: Edit Combination mode (p.80).

ABOUT THE 05R/W's MEMORY

For details, refer to "How the memory of the 05R/W is organized," at the end of this manual.

- Select a Combination from 100 combinations (00 – 99) in Combination mode.
- Select a Program from Bank A (100 programs) or G (136 programs) in Program mode.
- Bank G contains programs saved in ROM memory. This bank is necessary for compatibility with GM. G01~128 are used for GM sounds, and G129 is used for GM drums.
- In Edit Program mode , you can select drum kit RAM 1 or 2, (refer to GLOBAL 6A ~ 7D or ROM Drum Kits 1-8.

<<Memory>>

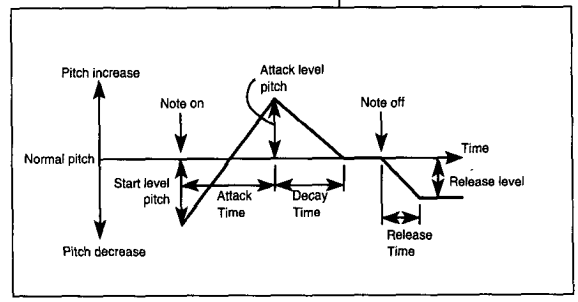
[Bank A]	[Bank G]
100 Combinations, 100 Programs, 2 Drum Kits, 1 Global Data	136 Programs (ROM) (128 Timbres and 8 Drum Programs)

APPLICATION SECTION

HOW TO READ A DISPLAY PAGE CHART

[Example]

• 3A – 3C PITCH EG (Pitch EG) —— ①

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	Specifies how key velocity will affect the depth of the pitch EG.
	Tim	EG Time Vel. Sens	–99 – +99	Specifies how key velocity will affect the speed of the pitch EG.

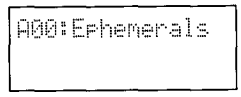
④ ⑤ ⑥ ⑦

(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 and the parameter title**
(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 RAM programs A00 – A99 and ROM programs G01 – G136.
To select Programs, use the BANK key; the +10, +1, –10, or –1 keys; or MIDI program change messages.

- Sounds are produced by MIDI data or 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 – 136 are Drum Programs that use ROM Drum Kits 1 – 8.
  G129 is the program for standard drum use with GM. Refer to the GM Program List and the ROM Drum Kit List.
- If you wish to use MIDI to select Programs, set the Global mode MIDI Filter PRG parameter to something other than "DIS" (see p.103).

- When you select Programs using MIDI, use the following table and refer to Bank Select and Program Change at right.

05R/W		MIDI		
Bank	Prog No.	Bank(H)		Prog No.
		MSB	LSB	
A	00 ~99	00	00	00~99
G	01~128	38H	00H	00~127
	129	3EH	00H	00~15, 56~63, 72~127
	130			16~23
	131			25
	132			32~39
	133			40~47
	134			64~71
	135			24, 26~31
	136			48~55

- Bank Select
  Bn, 00, [MSB], 20, [LSB]
  n: MIDI channel (0~15 correspond to channels 1~16)

- Program Change
  Cn, PP
  PP: Program number
  Ex: When channel 3 and program G130 are selected:

  B2, 00, 3E, 20, 00, C2, 10
  Bank Select Program Change

* Numeric values used in this manual are basically decimal values, but hexidecimal values are used for MIDI data displays. In this case, the values will be accompanied by an indication such as "Hex" or "H".

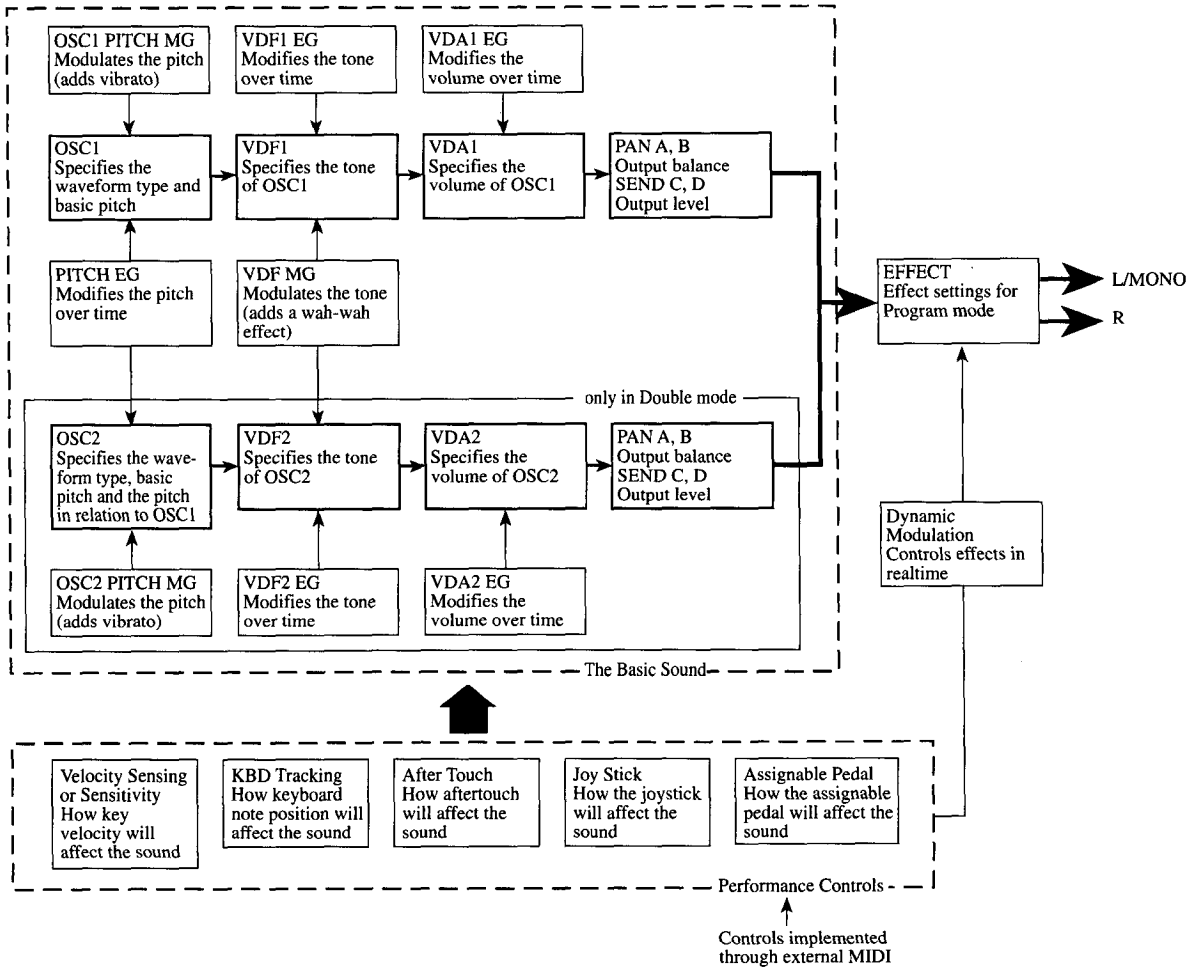
2. EDIT PROGRAM MODE

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 16A (when OSC Mode = SINGLE, DRUMS) or 22A (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 Bank (A) to create your Programs.

HOW THE PROGRAM PARAMETERS OF THE 05R/W ARE ORGANIZED



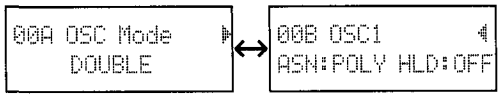
FUNCTIONS IN EDIT PROGRAM MODE

Use the PAGE+ key and PAGE– key to select pages. To select parameters, use the CURSOR keys (◄, ►). The pages available for each function will differ according to the OSC mode setting. (Some pages described in the text are Double Mode items.)

* Ⓓ Double mode only
* For information on Effects, refer to p. 43, "3. Effect Parameters".

Page		Function	Parameters	
SINGLE, DRUMS	DOUBLE			
0A – 0B	0A – 0B	OSC Mode Assign/Hold	Oscillator mode Number of voices to sound, and Hold settings	
1A – 1D	1A – 1D	OSC1 Multi Sound (Drum Sound) Level/Octave EG Intensity/Pan/Send	Oscillator 1 waveform Level, Octave Depth of the pitch change over time, output destination	
—	2A – 2F	OSC2 Multi Sound Level/Octave EG Intensity/Pan/Send Interval/Detune Delay	Oscillator 2 waveform Level, Octave Depth of the pitch change over time, output destination Interval (by semitone) and detune (by cent) relative to OSC1 Delay in sounding OSC2 relative to OSC1	Ⓓ
2A – 2C	3A – 3C	Pitch EG	Adjusts changes in pitch over time	
3A – 3E	4A – 4E	VDF1 Cutoff EG Color	VDF1 cutoff frequency (Controls brilliance of tone) Specifies changes in cutoff frequency over time. Color (feedback effect)	
4A – 4E	5A – 5E	VDF1 Velocity Sense Keyboard Tracking	How key velocity affects VDF1 EG cutoff frequency and time How key position affects VDF1 EG cutoff frequency and time	
—	6A – 6E	VDF2 Cutoff EG Color	VDF2 cutoff frequency (Controls brilliance of tone) Specifies changes in cutoff frequency over time Color (feedback effect)	Ⓓ
—	7A – 7E	VDF2 Velocity Sense Keyboard Tracking	How key velocity affects VDF2 EG Time How key position affects VDF2 EG Time	Ⓓ
5A – 5C	8A – 8C	VDA1 EG	Change in VDA1 level over time	
6A – 6E	9A – 9E	VDA1 Velocity Sense Keyboard Tracking	How key velocity affects VDA1 EG cutoff frequency and time How key position affects VDA1 EG cutoff frequency and time	
—	10A – 10C	VDA2 EG	Change in VDA2 level over time	Ⓓ
—	11A – 11E	VDA2 Velocity Sense Keyboard Tracking	How key velocity affects VDA2 EG cutoff frequency and time How key position affects VDA2 EG cutoff frequency and time	Ⓓ
7A – 7E	12A – 12E	Pitch1 Modulation	Oscillator 1 pitch modulation (vibrato)	
—	13A – 13E	Pitch2 Modulation	Oscillator 2 pitch modulation (vibrato)	Ⓓ
8A – 8C	14A – 14C	VDF Modulation	VDF modulation (wah-wah effect)	
9A – 9D	15A – 15D	After Touch Control Joy Stick Control	After Touch control Joy Stick control	
10A – 15A	16A – 20A		Effect settings	
16A – 16B	22A – 22B		Writes a Program Renames a Program	

• 0A – 0B Oscillator



0A	OSC Mode	SINGLE DOUBLE DRUMS	Tone generator mode One oscillator mode (single) Two oscillator mode (double) Drums mode (drums)
0B ASN	Assign	POLY MONO	The number of voices to sound Plays chords of up to the maximum number of voices. Plays only one note at a time.
HLD	Hold	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 – 8 or RAM Drum Kit 1 or 2 can be selected. The pan and send settings for the drum kit selected will be used. Other details are the same as for SINGLE.

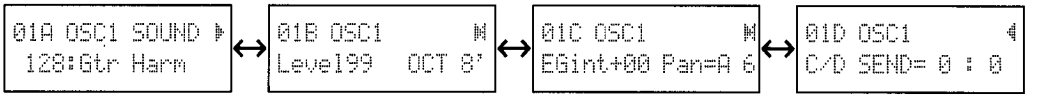
*The page shown at the upper left part of the display will differ according to whether the SINGLE, DRUMS mode or DOUBLE mode has been selected. The text describes the pages used during DOUBLE mode.

▼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 – 1D OSC1 (Oscillator 1)



	Multisound	0 – 338	Selects the OSC1 Multisound (basic waveform) (when the OSC Mode is SINGLE or DOUBLE).
1A	Drum Kit	Drum Kit 1,2 ROM Drum Kit 1 – 8	Selects the Drum Kit (when OSC Mode is DRUMS) Drum Kit (RAM) Drum Kit (ROM)
1B Level	OSC Level	0 – 99	Volume of oscillator 1
OCT	Octave	 32' 16' 8' 4'	Specifies the octave of oscillator 1. 2 octaves lower 1 octave lower Normal pitch 1 octave higher
1C EGint	Pitch EG Intensity	–99 – +99	The depth of the pitch change over time
Pan	Pan	OFF, A15 – CNT – B15	The A/B output balance of oscillator 1
1D C/D Send	Send C	0 – 9	Oscillator 1 output level at C
	Send D	0 – 9	Oscillator 1 output level at D

▼ 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.

▼When the OSC Mode 0A is set to DRUM KIT, this parameter selects either Drum Kit 1 or Drum Kit 2 (RAM) or one from among the ROM Drum Kits 1 – 8.

- You can assign drum sounds to Drum Kits 1 and 2 (RAM) on pages 6 and 7 of Global mode. ROM Drum Kit 1 is specified for standard drum use with GM. ROM Drum Kits 2 – 8 are modifiers for this.
- ROM Drum Kits 1 – 8 are used in Programs 129 – 136 of Bank G.

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

- For some sounds, high settings of the 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.

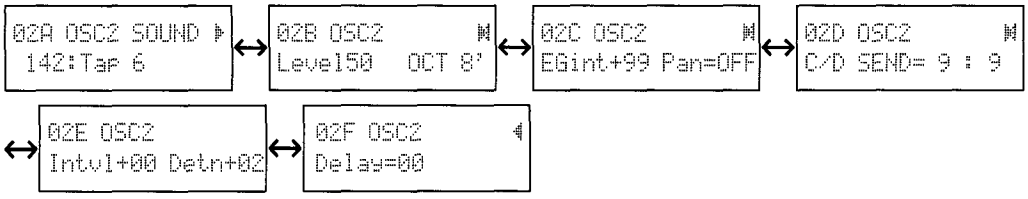
▼Pan (panpot) determines the A/B output balance of oscillator 1.

- If OFF is selected, the oscillator is not output at A or B.
- If A15 is selected, oscillator is output at A only B if B15 is selected, and the same level is output at A and B if CNT is selected.
- If the OSC Mode has been set to DRUMS, nothing is displayed. The pan setting for each individual instrument of that Drum Kit will be used.

▼Send C and D sets the oscillator's C and D output level.

- If the OSC Mode has been set to DRUMS, the send settings made for the drum kit will be used. Change the value to vary the output level in same quantity.

• 2A – 2F OSC2 (Oscillator 2) (DOUBLE Mode only)



2A	Multisound	0 – 339	Select a Multisound for OSC2
2B Level	OSC Level	0 – 99	Oscillator 2 volume
OCT	Octave	32' 16' 8' 4'	Specify the octave of oscillator 2 2 octaves lower 1 octave lower Normal pitch 1 octave higher
2C EG int	Pitch EG Intensity	–99 – +99	The depth of the pitch change over time
Pan	Pan	OFF, A15 – CNT – B15	The output destination of oscillator 2
2D C/D Send	Send C	0 – 9	Oscillator 2 output level at C
	Send D	0 – 9	Oscillator 2 output level at D
2E Intvl	Interval	–12 – +12	Interval (in chromatic steps) of OSC2 relative to OSC1
Detn	Detune	–50 – +50	Detune (in units of 1cent) between OSC1 and OSC2
2F 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.
* The OSC Mode 0A is used to switch between the Double and single modes.

▼Multisound (Multisound select) selects the Multisound for oscillator 2. The selection is the same as for oscillator 1 (0 – 339).

▼The contents of 2B – 2D are the same as those of 1B – 1D OSC1.

▼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 range). By slightly detuning oscillators 1 and 2, you can create richer sounds.

The following table shows how Detune affects the pitch.

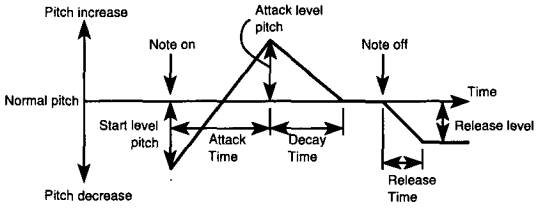
Detune	OSC1 Pitch	OSC2 Pitch
+50	–25 cent	+25 cent
⋮	⋮	⋮
0	0	0
⋮	⋮	⋮
–50	+25 cent	–25 cent

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 mil-lese cornds. (If you do not wish to use this effect, set this to a value of 0.)

• 3A – 3C Pitch EG

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

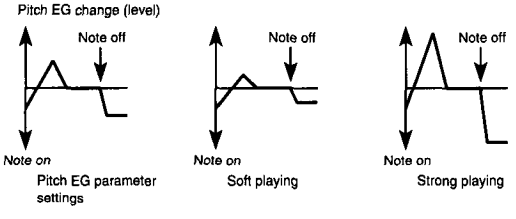


▼These parameters determine how the pitch will change over time.

- 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.
- The level is based on the level at which the decay ended (when decay is continuous).
- Inverting the + and – values for each EG level will invert the shape of the EG.

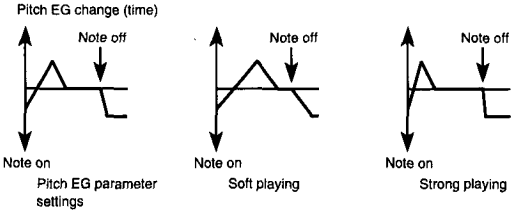
▼For positive (+) values of EG Level Vel.Sense (EG Level velocity sensitivity), the pitch change will become greater as you play the keys of the connected MIDI keyboard more strongly. (Negative (–) values will have the opposite effect.) The range of pitch change produced by the Pitch EG is limited to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

- When parameters are set to "+":

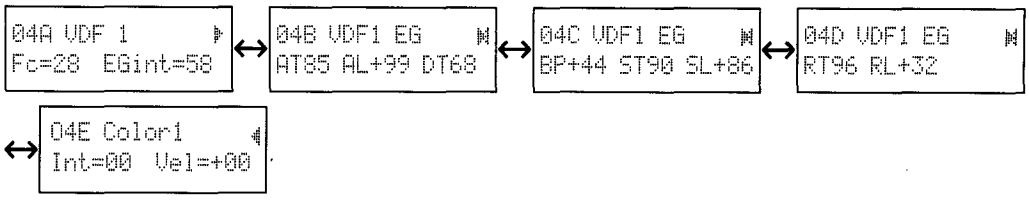


▼For positive (+) values of EG Time Vel.Sens. (EG time velocity sensitivity), the pitch change will become faster as you play more strongly. (Negative (–) values will have the opposite effect.)

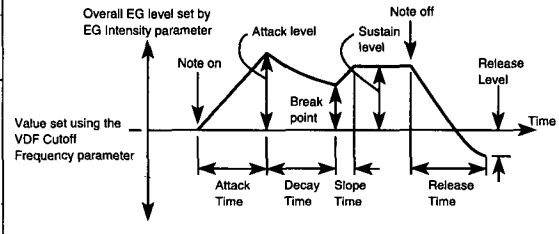
- When parameters are set to "+":



• 4A – 4E VDF1 Cutoff, EG, Color1

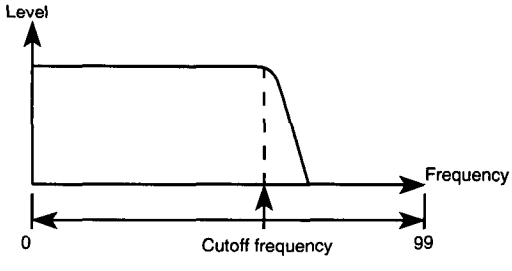


4A Fc	VDF Cutoff	0 – 99	VDF1 cutoff frequency (tonal brightness)
EG int	EG Intensity	0 – 99	The depth of tonal change produced by the VDF1 EG
4B AT	Attack Time	0 – 99	How the VDF1 cutoff will change over time
AL	Attack Level	–99 – + 99	
DT	Decay Time	0 – 99	
4C BP	Break Point	–99 – + 99	
ST	Slope Time	0 – 99	
SL	Sustain Level	–99 – + 99	
4D RT	Release Time	0 – 99	
RL	Release Level	–99 – + 99	
4E Int	Color Intensity	0 – 99	The color effect for oscillator 1
Vel	Color Velocity Sens	–99 – +99	How velocity will affect the color 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.



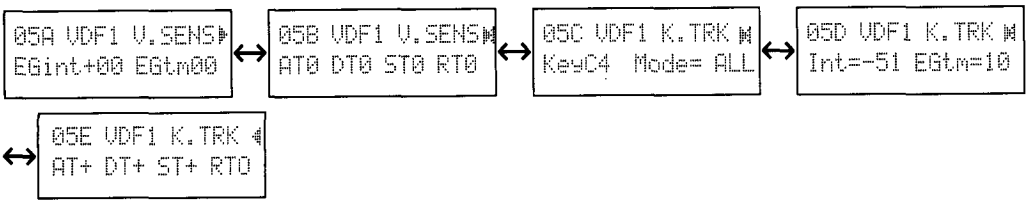
▼EG Intensity determines the amount of change in the cutoff frequency produced by the VDF EG in the following item (4B – 4D). With a value of 99, the cutoff EG will produce the maximum change.

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

- The level is based on the level at the beginning of the attack (Note On).
- If you invert the "+" and "–" values of the EG levels, the EG will be inverted.
- VDF1 EG Intensity will determine the overall EG levels.

▼Increasing the Color value gives feedback to the sound in the vicinity of the cutoff range, making the sound more resonant.

• 5A – 5E VDF1 Velocity Sense, Keyboard Tracking



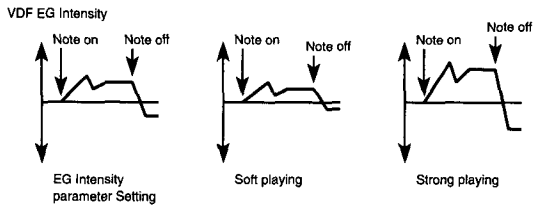
5A EGint	EG Intensity Vel Sense	–99 – + 99	How key velocity will affect the VDF1 EG effect
EGtm	EG Time Vel.Sens	0 – 99	How key velocity will affect the time of VDF1 EG
5B AT	Attack Time	–, 0, +	The direction in which EG Time Velocity will affect the parameters (such as Attack Time) of the VDF1 EG (with a value of 0 there will be no effect)
DT	Decay Time	–, 0, +	
ST	Slope Time	–, 0, +	
RT	Release Time	–, 0, +	
5C 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
5D 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
5E 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, +	

▼EG Intensity 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.)

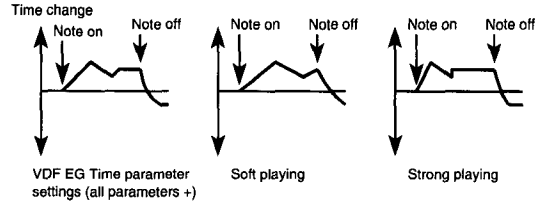
☆For many acoustic instruments, softly played notes have less energy in the high frequency region (a softer sound is produced). To simulate this, you can set the VDF cutoff frequency to a fairly low level, and set all parameters for VDF EG sustain level, VDF EG intensity, and VDF EG intensity velocity sensitivity to positive values.

- When parameters are set to "+":



▼EG Time Vel. Sens (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.

- The 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 5D VDF EG Time KBD Track, 9A VDF EG Time Vel. Sense, and 9D VDA EG Time KBD Track.
- When all parameters are set to "+":

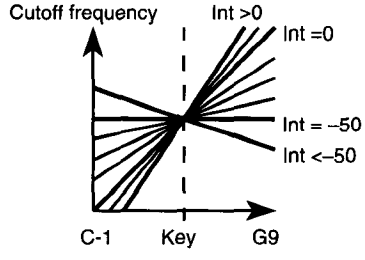


▼Using Keyboard Tracking(5C – 5E), you may select how the keyboard position will affect the VDF cutoff frequency.

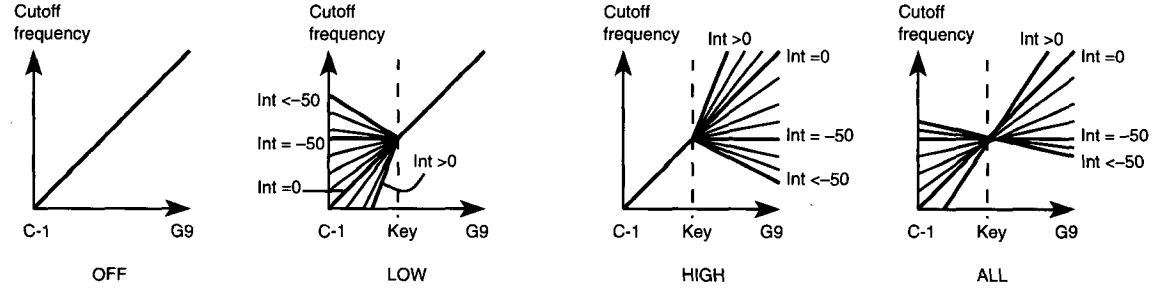
▼If the KBD Tracking Mode is LOW or HIGH, the Key parameter specifies the key from which keyboard tracking will occur. If the KBD Tracking Mode is ALL, the Key parameter specifies the key around which keyboard tracking will occur (i.e., the key at which the Cutoff/EG Time will not be changed).

▼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.

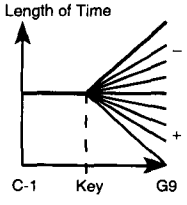


▼The KBD Tracking Mode specifies the area over which keyboard tracking will occur. When this parameter is OFF, the 5D KBD Track and EG Time KBD Track are disabled.

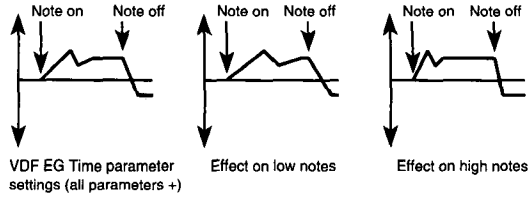


▼If "+" is set for EG Time (EG time keyboard track), notes higher than the 5C key will have shorter VDF EG times (Attack/Decay/Slope/Release Time). For a setting of "–", higher notes above the key will have longer VDF EG times. The key specified in 5C and the "KBD Tracking Mode" determine the range which is affected.

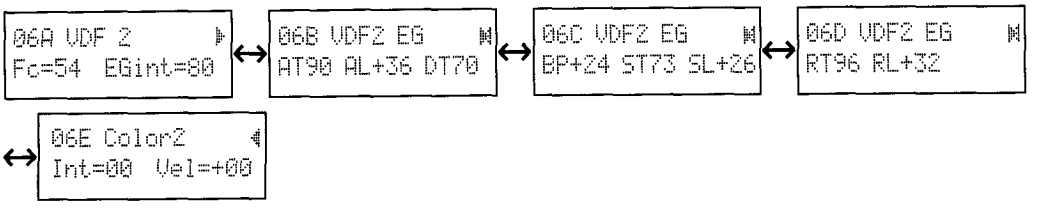
- When "KBD Tracking Mode" is set to high



- When all parameters are set to "+":



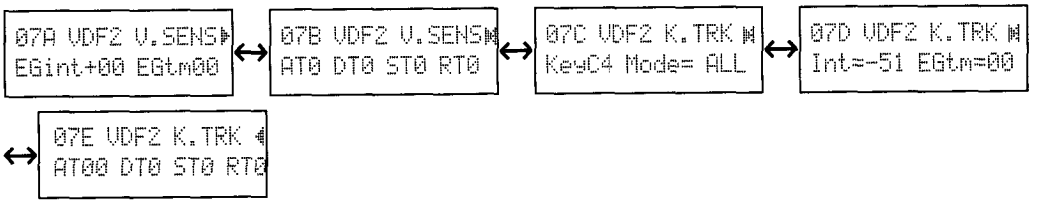
• 6A – 6E VDF2 Cutoff, EG, Color 2 (only for DOUBLE mode)



▼This is the VDF, Color for oscillator 2.
- The details are the same as for 4A – 4E VDF1, Color.

☆To select DOUBLE mode (or Single mode), use 0A OSC Mode.

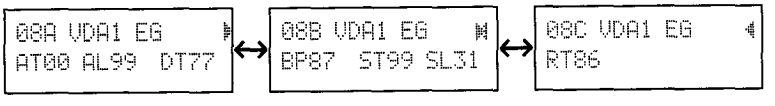
• 7A – 7E VDF2 Velocity Sense, Keyboard Tracking (only for DOUBLE mode)



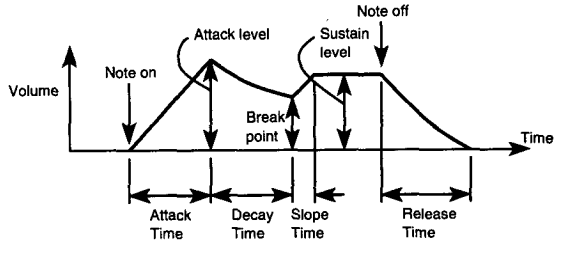
▼This is the VDF for oscillator 2.
- The details are the same as Page 5A – 5E VDF1.

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

• 8A – 8C VDA1 EG



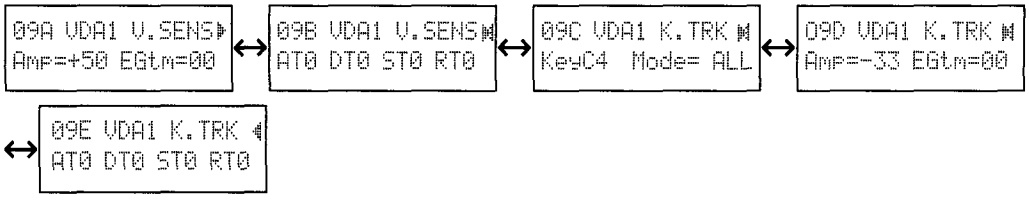
8A AT	Attack Time	0 – 99
AL	Attack Level	0 – 99
DT	Decay Time	0 – 99
8B BP	Break Point	0 – 99
ST	Slope Time	0 – 99
SL	Sustain Level	0 – 99
8C RT	Release Time	0 – 99



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

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

• 9A – 9E VDA1 Velocity Sense, Keyboard Tracking



9A Amp	VDA Velocity Sense	–99 – + 99	How key velocity affects the VDA1 EG level
EGtm	EG Time Vel.Sens	0 – 99	How key velocity affects VDA1 EG time
9B 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, +	
9C Key	Key	C-1 – G9	When the KBD Tracking Mode is LOW or HIGH, this specifies the key from which keyboard tracking will begin to take effect. When the KBD Tracking Mode is ALL, this specifies the center key around which VDA1 keyboard tracking will take effect (i.e. the key which will not be affected).
Mode	KBD Tracking Mode	OFF LOW HIGH ALL	The range over which keyboard tracking will occur Keyboard tracking will not occur Keyboard tracking will occur for the low note range Keyboard tracking will occur for the high note range Keyboard tracking will occur over the entire note range
9D Amp	KBD Tracking	– 99 – + 99	How key position will affect VDA1 EG level
EGtm	EG Time KBD Track	0 – 99	How key position will affect VDA1 EG time
9E AT	Attack Time	–, 0, +	The direction in which the various VDA1 EG parameters (attack time, etc.) will be affected by EG Time KBD Track. (Parameters set to 0 will not be affected by key velocity.)
DT	Decay Time	–, 0, +	
ST	Slope Time	–, 0, +	
RT	Release Time	–, 0, +	

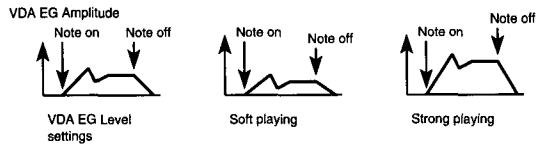
▼VDA Velocity Sense (VDA velocity sensitivity) determines how key velocity will affect the volume. For positive (+) values, softly played notes will be softer. For negative (–) values, strongly played notes will be softer. As the value approaches +99 or –99, key velocity will have a greater effect on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

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

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

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

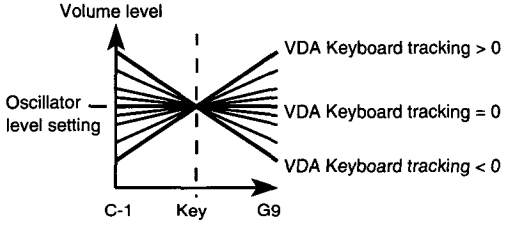
- When all parameters are set to "+":



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

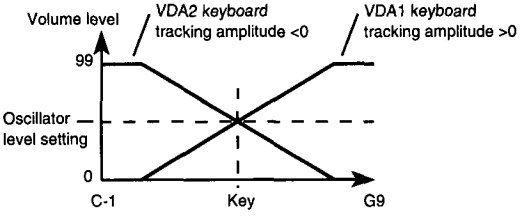
▼For positive (+) settings of KBD Tracking Intensity, the volume will increase as you play higher notes. For negative (–) settings, the volume will decrease as you play higher notes.

▼When the KBD Tracking Mode is LOW or HIGH, the Key parameter specifies the key from which keyboard tracking will begin to take effect. When the KBD 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).

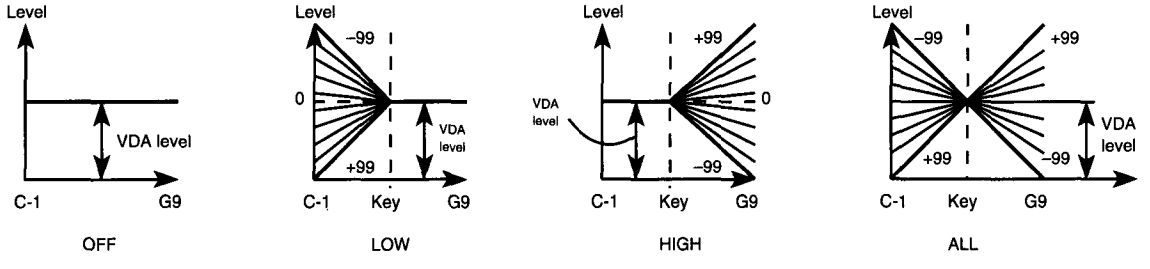


☆In DOUBLE mode, you can create a "positional crossfade" effect by setting an identical keyboard tracking key for both oscillators 1 and 2, and giving them opposite "+" and "–" 9D intensity settings.

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

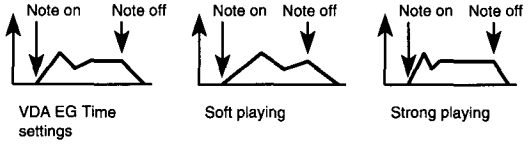


▼The KBD Tracking Mode determines the range over which keyboard tracking will occur. When this parameter is set to "OFF", the 9D Keyboard Tracking and EG Time Keyboard Track are disabled.

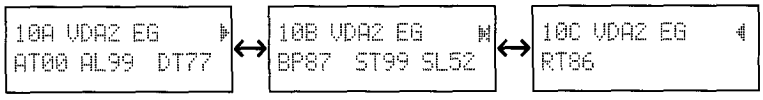


▼If EG Time (EG time keyboard track) is set to "+", notes higher than the 9C key will have shorter VDA EG Times (Attack/Decay/Slope/Release Time). For a setting of "–", higher notes above the key will have longer VDA EG Time. The key specified in 9C and the Keyboard Tracking Mode determine the range which is affected.

- If every parameter is set to "+"



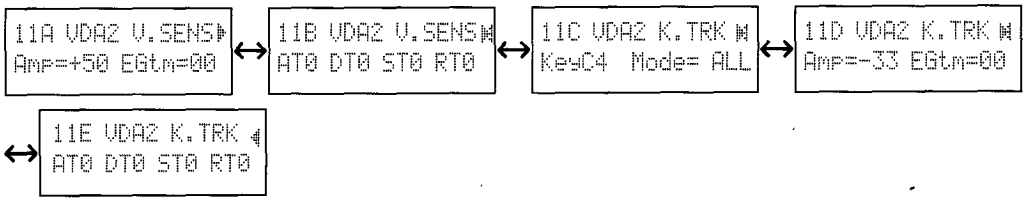
• 10A – 10C VDA2 EG (only for DOUBLE mode)



▼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.

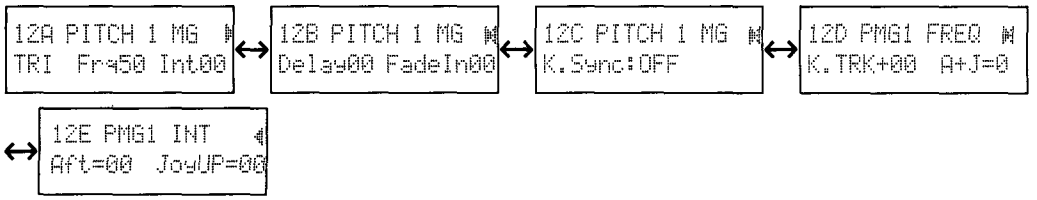
• 11A – 11E VDA2 Velocity Sense, Keyboard Tracking (only for DOUBLE mode)



▼This is the VDA for oscillator 2.
- The details are the same as 9A – 9E VDA1.

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

• 12A – 12E Pitch1 Modulation



12A	Waveform	TRI SAW ↑ SAW ↓ SQR1 RAND SQR2	Selects the modulation waveform Triangle Sawtooth 1 Sawtooth 2 Square1 Random Square2
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.

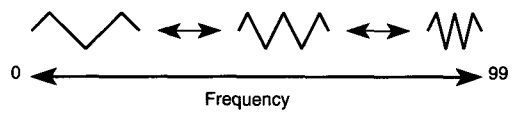
▼Waveform selects the modulation waveform; i.e., the "shape" of the variation in pitch.

- Triangle — triangle wave (most often used)
- Saw Up — upward sawtooth wave
- Saw Down — downward sawtooth wave
- Square1 — square wave1
- Random — irregular change
- Square2 — square wave2

* For the Square 1 setting, the pitch changes between the standard pitch and the high pitch. For other waveforms, the pitch changes between the high and low pitches.

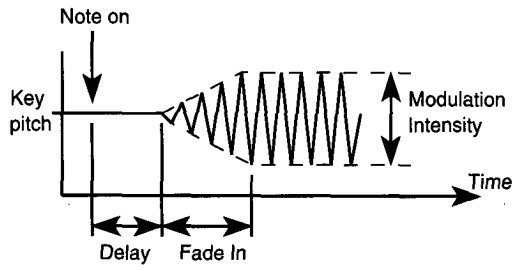
▼Frequency determines the modulation frequency (the speed of the pitch variation). A setting of 99 results in the fastest modulation.

- When Triangle wave is selected:

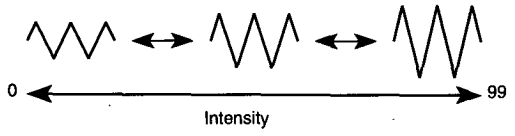


▼Delay determines the time delay from when a key on the keyboard (such as the 01/W) connected to MIDI In is pressed to when modulation begins.

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



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



▼If Key Sync is set ON, the modulation waveform will be restarted for each new note played on the MIDI keyboard connected to the 05R/W's MIDI In (such as the 01/W).(MG is applied separately to each individual key.)

▼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.

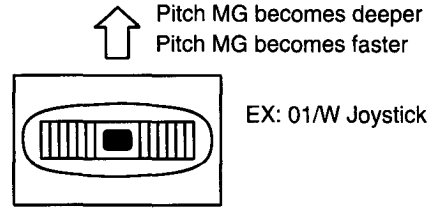
▼Frequency Mod by After Touch + Joy Stick specifies how much the Pitch MG speed will increase in response to aftertouch and the joystick connected to an instrument with a MIDI In terminal (such as the 01/W).

▼The greater the After Touch value, the greater the effect on the Pitch MG when a key connected to an instrument with a MIDI In terminal (such as the 01/W) is pressed strongly.

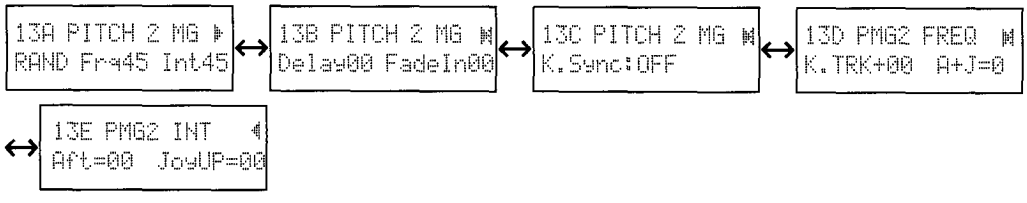
▼The greater the Joy Up (joy stick) value, the greater the effect on the Pitch MG when the joy stick connected to an instrument with a MIDI In terminal (such as the 01/W) is pushed upward.

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

* The Joy Stick connected to an instrument with a MIDI In terminal (such as the 01/W) can be moved in the +Y axis (away from you) to control the depth and speed of the Pitch MG effect.



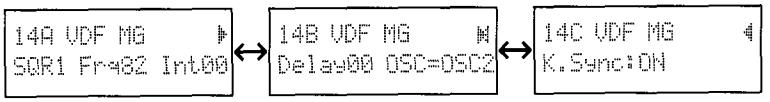
• 13A – 13E Pitch 2 Modulation (DOUBLE Mode only)



▼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.

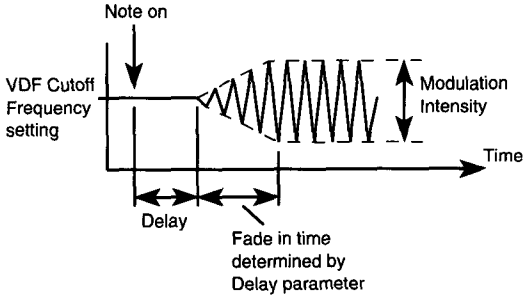
• 14A – 14C VDF Modulation



14A	Waveform		Selects the modulation waveform
		TRI	Triangle
		SAW ↑	Sawtooth 1
		SAW ↓	Sawtooth 2
		SQR1	Square1
		RAND	Random
		SQR2	Square2
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.

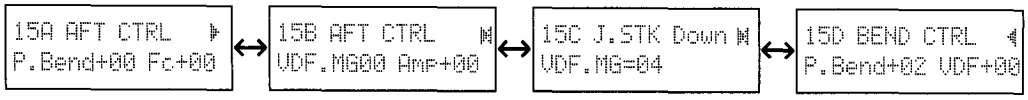
- The details are the same as for Pitch MG, but there is no Fade In parameter. (The Fade In time will depend on the Delay Time.)



▼Since VDF MG is common to both VDF 1 and VDF 2, 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 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 a MIDI keyboard such as the 01/W connected to the MIDI In of the 05R/W).

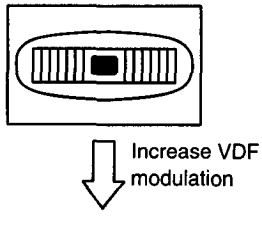
▼For positive (+) values of After Touch VDF Cutoff frequency, pressing down the key will increase the cutoff value (the sound will become brighter). Negative values will have the opposite effect.

▼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.

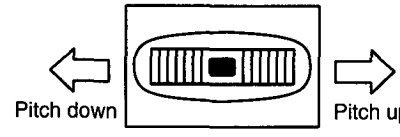
▼For higher values of VDF MG Int Mod by Joy Stick, moving the joystick of the keyboard (such as the 01/W) downward (toward you) will deepen the effect of the VDF Cutoff MG.

EX.) The joystick of the 01/W



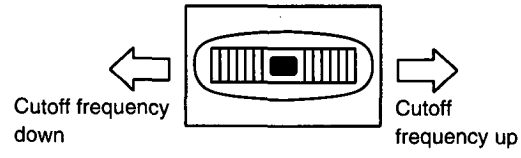
▼Joy Stick Pitch Bend Range specifies the maximum pitch change in half steps (semitones) that will occur when the joystick on the keyboard (such as the 01/W connected to MIDI In) is moved to left or right. For the maximum setting of 12, the pitch will change one octave up or down. For positive settings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

- For positive settings:



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

- For positive settings:

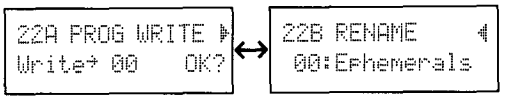


• 16A – 21A Effect

For information on Effects, refer to p. 43, "3. Effect Parameters".

- The panpot (A, B) and send (C, D) settings made for each oscillator will be input to the effects.
- Although an effect may have 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.

• 22A – 22B Program Write/Rename

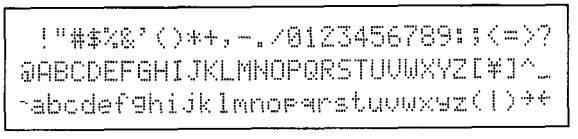


22A Write	Destination Prog. No.	00 – 99	Program number of write destination
		OK?	Executes the write operation
22B			Rename

▼This function is used to write an edited Program into memory.

(1) Enter a Program name using the ◄, ►, ▲, and ▼ keys for 22B.
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. Each time the ▲ or ▼ key is pressed, the character selected will change in the order shown in this illustration.



- You cannot execute the write operation if Program memory protect is "ON". Turn memory protect off in Global mode 3A.

(2) Select the Program number for the writing destination, using 22A.
It is not possible to write to Bank G.

(3) Move the cursor to "OK?", and press ▲.

- The Program setting 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 one program to a different program number.

3. EFFECT PARAMETERS

The 05R/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, Combination, and Multi-Setup, 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 timbre.
- The Multi Mode is designed so that, when the power to the effector is turned on, and when a MIDI GM On message is received, Effector-1 is set automatically to "Hall", Effector-2 to "Chorus 1", and Placement to "Parallel 3".

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), two outputs (1/L/MONO, R), two effect units, and two panpots (PAN 3, 4). The two effects can be connected in four ways (serial, parallel, parallel 2, parallel 3). In the 05R/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.

About MIDI Control

★With the 05R/W, the two effectors can be turned on and off individually, and dynamic modulation can be carried out using MIDI control.

Effect 1 OFF	Bn,5C,00
Effect 1 ON	Bn,5C,xx (xx>0)
Effect 2 OFF	Bn,5E,00
Effect 2 ON	Bn,5E,xx (xx>0)
Effect 1 Dynamic Modulation	
Effect 2 Dynamic Modulation	

: See page 47

These controls are initiated using the global channels.

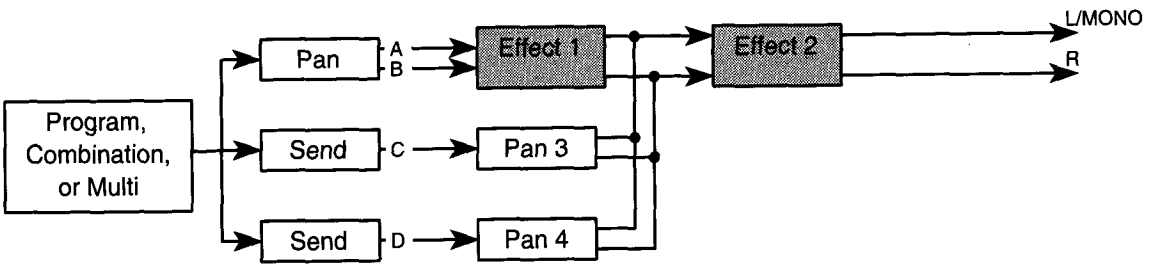
★Effector input is specified using the Pan (between A and B) and Send C and D parameters, but MIDI can also be used to control these.

Pan	Bn,0A,xx (xx=00 : A15, = 40 : CNT, = 7F : B 15)
Send C	Bn,5B,xx
Send D	Bn,5D,xx

These are controlled by the individual MIDI channels specified for the various timbres of the combination, and by the individual multi tracks.

EFFECT PLACEMENT

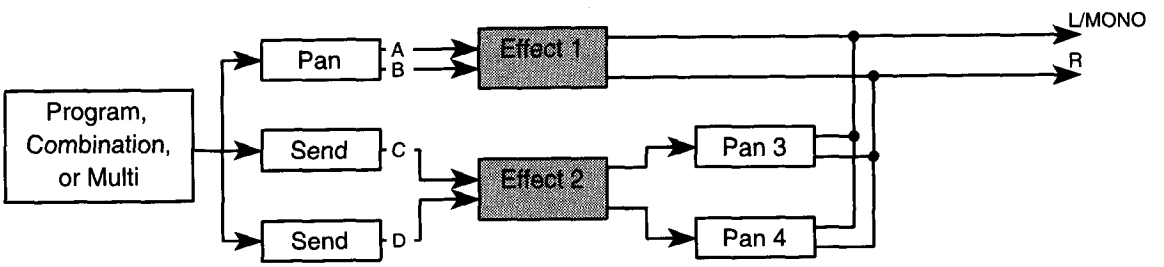
Placement = Serial



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

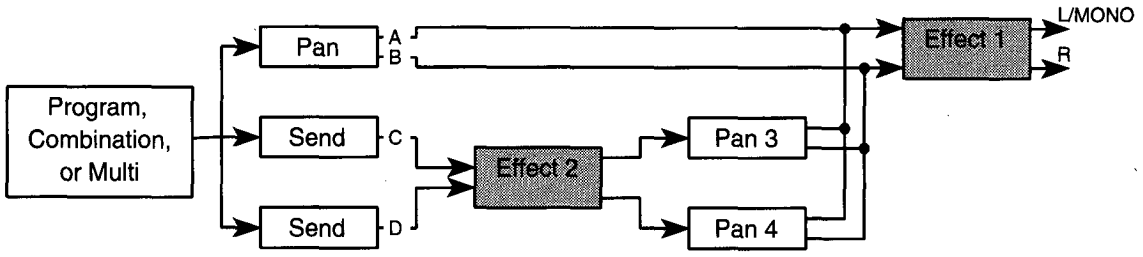
☆For example, using inputs C and D will allow you to avoid applying Effect 1 to a specific sound, or to apply Effect 1 only to a specific sound and then apply Effect 2 to all the sounds.

Placement = Paralle l



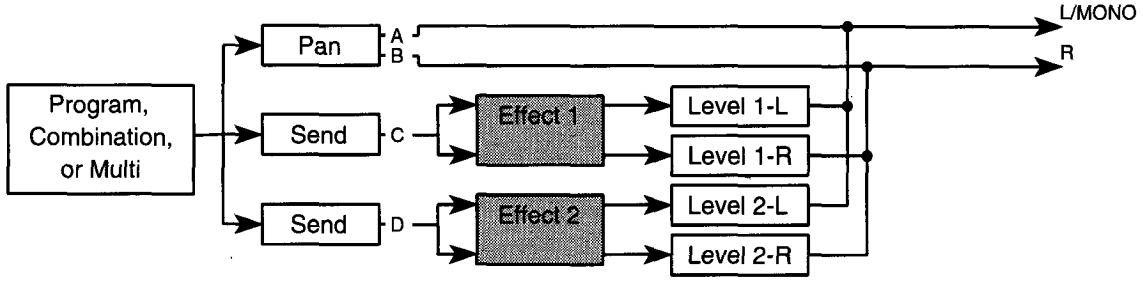
In Parallel mode, separate effects are applied to inputs A and B and inputs C and D. You can mix the output of Effect 2 (from inputs Card D) into the output of L/MONO and R.

Placement = Parallel 2



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

Placement = Parallel 3



A and B input is output to L and R just as it is, while C and D are input to Effects 1 and 2, respectively. Only under these placement conditions is the effect output not pan, but level. In other words, A and B are output directly, while C and D become the Send for the Effects, and the output level of each Effect serves as the return from the Effect.
* The usual placement is used during GM performance.

☆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.
- 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.

☆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 and send settings for the Oscillator parameters (1C , 1D , 2D, 2D), Timbre parameters (7A – 7B, 8A – 8B), and Track parameters (*B) in Edit Program mode, Edit Combination mode, and Multi mode, respectively.

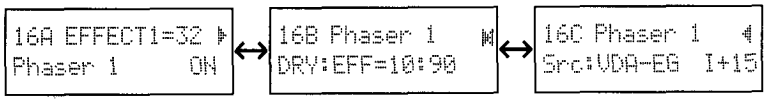
* Panpot adjusts the A, B input balance, and Send adjusts the C, D input level. The sound input to C and D cannot be monitored when Output 3 Pan and Output 4 Pan are set to OFF.

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

EDIT Program mode (SINGLE, DRUMS) ..... 10A – 15A
EDIT Program mode (DOUBLE) ..... 16A – 21A
EDIT COMBINATION mode ..... 9A – 14A
MULTI mode ..... 16A – 21A

An example from EDIT PROGRAM mode (double) is shown below.

• 16A – 16C Effect 1



16A	Effect Type	00 01 – 47	No effect is used Select the Effect Type
	Switch	OFF, ON	Switches the effect ON or OFF
16B	Dry: Effect Balance	DRY, 99: 1 – 1: 99, FX	Sound and Effect balance
16C Src	Dynamic Modulation Source	 NONE JS (+Y) JS (–Y) AFTT PEDAL 1 PEDAL 2 VDA EG	Effect Dynamic Modulation Control Source Not used Joystick (+Y) Joystick (–Y) After Touch Foot Pedal 1 Foot Pedal 2 VDA EG
I	Dynamic Modulation Intensity	–15 – +15	Specifies the depth of Effect Dynamic Modulation

- 16A Effect type selects the effect to be used for Effect 1.
- When you select a new effect type, the effect parameters (17A–17D) 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.92 (Effect1) and No.94 (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.

☆With the Delay (13, 14), Chorus (19, 20), Exciter (28), and Tremolo (35, 36) effects, the setting entered for the equalizer (LOW EQ or HIGH EQ) is also effective when the Effect ON/OFF switch is set to the "OFF" position.
To turn off all of the effects, including the equalizer, when editing sounds, select "No Effect" (00) under "Effect Type".

- 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 (16C) the Dynamic Modulation Source and the Intensity (the depth of modulation) to control that parameter in realtime.

JS (+Y): Returns when the joy stick on the 01/W or similar instrument is moved in the +Y direction.
Modulation is applied when the MIDI data Bn,01,xx (n is the MIDI channel) is received.

JS (-Y): Joy stick -Y direction Bn,02,xx
Modulation is applied (n is the MIDI channel)

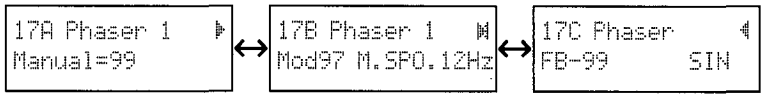
AFTT: After touch Dn,xx

PEDAL1: When the function of the assignable pedal 1 is set to "Effect Control" (such as the 01/W) Modulation is applied when the MIDI data Bn,0C,xx (n: MIDI channel) is received.

PEDAL2: When the function of the assignable pedal 2 is set to "Effect Control" (such as the 01/W) Modulation is applied when the MIDI data Bn,0D,xx (n: MIDI channel) is received.

- The "VDA EG" of the dynamic modulation source is 32 voices, all of which are the sum of VDA EG level. This effect is very apparent when you play chords.

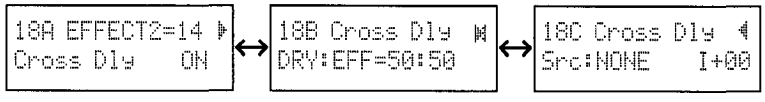
• 17A –17D Effect 1 Parameter



▼These are the parameters for Effect1.

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

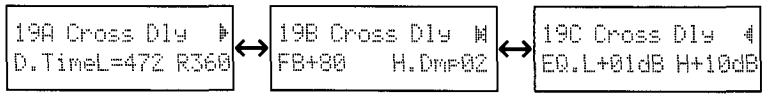
• 18A – 18C Effect 2



▼This selects the effect type for Effect2.

- The details are the same as for 16A – 16C Effect1.
- When a different effect type is selected, the effect parameters 19A – 19D are reset to their default values.

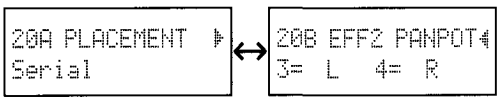
• 19A – 19D Effect 2 Parameter



▼These are the parameters for Effect2.

- The details are the same as for 17A – 17D Effect1.

• 20A – 20B Effect Placement



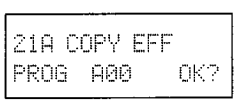
20A	Effect Placement	Serial Parallel Parallel 2 Parallel 3	Selects the routing of the effect units. Serial Parallel Parallel 2 Parallel 3
20B 3=	Out3 Panpot	OFF L, 99:1 – 1:99, R	The sound input to C is not sent to L or R (except Parallel 3) Input to C Pan setting (L, R balance)
4=	Out4 Panpot	OFF L, 99:1 – 1:99, R	The sound input to D is not sent to L or R Input to D Pan setting (L, R balance)
20B L	Effect1-L Out Level	0 – 9	Output level for Effect 1 L (with Parallel 3)
R	Effect1-R Out Level	0 – 9	Output level for Effect 1 R
L	Effect2-L Out Level	0 – 9	Output level for Effect 2 L
R	Effect2-R Out Level	0 – 9	Output level for Effect 2 R

▼These parameters determine the effect Placement and the panning of effect output.

- There are two types of effect placement. (Refer to page 44, 45.)
- The display for 20B differs depending on whether the Effect Placement is specified as "Parallel 3" or another setting. When set to "Parallel 3", the Effect output is specified as four levels, and when another setting is specified, the Effect output is specified as two panpots.
- Set the volume for the L and R signals being output to C and D via Output 3 Pan and Output 4 Pan for the Effect.

* The sound input to C and D cannot be heard when Output 3 Pan and Output 4 Pan are set to OFF(with Parallel 3, the four levels are 0).

• 21A Copy Effect



21A	Copy Effect Source Mode	PROG COMBI MULTI	Copy source for Copy effect Program Combination Multi
	Copy Effect Source No.	A00 – A99, G01 – 136 00 – 99	Copy source Program number Copy source Combination number
		OK?	Execute copy effect

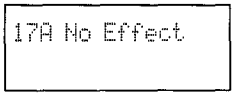
▼Use 21A to copy an effect setting from another Program, etc. Select the copy source (PROG, COMBI, MULTI) and the number (not required for MULTI). Move the cursor to OK?, and press the ▲ key to carry out the copy operation. The copy destination will be the currently selected Program.

NO EFFECT

0. NO EFFECT

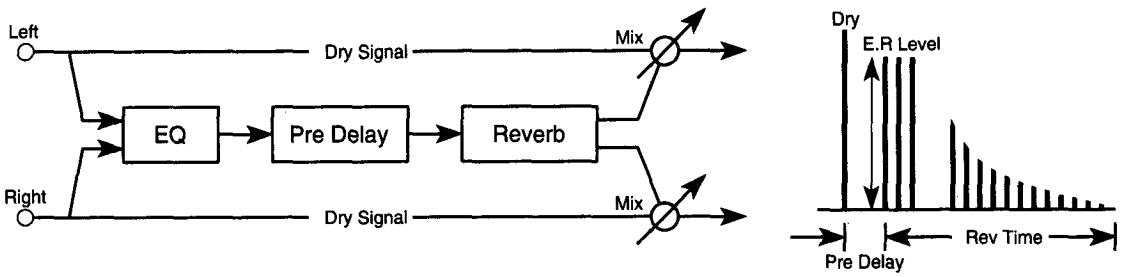
Select "NO EFFECT" when no effects are used.

☆With the Delay (13, 14), Chorus (19, 20), Exciter (28), and Tremolo (35, 36) effects, the setting entered for the equalizer (LOW EQ or HIGH EQ) is also effective when the Effect ON/OFF switch is set to the "OFF". To turn off all of the effects, including the equalizer, select "No Effect" under "Effect Type".



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

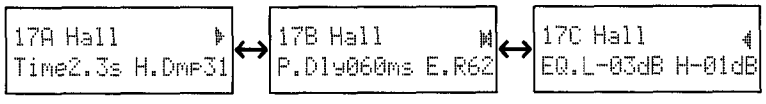
A simulation of a heavily applied plate reverb device.

8. DRY PLATE

A simulation of a lightly applied plate reverb device.

9. SPRING REVERB

A simulation of a spring reverb device.

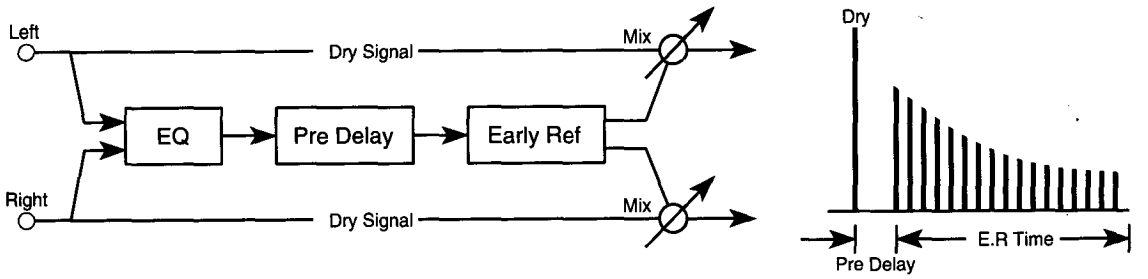


17A Time	Reverb Time	0.2 – 9.9 [sec] (HALL type) 0.2 – 4.9 [sec] (ROOM type) 00 – 99 (PLATE type)	The time over which the reverberation will decay
H.Dmp	High Damp	0 – 99 [%]	Higher values result in a faster decay for high frequencies
17B P.Dly	Pre Delay	0 – 200 [ms]	The delay between the direct sound and the early reflections
E.R	E.R Level	0 – 99 (HALL/ROOM type) 1 – 10 (PLATE type)	The level of the early reflections
17C 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

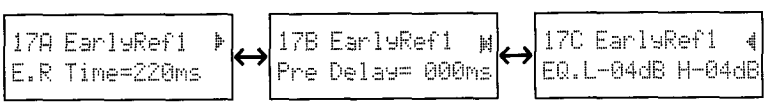
This effect emphasizes the low frequency range, and is effective when used on percussive sounds such as drums.

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.



17A E.R Time	Early Reflection Time	100 – 800 [ms]	The early reflection time (10ms increments)
17B Pre Delay	Pre Delay	0 – 200 [ms]	The delay from the direct sound to the early reflections
17C 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.

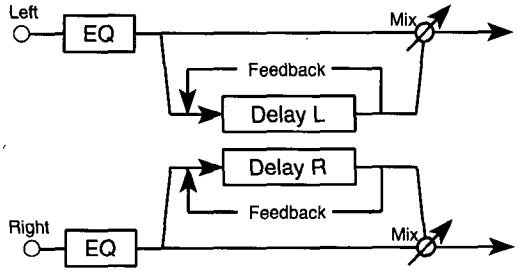
13. STEREO DELAY

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

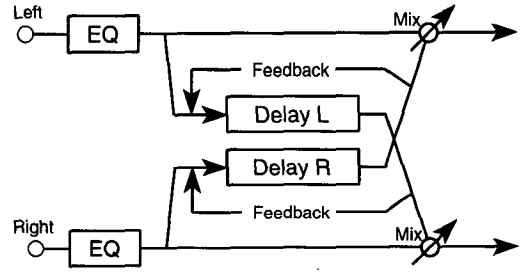
14. CROSS DELAY

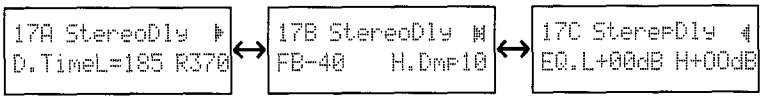
This is a stereo delay which has two delay channels with feedback from one channel to the other, to make the sound move between left and right.

• STEREO DELAY



• CROSS DELAY





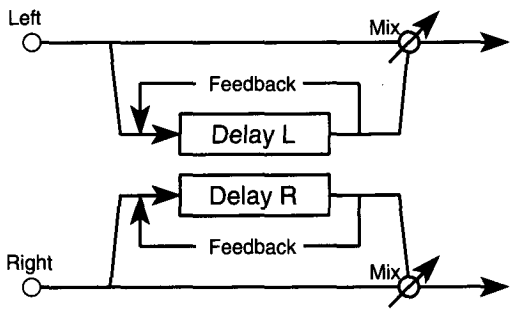
17A D.Time L	Delay Time Left	0 – 500 [ms]	The time from the direct sound to the processed sound in the left channel (Input A or C)
R	Delay Time Right	0 – 500 [ms]	The time from the direct sound to the processed sound in the right channel (Input B or D)
17B FB	Feedback	–99 – +99 [%]	The amount of feedback (negative values invert the phase)
H.Dmp	High Damp	0 – 99 [%]	Higher values result in a faster decay for high frequencies
17C 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

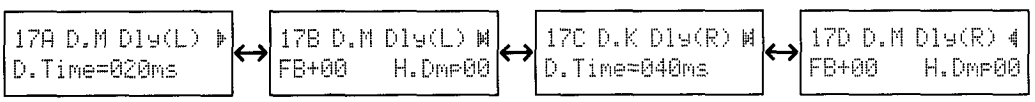
For effects 13 and 14 , you can use Dynamic Modulation to control the Dry:FX Balance.

DUAL MONO DELAY

15. DUAL MONO DELAY

This is composed of two independent mono delays.





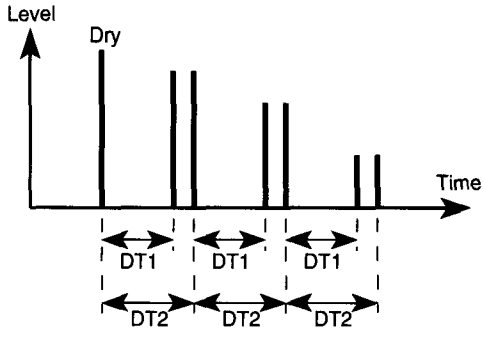
17A D.Time	Delay Time L	0 – 500 [ms]	The time from the direct sound to the processed sound in the left channel
17B FB	Feedback L	–99 – +99 [%]	The amount of feedback for the left channel (negative values invert the phase)
H.Dmp	High Damp L	0 – 99 [%]	Higher values result in a faster decay for high frequencies
17C D.Time	Delay Time R	0 – 500 [ms]	The time from the direct sound to the processed sound for the right channel
17D 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.

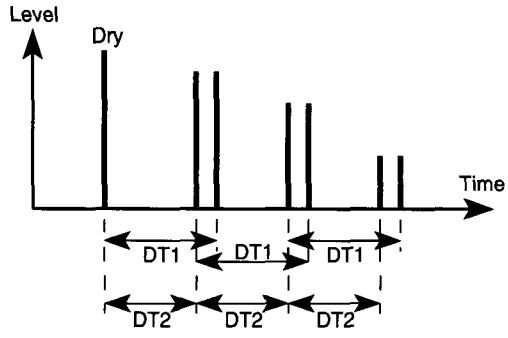
MULTI TAP DELAY

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 is less than DT2



When DT1 is greater than DT2



16. MULTI TAP DELAY I

This is a two-channel multi-repeat delay.

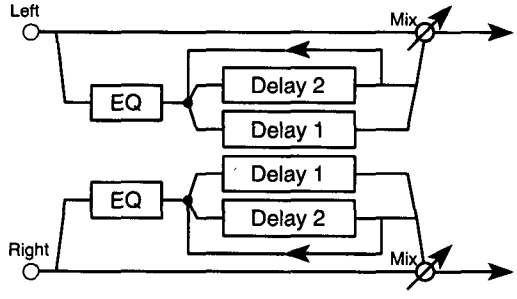
17. MULTI TAP DELAY II

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

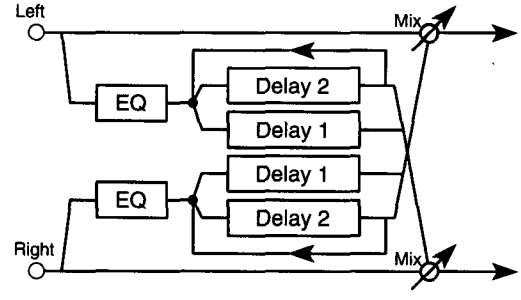
18. MULTI TAP DELAY III

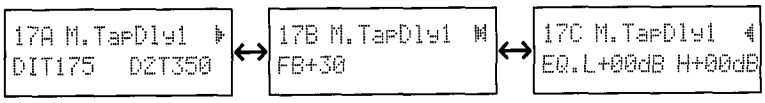
This is a two-channel multi-repeat delay with cross-feedback.

• MULTI TAP DELAY I, II



• MULTI TAP DELAY III





17A 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
17B FB	Feedback	–99 – +99	The amount of feedback (negative values invert the phase)
17C 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 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.

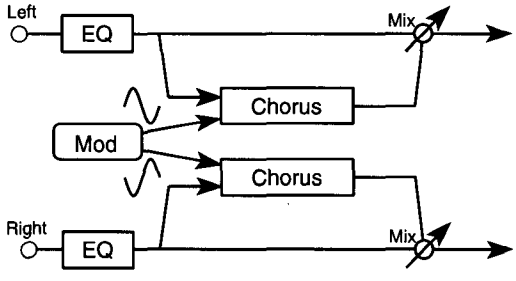
19. STEREO CHORUS I

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.

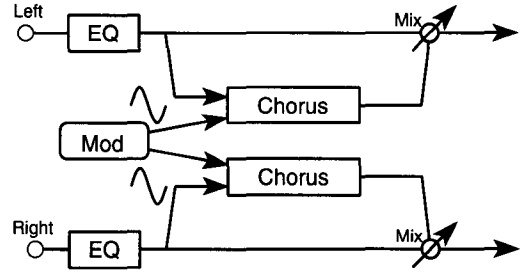
20. STEREO CHORUS II

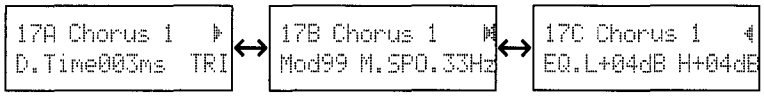
Modulation with the same phase will be applied to the two chorus units.

• STEREO CHORUS I



• STEREO CHORUS II





17A 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.
17B Mod	Mod Depth	0 – 99	The depth of modulation
M.SP	Mod Speed	0.03 – 30 [Hz]	The speed (frequency) of modulation
17C 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.

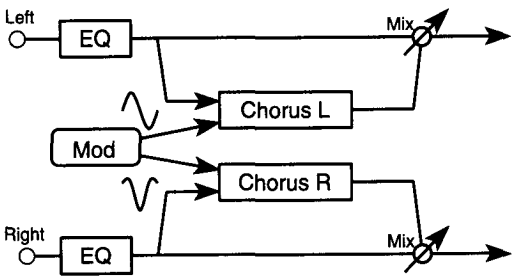
21. QUADRATURE CHORUS

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

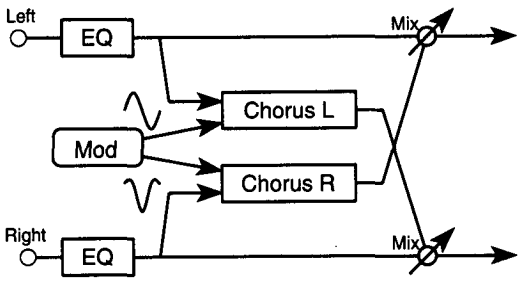
22. CROSSOVER CHORUS

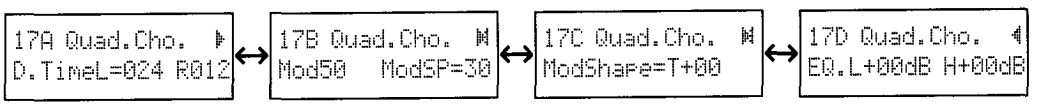
This is a stereo chorus in which the modulation is applied to each channel 90 degrees out of phase, and the chorused signal is mixed into the output of the other channel.

• QUADRATURE CHORUS



• CROSSOVER CHORUS



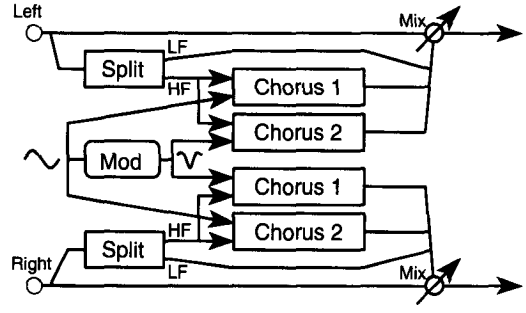


17A D.Time L	Delay Time L	0 – 250 [ms]	The time from the direct sound to the processed sound of the left channel
R	Delay Time R	0 – 250 [ms]	The time from the direct sound to the processed sound of the right channel
17B Mod	Mod Depth	0 – 99	The depth of modulation
Mod SP	ModSpeed	1 – 99	The Speed of modulation
17C Mod Shape	Mod Shape	T + 10 – T – 10, S – 10 – S + 10	Selects the modulation waveform (T: Triangle, S: Sine) The number determines the symmetry of the waveform
17D 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.



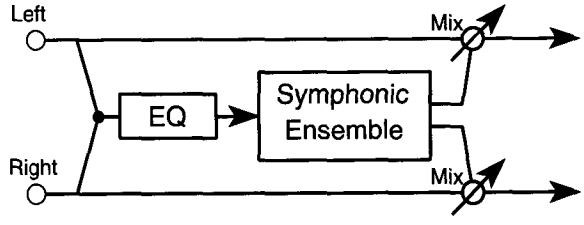
17A D.Time 1	Delay Time 1	0 – 500 [ms]	The time from the direct sound to the processed sound of the channel 1
2	Delay Time 2	0 – 500 [ms]	The time from the direct sound to the processed sound of the channel 2
17B Mod	Mod Depth	0 – 99	The depth of modulation
Mod SP	Mod Speed	1 – 99	The speed of modulation
17C F.Split Point	Frequency Split Point	0 – 18	The point at which the sound range is split

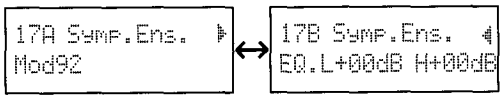
For this effect, you can use Dynamic Modulation to control the Mod Speed.

SYMPHONIC ENSEMBLE

24. SYMPHONIC ENSEMBLE

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





17A Mod	Mod Depth	0 – 99	The depth of ensemble effect
17B 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 Delay, 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.

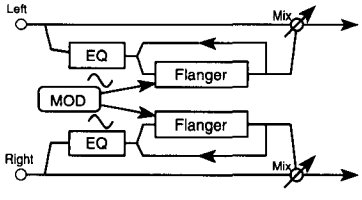
26. FLANGER II

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.

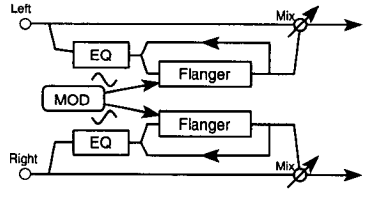
27. CROSSOVER FLANGER

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

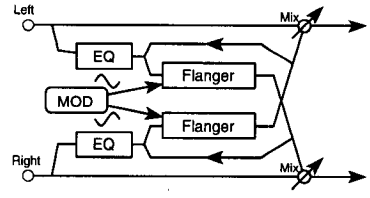
• STEREO FLANGER I

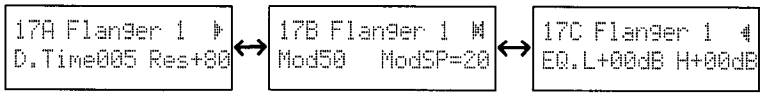


• STEREO FLANGER II



• CROSSOVER FLANGER





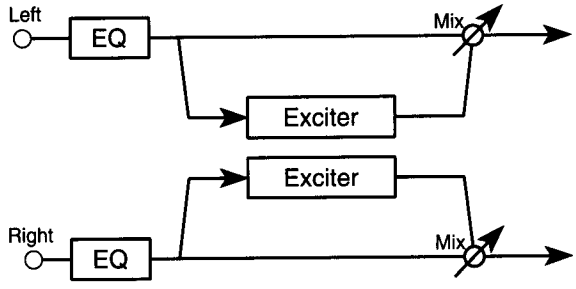
17A D.Time	Delay Time	0 – 200 [ms]	The time from the direct sound to the processed sound
Res	Resonance	–99 – +99	The amount of feedback for the flanger
17B Mod	Mod Depth	0 – 99	The depth of modulation
Mod SP	Mod Speed	1 – 99	The speed of modulation
17C EQ.L	EQ Low	–12 – +12 [dB]	The amount of boost or cut for the low frequency range
H	EQ High	–12 – +12 [dB]	The amount of boost or cut for the high frequency range

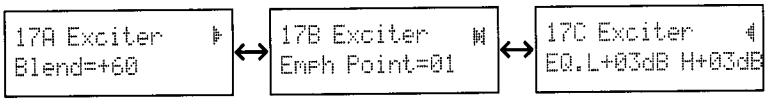
For effects 25 – 27, you can use Dynamic Modulation to control the Mod Speed.

EXCITER

28. EXCITER

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





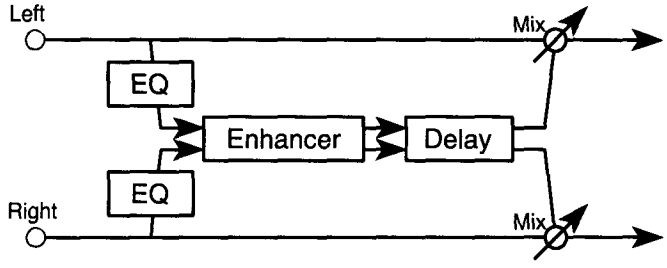
17A Blend	Blend	–99 – +99	The depth of exciter effect
17B Emph Point	Emphatic Point	1 – 10	The central frequency emphasized by exciter
17C EQ.L	EQ Low	–12 – +12 [dB]	The amount of boost or cut for the low frequency range
H	EQ High	–12 – +12 [dB]	The amount of boost or cut for the high frequency range

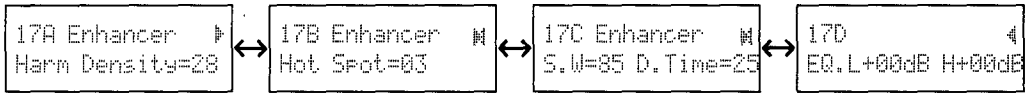
For this effect, you can use Dynamic Modulation to control the Dry: FX Balance

ENHANCER

29. 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.





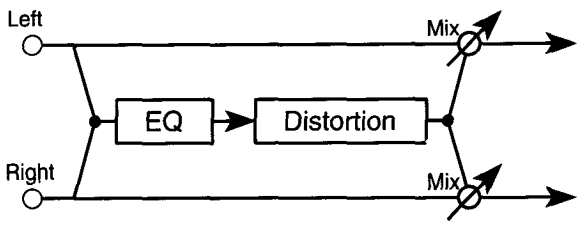
17A Harm Density	Harmonic Density	0 – 99	The depth of the enhancer effect
17B Hot Spot	Hot Spot	1 – 20	The central frequency emphasized
17C S.W	Stereo Width	0 – 99	The level at which an inverse phase delay will be mixed with the output of the other channel
D.Time	Delay Time	1 – 99	The time from the direct sound to the delayed sound
17D 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

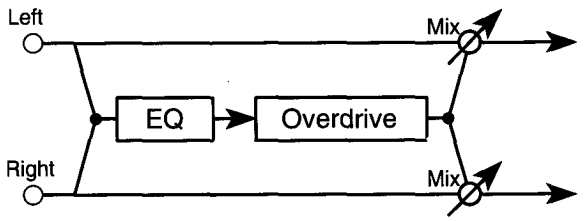
30. DISTORTION

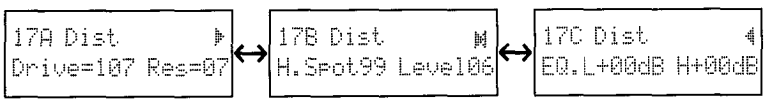
This effect distorts the sound and adds a wah effect. It is effective for solos.



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.





17A 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)
17B 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
17C 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.
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.

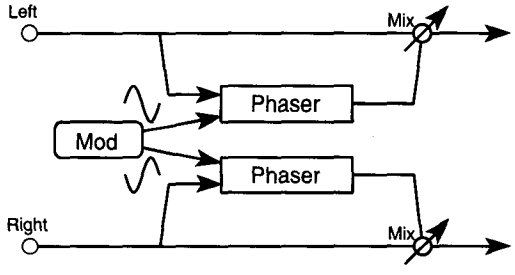
32. STEREO PHASER I

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.

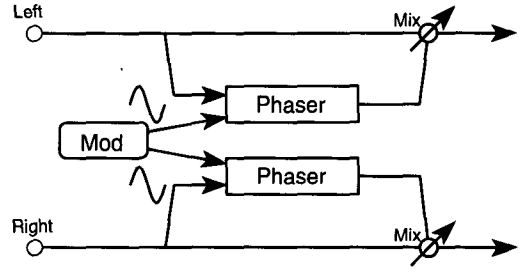
33. STEREO PHASER II

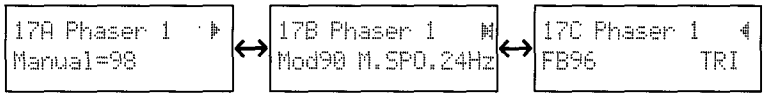
This stereo-type effect combines two phaser blocks. This effect modulates both phaser blocks with the same phase.

• STEREO PHASER I



• STEREO PHASER II





17A Manual	Manual	0 – 99	The center frequency to which the phase shift effect will be applied
17B 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
17C 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.

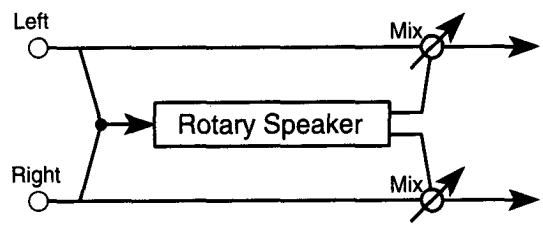
ROTARY SPEAKER

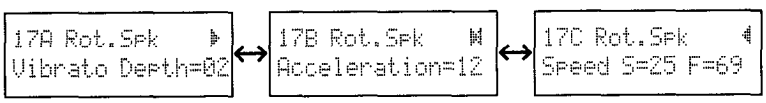
This effect simulates the rotary speaker effect that is popular for organ sounds.

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.

• ROTARY SPEAKER





17A Vibrato Depth	Vibrato Depth	0 – 15	The depth of the vibrato. This corresponds to varying the horn diameter of the rotating speaker.
17B Acceleration	Acceleration	1 – 15	The rate at which the speed will change from Slow to Fast
17C 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.

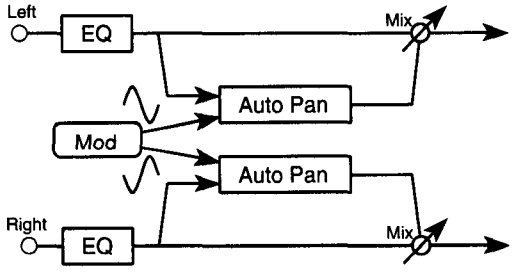
35. AUTO PAN

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.

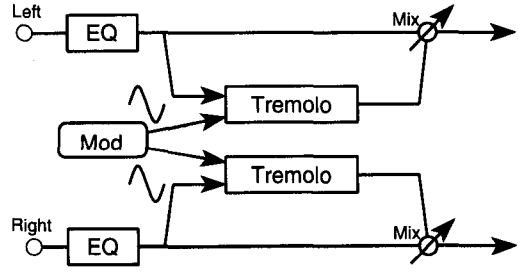
36. TREMOLO

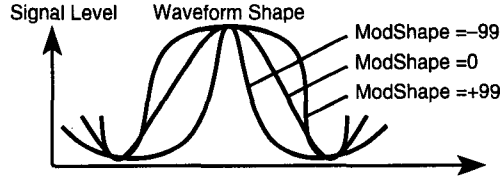
Unlike the Auto Pan above, this effect modulates both tremolo blocks in the same phase.

• AUTO PAN



• TREMOLO



17A	Mod Waveform	SIN TRI	Selects the modulation waveform Sine Triangle
Mod Shape	Mod Shape	–99 – +99	Changes the modulation waveform 
17B Mod	LFO Depth	0 – 99	The depth of tremolo
M.SP	Mod Speed	0.03 – 30 [Hz]	The speed (frequency) of modulation (tremolo)
17C 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

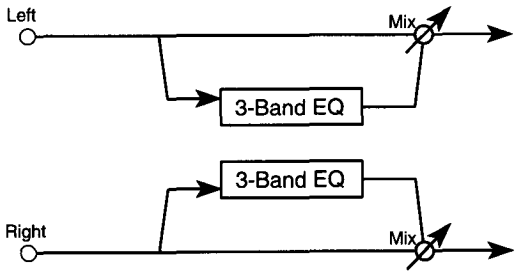
For effects 35 and 36, you can use Dynamic Modulation to control the Dry:FX Balance.

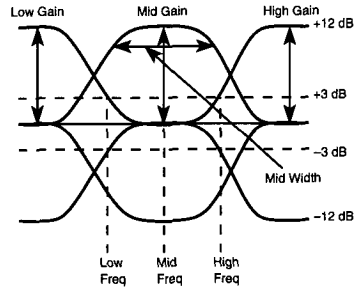
PARAMETRIC EQ

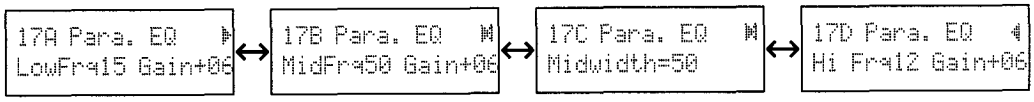
37. PARAMETRIC EQ

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

• PARAMETRIC EQ







17A 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
17B 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
17C Mid Width	Mid Width	0 – 99	The width of the mid range filter
17D 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.

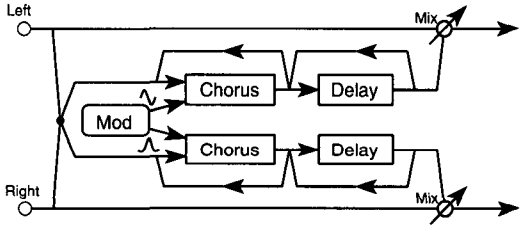
38. CHORUS-DELAY

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

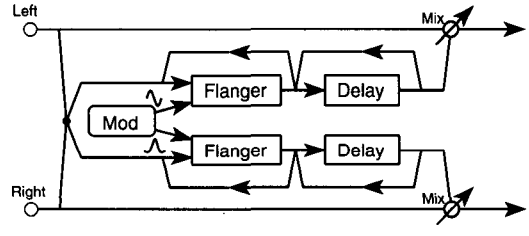
39. FLANGER-DELAY

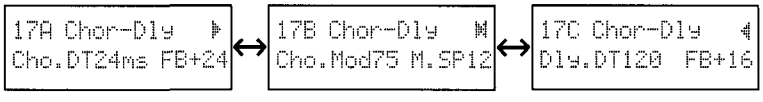
In this effect, a mono-in stereo-out flanger with a 90 degree out-of-phase LFO is connected in series with stereo delay.

• CHORUS-DELAY



• FLANGER-DELAY





• CHORUS, FLANGER

17A 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)
17B Cho Mod	Mod Depth	0 – 99	The depth of modulation
M.SP	Mod Speed	1 – 99	The speed of modulation

• DELAY

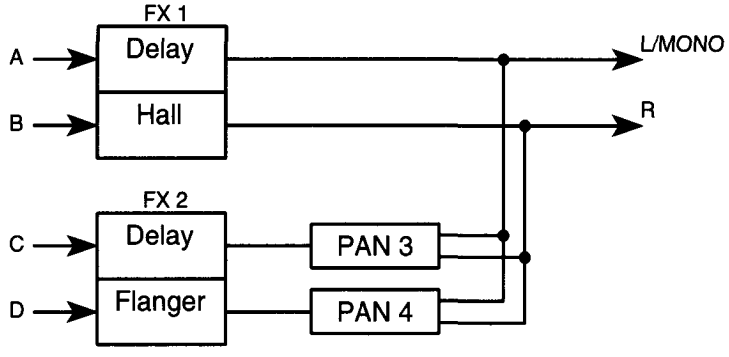
17C Dly DT	Delay Time	0 – 450 [ms]	The delay time of the delay effect (2ms increments)
FB	Delay Feedback	–99 – +99 [%]	The amount of feedback (negative values invert the phase)

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

COMBINATION EFFECTS: PARALLEL

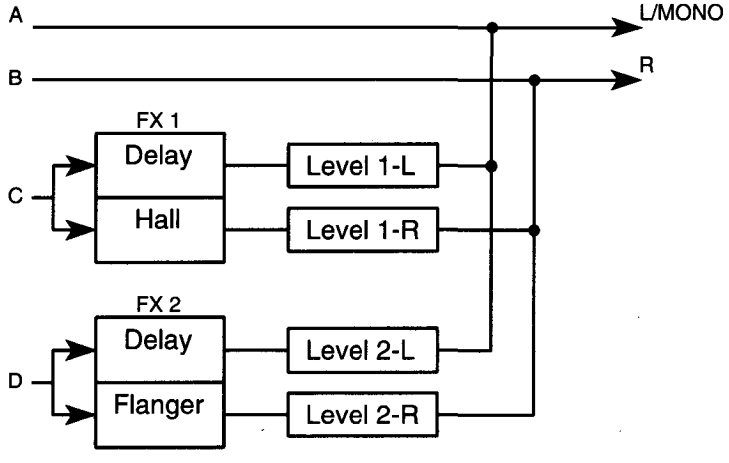
* The effects described from here on (40 - 47) use effects which are combined in parallel placement, allowing you to apply a different effect to each channel. Therefore, you can use two different types of effects for EFFECTS 1 and 2.

Example 1: When Placement is set to "Parallel", and FX11 = 40. DELAY HALL, FX21 = 43. DELAY/ FLANGER



Example 2: When Placement is set to "Parallel 3", and FX11 = 40. DELAY HALL, FX21 = 43. DELAY/ FLANGER

Setting Placement to "Parallel 3" allows the user to specify the output level for each of the Effects.



- Please refer to sections 1 – 34 for the contents of effects.
- Items 17A, B (or only 17A) correspond to the parameters of one effect (Mono Delay), and items 17C, D (or 17B, C) correspond to the parameters of the other effect.

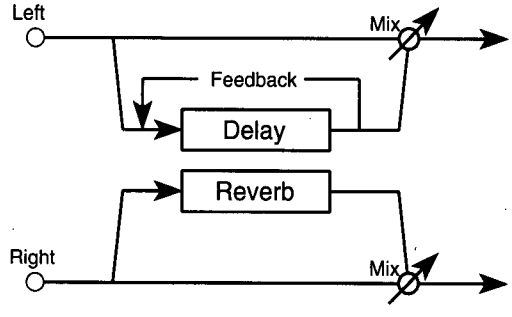
MONO DELAY/REVERB

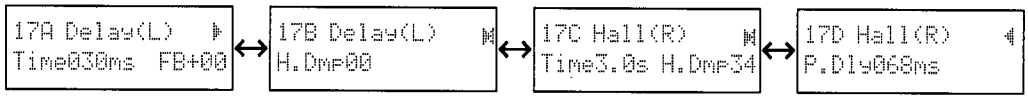
40. DELAY/HALL

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.





• DELAY

17A 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)
17B H.Dmp	High Damp	0 – 99 [%]	Higher values result in a faster decay for high frequencies

• HALL, ROOM

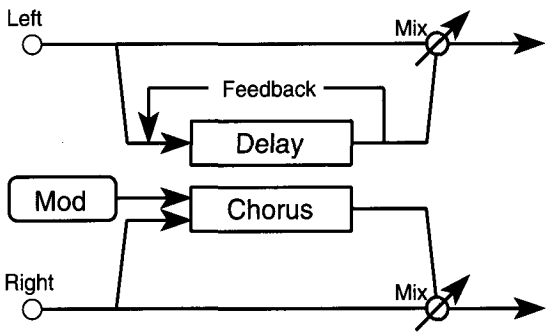
17C Time	Reverb Time	0.2 – 9.9 [sec] (HALL) 0.2 – 4.9 [sec] (ROOM)	The time over which the reverb will decay after the pre-delay
H.Dmp	High Damp	0 – 99 [%]	Higher values result in a faster decay for high frequencies
17D P.Dmp	Pre Delay	0 – 150 [ms]	The delay between the direct sound and the first early reflections

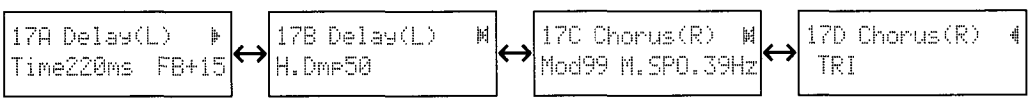
For effects 40 and 41, you can use Dynamic Modulation to control the Dry: FX Balance.

MONO DELAY/MODULATED DELAY

42. DELAY/CHORUS

This effect combines a mono delay with a mono chorus.





• DELAY

17A 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)
17B H.Dmp	High Damp	0 – 99 [%]	Higher values result in a faster decay for high frequencies

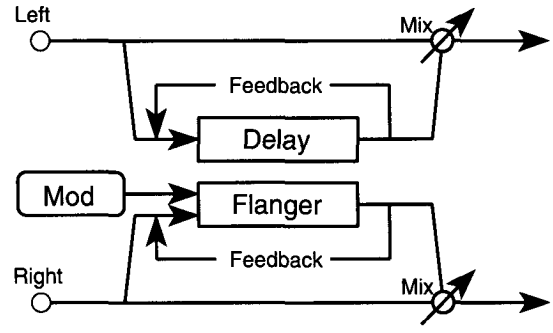
• CHORUS

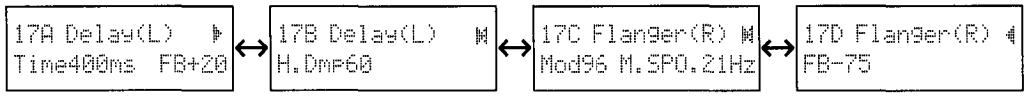
17C Mod	Mod Depth	0 – 99 [%]	The depth of modulation
M.SP	Mod Speed	0.03 – 30 [Hz]	The speed (frequency) of modulation
17D	Mod Waveform	SIN, TRI	Modulation waveform

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

17A 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)
17B H.Dmp	High Damp	0 – 99 [%]	Higher values result in a faster decay for high frequencies

• FLANGER

17C Mod	Mod Depth	0 – 99	The depth of modulation
M.SP	Mod Speed	0.03 – 30 [Hz]	The speed (frequency) of modulation
17D FB	Feedback	–99 – +99 [%]	The amount of feedback (negative values invert the phase)

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

MONO DELAY/DISTORTION, OVER DRIVE

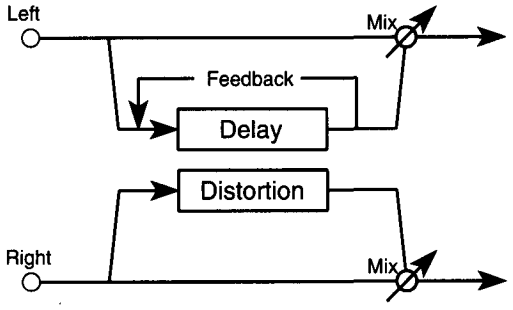
44. DELAY/DISTORTION

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

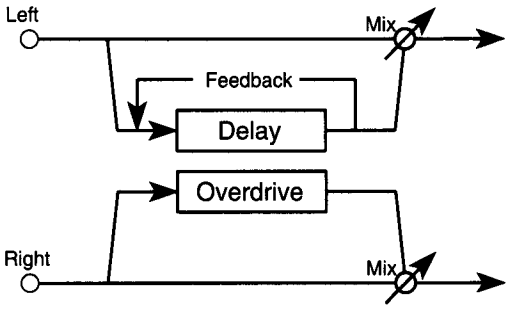
45. DELAY/OVER DRIVE

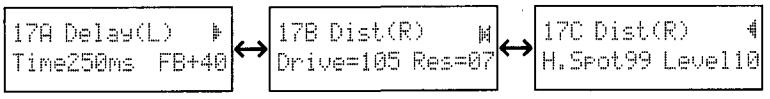
This effect combines a mono delay with an overdrive that produces a wah effect.

• DELAY/DISTORTION



• DELAY/OVER DRIVE





• DELAY

17A Time	Delay Time	0 – 500 [ms]	The delay time of the delay effect
FB	Feedback	–99 – +99 [%]	The amount of feedback (negative values invert thephase)

• DISTORTION, OVER DRIVE

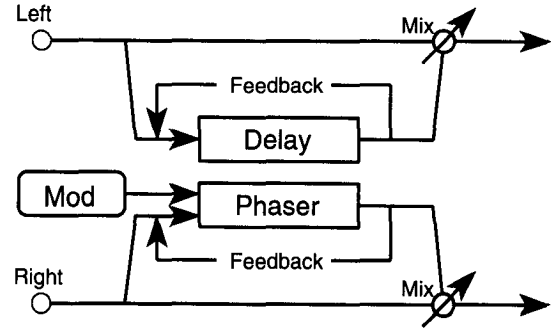
17B Drive	Drive (Edge)	1 – 111	How greatly the input signal will be distorted
Res	Resonance	0 – 99	The amount of wah effect
17C H.Spot	Hot Spot	1 – 99	The center frequency for the wah filter
Lvel	Level	1 – 99	The output level of the distorted sound

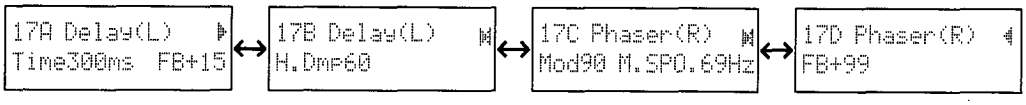
For effects 44 and 45, you can not use Dynamic Modulation to control.

MONO DELAY/PHASER

46. DELAY/PHASER

This effect combines a mono delay and a mono phaser.





- DELAY

17A 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)
17B H.Dmp	High Damp	0 – 99 [%]	Higher values result in a faster decay for high frequencies

- PHASER

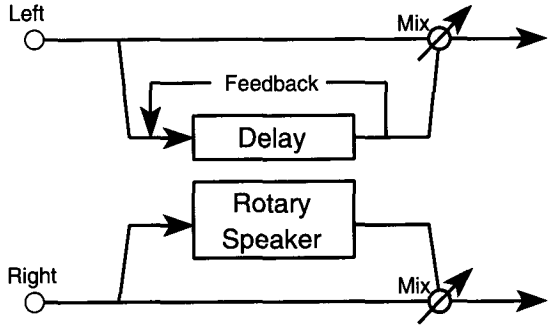
17C Mod	Mod Depth	0 – 99	The depth of modulation
M.SP	Mod Speed	0.03 – 30 [Hz]	The speed (frequency) of modulation
17D FB	Feedback	–99 – +99 [%]	The amount of feedback (negative values invert the phase)

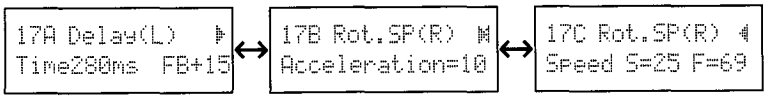
For this effect, you can use Dynamic Modulation to control the Dry: FX Balance.

MONO DELAY/ROTARY SPEAKER

47. DELAY/ROTARY SPEAKER

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





- DELAY

17A 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

17B Accelaration	Acceleration	1 – 15	The rate at which the speed will change between Slow and Fast
17C 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

	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]	〃 [9]
	EARLY REFLECTION	**E.R Time**		**Pre Delay**
10	Early Reflection 1	100~800 [220]		0~200 [10]
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**	**Hight Damp L**
15	Dual Mono Delay	0~500 [20]	−99~+99 [0]	0~99 [0]
	MULTI TAP DELAY	**Delay Time**		**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 [90]
33	〃 2	〃 [96]	● ~ [0.24]	〃 [90]
	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]
		Delay Time	**Feedback**	
47	Delay / Rotary Speaker *	0~500 [280]	−99~+99 [+15]	

[ ] : Initial Value ● : Dynamic Mod Dest

High Damp		EQ Low	EQ High	Dry : FX Balance
0~99 [31]		−12~+12 [−3]	−12~+12 [−1]	●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 [10]	●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]
〃 [SIN]		〃 [+3]	〃 [+4]	● 〃 [60:40]
Mod Depth	Mod Waveform	EQ Low	EQ High	Dry : FX Balance
0~99 [50]	T+10~S+10 [T+0]	−12~+12 [0]	−12~+12 [0]	DRY~FX [50:50]
〃 [99]	〃 [T+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 [+6]	0~99 [50]	0~29 [12]	−12~+12 [+6]	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]	0.2~9.9 [1.1]	〃 [0]	〃 [28]	● 〃 [65:35]
Dry : FX Balance	Mod Speed	Mod Depth	Mod Waveform	Dry : FX Balance
●DRY~FX [70:30]	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 [90]	−99~+99 [+99]	●DRY~FX [25:75]
Dry : FX Balance	Acceleration	Slow Speed	Fast Speed	Dry : FX Balance
DRY~FX [70:30]	1~15 [10]	1~99 [25]	1~99 [69]	DRY~FX [30:70] *

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

4. COMBINATION MODE

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

This mode allows you to select and play Combinations (a combination of Programs).
To select a Combination, use +10 key, +1 key, –10 key, –1 key or MIDI program change messages.

- You can select a Combination from 00 – 99.
- When you use MIDI program change message to change the Combination, set "PRG" of 2B MIDI Filter in Global mode to any option other than "DIS". The options are as follows:
  Refer to "Program Change, Bank Select MIDI In " for details.

When set to ENA (Enable)... 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)... 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 (No.)... This is basically the same as ENA, but MIDI Bank Select 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 05R/W.

★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.
★To change the programs, volumes and other parameters being used with each of the Timbres, press the EDIT key to enter the Edit Combination Mode.
★If the program you are editing in Edit Program mode is assigned to a Timbre, the Timbre uses the settings of the edited Program.

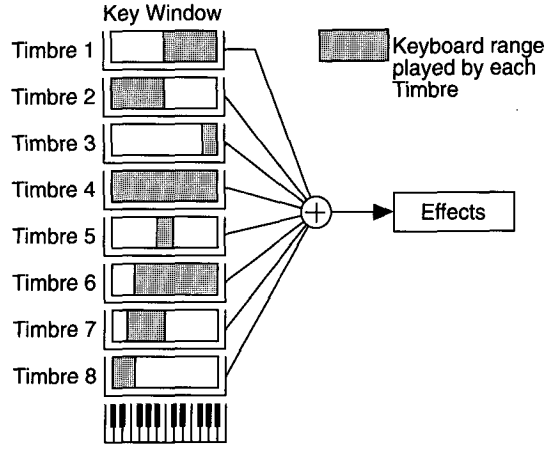
- Every time you press the COMBI key, the display will be switched between Timbres 1 – 4 and Timbres 5 – 8. (When Timbres 5 – 8 are displayed, the "*" mark will be shown on the upper right corner.)

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.

A Combination consists of 8 Timbres. For each Timbre, it contains a Program and various parameters related to performance (panpot, volume, MIDI channel, etc.). A Combination also contains a set of effect parameters that affect the entire Combination.
In this mode, you can specify these settings.

- 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 15A to write your edits into memory. (If you select another Combination in Combination mode before writing, your edits will be lost.)



FUNCTIONS IN EDIT COMBINATION MODE

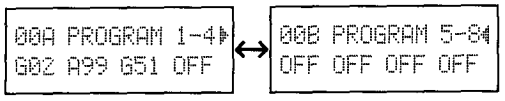
Use the PAGE+ key and PAGE– key to select pages. To select parameters, use the CURSOR keys (◄, ►).

PAGE	FUNCTION	PARAMETER TO EDIT
0A – 0B	Program	The Program assigned to each Timbre
1A – 1B	Level	Volume of each Timbre
2A – 2B	MIDI Channel	The MIDI receive channel of each Timbre
3A – 3D	Key Window Top Key Window Bottom	Top key of keyboard range played by each Timbre Bottom key of keyboard range played by each Timbre
4A – 4D	Vel Window Top Vel Window Bottom	Maximum value of velocity for each Timbre Minimum value of velocity for each Timbre
5A – 5D	Transpose Detune	Transpose setting of each Timbre Detune setting of each Timbre
6A – 6D	Program Change Filter Damper Switch Filter After Touch Filter Control Change Filter	Program Change message receive switch for each Timbre Damper Switch message receive switch for each Timbre Aftertouch message receive switch for each Timbre Control Change message receive switch for each Timbre
7A – 7B	Panpot	Panpot between A and B of each Timbre
8A – 8B	Send	C, D output level of each Timbre
9A – 14A		Effect settings
15A – 15B	Write Combination Rename Combination	Write a Combination into memory Rename a Combination

On pages 0 to 8, if you move to a different page while a Timbre is selected, the same Timbre will be selected again.
Refer to p.43 "3. Effect Parameters" for details of effects.

EDIT COMBINATION

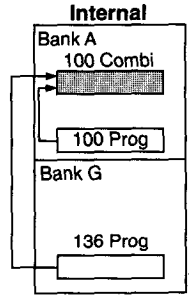
• 0A – 0B Program



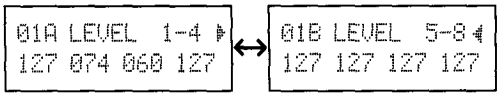
0A	Timbre 1 Program	OFF, A00 – A99, G01 – 136	Selects a Program for each Timbre
	Timbre 2 Program	OFF, A00 – A99, G01 – 136	
	Timbre 3 Program	OFF, A00 – A99, G01 – 136	
	Timbre 4 Program	OFF, A00 – A99, G01 – 136	
0B	Timbre 5 Program	OFF, A00 – A99, G01 – 136	
	Timbre 6 Program	OFF, A00 – A99, G01 – 136	
	Timbre 7 Program	OFF, A00 – A99, G01 – 136	
	Timbre 8 Program	OFF, A00 – A99, G01 – 136	

▼Here you can select a Program for each Timbre.
- The Timbre that is set to "OFF" will not sound.
- A program must be selected from Bank A and G.
- Incoming Program Change messages will select Programs for Timbres of the corresponding channel. However, if the MIDI channel of the received program change is the same as the Global channel of the 05R/W, the Combination changes.
  To avoid changing the Combination with MIDI, set the 2B MIDI Filter Program in the Global Mode to "PRG". To change only the number, without changing the bank, set the Program to "NUM".
- To see how the various timbres correspond to the MIDI Bank Select and Program Change functions, please refer to the PROGRAM Mode table on page 24. The user should be aware that these are not received for timbres which have been turned off.

• Programs selected for Combinations



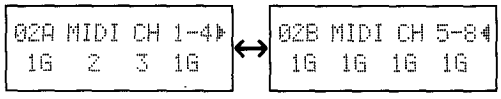
• 1A – 1B Level



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



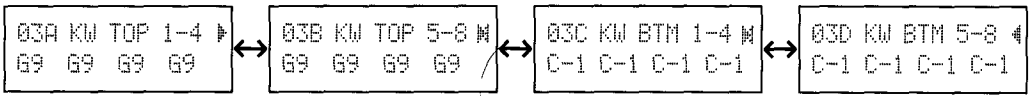
2A	Timbre 1 Channel	1 – 16	Sets the MIDI Channel for each Timbre
	Timbre 2 Channel	1 – 16	
	Timbre 3 Channel	1 – 16	
	Timbre 4 Channel	1 – 16	
2B	Timbre 5 Channel	1 – 16	
	Timbre 6 Channel	1 – 16	
	Timbre 7 Channel	1 – 16	
	Timbre 8 Channel	1 – 16	

▼This parameter specifies the MIDI 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 which correspond with 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 05R/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.103)

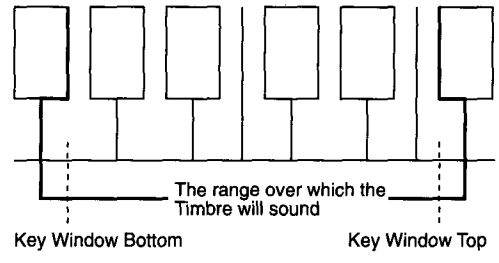
• 3A – 3D Key Window Top/Bottom



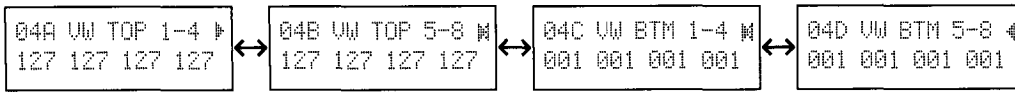
3A	Timbre 1 Top	C-1 – G9	Specifies the highest note that will play each Timbre.
	Timbre 2 Top	C-1 – G9	
	Timbre 3 Top	C-1 – G9	
	Timbre 4 Top	C-1 – G9	
3B	Timbre 5 Top	C-1 – G9	
	Timbre 6 Top	C-1 – G9	
	Timbre 7 Top	C-1 – G9	
	Timbre 8 Top	C-1 – G9	
3C	Timbre 1 Bottom	C-1 – G9	Specifies the lowest note 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 05R/W.

- The lowest note on the ordinary 61-key (5-octave) keyboard is C2, and the highest is C7. The corresponding MIDI note numbers are 36 and 96.
- You can not set a Top key lower than a Bottom key. If you set the Top key lower than the Bottom key, the Bottom key will automatically be set to the Top key, and vice versa.



• 4A – 4D Velocity Window Top/Bottom

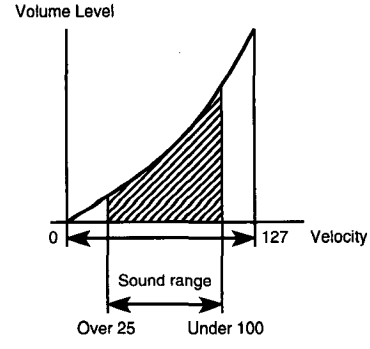


4A	Timbre 1 Top	1 – 127	Specifies the maximum velocity that will play each Timbre (velocity value).
	Timbre 2 Top	1 – 127	
	Timbre 3 Top	1 – 127	
	Timbre 4 Top	1 – 127	
4B	Timbre 5 Top	1 – 127	
	Timbre 6 Top	1 – 127	
	Timbre 7 Top	1 – 127	
	Timbre 8 Top	1 – 127	
4C	Timbre 1 Bottom	1 – 127	Specifies the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

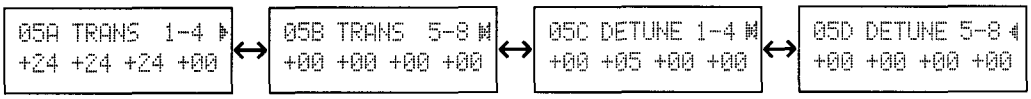
▼Velocity Window specifies the range of velocities (how strongly a key is pressed) for which the Timbre will sound. This allows you to make different Programs sound in response to notes of different velocities.

- You cannot set a Top value lower than a Bottom value. If you set the Top value lower than the Bottom value, the Bottom velocity will automatically be set to the Top velocity, and vice versa.

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



• 5A – 5D Key Transpose/Detune

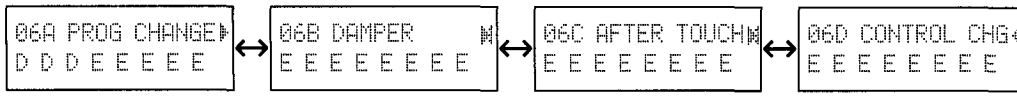


5A	Timbre 1 Transpose	–24 – +24	Adjusts the pitch of each Timbre in chromatic steps (±2 octaves).
	Timbre 2 Transpose	–24 – +24	
	Timbre 3 Transpose	–24 – +24	
	Timbre 4 Transpose	–24 – +24	
5B	Timbre 5 Transpose	–24 – +24	
	Timbre 6 Transpose	–24 – +24	
	Timbre 7 Transpose	–24 – +24	
	Timbre 8 Transpose	–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



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 Change	D, E	Sets if each Timbre is affected by pitch bend, control changes and etc. (If this is set to "D", that Timbre will not be affected by pitch bend, control changes and etc.)
	Timbre 2 Control Change	D, E	
	Timbre 3 Control Change	D, E	
	Timbre 4 Control Change	D, E	
	Timbre 5 Control Change	D, E	
	Timbre 6 Control Change	D, E	
	Timbre 7 Control Change	D, E	
	Timbre 8 Control Change	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 LCD, 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.

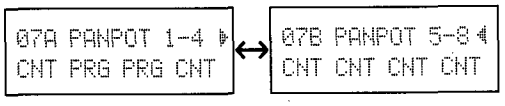
- If the "PROG" parameter in the Global mode [2B] MIDI Filtering page is set to "ENA", incoming Program Change messages received on the Global channel will select Combinations, regardless of this setting.

▼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.).

• 7A – 7B Panpot



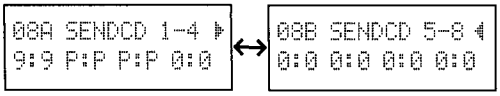
[7A]	Timbre 1 Panpot	OFF, A15 – CNT – B15, PRG	Specifies the A, B outputs of each Timbre.
	Timbre 2 Panpot	OFF, A15 – CNT – B15, PRG	
	Timbre 3 Panpot	OFF, A15 – CNT – B15, PRG	
	Timbre 4 Panpot	OFF, A15 – CNT – B15, PRG	
[7B]	Timbre 5 Panpot	OFF, A15 – CNT – B15, PRG	
	Timbre 6 Panpot	OFF, A15 – CNT – B15, PRG	
	Timbre 7 Panpot	OFF, A15 – CNT – B15, PRG	
	Timbre 8 Panpot	OFF, A15 – CNT – B15, PRG	

▼Panpot assigns the audio output A, B balance of each Timbre.

- When OFF is selected, no signal is output at A, B. Signal is output only at A when A15 is selected, only at B when B15 is selected, and the same level is output from A and B when CNT (center) is selected.
- 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 (Oscilator mode is Drum) is assigned and "PRG" is selected, the panpot settings of the drum kit will be used. For settings in the "A15 – B15", the settings for each inst will be ignored, the parameter settings will be used.

★Control can be implemented through MIDI panpot Bn,0A,xx (n: MIDI channel, x: value) other than OFF, PRG. See "Relationship Between MIDI and Panpots and Send Data" (p.122).

• 8A – 8B Send



8A	Timbre 1 Send C	0 – 9, P	C, D output level of each Timbre
	Timbre 1 Send D	0 – 9, P	
	Timbre 2 Send C	0 – 9, P	
	Timbre 2 Send D	0 – 9, P	
	Timbre 3 Send C	0 – 9, P	
	Timbre 3 Send D	0 – 9, P	
	Timbre 4 Send C	0 – 9, P	
	Timbre 4 Send D	0 – 9, P	
8B	Timbre 5 Send C	0 – 9, P	
	Timbre 5 Send D	0 – 9, P	
	Timbre 6 Send C	0 – 9, P	
	Timbre 6 Send D	0 – 9, P	
	Timbre 7 Send C	0 – 9, P	
	Timbre 7 Send D	0 – 9, P	
	Timbre 8 Send C	0 – 9, P	
	Timbre 8 Send D	0 – 9, P	

▼Send adjusts the C, D output level for each Timbre.

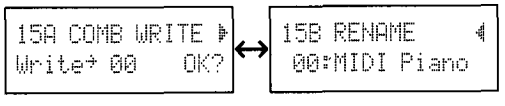
- Setting "P" selects the send of the program selected for the Timbre. (You can get the send for each oscillator in EDIT PROGRAM mode.) Setting an option other than "P" sets the output of Oscillator 1 and 2 to the same level (the value set here).
- When a Program has been assigned in which a Drum Kit is used (OSC Mode is set to DRUMS), setting this to "P" makes the settings for each Inst of that Drum Kit effective. At this point, the seetings are applied to the send C, D of the Program (this can be changed using the Control Change 91 and 93 parameters). Setting this to "0 – 9" makes the settings for each Inst of the Drum Kit invalid, so that all of the values set here are output.
- When set to anything other than P (even if "P" is set when the Drum Mode Program is selected), the level of send C can be adjusted using the MIDI Control Change 91 Bn,5B,xx (n: MIDI channel, xx: value). The level of send D can be adjusted using the Control Change 93 Bn,5D,xx.

• 9A – 14A Effect

For details on Effects, refer to p. 43 "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 14A Copy Effect operation.
- For Combinations, the Panpots (A, B) and Send (C, D) for all Timbres will be used as the input to the Effects.
- MIDI control of effectors is implemented using the Global channel. Separate control of each Timbre can be implemented by specifying input to the Effect based on control of the panpot between A and B, the send C and D for each individual track.

• 15A – 15B Write Combination/Rename Combination



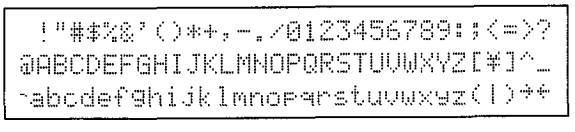
15A Write	Destination Combi No.	00 – 99	The writing destination Combination number
		OK?	Executes the write operation
15B			Rename

This function 15A writes an edited Combination into the internal memory .

- Writing is not possible if the Combination memory protect is ON. (Turn memory protect off using 3B in Global mode.)

(1) In 15B, 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.



(2) Select the Combination number of the writing destination using 15A.

(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.

6. MULTI MODE

Press the GLOBAL/MULTI key to enter this mode. When pressing the key changes to Global mode (the GLOBAL/MULTI key LED will flash.), 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 05R/W as a 16-channel MIDI tone generator by connecting a computer or sequencer to the MIDI In terminal of the 05R/W.

- Since all the operations Multi mode conform to the GM (General MIDI) System, any musical data conforming to the GM can be played on the 05R/W.
- The Multi Mode is designed to correspond to GM, but can be used as a 16-channel multi-tone generator. The MIDI channels are fixed for each track, however, and there are no Key Window settings. To enter settings such as these, use Combinations (up to 8 MIDI channels may be used).
- 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, and during playback, but after this, the 05R/W pages can also be used to change these settings. Also, because [*D] PROGRAM CHANGE FILTER is not set for GM, please make these settings on the 05R/W.

	TRACK1 – 9, 11 – 16	TRACK10		
PROGRAM No.	All G01	G129	G129 is Drum Set	*
LEVEL	All 100	100		*
PANPOT	All CNT	PRG		*
SEND C	All 2	P		*
SEND D	All 2	0		*
TRANSPOSE	All 0	0		*
DETUNE	All 0	0		*
PITCH BEND RANGE	All +2	0		*
PROGRAM CHANGE FILTER	All ENA	ENA		
EFFECT		—	FX1: Hall, FX2: Chorus1	
MIDI CHANNEL	1 – 9, 11 – 16	10	Same as Track No.	

* ... MIDI settings are enabled

- With GM, channel 10 is used for the drum (percussion), and the INST (percussion name) corresponding to each of the note numbers is already assigned (see "Drum Kit Map"). With the 05R/W, ROM Drum Kit 1 applies to this, and normally Program 129 in Bank G is used. However, there are some sequencer software packages available on the market which do not support GM, and Drum Programs 130 to 138 (which use ROM

MIDI Prog Change No.	05RW Program No.
00 – 15, 56 – 63, 72 – 127	G129
16 – 23	G130
25	G131
32 – 39	G132
40 – 47	G133
64 – 71	G134
24, 26 – 31	G135
48 – 55	G136

Drum Kits 2 – 8) of Bank G are designed to accommodate these software packages as well. With the 05R/W, the various drum programs can be selected using the MIDI Program Changes shown in the table. To do this, the bank to be used for drums (Bn,00,3E,20,00 n: MIDI channel) must have been selected in advance (track 10 of the Multi Mode serves as the bank for drums when the power supply is turned on).

- With GM, if the program uses any channel other than channel 10, the program must have been selected in advance from the 128 types available (see GM program list) in which the sounds corresponding to the numbers have been assigned. With the 05R/W, program numbers 01 to 128 of Bank G are provided for this purpose, but it is also possible to use the MIDI Bank Select function and select the program for Bank A, or to select the drum program in the same way as for channel 10.
  It is also possible to assign a program other than drums to channel 10, in the same way. (see page 24)
  With the 05R/W, MIDI Bank Select can be used, as shown in the table below, to select the various bands. What actually changes the bank, however, is the Program Change instruction received following this message. Also, because the MIDI Bank Select is not needed in order to change a program in the bank, we recommend either using MIDI Bank Select only to change the bank, or after using MIDI Bank Select to change the bank Bn, 00, (MSB), 20, (LSB), setting the 2B MIDI Filter PRG to "NUM" in the Global Mode (MIDI Bank select is not received). In order to receive the MIDI Bank Select instruction, this should be set to "ENA" or "PRG".

MIDI Bank Select (MSB)	(LSB)	05R/W Bank
00	00	Bank A
38	00	Bank G (01 – 128)
3E	00	Bank G (129 – 136)

- When the power is turned on, the various settings are initialized for GM use (see page 91), but the MIDI Dump Data of the Multi Mode (the 4A of the Global mode, which enables transmission to an external destination) is used to set a different value for the effector. Please be aware, however, that after this is done, the settings will be those used for GM (FX1 will be HALL, FX2 will be Chorus 1, and placement will be set to Parallel 3).
  When you want to use a Drum Kit (Drum Kit 1, 2 or ROM Drum Kit 2 – 8), select G129 in Program Mode then select a Drum Kit in Edit Program mode. However, you can not write it to G129.

☆If a GM device receives GM ON massage (F0, 7E, nn, 09, 01, F7), it is initialized for GM playback.

FUNCTIONS IN MULTI MODE

Use the PAGE+ key and PAGE – key to select pages. To select parameters, use the ◄ and ► keys.

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

PAGE	FUNCTION	PARAMETER TO EDIT
[*A]	Program	Program of Track
[*B]	Level	Volume of Track
	Panpot	A, B output balance of Track
	Send C	C output level of Track
	Send D	D output level of Track
[*C]	Transpose	Transpose setting of Track
	Detune	Detune setting of Track
	Pitch Bend Range	Pitch bend range of Track
[*D]	Program Change Filter	Program Change message reception switch for Track

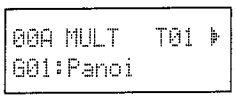
* = 0 – 15: Tracks 1 – 16

* MIDI channels are numbered 1 – 16 corresponding to Tracks 1 – 16, and cannot be changed (for example, Track 12 → ch12).
In the MULTI mode pages, pages 0 – 15 correspond to Tracks 1 – 16, and the other pages are used to set effects. The following chart shows each Track's setting.

PAGE	FUNCTION
[0A]–[0D]	Sets Track 1
[1A]–[1D]	Sets Track 2
•	•
•	•
•	•
•	•
[15A]–[15D]	Sets Track 16
[16A]–[21A]	Sets effects

MULTI

• *A Program



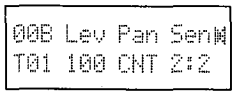
*A	Track Program	*** / A00 – 99 / G01 – 136	Selects a Program for the Track

▼Here you can select a Program for each Track.
- Tracks set to "***" will not sound.
- 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, Program G129 (for GM drum use) will automatically be selected for Track 10, and all other tracks will be set to G01. Refer to the ROM Drum Kit for the instrument used in drum programs G129 – 136.
* 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. If the MIDI Program Change Filter *D is set to DIS, the MIDI Program Change instruction will be ignored.
  Also, for sequencers that are not GM-compatible and sequencer software programs that do not support GM, some Bank select messages 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 use Global Mode 2B to set PRG to NUM. Set this to "ENA" to playback sequence data in which Bank Select messages are being sent.
  If the sound does not seem right when listening to the settings, first try switching this parameter.

• *B Level, Pan, Send

The selected Track is displayed at the lower left of the screen.



*B Lev	Track Level	0 – 127	Track level
Pan	Track Pan	OFF, A15 – CNT – B15, PRG	A, B output balance of track
Sen	Track Send C	0 – 9, P	C output level of Track
	Track Send D	0 – 9, P	D output level of Track

▼Here you can adjust the level for Track.

- Settings can be changed according to MIDI volume data. (Bn, 07, xx)
  These are set to 100 when the power is turned ON or when GM ON messages are received.

* You can control each Track's volume level using the MIDI Volume data (Bn, 07, xx) and expression data (Bn, 0B, xx). The level indication is changed when the unit receives the Volume data, but it is not changed with the expression data.
The resultant level is obtained by multiplying these two data values.

▼Panpot adjusts the A, B output balance of Track.

- When OFF is selected, no signal is output at A, B. Signal is output only at A when A15 is selected, only at B when B15 is selected, and the same level is output from A and B when CNT (center) is selected.
- 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.
  Settings can be changed according to MIDI pan changes. When xx is 00H, the setting will be A15, and when xx is 40H, the setting will be CNT. If xx is 7FH, the setting will be B15.
  For the pan settings and MIDI pan data, please refer to the "Relationship Between MIDI and Panpots and Send Data" at the end of this manual.
- When a Program using a Drum Kit (OSC Mode is set to DRUMS)is assigned and "PRG" is selected, the panpot settings for each INST of the drum kit will be used. For "A15 – B15", the INST settings will be ignored, and 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 CNT.

▼Send sets the C, D output level of the Track.

- Setting "P" selects the Send of the program selected for the Track. (You can set the send for each oscillation in EDIT PROGRAM mode.) Setting the option other than "P" sets the output of Oscillator 1 and 2 to the same level.
- You can change the setting using the MIDI Effect Level.
  Send C ... Bn, 5B, xx
  Send D ... Bn, 5D, xx

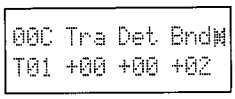
Generally, Bn, 5B, xx is used for Reverb Depth, and Bn, 5D, xx for Chorus Depth.
When xx is 00H, the output level will be 0; when 6B, 7, and when 7F, 9. For the send settings and MIDI send data, please refer to the "Relationship Between MIDI and Panpots and Send Data" at the end of this manual.

- When a Program has been assigned in which a Drum Kit is used (OSC Mode is set to DRUMS), setting this to "P" makes the settings for each Inst of that Drum Kit effective. At this point, the seetings are applied to the send C, D of the Program (this can be changed using the Control Change 91 and 93 parameters). Setting this to "0 – 9" makes the settings for each Inst of the Drum Kit invalid, so that all of the values set here are output.

* When the power is turned ON or when GM ON messages are received, Track 10 is set to P:0, and other Tracks are set to 2 : 2.

• *C Transpose, Detune, Bend Range

The selected Track is displayed at the lower left of the screen.



*C Tra	Track Transpose	–24 – +24	Adjusts the pitch of Track in chromatic steps (within ±2 octaves)
Det	Track Detune	–50 – +50	Adjusts the pitch of each Track in steps of 1 cent (within ±50 cents)
Bnd	Track Bend Range	–12 – +12	Set the Track pitch bend range

▼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.
  Coarse tuning ... Bn, 64, 02, 65, ∞, 06, mm, 26, xx
  n: MIDI Channel
  mm: Data (MSB)
  xx: Data (LSB)

▼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.
  Fine Tune ... Bn, 64, 01, 65, 00, 06, mm, 26, xx
  n: MIDI channel
  mm: Data (MSB)
  xx: Data (LSB)

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

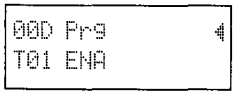
- With each Program that is selected for all Tracks, the pitch bend range (set using EDIT PRG 15D) will be disabled. These settings can be made manually here (the internal program settings will not be effected).
- A maximum of 12 chromatic steps form a single octave. When set to +12, the larger the MIDI 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.
  Pitch bend rangs --Bn, 64, 00, 65, 00, 06, mm, 26, xx
  n: MIDI channel
  mm: Data (MSB)
  xx: Data (LSB)

• *D MIDI Program Change Filter

The selected Track is displayed at the lower left of the screen.



*D Prg	Track Prog Change	DIS, ENA	Specifies whether tracks respond to MIDI program change

▼If the Program Change Filter is set to "DIS", MIDI Program Change and Bank Select instructions will not be received on that Track.

* When the power is turned on, and when a GM ON message is received, this is set to ENA.

- MIDI cannot be used to change these settings. Even if this is set to ENA, Program Change and Bank Select instructions will not be received if the Program of the 2B MIDI Filter has been set to "DIS".

• 16A – 21A Effect

For details of the following, refer to "3. Effect Parameters" on page 43.

- 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 21A.
- MIDI cannot be used to change these settings.
- In Multi mode, the Panpots (A, B) and Send (C, D) for all Tracks will be used as the input to the Effects.
- The Multi Data Dump (this is done using 04A of the Global Mode) can be used to specify transmission of the MULTI effector to an external destination, and to store the data in the memory.
- MIDI control of effectors is handled using the Global channel. The only operation which can be carried out for each Track individually is setting of the input for effects produced by control of the pan between A and B on each Track, and send C, D.

* When the power is turned on, and when GM ON messages are received, Effect 1 is set to Hall, Effect 2 to Chorus 1, and placement is set to Parallel 3. All return levels from the Effects are 4.

7. GLOBAL MODE

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

In this mode you can make settings that affect the entire 05R/W (overall tuning, and MIDI-related settings), and assign drum sounds to a Drum Kit.

- Settings made in this mode are memorized even when the power is turned off. It is not necessary to write these settings into memory.

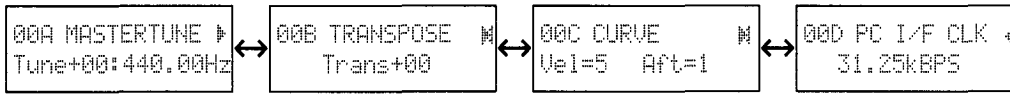
FUNCTIONS IN GLOBAL MODE

- Use the PAGE± keys to select pages containing the parameter you want to edit. When selecting parameters, use the ◄ and ► cursor keys.

PAGE	FUNCTION	PARAMETERS TO SET
0A	Master Tune	Overall pitch adjustment
0B	Key Transpose	Overall transposition
0C	Velocity Curve, After Touch Curve	Velocity curve and aftertouch curve settings
0D	Computer Select	Sets PC I/F clock.
1A–1G	Scale Type/User Scale	Sets the scale type and the user scale
1H, 1H	Sub Scale	Sets the sub 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	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 – 0D Master Tune/Key Transpose/Velocity Curve/After Touch Curve/Computer Select



0A Tune	Master Tune	–50 – +50	Adjusts the overall pitch (steps of 1 cent)
0B Trans	Key Transpone	–12 – +12	Transposes the overall pitch (chromatic steps)
0C 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 05R/W) will affect volume or tone.
0D PC I/F CLK	Computer Select	31.25KB PS 38.4 KB PS	Sets the baud rate for computer communication.

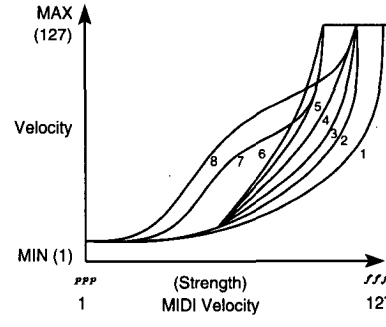
* Parameters on page 0A determine the pitch of the entire 05R/W.

▼Master tune adjusts the tuning of the entire 05R/W over a range of ±50 cents. This is used to match the pitch with other instruments. The frequency of A4 is also displayed when A4 is 440 Hz at 0.

- The tuning of the 05R/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)

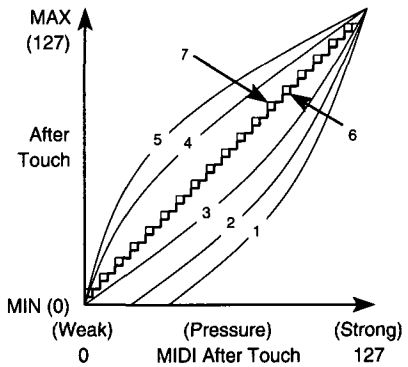
▼Key transpose adjusts the pitch of the entire 05R/W over a range of ±1 octave, in chromatic steps (–12 - +12). This can be useful when you need to play songs of a difficult key signature in an easier key.

▼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.
For example, if the same velocity value has been entered (the key has been pressed with the same force as that applied to the keyboard of the 01/W or a similar instrument connected to the MIDI In jack), Vel Curve = 1will produce a louder sound than 6.



With Curve 1, the effect is not obvious unless you strike the keys strongly (the keys of the instrument such as 01/W connected to MIDI In). As the Curve number approaches '6', you can obtain the effect with less force. Curve 3 shows a standard curve. Select a curve according to tonal color and performance technique. Curves 7 and 8 generate smaller changes in an effect (giving an even and stable effect) when the keys are struck with medium strength. These options are suitable when you do not need much velocity sensitivity, or when you want to make a performance uniform. However, it should be noted that playing the keys very softly will cause a large tonal change, and will require more delicate control. We recommend that you choose a curve according to the application. Curve 8 will produce a more even effect over a broader range than Curve 7.

▼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 05R/W (how hard you press down after playing a note) will affect volume or tone.

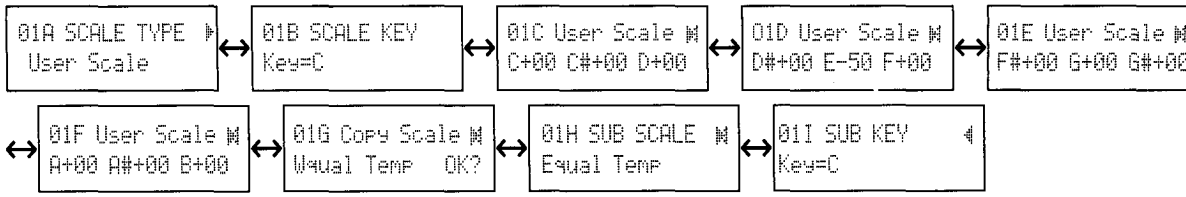


With Curve 1, the effect is not obvious unless you press the keys further (the keys of the instrument such as a 01/W connected to MIDI In). As the Curve number approaches '5', you can obtain the effect with less force. Curve 3 is a standard curve. Curves 6 and 7 offer the effect in 24 and 12 steps, respectively. Curve 7 produces an effect in 12 steps. This allows you to change the pitch by semitone. (In this case, set the amount of change to one octave.) Curve 8 produces a random effect. You can select this option when you want to produce special effects or an irregular modulation when After Touch is applied.

▼Computer Select is used to specify the baud rate for communications with a personal computer connected to the PC I/F jack on the rear panel.

- IBM PC (or compatible) 38.40kBPS
- Apple Macintosh series 31.25kBPS

• 1A – 1I Scale Type/User Scale/Sub Scale



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
		Arabic	Arabic scale
		Pythagorean	Pythagorean scale
		Werkmeister	Werkmeister III
		Kirnberger	Kirnberger III
		Slendro	Slendro
		Pelog	Pelog
		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	–99 – +99	Pitch offset (in cent units) for each note of the equal tempered scale
C#	C#	–99 – +99	
D	D	–99 – +99	
1C D#	D#	–99 – +99	
E	E	–99 – +99	
F	F	–99 – +99	
1D F#	F#	–99 – +99	
G	G	–99 – +99	
G#	G#	–99 – +99	
1E A	A	–99 – +99	
A#	A#	–99 – +99	
B	B	–99 – +99	
1F A	A	–99 – +99	
A#	A#	–99 – +99	
B	B	–99 – +99	
1G	Copy Scale	Equal Temp ≀ Pelog	Scale is copied to User Scale
		OK?	Executes Copy Scale function
1H	Sub Scale Type	Equal Temp ≀ User Scale	Sets the Sub Scale type
1I	Sub Scale Key	C – B	Sets the Sub Scale key

The Key parameter is set depending on the Scale Type.

▼Scale Type: Here you can specify the basic temperament (scale) used by the 05R/W.

- 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, 1I.
- PURE MINOR: Specify a tonic of C – B in 1B, 1I.
- Arabic (Arabic scale): This is the scale used in Arabic music, and includes quarter tones (one-half of a 1/2 tone). When "C" is set for the 1B, 1I key parameter, the E and B are lowered 52 cents (RAST DO/BAYATI RE). Other scales can be selected by changing the 1B, 1I key.
  The table below shows scale tones frequently used in Arabic music, and the settings for the 1B and 1I keys used to set these tones.

		1B , 1I Key
RAST DO/BAYATI	RE	C
RAST FA/BAYATI	SOL	F
RAST SOL/BAYATI	LA	G
RAST RE BAYATI	MI	D
RAST SI^{b}/BAYATI	DO	A$^{\#}$ (B^{b})

- Pythagorean: This is an ancient Greek tuning, and can be used very effectively for melody performance.
- Werkmeister (Werkmeister III): This is a mean-tempered tuning used at the end of the Baroque period.
- Kirnberger (Kirnberger III): This is a mean-tempered tuning which came into use at the beginning of the 18th century, used mainly with harpsichords.
- Slendro: This scale is used for Indonesian (Gamelan) instruments, in which an octave contains five tones. When "C" is set for the 1B and 1I key parameter, the C, D, F, G, and A keys on the keyboard can be played. Other keys are set to equal temperament tuning.
- Pelog: This is similar to the Slendro scale, but there are seven tones in an octave: C, D, E, F, G, A, and B.
- USER PROGRAMMABLE: This allows you to adjust each of the 12 pitches in the equal tempered scale over a range of ±99 cents, to create your own original temperament. This allows you to play unique temperaments other than the preset ones. Use 1C – 1F to specify the scale degree.

▼Copy Scale: This copies the specified Scale Type to the User Scale. This function allows the user to create original scales based on pre-existing scales. In this function, keys are not copied.

▼Sub Scale Type: The 05R/W is provided with two scales, Main and Sub. The Scale Type and Key used for each scale are set using 1A and 1B for the Main Scale and 1H and 1I for the Sub Scale.
The settings for the User Scale (set using 1C to 1F) are common to both the Main and Sub scales.
Sound is normally produced using the Main Scale setting, but when a MIDI Foot Pedal ON message is received, the Sub Scale is selected. When a Foot Pedal OFF message is received, the Main Scale is selected.
This allows the scale to be changed during playback. In Combi Mode, this can be changed for each Timbre individually, and in Multi Mode, for each Track individually. For example, the melody can be played using the Arabic scale, while the accompaniment is played using equal temperament tuning.

• 2A – 2C MIDI Global/Filter

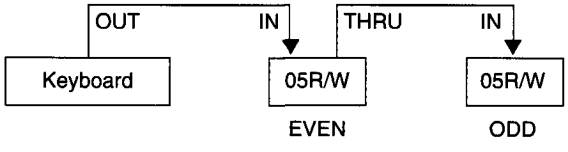
2A CH	MIDI Channel	1 – 16	Selects the channel on which the 05R/W will receive or transmit MIDI data. (Global channel)
Note R	Note Receive	EVN, ODD, ALL	Note data filter
2B PRG	Combination/Program Change Filter	DIS, ENA, PRG, NUM	When set to "DIS", the specified type of MIDI data will neither be transmitted nor received.
AFT	Aftertouch Filter	DIS, ENA	
2C CTRL	Control Change Filter	DIS, ENA	
EX	System Exclusive Filter	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 2B PRG is set to "PRG", Combinations cannot be selected via MIDI). (This MIDI channel is the global channel which controls the entire 05R/W).

- MIDI channels for all Timbres in Combinations are specified in Edit Combination mode.
- The MIDI channels for the MULTI Tracks correspond to Tracks 1 to 16, and are preset to Channels 1 to 16.
- The MIDI Global channel is used for Effect control in the various modes.

▼Note Receive lets you set the 05R/W to play only even numbered MIDI notes, or only odd numbered MIDI notes.

- This is useful when you wish to double the polyphony by using two 05R/Ws connected via MIDI to each other. EVEN: Notes with an even number will sound. ODD: Notes with an odd number will sound. This is normally set to ALL.



* The MIDI Filtering parameters on 2B and 2C allow you to disable reception and transmission of specified types of MIDI data. (This is known as "filtering".)

▼There are 4 settings for the Combination/Program Change Filter:

DIS: Disable
ENA: Enable
PRG: Program Only (Doesn't Change Combi)
NUM: Program No. Only (Doesn't Receive Bank Select)

▼If the Combination/Program Change Filter is set to "DIS", Combination (Program) change messages 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. For other channels, Timbres of the matching channels 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 selects 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 Combinations.
- Select "PRG" if you want to use MIDI Program Change to change a Program used in each Timbre of a single Combination.
- For master keyboards and sequencers, some Bank selects are sent at the same time Program changes are being made. In order to receive the data without making unnecessary changes to 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 Selects Receive Conditions

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

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

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

▼If Aftertouch is set to "DIS", aftertouch data will not be received.
- The 05R/W receives only Channel Aftertouch data. Poly Aftertouch is not supported.

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

◇System exclusive parameter changes are used by personal computer voice editing programs.
When two 05R/Ws are connected and Exclusive is set to "ENA", you will be able to simultaneously edit the voice data of both units by controlling one 05R/W from the other 05R/W.
- When the 05R/W is connected to a different type of MIDI device, set this to "DIS".

• 3A – 3C Memory Protect (Program/Combination)/Page Memory

3A	Program Memory Protect	OFF, ON	Protect for Program parameter memory
3B	Combination Memory Protect	OFF, ON	Protect for Combination parameter memory
3C	Page Memory	OFF, ON	Sets the Page Memory function OFF/ON.

▼When Program Memory Protect is set to "ON", it is not possible to write values to the Program parameter memory .

▼When Combination Memory Protect is set to "ON", it is not possible to write values to the Combination parameter memory .

▼When Page Memory is turned "ON", the Page Memory function will be activated. This function automatically returns you to the page (parameter) that was last selected when you exited a particular mode.

• 4A MIDI Data Dump

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

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

- When this page is selected, MIDI data dumps can be transmitted and received regardless of the MIDI exclusive filtering setting on page 2C.
- 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 to receive data.

• ROM data (Bank G programs, ROM Drum Kits 1 – 8, all Preset data) is not transmitted. To transmit this data, first load it to internal memory, then use this page to make the transmission.

* PROGRAM transmits all Program parameters in Bank A (10 parameters). Transmission time is 6 seconds. Program data for a single program is transmitted in Program mode by selecting a different program.
* COMBINATION transmits all Combination data in Bank A. Transmission time is 5 seconds. Combination data for a single Combination is transmitted in Combination mode by selecting a different Combination.
* MULTI transmits only the effect settings from the Multi setup data. Transmission time is 0.1 seconds or less.
* GLOBAL transmits Global parameters (0A – 1I). Transmission time is less than 0.1 seconds.
* DRUM KIT transmits all drum data (Drum Kits) in Bank A. Transmission time is 0.3 seconds. Program data for a single Drum Kit is transmitted by changing to the Edit Program Mode.
* ALL DATA transmits Program parameters, Combination parameters, Drum data, Multi-setup data, and Global parameters in Bank A at once. Transmission time is 11.3 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 which can save exclusive data (such as the 01/WFD).

Data type	Length of exclusive message
Program (100)	Approx. 18.7Kbytes
Combination (100)	Approx. 15.5Kbytes
Global data	39 bytes
Drum data	Approx. 1.0Kbytes
Multi setup data	41 bytes
All data	Approx. 35.3Kbytes

ABOUT MIDI EXCLUSIVE

MIDI System Exclusive messages differ from MIDI messages used for performance (such as Note ON/OFF, Pitch Bend, and Program Change) in that they are used to enter system specifications, and to carry out operations specific to each individual manufacturer and model, as well as for data transmission.

Messages that can be used with instruments of all manufacturers are called Universal System Exclusive messages, and include those such as GM System, Online Clear, and others (see page 113).

Messages limited to one specific manufacturer or model are mainly those involving data transmission and parameter editing. Those used with the 05R/W are listed below.

- Program and Combination Data Send/Receive (in units of 100 or 1), and reception of the Request message (an instruction requesting that data be sent)
- Multi Mode Send/Receive (in units of 100 or 1), and reception of the Request message (an instruction requesting that data be sent)
- Drum Kit/Receive (in units of 2), and reception of the Request message (an instruction requesting that data be sent)
- Program Parameter Edit
- Combination Parameter Edit
- Drum Kit Parameter Edit
- Program Write Request
- Combination Write Request

Data such as program data can be saved in an external storage device (such as a data filer, a personal computer, or a sequencer). Depending on what editing software is being used to transmit requests and editing messages, the 05R/W can be edited using a personal computer. Also, since the 05R/W transmits data for editing operations carried out on the front panel, it is possible to edit another 05R/W connected to the MIDI Out jack at the same time.

☆Refer to the section called "MIDI Implementation" at the end of this manual for details on system exclusive message data.

• 5A Preset Data Load

```
05A PRESET DATA
LOAD          OK?
```

5A	Preset Data Load		Loads the preset data (Program/Combination/Drum data/ Multi setup data/Global data).
		OK?	Executes the data load.

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

▼5A PRESET DATA LOAD will load the preset data (factory settings) from internal ROM into internal memory.

- Move the cursor to "OK?", and press the ▲ key if you wish to load the preset data. (The preset data will overwrite any data in internal memory.)
- Load the preset data before listening to the demo songs.

The following data will be loaded:

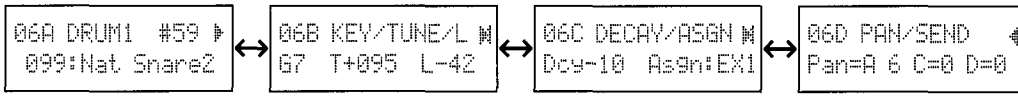
100 Programs:	Preset Programs (Bank A)
100 Combinations:	Preset Combinations Names
2 Drum Kits:	Preset Drum Kits 1 and 2
Multi Setup data:	Settings when power is turned on

Global data:

Master Tune	0
Transpose	0
Velocity Curve	3
Aftertouch Curve	3
Scale Type	Equal Temp
Scale Key	C
User Scale	0 for all
Sub Scale Type	Equal Temp
Sub Scale Key	C
Global Channel	1
Note Receive	ALL
MIDI Filter	DIS for EX, ENA for others

* Please note that the Global Channel and MIDI Filter are also initialized. PC I/F CLK and Page Memory are not initialized.

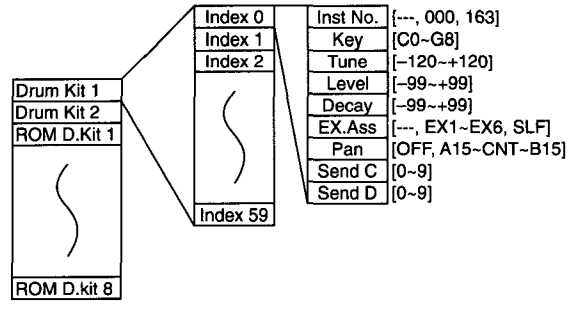
• 6A – 6D Drum Kit 1



6A #	Index	0 – 59	Index to which you assign the drum sound you wish to edit
Inst		---, 000 – 163	Selects a drum sound for that index
6B	Inst Key	C0 – G8	Key assigned to that index
T	Inst Tune	–120 – +120	Pitch adjustment for that index
L	Inst Level	–99 – +99	Level adjustment for that index
6C Dcy	Inst Decay	–99 – +99	Decay time adjustment for that index
Asgn	Inst Exclusive Assign	- - -, EX1 – EX6, SLF	Set exclusive assign group for that index
6D Pan	Inst Pan	OFF, A15 – CNT – B15	Output selection for that index
C	Inst Send C	0 – 9	Output C level for that index
D	Inst Send D	0 – 9	Output D level for that index

* You can edit the Drum Kit used in Drum Mode. Up to 60 drum sounds can be assigned to each Drum Kit. There are two Drum Kits available in RAM and eight in ROM, but in Global Mode you can only edit one of the RAM Kits.

- When you want to edit a ROM Drum Kit, use 8A to copy it to either Drum Kit 1 or 2, then make your edits.
- In this page, sound will be produced in accordance with the parameters of the Program selected in Program Mode, in which the OSC Mode is set to DRUMS. Because of this, it is advisable to select a program from G129 – 136 in most circumstances.
- If any program other than G129 – 136 has been selected, unexpected sounds may be produced. In other words, if a Program with a slow attack has been selected, the drum kit may not sound correctly. On the other hand, the Program at this point can be edited and unique drum sounds created. Also, if the drum sound panpot is assigned to C or D, and the Program mode setting Effect Pans 3 and 4 of the Program are turned off or the Out level 1L – 2R is 0 (when Parallel 3 is used), this sound will not be heard.

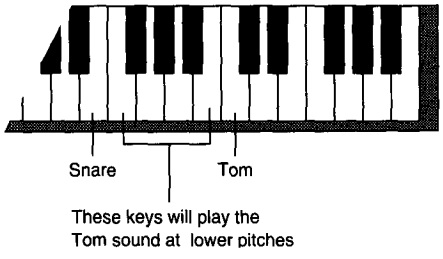


▼Index selects the drum index to edit. You can think of the Index as being a container in which a single drum is placed.
- An index for which no drum sound is assigned will be indicated by "No Assign"on the bottom line of the display.

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

▼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 and a list of voice names.) The Index is shown in the upper right part of the display. The ▶key can be used to select this parameter.

▼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 for the currently selected Program, over a range of –99 – +99.

▼Decay sets the value relative to the VDA EG decay setting for the currently selected Program, over a range of –99 – +99.

▼Exclusive Assign is used to assign sounds. If an Index sound in a group specified by EX1 – 6 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 want to cut off a hi-hat open sound with a hi-hat closed sound. When " – " is selected, a polyphonic sound is made regardless of the group. When SLF (self) is selected, re-striking a note will cut off the previous one.

▼Pan adjusts the output (A, B) balance. When OFF is selected, no signal is output from A or B. It is output only at A when A15 is selected, only at B when B15 is selected, and the same level is output from A and B when CNT (center) is selected.

▼The output levels for C and D are adjusted using Send C, D.

Operations specified by Pan and Send settings are different in Program mode and Combi/Multi mode.

PROG mode: Pan settings established in Global mode are used. (You cannot set these parameters in Edit Program mode.) Although you can set Send parameters in Program mode, these settings will be multiplied by the setting value for each index in Global mode before being output to C and D. This means that the Send balance between the indexes remain the same, but the entire Send amount will change. You can set the Send parameters via MIDI. (In this case, the settings established in Edit Program mode will be changed.)

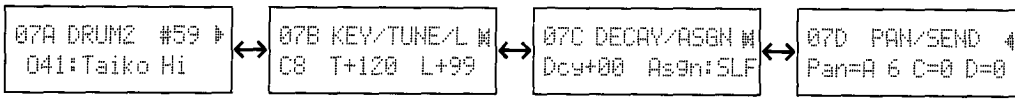
COMBI/MULTI mode: Setting PAN to 'PRG (Program)' causes the same effect as it does in PROG mode (that is, the settings in Global mode become effective). If PAN is set to any value other than 'PRG', all the indexes are combined, and the resultant setting will be used for the operation. Like PAN, if Send is set to 'P', the Send operation is the same as that in PROG mode, and with PAN set to any value other than 'P', all the indexes are combined. Set PAN to 'PRG', and Send to 'P' in any application other than a special occasion.

You can set PAN parameters when PAN is not set to 'PRG' or 'OFF'. (In this case, the value in Edit Combination/ MULTI will be changed.) Although you can set Send parameters via MIDI, an operation with the setting 'P' is the same as that in Program mode (the balance between the indexes does not change). With the setting other than 'P', all indexes are combined.

PAN Bn,0A,xx
Send C Bn,5B,xx
Send D Bn,5D,xx

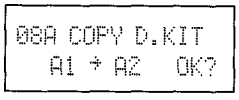
(see p.122)

• 7A – 7D Drum Kit2



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

• 8A Copy Drum Kit



8A	Copy Drum Kit Source	A1, A2, ROM 1 – 8	Drum kit copy source
	Copy Drum Kit Dest	A1, A2	Drum kit copy destination
		OK?	Copy drum kit

Data is copied from one Drum Kit to another.

- The copy source can be either one of the internal (Bank A) Drum kits (1 or 2), or one of the ROM Drum Kits 1 – 8. 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.

APPENDIX

TROUBLESHOOTING

The LCD does not light when the POWER switch is turned on	- Is the power cable plugged in?
No sound	- Are the amplifier or headphones connected to the correct jack? - Has the master volume been turned up? - Are any of the level-related parameters set to 0? - Are you playing an area of the notes which will not sound due to split settings or the pitch range? - Is the keyboard or sequencer connected correctly using a MIDI cable? - Does the MIDI channel on the keyboard or sequencer match properly?
Program doesn't sound right with Demo playback	- Is the preset data loaded to Bank A?
Writing to internal memory disabled	- Has the Memory protect (Global mode 3A and 3B) function been turned ON?
GM cannot be played back correctly	- Is the sequence data GM-compatible? - Is the data loaded correctly to the sequencer? - Has Multi Mode been selected? - Do the Global Mode effect settings match? (See page 11)
The program used when editing is different from that used when playing	- Was the data written to the memory after being edited? (Not necessary with Drum Kits) - Was the same program selected as that used for Drum Kit editing? (In the EDIT PROG Mode) - Was the program selected in the Combination edited at a later point?
The sound does not stop	- Is the Program parameter Hold turned "ON"?
Cannot control through MIDI	- Are the MIDI cables connected correctly? - Is the MIDI channel correct? - Is the Filtering in the Global Mode set to "DIS"?
Cannot control with the computer	- Is the connecting cable connected correctly? (See page 6, 7) - Is the Computer Select setting appropriate? (Set this using the Global Mode 0D.)

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".

MIDI IMPLEMENTATION

1. TRANSMITTED DATA

1-1 CHANNEL MESSAGES

Status (Hex)	Second (Hex)	Third (Hex)	Description			ENA
1011 nnnn (Bn)	0000 0000 (00)	0nnn nnnn (nn)	Bank Select(MSB)	(BANK Key)	*2	P
1011 gggg (Bg)	0000 0110 (06)	0vvv vvvv (vv)	Data Entry (MSB)	(Push both Key)	*1	E
1011 nnnn (Bn)	0010 0000 (20)	0bbb bbbb (bb)	bank Select(LSB)	(BANK Key)	*2	P
1011 gggg (Bg)	0010 0110 (26)	0vvv vvvv (vv)	Data Entry (LSB)	(Push both Key)	*1	E
1011 gggg (Bg)	0110 0000 (60)	0000 0000 (00)	Data Increment	(▲ Key)	*1	E
1011 gggg (Bg)	0110 0001 (61)	0000 0000 (00)	Data Decrement	(▼ Key)	*1	E
1100 nnnn (Cn)	0ppp pppp (pp)	---- ----	Program Change	(Prog/Combi Change)	*2	P

nnnn : MIDI Channel No.(0～15) Usually Global Channel.
When in Combi/Multi Mode, each Timbre's/Track's channel.
gggg : Always Global Channel No.(0～15)
vvvv : Value

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
E/C: When use with [EX Param change] ····· E, when edit a RPN parameter ····· C.

*1 : E.Prog, E.Combi, Multi mode and DrumKit page in Global mode only

*2 :

Program :	MIDI Out (Hex)	Combination :	MIDI Out (Hex)
BankA 00～99 :	nn,bb,pp = 00,00,00～63	BankA 00～99 :	nn,bb,pp = 00,00,00～63
〃 C 00～99 :	〃 00,02,00～63	〃 C 00～99 :	〃 00,02,00～63
〃 D 00～99 :	〃 00,03,00～63	〃 D 00～99 :	〃 00,03,00～63
〃 G 01～128 :	〃 38,00,00～7F		
〃 G 129 :	〃 3E,00,00		
〃 G 130 :	〃 3E,00,10		
〃 G 131 :	〃 3E,00,19		
〃 G 132 :	〃 3E,00,20		
〃 G 133 :	〃 3E,00,28		
〃 G 134 :	〃 3E,00,40		
〃 G 135 :	〃 3E,00,18		
〃 G 136 :	〃 3E,00,30		

1-2 SYSTEM REALTIME MESSAGES

Status (Hex)	Description
1111 1110 (FE)	Active Sensing

1-3 UNIVERSAL SYSTEM EXCLUSIVE MESSAGES (DEVICE INQUIRY)

Byte (Hex)	Description
1111 0000 (F0)	Exclusive Status
0111 1110 (7E)	Non Realtime Message
0000 gggg (0g)	MIDI GLOBAL CHANNEL (DEVICE ID)
0000 0110 (06)	INQUIRY MESSAGE
0000 0010 (02)	IDENTITY REPLY
0100 0010 (42)	KORG ID (MANUFACTURERS ID)
0011 0101 (35)	05R/W ID (FAMILY CODE (LSB))
0000 0000 (00)	(〃 〃 (MSB))
0000 0000 (00)	(MEMBER CODE (LSB))
0000 0000 (00)	(〃 〃 (MSB))
0xxx xxxx (xx)	ROM No. 1～ (Minor Ver. (LSB))
0000 0000 (00)	(〃 〃 (MSB))
0xxx xxxx (xx)	SOFT VER. 1～ (Major Ver. (LSB))
0000 0000 (00)	(〃 〃 (MSB))
1111 0111 (F7)	END OF EXCLUSIVE

Transmits when INQUIRY MESSAGE REQUEST Received

1-4 STRUCTURE OF KORG SYSTEM EXCLUSIVE MESSAGES

1st Byte = 1111 0000 (F0) : Exclusive Status
2nd Byte = 0100 0010 (42) : KORG ID
3rd Byte = 0011 gggg (3g) : Format ID g:Global ch.
4th Byte = 0011 0101 (35) : 05R/W ID
} EX.Header
5th Byte = 0fff ffff (ff) : Function Code (See Func Code List)
6th Byte = 0ddd dddd (dd) : Data
⋮
LastByte = 1111 0111 (F7) : End of Exclusive ····· EOX

1-5 Transmits Function Code List

Func	Description	R	D	E	C
42	MODE DATA	○			
4E	MODE CHANGE				○
41	PARAMETER CHANGE				○
53	DRUMKIT PARAMETER CHANGE				○
40	PROGRAM PARAMETER DUMP	○			○*3
4C	ALL PROGRAM PARAMETER DUMP	○	○		
49	COMBINATION PARAMETER DUMP	○			○*4
4D	ALL COMBINATION PARAMETER DUMP	○	○		
55	MULTI SETUP DATA DUMP	○	○		
51	GLOBAL DATA DUMP	○	○		
52	DRUMS DATA DUMP	○	○		
50	ALL DATA(GLOBAL,DRUM,COMBI,PROG) 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
D : Data dump by SW (Don't respond to Exclusive ENA,DIS)
E : EX.Message received
C : Mode or No. is changed by SW

* When transmits series of EX Messages to 05R/W, Wait until [DATA LOAD COMPLETED] or [WRITE COMPLETED] of Several Messages was received.

*3 : Transmits when enter to EDIT PROGRAM mode.
*4 : Transmits when change a Combination No.

2. RECOGNIZED RECEIVE DATA

2-1 CHANNEL MESSAGES

Status (Hex)	Second (Hex)	Third (Hex)	Description		ENA
1000 nnnn (8n)	0kkk kkkk (kk)	0xxx xxxx (xx)	Note Off		A
1001 nnnn (9n)	0kkk kkkk (kk)	0000 0000 (00)	Note Off		A
1001 nnnn (9n)	0kkk kkkk (kk)	0vvv vvvv (vv)	Note On vvv vvvv=1～127		A
1011 nnnn (Bn)	0000 0000 (00)	0mmm mmmm (mm)	Bank Select(MSB)	*1	P
1011 nnnn (Bn)	0000 0001 (01)	0vvv vvvv (vv)	Modulation1 Depth	(Pitch Modulation)	C
1011 nnnn (Bn)	0000 0010 (02)	0vvv vvvv (vv)	Modulation2 Depth	(Cutoff Modulation)	C
1011 nnnn (Bn)	0000 0100 (04)	00vv vvvv(3F)	Foot Pedal Off	(Main Scale Select)	C
1011 nnnn (Bn)	0000 0100 (04)	01vv vvvv(40)	Foot Pedal On	(Sub Scale Select)	C
1011 nnnn (Bn)	0000 0110 (06)	0vvv vvvv (vv)	Data Entry (MSB)	*2,4	E/C
1011 nnnn (Bn)	0000 0111 (07)	0vvv vvvv (vv)	Volume		C
1011 nnnn (Bn)	0000 1010 (0A)	0vvv vvvv (vv)	Panpot	(A:B Panpot)	C
1011 nnnn (Bn)	0000 1011 (0B)	0vvv vvvv (vv)	Expression		C
1011 ssss (Bs)	0000 1100 (0C)	0vvv vvvv (vv)	Effect1 Control	(FX1 Dynamic Mod)	C
1011 ssss (Bs)	0000 1101 (0D)	0vvv vvvv (vv)	Effect2 Control	(FX2 Dynamic Mod)	C
1011 nnnn (Bn)	0010 0000 (20)	0bbb bbbb (bb)	Bank Select(LSB)	*1	P
1011 nnnn (Bn)	0010 0110 (26)	0vvv vvvv (vv)	Data Entry (LSB)	*2,4	E/C
1011 nnnn (Bn)	0100 0000 (40)	00xx xxxx(3F)	Hold1 Off	(Damper Off)	C
1011 nnnn (Bn)	0100 0000 (40)	01xx xxxx(40)	〃 On	(Damper On)	C
1011 nnnn (Bn)	0100 1000 (48)	0vvv vvvv (vv)	Release Time	*6	C
1011 nnnn (Bn)	0100 1000 (49)	0vvv vvvv (vv)	Attack Time	*6	C
1011 nnnn (Bn)	0100 1000 (4A)	0vvv vvvv (vv)	Brightness	*6	C
1011 nnnn (Bn)	0101 1011 (5B)	0vvv vvvv (vv)	Reverb Level	(Send C Level)	C
1011 ssss (Bs)	0101 1100 (5C)	0000 0000 (00)	Effect1 Level	(FX1 Off)	C
1011 ssss (Bs)	0101 1100 (5C)	0xxx xxxx (1)	〃 〃	(FX1 On)	C
1011 nnnn (Bn)	0101 1101 (5D)	0vvv vvvv (vv)	Chorus Level	(Send D Level)	C
1011 ssss (Bs)	0101 1110 (5E)	0000 0000 (00)	Effect2 Level	(FX2 Off)	C
1011 ssss (Bs)	0101 1110 (5E)	0xxx xxxx (1)	〃 〃	(FX2 On)	C
1011 nnnn (Bn)	0110 0000 (60)	0000 0000 (00)	DATA Increment	*2,4	E/C
1011 nnnn (Bn)	0110 0001 (61)	0000 0000 (00)	DATA Decrement	*2,4	E/C
1011 nnnn (Bn)	0110 0100 (64)	0000 00rr (0r)	RPN Parameter No.(LSB)	*4,5	A
1011 nnnn (Bn)	0110 0101 (65)	0000 0000 (00)	RPN Parameter No.(MSB)	*4,5	A
1011 nnnn (Bn)	0111 1000 (78)	0000 0000 (00)	All Sound Off		C
1011 nnnn (Bn)	0111 1001 (79)	0000 0000 (00)	Reset All Controllers		C
1011 nnnn (Bn)	0111 1011 (7B)	0000 0000 (00)	All Notes Off		A
1011 nnnn (Bn)	0111 110x (7x)	0000 0000 (00)	Omni Mode Off/On	(All Notes Off)	A
1011 nnnn (Bn)	0111 1110 (7E)	000m mmmm(10)	Mono Mode On m mmmm=0～16	(All Notes Off)	A
1011 nnnn (Bn)	0111 1111 (7F)	0000 0000 (00)	Poly mode On	(All Notes Off)	A
1100 nnnn (Cn)	0ppp pppp (pp)	---- ----	Program Change	(Prog.Comb CHG) *1,3,4	P
1101 nnnn (Dn)	0vvv vvvv (vv)	---- ----	Channel Pressure	(After Touch)	T
1110 nnnn (En)	0bbb bbbb (bb)	0bbb bbbb (bb)	Bender Change	(Pitch Bend)	C

nnnn : MIDI Channel No.(0～15) ····· Usually Global Channel.
When in Combi/Multi Mode, each Timbre's/Track's channel.

ssss : Always Global Channel No.(0～15)

x : Random

ENA ····· Same as TRANSMITTED DATA

*1 :

MIDI In (Hex)		Program		MIDI In (Hex)	Combination
mm,bb,pp =	00,00,00～63 :	BankA 00～99		pp = 00～63 :	00～99
	00,00,64～7F :	〃 A 00～27		64～7F :	00～27
	38,xx,00～7F :	〃 G 01～128			
	39,xx,00～7F :	〃 G 01～128			
	3A～3D,xx,xx :	OFF	*1-1		
	3E,xx,00～0F :	BankG 129			
	3E,xx,10～17 :	〃 G 130			
	3E,xx,18 :	〃 G 135			
	3E,xx,19 :	〃 G 131			
	3E,xx,1A～1F :	〃 G 135			
	3E,xx,20～27 :	〃 G 132			
	3E,xx,28～2F :	〃 G 133			
	3E,xx,30～37 :	〃 G 136			
	3E,xx,38～3F :	〃 G 129			
	3E,xx,40～47 :	〃 G 134			
	3E,xx,48～7F :	〃 G 129			
	3F,xx,xx :	OFF	*1-1		

xx : Random
*1-1: Only when in MULTI mode.

*2 : E.Prog, E.Combi mode and DrumKit page of Global 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 : Pitch Bend Sens (In MULTI mode)
= 1 : Detune (〃)
= 2 : Transpose (〃)

When Received Ch = Global Ch,
Act as Master Tune (Other mode)

*6 : vv 3F : Fast or Dark
=40 : Don't change
41 : Slow or Bright

2-2 SYSTEM REALTIME MESSAGES

Status (Hex)	Description
1111 1110 (FE)	Active Sensing

2-3 UNIVERSAL SYSTEM EXCLUSIVE MESSAGE (NON REALTIME)

Byte (Hex)	Description	
1111 0000 (F0)	EXCLUSIVE STATUS	
0111 1110 (7E)	NON REALTIME MESSAGE	
0ggg gggg (gg)	MIDI CHANNEL	*7
0000 aaaa (0a)	SUB ID 1	*8
0000 00bb (0b)	SUB ID 2	*8
1111 0111 (F7)	END OF EXCLUSIVE	

*7 : gg = 0～F : Receive if Global Channel
= 7F : Receive any Channel

*8 : a,b = 06,01 : INQUIRY MESSAGE REQUEST
= 09,01 : GENERAL MIDI MODE ON (Receive anytime)

2-4 UNIVERSAL SYSTEM EXCLUSIVE MESSAGE (REALTIME)

Byte (Hex)	Description	
1111 0000 (F0)	EXCLUSIVE STATUS	
0111 1111 (7F)	REALTIME MESSAGE	
0ggg gggg (gg)	MIDI CHANNEL	*7
0000 0100 (04)	SUB ID 1	
0000 00bb (0b)	SUB ID 2	*9
0vvv vvvv (vv)	VALUE(LSB)	*9
0mmm mmmm (mm)	VALUE(MSB)	*9
1111 0111 (F7)	END OF EXCLUSIVE	

*9 : b = 01 : MASTER VOLUME (mm,vv = 00,00～7F,7F : Min～Max)
= 02 : MASTER BALANCE (mm,vv = 00,00～40,00～7F,7F : L～Center～R)

2-5 SYSTEM EXCLUSIVE MESSAGES

Function Code List

Func	Description	G	C	P	A	No.
12	MODE REQUEST	○	○	○	○	42
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
A : ANY OTHER Mode
No.: MIDI Out Function No.
(transmitted after the message has been received.)

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

See 1-5 'STRUCTURE OF KORG SYSTEM EXCLUSIVE MESSAGES'

(1) MODE REQUEST R

Byte	Description	
F0,42,3g,38	EXCLUSIVE HEADER	
0001 0010 (12)	MODE REQUEST	12H
1111 0111 (F7)	EOX	

Receives this message, and transmits Func=42 message.

(2) PROGRAM PARAMETER DUMP REQUEST R

Byte	Description	
F0,42,3g,38	EXCLUSIVE HEADER	
0001 0000 (10)	PROGRAM PARAMETER DUMP REQUEST	10H
1111 0111 (F7)	EOX	

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

(3) ALL PROGRAM PARAMETER DUMP REQUEST R

Byte	Description	
F0,42,3g,38	EXCLUSIVE HEADER	
0001 1100 (1C)	ALL PROGRAM PARAMETER DUMP REQUES	1CH
0000 0000 (00)		
1111 0111 (F7)	EOX	

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

(4) COMBINATION PARAMETER DUMP REQUEST R

Byte	Description	
F0,42,3g,38	EXCLUSIVE HEADER	
0001 1001 (19)	COMBINATION PARAMETER DUMP REQUEST	19H
1111 0111 (F7)	EOX	

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

(5) ALL COMBINATION PARAMETER DUMP REQUEST R

Byte	Description	
F0,42,3g,38	EXCLUSIVE HEADER	
0001 1101 (1D)	ALL COMBI. PARAMETER DUMP REQUEST	1DH
0000 0000 (00)		
1111 0111 (F7)	EOX	

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

(6) MULTI SETUP DATA DUMP REQUEST R

Byte	Description	
F0,42,3g,38	EXCLUSIVE HEADER	
0000 0110 (06)	MULTI SETUP DATA DUMP REQUEST	06H
0000 0000 (00)		
1111 0111 (F7)	EOX	

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

(7) GLOBAL DATA DUMP REQUEST R

Byte	Description	
F0,42,3g,38	EXCLUSIVE HEADER	
0000 1110 (0E)	GLOBAL DATA DUMP REQUEST	0EH
0000 0000 (00)		
1111 0111 (F7)	EOX	

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

(8) DRUMS DATA DUMP REQUEST R

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0000 1101 (0D)	DRUMS DATA DUMP REQUEST 0DH
0000 0000 (00)	
1111 0111 (F7)	EOX

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

(9) ALL DATA(GLOB,DRUMS,COMBI,PROG,MULTI) DUMP REQUEST R

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0000 1111 (0F)	ALL DATA(GLB,DRM,CMB,PRG,MLT) DUMP REQ 0FH
0000 0000 (00)	
1111 0111 (F7)	EOX

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

(10) PROGRAM WRITE REQUEST R

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0001 0001 (11)	PROGRAM WRITE REQUEST 11H
0000 0000 (00)	
0ppp pppp (pp)	Write Program No.(0-99)
1111 0111 (F7)	EOX

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

(11) COMBINATION WRITE REQUEST R

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0001 1010 (1A)	COMBINATION WRITE REQUEST 1AH
0000 0000 (00)	
0ppp pppp (pp)	Write Combination No.(0-99)
1111 0111 (F7)	EOX

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

(12) PROGRAM PARAMETER DUMP R, T

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0100 0000 (40)	PROGRAM PARAMETER DUMP 40H
0ddd dddd (dd)	Data (NOTE 1,2)
⋮	⋮
1111 0111 (F7)	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=10 message, and transmits this message & data.
When Enter the EDIT PROGRAM Mode by SW, transmits this message & data.

(13) ALL PROGRAM PARAMETER DUMP R, T

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0100 1100 (4C)	PROGRAM PARAMETER DUMP 4CH
0000 0000 (00)	
0ddd dddd (dd)	Data (NOTE 1,3)
⋮	⋮
1111 0111 (F7)	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.

(14) COMBINATION PARAMETER DUMP R, T

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0100 1001 (49)	COMBINATION PARAMETER DUMP 49H
0ddd dddd (dd)	Data (NOTE1,4)
⋮	⋮
1111 0111 (F7)	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.

(15) ALL COMBINATION PARAMETER DUMP R, T

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0100 1101 (4D)	ALL COMBINATION PARAMETER DUMP 4DH
0000 0000 (00)	
0ddd dddd (dd)	Data (NOTE 1,5)
⋮	⋮
1111 0111 (F7)	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.

(16) MULTI SETUP DATA DUMP R, T

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0101 0101 (55)	MULTI SETUP DATA DUMP 55H
0000 0000 (00)	
0ddd dddd (dd)	Data (NOTE 1,8)
⋮	⋮
1111 0111 (F7)	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.

(17) GLOBAL DATA DUMP R, T

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0101 0001 (51)	GLOBAL DATA DUMP 51H
0000 0000 (00)	
0ddd dddd (dd)	Data (NOTE 1,6)
⋮	⋮
1111 0111 (F7)	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.

(18) DRUMS DATA DUMP R, T

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0101 0010 (52)	DRUMS DATA DUMP 52H
0000 0000 (00)	
0ddd dddd (dd)	Data (NOTE 1,7)
⋮	⋮
1111 0111 (F7)	EOX

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

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

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0101 0000 (50)	ALL DATA(GLBL,DRUM,COMB,PROG,MULT) DUMP 50H
0000 0000 (00)	
0ddd dddd (dd)	Data (NOTE 1,9)
⋮	⋮
1111 0111 (F7)	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.

(20) MODE CHANGE R, T

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0100 1110 (4E)	MODE CHANGE 4EH
0000 mmmm (0m)	Mode Data (NOTE 10)
0000 0000 (00)	
1111 0111 (F7)	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.

(21) PARAMETER CHANGE R, T

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0100 0001 (41)	PARAMETER CHANGE 41H
0ppp pppp (pp)	Parameter No.(LSB) (TABLE 6,7)
0ppp pppp (pp)	Parameter No.(MSB) (TABLE 6,7)
0vvv vvvv (vv)	Value (LSB bit6~0) (NOTE 11)
0vvv vvvv (vv)	Value (MSB bit13~7) (NOTE 11)
1111 0111 (F7)	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.

(22) DRUM KIT PARAMETER CHANGE R, T

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0101 0011 (53)	DRUM KIT PARAMETER CHANGE 53H
0000 0000 (00)	
0sss ssss (ss)	Index No. (TABLE 8-1)
0000 pppp (0p)	Parameter No. (TABLE 8-2)
0vvv vvvv (vv)	Value (LSB bit6~0) (NOTE 11)
0vvv vvvv (vv)	Value (MSB bit13~7) (NOTE 11)
1111 0111 (F7)	EOX

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

(23) MODE DATA T

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0100 0010 (42)	MODE DATA 42H
0000 0mmm (0m)	Mode Data (NOTE 10)
0000 0000 (00)	
0000 0000 (00)	
0000 0000 (00)	
1111 0111 (F7)	EOX

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

(24) MIDI IN DATA FORMAT ERROR T

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0010 0110 (26)	MIDI IN DATA FORMAT ERROR 26H
1111 0111 (F7)	EOX

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

(25) DATA LOAD COMPLETED (ACK) T

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0010 0011 (23)	DATA LOAD COMPLETED 23H
1111 0111 (F7)	EOX

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

(26) DATA LOAD ERROR (NAK) T

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0010 0100 (24)	DATA LOAD ERROR 24H
1111 0111 (F7)	EOX

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

(27) WRITE COMPLETED T

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0010 0001 (21)	WRITE COMPLETED 21H
1111 0111 (F7)	EOX

Transmits this message when DATA WRITE MIDI has been completed.

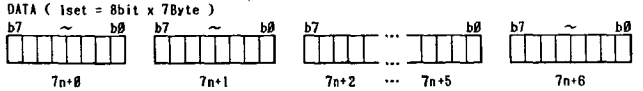
(28) WRITE ERROR T

Byte	Description
F0,42,3g,36	EXCLUSIVE HEADER
0010 0010 (22)	WRITE ERROR 22H
1111 0111 (F7)	EOX

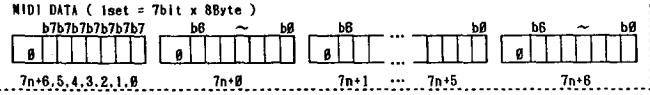
Transmits this message when DATA WRITE MIDI has not been completed.

NOTE 1 :
DUMP DATA CONVERT n=0～ for NOTE 2, 3, 4, 5, 6, 7, 8, 9

DATA (1set = 8bit x 7Byte)



MIDI DATA (1set = 7bit x 8Byte)



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

NOTE 3 : ALL PROGRAM PARAMETER (IN INTERNAL MEMORY) DUMP FORMAT (See NOTE 1)
[Prog A 00 (164Byte)],･･････,[Prog.A 99 (164Byte)]
164x100Byte = 7x2342+6 → 8x2342+(1+6) = 18743Byte (6.0Sec)

NOTE 4 : COMBINATION PARAMETER (IN CURRENT BUFFER) DUMP FORMAT (See TABLE 2 , NOTE 1)
[Parameter No.00],･･････,[Parameter No.135]
136Byte = 7x19+3 → 8x19+(1+3) = 156Byte

NOTE 5 : ALL COMBINATION PARAMETER (IN INTERNAL MEMORY) DUMP FORMAT (See NOTE 1)
[Combi 00 (136Byte)],･･････,[Combi 99 (136Byte)]
136x100Byte = 7x1942+6 → 8x1942+(1+6) = 15543Byte (5.0Sec)

NOTE 6 : GLOBAL DATA (IN INTERNAL MEMORY) DUMP FORMAT (See TABLE 3 , NOTE 1)
[Global Data (28Byte)]
28Byte=7x4+0 → 8x4 =32Byte

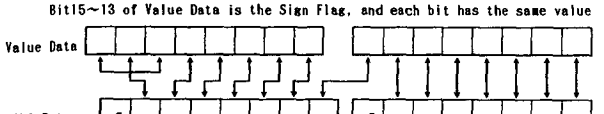
NOTE 7 : DRUMS DATA (IN INTERNAL MEMORY) DUMP FORMAT (See TAPLE 4 , NOTE 1)
[Drum Kit Data (7x60x2Byte)]
840Byte =7x120+0 → 8x120 = 960Byte (0.3Sec)

NOTE 8 : MULTI SETUP DATA FORMAT (See TABLE 5 , NOTE 1)
[Multi Parameter (29Byte)]
29Byte =4x7+1 → 4x8+(1+1) = 34Byte

NOTE 9 : ALL DATA (GLOBAL,DRUMS,COMBI,PROG,MULTI) DUMP FORMAT (See NOTE 1)
[Global Data], (See NOTE 6)
[Drums Data], (See NOTE 7)
[All Combination Parameter Data], (See NOTE 5)
[All Program Parameter Data], (See NOTE 3)
[Multi Setup Data] (See NOTE 8)
28+840+13600+16400+29 = 7x4413+6
→ 8x4413+(1+6) = 35311Byte (11.3Sec)

NOTE 10 : ssss = 0 : COMBINATION 3 : EDIT PROG
1 : EDIT COMBI. 4 : MULTI
2 : PROGRAM 5 : GLOBAL

NOTE 11 : 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



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:NON
	HOLD	bit1=0:OFF, =1:ON
12	OSC-1 W/D.SOUND(LSB)	0～153 : 0～339
13	OSC-1 W/D.SOUND(MSB)	*10
14	OSC-1 OCTAVE	FE～01 : 32'～4'
15	OSC-2 W/D.SOUND(LSB)	0～153 : 0～339
16	OSC-2 W/D.SOUND(MSB)	*10
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 : 0～5 *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 : 0～5 *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

	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
	OSC-1 SEND	
82	D SEND LEVEL	bit0～3 : 0～9
	C SEND LEVEL	bit4～7 : 0～9
	COLOR-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 PANPOT	
86	A:B PAN	00～1E,FF *5
	OSC-2 PARAMETER	
87	SAME AS OSC-1(40～86)	
⋮		
133		
134	(RESERVE)	00
	EFFECT PARAMETER	
135		*11
⋮		
163		

COMBINATION PARAMETER(TABLE2)

No.	PARAMETER	DATA(Hex) : VALUE
	COMBINATION CONTROLLER	
00 ⋮ 09	COMBI.NAME (Head) COMBI.NAME (Tail)	20~7F : ' '~'←'
10	(RESERVE)	00
	EFFECT PARAMETER	
11 ⋮ 39		*11
	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	A:B PAN	00~1E,1F,FF *5
45	D SEND LEVEL	bit0~3 : 0~9,PRG
	C SEND LEVEL	bit4~7 : 0~9,PRG
46	KEY WINDOW TOP	00~7F : C-1~G9
47	KEY WINDOW BOTTOM	00~7F : C-1~G9
48	VEL.WINDOW TOP	01~7F : 01~127
49	VEL.WINDOW BOTTOM	01~7F : 01~127
50	CONTROL FILTER	*7
51	MIDI CHANNEL	bit0~3 : 1~16
	TIMBRE MODE	bit4=0:ON, =1:OFF
	TIMBRE 2~8 PARAMETER	
52 ⋮ 135	SAME AS TIMBRE 1(40~51) x 7	

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	MAIN SCALE TYPE	00~0A *8
06	MAIN SCALE KEY	00~0B : C~B
07 ⋮ 18	USER SCALE	CE~32 : -50~50
19	VELOCITY CURVE	0~7 : 1~8
20	AFTER TOUCH CURVE	0~7 : 1~8
21	SUB SCALE TYPE	00~0A *8
22	SUB SCALE KEY	00~0B : C~B
23~27	(RESERVE)	00

DRUMS PARAMETER (TABLE4)

DRUM KIT A:1-INDEX#0		
00	INST NO.	0,1~A4:OFF,0~163
01	KEY	9C~73 : C0~G8
02	A:B PAN	bit0~4 *9
	EXCLUSIVE ASSIGN	bit5~7 *9
03	TUNE	88~78: -120~120
04	LEVEL	9D~63 : -99~99
05	DECAY	9D~63 : -99~99
06	D SEND LEVEL	bit0~3 : 0~9
	C SEND LEVEL	bit4~7 : 0~9
DRUM KIT A:1-INDEX#1 ~ DRUM KIT A:2-#59		
07 ⋮ 839	SAME AS DRUM KIT A:1-#0(00~06) x(60x2-1)	

MULTI SETUP DATA (TABLE5)

No.	PARAMETER	DATA(Hex) : VALUE
	EFFECT PARAMETER	
00 ⋮ 28		*11

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

*2 : 0 : TRIANGLE
1 : UP SAW
2 : DOWN SAW
3 : SQUARE1
4 : RANDOM
5 : SQUARE2

*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

*5 : 00 : A15
⋮ ⋮
0F : CNT
⋮ ⋮
1E : B15
1F : PRG (Only Comb data)
FF : OFF

*6 00~63 : Bank A00~A99
00~87 : Bank G01~G136

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

bit6,7=0,0 : Bank A Program
=0,1 : Bank G Program

Program is selected by *6 and *7(bit6,7)

*8 : 0 : EQUAL TEMP
1 : EQUAL TEMP 2
2 : PURE MAJOR
3 : PURE MINOR
4 : ARABIC
5 : PYTHAGORAS
6 : WERKMEISTER
7 : KIRNBERGER
8 : SLENDRO
9 : PELOG
A : USER SCALE

*9 : bit0~4 = 00 : A15
⋮ ⋮
0F : CNT
⋮ ⋮
1E : B15
1F : OFF

bit5~7 = 0 : EX Off
1 : EX Group1
⋮ ⋮
6 : EX Group6
7 : Self

*10 : When at Single/Double Mode
000 : Multisound 0
⋮ ⋮
153 : Multisound 339

When at Drum Mode
00 : Drum Kit A1
01 : 〃 A2
08 : ROM Drum Kit 1
⋮ ⋮
0F : 〃 8

*11 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 *11-1
(07)	- 4 -	00,01~65 *11-1
(08)	Effect I/O	bit5~0 *11-2
(09) ⋮ (16)	Effect 1 Parameter	*11-3
(17)	Effect 1 Mod Source	00~0D *11-4
(18)	Effect 1 Mod Amount	F1~0F : -15~15
(19) ⋮ (26)	Effect 2 Parameter	*11-3
(27)	Effect 2 Mod Source	00~0D *11-4
(28)	Effect 2 Mod Amount	F1~0F : -15~15

*11-1 : 00 : Off *11-2 :
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:Parallel 2
3:Parallel 3

*11-3 : 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	00~48 : 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 *11-3-2
(02)	MG Status *11-3-3	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 *11-3-4
(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
(08)	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	01~0A : 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 : *11-3-2
(02)	MG Status *11-3-3	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 : *11-3-2
(02)	MG Status *11-3-3	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) ⋮ (03)	Delay Parameter	*11-3-1
(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) ⋮ (03)	Delay Parameter	*11-3-1
(04)	Depth	00~63 : 00~99
(05)	Speed	00~D8 *11-3-2
(06)	MG Status *11-3-3	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) ⋮ (03)	Delay Parameter	*11-3-1
(04)	Depth	00~63 : 00~99
(05)	Speed	00~D8 *11-3-2
(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

*11-3-1 : Delay Parameter
Same as 40-(00)~(03)

*11-3-2 : 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)

*11-3-3 : MG Status
bit0 : Wave Form =0:Sin, =1:Tri
bit1 : Phase =0:0° , =1:180°
bit2 : Wave Shape =0: Normal
=1: for Flanger

*11-3-4 : Waveform
EB : T+10
⋮ : ⋮
FF : T-10
00 : S-10
⋮ : ⋮
14 : S+10

*11-4 : Dynamic Modulation Source
0 : None
1 : Joy Stick (+Y)
2 : Joy Stick (-Y)
3 : After Touch
4 : Assn Pedal 1
5 : Assn Pedal 2
6 : VDA EG

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	EG INT BY VEL SENSE	28
10	EG TIME BY VEL SENSE	27
	CUTOFF MG	
11	WAVE FORM	29 bit0~2
12	FREQUENCY	30
13	INTENSITY	32
14	DELAY	31
15	OSC SELECT	29 bit5,6
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	A:B PAN	86
29	C SEND LEVEL	82 bit4~7
30	D SEND LEVEL	82 bit0~3
	VDF-1	
31	CUTOFF VALUE	50
32	EG INTENSITY	53
	COLOR-1	
33	INTENSITY	83
34	INT BY VEL SENSE	84

	VDF-1 EG	
35	ATTACK TIME	57
36	ATTACK LEVEL	58
37	DECAY TIME	59
38	BREAK POINT	60
39	SLOPE TIME	61
40	SUSTAIN LEVEL	62
41	RELEASE TIME	63
42	RELEASE LEVEL	64
43	EG INT BY VEL SENSE	56
44	EG TIME BY VEL SENSE	55
	VDF-1 EG TIME MOD BY VEL SENSE	
45	ATTACK TIME	79 bit0,4
46	DECAY TIME	79 bit1,5
47	SLOPE TIME	79 bit2,6
48	RELEASE TIME	79 bit3,7
	VDF-1 KBD TRACK	
49	KBD TRACK KEY	51
50	MODE	85 bit0,1
51	CUTOFF	52
52	EG TIME	54
	VDF-1 EG TIME MOD BY KBD TRACK	
53	ATTACK TIME	78 bit0,4
54	DECAY TIME	78 bit1,5
55	SLOPE TIME	78 bit2,6
56	RELEASE TIME	78 bit3,7
	VDA-1 EG	
57	ATTACK TIME	71
58	ATTACK LEVEL	72
59	DECAY TIME	73
60	BREAK POINT	74
61	SLOPE TIME	75
62	SUSTAIN LEVEL	76
63	RELEASE TIME	77
64	EG INT BY VEL SENSE	68
65	EG TIME BY VEL SENSE	70
	VDA-1 EG TIME MOD BY VEL SENSE	
66	ATTACK TIME	81 bit0,4
67	DECAY TIME	81 bit1,5
68	SLOPE TIME	81 bit2,6
69	RELEASE TIME	81 bit3,7
	VDA-1 KBD TRACK	
70	KBD TRACK KEY	66
71	MODE	85 bit4,5
72	INTENSITY	67
73	EG TIME	69
	VDA-1 EG TIME MOD BY KBD TRACK	
74	ATTACK TIME	80 bit0,4
75	DECAY TIME	80 bit1,5
76	SLOPE TIME	80 bit2,6
77	RELEASE TIME	80 bit3,7

	OSC-1 PITCH MG	
78	WAVE FORM	41 bit0～2
79	FREQUENCY	42
80	INTENSITY	45
81	DELAY	43
82	FADE IN	44
83	KEY SYNC	41 bit7
84	FREQ MOD BY KBD TRACK	46
85	FREQ MOD BY A.T+J.S	49
86	INTENSITY MOD BY A.T	47
87	INTENSITY MOD BY J.S	48
	OSCILLATOR-2	
88	INTERVAL	18
89	DETUNE	19
90	DELAY START	20
	OSC-2 PARAMETER	
91 ⋮ 154	SAME AS OSC-1 (24～87)	87 ⋮ 133
	EFFECT PARAMETER	
155 ⋮ 187	(TABLE 6-1)	

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.	40,50,51+12n *
8+n	OUTPUT LEVEL	41+12n
16+n	MIDI CHANNEL	51+12n b0～3
24+n	KEY WINDOW TOP	46+12n
32+n	KEY WINDOW BOTTOM	47+12n
40+n	VEL WINDOW TOP	48+12n
48+n	VEL WINDOW BOTTOM	49+12n
56+n	TRANSPOSE	42+12n
64+n	DETUNE	43+12n
72+n	PROGRAM CHANGE FILTER	50+12n b0
80+n	DAMPER FILTER	50+12n b1
88+n	AFTER TOUCH FILTER	50+12n b2
96+n	CONTROL CHANGE FILTER	50+12n b3
104+n	A:B PAN	44+12n
112+n	C SEND LEVEL	45+12n b4～7
120+n	D SEND LEVEL	45+12n b0～3
128～135	(RESERVE)	----
	EFFECT PARAMETER	
136 ⋮ 168	(TABLE 6-1)	

*

Value	40+12n	50+12n b6,7	51+12n b4
00	----	----	1
01～100	00～99	0.0	0
101～236	0～135	0.1	0

EFFECT PARAMETERS (TABLE6-1)

No.of TABLE6,7 PROG	No.of TABLE6,7 COMB	PARAMETER
155	136	EFFECT 1 TYPE
156	137	EFFECT 2 TYPE
157	138	EFFECT 1 OFF/ON
158	139	EFFECT 2 OFF/ON
159	140	OUT3 PANPOT (Seri.Para1.2)
160	141	OUT4 PANPOT (Seri.Para1.2)
161	142	OUT 3-L LEVEL (Para3)
162	143	OUT 3-R LEVEL (Para3)
163	144	OUT 4-L LEVEL (Para3)
164	145	OUT 4-R LEVEL (Para3)
165	146	PLACEMENT
	EFFECT 1	
166	147	DYNAMIC MOD SOURCE
167	148	DYNAMIC MOD INT
168 ⋮ 174	149 ⋮ 155	PARAMETER 1 ⋮ PARAMETER 7
175	156	BALANCE 1
176	157	BALANCE 2
	EFFECT 2	
177 ⋮ 187	158 ⋮ 168	SAME AS EFFECT 1 (166 ～ 176 : PROG) (147 ～ 157 : COMB)

DRUM KIT PARAMETERS

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

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

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

n : 0～59 (: Index)

No.	PARAMETER	No. of TABLE 4
0	INDEX No.	----
1	INST NO.	0+7n
2	KEY	1+7n
3	TUNE	3+7n
4	OUTPUT LEVEL	4+7n
5	DECAY	5+7n
6	A:B PAN	2+7n b0～4
7	EXCLUSIVE ASSIGN	2+7n b5～7
8	C SEND LEVEL	6+7n b4～7
9	D SEND LEVEL	6+7n b0～3

Relationship Between MIDI and Panpots and Send Data

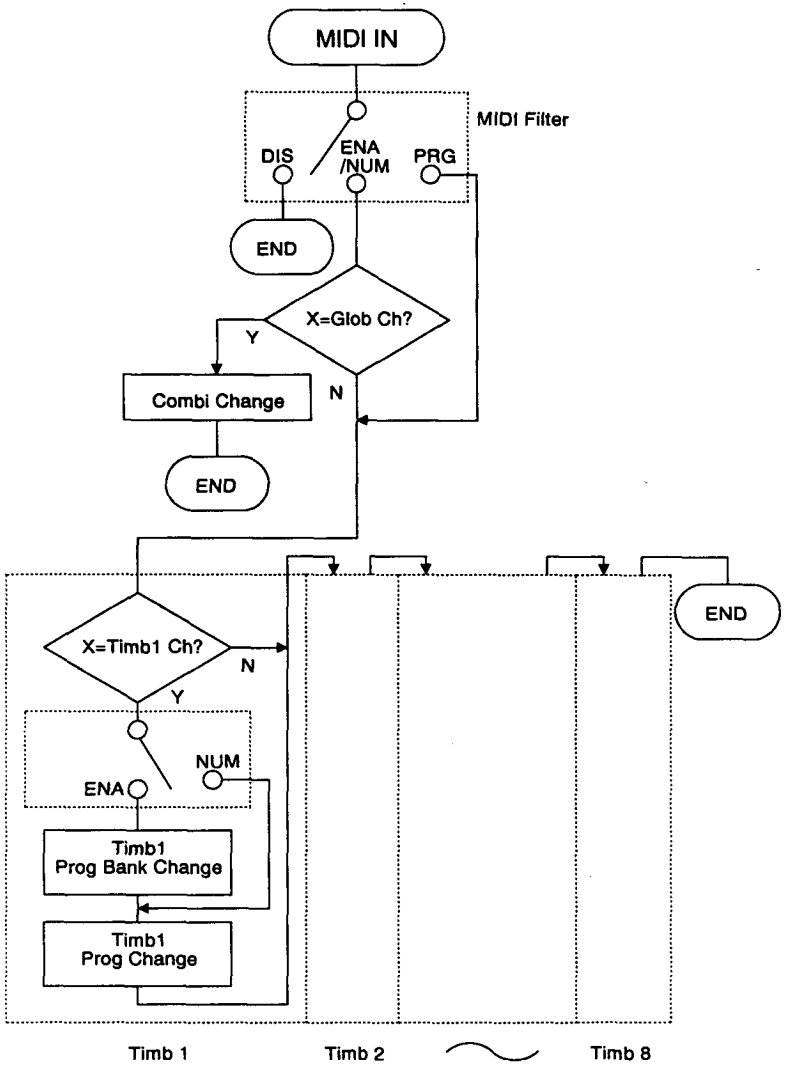
MIDI Pan Message Bn,0A.vv

Panpot	
MIDI In Pan Data (vv)	05R/W Pan
0~2	A15
3~6	A14
7~A	A13
B~F	A12
10~13	A11
14~17	A10
18~1B	A9
1C~20	A8
21~24	A7
25~28	A6
29~2C	A5
2D~31	A4
32~35	A3
36~39	A2
3A~3E	A1
3F~42	CNT
43~46	B1
47~4A	B2
4B~4F	B3
50~53	B4
54~57	B5
58~5B	B6
5C~60	B7
61~64	B8
65~68	B9
69~6C	B10
6D~71	B11
72~75	B12
76~79	B13
7A~7D	B14
7E~7F	B15

05R/W controls Send C level using MIDI Reverb Depth Bn, 5B, vv, and Send D

Send	
MIDI In Send Data (vv)	05R/W Send
0~D	0
E~1A	1
1B~28	2
29~35	3
36~43	4
44~50	5
51~5E	6
5F~6B	7
6C~79	8
7A~7F	9

Program Change, Bank Select MIDI In (x:Channel)



PC Interface Technical Information Chart

PC Interface Technical Notes

PC IF Clock	Description
31.25KBPS	Asynchronous 31.25KBPS 8 bit, 1 stop bit, No parity bit
38.4KBPS	Asynchronous 38.4KBPS 8 bit, 1 stop bit, No parity bit

All MIDI messages described in the MIDI Implementation are also received from PC Interface. In addition, line control commands listed below are recognized.

Data	Description
B0 7A 00	Disable MIDI IN to TG connection
B0 7A 7F	Enable MIDI IN to TG connection
F5 00	Enable PC IF to TG and PC IF to MIDI OUT connection
F5 01	Enable PC IF to MIDI OUT and disable PC IF to TG connection
F5 02	Enable PC IF to TG and disable PC IF to MIDI OUT connection
F5 F5	Transmit one F5 from MIDI OUT
F5 FF	Transmit one FF from MIDI OUT
FF	No operation

On default, all messages from PC IF are recognized by the TG (tone generator) inside 05R/W. After the reception of F5 01, all following messages will be ignored by the TG.
On default, all messages from PC IF except FF and F5 xx are also echoed back to MIDI OUT. After the reception of F5 02, all following messages will be sent only to TG and not echoed back to MIDI OUT.

Example:

F5 02 90 3C 40 F5 01 90 3E 40 F5 00 90 40 40

will turns on C(3C) and E(40) notes on 05R/W, and transmit note on messages for D(3E) and E(40) from MIDI OUT.

All messages from MIDI IN are always sent to host via PC IF. On default, all messages from MIDI IN are recognized by the TG as well. After the reception of B0 7A 00 from PC IF, all following messages will be ignored by the TG. B0 7A 7F will reset to normal operation.

Notes:

1. No handshake means are provided between 05R/W and the host PC. It is host's responsibility to receive data from the PC IF without overrun.

2. In case 38.4KBPS is used, since 05R/W has limited amount of MIDI OUT buffer, buffer overrun will occur if data stream to be MIDI OUT is sent via PC IF full in bandwidth. To avoid this, host may insert dummy FF messages every 4th bytes, which will not be transmitted from MIDI OUT.

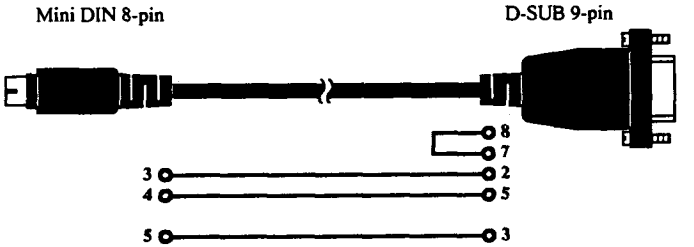
3. If Line Control is used in an application program, it should be reset to normal state with F5 00 / B0 7A 7F messages after its execution.

4. The F5 xx messages should never be placed in portable sequence files, since they are not legal MIDI messages.

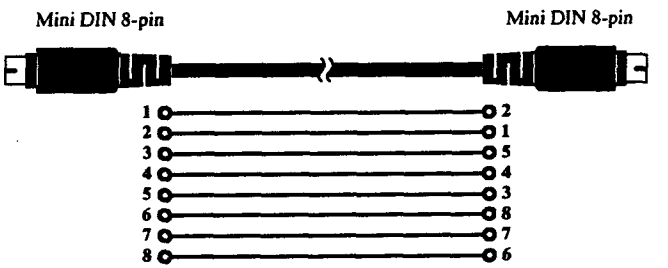
5. Korg MIDI Drivers insert all required messages described above.

Wiring Diagram of Dedicated Connecting Cables

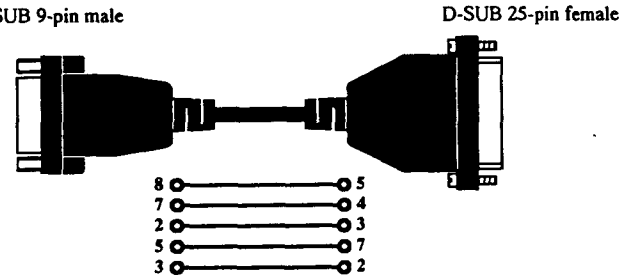
(1) AG-001 (for IBM PC or Compatible)



(2) AG-002 (for Macintosh)



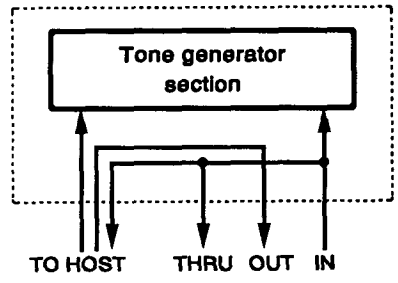
(3) AG-004 (Adapter for IBM PC or Compatible)



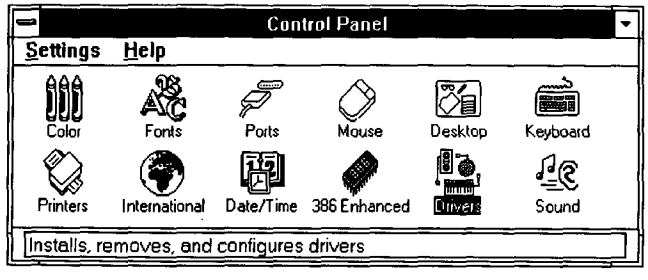
INSTALLING AND SETTING UP THE KORG MIDI DRIVER

1.1 Installing the KORG MIDI Driver in MS Windows (AG-001)

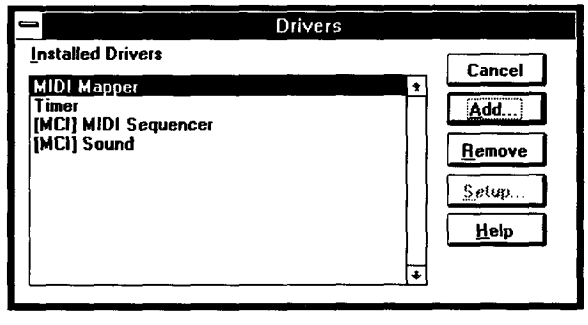
If the application (sequencer, etc.) being used supports Windows MME (Multimedia Extensions), the KORG MIDI Driver program, provided as an accessory, can be used to drive the 05R/W connected to the serial port (COM port) as a MIDI device.



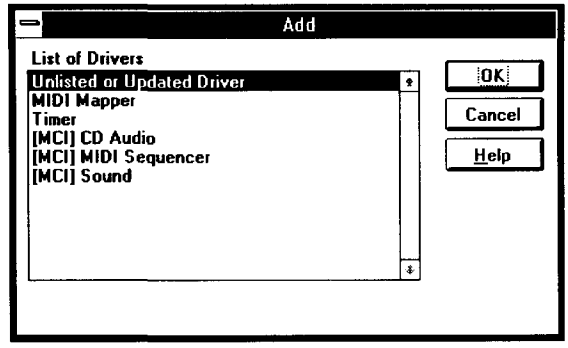
1. Double-click on the Driver icon in the Control Panel.



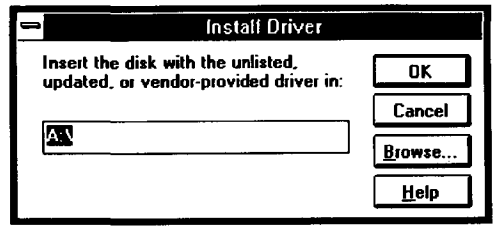
2. Select "Add".



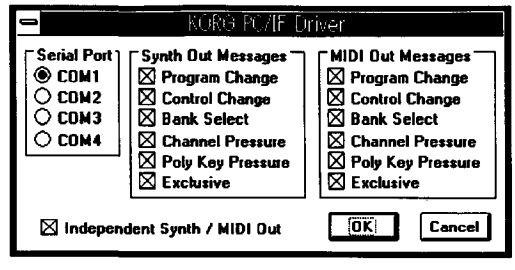
3. On the "List Drivers" menu, select "Unlisted or Driver", and click on "OK".



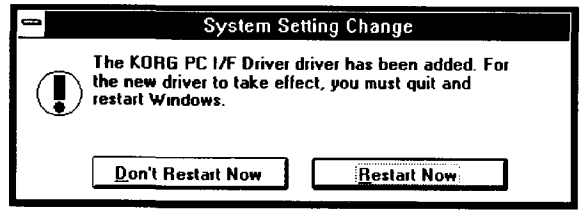
4. If a floppy disk containing the Driver program has been inserted in Drive A, type "A:¥" (if the disk is in Drive B, type "B:¥"). Then click on "OK".



5. Select "Korg PC I/F Driver", and click on "OK". The setup screen appears. Follow the instructions listed under "Setting Up the KORG MIDI Driver (Windows)" on page 126.



6. To make the Driver effective, eject the disk and select "Restart".



Setting Up the KORG MIDI Driver (Windows)

1. Double-click on the Driver icon in the Control Panel, and select "KORG PC I/F Driver". Then click on the specified button to display the setup screen.

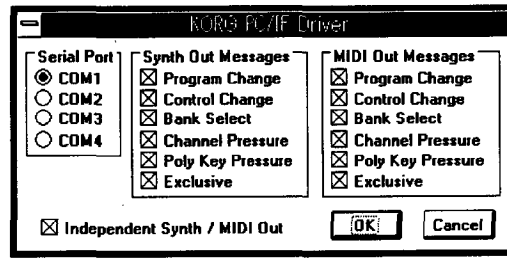
2. Under "Serial Port", select the serial port to which the 05R/W is connected (COM1 to COM4).

3. When the "Independent Synth/MIDI Out" box is checked, data output to the Synth Out port will produce sound from the tone generator of the 05R/W, while data output to the MIDI Out port of the 05R/W will be output as MIDI data from the 05R/W.
   If the "Independent Synth/MIDI Out" box is not checked, data output to the MIDI Out port will be sent to both the tone generator of the 05R/W and the MIDI Out port.

4. The items listed under "Synth Out Messages" can be used to select messages to be sent to the 05R/W. The items listed under "MIDI Out Messages" can be used to select messages to be output from the MIDI Out port on the 05R/W. If the check mark in the box next to "Independent Synth/MIDI Out" is erased, the same messages will be sent to the 05R/W and output from the MIDI Out port of the 05R/W.

5. When all of the selections have been completed, click on "OK". To cancel the selections without changing anything, click on "Cancel".

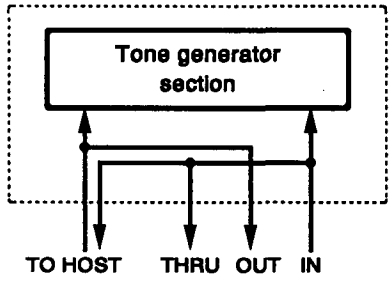
- When playing back MS Extended MIDI data, either mute channels 13-16 on the sequencer or whatever instrument is being used, or use the MIDI Mapper provided with the Windows MME program to enter the settings for the Extended MIDI application.



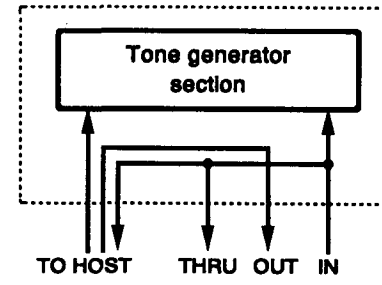
Installing the KORG MIDI Driver on a Macintosh Computer (AG-002)

If the application (sequencer) being used supports the Apple MIDI Manager, the KORG MIDI Driver can be used to provide separate MIDI output for the 05R/W tone generator and the MIDI Out port.

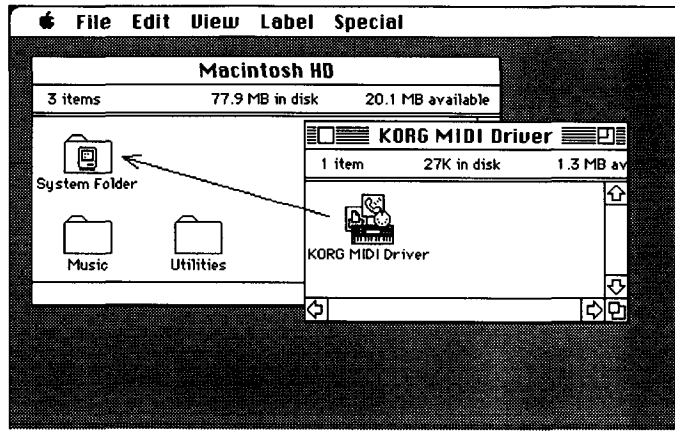
• When the KORG MIDI Driver is not used



• When the KORG MIDI Driver is used



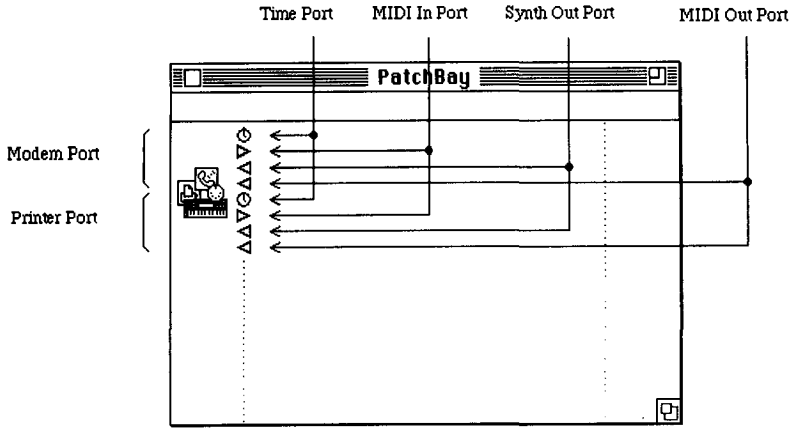
* In order to use the KORG MIDI Driver, the Apple MIDI Manager and PatchBay must be installed.



1. Copy the KORG MIDI Driver on the accessory disk into the System Folder on the startup disk.

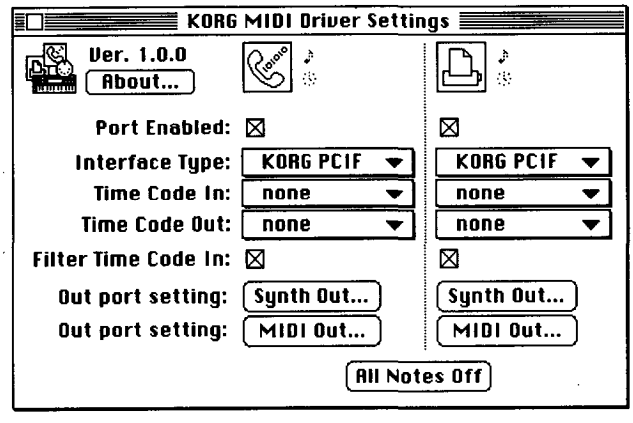
2. If the Apple MIDI Driver is already in the System Folder, either erase it or move it into another folder. The KORG MIDI Driver includes the functions of the Apple MIDI Driver. Be careful not to erase or move the Apple MIDI Manager.

Setting Up the KORG MIDI Driver for the Macintosh



1. Start up the PatchBay program.
   If the program has been installed correctly, the KORG MIDI Driver icon will be displayed inside the PatchBay window, as shown above. (The display may differ slightly from the illustration, depending on how the modem and printer ports are set up.)

2. Double-click on the KORG MIDI Driver icon. The setup dialog box is displayed.

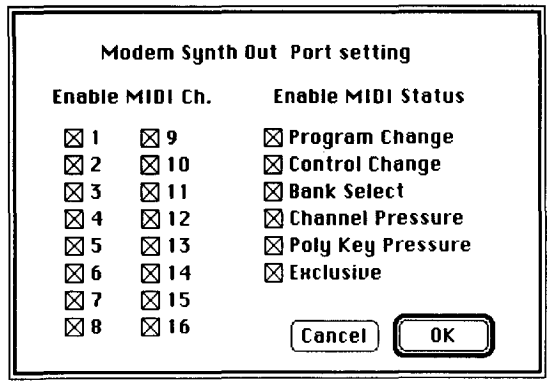


   When "KORG PC IF" is selected as the Interface Type, data sent to the Synth Out Port will produce sound from the 05R/W tone generator, while data sent to the MIDI Out Port will be sent out through the MIDI Out jack on the back panel of the 05R/W.
   If "1MHz" is selected as the Interface Type, the Synth Out Port will disappear. Messages sent to the MIDI Out Port will produce sound from the 05R/W tone generator and also be sent to the MIDI Out Jack on the back panel of the 05R/W.

3. Set the "Interface Type" for the port to which the 05R/W is connected to "KORG PCIF" (or to "1MHz"). If the 05R/W is connected to an ordinary MIDI interface, select a clock rate that matches the interface (usually this will be 1 MHz).

4. In order to use the Modem or Printer ports, the Corresponding "Port Enabled" box(s) must be checked. The "Synth Out Port" is available only if "KORG PCIF" has been selected for the interface type.

5. Pressing the "Out Port Setting" button displays the dialog box shown below. In this box, you can select the MIDI channels/messages to be output to each of the ports.
   Only channels/messages which have been checked will be output.



6. Drag the mouse from the arrow on the Out Port of the MIDI application (sequencer, etc.) and connect it to the "Synth Out Port" of the Korg MIDI Driver. Other ports can be connected in the same way if necessary.

* For information on using the PatchBay program, please refer to the application instruction manual included with the PatchBay program, or see the description under "About PatchBay..." in the Apple menu.

MIDI File Translator

MIDI File Translator is an Apple File Exchange translation program that allows Macintosh MIDI application programs to recognize an MS-DOS standard MIDI file as an SMF (Standard MIDI File).

- You do not need this application program to operate the KORG MIDI driver.

Make a copy of MIDI file translator in the folder that contains Apple File Exchange. Select "MIDI File Translation" in the "MS-DOS → Mac" menu that is displayed when you activate Apple File Exchange and insert an MS-DOS disk. If "MIDI File Translation" is not displayed, first select "Other Conversion Program," then add "MIDI File Translation".

* For details, see the Apple File Exchange documentation in your Apple manual.

05R/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 Number: True voice		×	0~127	
		*******	0~127	
Velocity	Note ON	×	○ 9n, V=1~127	
	Note OFF	×	×	
After Touch	Key's	×	×	
	Ch's	×	×	
Pitch Bender		×	○	
Control	0, 32	○	○	Bank Select (MBS, LSB) ✳P
	1, 2	×	○	Mod Wheel (Pitch, Cutoff) ✳C
	4, 64	×	○	Pedal (Scale, Damper) ✳C
	6, 38	○	○	Data Entry (MSB, LSB) ✳3✳C/E
	7, 11	×	○	Volume, Expression ✳C
	10	×	○	A:B Pan Pot ✳C
	12, 13	×	○	FX1, 2 Cntrl ✳C
	72, 73, 74	×	○	EG Time (Release, Attack), Brightness ✳C
Change	91, 93	×	○	C Send, D Send ✳C
	92, 94	×	○	FX1, 2 On, Off ✳C
	96, 97	○	○	Data Increment/Decrement ✳3✳C/E
	100, 101	×	○	RPN (LSB, MSB) ✳1
	120, 121	×	○	All Sound Off, Reset All Cntrls
Program Change: True#		○ 0~127	○ 0~127	✳P
		*******	0~127	0~99 except for Bank G
System Exclusive		○	○	✳2✳E
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 ✳C, ✳P, ✳A, ✳E: Transmitted and received when MIDI Filter (Control, Program, After Touch, Exclusive) = ENA in global mode.

✳1 LSB, MSB =00,00: Pitch Bendrange, =01,00: Fineture, =02,00: Coarse tune

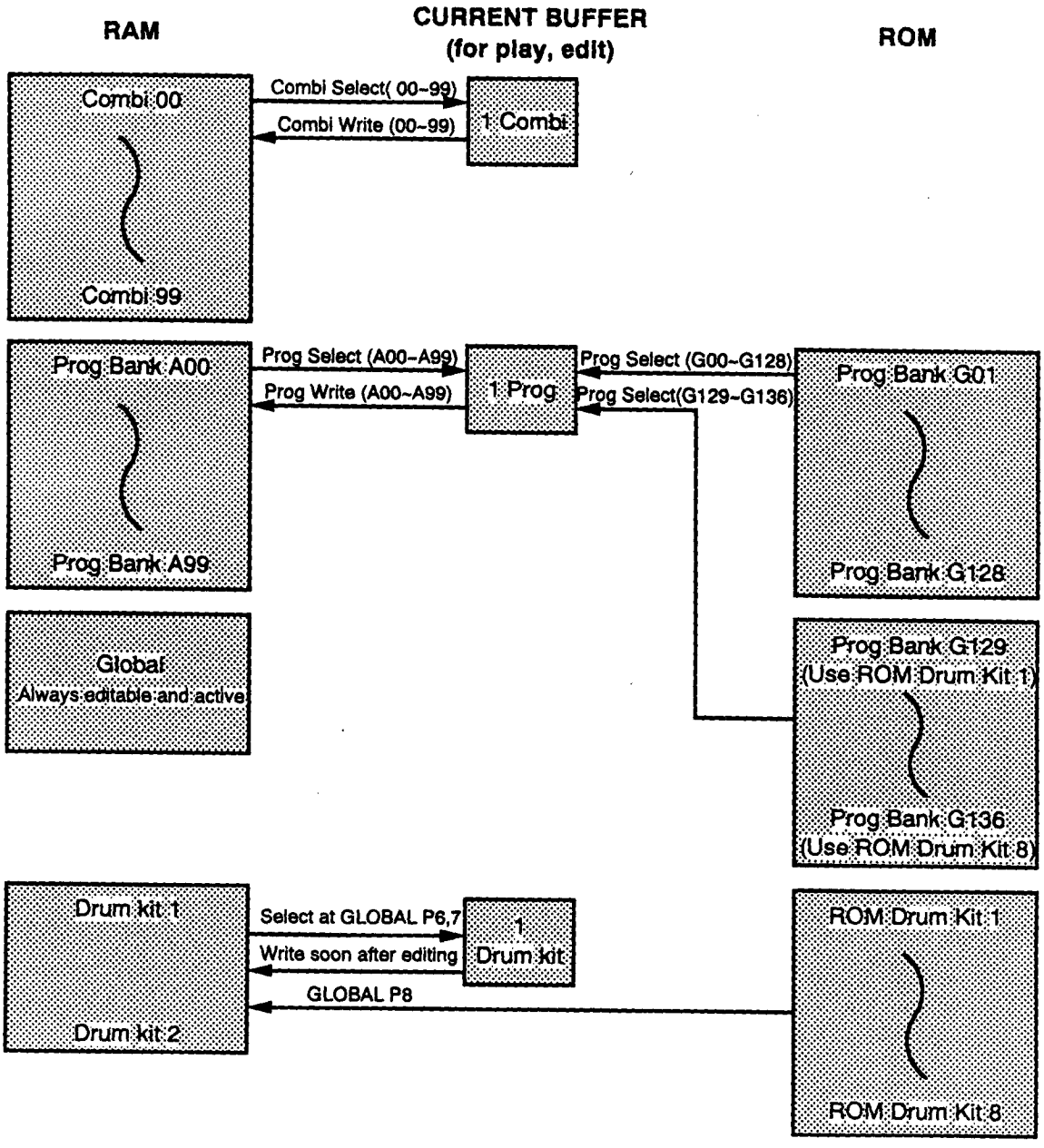
✳2 Applies to Inquire Message, GM System On, Master Balance, and Master Volume, not Korg exclusive.

✳3 Applies to control when RPN parameter editing, and to exclusive when Korg exclusive is editing.

Mode 1 : OMNI ON, POLY　　Mode 2 : OMNI ON, MONO　　○ : Yes

Mode 3 : OMNI OFF, POLY　　Mode 4 : OMNI OFF, MONO　　× : No

05R/W MEMORY CONFIGURATION



SPECIFICATIONS AND OPTIONS

Tone generation method	AI² Synthesis System (full digital processing)
Tone generator	32 voices, 32 oscillators (single mode); 16 voices, 32 oscillators(double mode)
Waveform memory	PCM 6 Mbits
Effects	Two digital multi-effect systems (47 Type)
Programs	236 Programs (RAM 100, ROM 136)
Combinations	100 Combinations (RAM)
Communication terminal	Personal Computer Interface
Outputs	L/MONO, R, headphones (stereo mini jack)
MIDI	In, Out, Thru
Display	LCD 16 × 2 with backlight
Power source	DC 12V
Power consumption	400 mA
Dimensions	218 (W) × 241.5 (D) × 45 (H) (8.6" × 9.5" × 1.8")
Weight	1.1 kg (2.4 lbs.)
Accessory	AC Adaptor, SYNC/MIDI Cable

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

Options:

AG-001 MIDI Driver/Connector for IBM PC and compatibles

AG-002 MIDI Driver/Connector for Macintosh

AG-004 Adaptor for IBM PC or compatibles

Rack mount Kit RA-01

NOTICE

KORG products are manufactured under strict specifications and voltages required by each country. These products are warranted by the KORG distributor only in each country. Any KORG product not sold with a warranty card or carrying a serial number disqualifies the product sold from the manufacturer's/distributor's warranty and liability. This requirement is for your own protection and safety.

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