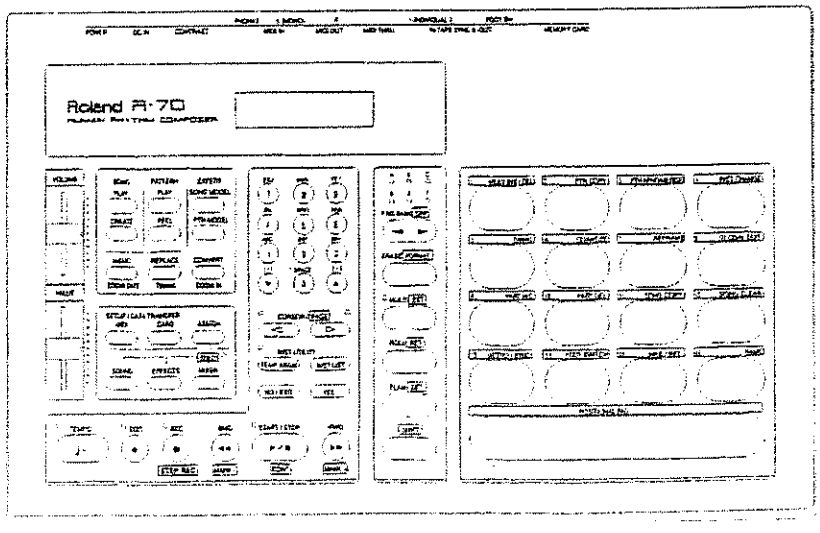
Roland

HUMAN RHYTHM COMPOSER

R-70

Owner's Manual



FEATURES

●The R-70 contains 210 high quality (16 bit dynamic range) Drums & Percussion sounds (Instruments). The velocity sensitive pads allow you to control volume and nuance for expressive rhythmic performances.

●Using the Positional Pad, you can change the tone of an Instrument by hitting the pad in different places.

●The unit contains two on-board digital effects; FX1(reverb/delay) and FX2(chorus/flanger).

●The R-70 allows you to set various parameters for each Instrument; Pitch, Decay, Nuance, Attack Damp, Brilliance ete. By altering these parameters, you can customize your sounds.

●By using the Instrument Copy function, you can store up to 32 different User's Instruments which have been made by editing the existing sounds. In this way, you can access up to 242 Instrument sounds (210 original Instruments + 32 User's Instruments).

●Up to 100 different Rhythm Patterns and 20 different Songs can be stored in the internal memory of the R-70.

●Performance data (Rhythm Patterns / Songs) and Instrument settings stored in the internal memory can also be saved onto an optional memory card (M-256E). The Rhythm Pattern and Song data saved onto a memory card can be reloaded for later use.

●The R-70 features a Rhythm Expert function that automatically creates Rhythm Patterns and Songs according to the parameters you set. You may write these Rhythm Patterns or Songs as "Model data" and copy the Model you like into a usual Rhythm Pattern or Song. This data can be used in the same way as the Rhythm Pattern or Song data you compose.

●The Feel function are provided to create more realistic performances.

●The R-70 features a wide variety of editing functions:

◇The Pattern Append function allows you to join two Rhythm Patterns.

◇The Pattern Merge function allows you to mix two Rhythm Patterns.

◇The Instrument Change function allows you to replace specific instruments used in a Rhythm Pattern with a different Instrument.

◇The Measure Insert function allows you to insert measures into a Rhythm Pattern.

IMPORTANT NOTES

Be sure to use only the adaptor supplied with the unit. Use of any other power adaptor could result in damage, malfunction, or electric shock.

Power Supply

- When making any connections with other devices, always turn off the power to all equipment first; this will help prevent damage or malfunction.
- Do not use this unit on the same power circuit with any device that will generate line noise, such as a motor or variable lighting system.
- The power supply required for this unit is shown on its nameplate. Ensure that the line voltage of your installation meets this requirement.
- Avoid damaging the power cord; do not step on it, place heavy objects on it etc.
- When disconnecting the AC adaptor from the outlet, grasp the plug itself; never pull on the cord.
- If the unit is to remain unused for a long period of time, unplug the power cord.

Placement

- Do not subject the unit to temperature extremes (eg. direct sunlight in an enclosed vehicle). Avoid using or storing the unit in dusty or humid areas or areas that are subject to high vibration levels.
- Using the unit near power amplifiers (or other equipment containing large transformers) may induce hum.
- This unit may interfere with radio and television reception. Do not use this unit in the vicinity of such receivers.
- Do not expose this unit to temperature extremes (eg. direct sunlight in an enclosed vehicle can deform or discolor the unit) or install it near devices that radiate heat.

Maintenance

- For everyday cleaning wipe the unit with a soft, dry cloth (or one that has been slightly dampened with water). To remove stubborn dirt, use a mild neutral detergent. Afterwards, be sure to wipe the unit thoroughly with a soft, dry cloth.
- Never use benzene, thinners, alcohol or solvents of any kind, to avoid the risk of discoloration and/or deformation.

Additional Precautions

- Protect the unit from strong impact.
- Do not allow objects or liquids of any kind to penetrate the unit. In the event of such an occurrence, discontinue use immediately. Contact qualified service personnel as soon as possible.

●Never strike or apply strong pressure to the display.

●Should a malfunction occur (or if you suspect there is a problem) discontinue use immediately. Contact qualified service personnel as soon as possible.

●To prevent the risk of electric shock, do not open the unit or its AC adaptor.

Memory Backup

●The unit contains a battery which maintains the contents of memory while the main power is off. The expected life of this battery is 5 years or more. However, to avoid the unexpected loss of memory data, it is strongly recommended that you change the battery every 5 years.

●When the battery becomes weak, the following message will appear in the display: "Low Battery.". Please change battery as soon as possible to avoid the loss of memory data.

●Please be aware that the contents of memory may at times be lost; when the unit is sent for repairs or when by some chance a malfunction has occurred. Important data should be stored on a Memory Card, or written down on paper. During repairs, due care is taken to avoid the loss of data. However, in certain cases, (such as when circuitry related to memory itself is out of order) we regret that it may be impossible to restore the data.

How to use this manual

This manual explains how to utilize many different functions of the R-70.
To make good rhythms actually, proceed to put each function together

- If this is your first experience with a rhythm machine, we encourage you to read the Guide Book first, as it explains the basics of a rhythm machine.
- In this manual, some explanations of procedures have been simplified. Please refer to "Basic Operation" (☞P.19) to find what has been omitted.
- In this manual, buttons are represented as marked on the panel of the unit. For Example; Song Play Button → SONG PLAY

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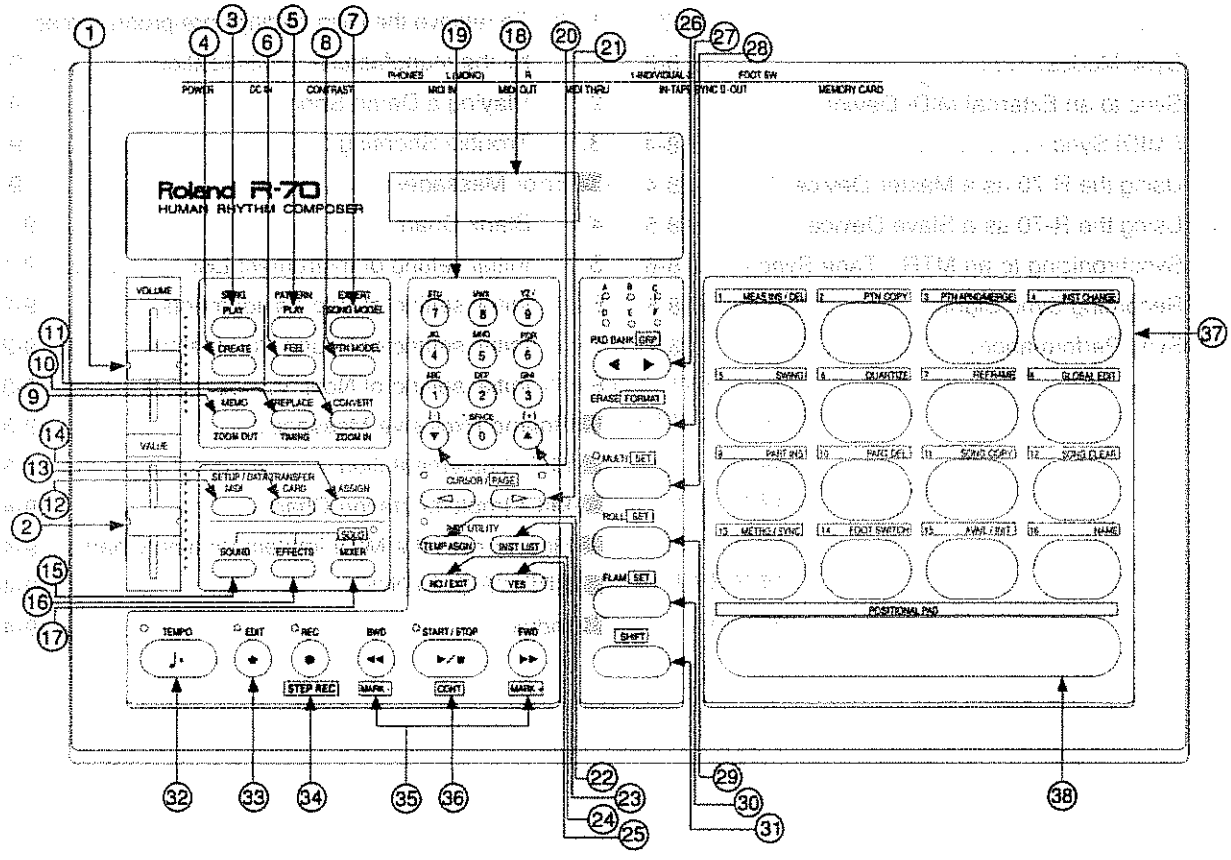
PANEL DESCRIPTION

Front Panel



① VOLUME Slider

This slider adjusts the overall volume of the signal sent from the output sockets (Stereo Output) and Headphone Jack.

② VALUE Slider

Use this slider to change the value of a selected parameter (☞ P. 21).

③ SONG PLAY Button

Press this button to play a Song you have composed.

④ SONG CREATE Button

Press this button to create a song.

⑤ PATTERN PLAY Button

Press this button to play the Rhythm pattern you have made.

⑥ PATTERN FEEL Button

Use this button to add a more human "feel" to the Rhythm Pattern you have made (☞ P. 1-31).

⑦ SONG MODEL Button

Press this button to activate the Rhythm Expert function that automatically creates a Song Model (☞ P. 3-9).

⑧ PATTERN MODEL Button

Press this button to activate the Rhythm Expert function that automatically creates a Pattern Model (☞ P. 3-3).

⑨ MEMO Button

Press this button to temporarily write (store) the Pattern Model created by the Rhythm Expert function (☞ P. 3-7, P. 3-16).

⑩ REPLACE Button

Use this button to select a Pattern Model written with the Memo Button (☞ P. 3-8, P. 3-17).

⑪ CONVERT Button

Use this button to copy the created Pattern Model or Song Model into a usual Rhythm Pattern or Song (☞ P. 3-6, P. 3-14).

⑫ MIDI Button

This button is used for setting MIDI parameters (☞ P. 7-7).

⑬ CARD Button
This button is used for saving (or loading) data onto (or from) a memory card (M-256E : optional) (☞ P. 6-2).

⑭ ASSIGN Button
This button is used for assigning an Instrument to each Key Pad (☞ P. 5-2).

⑮ SOUND Button
This button is used for setting a Sound Parameter (☞ P. 4-2).

⑯ EFFECTS Button
This button is used for setting effects (☞ P. 4-15).

⑰ MIXER Button
This button is used for setting the volume, selecting the output jack, setting the depth of effects, etc. for each Instrument (☞ P. 4-10).

⑱ Display
The display shows the current status of the R-70 and the current setting of each parameter.

⑲ Ten Key Pad
Use this pad for changing parameter values and for naming Songs and Rhythm Patterns.

⑳ Value Keys
Use these keys to change parameter values.

㉑ CURSOR Buttons
Use these buttons to move the cursor in the display or to change screens.

㉒ TEMP ASGN (Temporary Assign) Button
Press this button to assign the currently selected Instrument in the Display to all the Key Pads and the Positional Pad (☞ P. 6-8).

㉓ INST LIST (Instrument List) Button
Press this button to show the list of Instruments used in the currently selected Rhythm Pattern in the Display(☞ P. 6-9).

㉔ NO/EXIT Button
Press this button to leave/cancel the current mode/operation, or when you have completed the necessary setting.

㉕ YES Button
Press this button to execute the operation shown in the display.

㉖ PAD BANK Button
Use this button to change Pad Banks.

㉗ ERASE Button
Use this button to erase performance data (☞ P. 1-7, P. 1-23).

㉘ MULTI Button
This button is used for assigning the same Instrument sound to all 16 Key Pads (of a certain Pad Bank). This may be useful for playing different pitches of the same Instrument sound (☞ P. 5-6).

㉙ ROLL Button
Use this button to set or enter a Roll (☞ P. 1-9).

㉚ FLAM Button
This button is used for setting or entering a Flam (☞ P. 1-10).

㉛ SHIFT Button
Use this button to select a Shift Function (enclosed by a box on the panel). Hold this button down and select the function you wish to use (☞ P. 19).

㉜ TEMPO Button
This button changes the tempo of a Rhythm Pattern during playback (☞ P. 1-5).

㉝ EDIT Button
Use this button to edit the Sequence Parameters of Sounds in the Rhythm Patterns in realtime (Realtime Edit) (☞ P. 1-54).

㉞ REC (Record) Button
This button is used for recording Rhythm Patterns in 'Realtime' or by the 'Step' method (☞ P. 1-3).

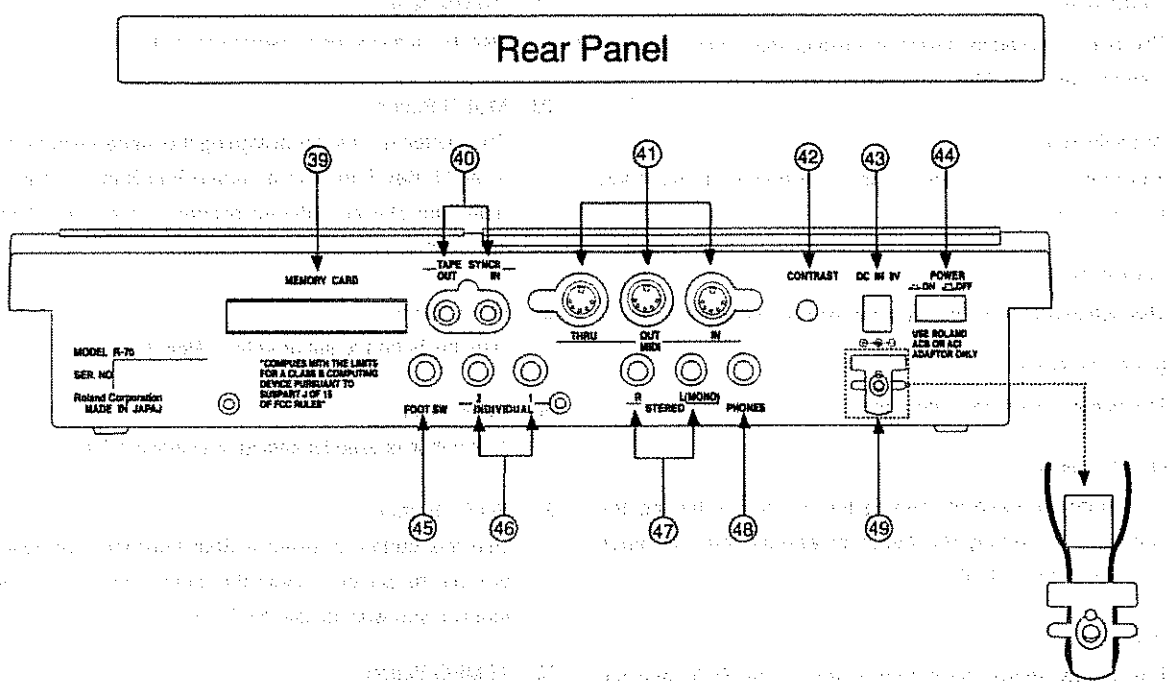
㉟ BWD / FWD (Backward/Forward) Buttons
This button is used for the measure of Rhythm Pattern goes on or return.
When you are entering notes in Step Recording, use these buttons to move from one step to another, or move to a different measure (☞ P. 1-29). The buttons can also be used to locate 'Marks' (position markers in a Song) (☞ P. 2-16).

㊱ START/STOP Button
Press this button to start or stop playback of a Rhythm Pattern or Song (☞ P. 1-29).

㊲ Key Pads 1 - 16
Hit the pad that corresponds to the Instrument you wish to hear. These pads are also used for entering notes in Step Recording (☞ P. 1-19).

㊳ POSITIONAL PAD
The tone or pitch of the Instrument assigned to this pad will change as the pad is hit in different places (☞ P. 5-12).

■ PANEL DESCRIPTION



(39) MEMORY CARD Slot

Insert a memory card (M-256E : optional) into this slot (☞ P. 6-3).

(40) TAPE SYNC II IN / OUT Jacks

These jacks are used for synchronizing to a multi-track recorder (☞ P. 8-6).

(41) MIDI Connectors

These are the sockets where external MIDI devices are connected (☞ P. 7-32).

(42) CONTRAST

This knob adjusts the contrast of the display.

(43) AC Adaptor Jack

Connect the supplied AC adaptor to this jack.

(44) POWER Switch

This switch turns the unit ON and OFF.

(45) FOOT SW (Foot Switch) Jack

Connect a footswitch to this jack. You can use the footswitch for starting/stopping playback etc (☞ P. 6-11). Use a footswitch that is active only while depress.

(46) INDIVIDUAL 1 / 2 Output Jacks

Individual instruments can be output through these jacks (☞ P. 4-11).

(47) STEREO L(MONO) / R Output Jacks

These jacks are for stereo output. For mono output, use only the L (MONO) jack (☞ P. 4-11).

(48) PHONES Jack

Connect stereo headphones to this jack. Use headphones of 8 - 150 ohms. Even when headphones are connected, sound will be output through the output jacks.

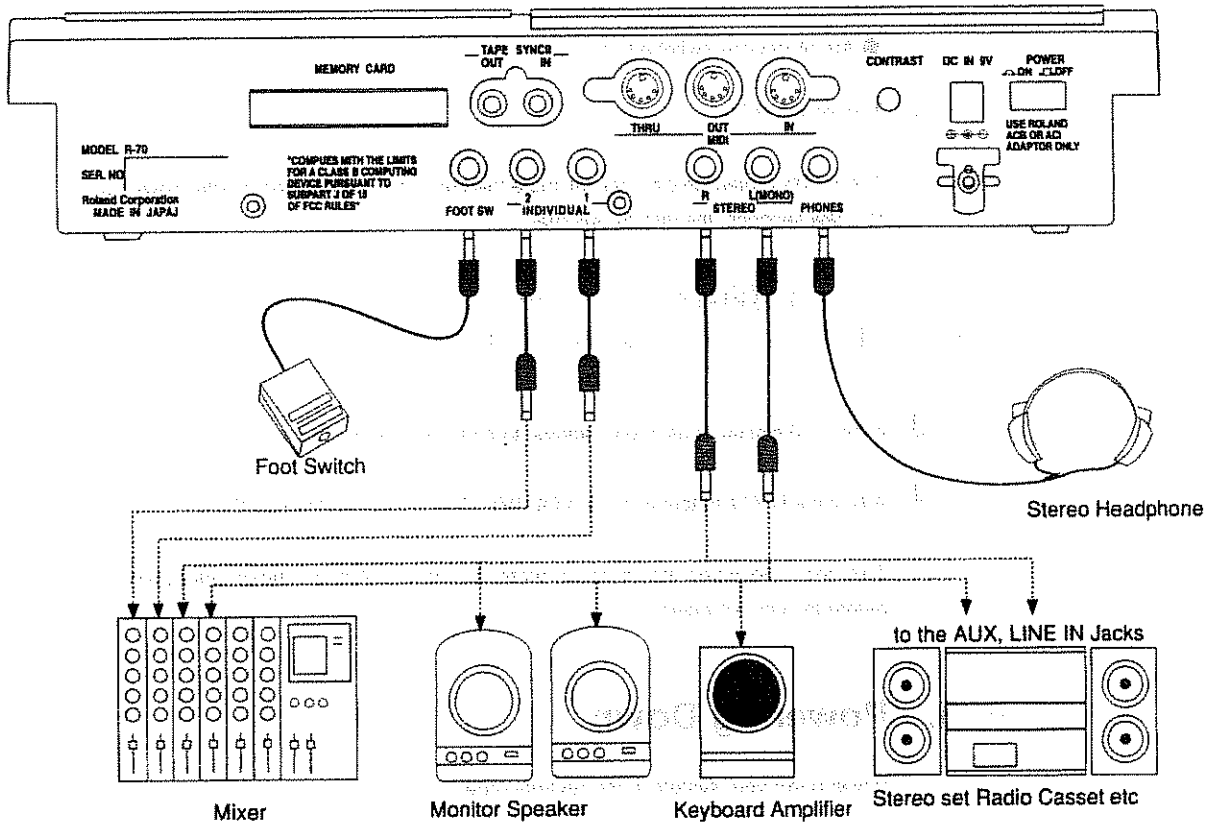
(49) Cord Hook

Loop the AC adaptor cord around this hook to prevent accidental disconnection.

PREPARATION

1. Connections

Be sure that all the units are switched off before making any connections. This will help prevent malfunction or damage.



For the best result, use a stereo output (if possible).

* The R-70 has been set at the factory so that no sound is output through the INDIVIDUAL Output Jacks.

* An Instrument assigned to an Individual Out will not be heard unless a cable is connected to that Individual Out (☞P. 4-11).

* Refer to "Setup With External MIDI Device" (☞ P.7-32) for a detailed explanation about a setup using the MIDI Connectors.

* Refer to "Sync ronizing to an MTR" (☞ P. 8-6) for a detailed explanation about using the TAPE SYNC Jacks.

* Use a footswitch that is active only while depressed.

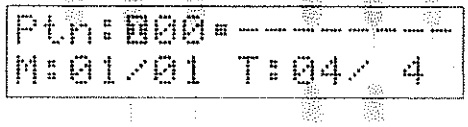
2. Powering Up

① Check the following:

- Are all devices connected correctly and securely ?
- Are all devices switched off ?

② Turn on the R-70.

* The R-70's protection circuitry will mute the output for a few seconds after power up. In a few seconds, the display will read:



③ If the R-70 display is as shown above, turn on the other equipment.

④ Adjust the R-70's output with the VOLUME slider as you hit the Key Pads.

This unit is equipped with a circuit protection device. A brief interval after power up is required before the unit will operate.

3. Powering Down

Power down your system in the reverse order:

① Lower the volume on the playback equipment and the R-70.

② Switch off the playback equipment.

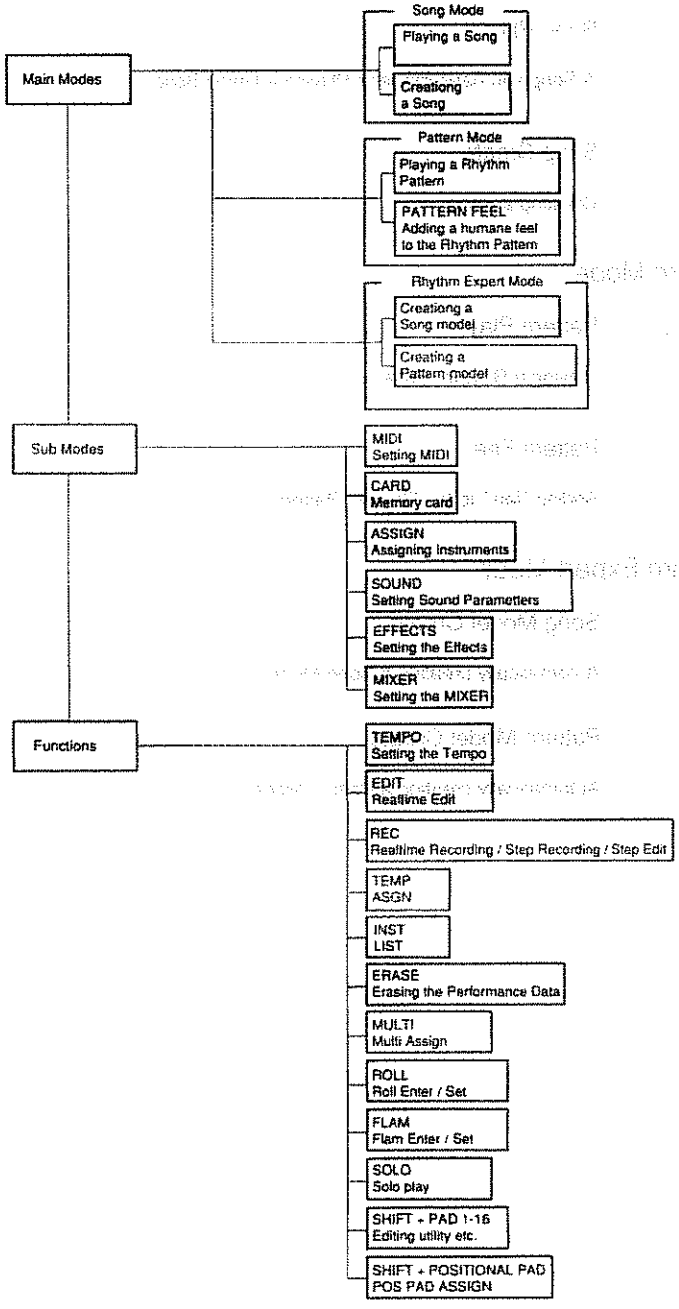
③ Switch off the R-70.

* Do not switch off the R-70 in the following cases; during playing (in the Recording mode), editing (at the Edit function), and saving or loading to the memory card.

BASIC STRUCTURE OF THE R-70

1. Mode Structure

The R-70 features various functions that allow you to edit the Instruments (rhythm voices) and create Rhythm Patterns and Songs. These functions are divided into three groups; Main Modes (basic status of the R-70), Sub Modes and Functions.



When R-70 playing, one of Main Modes is always selected. Sub Modes and Functions can be selected with corresponded button when Main Mode is selected.

2. Mode Description

Main Modes

○ Song Mode

◇ Song Play :

A Song you have made or Playing a Demo Song.

◇ Song Create :

Creating a Song.

○ Pattern Mode

◇ Pattern Play :

Playing a Rhythm Pattern

◇ Pattern Feel :

Adding "feel" to the Rhythm Pattern.

○ Rhythm Expert Mode

◇ Song Model Create :

Automatically creating a Song Model

◇ Pattern Model Create :

Automatically creating a Pattern Model.

Sub Modes

◇ MIDI :

Setting MIDI Parameters.

◇ CARD :

Saving or loading data onto or from a memory card.

◇ ASSIGN :

Assigning Instruments to the Key Pads.

◇ SOUND :

Setting the Sound Parameters for each Instrument.

◇ EFFECTS :

Setting the Effects (Reverb, Delay, Chorus, Flanger).

◇ MIXER :

Setting the volume, output jacks to be used, and depth of the effects for each Instrument.

Functions

◇ TEMPO :

Setting the tempo.

◇ EDIT :

Editing Sequence Parameters in the Rhythm Pattern (Realtime Edit)

◇ REC :

Creating a Rhythm Pattern (Realtime Recording, Step Recording / Step Edit).

◇ TEMP ASGN :

Assigning the currently selected Instrument to all the Key Pads temporarily.

◇ INST LIST :

Showing the list of Instruments used in the currently selected pattern.

◇ ERASE :

Erasing the performance data.

◇ MULITI :

Assigning the same Instrument to all 16 Key Pads.

◇ ROLL :

Setting or Entering a Roll.

◇ FLAM :

Setting or entering a Flam.

◇ SOLO :

Playing only one selected Instrument.

◇ SHIFT + PAD 1-16 :

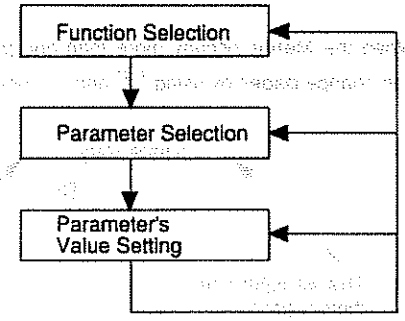
Editing utility for Songs or Rhythm Pattern, etc.

◇ SHIFT + POSITIONAL PAD :

Setting the Positional Pad parameters.

3. Basic Operation

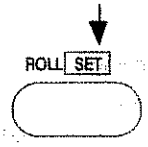
The following explains the R-70's basic operational procedures. It is important to understand the basics before going on to use more advanced features.



a. Selecting a Function

① Press the button that corresponds to the function you wish to use. To use a function which is shown on the panel as a name enclosed within a box, press the relevant button while holding SHIFT down.

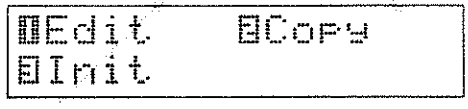
(Example)



When you press a certain button, the Menu Display appears. The Menu Display shows various functions.

(Example)

Menu Display of SOUND

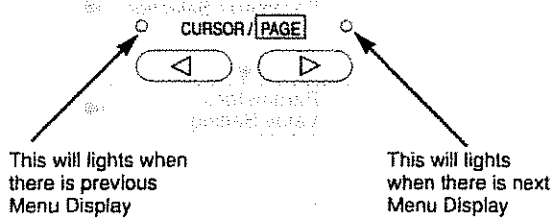


If you press a button that is equipped with a red indicator, the indicator will be lit while the relevant function is selected. Pressing the same button again will recall the previous display (and the indicator will go out).

② Press Ten key to select a function that you wish to use.

You can also select a function another way. Using ◁ and ▷ , move the cursor to the Menu Number you wish to use, and then press YES .
If you wish to select the relevant menu, press NO/EXIT .

* When the Menus occupy more than one page, the corresponding indicator will be lit, and you can change pages by using ◁ and ▷ or using ◁ and ▷ while holding SHIFT down.

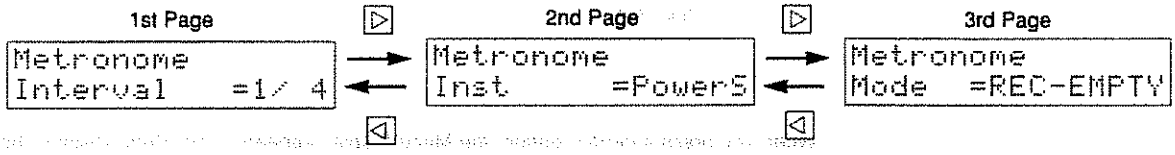


b. Selecting a Parameter

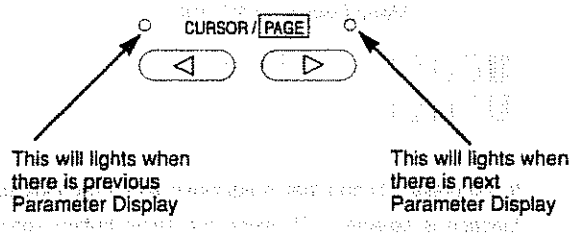
① Select the Parameter you wish to edit using ◁ and ▷ .

When the Parameters are displayed over a few pages, change pages using ◁ and ▷ Select the desired Parameter with the same buttons.

(Example) Metronome Display

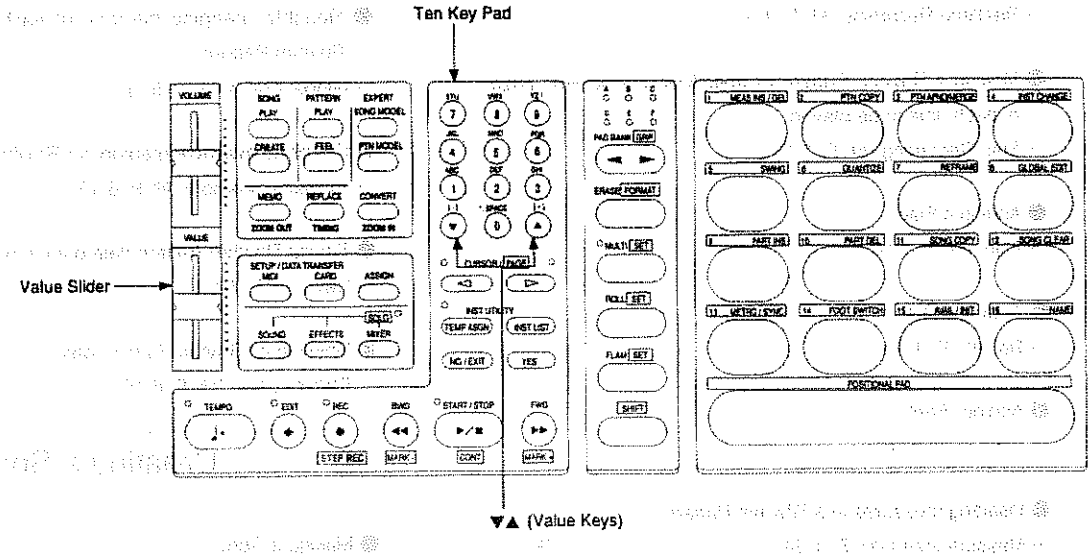


* When the Parameter occupy more than one page, the corresponding indicator will be lit, and you can change pages by using ◁ and ▷ or using ◁ and ▷ while holding SHIFT down.



c. Changing Parameter Values

There are three methods for changing parameter values;



◇ [▼], [▲] (Value Keys)

Use these keys for setting the Parameter value. Additionally, a more rapid change in the value is obtained if you hold down [▼] (or [▲]) while you press [▲] ([▼]).

◇ Ten Key Pad

Use these keys for setting numerical Parameter values. These keys can also be used to enter characters in Mark setting (☞ P. 2-10), Pattern naming (☞ P. 1-46) and Song naming (☞ P. 2-25).

* Pressing a key will select (in order) the characters printed on it. To select a lower case letter, press the key while holding [SHIFT] down.

◇ VALUE Slider

Use this slider to change values drastically.

Topical Index

Creating a Rhythm Pattern

Creating a Song

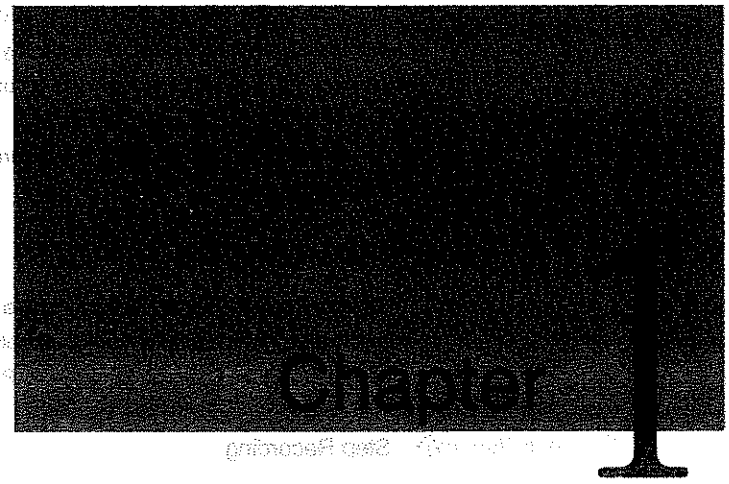
Playing a Song

Rhythm Expert Function

Editing an Instrument

MIDI

SYNC



Rhythm Patterns

1. Creating Rhythm Patterns

The R-70 allows you to create up to 100 different Rhythm Patterns of up to 99 measures each. The R-70's memory can store approximately 3700 notes.

If you make Rhythm Patterns with a lot of notes or measures, the memory may become full well before you have created 100 patterns. If you wish to know how many more Rhythm Patterns can be created, check how much memory is left using the Available Memory function (☞ P. 6-13).

There are two different ways for recording Rhythm Patterns; Realtime Recording and Step Recording.

◇ Realtime Recording

Realtime recording allows you to make a Rhythm Pattern by playing the Key Pads in time to the metronome clicks. Even if you do not play the Key Pads in exactly the correct timing, it can be corrected with the Quantize function (☞ P. 1-6).

◇ Step Recording

Step recording allows you to enter Instrument sounds one by one, on exactly the desired step of the measure. Even if you are not so good at playing the Key Pads, you can create accurate Rhythm Patterns in this way.

It is possible to create a Rhythm Pattern using both the Realtime and Step Recording methods. For instance, you could make the basic pattern with Step Recording, then add some more sounds in Realtime. Or, you might make a Rhythm Pattern in Realtime, and then edit it with the Step Recording technique.

1. Realtime Recording

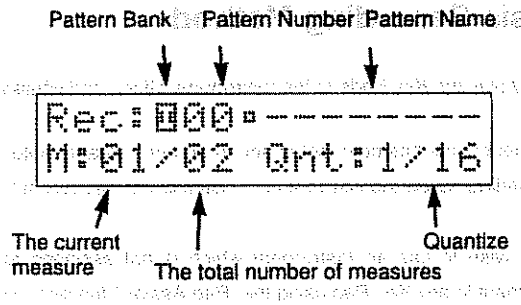
a. Basic Recording Method

Simply play the Key Pads to the metronome clicks, and whatever you play will be recorded.

* The metronome has been set to sound on every quarter note. If you wish to change the tone or the note setting, follow the instructions in "Setting the Metronome". (☞ P. 1-2)

* If you wish to use an Instrument which is not assigned to any Pad Bank, assign the desired Instrument to any Key Pad using the "Pad Assign" function (☞ P. 5-2).

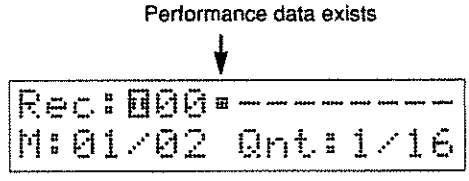
① Press [REC] to select the Realtime Recording mode.



② With the CURSOR buttons ([◁] and [▷]) select the Pattern Number setting. Specify a Pattern Number with [▼] and [▲].

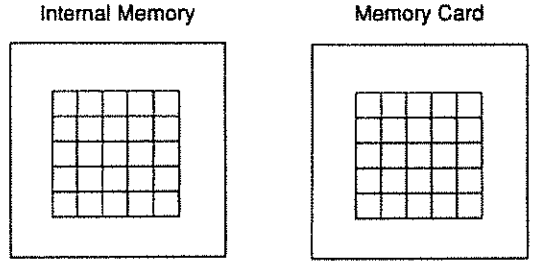
* While the R-70 is playing, you cannot select a Rhythm Pattern.

* If the Rhythm Pattern you have selected contains any performance data, the Display will respond as shown below.



To change the number of measures or time signature, or to erase the performance data to create a pattern from scratch, follow the instructions in "c. Formatting a Rhythm Pattern" (☞ P. 1-8).

* You can select a Rhythm Pattern directly from a memory card (M-256E : optional). If you wish to select a Rhythm Pattern in the R-70, set the Pattern Bank to "I" (Internal). To select a pattern on a memory card, select "C" (Card).

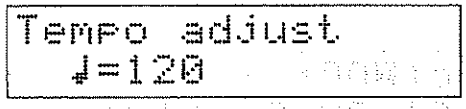


See "Memory Card" (☞ P. 6-2) for a detailed explanation about using memory cards.

③ Move the cursor to the "Qnt" position using ◁ and ▷.
Set the Quantize (☞ P. 1-6) function with ▼ and ▲.
(Available settings : 1/8, 1/12, 1/16, 1/24. 1/32, 1/48. HIGH (1/384)

④ Press START/STOP to start recording.

⑤ Press TEMPO and set the tempo (40 - 250bpm) of the metronome using ▼ and ▲.



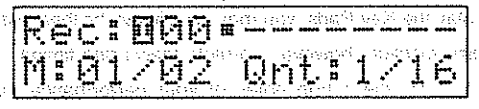
Increasing the number will quicken the tempo.

* In the tempo setting mode, you can practice playing the Pads; what you play will not yet be recorded.

⑥ When you have adjusted the tempo, press TEMPO again to return to the Realtime Recording mode.

⑦ Play the Key Pads in time to the metronome clicks. You may change Pad Banks if necessary.

Appears when a note is entered



The entered sounds will be played repeatedly. While they are being played, you can add more sounds by playing the Key Pads.

⑧ Press START/STOP to stop playing.

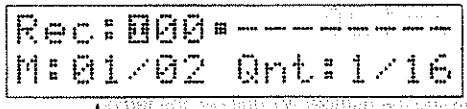
⑨ Press REC to exit the recording mode.

* It is also possible to record what an external MIDI device is playing. See page 7-32 .

Reference

When you create a Rhythm Pattern that is made of more than one measure, you can start playback from any of the measures. Follow the procedure in step ④.

① Move the cursor to the Measure Number position with ◁ and ▷, then specify the measure number with ▼ and ▲.



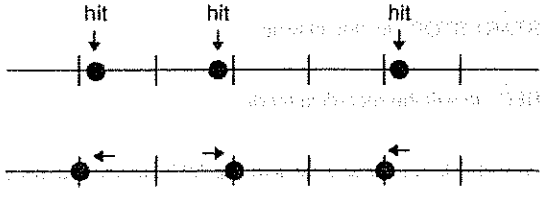
Measure Number

② Press START/STOP while holding SHIFT down.

* The measure number can also be set using BWD / FWD without having to move the cursor to the Measure Number position.

○ Quantize

When you play the Key Pads, you may not always hit them with precisely the correct timing. The R-70's Quantize function, however, corrects inaccurate timing. For example, if you set the quantize resolution to 1/16, the 1/16th notes of your performance would automatically be placed on the appropriate 1/16th note division in the measure. Usually you set the resolution to the shortest note in the performance you enter. If it is to "HIGH (384th note), your performance will be unaffected.



Timing of Key Pad hitting

The timing actually entered into the Rhythm Pattern
(Corrected to the accurate timing.)

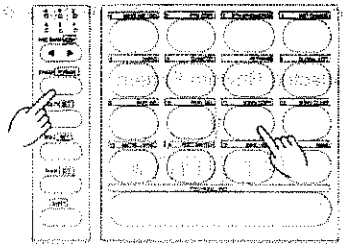
b. Erasing the sound you have entered

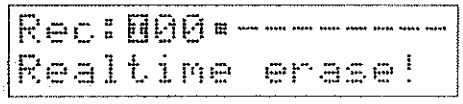
When you have entered wrong sounds into a Rhythm Pattern, you can delete those sounds and then re-enter the correct ones.

○ Erasing sounds while playing the Key Pads

While recording in Realtime;

① While holding [ERASE] down, keep pressing the Key Pad that corresponds to the Instrument you wish to erase.





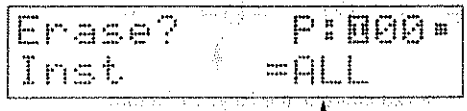
Note that sounds are erased only while the Key Pad is held down.

* If you happen to press more than one Key Pad at the same time, only the Instrument of the Key Pad you press last will be erased.

○ Erasing sounds without playing the Key Pads

Press [START/STOP] to stop playing. Then...

① Press [ERASE].



Instrument to be erased

② Select the Instrument (in the display) to be erased using [▼] and [▲] or the Key Pads. To erase the entire pattern, skip over this procedure.

③ Press [YES].
The Display responds with " Are you sure ? "

④ Press [YES] again.

The Display responds with "Completed" and the Instrument you have selected is erased.

* If you wish to cancel erasing, press [NO / EXIT] instend of [YES].

c. Formatting a Rhythm Pattern

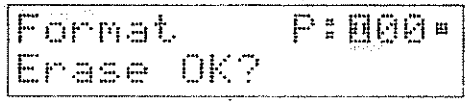
If you wish to make a Rhythm Pattern from scratch, first erase the performance data written into the relevant Pattern. Reprogram the number of measures or time signature as required. (This is called 'formatting'.)

* Note that formatting an existing Rhythm Pattern will automatically erase the data in that Rhythm Pattern.

① Press [ERASE] ([FORMAT]) while holding [SHIFT] down.

When any performance data exists in the Rhythm Pattern, the Display will read:

Selected Rhythm Pattern

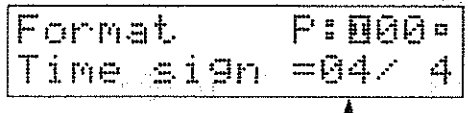


When no performance data exists in the Rhythm Pattern, step ② will be skipped.

* If you wish to cancel the operation, press [NO/EXIT] instead of [YES].

② Press [YES].

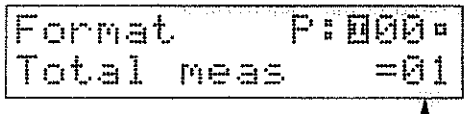
The existing performance data is erased and you can set the time signature and number of measures.



Time Signature of the Rhythm Pattern

③ Set the timing (time signature) of the Rhythm Pattern with [▼] and [▲] . (Available options : 1/4 - 8/4, 1/6 - 12/6, 1/8 - 16/8, 1/12 - 24/12, 1/16 - 32/16)

④ Press [◁] and [▷] to select the Measure Number setting Display (as shown below). Set the number of measures to be used for the Rhythm Pattern using [▼] and [▲].



Number of measures used for the Rhythm Pattern

⑤ Press NO/EXIT .

When the Rhythm Pattern has been formatted, it is set as follows:

Pattern Name :	--------
Tempo Switch :	OFF
Pattern Tempo :	120
Swing Note :	1/16
Swing Delay :	0
Flam Interval :	15
Flam Ratio :	1/2

d. Realtime Recording Functions

○ Roll

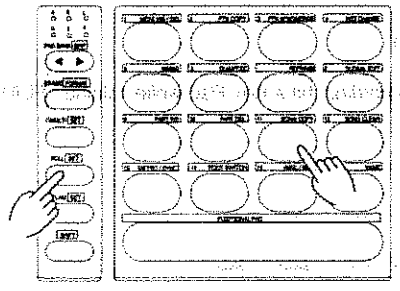
Using the Roll Button, a Roll can be entered with one press of a Pad.

What is a Roll?

A Roll is a performance technique which involves playing a series of very fast notes.

◇ Entering a Roll

① During Realtime recording, hold ROLL down and press and hold a Key Pad.



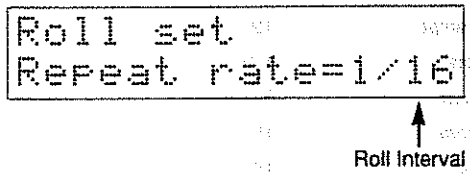
While you are pressing the Key Pad, the Roll effect is entered. If you change the pressure on the Key Pad, the volume of the sound will change.

* For successful quantization, be sure to set the Quantize resolution (☞ P. 1-6) to the same value as the Roll interval.

◇ Setting the Roll parameters

You can change the interval of the Roll.

① Press [ROLL] while holding [SHIFT] down.



② Set the interval of the Roll with [▼] and [▲].
(Available options : 1/4, 1/6, 1/8, 1/12, 1/16, 1/24, 1/32, 1/48, 1/64, 1/96)

③ Press [NO/EXIT].

○ Flam

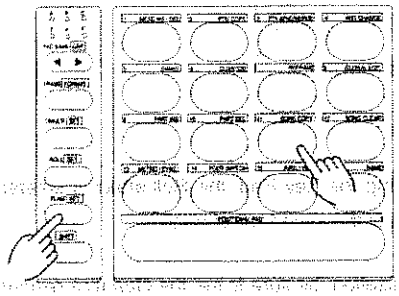
Using the Flam Button, you can enter a Flam with one press of a Pad.

What is a Flam?

A Flam is a performance technique which involves playing a grace note (a softer note) immediately before the main note.

◇ Entering a Flam

① During Realtime recording, hit a Key Pad while holding [FLAM] down.



The Flam will be entered when you hit the Pad.

◇ Setting the Flam parameters

The Flam function allows you to set the interval between the two Flam sounds, and the volume of each two note.

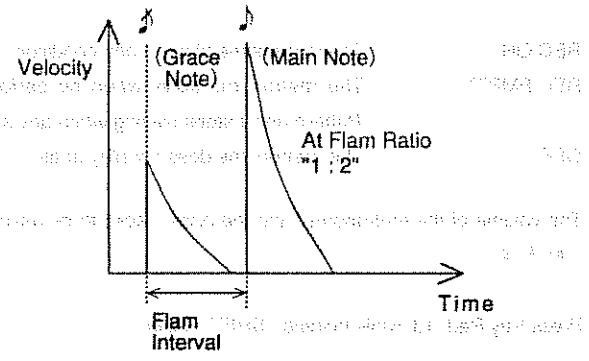
◇ Flam Interval (0 - 31)

You can set the interval between the two Flam sounds.

* If you set to "0", grace note won't sound.

◇ Flam Ratio (1/1, 1/2, 1/4, 1/8, 1/16, 1/32)

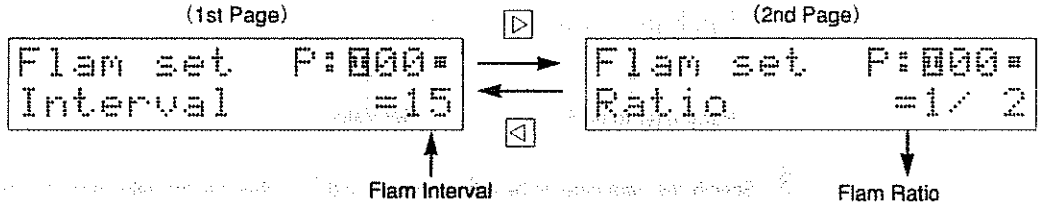
You can set the velocity ratio between the first and second sounds.



① In the Realtime recording mode, select the Pattern Number which you wish to edit.

* You can select the Pattern number in other mode, see page 1-33.

② Press [FLAM] while holding [SHIFT] down.



③ Move the cursor to select the relevant parameter with [◁] and [▷] , then set the value with [▼] and [▲].

④ Press [NO/EXIT].

e. Metronome Function

The R-70 allows you to determine how the Metronome should sound during Realtime recording.

◇ Interval

You can set the note type.
(Available settings : 1/4(♩), 1/6(♩♩♩), 1/8(♪), 1/12(♪♪♪), 1/16(𝅘𝅥𝅯))

◇ Instrument

You can select any of the R-70's Instrument sounds for the metronome.

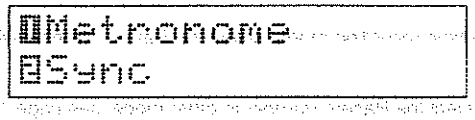
◇ Mode

You can select how the metronome should be played.

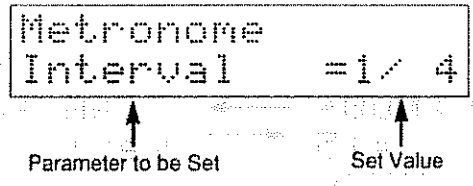
REC ON	:	The metronome plays in any condition.
REC EMPTY	:	The metronome plays when no performance data exists in the Rhythm Pattern and it stops playing when any sound is entered.
OFF	:	The metronome does not play at all.

* The volume of the metronome, and the output jacks to be used, can be set with the Mixer Function (☞ P. 4-11).

① Press Key Pad [13] while holding [SHIFT] down.



② Press Ten Key pad [1] to select "Metronome" Display.

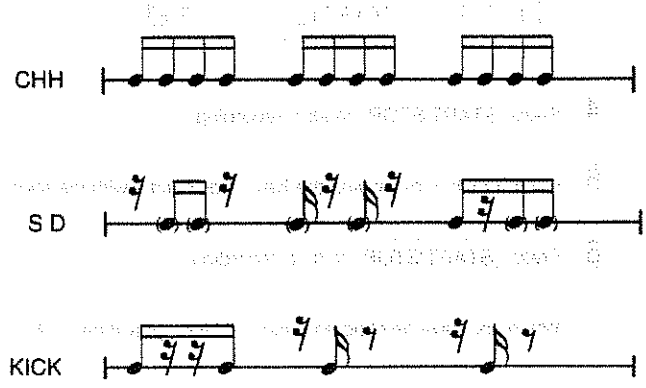


③ Specify the parameter to be edited with [◁] and [▷], then set the value with [▼] and [▲].

④ Press [NO/EXIT].

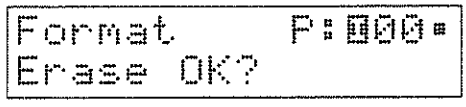
f. Example for Realtime Recording

The following shows how to actually create a Rhythm Pattern. We'll create a Rhythm Pattern in triple time according to the example below.

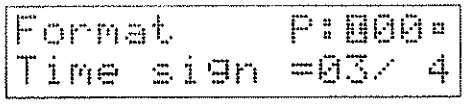


* The notes enclosed within parentheses are 'ghost notes' (very soft grace notes).

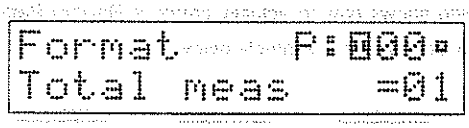
① Press [ERASE] while holding [SHIFT] down, then press [YES] . (This is the procedure for formatting.)



② Move the cursor with [◁] and [▷] , then set the time signature to 03/4.



③ Look for the other pages using ◁ and ▷ . Make sure that the number of measures is set to "1".



④ Press START/STOP to start recording.

⑤ Enter a rhythm by playing the Key Pads in time with the Metronome.

⑥ Press START/STOP to stop recording.

When you have finished entering a rhythm, play it back (☞ P. 1-29).

What is a Ghost Note?

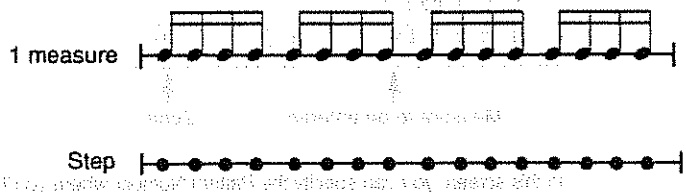
A ghost note is a very soft grace note. Even if they are not shown on a score, you can enter ghost notes to create the impression of several instruments playing together. The use of ghost notes can enhance your Rhythm Patterns.

2. STEP RECORDING

You can make each Rhythm Pattern by Step Recording method.

a. About Step Recording

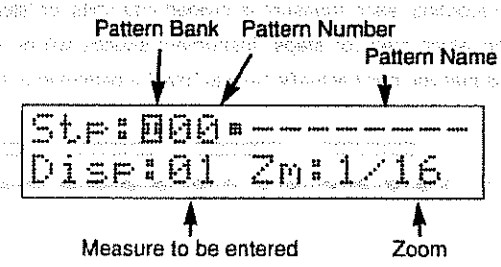
In Step recording, each measure is divided into units, or 'steps'. You create a Rhythm Pattern by specifying which step (or steps) Instrument sounds will be place on. The big advantage of this method is that you don't actually have to "play" a pattern in order to create it!



○ Structure of Step Recording

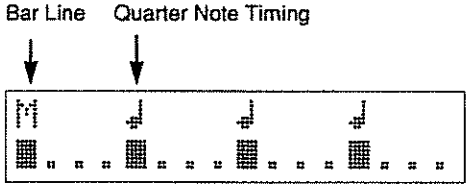
The Step Recording mode includes the following three Displays. To change Displays, use ◁ and ▷.

◇ Basic Display



In this screen, you can specify the Pattern Number where you'll enter a Rhythm Pattern, Zoom function status and the number of measures in the pattern (if it consists of more than one measure).

◇ Recording Display



The screen shows up to 16 steps. You can see where you have entered Instrument sounds (and the velocity of each sound) in a graphic indication. On the upper line of the Display, bar lines and quarter note positions are shown.

If you wish to decrease the length of a step by increasing the Zoom value, or make a Rhythm Pattern with odd time Signature, or have more than one measure in the pattern, use BWD and FWD to select the Displays.

To make a Rhythm Pattern for previous measure

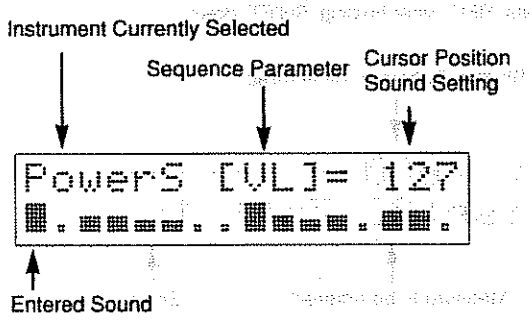
To make a Rhythm Pattern for next measure

◀◀ BWD

▶▶ FWD

* If you hold down BWD or FWD , you can obtain a continuous change of the flashing point. Additionally, a more rapid change of the flashing point can be obtained if you hold down BWD (FWD) while you press FWD (BWD).

◇ Editing Display

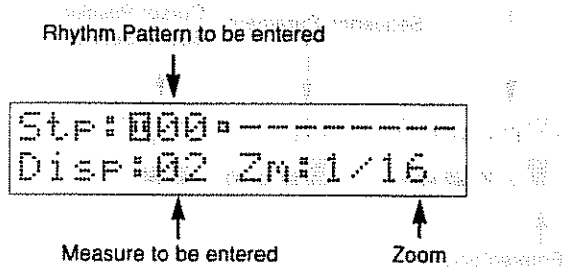


This screen allows you to edit the tone (Sequence parameters : ☞ P. 1-52) of each note entered in a Rhythm Pattern. You can also create a Rhythm Pattern using the same procedure (except entering or deleting by Value Slider) as in the Recording Display.

* Regarding the operation of this screen, refer to "Step Edit" (☞ P. 1-57).

b. Basic Step Recording

① Press [REC] while holding [SHIFT] down.



② Move the cursor with [◁] and [▷], then specify the Pattern Bank and Pattern Number with [▼] and [▲].

* You cannot change Pattern Numbers while the R-70 is playing.

* If the Pattern Number you have selected contains unwanted performance data, delete it using "c. Formatting a Rhythm Pattern" (☞ P. 1-8).

* It is also possible to make a Rhythm Pattern on an optional memory card (M-256E). For a detailed explanation, refer to "Memory Cards" (☞ P. 6-2).

③ Move the cursor to the "Zm" position with [◁] and [▷].
Select the Zoom value (the length of a step) with [▼] and [▲].
(Available settings : 1/8, 1/12, 1/16, 1/24, 1/32, 1/48, HIGH)

Zoom	Note for 1 Step	Number of clock in 1 step
1/8	8 th Note (♪)	48
1/12	8 th Note Triplet (♫)	32
1/16	16th Note (𝅘𝅥𝅯)	24
1/24	16th Note Triplet (♬)	16
1/32	32nd Note (𝅘𝅥𝅰)	12
1/48	32nd Note Triplet (♬)	8
HIGH	384th Note	1

1 clock = 384th Note

④ Move to the next screen (Recording Display) with ◁ and ▷.

This screen shows only a part of the Rhythm Pattern. To make a Rhythm Pattern with odd time signature, or of more than one measure, select the Displays using BWD and FWD.

⑤ With the R-70 stopped, select the Instrument to be entered by pressing the relevant Key Pad.

Change the Pad Bank if necessary.

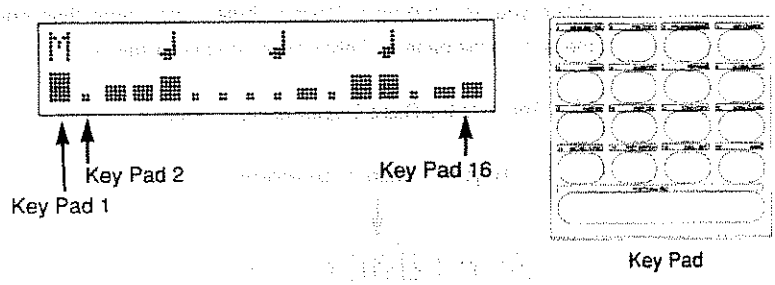
Now you can enter notes using either the Key Pads or the Value Slider.

○ Recording with the Key Pads

⑥ Press START/STOP to start Step recording.

* Now, Key Pads 1 - 16 serve for specifying the steps of the notes to be entered. That is, the Instrument assigned to each Pad is canceled for the time being. Naturally, stopping recording will retrieve the previous status of Instrument assignment.

⑦ Specify the steps where you wish to enter the notes using the relevant Key Pads (1 - 16).



Key Pads 1 - 16 correspond to the steps in the Display (from left to right).

* The strength (velocity) with which you play each Key Pad is also recorded.

* If you wish to enter a Flam, press the Key Pad that corresponds to the step you wish to enter while holding FLAM down.

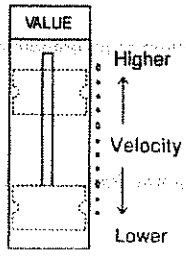
⑧ To continue entering the other Instruments, stop play and repeat steps ⑤-⑦

○ Recording with the Value Slider

⑥ Press START/STOP to start Step recording.

⑦ Move to the step where you wish to enter a note using BWD and FWD. Enter the velocity with the Value Slider.

* If you move the Value Slider upward, the velocity will become higher.



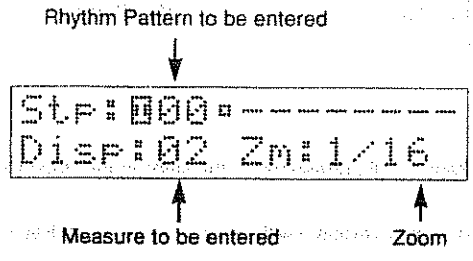
⑧ To continue to enter the other Instruments, stop the R-70 and repeat steps ⑤-⑦.

⑨ Press NO/EXIT.

Reference

When you are making a Rhythm Pattern with more than one measure, you can jump to any measure in the pattern. Follow the procedure in step ④.

① Return to the Basic Display using ◁ and ▷.



② Move the cursor to the Measure Number position with ◁ and ▷, then specify the measure number with ▼ and ▲.

③ If you wish to start playing from the specified measure, press START/STOP while holding SHIFT down.

c. Changing the Zoom setting to enter smaller notes

In the middle of making a Rhythm Pattern, it may happen that you wish to enter a note smaller than the note value set with the Zoom function (☞ P. 1-16). For instance, you set Zoom to 1/16 (a 16th note) before you started entering notes, but now you wish to enter a 32th note. If so, the Zoom function is helpful.

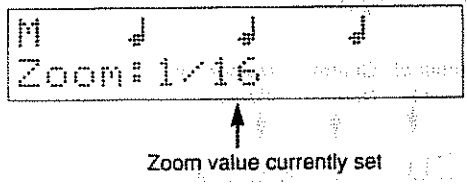
○ About the Zoom Function

The Zoom parameter determines the length of one step. You can set Zoom depending on the Rhythm Pattern to be created. (Value options : 1/8, 1/12, 1/16, 1/24, 1/32, 1/48, HIGH (1/384)

Zoom	Note for 1 Step	Number of clock in 1 step
1/8	8 th Note (♪)	48
1/12	8 th Note Triplet (♫)	32
1/16	16th Note (𝅘𝅥𝅯)	24
1/24	16th Note Triplet (♬)	16
1/32	32nd Note (𝅘𝅥𝅰)	12
1/48	32nd Note Triplet (♬)	8
HIGH	384th Note	1

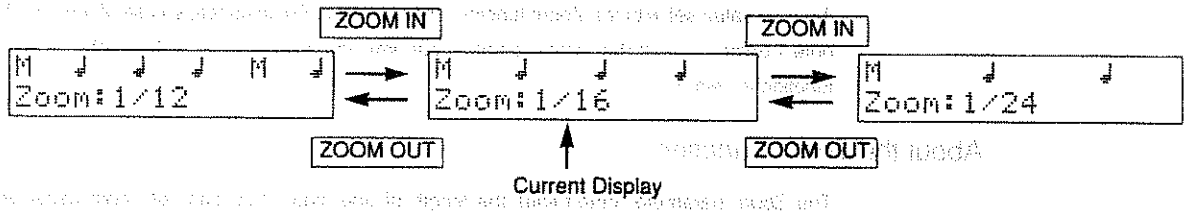
1 clock = 384th Note

① Select the Recording or Editing Display and then press ZOOM IN and ZOOM OUT . The Zoom value is altered and momentarily displayed.



Zoom value currently set

When you change the Zoom values using ZOOM IN and ZOOM OUT, the position of the step that flashes in the Display does not move since it is the basic step.



As you increase the Zoom value, the Display shows only a part of the Rhythm Pattern. To select a step that is not shown in the Display, move to the relevant step using BWD and FWD.

○ Meaning of the indication

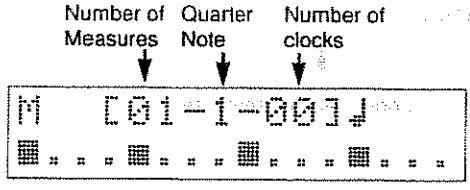
When you zoom in or out, the Display will be changed as follows:

Sign	Description	Sounding Pattern in a Step
▦	This is a note at the beginning of the step	
⁘	There is a note in the middle of the step	
⁚	There is no note entered in the step	
blank	Out of the length of the Rhythm Pattern	

○ Indication of the flashing position

You can have the Display show the timing which represents the precise location of the point currently flashing in sequence. (The timing shows how many clocks from the bigining of a Quarter Note and how many quater notes from the beginning of measures of flashing point.)

① To make the Display show the timing for the flashing point, press TIMING (REPLACE) in the Recording or Editing Display.



② Move the flashing point by using BWD and FWD. The Display momentarily shows the timing of the point currently flashing.

③ To return to the previous Display, press TIMING (REPLACE) again.

d. Erasing the notes you have entered

There are two methods for erasing the sounds you have entered in Step recording; using the Key Pads or the Value Slider.

In either method, the R-70 should be playing the Rhythm Pattern.

○ Using the Key Pads:

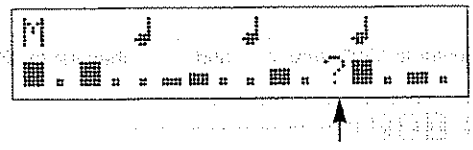
While holding [ERASE] down, press the Key Pad that corresponds to the step you wish to erase.

* This way can be used when Step Edit (☞P. 1-57).

○ Using the Value Slider

Cause the step to be erased to flash by using [BWD] or [FWD] . Move the Value slider to its lowest position.

When the Value Slider is at its lowest position, the note of that step is erased. The Display shows "? ". While this is displayed, you can still recall the Sequence Parameter (☞ P. 1-52) before erasure by raising the slider again. The indication "?" disappears when you move the flashing point, change the indication in the Display, stop to play, or enter the data by using the Key Pads.



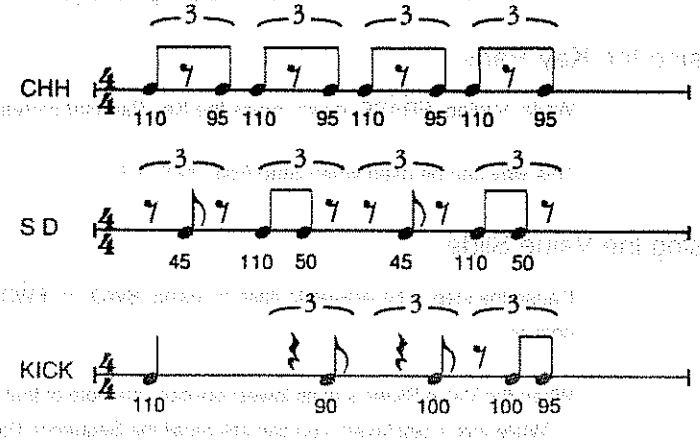
* Even Rhythm Patterns created in Realtime can have steps erased using the above method.

* If you wish to erase all the sounds of one Instrument, follow "Erasing data with the R-70 stopped" (☞ P. 1-7).

e. Example for Step Recording

○ Triplet Rhythm Pattern

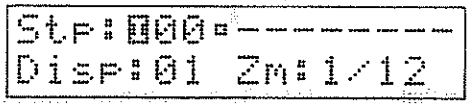
The following explains how to create a Rhythm Pattern of triplets.



* The numeral means the velocity value.

① Press [REC] while holding [SHIFT] to select the Step recording mode.

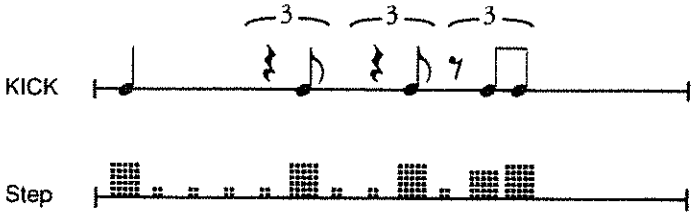
② Move the cursor to "Zm" using [◁] and [▷], then set the Zoom to "1/12" with [▼] and [▲].



③ Select the Recording Display by using [◁] and [▷].

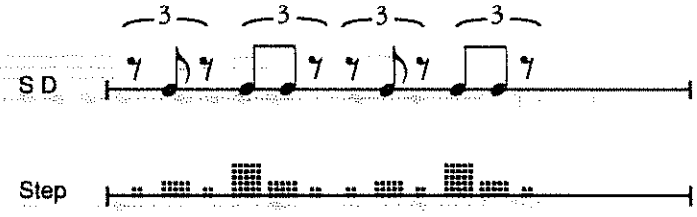
④ With the R-70 stopped, select the Kick drum (by pressing the corresponding Key Pad).

⑤ Start playing and press Key Pads [1], [6], [9], [11] and [12].



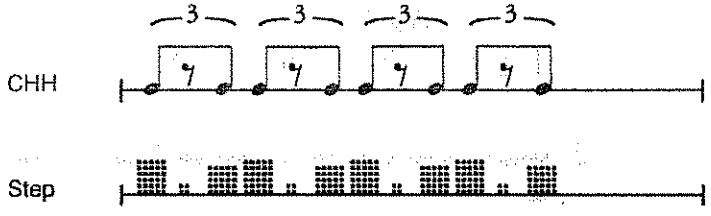
⑥ Stop playing and select the Snare drum (by pressing the corresponding Key Pad).

⑦ Start playing and press Key Pads [2], [4], [5], [8], [10] and [11].



⑧ Stop playing and select the Hi-hat (by pressing the corresponding Key Pad).

⑨ Start playing and press Key Pads [1], [3], [4], [6], [7], [9], [10] and [12].

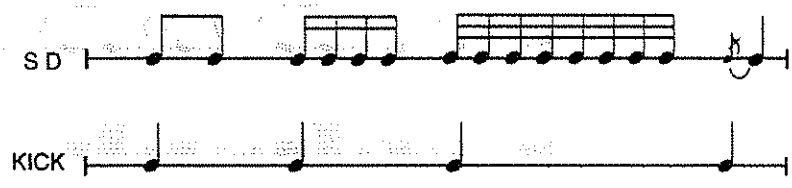


⑩ Stop playing.

* If you wish to set the Velocity as shown in the score, follow "2. Step Editing" (☞ P. 1-57).

○ Entering a smaller note (Using the Zoom Function)

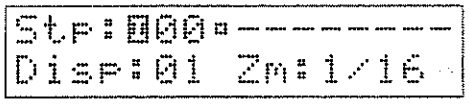
Now, let's create the Rhythm Pattern shown below using the Zoom function.



◇ Entering the Kick Drum

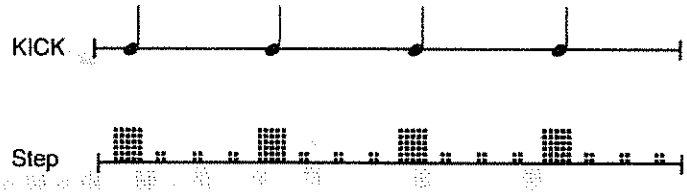
① Select the Step recording mode (Basic Display) by pressing [REC] while holding [SHIFT] down.

② Move the cursor to the "Zm" position with [◁] and [▷], then set the Zoom value to 1/16 with [▼] and [▲].



③ Select the Recording Display using [◁] and [▷].

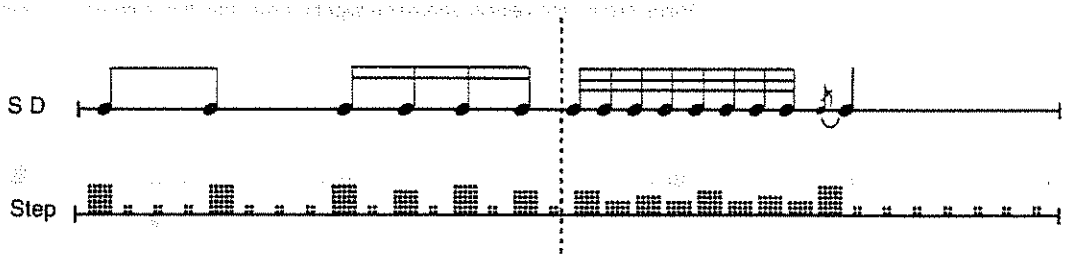
④ Enter the Kick Drum (by hitting the corresponding Key Pad) according to the score.
Refer to "b. Basic Step Recording" (☞ P. 1-18) for details.



◇ Entering the Snare Drum

① Press [ZOOM IN] to set the Zoom value to 1/32.

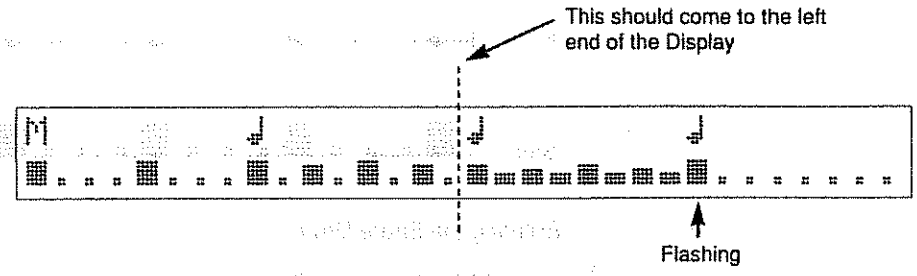
② Enter the Snare Drum (by hitting the corresponding Key Pad) according to the score.
Refer to "b. Basic Step Recording" (☞ P. 1-18) for details.



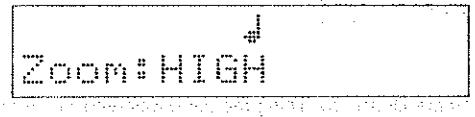
* To see the step not shown in the Display, find the relevant Display with [BWD] or [FWD].

◇ Entering a Flam

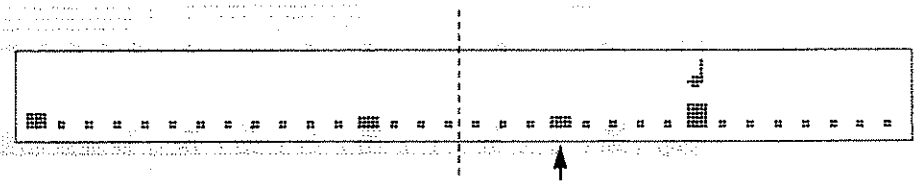
① Move the flashing point using BWD or FWD as follows:



② Set the far left of the Display as shown above. Press ZOOM IN to set the Zoom value to "HIGH".



③ Move the flashing point a little before current position with BWD or FWD. Enter a Flam with the Value slider (the velocity should be slightly lower than that entered in current position).



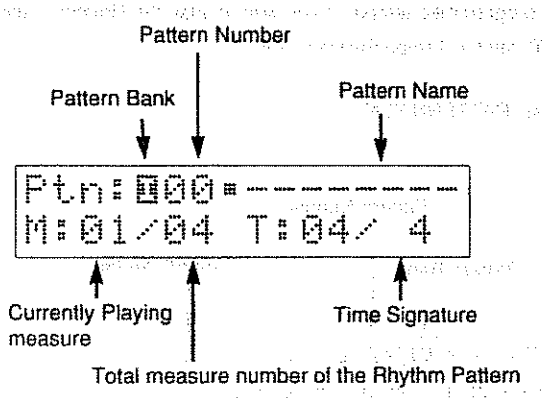
* If you wish to see which timing you are currently working on, press TIMING.

④ When you have finished, press NO/EXIT.

2. PLAYING RHYTHM PATTERNS

Now you can play the Rhythm Patterns you have created.

① Press [PATTERN PLAY].



② Select the Rhythm Pattern you wish to play by specifying the Pattern Bank and Pattern Number.

③ Press [START/STOP] and the selected Rhythm Pattern will be played repeatedly.

④ To play another Rhythm Pattern, repeat step ②

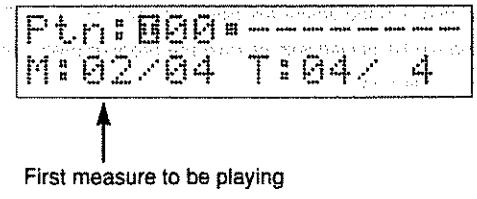
If you select a new Rhythm Pattern while playing another one, the new Pattern will be played from the beginning of the next measure.

⑤ Press [START/STOP] to stop playback.

* If you wish to resume playing from where you stopped, press [START/STOP] while holding [SHIFT] down.

* When you select a Rhythm Pattern containing more than one measure, it is possible to start playback from any measure within the Pattern:

① Simply move the cursor to the "M" position with [◁] and [▷], then specify the measure number with [▼] and [▲].



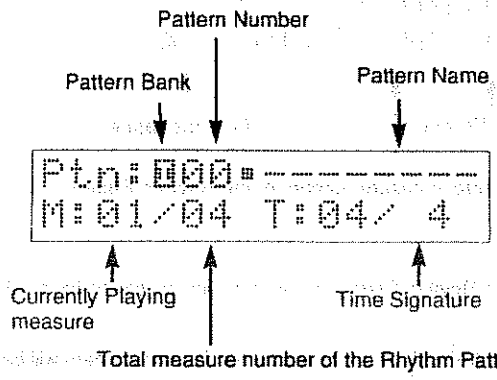
You can also specify the measure number with [BWD] or [FWD] wherever the cursor is.

② Press [START/STOP] while holding [SHIFT] down.

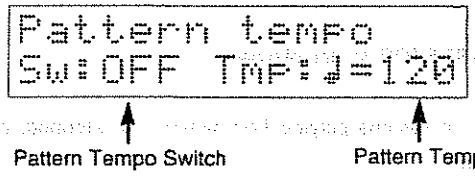
◇ Pattern Tempo (40 - 250bpm)

The R-70 allows you to set the tempo for each Rhythm Pattern. If you select a Rhythm Pattern where the Tempo Switch is set to "ON", the Rhythm Pattern will be automatically played with the pre-programmed tempo. If you wish to play the Rhythm Pattern in the tempo currently used on the R-70, set the Tempo Switch to "OFF".

① Press [PATTERN PLAY]



② Select the Display shown below (Pattern Tempo Setting Display) using [◁] and [▷].



③ Move the cursor to the "Sw:" position with [◁] and [▷], then set the Pattern Tempo Switch to ON or OFF with [▼] and [▲].

④ Move the cursor to the "Tmp:" position with [◁] and [▷], then set the Tempo with [▼] and [▲].

* When you play a Song where the Song Tempo (☞ P. 2-17) is set to "PTN", each Rhythm Pattern in the Song will be played with its own pre-programmed tempo. That is, one Song will be played in many different tempos.

3. Adding "Feel" (Pattern Feel)

The R-70 features a Feel function that adds a human feel to the Rhythm Patterns you have created. When a real person plays the drums, he or she will purposely change the strength of each beat to emphasize rhythms or add accents. You can add such variations to your patterns using the Pattern Feel function.

○ Parameters related to Pattern Feel

◇ Feel Type (4 beat/8 beat/12 beat/16 beat)

```
Feel edit?
Type        =16beat
```

This determines in what 'beat' the Pattern should be grooved. Depending on the beat selected, a different feel will be obtained.

◇ Feel Variations (1 - 8)

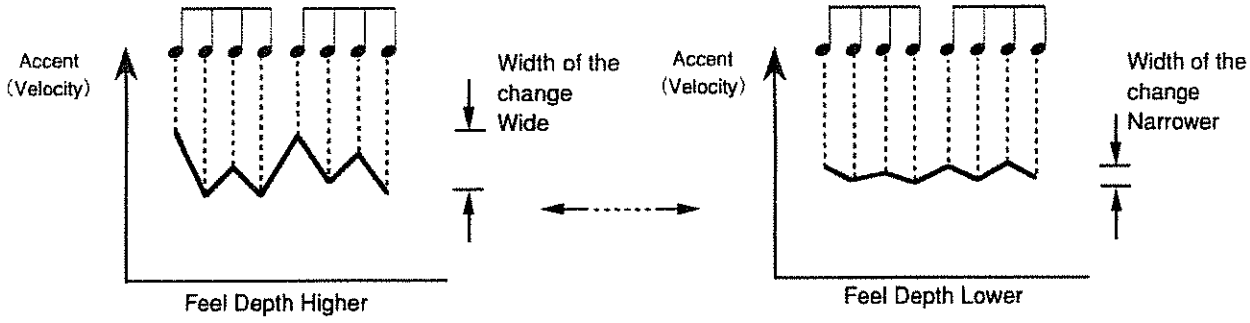
```
Feel edit?
Variation     = 1
```

You can select one of 8 variations.

◇ Feel Depth (1 - 8)

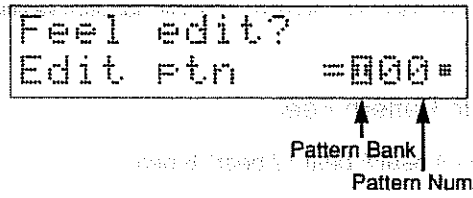
```
Feel edit?
Depth         = 1
```

This sets the depth of the Feel effect.



3. Adding "Feel" (Pattern Feel)

① Press [FEEL].

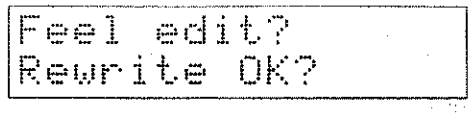


② Move the cursor to the lower left of the Display with [◁] and [▷], then select the Pattern Number where you wish to set the Feel effect.

③ Move the cursor with [◁] and [▷] to select the relevant Display and set the Feel parameters.

④ Press [YES].

The Display shows "Now editing..." and then changes to the following screen.



If you wish to check the Rhythm Pattern, press [START/STOP].

⑤ If you like the Rhythm Pattern, press [YES].

The Rhythm Pattern (with the Feel you have set) will be written into the Pattern Number you have specified.

* If you are not satisfied with the Rhythm Pattern played in step ④, press [NO/EXIT] to return to the Display of step ①. Set the Feel parameters again.

4. Editing Rhythm Patterns

1. Editing Functions for Rhythm Patterns

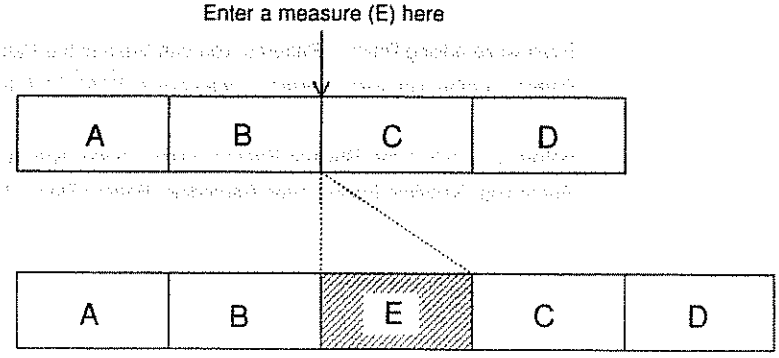
The Rhythm Patterns you have created can be joined (Pattern Append), mixed (Pattern Merge), etc. Using these functions, you can create complex Rhythm Patterns quickly and easily.

* Even while editing Rhythm Patterns, you can listen to the Pattern you want. Move the cursor to the Pattern number you wish to listen to, then press START/STOP.

* Before you select the Rhythm Pattern editing mode, specify the Pattern Number in the Realtime Recording, Realtime Editing, Step Recording, Pattern Play or Pattern Feel Setting Display.

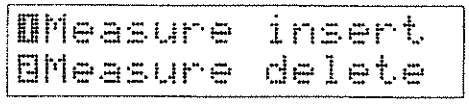
a. Inserting Measures (Measure Insert)

The Measure Insert function allows you to insert blank measures into a Pattern.



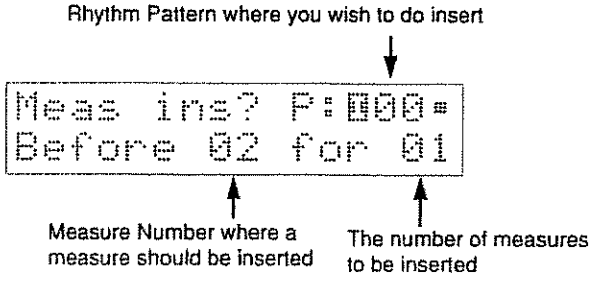
① Select the Pattern Number in which you wish to insert measures.

② Press Key Pad [1] while holding [SHIFT] down.



③ Press Ten Key Pad [1] to select "Measure insert".

The Display responds with :



④ Move the cursor to the position just after "Before" with [◁] and [▷]. Specify the position where the measures should be inserted with [▼] and [▲].

* To insert the measure(s) after the last measure, specify the total number of measures used for the Pattern + 1.

⑤ Move the cursor to the position just after "for" with [◁] and [▷]. Set the number of measures to be inserted with [▼] and [▲].

* Remember, a Rhythm Pattern can contain a maximum of 99 measures.

⑥ Press [YES].

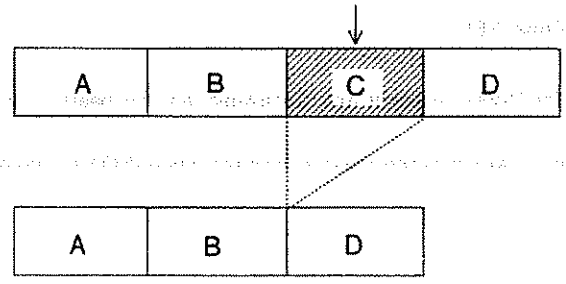
The Display responds with "Completed" and the measures are inserted.

* If you wish to cancel measure insertion, press [NO/EXIT] instead of [YES].

b. Deleting Measures (Measure Delete)

The Measure Delete function allows you to delete a sequence of measures you no longer want.

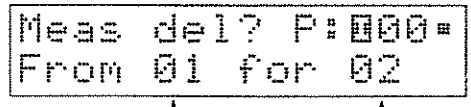
<Example> Delete this measure



① Specify the Pattern Number from which you wish to delete measures.

② Press Key Pad [1] while holding [SHIFT] down.

③ Press Ten Key Pad [2] to select "Measure delete".
The Display responds with :



The first measure to be deleted

The number of measures to be deleted

④ Move the cursor to the position just after "From" with [◁] and [▷]. Specify the position where the deletion should begin with [▼] and [▲].

⑤ Move the cursor to the position just after "for", then set the number of measures to be deleted with [▼] and [▲].

⑥ Press [YES].

The Display responds with "Are you sure?".

⑦ Press [YES] again.

The Display responds with "Completed" and the measures are deleted.

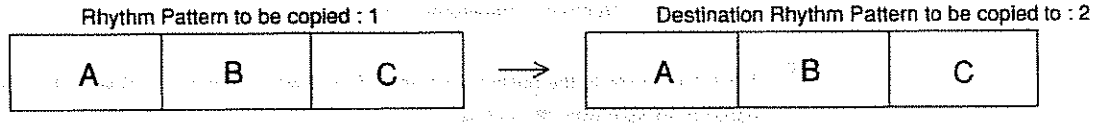
* If you wish to cancel measure deletion, press [NO/EXIT] instead of [YES].

* If you have deleted all the measures of a Rhythm Pattern, a blank Pattern consisting of one measure will be left in its place.

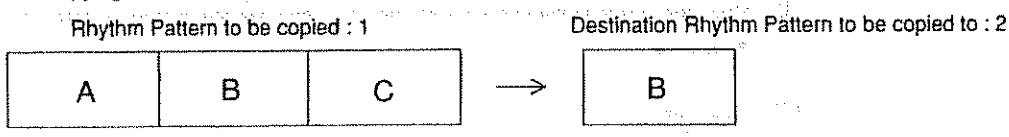
c. Copying a Rhythm Pattern (Pattern Copy)

The Pattern Copy function allows you to copy a Rhythm Pattern you have made into a different Pattern number. It is also possible to copy only one or two measures in a Pattern. By doing this, you can combine parts of two or three different patterns into yet another new combination.

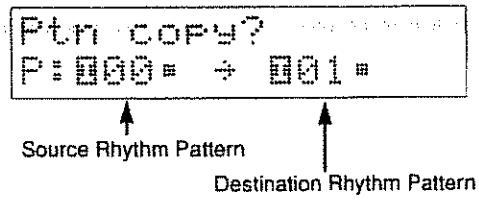
<Example> Copying Rhythm Pattern 1 to Rhythm Pattern 2



<Example> Copying the 2nd measure of Rhythm Pattern 1 to Rhythm Pattern 2



① Press Key Pad [2] while holding [SHIFT] down.
The display responds with :

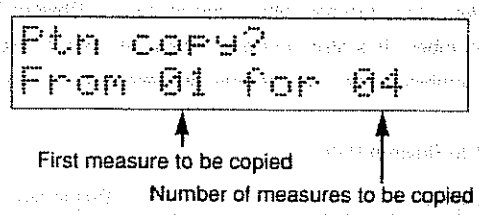


② Move the cursor to the position just after "P:" with [◁] and [▷] Specify the source Pattern Number with [▼] and [▲].

③ Move the cursor to the position just after "→" with [◁] and [▷] . Specify the destination Pattern Number with [▼] and [▲].

* If you wish to copy the entire Rhythm Pattern, skip steps ④ - ⑥.

④ Select the following Display using ◁ and ▷.



⑤ Move the cursor to the position just after "From" with ◁ and ▷ . Specify the measure where the copying will start with ▼ and ▲.

⑥ Move the cursor to the position just after "for", then set the number of measures to be copied with ▼ and ▲.

⑦ Press YES.

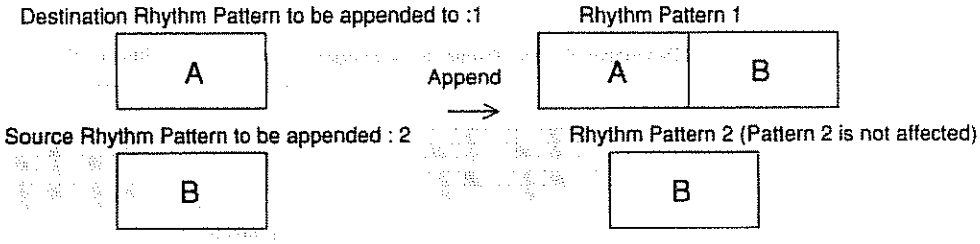
The Display responds with "Completed" and the selected measures are copied.

* Whenever any performance data exists in the destination Pattern Number, the Display responds with "Overwrite OK?".
If you wish to carry on, press YES again. To cancel copying, press NO/EXIT instead of YES.

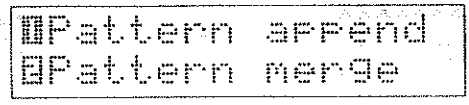
d. Joining two Rhythm Patterns (Pattern Append)

The Pattern Append function allows you to join two Rhythm Patterns (end to end) to make one.

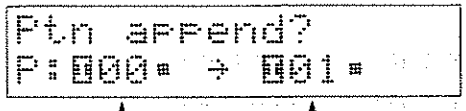
<Example> Appending Rhythm Pattern 2 to Rhythm Pattern 1



① Press Key Pad [3] while holding [SHIFT] down.



② Press Ten Key Pad [1] to select "Pattern append".
The Display responds with :



Source Rhythm Pattern to be appended

Destination Rhythm Pattern to be appended to

③ Move the cursor to the position just after "P:" with [◁] and [▷], then specify the Pattern Number to be appended (joined) to another one.

④ Move the cursor to the position just after "→" with [◁] and [▷]. Using [▼] and [▲], specify the destination Pattern Number, that is, the Pattern to which the above Pattern will be joined.

⑤ Press [YES].

The Display responds with "Completed" and the two Patterns are appended (joined).

* To cancel the append process, press [NO/EXIT].

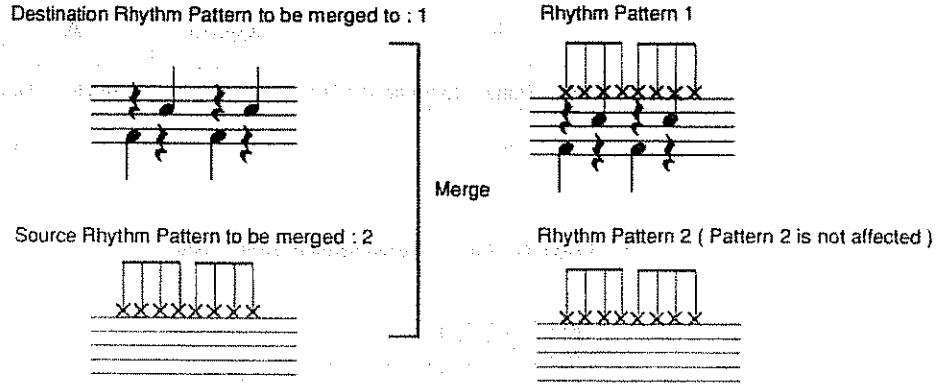
* Two Rhythm Patterns with different time signatures cannot be joined.

* Remember, a Rhythm Pattern cannot exceed 99 measures. If the result of Pattern Append esceed 100 measures, the R-70 wil ignore after 100th measure.

e. Mixing two Rhythm Patterns (Pattern Merge)

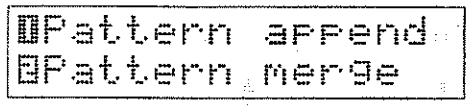
The Pattern Merge function allows you to extract some instruments from a Rhythm Pattern and mix it into another Rhythm Pattern.

<Example> Merging the Hi - hat pattern in the Rhythm Pattern 2 to the Rhythm Pattern 1

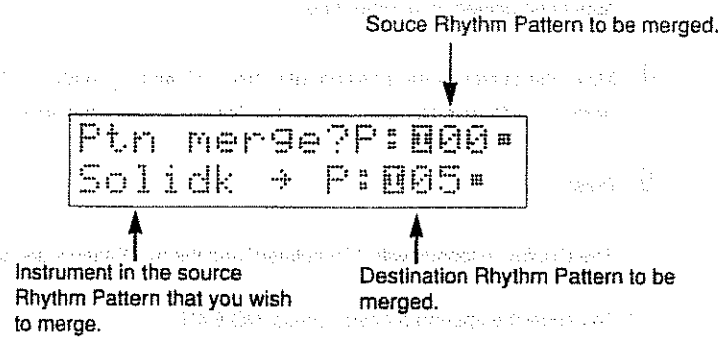


① Specify the source Pattern Number for merging (mixing).

② Press Key Pad [3] while holding [SHIFT] down.



③ Press Ten Key Pad [2] to select "Pattern merge".
The Display responds with :



④ Specify the Instrument sound you wish to extract using [▼] and [▲], or the relevant Key Pad.

* You cannot select an Instrument that is not used in the source Rhythm Pattern.

⑤ Move the cursor to the "P:" position in the lower line with [◁] and [▷]. Specify the destination Pattern Number (where the Instrument will be mixed) using [▼] and [▲].

⑥ Press [YES].

The Display responds with "Completed" and the two Patterns are merged.

* To cancel the merge process, press [NO/EXIT].

* Rhythm Patterns with different time signatures cannot be merged.

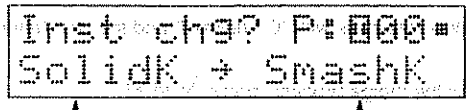
* When two Rhythm Patterns to be merged consist of a different number of measures, the destination Pattern determines the number of measures that can be mixed. For example, you can copy a one measure Pattern into a two measure Pattern. However you cannot copy a two measure Pattern into a one measure Pattern, only first measure will be copied.

f. Exchanging Instruments (Instrument Change)

The Instrument Change function allows you to replace one Instrument used in a Rhythm Pattern with a different Instrument. For example, you can exchange a Closed Hi-hat for a Ride Cymbal.

① Specify the Pattern Number in which you wish to change Instruments.

② Press Key Pad [4] while holding [SHIFT] down.



Instrument to be edited — New Instrument to be entered

③ Specify which Instrument is to be replaced using [▼] and [▲], or the relevant Key Pad.

* You cannot select an Instrument which is not used in the Rhythm Pattern currently selected.

④ Move the cursor to the lower right position with [◁] and [▷], then specify the new Instrument using [▼] and [▲], or the relevant Key Pad.

⑤ Press [YES].
The Display responds with "Completed", and the old Instrument is replaced with the new one you have selected.

* To cancel the Instrument Change process, press [NO/EXIT] instead of [YES].

g. Adding Swing (Swing)

By delaying the timing of evenly spaced beats, you can create a swing effect.

The following three parameters should be set.

◇ Swing Note (1/8, 1/16)

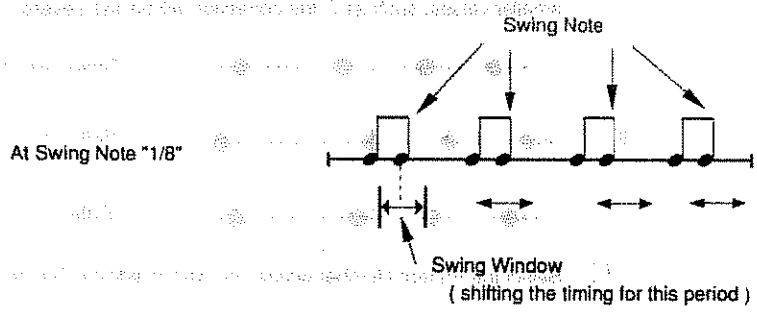
This determines which notes are to be delayed; 8th notes or 16th notes.

◇ Swing Delay (1/8 ... 0 - 47, 1/16 ... 0 - 23)

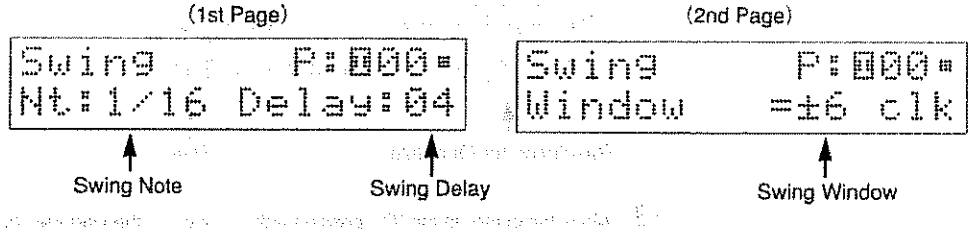
This sets how much the timing should be delayed. Increasing the value will produce a longer delay, creating a more dramatic change. At zero, no swing effect is created.(1 clock = 384th note)

◇ Swing Window (0 - 6)

This setting determines how many notes around the Swing Note should be affected.(1 clock = 384th note)



① Press Key Pad [5] while holding [SHIFT] down.



② Move the cursor to the position of the relevant parameter with [◁] and [▷], then set the value with [▼] and [▲].

* If you wish to check the Rhythm pattern, press [START/STOP].

③ When you have finished setting all the parameters, press [NO/EXIT].

h. Correcting timing inaccuracies (Quantize)

The Quantize function corrects the timing of Rhythm Patterns you have recorded in Realtime.

The following two parameters should be set.

◇ Quantize (1/12, 1/16, 1/24, 1/32, 1/48)

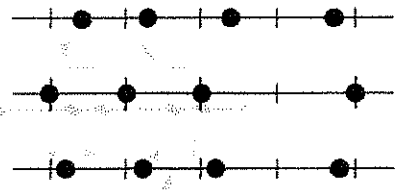
This sets the quantization resolution which determines to what degree the notes in the Pattern will be corrected.

* It is not possible to set the resolution lower than the shortest note entered into the Rhythm Pattern.

◇ Rate (1 - 10)

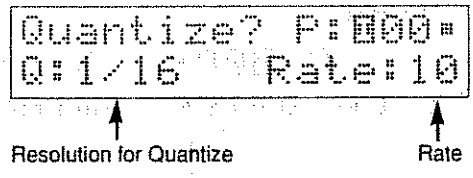
This determines how accurately the timing should be corrected, according to the Quantize resolution set above.

When it is set to 10, the notes will be metrically perfect (ie. exactly where they should be). With smaller values, such as 7, the correction will be less severe, creating a more human feel.



① Select the Pattern Number where you wish to edit the Quantize parameters.

② Press Key Pad [6] while holding [SHIFT] down.
The Display responds with :



③ Move the cursor to the "Q:" position with [◁] and [▷], then set the Quantize resolution with [▼] and [▲]

④ Move the cursor to the "Rate" position with [◁] and [▷], then set the Rate with [▼] and [▲].

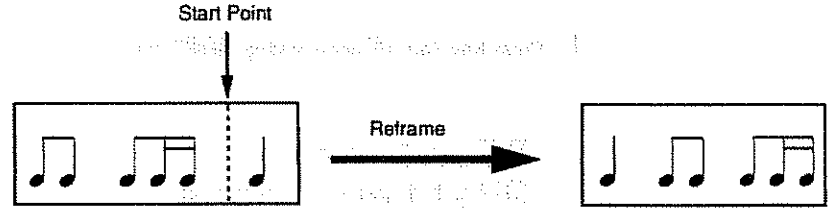
⑤ Press [YES].
The Display responds with "Rewrite OK?".

* If you wish to check the Rhythm Pattern, Press [START/STOP].

⑥ Press [YES] again.
The Display responds with "Completed" and the Quantize parameters are set.
When you wish to break off this operation, press [NO/EXIT]. The Display will return the mode of procedure ②.

i. Changing the start position of a Rhythm Pattern (Reframe)

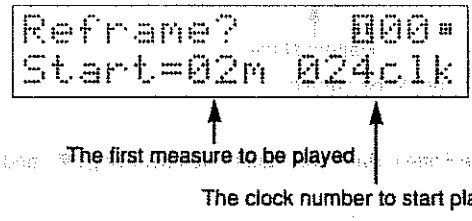
The Reframe function allows you to change the starting point of a Rhythm Pattern.



① Select the Pattern Number which you wish to Reframe.

② Press Key Pad [7] while holding [SHIFT] down.

③ Move the cursor to the "Start" position with [◁] and [▷], then specify the measure where you wish to start playing using [▼] and [▲].



④ Move the cursor to the "clk" position with [◁] and [▷].
Specify how many 'clocks' the starting position should be shifted from the top of the measure specified at procedure ③ using [▼] and [▲]. (1 clock = 384th note)

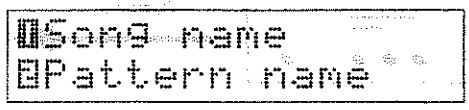
⑤ Press [YES].
The Display responds with "Completed" when the Reframe is done.

* To cancel the Reframe, press [NO/EXIT] instead of [YES].

j. Naming a Rhythm Pattern (Pattern Name)

You can name each Rhythm Pattern you create using up to 8 characters. By naming Rhythm Patterns, you can quickly find the Pattern you wish to use.

① Press Key Pad [16] while holding [SHIFT] down.



② Press Ten Key Pad [2] to select "Pattern name".
The Display responds with:

Pattern Name

Pattern Number to be named

③ Specify the Pattern Bank and Pattern Number using [▼] and [▲].

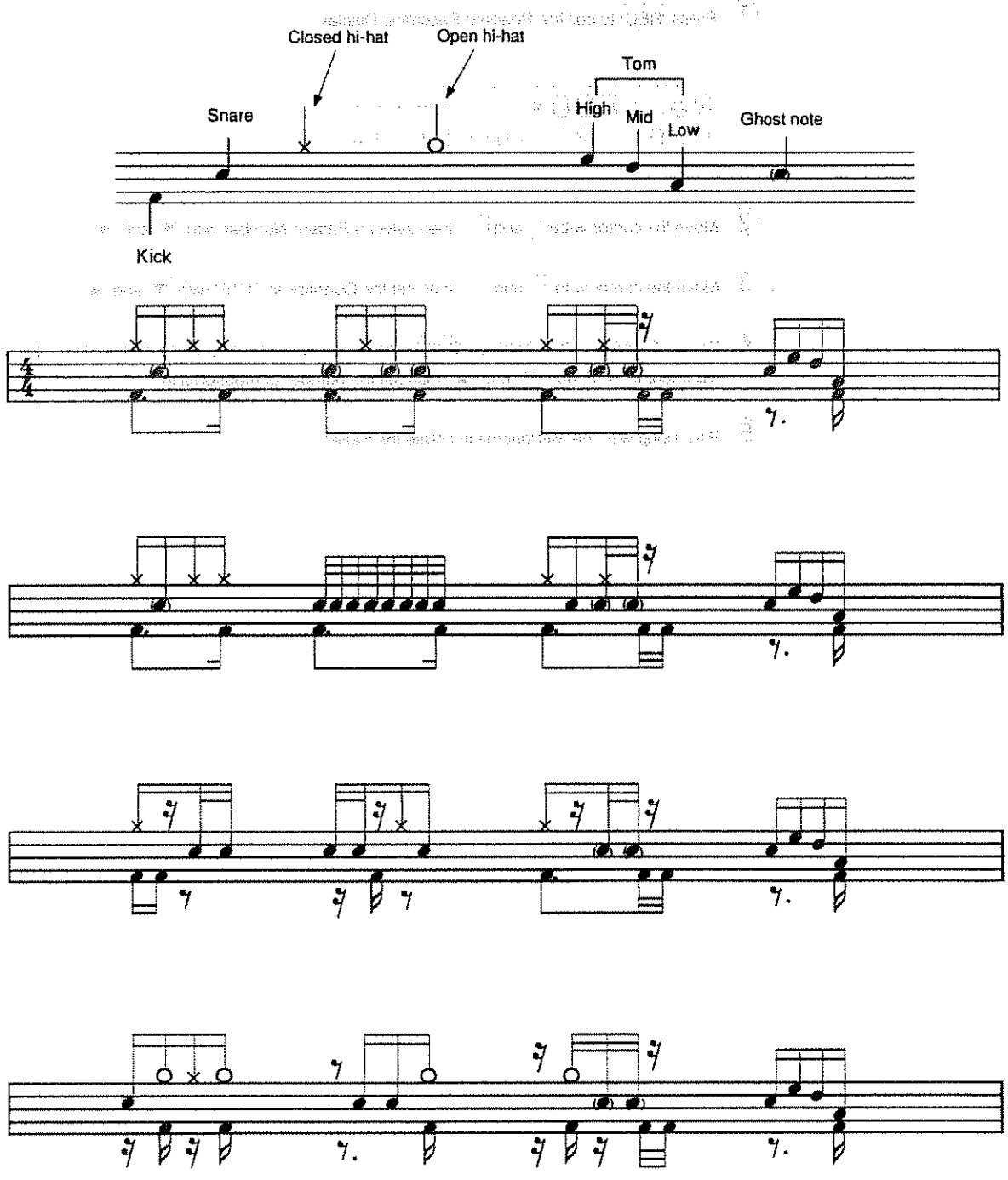
④ Move the cursor with [◁] and [▷], then create a Pattern Name using [▼] and [▲], or the Ten Key Pad.

Pressing a Ten Key button will select (in order) the characters printed above the key. To select lower case letters, press the Ten Key Pad while holding [SHIFT] down.

⑤ When you have finished setting the name, press [NO/EXIT].

k. Example for creating a complex Rhythm Pattern

Now, let's try to make a difficult Rhythm Pattern as shown below.



First, make the first measure. Then copy the first measure and edit it to make the second, third and fourth measures. Finally, append the four Patterns.

◇ First Measure

Enter data using the Realtime recording method. Then enter the 32th note on the third beat using Step Recording.

① Press [REC] to call the Realtime Recording Display.

② Move the cursor with [◁] and [▷], then select a Pattern Number with [▼] and [▲].

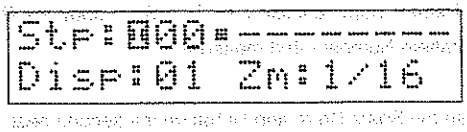
③ Move the cursor with [◁] and [▷], then set the Quantize to "1/16" with [▼] and [▲].

④ Press [ERASE] while holding [SHIFT] down to erase existing performance data. Set the time signature to "4/4" with [▼] and [▲], then set the number of measures to "1".

⑤ Play along with the Metronome to create the Pattern.

Next, enter the 32nd note (Kick Drum) using Step Recording.

⑥ Press [REC] while holding [SHIFT] down.

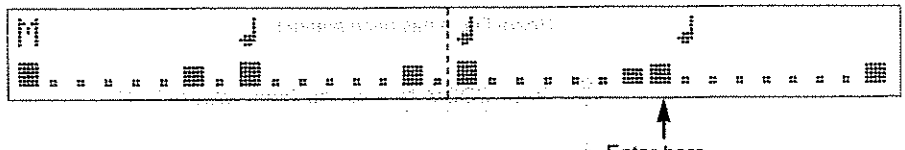


⑦ Select the Recording Display by using [◁] and [▷].

⑧ With the R-70 stopped, hit the corresponding Key Pad (Kick Drum) to call the Display which shows where the Kick Drum has been entered.

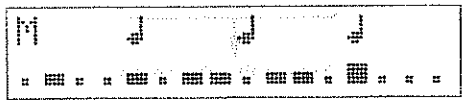
⑨ Press [ZOOM IN] twice to set the Zoom value to "1/32".

⑩ Start playback and enter a note as follows:

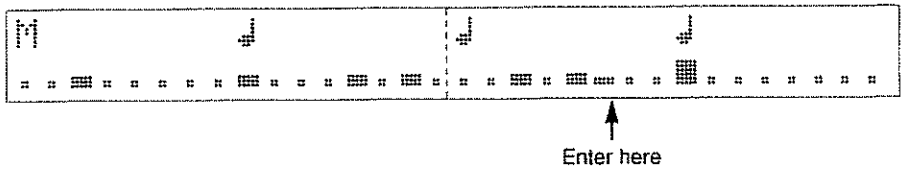


⑪ In the same way, enter the 32nd note Snare Drum.

Zoom=1/16



Zoom=1/32



◇ Second Measure

Copy the first measure you have just made, then erase the Snare Drum and Hi-hat on the second beat, and enter the Roll.

① With the Pattern Copy function (☞ P. 1-37), copy the Rhythm Pattern of the first measure to a different Pattern Number (2nd measure).

First, erase the Snare Drum and Hi-hat on the second beat, then enter the Roll.

② Press [REC].

③ Start playback and then hold [ERASE] down. Then hold the Snare Drum Key Pad down for the duration of the second beat.

④ In the same way, erase the Hi-hat on the second beat.

Next, enter the Roll on the second beat.

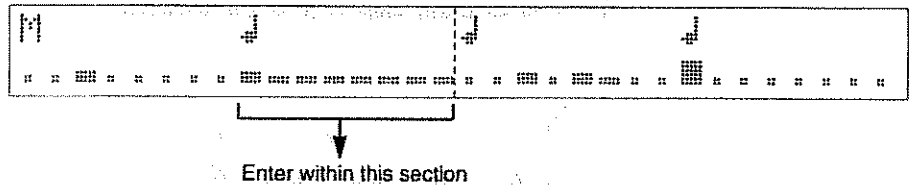
⑤ Press [REC] while holding [SHIFT] down.

⑥ Select the Recording Display by using [◁] and [▷]

⑦ With the R-70 stopped, press the corresponding Key Pad to call the Display which shows where the Snare Drum has been entered.

⑧ Press [ZOOM IN] to set the Zoom value to "1/32".

⑨ Start playback, then enter the Snare Drum as follows:



◇ Third Measure

Copy the Rhythm Pattern of the first measure. Then erase the Kick Drum, Snare Drum, Hi-hat up to the second beat, then enter the Snare Flam on the first and second beats.

① With the Pattern Copy function (☞ P. 1-37), copy the Rhythm Pattern of the first measure to a different Pattern Number (3rd measure).

② As in the second measure, erase the Kick Drum and Hi-hat up to the second beat, and Snare Drum up to the middle of the third beat.

③ Enter the data written in the score using the Realtime recording method.

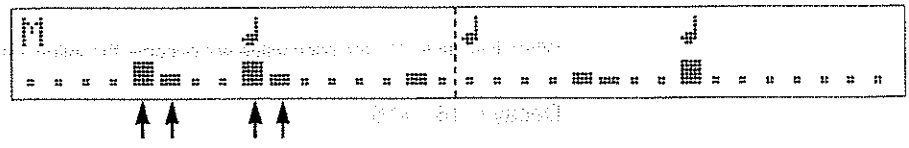
Next, enter the Snare Flam.

④ Press [REC] while holding [SHIFT] down.

⑤ Select the Recording Display by using [◁] and [▷].

⑥ With the R-70 stopped, press the corresponding Key Pad.

⑦ Start playback, then enter the Snare Drum 32nd notes.

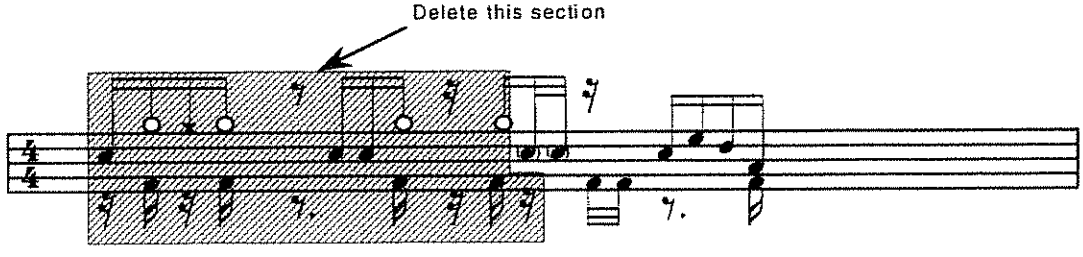


◇ Fourth Measure

Copy the first measure with Pattern Copy. Erase the Kick Drum, Snare Drum and Hi-hat up to the middle of the third beat, then enter data according to the score.

① With the Pattern Copy function (☞ P. 1-37), copy the Rhythm Pattern of the first measure to a different Pattern Number (4th measure).

② As in the second measure, erase the Kick Drum and Hi-hat up to the middle of the third beat, and the Snare Drum up to the second beat.



③ Enter data from the first measure with the Realtime recording method.

Finally, connect Rhythm Patterns 1 - 4 with the Pattern Append function (☞ P. 1-3).

2. Editing notes (Sequence Parameters) entered in a Rhythm Pattern

The R-70 allows you to edit the Sequence Parameters of each note entered in a Rhythm Pattern. Sequence Parameters include Velocity, Pitch, Decay, Nuance, Pan, Timing Shift and Flam. By editing Sequence Parameters, you can alter the tone or timing of sounds, even after the Rhythm Pattern has been created.

a. Description of Sequencer Parameters

* Pitch, Decay and Nuance values are based on the Sound Parameters (☞ P. 4-2). That is, you are modifying the basic values set in the Sound Parameters by editing corresponding Sequence Parameters.

◇ Velocity (1 - 127)

Velocity is the strength with which you play the Key Pads. How hard you hit a Key Pad will be entered as the volume of the Rhythm Pattern you are making.

◇ Pitch (-128 - +127)

This sets the pitch in '10 cent' steps. (A Semi-tone = 100 cents.) Increasing the value will raise the pitch. Increasing the value by 1 will raise the pitch by 10 cents.

When it is set to "0", the pitch value will become the value set at the Sound Parameter.

◇ Decay (-16 - +15)

This determines the time required for a note to die away. Increasing the value makes the decay time longer.

When it is set to "0", the Decay value will become the value set at the Sound Parameter.

◇ Nuance (-7 - +7)

By changing the Nuance, you can subtly alter a sound's character. For instance, striking a cymbal in different places will result in tone changes. The Nuance parameter allows you to make these kinds of tone alterations.

When it is set to "0", the Nuance value will become the value set at the Sound Parameter.

◇ Pan (OFF, L6, L4, L2, C, R2, R4, R6)

The Pan parameter (that determines sound placement in the stereo field) can be set for an Instrument assigned to stereo output (LEFT 1 – 6, C, RIGHT 1 – 6).

- When it is set to "OFF", the Pan setting at the corresponding MIXER parameter (☞ P. 4-2) will automatically be used.

- Editing the Pan parameter does not affect the sound placement if the Output Assign (of the MIXER) of the Instrument is set to Individual.

◇ Timing Shift (-4 - +8)

This shifts the timing of sounds forward or backward, in units of 1/384 of a note. Editing the Timing Shift does not affect the position indication in Step Recording.

◇ Flam (OFF/ON)

Set it to ON to add Flam effects. Flams will be played according to the settings in "Setting the Flam" (☞ P. 1-10).

b. How to edit the Sequence Parameters

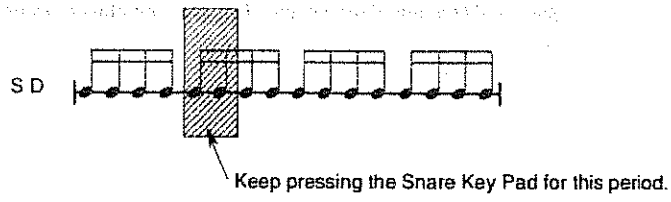
There are three different methods for editing the Sequence Parameters:

- ◇ Realtime Edit
- ◇ Step Edit
- ◇ Global Edit

○ Realtime Edit

Realtime editing allows you to edit a Sequence parameter by playing the relevant Key Pad (that corresponds to the Instrument you wish to edit) to the actual rhythm performance. With the R-70 playing in the Realtime editing mode, press the relevant Key Pad. While the Key Pad is depressed, the parameter of the Instrument assigned to the Key Pad will be changed to the set value.

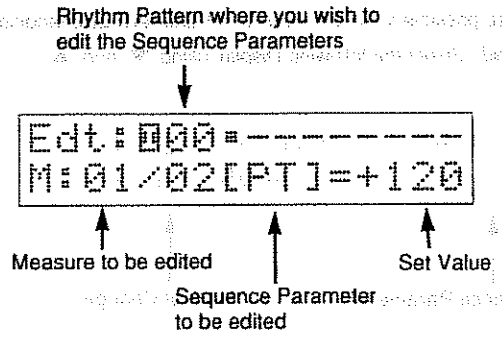
For example,



If you depress the Key Pad for as long as shown in the diagram, just two notes in the second beat will be edited. It is also possible to edit the value by controlling how hard you press the Key Pad.

* It is convenient to use the Instrument List function when you wish to check the instrument used in the Rhythm Pattern (☞ P. 6-9).

① Press [EDIT].
The Realtime editing mode is selected.



② Move the cursor with [◁] and [▷], then select the Rhythm Pattern to be edited with [▼] and [▲].

* You cannot select the Rhythm Pattern while playing.

③ Move the cursor with [◁] and [▷], then specify the Measure Number of the Rhythm Pattern with [▼] and [▲].

* You can also specify the Measure Number with [BWD] or [FWD].

* You cannot select the Measure Number while playing.

④ Move the cursor to the position enclosed with "[ ]" using [◁] and [▷], then select the Sequence Parameter to be edited using [▼] and [▲].

* You can also select the Sequence Parameter by using [▼] and [▲] while holding [SHIFT] down wherever the cursor is.

⑤ Move the cursor to the lower right of the Display with [◁] and [▷], then set the parameter value to be entered in step ⑦.

⑥ Press [START/STOP] to start playback.

⑦ Press the Key Pad that corresponds to the Instrument to be edited.

While the Key Pad is depressed, the Sequence parameter will be edited to the set value.

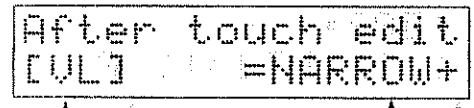
⑧ To continue to edit the other parameters, repeat steps ④ - ⑦.

⑨ Stop playback.

⑩ When you have set all the Sequence parameters you wish to edit, press [EDIT].

Reference

It is also possible to set the value of a Parameter by changing the strength with which you press the Key Pad. Select the following Display using ▼ and ▲.



Sequence Parameter — Width of Change

Set how each Sequence Parameter should be affected by the strength with which you press the Key Pad. You can edit the Sequence Parameter by changing the strength with which you press the Key Pad in this display.

How a Sequence Parameter should be affected is shown below :

NARROW -/+	:	The value of a Sequence Parameter changes subtly.
MEDIUM -/+	:	The value of a Sequence Parameter changes moderately.
WIDE -/+	:	The value of a Sequence Parameter changes drastically.
When it is set to "+",		the value increases by pressing the pad harder.
When it is set to "-",		the value decreases by pressing the pad harder.

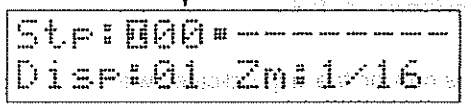
○ Step Edit

The Step Edit function allows you to edit each note entered in a Rhythm Pattern. This allows you to make very subtle changes.

① Press [REC] while holding [SHIFT] down.

② Select the following Display (Basic Display) using [◁] and [▷]. Select the Pattern Number to be edited using [▼] and [▲].

Rhythm Patten to be edited



③ Select the following Display (Edit Display) with [◁] and [▷] :

Instrument to be edited

Sequence Parameter to be edited

Set Value

④ With the R-70 stopped, move the cursor to the upper left of the Display with [◁] and [▷], then select the Instrument to be edited with [▼] and [▲], or the relevant Key Pad.

* When using [▼] and [▲], you can also select the Instrument while playing.

* If you wish to edit as you actually listen to the rhythm, press [START/STOP] to start playback.

⑤ Press BWD or FWD to cause the step to be edited to flash.

Flashing

⑥ Move the cursor to the "[ ]" position using [◁] and [▷], then select the Sequence Parameter to be edited using [▼] and [▲].

* The Sequence Parameter can also be selected by pressing [▼] or [▲] while holding [SHIFT] down wherever the cursor is.

⑦ Move the cursor to the upper right of the Display with [◁] and [▷], then set the value of the parameter with [▼] and [▲].

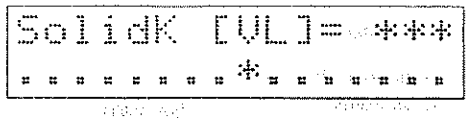
* To continue to edit the other parameters, repeat steps ⑥ and ⑦.
* To continue to edit the other Instruments, repeat steps ④ to ⑦.

⑧ When you have completed editing, press [NO/EXIT].

* Note that if you hit a Key Pad while a Rhythm Pattern is being played, the sound will automatically be entered into the Rhythm Pattern.
* It is convenient to use the Instrument List function when you wish to check the Instrument used in the Rhythm Pattern (☞ P. 6-9).

◇ To edit the note on the step indicated with "＊".

In a step marked with "＊", the value of a Sequence Parameter is indicated as "＊＊＊". The note at this position is slightly deviated from the correct timing.



To edit a note on such a step...

① Cause the "＊" mark to flash using [BWD] or [FWD].

② Depress [ZOOM IN] until the graphic character "■" appears.

* If the "＊" mark appears at the far-right or far-left of the Display, or is not at the flashing position, move the step using [BWD] and [FWD] at the procedure ②. Then repeat steps ① and ②.

③ Edit the note as in Step Edit.

④ When you have completed editing, press [NO/EXIT].

○ Global Edit

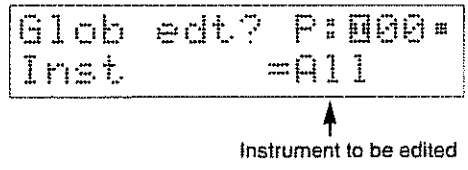
The Global Edit function allows you to edit each Instrument entered in a Rhythm Pattern.

The variable range of the parameter values to be set is as shown below:

Sequence Parameter	Set Value
Velocity	-64 to +63
Pitch	-128 to +127
Decay	-16 to +15
Nuance	-7 to +7
Pan	OFF / L2, 4, 6 / C / R2, 4, 6
Timing Shift	-6 to +6
Flam	ON/OFF

① Select the Pattern Number to be edited (☞ P. 1-33).

② Press Key Pad [8] while holding [SHIFT] down.



Instrument to be edited

③ Specify the Instrument to be edited with [▼] and [▲], or the relevant Key Pad.

- If you wish to edit all of the Instrument's notes, skip step ③.
- You cannot select an Instrument that is not used in the Rhythm Pattern currently selected.

④ Select the Parameter setting Display with [◁] and [▷].

Set Value

Sequence Parameter to be edited

⑤ Move the cursor to the left in the lower line with [◁] and [▷], then select the Sequence Parameter to be edited with [▼] and [▲].

⑥ Move the cursor to the right in the lower line with [◁] and [▷], then set the value of the parameter with [▼] and [▲].

* Only one parameter can be edited at a time.

⑦ Press [YES].

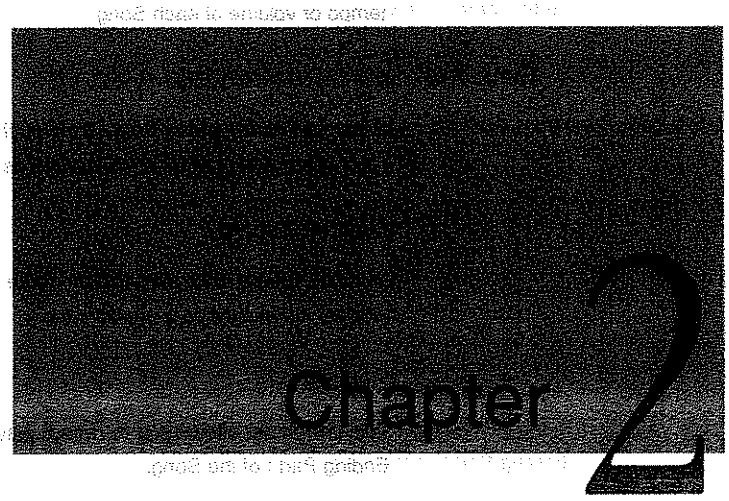
The Display responds with "Are you sure?".

⑧ Press [YES] again.

The Display responds with "Completed" when the editing is done.

* To cancel editing, press [NO/EXIT] instead of [YES].

* If you wish to continue to edit other parameters or Instruments, repeat steps ② - ⑧.



SONG

1. PROGRAMMING A SONG

A Song can be made by arranging Rhythm Patterns in the sequence you like. Up to 20 Songs can be written in the internal memory or on a memory card. The R-70 also allows you to set the tempo or volume of each Song.

○ Data that can be written into a Song

Song can hold various Song Data such as Repeat (repeat mark), Tempo Change, Volume Change, and Rehearsal Mark, as well as Rhythm Patterns.

◇ Rhythm Pattern

You can specify a Rhythm Pattern to be written in a Song. You can use a Rhythm Pattern in the internal memory or on a memory card.

◇ Repeat

This parameter allows you to repeat playing the specified section (from the Starting Part to the Ending Part) of the Song.

◇ Tempo Change

This parameter allows you to change the tempo of a Song from the Rhythm Pattern you specify.

◇ Volume Change

This parameter allows you to change the volume of a Song from the Rhythm Pattern you specify.

◇ Mark

This allows you to put a mark (name using up to 6 letters) in the middle of a Song. By using the Search Mark function (☞ P. 2-11, P. 2-16), you can quickly reach the position you have put the Mark.

○ Song Structure

Every one of Song data including a Rhythm Pattern is written into a Song as a unit called "PART". Parts written into a Song are numbered from the head of the Song (Part Number). You can write up to 999 Parts into one Song.

Part Number	001	002	003	004	005	006	007	008	009
Song data	Rhythm Pattern 01	Rhythm Pattern 02	Tempo Change	Repeat ||:	Rhythm Pattern 04	Repeat :|| × 1	Mark	Volume Change	Rhythm Pattern 10

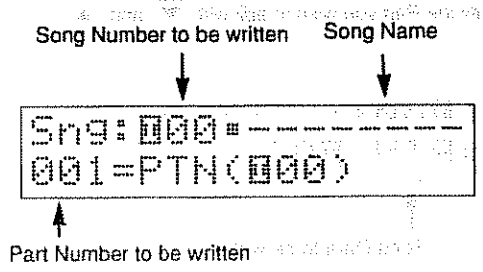
(Example)

1. Basic Song Creation

A Song is basically created by arranging Rhythm Patterns. The following explains the basic Song creation.

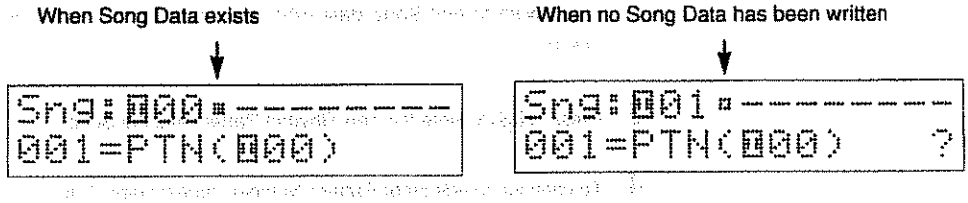
* Song creation using Part data such as Repeat, Tempo Change is referred to in "Description of Song Data" (☞ P. 2-6).

① Turn to the Song Create mode by pressing SONG CREATE .



② Move the cursor to the "Sng:" position with ◁ and ▷ , then select a Song Number with ▼ and ▲ .

* You cannot select a Song Number while playing
* If any data exits in the selected Song Number, "■" will appear at the upper right of the Song Number. If no data exists, "□" will appear.



* If any data is written in the selected Song Number, erase it with the Song Clear function (☞ P. 2-24).

③ Move the cursor to the position posterior to "PTN" with ◁ and ▷ .

④ Specify the Pattern Number to be written first with ▼ and ▲ .

* If you wish to hear the Rhythm Pattern you have specified, press START/STOP .

⑤ Press YES to write the selected Rhythm Pattern into the selected Song.

* The next Part Number will be automatically called.

⑥ Repeat steps ④ and ⑤ to write up to the last part.

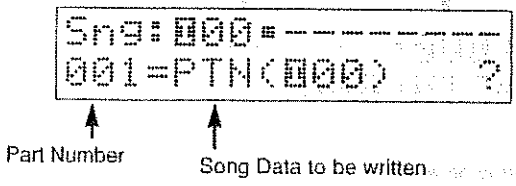
* To play the Song you have just created, follow the "Playing a Song" procedure (☞ P. 2-12).

* You can write Rhythm patterns of memory card to Song even if no memory card is inserted into the Memory Card slot. However at the Part selected Rhythm Pattern from a memory card, the corresponding Rhythm Pattern will be a blank one in the Song Create mode.

○ Editing a Song

If you wish to change the Pattern Number you have written into a Song to a different one, do as follows in the Song Create mode.

① Move the cursor to the Part Number (the left in the lower line of the Display) with [◁] and [▷] , then specify the Part you wish to edit with [▼] and [▲] .



② Move the cursor to the position posterior to "PTN" with [◁] and [▷] , then select the new Pattern Number to be written with [▼] and [▲] .

* If you hole down [BWD] or [FWD] , you can obtain a continuous change in the Part . Additionally, a more rapid change in the Part will be obtained if you hold down [BWD] ([FWD]) while you press [FWD] ([BWD])

* If you wish to edit Song data other than a Rhythm Pattern, follow "Description of Song Data" (☞ P. 2-6).

③ Press [YES] to write the new Rhythm Pattern into the Song.

④ To continue to edit other Pattern Number, repeat steps ① to ③.

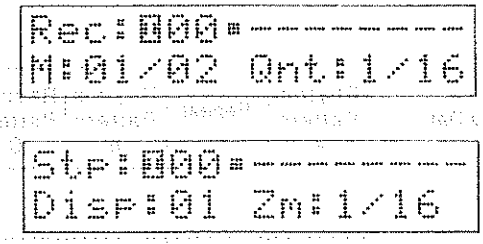
○ Editing a Rhythm Pattern

Even while you are making a Song, you can edit the Performance Data or Sequence parameters of Rhythm Patterns written into a Song.
Do as follows in the Song Create mode.

◇ Editing Performance Data

① Move the cursor to the Part Number (left in the lower line of the Display), then specify the Part Number where the Rhythm Pattern to be edited is written using [▼] and [▲] .

② Press [REC] (to turn to the Realtime Recording mode).
Alternatively, press [REC] while holding [SHIFT] down (to turn to the Step Recording mode).



③ Edit the Rhythm Pattern in the same way as "Creating Rhythm Pattern" (☞ P. 1-2).

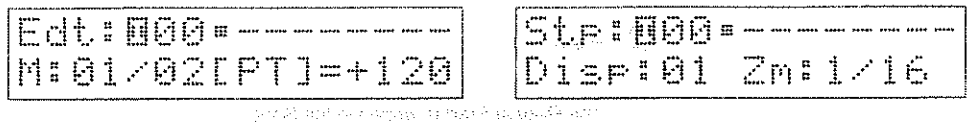
④ Press [NO/EXIT] to return to the Song Create mode.

* To continue to edit the Rhythm Pattern, of other Part move the cursor the Part Number, then select the Part Number to be edited using [▼] and [▲] .

◇ Editing Sequence Parameters

① Move the cursor to the Part Number (left in the lower line of the Display), then specify the Part Number where the Rhythm Pattern to be edited is written using [▼] and [▲] .

② Press [EDIT] or press [REC] while holding [SHIFT] down.



③ Edit the Sequence Parameter in the same way as "Real time Edit" (☞ P. 1-54) or "Step Edit" (☞ P. 1-57).

④ Press [NO/EXIT] to return to the Song Create mode.

* To continue to edit the other Rhythm Pattern, move the cursor to the Part Number, then select the Part Number to be edited using [▼] and [▲] .

2. Description of Song Data

The following describes how the each Song data functions and how it should be set. All Song data should be handled in exactly the same was as a Rhythm Pattern when you are placing in a Song.

* If you wish to add Song data after having written a Rhythm Pattern, follow "Part Insert" (☞ P. 2-18).

a. Repeat

This allows you to repeat playing the specified section of a Part. You should set the Starting Part (II:) and Ending Part (:II x 1), then the number of repetitions. The number of repititions can be set from 1 to 99.

(Example)

Song Data

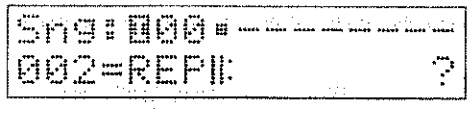
Rhythm Pattern A	Repeat II:	Rhythm Pattern B	Rhythm Pattern C	Repeat :II × 1	Rhythm Pattern D	Rhythm Pattern E

When a Song is playing

Rhythm Pattern A	Rhythm Pattern B	Rhythm Pattern C	Rhythm Pattern B	Rhythm Pattern C	Rhythm Pattern D	Rhythm Pattern E

Do as follows when you write a Part (Rhythm Pattern) to be repeated during the Song Create mode.

① Move the cursor to the Song Data (the center in the lower line of the Display) with ◁ and ▷ , then select the Repeat Start (II:) with ▼ and ▲ .

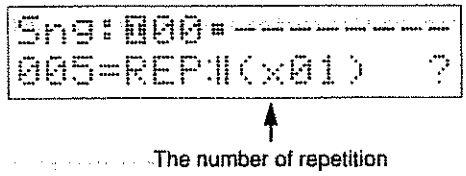


② Press YES .

The Repeat Start is written in the Song.

③ Write the Rhythm Pattern to be repeated. (You can write more than one Rhythm Pattern.)

④ Move the cursor to the Song Data with ◁ and ▷, then select the Repeat End (:II) with ▼ and ▲.

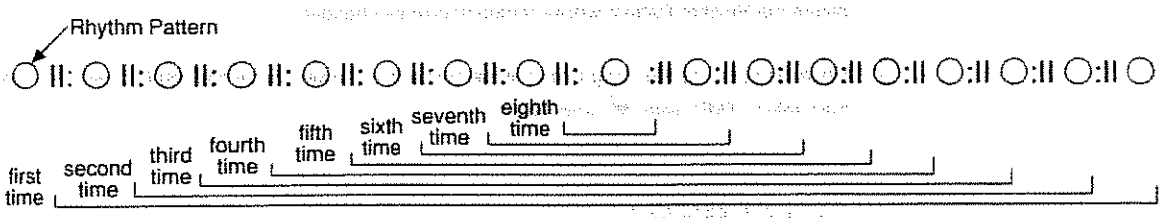


⑤ Move the cursor with ◁ and ▷, then set the number of repetitions.

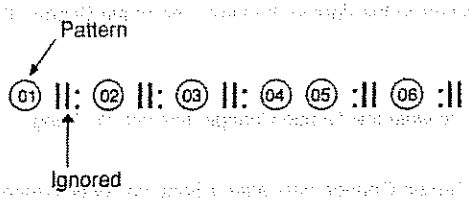
⑥ Press YES.

The Repeat End and the number of repetitions are written into the Song.

* You can set up to 8 sets of Repeat marks within one section of repeat (from Repeat Start to Repeat End).



* If you set more than eight sets of repeat marks within one repeat section, or pairs are not set properly, the internal section of enclosed with the Repert Start and Repeat End is paired first, then the second internal one is paired next, and so on.



The sequence to play 01→02→03→04→05→04→05→06→03→04→05→04→05→06→ · · ·

b. Tempo Change

This parameter allows you to change the tempo in the middle of a Song. The Song will be played in the new tempo you set from the next Rhythm Pattern (Part). Actually, you set how much the current tempo should be quicken or slowed within 20 to 250 %.

(Example)

Song Data	Rhythm Pattern A	Rhythm Pattern A	Tempo change 150%	Rhythm Pattern B	Rhythm Pattern C
When a song is playing	Rhythm Pattern A	Rhythm Pattern A	Rhythm Pattern B	Rhythm Pattern C	
Tempo	100	100	150	150	

While making a Song in the Song Create mode, enter the Tempo Change data in the Part just before the Rhythm Pattern whose tempo should be changed.

① Move the cursor to the Song Data (at the center in the lower line of the Display) with ◁ and ▷ , then select "TMP" with ▼ and ▲ .

Ratio for tempo change

② Move the cursor to the right in the lower line of the Display, then set the new Tempo with ▼ and ▲ .

③ Press YES to write the Tempo Change data into the Song.

* To add the Tempo Change data after a Song has been created, add one Part by taking "Part Insert" (☞ P. 2-18) procedure.

* Set the initial tempo of the Song with "Song Tempo" (☞ P. 2-17).

* Even if you have set the Tempo Change parameter, the tempo will remain the same if "Song Tempo" (☞ P. 2-17) is set to "PTN".

c. Volume Change

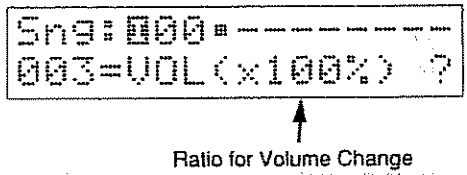
This parameter allows you to change the volume in the middle of a Song. The Song will be played in the new volume you set from the next Rhythm Pattern (Part). Actually, you set how much the current volume should be increased or decreased within 20 to 250 %.

(Example)

Song Data	Rhythm Pattern A	Rhythm Pattern B	Volume Change 150%	Rhythm Pattern C	Rhythm Pattern D
When a Song is playing	Rhythm Pattern A	Rhythm Pattern B	Rhythm Pattern C	Rhythm Pattern D	
Volume	40	40	60	60	

While making a Song in the Song Create mode, enter the Volume Change data in the Part just before the Rhythm Pattern whose volume should be changed.

① Move the cursor to the Song Data (at the center in the lower line of the Display) with ◁ and ▷ , then select "VOL" with ▼ and ▲ .



Ratio for Volume Change

② Move the cursor to the right in the lower line of the Display, then set the new Volume with ▼ and ▲ .

③ Press YES to write the Volume Change data into the Song.

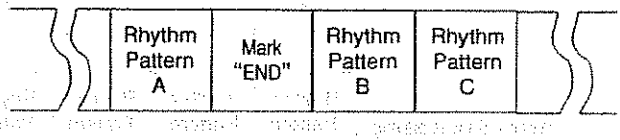
* To add the Volume Change data after a Song has been created, add one Part by taking "Part Insert" (☞ P. 2-18) procedure.

* Set the initial volume of the Song with "Song Volume" (☞ P. 2-17).

d. Mark

This allows you to put a mark at a certain place in the middle of a Song and name each mark using up to 6 letters. You may put marks at significant positions such as the climax or ending of a Song. In this way, you can quickly reach the desired position by using the Search Mark function, even when the Part Numbers are confused with the Part Delete or Part Insert procedure. In the Song Playing mode, you can start playing from the mark you have set with the Search Mark function.

(Example)

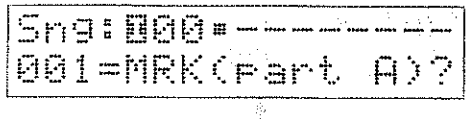


○ Setting the Mark

Set a Mark to a Part you like.

While making a Song in the Song Create mode, enter the Mark data in the Part just before the Rhythm Pattern where you wish to put a Mark.

① Move the cursor to the Song Data (at the center in the lower line of the Display) with ◁ and ▷ , then select "MRK" with ▼ and ▲ .



② Move the cursor to the right in the lower line of the Display, then write the name of the Mark using ▼ and ▲ / Ten Key Pad/Value Slider.

- Pressing a Ten Key will call a number/capital letter/sign (capital letter/sign marked above the key) sequentially. To call a small letter, press the Ten Key while holding SHIFT down.

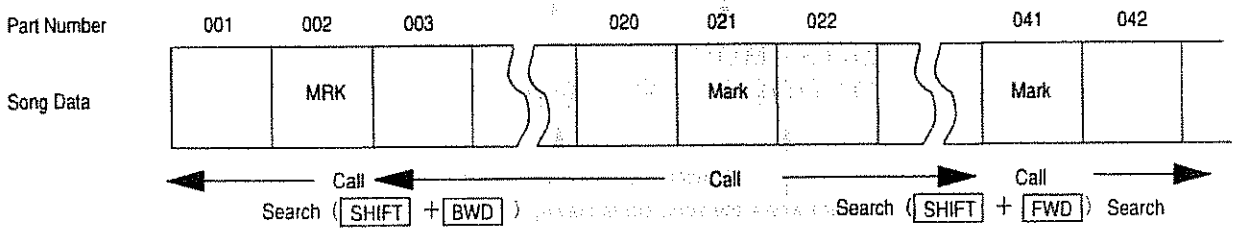
③ Press YES to write the Mark data into the Song.

- To put the Mark after a Song has been created, add one Part by taking "Part Insert" (☞ P. 2-18) procedure.

○ Searching the Mark (Search Mark)

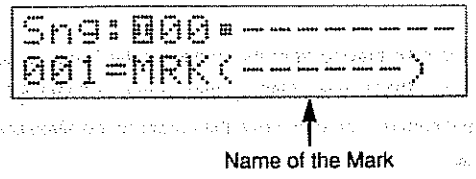
This function can be used for the Song where the Mark data has been set. This will look for the Mark, taking you to the Part of the relevant Mark.

(Example)



Do as follows in the Song Create mode.

① Press [FWD] (or [BWD]) while holding [SHIFT] down.



Name of the Mark

It shows "Now searching" and start searching from the nearest Mark that locates prior (or posterior) to the current Part.

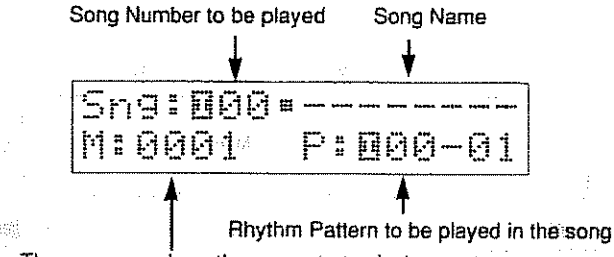
* When the Mark does not exits, "No Mark" will be shown in the Display.

2. Song Play

1. Playing a Song

To play the Song you have created in the Song Create mode, do as follows.

① Press [SONG PLAY].



② Move the cursor to "Sng" position with [◁] and [▷], then select the Song Number you wish to play with [▼] and [▲].

* You cannot select the Song Number while playing.

③ Press [START/STOP] to play the selected Song.

* If you wish to start playing from the middle of the Song, specify the starting measure with the R-70 stopped using [BWD] and [FWD], then press [START/STOP] while holding [SHIFT] down. To specify the measure, you can move the cursor to the Measure Number with [◁] and [▷], then use [▼] and [▲].

* If you hold down [BWD] or [FWD], you can obtain a continuous change in the measure. Additionally, a more rapid change in the measure will be obtained if you hold down [BWD] ([FWD]) while you press [FWD] ([BWD]).

④ Press [START/STOP] again to stop playing.

* If you press [START/STOP] while holding [SHIFT] down after step ④, you can resume playing from where it was stopped.

* If you select a Song where no data is written, "＊＊" will be shown at the Measure and Rhythm Pattern and no Song will be played.

* If you try to play the Song that contains the Rhythm Patterns on a memory card without the memory card inserted to the Memory Card slot, it will stop playing at the position of the memory card's Rhythm Pattern, and returns to the beginning of the Song. Meanwhile the Display shows "Card not ready".

○ Editing a Rhythm Pattern in a Song.

Even if in the Song Play mode, you can edit the Performance data or Sequence Parameters of the Rhythm Pattern written in the Song.

* If identical Rhythm Patterns are written at more than one place in a Song, editing a Rhythm Pattern in one place will automatically edit the Rhythm Patterns at different places.

With the R-70 stopped and in the Song Play more, do as follows.

◇ Editing Performance Data

① Press [REC]. Alternatively, press [REC] while holding [SHIFT] down.

The R-70 will be turned to the mode that can record the Rhythm Pattern currently being played (selected).

② Edit the Rhythm Pattern in the same way as creating a Rhythm Pattern (☞ P. 1-2).

③ Press [NO/EXIT].

The R-70 will be returned to the Song Play mode.

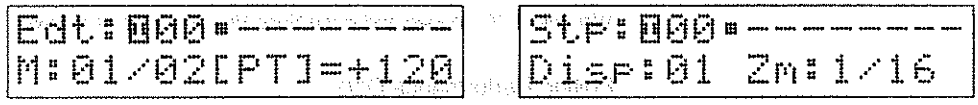
* Pressing [START/STOP] while holding [SHIFT] down will play the Song from the beginning of the measure you have just edited.

* To continue to edit the Rhythm Pattern entered in a different measure, move the cursor to the Measure Number with the R-70 stopped, then specify the measure number with [▼] and [▲] to select the relevant Rhythm Pattern.

◇ Editing Sequence Parameters

① Press [EDIT]. Alternatively, press [REC] while holding [SHIFT] down.

The R-70 will be turned to the mode that can edit the Rhythm Pattern currently being played (selected) in the Realtime or Step editing.



② Edit the Rhythm Pattern in the same way as Realtime Edit (☞ P. 1-54) or Step Edit (☞ P. 1-57).

③ Press [NO/EXIT].

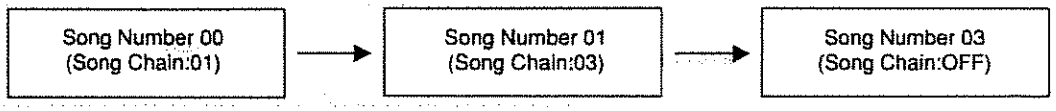
The R-70 will be returned to the Song Play mode.

* Pressing [START/STOP] while holding [SHIFT] down will play the Song from the beginning of the measure you have just edited.

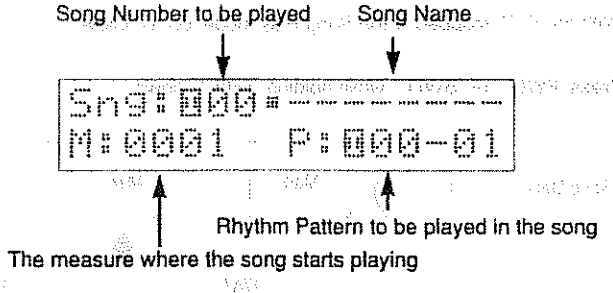
* To continue to edit the Rhythm Pattern entered in a different measure, move the cursor to the Measure Number with the R-70 stopped, then specify the measure number with [▼] and [▲] to select the relevant Rhythm Pattern.

2. Continuing to play Songs (Song Chain)

The R-70 allows you to play more than one Song continuously. In each Song, you can set a Song Number which should be played next. Therefore, by setting the next Song Number to each of the Songs to be played continuously, those songs will be played in such a sequence.

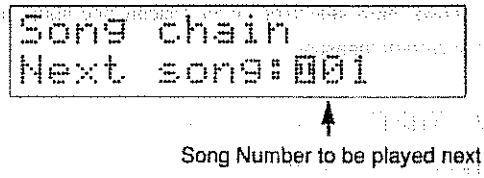


① Press [SONG PLAY].



② Move the cursor to the "Sng" position with [◁] and [▷], then select the Song to chain with [▼] and [▲].

③ Turn to the Song Chain setting mode using [◁] and [▷].

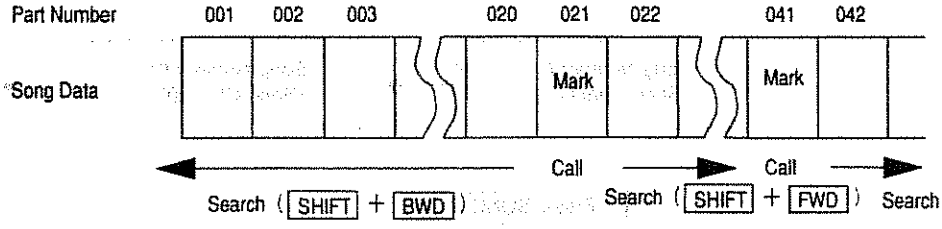


④ Move the cursor to the "Next song:" position with [◁] and [▷], then specify the Song Number to be played next with [▼] and [▲].

* If you do not wish to set the Song Chain, set the Song Bank to "OFF".

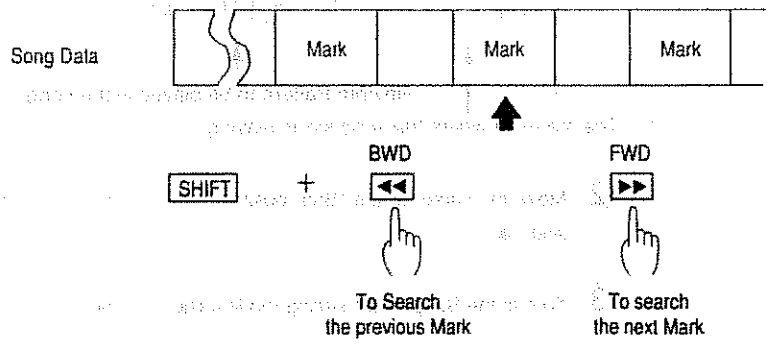
3. Searching the Mark (Search Mark)

This function allows you to search the Mark you have put in a Song then play the Song from the Rhythm Pattern next to the one marked.

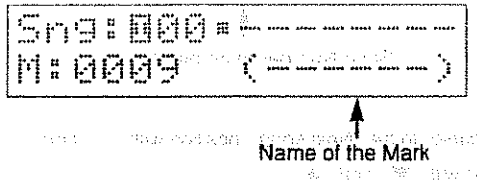


With the R-70 stopped in the Song Play mode, do as follows:

① Press FWD (or BWD) while holding SHIFT down.



The R-70 shows "Now searching" in the Display and starts searching the Mark located just before (or after) the current measure.



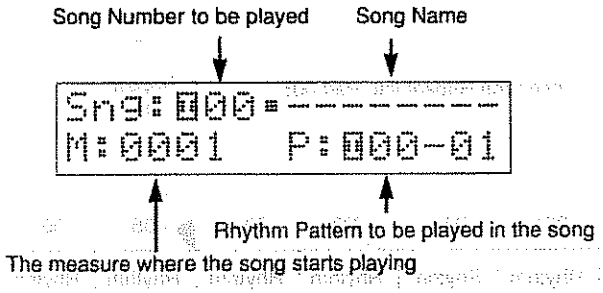
* If there is no Mark, the Display will respond with " No Mark "

③ Press START/STOP while holding SHIFT down, and the Song will be played from the specified Mark.

4. Song Tempo and Song Volume

You can set the initial tempo (Song Tempo) and volume (Song Volume) to each Song. The set Song Tempo and Song Volume are automatically applied when the Song starts playing.

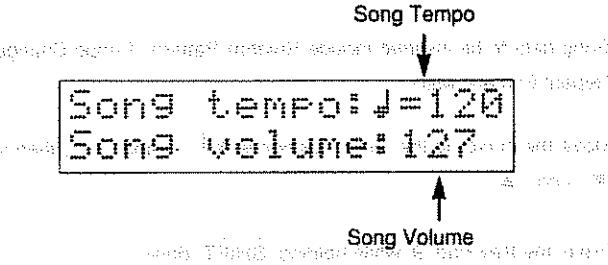
① Press SONG PLAY .



② Move the cursor to the "Sng" position with ◁ and ▷ , then select the Song to be edited with ▼ and ▲ .

* You cannot select the Song Number while playing

③ Using ◁ and ▷ , turn to the setting mode of Song Tempo and Song Volume.



④ Move the cursor to the right in the upper line of the Display with ◁ and ▷ , then set the Song Tempo (OFF/40 - 250/PTN) using ▼ and ▲ .

* If the Song Tempo is set to "PTN", the Song will be automatically played in the tempo (☞ P. 1-30) set in the Rhythm Patterns. And Tempo Change (☞P. 2-8) will be ignore.

* Set to the "OFF", the Song will be played according to the current tempo.

* If you set the Song Tempo, Song will start to play in the tempo set.

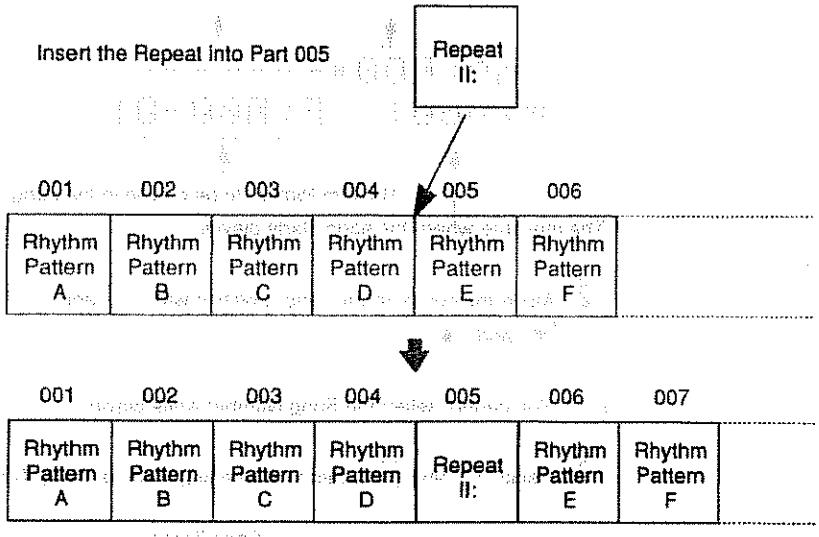
⑤ Move the cursor to the left in the upper line of the Display with ◁ and ▷ , then set the Song Volume (1 - 127) using ▼ and ▲ .

3. Editing a Song

To edit a Song, turn to the Song Play or Song Create mode when the Song stops to play, then select the Song Number.

1. Inserting a Part (Part Insert)

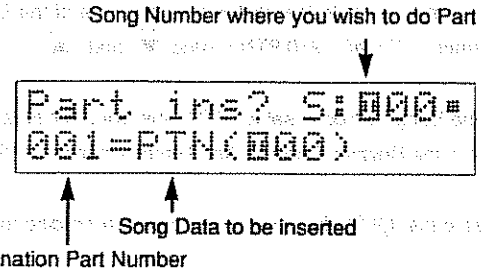
The Part Insert function allows you to insert a new Part that includes Song data (Rhythm Pattern, Repeat mark, etc.) in the middle of a Song.



Song data to be inserted include Rhythm Pattern, Tempo Change, Volume Change, Repeat Start, Repeat End and Mark.

① Move the cursor to the "Sng" position with ◁ and ▷ , then select the Song to be edited with ▼ and ▲ .

② Press the Key Pad 9 while holding SHIFT down.



③ Move the cursor to the left in the lower line of the Display with ▼ and ▲ , then select the Part Number to be inserted.

* The Song data you will set in the following step will be inserted into the Part that is located just before the Part selected in step ③.

④ Move the cursor to the center in the lower line of the Display with ◁ and ▷ , then set the Song data to be inserted in the same procedure as the Song Create (☞ P. 2-2).

* If you wish to check the selected Rhythm Patern, press START / STOP

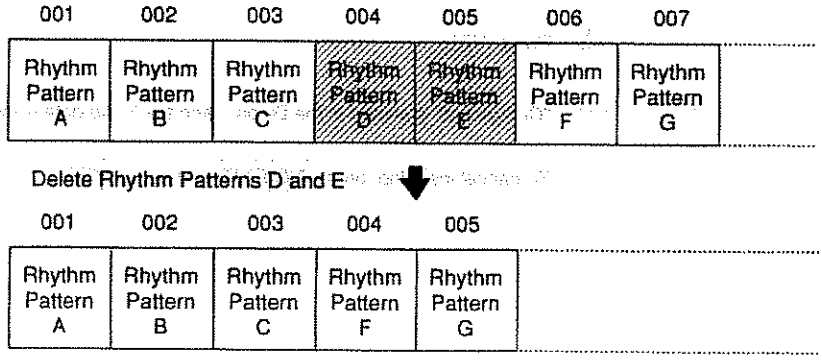
⑤ Press YES .

"Completed" is shown in the Display and the Song data is inserted.

* To cancel inserting, press NO/EXIT instead of YES .

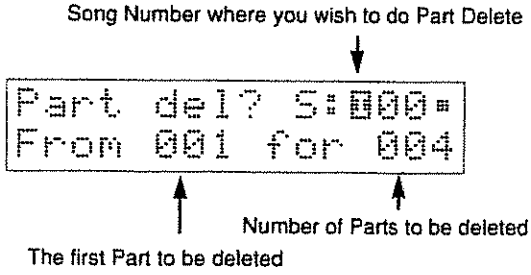
2. Deleting a Part (Part Delete)

The Part Delete function allows you to delete as many Parts you specify altogether.



① Move the cursor to the "Sng" position with [◁] and [▷], then select the Song to be edited with [▼] and [▲].

② Press the Key Pad [10] while holding [SHIFT] down.



③ Move the cursor to the position posterior to "from" with [◁] and [▷], then select the head Part Number to be deleted using [▼] and [▲].

④ Move the cursor to the position posterior to "for" with [◁] and [▷], then select the number of Parts to be deleted using [▼] and [▲].

⑤ Press [YES].

"Are you sure?" is shown in the Display.

⑥ Press [YES] again, if you wish to delete specified Parts.

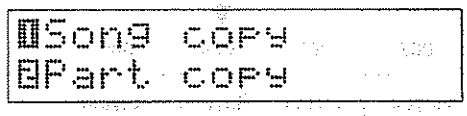
"Completed" is shown in the Display and the specified Parts are deleted.

* To cancel deleting, press [NO/EXIT] instead of [YES].

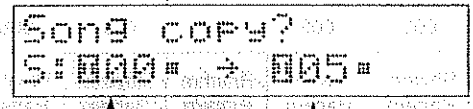
3. Copying a Song (Song Copy)

The Song Copy function allows you to copy all the Song data written in the Song you specify to a different Song Number. This is, therefore, useful to retain the original Song data before being edited.

① Press the Key Pad [11] while holding [SHIFT] down.



② Press the Ten Key [1] to select "Song copy".



Song Number to be copied Destination Song Number

③ Move the cursor to the position posterior to "S:" with [◁] and [▷], then select the source Song to be copied.

④ Move the cursor to the position posterior to "→" with [◁] and [▷], then select the destination Song to be copied to.

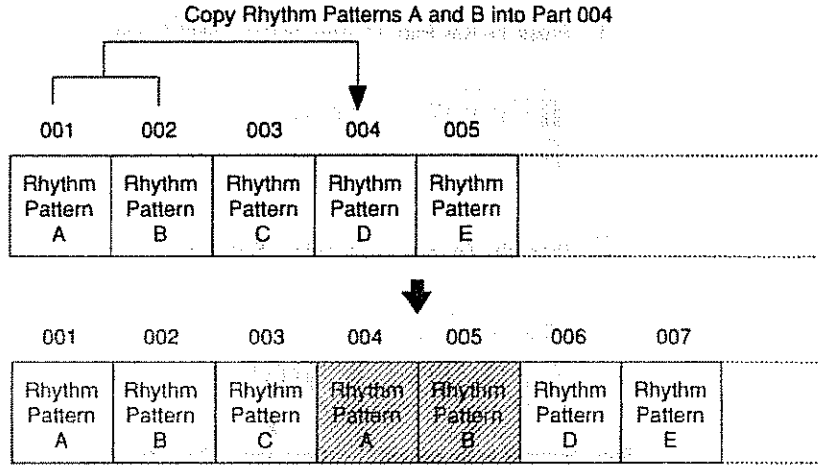
⑤ Press [YES].

"Completed" is shown in the Display and the specified Song is copied.

* If any performance data exists in the destination Song Number to be copied to, the Display responds with "Overwrite OK?". To carry on, press [YES], and to cancel copying, press [NO/EXIT].

4. Copying a Part (Part Copy)

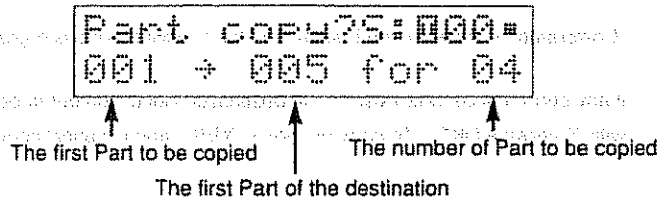
The Part Copy function allows you to copy the specified Parts to different Parts. This may be used to create a Song where the same performance pattern is repeated many times.



① In the Song mode, move the cursor to the "Sng" position with ◁ and ▷ , then select the Song to be edited using ▼ and ▲ .

② While holding SHIFT down, press the Key Pad 11 .

③ Press the Ten Key 2 to turn to the Part Copy setting mode.

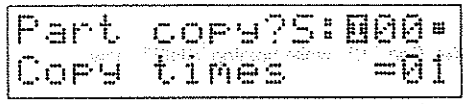


④ Move the cursor to the left in the lower line of the Display with ◁ and ▷ , then specify the first Part of the source Parts to be copied using ▼ and ▲ .

⑤ Move the cursor to the center in the lower line of the Display (at the right of "→"), then specify the first Part of the destination Parts to be copied to using ▼ and ▲ .

⑥ Move the cursor to the right in the lower line of the Display with ◁ and ▷ , then set the number of Parts to be copied using ▼ and ▲ .

⑦ Move the cursor to the next screen (the position posterior to "Copy times") with ◁ and ▷ , then set how many times the Parts to be copied using ▼ and ▲ .



How many times the parts to be copied

⑧ Press YES .

The Display shows "Completed" and the specified Parts are copied.

* To cancel copying, press NO/EXIT instead of YES .

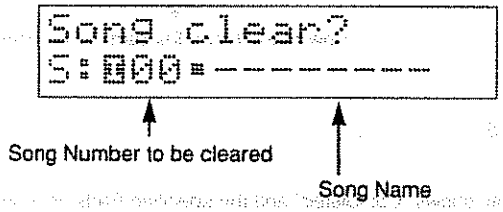
* If the total number of Parts exceeds 999, the Part Copy will not be executed.

* If the same Part is included in the source Parts and destination Parts you have selected, the Part Copy will not be executed.

5. Deleting a Song (Song Clear)

The Song Clear function allows you to erase the entire data of a Song. Use this to create a song from scratch.

① Press the Key Pad [12] while holding [SHIFT] down.



② Move the cursor with [◁] and [▷] , then select the Song to be cleared using [▼] and [▲] .

* You cannot select the Song while playing.

③ Press [YES] .

The Display shows "Are you sure?".

④ Press [YES] again, if you wish to clear the Song..

The Display shows "Completed" and the Song is cleared.

* To cancel the Song Clear, press [NO/EXIT] instead of [YES] .

* When the Song is cleared, the following parameter's value will be automatically set listed below:

Song tempo : OFF

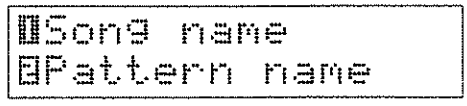
Song volume : 127

Song chain : OFF

6. Naming a Song (Song Name)

The Song Name function allows you to name each Song using up to 8 letters. Once you have named a Song, it will be shown in the Display every time the Song is played or created.

① Press the Key Pad [16] while holding [SHIFT] down.



② Press the Ten Key [1] to turn to the Song Name setting mode.

Song Name

Song Number to be named

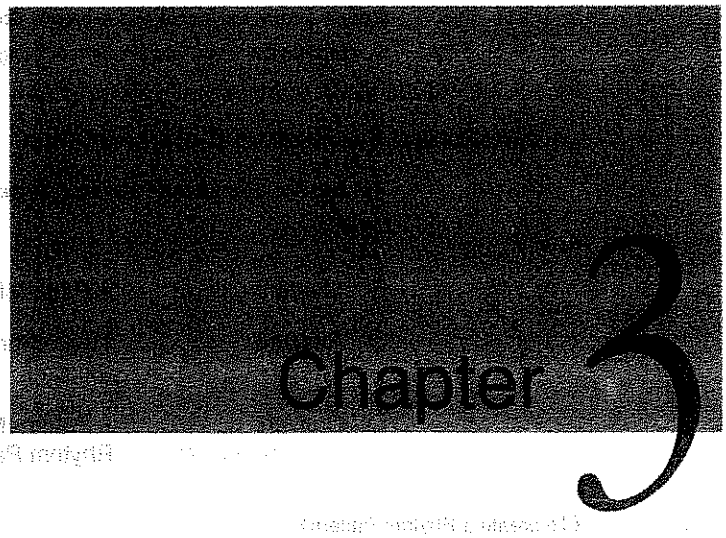
③ Move the cursor to the left in the lower line of the Display with [◁] and [▷] , then select the Song to be named using [▼] and [▲] .

* You cannot select the Song while playing

④ Move the cursor to the right in the lower line of the Display with [◁] and [▷] , then enter the name using [▼] and [▲] Ten Key Pad/Value Slider.

* Pressing a Ten Key will call a number/capital letter/sign (capital letter/sign marked above the key) sequentially. To call a small letter, press the Ten Key while holding [SHIFT] down.

⑤ Press [NO/EXIT] .



Rhythm Expert Function

1. What is the 'Rhythm Expert' Function

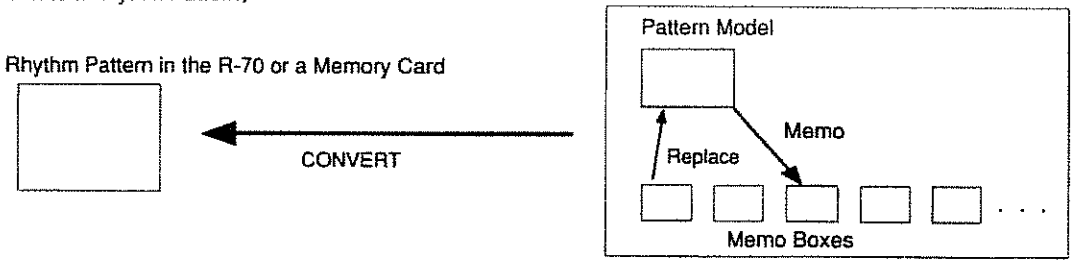
The Rhythm Expert function automatically creates Rhythm Patterns or Songs according to your requirements. The Rhythm Patterns created with the Rhythm Expert function are called 'Pattern Models', just as such Songs are called 'Song Models'. The Rhythm Expert function also allows you to convert (copy) a Model into a normal Rhythm Pattern or Song. The converted Model can then be handled just like a standard Pattern or Song.

○ Structure of the Rhythm Expert Function

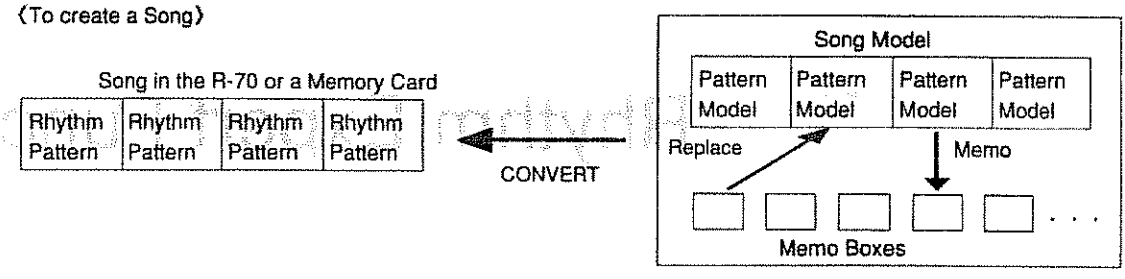
The following functions can be used on the Pattern Models or Song Models created with the Rhythm Expert.

- ◇ Memo : A Pattern Model can be written into memory temporarily.
- ◇ Replace : The Pattern Model written with the Memo function can be recalled.
- ◇ Convert : A Pattern Model or Song Model can be copied to a normal Rhythm Pattern or Song.

〈To create a Rhythm Pattern〉



〈To create a Song〉



Pattern Models cannot be edited until copied (converted) into usual Rhythm Patterns. And also, Song Models connot be edited until copied (converted) into usual Song.

* The Pattern Model (or Song Model) will be retained in memory until another Model is created, or until the unit is switched off.

2. Creating a Pattern Model

It will create a Rhythm Pattern automatically.

○ Parameters to be set

◇ Genre

This selects the style (funk, jazz, etc.) of the Pattern to be created.

Genre contains as follows : ROCK1, ROCK2, ROCK3, JAZZ1, JAZZ2, FUNK/SOUL, R&B, BALLAD, HOUSE/RAP, DANCE, SHUFFLE, WALTZ, SAMBA, CHA-CHA, BOSSA NOVA, REGGAE, AFRICAN.

◇ Pattern Type (BASIC/FILL/INTRO/ENDING)

You can select one of the four types:

Basic Pattern
Fill-in Pattern
Intro Pattern
Ending Pattern

◇ Pattern Length (1 - 4)

This sets the number of measures that the Pattern Model will have.

- The time signature of the Pattern Model is automatically determined depending upon the selected Genre.

◇ Pattern Variation (1 - 8)

This lets you make rough changes in the Rhythm Pattern.

◇ Pattern Idea (1 - 8)

This parameter subtly modifies the Variation selected with the Pattern Variation.

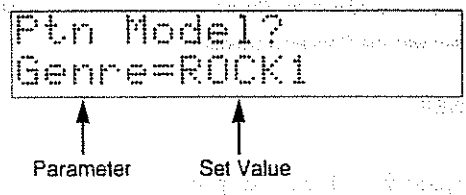
◇ Pattern Feel (OFF/1-8)

This adds a human (less mechanical) feel to the Pattern Model.

Set to "OFF", no human feel will be added to the Pattern Model (it will be more mechanical) .

1. Creating a Pattern Model

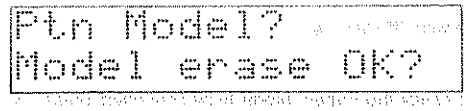
① Press [PTN MODEL].



② Select the relevant parameter using [◁] and [▷] (the Display will change), then set the value with [▼] and [▲]

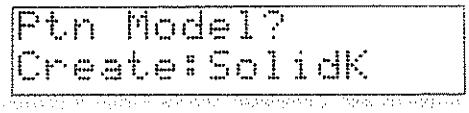
③ Press [YES].

The Display responds with "Model erase OK ?".



④ Press [YES].

The Display responds with "Create:******" and the R-70 starts creating a Pattern Model. While the Pattern is being created, the Instrument currently being used is shown in the Display.



When the R-70 finishes creating the Pattern Model, "Create:******" disappears and the previous Display is recalled.

⑤ Press [START/STOP].

The R-70 plays the Pattern Model just created.

* To make another Pattern Model with the same parameter settings, repeat steps ③ and ⑤.

* To create a Pattern Model with different parameter settings, repeat steps ② to ⑤.

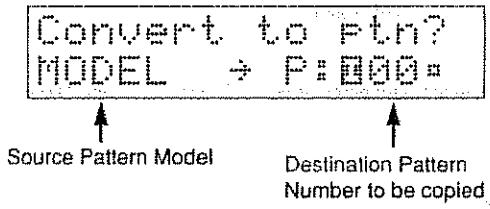
* If you make a new Pattern Model, the previous Pattern Model will automatically be erased. If you wish to keep the created Pattern Model, follow the "Convert" procedure (☞ P. 3-6) or "Memo" procedure (☞ P. 3-7).

* You may not be able to create a Pattern Model depending on how the Memo (☞ P. 3-7) or Song Model is being used (The Display shows "No area."). If this happens, decrease the total number of measures and recreate a Pattern Model, or switch off the unit, convert the relevant Memos or Songs then switch on the unit.

2. Copying a Pattern Model into a normal Rhythm Pattern (Convert)

A Pattern Model (created with the Rhythm Expert function) cannot be placed in a Song or edited until it has been converted with the Convert procedure.

① Press [CONVERT].



② Move the cursor to the left in the lower line of the Display with [◁] and [▷], then select the Pattern Model to be converted with [▼] and [▲].

* If you wish to check the Pattern Model to be converted, press [START/STOP].

③ Move the cursor to the right in the lower line of the Display with [◁] and [▷], then select the destination Pattern Number with [▼] and [▲].

* If you wish to check the destination Pattern, press [START/STOP].

④ Press [YES].

The Display responds with "Completed" and the Pattern is converted.

* If any data exists in the destination Rhythm Pattern, The Display shows the message "Overwrite OK?" asking you if you are sure to erase the previous data. To carry on, press [YES] again.

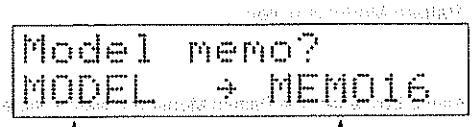
3. Writing a Pattern Model temporarily, then recalling it (Memo and Replace)

◇ MEMO

The Memo function allows you to retain a Pattern Model temporarily (in a place called the Memo Box), instead of copying it directly into a usual Rhythm Pattern.

* If the unit turned off, the data in MEMO will be erased.

① Press [MEMO].



Pattern Model Box where the Pattern Model is to be written

② Select the Memo Box where the Pattern Model should be stored using [▼] and [▲].

* Pressing [START/STOP] will play the Pattern Model currently stored in the Memo Box you have just selected.

③ Press [YES].

The Display responds with "Completed" showing that the Pattern Model is written into the Memo Box.

* If you wish to cancel writing, press [NO/EXIT] instead of [YES].

* If the Memo function has been carried out, the previous Pattern Model in the Box will be ereased.

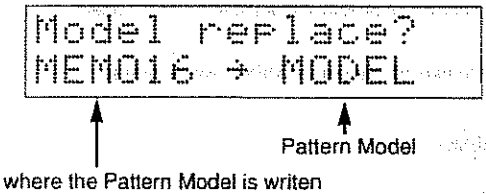
* You not able to write 16 Memos depending on the Pattern written in the Memo Box or the Pattern s used in the Song Model (☞ P. 3-9). If this happens, decrease the total number of measures and re-create a Pattern Model, or switch off the unit, convert the relevant Memos or Songs then switch on the unit.

* If there is no data in the Pattern Model you wish to memo, the message "Model empty." is shown in the Display and the Memo function is not proceeded.

◇ REPLACE

This function recalls the Pattern Model stored in the Memo Box. It is used when you wish to remake the Pattern Model in the Memo Box.

① Press [REPLACE].



② Select the Memo Box where the Pattern Model you want is stored using [▼] and [▲].

③ Press [YES].

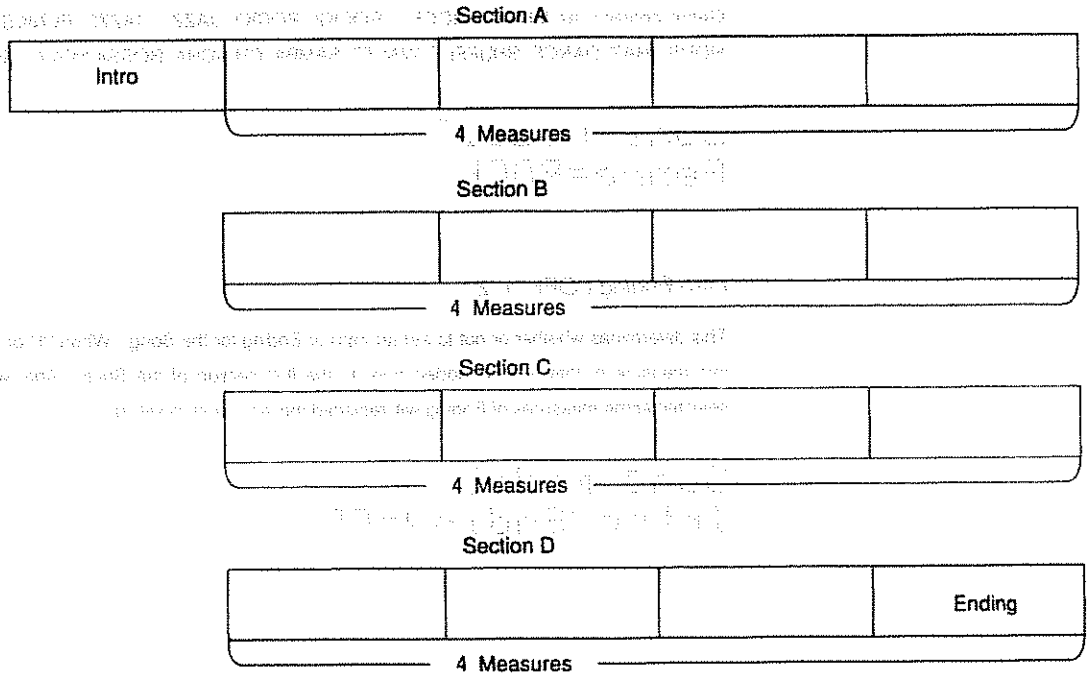
The Display responds with "Completed" indicating that the Pattern Model has been replaced.

- To cancel replacing, press [NO/EXIT] instead of [YES].
- Take care that the current Pattern Model will be erased if the Replace function has been carried out.

3. Creating a Song Model

To create a Song Model, you must divide it into several sections, determine the number of measures for each section, and then make as many Pattern Models.

Example)



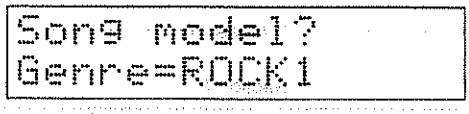
First, set the Genre and Fill-In, then select the Section to be assigned to each Model Part. Finally, set the number of measures (Section Length) for each Section.

○ Parameter Description

◇ Genre

This selects the style (jazz, rock, etc.) of the Song to be created.

Genre contains as follows : ROCK1, ROCK2, ROCK3, JAZZ1, JAZZ2, FUNK/SOUL, R&B, BALLAD, HOUSE/RAP, DANCE, SHUFFLE, WALTZ, SAMBA, CHA-CHA, BOSSA NOVA, REGGAE, AFRICAN.

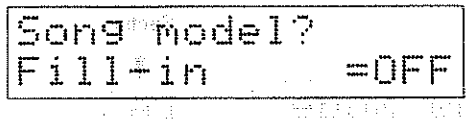


◇ Intro/Ending (OFF, 1, 2)

This determines whether or not to set an Intro or Ending for the Song. When "1" or "2" is selected, one or two measure of Intro will be added prior to the first section of the Song. And, whenever "1" or "2" is selected,some measures of Ending will replaced the last some measures.

◇ Fill-in (ON/OFF)

This selects whether or not to program Fill-ins for the Song Model to be created. When it is set to "ON", a Fill-in will be automatically entered at the end of each section of the Song Model. No Fill-in is created when it is set to "OFF".



◇ Song Feel (OFF, 1 - 8)

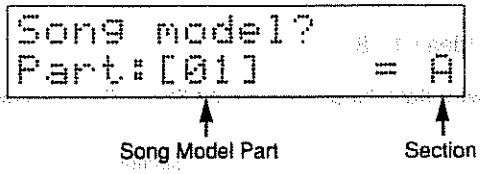
This adds a human feel to the Song.

◇ Song Model Part (01 - 16)

A Song Model is divided into several parts called Song Model Parts, which are equivalent to "Parts" of a Song.

◇ Section (A - H / -)

This determines how to assign the section to each Model Part.

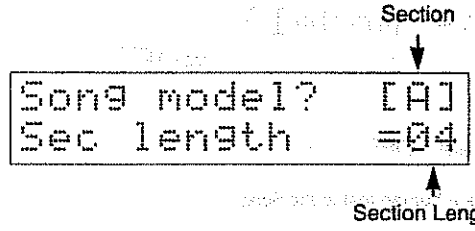


- Sections A - H can create different Pattern Models by setting of Section parameters (refer to the next page).

The following parameters should be set in each individual Section.

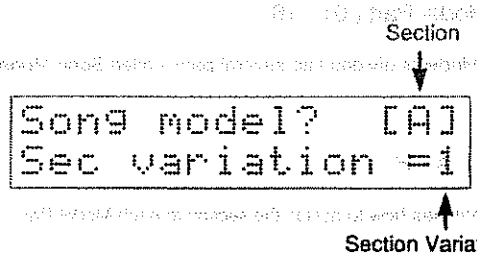
◇ Section Length (01 - 32)

This sets the number of measures used for each Section in a Song Model Part.



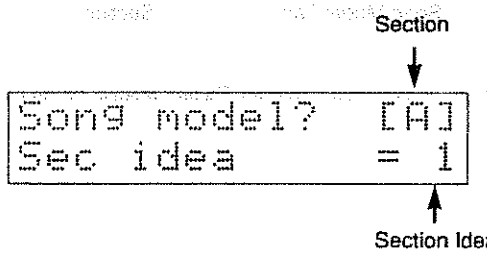
◇ Section Variation (1 - 8)

This causes a substantial change to occur in the Rhythm Patterns assigned to each Section.



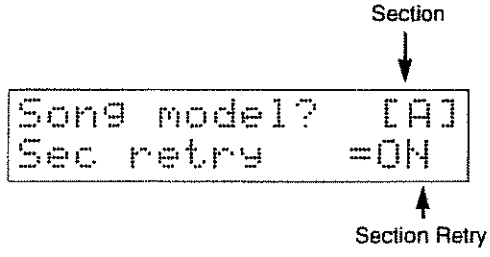
◇ Section Idea (1 - 8)

This causes a slight change to occur in the Rhythm Patterns assigned to each Section.



◇ Section Retry (ON/OFF)

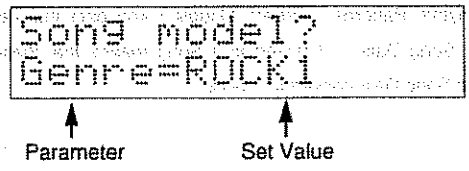
When ON, pressing [YES] will automatically create a different Song (Rhythm Pattern) without having edited the parameters. When OFF, a different Song (Rhythm Pattern) will not be created unless you change the values of the parameters.



1. How to create a Song Model

This section describes how to make a Song Model.

① Press [SONG MODEL].



② Move the cursor with [◁] and [▷], then set the value of each parameter using [▼] and [▲].

③ Press [YES].

The Display responds with "Model erase OK?".

④ Press [YES].

The R-70 starts composing a Song Model. While a song is being composed, the Instrument of the pattern currently being created is shown as "Creating:PopCHH", etc.

When the R-70 finishes composing the Song, the Display shows the number of Rhythm Patterns just created.

- To leave the mode, press [NO/EXIT].

⑤ Press [START/STOP]. The R-70 plays the Song Model it has just composed.

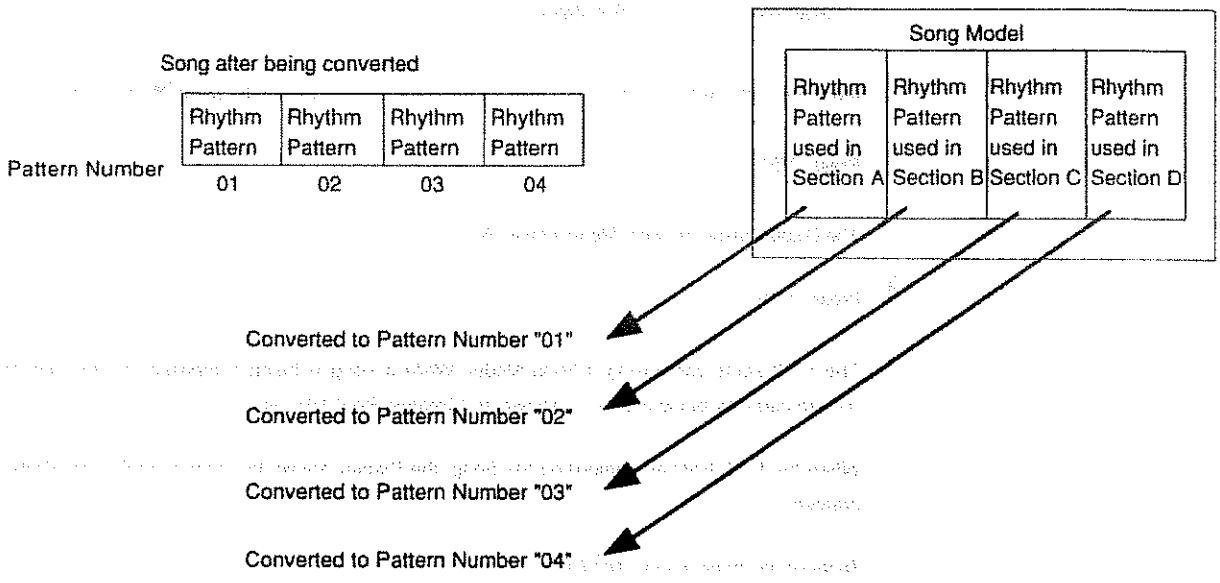
- Pressing [START/STOP] again will stop the Song playback.

- Depending on how the Memo (☞ P. 3-16) is being used or how the Parameters are being set, you may not be able to complete a Song Model (The Display shows "No area." or "Model area full."). If this happen, decrease the total number of measures and re-create a Pattern Model, or switch off the unit, convert the relevant Memos or Songs then switch on the unit.

2. Copying a Song Model to a usual Song (Convert)

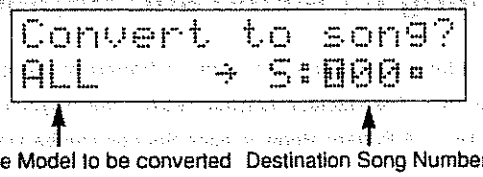
A Song Model created with the Rhythm Expert function cannot be modified until it has first been copied into a usual Song with the Convert function.

However it doesn't mean that the Convert function convert the entire Song Model. A Song Model includes various Rhythm Patterns (Pattern Models) and data that determines how those patterns should be arranged (Song Data). Convert to a Song means that these Pattern Models convert to the Rhythm Pattern and Song Data convert to a Song.



* When a Song Model is converted, the Pattern Models are converted into blank Patterns (that contain no existing data). (The Pattern Numbers can not be defined by yourself.)

① Press [CONVERT].



Source Model to be converted Destination Song Number to be copied to

② Move the cursor to the right in the lower line of the Display with [◁] and [▷], then specify the destination Song Number with [▼] and [▲].

③ Press [YES].

The Display responds with "Completed" showing that the Song Model has been converted.

* To cancel copying, press [NO/EXIT] instead of [YES].

* If the number of blank Patterns are less than the Rhythm Patterns used in the Song Model, or amount of Pattern data used in the Song Model exceeds the Available memory, the Song Model cannot be converted and the Display will show the Error Message (☞ P. 9-8). In this case, erase the unnecessary Rhythm Pattern and convert again.

* If you make a new Song Model. Or turn off the unit, the previous Song Model will automatically be erased.

* If any data exists in the destination Rhythm Pattern, the Display shows the message "Overwrite OK?" asking you if you are sure to erase the previous data. To carry on, press [YES] again.

* If you press [CONVERT] without creating a Song Model, the Display shows "Model empty." then returns to the previous screen.

3. Writing a Song Model temporarily, then recalling it (Memo and Replace)

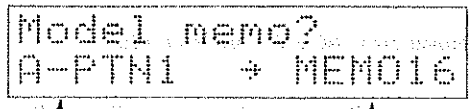
The Memo function allows you to retain a Pattern Model of a Song temporarily in a Memo Box (☞ P. 3-16). The Replace function recalls the Rhythm Pattern from the Memo Box at any time you like. (A Pattern Model in each Section can be stored in a Memo Box.)

◇ MEMO

A Pattern Model in a Song Model can be written into a Memo Box.

Follow this procedure after a Song Model has been created:

① Press [MEMO].



Pattern Model used in the Section

Box where the Pattern Model is to be written

② Move the cursor to the left in the lower line of the Display with [◁] and [▷], then, using [▼] and [▲], select the Pattern Model to be written into a Memo Box .

③ Move the cursor to the right in the lower line of the Display with [◁] and [▷], then specify the Memo Box where the Pattern Model should be written using [▼] and [▲].

④ Press [YES].

The Display responds with "Completed" showing that the Pattern Model has been written into the Memo Box.

You may not be able to write 16 Memos depending on the Pattern written in the Memo Box or the Pattern used in the Song Model (the Display shows "Model area full."). If this happen, decrease the total number of measures and re-create a Pattern Model, or switch off the unit, convert the relevant Memos or Songs then switch on the unit.

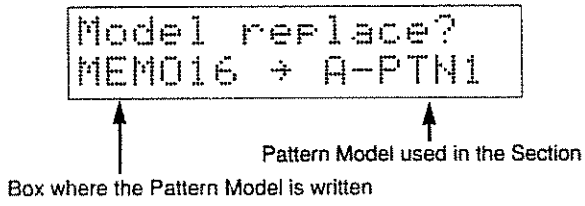
* If you press [MEMO] without creating a Song Model, the Display shows "Model empty." then returns to the previous screen.

◇ REPLACE

Follow this procedure after a Song Model has been created:

The Replace function will replace the Pattern Model stored in a Memo Box with a Pattern Model used in a Song Model (a certain "Section").

① Press [REPLACE].



② Select the Memo Box where the Pattern Model you want is stored using [▼] and [▲].

③ Move the cursor with [◁] and [▷], then specify the Pattern Model within the Section to be replaced using [▼] and [▲].

④ Press [YES].

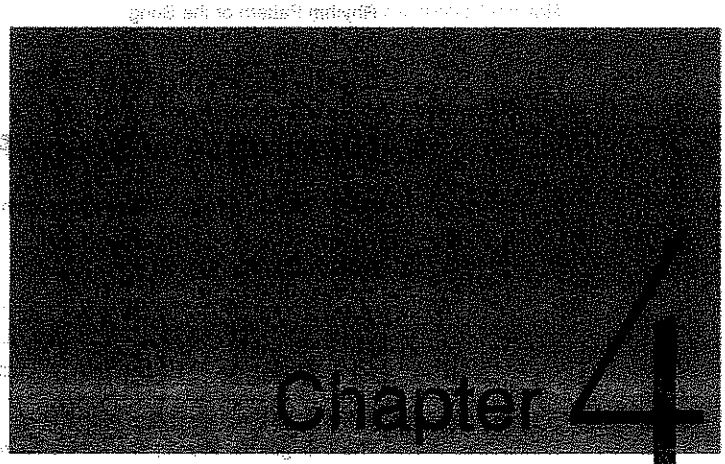
The Display responds with "Completed" showing that the Pattern Model has been replaced.

To hear the Song Model which is replaced a certain Pattern, press [START/STOP].

* If the number of measures of the new Pattern Model you select differs from that of the Pattern to be replaced, the length of Pattern will be modified so that the number of measures of the Section will not change.

* If you press [CONVERT] without creating a Song Model, the Display shows "Model empty." then returns to the previous screen.

Memo



Chapter 4

INSTRUMENT

1. Editing the tone of an Instrument

The tone (or pitch) of each Instrument can be changed by editing Sound parameters. This function changes just Instrument sounds. And so, Instrument sounds won't be changed even if you change the Rhythm Pattern or the Song.

1. Sound Parameters

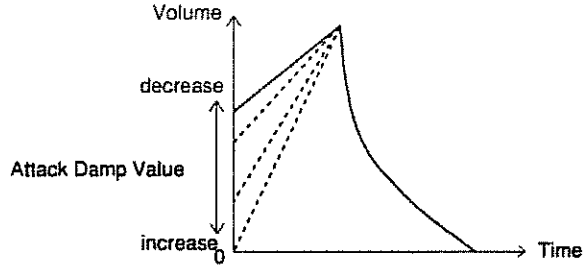
a. Description of Sound Parameters

Each Sound parameter affects the Instrument sound as follows :

◇ Attack Damp (0 - 31)

```
Sound:001-SolidK
Attack damP   =01
```

This changes the attack (rise) of the sound. Higher values will soften the attack.



◇ Pitch (-480 - +480)

```
Sound:001-SolidK
Pitch         =+240
```

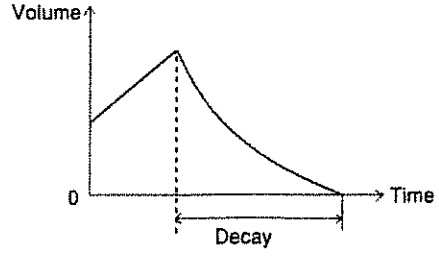
This sets the pitch of an Instrument in 10 cent steps (one semi-tone = 100 cents). A higher value creates a higher pitch.

* As to several Instruments, there is a point beyond which the Instrument's pitch cannot be changed.

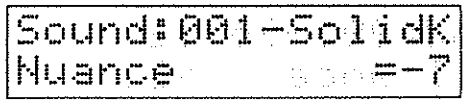
◇ Decay (-31 - +31)

```
Sound:001-SolidK
Decay         =-31
```

This sets the decay time of the Instrument. Higher values increase the decay time.



◇ Nuance (-7 - +7)



This parameter subtly changes the nuance of the sound. It applies, however, only to the instruments marked with "＊" or "＊＊" in the table shown on page 9-18.

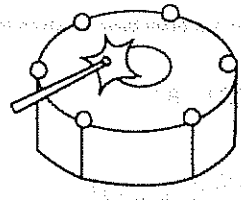
Instruments marked with "＊" will have their harmonic content emphasized when the value is decreased.

Instruments marked with "＊＊" will exhibit tonal changes, as if the instrument is being struck at a different position, when the value is changed.

If the selected instrument isn't marked with "＊" or "＊＊" on page 9-18, Nuance won't be shown in the display.

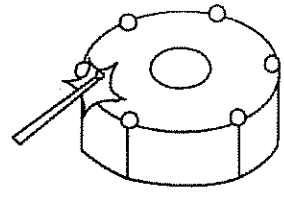
● Instrument marked with"＊"

When you hit the position near the center of the Drum



Higher Value

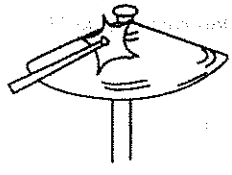
When you hit the position near the edge of the Drum



Lower Value

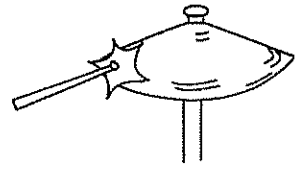
● Instrument marked with "＊＊"

When you hit the position near the center of the Cymbal



Higher Value

When you hit the position near the edge of the Cymbal

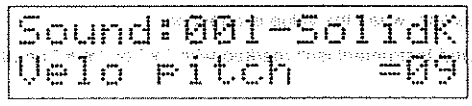


Lower Value

◇ Brilliance (0 - 15)

This parameter increases the high frequency content of an Instrument. Increasing the value emphasizes these frequencies. At 0, these frequencies are not emphasized.

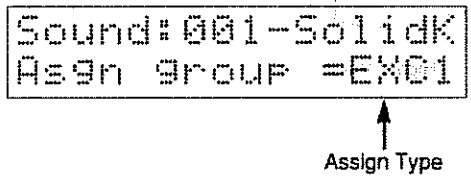
◇ Velocity Pitch (0 - 15)



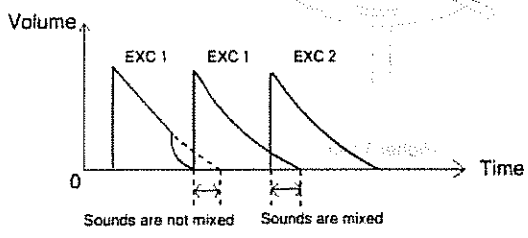
When the pitch of an Instrument is controlled by playing strength (velocity), the Velocity Pitch parameter sets the amount of pitch change. When this parameter is set to a higher value, a higher pitch is obtained with harder playing. At 0, there is no change by playing strength (velocity).

* As to several Instruments, there is a point beyond which the Instrument's pitch cannot be changed.

◇ Assign Group (OFF / EXC1 - 8)

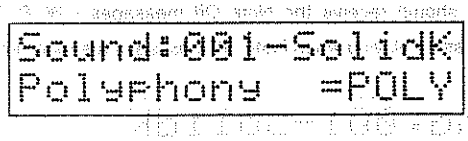


Two Instruments assigned to the same EXC number cannot sound simultaneously. For example, the Open Hi-hat and Closed Hi-hat sounds are not usually played at the same time. Using this function, you can assign several Instruments, which should not be played simultaneously in a normal performance, to the same EXC number. If you wish an Instrument to be always played simultaneously with the other Instrument, set this parameter to OFF.

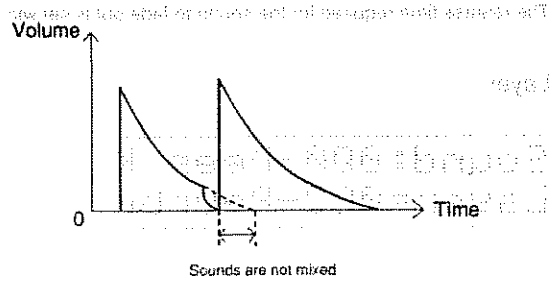


◇ Polyphony (MONO/POLY)

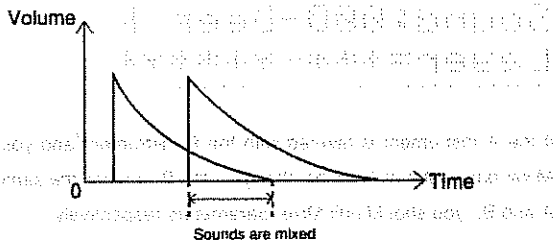
When the same Instrument is played continuously, this parameter sets which voices should be played.



MONO : In this mode, only one voice of an Instrument can be played at any one time. When an Instrument with a long decay continues to play, the next voice will cut off the previous one.

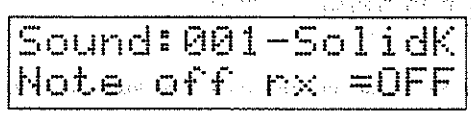


POLY : In this mode, more than one voice of one Instrument can be played simultaneously. Even when an Instrument with a long decay (such as the Cymbal) is playing continuously, the previous voice is retained when the next voice is playing.



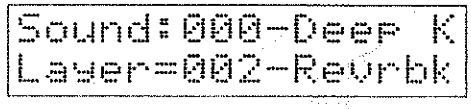
◇ Note Off Receive

When the R-70 is being played via MIDI, this parameter selects whether the currently selected Instrument should receive the Note Off messages (☞ P. 7-26) or not. When set to "ON", the Instrument stops playing when Note Off messages are received.



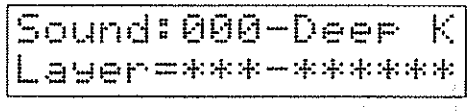
* The release time required for the sound to fade out is set with the Release Time (☞ P. 7-26).

◇ Layer



Using Layer, you can play two sounds by playing one Instrument.

If you set the Layer function for a certain Instrument, the sounds assigned to that Instrument will be played together. If you do not wish to create a Layer, set to "* * *-* * * * * *".



* If the A Instrument is layered with the B Instrument and you edit the Mixer parameter of A, only the Mixer parameter of A will be change. (the B remains the same.) Consequently, if you wish to edit both A and B, you should edit Mixer parameters respectively.

Using the Layer function

Using the Layer function, you can add reverberation to any Instrument. For instance, by setting the Reverberation effect (Ambience; 203-SnrAmb) to real snare sound(033-Real S), you can obtain a more realistic and spacious snare sound.

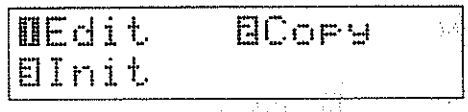
Or by setting light snare sound (034-Lite S) to real snare sound (033-Real S) and modifying the Instrument # 033's parameters, a completely different snare sound can be created.

b. Editing Procedure

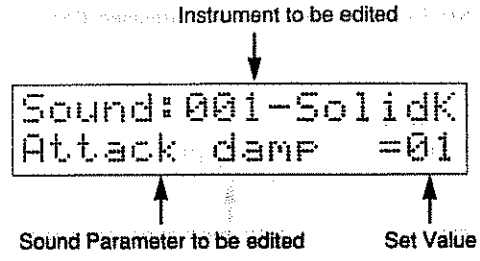
The following explains how to edit the Sound parameters of an Instrument.

* If you edit the Sound parameters of an Instrument, the edited Instrument will replace the previous Instrument in all the relevant Rhythm Patterns. If you wish to use the previous Sound Parameter data in another Song, you must copy the Instrument into a User's Instrument before you begin editing (☞ P. 4-8), and edit the User Instrument just copied. You can also save the data before you edit the Instrument (☞ P. 6-5).

① Press [SOUND].



② Press Ten Key Pad [1] to select "Edit".



③ Select the Instrument to be edited using [▼] and [▲] or the relevant Key Pad.

④ Change the screen with [◁] and [▷] to select the parameter to be edited.

⑤ Change the value of the parameter with [▼] and [▲].

⑥ Monitor the sound by hitting the Key Pad.

* When selecting the Instrument using [▼] and [▲], it is convenient that you use the Temporary Assign function (☞ P. 6-8).

⑦ To continue to edit the other parameters, repeat steps ④ and ⑥.

⑧ To continue to edit other Instruments, repeat steps ③ to ⑥.

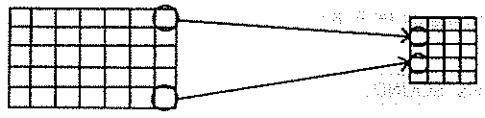
⑨ When you have completed editing all parameters of the Instruments you want, press [NO/EXIT].

* Even after you have edited the Sound parameters, you can retrieve the pre-programmed settings by Initialize (☞ P. 9-2) or Sound Initialization (☞ P. 4-9).

2. Instrument Copy

The Instrument Copy function allows you to register up to 32 Instruments you have edited as 'User's Instruments'. The User's Instruments you have registered can be used independently of the source Instruments. In addition, the User's Instruments can also be edited using the Sound parameters.

210 different Instruments → 32 different User's Instruments



① Press [SOUND].

② Press Ten Key Pad [2] to select "Copy" (Instrument Copy).

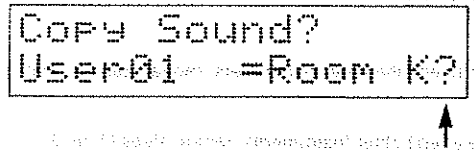
Destination Instrument — Instrument to be registered

③ Specify the destination Instrument number "User**" using [▼] and [▲].

④ Move the cursor to the right in the lower of the Display with [◁] and [▷] then select the Instrument to be registered with [▼] and [▲] or the relevant Key Pad.

You cannot select the User's Instruments.

* When you change the Instrument to be registered. "?" will be shown at the right in the lower of the Display.



⑤ Press [YES].

The Display responds with "Are you sure?".

⑥ Press [YES] again.

The Display responds with "Completed" and the Instrument is registered.

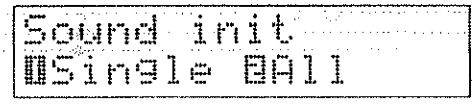
* To stop copying, press [NO/EXIT] instead of [YES].

3. Sound Initialization

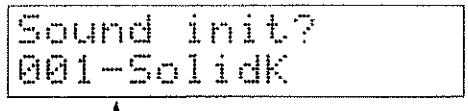
You can retrieve the pre-programmed Sound Parameter settings of a specific Instrument, or of all the Instruments.

① Press [SOUND].

② Press Ten Key Pad [3] to select "Init" (Sound Initialize).

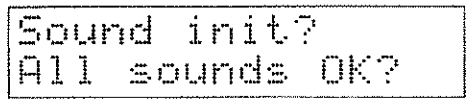


③ Press Ten Key Pad [1] to select "Single" (Initialize Single).



Instrument to be initialized

* To initialize all the Instruments, press Ten Key Pad [2] to select "All" (Initialize All). Step ④ will be skipped.



④ Specify the Instrument to be initialized with [▼] and [▲] or the relevant Pad.

⑤ Press [YES].
The Display responds with "Are you sure ?".

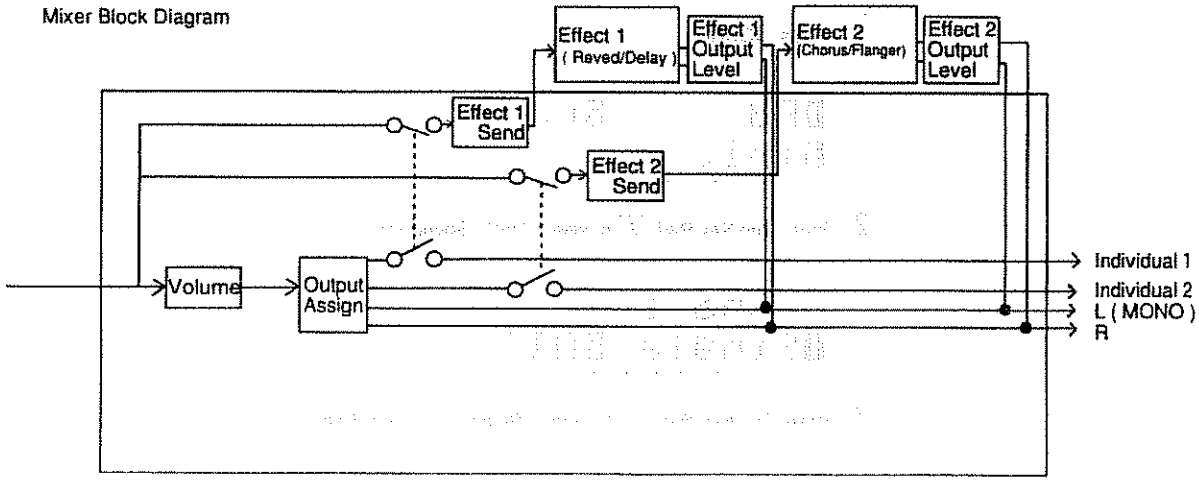
⑥ Press [YES] again.
The Display responds with "Completed" and the Instrument(s) are initialized.

* To stop initializing, press [NO/EXIT] instead of [YES].

2. Mixer

The Instruments you have programmed so far will be mixed at the Mixer, processed at the effects, then sent through each output socket. The following explains how to set parameters involved with mixing.

Mixer Block Diagram

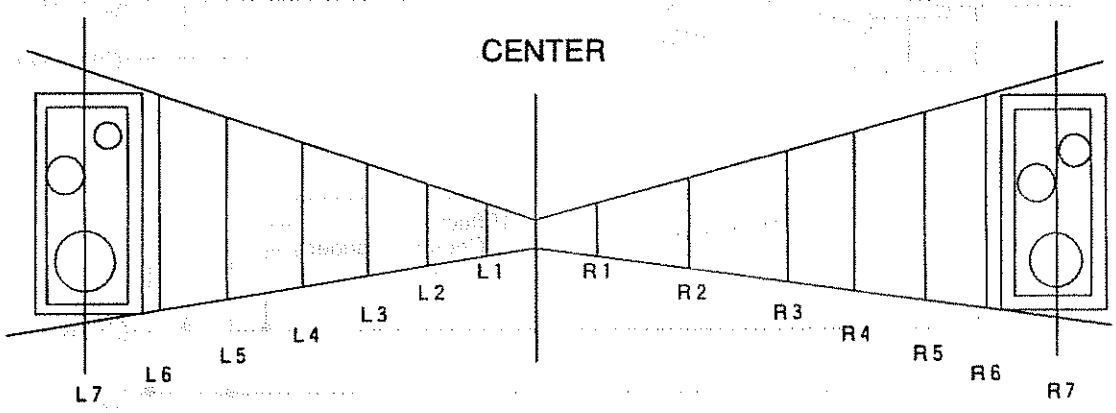


◇ Volume (0 - 15)

This sets the volume of each Instrument; higher values increase the volume. At zero, no sound is heard.

◇ Output Assign (L7 - L1, C, R1 - R7, 1, 2)

This selects the Pan for sending each Instrument from the Output Jack, or the Output Jack (Stereo Outputs / Individual Outputs 1, 2) to be used. When set to "1" or "2", the selected sound will be output from Individual Output 1 or 2. When the sound is output through the Stereo Out Jacks, the pan (positioning of the sound field) can be set to one of 15 levels.



If you use an external mixer, you can send only the specified Instrument from the Individual Output Jack and adjust the output balance separately. You can also enhance a specified Instrument with an external effects processor.

* You must have audio cables connected to the Individual Outs in order to hear the Instruments assigned to those outputs.

◇ FX1 Send (Effect 1 Send) (0 - 15)

This sets the depth of the Reverb/Delay added to each Instrument. Higher values will increase the Reverb/Delay levels. At 0, no Reverb/Delay effect is created.

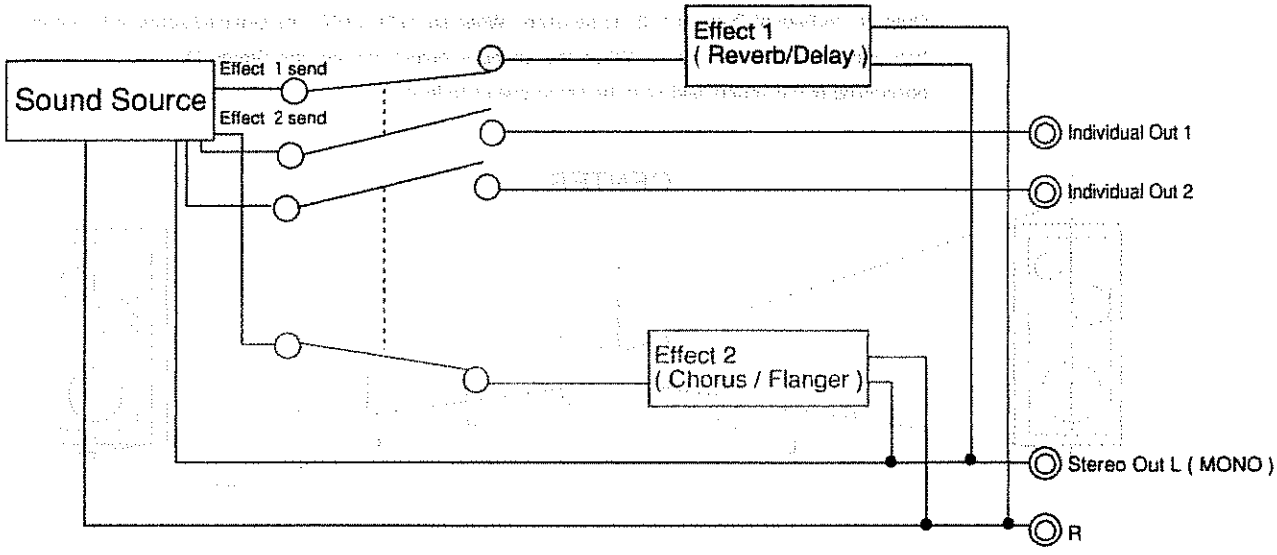
◇ FX2 Send (Effect 2 Send) (0 - 15)

This sets the depth of the Chorus/Flanger added to each Instrument. Higher values will increase the Flanger/Chorus levels. At 0, no Chorus/Flanger effect is created.

* The FX1/FX2 Send parameters actually control the level of the signal fed into the internal effect Unit (1/2) of each Instrument. If you wish to control the depth of each effect, refer to "Effects" (☞ P. 4-15).

◇ Output/Effect Mode

This parameter selects which socket should be used for output or what effect should be used. There are two kinds of sockets for audio signal output; Stereo Output and Individual Outputs 1 and 2. Normally, the Stereo Output is used. When a sound is output from an Individual Out, the use of effects will be conditional.



The Output/Effect mode allows you to select whether to output from the Individual Out or use the Effects.

IND1:IND2 Individual Outputs 1 and 2 are valid. Effects 1/2 cannot be used.

IND1:FX2 Individual Output 1 and Effect 2 are valid; Effect 1 cannot be used. No sound is output from Individual Out 2.

* If you select "IND1/FX2" and the Output Assign of the Instrument is set to "2", that Instrument's sound isn't heard.

IND2:FX1 Individual Output 2 and Effect 1 are valid; Effect 2 cannot be used. No sound is output from Individual Out 1.

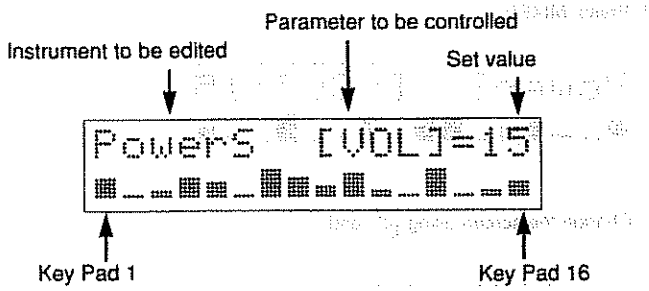
* If you select "FX1/IND2" and the Output Assign of the Instrument is set to "1", that Instrument's sound isn't heard.

FX1:FX2 Effects 1 and 2 are valid. No sound is output from Individual Output 1 or 2.

* If you select "FX1/FX2" and the Output Assign of the Instrument is set to "1" or "2" , that Instrument's sound isn't heard.

* You must have audio cables connected to the Individual Outs in order to hear the Instruments assigned to those outputs.
* To set what output should be used for each Instrument, refer to Output Assign (☞ P. 4-11).
* When you change the Output/Effect Mode, the effect sound will be muted for a moment.

① Press [MIXER].



The lower line of the Display shows the values of parameter of each Instrument assigned to the 16 Key Pads (of the Pad Bank currently selected).

When the Parameter to be controlled is set to the "Output Assign" and the Output/Effect mode is set so the status that the Individual Outputs cannot be used, "*" is shown at the lower line of the Display instead of "1" or "2".

② Select the Instrument to be set with [▼] and [▲] or the Key Pads.

* If you wish to select the Instrument assigned to another Pad Group, change the Pad Group with [SHIFT] + [PAD BANK].

③ Move the cursor into "[ ]" with [◁] and [▷], then select the parameter to be controlled using [▼] and [▲].

OR

select the parameter with [SHIFT] + [▼] and [▲] whenever the cursor is.

④ Move the cursor to the right in the upper line of the Display with [◁] and [▷], then set the value with [▼] and [▲].

* To continue to edit other Instruments, repeat steps ② - ④.

⑤ When you have finished editing all the Instruments you want, press [NO/EXIT].

○ Setting the Output/Effect Mode

① Press [MIXER].

② Change the screen using [◁] and [▷].

Output/Effect Mode

③ Select the Output/Effect mode with [▼] and [▲].

④ When you have completed setting the Output/Effect mode, press [NO/EXIT].

3. Effects

The R-70 contains two sets of effects; Effect 1 and Effect 2.

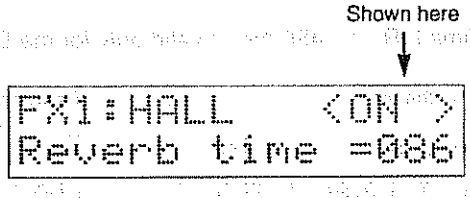
1. Effect 1 (Reverb/Delay)

You can select either Reverb or Delay. The Reverb effect will simulate the reverberations of a concert hall or room. The Delay effect mixes the direct sound with the delayed sound, creating rich textures.

○ Parameters

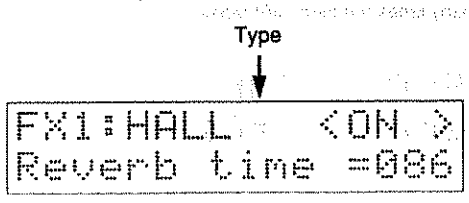
* Depending on which effect is selected with 'Type', the parameters you can set will differ.

* Depending how the Output/Effect Mode (☞ P. 4-12) is set, the Reverb/Delay effects cannot be used at all. The upper right of the Display (ON/OFF) shows whether you can use the effects in the current status. (Even when "OFF" is shown in the Display, the Display will respond to your action, even though the effects cannot be obtained when playing.)

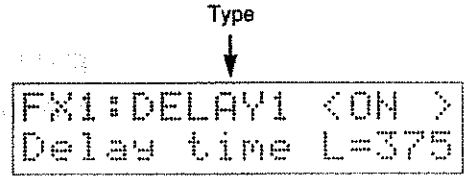


◇ Type

(When HALL, ROOM or PLATE is selected)



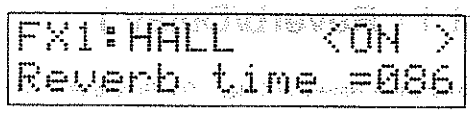
(When DELAY 1 or DELAY2 is selected)



This selects the type of reverberation or delay.

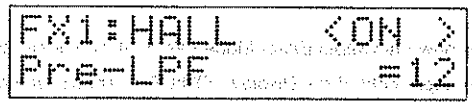
Reverb	HALL	: This simulates reverberations of a concert hall.
	ROOM	: This simulates reverberations of a room.
	PLATE	: This simulates plate echo (the reverberation created by using the vibrations of a metallic plate).
Delay	DELAY1 DELAY 2	: The direct sound is mixed with the delayed sound independently for the left and right signals. These can be used to make the sound fatter or move the sound to the right and left.

◇ Reverb Time (0 - 127) (valid only for Reverb effects)



This sets the reverberation time. Higher values increase the reverb time, making the sound deeper.

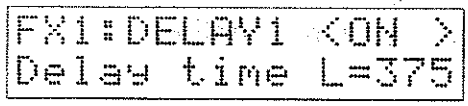
◇ Pre-lowpass Filter (0 - 15) (valid only for Reverb effects)



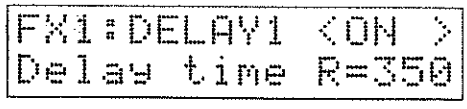
This sets the cutoff point of the upper frequencies of the effect sound. Higher values will decrease the higher frequency content.

◇ Delay Time L/R (1 - 450 ms) (valid only for the Delay effect).

(Delay time for L channel)



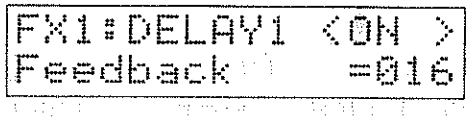
(Delay time for R channel)



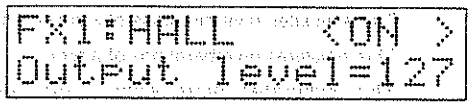
This sets the delay time independently for L and R.

◇ Feedback (0 - 127) (valid only for the Delay effect)

This sets how many times the delay will repeat.



◇ Output Level (0 - 127)



This adjusts the volume of the effect sound (Reverb/Delay). Higher values increase the volume of the effect sound. At zero, no effect sound is output.

① Press EFFECTS.

② Press Ten Key Pad [1] to select "FX1" (Effect 1).

③ Move the cursor with [◁] and [▷], then set the parameter with [▼] and [▲].

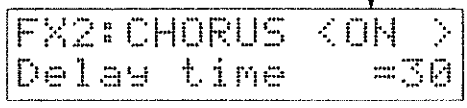
④ When you have set all the parameters you want, press [NO/EXIT].

2. Effect 2 (Chorus/Flanger)

Effect 2 adds a sound with a slightly different pitch to the direct sound. This results in a fatter, warmer sound. Effect 2 can also delay the direct sound slightly and change it periodically to create unusual effects.

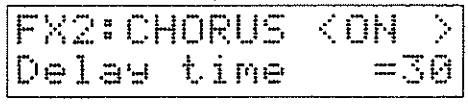
* Depending how the Output/Effect Mode (☞ P. 4-12) is set, the Chorus/Flanger effects cannot be used at all. The upper right of the Display (ON/OFF) shows whether you can use the effects in the current status. (Even when "OFF" is shown in the Display, the Display will respond to your action, even though the effects cannot be obtained when playing.)

Shown here



◇ Type

Type

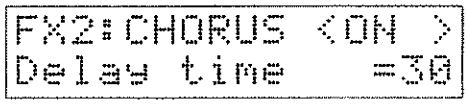


This selects which effect should be used.

CHORUS : A slightly detuned sound is added to the direct sound to create warmth and fullness.

FLANGER : This creates unusual effects by changing the sound periodically.

◇ Delay Time (1 - 30 ms)

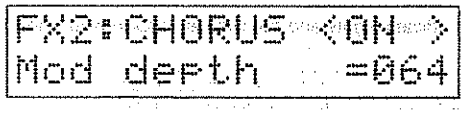


This adjusts the delay time of the effect sound. Higher values make the delay time longer.

◇ Modulation Rate (0 - 127)

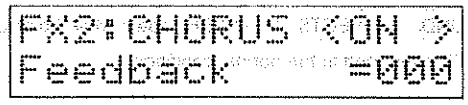
This adjusts the rate of the chorus/flanger effect. Higher value will increase the speed.

◇ Modulation Depth (0 - 127)



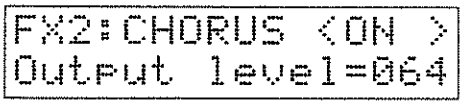
This adjusts the depth of the effect. Higher values will deepen the effect.

◇ Feedback Level (0 - 127)



This adjusts the amount of the feedback in the Chorus/Flanger effect. Higher values will emphasize the flanging effect making the sound even more unusual.

◇ Output Level (0 - 127)



This adjusts the volume of the Chorus/Flanger effect. At 0, no effect sound is output.

① Press [EFFECTS].

② Select "FX2" (Effect 2) by pressing Ten Key Pad [2].

③ Move the cursor with [◁] and [▷], then set the parameters with [▼] and [▲].

④ When you have set all the parameters you want, press [NO/EXIT]

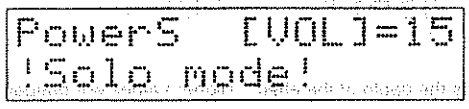
4. Setting the Condition of Producing Sounds (Solo Mode)

You can select the Normal or Solo Voice Mode. Solo mode will play only one selected Instrument . The Solo mode can be effectively used for monitoring the sound currently being edited while you are editing Sound parameters or the Effects.

* If you select an Instrument by using [▼] [▲] or pressing KeyPads while in the Solo mode, only the newly selected Instrument will be played.

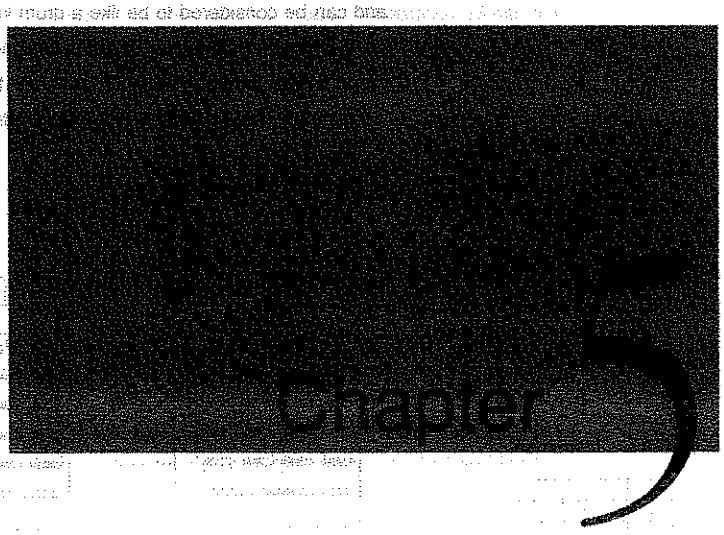
① In the Sound, Effect or Mixer Display, press [SOUND], [EFFECTS] or [MIXER] while holding [SHIFT] down.

The SOLO indicator lights and the Display responds as shown:



* The upper line of the Display depends on the current mode.

② Press [SOUND] , [EFFECTS] or [MIXER] again while holding [SHIFT] down. The indicator goes out and the R-70 is returned to the normal condition.

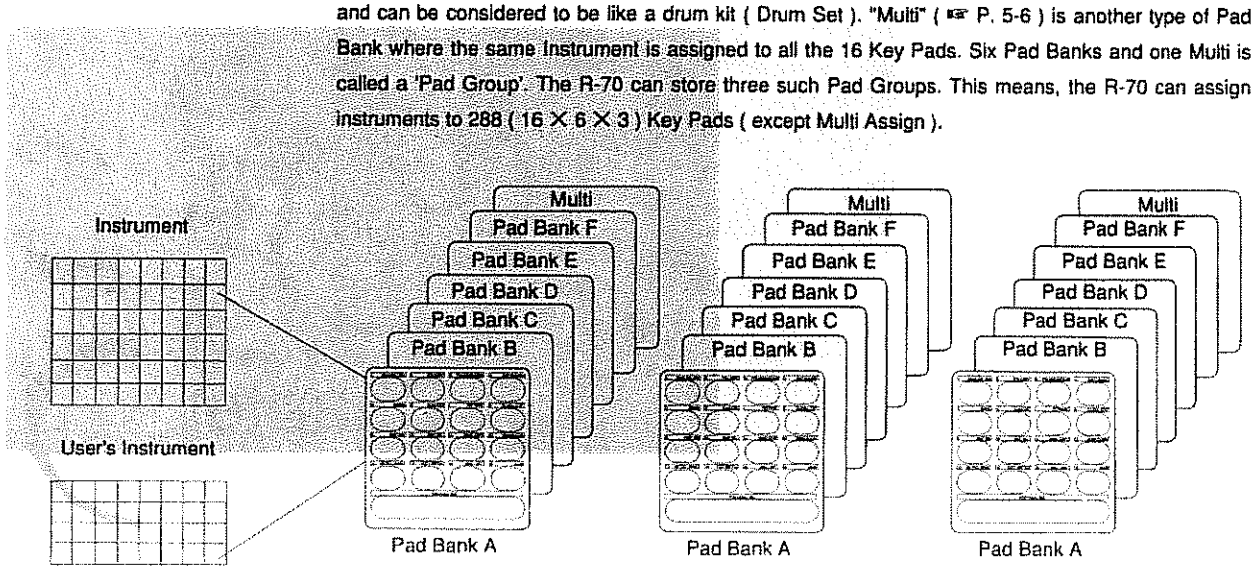


Sound Assignment

The R-70's memory contains 210 different Instruments with additional space for 32 user-programmed Instruments. These Instruments, however, cannot be played unless they have been assigned to the Key Pads. The following explains how to assign Instruments to the Key Pads.

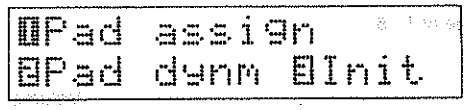
1. Pad Assign Function

The R-70 allows you to assign any of the 210 pre-programmed Instruments (and 32 user-programmed Instruments) to the 16 Key Pads. One set of assignments to those 16 Key Pads is called a 'Pad Bank' and can be considered to be like a drum kit (Drum Set). "Multi" (☞ P. 5-6) is another type of Pad Bank where the same Instrument is assigned to all the 16 Key Pads. Six Pad Banks and one Multi is called a 'Pad Group'. The R-70 can store three such Pad Groups. This means, the R-70 can assign Instruments to 288 (16 × 6 × 3) Key Pads (except Multi Assign).

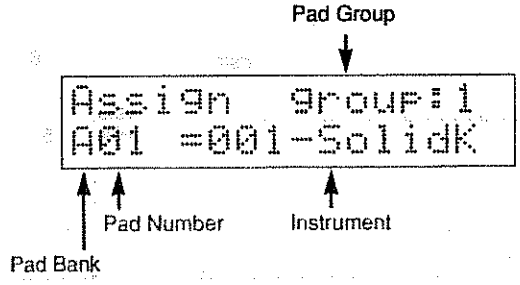


1. Pad Assignment

① Press [ASSIGN].



② Press Ten Key Pad [1] to select "Pad assign".



③ While holding [SHIFT] down, select the Pad Group to be used by pressing [PAD BANK].

The selected Pad Group is shown to the right in the upper line of the Display.

④ Select the Pad Bank to be used by pressing [PAD BANK].

The selected Pad Bank is shown to the left in the lower line of the Display.

⑤ Press the Key Pad for which you wish to assign a different Instrument. The number of the Key Pad you have selected is shown next to the Pad Bank number (to the left in the lower line of the Display).

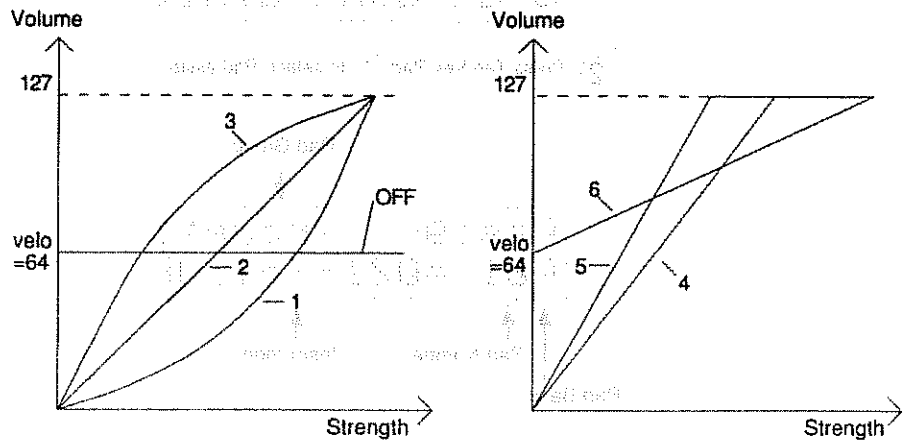
⑥ Specify the new Instrument Number with [▼] and [▲].

⑦ If you wish to assign another Instrument to another Key Pad, repeat step ③ to ⑥.

⑧ When you have completed assigning the new Instrument, press [NO/EXIT].

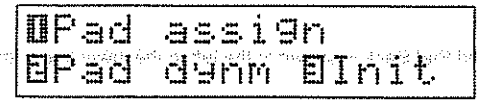
2. Pad Dynamics (OFF / 1 - 6)

This parameter controls Pad sensitivity. When "OFF", there will be no change in instrument volume, regardless of how hard you play the Pads. When other than "OFF", the Pad sensitivity can be adjusted over a range of 1 - 6.

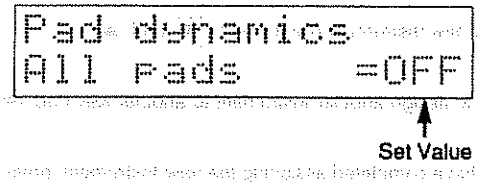


* The Pad Dynamics value is common for all 16 Key Pads, regardless of the Pad Group or Pad Bank.

① Press [ASSIGN].



② Select "Pad dynm" by pressing Ten Key Pad [2].



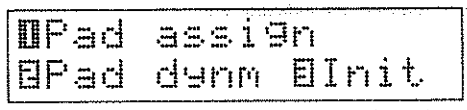
③ Set the dynamic value (OFF / 1 - 6) using [▼] and [▲].

④ Press [NO/EXIT].

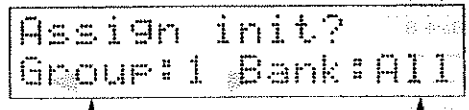
3. Initializing the Pad Assignment (Assign Initialize)

The Assign Initialize function allows you to erase the current Key Pad assignment and retrieve the pre-programmed assignment of the manufacturer.

① Press [ASSIGN].



② Press Ten Key Pad [3] to select "Init".



Pad Bank to be initialized

Group Number where the Instrument Assignment should be initialized

③ Select the Pad Group Number to be initialized by using [▼] and [▲] . (The selected Pad Group Number is shown to the left in the lower line of the Display.)

④ Move the cursor to the right in the lower line of the Display using [◁] and [▷] , then select the Pad Bank (A - F / MLT / ALL) to be initialized using [▼] and [▲] .

If "ALL" is selected, all the Pad Assignments of the selected Pad Group will be initialized.

⑤ Press [YES] .

The Display responds with "Are you sure?".

⑥ Press [YES] again.

The Display responds with "Completed" showing that the Pad Assignment has been initialized.

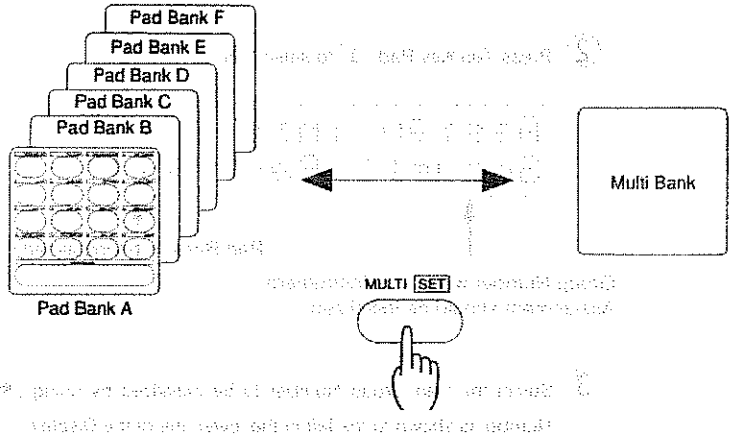
* To cancel initialization, press [NO/EXIT] instead of [YES] .

2. Multi Assign

The Multi Assign function allows you to assign the same Instrument to all 16 Key Pads. The R-70 features a special Pad Bank for Multi Assignments (separate from Pad Banks A - F). In the Multi Bank, the same Instrument is assigned to all 16 Key Pads, but you can enjoy playing that sound with different parameter settings. For example, you can change the pitch or tone of the Instrument.

1. Calling a Multi Bank

Pressing [MULTI] repeatedly will call the Multi Bank and Pad Banks (A - F) alternately. When the Multi Bank is selected, the indicator is lit.

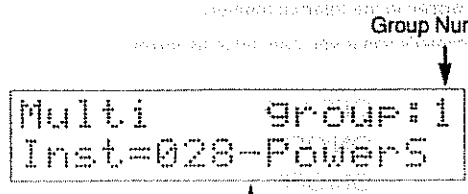


2. Multi Instrument

You can assign one Instrument to the Multi Bank.

① Press [MULTI] while holding [SHIFT] down.

② Select "Inst" by pressing Ten Key Pad [1]



③ Select a Pad Group by pressing [PAD BANK] while holding [SHIFT] down. The selected Pad Group is shown to the right in the upper line of the Display.

④ Select the Instrument to be assigned to the Key Pads using [▼] and [▲]. The selected Instrument is shown in the lower line of the Display.

⑤ Press [NO/EXIT].

3. Parameter Align

The Parameter Align function allows you to align the values of the Performance Parameters on the Key Pads from Pad 1 to 16 in the correct sequence.
If you assign the same instrument to all 16 Key Pads and set the different pitch for each Pad, you can play the melody by hitting them.

○ For Performance Parameters

Performance Parameters determine the tone of the sound created by playing the Key Pads.
Here, by entering ON/OFF (or some other value), all the Key Pads will automatically be set to the values as written in the internal memory.
Each parameter's value you can set is as follows :

◇ Pitch : OFF/1 - 3
◇ Decay : ON/OFF
◇ Nuance : ON/OFF
◇ Pan : ON/OFF

Each parameter will be aligned as follows :

Assigned (Aligned) Parameter Values

PITCH " 1 "

-120	-110	-100	-090
-080	-070	-060	-050
-040	-030	-020	-010
±000	+010	+020	+030

PITCH " 2 "

-080	-070	-060	-050
-040	-030	-020	-010
±000	+010	+020	+030
+040	+050	+060	+070

PITCH " 3 "

-040	-030	-020	-010
±000	+010	+020	+030
+040	+050	+060	+070
+080	+090	+100	+110

Decay

-16	-14	-12	-10
-08	-06	-04	-02
±00	+02	+04	+06
+08	+10	+12	+14

Nuance

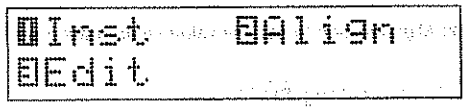
-7	-6	-5	-4
-3	-2	-1	±0
±0	+1	+2	+3
+4	+5	+6	+7

Pan

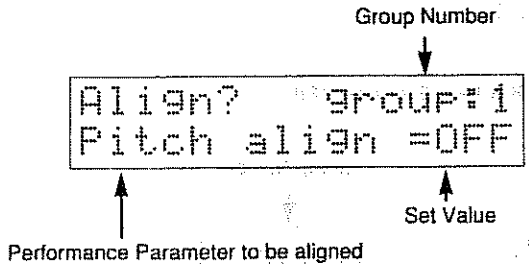
L6	L6	L4	L4
L2	L2	C	C
C	C	R2	R2
R4	R4	R6	R6

* If the Pitch value is set to 1 - 3, it will be set to change in semi-tone steps. However, the sound range to be used differs depending on the value.

① Press [MULTI] while holding [SHIFT] down.



② Select "Align" by pressing Ten Key Pad [2].



③ Select the Pad Group by pressing [PAD BANK] while holding [SHIFT] down. The selected Pad Group is shown to the right in the upper line of the Display.

④ Move the cursor with [◁] and [▷], then select the Parameter to be aligned. The selected Parameter is shown to the left in the lower line of the Display.

⑤ Set the value with [▼] and [▲].

⑥ To set the other Parameters, repeat steps ④ and ⑤.

⑦ Press [YES].

The Display responds with "Are you sure?".

⑧ Press [YES] again.

The set values will be assigned to the 16 Key Pads.

- Pressing [YES] will align all the Parameters which are set to a value other than "OFF".

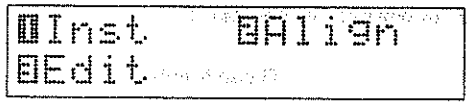
And the values of the Parameters which are set to OFF will be set as follows :

Pitch	: 0	(Sounds the value of the Pitch of the Sound Parameter)
Decay	: 0	(Sounds the value of the Decay of the Sound Parameter)
Nuance	: 0	(Sounds the value of the Nuance of the Sound Parameter)
Pan	: OFF	(Sounds the value of the Pan of the Mixer)

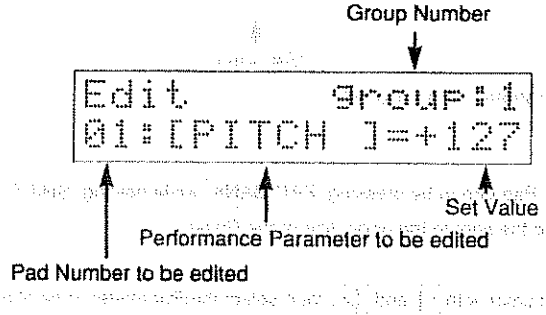
4. Edit Align

Use the Edit Align function to edit the value set for each Key Pad with "3. Parameter Align".

① Press [MULTI] while holding [SHIFT] down.



② Press Ten Key Pad [3] to select "Edit".



③ Select the Pad Group by pressing [PAD BANK] while holding [SHIFT] down. The selected Pad Group will be shown to the right in the upper line of the Display.

④ Specify the Pad Number to be edited by pressing the corresponding Pad.

⑤ Select the Parameter to be edited using [▼] and [▲].

The selected Parameter will be shown to the left in the lower line of the Display.

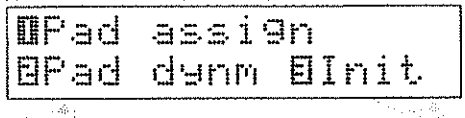
Performance Parameter can be selected by pressing [▼] and [▲] with holding [SHIFT] down wherever the cursor is.

⑥ Move the cursor to the right in the lower line of the Display with [◁] and [▷] then set the value of the Parameter with [▼] and [▲].

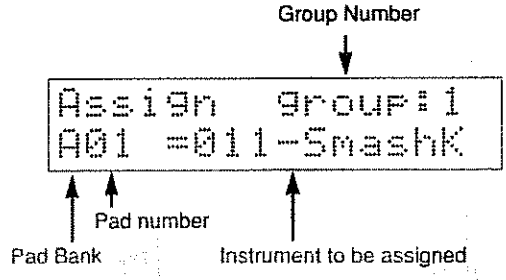
⑦ Press [NO/EXIT]

Instrument assignment to the Multi Bank can also be done with the Pad Assign function (☞ P. 5-3).

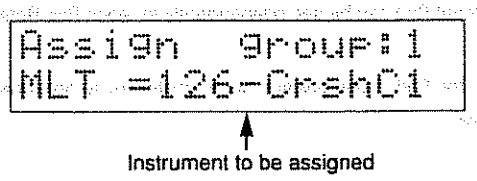
① Press [ASSIGN].



② Call the Pad Assign setting Display by pressing Ten Key Pad [1].



③ Press [MULTI].

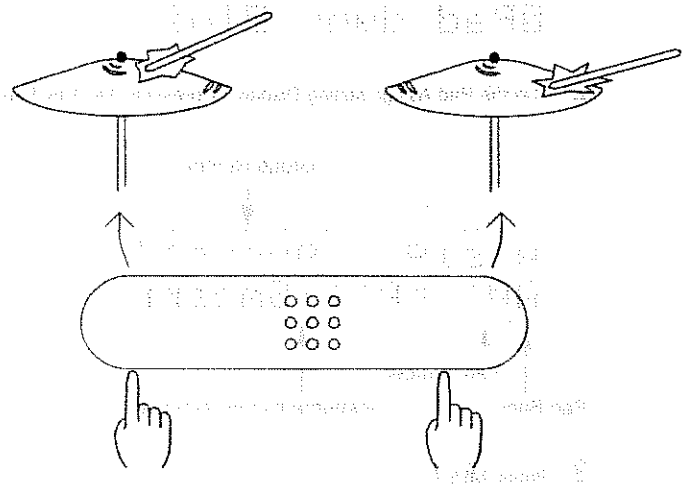


④ Select the Instrument to be assigned to the Multi Bank with [▼] and [▲].

⑤ Press [NO/EXIT].

3. Positional Pad

The R-70 contains a unique controller called the "Positional Pad". By hitting the Positional Pad in different places, you can change the pitch, or tone color of a sound. For example, you can change the Nuance values to create the effect of playing a cymbal (for example) in different places. Other parameters you can control with the Positional Pad include Decay and Pan.



* The Positional Pad can be set independently for each Pad Bank.

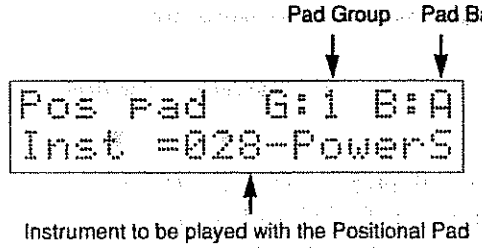
* If you play the Pad in one position, while continuing to hold down the Pad at another position, no sound will be heard.

1. Instrument Assignment

Select the Instrument to be played using the Positional Pad.

① Select the Pad Group where you wish to set the Positional Pad by pressing [PAD BANK] while holding [SHIFT] down. Then select the Pad Bank with [PAD BANK]

② Press [POSITIONAL PAD] while holding [SHIFT] down.



* At this point, if you set to the Multi "ON", you can set the Multi Bank. However, in Multi Bank, the 1 - 16 Key Pads and Positional Pad are assigned the same Instrument. And if you change the Instrument Assignment to the Positional Pad, assignment to the 1 - 16 Key Pads will change to the same Instrument.

③ Select the Instrument with [▼] or [▲].

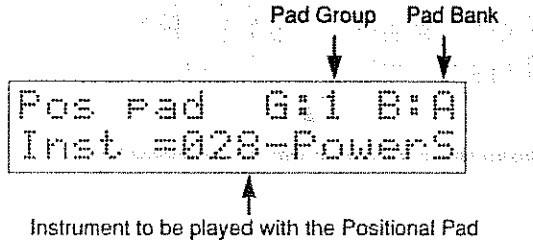
④ Press [NO/EXIT].

2. Setting the Home Position (Flat Position)

You can obtain different sounds by playing the Positional Pad in different places. The Flat Position is where the original sound of the Instrument is obtained (set with the Sound Parameters : ☞ P. 4-2). You can set the Flat Position to the LEFT, CENTER or RIGHT part of the Positional Pad.

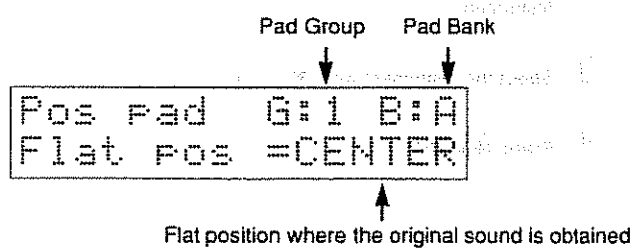
① Select the Pad Group which has the Positional Pad you wish to set the Flat Position, by pressing [PAD BANK] while holding [SHIFT] down. Then select the Pad Bank by pressing [PAD BANK]

② Press [POSITIONAL PAD] while holding [SHIFT] down.



Instrument to be played with the Positional Pad

③ Select the Flat Position setting mode with [◁] and [▷] (the following Display):



Flat position where the original sound is obtained

④ Select the Flat Position (LEFT, CENTER or RIGHT) with [▼] and [▲].

⑤ Press [NO/EXIT].

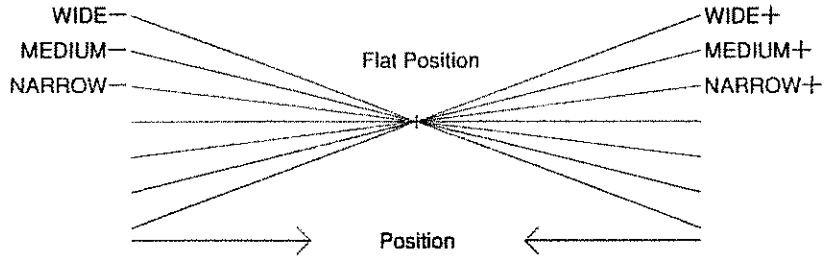
* When you set that the Pan changes in responce to the hitting position, Pan setting at the Flat Position is always Center.

3. Setting the intensity of each Performance Parameter

This sets how widely each Performance Parameter affects the sound on the Positional Pad.

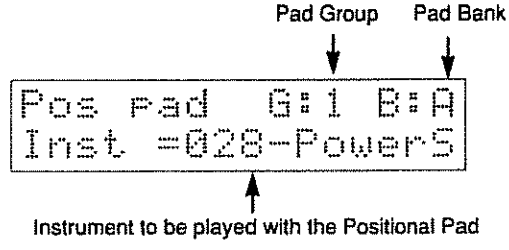
The possible setting for each parameter are: OFF, NARROW+, MEDIUM+, WIDE+, NARROW-, MEDIUM-, WIDE-. When set to"OFF", there will be no change in the parameter. The 'width' of a parameter value increases from NARROW to MEDIUM to WIDE. When a positive (+) value is selected, the right side of the Positional Pad is assigned a higher value. When a negative (-) value is selected, the left side of the Positional Pad is assigned a higher value.

(Example)

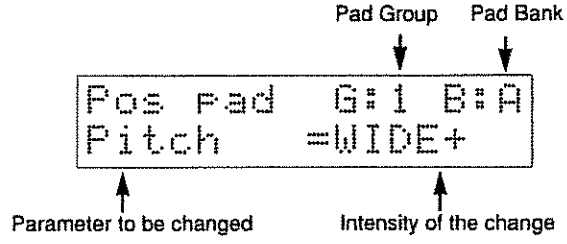


① Select the Pad Group where you wish to set the Positional Pad by pressing PAD BANK while holding SHIFT down. Then select the Pad Bank by pressing PAD BANK.

② Press POSITIONAL PAD while holding SHIFT down.



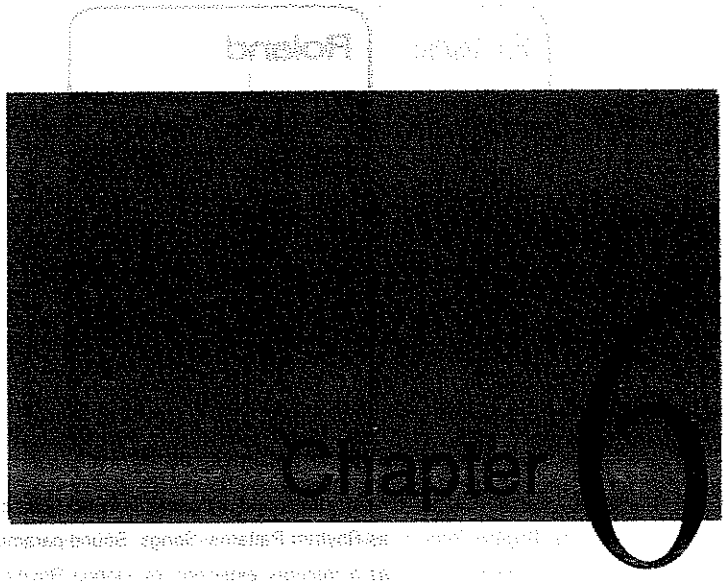
③ Select the Parameter setting mode (the following Display) using ◁ and ▷:



④ Select the relevant Parameter with ◁ and ▷ then select the width of the change with ▼ and ▲

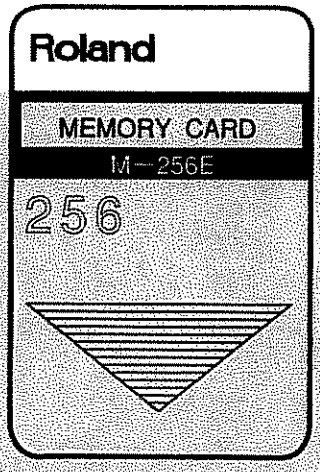
⑤ Press NO/EXIT.

Memo



Other Useful Functions

1. Memory Card



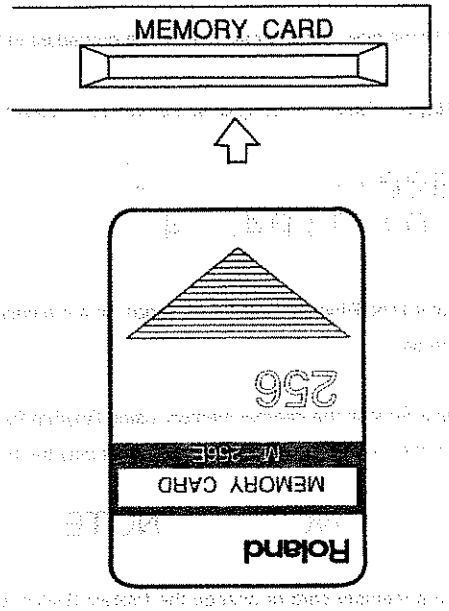
An optional memory card (M-256E) can be used to save all the data programmed in the R-70, such as Rhythm Patterns, Songs, Sound parameters, MIDI settings, etc. A memory card can also be used as a memory extension by storing Rhythm Patterns and Songs that are different from those in the internal memory.

* Be sure to use only Roland M-256E cards.

* Before using a memory card, read the instructions carefully.

1. Inserting a memory card into the R-70

① Insert the memory card (gently but firmly) into the Memory Card Slot; it will click into place



* Use of cards other than the M-256E may cause damage or malfunction.

* When using a brand new memory card, be sure to install the supplied battery (CR-2016). Refer to the instructions.

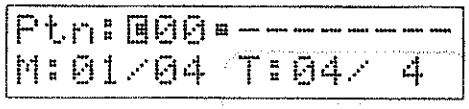
* Remove any memory card from the R-70 before powering down. This will prevent unnecessary discharge of the memory card's battery.

2. Handling a memory card

Rhythm Patterns or Songs in a Memory card can be accessed directly just like those in the R-70. However, when you use the Memory Card, keep in your mind regarding the following cautions.

* When using a brand new memory card, follow the procedure in "3. Save" (☞ P. 6-5).

To access a Rhythm Pattern or Song on a memory card, select "C" for the Pattern Bank or Song Bank.



* When writing or editing Rhythm Patterns or Songs on a memory card, set the Protect Switch on the memory card to off.

* You can create a Song in the Internal memory using Rhythm Patterns on a card without having the memory card in the Card Slot. However, you cannot play the Song in this condition.

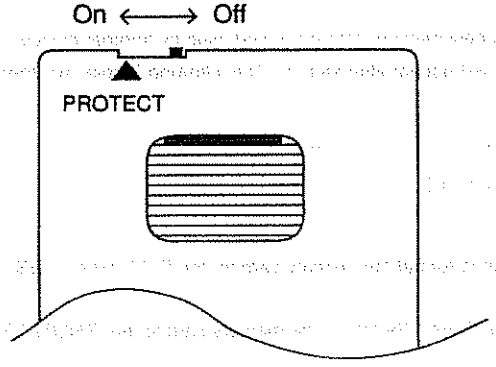
NOTE

Do not remove a memory card or change the Protect Switch to "PROTECT" while you are recording or editing a Rhythm Pattern or creating a Song in the Memory card. Doing so may damage the data or the card.

3. Save

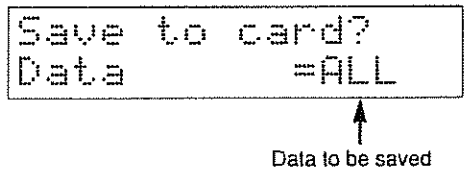
The Save procedure transfers data stored in the internal memory of the R-70 onto a memory card. Follow the same procedure when using a brand new card.

① Set the Protect Switch on the memory card to off.



② Press [CARD].

③ Press Ten Key Pad [1] to select the Save mode.



Data to be saved

④ Specify the data mode that determines which data should be saved using [▲] and [▼].

ALL : All the R-70's data (including the data of "SEQ" and "SETUP") is saved onto the card.

SEQ : Rhythm Patterns and Song data are saved onto the card.

SETUP : Setting of MIDI(☞ P. 7-7), ASSIGN(☞ P. 5-2), EFFECTS(☞ P. 4-15), MIXER(☞ P. 4-11), Sync mode (☞ P. 8-3), Sound Parameter (☞ P. 4-2), Metronome (☞ P. 1-12), Pad dynamics (☞ P. 5-4), Roll (☞ P. 1-9), Foot SW assign(☞ P. 6-11) are saved onto the card.

⑤ Press [YES].

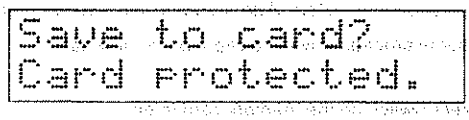
The Display responds with "Are you Sure?".

⑥ Press [YES] again.

The Display responds with "Completed" showing that the specified data is saved.

* To cancel the save operation, press [NO/EXIT].

* If you fail to set the Protect Switch on the memory card to the "PROTECT" position in step ⑤, the following message will appear for a moment:



If you wish to proceed with the save operation, set the Protect Switch to the off position, execute step ⑤.

* If a brand new memory card (or a card used by another device) is inserted into the R-70, an error message will appear after step ⑤. The following Display will then appear:

If you wish to format the memory card for the R-70, press [YES]. To cancel, press [NO/EXIT].

⑥ Return the Protect Switch on the memory card to the "PROTECT" position.

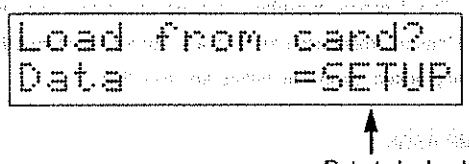
* Do not switch off the R-70 or remove the memory card while data is being saved onto it. Doing so may damage the data on the card or in the internal memory.

4. Load

The Load operation copies data saved on a memory card back into the R-70.

① Press [CARD].

② Press Ten Key Pad [2] to select the loading mode.



Data to be loaded

③ Specify the data mode that determines which data should be loaded using [▲] and [▼].

ALL : All the data on the memory card (including the data of "SEQ" and "SETUP") is loaded back into the R-70.

SEQ : Rhythm Patterns and Song data are loaded back into the R-70.

SETUP : Setting of MIDI(☞ P. 7-7), ASSIGN(☞ P. 5-2), EFFECTS(☞ P. 4-15), MIXER(☞ P. 4-11), Sync mode (☞ P. 8-3), Sound Parameter (☞ P. 4-2), Metronome (☞ P. 1-12), Pad dynamics (☞ P. 5-4), Roll (☞ P. 1-9), Foot SW assign (☞ P. 6-11), are loaded back into the R-70.

④ Press [YES].

The Display responds with "Are you sure?".

⑤ Press [YES] again.
The Display responds with "Completed" showing that the specified data has been loaded.

- The Load operation will automatically erase data stored in the internal memory of the R-70.
- Do not switch off the R-70 or remove the memory card while data is being transferred back into the R-70. Doing so may damage the data on the card or in the internal memory.

2. Instrument Utility

The Instrument Utility allows you to find out what Instruments are used in the Rhythm Pattern currently selected (Inst List). You can also assign an Instrument to all the Key Pads while you are setting the parameters related to an Instrument (Temporary Assign).

1. Temporary Assign

The Temporary Assign function allows you to temporarily assign the instrument last selected to all the Key Pads. This function, therefore, can be effectively used for monitoring an Instrument during the Instrument Change procedure (☞ P. 1-42), or for monitoring the sound whose Sound parameters are currently being edited, simply by hitting any Key Pad.

① Press [TEMP ASGN].
The Instrument last selected is assigned to Key Pads [1] - [16] and the Positional Pad.
([TEMP ASGN] will light).

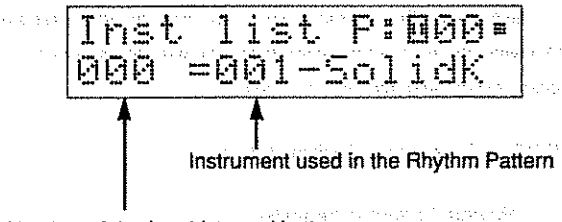
To return to the previous condition, press [TEMP ASGN] again. (The indicator goes out.)

* This function cannot work at the Assign Mode / Multi Set / Positional Pad Assign.

2. Inst List

The Inst List function searches for the Instruments used in the Rhythm Pattern currently selected.

① Press [INST LIST].



② Check the Instruments using [▼] and [▲] or the Value Slider.

* Pressing [INST LIST] will automatically turn the Temporary Assign (☞ P. 6-8) to "ON", and the Instrument currently shown will be assigned to all the Key Pads.

Press any Key Pad to monitor the Instrument shown in the Display.

③ Press [NO/EXIT].
The Inst List indication disappears and the previous Display appears.

* At this stage, the Temporary Assign remains ON. Turn it OFF, if necessary.

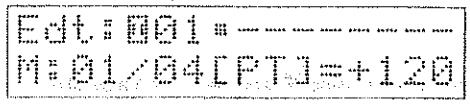
3. Effective use of the Temporary Assign and Inst List

The R-70 contains 288 'places' (16 Pads x 6 Banks x 3 Groups) where the Instruments can be assigned. Normally, all the Instruments can be assigned to different Key Pads.

However, it takes time to search where (to what Key Pad) each Instrument used in the Rhythm Pattern is assigned. For example, you may wish to edit a recorded Rhythm (with Realtime Edit) without knowing the name of the Instrument you wish to use or where it is assigned. These functions (Temporary Assign and Inst List) can help you.

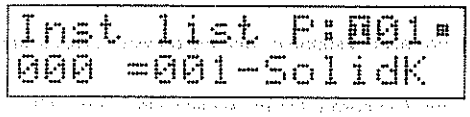
① Press [EDIT]. (To select the Realtime Edit mode.)

Rhythm Pattern to be edited



② Move the cursor with [◁] and [▷], and select the Rhythm Pattern to be edited with [▼] and [▲].

③ Press [INST LIST].
(This will automatically turn the Temporary Assign to "ON".)



④ Hit any Key Pad to monitor the Instrument.

⑤ If it is the wrong Instrument (an Instrument you do not want), look for another one with [▼] and [▲].

⑥ Repeat steps ④ and ⑤ to find the Instrument you wish to use.

⑦ When you have found the Instrument you want, press [EDIT] or [NO/EXIT].

At this stage, the Instrument you have just selected is assigned to all the Key Pads.

⑧ Edit the parameters with the Realtime Edit function.

⑨ When you have completed editing, press [TEMP ASGN] to return to the normal assignment.

3. Footswitch Assign

The R-70 allows you to assign the function of one panel key to a footswitch.

* Be sure to use a footswitch that is active only while depressed.

* If you set this to the "TEMPO&ST/SP", you can set the tempo of the Rhythm Pattern or the Song.

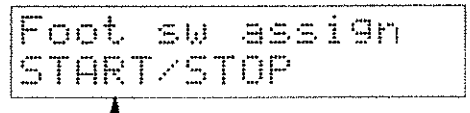
Any of the following keys or functions can be assigned to a footswitch.

Indication	Function to be assigned
START/STOP	Start / Stop
SHIFT KEY	Shift
MULTI KEY	Multi
FLAM KEY	Flam
ROLL KEY	Roll
ERASE KEY	Erase
BANK >	Pad Bank
GROUP >	Pad Group
TEMPO&ST/SP	Tempo & Start / Stop

* START/STOP has been assigned at the factory.

① While holding [SHIFT] down, press Key Pad [14].

② Select the function to be assigned using [▲] and [▼].



Function to be assigned

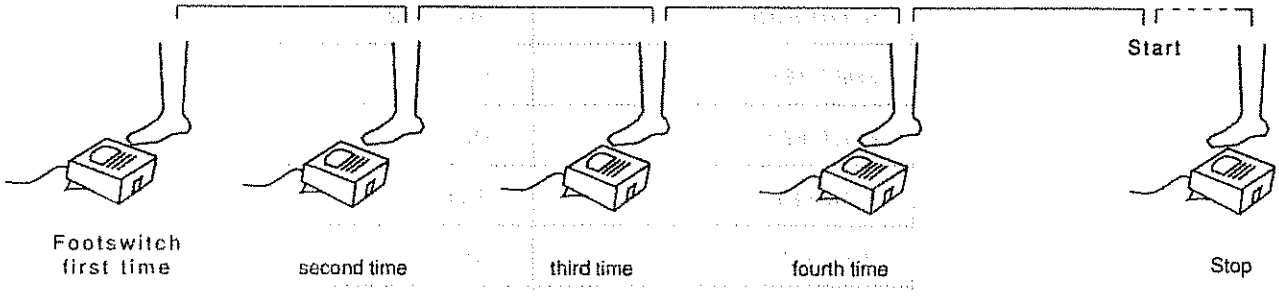
③ Press [NO/EXIT] to return to the previous Display.

○ About TEMPO & START/STOP

The Tempo & Start/Stop function allows you to set the tempo by pressing the footswitch with the desired tempo.

To assign the Tempo & Start/Stop function, select "TEMPO&ST/SP" in step ②.

With the R-70 stopped, press the footswitch four times in the tempo you wish to set. The R-70 will automatically start playing in the set tempo from the next beat. And then, press the footswitch again, R-70 will stop.



* To play a Song with TEMPO&ST/SP, be sure to set the Song Tempo to OFF status.

4. Memory Utility

The Memory Utility includes three useful functions ; Available Memory, Song Initialize and Pattern Initialize.

1. Available Memory

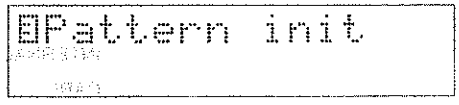
The Available Memory function shows you how much memory space (internal or card) is available for Songs or Rhythm Patterns. When the remaining memory is 0%, no more Rhythm Patterns or Songs can be created. The maximum memory capacity is approximately 3700 notes for 100 Patterns or 2000 Parts for 20 Songs.

* To check the remaining memory on a memory card, make sure that the memory card is inserted into the Memory Card Slot.

① Press Key Pad [15] while holding [SHIFT] down.

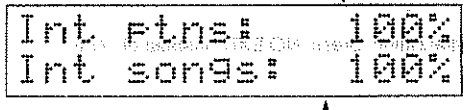
(1st Page)

(2nd Page)



② Press Ten Key Pad [1] to select "Avail memory".

Remaining memory the Rhythm Patterns in the internal memory

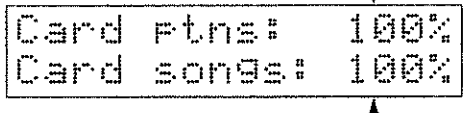


Remaining memory for Songs in the intrnal memory

The Display shows the remaining memory for the Rhythm Patterns and Songs in the internal memory.

③ Change the screen with [◁] and [▷].

Remaining memory for Rhythm Patterns on the Memory card



Remaining memory for Songs on the Memory card

The Display shows the remaining memory for the Rhythm Patterns and Songs on the memory card currently in the card slot.

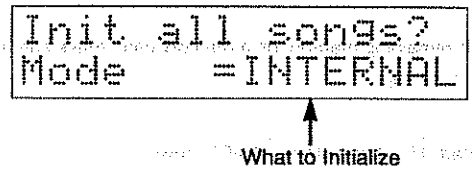
* To leave this mode, press [NO/EXIT].

2. Initializing Songs (Song Initialize)

The Song Initialize function erases all the Songs written in the internal memory or on a memory card.

① Press Key Pad [15] while holding [SHIFT] down.

② Press Ten Key Pad [2] to select "Song init" (Song Initialize).



What to Initialize

③ Select which data should be erased (from the internal memory or memory card) with [▲] and [▼] .

INTERNAL : Erases all Song data in the R-70's internal memory.
CARD : Erases all Song data on the memory card.

④ Press [YES] .
The Display responds with "Are you sure?" .

⑤ Press [YES] .
The Display responds with "Completed" when all the Songs have been initialized.

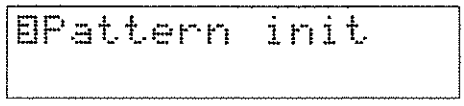
To cancel initialization, press [NO/EXIT] instead of [YES] .

3. Initializing Rhythm Patterns (Pattern Initialize)

The Pattern Initialize function erases all the Rhythm Patterns written in the internal memory or on a memory card.

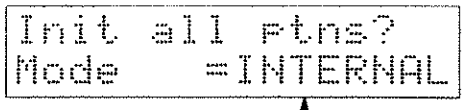
① Press Key Pad [15] while holding [SHIFT] down.

② Change the screen using [◁] and [▷].



* The above procedure (step ②) can be skipped.

③ Press Ten Key Pad [3] to select "Pattern init" (Pattern Initialize).



What to initialize

④ Select which data should be erased (from the internal memory or memory card) with [▲] and [▼].

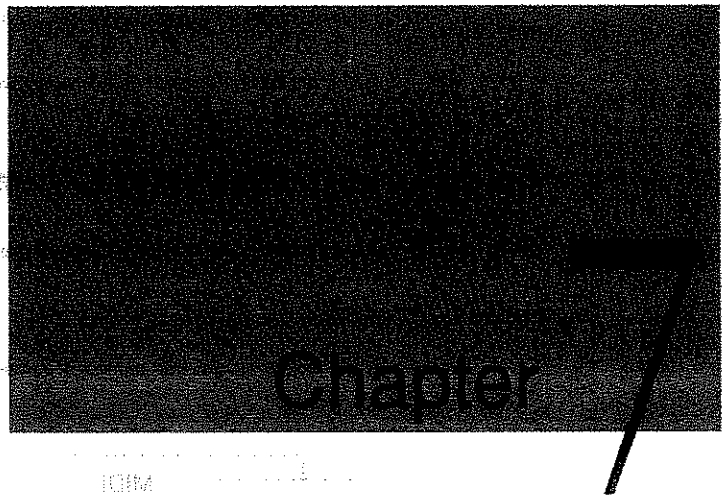
INTERNAL : Erases all the Rhythm Pattern data in the R-70's internal memory.
CARD : Erases all the Rhythm Pattern data on the memory card.

⑤ Press [YES].
The Display responds with "Are you sure?".

⑥ Press [YES].
The Display responds with "Completed" when all the Rhythm Patterns have been initialized.

To cancel initialization, press [NO/EXIT] instead of [YES].

Memo



Setup With External MIDI Devices

1. ABOUT MIDI

MIDI stands for Musical Instrument Digital Interface, an international standard for communication between musical instruments. MIDI compatible devices can exchange performance information (what notes were played, for how long, at what volume, etc.) with other MIDI devices, even if they are of a different model or made by a different manufacturer.

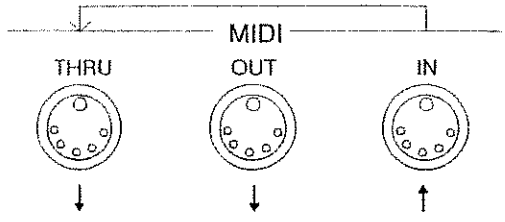
Under the MIDI standard, performance events such as playing on a keyboard, or depressing a pedal are handled as MIDI message.

1. MIDI Message Communication

The following explains how MIDI messages are transmitted and received.

○ MIDI Connectors

MIDI messages are transmitted or received (via special MIDI cables) through the following MIDI connectors:

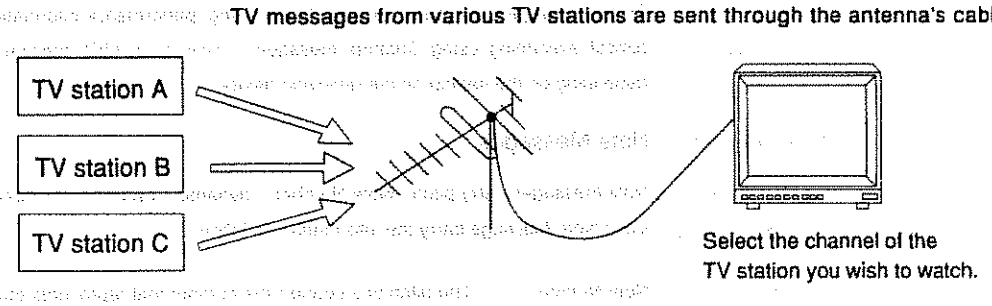


MIDI IN : This connector receives MIDI messages sent from an external MIDI device.
MIDI OUT : The R-70 sends MIDI messages through this connector.
MIDI THRU : An exact copy of the MIDI messages received from MIDI IN are sent out through this connector.

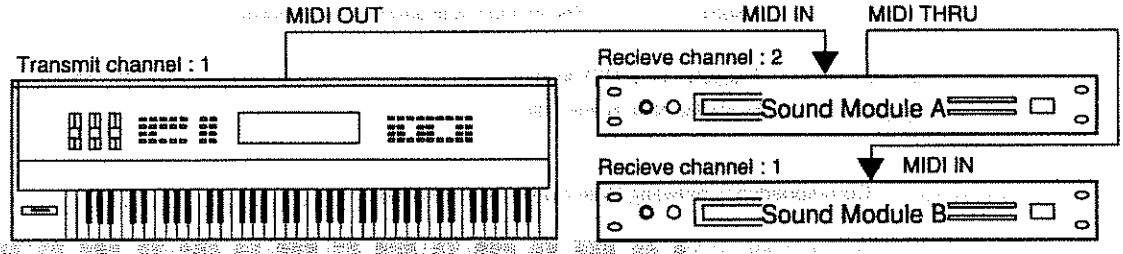
* Using MIDI THRU connectors, it is theoretically possible to connect many MIDI devices. However, 4 - 5 devices seems to be the practical limit. The more devices you connect in your system, the greater the chance of signal delay or deterioration.

○ MIDI Channels

The MIDI standard allows for the simultaneous transmission of different MIDI messages to several MIDI devices through one MIDI cable. This is made possible by the use of MIDI channels. MIDI channels are similar to those found on a TV. By changing TV channels, you can watch programs of many different TV stations. That is, when the channel of the receiver coincides with that of the transmitter, the corresponding channel messages are transferred.



MIDI provides 16 channels. MIDI messages are only transmitted when the receiver's MIDI channel matches that of the transmitter. For instance, if the MIDI channels are set as follows, only Sound Module B will sound by playing the keyboard:



2. MIDI messages used on the R-70

There are a variety of MIDI messages, each carrying different types of information. MIDI messages are divided into two categories: 'Channel messages' that are dealt with in each individual MIDI channel, and 'System messages' which are dealt with regardless of the MIDI channel setting.

○ Channel Messages

These messages are used mainly for transmitting performance information. Normally, you can control almost everything using Channel messages. How each MIDI message controls the system varies depending on the setting on the receiving device.

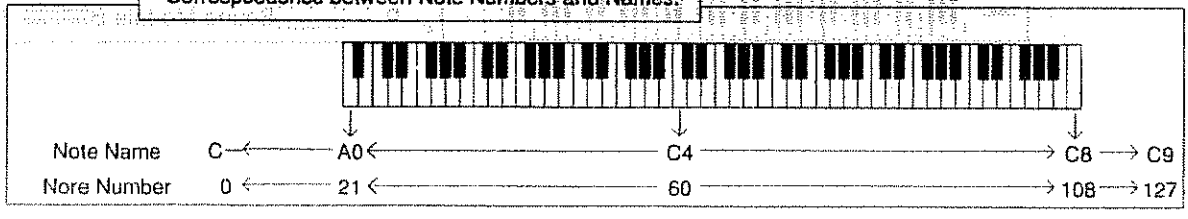
◇ Note Messages

Note messages carry pitch (Note Number), dynamic (velocity) and Note On / Note Off information. Each Note Message carry the information as follows:

Note Number : The pitch of a sound (the number that represents the position on the keyboard)
Note On : Pressing a key (or Pad in this case)
Note Off : Releasing a key. Note off message is not transmitted when you release a finger from a key Pad. Timing that Note Off message is transmitted is constant and does not depend on the strength (velocity) that a Key Pad is depressed.
Velocity : The strength with which a Pad is played.

The notes on a MIDI keyboard are represented by the numbers 0 to 127. Middle C (C4) is obtained by playing Note Number 60.

Correspoedence between Note Numbers and Names.



Generally speaking, a Note Number defines the pitch of a note. On Rhythm machines, however, Note Numbers define drum voices (Instruments). The R-70 has two different parts; Instrument Sections, that function as rhythm sound modules (☞ P. 7-9), and Performance Sections, where you can edit performance information (eg., pitch) (☞ P. 7-20).

◇ Pitch Bend Messages

Pitch Bend messages transmit information on how much the Pitch Bend lever is moved. The R-70 can respond to Pitch Bend messages sent from an external MIDI keyboard.

◇ Aftertouch Messages

Aftertouch messages transmit information regarding Aftertouch (a playing technique whereby the keys on a keyboard are pressed down after being played). The R-70 does not respond to Aftertouch messages.

◇ Program Change Messages

Normally, Program Change messages are used for sound selection. Program Change numbers 1 - 128 are used for selecting corresponding sounds. The R-70 transmits Program Change messages whenever a different Drum Kit (☞ P. 7-13) is selected, and a new Drum Kit will be selected in response to receiving a Program Change message.

◇ Control Change Messages

Control Change messages include Modulation and Pan, etc. functions, and are used for increasing performance expression. Each function uses a different Control Number.

The available functions vary depending on the MIDI device used. The R-70 can respond to Pan or Volume, etc. messages sent from an external MIDI device.

○ System Messages

System messages include Exclusive messages, messages needed for synchronization, system monitoring, etc.

◇ Common Messages

Common messages include Song Select, Song Position, etc.

◇ Realtime Messages

These messages, used for synchronizing to an external device, include Tempo Clock, Start/Stop and Continue Start.

◇ Active Sensing Message

This message is used to monitor the integrity of the MIDI connections. If MIDI messages are not received periodically, the system will reset the received values of MIDI message.

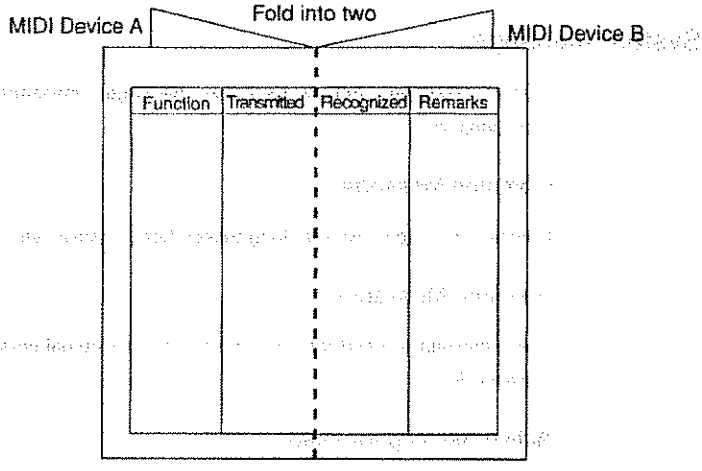
◇ Exclusive Messages

Exclusive messages deal with things unique to a specific machine. Exclusive messages can only be exchanged between two identical devices (eg., two R-70s). For a detailed explanation, see MIDI Implementation (☞ P. 9-36).

○ MIDI Implementation Chart

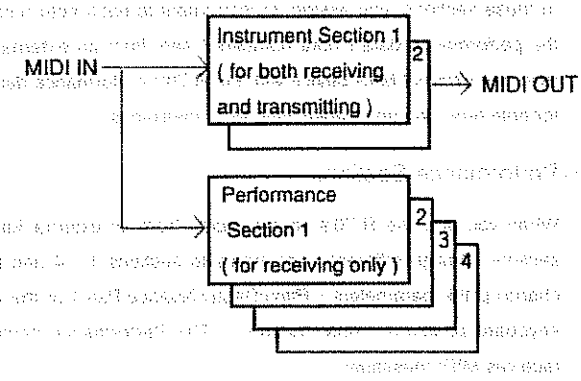
MIDI allows many different musical instruments and devices to exchange data. It is not necessarily the case, however, that all MIDI messages can be received by all MIDI devices.

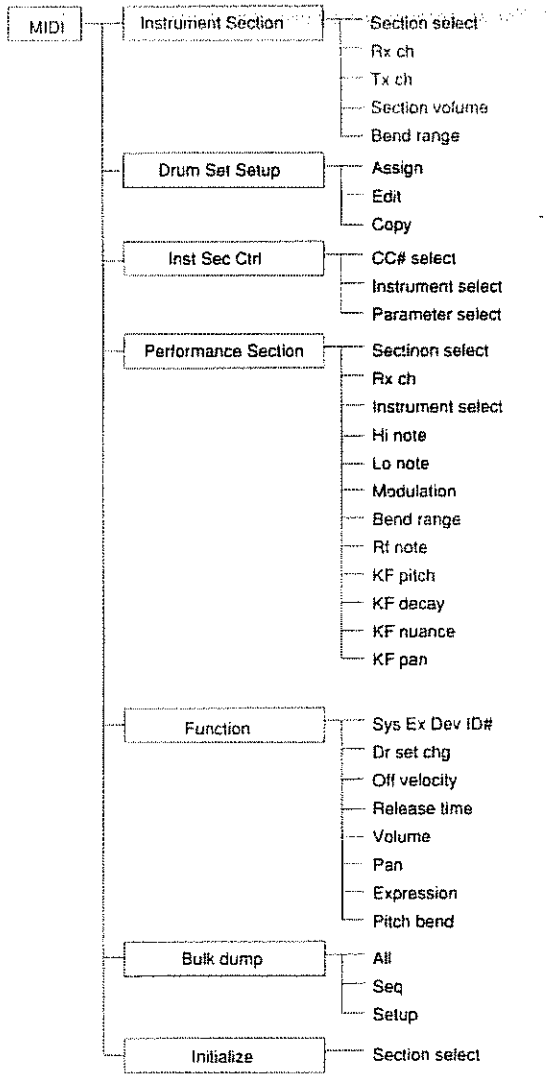
For example, you may try to use a keyboard to provide control over to use Aftertouch, but if the sound module you have connected doesn't respond to Aftertouch, no effect will be obtained. The only way two devices can exchange a given MIDI message is if the particular function is common to both units. To help you quickly determine how compatible two devices are, a MIDI implementation chart is provided in the owner's manual of each device. By comparing the charts, you can see how the MIDI messages of one device will be received by the other. The charts are standardized so comparison is a simple matter.



2. MIDI Structure

The R-70's MIDI feature is divided into two Instrument sections and four Performance sections. The R-70's MIDI functions also include Drum Sets and Control Changes used in the Instrument sections, functions common to all sections, Bulk Dump and Initialization.





◇ Instrument Sections

When you play the R-70's rhythm voices from an external MIDI device, you must use the Instrument sections.

In these sections, you assign an instrument to each note number and then play the Instruments with the performance data (note numbers) sent from an external MIDI device. You can also play more than one external MIDI device with the R-70's performance data. The Instrument sections can be used for both receiving and transmitting MIDI messages.

◇ Performance Sections

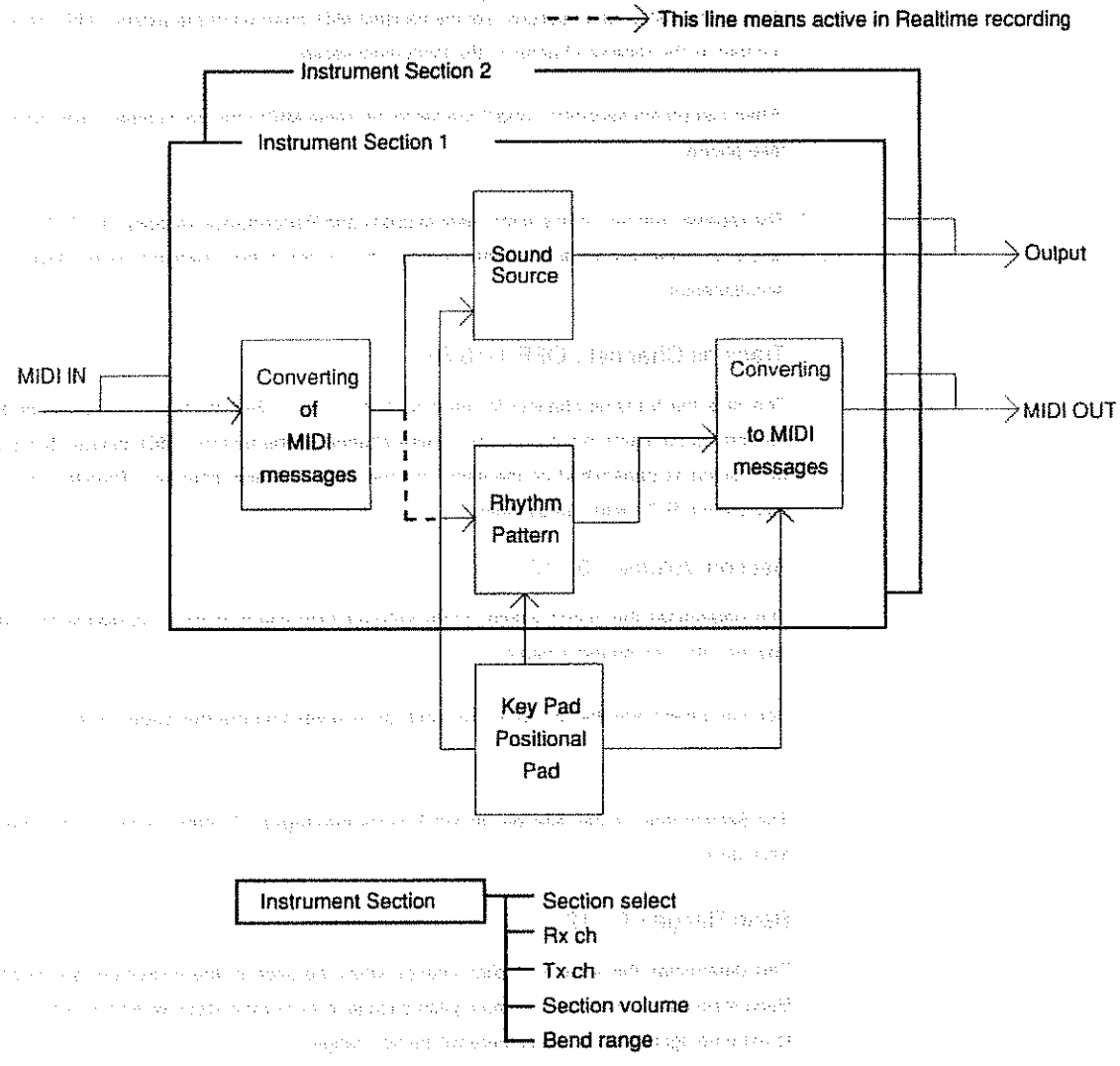
When you play the R-70's sound source from an external keyboard, you must use the Performance sections. Assign different Instruments to sections 1 - 4 and then play the Instruments differently by changing the parameters (Pitch/Decay/Nuance/Pan) of the assigned Instruments according to their keyboard positions (note number). The Performance sections can only be used when the R-70 receives MIDI messages.

* The six sections can be used simultaneously.

1. Instrument Sections

You must set the parameters in the Instrument sections to use the R-70 as a rhythm sound module.

* When the R-70's Instrument sections are played by performance data sent from an external MIDI device, they are played with the set Sound Parameters (☞ P. 4-2).



The parameters set in the Instrument sections are as follows:

◇ Section Select (INST1/INST2)

This selects the Instrument section to set other parameters.

◇ Receive Channel (OFF/1-16)

This sets the MIDI channel on which MIDI signals are received for each section (1/2). To play the R-70 with the Instrument sections, set the transmit MIDI channel of the external MIDI device to the same number as the receive channel of the Instrument sections.

- When Instrument sections 1 and 2 are set to the same MIDI channel number, Instrument section 1 will take priority.
- The receive channels of the Instrument sections and Performance sections (☞ P. 7-24) should be different. If they are set to the same number, the sounds of both sections will be played simultaneously.

◇ Transmit Channel (OFF/1-16/Rx)

This sets the transmit channel for each section (1/2) . Set the transmit channel of the Instrument sections to the same number as the receive channel of the external MIDI device. If it is set to Rx, the MIDI signal is transmitted on the same channel as the receive channel. Therefore, set it to Rx when you use the R-70 with a sequencer.

◇ Section Volume (0 - 127)

This determines the overall volume of the selected Instrument section. Increasing the value raises the volume. At 0, no sound is heard.

- You can select whether or not to transmit (or receive) Volume messages using the Volume Switch (☞ P. 7-26).
- The Section Volume can also be set with Volume messages (Control number 7) sent from an external MIDI device.

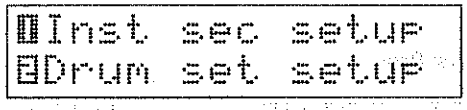
◇ Bend Range (0 - 12)

This determines the amount of pitch change when the pitch of the Instrument is controlled with Pitch Bend messages. Set the maximum pitch change in semi-tone steps when the bender lever is moved to extreme right position. At 0, there will be no change.

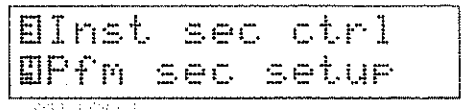
- You can select whether or not to receive Pitch Bend messages with the Pitch Bend Switch (☞ P. 7-27).
- The Bend Range setting can also be changed with Control Change messages sent from an external device.
- Pitch Bend messages do not affect the pitch of the sound currently being played.

① Press [MIDI].

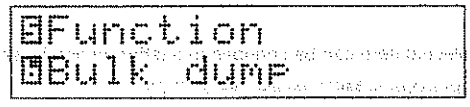
(1st Page)



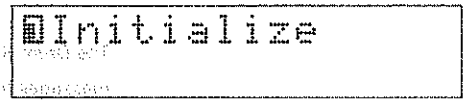
(2nd Page)



(3rd Page)



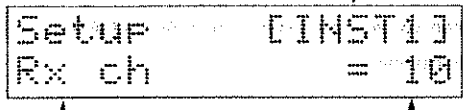
(4th Page)



② Press Ten Key Pad [1] to select "Inst sec setup".

③ Select the Instrument Section (INST 1/2) with [▼] and [▲].

Instrument Section



Parameter Set Value

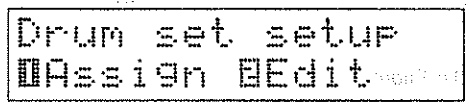
④ Select the relevant parameter using [◁] and [▷], then set the value using [▼] and [▲].

⑤ Press [NO/EXIT].

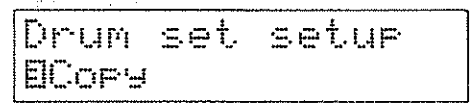
2. Drum Set

Here you set the Drum Set used in the Instrument section.

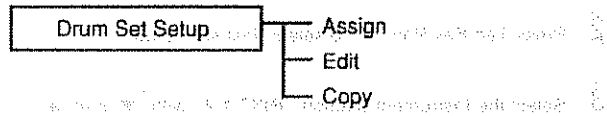
(1st Page)



(2nd Page)



* The Drum Set selected here can be changed to a different one by sending Program Change messages from an external MIDI device (☞ P. 7-25).



◇ Drum Set Assign

The Drum Set Assign function allows you to select the Drum Set to be assigned to each Instrument section. When you select a User's Drum Set (USER 1 - 4), you can assign each Instrument to a different Note Number.

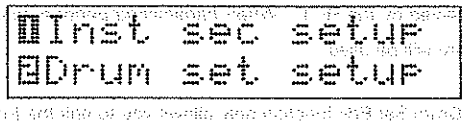
The following describes the Instruments (drum voices) used in each Drum Set.

Program Number	DrumSet	Description
1	STD	Standard Set : This set consists of conventional drum voices.
9	ROOM	Room Set : This set consists of drum voices and large ambience.
17	POWER	Power Set : This set consists of drum voices and ambience
25	ELCTR	Electronic Set : This set consists of electronic drum voices.
26	TR808	TR-808 Set : This set uses drum voices from Roland's TR-808 rhythm machine.
33	JAZZ	Jazz Set : This set consists mainly of the kind of drum voices used in Jazz music
41	BRUSH	Brush Set : This set consists of drums played brushes.
97 105	ALL 1 ALL 2	All 1/2 : If you set the All 1 and All 2 to the two different Instrument Sections on different MIDI channels, all 242 Instruments will be played.
65 73 81 89	USER1 USER2 USER3 USER4	User 1 User 2 User 3 User 4 : You can assign each Instrument to a different Note Number. The factoory preset is as follows : USER1 ← ALL 1 USER2 ← ALL 2 USER3 ← STD USER4 ← ROOM

Assign a Drum Set :

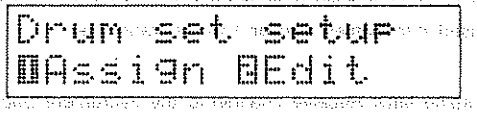
① Press [MIDI].

(1st Page)

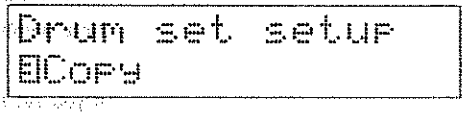


② In the MIDI Menu Display, press Ten Key Pad [2] to select "Drum set setup".

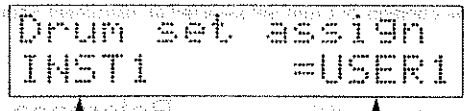
(1st Page)



(2nd Page)



③ Press Ten Key Pad [1] to select "Assign".



Instrument Section to be set

Drum Set to be assigned

④ Select the Instrument Section to be used using [▼] and [▲].

⑤ Move the cursor to the right in the lower line of the Display with [◁] and [▷], then select the Drum Set to be assigned using [▼] and [▲].

⑥ Press [NO/EXIT].

◇ User's Drum Set Edit

This function allows you to edit the contents of User's Drum Sets 1 - 4 (☞ P. 7-12). You can then check how the instruments are assigned to Note Numbers in a Drum Set other than a User's Set. For these four User's Drum Sets, you can also edit (or check) what Instrument is played by a given Note Number received by the R-70. When transmitting performance data from the R-70, the Note Number assigned here will be used.

* The User's Drum Set Edit function only allows you to edit the Instrument assignments in the User's Drum Sets. The assignments of the other drum sets are shown in the Display, but cannot be edited.

* When the same Instrument is assigned to the Drum Sets selected by Instrument sections 1 and 2, the Note Number used in Instrument section 1 will be transmitted.

If you set the same MIDI Receive channel to the Instrument Section 1 and 2, R-70 will check the contents of Drum Set selected at Instrument Section 1 at first. At this time, no Instrument that corresponds to the received Note Number is assigned to the Drum Set at Instrument Section 1, R-70 will check the contents of Drum Set selected at Instrument Section 2.

Reference

Remote Mode (---/RMT)

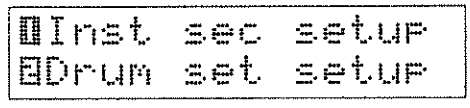
If you set the Remote Mode (RMT), R-70 will select the Instrument which corresponds to the received Note Number. At this time, the Display shows the Note Number and the corresponding Instrument.

The next page shows the necessary procedure to set the Remote Mode..

Edit the User's set as follows:

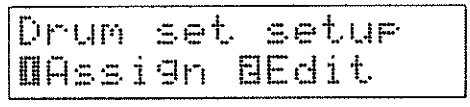
① Press [MIDI].

(1st Page)

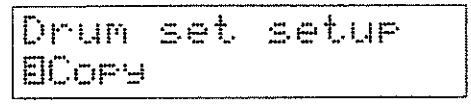


② In the MIDI Menu Display, press Ten Key Pad [2] to select "Drum Set setup".

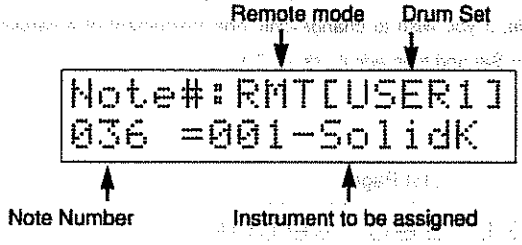
(1st Page)



(2nd Page)



③ Press Ten Key Pad [2] to select "Edit".



④ Select the Remote Mode (---/RMT) using [▼] and [▲].

⑤ Move the cursor to the right in the upper line of the Display with [◁] and [▷], then select a Drum Set using [▼] and [▲].

⑥ Move the cursor to the left in the upper line of the Display with [◁] and [▷], then select a Note Number using [▼] and [▲].

⑦ Move the cursor to the right in the lower line of the Display with [◁] and [▷], then select the Instrument to be assigned to the Note Number (selected in step ⑥) using [▼] and [▲] or the relevant Key Pad.

* If you wish to assign no Instrument to a certain Note Number, set the Instrument to "***-*****".

Change Pad Banks if necessary.

* If you try to edit the Instrument assignment in any of the User's Drum Sets, "?" will appear in the Display asking you if you are sure you want to edit it. If you wish to go ahead, press [YES]. If you wish to cancel, press [NO/EXIT].

* If you assign one Instrument to more than two Note Numbers, the Instrument can sound when any Note Number message is received, But, the R-70 can transmit the lowest Note Number assiged the Instrument when the Instrument sounds.

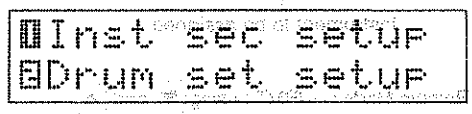
⑧ Press [NO/EXIT].

◇ Drum Set Copy

The Drum Set Copy function allows you to copy any Drum Set to a User's Drum Set (USER1 to 4). For example, if you wish to change only one Instrument of a certain Drum Set, you can copy it to a User's Drum Set and then edit it (☞ P. 7-14).

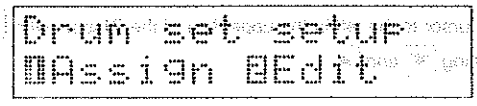
① Press [MIDI].

(1st Page)

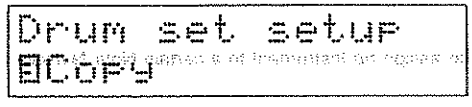


② Press Ten Key Pad [2] to select "Drum set setup".

(1st Page)

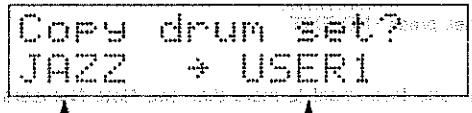


③ Call the following Display using [◁] and [▷].



* You may skip this procedure (step ③).

④ Press Ten Key Pad [3] to select "Copy".



Source Drum Set

Destination User's Drum Set

⑤ Select the source Drum Set using [▼] and [▲].

⑥ Move the cursor to the right in the lower line of the Display, then select the destination Drum Set (USER 1 - 4) using [▼] and [▲].

⑦ Press [YES].

The Display responds with " Are you sure ? ".

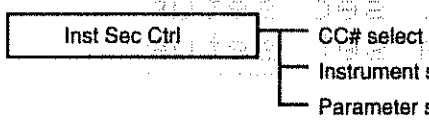
⑧ Press [YES] again.

The Display responds with "Completed" showing that the copying is completed.

* To cancel copying, press [NO/EXIT] instead of [YES].

3. Instrument Section Control Change

Control Change is set for both Instrument sections 1 and 2.



○ Receiving Control Changes

You can change the Instrument sounds on the R-70 by sending Control Change messages from an external MIDI device. In nine Control Changes (Modulation and General Purpose Controllers 1 - 8), set the Instrument to be controlled and the parameters to be changed (Pitch/Decay/Nuance/Pan).

* When the Pan Switch is set to "ON" (☞ P. 7-27), the Pan setting can be controlled with Control Number 10. Therefore, the Pan values set on the Modulation and General Purpose Controllers 1 - 8 will be ignored. Control Number 10 changes the Pan setting of the entire Instrument section that is set to the same receive channel as the external MIDI device.

○ Transmitting Control Changes

The Control Changes set on the R-70 will be transmitted while it is playing. Actually, the Control Changes set are transmitted the moment the specified Instrument is played. If you play the R-70 using the performance data from a MIDI sequencer, the sound alteration of the Instrument can be faithfully reproduced.

Control Change	Control Number
MODUL (Modulatin)	1 (33)
CTRL 1 (General Purpose Controller 1)	16 (48)
CTRL 2 (General Purpose Controller 2)	17 (49)
CTRL 3 (General Purpose Controller 3)	18 (50)
CTRL 4 (General Purpose Controller 4)	19 (51)
CTRL 5 (General Purpose Controller 5)	80
CTRL 6 (General Purpose Controller 6)	81
CTRL 7 (General Purpose Controller 7)	82
CTRL 8 (General Purpose Controller 8)	83

Parameter to be edited
PITCH
DECAY
NUANCE
PAN

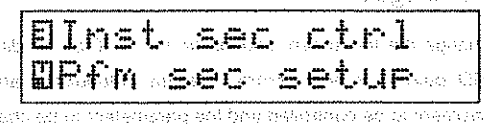
* The Control Number within ( ) will also be used for transmitting or receiving Pitch messages.

① Press [MIDI].

(1st Page)

② Select the following Display using [◁] and [▷].

(2nd Page)



* You can skip this procedure (step ②).

③ Select "Inst sec ctrl" (Instrument Section Control Change) by pressing Ten Key Pad [3].

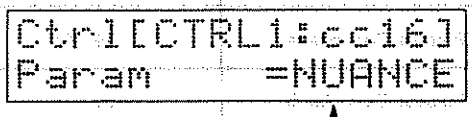
Control Change

Instrument to be controlled by Control Change

④ Select the Control Change (Control Number) to be used with [▼] and [▲].

⑤ Move the cursor to the lower line of the Display with [◁] and [▷], then using [▼] and [▲] or the Key Pad, specify the Instrument to be controlled.
Change Pad Banks, if necessary.

⑥ Select the Parameter setting Display using [◁] and [▷].



Parameter to be changed by Control Change

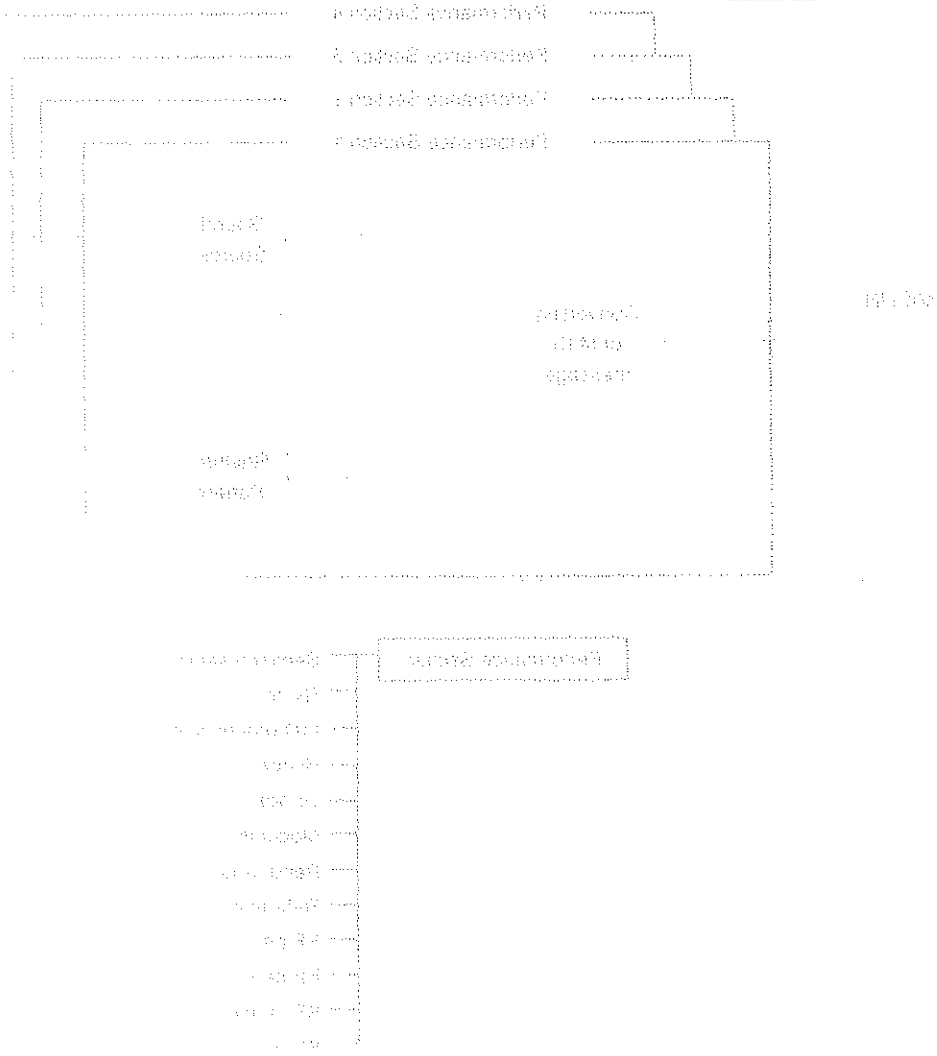
⑦ Select the parameter to be controlled by the Control Change using [▼] and [▲].

* If you do not wish to use the Control Change (Control Number) selected in step ④, set to "OFF".

* The Pitch parameter cannot be selected in CTRL 5 - 8 (General Purpose Controllers 5-8).

⑧ To continue to set the other Control Changes, go back to the condition in step ④ using [◁] and [▷], or select the Control Number by pressing [▼] and [▲] while holding [SHIFT] down. Repeat steps ⑤ - ⑧.

⑨ When you have finished setting all the Control Changes you want, press [NO/EXIT].

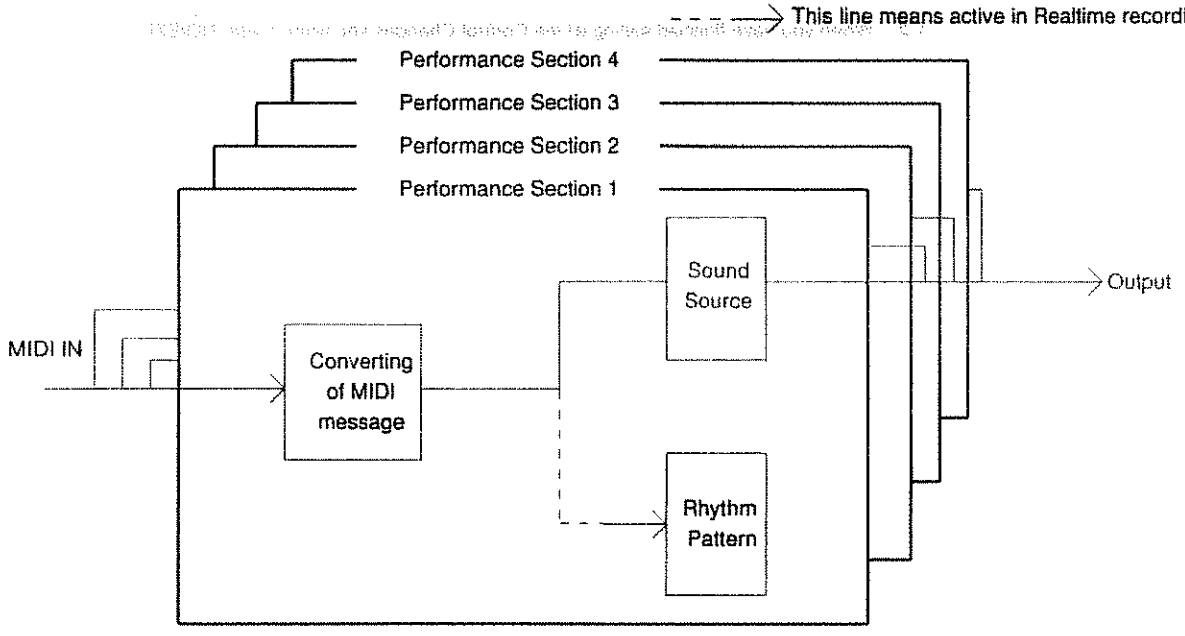


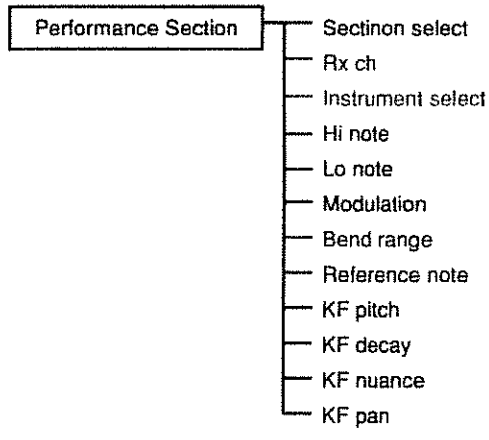
4. Performance Sections

The Performance sections can only be used for playing specific Instruments (with a different pitch or decay etc.) using a MIDI keyboard.

* The Performance sections cannot be played by internal performance data.

* The basic sound of each Instrument should be set with Sound Parameters (☞ P. 4-2).





Parameters which can be set in the Performance sections are as follows:

◇ Section Select (PFM 1 - 4)

This selects the Performance section to set other parameters.

◇ Receive Channel (OFF/1-16)

This sets the MIDI channel (1 - 16) on which performance data is received for each Performance section. Set the transmit MIDI channel of the external MIDI device to match that of the receive channel of the desired Performance section. Set the receive channels of the unnecessary Performance sections to "OFF".

* The receive channels of the Instrument sections (☞ P. 7-10) and Performance sections should be different. If they are set to the same number, the sounds of both sections will be played simultaneously.

◇ Instrument

Select one Instrument to be played in each Performance section.

◇ Section Volume (0 - 127)

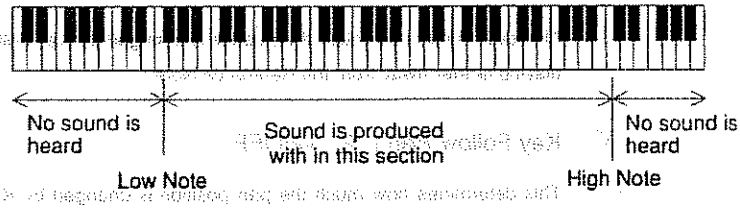
This determines the overall volume of the selected Performance section. Increasing the value raises the volume. At 0, no sound is heard.

* You can select whether or not to receive Volume messages using the Volume Switch (☞ P. 7-26).

* The Section volume can also be set with Volume messages (Control number 7) from an external MIDI device.

◇ High Note/Low Note (0 - 127)

This sets the highest and the lowest Note Numbers that can be received in each Performance section.



* When the High Note and the Low Note are set to the same value, only the Note Number of the set value will be recognized.

* It is not possible to set the value of the Low Note higher than the High Note (and vice versa).

◇ Modulation

This determines the parameter (DECAY / NUANCE) controlled by Modulation messages.

* When set to "OFF", Modulation messages will not be recognized.

◇ Bend Range (0 - 12)

This determines the amount of pitch change when the pitch of the Instrument is controlled with Pitch Bend messages. Set the maximum pitch change in semi-tone steps when the bender lever is moved to extreme right position. At 0, there will be no change.

* You can select whether or not to receive Pitch Bend messages with the Pitch Bend Switch (☞ P. 7-27).

* The value of the Bend Range can also be changed with Control Change messages from an external MIDI device.

* Pitch Bend messages do not affect the pitch of the sound currently being played.

◇ Key Follow Reference Note Number (0 -127)

This is the standard Note Number where the parameter is modified by Key Follow. The Key Follow Reference Note Number is common for all the following parameters.

◇ Key Follow Pitch (-99 - +99)

This determines how much the pitch is changed by Key Follow (how much the pitch changes by playing farther away from the Reference Note).

◇ Key Follow Decay (-9 - +9)

This determines how much the decay is changed by Key Follow (how much the decay changes by playing farther away from the Reference Note).

◇ Key Follow Nuance (-2 - +2)

This determines how much the nuance is changed by Key Follow (how much the nuance changes by playing farther away from the Reference Note).

◇ Key Follow Pan (-2 - +2/OFF)

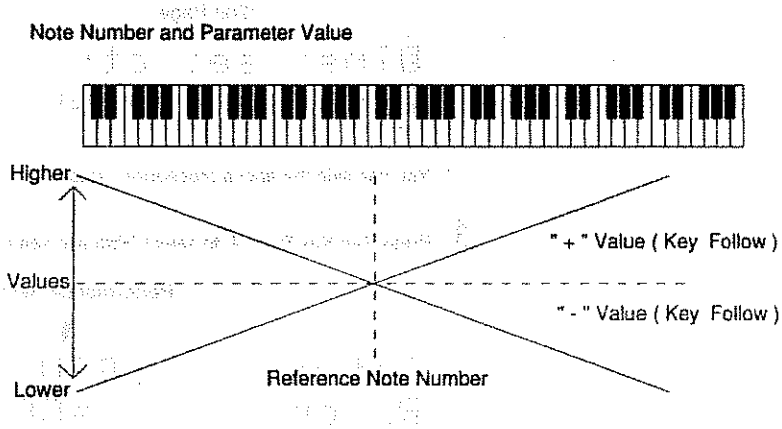
This determines how much the pan position is changed by Key Follow (how much the pan position changes by playing farther away from the Reference Note).

* When Key Follow Pan is set to "OFF", the sound image will not change.

* When Output assign (☞ P. 4-11) is set to 1 or 2 (Individual Out), the sound image will not change although Key Follow Pan is set to other than "OFF".

What is Key Follow ?

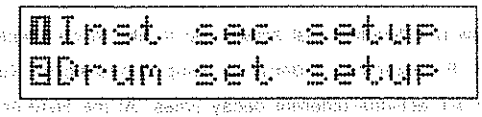
Key Follow is a function that allows you to alter a parameter value by playing different parts of a keyboard. For example, if decay is being controlled by Key Follow, playing different parts of a keyboard will activate different decay times. At the Reference Note, for example, there could be instant decay. As you play higher up on the keyboard, the decay of the notes played becomes longer and longer.



When the value of a parameter is positive (+), it will rise as the Note Numbers increase. When the parameter value is negative (-), it will fall as the Note Numbers increase. If you do not wish the parameter to be affected by Key Follow, set it to "0" or "OFF".

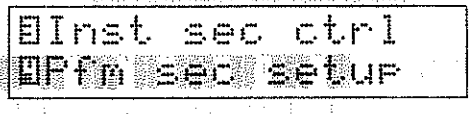
① Press [MIDI].

(1st Page)



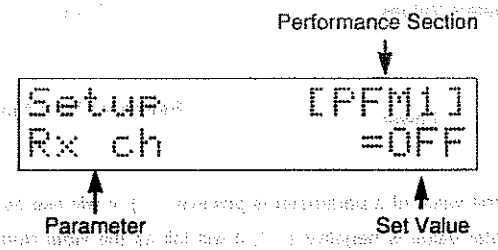
② Select the following Display using [◁] and [▷].

(2nd Page)



* You can skip the above procedure (step ②).

③ Press Ten Key Pad [4] to select "Pfm sec setup" (Performance Section Setup).



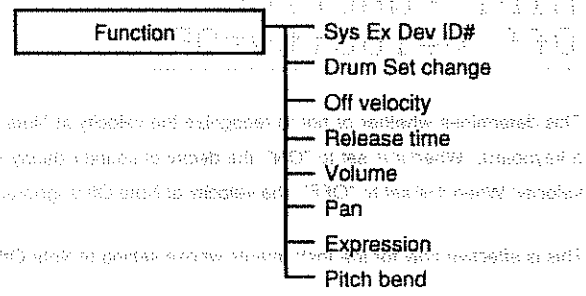
④ Select the Performance Section to set other parameters with [▼] and [▲].

⑤ Select a Key Follow parameter (by changing the screen) with [◁] and [▷]. Set the value with [▼] and [▲].

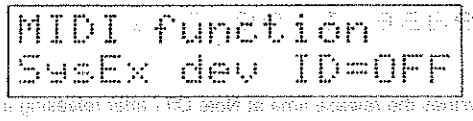
⑥ Press [NO/EXIT].

3. MIDI Transmit and Receive Modes

The R-70 allows you to select whether or not to transmit or receive MIDI messages (channel message) for all Instrument and Performance sections.

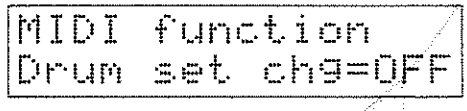


◇ System Exclusive Device ID Number (OFF/1-32)



This sets the Device ID number for transmitting and receiving MIDI Exclusive messages. When set to "OFF", Exclusive messages are not transmitted or received.

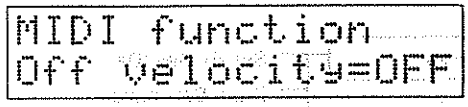
◇ Drum Set Change Switch (ON/OFF)



This determines whether or not Drum Sets will change upon receiving Program Change messages. It also determines whether or not to transmit Program Change messages that result from pressing the R-70's panel buttons. When "ON", the R-70 receives Program Change messages from an external MIDI device, and changes the Drum Set in the Instrument section which is set to the same MIDI channel as the external MIDI device. Also, if the Drum Sets in the R-70 are changed with the Drum Set Assign, the corresponding Program Change will be sent on the transmit channel of the Instrument section currently used. When set to "OFF", the R-70 does not change the Drum Sets and does not receive or transmit Program Change messages.

* Program Numbers correspond to the R-70's Drum Sets as shown in the Drum Set Assign (☞ P. 7-12).

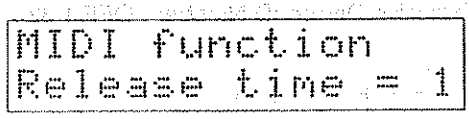
◇ Note Off Velocity Switch (ON/OFF)



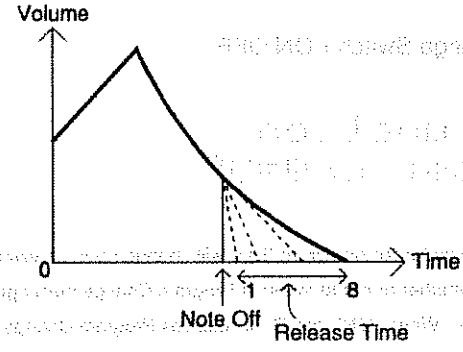
This determines whether or not to recognize the velocity at Note Off (the speed of releasing a key on a keyboard). When it is set to "ON", the decay of sound (decay time) can be controlled with Note Off velocity. When it is set to "OFF", the velocity at Note Off is ignored.

* This is effective only for the Instruments whose setting of Note Off Receive (☞ P. 4-6) is "ON".

◇ Release Time (1 - 8)

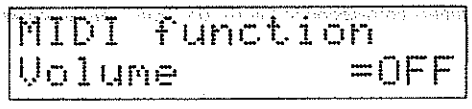


This determines the release time at Note Off (after releasing a key on a keyboard). The release time set here works for all sounds. Increasing the value will create a smoother release curve.



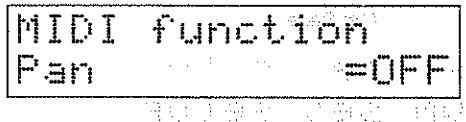
* The Release Time is effective only for Instruments where the Note Off Receive (☞ P. 4-6) is set to "ON".

◇ Volume Switch (ON/OFF)



This determines whether or not to transmit or receive Volume messages. When set to "ON", the volume of the section set to the same receive channel (where Volume messages are received) will change. And also, if the volume is Changed during the Song playing, the value of Volume will be transmit by MIDI message. When set to "OFF", the volume will not be affected by incoming Volume messages.

◇ Pan Switch (ON/OFF)

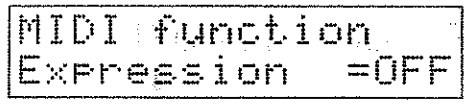


This determines whether or not to receive Pan messages. When set to "ON", the pan setting of the section which is set to the same MIDI receive channel (where Pan messages are received) will be changed. When Pan messages are received, the Pan value set with "MIXER" (☞ P. 4-11) will be ignored. If you wish to retrieve the "MIXER" setting, set the Pan Switch to "OFF". When set to "OFF", pan setting is not affected by incoming Pan messages.

* When the Pan Switch is set to "ON", the Pan values set to other Control Change numbers will be ignored.

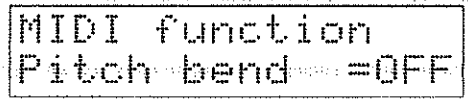
* When Output assign (☞ P. 4-11) is set to 1 or 2 (Individual Out), the Pan setting will not changed although Pan switch is set to "ON".

◇ Expression Switch (ON/OFF)



This determines whether or not to receive Expression messages. When set to "ON", the volume of the section which is set to the same receive channel (where Expression messages are received) will change. When set to "OFF", the volume will not be affected by incoming Expression messages.

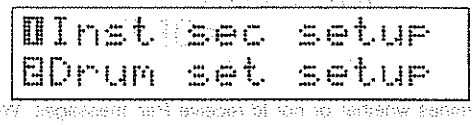
◇ Pitch Bend Switch (ON/OFF)



This determines whether or not to receive Pitch Bend messages. When set to "ON", the pitch of the section which is set to the same receive channel (where the Pitch Bend messages are received) will change. When set to "OFF", the pitch will not be affected by incoming Pitch Bend messages.

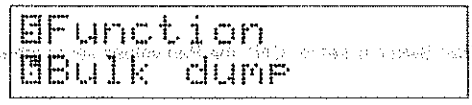
① Press [MIDI].

(1st Page)



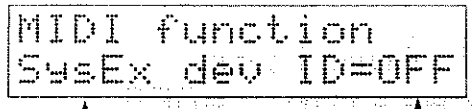
② Select the following Display with [◁] and [▷].

(3rd Page)



* This procedure (step ②) can be skipped.

③ Select "Function" (MIDI Function) by pressing Ten Key Pad [5].



Parameter that controls MIDI Messages — Set Value

④ Select the parameter to be set (at the left in the lower line of the Display) with [◁] and [▷], then set the value with [▼] and [▲] (at the right in the lower line of the Display).

⑤ To continue to set the other parameters, repeat steps ④.

⑥ When you have finished setting all the parameters you wish, press [NO/EXIT].

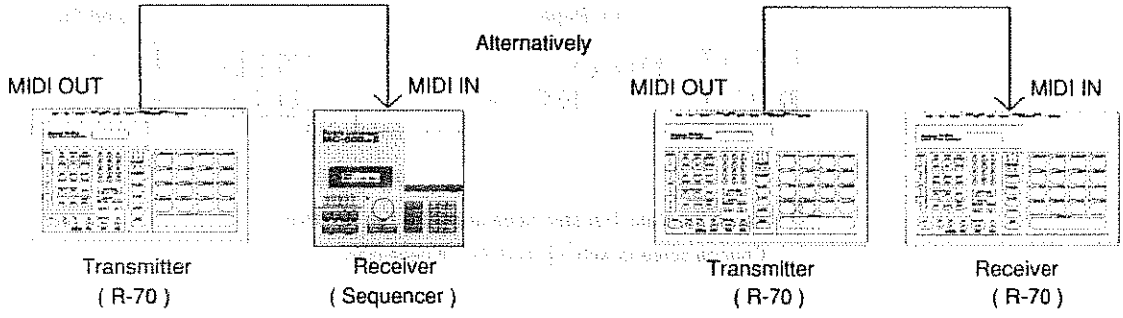
4. Data transfer with the Exclusive

Using MIDI Exclusive messages, you can transfer the data written in the R-70's memory to another R-70 (turning it to exactly the same settings), or to an external MIDI device that can record Exclusive messages (making a back-up).

1. Data transfer (Bulk Dump)

Data written in the R-70's memory can be transferred to an external MIDI device.

CONNECTIONS



○ Data which can be transferred varies depending on the Transfer mode :

◇ All : Dump All (INT&CARD/INT/CARD)

This mode transfers all the data (Seq data and Setup data). Select INT&CARD (all internal memory and memory card data), INT (all internal memory) or CARD (all card data).

◇ Seq : Dump Sequence (INT&CARD/INT/CARD).

This mode transfers performance data of all the Songs and Rhythm Patterns. Select INT&CARD (all internal memory and memory card data), INT (all internal memory) or CARD (all card data).

◇ Setup : Dump Setup

This mode transfers the values set with MIDI (☞ P. 7-7), Assign (☞ P. 5-2), Sound (☞ P. 4-2), Effect (☞ P. 4-15), Mixer (☞ P. 5-6), Sync mode (☞ P. 8-3), PAD BANK (☞ P. 5-2), PAD GROUP (☞ P. 5-2), Multi ON / OFF (☞ P. 5-6), Metronome (☞ P. 1-12), Roll (☞ P. 1-9), Pad Dynamics (☞ P. 5-4), and Footswith assign (☞ P. 6-11).

① If the data is being sent from one R-70 to another, set identical System Exclusive Device ID numbers (other than "OFF").

② Press [MIDI].

(1st Page)

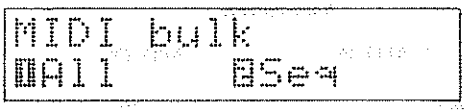
③ Select the following Display using [◁] and [▷].

(3rd Page)

* The above procedure (step ③) can be skipped.

④ Press Ten Key Pad [6] to select "Bulk dump".

(1st Page)

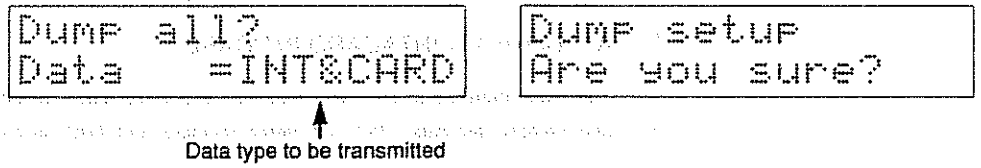


(2nd Page)

⑤ Select the Data Transfer mode using the Ten Key Pad.
Change screens with [◁] and [▷], if necessary.

Data to be Transmitted

(Setup)



Data type to be transmitted

⑥ Select what data (INT&CARD/INT/CARD) should be transferred using [▼] and [▲].

* When you select the "Setup" at step ⑤, this procedure will be skipped.

⑦ Press [YES].

The Display responds with "Now sending", and data transfer starts. When the data is correctly transferred, the message "Completed" appears.

⑧ To transfer a different kind of data, press [NO/EXIT] to return to the Bulk Dump Menu Display (of step ④). Repeat steps ⑤ - ⑦.

* If you select "INT&CARD" or "CARD" without a Memory card inserted into the R-70, the data won't be transmitted, and the Display shows "Card not ready" for a few seconds. The previous screen then returns.

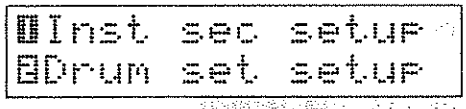
* To cancel data transfer, press [NO/EXIT] instead of [YES].

2. Receive

The R-70 can receive Exclusive data from another R-70 or sequencer.

① Press [MIDI].

(1st Page)



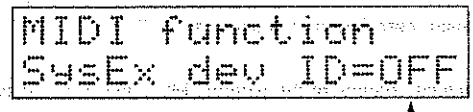
② Select the following Display with [◁] and [▷].

(3rd Page)

The above procedure (step ②) can be skipped.

③ Select "Function" by pressing Ten Key Pad [5].

④ Move the cursor with [◁] and [▷], then specify the System Exclusive Device ID Number using [▼] and [▲].



System Exclusive Device ID Number

* To receive Exclusive data from another R-70, set the System Exclusive Device ID Numbers of the two units to the same number. To receive R-70 data stored in a sequencer, set the System Exclusive Device ID Number to the same number (other than "OFF") used when transmitting the Exclusive messages to the sequencer. When set to "OFF", Exclusive messages are ignored.

⑤ When the transmitting device starts transferring data, the Display of the R-70 responds with "Receiving SysEx".

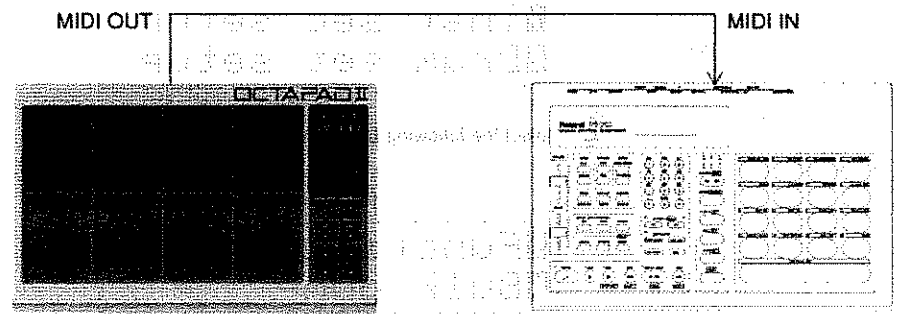
* When the R-70 is playing, the Exclusive messages will be ignored.

5. Example Setup with an External MIDI Device

1. Setup for using the R-70 as a MIDI sound module

The R-70 can be played by an external sequencer, MIDI keyboard, MIDI drum pad, etc.

CONNECTIONS



MIDI Pad,
Rhythm machine,
Keyboard

R-70

Set up the R-70 with the external device as shown below:

○ Using the R-70 as a drum sound module

The R-70 can be played by an external MIDI device using the Instrument Section. In the following example, Instrument Section 1 is used (☞ P. 7-11).

① Set the transmit channel of the external MIDI device to match the receive channel (☞ P. 7-11) of Instrument Section 1.

② Change the Instrument assignment to Note Numbers (Drum Set: ☞ P. 7-13 , Note Number : ☞ P. 7-14), if necessary.

③ Play the external MIDI instrument and the drum voices on the R-70 will be heard.

* If you set the R-70 to the Realtime recording mode, what you play on the external instrument will be recorded as Rhythm Patterns. However, the parameters controlled by Control Changes (eg., Pitch (☞ P. 7-17)) can only be entered within the range of the Sequence Parameters. (☞ P. 1-52)

* To receive Pitch Bend messages, set the Pitch Bend Switch to "ON". (☞ P. 7-27)

* The sound of an Instrument can be changed by sending Control Change messages (☞ P. 7-17) from an external MIDI device. The sound changes depending on the Control Change messages which the R-70 receives. That is, if you wish to change the sound of each note, set the transmitting device so that it will send the Control Change Message just before each Note message.

○ Using the R-70 as a sound source of a MIDI Keyboard

You can assign an Instrument (such as Bass sound or Agogo etc.) to a Performance section of the R-70, then hear the sound with melody by playing an external MIDI keyboard.

① Set the transmit channel of the external MIDI Keyboard to match the receive channel (☞ P. 7-24) of the Performance section.

② Assign the Instrument to be played at "Inst" in the Performance Section Setup Display (☞ P. 7-24). Then set the other parameters as necessary.

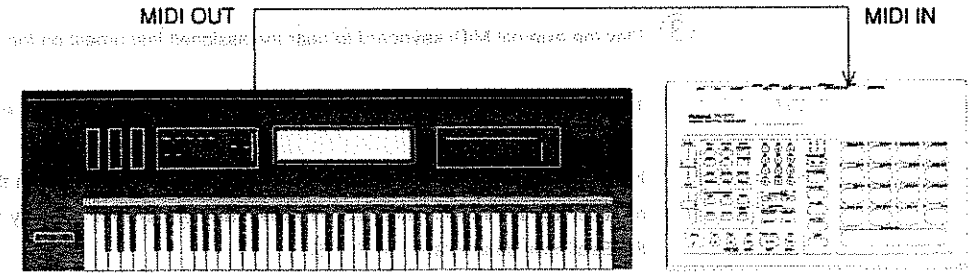
③ Play the external MIDI keyboard to hear the assigned Instrument on the R-70.

- To receive Pitch Bend messages, set the Pitch Bend Switch to "ON". (☞ P. 7-27)
- If you set the R-70 to the Realtime recording mode, what you play on the external MIDI keyboard will be recorded as Rhythm Patterns. However, each parameter can only be entered within the range of the Sequence parameters (☞ P. 1-52).
- The sound of an Instrument can be changed by sending Control Change messages (☞ P. 7-27) from an external MIDI keyboard. The sound changes depending on the Control Change messages which the R-70 receives. That is, if you wish to change the sound of each note, set the transmitting device so that it will send the Control Change Message just before each Note message.

2. Playing an external MIDI Sound Module with the R-70's Performance Data

You can play an external MIDI sound module connected to the R-70 with the R-70's performance data. For example, only the R-70's Snare sound can replace the Sampler's one after you have made the Rhythm Pattern.

CONNECTIONS



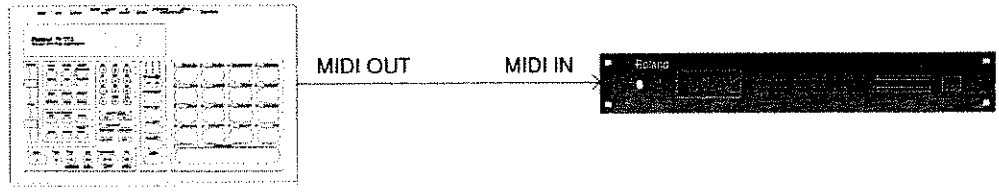
Keyboard R-70

○ How to make Performance Data

→ Creating performance data is the same as Pattern recording or the Song Create procedure.

→ When you are making performance data, use an Instrument which will not be needed by the current Rhythm Pattern or Song. (To actually play the external sound module, refer to "How to play the Performance Data" in the following section).

→ To use more than one MIDI sound module (or to play more than one sound on a module), use a different Instrument for each sound.



R-70 MIDI Device

○ How to play the Performance Data

① Assign the selected Instrument (entered in the Rhythm Pattern for playing the external sound module) to a User's Drum Set (☞ P. 7-15).

② Assign the User's Drum Set to an Instrument Section. (☞ P. 7-13)

③ Set the receive channel on the external MIDI sound module to match that of the Instrument section. (☞ P. 7-11)

④ Set the volume of the Instrument to "0" (☞ P. 4-11) so that the Instrument will not sound on the R-70.

⑤ Play the performance data on the R-70 and the external MIDI sound module will resporld.

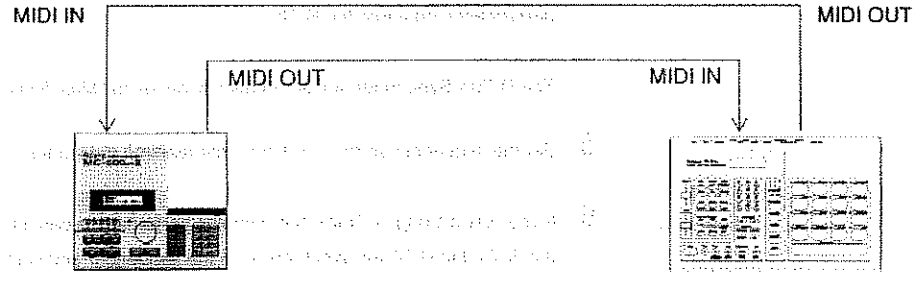
* The R-70 automatically transmits a Note Off message after a specific period of time. If you use a sampler or synthesizer as an external sound module, a certain portion of a sound may not be heard, or a sound may be cut altogether.

3. Controlling the R-70's Performance Data with a Sequencer

If you wish to memory all the R-70's data into a sequencer that cannot handle bulk data, you can still record the bulk data into the sequencer. You can then control the data in the sequencer just like performance data for a synthesizer or sampler. If you use a sequencer that can handle bulk data, you can transfer the R-70's data to the sequencer with "Data transfer with Exclusive messages" (☞ P. 7-29).

* Your sequencer may not be able to perform in the following manner. If not, refer to the sequencer's owner's manual.

CONNECTIONS



○ Recording Bulk Dump Data

To transfer the R-70's performance data into a sequencer...

① Set the Sync mode on the R-70 to "MIDI SYNC" (☞ P. 8-3).

② Set the System Exclusive Device ID Number on the R-70 to a value other than "OFF". (☞ P. 7-25)

③ Set the sequencer so that it will not output realtime messages.

* If your sequencer cannot be set as above (in step ③), disconnect the MIDI cable from the MIDI OUT on the sequencer or from the MIDI IN on the R-70.

④ Set the sequencer to the record mode.

Set the sequencer so that it will not playback irrelevant performance data.

⑤ Select "INT" (or "INT&CARD" if you wish to write data on a card as well) of "All" in the MIDI Bulk Dump mode, then transfer it. (☞ P. 7-29)

⑥ When "Completed" appears in the Display, stop the sequencer.

* If you have disconnected the cable in step ③, reconnect it.

○ Loading and playing the Performance Data

To load the performance data recorded in a sequencer and synchronize the R-70 to the sequencer...

① Select the Song Play Display on the R-70.

② Set the sequencer so that it will not transmit realtime messages.

* If your sequencer does not feature the above mode, set the Sync mode of the R-70 to "INTERNAL" (☞ P. 8-3)

③ Set the System Exclusive ID Number of the R-70 to the same number used when recording Bulk Dump data. (☞ P. 7-31)

④ On the sequencer, play the Song or Track where the Bulk Dump data is stored and load the performance data into the R-70.

The R-70's Sync mode will automatically be set to "MIDI SYNC".

⑤ Set the sequencer so that it will transmit realtime messages.

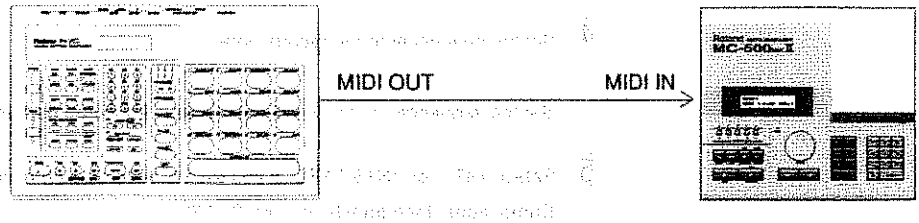
⑥ If you play a Song or Track that contains performance data of a MIDI sound module other than that of the R-70, the R-70 will synchronize to the sequencer and start playing.

4. Recording the R-70's Performance Data into a Sequencer in realtime

You can record the realtime MIDI messages transmitted from the R-70 into a sequencer, to control the performance data on the sequencer. The advantage over Bulk Dump is the ability to edit the data in the sequencer afterwards. If you have set the Control Changes, the sound change information can also be recorded.

○ Recording Performance Data

CONNECTIONS



R-70 Sequencer

① Assign all the Instruments used in a Song to be recorded in a User's Drum Set (USER 1 - 4). (☞ P. 7-14)

If you wish to assign more than 129 Instruments, use two Drum Sets. (Drum Sets "ALL1" and "ALL2" will be convenient.)

② Assign the User's Drum Set selected in step ① to an Instrument section with Drum Set Assign. (☞ P. 7-13)

* If you have used two User's Drum Sets or Drum Sets " All1 " and " All2 " in step ①, assign those Drum Sets to Instrument sections 1 and 2.

③ Set the transmit and receive channels to the same number on each Instrument section.

* If you have used two User's Drum Sets in step ①, be sure to set the channel numbers for the Instrument sections 1 and 2 to different numbers.

④ If you wish to record the sound change of the Sequence Parameters, set the Instrument Section Control Change (☞ P. 7-18).

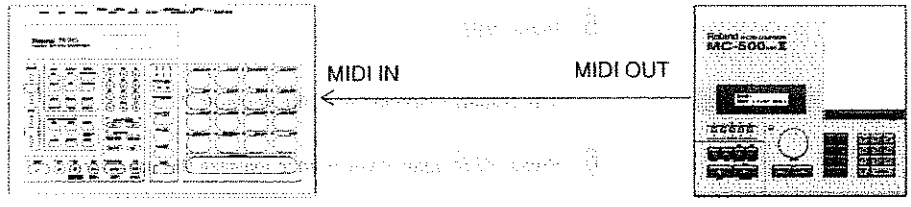
⑤ Set the Sync mode on the R-70 to "INTERNAL" and that on the sequencer to "MIDI ".

⑥ Set the sequencer to the record mode.

⑦ On the R-70, select the Song to be recorded on the sequencer, then press START/STOP. The sequencer starts recording the moment the R-70 starts playing.

○ Playing back the Performance Data

To play back the Rhythm Patterns recorded in the sequencer...



R-70 Sequencer

① Set the R-70 to the same settings used when recording performance data into a sequencer (follow steps ① - ④ on page 7-37).

* If you have not changed the settings yet, skip the above procedure (step ①).

② Set the Sync mode on the R-70 to "MIDI SYNC" and that on the sequencer to "INTERNAL". (☞ P. 8-3)

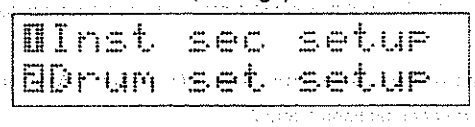
③ When the sequencer starts playing back, the R-70 will start playing with the MIDI messages sent from the sequencer.

6. Initialize

The Initialize function allows you to retrieve the initial parameter values pre-programmed for each section.

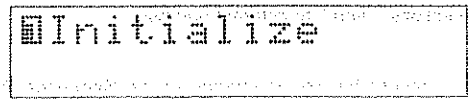
① Press [MIDI].

(1st Page)



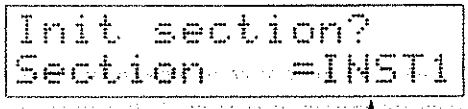
② Select the following Display with [◁] and [▷].

(4th Page)



* This procedure (step ②) can be skipped.

③ Press Ten Key Pad [7] to select "Initialize".



Section to be initialized

④ Select the section to be initialized (INST1 - INST2/PFM1 - PFM4) using [▼] and [▲].

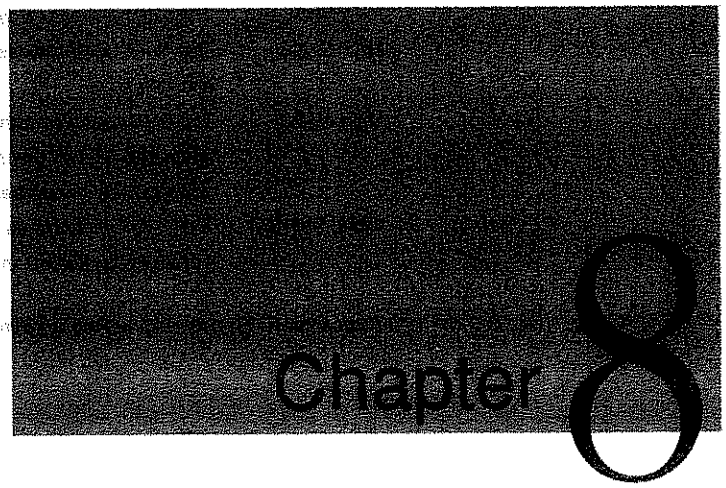
⑤ Press [YES].

The Display responds with "Are you sure?".

⑥ Press [YES] again if you wish to initialize this parameter.

The parameters are initialized.

* To stop initialization, press [NO/EXIT] instead of [YES].



Synchrozing the R-70 to an External Device

The R-70 can be synchronized to an external MIDI device or MTR (Multi Track Recorder). The R-70 will synchronize to an extrenal MIDI device using MIDI clock signals. Or record sync signals into the MTR, and the R-70 will synchronize to sync signals.

1. Sync Modes

You can select any of the four following Sync modes. The R-70 will respond differently depending on the Sync mode you choose.

INTERNAL : The external device plays at the R-70's tempo.

MIDI SYNC : The R-70 synchronizes to the MIDI clock signals received through the MIDI IN connector.

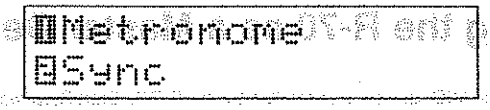
MIDI AUTO : The R-70 uses its internal tempo until it receives a MIDI Start message or Continue message. From the moment it receives a MIDI Start message or Continue message, it synchronizes to the MIDI clock of the external device.

TAPE SYNC : The R-70 synchronizes to the sync signals (note that they are different than MIDI signals) recorded on an MTR.

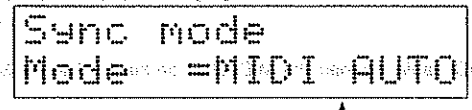
- To use the R-70 on its own, set the Sync mode to "INTERNAL".

To set the Sync mode, follow the procedure.

① Press Key Pad [13] while holding [SHIFT] down.



② Press Ten Key Pad [2] to select "Sync" (Sync mode).



Sync Mode

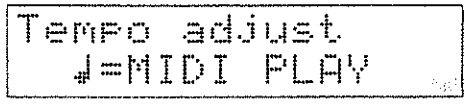
③ Set the Sync mode with [▼] and [▲] .

④ Press [NO/EXIT].

○ About Tempo Display

When you select "MIDI SYNC" or "TAPE SYNC" or you select " MIDI AUTO " and the R-70 has received a MIDI Start message or Continue message, the Tempo setting Display will change as shown below and the R-70 can no longer control the tempo.

While synchronizing
(In MIDI SYNC mode or MIDI AUTO mode)



While synchronizing
(In TAPE SYNC Mode)

While stopped
(In MIDI SYNC Mode)

While Stopped
(In TAPE SYNC mode)

* If you press [START/STOP] when no sync signal is being sent from the external device, the Tempo Display will respond with the Play mode screen. The R-70 will not start playing, however, until it receives a sync signal.

2. Sync to an External MIDI Device (MIDI Sync)

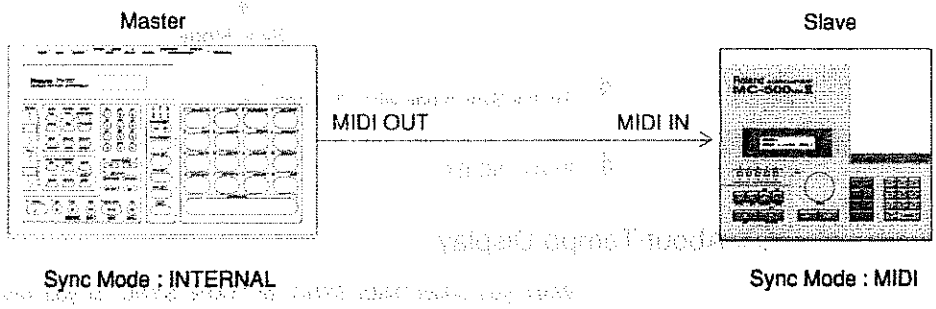
The R-70 can synchronize to the MIDI clocks sent from an external MIDI device (rhythm machine or sequencer). The device that transmits the sync signals is called the 'Master', and the device that receives them is called the 'Slave'.

1. Using the R-70 as a Master Device

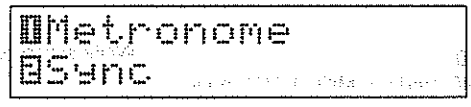
An external MIDI device is controlled by the R-70's Start/Stop signals or Tempo data.

CONNECTIONS

Using a MIDI cable, connect the MIDI OUT on the R-70 to the MIDI IN on the Slave device.



① Press Key Pad [13] while holding [SHIFT] down.



② Press Ten Key Pad [2].

③ Set the R-70 to the "INTERNAL" Sync mode with [▼] and [▲]. Then set the Sync mode on the external MIDI device to " MIDI ".

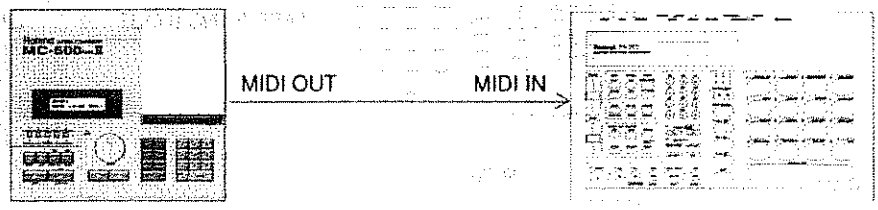
④ Press [START/STOP] on the R-70 and the connected MIDI device automatically starts playing.

2. Using the R-70 as a Slave Device

When the R-70 is a Slave device, it will be controlled with Start/Stop or Tempo data sent from the external MIDI device (Master device).

CONNECTIONS

Using a MIDI cable, connect the MIDI IN on the R-70 to the MIDI OUT on the Master device (external MIDI device).



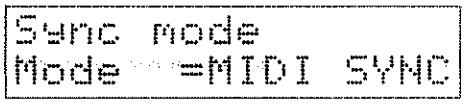
Sync Mode : Internal

Sync Mode : MODI SYNC or MIDI AUTO

① Press Key Pad [13] while holding [SHIFT] down.

② Press Ten Key Pad [2].

③ Select the "MIDI SYNC" or "MIDI AUTO" Sync mode with [▼] and [▲]. Then set the Sync mode of the Master device to "INTERNAL".



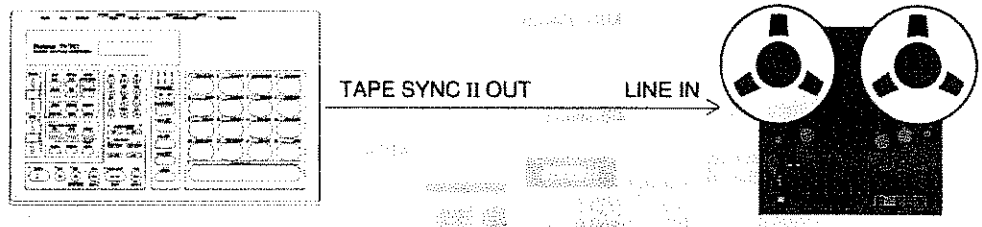
④ Start playback on the Master device (external MIDI device). The R-70 will automatically start playing when the Master device starts.

3. Syncronizing to an MTR (Tape Sync)

In the Tape Sync mode, the R-70 plays along with the sync signals recorded on an MTR (Multi Track Recorder). Using this mode, you can record another instrument's performance into an MTR along with the R-70, or synchronize the R-70 to the performance recorded on the MTR.

1. Recording Sync Signal

CONNECTIONS



R-70 Multi Track Recorder

* Do not record tape sync signals through noise reduction or an equalizer to avoid signal errors. If you must use noise reduction or an equalizer for recording, be sure to use the same unit (with the same settings) for playback.

① Set the R-70 to the "INTERNAL" Sync mode. (☞ P. 8-3).

② Adjust the recording input on the MTR (-10 - 3VU).

③ Set the tempo for playing (☞ P. 1-5).

* If the Song Tempo (☞ P. 2-17) has already been set, skip the above procedure (step ③).

④ Start recording on the MTR. In a few seconds, start playback of the R-70.

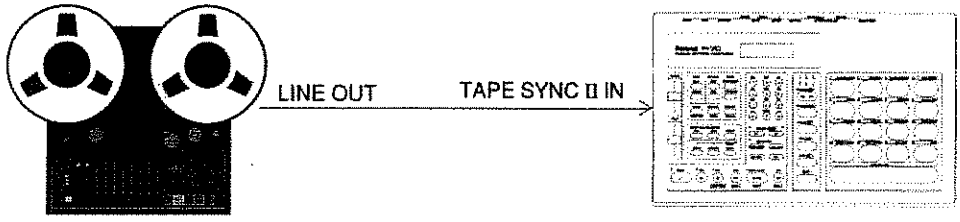
* If you start the R-70 before the MTR, the two devices will not synchronize at all. If you start playing the R-70 from the middle of the Song, the devices will not synchronize properly. Be sure to start playback from the beginning of the Song.

⑤ When the R-70 stops playing, wait for a few seconds, and then stop the MTR.

2. Sync Performance

The R-70 can play along with the sync signals recorded on an MTR. Even if you start the MTR in the middle of the song, the R-70 will automatically sync to the recorded signals.

CONNECTIONS



Multi Track Recorder

R-70

① Rewind the tape and stop it a little before the pilot tone changes to a modulated tone.

* To start synchronized playback from the middle of a performance, let the tape run to a little before the desired position.

② Set the R-70's Sync mode to "TAPE SYNC" (☞ P. 8-3).

③ Set the Track with the sync signals on the MTR to the playback mode, and set the other Tracks to the recording mode as necessary.

④ Press START/STOP .
The R-70 does not start yet.

⑤ Start playback on the MTR.
The R-70 starts playing.

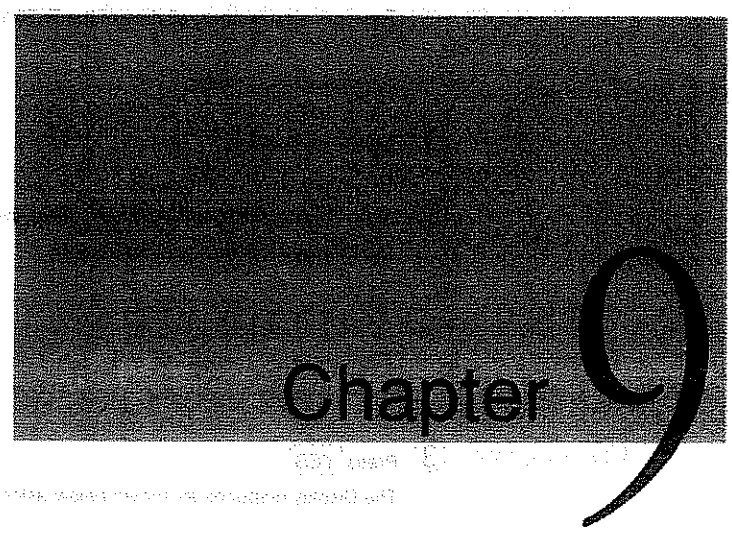
* When the R-70 synchronizes to the MTR from the beginning of the sync signal (if you followed the instructions in step ①), playback will start immediately. However, when the R-70 synchronizes from the middle of the recorded sync signal, it will take a moment for synchronized playback to begin.

* If you cannot synchronize the R-70 to the MTR, adjust the MTR's output level for the sync signals, then repeat the procedure. If you still cannot achieve synchronization (no matter how you set the output level), re-record the sync signals using a different level.

* If you use the cue control function of the MTR during fast-forward or rewind (high pitched sound will be produced) , the R-70 may not sync correctly.

* Once you stop the MTR, even if you fast-forward or rewind, the R-70 can sync correctly.

Memo



REFERENCE

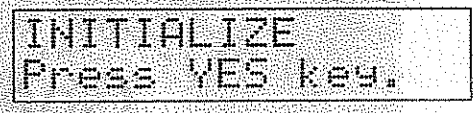
1. To retrieve the initial settings pre-programmed by the manufacturer (Initialization)

This operation restores all data of the R-70 to the initial settings pre-programmed by the manufacturer.

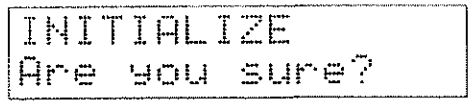
Initialization Procedure

① **Switch the R-70 off.**

② **While holding [MIDI] and [ASSIGN] down, switch the R-70 on.**
The Display responds as shown below:



③ Press [YES].
The Display responds as shown below asking if you are sure you want to initialize the R-70.



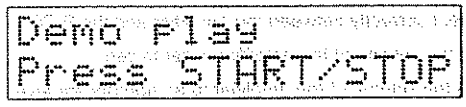
④ Press [YES] again.
The Display shows "Completed" and the R-70 is initialized.

REFERENCE

2. Playing a Demo Song

The R-70 contains a demonstration Song in memory (Demo Song). You can hear it by following this procedure:

① Press [SONG PLAY] while holding [SHIFT] down.



② Press [START/STOP] to start playing the Demo Song.

③ To stop playing, press [START/STOP] again.

If you wish to resume playing from where you stopped the Song, press [START/STOP] while holding [SHIFT] down.

④ Press [NO/EXIT], and the previous Display is retrieved.

3. Troubleshooting

Instrument

●No sound is heard.

Check if the connection is correct between the amplifier and the R-70.

→Connect correctly between the amplifier and the R-70.

Check if the volume of the amplifier is set to zero.

→Raise the volume of the amplifier to an appropriate level.

Check if the volume of the R-70 is set to zero.

→Raise the Volume Slider to an appropriate position.

Check if the Volume of MIXER is set to zero.

→Set the Volume of MIXER to an appropriate value. (☞ P. 4-11)

Check if the Output Assign is set to Individual 1 or 2.

→Set the Output Assign of the Instrument to "L1" - "L7" or "C" or "R1" - "R7". (☞ P. 4-11)

→Connect the amplifier to the Individual Out 1 or 2 jack. (☞ P. 13)

→Change the Output/Effect mode. (☞ P. 4-12)

●The sound is too low.

Check if the volume of the amplifier is set too low.

→Raise the volume of the amplifier to an appropriate level.

Check if the volume of the R-70 is set too low.

→Raise the Volume Slider to an appropriate position.

Check if the Volume of MIXER is set too low.

→Set the Volume of MIXER to an appropriate value. (☞ P. 4-11)

●The sound is strange or unusual.

Check if the Sound parameters are correctly set.

→Edit the Sound parameters. (☞ P. 4-2)

→Initialize the Sound parameters. (☞ P. 4-9)

● The sound does not change even after the Sound parameters have been edited.

Check if the Sound parameters are set correctly.

→It is normal that the sound does not change, even within the variable range, because of the nature of the Instrument or the parameter. (☞ P. 4-2)

● Two sounds are simultaneously played.

Check if the Sound parameter "Layer" is set to a value other than "＊＊＊-＊＊＊＊＊＊".

→Set the "Layer" to "＊＊＊-＊＊＊＊＊＊". (☞ P. 4-6)

● The same Instrument is played no matter what Key Pad is hit.

Check if the Multi Assign is set to "ON".

→Turn off the Multi Assign by pressing [MULTI]. (☞ P. 5-6)

Check if the Temporary Assign is set to "ON".

→Turn off the Temporary Assign by pressing [TEMP ASGN]. (☞ P. 6-8)

● You cannot change Pad Banks.

Check if the Multi Assign is selected.

→Press [MULTI] to turn off the Multi Assign.

● Only one Instrument can be played.

Check if the Solo mode is active.

→Press [SOUND], [EFFECTS] or [MIXER] while holding [SHIFT] down to exit the Solo mode (☞ P. 4-20).

Rhythm Pattern

●Pressing [START/STOP] does not start playing the Rhythm Pattern.

Check if the Sync Mode is set to "TAPE SYNC" or "MIDI SYNC".

→Change the Sync Mode to "INTERNAL". (☞ P. 8-3)

●The sound of the Instrument used in the Rhythm Pattern you have previously made is altered.

Check if you have edited the Sound parameters after making the Rhythm Pattern.

→Remember that the sound of the Instruments used in all the Rhythm Patterns will simultaneously change when editing Sound parameters. (☞ P. 4-2)

● Swing effect cannot be obtained.

Check if the Swing Delay is set to zero.

→Set the Swing Delay to an appropriate value. (☞ P. 1-43)

Check if the Swing Point is set to an appropriate value.

→Set the Swing Point to an appropriate value. (☞ P. 1-43)

● You cannot record with the Realtime recording function.

Check if the Realtime Editing Display is currently shown.

→Press [REC] to select the Realtime Recording mode.

Song

● Pressing [START/STOP] does not play the selected Song.

Check if any data is written into the Song currently selected.

→Select a Song that does contains data.

→Enter data into the Song with the Song Create function. (☞ P. 2-2)

Check if the biginning of the selected Song uses a Rhythm Pattern from a Memory card, and also no Memory card is inserted to the Card slot.

→Insert the Memory card for the R-70. (☞ P. 6-2)

→Select a Song that does not require data from a Memory Card (ie, from Internal) .

Check if the Sync Mode is set to "TAPE" or "MIDI SYNC".

→Change the Sync Mode to "INTERNAL". (☞ P. 8-3)

● Song stops playing in the middle of the data.

If you are playing a Song that uses Rhythm Patterns from a memory card, check if the memory card is inserted into the Card Slot.

→Insert the memory card into the Card Slot.

● When a Song is played up to the end, a different Song starts playing automatically.

Check if Song Chain is set to other than "OFF".

→Set the Song Chain to "OFF". (☞ P. 2-15)

● Tempo of a Song changes as soon as the Song starts playing.

Check if Song Tempo is set.

→Set Song Tempo to "OFF" or "PTN". (☞ P. 2-17)

● The Tempo of a Song changes as soon as a different Rhythm Pattern is played.
Check if Song Tempo is set to "PTN".
→Set Song Tempo to a value other than "PTN" (☞ P. 2-17), or set the Pattern Tempo to "OFF". (☞ P. 1-30)

● The Tempo of a Song does not change even though a Tempo Change has been set for the Song.
Check if Song Tempo is set to "PTN".
→Set Song Tempo to other than "PTN". (☞ P. 2-17)

● The volume of a Song decreases as soon as the Song starts playing.
Check if the Song Volume is set too low.
→Increase the Song Volume. (☞ P. 2-17)

MIDI

○ With the R-70 as a Slave device:

●No sound is heard.
Check if the MIDI channels are set correctly.
→Set the MIDI channels of the two units to the same number.
Check if the Drum Set Assign is set correctly.
→Set the Drum Set Assign. (☞ P. 7-12)
Check if the Instruments assigned to the Note Numbers are correct.
→Assign the Instruments to the Note Numbers correctly. (☞ P. 7-14)
Check if the Section Volume is set to zero.
→Change the Section Volume to the appropriate value. (☞ P. 7-14, P. 7-21)
Check if the transmitting device send the value of zero using Volume or Expression messages to the R-70.
→Send Volume or Expression messages (other than zero) from the transmitting device.

●Only one Instrument can be played.
Check if the MIDI messages are received at the Performance section.
→Set the MIDI channel on the external device to the same number as the receive channel of the relevant Instrument Section. (☞ P. 7-10)

●The sound positioning (pan) cannot be changed by sending the Pan message.
Check if the Pan Switch is set to "OFF".
→Set the Pan Switch to "ON". (☞ P. 7-27)

●When you play the R-70 with performance data recorded on a sequencer, an R-70 Song or Rhythm Pattern is played at the same time.
Check if the Sync Mode is set to "MIDI SYNC" or "MIDI AUTO".
→Change the Sync Mode to "INTERNAL". (☞ P. 8-3)

● The R-70 does not receive Exclusive messages.
Check if the System Exclusive Device ID Number is set correctly.
→Set the System Exclusive Device ID Number of the two devices to the same number. (☞ P. 7-25)

○ With the R-70 as a Master device:

● No sound is heard.
Check if the MIDI channels are correctly set.
→Set the MIDI channels of the two devices to the same number. (☞ P. 7-10, P. 7-21)

Check if the Drum Set Assign is set correctly.

→Set the Drum Set Assign. (☞ P. 7-12)

Check if the Note Numbers are set correctly.

→Set the Instrument to the Note Numbers of the User's Drum Sets. (☞ P. 7-14)

→Change the Note Number of external MIDI device.

General

●The R-70's Metronome does not sound while recording.

Check if the Volume of the Instrument used for the metronome beep is set to zero.

→Increase the volume of the relevant Instrument. (☞ P. 4-11)

Check if the Metronome mode is set to "OFF".

→Change the Metronome mode to "REC ON". (☞ P. 1-12)

●The R-70's Metronome stops in the middle of a song.

Check if the Metronome mode is set to "REC EMPTY".

→Change the Metronome mode to "REC ON". (☞ P. 1-12)

●The Flam effect cannot be created even by hitting a Key Pad while holding FLAM down.

Check if the Flam Interval is set to "0".

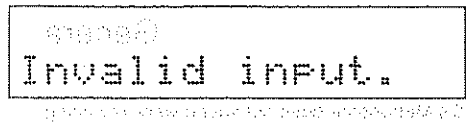
→Set the Flam Interval to an appropriate value. (☞ P. 1-10)

Check if the Flam Ratio is set properly.

→Change the Flam Ratio to an appropriate value. (☞ P. 1-10)

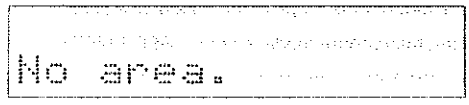
[Error Messages]

Error messages appear in the Display when an operational error occurs. Refer to the following in the event of such an occurrence.



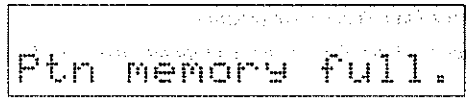
This error message tells you that there is no point in carrying on the procedure. For example, there is no point continuing when you have set the same number for the source and destination in Pattern Copy.

→Set the values correctly.



This error message shows you that there is insufficient memory for editing the Rhythm Pattern.

→Erase some Rhythm Patterns to make space, then repeat the procedure.



This tells you that no more Rhythm Patterns can be written into the memory.

→If you wish to continue Pattern Recording, erase some existing Patterns.

→To return to the previous Display, press NO/EXIT .

This tells you that no more Songs can be written into memory.

→If you wish to continue creating Songs, erase some existing Songs.

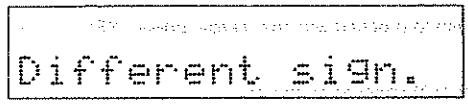
→To return to the previous Display, press NO/EXIT .

This tells you that the source Rhythm Pattern contains no data in the Pattern Clear, Pattern Merge, etc.

→Select a different Rhythm Pattern.

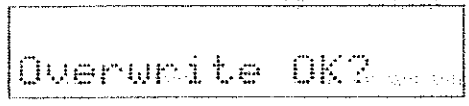
This tells you that there is no data in the Song where you are using the selected function (such as Part Delete, Part Copy, etc.).

→These functions can only be used in a Song that contains performance data.



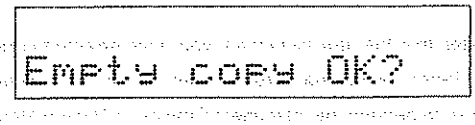
This shows that different signeture is set in the source and destination Rhythm Patterns when using the Pattern Merge or Pattern Append functions.

→The Merge/Append functions can only be used for Rhythm Patterns with the same signature.



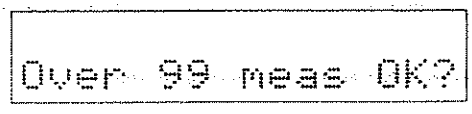
This shows that the destination Pattern Number or Song Number contains performance data when using Pattern Copy, Song Copy, etc.

→If you wish to overwrite (erase) the existing performance data in the destination Pattern or Song, press [YES]. If not, press [NO/EXIT].



This shows that no performance data exits in the source Pattern or Song when using Pattern Copy or Song Copy.

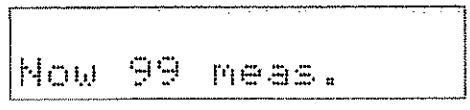
→If you wish to proceed (copying a blank Rhythm Pattern or Song, erasing the performance data in the destination Rhythm Pattern or Song), press [YES]. If not, press [NO/EXIT].



This tells you that the total number of measures would exceed 99 after completion of the Pattern Append process, etc.

→Change the settings so that the total number of the measures will not exceed 99.

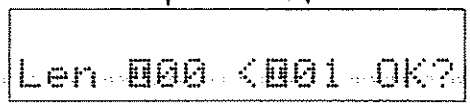
→If you wish to append the Patterns (up to the 99 bars), press [YES].



This indicates that the total number of measures is 99, and therefore no more data can be entered with Measure Insert or Pattern Apend.

→Select another Rhythm Pattern.

Source Pattern Number to be merged Destination Pattern Number to be merged to



This informs you that the source Pattern contains fewer measures than the destination Pattern with Pattern Merge.

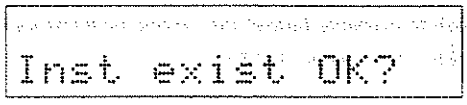
→If you wish to proceed with the merge, press [YES]. If not, press [NO/EXIT].

Source Pattern Number to be merged

Destination Pattern Number to be merged to

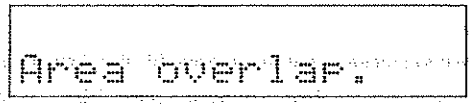
This indicates that the source Pattern contains more measures than the destination Pattern with Pattern Merge.

→If you wish to proceed with the merge, press [YES]. If not, press [NO/EXIT].



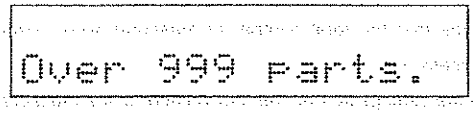
This indicates that the new Instrument you have selected to replace the current one (with Instrument Change or Pattern Merge) has already been used in the selected Rhythm Pattern.

→If you wish to perform the Instrument Change or Pattern Merge, press [YES].



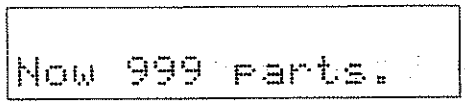
This indicates that the source Part overlaps with the destination Part (when using the Part Copy procedure).

→Set the correct Part Number and number of Parts.



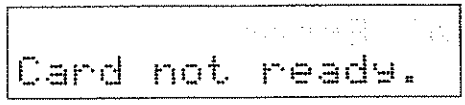
This informs you that the total number of Parts in a Song will exceed 999 after Part Copy is completed.

→Change the settings so that the total number of Parts will not exceed 999.



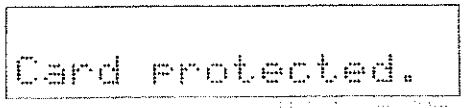
This indicates that the total number of Parts is already at the maximum of 999 and therefore the Part Insert or Part Copy functions cannot be executed.

→Erase some data and repeat the procedure.



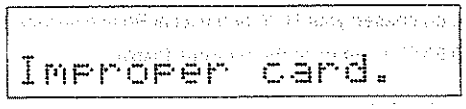
The memory card is not correctly inserted into the Memory Card Slot.

→Insert the memory card correctly and securely.



The Protect Switch on the memory card is set to "PROTECT".

→Change the position of the Protect Switch to off.



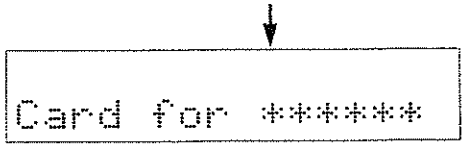
The memory card inserted into the Card slot is not for the R-70.

→Replace the memory card with the designated Memory card (M-256E).

The memory card inserted into the Memory Card Slot has not been formatted for the R-70.

→Format the card. (☞ P. 6-5)

Card name of the other Roland Model

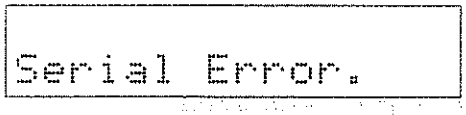


The card inserted into the Card slot is for another Roland model.

→Format the card (☞ P. 6-5), or replace it with a proper card.

Card saving/loading was unsuccessful.

→Repeat saving/loading carefully.



This indicates that MIDI messages were not received properly.

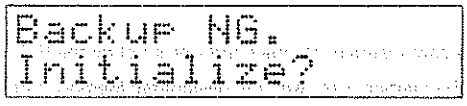
→If this message appears repeatedly, contact the retailer shop where you purchased your R-70 or the local Roland service center.

Press [NO/EXIT] to return to the previous Display.

This indicates that the battery (for supporting memory backup) is exhausted.

→To avoid losing the contents of internal memory, have the battery replaced at the retailer shop where you purchased your R-70 or the local Roland service center.

Press [NO/EXIT] to return to the previous Display.



This indicates that data stored in the R-70's internal memory is damaged.

→Press [YES] to perform the Initialization procedure. (☞ P. **)

```
MIDI Buffer full
```

The R-70 has received an excessive amount of MIDI data from the external MIDI device.

→Decrease the amount of MIDI data sent or increase the transmission interval from the external device.

Press [NO/EXIT] to return to the previous Display.

```
Act. Sensing Err.
```

The R-70 is not connected properly to an external device or the MIDI cable is damaged.

→Check the connections of the R-70 and the external device and/or replace the MIDI cable.

After a few second, it returns to the previous Display automatically.

```
Chk Sum Err [**]
```

Correct Check Sum

Exclusive messages were not properly received.

→Check the MIDI cable or the data to be transmitted, then repeat the procedure.

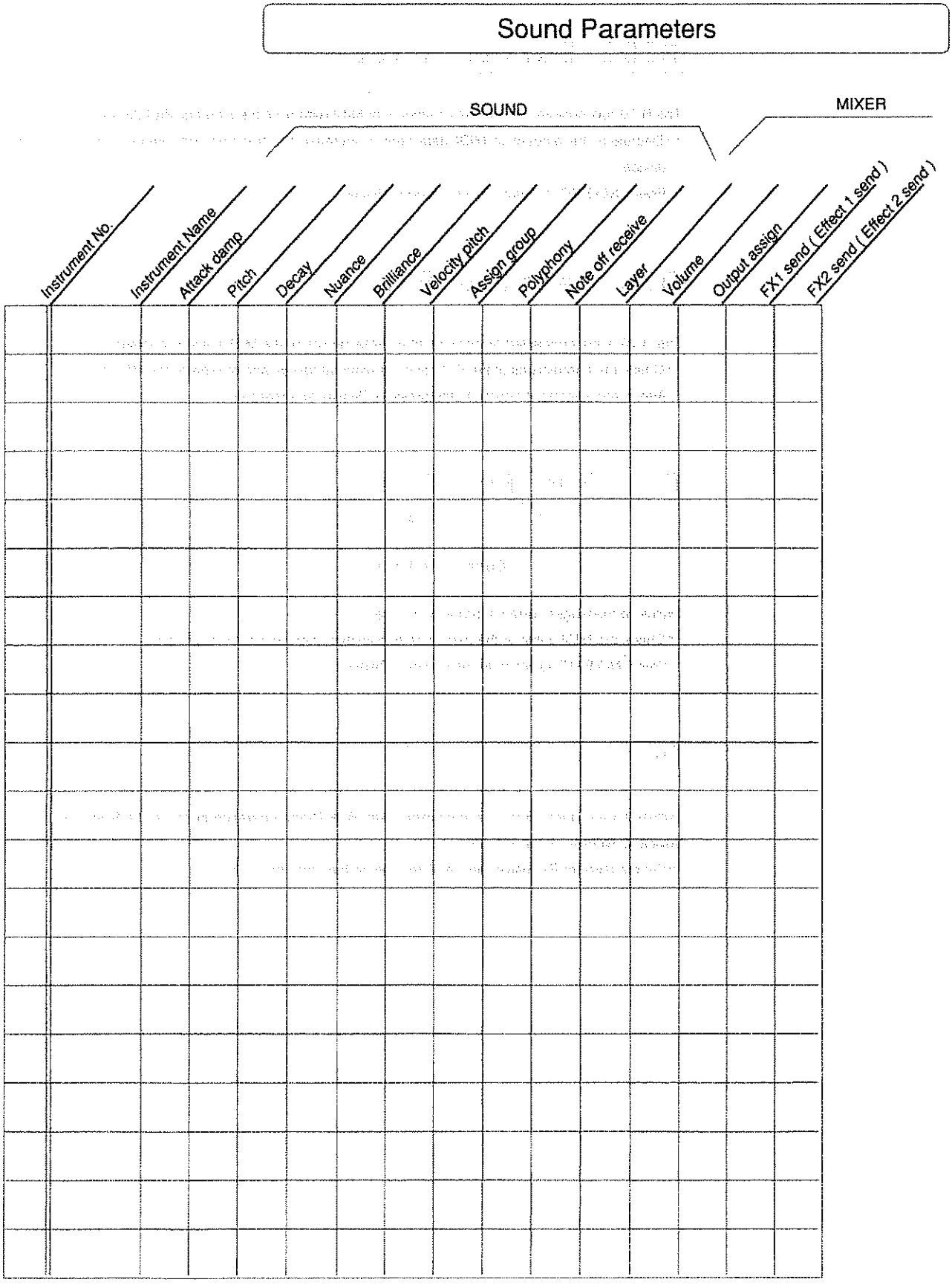
Press [NO/EXIT] to return to the previous Display.

```
Device ID is OFF
```

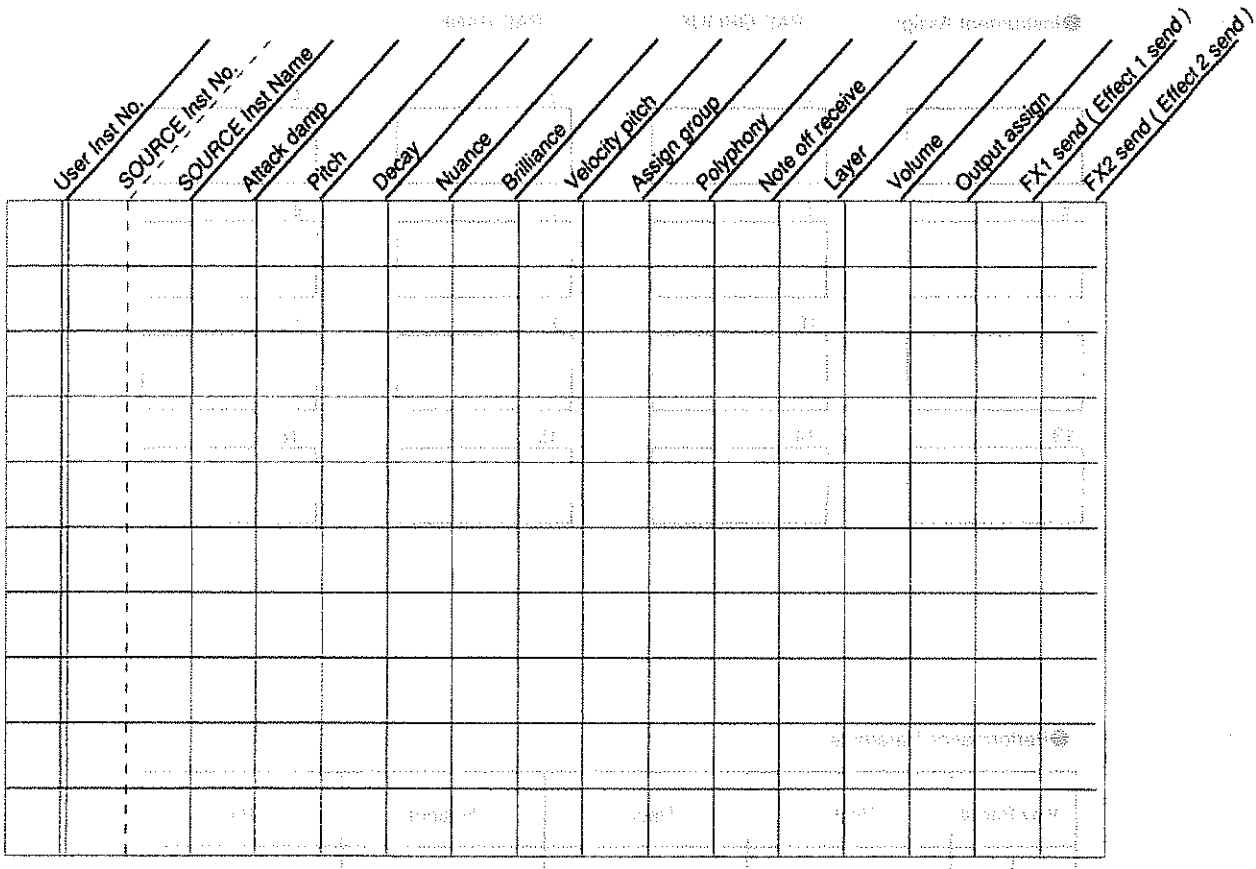
Exclusive messages cannot be transmitted with Bulk Dump operation because the System Exclusive Device ID Number is set to "OFF".

→Set the System Exclusive Device ID Number to the other than "OFF".

4. Blank Chart

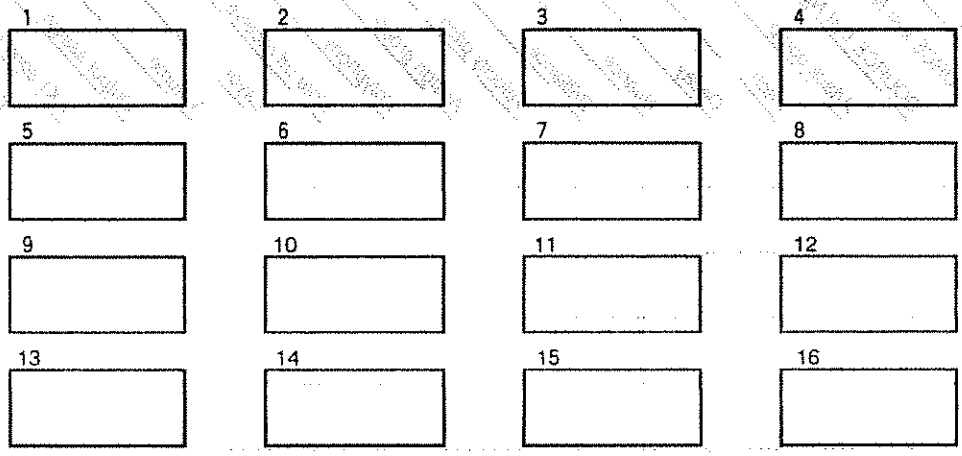


●User's Instrument



Instrument Assign and Performance Parameters

●Instrument Assign PAD GROUP: PAD BANK:



●Performance Parameter

Key Pad #	Pitch	Decay	Nuance	Pan
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				

Song Data

Song :

Part #	Data	Part #	Data	Part #	Data	Part #	Data

5. Initial setting of Instrument List

"＊" or " ＊＊ "(asterisk) indicates the Nuance Type (☞ P.4-3).

Inst No.	Display	Instrument Name
＊ 0	Deep K	deep kick
＊ 1	SolidK	solid kick
＊ 2	RevrbK	reverb kick
＊ 3	BriteK	bright kick
＊ 4	Room K	room kick
＊ 5	PillwK	pillow kick
＊ 6	Gate K	gate kick
＊ 7	Dry K	dry kick
＊ 8	Ez K	easy kick
＊ 9	ComrcK	commercial kick
＊ 10	HybrdK	hybrid kick
＊ 11	SmashK	smash kick
＊ 12	Soft K	soft acoustic kick
＊ 13	Hard K	hard acoustic kick
＊ 14	DpRomK	deep room kick
＊ 15	RvSldK	reverb solid kick
＊ 16	BrtMdK	bright mondo kick
＊ 17	DryAcK	dry acoustic kick
＊ 18	EzPlwK	easy pillow kick
＊ 19	MondoK	mondo kick
＊ 20	CmBrtK	commercial bright kick
＊ 21	BoSldK	boing solid kick
＊ 22	808GtK	TR-808 gate kick
＊ 23	909CmK	TR-909 commercial kick
＊ 24	LtRvbK	light reverb kick
＊ 25	909AcK	TR-909 acoustic kick
＊ 26	TR808K	TR-808 kick
＊ 27	TR909K	TR-909 kick
＊ 28	PowerS	power snare
＊ 29	Hard S	hard snare
＊ 30	LA S	L.A. snare
＊ 31	DopinS	dopin' snare
＊ 32	LooseS	loose snare
＊ 33	Real S	real snare
＊ 34	Lite S	light snare
＊ 35	Rock S	rock snare
＊ 36	Fat S	fat snare
＊ 37	SplatS	splatter snare
＊ 38	90's S	90's snare
＊ 39	VideoS	video snare
＊ 40	HouseS	house snare
＊ 41	BgShtS	big shot snare
＊ 42	RckerS	rocker snare
＊ 43	SuperS	super whack snare
＊ 44	Ring S	ring snare
＊ 45	RckRmS	rock rim shot snare
＊ 46	RegaeS	reggae snare
＊ 47	60's S	60's snare
＊ 48	LatinS	latin snare
＊ 49	ComboS	combo snare
50	DanceS	dance snare
51	Chop S	chop snare
＊ 52	SwingS	swing snare
＊ 53	SmlHsS	small house snare
＊ 54	TightS	tight snare
＊ 55	RckPwS	rock power snare
＊ 56	RckSpS	rock splatter snare
＊ 57	HosDpS	house dopin' snare
＊ 58	RckLtS	rock light snare
＊ 59	SprCbS	super combo snare
＊ 60	LAFatS	L.A. fat snare
＊ 61	DblRnS	double ring snare
＊ 62	Talk S	talk snare
＊ 63	RckinS	rockin' snare
＊ 64	NoiseS	noise snare
＊ 65	TR808S	TR-808 snare
＊ 66	TR909S	TR-909 snare
67	BrSwiS	brush swish snare
＊ 68	BrSlS1	brush slap snare 1
＊ 69	BrSlS2	brush slap snare 2
＊ 70	BrSlS3	brush slap snare 3
71	BrRlS1	brush roll snare 1
＊ 72	BrRlS2	brush roll snare 2
73	AmbStk	ambient side stick
74	DryStk	dry side stick
75	808Stk	TR-808 side stick
76	Sticks	sticks
77	Click	click
＊ 78	Dry T1	dry tom 1
＊ 79	Dry T2	dry tom 2
＊ 80	Dry T3	dry tom 3
＊ 81	Dry T4	dry tom 4
＊ 82	RockT1	rock tom 1
＊ 83	RockT2	rock tom 2
＊ 84	RockT3	rock tom 3
＊ 85	RockT4	rock tom 4
＊ 86	BoosT1	boosh tom 1
＊ 87	BoosT2	boosh tom 2
＊ 88	BoosT3	boosh tom 3
＊ 89	BoosT4	boosh tom 4
＊ 90	RealT1	real tom 1
＊ 91	RealT2	real tom 2
＊ 92	RealT3	real tom 3
＊ 93	RealT4	real tom 4
＊ 94	RoomT1	room tom 1
＊ 95	RoomT2	room tom 2
＊ 96	RoomT3	room tom 3
＊ 97	RoomT4	room tom 4
＊ 98	Rim T1	rim tom 1
＊ 99	Rim T2	rim tom 2
＊ 100	Rim T3	rim tom 3

Inst No.	Display	Instrument Name
* 101	Rim T4	rim tom 4
* 102	808 T1	TR-808 tom 1
* 103	808 T2	TR-808 tom 2
* 104	808 T3	TR-808 tom 3
* 105	808 T4	TR-808 tom 4
* 106	606 T1	TR-606 tom 1
* 107	606 T2	TR-606 tom 2
* 108	606 T3	TR-606 tom 3
* 109	606 T4	TR-606 tom 4
* 110	BrshT1	brush slap tom 1
* 111	BrshT2	brush slap tom 2
* 112	BrshT3	brush slap tom 3
* 113	BrshT4	brush slap tom 4
* * 114	PopCHH	pop closed hi-hat
* * 115	PopOHH	pop open hi-hat
116	PopPHH	pop pedal closed hi-hat
* * 117	RealCH	real closed hi-hat
* * 118	RealOH	real open hi-hat
119	RealPH	real pedal closed hi-hat
* * 120	808CHH	TR-808 closed hi-hat
* * 121	808OHH	TR-808 open hi-hat
122	78 CHH	CR-78 closed hi-hat
123	78 OHH	CR-78 open hi-hat
* * 124	BrsCHH	brush closed hi-hat
* * 125	BrsOHH	brush open hi-hat
126	CrshC1	crash cymbal 1
127	CrshC2	crash cymbal 2
128	SplshC	splash cymbal
129	ChinaC	china cymbal
* * 130	Ride C	ride cymbal
* * 131	RidBlC	ride bell cymbal
* * 132	BrRidC	brush ride cymbal
133	CngHMt	conga high mute
* 134	CngSlp	conga high slap
* 135	CngHOp	conga high open
136	CngLMt	conga low mute
* 137	CngLOp	conga low open
138	CowHMt	cowbell high mute
139	CowHOp	cowbell high open
140	CowblL	cowbell low
141	Tambrn	tambourine
142	WoodBH	wood block high
143	WoodBL	wood block low
144	BngHMt	bongo high mute
* 145	BngHOp	bongo high open
146	BngLMt	bongo low mute
147	BngLOp	bongo low open
148	Marcas	maracas
149	Shaker	shaker
150	Claves	claves
* 151	TimblH	timbale high
* 152	TimblL	timbale low
* 153	Chekre	chekere
154	TriMte	triangle mute
155	TriOpn	triangle open

Inst No.	Display	Instrument Name
156	Casta	castanets
157	Vibslp	vibra-slap
158	SlBell	sleigh bell
159	CabaUp	cabasa up
160	CabaDn	cabasa down
161	PndMte	pandiero mute
162	PndSlp	pandiero slap
* 163	PndOpn	pandiero open
* 164	SurdRm	surdo rim
165	SurdMt	surdo mute
* 166	SurdOp	surdo open
* 167	Tambrm	tamborim
168	WhisIS	whistle short
169	WhisIL	whistle long
170	AgogoH	agogo high
171	AgogoL	agogo low
172	GuiroS	guiro short
173	GuiroL	guiro long
174	CuicMt	cuica mute
175	CuicOp	cuica open
176	55Clav	DR-55 claves
177	78Cow	CR-78 cowbell
178	78Beat	CR-78 metallic beat
179	78Guir	CR-78 guiro
180	78Tamb	CR-78 tambourine
181	78Marc	CR-78 maracas
182	78Bngo	CR-78 bongo
* 183	808CgH	TR-808 conga high
* 184	808CgL	TR-808 conga low
185	808Clv	TR-808 claves
186	808Mrc	TR-808 maracas
187	808Clp	TR-808 hand clap
188	808Cow	TR-808 cowbell
189	ScrPsh	scratch push
190	ScrPul	scratch pull
191	HiQ	hi-Q
192	Snaps	snaps
193	DncClp	dance clap
194	VrbClp	reverb clap
* * 195	RevrsK	reverse kick
* * 196	RevrsS	reverse snare
* * 197	RevrsT	reverse tom
198	RevsC1	reverse cymbal 1
199	RevsC2	reverse cymbal 2
200	RevsC3	reverse cymbal 3
201	RvsClp	reverse clap
202	KckAmb	kick ambience
203	SnrAmb	snare ambience
204	TomAmb	tom ambience
205	LngAmb	long ambience
* 206	FingBs	finger bass
* 207	SlapBs	slap bass
* 208	AcouBs	acoustic bass
* 209	Syn Bs	synthesizer bass

User Instruments

Inst No.	Display	Source Inst No.	Display
* 210	User00	4	Room K
* 211	User01	2	RevrbK
* 212	User02	41	BgShtS
* 213	User03	35	Rock S
* 214	User04	44	Ring S
* 215	User05	30	LA S
* 216	User06	78	Dry T1
* 217	User07	79	Dry T2
* 218	User08	80	Dry T3
* 219	User09	81	Dry T4
* 220	User00	90	RealT1
* 221	User11	91	RealT2
* 222	User12	92	RealT3
* 223	User13	93	RealT4
* 224	User14	27	TR909K
225	User15	175	CuicOp
* * 226	User16	118	RealOH
227	User17	194	VrbClp
228	User18	190	ScrPul
* 229	User19	151	TimblH
* 230	User20	163	PndOpn
231	User21	205	LngAmb
232	User22	203	SnrAmb
233	User23	204	TomAmb
234	User24	202	KckAmb
235	User25	202	KckAmb
236	User26	202	KckAmb
237	User27	202	KckAmb
238	User28	204	TomAmb
239	User29	204	TomAmb
240	User30	204	TomAmb
241	User31	204	TomAmb

6. Initial setting of Pad Assignments

Group 1

Multi : 206 FingBs (Positional Pad)

Flat Position	: CENTER
Pitch	: WIDE+
Decay	: OFF
Nuance	: WIDE+
Pan	: OFF

	Bank A: Ambient 1	Bank B: Ambient 2	Bank C: Dry	Bank D: TR-808	Bank E: Brush	Bank F: Latin 1
positional pad:						
Inst	118 RealCH	114 PopCHH	130 Ride C	189 ScrPsh	68 BrSlS1	157 VibsIp
Flat pos	CENTER	CENTER	CENTER	RIGHT	CENTER	CENTER
Pitch	OFF	OFF	OFF	WIDE+	OFF	OFF
Decay	OFF	OFF	OFF	OFF	NARROW-	WIDE+
Nuance	WIDE+	WIDE+	WIDE+	OFF	WIDE+	OFF
Pan	OFF	OFF	OFF	WIDE+	OFF	OFF
pad:						
1	126 CrshC1	126 CrshC1	126 CrshC1	185 808Clv	127 CrshC2	150 Claves
2	129 ChinaC	127 CrshC2	127 CrshC2	186 808Mrc	132 BrRidC	148 Marcas
3	131 RidBlC	131 RidBlC	131 RidBlC	188 808Cow	71 BrRlS1	172 GuiroS
4	130 Ride C	130 Ride C	130 Ride C	191 HiQ	72 BrRlS2	173 GuiroL
5	216 User06	220 User10	90 RealT1	102 808 T1	110 BrshT1	144 BngHMt
6	217 User07	221 User11	91 RealT2	103 808 T2	111 BrshT2	145 BngHOp
7	218 User08	222 User12	92 RealT3	104 808 T3	112 BrshT3	146 BngLMt
8	219 User09	223 User13	93 RealT4	105 808 T4	113 BrshT4	147 BngLOp
9	73 AmbStk	73 AmbStk	74 DryStk	27 TR909K	70 BrSlS3	134 CngSlp
10	212 User02	214 User04	33 Real S	66 TR909S	69 BrSlS2	152 TmblL
11	117 RealCH	114 PopCHH	114 PopCHH	120 808CHH	124 BrsCHH	151 TmblH
12	118 RealOH	115 PopOHH	115 PopOHH	121 808OHH	125 BrsOHH	140 CowblL
13	210 User00	211 User01	9 ComrcK	26 TR808K	18 EzPlwK	133 CngHMt
14	213 User03	215 User05	60 LAFatS	65 TR808S	68 BrSlS1	136 CngLMt
15	119 RealPH	116 PopPHH	116 PopPHH	75 808Stk	116 PopPHH	135 CngHOp
16	194 VrbClp	193 DncClp	128 SplshC	187 808Clp	67 BrSwlS	137 CngLOp

Group 2

Multi : 208 AcouBs (Positional Pad)

Flat Position : CENTER
Pitch : WIDE+
Decay : OFF
Nuance : WIDE+
Pan : OFF

	Bank A: Jazz	Bank B: Room 1	Bank C: Room 2	Bank D: Power	Bank E: Latin 2	Bank F: Latin 3
positional pad:						
Inst	33 RealS	198 RevsC1	097 RoomT4	131 RidBlC	166 SurdOp	153 Chekre
Flat pos	CENTER	CENTER	CENTER	CENTER	CENTER	CENTER
Pitch	OFF	WIDE+	WIDE-	OFF	WIDE+	WIDE+
Decay	WIDE-	OFF	WIDE+	OFF	WIDE+	OFF
Nuance	WIDE+	OFF	OFF	WIDE+	WIDE+	WIDE+
Pan	OFF	WIDE+	WIDE+	OFF	OFF	WDIE+
pad:						
1	126 CrshC1	126 CrshC1	126 CrshC1	126 CrshC1	174 CuicMt	154 TriMte
2	127 CrshC2	127 CrshC2	127 CrshC2	127 CrshC2	175 CuicOp	155 TriOpn
3	131 RidBlC	131 RidBlC	131 RidBlC	131 RidBlC	168 WhislS	158 SlBell
4	130 Ride C	130 Ride C	130 Ride C	130 Ride C	169 WhislL	157 Vibslp
5	78 Dry T1	82 RockT1	94 RoomT1	86 BoosT1	170 AgogoH	140 CowbiL
6	79 Dry T2	83 RockT2	95 RoomT2	87 BoosT2	171 AgogoL	150 Claves
7	80 Dry T3	84 RockT3	96 RoomT3	88 BoosT3	154 TriMte	141 Tambrn
8	81 Dry T4	85 RockT4	97 RoomT4	89 BoosT4	155 TriOpn	156 Casta
9	74 DryStk	73 AmbStk	4 Room K	15 RvSldK	164 SurdRm	138 CowHMt
10	33 RealS	41 BgShtS	43 SuperS	29 Hard S	163 PndOpn	139 CowHOp
11	114 PopCHH	117 RealCH	114 PopCHH	117 RealCH	161 PndMte	142 WoodBH
12	115 PopOHH	118 RealOH	115 PopOHH	118 RealOH	162 PndSlp	143 WoodBL
13	17 DryAcK	2 RevrbK	1 SolidK	19 MondoK	165 SurdMt	148 Marcas
14	32 LooseS	35 Rock S	42 RckerS	28 PowerS	166 SurdOp	149 Shaker
15	116 PopPHH	119 RealPH	116 PopPHH	119 RealPH	167 Tambrm	159 CabaUp
16	192 Snaps	195 RevrsK	196 RevrsS	197 RevrsT	149 Shaker	160 CabaDn

Group 3

Multi : 209 SynBs (Positional Pad)

Flat Position : CENTER
Pitch : WIDE+
Decay : OFF
Nuance : WIDE+
Pan : OFF

	Bank A: Misc 1	Bank B: Misc 2	Bank C: Misc 3	Bank D: Misc 4	Bank E: Misc 5	Bank F: Misc 6
positional pad:						
Inst	20 CmBrtK	49 Regae S	64 NoiseS	177 78Cow	190 ScrPul	199 RevsC2
Flat pos	CENTER	CENTER	CENTER	CENTER	CENTER	CENTER
Pitch	WIDE+	OFF	WIDE+	WIDE+	WIDE+	WIDE+
Decay	OFF	WIDE+	OFF	OFF	OFF	OFF
Nuance	OFF	WIDE-	WIDE+	OFF	WIDE+	OFF
Pan	WIDE+	OFF	WIDE+	WIDE+	WIDE+	WIDE+
pad:						
1	0 Deep K	24 LtRvbK	50 DanceS	98 Rim T1	182 78Bngo	226 User16
2	3 BriteK	25 909AcK	51 Chop S	99 Rim T2	183 808CgH	227 User17
3	5 PillwK	30 LA S	52 SwingS	100 Rim T3	184 808CgL	228 User18
4	6 Gate K	31 DopinS	53 SmlHsS	101 Rim T4	189 ScrPsh	229 User19
5	7 Dry K	34 Lite S	54 TightS	106 606 T1	190 ScrPul	230 User20
6	8 Ez K	36 Fat S	55 RckPwS	107 606 T2	198 RevsC1	231 User21
7	10 HybrdK	37 SplatS	56 RckSpS	108 606 T3	199 RevsC2	232 User22
8	11 SmashK	38 90's S	57 HosDpS	109 606 T4	200 RevsC3	233 User23
9	12 Soft K	39 VideoS	58 RckLtS	122 78 CHH	201 RvsClp	234 User24
10	13 Hard K	40 HouseS	59 SprCbS	123 78 OHH	202 KckAmb	235 User25
11	14 DpRomK	44 Ring S	61 DblRnS	176 55Clav	203 SnrAmb	236 User26
12	16 BrtMdK	45 RckRmS	62 Talk S	177 78Cow	204 TomAmb	237 User27
13	20 CmBrtK	46 RegaeS	63 RckinS	178 78Beat	205 LngAmb	238 User28
14	21 BoSidK	47 60's S	64 NoiseS	179 78Guir	207 SlapBs	239 User29
15	22 808GtK	48 LatinS	76 Sticks	180 78Tamb	224 User14	240 User30
16	23 909CmK	49 ComboS	77 Click	181 78Marc	225 User15	241 User31

7. Initial setting of Sound Parameters

* " OFF " at Layer indicates " * * * - * * * * * ".

Instrument number
Instrument Name Display
Instrument Name
Volume
Output Assign
FX1 Send
FX2 Send
Pitch
Decay
Nuance Type
Nuance
Polyphony
Assign Group
Brilliance
Velocity Pitch
Attack Damp
Note Off Rx
Layer

0	Deep K	deep kick	15	C	5	0	0	0	*	0	PLY	OFF	6	0	0	OFF	OFF
1	SolidK	solid kick	15	C	5	0	0	0	*	0	PLY	OFF	2	0	0	OFF	OFF
2	RevrbK	reverb kick	15	C	5	0	0	0	*	0	PLY	OFF	6	0	0	OFF	OFF
3	BriteK	bright kick	15	C	5	0	0	0	*	0	PLY	OFF	3	0	0	OFF	OFF
4	Room K	room kick	15	C	5	0	0	0	*	0	PLY	OFF	3	0	0	OFF	OFF
5	PillwK	pillow kick	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
6	Gate K	gate kick	15	C	5	0	0	0	*	0	PLY	OFF	5	0	0	OFF	OFF
7	Dry K	dry kick	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
8	Ez K	easy kick	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
9	ComrcK	commercial kick	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
10	HybrdK	hybrid kick	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
11	SmashK	smash kick	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
12	Soft K	soft acoustic kick	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
13	Hard K	hard acoustic kick	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
14	DpRomK	deep room kick	15	C	5	0	0	0	*	0	PLY	OFF	6	0	0	OFF	OFF
15	RvSldK	reverb solid kick	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
16	BrtMdK	bright mondo kick	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
17	DryAcK	dry acoustic kick	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
18	EzPlwK	easy pillow kick	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
19	MondoK	mondo kick	15	C	5	0	0	0	*	0	PLY	OFF	5	0	0	OFF	OFF
20	CmBrtK	commercial bright kick	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
21	BoSldK	boing solid kick	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
22	808GtK	TR-808 gate kick	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
23	909CmK	TR-909 commercial kick	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
24	LtRvbK	light reverb kick	15	C	5	0	0	0	*	0	PLY	OFF	10	0	0	OFF	OFF
25	909AcK	TR-909 acoustic kick	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
26	TR808K	TR-808 kick	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
27	TR909K	TR-909 kick	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
28	PowerS	power snare	15	C	5	0	0	0	*	-3	PLY	OFF	13	0	0	OFF	OFF
29	Hard S	hard snare	15	C	5	0	0	4	*	1	PLY	OFF	13	0	0	OFF	OFF
30	LA S	L.A. snare	15	C	5	0	0	0	*	0	PLY	OFF	5	0	0	OFF	OFF
31	DopinS	dopin' snare	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
32	LooseS	loose snare	15	C	5	0	0	0	*	0	PLY	OFF	7	0	0	OFF	OFF
33	Real S	real snare	15	C	5	0	0	0	*	0	PLY	OFF	8	0	0	OFF	OFF
34	Lite S	light snare	15	C	5	0	0	0	*	0	PLY	OFF	7	0	0	OFF	OFF
35	Rock S	rock snare	15	C	5	0	0	0	*	0	PLY	OFF	7	0	0	OFF	OFF
36	Fat S	fat snare	15	C	5	0	0	0	*	0	PLY	OFF	2	0	0	OFF	OFF
37	SplatS	splatter snare	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
38	90's S	90's snare	15	C	5	0	0	0	*	0	PLY	OFF	8	0	0	OFF	OFF
39	VideoS	video snare	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
40	HouseS	house snare	15	C	5	0	0	0	*	-4	PLY	OFF	9	0	0	OFF	OFF
41	BgShtS	big shot snare	15	C	5	0	0	0	*	0	PLY	OFF	6	0	0	OFF	OFF
42	RckerS	rocker snare	15	C	5	0	0	0	*	0	PLY	OFF	2	0	0	OFF	OFF
43	SuperS	super whack snare	15	C	5	0	0	0	*	1	PLY	OFF	7	0	0	OFF	OFF
44	Ring S	ring snare	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
45	RckRmS	rock rim shot snare	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF

Instrument number	Instrument Name Display	Instrument Name	Volume	Output Assign	FX1 Send	FX2 Send	Pitch	Decay	Nuance Type	Nuance	Polyphony	Assign Group	Brilliance	Velocity Pitch	Attack Damp	Note Off Rx	Layer
46	RegaeS	reggae snare	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
47	60's S	60's snare	15	C	5	0	0	0	*	0	PLY	OFF	6	0	0	OFF	OFF
48	LatinS	latin snare	15	C	5	0	0	0	*	0	PLY	OFF	2	0	0	OFF	OFF
49	ComboS	combo snare	15	C	5	0	0	0	*	0	PLY	OFF	8	0	0	OFF	OFF
50	DanceS	dance snare	15	C	5	0	0	0	---	0	PLY	OFF	0	0	0	OFF	OFF
51	Chop S	chop snare	15	C	5	0	0	0	---	0	PLY	OFF	0	0	0	OFF	OFF
52	SwingS	swing snare	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
53	SmlHsS	small house snare	15	C	5	0	0	0	*	0	PLY	OFF	15	0	0	OFF	OFF
54	TightS	tight snare	15	C	5	0	0	0	*	0	PLY	OFF	3	0	0	OFF	OFF
55	RckPwS	rock power snare	15	C	5	0	0	0	*	0	PLY	OFF	5	0	0	OFF	OFF
56	RckSpS	rock splatter snare	15	C	5	0	0	0	*	0	PLY	OFF	15	0	0	OFF	OFF
57	HosDpS	house dopin' snare	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
58	RckLtS	rock light snare	15	C	5	0	0	0	*	-7	PLY	OFF	2	0	0	OFF	OFF
59	SprCbS	super combo snare	15	C	5	0	0	0	*	0	PLY	OFF	2	0	0	OFF	OFF
60	LAFatS	L.A. fat snare	15	C	5	0	0	0	*	0	PLY	OFF	6	0	0	OFF	OFF
61	DblRnS	double ring snare	15	C	5	0	0	0	*	-6	PLY	OFF	15	0	0	OFF	OFF
62	Talk S	talk snare	15	C	5	0	0	0	*	0	PLY	OFF	12	15	0	OFF	OFF
63	RcknS	rockin' snare	15	C	5	0	0	0	*	0	PLY	OFF	11	0	0	OFF	OFF
64	NoiseS	noise snare	15	C	5	0	0	0	*	0	PLY	OFF	3	0	0	OFF	OFF
65	TR808S	TR-808 snare	15	C	5	0	0	0	*	0	PLY	OFF	4	0	0	OFF	OFF
66	TR909S	TR-909 snare	15	C	5	0	0	0	*	0	PLY	OFF	3	0	0	OFF	OFF
67	BrSwiS	brush swish snare	15	C	5	0	0	0	---	0	PLY	OFF	9	0	0	OFF	OFF
68	BrSlS1	brush slap snare 1	15	C	5	0	0	0	*	0	PLY	OFF	1	0	0	OFF	OFF
69	BrSlS2	brush slap snare 2	15	C	5	0	0	0	*	0	PLY	OFF	13	0	0	OFF	OFF
70	BrSlS3	brush slap snare 3	15	C	5	0	0	0	*	0	PLY	OFF	13	0	0	OFF	OFF
71	BrRlS1	brush roll snare 1	13	C	5	0	0	15	---	0	PLY	OFF	0	0	0	OFF	OFF
72	BrRlS2	brush roll snare 2	15	C	5	0	0	15	*	0	PLY	OFF	15	0	0	OFF	OFF
73	AmbStk	ambient side stick	15	C	5	0	0	0	---	0	PLY	OFF	5	0	0	OFF	OFF
74	DryStk	dry side stick	15	C	5	0	0	0	---	0	PLY	OFF	4	0	0	OFF	OFF
75	808Stk	TR-808 side stick	15	C	5	0	0	0	---	0	PLY	OFF	7	0	0	OFF	OFF
76	Sticks	sticks	15	C	5	0	0	0	---	0	PLY	OFF	0	0	0	OFF	OFF
77	Click	click	15	C	5	0	0	0	---	0	PLY	OFF	0	0	0	OFF	OFF
78	Dry T1	dry tom 1	15	L 6	5	0	0	10	*	0	PLY	OFF	0	9	0	OFF	OFF
79	Dry T2	dry tom 2	15	L 2	5	0	0	10	*	0	PLY	OFF	0	9	0	OFF	OFF
80	Dry T3	dry tom 3	15	R 2	5	0	0	10	*	0	PLY	OFF	3	9	0	OFF	OFF
81	Dry T4	dry tom 4	15	R 6	5	0	0	10	*	0	PLY	OFF	3	9	0	OFF	OFF
82	RockT1	rock tom 1	15	L 6	5	0	0	15	*	0	PLY	OFF	6	5	0	OFF	OFF
83	RockT2	rock tom 2	15	L 2	5	0	0	15	*	0	PLY	OFF	6	5	0	OFF	OFF
84	RockT3	rock tom 3	15	R 2	5	0	0	15	*	0	PLY	OFF	6	5	0	OFF	OFF
85	RockT4	rock tom 4	15	R 6	5	0	0	15	*	0	PLY	OFF	6	5	0	OFF	OFF
86	BoosT1	boosh tom 1	15	L 6	5	0	0	15	*	0	PLY	OFF	5	11	0	OFF	OFF
87	BoosT2	boosh tom 2	15	L 2	5	0	0	15	*	0	PLY	OFF	5	11	0	OFF	OFF
88	BoosT3	boosh tom 3	15	R 2	5	0	0	15	*	0	PLY	OFF	5	11	0	OFF	OFF
89	BoosT4	boosh tom 4	15	R 6	5	0	0	15	*	0	PLY	OFF	5	11	0	OFF	OFF
90	RealT1	real tom 1	15	L 6	5	0	0	10	*	-1	PLY	OFF	2	9	0	OFF	OFF
91	RealT2	real tom 2	15	L 2	5	0	0	10	*	-2	PLY	OFF	2	9	0	OFF	OFF
92	RealT3	real tom 3	15	R 2	5	0	0	10	*	-3	PLY	OFF	5	9	0	OFF	OFF
93	RealT4	real tom 4	15	R 6	5	0	0	10	*	-1	PLY	OFF	4	9	0	OFF	OFF
94	RoomT1	room tom 1	15	L 6	5	0	0	15	*	1	PLY	OFF	1	10	0	OFF	OFF
95	RoomT2	room tom 2	15	L 2	5	0	0	15	*	0	PLY	OFF	0	10	0	OFF	OFF

Instrument number	Instrument Name Display	Instrument Name	Volume	Output Assign	FX1 Send	FX2 Send	Pitch	Decay	Nuance Type	Nuance	Polyphony	Assign Group	Brilliance	Velocity Pitch	Attack Damp	Note Off Rx	Layer
96	RoomT3	room tom 3	15	R 2	5	0	0	15	*	0	PLY	OFF	2	10	0	OFF	OFF
97	RoomT4	room tom 4	15	R 6	5	0	0	15	*	3	PLY	OFF	2	10	0	OFF	OFF
98	Rim T1	rim tom 1	15	L 6	5	0	0	0	*	-2	PLY	OFF	5	0	0	OFF	OFF
99	Rim T2	rim tom 2	15	L 2	5	0	0	0	*	-2	PLY	OFF	6	0	0	OFF	OFF
100	Rim T3	rim tom 3	15	R 2	5	0	0	0	*	-3	PLY	OFF	5	0	0	OFF	OFF
101	Rim T4	rim tom 4	15	R 6	5	0	0	0	*	-3	PLY	OFF	4	0	0	OFF	OFF
102	808 T1	TR-808 tom 1	15	L 6	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
103	808 T2	TR-808 tom 2	15	L 2	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
104	808 T3	TR-808 tom 3	15	R 2	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
105	808 T4	TR-808 tom 4	15	R 6	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
106	606 T1	TR-606 tom 1	15	L 6	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
107	606 T2	TR-606 tom 2	15	L 2	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
108	606 T3	TR-606 tom 3	15	R 2	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
109	606 T4	TR-606 tom 4	15	R 6	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
110	BrshT1	brush slap tom 1	15	L 6	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
111	BrshT2	brush slap tom 2	15	L 2	5	0	0	0	*	-2	PLY	OFF	0	0	0	OFF	OFF
112	BrshT3	brush slap tom 3	15	R 2	5	0	0	0	*	-4	PLY	OFF	0	0	0	OFF	OFF
113	BrshT4	brush slap tom 4	15	R 6	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
114	PopCHH	pop closed hi-hat	15	L 4	5	0	0	0	**	0	MON	EX1	8	0	0	OFF	OFF
115	PopOHH	pop open hi-hat	15	L 4	5	0	0	10	**	0	PLY	EX1	8	0	0	OFF	OFF
116	PopPHH	pop pedal closed hi-hat	10	L 4	5	0	0	0	---	0	MON	EX1	8	0	0	OFF	OFF
117	RealCH	real closed hi-hat	14	L 4	5	0	0	0	**	2	MON	EX1	2	0	0	OFF	OFF
118	RealOH	real open hi-hat	13	L 4	5	0	0	20	**	-2	PLY	EX1	3	0	0	OFF	OFF
119	RealPH	real pedal closed hi-hat	10	L 4	5	0	0	0	---	0	MON	EX1	2	0	0	OFF	OFF
120	808CHH	TR-808 closed hi-hat	15	R 4	5	0	0	0	**	0	MON	EX1	3	0	0	OFF	OFF
121	808OHH	TR-808 open hi-hat	15	R 4	5	0	0	0	**	0	PLY	EX1	3	0	0	OFF	OFF
122	78 CHH	CR-78 closed hi-hat	15	R 4	5	0	0	0	---	0	MON	EX1	5	0	0	OFF	OFF
123	78 OHH	CR-78 open hi-hat	15	R 4	5	0	0	0	---	0	PLY	EX1	5	0	0	OFF	OFF
124	BrsCHH	brush closed hi-hat	15	L 4	5	0	0	0	**	0	MON	EX1	5	0	0	OFF	OFF
125	BrsOHH	brush open hi-hat	15	L 4	5	0	0	10	**	0	PLY	EX1	5	0	0	OFF	OFF
126	CrshC1	crash cymbal 1	13	R 3	5	0	0	20	---	0	PLY	OFF	7	0	0	OFF	OFF
127	CrshC2	crash cymbal 2	15	L 3	5	0	0	20	---	0	PLY	OFF	0	0	0	OFF	OFF
128	SplshC	splash cymbal	15	R 1	5	0	0	0	---	0	PLY	OFF	0	0	0	OFF	OFF
129	ChinaC	china cymbal	15	R 5	5	0	0	20	---	0	PLY	OFF	0	0	0	OFF	OFF
130	Ride C	ride cymbal	15	R 3	5	0	0	10	**	0	PLY	OFF	5	0	0	OFF	OFF
131	RidBlC	ride bell cymbal	15	R 3	5	0	0	10	**	0	PLY	OFF	5	0	0	OFF	OFF
132	BrRidC	brush ride cymbal	15	R 3	5	0	0	10	**	0	PLY	OFF	0	0	0	OFF	OFF
133	CngHMt	conga high mute	15	R 3	5	0	0	0	---	0	MON	OFF	5	4	0	OFF	OFF
134	CngSlp	conga high slap	15	R 3	5	0	0	0	*	0	PLY	OFF	5	3	0	OFF	OFF
135	CngHOp	conga high open	15	R 3	5	0	0	0	*	0	PLY	OFF	3	3	0	OFF	OFF
136	CngLMt	conga low mute	15	R 3	5	0	0	0	---	0	MON	OFF	5	4	0	OFF	OFF
137	CngLOp	conga low open	15	R 3	5	0	0	0	*	0	PLY	OFF	5	3	0	OFF	OFF
138	CowHMt	cowbell high mute	15	L 5	5	0	0	0	---	0	MON	OFF	0	0	0	OFF	OFF
139	CowHOp	cowbell high open	15	L 5	5	0	0	0	---	0	PLY	OFF	0	0	0	OFF	OFF
140	CowbIL	cowbell low	15	L 2	5	0	0	0	---	0	PLY	OFF	10	3	0	OFF	OFF
141	Tambrn	tambourine	15	R 4	5	0	0	0	---	0	PLY	OFF	8	0	0	OFF	OFF
142	WoodBH	wood block high	15	L 4	5	0	0	0	---	0	PLY	OFF	6	0	0	OFF	OFF
143	WoodBL	wood block low	15	L 4	5	0	0	0	---	0	PLY	OFF	6	0	0	OFF	OFF
144	BngHMt	bongo high mute	15	L 4	5	0	0	0	---	0	MON	OFF	0	3	0	OFF	OFF

Instrument number	Instrument Name Display	Instrument Name	Volume	Output Assign	FX1 Send	FX2 Send	Pitch	Decay	Nuance Type	Nuance	Polyphony	Assign Group	Brilliance	Velocity Pitch	Attack Damp	Note Off Rx	Layer
145	BngHOp	bongo high open	15	L 4	5	0	0	0	*	0	PLY	OFF	0	3	0	OFF	OFF
146	BngLMt	bongo low mute	15	L 4	5	0	0	0	---	0	MON	OFF	0	3	0	OFF	OFF
147	BngLOp	bongo low open	15	L 4	5	0	0	0	---	0	PLY	OFF	0	3	0	OFF	OFF
148	Marcas	maracas	15	L 6	5	0	0	-6	---	0	MON	OFF	5	8	0	OFF	OFF
149	Shaker	shaker	15	R 6	5	0	0	0	---	0	MON	OFF	5	4	0	OFF	OFF
150	Claves	claves	15	C	5	0	0	0	---	0	PLY	OFF	0	0	0	OFF	OFF
151	TimblH	timbale high	15	R 1	5	0	0	10	*	0	PLY	OFF	6	0	0	OFF	OFF
152	TimblL	timbale low	15	R 1	5	0	0	10	*	0	PLY	OFF	6	0	0	OFF	OFF
153	Chekre	chekere	15	L 2	5	0	0	15	*	0	PLY	OFF	0	0	0	OFF	OFF
154	TriMte	triangle mute	15	L 6	5	0	0	0	---	0	MON	EX5	4	0	0	OFF	OFF
155	TriOpn	triangle open	15	L 6	5	0	0	15	---	0	PLY	EX5	4	0	0	OFF	OFF
156	Casta	castanets	15	R 5	5	0	0	0	---	0	MON	OFF	3	0	0	OFF	OFF
157	Vibslp	vibra-slap	15	L 2	5	0	0	15	---	0	PLY	OFF	0	0	0	OFF	OFF
158	SlBell	sleigh bell	15	L 2	5	0	0	0	---	0	PLY	OFF	0	0	0	OFF	OFF
159	CabaUp	cabasa up	15	L 4	5	0	0	0	---	0	MON	OFF	0	6	0	OFF	OFF
160	CabaDn	cabasa down	15	L 4	5	0	0	0	---	0	MON	OFF	3	10	0	OFF	OFF
161	PndMte	pandiero mute	15	R 3	5	0	0	0	---	0	MON	EX7	0	0	0	OFF	OFF
162	PndSlp	pandiero slap	15	R 3	5	0	0	0	---	0	PLY	EX7	0	0	0	OFF	OFF
163	PndOpn	pandiero open	15	R 3	5	0	0	0	*	0	PLY	EX7	0	0	0	OFF	OFF
164	SurdRm	surdo rim	15	C	5	0	0	15	*	0	PLY	OFF	5	0	0	OFF	OFF
165	SurdMt	surdo mute	15	C	5	0	0	15	---	0	PLY	EX6	0	0	0	OFF	OFF
166	SurdOp	surdo open	15	C	5	0	0	15	*	0	PLY	EX6	2	0	0	OFF	OFF
167	Tambrm	tamborim	15	L 5	5	0	0	0	*	0	PLY	OFF	8	1	0	OFF	OFF
168	WhislS	whistle short	12	L 2	5	0	0	0	---	0	MON	EX2	8	10	0	OFF	OFF
169	WhislL	whistle long	12	L 2	5	0	0	0	---	0	MON	EX2	8	10	0	OFF	OFF
170	AgogoH	agogo high	15	R 2	5	0	0	0	---	0	PLY	OFF	13	0	0	OFF	OFF
171	AgogoL	agogo low	15	R 2	5	0	0	0	---	0	PLY	OFF	15	0	0	OFF	OFF
172	GuiroS	guiro short	15	L 1	5	0	0	0	---	0	MON	EX3	0	9	0	OFF	OFF
173	GuiroL	guiro long	15	L 1	5	0	0	10	---	0	MON	EX3	0	9	0	OFF	OFF
174	CuicMt	cuica mute	15	L 4	5	0	0	0	---	0	MON	EX4	4	11	0	OFF	OFF
175	CuicOp	cuica open	15	L 4	5	0	0	0	---	0	MON	EX4	4	11	0	OFF	OFF
176	55Clav	DR-55 claves	15	C	5	0	0	0	---	0	MON	OFF	5	0	0	OFF	OFF
177	78Cow	CR-78 cowbell	15	R 2	5	0	0	0	---	0	MON	OFF	3	0	0	OFF	OFF
178	78Beat	CR-78 metallic beat	15	L 4	5	0	0	0	---	0	MON	OFF	4	0	0	OFF	OFF
179	78Guir	CR-78 guiro	15	R 2	5	0	0	10	---	0	MON	OFF	0	0	0	OFF	OFF
180	78Tamb	CR-78 tambourine	15	L 2	5	0	0	0	---	0	MON	OFF	0	0	0	OFF	OFF
181	78Marc	CR-78 maracas	15	L 6	5	0	0	0	---	0	MON	OFF	0	0	0	OFF	OFF
182	78Bngo	CR-78 bongo	15	L 3	5	0	0	0	---	0	PLY	OFF	0	0	0	OFF	OFF
183	808CgH	TR-808 conga high	15	C	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
184	808CgL	TR-808 conga low	15	R 3	5	0	0	0	*	0	PLY	OFF	0	0	0	OFF	OFF
185	808Clv	TR-808 claves	15	C	5	0	0	0	---	0	MON	OFF	0	0	0	OFF	OFF
186	808Mrc	TR-808 maracas	15	R 6	5	0	0	0	---	0	MON	OFF	5	0	0	OFF	OFF
187	808Clp	TR-808 hand clap	14	C	5	0	0	15	---	0	PLY	OFF	0	0	0	OFF	OFF
188	808Cow	TR-808 cowbell	15	L 5	5	0	0	10	---	0	PLY	OFF	5	0	0	OFF	OFF
189	ScrPsh	scratch push	14	R 2	5	0	0	0	---	0	MON	OFF	0	13	0	OFF	OFF
190	ScrPul	scratch pull	14	R 2	5	0	0	0	---	0	MON	OFF	0	13	0	OFF	OFF
191	HiQ	hi-Q	12	L 2	5	0	0	0	---	0	MON	OFF	14	0	0	OFF	OFF
192	Snaps	snaps	15	C	5	0	0	0	---	0	MON	OFF	0	0	0	OFF	OFF
193	DncClp	dance clap	14	C	5	0	0	0	---	0	PLY	OFF	5	0	0	OFF	OFF

7. Initial setting of Sound Parameters

Instrument number	Instrument Name Display	Instrument Name	Volume	Output Assign	FX1 Send	FX2 Send	Pitch	Decay	Nuance Type	Nuance	Polyphony	Assign Group	Velocity Pitch	Attack Damp	Brilliance	Note Off Rx	Layer
194	VrbClp	reverb clap	13	C	5	0	0	0	--	0	PLY	OFF	4	0	0	OFF	OFF
195	RevrsK	reverse kick	15	C	5	0	0	20	* *	0	PLY	OFF	3	0	31	OFF	OFF
196	RevrsS	reverse snare	15	C	5	0	0	20	* *	0	PLY	OFF	3	0	31	OFF	OFF
197	RevrsT	reverse tom	15	C	5	0	0	20	* *	0	PLY	OFF	3	0	31	OFF	OFF
198	RevsC1	reverse cymbal 1	15	C	5	0	0	20	---	0	PLY	OFF	0	0	31	OFF	OFF
199	RevsC2	reverse cymbal 2	15	C	5	0	0	20	---	0	PLY	OFF	0	0	31	OFF	OFF
200	RevsC3	reverse cymbal 3	15	C	5	0	0	20	---	0	PLY	OFF	0	0	31	OFF	OFF
201	RvsClp	reverse clap	10	C	5	0	0	20	---	0	PLY	OFF	0	0	31	OFF	OFF
202	KckAmb	kick ambience	15	C	5	0	0	0	---	0	PLY	OFF	0	0	0	OFF	OFF
203	SnrAmb	snare ambience	15	C	5	0	0	0	---	0	PLY	OFF	0	0	0	OFF	OFF
204	TomAmb	tom ambience	15	C	5	0	0	0	---	0	PLY	OFF	0	0	0	OFF	OFF
205	LngAmb	long ambience	15	C	5	0	0	0	---	0	PLY	OFF	0	0	0	OFF	OFF
206	FingBs	finger bass	15	C	2	8	0	0	*	0	MON	OFF	0	0	0	ON	OFF
207	SlapBs	slap bass	15	C	2	4	0	0	*	0	MON	OFF	0	0	0	ON	OFF
208	AcouBs	acoustic bass	15	C	2	2	0	0	*	0	MON	OFF	0	0	0	ON	OFF
209	Syn Bs	synthesizer bass	15	C	2	2	0	0	*	0	MON	OFF	0	0	0	ON	OFF

Instrument number	Instrument Name Display	Source Instrument Number	Instrument Name Display	Level	Output Assign	FX1 Send	FX2 Send	Pitch	Decay	Nuance Type	Nuance	Polyphony	Assign Group	Brilliance	Velocity Pitch	Attack Damp	Note Off Rx	Layer
210	User00	4	Room K	15	C	5	0	-25	5	*	0	PLY	OFF	0	0	0	OFF	202
211	User01	2	RevrbK	15	C	5	0	-10	-15	*	0	PLY	OFF	3	0	0	OFF	231
212	User02	41	BgShtS	15	C	5	0	-14	5	*	0	PLY	OFF	6	0	0	OFF	203
213	User03	35	Rock S	15	C	5	0	7	-10	*	0	PLY	OFF	7	0	0	OFF	205
214	User04	44	Ring S	15	C	5	0	6	-6	*	-4	PLY	OFF	3	0	0	OFF	232
215	User05	30	LA S	15	C	5	0	-15	0	*	0	PLY	OFF	8	0	0	OFF	233
216	User06	78	Dry T1	13	L 6	5	0	0	10	*	0	PLY	OFF	0	9	0	OFF	238
217	User07	79	Dry T2	13	L 2	5	0	0	10	*	0	PLY	OFF	0	9	0	OFF	239
218	User08	80	Dry T3	13	R 2	5	0	0	10	*	0	PLY	OFF	3	9	0	OFF	240
219	User09	81	Dry T4	13	R 6	5	0	0	10	*	0	PLY	OFF	3	9	0	OFF	241
220	User00	90	RealT1	15	L 6	5	0	0	10	*	-1	PLY	OFF	2	9	0	OFF	234
221	User11	91	RealT2	15	L 2	5	0	0	10	*	-2	PLY	OFF	2	9	0	OFF	235
222	User12	92	RealT3	15	R 2	5	0	0	10	*	-3	PLY	OFF	5	9	0	OFF	236
223	User13	93	RealT4	15	R 6	5	0	0	10	*	-1	PLY	OFF	4	9	0	OFF	237
224	User14	27	TR909K	15	C	5	0	-100	0	*	0	PLY	OFF	0	12	31	OFF	225
225	User15	175	CuicOp	15	C	5	0	-300	-10	---	0	PLY	OFF	4	12	0	OFF	OFF
226	User16	118	RealOH	15	C	5	0	90	-5	* *	0	PLY	OFF	3	12	31	OFF	58
227	User17	194	VrbClp	13	C	5	0	-190	10	---	0	PLY	OFF	4	0	0	OFF	228
228	User18	190	ScrPul	14	C	5	0	-180	12	---	0	PLY	OFF	0	0	0	OFF	OFF
229	User19	151	TimblH	15	L 1	5	0	-310	5	*	-7	PLY	OFF	6	10	0	OFF	230
230	User20	163	PndOpn	15	R 1	5	0	-320	0	*	0	PLY	OFF	0	10	0	OFF	OFF
231	User21	205	LngAmb	7	C	5	0	-33	-31	---	0	PLY	OFF	0	0	0	OFF	OFF
232	User22	203	SnrAmb	15	C	5	0	30	-18	---	0	PLY	OFF	0	0	0	OFF	OFF
233	User23	204	TomAmb	8	C	5	0	-49	-2	---	0	PLY	OFF	12	0	0	OFF	OFF
234	User24	202	KckAmb	15	L 6	5	0	60	-6	---	0	PLY	OFF	0	0	0	OFF	OFF
235	User25	202	KckAmb	15	L 2	5	0	40	-4	---	0	PLY	OFF	0	0	0	OFF	OFF
236	User26	202	KckAmb	15	R 2	5	0	20	-2	---	0	PLY	OFF	0	0	0	OFF	OFF
237	User27	202	KckAmb	15	R 6	5	0	0	0	---	0	PLY	OFF	0	0	0	OFF	OFF
238	User28	204	TomAmb	10	L 6	5	0	0	-4	---	0	PLY	OFF	0	0	0	OFF	OFF
239	User29	204	TomAmb	10	L 2	5	0	-20	-2	---	0	PLY	OFF	0	0	0	OFF	OFF
240	User30	204	TomAmb	10	R 2	5	0	-40	0	---	0	PLY	OFF	2	0	0	OFF	OFF
241	User31	204	TomAmb	10	R 6	5	0	-60	2	---	0	PLY	OFF	4	0	0	OFF	OFF

Effect parameters

●FX1

Type=ROOM

reverb	Reverb time	Pre-LPF	Output level
HALL	80	10	64
ROOM	54	6	64
PLATE	64	0	64

delay	Delay time L	Delay time R	Feedback	Output level
DELAY 1	350	375	16	64
DELAY 2	225	450	32	64

●FX2

Type=CHORUS

chorus/flanger	Delay time	Mod rate	Mod depth	Feedback	Output level
CHORUS	30	32	64	0	64
FLANGER	4	24	21	32	64

MIDI parameters

● Instrument section

	INST1	INST2
Rx ch	10	11
Tx ch	Rx	Rx
Section vol	127	127
Bend range	02	02
Drum set assign	USER1	USER2

● Control change

	Inst	Param
MODUL:cc01	Deep K	OFF
CTRL1:cc16	Deep K	OFF
CTRL2:cc17	Deep K	OFF
CTRL3:cc18	Deep K	OFF
CTRL4:cc19	Deep K	OFF
CTRL5:cc80	Deep K	OFF
CTRL6:cc81	Deep K	OFF
CTRL7:cc82	Deep K	OFF
CTRL8:cc83	Deep K	OFF

● Performance section

	PFM1	PFM2	PFM3	PFM4
Rx ch	OFF	OFF	OFF	OFF
Inst	CowHOp	AgogoL	SlapBs	Syn Bs
Section vol	127	127	127	127
Hi note	127(G 9)	127(G 9)	127(G 9)	127(G 9)
Lo note	000(C -)	000(C -)	000(C -)	000(C -)
Modul	OFF	OFF	OFF	OFF
Bend range	02	02	02	02
Rf.Note	060(C 4)	060(C 4)	060(C 4)	060(C 4)
KF pitch	+10	+10	+10	+10
KF decay	± 0	± 0	± 0	± 0
KF nuance	± 0	± 0	± 0	± 0
KF pan	OFF	OFF	OFF	OFF

● Function

Function	Value
SysEx dev ID	OFF
Drum set chg	OFF
Off velocity	OFF
Release time	1
Volume	OFF
Pan	OFF
Expression	OFF
Pitch bend	OFF

8. Initial setting of Note Numbers

--- : not assigned
* : same as standard set
( ): receive only, not transmitted

Note Number	1:Standard Set	9:Room Set	17:Power Set	25:Electronic Set	26:TR-808 Set	33:Jazz Set	41:Brush Set	97:All1 Set	105:All2 Set
000	003-BriteK	001-SolidK	000-Deep K	000-Deep K	016-BrtMdK	005-PillwK	005-PillwK	000-Deep K	078-Dry T1
001	004-Room K	004-Room K	001-SolidK	003-BriteK	020-CmBrtK	007-Dry K	007-Dry K	002-RevrbK	079-Dry T2
002	005-PillwK	006-Gate K	002-RevrbK	004-Room K	021-BoSldK	008-Ez K	008-Ez K	003-BriteK	080-Dry T3
003	008-Ez K	011-SmashK	006-Gate K	006-Gate K	022-808GtK	009-ComrcK	009-ComrcK	005-PillwK	081-Dry T4
004	010-HybrdK	014-DpRomK	009-ComrcK	009-ComrcK	023-909CmK	010-HybrdK	010-HybrdK	007-Dry K	082-RockT1
005	012-Soft K	015-RvSldK	011-SmashK	011-SmashK	024-LtRvbK	012-Soft K	012-Soft K	008-Ez K	083-RockT2
006	013-Hard K	016-BrtMdK	014-DpRomK	014-DpRomK	025-909AcK	013-Hard K	013-Hard K	009-ComrcK	084-RockT3
007	014-DpRomK	019-MondoK	016-BrtMdK	015-RvSldK	031-DopinS	025-909AcK	025-909AcK	010-HybrdK	085-RockT4
008	017-DryAcK	020-CmBrtK	021-BoSldK	016-BrtMdK	034-Lite S	030-LA S	029-Hard S	011-SmashK	086-BoosT1
009	018-EzPlwK	021-BoSldK	022-808GtK	020-CmBrtK	039-VideoS	036-Fat S	030-LA S	012-Soft K	087-BoosT2
010	020-CmBrtK	022-808GtK	023-909CmK	023-909CmK	050-DanceS	041-BgShtS	032-LooseS	013-Hard K	088-BoosT3
011	028-PowerS	028-PowerS	031-DopinS	029-Hard S	051-Chop S	044-Ring S	033-Real S	014-DpRomK	089-BoosT4
012	029-Hard S	029-Hard S	037-SplatS	034-Lite S	052-SwingS	047-60's S	036-Fat S	015-RvSldK	090-RealT1
013	030-LA S	030-LA S	038-90's S	035-Rock S	053-SmlHsS	054-TightS	041-BgShtS	016-BrtMdK	091-RealT2
014	032-LooseS	034-Lite S	039-VideoS	036-90's S	054-TightS	067-BrSwiS	044-Ring S	017-DryAcK	092-RealT3
015	035-Rock S	036-Fat S	042-RckerS	039-VideoS	057-HosDpS	068-BrSlS1	047-60's S	018-EzPlwK	093-RealT4
016	036-Fat S	037-SplatS	043-SuperS	049-ComboS	062-Talk S	069-BrSlS2	054-TightS	019-MondoK	102-808 T1
017	041-BgShtS	038-90's S	045-RckRmS	050-DanceS	064-NoiseS	070-BrSlS3	069-BrSlS2	021-BoSldK	103-808 T2
018	042-RckerS	042-RckerS	046-RegaeS	051-Chop S	106-606 T1	071-BrRlS1	070-BrSlS3	022-808GtK	104-808 T3
019	043-SuperS	043-SuperS	048-LatinS	052-SwingS	107-606 T2	072-BrRlS2	072-BrRlS2	023-909CmK	105-808 T4
020	044-Ring S	044-Ring S	049-ComboS	054-TightS	108-606 T3	110-BrshT1	078-Dry T1	024-LtRvbK	106-606 T1
021	045-RckRmS	045-RckRmS	050-DanceS	056-RckSpS	109-606 T4	111-BrshT2	079-Dry T2	025-909AcK	107-606 T2
022	046-RegaeS	049-ComboS	052-SwingS	058-RckLtS	122-78 CHH	112-BrshT3	080-Dry T3	026-TR808K	108-606 T3
023	047-60's S	055-RckPwS	055-RckPwS	059-SprCbS	123-78 OHH	113-BrshT4	081-Dry T4	027-TR909K	109-606 T4
024	054-TightS	056-RckSpS	058-RckLtS	062-Talk S	176-55Clav	124-BrsCHH	114-PopCHH	028-PowerS	110-BrshT1
025	055-RckPwS	058-RckLtS	059-SprCbS	064-NoiseS	177-78Cow	125-BrsOHH	115-PopOHH	029-Hard S	111-BrshT2
026	063-RckinS	059-SprCbS	061-DblRnS	065-TR808S	178-78Beat	132-BrRidC	130-Ride C	030-LA S	112-BrshT3
027	191-HiQ	*	*	*	*	*	*	191-HiQ	113-BrshT4
028	193-DncClp	*	*	*	*	*	*	193-DncClp	120-808CHH
029	189-ScrPsh	*	*	*	*	*	*	189-ScrPsh	121-808OHH
030	190-ScrPul	*	*	*	*	*	*	190-ScrPul	122-78 CHH
031	076-Sticks	*	*	*	*	*	*	076-Sticks	123-78 OHH
032	077-Click	*	*	*	*	*	*	077-Click	124-BrsCHH
033	---	---	---	---	---	---	---	031-DopinS	125-BrsOHH
034	---	---	---	---	---	---	---	032-LooseS	136-CngLMt
035	007-Dry K	000-Deep K	015-RvSldK	022-808GtK	027-TR909K	017-DryAcK	017-DryAcK	004-Room K	006-Gate K
036	009-ComrcK	002-RevrbK	019-MondoK	021-BoSldK	026-TR808K	016-EzPlwK	018-EzPlwK	001-SolidK	020-CmBrtK
037	074-DryStk	073-AmbStk	073-AmbStk	075-808Stk	075-808Stk	*	*	073-AmbStk	074-DryStk
038	060-LAFatS	035-Rock S	028-PowerS	037-SplatS	065-TR808S	032-LooseS	067-BrSwiS	042-RckerS	040-HouseS
039	187-808Clp	194-VrbClp	194-VrbClp	194-VrbClp	187-808Clp	*	068-BrSlS1	194-VrbClp	187-808Clp
040	033-Real S	041-BgShtS	029-Hard S	066-TR909S	066-TR909S	*	071-BrRlS1	043-SuperS	034-Lite S
041	093-RealT4	085-RockT4	089-BoosT4	101-Rim T4	105-808 T4	081-Dry T4	113-BrshT4	097-RoomT4	101-Rim T4
042	114-PopCHH	117-RealCH	117-RealCH	117-RealCH	120-808CHH	*	124-BrsCHH	117-RealCH	114-PopCHH
043	(092-RealT3)	(084-RockT3)	(088-BoosT3)	(100-Rim T3)	(104-808 T3)	(080-Dry T3)	(112-BrshT3)	(096-RoomT3)	(100-Rim T3)
044	116-PopPHH	119-RealPH	119-RealPH	119-RealPH	(120-808CHH)	*	*	119-RealPH	115-PopOHH
045	092-RealT3	084-RockT3	088-BoosT3	100-Rim T3	104-808 T3	080-Dry T3	112-BrshT3	096-RoomT3	100-Rim T3
046	115-PopOHH	118-RealOH	118-RealOH	118-RealOH	121-808OHH	*	125-BrsOHH	118-RealOH	116-PopPHH
047	(091-RealT2)	(083-RockT2)	(087-BoosT2)	(099-Rim T2)	(103-808 T2)	(079-Dry T2)	(111-BrshT2)	(095-RoomT2)	(099-Rim T2)
048	091-RealT2	083-RockT2	087-BoosT2	099-Rim T2	103-808 T2	079-Dry T2	111-BrshT2	095-RoomT2	099-Rim T2
049	126-CrshC1	*	*	*	*	*	*	126-CrshC1	198-RevsC1
050	090-RealT1	082-RockT1	086-BoosT1	098-Rim T1	102-808 T1	078-Dry T1	110-BrshT1	094-RoomT1	098-Rim T1
051	130-Ride C	*	*	*	*	*	132-BrRidC	130-Ride C	130-Ride C
052	129-ChinaC	*	*	*	*	*	*	129-ChinaC	200-RevsC3
053	131-RidBlC	*	*	*	*	*	*	131-RidBlC	131-RidBlC
054	141-Tambrn	*	*	*	180-78Tamb	*	*	141-Tambrn	180-78Tamb
055	128-SplshC	*	*	*	*	*	*	128-SplshC	128-SplshC
056	140-CowblL	*	*	*	188-808Cow	*	*	140-CowblL	188-808Cow
057	127-CrshC2	*	*	*	*	*	*	127-CrshC2	199-RevsC2
058	157-Vibslp	*	*	*	*	*	*	157-Vibslp	164-SurdRm
059	(130-Ride C)	(*)	(*)	(*)	(*)	(*)	(132-BrRidC)	132-BrRidC	(130-Ride C)
060	145-BngHOp	*	*	*	182-78Bngo	*	*	145-BngHOp	144-BngHMt
061	147-BngLOp	*	*	*	(182-78Bngo)	*	*	147-BngLOp	146-BngLMt

Note Number	1:Standard Set	9:Room Set	17:Power Set	25:Electronic Set	26:TR-808 Set	33:Jazz Set	41:Brush Set	97:All1 Set	105:All2 Set
062	133-CngHMt	*	*	*	(183-808CgH)	*	*	133-CngHMt	182-78Bngo
063	135-CngHOp	*	*	*	183-808CgH	*	*	135-CngHOp	183-808CgH
064	137-CngLOp	*	*	*	184-808CgL	*	*	137-CngLOp	184-808CgL
065	151-TimblH	*	*	*	*	*	*	151-TimblH	138-CowHMt
066	152-TimblL	*	*	*	*	*	*	152-TimblL	139-CowHOp
067	170-AgogoH	*	*	*	*	*	*	170-AgogoH	153-Chekre
068	171-AgogoL	*	*	*	*	*	*	171-AgogoL	162-PndSlp
069	159-CabaUp	*	*	*	*	*	*	159-CabaUp	160-CabaDn
070	148-Marcas	*	*	*	186-808Mrc	*	*	148-Marcas	186-808Mrc
071	168-WhislS	*	*	*	*	*	*	168-WhislS	168-WhislS
072	169-WhislL	*	*	*	*	*	*	169-WhislL	169-WhislL
073	172-GuiroS	*	*	*	(179-78Guir)	*	*	172-GuiroS	(179-78Guir)
074	173-GuiroL	*	*	*	179-78Guir	*	*	173-GuiroL	179-78Guir
075	150-Claves	*	*	*	185-808Clv	*	*	150-Claves	185-808Clv
076	142-WoodBH	*	*	*	*	*	*	142-WoodBH	176-55Clav
077	143-WoodBL	*	*	*	*	*	*	143-WoodBL	(176-55Clav)
078	174-CuicMt	*	*	*	*	*	*	174-CuicMt	177-78Cow
079	175-CuicOp	*	*	*	*	*	*	175-CuicOp	(177-78Cow)
080	154-TriMte	*	*	*	*	*	*	154-TriMte	178-78Beat
081	155-TriOpn	*	*	*	*	*	*	155-TriOpn	(178-78Beat)
082	149-Shaker	*	*	*	181-78Marc	*	*	149-Shaker	181-78Marc
083	158-SlBell	*	*	*	*	*	*	158-SlBell	192-Snaps
084	---	---	---	---	---	---	---	062-Talk S	195-RevrsK
085	156-Casta	*	*	*	*	*	*	156-Casta	196-RevrsS
086	165-SurdMt	*	*	*	*	*	*	165-SurdMt	197-RevrsT
087	166-SurdOp	*	*	*	*	*	*	166-SurdOp	201-RvsClp
088	134-CngSlp	*	*	*	(183-808CgH)	*	*	134-CngSlp	202-KckAmb
089	---	---	---	---	---	---	---	033-Real S	203-SnrAmb
090	---	---	---	---	---	---	---	035-Rock S	204-TomAmb
091	161-PndMte	*	*	*	*	*	*	161-PndMte	205-LngAmb
092	163-PndOpn	*	*	*	*	*	*	163-PndOpn	206-FingBs
093	167-Tambrm	*	*	*	*	*	*	167-Tambrm	207-SlapBs
094	---	---	---	---	---	---	---	036-Fat S	208-AcouBs
095	---	---	---	---	---	---	---	037-SplatS	209-Syn Bs
096	---	---	---	---	---	---	---	038-90's S	210-User00
097	---	---	---	---	---	---	---	039-VideoS	211-User01
098	---	---	---	---	---	---	---	041-BgShtS	212-User02
099	---	---	---	---	---	---	---	044-Ring S	213-User03
100	---	---	---	---	---	---	---	045-RckRmS	214-User04
101	---	---	---	---	---	---	---	046-ReggaeS	215-User05
102	---	---	---	---	---	---	---	047-60's S	216-User06
103	---	---	---	---	---	---	---	048-LatinS	217-User07
104	---	---	---	---	---	---	---	049-ComboS	218-User08
105	---	---	---	---	---	---	---	050-DanceS	219-User09
106	---	---	---	---	---	---	---	051-Chop S	220-User10
107	---	---	---	---	---	---	---	052-SwingS	221-User11
108	---	---	---	---	---	---	---	053-SmlHsS	222-User12
109	---	---	---	---	---	---	---	054-TightS	223-User13
110	---	---	---	---	---	---	---	055-RckPwS	224-User14
111	---	---	---	---	---	---	---	056-RckSpS	225-User15
112	---	---	---	---	---	---	---	057-HosDpS	226-User16
113	---	---	---	---	---	---	---	058-RckLtS	227-User17
114	---	---	---	---	---	---	---	059-SprCbS	228-User18
115	---	---	---	---	---	---	---	060-LAFatS	229-User19
116	---	---	---	---	---	---	---	061-DblRnS	230-User20
117	---	---	---	---	---	---	---	063-RckinS	231-User21
118	---	---	---	---	---	---	---	064-NoiseS	232-User22
119	---	---	---	---	---	---	---	065-TR808S	233-User23
120	---	---	---	---	---	---	---	066-TR909S	234-User24
121	---	---	---	---	---	---	---	067-BrSwiS	235-User25
122	---	---	---	---	---	---	---	068-BrSlS1	236-User26
123	---	---	---	---	---	---	---	069-BrSlS2	237-User27
124	---	---	---	---	---	---	---	070-BrSlS3	238-User28
125	---	---	---	---	---	---	---	071-BrRlS1	239-User29
126	---	---	---	---	---	---	---	072-BrRlS2	240-User30
127	---	---	---	---	---	---	---	075-80BStk	241-User31

Roland Exclusive Messages

1. Data Format for Exclusive Messages

Roland's MIDI implementation uses the following data format for all exclusive messages (type IV):

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
CMD	Command ID
[BODY]	Main data
F7H	End of exclusive

MIDI status : F0H, F7H

An exclusive message must be flanked by a pair of status codes, starting with a Manufacturer-ID immediately after F0H (MIDI version1.0).

Manufacturer-ID : 41H

The Manufacturer-ID identifies the manufacturer of a MIDI instrument that triggers an exclusive message. Value 41H represents Roland's Manufacturer-ID.

Device-ID : DEV

The Device-ID contains a unique value that identifies the individual device in the multiple implementation of MIDI instruments. It is usually set to 00H ~ 0FH, a value smaller by one than that of a basic channel, but value 00H ~ 1FH may be used for a device with multiple basic channels.

Model ID : MDL

The Model-ID contains a value that uniquely identifies one model from another. Different models, however, may share an identical Model-ID if they handle similar data.

The Model-ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Model-IDs, each representing a unique model:

01H
02H
03H
00H, 01H
00H, 02H
00H, 00H, 01H

Command-ID : CMD

The Command-ID indicates the function of an exclusive message. The Command-ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Command IDs, each representing a unique function:

01H
02H
03H
00H, 01H
00H, 02H
00H, 00H, 01H

Main data : BODY

This field contains a message to be exchanged across an interface. The exact data size and contents will vary with the Model-ID and Command-ID.

2. Address-mapped Data Transfer

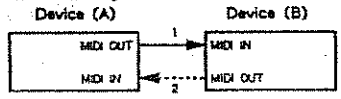
Address mapping is a technique for transferring messages conforming to the data format given in Section 1. It assigns a series of memory-resident records-waveform and tone data, switch status, and parameters, for example-to specific locations in a machine-dependent address space, thereby allowing access to data residing at the address a message specifies.

Address-mapped data transfer is therefore independent of models and data categories. This technique allows use of two different transfer procedures: one-way transfer and handshake transfer.

One-way transfer procedure (See Section 3 for details.)

This procedure is suited for the transfer of a small amount of data. It sends out an exclusive message completely independent of a receiving device status.

Connection Diagram

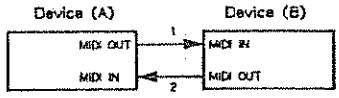


Connection at point 2 is essential for "Request data" procedures. (See Section 3.)

Handshake-transfer procedure (This device does not cover this procedure)

This procedure initiates a predetermined transfer sequence (handshaking) across the interface before data transfer takes place. Handshaking ensures that reliability and transfer speed are high enough to handle a large amount of data.

Connection Diagram



Connection at points 1 and 2 is essential.

Notes on the above two procedures

* There are separate Command-IDs for different transfer procedures.
* Devices A and B cannot exchange data unless they use the same transfer procedure, share identical Device-ID and Model-ID, and are ready for communication.

3. One-way Transfer Procedure

This procedure sends out data all the way until it stops and is used when the messages are so short that answerbacks need not be checked. For long messages, however, the receiving device must acquire each message in time with the transfer sequence, which inserts intervals of at least 20 milliseconds in between.

Types of Messages

Message	Command ID
Request data 1	RQ1 (11H)
Data set 1	DT1 (12H)

Request data #1 : RQ1 (11H)

This message is sent out when there is a need to acquire data from a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of data required.

On receiving an RQ1 message, the remote device checks its memory for the data address and size that satisfy the request.
If it finds them and is ready for communication, the device will transmit a "Data set 1 (DT1)" message, which contains the requested data. Otherwise, the device will send out nothing.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
11H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ssH	Size MSB
⋮	⋮
	LSB
sum	Check sum
F7H	End of exclusive

* The size of the requested data does not indicate the number of bytes that will make up a DT1 message, but represents the address fields where the requested data resides.
* Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
* The same number of bytes comprises address and size data, which, however, vary with the Model-ID.
* The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

≠Data set 1 : DT1 (12H)

This message corresponds to the actual data transfer process. Because every byte in the data is assigned a unique address, a DT1 message can convey the starting address of one or more data as well as a series of data formatted in an address-dependent order.

The MIDI standards inhibit non-real time messages from interrupting an exclusive one. This fact is inconvenient for the devices that support a "soft-through" mechanism. To maintain compatibility with such devices, Roland has limited the DT1 to 256 bytes so that an excessively long message is sent out in separate segments.

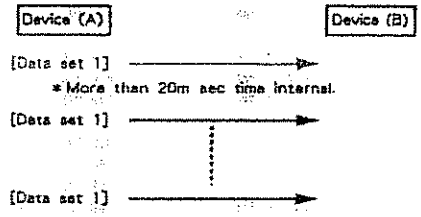
Byte	Description
F0H	Exclusive
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
12H	Command ID
aaH	Address MSB
	LSB
ddH	Data
sum	Check sum
F7H	End of exclusive

* A DT1 message is capable of providing only the valid data among those specified by an RQ1 message.
* Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
* The number of bytes comprising address data varies from one Model-ID to another.
* The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

≠Example of Message Transactions

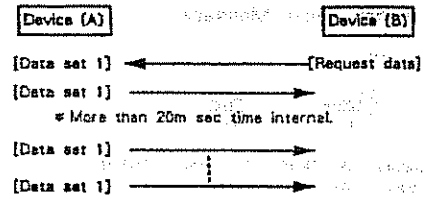
● Device A sending data to Device B

Transfer of a DT1 message is all that takes place.



● Device B requesting data from Device A

Device B sends an RQ1 message to Device A. Checking the message, Device A sends a DT1 message back to Device B.



MIDI Implementation

1. TRANSMITTED DATA

■ Channel Voice Message

● Note off

Status	Second	Third
9nH	kkH	00H

n=MIDI Channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
kk=Note number :00H - 7FH (0 - 127)

● Note on

Status	Second	Third
9nH	kkH	vvH

n =MIDI Channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
kk=Note number :00H - 7FH (0 - 127)
vv=Velocity :01H - 7FH (1 - 127)

The R-70 transmits at Tx Channel of each Instrument section setup.

The period between a Note On and the subsequent Note Off is in the range of 20mS and 40mS. If, however, another note is made on the same instrument before the Note Off for the previous note is issued, a Note Off for the previous note precedes the new Note On.

● Control change

○ Modulation Depth

Status	Second	Third
BnH	01H	vvH
BnH	21H	vvH

○ General purpose Controller-1

Status	Second	Third
BnH	10H	vvH
BnH	30H	vvH

○ General purpose Controller-2

Status	Second	Third
BnH	11H	vvH
BnH	31H	vvH

○ General purpose Controller-3

Status	Second	Third
BnH	12H	vvH
BnH	32H	vvH

○ General purpose Controller-4

Status	Second	Third
BnH	13H	vvH
BnH	33H	vvH

○ General purpose Controller-5

Status	Second	Third
BnH	50H	vvH

○ General purpose Controller-6

Status	Second	Third
BnH	51H	vvH

○ General purpose Controller-7

Status	Second	Third
BnH	52H	vvH

○ General purpose Controller-8

Status	Second	Third
BnH	53H	vvH

n =MIDI Channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
vv=value :00H - 7FH (0 - 127) *1-1

Instruments and parameters can be assigned to each of 9 controls (Modulation Depth and General purpose controllers (1-8)).
These 9 controls may be set to have no parameter.
If an instrument has an assigned control number, it is sent with the current parameter value which is sent through the Control Change just before the Note On is sent.

Table *1-1 relates Parameter values to those actually transmitted by a Control Change. Since a Pitch value requires 2 bytes for being transmitted, Control Number 21H, 30H, 31H, 32H or 33H is used as the lower byte. The value of Decay, Nuance or Pan can be expressed in 1 byte and does not need such Control Number. General purpose controllers 5-8 have no Control Number usable as lower byte and are not used in transmitting Pitch value.

Each parameter is transmitted the range of the transmitted listed on this table *1-1.

*1-1 Control Change Value

parameter	transmitted	received
pitch	- 1280 -> 3000H	0000H-0407H -> - 4800
	:	0408H-040FH -> - 4790
	- 0090 -> 3E70H	0410H-0417H -> - 4780
	- 0080 -> 3F00H	:
	- 0070 -> 3F10H	3E68H-3E77H -> - 0090
	:	3E78H-3F07H -> - 0080
	- 0010 -> 3F70H	3F08H-3F17H -> - 0070
	0000 -> 4000H	:
	+ 0010 -> 4010H	3F68H-3F77H -> - 0010
	:	3F78H-4007H -> 0000
	+ 0070 -> 4070H	4008H-4017H -> + 0010
	+ 0080 -> 4100H	:
	+ 0090 -> 4110H	4068H-4077H -> + 0070
	:	4078H-4107H -> + 0080
	+ 1270 -> 4F70H	4108H-4117H -> + 0090
		:
		7B68H-7B77H -> + 4780
		7B78H-7F77H -> + 4790
		7B78H-7F7FH -> + 4800
decay	- 16 -> 20H	00H-01H -> - 31
	:	02H-03H -> - 31
	- 01 -> 3EH	04H-05H -> - 30
	00 -> 40H	:
	+ 01 -> 42H	3EH-3FH -> - 01
	:	40H-41H -> 00
	+ 15 -> 5EH	42H-43H -> + 01
		:
		7CH-7DH -> + 30
		7EH-7FH -> + 31
nuance	- 7 -> 09H	00H-08H -> - 7
	- 6 -> 10H	0CH-13H -> - 6
	- 5 -> 18H	14H-1BH -> - 5
	:	:
	- 1 -> 38H	34H-38H -> - 1
	0 -> 40H	3CH-43H -> 0
	+ 1 -> 48H	44H-48H -> + 1
	:	:
	+ 5 -> 68H	64H-68H -> + 5
	+ 6 -> 70H	6CH-73H -> + 6
	+ 7 -> 78H	74H-7FH -> + 7
pan	L6 -> 08H	00H-07H -> L7
		08H-0FH -> L6
	L4 -> 18H	10H-17H -> L5
		18H-1FH -> L4
	L2 -> 28H	20H-27H -> L3
		28H-2FH -> L2
	C -> 38H	30H-37H -> L1
		38H-3FH -> C
	R2 -> 48H	40H-47H -> R1
		48H-4FH -> R2
	R4 -> 58H	50H-57H -> R3
		58H-5FH -> R4
	R6 -> 68H	60H-67H -> R5
		68H-6FH -> R6
	OFF -> 7FH	70H-77H -> R7
		78H-7FH -> OFF

○ Volume

Status	Second	Third
BnH	07H	vvH

n = MIDI Channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
vv= volume :01H - 7FH (1 - 127)

When Volume Change is executed at song play, this message is transmitted. The R-70 transmits the volume of control change if the Volume Switch of MIDI Function is set at ON.

● Program change

Status	Second
CnH	ppH

n =MIDI Channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
pp=program number :00H - 7FH (0 - 127)

When the drum set is changed, the R-70 transmits the program change. The relation of drum set and program number is as follows.

drum set	pp
STD (Standard set)	00H
ROOM (Room set)	08H
POWER (Power set)	10H
ELCTR (Electronic set)	18H
TR808 (TR-808 set)	19H
JAZZ (Jazz set)	20H
BRUSH (Brush set)	28H
USER1 (User drum set 1)	40H
USER2 (User drum set 2)	48H
USER3 (User drum set 3)	50H
USER4 (User drum set 4)	58H
ALL1 (All instruments1)	60H
ALL2 (All instruments2)	68H

The R-70 transmits the program change if Drum Set Change Switch of MIDI Function is set at ON.

■ System Exclusive message

Status	
F0H	: System Exclusive
F7H	: EOX (End of Exclusive)

With the R-70, the System Exclusive Message can be used to transmit Bulk Dump of sequence data and setup data.
For details refer to 3. Exclusive Communications and "Roland Exclusive Messages".

■ System common message

● Song position pointer

Status	Second	Third
F2H	llH	mmH

mm, ll=song position :00H,00H - 7FH,7FH (0 - 16383)

Transmitted in one of the following operations :
Song Play - measure reposition or measure selection
Pattern Play or Real-time Recording - bar reposition or bar selection

● Song select

Status	Second
F3H	ssH

ss=song select :00H - 27H (0 - 39)

Transmitted when a song is selected in Song Play.

■ System Real Time message

● Timing Clock

Status
F8H

Transmitted in one of the following conditions :
previous time at when Start or Continue message is recognized (Sync mode = MIDI AUTO)
all times (Sync mode = INTERNAL or TAPE SYNC)
no times (Sync mode = MIDI SYNC)

The R-70 always transmits timing clock if possible.

● Start

Status
FAH

Transmitted in one of the following conditions :
previous time at when Start or Continue message is recognized (Sync mode = MIDI AUTO)
all times (Sync mode = INTERNAL or TAPE SYNC)
no times (Sync mode = MIDI SYNC)

Transmitted on starting play.

● Continue

Status
FBH

Transmitted in one of the following conditions :
previous time at when Start or Continue message is recognized (Sync mode = MIDI AUTO)
all times (Sync mode = INTERNAL or TAPE SYNC)
no times (Sync mode = MIDI SYNC)

Transmitted when action of continue start is made for starting play.

● Stop

Status
FCH

Transmitted in one of the following conditions :
previous time at when Start or Continue message is recognized (Sync mode = MIDI AUTO)
all times (Sync mode = INTERNAL or TAPE SYNC)
no times (Sync mode = MIDI SYNC)

Transmitted when STOP is made.

● Active Sensing

Status
FEH

Transmitted for checking MIDI connection between R-70 and external equipment.

2. RECOGNIZED RECEIVE DATA

2.1 Instrument Section 1-2

■ Channel Voice Message

● Note off

Status	Second	Third
8nH	kkH	vvH
9nH	kkH	00H

n =MIDI channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
kk=Note number :00H - 7FH (0 - 127)
vv=Velocity :00H - 7FH (0 - 127)

The R-70 receives the message on the channel set by Rx Channel of each Instrument section setup.

A Note Off message is ignored if parameter Note Off Rx of the instrument correspond to received note number is set at OFF.

Mutes the sounding notes upon receiving a Note Off message if parameter Note Off Rx = ON of the instrument correspond to received note number and parameter Off Velocity = OFF of MIDI Function have been selected, disregarding velocity value.

However, the R-70 decays the sound, after note off, at a rate to the velocity value if parameter Note off Rx = ON of the instrument correspond to received note number and parameter Off Velocity = ON of MIDI Function have been selected.

The R-70 regards a Note On with velocity 00H as a Note Off having velocity value 40H.

● Note On

Status	Second	Third
9nH	kkH	vvH

n=MIDI channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
k k=Note number :0H - 7FH (0 - 127)
vv=Velocity :01H - 7FH (1 - 127)

The R-70 receives the message on the channel set by Rx Channel of Instrument section setup.

Sounds the instrument assigned to the received note number of drum set that is set up Instrument section.

● Control Change

○ Volume

Status	Second	Third
BnH	07H	vvH

n =MIDI channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
vv=Volume :00H - 7FH (0 - 127)

The R-70 receives the message on the channel set by Rx Channel of each Instrument section setup.

Changes the parameter Section Volume to the received value if Volume Switch of MIDI Function is set at ON.

○ Panpot

Status	Second	Third
BnH	0AH	vvH

n =MIDI channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
vv=Value :00H - 7FH (0 - 127)

The R-70 receives the message on the channel set by Rx Channel of each Instrument section setup.

If Pan Switch of MIDI Function is set at ON, the R-70 converts the received value to the panpot position (LEFT 7 - RIGHT 7) assigned to the received value as shown in Table *2-1 and memorizes the result.

Whenever the R-70 receives a Note On, it sounds on the panpot position until the Panpot having different value is given.

When parameter Output Assign of the instrument set by Mixer is assigned to Individual1 or Individual2, the R-70 ignores panpot.

*2-1 Panpot Value

vv	panpot
00H-06H	L7
07H-13H	L6
14H-1AH	L5
1BH-23H	L4
24H-2BH	L3
2CH-33H	L2
34H-3BH	L1
3CH-43H	C
44H-4AH	R1
4BH-53H	R2
54H-5AH	R3
5BH-63H	R4
64H-6AH	R5
6BH-73H	R6
74H-7FH	R7

○ Modulation Depth

Status	Second	Third
BnH	01H	vvH
BnH	21H	vvH

○ General purpose controller 1

Status	Second	Third
BnH	10H	vvH
BnH	30H	vvH

○ General purpose controller 2

Status	Second	Third
BnH	11H	vvH
BnH	31H	vvH

○ General purpose controller 3

Status	Second	Third
BnH	12H	vvH
BnH	32H	vvH

○ General purpose controller 4

Status	Second	Third
BnH	13H	vvH
BnH	33H	vvH

○ General purpose controller 5

Status	Second	Third
BnH	50H	vvH

○ General purpose controller 6

Status	Second	Third
BnH	51H	vvH

○ General purpose controller 7

Status	Second	Third
BnH	52H	vvH

○ General purpose controller 8

Status	Second	Third
BnH	53H	vvH

n =MIDI channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
vv=Value :00H - 7FH (0 - 127)

The R-70 receives the message on the channel set by Rx Channel of each Instrument section setup.

Instruments and parameters can be assigned to each of 9 controls (Modulation Depth and controllers (1 - 8)). These 9 controls may be set to have no parameter (OFF). (This assignment is in common with that of transmitter.)

When the R-70 receives Modulation Depth or Controller (1 -8) on the Receiving Channel of the Instrument Section, it memorizes the value with Control Number. Upon receiving a Note On, and if an instrument has an assigned Control Number, the R-70 sounds the parameter which has been converted from the value memorized in the Control Change.

Refer to Table *1-1 for relationship between received Control Change values and parameters.

Exceptions:
When Output of the instrument controlled by the control change is set to Individual1 or Individual2, the R-70 ignores the value of control change.
The R-70 ignores Parameter set at Pan if Pan Switch of MIDI Function is set at ON.

○ RPN LSB

Status	Second	Third
BnH	64H	llH

○ RPN MSB

Status	Second	Third
BnH	65H	mmH

○ Data Entry

Status	Second	Third
BnH	06H	vvH

n =MIDI channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
ll=The lower byte of the parameter number designated by RPN
mm=The upper byte of the parameter number designated by RPN
vv=The value for the parameter designated by RPN

The R-70 receives the message on the channel set by Rx Channel of each Instrument section setup.

Parameters of a unit can be changed by using MIDI RPN function. Designate the parameter to be changed by a set of RPN MSB and LSB, and then specify the new parameter value with Data Entry.

Effective RPN for the R-70 is Pitch Bend Sensitivity (RPN #0) only.

RPN MSB	RPN LSB	Data entry	Description
00H	00H	vvH	Pitch bend sensitivity vv = 0-12 semitone steps, up to 1 octave

On receiving this message, the R-70 rewrites the value of Bend range with the received value.

● Program change

Status	Second
CnH	ppH

The R-70 receives the message on the channel set by Rx Channel of each Instrument section setup.

The R-70 changes the drum set. The relation of program number and drum set is as follows.

pp	Drum set
00H-07H	STD (Standard set)
08H-0FH	ROOM (Room set)
10H-17H	POWER (Power set)
18H, 1AH-1FH	ELCTR (Electronic set)
19H	TR808 (TR-808 set)
20H-27H	JAZZ (Jazz set)
28H-2FH	BRUSH (Brush set)
30H-3FH	STD (Standard set)
40H-47H	USER1 (User drum set 1)
48H-4FH	USER2 (User drum set 2)
50H-57H	USER3 (User drum set 3)
58H-5FH	USER4 (User drum set 4)
60H-67H	ALL1
68H-6FH	ALL2
70H-7FH	STD (Standard set)

Program change is ignored if Drum Set Change Switch of MIDI Function is set at OFF.

● Pitch Bend Change

Status	Second	Third
EnH	llH	mmH

n =MIDI channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
mm,ll=Value :00H,00H - 7FH,7FH (-8192 - +8191)

The R-70 receives the message on the channel set by Rx Channel of each Instrument section setup.

On receiving this message with Pitch Bend Switch = ON of MIDI Function, the R-70 changes the pitch according to the value set by Bend Range. Pitch of the sounding notes isn't changed.

■ Channel Mode Message

● Reset all controllers

Status	Second	Third
BnH	79H	00H

n=MIDI channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
The R-70 receives the message on the channel set by Rx Channel of each Instrument section setup.

The R-70 initializes all the controllers upon receiving this message.

Pitch Bend Change ± 0 (center)
Panpot Off
Modulation and general purpose controllers1 - 8 are to be initialized so that the value of assigned parameters become either 0 or Off.

● All notes off

Status	Second	Third
BnH	7BH	00H

n=MIDI channel :0H - FH (0 - 15) 0=ch.1 15=ch.16

The R-70 receives the message on the channel set by Rx Channel of Instrument section setup.

The R-70 mutes the all voices on that Instrument section.

2.2 Performance Section 1 - 4

■ Channel Voice Message

● Note off

Status	Second	Third
8nH	kkH	vvH
9nH	kkH	00H

n =MIDI channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
kk=Note number :00H - 7FH (0 - 127)
vv=Velocity :00H - 7FH (0 - 127)

The R-70 receives the message on the channel set by Rx Channel of each Performance section setup.

A Note Off message is ignored if parameter Note off Rx of the instrument assigned on Performance section is set at OFF.

Mutes the sounding notes upon receiving a Note Off message if parameter Note Off Rx = ON of the instrument assigned to Performance section and parameter Off Velocity = OFF of MIDI Function have been selected, disregarding velocity value.

However, the R-70 changes the decay the sound, after note off, at a rate to the velocity value if parameter Note off rx = ON of the instrument assigned to Performance section and parameter Off Velocity = ON of MIDI Function have been selected.

The R-70 regards a Note On with velocity 00H as a Note Off having velocity value 40H.

● Note On

Status	Second	Third
9nH	kkH	vvH

n =MIDI channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
kk=Note number :00H - 7FH (0 - 127)
vv=Velocity :01H - 7FH (1 - 127)

The R-70 receives the message on the channel set by Rx Channel of each Performance section setup.

The range of Note number that can be recongnized is from the value of Lo Note to Hi Note set on Performance section.

Sounds the instrument that is assigned each section if the R-70 receives the note event by Rx Channel on Performance section.

The parameter to be controlled by Note number can be selected from panel operation for each section. Received Note number will be converted into the the value of parameter before the instrument is reproduced.

● Control Change

○ Volume

Status	Second	Third
BnH	07H	vvH

n =MIDI channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
vv=Volume :00H - 7FH (0 - 127)

The R-70 receives the message on the channel set by Rx Channel of each Performance section setup.

Changes the Section Volume to the received value if Volume Switch of MIDI Function is set at ON.

○ Panpot

Status	Second	Third
BnH	0AH	vvH

n =MIDI channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
vv=Value :00H - 7FH (0 - 127)

The R-70 receives the message on the channel set by Rx Channel of each Performance section setup.

If Pan Switch of MIDI Function is set at ON, the R-70 converts the received value to the panpot position (LEFT 7 - RIGHT 7) assigned to the received value as shown in Table *2-1 and memorizes the result.

Whenever the R-70 receives a Note On, it sounds on the panpot position until the Panpot having different value is given.

When parameter Output Assign of the instrument set by Mixer is assigned to Individual1 or Individual2, the R-70 ignores Panpot.

○ Modulation Depth

Status	Second	Third
BnH	01H	vvH

n =MIDI channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
vv=Value :00H - 7FH (0 - 127)

The R-70 receives the message on the channel set by Rx Channel of each Performance section setup.

The parameter type is assigned to each performance section.(It may be also set to have no parameter (OFF).)

The R-70 memorizes the received value if the R-70 receives the Modulation Depth by Rx Channel on Performance section. When the Note On event is received, the value is converted into the parameter value as shown in Table *1-1 specified by parameter type and sounds on the parameter.

○ RPN LSB

Status	Second	Third
BnH	64H	llH

○ RPN MSB

Status	Second	Third
BnH	65H	mmH

○ Data Entry

Status	Second	Third
BnH	06H	vvH

n =MIDI channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
ll=The lower byte of the parameter number designated by RPN
mm=The upper byte of the parameter number designated by RPN
vv=The value for the parameter designated by RPN

The R-70 receives the message on the channel set by Rx Channel of each Performance section setup.

Parameters of a unit can be changed by using MIDI RPN function. Designate the parameter to be changed by a set of RPN MSB and LSB, and then specify the new parameter value with Data Entry.

Effective RPN for the R-70 is Pitch Bend Sensitivity (RPN #0) only.

RPN

MSB LSB	Data entry	Description
00H 00H	vvH	Pitch bend sensitivity vv = 0-12 semitone steps, up to 1 octave

On receiving this message, the R-70 rewrites the value of Bend range with the received value.

● Pitch Bend Change

Status	Second	Third
EnH	llH	mmH

n =MIDI channel :0H - FH (0 - 15) 0=ch.1 15=ch.16
mm, ll=Value :00H, 00H - 7FH, 7FH (-8192 - +8191)

The R-70 receives the message on the channel set by Rx Channel of each Performance section setup.

On receiving this message with Pitch Bend Switch = ON of MIDI Function, the R-70 changes the pitch according to the value set by Bend Range. Pitch of the souding notes isn't changed.

■ Channel Mode Message

● Reset all controllers

Status	Second	Third
BnH	79H	00H

n=MIDI channel :0H - FH (0 - 15) 0=ch.1 15=ch.16

The R-70 receives the message on the channel set by Rx channel of each Performance section setup.

The R-70 initializes all the controllers on receiving this message.

Pitch Bend Change ± 0 (center)
Panpot Off
Modulation is to be initialized so that the value of the offset assigned parameters become either 0.

● All notes off

Status	Second	Third
BnH	7BH	00H

n=MIDI channel :0H - FH (0 - 15) 0=ch.1 15=ch.16

The R-70 receives the message on the channel set by Rx channel of each Performance section setup.

The R-70 mutes the sounding voices recognized by Performance section assigned to same as received channel.

2.3 Receive Messages to Control the System

■ System Common Message

● Song position pointer

Status	Second	Third
F2H	llH	mmH
mm, ll=Song position	:00H, 00H - 7FH, 7FH (0 - 16383)	

Recognize only Sync mode is set at MIDI SYNC or MIDI AUTO and the R-70 is in stop.
When the R-70 receives Song Position Pointer in Song Play, it calls the position in the song and when in Pattern Play or Real-time Recording, the position in the pattern.

● Song select

Status	Second
F3H	ssH
ss=Song select	:00H - 27H (0 - 39)

Recognize only Sync mode is set at MIDI SYNC or MIDI AUTO and the R-70 is in stop at Song play.

■ System Real Time Message

● Timing clock

Status
F8H

Recognized only when the Sync mode is set at MIDI SYNC or MIDI AUTO and after Start or Contine message is recongnized.

● Start

Status
FAH

Recognized only when the Sync mode is set at MIDI SYNC or MIDI AUTO.

● Continue

Status
FBH

Recognized only when the Sync mode is set at MIDI SYNC or MIDI AUTO.

● Stop

Status
FCH

Recognized only when the Sync mode is set at MIDI SYNC or MIDI AUTO.

● Active sensing

Status
FEH

Whenever the R-70 receives this message, it monitors the interval of the coming data. If the subsequent message has not arrived within 300mS after the previous data, it processes all sections as though it has received an All Notes Off and Reset All Controllers, and stops monitoring receiving interval.

■ System Exclusive Message

Status
F0H:System Exclusive
F7H:EOX (End of Exclusive)

With the R-70, the System Exclusive Message can be used to transmit and receive parameters of sequence and setup data.

For details refer to "Roland Exclusive Messages" and paragraphs 3.

Ignore System Exclusive message if parameter System Exclusive Device ID of MIDI Function is set at OFF.

3. Exclusive Communications

■ General

The R-70 can perform one-way communications to send and receive parameters for sequnce and setup.
These parameters can be transferred either by bulk dump.

Model ID included in the exclusive message should be 50H. The device ID code should be parameter System Exclusive Device ID of MIDI Function. Note that the actual value that set in the device ID field is smaller by one than the value set at parameter System Exlusive Device ID of MIDI Function.

■ One Way Communications

● Request data 1 RQ1 (11H)

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
Dev	Device ID
50H	Model ID(R-70)
11H	Command ID (RQ1)
aaH	Address MSB
aaH	Address
aaH	Address LSB
ssH	Size MSB
ssH	Size
ssH	Size LSB
sum	Check sum
F7H	EOX (End of Exclusive)

● Data set 1 DT1 (12H)

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
Dev	Device ID
50H	Model ID(R-70)
12H	Command ID (DT1)
aaH	Address MSB
aaH	Address
aaH	Address LSB
ddH	data
:	:
ddH	data
sum	Check sum
F7H	EOX (End of Exclusive)

■ Transmission

The R-70 transmits exclusive messages only when Bulk dump is performed by panel operation on menu of MIDI.

■ Receive

The R-70 is in stop and parameter System Exclusive Device ID is set at other than OFF.

Also note that Song data and Pattern data can be received on All songs or All patterns basis while the remaining parameters can be received in a unit of mapped one byte.

4. Parameter address map

Addresses are shown in every 7 - bit hexadecimal.

Address	MSB			LSB
Binary	0aaa aaaa	0bbb bbbb	0ccc cccc	0ddd dddd
7-bit hex.	AA	BB	CC	DD

■ Parameter base address

Start Address	Description	
00 00 00 00	Sound parameters	*5-1
:	:	
00 01 00 00	User instrument setup	*5-2
:	:	
00 02 00 00	Effect parameters	*5-3
:	:	
01 00 00 00	Pad assign inst#	*5-4
:	:	
01 01 00 00	Multi assign	*5-5
:	:	
01 02 00 00	Positional pad assign	*5-6
:	:	
02 00 00 00	MIDI setup	*5-7
:	:	
03 00 00 00	System parameters	*5-8
:	:	
10 00 00 00	Song data(internal)	*5-9
11 00 00 00	Song data(Card)	*5-9
:	:	
20 00 00 00	Pattern data(internal)	*5-10
21 00 00 00	Pattern data(Card)	*5-10

Table 5 - 1 Sound parameter

Offset Address		Description
00 00	Inst#000:Attack damp	0 - 31
00 01	Inst#000:Pitch bit 0- 3	-480 - +480 *
00 02	Inst#000:Pitch bit 4- 7	
00 03	Inst#000:Pitch bit 8-11	
00 04	Inst#000:Pitch bit12-15	
00 05	Inst#000:Decay	-31 - +31 *
00 06	Inst#000:Nuance	0 - 14(-7 - +7) **
00 07	Inst#000:Brilliance	0 - 15
00 08	Inst#000:Velocity pitch	0 - 15
00 09	Inst#000:Assign group	0 - 8 (OFF, EXC1-8)
00 0A	Inst#000:Polyphony	0 - 1 (MONO/POLY)
00 0B	Inst#000:Note off rx	0 - 1 (OFF/ON)
00 0C	Inst#000:Layer bit0-3	0 - 241 (Instrument#)
00 0D	Inst#000:Layer bit4-7	255(***-******)
00 0E	Inst#000:Volume	0 - 15
00 0F	Inst#000:Output	0 - 16 (L7-R7, 1, 2)
00 10	Inst#000:FX1 send level	0 - 15
00 11	Inst#000:FX2 send level	0 - 15
00 12	Instrument#001 parameters (same as Inst#000)	
00 24	Instrument#002 parameters (same as Inst#000)	
:	:	
21 72	Instrument#241 parameters (same as Inst#000)	
:	:	
22 04		

* 2's complement expression ** Offset binary expression

Table 5 - 2 User instruments

Offset Address		Description
00 00	User00 Inst# bit0-3	0 - 209
00 01	User00 Inst# bit4-7	
00 02	User01 Inst# bit0-3	0 - 209
00 03	User01 Inst# bit4-7	
:	:	
00 3E	User31 Inst# bit0-3	0 - 209
00 3F	User31 Inst# bit4-7	

Table 5 - 3 Effect parameters

Offset Address		Description
00 00	Effect1 type	0 - 4 (HALL/ROOM/PLATE/DELAY1/DELAY2)
00 01	Effect2 type	0 - 1 (CHORUS/FLANGER)
00 02	HALL:Reverb time	0 - 127
00 03	HALL:PreLPF	0 - 15
00 04	HALL:Output level	0 - 127
00 05	ROOM parameters (same as HALL parameters)	
:	:	
00 08	PLATE parameters (same as HALL parameters)	
:	:	
00 0B	DELAY1:Delay time L bit0-6	1 - 450
00 0C	DELAY1:Delay time L bit7-13	
00 0D	DELAY1:Delay time R bit0-6	1 - 450
00 0E	DELAY1:Delay time R bit7-13	
00 0F	DELAY1:Feedback	0 - 127
00 10	DELAY1:Output level	0 - 127
00 11	DELAY2 parameters (same as DELAY1 parameters)	
:	:	
00 17	CHORUS:Delay time	1 - 30
00 18	CHORUS:Depth	0 - 127
00 19	CHORUS:Rate	0 - 127
00 1A	CHORUS:Feedback	0 - 127
00 1B	CHORUS:Output level	0 - 127
00 1C	FLANGER parameters (same as CHORUS parameters)	
:		
00 20		

Table 5 - 4 Pad assign

Offset Address		Description
00 00	Inst# (Group1:Bank A:Pad01) bit0-3	0 - 241
00 01	Inst#(Group1:Bank A:Pad01) bit4-7	
00 02	Inst# (Group1:Bank A:Pad02) bit0-3	0 - 241
00 03	Inst#(Group1:Bank A:Pad02) bit4-7	
:	:	
00 1E	Inst# (Group1:Bank A:Pad16) bit0-3	0 - 241
00 1F	Inst#(Group1:Bank A:Pad16) bit4-7	
:	:	
01 3E	Inst# (Group1:Bank F:Pad16) bit0-3	0 - 241
01 3F	Inst#(Group1:Bank F:Pad16) bit4-7	
02 00	Group 2 parameters (same as Group1)	
:	:	
03 3F		
04 00	Group 3 parameters (same as Group1)	
:	:	
05 3F		

Table 5 - 5 Multi assign

Offset Address		Description
00 00	Group1:Pad01:Pitch bit0-3	0 - 255 **
00 01	Group1:Pad01:Pitch bit4-7	(-128 - +127)
00 02	Group1:Pad01:Decay	0 - 31(-16 - +15) **
00 03	Group1:Pad01:Nuance	0 - 14(-7 - +7) **
00 04	Group1:Pad01:Pan	0 - 7(Off/L6/L4/L2/C/R2/R4/R6)
:	:	
00 4F	Group1:Pad16:Pan	0 - 7(Off/L6/L4/L2/C/R2/R4/R6)
00 50	Group1:Inst# bit0-3	0 - 241
00 51	Group1:Inst# bit4-7	
:	:	
01 00	Group2 parameters (same as Group1)	
:	:	
01 51		
02 00	Group3 parameters (same as Group1)	
:		
02 51		

** Offset binary expression

Table 6 - 6 Position assign

Offset Address		Description
00 00	Group1:Bank A:Inst# bit0-3	0 - 241
00 01	Group1:Bank A:Inst# bit4-7	
00 02	Group1:Bank A:Flat position	0 - 2(LEFT/CENTER/RIGHT)
00 03	Group1:Bank A:Pitch	0 - 6 (OFF/NARROW+/MIDIUM+/WIDE+/NARROW-/MIDIUM-/WIDE-)
00 04	Group1:Bank A:Decay	0 - 6 (Content is same as Pitch)
00 05	Group1:Bank A:Nuance	0 - 6 (Content is same as Pitch)
00 06	Group1:Bank A:Pan	0 - 6 (Content is same as Pitch)
00 07	Group1:Bank B:parameters	
00 0E	Group1:Bank C:parameters	
00 15	Group1:Bank D:parameters	
00 1C	Group1:Bank E:parameters	
00 23	Group1:Bank F:parameters	
:	:	
00 2A	Group1:MULTI:parameters (same as Group1:Bank A)	
:	:	
00 30		
01 00	Group2:parameters (same as Group1)	
:	:	
01 30		
02 00	Group3:parameters (same as Group1)	
:	:	
02 30		

Table 6 - 7 MIDI parameters

Offset Address		Description
00 00	Inst sec#1:Rx ch	0 - 16(OFF/1-16)
00 01	Inst sec#1:Tx ch	0 - 17(OFF/1-16/RX)
00 02	Inst sec#1:Section volume	0 - 127
00 03	Inst sec#1:Bend range	0 - 12
00 04	Inst sec#1:Drum set	0 - 12 (STD/ROOM/POWER/ELCTR/TR808/ JAZZ/BRUSH/ALL1/ALL2/USER1-4)
00 05	Inst sec#2:parameters (same as Inst sec#1)	
:	:	
00 0A	Ctrl change Modulation Inst# bit0-3	0 - 241
00 0B	Ctrl change Modulation Inst# bit4-7	
00 0C	Ctrl change Modulation parameter	0 - 4(OFF/PITCH/DECAY/NUANCE/PAN)
00 0D	Ctrl change Controller-1 (same as Modulation)	
:	:	
00 10	Ctrl change Controller-2 (same as Modulation)	
:	:	
00 13	Ctrl change Controller-3 (same as Modulation)	
:	:	
00 16	Ctrl change Controller-4 (same as Modulation)	
:	:	
00 19	Ctrl change Controller-5 Inst# bit0-3	0 - 241
00 1A	Ctrl change Controller-5 Inst# bit4-7	
00 1B	Ctrl change Controller-5 parameter	0 - 3(OFF/DECAY/NUANCE/PAN)
00 1C	Ctrl change Controller-6 (same as Controller-5)	
:	:	
00 1F	Ctrl change Controller-7 (same as Controller-5)	
:	:	
00 22	Ctrl change Controller-8 (same as Controller-6)	
:	:	
00 24	Ctrl change Controller-8 parameter	0 - 3(OFF/DECAY/NUANCE/PAN)
01 00	Pfm sec#1:Rx ch	0 - 16(OFF/1-16)
01 01	Pfm sec#1:Inst# bit0-3	0 -241
01 02	Pfm sec#1:Inst# bit4-7	
01 03	Pfm sec#1:Section volume	0 - 127
01 04	Pfm sec#1:Hi note	0 - 127
01 05	Pfm sec#1:Lo note	0 - 127
01 06	Pfm sec#1:Modulation parameter	0 - 2(OFF/DECAY/NUANCE)
01 07	Pfm sec#1:Bend range	0 - 12
01 08	Pfm sec#1:Reference note#	0 - 127
01 09	Pfm sec#1:KF Pitch bit0-3	-99 - +99 ***
01 0A	Pfm sec#1:KF Pitch bit4-7	
01 0B	Pfm sec#1:KF Decay	-9 - +9 ***
01 0C	Pfm sec#1:KF Nuance	0 - 10(-2 - +2)
01 0D	Pfm sec#1:KF Pan	0 - 10 (-2 - -1/8, OFF, +1/8 - +2)
01 0E	Pfm sec#2:parameters (same as pfm sec#1)	
:	:	
01 1C	Pfm sec#3:parameters (same as pfm sec#1)	
:	:	
01 2A	Pfm sec#4:parameters (same as pfm sec#1)	
:	:	
01 37	Pfm sec#4:KF Pan	0 - 10(-2, -1, -1/2, -1/4, -1/8, OFF)
02 00	MIDI Function switch	
	bit0:Drum set change	0 - 1(OFF/ON)
	bit1:Rx Off velocity	0 - 1(OFF/ON)
	bit2:Volume	0 - 1(OFF/ON)
	bit3:Pan	0 - 1(OFF/ON)
	bit4:Expression	0 - 1(OFF/ON)
	bit5:Pitch bend	0 - 1(OFF/ON)
02 01	Release rate	1 - 8
02 02	Remote	0 - 1(OFF/ON)
02 08	USER1:Note#00 Inst# bit0-3	0 - 241
03 01	USER1:Note#00 Inst# bit4-7	255(***-******)
03 02	USER1:Note#01 Inst# bit0-3	0 - 241
03 03	USER1:Note#01 Inst# bit4-7	255(***-******)
:	:	
04 7E	USER1:Note#127 Inst# bit0-3	0 - 241
04 7F	USER1:Note#127 Inst# bit4-7	255(***-******)
05 00	USER2 Drum set (same as USER1 Drum set)	
:	:	
06 7F		
07 00	USER3 Drum set (same as USER1 Drum set)	
:	:	
08 7F		
09 00	USER4 Drum set (same as USER1 Drum set)	
:	:	
0A 7F		

*** 2'complement expression

Table 6 - 8 System parameters

Offset Address		Description
00 00	Pad dynamics	0 - 6(OFF/1-6)
00 01	Pad Bank	
	bit0-3:bank# 000 - 101(A - F)	
	bit4-5:dummy	
	bit6:Temporary 0 - 1(OFF/ON)	
00 02	Multi	0 - 1(OFF/ON)
00 03	Pad group	0 - 2(Group1 - Group3)
00 04	Roll resolution	0 - 9 (1/4, 1/6, 1/8, 1/12, 1/16, 1/24, 1/32, 1/48, 1/64, 1/96)
00 05	Sync mode	0 - 3 (INTERNAL, MIDI SYNC, MIDI AUTO, TAPE SYNC)
00 06	Metronome:Interval	0 - 4 (1/4, 1/6, 1/8, 1/12, 1/16)
00 07	Metronome:Inst# bit0-3	0 - 241
00 08	Metronome:Inst# bit4-7	
00 09	Metronome:Mode	0 - 2 (OFF, REC EMPTY, REC ON)
00 0A	Output mode	0 - 3 (1&D1:1&D2, 1&D1:FX2, 1&D2:FX1, FX1:FX2)
00 0B	Foot switch assign	0 - 6

*6 - 9 Song data

Data included in the area are: Song data, Song name, Song chain and Initial parameters of Songs 0 to 19.(You can select internal data or data in the memory card.)
If you want to send Data Request to the R - 70 in this area, set the address and the size as follows.

Internal Song data
address = 10 00 00 00
size = 01 00 00 00

Card Song data
address = 11 00 00 00
size = 01 00 00 00

The R - 70 ignores Data Requests which designate different address or size.
If you send Data Request of Song data in memory card to the R - 70 when the memory card is not ready, then R - 70 ignores Data Request.
No data in this area can be transferred in a unit of one byte.

*6 - 10 Pattern data

Data included in the area are: Rhythm data, Time signature, Number of measures, Flam interval, Flam ratio etc in each pattern.(You can select internal data or data in the memory card.)
If you want to send Data Request to the R - 70 in this area, set the address and the size as follows.

Internal pattern data:
  address = 20 00 00 00
  size   = 01 00 00 00
Card pattern data:
  address = 21 00 00 00
  size   = 01 00 00 00

The R-70 ignores Data Requests which designate different address or size. If you send Data Request of Pattern data in memory card to the R-70 when the memory card is not ready, then R-70 ignores Data Request. No data in the area can be received in a unit of one byte.

Address Map

Address	Block	Sub block	Reference
00 00 00 00	Sound Param.	Inst #0	5-1
		Inst #1	
		:	
		Inst #248	
		Inst #241	
00 01 00 00	Copy Instrument		5-2
00 02 00 00	Effect Param.	Types	5-3
		Hall	
		:	
		Chorus	
		Flanger	
01 00 00 00	Pad assign	G1-A1	5-4
		G1-A2	
		:	
		G3-F15	
		G3-F16	
01 01 00 00	Multi Assign	Group1	5-5
		Group2	
		Group3	
01 02 00 00	Positional pad	G1-A	5-6
		G1-B	
		:	
		G3-F	
		G3-Multi	
02 00 00 00	MIDI data		5-7
03 00 00 00	System data		5-8
10 00 00 00	Song data	Internal	5-9
11 00 00 00	Song data	Card	
20 00 00 00	Pattern data	Internal	5-10
21 00 00 00	Pattern data	Card	

HUMAN RHYTHM COMPOSER (Instrument section 1-2) Date : Dec. 28 1991

Model R-70

MIDI Implementation Chart

Version : 1.00

Function ...		Transmitted	Recognized	Remarks
Basic Channel	Default	OFF, 1 – 16	OFF, 1 – 16	Memorized
	Changed	OFF, 1 – 16 *3	OFF, 1 – 16 *4	(Non-volatile)
Mode	Default	Mode 3	Mode 3	
	Messages	×	×	
	Altered	*********	*********	
Note Number	True Voice	0 – 127	0 – 127	
		*********	*********	
Velocity	Note ON	*1 9n v=1-127	*1 v=1 – 127	
	Note OFF	×	*1	
After Touch	Key's	×	×	
	Ch's	×	×	
Pitch Bend		×	*1	resolution : 8bit
Control Change	1, 33	*1	*1	Modulation
	6	×	*2	Data entry
	7	*1	*1	Volume
	10	×	*1	Panpot
	11	×	*1	Expression
	16-19, 48-51	*1	*1	Controllers 1-4
	80-83	*1	*1	Controllers 5-8
	100, 101	×	*2	RPN LSB, MSB
	121	×	○	Reset All Controllers
Prog Change	True #	*1	*1	
		0-127	0-127	
System Exclusive		*1	*1	
System Common	Song Pos	○ *5	○ *6	
	Song Sel	○ *5	○ *6	0-39
	Tune	×	×	
System Real Time	Clock	○ *5	○ *6	
	Commands	○ *5	○ *6	
Aux Messages	Local ON/OFF	×	×	
	All Notes OFF	×	○	
	Active Sense	○	○	
	Reset	×	×	

Notes

*1 Can be set to ○ or × manually, and memorized.
*2 Only RPN #0 : Pitch bend sensitivity is effective.
*3 When channel is set at OFF, no channel messages are transmitted.
*4 When channel is set at OFF, no channel messages can be recognized.
*5 Sync mode is other than MIDI SYNC
*6 Sync mode is MIDI SYNC or MIDI AUTO

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

HUMAN RHYTHM COMPOSER (Performance section 1-4) Date : Dec. 28 1991

Model R-70

MIDI Implementation Chart

Version : 1.00

Function ...		Transmitted	Recognized	Remarks
Basic	Default	×	OFF, 1 – 16	Memorized
Channel	Changed	×	OFF, 1 – 16 *3	(Non-volatile)
Mode	Default	×	Mode 3	
	Messages	×	×	
	Altered	*********		
Note Number		×	0 – 127	
	True Voice	*********		
Velocity	Note ON	×	*1 9n v=1 – 127	
	Note OFF	×	*1	
After Touch	Key's	×	×	
	Ch's	×	×	
Pitch Bend		×	*1	resolution : 8bit
Control Change	1, 33	×	*1	Modulation
	6	×	*2	Data entry
	7	×	*1	Volume
	10	×	*1	Panpot
	11	×	*1	Expression
	100, 101	×	*2	RPN LSB, MSB
	121	×	○	Reset All Controllers
Prog Change		×	×	
	True #	*********		
System Exclusive		×	×	
System Common	Song Pos	×	×	
	Song Sel	×	×	
	Tune	×	×	
System Real Time	Clock	×	×	
	Commands	×	×	
Aux Messages	Local ON/OFF	×	×	
	All Notes OFF	×	○	
	Active Sense	×	×	
	Reset	×	×	

Notes

*1 Can be set to ○ or × manually, and memorized.
*2 Only RPN # 0 : Pitch bend sensitivity is effective.
*3 When channel is set at OFF, no channel messages can be recognized.

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

[How to read the MIDI Implementation Chart]

○: MIDI messages which can be transmitted or received.

×: MIDI messages which cannot be transmitted or received.

● Basic Channel

This is the valid range of MIDI channels that can be used to transmit (receive) MIDI messages.

The MIDI channel you set is retained even after you switched off the unit.

● Mode

Normally, this should be set to Mode 3 (OMNI OFF, POLY) on a device that features more than one receive channel.

Receive : Receives only the MIDI messages of the specified MIDI channel.

Transmit : Transmits MIDI messages on the specified MIDI channel.

The Mode here represents the MIDI Mode messages.

● Note Number

This shows the Note Numbers which can be received.

Note Number 60 represents middle C (C4).

● Velocity

This represents the velocity messages which can be transmitted (received) at "NOTE ON" and "NOTE OFF".

● Aftertouch

This shows whether Aftertouch can be transmitted (received).

● Pitch Bend

This shows whether Pitch Bend messages can be transmitted (received). The maximum pitch change caused by Pitch Bend messages can be set for each Section.

● Control Change

This describes the Control Numbers which can be received and the functions they control. General controllers allow you to set the functions to be controlled spontaneously. For a detailed explanation, refer to the MIDI Implementation.

● Program Change

The Program Change Numbers shown here are the numbers used for data. They are one number lower than the actual Program Number of a Drum Set.

● Exclusive

This determines whether Exclusive messages can be received on the System Exclusive Device ID Number or not.

● Common, Realtime

These are MIDI messages used for synchronizing to a sequencer or rhythm machine.

● Other Messages

MIDI messages (such as Active Sensing messages) to monitor the integrity of the MIDI system.

SPECIFICATIONS

R-70 Human Rhythm Composer

●Maximum Polyphony
14 voices

●Number of Instruments
Internal : 210
Copy : 32

●Effects
Reverb/Delay
Chorus/Flanger

●Rhythm Patterns
Programmable Patterns
Internal Memory : 100 Patterns
Memory Card (optional) : 100 Patterns
(Up to 99 measures per Pattern)

●Songs
Number of Songs
Internal Memory : 20 Songs
Memory Card (optional) : 20 Songs
Length of Songs
Internal Memory : 2000 Parts (for all Songs)
Memory Card : 2000 Parts (for all Songs)

●Resolution
96 clocks/quarter note

●Tempo
♩=40 - 250bpm

●Display
16 characters x 2 lines (backlit LCD)

●Data Entry Systems
Realtime Recording
Realtime Editing
Step Recording
Step Editing

●Pads
Key Pad × 16
Positional Pad × 1

●Synchronization
MIDI
Tape Sync II

●Jacks
Stereo Output Jacks (L(MONO)/R)
Individual Output Jacks 1, 2
Headphone Jack
MIDI Connectors (IN/OUT/THRU)
Tape Sync II Jacks (IN/OUT; RCA phono Type)
Footswitch Jack
AC Adaptor Jack

●Power Supply
DC9V : AC Adaptor

●Current Draw
550mA

●Dimensions
365 (W) x 227 (D) x 65 (H)mm
14-3/8 (W) x 8-15/16 (D) x 2-9/16 (H) inches

●Weight
2.0 kg (except AC adaptor)
4 lbs 7oz

●Accessories
Owner's Manual
User's Guide
AC Adaptor (ACI-120, 220, ACB-240E or 240A)

●Options
Memory Cards (M-256E)

* Specifications and appearance of this product are subject to change without prior notice.

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Information

When you need repair service, call your local Roland Service Station or the authorized Roland distributor in your country as shown below.

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Los Angeles, CA.
90040-3647, U. S. A.
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Richmond B. C., V6V 2M4
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Roland Canada Music Ltd.
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Quebec H4S 1V3,
CANADA
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South Yarra, Victoria 3141
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8UY, UNITED KINGDOM
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Atlantic Close, Swansea
Enterprise Park, Swansea,
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Viale delle Industrie 8
20020 ARESE MILANO
ITALY
☎ 02 - 93581311

SPAIN
Roland Electronics
de España, S. A.
Calle Bolivia 239
08020 Barcelona, SPAIN
☎ 93 - 308 - 1000

GERMANY
Roland Elektronische
Musikinstrumente
Handelsgesellschaft mbH.
Oststrasse 96, 2000
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69007 Lyon Cedex 07
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Musikengro (Paris Office)
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DENMARK
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DanvikCenter 28 A, 2 tr.
S-131 30 Nacka
SWEDEN
☎ 08 - 702 00 20

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Roland Scandinavia
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Postboks 95 Lilleaker
N-0216 Oslo 2
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☎ 02 - 73 00 74

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Fazer Musik Inc.
Länsituulentie
POB 169
SF-02101 Espoo
FINLAND
☎ 0 - 43 50 11

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Roland Corporation
(NZ) Ltd.
97 Mt. Eden Road, Mt.
Eden, Auckland 3,
NEW ZEALAND
☎ (09)3098 - 715

SWITZERLAND
Musitronic AG
Gerberstrasse 5, CH-4410
Liestal, SWITZERLAND
☎ 061/921 16 15

Roland CK (Switzerland)
AG
Postfach/Hauptstrasse 21
CH-4456 Tenniken
SWITZERLAND
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Repair Service by
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Athens, GREECE
☎ 1 - 3620130

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Musicais Lda.
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Republic of South Africa
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Paul Bothner(PTY) LTD.
17 Werdmuller Centre
Claremont 7700
Republic of South Africa
☎ 021 - 64 - 4030

As of Jan 8. 1992

For Nordic Countries

Apparatus containing Lithium batteries

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Udskiftning må kun ske med batteri af samme fabrikat og type.
Lever det brugte batteri tilbage til leverandøren.

VARNING!

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

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For Germany

Bescheinigung des Herstellers/Importeurs

Hiermit wird bescheinigt, daß der/die/das
Roland HUMAN RHYTHM COMPOSER R-70
(Gerät, Typ. Bezeichnung)

in Übereinstimmung mit den Bestimmungen der
Amtsbl. Vfg 1046/1984
(Amtsblattverfügung)

funk-entstört ist.
Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Roland Corporation Osaka/Japan
Name des Herstellers/Importeurs

For the USA

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WARNING — This equipment has been verified to comply with the limits for a Class B computing device, pursuant to Subpart J, of Part 15, of FCC rules. Operation with non-certified or non-verified equipment is likely to result in interference to radio and TV reception.

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

- Disconnect other devices and their input/output cables one at a time. If the interference stops, it is caused by either the other device or its I/O cable.
  These devices usually require Roland designated shielded I/O cables. For Roland devices, you can obtain the proper shielded cable from your dealer. For non Roland devices, contact the manufacturer or dealer for assistance.
  If your equipment does cause interference to radio or television reception, you can try to correct the interference by using one or more of the following measures.
- Turn the TV or radio antenna until the interference stops.
- Move the equipment to one side or the other of the TV or radio.
- Move the equipment farther away from the TV or radio.
- Plug the equipment into an outlet that is on a different circuit than the TV or radio. (That is, make certain the equipment and the radio or television set are on circuits controlled by different circuit breakers or fuses.)
- Consider installing a rooftop television antenna with coaxial cable lead-in between the antenna and TV. If necessary, you should consult your dealer or an experienced radio/television technician for additional suggestions. You may find helpful the following booklet prepared by the Federal Communications Commission:
  "How to Identify and Resolve Radio — TV Interference Problems"
  This booklet is available from the U.S. Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

For Canada

CLASS B **NOTICE**

This digital apparatus does not exceed the Class B limits for radio noise emissions set out in the Radio Interference Regulations of the Canadian Department of Communications.

CLASSE B **AVIS**

Cet appareil numérique ne dépasse pas les limites de la classe B au niveau des émissions de bruits radioélectriques fixés dans le Réglement des signaux parasites par le ministère canadien des Communications.

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