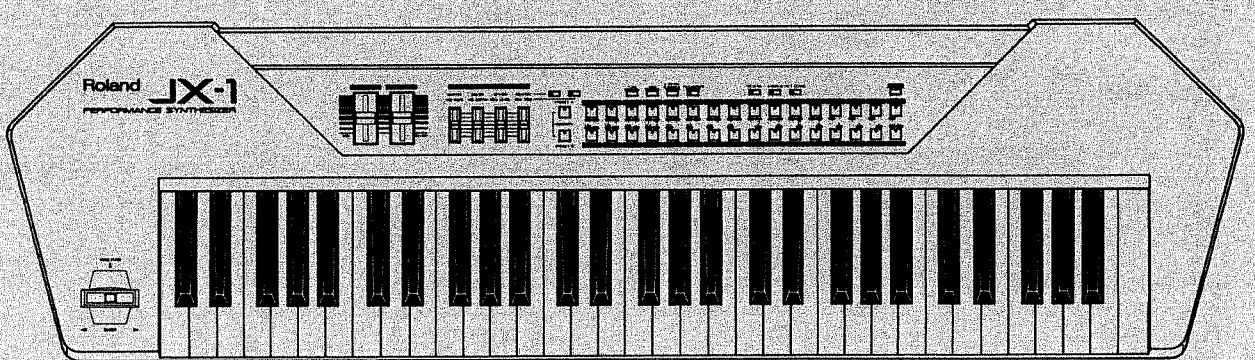
Roland

PERFORMANCE SYNTHESIZER

JX-1

OWNER'S MANUAL



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As of NOV. 8. 1990

Introduction

Thank you, and congratulations on your choice of the Roland Performance Synthesizer JX-1. With its quality construction, variety of sounds, and easy to use yet comprehensive controls, it is sure to satisfy most everyone, from beginner to seasoned professional. In order to gain a better understanding of every feature this unit offers, and to ensure continuing satisfaction for years to come, please take the time to read this manual in its entirety.

Features

- **Dedicated Sliders For Unique Sound Creation**
  Eight essential sound parameters are controlled by four panel sliders. These sliders allow you to alter sounds in a manner reminiscent of analog instruments.
- **Dual Voicing Offers Greater Variety**
  Two different sounds can be layered together (Dual). Since an amazing number of interesting combinations can be made, a wealth of creative possibilities are now available, even during performance.
- **Input Jacks**
  Convenient input jacks allow you to connect a wide range units, such as radio-cassette player, rhythm machine, or another electronic musical instrument. This feature is helpful when wishing to practice along with a recorded piece, or for increasing the number of sources that generate sound.
- **On-Board Digital Effects**
  The JX-1 includes on-board digital Reverb/Delay and digital Chorus. To obtain an even richer, more expansive sound, try using stereo output.
- **Wide Variety Of Preset Tones**
  The JX-1 includes a wide selection of the highest-quality and most versatile sounds. Whether you need a resounding acoustic piano or a solo synth sound for lead lines, the JX-1 has them all.
- **Ease Of Operation**
  Since buttons or sliders have been provided for all sound selections and functions, there is no convoluted series of programming steps to learn.
- **Compact, Lightweight & Highly Portable**
  The JX-1 was designed to be compact and lightweight. It can be carried and be setup almost anywhere.

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.
- 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]

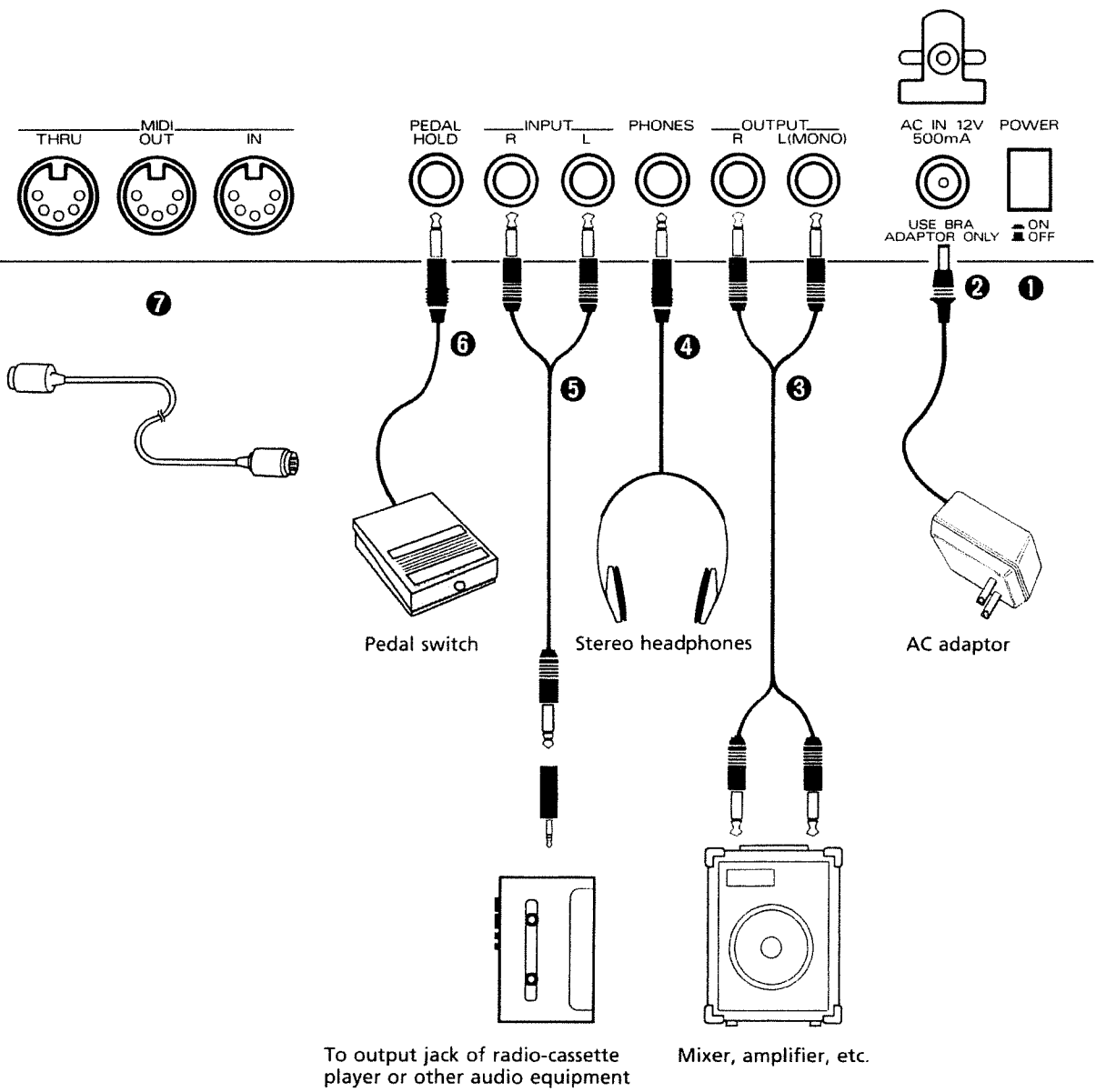
- The unit contains a battery which maintains the contents of memory while the main power is off. The expected life of this battery is 5 years or more. However, to avoid the unexpected loss of memory data, it is strongly recommended that you change the battery every 5 years.
  Please be aware that the actual life of the battery will depend on the physical environment (especially temperature) in which the unit is used. When it is time to change the battery, consult with qualified service personnel.

Making the Connections

Before attempting to make the necessary connections, make sure you have the power turned off to the keyboard, amplifier and mixers. Also, the volume on your amplifier should be set to zero. This will help prevent damage or malfunction.

Following the illustration below, connect the keyboard with any external devices you intend to use.

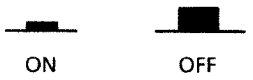
<REAR PANEL>



* Since the JX-1 does not incorporate a power amplifier or speakers, it cannot produce sound by itself (except through headphones).

❶ POWER SWITCH

To turn the power on, press the switch.
To turn off, press it again.



❷ AC IN

Use only the AC adaptor supplied. Loop the adaptor cord around the cord hook to prevent the adaptor from accidental disconnection.

❸ OUTPUT JACKS

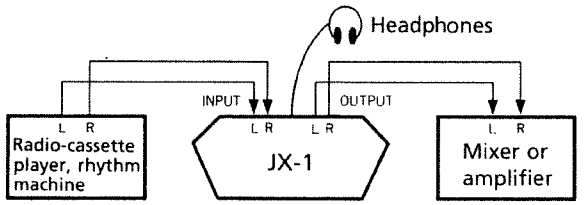
These jacks provide output of the JX-1's sound. Connect the keyboard to a mixer, keyboard amplifier, or other device using these jacks. In order to get the most out of the instrument, use stereo output (L/R) wherever possible. If you wish to use monaural output, use the L (MONO) jack only. (Mixer: M Series, BOSS BX Series; Amp: CK Series, MA-12AV, or similar.)

❹ PHONES JACK

Connect stereo headphones to this jack.

❺ INPUT JACKS

These jacks accept audio signals from external sources. The audio signals input here are mixed with what is generated by the keyboard itself before being output from the OUTPUT or PHONES jack. These jacks should be connected to the OUTPUT (LINE OUT) jacks on your radio-cassette player or other audio equipment (rhythm machine etc.). You will need to adjust the volume of the connected device to get the proper balance.



❻ PEDAL HOLD JACK

Accepts connection of a foot switch. The foot switch will act as a damper pedal, allowing you to sustain notes played on the keyboard.

❼ MIDI CONNECTORS

These connectors allow you to use MIDI cables to connect the JX-1 with other MIDI-equipped units. For details, refer to "Using MIDI," page 10.

Turning on Power

Once all connections have been properly made, turn on the devices in the following order:

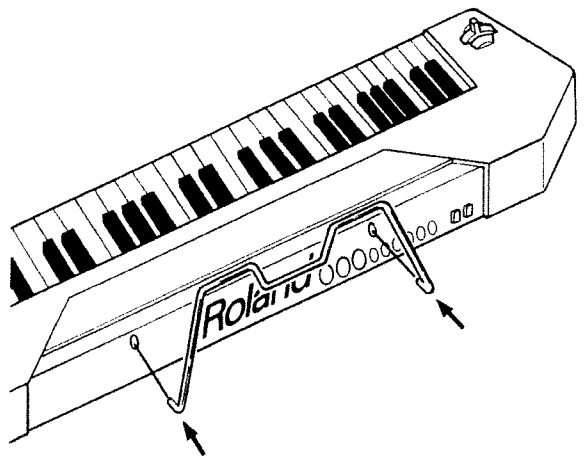
① Turn on the JX-1.
↓
② Turn on the power to the mixer and amplifier.
↓
③ Adjust the volume.

* Due to its circuitry protection feature, this instrument requires a few seconds after power up before it is ready for operation.

When your playing session is finished, turn down the volume on the amp and/or mixer. Then turn off the units in this order: Amp, mixer, then the keyboard. (This is the reverse order used when powering up.) Once all units are turned off, you can disconnect the cables.

Setting Up the Music Stand

The music stand (supplied with instrument) should be attached as shown in the illustration.



* Make certain you always remove the music stand before moving the unit.

Playing Your Keyboard

Once you have everything connected and turned on, you are ready to try out your new keyboard. Follow these steps...

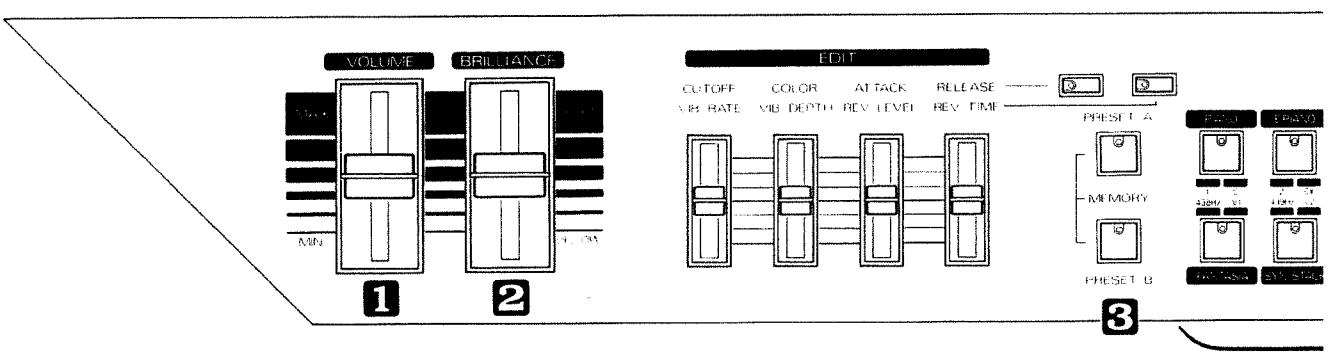
1 Adjust the Volume

Adjust the volume of the keyboard. The VOLUME slider controls both the OUTPUT jacks and the PHONES jack.
Move the slider upwards to increase the volume, and downwards to decrease it.

* The JX-1 provides no control over the volume of any units you may have connected to the INPUT jacks.

2 Adjust the Brilliance

Adjust the brilliance the sound will have. The BRILLIANCE slider affects the sound heard from the OUTPUT jacks and the PHONES jack.
Move the slider upwards to brighten the tone, and downwards to make it mellower.

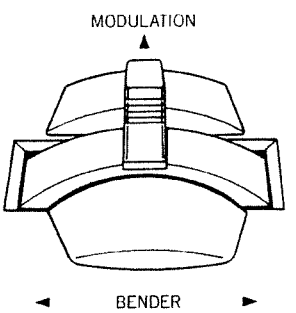


Using the Bender Lever

This lever, located on the left side of the instrument, allows you to bend the pitch or add vibrato to the notes you play.

● **Pitch Bending**
By moving the lever to the left or right, the notes you play will be lowered or raised in pitch. "Bend Range" (a performance setting) allows you to choose the amount of pitch change that will occur when the lever is moved. (See "Performance Functions," pages 6-7.)
With practice, you can perfect a variety of performance techniques (eg., "portamento" or "string bending").

● **Vibrato**
When the Bender Lever is pushed all the way forward (towards the top of the instrument), you obtain a Vibrato effect. The manner in which Vibrato will take effect varies depending on the sound being played. (See "Editing Tones," pages 8-9.)



3 4 Selecting the Sound

The JX-1 provides a selection of 96 different Tones.

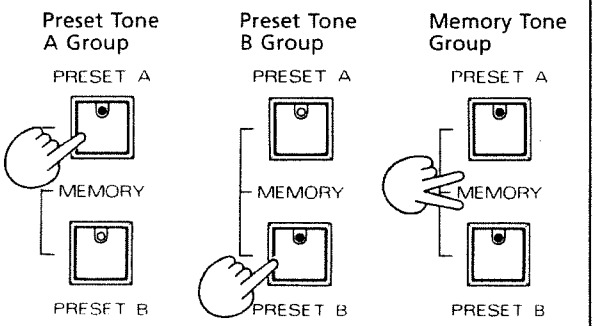
- **Preset Tones (A Group: 32; B Group: 32 available)**
  Factory preset sounds stored in memory.
- **Memory Tones (32 available)**
  Sounds which you create and then storing in memory.

Press button 3 to choose the Tone Group. (see right)

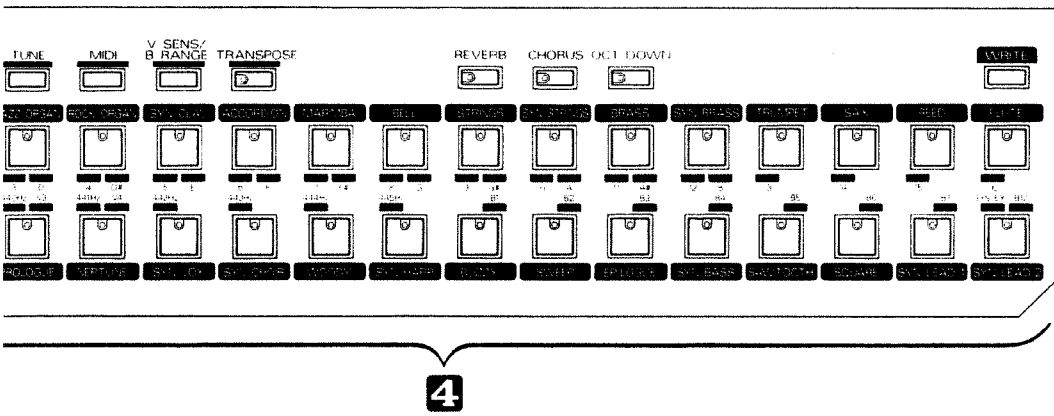
Press button 4 to select the desired Tone.

Whenever a particular button (sound) is currently selected, its indicator will be lit.

How to choose the Tone Group



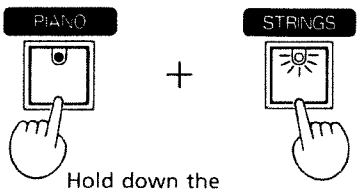
(Press both the buttons at the same time)



Using "DUAL" When Playing

To layer two sounds and have them play together, hold down the button for one Tone while you press the button for the other.

[Example]
You wish to layer "PIANO" with "STRINGS":
Simply hold down the [PIANO] button while you press the [STRINGS] button.



Hold down the [PIANO] button

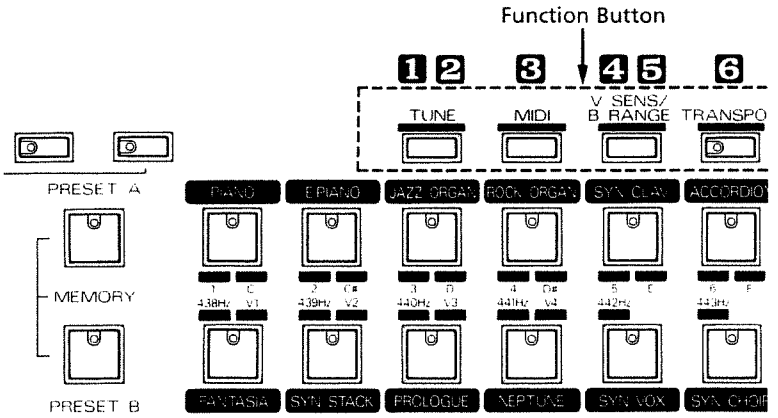
Press the [STRINGS] button

The indicator on the Tone button you press first will light steadily, while the indicator on the second button will be blinking. The first Tone is referred to as the "Main Tone," while the second is called the "Sub Tone."
With respect to the Main Tone, you can check whether effects are "On" or not, as well as perform the normal Edit/Write operations. This is not possible with the Sub Tone. See "Editing Tones," page 8.

* Tones in different Tone Groups cannot be layered.

Performance Functions

The following functions allow you to alter the way your keyboard performs. These variable performance functions are: 1 Tuning, 2 Scale which uses quarter-tones, 3 MIDI Channel, 4 Bend Range, 5 Velocity Sensitivity, and 6 Key Transpose. Once made, these settings will be retained even while the power is off.



1 Tuning

The unit's overall tuning is adjusted by changing the frequency (pitch) of middle "A" (the "A" above middle "C"). Tuning is adjustable in 1 Hz increments from 438-445 Hz.

[What To Do]
Hold down the [TUNE] button, and then press the Tone button which corresponds to the pitch you require (lower row, first eight buttons; green).

2 Setting a Scale which Uses Quarter-Tones

It is possible to set the JX-1 to use a non-Western tuning system (ex. Arabic music). By following the procedure below, you can create scales which include "quarter-tones" (pitch intervals equal to about 1/2 of a semitone).

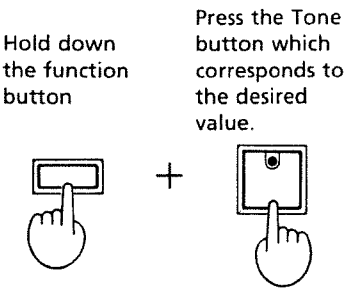
[What To Do]
First, turn off the power for a moment.
Then, while holding down the [TUNE] button, turn power on. You will then be in the mode which allows you to use quarter-tones.
Next, while holding down [TUNE], press the Tone button (upper row; pink) which corresponds to the note you wish to have set to a quarter-tone (the pitch will be lowered by about 1/2 a semitone). Any number of notes among the twelve from C through B can be specified. To set a quarter-tone back to the normal pitch, keep holding down [TUNE] and press the Tone button again which corresponds to the note you wish.
Once your settings have been made, release your finger from the [TUNE] button. The instrument will then be ready to play.
As long as the power remains on, quarter-tone settings can be made at any time. To restore the instrument's standard tuning, simply turn the unit off and then on again.

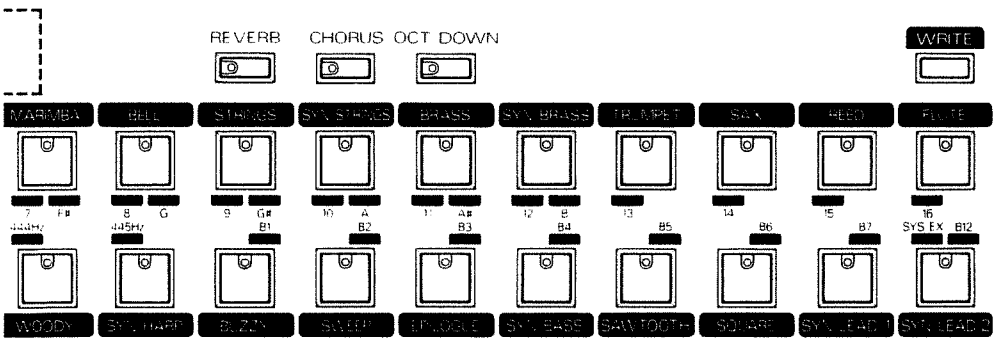
3 Setting the MIDI Channel

The following procedure allows you to choose the MIDI Channel that the unit will use for the exchange of performance information and Program Change messages. Any channel from 1 through 16 can be selected.

[What To Do]
While holding down the [MIDI] button, press the Tone button which corresponds to the desired Channel number (upper row; blue). 1-16 are available. Please refer also to "Using MIDI," starting page 10.

[Common Procedure]
Common procedure to set Performance Functions is as bellow: While holding down the function button, press the Tone button which coresponds to the desired value. The values available for these functions appear between the rows of the Tone buttons and are color-coded. If you wish to be shown the each value of these functions, press the desired function button. While the function button is holding down, the indicator(s) on the button corresponding to currently selected value will be lit.





4 Setting the Velocity Sensitivity

With the JX-1, you can obtain changes in the volume and tone color depending on the strength (velocity) with which keys are played. This allows you to use every dynamic level from pianissimo to fortissimo. Velocity Sensitivity is an adjustment that allows you to determine how responsive the keys will be to velocity. Four settings are available: V1-4.

- V4..... Playing softly will produce a quiet sound, while playing forcefully will produce a loud sound.
- V1..... The volume level will change very little, regardless of whether you play softly or forcefully.

[What To Do]
While holding down the [V SENS/B RANGE] button, press the Tone button which corresponds to the desired value (lower row; yellow).

5 Setting the Bend Range

This setting determines the extent to which the pitch will change when the bender lever is moved completely in either direction (up or down). The setting is made in semitone steps: B1-7 or 12.

[What To Do]
While holding down the [V SENS/B RANGE] button, press the Tone button which corresponds the desired value (lower row; yellow). For a semitone, select "B1", for a whole tone, choose "B2". Perfect fifth would be "B7," and for an octave, select "B12."

6 Setting the Key Transpose Switching On/Off

This feature allows you to play in a different key while using a more familiar keyboard fingering. This is convenient for accompanying a singer, or making a difficult piece easier to play.
Transposition is set in semitones, with C-B being available. For example, if the transpose function is set to "G," you will obtain a "G" whenever a "C" is played. If set to "C," the note will be shifted down an octave.

[What To Do]
While holding down the [TRANSPOSE] button, press the Tone button which corresponds to the desired key (upper row, pink). The indicator on the [TRANSPOSE] button will light to indicate that a key transposition is currently in effect.
The key transposition can be turned on and off simply by pressing the [TRANSPOSE] button. If the indicator on this button is lit, it is on; if it is out, there is no key transposition.

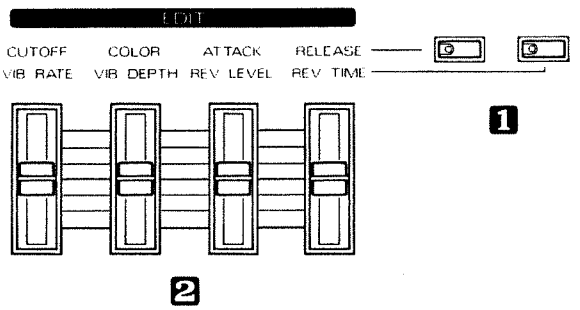
Editing Tones

The JX-1 allows you to change the character of a selected Tone by editing its parameters. Each Tone has a number of parameters which can be changed using buttons and sliders. Whenever editing changes have been made, the indicators on the [PRESET A] and/or [PRESET B] buttons will start blinking to indicate that a Tone has been altered.

* Whenever the Dual function is being used (to layer Tones), only the Main Tone can be edited. Also, effect status (on/off) is only indicated for the Main Tone. The Sub Tone cannot be edited.

Using the Sliders for Editing

Eight different parameters can be controlled. Button 1 selects one Parameter Group. By moving the slider 2 you alter the settings of that specified parameter. Changes are accepted for a Parameter Group when its indicator is lit.
Move a slider to the center position and you obtain the original Preset Tone settings (no alteration to the sound).



○ CUTOFF
Used to set the cutoff point when the harmonic overtones are to be filtered. The further the slider is raised, the higher the frequency of the cutoff point.

○ COLOR
Provides sensitive control over the tonal coloration of the sound. As the slider is raised, the sound become more distinctive and unique.

○ ATTACK
Adjusts the velocity of the attack portion of the sound; produced the first instant a key is played.
The further the slider is raised, the slower the attack becomes.

○ RELEASE
Adjusts the time over which sound fades after a key is released. The further the slider is raised, the longer it will take for sound to fade away.

○ VIB RATE (Vibrato Rate)
Provides control over the speed at which the pitch fluctuations occur. When the slider is raised, the vibrato speed will increase.

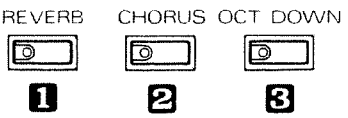
○ VIB DEPTH (Vibrato Depth)
Allows you to adjust the depth to which the Vibrato fluctuations occur.
When the slider is raised, the Vibrato becomes deeper.

○ REV LEVEL (Reverb Level)
Adjusts the amplitude of the reverberant (or delayed) portion of the sound.
Raise the slider to increase the amplitude of reverberated or delayed sound.

○ REV TIME (Reverb Time)
Adjusts the amount of time over which reverberant sound will decay. For the Tone set which delay effect, it adjusts the rate at which the repetitions in delayed sound will occur.
The further the slider is raised, the longer the Reverb Time (or the repetition rate) becomes.

Using the buttons for Editing

Reverb, Chorus, and Octave Down are turned on and off simply pressing the [REVERB], [CHORUS] and [OCT DOWN] buttons. When on, the indicator will light, and when pressed again, the indicator goes out.



1 REVERB

By adding reverberation, you add an enhanced sense of spaciousness to what you play. The most suitable Reverb type has already been assigned to each Preset Tone. With certain Tones, Delay (a repetitive, echo-like effect) will also be applied. No change can be made in the Reverb/Delay type that has been selected.

2 CHORUS

This is an effect which adds more breadth and depth to a sound.

3 OCT DOWN (Octave Down)

When turned On, notes will sound one octave lower.

* Both Reverb and Chorus provide stereo processing. To make sounds even richer and more expansive, try using stereo output (using both L and R OUTPUT jacks).

Storing Edited Tones

By performing the Write procedure, you can store a sound which has been altered as a Memory Tone. The new Tone is stored in the Memory Tone location assigned to the same button as the original Preset.

You cannot store an altered Tone in a location other than the corresponding button for the original Preset (Ex. [PIANO] → [E.PIANO]).

[Write Procedure]

Press and hold the [WRITE] button and the destination Tone button's indicator will be blinking. While holding down the [WRITE] button, press the button that is blinking.

As a result, the newly created sound is stored as a Memory Tone, and the unit returns to its previous state. The procedure should be used with caution, however, since any Memory Tone already at the destination will be replaced by the new Tone.

When using the Dual function, the Write procedure can only be performed with respect to the Main Tone (Sub Tone cannot be written).

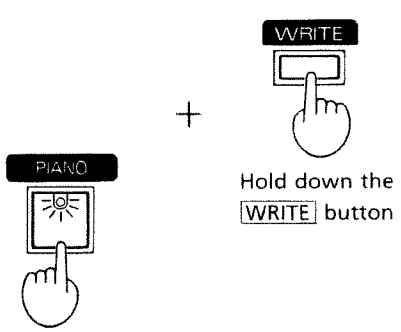
[Ex.]

[PIANO] in PRESET A GROUP is edited

[PIANO] in PRESET B GROUP is edited

[PIANO] in MEMORY TONE GROUP is edited

Write procedure → [PIANO] in MEMORY TONE GROUP



Hold down the [WRITE] button

Press the tone button with blinking

Using MIDI 1

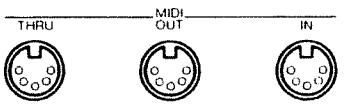
About MIDI

MIDI (Musical Instrument Digital Interface) is an internationally recognized standard for the transfer of performance information among electronic musical instruments and computers. The majority of contemporary electronic musical instruments are equipped to support this standard. Under MIDI, music is not handled as sound itself. Instead, performance information (and whatever commands accompany it) are converted and expressed in digital form. All such digital data communicated through MIDI is collectively referred to as "MIDI Data."

Benefits of MIDI

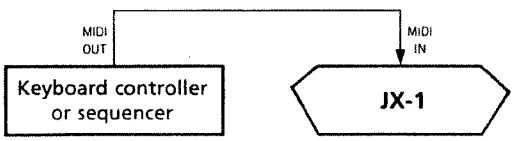
By using MIDI to connect your JX-1 to another electronic musical instrument, you can then use it to control the other unit, or in reverse, the other unit can be used to control your JX-1. Whenever you play your JX-1, MIDI data describing what you play (or how you use the controls) will automatically be transmitted. On the other hand, whenever the unit receives such performance data, it will play notes, and otherwise be controlled by the incoming data. In addition, this performance data can be recorded into a sequencer (MIDI data recorder) while you play, and then be played back.

MIDI CONNECTION



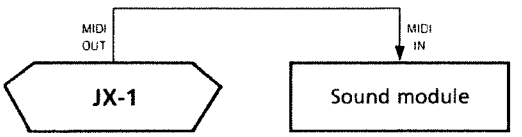
● MIDI IN

MIDI data is received here. Use the MIDI IN connector to receive data from a keyboard (or other device) you are using to control the JX-1. A MIDI cable should be connected so it runs from here to the MIDI OUT on the external unit.



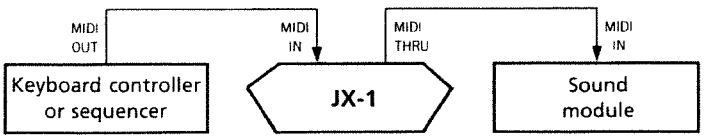
● MIDI OUT

MIDI data is sent out from here. Use it to send data to play a sound module, or to be recorded in a sequencer. A MIDI cable should be connected so it runs from here to the MIDI IN on the external unit.



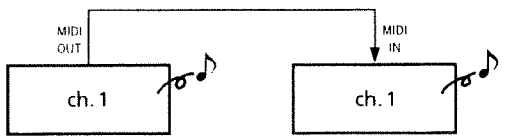
● MIDI THRU

This connector re-transmits an exact copy of all MIDI data arriving at MIDI IN. The MIDI data produced by the unit itself is NOT sent from this connector. MIDI THRU is useful for chaining instruments together, such as when a keyboard controller or sequencer is being used to play the JX-1, and also to pass on the data to another sound generating unit. A MIDI cable should be connected so it runs from here to the MIDI IN on an external unit.

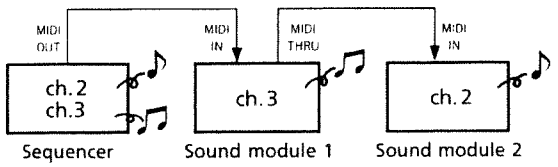


About the MIDI Channel

An important feature of MIDI is that it uses a number of different channels. Performance data can be transferred between two instruments only when the channel on the receiving unit matches the channel on the transmitting unit. For example, if the transmitting unit is using channel 1, only an instrument set to receive on channel 1 would respond to the incoming data.



When recording on a sequencer, a number of different channels can be used. This allows different sound modules (or individual sounds) to be played separately (as needed).



On the JX-1, you select one channel on which both transmission and reception will take place. The manner in which you select this channel is explained in "Performance Functions," page 6.

◆

Performance Data through MIDI

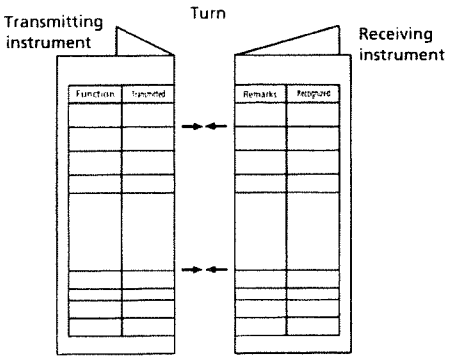
◇ MIDI Data Types on the JX-1

The types of MIDI data that are recognized (when MIDI channels match) by the JX-1 are as follows:

- **Performance Data Produced by a Keyboard**
  Note Numbers and their Velocity are produced when keys are played.
  Velocity when key is released is only transmitted.
- **Pitch Bend Data**
  Information regarding pitch bend is produced when the bender lever is moved. Bend range can be set on the receiving instrument.
- **Control Change Data**
  Modulation Depth produced by the bender lever; and whether the Hold pedal is depressed or not (ON or OFF).
  Volume information is dealt with only when received.
- **Program Change Data**
  These cover the selection of sounds using the Tone buttons. The Sub Tone for the Dual function is also handled.
  Refer to "Sound and Corresponding Program Change Numbers" page 13.

◇ About MIDI Implementation Chart

MIDI makes it possible for an extensive range of information about a performance to be communicated. However, depending on the particular devices you have connected, the types of data that can be communicated can vary considerably. You should refer to the MIDI Implementation Charts supplied with the devices you are connecting in order to confirm what types of MIDI messages can be sent out and/or received (see below). When comparing charts, if "○" appears for a particular type of message on both charts, communication will be successful.



Using MIDI 2

In addition to using MIDI channel to transfer performance data between instruments, there are also other types of data that can be carried by MIDI. These include information concerned with a specific unit's sounds or functions (system exclusive data), and other data used for system monitoring.

System Exclusive Messages

Information concerned with a unit's own unique sounds or functions is exchanged as System Exclusive Messages. System Exclusive Messages can only be exchanged between identical units. Thus, if the JX-1 sends System Exclusive Messages, they have meaning and are effective only if received by another JX-1. System Exclusive Messages can, however, be recorded into and be played back by a sequencer.

◇ The JX-1 understands and uses the following three types of System Exclusive Messages:

- **Tone Dump**
  Provides for the transfer of all data for Edit Parameters for the currently selected Tone. When the unit receives a Tone Dump, all Edit Parameters for the current tone will be altered with incoming data.
- **Bulk Dump**
  Provides for the transfer (in bulk) of all settings for all 32 Memory Tones. Be aware, however, that when the unit receives a Bulk Dump, all settings previously stored in the unit are replaced.
- **Parameter Dump**
  After turning the System Exclusive switch "ON," the data for each Edit Parameter will be output over MIDI according to the operations you perform using the buttons and sliders. When the unit receives Parameter Dumps, its settings will be altered to conform with the incoming data. The result will be the same as if the panel controls had been used to manually make the changes.

◇ System Exclusive Messages Are Transmitted/Received As Follows:

	Transmission	Reception
Tone Dump	Hold Down MIDI while pressing [WRITE].	Once the System Exclusive switch is turned ON, the unit is ready for reception of System Exclusive messages.*
Bulk Dump	Hold down MIDI while pressing [PRESET B].	
Parameter Dump	Turn System Exclusive switch ON, then perform operations.	

* Changing the System Exclusive switch setting:
While holding down the [MIDI] button, press the Tone button which has "SYS EX" printed in blue above (lower row, right end; "SYN LEAD 2"). While the [MIDI] button is held down, the indicator on the "SYS EX" button will be lit, indicating that the function is ON.
While ON, any System Exclusive messages that are received (whether from a sequencer or another JX-1) will be recognized. In addition, Parameter Dumps need to be carried out while in this condition ("SYS EX" ON).
To turn the function OFF, hold the [MIDI] button down and press the "SYS EX" button (the indicator will go out).

◇ If it fails to receive System Exclusive Messages correctly, one of the indicator of the Edit Parameter Group buttons will flash.

Other Types of Data

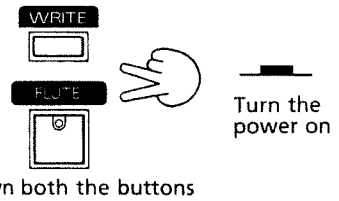
This unit also recognizes the following types of data (refer to "MIDI Implementation" page 16):

- **Local ON/OFF (Reception Only)**
  If you wish to switch Local "On" and "Off", do so using MIDI messages from a sequencer. Refer to the sequencer manual for details on how to do this. Note, however, that the unit will automatically be set to Local "ON" each time the unit is turned on.
- **Active Sensing**
  This type of data is used to monitor the integrity of the MIDI connectors and cables. It provides for measures to be taken (such as cutting off all notes) when abnormalities are detected.

Restoring the Factory Settings

The procedure below allows you to restore the unit's original factory settings.

[What To Do]
While holding down both the [WRITE] button and the [FLUTE] button, turn the unit on.



Factory Setting of Performance Functions

Tuning	440Hz
MIDI Channel	1
MIDI Exclusive Switch	OFF
Bend Range	B2
Velocity Sensitivity	V3
Key Transpose ON/OFF	OFF
Key Transpose Value	B

* Be aware that by carrying out this procedure you will lose all settings and sounds you may have stored in the unit.

Sounds and Corresponding Program Change Numbers

The relationship between sounds and Program Change Numbers is predetermined on the JX-1.
Whenever you press a button to select a Tone, the corresponding Program Change Number (0-95) will be sent out over MIDI. When you select two Tone with Dual function, both the corresponding Program Change Numbers will be sent out (0-95 for Main Tone first and 96-127 for Sub Tone next).
If Program Change Number (0-95) is received, the corresponding Tone will be selected. If Program Change Number (96-127) is received, the corresponding Tone will be layered for Sub Tone with the currently selected Tone (Main Tone). Sub Tone will be selected from the same Tone Group as Main Tone.

Tone		Program Change Number
Tone Group	Row of Buttons	
Preset Tone A Group	Upper Lower	0 – 15 16 – 31
Preset Tone B Group	Upper Lower	32 – 47 48 – 63
Memory Tone Group	Upper Lower	64 – 79 80 – 95
Sub Tone in Dual Function	Upper Lower	96 – 111 112 – 127

(Left – right)

* Program Change messages are both sent and received on the MIDI channel that has been set for the unit to use.

Maximum Polyphony

The various Tones have different requirements as to the number of sounds they need. (See right)
For this reason, the number of notes that can be played will vary depending on the particular Tones and possible combinations you choose to use. (See below)

* "SYN LEAD 1" and "SYN LEAD 2" are monophonic sounds.

Maximum Polyphony for Choice of Tones

Choice of Tones		Maximum polyphony
1 voice Tone		24
2 voice Tone		12
Dual mode	1 voice + 1 voice	12
	1 voice + 2 voice	8
	2 voice + 2 voice	6

Voice Number for Tone

Tone name	A	B	Tone name	A	B
PIANO	1	1	FANTASIA	2	2
E.PIANO	1	1	SYN STACK	2	2
JAZZ ORGAN	1	1	PROLOGUE	2	2
ROCK ORGAN	1	1	NEPTUNE	2	2
SYN CLAV	1	1	SYN VOX	1	1
ACCORDION	2	1	SYN CHOIR	2	2
MARIMBA	1	1	WOODY	2	2
BELL	2	2	SYN HARP	1	2
STRINGS	1	2	BUZZY	2	2
SYN STRINGS	2	1	SWEEP	1	1
BRASS	2	2	EPILOGUE	2	2
SYN BRASS	2	2	SYN BASS	2	2
TRUMPET	1	1	SAWTOOTH	1	1
SAX	1	1	SQUARE	1	1
REED	1	1	SYN LEAD 1*	2	2
FLUTE	2	2	SYN LEAD 2*	1	2

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 version 1.0).

≠ 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

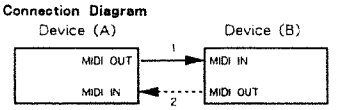
Address mapping is a technique for transferring messages conforming to the data format given in Section 1. It assigns a series of memory-resident records-waveform and tone data, switch status, and parameters, for example-to specific locations in a machine-dependent address space, thereby allowing access 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

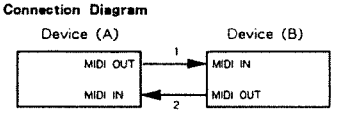


Connection at point 2 is essential for "Request data" procedures. (See Section 3.)

≠ 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.

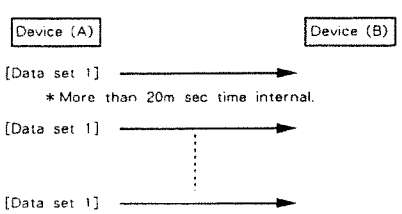
Byte	Description
F0H	Exclusive
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
12H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ddH	Data
⋮	⋮
sum	Check sum
F7H	End of exclusive

* 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

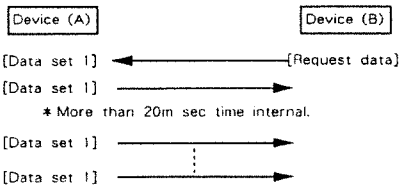
● Device A sending data to Device B

Transfer of a DT1 message is all that takes place.



● Device B requesting data from Device A
(This device does not cover this procedure)

Device B sends an RQ1 message to Device A. Checking the message, Device A sends a DT1 message back to Device B.



PERFORMANCE SYNTHESIZER

Date : Nov. 15 1990

Model JX-1

MIDI Implementation

Version : 1.00

1.TRANSMITTED DATA

Following messages are transmitted through the MIDI channel set on JX-1.

■ Channel voice message

● Note event

○ Note off

Status	Second	Third
8nH	kkH	vvH

n = MIDI channel number	0H - FH (1 - 16)
kk = Note number	18H - 60H (24 - 96)
vv = Velocity	01H - 7FH (1 - 127)

○ Note on

Status	Second	Third
9nH	kkH	vvH

n = MIDI channel number	0H - FH (1 - 16)
kk = Note number	18H - 60H (24 - 96)
vv = Velocity	01H - 7FH (1 - 127)

*Note number's range can be changed with key transpose. The degrees of transposition is as below.

key transpose	note number's range
OFF	36 - 96
B (-1)	35 - 95
A = (-2)	34 - 94
A (-3)	33 - 93
G = (-4)	32 - 92
G (-5)	31 - 91
F = (-6)	30 - 90
F (-7)	29 - 89
E (-8)	28 - 88
D = (-9)	27 - 87
D (-10)	26 - 86
C = (-11)	25 - 85
C (-12)	24 - 84

● Control change

○ Modulation depth

This message is transmitted by the operation of the modulation lever. The effect of the message is determined by the receiving device.

Status	Second	Third
BnH	01H	vvH

n = MIDI channel number	0H - FH (1 - 16)
vv = Modulation depth	00H - 7FH (0 - 127)

○ Hold1

This message is transmitted by depressing (on/off) the hold pedal.

Status	Second	Third
BnH	40H	vvH

n = MIDI channel number	0H - FH (1 - 16)
vv = Hold1 on/off	00H (0) : Off
	7FH (127) : On

● Program change

This message is transmitted for tone selection by pressing 'PRESET A', 'PRESET B' or tone button.

Status	Second
CnH	ppH

n = MIDI channel number	0H - FH (1 - 16)
pp = Program number	00H - 7FH (0 - 127)

Tone		Program number
Main tone	PRESET A 1 - 32	0 - 31
	PRESET B 1 - 32	32 - 63
	MEMORY 1 - 32	64 - 95
Sub tone in dual mode	1 - 32	96 - 127

● Pitch bend change

Status	Second	Third
EnH	llH	mmH

n = MIDI channel number	0H - FH (1 - 16)
ll = LSB of pitch bend change	00H - 7FH (0 - 127)
mm = MSB of pitch bend change	00H - 7FH (0 - 127)

mmH	llH	relative value of pitch
00H	00H	-8192
:	:	:
40H	00H	0
:	:	:
7FH	7FH	+8191

■ Channel mode message

● Reset all controllers

Whenever the MIDI channel is changed, this message is transmitted through the new MIDI channel.

Status	Second	Third
BnH	79H	00H

■ System realtime message

● Active sensing

This message is transmitted at intervals of 250 msec for checking the MIDI path from the JX-1 MIDI out connector.

Status
FEH

■ System exclusive message

Data for each parameter setting is transmitted in system exclusive messages.
Refer to p.12 'Using MIDI 2'
p.14 'Roland Exclusive Messages'
p.18 '3.Exclusive Communications.'

Status	Data	EOX
F0H	ddH	F7H

F0H	System exclusive
ddH	data 00H - 7FH (0 - 127)
F7H	EOX (End of Exclusive)

2. RECOGNIZED RECEIVE DATA

The following messages are recognized through the MIDI channel set on JX-1.

■ Channel voice message

● Note event

○ Note off

Status	Second	Third
8nH	kkH	vvH
9nH	kkH	00H

n	MIDI channel number 0H - FH (1 - 16)
kk	Note number 00H - 7FH (0 - 127)
vv	Velocity ignored

○ **Note on**

Status	Second	Third
9nH	kkH	vvH

n = MIDI channel number	0H - FH (1 - 16)
kk = Note number	00H - 7FH (0 - 127)
vv = Velocity	01H - 7FH (1 - 127)

● Control change

○ **Modulation depth**

Status	Second	Third
BnH	01H	vvH

n = MIDI channel number	0H - FH (1 - 16)
vv = Modulation depth	00H - 7FH (0 - 127)

○ **Volume**

Status	Second	Third
BnH	07H	vvH

n = MIDI channel number	0H - FH (1 - 16)
vv = Volume	00H - 7FH (0 - 127)

○ **Hold1**

Status	Second	Third
BnH	40H	vvH

n = MIDI channel number	0H - FH (1 - 16)
vv = Hold1 on/off	00H - 3FH (0 - 63) : off
	40H - 7FH (64 - 127) : on

● Program change

If the recognized program number is 0 - 95, the corresponding tone is selected. If 96 - 127 is recognized, JX - 1 selects the dual mode and the corresponding number of the tone in same group with the current tone is selected as the sub tone.

Status	Second
CnH	ppH

n = MIDI channel number	0H - FH (1 - 16)
pp = Program number	00H - 7FH (0 - 127)

Program numbers correspond to the tone numbers as follows.

Program #	Tone #
0 - 31	Select tone from PRESET A (1 - 32)
32 - 63	Select tone from PRESET B (1 - 32)
64 - 95	Select tone from MEMORY (1 - 32)
96 - 127	Select tone as the sub tone (1 - 32)

● Pitch bend change

Status	Second	Third
EnH	llH	mmH

n = MIDI channel number	0H - FH (1 - 16)
ll = LSB of pitch bend change	00H - 7FH (0 - 127)
mm = MSB of pitch bend change	00H - 7FH (0 - 127)

mmH	llH	relative value of pitch
00H	00H	-8192
:	:	:
40H	00H	0
:	:	:
7FH	7FH	+8191

■ Channel mode message

● Reset all controllers

Status	Second	Third
BnH	79H	00H

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

When reset all controllers is recognized, each of the controllers is set as follows.

Controller	Setting
Modulation	0 (minimum value)
Hold1	off
Pitch bender	: 0

● Local control

Status	Second	Third
BnH	7AH	vvH

n = MIDI channel number
vv = 00H : Off
vv = 7FH : On

● All notes off

Status	Second	Third
BnH	7BH	00H

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

When all notes off is recognized, all the notes which had been turned on by MIDI note on messages are turned off. However, if the omni setting is on, "all note off" is ignored.

● Omni off

Status	Second	Third
BnH	7CH	00H

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

Recognized as all notes off and omni off.

● Omni on

Status	Second	Third
BnH	7DH	00H

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

Recognized as all notes off and omni on.

● Mono

Status	Second	Third
BnH	7EH	mmH

n = MIDI channel number	0H - FH (1 - 16)
mm = Mono channel range	ignored

Recognized as all notes off only.

● Poly

Status	Second	Third
BnH	7FH	00

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

Recognized as all notes off only.

■ System realtime message

● Active sensing

Status
FEH

After receiving this message, the JX - 1 expects to accept status or data in sequence within 400 msec intervals. If it fails to receive a message within this interval, it will mute the sound turned on by MIDI messages and monitoring of incoming signals will cease.

■ System exclusive messages

Status	data	EOX
F0H	ddH	F7H

F0H = system exclusive
ddH = data 00H - 7FH (0 - 127)
F7H = EOX (End of Exclusive)

Data for each parameter setting is recognized in system exclusive messages.
Refer to p.12 'Using MIDI 2'
p.14 'Roland Exclusive Messages'
p.18 '3.Exclusive Communications'

3. EXCLUSIVE COMMUNICATIONS

■ Device ID

Device ID is set the same number of the MIDI channel (00H - 0FH).

■ Model ID

Model ID # in the exclusive message : 3EH

■ Transmitted

AR - 10B transmits system exclusive data in the following ways.

1.Temporary tone dump
While holding 'MIDI' button, press 'WRITE' button.

2.Bulk dump
While holding 'MIDI' button, press 'PRESET B' button.

3.Parameter dump
When some of the tone parameters are modified by edit slider or panel button in setting 'SYSEX' switch on.

■ Recognized

Set 'SYSEX' switch on to recognize system exclusive messages (to recognize some system exclusive messages). When any messages for parameter dump arerecognized, JX - 1 behaves as the corresponding parameters of the current tone are modified. If it fails to recognize correct messages, one of the indicator of the edit parameter buttons will flash.

■ Data set Dt1 (12H)

Byte	Comments
F0H	Exclusive status
41H	Manufactures ID (Roland)
dev	Device ID (= MIDI channel)
3EH	Model ID (JX - 1)
12H	Command ID (DT1)
aaH	Address MSB
bbH	Address LSB
ccH	Data
:	:
ddH	Data
sum	Check sum
F7H	EOX (End Of eXclusive)

■ Parameter address map

Address are shown in 7 - bit hexadecimal.

Address	MSB	LSB
Binary	0aaa aaaa	0bbb bbbb
7-bit. Hex	AA	BB

Start address	Description
00 00H	Temporary Tone
00 0bH	Memory Tone 1
00 17H	Memory Tone 2
00 23H	Memory Tone 3
00 2fH	Memory Tone 4
00 3bH	Memory Tone 5
00 47H	Memory Tone 6
00 53H	Memory Tone 7
00 5fH	Memory Tone 8
00 6bH	Memory Tone 9
00 77H	Memory Tone 10
01 03H	Memory Tone 11
01 0fH	Memory Tone 12
01 1bH	Memory Tone 13
01 27H	Memory Tone 14
01 33H	Memory Tone 15
01 3fH	Memory Tone 16

Start address	Description
01 4bH	Memory Tone 17
01 57H	Memory Tone 18
01 63H	Memory Tone 19
01 6fH	Memory Tone 20
01 7bH	Memory Tone 21
02 07H	Memory Tone 22
02 13H	Memory Tone 23
02 1fH	Memory Tone 24
02 2bH	Memory Tone 25
02 37H	Memory Tone 26
02 43H	Memory Tone 27
02 4fH	Memory Tone 28
02 5bH	Memory Tone 29
02 67H	Memory Tone 30
02 73H	Memory Tone 31
02 7fH	Memory Tone 32

* Temporary tone parameter area

Offset address	Description			
00 00H	0000 000a	Reverb switch	0 , 1	(OFF, ON)
00 01H	0000 000a	Chorus switch	0 , 1	(OFF, ON)
00 02H	0000 000a	Oct.Down switch	0 , 1	(OFF, ON)
00 03H	0aaa aaaa	Cutoff	0 .. 127	(-64 .. +63)
00 04H	0aaa aaaa	Resonance	0 .. 127	(-64 .. +63)
00 05H	0aaa aaaa	Attack	0 .. 127	(-64 .. +63)
00 06H	0aaa aaaa	Release	0 .. 127	(-64 .. +63)
00 07H	0aaa aaaa	Vib.Rate	0 .. 127	(-64 .. +63)
00 08H	0aaa aaaa	Vib.Depth	0 .. 127	(-64 .. +63)
00 09H	0aaa aaaa	Rev Level	0 .. 127	(-64 .. +63)
00 0AH	0aaa aaaa	Rev Time	0 .. 127	(-64 .. +63)

* Memory Tone Parameter Area (1 - 32)

Offset address	Description			
00 00H	0000 000a	Tone group	0 , 1	(Preset A, B)
00 01H	0000 000a	Reverb switch	0 , 1	(OFF, ON)
00 02H	0000 000a	Chorus switch	0 , 1	(OFF, ON)
00 03H	0000 000a	Oct.Down switch	0 , 1	(OFF, ON)
00 04H	0aaa aaaa	Cutoff	0 .. 127	(-64 .. +63)
00 05H	0aaa aaaa	Resonance	0 .. 127	(-64 .. +63)
00 06H	0aaa aaaa	Attack	0 .. 127	(-64 .. +63)
00 07H	0aaa aaaa	Release	0 .. 127	(-64 .. +63)
00 08H	0aaa aaaa	Vib.Rate	0 .. 127	(-64 .. +63)
00 09H	0aaa aaaa	Vib.Depth	0 .. 127	(-64 .. +63)
00 0AH	0aaa aaaa	Rev Level	0 .. 127	(-64 .. +63)
00 0BH	0aaa aaaa	Rev Time	0 .. 127	(-64 .. +63)

PERFORMANCE SYNTHESIZER

Model JX-1

MIDI Implementation Chart

Date : Nov. 15 1990

Version : 1.00

Function ...		Transmitted	Recognized	Remarks
Basic Channel	Default	1 – 16	1 – 16	Memorized
	Changed	1 – 16	1 – 16	
Mode	Default	Mode 3	Mode 1, Mode 3	
	Messages	×	× (Omni on/off, Poly)	
	Altered	*********		
Note Number	True Voice	24 – 96	0 – 127	
		*********	0 – 108	
Velocity	Note ON	○ v = 1 – 127	○ v = 1 – 127	
	Note OFF	○ v = 1 – 127	×	
After Touch	Key's	×	×	
	Ch's	×	×	
Pitch Bender		○	○ (1-7, 12, semitone steps)	9 bit resolution
Control Change	1	○	○	Modulation
	7	×	○	Volume
	64	○	○	Hold 1
	121	○	○	Reset All Controllers
Prog Change	True #	○ 0 – 127	○ 0 – 127	
System Exclusive		* 1	* 1	
System Common	Song Pos	×	×	
	Song Sel	×	×	
	Tune	×	×	
System Real Time	Clock	×	×	
	Commands	×	×	
Aux Messages	Local ON/OFF	×	○	
	All Notes OFF	×	○ (123 – 127)	
	Active Sense	○	○	
	Reset	×	×	
Notes		* 1 Can be set to ○ or × manually, and memorized.		

Mode 1 : OMNI ON, POLY
Mode 2 : OMNI ON, MONO
Mode 3 : OMNI OFF, POLY
Mode 4 : OMNI OFF, MONO

○ : Yes
× : No

SPECIFICATIONS

PERFORMANCE SYNTHESIZER: JX-1

- Keyboard ..... 61 Keys (Velocity sensitive)
- Maximum Polyphony ..... 24 notes or less (depending on layered Tones)
- Tones ..... Preset Tones: 64
  Memory Tones: 32
- Effects ..... Reverb/Delay, Chorus
- Performance Functions
  - Tuning ..... 438-445 Hz (1 Hz increments)
  - MIDI Channels 1-16
  - MIDI System Exclusive Switch ..... ON/OFF
  - Bend Range ..... B1-7, 12 (Semitone units)
  - Velocity Sensitivity V1-4
  - Key Transpose Switch ..... ON/OFF
  - Key Transpose Value ..... C-B (Semitone units)
- Tone Parameters
  (Set on individual Tone basis; can be stored as Memory Tone.)
  - Cutoff
  - Color
  - Attack
  - Release
  - Vibrato Rate
  - Vibrato Depth
  - Reverb Level
  - Reverb Time
  - Reverb [ON/OFF]
  - Chorus [ON/OFF]
  - Octave Down [ON/OFF].
- Connectors
  - AC Adaptor Jack
  - Output Jacks (L, R)
  - Phones Jack (Stereo)
  - Input Jacks (L, R)
  - Pedal Hold Jack
  - MIDI Connectors (IN, OUT, THRU)
- Power Supply ..... AC 12 V: AC Adaptor
- Power Consumption ..... 500 mA
- Dimensions ... 1057(W) × 293.5(D) × 64(H) mm
  41-5/8(W) × 11-9/16(D) × 2-1/2 (H) inches
- Weight ..... 5.85 kg
  12.9 lbs.
- Supplied Accessories
  - Owner's Manual
  - AC Adaptor
  - Music Stand

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

For the U.K.

IMPORTANT: THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE.

BLUE : NEUTRAL
BROWN : LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

For Nordic Countries

Apparatus containing Lithium batteries

ADVARSEL!

Lithiumbatteri. Eksplosionsfare.
Udskiftning må kun foretages af en sagkyndig, og som beskrevet i servicemanual.

VARNING!

Lithiumbatteri. Explosionsrisk.
Får endast bytas av behörig servicetekniker.
Se instruktioner i servicemanualen.

ADVARSEL!

Lithiumbatteri. Fare for eksplotion.
Må bare skiftes av kvalifisert tekniker som beskrevet i servicemanualen.

VAROITUS!

Lithiumparisto. Räjähdysvaara.
Paristo saa vaihtaa ainoastaan alan ammottimies.

For West Germany

Bescheinigung des Herstellers/Importeurs

Hiermit wird bescheinigt, daß der/die/das

Roland PERFORMANCE SYNTHESIZER JX-1

(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

RADIO AND TELEVISION INTERFERENCE

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 rasidential 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.

Roland®

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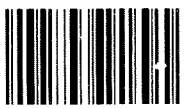
UPC 11026



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JX-1

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