Roland®

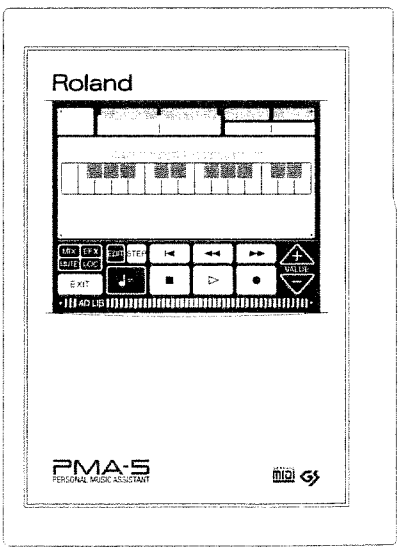
GENERAL MIDI GS

PERSONAL MUSIC ASSISTANT

PMA-5

OWNER'S MANUAL

Before using this unit, carefully read the sections entitled: "USING THE UNIT SAFELY" and "IMPORTANT NOTES" (p. 2; p. 5). These sections provide important information concerning the proper operation of the unit.
Additionally, in order to feel assured that you have gained a good grasp of every feature provided by your new unit, this manual should be read in its entirety.
The manual should be saved and kept on hand as a convenient reference.



USING THE UNIT SAFELY

INSTRUCTIONS FOR THE PREVENTION OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

About ⚠WARNING and ⚠CAUTION Notices

⚠WARNING	Used for instructions intended to alert the user to the risk of death or severe injury should the unit be used improperly.
⚠CAUTION	Used for instructions intended to alert the user to the risk of injury or material damage should the unit be used improperly. * Material damage refers to damage or other adverse effects caused with respect to the home and all its furnishings, as well to domestic animals or pets.

About the Symbols

⚠	The △ symbol alerts the user to important instructions or warnings.The specific meaning of the symbol is determined by the design contained within the triangle. In the case of the symbol at left, it is used for general cautions, warnings, or alerts to danger.
⃠	The ⃠ symbol alerts the user to items that must never be carried out (are forbidden). The specific thing that must not be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the unit must never be disassembled.
●	The ● symbol alerts the user to things that must be carried out. The specific thing that must be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the power-cord plug must be unplugged from the outlet.

ALWAYS OBSERVE THE FOLLOWING

⚠WARNING

- Before using this unit, make sure to read the instructions below, and the Owner's Manual.
- Do not open (or modify in any way) the unit or its AC adaptor.
- Do not attempt to repair the unit, or replace parts within it (except when this manual provides specific instructions directing you to do so). Refer all servicing to your dealer, or qualified Roland service personnel.
- Never use or store the unit in places that are:
  - Subject to temperature extremes (e.g., direct sunlight in an enclosed vehicle, near a heating duct, on top of heat-generating equipment); or are
  - Damp (e.g., baths, washrooms, on wet floors); or are
  - Humid; or are
  - Dusty; or are
  - Subject to high levels of vibration.
- Use only the specified AC adaptor (PSA Series), and make sure the line voltage at the installation matches the input voltage specified on the AC adaptor's body. Other AC adaptors may use a different polarity, or be designed for a different voltage, so their use could result in damage, malfunction, or electric shock.

⚠WARNING

- Avoid damaging the power cord. Do not bend it excessively, step on it, place heavy objects on it, etc. A damaged cord can easily become a shock or fire hazard. Never use a power cord after it has been damaged.
- Do not allow any objects (e.g., flammable material, coins, pins); or liquids of any kind (water, soft drinks, etc.) to penetrate the unit.
- Immediately turn the power off, remove the AC adaptor from the outlet, and request servicing by your dealer or qualified Roland service personnel when:
  - The AC adaptor or the power-supply cord has been damaged; or
  - Objects have fallen into, or liquid has been spilled onto the unit; or
  - The unit has been exposed to rain (or otherwise has become wet); or
  - The unit does not appear to operate normally or exhibits a marked change in performance.
- In households with small children, an adult should provide supervision until the child is capable of following all the rules essential for the safe operation of the unit.
- Protect the unit from strong impact. (Do not drop it!)

⚠WARNING

- Do not force the unit's power-supply cord to share an outlet with an unreasonable number of other devices. Be especially careful when using extension cords—the total power used by all devices you have connected to the extension cord's outlet must never exceed the power rating (watts/amperes) for the extension cord. Excessive loads can cause the insulation on the cord to heat up and eventually melt through.

- Before using the unit in a foreign country, consult with your dealer, or qualified Roland service personnel.

- Batteries must never be recharged, heated, taken apart, or thrown into fire or water.

⚠CAUTION

- The unit and the AC adaptor should be located so their location or position does not interfere with their proper ventilation.

- Always grasp only the plug or the body of the AC adaptor when plugging into, or unplugging from, an outlet or this unit.

- Whenever the unit is to remain unused for an extended period of time, disconnect the AC adaptor.

- Try to prevent cords and cables from becoming entangled. Also, all cords and cables should be placed so they are out of the reach of children.

- Never climb on top of, nor place heavy objects on the unit.

- Never handle the AC adaptor body, or its plugs, with wet hands when plugging into, or unplugging from, an outlet or this unit.

- Before moving the unit, disconnect the AC adaptor and all cords coming from external devices.

- Before cleaning the unit, turn off the power and unplug the AC adaptor from the outlet.

⚠CAUTION

- Whenever you suspect the possibility of lightning in your area, disconnect the AC adaptor from the outlet.

- If used improperly, batteries may explode or leak and cause damage or injury. In the interest of safety, please read and observe the following precautions.
  - Carefully follow the installation instructions for batteries, and make sure you observe the correct polarity.
  - Avoid using new batteries together with used ones. In addition, avoid mixing different types of batteries.
  - Remove the batteries whenever the unit is to remain unused for an extended period of time.
  - Whenever the unit is to remain unused for an extended period of time, save any important data in another MIDI device (e.g., a sequencer), and then remove the batteries.
  - If a battery has leaked, use a soft piece of cloth or paper towel to wipe all remnants of the discharge from the battery compartment. Then install new batteries. If any of the discharge from the battery has gotten onto your hands or skin, make sure to wash the area thoroughly with water.
  - Never keep batteries together with metallic objects such as ballpoint pens, necklaces, hairpins, etc.

- Used batteries must be disposed of in compliance with whatever regulations for their safe disposal that may be observed in the region in which you live.

Starting Out

We'd like to take a moment to thank you for purchasing the PMA-5 Personal Music Assistant. The PMA-5 is an easy-to-carry tool you can use to create music anywhere, anytime. When you are on the move, and you want to hear the sound of a musical phrase that has just popped into your head...when you want to easily get across to other members of the band the idea of song you have written...when you want accompaniment to practice your guitar solo by...when you want to carry a sound source you can use with a notebook personal computer...in these situations and others like them, you will always be able to count on the PMA-5 to be your partner for a life of making good music.

If you are just starting out on the PMA-5, please read this after first reading the separate volume "Quick Start" guide. In the Quick Start guide, you will be given a step-by-step introduction to the PMA-5's main functions.

Main Features of the PMA-5

● Intuitive Operation with the Touch Panel

Simply by touching directly on the touch panel (display screen) with the pen included with the PMA-5, you can select functions and change parameters, for a more intuitive process of composing songs.

For basic operations such as performing songs, you can even operate the PMA-5 without the pen, and just your finger.

● Battery Operation

The PMA-5 uses six size AA batteries, making it easy to carry and use anywhere you go. With alkaline batteries, you can get five hours of continuous use.

● Arranger Function

The PMA-5 comes loaded with 100 preset musical Styles of various genres. Each Style has six divisions, making a total of 600 presets. Just by playing the chord progression for the songs in each preset Style, you also get four tracks of backing music data, with two-part accompaniment, bass, and drums.

● Four-Track Linear Sequencer

Besides the Arranger's four performance tracks, this instrument is also equipped with a true four-track sequencer.

● Ad-Lib Bar

Easy ad-lib fill-ins matching the chord progression are possible during performances just by touching the Ad-lib Bar.

● Computer Interface

You can connect the PMA-5 directly to your personal computer, rendering the use of MIDI interface unnecessary.

● Corresponds to GM System/GS Format

Using an external sequencer you can perform with song data with the either the GM mark (GM scores) or the GS mark (p. 76).

● High-Quality Instrument Sounds and Effects

There are 306 regular internal instrument sounds, and sixteen drum sounds in the internal drum set. And what's more, you get effects (eight types of reverb and eight types of chorus).

● Easy Step Input

Using the Touch Keyboard, you can quickly and easily input data. With the grid display, it's easy to understand the (expression) timing of performance data at a glance. Additionally, you can also easily edit sounds once you have input them. And of course you can con duct real-time recordings using the PMA-5's keyboard.

General MIDI system
The General MIDI system is a set of recommendations which seeks to provide a way to go beyond the limitations of proprietary designs, and standardize the MIDI capabilities of sound generating devices. Sound generating devices and music data that meets the General MIDI standard bears the General MIDI logo ( ). Music data bearing the General MIDI logo can be played back using any General MIDI sound generating unit to produce essentially the same musical performance.

GS format
The GS format is Roland's unified set of specifications to standardize the MIDI capabilities of sound generating devices. Music data bearing the GS logo ( ) can be played back using any GS sound generating unit.

* Apple is a registered trademark of Apple Computer, Inc., U.S.A.
* Macintosh is a trademark of Apple Computer, Inc., U.S.A.
* IBM PC/AT is a registered trademark of International Business Machines Corporation, U.S.A.
* GS( ) is a registered trademark of Roland Corporation.

Important Notes

In addition to the items listed under "USING THE UNIT SAFELY" on pages 2 and 3, please read and observe the following:

Power Supply: Use of Batteries

- Do not use this unit on the same power circuit with any device that will generate line noise (such as an electric motor or variable lighting system).
- The AC adaptor will begin to generate heat after long hours of consecutive use. This is normal, and is not a cause for concern.
- The use of an AC adaptor is recommended as the unit's power consumption is relatively high. Should you prefer to use batteries, please use the alkaline type.
- When installing or replacing batteries, always turn off the power on this unit and disconnect any other devices you may have connected. This way, you can prevent malfunction and/or damage to speakers or other devices.
- To preserve data in memory, connect the AC adaptor to supply power to the unit while replacing its batteries.
- Before connecting this unit to other devices, turn off the power to all units. This will help prevent malfunctions and/or damage to speakers or other devices.

Placement

- Using the unit near power amplifiers (or other equipment containing large power transformers) may induce hum. To alleviate the problem, change the orientation of this unit; or move it farther away from the source of interference.
- This device may interfere with radio and television reception. Do not use this device in the vicinity of such receivers.
- Do not expose the unit to direct sunlight, place it near devices that radiate heat, leave it inside an enclosed vehicle, or otherwise subject it to temperature extremes. Excessive heat can deform or discolor the unit.

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, non-abrasive 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 possibility of discoloration and/or deformation.

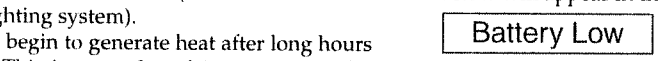
Repairs and Data

- Please be aware that all data contained in the unit's memory may be lost when the unit is sent for repairs. Important data should always be backed up in another MIDI device (e.g., a sequencer), or written down on paper (when possible). 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 not be possible to restore the data, and Roland assumes no liability concerning such loss of data.

Memory Backup

- This unit contains a battery which powers the unit's memory circuits while the main power is off.

When this battery becomes weak, the message shown below will appear in the display.



Once you see this message, have the battery replaced with a fresh one as soon as possible to avoid the loss of all data in memory. To have the battery replaced, consult with your dealer, or qualified Roland service personnel.

Using the Touch Panel Correctly

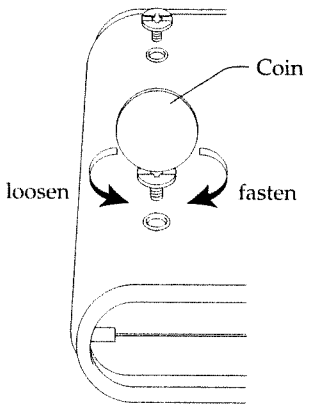
- Use the included touch pen to carry out operations on the touch panel. Using instruments with sharp tips, such as ordinary pencils, mechanical pencils, or pens may result in malfunction due to scratches to the touch panel.
- Never strike or apply strong pressure to the touch panel to avoid malfunctions and/or damage to it.
- When carrying the unit, please close the cover and secure it with the snap tab. This will protect the touch panel from being scratched or getting dirty.
- Do not get any hard object wedged between the PMA-5 and its cover. Doing so will scratch the touch panel.
- From time to time wipe the touch panel with a soft, dry cloth. If you continue to use the unit while the touch panel is dirty, it may cause scratches or deterioration of the pen's sliding action.

Additional Precautions

- Please be aware that the contents of memory can be irretrievably lost as a result of a malfunction, or the improper operation of the unit. To protect yourself against the risk of loosing important data, we recommend that you periodically save a backup copy of important data you have stored in the unit's memory in another MIDI device (e.g., a sequencer).
- Unfortunately, it may be impossible to restore the contents of data that was stored in the unit's memory and/or in another MIDI device (e.g., a sequencer) once it has been lost. Roland Corporation assumes no liability concerning such loss of data.
- Use a reasonable amount of care when using the unit's buttons, sliders, or other controls; and when using its jacks and connectors. Rough handling can lead to malfunctions.
- Never strike or apply strong pressure to the display.
- This unit is equipped with a protection circuit. A brief interval (a few seconds) after power up is required before the unit will operate normally.
- A small amount of noise may be heard from the display during normal operation.
- When connecting / disconnecting all cables, grasp the connector itself—never pull on the cable. This way you will avoid causing shorts, or damage to the cable's internal elements.
- To avoid disturbing your neighbors, try to keep the unit's volume at reasonable levels. You may prefer to use headphones, so you do not need to be concerned about those around you (especially when it is late at night).
- When you need to transport the unit, package it in the box (including padding) that it came in, if possible. Otherwise, you will need to use equivalent packaging materials.

Removing the cover

- When removing or attaching the cover, turn the unit off.
- Remove the screws using a coin or a screwdriver. Be careful not to lose the screws you remove. When carrying the PMA-5 around, make sure the cover is attached.



Regarding the demo song:

All rights reserved. Unauthorized use of this material(S21) is a violation of applicable laws.

Song title : Finale DEMO
© 1996 Roland Corporation

Regarding the included Preset Styles:

Roland Corporation holds the copyrights to all the Preset Styles included with this product. You may use these Styles when creating new works of your own without requesting permission from Roland. Roland Corporation, however, assumes no responsibility or liability whatsoever with regard to any infringements upon the copyrights of any third parties that may result through your use of these materials.

How to Read This Manual

Instructions on how to operate the PMA-5 is composed of two separate volumes, the Quick Start guide and this Owner's Manual.

● The Quick Start Guide (Supplementary Volume)
For those who are using an electronic musical instrument for the first time, this is the guide to start with. An introduction to the PMA-5's main functions, and examples of how to operate the unit will be found here. The PMA-5 is loaded with functions, so when you find that you require a more detailed explanation, please also read the companion Owner's Manual.

● The Owner's Manual
In Chapters 1-3, you will find information on steps you should take before using the PMA-5, as well as explanations of basic methods of operation, so be sure to read these sections. Chapter 4 contains the "Guide to Each Operation", so read the sections you need according to the process you are working on. Chapter 5 has the section "Screen Functions".

Read this when you want to learn about the buttons' operations, know what functions are accessible from each screen, etc. Chapter 6 is where you will find various information including the list of instruments, material on such matters as MIDI implementation, and other supplementary facts.

* A Pocket Guide containing a Preset Style List and Instrument Lists is included with your PMA-5. Please keep it handy for use by sliding it into the pocket on the cover.

About Markings in the Text

● Letters enclosed in square brackets ([ ]) indicate buttons or switches on the touch panel.
For example, [EXIT] indicates EXIT , and [CHORD Tr] indicates CHORD Tr .

● Instructions such as "touch [MIX]..." indicate to touch [MIX] button lightly on the touch panel using included touch pen.

● About Screens
Please note that the contents of, or symbols shown on screen diagrams in the Owner's Manual may differ from the settings on the PMA-5 you have purchased.

Contents

Chapter 5: Screen Function List

Chapter 6: Supplementary Information

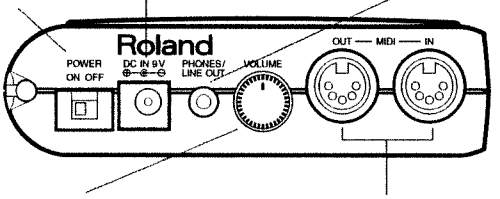
Panel Descriptions

Power Switch
Turns power on and off.

* This unit is equipped with a protection circuit. A brief interval (a few seconds) after power up is required before the unit will operate normally.

AC Adaptor Jack
The AC adaptor (PSA-series: available separately) connects here.

Headphone/Line out Jack
This is a combined headphone/ audio output jack. You can connect headphones, or by using connector cables, hook the PMA-5 up to a keyboard or audio amplifier.



A Reminder About Volume and Etiquette
When you use headphones, the sound can leak out and disturb others around you, without your being aware of it. Please listen at appropriate sound levels.

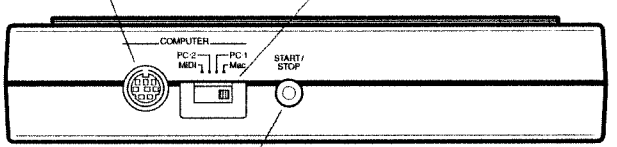
Volume control
This knob controls the volume of the output level.

* Excessively loud volume may cause ear injury.

MIDI Connectors
These connectors are for exchanging MIDI messages with other MIDI devices. When you wish to use MIDI Connectors, set Computer Switch to "MIDI."

Computer Connector
You can connect a personal computer with a computer cable (available separately) plugged in here.

Computer Switch
Set this switch according to the type of computer you have connected to the PMA-5 (P.16). When you are using a MIDI device, set the switch to "MIDI."
Turn the power off before changing the position of the Computer Switch.

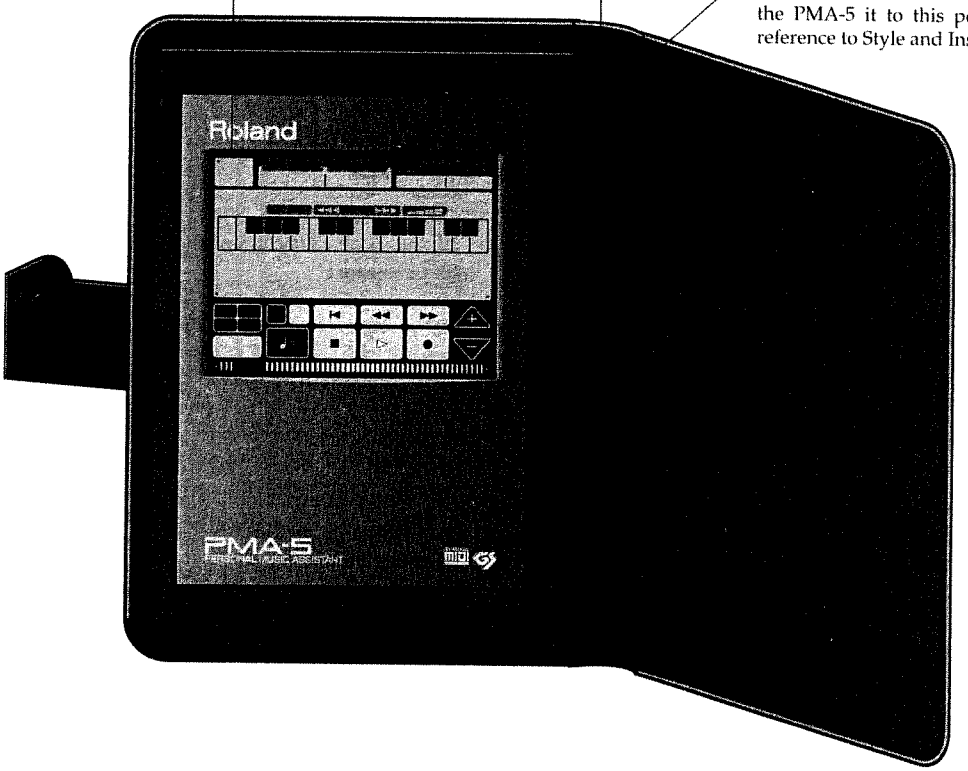


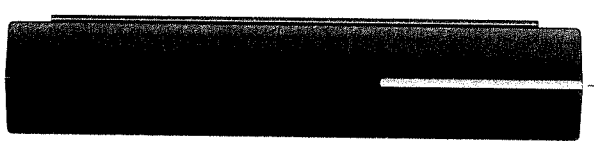
Start/Stop Jack
You can use a footswitch (such as the BOSS FS-5U: available separately) connected here to start and stop performances. An adapter plug (Standard to Mini) is required.

Touch Panel (Display Section)
The touch panel features an LCD display. You can carry out operations by lightly touching the display area with the touch pen (for more on how to use the touch panel, please see P. 17).

Cover
When carrying the PMA-5 along with you, please snap the cover shut to protect the touch panel. The cover is removable (P. 6).

Pocket
Insert the Pocket Guide included with the PMA-5 it to this pocket for quick reference to Style and Instrument lists.



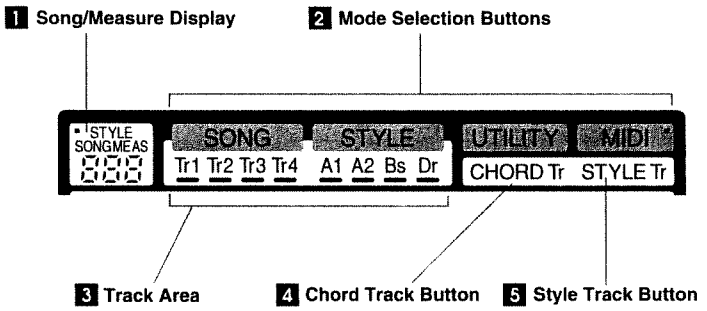


Pen Holder

Touch Pen
Use this pen to work on the touch panel. Store the touch pen in the pen holder when the pen is not in use.

The Touch Panel

Display Area — Upper Section



(Note: To better explain this diagram, the liquid crystal display is shown as being entirely illuminated.)

1 Song/Measure Display

This area shows the song number or measure (p. 20). Touch this area to switch between song number and measure displays. When in Style mode, you will switch between Style number and measure displays.

2 Mode Selection Buttons

Switch modes by touching each mode button (p. 18).

Song Mode Button [SONG]

Style Mode Button [STYLE]

Utility Mode Button [UTILITY]

MIDI Mode Button [MIDI]

When in Song mode, if you touch [UTILITY] (or [MIDI]), then [UTILITY] (or [MIDI]) flash while [SONG] remains illuminated. If at this point you touch [EXIT], you will exit the current mode and be shown being returned to Song mode.

When in Style mode, if you touch [UTILITY] (or [MIDI]), then [UTILITY] (or [MIDI]) flash while [STYLE] remains illuminated.

3 Track Area

By touching from among the eight performance tracks in this area, you can switch the tracks on which you want to perform using the keyboard. During a performance, the line under the track area of the track being sounded is illuminated.

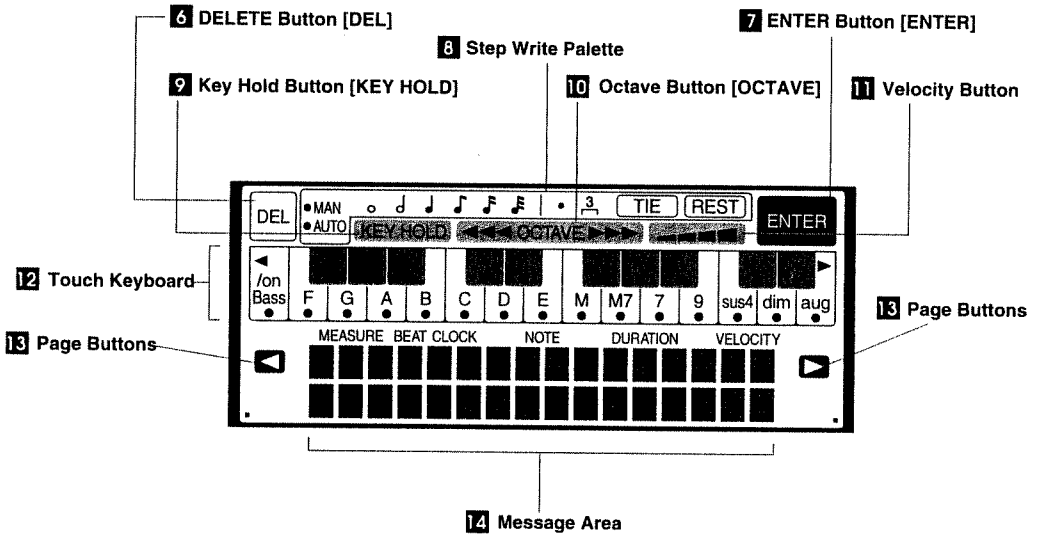
4 Style Track Button [STYLE Tr]

This is used to input a Style number into a Style track. It is also used to display the Style currently being performed (p. 20).

5 Chord Track Button [CHORD Tr]

This is used to input a Chord into a Chord track. It is also used to display the Chord currently being performed (p. 20).

Display Area — Center Section



6 DELETE Button [DEL]

This button is used when you want to delete data. This button is illuminated only when at a stage where you can delete. This button is ordinarily not illuminated.

7 ENTER Button [ENTER]

This button is used when you want to input data or proceed with other operations. This button lights up whenever the need to touch [ENTER] arises. This button is ordinarily not illuminated.

8 Step Write Palette

When you use Step Write, this button is illuminated, and you can use this function even when parameters such as tone length and ties are designated. Whenever not in Step Write, this palette is not illuminated.

9 Key Hold Button [KEY HOLD]

Use this button when you want multiple notes to sound at the same time (p. 27).

10 Octave Button [OCTAVE]

Use this button when you want to change the octave on the touch keyboard (p. 27).
Also, when inputting data in Chord Track mode, you can use this button to change chord inversions (p. 37).

11 Velocity Button

This button is for setting the keyboard's velocity volume (p. 27).

12 Touch Keyboard

This section is where notes from specified tracks in the track area are sounded. By dragging up or down, you can add modulation and pitch bend (p. 27). You can use this area to enter notes while in Step Write mode, and then with the dot display (Note Map) shown on the keyboard, confirm the input notes. When in Chord Input mode, chord roots and chord types are displayed on the keyboard, and you are able to input chords here (p. 35).

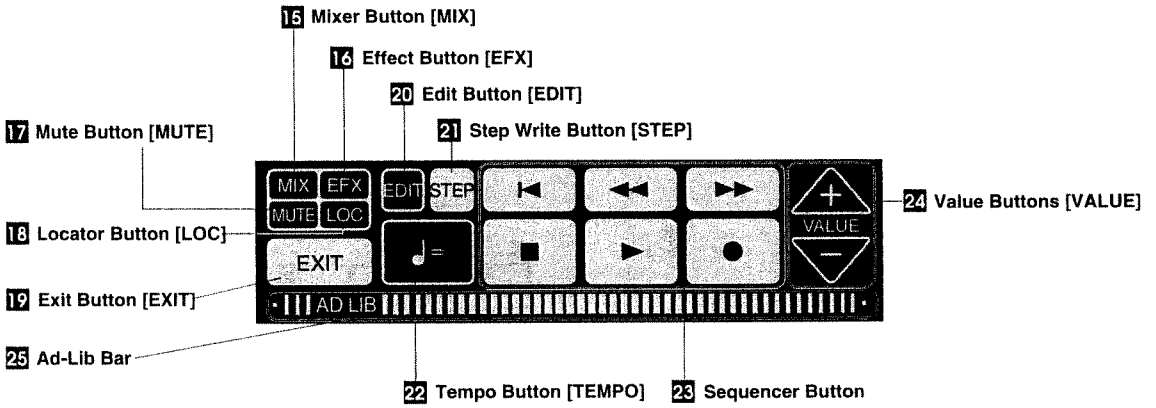
13 Page Buttons

When there are additional pages either to the right or the left of the current screen, one or both of these buttons are illuminated, and by touching them you can proceed to other such pages (p. 18). They can also be used to search for events (performance information) while the Step Write screen is shown in the display.

14 Message Area

Various information pertaining to conditions in each mode is displayed here. You can change values by directly touching the message area display, as well as using the dragging process.

Display Area — Lower Section



15 Mixer Button [MIX]

This is used to make settings such as volume and pan to the performance tracks (Tr1, Tr2, Tr3, Tr4, A1, A2, Bs, Dr) (p. 31 53).

16 Effect Button [EFX]

Set reverb and chorus with this.

17 Mute Button [MUTE]

This is used for muting each track, as well as for having just a single track be played (p. 31). Additionally, use this to confirm the sounding status of each track during a performance.

18 Locator Button [LOC]

You can instantly jump to the first measure of a recording, or to another predetermined measure, with just one touch (p. 41). You can also use the Locator button for repeating the same section of a song (Repeat function).

19 Exit Button [EXIT]

Use the Exit button to return to the current mode's Basic screen, or to cancel a procedure already underway.

20 Edit Button [EDIT]

This button is used when performing editing (such as copying) or modifying (for example using the quantize function) on songs or individual measures (p. 62). When you touch [EDIT], the Edit screen corresponding to the current mode is called up.

Status before pressing [EDIT] :	Edit screen to be called
Song Mode :	For editing Song or Sequence track performance data (p. 62).
Style Mode :	For editing Style or Style performance track (A1, A2, Bs, Dr) performance data (p. 67).
Step Write Screen :	For movement of events, copying grid units, deleting, and inserting non-musical MIDI events (p. 72).

21 Step Write Button [STEP]

Touch this once to call up the sequence track Step Standby screen, and once more to call up the Step Write screen (p. 56). When Chord tracks or Style tracks are being selected, touching [STEP] calls up the Chord Track or Style Track Step Write screen. To return to the beginning screen, touch [EXIT]. There is no Step Standby screen for Chord Track or Style Track.

22 Tempo Button [TEMPO]

This button sets the tempo and click (p. 30). To return to the beginning screen, touch [EXIT].

23 Sequencer Button

Use this when performing or recording with the sequencer, or when moving measures (p. 28).

24 Value Buttons [VALUE]

Use one of these buttons to change the value indicated by the cursor on the message area (p. 28).

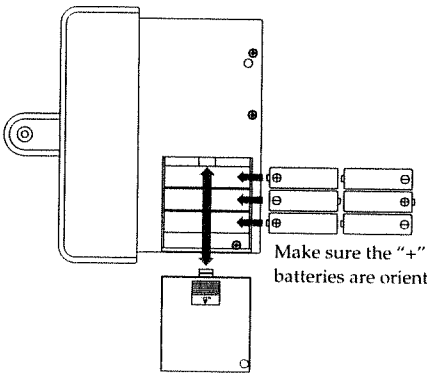
25 Ad-Lib Bar

You can play ad-lib fill-ins by following the Ad-lib bar during a performance(p. 75).

Preparing the Power Supply (Battery/AC Adaptor)

Loading the Batteries

Confirm that power to the unit is turned off, and make sure the "+" and "-" ends of the included batteries are oriented correctly.



Make sure the "+" and "-" ends of the batteries are oriented correctly.

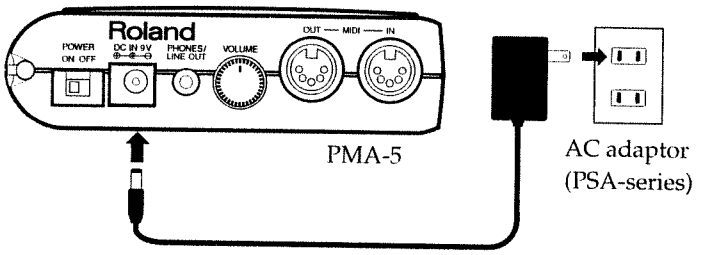
When changing the batteries, replace only with six size AA alkaline batteries. Do not mix new batteries with old ones. The continuous-usage time is approximately five hours when loaded with alkaline batteries.

* You can check remaining battery power with the Battery screen in Utility mode (p. 87).
* When using batteries, if you do not perform any operation on the touch screen for approximately fifteen minutes, then to prevent the batteries from draining, the unit automatically shuts off the battery power (Auto Power Off function). However, if a song or Style is playing, or when the unit is set to GM/GS Sound Module mode, the Auto Power Off function will not be activated.

  If the Auto Power Off function has been utilized, turn the power switch to "Off", and then turn it to "On" once more.
  When the AC adaptor is in use, the Auto Power Off function will not be activated.

Connecting the AC Adaptor

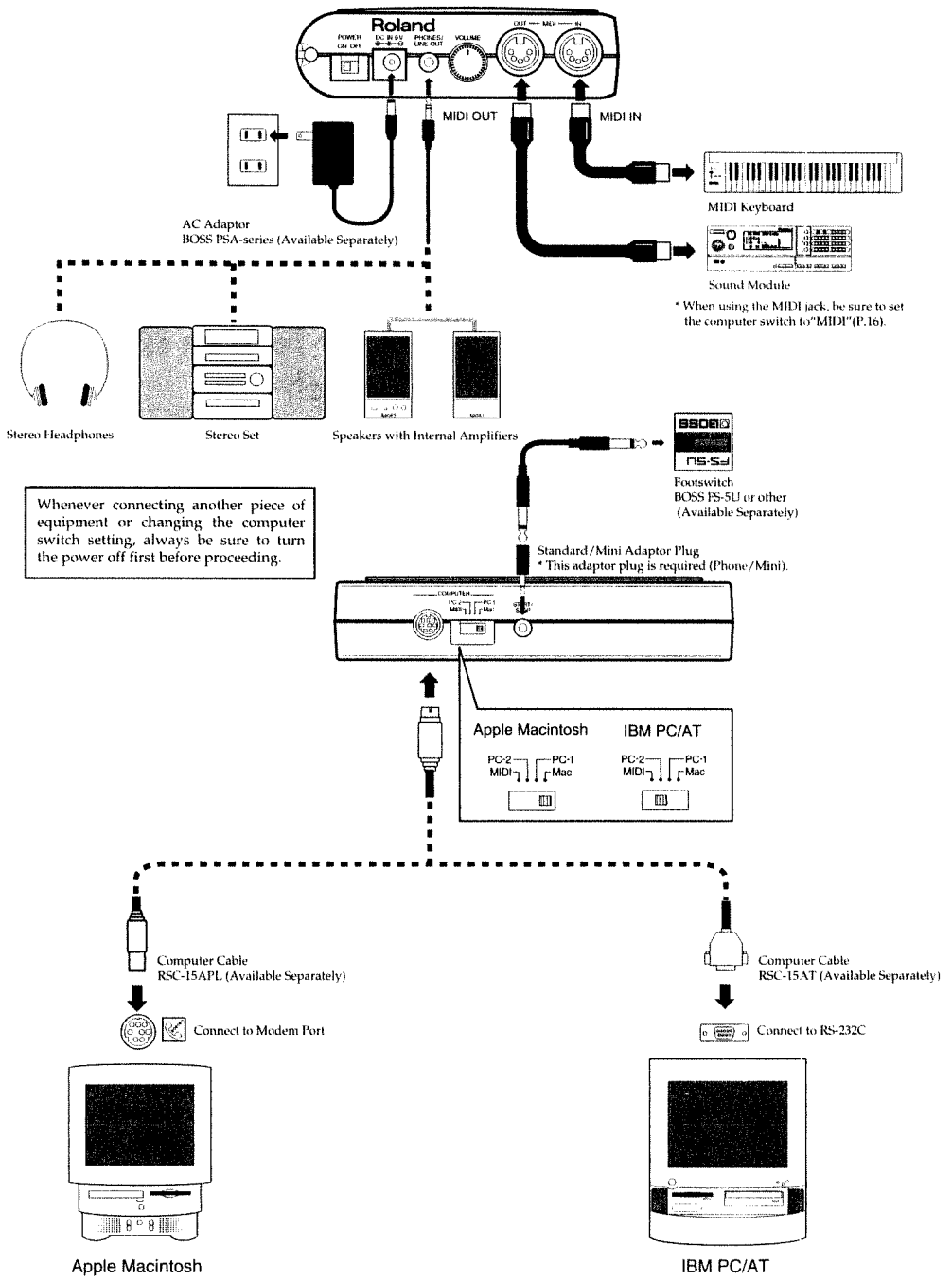
The BOSS PSA-series AC adaptor (available separately) can be used to run the PMA-5 from a household electrical outlet.



* Use only the AC adaptor designed for use with the PMA-5. Other adaptors may cause faulty operation or damage to the PMA-5 and must never be used.
* If the unit is not going to be used for an extended period, be sure to unplug the adaptor from the outlet.

Making Connections

Before making any connections, turn off the PMA-5 and any equipment you will be connecting to it. If you connect with the power on, problems including damage — blown speakers, for example — may result.



* Please use the BOSS PSA-series AC adaptor.
* For any other audio equipment you may be connecting, use whatever alternate cables necessary to match the jacks on the equipment you are using.

Connecting to a Computer

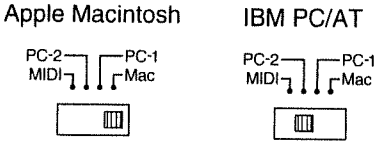
The PMA-5 features a special computer connection jack and a switch (computer switch) to determine how the jack functions. With the computer jack you can manage all information sent to and from a connected MIDI device. While you can make a direct connection with a computer with a special connector cable, the cable must be compatible with the computer's serial port (the computer's communications terminal).

[1] With the PMA-5 turned off, set the computer switch found on the side panel.

* Be sure to turn the PMA-5 off before setting the computer switch position. The setting will go into effect when the power is turned back on.

The PC-1 position sets a baud rate of 31.25K(bit/sec), and the PC-2 position sets a baud rate of 38.4K(bit/sec). Set the computer switch to correspond to the baud rate of the MIDI application (software) you are using.

Concerning these switch settings, please read carefully the owner's manual that came with your software. General settings are shown in the diagram below.



[2] Connect the computer cable to the either the RS-232C terminal on the computer's rear panel, or to the computer's modem port.

* Be sure to use the computer cable described below.

Macintosh Series	RSC-15APL
IBM PC/AT Series	RSC-15AT (This is a 9-pin connector cable. If it is necessary to use a 25-pin-type cable, please refer to the Computer Cable Wiring Diagram (P. 109), and substitute an appropriate cable.)

[3] Plug the other end of the computer cable into the PMA-5's computer connector (labelled COMPUTER).

[4] Turn on the PMA-5's power switch.

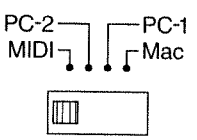
* Be sure to turn the MIDI THRU setting always "on" for the connected computer or MIDI applications in use. If the MIDI THRU setting is set to "on," received MIDI messages from the PMA-5 will be looped.

<Some Notes on Using IBM PC/AT Series Computers>

While the PMA-5 can be connected to each of the computers mentioned above, if the software (MIDI application) is not compatible, the system will not operate correctly. Be sure that to use software that corresponds to your personal computer's serial port.
Additionally, as each computer may have certain other required settings, please carefully read the owner's manual included with your software and make the appropriate settings before use.

How to Use the Computer Switch

When using the PMA-5's computer connector, you will need to set the computer switch to correspond to the computer you are using. When using the MIDI connectors, set the computer switch to MIDI.



* Be sure to turn the PMA-5 off before setting the computer switch position. The setting will go into effect when the power is turned back on.

Mac : Use this setting when connecting the computer connector to an Apple Macintosh computer.

PC-2 : Use this setting when connecting the computer connector to an IBM PC/AT computer.

MIDI : Use this setting when using the MIDI connectors. Also, when not using the computer connector to connect to any computer, set the computer switch to MIDI.

* **When the computer switch is set to Mac, PC-1, or PC-2, then you will be unable to use the MIDI connectors (MIDI IN / MIDI OUT).** Only when in the GM/GS mode (p. 76), however, certain MIDI messages received from the MIDI IN (Note On, Note Off, Control Change, and Pitch Bend Change) are output without change from the THRU to the computer connector.

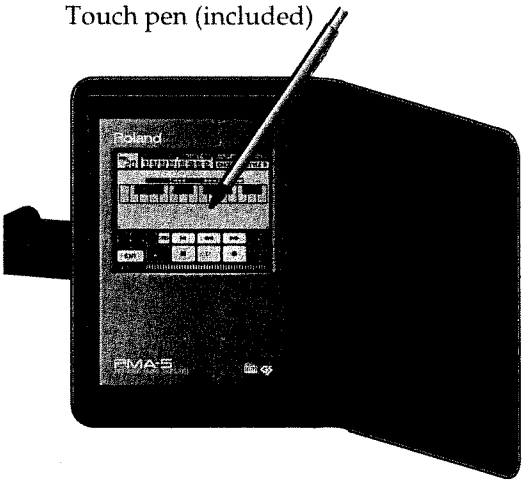
Using the Touch Panel Correctly

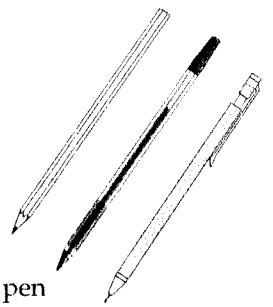
Some Notes on Using the Touch Panel

- Use the included touch pen to carry out operations on the touch panel.
- Never use an ordinary pen, pencil, or other pointed object with the touch panel, or the panel may be damaged. Also, do not use excessive pressure when touching the touch panel, as this can damage it as well.

O.K.

Touch pen (included)





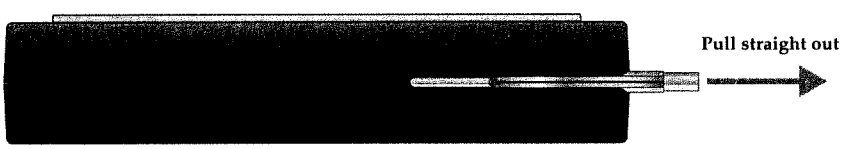
Pencil
Ball-point pen
Mechanical pencil

No Good

- When carrying the unit, please close the cover and secure it with the snap tab. This will protect the touch panel from being scratched or getting dirty.
- Do not get any hard object wedged between the PMA-5 and its cover. Doing so will scratch the touch panel.
- From time to time wipe the touch panel with a soft, dry cloth. If you continue to use the unit while the touch panel is dirty, it may cause scratches or deterioration of the pen's sliding action.

Removing the Touch Pen

To remove the touch pen, pull it straight out from where it is mounted on the side of the PMA-5. To put it back, insert the pointed tip of the pen in the hole in the case and slowly slide it into place.

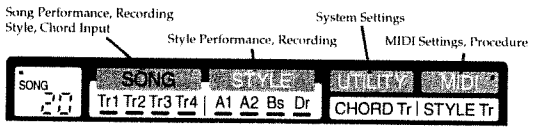


* Do not insert any object but the touch pen in the storage hole.

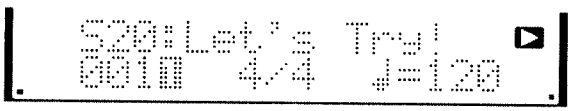
Basic Operation

Switching Screens

Mode Selection Buttons [SONG], [STYLE], [UTILITY], [MIDI]



The PMA-5's various settings and operations are grouped by buttons into four modes. You can switch modes by touching the corresponding mode selection buttons.



SONG (Song Mode) : Use this mode for song performances, recording, and preparation (inputting Style numbers, inputting chord progressions).

STYLE (Style Mode) : Use this mode to perform Styles or record User Styles.

UTILITY (Utility Mode) : Use this mode to make all settings to the PMA-5,for settings of additional functions, and for other operations.

MIDI (MIDI Mode) : Use this mode for MIDI settings and operations.

* When in Song mode, if you touch [UTILITY] (or [MIDI]), then [UTILITY] (or [MIDI]) flash while [SONG] remains illuminated. If at this point you touch [EXIT], you will exit the current mode and be shown being returned to Song mode.

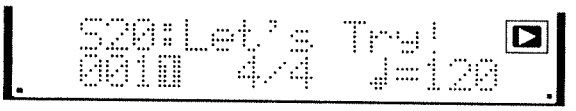
  When in Style mode, if you touch [UTILITY] (or [MIDI]), then [UTILITY] (or [MIDI]) flash while [STYLE] remains illuminated.

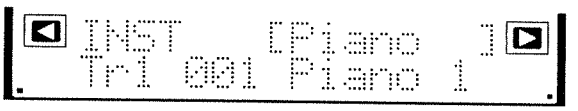
* You cannot switch modes during performance or recording of Songs and Styles.

* To go into GM/GS Sound Module mode, touch [ENTER] while in the MIDI mode Sound Module GM/GS Mode screen (p. 76).

Page Buttons

When the screen shown in the message area has more than one page, page buttons may be illuminated on the right or left sides of the message area to show the direction where more pages can be found. You can change pages by touching these buttons.
When the first page of a screen is shown, the page button appears only on the right-hand side, because there is no page to the left. Similarly, when you're on the last page of a screen, there are no more pages to the right, so the page button appears only on the left side.

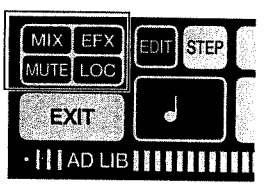




* When the message "Touch Page Button" appears in the text, touch the right or left page button to select the indicated screen.

* When in the Step Write screen, use the page buttons to search for events.

[MIX], [EFX], [MUTE], [LOC]



Touching these buttons makes settings to the following functions and calls up the following screens.

[MIX] (Mixer) This is used to make settings such as volume and pan to the tracks (p. 31 p. 53).

[EFX] (Effects) Sets reverb and chorus (p. 32).

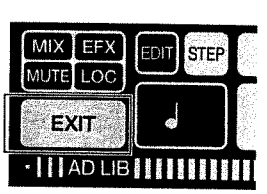
[MUTE] (Mute) This is used for muting tracks (p. 31). and to display the status of tracks during a performance.

[LOC] (Locator) Used for setting and going to the locator point, as well as repeating measures (p. 41).

* When in GM/GS Sound Module mode, the [MIX], [EFX], [MUTE], and [LOC] buttons are disabled.

Use the Exit button to return to the current mode's Basic screen, or to cancel a procedure already underway.

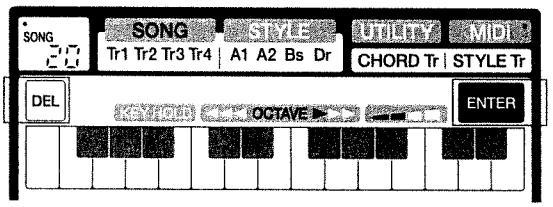
[EXIT]



Use the Exit button to return to the current mode's Basic screen. If you want to quit a procedure, or if the steps you have taken have brought up a screen you don't understand, just touch the [EXIT] button to return to the basic Mode screen.

[ENTER], [DEL]

At the point when you are ready to proceed with an operation, or input changes in values, [ENTER] either flashes or is illuminated. Touching [ENTER] at this time will cause the displayed value to be input, or current operation to be carried out.



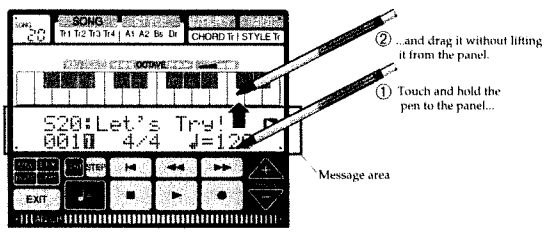
To clear the value shown in the display, touch [DEL].

* [ENTER] and [DEL] are illuminated whenever these operations can be selected.

Setting Values

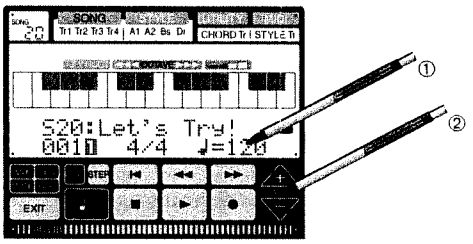
Using Dragging to Change Values

[1] Touch the pen to the desired value shown in the message area. Then, without lifting the pen from the panel, slide the pen upward or downward. This procedure is called "dragging".



* While you're dragging the pen across the display area, you can move the pen over the area (or over a button in the area) without operating it. Dragging causes the value first touched by the pen to change.

Using the [VALUE] Button to Change Values



[1] Touch the pen to the value to be set in the message area

This value you've touched starts to flash.

* When there is only one value in the message area that can be changed, this step (touching the value) is not necessary.

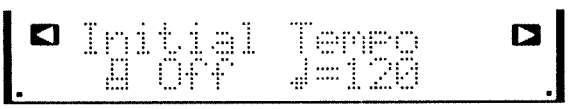
[2] Touch the [VALUE] + or - button to change the setting.

* This method is convenient for change a value one unit at a time.

* The value can be changed continuously by holding down the [VALUE] + or - button.

Turning the Switch Display On and Off

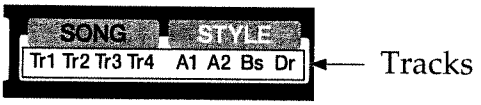
You can turn the switch display on and off by touching switch-shaped symbol displayed in the message area.



Touch on the switch display to turn it on and off.

Switching Tracks

<Song Tracks>



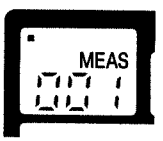
You select tracks for performing using the touch keyboard by touching any of the eight tracks shown in the display. The selected track (e.g. Tr1) will flash.
Use this same procedure for switching tracks while conducting real-time recording or Step Write.

<Chord Track, Style Track>

When you touch [CHORD Tr], the [Chord Tr] button flashes, and the chord progression being entered on the Chord track appears in the display (p. 28).
When you touch [STYLE Tr], the [STYLE Tr] button flashes, and the Style being entered on the Style track appears in the display.
After touching [STEP], when you want to input to a Style track, touch [STYLE Tr], and when you want to input to a Chord track, touch [CHORD Tr].

About the Song Number and Measure Displays

Song Number Display



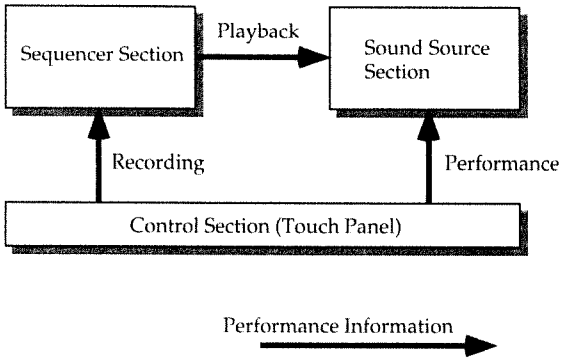
Measure Display

While in Song mode, by touching the Song/Measure display in the upper left of the touch panel, you can toggle between the song number and measure displays. When in Style mode, you will alternate between Style number and measure.

How the PMA-5 is Organized

Basic Organization

The PMA-5 is broadly divided into three sections: Sequencer, Sound Source, and Control.



Sequencer Section

This is used for keyboard performance, recording performance data via Step Write, editing, and playback of performance data.

Sound Source Section

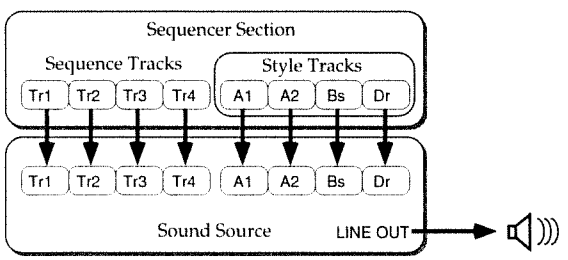
This is where the sounds used for touch keyboard performance and sequencer performance data are to be found.

Control Section

Used for control of the sequencer and sound source sections, depending on the operations of the current touch panel screen.

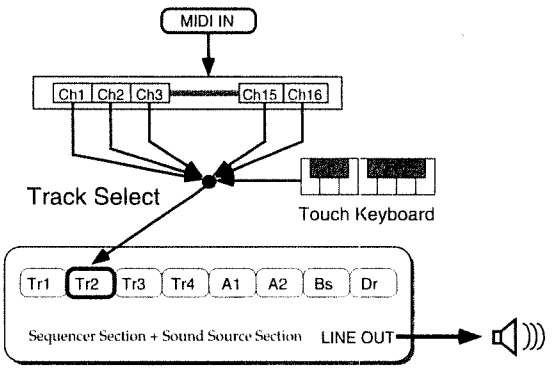
About Sound Sources

The PMA-5 features eight performance tracks (Tr1, Tr2, Tr3, Tr4, A1, A2, Bs, and Dr), and you can perform with different tones assigned to each track. For drums, you can select the drum set, each key having a drum or percussion instrument assigned to it.



When you play the touch keyboard, or the keyboard of any MIDI device you may have connected, the tone of the selected track will sound.

When using an external MIDI keyboard in real-time recording, if you do not establish a connection with the MIDI keyboard's send channel, then the performance track selected at the time will be recorded.



Simultaneous Voice Maximum

With the PMA-5, you can have up to a maximum of 28 voices sounding simultaneously. Depending on the tone, you may be able to compose one tone from multiple tones, or find that the maximum number of simultaneous tracks comes to less than twenty-eight. When, to safeguard voices when the maximum may be exceeded, you want to preserve a minimum number of voices on any particular tracks, be sure to set Voice Reserve (p. 85).

GM/GS Sound Module Mode

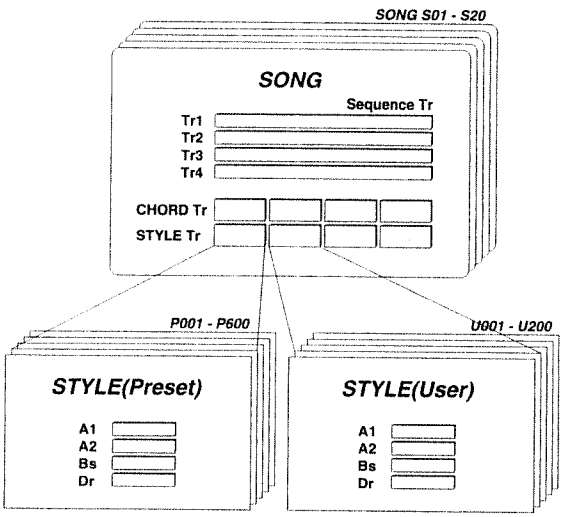
Whenever you play multiple parts received through a separate MIDI channel, use GM/GS Sound Module mode (afterwards referred to as "GM/GS mode) (p. 76). In GM/GS mode, the PMA-5 becomes a 16-part multi-timbre sound source, receiving all MIDI messages necessary to use GM/GS sound sources. However, in GM/GS mode the PMA-5's sequencer function is disabled, so you won't be able to record the PMA-5's own songs and Styles.

* For more on GM/GS Sound Module mode, please see p. 76.

About the Sequencer

■Songs

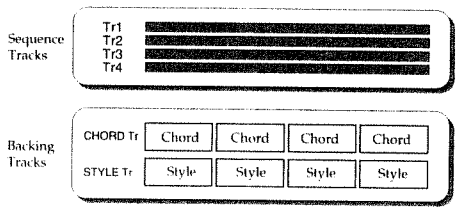
With the PMA-5, every tune is called a "song," and up to 20 songs can be stored in the unit.



* Because of song data (Sequence track, Chord track, and Style track data) conditions, the number of songs you can record is limited. Additionally, depending the of User Style data conditions, the number of these songs you can record is also limited.

■Tracks

Tracks are places for storing both the performance data and the performance control data of each individual instrument. Whenever you make a song, you will compose the tune using two different kinds of tracks.



● Sequence Tracks (Tr1, Tr2, Tr3, Tr4)

The Sequence tracks are suitable for playing melodies, obbligatos, or other comparatively long phrases. The tracks are formatted to be easy to see and understand.

● Backing Tracks

Backing tracks, composed of Style tracks and Chord tracks, are used in the control and management of backing performances.

They differ from Sequence tracks in that they are not for recording performance data, for playing Styles which have been prepared beforehand. In other words, these tracks are for inputting whatever Styles, with whatever chords that are to be used in any performance.

On Style tracks, you arrange previously composed patterns of several measures each (please refer to the next section, "Styles"). With Style tracks, you do not directly input performance data, but Style numbers.

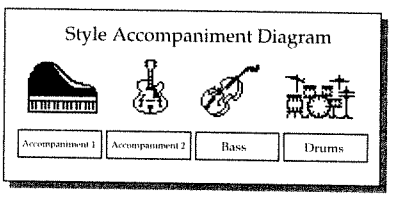
With Chord tracks, you input Chord names (i.e. the chord root and type). Chord progressions input to the Chord tracks are changed by altering the Style performance data.

■Styles

There are various different musical genres (musical styles), such as "Rock" or "Jazz". Each song in the same genre is seen as having such qualities as performance patterns (phrasing), instrumentation, and tempo deemed representative of that genre, so that you could say a song contains that genre's "essence". With the PMA-5, because all aspects of each genre — the accompaniment patterns, instrument sounds (tones), tempo — are put together as internal preset Styles, when you begin with these Styles, you can easily create songs with the essence of the genre.

Conversely, although Styles can be of the same genre, depending on certain aspects of songs — intros, fill-ins, etc. — a slightly different performance pattern may be called for. These slightly differing performance patterns are called Divisions, with each preset Style being composed of six Divisions (Intro, Main A, Main B, Fill 1, Fill 2, and Ending) (See Divisions p. 23).
When you actually create a song, you can also create the accompaniment just by laying down Styles (Divisions) on the Style tracks as you work out your composition.

The preset Styles are composed of four parts — two accompaniment parts (A1/A2), bass (Bs), and drums (Dr) — just right for repeated play of accompaniment patterns of several measures.



* A1 is an abbreviation of Accompaniment 1.

The PMA-5's internal Styles, called "Preset Styles", are assigned to numbers P001 through P600. On the other hand, blank Styles which the composer can use to make original Styles (User Styles) are given numbers U001 through U200 (User Styles p. 24).

* Take a look at the Preset Style List (p. 106).

■Divisions

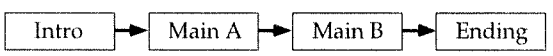
Each of the 100 Styles (genres) built into the PMA-5 is composed of preset patterns of six Divisions (Intro, Main A, Main B, Fill 1, Fill 2, and Ending). This means that there is a total of 600 preset patterns. With the PMA-5, you can determine the type of Division by the single letter or number that appears after the Style Name.

Style Names	Divisions
Bossa - I:	Intro
Bossa - A:	Main A
Bossa - 1:	Fill 1
Bossa - B:	Main B
Bossa - 2:	Fill 2
Bossa - E:	Ending

When creating songs, you should start by combining Divisions of the same Style Name.

Of the six Divisions in a Style, it might help to think of the Intro, Main A, Main B, and Ending as corresponding to the introduction, development, turn, and conclusion of a story. The other two Divisions are inserted at junctures in the musical composition (Main A and Main B).

Combination in the sequence shown below results in a song with the simplest structure.



* "Intro" is an abbreviation of "introduction," an introductory passage that is played before entering a musical composition. It is a phrase that sets the ambience of the piece as well as introducing rhythm patterns and the like.

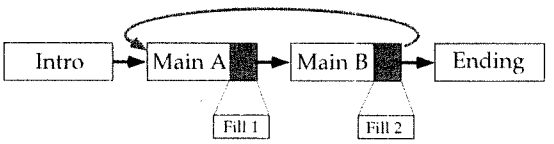
* "Ending" is a phrase that serves as the concluding portion of a musical composition.

* "Main A" and "Main B" are phrases that make up a musical composition. Main A is the basic pattern for the theme, and Main B serves as an development of this pattern.

* A "Fill-in" refers to a short phrase inserted in a juncture in the musical piece. The PMA-5's Divisions include two fill-ins for each Style (Fill 1 and Fill 2). The selection of which of these to use depends on the Division that is used after the fill-in.

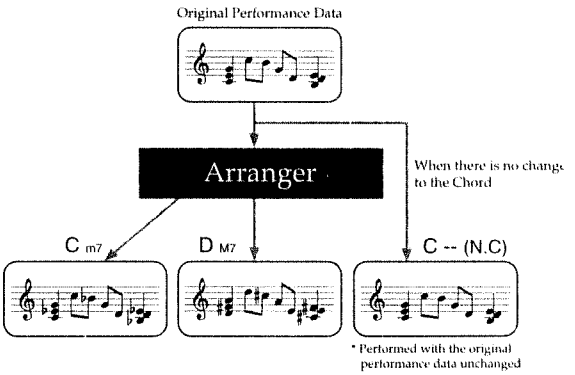
How to Use Fill-ins:

For instance, if you've been playing "Main A" and you wish to switch to "Main B" after the fill-in, select "Fill1." If you want to continue with "Main A" or "Ending" after the fill-in, select "Fill 2." The performance will then be played out naturally, with a seamless connection.



■Styles and Arranger

With the PMA-5, you change Style performance data in according to the chords being input to the Chord track. As preset Style performance data is created through changes made to chords, you can play by freely making chord inversions.



* Depending on the Arranger settings (p. 51), a performance with altered chords may itself be changed.

If you input "N.C" (Non Chord Type) to the Chord track, you can have the Style play with no changes to the chord, that is, with the original, unaltered performance data. In specific Divisions of preset Styles (mainly intros and endings), since the original performance data contains chord progressions, specifying [N.C] will ensure that performance will feature a chord progression matching the Style being played. For more information on other chord types you can use, please see p. 108.

■User Styles

Blank Styles which the composer can use to make original Styles are called User Styles, and with the PMA-5 you can store up to 200 of these Styles, using the numbers U001 through U200. User Styles do not have separate sections like the Divisions in preset Styles.

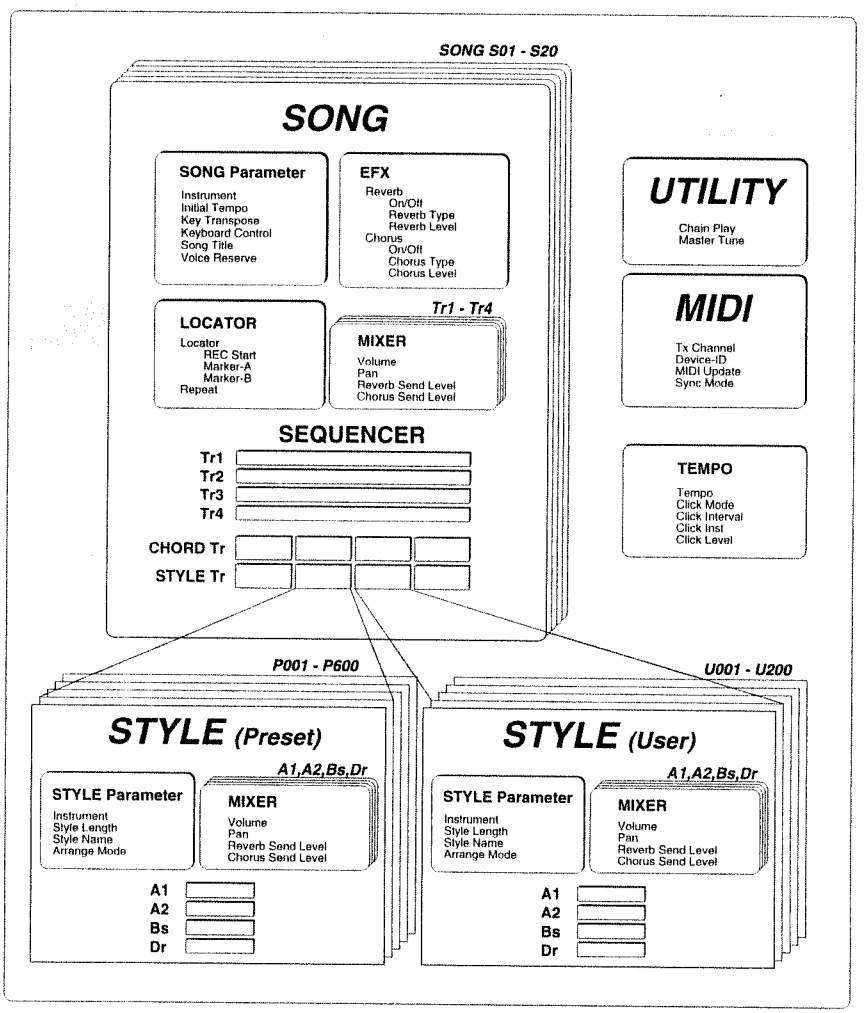
* The number of Styles you can store depends the conditions regarding the Style performance data being used. Also, as they occupy Song performance data (Sequence track and Chord track data) and memory, the Styles may be limited in number depending on the conditions of the Song data being used.

Some Notes on Creating User Styles

Depending on the Chord designated by a Chord track, when using the Arranger function to arrange the tune, it may be necessary to first establish a chord with "C" as its root. This is because many chord changes are conducted based on the PMA-5's internal root being "C". (Please see "Some Notes on Creating User Styles, p. 54.)

* When shipped from the factory and when initialized, performance patterns are read into only the Bs track and Dr track of each User Style (U001 through U010). These pattern performances are the same as the performance data used by Preset Styles.

The PMA-5's Parameter Organization



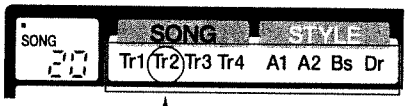
Chapter 4

Guide to Operations

Performing With the Touch Keyboard

Selecting Tracks

When selecting the track Tr2 to sound the touch keyboard, touch the Tr2 in the track area, and Tr2 will begin flashing.



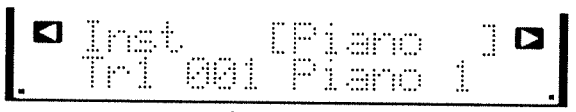
Flashing (Tr2)

Selecting Tones

Select the tone for each track.

[1] Touch [SONG] to bring up the Song mode Basic screen.

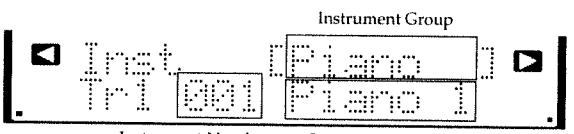
[2] Touch the right page button, and the Instrument screen will be displayed.



Instrument Screen

[3] Touch the in track area to select a track.

[4] Select the tone by dragging the instrument name. You can also select the tone by using the [Value] buttons.



You can select tones not only by dragging the instrument name, but by dragging the instrument number or instrument group as well (See Selecting Tones p. **).

<Instrument Group>
All of the PMA-5's built-in tones are divided into Instrument Groups for each type of instrument. Dragging an Instrument Group to change the tone enables the first tone in the Instrument Group to be selected.

* On the Drum tracks the Instrument Group is (DrumSet), and you can select drum sets by dragging their Instrument Numbers.
* By making (DrumSet) the Instrument Group for Tr4, you can make the drum set sound on Tr4.

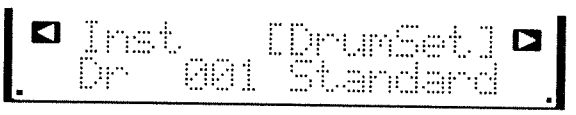
<Instrument Number>
Instrument Numbers correspond to program numbers (1 through 128). You can change the tone by dragging Instrument Numbers. When selecting Variations found in each Instrument number, you can change the tone by dragging Instrument Names.

<Instrument Name>
By dragging the Instrument Name, you can select all of the internally stored tones in turn, including Variation tones. A Variation is a type of tone slightly different from Instrument Numbers. Variation sounds are indicated by a "+" in front of the Instrument Name. The number of Variations varies according to the Instrument Number.

* For more on Instrument Numbers, Instrument Names, Instrument Groups, etc., please refer to the "Instrument List" (p. 102).
* When you change songs, or play a song from the beginning, the settings for any tones that were altered will revert to the settings in Setup. To store the altered tone settings in Setup, please see (p. 30).
* When in this screen, you can change the instruments on the Style Performance tracks (A1, A2, Bs, Dr) temporarily, but since the instruments tracks used in Arranger mode are stored in each of the Styles, if you change Styles while performing, the tones may end up being changed.

■ About Drum Track Tones

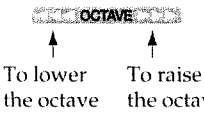
You can only select drum set tones on drum (Dr) tracks. When you are selecting drum set tones, each key on the keyboard is assigned with some drum or percussion instrument sound. Lower the keyboard by two octaves, and you will find basic drum set sounds assigned to the keys of the touch keyboard (DrumSet List p. 104).



* On Drum tracks, you cannot select any tones other than DrumSet sounds.
* If you set the Instrument Group on Sequence track Tr4 to (DrumSet), you will be able to select each DrumSet (Drum Part mode).

Changing the Octave (OCTAVE)

To raise the sound by one octave, touch the [>>>] a little to the right of [OCTAVE]. In the same way, touch the [<<<] a little to the left of [OCTAVE] to lower the sound by one octave. Touching the panel above the word "OCTAVE" returns the settings to the original octave.



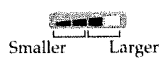
* When you have gone four or more octaves above or below the standard octave, one of the arrow symbols ([>] or [<]) will flash.
* Octave settings are stored apart from Performance tracks. You will find it convenient to store them in often-used areas such as in the Bass tracks or Drum tracks.

Holding a Note (KEY HOLD)

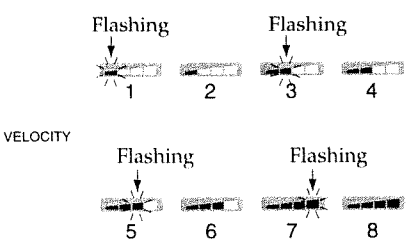
To play a number of sounds at the same time, first touch [KEY HOLD] to make it light up, then play the touch keyboard. The notes you play on the touch keyboard while [KEY HOLD] is lit up continue to be sounded until you touch [KEY HOLD] again. [KEY HOLD] works like the hold pedal on a piano or keyboard.

Changing the Touch Keyboard Volume

The volume of the notes you play on the touch keyboard is set with the velocity button. Touching the right-hand side of the Velocity button raises the volume, and touching the left-hand side lowers it.

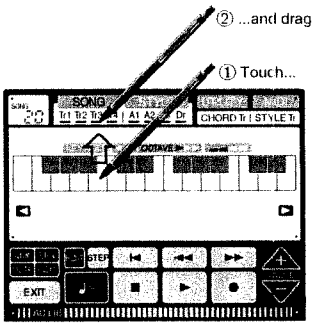


The velocity display shows the intensity of the velocity in eight steps. The volume for Step Write mode are entered here with the velocity settings.



Adding Modulation and Pitch Bend

Performing
Touching the touch keyboard and dragging upward (or downward) causes modulation (keyboard control) to be applied to the tones that are being played.



* When applying pitch bend to the tone, you need to make settings to the keyboard control.
* While you're dragging the pen across the display area, you can move the pen over the area without operating it. Dragging causes the value first touched by the pen to change.
* To stop other sounds from playing when you drag the pen over other keys, set the glissando in keyboard to "Off".

■ Keyboard Control Settings

Let's set how the PMA-5 sounds when we drag on the touch keyboard.

[1] From the Song mode Basic screen, touch to select the Keyboard Control screen.

[2] By dragging over the "Mod" in the message area, you can change the settings of keyboard control. Or, touch "Gliss" to turn glissando on or off. With glissando on, you can continuously sound other note by dragging the pen over other keys.

Mod This adds modulation effect, by dragging either up or down on the touch keyboard.

Bend This adds a pitch bend effect. Dragging upwards over the touch keyboard raises the pitch, and dragging down lowers the pitch.

Off No effect is added in this setting.

* The keyboard settings are stored for each song individually.

Performing Songs

Selecting Songs

[1] Touch [SONG] to bring up the Song mode.

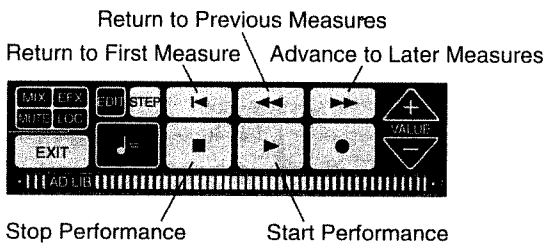
[2] Select a song by dragging the song number [S**] in the message area.

You can also select songs by touching the song number in the message area, and then when it flashes, use the [VALUE] button.

Incidentally, the demonstration song happens to be at S21.

* After factory initialization (p. 81), a sample song ("Let's Try!") was loaded at S20. Try it out when you read explanations of such operations as changing tempos, making settings to the mixer, using the Ad-lib bar, etc., in the supplemental volume, "Quick Start Guide". You can clear (p. 66) the sample song with Song Clear.

Performing a Song



Stop button:

■ Stop Performance

Play button:

► Start Performance

BWD button:

◄◄ Return to the measure immediately prior. By holding down this button you can return through previous measures continuously.

FWD button:

►► Advance to the measure immediately after. By holding down this button you can advance through later measures continuously.

Top button:

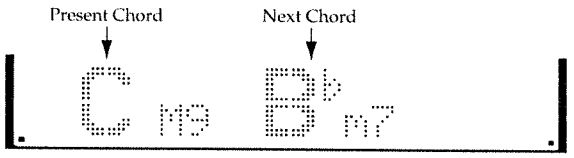
|◄ Return to the very beginning of the song.

* During the performance, a beat indicator is displayed at the right of the message area.

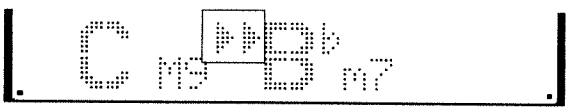
* You can start and stop performances with the optional footswitch.

Displaying Chords During Performance

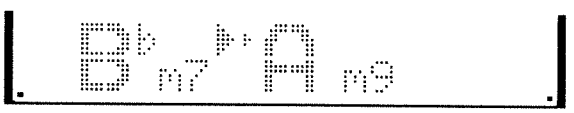
When you select Chord Tracks (CHORD Tr), the chords you are inputting to the Chord tracks are displayed.
When a performance is playing, the chord currently being played and the next chord coming up are displayed.
The next chord appears in the display about one measure before it is played.



Two beats before the next chord is played, this symbol is displayed,



When anticipation is set, a display like the following appears (Anticipation Settings p. 36).



* The advance of the timing of the chord change by one beat is called anticipation.

* When you select Style tracks (STYLE Tr), the style track being performed is displayed.

Performing Songs Continuously

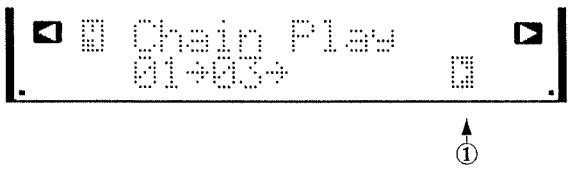
You can have a number of songs play one after another (Chain Play). You can also have the same song play over and over.

<Setting Instructions>

[1] Call up Utility mode by touching [UTILITY].

[2] Touch the page button to go to the Chain Play screen.

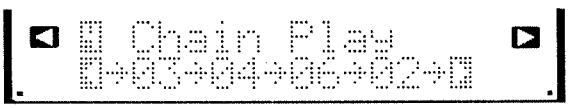
[3] Drag the flashing area to select a song number.



①

* When you input the second song, the symbol shown by the numeral 1 appears. When you touch the symbol, the display shifts to the left, and the following song can be input.

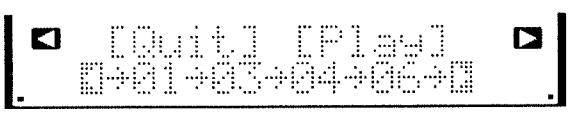
[4] Input the song number to continue the chain.



If the song has had no settings made, then the performance ends when the last song is over.

* When set in Chain Play and repeating all songs, set the final song to "RP" (repeat).
* When you touch the [DEL] button, any song that is flashing is removed from this chain.

[5] When all of the songs you want have been input, touch [ENTER]. the display will change to show a new screen.



[6] Touch [▶] displayed in the message area, and the songs will play in the order set in Chain Play.

During the performance, the [▶] displayed in the message area will change to a [■]. If you touch the [■] at this point, the performance will be canceled.

* In Chain Play, performance starts from the song whose name is flashing.
* If you touch the [⏮] button, you will be returned to the first song of the chain. By touching the [◀◀] or [▶▶] buttons, you will move to the song either just before or after the current one.

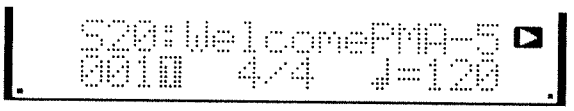
When you want to cancel the session, touch [Quit].

* You can have a chain of up to twenty-one songs (when no repeats are used).

Song Settings

Changing the Tempo

You can change the tempo by dragging the tempo currently displayed in the Song mode Basic screen.



When changing tempos while in other screens, touch the tempo button to call up the tempo setting screen.

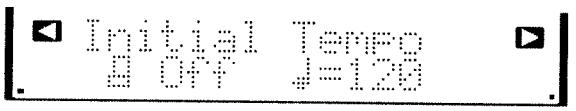
Tempo button

Touch [EXIT] to return to the original screen.

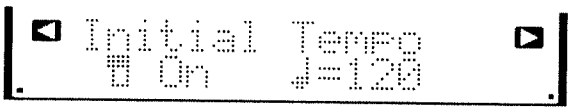
■Setting a Song's Initial Tempo

For each song, you can set the tempo a song starts out with. Whenever you change a song, or when you start a song playing from the beginning, the song will play at the tempo set in this screen.

[1] From the Song mode Basic screen, touch the right page button a number of times to select the screen shown below.



[2] Touch "Switch" and it will turn to [On]. Touching this display repeatedly will toggle between on and off.



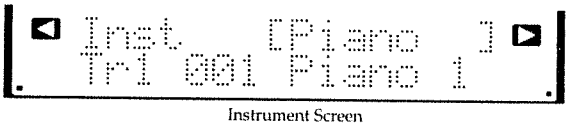
[3] You can set the beginning tempo now by dragging the tempo displayed.

Storing Tone Settings

You can store tone settings for tracks 1 through 4 as song setup information. When you write tone settings as song setup information, then from the beginning of a song when you play a or select a song, the tones are automatically chosen.

[1] Touch [SONG] to bring up the Song mode Basic screen.

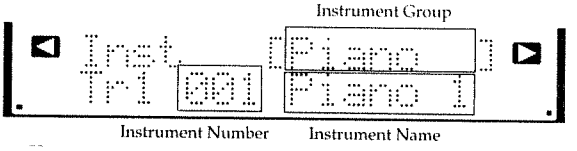
[2] Touch the right page button to display the Instrument screen.



Instrument Screen

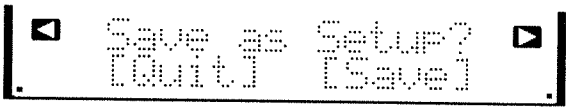
[3] Select a track by touching in the track area.

[4] Drag an instrument name to select the tone. You can also use the [Value] button to select the tone (p. 26).



You can select tones not only by dragging the instrument name, but by dragging the instrument number or instrument group as well (See Selecting Tones p. 26).

[5] Touch [ENTER]. The following screen will appear in the display.



[6] When you touch [SAVE] in the message area, then the tone settings for tracks 1 through 4 will all be saved together as song setup data.

If you wish to cancel the procedure, touch [Quit].

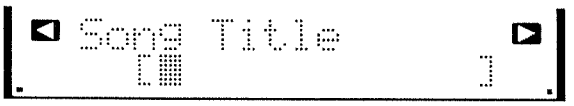
* When in this screen, you can temporarily change the tones on the Style Performance tracks (A1, A2, Bs, Dr), but they will not be saved to Setup. Since the tones on Style performance tracks are stored in each of the Styles, if you change Styles while performing, the tones may end up being changed.

Adding Song Titles

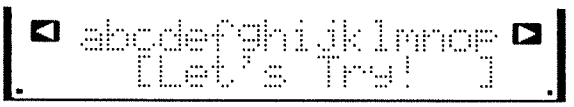
You can add Song Styles to each song, using up to twelve characters for titles.

[1] Bring up the Song mode Basic screen.

[2] Touch the page button to call up the Song Title screen.



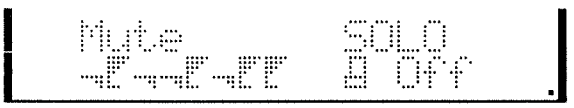
[3] Touch the cursor and drag it up or down, as necessary, to select characters. During the dragging procedure, characters are displayed in the upper row of the message area.



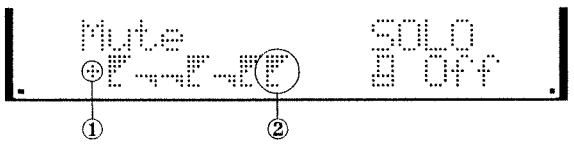
Muting Tracks [MUTE]

You can mute the performance of individual specified tracks. This is convenient for times such as when you want the PMA-5 to play every part BUT the one you want to play, or when you want to listen to one particular track.

[1] Touch [MUTE] to select the Mute screen.



[2] Touch the place (indicated by the numeral "1") in the message area, and Tr1 will be muted.

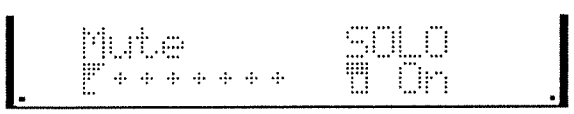


Starting from the left, the symbols correspond to each of the tracks Tr1, Tr2, Tr3, Tr4, A1, A2, Bs, and Dr.

During performance, track symbols resemble the one indicated by the numeral ② in the figure above.

By touch ① once more, the mute will be removed.

* Only song performances can be muted. You cannot mute performances played on the touch keyboard.
* When you turn [SOLO] on by touching it in the message area, all tracks except one selected track will be muted.



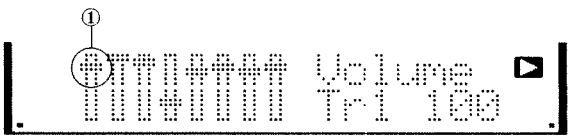
[3] When you are done with the settings, touch [EXIT] to return to the original screen.

Changing Track Volume, Pan, and Other Mixer Settings [MIX]

This is used for the mixer settings on every track (volume, pan, reverb send level, chorus send level).

[1] Touch [MIX].

The Mixer screen will be called up, and volume faders for each track will be shown in the display. Starting from the left, the eight faders correspond to each of the tracks Tr1, Tr2, Tr3, Tr4, A1, A2, Bs, and Dr.



[2] Touch the point indicated by the numeral ① in the above figure, and drag the fader up (or down).

This changes the track's volume.

[3] When you are saving the mixer settings for tracks 1 through 4 as a setup, touch [ENTER] at this point.

[Quit] and [Save] will be displayed in the message area.

* In order to call up a song's mixer settings when that song is selected, you need to store the mixer settings in the song's setup. Setup automatically reads in a song's settings when the song is selected, or when the song starts playing from the first measure.

[4] When you want to save settings to Setup, touch the [Save] button that appears in the message area. If you want to cancel the procedure without saving the mixer settings, just touch [Quit].

* All of the mixer settings (volume, pan, reverb send level, and chorus send level) can be written in (saved).

[5] Touch [EXIT], and the original screen will be returned.

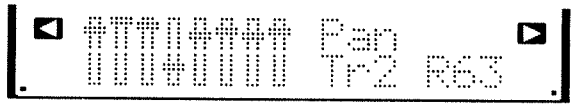
* When in this screen, you can temporarily change the mixer settings of the Style performance tracks (A1, A2, Bs, Dr), but they will not be saved to Setup. Since the settings on Style performance tracks are stored in each of the Styles, if you change Styles while performing, the Style performance track mixer settings may end up being changed.

By touching the right page button on the Mixer screen you call up the next settings screen.

The procedure for those settings is the same as for the volume settings.

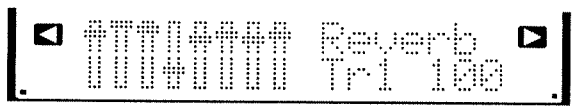
<Pan>

Pan sets the placement (left to right) of the sound images in stereo playback. Sounds which appear to come from the middle of the panorama are set with "Ctr". The higher the number for "L", the more the sound will appear to come from the left, and the higher the number for "R", the more the sound will appear to come from the right.



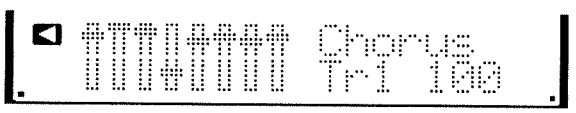
<Reverb Send Level>

Reverb is an effect that adds reverberation, that lingering or continuation of a sound as it fades away, making sounds appear fuller, and with more depth. You can adjust the depth (amount) of reverb to each track individually.



<Chorus Send Level>

Chorus is an effect that widens the sound image, making it thicker and richer. You can adjust the depth (amount) of chorus to each track individually.

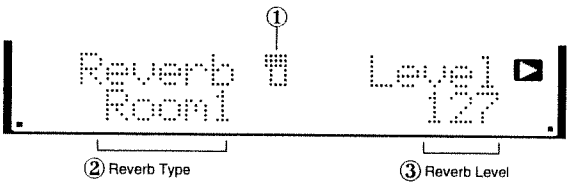


* To make settings to each track's overall effects levels — Reverb On/Off, Reverb Type/Level, Chorus On/Off, and Chorus Type/Level — use the effects button [EFX] (This is the next section).

Setting Reverb and Chorus [EFX]

All tracks (or parts) have common reverb and chorus settings.

[1] Touch [EFX] (the effects button). The Reverb settings screen will be called up.



[2] The reverb is toggled on or off each time you touch the Switch display ①.

[3] When you want to change the reverb type, drag ②. When you want to change the amount of reverb (1 — 127), Drag on ③.

<Reverb Type>

Room1, Room2, Room3

This reverb reproduces the reverberation found in a regular-sized room. It has a broad, uncluttered reverb sound.

Hall1, Hall2

This reverb reproduces the reverberation found in a hall. This reverb has more depth than you get with the Room reverbs.

Plate

This reverb reproduces plate echo the reverberation obtained with a vibrating metal plate.

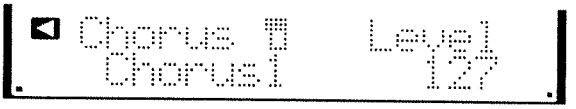
Delay

A general delay effect. You can also get an echo effect with this.

Panning Delay

This special delay takes the delayed signals and pans them left to right. In stereo, this sound is particularly effective.

Touching the right page button again calls up the Chorus settings screen. Chorus type and level are set the same way as reverb type and level.



<Chorus Type>

Chorus1, Chorus2, Chorus3, Chorus4

A general chorus effect — widens the sound and makes it thicker.

Feedback Chorus

With this chorus, you get an effect like a flanger's. This softens the sound.

Flanger

The sound of a flanger is a kind of reverb that sounds like a blend of jet planes taking off and landing.

Short Delay

A delay with an especially short delay time.

Short Delay FB

A short delay with repeating rotation.

[4] Touch [EXIT] to return to the original screen.

* Make the settings for the reverb send level and chorus send level for each of the tracks with the Mixer screen.

Inputting Style Tracks

Style tracks is where Preset Styles and User Styles that have been prepared beforehand are input. With Style tracks, as with Sequence tracks, after selecting the Style to be performed, you "string together" the measures of the Style without actually recording the sounds (performance data) as they are played.

Making a Song

By progressing in your work using the following order, you can enjoy a very smooth time composing songs.

[1] Input the preset Style you want to perform on the

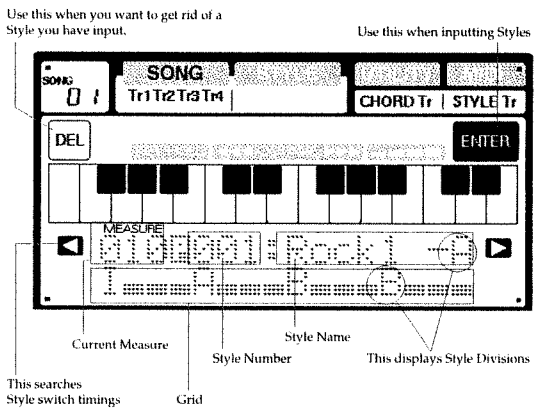
(When using User Styles, be sure to first compose a user style to work with.)

[2] Input the chord progression on the Chord tracks.

[3] On the Sequence tracks, record (input) the melody or obbligato.

When you input to Style tracks and Chord tracks, you put together the backing for the performance. You can add a melody to match this backing.

The Write Screen for the Style Track



In the Style Track Write Screen, the current measure, Style number, and Style name are displayed. One grid mark corresponds to one measure, making it easy to understand at a glance the status of the Style input.

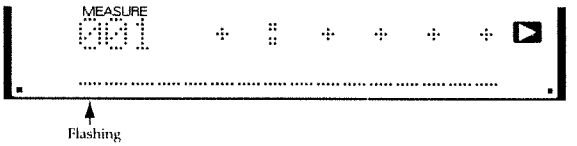
Style Track Write Procedure

[1] Touch [SONG]. This puts you in the Song mode.

[2] Touch [STYLE Tr]. [STYLE Tr] starts to flash.

[3] Touch [STEP].

[STYLE Tr] flashes and the screen for inputting the Style track appears.



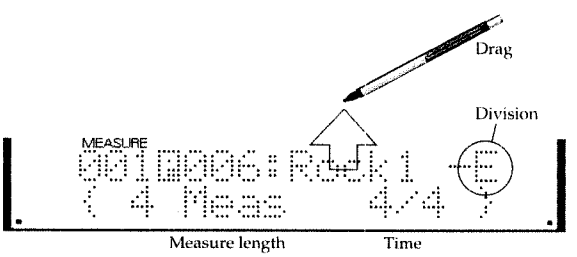
* Before Style input, "+:++++" is displayed.

[4] Touch the grid or use the [<<] or [>>] button to display the measure where you want to input the Style.

* Drag "+:++++" upward (or downward) to choose a Style.

[5] Drag "+:++++" upward (or downward) to choose a Style.

* With the Style numbers, "P" indicates a Preset Style and "U" indicates a User Style. Drag the "P" or "U" to select a Preset Style or User Style.



* With a Preset Style, you can make a selection for each Style Name by dragging the Style Name display (anything other than the division). By dragging the division display, you can change divisions within the same Style.

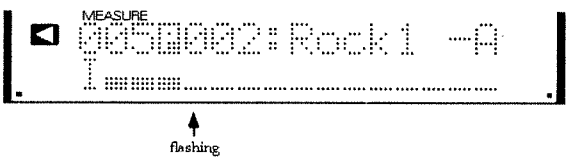
* The final character of a Style Name signifies a division (p. 23) such as Intro or Fill-in (I: Intro, A; Main A, B: Main B, 1: Fill 1, 2: Fill 2, or E: Ending).

* Take a look at the Preset Style List (p. 106).

* When a Style Number is being dragged, the beat and number of bars in the Style are displayed on the following line.

[6] Touch [ENTER] to input the Style.

When the Style has been entered, the Style advances by the length in measures.

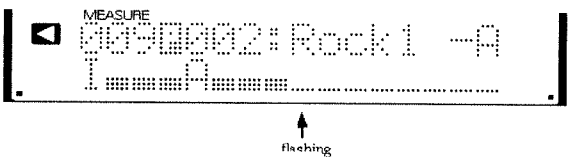


Entering a particular division (Intro, Fill 1, or Fill 2) causes the divisions for the displayed Style to be selected automatically according to the rules shown below.

[Intro] ➠ [Main A]
[Fill 1] ➠ [Main B]
[Fill 2] ➠ [Main A]

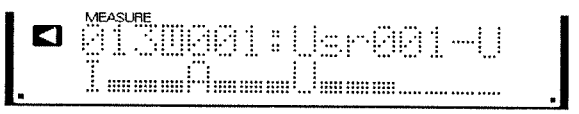
* This automatic selection doesn't take place when one of the other divisions (Main A, Main B, or Ending) or a User Style is entered.
* You can move to the previously switched Style or the Style that will be switched to next by touching the left or right Page button. The Page button for the corresponding direction lights up only when you can move in that direction.

[7] Choose the Style to be input next, and use the same method for input.



The division of the entered Style (I, A, and so on) appears on the grid.

* When inputting a User Style, the last character of the Style Name will be displayed in the grid ("Assigning a Style Name," p. 51.)



The thick line that appears on the grid following the Division shows the Style's length (number of bars). A Style is only input to the Style tracks with the timing at which the Styles are changed, and no actual data (Style) is written to this thick line.

Deleting an Entered Style

[1] Touch the grid mark where the Style you wish to delete is entered.
The grid mark that you touch starts to flash and the Style Number and Style Name are displayed.

* Touching the thick line after a division displayed on the grid does not display a Style. The thick lines only show how long the Style just entered is. If you want to use the thick lines to display the Style being played, touch the grid mark to switch to the immediately previous Style.

[2] Touch [DEL]. The Style that was entered is deleted.

* [DEL] is lit up only when it can be used.

Changing an Entered Style

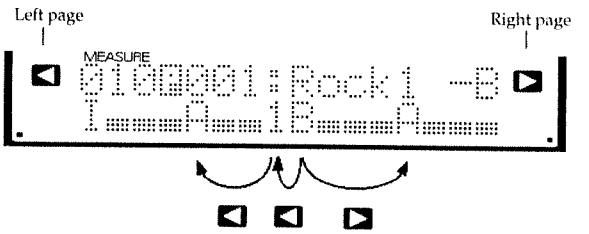
[1] Touch the grid mark where the Style you wish to change is entered.
The grid mark that you touch starts to flash and the Style Number and Style Name are displayed.

[2] Drag the Style Number Up (or down) to choose the Style you wish to change.

[3] Touch [ENTER] to change the Style.

* If you change a Style with a 4/4 beat to Style with a 3/4 beat, the 3/4 Style is played with the beat for the measure remaining at 4/4. In this case, nothing is played on the fourth beat. Care is needed, because the beat of the measure is determined by the beat of what is recorded there first.
If you wish to change the beat of a measure that has been recorded, use "Delete Measure" (p. 63) to delete all tracks for the bar, then use "Insert Measure" (p. 64) to insert a bar with the changed beat.

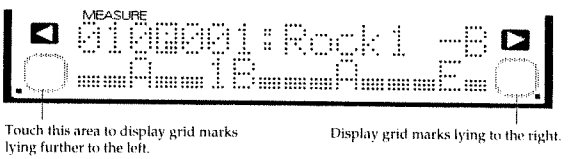
Moving to the Style to Be Switched to Next.



Touch the right (or left) Page button to move to the bar where the performance switches to the next (or previous) Style.

Moving the Grid Display to the Right or Left

You can change the displayed area of the grid when the grid mark you want to view is not on the display.

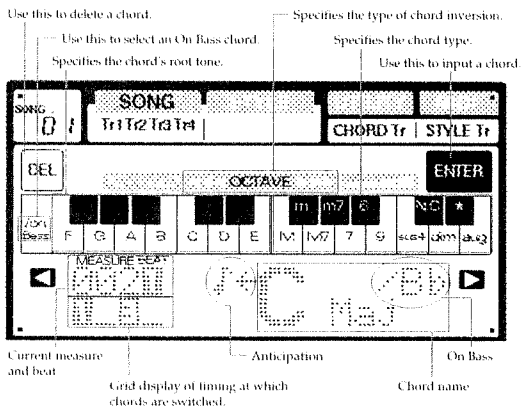


Inputting Chord Tracks

The Chord track is used to input the chord progression that is followed when playing Styles. When the Style track is played, the sound changes to match the Chord Names entered in the Chord track. You can enter a different chord for each beat.

Chords are entered in the Chord track with the timing that is used to switch the chords. For instance, to input a chord progression that uses a "C" chord from the first through eighth bars and an "F" chord from the ninth bar and after, you need to enter "C" in the first bar and "F" in the ninth bar.

The Write Screen for the Chord Track



The Write Screen for the Chord track displays the current measure, beat, and Chord name. Each grid mark indicates one beat (one quarter-note), and the grid shows the beat where the chord is switched. In the screen shown here, the chord is switched on the first and third beats.

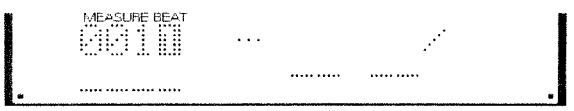
How to Make Entries in the Chord Track

[1] Touch Song to enter the Song mode.

[2] Touch [CHORD Tr] to make it start to flash.

[3] Touch [STEP].

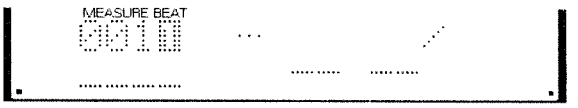
This calls up the Write Screen for the Chord track.



[4] Display the measure where the chord is to be entered.

You can change bars by touching [◄◄] or [►►], or by dragging the Measure display in the message area.

To make the chord change by beat, touch the grid to select the beat. When no particular selection is made, the first beat is input.



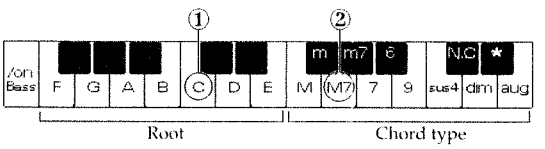
To input a chord on the third beat, touch here and enter the chord.

[5] Use the touch keyboard to enter the chord.

■ How to Enter a Chord

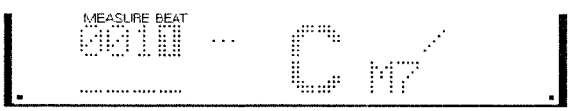
The touch keyboard is used to select chords. The left half of the touch keyboard is used to choose the root, and the right half is used to choose the chord type.

Here we'll try entering a "CM7" chord.

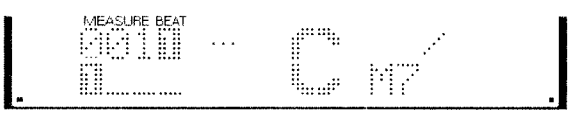


[1] Touch "C" ① on the touch keyboard. "C" appears in the message area.

[2] Touch "M7" ② on the touch keyboard. "C M7" is displayed in the message area.



[3] Touch [ENTER] to input "C M7."



This shows that the chord was entered on the first beat.

* The chord name "C" on an ordinary musical score stands for the "C Major" chord. To enter this chord in the Chord track, just touch "C" and "M" on the touch keyboard. This makes "C Maj" appear in the message area.

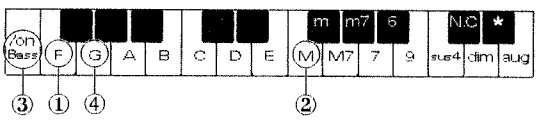
* If you specify the chord by touching the root display and chord type display in the message area, you will hear its sound (Chord Preview).
* When the Chord type is "N.C," the sound cannot be played using Chord Preview.
* No chord may be heard when the sound for A1 is a indeterminate SFX or percussion sound.

■ How to Enter an On-bass Chord

The setting for On Bass Chord is made when you want play the bass note as something other than the root.

* An on-bass chord is a chord that uses bass for a note other than the root, such as an "F (Maj)" chord with "G" as the bass note. This is usually expressed as "F/G" or "F on G."

Let's try entering "F maj/G."



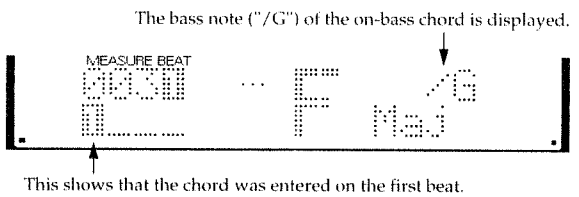
[1] Touch "F" on the touch keyboard. "F" appears in the message area.

[2] Touch "M" (Major) on the touch keyboard. "F Maj" is displayed in the message area.

[3] Touch "/on Bass" on the touch keyboard. The dot below "/on Bass" lights up, and the "/" in the message area starts to flash.

[4] Touch "G" on the touch keyboard. "/G" is displayed.

[5] Touch [ENTER] to input "FMaj/G."



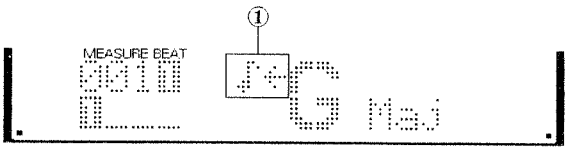
* The Arrange mode settings for the Bs track are limited to Obbligato, Bass, and No Arrange.

■ Making the Setting for Anticipation

The setting that causes the timing for a chord change to occur partially on the previous beat is called "anticipation."

[1] Use the touch keyboard to select the chord.

[2] Drag ① in the message area, or touch ① and use the [VALUE] buttons to choose the setting for Anticipation.



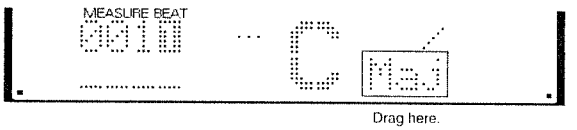
You can set either eighth-note or sixteenth-note anticipation.

[3] Touch [ENTER]. This enters the chord with the Anticipation setting.

* Making the setting for Anticipation merely causes the chord to change one eighth-note (ore one sixteenth-note) before the beat. It doesn't shift the performance data. When the chord is changed while notes continue to play, the notes are then played according to the following chord. If the performance data doesn't use the timing that you set for Anticipation, you may not get the results you expect.

Entering a Chord Not Shown on the Touch Keyboard

You can also enter a chord type not shown on the touch keyboard by dragging the Chord Type display in the message area.



* Another was to select a chord is to touch the Chord Type display, then touch one of the [VALUE] buttons (+ or -).

Maj	7(+9)	madd9	dim
M7	6	mM9	sus4
M9	6(9)	m	7sus4
7	m6	mM7	aug
7(b5)	m6(9)	m7	aug7
7(13)	9	m7(b5)	N.C(--)
7(b9)	add9	m7(9)	

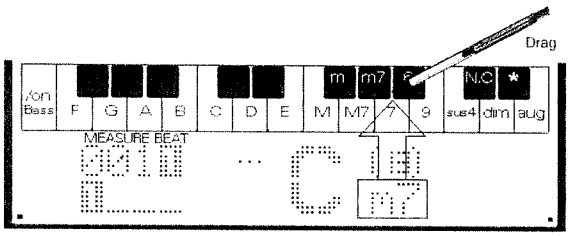
Assigning a Frequently Used Chord Type to "*" on the Touch Keyboard

You can assign a frequently used chord type to the "*" symbol on the touch keyboard. This is used to assign a chord type that cannot be selected directly with the touch keyboard, such as "add9" or "7(13)." The chord type "m7(b5)" is assigned when the PMA-5 is shipped from the factory.

Let's try assigning "7(13)" to "*" on the touch keyboard.

[1] When selecting the chord type, touch "*." This makes the dot under "*" light up.
The chord types are displayed in the message area.

[2] Drag chord type "m7(b5)" in the message area to select "7(13)."
You can also select the chord type by touching one of the [VALUE] buttons (+ or -).



The chord type "7(13)" is assigned to "*." This chord-type setting remains in memory until you repeat these steps to change it again.

Changing the Chord Inversion Format

You can use the Octave button to change or enter the format of chord inversion. Setting the format chord invention with consideration given to the the connection with the next chord is a handy trick for use.

[1] Use the touch keyboard to choose the chord.

[2] Touch the [>>>] Octave button to raise the inversion by one.

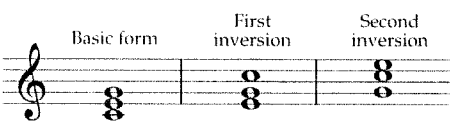
Touch the [<<<] Octave button to lower the inversion by one. You can change the inversion by up to three either up or down.

Touching directly above [OCTAVE] returns the chord to its basic form.

[3] Touch [ENTER] to enter the inversion format.

What's Inversion?

Changing the arrangement of the notes used in a chord is called "inversion." A chord that is arranged with the root as the lowest note is called the basic form, and a chord arranged with some other note as the lowest is called an inverted form.



Deleting a Chord That Has Been Entered

[1] Display the chord you want to delete.

[2] Touch [DEL]. The entered chord is deleted, returning to the state before input was made.

* [DEL] is lit up only when it can actually be used.

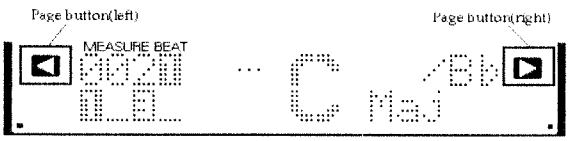
Changing a Chord

[1] Move to the desired measure to display the chord you want to change. If chords have been input beat by beat, just touch the grid mark for the chord.

[2] Drag the chord type upward (or downward) to change the chord.

[3] Touch [ENTER] to input the changed chord.

Moving to the Timing for Changing to the Next Chord



Touch the left or right Page button to move to the timing (bar or beat) for changing to the next chord.

■ Playing a Style As-is with No Chord Conversion (N.C - Non-Chord Type)

To play a Style with its original data, enter "C" as the root and "N.C" as the chord type. Entering "N.C" causes "- -" to be displayed in the message area as the chord type.
With certains divisions of a Preset Style (mainly Intro and Ending), the original performance data follows a chord progression. This means that you can create a performance with a chord progression by selecting "N.C" as the chord type. "N.C" is also entered when you want to play a User Style as-is, with no chord conversion.
If you make the root something other than "C," the Style's performance data is transposed in its entirety. For instance, if you make "D" the root and play chord type "N.C(- -)," the performance that is played is shifted up a full step from the original performance data.
You can also play certain tracks without chord conversion by using "NoArrange" as the Arrange mode setting for the particular tracks (p. 51).

Recording Sequence Tracks (Tr 1, 2, 3, and 4)

Two methods can be used for recording Sequence tracks: real-time recording and Step Write. Real-time recording is a method that records an actual performance on the keyboard, and is suitable for recording using the touch keyboard of an external MIDI keyboard. The other method, Step Write, uses the touch keyboard to record each note one by one. This method is useful when you want to record each note exactly, or when you wish to record a complicated phrase that can't be played on the keyboard.

* The four tracks A1, A2, Bs, and Dr are controlled by a performance pattern called a "Style (p. 21). If you want to record a Style, check out "Creating User Styles" on p. 55.

* For an explanation of the difference between Sequence tracks and Backing tracks, take a look at "About the Sequencer" on page 22.

Real-Time Recording (Sequence Tracks)

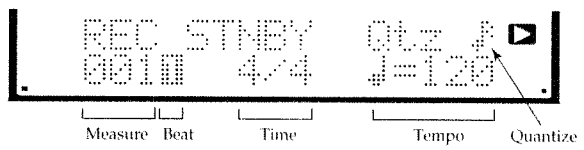
This method records a performance on the touch keyboard or a can be MIDI keyboard without change.

How to Record

[1] Touch [SONG] (the Song Mode button) to go into the Song mode.

[2] Touch [●] (REC button) to call up the Recording Standby screen.

The [●] button lights up and the Recording Standby screen appears.



Quantize (Qtz) Makes the setting for Quantize.

Measure Sets the measure where recording starts. Real-time recording cannot be started at a beat other than the first.

Time Shows the time signature. When starting to record at a measure where noting has been recorded yet, this can also set the time (p. 39).

Tempo Changes the tempo.

* Touching the right-hand Page button while you're at the Recording Standby screen changes the page to a screen for making settings related to recording. Take a look at the following page for information on the settings you can make at the Recording Standby screen.

* To leave the Recording Standby screen and return to the basic screen for modes, just touch [STOP].

[4] Touch the track area to choose the recording track (Tr1, Tr2, Tr3, or Tr4).

[5] Touch [PLAY] to start recording. The green indicator in the center of the [PLAY] button flashes in time with the tempo.

[6] When you've finished recording, touch [STOP].

■ Settings of the Recording Standby Screen

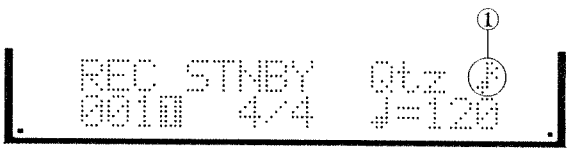
The Recording Standby screen is where you can make various settings for real-time recording.

●Cleaning Up Fluctuations in Timing (Quantize)

Quantize is a function for regularizing fluctuations in the timing of real-time recording. Quantize aligns the timing by forcing the key-on positions to be arranged at uniform intervals. If you record with the Quantize function on, fluctuations in the data are corrected as the data is saved. The setting for Quantize lets you select the degree of precision for the timing.

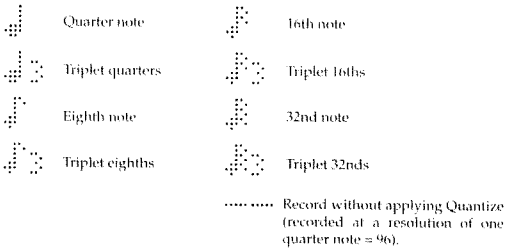
<Making the Setting for Quantize>

[1] Touch [●] to display the Recording Standby screen.



[2] Drag ①, or touch ① and use [VALUE] (+ or -), and make the setting for Quantize.

<Settings>



* You can also change the Quantize setting while recording is in progress.

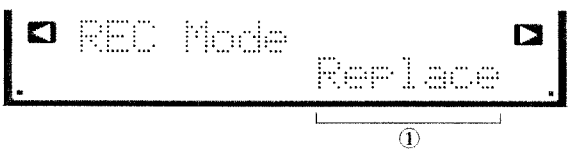
■ Recording Mode Settings

This sets the method used for recording.

<How to Make the Settings for the Recording Mode>

[1] Touch [REC] to display the Recording Standby screen.

[2] Touch the right-hand Page button to display the setting screen for the Recording mode shown below.



[3] Drag ①, or touch ① and use the [VALUE] buttons, and make the setting for the Recording mode.

<Settings>
[Replace] Previously recorded performance data is erased while recording.

When the track contains performance data, the data in the track is erased as new data is recorded.

[Mix] Previously recorded performance data is overlaid while recording.

When the recording track contains performance data, the data in the track is overlaid as new data is recorded.

[Loop (1)], [Loop (2)], [Loop (4)], and [Loop (8)] The specified number of measures is recorded repeatedly.

* In the Style mode, the setting for the Recording mode is always "Loop." There is no setting screen for the Recording mode.

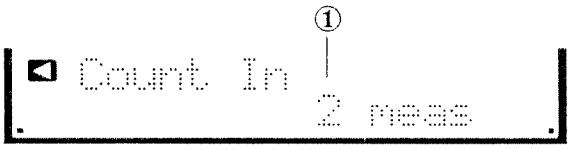
■ Count In Setting

You can start the performance either one or two bars before the measure where recording begins.

<How to Make the Setting for Count In>

[1] Touch [REC] to display the Recording Standby screen.

[2] Touch the right-hand Page button to display the setting screen for Count In (shown below).



[3] Drag ①, or touch ① and use the [VALUE] buttons, and make the setting for Count In.

<Settings>
[Off] Recording starts at the current measure, with no count-in.

[1 Meas] The performance starts one bar before recording begins.

[2 Meas] The performance starts two bars before recording begins.

* The Style mode has no setting screen for Count In.

■ Setting the Time for Recording

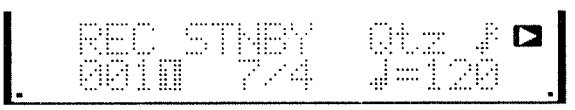
You can set the time for recording something in a new measure where noting has been recorded yet.

When you start to record at the final bar of a recorded song, the time that you set here is used for recording. When a Style has been entered in the Style tracks, the time set of the Style takes precedence, so you can't set the time here.

<How to Make the Setting>

[1] Touch [REC] to display the Recording Standby screen.

[2] Drag the time display to change the time signature.



* You can't change this setting at a bar where something has already been recorded.

[3] When you touch [PLAY] to start real-time recording, the data is recorded using the time that has been set here.

<Setting Values>
1/4 to 7/4, 1/8 to 12/8, or 1/16 to 15/16

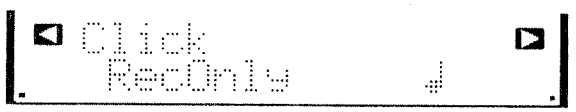
■ Playing a Click

This makes the setting for the sound of the click (metronome). You can also set the tone and volume of the click.

[1] Touch the button. The Tempo display appears.

[2] Drag the Tempo display to change the tempo.

[3] Touch the right-hand Page button to display the Click screen.



Click Mode Click Interval

Drag Click Mode or Click Interval to choose the desired setting.

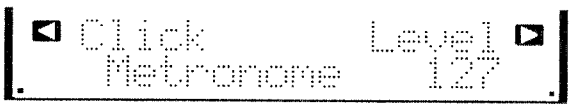
<Click Mode>

[RecOnly]	The click is heard only when recording.
[Rec&Play]	The click is heard when recording and during playback.
[Always]	The click is always heard, even when the sequencer is off.
[Off]	The click is not heard.

<Click Interval>
This selects the interval at which the click is heard.

- Quarter Note
- Eighth Note
- Triplet Quarters
- Triplet Eighths
- 16th Note

[4] Touch the right-hand Page button to display the setting screen for the click's tone and volume level.



Click Inst (instrument) Click Level

<Click Inst (Instrument)>
This lets you select the tone of the click.

- Metronome
- Triangle
- Agogo
- WoodBlock
- Shaker
- Tambourine
- Sticks
- Click

<Click Level>
This is used to adjust the click's volume level.
0 to 127

[5] When you're done making the setting, touch [EXIT] to return to the original screen.

■ Rehearsing on the Keyboard While Recording Without Stopping a Performance (Rehearsal Function)

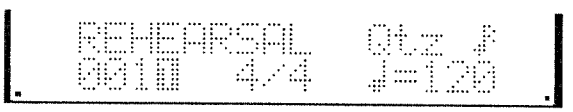
During real-time recording, you can toggle between the recording state and the keyboard test-play state (Rehearsal function) at the touch of a single button. Using the Rehearsal function, you can test-play the keyboard without stopping the performance of the sequencer.

[1] Start recording.

[2] While recording, touch [REC].

[REC] flashes, and the performance continues with no recording carried out (allowing you to test-play the keyboard).

Nothing you now play on the touch keyboard will be recorded.



[3] Touch [REC] again to return to the recording state.

[4] When you're done recording, touch [STOP].

This function is mainly a convenience when using loop recording. As an example of how it's used, first start real-time recording. Next, touch [REC] to go into the rehearsal state ([REC] flashes). The performance continues to play, so you can rehearse along with the performance on the touch keyboard (or a connected MIDI keyboard). When you're done rehearsing, touch [REC] to return to the recording state ([REC] remains lit continuously). The Rehearsal function makes it possible to toggle smoothly between recording and rehearsal without stopping the performance.

* When the Rehearsal function is used while recording with the Recording mode set to "Replace," what you play on the keyboard is not recorded, but the performance data is erased.

■ Jumping to a Selected Bar for Starting Recording — [LOC]

You can use the Locator function to jump to the measure where recording was started. This is a handy way to listen to and check a performance that you've just recorded.

[1] Touch [STOP] to stop recording.

[2] Touch [LOC]. The Locator screen appears.

[3] Touch the Page buttons to display the screen for "REC Start."

[4] Touch [Jump] in the message area.

You are moved to the starting bar of what you've just recorded.

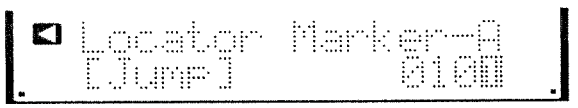
* You can also use the Locator function to jump to a previously selected measure (take a look at the next section).

● Setting Locate Points — Marker-A and Marker-B

[1] Touch [LOC]. The Locator screen appears.

[2] Touch one of the Page buttons to choose the "Marker-A" screen.

If you want to set Marker-B, choose the Marker-B screen.



Measure

[3] Drag the bar shown in the message area to select the bar for Marker-A.

* Touch [ENTER] to set the current measure to Marker-A.
* You can touch [ENTER] to set Marker-A even during a song performance.
* Marker-B is set in the same way as for Marker-A.

● Jumping to a Locate Point (Marker-A)

[1] Touch [LOC]. The Locator screen appears.

[2] Touch one of the Page buttons to choose the "Marker-A" screen.

If you want to jump to Marker-B, touch one of the Page buttons to choose the Marker-B screen.

[3] Touch [JUMP] in the message area to jump to the measure set to Marker-A.

* Touching the right-hand Page button displays the Repeat screen. The Repeat screen can be used to select a group of bars to be repeated (p. 93).

■ Recording with an External Keyboard

You can perform real-time recording with an external keyboard connected to the PMA-5's MIDI IN jack.

You can record with the external keyboard in the same way as the touch keyboard. The steps for recording are the same as for the touch keyboard.

* Touch the track area to choose the track to record. The setting for the external keyboard's transmit channel has nothing to do with the recording track.
* Velocity can be recorded at eight stages.
* Check out "About MIDI" (p. 110) for a description of the MIDI messages that can be recorded with the PMA-5.

Step Write (Inputting Notes One by One)

Step Write is a method used to input performance data note by note, specifying each note's length, force, and pitch. At the Step Write screen, a grid shows the timing at which notes in the bar are played, in 16th-note intervals (*1). The pitch that is input is shown by a dot (Note Map) on the touch keyboard. You can also use the Step Write screen to correct performance data made with real-time recording.

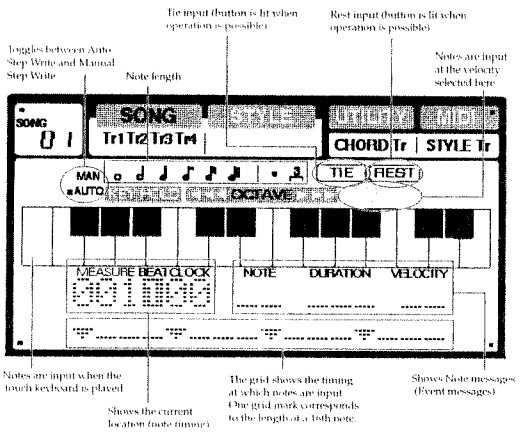
(*1) Depending on the setting, the grid may display an interval of triplet eighth notes (p. 45).

* During Step Write, notes cannot be input from a connected MIDI keyboard.

■ About the Step Write Screen

Touching [STEP] displays the Step Standby screen, and touching [STEP] again calls up the Step Write screen.

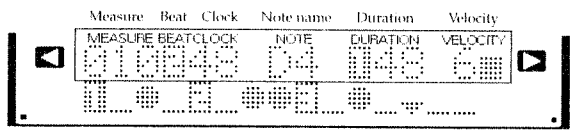
Take a look at page 45 for more about the Step Standby screen.



■ MIDI Event Display

The top line of the Step Write screen shows the timing currently under focus and the MIDI message for that location.

* A "MIDI event" refers to the various types of MIDI messages that the PMA-5 can handle, including Note and Control Change messages.



[MEASURE] [BEAT] [CLOCK]

This shows the measure, beat, and clock of the displayed note. You can drag any of these displayed values to change the corresponding measure, beat, or clock. You can also change the measure with the [◄◄] and [►►] buttons. It is also possible to select the timing directly by touching the grid display.

* A clock value of 96 corresponds to the length of a quarter note.

* Three parameters — [NOTE], [DURATION], and [VELOCITY] — are used to display Note information.

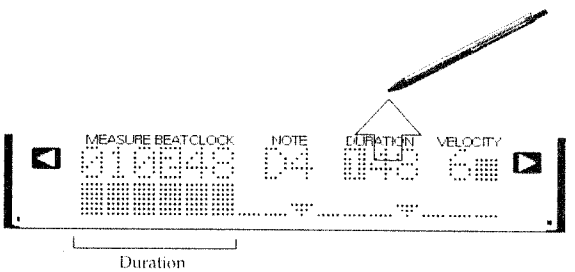
[NOTE]

This displays the name of the note that has been input. The pitch can be changed by dragging this display. The pitch of the displayed note is shown by a dot on the touch keyboard.

When a "*" symbol appears in front of the note name, it means that there are two or more notes with the same timing. To display these notes, touch the Page buttons. You can also drag the display to change the note.

[DURATION]

this displays the length of the actual input sound, in beats (1 beat = quarter note length) and clocks. Drag this display to change the duration. The duration of the note appears on the grid while being dragged. This display can be used for visual confirmation of a note's length.



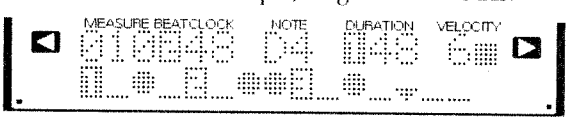
[VELOCITY]

This uses eight stages of numbers and symbols to display the velocity (force) of the current timing. The symbols show the magnitude of the velocity. Drag this display to change the velocity.

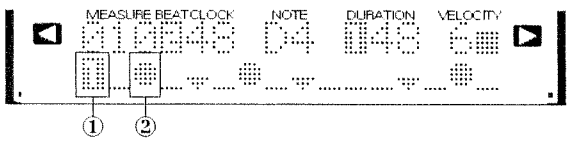
* Event displays can also be made for MIDI messages other than note information (such as Control Change and Pitch Bend messages). See "Displaying Only Needed MIDI Events," p. 46.

■ About the Grid Display

The Step Write screen uses a grid display to show the timing at which input notes are played in sixteenth-note (or triplet eighth-note) intervals. Touching a grid mark directly shifts the timing currently under focus to the timing of the input note on the grid. If two or more notes have been in a grid mark, the timing is shifted to the first note in the grid mark. When no sound has been input, the grid looks like this:



When some sounds have been input, the grid looks something like this:



When a note has been input at the grid mark at the start of the beat, the beat for ① is displayed. When a note has been input an some other grid mark, the symbol of ② is displayed.

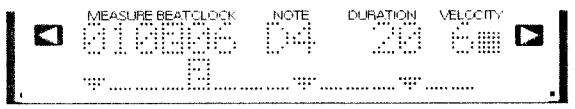
* Touching a grid mark plays the notes in that mark. When there are two or more notes with the grid, touching the grid mark causes all notes to be played at once.

* You can also display the grid marks with an interval of triplet eighth notes ("Displaying the Grid with an Interval of Triplet Eighths" p. 45).

●About Notes Input to Grid Marks

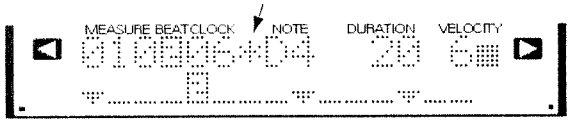
One grid is arranged in sixteenth-note (or triplet eighth-note) intervals. When a note is input, a symbol appears on grid mark for the note's timing. The grid not only displays input notes which have exactly sixteenth-note timing (for example "00" clocks), but also displays notes with some leeway in sixteenth-note timing (for example "00" to "23" clocks).

For instance, a grid display like the one below shows that there is a note with a width of 00 to 23 clocks (in this figure, 06 clocks) on the second beat.



Here, you can move to the next (or previous) MIDI event by touching the right-hand (or left-hand) Page button. This function is used to check the events in a grid one by one.

Also, when a "*" symbol appears in front of a note name, it means that there is more than one set of performance data with the same timing (number of clocks).



●Searching for Notes in a Grid

To move to the sound one before the currently displayed sound (note), touch the left-hand Page button. In the same way, touch the right-hand Page button to move to the next sound. You can also use the Page buttons to search one by one when there are two or more sounds or two or more sounds with identical timing in the same grid mark.

* When the Step Write screen is displayed, the Page buttons function as MIDI Event Search buttons.

■ How to Do Step Write

Do this from the basic screen for the Song mode.

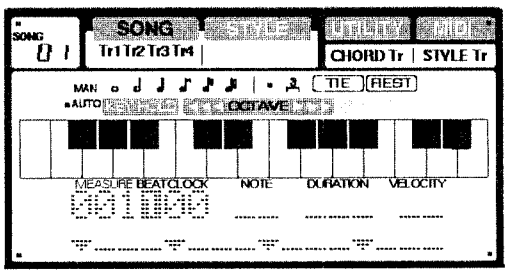
[1] Touch [STEP] to display the Step Standby screen.

he Step Standby screen is used to make the settings for grid interval (p. 45) and the MIDI event View switch (p. 46).

There is normally no need to change any settings.

[2] Touch [STEP] again to display the Step Write screen.

The Step Write Palette appears on the display, and the message area shows the Step Write display.



[3] Touch the corresponding track area to select the track for entering notes (Tr1, Tr2, Tr3, or Tr4).

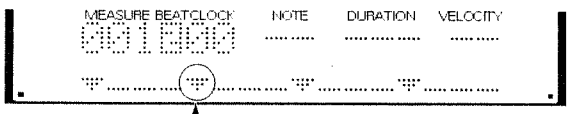
[4] Touch [MAN/AUTO] or Step Write Palette to select "AUTO." Each touch of the [MAN/AUTO] area toggles the dot displayed in front of [MAN] or [AUTO].

We'll use AUTO (Auto Step) to input notes here.

MAN
●AUTO

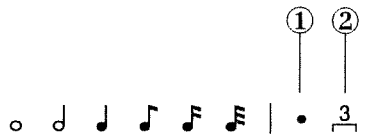
* You can choose either Auto Step, which automatically advances the step (input timing) by the length of the input note when a sound is entered using the touch keyboard, or Manual Step, which does not advance the step when a sound has been input. For more information about [MAN] and [AUTO], take a look at p. 45.

[5] Touch the grid position where you wish to input a note. The cursor moves to the grid mark that you've touched.



Touch here

[6] Select the length of the note from the Step Write Palette. The selected note flashes.



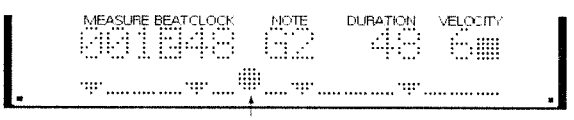
This enter a dotted quarter note, touch the quarter note, then touch "• " — ①. To input triplet eighths, touch the eighth note, then the triplet symbol — ②.

When a note is input using the Step Write Palette, its duration is set as follows.

Duration that is input	Note on the Step Input Palette
𝅝	119
𝅗𝅥	59
♩	29
♪	14
𝅘𝅥𝅯	9
𝅘𝅥𝅰	4

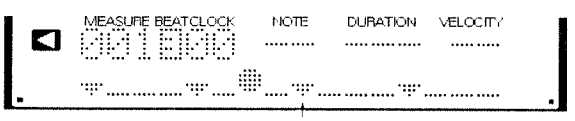
[7] Touch the touch keyboard to input the sound.

The cursor on the grid advances by the length of the note.



Flashing

When the touch keyboard is touched...



Flashing

Take the pen off the touch keyboard

*When inputting a sound with Auto Step, information on the sound now being input ("Note Name," "Duration," and "Velocity") is displayed in the message area while the touch keyboard is being touched. When you take the pen away from the touch keyboard, the cursor advances by the length of the note.

* When using Manual Step, the cursor does not advance. Touch the grid mark for the timing that you want to input next.

[8] Continue in the same way, by first touching the length of the note, then using the touch keyboard to input the pitch.

The note, duration, and velocity can easily be corrected later (p. 48).

■ Inputting Ties and Rests — [TIE] and [REST]

●Inputting a Tie

Touching [TIE] lengthens the duration of the note that has just be entered. The length of a note that is lengthened by Tie is selected using the Step Write Palette. The duration of the note just input is extended by the number of times that you touch [TIE].

For example, if you want to input the notes shown below, you should first enter an eighth note, select a quarter note from the Step Write Palette, then touch [TIE].

You can achieve the same results by entering an eighth note, then touching [TIE] twice.

* [TIE] is lit up only when Tie input is possible.

●Inputting a Rest

To input a rest, first choose the note length, then enter the rest. For instance, if you wish to input an eighth-note rest, you should first enter an eighth note from the Step Write Palette, then touch [REST].

* [REST] is lit up only when Rest input is possible.

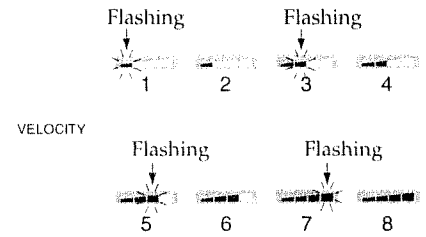
* [TIE] and [REST] do not light up when using Manual Step.

■ Inputting a Note with a Change in Velocity

You can input a sound with eight-stage velocity. Before entering the note with the touch keyboard, use thy Velocity button to choose the velocity. The next sound entered from the touch keyboard is input with the velocity you've selected.

Smaller Larger

Touching the left side of the Velocity area makes the velocity smaller, and touching the right side makes it larger.



■ Auto Step and Manual Step

To can switch between an input method that automatically moves the step after entering a note (Auto Step: AUTO) and a method that does not automatically move the step when a note is entered (Manual Step: MAN).
You can toggle between Auto Step and Manual Step by touching the [MAN/AUTO] display.

Auto Step Manual Step

●Auto Step

Auto Step automatically advances the step by the length of the note when a sound is entered using the touch keyboard. The [TIE] and [REST] buttons can be used during Auto Step. You can extend the duration of the note just input by touching the [TIE] button. The [REST] button inputs a rest with the note length selected from the Step Write Palette. Input can be accomplished quickly and easily using the touch keyboard and the [TIE] and [REST] buttons. Some examples of procedures for Auto Step Write that use [TIE] and [REST] can be found under "Examples of Step Write Procedures" on p. 47.

●Manual Step

With Manual Step, the step is not shifted even when a note is input with the touch keyboard. A not is input after touching the grid to select the timing for input. Manual Step comes in handy for entering a number of notes with identical timing, and for inputting sounds such as for drums that do not need to give consideration to duration.

* [TIE] and [REST] do not light up when using Manual Step.

■ Settings on the Step Standby Screen

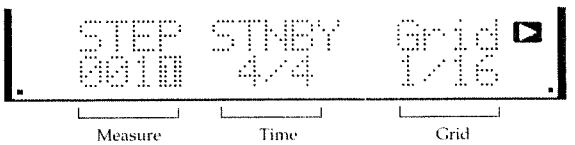
● Setting the Time for a Newly Recorded Measure

You can set the time used during Step Write for a new measure that has not yet been entered.
If a Style has been entered in the Style tracks, the time of the song is determined by the setting for the Style's time, so you can't set the time from the Step Standby screen.

<How to Make the Setting>

[1] Touch [STEP] to display the Step Standby screen.

[2] Drag the time display to change the time.



* If you're at a measure where performance has already been entered, you can't change this setting. It's also impossible to change the setting when a Style has been entered in the Style tracks.

[3] You can carry out Step Write using the time set for step by touching [STEP] again.

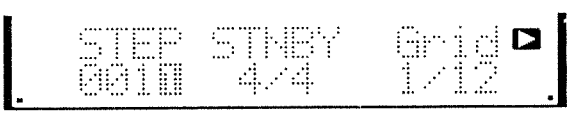
<Setting Values>
1/4 to 7/4, 1/8 to 12/8, or 1/16 to 15/16

●Using Triplets As the Grid Interval

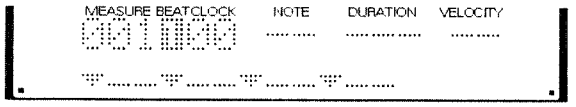
This changes the displayed interval of the grid from sixteenth notes to triplet eighth notes. This should be selected when entering a performance that uses triplets.

[1] At the basic screen for the Song mode, touch the [STEP] button to display the Step Standby screen.

[2] Touch [Grid] on the Step Standby screen to switch the grid interval from sixteenth notes ([1/16]) to triplets eighths ([1/12]).



[3] Touch [STEP] to display the Step Standby screen. The grid interval is displayed in triplet eighth notes.



●Displaying Events Other Than Notes

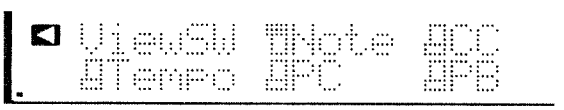
You can select the types of MIDI events (MIDI messages) that are displayed on the Step Standby screen. For instance, you could display only Control Change messages, without displaying ant Note messages.

[1] While in the Song mode, touch [STEP].

The Step Standby screen appears.

[2] Touch the right-hand Page button to display the View Switch screen.

The switches displayed can be used to toggle the events on or off.



Note — Notes are displayed

ACC — Control Changes are not displayed

[NOTE]	Note
[CC]	Control Change
[TEMPO]	Tempo Change
[PC]	Program Change
[PB]	Pitch Bend

■ Inputting Overlaid Notes with Identical Timing

You can't play two different places on the touch keyboard at the same time. If you want to input a chord, here's what you should do:

If you want to input a chord, switch to Manual Step (MAN) and use the touch keyboard to enter each note one at a time. When using Manual Step, the step doesn't advance when a note is input.

If you're using Auto Step and you want to input a chord (that is, two or more notes played at the same time), touch [KEY HOLD] (making the [KEY HOLD] light come on), then use the touch keyboard to select the sounds in the chord one at a time. When you touch [KEY HOLD] to cancel [KEY HOLD] (making the light go out), the notes are input and the step advances automatically.

When notes (events) are input with identical timing, a "✳" symbol is displayed in front of each of the note names.

■ Deleting an Incorrect Note

[1] At the Step Write screen, display the event you wish to delete.

[2] Touch [DEL] to deleted the displayed event.

* When two or more notes have been entered in a single grid mark (p. 43), use the Page buttons to display the note to be deleted, then touch [DEL].

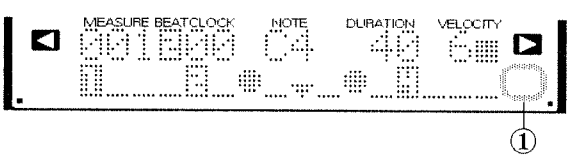
* You can also delete notes grid by grid (p. 73).

■ Displaying the Next Event

When at the Step Write screen, you can touch one of the Page buttons to search for the next MIDI event. This makes it possible to search through notes one by one when there are two or more notes in a single grid mark or two or more notes with identical clocks.

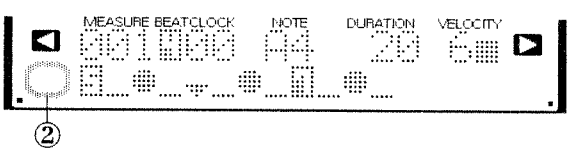
■ Displaying the Grid Screen for the Fifth Beat and After

When using a time signature such as 5/4 or 7/4 that has five or more beats, you can switch between a grid display showing the first four beats and one showing the fifth and later beats.



To display the fifth beat and after, touch the area to the right of the last grid mark — ①.

This switches to a display showing the fifth beat and after.



To return to the display showing the first four beats, touch the area to the left of the leftmost grid mark — ②.

* You can also display the fifth beat and after by dragging the Beat display in the message area to change the beat.

Examples of Step Write Procedures

Let's try using Step Write to enter the song shown in the score below. This is the melody for the song you made using "Chapter 5 — Assembling a Backing Performance" in the Quick Start guide (a separate document).

[1] In the Song mode, choose the song (S01).

[2] Touch the [STEP] button twice to call up the Step Write screen.

[3] Touch [Tr 1] in the track area.

[4] Touch [►►] to move to the fifth bar.

[5] Touch [AUTO/STEP] to select AUTO.

[6] Touch the eighth-note duration in the Step Write pallete.

[7] Use the touch keyboard and the [TIE] and [REST] buttons to input the notes.

This song is made up mainly of eighth notes, so you can use the [TIE] and [REST] buttons effectively to input all notes with eighth-note length. As you enter the notes and measures, just keep in mind how long each of them is in eighth notes.

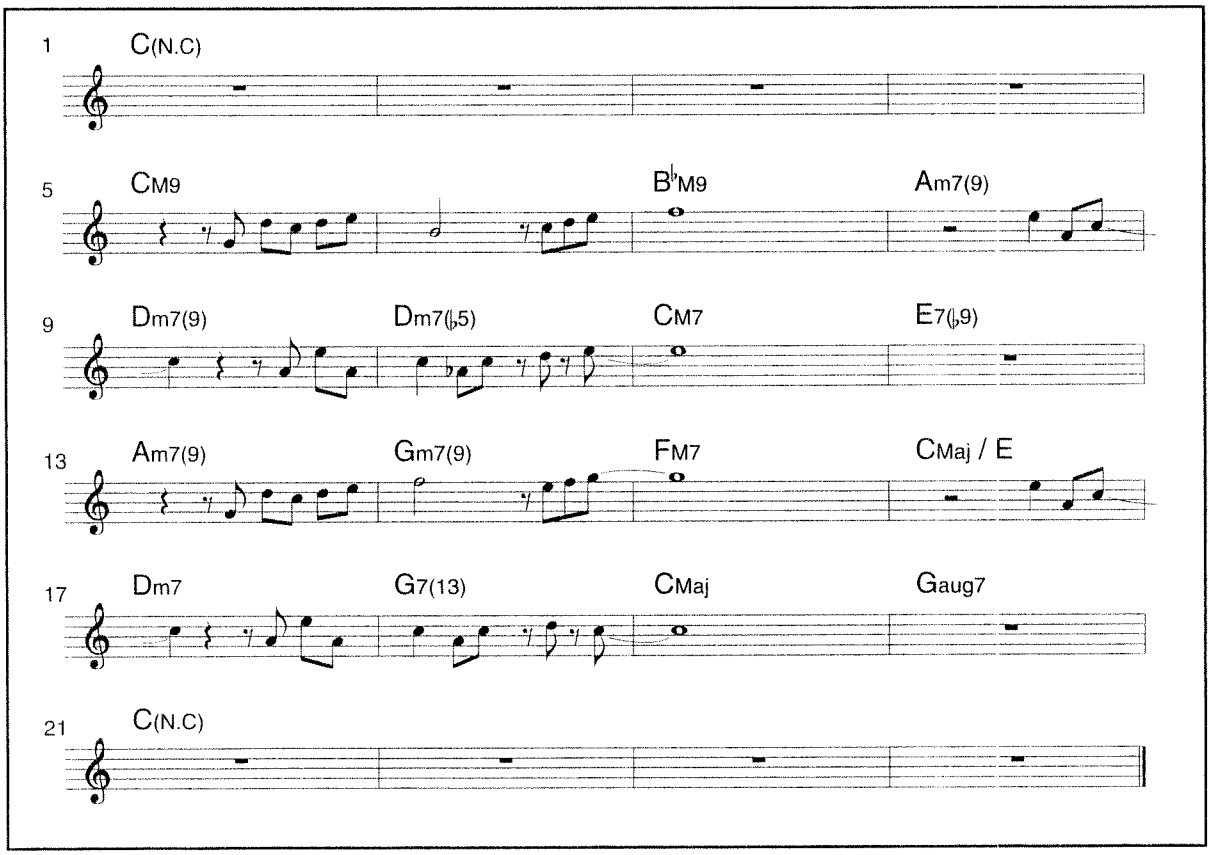
Starting at the fifth measure, touch these:

[REST] [REST] [REST] sol re do mi ti [TIE] [TIE] [TIE] [REST] do re mi fa [TIE] [TIE] [TIE] [TIE] [TIE] [TIE] [TIE] [TIE]

Starting at the eighth measure, touch these:

[REST] [REST] [REST] [REST] mi [TIE] ra do [TIE] [TIE] [REST] [REST] [REST] ra mi ra do [TIE] [TIE] ra♭ do [REST] re [REST] mi [TIE] [TIE] [TIE] [TIE] [TIE] [TIE] [TIE] [TIE] ... (The rest is omitted.)

* [REST] means to touch the [REST] button, and [TIE] means to touch the [TIE] button. For the note names (sol, re, do, etc.), just touch the corresponding notes on the touch keyboard.



Modifying Performance Data

Basic modifications to performance data are made at the Step Write screen. When inputting notes at the Step Write screen, you can modify performance data on the same screen without changing to a different mode. Modifications to performance data created with real-time recording can also be made at the Step Write screen in the same way.

* Songs are edited at the Song Edit Menu screen (p.62).

● Modifications You Can Make at the Step Write Screen

- Change in note height (pitch)
- Change in duration
- Change in velocity

● Modifications You Can Make at the Event Edit Menu Screen>

- Moving a MIDI event (Move Event)
- Copying a grid (Copy Grid)
- Erasing a grid (Erase Grid)
- Entering a MIDI event (Insert Event)

* For more information about the Event Edit Menu, take a look at "Editing an Event" (p. 72).

■ About MEASURE, BEAT, and CLOCK (The Timing Display)

The Step Write screen uses MEASURE, BEAT, and CLOCK to show the location of the MIDI event to be modified in the song.

MEASURE	This shows the bar of the sound (MIDI event) is.
BEAT	This shows the beat of the sound (MIDI event) within the bar.
CLOCK	This shows the position with precision greater than one beat. On the PMA-5, a length corresponding to 1/96th of a beat is taken to be "one clock." In other words, there are 96 clocks in a beat (a beat is the length of a quarter note). This means that the length of an eighth note is 48 clocks, and the length of a sixteenth note is 24 clocks. When displaying the location of a MIDI event, this shows the position from the start of the beat, and not the length of the note.

■ Changing a Note (Pitch)

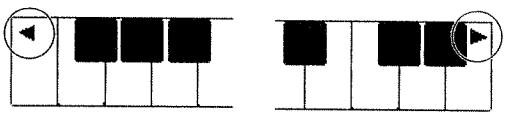
[1] Change to the Step Write screen, and display the information on the note to be changed (note name, duration, and velocity) in the message area. (You can do this by touching the grid or searching with the Page buttons).

[2] Change the pitch by dragging the note name in the message area (or by touching the note name, then touching the [VALUE] buttons).

The Note Map display moves to the changed pitch.

All notes with the same timing are displayed in the Note Map.

If there are two or more notes with the same timing (measure, beat, and clock), all of them are displayed in the Note Map.



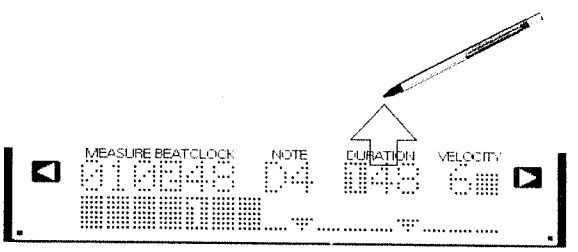
When symbols such as the ones below are displayed at the edges of the touch keyboard, it means that there are more notes in a higher (or lower) range. If you use the [OCTAVE] button to change the range of the displayed octave, these other notes will appear in the Note Map.

■ Changing Duration and Velocity

[1] At the Step Write screen, move the current bar and display the information on the note to be changed (note name, duration, and velocity) in the message area.

[2] Drag the Duration (or Velocity) display in the message area to change the value. The Duration and Velocity displays will flash.

* The grid marks show the duration while the Duration display is being dragged.



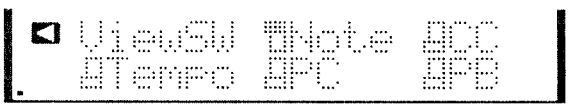
■ Displaying Only Needed MIDI Events (View Switch)

You can choose the type of MIDI events (MIDI messages) that are displayed on the Step Write screen. For instance, you could display only Control Change messages, without displaying ant Note messages.

[1] While in the Song mode, touch [STEP].

The Step Standby screen appears.

[2] Touch the right-hand Page button to display the View Switch screen.



Note — Notes are displayed

CC — Control Changes are not displayed

[3] Use the switches that are displayed to toggle the displayed MIDI events on or off.

[NOTE]	Note
[CC]	Control Change
[TEMPO]	Tempo Change
[PC]	Program Change
[PB]	Pitch Bend

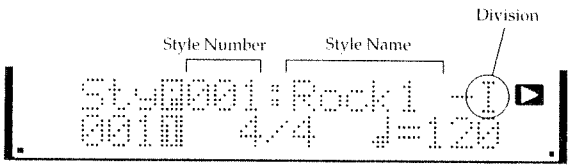
Performing a Style

The Style mode is used to play a single Style.

Choosing a Style

[1] Touch [STYLE] to go into the Style mode.

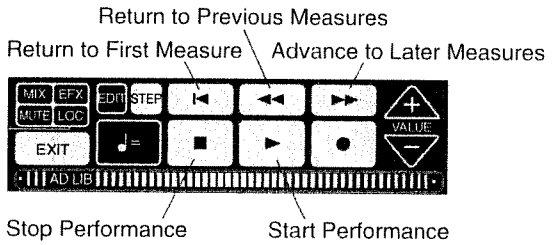
[2] Drag the Style Number display in the message area to choose the Style.



* With the Style numbers, "P" indicates a Preset Style and "U" indicates a User Style. Drag the "P" or "U" to select a Preset Style or User Style.

* With a Preset Style, you can make a selection for each Style Name by dragging the Style Name display (anything other than the division). By dragging the division display, you can change divisions within the same Style.

How to Play a Style



* If you change a Style during a performance, the new Style takes effect starting with the next bar.

* Preset Styles are played using a tempo (Preset Tempo) suited to the corresponding Style.

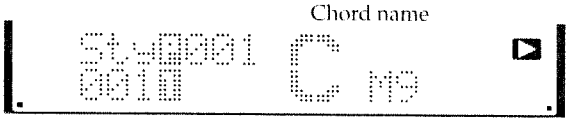
A changed tempo can be returned to the tempo suited to the corresponding Style (the Preset Tempo) by choosing another Style while paused or by touching [⏮].

Changing a Chord to Play a Style

[1] Touch [STYLE] to enter the Style mode.

[2] Touch [CHORD Tr].

The root and chord type are displayed on the touch keyboard, and the chord name of the current measure appears in the message area.



[3] Changing the displayed chord name causes the chord to be played.

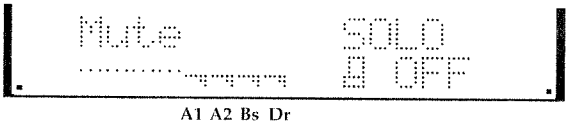
If you change a chord name during a performance, the new chord takes effect starting with the next bar.

For more about how to change a chord, take a look at <How to Input Chords> under "Inputting Chord Tracks" (p. 35).

Muting Tracks

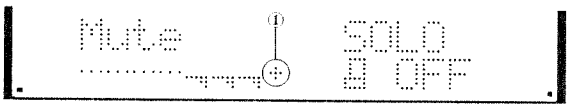
You can mute out the performance data for selected tracks while playing a Style.

[1] Touch [MUTE] to call up the Mute screen.



From left to right, the marks correspond to the A1, A2, Bs, and Dr tracks.

[2] Touching ① in the message area causes the Dr track to be muted out.



Touching ① again cancels the muting.

* Only Style performances can be muted. You can't mute out performance from the touch keyboard.

* Touching [SOLO] in the message area causes only the selected track to be played, with all other tracks muted out.

[3] After making the settings, touch [EXIT] to return to the original screen.

Creating User Styles

You can make up to 200 types of your own User Styles.

* Depending of contents of the User Style performances and song performance data, it may not be possible to store 200 types. (User Styles and song performance data share the same memory.)

There are two methods for recording a User Style on four tracks: real-time recording and Step Write.

Real-time recording is a method that records an actual performance on the keyboard, and is suitable for recording using the touch keyboard of an external MIDI keyboard.

The other method, Step Write, uses the touch keyboard to record each note one at a time. This method is useful when you want to record each note exactly, or when you wish to record a complicated phrase that can't be played on the keyboard.

Next, we'll take a look at how to use each of these methods.

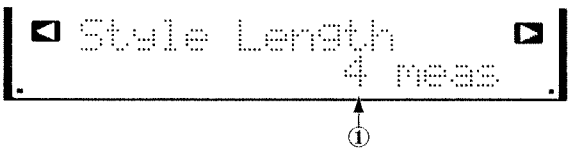
Style Settings

■ Setting the Style Length (Number of Measures) (Style Length)

This sets the length (number of measures) of a User Style.

[1] Touch Style to go into the Style mode.

[2] Touch one of the Page buttons several times to call up the "Style Length" screen.



Drag ① (or touch the [VALUE] buttons) to set the length as the number of bars (from one to eight bars).

* The length of a Style can be changed after the Style has been created.

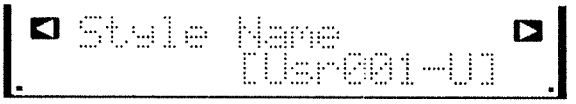
* The number of measures in a Preset Style cannot be changed. If you want to change the length of a Preset Style, copy it to a User Style first (Copy Style), then change the number of bars.

■ Assigning a Style Name (Style Name)

You can give a User Style a name up to eight characters in length.

[1] Touch Style to go into the Style mode.

[2] Touch one of the Page buttons to call up the Style Name screen.



[3] Drag each character in the Style Name ([Usr001-U]) up (or down) to choose the desired character.

As you drag, the characters appear in the upper line. The last character of the Style Name ("U" before the setting is changed) is displayed in the grid on the Step Write screen for the Style tracks. For this reason, we recommend using a different letter for each Style to make it easy to tell Styles apart when using the grid display (p. 34).

* You can't change the Style Name for a Preset Style.

■ Arrange Mode Settings (Arrange Mode)

By changing the Arrange mode settings, you can vary how chord conversion (editing) is carried out for User Styles. For instance, by the setting the Arrange mode for a track with a chord performance to "Chord" and the Arrange mode for a track with an arpeggio performance to "Arpeggio," you can play with a wide range of edits that make full use of a Style's features.

The Arrange mode settings can be made for each of the Style performance tracks (A1, A2, and Bs).

* You can't change the Arrange mode setting for the Dr track (it's locked at "No Arrange").

* Each Preset Style is set to the most appropriate Arrange mode. If you want to change the Arrange mode, copy the Preset Style to a User Style (Copy Style, p. 70), then change the setting.

●Settings and Functions of the Arrange Mode

Obbligato

This is appropriate for performances that contain melodious phrases. The notes in the performance data are shifted to a scale that matches the chord.

Chord

This is best suited to playing only chords. The notes of the performance data are converted to

notes in the chord that is input. Depending on the Style you choose, processing may be carried out to supplement some chords that are lacking. For example, notes for a 7th chord can be added automatically even in performance data that does not have the notes for a 7th chord.

Arpeggio

This is suitable for arpeggio and chord performances. The notes of the performance data are converted to notes in the chord that is input. However, whereas "Chord" fills in any missing notes, this mode replaces the notes with other notes that aren't so important.

Bass

This is suitable for bass performances. Like "Obbligato," Tones in the performance data are shifted to a scale that matches the chord. Notes higher than a certain range are shifted down an octave. When an On Bass chord is selected, the root tone is replaced with the On Bass note.

No Arrange

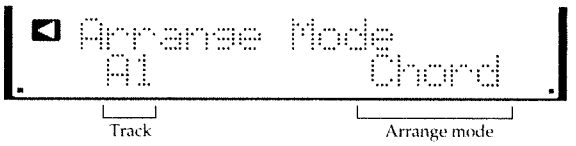
The performance data for a track set to "No Arrange" is played as-is, with no arrangement (chord conversion). The Dr track is forced to this mode.

* If you don't want the performance data in all the tracks of a Style to be passed through the Arranger when playing a song, just enter "C" as the root for the chord track and input "N.C(—)" as the chord type. "N.C" is the setting to use to play the original performance data with no chord conversion.

* When "N.C" (Non Chord type) is input for a chord track, the Arrange mode settings for the Style that's played are ignored.

<Making the Settings>
At the basic screen for the Style mode,

[1] Touch the Page buttons to display the Arrange Mode screen.



[2] Choose a track shown in the Arrange area (A1, A2, or Bs).

[3] make the Arrange mode setting in the message area.

* You can't change the Arrange mode setting for the Dr track. This is always set to "No Arrange."

* The Arrange mode settings for the Bs track are limited to Obbligato, Bass, and No Arrange.

* When the chord type entered for a chord track is "N.C(—)," the Arrange mode setting is ignored.

* You can't change the Arrange mode for a Preset Style.

Storing Tone Settings for a Style

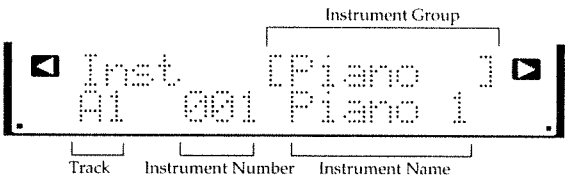
The tone settings for User Style performance tracks (A1, A2, B2, and Dr) can be saved as setup information for the Style. Saving the tone settings as setup information makes it possible to play the tones that were set at any time when a Style has been re-selected. The Style is played with the tones you set here even during a song performance.

* You can change a Style's tones temporarily, but the tones return to those of the setup settings when a different Style is selected or [⏮] is touched while a performance is stopped.

* You can't change the setup settings for the tones of a Preset Style. If you want to change the setup settings for a Preset Style, first copy the Preset Style to a User Style (COPY STYLE), then change the tone settings.

[1] Touch [STYLE] to go into the Style mode.

[2] Touch one of the Page buttons to display the Instrument screen.



[3] Touch the Track area to choose the track whose tone you want to change.

You can also select a track by dragging the Track display in the message area.

[4] Drag the Instrument Name to choose the tone. You can also use the [VALUE] buttons to select a tone.

* You can also select a tone by dragging the Instrument Number or Instrument Group, and not just the Instrument Name (p. 26).

* Only a Drum Set tone can be selected for the Dr track.

* Take a look at the Instrument List (p. 102) for a list of tones that can be selected.

[5] Touch [ENTER].

A confirmation screen appears in the message area.

[6] Touch [Save[in the message area to save the tone settings for the tracks (A1, A2, B2, and Dr) as Style setup information.

Changing Style Track Volume, Pan, and Other Mixer Settings [MIX]

You can adjust and save mixer settings (such as volume and pan) for each of the tracks in a User Style.

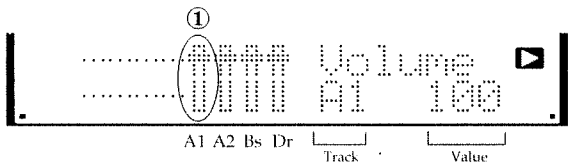
* You can change a Style's mixer settings temporarily, but the settings return to the setup mixer settings when a different Style is selected or [⏮] is touched while a performance is stopped.

* You can't change the mixer setup settings for a Preset Style. If you want to change the setup settings for a Preset Style, first copy the Preset Style to a User Style (COPY STYLE), then change the mixer settings.

In the Style mode,

[1] Touch [MIX]

The Mixer screen appears, and a volume fader for each track is displayed in the message area. From left to right, the four faders correspond to the A1, A2, Bs, and Dr tracks.



* Touching the right-hand Page button calls up the setting screen for Pan, Reverb Send Level, and Chorus Send Level (more about these settings later).

[2] Hold the pen against the fader ① and drag upward (or downward).

The track's volume level changes (you can set this to a value from 0 to 127).

The track you're working with and its volume level are shown in the message area.

[3] To save the setup, touch [ENTER].

[Quit] and [Save] are displayed in the message area.

* If you want to save the mixer settings to a Style, you need to save them as the Style setup. The Style setup is information that is read in automatically when you start to play a Style from its first measure.

[4] Touch [Save] in the message area to save the setup.

If you want to quit without saving the setup, touch [Quit].

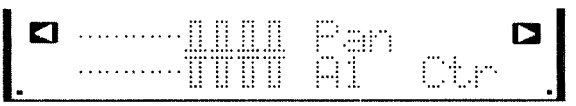
* All mixer settings (the settings for Volume, Pan, Reverb Send Level, and Chorus Send Level) are saved at the same time.

[5] Touch [EXIT] to return to the original screen.

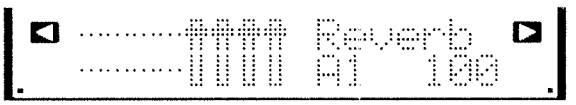
* All mixer settings (volume, pan, reverb send level and chorus send level) will be saved simultaneously.

<Pan>
Pan sets the stereo position of the sonic image during stereo playback. The setting for a centered stereo position is "Ctr."

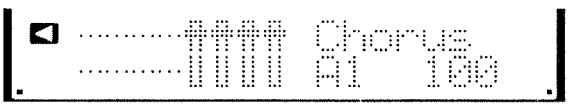
Larger numbers for L move the sound farther to the left, and larger numbers for R move the sound farther to the right (L64 to Ctr to R64).



<Reverb Send Level>
Reverb is an effect that adds lingering undulations on to a sound, producing a sonic image with a feeling of depth. You can adjust the amount of reverb applied to each separate track (setting value: 0 to 127).



<Chorus Send Level>
Chorus makes a sound fatter and broader. You can adjust the amount of chorus applied to each separate track (setting value: 0 to 127).



* The settings for Reverb Type, Reverb Level, Chorus Type, and Chorus Level that are applied to the entire performance are made at the Effect screen [EFX] (p. 32).

Some Notes on Creating User Styles

To make sure that a User Style is played correctly with the chord names specified in the Chord track, the performance data should be created using notes to make up chords with C as the root, or phrases in the key of C.

This is because the Arranger uses notes in the key of C or the notes for a C chord as basis for making a variety of chord conversions.

When creating a performance such as Chord Backing that is composed entirely of chords, the performance data should be made using chords that take C as the root (such as C6 [do mi, sol, la]). Then, when the Arrange mode is set to "Chord" or "Arpeggio," the notes in the performance data are replaces with the constituent notes of the chords. Please note, however, that these Arrange mode settings can't be used to play sounds other than the notes that make up the chords.

On the other hand, you can also make a performance matched to the chord progression even when using melodious phrases, and not just chords. In this case, create the phrases in the key of C. Then, when the Arrange mode is set to "Obbligato," the notes in the performance data are replaced with scale notes matched to the chord progression. When set to "Obbligato," notes other than the ones making up the specified chords may also be played, so depending on the performance data, you may not obtain the feeling of chords.

* For a detailed description of the Arrange mode, take a look at p. 51.
* You can also create a Style in the key you like, then use "Transpose" on the Style Edit menu to transpose the Style to the key of C (p. 69).
* If you want to play the Style you've made as it is, with no chord conversions, input "N.C" (Non Chord Type) in the Chord track (p. 37). This method can be used to create songs with each Style as an independent pattern. However, this uses more Styles than a song that uses chord conversion, so it takes up more memory.

Real-Time Recording (Style)

What you play on the touch keyboard or connected MIDI keyboard is recorded without change.
Real-time recording of a Style records by the overlaying the performance data while repeating the entire Style (Loop Recording).

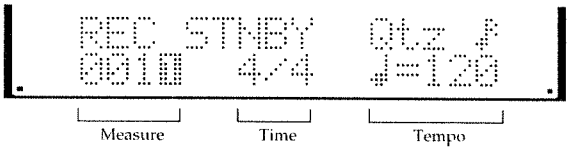
* In the Style mode, there is no setting screen for Recording mode or Count In.

[1] Touch [STYLE] to enter the Style mode.

[2] Choose a User Style (from U001 to U200).

[3] Touch [REC] to call up the Recording Standby screen.

The [REC] button lights up and the Recording Standby screen appears.



Quantize (Qtz)	makes the setting for Quantize (more about this later).
Measure	Sets the measure where recording starts. Real-time recording cannot be started at a beat other than the first.
Time	When the Style is blank, this can be used to set the time (more later). When working with a Style that's already been recorded, this can be used to change the set time.
Tempo	Changes the tempo.

* To leave the Recording Standby screen and return to the basic screen for modes, just touch [STOP].

[4] Touch the track area to choose the recording track (A1, A2, Bs, or Dr).

[5] Touch [PLAY] to start real-time recording. The [PLAY] button flashes in time with the tempo.

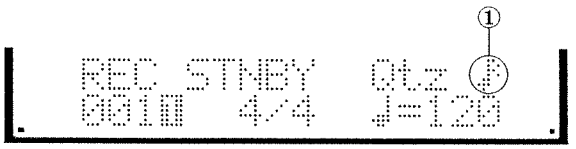
[6] When you've finished recording, touch [STOP].

●Cleaning Up Fluctuations in Timing (Quantize)

Quantize is a function for regularizing fluctuations in the timing of real-time recording. Quantize aligns the timing by forcing the key-on positions to be arranged at uniform intervals. If you record with the Quantize function on, fluctuations in the data are corrected as the data is saved. The setting for Quantize lets you select the degree of precision for the timing.

<Making the Setting for Quantize>

[1] Touch [REC] to display the Recording Standby screen.



[2] Drag ①, or touch ① and use [VALUE] (+ or -), and make the setting for Quantize.

<Settings>

- Quarter note
- Triplet quarters
- Eighth note
- Triplet eighths
- 16th note
- Triplet 16ths
- 32nd note
- Triplet 32nds
- ..... Record without applying Quantize (recorded at a resolution of one quarter note = 96).

* You can also change the Quantize setting while recording is in progress.

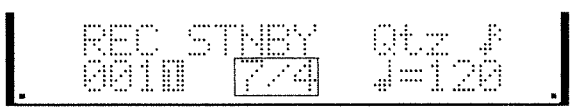
●Setting the Time for a Style

The time for a Style can only be set when no performance data has been entered in the Style. You can't change the time for a Style that's already been recorded.

<How to Make the Setting>
While in the Style mode,

[1] Touch [REC] to display the Recording Standby screen.

[2] Drag the time display to change the time signature.



* You can't change the time of a Style that has already been recorded.

[3] When you touch [PLAY] to start real-time recording, the data is recorded using the time that has been set here.

<Setting Values>
1/4 to 7/4, 1/8 to 12/8, or 1/16 to 15/16

■Rehearsing on the Keyboard While Recording Without Stopping a Performance (Rehearsal Function)

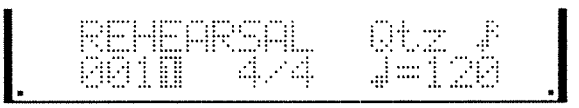
During real-time recording, you can toggle between the recording state and the keyboard test-play state (Rehearsal function) at the touch of a single button. Using the Rehearsal function, you can test-play the keyboard without stopping the performance of the sequencer.

[1] Start recording.

[2] While recording, touch [REC].

[REC] flashes, and the performance continues with no recording carried out (allowing you to test-play the keyboard).

Nothing you now play on the touch keyboard will be recorded.



[3] Touch [REC] again to return to the recording state.

[4] When you're done recording, touch [STOP].

■ Deleting Incorrect Performance Data

Following methods for deleting a portion of a performance are provided:

●Deleting Notes One at a Time

[1] Touch [STEP] to display the Step Standby screen.

[2] Touch [STEP] again to display the Step Write screen.

[3] Display the note (note number, duration, and velocity) of the note to be deleted.

Touch the grid, or touch one of the Page buttons to search through the events one by one.

[4] Touch [DEL] to delete the note.

●Deleting Notes by Grid

This is done using "Erase Grid" on the Event Edit menu. Take a look at p. 73.

●Deleting Notes by Measure

This is done using "Erase Measure" on the Style Edit menu. Check out p. 68.

■ Recording with an External Keyboard

You can perform real-time recording with an external keyboard connected to the PMA-5's MIDI IN jack.

You can record with the external keyboard in the same way as with the touch keyboard. The steps for recording are the same as for the touch keyboard.

* Touch the track area to choose the track to record. The setting for the external keyboard's transmit channel has nothing to do with the recording track.
* Velocity can be recorded at eight stages.
* Check out "About MIDI" (p. 111) for a description of the MIDI messages that can be recorded with the PMA-5.

Step Write (Inputting Notes One by One)

Step Write is a method used to input performance data note by note, specifying each note's length, force, and pitch. At the Step Write screen, a grid shows the timing at which notes in the bar are played, in 16th-note intervals (*1). The pitch that is input is shown by a dot (Note Map) on the touch keyboard. You can also use the Step Write screen to correct performance data made with real-time recording.

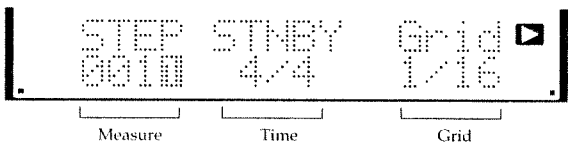
* During Step Write, notes cannot be input from a connected MIDI keyboard.

(*1) Depending on the setting, the grid may display an interval of triplet eighth notes (p. 41).

■ Using Step Write

[1] Touch [STYLE] to go into the Style mode.

[2] Touch [STEP] to display the Step Standby screen.



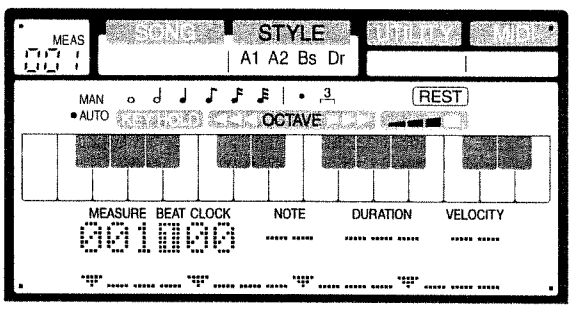
The Step Standby screen is used on the make settings that span a grid (p. 59) as well as View Switch settings for events (p. 60).

Grid — This sets the spacing of the grid marks displayed on the Step Write to sixteenth notes (1/16) or triplet eighth notes (1/12).

Measure — This sets the measure for Step Write. You can also set the measure at the Step Write screen.

Time — This sets the time for the Style. Once performance data has been written to a Style, you can no longer change the time setting (p. 59).

[3] Touch [STEP] again. This displays the Step Write screen.



[4] Touch the track area to choose the track where you want to input notes (A1, A2, B2, or Dr). The selected track flashes.

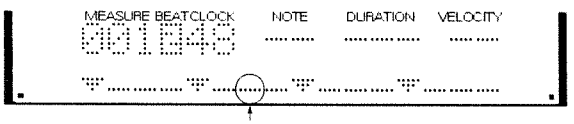
[5] Touch [MAN/AUTO] or Step Write Palette to select "AUTO." Each touch of the [MAN/AUTO] area toggles the dot displayed in front of [MAN] or [AUTO].

We'll use AUTO (Auto Step) to input notes here.

Auto Step — Manual Step

* You can choose either Auto Step, which automatically advances the step (input timing) by the length of the input note when a sound is entered using the touch keyboard, or Manual Step, which does not advance the step when a sound has been input. For more information about [MAN] and [AUTO], take a look at p. 58.

[6] Touch the grid position where you wish to input a note. The cursor moves to the grid mark that you've touched.



Flashing

[7] Select the length of the note from the Step Write Palette. The selected note flashes.

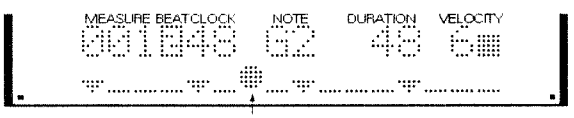
To enter a dotted quarter note, touch the quarter note, then touch "•" — ①. To input triplet eighths, touch the eighth note, then the triplet symbol — ②.

When a note is input using the Step Write Palette, its duration is set as follows.

Duration that is input	Note on the Step Input Palette
𝅝	𝅝
𝅗𝅥	𝅗𝅥
♩	♩
♪	♪
𝅘𝅥𝅯	𝅘𝅥𝅯
𝅘𝅥𝅰	𝅘𝅥𝅰

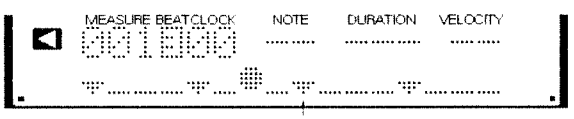
[8] Touch the touch keyboard to input the sound.

The cursor on the grid advances by the length of the note.



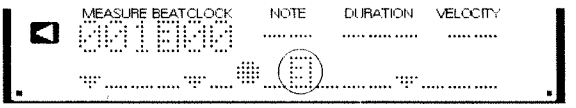
Flashing

When the touch keyboard is touched...



Flashing

Take the pen off the touch keyboard



* When inputting a sound with Auto Step, information on the sound now being input ("Note Name," "Duration," and "Velocity") is displayed in the message area while the touch keyboard is being touched. When you take the pen away from the touch keyboard, the cursor advances by the length of the note.
* When using Manual Step, the cursor does not advance. Touch the grid mark for the timing that you want to input next.

[9] Continue in the same way, by first touching the length of the note, then using the touch keyboard to input the pitch.

● Inputting Ties and Rests — [TIE] and [REST]

Inputting a Tie

Touching [TIE] lengthens the duration of the note that has just be entered. The length of a note that is lengthened by Tie is selected using the Step Write Palette. The duration of the note just input is extended by the number of times that you touch [TIE].

For example, if you want to input the notes shown below, you should first enter an eighth note, select a quarter note from the Step Write Palette, then touch [TIE].

You can achieve the same results by entering an eighth note, then touching [TIE] twice.

* [TIE] is lit up only when Tie input is possible.

Inputting a Rest

To input a rest, first choose the note length, then enter the rest. For instance, if you wish to input an eighth-note rest, you should first enter an eighth note from the Step Write Palette, then touch [REST].

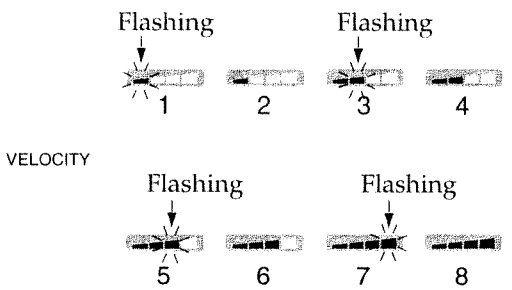
* [REST] is lit up only when Rest input is possible.
* [TIE] and [REST] do not light up when using Manual Step.

●Inputting a Note with a Change in Velocity

You can input a sound with eight-stage velocity. Before entering the note with the touch keyboard, use thy Velocity button to choose the velocity. The next sound entered from the touch keyboard is input with the velocity you've selected.

Smaller Larger

Touching the left side of the Velocity area makes the velocity smaller, and touching the right side makes it larger.



●Auto Step and Manual Step

To can switch between an input method that automatically moves the step after entering a note (Auto Step: AUTO) and a method that does not automatically move the step when a note is entered (Manual Step: MAN).

You can toggle between Auto Step and Manual Step by touching the [MAN/AUTO] display.

Auto Step Manual Step

Auto Step

Auto Step automatically advances the step by the length of the note when a sound is entered using the touch keyboard. The [TIE] and [REST] buttons can be used during Auto Step. You can extend the duration of the note just input by touching the [TIE] button. The [REST] button inputs a rest with the note length selected from the Step Write Palette. Input can be accomplished quickly and easily using the touch keyboard and the [TIE] and [REST] buttons. Some examples of procedures for Auto Step Write that use [TIE] and [REST] can be found under "Examples of Step Write Procedures" on p. 47.

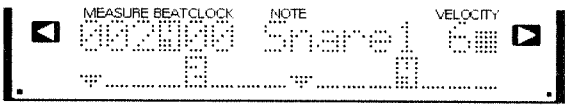
Manual Step

With Manual Step, the step is not shifted even when a note is input with the touch keyboard. A not is input after touching the grid to select the timing for input. Manual Step comes in handy for entering a number of notes with identical timing, and for inputting sounds such as for drums that do not need to give consideration to duration.

* [TIE] and [REST] do not light up when using Manual Step.

■ Using Step Write for the Dr Track

Here's what the Step Write screen for the Dr track looks like:



With Step Write for the Dr track, the drum instrument name is displayed, but no note number is shown.

* The notes displayed on the Step Write Palette are used to specify the interval that the step advances automatically when using Auto Step. Duration is not input.

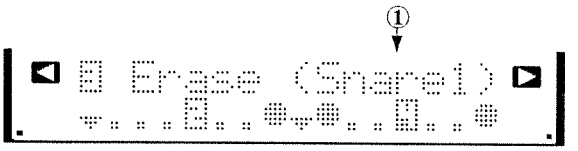
●Deleting a Drum Instrument by Grid

You can delete the sound for only a single drum instrument by deleting an entire grid for the Dr track (Erase Grid). For example, you could delete only the sound of the snare drum from the second to fourth beats.

[1] At the Step Write screen, display the grid for the bar where the sound you want to delete is located.

[2] Touch [EDIT] to display the Event Edit Menu screen.

[3] Touch one of the Page buttons to choose the Erase Grid screen.



[4] Drag Touch ① to choose the instrument to be deleted. You can also select "All" to delete all drum instruments that have been input in the specified range.

[5] Select the grid marks to delete by dragging or touching the grid.

* The notes for the grid mark you've dragged are played.

[6] Touch [ENTER] for a prompt.

[7] Touch [Exec] to Erase the data.

■Settings on the Step Standby Screen

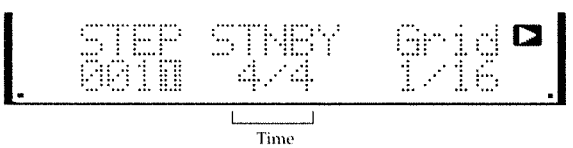
●Setting the Time for a Style

This time setting for a Style can be made only for a Style where no performance data has been input yet. You can't change the time of a Style that contains performance data.

<How to Make the Setting>
While in the Style mode,

[1] Touch [STEP] to display the Step Standby screen.

[2] Drag the time display to change the time.



* You can't change the time of a Style where performance data has already been recorded.

[3] Touch [STEP] again to display the Step Write screen.

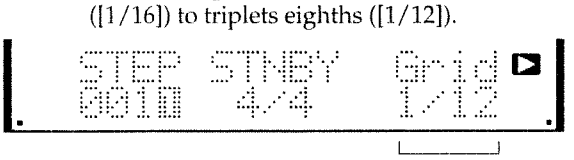
<Setting Values>
1/4 to 7/4, 1/8 to 12/8, or 1/16 to 15/16

●Using Triplets As the Grid Interval

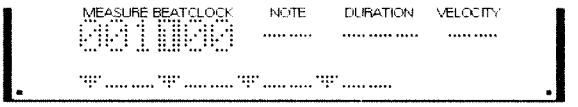
This changes the displayed interval of the grid from sixteenth notes to triplet eighth notes. This should be selected when entering a performance that uses triplets.

[1] At the basic screen for the Style mode, touch the [STEP] button to display the Step Standby screen.

[2] Touch [Grid] on the Step Standby screen to switch the grid interval from sixteenth notes ([1/16]) to triplets eighths ([1/12]).



[3] Touch [STEP] to display the Step Standby screen. The grid interval is displayed in triplet eighth notes.



●Displaying MIDI Events Other Than Notes

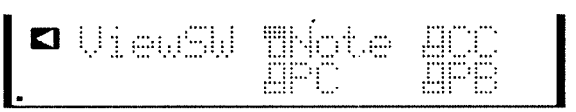
You can select the types of MIDI events (MIDI messages) that are displayed on the Step Standby screen. For instance, you could display only Control Change messages, without displaying any Note messages.

While in the Style mode,

[1] Touch [STEP] to display the Step Standby screen.

[2] Touch the right-hand Page button to display the View Switch screen.

The switches displayed can be used to toggle the events on or off.



[NOTE]	Note
[CC]	Control Change
[PC]	Program Change
[PB]	Pitch Bend

■Inputting Overlaid Notes with Identical Timing

You can't play two different places on the touch keyboard at the same time. If you want to input a chord, here's what you should do:

If you want to input a chord, switch to Manual Step (MAN) and use the touch keyboard to enter each note one at a time. When using Manual Step, the step doesn't advance when a note is input.

If you're using Auto Step and you want to input a chord (that is, two or more notes played at the same time), touch [KEY HOLD] (making the [KEY HOLD] light come on), then use the touch keyboard to select the sounds in the chord one at a time. When you touch [KEY HOLD] to cancel [KEY HOLD] (making the light go out), the notes are input and the step advances automatically.

When notes are input with identical timing, a "*" symbol is displayed in front of each of the note names.

■ Deleting an Incorrect Note

[1] At the Step Write screen, display the MIDI event you wish to delete.

[2] Touch [DEL] to delete the displayed MIDI event.

* When two or more MIDI events have been entered in a single grid mark (p. 43), use the Page buttons to display the note to be deleted, then touch [DEL].

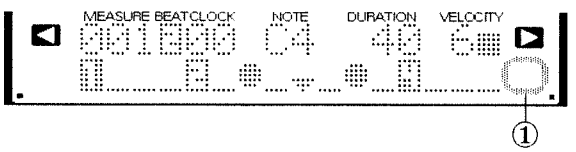
* You can also delete notes grid by grid (p. 73).

■ Displaying the Next MIDI Event

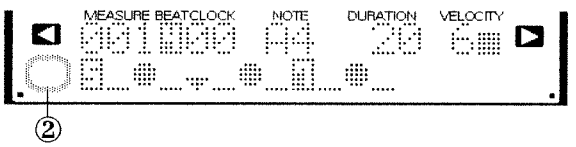
When at the Step Write screen, you can touch one of the Page buttons to search for the next MIDI event. This makes it possible to search through notes one by one when there are two or more notes in a single grid mark or two or more notes with identical clocks.

■Displaying the Grid Screen for the Fifth Beat and After

When using a time signature such as 5/4 or 7/4 that has five or more beats, you can switch between a grid display showing the first four beats and one showing the fifth and later beats.



To display the fifth beat and after, touch the area to the right of the last grid mark — ①.
This switches to a display showing the fifth beat and after.



To return to the display showing the first four beats, touch the area to the left of the leftmost grid mark — ②.

* You can also display the fifth beat and after by dragging the Beat display in the message area to change the beat.

Modifying Performance Data

Basic modifications to performance data are made at the Step Write screen. When inputting notes at the Step Write screen, you can modify performance data on the same screen without changing to a different mode. Modifications to performance data created with real-time recording can also be made at the Step Write screen in the same way.

* Styles can be edited on the Style Edit Menu screen (p. 67).

● Modifications You Can Make at the Step Write Screen

- Change in note height (pitch)
- Change in duration
- Change in velocity

● Modifications You Can Make at the Event Edit Menu Screen

- Moving a MIDI event (Move Event)
- Copying a grid (Copy Grid)
- Erasing a grid (Erase Grid)
- Entering a MIDI event (Insert Event)

* For more information about the Event Edit menu, take a look at "Editing an Event" (p. 72).

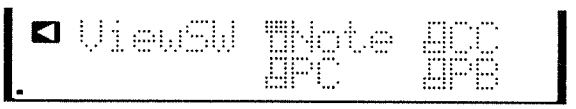
■Displaying Only Needed MIDI Events (View Switch)

You can choose the type of MIDI events (MIDI messages) that are displayed on the Step Write screen. For instance, you could display only Control Change messages, without displaying any Note messages.

[1] While in the Style mode, touch [STEP].

The Step Standby screen appears.

[2] Touch the right-hand Page button to display the View Switch screen.



[3] Use the switches that are displayed to toggle the displayed MIDI events on or off.

[NOTE]	Note
[CC]	Control Change
[PC]	Program Change
[PB]	Pitch Bend

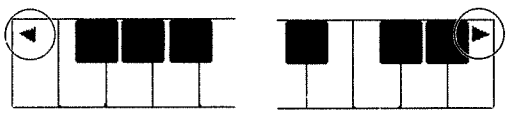
■Changing a Note (Pitch)

[1] Change to the Step Write screen, and display the information on the note to be changed (note name, duration, and velocity) in the message area. (You can do this by touching the grid or searching with the Page buttons).

[2] Change the pitch by dragging the note name in the message area (or by touching the note name, then touching the [VALUE] buttons). The dot on the touch keyboard (Note Map display) moves to the changed pitch.

All notes with the same timing are displayed in the Note Map. If there are two or more notes with the same timing (measure, beat, and clock), all of them are displayed in the Note Map.

When symbols such as the ones below are displayed at the edges of the touch keyboard, it means that there are more notes in a higher (or lower) range. If you use the [OCTAVE] button to change the range of the displayed octave, these other notes will appear in the Note Map.

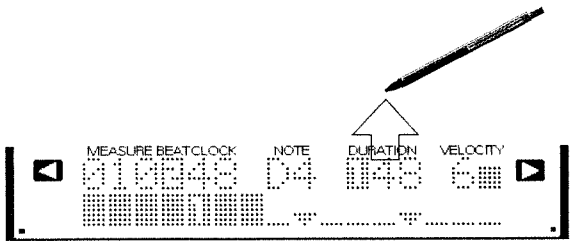


■Changing Duration and Velocity

[1] At the Step Write screen, move the current bar and display the information on the note to be changed (note name, duration, and velocity) in the message area.

[2] Drag the Duration (or Velocity) display in the message area to change the value. The Duration and Velocity displays will flash.

* The length of the grid marks show the duration while the Duration display is being dragged.



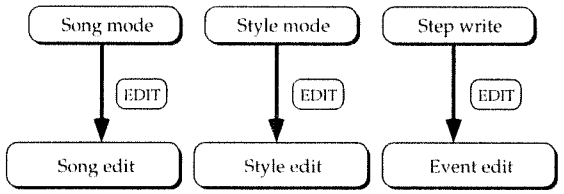
* Duration is not displayed on the Step Write screen for the Dr track.

Editing Song and Style data (EDIT)

You can edit or modify Song or Style data using various edit menu screens.

●Calling up an edit menu

One of the three menus below will appear depending on the mode you're in when you touch [EDIT].



Song Edit menu

Touching [EDIT] in the Song mode will call up the Song Edit menu. In the Song Edit menu, you can edit or modify song data (p.62).

Style Edit menu

If you touch [EDIT] in the Style mode, you can call up the Style Edit menu. This menu is used to edit or modify Style data (p.67).

Event Edit menu

If you touch [EDIT] when the Step Write screen is up, the Event Edit menu gets called up. This menu is for shifting the timing of MIDI events (Move Event), erasing specified grid marks (Erase Grid), copying specified grid marks (Copy Grid) and for inserting MIDI events (Insert Event) (p.72).

When an edit menu is up, you can choose the edit operation by touching the page buttons.
To exit the edit menu, touch [EXIT].

Editing a song (Song Edit)

Song Edit menu screens

The Song Edit menu is used for editing or modifying song data, sequence track data, the Chord track data and the Style track data.
If you touch [EDIT] in the Song mode (except when the Step Write screen is up), the Song Edit menu appears. A page number will be displayed at the left of each screen and screen pages can be changed by touching the page buttons.

To exit the Song Edit menu, touch [EXIT].

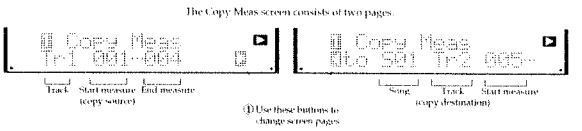
●Song Edit menu

Copying a section (measures) of a song	(Copy Measure)
Erasing a section (measures) of a song	(Erase Measure)
Deleting a section (measures) of a song	(Delete Measure)
Inserting blank measures	(Insert Measure)
Transposing a specified song data area	(Transpose Measure)
Adjusting note timing	(Quantize Measure)
Combining data of two tracks into one	(Merge Track)
Copying a song to another song	(Copy Song)
Clearing entire song data	(Clear Song)
Converting data of sequence tracks (Tr1—4) into Style data	(Convert to Style)

■Copying a section (measures) of a song (Copy Measure)

<Function>
This operation copies a section of song data, which you specify in measures and is convenient when you want to repeat the same phrase several times in a song.

<Screen>



<Settings>

Copy source track	Tr1, Tr2, Tr3, Tr4, 1-4
	* "1-4" will copy all data of Tr1—4 tracks.
Start measure of copy source	001, ..., last measure
End measure of copy source	001, ..., last measure
	* Here you can only specify the start measure of the copy source track or subsequent ones
Copy destination song	S01—S20
	* Specify this parameter when copying data to another song.
Copy destination track	Tr1, Tr2, Tr3, Tr4, 1-4
	* Here "1-4" can only be specified when "1-4" has been selected for the copy source track.
Start measure of copy destination	001, ..., last measure

* Data of the Chord track or Style track cannot be copied.

<Procedure>
When the Song Edit menu is up

[1] Touch the page buttons to call up the Copy Meas screen.

[2] Specify the copy source track, start measure and end measure to be copied.

[3] Touch button ① in the message area to call up the copy destination screen.

[4] Specify the copy destination song, track and start measure you want the data copied to.

[5] Touch [ENTER] for a prompt.

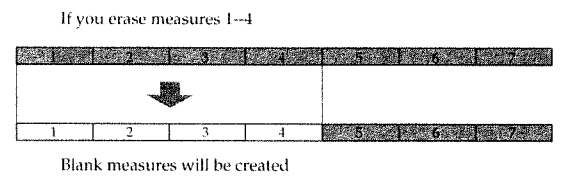
If the measures you've specified for copy destination already contain song data, the prompt "Overwrite OK?" will be displayed. If you execute copying, all the data in the copy destination measures will be overwritten by new data.

[6] To perform a copy operation, touch [Exec] in the message area.

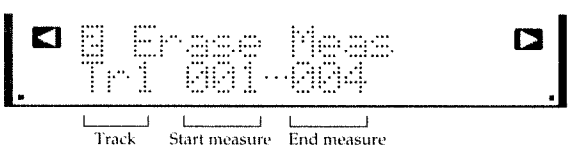
If you don't want to, touch [Quit].

■ Erasing a section (measures) of a song (Erase Measure)

<Function>
This operation erases a section of song data that you specify in measures. Use this to erase data that you input by mistake. As the erase operation executes, the specified area of the original data will empty (blank measures).



<Screen>



<Settings>

Track from which data will be erased	Tr1, Tr2, Tr3, Tr4, 1-4 Cho (Chord Tr), Sty (Style Tr), ALL * "1-4" erases data from tracks 1—4. * "ALL" erases data from all tracks 1—4, the Chord track and the Style track.
Start measure of the data area to be erased	001, ..., last measure
End measure of the data area to be erased	001, ..., last measure

*You can only specify the start measure of the data area to be erased or subsequent measures.

<Procedure>
When the Song Edit menu is up

[1] Touch the page buttons to call up the Erase Meas screen.

[2] Specify the track, start measure and end measure from which you want to erase data.

[3] Touch [ENTER] for the prompt.

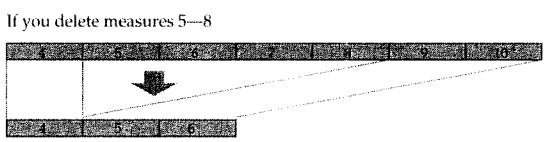
[4] If you want to erase data, touch [Exec] in the message area.

If not, touch [Quit].

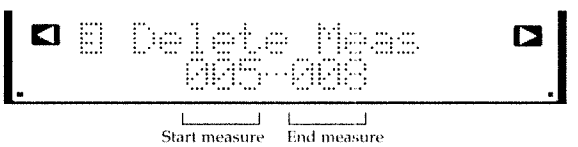
* To erase a Style you've input on the Style track, erase the start measure of that Style (the grid mark showing a character). If you erase other measures, the Style will still be in effect.
* If you erase a chord input on the Chord track, succeeding performances will use the chord just before the one you erased.

■ Deleting a section (measures) of a song (Delete Measure)

<Function>
This operation deletes a section of song data you specify in measures, and moves existing data forward to fill the gap. This function can be used to remove unwanted measures. Deleting will shorten the song's total length (number of measures).



<Screen>



<Settings>

Start measure of the area to be deleted	001, ..., last measure
End measure of the area to be deleted	001, ..., last measure

* Only the start measure to be deleted or subsequent ones can be specified here.

* There is no item to select tracks from which data is to be deleted. This operation will delete all the data on the sequence tracks, the Chord track and the Style track.

<Procedure>

When the Song Edit menu is up

[1] Touch the page buttons to call up the Delete Meas screen.

[2] Specify the start measure and end measure from which you want to delete data.

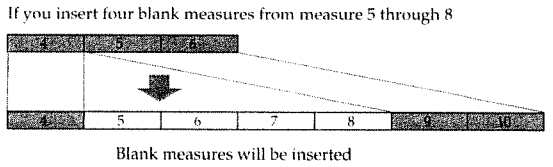
[3] Touch [ENTER] for the prompt.

[4] When deleting, touch [Exec] in the message area.

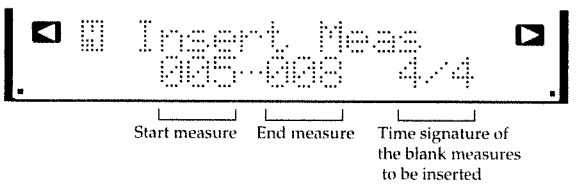
■Inserting blank measures (Insert Measure)

<Function>

This operation inserts blank measures into a specified location in a song. If you want to add song data in the middle of a song, use this function to insert blank measures into all tracks at the desired location, then record new song data onto these blank measures.



<Screen>



<Settings>

Start measure of the area into which blank measures will be inserted

001, ..., last measure

End measure of the area into which blank measures will be inserted

001, ..., last measure

* Only the start measure at which blank measures will be inserted and subsequent ones can be specified here.

Time signature of blank measures to be inserted

1/4-7/4, 1/8-12/8, 1/16-15/16

* There is no item to select tracks into which blank measures will be inserted. Blank measures will be inserted into all sequence tracks, the Chord track and the Style track.

<Procedure>

When the Song Edit menu is up

[1] Touch the page buttons to call up the Insert Meas screen.

[2] Specify the start measure and end measure into which you want to insert blank measures and the time signature of the blank measures.

[3] Touch [ENTER] for the prompt.

[4] If you want to insert blank measures, touch [Exec] in the message area.

If not, touch [Quit].

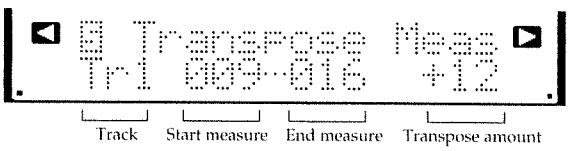
■Transposing a specified area of song data (Transpose Measure)

<Function>

This transposes a specified area of song data over a ±two-octave range (-24— +24) in semitone steps. Use this function when you want to modulate from one key to another in a song.

* When transposing the key of an entire song, use the Song parameter, Transpose (p.85).

<Screen>



<Settings>

Track to be transposed Tr1, Tr2, Tr3, Tr4, 1-4, Cho (Chord Tr)

* "1-4" transposes the pitch of data for tracks 1—4.

* "Cho" transposes the root of the chord input to the Chord track.

Start measure of the area for transposing 001, ..., last measure

End measure of the area for transposing 001, ..., last measure

* Only the start measure of the area to be transposed and subsequent ones can be specified here.

Transpose amount -24— +24

* Specified in semitone steps.

<Procedure>

When the Song Edit menu is up

[1] Touch the page buttons to call up the Transpose Meas screen.

[2] Specify the start measure and end measure of the area you want to transpose, as well as the transpose amount.

[3] Touch [ENTER] for the prompt.

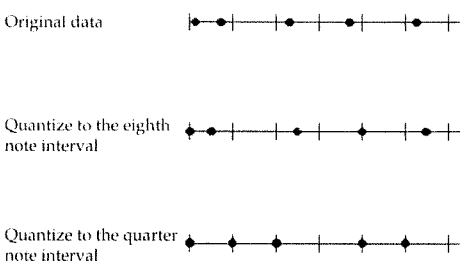
[4] If you want to transpose, touch [Exec] in the message area.

If not, touch [Quit].

■Adjusting note timing (Quantize Measure)

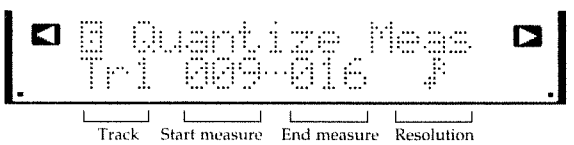
<Function>

This adjusts note timing by moving notes toward the nearest interval of a specified note value (resolution). Use it to get rid of timing mistakes that often occur during realtime recording.



* Quantization adjusts only the timing of note messages, without affecting the timing of other MIDI massages.

<Screen>

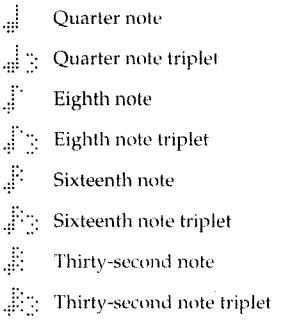


<Settings>

Track containing data to be quantized	Tr1, Tr2, Tr3, Tr4
Start measure of the area to be quantized	001, ..., last measure
End measure of the area to be quantized	001, ..., last measure

* Only the start measure of the area specified for quantization and subsequent ones can be specified here.

Resolution	Refer to the following



<Procedure>

When the Song Edit menu is up

[1] Touch the page buttons to call up the Quantize Meas screen.

[2] Specify the start measure and end measure of the area you want to quantize, and the resolution desired.

[3] Touch [ENTER] for the prompt.

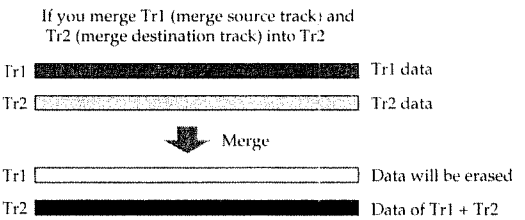
[4] If you want to quantize, touch [Exec] in the message area.

If not, touch [Quit].

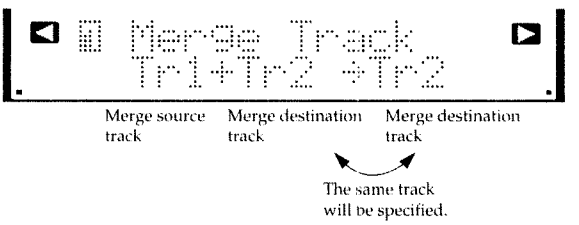
■Combining data of two tracks into one (Merge Track)

<Function>

This merges (combines) data of two tracks into one of the tracks.



<Screen>



<Settings>

Merge source track	Tr1, Tr2, Tr3, Tr4

* Data of the merge source track will be erased.

Merge destination track	Tr1, Tr2, Tr3, Tr4

* The source track data and destination track data are combined and the original destination track data will be overwritten by the combined data.

<Procedure>

When the Song Edit menu is up

[1] Touch the page buttons to call up the Merge Track screen.

[2] Specify the source track and destination track whose data you want to merge.

[3] Touch [ENTER] for the prompt.

[4] If you want to merge, touch [Exec] in the message area.

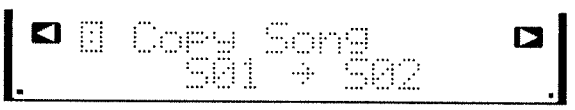
If not, touch [Quit].

■Copying a song to another song (Copy Song)

<Function>

This copies one song to another song.

<Screen>



Copy source song Copy destination song

<Settings>

Copy source song	S01—S20
Copy destination song	S01—S20

* If the copy destination song is empty, an asterisk "*" appears after the Song Number.

<Procedure>

When the Song Edit menu is up

[1] Touch the page buttons to call up the Copy Song screen.

[2] Specify the copy source song and copy destination song you want.

[3] Touch [ENTER] for the prompt.

If the song you've specified for copy destination already contains data, the "Overwrite OK?" prompt will be displayed. If you execute copying, the copy destination song will be overwritten by the new one.

[4] For copying, touch [Exec] in the message area.

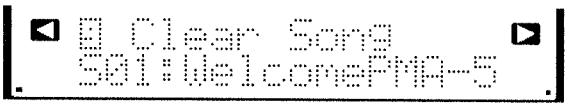
If not, touch [Quit].

■Clearing all song data (Clear Song)

<Function>

This operation erases all a song's data. Use this function to clear the original song and create a new song.

<Screen>



Song to be cleared

<Settings>

Song to be cleared S01—S20

* The demo song S21 cannot be cleared.

All the song data (*1) and song parameter (*2) values will be erased.

*1 "Song data" refers to data of the sequence tracks (Tr1, Tr2, Tr3 and Tr4), the Style track and the Chord track.

*2 "Song parameters" refer to the settings you make on each screen page that is called up using the page buttons on the basic screen for the Song mode. Song parameters include tone settings for each sequence track and initial tempo settings (p.84).

<Procedure>

When the Song Edit menu is up

[1] Touch the page buttons to call up the Clear Song screen.

[2] Select the song you want to clear.

[3] Touch [ENTER] for the prompt.

[4] To clear song data, touch [Exec] in the message area.

If not, touch [Quit].

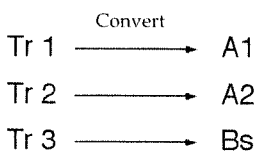
■Converting sequence track (Tr1—4) data into Styles (Convert to Style)

<Function>

This converts sequence track (Tr1, Tr2, Tr3 and Tr4) data into User Style performance track (A1, A2, Bs and Dr) data. This function is useful when you want to extract part of sequence track data and create a User Style.

* When converting a Style's performance data to sequence track data, use the Style Edit menu (p.71).

Conversion will take place according to the following:

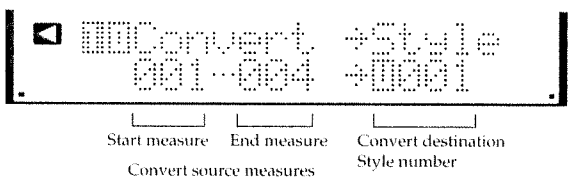


If a drum part (*1) is assigned to track 4 (Tr4), Tr4 data will be directly converted to Drum track (Dr) data. If not, Tr4 data will not be converted to Dr data, and only Tr1, Tr2 and Tr3 data will be converted to A1, A2 and Bs data, respectively. At the same time, Dr data will be erased.

(*1) Drum part

If you select "DrumSet" as the Instrument Group for Tr4, drums and other percussion instruments will be assigned to Tr4, which is set as a drum part. Dr track is always kept as the drum part.

<Screen>



<Settings>

Start measure of the convert source	001, ..., last measure
End measure of the convert source	001, ..., last measure

* Only the start measure of the convert source and subsequent ones can be specified here.

* Up to eight measures can be converted.

Convert destination Style number	U001—U200

<Procedure>

When the Song Edit menu is up

[1] Touch the page buttons to call up the 10 Convert→ Style screen.

[2] Specify the start measure and end measure of the area to convert and the Style number you want to convert that data to.

[3] Touch [ENTER] for the prompt.

If the measures of the Style you've specified for the convert destination already contain song data, the "Overwrite OK?" prompt will be displayed. If you execute conversion, all the data in the destination Style measures will be overwritten by new data.

[4] If you want to perform conversion, touch [Exec] in the message area.

If not, touch [Quit].

Editing Styles (Style Edit)

●Style Edit menu screens

The Style Edit menu is used for editing or modifying Styles or data of Style performance tracks (A1, A2, Bs and Dr). If you touch [EDIT] in the Style mode (except when the Step Write screen is up), the Style Edit menu will appear. A page number will be displayed on the left-hand side of each screen and screen pages can be changed by touching the page buttons.
To exit the Style Edit menu, touch [EXIT].

●Style Edit menu

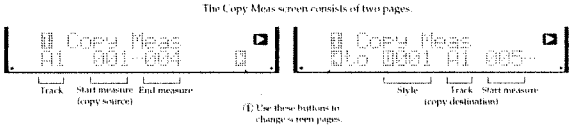
Copying a section (measures) of a Style	(Copy Measure)
Erasing a section (measures) of a Style	(Erase Measure)
Transposing a specified area of a Style	(Transpose Measure)
Adjusting note timing	(Quantize Measure)
Combining data of two tracks into one	(Merge Track)
Copying a Style to another Style	(Copy Style)
Clearing an entire Style	(Clear Style)
Converting a Style to sequence track (Tr1—4) data	(Convert to Song)

■Copying a section (measures) of a Style (Copy Measure)

<Function>

This copies a section of Style data which you specify in measures. It's convenient when you want to repeat the same phrase several times in a song.

<Screen>



<Settings>

Copy source track A1, A2, Bs, Dr, ALL

* "ALL" copies data of all Style performance tracks (A1, A2, Bs, Dr).

Start measure of copy source 001—008 (last measure)

* A Style consists of up to eight measures.

End measure of copy source 001—008 (last measure)

* It is only possible to specify the start measure of the copy source track or subsequent ones here

Copy destination Style U001—U200

* Specify this parameter only when copying Style data to another Style.

Copy destination track A1, A2, Bs, Dr, ALL

* "ALL" can only be specified only when "ALL" has been selected for the copy source track.

* If "Dr" is specified for the copy source track, "Dr" will also be selected for the copy destination track.

Start measure of copy destination 001—008 (last measure)

* Style data will be copied from the start measure of the copy destination over the length of copy source measures.

* If the copy destination measures are not long enough due to too short a Style (the length of copy destination measures is shorter than that of copy source measures) being used, the remaining copy source measures will not copied.

<Procedure>

When the Style Edit menu is up

[1] Touch the page buttons to call up the Copy Meas screen.

[2] Specify the copy source track, start measure and end measure you want to copy.

[3] Touch button ① in the message area to call up the copy destination screen.

The copy destination screen can also be displayed by touching [ENTER].

[4] Specify the copy destination Style, track, start measure and end measure you want to copy the data to.

[5] Touch [ENTER] for the prompt.

If the measures of the Style you've specified for copy destination already contain data, the "Overwrite OK?" prompt will be displayed. If you execute copying, all the data in the copy destination measures will be overwritten by new data.

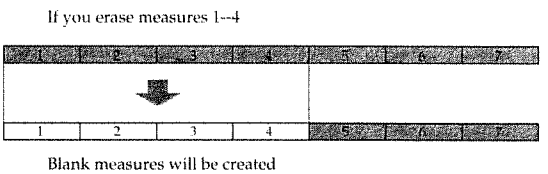
[6] If you want to copy, touch [Exec] in the message area.

If not, touch [Quit].

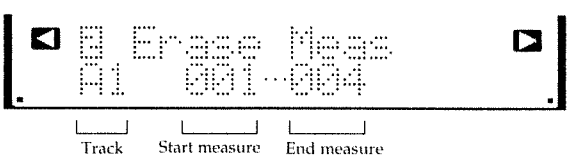
■Erasing a section (measures) of a Style (Erase Measure)

<Function>

This operation erases a section of Style data which you specify in measures. Use this function to erase data that you have input by mistake. Erasing will not affect the length of the Style (number of measures).



<Screen>



<Settings>

Track from which data will be erased A1, A2, Bs, Dr, ALL

* "ALL" erases data of all Style performance tracks (A1, A2, Bs and Dr).

Start measure of the data area to be erased
001—008 (last measure)

End measure of the data area to be erased
001—008 (last measure)

* Only the start measure of the data area to be erased or subsequent ones can be specified here.

<Procedure>

When the Style Edit menu is up

[1] Touch the page buttons to call up the Erase Meas screen.

[2] Specify the track, start measure and end measure from which data is to be erased.

[3] Touch [ENTER] for the prompt.

[4] If you want to erase, touch [Exec] in the message area.

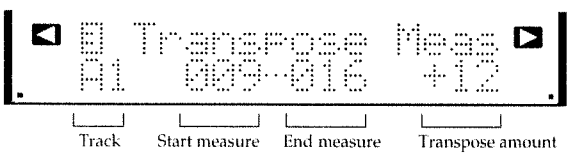
If not, touch [Quit].

■Transposing a specified area of Style data (Transpose Measure)

<Function>

This transposes a specified area of Style data over a two-octave range (-24— +24) in semitone steps.

<Screen>



<Settings>

Track to be transposed	A1, A2, Bs, ALL

* "ALL" transposes A1, A2 and Bs tracks.

Start measure of the area to be transposed
001—008 (last measure)

End measure of the area to be transposed
001—008 (last measure)

* Only the start measure of the area to be transposed and subsequent measures can be specified here.

Transpose amount	-24— +24

* Specified in semitone steps.

<Procedure>

When the Style Edit menu is up

[1] Touch the page buttons to call up the Transpose Meas screen.

[2] Specify the start measure and end measure of the area you want to transpose, as well as the transpose amount.

[3] Touch [ENTER] for the prompt.

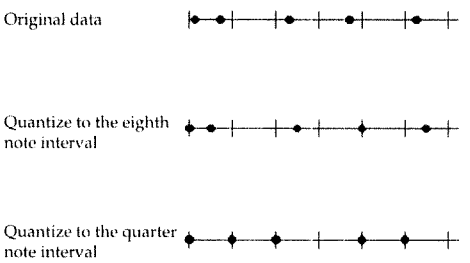
[4] If you want to transpose, touch [Exec] in the message area.

If not, touch [Quit].

■Adjusting the timing of notes (Quantize Measure)

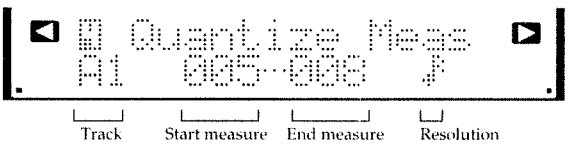
<Function>

This operation adjusts note timing by moving notes toward the nearest interval of the specified note value (resolution). Use it to get rid of timing mistakes that often occur during realtime recording.



* Quantization adjusts only the timing of note messages, without affecting the timing of other MIDI massages.

<Screen>



<Settings>

Track containing data to be quantized	A1, A2, Bs, Dr

Start measure of the area to be quantized
001—008 (last measure)

End measure of the area to be quantized
001—008 (last measure)

* Only the start measure of the area specified for quantization and subsequent measures can be specified here.

Resolution	See below

- Quarter note
- Quarter note triplet
- Eighth note
- Eighth note triplet
- Sixteenth note
- Sixteenth note triplet
- Thirty-second note
- Thirty-second note triplet

<Procedure>

When the Style Edit menu is up

[1] Touch the page buttons to call up the Quantize Meas screen.

[2] Specify the start measure and end measure of the area you want to quantize, and the resolution desired.

[3] Touch [ENTER] for the prompt.

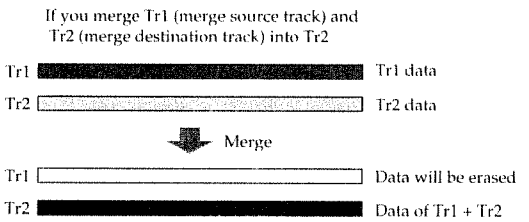
[4] If you want to quantize, touch [Exec] in the message area.

If not, touch [Quit].

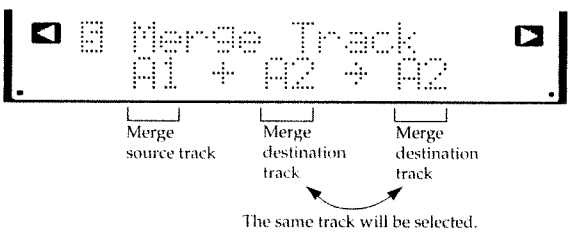
■Combining data of two tracks into one (Merge Track)

<Function>

This merges (combines) data of two tracks into one of these tracks.



<Screen>



<Settings>

Merge source track	A1, A2, Bs

* Performance data of the merge source track will be erased.

Merge destination track	A1, A2, Bs

* The source track data and destination track data are combined and the original destination track data will be overwritten by the merged data.

<Procedure>

When the Style Edit menu is up

[1] Touch the page buttons to call up the Merge Track screen.

[2] Specify the source track and destination track for which you want to merge data.

[3] Touch [ENTER] for the prompt.

[4] If you want to merge data, touch [Exec] in the message area.

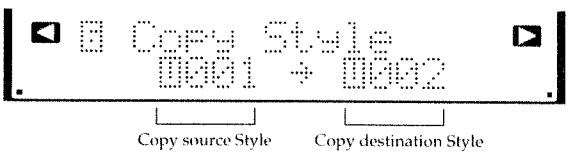
If not, touch [Quit].

■Copying a Style to another Style (Copy Style)

<Function>

This copies a Style's performance data (A1, A2, Bs and Dr) to another Style.

<Screen>



<Settings>

Copy source Style	P001—P600, U001—U200

* A demo song can be copied to another song.

Copy destination	Style U001—U200

* If the copy destination Style is empty, an asterisk "*" will appear after the Style number.

<Procedure>

When the Style Edit menu is up

[1] Touch the page buttons to call up the Copy Style screen.

[2] Specify the copy source Style and copy destination Style you want.

[3] Touch [ENTER] for the prompt.

If the Style you've specified for the copy destination already contains performance data, the "Overwrite OK?" prompt will be displayed. If you execute copying, the copy destination Style will be overwritten by the new Style.

[4] When performing copying, touch [Exec] in the message area.

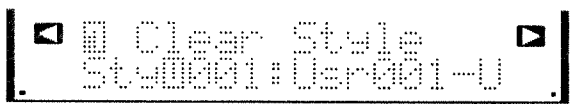
If not, touch [Quit].

■Clearing all Style data (Clear Style)

<Function>

This erases all performance data of a Style. Use this function to erase a Style and create a new one.

<Screen>



<Settings>

Style to be cleared	U001—U200

* Preset Styles (P001—P600) cannot be cleared.

All the Style parameter (*1) values will be erased.

(*1) "Style parameters" refer to the settings you make on each screen page that can be called up using the page buttons on the basic screen for the Style mode. Style parameters include tone settings for each Style performance track (A1, A2, Bs and Dr) and Style name settings (p.86).

<Procedure>

When the Style Edit menu is up

[1] Touch the page buttons to call up the Clear Style screen.

[2] Select the Style you want to clear.

[3] Touch [ENTER] for the prompt.

[4] To conduct Style clear, touch [Exec] in the message area.

If not, touch [Quit].

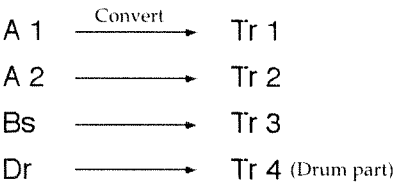
■Converting data of Style performance tracks into sequence track (Tr1—Tr4) data (Convert to Song)

<Function>

This converts Style performance track (A1, A2, Bs and Dr) data into sequence track (Tr1, Tr2, Tr3 and Tr4) data. Use this function when using Style data on sequence tracks.

* When converting data of sequence tracks into Style data, use the Song Edit menu (p.67).

Conversion will take place according to the following:

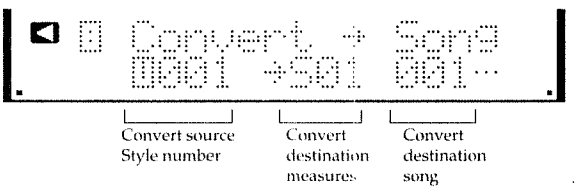


If a drum part is assigned to Tr4, Drum track (Dr) data will be directly converted into Tr4 data.
If not, Dr data will not be converted to Tr4 data, and only the A1, A2 and Bs data will be converted into Tr1, Tr2 and Tr3 data, respectively. At the same time, Tr4 data will be erased.

* Drum part: If you select "DrumSet" as the Instrument Group for Tr4, drums and other percussion sounds will be assigned to Tr4, which is set as a drum part. The Dr track is always kept as the drum part.

* Only the performance data will be converted. Tone and mixer settings will not be converted.

<Screen>



<Settings>

Convert source Style	P001—P600, U001—U200
Convert destination song	S01—S20
Start measure of convert destination	001, ..., last measure

<Procedure>

When the Style Edit menu is up

[1] Touch the page buttons to call up the Covert → Song screen.

[2] Specify the Style you want to covert and the song you want to convert the Style to, and its start measure.

[3] Touch [ENTER] for the prompt.

If the convert destination song measures you've specified already contain performance data, the "Overwrite OK?" prompt will be displayed. If you convert, all the data in the destination measures will be overwritten by new data.

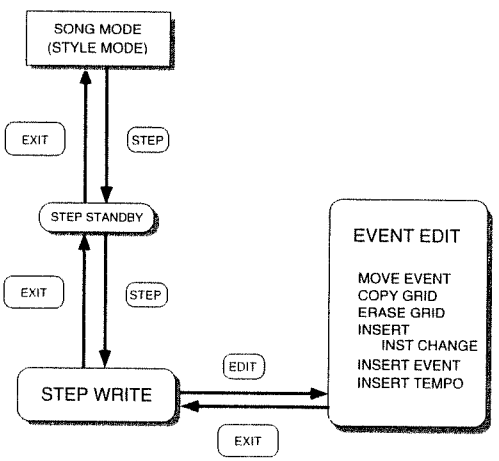
[4] If you want to convert, touch [Exec] in the message area.

If not, touch [Quit].

Editing MIDI events (Event Edit)

●Event Edit menu screens

The Event Edit menu is used to move MIDI events, copy and delete a grid mark or grid area, or insert MIDI events.
If you touch [EDIT] when the Step Write screen is up, the Event Edit menu will appear. A page number will be displayed on the left of each screen and screen pages can be changed by touching the page buttons.
To exit the Event Edit menu, touch [EXIT].



●Event Edit menu

Shifting note timing	(Move Event)
Copying a section (grid marks) of data	(Copy Grid)
Erasing a section (grid marks) of data	(Erase Grid)
Changing instrument during a song	(Insert Inst Change)
Inserting MIDI events	(Insert Event)
Changing the tempo during a song	(Insert Tempo)

■Shifting note timing (Move Event)

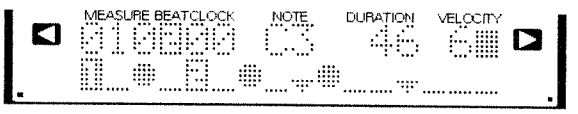
<Function>

This operation shifts the timing of input notes or MIDI events to a different point. This is also useful for correcting realtime recorded data timing.

<Procedure>

[1] Touch [STEP] twice to call up the Step Write screen.

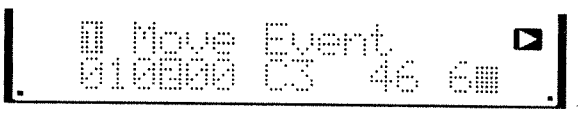
[2] Display the note (or event) you want to move by touching the grid, etc.



[3] Touch [EDIT] to call up the Event Edit menu.

[4] Touch the page buttons to call up the Move Event screen.

The note you've called up on the Step Write screen is displayed in the message area.



[5] Drag the Measure/Beat/Clock in the message area up/down to select the time you want to move to.

Note/Duration/Velocity values cannot be modified.

To re-select a note to move, touch [EXIT] then repeat steps from [2] on.

[6] Touch [ENTER] for the prompt.

[7] If you want to move the note, touch [Exec].

The note has moved.

To cancel moving, touch [Quit].

■Copying a section (grid marks) of data (Copy Grid)

<Function>

You can copy data in units of grid marks using the grid displayed on the Step Write screen. You can specify either one grid mark or multiple continuous grid marks as the copy source.

* When copying data from one track to another, or copying measures to other measures, use Copy Measure (p.62 p.68).

<Procedure>

[1] Touch [STEP] twice to call up the Step Write screen.

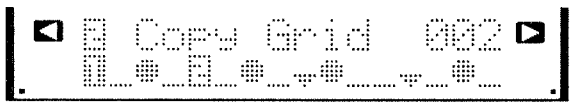
[2] Display the grid mark you want to copy by moving to another measure.

[3] Touch [EDIT] to call up the Event Edit menu.

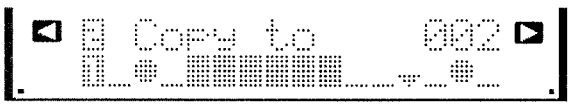
[4] Touch the page buttons to call up the Copy Grid screen.

[5] Touch the grid mark you want to copy. To specify a grid mark area, drag the grid. The specified area will flash. When moving from one measure to another, drag the Measure displayed in the message area.

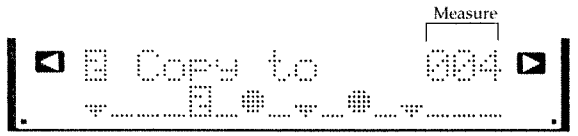
* An area to be copied beyond the current measure cannot be specified.



[6] Touch [ENTER] and the copy source will be finalized. The screen to specify copy destination (Copy to) appears.

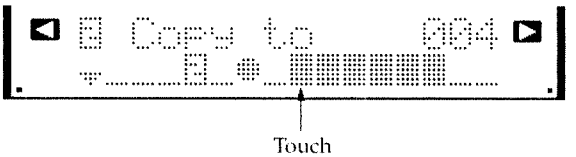


[7] Drag the Measure to display the copy destination grid.



[8] Touch the start grid mark of the copy destination. The area of the grid over which data will be copied will flash. Dragging is not needed.

The grid mark area specified for copy source flashes.



* Copy destination measure (grid display) can be moved by dragging the Measure.

* When a grid mark area has been specified for the copy source, some grid marks of a copy destination which extend beyond the measure may not be displayed. All the copy source grid marks will be copied, however.

* To return to the screen just prior to the current screen, touch [EXIT].

[9] Touch [ENTER] to finalize copy destination. A prompt appears.

[10] If you want to copy, touch [Exec] in the message area.

If not, touch [Quit].

■Erasing a section (grid marks) of data (Erase Grid)

<Function>

This operation erases data in units of grid marks, using the grid displayed on the Step Write screen. You can erase a single grid mark or an area consisting of multiple continuous grid marks.

* When erasing data in units of measures, use Erase Measure (p.63 p.68).

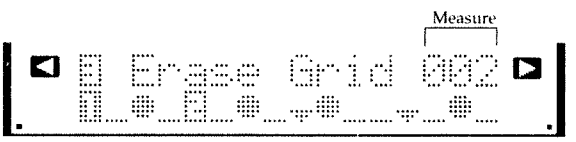
<Procedure>

[1] Touch [STEP] twice to call up the Step Write screen.

[2] Display the grid mark(s) you want to erase by moving to another measure.

[3] Touch [EDIT] to call up the Event Edit menu.

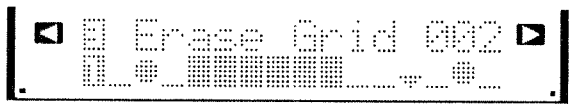
[4] Touch the page buttons to call up the Erase Grid screen.



[5] Touch the grid mark(s) you want to erase. If you

want to specify an area of multiple grids, drag the grid. The specified area will flash.

* The area to be erased extending beyond the current measure cannot be specified.



[6] Touch [ENTER] for the prompt.

[7] Touch [Exec] in the message area to erase the specified grid mark(s).
To cancel erasing, touch [Quit].

■Changing tone (instrument) during a song (Insert Inst Change)

You can insert a MIDI event at any location you want in order to change the tone (instrument).

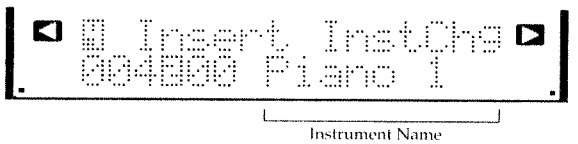
[1] Touch [STEP] twice to call up the Step Write screen.

[2] Touch [EDIT] to call up the Event Edit menu.

[3] Touch the page buttons to call up the Insert InstChg screen.

[4] Drag the Measure/Beat/Clock in the message area to specify the time at which you want to change the tone. Select a track (Tr1, Tr2, Tr3 or Tr4) in the track area.

[5] Drag the Instrument Name in the message area to choose the tone you want (to change to).



[6] Touch [ENTER] for the prompt.

[7] To insert the MIDI event, touch [Exec].

To cancel the insertion of the MIDI event, touch [Quit].

* To confirm the MIDI event you've inserted on the Step Write screen, you need to set View Switch (p.46).

* If you wish to save the tone settings used when playing the song from start to Setup, use the Instrument screen (see "Storing tone settings" p.30).

■Inserting a MIDI event (Insert Event)

This operation inserts a MIDI event. The following MIDI events can be inserted.

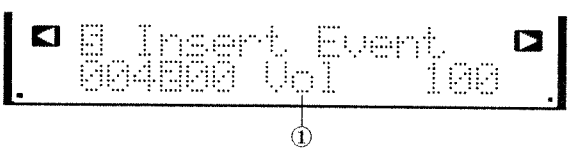
Indication	MIDI event	Value
Mod	Modulation	0—127
Vol	Volume	0—127
Pan	Panpot	L63—Ctr—R63
Exp	Expression	0—127
Hold	Hold	Off, On
Rev	Reverb send level	0—127
Cho	Chorus send level	0—127
(The above are Control Change events)		
PB(*)	Pitch bend	128—0+127 (Bend range (*) 2—12)

<Procedure>

[1] Touch [STEP] twice to call up the Step Write screen.

[2] Touch [EDIT] to call up the Event Edit menu.

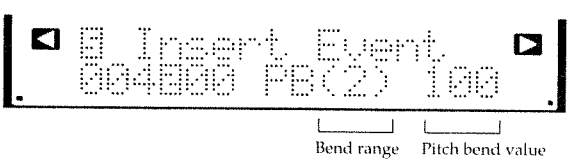
[3] Touch the page buttons to call up the Insert Event screen.



[4] Drag the Measure/Beat/Clock in the message area to specify the time at which you want insert a MIDI event. Select a track (Tr1, Tr2, Tr3 or Tr4) in the track area.

[5] Drag ① to choose the MIDI event you want to insert.

* When inserting a pitch bend event, drag the bend range value within parentheses ().



[6] Set values in the message area.

[7] Touch [ENTER] for the prompt.

[8] To insert the MIDI event, touch [Exec].

To cancel MIDI event insertion, touch [Quit].

* To confirm the MIDI event you've inserted on the Step Write screen, you need to set View Switch (p.46).

* To save volume, pan, reverb send level and chorus send level settings to Setup, use the Mixer screen (see "Modifying volume, panning and other mixer settings for each track" p.31). "Setup" refers to the settings that are read in automatically when a song is played from its start.

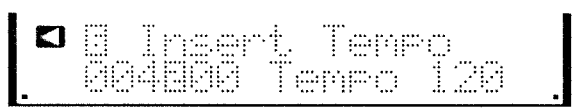
■Changing tempo during a song (Insert Tempo)

To change tempo, insert a tempo event at the desired location of a song.
Tempo events are managed regardless of the track. You can insert a tempo event into any track (Tr1, Tr2, Tr3 or Tr4). Once a tempo event is inserted, the song's tempo will change from that location on.

[1] Touch [STEP] twice to call up the Step Write screen.

[2] Touch [EDIT] to call up the Event Edit menu.

[3] Touch the page buttons to call up the Insert Tempo screen.



[4] Drag the Measure/Beat/Clock in the message area to specify the time at which you want to change tempo.

[5] Specify the tempo in the message area.

[6] Touch [ENTER] for the prompt.

[7] To insert the tempo event, touch [Exec].

To cancel tempo event insertion, touch [Quit].

* If you want to view the tempo event on the Step Write screen, you need to set View Switch. If you set the View Switch Tempo display to On, the tempo event can be viewed on the Step Write screen for any sequence track.

Improvising using the Ad Lib bar

By dragging the Ad Lib bar horizontally, you can improvise a solo. The Ad Lib bar automatically selects the pitches that best match the chord name (chord progression) you've input to the Chord track and plays the notes.

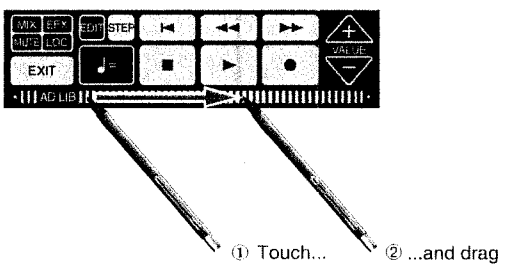
●Using the Ad Lib bar

[1] Play a song.

* To try out the Ad Lib bar, play the sample song "S20:Let's Try!" that is factory loaded. This sample song is specially designed for trying out the Ad Lib bar.

[2] Drag over the Ad Lib bar from left to right and from right to left.

Only the notes that follow the song's chord progression are played.



* Simply touching the Ad Lib bar does not generate any sound. Make sure to drag over it.

* Dragging the Touch Pen upward causes modulation or pitch bend effect to be applied to the sounds that are being played by the Ad Lib bar. For the pitch bend effect, only the "bend up" is active. The setting "On or Off" for "glissando" is no reflect upon the Ad Lib bar performance. Each effect varies according to the settings for "Keyboard Control (p. 27)."

* If no chord is input to the Chord track of the song to be played, or if N.C. (Non chord) is selected, an ad lib will use the major scale.

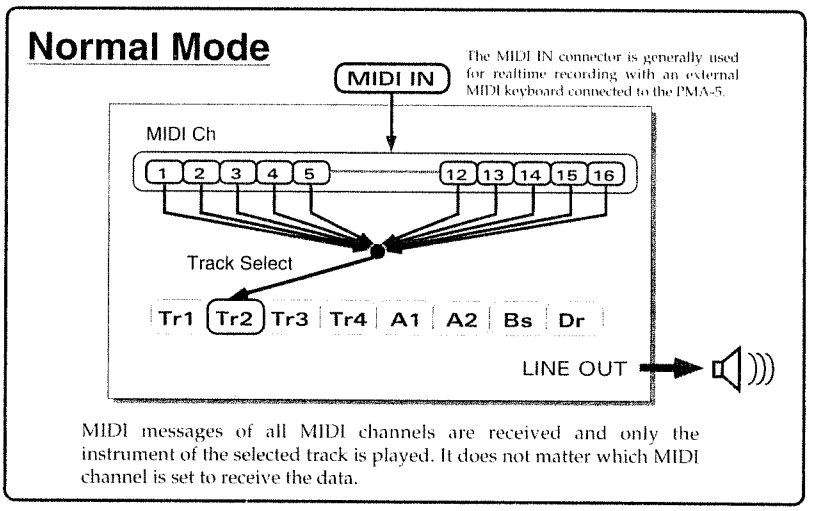
* If you want to realtime-record your performance using the Ad Lib bar, set Quantize to "—." This lets you record exactly what you play.

<Tones for the Ad Lib bar>

The Ad Lib bar uses the selected track's tone, i.e., the same tone as the touch keyboard.
You can shift the key range of the Ad Lib bar using [OCTAVE] or adjust volume level using the velocity buttons. [KEY HOLD] does not operate with the Ad Lib bar.

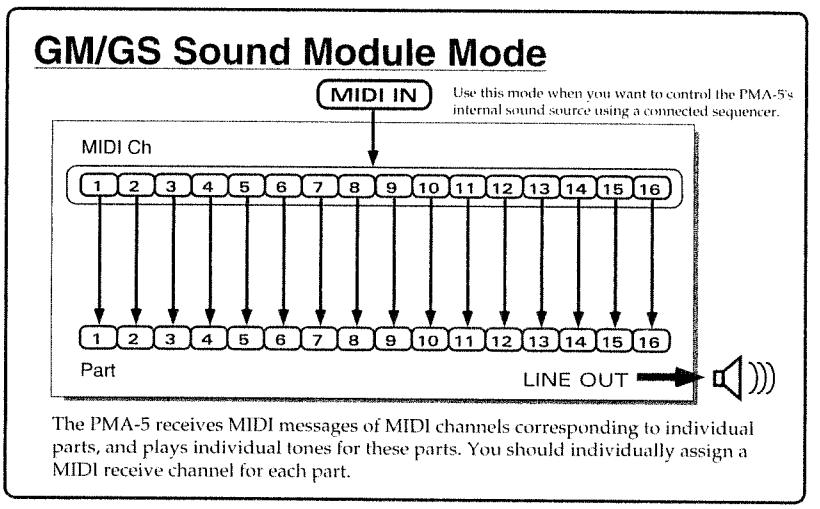
Normal mode and GM/GS Sound Module mode

The PMA-5 can normally play a total of eight tracks (eight parts) including sequence tracks (Tr1, Tr2, Tr3 and Tr4) and Style performance tracks (A1, A2, Bs and Dr) using the internal sequencer in what is called Normal mode. In Normal mode, the tone of the selected track will be played by an incoming MIDI message received at MIDI IN, regardless of the channel. This frees you from having to match MIDI channels of the PMA-5 and the external MIDI keyboard you connected when realtime recording.



MIDI messages of all MIDI channels are received and only the instrument of the selected track is played. It does not matter which MIDI channel is set to receive the data.

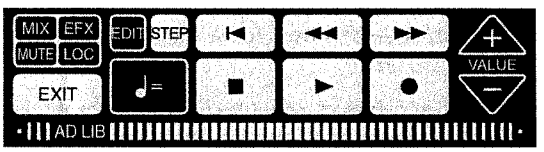
Besides Normal mode, the PMA-5 features a GM/GS Sound Module mode that allows it to serve as a GM/GS sound module (referred to as GM/GS mode from now). In the GM/GS mode, the PMA-5 can be controlled by performance data sent from the external sequencer to perform as a 16-part GM/GS sound module.



The PMA-5 receives MIDI messages of MIDI channels corresponding to individual parts, and plays individual tones for these parts. You should individually assign a MIDI receive channel for each part.

* The PMA-5 handles MIDI messages differently between Normal mode and GM/GS mode. For more information, refer to "MIDI messages handled by the PMA-5" (p.111).

In the GM/GS mode, the PMA-5's internal sequencer and arranger will not operate. Because the sequencer does not operate, control button operation is limited.



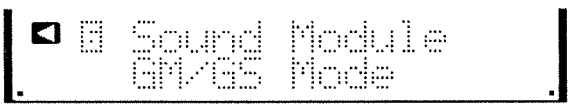
In the GM/GS mode, buttons other than [EXIT] and [VALUE] do not function.

* In the GM/GS mode, the internal sound source cannot be controlled by playing the touch keyboard. However, note messages will be output from MIDI OUT or the computer connector (the PMA-5 is in Local Control Off status)

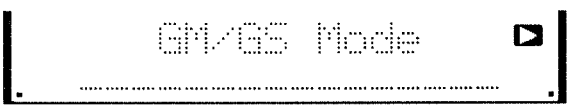
■To enter the GM/GS mode

[1] Touch [MIDI]

[2] Call up the GM/GS Mode screen using the page buttons.



[3] Touch [ENTER].
The PMA-5 enters the GM/GS mode.



■To exit the GM/GS mode

To go back to Song mode or Style mode, touch [EXIT] to exit from the GM/GS mode and touch the respective mode button.

> Note:
> When you leave the GM/GS mode, all values that you set in the GM/GS mode are lost.

■Operation in the GM/GS mode

●Changing screen pages

In the GM/GS mode, you can call up the screen you want by touching the page buttons.

Basic screen for GM/GS mode	Indicator (Tone settings)
Part Inst	Selecting a tone
Level	Setting volume level
Pan	Setting panning
Reverb Send Level	Setting reverb send level
Chorus Send Level	Setting chorus send level
Key Shift	Setting transpose amount
MIDI Channel	Setting a MIDI channel
Mute	Turning mute on/off

●Selecting a part

When selecting a part, drag the Part (P01, etc.) in the message area. When setting level, pan, reverb send level, chorus send level and key shift, you can select "ALL" (all parts) besides parts 1—16

* About parts: In the GM/GS mode, the PMA-5 has 16 parts and you can assign a tone (instrument) for each part and play it. You can also specify level, pan, effects and MIDI channel individually for each part.

●Setting a value

Drag the value displayed at the right-hand side of the message area to specify the value you want.

* On a screen showing a bar graph, you can change the value for a part you want by dragging the corresponding bar. From left to right, bars correspond to parts 1—16

* If you exit the GM/GS mode, settings you've made on the GM/GS screens will be lost.

■Basic Screen

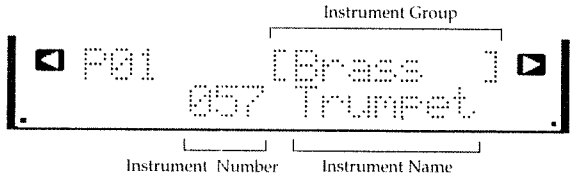
When you first enter the GM/GS mode, the basic screen appears. If you play the PMA-5 with performance data received at MIDI IN, the level of each part is shown by an indicator. Indicators correspond to parts 1—16, from left to right. The muted part will be indicated with "+." For information in mute settings, see p.79

Touching an indicator will make its corresponding part, instrument number and instrument name appear. You can select another tone for that part by dragging the Instrument Name. Instrument numbers correspond to program numbers.

* You can also change a tone on the Part Inst screen.

■Part Inst

Here you can change tones assigned to the parts.



You can choose a tone by dragging the Instrument Group, Instrument Number or the Instrument Name.

●Instrument Group

Dragging the Instrument Group to change the tone allows the first tone in the Instrument Group to be selected. All the PMA-5's built-in tones are divided into Instrument Groups for each type of instrument. Using the Instrument Group allows you to quickly select a tone.

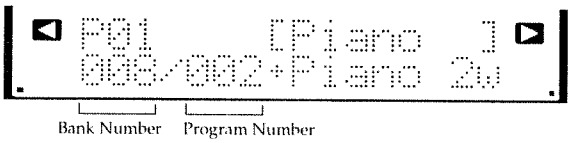
●Instrument Number

You can also drag the Instrument Number to choose a tone. Instrument numbers correspond to program numbers (p.111).

●Instrument Name

Dragging the Instrument Names makes it possible to select any of the PMA-5's tones that include variation tones for each of the 128 instrument sounds. Variation sounds are indicated by a "+" in front of the Instrument Name.

While dragging (while touching Instrument Name), the Bank Number and Program Number of the selected tone are displayed.



<Settings>
Part 1—16
Inst See the Instrument List (p.104—P105).

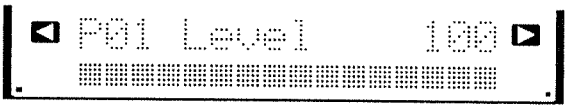
* Selecting [Drum 1] or [Drum 2] as the Instrument Group for a part changes it to a drum part.

  Although you can specify multiple parts as drum parts, you can simultaneously play just [Drum 1] and [Drum 2]. For instance, if you make assignments as shown below and change the drum set assignment for part 10, the assignment for part 12 will also change to the same drum set.

  Part 10 [Drum 1]: Standard
  Part 11 [Drum 2]: TR-808
  Part 12 [Drum 1]: Power

■Level

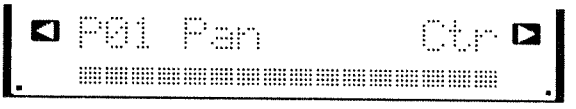
On this screen you can adjust each part's level by dragging the corresponding bar in the graph or the value.



<Settings>
Part 1—16, All
Level 0—127

■Pan (Part Pan)

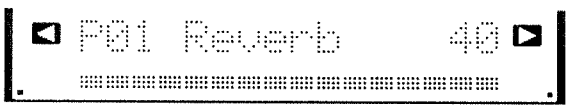
You can place or pan a sound for each part to a desired point in the stereo soundfield. For center panning, set to "Ctr" (Center). The greater the L value, sound pans toward the left. The greater the R value, sound pans toward the right. "Rnd" (Random) setting lets you create a special effect in which sound moves randomly right and left.



<Settings>
Part 1—16, All
Pan Rnd, R63—Ctr—L63

■Reverb Send Level

Here you can set reverb send level for each part.

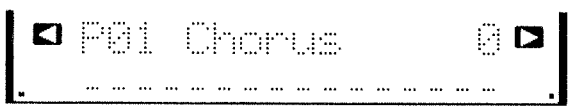


<Settings>

Part	1—16, All
Reverb Send Level	0—127

■Chorus Send Level

You can set chorus send level for each part.

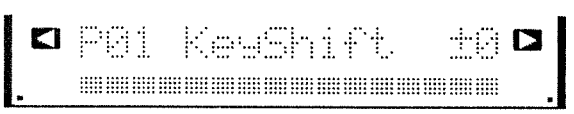


<Settings>

Part	1—16, All
Chorus Send Level	0—127

■Key Shift

Key Shift transposes the pitch of each part. Increasing the value by 1 raises the pitch by a semitone, and vice versa. At a setting of 12, the pitch is transposed 1 octave. At a 0 setting, there is no transposition.

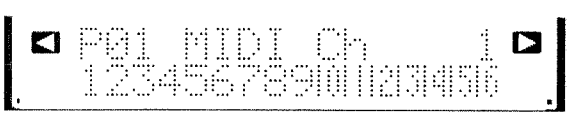


<Settings>

Part	1—16, All
Key Shift	-24— +24

■MIDI Channel

You can set a MIDI channel for each part.
If the PMA-5 receives performance data on the MIDI channel set here, it will play the part. When MIDI Channel is Off, that part doesn't receive a channel message, so it will not produce sound.

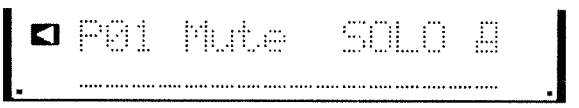


<Settings>

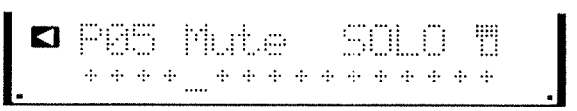
Part	1—16
MIDI Channel	1—16, Off

■Mute

You can mute parts.



Touching any of 16 part indicators mutes the sound of that part. Touching it again cancels muting.
Touching [SOLO] in the message area to turn it on causes only the selected part to be played, with all other parts muted. Touching [SOLO] again turns it off.



Saving PMA-5 data to a computer (Bulk Dump)

You can transmit song or Style data you've created on the PMA-5 as MIDI system exclusive messages (bulk data) to save it to a connected computer or an external sequencer.
Connection procedures

●Using MIDI connectors

[1] Switch PMA-5 power off and set the Computer switch to "MIDI."

[2] Switch power on again.

[3] Use a MIDI cable to connect the PMA-5's MIDI OUT and MIDI IN of the device to which data is to be saved.

●Using the computer connector

[1] Switch the PMA-5 off and set the Computer switch to match the device to which you want to save data (p.16).

[2] Turn power on again.

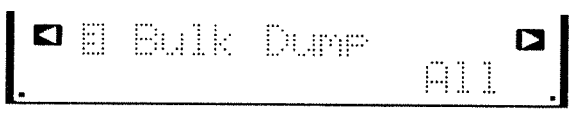
[3] Connect the PMA-5's computer connector to the computer, etc. using an optional computer cable.

* For information in connecting the PMA-5 to a computer, refer to "Connecting the PMA-5 to a computer" (p.16).

<Procedure>

[1] Touch [MIDI] to enter the MIDI mode.

[2] Call up the Bulk Dump screen by touching the page buttons.



[3] Select the data you want to save.

All	All settings of the PMA-5.
All Songs	All song data (of sequence tracks, the Track Chord and the Style Track).
All Styles	All User Style data.

* If "All Songs" are selected, Style performance data will not be transmitted. When bulk-dumping a song using a User Style, select "All."

[4] Touch [ENTER] for the prompt.

[5] Touch [Exec] to transmit bulk data.

While bulk dump is being executed, "Bulk Dump..." appears in the message area.

* No other operation is possible while bulk-dumping.

Reading in the bulk-dumped data (Bulk Load)

Bulk Load loads data bulk-dumped to a computer or an external sequencer.

[1] Connect the PMA-5 to a device to which you've saved bulk data.

To use the MIDI ports, set the computer switch to "MIDI."

* If the computer switch setting has been changed, switch the power off and back on again.

* When using the computer jack, be sure to read "Connecting to a Computer."

[2] Stop the performance and press [EXIT] several times. This returns you to the Song (or Style) basic screen.

[3] Transmit bulk data from the device to which you've saved data (Bulk Load). When bulk-loading has begun, the message "Bulk Load..." appears in the message area.

* No other operation can be performed while bulk-loading.

●Conditions for bulk-loading

The device IDs of the device that transmits data and the PMA-5 must match each other (see "Device-ID" p.89).

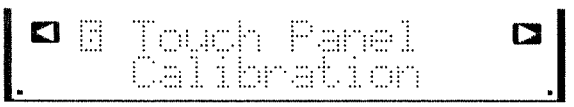
* Bulk load cannot be performed when at the Edit screen, at the Step Write screen, or in the GM/GS mode.

Adjusting the touch panel (Calibration)

The sensitive area of the touch panel may shift slightly over time. To compensate for this shift, adjust touch panel position (calibration).

[1] Touch [UTILITY] to put the PMA-5 into the Utility mode.

[2] Touch the page buttons to call up the Touch Panel Calibration screen.

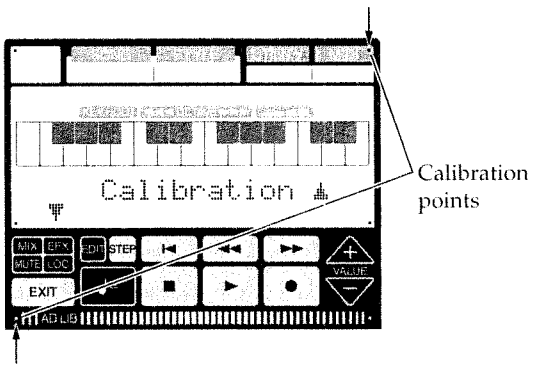


[3] Touch [ENTER].

The screen for adjusting touch panel position appears.

[4] While looking at the touch panel directly from above, touch the two calibration points shown above one after another with the touch pen. It doesn't matter which one you touch first.

* If you touch a position that differs greatly from the calibration point, the message "Try Again..." appears. If this happens, make sure you touch the exact calibration point.



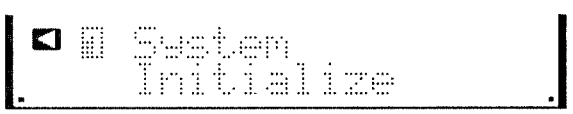
* To cancel touch panel adjustment, touch [Cancel] in the message area.

Initializing all settings (System Initialize)

You can return all PMA-5 settings to factory-default values by performing system initialization. Initialization deletes all song and User Style data. Make sure to save data you want to keep to a sequencer or computer before performing initialization (p.80).

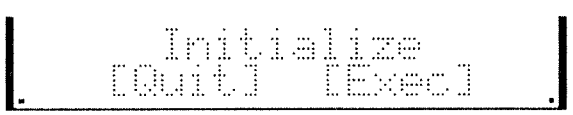
[1] Touch [UTILITY] to enter the Utility mode.

[2] Call up the System Initialize screen by touching the page buttons.



[3] Touch [ENTER].

Prompt for initialization appears.



[4] For initialization, touch [Exec] in the message area.

If you don't want to initialize, touch [Quit].

All settings of the PMA-5 return to their factory-default values.

* Even if you initialize, the sample song "S20:Let's Try!" and some User Styles still stay loaded in PMA-5 memory. To clear all data from the memory, use Clear All in the Utility mode to delete the sample song and all User Styles in the memory (p.88).After you've touched the two points, the message "Completed!" appears and calibration is complete.

If you switch on the power while touching [VALUE], the Calibration screen appears. After adjusting touch panel position, the Initialization screen appears. For details, refer to "Making Settings Before You Start," Quick Start p.10.

Chapter 5

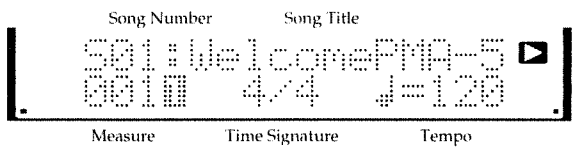
Functions categorized by the screen

Functions categorized by the screen

[1] Song mode (Song parameters)

Touching [SONG] puts the PMA-5 into the Song mode. By touching the page buttons on the basic screen for the Song mode, you can choose a screen for setting song parameters (song-related settings). Song parameter values are stored into memory for each song. In the Song mode, you can play a song, record data to the sequence tracks, the Chord track and the Style track, and make settings for a song. The Song mode is what you will use the most for basic operation.

■Song Select (basic screen for the Song mode)



1. Song Number (S01—S20)

You can choose a song by dragging the Song Number or the Song Title.

2. Measure

Displays the current measure and current beat (white character). You can move from one measure to another by dragging the Measure.

3. Time Signature

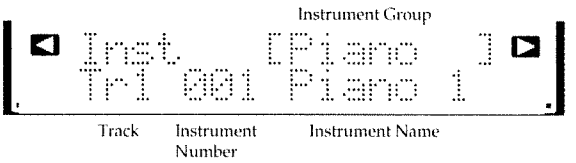
Displays the time signature of a song. The time signature cannot be changed on this screen.

4. Tempo

To change tempo, drag the Tempo value up or down. The tempo value you set on the screen called up by touching the TEMPO button is displayed here.

■Inst Select

Here you choose the tone (instrument) you want for each track.



1. Track

You can choose the track for which you want a tone specified. You can also specify a track by touching the track area.

2. Instrument Group

Dragging the Instrument Group to select a tone enables the first tone in the Instrument Group to be selected. All PMA-5 built-in tones are divided into Instrument Groups for each instrument type. Use the Instrument Group to help you quickly select the tone you want.
Selecting the Drum track (Dr) will change the Instrument Group to "DrumSet."

3. Instrument Number

You can drag the Instrument Number to select a tone. Instrument Numbers and Program Numbers have a one-to-one correspondence (p.111).

4. Instrument Name

Dragging the Instrument Name makes it possible to select any of the 306 tones, including variation tones for each of the 128 instrument sounds. Variation tones are indicated by a "+" in front of the Instrument Name.

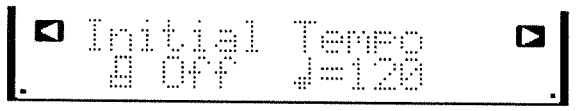
* If you wish to save the tone settings to Song Setup, refer to p.30.

"Song Setup" refers to settings that are read in automatically when a song is played from its start.

Look at p.26 for information on this screen's settings.

■Initial Tempo

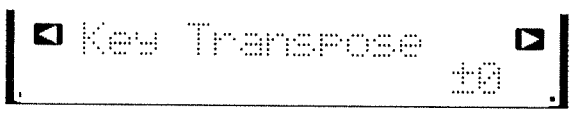
When a new song is selected or a song is played from its start, the song's tempo will return to the initial tempo setting you made on this screen.



When playing a song with the initial tempo, touch the Switch display to set it "On." Each time you touch the Switch display, it toggles on and off. Dragging the Tempo value lets you set initial tempo.

■Key Transpose

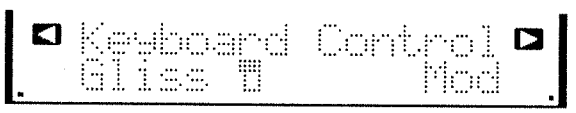
Here you can transpose the entire song over a ±2 octave range (-24— +24) in semitone steps.



Set transpose amount by dragging the value or touching [VALUE] (+/-).

■Keyboard Control

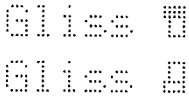
Here you can add expressive variations to the sounds being played by dragging the touch keyboard (keyboard control, etc.)



Glissando

On — Pitches vary continuously and rapidly as the touch keyboard is dragged (Gliss On).

Off — No glissando (Gliss Off).



Glissando On

Glissando Off

Keyboard Control

Mod (Modulation) — Dragging the touch keyboard upward or downward modulates the tones being played.

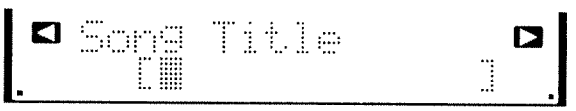
Bend (Pitch Bend) — Dragging the touch keyboard upward raises the pitch and dragging it downward lowers the pitch.

Off — No modulation or pitch bending applies even when you drag the touch keyboard up or down.

Refer to p.27 for information on the settings for the keyboard control.

■Song Title

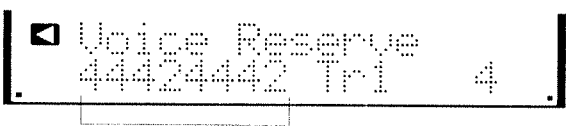
You can enter up to 12 alphanumeric characters for a song title.



Touching the area inside square brackets ([]) will display characters you can use in the song title on the line above. Choose the character you want to enter by dragging them upward or downward. Characters can also be chosen using [VALUE].

■Voice Reserve

Voice Reserve lets you reserve the minimum number of notes that will always be available for each track to play a song. The PMA-5 can play a maximum of 28 notes simultaneously, so you can set any number of voices as long as the total used for all tracks does not exceed 28 voices.

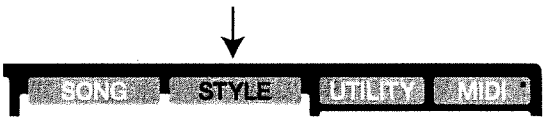


①

The number of voices reserved for each track (from left to right, Tr1, Tr2, Tr3, Tr4, A1, A2, Bs and Dr) are shown in ①. You can set the number of voices to be reserved for each track by dragging each value shown. The selected track and the number of voices reserved for that track are shown at the right.

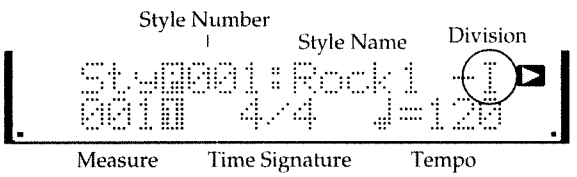
* If the number of voices reserved for a particular track shown in ① is 20 or greater, an asterisk (✻) appears. Touching the asterisk will display the respective track and the number of voices reserved for that track at the right.

[2] Style mode (Style parameters)



You can enter the Style mode by touching [STYLE]. Touching the page buttons on the basic screen for the Style mode will call up a screen for setting each Style parameter (Style related settings). Style parameters can only be set for User Styles. Style parameter settings are stored in memory for each Style.
You can play back a Style, create or make settings for a User Style in this mode.

■Style Select (basic screen for the Style mode)



1. Style Number (P001—P600, U001—U200)

To select the Style you want, drag the Style Number. Dragging the Style Name lets you change the Style by music genre. A character shown after a Style Name indicates what Division of the song it's assigned to. "P" before a Style Name shows that this Style is a Preset Style, while "U" means a User Style. To switch between Preset and User Styles, just drag either "P" or "U."

2. Measure

The current measure and current beat (white character) is displayed here. You can move from one measure to another by dragging the Measure.

3. Time Signature

Shows the time signature of a Style. The time signature cannot be changed on this screen.

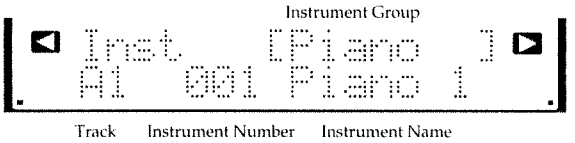
4. Tempo

To change the tempo, drag this display up or down.

* Each Preset Style contains a preset tempo optimized for playing that Style. You can play a Style at the preset tempo by selecting a new Style or touching [⏮] while a Style is not playing. When playing a song, the tempo stored in a Preset Style has no effect. User Styles do not contain tempo settings.

■Inst Select

Here you can choose a tone (instrument) for each Style performance track (A1, A2, Bs and Dr).



1. Track

You can choose any of four Style performance tracks (A1, A2, Bs and Dr) for which you want to specify a tone. You can also select a track by touching the track area.

2. Instrument Group

Dragging the Instrument Group to select a tone enables the first tone in the Instrument Group to be selected. All of the PMA-5's built-in tones are divided into Instrument Groups by instrument type. Using the Instrument Group helps you quickly select the tone you want.
Selecting the Drum track (Dr) causes the Instrument Group to change to "DrumSet."

3. Instrument Number

You can drag the Instrument Number to select a tone. Instrument Numbers and Program Numbers (p.111) have a one-to-one correspondence.

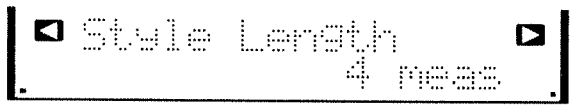
4. Instrument Name

Dragging the Instrument Name makes it possible to select any of 306 tones, including variation tones for each of the 128 instrument sounds. Variation tones are indicated by a "+" in front of the Instrument Name.

* You can temporarily change the tones for a Style on this screen. But the Style Setup tone settings return if you select a new Style or touch [⏮] while a Style is not playing.
* Setup tone settings for Preset Styles cannot be changed. If you want to do that, copy the Preset Style to a User Style using Copy Style first, then change the tone settings.
* Check out p.52 for information on saving tone settings for a User Style to Setup. "Style Setup" refers to settings that are read in automatically when a Style is first selected.

■Style Length

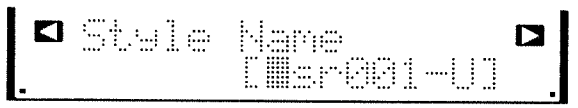
This parameter is for setting the length (number of measures) for a User Style. Each Style can consist of up to eight measures.



* The number of measures for Preset Styles cannot be changed.

■Style Name

You can name a User Style by inputting the alphanumeric characters you want



Touching the cursor displays characters you can use for a Style Name on the line above.
Choose the characters you want to enter by dragging them upward or downward. The character you input after a Style Name (Division) will appear on the grid shown on the Step Write screen for the Style track (p.33).
We recommend inputting a Division character that has some relevance so that you can easily identify the Style with the grid display.

* Preset Style Names cannot be changed.

Arrange Mode

Arrange mode settings let you specify the type of chord conversion for each track.

By setting a suitable Arrange mode for each track you can make, for example, one track play in a chord cutting style and the other track play more of a melody backing.

* For details regarding the Arrange mode refer to p.51.
* Arrange mode settings for Preset Styles cannot be changed.

[3] Utility mode

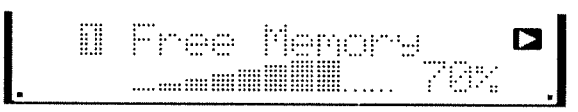
When you touch [UTILITY], the PMA-5 goes into Utility mode. Make your global settings for the PMA-5 in this mode.

If you enter Utility mode from the Song mode, the [UTILITY] button indicator will flash while [SONG] button indicator stays lit. Touching [EXIT] brings you back to the Song mode.

In like manner, if you enter Utility mode from the Style mode, the [UTILITY] button indicator will flash while [STYLE] button indicator stays lit. Touching [EXIT] brings you back to the Style mode.

■Free Memory

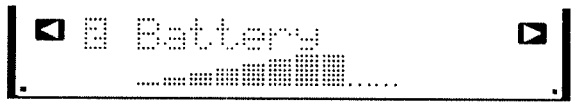
Here you can easily check how much memory space remains for storing performance data.



The remaining memory is shown on a bar graph and as a percentage. Even from the factory or after initialization, Free Memory will not indicate 100% for remaining memory, because a sample song (S20) and some User Styles are stored in memory. If you require remaining memory to be 100% available, delete all songs and Styles using the Clear All screen (p.88).

■Battery

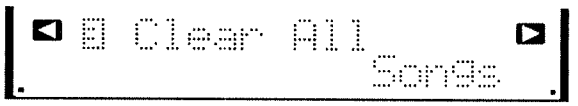
Shows remaining battery voltage in a bar graph.



* When an AC adaptor is used with the PMA-5, "Using AC Adaptor" appears.

■Clear All

Here you can delete all song data or all User Styles at once.



Songs	Select this when you want to delete all song data from memory. Song data includes song parameter settings and performance data of sequence tracks, the Chord track and the Style track.
User Styles	This deletes all the User Styles from memory.

[1] Choose the data you want to delete, either "Songs" or "User Styles."

[2] Touch [ENTER] for the prompt.

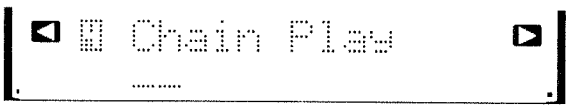
[3] Touching [Exec] in the message area clears the data you've selected. To cancel, touch [Quit].

* To delete songs individually, use the Song Edit menu. To delete User Styles individually, use the Style Edit menu.

* The demo song (S21) and Preset Styles (P001—P600) are not deleted by the Clear All operation.

■Chain Play

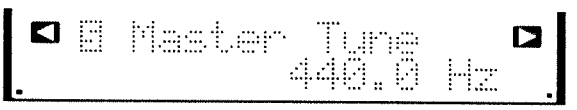
Select several songs to play successively. You can also repeat-play a single song or more than one song specified on the Chain Play screen.



Look at p.28 for information on settings and performing chain play.

■Master Tune

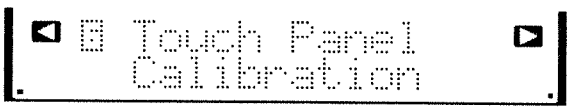
When playing in an ensemble with other instruments or for tuning the PMA-5 to match the pitch of other instruments, master tuning needs to be adjusted. The displayed value indicates the pitch (frequency) of the A4 key (note number #69).



If you want to audition notes while adjusting pitch, touch [KEY HOLD] to light its button indicator, then play the touch keyboard. After master tuning is complete, touch [KEY HOLD] again to turn it off.

■Touch Panel Calibration

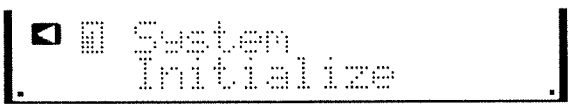
The sensitive area of the touch panel may shift slightly over time. To compensate for this shift, calibrate (touch panel adjustment) as necessary.



For details regarding touch panel adjustment, refer to "Adjustment of the touch panel" (p.81).

■System Initialize

You can perform initialization to return all of the PMA-5's settings to factory default values (values at the time the product is shipped from the factory). Initialization deletes all song data and User Styles, so make sure to save important data to an external sequencer or computer before performing initialization (p.80).



Refer to "Initializing all settings (system initialization)" (p.81) for the initialization procedure.

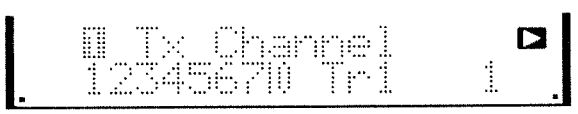
[4] MIDI Mode

Touch [MIDI] when you want to enter the MIDI mode. The MIDI mode allows you to make MIDI settings, bulk-dump data or enter the GM/GS Sound Module mode.

If you enter the MIDI mode from the Song mode, the [MIDI] button indicator flashes while the [SONG] button indicator stays lit. Touching [EXIT] takes you back to the Song mode.
If you enter the MIDI mode from the Style mode, the [MIDI] button indicator flashes while the [STYLE] button indicator stays lit. Touching [EXIT] takes you back to the Style mode.

■Tx Channel

Here you can set a MIDI transmit channel for each sequence track (Tr1, Tr2, Tr3 and Tr4) or Style performance track (A1, A2, Bs and Dr).



Track	Select a track (Tr1, Tr2, Tr3, Tr4, A1, A2, Bs, or Dr).
MIDI Channel	Drag the Channel number to specify a MIDI channel you want (1—16, Off).

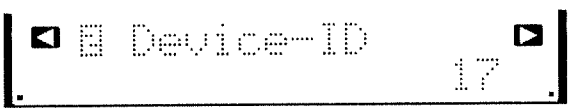
The left-hand side of the message area indicates MIDI transmit channels for eight tracks respectively (Tr1, Tr2, Tr3, Tr4, A1, A2, Bs and Dr, from left to right). When the MIDI transmit channel is set Off, [+] appears. You can also change the channel settings by dragging the Channel numbers. The right-hand side of the message area shows the currently selected track and its MIDI channel.

The PMA-5 has no parameters for setting MIDI receive channels. MIDI messages of all channels are received and the tone assigned for the currently selected track (Tr1, Tr2, Tr3, Tr4, A1, A2, Bs or Dr) will play (in the Normal mode).

* If you call up the GM/GS Sound Module mode, the PMA-5 functions as a 16-part GM/GS sound source, and you can set MIDI receive channels individually for each of 16 parts (p.79).

■Device-ID

"Device-ID" is an identification number for transmitting and receiving exclusive messages. The PMA-5 can receive an exclusive message only from devices having the same ID number. To exchange data between the PMA-5 and another device using exclusive messages, make sure that the Device-IDs match with each other. Device-ID can be any number from 1 through 32. The PMA-5's factory-default ID is set to 17.

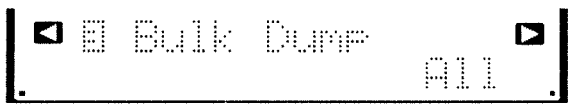


Device-ID 1—32

* The device ID number that you set here becomes effective even in the GM/GS mode.

■Bulk Dump

You can transmit part or all the data stored in PMA-5 memory to a sequencer, computer or another PMA-5 unit via MIDI or computer connectors (Bulk Dump).



Select the data for transmitting.

All — All settings of the PMA-5.

All Songs — All song data (data of sequence tracks, the Chord track and the Style track).

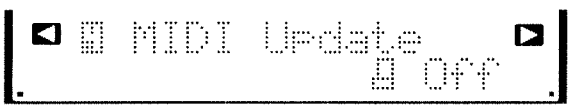
All Styles — All User Style data.

* If you select "All Songs," Style performance data will not be transmitted. If you want to bulk-dump a song containing a User Style, choose "All."

* For details regarding bulk dump, see p.80.

■MIDI Update

When you move to a different measure and resume play, you can send the performance change messages (Program Change, Control Change, etc.) that were in the measures you've skipped to the sound source by setting MIDI Update "On."



Touch the Switch display to toggle between On and Off.

On — Performance change messages in the intervening measures will be transmitted to the sound source when you move to a different measure.

Off — Performance change messages in the intervening measures will not be transmitted to the sound source when you move to a different measure.

Use MIDI Update On/Off settings as you need, referring to the pros and cons for each method:

(MIDI Update On)

Pro — Even if you move to another measure and the skipped measures contain performance change messages, the song always plays back correctly from its new location.

Con — It may take some time to move from one measure to another.

(MIDI Update Off)

Pro — You can move to another measure quickly.

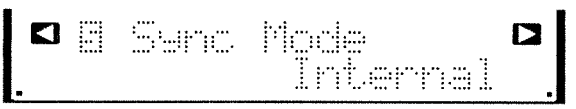
Con — A song may not play back correctly as the Program Change or Control Change messages contained in the skipped measures are ignored when you move to another measure.

* Set MIDI Update "Off" if the song does not contain any Program Change or Control Change messages.

* When you use the Locator function to move to another measure, song data change messages will always be sent to the sound source regardless of the MIDI Update setting (same as MIDI Update "On").

■Sync Mode

Set the Sync Mode when you want to synchronize the PMA-5 to the tempo of an external sequencer or computer.



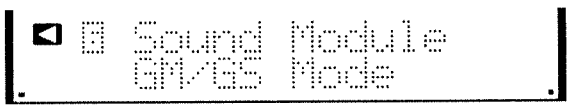
Internal — The PMA-5's internal clock determines the tempo.

MIDI — The PMA-5 syncs to the MIDI clock message from an external MIDI device such as a sequencer, etc.

* At the "MIDI" setting, the PMA-5 cannot start playing unless it gets the MIDI clock message sent from the external device connected via MIDI.

■Sound Module Mode

This parameter allows you to use the PMA-5 as a GM/GS sound module (GM/GS Sound Module mode).



To get into the GM/GS Sound Module mode, touch [ENTER]. To exit the GM/GS Sound Module mode, touch [EXIT].

* For details regarding the GM/GS Sound Module mode, see p.76.

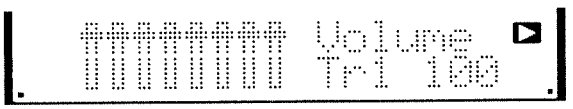
[5] Mixer [MIX]

Touching [MIX] calls up the Mixer screen. Touch the page buttons to display the screens for setting volume, pan, reverb send level, and chorus send level.

* You can temporarily modify mixer settings for a song. But if you select another song or go back to the first measure, the mixer settings return to the Setup settings. To save the mixer settings to Setup, refer to p.31.
* Touching [MIX] while you're in the Style mode calls up the Mixer screen for the Style performance tracks (A1, A2, Bs and Dr)(p.53).

■Volume

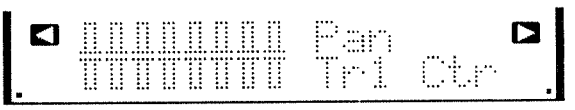
Here you can adjust the volume level for each track.



From left to right, the displayed faders correspond to Tr1, Tr2, Tr3, Tr4, A1, A2, Bs and Dr, respectively. Dragging the faders upward or downward varies the volume level of each track. You can also modify volume level by dragging the right-hand track and value display.

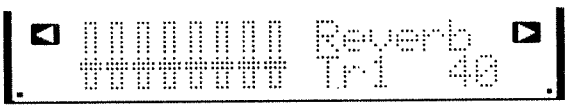
■Pan

Panning localizes a sound in the stereo sound field. To pan to the center, set to "Ctr." As the L value increases, a sound pans more toward the left. The greater the R value makes the sound shift more to the right



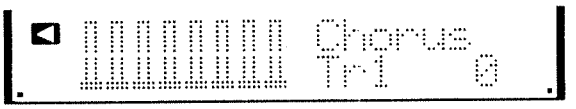
■Reverb Send Level

Reverb adds depth and ambience to a sound. You can adjust the depth of reverb (reverb send level) for each track.

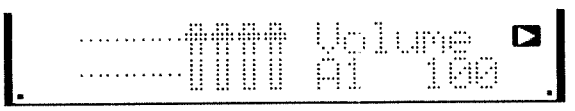


■Chorus Send Level

Chorus makes a sound fatter and thicker. The intensity of chorus (chorus send level) can be set for each track.



<Mixer settings in the Style mode>
Touching [MIX] while you are in the Style mode lets you make mixer settings for User Style performance tracks.



From left to right, the displayed faders respectively correspond to A1, A2, Bs and Dr.
Touching the page buttons lets you call up each screen for setting volume, pan, reverb send level, and chorus send level.

* You can temporarily modify mixer settings for a Style. If you select another Style or touch [⏮] while a Style is not playing, the mixer settings return to the Setup settings for the selected Style.

* Setup settings for Preset Styles can't be modified. To change the Setup settings for a Preset Style, copy it to a User Style, and then modify the mixer settings using Copy Style.

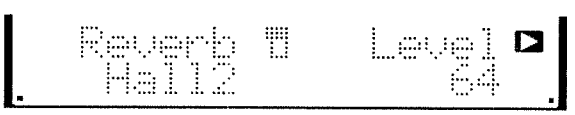
See p.53 for information on saving mixer settings for User Style performance tracks to Setup.

[6] Effects [EFX]

Touching [EFX] calls up the effects screens for adding reverb and chorus settings for all tracks. You can switch between Reverb and Chorus screens using the page buttons.

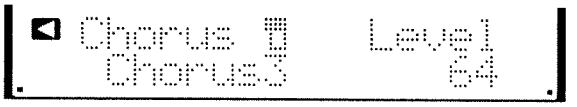
* Saving effects settings to Setup after you make them on the effects screens isn't necessary. Every time you modify effects settings, they will automatically be written to Setup.

■Reverb



You can toggle reverb on or off by touching the Switch display. Specify Reverb Type and Reverb Level by dragging each. For details, refer to "Making reverb and chorus settings [EFX]" on p.32.

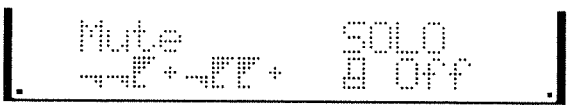
■Chorus



Touch the Switch display to toggle between on and off. Set the Chorus Type and Chorus Level by dragging each.
For more information, refer to "Making reverb and chorus settings [EFX]" on p.32.

* Effects settings are stored in memory for each song.

[7] Mute



You can call up the Mute screen by touching [MUTE]. Using this screen, you can mute the performance of specified tracks or listen to just the performance of a single track. By calling up the Mute screen while a song is playing, you can also check the mute/play status of each track.
For more information, refer to "Muting (silencing) selected tracks [MIX]" on p.31.

* Touching [MUTE] while you are in the Style mode calls up the Mute screen for Style performance tracks (A1, A2, Bs and Dr) (p.50).

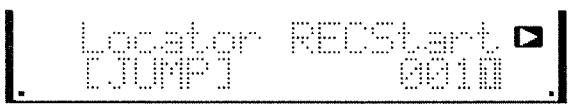
[8] Locator/Repeat [LOC]

Touching [LOC] calls up the Locator/Repeat screen.

On the Locator screen, you can quickly move right to the recording start measure or a measure you specify (Marker-A or Marker-B). Choose the Locate destination you want (REC Start, Marker-A or Marker-B). The Repeat screen, that is in the same screen group lets you specify any range of measures over which you want to repeat-play. Touching [EXIT] brings back the original display.

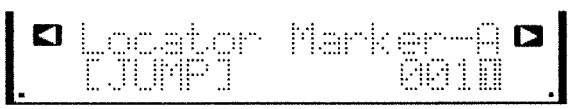
* In the Style mode, the Locator function has no effect.

■Locator RECStart



The measure at which you started realtime recording the last time is set automatically for [REC Start] locate point. To jump to a different measure, touch [JUMP] in the message area. You cannot change the locate point for [REC Start].

■Locate Marker-A/Marker-B

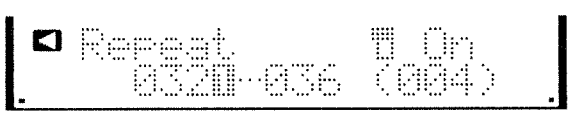


You can specify the measure (not beat) you want for Marker-A by dragging the locate point. Touching [ENTER] sets the current measure for Marker-A. If you want to jump to a different measure, touch [JUMP] in the message area.
Touching the right-hand page button calls up the setting screen for Marker-B. Now use the same procedure to set the Marker-B locate point.

* Locate point (Marker-A/Marker-B) settings are stored in memory for each song.

■Repeat

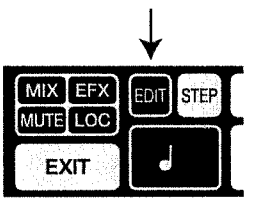
A part (specified measures) of a song is played repeatedly.



When performing repeat-play, touch the Switch display "On." Set the repeat start and end measures by dragging each. The value within parentheses () indicates the number of measures over which repeat-play takes place. If you change the repeat end measure, the number of measures for the repeat area will also change to match.

Repeat point settings are stored in memory for each song. If you select a new song, Repeat will turn off.

[9] Edit



One of three different Edit Menu screens is displayed, depending on the state (mode) you're in when you touch [EDIT].

(1) Song Edit Menu

The Song Edit Menu screen appear when you touch [EDIT] while in the Song mode. The Song Edit Menu screen lets you perform various editing functions for songs (Copy Quantize, Convert, and so on).

* For details, see p. 62.

(2) Style Edit Menu

The Style Edit Menu screen appear when you touch [EDIT] while in the Style mode. The Style Edit Menu screen lets you perform various editing functions for Styles (Copy Quantize, Convert, and so on.

* For details, see p. 67.

(3) Event Edit Menu

The Event Edit Menu screen appear when you touch [EDIT] while at the Step Write screen for Songs or Styles. The Event Edit Menu screen lets you do things like shift the timing for notes (Move Event), copy or delete data by grid (Copy Grid and Erase Grid), and insert MIDI events (Insert Event), and so on .

* For details, see p. 72.

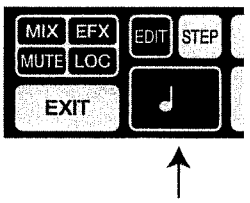
You can choose the item to be edited by touching the Page buttons while at one of the Edit Menu screens. To leave an Edit Menu screen, touch [EXIT].

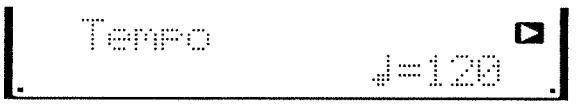
For more details about the Edit Menu screens, take a look at "Editing Song and Style data" (p. 62).

[10] Tempo

Touching [TEMPO] calls up the Click/Tempo screen.

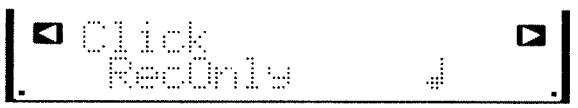
■Tempo





You can set the tempo here. When setting the initial tempo for a song, use the Initial Tempo screen (p.30). With Sync Mode set "On," the tempo will follow the clock message from an external MIDI device, and the Tempo display indicates "MID." During song play, the Tempo display changes to "mid."

■Click Mode/Click Interval



To hear the click, specify when you want it in the left-hand area (Click mode).

Set the click's interval in the right-hand area (Click Interval)

<Click Mode>

[RecOnly] The click only sounds during recording.

[Rec&Play] The click sounds during recording and playback.

[Always] The click always sounds even when the sequencer is stopped.

[Off] No click.

<Click Interval>

♩ Quarter note

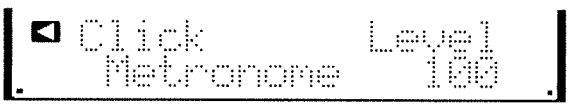
♩3 Quarter note triplet

♪ Eighth note

♪3 Eighth note triplet

𝅘𝅥𝅯 Sixteenth note

■Click Inst/Click Level



The left-hand area of this screen is for selecting the tone for a click (Click Instrument), and the right-hand area is for setting the click volume level (Click Level).

<Click Instrument>

Metronome
Triangle
Agogo
WoodBlock
Shaker
Tambourine
Sticks
Click

<Click Level>

0—127

Chapter 6

Supplementary Information

Troubleshooting

If the PMA-5 does not produce any sound, or if it's not functioning the way you expect, run through the following checks first. If this does not help solve the problem, contact your dealer or the closest Roland service station.

■The position of the touch panel and the positions of the buttons (or the touch keyboard) deviate from each other.

- Perform calibration to adjust the position of the touch panel. The sensitive area of the touch panel may shift slightly over time. Adjust as necessary (p.81).

■No sound when the touch keyboard is played.

- PMA-5 power or the connected equipment's power has been turned off. Or the volume of the connected amp/mixer is turned all the way down.
- Audio cables may be loose or not connected correctly.
- The track volume level (Volume) is set all the way down on the Mixer screen (p.31 p.50).
- No sound is heard if you play the touch keyboard while in the GM/GS mode. However, Note messages are output to the MIDI channel for the selected Part.

■No sound when a song is played.

- Tracks are muted on the Mute screen. Or [SOLO] has been turned on (p.31 p.50).
- The PMA-5 is put in the GM/GS mode. In the GM/GS mode, the PMA-5's built-in sequencer does not operate, so a song cannot be played.

■A song does not play back correctly.

- If you move to a different measure and resume playback, the performance change messages in the intervening measures may not be transmitted to the internal sound source correctly. To prevent this, set MIDI Update in the MIDI mode On (p.90).
- MIDI messages from the computer connector go through the connected equipment and are input to the PMA-5 again. Set the MIDI THRU of the connected equipment off, or disconnect the equipment if not using it.

■When a song is played back from its start, tone and mixer settings change automatically.

- Tone and mixer settings for each track of a song are saved to Setup. Therefore, if you play a song from its start after modifying tone or mixer settings, the settings automatically return back to the Setup settings. For more details about saving new tone settings and mixer settings to Setup, refer to p.30 and p.31, respectively.

■When a Style is played repeatedly, tone and mixer settings change automatically.

- Tone and mixer settings for each track of a Style are saved to Setup. If you repeat play a Style after modifying tone or mixer settings in the Style mode, these settings return back to the Setup settings. For more details about saving new tone settings and mixer settings to Setup, refer to p.52 and p.53, respectively.

■The tone changes during a song.

- If an event to change the tone (instrument name) is inserted anywhere within a song, the tone changes at that position. By setting View Filter [PC] On (p.60), you can confirm the instrument name on the Step Write screen (p.41).
- As tones for Style performance tracks are stored in memory for each Style, changing the Style while a song is playing also causes the tones for the tracks to change.

■Cannot record a song or Style.

- The demo song and Preset Styles cannot be recorded.
- In the GM/GS mode, the internal sequencer does not operate, so no recording can be made.

■Cannot record small notes.

- Recording is performed with Quantize (p.38) set to some note values. Reset Quantize to "—" on the Recording Standby screen before recording (p.54).

■Effects are not activated.

- The Reverb or Chorus switch on the EFX screen has been set Off (p.32).
- The reverb send level or chorus send level has been set all the way down on the Mixer screen (p.53).

■Cannot set time.

- A time signature can be specified only for measures containing no song or Style performance data. Once you've input performance data to a measure, its time signature cannot be changed. To change the time signature during a song, insert blank measures containing a time signature change using the Insert Measure of the Song Edit menu.

■Sound drops.

- The PMA-5 can simultaneously produce up to 28 voices. Notes exceeding this limit cannot be requested. In addition, some tones use two voices, reducing the number of available simultaneous voices.
- Set Voice Reserve for a track you want to keep free from any sound dropouts (p. 64).

■A value cannot be changed.

- Parameter values for the demo song and Preset Styles cannot be modified.

■Buttons do not operate.

- In the Style mode, [LOC] does not operate even if you touch it.
- The GM/GS mode limits the number of buttons that can be used.
- If a button does not operate even when you switch the power off and on again, do the following:

  1. Switch power off.
  2. Switch power while touching [VALUE].
  3. The Calibration screen appears. Perform calibration.
  4. After calibration is completed, the Initialization screen appears. Perform initialization.

  For details, refer to "Make Settings Before You Start," Quick Start p. 10.

  * If you don't want to delete the song data, etc. you've created, touch [Quit] on the Initialization screen.

■[ENTER] or [DEL] button indicators do not light.

- [ENTER] and [DEL] button indicators are lit only when their operations are enabled.

■Cannot edit.

- The demo song and Preset Styles cannot be edited.
- If the message "Memory Full" appears immediately after editing, available memory is not enough for editing to be performed. Either use Clear Style (p. 77) to delete unnecessary User Styles or use Clear Song (p. 66) to delete songs before editing.

■The same tone sounds for all tracks when performance data is received from an sequencer.

- In the Normal mode, the tones of the selected tracks are played regardless of the MIDI receive channel. When using the PMA-5 as a sound module by connecting an external sequencer to it, use the GM/GS mode (p. 76). In the GM/GS mode, the PMA-5 functions as a 16-part multitimbral GM/GS sound module. The internal sequencer, however, cannot be operated.

■A chord changes after performing Delete Measure.

- The Chord track contains chord progressions with chords input at the points where they change. If no chord is specified for the measures that immediately follow the ones deleted by Delete Measure (p.63), subsequent measures will be played with the chord input for the measure just before the deletion.

■No sound.

- Parts are muted on the Mute screen (p.31 P50). Or [SOLO] has been turned on.
- The PMA-5's MIDI channels (p.79) do not match those of the MIDI device transmitting MIDI messages.
- Tones not available on the PMA-5 have been specified. (The messages "No Instrument" appears.) Transmit correct program change or bank select numbers (p.102) that correspond to the PMA-5's built-in sounds.

■Nothing on the Step Write screen.

- If all View Switch settings are Off, the Step Write screen shows nothing. Set the View Switch On for the events you want to display. (At Note on, note events are displayed.)

- On the Step Write screen for the Style track, the character after the Style Name is shown on the grid. If no character (a space) is input after the Style Name, that Style will not be displayed on the grid. It is recommended you input a character that has some relevance to the Style so it can be identified easily.

■Sound hangs.

- [KEY HOLD] is on ([KEY HOLD] button indicator is lit). Touch [KEY HOLD] to turn its button indicator off.

■A click won't stop.

- Click Mode (p.40) is set to "Always." Use other Click Mode settings such as "RecOnly."

■Play won't start when the Play button is touched.

- A blank song or blank User Style is selected.
- The last measure of the song has been reached. Touch [⏮] to go back to the first measure of the song and touch the Play button.
- If Sync Mode (p.90) is set to "MIDI," the PMA-5 will not start to play unless it receives MIDI clock from the external MIDI device connected. To play on the PMA-5 alone, set Sync Mode to "Internal" before you start playing.

■Data cannot be received or transmitted from MIDI connectors or the computer connector.

- When using MIDI connectors, set the Computer switch to "MIDI." (Switch power off before setting the Computer switch.)
- When using the computer connector, set the Computer switch to match the computer in use. (Switch power off before setting the Computer switch.)
- Be sure MIDI channels of the receiving and transmitting devices match.
- When transmitting/receiving exclusive messages, make sure the Device-IDs of the receiving and transmitting devices match (p.89).
- Be sure to use the computer cable recommended by Roland.

Error messages

If there has been an operational error, or if the PMA-5 is unable to continue as you commanded, an error message is displayed. Take the appropriate action for the error message displayed.

* If the error message continues to be displayed, touch [EXIT] to return to the original screen.

Battery Low

Situation: The internal backup battery has run down.

Action: Consult your dealer or the closest Roland service station to have the battery replaced.

Backup NG

Situation: Data stored in the PMA-5 memory is not backed up.

Action: The screen for adjusting the touch panel appears, so perform calibration. After calibration is complete, the Initialization screen appears. Touch [Exec].

* If "Backup NG" still appears even after you take action, consult your dealer or the closest Roland service station.

Check Sum Error

Situation: The check sum of a system exclusive message received was incorrect.

Action: Set the correct check sum value and transmit again.

Memory Full

Situation: The sequencer memory is full due to repeated realtime recording, Step Write, editing operations, etc. No further data input or editing operation can be continued.

Action: Delete unnecessary songs or User Styles using Clear Song (p.66) or Clear Style (p.71).

Serial Error

Situation: A problem was encountered during transmission/reception of MIDI data.

Action: Make sure that the connections you have, and the procedures you took were secure.

MIDI Buffer full

Situation: Due to an inordinate volume of MIDI messages received in a short period of time, the PMA-5 has failed to process them properly.

Action: Check the amount of MIDI messages transmitted.

MIDI Off Line

Situation 1: The MIDI device connected to the PMA-5's MIDI IN may be switched off.

Action 1: This is not a problem on the PMA-5. Check the power switch of the connected MIDI device.

Situation 2: There is a problem with MIDI cable connections.

Action 2: Check MIDI cables are in good condition and securely plugged in.

No INSTRUMENT

Situation: In the GM/GS mode, a tone the PMA-5 does not have has been specified.

Action: No sound is played because the PMA-5 does not have the requested tone. Specify another tone that's available.

No. DRUM SET

Situation: In the GM/GS mode, a drum set the PMA-5 does not have has been specified.

Action: The drum set name selected right before your current selection is displayed and sounds.

Communication Error

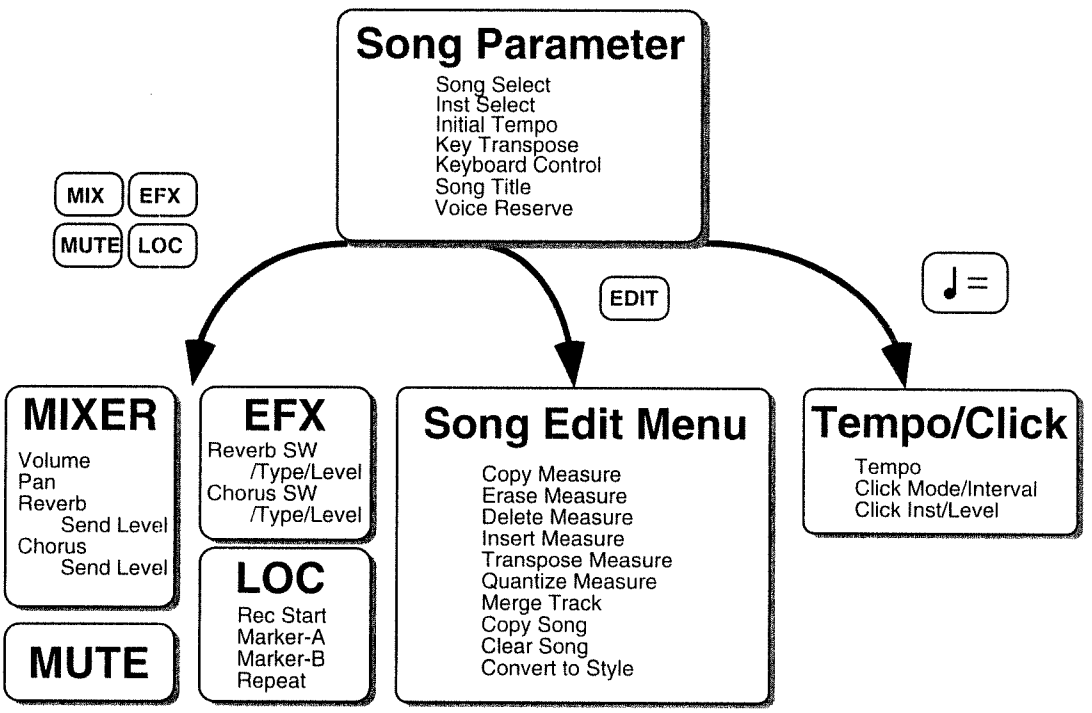
Situation: The received MIDI data was incorrect.

Action: Check the transmitted data. If it is incorrect, correct the data and transmit it again.

Operation Map

Song mode

SONG MODE



EXIT Touch this button to return to the original screen.

◀ ▶ Touch one of these buttons to select the parameter.

Style/Utility/MIDI modes

STYLE MODE

Style Parameter

Style Select
Inst Select
Style Length
Style Name
Arrange Mode

UTILITY MODE

Utility Menu

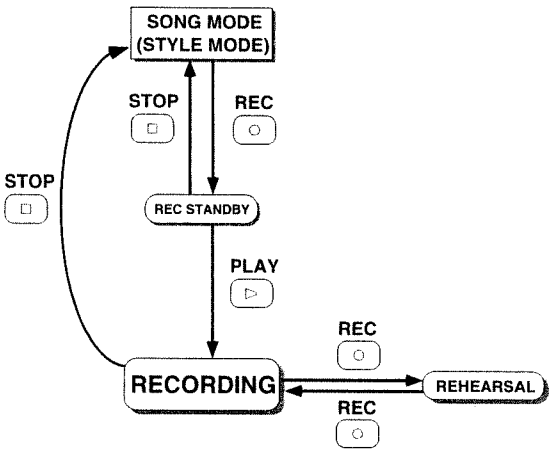
Free Memory
Battery
Clear All
Chain Play
Master Tune
Touch Panel Calibration
System Initialize

MIDI MODE

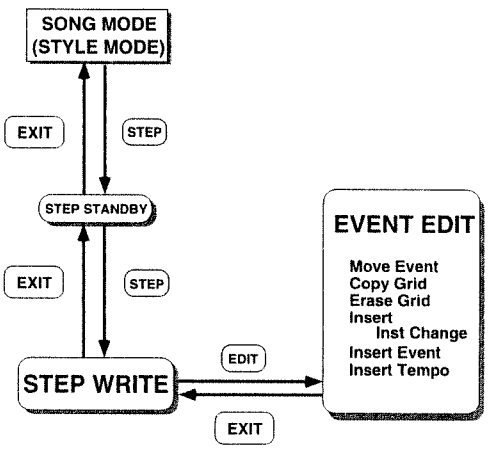
MIDI Menu

TX Channel
Device-ID
Bulk Dump
MIDI Update
Sync Mode
GM/GS
Sound Module Mode

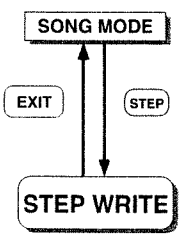
Realtime Recording



Step Write (Sequencer Tracks)



Step Write (Chord Track and Style Track)



Instrument Lists

PC	CC00	Instrument	Screen	Voice
Piano				
001	000	Piano 1	Piano 1	1
	008	Piano 1w	Piano 1w	2
	016	Piano 1d	Piano 1d	1
002	000	Piano 2	Piano 2	1
	008	Piano 2w	Piano 2w	2
003	000	Piano 3	Piano 3	1
	008	Piano 3w	Piano 3w	2
004	000	Honky-tonk	Honky.	2
	008	Honky-tonk w	Honky.w	2
E. Piano				
005	000	E.Piano 1	E.Piano1	1
	008	Detuned EP 1	Detuned1	2
	016	E.Piano 1v	EP 1v	2
	024	60's E.Piano	60's EP	1
	064	FM+SA EP	FM+SA EP	2
	065	60's EP 2	60's EP2	1
	066	Hard Rhodes	Rhodes	2
006	000	E.Piano 2	E.Piano2	1
	008	Detuned EP 2	Detuned2	2
	016	E.Piano 2v	EP 2v	2
	064	St.FM EP	St.FM EP	2
	065	Bright FM EP	Br.FM EP	2
Clavi				
007	000	Harpsichord	Harpsi	1
	008	Coupled Hps.	Coupld H	2
	016	Harpsi.w	Harpsi.w	2
	024	Harpsi.o	Harpsi.o	2
008	000	Clav.	Clav.	1
	064	Funk Clav.	FunkClav	2
Chromatic percussion				
009	000	Celesta	Celesta	1
010	000	Glockenspiel	Glocken	1
011	000	Music Box	MusicBox	1
012	000	Vibraphone	Vibraphn	1
	008	Vib.w	Vib.w	2
013	000	Marimba	Marimba	1
	008	Marimba w	Marimb.w	2
014	000	Xylophone	Xylophon	1
015	000	Tubular-bell	Tublrbel	1
	008	Church Bell	ChrchBel	1
	009	Carillon	Carillon	1
016	000	Santur	Santur	1

PC: program number (Instrument number)
CC00: value of controller number 0 (Bank number, Variation number)
Voice: number of voices used by the Instrument

PC	CC00	Instrument	Screen	Voice
Organ				
017	000	Organ 1	Organ 1	1
	008	Detuned Or.1	Detuned1	2
	016	60's Organ 1	60's Or1	1
	032	Organ 4	Organ 4	2
	064	SC88 Organ 1	SC88 Or1	1
	065	Detuned SC88	Detune88	2
	066	Mixed Organ	Mixed Or	2
	067	SC88 Organ 4	SC88 Or4	1
	068	Even Bar	Even Bar	2
018	000	Organ 2	Organ 2	1
	008	Detuned Or.2	Detuned2	2
	032	Organ 5	Organ 5	2
019	000	Organ 3	Organ 3	2
	064	VS Organ	VS Organ	2
020	000	Church Org.1	ChrchOr1	1
	008	Church Org.2	ChrchOr2	2
	016	Church Org.3	ChrchOr3	2
021	000	Reed Organ	Reed Org	1
022	000	Accordion Fr	Acord.Fr	2
	008	Accordion It	Acord.It	2
023	000	Harmonica	Harmnica	1
024	000	Bandoneon	Bandneon	2
Guitar				
025	000	Nylon-str.Gt	Nylon Gt	1
	008	Ukulele	Ukulele	1
	016	Nylon Gt.o	NylnGt.o	2
	032	Nylon Gt.2	NylonGt2	1
	064	Nyln-str.Gt3	NylonGt3	1
026	000	Steel-str.Gt	Steel Gt	1
	008	12-str.Gt	12str.Gt	2
	016	Mandolin	Mandolin	1
	064	Steel-strGt2	SteelGt2	1
	065	12-str.Gt2	12strGt2	2
	066	Nylon+Steel	Nyln+Stl	2
027	000	Jazz Gt.	Jazz Gt.	1
	008	Hawaiian Gt.	Hawai.Gt	1
028	000	Clean Gt.	Clean Gt	1
	008	Chorus Gt.	ChorusGt	2
	064	Clean Gt.2	CleanGt2	1
029	000	Muted Gt.	Muted Gt	1
	008	Funk Gt.	Funk Gt	1
	016	Funk Gt.2	Funk Gt2	1
	064	Muted Gt.2	MutedGt2	1
	065	Muted Gt.3	MutedGt3	2
	066	Pop Gt.	Pop Gt.	1
	067	Funk Gt.3	Funk Gt3	1
	068	Funk Gt.4	Funk Gt4	1
030	000	Overdrive Gt	OvrdrvGt	1
	064	Ovrdrv. Gt.2	OvdrvGt2	1
	065	Fdbk.Odrv.Gt	FbOvdrGt	2
031	000	DistortionGt	Dist.Gtr	1
	008	Feedback Gt.	FeedbkGt	2
	064	Heavy Gt.	Heavy Gt	1
	065	Fdbk. Hvy.Gt	Fb.HvyGt	2
	066	Muted Dis.Gt	MutDstGt	1
	067	Rock Rhythm	RckRhytm	2
032	000	Gt.Harmonics	GtHarmo	1
	008	Gt. Feedback	GtFeedbk	1

PC	CC00	Instrument	Screen	Voice
Bass				
033	000	Acoustic Bs.	Acous.Bs	1
	064	Acoustic Bs2	AcousBs2	2
	065	Elctrc.Ac.Bs	El.Ac.Bs	2
034	000	Fingered Bs.	FingerBs	1
	064	Fingered Bs2	FingrBs2	1
	065	Funk Bass	FunkBass	2
	066	Reggae Bass	ReggaeBs	2
035	000	Picked Bs.	PickedBs	1
	064	Picked Bs.2	Pick.Bs2	1
	065	Mute PickBs1	MutPkBs1	1
	066	Mute PickBs2	MutPkBs2	1
036	000	Fretless Bs.	Fretless	1
037	000	Slap Bass 1	Slap Bs1	1
	064	Slap Bass 3	Slap Bs3	1
	065	Reso Slap	ResoSlap	1
	066	Slap Bass 4	Slap Bs4	1
038	000	Slap Bass 2	Slap Bs2	1
Syn. Bass				
039	000	Synth Bass 1	SynthBs1	1
	001	SynthBass101	SynBs101	1
	008	Synth Bass 3	SynthBs3	1
	064	TB303 Bs 1	TB303Bs1	1
	065	TB303 Bs 2	TB303Bs2	1
	066	TB303 Bs 3	TB303Bs3	1
	067	P5 Bass	P5 Bass	1
040	000	Synth Bass 2	SynthBs2	2
	008	Synth Bass 4	SynthBs4	2
	016	Rubber Bass	RubberBs	2
	064	SH101 Bs 1	SH101Bs1	1
	065	SH101 Bs 2	SH101Bs2	1
	066	SH101 Bs 3	SH101Bs3	1
	067	Modular Bass	ModulrBs	2
Orchestra				
041	000	Violin	Violin	1
	008	Slow Violin	Slow Vln	1
042	000	Viola	Viola	1
043	000	Cello	Cello	1
044	000	Contrabass	Contrabs	1
045	000	Tremolo Str	TrmloStr	1
046	000	PizzicatoStr	Pizz.Str	1
047	000	Harp	Harp	1
048	000	Timpani	Timpani	1
Strings				
049	000	Strings	Strings	1
	008	Orchestra	Orchstra	2
050	000	Slow Strings	Slow Str	1
051	000	Syn.Strings1	Syn.Str1	1
	008	Syn.Strings3	Syn.Str3	2
	064	Syn.Strings4	Syn.Str4	2
	065	OB Strings	OB Str.	2
052	000	Syn.Strings2	Syn.Str2	2
053	000	Choir Aahs	ChoirAah	1
	032	Choir Aahs 2	ChoirAh2	1
054	000	Voice Oohs	VoiceOoh	1
055	000	SynVox	SynVox	1
056	000	OrchestraHit	Orch.Hit	2

PC	CC00	Instrument	Screen	Voice	
Brass					
057	000	Trumpet	Trumpet	1	
058	000	Trombone	Trombone	1	
	001	Trombone 2	Trmbone2	2	
059	000	Tuba	Tuba	1	
060	000	MutedTrumpet	MutedTpt	1	
061	000	French Horn	Fr.Hornl	2	
	001	Fr.Horn 2	Fr.Horn2	2	
062	000	Brass 1	Brass 1	1	
	008	Brass 2	Brass 2	2	
Syn. Brass					
063	000	Synth Brass1	SynBrs.1	2	
	008	Synth Brass3	SynBrs.3	2	
	016	AnalogBrass1	AnlgBrs1	2	
	064	Synth Brass5	SynBrs.5	2	
	065	Poly Brass	Poly Brs	2	
	066	Quack Brass	QuackBrs	2	
	067	Octave Brass	OctavBrs	2	
064	000	Synth Brass2	SynBrs.2	2	
	008	Synth Brass4	SynBrs.4	1	
	016	AnalogBrass2	AnlgBrs2	2	
	064	Soft Brass	Soft Brs	2	
	065	Velo Brass 1	VeloBrs1	2	
	066	Velo Brass 2	VeloBrs2	2	
Reed					
065	000	Soprano Sax	Sop.Sax	1	
066	000	Alto Sax	Alto Sax	1	
067	000	Tenor Sax	TenorSax	1	
068	000	Baritone Sax	Bari.Sax	1	
069	000	Oboe	Oboe	1	
070	000	English Horn	Eng.Horn	1	
071	000	Bassoon	Bassoon	1	
072	000	Clarinet	Clarinet	1	
Pipe					
073	000	Piccolo	Piccolo	1	
074	000	Flute	Flute	1	
075	000	Recorder	Recorder	1	
076	000	Pan Flute	PanFlute	1	
077	000	Bottle Blow	BttleBlw	2	
078	000	Shakuhachi	Shaku	2	
079	000	Whistle	Whistle	1	
080	000	Ocarina	Ocarina	1	
Syn. Lead					
081	000	Square Wave	SquarWav	2	
	001	Square	Square	1	
	008	Sine Wave	SineWave	1	
082	000	Saw Wave	Saw Wave	2	
	001	Saw	Saw	1	
	008	Doctor Solo	Dr.Solo	2	
	064	Big Lead	Big Lead	2	
	065	Waspy Synth	WaspySyn	2	
083	000	Syn.Calliope	SynCalio	2	
084	000	Chiffer Lead	Chiffer	2	
085	000	Charang	Charang	2	
	064	Dist. Lead 1	Dist.Ld1	2	
	065	Dist. Lead 2	Dist.Ld2	2	
	066	Funk Lead	FunkLead	2	
086	000	Solo Vox	Solo Vox	2	
087	000	5th Saw Wave	5th Saw	2	
	064	Big Fives	BigFives	2	
088	000	Bass & Lead	Bs.&Lead	2	
	064	Big & Raw	Big&Raw	2	
	065	Fat & Perky	Fat&Prky	2	

PC	CC00	Instrument	Screen	Voice	
Syn. Pad					
089	000	Fantasia	Fantasia	2	
090	000	Warm Pad	Warm Pad	1	
	064	Thick Pad	ThickPad	2	
	065	Horn Pad	Horn Pad	2	
091	000	Polysynth	Polysyn	2	
	064	80's PolySyn	80'sPoly	2	
092	000	Space Voice	SpaceVox	1	
093	000	Bowed Glass	Bow.Glas	2	
094	000	Metal Pad	MetalPad	2	
	064	Panner Pad	PannrPad	2	
095	000	Halo Pad	Halo Pad	2	
096	000	Sweep Pad	SweepPad	1	
	064	Polar Pad	PolarPad	1	
	065	Converge	Converge	1	
Syn. SFX					
097	000	Ice Rain	Ice Rain	2	
098	000	Soundtrack	Soundtrk	2	
	064	Ancestral	Ancestrl	2	
	065	Prologue	Prologue	2	
099	000	Crystal	Crystal	2	
	001	Syn Mallet	SynMalet	1	
100	000	Atmosphere	Atmsphre	2	
101	000	Brightness	Britenis	2	
102	000	Goblin	Goblin	2	
103	000	Echo Drops	EchoDrop	1	
	001	Echo Bell	EchoBell	2	
	002	Echo Pan	EchoPanl	2	
	064	Echo Pan 2	EchoPan2	2	
	065	Big Panner	BigPannr	2	
	066	Reso Panner	ResPannr	2	
104	000	Star Theme	StarThme	2	
Ethnic misc					
105	000	Sitar	Sitar	1	
	001	Sitar 2	Sitar 2	2	
106	000	Banjo	Banjo	1	
107	000	Shamisen	Shamisen	1	
108	000	Koto	Koto	1	
	008	Taisho Koto	Taisho K	2	
109	000	Kalimba	Kalimba	1	
110	000	Bagpipe	Bagpipe	1	
111	000	Fiddle	Fiddle	1	
112	000	Shanai	Shanai	1	
Percussive					
113	000	Tinkle Bell	TinklBel	1	
114	000	Agogo	Agogo	1	
115	000	Steel Drums	SteelDrm	1	
116	000	Woodblock	Woodblck	1	+
	008	Castanets	Castanet	1	+
117	000	Taiko	Taiko	1	+
	008	Concert BD	ConcrtBD	1	+
118	000	Melo. Tom 1	MeloTom1	1	+
	008	Melo. Tom 2	MeloTom2	1	+
119	000	Synth Drum	SynthDrm	1	+
	008	808 Tom	808 Tom	1	+
	009	Elec Perc.	ElecPerc	1	+
120	000	Reverse Cym.	RevrsCym	1	+

PC	CC00	Instrument	Screen	Voice	
Guitar Bass FX					
121	000	Gt.FretNoise	FretNoiz	1	+
	001	Gt.Cut Noise	CutNoise	1	+
	002	String Slap	Str.Slap	1	+
	064	Wah Brush Gt	Wah Gt.	1	+
	065	Gt. Slide	Gt.Slide	1	+
	066	Gt. Scratch	GtScrtch	1	+
	067	Bass Slide	Bs.Slide	1	+
SFX					
122	000	Breath Noise	BrthNoiz	1	+
	001	Fl.Key Click	KeyClick	1	+
123	000	Seashore	Seashore	1	+
	001	Rain	Rain	1	+
	002	Thunder	Thunder	1	+
	003	Wind	Wind	1	+
	004	Stream	Stream	2	+
	005	Bubble	Bubble	2	+
124	000	Bird	Bird	2	+
	001	Dog	Dog	1	+
	002	Horse-Gallop	HrsGalop	1	+
	003	Bird 2	Bird 2	1	+
125	000	Telephone 1	Telephn1	1	+
	001	Telephone 2	Telephn2	1	+
	002	DoorCreaking	DoorCrek	1	+
	003	Door	Door	1	+
	004	Scratch	Scratch	1	+
	005	Wind Chimes	WndChime	2	+
126	000	Helicopter	Helicptr	1	+
	001	Car-Engine	CarEngin	1	+
	002	Car-Stop	Car-Stop	1	+
	003	Car-Pass	Car-Pass	1	+
	004	Car-Crash	CarCrash	2	+
	005	Siren	Siren	1	+
	006	Train	Train	1	+
	007	Jetplane	Jetplane	2	+
	008	Starship	Starship	2	+
	009	Burst Noise	BrstNoiz	2	+
	064	Random	Random	1	+
127	000	Applause	Applause	2	+
	001	Laughing	Laughing	1	+
	002	Screaming	Screming	1	+
	003	Punch	Punch	1	+
	004	Heart Beat	HartBeat	1	+
	005	Footsteps	Footstep	1	+
128	000	Gun Shot	Gun Shot	1	+
	001	Machine Gun	MachnGun	1	+
	002	Lasergun	Lasergun	1	+
	003	Explosion	Explosin	2	+

PC: program number (Instrument number)
CC00: value of controller number 0 (Bank number, Variation number)
Voice: number of voices used by the Instrument
+: a percussive sound which cannot be played melodically. Use near C4 (note number 60).

Drum Set Lists

Drum Set List (1)

SC-55 Drum Setfig.401 DrumSet List1 (SC-55)

PC 1 / PC33 Standard Set/Jazz Set	PC9 Room Set	PC17 Power Set	PC25 Electronic Set	PC26 TR-808 Set	PC41 Brush Set	PC49 Orchestra Set	PC57 SFX Set
High Q	←	←	←	←	←	Closed Hi-hat [EXC1]	----
Slap	←	←	←	←	←	Pedal Hi-hat [EXC1]	----
Scratch Push [EXC7]	←	←	←	←	←	Open Hi-hat [EXC1]	----
Scratch Pull [EXC7]	←	←	←	←	←	Ride Cymbal1	----
Sticks	←	←	←	←	←	←	----
Square Click	←	←	←	←	←	←	----
Metronome Click	←	←	←	←	←	←	----
Metronome Bell	←	←	←	←	←	←	----
Kick 2 / Jazz Kick2	←	←	←	←	Jazz Kick2	Concert BD2	----
Kick 1 / Jazz Kick1	←	Mondo Kick	Elec Kick	808 Kick	Jazz Kick1	Concert BD1	----
Side Stick	←	←	←	808 Rim Shot	←	←	----
Snare Drum1	←	Gated Snare	Elec Snare	808 Snare	Brush Tap	Concert SD	----
Hand Clap	←	←	←	←	Brush Slap	Castanets	High Q
Snare Drum2	←	←	Gated Snare	←	Brush Swirl	Concert SD	Slap
Low Tom2	Room Low Tom2	Room Low Tom2	Elec Low Tom2	808 Low Tom2	←	Timpani F	Scratch Push [EXC7]
Closed Hi-Hat [EXC1]	←	←	←	808 CHH [EXC1]	←	Timpani F#	Scratch Pull [EXC7]
Low Tom1	Room Low Tom1	Room Low Tom1	Elec Low Tom1	808 Low Tom1	←	Timpani G	Sticks
Pedal Hi-Hat [EXC1]	←	←	←	808 CHH [EXC1]	←	Timpani G#	Square Click
Mid Tom2	Room Mid Tom2	Room Mid Tom2	Elec Mid Tom2	808 Mid Tom2	←	Timpani A	Metronome Click
Open Hi-Hat [EXC1]	←	←	←	808 OHH [EXC1]	←	Timpani A#	Metronome Bell
Mid Tom1	Room Mid Tom1	Room Mid Tom1	Elec Mid Tom1	808 Mid Tom1	←	Timpani B	Guitar Fret Noise
Mid Tom2	Room Hi Tom2	Room Hi Tom2	Elec Hi Tom2	808 Hi Tom2	←	Timpani C	Guitar cutting noise/up
Crash Cymbal1	←	←	←	808 Cymbal	←	Timpani C#	Guitar cutting noise/down
High Tom1	Room Hi Tom1	Room Hi Tom1	Elec Hi Tom1	808 Hi Tom1	←	Timpani D	String slap of double bass
Ride Cymbal1	←	←	←	←	←	Timpani D#	Fl.Key Click
Chinese Cymbal	←	←	Reverse Cymbal	←	←	Timpani E	Laughing
Ride Bell	←	←	←	←	←	Timpani F	Scream
Tambourine	←	←	←	←	←	←	Punch
Splash Cymbal	←	←	←	←	←	←	Heart Beat
Cowbell	←	←	←	808 Cowbell	←	←	Footsteps1
Crash Cymbal2	←	←	←	←	←	Concert Cymbal2	Footsteps2
Vibra-slap	←	←	←	←	←	←	Applause +
Ride Cymbal2	←	←	←	←	←	Concert Cymbal1	Door Creaking
High Bongo	←	←	←	←	←	←	Door
Low Bongo	←	←	←	←	←	←	Scratch
Mute High Conga	←	←	←	808 High Conga	←	←	Wind Chimes +
Open High Conga	←	←	←	808 Mid Conga	←	←	Car-Engine
Low Conga	←	←	←	808 Low Conga	←	←	Car-Stop
High Timbale	←	←	←	←	←	←	Car-Pass
Low Timbale	←	←	←	←	←	←	Car-Crash +
High Agogo	←	←	←	←	←	←	Siren
Low Agogo	←	←	←	←	←	←	Train
Cabasa	←	←	←	←	←	←	Jetplane +
Maracas	←	←	←	808 Maracas	←	←	Helicopter
Short Hi Whistle [EXC2]	←	←	←	←	←	←	Starship +
Long Low Whistle [EXC2]	←	←	←	←	←	←	Gun Shot
Short Guiro [EXC3]	←	←	←	←	←	←	Machine Gun
Long Guiro [EXC3]	←	←	←	←	←	←	Lasergun
Claves ←	←	←	←	808 Claves	←	←	Explosion +
High Wood Block ←	←	←	←	←	←	←	Dog
Low Wood Block ←	←	←	←	←	←	←	Horse-Gallop
Mute Cuica [EXC4]	←	←	←	←	←	←	Birds +
Open Cuica EXC4]	←	←	←	←	←	←	Rain +
Mute Triangle [EXC5]	←	←	←	←	←	←	Thunder
Open Triangle [EXC5]	←	←	←	←	←	←	Wind
Shaker	←	←	←	←	←	←	Seashore
Jingle Bell	←	←	←	←	←	←	Stream +
Bell Tree	←	←	←	←	←	←	Bubble +
Castanets	←	←	←	←	←	←	----
Mute Surdo [EXC6]	←	←	←	←	←	←	----
Open Surdo [EXC6]	←	←	←	←	←	←	----

PC: Program Numbers (Drum Set Numbers)
←: Same as the rhythm tones of the Standard Set (PC1)
—: No sound
+: Rhythm tones using two voices
[EXC]: Rhythm tones of the same EXC number do not sound simultaneously.

Drum Set List (2)

PC65 Standard2 Set	PC66 Syandard3 Set	PC73 Room2 Set	PC81 Power2 Set	PC89 TR-808/909 Set	PC97 Jazz2 Set	PC105 Brush2 Set
Bass Slide	←	←	←	←	←	←
Guiter Scratch	←	←	←	←	←	←
Guiter Slide	←	←	←	←	←	←
Guitar cutting noise/down	←	←	←	←	←	←
Guitar cutting noise/up	←	←	←	←	←	←
Wah Guitar cutting down1	←	←	←	←	←	←
Wah Guitar cutting up1	←	←	←	←	←	←
Wah Guitar cutting down2	←	←	←	←	←	←
Wah Guitar cutting up2	←	←	←	←	←	←
High Q	←	←	←	←	←	←
Slap	←	←	←	←	←	←
Scratch Push [EXC7]	←	←	←	←	←	←
Scratch Pull [EXC7]	←	←	←	←	←	←
Sticks	←	←	←	←	←	←
Square Click	←	←	←	←	←	←
Metronome Click	←	←	←	←	←	←
Metronome Bell	←	←	←	←	←	←
Dry Kick	Jazz Kick3	Room Kick	Boing Kick	909 Kick	Loose Kick	Loose Kick
Acoustic Kick	←	Solid Kick	Gated Kick	808 Kick	Jazz Kick3	Soft Kick
Ambient Side Stick	←	←	←	808 Rim Shot	←	Side Stick
Real Snare	L.A. Fat Snare	Hard Snare	Power Snare	808 Snare	←	Brush Tap
Hand Clap	←	←	←	←	←	Brush Slap
Rim Shot	Tight Snare	Whack Snare	90's Snare	909 Snare	Tight Snare	Brush Swirl
Real Low Tom2 +	←	←	Room Low Tom2	808 Low Tom2	Low Tom2	Brush Low Tom2 +
Real Closed Hi-Hat[EXC1]	←	←	←	808 CHH [EXC1]	Closed Hi-Hat [EXC1]	Closed Hi-Hat [EXC1]
Real Low Tom1 +	←	←	Room Low Tom1	808 Low Tom1	Low Tom1	Brush Low Tom1 +
Real Pedal Hi-Hat [EXC1]	←	←	←	808 CHH [EXC1]	Pedal Hi-Hat [EXC1]	Pedal Hi-Hat [EXC1]
Real Mid Tom2 +	←	←	Room Mid Tom2	808 Mid Tom2	Mid Tom2	Brush Mid Tom2 +
Real Open Hi-Hat [EXC1]	←	←	←	808 OHH [EXC1]	Open Hi-Hat [EXC1]	Open Hi-Hat [EXC1]
Real Mid Tom1 +	←	←	Room Mid Tom1	808 Mid Tom1	Mid Tom1	Brush Mid Tom1 +
Real High Tom2 +	←	←	Room Hi Tom2	808 High Tom2	High Tom2	Brush High Tom2 +
Crash Cymbal1	←	←	←	808 Cymbal	←	←
Real High Tom1 +	←	←	Room Hi Tom1	808 High Tom1	High Tom1	Brush High Tom1 +
Ride Cymbal1	←	←	←	←	←	←
Chinese Cymbal	←	←	←	←	←	←
Ride Bell 2	←	←	←	←	←	←
Tambourine	←	←	←	←	←	←
Splash Cymbal	←	←	←	←	←	←
Cowbell	←	←	←	808 Cowbell	←	←
Crash Cymbal2	←	←	←	←	←	←
Vibra-slap	←	←	←	←	←	←
Ride Cymbal2	←	←	←	←	←	←
High Bongo	←	←	←	←	←	←
Low Bongo	←	←	←	←	←	←
Mute High Conga	←	←	←	808 High Conga	←	←
Open High Conga	←	←	←	808 Mid Conga	←	←
Low Conga	←	←	←	808 Low Conga	←	←
High Timbale	←	←	←	←	←	←
Low Timbale	←	←	←	←	←	←
High Agogo	←	←	←	←	←	←
Low Agogo	←	←	←	←	←	←
Cabasa	←	←	←	←	←	←
Maracas	←	←	←	808 Maracas	←	←
Short Hi Whistle [EXC2]	←	←	←	←	←	←
Long Low Whistle [EXC2]	←	←	←	←	←	←
Short Guiro [EXC3]	←	←	←	←	←	←
Long Guiro [EXC3]	←	←	←	←	←	←
Claves	←	←	←	808 Claves	←	←
High Wood Block	←	←	←	←	←	←
Low Wood Block	←	←	←	←	←	←
Mute Cuica [EXC4]	←	←	←	←	←	←
Open Cuica [EXC4]	←	←	←	←	←	←
Mute Triangle [EXC5]	←	←	←	←	←	←
Open Triangle [EXC5]	←	←	←	←	←	←
Shaker	←	←	←	←	←	←
Jingle Bell	←	←	←	←	←	←
Bell Tree	←	←	←	←	←	←
Castanets	←	←	←	←	←	←
Mute Surdo [EXC6]	←	←	←	←	←	←
Open Surdo [EXC6]	←	←	←	←	←	←

PC : Program Numbers (Drum Set Numbers)
← : Same as the rhythm tones of the Standard2 Set (PC65)
— : No sound
+ : Rhythm tones using two voices
[EXC] : Rhythm tones of the same EXC number do not sound simultaneously.

Preset Style Lists

Style No.	Category	Style Name	Description	Tempo	Time	Type
P001	Rock	Rock1 -I	'80s American Rocks1	120	4/4	7th
P007	Rock	Rock2 -I	'80s American Rocks2	118	4/4	7th
P013	Rock	Rock3 -I	Classic American Rock	100	4/4	M
P019	Rock	SlowR -I	16-Beat Slow Heavy Rock	72	4/4	m
P025	Rock	MixdR -I	Mixtured Rock	103	4/4	7th
P031	Rock	FunkR -I	Funk Rock	103	4/4	m
P037	Rock	BritR -I	'70s British Rock	140	4/4	7th
P043	Rock	GlamR -I	Glam Rock	110	4/4	7th
P049	Rock	A.O.R.-I	Adult Oriented Rock	113	4/4	M
P055	Rock	16btR -I	16-Beat Rock	112	4/4	m
P061	Rock	Sfl'R -I	Shuffle Beat Rock	120	4/4	7th
P067	Rock	8bt'R -I	8-Beat Rock	140	4/4	7th
P073	Rock	Aco'R -I	Acoustic Rock featuring Ac.Guitar	120	4/4	M
P079	Rock	ElecR -I	Mld '80s Electronic Rock	130	4/4	M
P085	Hard Rock	FastHR-I	Fast Shuffle Beatard Rock	190	4/4	m
P091	Hard Rock	FnkyHR-I	Funky Hard Rock	100	4/4	7th
P097	Hard Rock	DeepHR-I	Classic 8-Beat Hard Rock	150	4/4	m
P103	Metal	Spd!HM-I	Speed Metal	236	4/4	m
P109	Metal	Hrd!HM-I	Hardcore Metal	126	4/4	7th
P115	Metal	ThrsHM-I	Thrash Metal	195	4/4	m
P121	Ballad	Pf1Bld-I	4 Strokes of Piano	66	4/4	M
P127	Ballad	Pf2Bld-I	Ballad with Piano Arpeggio	55	4/4	M
P133	Ballad	AG1Bld-I	Ballad with Ac.Guitar Arpeggio	60	4/4	M
P139	Ballad	AG2Bld-I	Slow Folk Ballad with Ac.Guitar Arpeggio	80	4/4	m
P145	Ballad	16bBld-I	16-Beat Contemporary R&B Ballad	75	4/4	M
P151	Ballad	808Bld-I	Ballad featuring TR808	82	4/4	M
P157	R&B	M'town-I	Detroit Sound with Downbeat Snare	125	4/4	7th
P163	R&B	Gospel-I	Gospel Song	152	6/4	7th
P169	R&B	6/8R&B-I	6/8 Soul	64	4/4	M
P175	R&B	N.Soul-I	Shuffle Beat Northern Soul	150	4/4	7th
P181	R&B	S.Soul-I	Fast,southern Soul featuring Horn Section	165	4/4	7th
P187	Blues	Blues1-I	Slow Blues	55	4/4	7th
P193	Blues	Blues2-I	Medium Shuffle	120	4/4	7th
P199	Pop	ElePop-I	Electric Pop	100	4/4	M
P205	Pop	PopFnk-I	Pop Funk	96	4/4	7th
P211	Pop	Pop'n -I	Pop'n Roll	118	4/4	7th
P217	Pop	ScrPop-I	Screen Music	120	4/4	M
P223	Pop	PopWlz-I	Pop Waltz	120	3/4	M
P229	Pop	JpPop -I	Japanese Pop	115	4/4	M
P235	R&R	Oldies-I	Oldies	130	4/4	M
P241	R&R	SurfR -I	Surfin' Rock	151	4/4	m
P247	R&R	Rock'n-I	Rockabilly	160	4/4	7th
P253	Country	C'Folk-I	Ragtime-Like Fork with Ac.Guitar	72	4/4	M
P259	Country	C'Wltz-I	Country Waltz	86	3/4	M
P265	Country	C'Rock-I	Country Rock	106	4/4	M
P271	Country	Train -I	Trainbeat	140	4/4	M
P277	Country	Blgrs -I	Bluegrass	155	4/4	7th
P283	Jazz	Combo -I	Combo Style	150	4/4	7th
P289	Jazz	JzWltz-I	Jazz Waltz	160	6/4	M
P295	Jazz	BigBnd-I	Big Band Style	130	4/4	7th
P301	Jazz	SoulJz-I	Soul Jazz	114	4/4	m
P307	Jazz	JzBld -I	Jazz Ballad with Brush	70	4/4	M

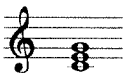
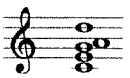
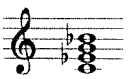
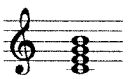
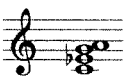
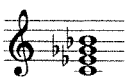
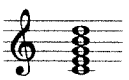
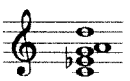
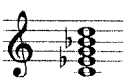
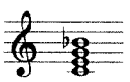
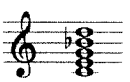
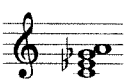
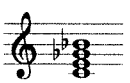
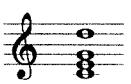
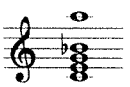
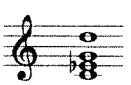
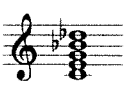
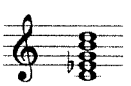
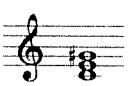
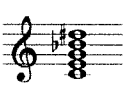
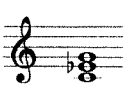
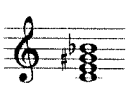
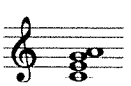
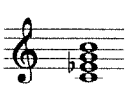
Style No.	Category	Style Name	Description	Tempo	Time	Type
P313	Fusion	LiteFs-I	Light Fusion with Latin Feel	90	4/4	M
P319	Fusion	FunkFs-I	Funk Fusion	112	4/4	7th
P325	Fusion	TechFs-I	Technical Japanese Fusion	107	4/4	7th
P331	Fusion	BGM?Fs-I	16beat,like BGM	83	4/4	m
P337	Fusion	HardFs-I	Acrobatic,Hardcore Jazz	120	4/4	7th
P343	Fusion	CtmpFs-I	16-beat Contemporary Fusion with E.Piano	100	4/4	M
P349	Fusion	DancFs-I	Danceable Fusion with Slap E.Bass	105	4/4	7th
P355	Dance	Funky -I	'70s Funky Soul	106	4/4	7th
P361	Dance	FnkP/F-I	'70s Cosmic Funk	108	4/4	7th
P367	Dance	FnkTOP-I	West Coast Funk	110	4/4	7th
P373	Dance	Disco1-I	'70s Soulful Disco	112	4/4	M
P379	Dance	Disco2-I	'70s Disco	120	4/4	m
P385	Dance	EuroBt-I	'80s Eurobeat	123	4/4	M
P391	Dance	N.J.S.-I	New Jack Swing	108	4/4	m
P397	Dance	GrndBt-I	Ground Beat	110	4/4	7th
P403	Dance	JzFunk-I	Jazz Funk	125	4/4	m
P409	Dance	UKacid-I	U.K.Jazz	86	4/4	m
P415	Dance	House -I	House	114	4/4	m
P421	Dance	HipHop-I	Orthodox HipHop	92	4/4	7th
P427	Dance	GngRap-I	Gangsta Rap	90	4/4	m
P433	Dance	HpHpJz-I	HipHop Jazz	96	4/4	7th
P439	Dance	Techno-I	'90s Techno	132	4/4	m
P445	Dance	Jungle-I	Jungle	164	4/4	M
P451	Dance	DHRegg-I	Dance Hall Reggae	90	4/4	7th
P457	Reggae	Reggae-I	Classic Reggae	132	4/4	m
P463	Reggae	SflReg-I	Shuffle Reggae	125	4/4	M
P469	Reggae	Ska -I	Ska	132	4/4	M
P475	Reggae	Soka -I	Soka	123	4/4	M
P481	Latin	Mambo -I	Mambo	110	4/4	m
P487	Latin	Samba -I	Samba	110	4/4	M
P493	Latin	Rhumba-I	Rhumba	109	4/4	M
P499	Latin	Songo -I	Songo	110	4/4	7th
P505	Latin	Salsa -I	Salsa	108	4/4	7th
P511	Latin	Bossa -I	Bossanova	120	4/4	M
P517	Latin	Mernge-I	Merengue	122	4/4	M
P523	Latin	Afro -I	Afro-Cuban	90	4/4	7th
P529	World	Begn -I	Beguine	124	4/4	M
P535	World	ChaCha-I	Cha-Cha	135	4/4	M
P541	World	Foxtrt-I	Foxtrot	184	4/4	M
P547	World	March -I	March	120	4/4	M
P553	World	Polka -I	Polka	120	4/4	m
P559	World	Tango -I	Tango	120	4/4	m
P565	World	Waltz -I	Waltz	180	3/4	M
P571	World	Vienna-I	Wiener Waltz	180	3/4	M
P577	World	Dixie -I	Dixieland	162	4/4	M
P583	World	Ragtim-I	Ragtime	105	4/4	7th
P589	Enka	Enka1 -I	16-Beat Enka	90	4/4	m
P595	Enka	Enka2 -I	Triplet Enka	80	4/4	M

* Individual Style Numbers are assigned for different Divisions of each Style in order of Intro, Main A, Fill 1, Main B, Fill 2 and Ending. The above lists include Style Numbers for each Style's intro only.

* "M," "m," or "7th" in the "Type" column indicates recommended chord types when playing each Style.

Chord Type Chart

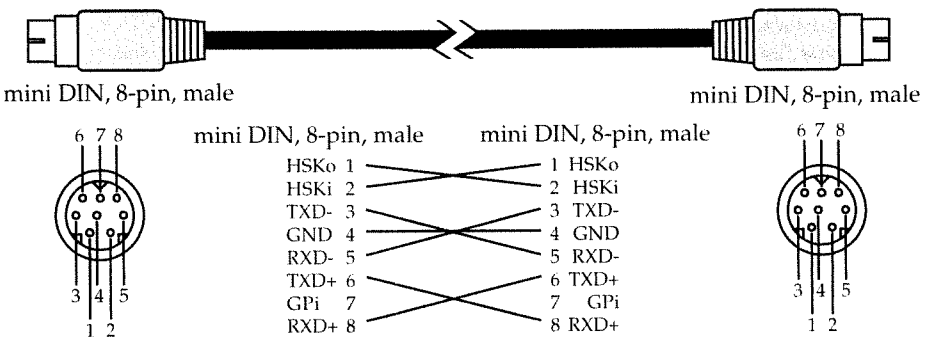
Chord types that enable chord conversion (26 types and N.C.) consist of the following notes. The following shows chord types with the root C.

Maj		$6^{(9)}$		m7	
M7		m6		$m7^{(\flat5)}$	
M9		$m6^{(9)}$		$m7^{(9)}$	
7		9		dim	
$7^{(\flat5)}$		add9		sus4	
$7^{(13)}$		madd9		7sus4	
$7^{(\flat9)}$		mM9		aug	
$7^{(+9)}$		m		aug7	
6		mM7		N.C	(--)

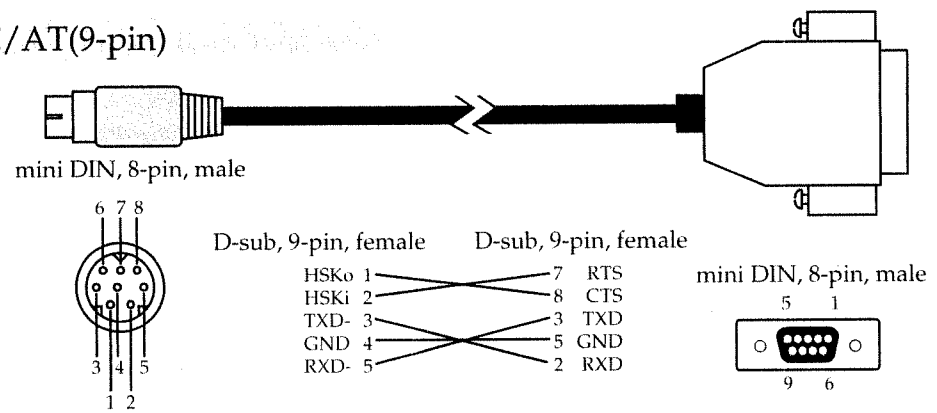
"Non chord" (N.C.) is selected when you want to play the original data as is with no chord conversion. Each Preset Style (mainly intro and ending) contains its original chord progression. By specifying N.C., you can play a performance that uses a chord progression that matches the Style.

Computer Cable Wiring Diagram

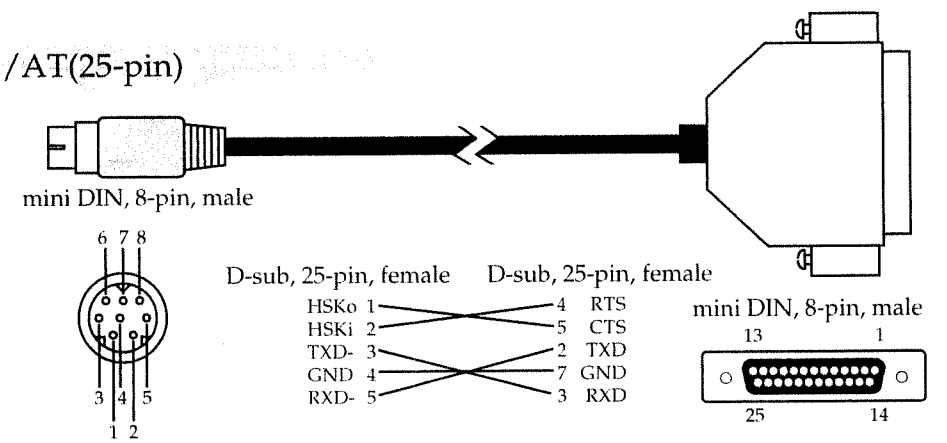
For Apple Macintosh



For IBM PC/AT(9-pin)



For IBM PC/AT(25-pin)

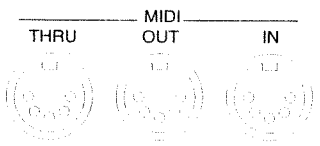


About MIDI

MIDI stands for "Musical Instruments Digital Interface." Using MIDI, it's possible for a single MIDI keyboard to play multiple instruments and to play an ensemble with two or more MIDI instruments, or to automatically change settings as a song progresses. MIDI is an international standard that allows information such as "the hold pedal has just been pressed" to be shared and commonly used by any type of instrument with a hold pedal capability from any manufacturer.

If you use just the PMA-5, a complete understanding of MIDI is not essential. But if you want to use a MIDI keyboard to record on the PMA-5 or use an external sequencer to play the PMA-5, we recommend reading the following section.

MIDI connectors



• MIDI IN

The MIDI IN connector receives incoming MIDI information such as performance data from MIDI keyboards or external sequencers so you can play the PMA-5's built-in tones (instruments) or modify settings.

• MIDI OUT

Your performance and related operation data on a MIDI instrument is transmitted through its MIDI OUT port. The PMA-5's MIDI OUT transmits your performance of the touch keyboard or the internal sequencer, or data for saving songs or Styles to an external sequencer or computer (bulk data).

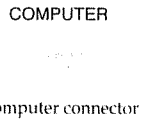
•MIDI THRU

Any incoming information to MIDI IN is duplicated and sent out from MIDI THRU just as it is. The MIDI THRU port is used when more than one MIDI instrument is used at a single time.

* The PMA-5 is not equipped with a MIDI THRU connector.

Computer connector

A MIDI interface (MIDI message input/output unit) was usually required when connecting MIDI equipment without a computer connector to a computer. The PMA-5, however, can directly receive incoming data from a computer. All that's required is a connecting computer cable.
The computer connector handles both incoming and outgoing data.

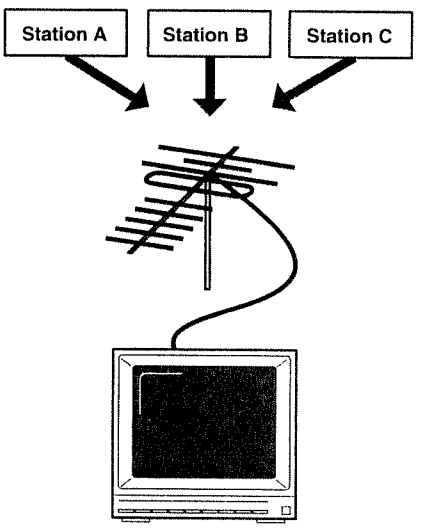


Computer connector

MIDI channels and multitimbral sound modules

With MIDI, complete performance data is sent over a single MIDI cable. This is accomplished by MIDI channels that select just the necessary data from among all the data by specifying channels to be used.
MIDI channels are similar to the channels of a TV set. By selecting a channel on the TV tuner, you can view just what that station broadcasts. MIDI works similarly to select only the required information for a specific instrument from among the entire incoming information.

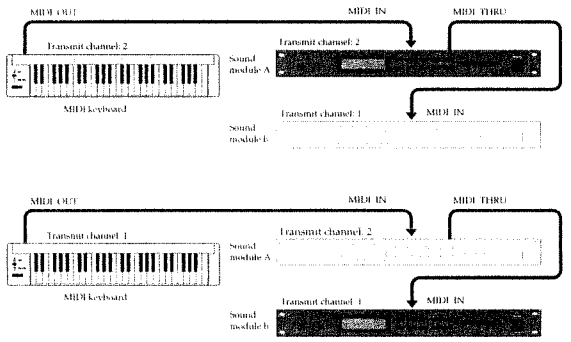
The cable from the antenna carries the TV signals from many broadcast stations.



The TV is set to the channel of the station you wish to watch.

MIDI makes 16 channels available. You need to specify the channels that are to receive information from among the channels for transmitting.

In the drawing below, the MIDI keyboard (sending side) transmits MIDI data on channels 1 and 2. Sound module A is set to receive channel 2 only and sound module B channel 1 only.
This setting allows you to accomplish an ensemble with sound module A playing a guitar and sound module B a bass, for instance.



In the GM/GS mode (where the PMA-5 is used as a sound module), the PMA-5 alone can produce instruments of up to 16 channels simultaneously. Units like the PMA-5 that can receive multiple channels and play different instruments are called "multitimbral sound modules."

MIDI messages handled by the PMA-5

<Two modes>

The PMA-5 has two modes — a Normal mode and the GM/GS mode for use as a sound module. The GM/GS mode is used when playing the PMA-5 from an external sequencer or computer. In this mode, messages receivable by the PMA-5 are different from those that can be received while it is in the Normal mode.

○Normal mode

In the Normal mode, the PMA-5 functions as a sequencer and a sound module. It can play eight tracks (eight parts) at one time. In this mode, only the tone of the selected track will be played (or recorded) regardless of the specified MIDI receive channels.

○GM/GS mode

In this mode the PMA-5 functions as a 16-part GM/GS sound module. Parts corresponding to the incoming MIDI channels are played, so you can use an external sequencer to play back commercial music data releases or the data created for other GM/GS sound modules.

MIDI messages to be received

The following lists MIDI messages that can be used by the PMA-5. Those indicated with an asterisk "*" can be received only when the unit is in the GM/GS mode.

●Note messages

These MIDI commands are used to transmit what is performed on the keyboard.

•Note Number

This MIDI message contains the pitch of the note just played on the keyboard.

•Note On

This MIDI message informs when a key is pressed on the keyboard.

•Note Off

The MIDI message indicates the release of a key that is currently pressed.

•Velocity

Velocity values indicating how hard the key is pressed (keyboard playing dynamics) are shown in eight steps in the Normal mode and in 127 steps in the GM/GS mode. In Normal mode, the PMA-5 divides an incoming Velocity message at MIDI IN or the computer connector into eight steps, as follows:

Value input to PMA-5	Velocity level on PMA-5
1—24	1
25—40	2
41—55	3
56—70	4
71—85	5
86—100	6
101—114	7
115—127	8

In the GM/GS mode, the PMA-5 complies with 127 different velocity levels.

●Program Change*

The MIDI message used to select a tone (instrument). The PMA-5's Instrument Numbers 1—128 correspond to the respective Program Numbers. If your instrument handles more than 128 tones, use Bank Select (Control Change #0).

Instrument Number	001 A.Piano	002 A.Piano2	003 A.Piano3
Program Number	1	2	3

●Pitch Bend Control

This MIDI message is used to modify pitch. On most MIDI keyboards, manipulating the pitch bend lever or wheel causes this message to be transmitted.

●Control Change Messages

•Bank Select (Control Change #0, #32)*

This is used to select tones. Because only 128 tones can be selected through Program Change messages, products offering more tones use this message for tone selection.

(Example)
If you want to select "60's E.Piano" (Program Change #5, Bank Select #24), transmit messages in the order listed below:

Control Change #0 = 24
Program Change = 5

•Modulation (Control Change #1)

This message adds modulation to a sound to create vibrato. The larger the value of the message, the greater the vibrato effect.

•Portamento Time (Control Change #5)*

Portamento makes pitch change smoothly from one note to the next note played. This message lets you adjust the time over which the pitch changes to the new pitch.
To switch Portamento on or off, use the Portamento message (Control Change #65).

•Data Entry (Control Change #6, #38)*

Use this message in combination with NRPN or RPN (p.113).

•Main Volume (Control Change #7)

This message controls an instrument's output level. It is mainly used when balancing the volumes of the respective parts.

•Pan Pot (Control Change #10)

This sets stereo location (panning) of a sound. The setting of 0 is hard left, 64 is center and 127 is hard right.

•Expression (Control Change #11)

This message is mainly used to add loudness vibrato (periodic fluctuation of volume) to a sound.

•Hold (Control Change #64)

This message is sent out when a hold pedal is pressed or released. Any value between 0 and 63 turns the hold pedal off, and a value between 64 and 127 turns it on.

•Portamento (Control Change #65)*

This sets the portamento effect on or off. When any value between 0 and 63 is received, the portamento turns off. A value between 64 and 127 turns it on.

•Sostenuto (Control Change #66)*

This message allows only the note being played at the moment the pedal is pressed to keep sounding.
A value from 0—63 turns sostenuto off and a value from 64—127 turns it on.

•Soft Pedal (Control Change #67)*

This message is used when you want to make a sound softer. While the pedal is pressed, the sound reduces volume. As it is released, the sound level returns to its original volume.
Any value between 0 and 63 turns the soft pedal off and a value between 64 and 127 turns it on.

•Portamento Control (Control Change #84)*

The portamento effect is produced at the moment of playing the second note after the first note is played. The Portamento Control message can replace the action of hitting the first note to specify a pitch. This makes it possible to also add portamento to the first played note.

•Reverb Send Level (Control Change #91)

This message sets reverb intensity (effect that adds ambience to a sound).

•Chorus Send Level (Control Change #93)

This message sets the intensity of chorus (an effect that adds thickness and depth to a sound).

•NRPN LSB, NRPN MSB (Control Change #98, #99)*

NRPN (Non-registered Parameter Number) is used to specify an instrument-specific tone parameter. Use the Data Entry message (Control Change #6) to specify a value. As the Roland GS format includes standardized parameters among different instruments, the PMA-5 can respond to NRPN messages from other GS sound modules (in GM/GS mode only). Please note that NRPN cannot be received until the GS Reset is received (p.125).

(Example)
When modifying Vibrato Rate (speed of vibrato effect), send the messages in the order as listed below:

Control Change #99 = 1

Control Change #98 = 8

Control Change #6 (the value you want to set)

For details, refer to "MIDI Implementation" (p.115).

•RPN LSB, RPN MSB (Control Change #100, #101)*

RPN (Registered Parameter Numbers) are parameters commonly used by MIDI instruments from different manufacturers.

Use RPN to specify the parameter you want to set and specify the value using the Data Entry message (Control Change #6).

(Example)
When modifying the Master Coarse Tune (overall tuning), transmit messages in the order listed below:

Control Change #101 = 0

Control Change #100 = 2

Control Change #6 = (value you want to set)

For details, refer to "MIDI Implementation" (p.115).

•All Sound Off (Control Change #120)*

This message turns off all currently playing notes. The sounds of the corresponding channels are forced to turn off.

* It is only recognized as "All Notes Off."

•Reset All Controllers (Control Change #121)*

This message resets all of the following controllers to their initial values. The controllers of the corresponding channels are initialized.

Pitch Bend Range	0 (center)
Modulation	0 (minimum)
Expression	127 (maximum)
Hold	0 (off)

•All Notes Off (Control Change #123)

The Note Off message is sent to all notes which are on. If Hold or Sostenuto is on, the notes are still held even after the keys have been released. The Note Off message does not turn notes off until the pedals are turned off.

●Aftertouch*

Aftertouch adds vibrato, pitch bend or other sound variations when a played key is pressed with more force. (Some keyboards may not have this function).
There are two types of aftertouch — one applies the effect to all the notes on the same MIDI channel (Channel Aftertouch) while the other applies the effect separately for each individual key (Polyphonic Aftertouch).
The PMA-5 receives Channel Aftertouch messages only when in the GM/GS mode.

* For the PMA-5 to receive Aftertouch messages, you first need to set it to receive them using the System Exclusive messages (p.129).

●System Exclusive Messages

System Exclusive messages are generally used to control an instrument's proprietary function. Universal System Exclusive messages, however, can be received by any MIDI equipment regardless of make or model and used to control parameters that need to have the same values on different equipment used together, such as master tune and pitch bend range. The System Exclusive messages that can be used on the PMA-5 (in the GM/GS mode) can also be received by other GS equipment.
System Exclusive messages allow you to control more parameters than through the touch panel or via Control Change messages.

MIDI messages to be transmitted

Data that PMA-5 can transmit through MIDI OUT or the computer connector differ between the Normal mode and GM/GS mode.

○Normal mode

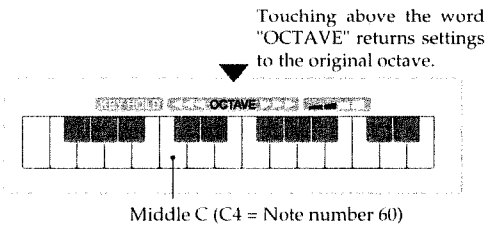
Sequencer's performance data, touch keyboard performance, value changes you make on the Mixer screen and various sound source settings are transmitted.

○GM/GS mode

Only the sound source settings are transmitted.

●Note messages

Note messages are transmitted from the PMA-5's sequencer and the touch keyboard. The middle C in the following drawing (where OCTAVE is positioned at the center of the touch keyboard) is Note number 60 (C4).



Velocity data is converted as follows:

Velocity level on PMA-5	Value output from PMA-5
1	24
2	40
3	55
4	70
5	85
6	100
7	114
8	127

●Pitch Bend Control

This message is transmitted from the PMA-5's sequencer or touch keyboard.
When the Keyboard Control (p.27) is set to "Pitch Bend," dragging up or down with the touch pen transmits a Pitch Bend message.

●Control Change messages

•Modulation (Control Change #1)

This message is transmitted from the PMA-5's sequencer or touch keyboard.
When the Keyboard Control (p27) is set to "Modulation," dragging up or down with the touch pen transmits a Modulation message.

•Main Volume (Control Change #7)

This message is transmitted when the PMA-5's sequencer is played or values are modified on the Mixer screen.

•Pan Pot (Control Change #10)

This message is transmitted when the PMA-5's sequencer is played or values are modified on the Mixer screen.

•Hold (Control Change #64)

This message is sent out from the PMA-5's sequencer.

* Reverb Send Level (Control Change #91)

This message is transmitted when the PMA-5's sequencer is played or the values are changed on the Mixer screen.

•Chorus Send Level (Control Change #93)

This message is transmitted when the PMA-5's sequencer is played or the values are changed on the Mixer screen.

•RPN LSB, NRPN MSB (Control Change #100, #101)

These messages are transmitted from the PMA-5's sequencer.

•Reset All Controllers (Control Change #121)

Transmitted from the PMA-5's sequencer.

●System Exclusive messages

The data transmitted with Bulk Dump is one of the System Exclusive messages. Bulk Dump transmits the PMA-5's settings and song data to external devices via MIDI (p.80).
In the Normal mode, song data and User Style settings can be transmitted as bulk data. This data can then be loaded and saved to an external MIDI sequencer. However, the transmitted data cannot be used on equipment other than the PMA-5.
In the GM/GS mode, the PMA-5 transmits sound source settings as bulk data once it receives a Bulk Dump Request (p.80). As bulk data is GS sound module data, it will reproduce the same settings on other GS equipment.

MIDI IMPLEMENTATION Model PMA-5 Version 1.10 Feb. 19 1996
Normal mode

Section 1. Receive data

■ Channel Voice Messages

* Following Channel Voice Messages can be recorded in recording mode.

● Note off

Status	2nd byte	3rd byte
8nH	kkH	vvH
9nH	kkH	00H

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
kk=note number : 00H - 7FH (0 - 127)
vv=note off velocity : 00H - 7FH (0 - 127)

* For the track where drum set is assigned, these messages are ignored.
* The velocity values of Note Off messages are ignored.

● Note on

Status	2nd byte	3rd byte
9nH	kkH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
kk=note number : 00H - 7FH (0 - 127)
vv=note on velocity : 01H - 7FH (1 - 127)

* But, received note on velocity is recognized as 8 step as follows;
01H-18H=18H,19H-28H=28H,29H-37H=37H,38H-46H=46H,47H-55H=55H,56H-64H=64H,65H-72H=72H,73H-7FH=7FH

● Control Change

○ Modulation (Controller number 1)

Status	2nd byte	3rd byte
BnH	01H	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=Modulation depth : 00H - 7FH (0 - 127) Initial value = 00H (0)

○ Volume (Controller number 7)

Status	2nd byte	3rd byte
BnH	07H	vvH

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

* Volume messages are used to adjust the volume balance of each track.

○ Pan (Controller number 10)

Status	2nd byte	3rd byte
BnH	0AH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=pan : 00H - 40H - 7FH (Left - Center - Right)

* For the track where drum set is assigned, this is a relative adjustment of each Instrument's pan setting.

○ Expression (Controller number 11)

Status	2nd byte	3rd byte
BnH	0BH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=Expression : 00H - 7FH (0 - 127) Initial value = 7FH (127)

* It can be used independently from Volume messages. Expression messages are used for musical expression within a performance; e.g., expression pedal movements, crescendo and decrescendo.

○ Hold 1 (Controller number 64)

Status	2nd byte	3rd byte
BnH	40H	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=Control value : 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON

○ Effect 1 (Reverb Send Level) (Controller number 91)

Status	2nd byte	3rd byte
BnH	5BH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=Control value : 00H - 7FH (0 - 127)

* This message adjusts the Reverb Send Level of each track.

○ Effect 3 (Chorus Send Level) (Controller number 93)

Status	2nd byte	3rd byte
BnH	5DH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=Control value : 00H - 7FH (0 - 127)

* This message adjusts the Chorus Send Level of each track.

● Pitch Bend Change

Status	2nd byte	3rd byte
EnH	llH	mmH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
mm,ll=Pitch Bend value : 00 00H - 40 00H - 7F 7FH (-8192 - 0 - +8191)

■ Channel Mode Messages

● All Sounds Off (Controller number 120)

Status	2nd byte	3rd byte
BnH	78H	00H

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

* This message is only recognized as "All Notes Off".
* In the recording mode, "Note OFF message" will be created for corresponding Note ON message, and will be recorded.

● Reset All Controllers (Controller number 121)

Status	2nd byte	3rd byte
BnH	79H	00H

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

* When this message is received, the following controllers will be set to their reset values.When recording, a control message carrying the reset value will be created and recorded.

Controller	Reset value
Pitch Bend Change	+/-0 (center)
Modulation	0 (off)
Expression	127 (max)
Hold 1	0 (off)

● All Notes Off (Controller number 123)

Status	2nd byte	3rd byte
BnH	7BH	00H

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

* When All Notes Off is received, all notes on the corresponding channel will be turned off. However if Hold 1 is ON, the sound will be continued until these are turned off.
* In the recording mode, "Note OFF message" will be created for corresponding Note ON message, and will be recorded.

● OMNI OFF (Controller number 124)

Status	2nd byte	3rd byte
BnH	7CH	00H

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

* The same processing will be carried out as when All Notes Off is received.

● OMNI ON (Controller number 125)

Status	2nd byte	3rd byte
BnH	7DH	00H

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

* OMNI ON is only recognized as "All notes off".

● MONO (Controller number 126)

Status	2nd byte	3rd byte
BnH	7EH	mmH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
mm=mono number : 00H - 10H (0 - 16)

* The same processing will be carried out as when All Notes Off is received.

● POLY (Controller number 127)

Status	2nd byte	3rd byte
BnH	7FH	00H

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

* The same processing will be carried out as when All Notes Off is received.

■ System Common Messages

* Following System Common Messages cannot be recorded in recording mode.

● Song Posiotion Pointer

Status	2nd byte	3rd byte
F2H	llH	mmH

mm,ll=Song Posiotion : F00 00H - 7F 7FH(0 - 16383)

* Recognized only when the PMA-5 is in stop in SONG PLAY mode, STYLE PLAY mode or chain play display.(When "SYNC"=MIDI)

● Song Select

Status	2nd byte
F2H	ssH

ss=Song Number : F00H - 13H(SONG01 - SONG20)

* Recognized only when the PMA-5 is in stop in SONG PLAY mode.(When "SYNC"=MIDI)

■ System Realtime Message

* Following System Realtime Messages cannot be recorded in recording mode.

● Timing Clock

Status
F8H

* Recognized only when the "SYNC" of the MIDI parameter is set at MIDI.

● Start

Status
FAH

* Recognized only when the "SYNC" of the MIDI parameter is set at MIDI.

● Continue

Status
FBH

* Recognized only when the "SYNC" of the MIDI parameter is set at MIDI.

● Stop

Status
FCH

* Recognized only when the "SYNC" of the MIDI parameter is set at MIDI.

● Active Sensing

Status
FEH

* When Active Sensing is received, the unit will begin monitoring the intervals of all further messages. While monitoring, if the interval between messages exceeds about 420 ms, the same processing will be carried out as when All Sounds Off, All Notes Off and Reset All Controllers are received, and message interval monitoring will be halted.

■ System Exclusive Message

* Following System Exclusive Messages can be recorded in recording mode.

Status	Data byte	Status
F0H	iiH, ddH, ...,eeH	F7H

F0H :System Exclusive Message status
ii = ID number :an ID number (manufacturer ID) to indicate the manufacturer whose Exclusive message this is. Roland's manufacturer ID is 41H.
ID numbers 7EH and 7FH are extensions of the MIDI standard; Universal Non-realtime Messages (7EH) and Universal Realtime Messages (7FH).
dd,...,ee = data :00H - 7FH (0 - 127)
F7H :EOX (End Of Exclusive)

The System Exclusive Messages received by the PMA-5 are; Inquiry Request, Data Requests (RQ1), and Data Set (DT1).

● Universal Non-realtime System Exclusive Messages

○ Inquiry request

Status	Data byte	Status
F0H	7EH, dev, 06H, 01H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (universal non-realtime message)
dev	Device ID (dev: 00H - 1FH (1 - 32) Initial value is 10H(17))
06H,01H	Inquiry request
F7H	EOX (End Of Exclusive)

* When Inquiry Request is received, Inquiry Reply message will be transmitted.

* Regarding the Inquiry Reply, please refer to page 119.

* Even if the Device ID is 7FH(Broadcast), Inquiry Reply message will be transmitted.

● Data transmission

PMA-5 can transmit and receive the various parameters using System Exclusive messages.
The exclusive message of PMA-5's data in Normal Mode has a model ID of 00H 05H and a device ID of 10H (17). A device ID can be changed in PMA-5.

○ Request data 1 RQ1 (11H)
This message requests the other device to send data. The Address and Size determine the type and amount of data to be sent.
When a Data Request message is received, if the device is ready to transmit data and if the address and size are appropriate, the requested data will be transmitted as a "Data Set 1 (DT1)" message. If not, nothing will be transmitted.

Status	Data byte	Status
F0H	41H, dev, 00H, 05H, 11H, aaH, bbH, ccH, ddH, ssH, ttH, uuH, vvH, sum	F7H

Byte	Explanation	
F0H	Exclusive status	
41H	ID number	(Roland)
dev	Device ID	(dev: 00H - 1FH Initial value is 10H(17))
00H	05H Model ID	(PMA-5)
11H	Command ID	(RQ1)
aaH	Address MSB	: upper byte of the starting address of the requested data
bbH	Address 2nd	: 2nd byte of the starting address of the requested data
ccH	Address 3rd	: 3rd byte of the starting address of the requested data
ddH	Address LSB	: lower byte of the starting address of the requested data
ssH	Size MSB	
ttH	Size 2nd	
uuH	Size 3rd	
uuH	Size LSB	
sum	Checksum	
F7H	EOX	(End Of Exclusive)

* The amount of data that can be transmitted at once time will depend on the type of data, and data must be requested using a specific starting address and size. Refer to the Address and Size listed in Section 3 (Page 119).
* Regarding the checksum please refer to Section 4 (Page 134).

○ Data set 1 DT1 (12H)
This is the message that actually performs data transmission, and is used when you wish to transmit the data.

Status	Data byte	Status
F0H	41H, dev, 00H, 05H, 12H, aaH, bbH, ccH, ddH, eeh,... ffH, sum	F7H

Byte	Explanation	
F0H	Exclusive status	
41H	ID number	(Roland)
dev	Device ID	(dev: 00H - 1FH Initial value is 10H))
00H	05H Model ID	(PMA-5)
12H	Command ID	(DT1)
aaH	Address MSB	: upper byte of the starting address of the transmitted data
bbH	Address 2nd	: 2nd byte of the starting address of the transmitted data
ccH	Address 3rd	: 3rd byte of the starting address of the transmitted data
ddH	Address LSB	: lower byte of the starting address of the transmitted data
eeH	Data	: the actual data to be transmitted. Multiple bytes of data are transmitted starting from the address.
:	:	
ffH	Data	
sum	Checksum	
F7H	EOX	(End Of Exclusive)

* The amount of data that can be transmitted at one time depends on the type of data, and data can be received only from the specified starting address and size. Refer to the Address and Size given in Section 3 (Page 119).
* If "Data Set 1" is transmitted successively, there must be an interval of at least 45 ms (60 ms: when PC-2 is selected) between packets.
* Regarding the checksum please refer to section 4 (Page 134).

Section 2. Transmit data

■ Channel Voice Messages

● Note off

Status	2nd byte	3rd byte
9nH	kkH	00H

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
kk=note number : 00H - 7FH (0 - 127)

● Note on

Status	2nd byte	3rd byte
9nH	kkH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
kk=note number : 00H - 7FH (0 - 127)
vv=note on velocity : 18H, 28H, 37H, 46H, 55H, 64H, 72H, 7FH (24,40,55,70,85,100,114,127) transmitted as 8 steps

* Transmitted when the PMA-5 is in play or touch keyboard is operated.

● Control Change

○ Bank Select (Controller number 0)

Status	2nd byte	3rd byte
BnH	00H	mmH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
mm,ll=Bank number :00H - 7FH (bank.1 - bank.128)

* Transmitted when an instrument assigned to a track is changed.

○ Modulation (Controller number 1)

Status	2nd byte	3rd byte
BnH	01H	vvH

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

* Transmitted only when touch keyboard is dragged (when "Keyboard control" of Song parameter is set at Modulation) or, when the PMA-5 is in play for Song or style in which Modulation is recorded.

○ Data Entry (Controller number 6)

Status	2nd byte	3rd byte
BnH	06H	mmH

n=MIDI channel number :0H - FH(ch.1 - ch.16)
mm= the value of the parameter specified by RPN

○ Volume (Controller number 7)

Status	2nd byte	3rd byte
BnH	07H	vvH

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

* Volume messages are used to adjust the volume balance of each track.
* Transmitted only when the PMA-5 is in play for Song or style in which Volume is recorded.

○ Pan (Controller number 10)

Status	2nd byte	3rd byte
BnH	0AH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=pan : 00H - 40H - 7FH (Left - Center - Right)

* For the track where drum set is assigned, this is a relative adjustment of each Instrument's pan setting.
* Transmitted only when the PMA-5 is in play for Song or style in which Pan is recorded.

○ Expression (Controller number 11)

Status	2nd byte	3rd byte
BnH	0BH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=Expression : 00H - 7FH (0 - 127)

* It can be used independently from Volume messages. Expression messages are used for musical expression within a performance; e.g., expression pedal movements, crescendo and decrescendo.
* Transmitted only when the PMA-5 is in play for Song or style in which Expression is recorded.

○ Hold 1 (Controller number 64)

Status	2nd byte	3rd byte
BnH	40H	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=Control value : 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON

* Transmitted only when the PMA-5 is in play for Song or style in which Hold1 is recorded.

○ Effect 1 (Reverb Send Level) (Controller number 91)

Status	2nd byte	3rd byte
BnH	5BH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=Control value : 00H - 7FH (0 - 127)

* This message adjusts the Reverb Send Level of each track.
* Transmitted only when the PMA-5 is in play for Song or style in which Effect1 is recorded.

○ Effect 3 (Chorus Send Level) (Controller number 93)

Status	2nd byte	3rd byte
BnH	5DH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=Control value : 00H - 7FH (0 - 127)

* This message adjusts the Chorus Send Level of each track.
* Transmitted only when the PMA-5 is in play for Song or style in which Effect3 is recorded.

○ RPN MSB/LSB (Controller number 100,101)

Status	2nd byte	3rd byte
BnH	65H	mmH
BnH	64H	llH

n=MIDI channel number :0H - FH(ch.1 - ch.16)
mm= upper byte of parameter number specified by RPN
ll= lower byte of parameter number specified by RPN

* Not received when Rx.RPN = OFF. (Initial value is ON)
* The value specified by RPN will not be reset even by messages such as Program Change or Reset All Controller.
* For RPN, please refer to p.123.

RPN Data entry
MSB LSB MSB LSB Explanation
00H 00H mmH --- Pitch Bend Sensitivity
mm: 00H - 18H (0 - 24 semitones)
Initial Value = 02H (2 semitones)
ll: ignored (processed as 00H)
specify up to 2 octaves in semitone steps

7FH 7FH --- --- RPN null
set condition where RPN and NRPN are unspecified.
The data entry messages after set RPN null will be ignored.
(No Data entry messages are required after RPN null).
Settings already made will not change.
mm,ll: ignored

● Program Change

Status	2nd byte
CnH	ppH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
pp=Program number : 00H - 7FH (prog.1 - prog.128)

* Transmitted when an instrument assigned to a track is changed.

● Pitch Bend Change

Status	2nd byte	3rd byte
EnH	llH	mmH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
mm,ll=Pitch Bend value : 00 00H - 40 00H - 7F 7FH (-8192 - 0 - +8191)

* Transmitted only when touch keyboard is dragged (when "Keyboard control" of Song parameter is set at Pitch bend) or, when the PMA-5 is in play for Song or style in which Pitch bend change is recorded.

■ System Common Messages

● Song Posiotion Pointer

Status	2nd byte	3rd byte
F2H	llH	mmH

mm,ll=Song Posiotion : F00 00H - 7F 7FH(0 - 16383)

* Transmitted when a measure number is specified in SONG PLAY mode.
* Transmitted when a measure number is specified in STYLE PLAY mode.
* Transmitted when the "JUMP" function is executed in LOCATOR mode.
* Transmitted when the location of a song is changed by "REPEAT" function.

● Song Select

Status	2nd byte
F2H	ssH

ss=Song Number : 00H - 14H(SONG01 - SONG20,SONG21:demo song)

* Transmitted when the SONG mode is selected or song number is selected in SONG mode or CHAIN PLAY display.

■ System Realtime Message

● Timing Clock

Status
F8H

● Start

Status
FAH

● Continue

Status
FBH

● Stop

Status
FCH

● Active sensing

Status
FEH

* This will be transmitted constantly at intervals of approximately 250ms.

■ System exclusive messages

Inquiry reply and Data Set 1 (DT1) are the only System Exclusive messages transmitted by PMA-5 in NORMAL mode.
When an appropriate "Inquiry Request" or "Data Request 1 (RQ1)" message is received, the requested internal data will be transmitted.

● Universal Non-realtime System Exclusive Messages

○ Inquiry reply

Status	Data byte	Status
F0H	7EH, dev, 06H, 02H,41H,05H,01H,00H,00H,00H,06H,00H,00H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (universal non-realtime message)
dev	Device ID (dev: 00H - 1FH (1 - 32) Initial value is 10H(17))
06H 02H	Inquiry reply
41H	ID number (Roland)
05H 01H	Device family code
00H 00H	Device family number code
00H 06H 00H 00H	software revision level
F7H	EOX (End Of Exclusive)

* When Inquiry Request is received, Inquiry Reply message will be transmitted.
* Regarding the Inquiry Request, please refer to page 117.

○ Data set 1 DT1

Status	Data byte	Status
F0H	41H, dev, 00H, 05H, 12H, aaH, bbH, ccH, ddH, eeH,... ffH, sum	F7H

Byte	Explanation	
F0H	Exclusive status	
41H	ID number	(Roland)
dev	Device ID	(dev: 00H - 1FH Initial value is 10H)
00H	05H Model ID	(PMA-5)
12H	Command ID	(DT1)
aaH	Address MSB	:upper byte of the starting address of the data to be sent
bbH	Address 2nd	:2nd byte of the starting address of the data to be sent
ccH	Address 3rd	:3rd byte of the starting address of the data to be sent.
ddH	Address LSB	:lower byte of the starting address of the data to be sent.
eeH	Data	:the actual data to be sent. Multiple bytes of data are transmitted in order starting from the address.
:	:	
ffH	Data	
sum	Checksum	
F7H	EOX	(End Of Exclusive)

* In the NORMAL mode of PMA-5, only the data for "Parameter Dump Request" will be transmitted.(bulk dump)
* Each packet will be sent at an interval of about 45 ms.
* Regarding the checksum please refer to section 4 (Page 134).

■ Bulk Dump

Bulk Dump allows you to transmit a large amount of data at once, and is convenient for storing settings for the entire unit on a computer or sequencer.
To make PMA-5 a Bulk Dump transmission, send it a "Bulk Dump Request" message. For Bulk Dump Request, you must use the Address and Size listed in the following "Bulk Dump Request".
In the NORMAL mode of PMA-5, only bulk dump is supported for system exclusive data transmition.

● Bulk Dump Request

Address(H)	Size(H)	
00 00 00 00	00 00 00 00:ALL	dump request for all parameter including setup parameters
00 10 00 00	00 00 00 00:ALL SONGS	dump request for all songs(SONG01-20)
00 11 00 ss	00 00 00 00:1 SONG	dump request for 1 song specified by "ss" ss = SONG Number (00-13H:SONG01-20)
00 20 00 00	00 00 00 00:ALL USER STYLES	dump request for all user styles(U001-U200)
00 21 0p mm	00 00 00 00:1 USER STYLE	dump request for 1 user style specified by "p","mm" p = USER STYLE Bank (0:U001-U100, 1:U101-U200) mm = USER STYLE Number (00-63H: 001-100)
00 40 00 00	00 00 00 00:SETUP	dump request for setup parameters

* ALL = SETUP + ALL SONGS + ALL USER STYLES
* Request for ALL,ALL SONGS,ALL USER STYLES are correspond to "Bulk Dump" parameter in MIDI mode.
* Data for user style cannot be transmtted by "ALL SONGS" or "1 SONG" dump request. If you also need the data of user style used in SONGS, send "ALL" dump request to the PMA-5.
* Data of preset style(P001-P600) cannot be transmitted.
* Data of demo song(SONG21) cannot be transmitted.
* Data size should be 00 00 00 00.

● Song Number

The song number "ss" in the address for 1 SONG dump request can be specified as following.

ss...song number

SONG01	ss=00(H)
SONG02	ss=01(H)
SONG03	ss=02(H)
SONG04	ss=03(H)
SONG05	ss=04(H)
SONG06	ss=05(H)
SONG07	ss=06(H)
SONG08	ss=07(H)
SONG09	ss=08(H)
SONG10	ss=09(H)
SONG11	ss=0A(H)
SONG12	ss=0B(H)
SONG13	ss=0C(H)
SONG14	ss=0D(H)
SONG15	ss=0E(H)
SONG16	ss=0F(H)
SONG17	ss=10(H)
SONG18	ss=11(H)
SONG19	ss=12(H)
SONG20	ss=13(H)

● User Style Numuber

The user style number "p" and "mm" in the address for 1 USER STYLE dump request can be specified as following.

p,mm...user style number

U001	(p=0, mm=00)
U002	(p=0, mm=01)
:	:
U099	(p=0, mm=62)
U100	(p=0, mm=63)
U101	(p=1, mm=00)
U102	(p=1, mm=01)
:	:
U199	(p=1, mm=62)
U200	(p=1, mm=63)

Section 1. Receive data

■ Channel Voice Messages

● Note off

Status	2nd byte	3rd byte
8nH	kkH	vvH
9nH	kkH	00H

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
kk=note number : 00H - 7FH (0 - 127)
vv=note off velocity : 00H - 7FH (0 - 127)

* For Drum Parts, these messages are received when Rx.NOTE OFF = ON for each Instrument.
* The velocity values of Note Off messages are ignored.

● Note on

Status	2nd byte	3rd byte
9nH	kkH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
kk=note number : 00H - 7FH (0 - 127)
vv=note on velocity : 01H - 7FH (1 - 127)

* Not received when Rx.NOTE MESSAGE = OFF. (Initial value is ON)
* For Drum Parts, not received when Rx.NOTE ON = OFF for each Instrument.

● Polyphonic Key Pressure

Status	2nd byte	3rd byte
AnH	kkH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
kk=note number : 00H - 7FH (0 - 127)
vv=value : 00H - 7FH (0 - 127) Initial value = 00H (0)

* Not received when Rx.POLY PRESSURE (PAf) = OFF. (Initial value is ON)
* The resulting effect is determined by System Exclusive messages. With the initial settings, there will be no effect.

● Control Change

* When Rx.CONTROL CHANGE = OFF, all control change messages except for Channel Mode messages will be ignored.
* The value specified by a Control Change message will not be reset even by a Program Change, etc.

○ Bank Select (Controller number 0,32)

Status	2nd byte	3rd byte
BnH	00H	mmH
BnH	20H	llH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
mm,ll=Bank number :00H,00H - 7FH,7FH (bank.1 - bank.16384)
Initial Value = 00 00H (bank.1)

* Not received when Rx.BANK SELECT = OFF. "Rx.BANK SELECT" is set to OFF by "Turn General MIDI System On", and set to ON by "GS RESET". (Default value when the PMA-5 is set to "GM/GS sound module mode" is ON.)
* Bank number LSB will be handled as 00H regardless of the received value. However, when sending Bank Select messages, you have to send both the MSB (mmH) and LSB (llH, the value should be 00H) together.
* Bank Select processing will be suspended until a Program Change message is received.
* The GS format "Variation number" is the value of the Bank Select MSB (Controller number 0) expressed in decimal.

○ Modulation (Controller number 1)

Status	2nd byte	3rd byte
BnH	01H	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=Modulation depth : 00H - 7FH (0 - 127) Initial value = 00H (0)

* Not received when Rx.MODULATION = OFF. (Initial value is ON)
* The resulting effect is determined by System Exclusive messages. With the initial settings, this is Pitch Modulation Depth.

○ Portamento Time (Controller number 5)

Status	2nd byte	3rd byte
BnH	05H	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=Portamento Time : 00H - 7FH (0 - 127) Initial value = 00H (0)

* This adjusts the rate of pitch change when Portamento is ON or when using the Portamento Control. A value of 0 results in the fastest change.

○ Data Entry (Controller number 6,38)

Status	2nd byte	3rd byte
BnH	06H	mmH
BnH	26H	llH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
mm,ll= the value of the parameter specified by RPN/NRPN

○ Volume (Controller number 7)

Status	2nd byte	3rd byte
BnH	07H	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=Volume : 00H - 7FH (0 - 127) Initial value = 64H (100)

* Volume messages are used to adjust the volume balance of each Part.
* Not received when Rx.VOLUME = OFF. (Initial value is ON)

○ Pan (Controller number 10)

Status	2nd byte	3rd byte
BnH	0AH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=pan : 00H - 40H - 7FH (Left - Center - Right)
Initial value = 40H (Center)

* For Rhythm Parts, this is a relative adjustment of each Instrument's pan setting.
* Not received when Rx.PANPOT = OFF. (Initial value is ON)

○ Expression (Controller number 11)

Status	2nd byte	3rd byte
BnH	0BH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=Expression : 00H - 7FH (0 - 127) Initial value = 7FH (127)

* It can be used independently from Volume messages. Expression messages are used for musical expression within a performance; e.g., expression pedal movements, crescendo and decrescendo.
* Not received when Rx.EXPRESSION = OFF. (Initial value is ON)

○ Hold 1 (Controller number 64)

Status	2nd byte	3rd byte
BnH	40H	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=Control value : 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON
Initial value = 00H (0)

* Not received when Rx.HOLD1 = OFF. (Initial value is ON)

○ Portamento (Controller number 65)

Status	2nd byte	3rd byte
BnH	41H	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=Control value : 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON
Initial value = 00H (0)

* Not received when Rx.PORTAMENTO = OFF. (Initial value is ON)

○ Sostenuto (Controller number 66)

Status	2nd byte	3rd byte
BnH	42H	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=Control value : 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON
Initial value = 00H (0)

* Not received when Rx.SOSTENUTO = OFF. (Initial value is ON)

○ Soft (Controller number 67)

Status	2nd byte	3rd byte
BnH	43H	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=Control value : 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON
Initial value = 00H (0)

* Not received when Rx.SOFT = OFF. (Initial value is ON)

○ Portamento control (Controller number 84)

Status	2nd byte	3rd byte
BnH	54H	kkH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
kk=source note number : 00H - 7FH (0 - 127)

* A Note-on received immediately after a Portamento Control message will change continuously in pitch, starting from the pitch of the Source Note Number.
* If a voice is already sounding for a note number identical to the Source Note Number, this voice will continue sounding (i.e., legato) and will, when the next Note-on is received, smoothly change to the pitch of that Note-on.
* The rate of the pitch change caused by Portamento Control is determined by the Portamento Time value.

Example 1.

On MIDI	Description	Result
90 3C 40	Note on C4	C4 on
B0 54 3C	Portamento Control from C4	no change (C4 voice still sounding)
90 40 40	Note on E4	glide from C4 to E4
80 3C 40	Note off C4	no change
80 40 40	Note off E4	E4 off

Example 2.

On MIDI	Description	Result
B0 54 3C	Portamento Control from C4	no change
90 40 40	Note on E4	E4 is played with glide from C4 to E4
80 40 40	Note off E4	E4 off

○ Effect 1 (Reverb Send Level) (Controller number 91)

Status	2nd byte	3rd byte
BnH	5BH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=Control value : 00H - 7FH (0 - 127) Initial value = 28H (40)

* This message adjusts the Reverb Send Level of each Part.

○ Effect 3 (Chorus Send Level) (Controller number 93)

Status	2nd byte	3rd byte
BnH	5DH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
vv=Control value : 00H - 7FH (0 - 127) Initial value = 00H (0)

* This message adjusts the Chorus Send Level of each Part.

○ NRPN MSB/LSB (Controller number 98,99)

Status	2nd byte	3rd byte
BnH	63H	mmH
BnH	62H	llH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
mm=upper byte of the parameter number specified by NRPN
ll=lower byte of the parameter number specified by NRPN

* NRPN can be received when Rx.NRPN = ON. "Rx.NRPN" is set to OFF when the PMA-5 is set to "GM/GS sound module mode", and also set to OFF by receiving "Turn General MIDI System On", and it is set to ON by "GS RESET".
* The value set by NRPN will not be reset even if Program Change or Reset All Controllers is received.

NRPN
The NRPN (Non Registered Parameter Number) message allows an extended range of control changes to be used.
To use these messages, you must first use NRPN MSB and NRPN LSB messages to specify the parameter to be controlled, and then use Data Entry messages to specify the value of the specified parameter. Once an NRPN parameter has been specified, all Data Entry messages received on that channel will modify the value of that parameter. To prevent accidents, it is recommended that you set RPN Null (RPN Number = 7FH/7Fh) when you have finished setting the value of the desired parameter. Refer to Section 4. Supplementary material "Examples of actual MIDI messages" <Example 4> (Page 133). On the GS devices, Data entry LSB (llH) of NRPN is ignored, so it is no problem to send Data entry MSB (mmH) only (without Data entry LSB).

On the PMA-5, NRPN can be used to modify the following parameters.

NRPN MSB LSB	Data entry MSB	Description
01H 08H	mmH	Vibrato rate (relative change on specified channel) mm: 0EH - 40H - 72H (-50 - 0 - +50)
01H 09H	mmH	Vibrato depth (relative change on specified channel) mm: 0EH - 40H - 72H (-50 - 0 - +50)
01H 0AH	mmH	Vibrato delay (relative change on specified channel) mm: 0EH - 40H - 72H (-50 - 0 - +50)
01H 20H	mmH	TVF cutoff frequency (relative change on specified channel) mm: 0EH - 40H - 72H (-50 - 0 - +50)
01H 21H	mmH	TVF resonance (relative change on specified channel) mm: 0EH - 40H - 72H (-50 - 0 - +50)
01H 63H	mmH	TVF&TVA Env. Attack time (relative change on specified channel) mm: 0EH - 40H - 72H (-50 - 0 - +50)
01H 64H	mmH	TVF&TVA Env. Decay time (relative change on specified channel) mm: 0EH - 40H - 72H (-50 - 0 - +50)
01H 66H	mmH	TVF&TVA Env. Release time (relative change on specified channel) mm: 0EH - 40H - 72H (-50 - 0 - +50)
18H rrH	mmH	Pitch coarse of drum instrument (relative change on specified drum instrument) rr: key number of drum instrument mm: 00H - 40H - 7FH (-64 - 0 - +63 semitone)
1AH rrH	mmH	TVA level of drum instrument (absolute change on specified drum instrument) rr: key number of drum instrument mm: 00H - 7FH (zero - maximum)
1CH rrH	mmH	Panpot of drum instrument (absolute change on specified drum instrument) rr: key number of drum instrument mm: 00H, 01H - 40H - 7FH (Random, Left-Center-Right)
1DH rrH	mmH	Reverb send level of drum instrument (absolute change on specified drum instrument) rr: key number of drum instrument mm: 00H - 7FH (zero - maximum)
1EH rrH	mmH	Chorus send level of drum instrument (absolute change on specified drum instrument) rr: key number of drum instrument mm: 00H - 7FH (zero - maximum)

* Parameters marked "relative change" will change relative to the preset value.
* Parameters marked "absolute change" will be set to the absolute value of the parameter, regardless of the preset value.

○ RPN MSB/LSB (Controller number 100,101)

Status	2nd byte	3rd byte
BnH	65H	mmH
BnH	64H	llH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
mm=upper byte of parameter number specified by RPN
ll=lower byte of parameter number specified by RPN

* Not received when Rx.RPN = OFF. (Initial value is ON)
* The value specified by RPN will not be reset even by messages such as Program Change or Reset All Controller.

RPN
The RPN (Registered Parameter Number) messages are expanded control changes, and each function of an RPN is described by the MIDI Standard.
To use these messages, you must first use RPN MSB and RPN LSB messages to specify the parameter to be controlled, and then use Data Entry messages to specify the value of the specified parameter. Once an RPN parameter has been specified, all Data Entry messages received on that channel will modify the value of that parameter. To prevent accidents, it is recommended that you set RPN Null (RPN Number = 7FH/7Fh) when you have finished setting the value of the desired parameter.Refer to Section 4. "Examples of actual MIDI messages" <Example 4> (Page 133).

On the PMA-5, RPN can be used to modify the following parameters.

RPN MSB LSB	Data entry MSB LSB	Explanation
00H 00H	mmH ----	Pitch Bend Sensitivity mm: 00H - 18H (0 - 24 semitones) Initial value = 02H (2 semitones) ll: ignored (processed as 00H) specify up to 2 octaves in semitone steps
00H 01H	mmH llH	Master Fine Tuning mm,ll: 00 00H - 40 00H - 7F 7FH (-100 - 0 - +99.99 cents) Initial value = 40 00H (±0 cent) Refer to 5. Supplementary material, "About tuning"(P-$$$).
00H 02H	mmH ----	Master Coarse Tuning mm: 28H - 40H - 58H (-24 - 0 - +24 semitones) Initial value = 40H (±0 semitone) ll: ignored (processed as 00H)
7FH 7FH	---- ----	RPN null Set condition where RPN and NRPN are unspecified. The data entry messages after set RPN null will be ignored. (No Data entry messages are required after RPN null). Settings already made will not change. mm,ll: ignored

● Program Change

Status	2nd byte
CnH	ppH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
pp=Program number : 00H - 7FH (prog.1 - prog.128)
Initial value = 00H (prog.1)

* Not received when Rx.PROGRAM CHANGE = OFF. (Initial value is ON)
* After a Program Change message is received, the sound will change beginning with the next Note-on. Voices already sounding when the Program Change message was received will not be affected.
* For Drum Parts, Program Change messages will not be received on bank numbers 129 - 16384 (the value of Control Number 0 is other than 0(00H)).

● Channel Pressure

Status	2nd byte
DnH	vvH

n=MIDI channel number :0H - FH (ch.1 - ch.16)
vv=Channel Pressure :00H - 7FH (0 - 127) Initial value = 00H (0)

* Not received when Rx.CH PRESSURE (CAf) = OFF. (Initial value is ON)
* The resulting effect is determined by System Exclusive messages. With the initial settings there will be no effect.

● Pitch Bend Change

Status	2nd byte	3rd byte
EnH	llH	mmH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
mm,ll=Pitch Bend value : 00 00H - 40 00H - 7F 7FH (-8192 - 0 - +8191)
Initial value = 40 00H (center)

* Not received when Rx.PITCH BEND = OFF. (Initial value is ON)
* The resulting effect is determined by System Exclusive messages. With the initial settings the effect is Pitch Bend.

■ Channel Mode Messages

● All Sounds Off (Controller number 120)

Status	2nd byte	3rd byte
BnH	78H	00H

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

* When this message is received, all currently-sounding notes on the corresponding channel will be turned off immediately.

● Reset All Controllers (Controller number 121)

Status	2nd byte	3rd byte
BnH	79H	00H

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

* When this message is received, the following controllers will be set to their reset values.

Controller	Reset value	
Pitch Bend Change	+/-0	(center)
Polyphonic Key Pressure	0	(off)
Channel Pressure	0	(off)
Modulation	0	(off)
Expression	127	(max)
Hold 1	0	(off)
Portamento	0	(off)
Sostenuto	0	(off)
Soft	0	(off)
RPN	unset; previously set data will not change	
NRPN	unset; previously set data will not change	

● All Notes Off (Controller number 123)

Status	2nd byte	3rd byte
BnH	7BH	00H

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

* When All Notes Off is received, all notes on the corresponding channel will be turned off. However if Hold 1 or Sostenuto is ON, the sound will be continued until these are turned off.

● OMNI OFF (Controller number 124)

Status	2nd byte	3rd byte
BnH	7CH	00H

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

* The same processing will be carried out as when All Notes Off is received.

● OMNI ON (Controller number 125)

Status	2nd byte	3rd byte
BnH	7DH	00H

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

* OMNI ON is only recognized as "All notes off"; the Mode doesn't change (OMNI OFF remains).

● MONO (Controller number 126)

Status	2nd byte	3rd byte
BnH	7EH	mmH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
mm=mono number : 00H - 10H (0 - 16)

* The same processing will be carried out as when All Sounds Off and All Notes Off is received, and the corresponding channel will be set to Mode 4 (M=1) regardless of the value of "mono number".

● POLY (Controller number 127)

Status	2nd byte	3rd byte
BnH	7FH	00H

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

* The same processing will be carried out as when All Sounds Off and All Notes Off is received, and the corresponding channel will be set to Mode 3.

■ System Realtime Message

● Active Sensing

Status
FEH

* When Active Sensing is received, the unit will begin monitoring the intervals of all further messages. While monitoring, if the interval between messages exceeds about 420 ms, the same processing will be carried out as when All Sounds Off, All Notes Off and Reset All Controllers are received, and message interval monitoring will be halted.

■ System Exclusive Message

Status	Data byte	Status
F0H	iiH, ddH, ...,eeH	F7H

F0H :System Exclusive Message status
ii = ID number :an ID number (manufacturer ID) to indicate the manufacturer whose Exclusive message this is. Roland's manufacturer ID is 41H. ID numbers 7EH and 7FH are extensions of the MIDI standard; Universal Non-realtime Messages (7EH) and Universal Realtime Messages (7FH).
dd,...,ee = data :00H - 7FH (0 - 127)
F7H :EOX (End Of Exclusive)

The System Exclusive Messages received by the PMA-5 are; messages related to mode settings, Universal Realtime System Exclusive messages, Data Requests (RQ1), and Data Set (DT1).

● System exclusive messages related to mode settings

These messages are used to initialize a device to GS or General MIDI mode, or change the operating mode. When creating performance data, a "Turn General MIDI System On" message should be inserted at the beginning of a General MIDI score, and a "GS Reset" message at the beginning of a GS music data. Each song should contain only one mode message as appropriate for the type of data. (Do not insert two or more mode setting messages in a single song.)
"Turn General MIDI System On" use Universal Non-realtime Message format.
"GS Reset" use Roland system exclusive format "Data Set 1 (DT1)".

❍ Turn General MIDI System On

This is a command message that resets the internal settings of the unit to the General MIDI initial state (General MIDI System - Level 1). After receiving this message, PMA-5 will automatically be set to the proper condition for correctly playing a General MIDI score.

Status	Data byte	Status
F0H	7EH, 7FH, 09H, 01H	F7H

Byte	Explanation	
F0H	Exclusive status	
7EH	ID number	(Universal Non-realtime Message)
7FH	Device ID	(Broadcast)
09H	Sub ID#1	(General MIDI Message)
01H	Sub ID#2	(General MIDI On)
F7H	EOX	(End Of Exclusive)

* When this message is received, Rx.BANK SELECT will be OFF and Rx.NRPN will be OFF.
* There must be an interval of at least 50 ms between this message and the next message.

❍ GS reset

GS Reset is a command message that resets the internal settings of a device to the GS initial state. This message will appear at the beginning of GS music data, and a GS device that receives this message will automatically be set to the proper state to correctly playback GS music data.

Status	Data byte	Status
F0H	41H, dev, 42H, 12H, 40H, 00H, 7FH, 00H, 41H	F7H

Byte	Explanation	
F0H	Exclusive status	
41H	ID number	(Roland)
dev	Device ID	(dev: 00H - 1FH (1 - 32) Initial value is 10H(17))
42H	Model ID	(GS)
12H	Command ID	(DT1)
40H	Address MSB	
00H	Address	
7FH	Address LSB	
00H	Data	(GS reset)
41H	Checksum	
F7H	EOX	(End Of Exclusive)

* When this message is received, Rx.NRPN will be ON.
* There must be an interval of at least 50 ms between this message and the next.

● Universal Non-realtime System Exclusive Messages

❍ Inquiry request

Status	Data byte	Status
F0H	7EH, dev, 06H, 01H	F7H

Byte	Explanation	
F0H	Exclusive status	
7EH	ID number	(universal non-realtime message)
dev	Device ID	(dev: 00H - 1FH (1 - 32) Initial value is 10H(17))
06H,01H	Inquiry request	
F7H	EOX	(End Of Exclusive)

* When Inquiry Request is received, Inquiry Reply message will be transmitted.

* Regarding the Inquiry Reply, please refer to page 126.

* Even if the Device ID is 7FH(Broadcast), Inquiry Reply message will be transmitted.

● Universal Realtime System Exclusive Messages

❍ Master volume

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 01H, llH, mmH	F7H

Byte	Explanation	
F0H	Exclusive status	
7FH	ID number	(universal realtime message)
7FH	Device ID	(Broadcast)
04H	Sub ID#1	(Device Control messages)
01H	Sub ID#2	(Master Volume)
llH	Master volume lower byte	
mmH	Master volume upper byte	
F7H	EOX	(End Of Exclusive)

* The lower byte (llH) of Master Volume will be handled as 00H.

● Data transmission

PMA-5 can transmit and receive the various parameters using System Exclusive messages.
The exclusive message of GS format data has a model ID of 42H and a device ID of 10H (17), and it is common to all the GS devices.

❍ Request data 1 RQ1

This message requests the other device to send data. The Address and Size determine the type and amount of data to be sent.
When a Data Request message is received, if the device is ready to transmit data and if the address and size are appropriate, the requested data will be transmitted as a "Data Set 1 (DT1)" message. If not, nothing will be transmitted.

Status	Data byte	Status
F0H	41H, dev, 42H, 11H, aaH, bbH, ccH, ssH, ttH, uuH, sum	F7H

Byte	Explanation	
F0H	Exclusive status	
41H	ID number	(Roland)
dev	Device ID	(dev: 00H - 1FH Initial value is 10H(17))
42H	Model ID	(GS)
11H	Command ID	(RQ1)
aaH	Address MSB	: upper byte of the starting address of the requested data
bbH	Address	: middle byte of the starting address of the requested data
ccH	Address LSB	: lower byte of the starting address of the requested data
ssH	Size MSB	
ttH	Size	
uuH	Size LSB	
sum	Checksum	
F7H	EOX	(End Of Exclusive)

* The amount of data that can be transmitted at once time will depend on the type of data, and data must be requested using a specific starting address and size. Refer to the Address and Size listed in Section 3 (Page 127).
* Regarding the checksum please refer to Section 4 (Page 134).

❍ Data set 1 DT1

This is the message that actually performs data transmission, and is used when you wish to transmit the data.

Status	Data byte	Status
F0H	41H, dev, 42H, 12H, aaH, bbH, ccH, ddH, ... eeH, sum	F7H

Byte	Explanation	
F0H	Exclusive status	
41H	ID number	(Roland)
dev	Device ID	(dev: 00H - 1FH Initial value is 10H))
42H	Model ID	(GS)
12H	Command ID	(DT1)
aaH	Address MSB	: upper byte of the starting address of the transmitted data
bbH	Address	: middle byte of the starting address of the transmitted data
ccH	Address LSB	: lower byte of the starting address of the transmitted data
ddH	Data	: the actual data to be transmitted. Multiple bytes of data are transmitted starting from the address.
:	:	
eeH	Data	
sum	Checksum	
F7H	EOX	(End Of Exclusive)

* The amount of data that can be transmitted at one time depends on the type of data, and data can be received only from the specified starting address and size. Refer to the Address and Size given in Section 3 (Page 127).
* Data larger than 128 bytes must be divided into packets of 128 bytes or less. If "Data Set 1" is transmitted successively, there must be an interval of at least 40 ms between packets.
* Regarding the checksum please refer to section 4 (Page 134).

Section 2. Transmit data

■ Channel Voice Messages

● Note off

Status	2nd byte	3rd byte
8nH	kkH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
kk=note number : 00H - 7FH (0 - 127)
vv=note off velocity : 40H (64: fixed)

* Transmitted at the channel of the selected part when the touch keyboard is operated.

● Note on

Status	2nd byte	3rd byte
9nH	kkH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
kk=note number : 00H - 7FH (0 - 127)
vv=note on velocity : 18H, 28H, 37H, 46H, 55H, 64H, 72H, 7FH (24,40,55,70,85,100,114,127) transmitted as 8 steps

* Transmitted at the channel of the selected part when the touch keyboard is operated.

● Control Change

❍ Modulation (Controller number 1)

Status	2nd byte	3rd byte
BnH	01H	vvH

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

* Transmitted at the channel of the selected part when the touch keyboard is operated.

● Pitch Bend Change

Status	2nd byte	3rd byte
EnH	lH	mmH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
mm,ll=Pitch Bend value : 00 00H - 40 00H - 7F 7FH (-8192 - 0 - +8191)

* Transmitted at the channel of the selected part when the touch keyboard is operated.

■ System Realtime Message

● Active sensing

Status
FEH

* This will be transmitted constantly at intervals of approximately 250ms.

■ System exclusive messages

Inquiry reply and Data Set 1 (DT1) are the only System Exclusive messages transmitted by PMA-5.
When an appropriate "Inquiry Request" or "Data Request 1 (RQ1)" message is received, the requested internal data will be transmitted.

● Universal Non-realtime System Exclusive Messages

❍ Inquiry reply

Status	Data byte	Status
F0H	7EH, dev, 06H, 02H,41H,42H,00H,0CH,01H,00H,00H,00H,00H	F7H

Byte	Explanation	
F0H	Exclusive status	
7EH	ID number	(universal non-realtime message)
dev	Device ID	(dev: 00H - 1FH (1 - 32) Initial value is 10H(17))
06H 02H	Inquiry reply	
41H	ID number	(Roland)
42H 00H	Device family code	
0CH 01H	Device family number code	
00H 00H 00H 00H	software revision level	
F7H	EOX	(End Of Exclusive)

* When Inquiry Request is received, Inquiry Reply message will be transmitted.
* Regarding the Inquiry Request, please refer to page 125.

○ Data set 1 DT1 (12H)

Status	Data byte	Status
F0H	41H, dev, 42H, 12H, aaH, bbH, ccH, ddH, ... eeH, sum	F7H

Byte	Explanation	
F0H	Exclusive status	
41H	ID number	(Roland)
dev	Device ID	(dev: 00H - 1FH Initial value is 10H)
42H	Model ID	(GS)
12H	Command ID	(DT1)
aaH	Address MSB	:upper byte of the starting address of the data to be sent
bbH	Address	:middle byte of the starting address of the data to be sent
ccH	Address LSB	:lower byte of the starting address of the data to be sent.
ddH	Data	:the actual data to be sent. Multiple bytes of data are transmitted in order starting from the address.
:	:	
eeH	Data	
sum	Checksum	
F7H	EOX	(End Of Exclusive)

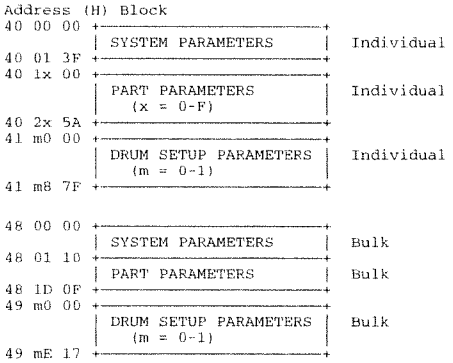
* The amount of data that can be transmitted at one time depends on the type of data, and data will be transmitted from the specified starting address and size. Refer to the Address and Size given in Section 3 (Page 127).
* Data larger than 128 bytes will be divided into packets of 128 bytes or less, and each packet will be sent at an interval of about 40ms.
* Regarding the checksum please refer to section 4 (Page 134).

Section 3. Parameter Address Map (Model ID=42H)

This map indicates address, size, Data (range), Parameter, Description, and Default Value of parameters which can be transferred using "Request data 1 (RQ1)" and "Data set 1 (DT1)".
All the numbers of address, size, Data, and Default Value are indicated in 7-bit Hexadecimal-form.

■ Address Block map

An outlined address map of the Exclusive Communication is as follows;



There are two ways in which GS data is transmitted: Individual Parameter Transmission in which individual parameters are transmitted one by one, and Bulk Dump Transmission in which a large amount of data is transmitted at once.

■ Individual Parameters

Individual Parameter Transmission transmits data (or requests data) for one parameter as one exclusive message (one packet of "F0 ..... F7").
In Individual Parameter Transmission, you must use the Address and Size listed in the following "Parameter Address Map". Addresses marked at "#" cannot be used as starting addresses.

● System Parameters

Parameters related to the system of the device are called System Parameters.

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
40 00 00	00 00 04	0018 - 07E8	MASTER TUNE	-100.0 - +100.0 [cent]	00 04 00 00	0 [cent]
40 00 01#				Use nibblized data.		
40 00 02#						
40 00 03#						

* Refer to section 4. Supplementary material, "About tuning"(Page 124).

40 00 04	00 00 01	00 - 7F	MASTER VOLUME (= F0 7F 7F 04 01 00 vv F7)	0 - 127	7F	127
40 00 05	00 00 01	28 - 58	MASTER KEY-SHIFT	-24 - +24 [semitones]	40	0[semitones]
40 00 06	00 00 01	01 - 7F	MASTER PAN	-63 (LEFT) - +63 (RIGHT)	40	0 (CENTER)
40 00 7F	00 00 01	00	MODE SET (Rx. only)	00 = GS Reset		

* Refer to "System exclusive messages related to Mode settings"(Page 124).

40 01 10	00 00 10	00 - 1C	VOICE RESERVE	Part 10(Drum Part)	02	2
40 01 11#				Part 1	06	6
40 01 12#				Part 2	02	2
40 01 13#				Part 3	02	2
40 01 14#				Part 4	02	2
40 01 15#				Part 5	02	2
40 01 16#				Part 6	02	2
40 01 17#				Part 7	02	2
40 01 18#				Part 8	02	2
40 01 19#				Part 9	02	2
40 01 1A#				Part 11	00	0
40 01 :#				:		
40 01 1F#				Part 16	00	0

* The sum total of voices in the voice reserve function must be equal to or less than the number of the maximum polyphony. The maximum polyphony of the PMA-5 is 28. For compatibility with other GS models, it is recommended that the maximum polyphony be equal or less than 24.

40 01 30	00 00 01	00 - 07	REVERB MACRO	00: Room 1 01: Room 2 02: Room 3 03: Hall 1 04: Hall 2 05: Plate 06: Delay 07: Panning Delay	04	Hall 2
40 01 31	00 00 01	00 - 07	REVERB CHARACTER	0 - 7	04	4
40 01 32	00 00 01	00 - 07	REVERB PRE-LPF	0 - 7	00	0
40 01 33	00 00 01	00 - 7F	REVERB LEVEL	0 - 127	40	64
40 01 34	00 00 01	00 - 7F	REVERB TIME	0 - 127	40	64
40 01 35	00 00 01	00 - 7F	REVERB DELAY FEEDBACK	0 - 127	00	0
40 01 36	00 00 01	00 - 7F	REVERB SEND LEVEL TO CHORUS	0 - 127	00	0

* REVERB MACRO is a macro parameter that allows global setting of reverb parameters. When you select the reverb type with REVERB MACRO, each reverb parameter will be set to the most suitable value.
* REVERB CHARACTER is a parameter that changes the reverb algorithm. The value of REVERB CHARACTER corresponds to the REVERB MACRO of the same number.

40 01 38	00 00 01	00 - 07	CHORUS MACRO	00: Chorus 1 01: Chorus 2 02: Chorus 3 03: Chorus 4 04: Feedback Chorus 05: Flanger 06: Short Delay 07: Short Delay (FB)	02	Chorus 3
40 01 39	00 00 01	00 - 07	CHORUS PRE-LPF	0 - 7	00	0
40 01 3A	00 00 01	00 - 7F	CHORUS LEVEL	0 - 127	40	64
40 01 3B	00 00 01	00 - 7F	CHORUS FEEDBACK	0 - 127	08	8
40 01 3C	00 00 01	00 - 7F	CHORUS DELAY	0 - 127	50	80
40 01 3D	00 00 01	00 - 7F	CHORUS RATE	0 - 127	03	3
40 01 3E	00 00 01	00 - 7F	CHORUS DEPTH	0 - 127	13	19
40 01 3F	00 00 01	00 - 7F	CHORUS SEND LEVEL TO REVERB	0 - 127	00	0

* CHORUS MACRO is a macro parameter that allows global setting of chorus parameters. When you use CHORUS MACRO to select the chorus type, each chorus parameter will be set to the most suitable value.

● Part Parameters

PMA-5 has 16 parts. Parameters that can be set individually for each Part are called Part parameters.
If you use exclusive messages to set Part parameters, specify the address by Block number rather than Part Number (normally the same number as the MIDI channel). The Block number can be specified as one of 16 blocks, from 0(H) to F(H).

The relation between Part number and Block number is as follows.

x...BLOCK NUMBER (0 - F),

Part 1 (MIDI ch = 1) x=1
Part 2 (MIDI ch = 2) x=2
:
Part 9 (MIDI ch = 9) x=9
Part10 (MIDI ch =10) x=0
Part11 (MIDI ch =11) x=A
Part12 (MIDI ch =12) x=B
:
Part16 (MIDI ch =16) x=F

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
40 1x 00	00 00 02	00 - 7F	TONE NUMBER	CC#00 VALUE 0 - 127	00	0
40 1x 01#		00 - 7F		P.C. VALUE 1 - 128	00	1
40 1x 02	00 00 01	00 - 10	Rx. CHANNEL	1 - 16,OFF	Same as the Part Number	
40 1x 03	00 00 01	00 - 01	Rx. PITCH BEND	OFF / ON	01	ON
40 1x 04	00 00 01	00 - 01	Rx. CH PRESSURE(CAf)	OFF / ON	01	ON
40 1x 05	00 00 01	00 - 01	Rx. PROGRAM CHANGE	OFF / ON	01	ON
40 1x 06	00 00 01	00 - 01	Rx. CONTROL CHANGE	OFF / ON	01	ON
40 1x 07	00 00 01	00 - 01	Rx. POLY PRESSURE(PAf)	OFF / ON	01	ON
40 1x 08	00 00 01	00 - 01	Rx. NOTE MESSAGE	OFF / ON	01	ON
40 1x 09	00 00 01	00 - 01	Rx. RPN	OFF / ON	01	ON
40 1x 0A	00 00 01	00 - 01	Rx. NRPN	OFF / ON	00(01*)	OFF(ON*)

* Rx. NRPN is set to OFF when the PMA-5 is set to "GM/GS sound module mode", and also set to OFF by receiving "Turn General MIDI System On", and it will be set ON when "GS RESET" is received.

40 1x 0B	00 00 01	00 - 01	Rx. MODULATION	OFF / ON	01	ON
40 1x 0C	00 00 01	00 - 01	Rx. VOLUME	OFF / ON	01	ON
40 1x 0D	00 00 01	00 - 01	Rx. PANPOT	OFF / ON	01	ON
40 1x 0E	00 00 01	00 - 01	Rx. EXPRESSION	OFF / ON	01	ON
40 1x 0F	00 00 01	00 - 01	Rx. HOLD1	OFF / ON	01	ON
40 1x 10	00 00 01	00 - 01	Rx. PORTAMENTO	OFF / ON	01	ON
40 1x 11	00 00 01	00 - 01	Rx. SOSTENUTO	OFF / ON	01	ON
40 1x 12	00 00 01	00 - 01	Rx. SOFT	OFF / ON	01	ON
40 1x 13	00 00 01	00 - 01	MONO/POLY MODE	Mono / Poly (=CC# 126 01 / CC# 127 00)	01	Poly
40 1x 14	00 00 01	00 - 02	ASSIGN MODE	0 = SINGLE 1 =LIMITED-MULTI 2 = FULL-MULTI	00 at x=0 01 at x≠0	SINGLE at x=0 LIMITED-MULTI at x≠0

* ASSIGN MODE is the parameter that determines how voice assignment will be handled when sounds overlap on identical note numbers in the same channel (i.e., repeatedly struck notes). This is initialized to a mode suitable for each Part, so for general purposes there is no need to change this.

40 1x 15	00 00 01	00 - 02	USE FOR RHYTHM PART	0 = OFF	00 at x≠0 1 = MAP1 2 = MAP2	OFF at x≠0 01 at x=0 MAP1 at x≠0

* This parameter sets the Drum Map of the Part used as the Drum Part. PMA-5 can simultaneously (in different Parts) use up to two Drum Maps (MAP1, MAP2). With the initial settings, Part10 (MIDI CH=10, x=0) is set to MAP1 (1), and other Parts are set to normal instrumental Parts (OFF(0)).

40 1x 16	00 00 01	28 - 58	PITCH KEY SHIFT	-24 - +24 [semitones]	40	0 [semitones]
40 1x 17	00 00 02	08 - F8	PITCH OFFSET FINE	-12.0 - +12.0 [Hz]	08 00	0 [Hz]
40 1x 18#				Use nibblized data.		

* PITCH OFFSET FINE allows you to alter, by a specified frequency amount, the pitch at which notes will sound. This parameter differs from the conventional Fine Tuning (RPN #1) parameter in that the amount of frequency alteration (in Hertz) will be identical no matter which note is played. When a multiple number of Parts, each of which has been given a different setting for PITCH OFFSET FINE, are sounded by means of an identical note number, you can obtain a Celeste effect.

40 1x 19	00 00 01	00 - 7F	PART LEVEL (=CC# 7)	0 - 127	64	100
40 1x 1A	00 00 01	00 - 7F	VELOCITY SENSE DEPTH	0 - 127	40	64
40 1x 1B	00 00 01	00 - 7F	VELOCITY SENSE OFFSET	0 - 127	40	64
40 1x 1C	00 00 01	00 - 7F	PART PANPOT (=CC# 10, except RANDOM)	-64(RANDOM), -63(LEFT) - +63(RIGHT)	40	0 (CENTER)
40 1x 1D	00 00 01	00 - 7F	KEY RANGE LOW	(C-1) - (G9)	00	C-1
40 1x 1E	00 00 01	00 - 7F	KEY RANGE HIGH	(C-1) - (G9)	7F	G 9
40 1x 1F	00 00 01	00 - 5F	CC1 CONTROLLER NUMBER	0 - 95	10	16
40 1x 20	00 00 01	00 - 5F	CC2 CONTROLLER NUMBER	0 - 95	11	17

40 1x 21	00 00 01	00 - 7F	CHORUS SEND LEVEL (=CC# 93)	0 - 127	00	0
40 1x 22	00 00 01	00 - 7F	REVERB SEND LEVEL (=CC# 91)	0 - 127	28	40
40 1x 23	00 00 01	00 - 01	Rx. BANK SELECT	OFF / ON	01(00*)	ON(OFF*)$$$

* Rx. BANK SELECT is set to ON when the PMA-5 is set to "GM/GS sound module mode", and also set to ON by receiving "GS RESET", and will be set OFF when "Turn General MIDI System On"is received.

40 1x 30	00 00 01	0E - 72	TONE MODIFY 1 Vibrato rate	-50 - +50 (=NRPN# 8)	40	0
40 1x 31	00 00 01	0E - 72	TONE MODIFY 2 Vibrato depth	-50 - +50 (=NRPN# 9)	40	0
40 1x 32	00 00 01	0E - 72	TONE MODIFY 3 TVF cutoff frequency	-50 - +50 (=NRPN# 32)	40	0
40 1x 33	00 00 01	0E - 72	TONE MODIFY 4 TVF resonance	-50 - +50 (=NRPN# 33)	40	0 $$$
40 1x 34	00 00 01	0E - 72	TONE MODIFY 5 TVF&TVA Env.attack	-50 - +50 (=NRPN# 99)	40	0
40 1x 35	00 00 01	0E - 72	TONE MODIFY 6 TVF&TVA Env.decay	-50 - +50 (=NRPN# 100)	40	0
40 1x 36	00 00 01	0E - 72	TONE MODIFY 7 TVF&TVA Env.release	-50 - +50 (=NRPN# 102)	40	0
40 1x 37	00 00 01	0E - 72	TONE MODIFY 8 Vibrato delay	-50 - +50 (=NRPN# 10)	40	0

40 1x 40	00 00 0C	00 - 7F	SCALE TUNING C	-64 - +63 [cent]	40	0 [cent]
40 1x 41#		00 - 7F	SCALE TUNING C#	-64 - +63 [cent]	40	0 [cent]
40 1x 42#		00 - 7F	SCALE TUNING D	-64 - +63 [cent]	40	0 [cent]
40 1x 43#		00 - 7F	SCALE TUNING D#	-64 - +63 [cent]	40	0 [cent]
40 1x 44#		00 - 7F	SCALE TUNING E	-64 - +63 [cent]	40	0 [cent]
40 1x 45#		00 - 7F	SCALE TUNING F	-64 - +63 [cent]	40	0 [cent]
40 1x 46#		00 - 7F	SCALE TUNING F#	-64 - +63 [cent]	40	0 [cent]
40 1x 47#		00 - 7F	SCALE TUNING G	-64 - +63 [cent]	40	0 [cent]
40 1x 48#		00 - 7F	SCALE TUNING G#	-64 - +63 [cent]	40	0 [cent]
40 1x 49#		00 - 7F	SCALE TUNING A	-64 - +63 [cent]	40	0 [cent]
40 1x 4A#		00 - 7F	SCALE TUNING A#	-64 - +63 [cent]	40	0 [cent]
40 1x 4B#		00 - 7F	SCALE TUNING B	-64 - +63 [cent]	40	0 [cent]

* SCALE TUNING is a function that allows fine adjustment to .the pitch of each note in the octave. The pitch of each identically-named note in all octaves will change simultaneously. A setting of +/- 0 cent (40H) is equal temperament. Refer to section 4. Supplementary material, "The Scale Tune Feature"(p.135).

40 2x 00	00 00 01	28 - 58	MOD PITCH CONTROL	-24 - +24 [semitone]	40	0 [semitones]
40 2x 01	00 00 01	00 - 7F	MOD TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 02	00 00 01	00 - 7F	MOD AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 03	00 00 01	00 - 7F	MOD LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 04	00 00 01	00 - 7F	MOD LFO1 PITCH DEPTH	0 - 600 [cent]	0A	47 [cent]
40 2x 05	00 00 01	00 - 7F	MOD LFO1 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 06	00 00 01	00 - 7F	MOD LFO1 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 07	00 00 01	00 - 7F	MOD LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 08	00 00 01	00 - 7F	MOD LFO2 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 09	00 00 01	00 - 7F	MOD LFO2 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 0A	00 00 01	00 - 7F	MOD LFO2 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 10	00 00 01	40 - 58	BEND PITCH CONTROL	0 - 24 [semitone]	42	2 [semitones]
40 2x 11	00 00 01	00 - 7F	BEND TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 12	00 00 01	00 - 7F	BEND AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 13	00 00 01	00 - 7F	BEND LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 14	00 00 01	00 - 7F	BEND LFO1 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 15	00 00 01	00 - 7F	BEND LFO1 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 16	00 00 01	00 - 7F	BEND LFO1 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 17	00 00 01	00 - 7F	BEND LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 18	00 00 01	00 - 7F	BEND LFO2 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 19	00 00 01	00 - 7F	BEND LFO2 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 1A	00 00 01	00 - 7F	BEND LFO2 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 20	00 00 01	28 - 58	CAf PITCH CONTROL	-24 - +24 [semitone]	40	0 [semitones]
40 2x 21	00 00 01	00 - 7F	CAf TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 22	00 00 01	00 - 7F	CAf AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 23	00 00 01	00 - 7F	CAf LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 24	00 00 01	00 - 7F	CAf LFO1 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 25	00 00 01	00 - 7F	CAf LFO1 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 26	00 00 01	00 - 7F	CAf LFO1 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 27	00 00 01	00 - 7F	CAf LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 28	00 00 01	00 - 7F	CAf LFO2 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 29	00 00 01	00 - 7F	CAf LFO2 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 2A	00 00 01	00 - 7F	CAf LFO2 TVA DEPTH	0 - 100.0 [%]	00	0 [%]

40 2x 30	00 00 01	28 - 58	PAf PITCH CONTROL	-24 - +24 [semitone]	40	0 [semitones]
40 2x 31	00 00 01	00 - 7F	PAf TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 32	00 00 01	00 - 7F	PAf AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 33	00 00 01	00 - 7F	PAf LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 34	00 00 01	00 - 7F	PAf LFO1 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 35	00 00 01	00 - 7F	PAf LFO1 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 36	00 00 01	00 - 7F	PAf LFO1 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 37	00 00 01	00 - 7F	PAf LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 38	00 00 01	00 - 7F	PAf LFO2 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 39	00 00 01	00 - 7F	PAf LFO2 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 3A	00 00 01	00 - 7F	PAf LFO2 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 40	00 00 01	28 - 58	CC1 PITCH CONTROL	-24 - +24 [semitone]	40	0 [semitones]
40 2x 41	00 00 01	00 - 7F	CC1 TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 42	00 00 01	00 - 7F	CC1 AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 43	00 00 01	00 - 7F	CC1 LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 44	00 00 01	00 - 7F	CC1 LFO1 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 45	00 00 01	00 - 7F	CC1 LFO1 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 46	00 00 01	00 - 7F	CC1 LFO1 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 47	00 00 01	00 - 7F	CC1 LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 48	00 00 01	00 - 7F	CC1 LFO2 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 49	00 00 01	00 - 7F	CC1 LFO2 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 4A	00 00 01	00 - 7F	CC1 LFO2 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 50	00 00 01	28 - 58	CC2 PITCH CONTROL	-24 - +24 [semitone]	40	0 [semitones]
40 2x 51	00 00 01	00 - 7F	CC2 TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 52	00 00 01	00 - 7F	CC2 AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 53	00 00 01	00 - 7F	CC2 LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 54	00 00 01	00 - 7F	CC2 LFO1 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 55	00 00 01	00 - 7F	CC2 LFO1 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 56	00 00 01	00 - 7F	CC2 LFO1 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 57	00 00 01	00 - 7F	CC2 LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 58	00 00 01	00 - 7F	CC2 LFO2 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 59	00 00 01	00 - 7F	CC2 LFO2 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 5A	00 00 01	00 - 7F	CC2 LFO2 TVA DEPTH	0 - 100.0 [%]	00	0 [%]

● Drum Setup Parameters

* m: Map number (0 = MAP1, 1 = MAP2)
* rr: drum part note number (00H - 7FH)

Address(H)	Size(H)	Data(H)	Parameter	Description
41 m0 00 | # 41 m0 0B#	00 00 0C	20 - 7F	DRUM MAP NAME	ASCII Character
41 m1 rr	00 00 01	00 - 7F	PLAY NOTE NUMBER	Pitch coarse
41 m2 rr	00 00 01	00 - 7F	LEVEL (=NRPN# 26)	TVA level
41 m3 rr	00 00 01	00 - 7F	ASSIGN GROUP NUMBER	Non, 1 - 127
41 m4 rr	00 00 01	00 - 7F	PANPOT (=NRPN# 28, except RANDOM)	-64(RANDOM), -63(LEFT) - +63(RIGHT)
41 m5 rr	00 00 01	00 - 7F	REVERB SEND LEVEL (=NRPN# 29)	0.0 - 1.0 Multiplicand of the part reverb depth
41 m6 rr	00 00 01	00 - 7F	CHORUS SEND LEVEL (=NRPN# 30)	0.0 - 1.0 Multiplicand of the part chorus depth
41 m7 rr	00 00 01	00 - 01	Rx. NOTE OFF	OFF / ON
41 m8 rr	00 00 01	00 - 01	Rx. NOTE ON	OFF / ON

* When the Drum Set is changed, DRUM SETUP PARAMETER values will all be initialized.

■ Bulk Dump

Bulk Dump allows you to transmit a large amount of data at once, and is convenient for storing settings for the entire unit on a computer or sequencer.

To make PMA-5 a Bulk Dump transmission, send it a "Bulk Dump Request" message. For Bulk Dump Request, you must use the Address and Size listed in the following "Parameter Map". Addresses marked at "#" cannot be used as starting addresses.

Bulk Dump data which include large amount of data (more than 128 bytes) will sent out in separate packets at an interval of about 40ms. In this case, the subsequent packets may contain the address marked "#."

To send several packets of large DT1 messages at a time, insert intervals of at least 40ms. in between those packets.

● System and Part Parameters

Address(H)	Size(H)	Description	Number of packets
48 00 00	00 1D 10	ALL	30 packets
| #		(All of the System parameters and Part parameters can be sent sequentially.)	
48 1D 0F#			
48 00 00	00 00 10		
| #		SYSTEM 1	1 packet
48 00 0F#			
48 00 10	00 01 00		
| #		SYSTEM 2	1 packet
48 01 0F#			
48 01 10	00 01 60		
| #		BLOCK 0	2 packets
48 02 6F#			
48 02 70	00 01 60		
| #		BLOCK 1	2 packets
48 04 4F#			
48 04 50	00 01 60		
| #		BLOCK 2	2 packets
48 06 2F#			
48 06 30	00 01 60		
| #		BLOCK 3	2 packets
48 08 0F#			
48 08 10	00 01 60		
| #		BLOCK 4	2 packets
48 09 6F#			
48 09 70	00 01 60		
| #		BLOCK 5	2 packets
48 0B 4F#			
48 0B 50	00 01 60		
| #		BLOCK 6	2 packets
48 0D 2F#			
48 0D 30	00 01 60		
| #		BLOCK 7	2 packets
48 0F 0F#			
48 0F 10	00 01 60		
| #		BLOCK 8	2 packets
48 10 6F#			
48 10 70	00 01 60		
| #		BLOCK 9	2 packets
48 12 4F#			
48 12 50	00 01 60		
| #		BLOCK A	2 packets
48 14 2F#			
48 14 30	00 01 60		
| #		BLOCK B	2 packets
48 16 0F#			
48 16 10	00 01 60		
| #		BLOCK C	2 packets
48 17 6F#			
48 17 70	00 01 60		
| #		BLOCK D	2 packets
48 19 4F#			
48 19 50	00 01 60		
| #		BLOCK E	2 packets
48 1B 2F#			
48 1B 30	00 01 60		
| #		BLOCK F	2 packets
48 1D 0F#			

● DRUM SETUP PARAMETERS

m: map number (0 = MAP1, 1 = MAP2)

Address(H)	Size(H)	Description	Number of packets
49 m0 00	00 02 00		
|		PLAY NOTE NUMBER	2 packets
49 m1 7F			
49 m2 00	00 02 00		
|		LEVEL	2 packets
49 m3 7F			
49 m4 00	00 02 00		
|		ASSIGN GROUP NUMBER	2 packets
49 m5 7F			
49 m6 00	00 02 00		
|		PANPOT	2 packets
49 m7 7F			
49 m8 00	00 02 00		
|		REVERB SEND LEVEL	2 packets
49 m9 7F			
49 mA 00	00 02 00		
|		CHORUS SEND LEVEL	2 packets
49 mB 7F			
49 mC 00	00 02 00		
|		Rx. NOTE ON/OFF	2 packets
49 MD 7F			
49 ME 00	00 00 18		
|		DRUM MAP NAME	1 packet
49 ME 17			

Section 4. Supplementary material

● Decimal and Hexadecimal table

In MIDI documentation, data values and addresses/sizes of exclusive messages etc. are expressed as hexadecimal values for each 7 bits.
The following table shows how these correspond to decimal numbers.

Dec.	Hex.	Dec.	Hex.	Dec.	Hex.	Dec.	Hex.
0	00H	32	20H	64	40H	96	60H
1	01H	33	21H	65	41H	97	61H
2	02H	34	22H	66	42H	98	62H
3	03H	35	23H	67	43H	99	63H
4	04H	36	24H	68	44H	100	64H
5	05H	37	25H	69	45H	101	65H
6	06H	38	26H	70	46H	102	66H
7	07H	39	27H	71	47H	103	67H
8	08H	40	28H	72	48H	104	68H
9	09H	41	29H	73	49H	105	69H
10	0AH	42	2AH	74	4AH	106	6AH
11	0BH	43	2BH	75	4BH	107	6BH
12	0CH	44	2CH	76	4CH	108	6CH
13	0DH	45	2DH	77	4DH	109	6DH
14	0EH	46	2EH	78	4EH	110	6EH
15	0FH	47	2FH	79	4FH	111	6FH
16	10H	48	30H	80	50H	112	70H
17	11H	49	31H	81	51H	113	71H
18	12H	50	32H	82	52H	114	72H
19	13H	51	33H	83	53H	115	73H
20	14H	52	34H	84	54H	116	74H
21	15H	53	35H	85	55H	117	75H
22	16H	54	36H	86	56H	118	76H
23	17H	55	37H	87	57H	119	77H
24	18H	56	38H	88	58H	120	78H
25	19H	57	39H	89	59H	121	79H
26	1AH	58	3AH	90	5AH	122	7AH
27	1BH	59	3BH	91	5BH	123	7BH
28	1CH	60	3CH	92	5CH	124	7CH
29	1DH	61	3DH	93	5DH	125	7DH
30	1EH	62	3EH	94	5EH	126	7EH
31	1FH	63	3FH	95	5FH	127	7FH

* Decimal values such as MIDI channel, bank select, and program change are listed as one(1) greater than the values given in the above table.
* A 7-bit byte can express data in the range of 128 steps. For data where greater precision is required, we must use two or more bytes. For example, two hexadecimal numbers aa bbH expressing two 7-bit bytes would indicate a value of aa x 128 + bb.
* In the case of values which have a +- sign, 00H = -64, 40H = +- 0, and 7FH = +63, so that the decimal expression would be 64 less than the value given in the above chart. In the case of two types, 00 00H = -8192, 40 00H = +- 0, and 7F 7FH = +8191. For example if aa bbH were expressed as decimal, this would be aa bbH - 40 00H = aa x 128 + bb - 64 x 128.
* Data marked "nibbled" is expressed in hexadecimal in 4-bit units. A value expressed as a 2-byte nibble 0a 0bH has the value of a x 16 + b.

<Example 1> What is the decimal expression of 5AH ?

From the preceding table, 5AH = 90

<Example 2> What is the decimal expression of the value 12 34H given as hexadecimal for each 7 bits?

From the preceding table, since 12H = 18 and 34H = 52
18 x 128 + 52 = 2356

<Example 3> What is the decimal expression of the nibbled value 0A 03 09 0D ?

From the preceding table, since 0AH = 10, 03H = 3, 09H = 9, 0DH = 13
((10 x 16 + 3) x 16 + 9) x 16 + 13 = 41885

<Example 4> What is the nibbled expression of the decimal value 1258?

16) 1258
16) 78 ... 10
16) 4 ... 14
0 ... 4

Since from the preceding table, 0=00H, 4=04H, 14=0EH, 10=0AH, the answer is 00 04 0E 0AH

● Examples of actual MIDI messages

<Example 1> 92 3E 5F

9n is the Note-on status, and n is the MIDI channel number. Since 2H = 2, 3EH = 62, and 5FH = 95, this is a Note-on message with MIDI CH = 3, note number 62 (note name is D4), and velocity 95.

<Example 2> CE 49

CnH is the Program Change status, and n is the MIDI channel number. Since EH = 14 and 49H = 73, this is a Program Change message with MIDI CH = 15, program number 74 (Flute in GS).

<Example 3> EA 00 28

EnH is the Pitch Bend Change status, and n is the MIDI channel number. The 2nd byte (00H=0) is the LSB and the 3rd byte (28H=40) is the MSB, but Pitch Bend Value is a signed number in which 40 00H (= 64 x 128 + 0 = 8192) is 0, so this Pitch Bend Value is
28 00H - 40 00H = 40 x 128 + 0 - (64 x 128 + 0) = 5120 - 8192 = -3072

If the Pitch Bend Sensitivity is set to 2 semitones, -8192 (00 00H) will cause the pitch to change -200 cents, so in this case -200 x (-3072) / (-8192) = -75 cents of Pitch Bend is being applied to MIDI channel 11.

<Example 4> B3 64 00 65 00 06 0C 26 00 64 7F 65 7F

BnH is the Control Change status, and n is the MIDI channel number. For Control Changes, the 2nd byte is the control number, and the 3rd byte is the value. In a case in which two or more messages consecutive messages have the same status, MIDI has a provision called "running status" which allows the status byte of the second and following messages to be omitted. Thus, the above messages have the following meaning.

B3	64 00	MIDI ch.4, lower byte of RPN parameter number	: 00H
(B3)	65 00	(MIDI ch.4) upper byte of RPN parameter number	: 00H
(B3)	06 0C	(MIDI ch.4) upper byte of parameter value	: 0CH
(B3)	26 00	(MIDI ch.4) lower byte of parameter value	: 00H
(B3)	64 7F	(MIDI ch.4) lower byte of RPN parameter number	: 7FH
(B3)	65 7F	(MIDI ch.4) upper byte of RPN parameter number	: 7FH

In other words, the above messages specify a value of 0C 00H for RPN parameter number 00 00H on MIDI channel 4, and then set the RPN parameter number to 7F 7FH.

RPN parameter number 00 00H is Pitch Bend Sensitivity, and the MSB of the value indicates semitone units, so a value of 0CH = 12 sets the maximum pitch bend range to +- 12 semitones (1 octave). (On GS sound sources the LSB of Pitch Bend Sensitivity is ignored, but the LSB should be transmitted anyway (with a value of 0) so that operation will be correct on any device.)

Once the parameter number has been specified for RPN or NRPN, all Data Entry messages transmitted on that same channel will be valid, so after the desired value has been transmitted, it is a good idea to set the parameter number to 7F 7FH to prevent accidents. This is the reason for the (B3) 64 7F (B3) 65 7F at the end.

It is not desirable for performance data (such as Standard MIDI File data) to contain many events with running status as given in <Example 4>. This is because if playback is halted during the song and then rewound or fast-forwarded, the sequencer may not be able to transmit the correct status, and the sound source will then misinterpret the data. Take care to give each event its own status.

It is also necessary that the RPN or NRPN parameter number setting and the value setting be done in the proper order. On some sequencers, events occurring in the same (or consecutive) clock may be transmitted in an order different than the order in which they were received. For this reason it is a good idea to slightly skew the time of each event (about 1 tick for TPQN=96, and about 5 ticks for TPQN=480).

* TPQN : Ticks Per Quarter Note

● Example of an Exclusive message and calculating a Checksum

Roland Exclusive messages (RQ1, DT1) are transmitted with a checksum at the end (before F7) to make sure that the message was correctly received. The value of the checksum is determined by the address and data (or size) of the transmitted exclusive message.

✧ How to calculate the checksum (hexadecimal numbers are indicated by 'H')

The checksum is a value derived by adding the address, size and checksum itself and inverting the lower 7 bits.

Here's an example of how the checksum is calculated. We will assume that in the exclusive message we are transmitting, the address is aa bb ccH and the data or size is dd ee ffH.

aa + bb + cc + dd + ee + ff = sum
sum / 128 = quotient ... remainder
128 - remainder = checksum

<Example 1> Setting REVERB MACRO to ROOM 3

According to the "Parameter Address Map", the REVERB MACRO Address is 40 01 30H, and ROOM 3 is a value of 02H. Thus,

F0	41	10	42	12	40 01 30	02	??	F7
(1)	(2)	(3)	(4)	(5)	address	data	checksum	(6)

(1)Exclusive Status (2)ID (Roland) (3)Device ID (17)
(4)Model ID (GS) (5)Command ID (DT1) (6)End of Exclusive

Next we calculate the checksum

40H + 01H + 30H + 02H = 64 + 1 + 48 + 2 = 115(sum)
115(sum) / 128 = 0(quotient) ... 115(remainder)
checksum = 128 - 115(remainder) = 13 = 0DH

This means that F0 41 10 42 12 40 01 30 02 0D F7 is the message we transmit.

<Example 2>
Requesting transmission of the LEVEL for DRUM MAP 1 NOTE NUMBER 75 (D#5; Claves)

NOTE NUMBER 75(D#5) is 4BH in hexadecimal.
According to the "Parameter Address Map", LEVEL of NOTE NUMBER 75 (D#5; Claves) in DRUM MAP 1 has an Address of 41 02 4BH and a Size of 00 00 01H. Thus,

F0	41	10	42	11	41 02 4B	00 00 01	??	F7
(1)	(2)	(3)	(4)	(5)	address	size	checksum	(6)

(1)Exclusive Status (2)ID (Roland) (3)Device ID (17)
(4)Model ID (GS) (5)Command ID (RQ1) (6)End of Exclusive

Next we calculate the checksum.

41H + 02H + 4BH + 00H + 00H + 01H = 65 + 2 + 75 + 0 + 0 + 1 = 143(sum)
143(sum) / 128 = 1(quotient) ... 15(remainder)
checksum = 128 - 15(remainder) = 113 = 71H

This means that F0 41 10 42 11 41 02 4B 00 00 01 71 F7 is the message we transmit.

● About tuning

In MIDI, individual Parts are tuned by sending RPN #1 (Master Fine Tuning) to the appropriate MIDI channel.

In MIDI, an entire device is tuned by either sending RPN #1 to all MIDI channels being used, or by sending a System Exclusive MASTER TUNE (address 40 00 00H).

RPN #1 allows tuning to be specified in steps of approximately 0.012 cents (to be precise, 100/8192 cent), and System Exclusive MASTER TUNE allows tuning in steps of 0.1 cent. One cent is 1/100th of a semitone.

The values of RPN #1 (Master Fine Tuning) and System Exclusive MASTER TUNE are added together to determine the actual pitch sounded by each Part.

Frequently used tuning values are given in the following table for your reference. Values are in hexadecimal (decimal in parentheses).

Hz at A4	cent	RPN #1	Sys.Ex. 40 00 00
445.0	+19.56	4C 43 (+1603)	00 04 0C 04 (+196)
444.0	+15.67	4A 03 (+1283)	00 04 09 0D (+157)
443.0	+11.76	47 44 (+ 964)	00 04 07 06 (+118)
442.0	+ 7.85	45 03 (+ 643)	00 04 04 0F (+ 79)
441.0	+ 3.93	42 42 (+ 322)	00 04 02 07 (+ 39)
440.0	0	40 00 (0)	00 04 00 00 (0)
439.0	- 3.94	3D 3D (- 323)	00 03 0D 09 (- 39)
438.0	- 7.89	3A 7A (- 646)	00 03 0B 01 (- 79)

<Example> Set the tuning of MIDI channel 3 to A4 = 442.0Hz

Send RPN#1 to MIDI channel 3. From the above table, the value is 45 03H.

B2	64 00	MIDI ch.3, lower byte of RPN parameter number	:00H
(B2)	65 01	(MIDI ch.3) upper byte of RPN parameter number	:01H
(B2)	06 45	(MIDI ch.3) upper byte of parameter value	:45H
(B2)	26 03	(MIDI ch.3) lower byte of parameter value	:03H
(B2)	64 7F	(MIDI ch.3) lower byte of RPN parameter number	:7FH
(B2)	65 7F	(MIDI ch.3) upper byte of RPN parameter number	:7FH

● The Scale Tune Feature (address : 40 1x 40)

The scale Tune feature allows you to finely adjust the individual pitch of the notes from C through B. Though the settings are made while working with one octave, the fine adjustments will affect all octaves. By making the appropriate Scale Tune settings, you can obtain a complete variety of tuning methods other than equal temperament. As examples, three possible types of scale setting are explained below.

❍ Equal Temperament

This method of tuning divides the octave into 12 equal parts. It is currently the most widely used form of tuning,
especially in occidental music. On PMA-5, the default settings for the Scale Tune feature produce equal temperament.

❍ Just Temperament (Keytone C)

The three main chords resound much more beautifully than with equal temperament, but this benefit can only be obtained in one key. If transposed, the chords tend to become ambiguous. The example given involves settings for a key in which C is the keynote.

❍ Arabian Scale

By altering the setting for Scale Tune, you can obtain a variety of other tunings suited for ethnic music. For example, the settings introduced below will set the unit to use the Arabian Scale.

Example Settings

Note name	Equal	Just Temperament (Keytone C)	Arabian Scale Temperament
C	0	0	- 6
C#	0	- 8	+45
D	0	+ 4	- 2
D#	0	+16	-12
E	0	-14	-51
F	0	- 2	- 8
F#	0	-10	+43
G	0	+ 2	- 4
G#	0	+14	+47
A	0	-16	0
A#	0	+14	-10
B	0	-12	-49

The values in the table are given in cents. Refer to the explanation of Scale Tuning on page $$$ to convert these values to hexadecimal, and transmit them as exclusive data.
For example, to set the tune (C-B) of the Part1 Arabian Scale, send the data as follows:
F0 41 10 42 12 40 11 40 3A 6D 3E 34 0D 38 6B 3C 6F 40 36 0F 50 F7

Personal Music Assistant
Model PMA-5
(Normal mode)

MIDI Implementation Chart

Date : Feb. 19, 1996
Version : 1.10

Function...		Transmitted	Recognized	Remarks
Basic	Default	1–16	1–16	
Channel	Changed	1–16	1–16	
Mode	Default	Mode 3	Mode 1 *1	
	Messages	x	x	
	Altered	**********		
Note Number :	True Voice	0–127	0–127	
		**********	0–127	
Velocity	Note ON	O *2	O	
	Note OFF	x	x	
After Touch	Key's	x	x	
	Ch's	x	x	
Pitch Bend		O	O	
Control Change	0	O	x	Bank select
	1	O	O	Modulation
	5	x	x	Portamento time
	6	O	x	Data entry
	7	O	O	Volume
	10	O	O	Panpot
	11	O	O	Expression
	64	x	O	Hold 1
	65	x	x	Portamento
	66	x	x	Sostenuto
	67	x	x	Soft
	84	x	x	Portamento control
	91	O	O (Reverb)	Effect 1 depth
	93	O	O (Chorus)	Effect 3 depth
	98, 99	x	x	NRPN LSB, MSB
	100, 101	O	x	RPN LSB, MSB
Prog Change	: True #	O	x	
		0–127	**********	Program number 1–128
System Exclucive		O	O	
System Common	: Song Pos	O	O (Sync=MIDI)	
	: Song Sel	O	O (Sync=MIDI)	
	: Tune	x	x	
System Real Time	: Clock	O	O (Sync=MIDI)	
	: Commands	O	O (Sync=MIDI)	
Aux Message	: All sound off	x	O * 3	
	: Reset all controllers	x	O	
	: Local ON/OFF	x	x	
	: All Notes OFF	x	O (123–127)	
	: Active Sensing	O	O	
	: System Reset	x	x	

Notes

* 1 Received channel voice messages are recognized as messages for currently selected track.
* 2 8 steps are available (24, 40, 55, 70, 85, 100, 114, 127).
* 3 It is only recognized as "All Notes Off".

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

Personal Music Assistant
Model PMA-5
(GM/GS sound module mode)

MIDI Implementation Chart

Date : Feb. 19, 1996
Version : 1.10

Function...		Transmitted	Recognized	Remarks
Basic	Default	1–16	1–16	
Channel	Changed	1–16	1–16	
Mode	Default	Mode 3	Mode 3	
	Messages	x	Mode 3, 4 (M≠1)	* 2
	Altered	**********		
Note Number :	True Voice	0–127	0–127	
		**********	0–127	
Velocity	Note ON	O * 3	O	
	Note OFF	x	x	
After Touch	Key's	x	O *1	
	Ch's	x	O *1	
Pitch Bend		O	O *1	
Control Change	0, 32	x	O *1	Bank select
	1	O	O *1	Modulation
	5	x	O *1	Portamento time
	6, 38	x	O *1	Data entry
	7	x	O *1	Volume
	10	x	O *1	Panpot
	11	x	O *1	Expression
	64	x	O *1	Hold 1
	65	x	O *1	Portamento
	66	x	O *1	Sostenuto
	67	x	O *1	Soft
	84	x	O *1	Portamento control
	91	x	O (Reverb) *1	Effect 1 depth
	93	x	O (Chorus) *1	Effect 3 depth
	98, 99	x	O *1	NRPN LSB, MSB
	100, 101	x	O *1	RPN LSB, MSB
Prog Change	: True #	x	O *1	
		**********	0–127	Program number 1–128
System Exclucive		O	O	
System Common	: Song Pos	x	x	
	: Song Sel	x	x	
	: Tune	x	x	
System Real Time	: Clock	x	x	
	: Commands	x	x	
Aux Message	: All sound off	x	O (120, 126, 127)	
	: Reset all controllers	x	O	
	: Local ON/OFF	x	x	
	: All Notes OFF	x	O (123–127)	
	: Active Sensing	O	O	
	: System Reset	x	x	
Notes		* 1 O x is selectable.		
		* 2 Recognize as M=1 even if M≠1.		
		* 3 8 steps are available (24, 40, 55, 70, 85, 100, 114, 127).		

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

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Specifications

PMA-5:Personal Music Assistant
(General MIDI System/GS Format)

● **Maximum Polyphony**
28 voices

● **Instruments**
306 normal tones + 16 drum sets

● **Effects**
Reverb (8 types)
Chorus (8 types)

● **Tracks**
Sequence: 4
Style: 4
Control: 2 (Chord, Style number)

● **Style Data**
Preset Styles
600 (100 x 6 division)

* *Division(Intro,Main A,Main B,Fill 1,Fill2,Ending)*

User Styles
200 (max)

* *These figures will vary depending on the actual conditions of use, because the memory for user styles is shared also with song track memory.*

•Style Length: 1—8 measures
•Chord Type: 26Types

● **Song Data**
Songs: 20(max)
Note capacities:approx.21000notes (max)

* *These figures will vary depending on the actual conditions of use, because the memory for song data is shared also with user style memory.*

Song Length: 1-999 measures

● **Resolution**
96 ticks per quarter note

● **Tempo**
Quarter note = 25 to 250

● **Time Signatures**
1/4-7/4, 1/8-12/8,1/16-15/16

● **Recording Methods**
Realtime
Step

● **Synchronization**
MIDI

● **Display**
Custom LCD with Touch Panel

● **Connectors**
Headphone/Line out Jack(stereo miniature phone type)
MIDI Connectors(In,Out)
Start/Stop Jack(miniature phone type)
Computer terminal
Computer Switch
AC Adaptor Jack(DC9V)

● **Power supply**
DC9V: Dry Batteries (LR6 (AA) Type) x 6
AC Adaptor BOSS PSA-120T,230G,240

● **Current Draw**
200 mA

* *Expected battery life under continuous use:*
Alkaline: 5hours

* *These figure will vary depending on the actual conditions of use.*

● **Dimensions**
123(W)x169(D)x34(H)mm
4-7/8(W)x6-11/16(D)x1-3/8(H)inches

● **Weight**
610 g
1 lb 6 oz (including batteries and cover)

● **Accessories**
AA type alkaline dry battery x 6
Owner's Manual
Quick Start Guide
Pocket Guide
Cover
Touch Pen (for operation)

● **Options**
AC Adaptor BOSS PSA-120T,230G,240
Footswitch BOSS FS-5U,DP-2
Computer Cables
RSC-15AT (for IBM PC/AT)
RSC-15APL (for Apple Macintosh)
PMA-5 PC Communication Kit PMA-5S/AT (for Windows)
PMA-5 PC Communication Kit PMA-5S/APL (for Macintosh)

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

For Nordic Countries

Apparatus containing Lithium batteries

ADVARSEL!
Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér 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.

ADVARSEL!
Lithiumbatteri - Eksplosjonsfare.
Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten.
Brukt batteri returneres apparatleverandøren.

VAROITUS!
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

For Europe

CE

This product complies with the requirements of European Directive 89/336/EEC.

For the USA

FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Unauthorized changes or modification to this system can void the users authority to operate this equipment.
This equipment requires shielded interface cables in order to meet FCC class B Limit.

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 Règlement des signaux parasites par le ministère canadien des Communications.

Information

When you need repair service, call your local Roland Service Station or the authorized Roland distributor in your country as shown below.

ARGENTINA
Instrumentos Musicales S.A.
Florida 638
(1005) Buenos Aires
ARGENTINA
TEL: (01) 394 4029

BRAZIL
Roland Brasil Ltda.
R. Coronel Octaviano da Silveira 203 05522-010
Sao Paulo BRAZIL
TEL: (011) 843 9377

CANADA
Roland Canada Music Ltd. (Head Office)
5480 Parkwood Way Richmond B. C., V6V 2M4 CANADA
TEL: (0604) 270 6626

Roland Canada Music Ltd. (Toronto Office)
Unit 2, 109 Woodbine Downs Blvd, Etobicoke, ON M9W 6Y1 CANADA
TEL: (0416) 213 9707

MEXICO
Casa Veerkamp, s.a. de c.v.
Av. Toluca No. 323 Col. Olivar de los Padres 01780 Mexico D.F.
MEXICO
TEL: (525) 668 04 80

La Casa Wagner de Guadalajara s.a. de c.v.
Av. Corona No. 202 S.J.
Guadalajara, Jalisco Mexico
C.P.44100 MEXICO
TEL: (03) 613 1414

PANAMA
Productos Superiores, S.A.
Apartado 655 - Panama 1
REP. DE PANAMA
TEL: 26 3322

U. S. A.
Roland Corporation U.S.
7200 Dominion Circle
Los Angeles, CA. 90040-3696,
U. S. A.
TEL: (0213) 685 5141

VENEZUELA
Musicland Digital C.A.
Av. Francisco de Miranda,
Centro Parque de Cristal, Nivel C2 Local 20 Caracas
VENEZUELA
TEL: (02) 285 9218

AUSTRALIA
Roland Corporation Australia Pty. Ltd.
38 Campbell Avenue
Dee Why West. NSW 2099
AUSTRALIA
TEL: (02) 982 8266

NEW ZEALAND
Roland Corporation (NZ) Ltd.
97 Mt. Eden Road, Mt. Eden,
Auckland 3, NEW ZEALAND
TEL: (09) 3098 715

HONG KONG
Tom Lee Music Co., Ltd. Service Division
22-32 Pun Shan Street, Tsuen Wan, New Territories, HONG KONG
TEL: 2415 0911

INDONESIA
PT CITRARAMA BELANTIKA
Kompleks Perkantoran Duta Merlin Blok E No.6—7
Jl. Gajah Mada No.3—5, Jakarta 10130,
INDONESIA
TEL: (021) 3850073

KOREA
Cosmos Corporation Service Station
261 2nd Floor Nak-Won Arcade Jong-Ro ku, Seoul, KOREA
TEL: (02) 742 8844

MALAYSIA
Bentley Music SDN BHD
No.142, Jalan Bukit Bintang 55100 Kuala Lumpur, MALAYSIA
TEL: (03) 2443333

PHILIPPINES
G.A. Yupangco & Co. Inc.
339 Gil J. Puyat Avenue
Makati, Metro Manila 1200,
PHILIPPINES
TEL: (02) 899 9801

SINGAPORE
Swee Lee Company
BLOCK 231,
Bain Street #03-23
Bras Basah Complex,
SINGAPORE 0718
TEL: 3367886

CRISTOFORI MUSIC PTE LTD
335,Joo Chiat Road SINGAPORE 1542
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Bangkok 10100, THAILAND
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BAHRAIN
Moon Stores
Bad Al Bahrain Road,
P.O.Box 20077
State of BAHRAIN
TEL: 211 005

IRAN
TARADIS
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P. O. Box 15875/4171 Teheran, IRAN
TEL: (021) 875 6524

ISRAEL
Halilit P. Greenspoon & Sons Ltd.
8 Retzif Ha'aliya Hashnya St.
Tel-Aviv-Yafo ISRAEL
TEL: (03) 6823666

JORDAN
AMMAN Trading Agency
Prince Mohammed St. P. O. Box 825 Amman 11118 JORDAN
TEL: (06) 641200

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Easa Husain Al-Yousifi
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TEL: 5719499

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A. Chahine & Fils
P.O. Box 16-5857 Gergi Zeidan St. Chahine Building, Achrafieh
Beirut, LEBANON
TEL: (01) 335799

OMAN
OHI Electronics & Trading Co. LLC
P. O. Box 889 Muscat
Sultanate of OMAN
TEL: 706 010

QATAR
Badie Studio & Stores
P.O.Box 62,
DOHA QATAR
TEL: 423554

SAUDI ARABIA
SAF Music Center
AL-Khobar 31952, P. O. Box 1366
SAUDIARABIA
TEL: (03) 898 3311

Abdul Latif S. Al-Ghamdi Trading Establishment
Al-Tamimi Commercial And Residential Center Al-Khobar Dharan Highway W/Hamood St.
P. O. Box 3631 Al-Khober 31952 SAUDI ARABIA
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Khaled Ebn Al Walid St.
P.O.Box 13520
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TEL: (011) 2235 384

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Siraselvier Cad. Guney Ishani No. 86/6 Taksim, Istanbul TURKEY
TEL: (0212) 2499324

U.A.E
Zak Electronics & Musical Instruments Co.
Zabeel Road, Al Sherooq Bldg., No. 14, Grand Floor DUBAI U.A.E.
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(02) 4185531

MAURITIOUS
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TEL: (011) 403 4105

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Republic of SOUTH AFRICA
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AUSTRIA
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Neu-Rum Siemens-Strasse 4
A-6040 Innsbruck P.O.Box 83
AUSTRIA
TEL: (0512) 26 44 260

BELGIUM/HOLLAND/ LUXEMBOURG
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Houtstraat 1 B-2260 Oevel-Westerlo BELGIUM
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CYPRUS
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Nicosia CYPRUS
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(02) 466 423

DENMARK
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FRANCE
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ZAC de Rosarge Les Echets 01700 MIRIBEL FRANCE
TEL: 7226 5060

Guillard Musiques Roland (Paris Office)
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GERMANY
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Oststrasse 96, 22844 Norderstedt, GERMANY
TEL: (040) 52 60090

GREECE
V. Dimitriadis & Co. Ltd.
20, Alexandras St. & Bouboulinas 54 St. 106 82 Athens, GREECE
TEL: (01) 8232415

HUNGARY
Intermusica Ltd.
Warehouse Area 'DEPO' Pf.83
H-2046 Torokbalint, HUNGARY
TEL: (01) 1868905

IRELAND
The Dublin Service Centre Audio Maintenance Limited
11 Brunswick Place Dublin 2
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TEL: (01) 677322

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Vershavskoe, Shosse, 27-1
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