YAMAHA

PF2000

ELECTRONIC PIANO

PIANO ELECTRONIQUE

ELECTRONIC PIANO

OPERATING MANUAL
MANUEL D'UTILISATION
BEDIENUNGSANLEITUNG

INTRODUCTION

Thank you for purchasing the Yamaha PF2000. The PF2000 uses the same type of FM tone generation system as the DX7II, with two banks of 16-note polyphony, and can take advantage of the numerous data cartridges on the market with pre-programmed sounds for the DX7II. Some of the many features of the PF2000 are ...

- 88-note keyboard with AE 'Action Effect' mechanism
- Twelve preset voices — piano, electric piano, harpsichord, vibes, clav and marimba
- Two 16-note polyphonic tone generators
- 6-operator advanced FM tone generation
- Cartridge interface to utilize DX7II and TX802 data
- Two-way stereo speakers (16 cm + 4 cm) driven by a 20W power amp
- Two-track recorder to record PF2000 keyboard playing
- Versatile MIDI reception/transmission functions
- Four-stage sustain pedal (FC-8 or equivalent is required)

PRECAUTIONS

A. Always grip the plug directly when disconnecting the power cord from an AC outlet. Disconnecting power by pulling on the cord can result in damage to the cord and possible a short circuit.

B. If necessary, clean the product using a slightly damp cloth, and dry with a soft cloth. Never use solvents (such as benzine or thinner) since they can melt or discolor the finish.

C. Yamaha Digital Musical Instrument products utilize computer circuitry that is sensitive to voltage spikes. For this reason, the unit should be turned off and unplugged from the AC outlet in the event of an electrical storm. This precaution will avoid the possibility that a high voltage spike caused by lightning will damage the unit.

D. Avoid rough handling, such as applying excessive force to the switches or dropping the unit.

E. Some Yamaha Digital Musical Instrument products utilize external cartridges or disks for data storage. When inserting a cartridge or disk, make sure it is facing the correct way, and do not use excessive force.

F. Avoid placing the unit in direct sunlight, or in locations where the unit is likely to be subjected to vibration, excessive dust, cold or moisture.

G. Some Yamaha Digital Musical Instrument products utilize a memory backup battery which has a life of approximately 5 years. An error message will indicate when the battery is low, so have it replaced by authorized Yamaha service personnel.

Please also read the Safety and Installation Instructions at the back of the manual.

SUPPLEMENTAL MARKING INFORMATION

This information on safety is provided to comply with U.S.A. laws, but should be observed by users in all countries.

Yamaha Digital Musical Instrument Products will have either a label similar to the graphic shown below or a molded/stamped facsimile of the graphic on its enclosure. The explanation of these graphics appears on this page. Please observe all cautions indicated.

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

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

TABLE OF CONTENTS

SPECIFICATIONS

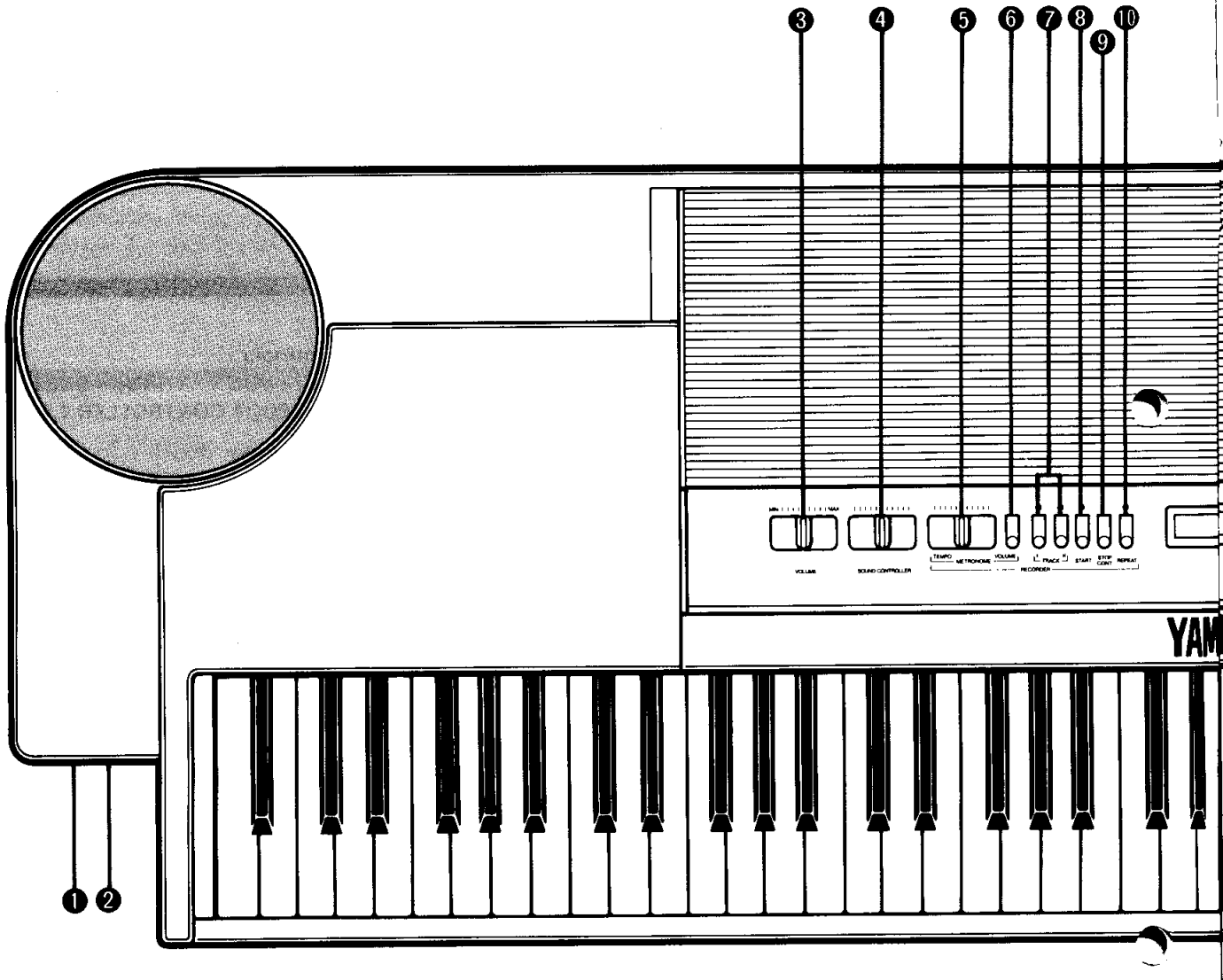
- **Tone Generator**
  16-note polyphonic 6 operator FM x 2
- **Amp/Speakers**
  Pair of 4 cm + 16 cm speakers, 20 W x 2 power amp
- **Sliders**
  VOLUME, SOUND CONTROLLER, TEMPO
- **Switches**
  VOLUME (metronome), TRACK I/II, START, STOP/CONTINUE, REPEAT, VOICE SELECT 1–0, DEC, INC, CARTRIDGE, VARIATION, FUNCTION
- **Display**
  Illuminated 20-character 2-line Liquid Crystal Display
- **Recorder**
  2-track (each track 16-note polyphonic), approx. 2600 notes, Timing resolution: 96 clocks/beat (internal clock), 24 clocks/beat (MIDI clock)
- **Control Terminals**
  MIDI (IN, OUT, THRU), SUSTAIN, FOOT SWITCH, FOOT CONTROLLER 1,2.
- **Audio Output**
  PHONES x 2, OUTPUT A, B (–10dBm), MONO OUT (–10dBm)
- **Audio Input**
  LINE INPUT A/MONO, B (–10dBm)
- **Power Requirements**
  U.S. and Canadian models: 120 V, 50/60 Hz
  General model: 110-120 V/220-240 V, 50/60 Hz
- **Power Consumption**
  60 W
- **Dimensions (W x D x H)**
  1470 x 470 x 147 mm
  (57-7/8" x 18-1/2" x 5-3/4")
- **Weight**
  39 kg (85 lb 13 oz)

The separately available LG-PF2000 stand is designed to complement the good looks of the PF2000, and has two foot switches of the correct type built in. Also available is a matching seat, the CH-PF2000.


LG-PF2000


CH-PF2000

FRONT PANEL



❶ **CARTRIDGE:** Insert the included data cartridge here, label up. The PF2000 can also use cartridges intended for the DX1/5/7, DX7II and TX802.

❷ **HEADPHONES:** For private listening, a set of standard stereo headphones can be plugged into a HEADPHONE jack at the lower left of the front panel. Two headphone jacks are provided.

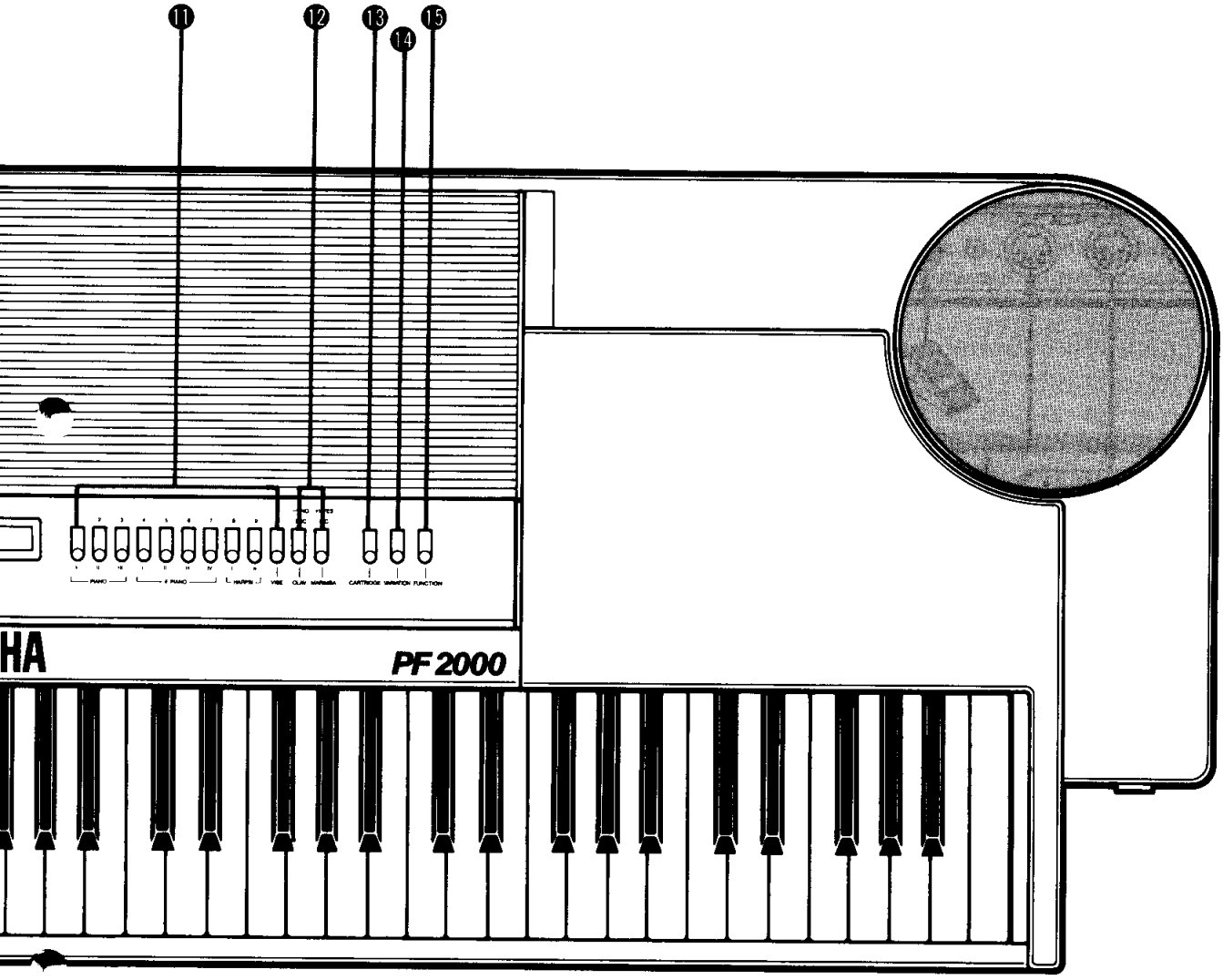
❸ **MASTER VOLUME SLIDER:** This controls the volume of the PF2000 built-in speakers and the signal sent from the rear panel Line Outputs. (It does not transmit MIDI volume control messages.)

❹ **SOUND CONTROLLER SLIDER:** When playing the 12 preset sounds, this slider controls the tone color. (The effect is different for each preset as explained on page 5.) When playing cartridge sounds, this slider acts as CS2. (The effect will depend on how the cartridge data is programmed. Page 6 has details for the cartridge included with the PF2000.)

❺ **TEMPO SLIDER:** The tempo of the built-in recorder can be adjusted over a range of 40 – 300 beats per minute. (You can check the exact tempo using F5 Tempo (page 9).

❻ **METRONOME VOLUME:** Repeatedly press this switch to adjust the volume of the built-in metronome; Off → Low → Medium → High → Off.

❼ **TRACK SELECT I, II:** Repeatedly press these switches to set the condition of tracks I and II; Off → Play → Record → Off. (You can record on only one track at a time, and a track containing no data cannot be played.)



❽ **START:** Press this switch to begin playback or recording from the beginning of the track. (When recording, there will first be a two-measure count-in.)

❾ **STOP/CONTINUE:** Press this switch to stop playback or recording, and press again to continue playback from where you stopped.

❿ **REPEAT:** When Repeat is On (indicated by the LED), tracks will play back over and over. (Repeat will not function when recording.)

⓫ **VOICE SELECT:** In Preset Play mode, these switches select preset sounds 1 – 10. In Cartridge Play mode, switches 1 – 0 are used to enter a two-digit number to select a voice or performance from a cartridge. In Function mode, switches 1 – 0 are used to select functions.

⓬ **DEC/INC:** In Preset Play mode these switches select preset sounds 11 and 12. In Cartridge Play mode they select the next (INC) or previous (DEC) performance or voice from a cartridge. In Function mode they change data values.

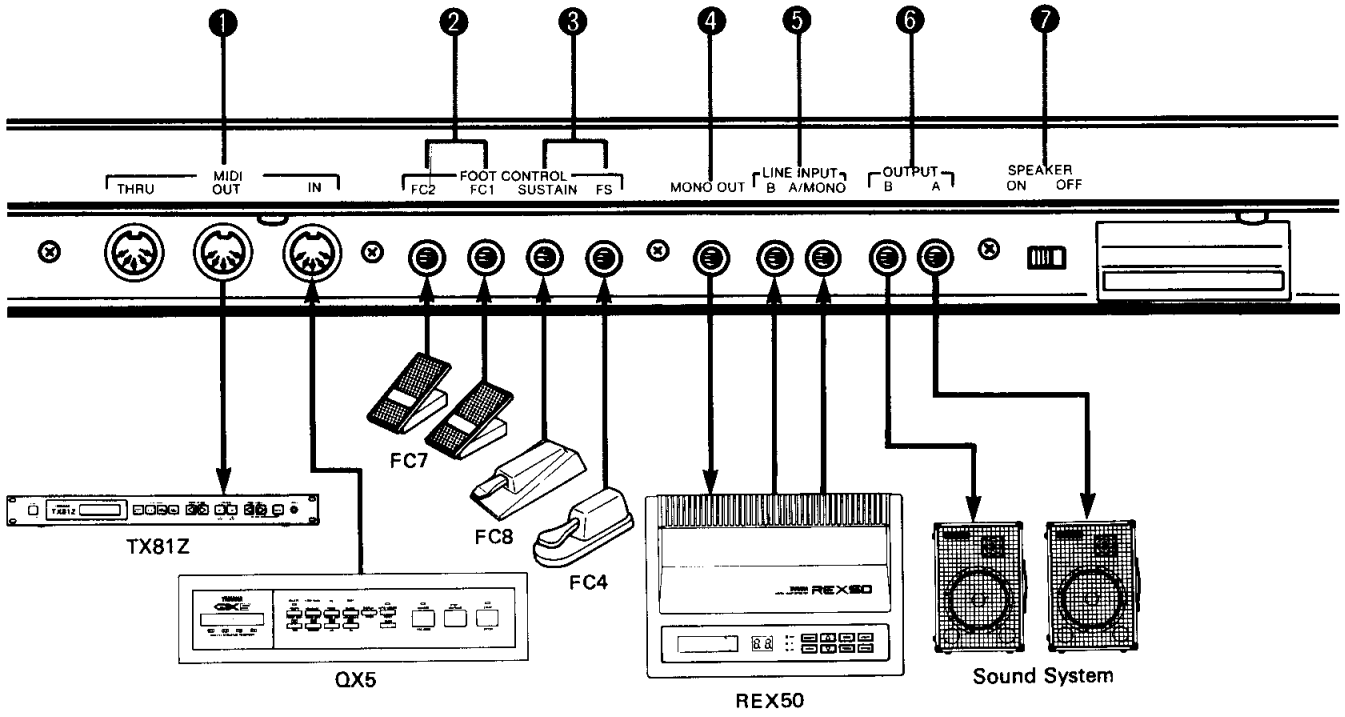
⓭ **CARTRIDGE:** Switch between Preset Play mode and Cartridge Play mode.

⓮ **VARIATION:** In Preset Play mode, press this switch to add a variation or effect to each of the 12 preset sounds. In Cartridge Play mode press this switch to view either the Performance Name or the two Voice Names in the performance.

⓯ **FUNCTION:** Press this switch to go between Play mode and Function mode.

CONNECTIONS (REAR PANEL)

To play the PF2000, all you need to do is connect the FOOT SWITCH and SUSTAIN pedals. The other connections are for more advanced uses.



❶ **MIDI:** Musical Instrument Digital Interface (MIDI) jacks are found on most electronic instruments today. MIDI-equipped devices can send and receive messages to control and be controlled by each other. For details, see F8 MIDI Reception (page 10) and F9 MIDI Transmission (page 11). MIDI Applications (page 12) has some examples of how to use the PF2000's MIDI capability.

❷ **FOOT CONTROLLER:** You can connect continuous-type foot controllers such as the FC7 to the FC1 and FC2 jacks to control the sound as explained in F3 Foot Controller, page 8.

❸ **FOOT SWITCH and SUSTAIN:** The LG-PF2000 stand is specially designed and styled for use with the PF2000, and has two foot pedals of the correct type built in — an on/off type for the FOOT SWITCH and a special four-stage type for SUSTAIN.

If you are using the LG-PF2000 stand, connect the 2-conductor plug (grey) to the FS jack, and connect the 3-conductor plug (black) to the SUSTAIN jack.

If you are *not* using the LG-PF2000 stand, connect a FC4 or FC5 foot switch to the FS jack, and connect a FC8 foot switch to the SUSTAIN jack. (Conventional On/Off foot switches such as the FC4 or FC5 can also be used for SUSTAIN, but when the FC8 is used, you can take advantage of the PF2000's four-stage sustain feature to regulate the amount of sustain by how deeply you press the foot switch.)

❹ **MONO OUT:** This is a mono output especially suitable for driving an external reverb or effects unit. The reverb or effects signal can be returned to the LINE INPUTS to add spacious ambience to the PF2000's sound.

❺ **LINE INPUT A/MONO, B:** An audio source can be connected to these inputs to be heard over the PF2000 internal speakers. This can be useful when playing along with a recording, or using the PF2000 amp/speaker system to play an additional instrument that has no speaker of its own. You could also use these inputs to return the signal from a stereo reverb or effects unit such as the REX50. (Connect the PF2000 MONO OUT to the effect device's audio input.) Using the Line Input will not affect the PF2000 sound.

❻ **OUTPUT A,B:** The PF2000 has its own built-in stereo two-way amp/speaker system, but you can also connect the OUTPUT A,B terminals to your own external amp/speaker system.

❼ **SPEAKER ON/OFF:** If desired, you can switch off the PF2000 internal speakers using the SPEAKER switch. This can be useful when using an external amp/speaker system.

INTRODUCING THE PF2000

PRESET PLAY MODE — Normally playing the PF2000 (page 5)
This is where you press voice select switches 1 – 0, DEC and INC to select the 12 internal preset sounds (Piano 1 – 3, E.Piano 1 – 4, Harpsi 1 – 2, Vibe, Clav and Marimba).

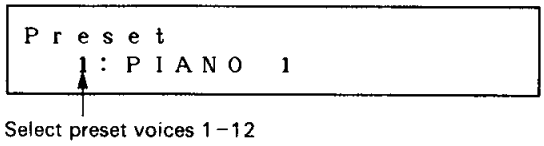
CARTRIDGE PLAY MODE — Using data cartridges (page 6)
You can use data cartridges from the DX7II synthesizer and TX802 tone generator. Preset voice cartridges (ROM cartridges) for these instruments are available from Yamaha and other companies. You can use the PF2000 to play these sounds. (Voice data cartridges for the original DX7 can also be used, but since they are a different size, you will need the ADP1 Cartridge Adaptor.)

FUNCTION MODE — Making various settings (page 7)
This is where you make settings for Tuning, Transpose, Cartridges, Foot Switches, Recorder and MIDI.

RECORDER — Record and play back keyboard performances (page 12)
While in any of the above three modes, you can use the PF2000's built-in Recorder to record and play back your keyboard performances on two independent tracks.

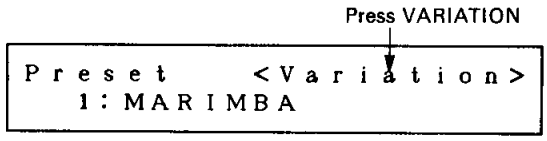
PRESET PLAY MODE

This is the simplest way to use the PF2000 — play the 12 internal preset voices. Press the voice select switches PIANO 1 – MARIMBA to select voices. The LCD will show the selected voice name.



VARIATION and SOUND CONTROLLER

Each of the 12 internal preset voices has a tone variation which can be switched on by pressing VARIATION. The LCD will show " < Variation > ".



The front panel SOUND CONTROLLER slider and a continuous-type foot controller (FC7) connected to the rear panel FC1 or FC2 jack will modify the sound as explained below. The effect is different for each of the 12 preset voices.

The PF2000 will remember Sound Controller settings, Foot Controller settings and Variation on/off for each of the 12 internal preset voices even when the power is turned off. To reset these to their factory settings, turn the PF2000 power on while pressing FUNCTION.

VOICE	DESCRIPTION	VARIATION	SOUND CONTROLLER	FOOT CONTROLLER*
1. PIANO 1	Solid grand piano	Detuned honkey-tonk	Middle frequencies	Detune
2. PIANO 2	Soft upright piano	Harder and brighter	Brightness	Detune
3. PIANO 3	Bright electric grand	Rounder, with chorus	Tone	Detune
4. E PIANO 1	FM electric piano	Automatic stereo pan	Brightness	Detune
5. E PIANO 2	Muted electric piano	Automatic stereo pan	High overtones	High overtones
6. E PIANO 3	Spacious electric piano	More attack	High overtones	Detune
7. E PIANO 4	Bright electric piano	Automatic stereo pan	High overtones	Middle frequencies
8. HARPSI 1	Large harpsichord	1 Octave up	Cut low frequencies	Cut harmonics
9. HARPSI 2	Small harpsichord	Chorus effect	Adds low frequencies	Tone
10. VIBE	Vibes hard mallet	Automatic stereo pan	Panning speed	Detune
11. CLAV	Funky clavinet	Brass-like attack	High overtones	Middle frequencies
12. MARIMBA	Standard marimba	Feedback echo effect	Attack rate	Attack rate

Note*:
The Foot Controller must be assigned to "Sound Controller 2"; see F3 Foot Controller, page 8.)

CARTRIDGE PLAY MODE

In addition to its own 12 internal preset voices, the PF2000 can also use voice and performance data from cartridges for the DX7II, and voice data from cartridges for the TX802 tone generator. (A cartridge especially programmed for the PF2000 is included.) Insert a cartridge in the slot on the lower left side of the PF2000 (making sure it is facing the correct way — label up), and press the CARTRIDGE switch. You can select either Performances or Voices from the cartridge, depending on the setting made in F2 Cartridge Select (page 7.) Cartridges for the DX1/5/7 contain only Voice data, and you will need to use an ADP-1 cartridge adaptor to insert this type of cartridge into the PF2000 cartridge slot.

CARTRIDGE PERFORMANCE SELECT

When you have specified "Performance" for F2 Cartridge Memory Select (page 7), you can select Performances from the cartridge. A Performance is a combination of one or two voices (sounds). Each cartridge has 32 Performances. Use the switches 0 – 9 to enter a two-digit number from 01 to 32. For example if you wanted to select Performance #9, you would press 0 , then 9 . You can also press DEC/INC to step down/up through the Performances.

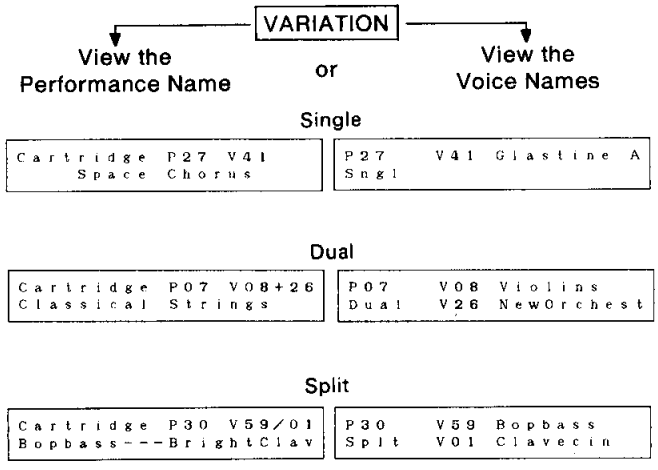
There are three types of Performance;

Single: One voice is used.

Dual: Two voices are used across the entire keyboard.

Split: Two voices are used for separate areas of the keyboard.

By pressing the VARIATION switch, you can view either the Performance Name or the Voice Names. Page 14 has a list of the Performances in the data cartridge included with the PF2000.



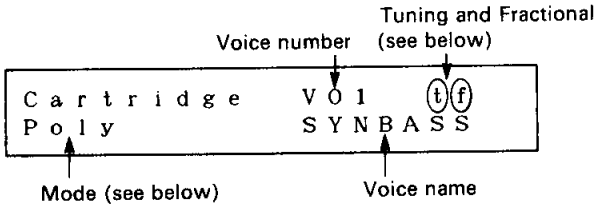
When playing Single performances (or individual Voices, see below), the PF2000 will produce up to 32 notes at once. (You will seldom be playing 32-note chords, but the extra notes are often needed to let piano-type sounds decay gradually when sustained.)

When playing Dual or Split performances, the PF2000 will produce up to 16 notes at once. (The 12 preset voices inside the PF2000 are actually Dual performances, which means that you have 16-note polyphony.)

A "t" and/or "f" in the LCD (when viewing the Voice names) means that the PF2000 was not able to find the Micro Tuning and/or Fractional Scaling required by the voice. See "Tuning and Fractional", below.

CARTRIDGE VOICE SELECT

When you have specified "Voice" for F2 Cartridge Memory Select (page 7), you can select individual Voices from the cartridge. Each cartridge has 64 Voices. (Cartridges for the DX1/5/7 have 32 voices.) Use the switches 0 – 9 to enter a two-digit number from 01 to 64. For example if you wanted to select Voice #61, you would press 6 , then 1 . You can also use the DEC/INC switches to step down/up through the Voices.



Tuning and Fractional

Some voices use additional data — "Fractional Key Scaling" and/or "Micro Tuning" data — which is contained in another bank of the cartridge. However, you must tell the PF2000 which cartridge bank contains each type of data (see F7 Cartridge Bank Select, page 10). If the PF2000 cannot find the data it wants in the cartridge bank you specified, it will look through banks 1-16 for data of the appropriate format. If such data is not found, it will display the "t" and/or "f" marks to remind you to specify the correct cartridge bank.

Mode

Most voices use "Poly" (polyphonic) mode, but there are also the following tnree special cases.

Mono: Many natural instruments (wind instruments, etc.) can only produce a single note at once. Mono mode helps you imitate this by sounding only the last note you press. Some mono mode voices use Finger Portamento, where the sound will smoothly "glide" to a note you play while still holding the previous note.

U.Poly: Unison Poly voices make a thick, rich sound by producing four notes (slightly detuned) for each note that

you play. (Which of course means that you will be able to play only a fourth as many simultaneous notes.)

U.Mono: Unison Mono voices make a thick, rich sound in the same as Unison Poly, but are otherwise the same as explained in Mono.

OTHER CARTRIDGES

In addition to the cartridge included with the PF2000, you can use cartridges intended for the following instruments.

DX7II/DX7S:	Voice and performance data.
TX802:	Voice data only.
DX1/5/7:	Voice data only. (Use the ADP-1 cartridge adaptor.)

FUNCTION MODE

This is where you make various settings for the PF2000. Press the FUNCTION switch, then press switches 1 – 0 to select functions 1 – 0. Each switch has several functions — repeatedly press the switch to cycle through the functions. To go back to Play mode, press FUNCTION again.

Some functions are accessible only when you enter Function mode from either Preset or Cartridge play mode. If you try to select an inaccessible Function, you will get an error message.

Use the DEC/INC switches to change the setting for each Function.

TUNING/TRANSPOSE (F1)

[F1] Master Tuning

This is the master tuning for the entire PF2000. The tuning of A3 is adjustable over a range of −64 – +63 steps (one step is about 1.17% of a chromatic step).

[F1] Transpose

You can transpose the keyboard over a range of 2 octaves. The LCD shows the note that is produced when you play middle C on the keyboard. (When used in cartridge mode, this affects both voices A and B equally.)

CARTRIDGE MEMORY/TOUCH CURVE (F2)

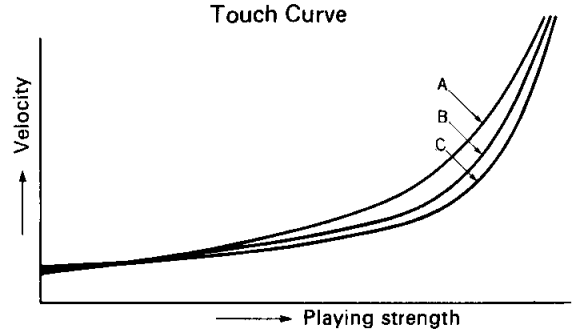
[F2] Cartridge Memory Select
(only from Cartridge mode)

This determines whether you will be selecting Performances or Voices in Cartridge Play mode. Select "performance" or "voice".

[F2] Touch Curve Select
(only from Cartridge mode)

You have three choices of how the keyboard responds to your touch. Select the Touch Curve most suitable for your playing style.

Touch Curve "C" is especially suitable when playing voices from a DX7II cartridge.



Note: Preset voices always use curve A.

FOOT SWITCH (F3)

These settings determine the function of Foot Controllers and Foot Switches connected to the PF2000 rear panel. (Page 13 has a diagram of the MIDI output of the Foot Controllers and Foot Switches in the various modes.)

[F3] Foot Switch
(only from Preset mode)

This determines the function of an On/Off switch (such as the FC4 or FC5) connected to the rear panel FS jack. Select Soft or Key Hold.

Soft: When you press the foot switch, the overall tone will become softer (depending on the Intensity setting, below).

Key Hold: Notes pressed at the moment you press the foot switch will be held as long as you continue pressing the foot switch, but further notes will not be held (even if

you re-play a sustaining note). For example, you could use this to sustain a bass note and play staccato over it.

[F3] Soft Pedal
(only from Preset mode)

This determines the intensity of the Soft pedal effect (0 – 7). An intensity of 7 will make a great difference in the tone when the foot switch is pressed. (This setting is meaningful only when the Foot Switch is set to "Soft". See above.)

[F3] Foot Controller 1
(only from Preset mode)

A continuous-type pedal controller (such as the FC7) can be connected to the rear panel FC1 jack, and assigned to one of the following functions.

Volume: The Foot Controller will regulate the volume of the PF2000.

MIDI Volume: The Foot Controller will transmit MIDI Volume Control messages from the MIDI OUT terminal.

Sound controller: The Foot Controller will have the same effect as the front panel SOUND CONTROLLER slider.

Sound controller 2: The Foot Controller will affect the voice as explained on page 5 (preset voices) and page 14 (cartridge voices).

[F3] Foot Controller 2
(only from Preset mode)

This is the same as explained above, but for the FC2 jack. Since the two pedals are set independently, you could use one to control the volume of the PF2000 and the other to control the volume of a tone generator connected to MIDI OUT. (See MIDI Applications, page 12.)

VOICE FUNCTIONS (F4)

These four functions are set independently for each of the 12 internal preset sounds. Settings you make will apply to the internal preset that you are now playing, and will be remembered even when the power is turned off.

These settings can be made only when entering Function mode from Preset mode.

[F4] Micro Tuning

In addition to the standard "Equal Temperament", the PF2000 can use various non-standard tunings. When your PF2000 left the factory, the Werckmeister tuning was selected for HARPSI 1 and 2. Equal Temperament was selected for all other preset voices.

Selectable micro tuning means that you could play Bach's "Well Tempered Clavier" using the tuning for which it was written — Werckmeister.

You can select one of the following 12 tunings for each preset voice.

Stretched Tuning: The standard piano tuning used for acoustic pianos, where the higher range is tuned slightly sharper, and the lower range is tuned slightly flatter than the standard Equal Temperament (see below). For complex reasons, this makes a piano sound "better".

Equal Temperament: The "compromise" tuning used for most of the last 200 years of Western music, and found on most electronic keyboards. Each semitone is exactly 1/12 of an octave, and music can be played in any key with equal ease. However, none of the intervals are perfectly in tune.

Pure Major (C...B): This tuning is designed so that most of the intervals (especially the major third and perfect fifth) in the major scale are pure. (This means that other intervals will be correspondingly out of tune.) You need to specify the key (C – B) you will be playing in.

Pure Minor (A...G#): The same as Pure Major, but designed for the minor scale.

Mean Tone (C...B): This is an adjustment of the Pure and Pythagorean tunings. The interval between the root and fifth is tuned slightly flat, so that the interval between the root and second degree is exactly halfway between a major and minor pure second — i.e., an average, or "mean".

Pythagorean (C...B): This scale is derived by tuning pure perfect fifths upward from the root. This causes the octave to be flat, so one of the fifths is mistuned to compensate. (In the key of C, the A♭ – E♭ interval).

Werckmeister: Andreas Werckmeister, a contemporary of Bach, designed this tuning so that keyboard instruments could be played in any key. Each key has a unique character.

Kirnberger: Johann Philipp Kirnberger, the author of "The Art of Pure Strings In Music" (1774), was also concerned with tempering the scale to allow performances in any key.

Vallotti & Young: Francescantonio Vallotti and Thomas Young (both mid-1700s) devised this adjustment to the Pythagorean tuning in which the first six fifths are lower by the same slight amount.

1/4 Shifted equal temperament: The Equal Tempered scale shifted upward one quarter step.

1/4 tone: Twenty-four equally spaced notes per octave. (Play twenty-four notes to move one octave.)

1/8 tone: Forty-eight equally spaced notes per octave. (Play forty-eight notes to move one octave.)

DX7II cartridges contain two additional tunings "user 1" and "user 2". When in cartridge mode, these two tunings will also be selectable. The effect will depend on the data in the cartridge.

[F4] Output Level

This is the volume (0 – 99) of the currently selected preset voice. Every time you select the voice you are now playing, this output level will be set.

[F4] Touch On/Off

You can specify whether the PF2000 keyboard will be touch-responsive or not when you select the voice you are now playing. When set to "Touch: off", every note you play will be sounded Mezzo Forte no matter how strongly you play. (MIDI Note On messages that the keyboard sends will all have a velocity of 64.) However, the voice will obey the dynamics of MIDI Note On messages received at the MIDI IN terminal.

[F4] Program Change

You may specify a MIDI Program Change message (off or 1 – 128) to be transmitted each time you select the voice you are now playing. If "Off" is selected, no Program Change message will be sent.

This function can be useful if you connect the MIDI OUT of the PF2000 to the MIDI IN of a tone generator (such as the TX802 or TX81Z), and "layer" the PF2000 voices with complementary sounds from the tone generator. For details, see MIDI Applications, page 12.

In cartridge play mode, the MIDI program change transmitted by the PF2000 is fixed. Selecting cartridge performances 1 – 32 will transmit MIDI program change 33 – 64, and selecting cartridge voices 1 – 64 will transmit MIDI program change 65 – 128. (This is the same for MIDI program change reception.

Note:

By turning the PF2000 power On while pressing the FUNCTION switch, you can reset all the Voice Function data (i.e. all settings in F4), Variation on/off and Sound Controller settings (page 5) to the factory settings. (The Voice Function settings you made will be erased.) This will also erase both tracks of the recording (page 12).

SEQUENCE RECORDER (F5)

These six functions are settings for the PF2000's built-in Sequence Recorder. Page 12 tells you how to use the Sequence Recorder.

[F5] Tempo

Here you can use the DEC/INC switches or the TEMPO slider to set the Tempo of the Sequence Recorder over a range of 40 – 300 beats (quarter notes) per minute. (You can use the TEMPO slider to set the Recorder tempo without entering this Function, but this Function lets you see the precise tempo setting.)

[F5] Beat/Measure

Select a time signature for the metronome from 1/4 – 8/4. (I.e., the metronome will give a higher beep after every "n" beats.)

[F5] Clock

Normally, the PF2000 Recorder will keep time using its own Internal clock (timing source). However, by setting "Clock: MIDI", you can make the PF2000 playback and record in synchronization with an external sequencer or rhythm machine connected to the PF2000 MIDI IN. For details, see MIDI Applications, page 12.

[F5] Ignore Program Changes

The PF2000 Recorder remembers program changes (voice or performance selections) you make while recording, and when playing back, will switch programs just as you did while recording. If you don't want programs to change during playback, set "Ignore prg chnge: on".

[F5] Free Area

This function lets you see what percent of the Recorder memory is free. The PF2000 Recorder will remember about 2600 notes. Recording with Touch Off (see F4 Touch) is somewhat more efficient. Faster tempos will use up memory more rapidly. Using continuous controller pedals while recording uses memory very rapidly.

[F5] Metronome

You can select when the metronome will be heard — during Recording, Recording and Playback, or Always. (The metronome volume is controlled by the METRONOME VOLUME switch as explained on page 2.)

CARTRIDGE (F6)

You can use a RAM4 cartridge (sold separately) to store recordings you have made using the PF2000 sequence recorder. The RAM4 cartridge has only a single bank, and will accomodate only a single recording, but future RAM cartridges may have up to 16 banks, for storing 16 recordings.

The cartridge included with the PF2000 has a sample recording in bank 4. To load it into the PF2000 recorder memory, set the Cartridge Bank for Sequence data to "4" (see F7 Bank Select), and use the "Load sequence data" function explained below. This sample recording has two tracks, each with a sequence of different songs. Use the track select switches to select *either* track I or II for playback. Track I contains classical pieces and track II contains popular pieces. Program changes in the songs will automatically select appropriate voices for each piece from bank 1, so make sure that Bank Select for [F7] Voice and Performance (page 10) is set to 1.

[F6] Load sequence data from cartridge

To load sequence data from the cartridge into the PF2000 recorder memory, press YES. The LCD will ask "Sure?", so if you are sure that you want to load data into the recorder memory, press YES again. *This will erase whatever data was previously in the recorder memory.*

When loading is complete, the LCD will show "Completed!". If no cartridge is inserted or if a non-existant cartridge bank (see F7 Bank Select) has been selected, you will get an error message "Not ready!". If the cartridge bank selected for "Sequence" does not contain recorder data, you will get an error message "Format error!".

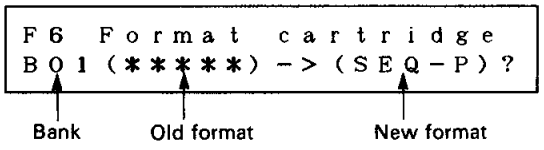
[F6] Save sequence data to cartridge

To save sequence data from the PF2000 recorder into a RAM cartridge, press YES. (Check to see that the Protect switch on the cartridge is set to "Off".) The LCD will ask "Sure?", so if you are sure that you want to save sequence data into the cartridge, press YES again. *This will erase whatever sequence data was previously in that bank of the cartridge.*

When saving is complete, the LCD will show "Completed!". If no cartridge is inserted or if a non-existant cartridge bank (see F7 Bank Select) has been selected, you will get an error message "Not ready!". If the protect slider on the cartridge is set to "On", you will get an error message "Protected!". If the cartridge bank selected for "Sequence" does not contain recorder data, you will get an error message "Format error!".

[F6] Format cartridge for sequence data

Before a RAM4 cartridge can be used, it must be Formatted to accept PF2000 sequence data. The LCD will show the type of data currently in the cartridge bank you specified for Sequence data (see F7 Bank Select). Formatting will erase the old data in that cartridge bank. After making sure that you don't need the old data, press YES.

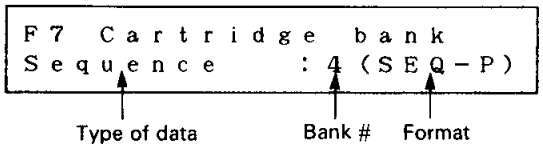


The LCD will ask "Sure?", so if you are sure you want to Format that cartridge bank, check that the Protect switch on the cartridge is set to "Off" and press YES.

When formatting is completed, the LCD will show "Completed!". If no cartridge is inserted, you will get an error message "Not ready!". If the protect slider on the cartridge is set to "On", you will get an error message "Protected!".

BANK SELECT (F7)

The RAM4 data cartridge has only a single bank, but future RAM cartridges may have up to 16 banks, each of which contains independent data. This "Bank Select" setting tells the PF2000 where to look for each type of data.



"Format" indicates the type of data in the selected bank. "SEQ-P" is the type of sequence data used by the PF2000 recorder. "*****" indicates that no cartridge is inserted. "unfmt" indicates that the PF2000 cannot recognize the format of the cartridge. (See F6 Format, on this page.)

The ROM preset cartridge included with the DX7II has 4 banks, with the following data in each.

Bank 1: 64 Voices + 32 Performances (data list on page 14)
Bank 2: 64 Voices + 32 Performances (data list on page 15)
Bank 3: Fractional Scaling data used by voices in banks 1 and 2
Bank 4: Demonstration data for the Recorder

[F7] Sequence

The PF2000 will look for Sequence data in this cartridge bank. (When loading the demonstration sequence from the included cartridge, set this to bank 4.)

[F7] Voice & Performance

The PF2000 will look for Voice and Performance data in this cartridge bank. (When playing Voices or Performances from the included cartridge, set this to bank 1 or 2.)

[F7] Fractional Scaling

The PF2000 will look for Fractional Scaling data in this cartridge bank. (Fractional Scaling data is used by some voices in the included cartridge.)

[F7] Micro Tuning

The PF2000 will look for Micro Tuning data in this cartridge bank. (None of the voices in the included cartridge use Micro Tuning data.)

MIDI RECEPTION (F8)

These four functions determine how the PF2000 deals with MIDI data coming into the MIDI IN terminal. MIDI Applications on page 12 has some examples of how to take advantage of the PF2000's MIDI capabilities.

[F8] Receive Channel
(only from Preset mode)

This sets the MIDI channel (off, 1 – 16) that will control the PF2000 when in Preset mode. (Changing this will automatically change the Receive Channel for Voice A, below.)

[F8] Receive Channel for Voice A
(only from Cartridge mode)

This sets the MIDI channel (off, 1 – 16) that will control Voice A when in Cartridge mode. (Changing this will automatically change the Receive Channel, above.)

[F8] Receive Channel for Voice B
(only from Cartridge mode)

This sets the MIDI channel (off, 1 – 16) that will control Voice B when in Cartridge mode.

[F8] Omni Mode On/Off

When Omni is On, the PF2000 will respond to incoming MIDI messages of any channel, regardless of the above three Receive Channel settings.

MIDI TRANSMISSION (F9)

These five functions determine how the PF2000 transmits data from the MIDI OUT terminal. MIDI Applications on page 12 has some examples of how to take advantage of the PF2000's MIDI capabilities.

[F9] Transmit Channel

This determines the channel number (off, 1 – 16) of the MIDI messages transmitted by the PF2000's keyboard and pedals. If "off" is selected, the PF2000's keyboard and pedals will not transmit MIDI messages.

[F9] Transmit channel of TR1

This determines the channel number (off, 1 – 16) of the MIDI messages transmitted by Track I of the built-in recorder. When set to 1 – 16, the recorder will transmit MIDI messages from the MIDI OUT terminal *instead of* playing the PF2000's built-in tone generator.

[F9] Transmit channel of TR2

The same as above for Track II of the built-in recorder.

[F9] Local On/Off

When Local is Off, the PF2000's keyboard and pedals will still transmit messages from MIDI OUT, but will not sound the PF2000's internal tone generators. However, selecting a Voice or Performance from the PF2000 front panel will still transmit a MIDI Program Change message (and re-select the internal voice), and MIDI Program Change messages received at MIDI IN will still select PF2000 Voices or Performances.

[F9] Merge On/Off

When Merge is On, messages received at MIDI IN will be re-transmitted from MIDI OUT along with the messages coming from the PF2000 keyboard and pedals.

SEND PROGRAM CHANGE (F0)

If you have an external tone generator connected to the PF2000's MIDI OUT, you may wish to send a Program Change message without changing the PF2000's voice. In this function, you can use the 1 – 0 switches to transmit a three-digit number 1 – 128. For example, if you wanted to set the external tone generator to program number 32, you would press 0, 3, 2. A Program Change #032 message will be transmitted from MIDI OUT, but the PF2000's voice will stay the same.

RECORDER

The PF2000 has a built-in recorder with a capacity of about 2600 notes, handy when practising or working out compositional ideas. For example, you could record a difficult phrase slowly, and play it back up to speed to see how it sounds. Or you could separately record each hand of a difficult piece. Or you could change the PF2000 voices while playing back a song.

The recorder has two tracks — I and II. Each can be recorded and played back independently. (You cannot record on both tracks at once.) Press the track switches I or II to set them Off → Play (green) → Record (red) → Off.

Green (play)	Green (play)
Red (record)	Red (record)
o	o
I	II

If there is no data in a track, it cannot be set to Play.

START: To start Playing or Recording from the beginning, press START. (At least one track must be set to Record or Play.) When starting to Record, you will have a two-measure "count-in" before the recording actually begins. (The LED will be blinking during the count-in.) Recording on a track erases the old data that was previously in the track.

STOP/CONTINUE: To stop Playing or Recording, press STOP/CONTINUE. To continue Playing from where you stopped, press STOP/CONTINUE again. (You cannot continue Recording from where you stopped. Recording is always from the beginning of the track.)

REPEAT: Press the REPEAT switch to set Repeat On/Off (indicated by an LED. When Repeat is On, Playback will continue repeating from the beginning until you press STOP/CONTINUE. Repeat has no effect when Recording.

TEMPO: The TEMPO slider controls the tempo of the Recorder over a range of 40 – 300 beats per minute. (This has no effect when MIDI Clock is selected. See F5 Clock, page 9.)

Note:

When you begin recording on a track, the old data in the track will be erased, even if you stop recording before playing anything. However if you stop before the end of the count-down is reached, the old data is preserved.

See also F5 Tempo, Beat/Measure, Clock, Ignore Program Change, Free Area, and Metronome (page 9.) You can use a RAM4 cartridge to store recordings. See F6 Load/Save Sequence, page 9.
Initializing (see Note on page 9) will erase both tracks of the recording.

MIDI APPLICATIONS

The MIDI IN, MIDI THRU and MIDI OUT terminals on the back of the PF2000 allow it to communicate with other MIDI-equipped devices in some very useful ways.

MIDI MESSAGES

When you play a note on a MIDI-equipped keyboard, data is transmitted from its MIDI OUT terminal. This data is called a "MIDI Message". A Note On message tells which note was played, and how strongly it was played. When such a message is received at the MIDI IN of another instrument, it produces the corresponding note with the corresponding loudness.

There are many other types of MIDI messages — Program Changes, Control Changes, and synchronization (Start, Stop, Continue, Timing Clock) are some of them.

The MIDI Implementation Chart at the back of this manual tells which MIDI messages are recognized and transmitted by the PF2000.

CHANNELS

Most MIDI messages also contain a "channel number" from 1 – 16. Receiving devices can be set to receive one of these channels, and ignore messages with another channel number. This allows you to independently control up to sixteen instruments over a single MIDI cable.

SETUP EXAMPLES

Here are some examples of how the MIDI capabilities of the PF2000 can be used.

Play an External Tone Generator:
PF2000 → TX802

The simplest way to use MIDI is to connect the PF2000 MIDI OUT to the MIDI IN of a tone generator (TX802, TX81Z, TX1P, TX16W, etc.). If the Receive Channel of the tone generator matches the Transmit Channel (page 11) of the PF2000, you can play the tone generator from the PF2000

keyboard in unison with the PF2000's own sounds. "Layering" two (or more) voices in this way can make some very rich sounds.

The PF2000 Recorder can transmit MIDI instead of playing the PF2000's internal voices. One track of the recorder could play an external tone generator, and the other track could play the PF2000.

Use an External Sequencer:

PF2000 → QX5 → TX802 −(THRU) → PF2000

For serious composition you will probably want to use an external sequencer such as the QX3 or QX5. These sequencers can remember more than 8 independent parts, and transmit each part on a different MIDI channel to control many tone generators. In the diagram above, the QX5 records messages coming from the PF2000, and plays them back to control the TX802 and (re-transmitted from the TX802 THRU terminal) the PF2000.

In a setup like this, it would be convenient to set F9 Local (page 11) to Off, so that you would not hear the PF2000's sounds when recording tracks for other tone generators.

MIDI RECEPTION

The PF2000 can be controlled by messages received at its MIDI IN terminal. Here are some of the messages recognized, and how the PF2000 reacts.

Program Change: Incoming MIDI program changes 1 − 12 will select the PF2000's internal preset voices. Program changes 33 − 64 will select PF2000 cartridge performances 1 − 32. Program changes 65 − 128 will select cartridge voices 1 − 64.

Continuous Slider: When playing the 12 internal preset voices, incoming MIDI Continuous Slider 1 and 2 messages (Bn.0E.xx and Bn.0F.xx) will respectively have the effect of the PF2000's front panel SOUND CONTROLLER slider, and a foot controller connected to the FC1 or FC2 jack and assigned to "Sound Controller 2" (see F3 Foot Controller, page 8).

Start, Continue, Stop, Timing Clock: When the Recorder is used, these messages are transmitted or received, depending on the F5 Clock setting (page 9).
When "Clock: Internal", the PF2000 *transmits* these messages, and will not receive them.

When "Clock: MIDI" the PF2000 *receives* these messages, and will not transmit them. However if F9 Merge (page 11) is On, Timing Clock messages will be re-transmitted from MIDI OUT.

FOOT CONTROLLERS AND SWITCHES

In the PF2000's various modes, foot controllers and switches connected to the rear panel will transmit MIDI messages as follows.

			Transmitted control number
Local ON (see F9, page 11)			
Preset Play mode	Sound Controller		none
	FC1/FC2	Volume	none
		MIDI Volume	7
		Sound Controller	4/1
		Sound Controller 2	4/1
	FS	Soft	67
		Key Hold	66
Cartridge Play mode	Sound Controller		15
	FC1		4
	FC2		7
	FS		64−67 (depends on the voice data)
Local OFF (see F9, page 11)			
	Sound Controller		7
	FC1		4
	FC2		1
	FS	Soft	67
		Key Hold	66

CARTRIDGE PERFORMANCE LIST

The cartridge included with the PF2000 has four banks. Banks 1 and 2 each contain 32 Performances and 64 Voices. Bank 3 contains Fractional Scaling data used by voices in banks 1 and 2. Bank 4 contains demonstration data for the PF2000's Recorder.

CARTRIDGE BANK 1

To use these Performances, set F7 Voice & Performance bank select to "Bank: 1" (page 10).

PERFORMANCE NAME	SOUND CONTROLLER	FOOT CONTROLLER 1
1. Reverb Brass	Pulsation	Detune
2. Double French Horns	Detune	Brightness
3. CS80 Brass	Brightness	Attack bend
4. Analog Brass	Brightness	Detune
5. Synthe Brass	Brightness	Detune
6. High Strings	Detune	Release
7. Classical Strings	Attack bend	Detune
8. Full Electric Piano	Attack tone	Tremolo speed
9. Rubber Electric Piano	Brightness	Attack tone
10. Floating E.Piano	Release length	Tremolo speed
11. Antique Harpsichord	Cut high overtones	Cut basic sound
12. Jazz Organ	Click sound	Attack tone
13. Rotary Electro Organ	Detune	Rotary speed
14. Pipe Organ	Tone	Tone
15. Antique Organ	Detune	Overtones
16. Old School Harmonium	Detune	Tone
17. Organ Choir	Detune	Balance
18. Church Choir	Detune	Male/Female balance
19. Lady Vox	Overtones	Tone
20. Maribumba	Balance	Tone
21. Metal Marimba	Balance	Attack tone
22. Jamaica Mallet Band	Tone	Tone
23. Celeste and Strings	Balance	Brightness
24. Strings and Brass	Balance	Detune
25. Digital Orchestra	Overtones	Balance
26. Gut Guitar	Attack noise	Tone
27. Space Chorus	Overtones	Tremolo speed
28. Pizzi String Section	Force	Tone
29. Wood Bass — Trumpet	Trumpet tone	Balance
30. BopBass — BrightClav	Clavi tone	Balance
31. String Bass - Guitar	Guitar noise	Balance
32. StringPad — Englishorn	Balance	Tone

CARTRIDGE BANK 2

To use these Performances, set F7 Voice & Performance bank select to "Bank: 2" (page 10).

PERFORMANCE NAME	SOUND CONTROLLER	FOOT CONTROLLER 1
1. Warm String Section	More woodwind-like tone	Detune
2. Orchestra Violins	Pulsation	Detune
3. Cello Quartet	Noise	Detune
4. Mallet Brass	Attack tone	Attack tone
5. Dual Trumpets	L/R position	Detune
6. Double Horn Section	Detune	Tone
7. Synth Brass Ensemble	Attack pitch envelope	Detune
8. Acoustic Grand Piano	Chorus speed	Chorus depth
9. Honky Tonk Piano	Mid-range tone	Mid-range tone
10. Toy Music Box	Balance	Tone
11. FM WireStrung Piano	Metallic overtones	Metallic overtones
12. Electric Grand Piano	Metallic overtones	Detune
13. Stereo Electric Piano	Metallic overtones	Detune
14. Grand Harpsichord	Attack noise volume	Detune
15. Dual Clavinette	Tone	Tone
16. Acoustic Pick Guitar	Attack noise volume	Balance
17. Stereo Vibraphone	Pan speed	Metallic overtones
18. Steel Can	Tone	Number (thickness)
19. Electric Rock Organ	Low frequencies	Pan speed
20. Touch Jazz Organ	High overtones	Vibrato depth
21. Floating Angel Choir	Release speed	Attack speed
22. St. Elmos String Bell	Tone of effect sound	Balance
23. Piano Bell Ensemble	Overall tone	Balance
24. Double Harp	Detune	Delay timing
25. Phasar Whasars	Tone of gradual sound	Attack tone
26. Tubular Bell Wah	Bell tone	Detune
27. Orchestra Wallop	Inharmonic overtones	Inharmonic overtones
28. ElecBass — ElecPiano	ElecPiano metallic tone	Balance
29. FatBass — HeavyMetal	Balance	Guitar tone
30. Double Harp-Song Flute	Harp attack	Balance
31. Strings — ClariSolo	Strings brightness	Balance
32. Strings — Trumpet	Strings brightness	Balance

IMPORTANT
SAFETY AND INSTALLATION INSTRUCTIONS

INFORMATION RELATING TO POSSIBLE PERSONAL INJURY, ELECTRIC SHOCK AND FIRE HAZARD POSSIBILITIES HAS BEEN INCLUDED IN THIS LIST.

WARNING — When using electronic products, basic precautions should always be followed, including the following:

1. Read all Safety and Installation Instructions, Supplemental Marking and Special Message Section data, and any applicable assembly instructions BEFORE using this product.
2. Check unit weight specifications BEFORE you attempt to move this product.
3. Main power supply verification. Yamaha Digital Musical Instrument products are manufactured specifically for use with the main supply voltage used in the area where they are to be sold. The main supply voltage required name plate. If any doubt exists please contact the nearest Yamaha Digital Musical Instrument retailer.
4. Some Yamaha Digital Musical Instrument products utilize external power supplies or adapters. Do NOT connect products of this type to any power supply or adapter other than the type described in the owners manual or as marked on the unit.
5. This product may be equipped with a plug having three prongs or a polarized line plug (one blade wider than the other). If you are unable to insert the plug into the outlet, contact an electrician to have the obsolete outlet replaced. Do NOT defeat the safety purpose of the plug. Yamaha products not having three prong or polarized line plugs incorporate construction methods and designs that do not require line plug polarization.
6. **WARNING** — Do NOT place objects on the power cord or place the unit in a position where any one could walk on, trip over, or roll anything over cords of any kind. An improper installation of this type can create the possibility of a fire hazard and/or personal injury.
7. Environment: Your Yamaha Digital Musical Instrument should be installed away from heat sources such as heat registers and/or other products that produce heat.
8. Ventilation: This product should be installed or positioned in a way that its placement or location does not interfere with proper ventilation.
9. Yamaha Digital Musical Instrument products are frequently incorporated into "Systems" which are assembled on carts, stands or in racks. Utilize only those carts, stands, or racks that have been designed for this purpose and observe all safety precautions supplied with the products. Pay special attention to cautions that relate to proper assembly, heavier units being mounted at the lower levels, load limits, moving instructions, maximum usable height and ventilation.
10. Yamaha Digital Musical Instrument products, either alone or in combination with amplification, headphones, or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do NOT operate at high volume levels or at a level that is uncomfortable. If you experience any discomfort, ringing in the ears, or suspect any hearing loss, you should consult an audiologist.
11. Do NOT use this product near water or in wet environments. For example, near a swimming pool, spa, in the rain, or in a wet basement.
12. Care should be taken so that objects do not fall, and liquids are not spilled into the enclosure.
13. Yamaha Digital Musical Instrument products should be serviced by a qualified service person when:
    a. The power supply/power adapter cord or plug has been damaged; or
    b. Objects have fallen, or liquid has been spilled into the products; or
    c. The unit has been exposed to rain; or
    d. The product does not operate, exhibits a marked change in performance; or
    e. The product has been dropped, or the enclosure of the product has been damaged.
14. When not in use, always turn your Yamaha Digital Musical Instrument equipment "OFF". The power supply cord should be unplugged from the outlet when the equipment is to be left unused for a long period of time. NOTE: In this case, some units may lose some user programmed data. Factory programmed memories will not be affected.
15. Electromagnetic Interference (RFI). Yamaha Digital Musical Instruments utilize digital (high frequency pulse) technology that may adversely affect Radio/TV reception. Please read FCC Information (Next Page) for additional information.
16. Do NOT attempt to service this product beyond that described in the user maintenance section of the owners manual. All other servicing should be referred to qualified service personnel.

PLEASE KEEP THIS MANUAL FOR FUTURE REFERENCE!

This information on safety is provided to comply with U.S.A. laws, but should be observed by users in all countries.

SPECIAL MESSAGE SECTION

ELECTROMAGNETIC INTERFERENCE (RFI): Your Yamaha Digital Musical Instrument Product has been type tested and found to comply with all applicable regulations. However, if it is installed in the immediate proximity of other electronic devices, some form of interference may occur. For additional RFI information see FCC information section located in this manual.

IMPORTANT NOTICE: This product has been tested and approved by independent safety testing laboratories in order that you may be sure that when it is properly installed and used in its normal and customary manner, all foreseeable risks have been eliminated. DO NOT modify this unit or commission others to do so unless specifically authorized by Yamaha. Product performance and/or safety standards may be diminished. Claims filed under the expressed warranty may be denied if the unit is/has been modified. Implied warranties may also be affected.

SPECIFICATIONS SUBJECT TO CHANGE: The information contained in this manual is believed to be correct at the time of printing. Yamaha reserves the right to change or modify specifications at any time without notice or obligation to update existing units.

NOTICE: Service charges incurred due to a lack of knowledge relating to how a function or effect works (when the unit is operating as designed), are not covered by the manufacturer's warranty. Please study this manual carefully before requesting service.

STATIC ELECTRICITY CAUTION: Some Yamaha Digital Musical Instrument products have modules that plug into the unit to perform various functions. The contents of a plug-in module can be altered/damaged by static electricity discharges. Static electricity build-ups are more likely to occur during cold winter months (or in areas with very dry climates) when the natural humidity is low. To avoid possible damage to the plug-in module, touch any metal object (a metal desk lamp, a door knob, etc.) before handling the module. If static electricity is a problem in your area, you may want to have your carpet treated with a substance that reduces static electricity build-up. See your local carpet retailer for professional advice that relates to your specific situation.

Model _____

Serial No. _____

Purchase Date _____

FCC INFORMATION

While the following statements are provided to comply with FCC Regulations in the United States, the corrective measures listed below are applicable worldwide.

This series of Yamaha professional music equipment uses frequencies that appear in the radio frequency range and if installed in the immediate proximity of some types of audio or video devices (within three meters), interference may occur. This series of Yamaha combo equipment have been type tested and found to comply with the specifications set for a class B computing device in accordance with those specifications listed in subpart J of part 15 of the FCC rules. These rules are designed to provide a reasonable measure of protection against such interference. However, this does not guarantee that interference will not occur. If your professional music equipment should be suspected of causing interference with other electronic devices, verification can be made by turning your combo equipment off and on. If the interference continues when your equipment is off, the equipment is not the source of interference. If your equipment does appear to be the source of the interference, you should try to correct the situation by using one or more of the following measures:

Relocate either the equipment or the electronic device that is being affected by the interference. Utilize power outlets for the professional music equipment and the device being affected that are on different branch (circuit breaker or fuse) circuits, or install AC line filters.

In the case of radio or TV interference, relocate the antenna or, if the antenna lead-in is 300 ohm ribbon lead, change the lead-in to co-axial type cable.
If these corrective measures do not produce satisfactory results, please contact your authorized Yamaha professional products dealer for suggestions and/or corrective measures.
If you cannot locate a franchised Yamaha professional products dealer in your general area contact the professional products Service Department, Yamaha Music Corporation, 6600 Orangethorpe Ave., Buena Park, CA 90620, U.S.A.

If for any reason, you should need additional information relating to radio or TV interference, you may find a booklet prepared by the Federal Communications Commission helpful:
"How to Identify and Resolve Radio — TV Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington D.C. 20402 — Stock No. 004-000-00345-4.

This information on safety is provided to comply with U.S.A. laws, but should be observed by users in all countries.

PF2000 Error Messages **Messages d'erreur du PF2000** **Fehlermeldungen**

- The PF2000 displays the following messages to indicate an unexpected condition.
- Dans une situation inattendue, le PF2000 affiche les messages suivants.
- Es kann vorkommen, daß Ihnen oder dem PF2000 irgendwann einmal ein Fehler unterläuft. In diesem Fall wird eine der folgenden Meldungen angezeigt.

Display Affichage Anzeige	Reason Raison Ursache	Action Correction Abhilfe
CRT not ready! Not ready!	A cartridge is not inserted or is incorrectly inserted.	Correctly insert the cartridge.
	Aucune cartouche n'est insérée ou elle est mal insérée.	Insérez la cartouche convenablement.
	Die Cartridge wurde nicht richtig in den Schacht geschoben.	Schieben Sie die Cartridge vollends in den Schacht.
Protected!	The Memory Protect switch of the RAM cartridge is on, or a ROM cartridge is inserted.	Insert a RAM cartridge with the Memory Protect switched off.
	La protection de la mémoire de la cartouche RAM est engagée ou vous avez inséré une cartouche ROM.	Insérez une cartouche RAM dont la protection de la mémoire n'est pas engagée.
	Die RAM-Cartridge ist gesichert (die MEMORY PROTECT-Lasche weist auf OFF), oder Sie haben aus Versehen eine ROM-Cartridge in den Schacht geschoben.	Entsichern Sie die RAM-Cartridge.
CRT format error! Format error!	The cartridge does not contain data of the format the PF2000 is looking for.	Insert a cartridge that contains data of the correct format.
	La cartouche ne contient pas de données dont le format correspond à celui recherché par le PF2000.	Insérez une cartouche dont les données ont le format correct.
	Die Cartridge enthält Daten eines anderen Formats.	Schieben Sie eine Cartridge mit dem PF2000-Format in den Schacht.
MIDI data error!	An incorrectly connected MIDI cable has caused the PF2000 to receive garbled MIDI messages.	Correctly connect the MIDI cable.
	Un câble MIDI mal connecté a brouillé les messages MIDI reçus par le PF2000.	Branchez le câble MIDI correctement.
	Sie haben ein MIDI-Kabel verkehrt angeschlossen, weshalb das PF2000 unverständliche MIDI-Meldungen empfängt.	Kontrollieren Sie alle MIDI-Anschlüsse.

Display Affichage Anzeige	Reason Raison Ursache	Action Correction Abhilfe
Bank unavail!	When formatting for SEQ-P, you have specified a bank number that cannot be used. Lors du formatage pour SEQ-P, vous avez donné un numéro de banque qui ne peut être utilisé. Die angewählte Bank kann nicht mit dem SEQ-P Format versehen werden.	When for example a RAM4 cartridge is to be formatted for SEQ-P data, set Function 7 "Bank Select" to bank 1. Si vous désirez, par exemple, formater une cartouche RAM4 pour des données SEQ-P, choisissez la banque 1 pour la fonction 7 "Bank Select". Wenn eine RAM4 Cartridge mit dem SEQ-P Format versehen werden soll, müssen Sie erst Bank 4 z.B. anwählen.
P01 f V35 ReverbBras Dual V35 ReverbBras	This voice uses Fractional Scaling data but cannot find it in the cartridge which is inserted. Cette voix utilise des données d'échelle fractionnelle mais ne les trouve pas sur la cartouche insérée. Diese Voice muß mit Fractional Scaling-Daten gefahren werden. Das PF2000 findet diese Daten jedoch nicht auf der Cartridge.	Insert a cartridge which contains Fractional Scaling data. Insérez une cartouche contenant des données d'échelle fractionnelle. Schieben Sie eine Cartridge in den Schacht, die Fractional Scaling-Daten enthält.
Transmit ch is off!	You tried to transmit a Program Change message, but the transmit channel was "off". Vous avez essayé de transmettre un message de changement de programme mais le canal de transmission était coupé (off). Die Programmwechselmeldung kann nicht übertragen werden, da als MIDI-Übertragungskanal OFF angewählt wurde.	Set Function 9 "Transmission Channel" to 1 ~ 16. Réglez le canal de transmission (fonction 9) sur 1 ~ 16. Rufen Sie F9 auf und wählen Sie einen Kanal zwischen 1 und 16 an.
P01 t V35 ReverbBras Dual V35 ReverbBras	This voice uses Micro Tuning data but cannot find it in the cartridge which is inserted. Cette voix utilise des données de micro accord mais ne les trouve pas sur la cartouche insérée. Die vorliegende Voice wurde mit Micro Tuning-Daten versehen. Diese Daten gibt es jedoch nicht auf der derzeit im Schacht befindlichen Cartridge.	Insert a cartridge which contains Micro Tuning Data. Insérez une cartouche contenant des données de micro accord. Schieben Sie eine Cartridge mit Micro Tuning-Daten in den Schacht.
MIDI buffer full!	Too much MIDI data was received too fast. Réception de trop de données MIDI en trop peu de temps. Der MIDI-Pufferspeicher des PF2000 ist voll. Das angeschlossene MIDI-Gerät sendet seine Daten zu schnell.	Adjust settings of the transmitting device. Ajustez les réglages de l'appareil transmetteur. Drücken Sie irgendeine Taste, um die Anzeige zu löschen. Senden Sie Daten mit einer geringeren Dichte oder langsamer.

Display Affichage Anzeige	Reason Raison Ursache	Action Correction Abhilfe
Recorder data full!	You have run out of memory while recording. Vous êtes tombé à court de mémoire lors de l'enregistrement. Der Sequenzer ist voll.	Shorten the performance and re-record. Raccourcissez le morceau et ré-enregistrez. Spielen Sie eine kürzere Fassung des Stücks ein.
Change battery!	The memory backup battery inside the PF2000 has run low. La pile de support de la mémoire à l'intérieur du PF2000 est plate. Die Speicher-Batterie des PF2000 ist sehr schwach.	Contact an authorized Yamaha dealer to have the battery replaced. Contactez un revendeur Yamaha autorisé pour faire remplacer la pile. Bitten Sie den Yamaha-Kundendienst, die Batterie auszuwechseln.
Sequence data error!	Abnormal data was found while playing back a recorded sequence. Des données anormales ont été trouvées lors de la lecture d'une séquence enregistrée. Bei der Wiedergabe der Sequenz wurden ungewöhnliche Daten bemerkt.	Re-record the performance. Ré-enregistrez la séquence. Nehmen Sie das Stück noch einmal auf.
Recorder is running!	You tried to perform an operation while still recording. Vous avez essayé d'effectuer une opération avant la fin de l'enregistrement. Der Sequenzer läuft noch. Daher können Sie keine andere Funktion aufrufen.	Perform operations after you finish recording. Effectuez ces opérations après que l'enregistrement soit fini. Beenden Sie zuerst die Aufnahme und wählen Sie die Funktion danach an.
Memory initialized!	This is not an error message. It indicates that you have turned the power on while pressing the Function switch, resetting all data to the factory settings. Ceci n'est pas un message d'erreur. Il indique que vous avez coupé l'alimentation tout en appuyant sur la touche Function, ramenant ainsi toutes les valeurs à leur réglage de sortie d'usine. Beim Einschalten haben Sie die Taste FUNCTION gedrückt. Daher sind wieder alle Augangswerte eingestellt worden. Diese Meldung ist also keine Fehlermeldung.	

[Electronic Piano]

Model PF2000 MIDI Implementation Chart Version : 1.0

Function ...		Transmitted	Recognized	Remarks
Basic	Default	1 - 16	1 - 16	memorized
Channel	Changed	1 - 16	1 - 16	
Mode	Default	3	1, 2, 3, 4	memorized
	Messages	x	x	
	Altered	**********	x	
Note Number		21 - 108	0 - 127	
	True voice	**********	1 - 127	
Velocity	Note ON	o 9nH, v=1-127	o v=1-127	
	Note OFF	x 9nH, v=0	x	
After Touch	Key's	x	x	
	Ch's	x	o	
Pitch Bender		x	o 0-12 semi	7 bit resolution
Control Change	1	o (FC2:preset)	o	Modulation wheel
	2	x	o	Breath control
	4	o (FC1)	o	Foot control
	5	x	o	Portamento time
	7	o (FC2:crtrdge)	o	Volume
	14	x	o	CS1
	15	o (Sound Cntrl :cartridge)	o	CS2
	64	o	o	Sustain
	65	o	o	Portamento sw
	66	o	o	Key hold
	67	o	o	Soft
Prog Change	True #	o 0 - 127 **********	o 0-11,32-127 0-11,32-127	0-11:preset 32-127:cartridge
System Exclusive		x	x	
System Common	Song Pos	x	x	
	Song Sel	x	x	
	Tune	x	x	
System Real Time	Clock	o	o	
	Commands	o	o	
Aux Mes- sages	Local ON/OFF	x	x	set by panel sw
	All Notes OFF	x	x	
	Active Sense	o	o	
	Reset	x	x	

Notes: When MIDI merge switch is on, channel voice messages received from MIDI IN are bypassed to MIDI OUT.

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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