

**YAMAHA**

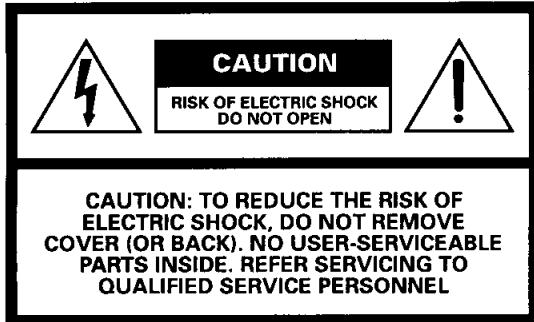
*pf85*

**ELECTRONIC PIANO**

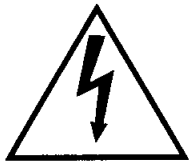
**OWNER'S MANUAL**

# SPECIAL MESSAGE SECTION

**PRODUCT SAFETY MARKINGS:** Yamaha electronic products may have either labels similar to the graphics shown below or molded/stamped facsimiles of these graphics on the enclosure. The explanation of these graphics appears on this page. Please observe all cautions indicated on this page and those indicated in the safety instruction section.



The exclamation point with the 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 the 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 electrical shock.

**IMPORTANT NOTICE:** All Yamaha electronic products are tested and approved by an independent safety testing laboratory 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. However, Yamaha reserves the right to change or modify any of the specifications without notice or obligation to update existing units.

**ENVIRONMENTAL ISSUES:** Yamaha strives to produce products that are both user safe and environmentally friendly. We sincerely believe that our products and the production methods used to produce them, meet these goals. In keeping with both the letter and the spirit of the law, we want you to be aware of the following:

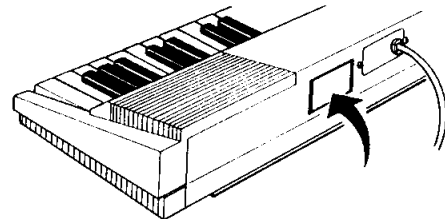
**Battery Notice:** This product MAY contain a small non-rechargeable battery which (if applicable) is soldered in place. The average life span of this type of battery is approximately five years. When replacement becomes necessary, contact a qualified service representative to perform the replacement.

**Warning:** Do not attempt to recharge, disassemble, or incinerate this type of battery. Keep all batteries away from children. Dispose of used batteries promptly and as regulated by applicable laws. Note: In some areas, the servicer is required by law to return the defective parts. However, you do have the option of having the servicer dispose of these parts for you.

**Disposal Notice:** Should this product become damaged beyond repair, or for some reason its useful life is considered to be at an end, please observe all local, state, and federal regulations that relate to the disposal of products that contain lead, batteries, plastics, etc.

**NOTICE:** Service charges incurred due to 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, and are therefore the owners responsibility. Please study this manual carefully and consult your dealer before requesting service.

**NAME PLATE LOCATION:** The graphic below indicates the location of the name plate. The model number, serial number, power requirements, etc., are located on this plate. You should record the model number, serial number, and the date of purchase in the spaces provided below and retain this manual as a permanent record of your purchase.



**Model** \_\_\_\_\_

**Serial No.** \_\_\_\_\_

**Purchase Date** \_\_\_\_\_

# INTRODUCTION

*Thank you for purchasing the Yamaha PF85 Electronic Piano. This keyboard instrument incorporates the following features:*

- Yamaha's AWM (Advanced Wave Memory) tone generation, which digitally processes the sounds of actual instruments, creating authentic timbres. The AWM system compresses data so that more data can be stored in the PF85.
- Specially developed AE keys provide an action that is lighter than on an acoustic piano, yet sensitive and natural, so the player who is used to a grand piano can switch to a PF85 easily.
- Velocity sensitivity to allow expressive performance with subtle variations in tone and volume that respond to the way you play.
- Full 16-note polyphonic capability.
- MIDI capability to allow control of and control by other MIDI instruments (refer to the MIDI OPERATION section of this manual for more information).

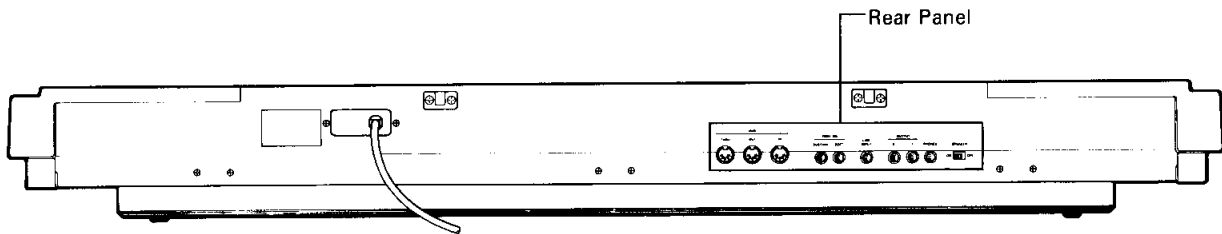
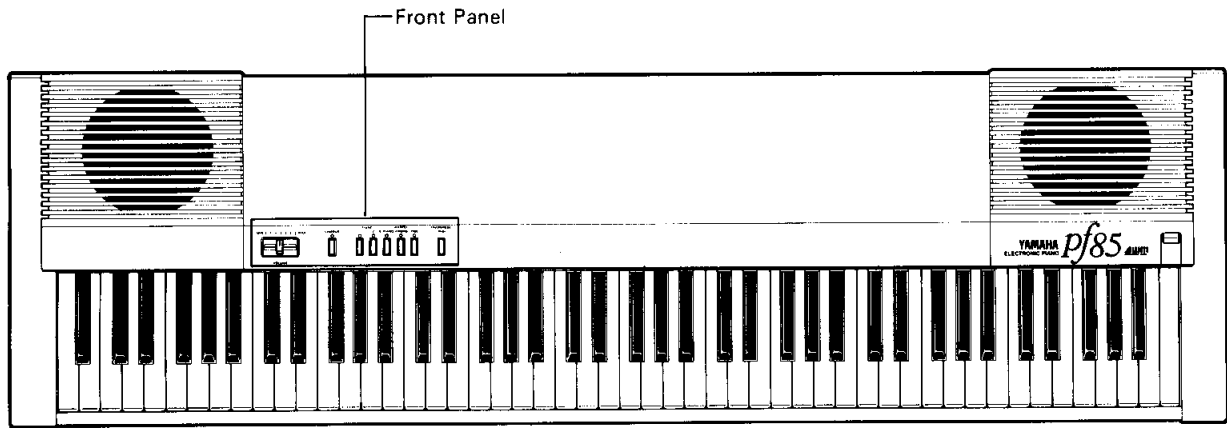
## PRECAUTIONS

1. The voltage requirement for your PF85 has been set specifically for the mains supply voltage used in your area. If you have any doubts about voltage suitability, please consult your local Yamaha dealer. If you intend to use your PF85 in an area with a different voltage, be sure to use the appropriate voltage convertor.
2. Do not use your PF85 in extremes of temperature or humidity.
3. Use your PF85 in an area where proper ventilation is possible.
4. Do not use abrasive cleaners, waxes, solvents, or chemical dust cloths to clean the cabinet or keys of your PF85 as these may dull the keys or damage the finish. Use a slightly damp cloth and a neutral cleanser.
5. As there are no user-serviceable parts, leave all repair work to qualified Yamaha personnel.
6. The PF85's digital operation generates high frequency pulses that may adversely affect radio or TV reception in the vicinity of the instrument. Consult the FCC INFORMATION of this manual for more information.

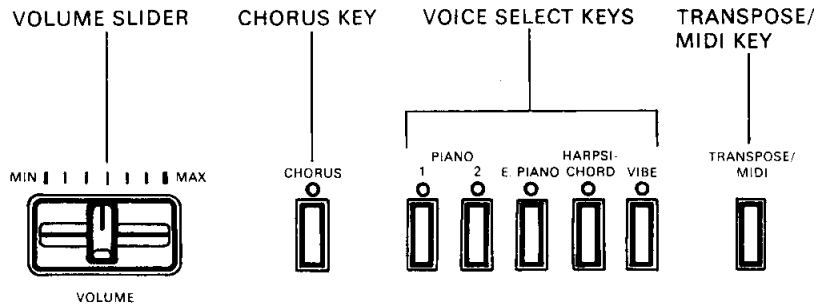
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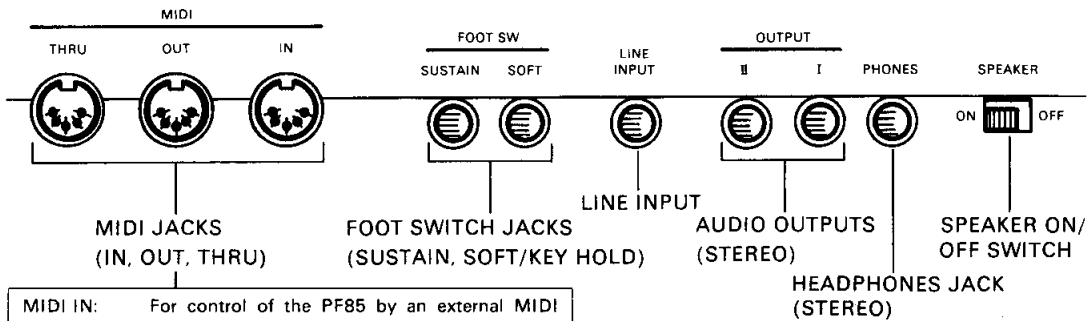
# CONTROLS AND CONNECTORS



## FRONT PANEL



## REAR PANEL



MIDI IN:	For control of the PF85 by an external MIDI Device.
MIDI OUT:	For control of an external MIDI Device by the PF85.
MIDI THRU:	When the PF85 is part of a chain of MIDI Devices; sends out MIDI data received at the MIDI IN jack.

## SETTING UP

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To set up your PF85 for playing, connect the cords and accessories as follows:

1. Plug the AC power cord into an AC outlet.
2. Connect the supplied FC-4 footswitch to the SUSTAIN jack on the rear panel, for use as a sustain pedal. You can also connect a second FC-4 pedal to the SOFT jack for use as a soft or key hold pedal (the function can be selected in a simple operation described later in this manual).
3. Though the PF85 has its own amplifier/speaker system, you can also play it through an external system via the STEREO OUT (I, II) jacks. The PF85's output is normally mono, but when the Chorus effect is used, a stereo signal is output. the SPEAKER switch on the rear panel is used to turn the internal speakers on and off.
4. For headphone listening, connect a pair of stereo headphones to the PHONES jack. When headphones are connected, the internal speakers are automatically turned off.
5. To control the PF85 from an external MIDI device, connect the MIDI OUT jack of the MIDI device to the MIDI IN jack of the PF85. To control an external MIDI device from the PF85, connect the MIDI IN jack of the MIDI device to the MIDI OUT jack of the PF85. (Refer to the MIDI OPERATION chapter for more details).
6. The LINE IN jack can be used for connecting a tape recorder, synthesizer, drum machine, etc., which can be listened to through the PF85's internal speakers while you play. The OUTPUT connectors of the external source should be connected to the LINE IN jacks on the PF85. The level should be adjusted at the external source. NOTE: Never feed speaker-level signals to the PF85's LINE IN jacks — it could cause damage to the PF85's internal circuitry.
7. Set the music stand into position (it is held there by magnets).

## BASIC OPERATION

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### POWER

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Turn on the power switch. If the PF85 is connected to other amplification or MIDI instruments, do not turn on the power until all connections have been made.

### VOICE SELECT

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Select the desired voice by pressing a voice select button on the front panel. There are five voices: PIANO 1, PIANO 2, E PIANO, HARPSICHORD and VIBE. When a voice is selected, the corresponding LED will light.

### VOLUME

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Adjust the volume using the Master Volume slider on the front panel.

### CHORUS

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Press the CHORUS button on the front panel to turn on the stereo chorus effect. When turned on, the CHORUS LED will light.

# PEDALS

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Use FC-4 footswitches to create sustain and soft or key hold (sostenuto) effects as you would on an acoustic piano.

## USE OF THE SUSTAIN PEDAL

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Press the sustain pedal to sustain all notes played, up to the 16-note polyphonic limit. Further notes played will cancel the first notes that were played, in the order in which they were played.

## SELECTION OF SOFT/KEY HOLD PEDAL FUNCTIONS

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A second FC-4 footswitch can be used as either a Soft or Key Hold (Sostenuto) pedal. To switch between the two pedal functions, hold down the TRANSPOSE/MIDI button and depress the Soft/Key Hold pedal. As long as the TRANSPOSE/MIDI button is held, the CHORUS LED will indicate the current pedal status. When lit, the Key Hold pedal function is selected. When not lit, the Soft pedal function is selected. To switch between the two functions again, repeat the above procedure.

**NOTE:** The Soft function is automatically selected when the PF85 power is turned on.

## USE OF THE SOFT PEDAL

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Pressing the footswitch when the Soft pedal function is selected mutes the sound of the PF85.

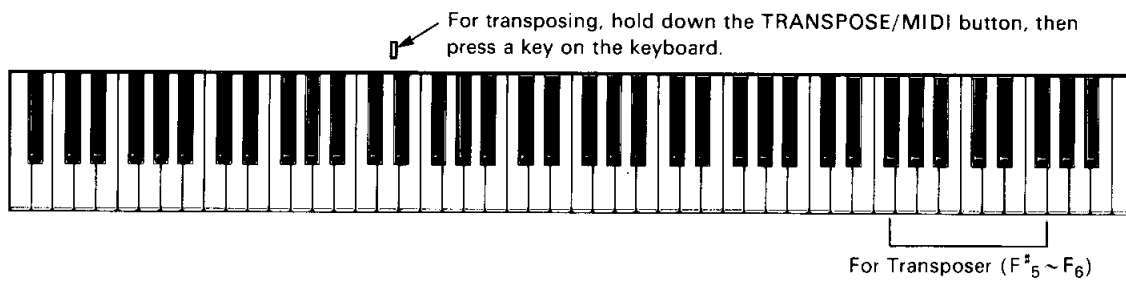
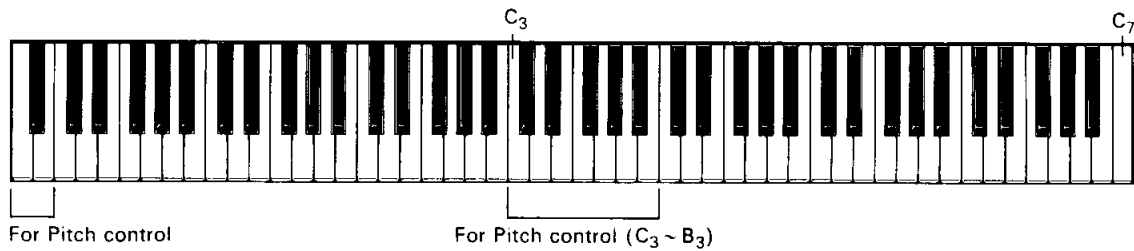
## USE OF THE KEY HOLD PEDAL

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Pressing the footswitch when the Key Hold pedal function is selected sustains only the notes that are currently held down. Subsequent notes played while the pedal is depressed are not sustained.

# TRANSPPOSITION AND PITCH CONTROL (TUNING)



## TRANSPPOSITION

This feature allows you to change the key of the entire instrument in half-step (semitone) increments.

To change the transposition setting, hold down the TRANSPOSE/MIDI button and press one of the keys between F<sup>#</sup>5 and F6. The PF85 will be transposed by an interval corresponding to the interval between C6 and the key pressed.

**NOTE:** The normal playing key is automatically selected when the PF85 power is turned on.

## PITCH CONTROL

This feature allows you to finely adjust the pitch of the entire instrument in 3-cent increments (a cent equals 1/100th of a half-step). This allows you to match the tuning of the PF85 to that of accompanying instruments or tapes.

To raise the pitch, simultaneously hold down the two lowest white keys and press any key between C<sub>3</sub> (Middle C) and B<sub>3</sub> (B above Middle C). Each strike of the key raises the pitch by 3 cents.

To lower the pitch, execute the same procedure while holding down the lowest white key and lowest black key.

Tuning can be adjusted up to a maximum of  $\pm 51$  cents. Thus, in combination with the Transposition function, the PF85 can be set to any pitch within a one-octave range.

**NOTE:** Concert pitch (A<sub>3</sub> = 440 Hz) is automatically selected when the PF85 power is turned on.

# MIDI OPERATION

The MIDI (Musical Instrument Digital Interface) jacks on the PF85 allow you to connect it to other MIDI keyboards, tone generator modules, samplers, sequencers, drum machines, computers and signal processors. This enables the PF85 to play or be played by other synthesizers, and execute numerous other MIDI performance functions. MIDI data is transmitted on any of up to 16 MIDI channels. Connected MIDI devices should normally be set to the same MIDI channel number.

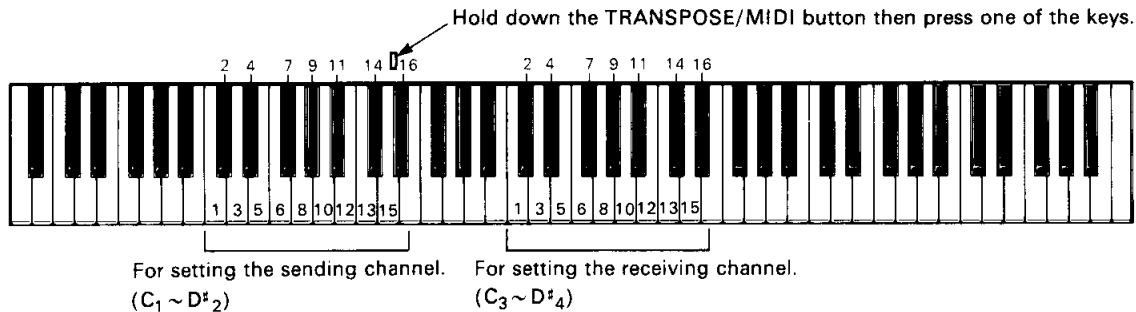
The PF85 can transmit and receive the following MIDI data:

- Key On/Key Off (indicates that a note has been pressed and released, respectively).

- Note Number (indicates which note has been pressed).
- Velocity (indicates the pressure by which a note has been played).
- Foot Pedal Functions (also known as control changes).
- Program Changes (Programs 1 thru 5 can be selected on an external MIDI instrument using the PF85's Voice Select buttons, or PF85 voices can be selected from an external MIDI device. The program numbers for the PF85 are as follows: 1 — PIANO 1, 2 — PIANO 2, 3 — E PIANO, 4 — HARPSICHORD, 5 — VIBE).

Refer to the MIDI SPECIFICATIONS chapter and MIDI Implementation Chart at the end of this manual for further information.

## SETTING MIDI FUNCTIONS



### 1. MIDI TRANSMIT CHANNEL SELECT

MIDI data can be sent on any of up to 16 MIDI channels. The PF85's MIDI Transmit channel (sending channel) should match the MIDI Receive channel of the MIDI device which it is controlling.

Hold down the TRANSPOSE/MIDI button then press one of the keys between C<sub>1</sub> and D<sup>#</sup><sub>2</sub> to select the MIDI Transmit channel number (as shown in the diagram at the start of the SETTING MIDI FUNCTIONS section).

**NOTE:** When the PF85 power is turned on, the MIDI Transmit channel is automatically set to 1.

### 2. OMNI ON/OFF, MIDI RECEIVE CHANNEL SELECT

MIDI data can be received on any of up to 16 MIDI channels. The PF85's MIDI Receive channel can be set to Omni On (in which case MIDI data received on any or all of the 16 MIDI channels will be recognized) or to Omni Off (in which case MIDI data is received only on a single selected MIDI channel which should match the MIDI Transmit channel of the MIDI device which it is controlling).

Hold down the TRANSPOSE/MIDI button then press the PIANO 1 Voice Select button to switch between Omni On and Omni Off. When the PIANO 1 LED is lit, the Omni mode is turned off. To select the MIDI Receive channel, hold down the TRANSPOSE/MIDI button and press one of the keys between C<sub>3</sub> and D<sup>#</sup><sub>4</sub> (as shown in the diagram at the start of the SETTING MIDI FUNCTIONS section).

**NOTE:** When the PF85 power is turned on, the MIDI Receive channel is automatically set to 1, and the OMNI mode is set to ON.

### 3. LOCAL ON/OFF FUNCTION

The Local On/Off function lets you select whether or not the PF85's internal voices will be played by its keyboard. In normal use, this function will be set to ON. However, if you wish to use the PF85 only as a MIDI controller keyboard (for example, to play a MIDI tone generator module) you can turn off the Local function, effectively isolating the PF85's internal voices from its keyboard, so that only the external MIDI tone generator will produce sound when you play the PF85. With the Local function turned off, you could also use another external MIDI device (such as a sequencer) to play the PF85's internal voices.



## MIDI APPLICATIONS

Hold down the TRANSPOSE/MIDI button then press the PIANO 2 voice select button to switch between Local On and Local Off. When the PIANO 2 LED is lit, the Local function is turned off.

**NOTE:** When the PF85 power is turned on, the Local function is automatically set to Local On.

### 4. PROGRAM CHANGE CANCEL

When controlling a MIDI device from the PF85, the external MIDI device's programs can be selected by pressing Voice Select buttons on the PF85. Also, when controlling the PF85 from another MIDI device, the PF85's voices can be selected from the external MIDI device. The PF85's Voice Keys correspond to Programs 1 thru 5, for both transmission and reception purposes.

You can have independent program change capability by cancelling the PF85's ability to receive and transmit program changes. This is done by turning off the PF85's Program Change function.

Hold down the TRANSPOSE/MIDI button then press the E PIANO Voice Select button, to switch between Program Change Off and Program Change On. When the E PIANO LED is lit, the Program Change function is turned on.

**NOTE:** When the PF85 power is turned on, the Program Change function is automatically set to Program Change On.

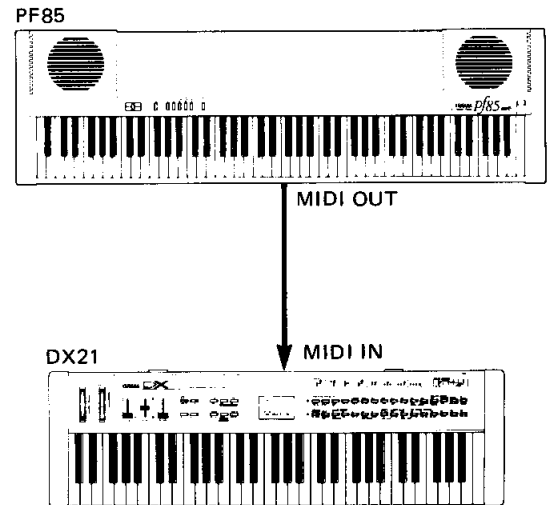
### 5. CONTROL CHANGE CANCEL

When controlling a MIDI device from the PF85, the external MIDI device will be affected by the PF85's foot pedals (sustain and soft/key hold). Also, when controlling the PF85 from another MIDI device, the PF85 will respond to the external device's foot pedals. You may wish to have independent foot pedal capability by cancelling the PF85's ability to receive and transmit foot pedal data. This is done by turning off the PF85's Control Change function.

Hold down the TRANSPOSE/MIDI button then press the HARPSICHORD Voice Select button to switch between Control Change On and Control Change Off. When the HARPSICHORD LED is lit, the Control Change function is turned on.

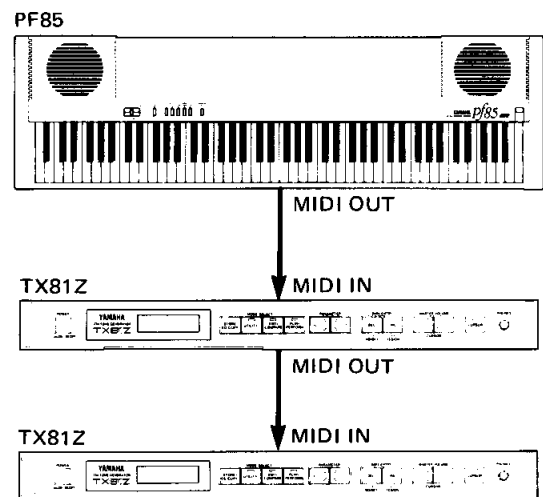
**NOTE:** When the PF85 power is turned on, the Control Change function is automatically set to Control Change On.

### 1. BASIC MIDI SYSTEM (PF85 PLUS DX21 SYNTHESIZER)



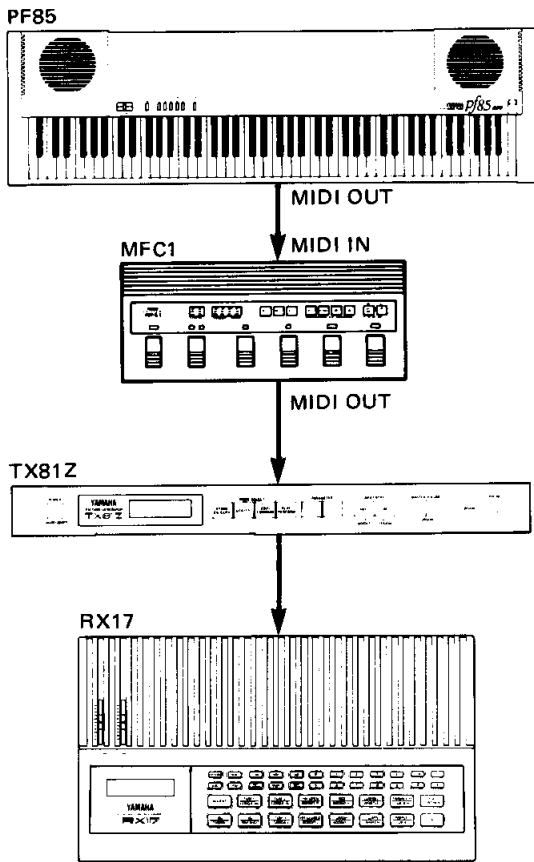
In this example, the PF85 is used to play the Yamaha DX21 Digital Programmable Algorithm Synthesizer, allowing you to add rich orchestral or instrumental voices, or exciting synth-type voices, to the sound of your PF85. Connect the MIDI OUT jack of the PF85 to the MIDI IN jack of the DX21. The DX21 will respond to your playing as sensitively as does the PF85, and you can select whether or not the DX21 responds to the PF85's foot pedals. A volume pedal could also be used to independently control the volume of the DX21, which can be listened to via the PF85's internal speakers.

### 2. EXPANDED SYNTH SYSTEM (PF85 PLUS TWO TX81Z TONE GENERATORS)



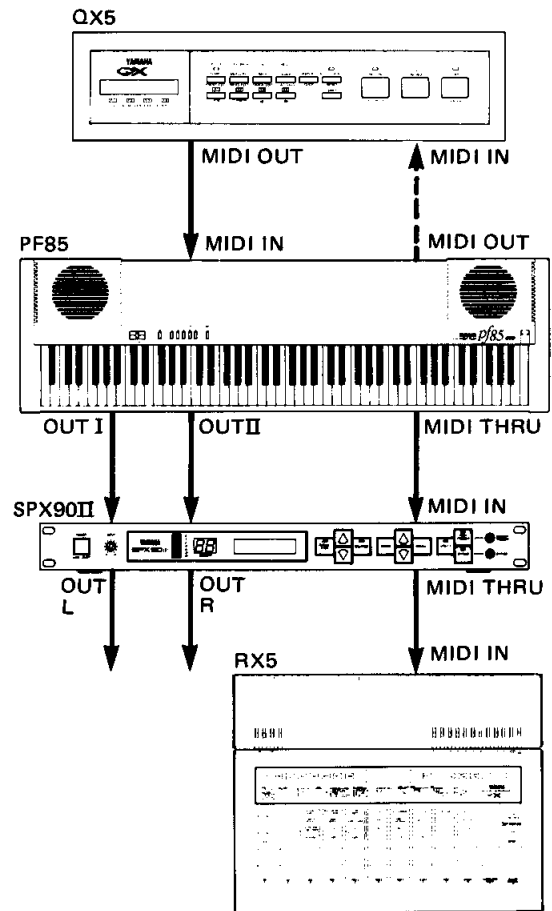
This system, using the compact but extraordinarily versatile Yamaha TX81Z FM Tone Generators which feature 160 powerful voices similar to those on the DX21, allows you to add synthesizer sounds to your PF85 in a variety of configurations. Each TX81Z can be set to generate anywhere from 1 voice (in 8-note polyphony) to 8 simultaneous voices (providing an incredibly rich monophonic line). You can also set one TX81Z to respond to only even-numbered notes, and the other to respond to only odd-numbered notes, enabling you to play synthesizer voices in full 16-note polyphony. Program changes from the PF85 will of course change voice programs on both TX81Z's. A simple but amazingly sophisticated digital music system.

**3. SYNTH SYSTEM WITH INDEPENDENT PROGRAM CHANGE CAPABILITY PLUS DIGITAL DRUMS (PF85 PLUS TX81Z TONE GENERATOR PLUS MFC-1 MIDI FOOT CONTROLLER PLUS RX17 DIGITAL RHYTHM PROGRAMMER).**



In this system, a Yamaha RX17 Digital Rhythm programmer lets you add realistic drum and percussion parts to your playing. You can create rhythm patterns, or even rhythm arrangements for entire songs, to exactly suit the mood and tempo of your music. In addition, the innovative Yamaha MFC-1 MIDI Foot Controller allows you to change programs independently for the TX81Z (the PF85's Program Change function should be turned off so that program changes on the PF85 do not affect the TX81Z). As well as a preselected sequence of program changes, the MFC-1 can store stop and start commands to control playback of the RX17, leaving your hands free for what they do best — playing the PF85.

**4. MIDI SEQUENCER SYSTEM (PF85 PLUS QX5 DIGITAL SEQUENCE RECORDER PLUS SPX90 DIGITAL SOUND PROCESSOR PLUS RX5 DIGITAL RHYTHM PROGRAMMER).**



# SPECIFICATIONS

This sophisticated system lets you record music into the QX5 from the PF85. The recorded performance can then be transposed, reset to any tempo, and edited in a variety of ways to correct mistakes or even to create musical performances that are too complex or rapid for human hands to play. The sound of the PF85 is processed via the exciting SPX90II, to add stereo reverb, flanging, phasing tremolo, or a variety of superb effects. The RX5 lets you add powerful drum and percussion parts, and its voices may be edited and altered to create an enormous variety of percussion and special effects voices. The QX5 can also send, on separate MIDI channels, program changes to the PF85, stop/start commands to the RX5 (which will have its tempo kept in perfect synchronization with the QX5) and program changes to the SPX90II (to add just the right effect to each song, or part of a song). The PF85's OMNI function should be turned off so that it does not receive MIDI data intended for the other MIDI devices. This high-potential MIDI system allows for musical experimentation that is only limited by your imagination.

- **KEYBOARD**  
88 keys (A-1 — C7)
- **VOICES**  
Piano 1, Piano 2, E Piano, Harpsichord, Vibe
- **SIMULTANEOUS OUTPUT NOTES**  
16 notes
- **BUILT-IN EFFECT**  
Stereo chorus
- **TRANSPOSITION RANGE**  
-6 — +5 half-steps (semitones)
- **PITCH CONTROL RANGE**  
 $\pm 51$  cents (in 3-cent increments)
- **PEDAL CONTROLS**  
Sustain, Soft/Key Hold
- **OTHER CONTROLS**  
Master volume, Transpose/MIDI, Pitch, Power switch, Speaker (on/off)
- **JACKS/CONNECTORS**  
Phones, Out I, Out II, Line In, MIDI In, MIDI Out, MIDI Thru, Sustain Pedal, Soft/Key Hold Pedal
- **MAIN AMPLIFIERS**  
20 watts x 2
- **SPEAKERS**  
16 cm x 2
- **LED INDICATORS**  
6 (Chorus, Voice x 5)
- **POWER CONSUMPTION**  
90 W, 110 ~ 120 V (U.S. & Canadian Models)  
130 W, 220 ~ 240 V (General Model)
- **DIMENSIONS (W x D x H)**  
1330 x 390 x 143 mm  
(166-1/4" x 48-3/4" x 17-7/8")
- **WEIGHT**  
31 kg (68.4 lb)
- **ACCESSORIES**  
Footswitch FC4, Music score stand
- Specifications are subject to change without notice.

# MIDI SPECIFICATIONS

## 1. KEY INFORMATION

Data Format: <9nH> — <Key Number> — <Velocity>

n = Channel number

9nH = Note ON event

kkH = Key number

transmitted: 21 — 108

recognized: 21 — 108

vvH = Key velocity

key ON: 1 — 127

key OFF: 0

## 2. CONTROL CHANGE

Data Format: <BnH> — <value of c> — <value of d>

n = Channel number

BnH = Control change

ccH = Control number

ddH = Value

Value of c	Parameter	Value of d
64	Sustain ON/OFF	0 = OFF, 127 = ON
66	Key Hold ON/OFF	0 = OFF, 127 = ON
67	Soft ON/OFF	0 = OFF, 127 = ON

## 3. PROGRAM CHANGE

Data Format: <CnH> — <value of p>

n = Channel number

CnH = Program change

ppH = Program number

Value of p	Voice
0	Piano 1
1	Piano 2
2	E Piano
3	Harpsichord
4	Vibe

## 4. CHANNEL MODE MESSAGES

Data Format: <BnH> — <value of c> — <value of d>  
n = Channel number

Value of c	Parameter	Value of d
122	Local ON/OFF	0 = OFF, 127 = ON
123	All notes OFF	0
124	Omni OFF	0
125	Omni ON	0
126	Mono	0
127	Poly	0

The following mode changes cannot be transmitted:

Local ON/OFF

All notes OFF

Omni ON/OFF

Mono/Poly

## 5. SYSTEM REAL TIME MESSAGES

Data	Message transmission	Message reception
FEH	Messages are transmitted every 200 ms.	When data has not been sent for over 400 ms, MIDI key data is switched off.

## 6. SYSTEM EXCLUSIVE MESSAGES

The only front panel data messages that are sent or received are the following:

F0H, 43H, 2nH, 7DH, F7H

When these data are received, the following messages are sent:

CnH, ppH (program change)

## **7. MODES SWITCHABLE FROM FRONT PANEL**

Mode changes are made by holding down the TRANSPOSE/MIDI switch and then pressing the switch corresponding to the mode as indicated in the chart below

Switch	Mode	LED on	LED off
Piano 1	Omni	Off	On
Piano 2	Local	Off	On
E Piano	Program change cancel	On	Off
Harpichord	Control change cancel	On	Off

## **8. MIDI CHANNEL CHANGE (from keyboard)**

MIDI channel changes (for both sending and receiving) are made by holding down the TRANSPOSE/MIDI switch and then pressing the key corresponding to the channel as indicated in the chart below.

SENDING		RECEIVING	
Key	Sending channel	Key	Receiving channel
C1	1	C3	1
C#1	2	C#3	2
D1	3	D3	3
D#1	4	D#3	4
E1	5	E3	5
F1	6	F3	6
F#1	7	F#3	7
G1	8	G3	8
G#1	9	G#3	9
A1	10	A3	10
A#1	11	A#3	11
B1	12	B3	12
C2	13	C4	13
C#2	14	C#4	14
D2	15	D4	15
D#2	16	D#4	16

## **9. DEFAULT SETTINGS (when power is turned on)**

Transmission channel = 1  
Reception channel = 1  
Omni: ON  
Local: ON  
Program change cancel: OFF  
Control change cancel: OFF  
Poly: ON

Function	Transmitted	Recognized	Remarks
Basic Default	1	1	
Channel Change	1 - 16	1 - 16	
Mode Default	3	1	
Mode Messages	X	Omni, Mono/Poly	
Mode Altered	*****	X	
Note Number : True voice	21 - 108 *****	21 - 108 21 - 108	
Velocity Note on	0 90H, v=1-127	0 v=1-127	
Velocity Note off	X 90H, v=0	X	
After Touch Key's	X	X	
After Touch Ch's	X	X	
Pitch Bender	X	X	
Control Change	64 : 0 66 : 0 67 : 0	0 0 0	Sustain Key hold Soft Pedal
Program Change : True #	0 0-4 *****	0 0-127 0-4	
System Exclusive	X	0	
System : Song Pos	X	X	
System : Song Sel	X	X	
Common : Tune	X	X	
System : Clock	X	X	
Real Time : Commands	X	X	
Aux : Local ON/OFF	X	0	
Aux : All Notes OFF	X	0 (122-127)	
Mes- : Active Sense	0	0	
sages : Reset	X	0	
Notes			

Mode 1 : OMNI ON, POLY  
Mode 3 : OMNI OFF, POLY

Mode 2 : OMNI ON, MONO  
Mode 4 : OMNI OFF, MONO

0 : Yes  
X : No

# IMPORTANT SAFETY INSTRUCTIONS

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

**WARNING-** When using any electrical or electronic product, basic precautions should always be followed. These precautions include, but are not limited to, the following:

- 1.** Read all Safety Instructions, Installation Instructions, Special Message Section items, and any Assembly Instructions found in this manual **BEFORE** marking any connections, including connection to the main supply.
- 2.** Main Power Supply Verification: Yamaha products are manufactured specifically for the supply voltage in the area where they are to be sold. If you should move, or if any doubt exists about the supply voltage in your area, please contact your dealer for supply voltage verification and (if applicable) instructions. The required supply voltage is printed on the name plate. For name plate location, please refer to the graphic found in the Special Message Section of this manual.
- 3.** This product may be equipped with a polarized plug (one blade wider than the other). If you are unable to insert the plug into the outlet, turn the plug over and try again. If the problem persists, contact an electrician to have the obsolete outlet replaced. Do **NOT** defeat the safety purpose of the plug.
- 4.** Some electronic products utilize external power supplies or adapters. Do **NOT** connect this type of product to any power supply or adapter other than one described in the owners manual, on the name plate, or specifically recommended by Yamaha.
- 5. WARNING:** Do not place this product or any other objects on the power cord or place it in a position where anyone could walk on, trip over, or roll anything over power or connecting cords of any kind. The use of an extension cord is not recommended! If you must use an extension cord, the minimum wire size for a 25' cord (or less) is 18 AWG. **NOTE:** The smaller the AWG number, the larger the current handling capacity. For longer extension cords, consult a local electrician.
- 6.** Ventilation: Electronic products, unless specifically designed for enclosed installations, should be placed in locations that do not interfere with proper ventilation. If instructions for enclosed installations are not provided, it must be assumed that unobstructed ventilation is required.
- 7.** Temperature considerations: Electronic products should be installed in locations that do not significantly contribute to their operating temperature. Placement of this product close to heat sources such as; radiators, heat registers and other devices that produce heat should be avoided.
- 8.** This product was **NOT** designed for use in wet/damp locations and should not be used near water or exposed to rain. Examples of wet/damp locations are; near a swimming pool, spa, tub, sink, or wet basement.
- 9.** This product should be used only with the components supplied or; a cart, rack, or stand that is recommended by the manufacturer. If a cart, rack, or stand is used, please observe all safety markings and instructions that accompany the accessory product.
- 10.** The power supply cord (plug) should be disconnected from the outlet when electronic products are to be left unused for extended periods of time. Cords should also be disconnected when there is a high probability of lightening and/or electrical storm activity.
- 11.** Care should be taken that objects do not fall and liquids are not spilled into the enclosure through any openings that may exist.
- 12.** Electrical/electronic products should be serviced by a qualified service person when:
  - a. The power supply cord has been damaged; or
  - b. Objects have fallen, been inserted, or liquids have been spilled into the enclosure through openings; or
  - c. The product 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.
- 13.** Do not attempt to service this product beyond that described in the user-maintenance instructions. All other servicing should be referred to qualified service personnel.
- 14.** This product, either alone or in combination with an amplifier and headphones or speaker/s, may be capable of producing sound levels that could cause permanent hearing loss. **DO NOT** operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.  
**IMPORTANT:** The louder the sound, the shorter the time period before damage occurs.
- 15.** Some Yamaha products may have benches and/or accessory mounting fixtures that are either supplied as a part of the product or as optional accessories. Some of these items are designed to be dealer assembled or installed. Please make sure that benches are stable and any optional fixtures (where applicable) are well secured **BEFORE** using. Benches supplied by Yamaha are designed for seating only. No other uses are recommended.

## PLEASE KEEP THIS MANUAL

For details of products, please contact your nearest Yamaha or the authorized distributor listed below.

Pour plus de détails sur les produits, veuillez-vous adresser à Yamaha ou au distributeur le plus proche de vous figurant dans la liste suivante.

Die Einzelheiten zu Produkten sind bei Ihrer unten aufgeführten Niederlassung und bei Yamaha Vertragshändlern in den jeweiligen Bestimmungsländern erhältlich.

Para detalles sobre productos, contacte su tienda Yamaha más cercana o el distribuidor autorizado que se lista debajo.

## NORTH AMERICA

### CANADA

Yamaha Canada Music Ltd.  
135 Milner Avenue, Scarborough, Ontario,  
M1S 3R1, Canada  
Tel: 416-298-1311

### U.S.A.

Yamaha Corporation of America  
6600 Orangethorpe Ave., Buena Park, Calif. 90620,  
U.S.A.  
Tel: 714-522-9011

## MIDDLE & SOUTH AMERICA

### MEXICO

Yamaha De Mexico S.A. De C.V.,  
Departamento de ventas  
Javier Rojo Gomez No.1149, Col. Gpe Del  
Moral, Deleg. Iztapalapa, 09300 Mexico, D.F.  
Tel: 686-00-33

### BRASIL

Yamaha Musical Do Brasil LTDA.  
Ave. Reboucas 2636, São Paulo, Brasil  
Tel: 55-11 853-1377

### PANAMA

Yamaha De Panama S.A.  
Edificio Interseco, Calle Elvira Mendez no.10,  
Piso 3, Oficina #105, Ciudad de Panama, Panama  
Tel: 507-69-5311

### OTHER LATIN AMERICAN COUNTRIES AND CARIBBEAN COUNTRIES

Yamaha Music Latin America Corp.  
6101 Blue Lagoon Drive, Miami, Florida 33126,  
U.S.A.  
Tel: 305-261-4111

## EUROPE

### THE UNITED KINGDOM

Yamaha-Kemble Music (U.K.) Ltd.  
Sherbourne Drive, Tilbrook, Milton Keynes,  
MK7 8BL, England  
Tel: 0908-366700

### IRELAND

Danfay Limited  
61D, Sallynoggin Road, Dun Laoghaire, Co. Dublin  
Tel: 01-2859177

### GERMANY/SWITZERLAND

Yamaha Europa GmbH.  
Siemensstraße 22-34, D-2084 Rellingen, F.R. of  
Germany  
Tel: 04101-3030

### AUSTRIA/HUNGARY/SLOVENIA/ ROMANIA/BULGARIA

Yamaha Music Austria GesmbH.  
Schleiergasse 20, A-1100 Wien Austria  
Tel: 0222-60203900

### THE NETHERLANDS

Yamaha Music Benelux B.V.,  
Verkoop Administratie  
Kanaalweg 18G, 3526KL, Utrecht, The Netherlands  
Tel: 030-828411

### BELGIUM/LUXEMBOURG

Yamaha Music Benelux B.V.,  
Brussels-office  
Keiberg Imperiastraat 8, 1930 Zaventem, Belgium  
Tel: 02-7258220

### FRANCE

Yamaha Musique France,  
Division Instruments Electroniques et de Scène  
BP 70-77312 Mame-la-Valée Cedex 2, France  
Tel: 01-64-61-4000

### ITALY

Yamaha Musica Italia S.P.A.,  
Combo Division  
Viale Italia 88, 20020 Lainate (Milano), Italy  
Tel: 02-935-771

### SPAIN

Yamaha-Hazen Electronica Musical, S.A.  
Jorge Juan 30, 28001, Madrid, Spain  
Tel: 91-577-7270

### PORTUGAL

Valentim de Carvalho CI SA  
Estrada de Porto Salvo, Paço de Arcos 2780 Oeiras,  
Portugal  
Tel: 01-443-3398/4030/1823

### GREECE

Philippe Nakas S.A.  
Navarinou Street 13, P.Code 10680, Athens, Greece  
Tel: 01-364-7111

### SWEDEN

Yamaha Scandinavia AB  
J.A. Wettergrens gata 1, Box 30053, 400 43  
Göteborg, Sweden  
Tel: 031-496090

### DENMARK

YS Copenhagen Liaison Office  
Finsensvej 86, DK-2000 Frederiksberg, Denmark  
Tel: 31-87 30 88

### FINLAND

Fazer Music Inc.  
Aleksanterinkatu 11, SF 00100 Helsinki, Finland  
Tel: 0435 011

### NORWAY

Narud Yamaha AS  
Østerdalen 29, 1345 Østerås  
Tel: 02-24 47 90

### ICELAND

Páll H. Pálsson  
P.O. Box 85, 121 Reykjavik, Iceland  
Tel: 01-19440

### EAST EUROPEAN COUNTRIES (Except HUNGARY)

Yamaha Europa GmbH.  
Siemensstraße 22-34, D-2084 Rellingen, F.R. of  
Germany  
Tel: 04101-3030

## AFRICA

Yamaha Corporation,  
International Marketing Division  
Nakazawa-cho 10-1, Hamamatsu, Japan 430  
Tel: 053-460-2311

## MIDDLE EAST

### TURKEY/CYPRUS

Yamaha Musique France, Division Export  
BP 70-77312 Mame-la-Valée Cedex 2, France  
Tel: 01-64-61-4000

### OTHER COUNTRIES

Yamaha Corporation,  
International Marketing Division  
Nakazawa-cho 10-1, Hamamatsu, Japan 430  
Tel: 053-460-2311

## ASIA

### HONG KONG

Tom Lee Music Co., Ltd.  
11/F., Silvercord Tower 1, 30 Canton Road,  
Tsimshatsui, Kowloon, Hong Kong  
Tel: 730-1098

### INDONESIA

PT. Yamaha Music Indonesia(Distributor)  
PT. Nusantik  
Gedung Yamaha Music Center, Jalan Jend. Gatot  
Subroto Kav. 4, Jakarta 12930, Indonesia  
Tel: 21-520-2577

### KOREA

Cosmos Corporation  
#131-31, Neung-Dong, Sungdong-Ku, Seoul  
Korea  
Tel: 02-466-0021-5

### MALAYSIA

Yamaha Music Malaysia, Sdn., Bhd.  
16-28, Jalan SS 2/72, Petaling Jaya, Selangor,  
Malaysia  
Tel: 3-717-8977

### PHILIPPINES

Yupangco Music Corporation  
339 Gil J. Puyat Avenue, P.O. BOX 885 MCPO,  
Makati, Metro Manila, Philippines  
Tel: 819-7551

### SINGAPORE

Yamaha Music Asia Pte., Ltd.  
Blk 17A Toa Payoh #01-190 Lorong 7  
Singapore 1231  
Tel: 254-0133

### TAIWAN

Kung Hsue She Trading Co., Ltd.  
No. 322, Section 1, Fu Hsing S. Road,  
Taipei 106, Taiwan. R.O.C.  
Tel: 02-709-1266

### THAILAND

Siam Music Yamaha Co., Ltd.  
865 Phornprapha Building, Rama 1 Road,  
Patumwan, Bangkok 10330, Thailand  
Tel: 2-215-3443

### THE PEOPLE'S REPUBLIC OF CHINA AND OTHER ASIAN COUNTRIES

Yamaha Corporation,  
International Marketing Division  
Nakazawa-cho 10-1, Hamamatsu, Japan 430  
Tel: 053-460-2311

## OCEANIA

### AUSTRALIA

Yamaha Music Australia Pty. Ltd.  
17-33 Market Street, South Melbourne, Vic. 3205,  
Australia  
Tel: 3-699-2388

### NEW ZEALAND

Music Houses of N.Z. Ltd.  
146/148 Captain Springs Road, Te Papapa, Auckland,  
New Zealand  
Tel: 9-634-0099

### COUNTRIES AND TRUST TERRITORIES IN PACIFIC OCEAN

Yamaha Corporation,  
International Marketing Division  
Nakazawa-cho 10-1, Hamamatsu, Japan 430  
Tel: 053-460-2311

**HEAD OFFICE** Yamaha Corporation, Electronic Musical Instrument Division  
Nakazawa-cho 10-1, Hamamatsu, Japan 430  
Tel: 053-460-2445



## FCC INFORMATION (U.S.A.)

**1. IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!**

This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.

**2. IMPORTANT:** When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product **MUST** be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.

**3. NOTE:** This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices. This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices.

Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

Relocate either this product or the device that is being affected by the interference.

Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s.

In the case of radio or TV interference, relocate/reorient the antenna. 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 the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Corporation of America, Electronic Service Division, 6600 Orangethorpe Ave, Buena Park, CA90620

The above statements apply **ONLY** to those products distributed by Yamaha Corporation of America or its subsidiaries.

\* This applies only to products distributed by YAMAHA CORPORATION OF AMERICA.

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**YAMAHA**  
YAMAHA CORPORATION  
P.O. Box 1, Hamamatsu, Japan

KX40040 JDBBR5P03.2CP Printed in Japan