YAMAHA

GENERAL MIDI INSTRUMENT

MIDI KEYBOARD

CBX-K3

Owner's Manual

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, CA 90620

   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.

IMPORTANT NOTICE FOR THE UNITED KINGDOM

Connecting the Plug and Cord

IMPORTANT: The wires in this mains lead are coloured in accordance with the following code:

BLUE : NEUTRAL
BROWN : LIVE

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

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

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

Making sure that neither core is connected to the earth terminal of the three pin plug.

* This applies only to products distributed by YAMAHA KEMBLE MUSIC (U.K.) LTD.

Dette apparat overholder det gaeldende EF-direktiv vedrørende radiostøj.

Cet appareil est conforme aux prescriptions de la directive communautaire 87/308/CEE.

Diese Geräte entsprechen der EG-Richtlinie 82/499/EWG und/oder 87/308/EWG.

This product complies with the radio frequency interference requirements of the Council Directive 82/499/EEC and/or 87/308/EEC.

Questo apparecchio è conforme al D.M.13 aprile 1989 (Direttiva CEE/87/308) sulla soppressione dei radiodisturbi.

Este producto está de acuerdo con los requisitos sobre interferencias de radio frequencia fijados por el Consejo Directivo 87/308/CEE.

YAMAHA CORPORATION

SPECIAL MESSAGE SECTION

This product utilizes or an external power supply (adapter). DO NOT connect this product to any power supply or adapter other than one described in the manual, on the name plate, or specifically recommended by Yamaha.

WARNING: Do not place this product in a 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 1 cm) is I8 AWG. NOTE: The smaller the AWG number, the larger the current handling capacity. For longer extension cords, consult a local electrician.

This product should be used only with the components supplied or; a cart, rack, or stand that is recommended by Yamaha. If a cart, etc., is used, please observe all safety markings and instructions that accompany the accessory product.

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.

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.

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 long periods 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.

Some Yamaha products may have benches and/or accessory mounting fixtures that are either supplied with 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.

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.

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.

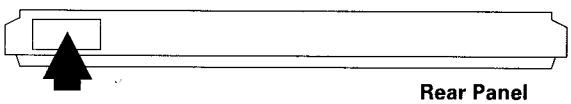
This product may also use "household" type batteries. Some of these may be rechargeable. Make sure that the battery being charged is a rechargeable type and that the charger is intended for the battery being charged.

When installing batteries, do not mix old batteries with new, or with batteries of a different type. Batteries MUST be installed correctly. Mismatches or incorrect installation may result in overheating and battery case rupture.

Warning: Do not attempt to disassemble, or incinerate any battery. Keep all batteries away from children. Dispose of used batteries promptly and as regulated by the laws in your area. Note: Check with any retailer of household type batteries in your area for battery disposal information.

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. If your dealer is unable to assist you, please contact Yamaha directly.

NAME PLATE LOCATION: The graphic below indicates the location of the name plate for this model. 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.



Rear Panel

Model _____

Serial No. _____

Purchase Date _____

PLEASE KEEP THIS MANUAL

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Preface

Congratulations!

Thank you for purchasing Yamaha's CBX-K3 MIDI keyboard.

The CBX-K3 has been developed as a MIDI keyboard for use with computers. The CBX-K3 can input data to a computer or a sequencer, or it can be used as a MIDI keyboard for a tone generator.

To obtain maximum performance and enjoyment from your new CBX-K3, read this Owner's Manual carefully, and afterwards store it in a safe place for future reference.

How to use this manual

This manual is divided into four parts and provides all the information you need to begin using your Yamaha CBX-K3 MIDI keyboard. Part 1, "Introduction", explains how the CBX-K3 works.

The remaining parts explain how to set up, use, and care for your Yamaha CBX-K3 MIDI keyboard. Parts 1 through 3 will familiarize you with how the CBX-K3 works, after which you should only need to refer to the Reference section from time to time for details on functions you don't use very often, or have never used before.

Part 1 **Introduction:** This part describes how the CBX-K3 operates. Read this part before setting up your system.

Part 2 **Setting Up:** Information on setting up your CBX-K3 and how to connect it to other devices.

Part 3 **Using the CBX-K3:** Contains all the information you need to operate your CBX-K3.

Part 4 **Reference:** This part provides specific and more detailed information regarding the use of your CBX-T3. Use this part as you would a dictionary or encyclopedia: turn to it when you need specific information.

There is also a glossary and an index at the back of the manual. Use these together with the table of contents to find information quickly.

Part 1

Introduction

We recommend that you read through this part, before setting up and using your CBX-K3, in order to become familiar with its capabilities.

Chapter 1 — The CBX-K3

The Yamaha CBX-K3 is a 49-key MIDI keyboard. It was especially developed for use with computers. It can input MIDI data to MIDI compatible sequencers or computers, or it can be used as a MIDI keyboard with a tone generator.

As a MIDI keyboard, the CBX-K3, does not generate sound. Instead it sends MIDI messages that are converted to sound by sound generators (the Yamaha CBX-T3 or TG100 tone generators for example).

The versatility of the CBX-K3 allows you to easily design and set-up your own MIDI system. Using a MIDI keyboard with expansion modules is an economical way to create a powerful MIDI system.

Keyboard and controls

The CBX-K3 has 49 full size keys. This makes it extremely compact and easy to fit on your desktop. The sound range can, however, be easily expanded to 73 keys — six octaves — by using the TRANSPOSE buttons.

The CBX-K3 is touch sensitive, this allows the keyboard to sense how fast and hard you press the keys. This information, when transmitted to other MIDI devices, plays the notes softer or louder in accordance with how fast or hard you have pressed the keys.

General MIDI level 1 voices are indicated on the body for quick, convenient voice selection with the four VOICE GROUP and 32 VOICE SELECT buttons.

The first 16 VOICE SELECT buttons can also be used in conjunction with the CHANNEL button to select a MIDI channel.

Slide Controllers

The CBX-K3 Slide Controllers allow you to adjust: VOLUME, VELOCITY, TEMPO, EXPRESSION, and PAN directly from the keyboard.

Wheel controllers

The CBX-K3 comes equipped with two wheel controllers: PITCH BEND and MODULATION. The PITCH BEND wheel can bend the pitch, in a smooth portamento, between two preset values. The MODULATION wheel increases or decreases the amount of added vibrato.

Foot controller

Although not supplied the CBX-K3 can be connected to a sustain pedal through its SUSTAIN port. Sustain is an effect that keeps the notes playing even after you release the keyboard keys that started the notes.

Remote control

The CBX-K3 is equipped with three REMOTE CONTROL buttons: STOP, CONTINUE, and START. These buttons can be used to control the playback of a performance from a sequencer, a computer, or even a whole MIDI system right from your MIDI keyboard.

MIDI and the CBX-K3

The CBX-K3 has a built-in microprocessor, enabling it to send MIDI signals to connected tone generators, computers, or synthesizers. The buttons on the CBX-K3's control panel control the operation of the keyboard and the connected devices. You can use them to assign MIDI messages, and so tailor its MIDI output to work with whatever computer, tone generator, or synthesizer you're using. You can also set the volume, and select voices on the attached devices.

The CBX-K3 can only produce sound if the control information generated by it is sent through MIDI signals to a sound generator. MIDI signals are processed in real-time, meaning that any action you perform on your MIDI keyboard will be instantly transmitted as a MIDI message to whatever MIDI device(s) you are connected to.

MIDI is quite a comprehensive subject, so in this owner's manual we will just look at what is applicable to the CBX-K3. A good understanding of MIDI however, will allow you to get the most out of your system. If you want to know more about MIDI, there are many good books available.

General MIDI Level 1

MIDI, the Musical Instrument Digital Interface, is a world-wide system that allows MIDI-compatible musical instruments and devices to share musical information and control one another. It does this by transmitting digital signals through MIDI cables, meaning messages are sent between MIDI devices as a series of numbers, which is also how computers communicate with each other.

General MIDI Level 1 standardizes Program Change numbers to particular voices, making it possible for the same performance, when played on different synthesizers or tone generators, to have similar-sounding voices. Thus data created for General MIDI can be played on various instruments with voices similar to the original recording. For example, when MIDI Program Change number 1 is sent to any tone generator that complies with the General MIDI standard, the voice selected will always be Grand Piano. However, because different manufacturers and models have different voice arrays, voices may sound different when played on a tone generator for which they were not intended.

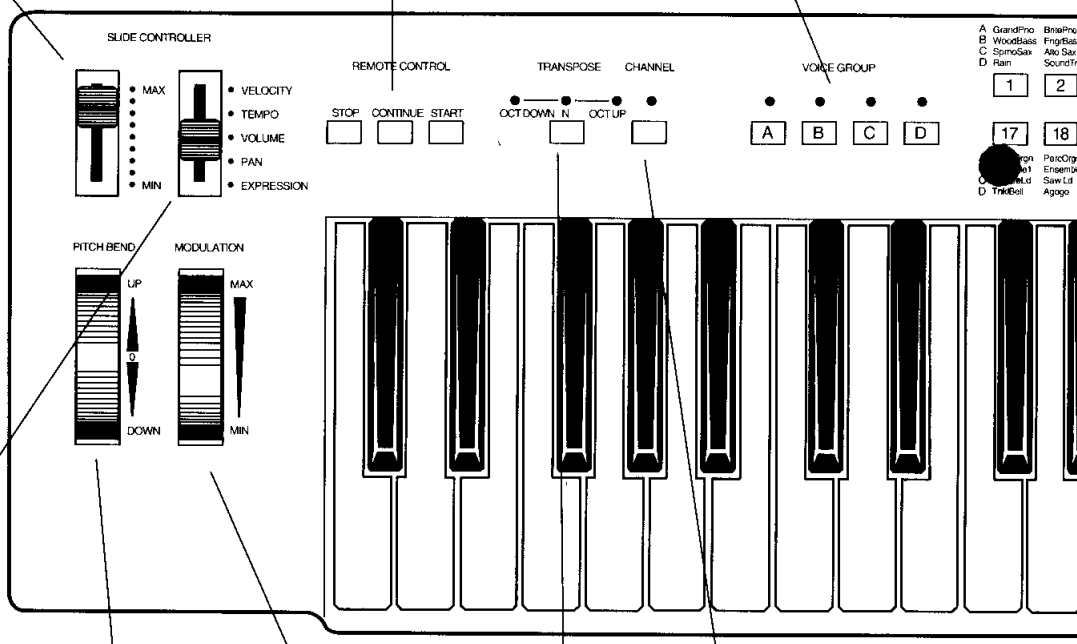
Chapter 2 # *Your MIDI keyboard at a glance*

CBX-K3 top panel

CONTINUOUS SLIDER
Adjusts the parameter selected by the SELECTOR.

REMOTE CONTROL buttons
For remote control of a sequencer or computer.

VOICE GROUP buttons
Select the appropriate voice group: A, B, C, or D.



SELECTOR
Selects the parameter to be changed with the CONTINOUS SLIDER.

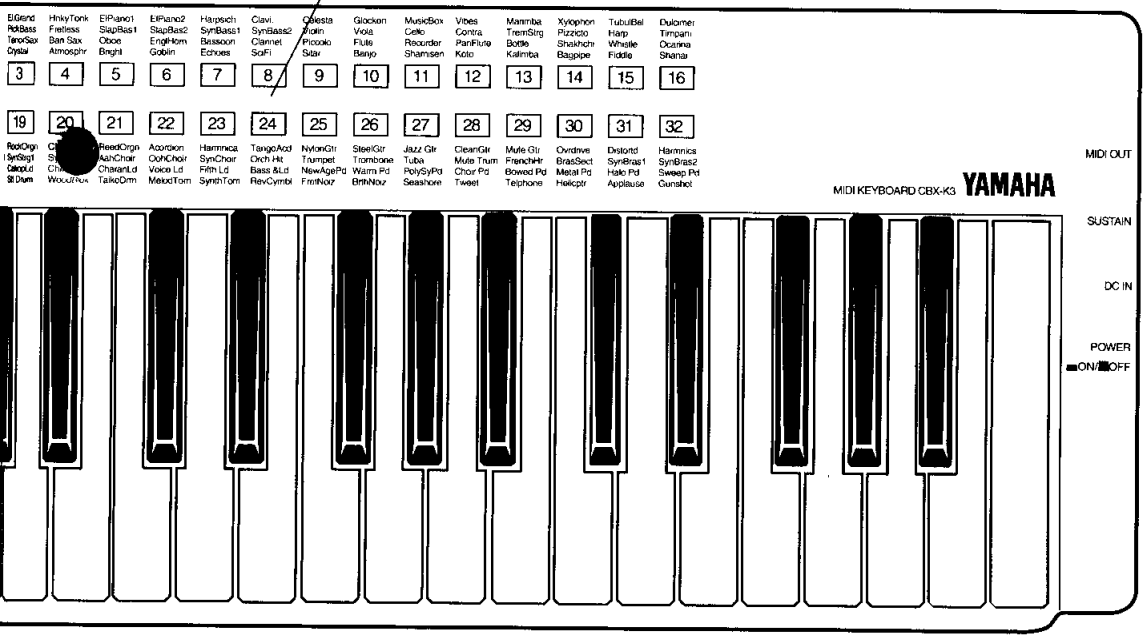
MODULATION wheel
Applies various effects to a voice, such as vibrato, modulation, and tremolo.

CHANNEL button
Used in combination with the VOICE SELECT buttons 1 ~ 16, sets the MIDI transmission channel.

PITCH BEND wheel
Raises or lowers the pitch of a note being played.

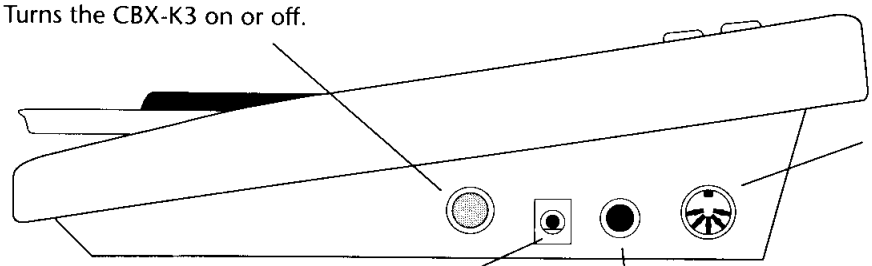
TRANSPOSE button
Change the pitch up or down, by one octave.

VOICE SELECT buttons
Select an individual voice from the currently selected voice group.



CBX-K3 side panel

POWER switch
Turns the CBX-K3 on or off.



MIDI OUT port
Plug in a MIDI cable to connect the CBX-K3 to another MIDI instrument or MIDI interface.

DC IN port
Plug in the power adaptor jack here.

SUSTAIN port
Connects a sustain pedal, such as Yamaha's FC-4 or FC-5.

Part 2

Setting Up

This Part, Chapters 3 through 7, will guide you step by step through the process of setting up your CBX-K3. It is important that you read Chapter 3 before reading any of the other chapters. In all subsequent chapters, you only need to read the information that pertains to your particular system.

Chapter 3

Before you begin

Before you begin setting up your CBX-K3 MIDI keyboard, make sure that all equipment is turned off.

The CBX-K3 does not generate any sound by itself. You need additional equipment to make the CBX-K3 generate and output that sound. Basically you require:

- A MIDI device, such as a tone generator, sequencer, or computer, that can receive and play back MIDI control data from the CBX-K3.
- An audio amplifier with speakers or powered speakers.
- The appropriate adaptors and cables to connect your system up.

Important safety instructions

You're almost ready to set up your MIDI keyboard, but before you begin, read these important safety instructions.

For your safety and the protection of your equipment always follow these precautions.

- Disconnect the power adaptor under these conditions:
  - If the power cord is frayed or in any other way damaged
  - If any liquid is spilled on the CBX-K3
  - If there is a threat of lightning
- Always disconnect the CBX-K3's power adaptor by pulling the plug, not the cord.
- If you use an extension cord or power strip, do not exceed its power rating.
- Your CBX-K3 has no user serviceable parts. Refer any problems to your Yamaha dealer or service center.
- Do not place your CBX-K3 in places subject to extreme heat. For example: inside a car, near a window, or near a heater.
- Do not place your CBX-K3 in places subject to extreme moisture. For example: near an air conditioner, inside a bathroom, or outdoors.
- Do not place your CBX-K3 in places subject to excessive dust.
- Do not place your CBX-K3 in places subject to excessive vibration.
- Place your MIDI keyboard on a level, stable surface.
- Your CBX-K3 has been built to last, but it still requires your care. Therefore, **never:**
  - drop it
  - apply excessive force to its controls
  - place heavy objects on top of it
- Use only a soft, dry cloth to clean your CBX-K3. If necessary, a slightly damp cloth may also be used.
- Store this manual safely for future reference.
- Be sure to follow all instructions and warnings relating to your system.

fff **Warning:** Electrical equipment may be hazardous if misused.

Yamaha is not responsible for software produced for this product by third party manufacturers. Please direct any questions or comments about such software to the manufacturers or their agents.

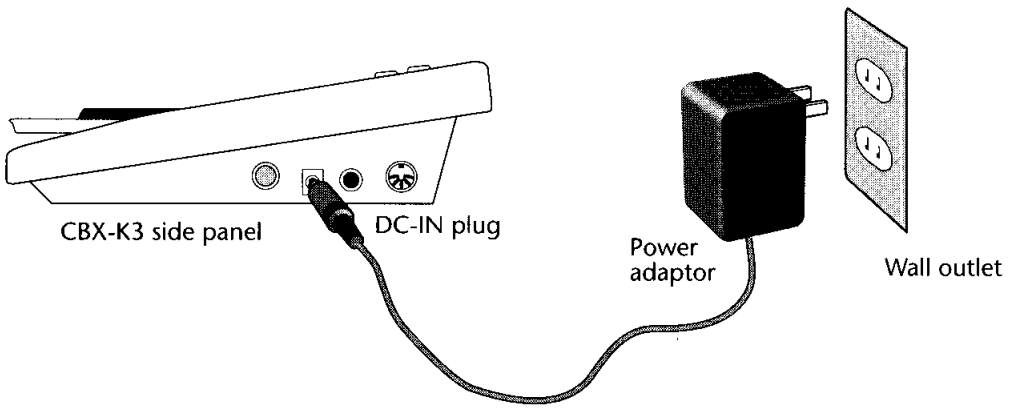
Yamaha is not responsible for damage caused by improper use.

Chapter 4

Plugging in the CBX-K3

Before turning on the power, make sure that the CBX-K3 is properly connected to any peripheral devices, and that those devices are switched off. Use only the AC power adaptor supplied with your CBX-K3 (PA-1B) to provide power. To connect the power adaptor, follow these steps.

1. **Make sure that the POWER switch of the CBX-K3 is turned off, and that the power adaptor is not plugged into a wall outlet or power strip.**
2. **Plug the DC IN plug into the CBX-K3's DC IN port.**



3. **Plug the power supply adaptor into a wall outlet or power strip.**

fff Warnings

- Do not attempt to use a different AC adaptor to power the unit. The use of an incompatible adaptor may cause irreparable damage to the CBX-K3, and might pose a serious shock hazard!
- Make sure that the supplied power adaptor is suitable for use with your AC mains supply. Special care must be taken when the CBX-K3 is purchased in another country or when you use an alternative electricity supply (the correct input voltage is marked on the adaptor).
- When not using your CBX-K3 for an extended period of time, disconnect the AC adaptor from its outlet.
- If there is a threat of lightning, disconnect the AC adaptor from its outlet.
- Avoid using the same outlet with equipment that consumes large amounts of power. Also, avoid using multi-plug adaptors as they are potential hazards.

Chapter 5

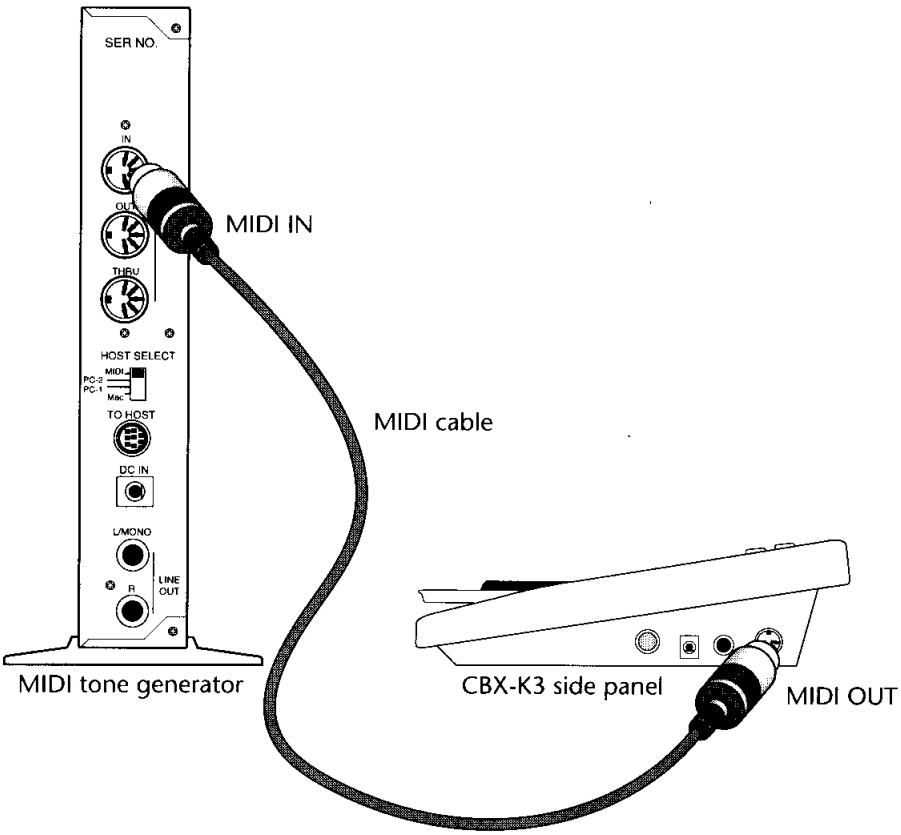
Connecting MIDI devices

Your CBX-K3 is fully MIDI compatible, and can be connected to any MIDI device. Listed below are the instructions for connecting the CBX-K3 to various other MIDI devices.

Connecting a tone generator

To connect the CBX-K3 to a tone generator, such as Yamaha's CBX-T3 or TG100, or to a synthesizer, such as Yamaha's SY99, follow these steps.

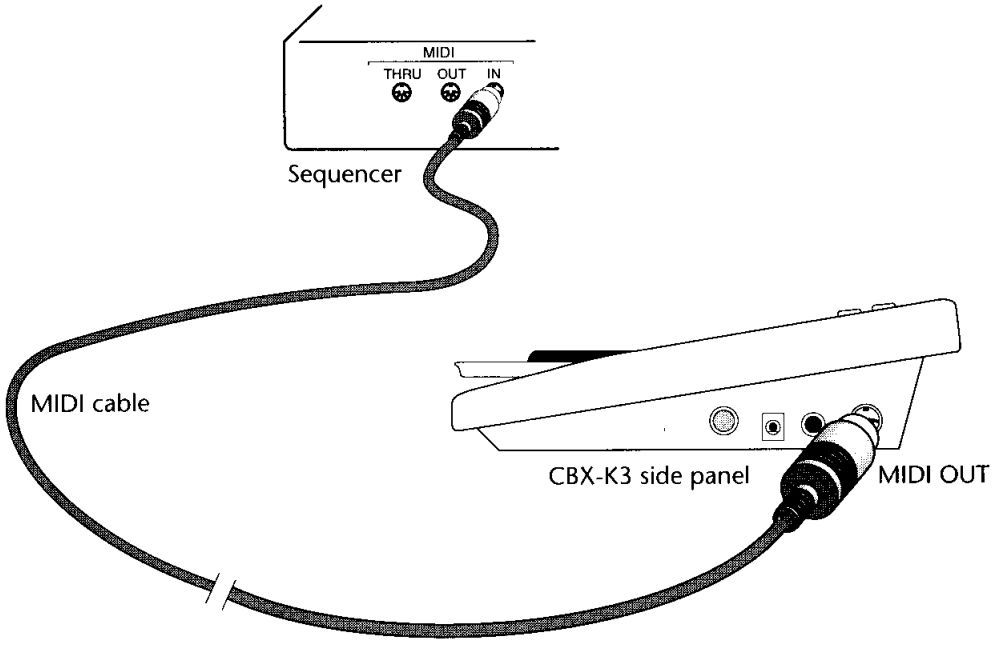
1. **Connect the supplied MIDI cable to the CBX-K3's MIDI OUT port.**
2. **Connect the other end of the supplied MIDI cable to the MIDI IN port of the tone generator.**



Connecting a sequencer

A sequencer is a device that records MIDI data and stores it on a floppy disk or hard disk so that it can be played back at any time you choose. Examples are Yamaha's QY20, QY10, or QX3. To connect the CBX-K3 to a sequencer:

1. **Connect the supplied MIDI cable to the CBX-K3's MIDI OUT port.**
2. **Connect the other end of the supplied MIDI cable to the MIDI IN port of the sequencer.**



There are also many sequencing software packages for computers. Connecting to a computer is explained below.

Chapter 6

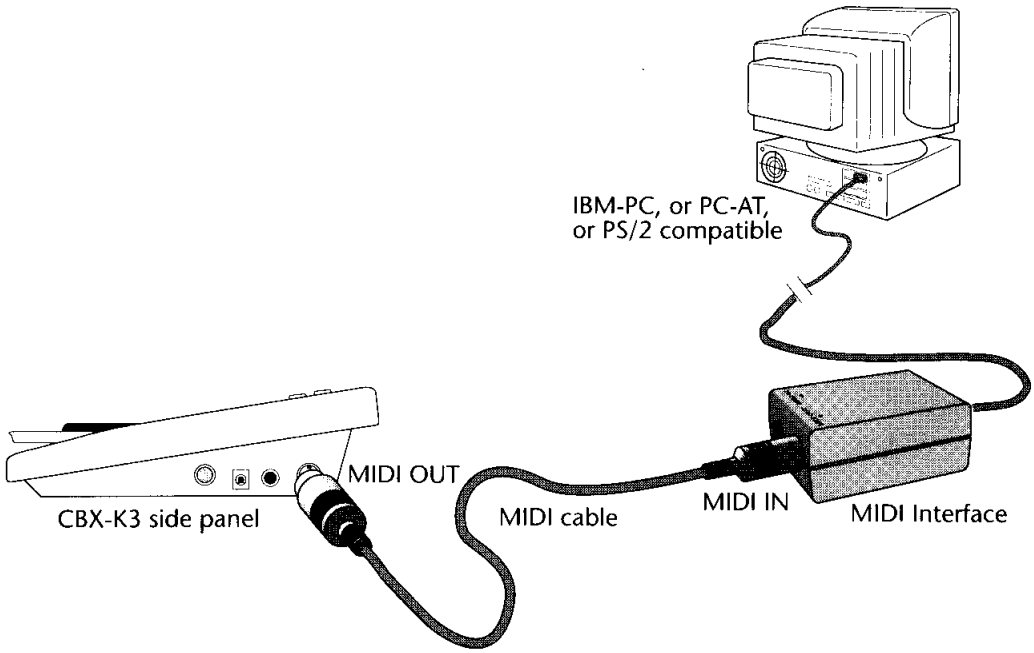
Connecting a computer

Your CBX-K3 can be connected to any computer that uses MIDI software and is equipped or connected to a MIDI interface. Listed below are the various types of connections that can be made between the CBX-K3 and a computer.

Connecting an IBM-PC, PC-AT compatible or PS/2 type computer using a MIDI interface

You can connect your IBM-PC, PC-AT compatible or PS/2 type computer to the CBX-K3 by using a MIDI interface. For this, you need to install a MIDI interface card into one of the expansion slots of your computer. Usually, a port in this card connects to a cable that leads to a MIDI interface — a small device with MIDI In and Out ports. There are also external MIDI interfaces that can be directly connected to the computer's serial port (RS-232C). These MIDI interfaces are not installed in one of the computers expansion ports. To connect an IBM-PC, PC-AT compatible or PS/2 type computer to the CBX-T3 using an external MIDI interface or a MIDI interface card, follow these steps.

1. **Make sure that the MIDI interface is properly connected to or installed in your computer.**
2. **Connect the supplied MIDI cable to the CBX-K3's MIDI OUT port.**
3. **Connect the other end of the supplied MIDI cable to the MIDI IN port of the MIDI interface.**



Connecting a Macintosh using a MIDI interface

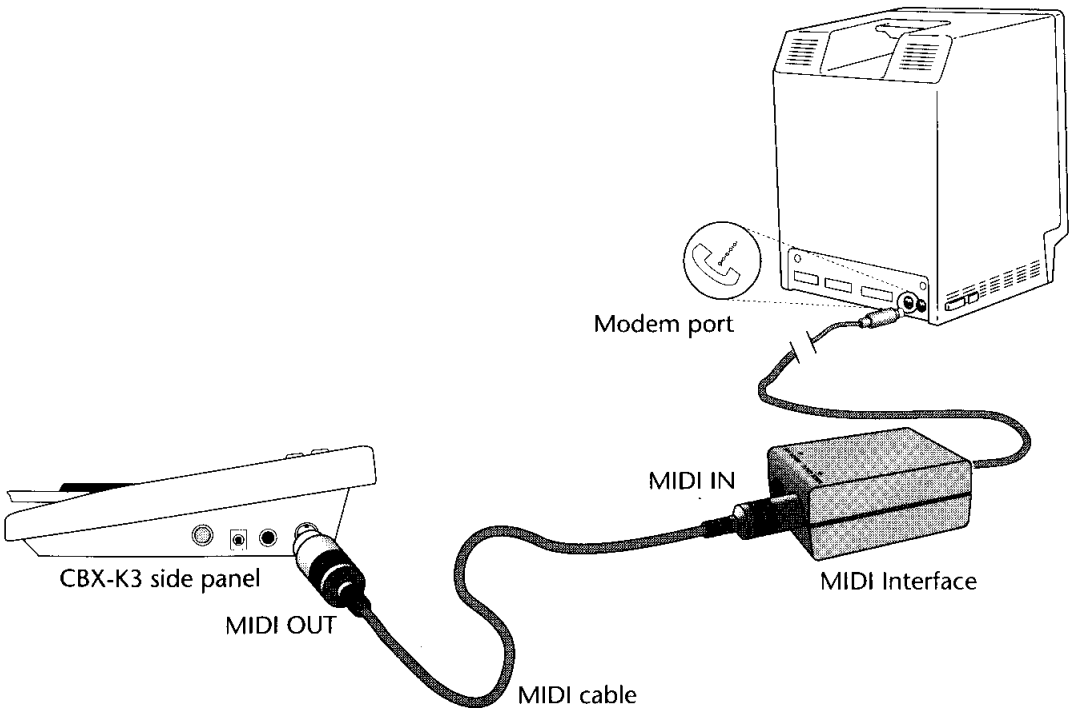
To connect a Macintosh to the CBX-K3 using a MIDI interface, follow these steps.

1. **Connect the MIDI interface to the Macintosh's modem port.**

   If you can use your MIDI application to set whether it should use the modem port or the printer port, you can connect the cable to either port. If your application doesn't give you a choice, use the modem port.

2. **Connect the supplied MIDI cable to the CBX-K3's MIDI OUT port.**

3. **Connect the other end of the supplied MIDI cable to the MIDI IN port of the MIDI interface.**

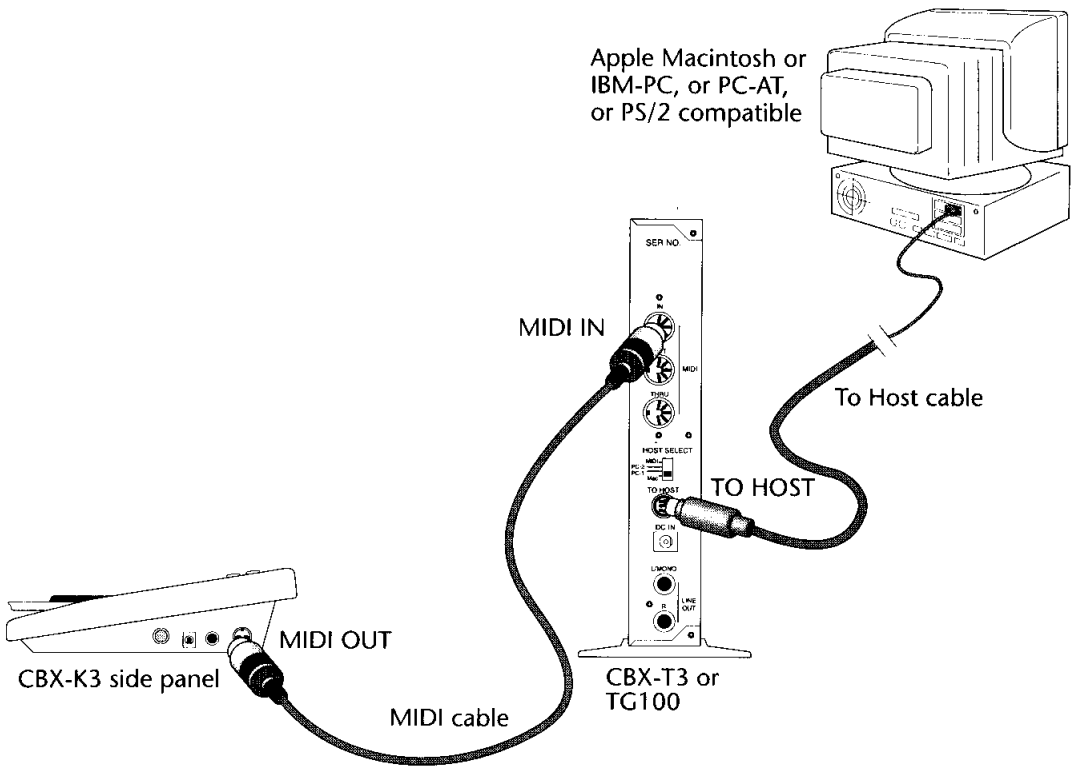


Note: Please refer to the manuals that came with your MIDI interface and application software for setting the clock rate of your MIDI interface.

Using Yamaha's CBX-T3 or the TG100 as a MIDI interface with an Apple Macintosh or IBM-PC, PC-AT compatible or PS/2 type computer

The Yamaha CBX-T3 and TG100 tone generators can also function as MIDI interfaces when used with Apple Macintosh, IBM-PC, PC-AT compatible or PS/2 type computers. A MIDI interface card is not required in this case as the CBX-T3 can connect directly to the modem port of your Apple Macintosh or to the RS-232C port of your IBM-PC, PC-AT compatible or PS/2 type computer. To connect the CBX-K3 to a computer using the CBX-T3 or the TG100 as a MIDI interface, follow these steps.

1. **Connect the supplied MIDI cable to the CBX-K3's MIDI OUT port.**
2. **Connect the other end of the supplied MIDI cable to the MIDI IN port of the CBX-T3 or TG100 tone generator.**



3. **Check the user's manual of the CBX-T3 or the TG100 for instructions on how to connect a computer directly to the tone generator.**

   The CBX-T3 or TG100 cannot be used as a MIDI interface with certain computers and software. For details, refer to the owner's manual of the equipment you wish to use.

Connecting other computers

Various other computers, provided they can connect to a MIDI interface or have a built in MIDI interface, may be connected to the CBX-K3. To connect such a computer, follow these steps:

1. **Connect the MIDI interface to the computer or locate the built-in MIDI IN and OUT ports.**

   The MIDI interface is not supplied and must be purchased separately.

2. **Connect the supplied MIDI cable to the CBX-K3's MIDI OUT port.**
3. **Connect the other end of the supplied MIDI cable to the MIDI IN port of the MIDI interface or directly to the computer's MIDI IN port.**

Chapter 7

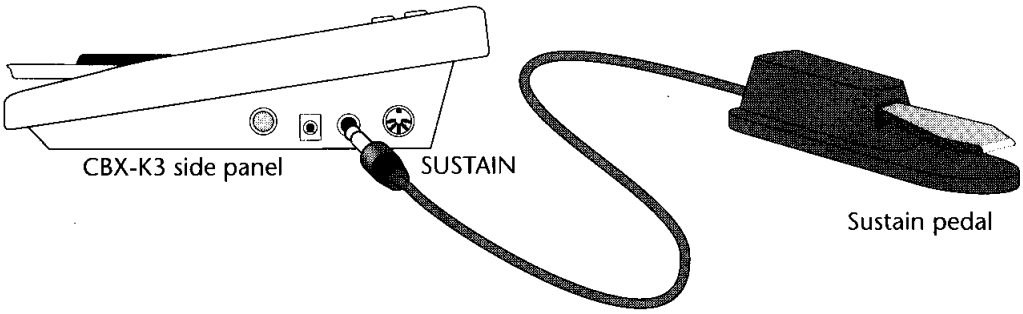
Connecting a sustain pedal to the CBX-K3

To use a sustain pedal, such as the Yamaha FC4 or FC5:

1. **Make sure that you have a suitable foot switch.**

   Yamaha's FC4 or FC5 is recommended. Other foot switches or sustain pedals are not guaranteed to work with the CBX-K3.

2. **Connect the sustain pedal by plugging in the plug of the sustain pedal to the SUSTAIN port of the CBX-K3.**



The sustain pedal is not supplied and must be purchased separately.

Part 3

Using the CBX-K3

This section contains all the basic information you need to begin using your MIDI keyboard.

Chapter 8

The basics

This chapter presents essential information. Please read it carefully.

Turning the CBX-K3 on and off

Following the instructions below first check all connections before turning on your MIDI keyboard.

Always follow this sequence when you turn the power on. Reverse the sequence when turning the CBX-K3 off.

1. **Completely turn down all the MASTER VOLUME controls of any auxiliary equipment.**
2. **Turn on the CBX-K3 by pressing its POWER button.**
3. **Turn on the sound generator (Yamaha's CBX-T3 or TG100 for example).**
4. **Turn on the audio equipment, such as a stereo system or powered speakers (CBX-S3).**
5. **Turn on the computer, if used.**
6. **Adjust the MASTER VOLUME control(s) of the auxiliary equipment back to a reasonable level.**

Always turn the power off prior to connecting your CBX-K3 to peripheral tone generators and speakers. This will prevent damage to the amplifier and the speakers.

Have fun! You can now start using your MIDI keyboard.

Note: For information on how to operate peripheral equipment, refer to the owner's manual of that equipment.

Chapter 9

Using the controls

You can now begin playing music with your MIDI keyboard after setting up your system and making the appropriate settings. This section explains how to use the various controls on the front panel of the CBX-K3.

Many of the functions described in this Part require two steps to activate a function. For example, in selecting a voice, first you:

1. **Press a VOICE GROUP button (A ~ D).**

   Then:

2. **Press the VOICE SELECT button (1-32) that corresponds to the voice you wish to select.**

Both steps must be performed, in that order, to send a complete Program Change message.

No function will be activated when two buttons are pressed simultaneously. Be sure to completely release one button before pressing another.

Chapter 10

Setting the MIDI channel

MIDI messages can only be transferred when both sending and receiving devices are set to the same MIDI channel. The CBX-K3 has only a MIDI OUT port, therefore, only the transmission channel can be set; not the receive channel. To set the transmission channel on the CBX-K3.

1. **Press the CHANNEL button.**
2. **Press the VOICE SELECT button (1-16) that matches the number of the channel you want to select.**

Both steps must be performed in the above order before the CBX-K3 can transmit on a new MIDI channel.

If the receiving device's receive channel is set to OMNI ON it will accept whatever data you transmit on any channel, but if it is set to OMNI OFF it will only accept data on one channel. Check the owner's manual of your synthesizer or tone generator to find out how to change its channel and OMNI settings.

Chapter 11

Selecting a voice

To change the voice of a connected sound generator, use the VOICE SELECT buttons. On the CBX-K3's front panel, General MIDI names are printed for each VOICE SELECT button. When a General MIDI compatible tone generator, like Yamaha's CBX-T3 or TG100, is used with the CBX-K3, you can select voices by using voice names only. To change the voice:

1. **Select a VOICE GROUP button (A, B, C, or D) that matches the voice group you wish to select a voice from.**
2. **Press a VOICE SELECT button (1 - 32) that matches the voice you wish to select.**

For example, when using a General MIDI compatible tone generator, such as the Yamaha CBX-T3 or TG100, to get the sound of a baritone sax you would press VOICE GROUP button C and then press VOICE SELECT button 4.

Depending on the tone generator you are using, the displayed voice names may not match the Program Change numbers. For information, refer to the manual of the tone generator you are using. If the voices on your tone generator have different number assignments, you can select them by number.

VOICE GROUP	Program Change message number
VOICE GROUP A	VOICE SELECT buttons 1 - 32 transmit program changes 0 - 31.
VOICE GROUP B	VOICE SELECT buttons 1 - 32 transmit program changes 32 - 63.
VOICE GROUP C	VOICE SELECT buttons 1 - 32 transmit program changes 64 - 95.
VOICE GROUP D	VOICE SELECT buttons 1 - 32 transmit program changes 96 - 127.

VOICE SELECT numbers go from 1 to 128. The corresponding MIDI output Program Change numbers go from 0 to 127. Therefore, Program Change number 12 is VOICE 13, and so on.

You must press both a VOICE GROUP and a VOICE SELECT button. The Program Change message will not be sent if only a VOICE GROUP is selected.

A new voice will not take effect for notes that were sounding already while the new voice was being selected. So, when you are selecting a new voice while holding down the keyboard keys or the

sustain pedal, the voice will not change for the notes that were playing before the voice change. Only subsequently played notes will sound with the newly selected voice.

No function will be activated when two buttons are pressed simultaneously. Be sure to completely release one button before pressing another.

Selecting drum and percussion voices

General MIDI System Level 1 defines the Drum and Percussion voices from B0 (35)through to A4 (81). When using the Standard Kit of the CBX-T3 keys lower than A#0 (34) and higher than A#4 (82) will select the CBX-T3's optional drum and percussion voices.

Note: For General MIDI LEVEL 1 compatibility reasons it is recommended that these optional CBX-T3 voices are not used.

Chapter 12

Using the transpose function

Although the CBX-K3 has only 49 keys, the transpose function gives it an effective range of 73 keys. The transpose function moves all keyboard data output from the CBX-K3 one octave up or down. To use this function:

1. **Press the TRANSPOSE button until the LED lights that corresponds to the transpose range you wish to select.**

   Each press of the TRANSPOSE button sets the keyboard transpose range and lights the corresponding LED in the following cycle.

   - N (Normal)
   - OCT UP (One octave up)
   - N (Normal)
   - OCT DOWN (One octave down)
   - N (Normal).

   Following is the sound range for each setting.

Setting	Range
N (Normal)	C1-C5
OCT UP (One octave up)	C2-C6
OCT DOWN (One octave down)	C0-C4

The new setting will not transpose notes that were sounding already while the new setting was being selected. Only subsequently played notes will sound with the newly transposed setting.

Chapter 13

Using the PITCH BEND wheel

The PITCH BEND wheel raises or lowers the pitch of a voice during performance. You can use the PITCH BEND wheel to add a subtle nuance to a melody, or for example, to add a guitar bending effect to your music.

The range that the pitch raises and lowers is set on the sound generator being used. Refer to the manual of your MIDI device for information on how to change the Pitch Bend range.

Chapter 14

Using the MODULATION wheel

Use the MODULATION wheel to change the intensity of effects, mainly Vibrato (changes the pitch), Tremolo (changes the volume), and Modulation (changes the tone). The MODULATION wheel is most effective for voices such as brass and violin, which produce a vibrato effect shortly after their sound is generated.

The range of the modulation effect is set on the sound generator being used. Refer to the manual of your sound generator for information on how to change the modulation effect range.

Chapter 15

Using a sustain pedal

A sustain pedal, such as the Yamaha FC4 or FC5, has the same effect as a piano's damper pedal. If the pedal is pressed while holding down a key, the sound generated by that key remains until the pedal is released (even if the key itself is released). It is particularly effective with voices which fade out, like piano or harpsichord.

Chapter 16

Using the Slide Controllers

In the upper left-hand corner of the CBX-K3 panel are two Slide Controllers which can be used for multiple purposes. Use the right Slide Controller (the SELECTOR) to select a parameter you want to change (velocity, tempo, etc.), then operate the left Slide Controller (the CONTINUOUS SLIDER) to change the velocity value or to create various control data.

In all of the Slide Controller functions, both Slide Controllers must be moved, or no change will occur.

Adjusting velocity

The CBX-K3 is a velocity sensitive keyboard and as such it detects how quickly a key moves when it is first pressed. The keyboard can then play softer or louder notes depending on the velocity it senses. Increasing the velocity causes a note to be played louder. Decreasing it causes a note to be played softer.

1. **Select VELOCITY with the SELECTOR.**
2. **Set a Velocity value with the CONTINUOUS SLIDER.**

If you do not move the CONTINUOUS SLIDER after selecting VELOCITY with the SELECTOR, the new value will not be transmitted.

Once a velocity value is set with the CONTINUOUS SLIDER, the Velocity of NOTE ON data transmitted from the CBX-K3 is fixed.

When step recording with a sequencer, move the CONTINUOUS SLIDER while entering the pitches with the keys, and a crescendo (a gradual increase) or decrescendo (a gradual decrease) can be entered easily.

Adjusting tempo

At all times the CBX-K3 sends MIDI Real-Time Timing Clock messages. These messages can be used to set the tempo for receiving sequencers and other MIDI devices. To adjust the tempo:

1. **Select TEMPO with the SELECTOR.**
2. **Move the CONTINUOUS SLIDER.**

If you do not move the CONTINUOUS SLIDER after selecting TEMPO with the SELECTOR, the new value will not be transmitted.

The default tempo value is ♩ = 120.

If you want to control the tempo (MIDI Clock) from the CBX-K3, the SYNC (Synchronization performance) setting of a sequencer or computer should be set so that an external MIDI Clock can be accepted.

If you do not want to control the tempo of the receiving sequencer or computer from the CBX-K3, set the sequencer or sequencing software so that it ignores the external clock (this option is not always available). The CBX-K3, however, will continue to send Timing Clock messages. At times, the computer might have difficulty coping with the amount of MIDI traffic. Therefore, it is best to reduce the number of MIDI Timing Clock messages transmitted from the CBX-K3. Do this by selecting TEMPO with the SELECTOR. Then, move the CONTINUOUS SLIDER to MIN.

♪ **Note:** Most sequencer software when set to ignore external Timing Clock messages (MIDI Clock) will not respond to the Start, Stop, and Continue System Real-Time messages thus rendering the MIDI CONTROL STOP, CONTINUE, and START buttons useless.

Adjusting the volume

This function changes and sets the main volume data that is transmitted from the CBX-K3.

1. **Select VOLUME with the SELECTOR.**
2. **Move the CONTINUOUS SLIDER.**

If you do not move the CONTINUOUS SLIDER after selecting VOLUME with the SELECTOR, the new value will not be transmitted.

Refer to the manual of the sound generator you are using to see if it is compatible with the Main volume # 7 Control Change message.

We recommend that, for normal use, you set the SELECTOR to VOLUME, and the CONTINUOUS SLIDER to MAX, so that undesired MIDI data is not transmitted.

Adjusting the pan setting

This function changes and sets Panpot data (the position of a voice in relationship to the speakers in 128 steps (from 0 to 127); left = 0, center = 64, right = 127). Naturally, it is ineffective with a monaural system.

1. **Select PAN with the SELECTOR.**
2. **Move the CONTINUOUS SLIDER.**

If you do not move the CONTINUOUS SLIDER after selecting Pan with the SELECTOR, the new value will not be set.

Refer to the manual of the sound generator you are using to see if it is compatible with the Pan # 10 Control Change message.

Adjusting expression

This function changes and sets the expression controller data that is transmitted from the CBX-K3.

1. **Select EXPRESSION with the SELECTOR.**
2. **Move the CONTINUOUS SLIDER.**

If you do not move the CONTINUOUS SLIDER after selecting EXPRESSION with the SELECTOR, the new value will not be transmitted.

Refer to the manual of the sound generator you are using to see if it is compatible with the Expression #11 Control Change message.

Chapter 17

Using the remote control function

Just to the right of the Slide Controllers on the CBX-K3's front panel are three REMOTE CONTROL buttons.

You can use the remote control function to control the performance of a sequencer, a computer, or your whole MIDI system from the keyboard.

When pressed, each button, transmits the following data from the MIDI OUT port.

Button	System Real-Time message
STOP	Sends a Stop System Real-Time message that asks all receiving devices to stop playing the sequence they are currently playing.
CONTINUE	Sends a Continue System Real-Time message that asks all receiving devices to start playing the current sequence at the point at which they last stopped playing.
START	Sends a Start System Real-Time message that asks all the receiving devices to start playing the sequence from the beginning.

Note: In order to get your MIDI sequencer software to respond to the MIDI Real-Time messages of the CBX-K3, make sure that the MIDI sequencing software is set to accept external MIDI Timing Clock messages (MIDI Clock) for timing.

Chapter 18

Settings for other devices in your system

Normally, you should refer to the manuals of the other devices used in your system for setting information. However, listed below are a few important settings that you will be required to make when using a computer.

Sequencer software settings

MIDI Thru

Most computer sequencing software has a THRU mode. It is usually called MIDI THRU or KEYBOARD THRU. If you are connected to a computer you will need to activate this mode in order to hear the sound from the tone generator connected to your keyboard.

External timing

At all times the CBX-K3 sends a Timing Clock message (often called a MIDI Clock). You may not want to control the MIDI Clock rate from the CBX-K3, therefore, some software applications allow you to set it to ignore the external MIDI Clock. The CBX-K3, however, will continue to send Timing Clock messages. At times, the computer might have difficulties coping with the amount of MIDI traffic. Therefore, it is best to reduce the number of MIDI Timing Clock messages transmitted from the CBX-K3. See "Adjusting tempo" on page 23 for information on how to do this.

Clock rate

Please refer to the manuals that came with your MIDI interface and application software to determine the clock rate speed that your software application should be set at.

Part 4

Reference

Chapter 19

MIDI Messages

There are two general types of MIDI messages: Channel messages, which are sent and received on a specific MIDI channel, and System messages, which are sent and received regardless of the set MIDI channel. The CBX-K3 is capable of sending both types of messages to other MIDI devices.

Channel messages

The CBX-K3 can send, but not receive Channel messages. There are two types of channel messages: Channel Voice messages and Channel Mode messages. Channel Voice messages carry performance information: keyboard performance data, control panel operations, etc. Channel Mode messages, on the other hand, affect how the receiving MIDI device responds to the received Channel Voice message. Channel Mode messages are much simpler, and generally contain less information than Channel Voice messages. Both types of messages are sent on specific MIDI channels, so only devices set to the specified channel will receive the messages. Instruments set to a different MIDI channel will be unaffected. Channel messages may be additionally subdivided as follows.

Note On/Note Off

A Note On message is transmitted when a key of the CBX-K3 is pressed, followed by a Note Off message when the key is released.

Control Change

Control Change messages consist of control setting change information, for example when the volume is increased or decreased. However, not all MIDI instruments recognize the same Control Change messages.

The CBX-K3 can transmit the following MIDI Control Change messages.

Control No.	Parameter	Data range
1	Modulation wheel	0 - 127
7	Volume	0 - 127
10	Pan	0 - 127
11	Expression	0 - 127
64	Sustain pedal	0 and 127

Program Change

Program Change messages are used to select instrument voices. Program Change messages consist of a channel number and the MIDI number of the selected voice (0 - 127). The CBX-K3 uses these messages to assign a voice to a channel. For example, when you press a VOICE GROUP and a VOICE SELECT button a Program Change message will be transmitted that selects a corresponding voice on the receiving device.

Voice group	Voice Select	Data range
A	1 - 32	0 - 31
B	1 - 32	32 - 63
C	1 - 32	64 - 95
D	1 - 32	96 - 127

Pitch Bend Change

A Pitch Bend Change message sends information about a new setting for a PITCH BEND wheel or controller. It is sent when the PITCH BEND wheel on the CBX-K3 is used. If a tone generator receives a Pitch Bend message from the CBX-K3, it will change the pitch of the note it is playing by bending it up or down.

System messages

System messages are not restricted to a specific MIDI channel, so all connected MIDI devices will receive and respond to the messages.

An example of a System message is timing and control data sent from a MIDI sequencer to a MIDI drum machine. Through the System message, the sequencer can tell the drum machine when to start playing, when to stop, and, by continuously sending timing clock data, play the drum machine in time with its own performance.

In addition to the System Real Time message described above there are several other System message types, namely, System Common messages and System Exclusive messages. The CBX-K3, however, is only capable of sending System Real-Time messages. These messages are subdivide into Timing Clock, Start, Stop, Continue, and Active Sensing messages.

The Timing Clock message (also called MIDI Clock) is sent continuously by the CBX-K3. It keeps all the connected devices in the system playing at the same tempo. The more frequently the timing message is sent the faster the playback of the other devices in the MIDI system.

The Start, Stop, and Continue messages can also be sent by the CBX-K3 by pressing the corresponding REMOTE CONTROL buttons. See "Using the remote control function" on page 25.

The CBX-K3 sends an Active Sensing message approximately every 180 msec. An Active Sensing message detects the status of the CBX-K3's connection with the other devices in the MIDI system. If a device does not receive the Active Sensing message it will turn off all the notes it is playing. This will avoid notes from sounding continuously when a MIDI cable gets accidently disconnected.

Chapter 20

MIDI Channels

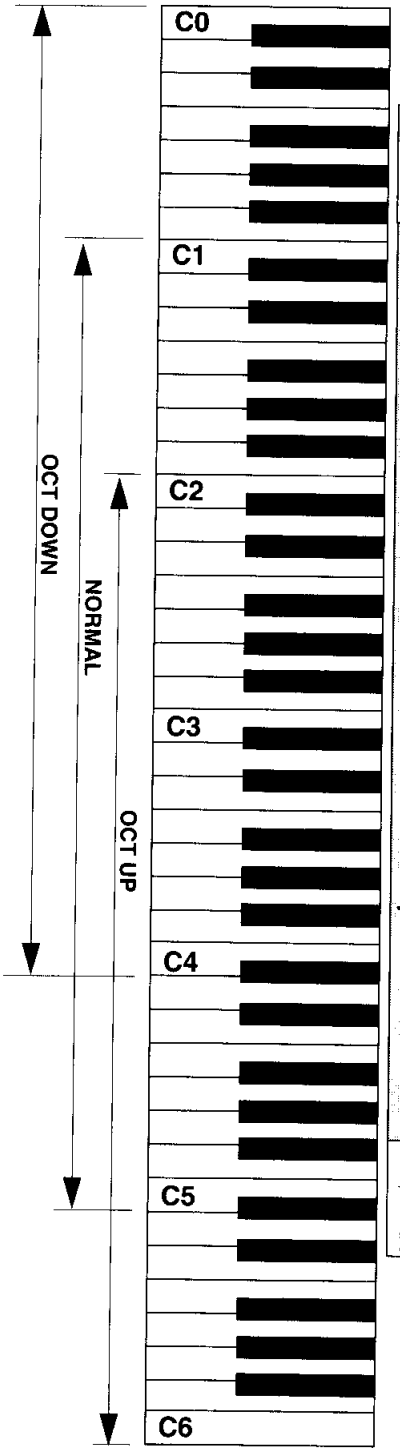
The MIDI system allows transmission and reception of MIDI data on 16 different channels. Multiple channels have been implemented to allow selective control of certain instruments or devices in series. For example a single MIDI sequencer could be used to play two different instruments or tone generators. One of the instruments or tone generators could be set to receive only on channel 1, while the other is set to receive on channel 2. In this situation the first instrument or tone generator will only respond to channel 1 information transmitted by the MIDI sequencer, while the second instrument or tone generator will respond only to channel 2 information. This allows the sequencer to playback two completely different parts on the receiving instruments or tone generators.

In any MIDI control setup, the MIDI channels of the transmitting and receiving device must be matched for proper data transfer. An Omni receive mode is also available, which allows reception on all 16 MIDI channels. In Omni mode it is not necessary to match the receive channel of the receiving device to the transmit channel of the transmitting device (except when receiving mode messages).

Since the CBX-K3 can only transmit MIDI data it is not possible to set the receive channel. The transmit channel, however, must be set to match the receive channel of your sound generator. See "Setting the MIDI channel" on page 18. Also please make sure that the receiving device is set to Omni or to the same MIDI channel as the CBX-K3. Otherwise, no data will be received unless these settings are made.

Appendix A

General MIDI Drum and Percussion list



CBX Option Wave

General MIDI System Level 1 Percussion Map

CBX Option Wave

Note	Note No.	Wave Name
C 0	24	
C# 0	25	
D 0	26	
D#0	27	
E 0	28	
F 0	29	Scratch Push
F# 0	30	Scratch Pull
G 0	31	Stick
G# 0	32	Click Noise
A 0	33	Metronome Click
A# 0	34	Metronome Bell
B 0	35	Acoustic Bass Drum
C 1	36	Bass Drum 1
C# 1	37	Side Stick
D 1	38	Acoustic Snare
D# 1	39	Hand Clap
E 1	40	Electric Snare
F 1	41	Low Floor Tom
F# 1	42	Closed Hi-Hat
G 1	43	High Floor Tom
G# 1	44	Pedal Hi-Hat
A 1	45	Low Tom
A# 1	46	Open Hi-Hat
B 1	47	Low-Mid Tom
C 2	48	Hi-Mid Tom
C# 2	49	Crash Cymbal 1
D 2	50	High Tom
D# 2	51	Ride Cymbal 1
E 2	52	Chinese Cymbal
F 2	53	Ride Bell
F# 2	54	Tambourine
G 2	55	Splash Cymbal
G#2	56	Cowbell
A 2	57	Crash Cymbal 2
A# 2	58	Vibraslap
B 2	59	Ride Cymbal 2
C 3	60	Hi Bongo
C# 3	61	Low Bongo
D 3	62	Mute Hi Conga
D# 3	63	Open Hi Conga
E 3	64	Low Conga
F 3	65	High Timbale
F# 3	66	Low Timbale
G 3	67	High Agogo
G# 3	68	Low Agogo
A 3	69	Cabasa
A# 3	70	Maracas
B 3	71	Short Whistle
C 4	72	Long Whistle
C# 4	73	Short Guiro
D 4	74	Long Guiro
D# 4	75	Claves
E 4	76	Hi Wood Block
F 4	77	Low Wood Block
F# 4	78	Mute Cuica
G 4	79	Open Cuica
G# 4	80	Mute Triangle
A 4	81	Open Triangle
A# 4	82	Shaker
B 4	82	
C 5	84	
C# 5	85	Castanets
D 5	86	Taiko-Drum High
D# 5	87	Taiko-Drum Low
E 5	88	
F 5	89	
F# 5	90	
G 5	91	
G# 5	92	
A 5	93	
A# 5	94	
B 5	95	
C 6	96	

Appendix B *Troubleshooting*

Symptom	Action
The power cannot be turned on	Check that the AC adaptor is properly connected. Check that you are using the supplied AC adaptor (PA-1B).
No sound	Check that all your equipment is switched on. Make sure that the MIDI transmission channel of the CBX-K3 and MIDI reception channel of the tone generator are set to the same channel. Check the audio and MIDI connections, including cables. Make sure that the CONTINUOUS SLIDER is not set to MIN when the SELECTOR is set to VOLUME or EXPRESSION. Make sure that the volume of the playback device or master volume of the tone generator is not turned down. Check the audio and MIDI connections, and cables.
No effect results from changing the Volume or Pan data values.	Check that the Volume and Pan program change messages are compatible with the tone generator you are using.
MIDI program change numbers don't select the correct voices.	Check that your sound generator (tone generator or selected mode, keyboard, synthesizer, or sequencer mode) is fully general MIDI compatible. If not, it may still be possible to select voices, however, the selected voices may not match the General MIDI voice indications on your CBX-K3. Please refer to the documentation that came with your sound generator. See also "Selecting a voice" on page 19 for more information.
The sequencer does not respond when one of the REMOTE CONTROL buttons is pressed.	Check that the sequencer or the computer sequence software you are using is compatible with MIDI Start, Stop, and Continue Real-Time System messages. Make sure that the sequencer's clock (synchronization performance) is set to the external clock.
The CBX-K3 does not work with a computer or some function of the CBX-K3 cannot be used.	The most likely cause is that the computer sequencing software does not receive any MIDI data at all, or it receives stripped data. For example: System Real-Time messages may be stripped from the data send by the CBX-K3 causing the TEMPO, STOP, CONTINUE, and START functions not to work. This may be due to your MIDI interface. Generally, there are two types of MIDI interfaces: smart and dumb. The dumb MIDI interface should never cause any problems because it will pass on any MIDI message exactly as it is received. A smart MIDI interface might modify the MIDI messages it receives. If this is the case the CBX-K3 might be incompatible with your particular MIDI interface. Please refer to the documentation that came with your MIDI interface for more details.

Appendix C

Specifications

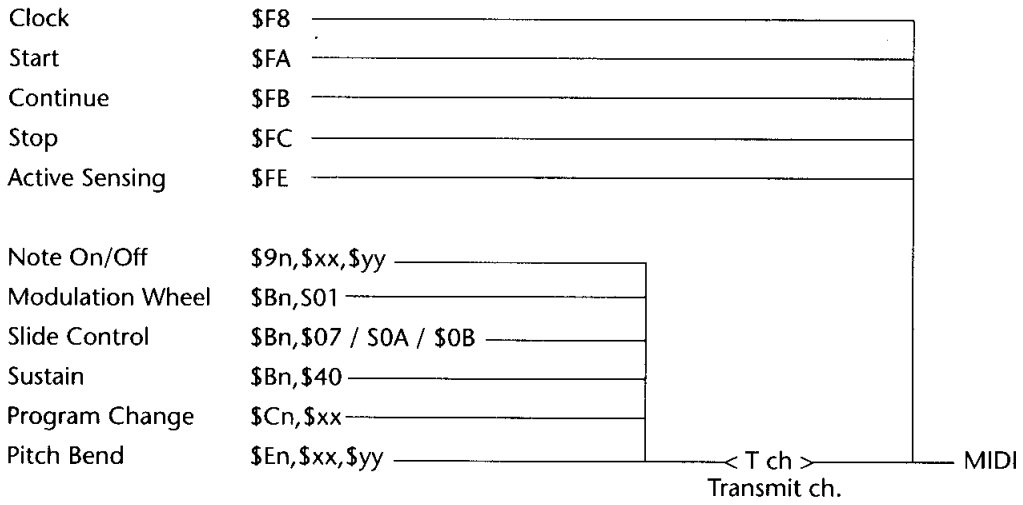
Keyboard	49 keys, with velocity response, no after-touch response.
	(C1~C5 or C0~C6 when the TRANPOSE function is used.)
Controls	PITCH BEND Wheel
	MODULATION Wheel
	CONTINUOUS SLIDER
	SELECTOR
	VOICE GROUP buttons
	VOICE SELECT buttons
	CHANNEL button
	TRANSPOSE buttons
	REMOTE CONTROL buttons
Connectors	SUSTAIN
	MIDI OUT
	DC IN
Functions	The following data can be transmitted on channels 1~16:
	• Note On with Fixed velocity
	• Modulation wheel
	• Master volume
	• Pan
	• Expression
	• Program Change
	• Pitch Bend
	External sequencers or other MIDI devices can be controlled with the REMOTE CONTROL buttons. MIDI Start, Stop, and Continue messages are transmitted as well as Timing Clock information.
MIDI ports	OUT
Power supply voltage	12 VDC
Power consumption	0.6 W
Dimensions (W × D × H)	813 mm (W) x 225 mm (D) x 80 mm (H)
Weight	4 kg
Supplied accessories	Power supply adaptor PA-1B
	MIDI cable
	Owner's Manual

Specifications are subject to change without notice.

Appendix D # *MIDI Data Format*

1. MIDI send diagrams

MIDI transmission conditions



A Control Change message is conveyed when the SELECTOR is moved to a new position.
The CBX-K3 is equipped with only a MIDI Out connector, therefore it is unable to receive MIDI messages.

1.1 Channel Message transmission

1.1.1 Note ON/OFF

Transmission Note range = C0 (24) ~ C6 (96)
Velocity range = 0 ~ 127 (Note Off is transmitted using Note On Velocity = 0)

1.1.2 Control Change

A Control Change message is transmitted on the selected MIDI channel whenever the corresponding controllers are operated.

Control #	Parameter	Data Range
1	Modulation wheel	0 ~ 127
7	Volume (*)	0 ~ 127
10	Pan (*)	0 ~ 127
11	Expression (*)	0 ~ 127
64	Sustain Pedal (*)	0 and 127

Parameters with (*) are transmitted only when the SELECTOR is assigned to that function.

1.1.3 Program Change

When a VOICE GROUP button (A, B, C, or D) is selected, and the VOICE SELECT button is pressed, a Program Change message is transmitted on the selected channel.

Voice group	Program select	Data range
A	1 - 32	0 - 31
B	1 - 32	32 - 63
C	1 - 32	64 - 95
D	1 - 32	96 - 127

1.1.4 Pitch Bend

Pitch bend is transmitted at a resolution of 7 bits.

1.1.5 After touch

This is not transmitted.

1.1.6 Channel mode message

This is not transmitted.

1.2 System message transmission

1.2.1 System Exclusive message

This is not transmitted.

1.2.2 System Common message

This is not transmitted.

1.2.3 System Real-Time message

The FA Start, the FB Continue, and the FC Stop messages are transmitted when the REMOTE CONTROL buttons START, CONTINUE, and STOP are pressed.

F8 The Timing Clock message default is ♩=120 when the power supply is turned on. It can be changed from ♩=24 to 276 when the SELECTOR is set to TEMPO and the CONTINUOUS SLIDER. moved between MIN and MAX.

The CBX-K3 transmits Active Sensing FE messages at fixed intervals of approximately 180 msec.

YAMAHA [Remote Keyboard] Date:29-FEB-1992
Model CBX-K3 MIDI Implementation Chart Version : 0.4

Function ...		Transmitted	Recognized	Remarks
Basic	Default	1	x	
Channel	Changed	1 - 16	x	
Mode	Default	3	x	
	Messages	POLY	x	
	altered	**********	x	
Note Number		24 - 96	x	
	True voice	**********	x	
Velocity	Note ON	o 9nH,v=1-127	x	
	Note OFF	x 9nH,v=0	x	
After Touch	Key's	x	x	
	Ch's	x	x	
Pitch Bender		o	x	7 bit resolution
Control Change	1	o M.Wheel	x	
	7	o volume *1	x	volume
	10	o pan *1	x	
	11	o expression *1	x	
	64	o Sustain sw.	x	sustain

Prog Change	True #	o 0-127 **********	x x	
System Exclusive		x	x	
common	Sont Pos. Song Sel. Tune	x x x	x x x	
System Real Time	Clock Commands	o o start o continue o stop	x x x x	
Aux Mes- sages	Local ON/OFF All Notes OFF Active Sense Reset	x x o x	x x x x	

Note *1. Only one control may be selected.

Mode 1 : OMNI ON, POLY Mode 2 : OMNI ON, MONO o : Yes
Mode 3 : OMNI OFF, POLY Mode 4 : OMNI OFF, MONO x : No

Glossary

A

Application software: Computer programs designed to perform a particular job.

Attack velocity: The downward speed at which a music keyboard key is pressed.

C

Channel messages: MIDI messages sent and received only on an individual MIDI channel. A MIDI instrument will only receive the transmitting device's message if both are set to the same MIDI channel number. Channel messages consist of Voice, Control Change, Program Change, Pitch Bend, Aftertouch and mode data.

Control Change message: This message consist of control setting change information, for example when the volume is increased or decreased.

Computer: A device that manipulates data according to a series of instructions called a program. Most computers used with MIDI are personal computers, small and relatively inexpensive.

G

General MIDI: An addition to the MIDI 1.0 standard, this provides greater compatibility between different manufacturers' MIDI equipment when transferring MIDI song files.

M

MIDI: (Musical Instrument Digital Interface) A worldwide standard which enables electronic musical instruments to communicate and control each other.

MIDI cable: A uniform cable with a 5-pin plug on each end, used exclusively to carry messages between MIDI devices.

MIDI channel: A MIDI message transmission scheme that allows messages to be sent to individual MIDI devices, without being received by all the devices on the network.

MIDI device: Any device equipped with one or more MIDI ports and a microprocessor capable of sending or receiving MIDI messages.

MIDI interface: An device that adds MIDI ports to a computer.

MIDI keyboard: A music keyboard with no sound generators, designed to control other MIDI devices through MIDI messages.

MIDI message: Music data sent from one MIDI device to another that communicates a single musical event or keyboard action, such as the beginning of a note or the pressing of a foot pedal.

MIDI port: A 5-pin socket built into a MIDI device to which a MIDI cable is connected. There are three kinds of MIDI ports: MIDI In, for receiving MIDI data; MIDI Out, for sending MIDI data; and MIDI Thru, which sends MIDI data received through the MIDI In port of one MIDI device to the MIDI In port of another MIDI device.

Modulation wheel: A wheel control on a synthesizer that adds vibrato or other effects when it is turned up or down.

N

Note off: A MIDI message which conveys that a key on a music keyboard has been released.

Note on: A MIDI message which conveys that a key on a music keyboard has been pressed.

O

Omni Mode message: A MIDI instrument that receives an Omni Mode On message will respond to all messages from all channels, regardless of which MIDI channel the message was sent on. If on the other hand it receives a Omni Mode Off message the MIDI channel reception mode will change so that MIDI messages are received only on one or more specific channels.

P

Panning: The positioning of a sound within the sound field of the left and right speakers.

Pitch Bend Wheel: A wheel on the CBX-K3 that raises or lowers the pitch of notes as the wheel is turned.

Program Change message: This MIDI message is used to select instrument voices. Program Change messages consist of a channel number and the MIDI number of the selected voice. The CBX-K3 uses these messages to assign a voice to a channel.

R

Release rate: The speed at which a sound decreases to zero volume.

Release velocity: The upward speed of a key on a music keyboard when the key is released.

RS-232C port: A standard computer connection, also known as a serial port, that can receive and transmit data serially.

S

Sequence: A series of notes stored in memory that can be played back later.

Sequence: A device which stores and sends musical notes.

Sequencer software: Application software that allows you to store, edit, and playback MIDI messages over connected MIDI devices.

Serial Port: A computer connection for receiving and transmitting digital data serially (RS-232C or RS-422).

Slave device: A MIDI device which receives MIDI messages only.

Sound generator: A device that generates an audio signal from stored voices based on MIDI messages. For example, a tone generator or the circuitry inside a synthesizer that generates voices.

Split point: A position on a keyboard where all keys to the right play a different voice than all keys to the left. Some MIDI keyboards allow 2, 3 or 4 split points.

Synthesizer: An electronic instrument which makes sounds by creating and modifying waveforms, which are then performed through a loudspeaker.

System messages: MIDI messages that are received from and sent to MIDI devices regardless of MIDI channel assignments. System messages consist of time information, for synchronizing MIDI devices; start, stop and continue commands, for drum machines and sequencers and System Exclusive messages.

System Real-Time message: A type of MIDI system message that synchronizes performance timing among devices.

T

Transposition: Raising or lowering a musical composition to a new key.

V

Velocity-sensitive keyboard: A music keyboard that can sense the speed at which keys are pressed and released.

Voice: A specific sound design created for a sound generator that is used to play notes.

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