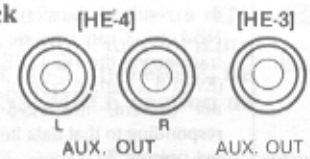
Accessory Jacks

● **HEADPHONE Jack**

This jack is used to connect headphones (optional). When headphones are connected, there will be no sound from the Electone's speakers. This allows you to play your Electone at any time without disturbing others.

IMPORTANT: Do not use this jack for any purpose other than headphones!

● **AUX. OUT Jack**



This jack is used to produce a more powerful sound by connecting an external amplifier or other devices. If this jack is connected to the LINE IN jack of a tape recorder, direct recording is also possible. (Nominal Impedance: 470Ω)

● **EXP. IN Jack**

This jack accepts a monaural signal from a synthesizer or similar accessory. The volume of the equipment connected here will be controlled by the Electone Expression Pedal.

● **MIDI IN/OUT Jacks**

The MIDI (Musical Instrument Digital Interface) terminals conform to the MIDI standard for digital electronic instruments. These jacks enable you to connect your Electone to a computer or other MIDI compatible electronic instruments for data communication.

WARNING: The connection or disconnection of any accessory (other than headphones) while the Electone is ON can result in extensive damage to the Electone and/or the accessory. Damage caused by the improper connection/disconnection of accessories is not covered by the manufacturer's warranty.

Electromagnetic Interference

"Interference" can be a two way street; something you are operating can interfere with others or, something someone else has may interfere with something of yours.
Naturally, it is also possible that two or more of your own electronic (electric) devices may interfere with each other. Your Electone has been designed to minimize all these possibilities and meets all applicable standards worldwide.

Electromagnetic interference with your Electone can show itself in variety of ways. You may hear speech, music, "beeps", static, or buzzing sounds. Yamaha Electones are designed to reject RF (radio frequency) signals that are many times the levels found in any normal environment. If, however, you are in the immediate proximity of a very high power transmitter, some interference may still occur. If this should happen, please try to identify the radio (TV) station and record the time of day that the interference occurs. Station identification is essential in order that the offending frequencies can be established and the authorized (legal) operating power level of the transmitter causing the interference can be verified. If the interference continues, please follow the suggested corrective measures provided later in this section.

If the interference is in the form of occasional buzzing or static, it is highly probable that the cause can be traced to the turning on or off of some household appliance. The offending appliance can also be outside your own residence. Usually a "time" pattern (i.e., evenings only, etc.) will be involved. Noises of this type rarely orginate in the Electone itself. If the condition continues, please contact your local authorized Yamaha Electone dealer for assistance.

Main power line disturbances and electrical storms (lightning) can also be the source of static interference. Generally speaking, problems generated by these two sources will also be present in your other audio or video equipment. Lightning can also be very destructive. The following special warning also applies to virtually all electronic products.

IMPORTANT NOTICE

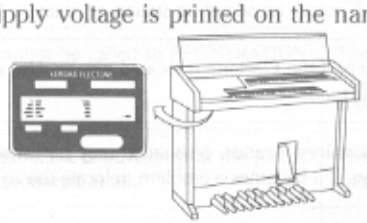
Modern electronic products, (i.e., computers, video games, electronic organs, etc.), contain components that, under normal conditions, extend the service free life of the products they make up to an almost unbelievable period of time. This is especially true when you consider the vast number of equivalent components incorporated within one given part. These "parts," called "integrated circuits," are however, subject to destruction by high voltage discharges, such as a close proximity lightning strike. This can occur even if the unit is turned off.

IN PERIODS OF ELECTRICAL STORM PROBABILITY, IT IS ADVISABLE THAT YOU DISCONNECT ANY ELECTRONIC DEVICE NOT ACTUALLY IN USE FROM ITS WALL SOCKET.

Installation and Maintenance

●Installation

1. **WARNING:** Do not allow your Electone or its bench to rest on or be installed over power cords of any type. An electrical shock and/or fire hazard could possibly result from this type of improper installation.
2. **WARNING:** Do not place objects on your Electone power cord or place it in a position where anyone could trip over, walk on or roll anything over it. An improper installation of this type creates a personal injury/fire hazard possibility.
3. **Main Power Supply Verification:** Your Electone has been manufactured specifically for the main supply voltages used in your area. If you should move, or if any doubt exists, please consult your local authorized Electone dealer for instructions. The main supply voltage is printed on the name plate.



4. **Environment:** Your Electone should not be installed in a position that exposes the cabinet to direct sunlight or air currents having high humidity or heat levels. This type of installation can cause contact oxidation, case joint separation, and cabinet finish problems.
5. **Electromagnetic Interference (RFI):** Your Electone has been type tested and found to comply with all applicable regulations. However, if it is installed in the immediate proximity of other electronic devices, some form of interference may occur.

●Maintenance

1. **SERVICE:** Your Electone contains no user serviceable components. Refer all service to qualified service technicians only.
2. **BENCH STRUCTURAL INTEGRITY:** If any motion or an "unsteady" sensation is noted in the bench, please check its structural integrity immediately. Discontinue use until any and all discrepancies are resolved.
3. **CLEANING/CARE**
   - **A) GENERAL:** DO NOT use chemically harsh (i.e., alcohol, paint thinners, etc.) or abrasive cleaners on any portion of your Electone.
   - **B) KEYS/CONTROL PANEL:** When cleaning the keys and control panels of your Electone, please use a soft absorbent-type cloth that has been dampened with a very mild solution of liquid soap and lukewarm water.
   - **C) CABINET/BENCH:** Clean the cabinet portions of your Electone with a slightly dampened cloth containing a neutral cleaning agent. The cleaning agent selected should not contain a high wax content or any other substance that would have a tendency to form a "build-up" on the cabinet.
4. **Vinyl Products:** Do not set vinyl items, (i.e., headphones vinyl doilies, etc.) on the finished surfaces of your Electone or use polyvinyl material to cover the unit for any extended period of time. A chemical reaction may occur between the finish chemical and those contained in the polyvinyl products, resulting in a permanent marring of the finish.

IMPORTANT NOTICE: This product has been tested and approved by independent safety testing laboratories in order that you may be sure that when it is properly installed and used in its normal and customary manner, all foreseeable risks have been eliminated. DO NOT modify this unit or commission others to do so unless specifically authorized by the manufacturer. Product performance and/or safety standards may be diminished. Claims filed under the expressed warranty terms may be denied if the unit is/has been modified. The warranty of title (patent infringement, etc.) will not be defended by the manufacturer in the area(s) that relate to the modification. Implied warranties may also be affected.

●Optional Items

- **Music Disk Recorder: MDR-3**
  Music Disk Recorder MDR-3 is a performance recorder for exclusive use with Electones. The compact MDR-3 is a high-performance digital recorder which can execute very high-fidelity recording and playback of your performances on an HE Electone.
- **MDR-3 Bracket: BRT-3**
  A special bracket (BRT-3) is available for mounting MDR-3 onto an HE Electone. Because this bracket mounts MDR-3 beneath the lower keyboard, MDR-3 can be easily operated whenever necessary but does not get in the way while you are performing on the Electone.
- **RAM Pack RP-3**
  RAM Pack RP-3 (8k bytes) allows you to store the various data you have memorized at the Electone.
- **Voice Expanders (Not available in some area.)**
  Two optional Voice Expanders are available which will greatly expand your HE Electone's range of voices. The Combination Voice Expander CVS-10 is preset with 16 organ sounds for the upper and lower keyboards plus eight organ sounds for the pedal keyboard, all of which can be edited to suit your taste. The AWM Voice Expander AVS-10 contains the data of 12 voices created by the AWM Tone Generator system. Either model can be expected to provide your Electone with enhanced total quality and versatility.
- **Stereo Headphone: YHE-5**

Troubleshooting

Please note that the appearance of any of the following phenomena does not indicate a mechanical failure of the Electone.

Phenomenon	Cause and Solution
A crackling sound is sometimes heard.	Noise may be produced when either an electrical appliance is turned ON/OFF or an electric power tool, such as a drill, is used in the proximity of the Electone. In such case, plug the Electone into an electrical outlet located as far as possible from the device that seems to be the source of the problem.
Interference from radio, TV, wireless radios, etc.	This is caused by the proximity of a high-power broadcasting station or amateur ham radio station.
Noise is produced in a radio, TV, etc.	Noise may be produced in such equipment if the Electone is located nearby. Use such equipment at a location as far as possible from the Electone.
The Electone sounds cause surrounding objects to resonate.	Because the Electone produces many sustained sounds, resonance may be caused in surrounding objects, such as cabinets or glass windows. If it becomes a problem, relocate the resonating objects or lower the Electone's volume.
The volume of the selected voice varies with the position played on the keyboard.	Because the intrinsic nature of electronic musical instruments in general is to change timbre, it is extremely difficult to eliminate changes in the volume of a voice at different keyboard positions. This Electone is designed and adjusted to eliminate any performance-related problems. Its volume and timbre also vary widely according to the installation site and system configuration of the Electone, the position of the audience, etc.
Pitch sounds high for the pedal keyboard and low for the upper and lower keyboards.	The pitch may seem particularly off when compared to the pitch of a piano. Because the harmonic structure of a piano is very complex, the tuning of high and low notes must be performed by listening to its harmonic overtones rather than to the actual sound. In contrast, an Electone is tuned according to the actual sound, so the pitch of an Electone and a piano are inherently different.
The sound of the notes is broken or seems to include noise.	This effect occurs mainly with the voices of wind instruments, and is deliberately provided to recreate the characteristic sounds of the actual instruments. It provides instrument sounds with realistic features, such as reed vibration or the breath noises for BRASS.
Only one sound is heard when two notes are simultaneously played on the pedal keyboard, or LEAD VOICES.	For practical performance reasons, this Electone has been designed so that one note can be played at a time on the pedal keyboard or LEAD VOICES. If multiple keys are pressed only the highest note will be sounded (high-note priority). (➡page 6)
Only seven notes are heard when eight notes are simultaneously played on the upper or lower keyboard.	A maximum of seven notes can be simultaneously sounded on the upper or lower keyboard.
The pedal keyboard voice isn't sounded even though the volume is properly set.	SINGLE FINGER or FINGERED CHORD mode of AUTO BASS CHORD is active. Turn off the SINGLE FINGER or FINGERED button at the panel.
The volume of the upper keyboard is too loud in comparison with the volume of the lower keyboard (or vice versa).	The BALANCE button is set too far toward the UPPER (LOWER) side. During usual performances, set Balance to the center level. (➡page 6)
A voice other than the displayed panel voice is sounded.	A VOICE MENU voice was assigned to the grey button with the lit lamp. To cancel the assignment and restore the panel voice, press the grey button while pressing the ORIGINAL VOICE button at the extreme right of the VOICE MENU. (➡page 8)

Phenomenon	Cause and Solution
When sounding a VOICE MENU User voice that was assigned to a grey button, the resulting voice is not what you expected.	USER VOICEs 1 to 4 contain preset voices. If you perform a FROM PACK operation to transfer data from an HS Series Electone to your Electone, however, the preset User voices may be replaced by the User voices memorized in the Pack. If you wish to restore the preset User voices, turn off the POWER switch then turn it back on while pressing the leftmost JAZZ ORGAN button on VOICE MENU. (➡page 24)
Basic Registrations cannot be called to REGISTRATION MEMORY.	The MEMORY button was released after turning ON the POWER switch. To properly call the Basic Registrations, turn ON the POWER switch while pressing the MEMORY button, then continue depressing the MEMORY button for 1-2 seconds.
The Sustain or Vibrato effect is turned on at the panel, but the effect is not produced at all.	The effect has been improperly set. Change the setting of the effect by using the SUSTAIN/VIBRATO DEPTH buttons on HE-4 or HE-3.
The Touch feature does not work. (HE-4)	The TOUCH button at the right side of the panel is off. Turn on the TOUCH button.
The ARPEGGIO CHORD volume is properly set, but the Arpeggio Chord pattern is not sounded.	The rhythm was not started. Be sure to use ARPEGGIO CHORD together with the rhythm. (➡pages 19, 20)
When keys on the lower or pedal keyboard are pressed, the sounds of percussion instruments are also sounded.	The KEYBOARD PERCUSSION button is on. If you are not using Keyboard Percussion, turn it off. (➡page 15)
The pitch in SINGLE FINGER mode does not change, even when pressing the higher or lower keys of the keyboard.	SINGLE FINGER mode will only produce the notes within a fixed one-octave interval. If notes having the same letter-name are pressed anywhere on the lower keyboard, the chords that are sounded will share the same pitch. (➡page 16)
The harmony notes are not provided by MELODY ON CHORD even through the upper and lower keyboards are being played at the same. (HE-4)	The voice to be used for the harmony line has not been set. Choose a voice from UPPER ORCHESTRAL VOICES and set its volume. If the melody is played in the bass range of the upper keyboard, the harmony notes may not be sounded. (➡page 21)
Certain functions cannot be memorized in REGISTRATION MEMORY.	REGISTRATION MEMORY is designed not to memorize AUTO RHYTHM data of the START, SYNCHRO START, FILL IN, and INTRO/ENDING buttons, as well as the data of functions, such as PITCH.
The Sustain or Vibrato effect is set, but the desired effect is not produced.	Check your operating procedure. When setting an effect, the panel's SUSTAIN or VIBRATO button must also be on.
When a REGISTRATION MENU button was pressed to set a registration, the VOLUME lamps at two panel voice sections lit up.	Because the volume settings of a panel registration that you set from the REGISTRATION MENU are very finely balanced among the pertinent voice sections, two lamps will light up in certain cases.
A TO PACK operation is performed, but the ERROR lamp lights.	Check how the Pack was inserted as well as your To Pack operating procedure, then repeat the operation. Also, if the RAM Pack's Memory Protect switch is ON, data will not be transferred even if a TO PACK operation is performed. (➡page 23)
The Electone panel does not function normally or the content of the memorized data has changed.	This happens very rarely. In case an abnormal voltage is input to the Electone due to an electrical storm or other reason, the Electone may malfunction and/or the contents of its memorized data may change. If this happens, turn off the POWER switch then turn it back on while pressing the leftmost JAZZ ORGAN button on the HE-4 or HE-3 VOICE MENU.

SPECIFICATIONS

		HE-4	HE-3
KEYBOARD		UPPER: 49 KEYS ($C_2 \sim C_6$), LOWER: 49 KEYS ($C_1 \sim C_5$), PEDALS: 20 KEYS ($C_1 \sim G_2$)	
TOUCH RESPONSE	INITIAL AFTER	UK/LK UK	— —
UPPER ORCHESTRAL		STRINGS, BRASS 1•2, WOOD, VOCAL, COMBI., VOLUME	STRINGS, BRASS 1•2, PIANO, WOOD, COMBI., VOLUME
UPPER LEAD		FLUTE, OBOE, TRUMPET, TROMBONE, VOLUME	
PERCUSSIVE		PIANO, VIBRAPHONE, JAZZ GUITAR, GUITAR, TO UPPER, TO LOWER, VOLUME	—
LOWER ORCHESTRAL		STRINGS, BRASS 1•2, VOCAL, COMBI. 1•2, VOLUME	STRINGS, BRASS 1•2, PIANO, GUITAR, COMBI., VOLUME
BASS VOICES		CONTRABASS 1•2, ELECTRIC BASS, TUBA, VOLUME	
VOICE MENU		JAZZ ORGAN, PIPE ORGAN, VIOLIN, PICCOLO, CLARINET, SAXOPHONE, BASSOON, HARMONICA, PIANO, ELECTRIC PIANO, HARPSICHORD, TIMPANI, USER VOICE 1•2•3•4 (SYNTH BRASS•PAN FLUTE•JAZZ GUITAR•ELECTRIC BASS), ORIGINAL VOICE	JAZZ ORGAN, PIPE ORGAN, VIOLIN, PICCOLO, CLARINET, SAXOPHONE, BASSOON, HARMONICA, ELECTRIC PIANO, HARPSICHORD, VIBRAPHONE, TIMPANI, USER VOICE 1•2•3•4 (SYNTH BRASS•PAN FLUTE•JAZZ GUITAR•ELECTRIC BASS), ORIGINAL VOICE
EFFECTS	SUSTAIN	UPPER (KNEE), LOWER (KNEE), PEDAL	UPPER, LOWER, PEDAL
	VIBRATO	UPPER ORCHES., LOWER ORCHES., UPPER LEAD	
	REVERB	UK/LK/PK	—
	TREMOLO SYMPHONIC	UPPER ORCHES., LOWER ORCHES. (CHORUS) UPPER ORCHES., LOWER ORCHES. (CHORUS)	
	GLIDE (LEAD)	(FOOT SWITCH)	—
	TOUCH	ON/OFF	—
	PITCH	▲, ▼	—
AUTO RHYTHM	RHYTHM PATTERNS	MARCH, WALTZ, SWING, SAMBA, LATIN ROCK, BOUNCE, DISCO, TANGO, BALLAD, BOSSANOVA, LATIN, SLOW ROCK, 8 BEAT, 16 BEAT, USER 1•2 (JAZZ WALTZ•16 BEAT, 1)	
	CONTROLS	VOLUME, TEMPO, TEMPO LAMP, INTRO/ENDING, SYNCHRO START, START, FILL IN, USER FILL IN	VOLUME, TEMPO LAMP, INTRO/ENDING, SYNCHRO START, START, FILL IN, USER FILL IN
	FOOT SWITCH CONTROL	RHYTHM STOP, FILL IN, USER FILL IN, GLIDE (LEAD), ENDING	RHYTHM STOP
KEYBOARD PERCUSSION		LK/PK	
ARPEGGIO CHORD		1, 2, 3, 4, VOLUME	
AUTO BASS CHORD		SINGLE FINGER, FINGERED CHORD, CUSTOM A.B.C., MEMORY	
MELODY ON CHORD		1, 2, (1+2), KNEE LEVER	—
REGISTRATION MEMORY		1, 2, 3, 4, 5, MEMORY, DISABLE, Registration for Beginners: 1•2•3•4•5	
PACK		CONFIRM, FROM PACK, TO PACK, READY, ERROR	
MAIN CONTROL		MASTER VOLUME, EXPRESSION PEDAL, POWER SWITCH, FOOT SWITCH	MASTER VOLUME, EXPRESSION PEDAL, POWER SWITCH FOOTSWITCH
BALANCE		○	
CONNECTORS		HEADPHONES, AUX.OUT.L/R, EXP. IN, MIDI IN/OUT	HEADPHONES, AUX. OUT, EXP. IN, MIDI IN/OUT
AMPLIFIERS (RMS)		30 W	
SPEAKERS		20cm (8")×1, 5 cm (2")×1	
DIMENSIONS (W×D×H)		122.7×50.2×96.5 cm (48.3"×19.8"×38.0")	119.2×50.2×91.4 cm (46.9"×19.8"×36.0")
WEIGHT		61.0 kg (134.2 lbs.)	50.0 kg (110.0 lbs.)

How to use MIDI

The HE Electone is provided with MIDI terminals, so you can have full access to musical enjoyment that is only possible with the most advanced electronic musical instruments. "MIDI" (Music Instrument Digital Interface) is a worldwide standard that allows electronic music instruments and devices to "communicate."

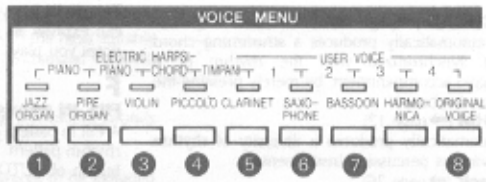
Main Data that Can be Transmitted/Received

- Transmission/reception of Performance data:
  Upper keyboard: Channel 1
  Lower keyboard: Channel 2
  Pedal keyboard: Channel 3
- Transmission/reception of the control data for the Expression Pedal and SUSTAIN.
- Transmission/reception of only the data indicating the selection of Registration Nos. in REGISTRATION MEMORY.
- Transmission/reception of the control data (Exclusive Messages) for the FILL IN, INTRO/ENDING, and FOOT SWITCH using the message format below:
  F0H, 43H, 70H, 70H, 40H, nnH, xxH, F7H
  In the above format, "nnH" and "xxH" signify the following:
  nnH 45H: Foot Switch 48H: Fill In
  4BH: Intro/Ending 4CH: User Fill In
  xxH 7FH: ON 00H: OFF
- Transmission/reception of After Touch data (HE-4, upper keyboard only)

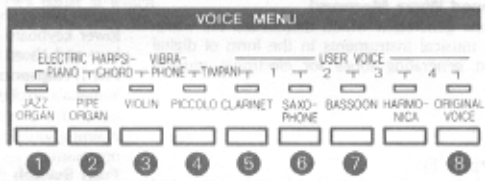
Changing the MIDI Modes

The MIDI modes can be changed by using the VOICE MENU buttons on HE-4 and HE-3.

[HE-4]



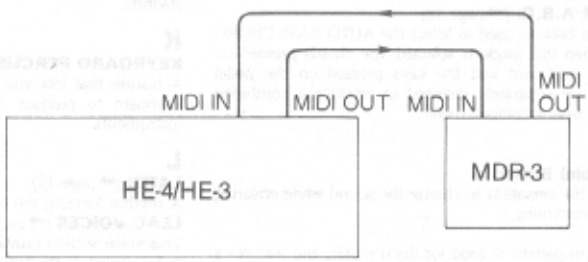
[HE-3]



Item	Changing the Mode		Resetting the Mode		Remarks
	HE-4	HE-3	HE-4	HE-3	
RHYTHM SYNC mode (INTERNAL SYNC➡EXTERNAL SYNC)	Press JAZZ ORGAN ❶ while pressing ORIGINAL VOICE ❽.		Press PIPE ORGAN ❷ while pressing ORIGINAL VOICE ❽.		In EXTERNAL SYNC mode, the Electone can receive signals from a rhythm machine or an instrument with Rhythm functions.
Receive Channel No. for the Lead Voice (CH 1➡CH 4)	Press VIOLIN ❸ while pressing ORIGINAL VOICE ❽.		Press PICCOLO ❹ while pressing, ORIGINAL VOICE ❽.		Select CH 4 when you wish to record and play back the Lead voice performance on a separate channel at MDR.
Transmit Channel Nos. of the upper and lower keyboards Upper keyboard: CH 1➡CH 4 Lower keyboard: CH 2➡CH 5	Press CLARINET ❺ while pressing ORIGINAL VOICE ❽.		Press SAXOPHONE ❻ while pressing ORIGINAL VOICE ❽		When recording to MDR, etc., changing the Channles Nos. lets you create a multi-part recording with specific voice sections (LEAD VOICES, ARPEGGIO CHORD, etc.) on separate channels.
Transmit Bulk data	Press HARMONICA ❼ while pressing ORIGINAL VOICE ❽				Transmits Bulk data to a MIDI recorder other than MDR-3.

Sample MIDI Application

With this sample connection, your performances and registrations at HE-4 or HE-3 can be recorded and played back by an Yamaha MDR (Music Disk Recorder)-3.



Glossary for the HE Electones

(The numerals within parentheses indicate the page in this User's Guide where the term is discussed.)

A

A.B.C. [AUTO BASS CHORD] (➡page 16)
A feature that automatically produces a chord and bass accompaniment by merely pressing keys on the lower keyboard.

ARPEGGIO CHORD (➡page 19)
A feature that automatically produces a strumming chord accompaniment synchronized with the rhythm or a melodious arpeggio accompaniment, by merely pressing the keys of the lower keyboard.

AUTO RHYTHM (➡page 12)
This feature automatically produces a diversity of rhythm patterns using various percussion instruments.

AUX. OUT Jack (➡page 26)
This jack is used to output the Electone's audio signals to an external device, such as an amplifier/speaker system.

AWM [Advanced Wave Memory]
A method of tone generation which memorizes the waveforms of actual musical instruments in the form of digital data for use in generating tones for electronic musical instruments.

B

BALANCE (➡page 6)
A button which balances the volume levels of the upper and lower keyboards.

BALLAD
This is a swing rhythm pattern with an added afterbeat, making it suitable for slow, pop ballads.

BASS VOICES (➡page 7)
This monophonic voice section provides BASS voices for use with the pedal keyboard.

BOSSANOVA (➡page 12)
A rhythm born in Brazil from the fusion of Samba and Jazz.

BOUNCE
One of the typical jazz rhythms which are used in Big Band sounds, etc.

BRASS
Stands for brass instrument and is included as a voice in the ORCHESTRA VOICE section.

C

CELESTA (➡page 24)
An instrument with keyboard functions which produces a timbre like that of an iron harp.

CHORUS (➡page 10)
This adds a trembling effect to a voice. The trembling effect added by CHORUS is slower than that added by the TREMOLO effect.

COMBI.
For Electones, COMBInation refers to an organ voice that consists of a combination of notes in different pitches.

CONFIRM (➡page 23)
Use this button when transferring data to or from a RAM Pack. To transfer Electone data to a RAM Pack, press the TO PACK button while pressing CONFIRM. To transfer the Pack back to the Electone, press the FROM PACK button while pressing CONFIRM.

COUNTRY (➡page 12)
Stands for Country and Western music, an American folk music.

CUSTOM A.B.C. (➡page 18)
One of the buttons used to select the AUTO BASS CHORD mode. When this mode is selected, the chords pressed on the lower keyboard and the keys pressed on the pedal keyboard are separately detected to produce a combined automatic bass accompaniment.

D

D. (Disable) Button
Gives you the versatility to change the sound while ensuring rhythmic continuity.

DISCO
This rhythm pattern is good for disco music, and features a simple beat with a strong accent.

E

8 BEAT
A basic rock rhythm which is provided as two types of rhythm patterns.

ENDING (➡page 13)
If the INTRO./ENDING button is pressed at the end of a song, an Ending rhythm pattern is produced then the rhythm is automatically stopped.

ERROR (➡page 23)
When a data error occurs due to the improper use of a Pack or other reasons, this lamp flashes.

EXP. IN Jack (➡page 26)
The jack used to input audio signals from an external musical instrument, such as a synthesizer or rhythm machine, so that its volume can be controlled by the Expression Pedal.

Expression Pedal
This pedal lets you control the volume while playing so you can express an enhanced intensity or softness through the notes you play.

F

FILL IN (➡page 13)
A Fill In pattern provides a variation of the currently selected rhythm pattern. When pressing the FILL IN or USER FILL IN button of AUTO RHYTHM, the rhythm will be temporarily switched to a preset Fill In pattern.

FINGERED CHORD (➡page 17)
One of the buttons used to select the AUTO BASS CHORD mode. When this button is ON, the chords pressed on the lower keyboard will be detected to automatically produce a bass and chord accompaniment.

FM [Frequency Modulation]
Yamaha's exclusive method of tone generation which extracts the overtones from a sound then subjects the remaining sound to controlled frequency modulation by digital processing.

Foot Switch (➡page 14)
A switch on the left side of the Expression Pedal. When pressed toward the left, this switch can control the function set by the Foot Switch selectors at the lower left of the panel. (HE-4)

FROM PACK (➡page 23)
This button is used to recall data from a RAM Pack to the Electone. To recall the data, press this button while pressing the CONFIRM button.

G

GLIDE (LEAD) (➡page 10)
This effect lets you lower the pitch of the LEAD voice a half-step then gradually restore its original pitch. It is controlled by the Foot Switch. (HE-4)

Grey button (➡pages 6, 7)
Each Voice sector on the control panel is provided with one grey button. A voice on the VOICE MENUs is used by transferring and assigning it to a grey button.

H

HARPSICHORD
This is a keyboard instrument that was popular during the 16th to 18th centuries (also called a Cembalo).

HEADPHONES Jack (➡page 26)
An accessory jack used to connect a headphones set.

I

Initial Touch (➡page 11)
A type of touch control which controls the sound by the amount of pressure (velocity) with which the key is pressed. Initial touch can change the volume level and timbre to create a more expressive sound. (HE-4)

INTRO. (➡page 13)
An introductory phrase to a song. On the Electone, it is a one-measure rhythm pattern that is automatically produced by turning on the INTRO./ENDING button and starting the rhythm.

K

KEYBOARD PERCUSSION (➡page 15)
A feature that lets you press keys on the lower or pedal keyboard to produce the sounds of various percussion instruments.

L

LATIN (➡page 12)
A rhythm forming the basis of Latin American music.

LEAD VOICES (➡page 6)
This voice section provides a variety of monophonic voices to be played as the lead part on the upper keyboard.

Lower
Refers to the lower Keyboard of the Electone.

M

MAJOR CHORD (➡page 16)
A chord in the major key, represented as C, F, and so forth. In SINGLE FINGER of AUTO BASS CHORD, a chord is produced by simply playing its root note.

MARCH (➡page 12)
A light, lifting 2-beat march rhythm.

MARIMBA
A Latin-American percussion instrument of African origin which consists of wooden strips with tuned resonating pipes below.

MASTER VOLUME
This knob controls the overall volume of the Electone.

MEMORY (➡pages 17, 22)
(1) The [M.] button of REGISTRATION MEMORY is used to memorize the panel's current registration settings.
(2) The MEMORY button of AUTO BASS CHORD is used to repeat the accompaniment patterns together with the rhythm even after the keys of the lower or pedal keyboard have been released.

MEMORY PROTECT (➡page 23)
A switch provided on RAM Packs to prevent accidental erasure of data. When it is set to ON, no new data can be written to the Pack so the currently stored data cannot be unintentionally erased.

MIDI (➡page 31)
Musical Instrument Digital Interface is a specification defining the exact manner in which digital data is transferred between electronic instruments and devices.

MIDI IN/OUT (➡page 26)
These jacks are used to connect an external MIDI-compatible device to exchange data between that device and the Electone.

MINOR CHORD (➡page 16)
A chord in the minor key, expressed as Am, Dm, etc.

M.O.C. [MELODY ON CHORD] (➡page 21)
This feature automatically adds a harmony line while you play the melody line on the upper keyboard. (HE-4)

Monophonic
Capable of producing only one note at a time, even if multiple keys are pressed.

Music Rest
A stand for holding music sheets.

O

ORCHESTRAL VOICES (➡pages 6, 7)
This polyphonic voice section has the voices of the major instruments of an orchestra, can simultaneously sound up to seven notes, and is provided for both the upper and lower keyboards.

ORIGINAL VOICE (➡page 8)
By pressing this button while you press a grey button in a voice section, you can cancel the VOICE MENU voice that has been assigned to that grey button and thus restore its original preset voice.

P

PACK (➡page 23)
The section of the panel at which a RAM Pack is installed and used to transfer data between the RAM Pack and the Electone.

PAN FLUTE
A simple wind instrument with a pastoral sound.

Pedal
Refers to the pedal keyboard of the Electone.

PITCH (➡page 11)
A feature that permits fine adjustment of the overall pitch of the Electone. (HE-4)

Polyphonic
Capable of simultaneously producing multiple notes.

POWER
The switch which turns the power supply to the Electone on or off.

R

RAM Pack (➡page 23)
A RAM (Random Access Memory) Pack has a built-in LSI chip capable of reading and writing data, which enables various types of Electone data to be stored in the RAM Pack or recalled from the Pack to the Electone whenever desired.

READY (➡page 23)
After a RAM or ROM Pack is inserted, this green lamp lights up to indicate that a Pack operation can be performed.

Registration
In Electone terminology, it refers to a collection of settings for creating the total sound most suitable to the song to be played, including the voices, effects, rhythm, etc.

Registration For Beginners (➡page 4)
These five basic registrations can be called to the panel by pressing the Memory button in the Registration Memory section while turning on the Electone.

REGISTRATION MEMORY (➡page 22)
This feature lets you memorize the panel's current registration settings which were set using the panel, and call any memorized registration or Basic Registration to the panel.

REGGAE
Reggae is a musical style of Jamaican origin which has a late upbeat with a unique bounce.
ROM Pack
The ROM (Read Only Memory) Pack can only used to transfer the ROM Pack data to the Electone but cannot be used to store the Electone's data. The FM Voice Pack is a ROM Pack.
Root
The root of a chord has the same letter-name as the chord itself. For example, the root of the C chord consisting of C, E, and G is the C note.

S

SALSA
A newer genre of Latin-American music originating in New York, it is also the name of a rhythm pattern.
SAMBA (➡page 12)
A typical Brazilian rhythm, employing numerous percussion instruments.
SINGLE FINGER (➡page 16)
One of the buttons used to select the AUTO BASS CHORD mode. When SINGLE FINGER is on, chordal and bass accompaniments can be automatically produced by pressing one, two, or three notes on the lower keyboard.
16 BEAT
A rhythm pattern based on 16th notes which is used in such musical genres as rock, fusion and jazz.
START (➡page 12)
A button in the RHYTHM section which you press to start the rhythm.
STRINGS
Refers to the stringed instruments used in an orchestra, and is provided as two types of voices in each ORCHESTRAL VOICES section.
SUSTAIN (➡page 9)
This effect allows a gradual fade-out of the sound after the keys are released.
SWING
A standard rhythm pattern used in jazz music.
SYMPHONIC (➡page 10)
This effect adds an expansive reverberation that resembles the combined playing of multiple instruments.
SYNCHRO START (➡page 12)
When SYNCHRO START is ON, pressing any key of the lower or pedal keyboard will start the rhythm from the first beat at the same time as the accompaniment.
SYNTH BRASS, SYNTH LEAD
These voices are respectively simulate STRING and LEAD voices created on a synthesizer.

T

TEMPO Control
This knob controls the speed of the rhythm.
TEMPO/(DATA) Display
Displays the bar and beat, and also displays other types of data. (HE-4)
TEMPO LAMP (➡page 12)
This lamp indicates the tempo of the rhythm, flashing up on the first beat of each measure when the thythm is started. When Synchro Start is set to ON, but the rhythm has not yet been started, the lamp will flash on every beat.
TO PACK (➡page 23)
This button is used together with the MEMORY button of REGISTRATION MEMORY to transfer the Electone's data to a RAM Pack.
TOUCH (➡page 11)
When the TOUCH button is on, the volume and timbre of a voice can be minutely changed in response to your touch on the keys. (HE-4)
TREMOLO (➡page 10)
This adds a trembling effect to a voice to produce a richly expansive sound. The trembling effect added by TREMOLO is faster than that added by the CHORUS effect.

U

Upper
Refers to the upper keyboard of the Electone.
USER VOICE (➡page 8)
Contains preset voices, which can be replaced with other voices by copying User voices from a Pack.

V

VIBRAPHONE
This is a percussion instrument consisting of tuned metal bars which are struck by the player using mallets.
Vibrato (➡page 9)
This effect vibrates the pitch of voices for added appeal. Each of the Electone voices has been preset with the most suitable Vibrato effect, but the preset effect can be changed if you so desire.
Voice
This is the generic term for each of the instrument sounds that can be produced by the Electone.
VOICE MENU (➡page 8)
This feature allows one of a variety of voices to be assigned to the grey button of each voice section.
Voice Section
This refers to any section of the Electone's panel at which voices can be selected, such as ORCHESTRAL VOICES, LEAD VOICES, and BASS VOICES.

W

WALTZ (➡page 12)
A 3-beat waltz rhythm.
WOOD
Refers to the woodwind instruments and is provided as a voice in the ORCHESTRAL VOICES section for the upper keyboard.

Electone HE-4

MIDI Implementation Chart

Date: 9/21, 1989
Version: 1.0

Function		Transmitted	Recognized	Remarks
Basic Channel	Default	1	1	UK
		2	2	LK
		3	3	PK
			15	Keyboard Percussion
		16	16	CONTROL
	Changes	4		UK
		5		LK
			4	LEAD
Mode	Default	Mode 3	Mode 3	
	Messages	×	×	
	Altered	**********	×	
Note Number		48-96	36-96	UK
		36-84	36-96	LK
		36-55	36-96	PK
		×	36-96	LEAD
		×	36-96	Arpeggio Chord
		×	36-96	Keyboard Percussion
	True Voice	**********	36-96	UK, LK, PK
Velocity	Note ON	○ 9nH, v=1-127	○ 9nH, v=1-127	
	Note OFF	○ 9nH, v=0	○ 9nH, v=0, 8nH	
After Touch	Key's	×	×	
	Ch's	○ (only 1 channel)	○	
Pitch Bender		×	○ 0-12 semi *	
Control Change	1	×	○ *	Modulation Wheel
	4	×	○ *	2nd Expression Pedal
	11	○	○ **	Expression pedal
	64	○	○	Sustain
Program Change		0-4	0-4	Registration Memory
	True #	**********	0-4	
System Exclusive		○	○	
System Common	Song Pos	×	×	
	Song Sel	×	×	
	Tune	×	×	
System Real Time	Clock	○	○ **	
	Commands	○	○	(FAH, FCH)
Aux Messages	Local ON/OFF	×	×	
	All Notes OFF	×	○	
	Active Sense	○	○	
	Reset	×	○	
Notes		* Recognize only when the Lead Voice has been separately assigned to Channel 4. ** Recognize only when External mode.		

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

○: YES
×: NO

Electone HE-3

MIDI Implementation Chart

Date: 6/23, 1989
Version: 1.0

Function		Transmitted	Recognized	Remarks
Basic Channel	Default	1 2 3	1 2 3 15	UK LK PK Keyboard Percussion
	Changes	16 4 5	16 4	CONTROL UK LK LEAD
Mode	Default Messages Altered	Mode 3 × **********	Mode 3 × ×	
Note Number		48-96 36-84 36-55 × × ×	36-96 36-96 36-96 36-96 36-96 36-96	UK LK PK LEAD Arpeggio Chord Keyboard Percussion
	True Voice	**********	36-96	UK, LK, PK
Velocity	Note ON Note OFF	○ 9nH, v=1-127 ○ 9nH, v=0	○ 9nH, v=1-127 ○ 9nH, v=0, 8nH	
After Touch	Key's Ch's	× ×	× ×	
Pitch Bender		×	× *	
Control Change	1	×	× *	Modulation Wheel
	4	×	× *	2nd Expression Pedal
	11	○	○ **	Expression pedal
	64	○	○	Sustain
Program Change		0-4	0-4	Registration Memory
	True #	**********	0-4	
System Exclusive		○	○	
System Common	Song Pos Song Sel Tune	× × ×	× × ×	
System Real Time	Clock Commands	○ ○	○ ** ○	 (FAH, FCH)
Aux Messages	Local ON/OFF All Notes OFF Active Sense Reset	× × ○ ×	× ○ ○ ○	
Notes		* Recognize only when the Lead Voice has been separately assigned to Channel 4. ** Recognize only when External mode.		

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

○: YES
×: NO

YAMAHA

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