II-3 EXTRA FUNCTION

Display "3. EXTRA FUNCT." on the LCD bottom line.

```
MULTI MENU
2.RHYTHM
```
↓
```
MULTI MENU
3.EXTRA FUNCT.
```

Press the ENTER key.

```
EXTRA FUNCTION
1.CHORD DISPLAY
```

Select a job using the "∨" and "∧" keys, then press the ENTER key.

```
EXTRA FUNCTION
2.MIDI CONTROL
```
```
3.2nd EXP.PEDAL
1.CHORD DISPLAY
```

3-(1)
CHORD DISPLAY
[↓]

3-(2)
MIDI CONTROL
[→Next Page]

3-(3)
2nd EXPRESSION PEDAL
[→Page 72]

* The operation of "EXTRA FUNCTION", the third item of the MULTI MENU, is outlined on the left. In case you press the ENTER key by mistake before completing the "EXTRA FUNCTION" operation, press the QUIT key to exit the mode.

* The three jobs that can be performed in EXTRA FUNCTION mode are as follows:

CHORD DISPLAY	Displays the name of the chords played on the lower and pedal keyboards.
MIDI CONTROL	Sets the various conditions for data transfer via MIDI.
2nd EXPRESSION PEDAL	Assigns the function of the Expression Pedal.

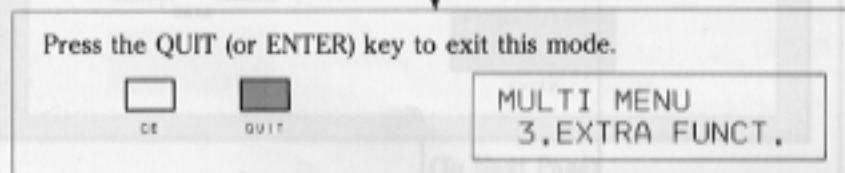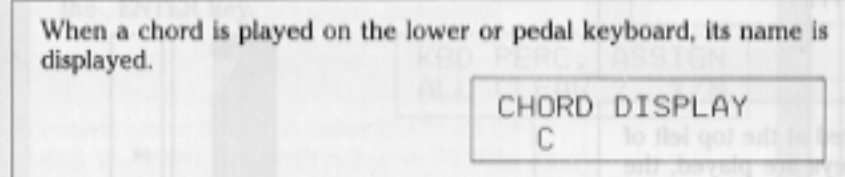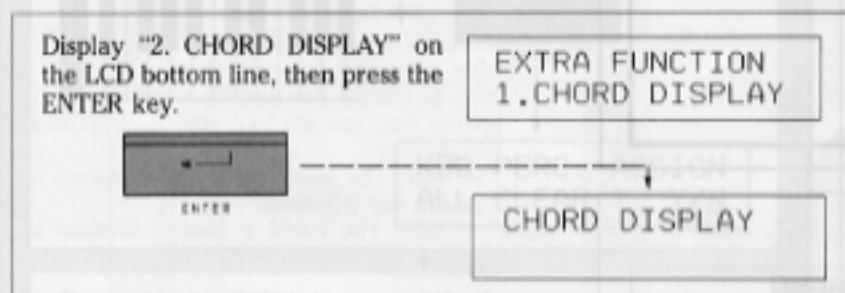## 3-(1) CHORD DISPLAY

On the LCD, this function displays the names of the chords played on the lower and pedal keyboards.

Display "2. CHORD DISPLAY" on the LCD bottom line, then press the ENTER key.

```
EXTRA FUNCTION
1.CHORD DISPLAY
```
- - - - →
```
CHORD DISPLAY
```

When a chord is played on the lower or pedal keyboard, its name is displayed.

```
CHORD DISPLAY
C
```

Press the QUIT (or ENTER) key to exit this mode.

CE   QUIT

```
MULTI MENU
3.EXTRA FUNCT.
```

* The CHORD DISPLAY function displays chord names according to the ABC mode set at the AUTO BASS CHORD section. Before using CHORD DISPLAY, first select the ABC mode. [→Page 34]
  CUSTOM ABC: The chords played on the lower and pedal keyboards are detected and displayed.
  FINGERED CHORD: The chords played on the lower keyboard are detected and displayed.
  SINGLE FINGER: When a chord is pressed on the lower keyboard, it is automatically detected and displayed.
  In ABC OFF status: Operation is identical to that when FINGERED CHORD is set.
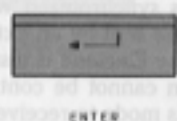
* In the case a chord is not formed, "???" is displayed to the right of the chord root.

3-(2) MIDI CONTROL

This function sets the various conditions related to data transfer with external devices via MIDI.

Display "3. EXTRA FUNCT." on the LCD bottom line, then press the ENTER key. [→Previous Page]

```
MULTI MENU
3.EXTRA FUNCT.
```

```
EXTRA FUNCTION
1.CHORD DISPLAY
```

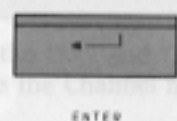Using the "∨" and "∧" keys, display "2. MIDI CONTROL" on the LCD bottom line.

```
EXTRA FUNCTION
2.MIDI CONTROL
3.2nd EXP.PEDAL
1.CHORD DISPLAY
```
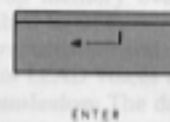
MENU SELECT

Press the ENTER key.

```
MIDI CONTROL
1.RHY.SYNC.SEL.
```

ENTER

Select the job to be executed using the "∨" and "∧" keys, then press the ENTER key.

```
MIDI CONTROL
2.BASIC CHANNEL
3.BULK DATA SEL.
4.LOCAL CONTROL
5.AFTER TOUCH
1.RHY.SYNC.SEL.
```

MENU SELECT

ENTER

* The MIDI CONTROL function enables you to perform the four jobs below:

1. RHY. SYNC. SEL.	Selects the Rhythm Synchronous mode as "Internal" or "External".
2. BASIC CHANNEL	Changes the channels of the channel messages during data transmission and reception.
3. BULK DATA SEL.	Selects "Bulk Dump" data (Exclusive message) for data transmission.
4. LOCAL CONTROL	Selects the channel(s) that will not be sounded from the Electone for data transmission.
5. AFTER TOUCH	Selects whether or not to send After Touch data according to the individual channel.

RHYTHM SYNCHRONOUS MODE SELECT [→Next Page]	BASIC CHANNEL CHANGE [→Page 69]	BULK DATA SELECT [→Page 70]	LOCAL CONTROL ON/OFF SELECT [→Page 70]	AFTER TOUCH [→Page 71]

RHYTHM SYNCHRONOUS MODE SELECT _____

Enter the MIDI CONTROL mode (see previous page) and display "1. RHY.SYNC.SEL." on the LCD bottom line. Next, press the ENTER key.

```
MIDI CONTROL
1.RHY.SYNC.SEL.
```

```
RHY.SYNC.SELECT
MODE=INT
```

ENTER

(Change) | (No change)

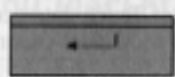Select the Rhythm Synchronous mode using the "+" or "−" key.

```
RHY.SYNC.SELECT
MODE=EXT

MODE=INT
```

DATA

Press the ENTER key to exit this mode.

ENTER

```
MULTI MENU
3.EXTRA FUNCT.
```

♦ When "1. RHY.SYNC.SEL." is displayed on the LCD bottom line and the ENTER key is pressed, the LCD changes to the display on the left. The LCD bottom line indicates the currently set Rhythm Synchronous mode.
INT (Internal Synchronous mode): The Electone rhythm is sounded according to the tempo set at the Electone. Select this mode to send MIDI signals from the Electone.
EXT (External Synchronous mode): The Electone rhythm is synchronized with the MIDI clock signals that are sent by an external device. The tempo set at the Electone is disregarded and the Rhythm section cannot be controlled by the Electone. Select this mode to receive MIDI signals from an external device with Rhythm functions.

♦ When the "+" key is pressed, the Internal mode is selected. When the "−" key is pressed, the External mode is selected.

♦ **CAUTION:** The setting of the Rhythm Synchronous mode is retained in back-up memory even when the Electone power is switched to OFF. If normal playing or MIDI signal transmission is performed in External mode, satisfactory results will not be obtained. In case External mode is selected, be sure to later change the setting back to Internal mode.

NOTES:
● In case Electone performances are recorded and played back using the Music Disk Recorder (MDR-2), the Rhythm Synchronous mode of the Electone is automatically selected and does not require selection for recording or playback.
During playback, however, switching OFF the power or disconnecting the MIDI cable will cause the Rhythm Synchronous mode to remain set to External mode.

● When transferring data with external devices via MIDI, be sure to set the Rhythm Synchronous mode to "Internal" except in the case of special applications. The mode must be switched to "External" only in the below cases:
1) When another Electone (or keyboard with Rhythm functions) is played and its MIDI signals are to be transferred.
2) When MIDI signals of ordinary Sequencers, excluding MDR-2, are to be transferred.

BASIC CHANNEL CHANGE

Enter the MIDI CONTROL mode (Page 67), then display "2. BASIC CHANNEL" on the LCD bottom line. Next, press the ENTER key.

```
MIDI CONTROL
2.BASIC CHANNEL
```

```
   ←┘
  ENTER
```

```
CHANNEL    IN OUT
UK          1  1
```
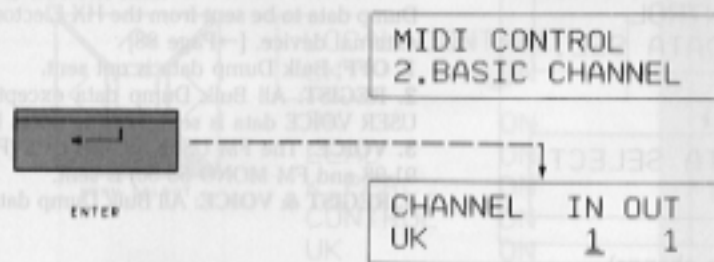
(Change) ———————————— (No change) ————

Using the "∨" and "∧" keys, display the item for which you wish to change the Basic Channel on the LCD bottom line.

```
      ∧
   <     >
      ∨
MENU SELECT
```

```
CHANNEL    IN OUT
LK          2  2
```

```
PK          3  3
LEAD       OFF
K.PERC.    15 15
CONTROL    16 16
UK          1  1
```

Using the ">" and "<" keys, select "IN" or "OUT" and change the Channel number using the "+" and "−" keys.

```
      ∧
   <     >
      ∨
MENU SELECT
```

```
 −        +
 NO      YES
       DATA
```

```
CHANNEL    IN OUT
LK          2  4
```

——————————(Repeat)——————————

Press the ENTER key to exit this mode.

```
   ←┘
  ENTER
```

```
MULTI MENU
   3.EXTRA FUNCT.
```

◆ When "2. BASIC CHANNEL" is displayed on the LCD bottom line and the ENTER key is pressed, the LCD changes to the display on the left. Th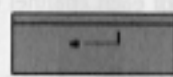e LCD bottom line indicates the Basic Channel item and the currently set Channel numbers for reception (IN) and transmission (OUT) for that item.
The MIDI Channel Messages of the HX Electone are assigned to the eleven channels below for data reception and/or transmission. [→Page 87]
UK: Channel for sending/receiving performance data of the upper keyboard.
LK: Channel for sending/receiving performance data of the lower keyboard.
PK: Channel for sending/receiving performance data of the pedal keyboard.
LEAD: Channel for the independent reception of performance data of LEAD voices (the transmission channel is ignored).
K.PERC.: Channel for the independent transmission/reception of the performance data of KEYBOARD PERCUSSION (ON/OFF status of the assigned keys).
CONTROL: Channel for sending/receiving the various Control data (Expression Pedal, MODULATION Wheel, REGISTRATION MEMORY, PITCH BEND Wheel, etc.) that are common to all keyboards.

◆ The default values of each Basic Channel (the channel numbers set by a Reset operation) are listed below and do not require changing for usual applications.

	IN (Recognized)	OUT (Transmitted)
UK	1	1
LK	2	2
PK	3	3
LEAD	OFF	—
K.PERC.	15	15
CONTROL	16	16

◆ Each time the "+" key is pressed, the value is incremented by one up to the maximum value of "16". Each time the "−" key is pressed, the value is decreased by one, changing to "OFF" following "1".
Note that, when a channel is set to "OFF", its data can be neither sent nor received.

◆ The settings of the Basic Channels are retained in back-up memory even if the Electone power is switched to OFF.

◆ The transmission and reception of the performance data of LEAD voices are performed as follows:
Transmission: The data is sent by the channel of the upper or lower keyboard. Selection of the upper or lower keyboard is performed using the UPPER LEAD and LOWER LEAD buttons of the ENSEMBLE section.
Reception: If data is received in the "OFF" status, it is received and sounded as the performance data of the channel of the upper or lower keyboard, depending on whether UPPER LEAD or LOWER LEAD of the ENSEMBLE section is "ON" at such time.
If any channel from 4 to 14 is changed, the performance data of a LEAD voice is received on a separate channel. (See the note below.)

NOTE:
● In case MDR-2 or other external devices are used to record/play back a performance, the performance data of individual LEAD voices (last-in first-out monophonic) can be sent and received in addition to that of the upper and lower keyboards.
Transmission: Set only the LEAD voice at the upper or lower keyboard, then change one "OUT" channel from 4 to 14 of "UK" or "LK".
Reception: Change the "IN" channel of "LEAD" to the same channel (one channel from 4 to 14) used for transmission.

BULK DATA SELECT

Enter the MIDI CONTROL mode (Page 67), then display "3. BULK DATA SEL." on the LCD bottom line. Next, press the ENTER key.
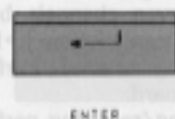
```
MIDI CONTROL
3.BULK DATA SEL.
```

```
BULK DATA SELECT
2.REGIST
```

(Change) ────────── (No change)

Using the "∨" and "∧" keys, select the Bulk Dump data to be sent.

```
BULK DATA SELECT
3.VOICE
4.REGIST & VOICE
1.OFF
2.REGIST
```

Press the ENTER key to exit this mode.

◆ When "3. BULK DATA SEL." is displayed on the LCD bottom line and the ENTER key is pressed, the LCD changes to the display on the left. The LCD bottom line indicates the currently set Bulk Dump data to be sent from the HX Electone to the external device. [→Page 88]
1. OFF: Bulk Dump data is not sent.
2. REGIST: All Bulk Dump data except the FM USER VOICE data is sent (see the notes below).
3. VOICE: The FM USER VOICE data (FM POLY 91-98 and FM MONO 55-60) is sent.
4. REGIST & VOICE: All Bulk Dump data is sent.

◆ When the display of the LCD bottom line is changed using the "∨" and "∧" keys and the ENTER key is pressed, the Bulk Dump data to be sent is set.

◆ The Bulk Data Select setting is retained in back-up memory even if the Electone power is switched to OFF.

NOTES:
● Regardless of the "BULK DATA SELECT" setting shown above, the reception of Bulk Dump data is performed according to the "Request-to-Receive Bulk Dump data" signal sent from an external device.

● In case "REGIST" is selected, the Bulk Dump data to be sent consists of the following:
 • The data stored in REGISTRATION MEMORY 1-16.
 • The various data that are not stored in REGISTRATION MEMORY (COMBINATION USER voices data; USER Vibrato data; data on Digital Effector parameters, MODULATION parameters, and PITCH BEND parameters; REGIST JUMP data, RHYTHM LEVEL data, RHYTHM PAN data, and MIDI CONTROL data).
 • The Sequence data programmed to SEQUENCER 1-4.
 • The Rhythm pattern data stored in RHYTHM USER 1-4.
 • Assignment data of KEYBOARD PERCUSSION.

LOCAL CONTROL ON/OFF SELECT

Enter the MIDI CONTROL mode (Page 67), then display "4. LOCAL CONTROL" on the LCD bottom line. Next, press the ENTER key.
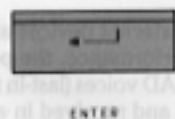
```
MIDI CONTROL
4.LOCAL CONTROL
```

```
LOCAL CONTROL
UK            ON
```

(To Next Page)

◆ When "4. LOCAL CONTROL" is displayed on the LCD bottom line and the ENTER key is pressed, the LCD changes to the display on the left. The LCD bottom line indicates the MIDI Channel item and the currently set Local Control ON/OFF status of that item.
The items and contents of each channel conform to the six Basic Channels. [→Page 69]

(Change) ── (No change) ──

Using the "∨" and "∧" keys, display the channel for which the Local Control ON/OFF status is to be changed on the LCD bottom line.

```
LOCAL CONTROL
LK          ON
PK          ON
LEAD        ON
K.PERC.     ON
CONTROL     ON
UK          ON
```

MENU SELECT

Press the "−/NO" key.

```
LOCAL CONTROL
LK          OFF
```

DATA

── (Repeat) ──

Press the ENTER key to exit this mode.

♦ In the Local Control default status (the status after a Reset operation), all of the channels are set to "ON". For usual applications, they need not be set to "OFF".

♦ Switching of the Local Control ON/OFF results in the below:
"ON": The signals of the pertinent channel are sent to both an external device and the Electone sound source, and are sounded from the Keyboard Amplifiers connected to the Electone.
"OFF": The signals of the pertinent channel are sent only to an external device and not to the Electone sound source. The sounds of a channel set to "OFF", therefore, are not produced from the Keyboard Amplifiers connected to the Electone. (When Local Control is set to "OFF", the control of the Expression Pedal, MODULATION Wheel, REGISTRATION MEMORY, and PITCH Wheel is only performed for external devices.)

♦ When the "−" key is pressed, Local Control is switched to "OFF" status. When the "+" key is pressed, it is switched back to "ON".

♦ CAUTION: The Local Control ON/OFF settings are retained in back-up memory even if the Electone power is switched to "OFF". If a usual performance is done with a channel set to "OFF", the sounds of that channel will not be sounded. If Local Control is set to "OFF", be sure to later change the setting back to "ON".

AFTER TOUCH ON/OFF SELECT ──────────────────

Enter the MIDI CONTROL mode (Page 67), then display "5. AFTER TOUCH" on the LCD bottom line. Next, press the ENTER key.

```
MIDI CONTROL
5.AFTER TOUCH
```
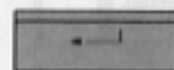
ENTER
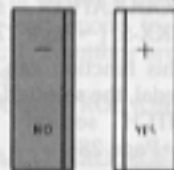
```
AFTER TOUCH
1.UK        ON
```

(Change) ── (No change) ──

Using the "∨" and "∧" keys, display the channel for which the After Touch ON/OFF status is to be changed on the LCD bottom line.

```
AFTER TOUCH
2.LK        ON
3.PK        ON
1.UK        ON
```

MENU SELECT

Press the "−/NO" key.

```
AFTER TOUCH
2.LK        OFF
```

DATA

── (Repeat) ──

Press the ENTER key to exit this mode.

♦ When "5. AFTER TOUCH" is displayed on the LCD bottom line and the ENTER key is pressed, the LCD changes to the display on the left. The LCD bottom line indicates the MIDI Channel item and the currently set After Touch ON/OFF status of that item.

♦ In the After Touch default status (the status after a Reset operation), all of the channels are set to "ON". For usual applications, they need not be set to "OFF".

♦ Switching of the After Touch ON/OFF results in the below:
"ON": The After Touch (channel pressure) signal of the pertinent channel is sent to the connected external device.
"OFF": The After Touch (channel pressure) signal of the pertinent channel is not sent to the connected external device.

♦ When the "−" key is pressed, After Touch is switched to "OFF" status. When the "+" key is pressed, it is switched back to "ON".

♦ CAUTION: The After Touch ON/OFF settings are retained in back-up memory even if the Electone power is switched to "OFF".
In After Touch is set to "OFF", be sure to later change the setting back to "ON".

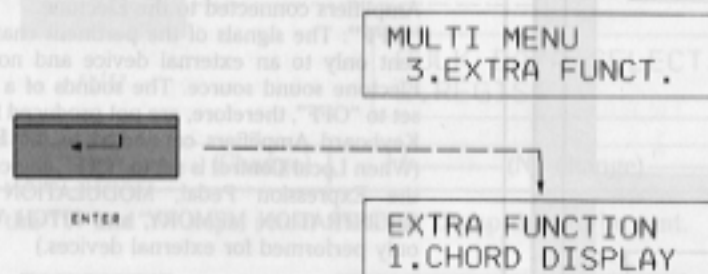─ ── ── ── ── ── ── ── ── ── ── ── ── ──

NOTE:
● If overdubbing is performed during the recording of a performance onto a Sequencer, such as MDR-2, the existing After Touch data will clash and lead to unsatisfactory recording results. As a counter-measure against such clashing, be sure to switch OFF the pertinent After Touch channel prior to performing overdubbing.
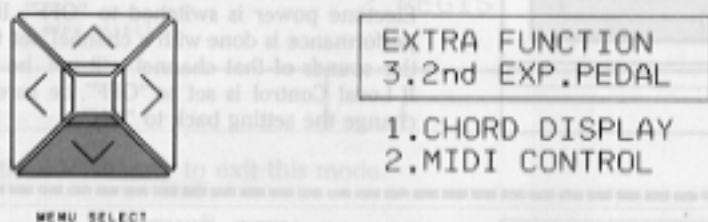
3-(3) 2nd EXPRESSION PEDAL

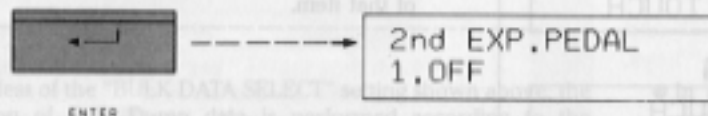This function assigns the function of the 2nd Expression Pedal.

Display "3. EXTRA FUNCT." on the LCD bottom line, then press the ENTER key. [→Page 66]

```
MULTI MENU
3.EXTRA FUNCT.
```

↓ ENTER

```
EXTRA FUNCTION
1.CHORD DISPLAY
```

Using the "∨" and "∧" keys, display "3. 2nd EXP. PEDAL" on the LCD bottom line.

```
EXTRA FUNCTION
3.2nd EXP.PEDAL

1.CHORD DISPLAY
2.MIDI CONTROL
```

Press the ENTER key.

↓ ENTER

```
2nd EXP.PEDAL
1.OFF
```

(Change) ↙   ↘ (No change)

Using the "∨" and "∧" keys, change the display on the LCD bottom line to select the function to be assigned.

```
2nd EXP.PEDAL
2.RHY.TEMPO N

3.RHY.TEMPO W
4.MODULATION
5.PITCH
1.OFF
```

Press the ENTER key to exit this mode.

↓ ENTER

```
MULTI MENU
3.EXTRA FUNCT.
```
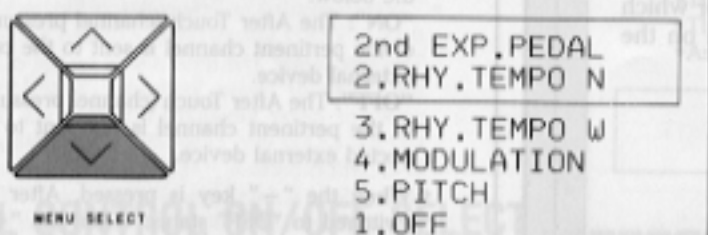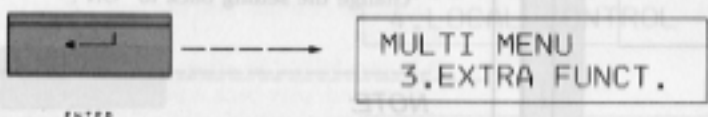
When you step on the 2nd Expression Pedal, the assigned function will operate. When you release the Pedal, it will automatically return to its center position.

♦ The 2nd Expression Pedal can be installed on the Pedal Keyboard PKX-F1 or PKX-M1. Regarding the installation procedures, refer to the separate "Assembly Instructions".

♦ When the ENTER key is pressed, the LCD changes to the display on the left. The LCD bottom line indicates the function that is currently assigned to the 2nd Expression Pedal.

♦ The functions that can be assigned to the 2nd Expression Pedal are as follows:

1. OFF	The 2nd Expression Pedal does not function, even when stepped on. (Default)
2. RHY. TEMPO N (narrow)	Pushing forward on the pedal with your toes increases the rhythm's tempo and pushing back the pedal with your heel slows it down. The variable width of the tempo is narrower than that of "W" below.
3. RHY. TEMPO W (wide)	As with 2. above, this function can control the rhythm's tempo. The variable width of the tempo is wider than that of "N".
4. MODULATION	This function can control, by pedal, the selected effect of the MODULATION section of MKX-5. [→Page 27]
5. PITCH	This function can control, by pedal, the selected effect of the PITCH section of MKX-5, [→Page 28]

♦ With MKX-4, "4. MODULATION" and "5. PITCH" cannot be assigned.

♦ The assignment data of the 2nd Expression Pedal can be respectively stored in REGISTRATION MEMORY Buttons 1-16.

II-4 EXTERNAL CONTROL

Connect an external device to the HX Electone, such as a Tone Generator. [→Page 80]

↓

Display "4. EXT. CONTROL" on the LCD bottom line.

```
MULTI MENU
2.RHYTHM
```

MENU SELECT

```
MULTI MENU
4.EXT.CONTROL
```

↓

Press the ENTER key.
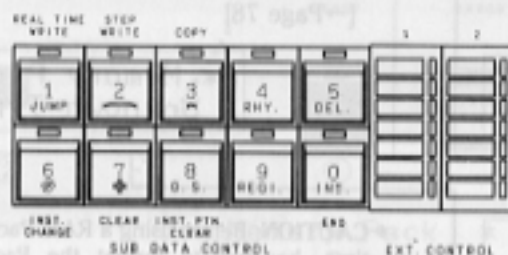
ENTER

```
EXTERNAL CONTROL
```

↓

Use the SUB DATA CONTROL buttons and the two EXT. CONTROL buttons to control the connected external device.

REAL TIME WRITE | STEP WRITE | COPY

1 JUMP | 2 | 3 | 4 RHY. | 5 DEL.

6 | 7 | 8 O.S. | 9 REGI. | 0 INST.

INST. CHANGE | CLEAR | INST. PTN. CLEAR | END

SUB DATA CONTROL | EXT. CONTROL

↓

Press the QUIT (or ENTER) key to exit this mode.
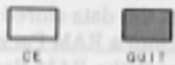
CE | QUIT

```
MULTI MENU
4.EXT.CONTROL
```

* The fourth MULTI MENU function is "EXTERNAL CONTROL". This function is used for transferring data with an external device via MIDI.

* In case you mistakenly press the ENTER key but have not performed the "EXTERNAL CONTROL" operation, press the QUIT key and exit the mode.

* When the ENTER key is pressed, the LCD changes to the display on the left and the EXTERNAL CONTROL functions are enabled.

* When the EXTERNAL CONTROL mode is entered, the SUB DATA CONTROL buttons and EXT. CONTROL buttons 1 and 2 operate as follows:
  Transmission: When one of the above buttons is pressed, the MIDI Exclusive Message corresponding to the pressed button is sent to the external device so that it can be remote-controlled. (Regarding the type of remote control possible, refer to the operating manual of the external device concerned.)
  Reception: The LED of the button corresponding to the MIDI Exclusive Message sent from an external device lights up so you can confirm the status of that external device.

* While in EXTERNAL CONTROL mode, the SUB DATA CONTROL buttons do not function with respect to the Electone itself.

NOTE:

● The codes of the MIDI Exclusive Messages (a kind of switch event data) that correspond to the SUB DATA CONTROL and EXT. CONTROL 1, 2 buttons are as follows:
[→Page 89]

SUB DATA CONTROL (ON): F0H, 43H, 70H, 70H, 72H, *0nH, 7FH, F7H

SUB DATA CONTROL (OFF): F0H, 43H, 70H, 70H, 72H, *0nH, 00H, F7H

EXT. CONTROL 1: F0H, 43H, 70H, 70H, 71H, 00H, **nnH, F7H

EXT. CONTROL 2: F0H, 43H, 70H, 70H, 71H, 01H, **nnH, F7H

* = 00,01,02,03,04,05,06,07,08,09

** = 01,02,04,08,10,20,40

HX ELECTONE

Write ↓ | Read ↑   Transmit ↓ | Recognize ↑

1. PACK

REGISTRATION	VOICE
Main memory back-up data	FM POLY VOICES 1-8
REGISTRATION MEMORY data	FM MONO VOICES 1-6
SEQUENCER data	
RHYTHM USER PATTERN data	
KEYBOARD PERCUSSION data	

1-(1) TO PACK & FROM PACK   1-(2) PACK EDIT

2. EXTERNAL DEVICES

TONE GENERATORS

MUSIC DISK RECORDER (MDR-2)

OTHER INSTRUMENT & DEVICES
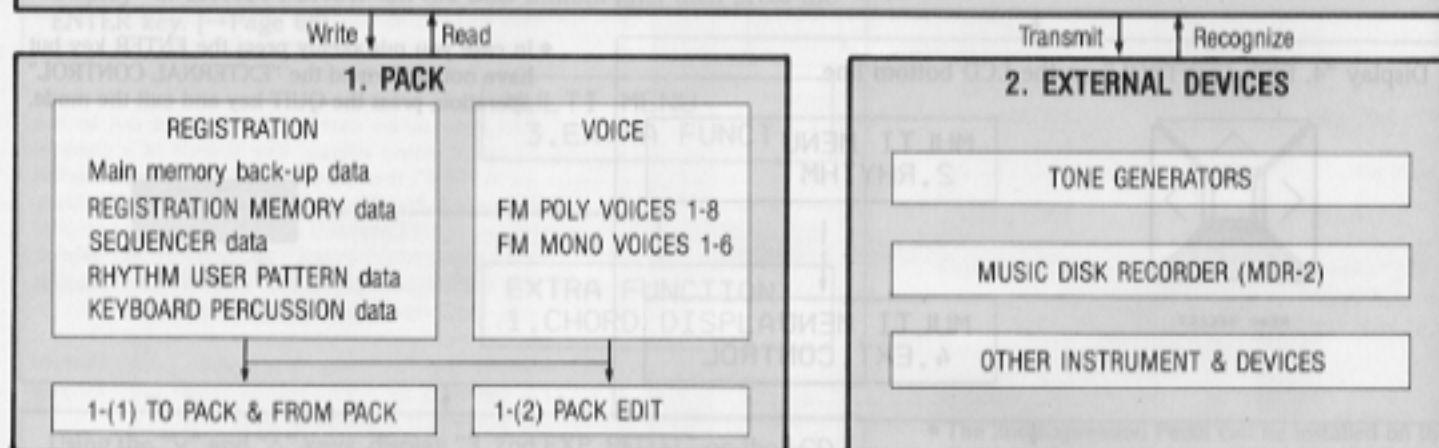
III-1 PACK

Insert the Pack in the Electone.

When an initialized Pack is inserted: The number and type of the Pack are displayed.

```
PACK RP-3
    -REGIST-
```

When a non-initialized Pack is inserted: [→Page 78]

```
* Memory Pack  *
  Unknown Type !!
```

To perform a PACK EDIT operation (or to select a Bank), press the CONFIRM button.

```
-REGIST-   HX-1
BANK      NO.=01
```

Press the ENTER key.

ENTER

◆ **CAUTION**: Before using a RAM Pack for the first time, be sure to format the Pack using the "INITIALIZE" procedure. [→Page 78]

◆ Using a RAM Pack, the HX Electone can perform the two jobs listed below:

TO PACK & FROM PACK	Saves the data stored at the Electone into a RAM Pack (TO PACK) or loads the RAM Pack data into the Electone (FROM PACK).
PACK EDIT	Sets the various conditions for using RAM Packs.

1-(1) TO PACK & FROM PACK

1-(2) PACK EDIT

Remove the Pack from the Electone.

```
* Memory Pack  *
  Removed
```

1-(1) TO PACK & FROM PACK

These functions allow you to save the various data stored in the Electone into a RAM Pack and, conversely, load the data saved in a RAM Pack into the Electone.

Insert a RAM PACK in the Electone.

```
PACK RP-3
   -REGIST-
```

If the Pack has multiple Banks: Press the CONFIRM button.

READY   ERROR

```
-REGIST-   HX-1
BANK       NO.= 1
```

* When an intialized RAM Pack is inserted in the Electone, the LCD changes to the display on the left. The LCD top line indicates the Pack's product number, and its bottom line indicates the Pack type (format). The RAM PACK RP-3 can be set to one of two types (formats) for use. [→Page 78]
  REGIST: Saves all of the various data, excluding the FM USER VOICE data, that can be stored at the Electone. (See the notes below.)
  VOICE: Saves the FM USER VOICE data (FM POLY 91-98 and FM MONO 55-60).

* When the CONFIRM button is pressed after RAM Pack insertion, the LCD changes to the display on the left. As the LCD bottom line is for specifying the Bank to be saved or loaded, this display will be provided in the near future to enable compatibility with Packs having a capacity greater than that of RP-3.
  With RP-3 (8K bytes), the Bank No. is fixed to "01" and cannot be changed.

* For a Pack with a capacity greater than that of RP-3, use the "+" and "−" keys or the SUB DATA numeric buttons to select the Bank No.

* **CAUTION:** While MDR-2 is in operation, data cannot be transfered using a To Pack or From Pack operation.

TO PACK: While depressing the CONFIRM button, press the MEMORY/TO PACK button.

READY   ERROR

② ①

```
* Memory Pack *
 Write Start
       ↓
* Memory Pack *
 Write Completed
```

FROM PACK: While depressing the CONFIRM button, press the FROM PACK button.

READY   ERROR

① ②

```
* Memory Pack *
 Read Start
       ↓
* Memory Pack *
 Read Completed
```

NOTES:

* The RAM Pack is equipped with a MEMORY PROTECT switch. If you wish to protect the data saved in the RAM Pack from being erased, set this switch to ON. Even if you perform a TO PACK operation improperly, the Pack data will be protected without being written over with Electone data.
  If you wish to re-write new data, set the switch to OFF.

* When a PACK operation is improperly performed, the following messages are displayed on the LCD bottom line:

" * Memory Pack * Not Ready !! "	When a TO PACK or FROM PACK operation is performed without a RAM Pack inserted.
" * Memory Pack * CONFIRM first "	When a FROM PACK operation is performed without pressing the CONFIRM button.
" * Memory Pack * Write Protected "	When TO PACK operation is performed with the RAM Pack's MEMORY PROTECT switch set to ON.

* In a RAM Pack that has been formatted as a REGIST type Pack, the data below can be saved:
  * The data stored in REGISTRATION MEMORY 1-16.
  * The data that cannot be stored in REGISTRATION MEMORY (COMBINATION USER voices data; USER Vibrato data; data on Digital Effector parameters, MODULATION parameters, and PITCH BEND parameters; REGIST JUMP data; RHYTHM LEVEL data; RHYTHM PAN data; and MIDI CONTROL data).
  * The Sequence data programmed to SEQUENCER 1-4.
  * The Rhythm pattern data stored in RHYTHM USER 1-4.
  * Assignment data of KEYBOARD PERCUSSION.

1-(2) PACK EDIT

This function lets you set the various conditions for using the RAM Packs.

Insert a RAM Pack in the Electone, then press the CONFIRM button.

```
READY        ERROR
```

```
PACK RP-3
 -REGIST-
```

```
-REGIST-    HX-1
BANK      NO.=01
```

- ◆ The procedure for entering the PACK EDIT mode is as shown on the left. When the CONFIRM button is pressed, the Bank setting will be displayed. With RP-3, however, just press the ENTER key.

- ◆ The three jobs of PACK EDIT are as follows:

PARTIAL COPY	Saves or loads only specific data.
PACK INITIALIZE	Initializes (formats) a RAM Pack.
BANK PROTECT	Protects a specific Bank of the RAM Pack from being written on.

Press the ENTER key.

```
  ←
ENTER
```

```
PACK EDIT
1.PARTIAL COPY
```

Use the "∨" and "∧" keys to select the job to be executed, then press the ENTER key.

```
MENU SELECT
```

```
PACK EDIT
2.INITIALIZE
3.BANK PROTECT
1.PARTIAL COPY
```

```
  ←
ENTER
```

PARTIAL COPY

[→Page 77]

PACK INITIALIZE

[→Page 78]

BANK PROTECT

[→Page 79]

NOTE:

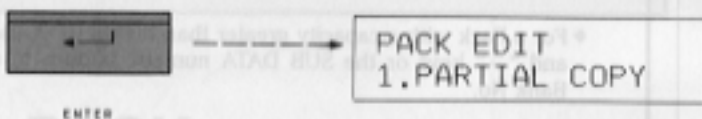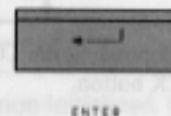● In the case some error occurs in the data of the Electone or RAM Pack when a TO PACK, FROM PACK or PARTIAL COPY operation is performed, the following error messages are displayed on the LCD. In such case, either replace the RAM Pack or reset the Electone and try storing the data once more.

[Display of LCD Top Line]

"Pack Write Error "	When there is an error in the Electone data (displayed during the SAVE operation).
"Pack Data Error "	When there is an error in the RAM Pack data (displayed during the LOAD operation).

[Display of LCD Bottom Line] (Common to both SAVE and LOAD operations)

" Regist Data "	When there is an error in the REGISTRATION MEMORY data or other Registration-related data.
"Sequencer Data"	When there is an error in the SEQUENCER data.
"Rhythm Pattern"	When there is an error in the data of the RHYTHM USER Pattern.
"KB Perc.Assign "	When there is an error in the assignment data of KEYBOARD PERCUSSION.
"User Voice Data"	When there is an error in the FM USER VOICE data.

PARTIAL COPY ─────────────────────────

After pressing the CONFIRM button, press the ENTER key. [→Page 76]
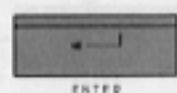
```
-REGIST-   HX-1
BANK       NO.=01
```

```
PACK EDIT
1.PARTIAL COPY
```

Display "1. PARTIAL COPY" on the LCD bottom line, then press the ENTER key.
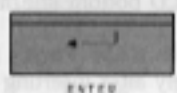
```
PARTIAL COPY
REGIST        Y/N
```

Press the "+/YES" key only if you wish to copy the item displayed on the LCD bottom line.

```
PARTIAL COPY
REGIST         Y/N

SEQUENCE       Y/N
RHY.PTN.       Y/N
K.PERC.ASSGN   Y/N
```

Press the ENTER key to display the next item on the LCD bottom line.
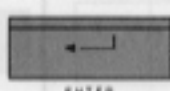
──── (Repeat) ────

Use the "∨" and "∧" keys to select the direction for copying (LOAD or SAVE).

```
PARTIAL COPY
1.PACK→EL
2.EL→PACK
```

MENU SELECT

LOAD: Display "1.PACK→EL", then press the ENTER key.

```
PARTIAL COPY
PACK EL OK? Y/N
```

(YES) ↓   └(NO) → MULTI MENU

Press the ENTER key to load the data.
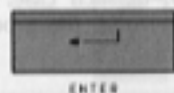
```
* Memory Pack *
Read Start
```
↓
```
* Memory Pack *
Read Completed
```

SAVE: Display "2.EL→PACK", then press the ENTER key.

```
PARTIAL COPY
EL PACK OK? Y/N
```

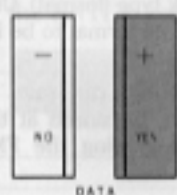(YES) ↓   └(NO) → MULTI MENU

Press the ENTER key to save the data.

```
* Memory Pack *
Write Start
```
↓
```
* Memory Pack *
Write Completed
```

♦ Press the ENTER key and enter the PACK EDIT mode, then display "1. PARTIAL COPY" on the LCD bottom line and press the ENTER key again. The LCD bottom line indicates the item for which PARTIAL COPY will be performed.

REGIST	REGISTRATION MEMORY data and other Registration-related data
SEQUENCE	SEQUENCER data
RHY.PTN.	RHYTHM USER Pattern data
K.PERC. ASSGN	Assignment data of KEYBOARD PERCUSSION

♦ In case a Pack with a capacity greater than that of RP-3 is formatted as a REGIST & VOICE type Pack, and PARTIAL COPY is performed, "VOICE" will be displayed after "K.PERC.ASSGN" so that a PARTIAL COPY operation can be performed for the FM USER VOICE data.

♦ Perform the operation below to select whether or not to copy (SAVE or LOAD) the item displayed on the LCD bottom line.
  When copying is not required: Leave the cursor below the "N" position and press the ENTER key.
  When copying is required: Shift the cursor below "Y", then press the ENTER key.

♦ When YES or NO is selected for the last item and the ENTER key is pressed, the LCD changes to the display on the left. Use the "∨" and "∧" keys to change the LCD bottom line and select the direction of the PARTIAL COPY operation (SAVE or LOAD).

PACK INITIALIZE ——————————————————————

After pressing the CONFIRM button, press the ENTER key. [→Page 76]

```
-REGIST-    HX-1
BANK      NO.=01
```

[ENTER]

```
PACK EDIT
1.PARTIAL COPY
```

Use the "∨" and "∧" keys to display "2. INITIALIZE" on the LCD bottom line.

[MENU SELECT]

```
PACK EDIT
2.INITIALIZE

3.BANK PROTECT
1.PARTIAL COPY
```

Press the ENTER key.

[ENTER]

```
PACK INIT.    ∧∨⌐
1.REGIST
```
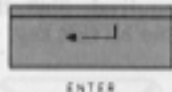
Use the "∨" and "∧" keys to select the RAM Pack format.

[MENU SELECT]

```
PACK INIT.    ∧∨⌐
1.REGIST

2.VOICE
3.REGIST & VOICE
```

Press the ENTER key, then shift the cursor using the "+/YES" key.

[ENTER]

```
PACK INITIALIZE
OK ?        Y/N
```

[DATA - and +]
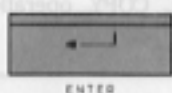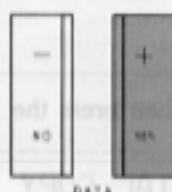
```
PACK INITIALIZE
OK ?        Y/N
```

Press the ENTER key.
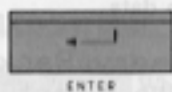
[ENTER]

```
RP-3 INITIALIZE
Start
```

```
RP-3 INITIALIZE
Completed
```

Perform a TO PACK or FROM PACK operation. [→Page 75]

If a non-initialized RAM Pack is inserted:

```
*  Memory Pack  *
  Unknown Type !!
```

◆ **For an initialized RAM Pack**: Press the ENTER key and enter the PACK EDIT mode, display "2. INITIALIZE" on the LCD bottom line, then press the ENTER key again.
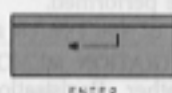
For a non-initialized RAM Pack: Press the ENTER key immediately after inserting the Pack. (If another operation has been performed after Pack insertion, press the CONFIRM button to return the LCD to the "Unknown Type!!" display, then press the ENTER key.)

◆ When the ENTER key is pressed, the LCD changes to the display on the left. The LCD bottom line indicates the RAM Pack type (format). Use the "∨" and "∧" keys to select the format to be initialized.

1. REGIST	This format can save all data that can be stored at the Electone, excluding the FM USER VOICE data.
2. VOICE	This format can save the FM USER VOICE data.
3. REGIST & VOICE	This format can save the data of both 1. and 2. above. (Exclusively for use with Packs with a capacity greater than that of RP-3)

◆ **CAUTION**: If you attempt to perform "3. REGIST & VOICE" formatting on RP-3, an error will occur. (See the note below.)

◆ When the ENTER key is pressed without shifting the cursor, the display returns to "PACK INIT." and you can re-select the desired format. If you wish to exit the PACK INITIALIZE job before completing the entire procedure, press the QUIT key to exit the PACK INITIALIZE mode.

NOTE:
● During initialization, in the case where some abnormality occurs or you make a mistake in the operating procedure, the following error message is displayed on the LCD. In such case, either replace the RAM Pack or repeat the procedure once more.

"RP-3 INITIALIZE Failed!!"	When initialization could not be successfully performed.
"Memory lack for this Data"	When initialization with the "3. REGIST & VOICE" format is attempted on RP-3.

BANK PROTECT ▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬

After pressing the CONFIRM button,
press the ENTER key. [→Page 76]

```
-REGIST-   HX-1
BANK      NO.= 1
```
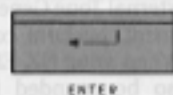
[ENTER]

```
PACK EDIT
1.PARTIAL COPY
```

Using the "∨" and "∧" keys, display "3. BANK PROTECT" on the LCD
bottom line.

[MENU SELECT]

```
PACK EDIT
3.BANK PROTECT
1.PARTIAL COPY
2.INITIALIZE
```

Press the ENTER key.

[ENTER] ┄┄┄→
```
BANK PROTECT
BANK NO. 01 Y/N?
```

To set the protect status: Use the "+/YES" key to shift
the cursor to "Y", then press the ENTER key.

[− NO] [+ YES]
DATA
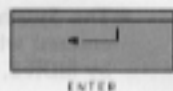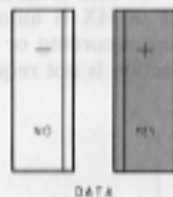
[ENTER]

```
* Memory Pack *
  Bank Protected
```

If a TO PACK operation is improperly performed, that
operation will be regarded as an error and the data of
the pertinent Bank of the RAM Pack will be protected.

To cancel the protect status: Press the ENTER key with
the cursor left positioned at "N".

[ENTER] ┄┄┄→
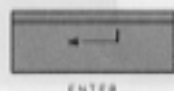
```
* Memory Pack *
  Protect Clear
```

When a TO PACK operation is performed, the Electone
data can be saved once more in the pertinent Bank of
the RAM Pack.

♦ The BANK PROTECT function will be provided in
the near future to enable compatibility with RAM
Packs having a capacity greater than RP-3. It is
also possible to perform bank protection with
RP-3; since RP-3 only has one Bank, however, if
you wish to protect the saved data, be sure to set
MEMORY PROTECT of the Pack to ON.

─────────────────────────

NOTE:
● Other error messages are as follows:

| "* Memory Pack * Bank Protected" | When a TO PACK operation is performed for a Bank with a Bank Protect setting. |
| "* Memory Pack * Not for HX !! " | When a Pack that cannot be used with the HX Electone is inserted. |

─────────────────────────

♦ When the ENTER key is pressed, the LCD changes
to the display on the left. When a PACK having a
capacity greater than that of RP-3 is used, the Bank
No. selected before entering PACK EDIT mode is
displayed on the LCD bottom line. (With RP-3, the
Bank No. is fixed to "01".) Use the "+" and "−"
keys to select the protection of the displayed Bank
or the cancellation of its protect status.

PACK CONTROL ▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬

Switch the PACK CONTROL button to ON. (When using a Pack with
a capacity greater than that of RP-3)

[PACK CONTROL]

```
[FROM PACK] BANK
AUTO INC. MODE
```

When the FROM PACK operation is performed, the Bank No. of the
Pack is automatically incremented by one.

♦ The PACK CONTROL function will be provided in
the near future to allow compatibility with Packs
with a capacity greater than RP-3.
♦ Switching the PACK CONTROL ON/OFF status
allows you to select the below;
ON: Each time a FROM PACK operation is
performed, the Bank No. of the Pack is auto-
matically incremented by one. After the data of
the last bank is read, the Bank No. returns to "1".
(With RP-3, it is fixed to "01").
OFF: The Bank No. of the Pack remains
unchanged, even if a FROM PACK operation is
performed.

III-2 EXTERNAL DEVICES

2-(1) For control of an external Tone Generator
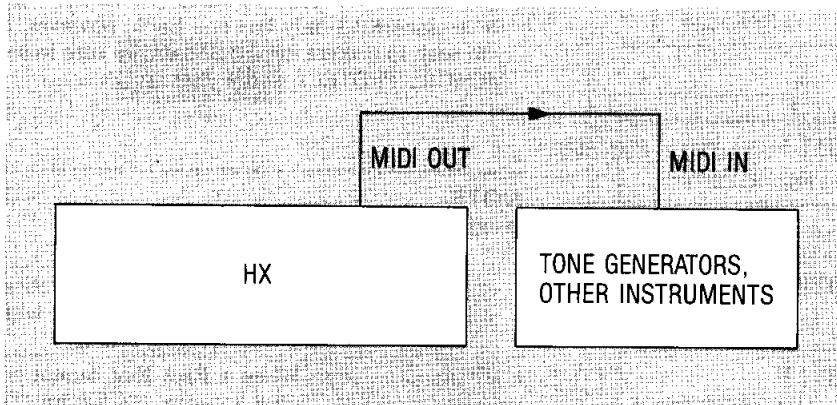
◆ In case you wish to send the performance data of an HX Electone to an external Tone Generator or a MIDI-compatible instrument, perform connection as shown on the left. When your HX Electone is played, voices will also be sounded from the external device.

◆ To perform transmission, the HX's Basic Channel (OUT) and the external device's Basic Channel (IN) are required to match. Depending on which keyboard the data will be sent to, set the external device's reception channel to match the pertinent Default Channel (UK=CH 1, LK=CH 2, PK=CH 3).

◆ When you are performing with multiple Tone Generators connected to your HX electone, switching between the Tone Generators may cause them to not sound or to malfunction (because the MIDI Status byte is omitted from data transmission).

2-(2) For recording/playback of an HX performance using MDR-2, etc.
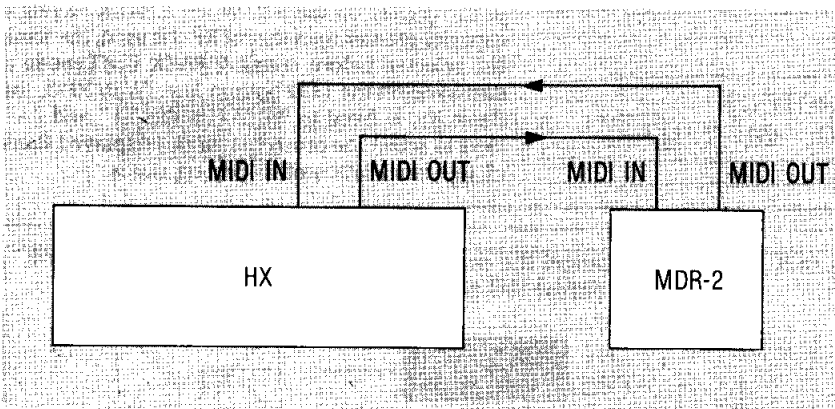
◆ In case an external Sequencer, such as a Music Disk Recorder (MDR-2), is used, connect the MIDI IN and OUT jacks together as shown on the left to enable the recording and playback of an HX performance.

◆ Besides performance data, MDR-2 can also record and play back various types of Bulk Dump data, data on panel operation during a performance, and so on. (For details, refer to the "MDR-2/2P USER'S GUIDE".)

◆ The Synchronous mode of HX is automatically entered when performing recording or playback by MDR-2, so mode selection is not required.

2-(3) To control HX by computer
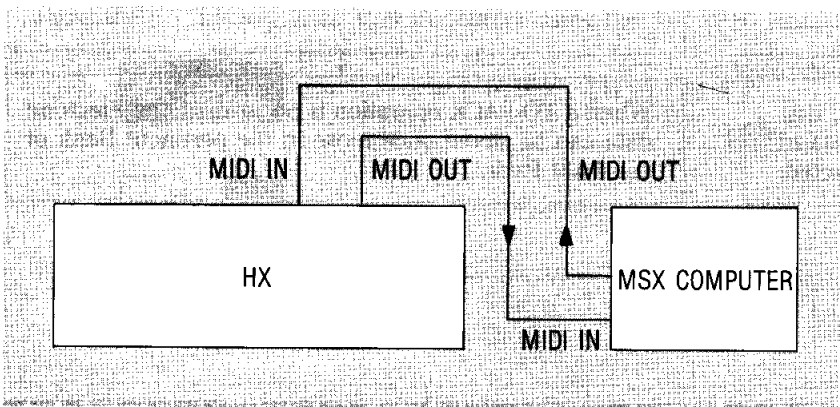
◆ The voice parameter data created (or edited) using an MSX Computer or other device can be saved at the HX Electone's FM USER Voices (POLY: 91-98, MONO: 55-60). Just connect the MIDI jack of the FM Sound Synthesizer Unit mounted on the MSX Computer with the MIDI jack of your HX Electone. (Special software for such applications is being planned for release in the near future.)

◆ While using a computer to input automatic-performance programs and other data into your HX Electone, be sure to refer to the tables of the various data codes that are listed in the section "MIDI SPECIFICATIONS" at the back of this Guide. [→Page 87]

IV. OTHER INFORMATION

ACCESSORY JACKS

(HX-1 REAR PANEL)
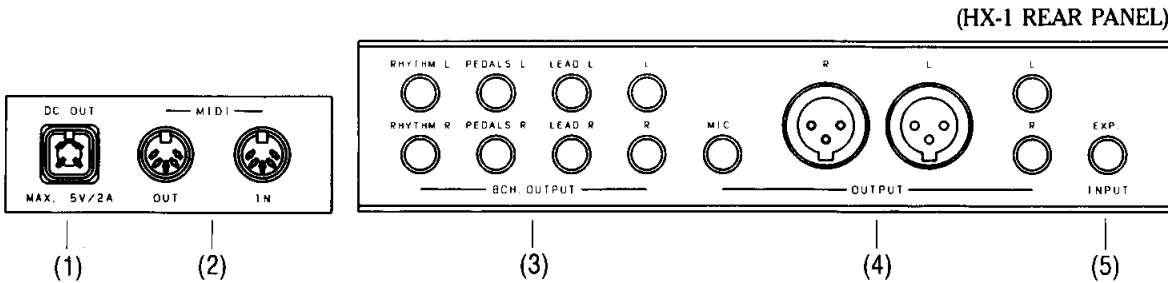
(1) DC OUT
This jack supplies power to MDR-2.

(2) MIDI OUT/IN
The MIDI (Musical Instrument Digital Interface) jacks conform to the MIDI standard for digital electronic instruments and enable you to connect your Electone to MIDI-compatible electronic instruments (or devices) for data communication.

(3) 8CH OUTPUT
The audio signals of HX are allocated to these 8 channels for output.
RHYTHM L, R: Stereo output of rhythm sounds
PEDALS L, R : Stereo output of pedal keyboard sounds
LEAD L, R   : Stereo output of LEAD section sounds
L, R   : Stereo output of all sounds not listed above
*If a Digital Effector of the EFFECT ASSIGN section is assigned to a LEAD voice, the LEAD sound will not be output from LEAD L and R.

(4) OUTPUT
These jacks perform stereo output of the HX audio signals (including the MIC. sounds) directly to the Keyboard Amplifiers (KA-40, KA-30, KA-20, etc.)
Phone L, R : For connection with the Phone jacks of the amplifiers.
Cannon L, R: For connection with the Cannon jacks of the amplifiers (KA-40, KA-30).
MIC.   : Only the sounds input from MIC. IN are output.

(5) INPUT
This jack accepts monaural signals from a synthesizer or similar devices. The volume of the device connected here will be controlled by the Electone's Expression Pedal.

(MKX-5 FRONT PANEL)
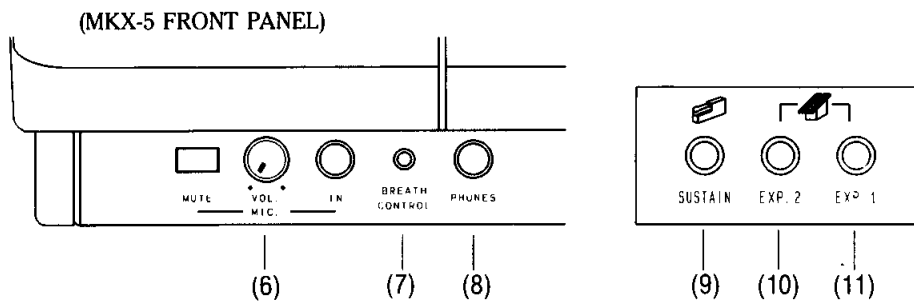
(6) MIC.
IN   : For connection with the microphone.
VOL.: For volume control of the connected microphone.
MUTE: For muting output of the microphone sounds.

(7) BREATH CONTROL
This jack is used to connect the Breath Controller (optional) for controlling the Modulation effect. When the Breath Controller is connected, modulation cannot be controlled using the MKX-5 Wheel.

(8) PHONES
This jack is used to connect headphones (optional) and must not be used for any other purpose.

(9) SUSTAIN
This jack is used to connect the Foot Pedal (optional) for controlling UPPER SUSTAIN, LOWER SUSTAIN, and LEAD SLIDE.

(10) EXP.2 (11) EXP.1
Connecting an external Control Pedal to either of these jacks enables the connected Control Pedal to operate similarly to an Expression Pedal of the Electone.

SPECIFICATIONS

			HX-1	HX-3	HX-5
TONE GENERATION	UPPER	COMBINATION	WM — POLY (8 notes)	WM — POLY (8 notes)	WM — POLY (8 notes)
	UPPER	ORCHESTRAL	FM (80P.) — POLY (8 notes)	FM (40P.) — POLY (8 notes)	FM (40P.) — POLY (8 notes)
	UPPER/LOWER	PERCUSSIVE	FM (80P.) — POLY (8 notes)	FM (40P.) — POLY (8 notes)	FM (40P.) — POLY (8 notes)
	UPPER/LOWER	AWM PRESET	AWM — POLY (8 notes)	AWM — POLY (8 notes)	—
	UPPER/LOWER	LEAD	FM (160P.) — MONO (1 note)	FM (80P.) — MONO (1 note)	FM (80P.) — MONO (1 note)
	LOWER	COMBINATION	WM — POLY (8 notes)	WM — POLY (8 notes)	WM — POLY (8 notes)
	LOWER	ORCHESTRAL	FM (80P.) — POLY (8 notes)	FM (40P.) — POLY (8 notes)	FM (40P.) — POLY (8 notes)
	PEDALS	BASS	FM (160P.) — MONO (1 note)	FM (80P.) — MONO (1 note)	FM (80P.) — MONO (1 note)
	PEDALS	AWM BASS	AWM — MONO (1 note)	AWM — MONO (1 note)	AWM — MONO (1 note)
	RHYTHM		AWM — POLY (8 notes)	AWM — POLY (8 notes)	AWM — POLY (8 notes)
	OTHERS	RHYTHMIC	FM (40P.) — POLY (5 notes)	FM (40P.) — POLY (5 notes)	FM (20P.) — POLY (5 notes)
	OTHERS	MELODIC	FM (40P.) — POLY (4 notes)	FM (40P.) — POLY (4 notes)	FM (20P.) — POLY (4 notes)
ENSEMBLE		UPPER	COMBI., ORCHES., PERCUSSIVE, AWM PRESET, LEAD	COMBI., ORCHES, PERCUSSIVE, AWM PRESET, LEAD	COMBI., ORCHES., PERCUSSIVE, LEAD
		LOWER	COMBI., ORCHES., PERCUSSIVE, AWM PRESET, LEAD	COMBI., ORCHES, PERCUSSIVE, AWM PRESET, LEAD	COMBI., ORCHES., PERCUSSIVE, LEAD
VOICE SELECTORS	UPPER	COMBINATION	1., 2., 3., 4.	1., 2., 3., 4.	1., 2., 3., 4.
	UPPER	ORCHESTRAL	STRINGS 1, STRINGS 2, BRASS 1, WOOD 1, VOCAL 1, 1., 2.	STRINGS 1, STRINGS 2, BRASS 1, WOOD 1, VOCAL 1, 1., 2.	STRINGS 1, STRINGS 2, BRASS 1, WOOD 1, VOCAL 1, 1., 2.
	UPPER/LOWER	PERCUSSIVE	ELECTRIC PIANO, VIBRAPHONE, MARIMBA, JAZZ GUITAR 1, GUITAR 1, 1., 2.	ELECTRIC PIANO, VIBRAPHONE, MARIMBA, JAZZ GUITAR 1, GUITAR 1, 1., 2.	ELECTRIC PIANO, VIBRAPHONE, MARIMBA, JAZZ GUITAR 1, GUITAR 1, 1., 2.
	UPPER/LOWER	AWM PRESET	PIANO 1, PIANO 2, MARIMBA, STRINGS, PIPE ORGAN	PIANO 1, PIANO 2, MARIMBA, STRINGS, PIPE ORGAN	—
	UPPER/LOWER	LEAD	VIOLIN 1, FLUTE 1, OBOE, CLARINET, TRUMPET 1, TROMBONE, 1., 2.	VIOLIN 1, FLUTE 1, OBOE, CLARINET, TRUMPET 1, TROMBONE, 1., 2.	VIOLIN 1, FLUTE 1, OBOE, CLARINET, 1., 2.
	LOWER	COMBINATION	1., 2., 3., 4.	1., 2., 3., 4.	1., 2., 3., 4.
	LOWER	ORCHESTRAL	STRINGS 2, STRINGS 3, BRASS 3, WOOD 2, VOCAL 2, 1., 2.	STRINGS 2, STRINGS 3, BRASS 3, WOOD 2, VOCAL 2, 1., 2.	STRINGS 2, STRINGS 3, BRASS 3, WOOD 2, VOCAL 2, 1., 2.
	PEDALS	BASS	CONTRABASS 1, ELECTRIC BASS 1, ELECTRIC BASS 2, 1., 2.	CONTRABASS 1, ELECTRIC BASS 1, 1.	CONTRABASS 1, ELECTRIC BASS 1, 1.
	PEDALS	AWM BASS	PIPE BASS, STRING BASS, WOOD BASS, ELECTRIC BASS, TIMPANI	PIPE BASS, STRING BASS, WOOD BASS	PIPE BASS, STRING BASS, WOOD BASS
EFFECTS & CONTROLS	VOLUME	UPPER / U/L / LOWER / PEDALS	COMBI., ORCHES. / PERC., AWM PRESET, LEAD / COMBI., ORCHES. / BASS, AWM BASS	COMBI., ORCHES. / PERC., AWM PRESET, LEAD / COMBI., ORCHES. / BASS, AWM BASS	COMBI., ORCHES. / PERC., LEAD / COMBI., ORCHES. / BASS, AWM BASS
	MANUAL BALANCE		○	○	○
	BRILLIANCE	UPPER / U/L / LOWER / PEDALS	ORCHES. / PERC., LEAD / ORCHES. / BASS	— / LEAD / — / BASS	— / — / — / —
	TOUCH TONE	UPPER / U/L / LOWER / PEDALS	ORCHES. / PERC., AWM PRESET, LEAD / ORCHES. / BASS, AWM BASS	ORCHES. / PERC., AWM PRESET, LEAD / ORCHES. / BASS, AWM BASS	ORCHES. / PERC., LEAD / ORCHES. / BASS, AWM BASS
	TOUCH VIBRATO	U/L	LEAD	LEAD	LEAD
	EFFECT ASSIGN		SYMPHONIC, CELESTE / PHASER / FLANGER / DELAY / WAH	SYMPHONIC/CELESTE / PHASER / — / DELAY / WAH	SYMPHONIC/CELESTE / PHASER / — / DELAY / —
	SUSTAIN	UPPER / LOWER / PEDAL	○ (KNEE), LENGTH / ○ (KNEE), LENGTH / ○, LENGTH	○ (KNEE), LENGTH / ○ (KNEE), LENGTH / ○, LENGTH	○ (KNEE), LENGTH / ○ (KNEE), LENGTH / ○, LENGTH
	LEAD SLIDE		○ (KNEE)	○ (KNEE)	○ (KNEE)
	REVERB		○	○	○
	TREMOLO		TREMOLO, CHORUS, U. COMBI., L. COMBI.	TREMOLO, CHORUS, U. COMBI., L. COMBI.	TREMOLO, CHORUS, U. COMBI., L. COMBI.
	FOOT SWITCH		LEFT, RIGHT, REGIST JUMP, REGIST SHIFT	LEFT, RIGHT, REGIST JUMP, REGIST SHIFT	LEFT, RIGHT, REGIST JUMP, REGIST SHIFT
	TUNING		○	○	○
	PACK CONTROL		○	○	○

			HX-1	HX-3	HX-5
RHYTHM	RHYTHM PATTERN		1., 2., 3., 4., USER 1, USER 2, USER 3, USER 4	1., 2., 3., 4., USER 1, USER 2, USER 3, USER 4	1., 2., 3., 4., USER 1, USER 2, USER 3, USER 4
	VARIATION		1, 2	1, 2	1, 2
	FILL IN		1, 2	1, 2	1, 2
	CONTROLS		VOLUME, BALANCE, TEMPO	VOLUME, BALANCE, TEMPO	VOLUME, BALANCE, TEMPO
KEYBOARD PERCUSSION			○	○	○
CHORD ACCOMPANI-MENT	RHYTHMIC	SELECTORS VOLUME	1, 2, 3, 4 ○	1, 2 ○	— ○
	MELODIC	SLECTORS VOLUME	1, 2, 3, 4 ○	1, 2 ○	— ○
AUTO BASS CHORD	MODE		ABC	ABC	ABC
	MULTI BASS		1, 2, 3	1, 2, 3	1, 2, 3
	MEMORY		LOWER, PEDAL	LOWER, PEDAL	LOWER, PEDAL
MELODY ON CHORD			○	○	○
PROGRAM OPERATORS			MENU SELECT (∧∨< >), DATA (− +), ENTER, QUIT, CE, SUB DATA CONTROL (1-0)	MENU SELECT (∧∨< >), DATA (− +), ENTER, QUIT, CE, SUB DATA CONTROL (1-0)	MENU SELECT (∧∨< >), DATA (− +), ENTER, QUIT, CE, SUB DATA CONTROL (1-0)
PANEL PROGRAM	COMBI. VOICE MENU		CHURCH ORGAN 1, 2, 3, 4, JAZZ ORGAN 1, 2, 3, 4, 5, 6, 7, 8 THEAT. ORGAN 1, 2, 3, 4 USER 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	CHURCH ORGAN 1, 2, 3, 4, JAZZ ORGAN 1, 2, 3, 4, 5, 6, 7, 8 THEAT. ORGAN 1, 2, 3, 4 USER 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	CHURCH ORGAN 1, 2, 3, 4, JAZZ ORGAN 1, 2, 3, 4, 5, 6, 7, 8 THEAT. ORGAN 1, 2, 3, 4
	COMBI. USER VOICE		16′, 8′, $5\frac{1}{3}$′, 4′, $2\frac{2}{3}$′, 2′, $1\frac{3}{5}$′, $1\frac{1}{3}$′, 1′, ATTACK 4′, $2\frac{2}{3}$′, 2′, ATTACK LENGTH, RESPONSE, CLICK, TIMBRE VARIATION	16′, 8′, $5\frac{1}{3}$′, 4′, $2\frac{2}{3}$′, 2′, $1\frac{3}{5}$′, $1\frac{1}{3}$′, 1′, ATTACK 4′, $2\frac{2}{3}$′, 2′, ATTACK LENGTH, RESPONSE, CLICK, TIMBRE VARIATION	—
	POLY VOICE MENU		STRINGS 1, 2, 3, 4, 5, PIZZ. STRINGS, VIOLIN 1, 2, CELLO, BRASS 1, 2, 3, 4, 5, TRUMPET 1, 2, 3, TROMBONE 1, 2, 3, HORN, WOOD 1, 2, 3, PICCOLO, FLUTE 1, 2, OBOE 1, 2, E. HORN, BASSOON, CLARINET 1, 2, B. CLARINET, A. SAX, T. SAX, ACCORDION, BANDO-NEON, HARMONICA, VOCAL 1, 2, 3, 4, COSMIC 1, 2, 3, 4, 5, 6, E. PIANO 1, 2, 3, 4, PIANO 1, 2, 3, GUITAR 1, 2, JAZZ GUITAR 1, 2, E. GUITAR 1, 2, 3, VIBRAPHONE, MARIMBA, XYLOPHONE, GLOCKEN SPEIL, CELESTA, HARPSI-CHORD, HARP 1, 2, BANJO, MANDOLIN, SHAMISEN, KOTO, TAISHOGOTO, CHIME 1, 2, CARILLON, STEEL DRUM 1, 2, TIMPANI 1, 2, E. BASS 1, 2, 3, 4, COSMIC 7, 8, 9, USER 1, 2, 3, 4, 5, 6, 7, 8	STRINGS 1, 2, 3, 4, 5, PIZZ. STRINGS, VIOLIN 1, 2, CELLO, BRASS 1, 2, 3, 4, 5, TRUMPET 1, 2, 3, TROMBONE 1, 2, 3, HORN, WOOD 1, 2, 3, PICCOLO, FLUTE 1, 2, OBOE 1, 2, E. HORN, BASSOON, CLARINET 1, 2, B. CLARINET, A. SAX, T. SAX, ACCORDION, BANDO-NEON, HARMONICA, VOCAL 1, 2, 3, 4, COSMIC 1, 2, 3, 4, 5, 6, E. PIANO 1, 2, 3, 4, PIANO 1, 2, 3, GUITAR 1, 2, JAZZ GUITAR 1, 2, E. GUITAR 1, 2, 3, VIBRAPHONE, MARIMBA, XYLOPHONE, GLOCKEN SPEIL, CELESTA, HARPSI-CHORD, HARP 1, 2, BANJO, MANDOLIN, SHAMISEN, KOTO, TAISHOGOTO, CHIME 1, 2, CARILLON, STEEL DRUM 1, 2, TIMPANI 1, 2, E. BASS 1, 2, 3, 4, COSMIC 7, 8, 9, USER 1, 2, 3, 4, 5, 6, 7, 8	STRINGS 1, 2, 3, 4, 5, PIZZ. STRINGS, VIOLIN 1, 2, CELLO, BRASS 1, 2, 3, 4, 5, TRUMPET 1, 2, 3, TROMBONE 1, 2, 3, HORN, WOOD 1, 2, 3, PICCOLO, FLUTE 1, 2, OBOE 1, 2, E. HORN, BASSOON, CLARINET 1, 2, B. CLARINET, A. SAX, T. SAX, ACCORDION, BANDO-NEON, HARMONICA, VOCAL 1, 2, 3, 4, COSMIC 1, 2, 3, 4, 5, 6, E. PIANO 1, 2, 3, 4, PIANO 1, 2, 3, GUITAR 1, 2, JAZZ GUITAR 1, 2, E. GUITAR 1, 2, 3, VIBRAPHONE, MARIMBA, XYLOPHONE, GLOCKEN SPEIL, CELESTA, HARPSI-CHORD, HARP 1, 2, BANJO, MANDOLIN, SHAMISEN, KOTO, TAISHOGOTO, CHIME 1, 2, CARILLON, STEEL DRUM 1, 2, TIMPANI 1, 2, E. BASS 1, 2, 3, 4, COSMIC 7, 8, 9, USER 1, 2, 3, 4, 5, 6, 7, 8
	MONO VOICE MENU		VIOLIN 1, 2, CELLO, TRUMPET 1, 2, TROMBONE, HORN, PICCOLO, FLUTE 1, 2, OBOE, E. HORN, BASSOON, CLARINET, B. CLARINET, A. SAX, T. SAX, HARMONICA, PAN FLUTE, SHAKUHACHI, VOCAL 1, 2, GUITAR, JAZZ GUITAR 1, 2, E. GUITAR 1, 2, D. GUITAR, H. GUITAR, COSMIC 1, 2, 3, 4, 5, CONTRABASS 1, 2, PIZZ. BASS 1, 2, TUBA 1, 2, VOCAL 3, E. BASS 1, 2, 3, 4, 5, COMBI. BASS 1, 2, 3, 4, COSMIC 6, 7, 8, 9, USER 1, 2, 3, 4, 5, 6	VIOLIN 1, 2, CELLO, TRUMPET 1, 2, TROMBONE, HORN, PICCOLO, FLUTE 1, 2, OBOE, E. HORN, BASSOON, CLARINET, B. CLARINET, A. SAX, T. SAX, HARMONICA, PAN FLUTE, SHAKUHACHI, VOCAL 1, 2, GUITAR, JAZZ GUITAR 1, 2, E. GUITAR 1, 2, D. GUITAR, H. GUITAR, COSMIC 1, 2, 3, 4, 5, CONTRABASS 1, 2, PIZZ. BASS 1, 2, TUBA 1, 2, VOCAL 3, E. BASS 1, 2, 3, 4, 5, COMBI. BASS 1, 2, 3, 4, COSMIC 6, 7, 8, 9, USER 1, 2, 3, 4, 5, 6	VIOLIN 1, 2, CELLO, TRUMPET 1, 2, TROMBONE, HORN, PICCOLO, FLUTE 1, 2, OBOE, E. HORN, BASSOON, CLARINET, B. CLARINET, A. SAX, T. SAX, HARMONICA, PAN FLUTE, SHAKUHACHI, VOCAL 1, 2, GUITAR, JAZZ GUITAR 1, 2, E. GUITAR 1, 2, D. GUITAR, H. GUITAR, COSMIC 1, 2, 3, 4, 5, CONTRABASS 1, 2, PIZZ. BASS 1, 2, TUBA 1, 2, VOCAL 3, E. BASS 1, 2, 3, 4, 5, COMBI. BASS 1, 2, 3, 4, COSMIC 6, 7, 8, 9, USER 1, 2, 3, 4, 5, 6
	VIBRATO		DEFAULT, USER (DELAY, SPEED, DEPTH)	DEFAULT, USER (DELAY, SPEED, DEPTH)	DEFAULT, USER (DELAY, SPEED, DEPTH)
	VOLUME		VALUE 0-24	VALUE 0-24	VALUE 0-24
	TOUCH TONE		RANGE 0-15	RANGE 0-15	RANGE 0-15
	TOUCH VIBRATO		RANGE 0-100	RANGE 0-100	RANGE 0-100
	EFFECT ASSIGN	SYMPHONIC CELESTE	MODE 1-2 MODE 1-2	SYMPHONIC/CELESTE	SYMPHONIC/CELESTE
		PHASER	MODE 1-4 USER (STAGE, FREQUENCY, DEPTH, FEEDBACK)	MODE 1-4 USER (STAGE, FREQUENCY, DEPTH, FEEDBACK)	MODE 1-4 USER (STAGE, FREQUENCY, DEPTH, FEEDBACK)
		FLANGER	MODE 1-4 USER (DELAY TIME, DEPTH, FREQUENCY, FEEDBACK, DIRCT. LEVEL, DELAY LEVEL)	—	—
		DELAY	MODE 1-6 USER (DELAY TIME, DEPTH, FREQUENCY, FEEDBACK, DIRCT. LEVEL, DELAY LEVEL, MOD. WAVE)	MODE 1-6 USER (DELAY TIME, DEPTH, FREQUENCY, FEEDBACK, DIRCT. LEVEL, DELAY LEVEL, MOD. WAVE)	MODE 1-6 USER (DELAY TIME, DEPTH, FREQUENCY, FEEDBACK, DIRCT. LEVEL, DELAY LEVEL, MOD. WAVE)
		WAH	MODE 1-2 USER (AUTO SPEED, CENTR FREQUENCY, DEPTH)	MODE 1-2 USER (AUTO SPEED, CENTR FREQUENCY, DEPTH)	—

			HX-1	HX-3	HX-5
PANEL PROGRAM	REVERB		MODE 1-6	MODE 1-6	MODE 1-6
	TREMOLO		SPEED 0-100	SPEED 0-100	SPEED 0-100
	FOOT SWITCH	LEFT	RHY.STOP, RHY.ENDING, RHY.FILL IN, RHY. BREAK, LEAD GLIDE, UPPER GLIDE, U & L GLIDE	RHY.STOP, RHY.ENDING, RHY.FILL IN, RHY. BREAK, LEAD GLIDE, UPPER GLIDE, U & L GLIDE	RHY.STOP, RHY.ENDING, RHY.FILL IN, RHY. BREAK, LEAD GLIDE, UPPER GLIDE, U & L GLIDE
		RIGHT	LEAD GLIDE, UPPER GLIDE, U & L GLIDE	LEAD GLIDE, UPPER GLIDE, U & L GLIDE	LEAD GLIDE, UPPER GLIDE, U & L GLIDE
		REGIST	JUMP 1-16, SHIFT ON/OFF	JUMP 1-16, SHIFT ON/OFF	JUMP 1-16, SHIFT ON/OFF
	MODULATION		LEAD SLIDE 0-100 LEAD PAN 0-100 WAH 0-100	LEAD SLIDE 0-100 LEAD PAN 0-100 WAH 0-100	LEAD SLIDE 0-100 LEAD PAN 0-100 —
	PITCH		LEAD PITCH 1-12 U. ORC. PITCH 1-12 PEDALS PITCH 1-12	LEAD PITCH 1-12 U. ORC. PITCH 1-12 PEDALS PITCH 1-12	LEAD PITCH 1-12 U. ORC. PITCH 1-12 PEDALS PITCH 1-12
	TUNING		+23 STEP, −7 STEP	+23 STEP, −7 STEP	+23 STEP, −7 STEP
	RHYTHM PATTERN MENU		8 BEAT 1, 2, 3, 16 BEAT 1, 2, DISCO, BOUNCE 1, 2, SLOW ROCK, BALLAD, 4 BEAT 1, 2, LATIN, SALSA, BOSSA-NOVA, SAMBA, TANGO, COUNTRY, MARCH 1, 2, WALTZ 1, 2	8 BEAT 1, 2, 3, 16 BEAT 1, 2, DISCO, BOUNCE 1, 2, SLOW ROCK, BALLAD, 4 BEAT 1, 2, LATIN, SALSA, BOSSA-NOVA, SAMBA, TANGO, COUNTRY, MARCH 1, 2, WALTZ 1, 2	8 BEAT 1, 2, 3, 16 BEAT 1, 2, DISCO, BOUNCE 1, 2, SLOW ROCK, BALLAD, 4 BEAT 1, 2, LATIN, SALSA, BOSSA-NOVA, SAMBA, TANGO, COUNTRY, MARCH 1, 2, WALTZ 1, 2
	ABC MODE		CUSTOM, F.C., S.F.	CUSTOM, F.C., S.F.	CUSTOM, F.C., S.F.
	MOC MODE		1, 2, 3	1, 2, 3	1, 2, 3
	PACK EDIT		PARTIAL COPY, PACK INITIALIZE, BANK PROTECT	PARTIAL COPY, PACK INITIALIZE, BANK PROTECT	PARTIAL COPY, PACK INITIALIZE, BANK PROTECT
MULTI MENU	SEQUENCER	RECORD	STEP WRITE: RHYTHM, CHORD, REGIST SEQUENCE, REAL TIME WRITE: CHORD SEQUENCE	STEP WRITE: RHYTHM, CHORD, REGIST SEQUENCE, REAL TIME WRITE: CHORD SEQUENCE	STEP WRITE: RHYTHM, CHORD, REGIST SEQUENCE, REAL TIME WRITE: CHORD SEQUENCE
		EDIT	RHYTHM, CHORD, REGIST SEQUENCE	RHYTHM, CHORD, REGIST SEQUENCE	RHYTHM, CHORD, REGIST SEQUENCE
			RECORD/EDIT CONTROL: JUMP,⊨, ⊨, ⅋ , ⊕ , D.S. RHY., REGI., DEL., INS.	RECORD/EDIT CONTROL: JUMP,⊨, ⊨, ⅋ , ⊕ , D.S. RHY., REGI., DEL., INS.	RECORD/EDIT CONTROL: JUMP,⊨, ⊨, ⅋ , ⊕ , D.S. RHY., REGI., DEL., INS.
		PLAY MODE CHANGE	CHORD SEQUENCE, REGIST SEQUENCE, REPEAT, LK ENABLE, INTRO. TACT	CHORD SEQUENCE, REGIST SEQUENCE, REPEAT, LK ENABLE, INTRO. TACT	CHORD SEQUENCE, REGIST SEQUENCE, REPEAT, LK ENABLE, INTRO. TACT
	RHYTHM	RHYTHM PATTERN EDIT	RHYTHM REAL TIME WRITE, RHYTHM STEP WRITE, RHYTHM PATTERN COPY, RHYTHM INSTRUMENT CHANGE, RHYTHM CLEAR, RHYTHM INSTRU-MENT PATTERN CLEAR	RHYTHM REAL TIME WRITE, RHYTHM STEP WRITE, RHYTHM PATTERN COPY, RHYTHM INSTRUMENT CHANGE, RHYTHM CLEAR, RHYTHM INSTRU-MENT PATTERN CLEAR	RHYTHM REAL TIME WRITE, RHYTHM STEP WRITE, RHYTHM PATTERN COPY, RHYTHM INSTRUMENT CHANGE, RHYTHM CLEAR, RHYTHM INSTRU-MENT PATTERN CLEAR
		RHYTHM INSTRUMENT LEVEL	60 INSTRUMENTS RANGE: 0-15	60 INSTRUMENTS RANGE: 0-15	60 INSTRUMENTS RANGE: 0-15
		RHYTHM INSTRUMENT PAN	60 INSTRUMENTS RANGE: L3, L2, L1, C, R1, R2, R3	60 INSTRUMENTS RANGE: L3, L2, L1, C, R1, R2, R3	60 INSTRUMENTS RANGE: L3, L2, L1, C, R1, R2, R3
		KEYBOARD PERCUSSION ASSIGN	60 INSTRUEMNTS UPPER KEYBOARD, LOWER KEYBOARD, PEDALS	60 INSTRUMENTS UPPER KEYBOARD, LOWER KEYBOARD, PEDALS	60 INSTRUMENTS UPPER KEYBOARD, LOWER KEYBOARD, PEDALS
	EXTRA FUNCTION	C. DISPLAY	○	○	○
		MIDI CONTROL	RHYTHM SYNCHRONOUS MODE SELECT, BASIC CHANNEL, BULK DATA SELECT, LOCAL CONTROL, AFTER TOUCH	RHYTHM SYNCHRONOUS MODE SELECT, BASIC CHANNEL, BULK DATA SELECT, LOCAL CONTROL, AFTER TOUCH	RHYTHM SYNCHRONOUS MODE SELECT, BASIC CHANNEL, BULK DATA SELECT, LOCAL CONTROL, AFTER TOUCH
		2nd EXP. PEDAL	OFF, RHYTHM TEMPO NARROW, RHYTHM TEMPO WIDE, MODULATION, PITCH	OFF, RHYTHM TEMPO NARROW, RHYTHM TEMPO WIDE, MODULATION, PITCH	OFF, RHYTHM TEMPO NARROW, RHYTHM TEMPO WIDE, MODULATION, PITCH
	EXTERNAL CONTROL		SUB DATA CONTROL (1-0) EXT. CONTROL (1, 2)	SUB DATA CONTROL (1-0) EXT. CONTROL (1, 2)	SUB DATA CONTROL (1-0) EXT. CONTROL (1, 2)
DISPLAY	MULTI MENU (LCD)		○	○	○
	TEMPO & BAR/BEAT		○	○	○
	DOWN BEAT		○	○	○
	REGISTRATION NUMBER		○	○	○
	LEVEL		INITIAL TOUCH, EXPRESSION, ON/OFF	INITIAL TOUCH, EXPRESSION, ON/OFF	INITIAL TOUCH, EXPRESSION, ON/OFF
CONNECTORS	OUTPUT		PHONE L, R, CANNON L, R, MIC.	PHONE L, R, CANNON L, R, MIC.	PHONE L, R, CANNON L, R, MIC.
	8CH OUTPUT		L, R, LEAD L, R, PEDALS L, R, RHYTHM L, R	—	—
	8CH MIC. OUTPUT		11 PIN MULTI	—	—
	INPUT		EXP.	EXP.	EXP.
	MIDI		OUT, IN	OUT, IN	OUT, IN
	DC OUT		5V/2A	5V/2A	5V/2A

			MKX-5	MKX-4
KEYBOARDS	UPPER KEYBOARD		61 keys C-c4 (5 oct.)	49 keys c-c4 (4 oct.)
	LOWER KEYBOARD		61 keys C-c4 (5 oct.)	49 keys C-c3 (4 oct.)
TOUCH RESPONSE	INITIAL		UK (each key), LK (each key)	UK (each key), LK (each key)
	AFTER		UK, LK	UK, LK
CONTROLS	MODULATION	WHEEL	○	—
		SELECTORS	1 (LEAD SLIDE), 2 (LEAD PAN), 3 (WAH)	—
	PITCH	WHEEL	○	—
		SELECTORS	1 (LEAD), 2 (U.ORC.), 3 (PEDALS)	—
	KNEE LEVER		○	○
	START		○	○
	SYNCHRO START		○	○
	INTRO./ENDING		○	○
	FILL IN		○	○
	BREAK		○	○
	PEDAL D.R.C.		○	—
REGISTRATION MEMORY		BANK	1-16	1-16
		CONTROL	MEMORY	MEMORY
PACK		I/O	34 pins	34 pins
		CONTROL	CONFIRM, FROM PACK, TO PACK	CONFIRM, FROM PACK, TO PACK
MAIN CONTROLS			MASTER VOLUME, REMOTE LED, POWER	MASTER VOLUME, REMOTE LED, POWER
CONNECTORS	HEADPHONES		○	○
	BREATH CONTROL		○	—
	MIC.		IN, VOLUME, MUTE	IN, VOLUME, MUTE
	FOOT CONTROL		EXP. 1, EXP. 2, SUSTAIN	EXP. 1, EXP. 2, SUSTAIN

		PKX-F1	PKX-M1	PKX-S1
KEYBOARD		25 keys C-c1 (2 oct.)	20 keys C-g (1½ oct.)	13 keys C-c (1 oct.)
TOUCH RESPONSE	INITIAL	○	○	—
	AFTER	○	○	—
CONTROLS	FOOT SWITCH	LEFT, RIGHT	LEFT, RIGHT	LEFT, RIGHT
	EXPRESSION PEDAL	○	○	○
	2nd EXPRESSION PEDAL	○ (optional)	○ (optional)	—

		SYSTEM 1 (HX-1/5F)	SYSTEM 2 (HX-1/5M)	SYSTEM 3 (HX-3/5M)	SYSTEM 4 (HX-5/5M)	SYSTEM 5 (HX-5/4S)
DIMENSIONS	W	1319mm (52″)	1319mm (52″)	1319mm (52″)	1319mm (52″)	1319mm (52″)
	D	995mm (39″)	585mm (23″)	585mm (23″)	585mm (23″)	585mm (23″)
	H	941mm (37″)	941mm (37″)	941mm (37″)	941mm (37″)	941mm (37″)
NET WEIGHT		98kg (215.6 lbs.)	88.5kg (194.7 lbs.)	88kg (193.6 lbs.)	86.5kg (190.3 lbs.)	82.5kg (181.5 lbs.)

MAINTENANCE INFORMATION

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 poly-vinyl material to cover the unit for any extended period of time. A chemical reaction many 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.

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 a variety of ways. You may hear speech, music, "beeps", static, or a 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 corrective measure suggestions 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 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 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.

FCC INFORMATION (USA)

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

The digital series of Yamaha Electones™ uses frequencies that appear in the radio frequency range, and if installed in the immediate proximity of some types of audio or video devices within three meters (approximately ten feet), interference may occur.

This series of Yamaha Electones™ has been type-tested and found to comply with the specifications set for a class B computer in accordance with those specifications listed in sub-part J, part 15 of the FCC rules. These rules are designed to provide a reasonable measure of protection against such interference. However, this does not guarantee that interference will not occur.

If your Electone™ should be suspected of causing interference with other electronic devices, verification can be made by turning your Electone™ off and on. If the interference continues when your Electone™ is off, the Electone™ is not the source of the interference. If your Electone™ does appear to be the source of the interference, you should try to correct the situation by using one or more of the following measures:

● Relocate either the Electone™ or the electronic device that is being affected by the interference.

● Utilize power outlets for the Electone™ and the device being affected that are on different branch (circuit breaker or fuse) circuits, or install AC line filters.

● In the case of radio-TV interference, relocate the antenna or if the antenna lead-in is a 300 ohm ribbon lead, change the lead-in to coaxial type cable.

If these corrective measures do not produce satisfactory results, please contact an authorized Yamaha Electone™ dealer for suggestions and/or corrective measures. If you can not locate an authorized Yamaha Electone™ dealer in your general area, please contact the Electone™ Service Department, Yamaha International, 6600 Orangethorpe Ave., Buena Park, CA 90620, U.S.A.

If for any reason, you should need additional information relating to radio or TV interference, you may find a booklet prepared by the Federal Communications Commission Helpful: "How to Identify and Resolve Radio-TV Interference Problems." This booklet, Stock #004-000-00345-4, is available from the US. Government Printing Office, Washington DC, 20402.

MIDI SPECIFICATIONS

■CHANNEL MESSAGES

Messages			Status byte	Sub Status bytes		Remarks
Note ON/OFF	Upper keyboard	(1ch)	90H (144)	24H-60H (36-96)	ON : 01H-7FH (1-127) OFF: 00H (0)	
	Lower Keyboard	(2ch)	91H (145)	24H-60H (36-96)		
	Pedals	(3ch)	92H (146)	24H-3CH (36-60)		
	Lead	(OFF)	9nH	24H-60H (36-96)		Recognize only
	Keyboard Percussion	(15ch)	9EH (158)	00H-7FH (0-127)		
Control Change	Modulation Wheel	(16ch)	BFH (191)	01H (1)	00H-7FH (0-127)	
	2nd Expression Pedal	(16ch)		04H (4)		
	Expression Pedal	(16ch)		0BH (11)		
	UPPER SUSTAIN	(1ch)	B0H (176)	40H (64)	OFF: 00H (0) ON : 7FH (127)	
	LOWER SUSTAIN	(2ch)	B1H (177)			
	PEDAL SUSTAIN	(3ch)	B2H (178)			
	All Note OFF	(16ch)	BFH (191)	7BH (123)	00H (0)	Recognize only
Program Change	Registration Memory	(16ch)	CFH (207)	00H-0FH (0-15)	—	
After Touch	Upper Keyboard	(1ch)	D0H (208)	00H-7FH (0-127)	—	
	Lower Keyboard	(2ch)	D1H (209)			
	Pedals	(3ch)	D2H (210)			
	Lead	(OFF)	DnH			Recognize only
Pitch Bender	Pitch Wheel	(16ch)	EFH (239)	00H-7FH (0-127)	00H-7FH (0-127)	7 bit resolution

*It is possible to assign the channel of each message using "BASIC CHANNEL" of MULTI MENU.
*The codes above indicate the case wherein data transfer is performed using the default channel settings.

■SYSTEM MESSAGES

Messages		Status byte	Sub Status bytes	Remarks
Exclusive		F0H (240)	43H (67)..........................F7H (247)	Refer to next page
Real Time	Clock	F8H (248)	F8H	Recognize = Ext. mode
	Start	FAH (250)	—	
	Stop	FCH (252)		
	Active Sensing	FEH (254)		Recognize = Ext. mode
	Reset	FFH (255)		Recognize only

[SYSTEM EXCLUSIVE MESSAGES]

	Status byte	2nd byte	3rd byte	4th byte	5th byte	Final byte
	Message type	Manufacturer ID Code	Device ID code	Model ID code	Function code, Data code, etc.	End of Message
1. Electone common messages	F0H (240) "Exclusive"	43H (67) "Yamaha"	70H (112) "Electone"	70H (112) "Electone"	[→Page 88-89)	F7H (247)
2. HX-Series common messages				71H (113) "HX Series"	[→Page 90-91]	
3. Model-Specific messages				*nnH "Model"	[→Page 92]	
4. Electone/Yamaha Single Keyboard common messages			73H (115) "EL & SK"	[→Page 92]		

*HX-1=0BH (11), HX-3=0AH (10), HX-5=09H (9)

1. Electone common messages

[F0H, 43H, 70H, 70H, **5th byte** ...., F7H]

Messages		5th byte		Transmitted	Recognized	Remarks
BULK DUMP Related Messages	Request-to-Send FM Voice data	01H (1), *ID1 (Voice section No.), **ID2 (Voice No.), SPl, SPh, (Data Offset) DCl, DCh (Data Count)		×	○	* U.ORC. =10H (16) PERC. =20H (32) LEAD =30H (48) L.ORC.=18H (24) BASS =38H (56)
	Request-to-Receive FM Voice data	02H (2), *ID1 (Voice section No.), ***ID2 (Voice No.), SPl, SPh, (Data Offset) DCl, DCh (Data Count)		×	○	** POLY=01H-62H(1-98) ** MONO=01H-3CH(1-60) ***POLY=5BH-62H(91-98) ***MONO=37H-3CH(55-60)
	Request-to-Send all RAM Data	10H (16)		×	○	
	Request-to-Send Registration data	11H (17)		×	○	
	Request-to-Send Sequence data	12H (18)		×	○	
	Request-to-Send Rhythm USER PTN. data	14H (20)		×	○	
	Request-to-Send all FM USER Voice data	16H (22)		×	○	
	Request-to-Send K.PERC. assignment data	17H (23)		×	○	
	Request-to-Receive all RAM data	20H (32)		×	○	
	Request-to-Receive Registration data	21H (33)		×	○	
	Request-to-Receive Sequence data	22H (34)		×	○	
	Request-to-Receive Rhythm USER PTN. data	24H (36)		×	○	
	Request-to-Receive all FM USER Voice data	26H (38)		×	○	
	Request-to-Receive K.PERC. assignment data	27H (39)		×	○	
	Request-to-Send Model ID data	30H (48)		×	○	
	Request-to-Send MIDI CH assignment data	31H (49)		×	○	
	Bulk Dump Acknowledge	38H (56)	7FH (127)	○	×	
	Bulk Dump Unacknowledge		00H (0)	○	×	

Messages			5th byte			Transmitted	Recognized	Remarks
CONTROL CHANGE	LEFT FOOT SW	ON	40H (64)	45H (69)	7FH (127)	○	○	
		OFF			00H (0)			
	RIGHT FOOT SW	ON		46H (70)	7FH (127)	○	○	
		OFF			00H (0)			
	KNEE LEVER	ON		47H (71)	7FH (127)	○	○	
		OFF			00H (0)			
	FILL IN	ON		48H (72)	7FH (127)	○	○	
		OFF			00H (0)			
	BREAK	ON		4AH (74)	7FH (127)	○	○	
		OFF			00H (0)			
	INTRO./ENDING	ON		4BH (75)	7FH (127)	○	○	
		OFF			00H (0)			
	MASTER VOLUME			4FH (79)	00H-7FH (0-127)	○	○	
	TEMPO			50H (80)	Tl, Th (40-240)	○	○	Tl = 2 bit resolution Th = 7 bit resolution
MDR-2 STATUS	PLAY	Start	70H (112)	01H (1)		×	○	
		Stop		02H (2)		×	○	
	RECORD	Start		03H (3)		×	○	
		Stop		04H (4)		×	○	
	FF ▷ ▷	Start		05H (5)		×	○	
		Stop		06H (6)		×	○	
	REW ◁ ◁ *1	Start		07H (7)		×	○	
		Stop		08H (8)		×	○	
	Rhythm Pointer Reset			09H (9)		×	○	
	Master Volume	Increment		10H (15)	nnH *2	×	○	
		Decrement		11H (16)		×	○	
OTHERS	EXT. CONTROL (Volume)	1	71H (113)	00H (0)	nnH *3	○	○	
		2		01H (1)				
	EXT. CONTROL (SUB DATA CONTROL buttons)	ON	72H (114)	nnH	7FH (127)	○	○	nnH = 00H-09H
		OFF			00H (0)			
	Bar signal		78H (120)	SC (Beat count)	NC (Synchro count)	○	○	SC = 00H-04H NC = 00H-07H

*1 When the rewind button ◁ ◁ on the MDR-2 is depressed, the rhythm pointer reset and fast forward ▷ ▷ signals are sent.
*2 From MDR-2, only 01 H (1) is sent.
*3 Transmitted: nnH=01H, 02H, 04H, 08H, 10H, 20H, 40H
　 Recognized: nnH=00H—7FH

Messages		5th byte	Transmitted	Recognized	Remarks
Panel Switch Event data	41H (65)	*REGBUF	○	○	* Refer to the table below **Refer to page 92
All data of panel	42H (66)	**DATBUF, *REGBUF	○	○	All data of panel is send when MDR-2 assumes the RECORD START status.

● *Table of REGBUF codes (HX-1)*

Function	Switch	SW code	SW data
U.COMBINATION	1 2. 3. 4.	01H (1)	00H (0) 01H (1) 02H (2) 03H (3)
	VOLUME	02H (2)	*1
U.ORCHESTRAL	STRINGS 1 STRINGS 2 BRASS 1 WOOD 1 VOCAL 1 1. 2.	03H (3)	00H (0) 01H (1) 02H (2) 03H (3) 04H (4) 05H (5) 06H (6)
	BRILLIANCE	04H (4)	*
	VOLUME	05H (5)	*1
MELODY ON CHORD		06H (6)	**B0
UPPER SUSTAIN	(VOLUME)	07H (7)	*
L.COMBINATION	1 2. 3. 4.	08H (8)	00H (0) 01H (1) 02H (2) 03H (3)
	VOLUME	09H (9)	*1
L.ORCHESTRAL	STRINGS 2 STRINGS 3 BRASS 3 WOOD 2 VOCAL 2 1. 2.	0AH (10)	00H (0) 01H (1) 02H (2) 03H (3) 04H (4) 05H (5) 06H (6)
	BRILLIANCE	0BH (11)	*
	VOLUME	0CH (12)	*1
LOWER SUSTAIN	(VOLUME)	0DH (13)	*
ENSEMBLE	U.COMBI. L.COMBI. U.ORCHES. L.ORCHES.	0FH (15)	**B0 B1 B2 B3

Function	Switch	SW code	SW data
PERCUSSIVE	E.PIANO 1 VIBRAPHONE MARIMBA JAZZ GUITAR 1 GUITAR 1 1. 2.	10H (16)	00H (0) 01H (1) 02H (2) 03H (3) 04H (4) 05H (5) 06H (6)
	BRILLIANCE	11H (17)	*
	VOLUME	12H (18)	*1
ENSEMBLE	U.PERCUSSIVE L.PERCUSSIVE	13H (19)	**B0 B1
AWM PRESET	PIANO 1 PIANO 2 MARIMBA STRINGS PIPE ORGAN	14H (20)	00H (0) 01H (1) 02H (2) 03H (3) 04H (4)
	VOLUME	15H (21)	*1
ENSEMBLE	U.AWM PRESET L.AWM PRESET	16H (22)	**B0 B1
LEAD	VIOLIN 1 FLUTE 1 OBOE CLARINET TRUMPET 1 TROMBONE 1. 2.	18H (24)	00H (0) 01H (1) 02H (2) 03H (3) 04H (4) 05H (5) 06H (6) 07H (7)
	TOUCH VIBRATO	1AH (26)	**B0
	BRILLIANCE	1BH (27)	*
	VOLUME	1CH (28)	*1
ENSEMBLE	U.LEAD L.LEAD	1DH (29)	**B0 B1
MANUAL BALANCE		1EH (30)	*

*00H (0), 04H (4), 08H (8), 0CH (12), 10H (16), 14H (20), 18H (24)

*1 00H (0)−18H (24)

**Data allocating one or multiple switches to each bit within one byte. In Switch ON status, the corresponding bit is "0"; in Switch OFF status, the corresponding bit is "1".

B7	B6	B5	B4	B3	B2	B1	B0	
0	0	0	0	0	0	0	0	B0: OFF (00H)
0	0	0	0	0	0	0	1	B0: ON (01H)

Function	Switch	SW code	SW data
BASS	CONTRABASS 1 E.BASS 1 E.BASS 2 1. 2.	20H (32)	00H (0) 01H (1) 02H (2) 03H (3) 04H (4)
	BRILLIANCE	21H (33)	*
	VOLUME	22H (34)	*1
AWM BASS	PIPE BASS STRING BASS WOOD BASS E.BASS TIMPANI	23H (35)	00H (0) 01H (1) 02H (2) 03H (3) 04H (4)
	VOLUME	24H (36)	*1
PEDAL SUSTAIN	(VOLUME)	25H (37)	*
SUSTAIN & LEAD SLIDE (KNEE LEVER SW)	LEAD SLIDE PEDAL SUSTAIN UPPER SUSTAIN LOWER SUSTAIN	26H (38)	**B0 B1 B2 B3
TOUCH TONE	U.ORCHESTRAL L.ORCHESTRAL PERCUSSIVE AWM PRESET LEAD BASS AWM BASS	27H (39)	**B0 B1 B2 B3 B4 B5 B6
PEDAL D.R.C.		28H (40)	**B0
REVERB		29H (41)	*
EFFECT ASSIGN	SYMPHONIC CELESTE PHASER FLANGER DELAY WAH	2AH (42)	**B0 B1 B2 B3 B4 B5
TREMOLO	CHORUS TREMOLO	2BH (43)	**B0 B1
	U.COMBI. L.COMBI.	2CH (44)	**B0 B1
MODULATION	3. (WAH) 2. (LEAD PAN) 1. (LEAD SLIDE)	2DH (45)	**B0 B1 B2
PITCH	1. (LEAD) 3. (PEDALS) 2. (U.ORC.)	2EH (46)	**B0 B1 B2

Function	Switch	SW code	SW data
RHYTHM	1. 2. 3. 4. USER 1 USER 2 USER 3 USER 4	30H (48)	00H (0) 01H (1) 02H (2) 03H (3) 04H (4) 05H (5) 06H (6) 07H (7)
	VARIATION 1 VARIATION 2	31H (49)	00H (0) 01H (1)
	FILL IN 1 FILL IN 2	32H (50)	00H (0) 01H (1)
	VOLUME	33H (51)	*1
	BALANCE	34H (52)	*
RHYTHMIC	1 2 3 4	36H (54)	00H (0) 01H (1) 02H (2) 03H (3)
	VOLUME	37H (55)	*1
MELODIC	1 2 3 4	38H (56)	00H (0) 01H (1) 02H (2) 03H (3)
	VOLUME	39H (57)	*1
AUTO BASS CHORD	MULTI BASS 1 MULTI BASS 2 MULTI BASS 3	3AH (58)	00H (0) 01H (1) 02H (2)
	ABC	3BH (59)	**B0
	LOWER MEMORY PEDAL MEMORY	3CH (60)	**B0 B1
KEYBOARD PERCUSSION		3DH (61)	**B0
FOOT SWITCH	LEFT	3EH (62)	**B0
TUNING		40H (64)	**B0
RHYTHM START SW	START SYNCHRO START	41H (65)	**B0 B1
SEQUENCE	1 2 3 4	49H (73)	**B0 B1 B2 B3
BREATH CONTROL		4EH (78)	**B0
REGIST MEMORY	MEMORY/TO PACK	51H (81)	**B0
RIGHT FOOT SW	RIGHT (GLIDE) REGIST JUMP REGIST SHIFT	54H (84)	**B0 B1 B2

● *Table of DATBUF codes (Assignment data)*

Function	Switch		SW code	Data
POLY VOICE MENU	U.ORCHESTRAL	1.	00H (0)	00H-61H (0-97)
		2.	01H (1)	
	L.ORCHESTRAL	1.	02H (2)	
		2.	03H (3)	
	PERCUSSIVE	1.	04H (4)	
		2.	05H (5)	
MONO VOICE MENU	LEAD	1.	06H (6)	00H-3BH (0-59)
		2.	07H (7)	
	BASS	1.	08H (8)	
		2.	09H (9)	
COMBI. VOICE MENU	U.COMBI.	1.	0AH (10)	00H-1FH (0-31)
		2.	0BH (11)	
		3.	0CH (12)	
		4.	0DH (13)	
	L.COMBI.	1.	0EH (14)	
		2.	0FH (15)	
		3.	10H (16)	
		4.	11H (17)	
RHYTHM PATTERN MENU		1.	12H (18)	00H-15H (0-21)
		2.	13H (19)	
		3.	14H (20)	
		4.	15H (21)	

Function	Switch	SW code	Data
EFFECT ASSIGN	U.COMBINATION	1AH (26)	00H-06H (0-6)
	L.COMBINATION	1BH (27)	
	U.ORCHESTRAL	1CH (28)	OFF :00H
	L.ORCHESTRAL	1DH (29)	SYMPHONIC:01H
	PERCUSSIVE	1EH (30)	CELESTE :02H
	AWM PRESET	1FH (31)	PHASER :03H
	LEAD	20H (32)	FLANGER :04H
	BASS	21H (33)	DELAY :05H
	AWM BASS	22H (34)	WAH 06H
	RHYTHMIC	23H (35)	
	MELODIC	24H (36)	
TOUCH TONE	U.ORCHESTRAL	28H (40)	00H-0FH (0-15)
	L.ORCHESTRAL	29H (41)	
	PERCUSSIVE	2AH (42)	
	AWM PRESET	2BH (43)	
	LEAD	2CH (44)	
	BASS	2DH (45)	
	AWM BASS	2EH (46)	
OTHERS	2nd EXP. PEDAL	32H (50)	00H-04H (0-4)
	ABC MODE	33H (51)	01H-03H (1-3)
	MOC MODE	34H (52)	01H-03H (1-3)
	LEFT FOOT SW	35H (53)	01H-07H (1-7)
	*SYM/CEL	36H (54)	00H-01H (0-1)

*For HX-3 and HX-5; SYMPHONIC: 00H, CELESTE: 01H

3. Model-Specific messages

[F0H, 43H, 70H, 0nH, **5th byte** ...., F7H]

Messages		5th byte	Transmitted	Recognized	Remarks
Various types of Bulk Damp data	00H (0)	*XXH, ..., XXH, check sum	○	○	*The pertiment data is sent/ received according to the Request data
Model ID data		—	○	×	
MIDI CH assignment data		**UKi, UKo, LKi, LKo, PKi, PKo, LEADi, 00H, KPi, KPo, CTLi, CTLo	○	×	**00H-0FH (0-15)

4. Electone/Single Keyboard common messages

[F0H, 43H, 73H, **4th byte** ...., F7H]

Messages	4th byte		Transmitted	Recognized	Remarks
Request for Internal Synchronous mode	01H (1)	02H (2)	×	○	
Request for External Synchronous mode		03H (3)	×	○	

[Appendix: How to Confirm the Output Levels]

● To perform confirmation, set your Electone to the status described below:
  •Executive a RESET operation.
  •Set the Master Volume to MAX.
  •Set the Expression Pedal to MAX.
  •Set the volume of each Voice Section to MAX.
● Output L, R (PHONE jack)

Voice Section	Voice	Key to Press	Output Jacks	Level
UPPER COMBINATION (ENSEMBLE UPPER COMBI. ON)	CHURCH 1	UPPER KEYBOARD C3	L R	– 33 dB – 33 dB

● Output L, R (CANNON jack)

Voice Section	Voice	Key to Press	Output Jacks	Level
UPPER COMBINATION (ENSEMBLE UPPER COMBI. ON)	CHURCH 1	UPPER KEYBOARD C3	L R	– 14 dB – 14 dB

● Output L, R (PHONE jack)

Voice Section	Voice	Key to Press	Output Jacks	Level
UPPER COMBINATION (ENSEMBLE UPPER COMBI. ON)	CHURCH 1	UPPER KEYBOARD C3	L R	– 24 dB – 24 dB
LEAD (ENSEMBLE UPPER LEAD ON)	VIOLIN 1	UPPER KEYBAORD C3 (Press strongly)	LEAD L LEAD R	– 12 dB – 17 dB
BASS	CONTRA BASS 1	PEDAL KEYBAORD C1 (Press strongly)	PEDAL L PEDAL R	– 0 dB + 5 dB
RHYTHM	8 BEAT	START ON	RHYTHM L RHYTHM R	140 mVp-p 140 mVp-p

Electone HX-1/5F
MIDI Implementation Chart

Date: 6/1, 1986
Version: 1.0

Function		Transmitted	Recognized	Remarks
Basic Channel	Default	1	1	UK
		2	2	LK
		3	3	PK
		×	*OFF	LEAD
		15	15	KEYBOARD PERC.
		16	16	CONTROL
	Changes	1-16, *OFF	1-16, *OFF	UK
		1-16, *OFF	1-16, *OFF	LK
		1-16, *OFF	1-16, *OFF	PK
		×	1-16, *OFF	LEAD
		1-16, *OFF	1-16, *OFF	KEYBOARD PERC.
		1-16, *OFF	1-16, *OFF	CONTROL
Mode	Default	Mode 3	Mode 3	
	Messages	×	×	
	Altered	*************	×	
Note Number		36-96	36-96	UK
		36-96	36-96	LK
		36-60	36-60	PK
		×	36-96	LEAD
		0-127	0-127	KEYBOARD PERC.
	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	○	○	
Pitch Bender		○	○ 0-12 semi	7 bit resolution
Control Change	1	○	○	Modulation wheel (Breath control)
	4	○	○	2nd Expression pedal
	11	○	○	Expression pedal
	64	○	○	Knee lever (Foot pedal)
Program Change		0-15	0-15	Regist. Memory
	True #	*************	0-15	
System Exclusive		○ **	○ **	
System Common	Song Pos	×	×	
	Song Sel	×	×	
	Tune	×	×	
System Real Time	Clock	○	○ ***	
	Commands	○	○	(FA, FC)
Aux Messages	Local ON/OFF	×	×	
	All Notes OFF	×	○ ****	(123)
	Active Sense	○	○	
	Reset	×	○	
Notes		* Transmission/recognition not possible		
		** Refer to Exclusive message list		
		*** Recognize only when External mode		
		****Recognize only Control channel		

Mode 1: OMNI ON, POLY   Mode 2: OMNI ON, MONO   ○: YES
Mode 3: OMNI OFF, POLY   Mode 4: OMNI OFF, MONO   ×: NO

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