

# 10 Footswitches, Knee Lever and Expression Pedals

These leg- and foot-operated controls allow you to turn on and execute various performance functions without having to take your hands from the keyboards when you play.

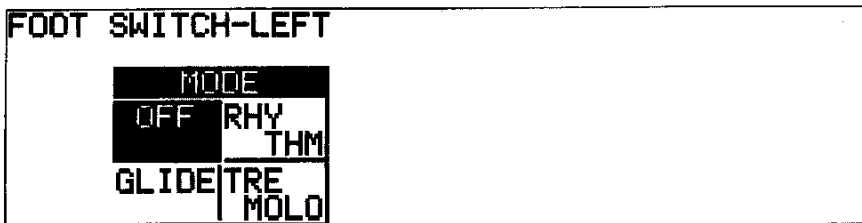
## Footswitch Control

The Electone has two footswitches on the main Expression Pedal that can be used to control various functions. The Right Footswitch is used for the Registration Shift functions (see page 79). The Left Footswitch can be set to control one of the following functions: Glide, Tremolo, rhythm stop, rhythm ending, and rhythm Fill In. Assignments of the functions are made in the Footswitch pages.

### To select the Left Footswitch pages:

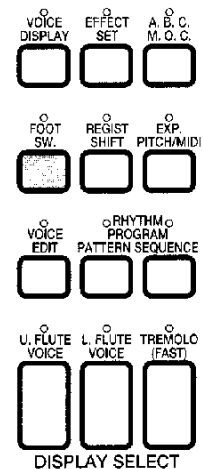
Press the FOOT SW. button in the DISPLAY SELECT section. The following display appears:

#### Footswitch Page



#### OFF

Cancels Left Footswitch control.

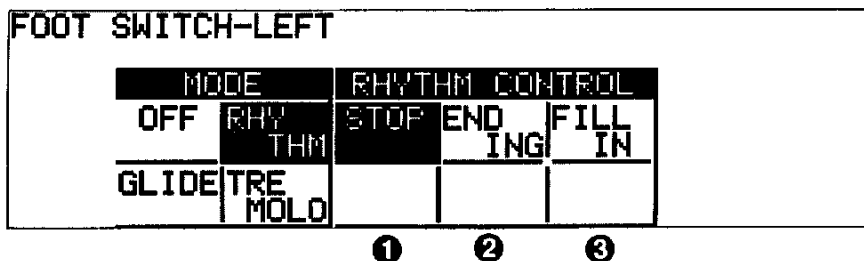


## Rhythm Control

### RHYTHM

This selects Left Footswitch control over rhythm functions. When this is chosen, the following display appears:

#### Footswitch Page (Rhythm)



One of the three Rhythm Control functions can be selected. Pressing the Left Footswitch executes the corresponding function:

**1 STOP**

Functions as an on/off switch for the rhythm pattern (the same as the START button on the panel).

**2 ENDING**

Switches the rhythm to the Ending pattern, after which the rhythm is stopped.

**3 FILL IN**

Switches the rhythm to the Fill In pattern.

**Glide**

**GLIDE**

This selects Left Footswitch control over Glide. Pressing the Left Footswitch lowers the pitch of the selected voice or voices by a half-step, and releasing the Footswitch gradually returns the sound to normal pitch. When the GLIDE setting is chosen, the following display appears:

**Footswitch Page (Glide)**

FOOT SWITCH-LEFT					
MODE		GLIDE CONTROL			
OFF	RHY	UPPER	UPPER	LEAD	LEAD
	THM	1	2	1	2
GLIDE	TRE	LOWER	LOWER		
	MOLO	1	2		

①
②

**1 Voice Sections**

The Glide function can be applied to any or all of the voice sections shown in the display: Upper 1 and 2, Lead 1 and 2, Lower 1 and 2. Select the desired voice section(s).

**2 TIME**

Determines the speed of the Glide function, or in other words, how gradually the pitch returns to normal pitch when the Left Footswitch is released. Higher settings produce slower pitch changes.

**Note:** When the Glide function is applied, Vibrato is not effective.

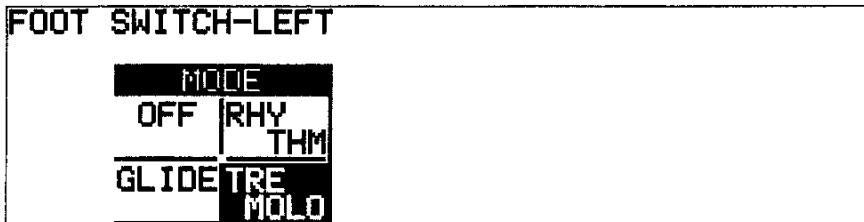
**Note:** When using the footswitch to control Glide, be careful to keep pressing the footswitch for as long as you want Glide to remain in effect.

## Tremolo

### TREMOLO

This selects Left Footswitch control over Tremolo. Pressing the Left Footswitch turns the Tremolo effect on and off (Chorus), performing the same function as the TREMOLO (FAST) button in the DISPLAY SELECT section.

#### Footswitch Page (Tremolo)



## *Knee Lever*

The Knee Lever, located on the underside of the keyboard panel, can be used to turn on and off the Melody On Chord function, Lead Slide and Sustain effect (Upper and Lower).

## Sustain

**To use the Knee Lever to control Sustain:**

1. First, make sure that the Upper and/or Lower Sustain effect panel controls have been turned on; otherwise the Knee Lever will have no effect.
2. Fold the Knee Lever down, and press it to the right with your knee when you want to have sustain.

**When the Knee Lever is vertical:**

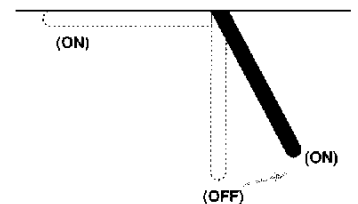
The sustain effect is cancelled.

**When the Knee Lever is continuously pressed to the right:**

The sustain effect is on, as long as the front panel sustain buttons are on.

**When the Knee Lever is folded up:**

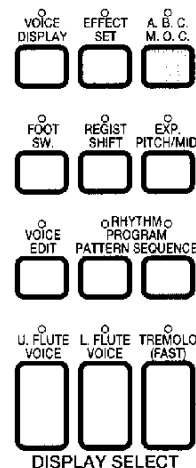
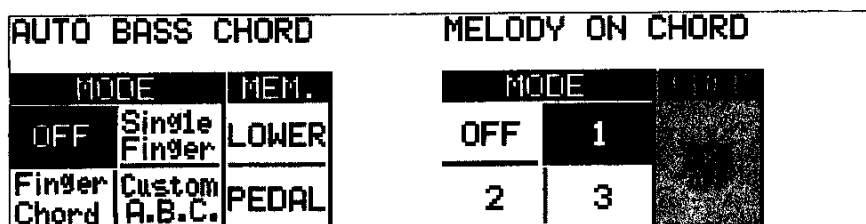
The sustain effect is applied constantly, as long as the front panel sustain buttons are on.



## Melody On Chord

To select Knee Lever control over Melody On Chord:

1. Press A.B.C./M.O.C. button in the DISPLAY SELECT section to select the A.B.C./M.O.C. page.
2. Set the KNEE control to ON, and select one of the Modes.

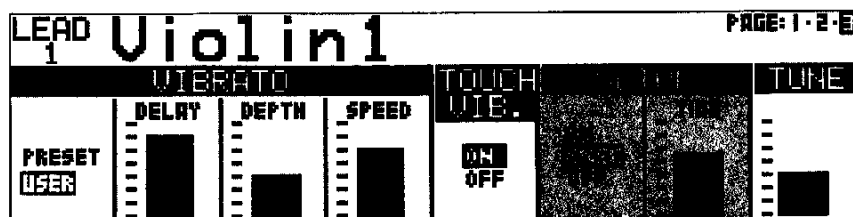


3. Press the Knee Lever with your right knee to add Melody On Chord as you play.

## Lead Slide (Lead Voices only)

To select Knee Lever control over Lead Slide:

1. Call up the Lead Condition display, by twice pressing a Lead Voice button (or the Data Control button corresponding to a Lead Voice Menu voice).
2. Select Page 3 by using the PAGE buttons. The Slide function appears in the display.



3. Set the SLIDE control to KNEE, and set TIME to the desired value.
4. Press the Knee Lever with your right knee to add Slide as you play.

# Expression Pedals

There are two types of expression pedals: the main Expression Pedal (which controls only the volume), and the Second Expression Pedal (whose functions are covered here).

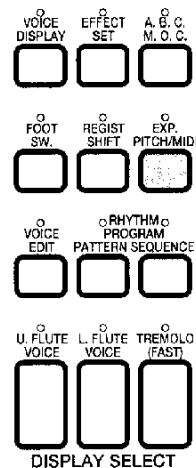
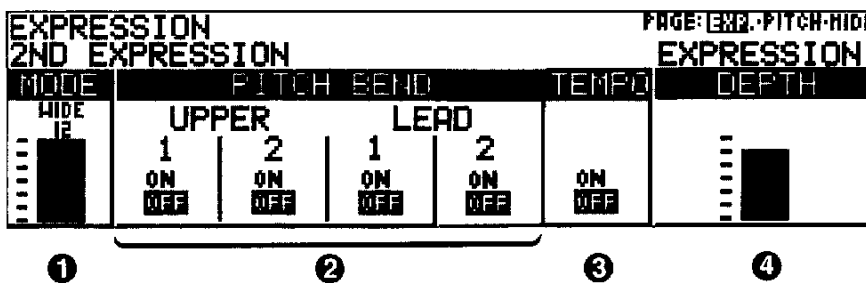
## Second Expression Pedal

The Second Expression Pedal can be used to control Pitch Bend and Rhythm Tempo.

**To select the Expression Pedal display:**

Press the EXP.PITCH/MIDI button in the DISPLAY SELECT section. The following display appears:

### Expression Second Expression Page



## Pitch Bend

### 1 MODE

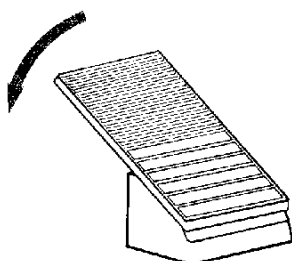
Determines the range of the Pitch Bend control. Range: 1 ~ 12  
There are 12 steps and each step is equal to 100 cents (or a half-step on the keyboard). The maximum setting of 12 results in pitch changes of up to an octave.

### 2 PITCH BEND

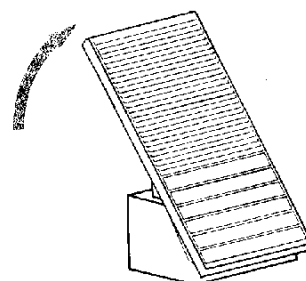
Selects the voice sections to which the Pitch Bend function will be applied. Pitch Bend can be selected independently or together for Lead Voices 1 and 2, and Upper Voices 1 and 2.

**Note:** The Pitch Bend function cannot be used when the Lead Slide function is applied.

## Pitch Bend Control



Pressing the Second Expression Pedal down (with your toe) raises the pitch, or bends it up.



Pressing the Second Expression Pedal up (with your heel) lowers the pitch, or bends it down.

## Tempo

### ① MODE

Determines the range of the rhythm tempo change. Range: 1 ~ 12

The currently assigned rhythm tempo can be changed within a range of a minimum 70% ~ 140% or a maximum 50% ~ 200%.

### ③ TEMPO

On/off switch for control over the rhythm pattern tempo. When on, pressing the Second Expression Pedal down (with your toe) speeds up the tempo; pressing it up (with your heel) slows it down. Releasing the Pedal from either position causes it to return to center, restoring the original tempo.

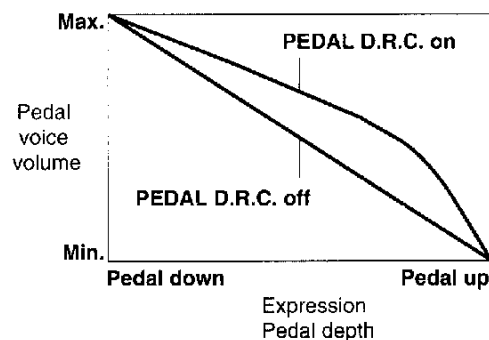
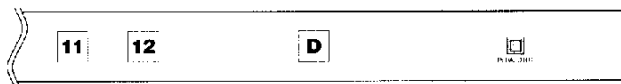
## Expression Pedal

### ④ DEPTH

This window shows how far the Expression Pedal is pressed, but cannot be controlled directly by the Data Control buttons.

### Pedal D.R.C. (Dynamic Range Control) Button:

When the PEDAL D.R.C. button (next to the Disable button) is turned on, the volume of the Pedal voice reaches the minimum level more gradually than the other voices as the Expression Pedal is pressed up (with your heel).

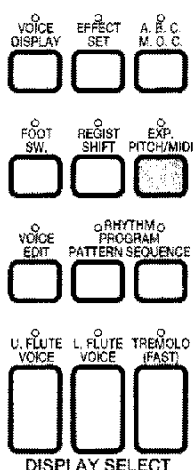


# 11 Transpose and Pitch Controls

There are two pitch-related controls on the Electone: Transpose and Pitch. Transpose allows you to change the key of the instrument and Pitch lets you finely adjust the tuning. These features make it easy to change the key of a song to accommodate a vocalist's range or to precisely match the tuning of another instrument. The Pitch controls are located on the Pitch page.

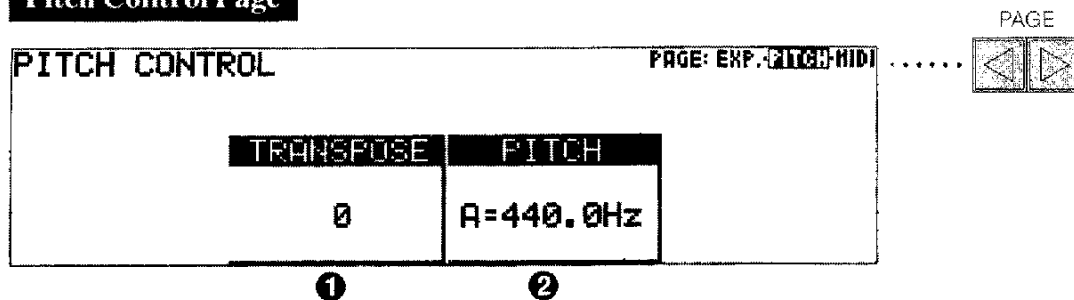
## To select the Pitch page:

1. Press the EXP.PITCH/MIDI button in the DISPLAY SELECT section. The Expression page appears in the display.



2. Select the PITCH page with the PAGE buttons.

### Pitch Control Page



#### 1 TRANSPOSE

Determines the coarse pitch setting of all the voices, and is adjustable in half-steps (semitones). Range: -6 ~ +6 (one octave)

#### 2 PITCH

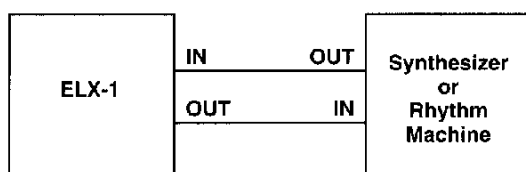
Determines the fine pitch setting of all the voices. Range: 438.8 ~ 444.5 Hz

**Note:** The default pitch setting is 440.0 Hz, the standard frequency for the note A3.

**Note:** Pitch related settings made in this page cannot be recorded to the Music Disk Recorder.

# 12 MIDI Controls

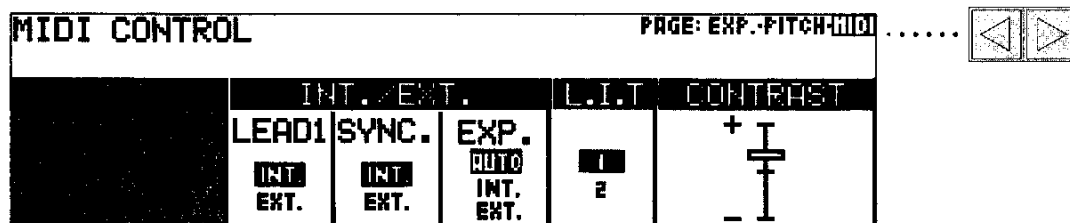
MIDI (Musical Instrument Digital Interface) is a kind of communication system for electronic musical instruments. It is built into most every modern digital musical instrument and allows different instruments to "talk" to each other and control each other's functions. For example, the Upper keyboard of your Electone could be used to play sounds on a connected synthesizer. In another application, a rhythm machine can be programmed to play its rhythm patterns in perfect synchronization with the tempo set on the Electone. To use the MIDI functions you must, of course, have a second MIDI device (such as a synthesizer or rhythm machine), and a set of MIDI cables. Connect the MIDI cables as shown in the illustration below:



## To select the MIDI page:

1. Press the EXP.PITCH/MIDI button in the DISPLAY SELECT section.
2. Select the MIDI page with the PAGE buttons.

### MIDI Control Page



## OUTPUT (Output Channels)

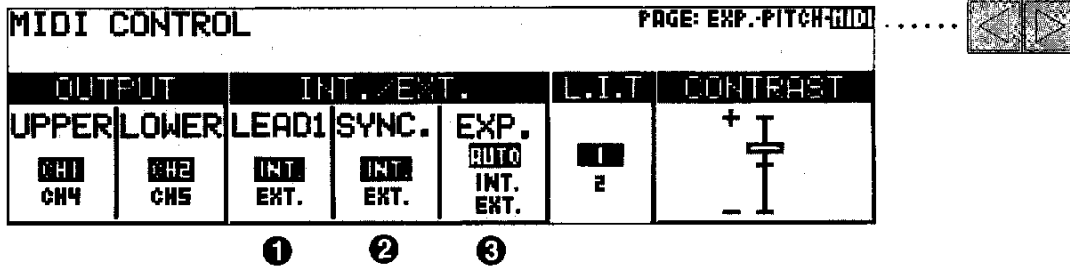
For setting the channels over which MIDI information will be transmitted. The Upper keyboard can be set to send over channels 1 or 4, while the Lower keyboard can send over 2 or 5. The Pedalboard automatically sends over channel 3. The MIDI receive channel of each connected MIDI device should match the numbers set here.

**Note:** When using another MIDI device to play the Electone's voices, you must set the MIDI transmit channel(s) of the connected device to match the receive channel(s) of the Electone. The MIDI receive channels of the Electone are automatically set to the following values:

- Upper — 1
- Lower — 2
- Pedal — 3



## MIDI Control Page



## INT./EXT. (Internal/External Control)

### ① LEAD 1

Determines Internal or External control of the Lead 1 Voices.

When set to Internal, Lead Voices are played from the Electone and the sounds from a connected MIDI instrument can be played via MIDI channel 1 (or channel 2, when the To Lower function is on). When set to External, the Lead Voices can only be played from the connected instrument via MIDI channel 4.

### ② SYNC (Synchronization)

Determines the source of the timing control, for rhythm synchronization purposes. Setting this to Internal gives the Electone timing control over the connected rhythm machine. This also allows you to start and stop the rhythm patterns of the connected rhythm machine from the Electone's panel controls. Setting this to External gives timing control to the connected rhythm machine.

### ③ EXP. (Expression)

Determines Internal or External control of the Expression Pedal functions. Ordinarily, this control is set to AUTO. However, when it is set to INT., you can manually control the Expression Pedal functions during M.D.R. playback. When set to EXT., another (external) Electone controls Expression Pedal functions.

**Note:** Accompaniment pattern sounds cannot be controlled via MIDI.

**Note:** Refer to the next page for information on the L.I.T. and CONTRAST functions.

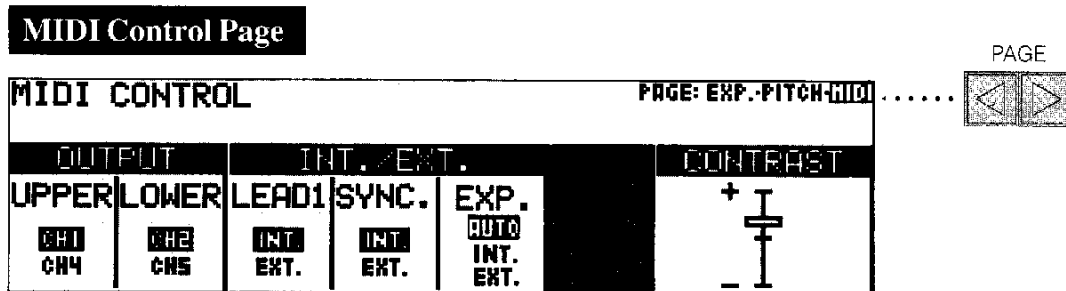
# 13 | Other Controls and Accessory Jacks

In addition to the controls mentioned in the previous sections, the ELX-1 features several other controls and accessory jacks.

## L.I.T. (Lead Initial Touch) Control

The ELX-1 features two types of Initial Touch on the Lead voices, to satisfy different playing preferences.

The L.I.T. control can be found in the MIDI page mentioned in the previous section.



### L.I.T. 1

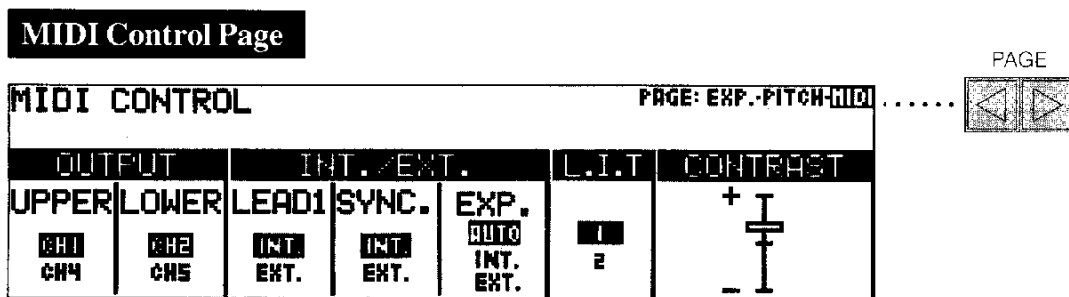
When descending notes are played in legato with the monophonic Lead voices, the last note played has the same initial touch response as the previous note.

### L.I.T. 2

When descending notes are played in legato with the monophonic Lead voices, the last note played sounds according to the velocity at which it is played.

## LCD Display Control

These controls allow you to set the contrast and brightness of the LCD for optimum viewing.

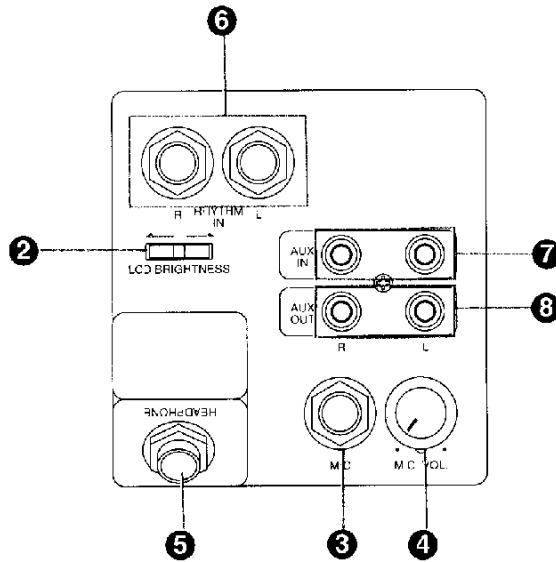


### ① CONTRAST

For adjusting the relative sharpness of the characters displayed in the LCD. Positive settings make the characters darker.

## ② LCD BRIGHTNESS

The LCD BRIGHTNESS control is located in the jacks and controls on the left underside of the keyboard (see illustration below). Moving this control to the left makes the LCD brighter.



## Microphone

### ③ MIC.

For connection of a microphone.

### ④ MIC. VOL.

For adjusting the level of the microphone input.

## Headphones

### ⑤ HEADPHONE

For connection of a stereo headphone set. When headphones are connected to this jack, sound to the Electone's built-in speaker system is automatically cut off, allowing you to play without disturbing others.

## Input Jacks

### ⑥ RHYTHM IN (Phone; Left and Right)

This pair of phone jacks are for connection to an external stereo sound source, such as a rhythm machine. The sound of the connected device is mixed with the sound of the Electone and played through the speaker system. The volume of the rhythm machine can be controlled by the Expression Pedal of the Electone.

### ⑦ AUX. IN (RCA; Left and Right)

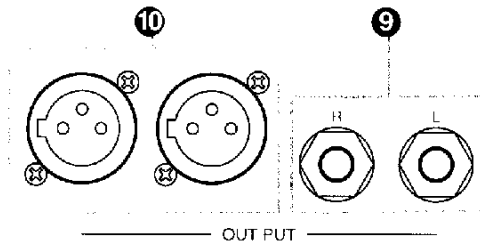
This pair of RCA pin jacks are for connection to an external stereo sound source, such as a cassette deck or home audio system. The sound of the connected device is mixed with the sound of the Electone and played through the speaker system. Adjust the level by using the control(s) on the connected device.

## Output Jacks

### 8 AUX. OUT (RCA; Left and Right)

This pair of auxiliary RCA output pin jacks are for connection to an external home audio system.

There are two other sets of output jacks at the bottom of the rear panel.



### 9 OUTPUT (Phone; Left and Right)

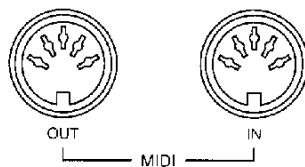
### 10 OUTPUT (XLR; Left and Right)

For connection to external devices such as mixers or keyboard amplifiers.

**Note:** When using the main phone outputs (9), connecting a set of headphones to the headphone jack automatically cuts off the sound to these main outputs.

## MIDI Terminals

The MIDI terminals are located on the right underside of the keyboard.



# Troubleshooting

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

Problem	Possible Cause and Solution
<b>GENERAL OPERATION</b>	
A crackling noise is sometimes heard.	Noise may be produced when either an electrical appliance is turned on or off, or an electric power tool (such as a drill) is used in the proximity of the Electone. If this occurs, 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, or other sources occurs.	This is caused by the proximity of a high-power broadcasting station or amateur ham radio setup.
The sound of the Electone causes surrounding objects to resonate.	Because the Electone is capable of producing powerful bass sounds, resonance may be caused in surrounding objects, such as cabinets or glass windows. To avoid this, relocate the objects or lower the Electone's volume.
Some of the LEDs in the DISPLAY SELECT section do not light.	The LEDs of on/off buttons [UPPER/LOWER FLUTE VOICES, VOICE EDIT, RHYTHM PROGRAM, and TREMOLO (FAST)] are lit when those functions are turned on. The LEDs of other function's buttons momentarily flash when the functions are selected.
The sound is too soft, despite the volume being set to the maximum.	Check all of the volume controls, making sure that they are set to suitable levels: the panel Volume controls for each voice section, the Master Volume dial, and the Expression Pedal. Also check the Upper/Lower Balance control on the Voice Display. (See page 30.)
The Electone panel does not function normally or the content of the memorized data has changed.	This happens very rarely. Occasionally, power surges and spikes due to electrical storms or other reasons may cause the Electone to malfunction and/or alter the contents of memorized data. If this happens, perform the Power On Reset operation to reset the Electone. (See page 82.)
The display doesn't change, even though various panel buttons are pressed.	The HOLD button is on. First of all, turn the button off, then press the desired panel button.
<b>VOICES/RHYTHMS</b>	
Switching voices causes the volume to change, despite their having identical volume settings.	The volume of certain voices may seem lower than that of others. Adjust the balance of the sound with the Volume control within the appropriate Voice Condition display.
When playing a Pedal voice from the Lower keyboard (using the To Lower function), pressing the Lower keyboard's Sustain button does not turn on Sustain.	Even though the Pedal voice is being played from the Lower keyboard, it is still a Pedal voice; turn the Sustain on with the Pedal Sustain button.
When too many keys are pressed, not all of the notes sound.	Total polyphonic capacity (notes sounding for both Upper and Lower keyboards) is 15 notes. Polyphonic capacity is 16 for both the Upper and Lower Flute Voices, and 8 each for the Upper and Lower Attack sounds.
Only one sound is heard when two notes of the Lead or Pedal voices are simultaneously played.	For practical performance reasons, the Electone has been designed so that one note of the Lead or Pedal voices can be played at a time. If several keys are pressed at once, only the highest note will be sounded (high-note priority).
The Pedal voices do not sound, even though the volume is properly set.	The Single Finger or Fingered Chord mode of Auto Bass Chord is on. Turn off the mode in the display. (See page 64.)
When selecting a Dotted button voice or rhythm, the voice or rhythm title at the top of the LCD does not match the voices or rhythms.	The currently assigned voice or rhythm is displayed at the top of the LCD, and remains until another voice or rhythm has been selected. (See pages 33 and 61.)
When keys on the Lower keyboard or Pedalboard are pressed, the sounds of percussion instruments are also heard.	The Keyboard Percussion function has been turned on. When not using the function, be sure to turn it off. (See page 68.)
Even though a Dotted button's rhythm pattern has been selected and started, the pattern does not sound.	Since the Dotted buttons contain User rhythm patterns, no rhythm will sound if a pattern has not been saved to the selected Dotted button.
The percussion instrument cannot be selected on the Upper keyboard in the INST. (Rhythm) function.	The Solo Mode has been selected. The instrument cannot be selected on the Upper keyboard while Solo Mode is active. Turn the SOLO button off for Lead Voice 2.
Percussion instruments assigned to the Upper keyboard are not heard even when Keyboard Percussion is on.	The Keyboard Percussion on the Upper keyboard doesn't function while Solo Mode is active. Turn the Solo Mode off.

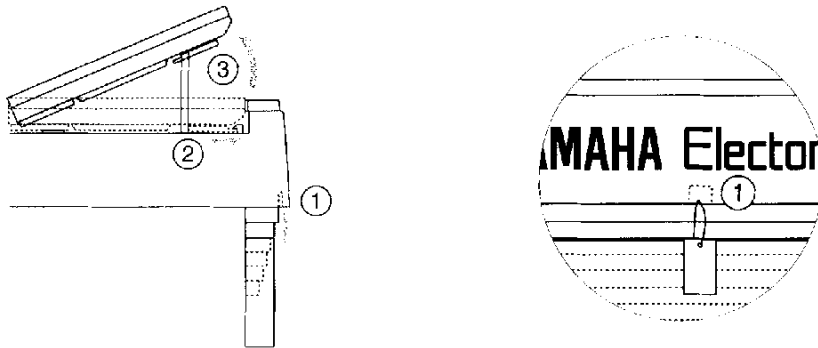
Problem	Possible Cause and Solution
<b>EFFECTS</b>	
The Touch Tone function does not operate.	Adjust the Touch Tone settings in the Voice Condition display.
The Reverb effect does not operate, even when reverb parameters are increased.	Increase the Reverb on the panel reverb controls, or increase the Reverb Depth in Reverb Page 1. (See page 51.)
The Tremolo effect cannot be heard, even when the TREMOLO (FAST) button in the DISPLAY SELECT section is on.	Tremolo must be selected first in the Voice Condition display (for panel voices), or in the Flute Voices Volume page (for Flute Voices). (See page 53.)
<b>ACCOMPANIMENT AND OTHER FUNCTIONS</b>	
The pitch in the Single Finger mode does not change, even when pressing different keys of the keyboard.	Single Finger mode will only produce notes when played within a fixed octave interval on the Lower keyboard. If notes with the same letter name are pressed outside of that range, the chords that are sounded will share the same pitch.
While an intro./Ending pattern is automatically playing, the Lower keyboard does not produce any sound, even when the keys are played.	Since the Accompaniment chords play automatically one after another, the Lower keyboard is designed not to produce any sound during the play of an Intro./Ending pattern.
Despite the rhythm volume being set to a suitable level, the Accompaniment cannot be heard.	(1) The rhythm has not been started. Be sure to use Accompaniment together with the rhythm. (2) The Accompaniment volume is too close to 0. Set the volume high enough to be audible.
The harmony notes of the Melody On Chord function cannot be heard.	(1) The Upper keyboard has been set to sound only Lead voices. Increase the volume of the Upper voices. (2) Turn the Solo Mode off.
<b>REGISTRATION MEMORY</b>	
Certain functions have not been memorized to Registration Memory.	Transposition and Pitch control data, among other, cannot be memorized (except as song data). (See page 77.)
<b>VOICE EDITING</b>	
The Voice Edit display is not shown, even after pressing the VOICE EDIT button.	Simultaneously press both the VOICE EDIT button and a panel voice button to call up the Voice Edit display.
During voice editing, the specified voice isn't heard, even when the keyboard is played.	The current settings keep the voice from sounding. Make sure that the volume of the voice is set to a suitable level, and adjust the various parameters in the Voice Edit display until the voice can be heard.
<b>RHYTHM PROGRAM</b>	
During use of the Rhythm Pattern Program, no sound is produced even when you play a certain percussion sound.	If percussion sounds have been recorded to all 16 rhythm tracks, no subsequently selected instruments can be heard or recorded. If necessary, erase one of the tracks and play the sound.
No instrument sound can be entered in the Rhythm Pattern Program function.	The Rhythm Pattern Program doesn't function while the Solo Mode is active. Turn off the Solo Mode.
<b>MUSIC DISK RECORDER</b>	
Recording or playback cannot be performed.	The PLAY or RECORD section buttons for selecting parts may be turned off. Turn on the appropriate PLAY or RECORD buttons.
A total of 40 songs cannot be recorded.	If some song numbers contain a large amount of recorded data, the disk may not have enough available memory left to record the normal maximum of 40 songs.
Recording is stopped before the performance is finished, or the Song Copy function cannot be executed.	The amount of recorded data on the disk is close to the maximum limit. Either use another disk or delete the data of any unnecessary song number. (See page 99.)
Lead Voice 2 cannot be independently recorded.	This is normal; only Lead Voice 1 can be recorded separately.
The rhythm does not start at the beginning of a recording, or stops in the middle of the performance.	The M.D.R. is designed so that the rhythm cannot be started at the very beginning of a recording. If you wish to use the rhythm, start it after the available memory display appears on the M.D.R. display.
The notes of the recording are "stuck" and sound continuously.	During playback, you removed the disk by pressing the EJECT button. Whenever you wish to stop playback, always press the STOP button.

## About the Center Panel

### Panel Lock Function

The ELX-1's center panel has a Panel Lock function to prevent damage from incidental shocks during transportation.

1. To stand the panel up, press lightly on the center panel while pressing down the lock lever ①, located at the center of the rear panel.
2. The panel hook ② is released (unlocking the panel) and the panel automatically rises slightly.
3. Pull up the panel with both hands until it locks in the proper position.
4. When using the ELX-1, turn the metal fitting ③ on the panel downward so that it is not locked.

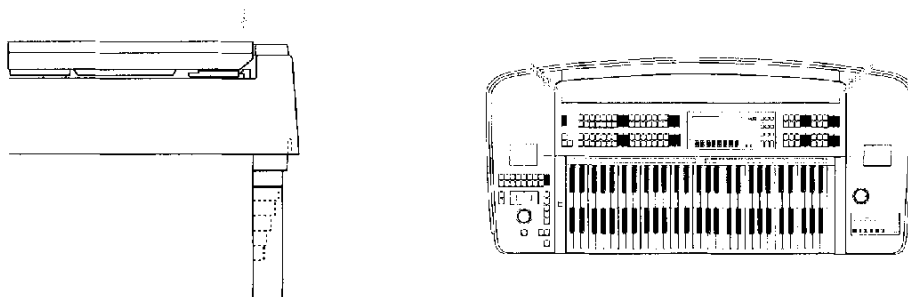


The center panel can be stored horizontally in the ELX-1.

### Pop Up Function of the Panel

The panel can be fixed at both sides by stoppers when it is pushed down into ELX-1. Pop up the panel to stand it up by pressing down on it slightly.

1. With both hands, press lightly on both sides of the top of the panel (indicated by the arrows). Check that the stoppers are released.
2. The locks on both sides of the panel will release, and the panel will automatically rise slightly.
3. Pull up the panel with both hands until it locks in the proper position.



To return the panel to the horizontal position, pull up on both sides of the panel slightly using both hands, then push it down. (Check that both stoppers on the panel are locked.)

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# Specifications

		<b>ELX-1</b>
<b>KEYBOARD</b>	<b>Keyboards</b> <b>Touch Tone</b>	Upper: 61 keys(C-C), Lower: 61 keys(C-C), Pedal: 25 keys(C-C) Initial, After (Upper, Lead, Lower, Pedal)
<b>VOICE</b>	<b>Tone Generation</b>	New AWM & FM (8 FM operators)
	<b>Upper/Lower Keyboard</b> (Upper Keyboard Voice 1, 2) (Lower Keyboard Voice 1, 2)	Strings 1, 2, 3, 4, 5, 6, Pizz. Strings, Tremolo Strings, Synth. Strings 1, 2, 3; Organ 1, 2, 3, 4, Jazz Organ 1, 2, 3, Pop Organ 1, 2, Theatre Organ 1, 2, Accordion, Bandoneon; Brass 1, 2, 3, 4, Synth. Brass 1, 2; Piano 1, 2, Honky Tonk, Elec. Piano 1, 2, Harpsichord, Clavi, Clavichord; Clarinet 1, 2, Bass Clarinet, Synth. Clarinet 1, 2; Guitar 1, 2, 3, 12-String Guitar, Banjo, Mandolin, Sitar, Shamisen, Elec. Guitar 1, 2, Muted Guitar, Distortion Guitar, Harp, Steel Guitar, Koto, Taisho Koto; Saxophone 1, 2, Soprano Sax., Sax. Ensemble, Synth. Sax.; Vibraphone, Glockenspiel, Celesta, Music Box, Marimba, Xylophone, Chime, Synth. Chime, Steel Drum; Chorus 1, 2, 3, 4, Vocal; Cosmic 1, 2, 3, 4, 5, 6, 7, 8, 9; Tutti 1, 2, 3, 4, 5, 6, 7; [Upper] Harmonica 1, 2; [Lower] Horn 1, 2, 3, Muted Horn; User 1-16; (56 Buttons/100 Voices) Volume Fine; Brilliance
	<b>Lead (Upper)</b> (Lead Voice 1, 2)	Violin 1, 2, 3, 4, Pizz. Violin, Cello, Kokyu; Oboe 1, 2, English Horn, Bassoon 1, 2; Flute 1, 2, Piccolo, Yokobue, Recorder, Ocarina, Pan Flute, Shakuhachi, Whistle; Trumpet 1, 2, 3, 4, 5, Muted Trumpet, Trombone 1, 2, Muted Trombone, Flugelhorn, Euphonium; User 1-16; To Lower (Lead 1), Solo (Lead 2); (12 Buttons/32 Voices) Volume Fine; Brilliance
	<b>Pedal</b> (Pedal Voice 1, 2)	Contrabass 1, 2, 3, Pizz. Bass, Upright Bass; Organ Bass 1, 2, 3, 4; Elec. Bass 1, 2, 3, 4, Synth. Bass 1, 2, 3; Tuba, Timpani, Timpani Roll; User 1-16; To Lower; (12 Buttons/19 Voices) Volume Fine; Brilliance
	<b>Voice Display</b>	Upper, Lower, Lead 1, 2, Pedal; Manual Balance
	<b>Upper Flute Voices</b> <b>Lower Flute Voices</b>	Flute Voices (16', 8', 5 1/3', 4', 2 2/3', 2', 1 3/5', 1'); Attack (4', 2 2/3', 2'); Length; Mode: Each, First; Click; Response; Tremolo On/Off; Volume; 8 Presets; 8 User Voices; On/Off Control: Upper, Lower
<b>VOICE EDIT</b>		On/Off; AWM Operator: (Output Level, Cutoff, Resonance); FM Operator 1, 2, 3, 4, 5, 6, 7, 8; (Output Level, Attack Rate, Decay 1 Rate, Decay 1 Level, Decay 2 Rate, Release Rate); Operator Selectors; Operator On/Off Buttons; Save: User: 1-16; (From) Voice Disk
<b>MELODY ON CHORD</b>		Mode: Off, 1, 2, 3; Knee: On/Off
<b>EFFECT/CONDITION</b>	<b>Digital Reverb</b>	3 Types: Room, Hall, Church; Length; Depth; Volume: Upper/Lower 1, 2, Flute Voice, Lead 1, 2, Pedal 1, 2, Accompaniment, Percussion
	<b>Sustain</b>	Upper (Knee), Lower (Knee), Pedal; Length
	<b>Brilliance</b>	Upper 1, 2, Lead 1, 2, Lower 1, 2, Pedal 1, 2; Control (Brilliant ↔ Mellow)
	<b>Tremolo/Chorus</b>	Upper 1, 2, Lead 1, 2, Lower 1, 2, Pedal 1, 2, Upper/Lower Flute Voice; Tremolo (Fast); Speed; Chorus: Slow, Stop
	<b>Symphonic/Celeste</b>	Upper 1, 2, Lead 1, 2, Lower 1, 2, Pedal 1, 2; Mode: Symphonic/Celeste
	<b>Vibrato</b>	Upper 1, 2, Lower 1, 2, Lead 1, 2; Preset/User (Delay, Depth, Speed); Touch Vibrato
	<b>Delay/Flanger</b>	Upper 1, 2, Lead 1, 2, Lower 1, 2, Pedal 1, 2; Delay: Speed, Feedback, Balance; Flanger: Speed, Feedback, Depth
	<b>Distortion</b>	Upper 1, 2, Lower 1, 2, Lead 1, 2, Pedal 1, 2; Level, Hi Pass
	<b>Pitch Bend</b>	On/Off: Upper 1, 2, Lead 1, 2; Width
	<b>Lead Slide</b>	Lead 1, 2; On/Knee/Off; Time
	<b>Panning</b>	Upper 1, 2, Lead 1, 2, Lower 1, 2, Pedal 1, 2 (7 positions)
	<b>Dynamic Range Enhancer</b>	Off, 1, 2, 3
	<b>Feet</b>	Upper 1, 2, Lead 1, 2, Lower 1, 2, Pedal 1, 2; Preset/4'/8'/16'
	<b>Lead Tune</b>	Lead 1, 2; Tune Control
	<b>Glide</b>	Upper 1, 2, Lower 1, 2, Lead 1, 2; Time
<b>RHYTHM</b>	<b>Rhythms</b>	March 1, 2, 3, Polka 1, 2, Country 1, 2, Broadway, Baroque; Waltz 1, 2, 3, 4, 5, Jazz Waltz 1, 2, 3, Bolero, Swing 1, 2, 3, 4, 5, 6, Jazz Ballad, Dixieland 1, 2; Bounce 1, 2, 3, Reggae 1, 2; Slow Rock 1, 2, 3; 8 Beat 1, 2, 3, 4, 5, Dance Pop 1, 2, 3, 4; Tango 1, 2, 3; Mambo, Salsa, Chacha, Rumba, Beguine; Samba 1, 2, 3, Bossanova 1, 2, 3; 16 Beat 1, 2, 3, 4, 5, 16 Beat Funk 1, 2, 3; User 1-8 (A-D) (12 Buttons; 66 Rhythms); Volume Fine
	<b>Variations</b>	Fill-In, Intro, Ending, Lead In; Auto Variation: On/Off
	<b>Others</b>	Start; Synchro Start; Tempo; Bar/Beat LED; Reverb; Volume; Balance
<b>RHYTHM PROGRAM</b>	<b>Pattern Program</b>	On/Off; Step Write/Real Time Write: Beat (1/4, 3/4, 2/4); Quantize (1, 1/2, 1/4, 1/8, 1/16, 1/32); Off; Metronome (On/Off); Edit: Instruments 1-16 (Change, Clear; Cursor); Accent Level 0-8; 115 Percussion Sounds; Accompaniment Select; Save: User 1-8 (A-D, Fill-In); Remaining Memory Display
	<b>Rhythm Sequence</b>	On/Off; Sequence 1-4; 120 Positions (Bar); Cursor Controls; Data: Preset/User (Set, Insert, Delete, Clear)
<b>KEYBOARD PERCUSSION</b>		On/Off, Lower/User 1 (Assign: Instrument Page 1-15, Clear, User 2 Copy, Lower Preset Copy), Pedal/User 2 (Assign: Instrument Page 1-15, Clear, User 1 Copy, Pedal Preset Copy); 115 Percussion Sounds, Instrument Condition: Panning, Reverb, Volume, Preset Copy
<b>ACCOMPANIMENT</b>	<b>Auto Bass Chord</b> <b>Accompaniments</b>	Mode: Off, Single Finger, Fingered Chord, Custom ABC; Memory: Lower/Pedal Type 1, 2, 3, 4, All Off, Reverb
<b>REGISTRATION MEMORY</b>		M/To Disk, 1-16; Disable Button; Mode: Off; Shift; Jump; User (80 Positions; Cursor Controls; Data: Set, Insert, Delete, Clear) 1-5
<b>BASIC REGISTRATION</b>		80 (Provided in the Included Disk)
<b>REGISTRATION MENU</b>		
<b>MUSIC DISK RECORDER</b>		Play/Record: Upper, Lower, Pedal, Lead, Keyboard Percussion, Control; Pause; Stop; Song Select; Song Repeat; Song Delete; Song Copy; From/To; Tempo; Shift; Format; Custom Play; Remaining Memory; LED Display; Eject
<b>FOOT SWITCH</b>		[Left] Mode: Off; Rhythm (Stop, Ending, Fill-In); Glide (Upper/Lower 1, 2, Lead 1, 2; Time); Tremolo (On/Off); [Right] Regist.Shift Mode: Off, Shift, Jump, User
<b>KNEE LEVER</b>		On/Off: Sustain (Upper, Lower); MOC; Lead Slide
<b>2ND EXP. PEDAL</b>		Pitch Bend (On/Off: Upper 1, 2, Lead 1, 2; Width); Rhythm Tempo (Mode)
<b>LCD DISPLAY</b>		256 × 64 (Large) Full Dot
<b>OTHER CONTROLS</b>		Power On/Off; Exp. Pedal (Depth); Pitch Control; Transpose; Master Volume; Display Select; Data Controls: Page; Coarse; Hold; LCD Contrast; LCD Brightness; Lead Initial Touch 1/2; MIDI (Output: Upper/Lower; Int./Ext.; Lead, Sync., Exp.)
<b>OTHER FITTINGS</b>		Registration Menu Disk; 3.5" Floppy Disk; Matching Bench; Music Stand; MIDI In/Out; Headphone Jack; Rhythm In (Phone: L/R); Aux In (RCA: L/R); Aux Out (RCA, Phone, XLR: L/R); Mic; Mic. Volume
<b>OPTIONAL ACCESSORIES</b>		Voice Disks; Registration Menu Disk; YHE-5 Headphones
<b>SOUND SYSTEM</b> (when equipped with Tone Cabinet)	<b>Power Amplifier</b>	210W (35W × 6)
	<b>Speakers</b>	20cm (7 7/8") × 2; 18cm (7 1/8") × 2; 5cm (2") × 2; Monitor × 2
<b>DIMENSIONS</b>	<b>Width × Depth × Height</b>	132.9cm × 60.8cm × 95.7cm (52 1/4" × 24" × 37 3/8") * With panel closed, Matching Bench: 104.4cm × 33.0cm × 60.0cm (41 1/8" × 13" × 23 5/8")
<b>WEIGHT</b>		112.5kg (247 lbs., 8 oz.), Tone Cabinet: 35.5kg (78 lbs., 2 oz.), Matching Bench: 30.0kg (66 lbs.), Pedalboard Unit: 14.7kg (32 lbs., 5 oz.)
<b>FINISH</b>		ELX-1 (Black): Metallic Black/Claro Walnut Panel, ELX-1 (White): Pearl White/Sycamore Panel

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# MIDI Specifications

## ■ Channel Messages

Code	Function	Transmitted	Recognized	Remarks
8nH, nnH (Note No.), 00H-7FH	Note OFF	× × × × ×	CH 1 CH 2 CH 3 (CH 4)* CH 15	UK LK PK LEAD Keyboard Percussion
9nH, nnH (Note No.), 00H 01H-7FH (On)	Note OFF ON	CH 1 CH 2 CH 3 (CH 4)* (CH 5)* ×	CH 1 CH 2 CH 3 (CH 4)* × CH 15	UK LK PK LEAD Keyboard Percussion
BnH, 04H, 00H-7FH	2nd Expression Pedal	CH 16 (CH 4)*	CH 16 (CH 4)*	CONTROL LEAD
BFH, 0BH, 00H-7FH	Expression Pedal	CH 16	CH 16	CONTROL
BnH, 40H, 00H 7FH	Sustain OFF ON	× × ×	× × ×	UK LK PK
BnH, 7BH, 00H	All Note OFF	× × × × ×	× × × × ×	UK LK PK LEAD CONTROL
CnH, nnH (Regist. No.)	Program Change (Registration Memory)	× × × CH 16	CH 1 CH 2 CH 3 CH 16	UK LK PK CONTROL
DnH, 00H-7FH	After Touch	CH 1 CH 2 CH 3 (CH 4)*	CH 1 CH 2 CH 3 (CH 4)*	UK LK PK LEAD

\* Can be replaced by MIDI CONTROL function.

## ■ System Realtime Messages

Code	Function	Transmitted	Recognized	Remarks
F8H	Clock	○	○*	* Recognize = Ext. mode
FAH	Start	○	○	
FCH	Stop	○	○	
FEH	Active Sensing	○	○	
FFH	Reset	×	×	

# System Exclusive Messages

## 1. Electone Common Messages

### ■ Bulk Dump Related Messages

Code	Messages	Transmitted	Recognized
F0H, 43H, 70H, 70H, 00H, .....(data) ....., F7H	Bulk Dump data	×	○
01H	Request-to-Send Voice parameter data	×	○
02H	Request-to-Receive Voice parameter data	×	○
F0H, 43H, 70H, 70H, 10H, F7H	Request-to-Send all RAM data	×	○
11H	Request-to-Send Registration data	×	○
12H	Request-to-Send R.S.P. data	×	○
14H	Request-to-Send User pattern data	×	○
15H	Request-to-Send User pattern data	×	○
16H	Request-to-Send User Voice data	×	○
17H	Request-to-Send Keyboard Percussion assign data	×	○
F0H, 43H, 70H, 70H, 20H, F7H	Request-to-Receive all RAM data	×	○
21H	Request-to-Receive Registration data	×	○
22H	Request-to-Receive R.S.P. data	×	○
24H	Request-to-Receive User pattern data	×	○
25H	Request-to-Receive User pattern data	×	○
26H	Request-to-Receiver USER Voice data	×	○
27H	Request-to-Receiver Keyboard Percussion assign data	×	○
F0H, 43H, 70H, 70H, 30H, F7H	Request-to-Send Model ID data	×	○
F0H, 43H, 70H, 70H, 38H, 7FH, F7H	Bulk Dump Acknowledge	○	×
00H	Unacknowledge	○	×

### ■ Control Change

Code	Messages	Transmitted	Recognized
F0H, 43H, 70H, 70H, 40H, 45H, 7FH, F7H	LEFT FOOTSWITCH ON	○	○
00H	OFF	○	○
40H, 47H, 7FH, F7H	KNEE LEVER ON	○	○
00H	OFF	○	○
40H, 48H, 7FH, F7H	FILL IN ON	○	○
00H	OFF	○	○
40H, 4BH, 7FH, F7H	INTRO./ENDING ON	○	○
00H	OFF	○	○
40H, 4DH, 7FH, F7H	SOLO BAR ON	○	○
00H	OFF	○	○
40H, 50H, TLH, THH, F7H	TEMPO	○	○

### ■ MDR Status

Code	Messages	Transmitted	Recognized
F0H, 43H, 70H, 70H, 70H, 01H, F7H	PLAY Start	×	○
02H	Stop	×	○
03H	RECORD Start	×	○
04H	Stop	×	○
05H	FF ►► Start	×	○
06H	Stop	×	○
09H	Rhythm Pointer Reset	×	○

### ■ Others

Code	Message	Transmitted	Recognized
F0H, 43H, 70H, 70H, 78H, SCH, NCH, F7H	Bar signal	○	○

## 2. EL Series Common Messages

Code	Messages	Transmitted	Recognized
F0H, 43H, 70H, 78H, 00H, ..... (data) ....., F7H	Bulk Dump data	○	○
01H	Request-to-Send Voice parameter data	×	○
02H	Request-to-Receive Voice parameter data	×	○
F0H, 43H, 70H, 78H, 10H, F7H	Request-to-Send all RAM data	×	○
11H	Request-to-Send Registration data	×	○
12H	Request-to-Send R.S.P. data	×	○
14H	Request-to-Send User pattern data	×	○
15H	Request-to-Send User pattern data	×	○
16H	Request-to-Send User Voice data	×	○
17H	Request-to-Send Keyboard Percussion assign data	×	○
F0H, 43H, 70H, 78H, 20H, F7H	Request-to-Receive all RAM data	×	○
21H	Request-to-Receive Registration data	×	○
22H	Request-to-Receive R.S.P. data	×	○
24H	Request-to-Receive User pattern data	×	○
25H	Request-to-Receive User pattern data	×	○
26H	Request-to-Receive User Voice data	×	○
27H	Request-to-Receive Keyboard Percussion assign data	×	○
F0H, 43H, 70H, 78H, 41H, ..... (data) ....., F7H	Panel Switch Event data *	○	○
F0H, 43H, 70H, 78H, 42H, ..... (data) ....., F7H	Current Registration data	○	○

\* Refer to the Switch Cord (page 159).

## 3. Model-Specific Messages

Code	Messages	Transmitted	Recognized
F0H, 43H, 70H, 3CH, 00H, ..... (data) ....., F7H	Bulk Dump data	×	○
3CH, 00H	Model ID data	○	×
3CH, 01H,	Request-to-Send Voice parameter data	×	○
3CH, 02H	Request-to-Receive Voice parameter data	×	○
F0H, 43H, 70H, 3CH, 10H, F7H	Request-to-Send all RAM data	×	○
11H	Request-to-Send Registration data	×	○
12H	Request-to-Send R.S.P. data	×	○
14H	Request-to-Send User pattern data	×	○
15H	Request-to-Send User pattern data	×	○
16H	Request-to-Send User Voice data	×	○
17H	Request-to-Send Keyboard Percussion assign data	×	○
F0H, 43H, 70H, 3CH, 20H, F7H	Request-to-Receive all RAM data	×	○
21H	Request-to-Receive Registration data	×	○
22H	Request-to-Receive R.S.P. data	×	○
24H	Request-to-Receive User pattern data	×	○
25H	Request-to-Receive User pattern data	×	○
26H	Request-to-Receive User voice data	×	○
27H	Request-to-Receive Keyboard Percussion assign data	×	○

## 4. Electone/Single Keyboard Common Messages

Code	Messages	Transmitted	Recognized
F0H, 43H, 73H, 01H, 02H, F7H	Request for Internal Synchronous mode	×	○
03H	Request for External Synchronous mode	×	○

**Switch Code** MODEL CODE [F0H, 43H, MODEL, 3CH, FUNCTION, CODE, DATA, F7H] MODEL 78 SERIES, FUNCTION 41: PANEL SWITCH EVENT

Functions/Switches		Code	Data	Remarks
Selector	UK Voice 1	02H	00H-0DH	SW no.
	LK Voice 1	03H	00H-0DH	SW no.
	UK Voice 2	04H	00H-0DH	SW no.
	LK Voice 2	05H	00H-0DH	SW no.
	Lead 1	06H	00H-04H	SW no.
	Lead 2	09H	00H-04H	SW no.
	PK Voice 1	07H	00H-04H	SW no.
	PK Voice 2	08H	00H-04H	SW no.
	Rhythm	0BH	00H-0BH	SW no.
Volume	UK Voice 1	12H	00H-7FH	Volume data
	LK Voice 1	13H	00H-7FH	Volume data
	UK Voice 2	14H	00H-7FH	Volume data
	LK Voice 2	15H	00H-7FH	Volume data
	Lead 1	16H	00H-7FH	Volume data
	Lead 2	19H	00H-7FH	Volume data
	PK Voice 1	17H	00H-7FH	Volume data
	PK Voice 2	18H	00H-7FH	Volume data
	Rhythm	1AH	00H-7FH	Volume data
Reverb	1BH	00H-7FH	Depth data	
Flute Voice	Upper	30H	00H-01H	00H = OFF 01H = ON
	Lower	31H	00H-01H	00H = OFF 01H = ON
To Lower	Lead	36H	00H-01H	00H = OFF 01H = ON
	PK Voice 1	37H	00H-01H	00H = OFF 01H = ON
	PK Voice 2	38H	00H-01H	00H = OFF 01H = ON
Solo Mode		39H	00H-01H	00H = OFF 01H = ON
Brilliance	UK Voice 1	42H	00H-06H	00H = Brilliant 06H = Mellow
	LK Voice 1	43H	00H-06H	00H = Brilliant 06H = Mellow
	UK Voice 2	44H	00H-06H	00H = Brilliant 06H = Mellow
	LK Voice 2	45H	00H-06H	00H = Brilliant 06H = Mellow
	Lead 1	46H	00H-06H	00H = Brilliant 06H = Mellow
	Lead 2	49H	00H-06H	00H = Brilliant 06H = Mellow
	PK Voice 1	47H	00H-06H	00H = Brilliant 06H = Mellow
	PK Voice 2	48H	00H-06H	00H = Brilliant 06H = Mellow
Sustain	UK Sustain	50H	00H-01H	00H = OFF 01H = ON
	LK Sustain	51H	00H-01H	00H = OFF 01H = ON
	PK Sustain	52H	00H-01H	00H = OFF 01H = ON
Pedal D.R.C.		57H	00H-01H	00H = OFF 01H = ON
Keyboard Percussion	LK	5BH	00H-01H	00H = OFF 01H = ON
	PK	5CH	00H-01H	00H = OFF 01H = ON
Disable	Disable	5FH	00H-01H	00H = OFF 01H = ON
Tremolo	Tremolo	60H	00H-01H	00H = Chorus 01H = Tremolo
Rhythm Sequence Program	1	61H	00H-01H	00H = OFF 01H = ON
	2	62H	00H-01H	00H = OFF 01H = ON
	3	63H	00H-01H	00H = OFF 01H = ON
	4	64H	00H-01H	00H = OFF 01H = ON

# ELX-1 MIDI Implementation Chart

Date 1992-3-13  
Version: 1.2

Function		Transmitted	Recognized	Remarks
Basic Channel	Default Changed	1, 2, 3, 16 4, 5	1, 2, 3, 15, 16 4	***
Mode	Default Messages Altered	Mode 3 × *****	Mode 3 × ×	
Note Number	True Voice	36-96* *****	36-96**	
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 Bend		×	×	
Control Change		1 × 4 ○ 11 ○ 64 ×	× ○ ○ (Recognized only in External mode) ×	Modulation Wheel 2nd Expression Pedal Expression Pedal Sustain
Program Change	Range	0-15, 112-116 *****	0-15, 112-116 0-15	
System Exclusive		○	○	Refer to MIDI Specifications
System Common	Song Position Song Select Tune	× × ×	× × ×	
System Real Time	Clock Commands	○ ○	○ ○	Recognized only in External mode (FAH, FCH)
Aux Messages	Local ON/OFF All Notes OFF Active Sense Reset	× × ○ ×	× × ○ ×	
Notes		* CH1: 36-96, CH2: 36-96, CH3: 36-60 ** CH1-4: 36-96, CH15: 8-127 *** CH1: UK, CH2: LK, CH3: PK, CH4: LEAD, CH15: KEYBOARD PERCUSSION, CH16: CONTROL		

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

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

○: YES  
×: NO

# FM Operator List

In the ELX-1, the FM sound sources play an important role, along with the AWM sound sources, in creating the overall sound of each voice. These FM sound sources can be roughly divided into two groups, Operators 1 ~ 4 (FM 1) and Operators 5 ~ 8 (FM 2). In the preset voices, the FM 1 group is used to form the main sound of the voice, while the FM 2 group is used to modulate and change the main sound. By using the FM 2 group as a second sound source as suggested in this chart, you can create new voice variations and expand the palette of sounds available on the instrument.

op=Operator

Voice Number	Page Number	Voice Name	Suggested Operator Output Levels			Effect/Characteristics of FM 2 Group
			AWM	FM1	FM2	
1	1	Strings 1	0	op1=0, op2=0	op5=100, op7=100	Bright voice variation.
2	1	Strings 2	111	op1=90, op2=90	op5=102	Violin-like sound for boosting the mid-low range.
3	1	Strings 3	Preset values		op5=105, op7=105	For boosting the low range.
4	1	Strings 4	0	op1=0, op3=0	op5=107, op7=107	Crisp and bright voice variation.
5	1	Strings 5	0	op1=0	op5=114	Violin with attack noise.
6	1	Strings 6	Preset values		op5=105, op7=105	For boosting the mid-low range.
7	1	Pizzicato Strings	Preset values		op5=115	Relatively thick, detuned sound with a short decay.
8	1	Tremolo Strings	Preset values		op5=104	Recreates strongly bowed vibrating pitch effect.
9	1	Synth. Strings 1	Preset values		op5=105, op7=105	Thin and bright voice variation.
10	1	Synth. Strings 2	0	op1=0, op2=0, op3=0	op5=105, op7=105	Tight sound with a short release. Good as a supplemental sound with the original voice.
11	1	Synth. Strings 3	Preset values		op5=87, op7=87	Adds a continuous sound like a synth. chime.
12	2	Violin 1	0	op1=0	op5=120	Bright sound with a slightly slow attack.
13	2	Violin 2	0	op1=0	op5=112	Slow attack sound.
14	2	Violin 3	Preset values		op5=107	Adds a parallel fifth, often heard in some country music.
15	2	Violin 4	0	op1=0, op3=0	op5=105, op7=111	Tight and bright sound.
16	2	Pizzicato Violin	0	op1=0	op5=111	Bright sound with a short release. Good as an alternate sound.
17	2	Cello	Preset values		op5=108	For boosting mid-low range, and creating an ensemble effect.
18	2	Kokyu	0	op1=0	op5=105	Kokyu (Chinese violin) sound with strong characteristics.
19	3	Contrabass 1	Preset values		op5=102	Adds another contrabass sound one octave lower.
20	3	Contrabass 2	Preset values		op5=100, op7=100	Adds a bright, strongly bowed strings sound.
21	3	Contrabass 3	Preset values		op5=107	A cello-like sound one octave higher.
22	3	Pizzicato Bass	Preset values		op5=103	A sound with short release one octave higher.
23	3	Upright Bass	Preset values		op5=104	Adds sound with prominent attack noise.
24	4	Brass 1	Preset values		op5=102	Bright brass sound.
25	4	Brass 2	Preset values		op5=111, op7=111	Especially touch responsive sound for reinforcing the basic pitch.
26	4	Brass 3	Preset values		op5=100, op7=100	Adds a kind of comical brass sound one octave lower.
27	4	Brass 4	Preset values		op5=105	Adds a tenor sax sound one octave lower.
28	4	Synth. Brass 1	Preset values		op5=105, op7=105	For adding a thin and bright ensemble sound.
29	4	Synth. Brass 2	0	op1=0, op3=0	op5=124	Provides touch response control over the timbre of the attack portion.
30	5	Horn 1	Preset values		op5=108, op7=110	Adds an overblown horn sound that responds to touch.
31	5	Horn 2	Preset values		op5=105, op7=99	Same as Horn 1, but a little bit softer.
32	5	Horn 3	Preset values		op5=107, op7=107	Sweet sound which responds to initial touch.
33	5	Muted Horn	Preset values		op5=111	Adds bright and strong horn sound to boost high range.
34	6	Trumpet 1	0	op1=0	op5=115	Soft sound which responds to touch.
35	6	Trumpet 2	0	op1=0	op5=107	Bright sound which responds to touch.
36	6	Trumpet 3	Preset values		op5=112	Reinforces the basic pitch.
37	6	Trumpet 4	Preset values		op5=107, op6=107, op7=107	Reinforces the basic pitch with a softer sound.
38	6	Trumpet 5	0	op1=0, op3=0	op5=114	Relatively fat sound which decays slowly.
39	6	Muted Trumpet	Preset values		op5=100	Alternate sound in the low range.
40	6	Trombone 1	Preset values		op5=107	Adds bright attack which responds to touch.
41	6	Trombone 2	Preset values		op5=110	Adds a sound one octave higher.
42	6	Muted Trombone	Preset values		op5=111	Soft alternate sound in the low range.
43	6	Flugelhorn	Preset values		op5=108	Adds a change in the timbre to create an ensemble effect.
44	6	Euphonium	Preset values		op5=122	Adds a change in the timbre to create an ensemble effect.
45	7	Tuba	0	op1=0, op2=0, op3=0	op5=113	A bright sound with a quick attack.
46	7	Timpani	Preset values		op5=117	Softens the periodic vibration in the sound.
47	7	Timpani Roll	Preset values		op5=102	Adds a contrabass sound one octave lower.



Voice Number	Page Number	Voice Name	Suggested Operator Output Levels			Effect/Characteristics of FM 2 Group
			AWM	FM1	FM2	
48	8	Flute 1	0	op1=0	op5=110	Dark sound.
49	8	Flute 2	Preset values		op5=107	Adds a darker sound to create an ensemble effect.
50	8	Piccolo	Preset values		op5=112, op7=82	Boosts the brightness and noise elements of the sound.
51	8	Yokobue	Preset values		op5=117	Adds a note a fourth lower, and creates an ensemble effect.
52	8	Recorder	0	op1=0	op5=102	Soft sound that emphasizes noise elements.
53	8	Ocarina	Preset values		op5=102, op7=67	Boosts the brightness and noise.
54	8	Pan Flute	Preset values		op5=114	Thick sound which reinforces the basic pitch.
55	8	Shakuhachi	Preset values		op5=100	Adds a slightly dark sound to create an ensemble effect.
56	8	Whistle	Preset values		op5=0, op7=77	Adds bright noise to the sound.
57	9	Oboe 1	0	op1=0	op5=100	Bright sound with more pronounced oboe characteristics.
58	9	Oboe 2	0	op1=0	op5=100	Slightly thicker sound.
59	9	English Horn	Preset values		op5=97	Overblown bright sound.
60	9	Bassoon 1	Preset values		op5=102	Adds characteristic bassoon sound to boost the mid-high range.
61	9	Bassoon 2	Preset values		op5=92	Especially touch responsive, overblown sound.
62	10	Clarinet 1	Preset values		op5=107	For boosting the high range.
63	10	Clarinet 2	Preset values		op5=92	For adding overblown elements.
64	10	Bass Clarinet	115	op1=0	op5=102	For boosting the low sound feeling in the low range.
65	10	Synth. Clarinet 1	Preset values		op5=102, op7=102	Voice with bright elements.
66	10	Synth. Clarinet 2	Preset values		op5=103, op7=99	For adjusting the change of the voice in the low range.
67	11	Saxophone 1	0	op1=0	op5=102	Bright and straight sound.
68	11	Saxophone 2	Preset values		op5=0, op6=86	Adds breath noise.
69	11	Soprano Sax	Preset values		op5=100	Effective touch response, slow attack.
70	11	Sax. Ensemble	Preset values		op5=100	Adds bright sound to create an ensemble effect.
71	11	Synth. Sax	115	op1=109	op5=109, op7=109	Adds bright second sax sound.
72	12	Tutti 1	Preset values		op5=111, op7=111	Adds bright FM strings.
73	12	Tutti 2	Preset values		op5=115	Adds fat trumpet sound.
74	12	Tutti 3	Preset values		op5=105, op7=113	Adds bright sax sound.
75	12	Tutti 4	Preset values		op5=103	Boosts the low sound by adding a relatively fat 16' voice.
76	12	Tutti 5	Preset values		op5=104	Changes the mid-high range of the voice by adding a bright sax. sound.
77	12	Tutti 6	Preset values		op5=103, op7=99	Adds sounds of woodwind group, particularly clarinet.
78	12	Tutti 7	Preset values		op5=112, op7=112	Adds an ensemble brass sound.
79	13	Chorus 1	Preset values		op5=100, op7=100	Adds a synth pad sound.
80	13	Chorus 2	Preset values		op5=100, op7=100	Adds a chime sound one octave higher.
81	13	Chorus 3	Preset values		op5=103, op7=109	Shallow vocal pronunciation of "ahh."
82	13	Chorus 4	Preset values		op5=97, op7=97	Adds FM strings.
83	13	Vocal	Preset values		op5=98, op7=99	Boosts the formant elements in the mid-low range.
84	14	Harmonica 1	Preset values		op5=100	Adds detuned bright sound.
85	14	Harmonica 2	Preset values		op5=110	Boosts the bright elements in the sound.
86	15	Organ 1	Preset values		op5=105, op6=105, op7=100	Bright mixture sound.
87	15	Organ 2	Preset values		op5=110, op6=110, op7=100	Metal brass-like reed pipe.
88	15	Organ 3	Preset values		op5=97, op7=100	Adds 4' pipe.
89	15	Organ 4	Preset values		op5=100	Bright and light sound, good also as a variation voice.
90	15	Jazz Organ 1	99	op1=97, op2=97, op3=90	op5=107, op6=106, op7=99	Adds fifth interval for bright sound.
91	15	Jazz Organ 2	Preset values		op5=85, op6=85, op7=77	Adds 1 1/3' and 1' intervals.
92	15	Jazz Organ 3	0	op1=0, op2=0, op3=0, op4=0	op5=100, op6=100, op7=100	Attack with click sound.
93	15	Pop Organ 1	0	op1=0, op2=0, op3=0	op5=95, op6=54, op7=100	Adds a bright organ voice a fifth above normal pitch.
94	15	Pop Organ 2	Preset values		op5=0, op6=91, op7=93	Adds a bright organ voice a fifth above normal pitch.
95	15	Theatre Organ 1	Preset values		op5=103, op6=92, op7=102	For adjusting the low range and high range.
96	15	Theatre Organ 2	Preset values		op5=103, op6=103, op7=102	For adjusting the midrange.
97	15	Accordion	Preset values		op5=97	Reed-like sound, with great touch control over volume.
98	15	Bandoneon	Preset values		op5=92	Reed-like sound which responds greatly to after touch.
99	16	Organ Bass 1	Preset values		Preset values	Adds 2' footage.

Voice Number	Page Number	Voice Name	Suggested Operator Output Levels			Effect/Characteristics of FM 2 Group	
			AWM	FM1	FM2		
100	16	Organ Bass 2	Preset values			op5=97, op6=97, op7=97	Bright 4' and 2' pipes.
101	16	Organ Bass 3	0	op1=112, op2=112, op3=107	op5=0, op6=107, op7=102	For adjusting the sound of bright 2' pipe.	
102	16	Organ Bass 4	Preset values			op5=107, op6=102, op7=92	Adds 32' pipe and Mixture organ sound.
103	17	Piano 1	Preset values			op5=111	Like electric piano, good also as a variation voice.
104	17	Piano 2	0	op1=0	op5=111	Rich electric piano sound. Good for augmenting the original sound.	
105	17	Honky Tonk Piano	Preset values			op5=117	Adds the characteristic "honky tonk" sound and boosts the midrange.
106	17	Electric Piano 1	0	op1=0, op3=0	op5=108, op7=104	A somewhat distinctive voice, sounding like a cross between EP1 and 2.	
107	17	Electric Piano 2	0	op1=0, op2=0, op3=0	op5=104, op7=104	Soft electric piano sound that can be used without effects.	
108	17	Harpsichord	Preset values			op5=100	Adds sound one octave higher.
109	17	Clavi	0	op1=0	op5=110	Cembalo-like sound variation, with strong touch response.	
110	17	Clavichord	0	op1=0	op5=92	Single string sound.	
111	18	Guitar 1	0	op1=0	op5=100	Off-microphone sound with long sustain.	
112	18	Guitar 2	0	op1=0	op5=107	Bright sound; good for adjusting the original sound.	
113	18	Guitar 3	0	op1=0	op5=100	Harmonics sound.	
114	18	12-string Guitar	Preset values			Preset values	8' sound with long release.
115	18	Banjo	Preset values			op5=110	Sound for reinforcing the release when playing softly.
116	18	Mandolin	Preset values			op5=107	Characteristic mandolin sound for adjusting the mid-high range.
117	18	Sitar	Preset values			op5=100, op7=100	Ethnic unison bell sound.
118	18	Shamisen	Preset values			op5=100, op7=100	Adds a distorted attack.
119	18	Electric Guitar 1	Preset values			op5=114	Attack with strong touch response, good for creating guitar scratching/picking sounds.
120	18	Electric Guitar 2	0	op1=0	op5=117, op6=95	Clear tone which can be used for repeating notes.	
121	18	Muted Guitar	Preset values			op5=85	Bright and relatively long sustain.
122	18	Distorted Guitar	0	op1=0, op3=0	op5=112	Softer distortion sound.	
123	18	Harp	0	op1=0	op5=102	Bright off-microphone sound.	
124	18	Steel Guitar	Preset values			op5=103	Bright sound with strong characteristics in high range.
125	18	Koto	0	op1=0	op5=120	Bright off-microphone sound.	
126	18	Taisho Koto	0	op1=0	op5=107	Clear tone.	
127	19	Vibraphone	0	op1=0, op2=0, op3=0	op5=123, op6=121, op7=115	Softer sound.	
128	19	Glockenspiel	Preset values			op5=107, op7=107	For adjusting the mid-range frequency.
129	19	Celesta	Preset values			op5=0, op6=71, op7=106	For adjusting the elements which determine the brightness.
130	19	Music Box	Preset values			op5=70, op6=98, op7=75	Adds a bright and light glockenspiel sound.
131	19	Marimba	0	op1=0, op3=0	op5=107, op7=107	Exotic, generally non-pitched sound.	
132	19	Xylophone	0	op1=0, op3=0	op5=118	Sound with short release; good for adjusting the original sound.	
133	19	Chime	120	op1=90, op3=90	op5=100, op7=100	Strongly pitched sound, softens the resonating vibrato-like sound.	
134	19	Synth. Chime	Preset values			op5=90	Bright and thin sound, with a slightly delayed swell in volume.
135	19	Steel Drum	Preset values			op5=115	Metallic sound which reinforces the low sound and brightness.
136	20	Elec. Bass 1	Preset values			op5=113	Same type sound as the AWM operator, but slightly detuned.
137	20	Elec. Bass 2	Preset values			op5=112	For boosting the low range.
138	20	Elec. Bass 3	Preset values			op5=112	Bright and synth bass-like sound.
139	20	Elec. Bass 4	0	op1=0	op5=125, op7=125	Voice whose sound slowly swells in volume.	
140	20	Synth. Bass 1	0	op1=0	op5=110, op6=112, op7=109	Sound with sharp attack.	
141	20	Synth. Bass 2	0	op1=0	op5=97, op6=107, op7=107	Sound with low range and attack noise characteristics.	
142	20	Synth. Bass 3	Preset values			op5=100, op7=100	Adds Moog synthesizer-like sound.
143	21	Cosmic 1	Preset values			op5=87, op7=87	Adds woodwind pad sound.
144	21	Cosmic 2	Preset values			op5=87, op7=87	Chime-like decay sound.
145	21	Cosmic 3	Preset values			op5=102, op7=102	Bright brass sound with ensemble effect.
146	21	Cosmic 4	Preset values			op5=87, op7=87	Continuous synth. strings-like sound with a slow attack.
147	21	Cosmic 5	Preset values			op5=125	Adds synthesizer-like filter sweep sound.
148	21	Cosmic 6	Preset values			op5=107	Adds synth. pad sound with long release.
149	21	Cosmic 7	Preset values			op5=97, op7=97	Rich vocal sound for boosting the low range.
150	21	Cosmic 8	Preset values			op5=100, op7=92	Synth. chime sound.
151	21	Cosmic 9	Preset values			op5=115, op7=114	Adds interesting, comical attack sound.

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