

7 Music Disk Recorder

The Music Disk Recorder (M.D.R.) is a sophisticated recording device built into the Electone that lets you record your performances. The Music Disk Recorder not only records the notes you play; it also remembers the voices and rhythms you select, the front panel controls you change, as well as all Expression Pedal, Footswitch and Knee Lever positions, to reproduce your performance exactly as you play it.

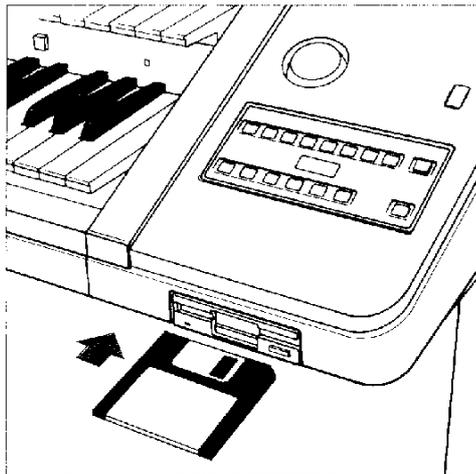
Before Using the M.D.R.

The M.D.R. records all your performance data to disks. A blank disk has been included with your Electone for you to record your performances.

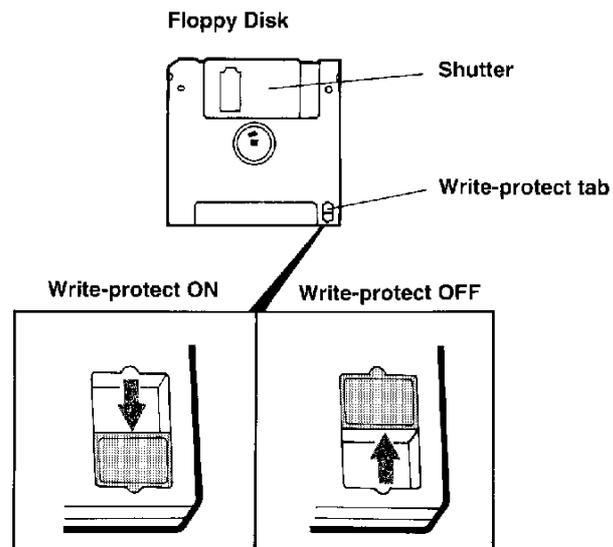
Inserting the disk:

Put the included disk, face up, into the disk slot under the M.D.R. When you wish to record to a disk, make sure the disk's Write Protect tab is set to OFF. Set it to ON when you wish to protect valuable data from being accidentally erased.

Note: Either double-sided double-density (2DD) or double-sided high-density (2HD) 3.5-inch microfloppy disks can be used with the M.D.R.

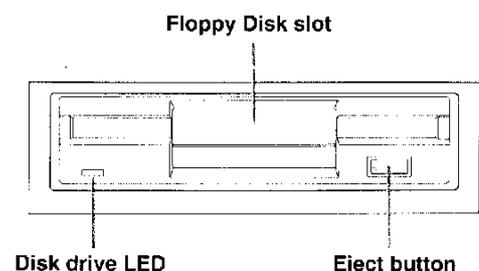


LED lights briefly when disk is inserted.



Ejecting the disk:

To remove the disk, press the Eject button next to the disk slot. (Do not try to eject the disk when the LED is lit.)



CAUTION:

- Do NOT eject the disk during recording or playback. Doing so may damage both the disk and the M.D.R.
- Do NOT turn off the Electone while the disk is still inserted. Always eject the disk before turning off the Electone. (See page 100 for more information about floppy disk use.)

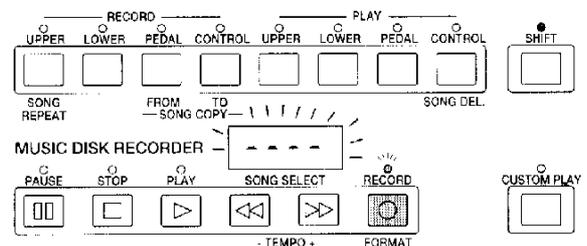
Formatting a Disk

Before recording a performance to your blank disk, the disk must first be formatted.

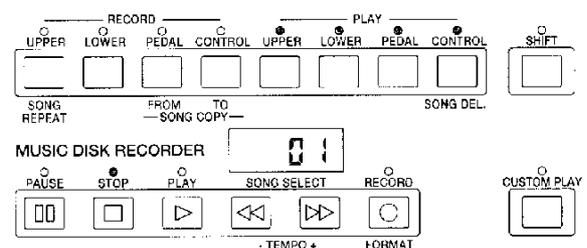
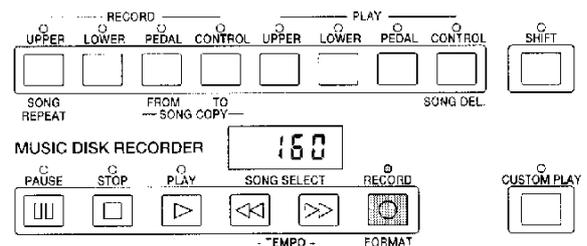
To format a disk:

1. Put the disk, label facing up, into the disk drive.
2. While holding down the SHIFT button, press the FORMAT button.

This step puts the format operation on stand-by, indicated by the dashes in the M.D.R. display and the flashing LED above the FORMAT button.



3. Press the FORMAT button again to begin formatting. The LED above the FORMAT button stays lit. The number "160" appears in the M.D.R. display and counts down to "001" as the disk is being formatted. When formatting is completed, operation returns to the original STOP status.



About the Shift Button

Some buttons on the M.D.R. panel have function names printed below the buttons as well as above them. The SHIFT button allows you to use these secondary functions: Simultaneously hold down the SHIFT button and press the button you wish to use.

Making a Recording

Recording with the Music Disk Recorder is as easy as using a tape recorder. In this section, you'll learn how to record your first complete performance with the Music Disk Recorder.

To record a song:

1. Set the desired registrations on the Electone. Make all the Electone settings necessary for the song you will record.

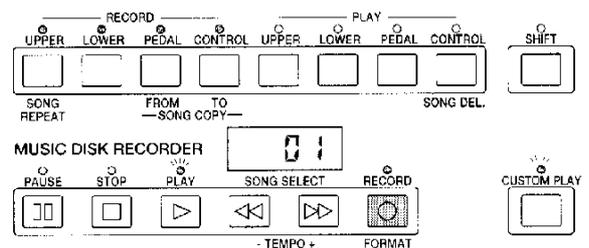
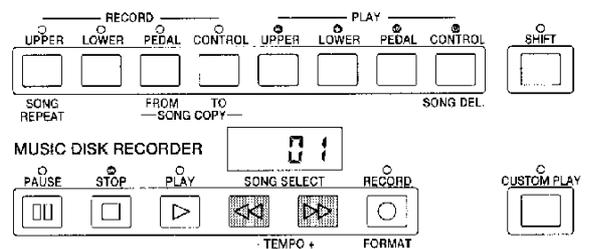
2. Put a formatted disk into the disk slot.

3. Use the SONG SELECT (◀◀, ▶▶) buttons to select the song number for recording. Up to 40 songs can be stored on a disk. When a disk is first inserted, song number 01 is automatically selected.

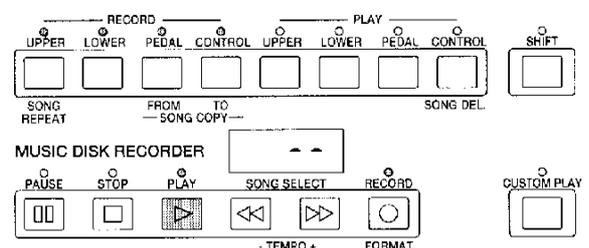
4. Press the RECORD button. The RECORD lamp lights up and the PLAY and CUSTOM PLAY lamps begin flashing, indicating that the M.D.R. is ready to record.

5. Press the PLAY button. The PLAY lamp lights up and small bars flash across the M.D.R. display from left to right, indicating that the M.D.R. is recording registrations and other settings of the Electone.

Note: Up to 40 songs can be stored on a disk. However, the actual number of songs may be less if some songs contain a large amount of data. (See page 99 for more information about remaining memory.)

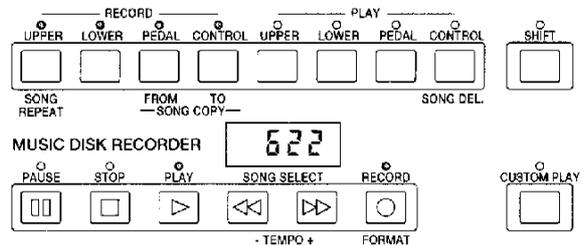


Note: If the song already contains recorded data, small bars (- -) appear at the left side of the song number on the M.D.R. display, and flash along with the song number, to warn you that the selected song number has data recorded to it. To avoid erasing the data, cancel the operation by pressing the STOP button.



6. After numbers appear in the display of the Recorder, begin playing.

Once the setup operation in step #5 is complete, a number will appear on the recorder display indicating that you can begin recording your performance. The number also indicates the amount of memory left on the disk.

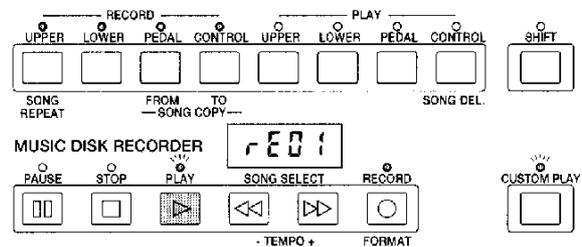


Note: The short time it takes to set up for recording is recorded as well, causing a short pause before playback of the song.

If You Make a Mistake During Recording:

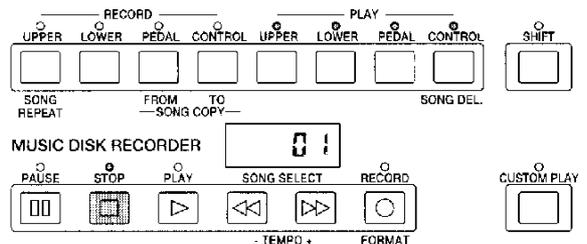
1. Press the PLAY button while the recorder is still running.

This stops the recording and returns you to the starting point of the song. The letters "rE" (retry) appear on the left side of the M.D.R. display and the PLAY and CUSTOM PLAY LEDs start flashing, indicating that you can re-record the song.



2. Press PLAY again to begin re-recording the song. Re-recording starts from the beginning of the song and replaces the previously recorded performance with the newly recorded performance.

7. When you finish playing, press the STOP button. When the STOP button is pressed, both the RECORD and PLAY lamps go out, and recording is stopped.



Note: When the available memory reaches "008" or less, the numbers begin flashing to warn you. If this happens, stop recording before the display reaches "000."

8. To hear your newly recorded performance, press the PLAY button. Playback will begin after a couple of seconds.

Outline of M.D.R. Operation

Though the M.D.R. is as easy to operate as a cassette tape recorder, it is far more versatile. Since it records all Electone settings and control movements as well as the notes you play as digital data, it allows you much more flexibility and control than even the most sophisticated tape recorder.

Basically, the M.D.R. independently records the following three types of data:

1. Registration data (including bulk data)

All registrations stored to the Registration Memory numbered buttons as well as the registration currently set to the panel, are recorded at the beginning of a song, before the actual recording of your performance. Bulk data is also saved to the song with the Registration data. Bulk data includes: Registration Shift settings, Rhythm Pattern (User rhythms) and Rhythm Sequence data, User voices, User Keyboard Percussion assignments and the settings on the Instrument page.

2. Performance data

The M.D.R. records your performance on the keyboards and Pedalboard of the Electone exactly as you play it, even recording the strength at which you play the keys and how hard you press them down while playing. The various types of performance data — Upper, Lower, Pedal and Lead — are recorded to independent "tracks," so that you can change any one of them without affecting the others.

3. Control data

All changes you make on the Electone during your performance are recorded in real time. These include registration changes, and the use of the Expression Pedals, Footswitches and Knee Lever.

Separate Recording of Parts

You can also record the parts of your performance independently; for example, first recording the chords and bass to the song (using the Lower and Pedal parts), and after that recording the melody. This function also lets you record Keyboard Percussion and performance control data, such as registration changes and Expression Pedal operation, separately from the other parts of the song.

To record parts separately:

1. Set up the Music Disk Recorder for recording, as you did in the section Making a Recording above.

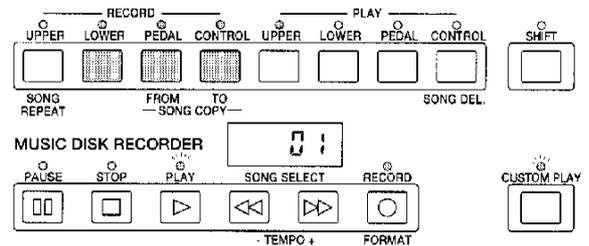
The first steps in recording parts separately are the same as for normal recording:

- 1.** Memorize all the registrations needed for your performance to the Registration Memory numbered buttons, and set the registration that will be used at the beginning of the song.
- 2.** Insert a formatted disk.
- 3.** Select the song number to which you will record your performance.
- 4.** Press the RECORD button.

<p>Note: Lead Voice 2 cannot be recorded separately, but is recorded as Upper data.</p>
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2. Select the parts you wish to record.

Pressing the RECORD button in this step automatically sets up the M.D.R. to record the four parts below. If you wish to, however, you can select individual parts for recording by pressing the appropriate RECORD buttons in the upper row. (For this example, press UPPER to cancel the Upper part.)



LEDs above selected parts light.

RECORD/UPPER

Selects performance data of the Upper keyboard, on or off.

RECORD/LOWER

Selects performance data of the Lower keyboard, on or off.

RECORD/PEDAL

Selects performance data of the Pedalboard, on or off.

RECORD/CONTROL

Selects Control functions (e.g., Expression Pedal and Footswitch movements, and registration changes), on or off. The LED lamps above the buttons indicate the record status of the parts.

This example operation disables recording of the Upper part.

Part Recording for Lead 1/Keyboard Percussion Parts

Hold down the SHIFT button and simultaneously press the appropriate button in the top row. The two buttons (indicated in the illustration below) function as Lead 1 and Keyboard Percussion selectors in the record mode.

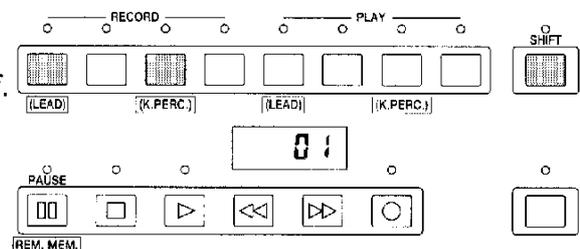
LEAD

Selects performance data of Lead Voice 1, on or off.

K.PERC

Selects performance data of Keyboard Percussion, on or off. (Keyboard Percussion can be recorded and played independent of the Rhythm patterns.)

Holding down the SHIFT button in the record condition lets you select these "hidden" functions. The lamps above each button will also change to indicate the status of SHIFT-selected parts.



Note: When not recording Lead 1/Keyboard Percussion parts separately, the Lead 1 and Keyboard Percussion data will be played back as Upper and Lower (Pedal) data, respectively.

3. Press the PLAY button, and start playing after numbers appear in the display.
(For this example, play the Lower keyboard and Pedalboard.)

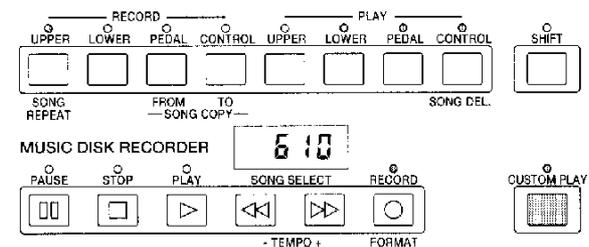
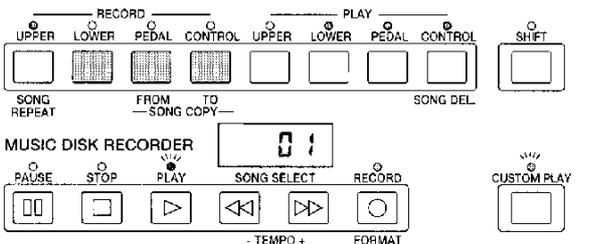
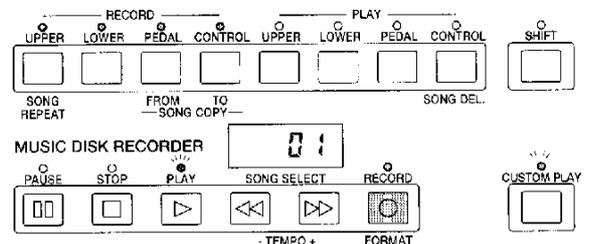
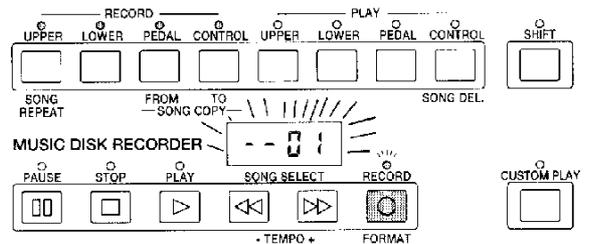
4. Press the STOP button when you are finished with your performance to stop recording. The Lower and Pedal parts have now been recorded.

5. Press RECORD to set up recording of the next part (Upper).
Since the song now contains recorded data of the Lower and Pedal parts (recorded in step #3), small bars (" __ ") appear at the leftmost part of M.D.R. display and flash along with the song number.

6. Press the RECORD button again to layer the new part (Upper).
The PLAY and CUSTOM PLAY LEDs start flashing, indicating the stand-by status.

7. Press the LOWER, PEDAL and CONTROL buttons of the Record section to avoid recording over the parts you recorded in step #3 above.

8. Press the CUSTOM PLAY button to start recording of the new part or parts.
Playback of the previously recorded parts starts immediately. While you listen to the parts being played back, start playing the melody on the Upper keyboard. When the end of the recorded performance is reached, playback is automatically stopped and the STOP status is resumed.



Note: The CUSTOM PLAY button is used here to record only the parts that have been selected for recording, and play back only those parts that have been selected for playback.

Note: The length of a subsequently recorded part cannot exceed the length of the previously recorded parts.

Recording Registrations (and Bulk Data)

You can also record registrations by themselves, without recording a performance. Bulk data includes: Registration Memory and Registration Shift settings, Rhythm Pattern (User rhythms) and Rhythm Sequence data, User voices, User Keyboard Percussion assignments and the settings on the Instrument page.

You can record only the registrations in two ways:

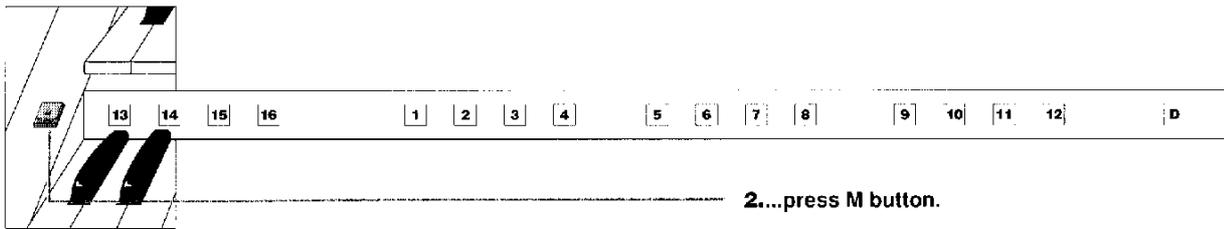
[1]

1. On the Electone, set the registrations and all other data you wish to record.

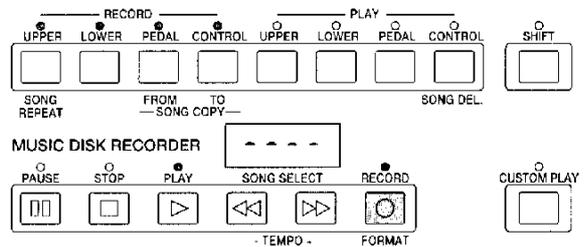
2. Select the song number to which you wish to record the registrations.

If the selected song number already contains recorded data, select another song number.

3. While holding down the RECORD button, press the M (Memory) button on the Registration Memory panel.



Note: Songs that already contain recorded data are indicated by small bars on the left side of the song number on the M.D.R. display, when the RECORD button is pressed in the next step.



1. While holding down RECORD button...

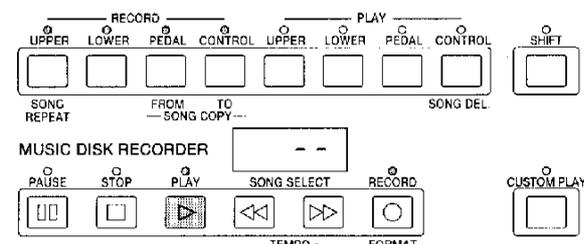
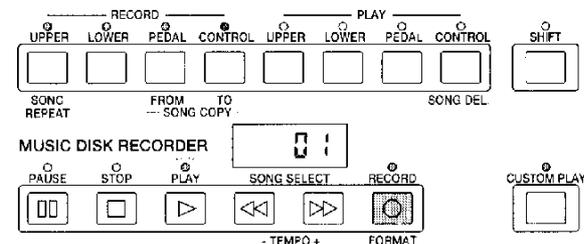
[2]

1. Set the registrations and select the song number as you did in steps #1 and #2 above.

2. Press the RECORD button.

3. Press the PLAY button to record the registrations, then press the STOP button as soon as you see the small bars flash across the M.D.R. display.

The small bars flash across the M.D.R. display indicate that the M.D.R. is being set up for normal recording; pressing the STOP button interrupts this process. The bars then flash simultaneously, indicating that only registration and other data is being recorded.



Recalling Recorded Registrations (and Bulk Data)

The registrations (and bulk data) recorded to song numbers in the above operation can be loaded back to the Electone. To do this:

- 1.** Insert the floppy disk into the disk slot, and select the desired song number.
- 2.** Simply press the PLAY button to load the registration data at that song number.

When the operation has been completed, the M.D.R. returns to STOP status.

Using More Than 16 Registrations in a Performance

With the M.D.R., you can also use more than 16 Registration Memory registrations in a performance — without having to change panel settings manually. This would come in handy when performing several songs in succession that use more than 16 registrations. To do this:

- 1.** First record the registrations you need into several song numbers on the M.D.R. before the performance. (You should also try to record them in the order that you'll use them, if possible.)
- 2.** During the performance, after all 16 registrations from a certain song number have been used, select the next song number and press the PLAY button on the M.D.R. This replaces all 16 registrations in Registration Memory with the new ones from the selected song number.
- 3.** By repeating the above steps, you can run through an entire performance without having to change the panel settings.

Note: The Read & Auto Increment function helps you to smoothly change between the song numbers. (See page 96.)

Replacing Registrations

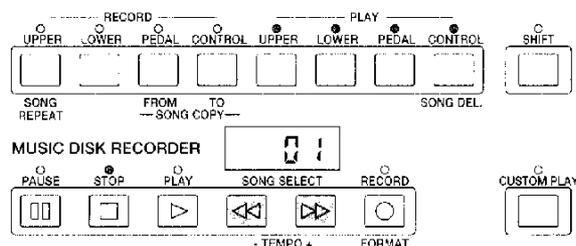
The M.D.R. also lets you change the registrations of an existing song without changing the performance data. The procedure is the same as that of Recording Registrations mentioned on page 91.

Normal Playback

You can play back your recorded performance by simply pressing the PLAY button. Registrations and other data will be recalled to the Electone.

To play back a song:

1. Select the number of the song you wish to play back by using the SONG SELECT buttons.



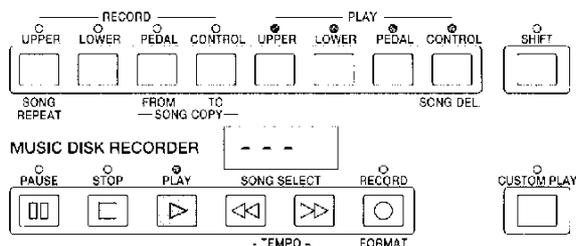
Playback of Lead Voice 1

Unlike other Electone models, the ELX-1 features the added convenience of automatically selecting all recorded tracks for playback. This means that even though the Lead Voice 1 may have been recorded separately, playback for the Lead voice will automatically be turned on.

Note: The M.D.R. normally plays back all recorded tracks of a song; however, songs recorded on a different model Electone (for example, the EL-90) will be played back according to the playback operation of that instrument.

2. Press the PLAY button.

The PLAY lamp lights up and a small bar moves across the display, indicating that the Recorder is resetting registrations on the Electone.



Note: The time required to reset the registrations is the same as the time required during recording.

3. Playback of the song begins after the Electone data is reset and the song time is shown on the recorder's display.

Playback automatically stops at the end of a song. You can, however, stop playback in the middle of a song by pressing the STOP button.

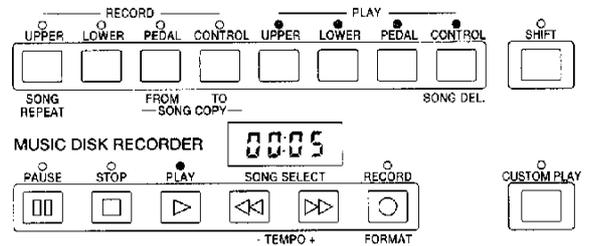
Playback of Selected Parts

You can also play back selected parts of your recorded performance, while other parts are temporarily turned off. This function is especially useful for playing a single part, such as the melody, over previously recorded accompaniment parts.

To select specific parts for playback:

- 1.** Select the number of the song to be played back.
- 2.** Set the parts you wish to mute to OFF, by pressing the appropriate PLAY button. (The LED of the selected part should be off.) Select the parts you wish to play back by setting them to ON.
- 3.** Press the PLAY button.
First the PLAY LED lights and the registration and other data are transmitted, then playback of the performance starts (excepting the parts that were turned off in step #2).
- 4.** Now perform your new part or parts over the playback parts.

When the end of the recorded performance is reached, playback is automatically stopped and the STOP status is resumed.



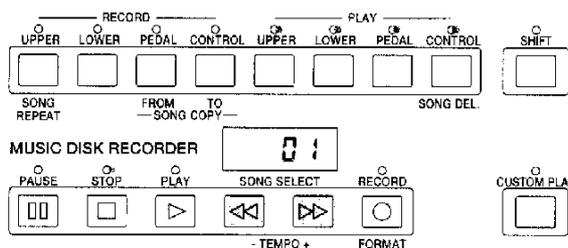
Note: Never turn off the power switch or press the EJECT button during playback.

Repeated Playback

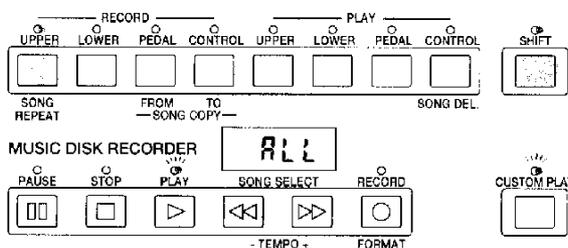
This feature allows you to repeatedly play back either all songs on a disk or only one specific song.

To repeat playback of a song or songs:

1. Select the song number you wish to play back.
If you wish to play back all songs on a disk, this selects the first song that will be played back. The others will follow in order.



2. Hold down the SHIFT button and simultaneously press the SONG REPEAT button.
The LEDs above SHIFT and SONG REPEAT light up, and "ALL" appears in the M.D.R. display.



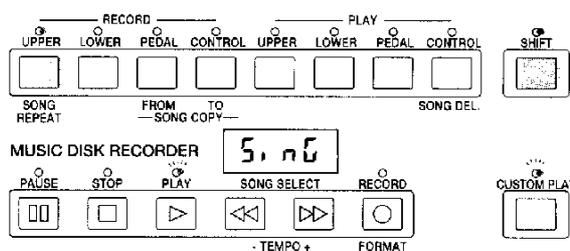
3. To repeatedly playback all songs starting with the selected song:

Press the PLAY button at this point.

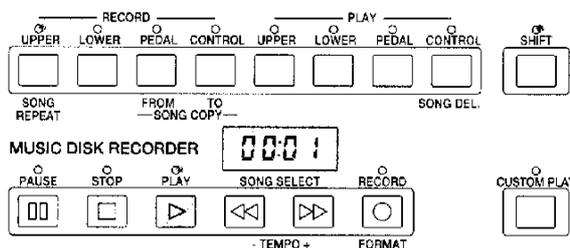
Note: Repeated Playback of several songs may not function properly if the disk contains two types of data: one recorded on the EL-90 and the other on the ELX-1.

3. To repeatedly playback only one selected song:

1. Again hold down the SHIFT button and simultaneously press the SONG REPEAT button.
"Sing" appears in the M.D.R. display to indicate that a single song will be repeatedly played back.



2. Press the PLAY button to begin playback of the song.

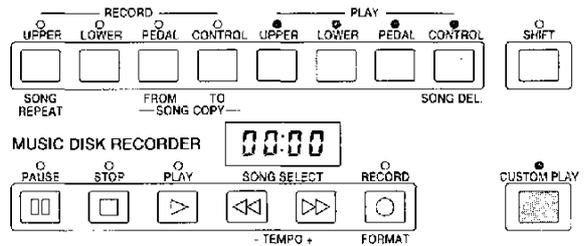


Playback will begin from the selected song and repeat indefinitely.
To stop playback, press the STOP button.

Other Functions

Custom Play

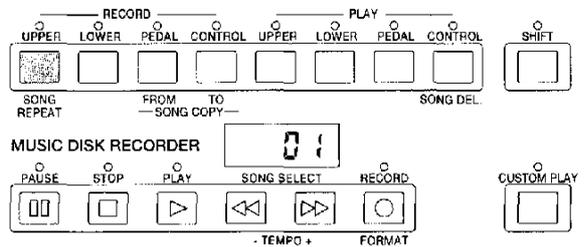
If you want to play back the song without resetting the registrations and other data, press the CUSTOM PLAY button (instead of the PLAY button). This displays the song time and starts playback immediately.



Note: If you hold down the SHIFT and CUSTOM PLAY buttons simultaneously, all data will be loaded and played, except for that of Rhythm Pattern Program, Rhythm Sequence, User Keyboard Percussion and User Voices. This method is quicker than that of pressing the PLAY button.

Read & Auto Increment

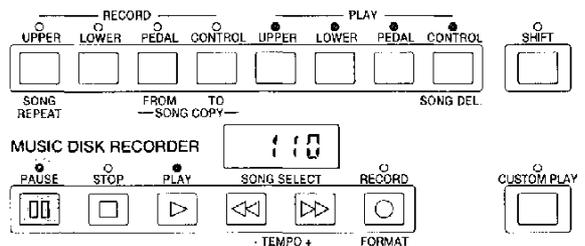
Another method for calling up only registration data, besides that mentioned in the note above, is to press the UPPER button in the RECORD section while the M.D.R. is in Stop status. This Read & Auto Increment function automatically calls up the registration data and selects the next song number.



Note: This function is not possible if the next song contains no registration data.

Pause

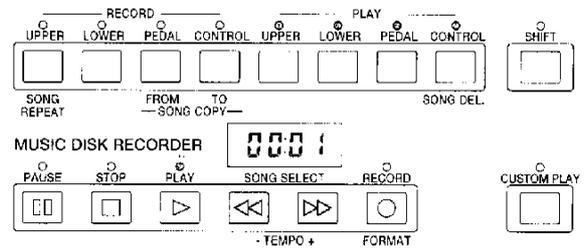
If you want to temporarily stop playback of the song or songs, press the PAUSE button. To resume playback from the point at which the song was paused, press the PAUSE button again.



Fast Forward and Fast Reverse

During playback, these buttons function as fast forward and fast reverse buttons, much like those of a tape recorder.

Press ►► to advance to a later point in the song or press ◀◀ to return to an earlier position. While either of these buttons is held down, playback stops and the song time is advanced or reversed accordingly. Hold down the button until the desired song time is shown. When the button is released, playback is paused. To resume playback from the point you've advanced or reversed to, press the PLAY button.



Note: Fast Forward and Fast Reverse operate at five times the normal playback speed.

Changing the Tempo

You can change the tempo of the song as the song is playing on the M.D.R. by holding down the SHIFT button and pressing the TEMPO + or TEMPO - button. (The Tempo dial on the Electone panel cannot be used to change the tempo on the Music Disk Recorder.)

Each press of the button slows down or speeds up the tempo by a small amount. Changing the tempo does not change the pitch of the music.



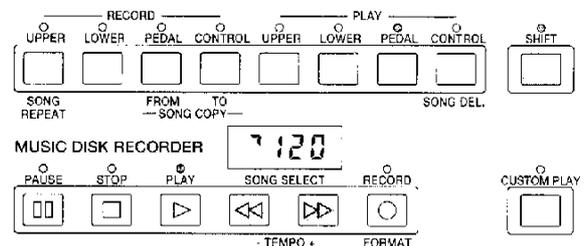
Indicates faster tempo



Indicates original tempo



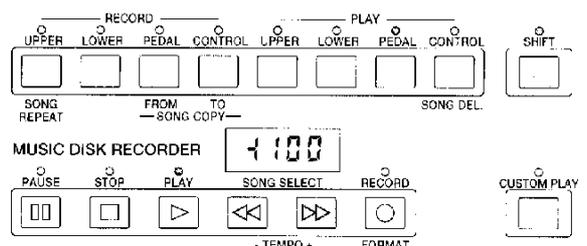
Indicates slower tempo



Note: When the tempo is changed, the M.D.R. display indicates the change as a percentage of the original recording tempo (100). Values less than 100 indicate a slower tempo; values greater than 100 indicate a faster tempo.

Note: Tempo changes remain in effect even through changes in song number. If you have changed the tempo in one song, you should perform the step below to restore the original tempo before playing another song. Turning the power switch off and on again also restores the original tempo.

To restore the original recording tempo of a song, hold down the SHIFT button and simultaneously press both TEMPO buttons.



Song Copy

This function lets you copy the data recorded at one song number to another song number.

To use the Song Copy function:

1. Select the song number to be copied with the SONG SELECT buttons.
2. While holding down the SHIFT button, press the SONG COPY FROM button.

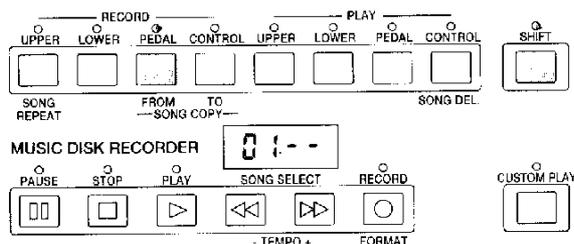
The song number to be copied from appears at the left of the M.D.R. display.

3. While holding down the SHIFT button, press the SONG COPY TO button.

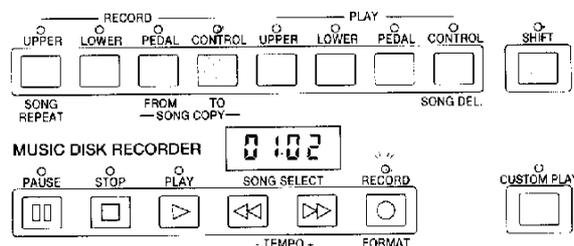
The M.D.R. automatically searches for an empty song number to copy the data to, and displays that number at the right side of the display. If all songs numbers contain recorded data, "FULL" appears on the M.D.R. display. In this case, you should erase one of the songs on the disk by using the Song Delete function (see next section).

4. Use the SONG SELECT buttons to select a destination song number for copying.

Follow this step if you wish to select a different destination song number than the one displayed. The M.D.R. will display only those song numbers that have no data.



Note: If the specified song number has no recorded data, the M.D.R. automatically searches for and selects the next song that contains recorded data.



Note: To cancel this operation at any time, press the STOP button.

5. Press the RECORD button to execute the Song Copy function.

The RECORD LED stops flashing and remains lit, indicating that the Song Copy function is in process. The M.D.R. display shows the "size" of the song in numbers, and counts down as the data is being copied. When the display shows "000," the song has been completely copied.

Song Delete

This function lets you erase a song on a disk.

To use Song Delete:

1. Use the SONG SELECT buttons to select the number of the song you wish to delete.

2. While holding down the SHIFT button, press the SONG DEL. button.

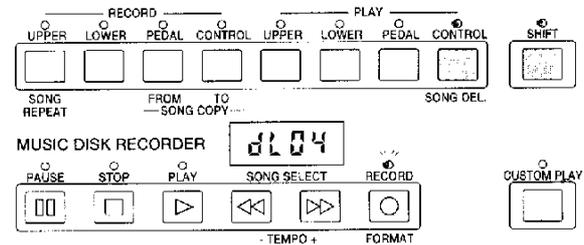
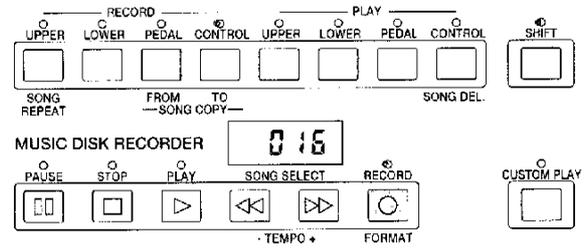
The letters "dL" appear on the left side of the M.D.R. display, next to the selected song number. If you wish to, you can still select a different song number in this step by using the SONG SELECT buttons.

3. Press the RECORD button to execute the Song Delete function.

The RECORD LED stops flashing and remains lit, indicating that the Song Delete function has begun. When the Song Delete function is completed, the STOP status is automatically resumed.

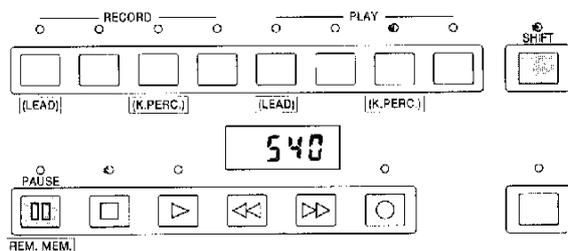
Checking the Remaining Memory

While playback is stopped, you can check the amount of memory available for additional recording. To do this, simultaneously hold down the SHIFT button and the PAUSE button (indicated in the illustration at right as REM.MEM.). The maximum amount of memory is 620 for 2DD disks or 1240 for 2HD disks.



RECORD LED flashes to indicate that the M.D.R. is ready to delete the song.

Note: If you want to cancel the operation (before executing step #3 below), press the STOP button.



Voice Disks

The M.D.R. also allows you to select voices from optional Voice disks. For more information about Voice Disks, see page 110.

Copy Protect

Some of the disks available for the Electone are purposely protected from being copied or erased. If you try to load data from such a copy-protected disk to the Electone, a "Protected Disk" (Pr##) message will appear on the M.D.R. display. The data cannot be saved to disk.

About Floppy Disk Care and Use

- **Do NOT eject the disk during recording or playback. Doing so may damage both the disk and the M.D.R.**
- **Do NOT turn off the Electone while the disk is still inserted. Always eject the disk before turning off the Electone.**

- **When ejecting a floppy disk from the disk slot:**
 - To eject a floppy disk, press the eject button slowly as far as it will go. Then, when the disk is fully ejected, remove it by hand.
 - The disk may not be ejected properly if the eject button is pressed too quickly, or if it is not pressed in far enough. (The eject button may become stuck halfway with the disk extending from the slot by only a few millimeters.) If this is the case, do not attempt to pull out the partially ejected disk. Doing so may damage the disk drive mechanism and/or the floppy disk. To remove a partially ejected disk, try pressing the eject button once again, or push the disk back into the slot, then repeat the eject procedure carefully.
 - Do not insert anything but floppy disks into the disk drive. Other objects may cause damage to the disk drive or floppy disk.

- **Disk Compatibility**
 - Use either double-sided double-density (2DD) or double-sided high-density (2HD) 3.5-inch microfloppy disks with the M.D.R.

- **Precautions on Floppy Disk Use**
 - Never open the disk's shutter. Dirt or dust on the internal magnetic surface will cause data errors.
 - Never leave disks near a speaker, TV or other device that emits a strong magnetic field.
 - Do not store disks in places exposed to direct sunlight or sources of high temperature.
 - Do not place heavy objects, such as books or notebooks, on top of the disks.
 - Avoid getting the disks wet.
 - Make sure to store the disks in environmental conditions as specified below:
 - Storage temperature: 4° to 53°C (39° to 127°F)
 - Storage humidity: 8 to 90% relative humidity
 - Location where disks are unlikely to be exposed to dust, sand, smoke, etc.
 - Be sure to apply the label at the proper position. When changing the label, never cover the old label with a new label; always remove the new label first.

Messages on the M.D.R. LED Display

Display	Description of the Messages
Inst	No disk is installed. Install a disk.
Formt	The installed disk is not formatted. Format the disk. (See page 85.)
Prot	1) The installed disk is write-protected, so the Record, Song Copy, and Song Delete operations cannot be performed. Set the disk's Write Protect tab to the OFF position. (See page 84.) 2) If you are using a copy-protected playback-only disk, this message may appear when you attempt the Record, Song Copy, and Song Delete operations.
FULL	1) The disk's memory capacity is full, so the Record or Song Copy operations cannot be performed. Install another formatted disk. 2) Data is already recorded at all song numbers, so the Song Copy operation cannot be performed. Press the STOP button, then delete any unnecessary songs.
Empty	None of the song numbers contain recorded data, so the Song Copy operation cannot be performed. Press the STOP button.
-out	An error occurred because the disk was removed during recording or playback. Replace the disk, press the STOP button, then start the operation over again.
disc	The installed disk cannot be played back on the M.D.R. Press the STOP button, then insert a compatible disk.
Lost	Recording cannot be performed because too much data was received at once. Press the STOP button.
bad	The disk is defective and cannot be formatted. Press the STOP button, then insert another disk.
Error	An error occurred during the transmission or reception of data. Press the STOP button.
0000	In the case of Voice Disk operation, an incompatible Voice Disk has been inserted.

8 Editing and Saving Voices

In addition to the versatile Flute Voices section, the ELX-1 has a Voice Edit feature that allows you to create your own voices.

The following short section will introduce you to the basics of voice editing by taking you step by step through a specific editing example.

As you follow the steps in this section, you may find many of the terms and parameter names to be unfamiliar. For the moment, simply follow the instructions and listen to the voice as you're changing it — you'll undoubtedly learn more about the various editing components by hearing what they do, rather than by reading about them. Once you go through these editing steps, however, we suggest that you read through the Voice Editing Basics section to get a firmer understanding of the principles behind voice editing.

Selecting a Voice and Editing Some of Its Parameters

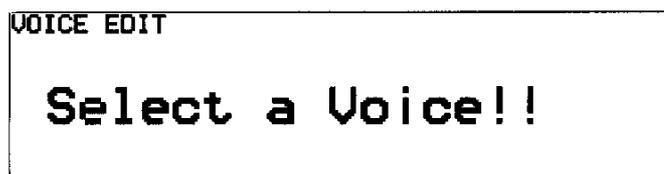
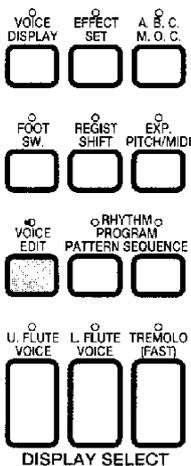
To select and set up a voice for editing:

1. Select the desired voice from the Voice Menus. (The volumes of the other voice groups should be muted.)
2. While holding down the VOICE EDIT button in the DISPLAY SELECT section, press the Voice button corresponding to the voice you wish to edit. For this example, select Piano 1 from the UPPER VOICES 1 section.

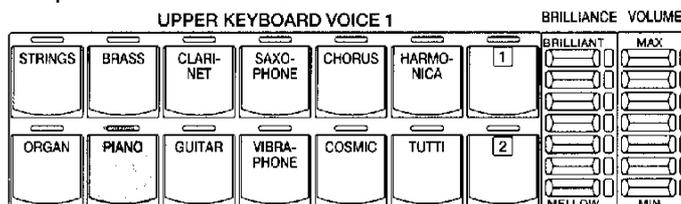
Note: Only panel voices and Voice Menu voices can be edited with the Voice Edit controls. Flute Voices have their own editing controls and cannot be edited here.

1. While holding down VOICE EDIT button...

If you press VOICE EDIT without selecting a voice, a "Select a Voice!!" message appears, prompting you to complete the operation.

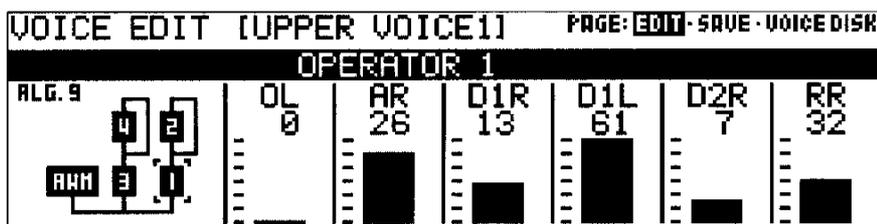


2. ...press desired Voice button.



After you have selected a voice — Piano 1, in this example) — the following LCD will appear:

Edit Page



Note: The currently selected Operator number is shown in the horizontal black bar in the display, and its Algorithm and Parameters appear just below it.

Algorithms and Operators

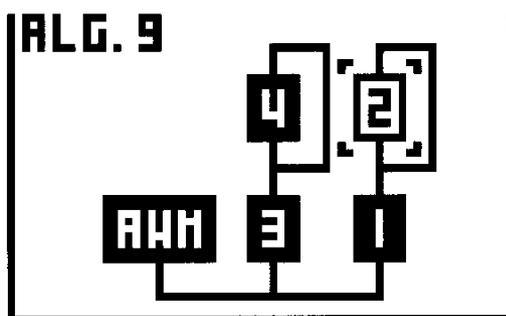
At the left side of the display is the algorithm used for this voice. An algorithm is a kind of "map" that shows how the sound components of the voice are related to each other. Each voice has nine separate sound components and they are called "operators." (There is one AWM operator and eight FM operators.)

3. Begin changing the sound by turning off all operators, except Operator 1.

To turn off each operator:

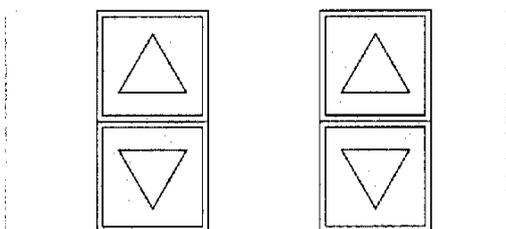
- 1.** First, use the pair of Data Control buttons just below the algorithm display (under box 1) to select an operator.
 - 2.** Then press one of the far left pair of Data Control buttons to turn the selected operator off.
 - 3.** Repeat the above process for all of the operators except Operator 1.
- As you turn off each operator, play the voice and listen to how the sound changes.

Reverse display (dark box) indicates that the operator is on; normal display indicates the operator is off.



Brackets ([]) indicate the selected operator.

These buttons turn the selected operator off.



These buttons select the operators in order.

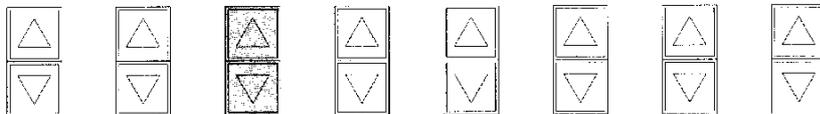
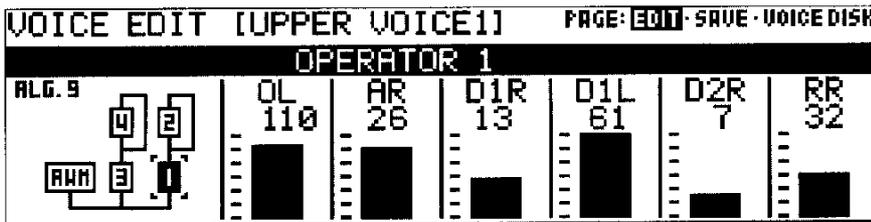
Operators 5 ~ 8 are not shown or directly selectable from the current display. To call them up, move the bracket ([]) to the AWM operator or past Operator 4. Operators 5 ~ 8, as well as AWM, can then be directly selected and edited.

To edit the FM operators of the selected voice:

1. Turn off the other Operators and adjust the envelope parameters of Operator 1.

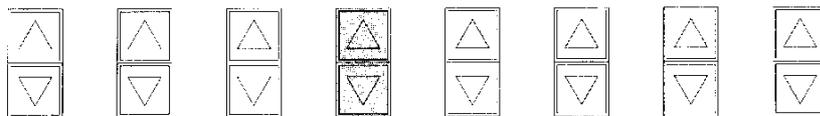
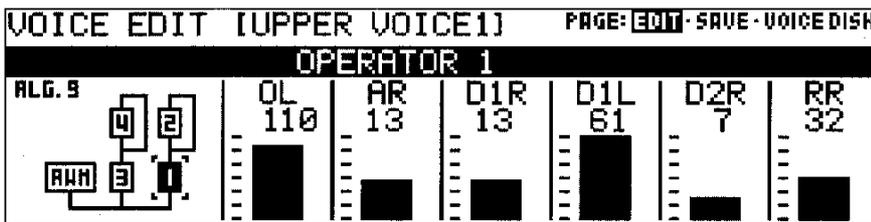
The envelope parameters control the level of the sound and how that level changes over time.

Adjust the OL (Output Level) parameter.



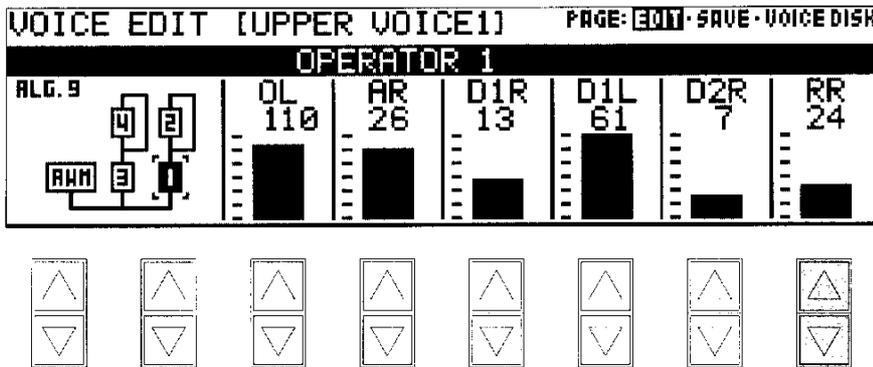
Play the voice and notice how the changes you make affect the volume. Higher settings make the volume of the operator louder. For this example, set the OL to 110.

Adjust the AR (Attack Rate) parameter.



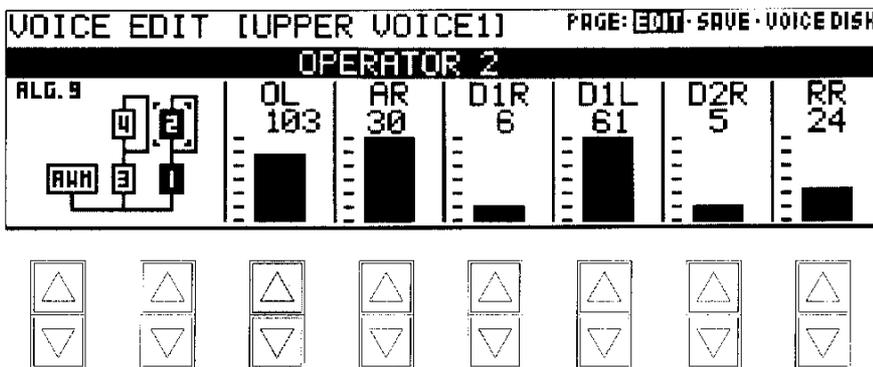
Play the voice and notice how the changes affect the initial volume of the voice. By changing this parameter you can make the sound gradually get louder or have it reach its full volume all at once.

Adjust the RR (Release Rate) parameter.



Play a note on the keyboard and then release it. Notice how the changes affect the tail end of the sound, just after you release the key. By changing this parameter, you can make the sound sustain beyond the release point.

2. Keeping Operator 1 on, select and turn on Operator 2, then adjust the operator level.



Use the Data Control buttons below OL (Output Level) to change the level of Operator 2. Notice that the volume of the sound doesn't change, but the tone does. Increasing the level of one of the top row operators generally makes the tone of the operator below it brighter or more metallic. Decreasing the level has the opposite effect.

3. Turn off Operators 1 and 2, and turn on Operators 3 and 4. Make some changes to their parameters, as you did with Operators 1 and 2. The relationship between Operators 3 and 4 is the same as that between Operators 1 and 2.

About the Operators

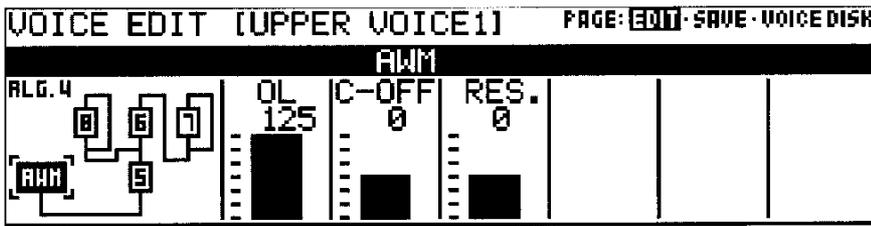
The operators in the top row of the algorithm (Operators 2 and 4) change the tone of each operator below them. The operators in the bottom row (Operators 1, 3 and AWM) change the volume.

Note: No sound will be produced nor will adjusting the top row operators have any effect if all of the bottom row operators have been turned off or set to their minimum level.

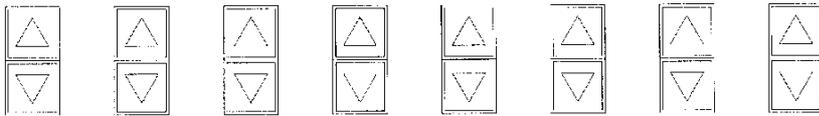
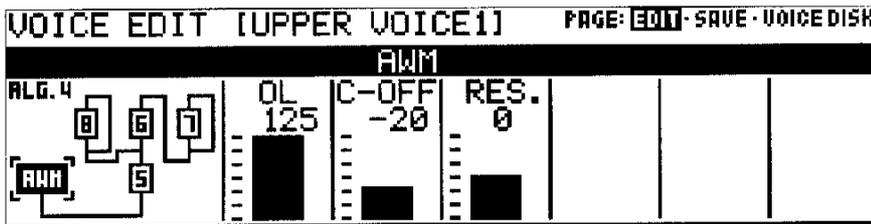
Editing the AWM Operator of the Selected Voice

Next, we'll make some changes in the sound of the AWM operator. The AWM operator is a specially recorded waveform with an actual instrumental sound, unlike the pure electronic sounds of the other operators. Before you actually change it, try listening to this sound on its own, with the other eight operators turned off. To do this:

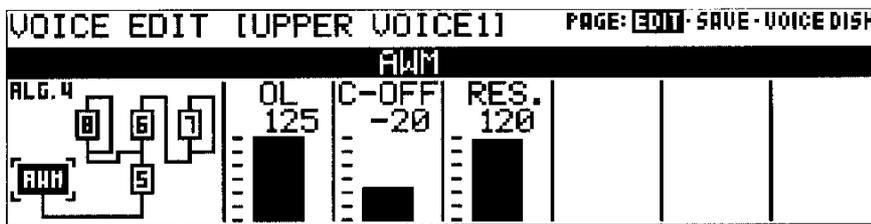
1. Turn off all of the operators, except for the AWM operator. The AWM operator has its own page with a different group of settings.



2. Adjust the C-OFF (Cutoff) parameter while you play the voice. Notice that the sound becomes brighter by increasing this parameter, and more mellow by decreasing it.

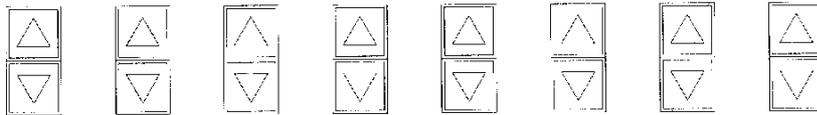
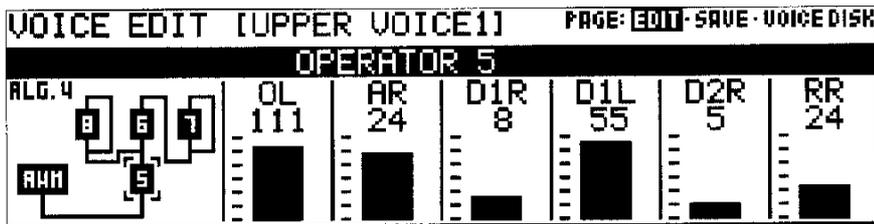


3. Now adjust the RES. (Resonance) parameter. The higher the value of this parameter, the more pronounced the sound will be.



Note: The Resonance effect depends on the level of the Cutoff. Generally, you should increase the Resonance parameter after decreasing the Cutoff.

4. Finally, turn all of the other operators back on and adjust each operator's level.



If you've followed all the above instructions carefully, the realistic AWM piano voice you started with has been transformed into a rich electric piano voice by adding an FM-generated piano sound.

Note: The operator on/off status as set from the algorithm window in the display is temporary and is not saved as part of the User voice data; any operators turned off in this way will be turned back on again when you recall the voice. To keep a specific operator off, set its Output Level to the minimum.

Note: If you wish to keep the newly created voice for future use, you can save it. See the following section for more information.

Note: Keep in mind that when you leave the Voice Edit function, any edits or changes made to the voice are lost and the original voice data is restored. (See page 109 for more information on leaving the Voice Edit function.)

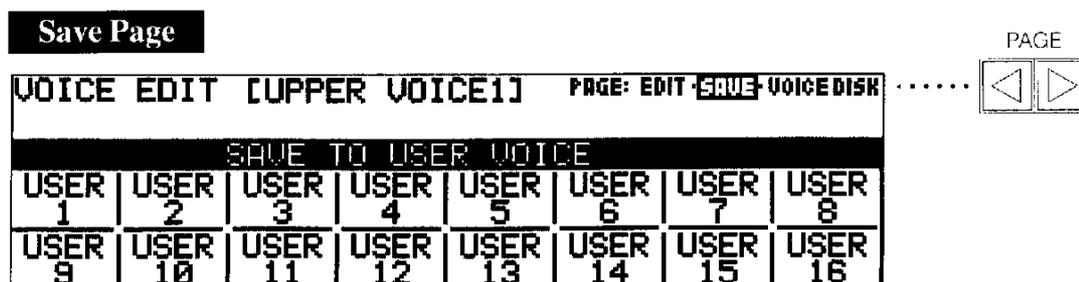
Saving the New Voice

Once you have created a sound you are satisfied with, you'll want to save that sound for future use.

To save an edited voice:

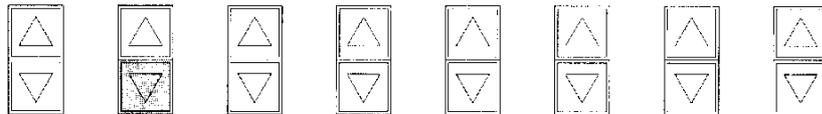
1. Use the PAGE buttons to select the SAVE page.

The following display appears:



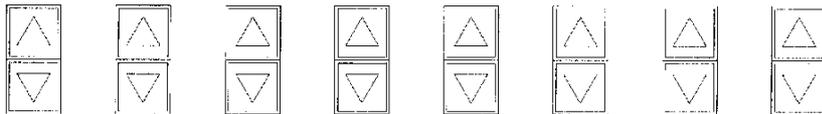
2. Press the Data Control button that corresponds to the User voice number you wish to save to.

VOICE EDIT [UPPER VOICE1] PAGE: EDIT SAVE VOICE DISK							
SAVE TO USER VOICE							
USER 1	USER 2	USER 3	USER 4	USER 5	USER 6	USER 7	USER 8
USER 9	USER 10	USER 11	USER 12	USER 13	USER 14	USER 15	USER 16



3. The following display appears, prompting confirmation of the operation. (Saving a new voice automatically erases the voice previously stored to the selected User number.)

VOICE EDIT PAGE: EDIT SAVE VOICE DISK							
SAVE TO USER VOICE							
USER 1	USER 2	Save To USER10 Are You Sure ?				USER 7	USER 8
USER 9	USER 10	[OK] [Cancel]				USER 15	USER 16



Press any of the Data Control buttons below "OK" to save the voice, or press any of the buttons below "Cancel" to abort the operation.

When the voice has been saved, the following display momentarily appears:

VOICE EDIT [UPPER VOICE1] PAGE: EDIT SAVE VOICE DISK							
SAVE TO USER VOICE							
USER 1	USER 2	Save To USER10 Completed...!!				USER 7	USER 8
USER 9	USER 10	11	12	13	14	USER 15	USER 16

Note: This operation automatically erases any voice that had been previously saved to the selected User voice number. You should check the User voices before loading a voice to make sure that you will not be erasing any important voices.

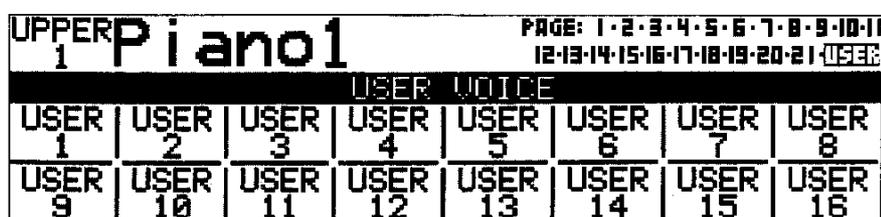
Recalling User Voices

The User voices you have saved in the Save page can be selected from the last page (User) of the dotted buttons' Voice Menu (see page 34).

To select User voices:

1. Press one of the dotted buttons in the voice section from which you wish to play the User voice.

2. Use the PAGE buttons to select the USER page.



3. Press the Data Control button corresponding to the User voice you wish to use. (This USER page shows the same voice numbers as the SAVE page.)

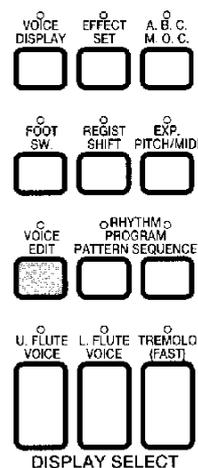
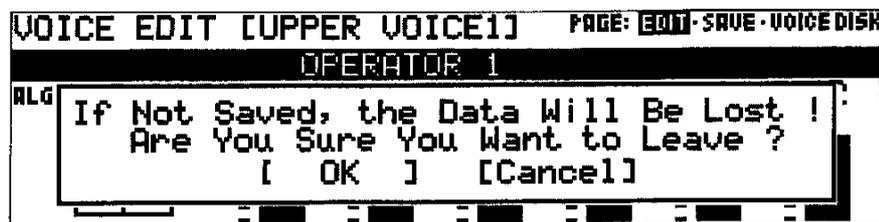
Leaving the Voice Edit Function

You can exit the Voice Edit function from any of its display pages.

To leave the Voice Edit function:

1. Press the VOICE EDIT button in the DISPLAY SELECT section once again.

2. The following display will appear, prompting confirmation of the operation.



Select [OK] to leave the Voice Edit function, or [Cancel] to abort the operation and return to the previous display.

Selecting Voices from a Voice Disk (Optional)

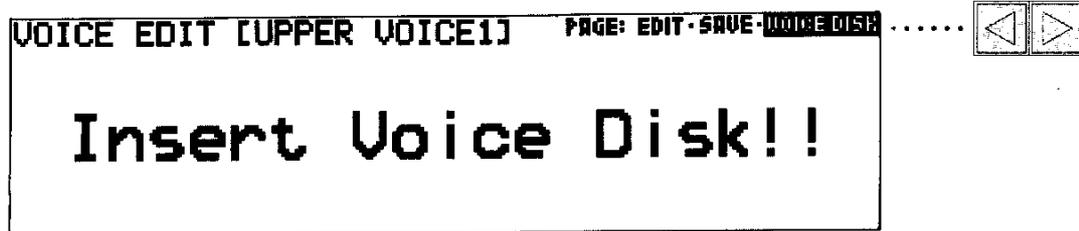
You can also load voices from optional Voice Disks for the EL-90 to the 16 User voices in the Voice Menu.

To select Voice Disk voices:

1. Hold down the VOICE EDIT button in the DISPLAY SELECT section and simultaneously press any one of the voice buttons.

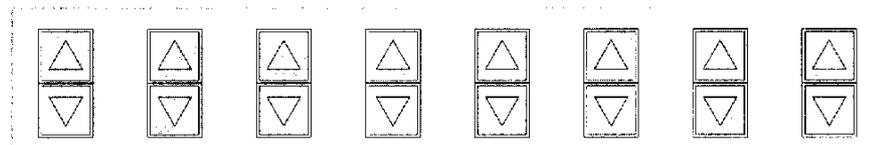
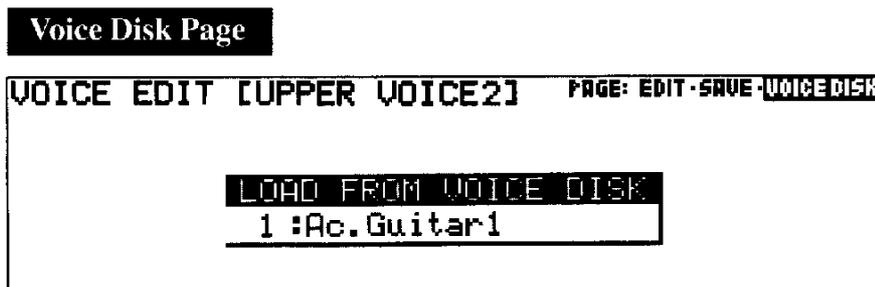
Note: Make sure that the volumes of all other voices are set to off (the minimum value).

2. Select the VOICE DISK page with the PAGE buttons.
The following message will appear:



3. Insert the Voice Disk into the disk slot under the Music Disk Recorder.

The voice number and its name appears:

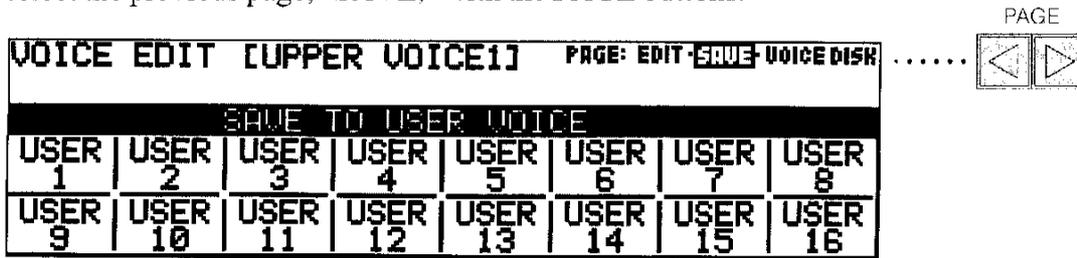


Pressing these buttons steps through the voice numbers; the name of each voice appears on the display as well. Refer to the list included with your Voice Disk for voice names and numbers.

4. Using any of the Data Control button pairs, select the voice you wish to load.

5. Play the keyboard to check the sound of the voice. Select other voices (as you did in step #4 above) and check those sounds as well.

6. If you want to save the current voice to a User Voice space, select the previous page, "SAVE," with the PAGE buttons.



7. Press the Data Control button that corresponds to the User Voice number you wish to save to.

A message appears in the display prompting confirmation of the operation.

Press one of the four Data Control buttons below [OK] in the display to save the voice, or one of the four buttons below [Cancel] to abort the operation and return to the previous display.

When the voice has been saved, a "Completed" message appears.

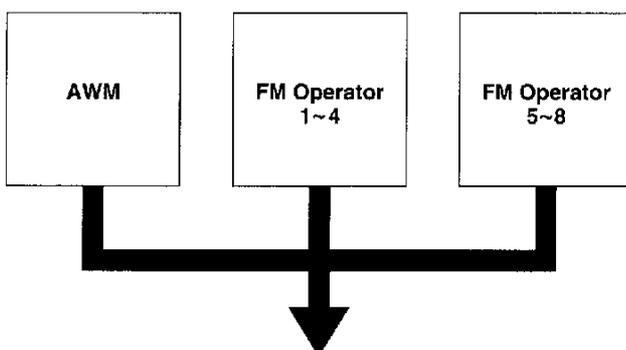
Voice Editing Basics

The ELX-1 Electone uses a versatile tone generation system developed by Yamaha that is capable of producing an exceptionally wide range of voices. More specifically, the system uses individual sound sources that "modulate" each other's frequencies and thus create complex sounds not possible by the ordinary mixing of those sound sources.

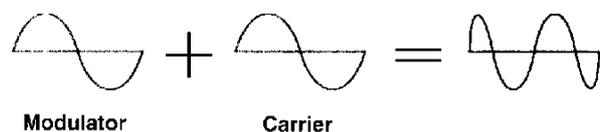
Operators

Along with the sophisticated AWM operator that functions as the backbone of the Electone's authentic voices, the tone generation system features FM operators. The FM operator is a sound generator that produces one very simple type of sound: a pure sine wave. A sine wave by itself is not very interesting to listen to; however, when one sine wave is used to modulate a second sine wave, together they result in a new, complex waveform.

Structure of the Sound System



FM Operator

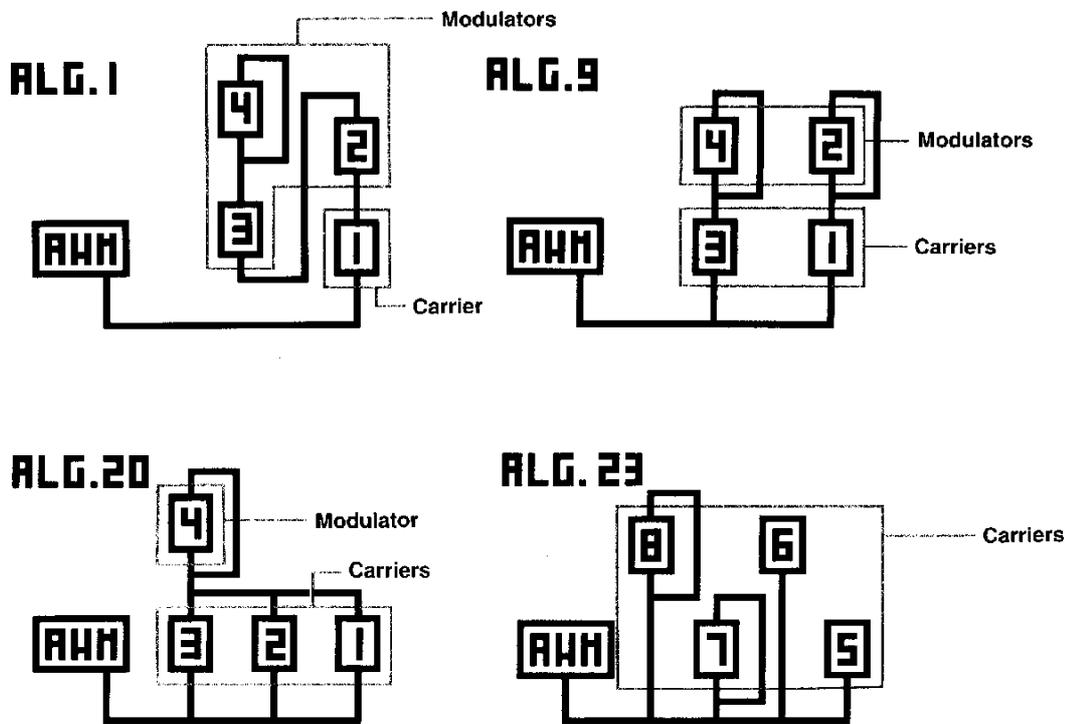


Modulators, Carriers and Algorithms

The top operator, which sends the modulation signal is, not surprisingly, called the modulator. The bottom operator, which receives or "carries" the modulated sine wave and outputs the resulting sound, is called the carrier. The complexity or brightness of the sound depends on the output level of the modulator.

This kind of arrangement in which operators are "stacked" together is called an algorithm. With eight sine wave operators available for stacking, the various algorithms can produce a wide variety of sounds.

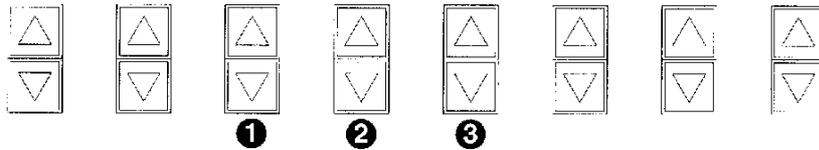
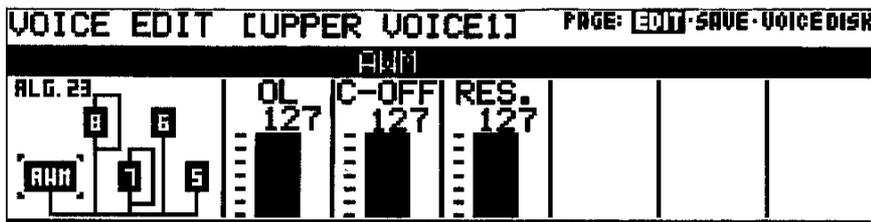
Example Voice Algorithms



AWM Operators

Each algorithm also has a special AWM (Advanced Wave Memory) operator. AWM operators are not sine waves like the other operators, but are digital recordings of actual instrument sounds, such as piano, violin, guitar, and so on. The AWM operator's sound is mixed with the sounds of the other operators in the algorithm to create realistic voices.

AWM Operator



① OL (Output Level)

Determines the level of the AWM sound. Range: 0 ~ 127

② C-OFF (Cutoff)

Determines the cutoff frequency point of the filter.

Range: -128 ~ +127

About the Filters

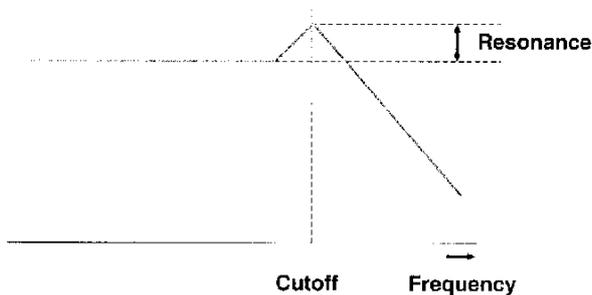
The sound of the AWM operator is processed through one of three different filter types: 1) a high-pass filter, which filters out frequencies below a certain point; 2) a low-pass filter, which filters out frequencies above a certain point; and 3) a band-pass filter, which filters out frequencies both above and below a certain point. The type of filter and the cutoff point differ depending on the voice selected.

③ RES. (Resonance)

Determines the emphasis given to the cutoff frequency, set in Cutoff above. (See diagram below.) Range: -128 ~ +127

Note: Too high of a Resonance setting may result in undesirable noise or in no sound at all.

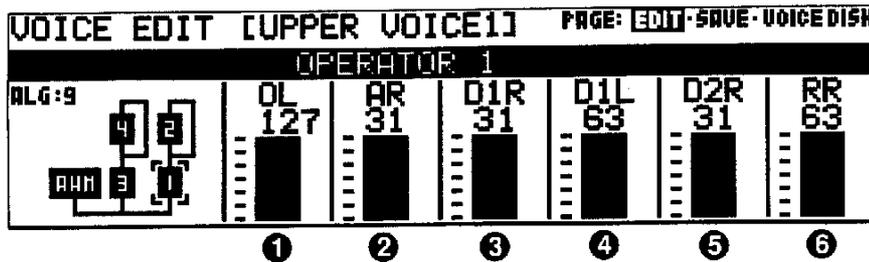
Cutoff and Resonance



Example of low pass filter operation, with a positive Resonance setting.

FM Operators

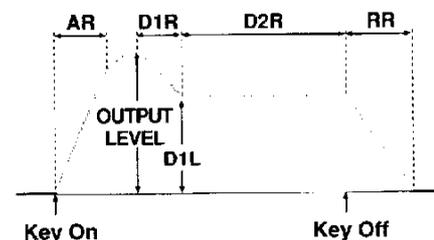
The FM Operators are the sine wave operators of the algorithm. When one of these operators has been selected, the following parameters are displayed:



- 1 OL (Output Level)**
Determines the level of the selected operator's sound. Range: 0 ~ 127
- 2 AR (Attack Rate)**
Determines how quickly the operator will reach its maximum level after the key is played. Lower values produce a slower attack.
Range: 0 ~ 31
- 3 D1R (Decay 1 Rate)**
Determines how much time it takes for the operator to reach its second level, set in the Decay 1 Level parameter. Range: 0 ~ 31
- 4 D1L (Decay 1 Level)**
Determines the second level setting of the operator. When set to values of less than 63, the maximum level "decays" or decreases to this point, according to the rate set in the Decay 1 Rate parameter.
Range: 0 ~ 63
- 5 D2R (Decay 2 Rate)**
Determines how much time it takes for the operator to reach its third level, or the minimum level before the key is released. Range: 0 ~ 31
- 6 RR (Release Rate)**
Determines how much time it takes for the level to reach 0 after the key is released. Range: 0 ~ 63

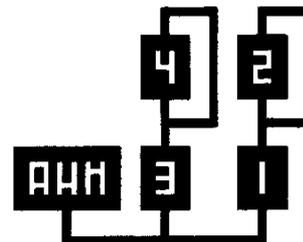
About the Envelope Parameters

By using the modulators and setting them to various output levels, you can create all kinds of sounds. These sounds will be static, however, unless you can have the output levels change in time. That is precisely what an envelope does. It varies the output of an operator in time so that you can vary the tone or the level. If the output of the modulator changes, the tone will change. If the output level of the carrier changes, the volume will change.



About Feedback

The output of a modulator can also be circled back to its input, allowing it to modulate itself as well as the operator below it. This is called feedback, and it adds harmonic complexity to the tone. Operators using feedback are indicated by a line that encircles the right side of the operator. Feedback cannot be directly controlled; however, you can adjust the parameters of operators that have feedback to change the characteristics of the feedback sound.



General Guidelines for Editing Operators

Before you edit a voice, always check its algorithm to see which operators function as carriers and which as modulators. Then select each operator in turn and edit its parameters. The Output Level and Envelope parameters function differently depending on whether they belong to a carrier or a modulator. The following chart illustrates the relationships between the operators and parameters:

To change the overall volume:	Select a carrier, then change its Output Level parameters.
To change the overall tone:	Select a modulator, then change its Output Level parameters.
To change how the volume varies over time:	Select a carrier, then change its Envelope parameters.
To change how the tone varies over time:	Select a modulator, then change its Envelope parameters.

Note: See page 161 for more information on the FM operators.

Some Voice Editing Examples

The following examples illustrate some specific uses of the Voice Edit controls. Make the changes as described in the examples, then go on to explore some other voices on your own, making changes as you like.

Ex. 1: Emphasizing the attack of the BANJO voice

This voice is composed mainly of the AWM sampled sound, with the other operators providing the noise attack sound, simulating the picking of the string.

Try changing the sound of the attack by increasing the Output Level (OL) of Operator 1.

Ex. 2: Adding "bite" to the JAZZ ORGAN 1 voice (ORGAN Voice Menu)

Operator 1 provides the 16' footage sound, Operator 2 the 8', and Operator 3 the 5 1/3'.

You can make the sound warmer by decreasing the Output Level of Operator 2. Increasing the Output Level of Operator 3 makes for a rougher edge or more "bite" in the organ sound.

Ex. 3: Adding a piccolo sound to the GLOCKEN. voice

This example shows how the AWM Operator can be used to add another instrument sound to an existing voice. The glockenspiel sound is provided by the FM Operators.

In this case, a piccolo sound has been specially programmed with the AWM Operator, but cannot be heard since the output has been set to 0. By increasing the Output Level of the AWM Operator, the piccolo sound is added to the glockenspiel voice.

Ex. 4: Creating a comical muted trumpet sound

The Trumpet 5 voice is composed entirely of the FM Operators. To create a comical trumpet sound, set the Output Levels of Operators 1 and 3 to the minimum level, and that of the AWM Operator to the maximum.

Ex. 5: Changing the JAZZ ORGAN 1 voice to a tap dancing sound

By setting the Output Levels of all FM Operators to 0, and the Output and Resonance of AWM to the maximum level, the original organ voice can be completely changed to a simulated tap-dance sound.

Ex. 6: Creating a "sci-fi" sound effect from the TIMPANI ROLL voice

By adjusting the C-OFF parameter of the AWM Operator to -20 and the Resonance to the maximum level, the original timpani voice can be changed to a special "sci-fi" sound effect.

The Electone also includes powerful Rhythm Program functions: the Rhythm Pattern Program and the Rhythm Sequence Program. The Rhythm Pattern Program allows you to record your own original rhythm patterns using a total of 115 high-quality percussion sounds. The Rhythm Sequence Program lets you connect your original rhythm patterns together with the Preset rhythm patterns to create complete rhythm tracks, which you can automatically play back during your performance.

Outline of Rhythm Programming Operation

The following is a brief outline of the steps necessary in programming your own rhythm patterns and rhythm sequences. Once you work through the detailed instructions in the following sections and learn how to operate the Rhythm Program functions, you can use this outline as a guide or reminder.

- 1) Press the **PATTERN** button to call up the Rhythm Pattern Program and select the **BEAT/QUANTIZE** page.
- 2) Make **Beat, Quantize, and Metronome** settings
- 3) Select the **EDIT** page to record percussion sounds and program the pattern.
- 4) (Optional) Select the **ACC. (Accompaniment)** page to determine which accompaniment pattern will be used with your newly created rhythm.
- 5) Save your new rhythm pattern to a User location in the **SAVE** page.
- 6) Press the **RHYTHM SEQUENCE** button to call up the Rhythm Sequence Program for connecting rhythm patterns together in sequence to create songs.
- 7) Program your own rhythm sequences in the **Sequence** buttons.
- 8) (Optional) Finally, save all the User rhythm data you've created in the above steps to disk.

**Rhythm Pattern
Program**

**Rhythm Sequence
Program**

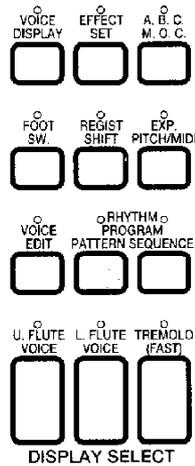
Rhythm Pattern Program

The Rhythm Pattern Program works with the Keyboard Percussion feature to let you use any of 115 different percussion sounds in creating your own rhythm patterns. Up to 16 separate rhythm "tracks" are provided in a single pattern for each instrument part, and up to 40 patterns — eight User numbers, each with five variations — can be memorized.

Calling up the Rhythm Pattern Program Function

To call up the Rhythm Pattern Program function:

1. Press and hold down the PATTERN button in the DISPLAY SELECT section. The LED of the button lights and the display prompts you to select a rhythm pattern.



Note: Pressing the PATTERN button here also automatically stops the rhythm patterns and rhythm sequences.

Note: Use of the playback and recording functions on the Music Disk Recorder automatically cancels the Rhythm Programming/Rhythm Sequencing operations.

PATTERN

Select a Rhythm!!

Creating a Rhythm Pattern from a Copied Pattern

2. While holding down the PATTERN button, select a preset rhythm pattern to be copied to the Rhythm Pattern Program. Copying a preset rhythm lets you make changes to an existing rhythm pattern, saving you time if you want to program a rhythm that is similar to an existing preset pattern. Two measures of the selected rhythm pattern will be copied to the Rhythm Pattern Program.

Note: The User rhythms you have created can also be copied (in the manner described at left) for further editing.

Copying a Pattern from the Rhythm Menus

You can also copy a specific rhythm pattern from among the choices in a Rhythm Menu. To do this, press the desired panel Rhythm button, then select the desired pattern with the Data Control buttons — BEFORE calling up the Rhythm Pattern Program and performing steps #1 and #2 above. The specified rhythm will be copied once you execute steps #1 and #2. (The same procedure can be used with the FILL IN and INTRO.ENDING buttons for copying Fill In and Ending patterns.)

Creating an Original Rhythm Pattern from Scratch

Releasing the PATTERN button without selecting a rhythm loads a blank pattern to the Rhythm Pattern Program, so that you can create your own pattern from scratch.

Note: When preset rhythm patterns are copied to the Rhythm Pattern Program, the copied patterns may differ in volume from the original patterns.

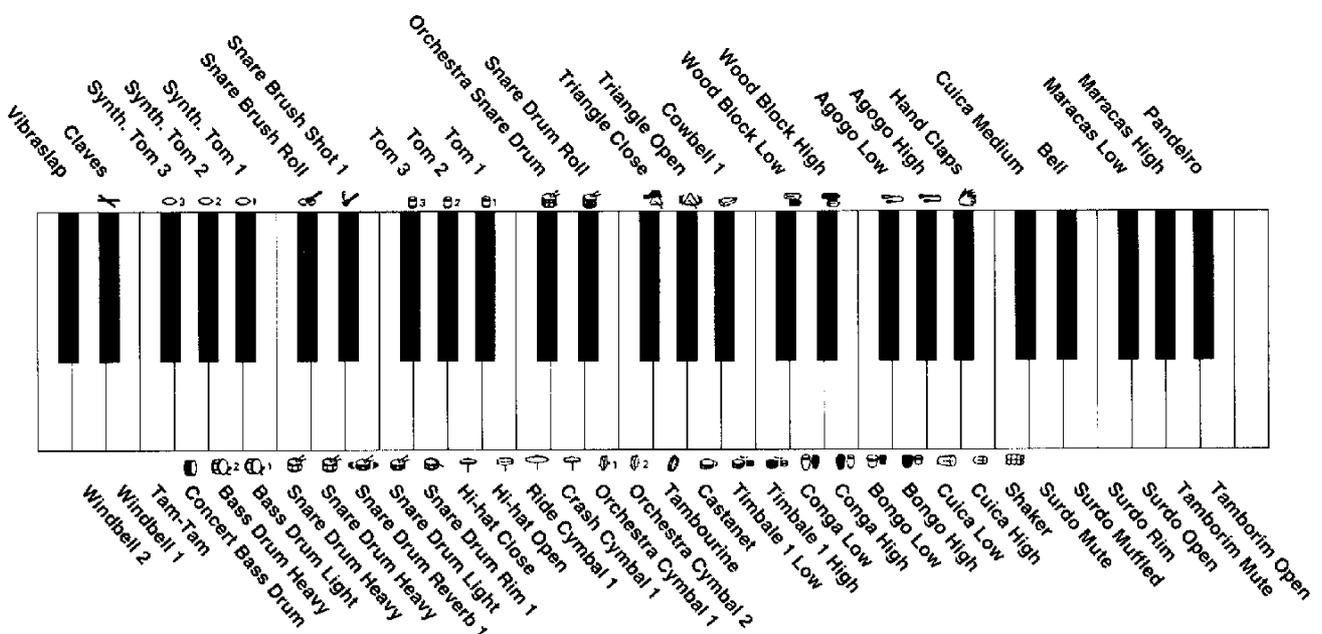
Rhythm Pattern Program Percussion Sounds — Upper and Lower Keyboards

The Rhythm Pattern Program has a total of 115 different percussion sounds that are assigned to the keys of the Upper and Lower keyboards, as shown in the following chart.

Percussion Sounds Assigned to the Upper Keyboard



Percussion Sounds Assigned to the Lower Keyboard



Step Write and Real Time Write Operation

There are two different methods you can use to program rhythm patterns: Step Write and Real Time Write.

Step Write allows you to enter percussion sounds as individual note values. As a method, it is very similar to writing down the notes on a sheet of music paper; each note is entered one at a time, and though you can hear each individual note entered, you cannot actually hear the pattern playing as you create it.

Real Time Write on the other hand, is similar to using a multitrack tape recorder; you can hear previously recorded parts of the pattern as you record new parts on top.

Each method has its own advantages and uses. Step Write is good for precision and for entering percussion sounds whose note placement and rhythmic value has been determined, such as a bass drum that plays every beat in a measure. Real Time Write is best for capturing the "feel" of a rhythm, because it allows you to actually play the pattern as you are creating it.

Which method you use depends partly on the type of rhythm you intend to create and partly on your own personal preference. You can even switch between the two methods in editing to create a single rhythm pattern by the use of both methods. This would come in handy, for example, in programming the basic beats of a rhythm with Step Write, then using Real Time Write to add percussion accents and embellishments.

Selecting Step Write or Real Time Write Operation

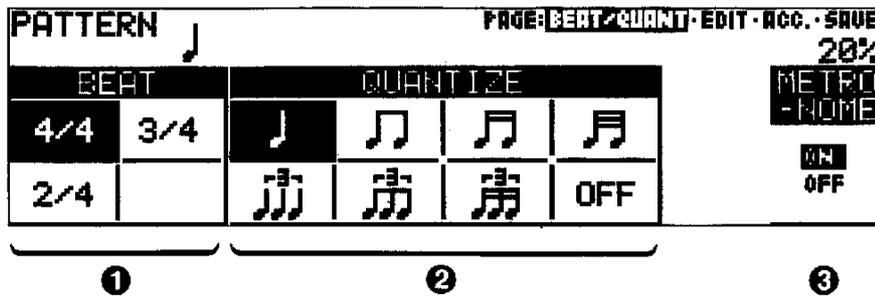
Step Write and Real Time Write can be selected from either the Beat/Quantize page or the Edit page.

The mode of operation that is selected depends on the play status of the rhythm pattern. If the rhythm is stopped, Step Write is automatically selected. If the rhythm is playing, Real Time Write is selected.

Simply press the START button in the Rhythm section on the panel to start or stop the rhythm pattern and switch between the two modes.

Using the Beat/Quantize Page

The Beat/Quantize page is automatically displayed when calling up the Rhythm Pattern Program. Though the Step Write operation is described first, the instructions given here apply to both Step Write and Real Time Write for selecting the basic timing settings of the pattern.

Beat/Quantize Page — Step Write**1 BEAT**

Determines the time signature used for the rhythm pattern. Available time signatures are 2/4, 3/4 and 4/4. The default setting is 4/4.

2 QUANTIZE

Determines the resolution value.

Quantize values are shown in the LCD as note values and represent fractions of a measure; thus, the eighth note (♪) means that there will be eight points or divisions in the measure. The default setting is a quarter note.

3 METRONOME

Turns the metronome click on or off. When set to ON, the metronome sounds on each beat of the measure to serve as a rhythmic guide when programming patterns.

Note: Beat can only be changed in Real Time Write when the rhythm pattern is stopped.

Note: The metronome can be turned on or off while a rhythm pattern is playing. The metronome is automatically set to ON when a blank pattern has been selected, and is set to OFF when an existing pattern is copied.

Beat/Quantize Page — Real Time Write

Note: Used with Real Time Write, Quantize allows you to automatically "correct" the timing of notes you enter, according to the specified Quantize resolution.

Entering Percussion Sounds to a Rhythm Pattern

Percussion sounds can be entered by either Step Write or Real Time Write from the Edit page. (Sounds can also be entered in the Beat/Quantize page by Real Time Write.) As with the Beat/Quantize page above, the Step Write version of the Edit page is selected when the rhythm pattern is stopped, and Real Time Write is selected when the pattern is running.

Editing with Step Write

To enter sounds with Step Write:

1. First, turn off all of the voices and set the rhythm volume to an appropriate level.
2. Select the EDIT page with the PAGE buttons.

3. Select the percussion sound you wish to enter.

There are two ways to select percussion sounds in the Step Write mode:

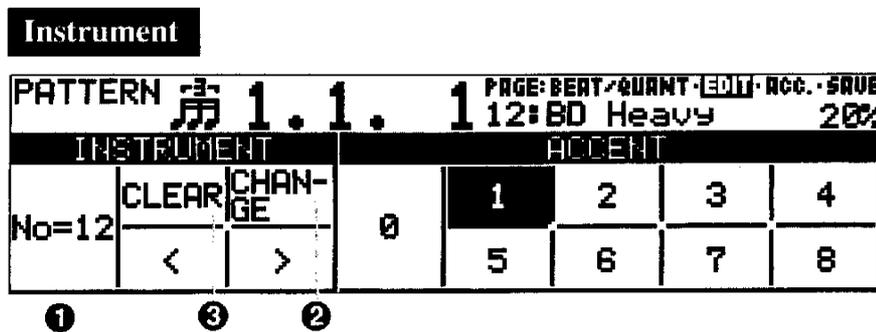
[1]

Press the key on the Upper or Lower keyboard that corresponds to the sound. The instrument name automatically appears at the top right of the LCD when the key is pressed. The selected instrument is automatically assigned to an available empty rhythm track.

or

[2]

Use the leftmost Data Control buttons under the instrument number to step through the available sixteen rhythm tracks. The name of the instrument currently assigned to the selected track is displayed at the top right of the LCD. (Since this method allows you to select only from among the assigned instruments, use the Change function described with the LCD below to change instrument assignments.)



① Rhythm Track

Selects from among the sixteen rhythm tracks and displays the instrument number currently assigned to the track.

② CHANGE

To change the instrument assigned to any given track:

1. Select the track using the Rhythm Track control.
2. Simultaneously hold down the Data Control button corresponding to CHANGE and press the key on the Upper or Lower keyboard that corresponds to the instrument.

③ CLEAR

The Clear function is used to erase an instrument from the rhythm pattern. All instances of the selected instrument, irrespective of which tracks they occupy, will be erased from the pattern.

There are two ways to use Clear:

[1]

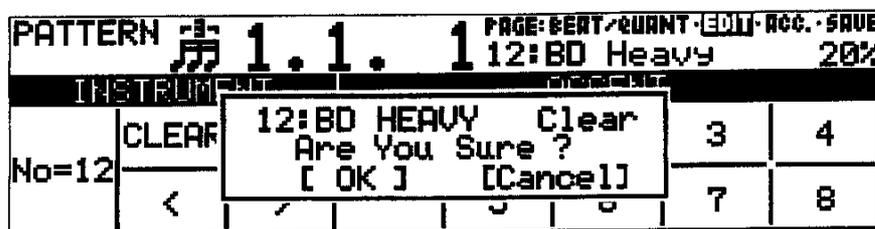
While holding down the Data Control button corresponding to CLEAR, press the key on the keyboard corresponding to the instrument you wish to erase. (A short "beep" sound indicates that the instrument has been erased.)

To erase all sound on all recorded tracks of the pattern:

Hold down the Data Control button corresponding to CLEAR and simultaneously press the lowest key (C1) on the Lower keyboard. Be careful not to do this inadvertently since all sounds will be instantly and permanently erased.

[2]

Press, then release the Data Control button corresponding to CLEAR. The following display appears, prompting confirmation of the operation:

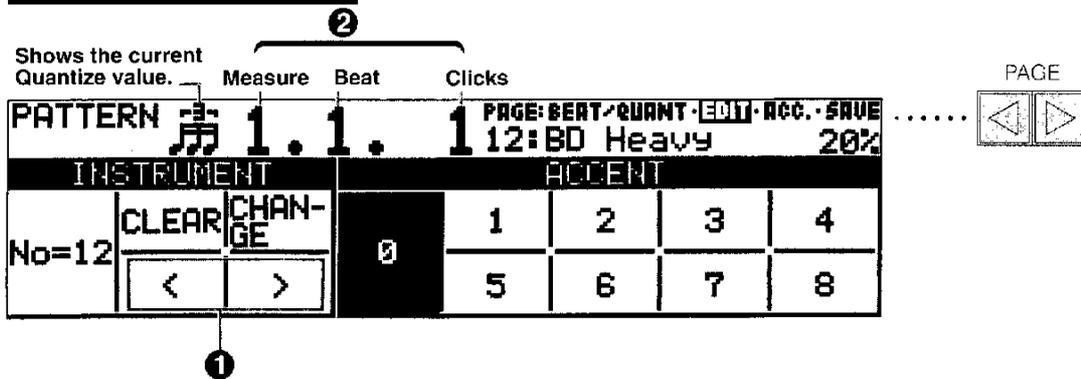


Select OK with any of these buttons to clear all data. A "completed" message momentarily appears on the LCD.

Select Cancel with any of these buttons to abort the operation and return to the original Edit display.

4. Use the step forward (>) and step reverse (<) controls to advance or reverse the rhythm clock to the point at which you wish to enter the percussion sound.

Edit Page — Step Write



1 Step Forward (>) and Step Reverse (<) Controls

Each press of the corresponding Data Control buttons advances or reverses the rhythm clock by one step. The size of a single step is determined by the Quantize value, set in the Beat/Quantize page.

2 Rhythm Clock

Displays the current position in the pattern, according to the measure, beat, and number of clicks. A click is the smallest division of a pattern, and one beat is made up of 24 clicks.

Note: You can return to the Beat/Quantize page in the middle of editing and change the time signature and/or the Quantize value.

5. Use the Accent section of the Edit page to enter the sound to the selected point.



ACCENT

Records the instrument and determines its volume or Accent level. Press the Data Control button that corresponds to the Accent level you wish to set; the instrument is automatically inserted at that Accent level to the selected position in the pattern (shown in the rhythm clock). Selection of an Accent level automatically advances the rhythm clock by one step, according to the current Quantize resolution value.

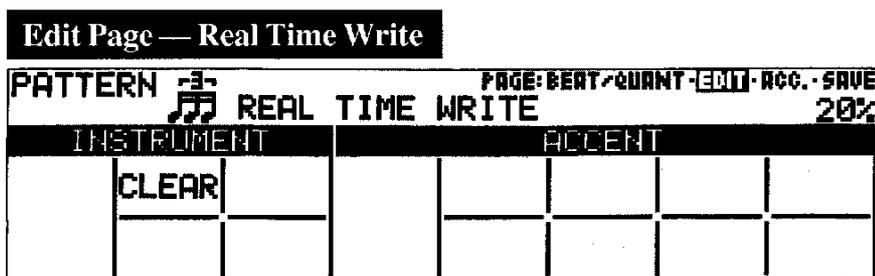
Note: You can record up to sixteen different instrument sounds in a single rhythm pattern, with each instrument occupying one of the sixteen available tracks. The Rhythm Pattern Program has polyphonic capacity for playing up to 16 sounds simultaneously. Instruments can only be entered if there are empty tracks remaining. If all sixteen tracks have been used, no subsequently selected instruments can be heard or recorded.

6. Repeat the operation entering different percussion sounds as desired and complete the rhythm pattern.

Editing with Real Time Write

To enter sounds with Real Time Write:

1. First, turn off all of the voices and set the rhythm volume to an appropriate level.
2. Select the BEAT/QUANTIZE page or EDIT page with the PAGE buttons, then start the rhythm pattern by pressing the START button.



Only the Instrument Clear function is displayed and available in the EDIT page for Real Time Write.

● CLEAR

As in Step Write, the Clear function is used to erase an instrument from the rhythm pattern. However, the method of operation is slightly different:

Hold down the Data Control button that corresponds to CLEAR in the display, and simultaneously press the key on the keyboard corresponding to the instrument you wish to erase. All instances of the selected instrument, irrespective of which tracks they occupy, will be erased from the pattern.

To erase all sounds on all recorded tracks of the pattern:

Select CLEAR and press the lowest key (C1) on the Lower keyboard. Be careful not to do this inadvertently since all sounds will be instantly and permanently erased.

3. While the rhythm pattern is running, play the percussion sounds from the Upper and/or Lower keyboards.

Listen to the metronome click as you play the sounds, using it as a guide to keep in time and tempo. The pattern will automatically repeat (or "loop") every two measures.

Each instrument sound is recorded and automatically assigned to a separate track as you play it.

Note: All of the instrument and track recording limitations described in Step Write apply to Real Time Write as well. Instruments played when all 16 tracks have been used cannot be entered or heard.

4. When you've finished entering instruments to the pattern, stop it by pressing the START button again, or by selecting the ACC. (Accompaniment) or SAVE pages.

Selecting Accompaniment Patterns

This function of the Rhythm Pattern Program allows you to use one of the Electone's Accompaniment patterns with your original rhythm pattern. You can select the Accompaniment pattern that best matches the rhythm pattern that you have created.

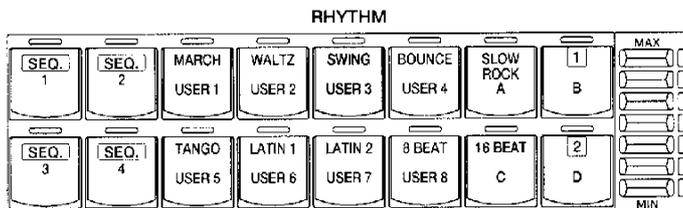
To select an appropriate Accompaniment pattern for your newly created rhythm pattern:

1. Select the ACC. (Accompaniment) page with the PAGE buttons.

PATTERN						PAGE: BEAT/QUANT · EDIT · ACC · SAVE	
MARCH						ACCOMPANI.	
March 1	March 2	March 3	Polka 1	Polka 2		TYPE 1	TYPE 2
Coun- try1	Coun- try2	Broad- way	Baro- que			TYPE 3	TYPE 4

PAGE
◀ ▶

2. Press the button corresponding to the desired rhythm type in the Rhythm section on the panel.



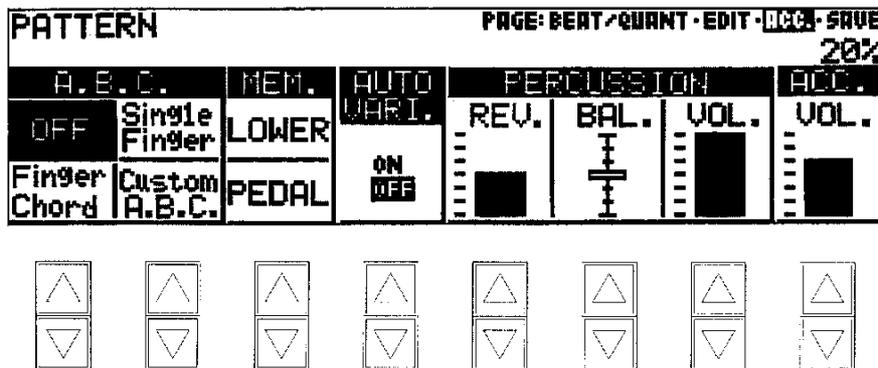
Note: If a rhythm pattern is started in the ACC. page, the Accompaniment will also be heard. However, both the rhythm pattern and the Accompaniment will automatically be stopped when you leave the page.

3. The Rhythm Menu for the rhythm you selected in step #2 above will appear in the LCD. Select the desired rhythm pattern from the menu with the Data Control buttons.

The selected rhythm's accompaniment is automatically loaded to your newly created rhythm.

PATTERN						PAGE: BEAT/QUANT · EDIT · ACC · SAVE	
SWING						ACCOMPANI.	
Swing 1	Swing 2	Swing 3	Swing 4	Swing 5	Swing 6	TYPE 1	TYPE 2
Jazz Ballad	Dixie- land1	Dixie- land2				TYPE 3	TYPE 4

4. You can also call up the Rhythm Condition page from the above display and set the Accompaniment volume.

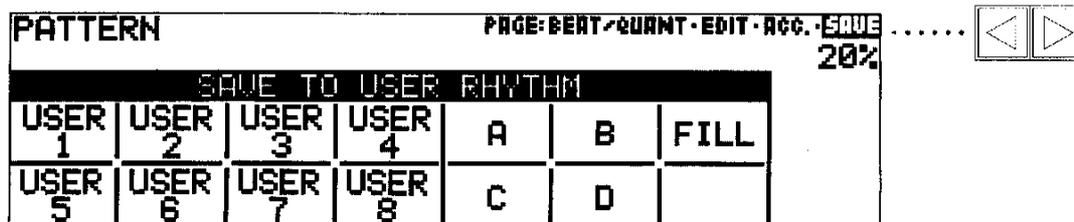


Saving Rhythm Patterns

To save a newly created rhythm pattern to a User pattern number:

1. Select the SAVE page with the PAGE buttons.

The current rhythm pattern, if playing, will automatically be stopped when this page is selected.



2. Using the appropriate Data Control buttons, select both the User number and variation type to which you wish to save the newly created rhythm pattern.

Keep in mind that you cannot save a rhythm pattern by selecting only a User number; you must also select a variation type — A, B, C, D, or FILL (Fill In). Including the Fill In patterns, up to 40 different rhythm patterns (8 User numbers × 5 variations) can be saved.

Save Page

PATTERN				PAGE: BEAT/QUANT · EDIT · ACC. · SAVE		
				20%		
SAVE TO USER RHYTHM						
USER 1	USER 2	USER 3	USER 4	A	B	FILL
USER 5	USER 6	USER 7	USER 8	C	D	

①
②
③
④

- ① User Numbers
- ② Variations
- ③ FILL (Fill In)
- ④ Remaining Memory

Indicates the amount of memory available for storing rhythm patterns. This is expressed as a percentage: 100% indicates the maximum amount of memory available, and 0% indicates that there is no more memory available.

3. Once you have selected a User number and type, the following display will appear, prompting confirmation of the operation. Select [OK] to save the rhythm pattern or [Cancel] to abort the operation and return to the previous display.

PATTERN				PAGE: BEAT/QUANT · EDIT · ACC. · SAVE		
				20%		
SAVE TO USER RHYTHM						
USER 1	USER 2	Save To User1-A Are You Sure ?			FILL	
USER 5	USER 6	[OK]	[Cancel]			

When the pattern has been saved, the following display appears:

PATTERN				PAGE: BEAT/QUANT · EDIT · ACC. · SAVE		
				20%		
SAVE TO USER RHYTHM						
USER 1	USER 2	Save To User1-A Completed...!!			FILL	
USER 5	USER 6					

When the pattern cannot be saved because of lack of available memory space, the following display appears:

PATTERN				PAGE: BEAT/QUANT · EDIT · ACC. · SAVE		
				0%		
SAVE TO USER RHYTHM						
USER 1	USER 2	Save To User1-A Data full !!			FILL	
USER 5	USER 6		[Confirm]			

Press the Data Control button corresponding to "Confirm" to return to the original SAVE display.

Note: The Power On Reset function (see page 82) can be used to delete all User rhythm patterns from memory.

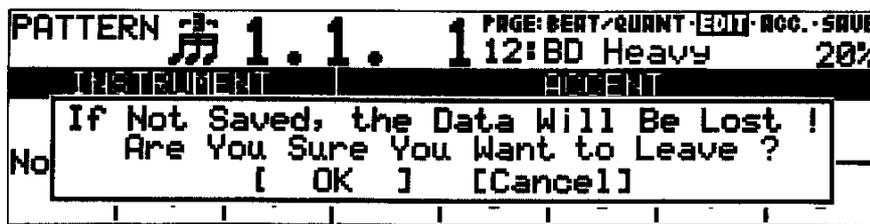
You should periodically save your rhythm pattern as you are making it and check the amount of remaining memory. If the rhythm pattern currently being edited cannot be saved because of a lack of memory space, erase some of the less necessary percussion sounds with the Clear function, and try saving the pattern again.

Leaving the Rhythm Pattern Program Functions

You can exit the Rhythm Pattern Program from any of its display pages. To do this:

1. Press the PATTERN button in the DISPLAY SELECT section once again.

If a rhythm pattern is playing, it will automatically be stopped. The following display will appear, prompting confirmation of the operation.



Note: If you leave the Rhythm Pattern Program without having edited any patterns, this display will not appear.

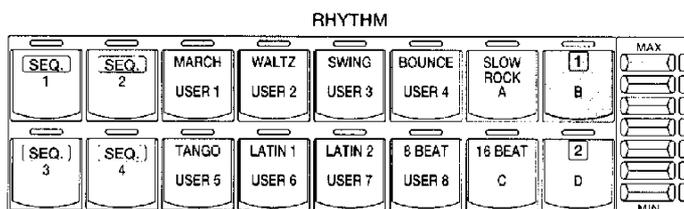
2. Select [OK] to leave the Rhythm Pattern Program, or [Cancel] to abort the operation and return to the previous display.

Playing User Rhythm Patterns

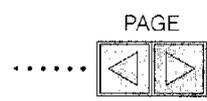
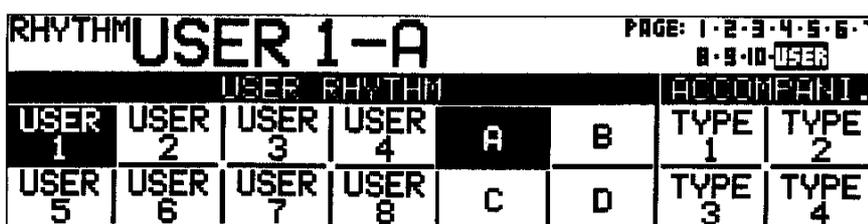
The User rhythm patterns you have created in the Rhythm Pattern Program can be selected and played from the Rhythm Menu.

To play a User pattern:

1. Press one of the Dotted buttons in the Rhythm section.

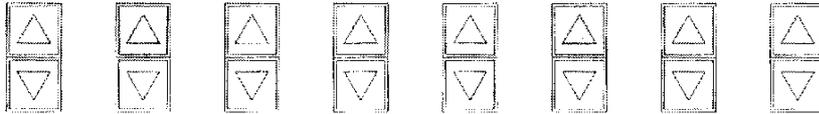


2. Select the USER page with the PAGE buttons.



3. Select the desired User rhythm pattern from the LCD display by using the Data Control buttons.
Be sure to select both a User number and a variation type (A, B, C, or D).

RHYTHM USER 2-B						PAGE: 1-2-3-4-5-6-7 8-9-10-USER	
USER RHYTHM						ACCOMPANI.	
USER 1	USER 2	USER 3	USER 4	A	B	TYPE 1	TYPE 2
USER 5	USER 6	USER 7	USER 8	C	D	TYPE 3	TYPE 4



Playing User Fill In Patterns

You can play User Fill In patterns by selecting the desired User number and pressing the FILL IN button in the panel Rhythm section.

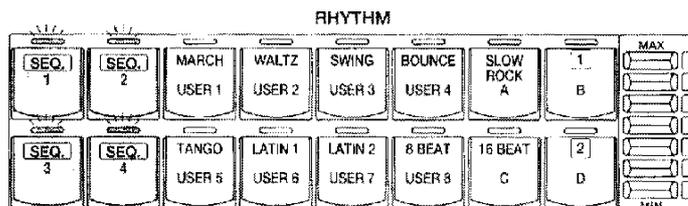
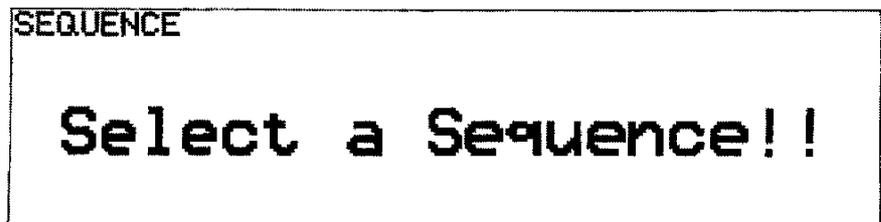
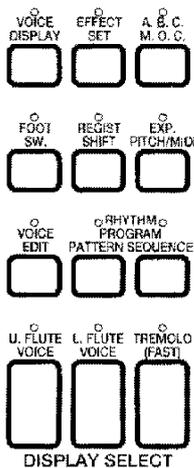
Rhythm Sequence Program

With the Rhythm Sequence Program function, you can connect any of the Electone's existing rhythm patterns and the rhythm patterns of your own creation together to make complete rhythm compositions. You can save four rhythm compositions to the Sequence buttons on the panel for future recall.

Calling up the Rhythm Sequence Program function

To call up the Rhythm Sequence Program function:

1. Press the SEQUENCE button in the DISPLAY SELECT section.
The LEDs of the numbered Sequence buttons in the Rhythm section on the panel will flash and the following display will prompt you to select a sequence number.



2. Press one of the Sequence buttons to call up the Rhythm Sequence display.

SEQUENCE		[1Bar] March 1			
No.	1	5	10	15	
PAT.	.	.	.	.	.
POSITION			DATA		
KK	<	>	PRESET USER	SET	INS. DEL. CLEAR

In this display, different rhythm patterns (both Preset rhythm patterns and User rhythm patterns that you created with the Rhythm Pattern Program) can be entered in sequence along the pattern row in the middle of the display. Entered patterns are shown in boxes, while the numbers in the row above indicate the position.

The three-character code inside each box indicates the type and number of the rhythm pattern. The preset rhythm patterns of the Electone are indicated by a two-digit number (i.e., [05] or [16]). User patterns are indicated by the "U" prefix as well as a letter suffix representing the type — A, B, C, D, and F (Fill In). Examples of these include [U3C] and [U8F]. The preset patterns also may have a letter suffix: "I" indicates Intro, "F" indicates Fill In, and "E" indicates Ending (i.e., [01I], [20F], and [16E]).

Note: When you select one of the sequences in this step, any editing done to that sequence is instantly and automatically saved. This means that if you select a sequence that is already programmed, any editing you do will permanently change the sequence and the original sequence cannot be recovered.

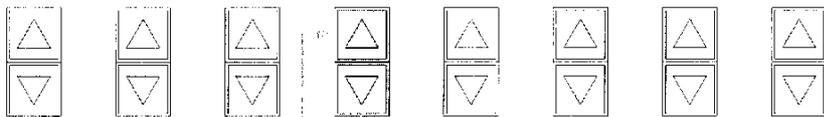
Note: Any rhythm pattern currently playing will automatically be stopped when you call up the Rhythm Sequence Program function. Also, use of the Music Disk Recorder functions automatically cancels Rhythm Sequence operations.

Programming a Rhythm Sequence

To program a rhythm sequence:

1. Select the type of rhythm pattern you wish to enter, Preset or User.

SEQUENCE		[1Bar] March 1			
No.	1	5	10	15	
PAT.	.	.	.	.	.
POSITION			DATA		
KK	<	>	PRESET USER	SET	INS. DEL. CLEAR



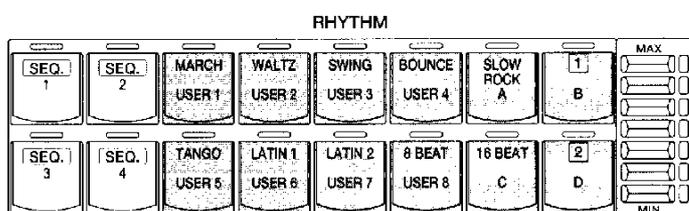
Pressing this button selects User rhythms.

Pressing this button selects Preset rhythms from the Rhythm Menus.

2. Select the desired rhythm pattern by pressing the appropriate button in the Rhythm section, then select SET in the display to enter the pattern. (Refer to the Rhythm Pattern Number Table below for a list of the rhythm patterns and their number assignments.)

When PRESET is selected in step #1 above, the Rhythm buttons are used to select the Preset rhythm names printed at the top. When USER is selected, however, these buttons function according to the User numbers and letters printed at the bottom. Select the User pattern by pressing one of the numbered buttons (1 - 8), then a lettered button (A, B, C, or D) or FILL (for User Fill In).

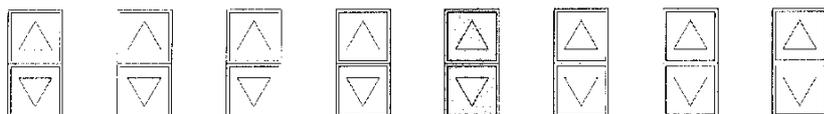
1. Press one of the rhythm buttons...



2. ...then select SET.



Note: A maximum of 120 patterns can be entered to a single sequence.



Rhythm Pattern Number Table

01	March 1	18	Bolero	35	Slow Rock 3	52	8 Beat 3
02	March 2	19	Swing 1	36	Tango 1	53	8 Beat 4
03	March 3	20	Swing 2	37	Tango 2	54	8 Beat 5
04	Polka 1	21	Swing 3	38	Tango 3	55	Dance Pop 1
05	Polka 2	22	Swing 4	39	Cha-cha	56	Dance Pop 2
06	Country 1	23	Swing 5	40	Rhumba	57	Dance Pop 3
07	Country 2	24	Swing 6	41	Beguine	58	Dance Pop 4
08	Broadway	25	Jazz Ballad	42	Mambo	59	16 Beat 1
09	Baroque	26	Dixieland 1	43	Salsa	60	16 Beat 2
10	Waltz 1	27	Dixieland 2	44	Samba 1	61	16 Beat 3
11	Waltz 2	28	Bounce 1	45	Samba 2	62	16 Beat 4
12	Waltz 3	29	Bounce 2	46	Samba 3	63	16 Beat 5
13	Waltz 4	30	Bounce 3	47	Bossanova 1	64	16 Beat Funk 1
14	Waltz 5	31	Reggae 1	48	Bossanova 2	65	16 Beat Funk 2
15	Jazz Waltz 1	32	Reggae 2	49	Bossanova 3	66	16 Beat Funk 3
16	Jazz Waltz 2	33	Slow Rock 1	50	8 Beat 1		
17	Jazz Waltz 3	34	Slow Rock 2	51	8 Beat 2		

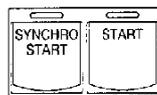
Fill-in/Intro/Ending

01F	March 1 Fill-in
01I	March 1 Intro.
01E	March 1 Ending

User

U1A	User 1-A
U1B	User 1-B
U1C	User 1-C
U1D	User 1-D
U1F	User 1-Fill-in
U1I	User 1-Intro.
U1E	User 1-Ending

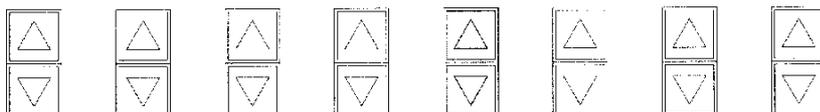
3. If you wish to enter a Fill In, Intro, or Ending pattern, hold down the appropriate rhythm control button on the panel (INTRO, ENDING or FILL IN) and simultaneously press the Data Control button corresponding to SET.



1. While holding down INTRO, ENDING or FILL IN...



SEQUENCE		[1Bar]		User 1-A		FILL	
NO.	1	5	10	15			
PAT.	01Z	01F	01A	02B	02C	04D	05F
						06A	07B
						08F	01
						20F	16E
POSITION				DATA			
KK	<	>	PRESET	SET	INS.	DEL.	CLEAR
			USER				



2. ...press SET.

About Entering Intro and Ending Patterns

Pressing the INTRO. ENDING button when at the first position in the pattern row automatically enters an Intro pattern there. Pressing the INTRO. ENDING button at any other position in the row enters an Ending pattern.

Note: Any existing pattern data that follows an Ending pattern is automatically deleted.

4. Use the cursor controls to move the cursor along the pattern row in the display and select the position at which patterns will be entered. Then use the data controls to enter and delete pattern numbers in the pattern row.

Sequence Page

Current Measure
[1Bar]

Shows currently selected rhythm
pattern name and variation if selected.

Pattern Row

SEQUENCE														
No.	1	5	10	15										
PAT.	01I	01F	01A	02B	02C	040	05F	06A	07B	08F	0I	20F	16A	.
POSITION					DATA									
KK	<	>	PRESET USER	SET	INS.	DEL.	CLEAR							
2	3	4	6	7	8	9	10							
1			5											

Note: An Intro or Fill In pattern entered to the first position is not registered as a measure, and the current measure display shows "- Bar," even though a pattern has been entered.

1 Cursor Controls

- 2 KK Moves the cursor to the first position.
- 3 < Moves the cursor one measure to the left.
- 4 > Moves the cursor one measure to the right.

The Coarse button can also be used with the cursor controls to move the cursor several steps at a time.

5 Data Controls

6 PRESET/USER

Determines the type of rhythm pattern, Preset or User. (See step #1 above.)

7 SET

For initially entering a pattern number to an empty position in the pattern row, or for replacing a pattern at the cursor position. (See steps #2 and #3 above.)

8 INS. (Insert)

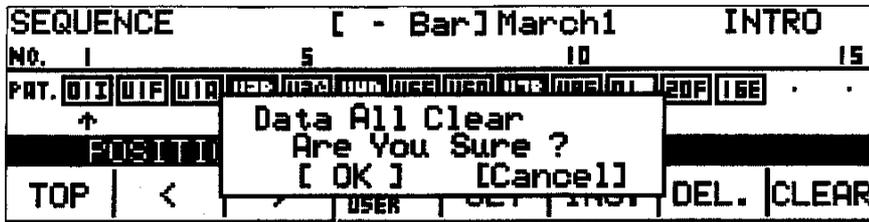
For inserting a pattern number at the current cursor position. The new pattern is entered to the cursor position and all other patterns to the right of the cursor are moved to accommodate the new number. The operation is the same as for SET (see steps #2 and #3 above).

9 DEL. (Delete)

For deleting a pattern number at the current cursor position.

10 CLEAR

For erasing all patterns entered to the selected sequence. After selecting Clear, the following display appears:



Select [OK] to clear the currently selected rhythm sequence, or [Cancel] to abort the operation and return to the previous display.

Playing the Sequence During Editing

You can play the rhythm sequence at any time during the editing process by moving the cursor to the point at which you wish to begin playback and pressing the Rhythm START button.

About Using Registrations with the Rhythm Sequence Program

The rhythm patterns assigned to the sequence can be changed during editing by selecting different registrations. This allows you to create a registration that contains the specific rhythm patterns that you will use in a given sequence, and call up that registration when editing the sequence. The type of Accompaniment used with the rhythm patterns also depends on the selected registration.

Leaving the Rhythm Sequence Program Function

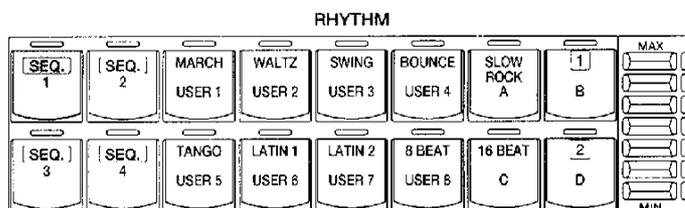
To exit the Rhythm Sequence Program:

Press the SEQUENCE button in the DISPLAY SELECT section once again. (The LED of the button will turn off.)

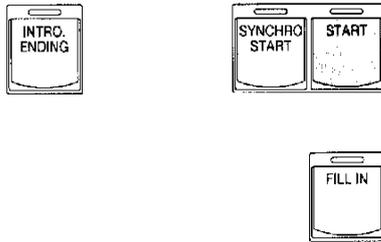
Playing Rhythm Sequences

To play any of the rhythm sequences you have created:

1. Press the appropriate Sequence button on the panel.



2. Next, press the rhythm START button.



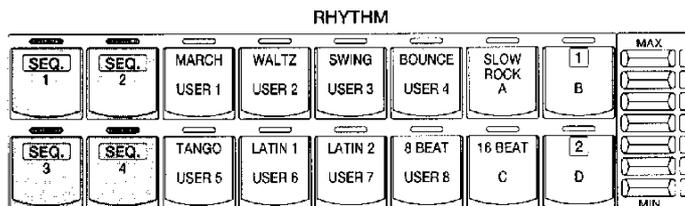
When one of the four rhythm sequences is playing, each programmed rhythm pattern that plays is indicated by the lit LED on the Rhythm panel button. One LED will be lit for a Preset rhythm, and two LEDs will be lit for a User rhythm (one for the User number, the other for the type).

Playing All Sequences in Order

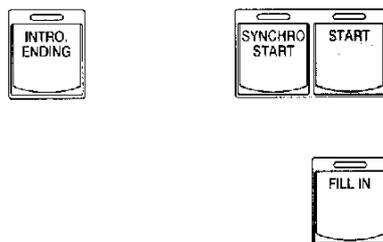
You can also have up to all four rhythm sequences automatically play in order, one after the other.

To do this:

1. Press all Sequence buttons, making sure that their LEDs are all lit.



2. Press the START button.



The rhythm sequences start from the lowest number and play in order automatically to the highest number. (For example, if you press Sequence buttons 4, 2, 3 and 1 in that order, the sequences will be played back in their numeric order: 1, 2, 3, then 4.) This function effectively allows you to make a long rhythm sequence that exceeds the 120-pattern memory limit of a single sequence.

Starting the Rhythm Sequences with the Left Footswitch

- 1.** Call up the Footswitch display by pressing the FOOT SW. button in the DISPLAY SELECT section, and select the STOP function in the Rhythm Control.
- 2.** Press the Left Footswitch to turn on the Rhythm Sequences.

(See page 138 for more information.)

Note: The Left Footswitch also can be used to turn a sequence off. However, if more than one sequence has been selected and the Footswitch has been used to turn one sequence off in the middle of playback, pressing the Footswitch again will not resume playback from the stopped point but will start at the beginning of the next sequence.

Saving Rhythm Pattern and Rhythm Sequence Data to Disk

Once you have created your own rhythm patterns and rhythm sequences, you'll want to save them to disk. Doing so allows you to free up memory in the Electone for creating additional rhythm patterns and sequences. Also, the User rhythm patterns and sequences you've saved to disk can be loaded back to the Electone any time.

Rhythm Pattern and Rhythm Sequence data is included in the bulk data that is saved when you record registrations to disk. Refer to the section Recording Registrations, page 91, for instructions.

Recalling Rhythm Pattern and Rhythm Sequence Data from Disk

The Rhythm Pattern and Rhythm Sequence data saved to disk as part of bulk data, can instantly be loaded back to the Electone. Refer to the section Recalling Recorded Registrations, page 92, for instructions.

Note: When loading your original Rhythm Program data back to the Electone, be sure to stop the rhythm pattern if it is playing. Loading cannot be executed when a rhythm pattern is running.