

**E-mu Systems, Inc.**  
applied magic for the arts



**EMULATOR THREE**  
DIGITAL SOUND PRODUCTION SYSTEM  
**REFERENCE MANUAL**



Emulator Three  
Digital Sound Production System  
Reference Manual  
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Manual by Craig Anderton,  
Nancy Enge, and Riley Smith

E-mu Systems, Inc.  
1600 Green Hills Road  
P.O. Box 660015  
Scotts Valley, California 95067-0015  
(831) 438-1921







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# **1-GENERAL INSTRUCTIONS**

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## ***INTRODUCTION***

This is the reference manual for the Emulator Three Digital Sound Production System. It contains detailed information on all aspects of the EIII's operation.

If you are totally unfamiliar with samplers and synthesizers in general, you may need more information than this manual provides. We suggest that you read some of the many books and magazines on the subject of music synthesis in order to learn the basics while you are learning about the Emulator III. This will help you to get the most out of this extremely powerful instrument.

The functions of the Emulator III are detailed in this manual by their module. Screen displays and step-by-step instructions are described for all aspects of use and operation. ■ Sidebars are used to highlight important points or to give useful operational tips which might not be readily apparent. A glossary at the end of this section provides a reference for unfamiliar terms.

We encourage you to take a moment now to read the E-mu Systems Warranty and to fill out and send in your warranty registration card. By doing so, you are assured of receiving news of all updates and manual revisions.

1-4 *Connection Diagram*

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## ***EIII CONNECTION INSTRUCTIONS***

### ***Connecting To a Mixer***

■ ***Stereo:*** The Emulator III has provisions for a variety of output connection schemes. The most common hookup will probably be for stereo operation. Stereo operation allows the use of the EIII's panning features and adds another dimension to the sound. Connect the left and right audio out phone jacks to the inputs of your mixer or stereo preamp. The EIII will also drive stereo headphones, which can be plugged directly into the left/stereo output.

■ ***Mono:*** If a monophonic amplifier is used, connect the right/mono output to the input of the amplifier. The output level of the EIII is somewhere between instrument and line level. Care should be taken when connecting to an instrument amplifier so that delicate nerve cells in your ears are not damaged.

■ ***Individual Outputs:*** There may be times when different equalization or reverb settings are desired on the various instruments that have been sampled. The EIII has sixteen channel outputs that can be used when individual processing on specific instruments is desired. Inserting a plug into an output channel jack removes that channel from the stereo mix. Zones can be assigned to output channels. Output impedance is 470  $\Omega$ .

### ***Sample In Connection***

The sample input jacks can accept any signal level from microphone level to line level. The gain is adjusted with the data slider while in VU/gain mode in the sample module. The levels can be read in the display while in this mode. Input impedance is 10K  $\Omega$ . If you need to preamplify the signal being sampled, set the sample gain to 00 dB (which is one third of the way up) and use an external, high-quality mic preamp to increase the signal level going into the EIII.

### ***MIDI Connection***

The Emulator III provides a MIDI IN, a MIDI OUT, and a MIDI THRU port.

■ The MIDI IN port on the EIII is connected to the MIDI OUT port of an external MIDI controller which could be a keyboard, a sequencer, MIDI drum kit or whatever. Note that the EIII can only respond to information that your controller transmits. If your MIDI keyboard does not have velocity and pressure sensitivity, the EIII will not respond to velocity and pressure.

■ MIDI OUT can be connected to another MIDI instrument or sequencer. In MIDI OUT mode, only information from the Emulator III's keyboard, sequencer or realtime controls will be transmitted, except when overflow mode is selected. Overflow mode allows a second Emulator III to be connected to the MIDI OUT to allow 32 channel operation. See Preset Definition, 6. MIDI for more details.

■ MIDI THRU simply retransmits any information that is received at the MIDI IN port. Use cords that have been designed specifically for MIDI. While regular 5 pin DIN cords may work, they are not shielded correctly for MIDI use and may cause ground loops between equipment.

### ***Footswitch and Pedal Connection***

■ Two control footswitch jacks are provided for performance control of sequencer, arpeggiator, sustain, Xswitch, and preset increment/decrement. The footswitches need not be connected for the unit to operate but they offer exciting control possibilities. Footswitches should be of the momentary-contact type but can be either normally-open or normally-closed.

■ The control pedal is used as a realtime control in the same manner as the wheels. It can be programmably routed to a destination by using the realtime control section of the Preset Definition module. The pedal should be a voltage type (which varies 0-10 volts on the tip of the jack).

### ***SMPTE In and SMPTE Out Connection***

■ The SMPTE (clock) In jack allows the Emulator III's sequencer to read SMPTE time code at any of the four standard frame rates (24, 25, 30, 30 df). It also allows an external non-MIDI device such as a drum machine or sequencer to control the tempo of the sequencer or arpeggiator. The Emulator III can receive input clock rates of 24, 48, or 96 pulses-per-quarter-note. The pulses should be at least one millisecond wide and have a level of one to five volts.

■ The SMPTE Out jack allows the Emulator III to generate industry standard SMPTE time code at any of the four frame rates (24, 25, 30, 30df).

### ***RS-422 Connection***

The RS-422 connector is a high-speed serial communication port which allows data to be transferred to and from an external computer at a very high rate (500K baud). The connection cable to the external computer will generally be supplied with a software package that you purchase.

## SCSI

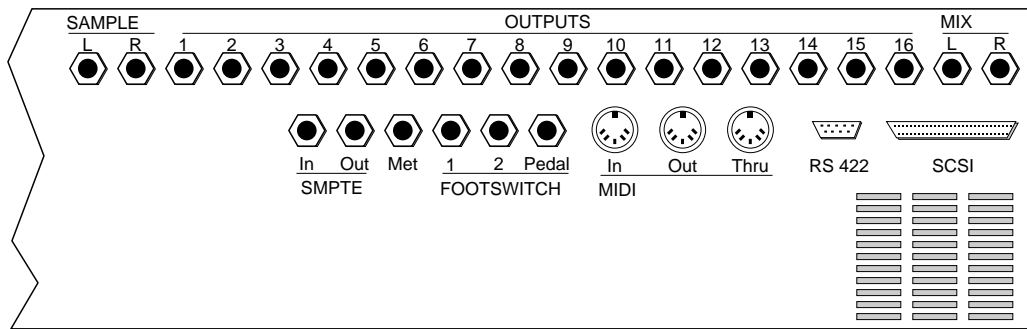
The SCSI connector is a high-speed parallel interface which is normally used to interface the EIII with external mass storage devices such as hard disks, optical discs, or WORM drives. The SCSI port can also be used to link the EIII with an external computer for extremely fast file transfers. When connecting multiple external devices to the SCSI port, the external devices should be powered up before the Emulator Three. For more information on installation, see Master module, 7. Disk Utilities, 1. Mount Drive, or the manual that accompanies the external device.

## 110V/220 V Selector

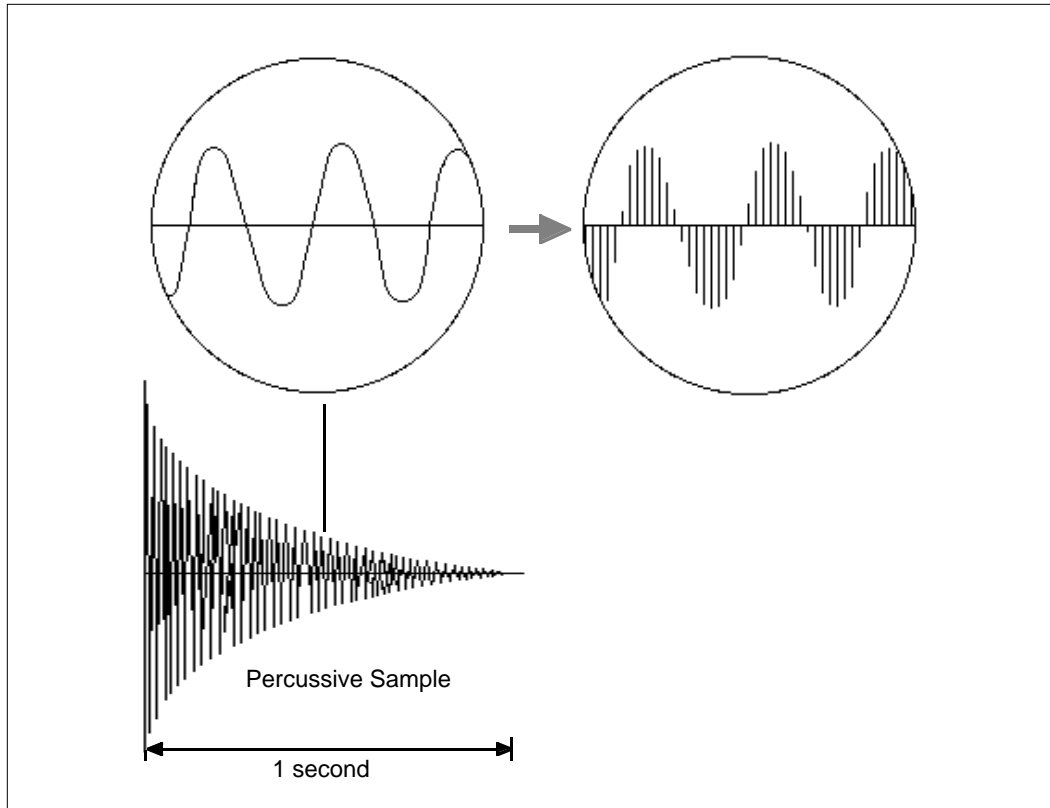
The 110V/220V selector allows the Emulator III to be used in either 110 volt or 220 volt environments at either 50 Hz or 60 Hz. In the USA, 110 volts is the standard. To change the voltage setting, first UNPLUG the unit; then use a flat blade screwdriver to change the setting. *WARNING: Operating EIII at the wrong setting will seriously damage the unit.*

## AC Power Connection and Fuse

The AC power connector is how the Emulator III gets power. The fuse receptacle is not as obvious. It is located directly over the power receptacle. Before changing or checking a fuse, UNPLUG the power cord. To remove the fuse holder, squeeze the two tabs located on either side of the fuse holder together. The fuse holder will now pop out with its two fuses. The Emulator III uses two 2-amp, 250 volt fast-blo mini-fuses. The EIII should not normally blow fuses. If a fuse that has been replaced blows again, do not attempt another replacement. Have the unit serviced!



## SAMPLING BASICS



*DIGITAL SAMPLING. Each vertical line represents a sample. Each sample takes a snapshot of the instantaneous signal level.*

Throughout this manual we will use the terms and concepts described and defined below. Read through this section carefully, even if you don't retain it all. You can refer back periodically as you read through the manual until you understand the basics and definitions.

The Emulator III is conceptually like a tape recorder in that it records sound. However, the recording process is very different since the EIII digitally records into its computer memory.

Computers can accept information only in the form of numbers, so first the EIII converts audio signals into numbers. It does this by examining (sampling) the incoming signal level at your choice of either 44,100 times a second (for maximum fidelity) or 33,100 times



a second (to use less memory), and sequentially records these different levels in memory. Once stored in the EIII's memory bank, these samples may be played back (in the proper sequence, of course) to reconstruct the original signal. For instance, if a two-second sound was being sampled at the highest sampling rate, it would require (2 X 44,100) or 88,200 samples to be recorded. As you might imagine, shorter sounds require fewer samples.

Just like tape, a sound can be manipulated once it has been recorded. Playing back the samples in reverse order from which they were stored plays the sound backwards. Playing back the samples at a faster rate than the rate at which they were stored raises the pitch. Playing back at a slower rate lowers the pitch, much like a tape recorder's variable speed control.

### ***How the Emulator III Organizes Sounds***

Sure, you're anxious to start coaxing wonderful sounds from the instrument—but the following is a necessary part of learning how to play the Emulator III. It is important to understand how the EIII organizes sounds in order to make best use of the instrument in the shortest possible time. Many terms will be introduced now that show up later in the manual.

You can think of the EIII as resembling a collection of sound-organizing modules, all contained within an EIII bank. Pathways indicate how information flows within the EIII. Let's take a closer look at what makes up this information, and how it is transferred from one section of the instrument to another. We'll start with individual samples, then work our way through the system.

### ***The Sample***

Sampling any sound in mono or stereo using the Emulator III's recording capabilities creates a sample, the raw material with which the EIII works. The total available sampling time can be divided up any way you like—one long sample, lots of short samples, a few medium samples, or any combination thereof.

The term *sample* commonly means two different things:

- 1) A digital recording of a complete sound, or
  - 2) each snapshot of the sound that makes up the complete sample.
- Confusing? You bet! In this manual, we'll assume *sample* means the complete recorded sound unless indicated otherwise.

You can modify a raw sample in several ways:

■ **Transposition:** A sample can be transposed up or down in pitch to cover a particular range of the keyboard. By doing this, it is not necessary to record a sample for every key.

■ **Digital Processing:** Digital processing includes **Looping** a sample

■ *Since wide-range transposition alters the sample's timbre, it is often necessary to use multiple samples and transpose each one over a small range to give the most realistic sound. This is particularly true with acoustic instruments.*

(allowing even short samples to play indefinitely), **Truncating** (cutting off unneeded parts of the sound, thus saving memory), and many **Special Effects**, to name but a few. These functions are very sophisticated and are described later in full.

■ **Analog Processing:** Just as a standard analog synthesizer includes signal processors (filter, voltage-controlled amplifier, envelope generators, LFO, and so on) to modify the sounds produced by the synth's oscillators, the Emulator III includes similar modules for modifying raw samples or combinations of samples.

## **DEFINITIONS**

### ***The Zone***

A particular range of the keyboard is called a zone. This can include one or more samples. The zone's boundaries need not be the same as the boundaries of the samples contained in the zone. For example, if one sample covers the range from C1 to Bb1, and a second sample covers the range from C2 to C3, the zone could cover C1 to C3; but F1 to F2, G1 to A2, and so on are also equally acceptable zones.

A zone can be sent to the Analog and Digital Processing modules. The samples (or portions thereof) included in the zone will then be processed as specified in the Analog and Digital Processing module functions.

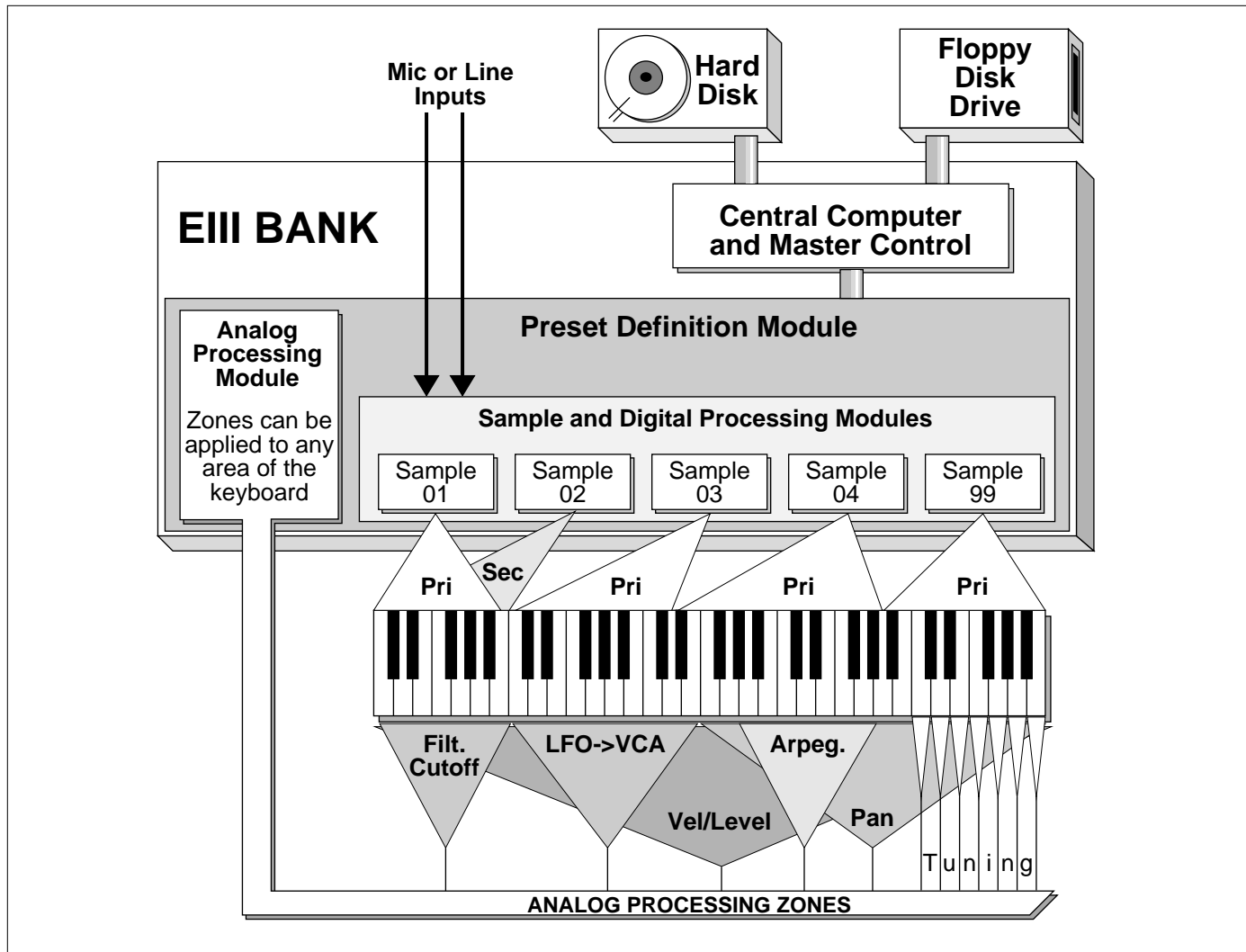
Every key potentially has two zones (primary and secondary) assigned to it. If a zone is selected which includes previously defined zones, only the parameters that are altered in the new zone will be altered in the previously defined zones. All other parameters will remain as previously specified.

### ***The Preset***

As mentioned above, a sample can be assigned to a single note on the keyboard, or transposed polyphonically to cover a wider keyboard range. The process of assigning, and optionally transposing, samples to specific ranges of the keyboard is called making a preset. Making a preset is a three-step process:

**1. Create the preset and give it a number and name.** The bank can hold up to 100 Presets (00-99).

**2. Place samples to different keyboard ranges.** For example, with five samples you could assign each sample to cover one octave of the



keyboard. A sample can be assigned more than once within a given preset, and assigned to more than one preset.

**3. Choose from a number of the available options that further define the preset.** Some examples are: assigning samples to partially or fully overlap other samples, thus producing doubling effects, or assigning dynamic control to individual samples in a preset. You can modify zone parameters, add arpeggiation, and set up MIDI and analog processing parameters.

### **The Bank**

The memory bank contains samples, presets, and sequence data. Everything. Consider the bank as the central storehouse for all of the Emulator III's data. Although the memory is volatile, meaning that the data disappears when you turn off power, all bank data can be saved permanently to either the floppy disk or hard disk drive (described below) to keep a record of your work.

### **The Internal Drives**

A disk drive is a mass-storage memory device that stores banks. The Emulator III has two built-in drives, the floppy drive and hard drive. However, other types of drives, as described below, can connect to the EIII and provide additional storage.

■ *Floppy Disk Drive (Drive 0):* The floppy disk drive accommodates 3.5", double-sided, double-density (DSDD) floppy disks. The floppy drive has four major applications:

■ *Saving Bank Data:* The EIII's volatile bank memory can be saved to floppy disk for more permanent storage. Since the bank memory may exceed the capacity of the floppy disk, it may be necessary to save to more than one disk.

■ *Backing up the Hard Disk:* The hard disk data can be backed up to floppy disks. If the hard disk is full, it is necessary to save a lot of data—you'll need about 40 floppy disks to do the job. The EIII has a special backup routine that guides you through the backup process.

■ *Restoring the Hard Disk:* If for some reason the hard disk fails, you can take your backup floppies and re-construct the hard disk data. As with backing up, the EIII has a special routine that guides you through the restoration process.

■ *Distributing New Software:* When the E-mu wizards come up with exciting new enhancements, the new software is usually distributed on floppy disk. As described later in the manual, this software can be copied on to the hard disk and made a permanent part of the EIII.

■ *Hard Disk Drive (Drive 1):* Floppy disks have been used for years

as a mass memory storage unit for samplers. However, a hard disk provides the advantages of much higher memory capacity (over 40 times that of a floppy disk) and far faster access time. In most cases, you can treat the hard disk like a super-floppy. Transferring data to and from the EIII is quite straightforward. However, you cannot remove a hard disk and replace it with another one—the disk is a permanent part of the drive. There are three main cautions involved with hard disks:

- Hard disks are sensitive to extreme mechanical shocks. If your EIII falls off a keyboard stand, chances are the hard disk will be damaged.
- Make sure power is not interrupted when you write data to the hard disk.
- Hard disks have reached a very high level of reliability. However, they can fail from time to time (as can any part of a computer), so any data should be backed up periodically and regularly on some other medium.

### ***External Drives 2-7 (User Assigned Systems)***

The EIII includes a SCSI (Small Computer Systems Interface) connector on the rear panel. This interface is commonly used in the computer industry, so many devices made to work with computers—particularly mass storage devices—will also work with the EIII. Here are some of the types of mass storage devices that can now, or will soon be able to plug into the EIII's SCSI connector.

■ *CD-ROM Drive*: A CD-ROM is a playback-only (data cannot be written to it) mass storage memory device whose capacity is approximately 16 times greater than the Emulator III's internal hard disk (660 Megabytes instead of 40 Megabytes). Companies such as Optical Media International produce CD-ROM disks that hold a variety of high-quality digitized samples and sound effects. These can be loaded into the bank as easily as you would load from a floppy or hard disk.

■ *WORM Drive*: WORM stands for "Write Once, Read Many." This is like a CD-ROM, however, you get one shot at writing data to it, after which that data is permanently stored in the WORM drive. After writing, the WORM drive becomes a read-only device.

■ *External Hard Disk Drives*: If more memory is required, additional hard disk drives can connect to the SCSI port.

## ADDITIONAL DEFINITIONS

### ***The Primary and Secondary Sample***

An Emulator III key provides for two channels. These contain the primary and secondary samples. For example, the primary sample might be a guitar note and the secondary sample a detuned version of the same guitar note. When played together, you hear chorusing. Also, a preset contains information about how the keyboard dynamics affect the primary and secondary samples. As an example, the primary sample could be that of a drum hit played softly, and the secondary of a drum hit played loudly. Thus, playing the keyboard softly would play the primary sample, and playing the keyboard more forcefully would play the secondary sample.

### ***The Current Preset***

When you load a bank, a preset will be ready to play and the display will show the preset number. This is the current preset. If you select another preset, or create a preset, that will become the current preset.

### ***The Current Sample***

When recording a sample, you will need to specify the sample number and name into which the sound should be recorded. This is called the current sample.

### ***Modules***

A module controls a particular set of functions in the Emulator III. There are six main modules : **Master**, **Preset Management**, **Preset Definition**, **Sample**, **Digital Processing**, and **Analog Processing**. The sequencer is made up of: **Management**, **Setup**, **Edit**, and **Mode**. The large module to the left of the sequencer is the **Control Panel**. This provides several controls, many of which are designed to select options when working with the main or sequencer modules.

■ *If a module is already active, and you are finished with one submodule, you do not need to re-activate the module—just key in the new submodule number.*

■ **Activating a Module and the Module Identifier:** To work with a module, you must first activate it. Press the button associated with the desired module. The display will then show the Module Identifier and invite you to select a submodule.

■ **Submodule:** Each module contains several numbered submodules that set controls for additional functions. There are two ways to select a submodule within the module. You can move the data slider until the display shows the desired submodule, then press **ENTER**. As you work with the EIII, though, you will start to memorize the submodule numbers and will probably find it faster to simply key in the appropriate submodule number using the numeric keypad.

When using the keypad, it is not necessary to press **ENTER**. Pressing the module button will cancel the operation.

### ***Velocity-Sensitive Keyboard***

A velocity-sensitive keyboard measures how long it takes for a key to go from the key up to key down position, and uses this data to control dynamics. If it takes a long time for the key to reach the key down position, it is assumed you are playing that key less forcefully (minimum dynamics). If the key goes to the key down position almost instantaneously, it is assumed that you are playing the key more forcefully (maximum dynamics). In this manual, we will refer to playing the keyboard harder or softer, even though technically speaking the keyboard is reacting to speed of key position change, not force.

### ***Pressure-Sensitive Keyboard***

A pressure-sensitive (also called aftertouch) keyboard responds to the pressure applied to a key after it is down. This pressure data typically controls vibrato amount, pitch-bending, volume, and/or other elements that add expressiveness to a part.

### ***Saving***

The bank only retains data for as long as the Emulator III is plugged in and turned on. Of course, we don't expect you to leave the thing on all the time, which brings us to the subject of saving data.

Pressing the **SAVE BANK** button on the Control Panel shuttles all the bank data (samples, presets, and sequences) to the drive of your choice (usually the internal hard disk). The hard disk permanently stores data (well, at least as long as the disk lasts) so that even after turning off the Emulator III, the disk will contain a record of your work. Data can also be saved to floppy disks.

*IF YOU DO NOT SAVE A BANK, ALL BANK DATA WILL BE LOST WHEN YOU TURN OFF THE MACHINE.* Do not wait until the end of a session to save. Save your work periodically in case of power failure or some other unforeseen circumstance that might erase the bank's memory. Hard disks are *not* infallible. All hard disk banks should be backed up periodically on floppy disk. Should you improve the preset, sample, or sequence later, you can always replace the original with the revised version. And if something goes wrong, the original will still be available to save you the ordeal of starting from scratch. Individual presets, and the samples they contain, can also be saved to disk. Whenever you have done enough work on a preset, sample, or sequence that you would hate to lose it, back it up!

Since the disk (hard or floppy) contains a record of the bank data,

loading the disk back into the bank transfers all the sample, preset, and sequencer data into the bank. This will replace the existing bank data, if any.

### ***The Channel Outputs***

The Emulator III assigns the sounds you play to the various output channels. For example, when you play a key, that key's sound is assigned to output channel one. If you hold this key and play another key, the new key's sound will be assigned to output channel two. The EIII includes sixteen channels. You can play up to sixteen sounds simultaneously. Each channel has its own output jack, and there are also stereo output jacks (use one for mono) that mix the sixteen channels together.

You can change the channel assignments. This process is described in Analog Processing, 9. Output Channels.

### ***Booting***

Booting is a computer term that means "having the computer read the software necessary for its operation from the disk." (It's easy to see why this was shortened to booting.) The EIII automatically boots itself from the hard disk when you turn it on. Once booted, the instrument is ready to go. If the hard disk is damaged for some reason, the EIII can be booted from a suitable floppy disk.

### ***Default***

A default setting is what we've judged to be a useful initial setting, and remains in effect until you change it. For example, if you create a new preset, the arpeggiator will default to Off. Had it defaulted to the on position, all new presets would be arpeggiated.

### ***The Cursor***

The cursor is that small flashing line on the display. It sits under the number or letter that will be altered if you enter data. Entering a new value will overwrite the number or letter above the cursor, whereupon the cursor will move on to the next number or letter (if applicable). If the EIII is expecting a two or three-digit number, in most cases you must enter all the required digits even if some of these are zeroes (called leading zeroes). For example, if the EIII is expecting a three-digit number and you want to enter 8, you would enter 008. If it is expecting a single-digit number, entering 8 would be sufficient.

### ***Data Slider & Increment/Decrement Buttons***

In virtually all instances where the data slider selects options, the Increment +/YES/ON and Decrement -/NO/OFF switches duplicate the slider. Press +/YES/ON to increase a value, or -/NO/OFF



to decrease.

### ***Selecting***

When the instructions say to select an option, you can use whatever method is most comfortable for you: the data slider, the Increment/Decrement buttons, the numeric keypad (if applicable) and, when naming, the keyboard keys. Some functions do not implement all these options; you can't go wrong by trying, though. If a function doesn't respond to the numeric keypad, for instance, then pressing the keypad will have no effect. Use the data slider or the Inc/Dec buttons instead.

### ***The Big Re-Cap***

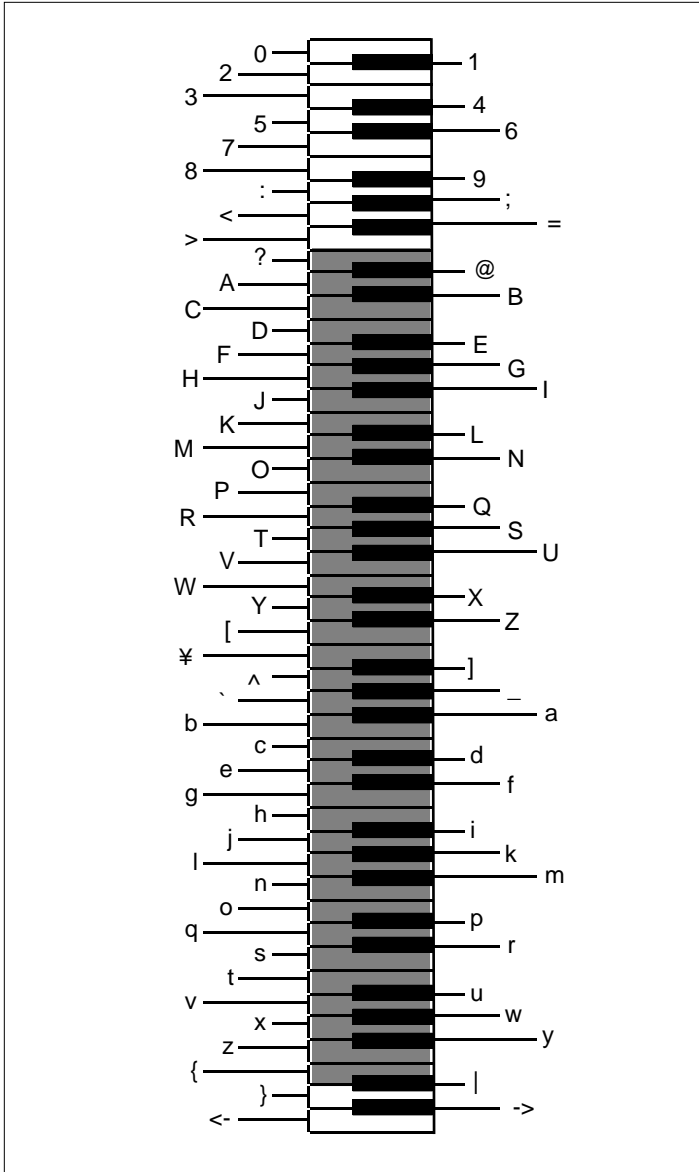
One more time: A sample is a raw sound that is recorded into the bank. The sample can be processed or otherwise modified.

To create a new preset, make sure you have all the samples required for the preset in the bank, number and name a preset, then assign combinations of samples from the bank to specific sections of the keyboard. By specifying one or more of these samples (or portions thereof) as a zone, the zone may then be processed by the EIII's analog and digital signal processors.

After arranging a bank, it can be saved to one or more drives. Usually this will be the internal hard drive or floppy drive.

Since loading from a floppy or hard disk fills the bank with samples and presets, you can group these samples into new presets, process the samples contained in particular zones, or alter existing presets.

■ The shaded area represents the five octave keyboard on the Emulator III.



|    | C | C# | D | D# | E | F     | F# | G | G# | A  | A# | B | Pitch |
|----|---|----|---|----|---|-------|----|---|----|----|----|---|-------|
|    |   |    |   |    |   | blank | !  | " | #  | \$ | %  | & |       |
| -1 | ' | (  | ) | *  | + | ,     | -  | . | /  | 0  | 1  | 2 |       |
| 0  | 3 | 4  | 5 | 6  | 7 | 8     | 9  | : | ;  | <  | =  | > |       |
| 1  | ? | @  | A | B  | C | D     | E  | F | G  | H  | I  | J |       |
| 2  | K | L  | M | N  | O | P     | Q  | R | S  | T  | U  | V |       |
| 3  | W | X  | Y | Z  | [ | ¥     | ]  | ^ | _  | `  | a  | b |       |
| 4  | c | d  | e | f  | g | h     | i  | j | k  | l  | m  | n |       |
| 5  | o | p  | q | r  | s | t     | u  | v | w  | x  | y  | z |       |
| 6  | { |    | } | →  | ← |       |    |   |    |    |    |   |       |

**Octave No.**

AVAILABLE CHARACTERS. Banks, drives, samples, presets, segments, and songs can be named or renamed using these characters. Select the characters using the ten key pad, data slider, and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces. Shaded characters are only available using the data slider.



## **3-MASTER**

---

|                                |             |
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---

## 1. MASTER TUNE

**Master Tune** adjusts the tuning of all the samples in the current bank, so that you can tune the Emulator III to other instruments.

**1. Activate Master module.**

**2. Select Submodule 1.**

**3. Select the desired tuning offset.** This is variable from -100 (one semitone below concert pitch) to +100 (one semitone above concert pitch).

MASTER TUNE

Offset: + 0.0 cents  
Select Tuning Offset

**4. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 2. RENAME BANK

This submodule allows you to rename any bank.

**1. Activate Master module.**

**2. Select Submodule 2.**

**3. Rename the bank.** Choose the characters to be changed with the left and right cursor buttons. Select the desired characters by using the ten key pad, data slider and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces.

■ Use the data slider to access the full character set. The keyboard does not have enough keys to access all available characters.

RENAME BANK

B01 Current Bank  
[0-9]/Slider/Keyboard

**4. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier

### 3. ERASE BANK

Erasing a bank erases ALL the memory in the Emulator III, which includes all samples, presets, and sequences.

**1. Activate Master module.**

**2. Select Submodule 3.**

**3. Decide if you really want to erase the bank.** The display will inform you that you are about to erase all samples, presets, and sequences in the current bank.

■ After erasing the bank, the EIII will automatically create an empty preset for you.

**ERASE BANK**  
Erases All Presets,  
Samples & Sequences!  
Are You Sure? Y/N

**4. Press Yes to erase the bank or No to cancel the operation.** In either case, the EIII will return to the Module Identifier.



## 4. SUPERMODE

**Supermode** is a wonderful MIDI function that maps data occurring on a specific MIDI channel to a specific preset within the bank. This is similar to MIDI's standard Omni Off/Mono mode but much more flexible, since each channel will not only be directed to its own preset, but can contain polyphonic note data as well. Supermode allows up to 16 individual presets to be addressed and play simultaneously over MIDI.

When used in conjunction with Supermode, the internal sequencer built into the EIII is capable of simultaneously recording data received on multiple MIDI channels and routing the data received on each individual MIDI channel to a separate sequencer track. For more information, refer to the Sequencer section.

**1. Activate Master module.**

**2. Select Submodule 4.**

**3. Select a MIDI channel.** As you scroll through the MIDI channels, the EIII displays the currently mapped preset on line three.

```

SUPERMODE
MIDI Channel:  01
P00 Mapped Preset
Select a Channel
  
```

■ Enable Supermode by pressing the Supermode button located in the Controls section.

■ Even in Supermode, the total number of voices sounding on all channels cannot exceed 16.

**4. Move the cursor to line three and select a preset.** The EIII will default to the first non-empty preset, if the previous mapped preset was empty.

```

SUPERMODE
MIDI Channel:  01
P01 Current Preset
Select a Preset
  
```

■ Only one set of Supermode preset assignment parameters can be stored in each bank.

**5. Move the cursor to line two and repeat steps 3 and 4 to map additional MIDI channels.**

**6. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

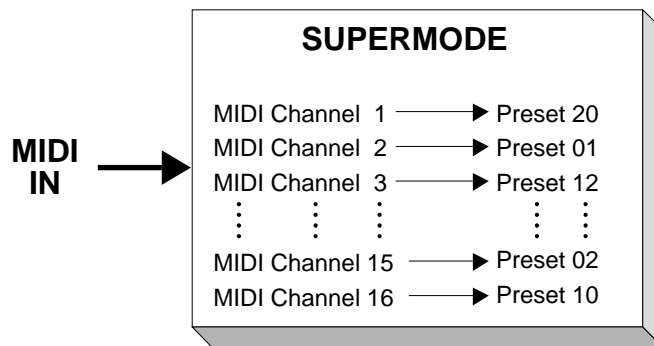
In addition, Supermode preset assignments can be changed in realtime over MIDI. For preset changes to occur, Supermode must be enabled by pressing the Supermode button. (Its associated LED will light, and remain lit until Supermode is disabled.)

Also, you must set preset change parameters to On for the current preset in the Preset Definition module, 6. MIDI, as shown on line three of that window:

| MIDI             |  |    |
|------------------|--|----|
| Send Preset Chg: |  | on |
| Recv Preset Chg: |  | on |
| Send Start/Stop: |  | on |

■ **To Execute a Supermode Preset Change Over MIDI:**

**1. Send the preset change command on the MIDI channel that the desired change is to occur upon.**



## 5. AUDIO TRIGGER

The **Audio Trigger** function allows the Emulator III to be triggered from an audio source or directly from electronic drum pads. Applications include replacing sounds recorded on tape with sampled sounds, using the EIII as a fast, 16-bit drum set with two pads, or perhaps as a high-fidelity, sonically triggered burglar alarm.

In the Audio Trigger mode, the sample inputs function as the trigger inputs. Standard (Simmons-type) electronic drum pads work well as trigger sources, as do acoustic drums recorded on tape. Use the sample input slider to adjust the level. A microphone serves well to help learn the operation of the various functions.

■ *Audio Trigger assignments and parameters are stored for each individual bank. They also affect the current preset.*

### 1. Activate Master module.

**2. Select Submodule 5.** There are two pages. The first page shows the following parameters:

```
AUDIO TRIGGER:Both→
Threshold:      |
Left: Off      |
Right: C#1     | | | | | | | |
```

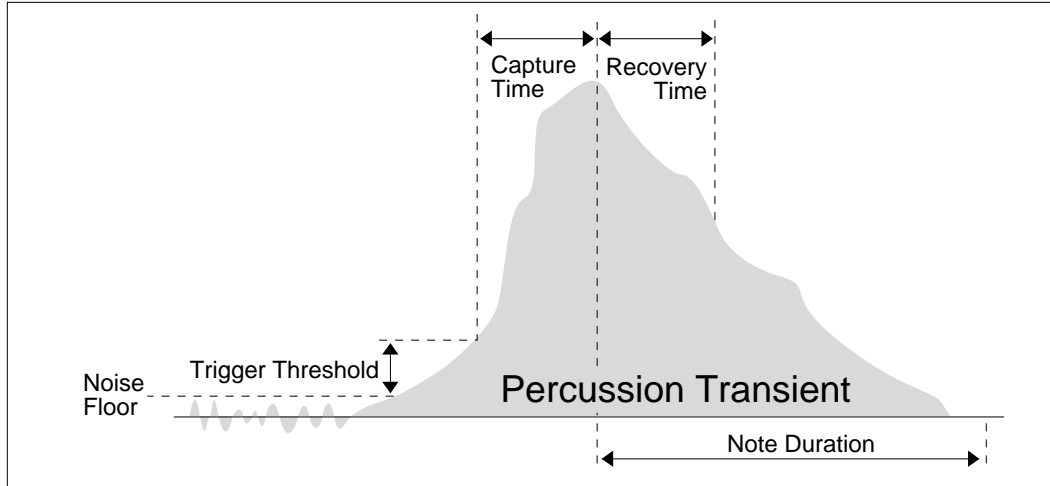
**3. Select page two by pressing the right cursor button.** The display shows:

```
← AUDIO TRIGGER
Duration:      999ms
Capture Time:  20ms
Recovery Time:  5ms
```

**4. Use the cursor buttons to select one of the following parameters to edit:**

■ **Audio Trigger:** Allows you to select whether you are viewing and editing the trigger parameters for the left, right, or both channels.

■ **Threshold:** This is the level at which a sound is triggered. The trigger threshold should be set at a point high enough so that the background noise does not trigger the sound and low enough so that



**AUDIO TRIGGER FUNCTIONS.** This chart displays trigger threshold, capture and recovery times and the note duration of a percussion transient.

■ *Experiment with the Gate/Trigger Keyboard modes (Analog Processing, 7. Keyboard Mode) and/or the VCA Envelope generator (Analog Processing, 2.VCA) for best triggering results, and also for special effects.*

■ *When a sound is re-triggered using the Audio Trigger function, each new trigger will cause the sound to be played on a new output channel. This may cause the sounds to overlap and may not always be desirable. To re-trigger the same channel, assign the selected key to only one output channel in Analog Processing, 9. Output Channels.*

the sound will trigger accurately. It should be noted that the trigger threshold “rides” the noise floor. The EIII constantly measures the noise floor and keeps track of the minimum value. The minimum value is reset after every trigger.

■ **Left:** This allows you to set the keyboard note to be triggered by the left input. The VU meter shows the relative input level as controlled by the sample input slider.

■ **Right:** This allows you to set the keyboard note to be triggered by the right input. The VU meter shows the relative input level as controlled by the sample input slider.

■ **Duration:** The note duration is the time between note on and note off. If you were playing the keyboard, this would be the amount of time that you held the note. This also affects the MIDI OUT note duration. Re-triggering the input will cause an immediate note off to occur.

■ **Capture Time:** This is the amount of time that the EIII will analyze the trigger input signal to determine the maximum level that is used to determine velocity. This should be kept at a minimum to avoid unnecessary delay. Since this function does delay the trigger, it should be set to 0ms if velocity is not being routed to any analog parameters as set in Analog Processing, 6.Velocity To.

■ **Recovery Time:** This is the time period which must elapse before the EIII will allow re-triggering of the sound.

**5. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 6. MEMORY AVAILABLE

**Memory Available** shows how much of each type of memory is available, both as a percentage of available memory and as memory units. For example, if you have used up 90.0% of the available preset memory, the display will show that there is 10.0% preset memory remaining. This is equivalent to 5,555 memory units.

| MEMORY AVAILABLE (EMPTY BANK) |               |               |                 |
|-------------------------------|---------------|---------------|-----------------|
|                               | <i>Preset</i> | <i>Sample</i> | <i>Sequence</i> |
| <b>4 Mbyte</b>                | 55,554        | 2,092,032     | 523,008         |
| <b>8 Mbyte</b>                | 55,554        | 4,189,184     | 1,047,296       |

**1. Activate Master module.**

**2. Select Submodule 6.**

**3. Observe the display.** Line two shows the percentage and amount of preset memory available. Line three shows the percentage and amount of sample memory available. Line four shows the number of sequencer events available.

|                  |         |
|------------------|---------|
| MEMORY AVAILABLE |         |
| Preset: 99.7%    | 55512   |
| Sample: 100%     | 2092032 |
| Seq Events:      | 523008  |

■ The EIII uses the same block of memory for samples as it does for sequences. Creating samples will eat up sequence events and vice versa. The ratio is four sample words for each sequence event.

**4. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 7. DISK UTILITIES

**Disk Utilities** include several additional numbered sub-sections. Here are brief descriptions of each sub-section. More extensive descriptions follow.

■ **0. EIII SCSI ID#:** Allows you to change the EIII's SCSI ID number.

■ **1. Mount Drives:** Instructs the Emulator III to check the SCSI bus for the presence of SCSI devices.

■ **2. Rename Drive:** Changes the name of a particular drive.

■ **3. Erase Disk Bank:** Erases a bank from any of the available hard drives.

■ **4. Copy Software:** Allows you to update and make new copies of the operating software supplied on a floppy disk by E-mu Systems or your authorized dealer.

■ **5. Lock Bank and Drive:** Prevents a specific bank and/or drive from being overwritten.

■ **6. Disk Status:** For a hard disk drive, this function displays the amount of space that is available, and if the drive is locked or not. For floppy disks this function indicates if it is a software disk, the name and number of a bank disk, and if the disk is blank.

■ **7. Format Disk:** Initializes a floppy disk, or the hard drive, to store Emulator III data.

■ **8. Backup and Restore:** Although E-mu has taken every precaution to ensure reliable components, hard disk drives *can* fail from time to time. This function allows you to backup the hard disk contents on to multiple floppy disks, and if necessary, re-construct the hard disk from the data on those floppies.

■ **9. Erase Software:** Erases the operating software from any of the available hard disk drives.

■ *All external SCSI devices should be turned on before the Emulator Three.*

■ **To Access Any of the Disk Utilities:**

**1. Activate Master module.**

**2. Select Submodule 7.**

**3. Select the desired disk utility within Submodule 7.**

## ■ 0. CHANGE SCSI ID#

This utility allows you to change the SCSI ID number of the EIII (not it's internal hard disk) or the HD300 in the event that they conflict with a device on the SCSI bus having the same ID number.

The SCSI interface, located as a 25-pin connector on the back panel, allows the EIII to communicate with external storage devices. The EIII can support seven SCSI devices (including it's internal HD). Each device on the SCSI bus has it's own ID number so that it can distinguish its data from data meant for other SCSI devices. If a SCSI device is added to your system which has the same ID number as an existing device, a SCSI error would occur. To remedy this situation, the ID number on the new device will have to be changed. Consult the operation manual of the external device for information on changing the SCSI ID number.

1. **Activate Master module.**
2. **Select 7. Disk Utilities, 0. Change SCSI ID# (7/0).**
3. **Select a SCSI Device (either the EIII or the HD300).**
4. **Select the new SCSI ID number.**

|                 |      |
|-----------------|------|
| CHANGE SCSI ID# |      |
| Device Type:    | EIII |

5. **Press ENTER to exit the submodule.** The EIII will save your choice to the System and return to the Module Identifier.

## ■ 1. Mount Drives

This utility instructs the EIII to check the SCSI bus for the presence of SCSI devices.

If a SCSI device has been powered up after the Emulator III, it will not appear in the list of available devices. The Mount Drives utility tells the EIII to check the SCSI bus and to add any SCSI devices that it finds to its list of available SCSI devices. Normally, if the external devices are powered up before the EIII, this will be done automatically.

■ Use the "Mount Drives" utility whenever an external SCSI device does not appear on the list of available devices.

1. **Activate Master module.**
2. **Select 7. Disk Utilities, 1. Mount Drives (7/1).**
3. **The Emulator III will mount the drives, then return to the Module Identifier.**

## ■ 2. Rename Drive

1. **Activate Master module.**
2. **Select 7. Disk Utilities, 2. Rename Drive (7/2).**
3. **Select an installed drive, then press ENTER.**

```
RENAME DRIVE
D01 Current Drive
Select a Drive
```

4. **Rename the drive.** Choose the characters to be changed with the left and right cursor buttons. Select the desired characters by using the ten key pad, data slider and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces.

```
RENAME DRIVE
D01 Current Drive
[0-9]/Slider/Kybd
```

5. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## ■ 3. Erase Disk Bank

With this utility, banks can be erased from any of the available drives.

1. **Activate Master module.**



2. Select 7. Disk Utilities, 3. Erase Bank (7/3).

3. If you wish to select a different drive, press the up cursor. If not, proceed to step 5.

4. Select the drive containing the bank to be erased, then press ENTER.

```

ERASE DISK BANK
D1 Internal HD

Select a Drive
  
```

5. Select the bank to be erased, then press ENTER.

```

ERASE DISK BANK
D1 Internal HD
B00 Current Bank

Select a Bank
  
```

6. Decide if in fact you want to erase the selected bank. The display will ask if you're sure.

7. Press **Yes** to erase the bank or **No** to cancel the operation. In either case, the EIII will return to the Module Identifier.

#### ■ 4. Copy Software

From time to time, E-mu engineers devise new operating system software intended to enhance or add new features to the EIII's existing capabilities. This software is distributed on a floppy disk. Software should be copied over to the hard disk so that the new system will automatically load whenever you turn on the EIII. The system software should be resident on only one hard disk drive in your equipment setup. If you do not install new software on the hard disk you will have to load it from the floppy disk each time you power up the machine.

Each version of the operating system is numbered, and is indicated when you select 8. Special, 6. Software Version (8/6). Copying software on to the hard disk will not change any other data like samples, presets, and sequences. It is a good idea to keep at least two backup copies of the system software on floppy disk.

■ The display will advise you if you try to erase a bank or drive that is locked. Unlock the bank and/or drive before proceeding.

■ If the disk you are copying to is an un-formatted floppy, you will be asked if you wish to format the disk. Press **Yes** to format the floppy disk, or insert a formatted disk and press **No**.

■ It is also possible to copy the system software from the hard disk back to a floppy, although sounds and software cannot coexist on a floppy.

■ If there is not enough sample memory left to accommodate the new software, the display will ask if you want to erase the bank. Press **Yes** to erase the bank and continue loading software from the drive. Press **No** to cancel the operation so that you can save the bank first, before copying the new software.

1. **Activate Master module.**

2. **Select 7. Disk Utilities, 4. Copy Software (7/4).**

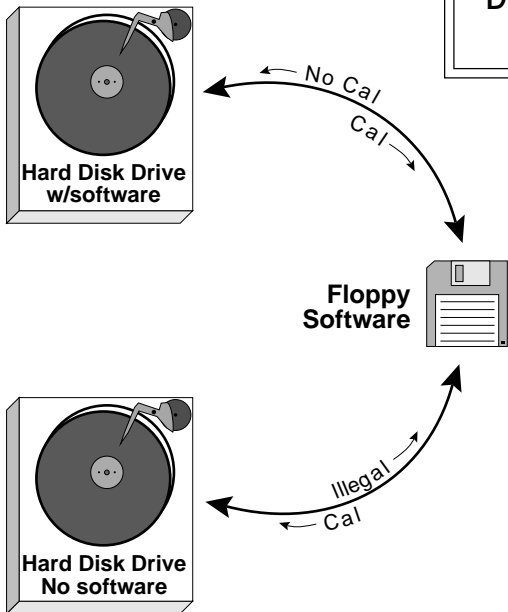
3. **Select the drive containing the new software and press ENTER.** Usually this will be the floppy drive. After pressing **ENTER**, the display will inform you that the new software is being loaded.

COPY SOFTWARE from  
 D0 Floppy Drive  
  
 Select a Drive

■ If you copied new software to the boot drive, now is a good time to power the Emulator III off and on.

4. **Select the destination drive for the new software and press ENTER.** Typically, this will be the Emulator III's internal hard disk drive. After pressing **ENTER**, the software will be copied and the EIII will return to the Module Identifier.

COPY SOFTWARE into  
 D0 Floppy Drive  
 D1 Internal Drive  
 Select a Drive



After copying new software from a floppy disk to the internal hard disk drive, it is a good idea to save the software from the internal hard disk back to a floppy disk.

This process will save the EIII's calibrations as well as the software on the floppy disk. The calibrations include important information pertaining to the panel controls and individual channel trims.

## ■ 5. Lock Bank and Drive

If you don't want to risk curious hands unintentionally erasing a bank or drive, here's a safeguard. A complete drive or any bank within that drive can be locked against inadvertent erasure or tampering, and subsequently unlocked as needed.

1. **Activate Master module.**

2. **Select 7. Disk Utilities, 5. Lock Bank/Drive (7/5).**

3. **If you want to lock a drive or change the current drive, press the up cursor button. If not, go on to step 6.** The display will show the current drive and its lock status, whether on or off.

```
LOCK DRIVE:      off
D1 Current Drive

Select a Drive
```

4. **Select the drive to be locked or unlocked, then press ENTER.**

5. **Select whether lock is on or off, then press ENTER.**

6. **Select the bank to be locked or unlocked, then press ENTER.**

The display will show the current bank and its lock status, whether on or off.

```
LOCK BANK:      off
D1 Selected Drive
B00 Current Bank

Select a Bank
```

■ *This function will not let you lock a floppy disk. To lock a floppy, open the write-protect window on the disk.*

7. **Select whether lock is on or off, then press ENTER.** The EIII will return to the Module Identifier.

## ■ 6. Disk Status

This function displays the amount of space that is available on a hard disk drive and if the drive is locked or not. For floppy disks, this function indicates if it is a software disk, the name and number of a bank disk, or if the disk is blank.

1. **Activate Master module.**

2. **Select 7. Disk Utilities, 6. Disk Status (7/6).**

3. **Select a drive, then press ENTER.** If selecting the floppy drive, insert a disk before pressing ENTER.

```
DISK STATUS
D1 Internal HD

Select a Drive
```

4. **One of the following displays will appear:**

```
DISK STATUS
D1 Internal HD
Avail: 20.7% 8.49Mb
88 Banks    Unlocked
```

```
DISK STATUS
D0 Floppy Drive
Software:    v1.00
Software Floppy Disk
```

```
DISK STATUS
D0 Floppy Drive
Piano Bank
Disk 4 of 8
```

```
DISK STATUS
D0 Floppy Drive

Floppy Disk is Blank
```

**5. To select another disk, press ENTER and return to step 3.**

**6. Press the Master button to exit the submodule.** The EIII will return to the Module Identifier.

### ■ 7. Format Disk

Before a new floppy disk or hard disk can record or store any data, it first must be told how to record this data. This is called formatting. The floppy disk formatting procedure should be run on any new disk, or on recycled disks previously used with other systems (such as home computers), since these will not be formatted correctly for the Emulator III.

■ Use only 3.5 inch DSDD (double-sided, double-density) disks. Avoid bargain disks. To save money, consider purchasing disks in large quantities.

**1. Activate Master module.**

**2. Select 7. Disk Utilities, 7. Format Disk (7/7).**

**3. Select the drive to be formatted and press ENTER.** The EIII will default to the floppy drive.

```
FORMAT DISK
D0 Floppy Drive

Select a Drive
```

■ Formatting a floppy disk will not erase the bank currently in memory.

**4. Consider the implications of your action.** Formatting a floppy or hard disk erases all information on that disk *completely*. The display will inquire if in fact you want to do this.

```
FORMAT DISK
D0 Floppy Drive

Are You Sure? Y/N
```

**5. Press Yes to continue the formatting procedure or No to cancel the operation and return to the Module Identifier.**

**6. If in step 3 you selected the floppy drive, insert a floppy disk, and press ENTER.** Formatting takes about 20 seconds.

**7. After formatting a floppy disk, format another, if desired.** The display will ask if you want to format another floppy. To do this, press **Yes**, remove the current disk, insert a new disk, and press **ENTER**. Otherwise, press **No** to cancel the operation and return to the Module Identifier.

### **FORMATTING HARD DISKS**

This works exactly like formatting a floppy disk except when the display asks you to "Select a Drive", you should select the hard disk instead of the floppy. If the hard disk is not listed, use Disk Utilities 1, to Mount Drive. The hard disk drive should now be listed. Formatting a hard drive takes about 15 to 45 minutes, depending on the size of the HD.

### **R/W OPTICAL DISKS**

Read/Write Optical disks are formatted in the same way as a hard disk. Use optical disk cartridges with 512 bytes/sector rather than the 1024 byte/sector type. New optical disk cartridges usually come with the "low level" formatting already in place. If so, the disk will format normally. If this low level formatting has not been performed, the EIII will interrupt the formatting process and show a "SCSI Hardware Error". If this happens, follow the procedure for Low Level formatting on the next page, then format the disk in the normal way.

Note: Optical disks always verify the data as it is written and so do not require the long verify process that occurs after formatting has been completed. You can save hours of time by ejecting the cartridge and re-booting the system after the "VERIFYING FORMAT" message appears in the EIII display (about 10 seconds).

### **HARD DISK INTERLEAVE**

The Emulator Three contains an internal list of recognized hard disk drives. The list contains parameter information designed to optimize the interface between the EIII and the drive. The following hard disk drive brands are currently listed:

|              |                |
|--------------|----------------|
| ■ Miniscribe | 2:1 interleave |
| ■ Rodime     | 2:1 interleave |
| ■ Conner     | 3:1 interleave |
| ■ Seagate    | 3:1 interleave |
| ■ CDC        | 1:1 interleave |
| ■ Syquest    | 1:1 interleave |
| ■ Qume       | 4:1 interleave |

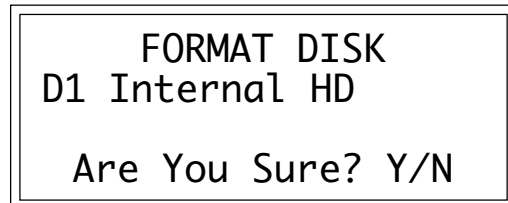
Other hard disk brands will probably also work. If in doubt, the best idea is to try out the drive with the EIII before you buy it. If your brand of hard drive is not listed but works with the EIII, you may be able to optimize its performance even further.

**8. There is a hidden menu when the display asks: "Are You**

■ The recommended type of R/W Optical drive for the EIII uses the Sony type cartridge. Brand names include Sony, Pinnacle, PLI, and Alphasatronics to name a few.

**Sure?"**

Before choosing Yes or No you may choose one of the following hard disk interleave options:



- |      |  |
|------|--|
|      | 0 --- Uses the EIII's default interleave for the type of HD. |
| Fast | 1 --- 1:1 interleave   |
|      | 2 --- 2:1 interleave (this is the EIII's default setting)    |
|      | 3 --- 3:1 interleave   |
|      | 4 --- 4:1 interleave   |
|      | 5 --- 5:1 interleave   |
|      | 6 --- 6:1 interleave   |
|      | 7 --- 7:1 interleave   |
| Slow | 8 --- 8:1 interleave   |
|      | 9 --- Optical Disk Low Level Formatting                      |

After formatting the HD, measure the time it takes to save a file to the hard disk using the different interleaves. The fastest one wins! The lower the interleave ratio, the faster the hard disk.

Option #9 allows you to perform a low level format on a "virgin" optical platter (of the Sony type only). Most optical disks that you buy will already have this low level formatting, but some don't and will not be recognized by the EIII. This utility allow you to perform the function. This takes about 25 minutes, so don't do it unless absolutely necessary.

## ■ 8. Backup and Restore

This module allows you to backup and restore a portion or the entire contents of the hard disk. This function makes it so easy that you really will have *no* excuse for not backing up all your hard disk banks. If you'd *hate* to lose it, BACK IT UP.

There are two ways to back up your sound banks:

### ■ To Backup to Floppy Disk:

We suggest labeling bank sets numerically. Keep your bank sets organized, and try to backup regularly, at least once a week.

1. **Activate Master module.**

2. **Select 7. Disk Utilities, 8. Backup & Restore (7/8).**

3. **Select the source drive.** The source drive is the drive that contains the data you wish to backup. The display shows:

```

BACKUP/RESTORE from
D1 Internal HD

Select a Drive
  
```

■ Use only 3.5 inch DSDD (double-sided, double-density) disks. Avoid bargain disks. To save money, consider purchasing disks in large quantities.

4. **Use the data slider to select the internal hard disk drive and press ENTER.**

```

BACKUP/RESTORE into
D1 Internal HD
D0 Floppy Drive

Select a Drive
  
```

■ If the disk you are copying to is an un-formatted floppy, you will be asked if you wish to format the disk. Press **Yes** to format the floppy disk or insert a formatted disk and then press **No**.

5. **Use the data slider to select the destination, D0 Floppy Drive, then press ENTER.** You now have the option to backup all banks or updated banks, which are the banks that have changed since you last backed up. Saving a bank to the hard disk constitutes a change



If you select all banks, then you may choose from any bank on the hard disk. If you select updated banks, you may choose only from the updated list.

**6. Press ENTER after you have selected the Backup mode.** The display will say Erases Bank! OK? Y/N. Press **Yes** if you want to erase the bank, or press **No** to cancel the operation and return to the Module Identifier.

```
BACKUP/RESTORE from
D1 Internal HD
D0 Floppy Drive
Bank Type: All
```

If you selected **Yes**, the display will say Select a Bank and the cursor will flash under the lowest numbered bank.

```
BACKUP/RESTORE into
B01 Stereo Grand

Select a Bank
```

**7. When you have selected a bank to be backed up, press ENTER.** The display will prompt you to insert the first disk of the bank.

**8. Press ENTER after inserting each disk in the drive as directed by the Emulator III.**

```
BACKUP/RESTORE from
B01 Stereo Grand to
Floppy Drive
Insert Disk 1 of 5
```

**■ To Backup to an External Hard Disk:**

If you have another hard disk drive, you will be able to save even more time when backing up.

**1. When the display asks you for the destination drive, select the external hard disk drive, then press ENTER.**

```
BACKUP/RESTORE into
D1 Internal HD
D2 External HD
Select a Drive
```

**2. Select between Automatic or Interactive backup modes.**

```
BACKUP/RESTORE from
D1 Internal HD to
D2 External HD
Mode: Interactive
```

**■ Automatic Mode :** transfers the complete contents of the source hard disk (or just the updated banks) to the destination drive without prompting you at each bank. Existing destination disk banks will be overwritten with the like-numbered source bank files. For example, if you have banks one, three, and five on the internal hard disk, those same banks will be overwritten on the destination drive. The other banks will be left untouched.

```
BACKUP/RESTORE into
D01 Floppy Drive
D1 Internal HD
Select a Drive
```

■ **Interactive Mode:** transfers the complete contents of the source hard disk drive (or just the updated banks) to the destination drive, but prompts you to select each source and destination bank.

**3. Select the backup mode and press ENTER.** The display will inquire if you are sure. Press **Yes** if you are, and backup will proceed. Press **No** to cancel the operation and return to the Module Identifier.

■ **To Restore:**

Restore works in exactly the same way as Backup. The only difference is that the source and destination drives are reversed.

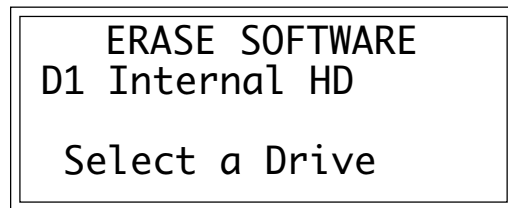
## ■ 9. Erase Software

With this function, software can be erased from any of the hard disk drives.

**1. Activate Master module.**

**2. Select 7. Disk Utilities, 9. Erase Software (7/9).**

**3. Select the drive containing the software to be erased, then press ENTER.**



```
ERASE SOFTWARE
D1 Internal HD

Select a Drive
```

**4. Decide if you really want to erase the software.** This will also erase the system, which includes all the calibration and machine variables. The display will ask if you really want to do this.

**5. Press Yes to erase the software or No to cancel the operation.**

In either case, the EIII will return to the Module Identifier.

## 8. SPECIAL

This section contains several additional numbered functions. Here are short descriptions of each sub-module. More extensive descriptions follow.

■ **1. Audition Key:** Allows the Emulator III to be played without a keyboard. This is particularly useful for the rack mount EIII.

■ **2. Disable Outputs:** If an Emulator III output channel fails, you can locate and disable it with this function.

■ **3. Recalibrate:** With this function you can select minimum and maximum values for the data slider, volume slider, left wheel, right wheel, keyboard pressure, and foot pedal. You can also select a center value for the left wheel. If you feel that one or more of the realtime controllers is not operating correctly, or the EIII seems to drift in pitch, it may be time to recalibrate. This procedure should be done periodically since the analog components used in the realtime controls may change over time.

■ **4. Footswitch Polarity:** This allows you to use a normally closed or normally open footswitch, and determine which state represents on and which state represents off.

■ **5. Dynamic Allocation:** This function bypasses existing zones to output channel assignments, and makes all zones available at all channels.

■ **6. Software Version:** States the current version of the operating system software.

■ **7. MIDI Globals:** MIDI Global commands override the MIDI settings programmed for each preset in the Preset Definition module and return us to a simpler time when MIDI settings affected all presets.

■ **8. Volume Pedal Global Override:** Overrides any footpedal assignments made in Realtime Controls and forces the footpedal to become a volume pedal.

■ **9. MIDI Load Bank:** This feature allows a MIDI command to load banks from the hard disk.

■ **To Access Any of the Special Functions:**

**1. Activate Master module.**

**2. Select Submodule 8 and press ENTER.**

**3. Select the desired function in Submodule 8 and press ENTER.**

## ■ 1. Audition Key

1. **Activate Master module.**
2. **Select 8. Special, 1. Audition Key (8/1).**
3. **Select the pitch to be auditioned.**

```
AUDITION KEY
Pitch:                C3
Select a Key & [0-9]
```

4. **Press a numeric key between 0 and 9.** The lower the key, the lower the velocity value. You can press the numeric keys while adjusting the data slider to select different pitches.

5. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## ■ 2. Disable Outputs

In rare situations, an output channel can fail. It may go quietly, or it may produce unwanted sounds. In either case, the individual output channel can be temporarily turned off so as not to cause problems until it can be repaired.

1. **Activate Master module.**
2. **Select 8. Special, 2. Disable Outputs (8/2).**
3. **Use the left/right cursor buttons to place the cursor under the channel to be disabled.** As notes are played the display will show small bar graphs of the VCA Envelopes for each of the 16 channels, making it easier to determine the bad channel(s).

```
DISABLE OUTPUTS
1      5      9      13
-----
X
```

**4. When the cursor is under the channel to be edited, press *Off to disable, or On to enable*.** If the channel is disabled, it will be indicated by a small X below the channel number.

**5. Press *ENTER* to exit the submodule.** The EIII will return to the Module Identifier.

### ■ 3. Recalibrate

With this function you can select minimum and maximum values for the data slider, volume slider, left wheel, right wheel, keyboard pressure, and foot pedal. You can also select a center value for the left wheel. If you feel that one or more of the realtime controllers is not operating correctly, or the EIII seems to drift in pitch, it may be time to recalibrate. This procedure should be done periodically since the analog components used in the realtime controls may change over time.

**1. Activate Master module.**

**2. Select 8. Special, 3. Recalibrate (8/3).**

**3. Select the controller to be recalibrated and press *ENTER*.**

```
RECALIBRATE
3 Left Wheel
Value:
Select a Controller
```

**4. While holding the wheel in position, vary the control to select the minimum desired value, then press *ENTER*.**

```
RECALIBRATE
3 Left Wheel
Min: 0015
Set Minimum Value
```

**5. Vary the control to select the maximum desired value, then press *ENTER*.**

```
RECALIBRATE
3 Left Wheel
Min: 0015 Max:6BE3
Set Maximum Value
```

**6. If you are recalibrating the left wheel, then vary the left wheel to select the center desired value. Press ENTER.**

```
RECALIBRATE
3 Left Wheel
Center: 3A34
Set Center Value
```

**7. Vary the control and check the range covered by each control, then press ENTER.** This should be in the range of 0 to 255.

```
RECALIBRATE
3 Left Wheel
Value: 127
Check Value
```

**8. To save the calibration, press Yes. To cancel the recalibration, press No.** In either case, the display will jump ahead to the next higher-numbered controller to be recalibrated. Upon initiating this step and after reaching the last control to be recalibrated, the EIII will return to the Module Identifier.

■ *The pitch wheel and volume slider must be "flipped" after recalibration to assume their correct positions.*

#### ■ 4. Footswitch Polarity

With this function you can choose whether a footswitch's open or closed state will be interpreted as on by the Emulator III.

**1. Activate Master module.**

**2. Select 8. Special, 4. Footswitch Polarity (8/4).**

**3. Select the desired footswitch polarity.**

■ You must exit the recalibration menu and hit the foot switch twice to see the effect of changing the footswitch polarity.

```
FOOTSWITCH POLARITY
Footswitch On=Closed
Select Open/Closed
```

4. Press **ENTER** to exit the submodule. The EIII will return to the Module Identifier.

### ■ 5. Dynamic Allocation

This function bypasses existing zone-to-output channel assignments, and makes all zones available at all channels.

1. Activate Master module.
2. Select 8. Special, 5. Dynamic Allocation (8/5).
3. Select whether dynamic allocation is on or off.

```
DYNAMIC ALLOCATION
Mode:                off
Select on/off
```

4. Press **ENTER** to exit the submodule. The EIII will return to the Module Identifier.

### ■ 6. Software Version

1. Activate Master module.
2. Select 8. Special, 6. Software Version (8/6).

```
SOFTWARE VERSION
Emulator III
© 1988 E-mu Systems
Jan 18,1999      v1.2
```



**3. The display shows the RAM software version.**

**4. Press *ENTER* to exit the submodule.** The EIII will return to the Module Identifier.

## ■ 7. MIDI Globals

MIDI Global commands override the MIDI settings programmed for each preset in the Preset Definition module and return us to a simpler time when MIDI settings affected all presets. When MIDI Globals are **On**, the MIDI settings for each preset are ignored (except Realtime Controls). When MIDI Globals are turned **Off**, the MIDI settings for each preset are valid. For explanations of each MIDI parameter refer to the Preset Definition module, 6. MIDI.

**1. Activate Master module.**

**2. Select 8. Special, 7. MIDI Globals (8/7).**

**3. Move the cursor to the parameter(s) to be adjusted, and select the desired value(s) with the data slider.** The first page shows:

```
MIDI GLOBALS: off →  
Basic Channel: 1  
MIDI Mode: omni  
MIDI Overflow: on
```

**4. Select page two by pressing the right cursor button.** The second page shows:

```
← MIDI GLOBALS →  
Send Preset Chg: on  
Recv Preset Chg: on  
Send Start/Stop: on
```

**5. Select page three by pressing the right cursor button.** The third page shows:

```

←  MIDI GLOBALS  →
Recv Start/Stop:  on
Send Clocks Only: on
Recv Clocks Only: on

```

6. Select page four by pressing the right cursor button. The fourth page shows:

```

←  MIDI GLOBALS
Local Control:    on

```

### ■ 8. Volume Pedal Global Override

This command overrides any footpedal assignments made in the Realtime Control submodule and forces the footpedal to become a volume pedal. With the pedal in the "up" position, the EIII will have no output; With the pedal fully depressed, the level of each zone will be equal to the VCA Level setting as specified in Analog Processing #2. Volume Pedal Global Override can be turned "On" or "Off" (default is Off). This setting is stored as part of the "System Software" and will remain in its setting after the EIII is powered down and rebooted. The Volume Pedal Override allows the VCA levels of each zone to retain their respective level differences in relationship to each other. Volume Pedal Global works both locally and over MIDI. To receive volume pedal data over MIDI, make sure that each preset that is to receive pedal data is set to the same MIDI controller number (as specified in the MIDI submodule, Preset Definition, #6).

1. Activate Master module.

2. Select 8. Special, 8. Volume Pedal (8/8)

```

VOLUME PEDAL
Global Override: off

```

**3. Select whether volume pedal global override is on or off.**

**4. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## ■ 9. MIDI Load Bank

This feature allows a MIDI command to load banks from the hard disk. The "Magic Preset" is a preset number which tells the EIII that the next preset change command that it receives over MIDI is the bank number to be loaded. Therefore, to load a hard disk bank over MIDI, two program change commands must be sent, the "Magic Preset" and the bank number. For example, if the "Magic Preset" is set at "P85", and the EIII receives a preset change command of 85 followed by a preset change command of 11, the EIII will load bank 11 from the hard disk. If multiple SCSI drives are connected, the EIII will load from the drive most recently accessed. The "Magic Preset" is user definable and can be turned off or set to any preset number from 0 to 99. MIDI Load Bank always works, regardless of MIDI Global or MIDI submodule settings.

**1. Activate Master module.**

**2. Select 8. Special, 9. MIDI Load Bank (8/9).**

```
MIDI LOAD BANK
Magic Preset:
Pxx Off
```

**3. Select the Magic Preset or Off to disable MIDI Load Bank.**

**4. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.



## **4-SAMPLE**

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|                            |             |
|----------------------------|-------------|
| <b>1. LOAD SAMPLE</b>      | <b>4-2</b>  |
| <b>2. RENAME SAMPLE</b>    | <b>4-4</b>  |
| <b>3. ERASE SAMPLE</b>     | <b>4-5</b>  |
| <b>4. COPY SAMPLE</b>      | <b>4-6</b>  |
| <b>5. SETUP</b>            | <b>4-7</b>  |
| <b>6. PLACE SAMPLE</b>     | <b>4-9</b>  |
| <b>7. ARM SAMPLING</b>     | <b>4-11</b> |
| <b>8. FORCE SAMPLING</b>   | <b>4-12</b> |
| <b>9. MIDI SAMPLE DUMP</b> | <b>4-13</b> |
| <b>0. SELECT SAMPLE</b>    | <b>4-15</b> |

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---

## 1. LOAD SAMPLE

Samples can be loaded individually from the internal hard disk, or external storage devices.

**1. Activate Sample module.**

**2. Select Submodule 1.**

**3. If you wish to select a different drive, then press the up cursor button. If not, proceed to step five.**

**4. Select the drive containing the sample to be loaded, then press ENTER.**

```
LOAD SAMPLE from
D1 Internal HD

Select a Drive
```

**5. Select the bank that contains the sample to be loaded, then press ENTER.**

```
LOAD SAMPLE from
D1 Internal HD
B00 Current Bank

Select a Bank
```

**6. Select the sample to be loaded, then press ENTER.** As you scroll through the samples, the display shows the names of the existing samples, whether stereo or mono, sampling rate, and sample length.

```
LOAD SAMPLE from
S00 Current Sample
Stereo          44100Hz
                3.0secs
```

**7. Select the destination sample number into which the source sample will be loaded, then press ENTER.** If you try to overwrite an existing sample, you will be asked if you do want to overwrite. Enter **Yes** to replace the existing sample, **No** to cancel the operation.

```
LOAD SAMPLE into
S00 Selected Sample
S00 Empty Sample
Select Dest Sample
```

**8. If desired, rename the sample.** Choose the characters to be changed with the left and right cursor buttons. Select the desired characters by using the ten key pad, data slider and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces. (See Sample, 2. Rename Sample.)

**9. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

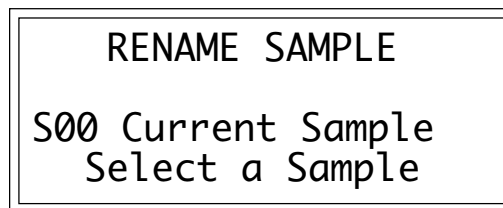
## 2. **RENAME SAMPLE**

This submodule allows you to rename any sample.

**1. Activate Sample module.**

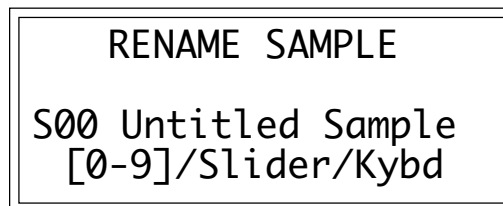
**2. Select Submodule 2.**

**3. Scroll through the samples available for renaming, then press ENTER.**



RENAME SAMPLE  
S00 Current Sample  
Select a Sample

**4. Rename the sample.** Choose the characters to be changed with the right and left cursor buttons. Select the desired characters by using the ten key pad, data slider and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces.



RENAME SAMPLE  
S00 Untitled Sample  
[0-9]/Slider/Kybd

■ Use the data slider or Increment/Decrement buttons to access the full character set. The keyboard does not have enough keys to access all available characters.

**5. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.



### 3. ERASE SAMPLE

Individual samples can be erased from the bank loaded into the Emulator III, and newly created locked samples currently in memory can be erased using this function.

1. **Activate Sample module.**
2. **Select Submodule 3.**
3. **Select the sample to be erased, then press ENTER.**

```
ERASE SAMPLE
S00 Current Sample
Select a Sample
```

4. **If the sample is stereo, select whether you want to erase the left side, right side, or the entire stereo sample.**

```
ERASE SAMPLE
S00 Selected Sample
Side:          Stereo
Select L/R/Stereo
```

5. **Decide if you really want to erase the sample.** The EIII will inquire if you are sure.
6. **Press Yes to erase the sample, or No to cancel the operation.** In either case the EIII will return to the Module Identifier.

## 4. COPY SAMPLE

Samples can be copied to other sample numbers within the same bank.

1. **Activate Sample module.**
2. **Select Submodule 4.**
3. **Select the sample to be copied, then press ENTER.**

```
COPY SAMPLE from
S00 Current Sample
Select Source Sample
```

4. **Select the destination sample number into which the source sample will be copied, then press ENTER.** If you try to overwrite an existing sample, you will be asked if you do want to overwrite. Enter **Yes** to replace the existing sample, or **No** to cancel the operation.

```
COPY SAMPLE to
S00 Selected Sample
S00 Empty Sample
Select Dest Sample
```

5. **Rename the sample.** Choose the characters to be changed with the right and left cursor buttons. Select the desired characters by using the ten key pad, data slider and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces.

6. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 5. SETUP

In this submodule, you will prepare the Emulator III for sampling. When sampling, make sure all proper connections have been made. If you are sampling in stereo, plug into the left and right sample input jacks. If you are sampling in mono, plug into either the left or right sample input jack.

**1. Activate Sample module.** If you want to sample into the sample number shown on the display, you need do nothing except proceed to the next step. To sample into a different sample number, refer to 0. Select Sample.

**2. Select Submodule 5.**

**3. Use the cursor buttons to select one of the following parameters to edit.** Page one displays:

```

SAMPLE SETUP →
Thresh:    |
L: On      | | | | | | | |
R: Off     |

```

■ **VU Meters:** Set the sample level with the sample input slider so that the left and right side meters indicate optimum sampling level. This is defined as the maximum level short of reaching the extreme right side of the display.

■ **Thresh:** (Threshold) Set the sampling threshold with the data slider. If you arm sampling (7. Arm Sampling) and the signal to be sampled exceeds the threshold, sampling will begin.

■ **L:** (Left Channel) Line three shows the left input level, record status, and whether on or off. Press **On** or **Off** to enable or disable recording into the left channel. When sampling into one channel only, turn off the other channel to conserve memory.

■ **R:** (Right Channel) Line four shows the right input level, record status, and whether on or off. Press **On** or **Off** to enable or disable recording into the left channel. When sampling into one channel only, turn off the other channel to conserve memory.

**4. Select page two by pressing the right cursor button.** Page two shows:

■ Line four displays how much sampling time is left in memory. The sample length set on line three cannot exceed this.

```

← SAMPLE SETUP →
Rate:           44053Hz
Length:        100.3secs
120.4secs     Available
  
```

■ *Rate*: Choose between 44053 Hz (20 kHz bandwidth, maximum fidelity) or 33333 Hz (15 kHz bandwidth, uses less memory) sample rate.

■ *Length*: This allows you to select the amount of sampling (recording) time. The maximum available length depends on the amount of memory available and the sampling rate.

**5. Select page three by pressing the right cursor.** Page three shows the following parameters:

```

← SAMPLE SETUP(Auto)
Truncate:      off
Normalize:     absolute
Placement:     24 Keys
  
```

■ *Truncate*: automatically truncates the start, end, or both start and end as soon as the sample is taken. Selecting Off disables auto-tuncation.

■ *Normalize*: increases the amplitude of a sound until the peak amplitude of the loudest sample reaches 100% of full scale. If either Absolute or Relative is selected this is done automatically after the sample is taken. Selecting Off disables auto-normalization. Relative increases the amplitude of stereo samples until the peak sample of either the left or right sample reaches 100% of full level. The relative amplitudes of the left or right samples remain intact. Selecting absolute will increase the amplitude of both the left and right samples to full level. When sampling in mono, selecting absolute or relative makes no difference.

■ *Placement*: selects the transposition range in which new samples will be placed. For example, selecting a range of 24 keys places the next sample over a 24 key range with the original pitch in the center of that range. Selecting white keys places each new sample on the next white key, which is useful for sound effects.

**6. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 6. PLACE SAMPLE

Samples in the bank can be placed to cover a particular range of the keyboard. The exact pitch shifting range depends on the sample rate.

**1. Activate Sample module.** The display will show the current sample number and name. If this is not the sample you want to place, refer to Sample, 0. Select Sample.

**2. Select Submodule 6.**

**3. Select whether you want to place the sample to a primary or secondary zone, then press ENTER.**

```
PLACE SAMPLE
pri
Select pri/sec
```

**4. Select the original pitch of the sample, then press ENTER.** As you select notes, the display will show the samples mapped into the preset.

```
PLACE SAMPLE
pri G1
Select Original Key
```

**5. Select the lowest key of the sample range, then press ENTER.** The display will indicate the preset status (described in step four).

```
PLACE SAMPLE
pri G1 C1
Select Low Key
```

■ *Preset templates may be created by assigning empty samples and analog parameters to keyboard locations and then saving the bank.*

**6. Select the highest key of the sample range, then press ENTER.**

The display will indicate the preset status (as described in step four).

PLACE SAMPLE  
pri G1 C1 to B1  
  
Select High Key

**7. If the display asks *Overwrite Zone?* press *Yes* to overwrite, or *No* to return to the *Module Identifier*.** If you press **Yes** to overwrite, any previously assigned samples that fall within the just-specified keyboard zone will be de-assigned from that zone.

---

## 7. ARM SAMPLING

Upon initiating this submodule, the Emulator III will begin sampling as soon as the sound to be sampled exceeds the threshold set in Sample, 5. Setup. The EIII will actually capture samples just before the threshold is exceeded to preserve the attack portion of the sound (12mS at 44100Hz, 17mS at 31000Hz).

**1. Activate Sample module.**

**2. Select Submodule 7.** If you did not select a specific empty sample prior to arming, the first empty sample will be automatically selected. To overwrite an existing sample, erase it first.

**3. Play the sound to be sampled.** When the sound level exceeds the threshold set in 5. Setup, the display will indicate that sampling has begun.

**4. Terminate sampling.** This will occur automatically after reaching the end of the sample length set in 5. Setup, or if the EIII runs out of memory. To stop sampling manually, press **ENTER**. In any case, the display will return to the Module Identifier.

**5. Decide if you like the sample.** Play the keyboard. If you don't like the sample, re-arm sampling or force sampling and re-sample *before* de-activating the module. Once you de-activate the module, the sample will be locked against re-sampling. To erase a locked sample, use 3. Erase Sample.

■ If the input was clipped during sampling the display will say OverLoad.

## 8. FORCE SAMPLING

**Force Sampling** lets you initiate sampling manually as an alternative to threshold-sensitive sampling. This is useful for situations where the signal to be sampled is more or less continuous. Continuous signals greatly complicate the threshold-setting process described in Sample, 5. Setup. Upon initiating this submodule, the Emulator III will begin sampling immediately.

**1. Activate Sample module.**

**2. Select Submodule 8 when you are ready to begin sampling.** If you did not select a specific empty sample prior to force sampling, the first empty sample will be automatically selected. To overwrite an existing sample, erase it first.

**3. Wait as the signal is sampled.**

**4. Terminate sampling.** This will occur automatically after reaching the end of the sample length (if set in 5. Setup), or if the EIII runs out of memory. To stop sampling manually, press **ENTER**. In any case, the display will return to the Module Identifier.

**5. Decide if you like the sample.** Play the keyboard. If you don't like the sample, re-arm sampling or force sampling again and re-sample *BEFORE* de-activating the module. Once you de-activate the module, the sample will be locked against re-sampling.

■ If the input was clipped during sampling the display will say Overload.



## 9. SAMPLE DUMP

Sample Dump allows sample data to be transferred to and from the Emulator Three using the MIDI Sample Dump Standard. The EIII can transmit sample data with a word size of either 14 or 16 bits (Certain instruments such as the SP-1200 require the use of the 14 bit word size). In addition, for instruments that use 14 bits or less, 14 bit mode transmits data 30% faster.

Before initiating MIDI Sample Dump, make sure that the MIDI cables are properly connected. A single MIDI cable (open-loop) is sufficient but the data transfer will be much faster if two MIDI cables are used (closed-loop). The closed-loop allows the two units to handshake and prevents idle time between each data packet. The cables should be connected between the MIDI In and MIDI Out of both units.

In the Sample Dump Standard and in the EIII, samples are assigned numbers. The EIII sample number and the MIDI sample number remain the same. For example, sample #36 transferred from another device to the EIII will be placed in sample location 36.

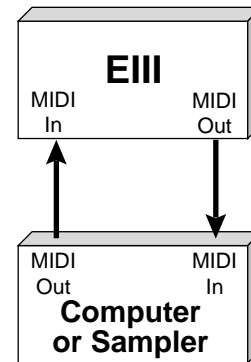
When transferring samples to the Emax, the sample location numbers correspond to sample dump MIDI key numbers. For example, a sample placed in location #60 in the EIII, once transmitted, will be placed on MIDI key #60 (middle C) of the Emax. If sample location #36 is chosen as a reception location on the EIII, the EIII will request that the sample placed on MIDI key # 36 (C1) of the Emax be sent.

**1. Activate Sample module.**

**2. Select Submodule 9.**

**3. Select whether you want to transmit or receive a sample and press ENTER.**

SAMPLE DUMP  
Direction: Transmit  
Select Direction



■ A "closed-loop" connection greatly accelerates MIDI data transfer.

**4. Select the word size and press ENTER.**

■ *Sampling with the EIII and transmitting the data to other samplers can dramatically improve the quality of the other sampler's sounds.*

```
SAMPLE DUMP
Direction: Transmit
Word Size: 16 Bits
Select 14/16 Bits
```

**5. Select a sample to be transmitted and press ENTER.** If the selected sample is stereo, the EIII will ask you to select which side is to be transmitted.

```
SAMPLE DUMP
Direction: Transmit
S01 Selected Sample
Select a Sample
```

**6. Press ENTER to begin the Sample Dump.**

## 0. SELECT SAMPLE

This submodule selects a sample for placing on the keyboard, or the sample into which a sound will be recorded.

**1. Activate Sample module.**

**2. Select Submodule 0.**

**3. Select the desired sample and press ENTER.** As you scroll through non-empty samples, the display will show the sample number, name, sampling rate, sampling length, how many presets use the sample, and whether the sample is stereo, left, or right. And, as you scroll through the samples, they will be playable on the keyboard. Is that considerate, or what?

```
SELECT SAMPLE
S00 Selected Sample
Stereo          44100Hz
10 Presets 120.3secs
```



## **5-PRESET MANAGEMENT**

---

- 1. LOAD PRESET            5-2**
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- 8. VELOCITY SWITCH    5-10**  
**LEVEL**



## 1. LOAD PRESET

A preset, with its samples, can be loaded from the internal hard disk or external storage devices.

**1. Activate Preset Management module.**

**2. Select Submodule 1.**

**3. If you wish to select a different drive, move the cursor to the drive number. If not, go to step 5.**

**4. Select the drive containing the preset to be loaded, then press ENTER.**

```
LOAD PRESET from
D1 Internal HD

Select a Drive
```

**5. Select the bank number that contains the preset to be loaded, then press ENTER.**

```
LOAD PRESET from
D1 Internal HD
B00 Current Bank

Select a Bank
```

**6. Select the preset to be loaded, then press ENTER.**

```
LOAD PRESET from
P00 Current Preset

Select Source Preset
```

**7. Select the destination preset number into which the source preset will be loaded, then press ENTER.** If you try to overwrite an existing preset, you will be asked if you are sure. Enter **Yes** to replace the existing sample, or **No** to cancel the operation.

```
LOAD PRESET into
P00 Selected Preset
P00 Empty Preset
Select Dest Preset
```

**8. If desired, rename the preset.** Choose the characters to be changed with the left and right cursor buttons. Select the desired characters by using the ten key pad, data slider and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces. (See 2. Rename Preset.)

**9. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

■ If you load a preset that uses samples already present in the bank, new copies of the samples will not be loaded. This technique saves a great deal of memory space. However the samples must be identical, even to the name, otherwise new samples will be loaded.

## 2. RENAME PRESET

■ Use the Data Slider or Increment/Decrement buttons to access the full character set; the keyboard does not have enough keys to access all available characters.

This submodule allows you to rename any preset in the Emulator III's current bank.

1. **Activate Preset Management module.**
2. **Select Submodule 2.**
3. **Scroll through the presets available for renaming. When the display shows the desired preset, press ENTER.**

```
RENAME PRESET
P00 Current Preset
Select a Preset
```

4. **Rename the preset.** Choose the characters to be changed with the left and right cursor buttons. Select the desired characters by using the ten key pad, data slider, and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces.

```
RENAME PRESET
P00 Untitled Preset
[0-9]/Slider/Kybd
```

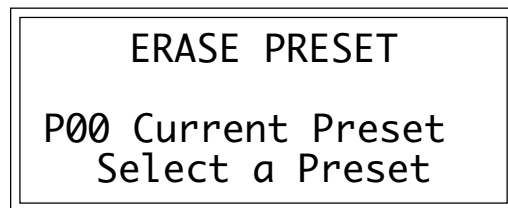
5. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.



### 3. ERASE PRESET

Individual presets, with or without their samples, can be erased from the bank loaded into the Emulator III to free up memory space.

1. **Activate Preset Management module.**
2. **Select Submodule 3.**
3. **Select the preset to be erased, then press ENTER.**



■ Erasing a preset won't necessarily free up sample memory if the same samples are used in other presets that are not erased.

4. **Press Yes to erase the preset, or No to cancel the operation.**  
If the preset you are erasing contains samples unique to this preset, you will be asked if you want to Erase Samples Also? Enter **Yes** to erase the unique samples, or **No** to erase the preset. In either case the EIII will return to the Module Identifier.

## 4. COPY PRESET

■ *Copying a preset will not make copies of the samples used in the preset.*

Presets can be copied to other preset numbers within the same bank. This is useful if you want to create variations on a particular preset. For example, you may want to alter the MIDI, velocity, or arpeggiator setups, or Analog Processing parameters.

1. **Activate Preset Management module.**
2. **Select Submodule 4.**
3. **Select the preset to be copied, then press ENTER.**

COPY PRESET from  
P00 Current Preset  
  
Select Source Preset

4. **Select the destination preset number into which the source preset will be copied, then press ENTER.** If you try to overwrite an existing preset, you will be asked if you want to overwrite. Press **Yes** to replace the existing sample, or **No** to cancel the operation.

COPY PRESET into  
P00 Selected Preset  
P00 Empty Preset  
Select Dest Preset

5. **If desired, rename the preset.** Choose the characters to be changed with the left and right cursor buttons. Select the desired characters by using the ten key pad, data slider and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces.

6. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

---

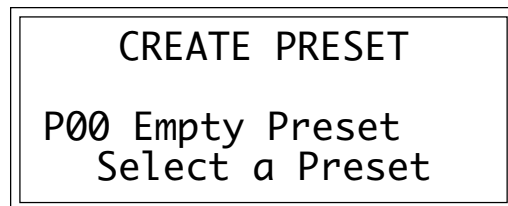
## 5. CREATE PRESET

An empty preset must be initialized by the Emulator III before it can hold samples. This initialization process is called creating a preset.

**1. Activate Preset Management module.**

**2. Select Submodule 5.**

**3. Select the preset to be created, then press ENTER.** If you try to overwrite an existing preset, you will be asked if you want to overwrite. Enter **Yes** to replace the existing preset, or **No** to cancel the operation.



```
CREATE PRESET
P00 Empty Preset
Select a Preset
```

**5. If desired, rename the preset.** Choose the characters to be changed with the left and right cursor buttons. Select the desired characters by using the ten key pad, data slider and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces.

**6. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 6. PRESET SIZE

How much bank memory does a preset require? Use this function to find out.

**1. Activate Preset Management module.**

**2. Select Submodule 6.**

**3. Scroll through the preset numbers and select the Preset whose size you want to check.** The second line shows the selected preset, the third line the amount of preset memory used (both as a percentage of the total bank memory and as an absolute number of bytes), and the fourth line the amount of sample memory used (both as a percentage of the total bank memory and as an absolute number of bytes).

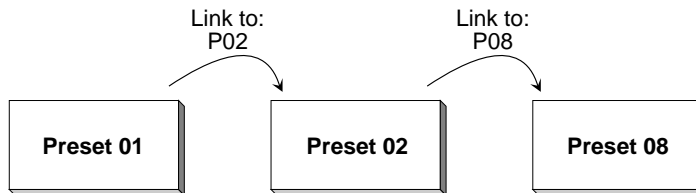
■ The percentages of sample memory used may add up to considerably more than 100% if the same samples are used in several presets.

```
PRESET SIZE
P00 Current Preset
Preset:3.5%      1962
Sample:27.9%    877020
```

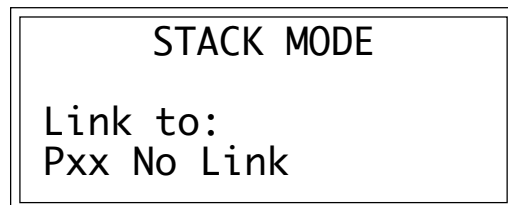
**4. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 7. STACK MODE

Stack Mode allows you to place multiple presets on each key of the keyboard. In stack mode, the current preset can be linked with another preset. The linked preset can in turn, be linked with another preset and so on until all of the available channels are used up. As an example, suppose you link preset 01 to preset 02 and that preset 02 has previously been linked to preset 08. When preset 01 is played, presets 02 and 08 will play as well. When preset 02 is played, preset 08 will also play. The polyphony of the Emulator III will vary according to the voice architecture of each preset in the stack. If two presets are linked to themselves, forming a loop, those two presets will play in unison up to the 16 channel limit of the EIII.



1. **Select the current preset.**
2. **Activate Preset Management module.**
3. **Select submodule 7.**
4. **Use the data slider to choose the preset (or none) that will be linked to the current preset.**



5. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

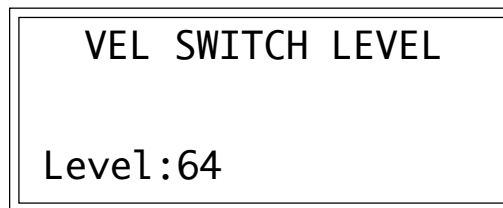
## **8. VELOCITY SWITCH LEVEL**

The velocity cross-switch function in the Preset Definition module, (5. Crossfade/Switch) allows overlapping samples to be switched according to key velocity. This function sets the velocity at which samples are cross-switched.

**1. Activate Preset Management module.**

**2. Select submodule 8.**

**3. Use the data slider to select the velocity at which samples will be cross-switched.** Velocity values range from one to 127.



**4. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## **6-DIGITAL PROCESSING**

---

|                                      |             |
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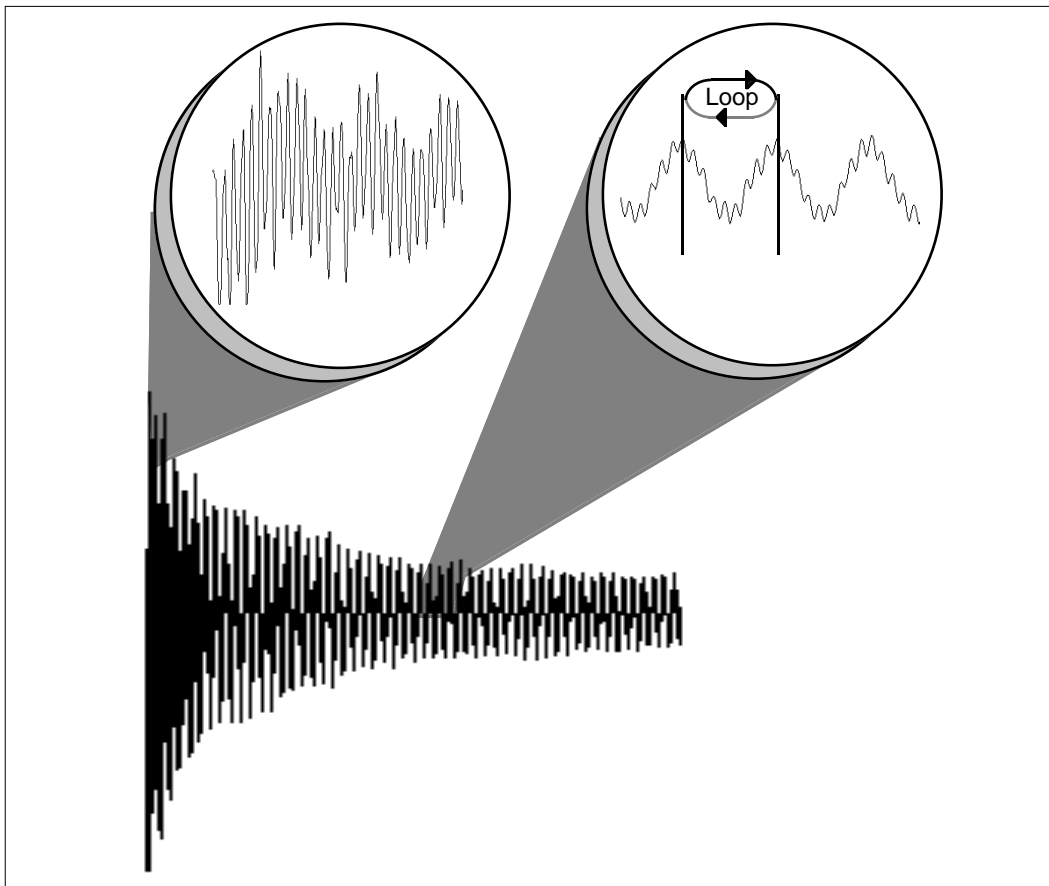
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## **BACKGROUND: ABOUT LOOPING**

Sampling is the process of storing sounds in digital memory. Since each individual sample (not the complete sample, but each element of the sample) requires one memory slot, memory requirements increase if you sample long sounds or use high sampling rates.

The Emulator III does not scrimp on memory. It has more than a stock Mac Plus or SE, Amiga, and Atari ST computer put together. But memory capacity is finite. Cost considerations dictate how much memory can be included...which brings us to looping.

■ *How Looping Works:* Looping is a technique that can extend a sound's length without using lots of memory. It is based on the fact that many sounds start off with a complex attack transient, then settle down to a comparatively steady sound. Listen carefully to a



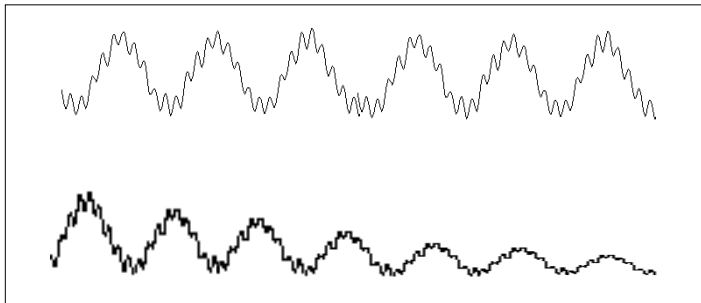


plucked guitar string. The first part of the sound consists of a generally complex mixture of pick noise and several harmonics; after a while, the string decays down to a pretty steady repetitive waveform.

Since the latter part of the waveform is repetitive, there is no need to waste memory sampling several seconds of it. Instead, you can mark off a loop of the repetitive section, and instruct the EIII to play that looped section for as long as the key is held down. After playing to the end of the loop, the EIII will jump back to the beginning of the loop and play through the loop again. This process repeats until you release the key playing back the sample.

■ *Looping Saves Memory:* Since the loop can repeat indefinitely, any samples that occur past the loop end are unneeded. Therefore, you can truncate those samples, and free up the memory they used.

■ *Creating Attack and Decay Characteristics for the Looped Portion:* One potential problem is that the loop repeats at the same level. This is usually acceptable for sustaining instruments (flute, organ, brass, etc.), but is unacceptable for plucked or struck sounds, which decay over time. Fortunately, the Analog Processing module provides a means to shape the attack, sustain, and decay characteristics of a sample. You can create a decay during the looped portion, and simulate pluck or struck sounds.

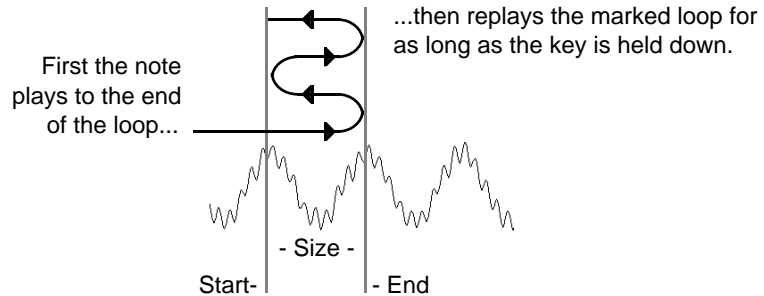


*Artificial Decay can be applied to a looped sound.*

■ *Different Ways of Looping:* Another potential problem is that loop beginning and end points must be very carefully chosen for the best sounding loop. If there is a level shift between the beginning and end of the loop, a pop or tick will sound every time the loop jumps from the end of the loop back to the beginning. The Emulator III offers four different ways to overcome this notorious problem:

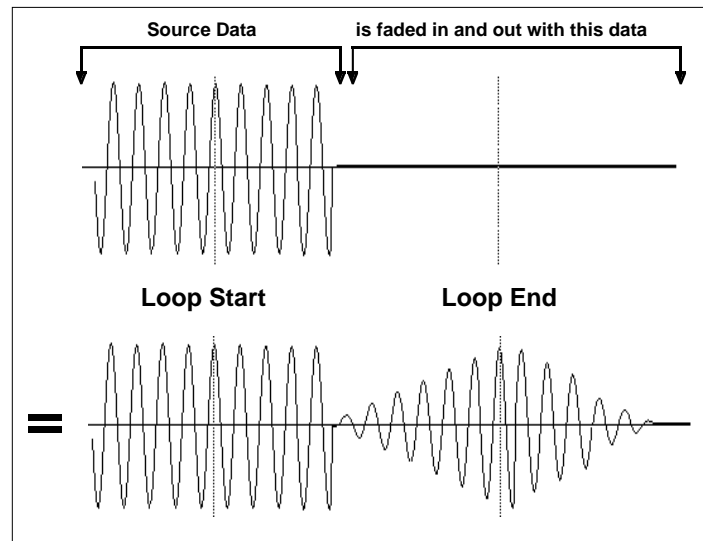
■ *Auto Correlation:* The EIII's computer examines the loop points, and shifts your estimated loop start and end points to provide the best possible loop within the vicinity of the estimated loop points you set.

■ **Forward/Backward Looping:** With this type of loop, the EIII plays to the end of the loop, then reverses direction and plays backward to the beginning of the loop. It then reverses itself and plays forward to the loop end, repeating this process for as long as the key is held down. Forward/backward looping is usually most effective with fairly long loops.



■ **Loop Compression:** The looped section of the sample can be compressed, which "evens out" any changes in amplitude. Changes in amplitude can cause "breathing" effects, thumping or clicks.

■ **Crossfade Looping:** The Emulator III fades between the beginning and end of the loop so that as the end fades out, the beginning fades in. This virtually eliminates the clicks and pops that can occur with other types of looping.

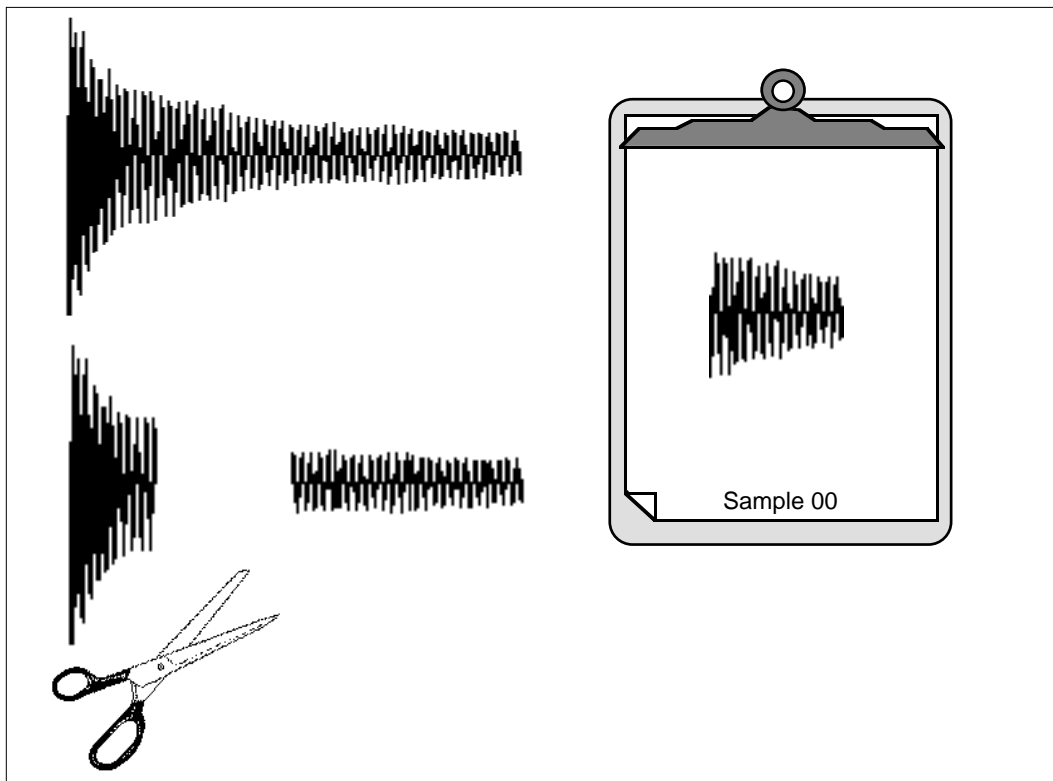


**CROSSFADE LOOPING.** Crossfade Looping takes sound data from around the loop start point and fades it into the sound data around the loop end point so that the data at those loop points is identical.

## BACKGROUND: CUT, COPY, PASTE, & UNDO

Imagine a printout of a sample. Now imagine that you have a pair of scissors capable of cutting a piece out of that sample (or a copy of that piece if you don't want to affect the original), as well as a clipboard to neatly hold the cut or copied piece. Now imagine that you can either perfectly insert the clipboard contents at any given point in any sample, *or* mix the clipboard contents in with any sample, starting at any designated point. The Emulator III can do all this, and all electronically. The EIII also provides Auto Correlation and optional Crossfade functions that result in seamless transitions between the cut, copied, and pasted parts.

■ The clipboard contents are designated as Sample 00.



**CLIPBOARD DATA.** The clipboard will retain data until replaced by other data to be copied, cut, or backed up. This occurs with several EIII operations where you want to be able to undo an action that doesn't work out as anticipated. Since clipboard data stays intact when you call up another sample, data can be cut or copied from one sample and pasted to another.

■ **Undo and Redo:** During several Emulator III digital processing operations such as cut, paste, and

sample rate conversion, the EIII will automatically back up the sample being processed and store this backup on the system drive. If you do not like the results of the processing, you can call up the Undo function, and restore the original sample from the system drive. (Ah, if only life itself was so simple.) Best of all, the processed sample will now move onto the system drive. Thus, if you decide you liked the processed version better after all, you can actually undo the undo. (Redo.)

■ *Insufficient System Drive Memory:* The display will inform you if there is not enough memory to back up a sample onto the system drive. You then have two choices: either free up some additional memory by erasing banks on the system drive, or call up the Undo function (Digital Processing, 9. Undo) and disable the backup process. Of course, if backup is disabled, you will not be able to undo an operation.

■ *Typical Applications:* Typical cut/copy/paste applications would be to splice the beginning of one sample to the end of another, or to mix two samples together to conserve memory. (Do this by copying an entire sample, then pasting it at the beginning of the second sample using the mix option.) You can splice an attack transient on to a synthesizer waveform loop to produce realistic sounds that take up virtually no memory, or take out a pop or click in a sample. Another possibility is for flanging and chorusing. Paste (mix) a sample to itself, offset from the beginning by a few hundred samples or so, to thicken up the sound.

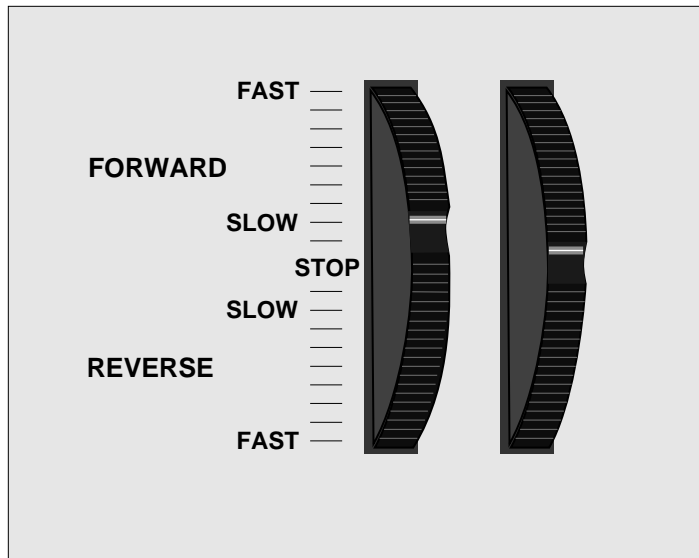
We suggest you practice cut, copy, and paste techniques on a spoken phrase. Samples of political speeches can be particularly amusing when subjected to cut and paste operations.

This submodule lets you select the type of loop, the playback mode,

## BACKGROUND: THE SCRUB WHEEL

The Scrub Wheel is an Emulator III function that allows you to use the pitch wheel in many Digital Processing functions to quickly move through a sound, similar in concept to rocking the reels of a reel-to-reel tape recorder. The scrub wheel makes it easy to locate a particular section of a sound because you are able to hear the sound as you move through it.

To use the scrub wheel, move the pitch wheel of the EIII or your MIDI keyboard while in a Digital Processing function such as Truncation or Looping. If the pitch wheel is moved slightly forward, the sound will play slowly through its length. If the wheel is pushed forward all the way, the sound will play through faster. If the wheel is moved backwards (towards you) the sound will play backwards through the sound. The scrub wheel operates like the accelerator on your car: the harder you press it, the faster it goes. The scrub wheel can be calibrated to your own preference in Digital Processing, 1. Setup. If the scrub wheel does not seem to work properly, the left wheel may need recalibration. (Refer to the Recalibration function, located in the Master module, 8. Special, 3. Recalibrate.)



*EMULATOR THREE SCRUB WHEEL. Move the wheel slightly to advance slowly through the sound. Move the wheel more to advance quickly through the sound.*

## **BACKGROUND: AUTO CORRELATION AND ZERO CROSSING**

### ***Auto Correlation***

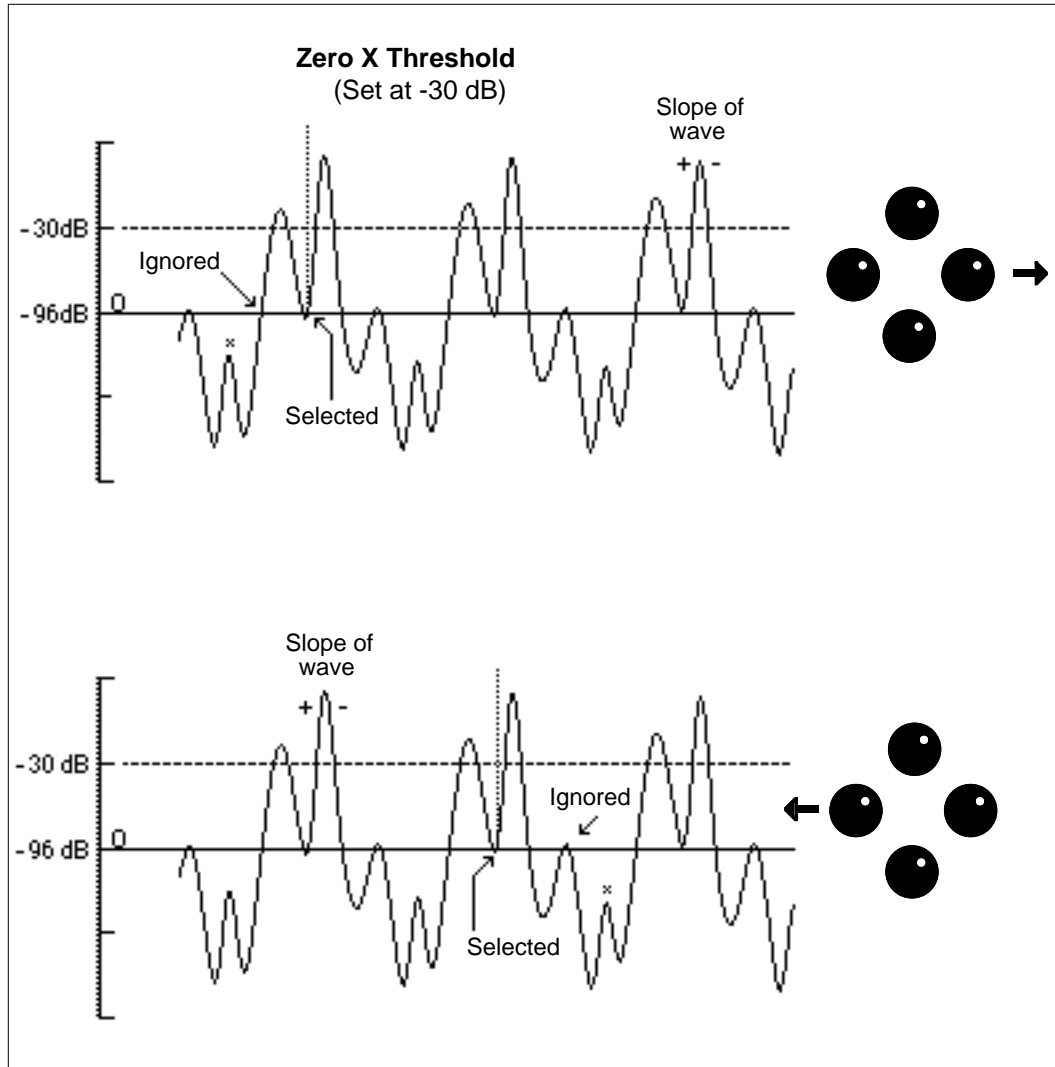
First of all, just what does auto correlation mean? Auto correlation simply means automatic correlation or comparison. The computer analyzes the signal around the loop points you have specified and then moves the end point of the loop until it finds a section of the wave that closely matches the section around the start point. Auto correlation may be used again and again with the computer moving the analysis window slightly each time to try to zero in on the optimum loop.

### ***Zero Crossing***

The term zero crossing refers to the point at which the positive slope of a waveform passes through zero. In many digital processing applications, such as splicing and looping, it is useful to locate zero crossings in order to make glitch-free joins and loops. On some signals, however, a simple zero crossing may not be effective because the signal contains excessive noise or low-level, high-frequency harmonics. In these cases, every few samples may cross through zero. By setting a zero crossing threshold, we can ignore low-level zero crossings and wait for the signal to reach a certain level before choosing the next zero-crossing. Zero crossing threshold sets a level that a signal must exceed before the next zero crossing with a positive slope is selected. The selected zero crossing threshold is used in the Auto-Truncate function (Sample, 5. Setup) or whenever you manually select a zero crossing using the cursor keys.

The diagrams on the following page illustrate zero crossing in action. The small x marks the initial position. To move forward through the sound to the next zero crossing, press the right cursor button, as shown in the upper diagram. The EIII will find the first zero crossing on the positive slope after the signal has crossed the designated threshold.

To move backward through the sound to the next zero crossing, as shown in the lower diagram, press the left cursor button. The EIII will find the first zero crossing on the positive slope after the signal has crossed the designated threshold.



**ZERO CROSSING POINTS.** To move forward through the sound to the next zero crossing, press the right cursor. To move backward through the sound to the next zero crossing, press the left cursor. The Emulator III will find the first zero crossing on the positive slope after the signal has crossed the designated threshold.

# 1. SETUP

and set various parameters concerning other Digital Processing functions. For more information, see *Background: About Looping*, *The Scrub Wheel*, and *Zero Crossing* at the beginning of this section.

**1. Activate Digital Processing module.**

**2. Select Submodule 1.**

**3. Select the loop type on line two.**

→

SETUP

Loop Type: forward

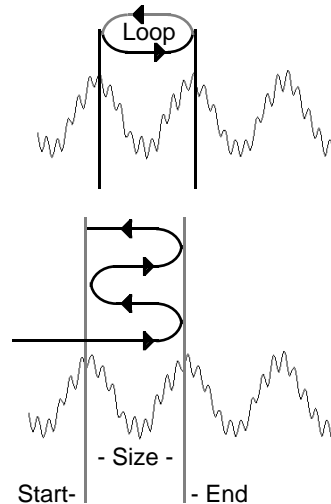
Loop in Release: on

Reverse Playback: off

Your choices are:

■ *Off*: The loop is disabled and the sample plays as recorded.

■ *Forward*: The sample plays normally until it reaches the end of the loop. It then jumps back to the start point and replays through the loop. Upon reaching the loop end, it again re-plays the loop. This looping process continues for as long as the key is pressed.



■ *Fwd/Bkwd*: (Forward/Backward) The sample plays normally until it reaches the end of the loop. It then plays backward until it reaches the start point, then reverses direction and replays through the loop until it reaches the loop end. At that point, playback reverses direction again. This forward/backward looping action continues for as long as the key is pressed.



**4. Select whether Loop in Release on line three is on or off.** Here are your choices:

■ **Off:** Lifting your finger off a key initiates the release phase of the VCA envelope. If Loop in Release is off, the loop will not continue during the release phase. The portion of the sample after the loop will be played during release. The signal may cut off abruptly after you remove your fingers from the keys if the sample has been truncated after the loop.

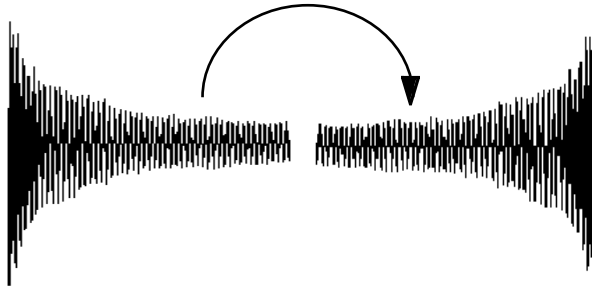
■ **On:** With Loop in Release on, the loop will keep playing—even after you lift your finger off the key—for the duration of the VCA release.

**5. Select whether Reverse Playback on line four is on or off.** Here are your choices:

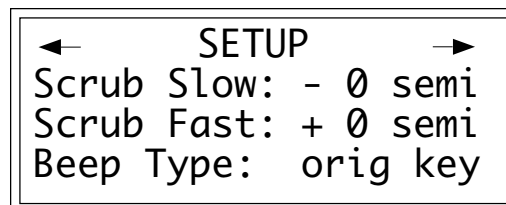
■ **Off:** The sample plays back as recorded.

■ **On:** The sample is played back in the reverse order in which it was recorded. For example, a percussive sound, when played backwards, will have an attack time instead of a decay time.

■ *If a sample ends in a loop, playing it backwards will repeat the loop. The sample will not play back prior to the loop start.*



**6. Select page two by pressing the right cursor.**



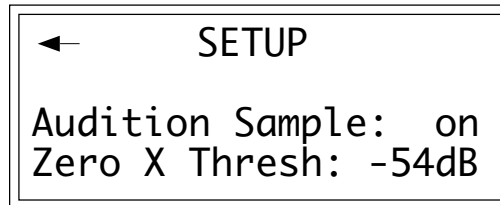
Scrub Slow sets the speed at which the sample will play when the wheel is moved slightly. Scrub Fast sets the speed at which the sample will play when the wheel is moved full forward or backward. If the Scrub Slow setting is set at -12 semitones and the wheel moved slightly forward, the sound would play as if you had hit a key one octave down from the original pitch or at half its original speed. The

Scrub Slow and Fast settings allow you to adjust the scrub wheel to your personal preference.

If Beep Type is enabled, you will get an audible indication when the digital processing is done. The second page allows you to select the beep type on line four. Your choices are:

- *Off*: no beep
- *Original Key*: will play the calculated sound in the original key.
- *Metronome*: will buzz the metronome.

**7. Select page three by pressing the right cursor.**



■ If Audition Key is "Off", pressing a key once selects the primary sample and pressing it again selects the secondary sample.

**8. Select whether Audition Sample is on or off.** Turning Audition Sample "Off" allows you to listen to the current preset while working in the Digital Processing module (default is "On"). When Audition Sample is turned "Off", all parameters assigned to the current preset (VCA, VCF, Realtime Controls, etc.), will remain in effect while working in the Digital Processing module. In addition, while in the Select Sample, Cut, Copy, or Paste functions, samples can be selected simply by playing the keyboard.

**Caution:** If the current sample is not in the current preset, you will not be able to hear your changes until the proper preset is selected.

**9. Use the data slider to select the desired zero crossing threshold.** A setting of -96dB will be most sensitive, and a setting of -30dB will be least sensitive. The selected Zero Crossing Threshold is used in the Auto-Truncate function (Sample, 5. Setup) or whenever you manually select a zero crossing using the cursor keys. If the Auto-Truncate function does not seem to be working well, try adjusting the zero crossing threshold.

**10. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

This submodule allows you to specify loop start and length points.

## 2. LOOP

If you have a difficult time finding good loop points, the Emulator III can assist you with the Auto Correlation function. If Auto Correlation doesn't produce acceptable results, the beginning and end of a loop can be Crossfaded to help mask loop discontinuities. For more information, see *Background: About Looping* at the beginning of this section.

**1. Activate Digital Processing module.**

**2. Select Submodule 2.**

| LOOP   | secs | samples |
|--------|------|---------|
| Start: | 1.59 | 35016   |
| End:   | 2.43 | 53599   |
| Size:  | 0.84 | 18584   |

■ The loop points can be continually adjusted using the scrub wheel or data slider while the sound is playing.

**3. Select the values for the start point on line two and the loop size on line four that give the best looping effect, then press ENTER.** The left and right cursor will change the start point and/or size so that the loop automatically falls on positive zero crossing points in the waveform.

The sample size equals the difference in samples between the start and end points. These settings interact in the following ways:

- Changing the size will automatically change the end point, so that the difference in samples between the start and end points remains equal to the size.
- Changing the start point will change the end point to maintain a constant size.
- Changing the end point changes the size, and the start point remains constant.

**4. The display will inquire if you want to Auto Correlate. Press YES to Auto Correlate, or NO to proceed directly to step six, Compress Loop.** Auto Correlation uses artificial intelligence techniques to choose optimum loop points. Without Auto Correlation, unless you are proficient with sampling techniques, loops will usually have discontinuities between the splice points that can produce annoying ticks, pops, or other glitches.

With Auto Correlation, the Emulator III looks for loop points near

```

LOOP      secs samples
Start:    1.59   35016
End:      2.43   53599
Auto Correlate? Y/N

```

the ones you chose that can be spliced together with minimum discontinuity. Occasionally it will be impossible for either you or the EIII to locate a perfect splice point, but in most cases you'll find that Auto Correlation, combined with practice and experimentation, can produce very smooth loops.

■ *If a sample's loop disappears as soon as you have left the Digital Processing module, check to see if the loop function has been disabled in Analog Processing, 1. Setup.*

**5. If desired, repeat steps three and four, until the best possible loop results.** When you're finished looping, press NO in step four and carry on.

**6. The display will inquire if you want to Compress the Loop.**

```

LOOP      secs samples
Start:    1.59   35016
End:      2.43   53599
Compress Loop? Y/N

```

**Press Yes to Compress, or No to proceed directly to step seven, Crossfade Loop.** Compressing just the loop portion of the sound is yet another way to achieve a smooth sounding loop. Compression "evens out" the changes in level during the loop which are perceived by the listener as amplitude modulation.

**7. Select the Crossfade Loop size and type, then press ENTER.** Crossfading means that as one part of the loop fades out, the other fades in. Instead of butt-splicing the end of the loop back to the beginning when forward looping, (or butt-splicing the loop end and start points with forward/backward looping), Crossfade looping smoothly crossfades between the two sounds on either side of the splice. Crossfading virtually eliminates any loop glitches, although there may be level variations instead. These variations are not as noticeable as loop glitches. For more information, see *Background: About Looping* at the beginning of this section. Your Crossfade looping type choices are:

```
XFADE   secs  samples
Size:   0.00  00000
Type:                   Linear
```

■ *EqPwr*: (Equal Power) This is a weighted crossfade that produces no apparent level shift. It is the most commonly used mode.

■ *Linear*: This provides a straight mathematical crossfade. Use Linear mode with samples whose splice points are already close to optimum, such as a sample that has already been Auto Correlated.

When you press **ENTER**, the sample will be backed up so that crossfade looping can be undone (in Digital Processing, 9. Undo) if you are not happy with the results.

**8. Press YES to truncate (discard) all samples after the loop end, or NO to retain the samples after the loop end.** If you might want to re-loop the sample later, or try different loop points, press **NO**. If you are satisfied with the loop, press **YES**. This will save memory and the EIII will return to the Module Identifier.

**9. If you are not satisfied with the resulting crossfade or compression, or didn't really want to truncate those samples past the end point, proceed to Digital Processing, 9. Undo.**

**Truncation** shortens a sample's length by trimming off individual

■ *If there is not enough disk memory to back up a sample, the EIII will not let you crossfade unless you go into Digital Processing, 9. Undo, and disable the backup process.*

### 3. TRUNCATION

samples from the beginning and/or end. Truncation is most often used to remove unneeded portions of a sample to conserve memory, but it can also be used to change instrument characteristics such as removing the attack from a plucked string note or isolating a particular section of a sample.

**1. Activate Digital Processing module.**

**2. Select Submodule 3.**

**3. Truncate the desired amount of samples from the start on line two and/or the end on line three, then press ENTER.**

■ The left and right cursor keys will change the start and end points so that they automatically fall on positive zero crossing points in the waveform.

|        |      |         |
|--------|------|---------|
| TRUNC. | secs | samples |
| Start: | 0.00 | 00001   |
| End:   | 2.43 | 53610   |
| Size:  | 2.43 | 53610   |

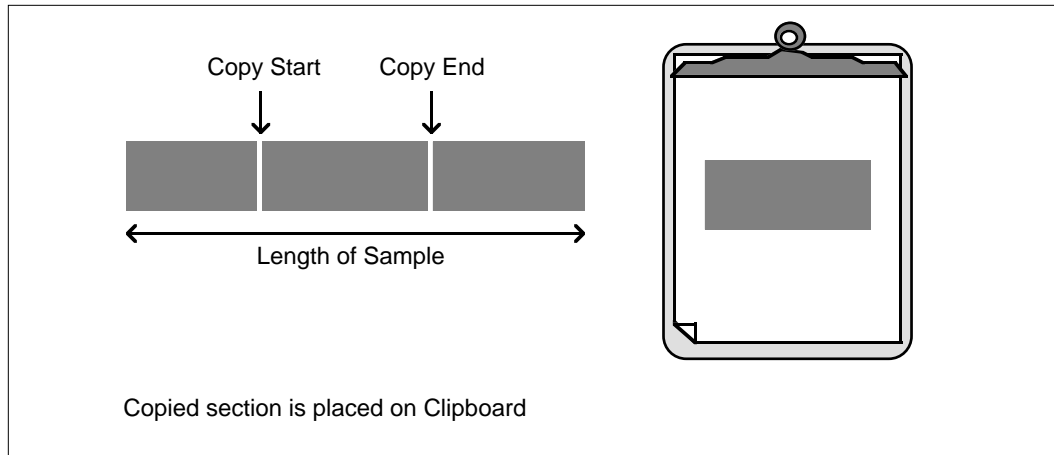
The sample size equals the difference in samples between the start and end points. Because of this, these settings interact with the size value on line four in these ways:

- Truncating the start will cause the size to change to maintain a constant end point.
- Truncating the end will cause the size to change to maintain a constant start point.

**4. If you are not satisfied with the resulting truncation, or want to compare before and after, proceed to Digital Processing, 9. Undo.**

Portions of a sample can be cut, copied, and pasted to other samples,

## 4. COPY SECTION



or the samples from which they came. The Copy function allows you to duplicate a section of a sample, and store that duplicate in a special part of memory called the clipboard. For more information see the section *Background: Cut, Copy, Paste, and Undo*.

1. **Activate Digital Processing module.**
2. **Select Submodule 4.**
3. **Select the sample that you want to copy a section from, then press ENTER.**

COPY SECTION from  
S01 Selected Sample  
Select a Sample

4. **If the sample is stereo, the following screen will appear. Select the right side, left side, or both sides (stereo), then press ENTER.** Otherwise, proceed to the next step.

5. **Specify the start point on line two and end point on line three**

```

COPY SECTION from
S01 Selected Sample
Side: Stereo
Select L/R/Stereo

```

■ The left and right cursor will change the start and end points so that they automatically fall on positive zero crossing points in the waveform.

**for the portion of the sample to be copied, then press ENTER.**

Use the up and down cursor to choose the appropriate line. The size of the portion to be copied on line four will change to reflect changes in the start and end points. Pressing **ENTER** saves the selected portion in the clipboard. *Copying does not affect the original sample.* The clipboard will retain this data until replaced by something else to be copied, cut, or backed up.

```

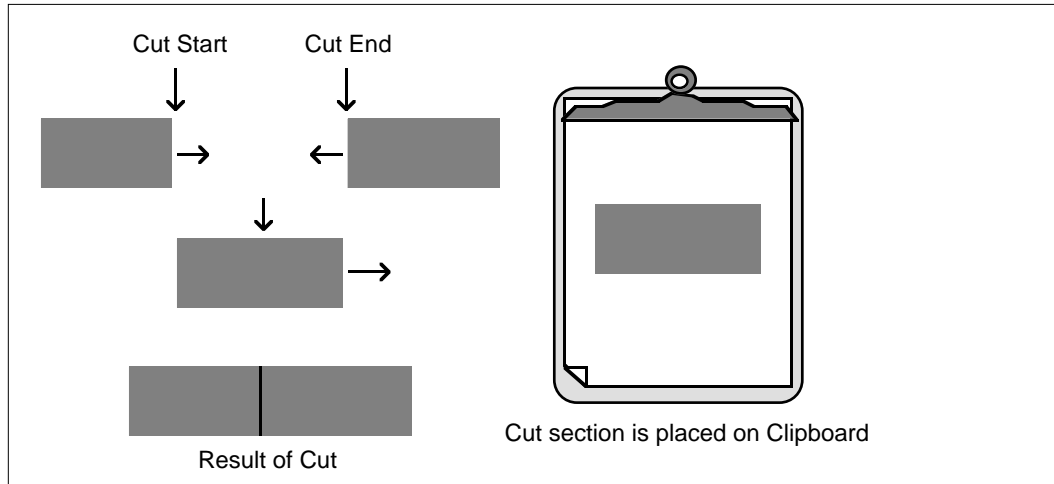
COPY      secs  samples
Start:    0.00   00001
End:      1.61   57881
Size:     1.61   57881

```

Portions of a sample can be cut, copied, and pasted to other samples,



## 5. CUT SECTION



or the samples from which they came. The Cut function removes a section of a sample, and stores the cut portion in a special part of memory called the clipboard. For more information see the section *Background: Cut, Copy, Paste, and Undo*.

■ The left and right cursor keys will change the start and end points so that they automatically fall on positive zero crossing points in the waveform.

1. **Activate Digital Processing module.**
2. **Select Submodule 5.**
3. **Select the sample that you want to cut a section from, then press ENTER.**

CUT SECTION from  
S01 Selected Sample  
Select a Sample

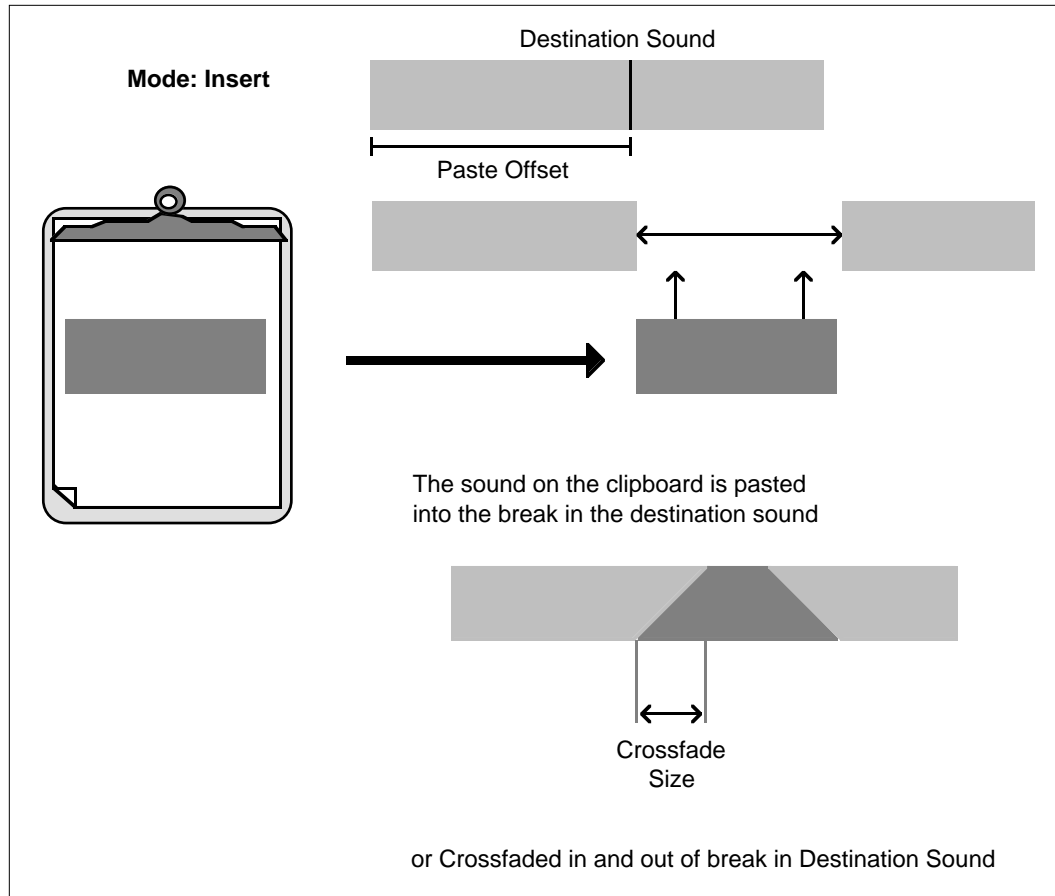
4. **Specify the start point on line two, and the end point on line three for the portion of the sample to be cut, then press ENTER.** Use the up and down cursor to choose the appropriate line. The size of the portion to be cut on line four will change to reflect changes in the start and end points. Cutting affects the original sample by deleting the part being cut. The clipboard will retain this data until replaced by something else to be copied or cut.

|        |      |         |
|--------|------|---------|
| CUT    | secs | samples |
| Start: | 0.00 | 00001   |
| End:   | 1.61 | 57881   |

***5. If you are not satisfied with the resulting cut, proceed to Digital Processing, 9. Undo.***

Portions of a sample can be cut, copied, and pasted to other samples,

## PASTE SECTION



or the samples from which they came. Paste takes the clipboard contents and either inserts them in a sample at a specified point, or mixes them with a sample starting at a specified point. For more information see the section *Background: Cut, Copy, Paste, and Undo*.

1. **Activate Digital Processing module.**
2. **Select Submodule 6.**
3. **Select the sample that you want to paste the clipboard contents into, then press ENTER.**
4. **Specify the paste point on line two as an offset (in samples)**

```
PASTE SECTION into
S00 Selected Sample
Select Dest Sample
```

*relative to the beginning of the sample, then press ENTER.*

■ *The left and right cursor will change the paste point so that it automatically falls on a positive zero crossing point in the waveform.*

```
PASTE secs samples
Offset 0.00 00001

Select Location
```

**5. Choose whether to insert or mix the clipboard contents at the point selected in step three, then press ENTER.**

■ *Use Copy Sample to paste the contents of the clipboard to an empty sample location.*

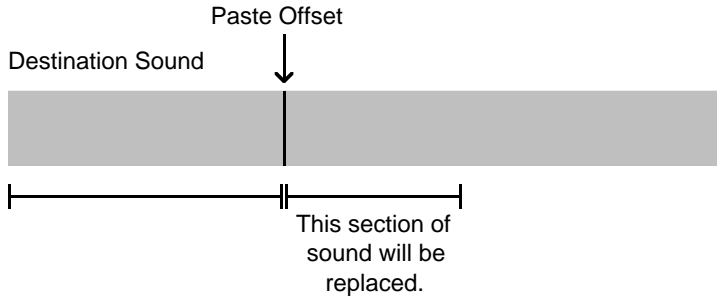
```
PASTE secs samples
Offset 1.06 33943
Mode: Insert
Select Insert/Mix
```

Insert opens up a space in the sample into which the clipboard contents fit. Equal Power Mix and Linear Mix combine the clipboard contents with existing samples, starting at the point selected in step three. Normally, you will always use Equal Power. Use Linear Mix when the signals are very similar or when Equal Power causes a gain in amplitude.

**6. If you chose insert in step five, proceed to the next step. If you chose mix in step five, select the level of the contents to be mixed, then press ENTER.** 100% indicates a replacement.

**7. Select the Crossfade size and type, then press ENTER.**

```
PASTE secs samples
Offset 1.06 33943
Mode:Equal Power Mix
Source Amount: 100%
```



**Mode: Mix**  
**Source Amount: 100%**

■ Mixing with a source amount of 100% can be used to replace one side of a stereo sample.

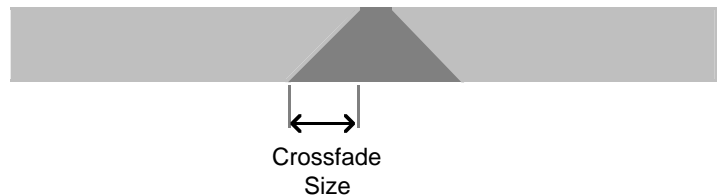
```

XFADE      secs samples
Size:      0.00  00000
Type:                      Linear
    
```

Crossfading minimizes glitches from pasting dissimilar sections of samples. When creating time delay and flanging/chorus effects, do not select any Xfade time for best results. Your choices are:

- *EqPwr*: (Equal Power) This is a weighted crossfade that produces no apparent level shift. It is the most commonly used mode.
- *Linear*: This provides a straight mathematical crossfade.

**8. Press ENTER to perform the paste.**



■ If the clipboard sample rate does not match that of the current sample, the E111 will first change the sample rate of the clipboard.

**XFADE Mixing**  
**Source Amount = 100%**



0.00 Sec. Crossfade

**Mode: Mix**

**Source Amount: 50%**



↔  
Crossfade  
Size

**XFADE Mixing**

**Source Amount = 50%**

***9. If you are not satisfied with the paste, or want to compare before and after, proceed to Digital Processing, 9. Undo.***

## 7. SAMPLE RATE CONVERSION

Sampling at a high sample rate provides better frequency response than sampling at a slower rate, but it uses up more memory. If you need to reclaim some of that memory, and are willing to trade off sample frequency response, samples can be converted from a higher rate to a lower one. Use your ear to compare sounds at the two sample rates. If you can't tell the difference, use the lower rate.

Sample Rate Conversion can be used for saving memory, increasing the transposition range of a sound, or exactly matching the sample rate to a multiple of the sounds frequency for perfect single cycle loops.

**1. Activate Digital Processing module.**

**2. Select Submodule 7.** The display will show the current sample rate and sample size.

```
SAMPLE RATE CONVERT
Rate:           22050Hz
Size:           107220
Select Sample Rate
```

**3. Select the new sample rate and press ENTER.** The display will update the sample size to reflect the new sample rate. The conversion process can take quite some time with longer samples, but it does maintain true 16-bit precision.

**4. If you are not satisfied with the resulting sample rate conversion, or want to compare before and after, proceed to Digital Processing, 9. Undo.**

■ If Beep type is enabled (see Digital Processing, 1. Setup) you will hear an audible indication when the sample rate conversion process is complete.

## 8. DIGITAL EFFECTS

This submodule contains several additional numbered functions. Here are short descriptions of each function.

- **1. Digital Tuning:** Digitally retunes a sample within a range of  $\pm$  three octaves. Digital re-tuning is a type of re-synthesis function that takes an existing sample and re-synthesizes a new sample.
- **2. Taper:** Adds a fade-in and/or fade-out to the sample, thus smoothing out samples with abrupt beginnings or endings.
- **3. Gain Change:** Alters the level of all or part of a sample.
- **4. Reverse Section:** Reverses all or part of a sample.
- **5. Stereo <-> Mono:** Converts a stereo sample to mono or a mono sample to stereo.
- **6. Sample Calculator:** Calculates and displays optimum pitch to sample rate ratios for single cycle loops at the desired pitch.
- **7. Left<->Right:** Swaps sides if the current sample is stereo, or moves a mono sample to the other side.
- **8. Ping Pong:** Dynamically pans stereo samples in a number of interesting ways.
- **9. Digital Delay:** Applies a digital delay to any specified portion of a sample.

### ■ 1. Digital Tuning

Digital Tuning allows you to change the pitch of a sound in order to splice or combine it with another sound of a different pitch; offset the pitch of a copied sample by a few cents, then combine it with the original for flange and chorus effects; or transpose a sound further up or down the keyboard than is normally allowed by making a copy of the sound, changing the pitch, and re-assigning the new sample to the keyboard.

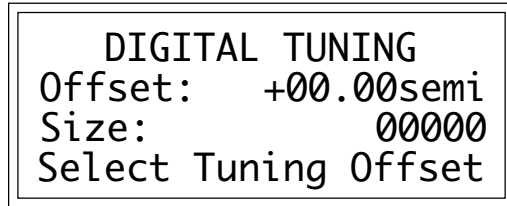
**1. Activate Digital Processing module.**

**2. Select 8. Digital Effects, 1. Digital Tuning (8/1).**

**3. Select the desired amount of re-tuning, then press ENTER.** The display will update the sample size to reflect the changes caused by re-tuning. The re-tuning process can take some time, especially with larger samples, but it does maintain true 16-bit precision.

■ *Re-tuning pitch downward increases the sample size. Re-tuning pitch upward decreases the sample size.*





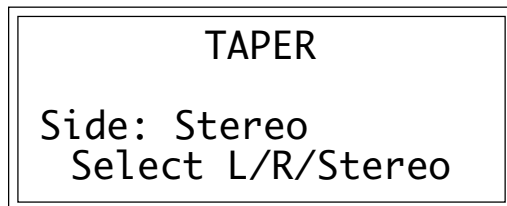
■ If Beep type is enabled (see Digital Processing, 1. Setup) you will hear an audible indication when the sample rate conversion process is complete.

4. If you are not satisfied with the resulting re-tuning, or want to compare before and after, proceed to Digital Processing, 9. Undo.

■ 2. Taper

Taper allows you to create an artificial decay on percussion samples in which the original decay is absent, create an artificial fast attack on a sound (such as a bowed violin with a slow attack), or clean up background noise when editing dialog. The above diagram shows the effect of Taper gain and attenuation on a sample using the Linear and Exp#3 curves.

1. Activate Digital Processing module.
2. Select 8. Digital Effects, 2. Taper (8/2).
3. If the current sample is stereo, the following screen will appear. Select the left side, right side, or both sides (stereo), then press ENTER. Otherwise, proceed to the next step.



■ Taper the ends of sounds before splicing to avoid clicks or pops at the splice points.

■ The left and right cursor will change the start and end points so that they automatically fall on positive zero crossing points in the waveform.

| TAPER  | secs | samples |
|--------|------|---------|
| Start: | 0.00 | 000000  |
| End:   | 3.13 | 137873  |
| Size:  | 3.13 | 137873  |

4. Select the desired taper points and press **ENTER**. The display will show the current taper points, which will be the endpoints of the current sample.

| TAPER         |        |
|---------------|--------|
| Start Amount: | 0.00dB |
| End Amount:   | -96dB  |
| Type:         | Linear |

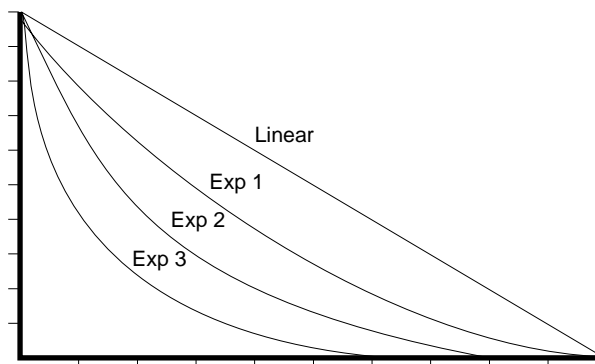
5. Move the cursor to the parameter to be selected, select the desired value(s) with the data slider and press **ENTER**. The sample will be tapered between the selected start and end points with the type of curve selected.

■ When using taper gain, be careful to avoid clipping the signal. The normalize display in the Gain Change submodule may be used as a headroom indicator.

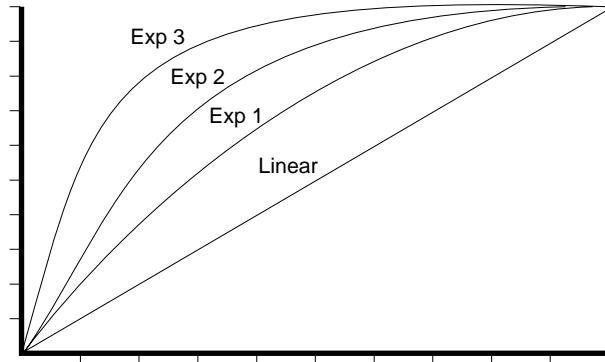
■ **Start Amount:** is the amount of gain or attenuation applied at the start of the taper and is variable from -96 to +96 dB.

■ **End Amount:** is the amount of gain or attenuation applied at the end of the taper and is also variable from -96 to +96 dB.

■ **Type:** selects the type of taper curve: Linear, Exp 1, Exp 2, Exp 3. Graphs of these curves are shown below.



TAPER ATTENUATION CURVES



TAPER GAIN CURVES

6. If you are not satisfied with the resulting taper, or want to compare before and after, proceed to Digital Processing, 9. Undo.

### ■ 3. Gain Change

1. Activate Digital Processing module.

2. Select 8. Digital Effects, 3 Gain Change (8/3).

3. If the current sample is stereo, the following screen will appear. Select the left side, right side, or both sides (stereo), then press ENTER. Otherwise, proceed to the next step.

```

GAIN CHANGE
Side: Stereo
Select L/R/Stereo
  
```

4. Select the desired gain change points and press ENTER.

```

GAIN   secs  samples
Start: 0.00 000000
End:   3.13 137873
Size:  3.13 137873
  
```

■ The left and right cursor keys will change the start and end points so that they automatically fall on positive zero crossing points in the waveform.

The display will show the current gain change points, which will be the end points of the current sample. After pressing **ENTER**, the EIII will compute the amount of gain change necessary to achieve normalization or 0dB headroom.

**5. Select the desired boost or cut with the data slider and press ENTER.** The amount of boost or cut is variable from -96 dB to +96dB in 1 dB steps.

■ *Boosting the sample gain more than the amount specified to normalize will result in clipping which may or may not be audible. Use the normalize display as a headroom indicator.*

```

GAIN CHANGE
Amount:          +00dB
+04dB = Normalize
  
```

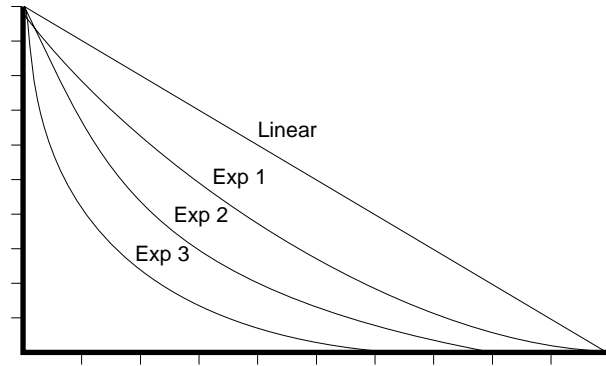
**6. Move the cursor to the parameter(s) to be adjusted, select the desired value(s) with the data slider and press ENTER.** The sample will be tapered between the selected start and end points with the type of curve selected.

```

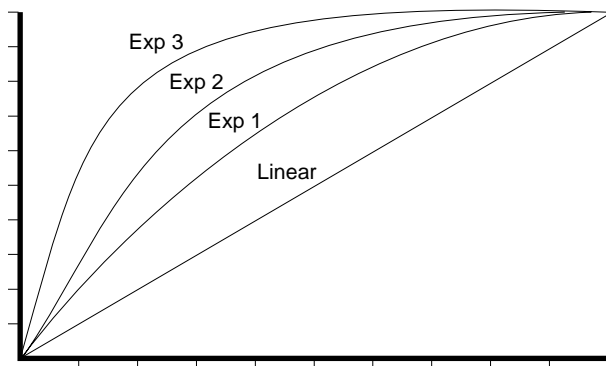
FADE      secs samples
Size:     0.00 00000
Type:                    Linear
  
```

■ *Size:* sets the size of the crossfade between gain change and no gain change. This is variable from 0 to 1/2 the sample size.

■ *Type:* selects the type of gain curve: Linear, Exp 1, Exp 2, Exp 3.



GAIN CHANGE ATTENUATION CURVES



GAIN CHANGE GAIN CURVES

**7. If you are not satisfied with the resulting gain change, or want to compare before and after, proceed to Digital Processing, 9. Undo.**

#### ■ 4. Reverse Section

**1. Activate Digital Processing module.**

**2. Select 8. Digital Effects, 4. Reverse Section (8/4).**

**3. If the current sample is stereo, the following screen will appear. Select the left side, right side, or both sides (stereo), then press ENTER. Otherwise, proceed to the next step.**

REVERSE SECTION

Side: Stereo  
Select L/R/Stereo

**4. Select the desired section of the sample to be reversed and press ENTER.**

■ The left and right cursor will change the start and end points so that they automatically fall on positive zero crossing points in the waveform.

| REVERSE | secs | samples |
|---------|------|---------|
| Start:  | 0.00 | 000000  |
| End:    | 3.13 | 137873  |
| Size:   | 3.13 | 137873  |

The display will show the current points at which the sound will be reversed, which will be the endpoints of the current sample. The sample will be reversed between the selected start and end points.

**5. If you are not satisfied with the resulting reversal, or want to compare before and after, proceed to Digital Processing, 9. Undo.**

### ■ 5. Stereo <-> Mono

**1. Activate Digital Processing module.**

**2. Select 8. Digital Effects, 5. Stereo<->Mono (8/5).** The display will inquire if you want to convert the current sample to stereo (if it is mono) or to mono (if it is stereo).

STEREO <-> MONO

Convert to Mono?

**3. Press YES to convert the the sample to stereo or mono or NO to exit the submodule.** The EIII will return to the Module Identifier.

## ■ 6. Sample Calculator

1. *Activate Digital Processing module.*

2. *Select 8. Digital Effects, 6. Sample Calculator (8/6).* The display will reveal the Sample Calculator.

```
SAMPLE CALCULATOR
Pitch: 440HZ A3
Sample Rate: 44100Hz
Single Cycle: 100.22
```

■ *Use the Sample Calculator to compute sample rates for perfect single cycle loops.*

3. *Select the pitch using either the keyboard or data slider.* The number of samples in a single cycle changes for each note.

4. *Select sample rate on line three. Use the data slider to change the value.* The number of samples in a single cycle changes for each sample rate.

## ■ 7. Left<->Right

1. *Activate Digital Processing module.*

2. *Select 8. Digital Effects, 7. Left<->Right (8/7).* The display will inquire if you want to swap sides if the current sample is stereo, or move the sample to the other side if it is in mono.

```
LEFT <-> RIGHT

Swap Sides? Y/N
```

3. *Press YES to swap or change sides or NO to exit the submodule.* The EIII will return to the Module Identifier.

## ■ 8. Ping Pong

Ping Pong allows you to digitally pan all or portions of stereo samples in a number of interesting ways. Because Ping Pong actually

■ To create stereo samples with different sounds:

1. Convert the first mono sound to stereo.
2. Erase one side by gain changing -96dB.
3. Copy the second mono sound to clipboard.
4. Paste the clipboard to the erased side of the stereo sample.

changes the sample data, it can be performed more than once on a particular sample for those cruel and unusual effects. The Ping Pong effect is more dramatic when the left and right sides contain different sounds rather than mere stereo images of the same sound.

**1. Activate Digital Processing module.**

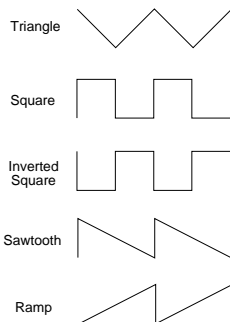
**2. Select 8. Digital Effects, 8. Ping Pong (8/8).** The following screen will appear:

|        |      |         |
|--------|------|---------|
| P Pong | secs | samples |
| Start: | 0.00 | 00000   |
| End:   | 3.54 | 78164   |
| Size:  | 3.54 | 78164   |

Select the desired section of the sample to be ping ponged, then press ENTER. The display will show the current points of the sample to be processed, the start and end points of the current sample.

**3. Move the cursor to the parameter to be specified, select the desired values with the data slider, and press ENTER.** The sample will be ping ponged between the selected points.

|           |            |
|-----------|------------|
| Ping Pong |            |
| Volley:   | 0.5 cycles |
| Swing:    | 100%       |
| Curve:    | triangle   |

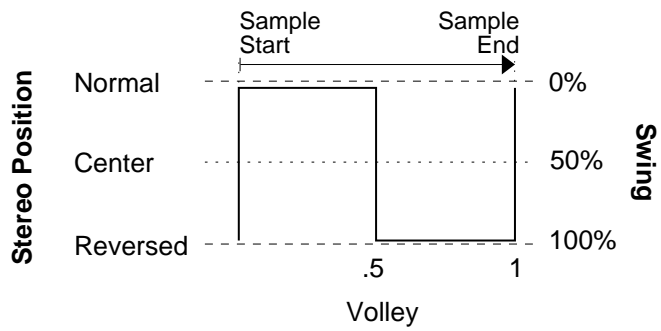
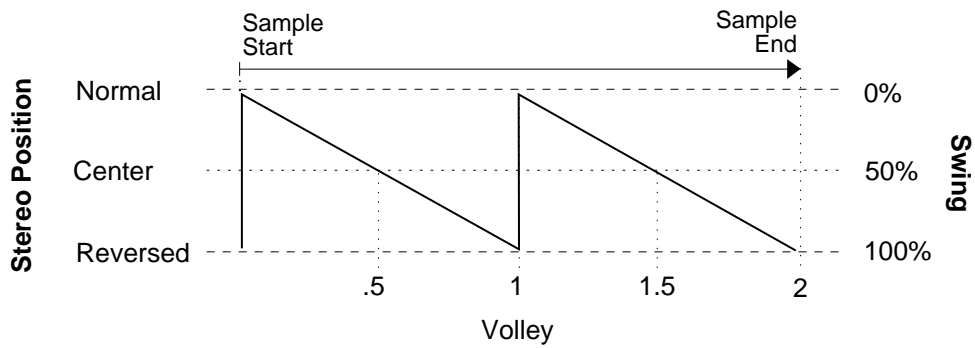
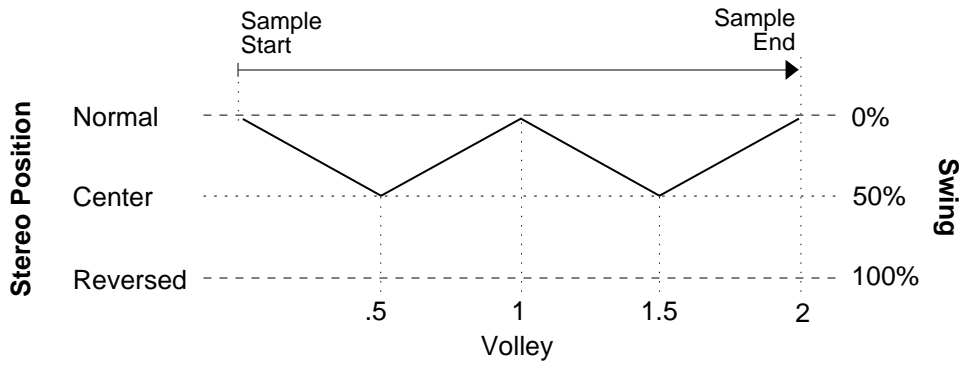
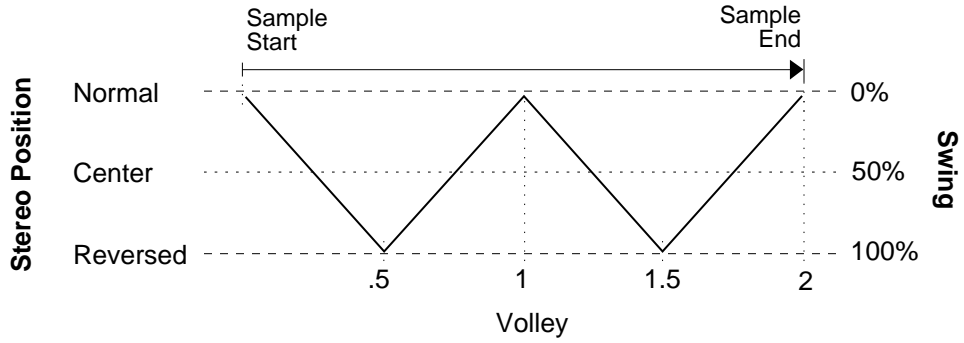


■ **Volley:** Varies the number of times that the samples change sides. A volley value of one allows the selected curve to complete one cycle during the length of the sample. Values range from .5 cycles to 50.

■ **Swing:** Determines how far to each side the sample is panned. A swing setting of 100% results in each sample being completely panned to the other side. A swing setting of 50% results in each sample being panned only as far as center position.

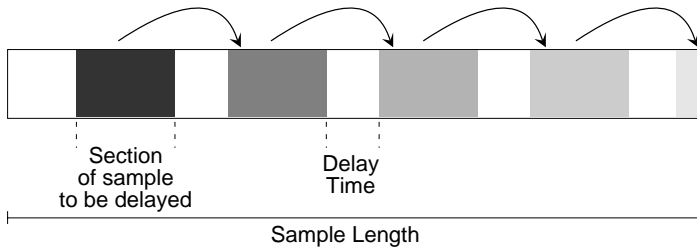
■ **Curve:** Defines the shape of the controlling waveform. This can be thought of as an LFO controlling the panning. The available wave-shapes are: triangle, square, inverted square, sawtooth, and ramp.





4. If you are not satisfied with the resulting Ping Pong or want to compare before and after, proceed to Digital Processing, 9. Undo.

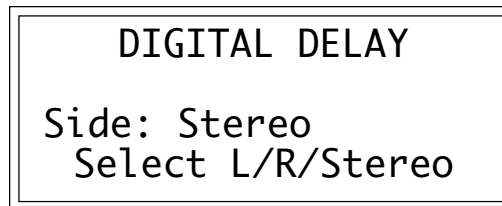
### ■ 9. Digital Delay



This digital delay is different from any delay line that you may have encountered. It permanently modifies the sample data and can be selectively applied to certain sections of the sample. Like Ping Pong, digital delay can be performed more than once on a particular sample for denser echos. By changing the mix level and the delay time on successive passes, reverberation effects can be obtained.

1. **Activate Digital Processing module.**
2. **Select 8. Digital Effects, 9. Digital Delay (8/9).**
3. **If the current sample is stereo, the following screen will appear:**

■ Since the original signal is mixed with the delayed signal at full level, it may be necessary to attenuate samples with the Gain Change function before using Digital Delay to prevent clipping.



Select the left side, right side, or both sides (if stereo), then press ENTER. Otherwise, proceed to the next step.

4. **Select the desired section of the sample to be digitally delayed, then press ENTER.**

```

DELAY: secs  samples
Start: 0.00   00000
End:   3.54   78164
Size:  3.54   78164
    
```

The display will show the current points of the sample to be processed, which will be the start and end points of the current sample.

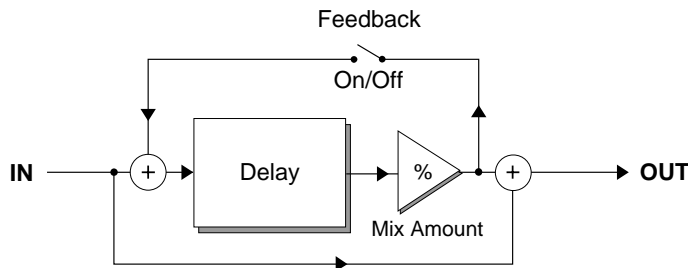
**5. Move the cursor to the parameter(s) to be adjusted, select the desired value(s) with the data slider and press ENTER.**

```

DELAY: secs  samples
Time:  2.29   68715
Mix:           100%
Feedback:      off
    
```

The sample between the selected start and end points will be delayed by the selected delay time and will be mixed with the undelayed sample in the percentage specified by the Mix.

- *Time*: is the amount of time that the selected section of the sample will be delayed.
- *Mix*: specifies the percentage of the delayed signal that will be mixed in with the undelayed sample.
- *Feedback*: determines if the delayed signal is returned through the delay line. The amount of feedback is determined by the Mix.



**6. If you are not satisfied with the resulting digital delay or want to compare before and after, proceed to Digital Processing, 9.**

## ■ 0. Digital Effects 2

In order to add even *more* digital effects it was necessary to add another sub-menu, Digital Effects 2. The advantages of having these effects done in the digital domain are: extremely high fidelity, perfect response and a total lack of noise. The following DSP functions have been added:

◆ **1. Digital Filter:** This is a digital implementation of a swept, 2-pole filter. This is an extremely flexible filter which features variable resonance and either lowpass or notch configurations.

◆ **2. Digital EQ:** This is a digital implementation of a 20-band graphic equalizer. The equalizer features variable frequency bands and 12 dB cut and boost.

◆ **3. Digital Compressor:** This is a digital implementation of a standard analog compressor.

### ◆ 1. Digital Filter

The Digital Filter allows you to dynamically change the harmonic content of a sound over time. The filter is comparable to an analog low-pass or notch filter, except that the parameters are specified in terms of frequency and Q amounts at the start and end points of the sample section. In order to achieve a steeper cutoff slope, such as that of a 4-pole filter, the sample section can be processed again at the same settings.

**1. Activate Digital Processing module.**

**2. Select 8. Digital Effects, 0. Digital Effects 2 (8/0), then select 1. Digital Filter.**

**3. If the current sample is stereo, the following screen will appear. Select the left side, right side, or both sides (stereo), then press ENTER.** Otherwise, proceed to the next step.

DIGITAL FILTER

Side: Stereo

Select L/R/Stereo

4. The display will show the current points of the sample to be filtered, which will be the start and end points of the current sample. Select the start and end points to be filtered, then press Enter

```

FILTER secs samples
Start: 0.00 000000
End:   3.13 137873
Size:  3.13 137873

```

■ Note: The cutoff frequency selected for the end point will remain in effect for the remainder of the sample. This is done to prevent nasty pops and phase problems caused by an abrupt transition back to the unfiltered sound.

5. Move the cursor to the parameter(s) to be adjusted, select the desired value(s) with the data slider and press ENTER.

```

FILTER  freq      Q
Start:  00000    00
End:    00000    00
Shape:           Low Pass

```

- ◆ **Freq:** Cutoff Frequency at the selected start and end points.
- ◆ **Q:** "Q" amounts at the selected start and end points.
- ◆ **Shape:** Low Pass = a standard two-pole lowpass filter.  
Notch = a two-pole notch filter.

6. Select the desired digital filter settings and press Enter. The display shows:

```

DIGITAL FILTER

Normalize:      on

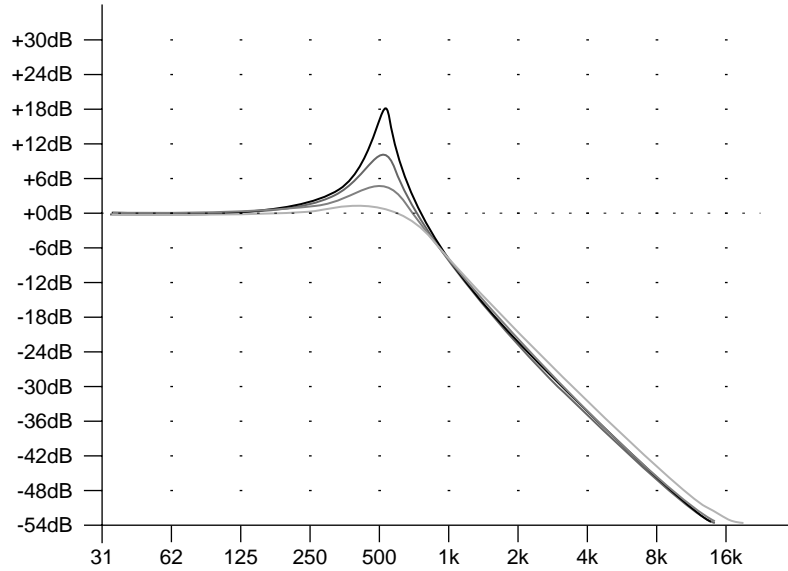
```

■ The digital filter is ideally suited to removing noise from the decay portions of percussion and electric bass sounds. The filter should be set wide open at the onset of the sound and set to a lower frequency at the end of the sound.

Normalization, when on, prevents the signal from clipping. Press Enter to begin the filtering process.

7. If you are not satisfied with the resulting filter or want to compare before and after, proceed to Digital Processing, 9. Undo.

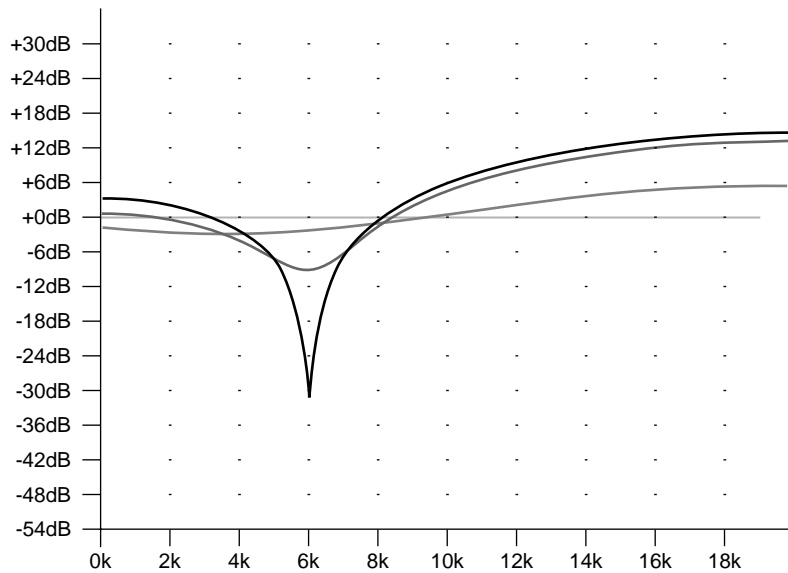
**Low Pass Filter response at 500 Hz with various amounts of Q.**



■ The Start and End points of the sample section can have independent frequency and amount settings. The filter will interpolate between these settings.

Low Pass    Amt = 0 50 80 99  
 freq = 500   

**Notch Filter response at 6kHz with various amounts of Q.**



Notch    Amt = 0 45 84 99  
 freq = 6k

## ◆ 2. Digital EQ

The Digital Equalizer works exactly like an analog graphic equalizer with variable frequency bands except that it operates entirely in the digital domain. The bandwidth of a given band is equal to the distance between its frequency and the frequency of the band directly below it. The Digital Equalizer is a non-realtime filter and therefore requires time to perform its function. The amount of time necessary for the EQ calculations varies with the number of bands affected, the amount of boost/cut and the length of the sample section.

1. **Activate Digital Processing module.**

2. **Select 8. Digital Effects, 0. Digital Effects 2 (8/0), then select 2. Digital EQ.**

3. **If the current sample is stereo, the following screen will appear. Select the left side, right side, or both sides (stereo), then press ENTER.** Otherwise, proceed to the next step.

```

DIGITAL EQUALIZER
Side: Stereo
Select L/R/Stereo
  
```

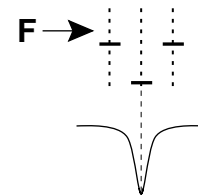
4. **Select the desired points to be EQ'ed and press ENTER.**

```

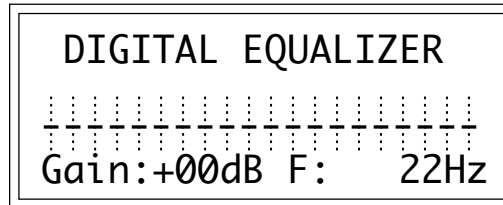
EQ      secs  samples
Start:  0.00 000000
End:    3.13 137873
Size:   3.13 137873
  
```

The display will show the current points of the sample to be EQ'ed, which will be the start and end points of the current sample. Select the section of the sample to be EQ'ed, then press ENTER.

■ A very thin notch or boost band can be created by adjusting the frequency of the band immediately below the band of interest and then adjusting the gain.



**5. Move the cursor to the parameter(s) to be adjusted, select the desired value(s) with the data slider and press ENTER.**



◆ **Gain:** The amount of boost or cut in dB at each frequency band.

◆ **F:** The center frequency of each band.

**6. If you are not satisfied with the resulting EQ or want to compare before and after, proceed to Digital Processing, 9. Undo.**

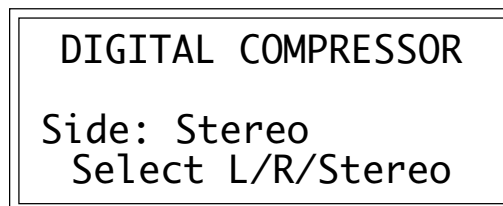
### ◆ 3. Digital Compressor

The Digital Compressor is a digital simulation of an analog compressor.

**1. Activate Digital Processing module.**

**2. Select 8. Digital Effects, 0. Digital Effects 2 (8/0), then select 3. Digital Compressor.**

**3. If the current sample is stereo, the following screen will appear. Select the left side, right side, or both sides (stereo), then press Enter.** Otherwise proceed to the next step.





**4. Select the desired points to be Compressed and press ENTER.**

```

COMPRESSsecs samples
Start:  0.00 000000
End:    3.13 137873
Size:   3.13 137873

```

■ *Note: The gain setting which is in effect at the end point of the selected section will remain in effect for the rest of the sample. This is done to prevent nasty pops and phase problems caused by an abrupt transition back to the normal gain.*

The display will show the current points of the sample to be compressed, which will be the start and end points of the current sample. Select the section of the sample to be compressed, then press **ENTER**.

```

COMPRESSOR Mode: rms
Thres:   center 100%
Ratio:           4.00:1
Atk:999ms  Rel:999ms

```

**5. Position the cursor under the desired parameter and adjust the value using the data slider.**

■ **Mode:** RMS or Peak.

**RMS** = root-mean-square or an "average of the magnitude of the signal". RMS represents the "true" energy content of a signal.

**Peak** = Uses the peak amplitude of a signal to determine the amplitude. The peak amplitude is a meaningful measurement in a digital system because of the 96db (16-bit) headroom limit.

■ **Threshold:** Above, Center, Below, %

**Above** = Only signal levels above the threshold % will be affected by the compressor.

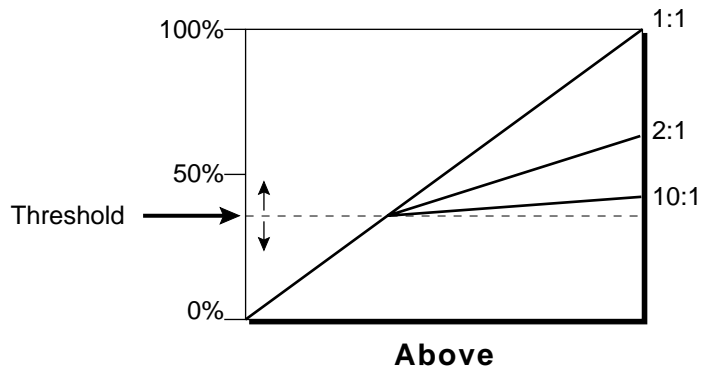
**Center** = Signal levels above as well as below the threshold % will be affected by the compressor.

**Below** = Only signal levels below the threshold % will be affected by the compressor.

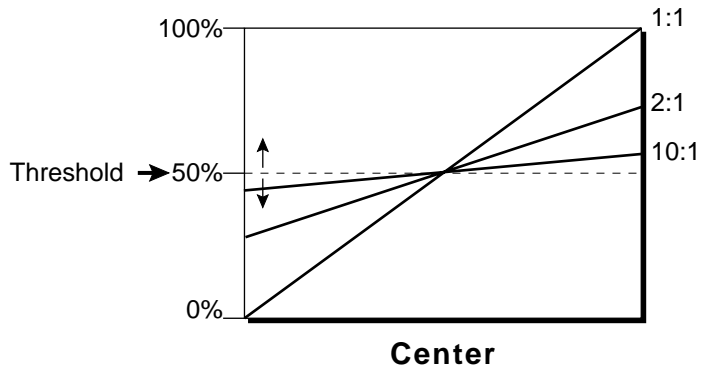
**%** = Determines the threshold level as a percentage of 100% of 16-bits.

■ *The compressor computes the signal level at the start point and offers this as the default threshold setting.*

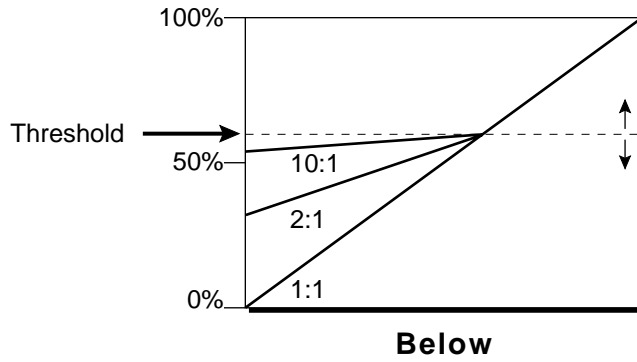
■ Only signal levels above the threshold % will be affected by the compressor.



■ Signal levels above as well as below the threshold % will be affected by the compressor.



■ Only signal levels below the threshold % will be affected by the compressor.



■ **Compression Ratio:** Variable from ratios of 0.01:1 to 99.8:1. Determines the amount of compression or expansion. Ratios of greater than 1:1 compress dynamic range. Ratios of less than 1:1 expand dynamic range.

**Compression:** Reduces the amount of dynamic range. Levels remain more constant.

**Expansion:** Expands the amount of dynamic range. Changes in level are exaggerated.

■ **Attack Time:** Determines how quickly the gain will be turned down. The attack time is variable from 0 to 999 mS.

■ **Release Time:** Determines how quickly the gain will be turned up. The release time is variable from 0 to 999 mS.

#### ▲ Using the Digital Compressor

▲ **Limiter** - A Limiter prevents the signal from exceeding a preset level (threshold). Signal levels below the threshold will be unaffected.

**Set the controls as follows:**

Threshold: Above, XX% (where XX is the limit point).

Ratio: >10:1

Attack Time: 1 mS

Release Time: approx. 100mS

▲ **Musical Compression (ie. Guitar)** - This type of compression tries to keep the volume constant, generally to increase the sustain of the instrument. As the note dies away, the compressor will boost the level in an effort to keep the level constant.

**Set the controls as follows:**

Threshold: Center, XX% (where XX is the compression point).

Ratio: approx. 4:1

Attack Time: 1 mS to 100 mS

Release Time: > 100mS

▲ **Noise Reduction** - Noise reduction will reduce low levels even further in the assumption that low levels are noise.

**Set the controls as follows:**

Threshold: Below, approx. 30%

Ratio: approx. 0.7:1

Attack Time: approx. 100 mS

Release Time: approx. 100mS

## 9. UNDO

Have you ever wanted a time machine so that you could go back and undo a mistake? This function may be the next best thing.

■ **To Restore A Sample To Its Original State:**

1. *Activate Digital Processing module.*

2. *Select Submodule 9.*

```
UNDO Reverse Section
S00 Selected Sample

Backup:          enabled
```

The display will show whether backup is currently enabled or not. If backup is not enabled, you will not be able to restore the sample. Otherwise, press **ENTER**. The original sample will be restored, the processed sample will be stored in the clipboard, and the Emulator III will return to the Module Identifier.

■ **To Compare A Processed Sample With the Original Sample:**

1. *Activate Digital Processing module.*

2. *Select Submodule 9.*

```
REDO Reverse Section
S00 Selected Sample

Backup:          enabled
```

The display will show whether backup is currently enabled or not. If backup is not enabled, you will not be able to compare samples. Otherwise, press **ENTER**. The original sample will be restored, the processed sample will be stored in the clipboard, and the EIII will return to the Module Identifier.

**3. Re-select Submodule 9.** The processed sample will be restored, and the original sample will be stored in the clipboard. You can continue switching back and forth between the processed and original samples by repeating this step until you decide which sample you want to keep.

■ **To Disable or Enable the Backup Process:**

**1. Activate Digital Processing module.**

**2. Select Submodule 9.**

```
REDO Reverse Section
S00 Selected Sample

Backup:      disabled
```

The display will show whether backup is currently enabled or not. Use the Increment/Decrement buttons to choose whether the backup function is enabled or disabled, then press **ENTER**.

## **0. SELECT SAMPLE**

This function allows you to choose the sample to be processed. The resulting current sample will remain as designated until you either select a different sample, change presets, or load another bank. While in the Digital Processing module, the current sample will be placed over the full keyboard range, and all other samples will be muted.

**1. Activate Digital Processing module.**

**2. Select Submodule 0.**

**3. Select a sample to be processed.** As you scroll through non-empty samples, the display will show the sample number, name, sampling rate, sample length, how many presets use the sample, and whether the sample is stereo, left, or right. Also as you scroll, each sample will be playable on the keyboard over its entire available range.

```
SELECT SAMPLE
S01 C6 Sample
Stereo      36000Hz
5 Presets 1.6 secs
```

**4. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## **7-PRESET DEFINITION**

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|                                     |             |
|-------------------------------------|-------------|
| <b>1. LOAD ZONE</b>                 | <b>7-2</b>  |
| <b>2. EDIT ASSIGNMENT</b>           | <b>7-6</b>  |
| <b>3. ERASE ZONE</b>                | <b>7-9</b>  |
| <b>4. COPY ZONE</b>                 | <b>7-11</b> |
| <b>5. CROSSFADE/<br/>SWITCH</b>     | <b>7-14</b> |
| <b>6. MIDI</b>                      | <b>7-18</b> |
| <b>7. ARPEGGIATOR</b>               | <b>7-23</b> |
| <b>8. PITCH BEND<br/>RANGE</b>      | <b>7-27</b> |
| <b>9. VELOCITY CURVE</b>            | <b>7-28</b> |
| <b>0. REALTIME<br/>CONTROLS</b>     | <b>7-29</b> |
| <b>KEYBOARD<br/>VELOCITY CURVES</b> | <b>7-34</b> |

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## 1. LOAD ZONE

This submodule allows a zone, with its samples, to be loaded from the internal hard disk drive or external storage devices into any preset.

**1. Activate Preset Definition module.**

**2. Select Submodule 1.**

**3 If you wish to select a different drive, move the cursor to the drive number. If not, proceed to step 5.**

**4. Select the drive containing the zone to be loaded, then press ENTER.**

```
LOAD ZONE from
D1 Internal HD

Select a Drive
```

**5. Select the bank that contains the preset from which the zone will be loaded, then press ENTER.**

```
LOAD ZONE from
D1 Internal HD
B00 Current Bank

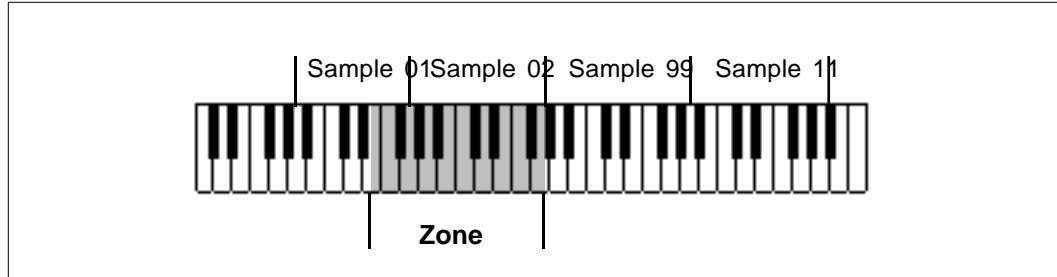
Select a Bank
```

**6. Select the preset that contains the zone to be loaded, then press ENTER.**

```
LOAD ZONE from
P00 Current Preset

Select Source Preset
```





**LOAD ZONE.** The zone contains samples and analog processing parameters.

**7. Select whether you will load the primary, secondary, or both samples from the zone, then press ENTER.**

```
LOAD ZONE from
P00 both
Select pri/sec/both
```

■ If the source zone contains no secondary samples, and you select both, loading the zone will overwrite both primary and secondary samples in the destination preset.

**8. Select the lowest key of the zone to be loaded, then press ENTER.** The default is to the lowest note of the lowest sample. You can select a different low key in two ways. The data slider scrolls through the lowest key of each sample on the keyboard. The data slider is the fastest selection method if you want the lowest key of the zone to coincide with the lowest note of a sample. Or, you can use the keyboard to specify any note as the lowest note of the zone.

```
LOAD ZONE from
P00 both C1
Select Low Key
```

The second line shows the note being played on the keyboard (or scrolled with the data slider). After selecting a note, the third line displays the primary sample number, and the fourth line displays the secondary sample number associated with the note on line two.

**9. Select the highest key of the zone to be loaded, then press ENTER.** The default is to the highest note of the sample that contains the previously specified low note. You can select a different high key in two ways. The data slider scrolls through the highest key of each sample on the keyboard. The data slider is the fastest selection method if you want the highest key of the zone to coincide with the highest note of a sample. Or, you can use the keyboard to specify any note as the highest note of the zone.

```
LOAD ZONE from
P00 both C1 to C2

Select High Key
```

The second line shows the note being played on the keyboard (or scrolled with the data slider). After selecting a note, the third line displays the primary sample number, and the fourth line displays the secondary sample number associated with the note on line two.

**10. Select the preset into which the zone will be loaded, then press ENTER.** The EIII defaults to the lowest numbered empty preset.

```
LOAD ZONE into
P01 Empty Preset

Select Dest Preset
```

If you select an empty preset, upon pressing **ENTER** you will be given a chance to rename the preset that the EIII just created for you. Choose the characters to be changed with the left and right cursor buttons. Select the desired characters by using the ten key pad, data slider, and/or keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces. After renaming is complete, press **ENTER**.

**11. If you selected only primary or secondary samples, select whether you want to load them into the preset as primary or secondary samples.** This step allows you to load primary sample(s) into secondary locations and visa versa. If in step 6 you selected both samples, the EIII will skip this step, as these samples

will always be loaded into both primary and secondary sample slots of the destination preset.

LOAD ZONE into  
P01 pri

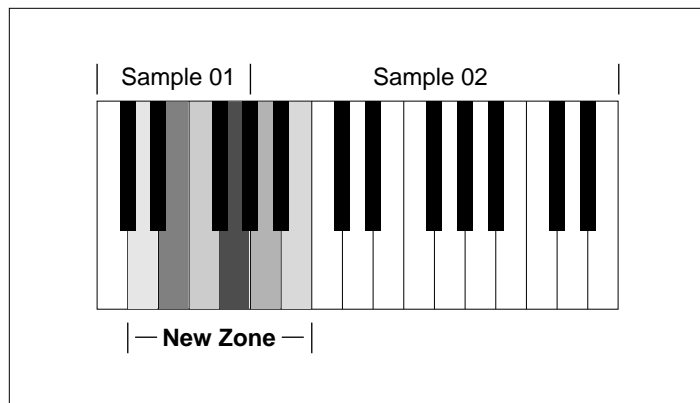
Select pri/sec

**12. Select the key where the low key of the zone will be placed, then press ENTER.** As you select notes, the display will show the samples mapped into the preset. After loading, the the EIII will return to the Module Identifier.

LOAD ZONE into  
P01 both C1

Select New Low Key

■ Loading a zone will overwrite any previously assigned notes that overlap with the zone being loaded.



**LOAD ZONE.** A zone that has been loaded may contain other previously defined zones.

## 2. EDIT ASSIGNMENT

Use this function to change the zone assignment and original keys within a preset.

**1. Activate Preset Definition module.**

**2. Select Submodule 2.**

**3. If there are both primary and secondary samples, select which one you want to edit, then press ENTER.** If there are only primary or secondary samples, the EIII will automatically go to step four.

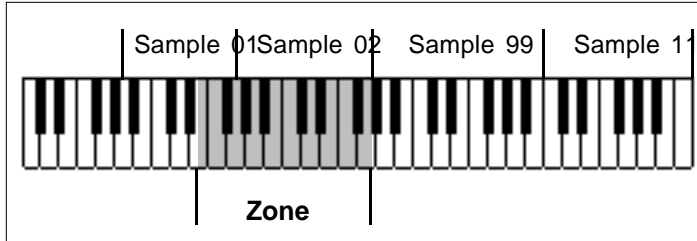
```
EDIT ASSIGNMENT
P00 pri
Select pri/sec/both
```

**4. Select the lowest note of the zone to be re-assigned, then press ENTER.** The default is to the lowest note of the lowest sample. You can select a different low key in two ways. The data slider scrolls through the lowest key of each sample on the keyboard. (The data slider is the fastest selection method if you want the lowest key of the zone to coincide with the lowest note of a sample.) Or, you can use the keyboard to specify any note as the zone's lowest note.

```
EDIT ASSIGNMENT
P00 both C1
Select Low Key
```

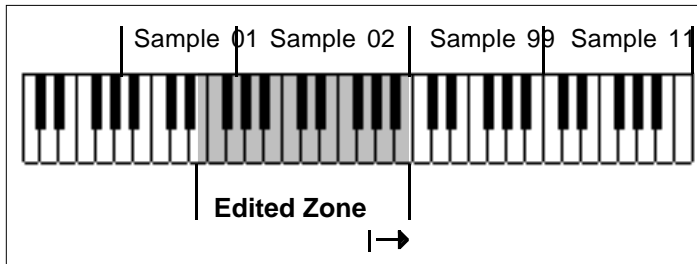
The second line shows the note being played on the keyboard (or scrolled with the data slider). After selecting a note, the third line will display the primary sample number, and the fourth line will display the secondary sample number associated with the note on line two.

**5. Use the data slider to select the highest note of the zone to be re-assigned, then press ENTER.** The default is to the highest note of the sample that contains the previously specified low note. You



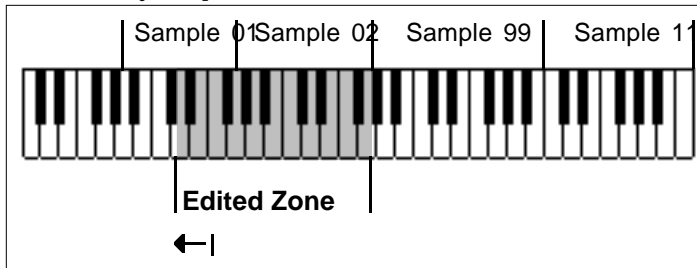
■ Selecting zones can cause confusion. We recommend that zone boundaries coincide with the boundaries for a single sample when editing assignments.

can select a different high key in two ways. The data slider scrolls through the highest key of each sample on the keyboard. The data slider is the fastest selection method if you want the highest key of the zone to coincide with the highest note of a sample. Or, you can use the keyboard to specify any note as the highest note of the zone.



EDIT ASSIGNMENT  
 P00 both C1 to C2  
 Select High Key

The second line shows the note being played on the keyboard (or scrolled with the data slider). After selecting a note, the third line displays the primary sample number, and the fourth line displays the secondary sample number associated with the note on line two.



**6. Edit the assignment, then press ENTER.** The display shows the zone range (typically the low and high notes of a particular sample) and the original key. Use the cursor buttons to select parameter(s) to edit, and select keys by using the keyboard or data slider. After pressing **ENTER** the EIII will edit the zone range and the original key, and then return to the Module Identifier.

■ *Caution: Changing the original key in a zone that contains multiple samples will result in all samples in the zone being referenced to the new original key.*

|                 |          |
|-----------------|----------|
| EDIT ASSIGNMENT |          |
| Zone:           | C1 to C2 |
| Original Key:   | G1       |
| Edit Low Key    |          |

### 3. ERASE ZONE

Use this function to erase a zone.

**1. Activate Preset Definition module.**

**2. Select Submodule 3.**

**3. If there are both primary and secondary samples, select the one you want to edit, then press ENTER.** If there are only primary or only secondary samples, the Emulator III will automatically proceed to step 4.

```
ERASE ZONE
P00 pri
Select pri/sec/both
```

**4. Select the lowest note of the zone to be erased, then press ENTER.** The default is to the lowest note of the lowest sample. You can select a different low key in two ways. The data slider scrolls through the lowest key of each sample on the keyboard. The data slider is the fastest selection method if you want the lowest key of the zone to coincide with the lowest note of a sample. Or, you can use the keyboard to specify any note as the lowest note of the zone.

```
ERASE ZONE
P00 both C1
Select Low Key
```

The second line shows the note being played on the keyboard (or scrolled with the data slider). After selecting a note, the third line displays the primary sample number, and the fourth line displays the secondary sample number associated with the note on line two.

**5. Use the data slider to select the highest note of the zone to be erased, then press ENTER.** The default is to the highest note of the

sample that contains the previously specified low note. You can select a different high key in two ways. The data slider scrolls through the highest key of each sample on the keyboard. (The data slider is the fastest selection method if you want the highest key of the zone to coincide with the highest note of a sample.) Or, you can use the keyboard to specify any note as the highest note of the zone.

ERASE ZONE  
P00 both C1 to C2  
Select High Key

The second line shows the note being played on the keyboard (or scrolled with the data slider). After selecting a note, the third line will display the primary sample number, and the fourth line displays the secondary sample number associated with the note on line two.

**6. Press Yes to erase the zone, or No to cancel the operation.** In either case, you will return to the Module Identifier.



## 4. COPY ZONE

This submodule allows zones to be copied into any preset.

1. **Activate Preset Definition module.**
2. **Select Submodule 4.**
3. **Select the preset that contains the zone to be copied, then press ENTER.**

COPY ZONE from  
P00 Current Preset

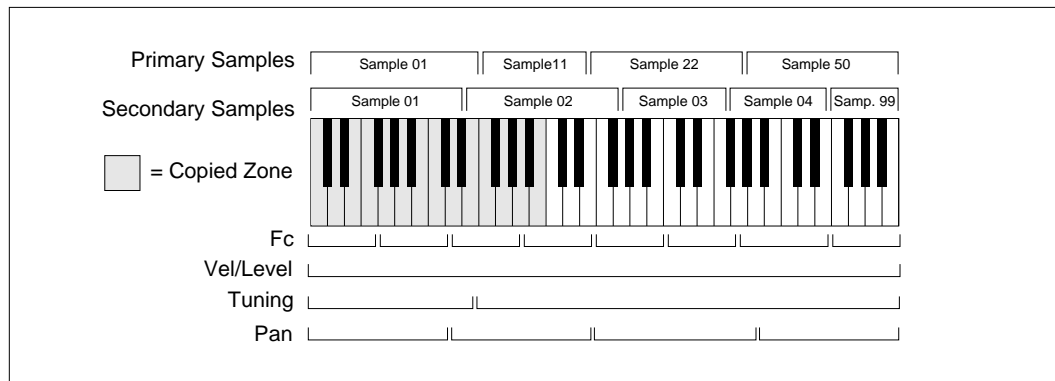
Select Source Preset

■ If the source zone contains no secondary samples yet you select both, loading the zone will overwrite both primary and secondary samples in the destination preset.

4. **Select whether you will copy the primary, secondary, or both samples from the zone, then press ENTER.**

COPY ZONE from  
P00 both

Select pri/sec/both



*COPY ZONE. A copied zone may contain many previously defined zones.*

COPY ZONE from  
P00 both C1  
  
Select Low Key

**5. Select the lowest key of the zone to be copied, then press ENTER.** The default is to the lowest note of the lowest sample. You can select a different low key in two ways. The data slider scrolls through the lowest key of each sample on the keyboard. (The data slider is the fastest selection method if you want the lowest key of the zone to coincide with the lowest note of a sample.) Or, you can use the keyboard to specify any note as the lowest note of the zone.

The second line shows the note being played on the keyboard (or scrolled with the data slider). After selecting a note, the third line will display the primary sample number, and the fourth line will display the secondary sample number associated with the note on line two.

**6. Select the highest key of the zone to be copied, then press ENTER.** The default is to the highest note of the sample that contains the previously specified low note. You can select a different high key in two ways. The data slider scrolls through the highest key of each sample on the keyboard. (The data slider is the fastest selection method if you want the highest key of the zone to coincide with the highest note of a sample.) Or, you can use the keyboard to specify any note as the highest note of the zone.

COPY ZONE from  
P00 both C1 to C2  
  
Select High Key

The second line shows the note being played on the keyboard (or scrolled with the data slider). After selecting a note, the third line will display the primary sample number, and the fourth line will display the secondary sample number associated with the note on line two.

**7. Select the preset into which the zone will be copied, then press ENTER.** The EIII will default to the lowest numbered empty preset.

COPY ZONE into  
P01 Empty Preset  
Select Dest Preset

If you select an empty preset, upon pressing **ENTER** you will be given a chance to rename the preset that the EIII just created for you. Choose the characters to be changed with the left and right cursor buttons. Select the desired characters by using the ten key pad, data slider, and/or keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces. After renaming is complete, press **ENTER**.

**8. If you selected only primary or secondary samples, select whether you want to load them into the preset as primary or secondary samples.** This step allows you to copy primary sample(s) into secondary locations and visa versa. If in step four you selected both samples, the EIII will skip this step, as these samples will always be copied into both primary and secondary sample slots of the destination preset.

COPY ZONE from  
P01 pri  
Select pri/sec

■ Copying a zone will overwrite any previously assigned notes that overlap with the zone being loaded.

**9. Select the low key where the low key of the zone will be placed, then press ENTER.** As you select notes, the display will show the samples mapped into the preset. After loading, the the EIII will return to the Module Identifier.

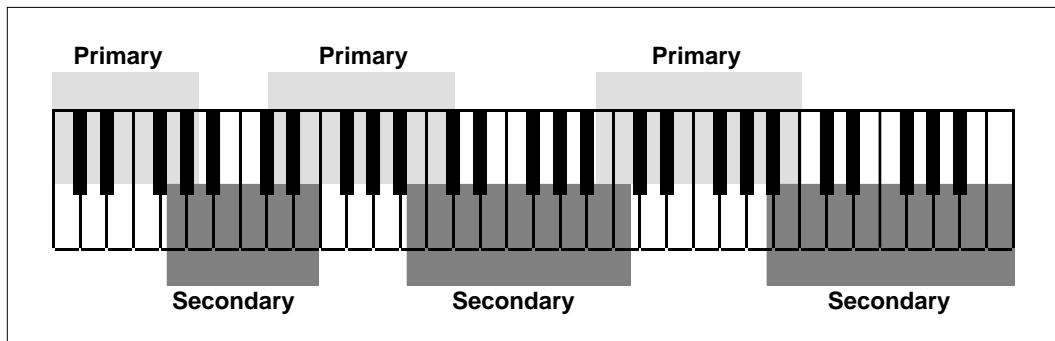
LOAD ZONE into  
P01 both C1  
Select New Low Key

## 5. CROSSFADE / SWITCH

■ *Velocity Crossfade* is very useful if the primary sample is a sound played softly, and the secondary sample is that same sound played loudly. Playing harder can bring in the secondary sample.

This submodule offers several switching and crossfading functions. **Velocity Crossfade** crossfades between the primary and secondary samples according to how hard you play the keyboard. One sample will become louder as you play harder and softer as you play softer, while the other sample will become louder as you play softer and softer as you play harder. **Velocity Switch** is similar, but there is a threshold above which one sample plays and below which the other sample plays.

Where keyboard assignments of two samples overlap, **Positional Crossfade** alters the level (mix) between the two overlapping samples depending on where you play within the overlap range.



*POSITIONAL CROSSFADE* can be used to create seamless sample boundaries.

■ *Transposing a sample lower* usually produces a more muffled sound than the original sample, and transposing upwards usually produces a thinner, brighter sound. Overlapping samples and using *Positional Crossfade* can balance out the sample timbres; as one sample becomes progressively brighter, it can fade out as the overly muffled part of the next sample fades in. Combining the overly thin and overly muffled samples in the correct proportion can produce an overall timbre that ends up sounding just right.

1. **Activate Preset Definition module.**

2. **Select Submodule 5.**

3. **Select the lowest key of the zone to be crossfaded or switched, then press ENTER.** The default is to the lowest note of the lowest sample. You can select a different low key in two ways. The data slider scrolls through the lowest key of each sample on the keyboard. The data slider is the fastest selection method if you want the lowest key of the zone to coincide with the lowest note of a sample. Or, you can use the keyboard to specify any note as the lowest note of the zone.

```
CROSSFADE/SWITCH
P00      C1
        Select Low Key
```

The second line shows the note being played on the keyboard (or scrolled with the data slider). After selecting a note, the first line displays the zone's crossfade status, the third line displays the primary sample number, and the fourth line displays the secondary sample number associated with the note on line two.

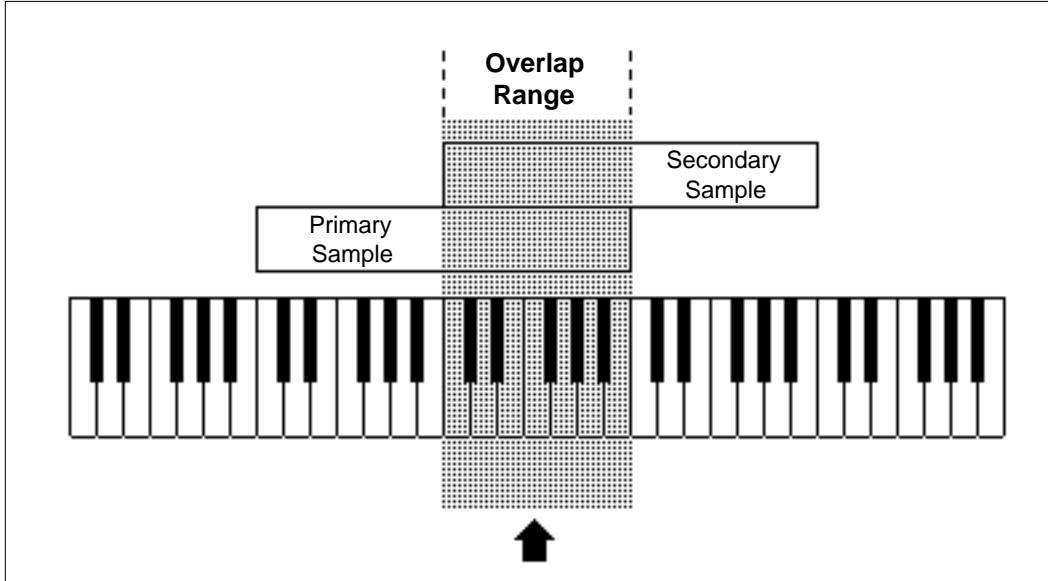
**4. Select the highest key of the zone to be crossfaded or switched, then press ENTER.** The EIII defaults to the highest note of the sample that contains the previously specified low note. You can select a different high key in two ways. The data slider scrolls through the highest key of each sample on the keyboard. The data slider is the fastest selection method if you want the highest key of the zone to coincide with the highest note of a sample. Or, you can use the keyboard to specify any note as the highest note of the zone.

```
CROSSFADE/SWITCH
P00      C1 to C2
        Select High Key
```

The second line shows the note being played on the keyboard (or scrolled with the data slider). After selecting a note, the first line displays the zone's crossfade status, the third line displays the primary sample number, and the fourth line displays the secondary sample number associated with the note on line two.

**5. Select the desired type of crossfade from the following choices, then press ENTER.**

```
CROSSFADE/SWITCH
P00      C1 to C2
Crossfade Off
        Select a Crossfade
```



**VELOCITY CROSSFADE.** When playing in this range, if the secondary sample equals "Hard", then the primary sample becomes progressively softer. The secondary sample becomes louder as you strike a key with increasing force.

- **Crossfade Off:** There is no crossfading between the primary and secondary samples.
- **Velocity Crossfade:** One sample will become louder as you play more forcefully; the other sample will become softer.
- **Velocity Switch:** If you strike a key with more force than the mid-point of the velocity range, one sample will play. If you strike a key with less force than the mid-point of the velocity range, the other sample will play.
- **Positional Crossfade:** As you play from low to high over the selected zone, one sample will fade out as the other sample fades in. This is a useful technique for maintaining an even tone quality over the keyboard when multi-sampling.
- **Realtime Crossfade:** Crossfading occurs not according to keyboard velocity, but according to the realtime controller that has been assigned in Preset Definition, 0. Realtime Controls.
- **Realtime Switch:** Switching occurs not according to keyboard velocity, but according to the realtime footswitch values set in Preset Definition, 0. Realtime Controls.

6. **Select whether the primary or secondary sample will play when the keyboard is played forcefully, then press ENTER.** If you choose Positional Crossfade, skip this step and go to Step 7.

```
CROSSFADE/SWITCH
P00 pri C#1 to C#2
Velocity Crossfade
pri or sec=Hard
```

Use the data slider to select whether the primary or secondary sample will:

- Fade in when the keyboard is played forcefully (*Velocity Crossfade*)
- Switch in when the keyboard is played forcefully (*Velocity Switch*)
- Fade in according to the realtime control wheel (*Realtime Crossfade*)
- Switch in according to the realtime footswitch (*Realtime Switch*)

After pressing ENTER the EIII will return to the Module Identifier.

7. **For Positional Crossfade, select whether the primary or secondary sample will increase in level as you play higher on the keyboard, then press ENTER.** The other sample will decrease in level.

```
CROSSFADE/SWITCH
P00      C1 to C2
Positional Crossfade
pri or sec = atTop
```

After pressing ENTER the EIII will return to the Module Identifier.

## 6. MIDI SETUP

■ Each preset can have its own individual set of MIDI parameters.

MIDI (Musical Instrument Digital Interface) is a way of exchanging musical information between various electronic instruments.

**1. Activate Preset Definition module.**

**2. Select Submodule 6.** This submodule contains six pages, as selected with the cursor/page buttons.

**3. Move the cursor to the parameter(s) to be adjusted, and select the desired value(s) with the data slider.** The first page displays:

|                |      |   |
|----------------|------|---|
| MIDI           |      | → |
| Base Channel:  | 01   |   |
| MIDI Mode:     | omni |   |
| MIDI Overflow: | off  |   |

■ **MIDI Channel:** This is the default channel over which this particular preset will send and receive MIDI information.

■ **MIDI Mode:** In Omni mode, the preset will receive data transmitted over any of the 16 MIDI channels. In Poly mode, the preset will receive data only over the specified channel.

■ **MIDI Overflow:** When on, if you play more notes than the EIII has channels, additional note data will be directed out the MIDI Out to a second MIDI device. With an EIII's MIDI Out feeding an EIII Rack's MIDI In, and MIDI Overflow mode on, it would be possible to play 32 voices simultaneously. With MIDI Overflow off, playing more notes than the EIII has channels will result in the most recently played note stealing the oldest-playing note that it is still sounding.

■ When using two EIII Racks in overflow mode, the second Rack should be in Omni Mode.

**4. Select page two by pressing the right cursor button.**

|                  |      |   |
|------------------|------|---|
| ←                | MIDI | → |
| Send Preset Chg: | on   |   |
| Recv Preset Chg: | on   |   |
| Send Start/Stop: | on   |   |

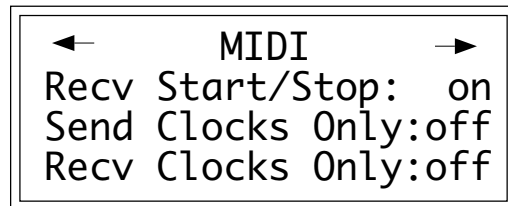


■ **Send Preset Change:** If you select On, then selecting a new preset will send a like-numbered program change command through the MIDI Out. If you select Off, no program change messages will appear at the MIDI Out.

■ **Receive Program Change:** If you select On, program change messages appearing at the MIDI In port will call up like-numbered presets in the EIII. For instance, if a sequencer transmits program change 05, this will call up preset 05 on the EIII. If you select Off, the EIII will not respond to incoming program change commands.

■ **Send Start/Stop:** If you select On, the sequencer sends start and stop commands. This should be On if you are synchronizing an external device to the EIII, and want the external device to start and stop when the EIII starts and stops. Otherwise, turn this Off.

**5. Select page three by pressing the right cursor button.** The third page reads:



■ **Receive Start/Stop:** If you select On, the sequencer will respond to start and stop commands. If you select Off, the sequencer will ignore all start and stop commands. This should be On if you are synchronizing the EIII's sequencer to an external device, and want the EIII's sequencer to start and stop when the external device starts and stops. Otherwise, turn this Off.

■ **Send Clocks Only:** Select whether the EIII should send MIDI timing clocks, but not any other MIDI data. This is handy when you want to only clock another device but not share notes and controllers information.

■ **Receive Clocks Only:** Select whether the EIII should receive MIDI timing clocks, but not any other MIDI data. This is handy when you want to only clock from another device but not share notes and controllers information.

■ *There is no specific standard between manufacturers regarding what program (patch) will occur on a slaved synthesizer when a particular program is selected on the master synthesizer. Some instruments number programs sequentially, while others arrange programs in banks (e.g., A1, A2, A3,...B1, B2, etc.).*

■ *The EIII's sequencer can be synchronized to an external sequencer, with several benefits. First, you will augment the number of tracks in the external sequencer by the 16 tracks within the EIII. Second, using two sequencers can help reduce timing problems by splitting rhythmically-complex parts between the two sequencers. Third, tracks can be transferred from the EIII to the external sequencer, edited using the attributes of the sequencer (e.g. graphic notation), then transferred back into the EIII.*

6. **Select page four by pressing the right cursor button.** The fourth page reads:

| ←           | MIDI | →   |
|-------------|------|-----|
| Left Wheel  | <->  | pwh |
| Right Wheel | <->  | 1   |
| Pressure is | <->  | chp |

■ *MIDI controller assignments are bi-directional. For example, if the left wheel is assigned to controller number 12, then the EIII will send out controller data over controller 12 when the left wheel is moved. When the EIII receives MIDI data over controller number 12, it will interpret this as if the left wheel was being moved.*

■ **Left Wheel:** Assign the left wheel to a MIDI continuous controller number. Moving the left wheel will send data identified with the selected controller number through the MIDI Out connector. Available assignments include off, controllers 00 through 31, pwh (pitch wheel), or chp (channel pressure).

■ **Right Wheel:** Assign the right wheel to a MIDI continuous controller number. The process is exactly the same as assigning a controller to the left wheel (see above).

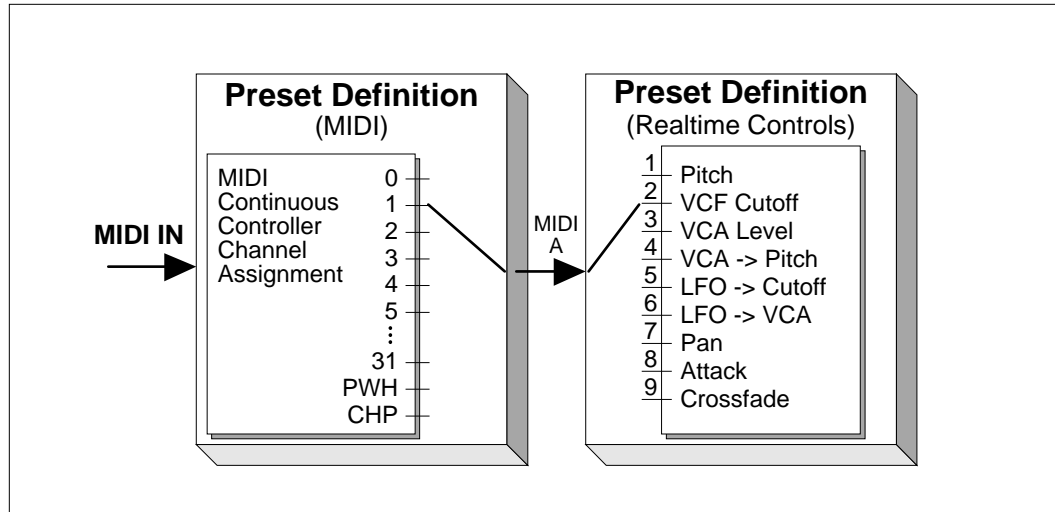
■ **Pressure :** (Aftertouch) Assign keyboard pressure to a MIDI continuous controller number. The process is exactly the same as assigning a controller to the left wheel (see above).

7. **Select page five by pressing the right cursor button.** The fifth page reads:

| ←      | MIDI | →   |
|--------|------|-----|
| Pedal  | <->  | off |
| MIDI A | ->   | off |
| MIDI B | ->   | off |

■ **Pedal:** Assign the foot pedal to a MIDI continuous controller number. The process is exactly the same as assigning a controller to the left wheel (see Step 6).

■ **MIDI A :** Assign MIDI Control Source A to a MIDI continuous controller number. Realtime parameters (pitch, filter cutoff, level, LFO to pitch modulation index, etc.) can be assigned to MIDI control sources (see Preset Definition, 0. Realtime Controls for more information about control sources). To assign MIDI Control Source A to correspond to a specific MIDI continuous controller, follow the same procedure as assigning a controller to the left wheel (see above).



Here is an example of how MIDI control sources work. Suppose a sequencer is sending out modulation data over MIDI control number 01, and that MIDI Control Source A on the EIII controls the filter cutoff frequency. Selecting 01 for MIDI Control Source A would route the sequencer's modulation data to the EIII's filter cutoff frequency, assuming that the sequencer's MIDI Out feeds the EIII's MIDI In.

■ **MIDI B:** Assign MIDI Control Source B to a MIDI continuous controller number. This works the same way as assigning MIDI Control Source A to a MIDI continuous controller number. (See above).

■ **MIDI controller assignments are bi-directional.** For example, if the left wheel is assigned to controller number 12, then the EIII will send out controller data over controller 12 when the left wheel is moved. When the EIII receives MIDI data over controller number 12, it will interpret this as if the left wheel was being moved.

**8. Select page 6 by pressing the right cursor button.** The sixth page reads:

```

←      MIDI
Footswitch 1 <-> 64
Footswitch 2 <-> off
Local Control:   on

```

■ **Footswitch 1:** Assign footswitch 1 to a MIDI switch controller number. Pressing footswitch 1 will send data identified with the selected switch controller number through the MIDI Out connector. Available assignments include Off and switch controllers 64 through 79.

■ *Footswitch 2:* Assign footswitch 2 to a MIDI switch controller number. The process is exactly the same as assigning a switch controller to footswitch 1.

■ *Local Control:* Turns the EIII's keyboard on or off with respect to the internal sound generators. When Local Control is Off, the keyboard information is transmitted over MIDI and the internal sound generators are controlled only via MIDI. (Note: This function has no practical use on rack versions of the EIII.)

**9. Press *ENTER* to exit the submodule.** The EIII will return to the Module Identifier.

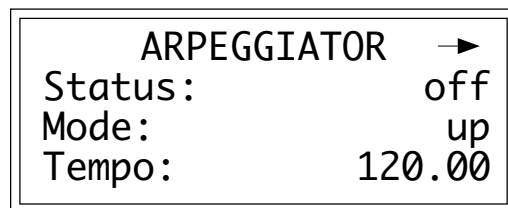
## 7. ARPEGGIATOR

Arpeggiation settings are stored with the preset so that different presets can have totally different arpeggiation characteristics. Also, arpeggiation can be assigned to any range of the keyboard or the entire keyboard. Some arpeggiation parameters can be altered in realtime for expressive arpeggiation. (Analog Processing, 8. Real-time Controls)

**1. Activate Preset Definition module.**

**2. Select Submodule 7.**

**3. Move the cursor to the parameter(s) to be adjusted, and select the desired value(s) with the data slider.** The first page reads:



■ **Status:** Select whether the EIII Arpeggiator is on or off.

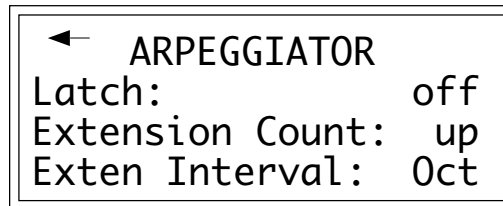
■ **Mode:** Select the manner in which the notes are arpeggiated. Your choices are:

- **Up:** Held notes arpeggiate continuously from lowest to highest pitch.
- **Down:** Held notes arpeggiate continuously from highest to lowest pitch.
- **Up/Down:** Held notes first arpeggiate from lowest to highest pitch, then from highest to lowest, and then repeat this cycle.
- **Forward Assign:** Held notes arpeggiate continuously in the order in which the keys were pressed.
- **Backward Assign:** Held notes arpeggiate continuously in the reverse order in which the keys were pressed.
- **Random:** Held notes arpeggiate continuously in a random fashion.

■ **Tempo:** Select the Arpeggiator's tempo. The available range is 40.00 to 240.99 beats per minute. Select the units digits first with the data slider, then press the cursor down button to specify hundredths of a beat per minute. If you have selected a clock other than the internal clock, the arpeggiator will follow this clock rather than the internal clock.

■ *The Arpeggiator is also controlled by keyboard mode (Analog Processing, 7. Keyboard Mode)*

4. **Select page two by pressing the right cursor button.** The second page shows:



■ **Latch:** You can select the latch status. Your choices are:

■ **Off:** No latching of notes. When you release your fingers from the keys, arpeggiation stops.

■ **Auto:** When you release your fingers from the keys, arpeggiation continues. When you press down new keys, the old notes stop arpeggiating and the new ones arpeggiate instead.

■ **Extend:** Same as auto, except that new notes are added in with old notes, and thus all played notes arpeggiate.

■ **Memory:** Holds your arpeggio in memory until an unlatched, arpeggiator-on preset is selected. Arpeggios can be set up in advance, then started on command with the arpeggiator footswitch or by selecting the memory arpeggio preset.

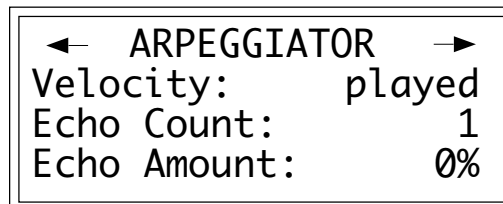
■ You can change the interval in realtime for some really nifty arpeggiation effects.

m2 = minor second  
 M2 = major second  
 m3 = minor third  
 M3 = major third  
 P4 = perfect fourth  
 dim5 = minor fifth  
 P5 = perfect fifth  
 m6 = minor sixth  
 M6 = major sixth  
 m7 = minor seventh  
 Oct = octave  
 m9 = minor ninth  
 M9 = major ninth  
 m10 = minor tenth  
 M10 = major tenth

■ **Extension Count:** An arpeggio extension count specifies how many times the interval will be extended. For example, with an interval of M3 (major third) and an extension of 04 (four times), if you played a C2 with the arpeggiator in up mode the arpeggiated sequence would consist of C2, E2 (a major third above C2), G#2 (a major third above E2), C3 (a major third above G#2) and the fourth extension, E3.

■ **Extension Interval:** An arpeggio extension interval specifies what additional intervals will be played if you play a key. For example, suppose you played C2 with an interval of 5 (a major fifth) and up mode arpeggiation. The EIII would arpeggiate between C2 and G2.

5. **Select page three by pressing the right cursor button.** The third page reads:



■ **Velocity:** Select the Arpeggiator velocity value. Your choices are:

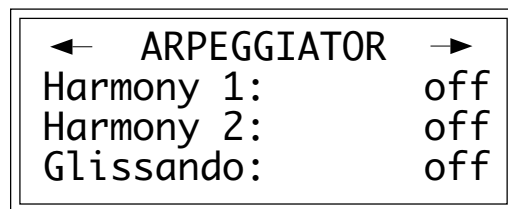
■ **Played:** Each note will arpeggiate at a volume level determined by the velocity with which the note was played.

■ **1-127:** With larger numbers giving louder levels if the dynamics are mapped to level. When mapped to other parameters, they are affected appropriately.

■ **Echo Count:** This is the number of times that each note plays before moving on to the next note in the arpeggio. It can be set from one (the default) to 100

■ **Echo Amount:** This is the amount that the velocity is going to decrease every time the note repeats.

**6. Select page four by pressing the right cursor button.** The fourth page reads:

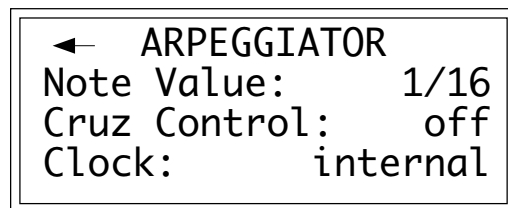


■ **Harmony 1:** Select a harmony note compared to the base note. The choice of intervals is the same as in Extension interval (see above), except there is an Off position, and there is no major tenth.

■ **Harmony 2:** Select a harmony note compared to the base note. The choice of intervals is the same as in Extension interval (see above), except there is an Off position, and there is no major tenth.

■ **Glissando:** When on, Glissando will play every chromatic step between the notes played, including extensions.

**7. Select page five by pressing the right cursor button.** The fifth page reveals:



■ **Cruz Control cannot be used when either key repeats or glissando are on. Turning on Cruz Control will simply turn off key repeats and glissando.**

■ **Note Value:** The following values are available: half note, quarter note, quarter triplet, eighth, eighth triplet, sixteenth (default setting),

sixteenth triplet, thirty-second, thirty-second triplet, and sixty-fourth note triplet. The note value can be altered in realtime.

■ *Cruz Control*: Cruz Control fits the number of notes you are holding into the specified note value .

■ *Clock*: Select the clock source to which the arpeggiator will synchronize. Your choices are:

■ *Internal*: The arpeggiator syncs to the internal clock at the tempo chosen in the previous step.

■ *MIDI*: The arpeggiator syncs to MIDI clock signals coming in over the MIDI In port.

■ *Click 24*: The arpeggiator syncs to 24 pulses-per-quarter note signals appearing at the SMPTE In jack.

■ *Click 48*: The arpeggiator syncs to 48 pulses-per-quarter note signals appearing at the SMPTE In jack.

■ *Click 96*: The arpeggiator syncs to 96 pulses-per-quarter note signals appearing at the SMPTE In jack.

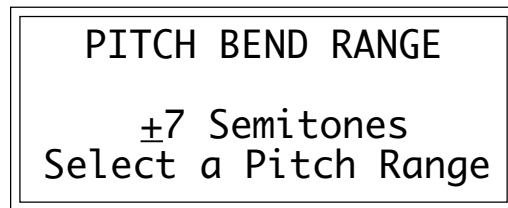
**8. Press *ENTER* to exit the submodule.** The EIII will return to the Module Identifier.



## 8. PITCH BEND RANGE

This submodule adjusts the pitch wheel range from  $\pm 1$  to  $\pm 7$  semitones.

1. **Activate Preset Definition module.**
2. **Select Submodule 8.**
3. **Select the desired pitch bend range.**



4. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 9. VELOCITY CURVE

The Emulator III has 14 different velocity curves to provide different types of dynamics in response to your playing. The velocity curves are diagramed at the end of this section. Note that Curve 14, Trigger, is not actually a curve. Instead, no matter how hard you play, all notes will have the same dynamics. As you might suspect, this function does not have any effect on the EIII Rack.

**1. Activate Preset Definition module.**

**2. Select Submodule 9.**

**3. Select the desired velocity curve.** Refer to the diagrams at the end of this section.

VELOCITY CURVE

C04 Heavy Handed 4  
Select a Curve

As you play notes on the internal keyboard, the fourth line displays the MIDI key velocity value.

**3. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 0. REALTIME CONTROLS

Realtime functions are designed for fast, easy selection while playing live. Each preset can have its own unique set of pre-programmed realtime functions.

■ *Realtime functions usually control the entire keyboard. However, when making up a preset, it is possible to exempt zones from realtime control. This is described in Analog Processing, 8. Realtime Control Enable.*

**1. Activate Preset Definition module.**

**2. Select Submodule 0.**

**3. Select a controller.**

REALTIME CONTROLS  
1 Left Wheel  
1 Pitch  
Select a Controller

Your choices are:

- 1. *Left wheel*: center detent, spring return type, (+/- control)
- 2. *Right wheel*: continuously variable type, (+ control)
- 3. *Pressure*: keyboard aftertouch, (+ control)
- 4. *Pedal*: plugs into rear panel pedal jack, (+ control)
- 5. *MIDI Control A*: (+ control, except if input on pwh channel)
- 6. *MIDI Control B*: (+ control, except if input on pwh channel)
- 7. *Footswitch 1*: (plugs into rear panel footswitch 1 jack)
- 8. *Footswitch 2*: (plugs into rear panel footswitch 2 jack)

■ *In addition to being controlled via the EIII's controllers, destinations can be controlled via MIDI thanks to the MIDI Control A and MIDI Control B options. For more information, see Preset Definition, 6. MIDI.*

**4. Move the cursor to line three and select the destination to the previous selected controller.** For some presets on factory disks, default destinations will already have been selected. For other presets, all control sources will be turned Off. Each destination can be controlled by only one controller.

REALTIME CONTROLS  
1 Left Wheel  
1 Pitch  
Select a Destination

■ *Brass sounds often increase in brightness towards the end of notes. Simulate this by using the wheel to increase the filter cutoff frequency towards the end of a note.*

Select the control destination from the following options:

- **0. Off:** When chosen as a destination, this disables the control source.
- **1. Pitch:** Generally, this destination is assigned to the left-hand wheel, which has a center detent. When so assigned, the center position gives no pitch bend. Rotating the wheel away from you bends pitch up, while rotating the wheel towards you bends pitch down. Maximum pitch bend is  $\pm 7$  semitones, as set in Preset Definition, 8. Pitch Bend Range.
- **2. VCF Cutoff:** This destination is normally assigned to the right wheel, pressure, or pedal to add expressiveness to your playing. VCF Cutoff interacts with the filter module frequency and envelope settings. If the wheel does not seem to be working correctly, check these settings. For example, if the filter cutoff is already at maximum, you will not be able to use the wheel to increase the cutoff frequency.
- **3. VCA Level:** Probably the most common use is to assign VCA level to the pedal, thus giving pedal-controlled volume. Or, assign this destination to the right wheel when you need a manual volume control (such as during fadeouts). Assign VCA level to a MIDI controller for pseudo-automated mixdown effects when driving the EIII from a sequencer. The realtime control source *adds* to the initial amount as programmed in Analog Processing, 2. VCA. For this destination to have any effect, the initial level of the zone must be set to a value less than 100%.
- **4. LFO—>Pitch:** This destination controls the extent to which the LFO modulates pitch, and is most often assigned to the right wheel. Rotating the wheel away from you increases the amount of vibrato. Assigning this destination overrides the equivalent Analog Processing module function.
- **5. LFO—>Cutoff:** This destination controls the extent to which the LFO modulates the filter cutoff frequency. Assigning this destination overrides the equivalent Analog Processing module function.
- **6. LFO—>VCA:** This destination controls the extent to which the LFO modulates the overall level. This effect is called tremolo. Assigning this destination overrides the equivalent Analog Processing module function.
- **7. Pan:** This destination controls the spatial placement of the sound in the stereo field. When assigned to the left wheel, rotating the wheel away from you places the sound in one channel, rotating the wheel towards you places the sound in the other channel, and center wheel position places the sound in the center of the stereo field. You can also use the pedal for foot-controlled panning. Assigning this destination overrides the equivalent Analog Processing module

function. The VCA pan position set in the Analog Processing module determines how the realtime controls will affect pan. Use the following chart to determine what effect a continuous controller will have on the pan position.

| Controller  | Effect on Pan Position       |
|-------------|------------------------------|
| Left Wheel  | Moves position Left or Right |
| Right Wheel | Moves position Right         |
| Pedal       | Moves position Right         |
| MIDI A      | Moves position Right         |
| MIDI B      | Moves position Right         |
| + Velocity  | Moves position Right         |
| - Velocity  | Moves position Left          |

As an example, suppose you want the pedal to have full control of pan position. The pedal can *only* move the sound to the right of its initial position. Therefore, you must set the initial pan position (Analog Processing, 2.VCA) to the extreme left. With the pedal fully up, the sound will appear at the extreme left. With the pedal centered, the sound will appear centered, and fully depressed, the sound will appear at the extreme right.

■ **8. Attack:** This destination controls the VCA and VCF attack rate. When assigned to the right wheel, rotating the wheel away from you increases the attack time. This effect is useful when changing from legato to percussive effects, especially with sustained sounds such as strings.

■ **9. Crossfade:** This destination fades the primary sample(s) out while fading the secondary sample(s) in, or vice-versa. When assigned to the left wheel, this function also provides for realtime mix changes between two separate sounds (e.g., strings can fade out while brass fades in). This function must also be enabled under Preset Definition, 5. Crossfade/Switch.

The following is a description of the footswitch destinations:

■ **0. Off:** The footswitch is not on.

■ **1. Sustain:** If you play a looped sound while the footswitch is pressed, as soon as the looped portion begins, it will sustain (even after lifting your fingers off the keys) until the footswitch is released. Holding down the footswitch continuously provides a hold function for looped notes, where the last eight notes played will sustain for as

long as the footswitch is pressed. If you play an unlooped sound while the footswitch is pressed, it will play through its entire length (whether or not you are holding down a key), then stop.

■ **2. Cross/Switch:** This provides footswitch-controlled switching between the primary and secondary samples. Pressing the footswitch will alternate between the two samples. This function must also be enabled under Preset Definition, 5. Crossfade/Switch.

■ **3. Seq Play/Stop:** Pressing the footswitch alternates between starting and stopping the sequencer.

■ **4. Seq Continue/Stop:** Pressing the footswitch alternates between stopping and continuing the sequencer.

■ **5. Seq Punch-in/out:** Pressing the footswitch alternates between punching in and punching out of record mode when using the sequencer.

■ **6. Arp On/Off:** Pressing the footswitch alternates between starting and stopping the arpeggiator.

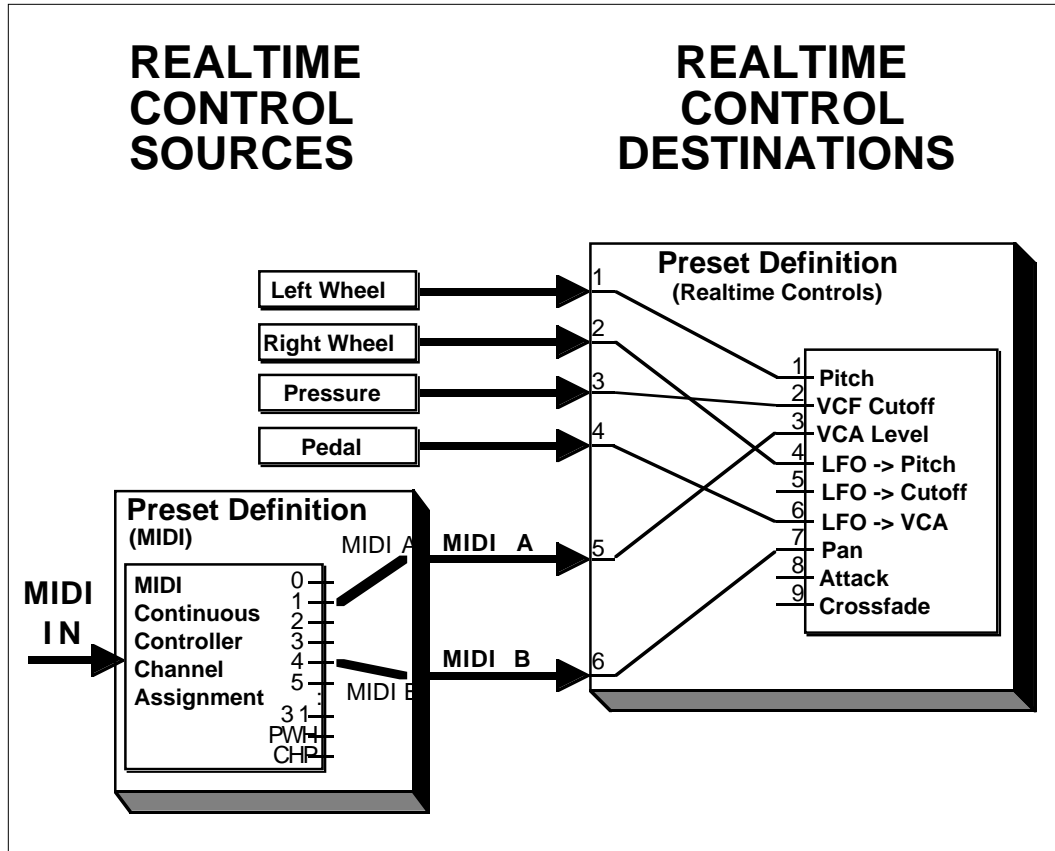
■ **7. Arp Latch:** Pressing the footswitch alternates between latching and unlatching the arpeggiator. See Preset Definition, 7. Arpeggiator for an explanation of latching.

■ **8. Preset Increment:** Press the footswitch to advance from one preset to the next higher numbered preset (i.e., from preset 01 to preset 02). The EIII will stop incrementing at the highest numbered preset.

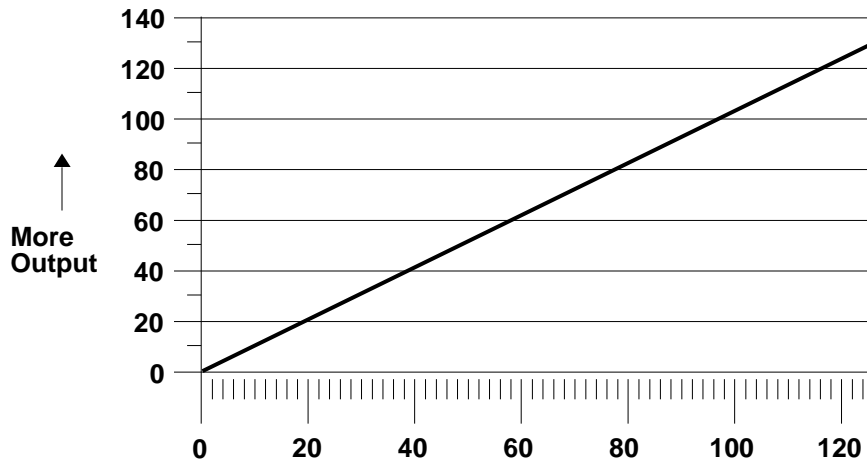
■ **9. Preset Decrement:** Press the footswitch to fall back from one preset to the next lower numbered preset (i.e., from preset 02 to preset 01). The EIII will stop decrementing at the lowest numbered preset.

**5. Move the cursor to line two and repeat steps 3 and 4 to map additional controllers.**

**6. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

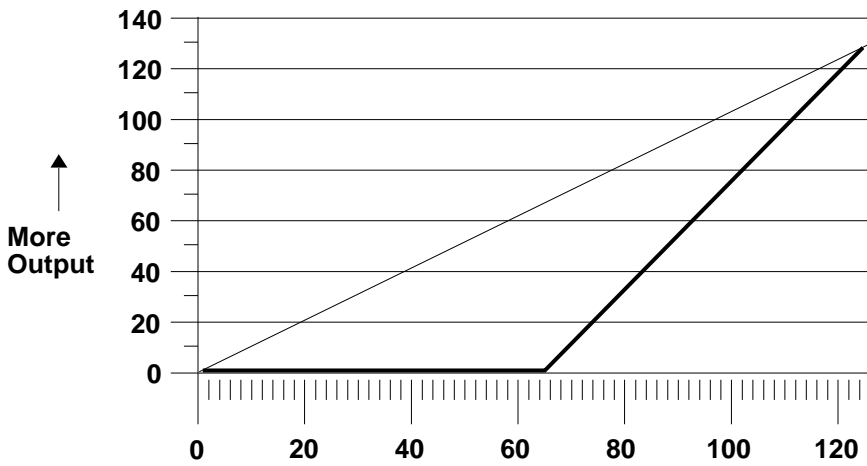


*REALTIME CONTROLS. Any control source may be routed to any destination. The MIDI A and MIDI B channels allow incoming MIDI continuous controller data to be routed to any destinations. Realtime Control routings are programmable for each preset.*



**1. Linear**

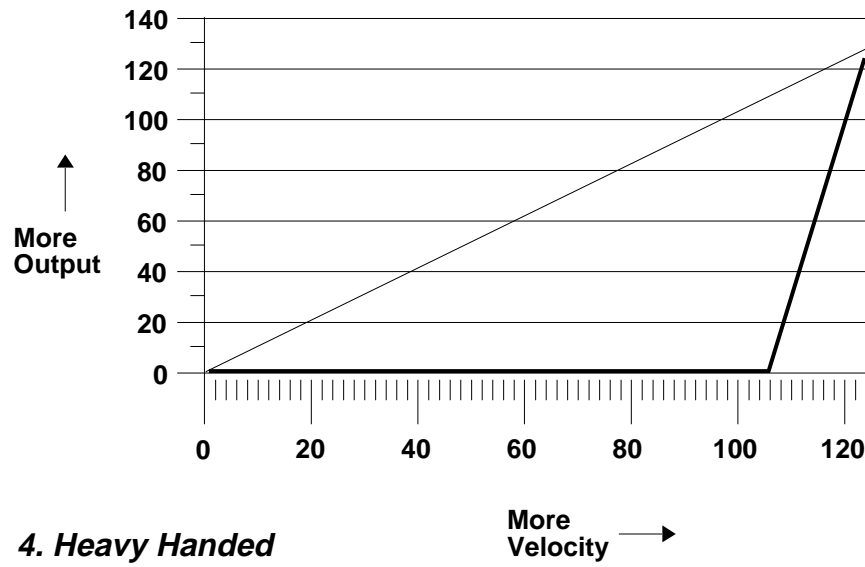
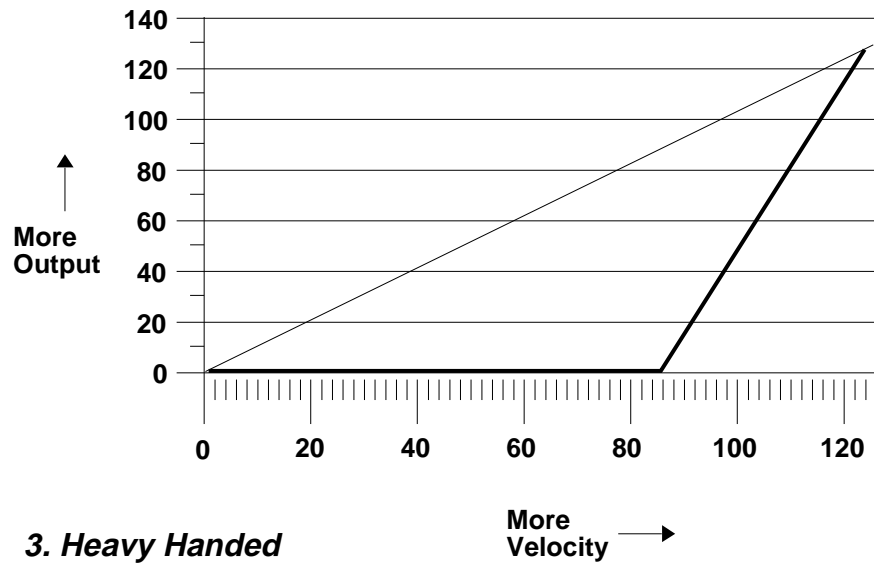
More Velocity →

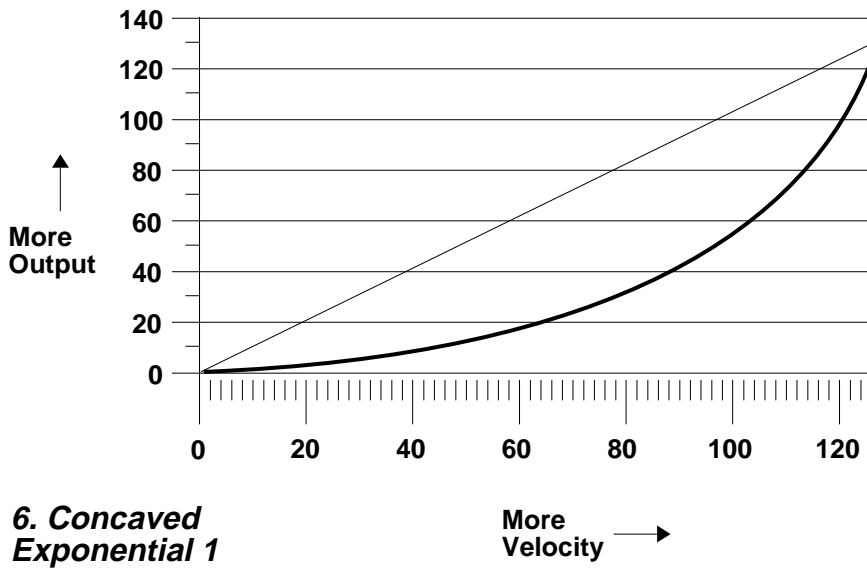
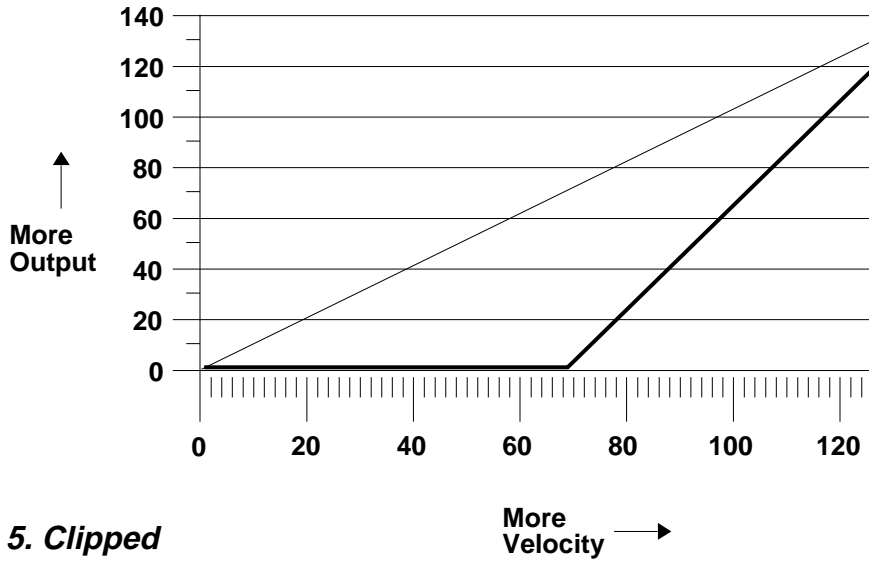


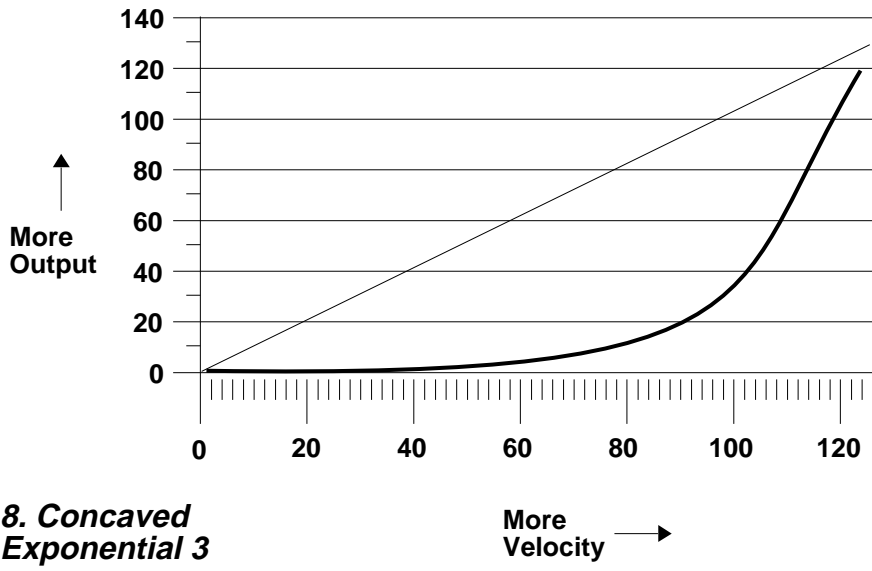
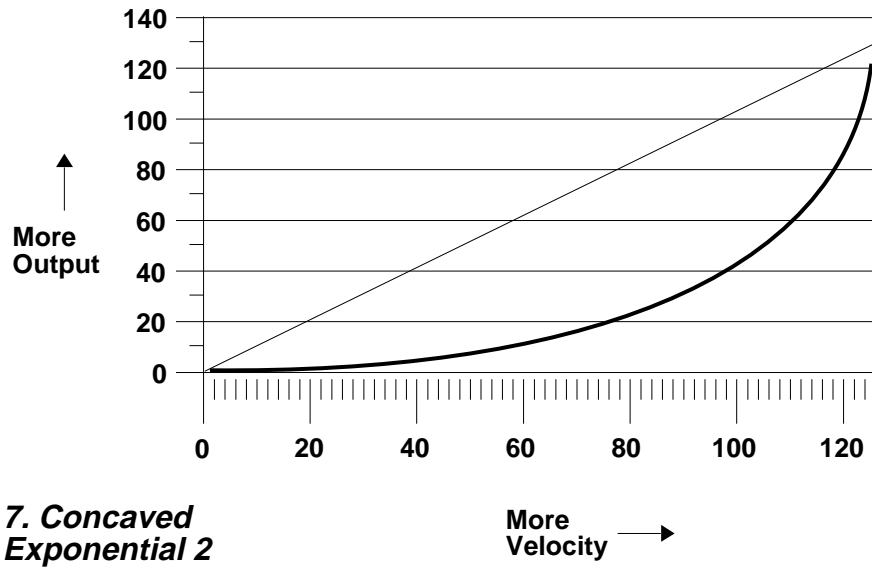
**2. Heavy Handed**

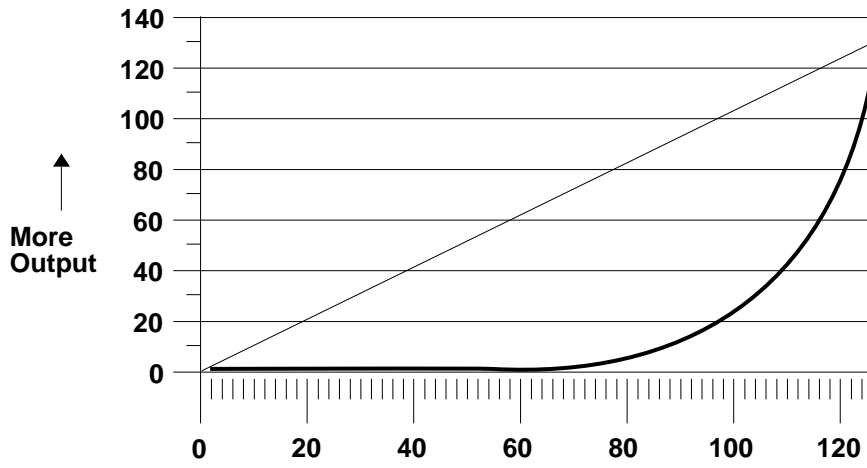
More Velocity →





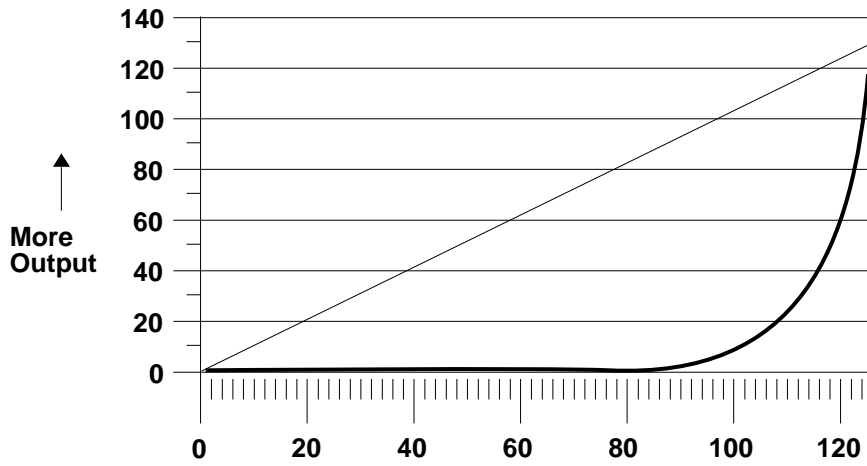






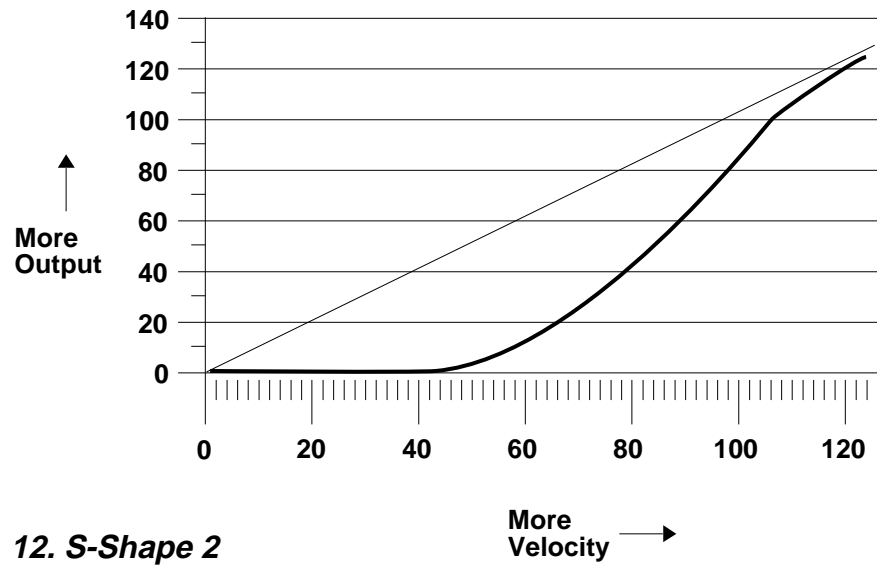
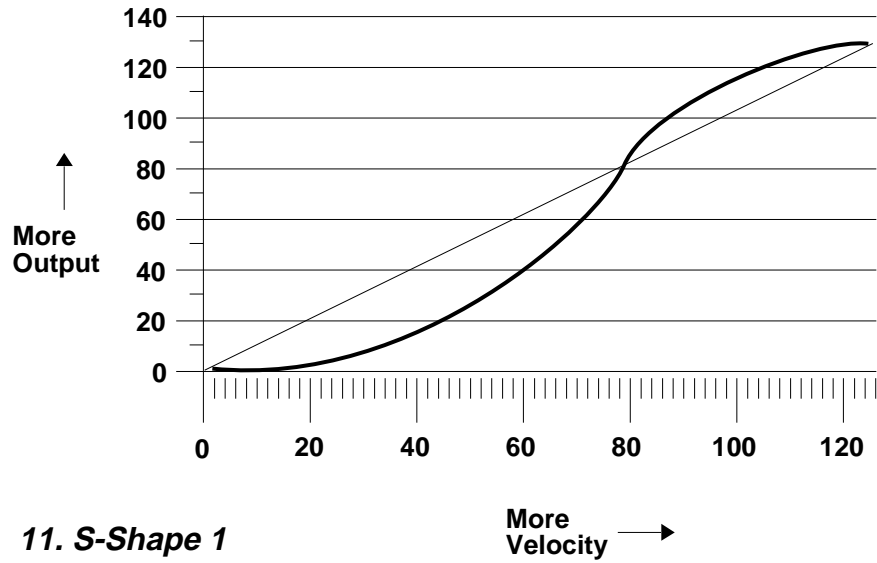
**9. Concaved  
Exponential 4**

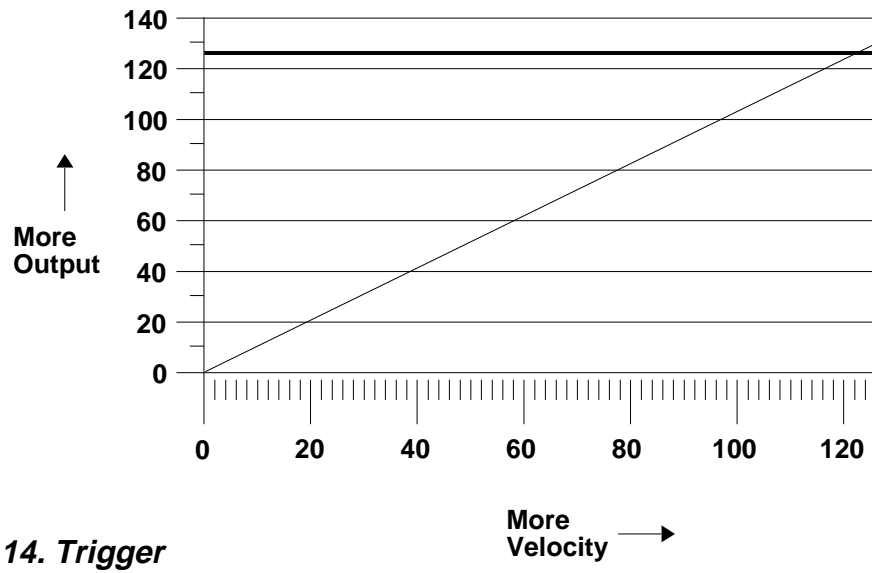
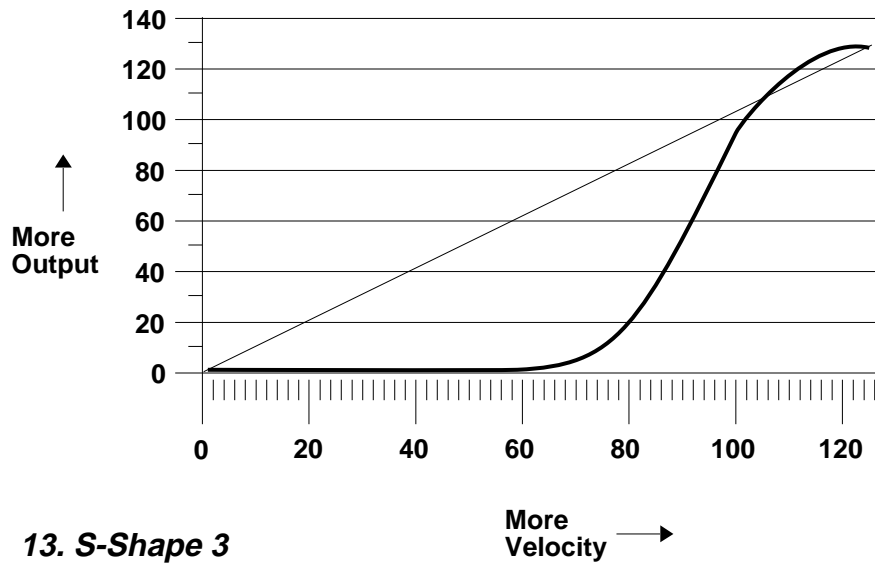
More Velocity →



**10. Concaved  
Exponential 5**

More Velocity →





## **8-ANALOG PROCESSING**

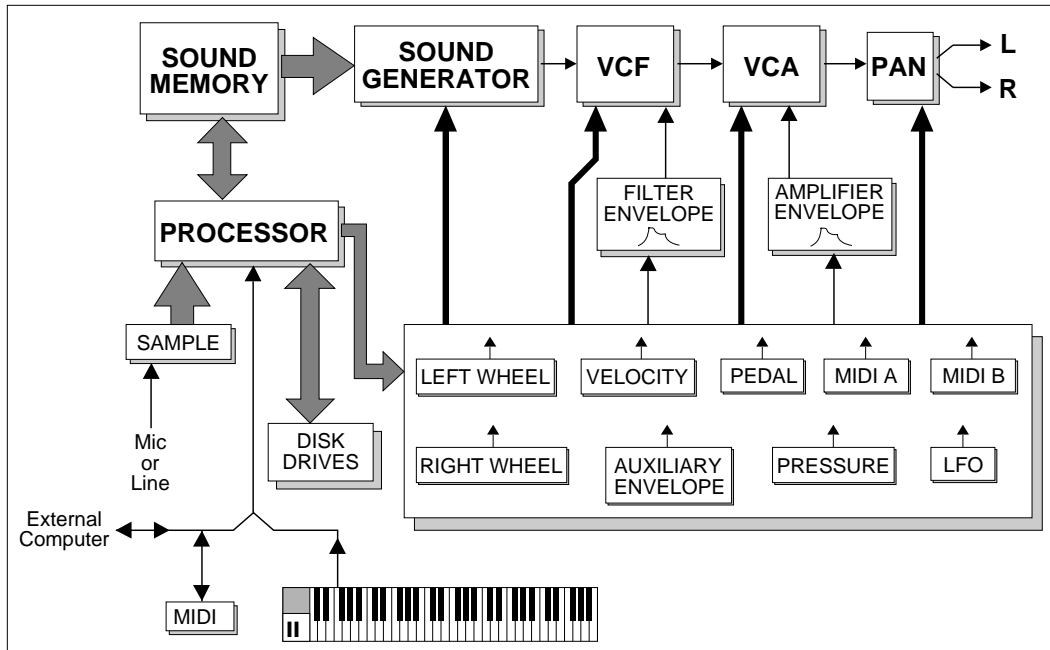
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|                                       |             |
|---------------------------------------|-------------|
| <b>BACKGROUND</b>                     | <b>8-2</b>  |
| <b>1. SETUP</b>                       | <b>8-4</b>  |
| <b>2. VCA</b>                         | <b>8-6</b>  |
| <b>3. VCF</b>                         | <b>8-9</b>  |
| <b>4. LFO</b>                         | <b>8-12</b> |
| <b>5. AUXILIARY<br/>ENVELOPE</b>      | <b>8-14</b> |
| <b>6. VELOCITY TO</b>                 | <b>8-16</b> |
| <b>7. KEYBOARD MODE</b>               | <b>8-20</b> |
| <b>8. REALTIME<br/>CONTROL ENABLE</b> | <b>8-22</b> |
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---

## BACKGROUND: ANALOG PROCESSING

The Analog Processing section of the Emulator III provides you with all the intuitive control options of an analog synthesizer. But since you are starting with complex, digitally sampled sounds instead of simple square or sawtooth waveforms, the possibilities are multiplied dramatically. Each of the 16 channels contains three AHDSR type envelope generators, one multi-waveform LFO with delay and variation, one 24 dB/octave low pass filter (VCF) with resonance, one level VCA, one stereo panning network, and an extremely flexible routing scheme which ties everything together. The diagram below illustrates the layout of an EIII channel.



Each key on the keyboard can contain two zones, and each of these can have completely different sets of analog parameters applied to it. The zone concept makes the programming and modifying of parameters quite straightforward.



## The Analog Zone Concept

Analog processing parameters can be set for each individual zone, or subset of a zone(s). For instance, a completely different pan, LFO rate, and VCA envelope can be set for each individual key, or set of keys. The Emulator III has enough preset memory to support over a thousand zones!

The VCF cutoff can be set for the entire keyboard, the pan position can be set for each individual key, and then the VCA envelope can be set for a portion, or all of the keyboard. This is because a zone is only a zone while you are working on it. When you're finished, the zone disappears. Of course, all parameters remain as you set them.

Every key potentially has two zones (primary and secondary) assigned to it. If a zone is selected which includes previously defined zones, only the parameters that are altered in the new zone will be altered in the previously defined zones. All other parameters will remain as previously specified.

## Quick Zone

Quick Zone offers an especially fast and efficient means of creating and accessing zones in the Analog Processing module. When Quick Zone is "On", all you need to do to create or access a zone is press down the desired keys on the keyboard and access Analog Processing parameters. For example, if two keys such as C2 and A#3 are held down, and the Filter Cutoff value is changed, then all samples in the range C2-A#3 will be assigned the new Filter Cutoff value. The pressed keys are latched in exactly the same way as in Arpeggiator Latch mode.

To access Quick Zone, enter the Analog Processing module. The display will show:

```
ANALOG PROCESSING
P00 both C#1 to C#5
Quick Zone:      off
Select a Submodule
```

Use the left and right cursor buttons to select: off, Pri, Sec, or Both. Quick Zone remains "On" until you turn it "Off" or until the EIII is re-booted.

■ Use Quick Zone to examine existing presets. The Analog Processing values are shown in the display as you select each zone.

## 1. SETUP

This module establishes the controls for several functions, including tuning, delay before onset of a note, and chorus on/off.

**1. Activate Analog Processing module.**

**2. Select Submodule 1.**

**3. Move the cursor to the parameter(s) to be adjusted, and select the desired value(s) with the data slider.** The display shows:

```

ANALOG SETUP →
Tuning:   +0.0 cents
Delay:    0.000s
Chorus:   off
  
```

■ *Tuning*: varies the zone pitch over a range of -100 to +100 cents. (One hundred cents equals 1 semitone.)

■ *Delay*: varies the time between when a key is first pressed (or a MIDI Note On message is received), and the onset of the note, up to 1.53 seconds.

■ *Chorus*: “thickens” the sound by doubling the primary sample and detuning the doubled sample somewhat. Chorus uses two channels. When chorus is on, the number of available channels in the zone will be cut in half. Chorus cannot be used with stereo samples.

**4. Select page two by pressing the right cursor button.** The second page displays the following parameters for the selected zone.

```

← ANALOG SETUP →
Original Key:   E0
S01 Piano E1
  
```

■ *Caution*: If a zone contains more than one sample, the new original key will be assigned to all samples in the selected zone.

■ *Original Key*: allows you to change the original key of any samples in the selected zone.

■ *Change Sample Number*: allows you to reassign any sample in the bank to the selected zone.

■ *Caution*: If a zone contains more than one sample, the new sample will overwrite the previous sample assignment.

**5. Select page three by pressing the right cursor button.** The third page displays the following parameters for the selected zone.

|                |     |
|----------------|-----|
| ← ANALOG SETUP |     |
| Disable Loop:  | off |
| Disable Side:  | off |

■ *Disable Loop*: turns off the loop for any samples within the selected zone for the current preset and overrides any loop settings made in the Digital Processing module for the current preset.

■ *Disable Side*: turns off playback of either the left or right side of a stereo sample within the selected zone.

**6. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

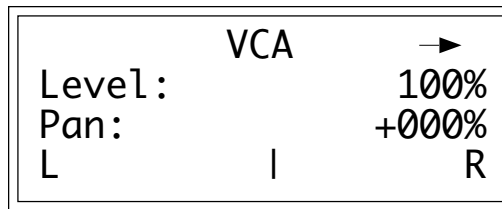
## 2. VCA

The Voltage-Controlled Amplifier (VCA) submodule contains two pages. Page one sets the overall zone level and stereo placement (pan). Page two sets the AHDSR envelope characteristics that alter VCA dynamics with respect to time.

**1. Activate Analog Processing module.**

**2. Select Submodule 2.**

**3. Move the cursor to the parameter(s) to be adjusted, and select the desired value(s) with the data slider.** The first page reads:

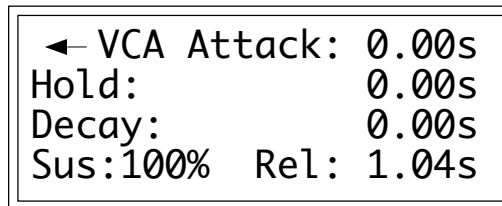


■ The stereo placement may additionally be modulated via the LFO (Analog Processing, 4. LFO), keyboard dynamics (Analog Processing, 6. Velocity to Pan) or realtime controls (Preset Definition, 0. Realtime Controls). The actual stereo position will be the sum of the initial placements and any modulations.

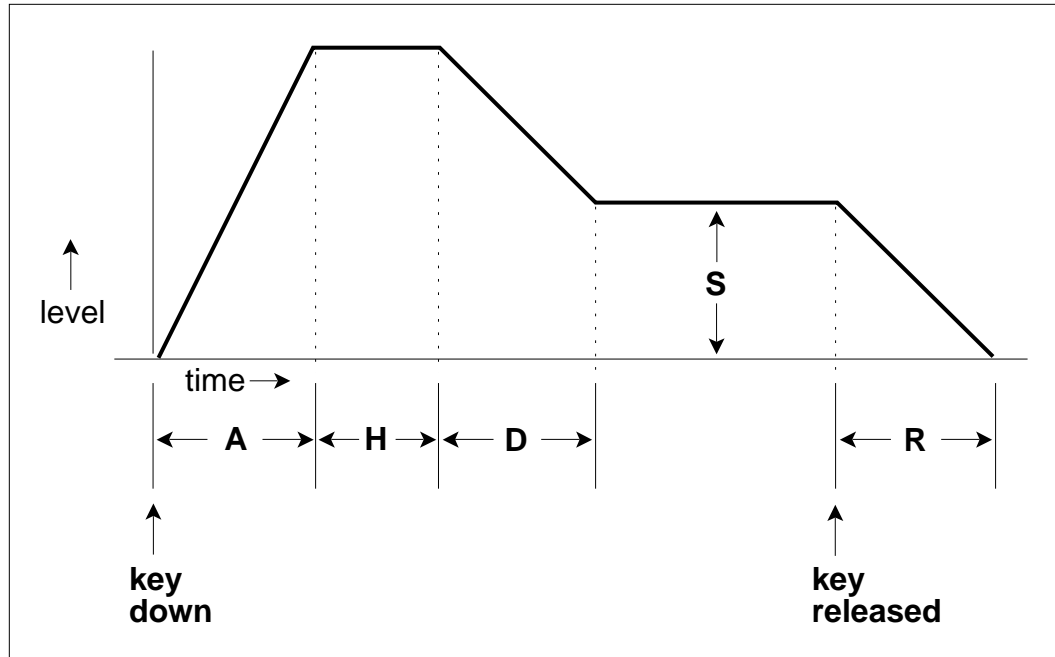
■ **Level:** is variable from 0 to 100%.

■ **Pan:** is continuously variable from +100, where the zone appears at the right extreme of the stereo image; through 0, where the zone appears at the center of the stereo image; to -100, where the zone appears at the left extreme of the stereo image. The display graphically indicates the stereo position on the bottom line. The initial placement may have to be adjusted as modulation is applied to pan.

**4. Select page two by pressing the right cursor button.** The second page displays the following parameters for the VCA AHDSR envelope generator:

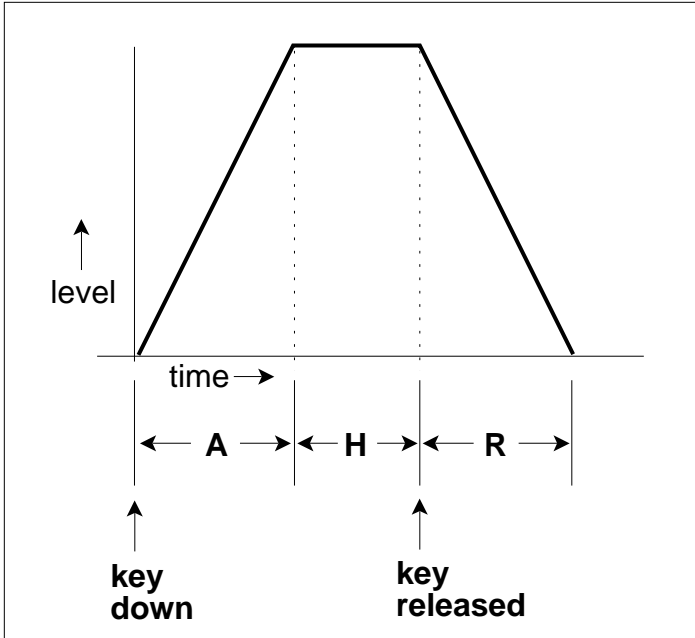


Refer to the following diagrams and definitions to understand how each parameter affects dynamics.



*AHDSR ENVELOPE GENERATOR STAGES. If the key is released during the Hold (H) phase, the Release (R) phase begins.*

- **A: Attack** varies the VCA envelope attack time from 0 to 163.69 seconds.
- **H: Hold** sets the duration of the peak, from 0 to 21.69 seconds. If a key is held down longer than the hold duration, the decay phase will begin. If a key is released during the hold duration, the release phase will begin.
- **D: Decay** varies the initial decay time from 0 to 163.69 seconds.
- **S: Sus (Sustain)** varies the envelope sustain level from 0 to 100% of the peak level.
- **R: Rel (Release)** varies the release time from 0 to 163.69 seconds.



*AHDSR ENVELOPE GENERATOR STAGES. If the key is released during the Hold (H) phase, the Release (R) phase begins.*

■ **A:** *Attack* varies the VCA envelope attack time from 0 to 163.69 seconds.

■ **H:** *Hold* sets the duration of the peak, from 0 to 21.69 seconds. If a key is held down longer than the hold duration, the decay phase will begin. If a key is released during the hold duration, the release phase will begin.

■ **R:** *Rel (Release)* varies the release time from 0 to 163.69 seconds.

**5. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

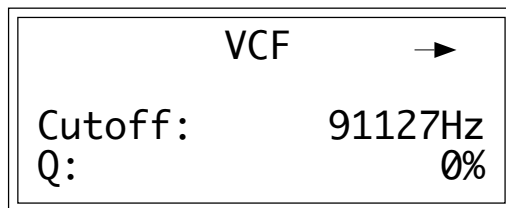
### 3. VCF

The Voltage-Controlled Filter (VCF) submodule contains three pages. Page one determines the filter's initial cutoff frequency and Q (sharpness). Page two determines the effect of keyboard position on cutoff frequency, and the extent to which the associated AHDSR envelope affects the filter cutoff frequency (envelope amount). Page three sets the VCF AHDSR envelope characteristics. These alter timbre with respect to time.

**1. Activate Analog Processing module.**

**2. Select Submodule 3.**

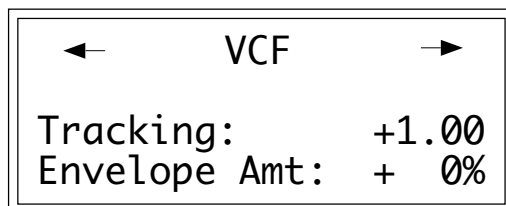
**3. Move the cursor to the parameter(s) to be adjusted, and select the desired value(s) with the data slider.** The first page reveals:

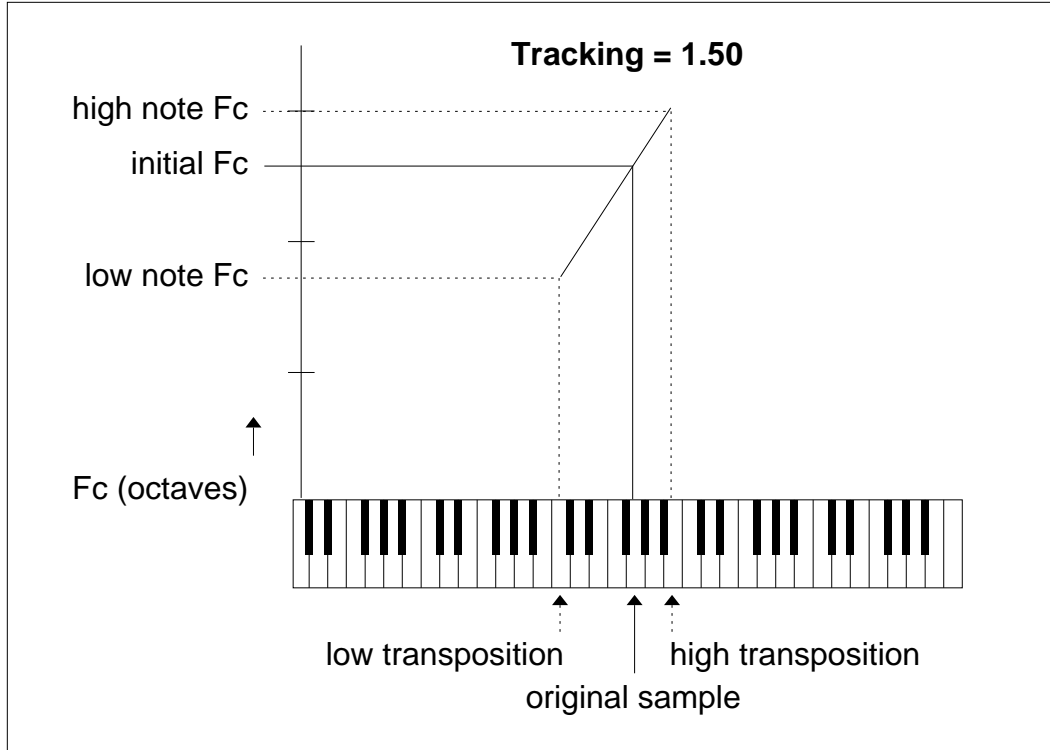


■ **VCF Cutoff:** varies the lowpass filter cutoff from 0 Hz to 91127Hz. Higher values correspond to higher filter cutoff frequencies, hence a sound with more treble. The maximum filter sweep range is most obvious with envelope amount set to +0.

■ **Q:** varies the resonance from 0 to 100%. Higher values correspond to increased resonance, which accentuates the frequency response at the filter cutoff frequency. This produces a sharper, more whistling sound.

**4. Select page two by pressing the right cursor button.** The second page shows:



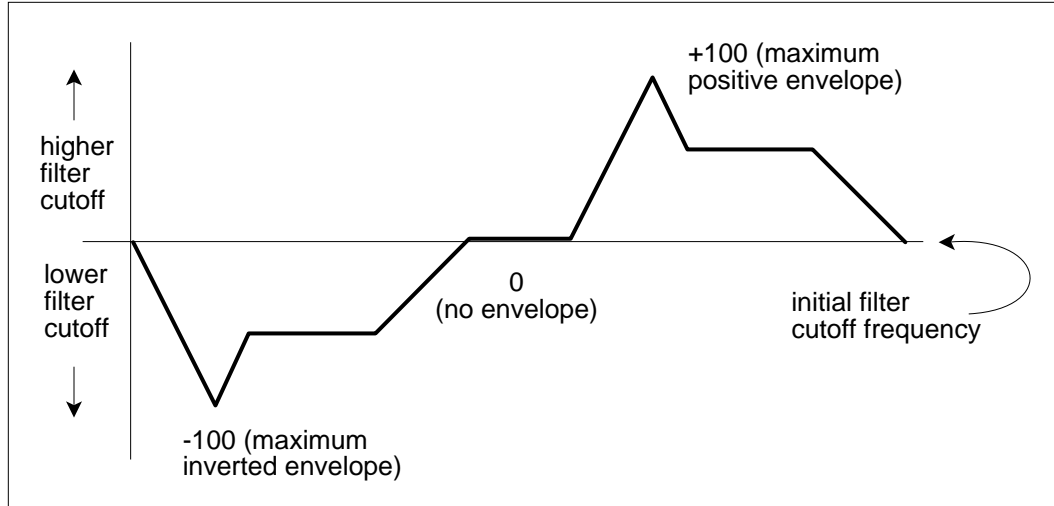


KEYBOARD TRACKING. This varies the filter cutoff with respect to the notes being played.

■ **Tracking:** varies the filter cutoff with respect to the note(s) being played on the keyboard from -2.00 to +2.00. With 0.00 tracking, the filter cutoff will not be affected by the keyboard pitch. With tracking set to -2.00, the filter cutoff will increase at one-quarter the rate at which pitch increases. With tracking set to +2.00, the filter cutoff will increase at twice the rate at which pitch increases. Intermediate values give intermediate degrees of tracking. With negative tracking, a sample will become progressively less bright as you play higher up in the zone. This is useful with some bass sounds, and to even out frequency response variations between samples when multi-sampling. With 0.00 tracking, a sample's timbre remains constant over the selected zone. This generally gives the most realistic synthesizer and instrument sounds. With positive tracking, the sample's timbre becomes brighter as you play higher up in the zone.

■ **Envelope Amt:** varies the effect of the filter envelope on the filter cutoff frequency from -100, which is the maximum inverted envelope, through +00, which has no effect from the envelope, to +100, which is the maximum positive envelope. It is usually necessary to raise the filter cutoff value when using inverted envelopes.





*FILTER ENVELOPE. Filter cutoff can be modulated with an inverted or non-inverted VCF envelope.*

**5. Select page three by pressing the right cursor button.** The third page displays the following parameters for the VCF AHDSR envelope generator:

|               |            |
|---------------|------------|
| ← VCF Attack: | 0.00s      |
| Hold:         | 0.00s      |
| Decay:        | 0.00s      |
| Sus:100%      | Rel: 1.04s |

■ **A:** *Attack* varies the VCA envelope attack time from 0 to 163.69 seconds.

■ **H:** *Hold* sets the duration of the peak, from 0 to 21.69 seconds. If a key is held down longer than the hold duration, the decay phase will begin. If a key is released during the hold duration, the release phase will begin.

■ **D:** *Decay* varies the initial decay time from 0 to 163.69 seconds.

■ **S:** *Sus (Sustain)* varies the envelope sustain level from 0 to 100% of the peak level.

■ **R:** *Rel (Release)* varies the release time from 0 to 163.69 seconds.

**6. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

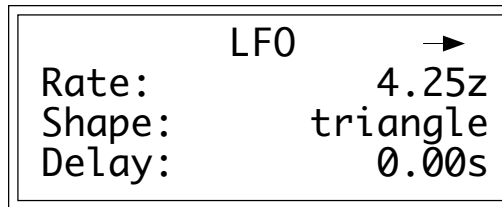
## 4. LFO

The Low-Frequency Oscillator (LFO) submodule contains three pages. Page one sets the LFO rate, the shape of the LFO waveform, and the delay before onset of modulation. Pages two and three determine the degree to which the rate will be varied as you play different notes (LFO variation), the LFO's destination(s): pitch (which produces vibrato), the VCF cutoff, the VCA amplitude (produces tremolo—attention surf music and Bo Diddley fans), and panning (spatial modulation). The amount of modulation (index) sent to each destination is variable from 0 to 100%.

**1. Activate Analog Processing module.**

**2. Select Submodule 4.**

**3. Move the cursor to the parameter(s) to be adjusted, and select the desired value(s) with the data slider.** The first page shows:



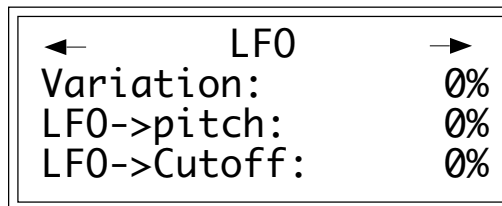
■ **LFO Rate:** varies the LFO speed from 0.08 Hz to 18.14 Hz.

■ **LFO Shape:** selects the waveshape of the LFO.

■ **LFO Delay:** sets the amount of time between hitting a key and the onset of modulation. This simulates an effect often used by string players, where the vibrato is brought in only after the initial note pitch has been clearly established. The delay range is from 0 to 21.69 seconds.

**4. Select page two by pressing the right cursor button.** The second page shows:

■ *The maximum LFO to Pitch amount varies according to the Sample Rate and Keyboard Transposition. See the Transposition Charts in the General Instructions.*

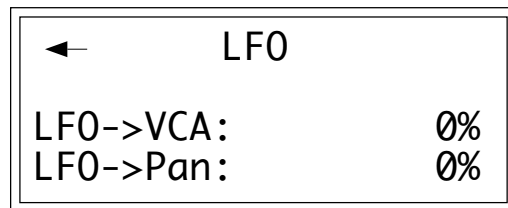


■ **LFO Variation:** provides a way to create the illusion of multiple players, each having an individual modulation rate. The depth of LFO modulation applied to each parameter is variable from 0 to 100%. With 0% variation, each key will have the same LFO rate. Increasing variation (to a maximum of 100%) alters the LFO rate for each key you play. The higher the number, the greater the variation in LFO rate. For effects such as ensemble playing, the variation feature is invaluable.

■ **LFO —>Pitch:** produces vibrato effects.

■ **LFO —>Cutoff:** varies the VCF's cutoff frequency in a cyclic fashion. This is useful for adding shimmering effects to a sound.

**5. Select page three by pressing the right cursor button.** The third page displays the following LFO routing options:



■ **LFO —> VCA:** produces tremolo effects by altering the overall level of a zone in a cyclic fashion.

■ **LFO —> Pan:** cyclically varies the placement of the audio output of a zone within the stereo field.

**6. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

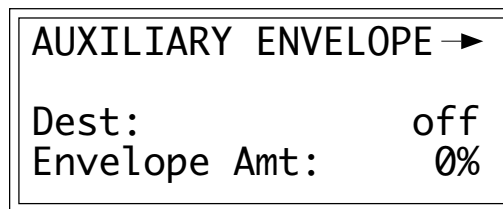
## 5. AUXILIARY ENVELOPE

Just what you have always wanted: a supplementary utility envelope that can be placed at any of several points in the Analog Processing signal path. This submodule contains two pages. Page one establishes the auxiliary envelope destination and amount, and page two determines the AHDSR envelope characteristics.

**1. Activate Analog Processing module.**

**2. Select Submodule 5.**

**3. Move the cursor to the parameter(s) to be adjusted, and select the desired value(s) with the data slider.** The first page shows:

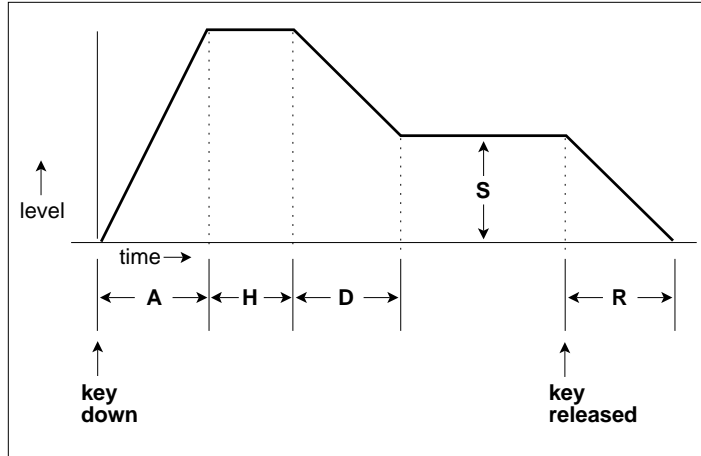


■ *The maximum Auxiliary Envelope to Pitch amount varies according to the Sample Rate and Keyboard Transposition. See the Transposition Charts in the General Instructions.*

■ **Destination:** determines which parameter will be controlled by the envelope. These are: Pitch, Pan, LFO rate, or one of the four LFO destinations (LFO->Pitch, LFO->VCA, LFO->VCF, LFO->Pan). Using the auxiliary envelope to control pitch gives automatic pitch-bending. Controlling the LFO rate can increase (or decrease) the LFO speed over the duration of a note. Adding envelope control to an LFO destination allows modulation to fade in or out over the duration of a note.

■ **Envelope Amt:** varies the depth of the envelope's effect on the chosen destination. It is variable from -100, the maximum inverted envelope, through +00 (no effect from the envelope), to +100, the maximum positive envelope. When using inverted envelopes, it is usually necessary to raise the LFO depth for the destination selected in step 5 of Analog Processing, 4. LFO.

**4. Select page two by pressing the right cursor button.** The second page displays the following parameters for the auxiliary AHDSR envelope generator:



AHDSR ENVELOPE GENERATOR STAGES. If the key is released during the Hold (H) phase, the Release (R) phase begins.

|               |       |
|---------------|-------|
| ← AUX Attack: | 0.00s |
| Hold:         | 0.00s |
| Decay:        | 0.00s |
| Sus:100% Rel: | 1.04s |

Refer to the definitions below to understand how each parameter affects the envelope.

- **A:** *Attack* varies the VCA envelope attack time from 0 to 163.69 seconds.
- **H:** *Hold* sets the duration of the peak, from 0 to 21.69 seconds. If a key is held down longer than the hold duration, the decay phase will begin. If a key is released during the hold duration, the release phase will begin.
- **D:** *Decay* varies the initial decay time from 0 to 163.69 seconds.
- **S:** *Sus (Sustain)* varies the envelope sustain level from 0 to 100% of the peak level.
- **R:** *Rel (Release)* varies the release time from 0 to 163.69 seconds.

**5. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 6. VELOCITY TO

The keyboard on the EIII not only senses the dynamics of your playing, but can produce velocity data that corresponds to those dynamics as well. This velocity data can control any or all of nine different parameters, as selected on three pages in this submodule.

**1. Activate Analog Processing module.**

**2. Select Submodule 6.**

**3. Move the cursor to the parameter(s) to be adjusted, and select the desired value(s) with the data slider.** The first page shows:

|                |     |
|----------------|-----|
| VELOCITY TO: → |     |
| Pitch:         | +0% |
| VCA Level:     | +0% |
| VCA Attack:    | +0% |

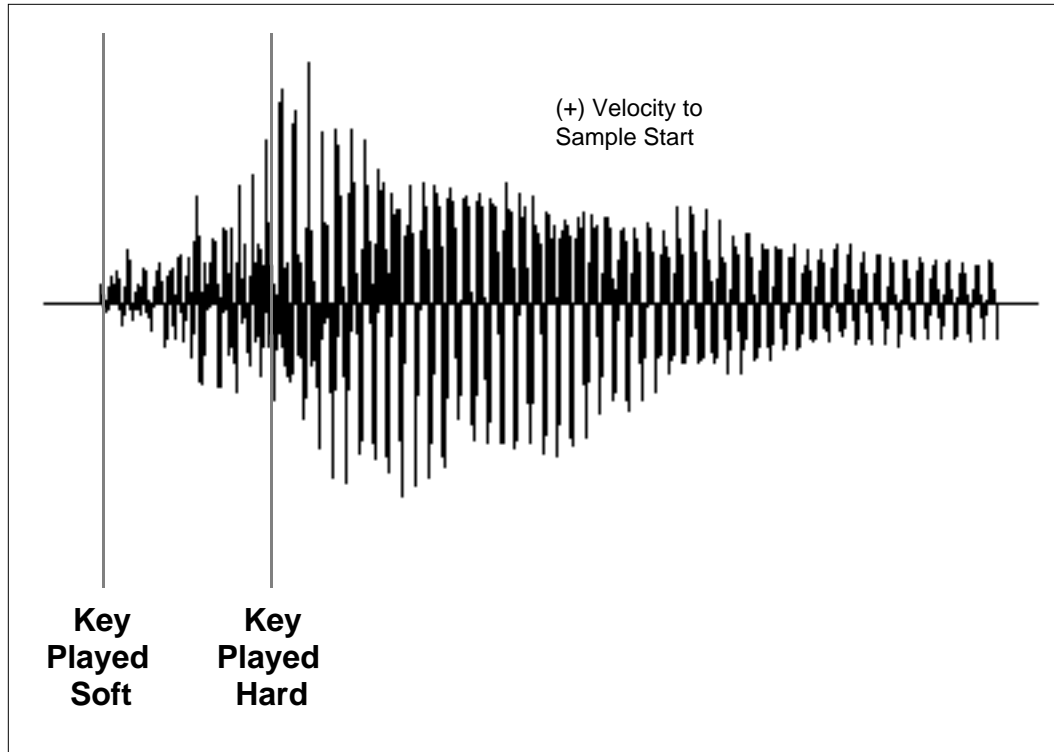
Values are adjustable from -100% to +100%.

■ **Pitch:** ties velocity to pitch. With negative values, playing more forcefully lowers pitch. With positive values, playing more forcefully raises pitch.

■ **VCA Level:** ties velocity to overall amplitude. At 0%, the overall level remains at the maximum level set in Analog Processing, 2. VCA, and produces the loudest possible dynamics, no matter how forcefully or softly you play the keyboard. Progressively higher positive values give a progressively wider dynamic range by lowering the level as you play more softly (standard dynamics). Progressively higher negative values give a progressively wider dynamic range by lowering the level as you play more forcefully (reverse dynamics). Use velocity to add dynamics to sampled sounds that don't contain dynamics, such as samples from older synthesizers.

■ *The VCA Attack settings interact with the VCA AHDSR attack time setting (Analog Processing, 2.VCA). You will probably need to tweak the AHDSR attack time setting for optimum results.*

■ **VCA Attack:** ties velocity to the VCA envelope attack time. With negative values, playing softly gives shorter attack times and playing more forcefully lengthens the attack. With positive values, playing softly gives longer attack times, while playing more forcefully shortens the attack. VCA attack is useful for string and horn sounds, where bowing or blowing softly produces a slower attack than rapid bowing or blowing, which produces a much faster attack.

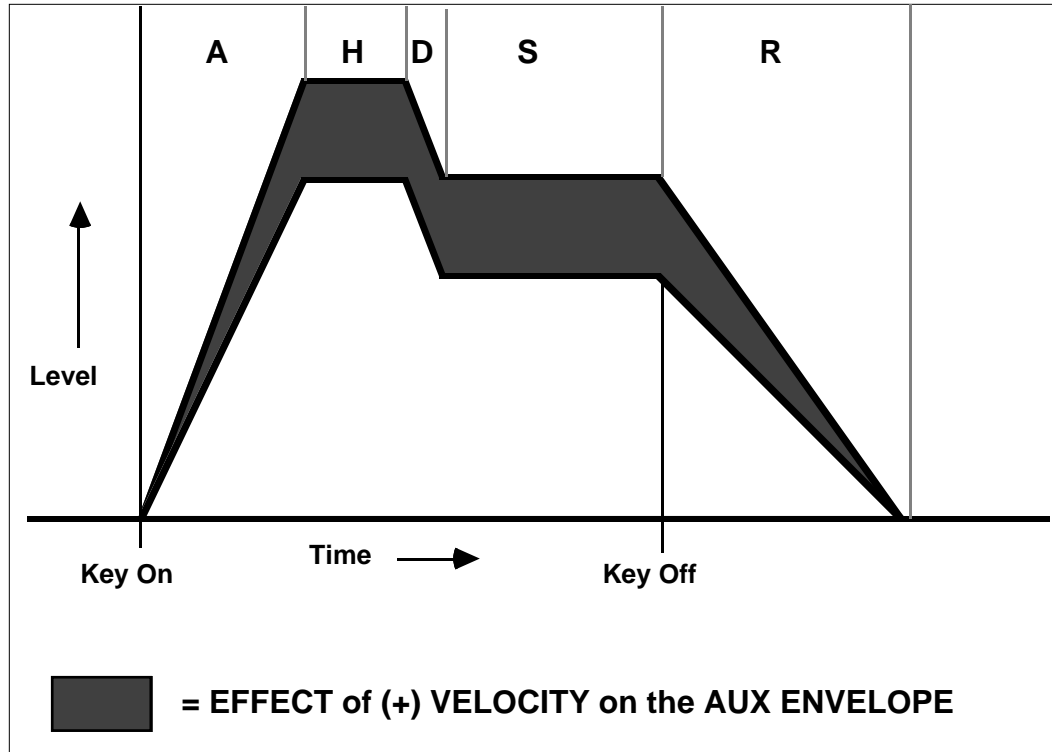


4. Select page two by pressing the right cursor button. The second page shows:

|             |             |    |
|-------------|-------------|----|
| ←           | VELOCITY TO | →  |
| VCF Cutoff: | +           | 0% |
| VCF Q:      | +           | 0% |
| VCF Attack: | +           | 0% |

■ Since each zone can have its own keyboard velocity settings, lower register bass sounds can have minimum dynamics to provide a constant bottom, while upper register lead sounds can be played more dynamically.

■ **VCF Cutoff:** ties velocity to the filter cutoff frequency. At 0%, the cutoff remains as set in Analog Processing, 3. VCF, no matter how forcefully or softly you play the keyboard. Progressively higher positive values give a progressively wider cutoff frequency range by lowering the cutoff as you play more softly. Progressively higher negative values give a progressively wider cutoff frequency range by lowering the cutoff as you play more forcefully. Acoustic instruments often sound brighter when played forcefully. You can simulate this effect by tying VCF Cutoff to keyboard dynamics.



■ The Cutoff and Q settings interact with the VCF controls (Analog Processing, 3.VCF). You will probably need to "tweak" the VCF settings for optimum results.

■ VCF Q: ties velocity to filter Q. At 0%, the Q remains as set in Analog Processing, 3. VCF, no matter how forcefully or softly you play the keyboard. Progressively higher positive values give a progressively wider Q range by lowering the Q as you play more softly. Progressively higher negative values give a progressively wider Q range by lowering the Q as you play more forcefully. Increasing Q thins out a sound, yet also increases its sharpness. Tying this to velocity can work well with percussive samples when you want a more intense, but not necessarily louder, sound. Overall volume levels can change with changes in Q; this is normal.

■ VCF Attack: ties velocity to VCF envelope attack time. With negative values, playing softly gives shorter attack times, while playing more forcefully lengthens the attack. With positive values, playing softly gives longer attack times. And, as you might expect by now, playing more forcefully shortens the attack.



5. **Select page three by pressing the right cursor button.** The third page displays:

|               |             |   |    |
|---------------|-------------|---|----|
| ←             | VELOCITY TO |   |    |
| Pan:          |             | + | 0% |
| Sample Start: |             | + | 0% |
| Aux Envelope: |             | + | 0% |

■ **Pan:** ties velocity to stereo placement. At 0%, the Pan position remains as set in Analog Processing, 2. VCA no matter how forcefully or softly you play the keyboard. Progressively higher positive values shift the stereo image further to the right as you play more forcefully. Progressively higher negative values shift the stereo image further to the left as you play more forcefully. The higher the value, the greater the difference in stereo spread between soft and forceful keyboard playing.

■ **Sample Start:** ties velocity to where the sample begins playing when you hit a key. At 0%, the sample plays normally no matter how forcefully or softly you play the keyboard. Progressively higher positive values move the sample start point further towards the sample's end, thus cutting off the attack portion of the sample. Progressively higher negative values move the start point backwards, beginning at the end of the sample.

■ **Auxiliary Env:** ties velocity to the Auxiliary Envelope's depth. At 0%, the effect of the Auxiliary Envelope remains as set in Analog Processing, 5. Auxiliary Envelope no matter how forcefully or softly you play the keyboard. Progressively higher positive values increase the envelope depth as you play more forcefully. Progressively higher negative values decrease the envelope depth as you play more forcefully.

6. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 7. KEYBOARD MODE

This submodule lets you alter the way the keyboard processes the notes (not the sounds) that you play. Options include a gate or trigger Envelope Mode, a monophonic Solo Mode, Arpeggiator on/off, and a Nontranspose function for maintaining a constant pitch throughout a zone.

**1. Activate Analog Processing module.**

**2. Select Submodule 7.**

**3. Move the cursor to the parameter(s) to be adjusted, and select on or off with the data slider.** The first page reads:

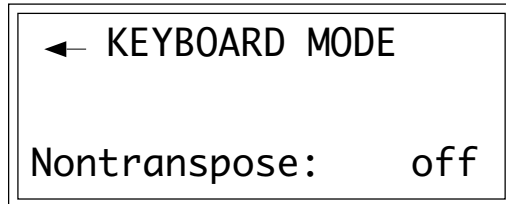
|               |         |
|---------------|---------|
| KEYBOARD MODE | →       |
| Env Mode:     | trigger |
| Solo:         | off     |
| Arpeggiator:  | on      |

■ *Env Mode*: chooses between gate mode or trigger mode. In gate mode, the AHDSR envelopes react as described earlier. Holding down a key cycles through the AHDS stages, and releasing initiates the Release phase. In trigger mode, pressing a key, however briefly, cycles through the AHD stages and ignores the SR stages. Trigger mode is usually the best mode to use when triggering the EIII from external drum pads. See Master, 5. Audio Trigger.

■ *Solo*: provides the playing action of a monophonic synthesizer with single triggering and last-note priority. Solo mode produces more realistic effects when working with monophonic instrument sounds such as solo trumpet, flute, or sax, since this mode does not allow you to play a chord.

■ *Arpeggiator*: enables or disables arpeggiation from this zone of the keyboard. Arpeggiator parameters are set in Preset Definition, 7. Arpeggiator.

4. **Select page two by pressing the right cursor button.** The second page shows:



■ *If you have a sound effect layered behind a melodic line, but don't want the effect to transpose as you play the melody, Nontranspose the sound effect.*

■ **Nontranspose:** lets a sample play throughout its assigned zone at its original pitch only—there will be no transposition. This is useful when determining the original note at which a sample was recorded. Nontranspose is also useful if you're playing drum parts from the keyboard. Assigning a drum sound to a range consisting of several keys provides an easier target than being forced to hit a single key.

5. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 8. REALTIME CONTROL ENABLE

This function allows you to exempt specific realtime control destinations within a zone from being affected by the realtime controls.

1. **Activate Analog Processing module.**

2. **Select Submodule 8.**

3. **Move the cursor to the parameter(s) to be adjusted, and select On or Off with the data slider.** The first page reads:

■ **Off** prevents the realtime control destination from being affected by the realtime controls; **On** (the default) allows the destinations to be affected by the realtime controls.

```
CONTROLLERS ENABLE →  
Pitch:                on  
VCF Cutoff:          on  
Level:               on
```

4. **Select page two by pressing the right cursor button.** The second page controls the following realtime control destinations:

```
←CONTROLLERS ENABLE→  
LFO→Pitch:           on  
LFO→VCF Cutoff:     on  
LFO→VCA:             on
```

5. **Select page three by pressing the right cursor button.** The third page controls the following realtime control destinations:

```
← CONTROLLERS ENABLE  
Attack:              on  
Pan:                 on
```

6. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 9. OUTPUT CHANNELS

The Emulator III offers 16 individual output channels for each of the 16 individual voices. A zone can be assigned to any number of consecutively numbered outputs. The number of outputs assigned equals the number of voices that can be played for that zone.

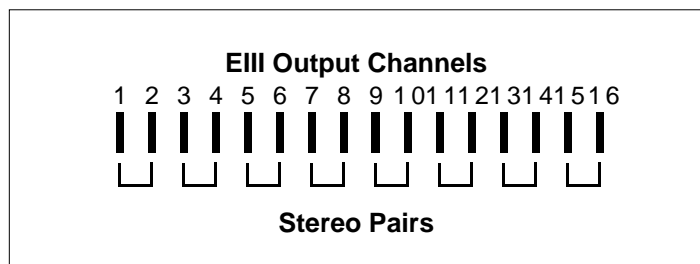
1. **Activate Analog Processing module.**
2. **Select Submodule 9.**
3. **Select the lowest channel that you want the zone's audio output to appear on.**

**OUTPUT CHANNELS**

Lowest Channel: 01

Highest Channel: 16

4. **Move the cursor to line four and select the highest channel that you want the zone's audio output to appear on.**
5. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.



*CHANNEL ASSIGNMENT. When assigning stereo samples to specific output channels, they must be assigned in pairs as shown in this chart.*

## 0. SELECT ZONE

This submodule lets you specify the keyboard zone to be processed.

**1. Activate Analog Processing module.**

**2. Select Submodule 0.**

**3. If there are both primary and secondary samples assigned to the preset, select whether the zone will contain both samples, just the primary, or just the secondary. Press ENTER.** If the preset contains only primary or secondary samples, the EIII will bypass this screen and proceed immediately to step 4.

```

SELECT ZONE
P00 both

Select pri/sec/both

```

**4. Select the lowest key of the zone and press ENTER.** The default is to the lowest note of the lowest sample. You can select a different low key in two ways. The data slider scrolls through the lowest key of each sample on the keyboard. (The data slider is the fastest selection method if you want the lowest key of the zone to coincide with the lowest note of a sample.) Or, you can use the keyboard to specify any note as the lowest note of the zone.

```

SELECT ZONE
P00 both C#1

Select Low Key

```

The second line shows the note being played on the keyboard (or scrolled with the data slider). After selecting a note, the third line will display the primary sample number, and the fourth line will display the secondary sample number associated with the note on line two.

**5. Select the highest key of the zone and press ENTER.** The default is to the highest note of the sample that contains the previously specified low note. You can select a different high key in two ways. The data slider scrolls through the highest key of each sample on the keyboard. (The data slider is the fastest selection method if you want the highest key of the zone to coincide with the highest note of a sample.) Or, you can use the keyboard to specify any note as the highest note of the zone.

```
SELECT ZONE
P00 both C#1 to C#5
Select High Key
```

■ *If there are no samples in the selected zone, the EIII will return to the beginning of the zone selection process. The zone will remain as specified until you either select a new zone, change presets, load another bank, or edit the assignment of the keyboard.*

The second line shows the note being played on the keyboard (or scrolled with the data slider). After selecting a note, the third line will display the primary sample number, and the fourth line will display the secondary sample number associated with the note on line two. After pressing **ENTER**, the zone selection process is complete and the EIII will return to the Module Identifier.





## **10-SEQUENCER MANAGEMENT**

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|                                  |              |
|----------------------------------|--------------|
| <b>1. LOAD SEGMENT/<br/>SONG</b> | <b>10-2</b>  |
| <b>2. TEMPO</b>                  | <b>10-3</b>  |
| <b>3. CLOCK</b>                  | <b>10-4</b>  |
| <b>4. TRACK STATUS</b>           | <b>10-6</b>  |
| <b>5. TRACK MIX</b>              | <b>10-7</b>  |
| <b>6. DATA FILTERS</b>           | <b>10-8</b>  |
| <b>7. MIDI OPTIONS</b>           | <b>10-9</b>  |
| <b>8. SMPTE START</b>            | <b>10-10</b> |
| <b>9. WRITE SMPTE</b>            | <b>10-11</b> |

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## 1. LOAD SEGMENT/SONG

This function transfers segments and songs from banks stored on hard disk or floppy disk into the Emulator III's memory.

**1. Check the current sequencer mode.** Either the Segment/Cue List or Song light will be lit. If Segment/Cue List is lit, then the following operations affect segments and/or cue lists. If Song is lit, then the following operations affect songs. If the desired light is not lit, press the Mode button to toggle back and forth between these two options.

**2. Activate Sequencer Management module.**

**3. Select Submodule 1.**

**4. Select the bank that contains the Segment/Song to be loaded into the EIII, then press ENTER.** The display will show if the selected bank contains no segment or song.

LOAD SONG from  
D1 Internal HD  
B00 Current Bank  
Select a Bank

**5. Scroll through the source segments and songs available for loading.** When the display shows the desired segment or song, press ENTER.

LOAD SONG from  
S00 Selected Song  
Select a Song

**6. Scroll through the destination segment or song numbers into which the segment or song will be loaded.** When the display shows the desired segment or song, press ENTER. Empty destinations will be indicated as such. If you try to load into a segment or song that already contains data, the display will ask if you want to overwrite. Enter **Yes** to replace the existing segment or song, **No** to cancel. In either case, the EIII will return to the Module Identifier.

## 2. TEMPO

This function sets the overall tempo for a segment or song when the clock source is the Emulator III's internal clock or an external SMPTE clock. (See also Sequencer Management, 3. Clock).

**1. Activate Sequencer Management module.**

**2. Select Submodule 2.**

**3. Select the tempo in Beats Per Minute on line three of the display, then press ENTER.** Select the coarse tempo (integer values) first. For greater precision, press the right cursor to select the fine tempo value in hundredths of a Beat Per Minute. For the convenience of those who work with video or in SMPTE-based studios, line four translates Beats Per Minute into Frames Per Beat.

|               |        |
|---------------|--------|
| TEMPO         |        |
| Beats/Minute: | 090.00 |
| Frames/Beat:  | 020.00 |

## 3. CLOCK

This function selects the clock source for segments or songs, as well as how clock information will be shown in the display. Clock sources can be internal, MIDI, external clock, or SMPTE with your choice of four different frame rates.

**1. Activate Sequencer Management module.**

**2. Select Submodule 3.**

```

CLOCK
Display:  measures
Source:   internal
  
```

**3. Select the clock source on line three of the display.** Your choices are:

■ **Internal:** The EIII's internal clock sets the tempo as programmed in Sequencer Management, 2. Tempo.

■ **MIDI:** MIDI timing signals entering the Emulator III's MIDI In connector set the tempo.

■ **SMPTE:** If you choose SMPTE, you will see the following display. The internal clock's programmed tempo (see Sequencer Management, 2. Tempo) will be referenced to SMPTE timing signals entering the EIII's SMPTE In connector. Note that SMPTE does not set the tempo itself (SMPTE runs at a fixed rate), but serves as a reference to which the tempo synchronizes.

```

CLOCK
Display:  measures
Source:   SMPTE
Frame Rate: 30
  
```

■ Press the << locate button prior to starting an externally clocked sequence to avoid a delay as the EIII loads the sequencer software "overlay".

■ This step also sets the frame rate when writing SMPTE to tape (see Sequencer Management, 9. Write SMPTE).

If you choose SMPTE, press the down cursor button, and select one of the following frame rates: 24 (used for film), 25 (European video standard), 30 (American video standard), 30 drop-frame (American color video standard).

■ **External:** Trigger clock pulses entering the Emulator III's SMPTE In connector set the tempo.

|               |          |
|---------------|----------|
| CLOCK         |          |
| Display:      | measures |
| Source:       | external |
| Clocks per A: | 96       |

If you choose External, press the down cursor button, and select one of the following clock pulse rates: 24 , 48, or 96 pulses per quarter note.

Equipment manufactured before the advent of MIDI generated clock pulses to which other equipment synchronized, but the clock rate was not standardized. Here are suggested rates when using some of the following pieces of gear as the EIII's external clock:

- E-mu Drumulator, SP-12, and SP-1200: 24 pulses per quarter note (ppqn).
- LinnDrum: 48 ppqn.
- Oberheim DMX and DSX: 96 ppqn.
- Most Japanese products: 24 ppqn. Some work at 48; Roland gear may require a simple hardware adapter.

**4. Press the up cursor button, then select the display mode on line two.** With SMPTE, the display will show elapsed time in hours, minutes, seconds, and frames. With measures, the display will show the elapsed time in measures, beats, and clocks.

**5. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 4. TRACK STATUS

The status of each track in a Segment/Cue List or Song can be monitored and altered in this submodule.

**1. Activate Sequencer Management module.**

**2. Select Submodule 4.**

**3. Set the playback status of a track on line two.** Use the left and right cursor buttons to select a track, and the data slider to select the track's playback status. The display will show the current status for each track that has been recorded.

```

TRACK STATUS
PPPP PPPP PPPP PPPP
Track:01      play
  
```

Status choices are:

- *Mute*: The track will not play back recorded data.
- *Play*: Track data will play back.
- *Solo*: Only the solo tracks will play back. All other tracks will be muted. You can have multiple solo tracks.

**4. Set the record status of a track on line three.** Use the down cursor button to move to the record status line and the left and right cursor buttons to select a track. Press **Yes** to enable record for the selected track. Only one track may be record-enabled at any given moment.

```

TRACK STATUS
PPPP PPPP PPPP PPPP
R
Track:01      play
  
```

**5. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

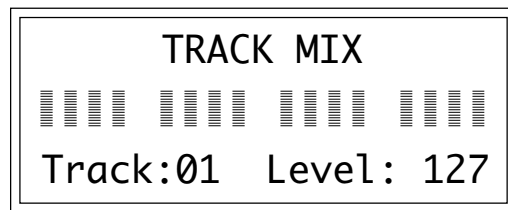
## 5. TRACK MIX

Why use up 16 channels in your main mixer when, with this function, you can adjust the overall level of each sequencer track in the Emulator III?

**1. Activate Sequencer Management module.**

**2. Select Submodule 5.**

**3. Set the track levels on line two.** Use the left and right cursor buttons to select a track, and data slider to select the track's overall level. Line four shows the selected track and level. Levels range from 000 (full off) to 127 (full on).



■ *Track Mix only affects sounds generated from the EIII. It does not affect the mix of external sound generators. (Hint: To control the mix of an external sound generator, use a Continuous Controller set to controller channel #7.)*

**4. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 6. DATA FILTERS

Some MIDI messages, such as Pressure (Aftertouch), Continuous Controllers, and System Exclusive use up sequencer memory at a faster rate than simpler messages such as Note On, Note Off, or Program Change. This submodule can filter out these memory-consuming messages not only to save on memory space but to tighten up the sequencer's timing. These data filters are record filters and must be enabled prior to recording. They will not strip data from an existing track, although in Sequencer Edit, 3. Erase Segment you can remove controller data without disturbing note data.

■ *As long as they are enabled prior to recording, the data filters will work on either data generated by the EIII, or data entering the EIII's MIDI In connector.*

**1. Activate Sequencer Management module.**

**2. Select Submodule 6.**

**3. Move the cursor to the line containing the type of data to be filtered.** Press **Yes** to filter out the data or **No** to record the data.

| DATA FILTERS |        |
|--------------|--------|
| Pressure:    | record |
| Controllers: | record |

Your choices are:

■ *The EIII sequencer always records pressure data unless it is purposely filtered out.*

■ **Pressure:** This is one of the most data-intensive messages. We suggest not recording pressure data unless absolutely necessary.

■ **Controllers:** These include Pitch Bend, MIDI Volume (Controller 7), and Modulation (Controller 1). Usually you will want to record these, as they give a part expressiveness, but since they do consume a fair amount of memory, you have the option to remove them.

**4. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.



## 7. MIDI OPTIONS

These functions facilitate using the Emulator III in a MIDI system.

1. **Activate Sequencer Management module.**
2. **Select Submodule 7.**
3. **Move the cursor to the line containing the parameter to be edited, then select the desired option.**

|                |     |
|----------------|-----|
| MIDI OPTIONS   |     |
| Echo Thru:     | off |
| Clock Out:     | off |
| Song Position: | off |

Your choices are:

■ **Echo Thru:** When on, data entering the MIDI In connector which corresponds to the current preset's MIDI channel will be echoed at the MIDI Out connector. The MIDI data filters set in 6. Data Filters will also affect this data. When off, the only data appearing at the MIDI Out port will be data generated by the Emulator III. If the EIII's MIDI Out connects back to the MIDI In for any reason, enabling Echo Thru will cause a MIDI feedback loop. Should the EIII start acting in a totally reprehensible manner, turn off Echo Thru. If the problem goes away, check your MIDI cable connections for a feedback path.

■ **Clock Out:** Options for this function are MIDI, where the EIII sends out timing data as standard MIDI timing messages, MTC, where the EIII sends out MIDI Time Code messages so that MTC compatible devices can be triggered by the EIII, and Off, where no timing data appears at the EIII's MIDI Out.

■ **Song Position:** The MIDI Song Position Pointer message specifies how many sixteenth notes have elapsed since the beginning of a composition, thus allowing one MIDI device to auto-locate to another. Options for this function are Off, where Song Pointer is neither sent nor received, Recv (Receive), where the EIII will auto-locate to Song Position Pointer messages received from another piece of gear, and Send, where the EIII will send Song Position Pointer messages so that other pieces of MIDI gear can auto-locate to the EIII.

4. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 8. SMPTE START

You can store an associated SMPTE start time with any Segment/Cue List or Song, as selected by the Mode button.

**1. Check the current sequencer mode.** The following operations select the SMPTE start point for Segments/Cue Lists or Songs, depending on which of the associated Mode lights is lit. If the desired light is not lit, press the Mode button to toggle back and forth between these two options.

**2. Activate Sequencer Management module.**

**3. Select Submodule 8.**

**4. Move the cursor to the parameter to be edited, then select the desired value.** Line two shows the segment or song for which you are choosing the SMPTE start time. Line four shows the start time in hours, minutes, seconds, frames, and sub-frames. (1 sub-frame equals 1/100th of a frame, or 333 microseconds at the 30 frames per second frame rate).

■ This step also sets the start time when writing SMPTE to tape. See *Sequencer Management, 9. Write SMPTE.*

```

SMPTE START
S00 Current Song
      h   m   s   f
START 00:01:00:00.00

```

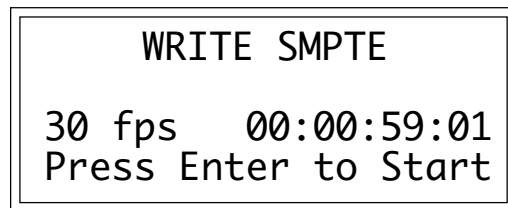
**5. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 9. WRITE SMPTE

Before synching the Emulator III to a SMPTE time code signal recorded on tape, you need to record the code itself. This is referred to as “striping” the tape. The EIII can send out industry standard SMPTE time code, thus eliminating the need for a dedicated SMPTE writing device.

**1. Activate Sequencer Management module.**

**2. Select Submodule 9.** The screen shows:



```
WRITE SMPTE
30 fps    00:00:59:01
Press Enter to Start
```

■ To change the frame rate, see *Sequencer Management, 3. Clock*. To change the SMPTE time, see *Sequencer Management, 8. SMPTE start time*. Note that SMPTE always starts writing one second before the specified start time to allow for a small lead-in.

The left side of line three shows the currently selected frame rate. The right side of line three shows what time will initially be sent out upon writing SMPTE.

**3. To write SMPTE to tape, begin rolling tape, then press ENTER.**

The display will show the SMPTE time code value as it is transmitted.

**4. To stop writing SMPTE, press ENTER.** The EIII will return to the Module Identifier.



## **11-SEQUENCER SETUP**

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---

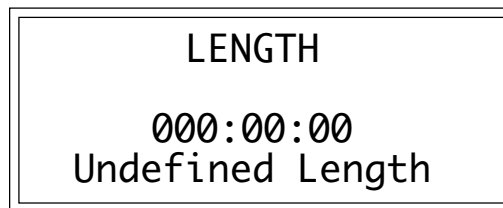
- |                                 |              |
|---------------------------------|--------------|
| <b>1. LENGTH</b>                | <b>11-2</b>  |
| <b>2. TIME SIGNATURE</b>        | <b>11-3</b>  |
| <b>3. COUNTDOWN</b>             | <b>11-4</b>  |
| <b>4. AUTOCORRECT</b>           | <b>11-5</b>  |
| <b>5. METRONOME</b>             | <b>11-7</b>  |
| <b>6. LOOPING</b>               | <b>11-8</b>  |
| <b>7. PRESET<br/>ASSIGNMENT</b> | <b>11-9</b>  |
| <b>8. CUE LIST MODE</b>         | <b>11-10</b> |
- 
-

## 1. LENGTH

Length sets the number of measures, beats, and clocks for a segment prior to recording. (Ninety-six clocks equals one quarter note.) It is not necessary to set all length parameters. Press **ENTER** when you have entered all the parameters you want to set, and the EIII will return to the Module Identifier.

**1. Activate Sequencer Setup module.**

**2. Select Submodule 1.** The display shows:



A rectangular display box with a double-line border. Inside, the word "LENGTH" is centered at the top. Below it, the time "000:00:00" is displayed. At the bottom, the text "Undefined Length" is shown.

**3. Select the number of measures by moving the data slider.** Line three displays measures, beats, and clocks. When line three shows 000:00:00, an undefined length is set. This is useful when you don't know how many measures you want to record. Recording will continue until the EIII runs out of memory, or you press **STOP**. If you select undefined length, or do not need to specify a number of measures or clocks, press **ENTER** to return to the Module Identifier.

**4. Use the right cursor to select the number of beats.** Press **ENTER** if you only want to select the number of beats, otherwise carry on to step five.

**5. Use the right cursor to select the number of clocks.** This parameter is variable from 0-95.

**6. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 2. TIME SIGNATURE

This sets the time signature of a segment prior to recording.

**1. Activate Sequencer Setup module.**

**2. Select Submodule 2.**

**3. Select the time signature numerator on line two.** This number represents the number of beats per measure, from 1 to 32.

|  |
|--|
| TIME SIGNATURE<br>4<br>4<br>Select Numerator |
|--|

**4. Use the down cursor button to select the time signature denominator on line three.** The denominator represents the value of each beat; options are 2 (half note), 4 (quarter note), 8 (eighth note) and 16 (sixteenth note).

**5. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

### 3. COUNTDOWN

The Emulator III can provide a countdown from 0 to 9 measures so that you can be prepared when recording actually begins. This countdown can be heard as a click if the EIII's Metronome output is plugged into a suitable amplification system, as well as being seen on the display.

**1. Activate Sequencer Setup module.**

**2. Select Submodule 3.**

**3. Select the number of measures in the countdown.** Set 0 for no countdown or 1 through 9 for an equal number of measures.

|           |        |
|-----------|--------|
| COUNTDOWN |        |
| Measures: | 2      |
| Mode:     | record |

**4. Use the down cursor to select the countdown mode on line four.** Your choices are:

- *Record*: The countdown will only take place prior to recording.
- *Rec+play*: The countdown will take place prior to both recording and playback.

**5. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.



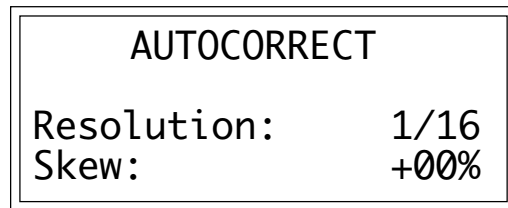
## 4. AUTOCORRECT

Autocorrect rounds off the notes you play to the nearest selected rhythmic value, allowing for rhythmically perfect parts. In cases where this is not desired, a hi-resolution mode with 1/384th of a note resolution is also available. Autocorrect can also be skewed so that notes are moved forward or backward to the nearest beat. It should be noted, however, that in Hi-Res mode, Skew is not an available parameter to set.

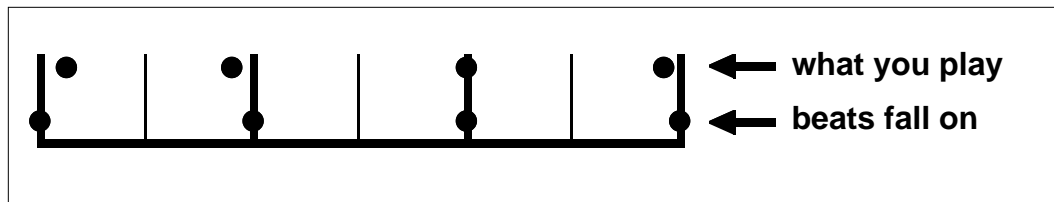
1. **Activate Sequencer Setup module.**

2. **Select Submodule 4.**

3. **Select the Autocorrect resolution.** This is variable from quarter notes (1/4) to thirty-second note triplets (1/32t), as well as all triplet values in between. Moving the slider past 1/32t accesses the Hi-Res setting.



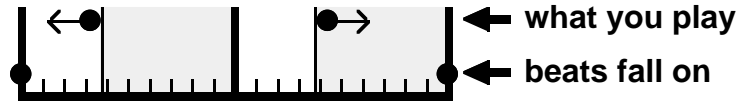
■ Use the least amount of resolution needed. If you are recording a simple snare back beat, there's no point in using any more resolution than eighth notes. To record something more complex, set a finer resolution (such as sixteenth or even thirty-second notes).



*AUTOCORRECT.* Using Autocorrect with no skew, notes that you play are moved to the nearest Autocorrect value.

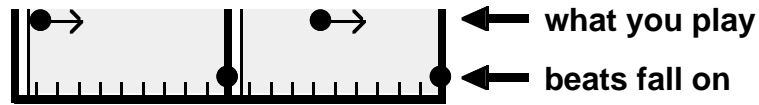
4. **Use the down cursor to select the Autocorrect Skew.** A positive skew value moves the note you play ahead to the next beat. A negative skew value causes the note to be moved back to the last beat. The specified percentage determines at what point the note will be moved forward or backwards.

5. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.



**10% Positive Skew**

*Notes falling in the shaded area get moved forward to the next Autocorrect beat.*



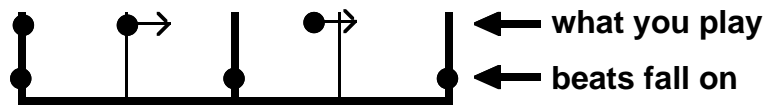
**50% Positive Skew**

*Notes falling in the shaded area get moved forward to the next Autocorrect beat.*



**Negative Skew**

*With a negative Skew, notes tend to be pushed back to the previous beat.*



**Positive Skew**

*With a positive Skew, notes tend to be pushed forward to the next beat.*

## 5. METRONOME

The Emulator III provides an audible metronome pulse as a rhythmic reference for when you record segments. Note that the Met output on the rear panel must be plugged into an appropriate amplification system.

**1. Activate Sequencer Setup module.**

**2. Select Submodule 5.** The display shows:

|             |        |
|-------------|--------|
| METRONOME   |        |
| Mode:       | record |
| Resolution: | 1/4    |
| Accent:     | on     |

**3. Select the Metronome mode.** You have three choices available:

- *Off*: The Metronome output is disabled.
- *Record*: The Metronome output is enabled only while recording.
- *Rec+play*: The Metronome output is enabled both while recording and playing back.

**4. Use the down cursor to select the Metronome Resolution, then press ENTER.** The Metronome click rate is variable from quarter notes (1/4) to thirty-second note triplets (1/32t), as well as all triplet values in between. Moving the slider past 1/32t sends the 96 pulses-per-quarter note clock signal out the Met jack.

**5. Use the down cursor to select the Metronome Accent.** When On, the Metronome click will be accented on every down beat of a measure. When Off, there is no accenting.

**6. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

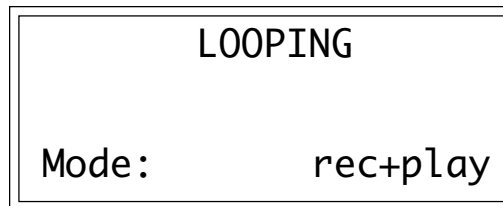
■ Most Oberheim sequencers and drum machines and all E-mu products can synchronize to the 96 ppqn signal present at the Met out jack when the Metronome resolution is set to clock. Custom outboard frequency divider circuits can also allow this signal to drive older, non-MIDI gear such as the LinnDrum, Master Synchronizer, and other 24 ppqn or 48 ppqn gear. (Ask a qualified technician about this.)

## 6. LOOPING

This feature has nothing to do with the looping of samples. Instead, this lets you loop a segment for continuous playback or record. Once a segment has played through to the end, it goes back to the beginning (not including any countdown) and repeats. This is very useful for recording when you want to have multiple passes at the same segment.

**1. Activate Sequencer Setup module.**

**2. Select Submodule 6.** The display shows:



**3. Select the Looping mode on line four.** Here are your choices:

- *Off*: There is no looping. The segment plays through (or records) once and stops.
- *Record*: The segment will loop when you are in record mode, but not during playback.
- *Rec+play*: The segment will loop both while recording and playing back.

**4. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 7. PRESET ASSIGNMENT

This function allows specific presets to be assigned to specific recorded tracks. For example, if you decide to change that gentle flute track to heavy metal power chords, no problem, simply re-assign the power chord preset in place of the flute for that track.

**1. Activate Sequencer Setup module.**

**2. Select Submodule 6.**

**3. Select the track on line two to which you want to assign a preset.** If there is nothing recorded in a track, line three will say unrecorded. Otherwise, line three will show the name of the preset assigned to the selected track.

```
PRESET ASSIGNMENT
Track: 01
P00 Assigned Preset
Select a Track
```

**4. Use the down cursor to select the preset to be assigned to the track chosen in step three.**

**5. To re-assign more presets to more tracks, repeat steps three and four.**

**6. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## **8. CUE LIST MODE**

■ *Segments created in Cue List mode cannot be assembled in Song mode.*

This feature allows you to create a sound effects cue list for synchronization of sound effects for film or video work.

In Cue List mode events are entered exactly as in Segment mode, except that Tempo and Quantize are disabled. Events can be entered either in realtime or steptime to exact points in time.

Use Cue List mode when you want events to be locked in sync with SMPTE time code.

Segments created in Cue List mode cannot be assembled in Song mode.

## **12-SEQUENCER EDIT**

---

| <b>■ SEGMENT / CUE LIST</b>     |              | <b>■ SONG</b>         |              |
|---------------------------------|--------------|-----------------------|--------------|
| <b>1. STEP EDIT</b>             | <b>12-2</b>  | <b>1. STEP EDIT</b>   | <b>12-31</b> |
| <b>2. RENAME<br/>SEGMENT</b>    | <b>12-5</b>  | <b>2. RENAME SONG</b> | <b>12-34</b> |
| <b>3. ERASE SEGMENT</b>         | <b>12-6</b>  | <b>3. ERASE SONG</b>  | <b>12-35</b> |
| <b>4. COPY SEGMENT</b>          | <b>12-8</b>  | <b>4. COPY SONG</b>   | <b>12-37</b> |
| <b>5. CUT SEGMENT</b>           | <b>12-13</b> | <b>5. CUT SONG</b>    | <b>12-39</b> |
| <b>6. PASTE SEGMENT</b>         | <b>12-15</b> | <b>6. PASTE SONG</b>  | <b>12-40</b> |
| <b>7. ERASE TRACK</b>           | <b>12-18</b> |                       |              |
| <b>8. BOUNCE TRACK</b>          | <b>12-19</b> |                       |              |
| <b>9. PUNCH-IN</b>              | <b>12-21</b> |                       |              |
| <b>0. SPECIAL<br/>FUNCTIONS</b> | <b>12-23</b> |                       |              |
| 1. Quantize                     | 12-23        |                       |              |
| 2. Transpose                    | 12-26        |                       |              |
| 3. Erase All                    | 12-28        |                       |              |
| 4. Scale Velocity               | 12-28        |                       |              |

---

## 1. STEP EDIT (SEGMENT)

Use this function to create a segment or to edit any event in an existing segment or Cue List.

**1. Activate Mode module and choose Segment/Cue List.** If necessary, press **MODE** until the associated Segment/Cue List light is lit.

**2. Select the segment to be edited and press ENTER.** If you select an empty segment, the display will ask if you want to create a new segment. Press **Yes** to continue, or **No** to cancel the operation and return to the Module Identifier.

```
P01 Selected Preset
s00 Untitled Segment
```

**3. Activate Sequencer Edit (Segment Mode) module.**

**4. Select Submodule 1.** The segment edit screen displays several pieces of information:

```
EDIT      ||=001:01:00
Track:01
Keyon: C3  Vel:069
Duration: 00014
```

■ **||=** on line one shows the location of the currently selected segment step in either musical terms (measures, beats, and clocks), or SMPTE time code (hours, minutes, seconds, frames), as programmed in Sequencer Management, 3. Clock.

■ **Track:** Line two shows which segment track will be edited.

■ **Keyon/Vel:** Line three shows the note name and associated velocity, assuming that a note exists at the segment step shown on line one.

■ **Duration:** Line four shows the duration of the note, assuming that a note exists at the segment step shown on line one.



```
EDIT      ||=001:01:00
Track:01
Keyon: C3  Vel:069
Duration: 00014
```

**5. Select the desired track to be edited on line two.**

**6. Use the << and >> Locate buttons to scroll through the segment track being edited.** Pressing >> scrolls ahead to the next step containing data; pressing << scrolls back to the last step containing data. Pressing and holding either button scrolls continuously in the indicated direction.

Continue to press the >> and << buttons to scroll through the notes in a chord. The step number shown in line one will not change as long as you are scrolling within the chord.

**7. To change the note pitch at the selected step, place the cursor under the Keyon parameter in line three, play the desired note on the keyboard, and press ENTER.**

**8. To change the velocity of the note shown on line three, place the cursor under the Vel parameter on line three, select the desired velocity value, and press ENTER.** Velocity values range from 000 (soft) to 127 (loud).

**9. To change the duration of the note shown on line three, place the cursor under the Duration parameter on line three, select the desired duration value, and press ENTER.**

**10. To insert a note or chord, select the desired segment step (see step six above), press RECORD (INSERT), play the note or chord, then press ENTER.**

**11. To erase the event (note) shown for a given step, press Erases, answer Yes to the "Erase Event?" prompt, then press ENTER.**

**12. To change the position of an event, first erase the event. (See step 11.) Then select the desired segment step, (see step six), and press Erase twice. The event will be moved to the new position.**

■ You can also select any location for editing by placing the cursor under the step location parameters on line one, and selecting the desired parameter values. Use this procedure to add a note to a step that does not contain note data. (See also step ten.)

■ The Play and Stop/Continue buttons work similarly to the >> button, and can scroll forward through a segment. However, they will not scroll continuously if held down.

```
EDIT      II=001:01:00
Track:01
Cntrl: pressure
Value: 108
```

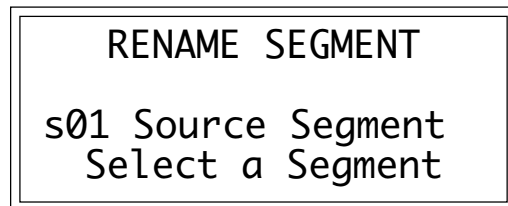
**13. To change the value of a Continuous Controller, move the cursor under the value parameter in line four, select the desired value, then press ENTER.** Continuous Controller events can also be inserted or deleted in the same manner as other events.

**14. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 2. RENAME SEGMENT

This submodule allows you to rename any segment.

- 1. Activate Mode module and choose Segment/Cue List.** If necessary, press MODE until the associated Segment/Cue List light is lit.
- 2. Activate Sequencer Edit module.**
- 3. Select Submodule 2.**
- 4. Scroll through the source segments. When the display shows the segment to be renamed, press ENTER.** The display shows the name and number of the segment.



RENAME SEGMENT  
s01 Source Segment  
Select a Segment

- 5. Rename the segment, then press ENTER.** Choose the characters to be changed with the left and right cursor buttons. Select the desired characters by using the ten-key pad, data slider, and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces.
- 6. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

### 3. ERASE SEGMENT

Individual segments can be erased from the bank loaded into the Emulator III.

**1. Activate Mode module and choose Segment/Cue List.** If necessary, press **MODE** until the associated Segment/Cue List light is lit.

**2. Activate Sequencer Edit module.**

**3. Select Submodule 3.**

**4. Scroll through the segments. When the display shows the segment to be erased, press ENTER.** The display will show the name and number of the segment.

```
ERASE SEGMENT
s00 Selected Segment

Select a Segment
```

**5. Decide if you really do want to erase the entire segment.** If you press **Yes**, and then press **Yes** again in response to the display's prompt, the entire segment will be removed from memory and the Emulator III will return to the Module Identifier. This completes the erasure process.

Press **No** if you want to selectively erase data from the segment, then proceed to step six.

```
ERASE SEGMENT
s00 Selected Segment
Mode: All Events
Select Mode
```

**6. Choose whether to erase all events, or just the Continuous Controller data, then press ENTER.** If you erase all events, then note, controller, program change, and all other data will be erased. If you erase just the controllers, only note data will be retained.

**7. Choose the track(s) from which this data will be erased, then press ENTER.** You may choose any individual track, or all tracks.

|   |
|---|
| ERASE SEGMENT<br>Track:01<br><br>Select Track |
|---|

**8. Choose the start point of the region to be erased, then press ENTER.** You can erase a region of any duration, from a single clock or frame to the entire length of the segment. Use the left and right cursor to choose the region's start point (in measures, beats, and clocks; or hours, minutes, seconds, and frames, depending on whether you chose Measures or SMPTE in Sequencer Management, 3. Clock), and select the desired parameter values.

|  |
|--|
| ERASE SEGMENT<br>Track:01<br>Start: 001:01:00<br>Select Region |
|--|

**9. Choose the end point of the region to be erased, then press ENTER.** Use the left and right cursor to choose the region's end point (in measures, beats, and clocks; or hours, minutes, seconds, and frames, depending on whether you chose Measures or SMPTE in Sequencer Management, 3. Clock), and select the desired parameter values.

|   |
|---|
| ERASE SEGMENT<br>Track:01<br>Start: 001:01:00<br>Until: 004:01:00 |
|---|

**10. The EIII will inquire if you are sure.** Press **Yes** if you are sure you want to erase, or **No** to cancel the operation. In either case the EIII will return to the Module Identifier.

## 4. COPY SEGMENT

In this submodule, segments can be copied to other segment numbers within the same bank.

**1. Activate Mode module and choose Segment/Cue List.** If necessary, press MODE until the associated Segment/Cue List light is lit.

**2. Activate Sequencer Edit module.**

**3. Select Submodule 4.**

**4. Scroll through the segments. When the display shows the segment to be copied, press ENTER.** Line two will show the segment's name and number.

COPY SEGMENT from  
s00 Selected Segment

Select a Segment

**5. Decide if you want to copy the entire segment or not.** If you decide Yes, proceed to step six. If you decide No, proceed to step seven.

**6. Scroll through the segment numbers shown on line three. When the display shows the destination segment, press ENTER.** If the segment number already contains data, you will be asked if you want to append the segment to be copied to the end of the existing segment. If the destination segment is an empty segment, you will be asked whether you want to create a new segment. Regardless of your answer, when the operation is complete the EIII will return to the Module Identifier, and the copying process is complete.

**7. Choose the track(s) you want to copy, then press ENTER.** Choose any one track, or all tracks.

```
COPY SEGMENT from
Track: 01

Select Track
```

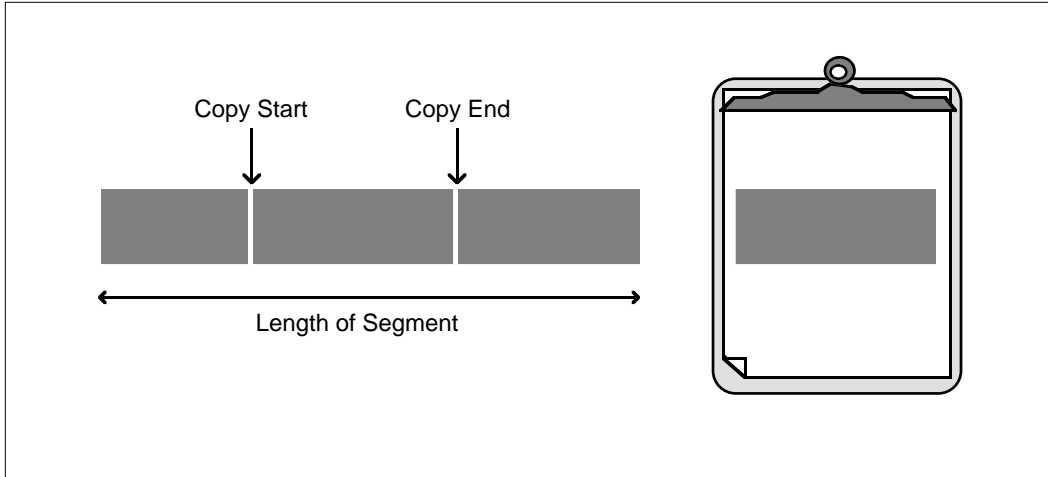
**8. Choose the start point of the region to be copied then press *ENTER*.** You may copy a region of any duration, from a single clock to the entire length of the segment. Use the left and right cursor to choose the region's start point (in measures, beats, and clocks; or hours, minutes, seconds, and frames, depending on whether you chose Measures or SMPTE in Sequencer Management, 3. Clock), and select the desired parameter values.

```
COPY SEGMENT from
Track:01
Start:      001:01:00
Select Region
```

**9. Choose the end point of the region to be copied, then press *ENTER*.** Use the right and left cursor to choose the region's end point (in measures, beats, and clocks; or hours, minutes, seconds, and frames, depending on whether you chose Measures or SMPTE in Sequencer Management, 3. Clock), and select the desired parameter values.

```
COPY SEGMENT from
Track:01
Start:      001:01:00
Until:      003:01:30
```

**10. Scroll through the destination segment numbers. When the display shows the segment number into which you want to copy the source segment data, press *ENTER*.** If the destination segment is empty, you will be asked if you want to create a new segment. Press **Yes** to create a segment that contains the copied data, **No** to cancel the operation. With either answer, the EIII will return to the Module Identifier. If the destination segment contains data, carry on to step 11.



*COPY SEGMENT. The copied section is placed on the clipboard.*

PASTE SEGMENT to  
s00 Dest Segment  
Select Destination

**11. If you chose a single track in step six, the following display will appear:**

PASTE SEGMENT to  
Track:01  
Select Track

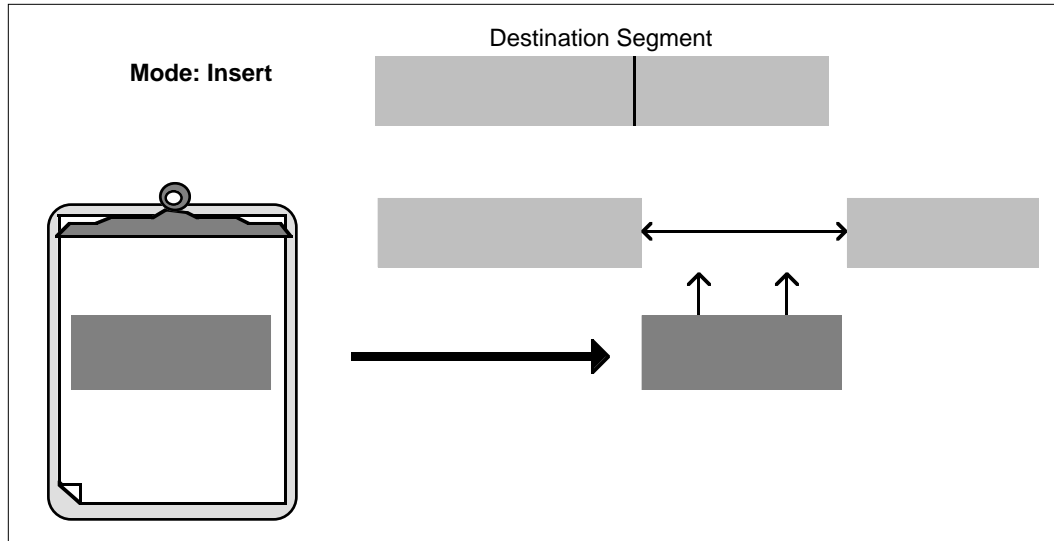
■ *Copy and Paste can be used to offset a track by any number of clock pulses in order to change the "feel" of the song.*

Choose the destination segment track to receive the source segment data, then press ENTER. If you chose "All Tracks" in step six, skip to step 12.

**12. Choose how the source segment data will be pasted to the destination segment, then press ENTER.** Your choices are:

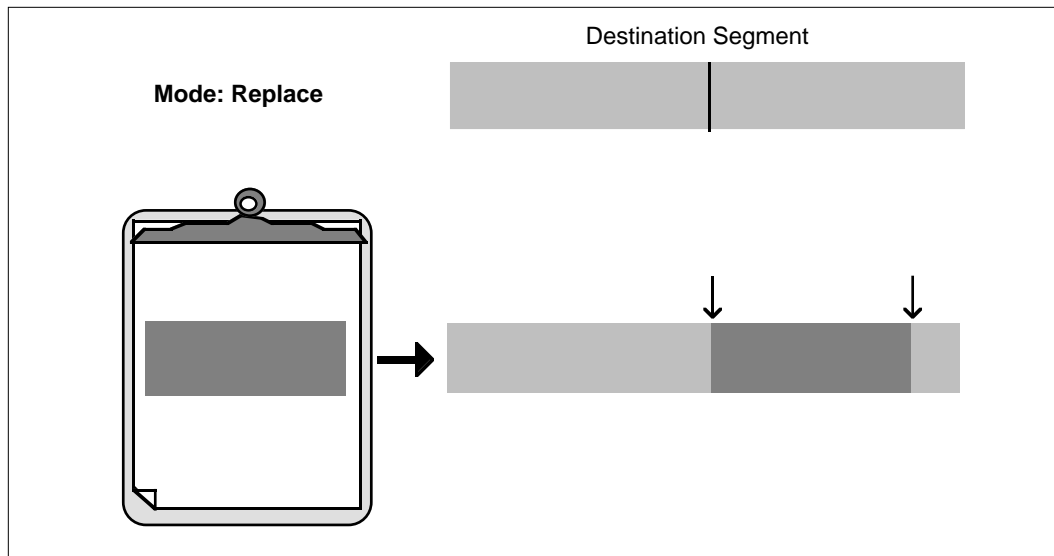
■ **Insert:** The new data will open up a region in the destination segment equal to the length of the region being pasted, at a specified point within the destination segment, and the source segment data will be pasted into the newly opened-up region.



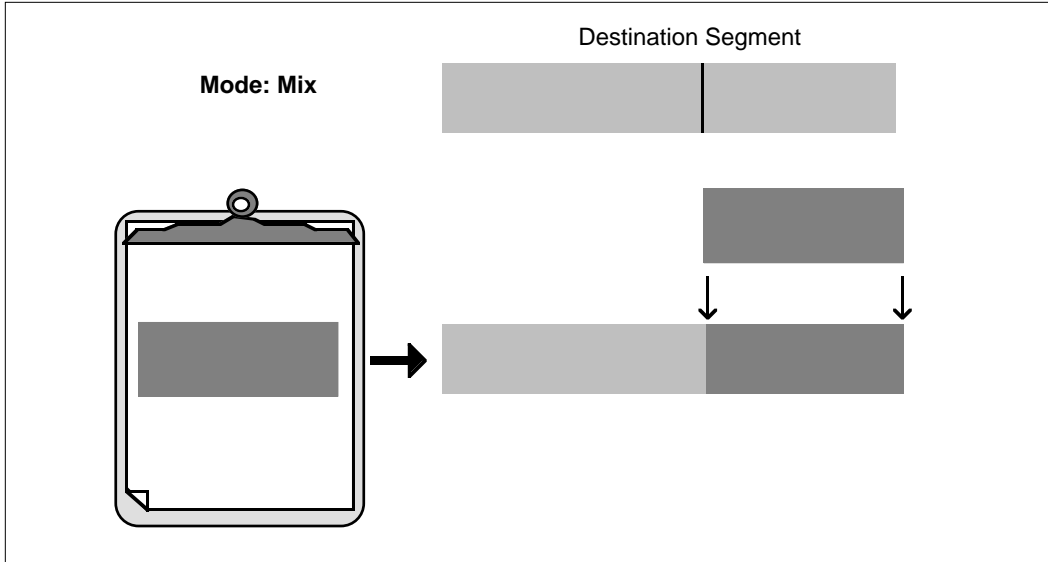


*MODE: INSERT.* The segment on the clipboard is pasted into the break in the destination segment.

■ *Replace:* The new data will overwrite data in the destination segment for the duration of the selected region. For example, pasting a two measure segment at the beginning of the destination segment overwrites the first two measures of the destination segment with the new data.



*MODE: REPLACE.* The segment on the clipboard replaces a section of the destination segment.



*MODE: MIX. The segment on the clipboard is mixed with the destination segment.*

■ *Mix*: The new data will be combined with data in the destination segment.

**13. Choose the point at which the inserting, replacing, or mixing will occur, then press ENTER.** The preceding diagrams illustrate inserting, replacing, and mixing one segment with another at a specific point in the destination segment.

**14. The EIII will inquire if you are sure you want to paste. Press Yes to paste, or No to cancel the operation.** In either case, the EIII will return to the Module Identifier.

## 5. CUT SEGMENT

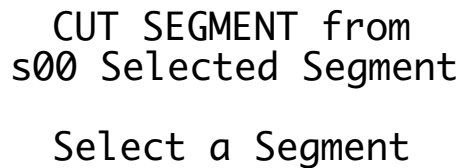
With this function, a region can be cut from any segment, held in the Emulator III's clipboard, and then pasted to any other segment.

**1. Activate Mode module and choose Segment/Cue List.** If necessary, press MODE until the associated Segment/Cue List light is lit.

**2. Activate Sequencer Edit module.**

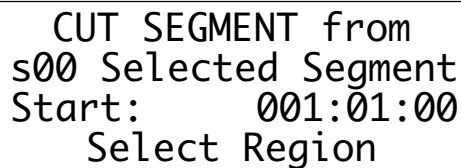
**3. Select Submodule 5.**

**4. Scroll through the segments. When the display shows the segment from which you want to cut data, press ENTER.** Line two will show the segment's name and number.



CUT SEGMENT from  
s00 Selected Segment  
Select a Segment

**5. Choose a start point of the region to be cut, then press ENTER.**



CUT SEGMENT from  
s00 Selected Segment  
Start: 001:01:00  
Select Region

You may cut a region of any duration, from a single clock to the entire length of the segment. Use the left and right cursor to choose the region's start point (in measures, beats, and clocks; or hours, minutes, seconds, and frames, depending on whether you chose Measures or SMPTE in Sequencer Management, 3. Clock), and select the desired parameter values.

**6. Choose the end point of the region to be cut, then press ENTER.** Use the left and right cursor to choose the region's end point (in measures, beats, and clocks; or hours, minutes, seconds, and

frames, depending on whether you chose Measures or SMPTE in Sequencer Management, 3. Clock), and select the desired parameter values.

|                      |           |
|----------------------|-----------|
| CUT SEGMENT from     |           |
| s00 Selected Segment |           |
| Start:               | 001:01:00 |
| Until:               | 003:01:24 |

**7. Decide if you are sure you want to cut the specified region, then press ENTER.** Press **Yes** to cut the specified region. Upon cutting, the beginning of the section after the cut will move backwards and join the end of the section before the cut, thus closing up around the cut region. Or, press **No** to cancel the operation. In either case, the EIII will return to the Module Identifier.

## 6. PASTE SEGMENT

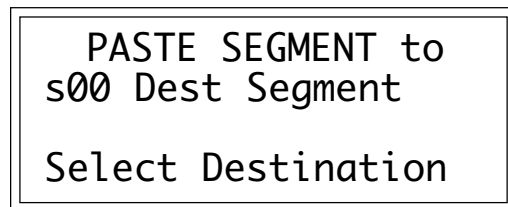
In this submodule, once a region of a segment has been copied or cut and placed in the clipboard (buffer), it may be pasted to a destination segment in one of three ways.

**1. Activate Mode module and choose Segment/Cue List.** If necessary, press MODE until the associated Segment/Cue List light is lit.

**2. Activate Sequencer Edit module.**

**3. Select Submodule 6.**

**4. Scroll through the destination segment numbers. When the display shows the segment number into which you want to paste the clipboard contents, press ENTER.** If the destination segment is empty, you will be asked if you want to create a new segment. Press **Yes** to create a segment that contains the copied data, **No** to cancel the operation. With either answer, the EIII will return to the Module Identifier. If the destination segment contains data, proceed to step five.



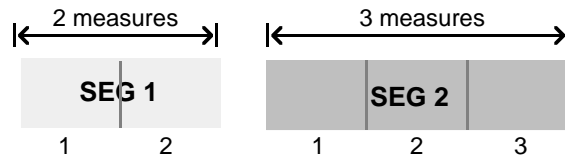
PASTE SEGMENT to  
s00 Dest Segment  
Select Destination

**5. Choose how the clipboard data will be pasted to the destination segment, then press ENTER.** Your choices are:

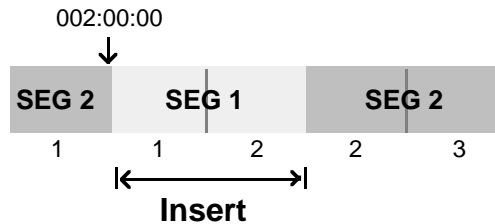
■ **Insert:** The new data will open up a region in the destination segment equal to the length of the region being pasted, at a specified point within the destination segment, and the source segment data will be pasted into the newly opened-up region.

■ **Replace:** The new data will overwrite data in the destination segment for the duration of the selected region. For example, pasting a two measure segment at the beginning of the destination segment overwrites the first two measures of the destination segment with the new data.

■ **Mix:** The new data will be combined with data in the destination segment.



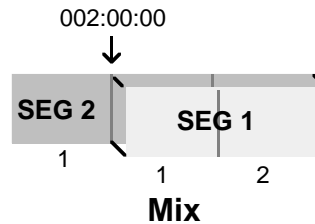
**6. Choose the point at which the inserting, replacing, or mixing will occur, then press ENTER.** The following diagrams illustrate inserting, replacing, and mixing the clipboard data into another segment, at a specific point in the destination segment.



Inserting segment 1 into segment 2 at the 002:00:00 point produces the above result.



Replacing segment 2 with segment 1 at the 003:00:00 point produces the above result.



Mixing segment 1 with segment 2 at the 002:00:00 point produces the above results. The last two measures of segment 2 are combined with segment 1.

**7. The EIII will inquire if you are sure you want to do what you have just specified.** Press **Yes** to paste, **No** to cancel the operation. In either case, the EIII will return to the Module Identifier.

## 7. ERASE TRACK

In this submodule, individual tracks can be erased from a segment.

**1. Activate Mode module and choose Segment/Cue List.** If necessary, press MODE until the associated Segment/Cue List light is lit.

**2. Activate Sequencer Edit module.**

**3. Select Submodule 7.**

**4. Scroll through the segments. When the display shows the segment containing the track(s) to be erased, press ENTER.** The display will show the segment's name and number.

```
ERASE TRACK
s01 Selected Segment
Select a Segment
```

**5. Select the track to be erased, then press ENTER.**

```
ERASE TRACK
s01 Selected Segment
Track: 01
Select Track
```

**6. Decide if you do in fact want to erase the track.** Press **Yes** to erase the specified track, or **No** to cancel the operation. In either case, the EIII will return to the Module Identifier.



## 8. BOUNCE TRACK

A source track may be bounced to a destination track in the same sequence. Data from the source track will be removed from that track, and mixed into the destination track. Using the Bounce Track function is more efficient than using the cut command when working on a track level.

**1. Activate Mode module and choose Segment/Cue List.** If necessary, press **MODE** until the associated Segment/Cue List light is lit.

**2. Activate Sequencer Edit module.**

**3. Select Submodule 8.**

```
BOUNCE TRACK
s00 Selected Segment
Select a Segment
```

**4. Scroll through the segments. When the display shows the segment within which you want to bounce tracks, press ENTER.** The display will show the segment's name and number.

```
BOUNCE TRACK
s00 Selected Segment
From:03
Select Source Track
```

**5. Select the source track to be bounced, then press ENTER.**

```
BOUNCE TRACK
s00 Selected Segment
From:03   To:01
Select Source Track
```

**6. Select the destination track into which the data will be bounced, then press ENTER.**

**7. The EIII will inquire if you are sure you want to bounce that track.** Press **Yes** to bounce the specified track, **No** to cancel the operation. The source track will now be deleted, and the destination track will contain the source track data. In either case, the EIII will return to the Module Identifier.

## 9. PUNCH-IN

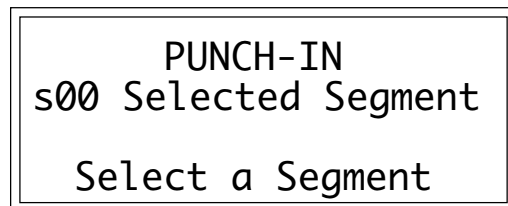
When recording, you can define a region of a track so that only that region goes into record mode. For example, you could mark a region around a poorly-played passage on one track, go into record, and play the entire passage from the start (so that you get into the feel of the part). Then, at the selected punch time, the new data you play will be recorded into the sequencer over the old, poorly-played section. Recording stops upon reaching a specified punch-out point.

**1. Activate Mode module and choose Segment/Cue List.** Press **MODE** until the associated Segment/Cue List light is lit.

**2. Activate Sequencer Edit module.**

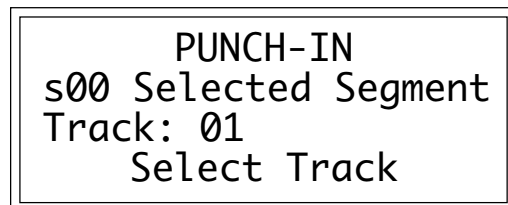
**3. Select Submodule 9.**

**4. Scroll through the segments. When the display shows the segment containing the track on which you want to punch-in a new part, press ENTER.** The display will show the segment's name and number.



PUNCH-IN  
s00 Selected Segment  
Select a Segment

**5. Select the track on which you wish to punch-in, then press ENTER.**



PUNCH-IN  
s00 Selected Segment  
Track: 01  
Select Track

**6. Select the punch-in point, then press ENTER.** Use the left and right cursor to choose the punch-in point (in measures, beats, and clocks; or hours, minutes, seconds, and frames, depending on whether you chose Measures or SMPTE in Sequencer Management, 3. Clock), and select the desired parameter values.

```
PUNCH-IN
In:      001:01:00
Select Region
```

**7. Select the punch-out point, then press ENTER.** Use the left and right cursor to choose the punch-out point (in measures, beats, and clocks; or hours, minutes, seconds, and frames, depending on whether you chose Measures or SMPTE in Sequencer Management, 3. Clock), and select the desired parameter values.

```
PUNCH-IN
In:      001:01:00
Out:     003:01:00
Select Region
```

**8. Press PLAY and play your part.** The EIII will go into record at the punch-in point, and out of record at the punch-out point. Press STOP when you've finished recording.

**9. Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

## 0. SPECIAL FUNCTIONS

### ■ 1. Quantize

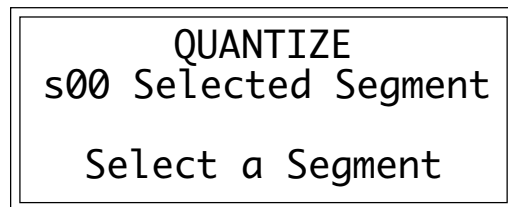
The Autocorrect function set in Sequencer Setup, 4. Autocorrect, is set prior to recording, and rounds off the notes you play into the sequencer to the nearest rhythmic value. The quantize function provides autocorrection for already recorded tracks, and offers additional ways to modify the note timing.

**1. Activate Mode module and choose Segment/Cue List.** If necessary, press MODE until the associated Segment/Cue List light is lit.

**2. Activate Sequencer Edit module.**

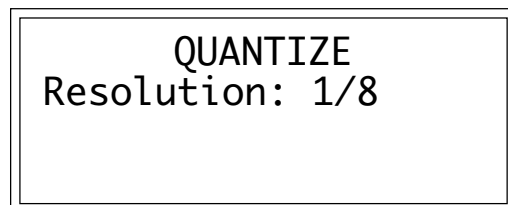
**3. Select 0. Special Functions, 1. Quantize (0/1).**

**4. Scroll through the segments. When the display shows the segment containing the track to be quantized, press ENTER.** The display will show the segment's name and number.

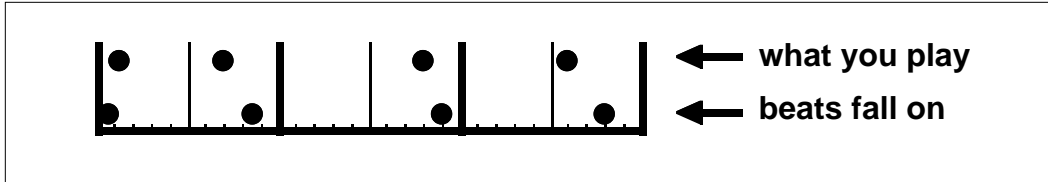


QUANTIZE  
s00 Selected Segment  
Select a Segment

**5. Select the quantize resolution, then press ENTER.** The resolution is variable from quarter notes (1/4) to thirty-second note triplets (1/32t), as well as all triplet values in between. Notes will be shifted to the nearest specified rhythmic value.



QUANTIZE  
Resolution: 1/8



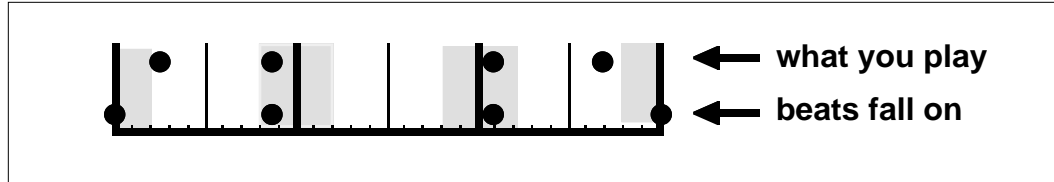
QUANTIZATION: 50% AMOUNT. Notes are moved 50% closer to the beat.

QUANTIZE  
Resolution: 1/8  
Amount: 050%

**6. Select the quantize amount, then press ENTER.** Amount specifies the percentage a note will be moved closer to its nearest quantized value. For example, assume eighth note quantization, and that prior to quantization, a note is 6 clocks away from the nearest eighth note. With an amount setting of 50%, the note would end up 50% closer, or 3 clocks away from the nearest eighth note. With an amount setting of 100%, the note would end up 100% closer, or exactly on the eighth note.

QUANTIZE  
Resolution: 1/8  
Amount: 050%  
Tolerance: 050%

**7. Select the quantization tolerance, then press ENTER.** Tolerance specifies the range around a beat to which notes will be quantized or left alone. For example, with a tolerance of 50%, notes 50% ahead or behind the beat will be left alone. With a tolerance of 40%, notes 40% or less ahead or behind the beat will be left alone and notes 60% ahead or behind the beat will be quantized.



*TOLERANCE: 20% AMOUNT. Notes falling within the shaded area are not affected. Notes outside of the shaded area are Quantized.*

```

QUANTIZE
Track: 01
Select Track

```

**8. Select the track to be quantized, then press ENTER.**

```

QUANTIZE
Track:01
Start: 001:01:00
Select Region

```

**9. Choose the start point of the region to be quantized, then press ENTER.** Use the left and right cursor to choose the region's start point on line three (in measures, beats, and clocks; or hours, minutes, seconds, and frames, depending on whether you chose Measures or SMPTE in Sequencer Management, 3. Clock), and select the desired parameter values.

```

QUANTIZE
Track:01
Start: 001:01:00
Until: 003:01:24

```

**10. Choose the end point of the region to be quantized, then press ENTER.** Use the left and right cursor to choose the region's end point on line four (in measures, beats, and clocks; or hours, minutes, seconds, and frames, depending on whether you chose

Measures or SMPTE in Sequencer Management, 3. Clock), and select the desired parameter values.

**11. The EIII will inquire if you are sure you want to Quantize. Press Yes to quantize, No to cancel the operation.** In either case, the EIII will return to the Module Identifier.

## ■ 2. Transpose

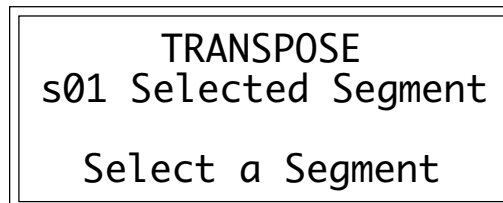
The transpose function allows you to transpose already recorded tracks by any amount up to  $\pm 36$  semitones. Tracks can be untransposed by transposing again in the opposite direction.

**1. Activate Mode module and choose Segment/Cue List.** If necessary, press MODE until the associated Segment/Cue List light is lit.

**2. Activate Sequencer Edit module.**

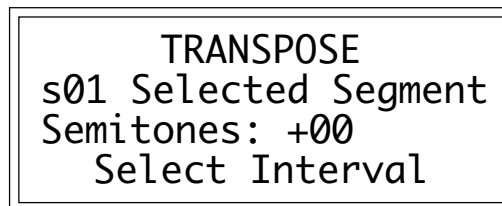
**3. Select 0 .Special Functions, 2. Transpose (0/2).**

**4. Select the segment containing the track to be transposed, then press ENTER.** The display will show the segment's name and number.



TRANSPOSE  
s01 Selected Segment  
Select a Segment

**5. Select the interval of transposition in semitones, then press ENTER.**



TRANSPOSE  
s01 Selected Segment  
Semitones: +00  
Select Interval

**6. Select the track to be transposed, then press ENTER.**



```
TRANSCOPE
Track:01
Start:    001:01:00
Select Region
```

**7. Choose the start point of the region to be transposed, then press ENTER.** Use the left and right cursor to choose the region's start point on line three, expressed in measures, beats, and clocks or hours, minutes, seconds, and frames, depending on whether you chose Measures or SMPTE in Sequencer Management, 3. Clock.

```
TRANSCOPE
Track:01
Start:    001:01:00
Select Region
```

**8. Choose the end point of the region to be transposed, then press ENTER.** Use the left and right cursor to choose the region's end point on line four, expressed in measures, beats, and clocks or hours, minutes, seconds, and frames, depending on whether you chose Measures or SMPTE in Sequencer Management, 3. Clock.

```
TRANSCOPE
Track:01
Start:    001:01:00
Until:    003:01:24
```

**9. Press Yes to perform the transposition or No to cancel the operation.** The EIII will return to the Module Identifier.

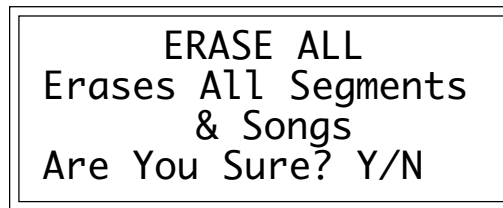
### ■ 3. Erase All

The Erase All function provides a quick way to erase all segments and songs from the current EIII bank.

**1. Activate Mode module and choose Segment/Cue List.** If necessary, press **MODE** until the associated Segment/Cue List light is lit.

**2. Activate Sequencer Edit module.**

**3. Select 0. Special functions, 3. Erase All (0/3).**



**4. The display will inquire if you are sure you want to erase all segments and songs. Press Yes to erase all segments and songs from the bank, or No to cancel the operation.** The EIII will return to the Module Identifier.

### ■ 4. Scale Velocity

The scale velocity function allows you to change the note velocities of already recorded tracks. Note velocities can be scaled (multiplied) by any number from 0.00 to 1.99, a value of 1 representing no change in velocity. If a velocity value is scaled until it reaches the limits of velocity (0 or 127) it will stop there. Tracks can be un-scaled by scaling again in the opposite direction unless they have reached the 0 or 127 limits, in which case they will have been permanently altered. Because velocity limits are easily reached, it is a good idea to make a backup copy of the segment before scaling velocity in case the results are not as you planned.

**1. Activate Mode module and choose Segment/Cue List.** If necessary, press **MODE** until the associated Segment/Cue List light is lit.

**2. Activate Sequencer Edit module.**

**3. Select 0. Special Functions, 4. Scale Velocity (0/4).**

4. **Select the segment containing the track to be scaled, then press ENTER.** The display will show the segment's name and number.

```
SCALE VELOCITY
s01 Selected Segment

Select a Select
```

5. **Select the value by which the note velocities will be multiplied, then press ENTER.**

```
SCALE VELOCITY
s01 Selected Segment
Scale by: 1.00
Select Amount
```

6. **Select the track to be scaled, then press ENTER.**

```
SCALE VELOCITY
Track: 01
Start: 001:01:000
Select Region
```

7. **Choose the start point of the region to be scaled, then press ENTER.** Use the left and right cursor to choose the region's start point on line three, expressed in measures, beats, and clocks or hours, minutes, seconds, and frames, depending on whether you chose Measures or SMPTE in Sequencer Management, 3.Clock.

```
SCALE VELOCITY
Track: 01
Start: 001:01:000
Until: 003:01:24
```

|  |
|--|
| SCALE VELOCITY<br>Track: 01<br>Start: 001:01:000<br>Until: 003:01:24 |
|--|

**8. Choose the end point of the region to be scaled, then press *ENTER*.** Use the left and right cursor to choose the region's end point on line four, expressed in measures, beats, and clocks or hours, minutes, seconds, and frames, depending on whether you chose Measures or SMPTE in Sequencer Management, 3. Clock.

**9. Press *Yes* to scale velocity, or *No* to cancel the operation.** The EIII will return to the Module Identifier.

## 1. STEP EDIT (SONG)

Use the Step Edit function to create a song, or to edit the steps in an existing song.

**1. Activate Mode module and choose Song.** Press MODE until the associated Song light is lit.

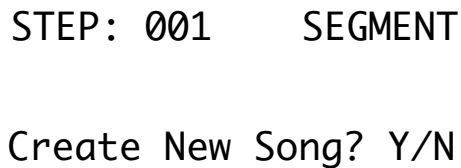
**2. Select the Song to be edited and press ENTER.**



```
P00 Selected Preset
S01 Empty Song
```

**3. Activate Sequencer Edit (Song Mode) module.**

**4. Select Submodule 1.**

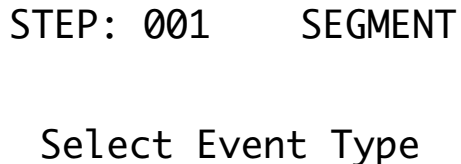


```
STEP: 001   SEGMENT

Create New Song? Y/N
```

If you selected an empty song in step two, the display will ask if you want to create a new song. Press **Yes** to continue, or **No** to cancel the operation and return to the Module Identifier.

**5. If you are creating a song, choose the event to occur during song step one. If you are editing a song, select the song step to be edited. After choosing or editing the event, press ENTER to advance to the next song step.**



```
STEP: 001   SEGMENT

Select Event Type
```

■ Scroll through the steps with the << and >> Locate buttons, Increment/Decrement buttons, or data slider. Or, you can specify a particular step with the ten-key pad.

■ Although a song can start with a Tempo or Status change, it makes more sense to start with a segment or sub-song.

■ A song can be started at any particular step simply by pressing play after scrolling to the desired step.

```
STEP: 001    SEGMENT
          Select Event Type
```

Use the Record(Insert)button to insert a new song step into your song. Your options for this step (or any other song step) are:

■ **Segment:** The song will play a specified segment for this step, and repeat or transpose it if desired.

■ **Sub-Song:** The song will play a different song of your choice at this step, and jump back to the original song when the other song has finished playing. This sub-song can be repeated or transposed if desired.

■ **Tempo Change:** The song will change to a new tempo starting at this step, over a specified number of beats.

■ **Status Change:** The playback status (play, solo, or mute) of all tracks can be changed at this song step.

**6. If you chose Segment in step five, edit the segment number, the number of repeats (00-99), and the transposition amount (up to  $\pm 36$  semitones).** Move the up and down cursor to the line containing the parameter to be changed, and select the desired value.

```
STEP: 001    SEGMENT
s00 Selected Segment
Repeat:                00
Transpose:              +00
```

**7. If you chose Sub-Song in step five, edit the song number, number of repeats (00-99), and transposition amount (up to  $\pm 36$  semitones).** Move the up and down cursor to the line containing the parameter to be changed, and select the desired value.

```
STEP: 001    SUB-SONG
S00 Selected Song
Repeat:                00
Transpose:              +00
```

**8. If you chose Tempo Change in step five, edit the new tempo, and the number of beats (00-99) over which this tempo change will occur.** Move the up and down cursor to the line containing the parameter to be changed, and select the desired value.

```
STEP: 001  TEMPO CHG
New Tempo:   090.00
Over:       00 Beats
```

**9. If you chose Status Change in step five, edit the new status.** Use the left and right cursor to select a track, then select the desired status for that track.

```
STEP: 001 STATUS CHG
pppp pppp pppp pppp
Track:01      play
```

Your options are:

- **Mute:** The track will not play back recorded data.
- **Play:** Track data will play back.
- **Solo:** Only the selected tracks will play back; all other tracks will be muted.

**10. Continue advancing through song steps and entering or editing data for each step until the song is complete.** When the song is complete, de-activate the module.

■ *To save memory and/or time, you can record several alternate tracks in a single segment, then change status to bring various tracks in and out in different parts of the song. This eliminates the need to record multiple segments of material that is similar from segment to segment, but not exactly the same.*

## 2. RENAME SONG

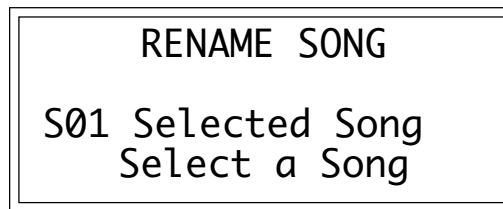
This submodule allows you to rename any song.

**1. Activate Mode module and choose Song.** Press **MODE** until the associated Song light is lit.

**2. Activate Sequencer Edit module.**

**3. Select Submodule 2.**

**4. Scroll through the songs. When the display shows the song to be renamed, press ENTER.** The display will show the song's name and number.



**5. Rename the song, then press ENTER.** Choose the characters to be changed with the left and right cursor , then select the desired characters by using the ten-key pad, data slider, and the keyboard. You can also insert spaces with the up cursor and delete spaces with the down cursor. After pressing **ENTER**, the EIII will return to the Module Identifier.



### 3. ERASE SONG

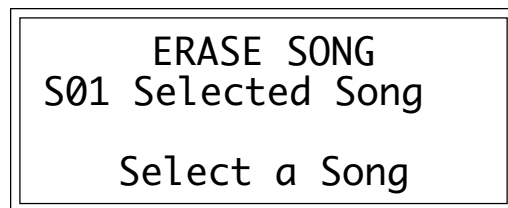
Individual songs can be erased from the bank loaded into the EIII.

**1. Activate Mode module and choose Song.** Press **MODE** until the associated song light is lit.

**2. Activate Sequencer Edit module.**

**3. Select Submodule 3.**

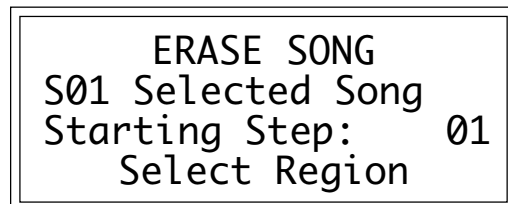
**4. Scroll through the songs. When the display shows the song to be erased, press ENTER.** The display will show the song's name and number.



ERASE SONG  
S01 Selected Song  
Select a Song

**5. Choose whether to erase the entire song or not.** If you press **Yes**, and then press **Yes** again in response to the “Are You Sure?” prompt, the entire song will be removed from memory and the EIII will return to the Module Identifier. This completes the erasure process.

If you press **No**, you may selectively erase data from the song. Proceed to step six.



ERASE SONG  
S01 Selected Song  
Starting Step: 01  
Select Region

**6. Choose the first Song Step of the region to be erased, then press ENTER.**

|  |
|--|
| ERASE SONG<br>S01 Selected Song<br>Starting Step: 001<br>Through Step: 004 |
|--|

**7. Choose the last song step of the region to be erased, then press ENTER.**

**8. The EIII will inquire if you are sure you want to erase.** Press **Yes** to erase or **No** to cancel the operation. Either answer will send the EIII back to the Module Identifier.

## 4. COPY SONG

Songs can be copied to other song numbers within the same bank.

**1. Activate Mode module and choose Song.** Press **MODE** until the associated Song light is lit.

**2. Activate Sequencer Edit module.**

**3. Select Submodule 4.**

**4. Scroll through the songs. When the display shows the song to be copied, press ENTER.** Line two will show the song's name and number.

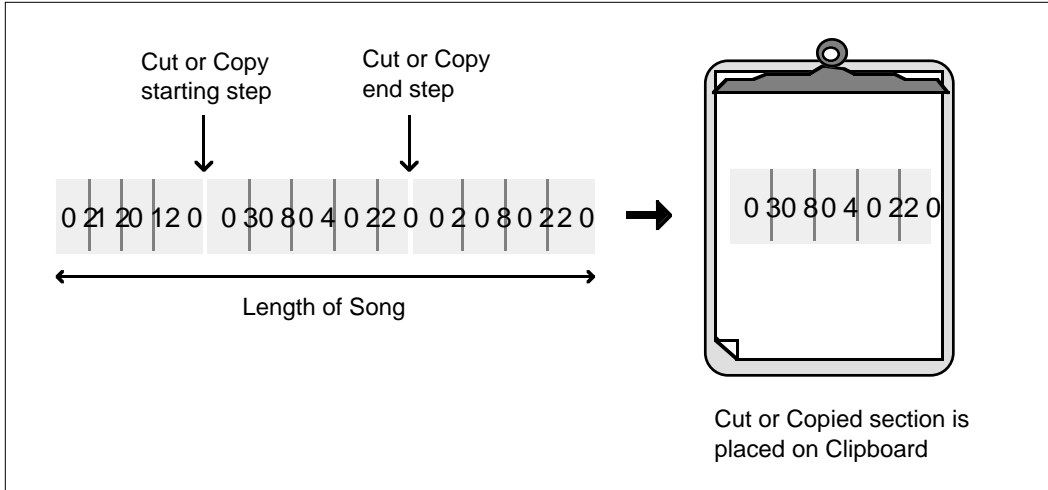
```
COPY SONG
S01 Selected Song
Select Source
```

**5. Choose whether to copy the entire song or not.** If you press **Yes**, proceed to step six. If you press **No**, you may selectively copy data from the song. Proceed to step seven.

**6. Scroll through the song numbers on line three. When the display shows the desired destination song number, press ENTER.** If the song number already contains data, you will be asked if you want to append the song to be copied to the end of the existing song. If the song is an empty song, you will be asked whether you want to create a new song. Regardless of your answer, when the operation is complete the EIII will return to the Module Identifier, and the copying process is complete.

**7. Choose the first song step of the region to be copied, then press ENTER.**

```
COPY SONG
S01 Selected Song
Starting Step: 001
Select Region
```



**8. Choose the last Song Step of the region to be copied, then press ENTER.**

```

COPY SONG
S00 Selected Song
Starting Step:  001
Through Step:  003
  
```

**9. Scroll through the song numbers. When the display shows the desired destination song number, press ENTER.** If the destination song is empty, you will be asked if you want to create a new song. Press **Yes** to create a song that contains the copied data, or **No** to cancel the operation. With either answer, the EIII will return to the Module Identifier. If the destination song contains data, proceed to step ten.

**10. Select the destination song step where the song region specified in steps five and six should be copied.** A space will open up in the destination song equal to the length of the region being copied, starting at the specified song step, and the source song data will be pasted into the newly opened-up region.

**11. Decide if you do want to paste.** The EIII will inquire if you are sure. Press **Yes** to paste or **No** to cancel the operation. Either answer will send the EIII back to the Module Identifier.

## 5. CUT SONG

A region can be cut from any song, held in the EIII's clipboard, then pasted to any other song. See Sequencer Edit, 6. Paste Song.

**1. Activate Mode module and choose Song.** Press MODE until the associated Song light is lit.

**2. Activate Sequencer Edit module.**

**3. Select Submodule 5.**

**4. Scroll through the songs. When the display shows the song number to be cut, press ENTER.** Line two will show the song's name and number.

```
CUT SONG
S00 Selected Song
Select Song
```

**5. Choose the first song step of the region to be cut, then press ENTER.**

```
CUT SONG
S00 Selected Song
Starting Step: 001
Select Region
```

**6. Choose the last song step of the region to be cut, then press ENTER.** The specified region will be cut from the song and placed in the clipboard. The EIII will return to the Module Identifier.

```
CUT SONG
S00 Selected Song
Starting Step: 001
Through Step: 003
```

## 6. PASTE SONG

With this function, once a region of a song has been cut and placed in the clipboard (buffer), it may be pasted to a destination song starting at a specific Song Step.

**1. Activate Mode module and choose Song.** Press **MODE** until the associated Song light is lit.

**2. Activate Sequencer Edit module.**

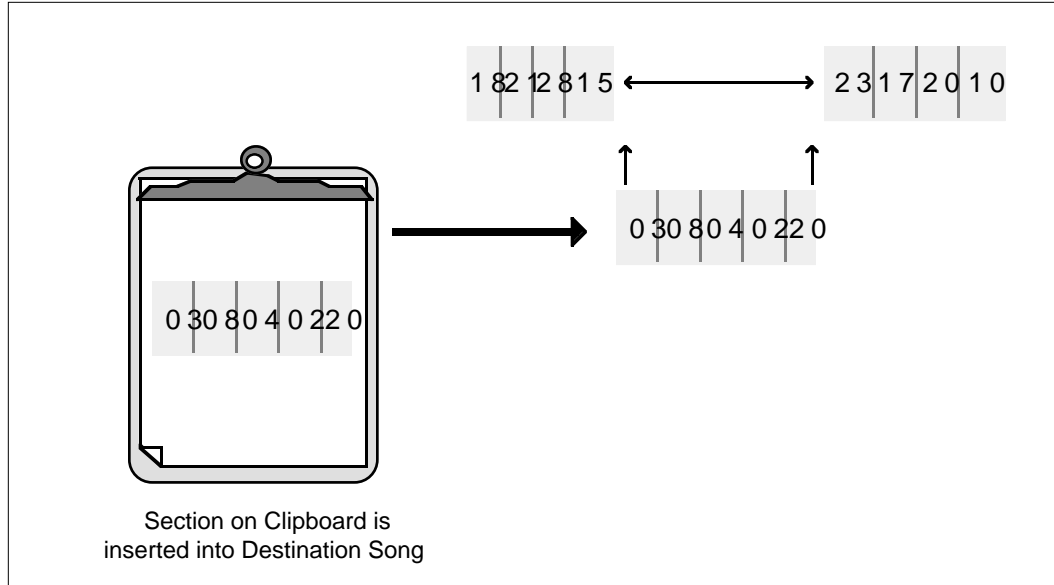
**3. Select Submodule 6.**

**4. Scroll through the song numbers on line two. When the display shows the destination song number into which you want to paste the clipboard contents, press ENTER.** If the destination song is empty, you will be asked if you want to create a new song. Press **Yes** to create a song that contains the copied data, or **No** to cancel the operation. With either answer, the EIII will return to the Module Identifier. If the destination song contains data, proceed to step five.

PASTE SONG to  
S00 Selected Song  
  
Select Destination

**5. Select the destination song step where the clipboard data should be pasted.** A space will open up in the destination song equal to the length of the region being pasted, starting at the specified song step, and the source song data will be pasted into the newly opened-up region.

PASTE SONG to  
S00 Selected Song  
Insert at Step: 001



**6. Decide if you do want to paste.** The EIII will inquire if you are sure. Press **Yes** to paste or **No** to cancel the operation. Either answer will send the EIII back to the Module Identifier.





## **13-EPILOGUE**

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|                                 |              |
|---------------------------------|--------------|
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## EMULATOR III GLOSSARY

### A

#### **Additive Synthesis**

The process of constructing a complex sound using a series of fundamental frequencies (pure tones or sine waves). Each of the fundamental frequencies usually has its own amplitude envelope which allows independent control of each partial(harmonic). Pipe organs or Hammond organs are both instruments which are based on additive synthesis.

#### **Accelerando**

A direction to speed up gradually.

#### **ADSR**

Abbreviation for Attack, Decay, Sustain, and Release. These are the four parameters found on a basic synthesizer envelope generator. An envelope generator is sometimes called a transient generator. The Attack, Decay, and Release parameters are rate or time controls. Sustain is a level. When a key is pressed, the envelope generator will begin to rise to its full level at the rate set by the *attack* parameter, upon reaching peak level it will begin to fall at the rate set by the *decay* parameter to the level set by the *sustain* control. The envelope will remain at the sustain level as long as the key is held down. Whenever a key is released, it will return to zero at the rate set by the *release* parameter.

#### **AHDSR**

Abbreviation for Attack, Hold, Decay, Sustain, and Release. These are the five parameters used on the EIII's envelope generators. Basically the same as an ADSR but with the addition of a Hold parameter which holds the envelope at the peak level after the attack phase for a predetermined amount of time before the decay phase begins. This extra stage is very useful on a sampling instrument.

#### **After Touch**

See *Pressure Sensitivity*

#### **Aliasing**

Aliasing is the term used to describe the unwanted frequencies which are produced when a sound is sampled at a rate which is less than twice the frequency of the highest frequency component in the sound. These unwanted frequencies are typically high frequency tweets and whistles. The design of the EIII does not allow aliasing to occur.

#### **Amplifier**

A device which increases the level of a signal.

**Amplitude**

Amplitude is a term used to describe the amount of a signal. It can relate to volume in an audio signal or the amount of voltage in an electrical signal.

**Amplitude Modulation**

A change in the level of a signal. For example, if a Voltage Controlled Amplifier (VCA) were being modulated by a Low Frequency Oscillator (LFO), the result would be a periodic increase and decrease in the audio level of the signal. In musical terms this would be referred to as Tremolo. The abbreviation of Amplitude Modulation is AM.

**Analog**

Data (signal) presented in a non-digital, continuous form.

**Analog Synthesizer**

A synthesizer which uses voltage controlled analog modules to synthesize sound. The concept of a variety of analog modules all of which can interconnect via a standardized voltage control system was invented by Dr. Robert Moog. The three main voltage controlled modules in an analog synthesizer are: Voltage Controlled Oscillator (VCO), Voltage Controlled Filter (VCF), and Voltage Controlled Amplifier (VCA).

**Aperiodic Waveform**

A waveform that does not have a repeating pattern.

**Arpeggiator**

A device or computer program that sequentially moves a pattern of notes over a range of the keyboard. The speed of the Arpeggiation is variable and the pattern can usually be varied depending on the order or relationship of the notes pressed.

**Attack**

The first parameter of an envelope generator which determines the rate or time it will take for the event to reach the highest level before starting to decay.

**Attenuator**

Attenuate means to reduce in force, value or amount. An Attenuator is a device that reduces the value of something, usually the amplitude of a signal.

**Audible Range**

The range of frequencies that the human ear can hear. A healthy young human can usually hear from 20 cycles per second to around 20,000 cycles per second (20-20,000 Hz), less after prolonged exposure to Heavy Metal music or Opera.

**Auto Correlation**

A process that determines optimum start and ending loop points to produce minimum discontinuity.

## **B**

### **Band Pass Filter**

A filter which allows only a selected band of frequencies to pass through while rejecting all other frequencies above and below the cutoff point. Usually a bandpass filter will allow the user to set the width of the passband.

### **Bank**

On the Emulator III, the Bank is the total amount of data stored in RAM memory in the machine. The Bank contains all preset, sample data, and sequence data. The Bank does not include information stored on disk.

### **Baud Rate**

The speed at which digital information is passed through a serial interface expressed in bits-per-second. MIDI data is transmitted at 31.25 KBaud or 31,250 bits per second.

### **Binary**

Of or based on the number two or the binary numeration system (base 2). Digital computers use this form of numbering because the values of 0 and 1 can easily be represented by an open or closed switch.

### **Bit**

A Bit is a single piece of information assigned a value of 0 or 1 as used in a digital computer. Computers use digital words which are combinations of bits. A Byte is a digital word consisting of eight Bits. The Emulator III uses a 16 bit number to represent a sound word. A 16 bit word can represent 65,536 different numbers.

### **Boot**

Starting up a computer by loading a program that allows it to run other programs. The term comes from *bootstrapping* which means that the computer "pulls itself up by its own bootstraps."

### **Bounce**

When recording or sequencing, to bounce tracks means to combine (mix) several tracks together and record them on another track.

### **Buffer**

An area of computer memory that is used to temporarily store data.

### **Bug**

To annoy someone. An error in a computer program that causes it to work incorrectly. Very annoying.

### **Byte**

A computer word made up of eight bits of data.

## C

### **Cardioid**

(kar' de-oid') A directional microphone with a heart shaped, narrow pattern, which picks up from directly in front of the mic. Very useful for recording drums.

### **Catalog**

A list of all files stored on a disk or in a bank. Sometimes called a directory.

### **Cent**

Unit of pitch equal to 1/100 of a semitone.

### **Center Detent**

A notch in the center of a modulation wheel or lever which allows the performer to find the home position.

### **Channel, Output**

The circuitry through which the EIII outputs individual notes.

### **Channel, MIDI**

An information pathway through which MIDI information is sent. MIDI provides for 16 available channels, each of which can address one MIDI instrument.

### **Channel, MIDI Control**

A MIDI Channel also contains information about which controllers are being varied. Assigning an Emulator III realtime control destination A or B lets another MIDI device's controllers control the EIII realtime control destination via the MIDI Control Channels.

### **Chip**

An integrated circuit.

### **Chorus**

A voice doubling effect created by layering two identical sounds with a slight delay (20-50 mS) and slightly modulating the frequency of one or both of the sounds .

### **Clock**

A steady pulse from a generator which is used for synchronizing sequencers, drum machines, etc. Common sequencer timing clock rates are 24, 48, or 96 pulses-per-quarter note. MIDI timing clocks run at a rate of 24 ppqn. The EIII clock runs at 96 ppqn.

### **Clipboard**

A temporary holding place in RAM for what you last cut or copied.

### **Close Miking**

A microphone placement technique which involves placing a microphone close to the sound source in order to pick up mainly direct sound, and avoid picking up reverberant sound.

**Computer Interface**

Hardware which enables a computer to communicate with other devices. A common example is a MIDI interface, which allows a computer to communicate with a musical instrument.

**Condenser Mike**

A microphone which converts sound pressure level variations into variations in capacitance and then into electrical voltage.

**Contour**

See *Envelope Generator*

**Copy**

To make a copy of something, either a sound or segment, by selecting it and choosing the copy function from the module menu. What is copied is placed on the clipboard.

**CPU**

Abbreviation for Central Processing Unit. The main component in a computer's microprocessor which performs calculations and executes instructions.

**Crossfade**

To gradually fade out one sound while fading in another so that a seamless transition is made between the two sounds.

**Cursor**

Foiled again. A visual indicator showing the position of the next entry.

**Cut**

To remove something, either a sound or a segment, by selecting it and choosing the cut function from the module menu. What you cut is placed on the clipboard.

**Cutoff Frequency**

The frequency above which a low pass filter will start attenuating signals present at its input. Abbreviated Fc.

**D****Data**

Information a computer needs in order to make decisions or carry out a particular action.

**dB/Octave**

The unit typically used to indicate the slope of a filter, or how fast the frequency response rolls off past the cutoff frequency. Example: A 24 dB/octave filter would attenuate an input signal by 24 dB one octave above the cutoff frequency, by 48 dB two octaves above the cutoff frequency, and so on.

**Decay**

The second stage in an ADSR type envelope generator. See *ADSR*.

**Decibel (dB)**

A reference for the measurement of sound energy. The minimum change in volume that the human ear can perceive. Named after Alexander Graham Bell. A decibel is 1/10th of a Bel.

**Delay**

A controllable time parameter giving the ability to start an event only after a predetermined amount of time. The Delay function on the EIII allows you to delay the start of a sound from 0 to 1.5 seconds from the time a key is pressed.

**Depth**

The amount of modulation. Sometimes called Amount, Width, Intensity or Modulation Index.

**Digital**

Equipment that uses quantities represented as binary numbers. In a digital synthesizer every aspect of the sound generation is handled as a numeric calculation. The digital information is not audible and so must be converted to analog form by a DAC before it is output.

**Digital to Analog Converter (DAC)**

A device which interprets Digital information and converts it to Analog form. All digital musical instruments must have a DAC so that we can hear their output.

**Display**

A device that gives information in a visual form.

**Distant Miking**

A microphone placement technique which involves placing a microphone far from the sound source in order to pick up a high proportion of reverberant sound.

**Dynamic Allocation**

On the EIII, Dynamic Allocation defeats any pre-assigned output channel assignments and assigns the output channels according to a modified circular algorithm.

**Dynamic Mike**

A microphone in which the diaphragm moves a coil suspended in a magnetic field in order to generate an output voltage proportional to the sound pressure level.

**Dynamic Range**

The range of the softest to the loudest sound that can be produced by an instrument. Or the range of the low and high signal levels obtainable by a velocity sensitive keyboard. The greater the Dynamic Range, the more sensitive the keyboard.



## **E**

### **Edit**

To change or modify information. To change parameters or alter existing data.

### **Envelope Generator**

A circuit, usually triggered by pressing a key on a keyboard, that generates a changing voltage with respect to time. This voltage typically controls a VCF or VCA. An AHDSR and ADSR are two types of Envelope Generators. See *ADSR*.

### **Equal Temperament**

A Scaling system where the octave is divided into 12 equal parts. The ratio of the frequencies between any two adjacent notes is exactly the same. Most keyboard instruments are scaled in this manner. The EIII is normally tuned with Equal Temperament, but can be tuned to other relationships by the use of the tuning function in the Analog Processing Module.

### **Equalizer**

A device which allows attenuation or emphasis of selected frequencies in the audio spectrum. Equalizers usually contain many bands to allow the user a fine degree of frequency control over the sound.

### **Error Message**

A message shown in the display to alert the user that an error of some type has occurred.

## **F**

### **Fast Fourier Transform**

A computer algorithm which derives the fourier spectrum from a sound file.

### **Fc**

See *Cutoff Frequency*

### **Filter**

A device used to remove unwanted frequencies from an audio signal thus altering its harmonic structure. Low Pass filters are the most common type of filter found on music synthesizers. They only allow frequencies below the cutoff frequency to pass (Low Pass). High Pass filters only allow the high frequencies to pass, and Band Pass filters only allow frequencies in a selected band to pass through. A Notch filter rejects frequencies that fall within its notch.

**Flange**

An effect created by layering two identical sounds with a slight delay (1- 20 mS) and slightly modulating the delay of one or both of the sounds. The term comes from the early days of tape recording when delay effects were created by grabbing the flanges of the tape reels to change the tape speed.

**Floppy Disk**

A thin portable disk used to store digital data.

**Fourier Spectrum**

The description of a sound that is in terms of its distribution of energy versus frequency rather than its amplitude versus time (waveform).

**Frequency**

The number of cycles of a waveform occurring in a second.

**Frequency Modulation**

The encoding of a carrier wave by variation of its frequency in accordance with an input signal.

**FSK**

Frequency Shift Keying. An audio tone (frequency) modulated by a square wave, which is used both for data transfer and also for sequencer and drum machine synchronization.

**Fundamental**

The first, lowest note of a harmonic series. The Fundamental frequency determines a sound's overall pitch.

**G****Gain**

The factor by which a device increases the amplitude of a signal. Negative gain will result in the attenuation of a signal.

**Glissando**

A rapid slide through a series of consecutive tones in a scale like passage. On the Emulator III arpeggiator, when two notes are played with glissando on, every note in between the two notes will be played in a sequential order. Similar to *portamento* except that the pitch changes in semitone steps.

**Ground Loop**

Hum caused by currents circulating through the ground side of a piece of equipment or system. This is due to grounding it at points of different voltage potential.

## **H**

### **Hard Disk**

A storage medium for digital data which can hold more information and access it faster than a floppy disk.

### **Harmonic Distortion**

The presence of harmonics in the output signal of a device which were not present in the input signal.

### **Hertz/Hz**

A unit of frequency equal to 1 cycle per second. Named after Heinrich R. Hertz.

### **High Pass Filter**

See *Filter*

## **I**

### **Initialize**

To prepare a disk to receive data. A hard disk or a floppy disk must be initialized before it can be accessed.

### **Intensity**

The amount of modulation.

## **J**

### **Just Intonation**

A system of tuning in which the distances between pitches are based on the natural harmonic series instead of the octave being equally divided.

## **K**

### **K**

Abbreviation for Kilo or 1000

### **Keyboard Assignment**

The assignment of specific sounds to an area of the keyboard. For example, the lowest octave could be drum sounds, the next octave could be an electric bass, the rest of the keyboard could have various piano samples assigned to it.

## **L**

### **Layering**

The ability to place or stack two or more sounds on the same area of the keyboard to create a denser sound.

**LFO**

Low Frequency Oscillator. An oscillator used for modulation whose range is below the audible range (20 Hz). Example: Varying pitch cyclically produces vibrato.

**Loading**

To transfer from one data storage medium to another. This is generally from disk to RAM memory or vice-versa, as opposed to saving from RAM to disk.

**Lock**

To prevent data from being edited, discarded or renamed, or to prevent entire banks or disks from being altered.

**Looping**

Looping is the process of repeating a portion of a sample over and over in order to create a sustaining sound. The looped sound will continue as long as the key is depressed. A sound is usually looped during a point in its evolution where the harmonics and amplitude are relatively static in order to avoid pops and glitches in the sound.

**Low Note Priority**

When more than one note is played on a monophonic synthesizer, only the lowest note will sound.

**Low Pass Filter**

A filter whose frequency response remains flat up to a certain frequency, then rolls off (attenuates signals appearing at its input) above this point.

***M*****M**

Abbreviation for Mega or million.

**Memory**

The part of a computer responsible for storing data.

**Merge**

To combine or unite. To Merge means to combine sequences, sounds, tracks, MIDI data, etc.

**MIDI**

Acronym for Musical Instrument Digital Interface. MIDI enables synthesizers, sequencers, computers, rhythm machines, etc. to be interconnected through a standard interface. MIDI is an asynchronous, serial interface, which is transmitted at the rate of 31.25 KBaud or 31,250 bits per second.

**MIDI Clock**

Allows instruments interconnected via MIDI to be synchronized. The MIDI Clock runs at a rate of 24 pulses-per-quarter-note.

**MIDI Continuous Controller**

Allows continuously changing information such as pitch wheel or breath controller information to be passed over the MIDI line. Continuous controllers use large amounts of memory when recorded into a MIDI sequencer. Some standard MIDI Continuous Controller numbers are listed below although the EIII allows you to assign controllers and destinations to any Continuous Controller channel.

PWH = Pitch Wheel

CHP = Pressure

1 = Modulation Wheel

2 = Breath Controller

3 = (Pressure on Rev. 1 DX7)

4 = Foot Pedal

5 = Portamento Time

6 = Data Entry

7 = Volume

8 = Balance

10 = Pan

11 = Expression Controller

16-19 = General purpose controllers 1-4 (High Res.)

64 = Sustain Switch (on/off)

65 = Portamento Switch (on/off)

66 = Sustenuto (chord hold)

67 = Soft Pedal (on/off)

69 = Hold Pedal 2 (on/off)

80-83 = General purpose controllers 5-8 (Low Res.)

91 = External Effects Depth

92 = Tremolo Depth

93 = Chorus Depth

94 = Detune

95 = Phaser Depth

96 = Data Increment

97 = Data Decrement

**Modulation**

The process of one audio or control voltage source influencing a sound processor or other control voltage source. Example: Slowly modulating pitch cyclically produces vibrato. Modulating a filter cyclically produces wa-wa effects.

**Modulation Index**

The depth of modulation when performing frequency modulation.

**Module Identifier**

The screen that displays information about what module is currently activated.

**Monophonic**

A musical instrument that is only capable of playing one note at a time. Music with only one voice part.

**Multi-timbral**

The ability of a musical instrument to produce two or more different sounds or timbres at the same time.

**Multi-track**

A way to record a complex musical piece by dividing it into simple tracks, and combining the tracks during playback.

## N

**Normalize**

A digital processing function that increases the amplitude of a sound file until the peak amplitude of its loudest sample reaches 100% of full scale.

## O

**Overload**

Distortion which is caused by exceeding the dynamic range of a circuit.

## P

**Panning**

To move an audio signal from one output to the other. Panning a sound between two speakers changes the apparent position of the sound.

**Parallel Interface**

A computer interface in which data is passed simultaneously over many wires. A Parallel Interface is usually much faster than a serial interface. The SCSI Interface on the Emulator III is an example of a Parallel Interface.

**Paste**

To put a copy of the contents of the clipboard (whatever was last copied or cut) in at the specified insertion point.

**Patch**

Referring to a particular sound created on a synthesizer. Comes from

the use of patch cords on the original modular synthesizers.

**Polyphonic**

A musical instrument that is able to play more than one note at the same time. Music with more than one voice part.

**Preset**

A preprogrammed sound and control setup on a sampler or synthesizer. Presets can be made up in advance of a performance, stored in memory, then recalled instantly when desired.

**Pressure Sensitivity**

The ability of an instrument to respond to pressure applied to the keyboard after the initial depression of a key. Sometimes called aftertouch.

**Proximity Effect**

When cardioid microphones are placed very close to the sound source, a boosting of the bass frequencies occurs which is known as the proximity effect.

**Punch-in**

When recording, punching in over-writes a previously recorded track starting at the punch in point.

**Punch-out**

When recording, punching out stops the recording process started by a punch in, thus preserving the previously recorded track starting at the punch out point.

## Q

**Q**

The figure expressing a filter's resonance. Varying Q varies the sharpness of the filter sound.

**Quantize**

A function on some sequencers which modifies the information in its memory to improve the rhythmic accuracy and correct playing errors.

## R

**RAM**

Acronym for Random Access Memory. The memory in a computer in a computer that stores data temporarily while you are working on it. Data stored in RAM is lost forever when power is interrupted to the machine if it has not been saved to another medium, such as floppy

or hard disk.

**RS 422**

A high-speed serial communication port which allows data to be transferred to and from an external computer at a very high rate (500K baud).

**Realtime Controls**

Occurring in actual time or live.

**Resonance**

A frequency at which a material object will vibrate. In a filter with resonance, a signal will be accentuated at the cutoff frequency. See *Q*.

**Ritardando**

Retarding. A direction to slow down gradually.

## S

**Sample Rate**

When digitally sampling a signal, the rate at which level measurements of the signal are taken.

**Sampling**

The process of recording a sound into digital memory.

**SCSI**

Acronym for Small Computer Systems Interface. An industry standard interface that provides high-speed access to peripheral devices such as hard disk drives, optical discs, WORM drives, etc.

**SCSI Port**

The port on the back of the EIII to which SCSI devices are connected.

**Sequencer**

A device which steps through a series of events. A digital sequencer may record keyboard data, program changes, or realtime modulation data to be played back later much like a tape recorder or player piano. Digital sequencers use memory on the basis of events (key on, key off, etc.) while a tape recorder uses memory (tape) on the basis of time.

**Serial Interface**

A computer interface in which data is passed over a single line, one bit at a time. The MIDI interface is an example of a serial interface.

**Signal Processing**



The art of modifying an existing sound through the use of electronic circuitry.

**SMPTE**

Acronym for Society of Motion Picture and Television Engineers who adopted a standard time code in order to synchronize video and audio. SMPTE information is in the form of Hours, Minutes, Seconds, and Frames. There are two types of SMPTE time code, Longitudinal Time Code which can be recorded on audio tape, and Vertical Interval Time Code which is recorded on video tape.

**Software**

The programs or sets of instructions describing the tasks to be performed by a computer.

**Song Pointer**

MIDI information which allows equipment to remain in sync even if the master device has been fast forwarded. MIDI Song Pointer (sometimes called MIDI Song Position Pointer) is an internal register (in the sequencer or autolocator) which holds the number of MIDI beats since the start of the song.

**Step Time**

A sequencer mode where events are entered one at a time.

**Subtractive Synthesis**

The process of constructing a sound by starting with a complex sound and then removing harmonics with a filter. A low pass filter is most commonly used. The cutoff frequency of the filter is usually dynamically varied, which changes the harmonics that are removed. Using the low pass filter on the Emulator III to alter the sound is a form of subtractive synthesis.

**Supermode**

An Emulator III MIDI function designed to enhance the Sequencer/MIDI interface. It maps data occurring on a specific MIDI channel to a specific preset within the bank. Similar to standard MIDI Omni Off/Mono mode, but more flexible. Each channel can contain polyphonic note data.

## **T**

**Taper**

A digital signal processing function that fades a sound in or out between two points. Tapering permanently modifies a sound.

**Terminating Resistors**

Also called a terminator. A group of resistors that should be placed on the SCSI cable before the last device on a SCSI chain. Usually the terminating resistor is built inside the SCSI device. There should be no more than two terminators in a SCSI chain: one at the start, built

into the EIII, and one at the end.

**Timbre**

Tone color. The quality of a sound that distinguishes it from other sounds with the same pitch and volume.

**Tremolo**

A cyclic change in amplitude, usually in the range of 7 to 14 Hz. Usually achieved by routing a LFO (low frequency oscillator) to a VCA (voltage controlled amplifier).

**Truncation**

When manipulating a sample, truncation shortens a sample's length by trimming off parts of the beginning and/or end.

## U

**Undo**

Cancels the results of the last operation.

## V

**VCA**

Voltage Controlled Amplifier. A circuit whose gain is determined by a control voltage.

**VCF**

Voltage Controlled Filter. A filter whose cutoff frequency or resonant frequency is determined by a control voltage.

**Velocity Sensitivity**

A keyboard which can respond to the speed at which a key is depressed; this corresponds to the dynamics with which the player plays the keyboard. Velocity is an important function as it helps translate the performer's expression to the music. Velocity can be routed to many destinations on the Emulator III and is also translated over the MIDI line.

**Vibrato**

A cyclic change in pitch, usually in the range of 7 to 14 Hz.

**Volatile Memory**

Memory which loses its data when power is removed. The RAM memory in the Emulator II is volatile, the data on the hard disk is non-volatile.

**Voltage Pedal**

A pedal which outputs a control voltage which is dependant on its position.

## **W**

### **Write Protect**

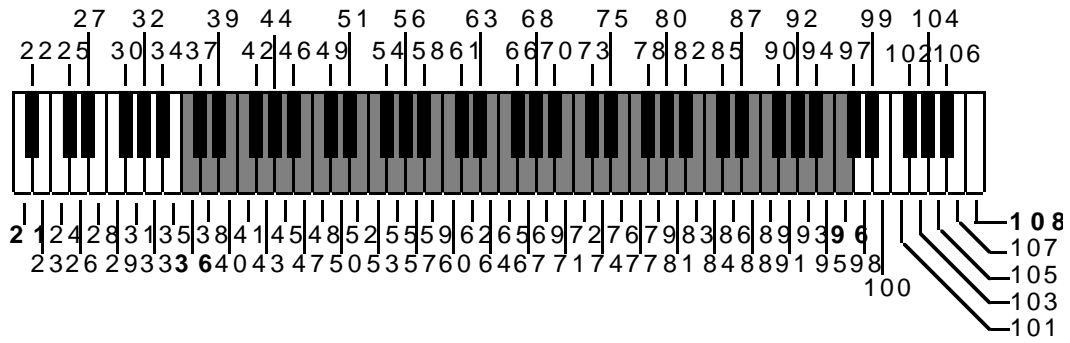
To protect data (either on a disk or in memory) from being written to, although data can still be read.


## **Z**

### **Zero Crossing**

The point where the polarity of an electrical or sampled signal changes from positive to negative (or vice-versa) as it passes through zero. A zero crossing provides a convenient point to splice two sounds because the levels of the two splice points are the same at zero volts.

## ***EIII MIDI KEY NUMBERS***



 = EIII 5 OctaveKeyboard Range

## ***EIII MIDI IMPLEMENTATION CHART***

| <b>MIDI Command</b>   | <b>Transmitted?</b> | <b>Received?</b> | <b>Comments</b>                   |
|-----------------------|---------------------|------------------|-----------------------------------|
| Note Off              | X                   | X                | Keys#21 thru 108 (A1thru C7)      |
| Note On               | X                   | X                | Keys#21 thru 108 (A1thru C7)      |
| Poly Key Pressure     | -                   | -                |                                   |
| Control Change        | X                   | X                | Controllers # 0 thru 31           |
| Program Change        | X                   | X                | Program # (preset#) 0 thru 99     |
| Channel Pressure      | X                   | X                |                                   |
| Pitch Wheel           | X                   | X                |                                   |
| Sustain Footswitch    | X                   | X                | Controllers #64 thru 79           |
| Local Control on/off  | -                   | -                |                                   |
| All Notes Off         | -                   | X                |                                   |
| Omni Mode off/on      | -                   | -                | Ignores mode, turns all notes off |
| Mono Mode             | -                   | -                | Ignores mode, turns all notes off |
| Poly Mode             | -                   | -                | Ignores mode, turns all notes off |
| Song Position Pointer | X                   | X                |                                   |
| Song Select           | X                   | X                | Song Select # 126=Seg, 127=Song   |
| Tune Request          | -                   | -                |                                   |
| Timing clock          | X                   | X                |                                   |
| MIDI Time Code        | X                   | -                |                                   |
| Start Sequence        | X                   | X                |                                   |
| Continue Sequence     | X                   | X                |                                   |
| Stop Sequence         | X                   | X                |                                   |
| Active Sensing        | -                   | -                |                                   |
| System Reset          | -                   | -                |                                   |
| System Exclusives     | X                   | X                | Not Yet Implemented               |

X = item implemented

- = item not implemented

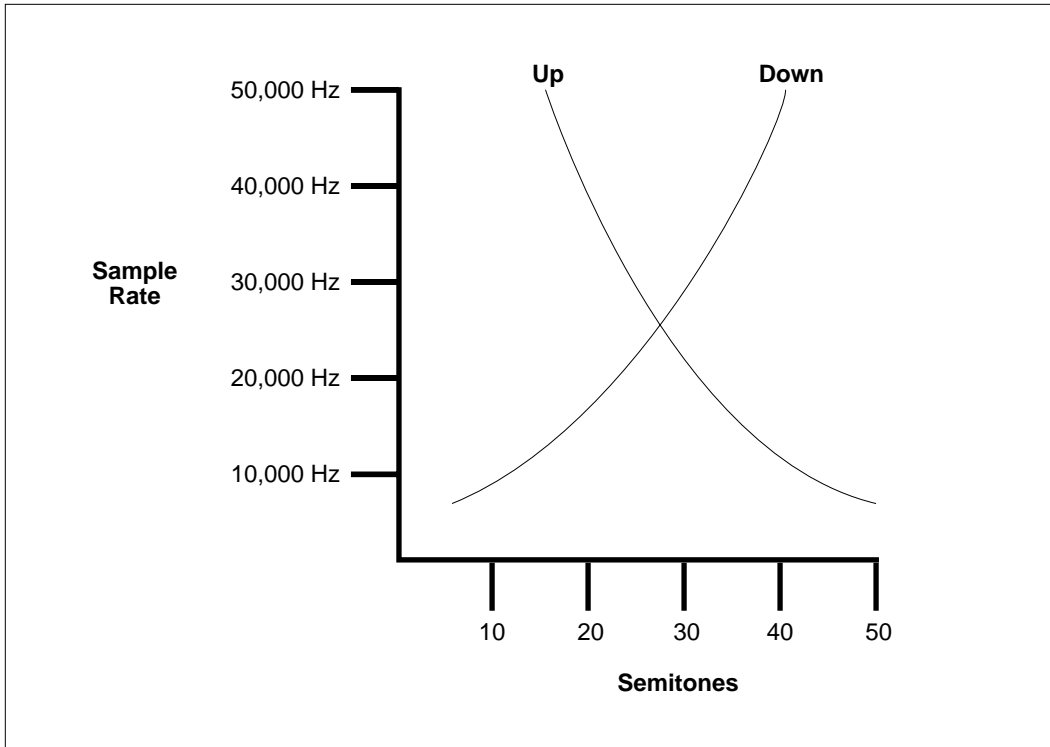
© E-mu Systems, Inc. 1988

These presets are referred to as "Sequencer Presets".

### ■ ***Supermode***

Supermode is an Emulator III MIDI mode designed to enhance the Sequencer/MIDI interface. It is basically equivalent to Poly Mode On for all 16 MIDI channels simultaneously.

When Supermode is on, the OMNI/POLY setting is ignored, but the MIDI Notes/Wheels flag of the current preset is still checked by EIII to determine whether to accept or ignore incoming MIDI performance data.



*SAMPLE RATES. This graph shows the relationship of sample rate to the allowable transposition, up or down.*

## KEYBOARD TRANSPOSITION

| Sample Rate | Trans Up | Trans Down | Sample Rate | Trans Up | Trans Down |
|-------------|----------|------------|-------------|----------|------------|
| 7000        | 49.47    | 6.23       | 30,000      | 24.28    | 31.42      |
| 8000        | 47.16    | 8.54       | 31,000      | 23.71    | 31.99      |
| 9000        | 45.12    | 10.58      | 31,100      | 23.16    | 32.54      |
| 10,000      | 43.30    | 12.41      | 32,000      | 22.63    | 33.07      |
| 11,000      | 41.65    | 14.06      | 33,000      | 22.58    | 33.13      |
| 12,000      | 40.14    | 15.56      | 34,000      | 22.11    | 33.59      |
| 13,000      | 38.75    | 16.95      | 35,000      | 21.61    | 34.09      |
| 14,000      | 37.47    | 18.23      | 36,000      | 21.12    | 34.58      |
| 15,000      | 36.28    | 19.42      | 37,000      | 20.65    | 35.05      |
| 16,000      | 35.16    | 20.54      | 38,000      | 20.19    | 35.52      |
| 17,000      | 34.11    | 21.59      | 39,000      | 19.74    | 35.97      |
| 18,000      | 33.12    | 22.58      | 40,000      | 19.30    | 36.40      |
| 19,000      | 32.18    | 23.52      | 41,000      | 18.87    | 36.83      |
| 20,000      | 31.30    | 24.40      | 42,000      | 18.45    | 37.25      |
| 21,000      | 30.45    | 25.25      | 43,000      | 18.05    | 37.66      |
| 22,000      | 29.65    | 26.05      | 44,100      | 17.65    | 38.05      |
| 23,000      | 28.88    | 26.82      | 44,000      | 17.61    | 38.09      |
| 24,000      | 28.14    | 27.56      | 45,000      | 17.26    | 38.44      |
| 25,000      | 27.43    | 28.27      | 46,000      | 16.88    | 38.82      |
| 26,000      | 26.75    | 28.95      | 47,000      | 16.51    | 39.20      |
| 27,000      | 26.10    | 29.60      | 48,000      | 16.14    | 39.56      |
| 28,000      | 25.47    | 30.23      | 49,000      | 15.78    | 39.92      |
| 29,000      | 24.86    | 30.84      | 50,000      | 15.43    | 40.27      |

■ This chart shows the maximum amount of transposition up or down that is allowed at various sample rates. These figures include keyboard transposition, pitch wheel, zone tuning, and any other modulations. The sample rates are expressed in Hertz and the transpositions are in semitones.

## **ERROR CODES**

This section explains some of the error codes you might possibly encounter while working with the Emulator Three. This listing covers only the error codes whose meaning might be confusing or unclear. Most of the error codes explanations in the EIII are readily apparent.

### **Preset Memory Full!**

Not enough preset memory for the operation.

### **Sample Memory Full!**

Not enough sample memory for the operation.

### **Drive Not Formatted!**

Trying to access a hard drive that has not been formatted for the EIII.

### **SCSI Hardware Error!**

No HD, Cable, No power, Wrong SCSI ID number.

### **SCSI Media Error!**

Media defect on the hard disk. Call Service Center.

### **SCSI Bank Locked!**

Trying to write to a locked bank.

### **Floppy Seek Error!**

Bad disk or floppy drive.

### **FD Data Lost Error!**

Bad disk or floppy drive.

### **Floppy Disk Error!**

Bad disk or floppy drive.

### **FD Data CRC Error!**

Bad disk or floppy drive.



### **FD Data Save Error!**

Bad disk or floppy drive.

### **Not Enough Memory**

Trying to load in a bank that is too large.

### **Wrong Floppy Type!**

Sound disk <-> Software Disk.

### **Wrong Floppy Number!**

Wrong disk in loading sequence.

### **Insert Unlocked FD!**

Floppy disk is locked.

### **No Samples in Preset!**

No samples mapped to any zones.

### **No Samples Exist!**

No samples in bank.

### **No Presets Exist!**

No presets in bank.

## TROUBLESHOOTING

This section explains some of the problems you might possibly encounter while working with the Emulator III. Before assuming that your EIII is faulty, check the following list which details the corrective action you can take yourself without having to call a service center. If you have any doubts or questions, get in touch with your nearest E-mu dealer or call the E-mu customer service department at (408) 438-1921, between the hours of 8:30 am and 5:30 pm Monday through Friday.

### ***The Emulator III will not boot.***

If the Emulator III fails to boot, first disconnect any external SCSI devices and try again. External SCSI devices should be switched on before the Emulator III.

*Problem:*

The unit is completely dead. No lights, no sound.

*Cause:*

The fuse may be blown.

*Solution:*

The two fuses are located on the AC power receptacle. Squeeze the two tabs together to open the fuse drawer and check the fuses. The EIII uses two 250V, 2A, fast-blo mini-fuses. If a fuse that has been replaced blows again, do not attempt another replacement. Consult your dealer or authorized E-mu service center.

*Problem:*

The unit is completely dead. No lights no sound. Fuse is OK.

*Cause:*

The power supply may be damaged.

*Solution:*

Consult your dealer or authorized E-mu service center.

*Problem:*

The unit lights up and the hard disk starts, but does not boot.

*Cause:*

The operating system on the hard disk may have been damaged.

*Solution:*

Try booting the EIII from floppy disk based software. If the unit still won't boot, consult your dealer or authorized E-mu service center. If the unit boots from the floppy software, try copying the software to the internal hard disk (Master module, 7. Disk Utilities, 4. Copy Software). As a last resort, reformat the internal hard disk.

## **Audio Problems**

*Problem:*

The EIII powers up normally, but does not make any sound.

*Cause:*

Proper audio connections may not have been made.

*Solution:*

Try listening directly to the stereo output using headphones to verify that the EIII is at fault. Check that proper audio connections have been made.

*Problem:*

The EIII powers up normally, but does not make any sound.

*Cause:*

The front panel controls (volume slider) may need recalibration.

*Solution:*

Recalibrate the front panel controls using the Recalibrate function located under Special in the Master module.

*Problem:*

The EIII powers up normally, but does not make any sound.

*Cause:*

All output channels are disabled.

*Solution:*

Enable all channels using the Disable Outputs function (Master module, 8. Special, 2. Disable Outputs).

*Problem:*

The EIII rack powers up normally, but does not make any sound.

*Cause:*

Proper MIDI connections may not have been made.

*Solution:*

Try listening to a prerecorded sequence to verify that the EIII is at fault. Check that proper MIDI connections have been made.

*Problem:*

Certain sounds do not play polyphonically.

*Cause:*

The zone may be in solo mode, or only assigned to one output channel.

*Solution:*

Disable solo mode and check output channel assignment.

*Problem:*

Certain sounds cut off prematurely.

*Cause:*

More than 16 mono, or 8 stereo channels are playing. Or, if specific output channels are assigned, two sounds are “ripping each other off”.

*Solution:*

Check output channel assignment (Analog Processing, 9). Try turning Dynamic Allocation (Master, Special, 5) on. Set release times on VCA to a shorter setting.

*Problem:*

Stereo samples are only heard out of one side.

*Cause:*

Disable side function is turned on.

*Solution:*

Turn disable side function (Analog Processing,1) OFF in the zone.

*Problem:*

Clicks in sounds mixed digitally.

*Cause:*

Ends of sounds not tapered.

*Solution:*

Taper ends of sounds to be mixed.

*Problem:*

Audible hum in system when EIII is connected.

*Cause:*

There is a ground loop present in the audio system.

*Solution:*

Find and eliminate the ground loop.

## **Functional Problems**

*Problem:*

Front panel buttons double trigger.

*Cause:*

Buttons need cleaning.

*Solution:*

Consult your dealer or authorized E-mu service center.

*Problem:*

Looping only works while in the Digital Processing module.

*Cause:*

Disable Loop function is turned ON.

*Solution:*

Turn disable loop function (Analog Processing, 1. Setup) OFF in the zone.

*Problem:*

Controllers (wheels, pedal, pressure) do not work at all.

*Cause:*

Controllers are not assigned in the preset, or the EIII needs to be recalibrated.

*Solution:*

Assign the controllers to the desired destinations (Preset Definition, 0. Realtime Controls) or calibrate the EIII using the Recalibrate function (Master, 8. Special, 3. Recalibrate).

*Problem:*

Controllers (wheels, pedal, pressure) do not work at all and are assigned correctly.

*Cause:*

Controllers are disabled in Realtime Control Enable section.

*Solution:*

Enable realtime controllers for the selected zone (Analog Processing, 8. Realtime Control Enable).

*Problem:*

Data slider, volume slider, wheels or pedal do not work well.

*Cause:*

The EIII needs to be recalibrated.

*Solution:*

Recalibrate the EIII using the Recalibrate function (Master, 8. Special, 3. Recalibrate).

*Problem:*

The EIII drifts out of tune or the pitch wavers.

*Cause:*

The EIII needs to be recalibrated.

*Solution:*

Recalibrate the EIII using the Recalibrate function (Master, 8. Special, 3. Recalibrate).

*Problem:*

The footpedal or LFO has little or no effect when assigned to VCA.

*Cause:*

The initial VCA level is set at 100%.

*Solution:*

Lower the initial VCA setting as desired.

*Problem:*

Channels rip off or don't sound when assigning stereo samples to specific output channels.

*Cause:*

Incorrect output channel assignment.

*Solution:*

Assign output channels according to the chart in Analog Processing, 9. Output Channels.

### **MIDI Problems**

Since MIDI setups can be quite complex, make sure that you have all the MIDI parameters (on the EIII and external MIDI devices) set correctly before you become daunted. Remember that the MIDI Global commands override individual preset MIDI settings. On the Emulator III, MIDI parameters are located in the Preset Definition module, (6. MIDI Setup), in the Sequencer Management module, (3. Clock, 6. Data Filters, and 7. MIDI Options), and in the Master module, (8. Special, 7. MIDI Globals).

*Problem:*

The EIII does not respond to the MIDI parameters as programmed.

*Cause:*

MIDI Globals are turned ON.

*Solution:*

Turn OFF MIDI Globals (Master, 8. Special, 7. MIDI Globals).

*Problem:*

The EIII does not respond to the modulation wheels or pressure from an external MIDI controller.

*Cause:*

MIDI controllers are not assigned in the MIDI submodule or Real-time Control module. MIDI data filter is on.

*Solution:*

Assign proper controller channel numbers to MIDI A and B, then assign MIDI A and B to desired destinations (See Preset Definition, 6. MIDI Setup). Check Realtime Control routings (Preset Definition, 0. Realtime Controls). Check MIDI data filters (Sequencer Management, 6. Data Filters).

## ***Hard Disk Problems***

*Problem:*

The EIII display reads "Disk Not Formatted".

*Cause:*

The internal hard disk or an external SCSI device may have crashed.

*Solution:*

First, disconnect any external SCSI devices and reboot. If this fails, try reformatting the internal hard disk. If reformatting fails, consult your dealer or authorized E-mu service center.

*Problem:*

The EIII display reads "Disk Not Formatted" and an external SCSI device is connected.

*Cause:*

The hard disk may have crashed, the SCSI cable may be too long or two devices may have the same SCSI ID number.

*Solution:*

Try using a shorter SCSI cable (maximum cable length is about 12 feet) and check that no two devices have the same ID number.

*Problem:*

The EIII display reads "SCSI Error!". There is an external device connected to SCSI.

*Cause:*

Two SCSI devices may have the same ID number or an external SCSI device does not have power.

*Solution:*

Make sure all external SCSI devices have power. Change one of the SCSI ID numbers. If this fails, try another SCSI cable or another SCSI device if possible. If all else fails, consult your dealer or authorized E-mu service center.

*Problem:*

The EIII does not recognize an external hard disk or other SCSI device.

*Cause:*

The external hard disk or SCSI device was powered-up *after* the EIII.

*Solution:*

Mount the drives using the Mount Drive function located under Disk Utilities in the Master module.

*Problem:*

The EIII does not recognize an external hard disk. Mount drives has been invoked. Or, the EIII recognizes the device, but data does not transfer reliably.

*Cause:*

The external hard disk may not be compatible with the Emulator III.

*Solution:*

Refer to the list of Emulator III compatible SCSI devices.

*Problem:*

Data from an external SCSI device is being scrambled or lost.

*Cause:*

The SCSI cable may be too long, or the device may not be terminated correctly.

*Solution:*

Try using a shorter SCSI cable (maximum cable length is about 12 feet) or check that the last device in the SCSI chain has termination resistors installed.