*K*2000

Musician's Guide Supplement

Ninth Edition, November 2000

Sampling Option
Version 3 Software
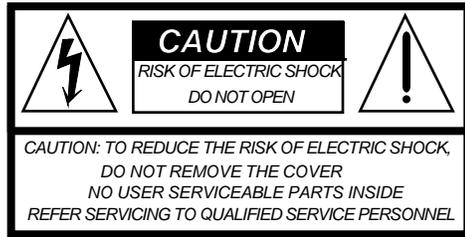*Orchestral and Contemporary ROM Blocks*

KURZWEIL
Music Systems

IMPORTANT SAFETY AND INSTALLATION INSTRUCTIONS

INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

WARNING: *When using electronic products, basic precautions should always be followed, including the following:*

1. *Read all of the Safety and Installation Instructions before using the product.*

2. *Do not use this product near water—for example, near a bathtub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, or the like.*

3. *This product should be used only with a stand or cart that is recommended by the manufacturer.*

4. *This product, either alone or in combination with an amplifier and speakers or headphones, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.*

5. *The product should be located so that its location or position does not interfere with its proper ventilation.*

6. *The product should be located away from heat sources such as radiators, heat registers, or other products that produce heat.*

7. *The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.*

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9. *The power supply cord of the product should be unplugged from the outlet when left unused for a long period of time. When unplugging the power supply cord, do not pull on the cord, but grasp it by the plug.*

10. *Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.*

11. *The product should be serviced by qualified service personnel when:*

12. *The product should be serviced by qualified service personnel when:*

    A. *The power supply cord or the plug has been damaged;*

    B. *Objects have fallen onto, or liquid has been spilled into the product;*

    C. *The product has been exposed to rain;*

    D. *The product does not appear to be operating normally or exhibits a marked change in performance;*

    E. *The product has been dropped, or the enclosure damaged.*

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WARNING: *Changes or modifications to this instrument not expressly approved by Young Chang could void your authority to operate the instrument.*

IMPORTANT: *When connecting this product to accessories and/or other equipment use only high quality shielded cables.*

NOTE: *This instrument has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.*

This instrument generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this instrument does cause harmful interference to radio or television reception, which can be determined by turning the instrument off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- *Reorient or relocate the receiving antenna.*

- *Increase the separation between the instrument and the receiver.*

- *Connect the instrument into an outlet on a circuit other than the one to which the receiver is connected.*

- *If necessary consult your dealer or an experienced radio/television technician for additional suggestions.*

NOTICE

This apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

AVIS

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la class B prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.

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Contents

Contents

Chapter 3   Song Mode and Sequencing

Contents

Contents

Chapter 4 Disk Mode Enhancements in Version 3

Contents

Appendix A   Programs, Setups, and Quick Access Banks

Appendix B   Effects Controller Numbers

Appendix C   Special Button Presses

Appendix D   Orchestral ROM Soundblock

Appendix E   Contemporary ROM Soundblock

Index

Chapter 1
System Software Versions 2 and 3

This manual is a supplement to the *Musician's Guide* for the K2000 and K2000R. It describes the new features introduced by Versions 2 and 3 system software, as well as the Orchestral and Contemporary ROM options. It does not replace the *Musician's Guide*. You should be at least somewhat familiar with the *Musician's Guide* before reading this supplement.

This supplement applies to both the K2000 keyboard and the rack-mount version, the K2000R. It also applies to the K2000S and K2000RS, the keyboard and rack-mount models of the K2000 with the sampling option built in at the factory. To avoid repetition, we'll use the term "K2000" to indicate all of the various models, except where a particular model differs from the others.

Version 2 System Software

Version 2 System software was developed primarily for use with the K2000 sampling option, but does not require its installation. There are several new features in Version 2 that enhance K2000 operation even without the sampling option. Features related to the recording of samples are active only when the sampling option is installed.

If you plan to do a lot of sampling, you may want to consider adding sample memory to your K2000. SIMMS (Single In-line Memory Modules) are available at your dealer, or at most computer stores or mail-order houses. At a sampling rate of 44.1 KHz, each megabyte you add increases your sample time by about 12 seconds. Table 1-1 lists a few standard sample RAM configurations and the approximate sampling capacity (in minutes and seconds) at various sample rates.

Total RAM	Sampling Mode	Sampling Rate in KHz				Approximate Sampling Time (min:sec)
		29.4	32.0	44.1	48.0	
512K (2 X 256K)	Mono	0:08	0:08	0:05	0:05	
	Stereo	0:04	0:04	0:02	0:02	
2M (2 X 1M)	Mono	0:35	0:32	0:23	0:21	
	Stereo	0:17	0:16	0:11	0:10	
8M (2 X 4M)	Mono	2:20	2:08	1:28	1:20	
	Stereo	1:08	1:04	0:44	0:40	
16M (2 X 8M)	Mono	4:40	4:16	3:04	2:48	
	Stereo	2:16	2:08	1:28	1:20	
32M (2 X 16M)	Mono	9:20	8:32	6:08	5:36	
	Stereo	4:32	4:16	2:56	2:40	

Table 1-1   RAM and Sampling Capacity

Major Features in Version 2

The major changes to the System software for Version 2 pertain to the sampling option:

- There's an enhanced sample editor, with graphic waveform display, cut/copy/paste sample editing, non-real time DSP functions, and numerous miscellaneous improvements.
- Use the new Sample Mode page for recording and auditing samples. This page is reached with the Sample soft button in Master mode, or by pressing the MIDI mode button while in the Keymap Editor.
- You can read samples of the following formats from floppy and/or SCSI disks:
- Ensoniq® EPS and EPS-16 Plus floppy and SCSI disks (and disks for similarly-formatted instruments), including ASR-10 "Ensoniq" format files;
- Akai® S900, S950, and S1000 series floppy and SCSI disks (and disks for similarly-formatted instruments);
- Roland® S750 and S770 SCSI disks;
- CD-ROM sample libraries.

If you're loading these samples from floppy disks, Chapter 13 of the Musician's Guide will tell you most of what you need to know to load these samples. See *Reading Samples* on page 2-29 for information about loading these samples via SCSI.

Sampling/Audio Features

- Sampling from digital or line level analog sources
- Phase locked stereo sampling, as well as mono left and mono right
- Four analog sampling rates: 29.4, 32.0, 44.1, and 48.0 KHz
- Gain control for analog sample input
- Analog sampling monitor lets you listen to your sampling source through the K2000
- SPDIF and AES/EBU digital input formats, using optical or coaxial cable; automatic sample rate selection
- Stereo input meters (dB) with peak hold and clipping indicators
- Post-sampling clip report
- Direct or triggered sampling with pre-triggering and programmable threshold level
- Timed sampling, for a ten-second countdown before sampling starts
- Auto-stop sampling (programmable sampling time), as well as manual cancel
- Immediate auditioning of new and existing samples, and preview feature to build a keymap and program from any sample (including ROM samples)
- Digital outputs for clean digital recording to DAT or other digital devices
- User-friendly design for quick sampling and retakes

Sample-Editing Features:

- Graphic display of sample waveform, with zoom and gain control, calibrated in dB
- View and edit samples either by a numerical index of the individual sample elements, or by the sample's length in seconds
- Shortcut for finding zero crossings for looping and truncating
- A loop window display showing the loop transition point
- Audible cueing of start and end points, audible loop editing
- Forward, backward, and bidirectional looping, and loop bypass
- Simultaneous processing of both channels of stereo samples
- Sample splitting to make mono samples from stereo samples
- Multi-root soundblocks (like K2000 ROM samples) can be split up into individual samples
- Cut/copy/paste editing
- Crossfade looping with selectable curves
- Sample rate conversion, time compression and expansion, pitch shifting
- Sample mixing: merge two samples, with selectable gain and fade in/fade out times, and a choice of fade curves
- Sample insert: splice whole or partial samples (or silence) into any part of existing samples
- Preview sample edits before saving
- Sample DSP functions to manipulate any portion of a sample, including reverse, invert, clear, delete, auto normalize, volume adjust, volume adjust with ramp
- Automatic truncate feature for smooth starts and stops, and for seamless sample inserts (this is one of the sample DSP functions)
- A unique Mix Beat sample DSP function that enables you to insert sample segments of any length into other samples—these inserted sample segments can be set to repeat at programmable intervals and tempos
- Programmable decay and release rates for RAM samples using the Natural amplitude envelope setting (the decay parameter will affect only the last decay segment of ROM samples)

Other Version 2 Features

Intonation Table Editor

The Intonation Table Editor has been changed to make editing more intuitive. When you enter this editor, a graphic representation of a C octave appears (instead of the parameter list shown in previous versions). Each note on the page contains a parameter that indicates the amount of detuning applied to that note. The low C always represents the tonic. Detune the intervals between notes of the octave by using the cursor keys to select the note to be detuned, then assigning a detuning value with the Alpha Wheel or alphanumeric buttonpad.

Attack Control

The AltAttackCtl parameter on the KEYMAP page in the Program Editor has a new name: AltSwitch. We changed the name because this parameter can now designate an alternative sample *end* as well as an alternative sample *start*.

Note Triggering

You can trigger notes with key release (key-up) instead of key attack (key-down). Just set a value of **Rvrs** (Reverse) for the Trig parameter on the LAYER pge in the Program Editor. The initial velocities of notes triggered this way are determined by the release velocities of the keys that trigger them.

Extended Sample Loops

You can also play data after the sample's loop on key-up. This is done by setting the Alt sample pointer after the sample end pointer, then setting a relatively low value for the release parameter on the MISC page in the Sample Editor.

Sample Loop Playback

Reversed and bidirectional sample loop playbacks are now available, using the Playback parameter on the MISC page in the Sample Editor. This is somewhat similar to the PlayBackMode parameter on the KEYMAP page in the Program Editor; the difference is that the PlayBackMode parameter affects the entire current layer, while the Playback parameter affects only the current sample.

Muting Layers in Drum Programs

In the Program Editor, when editing a "drum" program (a program with more than three layers), the Program mode button (Mute Layer 1) will mute the currently displayed layer. Pressing either the Setup or Quick Access mode button (Mute Layers 2 or 3) will solo the currently displayed layer. If you move to the Keymap Editor or Sample Editor while muting or soloing, the muting or soloing will remain in effect, even though the LEDs will not remain lit. (This is true for normal programs, as well).

CHAN/BANK buttons

In Program mode, pressing the **CHAN/BANK** buttons will take you through the 16 MIDI channels. This is the way they worked in Version 1 software, although in Version 1.3 system software, these buttons were used to scroll through K2000 programs.

The V Parameter (on the MIDI-Mode XMIT Page)

This parameter acts as a global override to the Vparameter on the Setup Editor Page. When the V parameter is off, the K2000 does not transmit initial volumes when you select a setup.

The V Parameter (on the Setup-Editor Page)

You'll also find a V parameter on the Setup Editor page. This parameter enables you to control the initial MIDI volume setting for each zone of the current setup. When you call up a setup in Setup mode, the K2000 sends a MIDI volume control signal on the each of the setup's MIDI channels. This sets the starting volume level for each zone. Subsequent MIDI volume control signals sent to the setup's MIDI channels affect the volume normally.

Panic

The two right soft buttons, when pressed simultaneously, send an All Notes Off and All Controllers Off message to the K2000 and to the MIDI Out port. This is the same effect as the **Panic** soft buttons that appear in various places.

Sampling the K2000's Output

If you're in Analog sampling mode, and there are no cables connected to the K2000's Analog sample input, you can sample the K2000 itself. This is done by triggering a note, then pressing the **Record** soft button. You won't get the first few milliseconds of the notes you play, and you won't get any controller effects, but this is a convenient way to capture sounds for further processing. You can sample chords and multi-layer sounds in this manner.

Utilities

Pressing the two center soft buttons at any time will take you to the K2000 Utilities functions. Refer to the *Musician's Guide* (Chapter 11, Master Mode) for explanations of the Utilities functions.

The S Parameter (on the Program Editor's Layer Page)

The S parameter was called "Enable Sense" in previous versions of the K2000's operating system. In addition to the functions described in the *Musician's Guide*, it now also lets you set the minimum and maximum values at which the layer will be enabled. The range for each is -128–127.

Version 3 System Software

Version 3 System Software for the K2000 introduces powerful sequencing capabilities, as well as a greatly enhanced disk system. These are outlined below and discussed in detail in Chapters 3 and 4 of this supplement.

New Features

Eight 32-layer drum channels are now available (P/RAM option required). By default, MIDI channels 1–8 are defined as drum channels. You can, however, use the DrumChan parameter on the Master page to define a channel numbered higher than 8 to be a drum channel. In this case, the channel you choose, along with Channels 1–7 will be your drum channels. For example, if you set DrumChan to **13**, then your eight drum channels will be 1, 2, 3, 4, 5, 6, 7, and 13. If you set DrumChan to a value of **8** or lower, however, your drum channels will always be 1, 2, 3, 4, 5, 6, 7, and 8.

A new option, **On2**, has been added for the sustain pedal (Program Editor, LAYER page). When you select **On2**, the sustain pedal will not catch the release of a note that is still sounding when the sustain message is received; this can be very useful in a program that uses amplitude envelopes with a long release time.

Disk System Improvements

- A new parameter, Verify, has been added to the Disk page. This option, which is off by default, double-checks the data integrity of all your backup, copy, and save operations. Verification also, however, increases the time required for these operations; you may not need to use it if you have a stable SCSI setup.

- An Info soft button is now available on the Utilities page in Disk mode. Press this soft button to display information about your disk drive(s). The More button on the Info page displays formatting information for use by service personnel.

- Also added to Disk mode is multiple file copy. As with other Disk mode operations, use the Select soft button to select multiple files to copy.

- The K2000 will now give you an option when you have formatted a floppy to format another one. If you are formatting several floppies you will not have to start from scratch each time.

- The K2000's SCSI subsystem has been enhanced to accept a greater variety of devices. Support for Iomega Zip/Jaz drives has been improved, and many more CD-ROM drives are now compatible with the K2000. Furthermore, the K2000 now supports disk drives of up to 2 Gigabytes (2048 Meg). V3.52 will work with drives larger than 2G but only the first 2 G will be utilized.

- Compatibility with the PC Exchange program has been improved in Version 3

- You can now import MIDI Type 1 files.

- The display shows the manufacturer and model of SCSI hard drives.

- You can now view how much room is left on any SCSI device

- The new multiple-selection feature enables you to load and save individual objects (samples, keymaps, programs, effects, songs, etc.) or any combination of objects from any location in internal RAM or on an external SCSI device. You can view the contents of files using the **Open** soft button

- The Disk-mode utilities include Name, Save, Move, Copy, Dump, and Delete. When using these utilities, you can select multiple objects by bank, by ID, or by object dependency.

- You can audition samples from SCSI drives. Also, when you're on one of the Disk-mode utility pages (Save, for example), you can audition samples, keymaps, programs, and songs.

- You can move or copy any number of selected objects and place them anywhere in RAM. You can move multiple objects with a single operation, and renumber them automatically.

- You can move files between disk directories for easy organization.

- New utilities make it easier to rename samples and keymaps.

- You can create subdirectories on SCSI devices and floppy disks. This enables you to create a hierarchical system for organizing your files.

- Intuitive navigation between directories, combined with improved disk functions (such as Move and Backup) make it easier to organize and retrieve files.

- You can use a single operation to select multiple files for loading, moveing, or deletion.

- You can create and edit macro files that automatically load one or more files (or objects from within files). A single macro can load multiple files and/or objects from all available sources (SCSI devices and floppy disks). Macro files also enable you to automatically load CD-ROM

data and merge user-created programs in K2000 format, even when loading foreign CD-ROM formats (Akai, Roland).

- The "re-link by name" feature lets you save objects independently of their dependent objects, which can be stored in separate files. Dependencies get re-linked when loaded, regardless of where the objects and their dependents are stored.
- The Backup and Copy utilities are faster and take full advantage of hierarchical file systems.
- Existing K2000 disks are compatible with V3.0 and don't require any conversion.
- We've improved magneto-optical and SCSI drive compatibility.
- The K2000 is now compatible with the Akai S3000 SCSI format.

Sequencer Improvements

- Up to 32 tracks (using the Song parameter on the Arrange page), or 16 pattern tracks plus 16 linear tracks.
- Linear, pattern, step drum machine record modes.
- Auto punch in/out.
- Track/sequence audition from editing screens.
- Real-time software sliders and pan knobs allow precise mixdown.
- Input quantization, and groove quantization (480 ppq display and edit resolution/768 ppq internal resolution).
- User-definable quantization strength, grid offset, and swing.
- Advanced auto arranger functions allow you to create arrangements of songs. Sequences can be triggered from keys with velocity sensitivity.
- You can copy, paste, and merge tracks.
- User-programmable metronome click.
- Event edit list with view filters allows for precise computer style editing. Event list scrolls audibly.
- You can cut, copy, and paste song events.
- Pattern chaining and song chaining.
- Track editing (for notes, controllers, sysex, program change, tempo etc.); editing functions include erase, copy, bounce, insert, delete, quantize, reference quantize, shift, transpose, change (scale), thin, and remap.
- Reference quantization allows any MIDI note data to function as a timing and velocity grid. Can be used as a "humanize" function, or as a "groove quantize", or as a way to quantize music that was played "freely", without respect to the metronome.
- Songs can be started, paused, continued and stopped from ANY K2000 page, including Program Edit.
- Fractional tempos with .02 bpm resolution, editable in the Event List editor
- Non destructive editing.
- Plays type 0 MIDI files, as well as songs created in earlier versions of K2000 Song Mode.
- Programs used in a track can be edited directly from the Song Mode, even if the sequence is running.

New Parameters on the MIDI Receive Page

The Bank Select parameter allows you to choose between having the K2000 respond to Controller 0 or Controller 32 (or both). The reason for this is that various manufacturers have chosen one method or the other. The four possible values for this parameter are as follows:

0 only   Transmits and responds to controller 0 only.

32 only   Transmits and responds to controller 32 only.

Ctl 0   Transmits 0 and responds to 0 or 32.

Ctl 32   Transmits 32 and responds to 0 or 32.

The Power Mode parameter lets you automatically reset certain parameters to their factory defaults every time you turn on your K2000. This parameter has two possible values: **User** and **Demo**. When the value is **User**, the K2000 preserves your settings at power up. When the value is **Demo**, the parameters listed below return to their default values at power up. The default value for the Power Mode parameter is **User**.

Mode or Page	Parameter	Default Value
Master	Drum Channel	1
MIDI (XMIT page)	Control	Both
Disk	Current Disk	Floppy
Effects	FX Mode	Auto
	FX Chan	Current

Table 1-2   Parameters that revert to default when the value of Power Mode is Demo

Also, the K2000 now remembers your current MIDI channel and tranposition (if any) when you pwer down, and restores them when you power up. In previous versions, powering up the K2000 always resets to Channel 1 and removes any existing transposition.

New Control Sources

Version 3 provides several new Control Sources: Global Attack Velocity (GAttVel), Global Key Number (GKeyNum), Global Hi Key (GHiKey) and Global Lo Key (GLoKey).

GAttVel is a control source that is updated every time you srike a key (kind of a multi-trigger function). This is a useful source to assign to control parameters such as F/X Depth.

In addition to enabling (triggering) layers from any controller (works like an on/off switch), you can now set the assigned controller's threshold (a fixed value, or a range of values from 0–127), thus defining the range within which the controller will enable the layer.

Here's an example. Imagine a 32-layer guitar program, with each layer using a different VAST algorithm. Each layer is enabled by a unique velocity range (Layer 1 is triggered by velocites from 0 to 4, Layer 2 from 5 to 8, etc.). Slight variations in attack velocity trigger different layers, each of which can incorporate subtle differences in volume, brightness, attack length, DSP effects, etc. This provides realistic velocity-based variations in the guitar's timbre, without reducing your polyphony—since the K2000 switches between layers (many instruments use crossfades for velocity switching; this uses up twice as many notes).

GKeyNum is a control source that uses the key number (global) to modify whatever it is assigned to control. Higher notes have a very different effect from lower notes. You can use this new Source to control any K2000 parameter, such as F/X depth, or to scale amplitude or pitch.

GHiKey and GLoKey work the same as GKeyNum except that they track the highest key currently held and the lowest key currently held. By using one of these as the only source for pitch tracking,you can create "mono-like" layers within a polyphonic program.

New Shortcuts

There are several new double button presses that provide programming short cuts:

- Double-pressing the two leftmost soft buttons returns Octave Transpose to **0**. Double-pressing again reverts to the previous setting for Octave Transpose.
- On editor pages that don't have **Panic** soft buttons, double-pressing the two rightmost soft buttons sends an All Notes/Controllers Off message on all 16 MIDI channels. On pages with Panic buttons, double-pressing the two rightmost soft buttons toggles between MIDI Channel 1 and the previuosly-selected channel.
- Double-pressing the two center soft buttons on any editor page takes you to the Utility page, for access to MIDIScope and other utilities.
- When in Disk mode, double-pressing the two leftmost soft buttons issues a SCSI eject command to the currently selected SCSI device. This is useful for removable-media drives (like Zip drives).
- Double-pressing the Chan/Bank buttons brings up a prompt asking if you want to hard format the current SCSI device.

When editing a drum program, you can easily find a particular layer. Hold the **Enter** button and strike a key. This automatically selects the layer correspondng to the key you strike.

Output boost/cut (on the MIDI-mode Channel page) now works "uniformly" for all layers in the program when boosting or cutting.

New Triggering Methods

Audio Sampling Input (K2000S/RS / SMP-K/R) now doubles as a two channel "drum" trigger, allowing audio signals to trigger samples. See *Mode* on page 2-3..

You can trigger sampling from the keyboard. See *Version 3 only* on page 2-4.

Guitar/Wind Controller Mode

If you're using a guitar controller or wind controller with your K2000, you may not always get the sound you expect. Since these controllers sometimes send MIDI Note On commands before sending Breath or Volume data, you might not hear all of the attack transients that characterize each instrument.

To compensate for this, the K2000 features a special mode that may improve the response to your controller. To enter Guitar/Wind Controller mode, press both **CHAN/BANK** buttons while in Master mode, then confirm with the **Yes** soft button.

Guitar/Wind Controller mode slightly delays MIDI Note On and Note Off commands, so that response to pitch bend and other expressive components of a note will be more accurate. If you hear a "glitch" in the attack of notes from your guitar or wind controller, you should try setting your K2000 to this mode. Keep in mind, however, that since this mode slightly changes the order in which MIDI commands are sent, it may affect the performance of the K2000 under some circumstances.

The K2000 always resets Guitar/Wind Controller Mode to **Off** at power up.

Chapter 2
Sampling with the K2000

Setting Up For Sampling

Before you begin sampling, you'll need to connect the proper cables from your sample source to your K2000. The cables and input jacks you use depend on the sample format you choose, and the output configuration of your sample source. Note that sampling requires K2000 system software Version 2 or higher.

Cables and Input Jacks

If you're going to be sampling from an analog source, connect a standard 1/4-inch mono or stereo cable (a typical guitar cable) from the output of your sample source to the 1/4-inch analog input jack on the K2000. If you have a K2000R or K2000RS, use the 1/4-inch jacks if you're sending an unbalanced signal, or the XLR jacks on the front panel if you're sending a balanced signal. Avoid sending a balanced signal when you're making stereo samples, since doing so can cause phase cancellations in your samples.

Using a mono cable will send the signal to the K2000's left channel. If you use a mono cable, be sure to set the Mode parameter on the Sample mode page to a value of Mono(L).

If you're using a digital sample source, you can use either a coaxial cable or an optical cable, depending on the output format of your sample source. The coaxial input on the K2000 accepts a standard male XLR fitting. Depending on your sample source (a commercial DAT deck, for example), you may need to use a cable (or a cable and adaptor) with an RCA connector on one end and an XLR connector on the other. The K2000's XLR input is configured as follows: Pin 1 is Common, Pin 2 is High, and Pin 3 is Low.

If your digital sample source has an optical output, connect your cable to the optical input jack above the coaxial jack on the K2000's rear panel. This jack is covered by a small plug which is easily removed. This plug should be kept in place whenever the optical input is not in use, since dust or dirt can cause the optical input to malfunction.

When you're ready to record samples, you'll go to the Sample mode page. There are two ways to to get to it: by pressing the Sample soft button in Master mode, or by pressing the MIDI mode button while in the Keymap Editor. The appearance of this page will differ slightly depending on whether you're sampling an analog or digital signal.

Sampling Analog Signals

The K2000's analog sampling input is optimized for a low-impedance line level signal (-10 dBm). With a line level signal, an input gain setting of 0 dB should prevent any clipping of the sample even at maximum output from the source. You can compensate for lower input levels with the Gain parameter on the Sample mode page.

If you're sampling through a microphone, you'll probably want to use a preamp to optimize your signal-to-noise ratio. If you don't have a preamp, you can adjust the Gain parameter. A setting of 21 dB will give you reasonable results for many applications. This will increase the noise level as well, however.

Running your sample signal through a mixer before sending it to the K2000 will give you the most flexibility in controlling your signal level, since you can use its gain or pad if needed. This may add noise to the signal, however. For the cleanest possible signal, you'll want to connect your sample source directly to the K2000. The best results will be achieved by sampling from a digital source, using one of the K2000's digital sample inputs.

Assuming your connections are made, you're ready to set up your first sample recording. Select the Sample mode page (press the Sample soft button in Master mode, or the MIDI mode button in the Keymap Editor). The top line of the sample mode page gives you the amount of free sample memory, and the amount of free program memory.

Input

On the Sample mode page, you'll set the conditions for your sample recording. Depending on the input type you select, a different set of parameters will appear on this page. When you've selected analog input, the page appears as in the diagram below. The differences between analog and digital sampling are discussed in the section called "Sampling Digital Signals."

```
SampleMode  Samples:8192K     Memory:752K
Sample:None
Input :Analog   Time  :1s          Mon:Off
Gain  :0 dB
Rate  :44.1KHz      L
Mode  :Mono(L)      R
Thresh:Off        -dB 60  40   * 16 * 8 4 0
Record   Auto   Timer   Preview
```

The digital meters at the lower right of the display give a good indication of your sample level. When you send a signal from your sample source, you should see the meters respond.

Src (Rack models only)

The K2000R and K2000RS have an additional parameter related to input: Src. The possible values are Internal(Int) or External (Ext). Choose a value of Ext when you want to sample the signal from an external source that's connected to one of the K2000's sampling inputs. Use a value of Int if you want to sample the K2000's own output. (This can be done on the K2000 and K2000S by selecting Analog input and removing any cable connected to the analog sampling input).

Gain

The meters are calibrated in -dB units. A level of 0 dB indicates the maximum signal without clipping. The sample will be free of clipping as long as the meter levels don't exceed 0 dB. For optimum results, you should adjust the K2000's Gain parameter (or the gain from your sample source) so that the signal stays below 0 dB. Otherwise, the signal will be clipped, causing the loss of sample data, and usually resulting in audible distortion of the resulting sample. A few clips (fewer than 100) may not cause any appreciable distortion. You'll get the best signal-to-noise ratio with meter levels as close to 0 dB as possible, although you'll find that samples with maximum meter readings as low as -12 dB can sound remarkably noise-free.

The relatively slow LCD output of the meter levels cannot show every peak in the incoming signal, therefore, you won't necessarily see every transient in every sample you take. You will be able to see any transient that is clipped, however, since whenever a clip occurs, the K2000 will display the word `CLIP` above the meters, and will flash the Master mode LED. It will also give you the number of clips in each sample before you save it.

The meters are inoperative during actual sampling, so make a few tests of your levels before you begin to record.

Rate

After you've set your levels, you need to select the sample rate. You have four rates to choose from. The trade-offs that determine your best sampling rate are frequency response and storage requirements. Higher sample rates will capture more frequency content from your samples, but will take up more memory. Lower rates give you more sample time, but don't give the same frequency response as higher rates. Rates of 29.4 or 32 KHz will yield a flat response up to about 14 and 15 KHz, respectively. 44.1 and 48 KHz yield a flat response up to 20 KHz, which is the upper limit of audibility for most humans. The lower rates may be adequate for most sounds, since many sounds have little content above 15 KHz. Sounds with a great deal of high-frequency content, such as cymbals, should probably be sampled at the higher rates. You can save memory by using lower sample rates for sounds without much high-frequency content—acoustic or electric bass, for example.

Another consideration in selecting sample rate is the K2000's transposition range during sample playback. The K2000, like all sample playback devices, transposes samples by changing the sample playback rate; the higher the playback rate, the higher the pitch of the sample. The K2000 can achieve a maximum sample playback rate of 96 KHz. A sample made at 48 KHz can be transposed up only one octave, since the playback rate doubles for every octave of upward transposition. A sample made at 29.4 KHz can be transposed up approximately 21 semitones (an octave and a sixth). There is no limit on downward transposition, regardless of the sample rate.

Each portion of a sample (each individual sample element made by the K2000 during the sampling process) takes up two bytes of sample memory. A one-second stereo sample at 48 KHz consists of 96,000 individual samples (48,000 x 2), taking up 192,000 bytes (about 188K) of sample memory. The same sample taken at 32 KHz takes up about 125K. A one-second mono sample taken at 32 KHz takes up about 63K.

Mode

Use the Mode parameter to select mono or stereo sampling. (Keep in mind that stereo samples take up twice as much memory as mono samples.) Use a value of **Mono(L)** for a mono signal. You can use either **Mono(L)** or **Mono(R)** to isolate either the left or right side of a stereo signal.

Version 3 only

The Audio Sampling Input (K2000S/RS / SMP-K/R) now doubles as a two channel "drum" trigger, allowing audio signals to trigger samples.

1. On the Sample page, set the Mode parameter to **Trigger**.

2. Adjust the Thresh parameter to control triggering sensitivity.

    This triggers the currently assigned click program. The left input triggers the note one semitone aboue the click key; the right input triggers the note two semitones above the click key. (In other words, if the click key is, say, C 4, the left input triggers C# 4, and the right input triggers D 4.) You can select both the click key and the click program on the MISC page in Song mode.

Threshold (Thresh)

The Thresh parameter controls when the K2000 actually begins sampling incoming signals. If you set it to a value of Off, sampling begins immediately when you press the Record soft button. Otherwise the K2000 waits for the incoming signal to exceed a specified threshold before beginning to record. You can set the threshold from -90 to 0 dB, in 6 dB increments.

The K2000 has a pre-trigger feature—that is, the K2000 records the 3,000 samples immediately before the point at which the threshold is exceeded. This prevents early transients from being missed. This feature is automatic whenever the Thresh parameter is set to a non-zero value. You'll want to adjust this parameter if your samples are missing these transients; the lower the threshold, the more certain you'll be of capturing every element of the signal. In some cases, you may get better results if you set the Thresh parameter to a value of Off, then press the Record soft button and wait briefly before beginning the sound to be sampled. This will guarantee that every element of the sample is captured. After you've recorded the sample, you can always adjust the starting point on the TRIM page, to remove any silence before the start of the actual sample.

Version 3 only

You can trigger and map samples from the keyboard, as follows:

1. On the Sample page, set the Thresh parameter to **Key**

2. Press **Auto**.

3. Strike a key. This triggers the sampler, places the root of the resulting at the key you struck, and tunes all the other notes that use that root. This is an extremely convenient way to record samples and build them into a program.

Time

The Time parameter lets you determine how long the sample will be. The available sample time is a function of the sample rate and the amount of available sample memory. The K2000 calculates this automatically, and limits the maximum value of the Time parameter accordingly. At a value of **0** for this parameter, the K2000 will not record.

Sample

The Sample parameter lets you select any sample in memory for auditioning. This is a convenient way to listen to the samples you've made without having to manually create keymaps and programs for them. With a value of **None** for this parameter, the K2000 plays the last program or setup you selected before entering Sample mode. The list of values includes all ROM and RAM samples.

When you select a sample for auditioning, the K2000 automatically creates a temporary keymap and program, based on the settings for Default Program **199**—which is a simple single-keymap program with few controller assignments, and the effects set to 0% wet (100% dry). Any edits you've made to Program **199** are reflected in the sample you audition. When you exit the Sample mode page, the temporary keymap and program disappear until the next time you audition a sample. You can create regular RAM keymaps and programs using the Preview soft button; see *The Preview Soft Button* on page 2-6.

If you don't have enough free program RAM, you may be unable to audition samples, since the K2000 won't have enough RAM to create the temporary keymap and program. In this case, deleting a few objects from RAM will restore the audition feature.

Monitor (Mon)

The Monitor parameter provides a convenient way to listen to what you're recording. When set to a value of **On**, any signal received at the analog sample input will appear at the K2000's MIX outputs and the headphone jack. Adjusting the input gain will affect the monitor gain as well. A clean monitor signal, however, does not guarantee a distortion-free sample. Always check the meters on the Sample mode page and look for the CLIP indicators to ensure that your sample is free of clipping. Note that the Mon parameter is not available when the Input parameter is set to a value of **Digital**. The Monitor feature applies only to the analog sampling inputs. You should monitor digital sources from the sources themselves.

Recording Samples

Pressing the **Record** soft button begins the sample recording process. If the Thresh parameter is set to a value of **Off**, recording begins immediately, and continues for the number of seconds indicated by the Time parameter. The display indicates that recording is in process. Any other value for the Thresh parameter causes the K2000 to wait until the specified threshold is exceeded, then recording proceed normallys. The display indicates that you're making a threshold recording, but the K2000 doesn't actually begin recording until the threshold is exceeded.

You can abort the recording of a sample by pressing the **-/+**, **0** and **CLR** buttons simultaneously.

When recording is complete, the K2000 will prompt you to strike a root key. The sample is assigned to the key you strike. This "root" is the key at which the sample will be played back without transposition. When sampling pitched sounds, it generally makes sense to assign a root key that matches the pitch of the original sample, although you can set the root key anywhere you like. If you press the **Default** soft button, the K2000 uses C 4. You can change the root key at any time on the MISC page in the Sample Editor.

When the root key has been assigned, the K2000 asks you if you want to save the sample. At this point the display will show one of two things—the number of clips, or if no clips occurred, the maximum level (in dB) of the sample signal.

You can listen to the sample before deciding whether to save it. If you decide not to keep the sample, press the **No** soft button, and you'll return to the Sample mode page. If you press **Yes**, you'll see the normal Save dialog. When you've saved the sample, you'll return to the Sample mode page.

Once the sample is recorded and saved, you may want to edit it, using the TRIM page, LOOP page, or any of the sample DSP functions.

The Auto Soft Button

To save time when sampling with either the Analog or Digital inputs, you can use the **Auto** soft button. This will begin sampling immediately (or when the sample threshold is exceeded if you have the Thresh parameter set to a value other than **Off**), and will return you to the Sample Recording page when the sample is complete. The root key is automatically assigned at C 4, and the sample is automatically saved at the next available ID above **199**.

The Timer Soft Button

If you need to delay the beginning of your sample recording, you can press the **Timer** soft button instead of the **Record** or **Auto** soft buttons. This begins a ten-second countdown before sample recording actually starts. The display shows the countdown. When the countdown reaches zero, The Program, Setup, MIDI, and Master mode LEDs flash three times. If you have the Thresh parameter set to a value of **Off**, sample recording starts immediately after the LEDs flash. If you have the Thresh parameter set to a value other than **Off**, sample recording begins when the countdown has finished and the threshold level is exceeded.

The Preview Soft Button

When you've finished taking a sample, you can press the **Preview** soft button to automatically create a keymap and program using the new sample. It uses the settings for the Default program **199** as a template. Unlike the temporary keymap that's created when you audition a sample (and disappears when you select another sample), the preview keymap and program are stored in RAM and can be selected at a later time.

When you press the **Preview** soft button, the Bank dialog appears, prompting you to select a bank where the preview program will be stored. Select a bank, then press the **OK** soft button. The K2000 creates a keymap and a program, using the lowest available ID numbers in that bank for both the keymap and the program. The display tells you the ID number of the new program.

Sampling the K2000's Output

You can sample the K2000's own sounds when in Analog sampling mode. If there are no cables connected to the Analog sampling input, the K2000 or K2000S will record its output automatically. Just hold a note or chord, then press the **Record** soft button. The K2000 samples the note(s) as played, without any controller information (just the raw sound, minus the first few milliseconds). The K2000R and K2000RS also sample their own outputs in a similar fashion. To do so, set the Src parameter on the Sample mode page to a value of **Int**.

Sampling Digital Signals

The process for sampling through either of the digital inputs is essentially the same, although there are a few additional parameters associated with digital sampling formats.

You'll notice that the Sample mode page changes considerably when you change the value of the Input parameter from **Analog** to **Digital**. There are a few more settings to be made before you start recording.

```
SampleMode   Samples:8192K      Memory:118K
Sample:None
Input :Digital   Time  :1s
Cable :Coaxial
Format:AES/EBU          L
Mode  :Stereo           R
Thresh:Off          -dB 60  40  * 16 * 8 4 0
Record   Auto  Timer  Preview
```

The first difference is the fact that there are no parameters for gain and sample rate. There's no need for a gain parameter because with digital sampling, since you're making an exact digital copy of the source signal. The Rate parameter is excluded because the K2000 automatically recognizes the source sample's rate and sets its own rate accordingly. Also, the Mon parameter

does not appear when sampling digitally. Any monitoring you wish to do must be done from the sample source.

Cable

Set the Cable parameter to a value of **Coaxial** or **Optical**, depending on the type of cable you're using. Many consumer products with digital output provide an optical jack. There is a small plug covering the K2000's optical input; this plug must be removed before you can connect the optical cable to the K2000. The plug should be replaced whenever the optical input is not in use.

If you plan to use a coaxial cable, select a value of **Coaxial** for the Cable parameter. If you're sampling from a consumer product like a CD player, you'll probably need to get an adaptor, or a cable with an RCA fitting on one end and an XLR (male) fitting on the K2000 end. Some professional products have an XLR fitting for their outputs, so an ordinary microphone cable will be suitable in most cases. Longer cables can cause signal loss, however, so if you need a long cable, you may need to get a special cable designed for digital information transfers.

Format

Use the Format parameter to tell the K2000 the format of the incoming sample. Most consumer products use SPDIF (Sony/Philips Digital Interface Format), while most professional machines use the AES/EBU (Audio Engineering Society/European Broadcast Union) format. Refer to the owner's manual of your sample source for information regarding its digital format.

The Mode, Time, and Thresh parameters function for digital sampling just as they do for analog sampling.

When you begin recording, a box appears in the display that indicates that the K2000 has locked on to the digital signal. You'll see the word LOCK, and the rate at which the signal was sampled will be shown. The K2000 automatically sets itself to this rate. If you don't see this box, check to make sure that the signal is getting to the K2000.

The K2000 may not display the rate when you're using a rate other than the frequently-used rates of 32, 44.1 or 48 KHz. This is normal, and although the rate may not be displayed, the K2000 will still lock on to it.

Using the Digital Outputs

The K2000 features digital audio outputs with XLR connectors. There are two points to keep in mind if you wish to use them. First, the Mode parameter on the Sample mode page must be set to a value of **Analog** to enable the digital outputs. Second, the analog input must be disconnected from any cables.

If you have a cable connected to the analog input, that input will be routed to the digital outputs. This effectively makes the K2000 into an analog-to-digital convertor, which can be very useful.

Editing Samples

Most of the functions within the Sample Editor follow a general pattern. There are two ways to enter the Sample Editor. If you start from Master mode and press the **Sample** soft button, then select a sample and press **Edit**, you can hear the isolated sample. If you want to hear the sample in the context of a program, start by entering the Sample Editor through the Program Editor: start by selecting a program in Program mode—usually the program containing the sample you want to edit. Press the **Edit** button to enter the Program Editor. Press the **KEYMAP** soft button to view the KEYMAP page. The KeyMap parameter is selected (highlighted) when the page appears. Press the **Edit** button to enter the Keymap Editor. The KeyRange parameter is selected when the page appears. The notes within the currently selected key range are the only ones that will be affected by your edits. You can hold the Enter button and trigger notes to select different key ranges.

If you want to select a different sample, use the cursor buttons to select the Sample parameter. Use the Alpha Wheel to select a sample. Press the **Edit** button once more, and you'll enter the Sample Editor. (Pressing the **Edit** button while in the Keymap Editor will enter the Sample Editor regardless of which parameter is selected.) The effects of the current program will be applied to the sample.

The TRIM page appears when you enter the Sample Editor. There are three basic sample editing pages—TRIM, LOOP, and MISC (Miscellaneous). The soft buttons for these pages are visible when you enter the Sample Editor. The **DSP** soft button is visible as well if you're editing a RAM sample; pressing it will take you to the DSP function page, where you can select a DSP function with the Alpha Wheel or **Plus/Minus** buttons.

The DSP soft button does not appear if you're viewing a ROM sample. Instead you'll see a **Link** soft button.

The **<more>** soft buttons take you to the soft buttons for the other functions. You can trigger notes at any time while you're editing, to hear your changes as you make them.

The Function Soft Buttons in the Sample Editor

In addition to the **MISC**, **TRIM**, and **LOOP** soft buttons, which select Sample Editor pages, there are several function soft buttons. As with other K2000 editors, the function soft buttons are labeled with upper and lower case letters, to distinguish them from the page selection soft buttons, which are labeled in all capital letters. The **<more>** soft buttons give you access to the other soft buttons that are available.

Zoom- and Zoom+

These buttons are active only when you're viewing the TRIM and LOOP pages. They increase or decrease the resolution of the waveform display, enabling you to see a larger or smaller segment of the waveform of the currently selected sample. The top line of the display indicates the zoom position in terms of a fraction—for example, 1/256—which indicates the number of individual sample elements represented by each display pixel. A value of 1/256 means that each pixel represents 256 individual sample elements. The maximum zoom setting of 1 shows you a very small segment of the sample. The minimum setting of 1/16384 shows you the largest possible segment of the sample. Each press of a Zoom soft button increases or decreases the zoom by a factor of 4.

As a convenience, the **Program** and **Setup** mode buttons also serve as zoom buttons while in the Sample Editor. You can press the two left soft buttons together to toggle between the default zoom setting and your current zoom setting.

Gain- and Gain+

Also active only for the TRIM and LOOP pages, these buttons increase or decrease the magnification of the currently displayed sample waveform, enabling you to see the waveform in greater or lesser detail. At the left of the display, you'll see the magnification setting, which is expressed in dB units. You can adjust the magnification from -72 dB (maximum magnification) to 0 dB. This doesn't affect the actual amplitude of the sample, only the magnification of its display.

As a convenience, the **MIDI** and **Master** mode buttons also serve as gain adjustment buttons while in the Sample Editor.

The simplest way to think of the **Zoom** and **Gain** buttons is to remember that the **Zoom** buttons control the left/right magnification of the waveform, while the **Gain** buttons control the up/down magnification. Neither button has any affect on the sound of the sample. You'll often use the **Zoom** and **Gain** soft buttons together to focus in on a particular sample segment, then magnify it to see it in close detail.

For example, you might want to zoom out to view an entire sample waveform, to decide which segment you want to edit. You could then zoom in to focus on a particular segment. Once you've zoomed in, you may want to boost the Gain to enable you to set a new Start (S) point with greater precision, or ensure that you get a smooth loop transition.

Abort

Use the **Abort** soft button to cancel a sample dump before it's complete. You'll be prompted to verify whether you really want to cancel the dump.

Split

The **Split** soft button enables you to create two mono samples from a single stereo sample, or to split up a multi-root block of samples. This button is available only when the currently selected sample is a stereo sample. When you press this button, the K2000 will prompt you: `Split this sample?` When you press the **Yes** soft button, you'll be prompted to enter the ID for the first sample. Select an ID with the Alpha Wheel or **Plus/Minus buttons**, then press the **OK** soft button. The split samples will automatically be assigned IDs, starting with the ID you select.

Splitting stereo samples enables you to use the separate sides individually, or to phase the samples by assigning each side to a separate keymap, then delaying one of the layers slightly.

Units

With the **Units** soft button you can change the units used to display the locations of the current sample's Start, Alt , Loop and End points. The default setting displays these points in seconds, that is, the number of seconds from the physical start of the sample. Pressing the **Units** soft button changes the units to samples, that is the number of individual sample elements from the physical start of the sample. Press it again to return to a view of the sample in seconds.

As a convenience, the **Quick Access** mode button also serves as a units button while in the Sample Editor.

Link

The **Link** soft button lets you fix the interval between the Start, Alt, Loop and end points of the current sample, so it remains constant when you move one or more of the points. This is done by selecting the desired parameter with the cursor buttons, then pressing the **Link** soft button. The

colon (**⋮**) following the parameter's name will change to an arrow (**›**) to indicate that it is linked. You can link any or all of the four sample points. When sample points are linked, moving one of them will move the linked points correspondingly. For example, suppose the current sample's Start (S) point is 0.0 seconds, and its Alt (A) point is 0.5 seconds. The interval between the sample's Start and Alt points is exactly half a second. If you select the Start parameter, then press the **Link** soft button, the Start point will be linked. This won't have any effect until you link at least one more point. If you select the Alt parameter and press the **Link** soft button, the Start and Alt points will be linked. Now if you move the Start point to 1.0 seconds, the Alt point automatically moves to 1.5 seconds, preserving the half-second interval between Start and Alt. To remove the link on any of the points, select the point again, and press the **Link** soft button again. The arrow changes to a colon, indicating that the link has been removed.

As a convenience, the **Song** mode button also serves as a link button while in the Sample Editor.

Name, Save, Delete, and Dump

These soft buttons are similar to the **Name**, **Save**, **Delete**, and **Dump** soft buttons in the other editors, initiating the corresponding dialogs to name, save, delete, or dump the currently selected sample.

When you press the **Save** soft button, and choose to save the sample to a new ID, the K2000 asks you if you want to copy the sample data. If you answer **Yes**, the K2000 makes a separate copy of the sample. If you answer **No**, the K2000 simply marks the location of the original sample data and shares the sample between the original and the edited sample. This can save a great deal of memory space. If you delete a sample that's partially or completely shared with another, the K2000 deletes only the portions that are unused by the shared sample, always optimizing its memory for maximum storage capacity.

Note that if you use the Utility function to view the objects currently stored in the K2000, you'll see each object listed separately, including shared samples. The shared samples will each indicate their size, even though they're referring to the same memory location. This might lead you to believe that you're using more memory for samples than you actually are. If you use the Utility function to calculate your total sample memory usage, remember not to include any shared samples in the total.

The Page Buttons

The soft buttons labeled in all capital letters select the various pages in the Sample Editor: **MISC**, **TRIM**, and **LOOP** (as well as **DSP** when you're editing RAM samples).

The Miscellaneous (MISC) Page

On the MISC page, you'll set several parameters that affect the behavior of the current sample. These parameters affect the entire sample. The diagram of the MISC page shows a ROM sample, and since the DSP functions cannot be applied to ROM samples, the **DSP** soft button is not available. In its place is the **Link** soft button, which enables you to maintain equal times between various points in the sample—Start and Alt, for example.

The default values shown in this diagram reflect the settings for the Default program 199.

```
EditRomSample:MISC
RootKeyNum  :G#1    LoopSwitch:On
PitchAdjust :-12ct  Playback  :Normal
VolumeAdjust:0.0dB  AltSense  :Norm
AltVolAdjust:-0.5dB IgnRelease:Off
DecayRate   :3bB/s  SampleSize=101Kb
ReleaseRate :106dB/ SampleRate=19200Hz
  <more   MISC   TRIM   LOOP   Link  more>
```

Parameter	Range of Values
Root Key Number	C -1 to G 9
Pitch Adjust	Variable (depends on sample rate)
Volume Adjust	-64.0 to 63.5 dB
Alternative Volume Adjust	-64.0 to 63.5 dB
Decay Rate	0 to 5000 dB per second
Release Rate	0 to 5000 dB per second
Loop Switch	Off, On
Playback Mode	Normal, Reverse, Bidirectional
Alternative Sample Sense	Normal, Reverse
Ignore Release	Off, On

Root Key Number

The root key number represents the key at which the sample will play back without transposition (at the same pitch as the pitch of the original sample). When you're creating your own samples, the key you strike as the root key will be the key you see as the value for this parameter.

Pitch Adjust

Use this parameter to change the pitch of the sample relative to the key from which it's played. Setting a value of **100 cts**, for example, will cause the sample to play back one semitone higher than normal. This parameter is handy for fine tuning samples to each other if they're slightly out of tune.

Volume Adjust

Uniformly boost or cut the amplitude of the entire sample. Compare this to the DSP Volume Adjust parameter, which lets you boost or cut the amplitude of a specified segment of a RAM sample.

Alternative Start Volume Adjust (AltVolAdjust)

This parameter sets the amplitude of the sample when the alternative start is used. See the *Musician's Guide* for a discussion of Alternative Sample Start.

Decay Rate

Use this parameter to specify how long the sample will take to decay (fade) to zero amplitude when a note is sustained, either by holding the key (or other note trigger), or with the sustain pedal. The higher the value, the faster the sample will decay. The sample starts decaying as soon as the note is triggered, and decays with a linear curve. This decay affects each sample individually, and begins as soon as the note starts. It operates independently of the decay in the AMPENV, which affects every note in the layer.

Release Rate

The release rate determines how long the sample will take to decay to zero amplitude when the note trigger is released. the higher the value, the faster the release rate.This release affects each sample individually, and begins as soon as the note is released. It operates independently of the release in the AMPENV, which affects every note in the layer.

Loop Switch

This parameter activates or deactivates the looping of the currently selected sample. When set to **On**, the sample will loop according to the settings on the LOOP page. When set to **Off**, the sample will play through to its End point and stop.

Playback Mode (Playback)

This parameter lets you modify the direction in which the sample is played. Set it to a value of **Reverse** if you want the sample to play from its End point to its Start (S) point. Choose a value of **Bidirectional** to cause the sample to play from Start to End, then reverse direction and play again from End to Loop and back, repeating until the note trigger is released (this works only when the Loop Switch parameter is set to **On**).

Alternative Sample Sense (AltSense)

This provides a convenient way to activate the alternative start of a sample. When set to **Normal**, the alternative start is used when the Alt Switch control is on (this is set on the KEYMAP page), or when the control source assigned to it is above its midpoint. When set to **Reverse**, the alternative start is used when the Alt Switch control is off, or when the control source assigned to it is below its midpoint.

Ignore Release (IgnRelease)

When set to a value of **Off**, the sample releases normally when the note trigger is released. When set to **On**, the note does not release, even when the note trigger is released. This setting should be used only with samples that normally decay to silence; non-decaying samples will play forever at this setting. This parameter is equivalent to the IgnRelease parameter on the LAYER page, but affects only the currently selected sample.

Sample Size and Sample Rate

These are not editing parameters. They're put on this page to give you a convenient place to check the size in kilobytes of the current sample, and the rate at which it was sampled.

The TRIM Page

The TRIM page lets you set the Start, Alt, Loop, and End points of the current sample. The top line tells you whether you're editing a ROM or RAM sample, and indicates the zoom setting. At the left of the display is the Gain (display magnification) setting. This Gain setting doesn't affect the amplitude of the sample, just the view in the display.

In the diagram below, the sample points are expressed in individual sample elements. Pressing the **Units** soft button (or the Quick Access mode button) will display them in seconds.

```
EditRamSample:TRIM Zoom=1/256
S:0.000   A:0.000    L:6.000    E:6.000

-6dB>


 <more    MISC    TRIM    LOOP    DSP    more>
```
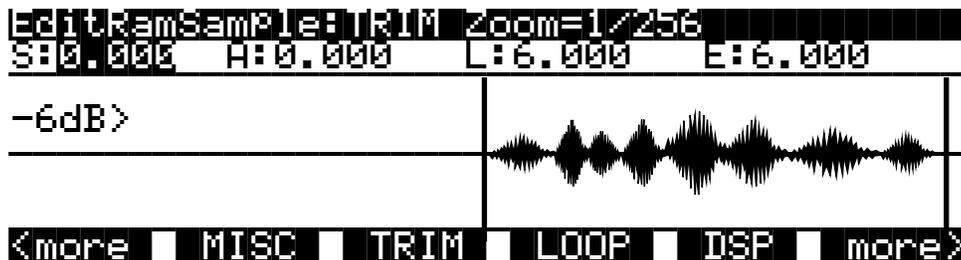
The four parameters on this page are Start (S), Alternative Start (A), Loop (L), and End (E). Selecting these parameters and adjusting their values enables you to modify how the sample plays back when notes are triggered.

There are four vertical lines that indicate the settings of the four parameters. You'll see all four lines only if the values for each of the four parameters are different; otherwise, the lines will overlap. Selecting one of the parameters will move the line corresponding to that parameter to the center of the display, where it will flash to indicate the parameter's position. The line corresponding to the currently selected parameter will flash. Turning the Alpha Wheel will move the sample waveform relative to the line. The line remains in the center of the display, and the waveform shifts to indicate the new position of the point. You can also use the alphanumeric buttonpad to enter new values directly. Press the **Enter** button to register the values you enter.

The Start (S) point determines the beginning of the current sample. You can truncate the beginning of the sample by increasing the value of the Start (S) parameter. You might do this to remove silence at the beginning of a sample, or to remove some or all of the attack. You can't decrease the Start point of RAM samples below zero, but if you want to add silence at the beginning of a RAM sample to create a delay, you can use the Insert Zero DSP function to add as much silence as you like. The start points of ROM samples can be set lower than zero (you can set negative numbers for the Start (S) and Alt (A) parameters). Doing this causes portions of other samples to be played, which can create interesting effects.

Note that for RAM samples, you won't see any waveforms displayed to the left of the Start point, but you will for ROM samples.

The Alt (A) parameter lets you set a second, optional start or end point for the current sample. The Alt is used when the Alt Switch parameter on the KEYMAP page is set to **On**, or when it's set to a specific control source and that control source is generating a value of more than +.5 (for example, if you assign MWheel as the control source for the Alt Switch parameter, the Alt is used when the Mod Wheel—or whatever control source you have set to send MWheel—is above its halfway point).The Alt can be set before, after, or at the same point as the Start or end.

If you set the Alt after the End, you can extend the play of looped samples. Normally, looped samples play through to the End, then loop back to the Loop point, and continue looping like this until the note is released, when they go into their normal release. If the Alt is set after the

End, looped samples loop in the same way while notes are sustained. As soon as you release the notes, however, the samples play through to the Alt point before going into release.

The Loop (L) parameter sets the beginning of the looped portion of the current sample. Although you can adjust this parameter while you're on the TRIM page, you'll normally want to adjust it while viewing the LOOP page, so you can see the loop transition points, enabling you to create as smooth a loop as possible. The Loop can be set at any point before the End, including before the Start and Alt. If you try to move it after the End, the End moves with it.

The End (E) parameter sets the point at which the current sample will stop playback. Typically you'll use this parameter to trim unwanted silence off the end of a sample, although you can use it to shorten a sample as much as you want.

If you want to truncate a sample to save memory, there are two points to keep in mind. First, if the Alt parameter is set before the Start, you won't save any memory by truncating the Start. Likewise, you won't save memory by truncating the End if the Alt is set after the End. You won't save memory by truncating a sample until you save the sample and exit the Sample Editor.

You can also use the Truncate DSP function to automatically truncate your samples at a specified noise floor. As with the TRIM page, you'll recover memory after saving the sample and exiting the Sample Editor.

The LOOP Page

The LOOP page features the same four parameters as the TRIM page, but the waveform display is quite different. The best way to understand what you see on the LOOP page is to switch back and forth between the TRIM and LOOP pages and study the waveform displays.
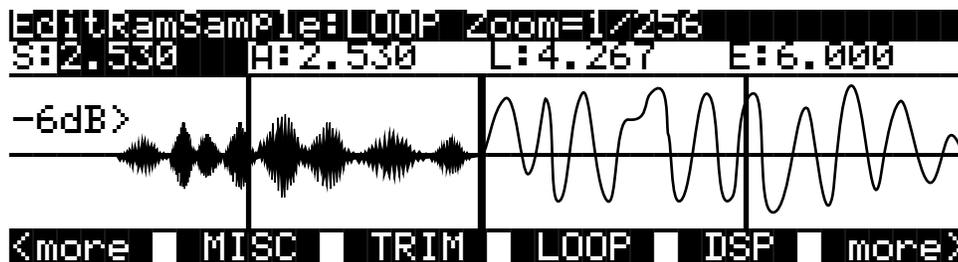
On the TRIM page you see the entire waveform—or as much of the waveform as your current zoom setting allows. When you move to the LOOP page, you'll notice that the page is split into two sections, left and right, divided by a vertical bar in the center. This bar is thicker than the vertical lines representing the Start, Alt, Loop, and End points, and does not move when you adjust any of these points.

To the left of the dividing bar you see the same segment of the current sample that you see on the TRIM page. The four vertical lines representing the Start (S), Alt (A), Loop (L), and End (E) points are visible. (Remember, you'll see all four vertical lines only if the values for the Start, Alt, Loop, and End parameters are different.) To the right of the dividing bar you see the entire loop segment of the sample.

In the center of the loop segment is a dotted vertical bar that represents the loop transition point—that is, the point at which the sample reaches its End point and loops back to the Loop point. You can visualize the loop segment by starting at the vertical transition point; this is the beginning of the loop, as defined by the setting for the Loop parameter. The waveform progresses to the right, representing the initial portion of the loop segment. The waveform

"disappears" off the far right side of the display, and "reappears" at the thick dividing bar at the center of the display. The waveform again progresses to the right, representing the final portion of the loop segment. It reaches the dotted vertical transition line, representing the End point of the sample, where it jumps once again to the loop point and repeats the cycle.

If you select the Loop (L) parameter and change its value, you'll see the segment of the waveform to the right of the transition point shift its position. If you select the End parameter and change its value, you'll see the segment of the waveform to the left of the transition point shift its position.

When you're setting a loop segment for a sample, you'll want to adjust both the Loop and End parameters so the two ends of the waveform meet (or come as close as possible) at the transition point. You'll notice an audible click in your sample loop if the ends of the waveform do not meet at the transition point. The closer you can get the two ends of the waveform, the better the sound quality of your loop will be. With a bit of experimentation, you'll develop the ability to create smooth loop transitions.

You'll also want to try to set the loop point at a zero-crossing—a point where the sample waveform is neither positive or negative. Pressing the **Plus/Minus** buttons together searches (from left to right) for the sample's next zero-crossing. You can usually press these buttons several times for any given sample without noticeably affecting the sound of the sample. If you press the **Minus** button, you'll reverse the direction of the search, and the next time you press the **Plus/Minus** buttons together, the K2000 searches for the next zero-crossing to the left. Press the **Plus** button again to search toward the right.

If you adjust the display Gain and Zoom of the sample while on the LOOP page, you'll notice that the Gain affects the waveform on both sides of the loop point, while the Zoom affects only the left side of the page. You can't zoom in on the loop transition point in the right half of the display.

You can also use the crossfade loop (XfadeLoop) DSP function to get a smooth transition between loop points. As with the TRIM page, you'll recover memory after saving the sample and exiting the Sample Editor.

The DSP Page (RAM samples only)

Select the DSP page with the **DSP** soft button. This gives you access to a long list of non-real time DSP functions, with which you can modify your RAM samples. The first time you select a DSP function, you'll see the Normalize function, shown below. Afterward, the most recently selected DSP function will appear when you select the DSP page.

```
F:Normalize   Start:0.049      End:6.000

-6dB>

    Cut      Copy   Paste   Samp2     Go       Done
```
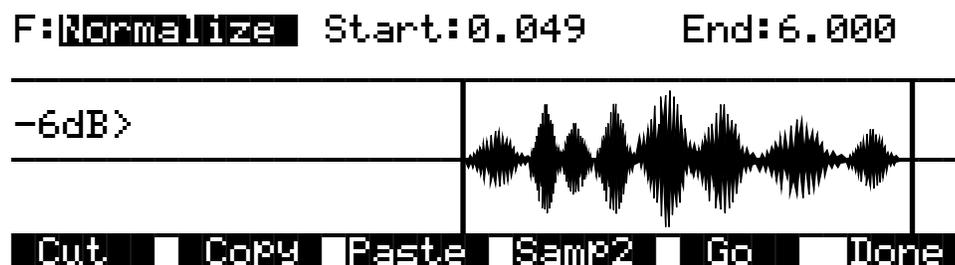
All of the DSP functions operate on a segment of the current sample that you select before executing the function. In most cases, you'll use the Start and End parameters to define the start position and end position of the segment you want to modify. There are a few exceptions to this rule, which will be explained as applicable.

Please keep in mind that the Start and End parameters on the DSP pages are not the same as the sample Start (S) and End (E) parameters that you set on the TRIM and LOOP pages. When you're working on one of the sample DSP functions, Start and End position refer to the range of the sample that you want to process. Adjusting these parameters does not affect the overall start and end of the sample. It affects only the portion of the sample that you want to process. When you audition the sample by triggering a note, you'll hear only the range of the sample within the Start and End parameters on the current DSP page. To hear the entire sample, press the **Done** soft button to return to the Sample Editor page. Similarly, moving the S and E parameters on the TRIM or LOOP pages have no effect on the Start and End parameters on the DSP pages.

Use the **Plus/Minus** buttons or the Alpha Wheel to select the starting and ending positions of the selected sample segment (the Start and End parameters). You can audition the selected sample segment by triggering any note within the current key range.

The actual processing of the sample begins when you press the Go button. The K2000 will display a row of scrolling dots while it's processing. When it's finished, it will prompt you : `Keep these changes?` Trigger a note to hear the result. Press the **No** soft button to return to the page for the currently selected DSP function. This will undo any changes you've made. Press the **Yes** soft button to make the change. The Save dialog appears (except for the Truncate function). You can save to a different ID than the one displayed, if you want to preserve the original sample. Pressing the **Cancel** soft button returns you to the current DSP page without saving the sample. (the sample reverts to its original condition.)

Six of the DSP functions (Mix, Mix Beat, Mix Echo, Insert, Replicate, and Beat Volume Adjust) involve selecting a second sample segment (Sample 2) to be processed with the currently selected sample. In these cases, a **Samp2** soft button is available. When you press it, another page appears, enabling you to select a second RAM sample using the Alpha Wheel or the alphanumeric buttonpad. You can audition Sample 2 by triggering a note.

Once you've selected Sample 2, use the Start and End parameters to define the start and end positions of the segment of Sample 2 that you want to process. While you're on the Samp2 page, you'll hear the currently selected Samp2 when you trigger a note. When these positions are defined, press the **OK** soft button to return to the DSP page where you can continue your editing.

Once you've selected a sample on the Samp2 page, it remains selected until you return to the Samp2 page and select another sample. You can always use the Samp2 page to audition a second sample.

You can use the **Copy** soft button on the Samp2 page to copy the selected segment to a buffer, then paste the segment into Sample 1 when you return to the DSP page.

The Soft Buttons on the DSP Page

Cut

Pressing this button cuts (removes) the currently selected sample segment from the currently selected sample, and stores it in a buffer. This is equivalent to cutting a section out of a piece of audio tape and splicing the remaining ends together. The cut segment is then available for pasting elsewhere in the sample. The segment you cut remains in memory until you replace it with another cut or copy command, or until the K2000 is shut off. If you accidently cut a sample segment, you can restore it by immediately pressing the **Paste** soft button.

Compare this function to the Delete DSP function, which removes the selected sample segment, but doesn't store it in a buffer. If you delete a sample segment, it's *gone.*

Copy

Use this button to store the selected sample segment in a buffer without altering the current sample. The copied segment remains in memory until you replace it with another cut or copy command, or until the K2000 is shut off.

Paste

This button has an effect only after you've cut or copied a sample segment using the **Cut** or **Copy** soft buttons. The **Paste** soft button inserts the contents of the Cut/Copy buffer after the start position of the currently selected sample segment. This is like splicing a section of audio tape into another section; it extends the length of the sample. You can undo a paste by pressing the Cut soft button immediately after pasting.

When you cut or copy a sample, it's stored in a buffer. Whatever is stored in the buffer remains available for repeated paste commands until replaced by another cut or copy command, or until the K2000 is shut off or reset (soft or hard). The buffer is also cleared if you execute a master delete, and select **Delete everything**.

Samp2

The **Samp2** button, as described earlier in the DSP page section, enables you to select a segment of a second RAM sample to be processed with the currently selected sample.

Go

Press the **Go** soft button when you want to execute the currently selected DSP function on the currently selected sample. When processing is completed, the K2000 prompts you to keep the changes. You can audition your changes and decide whether to keep them, then press **Yes** or **No**.

Done

Press the **Done** soft button to return to the previously selected Sample Editor page when you're finished with the DSP functions.

DSP Functions

Once you've entered the Sample Editor, press the **DSP** soft button to gain access to the DSP functions. The DSP function parameter becomes highlighted, allowing you to scroll through the list of functions with the Alpha Wheel or **Plus/Minus** buttons.

Remember that the DSP functions operate only on RAM samples. You'll notice that if you're editing a ROM sample, there is no **DSP** soft button; instead, there's an extra **Link** soft button for your convenience.

1 Normalize

```
F:Normalize  Start:0.000     End:6.000

-6dB>

 Cut    Copy  Paste  SamP2   Go    Done
```
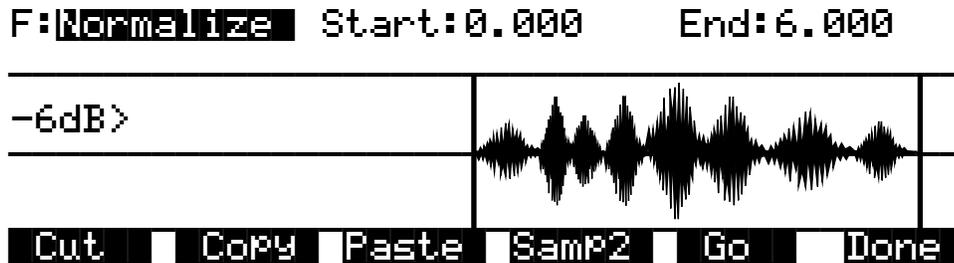
With the Normalize function, you can rescale the amplitude of the selected sample segment to optimize its level relative to other samples. The Normalize function uniformly boosts the amplitude of the current sample range as high as possible without clipping, stopping just before the loudest element of the sample would be clipped. You might want to use the Volume Adjust function to boost the current segment manually, but the Normalize function does it automatically, and prevents you from boosting the amplitude too much.

2 Truncate

```
F:Truncate   Start:0.043     End:3.986
Thresh:-45dB

-6dB>

 Cut    Copy  Paste  SamP2   Go    Done
```
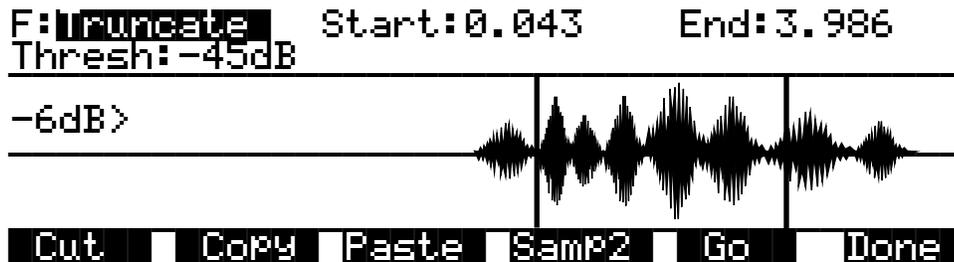
The Truncate function automatically resets the Start (S) and End (E) points of the sample. This can be quicker than trimming the sample manually on the TRIM page.

Use the Start and End parameters to select a specific sample range. Set the Thresh parameter from **-96** to **0dB** to set the noise floor. When you press the **Go** soft button, the K2000 searches inward from the start and end points you set, until it finds the first sample that exceeds the noise floor. Everything outside the range is left out. You'll want to experiment with different thresholds to find the noise floor that suits each sample you truncate. If the new End point is inside the current loop point, the loop is disabled.

When you press the **Go** soft button, you'll be prompted Keep this change? Unlike the other DSP functions, answering **Yes** does not bring up the Save dialog. It registers the new Start and End positions as the Start (S) and End (E) points (as set on the TRIM or LOOP page). In fact, you can go to either of these pages to readjust the S and E points if you want to include more of the sample. To save the new S and E points, press the **Done** soft button (if necessary) to return to the Sample mode page, then press either the **Save** soft button, or **Exit**.

3 Volume Adjust

```
F:VolAdjust   Start:1.019      End:5.126
VolAdj:0dB

-6dB>


  Cut      Copy   Paste   Samp2    Go     Done
```
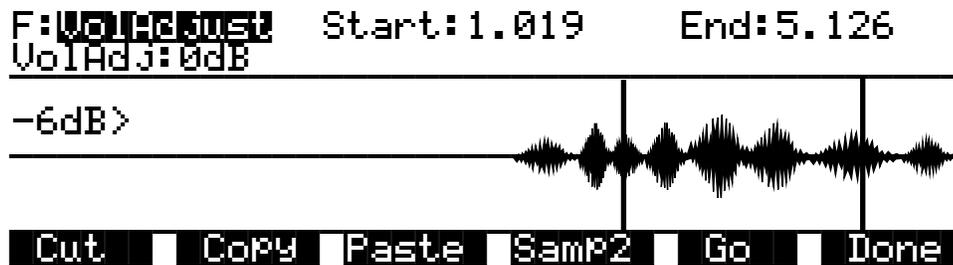
Use this function for a uniform cut or boost in the amplitude of the selected sample segment. This function will clip samples if you adjust the volume too high. This won't hurt the K2000, and you may find it useful in some applications. In any case, you'll need to choose your start and end points carefully, if you want to avoid abrupt changes in volume.

When you've selected the range to be adjusted, select the VolAdjust parameter with the cursor buttons, and use the Alpha Wheel to adjust the volume of the selected range. You can cut/boost the volume from -96 to 96 dB.

4 Clear

```
F:Clear       Start:0.000      End:6.000


-6dB>


  Cut      Copy   Paste   Samp2    Go     Done
```

The result of this function is like erasing a section of recording tape. Use it to create sections of silence without changing the overall length of the sample. If you want to completely remove a segment and shorten the sample, you can do it with the Delete function.

5 Delete

```
F:Delete      Start:2.477      End:5.037
Xfade:0.000         Curve:LIN

-6dB>


  Cut      Copy   Paste   Samp2    Go     Done
```
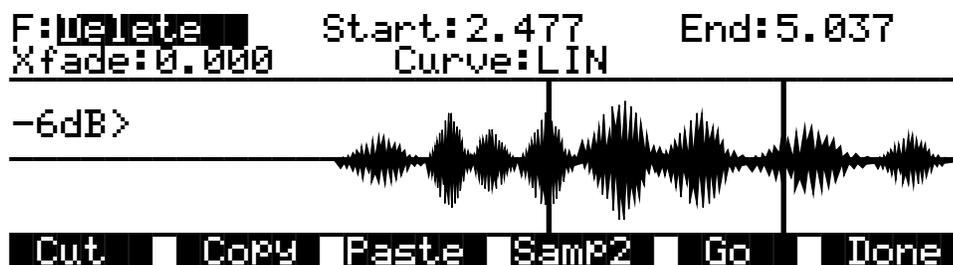
Unlike the Clear function, Delete erases the samples within the selected range and shortens the sample, like cutting a section out of a tape and splicing the ends. If you want to silence a segment of the sample without shortening it, use the Clear function.

The Crossfade (Xfade) parameter enables you to smooth the transition from the deleted sample segment to the remaining sample segments, and can create overdub effects. The value of the Xfade parameter defines the amount of time the sample will take to fade to silence at the beginning of the deleted segment, and to ramp back up to the volume of the remaining portion of the sample.

The Curve parameter lets you choose from a variety of crossfade curves that affect the nature of the crossfade. A value of **LIN** gives a straight linear curve that fades uniformly from start to finish. A value of **EXP** sets an exponential curve that starts gradually and steepens toward the finish. A value of **COS** sets a Cosine curve. A value of **EQL** applies an equal crossfade that is the same at both ends of the deleted segment. A value of **MIX** assigns a curve that starts the crossfade before the start point of the deleted segment, and ends after the end point of the deleted segment. This differs from the other curves, which apply crossfade only to the deleted segment. See *Crossfade and Volume Adjust Curves* on page 2-29 for more information about these curves.

Crossfading a sample shortens it by half the time you specify. The greatest length of crossfade you can get is the entire length of the shorter crossfaded segment (even though you can enter greater amounts with the Alpha Wheel or alphanumeric buttonpad). A crossfade of this length would crossfade the two samples over the entire length of the shorter segment.

6 Reverse
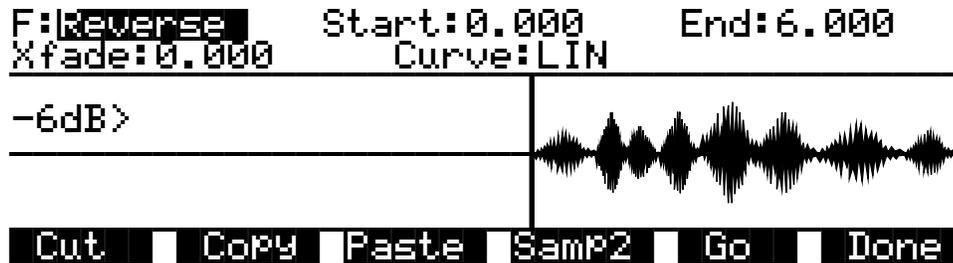
With this function you can reverse the order of the individual samples between the start and end positions you set. The Xfade parameter lets you apply a crossfade to the start and end of the reversed segment. The Curve parameter lets you select a crossfade curve. The available values are **LIN**, **EXP**, **COS**, **EQL**, and **MIX**. See *Crossfade and Volume Adjust Curves* on page 2-29 for more information about these curves.

Like the crossfade parameter in the Delete function, this crossfade also shortens the sample. The maximum crossfade length is half the length of the reversed segment.

7 Invert

```
F:Invert      Start:0.000     End:6.000
```

-6dB>

```
 Cut      Copy   Paste   Samp2    Go      Done
```
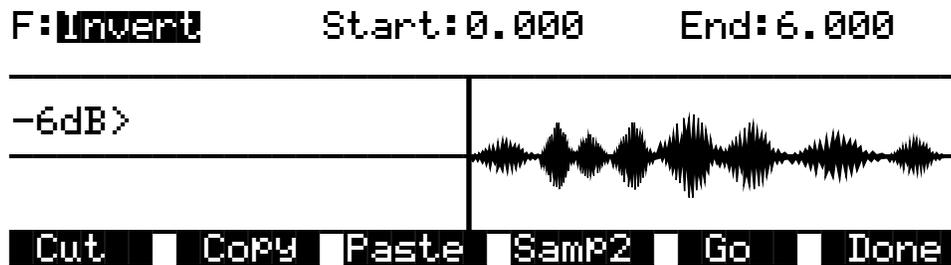
Use this function to invert the waveform of the selected sample range. The results will vary depending on the type of sample. For an interesting phase effect, make a copy of a sample, then invert the copy, then assign it to the keymap of a second layer in a program that uses the original sample in the keymap of the first layer (or set them as the Left and Right samples in a stereo keymap). Add a delay to one of the layers or keymaps to create the phase effect.

8 Insert Zero

```
F:InsertZero  Start:0.000     End:6.000
Length:0.000
```

-6dB>

```
 Cut      Copy   Paste   Samp2    Go      Done
```

This function inserts a period of silence of any length into the selected sample range—equivalent to splicing a section of blank tape into an existing segment of recorded tape. It's useful for creating a delay on the start of a sample, or creating a silent spot in the middle or at the end of the sample. Adjust the Start parameter to determine the point at which the period of silence will begin. Adjust the Length parameter to specify how long the silence will be. The End parameter has no effect for this function.

9 Mix

```
F:Mix         Start:0.000     End:6.000
FadeIn:0.000     Out:0.000     VolAdj:0dB
                                Curve:LIN
```

-6dB>

```
 Cut      Copy   Paste   Samp2    Go      Done
```

With this function you select a segment from Sample 2, and merge it with the selected segment from Sample 1, beginning at the point you set with the Start parameter. This is equivalent to mixing two audio signals through a mixing board. If the Sample 2 segment is longer than the segment from the Start (S) to the End(E) of Sample 1, the resulting sample will be longer than the original Sample 1.

Use the In and Out parameters to specify the length of time it takes Sample 2 to reach full amplitude and to fade to silence. The Curve parameter selects the curve of the fades. The available values are **LIN**, **EXP**, **COS**, **EQL**, and **MIX**. See *Crossfade and Volume Adjust Curves* on page 2-29 for more information about these curves.

The Volume Adjust parameter will cut or boost the amplitude of Sample 2 from -96 to 96 dB before merging.

If the sample rate of Sample 2 is different from that of Sample 1, the K2000 alerts you that the sample rates differ. If you mix samples with different rates, you'll hear a pitch shift in the mixed sample. If you don't want this pitch shift, use the Resample function to match the sample rates of the two samples before mixing.

Mixing Samples, Step-by-step

First, use the Start parameter of Sample 1 to set the point at which the mix will begin. Then press the **Samp2** soft button, and a page appears enabling you to view and audition the list of RAM samples. Select a sample with the Sample parameter, then use the cursor keys to select the Start parameter. Turn the Alpha Wheel to set the beginning of the segment to be mixed in. Repeat this process for the end position of the sample. You can audition the sample as you're setting the range. Once the start and end points are set, press **OK** to return to the DSP page. Then press **Go** to initiate the mix.

10 Insert

```
F:Insert      Start:0.000      End:6.000
Xfade:0.000      Curve:LIN      VolAdj:0dB

-6dB>



   Cut      Copy   Paste   Samp2     Go      Done
```

Use this function to insert the selected segment from Sample 2 into Sample 1. This is like splicing a section of tape into an existing tape. This differs from the Mix function, which merges the two samples into one.

Use the Crossfade parameter to control the crossfades at the start and end of the inserted sample. The Curve parameter selects the curve of the crossfade. The available values are **LIN**, **EXP**, **COS**, **EQL**, and **MIX**. See *Crossfade and Volume Adjust Curves* on page 2-29 for more information about these curves.

The Volume Adjust parameter cuts or boosts the amplitude of Sample 2 from -96 to 96 dB before merging.

If the sample rate of Sample 2 is different from that of Sample 1, the K2000 alerts you that the sample rates differ. If you insert a sample with a different rate, you'll hear a pitch shift in the

inserted sample. If you don't want this pitch shift, use the Resample function to match the sample rates of the two samples before inserting.

11 Volume Ramp

```
F:VolRamp      Start:0.000      End:6.000
Curve:LIN      StartLvl:0dB     EndLvl:0dB

-6dB>

  Cut      Copy   Paste   Samp2    Go      Done
```

This function lets you apply a ramp to the volume of the selected sample range. The Start Level and End Level parameters let you set the amount of cut (negative value) or boost (positive value) at the start and end points of the segment. The Curve parameter determines the shape of the ramp that scales the amplitude of the sample between the start and end amplitudes. The available values are **LIN**, **EXP**, **COS**, **EQL**, and **MIX**. See *Crossfade and Volume Adjust Curves* on page 2-29 for more information about these curves.

The VolRamp function affects only those samples within the start and end points. The sample will clip if you apply large amounts of volume ramp. If you want to ramp the volume of a sample segment up or down, then keep the volume at that level, use the Crescendo function.

12 Crescendo/Decrescendo (Crescendo)

```
F:Crescendo    Start:0.000      End:6.000
Curve:LIN      EndLvl:0dB

-6dB>

  Cut      Copy   Paste   Samp2    Go      Done
```

Similar to Volume Ramp, this function applies a curve that scales the amplitude of the selected sample segment. Unlike Volume Ramp, however, you simply select a start and end point, and a single level. The amount of cut or boost starts at 0dB at the start point of the ramp, and reaches the level you specify when it reaches the end point of the ramp. The samples after the end point are scaled to the amplitude level of the end point.

When you set a negative end level (decrescendo), the sample's volume is cut by the amount you specify. If you set a positive end level (crescendo), the sample segment is first cut by the amount you specify, then is boosted back to its original level. This enables you to add large crescendos without clipping the sample. You may want to adjust the gain of the layer using the sample to match its level with other sounds.

Use the Curve parameter to select the shape of the curve within the selected segment. The available values are **LIN**, **EXP**, **COS**, **EQL**, and **MIX**. See *Crossfade and Volume Adjust Curves* on page 2-29 for more information about these curves.

13 Resample

```
F:Resample    Start:0.000      End:6.000
NewRate:20000Hz    Quick:0

-6dB>
```
```
   Cut      Copy   Paste   Samp2    Go     Done
```

Use this function to change the sample rate of the samples in the selected segment. This is convenient for converting samples to new rates matching those of other samples to be mixed with or inserted into. It's also useful for saving memory and altering the timbre of a sample. To resample so that you'll hear a higher pitch for the same note, select a lower sample rate. For a lower pitch at the same note, choose a higher sample rate.

If you include the entire sample in the segment, the new rate gets applied to the entire sample, and gets saved with the sample. If you select a shorter segment, only that segment is modified, and it will sound pitch shifted relative to the remainder of the sample. This is because the K2000 applies the same playback rate to the entire sample, and doesn't compensate for the differing sample rates of the sample segments.

If the loop points of a looped sample are included in the segment to be converted, the K2000 will ask you if you want to adjust the rate slightly to optimize the loop. Press the **No** soft button if you don't want the rate adjusted.

You can use the Quick parameter to select from two resampling routines. Use **Quick 0** to get an idea of the sound, then use **Quick 1** for your final take.

14 Time Warp

```
F:TimeWarp    Start:0.000      End:6.000
NewLen:0.000                    Quick:0

-6dB>
```
```
   Cut      Copy   Paste   Samp2    Go     Done
```

With this function you can change the length of the selected sample segment without affecting the pitch. This function applies sophisticated routines that lengthen or shorten the selected sample segment to play it back over a different time period, modifying the playback rate so the pitch remains unchanged.

The Start and End parameters define the segment to be processed. Use the New Length (NewLen) parameter to specify how long you want the resulting sample to be. While the function is in progress, the display indicates the percentage of individual sample segments that have been processed.

The Quick parameter lets you select one of three warping routines. Use **Quick 0** to audition your new sample. then use **Quick 1** or **2** for your final take. **Quick 2** takes more time to process, but gives you a better final result.

This function is extremely useful for fine adjustments in the length of a sample. You can also apply greater amounts of warp for a wide range of effects. Experimentation will give you an idea of the amount of alteration you want to apply.

15 Pitch Shift

The PitchShift function is the counterpart of the TimeWarp function; it shifts the pitch of the selected sample segment without changing the playback time—very useful for tuning samples when the playback time is crucial. Use the Start and End parameters to define the segment to be shifted. The Shift parameter determines the amount of pitch shifting, up to ± 30000 cents.

Like the crossfade parameter in the Delete function, this crossfade will also shorten the sample. The maximum crossfade length is half the length of the reversed segment.

The Quick parameter lets you select one of three shift routines. Use **Quick 0** to audition your sample, then use **Quick 1** or **2** for the final take. **Quick 2** takes longer to process, but gives you better results.

16 Mix Beat
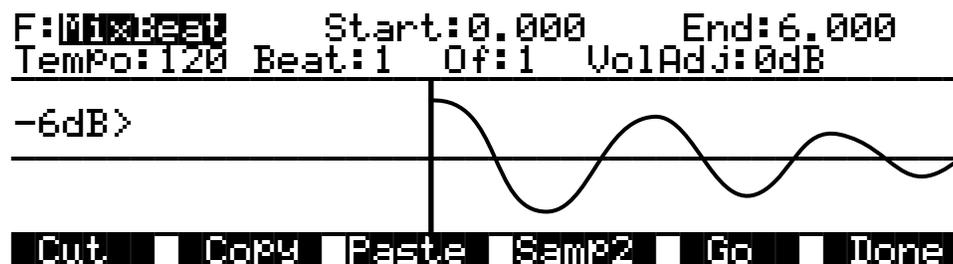
With this function you can mix the selected range of Sample 2 into Sample 1 at regular intervals. The most natural application of this function is to add percussion samples, but it can be used to mix any sample at regular programmable intervals (beats).

The Tempo parameter sets the interval between repetitions in beats per minute. The Of parameter establishes the number of beats per measure, and the Beat parameter sets which beat gets mixed. For example, if you set the Tempo parameter to **120**, you'll have two beats per second. If you set the Beat parameter to **1**, and the Of parameter to **1**, Sample 2 will be mixed in twice per second, for the duration of the selected range of Sample 1. The first mix of Sample 2 occurs at the Start (S) point of Sample 1. If you change the Of parameter to **4**, Sample 2 will be mixed into Sample 1 on the downbeat of every measure of 4.

The length of the ranges you set for Sample 1 and Sample 2 affects the results of the mix. In the above example, if Sample 1 is two seconds in length, and the mix of Sample 2 is on Beat 1 of 1, you'll mix four segments of Sample 2, at half-second intervals. On beat 1 of 4, you'd hear just one mix of Sample 2, right at the top.

To set up a MixBeat, first select the desired segment of Sample 1 using the Start and End parameters. Then press the **Samp2** soft button to select the sample to be mixed in, and the selected range of that sample. You can use the Incr parameter to shift the starting position of Sample 2. If you set a positive number, the mix range of Sample 2 will start later each time it's mixed. A negative value will mix sample ranges that start progressively earlier.

To optimize processing time, keep the range of Sample 2 shorter than the interval between mixed-in segments. In the example above, if the mix were on beat 1 of 1, you'd want to keep Sample 2 at a range of a half second or less. If it were on beat 1 of 4, the range of Sample 2 could be as much as two seconds.

Next, press the **OK** soft button to return to the Mix Beat page, then use the Tempo parameter to select the rate at which Sample 2 will be mixed in. You can choose a tempo from **1** to **9999** beats per minute. Try setting the tempo at **9000** or more, and mix a very small range of Sample 2 into Sample 1 to create a wide variety of periodic waveforms.

Now set the values of the Beat and Of parameters to determine how the mixed sample will repeat. The Beat parameter determines the beat (s) on which Sample 2 will be mixed—from **1** to **9999**. The Of parameter determines the measure length—also from **1** to **9999**.

Finally, use the VolAdjust parameter to set the volume of the mixed sample segment—from **-96** to **96 dB**.

If the Of parameter is set to a value of **0**, the Sample 2 segment will be mixed in on every beat, regardless of the setting for the Beat parameter. If the Beat parameter is set to a negative value, the segment of Sample 2 that's mixed in will be moved forward in time by the length of one beat each time it's mixed in; that is, you'll hear a later portion of the sample. Another way to accomplish this is to use the Increment (Incr) parameter on the Samp2 page. Set it to a positive value to use a later portion of Sample 2 with each repetition, or a negative value to use an earlier portion. The Beat parameter must be set to a value of **0** or higher for this to work.

For example, suppose you've chosen a six-second sample as Sample 1, and you use the entire sample as the selected segment. You also select a half-second segment of Sample 2 to be mixed in. If you choose a Tempo value of 120 beats per minute (2 beats per second), there will be 12 beats within your six-second Sample 1 segment. If you set the Beat parameter to **1** and the Of parameter to **4**, then Sample 2 will play on the first, fifth, and ninth beat of your six-second Sample 1 segment. The result will look something like the diagram below.

```
F:MixBeat      Start:0.000    End:6.000
Tempo:120 Beat:1   Of:1   VolAdj:0dB

-6dB>


   Cut      Copy   Paste   Samp2    Go     Done
```

If you change Beat to **3**, Sample 2 will play on beats 3, 7, and 11. If you set Beat to **1** and Of to **6**, Sample 2 will play on beats 1 and 7. If you set Beat to **-1**, Sample 2 will still play on beats 1 and 7, but the sound of the sample will change each time, as the start point of the Sample 2 segment moves forward (later) by one beat each time it is mixed in.

17 Replicate

```
F:Replicate    Start:0.000    End:6.000
Tempo:120 Beat:1   Of:1   Xfade:0.000

-6dB>


   Cut      Copy   Paste   Samp2    Go     Done
```

The Replicate function is similar to the Mix Beat function—with two differences. The primary difference is that the Replicate function uses the selected Sample 2 segment to overwrite (replace) the selected Sample 1 segment, instead of merging the two segments like the Mix Beat function. This makes it run faster. The other difference is that there is a crossfade parameter instead of a Volume Adjust parameter. The crossfade parameter lets you smooth the transition points from Sample 1 to Sample 2.

18 Mix Echo

```
F:MixEcho      Start:0.000    End:2.048
Tempo:120 Start:0   #:4   VolAdj:0dB

-6dB>


   Cut      Copy   Paste   Samp2    Go     Done
```

This function operates much like Mix Beat, but instead of the Beat and Of parameters, you have Start and # (number) parameters. The Start parameter sets the beat at which the selected Sample

2 segment begins being mixed with the selected Sample 1 segment. Sample 2 is repeated on every beat after this starting point. The # parameter determines how many times the Sample 2 segment is repeated.

The Volume Adjust parameter affects the volume of each repetition of Sample 2. It sets the relative level of the last beat, and boosts or cuts each repetition by a proportionate amount from the starting level. This is a linear adjustment, measured in decibels, evenly spaced over the total number of mixed-in beats.

If you set the # parameter to a positive value, the adjustment in volume begins on the second mixed-in beat (the first beat plays at the initial level). If you set a negative value, the first mix of Sample 2 gets cut or boosted by the Vol adjust amount.

19 Beat Volume Adjust

```
F:BeatVolAdj Start:0.000    End:2.048
Tempo:120 Beat:1  Of:1  VolAdj:0dB

-6dB>

   Cut    Copy  Paste  Samp2   Go    Done
```

This function works much like Mix Beat. The difference is that you're not mixing in any samples, you're just volume adjusting Sample 1 at regular intervals. Each beat is adjusted in volume by the amount specified for the VolAdj parameter. This is useful for mixing part of a sample within itself.

Set the Start and End positions of Sample 2 to define the length of time over which the volume will be adjusted. For example, if you had a six-second sample, and you set the Tempo to 120, the Beat parameter to 1, and the Of parameter to 1, you'd have twelve beats defined. If you then set the range of Sample 2 at a half-second, and set the VolAdj parameter to -3 dB, then you'll insert 12 volume adjustments into Sample 1, each lasting a half second, and bringing the level down 3 dB.

20 Crossfade Loop (XfadeLoop)

```
F:XfadeLoop   L:0.000       E:2.048
Xfade:0.000        Curve:EQL

-6dB>

                              Go   Done
```
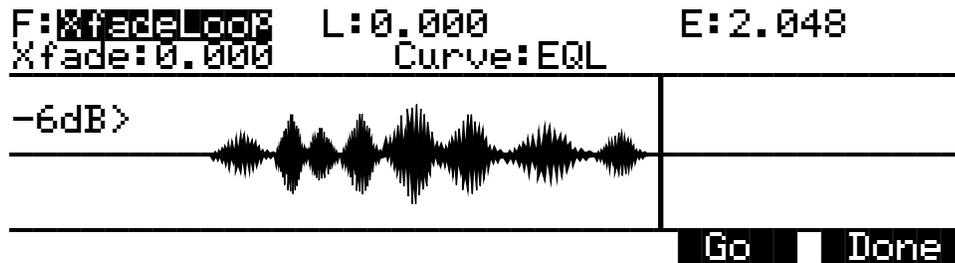
The Crossfade Loop function lets you create smoother loops by crossfading the beginning segment of the loop with a segment of equal length at the end of the loop. These segments can be defined by the Loop and End parameters as set on the TRIM or LOOP page for the current

sample, or with the Loop and End points on the XfadeLoop page. Changing the Loop and End parameters on the XfadeLoop page also changes them on the TRIM and LOOP pages, and vice versa. Using this function is equivalent to setting the loop on the LOOP page, but with the added feature of a crossfade at the loop transition point.

The Xfade parameter determines the length of the crossfade, while the Curve parameter sets the shape of the crossfade curve. The available values are **LIN**, **EXP**, **COS**, **EQL**, and **MIX**. These curves are described below.

Crossfade and Volume Adjust Curves

There are five curves that can be applied to a number of DSP functions: **LIN**, **EXP**, **COS**, **EQL**, and **MIX**. The **LIN** curve is a straight linear curve, which creates an even cut or boost. The **EXP** curve is exponential, that is, gradual at one end and steep at the other. The **COS** curve is a segment of a cosine curve, which is relatively flat at both ends and steeper in the middle. The **EQL** curve steepens at an even rate, approximating an equal power fade curve. The **MIX** curve is a gradual curve that approximates manually dropping or raising the faders on a mix board. The diagram below shows each of the curves as it would be applied to a cut in amplitude.
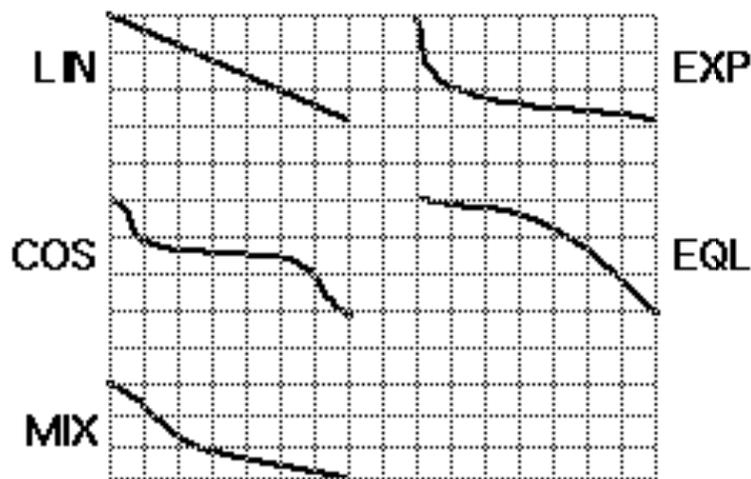
Reading Samples

Note: The descriptions below refer to features that were added to the Version 2 K2000 System Software. Refer to Chapter 4 of this manual for information about new features in Version 3.

The K2000 will load numerous samples from Akai, Roland, and Ensoniq EPS and EPS-16 Plus SCSI drives and floppies (including ASR-10 "Ensoniq" format), using Version 2's enhanced Disk mode operations. The displays you see will vary depending on the samples you're loading, but several features are the same. We'll describe the similarities first, then elaborate on the differences.

First, enter Disk mode by pressing the **Disk** mode button. Select the disk to be loaded from, as described in Chapter 13 of the *Musician's Guide*. (You'll notice that the Disk-mode page looks somewhat different from the diagram in the *Musician's Guide*; the soft buttons are arranged to accommodate the architecture of each machine.) The K2000 automatically recognizes the type of disk when you select it.

Press the **Load** soft button, and you'll see a page prompting you to select something to load (we'll call them objects, since different manufacturers give then different names). The top line of the display will tell you the number of objects available of the currently selected type, as well as the index number of the currently selected object. You can select any object in the list by typing its index number on the alphanumeric buttonpad and pressing **Enter**. The next step is to use the soft buttons to select the type of object to be loaded.

Once you've selected the type of object to load, press the **OK** soft button, and the bank dialog appears, enabling you to select the bank into which the object(s) will be loaded. When you've selected a bank, press the **OK** soft button, and the loading process begins. At the center of the display you'll see the object currently being loaded. The top line of the display gradually fills with asterisks to indicate the status of the current object. The bottom line tells you the total number of kilobytes to be loaded.

The K2000 creates layers as necessary when you load objects. These layers have the same settings as Layer 1 of Program **199**.

When the load is complete, the Disk-mode page reappears. You can now proceed with another load, or go to any other mode. If you exit Disk mode, the K2000 remembers the file that you selected most recently. When you return to Disk mode, this file will be selected.

Once you've loaded a sample or program file, you can save it as a Kurzweil object. You'll find it it can be loaded and backed up much faster as a Kurzweil object than in its original format.

Akai

The first page to appear is the page for loading files. The soft buttons name the operations: **HDrive**, **Volume**, and **File** on the left, and **OK** and **Cancel** on the right.

The hierarchy of objects is shown by the three soft buttons on the left. The display prompts you: `File to load:` The **HDrive** button selects the partition on the currently selected disk. The **Volume** button selects volumes within the currently selected partition. The file button selects an individual sample file from within a volume. The **OK** button, toward the right, executes the displayed function: partition selection, or loading a volume or file. The **Cancel** button returns you to the Disk-mode page.

When you press the **HDrive** button, the center of the display's top line shows the currently selected volume in the currently selected partition. The prompt at the center of the display will read: `HD Partition`. The list of available partitions will appear following the prompt. They're usually named A through F. Use the cursor buttons or numeric entry to highlight a different partition. Pressing the **OK** soft button selects the highlighted partition.

Pressing the **Volume** button changes the prompt to `Volume to load:` The list of available volumes in the current partition appears. The center of the top line shows the current partition. The **Layer** buttons scroll through the list of available partitions. Use the cursor buttons or numeric entry to select a different volume. Pressing the **OK** button loads the entire highlighted volume, unless the volume is larger than your available sample RAM, in which case, the K2000 will load as many files as will fit.

The Bank dialog will appear, enabling you to select the bank that will receive the volume. Press **OK** again, and you'll be prompted to press either the **Progs** soft button, which will load program information in addition to the samples, or the **Samps** soft button, which will load only the sample information. Programs are identified by the suffix **.p**, and are stored in program RAM. Samples have the suffix **.s**, and are stored in sample RAM. You can press **Cancel** to return to the Disk-mode page without loading the volume.

If you load sample objects, you'll see the following prompt: `Create Preview Program/keymap?` If you answer **Yes**, the K2000 loads the samples into a program that it creates based on Layer 1 of Program **199**.

Loading program objects will load multi-layer samples and keymaps, and sometimes velocity switches. The K2000 creates layers as necessary when you load program objects. These layers have the same settings as Layer 1 of Program **199**. In some cases, the K2000 also creates stereo keymaps to preserve the separation of stereo samples.

If you press the **File** button, the prompt changes to `File to load:` You can view the list of files with the cursor buttons, or use numeric entry. The top line of the display shows the currently selected volume. Select different volumes with the **Layer** buttons. The size of the currently selected file, in kilobytes, is shown just above the soft buttons on the left. Press the **OK** button to load the highlighted file.

Press **OK**, and the Bank dialog appears. Press **OK** again, and the file gets loaded into the highlighted bank.

Roland

For Roland disks, the hierarchy is a bit different; the objects that can be loaded are called Volumes, Performances, Patches, and Samples. The page that was selected last time a SCSI load was executed will appear when you initiate the load operation. Following the prompt is the list of available objects, with the size of the object in kilobytes displayed as well. The top line of the display shows the number of available objects of the selected type.

Use the soft buttons to highlight the object to be loaded. The **Layer** buttons take you through the current object list in increments of 100. Press **OK** to execute the load. The Bank dialog appears. Press **OK** again, and the object gets loaded. The display updates you on the progress of the load.

EPS

For EPS disks, the hierarchy consists of files and directories. Directories can be nested several layers deep. When you press the **Load** soft button, you'll be prompted to select a file or directory to load from the list of available files and directories. The currently highlighted object will be either a file or a directory. If it's a file, its name and size will be shown following the prompt. If it's a directory, its name appears, followed by `<dir>` to indicate its type. The **Layer** buttons take you to the first and last files of the currently selected directory. Note that if you're loading from floppy disks, you won't see any of the displays or soft buttons relating to directories, since the directory architecture is not supported for floppies.

When a file is highlighted and you press **OK**, the Bank dialog appears; press **OK** again to load the file. When a directory is highlighted and you press **OK**, you enter that directory, and the list of files and subdirectories in that directory appears, each file followed by its size, and each subdirectory, if any, followed by `<dir>`. The top item in every list you select is always the parent directory of the files below it. Select the top item in a list to go up one directory level.

Pressing the **Exit** soft button takes you one level back up the hierarchy. Pressing it repeatedly takes you to the root directory—the directory at the top of the hierarchy. The quickest way to the root directory is to press the **Root** soft button. The top line of the display shows you the name of the currently selected directory (or subdirectory).

Pressing the **All** soft button loads all files in the current directory (but not any subdirectories). The Bank dialog appears, and when you press **OK**, you'll be prompted to press the Progs button to load program information in addition to the samples, or the **Samps** button to load only the samples.

Chapter 3
Song Mode and Sequencing

Getting Started with the Sequencer

The K2000's sequencer is a powerful and versatile tool for songwriters, composers, and anyone else who needs to record and play back songs. As with any tool, however, it's best to start with the basics. This section begins with a tutorial where you will record a song, then shows some of the mixing capabilities of the sequencer. If you are familiar with other sequencers, you will have no problem using Song mode in the K2000. Read through this section, however, to learn about the features that make the K2000's sequencer unique.

What is a Sequencer?

A sequencer is similar in some ways to a multi-track tape recorder: you can record and play back all sorts of music and sounds, layer sounds on top of other sounds, and change or manipulate things that you've previously recorded. Unlike a tape recorder, however, you do not actually record sounds with a sequencer. Rather, you are recording commands that cause sounds to be played. Nonetheless, we will sometimes explain sequencer features by drawing analogies to familiar tape recording techniques such as splicing and overdubbing.

There are several advantages to recording a song by sequencing. For one thing, sequencer commands take up much less disk space than digitally recorded music would, so you can get a lot of musical data on a single floppy disk. Furthermore, you can easily make changes to your sequences. For example, you can change individual notes, transpose parts, or change instrumentation. Lastly, you can share the sequences you create with other musicians.

The Local Keyboard Channel

Before you being sequencing, we'd like to remind you about the Local Keyboard Channel parameter on the MIDI Receive page (described in Chapter 10 of the *Musician's Guide*). Local Keyboard Channel is especially important for sequencing with the rack mountable K2000R, since it enables you to record on different tracks without constantly switching transmit channels on your controller. Therefore, you should do the following before you begin sequencing with the K2000R (or any K2000 model, when using an external controller):

- Set the Local Keyboard Channel on the MIDI Receive page to a specific channel (1–16).
- Set your controller (e.g., keyboard) to transmit on the same channel.

Performing the above two steps means that you'll be able to hear the individual channels (each of which is assigned by default to a separate record track) as you scroll through the different record tracks in the K2000's Song mode. Local Keyboard Channel performs a "rechannelizing" function that makes this happen.

Patch Through

There's one more use for Local Keyboard Channel. With any model of the K2000, the Local Keyboard Channel parameter lets you "patch through" (also known as "soft through") to external sound modules. When Local Keyboard Channel is enabled, the K2000 takes the

rechannelized information and sends it out the MIDI port. This lets you hear an external module while you are recording a track assigned to that module.

Tutorial: Recording a Song

In this tutorial, we'll record a song by using the steps described below. Bear in mind, though, that this is just one approach to sequencing a song. This example includes:

- Assigning programs to channels
- Recording a drum loop
- "Unlooping" the drum track and adding the remaining instruments
- Mixing the song

Assign Programs to Channels

Start by deciding what instruments you want to use in the song. Suppose you want to record a bass / drums / organ rhythm track with a lead instrument on top. You've decided to use:

- Castle Drums (Program **34**)
- Hammer Bass (Program **86**)
- Ballad Organ (Program **122**)
- Quillsichord (Program. **142**)

Set up your K2000 so that each of these instruments is on a separate MIDI channel. Since Song mode automatically assigns each channel to a separate sequencer track (1-16, consecutively), you'll then be all set when you start laying down tracks, and won't have to go scrolling through the program list. Don't worry about changing your mind later, though, since you can always make changes after you've recorded your initial tracks.

It will be most logical to assign Castle Drums to the drum channel, Channel 1. If you want to put the drums on a different channel, though, you'll have to change the drum channel on the Master page (described in Chapter 11 of the *Musician's Guide*). For the sake of simplicity, however, we'll put the drums on channel 1 and assign Hammer Bass, Ballad Organ, and Quillsichord to channels 2, 3, and 4.

1. Press the **Song** mode button to enter Song mode. The display should resemble this:

```
SongMode:MAIN  Events:186K    STOPPED
CurSong:1 NewSong             Tempo:120
RecTrk :1      Vol:127 Pan:64 Mode :Merge
Program:1 3rd World Order     Locat:   1:1

Track  :R - - - - - - - - - - - - - - - -
Channel:1 2 3 4 5 6 7 8 9 10111213141516
Record  Play   Stop  Erase  MISC  MIXER
```

Current recording track is indicated in two places.

Notice that the sequencer is ready for you to record a new song, and the record track (RecTrk) is set to track 1. If **1 NewSong** doesn't appear in the CurSong field, press the **MISC** soft button, then press the **New** soft button on the MISC page. You'll return to the MAIN page, and CurSong will say **1 NewSong**.

2. Use the down arrow button to move the cursor to the Program field.

When this field is highlighted, type **34** then press **Enter**. You've now assigned **Castle Drums** to Channel 1.

```
SongMode:MAIN   Events:186K    STOPPED
CurSong:1 NewSong              Tempo:120
RecTrk :1      Vol:127 Pan:64  Mode :Merge
Program:34 Castle Drums        Locat:   1:1

Track  :R - - - - - - - - - - - - - - - -
Channel:1 2 3 4 5 6 7 8 9 10111213141516
Record  Play   Stop  Erase  MISC  MIXER
```

*Note: If **34 Castle Drums** appears in parentheses, it means that the current channel is not the drum channel. You can either go to the Master page to change the drum channel, or assign the drums to the current drum channel in Song mode.*

3. Now use the up arrow button to highlight the RecTrk field.

Change RecTrk to **2**. You can use either the Alpha Wheel or the alphanumeric buttonpad.

4. Return to the Program field, and set it to **86 Hammer Bass**.

```
SongMode:MAIN   Events:186K    STOPPED
CurSong:1 NewSong              Tempo:120
RecTrk :2      Vol:127 Pan:64  Mode :Merge
Program:86 Hammer Bass         Locat:   1:1

Track  :- R - - - - - - - - - - - - - - -
Channel:1 2 3 4 5 6 7 8 9 10111213141516
Record  Play   Stop  Erase  MISC  MIXER
```

Notice that the R on the Track line, which stands for Record, has moved to Track 2. Also notice how each of the sixteen tracks has a default channel associated with it. You could change this if you wanted to, but most people find it easiest to associate Track 1 with Channel 1, Track 2 with Channel 2, etc.

5. Repeat the above two steps to assign **122 Ballad Organ** to Channel 3 and **142 Quillsichord** to Channel 4.

You've now chosen the programs for your first sequence. It's important to realize, though, that you have not recorded them yet. They will be there when you need them, but they have not yet been included in a song. Also, don't forget that you can change the program assignments any time before or after you record the song.

Record a Drum Loop

Our song will be based around a four measure drum loop that we'll record now. Then, a little later on, we'll "unloop" the drum track and really start jamming.

The length of the drum loop is determined by the current *endpoint*, so we'll start by recording four measures of silence to set the endpoint.

1. Set RecTrk to **1** then press the **Record** soft button. The Song Status indicator (top right hand corner of the display) flashes REC READY.

The Locat paraqmeter shows the current measure and beat

Song status indicator

```
SongMode:MAIN  Events:186K     REC READY
CurSong:1 NewSong              Tempo:120
RecTrk :1      Vol:127 Pan:64  Mode :Merge
Program:84 Castle Drums        Locat:   1:1

Track  :R - - - - - - - - - - - - - - - -
Channel:1 2 3 4 5 6 7 8 9 101112131415 16
Record  Play   Stop  Erase  MISC  MIXER
```
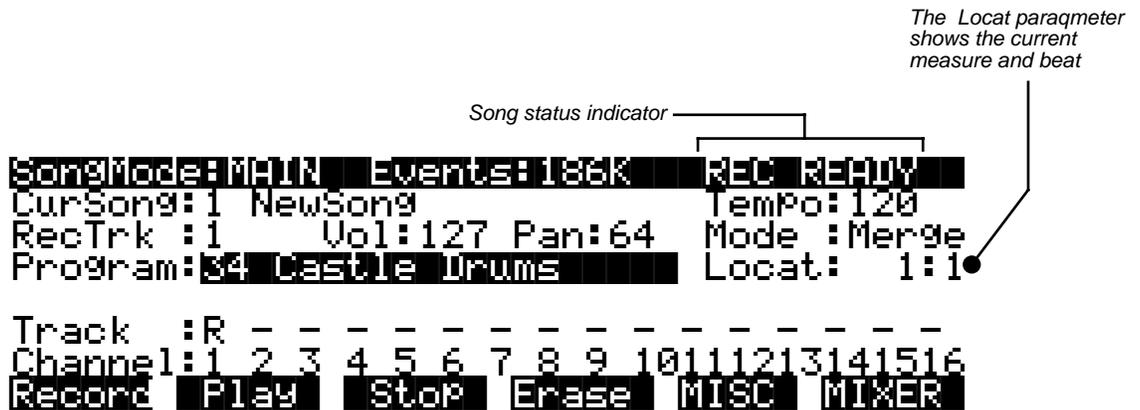
2. Press the **Play** soft button. The Song Status indicator now reads RECORDING.

   The K2000's built-in metronome begins clicking, and the Song mode LED flashes in time with the current tempo.

   Notice the Locat parameter on the right side of the display, which shows the current measure and beat number. When you begin recording, the K2000 provide you with a four beat count-off. The Locat parameter shows a negative value during the countoff.

   Since we are recording four measures of silence, press the **Stop** soft button as soon as Locat reads **4:4**.

   *Note: The sequencer truncates to the nearest downbeat, so as long as you press **Stop** before Locat reads **5:2** (but after it reads **4:4**) you'll be OK. Don't worry about this too much, though, since in the next step we'll show you how to check (and change, if necessary) the endpoint.*

   When you press **Stop**, you'll be asked to confirm and name this song. Even though we've just recorded four measures of silence, when you save it and give it a name it's officially a song.

   For the purposes of this example, we'll assume that you pressed **Stop** a few beats too late. You'll see how easy it is to correct this sort of thing in the Event Editor.

3. On the MAIN page in Song mode, make sure that the cursor is highlighting any field other than the Program field, then press the **Edit** button. (If the Program field is

highlighted when you press **Edit**, you'll enter the Program Editor, which is not what you want to do right now.) You should be looking at the COMMON page:

```
EditSong:COMMON                    <>Track:1
TemPo      :120         StartStep    :1
TimeSig    :4/ 4        TempoControl:Song
EffectChan:1            TriggerChan :1
ChainTo    :0 None      TriggerCtl   :ON
TrackDest :---- ---- ---- ----
DrumTrack :---- ---- ---- ----
<more   EVENT   TRACK   STEP   ARRANG  more>
```

4. Now press the **EVENT** soft button to bring up the Event Editor, which looks something like this:

```
EditSong:EVENT   (Ch 1)            <>Track:1



    1:1      1:1.000 CTRL BANK    0
    1:1      1:1.000 PCHG    34
    1:1      1:1.000 CTRL VOL   127
    1:1      1:1.000 CTRL PAN    64
   Cut     Copy  Paste   View  AllOn  Done
```

As you can probably decipher, the Event Editor gives you access to an editable list of all note, controller, and other MIDI events that Song mode uses to describe your sequence. While you're looking at the Event Editor, notice the data that the sequencer keeps track of, even when no notes are played.

5. Use the Alpha wheel to scroll to the bottom of the event display.

The last event listed is your endpoint, which should be the first beat of the measure following the last measure you want to record. For our four measures of silence, then, the endpoint should be 5:1. The display below, however, shows that five measures have been recorded:

```
EditSong:EVENT   (Ch 1)            <>Track:1
    1:1      1:1.000 CTRL VOL   127
    1:1      1:1.000 CTRL PAN    64
    6:1      6:1.000 END



   Cut     Copy  Paste   View  AllOn  Done
```

Fortunately, it's quite easy to change the endpoint from 6:1 to 5:1 to remove the extra measure that's been accidentally recorded. (If your endpoint is at 5:1, you won't need to change it now. If, however, your endpoint is less than or greater than 5:1, you should proceed with the next step.)

6. Check the endpoint, and change it if necessary.

To change the endpoint from 6:1 (or any other incorrect value) to 5:1, press the right arrow button to position the cursor in the Bar:Beat:Tick column (6:1.000 in the above example). Type **51000** then press the **Enter** button. The endpoint is changed, and the song is now four measures long.

7. Press **Exit** to return to the SongMode:MAIN page. If you've made changes in the Event Editor, confirm them now.

8. On the SongMode:MAIN page, make sure that record mode and play mode are set to **Loop**, as shown in the following diagram.

Quantization parameters

RecMode and PlayMode parameters

```
SongMode:MISC  Events:186K   STOPPED
RecMode :Loop  Quant:Off     CountOff:1
PlayMode:Loop  Grid :1/8     Click   :Rec
KeyWait :Off   Swing:0%      ClickCh :16
Locate  :  1:1 Sync :Both    ClickPrg:198
AutoIn  :  1:1 Clock:Int     ClickKey:C 4
AutoOut :  1:1 Tempo:Auto    ClickVel:90
Record   Play   Stop   New   In/Out MAIN
```
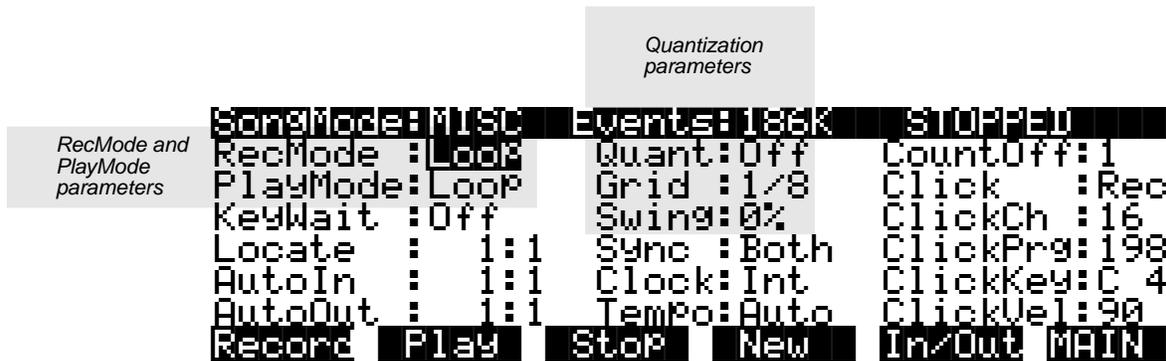
9. Turn on Input Quantization.

While you're on the MISC page, take a look at the quantize parameters (Quant, Grid, and Swing) in the middle column of the page. Quantization is a very useful feature, especially for the rhythmically challenged. When you quantize a track, the sequencer moves the elements of that track closer to a grid based on the time signature of the tune. You can use quantization to subtly tighten up a rhythm track or to create a precise, unwavering mechanical rhythm.

For our drum loop, we'll try the total quantize experience, so position the cursor over the Quant parameter, then turn the alpha wheel until the value is **100**%. Move the cursor down to the Grid parameter. The default value **1/8** indicates that quantization will move the notes you play to the closest eighth note. Try double-pressing the **Increment/Decrement** buttons below the Alpha Wheel to move through a range of useful grid values. Note that some of the values have **tr** or **t** appended to them. These are grid settings that allow you to maintain a triplet feel. We'll use a setting of **1/16**, however, so set this value, then press **Exit** to return to the SongMode:MAIN page.

Note: The K2000's sequencer also provides a full range of advanced quantization features that you can apply to previously recorded tracks. To learn about these, check out the Quantize and Reference Quantize functions on the EditSong:TRACK page.

10. Make sure you are in Merge Mode.

On the SongMode:MAIN page, check the Mode parameter, and make sure it is set to **Merge** rather than **Erase**. Being in Merge Mode means that while you are recording this track you will be able to overdub more sounds with each successive loop.

11. Begin recording drums.

Press the **Record** soft button, observe the REC READY indicator on the top line, then press the **Play** soft button when you're ready to begin. Remember to wait for the four beat count off before you start to play.

Since you are in Merge Mode, you don't need to do everything at once. A common approach to making drum loops is to record a different instrument each time the loop comes around. For example, on the first loop you could record snare hits on the back beats (1:2, 1:4, 2:2, 2:4, etc.). Then you could add kick drum to the snare when the loop comes around again; you'll be able to hear the previously recorded part, as well as the new part. On the third pass you might record ride cymbal, followed by hi-hat or other percussive accents. Keep it simple at first, because you can always save the part while it's basic (but correct), then make additions later. To keep track of where you are, watch the flashing Song mode LED or the Locat parameter on the SongMode:MAIN page.

12. Press the **Stop** soft button when you've finished recording the drums.

   Confirm that you want to keep the changes to your song by pressing the **Yes** soft button followed by the **Replace** soft button.

Record a Bass Line

When you're satisfied with your drum loop, you can begin using it as the foundation for a song. What we'll do here is set Record Mode to "unloop" while leaving PlayMode set to **Loop**. This means that the drum loop will keep playing while we record new material of any length. The endpoint of the song will change to reflect the length of the newly recorded material.

1. Press the **MISC** soft button to bring up the SongMode:MISC page.

2. Set the RecMode parameter to **Unloop**. Leave the PlayMode parameter set to **Loop**.

   Depending on the type of song you are recording, you may also want to turn quantization off before you record your bass part.

```
SongMode:MISC  Events:186K     STOPPED
RecMode :UnLoop Quant:100%   CountOff:1
PlayMode:Loop   Grid :1/16   Click    :Rec
KeyWait :Off    Swing:0%     ClickCh :16
Locate  :  1:1  Sync :Both   ClickPrg:198
AutoIn  :  1:1  Clock:Int    ClickKey:C 4
AutoOut :  1:1  Tempo:Auto   ClickVel:90
Record  Play    Stop    New      In/Out MAIN
```

3. Press the **MAIN** soft button to return to the SongMode:MAIN page.

4. Set the record track (RecTrk) to track 2.

This line shows whether tracks contain recorded data. In tihs case, only Track 1 (a playback track) contains data. If Track 1 were the recording track, then instead of the box, you'd see a + if Mode were **Merge**, *or an x if Mode were* **Erase**.

```
SongMode:MAIN  Events:186K    STOPPED
CurSong:200*NewSong           Tempo:120
RecTrk :2     Vol:127 Pan:64  Mode :Merge
Program:86 Hammer Bass        Locat:   1:1
              □
Track  :P R - - - - - - - - - - - - - -
Channel:1 2 3 4 5 6 7 8 9 1011121314 1516
Record   Play    Stop   Erase   MISC  MIXER
```

This line contains the track status indicators. In this case, Track 1 is a playback track, Track 2 is the recording track, and Tracks 3–16 are empty.

Since you previously assigned **Hammer Bass** to Channel 2, it should appear in the Program field when you set Track 2 as the record track. Note, too, that the track status indicator for Track 1 changes to **P** (for Play) when you select Track 2 for recording. The small square above the track status indicator tells us that material is contained on that track.

5. Press the **Record** soft button to enter REC READY mode.

6. Press the **Play** soft button, then begin laying down a bass track.

    Remember that by default there is a four-beat count off, during which time the Locat value is negative. No material is recorded during the count off, though anything you play during the countoff will be quantized to the first note of the song. As you are recording the bass track, your drum loop will keep playing. Play for as long as you want; the sequencer will lengthen the song as needed.

7. Press the **Stop** soft button when you are done recording the bass.

    You will be given the usual save options. To keep what you've just recorded, press the **Yes** soft button followed by the **Replace** soft button.

    Since you unlooped the drum track when you recorded the bass, you've changed the endpoint of the song to be wherever you stopped the bass track. You can check the endpoint (and change it, too, if you want) using the Event Editor, as described earlier.

Record the Remaining Instruments in Your Song

Now that you've defined your song with the bass and drum tracks, you can put the organ and quillsichord (or whatever instruments you've chosen) into your song.

1. Set the record track (RecTrk) on the SongMode:MAIN page to Track 3.

Notice the small squares above the track status indicators for Tracks 1 and 2, reminding you that you've now got material on two tracks.

```
SongMode:MAIN  Events:186K     STOPPED
CurSong:200*NewSong            Tempo:120
RecTrk :3     Vol:127 Pan:64   Mode :Merge
Program:122 Ballad Organ       Locat:   1:1
        □ □
Track  :P P R - - - - - - - - - - - - - -
Channel:1 2 3 4 5 6 7 8 9 10111213141516
Record    Play    Stop   Erase   MISC   MIXER
```

2. Press the **MISC** soft button to bring up the SongMode:MISC page.

3. Set RecMode to **FixLen**.

    Since you've defined the length of your song with the bass track, setting RecMode to **FixLen** means that the song will just play through once each time you record a new part.

4. Record the organ in the same way that you recorded the bass track in the previous section.

    Notice that you can do this from the MISC page, without returning to the MAIN page.

5. Continue recording instruments until you have played all the parts of your song.

Mix Your Song

The SongMode:MIX page lets you change the panning and volume levels for the tracks in your song. Needless to say, this is one of the most important steps in the completion of your song production, and potentially one of the most creative. This example will keep things simple by showing you how to change the volume level of one of your instruments. We'll also take a quick look at the track mute feature.

1. Press the **MIXER** soft button to bring up the SongMode:MIX page.

    The icons that represent pan position knobs and volume level faders resemble the controls on a traditional mixing board. Manipulating them should be quite intuitive. Simply position the cursor over a pan position knob or volume level fader, then turn the Alpha Wheel to set the level you want.

```
SongMode:MIX <>Prog:142 Quillsichord
  ⌀ ⌀ ⌀ ⌀   ⌀ ⌀ ⌀ ⌀   ⌀ ⌀ ⌀ ⌀   ⌀ ⌀ ⌀ ⌀
  ⊤ ⊤ ⊤ ⊤   ⊤ ⊤ ⊤ ⊤   ⊤ ⊤ ⊤ ⊤   ⊤ ⊤ ⊤ ⊤

  P P P R   - - - -   - - - -   - - - -
Record   Play    Stop   M 9-16   Keep    OK
```

Volume fader for Track 3

For example, suppose you want to turn down the organ on Track 3:

2. Use the arrow keys to position the cursor over Track 3's volume level fader on the SongMode:MIX page.

   Although the tracks aren't numbered on the SongMode:MIX page, they are laid out logically: left-to-right, from 1 through 16 consecutively. Track 3, then, is the third track from the left.

3. Use the Alpha Wheel to turn down the volume of the track by changing the position of the Volume slider.

4. Press the **Keep** soft button and confirm the change.

   Now when you play back the song, Track 3's volume will start playing at the newly set level.

   You can also record real-time volume and pan changes from the MIX page or enter numeric values for these parameters on the MAIN page.

Using the Mode Buttons to Mute a Track

Finally, we'll take a quick look at the track mute feature, which lets you use the K2000's mode buttons to mute individual tracks during song playback. This can be invaluable during mixdown.

You may have noticed a horizontal line underneath the sliders for tracks 1–8 on the SongMode:MIX page. As the illustration below shows, this is the Quick-Mute Track Bank Indicator, showing which bank of eight tracks will respond to the eight track-mute buttons on the front panel of the K2000. The track-mute buttons are the eight mode buttons (**Program**, **Setup**, etc.); press one of these buttons while you are on the SongMode:MIX page and playing a song, and the associated track will be muted.

Quick-Mute Track Bank Indicator
(currently indicating Tracks 1–8)

This button toggles between
Tracks 1–8 and Tracks 9–16
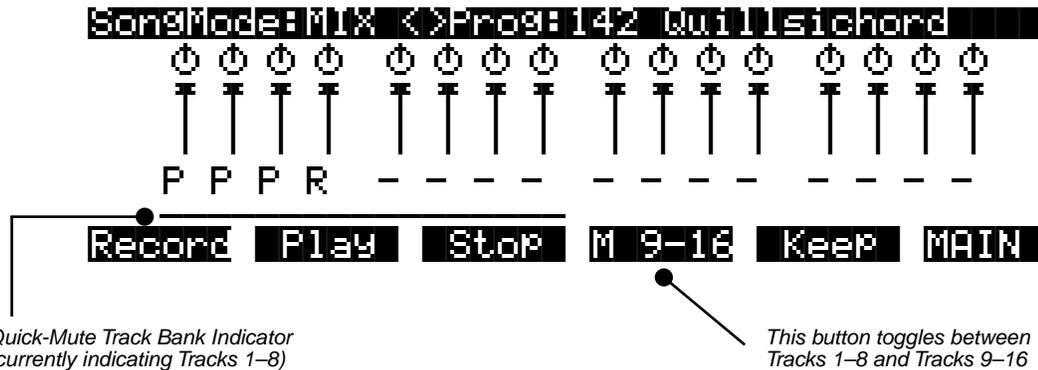
Use the **M 1-8** / **M 9-16** soft button to determine which tracks are affected by the mode buttons: either 1–8 or 9–16. In the preceding display, Tracks 1–8 are affected by the mode buttons, and the **M 1-8** / **M 9-16** soft button displays **M 9–16**. If you press this soft button, the Quick-Mute Track Bank Indicator moves to indicate Tracks 9–16, and the soft button changes to display **M 1–8**.

The following table shows how the mode buttons affect track muting, depending on which bank of tracks is selected.

Mode Button	Tracks that are muted when M 1-8 is selected	Tracks that are muted when M 9–16 is selected
Program	1	9
Setup	2	10
Quick Access	3	11
Effects	4	12
MIDI	5	13
Master	6	14
Song	7	15
Disk	8	16

Let's listen to our song with and without drums:

1. From the SongMode:MIX page, press the **Play** soft button. The song, with all of its instruments, begins to play.

2. Press the **Program** mode button on the front panel of the K2000. The Program-mode LED lights, and Track 1 (the drum track) is now muted.

3. Press the Program mode button again to unmute the drum track.

Using your K2000's front panel buttons, you can mute one or more tracks at once, or even mute eight tracks at a time.

With any luck, you've now completed your first song. You should now be ready to take on the more advanced features of K2000 Song Mode that are described in the remainder of this chapter.

Tutorial: Arrangements

The Arrangement Editor gives you a variety of ways to record and play songs. The following tutorial is designed to walk you through the steps of creating songs using the Arrangement Editor. Here are some typical tasks:

- Record two or more songs, then string them together in any order, as steps in an arrangement.
- Record additional tracks over the steps in an existing arrangement, saving the new tracks in the arrangement song.
- Use up to 32 tracks for recording and playback.
- Trigger songs or arrangements by striking keys (or triggering notes from any MIDI controller)—an excellent feature for live situations.

Creating an Arrangement

This involves recording and saving each section of your final piece of music as a separate song, then using an arrangement to string together the sections in any order you choose. There are a couple reasons you might want to do this.

First of all, many pieces of music tend to be composed in sections. If your music tends to feature various sections repeated in varying order, using the Arrangement Editor can be easier than copying those sections and pasting them into a single song.

The second reason has to do with memory requirements. No objects (aside from samples) can be larger than 64k (10,000 to 16,000 notes, depending on the amount of controller information you record). You may need to use arrangements to accommodate the size of long musical pieces.

When you're recording songs that you intend to combine into arrangements, it can be helpful to name the songs Part 1, Part 2… or Chorus, Verse… That way, when you're putting together the arrangement, you can quickly identify each section. You might also want to organize the IDs of the songs. For example, you could start numbering the songs at the second ID in a memory bank (**301**, **302**…), then save the arrangement song at the first ID in the bank (**300**, in this example). That way, you can create a file containing the arrangement song and its constituent songs, and when you load it into the K2000, the arrangement (the one you're likely to want to play) will be the first song in the bank.

Once you have your songs, you're ready to create another song to use as the arrangement.

1. In Song mode, select **1 NewSong** as the value for the CurSong parameter. This is to make sure you start with an "empty" song (without any note or controller information that you may not want). In some cases (like making a song with more than 16 tracks), you'll *want* to have existing song data. But for now, start with an empty song.

2. Press **Edit**, and set the Tempo parameter to match the tempos of the songs you'll be adding to the arrangement. (This assumes they are all the same tempo. We'll cover how to deal with different tempos later on.)

3. Press either **more** soft button, then press **Save**. The save dialog gives you the opportunity to rename the song and give it the ID of your choice. Press **Save** again when you've made the changes you want.

4. Press the **ARRANG** button (you're still in the Song Editor). The top line of the display tells you that you're looking at Step 1 of a song that contains one step. Cursor down to the Song parameter and select the song you want to use for the first step in the arrangement.

5. Press **Add** to add another step to the arrangement. Select the song you want for the second step. Continue adding steps and selecting songs as needed. If you need to get rid of a step, select the step and press the **Delete** soft button.

   If you press the **Play** soft button while on this page, you'll hear the currently selected step. (If the step's Mode parameter is set to **Next**, the K2o00 will play the next step when the current step finishes.) Once you have more than one step in an arrangement, you can use the **Chan/Bank** buttons to scroll through the steps.

6. Save, then press **Exit** to return to the MAIN page in Song mode. Notice that there are now three dashes below the Program parameter. Press **Play**, and the dashes change to indicate the current song, and the current step. The Locate parameter shows the bar number of the *arrangement*, not the bar number of the current *step*. For example, if the first step in an arrangement has 16 bars, then when Bar 1 of Step 2 is playing, Locate will show **17:1**, not **1:1**.

Arrangement Parameters: the ARRANGE page

Mutes

The Mutes parameter has 16 values, in groups of 4. By default, tracks are unmuted (active), as represented by the dashes. To mute a track, move the cursor to highlight the dash corresponding

to the track you want to mute, and press either the **Increment** or **Decrement** button to change the dash to **M**. This mutes the track.

Muting tracks is a good way to make several different-sounding steps out of the same song. If you create a multi-step arrangement in which each step uses the same song—with different tracks muted in each step—you can bring different parts in and out in each step.

Xpose

You can transpose any step up or down. This allows you to transpose the song without having to edit the actual song data. Every track in the step gets transposed.

This is great for many sounds, but not so useful for steps containing programs that have different timbres assigned to different keys—like drum programs. Fortunately, you can designate any track as a drum track, which prevents it from getting transposed when you transpose the step. You must designate drum tracks in the individual songs that are used as steps in the arrangement, not in the arrangement song.

To designate a drum track, go to the COMMON page for the song containing the track in question. Find the DrumTrack parameter, and move the cursor to highlight the dash corresponding to the track in question. Press either the **Increment** or **Decrement** button to change the dash to a **D**. Don't forget to save.

Times

You can set any step to play from 1 to 120 times before stopping or continuing to the next step in the arrangement.

Mode

This is normally set to **Next**. In this case, the arrangement will play the next-highest-numbered step once the current step is finished. If the last step is set to **Next**, the arrangement will repeat Step 1. To make the song stop after the last step, set the last step's Mode parameter to **Stop**.

Arrangement Parameters: the COMMON page

Start Step

This determines the step number where the song starts. Normally this is **1**, but it can be any step in the arrangement.

Tempo Control

You can choose whether the tempo is controlled by the arrangement song itself or by each song in the arrangement. When set to **Song** the sequencer uses the tempo and time signature set in the arrangement *song* itself. When set to **Arrange**, it uses the various tempos and time signatures used in the *arrangement's* constituent songs.

Timing Issues

You might encounter timing problems when using the Arrangement Editor; notes can be delayed when the arrangement switches from step to step. Here's how to avoid the problem.

Each time you record a track for the first time, the K2000 places four events right at the beginning of the track: Bank Change, Program Change, Volume, and Pan. If you go into the Event Editor, you'll see these four messages appearing at 1:1:000. Normally they'll be the first four events you will see.

By the time you've recorded several tracks, these events start to stack up at the exact same point in time. The K2000 processes these events sequentially, and if enough events happen at the same time, some of them get delayed. For example, if you have 10 tracks, then you will have 40 of those initial events, in addition to any note and controller info that also exist at 1:1:000 in a track.

To prevent the delays caused by too many events, you can delete unneeded events. Typically, you're not changing the Program, Volume, and Pan settings for each track when you switch from step to step. For example, quite often you might have the same program on a MIDI channel for all the steps. In this case, all of the program and bank change messages after the first step are not needed, and can be deleted. You can edit each step in the arrangement this way (don't remove these events from the first step, however).

There are two different methods you can use to get rid of these messages in a track. The simplest way is to go into the Event Editor. Use the **CHAN/BANK** buttons to select the track whose events you want to edit—you can select each track individually, or select All to view the events from every track in the step. To remove an event, highlight it and press **Cut**.

The second way is to use the Erase function in the Track Editor. Again, choose the track with the **CHAN/BANK** buttons. Set the From parameter to **1:1** and the To parameter also to **1:1**. Of course, you won't want to have Events set to All, or you'll erase any note events that occur at 1:1, as well as the unwanted events. If you set Events to **Program Change** and press **Go**, you'll erase the Program and Bank change events. You can then set it to **Controllers**. At this point, if you leave Ctl set to **All**, you can delete both the Pan and Volume events with one operation. But if you have other controller info that occurs at 1:1 (such as Mod Wheel or sustain pedal) then you would also be erasing those events. So you can use the Ctl parameter to select just Volume and just Pan, pressing **Go** after each selection.

In general, the Event-editor method is quicker if you are working on one track at a time. But if you have many tracks and know that you want to erase these events from all of them, using the Track Editor with all tracks selected is faster.

Of course, if you are changing the program changes, pan, or volume in a track when the song changes from step to step, you need to leave those events in, but typically you might be doing that in only one track, while six or seven other tracks stay the same.

Timing problems can also occur between steps due to improperly-located endpoints. If you have a timing problem, you should check in the Event Editor to make sure the end point of each step falls on the first beat of the bar *after* the last bar of the step. For example, if your step is 8 bars long, the end point should be at 9:1:000.

Removing Initial Events from Step One

Since you almost always want to have initial Program, Bank, Volume, and Pan events in an arrangement to make sure it plays properly, it makes sense to have those events in each track of the song used for the first step on the arrangement. But what if that same song is used in a later step, or Step 1 plays a number of times? In this case, as soon the step restarts, you have unneeded events that could contribute to delays.

In this case, the solution is to delete those initial events from the Step 1 song, and record them into the arrangement song. In the arrangement song, select a recording track, press **Record**, then highlight the Program parameter and select the program you want for the track. You can also select the Pan and Volume parameters if you want to set them to a specific volume. Once you have these parameters set, press **Stop**. You need to do this for each track that you are using in the song.

Recording Additional Tracks

So far, all of the recording we've described has been done in the individual songs used as steps. The arrangement song we created has no data in it.

But you can also record tracks in the arrangement song. For example, you might want to record a series of rhythm section grooves: just bass, drums, and maybe some comping parts. Now you can use those grooves as step in an arrangement, then record lead lines through the entire arrangement.

1. Follow Steps 1 through 6 of *Creating an Arrangement* on page 3-11to create an arrangement song, using some different grooves you have created.

2. Start recording new tracks in the arrangement song. Remember that each MIDI channel can have only one program assigned to it. Therefore you may want to select the tracks you record in the arrangement song so that their MIDI channel assignments are different from those of the tracks in the step songs.

Maximizing Track Use

If you extend the previous example, you'll realize that you can actually make use of 32 MIDI channels—by creating an arrangement containing steps that use all 16 channels, then recording 16 channels of music in the arrangement song itself. Both the step songs and the arrangement song can play back through the K2000, through another instrument connected to the K2000's MIDI Out port, or through both.

It is important to remember that there are still only 16 MIDI channels, and any one MIDI channel can play only one program. Therefore there is no way to have more than 16 different programs playing at the same time on the K2000. But there are two reasons why you would want to use more than 16 tracks.

First, you can have two or more tracks assigned to the same MIDI channel. For instance, if you were recording drums, you might want to put different drums from the same program on different tracks, to make recording and editing easier. On the bottom line of the display on the MAIN page in Song mode, there are 16 channel parameters, one for each track. The numbers don't represent *tracks*; they represent the track's MIDI channel assignment. (The dashes—or other characters—above the numbers represent the tracks. The dashes and characters are the values for the Track parameter.) You can assign any track to any MIDI channel.

The second way you can use more than 16 tracks is if you have an external sound module in addition to the K2000. Each track can be assigned to play only the K2000's internal sounds (local), or to be sent only to the MIDI Out, to play the external instrument. To assign the track for local or MIDI playback, go into the Song Editor and on the COMMON page you'll see 16 Track Destination parameters. If the value is a dash, the track is going to both the K2000 and its MIDI Out port. **L** means local, and plays the K2000 only. **M** means that the track goes only to the K2000's MIDI Out port. A value of **x** means that the track is muted.

In the following example, all the tracks in the step song play the K2000, while all the tracks in the arrangement song go to the MIDI Out port. You can also have the step songs and arrangement song set to the same track destinations, as long as it's OK for them to play the same sounds.

1. Create a song with multiple tracks and save it.

2. On the COMMON page in the Song Editor, set the TrackDest value for each track of this song to **L**. Save, then press **Exit** to return to the MAIN page in Song mode.

3. Using the Cursong parameter, call up **1 NewSong**, and press **Edit**, then **ARRANG**.

4. Using the Song parameter, call up the song you just recorded. This makes your song a step in the arrangement song, which you're currently editing. Press **Done** to return to the COMMON page.

5. Set the TrackDest parameter for each track to **M**, so that the arrangement song won't also play the K2000.

6. Save, then press **Exit** to return to the MAIN page in Song mode.

7. Record additional tracks as part of the arrangement song. You might have to record programs changes in each track of the arrangement song to set up the external instrument properly.

Triggering Arrangement Steps From the Keyboard

Each step in an arrangement can be triggered by playing a key (or triggering a note from any MIDI controller). This can be great for live performance, because you can repeat each step as many times as you like.

1. Go to the TRANSMIT page in MIDI mode, and assign a control setup that has a value of **On** for the Sync parameter on the COMMON page of the Setup Editor. Create one if you need to, and name it **SongSetup**. We'll explain why shortly why you need to use this control setup.

2. Go to Song mode, and create an arrangement, following Steps 1 through 6 of *Creating an Arrangement* on page 3-11.

3. Go to the COMMON page in the Song Editor. There are two parameters on this page for use with key triggering of steps:

   TriggerChan: Notes on this MIDI channel can trigger the current step. Notes on any other channels will not trigger the step. Set this to match the MIDI channel of the K2000 or whatever controller you're using to trigger the steps.

   TriggerCtl: This determine if the keys will trigger the steps. Set this parameter to **ON**, so when you hit the appropriate note on the trigger channel, the step will start playing. If you set it to a MIDI Controller number that has a physical controller assigned to it, then the keys will trigger the step only when the controller is on (for switch controllers) or above its halfway point (for continuous controllers).

4. Press **ARRANG**, then press the **CHAN/BANK Down** button until you see Step 1 in the top line of the display. Set the Mode parameter to a value of **Stop**.

5. Note the values for the LoKey and HiKey parameters, then set them to **E 1** and **E 2** by doing the following:

   • Press the **SetRng** soft button

   • Strike E 1 on the K2000 or your MIDI controller

   • Strike E 2

   Note the new values for LoKey and HiKey. Now the current step starts playing when you strike E 1. Strike another note (say E 2) while the step is playing, and on the first beat of the next bar, the step repeats, and all the tracks that aren't drum tracks get transposed up a corresponding number of semitones (in this case, an octave). Generally, when you're

triggering steps using keystrikes, you'll hit the triggering key somewhere in the last bar of the current step. This causes the new step to start right after the end of the current step.

You can also cause steps to start as soon as you hit the triggering note. To do this, go to the TRANSMIT page in MIDI mode, and assign a control setup that has a value of **Off** for the Sync parameter on the COMMON page of the Setup Editor.

6. Set the Latch parameter to a value of **On**. Now the steps will continue playing after you've released the triggering note.

7. Set the VelTrk parameter to a value of **Off** if you want the step to play back at the level at which you recorded it. Set it to **On** to vary the playback level according to the velocity of the keystrikes that trigger the step.

Song Mode: The MAIN Page

The Song Mode MAIN Page allows real time recording and playback, song and track selection. From this page you can view and edit the tracks' channel, program, volume and pan settings, as well as other useful items.

```
SongMode:MAIN   Events:186K      STOPPED
CurSong:1 NewSong                Tempo:120
RecTrk :1      Vol:127 Pan:64    Mode :Merge
Program:2 Stereo Grand           Locat:   1:1


Track  :R - - - - - - - - - - - - - - - -
Channel:1 2 3 4 5 6 7 8 9 101112131415161
Record   Play   Stop  Erase   MISC   MIXER
```

Parameter	Range of Values	Default
CurSong (Current Song)	*Song ID & Name*	*1 NEWSONG*
RecTrk (Recording Track)	*1 – 16, None, Mult*	*1*
Program	*Program ID & Name*	*Current Program*
Setup	*Setup ID & Name*	*Current Setup*
Track (Track Status)	*- (Empty), R, M, P*	*- (Empty)*
Channel	*1 – 16*	*1 – 16*
Vol (Volume)	*0 – 127*	*127*
Pan	*0 – 127*	*64*
Tempo	*1 – 255 BPM*	*120 BPM*
Mode	*Merge, Erase*	*Merge*
Locat (Locaiton)	*1:1 – 9999:9*	*1:1*

The Events field on the top line displays the amount of free RAM space 186 K in the above example represents maximum available memory with P/RAM installed. The maximum without P/RAM is 30 K. This field is replaced by the Used field, as shown below, when the Song Status is `REC READY` or `RECORDING`, to display the percentage of the recording buffer (not RAM) being used.

```
SongMode:MAIN   Used:   0%    REC READY
```

Song Status, also on the top line of the display, is always one of the following:

Song Status	*Description*	*How to get there*
STOPPED	*Sequencer is neither playing, recording, nor waiting to record.*	*If in another mode, select Song mode. If in Song mode, press* **Stop** *or* **Pause**
PLAYING	*Sequencer is playing a song.*	*Press Play while song status is* STOPPED, *the Key Wait parameter is set to* **Off**, *and the Clock parameter is set to* **Int**.
REC READY	*Sequencer is ready to begin recording.*	*Press* **Record** *while song status is* STOPPED. *The* REC READY *indicator flashes to show that the sequencer is waiting to start recording.*
RECORDING	*Sequencer is recording musical data.*	*Press* **Play** *while song status is* REC READY, *the Key Wait parameter is set to* **Off**, *and the Clock parameter is set to* **Int**.
KEY WAIT	*Sequencer is waiting to begin playback or recording, and begins when you strike a key.*	*Press* **Play** *when song status is* STOPPED *or* REC READY *and the Key Wait parameter is set to* **On**. *The* KEY WAIT *indicator flashes to show that the sequencer is waiting to begin*
EXT. CLOCK	*Sequencer is waiting to begin playback or recording, and begins when the K2000 receives an external MIDI clock message.*	*Press* **Play** *when song status is* STOPPED *or* REC READY *and the Clock parameter is set to* **Ext**. *The* EXT. CLOCK *indicator flashes to show that the sequencer is waiting to begin*

CurSong (Current Song)

The ID and 16-character name of the song currently selected for recording, playback or editing. When a song is selected, Program Change, Volume, and Pan information is sent to all MIDI channels assigned to tracks that have data on them, and the internal clock is set to match the Tempo.

Tempo

Controls tempo for the selected song. You can make temporary changes, record real-time tempo changes, or set an initial tempo for the current song.

The tempo you set when you record your first track becomes the song's initial tempo. You can change the tempo during playback, but the tempo reset to the initial tempo when song status goes to STOPPED.

To change a song's initial tempo, press **Record** (the song status changes to REC READY), set the tempo, then press **Stop**. The initial tempo can also be changed with the Tempo parameter on the EditSong : COMMON page. The song will always start playback at the initial tempo, even though this tempo marker does not get recorded as a tempo event on any track.

If song status is RECORDING, any tempo value changes will be recorded in real time. Unlike the special case of setting the initial tempo, any tempo changes recorded in real time are recorded as tempo events.

Fractional Tempos

You can use fractional tempos (120.5, etc.) in your sequence. However, the initial tempo can not be fractional, and you cannot enter a fractional number in the tempo parameter on the MAIN or COMMON pages. You must first record a real time tempo event, then go to the EVENT editor and change it to a fractional amount.

To do this, press **Record**, then **Play**. The sequencer starts recording. Use any data entry method to choose a tempo. The value is unimportant since you will be changing it in the Event Editor. Next press **Stop** and save the song. Now when you go to the Event Editor (see page 3-37), you will see a tempo event. You can now edit the value to a fractional amount. To have the song start immediately with the fractional tempo, edit its location to 1:1:000.

Recording Track (RecTrk)

Determines which track is enabled for recording. Set the recording track to **Multi** to record more than one channel simultaneously or to use a setup in your song.

When RecTrk is set to a single track (1–16), Record (R) is displayed for that track in the Track Status Indicator field (above the Track Channels). Conversely, when any Track's Status Indicator is changed to Record (R), that Track is shown as the value for the RecTrk parameter.

There's one exception: when RecTrk is already set to **Multi**, you can select the recording tracks by toggling the Track Status Indicator to Record (R), and the RecTrk will remain set to Multi.

When **Multi** is initially selected, all of the empty tracks become record-enabled. Tracks containing data remain set to play (P), but you can manually set them to record (R).

The parameter(s) below RecTrk change according to the value of RecTrk and whether you select a setup. If RecTrk is set to a single track (1-16), Program is displayed and you can select the program to be assigned to that track. If you change RecTrk to **Mult** or **None**, the display changes to show the Channel parameter followed by the Program parameter (although the the word `Program` no longer appears). An example of this is shown in the screen below. If you switch through the channels, the program also changes, showing the program currently on that channel. Finally, when RecTrk is **Mult**, if you go directly to Setup Mode and then back to Song mode, the parameter changes to Setup, allowing you to choose a setup with which to record.

Program

Scroll through the programs in memory to select the program before initially recording each track of your song. Any MIDI program changes on the current RecTrk or Chan will cause the ID and name of the track's program to change during playback.

This parameter's name, "Program," is not visible when the RecTrk is set to **None** or **Multi** (to make room for the Chan parameter), but the value is still displayed.

This parameter is replaced with Setup when you select a Setup for playback or recording. The Setup parameter functions similarly to Program.

Programs selected in Program Mode or from a Quick Access bank will be selected as the program on the current RecTrk when you return to Song mode.

```
SongMode:MAIN  Events:186K    STOPPED
CurSong:1 NewSong              Tempo:120
RecTrk :Mult Vol:127 Pan:64   Mode :Merge
Chan:4   2 Stereo Grand        Locat:   1:1

Track  :R R R  R R R  R R R  R R R R R R R
Channel:1 2 3  4 5 6  7 8 9 1011121314151
Record  Play   Stop  Erase   MISC  MIXER
```

Chan (Channel)

This parameter determines the control channel and is only available when the RecTrk is set to **None** or **Mult**. The Program parameter value remains on the display and can be edited, even though the parameter's name, "Program," no longer appears.

Setup

Displays the ID and name of the setup to be recorded. This parameter is available by setting RecTrk to **Mult**, then entering Setup mode momentarily by pressing the **Setup** button followed by the **Song** button to return to Song mode. The screen below shows an example of the Song mode page with the Setup parameter displayed.

```
SongMode:MAIN  Events:186K    STOPPED
CurSong:1 NewSong              Tempo:120
RecTrk :Mult Vol:127 Pan:64   Mode :Merge
Setup  :4 Total Orchestra     Locat:   1:1

Track  :R R R  R R R  R R R  R R R R R R R
Channel:1 2 3  4 5 6  7 8 9 1011121314151
Record  Play   Stop  Erase   MISC  MIXER
```

In this case, the Chan parameter will be replaced with Setup. It is important to know how many channels, and consequently how many tracks, are needed for recording a particular setup. Each setup can have up to three zones that can respond to your playing differently, depending on what range of the keyboard is being played, or if certain velocity and/or controller values determines when a particular zone will respond. Be aware of the behavior of each setup you intend to record so that you can allocate the proper tracks and channels needed in your song.

Volume (Vol)

You can set an initial volume level for the playback and recording of each track as a value between 0 and 127. If the channel of the RecTrk (or the control channel, if RecTrk is set to **Multi** or **None**) contains any recorded volume change (controller code 7), the change will be reflected as the Vol parameter's value in real time.

Pan

You can set an initial pan position (the balance between the Left and Right audio channels) for the playback and recording of each track as a value between 0 and 127. A value of **64** is center. If the channel of the RecTrk or the control channel contains any panning data (controller code 10), the Pan parameter's value is modified in real time.

Mode

If Mode is set to **Merge** you will be able to overdub when recording on a track containing previously recorded data. You'll usually want to set Mode to **Merge** when RecMode (on the MISC page) is set to **Loop**. Otherwise, each time through the loop, the previously recorded information will be erased.

If you set Mode to **Erase**, the previously recorded data on the record enabled track will be replaced with the new data only during the bars and beats you are actually recording, and the previously recorded data before and after the newly recorded bars and beats will be preserved.

Location (Locat)

The bar and beat displayed as the Locate value changes relative to current location of the song during playback and recording. You can set this to a negative bar and beat location to start playback a set length of time before the beginning of the song.

Whenever you set the Locate point, that location will be used as the return point when **Stop** is pressed. Simply press **Stop** again to reset the song to the top (1 : 1).

Other Track Information

Lines 5–7 of the display contain information about each of the song's tracks. Refer to the following diagram. Note that in this diagram, the recording track is Track 4.

```
SongMode:MAIN   Events:186K    STOPPED
CurSong:1 NewSong              Tempo:120
RecTrk :4     Vol:127 Pan:64   Mode :Merge
Setup  :4 Total Orchestra      Locat:   1:1
          □  □  □  x
Track  :P  P  M  R _ _ _ _ _ _ _ _ _ _ _ _
Channel:1  2  3  4 5 6 7 8 9 1011121314 1516
```

Mode Indicators (+ and x):

Mode Indicators appear only for tracks that contain data. A plus sign (+) appears above the Track Status Indicator of a track set to record (R) when the Mode parameter is set to **Merge**. An (x) appears above the Track Status Indicator of a track set to Record (R) when the Mode parameter is set to **Erase**.

Activity Indicators (□)

A small square (□) above the Track Status Indicator of a track set to Play (P) or Mute (M) means that that track contains data.

During playback and recording, the indicators above tracks containing any MIDI data flash a small, filled-in square when any MIDI activity is detected. The filled-in square also flashes over

a track any time that there is incoming MIDI data on that track's channel, even when song status is `STOPPED`.

Track Status Indicators

Using the **Up**, **Down**, **Left**, and **Right** cursor arrows to position the cursor onto a Track Status Indicator, you can toggle an empty track (–) into Record (R) with the Alpha Wheel or **Increment/Decrement** buttons.

Once a track contains data, it will have a (P) as a Track Status Indicator, and it will be played during playback. You now will be able to toggle between Play (P), Mute (M), and Record (R).

The track selected as the RecTrk will have an (R) in this field, designating it as the record-enabled track. If the RecTrk is set to **Mult**, initially all empty tracks will have Record (R) as a Track Status Indicator, any of which can be switched back to empty (–) if at any time recording on specific tracks is not desired.

If there isn't a track with an (R) in this field, the RecTrk parameter's value will be None. (The exception is when the RecTrk is set to **Mult** and you have switched all of the tracks out of record enable.)

Track Channels

Each track has a MIDI Channel that it uses to receive and transmit data. By default, Tracks 1–16 of a new song are assigned to Channels 1–16, although a track can play or record on any channel and the same channel can be assigned to more than one track. However, keep in mind that only one program can be assigned to a channel at a time, so if you have more than one track assigned to the same channel, they'll play the same program.

Soft Buttons on the MAIN Page

The soft buttons on the MAIN page are like—but not *exactly* like—the transport controls on many tape decks. The difference is that with the K2000, you don't ever have to press more than one button on a time (on some tape decks, for example, you must press the Play and Record buttons simultaneously to record). In fact, it's important to press the soft buttons on the MAIN page one at a time, to ensure proper record start points, and desired song status.

```
Record  Pause   Stop  Erase   MISC   MIXER
```

Record

Changes the song status to `REC READY` if the current song status is `STOPPED`. If the current song status is `PLAYING`, it will be switched to `RECORDING` when you press **Record**.

If the RecTrk is set to **None**, pressing **Record** selects the first available empty track for recording, thus setting the RecTrk to the newly record-enabled track number and placing an (R) in that track's status display. Song status changes to `REC READY` or `RECORDING`, depending on the previous song status as described above.

Play

Plays back any recorded data when pressed while the song status is `STOPPED`. Playback begins from the bar and beat specified in the Locate parameter.

When the Song Status is `REC READY`, pressing the **Play** soft button begins recording.

Pause

Pause and **Play** share the same soft button. **Pause** appears only when the song status is PLAYING or RECORDING. Pressing **Pause** while the song is playing will stop the playback (soft button switches to **Play**), and the location remains at the current bar and beat, allowing you to continue from that location by pressing **Play** again.

Pressing **Pause** while recording will stop the recording process as if you had pressed **Stop**.

Stop

Halts the playback or recording, and resets the song's location to either the default Bar 1, Beat 1 value, or to whatever location you defined with the Locate parameter. If the location is defined as something other than Bar 1, Beat 1, press **Stop** twice to return to 1:1.

Pressing **Stop** when the song status is RECORDING will always prompt the Save this song? dialog, and provides you with the opportunity to listen to the "new" song and compare it with the "old," previously saved, song before answering **Yes** or **No**.

Here are two useful alternatives to using these button presses:

- Footswitches can be assigned to **Play/Stop** and **Record/Stop**. On the MIDIMode : TRANSMIT page, assign either footswitch to controller number 102 or 103. Using controller 103, you can even record from within the Song Editor.
- You can use double button presses to mimic the **Play**, **Pause** and **Stop** soft buttons when the actual buttons are not available. Use the cursor **Left+Right** double-press for **Play/Stop**, and use the cursor **Up+Down** double-press for **Play/Pause**.

Erase

Removes all channelized data from the track on which the cursor is currently positioned (on either the Track or Channel fields) or from the record enabled track if the cursor is positioned elsewhere. A dialog appears that allows you to verify your intentions before permanently erasing any data. The Erase function will not prompt the dialog or erase any data if an empty track is selected.

MISC

Takes you to the SongMode : MISC page, which contains more sequencer parameters. These miscellaneous controls include record and play mode settings, auto punch-in points, quantization on input settings, tempo, and click attributes.

MIXER

Displays the MIXER page, a graphic representation of panpots and level faders for each track in shown on the EditSong : MIX page. You can modify program changes, volume and pan position on this page. Recording status can also be selected here.

The Save Dialog (Save this song?)

The following dialog appears after you have recorded a track and pressed **Stop**, or if you have entered the Song Editor and made changes, then pressed **Exit**, or if you press **Save** in the Song Editor.

`Save this song?`

`PlayOld` `PlayNew` `Stop`   `Yes` `No`

PlayOld appears along with the **PlayNew** soft button in the `Save this song?` dialog after the recording process has been stopped. Pressing **PlayOld** play the currents song, minus the most recently-recorded data (which hasn't yet been saved). The exception is when there is no previously recorded data (that is, when you're recording the first track of a new song). In this case, you have only a **Play** soft button to audition the recorded data just entered.

PlayNew / Play soft buttons allow you to play all of the recorded data, including data on the track(s) you have just recorded.

Stop halts the playback of either the old or the new version of the song you are currently auditioning. Press the **Stop** soft button to stop the playback or recording, and reset the song's location to either the default Bar 1, Beat 1 value, or to whatever location you defined in the Locat parameter

Yes saves the data on the track(s) you just recorded. Whatever was played back when you pressed **PlayNew** will be the version of the song to be saved when you press **Yes**. The `Save New Song?` dialog (shown below) will be displayed.

No returns you to the Song-mode page in which you were last recording, without saving any unsaved changes to the current song.

The Save Dialog (Save NewSong?)

`Save NewSong as:` `ID#200`

`Object`   `Rename` `Save` `Cancel`

Saving a song requires that you assign it an ID and this is where you do so. If you select an ID of an existing (RAM) song, the **Save** soft button will become **Replace** and `Replace Existing Song?` will appear on the display as a warning and a chance to change your mind.

In Banks 100–900, there are 20 song IDs available per bank. In the zeros bank, there are 75 (IDs 1–75). In the 200s bank there are IDs 200–219; in the 300s bank, IDs 300–319, and so on.

The **Object** soft button accesses some useful database functions while still in Song mode, before you actually save the current song. Pressing **Object** jumps you directly to the Object Utility (see page 4-63). When you press **Done** on the Utility page, you will be returned to the `Save New Song?` dialog.

The **Rename**, **Save**, and **Cancel** soft buttons function the same as they do in all other editors.

The Erase Track Dialog

This dialog asks you if you are sure you want to erase a specific track. The track number will correspond to the track currently selected by the cursor position. When RecTrk is set to **Multi** or **None**, the Erase track function looks to the cursor position to determine the track to erase. If the cursor is positioned somewhere other than the Track or Channel fields, Erase will have no effect. Erasing a track will not alter the song's end point, nor will it remove any tempo events, since these elements are common to all tracks in the song.

Yes erases all data on the selected track and returns to the MAIN Song Mode. The song will keep the erased track record enabled, but it will be an empty track.

No aborts the erasing of the selected track and returns to the MAIN page in Song Mode, with all previously recorded tracks intact.

The MISC Page

This page contains parameters that determine how the sequencer behaves during playback and recording, and when the K2000 is connected to another MIDI sequencer. Most of these settings are stored in the Master Object, (all except the Auto punch-in points) and none of these are saved with the song.

```
SongMode:MISC   Events:186K      STOPPED
RecMode :Linear Quant:Off     CountOff:1
PlayMode:Loop   Grid :1/8     Click   :Rec
KeyWait :Off    Swing:0%      ClickCh :16
Locate  :   1:1 Sync :Both    ClickPrg:198
AutoIn  :   1:1 Clock:Int     ClickKey:C 4
AutoOut :   1:1 Tempo:Auto    ClickVel:90
Record    Play    Stop    New    In/Out MAIN
```

Parameter	Range of Values	Default
RecMode (Recording Mode)	*Linear, Fixlen, Loop, Unloop, Auto*	*Linear*
Play Mode	*Linear, Loop, List, Chain*	*Loop*
Key Wait	*On, Off*	*Off*
Locate	*-25:2 – 999:4*	*1:1*
Auto In	*1:1 – 999:4*	*1:1*
Auto Out	*1:1 – 2500:*	*1:1*
Quant (Input Quantize)	*Off, 1% – 100%*	*Off*
Grid	*1/1 – 1/384*	*1/8*
Swing	*-99% – 125%*	*0%*
Sync	*Both, Xmit, Recv, Off*	*Off*

Parameter	Range of Values	Default
Clock	Int, Ext	Int
Tempo	Auto, Fixed	Auto
Countoff	Off, 1, 2, 3	1
Click	Off, Rec, On, Cnt	Rec
ClickCh (Click Channel)	1 – 16	16
ClickPrg (Program)	1 – 999	198
Click Key	C-1 – G9	C4
ClickVel (Velocity)	1 – 127	90

The top line displays the amount of free RAM space and the current song status, which is one of the following: STOPPED, PLAYING, REC READY, RECORDING, KEY WAIT, or EXT. CLOCK.

Recording Mode

The recording mode is determined by the value of the RecMode parameter. When recording the first track of a new song, you will be able to record as if you had an endless length of "tape" no matter what the value of the RecMode parameter is.

When you record the first track, all Record Modes operate the same way. This is because until you define the length of a new song, its end point is the default setting of Bar 8001, the maximum amount of bars in a song. The end point is referenced and modified in different ways depending on the RecMode.

Setting/Changing the End Point

The end point of a song is defined when any of the following occurs:

- Pressing **Stop** to end the recording of the first track. The new end point is aligned to the nearest downbeat of the (empty) bar immediately following the last bar you were recording when you pressed **Stop**.
- Pressing **Stop** while recording any track past the previously set end point in Linear or UnLoop Record Mode. Again, the new end point is aligned to the downbeat of the (empty) bar immediately following the last bar you were recording when you pressed **Stop**.
- Setting the AutoOut bar and beat beyond (later than) the current end point, after recording in Auto RecMode. The next track you record in Auto RecMode sets the end point at the AutoOut bar and beat.
- Entering a new end point in the Event Editor.
- Using the Track edit functions Copy, Insert, or Delete to alter the song's length.

The end point of a song is used as a loop point in Loop and UnLoop modes, and it defines the fixed length of a song when you record in FixLen mode.

RecMode Values

Linear

Record as if you had a nearly endless length of tape.

FixLen

The song does not continue recording past the end point of the song—recording automatically stops at the end point.

Loop

While song status is `RECORDING`, the song will play the data between 1 : 1 and the end point over and over. This enables you to overdub in each pass if the Mode parameter on the MAIN page in Song mode is set to **Merge**. Make sure the Mode parameter is set to **Merge** if you intend to overdub in Loop Record, or else each consecutive pass in Loop RecMode will erase the data recorded on the previous pass.

While recording in Loop mode, you can selectively erase existing note events:

1. Press and hold the enter button.

2. Press and hold the key corresponding to the note you want to erase. All occurrences of the note you're holding get erased

3. Release the key and the enter button to stop erasing.

This feature works only for unsaved tracks. Once you save the song, you can no longer erase notes this way.

UnLoop

When recording in UnLoop Mode, existing tracks play as if they were looping from Bar 1 : Beat 1 to the end point. At the same time, they get re-recorded linearly (without loops) until you press **Stop**. This makes it easy to record a linear track over a looped section:

1. Set RecMode to Loop, and record a short track (say, two bars of percussion).

2. Set RecMode to Unloop, then go to the MAIN page and change the recording track.

3. Begin recording the new track. The percussion track repeats as if you were still in Loop mode, but both track get recorded without loops.

4. Press **Stop** to stop recording. The song's end point gets redefined as the nearest downbeat of the (empty) bar immediately following the last bar you were recording when you pressed **Stop**.

Auto

Set RecMode to **Auto** for punch-in recording, (either in Merge or Erase mode), on a track between the bars and beats defined in AutoIn and AutoOut. To punch in and continue recording until you press **Stop**, set the AutoOut point before the AutoIn point.

PlayMode

The PlayMode setting, along with the end point, determines how songs are played back.

Linear

Set the PlayMode to **Linear** to hear the current song played only once, from the song position set in the Locate parameter to the end point. The song will be returned to the Locate bar and beat when it reaches the end point.

Loop

This causes the current song to loop from the end point back to Bar 1, Beat 1 continually during playback until Stop is pressed.

List

When PlayMode is **List**, songs get played back-to-back in numerical order (by their IDs), beginning with the current song. When the current song reaches its end point, the CurSong parameter is updated to the next highest song ID, and that song plays from Bar 1, Beat 1 to its end point.

The sequencer plays through all songs in memory (unless you press Stop before it finishes). When the song with the highest ID finishes playing, the sequencer stops and that song remains as the current song. You'll see it as the value for the CurSong parameter on the MAIN page.

Chain

There's a parameter called ChainTo on the COMMON page. When PlayMode is **Chain**, the value of the ChainTo parameter determines which song plays after the current song. When the current song ends, the ChainTo song (if any) replaces the previous CurSong, and plays to its end point. You can chain as many songs together as you like. The last song in the chain should have a value of **0 None** for its ChainTo parameter. when the last song finishes playing, the sequencer stops.

Here's an example. Suppose you have two songs: **200*Overture**, and **201*Middleture**. You want to play **200**, followed by **201**.

1. On the MAIN page, select the CurSong parameter, and change its value to **200*Overture**. Press **Edit** to enter the Song Editor. you should be on the EditSong:COMMON page.

2. Select the ChainTo parameter, and set its value to **201*Midd**. Press **Exit**. This brings up the Save dialog.

3. Press **Yes**, then press **Replace**. This returns you to the MAIN page in Song mode.

4. Change the value of the CurSong parameter to **201*Middleture**. Press **Edit**.

5. Select the ChainTo parameter, and set its value to **0 None**. Press **Exit**. This brings up the Save dialog.

6. Press **Yes**, then press **Replace**. This returns you to the MAIN page in Song mode.

7. Press the **MISC** soft button to go to the MISC page.

8. Select the PlayMode parameter, and set its value to **Chain**.

9. Press the **MAIN** soft button to return to the MAIN page. Change the value of the CurSong parameter to **200*Overture**.

10. Press **Play**. You'll see the value of CurSong change when Song **200** finishes and Song **201** begins.

The most common use for the Chain PlayMode is to construct a set list for gigs. Keep in mind that each chained song start *immediately* after the previous song in the chain. Consequently, you may want to include a few bars of silence at the beginning or end of chained songs, to allow for a gap between them.

KeyWait

KeyWait specifies whether the sequencer waits for a Note event before recording or playback. When KeyWait is **On**, and song status is `STOPPED` or `REC READY`, pressing **Play** changes the song status to `KEY WAIT`. The sequencer starts when you play a note, or when you press **Play** again.

Locate

The value of the Locate parameter shows where you are in the song (it's identical to the Locat parameter on the MAIN page). the value of the Locate parameter is displayed in terms of bar (measure), and the beat within the current bar—a value of **1:1**, for example, means Bar 1, Beat 1 (the beginning of a song). The value of the Locate parameter changes during play back and recording to reflect the song's current position.

You can also set the value manually when song status is anything but `RECORDING` (changing the value of Locate during recording stops recording).Setting a negative value enables you to create a countoff before playback, or a customized countoff before recording (the Countoff parameter on the MISC page allows only whole-bar countoffs).

AutoIn

When you're in Auto record mode, the value of AutoIn sets the bar and beat at which recording begins. If you set AutoIn to a value other than **1:1**, there's no countoff before recording, regardless of the value of the Countoff parameter.

The AutoIn setting does not affect recording unless the RecMode parameter is set to **Auto**.

AutoOut

When you're in Auto record mode, the value of AutoIn sets the bar and beat at which recording stops.

If you want to record to the end of a song, but don't want to leave Auto record mode, set the value of AutoOut to a location preceding the value of AutoIn. for example, if AutoIn is **8:1**, set AutoOut to **7:4** or any earlier (lower) value.

The AutoOut setting does not affect recording unless the RecMode parameter is set to **Auto**.

Quant (Input Quantizing)

Quantizing moves Note events so that the intervals between notes are more even. There are two ways to quantize the notes in your songs: as you record them, or after you record them. The Quant parameter controls the amount of *input quantizing*—that is the quantizing that occurs *during recording*. The Quant parameter works together with the Grid parameter, which sets the maximum amount that notes can get moved. (See *Grid* below.)

The value of Quant is a percentage of the maximum . A value of **Off** means no quantizing; this preserves the exact timing of what you recorded. A value of **100**% means maximum quantizing,

which moves notes to all the way to the nearest interval (as specified by the value of the Grid parameter). this doesn't change the duration of the notes.

See *Track Functions: Quantize* on page 3-47 to learn about quantizing tracks *after* you've recorded them.

Grid

This parameter works together with the Quant parameter to control input quantizing (see *Quant (Input Quantizing)* above). The Grid parameter sets the maximum "distance" (in terms of time) that a note *can* get moved, while the Quant parameter determines how much of that distance the notes actually move.

The value of the Grid parameter determines the number of divisions—called grid points— within each beat. It's expressed as a fraction (**1/1**, **1/2**, **1/3**, etc.), including triplet values (instead of **1/12**, for example, you'll see **1/8tr**).

While you're recording, if the notes you play don't fall exactly on the grid points, the sequencer automatically moves them closer. The value of the Quant parameter determines just how far the notes get moved.

You can set any value between **1/1** (quantizing to whole notes) and **1/384** (probably imperceptible, except at extremely slow tempos). you can press the **Increment/Decrement** (**+/-**) buttons simultaneously to jump to standard quantizing intervals (**1/1**, **1/2**, **1/4**, **1/8**, etc.).

Swing

This parameter controls the amount of swing (syncopation) that the sequencer adds during recording. The value of Swing is expressed as a percentage. When you apply swing, the sequencer moves every other grid point—either toward the next grid point (when the value of Swing is positive) or toward the previous grid point (when the value is negative).

A value of **100**% (maximum swing) moves every other grid point $^1/_3$ of the distance toward the next grid point. Smaller values move the grid points a smaller distance. A value of **0** is straight time—no swing. A value of **–100**% moves every other grid point $^1/_3$ of the distance to the *previous* grid point).

Sync

The Sync parameter works with the Clock parameter. Sync controls transmission and reception of the following MIDI sync messages: Song Start, Song Stop, Song Continue, Song Select, and Song Position Pointer (everything but actual clock messages).

Use this parameter to disable MIDI sync (a value of Off), to receive, to transmit, or to receive *and* transmit.

Clock

Use the Clock parameter to determine the sequencer's source of MIDI clock data—either **Int** (the K2000's own clock) or **Ext** (received from an external source via the K2000's MIDI In port).

When Clock is **Ext**, playback and recording begin only when the sequencer receives MIDI clock data from an external source.

Tempo

The Tempo parameter determines whether the sequencer responds to real-time tempo changes recorded into a song. when Tempo is **Fixed**, the sequencer ignores tempo changes. When Tempo os **Auto**, the sequencer responds to tempo changes.

CountOff

The Countoff parameter sets the number of bars of click before playback or recording (like a drummer banging sticks to set the tempo). The countoff also depends on the value of the Click parameter; if Click is **Off**, there's no countoff regardless of the value of the Countoff parameter. If Click is **Rec** (recording only), the countoff occurs before recording, but not before playback.

Click

When the value of the CountOff parameter is greater than **0**, the Click parameter determine when you hear a click. A value of **Off** disables the click (consequently there's no countoff click for recording or playback, and no click *during* recording or playback. **Rec** gives you a countoff click before recording, and a click during recording. It also disables the countolff before playback, and prevents a click during playback. On gives you a countoff click before recording and playback, as well as a click *during* recording and playback. Cnt gives you a countoff click before recording and playback, but no click during recording or playback.

ClickCh (Click Channel)

The click channel specifies which MIDI channel plays the click (when there *is* a click).

ClickPrg (Click Program)

This parameter determines which program the K2000 uses to produce the click. Whenever you enter Song mode, the K2000 automatically selects the click program on the click channel. When you start recording or playback, the K2000 sends the click program's ID gets as a Program change command on the click channel.

By default, the click program is **198 Click**, but you can use *any* program.

ClickKey

The click key is the note used for the click. It can be anything from C -1 to G 9. The value of ClickKey doesn't matter when the click program is **198 Click**, since this program plays the same pitch on every key. If you use a different program, however, you may need to change the default value of **C 4** to make the click more audible.

ClickVel (Click Velocity)

ClickVel determines the volume (the attack velocity, really) of click notes. The first beat of each bar plays the click at the full value of ClickVel; the remaining beats of each bar play the click at about 90% of the ClickVel value. This puts a noticeable accent on the first beat of every bar.

Soft Buttons on the MISC Page

Record, **Play***(Pause)*, and **Stop** work the same as they do on the MAIN Page, described on

New selects **1 NewSong** as the current song and jumps back to the SongMode :MAIN page. The tracks in the new song are empty, but all initial program, volume, and pan settings—as well as all parameters on the MISC page—remain as they were in the previous song.

In/Out provides a quick way to enter the Auto punch-in points in real time. This button has no effect when the sequencer is stopped, but pressing it once during recording or playback sets the AutoIn point to the bar, beat, and tick nearest to the time you pressed **In/Out**. Press **In/Out** a second time to set the AutoOut point.

Note: The AutoIn and AutoOut parameters display bars and beats only (not ticks). Nevertheless, the actual In and Out points fall on the ticks corresponding to the time that you pressed **In/Out**.

MAIN returns you to the MAIN Page.

The MIX Page

The MIX page allows you to set and keep new initial settings for all sixteen tracks' program changes, volumes, and pan positions. Set these three parameters for each track, then press the **Keep** button, prompting a dialog that asks if you really want to update the settings. Press **Yes** to make the changes. Another way to set these initial values is to press **Record** to put the sequencer into REC READY status, make any desired changes, then press the **Stop** soft button.

You can also record real-time changes by changing the value of the highlighted fader or knob while recording on that track. If you do make recording changes in real-time, though, make sure that the Record Mode is set to Merge. Otherwise the data previously recorded on the track will be erased.

Volume Faders

Pan Position Knobs

SongMode:MIX <>Prog:2 Stereo Grand

Record Play Stop M 9-16 Keep OK

Quick-Mute Track Bank Indicator

Track Status Indicators
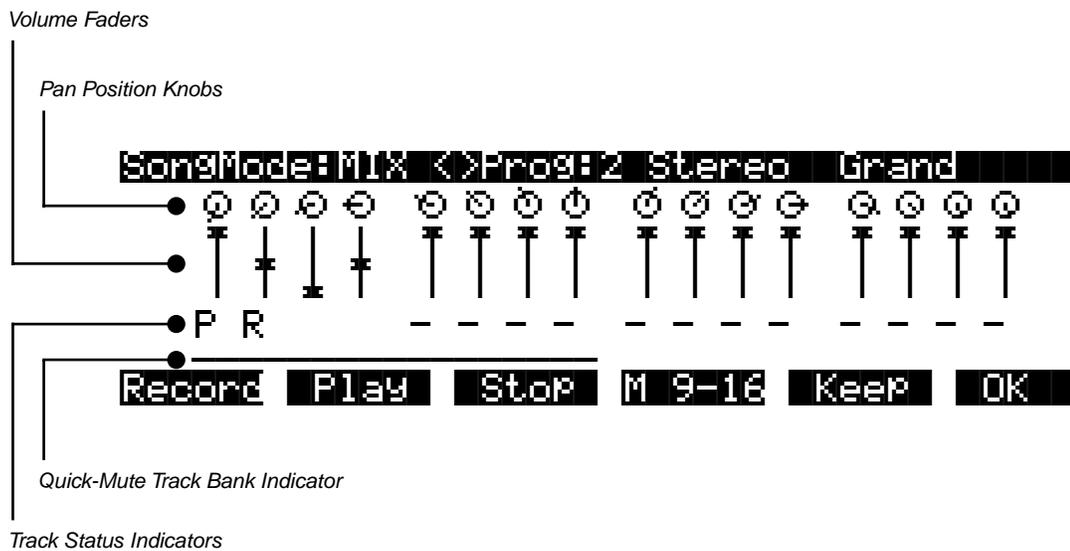
Changing Programs on the MIX Page

The top line of this page displays the program ID and name for the currently highlighted track. Select different tracks by moving the cursor with the **Left** and **Right** arrows. Use the **CHAN/BANK** buttons to change the program on the current track. Press the **CHAN/BANK** buttons at the same time to jump to the next bank of 100 programs.

Pan Position

There's a Pan Position Knob corresponding to each track (1 to 16, from left to right). Select any knob and turn the Alpha Wheel to change the panning for that track. This provides a smooth transition between pan settings. For instant changes, use the alphanumeric buttonpad to type a value, then press **Enter** (**0** is full left, and **127** is full right).You can use either method during recording to record real-time pan changes into the song. The default pan position is 64 (straight up). There are 15 positions between left and right.

Volume Level

There's a Volume Fader corresponding to each track (1 to 16, from left to right). Select any fader and turn the Alpha Wheel to change the volume for that track. This provides a smooth transition. For instant changes, use the alphanumeric buttonpad to type a value from **0** to **127**, then press **Enter** .You can use either method during recording to record real-time volume changes into the song. The default volume value is **127**.

Track Status Indicators

Use the **Up**, **Down**, **Left**, and **Right** cursor arrows to position the cursor onto a Track Status Indicator, then use the Alpha Wheel or **Increment/Decrement** buttons to change the track status.

Empty tracks are always in one of two states: recording (R) or non-recording(−). Tracks containing data are always in one of three states: recording (R), playback (P), or muted (M).

The Track Status Indicators interact with the RecTrk (recording track) parameter. When you set RecTrk to **Mult** (on the MAIN page), the status of all empty tracks changes from − to R, enabling all of those tracks for recording. You can change one or more of these tracks to non-recording tracks by selecting each track and using the Alpha Wheel or **Increment/Decrement** buttons to change the R to −.

At times, you might end up with no recording tracks (for example, when Track 1 is a playback track, and Tracks 2–16 are empty non-recording tracks). In this case, as soon as you change the last R to M, P, or −, RecTrk reverts to **None**—unless RecTrk is **Mult**, in which RecTrk stays set to **Mult**.

Quick-Mute Track Bank Indicator

This parameter appears as an underscore directly below the graphics for either the bank of tracks 1–8 or tracks 9–16. It indicates which bank of eight tracks will respond to the Quick-Mute feature, described with the **M 1-8/9-16** soft buttons, below.

Soft Buttons on the MIX Page

Record, Play (Pause), Stop

These buttons work the same as they do on the MAIN page, described on page 3-22.

M 1-8 / M 9-16

When you're on the MIX page, the mode buttons (**Program**, **Setup**, etc.) function as mute buttons. These buttons mute either Tracks 1–8, or 9–16, depending on the position of the Quick-Mute Track Bank Indicator (the horizontal line just below the Track Status Indicators). The line

appears above the eight tracks that are affected by the mode buttons.Pressing the **M 1-8 / M 9-16** button moves the line, and changes the label on the button.

There's more about this feature on page 3-10.

Keep

If you've made any changes to the initial program settings, volume settings, or pan settings of a track containing recorded data, press **Keep** if you want to preserve those settings. You'll see this dialog:

```
Update initial Prog/vol/Pan?


                                        Yes    No
```

Press **Yes** to keep the changes, or **No** if you change your mind.

MAIN

This button returns you to the MAIN page.

The Song Editor (EditSong Pages)

There are a few conventions shared by all of the Song Editor pages (except the Arrange page). Displayed at the top of each page is the name of the page (for example, `EditSong:COMMON`) and the currently selected track(s). All of the values for the parameters found on any of the Song Editor pages are saved in the current song.

Soloing the Current Track

On all Song Editor pages you can solo the current track by pressing either the **Setup** or **Quick Access** mode buttons. This in effect mutes all other tracks in the current song. Use the **CHAN/BANK** buttons at any time to select atrack for editing and/or soloing.

Song Editor: The COMMON Page

Press the **Edit** button to enter the Song Editor. You'll see the COMMON page, where you'll find parameters common to all tracks: tempo and time signature, control parameters for effects and arrangements, and soft buttons for switching to other Song Editor pages.

```
EditSong:COMMON                    <>Track:1
Tempo      :120       StartStep    :1
TimeSig    :4/ 4      TempoControl:Song
EffectChan:1          TriggerChan :1
ChainTo    :0 None    TriggerCtl   :ON
TrackDest :---- ---- ---- ----
DrumTrack :---- ---- ---- ----
<more   EVENT   TRACK   STEP   ARRANG more>
```

PARAMETER	RANGE OF VALUES	DEFAULT
Tempo	1–255 BPM	120
TimeSig (time Signature)	1–99 / 1, 2, 4, 8, 16	4/4
EffectChan (effects Channel	1–16, None	1
ChainTo	0 None, (Song ID)	0 None
Track Destination	–, L, M, X	-
Drum Track	–, D	-
Start Step	None, 1–255	1
Tempo Control	Song, Arrangement	Song
Trigger Channel	1–16, None	1
Trigger Control	Control Source List	On

The top line of this page displays the selected track or tracks. Select the available current track(s) for editing by using the **CHAN/BANK** buttons. Press both of the **CHAN/BANK** buttons together to select all tracks.

Although the current track information is displayed on the top line, the COMMON page's parameters are global settings for the song and do not directly affect individual tracks.

Tempo

This is another place where you can set the song's initial tempo.

TimeSig

Affects the click, playback looping, and locate function—as well as some editing operations. Does not change recorded data.

EffectChan

If the FX Mode and FX Chan parameters in Effects mode are set to **Auto** and **Current** respectively, this parameter specifies which channel will control effects while in Song mode and during playback of a song. In this situation, the effect assigned to the program (in the Program Editor) currently on the channel designated as the EffectChan will be heard. EffectChan is selectable per song.

ChainTo

The ChainTo setting is used only when the PlayMode parameter on the MISC page is set to **Chain**—allowing you to play multiple songs automatically. The value of this parameter represents the song that will play when the current song finishes.

Parameters Used With the Arrangement Feature

The next four parameters—as well as the Drum Track parameter—work with the Arrangement feature, which you access by pressing the **ARRANG** soft button. This feature allows you to create a special type of song called an arrangement. An arrangement is a song containing a series of sections, called steps. You can save the various sections of a composition as separate songs, then assemble them using the Arrangement Editor. This method allows you to save memory, since you can repeat steps without having to duplicate the actual song data.

Another great feature within the Arrangement Editor gives you the ability to trigger steps by striking a specific note or group of notes. See page 3-57 for more information on arrangement features.

StartStep

The value of this parameter determines which step in the current song's arrangement plays first. If the value is **None**, you can't play or stop the arrangement using the **Play** or **Stop** soft buttons, but you can still trigger steps using Note events.

TempoControl

When the current song consists of other songs entered as steps in the Arrangement Editor, the TempoControl parameter determines which song sets the tempo for recording and playback of the arrangement.

Set TempoControl to **Song** if you want to set a master tempo defined by the song that serves as the arrangement (that is, the song displayed as the value for the CurSong parameter on the MAIN page). All of the steps (the songs in the arrangement) play at this tempo, ignoring their original tempos. In other words, a value of **Song** sets a master (fixed) tempo that doesn't change during playback or recording.

A value of **Arrange** is just the opposite of **Song**; there's no master tempo, and each step in the arrangement plays at its original tempo. The sequencer ignores the tempo of the song that serves as the arrangement.

TriggerChan (Trigger Channel)

This parameter controls the MIDI channel used to start the playback of arrangement steps using Note On events. The value of TriggerChan must match the K2000's current MIDI channel—or the MIDI channel of your external controller—for step triggering to work. See *Triggering Steps From the Keyboard* on page 3-60 for more information.

TriggerCtl

This parameter specifies which global control source enables the triggering of arrangement steps using Note On events. See *Triggering Steps From the Keyboard* on page 3-60 for more information.

TrackDest

```
TrackDest :LLL- M--- -M-- ---x
DrumTrack :D--- ---- -D-- ----
```

The sixth line of the COMMON page contains the track-destination parameter (TrackDest), which determines where the K2000 sends each track of a song. There's one character for each of the 16 tracks. These 16 characters are divided into four groups to make each track easy to identify. You can set each track independently to go to any of four possible destinations:

–	The track goes both to the K2000 and to the MIDI Out port (on the track's assigned channel). This is the default setting for all tracks in a new song.
L	The track goes only to the K2000, and *not* to the MIDI Out Port.
M	The track goes only to the MIDI Out port, and *not* to the K2000 itself.
x	The track is disabled (it doesn't go to the K2000 *or* to the MIDI Out port).

DrumTrack

You can define any track in a song as a "drum track." This means that the track never gets transposed when the song is a step in an arrangement and you trigger the step with a Note On event. This enables you to trigger and transpose *some* of the tracks in a step (like bass and lead) without transposing the tracks that contain unpitched sounds (like drums and percussion—which is why we call this parameter Drum Track).

To make a track into a drum track, select that track, and turn the Alpha Wheel one click (or press the **Increment** or **Decrement** button). The hypen becomes a D, indicating that the track is now a drum track.

Although drum tracks don't respond to real-time transposition from step triggering, you *can* transpose them if you want to, using the Transpose function on the EditSong:TRACK page.

Soft Buttons on the COMMON Page

As usual, there are the **<more>** buttons, which take you to administrative functions: Name, Save, Delete, and Dump.

EVENT	Displays the EditSong:EVENT page, where you can scroll through, modify, add, or delete any or all of the tracks' MIDI events.
TRACK	Displays the EditSong:TRACK page, which contains 13 functions for editing tracks—either individually, or all at once.
STEP	Displays the EditSong:STEP page, where you can enter notes and rests oen at a time (this is known as step recording, not to be confused with the steps in an arrangement).
ARRANG	Displays the EditSong:ARRANG page, where you can combine songs as steps in an arrangement.

Song Editor: The EVENT Page

Every recorded MIDI event is visible (and editable) from this page. There are two basic operations on the EVENT page: scrolling through events, and changing the value of an event. You can scroll through each track individually, or scroll through all the tracks at the same time. The current track appears at the top right of the display (it says All if you're viewing all

tracks—which you can do easily by pressing the **CHAN/BANK** buttons simultaneously).Press either one of the **CHAN/BANK** buttons to select a different track.

The center portion of the display's top line shows the channel of the currently highlighted event (or, if you'fe viewing all tracks, the track and channel of the current event).

Location	Bar, Beat, Tick	Event type and value

```
EditSong:EVENT    (Ch 1)           <>Track:1
   1:1       1:1.000  CTRL BANK      0
   1:1       1:1.000  PCHG    64
   1:1       1:1.000  CTRL VOL      127
   1:1       1:1.000  CTRL PAN       64
   1:1       1:1.000  C 3   v 98 ^ 93      0.356
   2:1       2:1.000  END
 Cut      Copy  Paste    View  AllOn  Done
```

To scroll through the events, use the **Left** or **Right** cursor button to highlight the location (the first column).Then use the Alpha Wheel, the **Up** and **down** cursor buttons, or the **+** and **-** buttons to scroll through events. As you scroll through the events, the sequencer executes each event. In the case of note events, you hear the actual note (but without the normal decay). If you scroll through a Sustain (controller 64) event with an **On** valueyou'll hear the note sustain until you scroll through a Sustain event with a value of **Off**.

You can also jump directly to a specific bar and beat by typing the bar number and beat number, then pressing **Enter**. The sequencer doesn't execute the events that you jump over. For example, if you have program changes at Bar 3 and Bar 10, and you scroll from the beginning of the song to Bar 4 then jump to Bar 12 and continue scrolling, subsequent notes use the program from bar 3 and not the program from Bar 12.

Location

The first column indicates the location (bar and beat) within the song. Scroll through the events on the selected track(s) with the Alpha Wheel, or enter a specific bar and beat on the alphanumeric buttonpad to jump to events occurring on that beat. A quick way to jump to the end point in a track is to press **9999** and then **Enter**.

Bar, Beat, and Tick

Bar, Beat, and Tick are editable parameters for each event. They determine when an event occurs relative to the other events within the song. To enter values with the alphanumeric buttonpad, first position the cursor in the Location column, then enter up to three digits if you want to adjust only the Tick value, four or five digits in order to change the location to a new beat and tick within the current bar, or enter in the complete bar, beat, and tick value to view a different bar. You don't need to enter colons or periods.

Event Type and Value

The Event Type field displays the MIDI event type at each Event List location in the song. With the exception of Note events, which are displayed as actual note names (for example, C$^{\#}$ 4), you can't change the type of an event. You *can*, however change controller numbers as well as their values.

The values of PCHG, BEND, MPRS, SYSX, TMPO, and END events appear directly to the right of the Event Type field. These values are all editable. Here are the ranges of values for each event type:

Program Change (PCHG)	0 - 127
Pitch Bend (BEND)	(-8192) - 8191
Mono Pressure (MPRS)	0 - 127
System Exclusive (SYSX)	The message in hexadecimal form
Tempo (TMPO)	1.00 - 255.00 bpm
End Point (END)	Any Bar : Beat . Tick setting

Note events have four editable values: Note Number, Attack Velocity (ʋ), Release Velocity (ˆ), and Note Duration.

Note Number	C -1†through G 9
Attack Velocity	1–127
Release Velocity	1–127
Note Duration	Beats : Ticks

Controller events have two editable values: Controller Type and Controller Value. Controller types appear as numerals, except for defined Controllers (like MWheel and Breath).

Controller Type	0 - 127
Controller Value	0 - 127

Soft Buttons on the EVENT Page

Cut

Removes the currently selected event from the event list and temporarily stores it in a memory buffer so that you can immediately paste it into a new location.

Copy

Makes a duplicate of the currently selected event and temporarily stores it in a memory buffer so that you can immediately paste it into a new location.

Paste

Inserts the most recent cut or copied event into the event list at the currently selected Bar : Beat : Tick location. The pasted event shares the same location with the event that already existed at that location, and appears directly above it.

View

Brings you to the View page, where you can set the view filter parameters for the Event List.

```
EVENT:View
Notes     :On          Volume    :On
PitchBend :On          Pan       :On
ModWheel   :On          Bank/Prog :On
Data      :On          Tempo     :On
Sustain   :On          SysEx     :On
Pressure  :On          Other     :On
Toggle AllOff AllOn                    Done
```
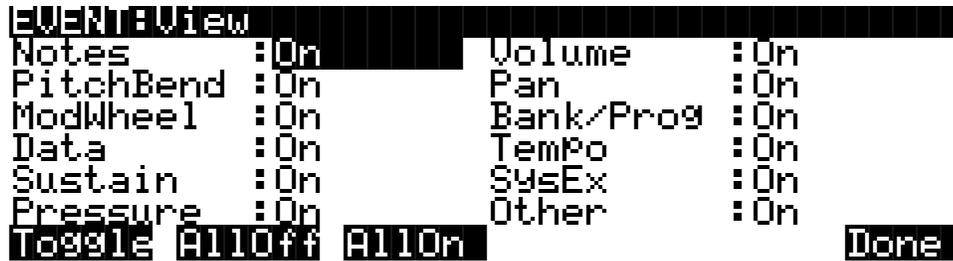
Use the View page to determine which events are visible on the EVENT page. The View page shows several event types, each with a value of **On** or **Off**. Set an event type's value to **Off** if you don't want to see it on the EVENT page. This prevents all events of that type from appearing on the EVENT page—and from getting executed as you scroll through events.

By default, all events types are visible (they have a value of **On**). If you make any event types invisible (a value of **Off**), the **View** soft button on the EVENT page changes; it's enclosed in brackets to indicate that some event types are invisible (as shown below).

```
Cut     Copy    Paste   [View]  AllOn   Done
```

The View page has four soft buttons of its own: Toggle, AllOff, AllOn, and Done.

Toggle

Switches the value of every event type; **Off** becomes **On**, and vice versa. This is useful when you want to go back and forth between viewing a single event type (or maybe a few types) and viewing everything *but* that type.

AllOff

Swithces the values of all event types to **Off**.

AllOn

Swithces the values of all event types to **On**.

Done

Returns you to the EVENT page.

AllOn

This button does the same thing as the **AllOn** soft button on the View page; it makes all event types visible.

Done

Returns you to the COMMON page.

Song Editor: The TRACK Page

This page offers 13 track-based editing functions:

Erase	*Shift*
Copy	*Transpose*
Bounce	*Change*
Insert	*Thin*
Delete	*Remap*
Quantize	*Grab*
RefQuant	

For each function, there is a set of parameters to control how the function operates, and on what region of the selected track(s). As usual, the top line of this page displays the selected track or tracks. Select the available current track(s) for editing by using the **CHAN/BANK** buttons. Press both of the **CHAN/BANK** buttons together to select all tracks.

Below is an example of the TRACK page for the Bounce function.

```
EditSong:TRACK              <>Track:1
Function:Bounce      From :   1:1 To:   2:1
DstTrack:1           Events:Notes
Mode    :Erase       LoKey :C -1    Hi:G 9      Region/Criteria
                     LoVel :1       Hi:127      window

Locate  :   1:1
From|c    Play   Stop            Go    Done
```

The screen is divided into two halves, with the right half being its own "window." This is called the Region/Criteria window. The parameters in this window are used to select the range of bars to edit, as well as which the types of events to edit. The parameters in this window are largely the same for most functions. However, for certain functions, certain parameters may not apply. For example, Quantize and Transpose apply only to notes, while Remap applies only to Controllers. In addition to the Region/Criteria window parameters, the Locate parameter also appears for each function. Since these parameters are common to the various functions, we'll define them first. Then we'll describe the individual functions—along with the parameters specific to each. these functions and parameters normally appear on the left side of the screen. Two functions, (Quantize and Reference Quantize) have unique parameters that appear in the Region/Criteria window. We'll describe those parameters along with the functions.

Once you've chosen a function and set the parameters to your liking, press **Go**. This executes the editing function. You can then play the sequence to hear the results of your edit. If you don't like your edit, simply exit the editor and press **No** when you're asked if you want to save. If you *do* like your edit, you can press **Done** and use the **<more>** buttons to get to **Save**, or just exit the Song Editor and save the changes.

Of course, rather than exiting, you can go to another edit function. Keep in mind though, that if you choose to perform more than one edit without saving, and you are not satisfied with one of the changes you make, you will have to exit the editor without saving and then redo each of the changes you made. That's why it's usually best to save after each successful edit.

Common Parameters for TRACK Functions

Locate

This parameter is available for every TRACK function.

The value of Locate indicates the bar and beat, and changes in real time during playback and recording, reflecting the song's current position. You can set Locate to any bar and beat, including negative values. Playback begins at this location, and pressing **Stop** returns you to this location.

Region / Criteria Window Parameters

The following parameters appear on most TRACK function pages (when Events has a value of Notes).Many pages have addiitonal parameters pertaining to those functions.

From, To

From and To are available for most TRACK functions; together they define a range of time within the selected track(s). This region defines the song segment that you plan to edit—the From value is the first bar and beat of the segment, and the To value is the final bar and beat.

From and To are always expressed in bars and beats, and are aligned exactly on the beat when adjusted manually (that is, when you change their values using the Alpha Wheel or another data entry method). If you need finer resolution, you can set From and To values that aren't exactly on the beat, using the **FromTo** soft button (see *Soft Buttons on the TRACK Page*, page 3-43).

Events

Use this parameter to select any type of MIDI event for editing. Whatever function you're using gets applied to the type(s) of MIDI events specified with the value of the Events parameter. Available Values are: **All**, **Notes**, **Controllers**, **MonoPress**, **PitchBend**, **ProgChange**, **PolyPress**, **SysEx**, and **Tempo**.

When Events is Set to All

The function you're using gets applied to all MIDI events between the From and To values on the track(s) you're ediitng.

When Events is Set to Notes

You can change the range of notes to be edited, as well as the range of attack velocities to edit.Notes outside of either range are not affected.

When Events is Set to Controllers

On many function pages there's an additional parameter called Ctl (Controller). If you set Ctl to All, the current function affects all Controller messages.

You can edit individual Controller message types; just set Ctl to something other than All (Refer to the Control Source list in the *Musician's Guide*.for the complete set). In this case, the LoVal and Hi parameters appear, enabling you to set a range of Controller message values to be edited. Values outside this range are not affected.

LoKey

Determines the lowest note in the range of notes to be edited. This can be set to any MIDI note value; the default is **C -1**.

Hi

Determines the highest note in a range of notes to be edited. This can be set to any MIDI note value; the default is **G 9**.

LoVel

You can specify an attack-velocity range as an additional criterion for selecting Note events for editing. The LoVel parameter sets the lowest velocity a note needs to have in order to be edited. Notes on the selected track(s) with attack velocities lower than the LoVel are not affected by the edit. The available values are **1–127**; the default is **1**.

Hi

The Hi(Vel) parameter sets the highest attack velocity a note needs to have in order to be edited. Notes on the selected track(s) with attack velocities higher than the Hi(Vel) are not affected by the edit. The available values are **1–127**; the default is **1**.

When Events is Set to Controllers

In this case the Ctl parameter selects particular controller data to be edited. Refer to the Control Source list in the *Musician's Guide.*for the complete set of Controller events that you can edit.

LoVal

You can further specify a particular range of values to edit by setting a high and low value. LoVal defines the lowest value that you can change for the selected Controller. For example, if you're editing PitchBend values, and you set LoVal to 64, PitchBend values below 64 won't be affected by the edit. Available values are **0–127**.

This parameter is disabled when Events is set to **Controllers** and Ctl is set to **All**.

Hi

This parameter works wth LoVal to set the range of Controller values available for editing. Available values are **0–127**. This parameter is disabled when Events is set to **Controllers** and Ctl is set to **All**.

Soft Buttons on the TRACK Page

FromTo is a quick way to define the region of time you intend to edit. There are two ways to use this feature when the sequence is playing back in real time; both ways give you finer resolution for setting the range for editing—you can go down to the tick level (unlike the From and To parameters, which allow you to set the edit range only as fine as whole beats).

The first way is to position the cursor over the From field in the Region/Criteria window, then press the **Play** soft button. At this point, every time you press **FromTo**, the From bar and beat change to reflect the location at the time you pressed **FromTo**. You can set the To location in the same way.

When the cursor is positioned somewhere other than over the From or To fields, the function of the **FromTo** soft button is slightly different. In this case, once you start the sequence playing back, and you press **FromTo** before reaching the To location, you get a new From location. Without stopping the sequence and starting it again, press **FromTo** a second time, and if it was pressed at a point *after* the From location, that point becomes the new To location. If the second **FromTo** press happens *before* the current From location, that point becomes the new From location, and the old From location becomes the new To location.

Play starts the playback of the song from the bar and beat set with the Locate parameter. When the song is playing, this button becomes **Pause**.

Stop stops the playback of the song and return to the Bar and Beat set as the Locate value.

Go executes the current function. In other words, nothing happens until you press **Go**.

Done returns you to the COMMON page, without executing the current function.

Track Functions: Erase

This function erases specified events from a region of time, but doesn't delete the region of time. The result is like erasing a section of recording tape. If you want to remove a segment completely and shorten the length of the track, use the Delete function.

```
EditSong:TRACK              <>Track:1
Function:Erase        From  :   1:1 To:   2:1
                      Events:SysEx



Locate  :   1:1
FromTo   Play   Stop            Go     Done
```

Track Functions: Copy

Use the Copy function to duplicate the selected events from the current track and place them in the same track or into another track, either merging with or overwriting existing data.

```
EditSong:TRACK              <>Track:1
Function:Copy         From  :   1:1 To:   2:1
DstTrack:1            Events:Controllers
Location:   1:1       Ctl    :MWheel
Mode    :Merge        LoVal :0        Hi:127
Times   :1
Locate  :   1:1
FromTo   Play   Stop            Go     Done
```

If you don't want to copy all of the MIDI events in the selected segment on the current track, use the Events parameter in the Region/Criteria window to select a specific MIDI event type; only events of that type get copied.

Some event types provide additional criteria selection parameters. It's often a good idea to set Events to **Notes** when copying, then add any necessary Controller or other data to the track at a later time.

DstTrack (Destination track)

Select a destination track for the copied events with the DstTrack parameter. Available values are **1–16** and **All**. Selected events (as specified in the Region/Criteria window) are placed in the destination track(s) at the bar and beat you specify with the Location parameter (described below).

If you've seleted all tracks for editing, copying affects all tracks (that is, the destination becomes all tracks).

Copying doesn't change any channel assignments. In other words, no matter what channel the current track (source track) uses, the destination track's channel remains unchanged, and the copied events play on the detination track's channel.

Location

Use this parameter to specify a location (bar and beat) in the destination track. This is the location to which the copied events. If the length of the copied region extends from the Location point beyond the song's existing end point, a new end point is defined.

Mode

The Mode setting determines whether the copied events merge with existing events on the destination track, or erase them. In either case, copying affects events from the location point to the end of the copied region.

Times

This parameter determines how many copies of the selected region are placed—one after another—into the destination track. available values are **1–127**.

Track Functions: Bounce

Use the Bounce function to move the selected events from the current track to another track, either merging with or overwriting existing data on the destination track. The Bounce function differs from the Copy function; it removes the selected region from the original track. As on a multi-track tape recorder, Bounce always puts the data in the same location on the destination track that it occupied on the original track.

```
EditSong:TRACK              <>Track:1
Function:Bounce     From  :   1:1 To:   2:1
DstTrack:1          Events:Notes
Mode    :Erase      LoKey :C -1   Hi:G 9
                    LoVel :1      Hi:127

Locate  :   1:1
FromTo   Play   Stop           Go    Done
```

DstTrack (Destination Track)

This parameter selects a destination track for the events that you move. All selected events described in the Region/Criteria Window are placed into the destination track at the corresponding location.

Copying doesn't change any channel assignments. In other words, no matter what channel the current track (source track) uses, the destination track's channel remains unchanged, and the copied events play on the detination track's channel.

Mode

The Mode setting determines whether the bounced events merge with existing events on the destination track, or erase them. In either case, bouncing affects events from the location point to the end of the bounced region.

Track Functions: Insert

The Insert function adds blank time to the current song, modifying the song's end point correspondingly. The Insert function affects all tracks. This is similar to splicing a piece of blank tape to an existing recorded segment of tape.

Note that there are no Region/Criteria parameters for the Insert function.

```
EditSong:TRACK        (Affects all tracks)
Function:Insert
Location:   1:1
Amount   :    1:0


Locate   :   1:1
FromTo   Play   Stop              Go    Done
```

Location

This parameter sets the beginning of the blank time that you insert. It's specified as a bar and beat. Events before this location aren't affected. Events after this location are moved according to the length of the inserted blank time—as specified by the Amount parameter—and are otherwise unaffected.

Amount

The Amount parameter defines the length of the inserted blank time. It's specified as a number of bars and beats.

Track Functions: Delete

The Delete function removes a region from the current song. This function is different from the Erase function; in addiiton to removing events, it deletes the entire selected segment, modifying the song's end point accordingly (on all tracks). This is similar to cutting a section out of a tape and splicing the ends of the remaining sections.

```
EditSong:TRACK        (Affects all tracks)
Function:Delete       From  :   1:1 To:   2:1




Locate   :   1:1
FromTo   Play   Stop              Go    Done
```

Track Functions: Quantize

Use the Quantize function to adjust the timing of Note events. Keep in mind that only Note events are quantized; other types of events, such as controllers, are not quantized.

```
EditSong:TRACK                <>Track:1
Function:Quantize   From  :  1:1 To:  2:1
Quant   :100%
Grid    :1/8        LoKey :C -1   Hi:G 9
Swing   :0%         LoVel :1      Hi:127
Shift   :0.000      Release:No
Locate  :  1:1
FromTo   Play   Stop            Go    Done
```

Quant (Quantize)

Quantizing moves Note events so that the intervals between notes are more even. There are two ways to quantize the notes in your songs: as you record them, or after you record them. The Quant parameter controls the amount of quantizing that occurs *after* recording. The Quant parameter works together with the Grid parameter, which sets the maximum amount that notes can get moved. (See *Grid* below.)

The value of Quant is a percentage of the maximum . A value of **Off** means no quantizing; this preserves the exact timing of what you recorded. A value of **100**% means maximum quantizing, which moves notes to all the way to the nearest interval (as specified by the value of the Grid parameter). This doesn't change the duration of the notes.

See *Quant (Input Quantizing)* on page 3-29 to learn about quantizing tracks *before* you've recorded them.

Grid

This parameter works together with the Quant parameter to control quantizing (see *Quant (Quantize)* above). The Grid parameter sets the maximum "distance" (in terms of time) that a note *can* get moved, while the Quant parameter determines how much of that distance the notes actually move.

The value of the Grid parameter determines the number of divisions—called grid points—within each beat. It's expressed as a fraction (**1/1**, **1/2**, **1/3**, etc.), including triplet values (instead of **1/12**, for example, you'll see **1/8tr**).

If the notes you've recorded don't fall exactly on the grid points, quantizing moves them closer. The value of the Quant parameter determines just how far the notes get moved.

You can set any value between **1/1** (quantizing to whole notes) and **1/384** (probably imperceptible, except at extremely slow tempos). you can press the **Increment/Decrement** (**+/-**) buttons simultaneously to jump to standard quantizing intervals (**1/1**, **1/2**, **1/4**, **1/8**, etc.).

Swing

This parameter controls the amount of swing (syncopation) that you add after recording. The value of Swing is expressed as a percentage. When you apply swing, the sequencer moves every other grid point—either toward the next grid point (when the value of Swing is positive) or toward the previous grid point (when the value is negative).

A value of **125**% (maximum swing) moves every other grid point $^1/_3$ of the distance toward the next grid point. Smaller values move the grid points a smaller distance. A value of **0** (the

default) is straight time—no swing. A value of **–99**% moves every other grid point $^1/_3$ of the distance to the *previous* grid point).

Shift

Quantizing is a *proportional* function; it moves Note events different amounts, according to the distance of each note from the beat. The Shift parameter controls note shifting, which is an *absolute* function—that is, it moves all selected Note events the *exact same distance* forward or backward. Any shifting that you apply takes place before quantizing. Shifting is useful for making uniform timing changes to song sections—for example, when you've recorded a drum track dead on the beat, and you want it to play back on the top of the beat.

You can shift notes as much as 26 beats in either direction, in increments of a tick (480 ticks to a beat). The range of values is **-26.020** to **26.020** (although you can't shift notes past the start or end points of the song). The number before the period is the number of beats to shift; the number after the period is the number of ticks to shift (*not* a decimal, but the actual number of ticks—for example, a value of 0.240 is 240 ticks, which in 4/4 time is an eighth note).

You can also shift notes *after* recording, using a separate Shift function that works much like this parameter. See *Track Functions: Shift* on page 3-49

Region/Criteria Window

Release

Set Release to **Yes** if you want to quantize Note Off events as well as Note On events. This moves each Note Off to the grid location nearest to the time that you released the note. This can change the duration of notes.

Track Functions: Reference Quantize

Like regular quantizing, reference quantizing aligns Note events to a grid (see *Grid* on page 3-30 if you need a reminder about what a grid is). Unlike regular quantizing, however, the grid isn't a series of even fractions of a beat. Instead, it's defined by the Note events in an existing track. If you like your drum track but your bass track isn't following as tightly as you'd like, reference quantizing is a good solution.

To reference quantize a track, pick the song that contains the track you want to follow (the RefSong parameter), then pick the desired reference track within that song (the RefTrack parameter). Then set the *amount* of reference quantizing with the Timing parameter, select the region to be quantized, and press **Go**. You can also use the Velocity parameter to make the *velocities* of the notes in the selected region follow the velocities of notes in the reference track (see *Velocity* below).

```
EditSong:TRACK                    <>Track:1
Function:RefQuant    From  :   1:1 To:   2:1
RefSong :1 NewSon
RefTrack:1           LoKey :C -1  Hi:G 9
Timing  :100%        LoVel :0     Hi:127
Velocity:Off         Width :1/8
Locate  :   1:1
FromTo   Play   Stop             Go     Done
```

RefSong

This parameter defines the reference song—the song containing the track you want to follow when you reference quantize. It can be any existing song (even the song you're currently editing). The default is **1 NewSong**.

RefTrack

Select any track (**1–16**, but not the track you want to reference quantize) within the reference song as the reference track. The Note events in this track define the grid that your reference-quantized track follow.

Timing

The Timing parameter determines how much the selected note events are moved toward grid locations. A value of **Off** disables reference quantizing. Values of **1**%–**100**% represent the percentage of the distance that notes get moved toward the nearest grid location (as defined by the Note events in the reference track). A value of **100**% moves each selected note to align *exactly* with the nearest grid location, while smaller values move notes a lesser distance.

Velocity

You can reference quantize attack velocities in much the same way as Note events. Just set a value other than **Off** for the Velocity parameter, and the velocity values of the selected notes get scaled toward the velocity values of the nearest notes in the reference track. The value of Velocity represents the percentage of change that gets applied to the notes being quantized. For example, if a selected note was recorded at a velocity of 120, and the nearest note in the reference track was recorded at a velocity of 60, setting the Velocity parameter to **100**% would quantize the selected note to a velocity of 60; a value of **50**% would quantize it to a velocity of 90. A value of **Off** for the Velocity parameter disables velocity quantizing..

Parameters in the Region/Criteria Window

Width

This is another way to determine which Note events get quantized. The Width parameter creates a "window" around each note in the reference track. Any note on the track that you're quantizing that falls into one of these windows gets moved toward the note within that window (the amount that the note moves depends on the value of the Timing parameter). Notes that don't fall into any window remain where they are.

At the default value of **1/1**, the window around each note on the reference track is a whole beat (half a beat before and half a beat after), and just about every note gets quantized. you can set the value up to 1/384 of a beat, in which case very few notes get quantized. The most useful values for most songs is the **1/1** to **1/16** or **1/32** range.

Track Functions: Shift

This function shifts notes in the same way as the Shift parameter for the Quantize function (see *Shift* on page 3-48 if you don't know how note shifting works). If you want to shift notes *during*

recording, use the Shift parameter for the Quantize function. If you want to shift notes *after* recording, use the Shift function.

```
EditSong:TRACK                    <>Track:1
Function:Shift         From  :   1:1 To:    2:1
Ticks    :0.000        Events:Pitchbend



Locate  :   1:1
FromTo  Play   Stop              Go     Done
```

The value of the Ticks parameter determines the amount of shift. You can shift notes as much as 26 beats in either direction (although the start and end points of the song are unaffected, so if you shift notes too far, they'll play simultaneously at the beginning or end of the song).

You can shift notes as much as 26 beats in either direction, in increments of a tick (480 ticks to a beat). The range of values is **-26.020** to **26.020** (although you can't shift notes past the start or end points of the song). The number before the period is the number of beats to shift; the number after the period is the number of ticks to shift (*not* a decimal, but the actual number of ticks—for example, a value of 0.240 is 240 ticks, which in 4/4 time is an eighth note).

Track Functions: Transpose

Use the Transpose function to change the MIDI Note numbers of the selected Note events.

```
EditSong:TRACK                    <>Track:1
Function:TransPos      From  :   1:1 To:    2:1
Semitone:12ST
                       LoKey :C -1    Hi:G 9
                       LoVel :1       Hi:127

Locate  :   1:1
FromTo  Play   Stop              Go     Done
```

Semitone

The Semitone parameter controls the amount of transposition. One semitone equals one MIDI Note number. The available values are **-128ST** to **127ST**, although you can't actually transpose notes below MIDI Note number 0 or above Note number 127. If you transpose a note too far in either direction, it plays at either Note number 0 or 127

Track Functions: Change

The Change function can modify attack velocities, release velocities, and the values of any Controller messages on the current track. You can apply equal (constant) amounts of change to all selected events (for example, bringing all attack velocities down 10%), or you can make the change vary in intensity over time—this is called a ramp (for example, scaling velocity to 120% with a positive ramp creates a crescendo).

If you use a ramp to change Controller message values, you might lose some of the smoothness of certain features (pitch bend, for example), due to uneven time intervals between Controller events.

```
EditSong:TRACK                <>Track:1
Function:Change     From :   1:1 To:   2:1
Scale   :100%       Events:Velocity
Offset  :0          LoKey :C -1   Hi:G 9
Mode    :Constant   LoVel :1      Hi:127

Locate  :   1:1
FromTo   Play   Stop           Go    Done
```

Scale

This parameter scales the values of selected events to a percentage of their original values.If Scale is **100**%, there's no change. Set Scale from **0**% to **99**% to reduce the original values (you can't scale to less than 1 for velocities or 0 for Controller message values) or from **101**% to **20000**% to increase the original values (you can't scale to greater than 127).

Offset

Offset works alone or in conjunction with Scale to add or subtract a set amount to or from the original (or scaled) values of selected events. You can specify an offset as low as **-128**, or as high as **127**, although velocity values can't be less than 1 or greater than 127, and controller message values can't be less than 0 or greater than 127.

Here's an example of using Scale and Offset together: setting the attack velocities of all selected notes to a value of 72.

1. Select a segment for editing, using the From and To parameters.

2. Set the value of Events to **Velocity**.

3. Set the value of Scale to **0**%. This will set selected notes' attack velocities to minimum (the display will show values of 1, but the K2000 records the values as 0).

4. Set Offset to **72**. This will add 72 to each scaled value, resulting in uniform values of 72.

5. Press **Go** to make the changes.

Mode

The value of Mode determines how changes are applied to the selected events: uniformly, or varying in intensity over time. Set Mode to **Constant** to change each selected event's value by the same amount. Use a value of **PosRamp** (positive ramp) or **NegRamp** (negative ramp) to vary the change over time.

If you use a positive ramp, selected events change gradually from their original values to the new values specified with the Scale and / or Offset parameters. This occurs over the length of the segment defined with the From and To parameters; there's only a slight change at first, but it's at full scale byt the time the song reaches the bar and beat specified by the To parameter.

A negative ramp is the opposite; the new values are applied immediately at the bar and beat defined by the From parameter, then the events gradually go back toward their original values as the song progresses toward the bar and beat defined by the To parameter.

Figure 3-1 shows how the setting for Mode affects the result of a change. In each case, attack velocities are scaled down to 25% over the two-bar segment from 2:1 to 4:1

Constant   **PosRamp**   **NegRamp**
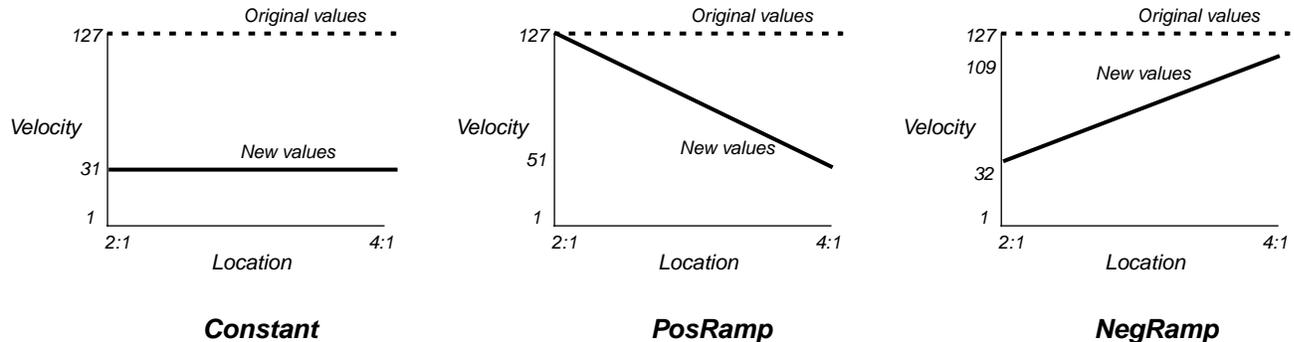
Figure 3-1   Effect of Mode on Change function

Track Functions: Thin

Use the Thin function to reduce the number of events recorded for any Controller type within the selected segment. This is useful because sometimes you can get the same effect from a Controller even if you remove some of the events. This is an easy way to save memory, and possibly avoid some of those annoying delays that occur when there's too much MIDI information getting sent.

Percent

The value of the Percent parameter determines how much thinning occurs. A value of **0%** means no thinning. The default value of **50%** removes half the events of the currently selected Controller type (as specified by the Ctl parameter). A value of **100%** removes most events of the selected type—but not all. Some events are never removed, including all Pitch Bend messages with a value of 0, and initial settings for many Controllers, such as volume and pan.

Track Functions: Remap

Use the Remap function to convert events from one Controller type to events of another controller type. Both types of events must occur within the selected segment.

Use the Old and New parameters to remap Controller types. For example, the following diagram indicates that all MWheel messages (the old type) in the segment from 1:1 to 2:1 will become Volume messages (the new type) when the **Go** button is pressed. The actual values of the MWheel messages won't change, just the Controller type.

```
EditSong:TRACK              <>Track:1
Function:Remap        From  :  1:1 To:   2:1
Old      :MWheel
New      :Volume


Locate   :  1:1
FromTo   Play   Stop             Go     Done
```

The available values for Old and New are **0–120**. Values appear as numerals, except for named Controllers (like MWheel and Breath).

Track Functions: Grab

Grab is a little like Copy, in that it involves selecting song data and placing it into another track. The similarity ends there, however. When you *copy* song data, you copy from the current track, then choose another track in the same song and place the copied data there. When you *grab* data, first you copy the data from a selected segment in any track of any song (these are called the *source* track and the *source* song). Then you choose a *destination* track in the current song and place the copied data there.

You can grab all events, or just certain types of events. Use the parameters in the Region/Criteria window to specify which events to grab. In the following diagram, for example, we're going to grab all MWheel events in the first bar of the source track.

```
EditSong:TRACK              <>Track:1
Function:Grab         From  :  1:1 To:   2:1
SrcSong :1 NewSon     Events:Controllers
DstTrack:1            Ctl    :MWheel
Location:  1:1        LoVal :0      Hi:127
Times    :1
Locate   :  1:1
FromTo   Play   Stop             Go     Done
```

SrcSong (Source Song)

The value of SrcSong defines the source song—the song from which you're going to grab events. It can be any existing song—including the current song Once you've chosen a source song, use the **CHAN/BANK** buttons to select a source *track*. The source track appears at the top right of the display. It can be any single track from 1–16, or it can be all tracks. In the preceding diagram, the source song is **1 NewSong**, and the source track is Track 1.

DstTrack (Destination Track)

This parameter selects the destination track (in the current song) for the grabbed events. All selected events from the source track(s) get placed at a specified location in the destination track(s). If the source track is All, then the destination track automatically becomes All, and each source track maps to its corresponding destination track (1 to 1, 2 to 2, and so on). Empty tracks don't get grabbed.

Grabbing doesn't change any channel assignments. In other words, no matter what channel the source track uses, the destination track's channel remains unchanged, and the grabbed events play on the destination track's channel.

Location

Use this parameter to specify a bar and beat at which to place the grabbed data. This replaces existing data for the length of the place segment. for example, if you grabbed a single four-beat bar from the source track, and placed it at Location 3:1 in a four-beat destination track, you'd replace Bar 3 of the destination track, leaving everyting else unchanged.

If you place a grabbed segment that extends beyond the existing end point of the destination song, the end point gets redefined to accommodate the new data.

Times

This parameter determines how many copies of the selected region are placed into the destination track. If you place more than one copy, each subsequent copy gets placed immediately following the preceding copy.

Song Editor: The STEP Page

```
EditSong:STEP                          <>Track:1
DubMode :Erase
Duration:1/16
Modifier:None
GateTime:75%
Velocity:Played
Locate  :   1:1.000
                Play    Stop   <Back   Step>   Done
```

Parameter	Range of Values	Default
Dubmode	Merge, Erase	Merge
Duration	1/1 – 1/64	1/8
Modifier	None, Triplet, Dotted, Dotdot	None
Gatetime	0 – 250%	75%
Velocity	Played, 1 – 127	Played
Locate	Bar:Beat.Tick	1:1.000

The Step Editor allows for non-real time entry of events at any location within a song. This is often convenient for adding or deleting events in an existing song, but you can step-edit in a new song as well (

The Step Editor can be used to enter the first note events into a new song, but it will not set the song's End point. Initial program changes, volume and pan settings are remembered as if you recorded the first track using one of the real time recording modes. The End point gets moved if you step edit a track beyond its current end point.

The top line of the display shows the currently selected RecTrk; Use the **CHAN/BANK** buttons to select a different track. When All tracks are selected, the Step edits are performed on the currently selected RecTrk (as indicated on the MAIN page in Song mode).

Recording With the STEP Editor

Recording using the step editor is easy. Set the parameters to your desired settings and make sure the Locate parameter is set to the bar and beat at which you wish to start recording. Then strike a key. The note you play is displayed in the window on the right side of the display. You'll also see the note's velocity or duration. If the Velocity parameter is set to **Played**, the display shows the actual velocity you played. Otherwise, the display shows the fixed velocity specified by the value of the Velocity parameter. The duration of the note is determined by a combination of the Duration and Gate Time parameters.

When you release the key you've just recorded, the Locate parameter advances its value by the amount specified with the Duration parameter. If you want to enter a rest, press the **Step>** soft button instead of striking a key; this advances the value of the Locate parameter by the specified amount, without recording a note.

You can override the specifications of Duration and Gate Time, and enter note events with longer duratoins than specified. Do this by holding a key and pressing the **Step>** button. The duration of the current note changes in the window on the right. This can be a quicker method of entry than changing the duration parameter if you need a note that is twice or three times as long as the duration. For instance, if the duration is set to 1/8, you can quickly enter 1/4 note by holding the note and pressing **Step>** once, or enter a whole note by pressing the **Step>** button three times. Note that if you are using this method and the Gate Time parameter is set to less than **100**%, it will only be applied to one of the steps. For example, if you have a Duration of **1/8** and a Gate Time of **75**%, then striking a note will produce a duration of 180 (75% of 240). But if you hold the note and press **Step>**, then the duration will be 420 (180 + 240), instead of 360 (75% of 480).

You can strike more than one note at a time to enter chords. You can also strike several notes one at a time (holding on to the previous notes) to create a chord. As long as you do not release all of the notes, the Locate parameter will stay at the same point and the notes will be entered as a chord. If you want to create a chord where ceratin notes have longer durations than others, strike the notes of the chord, then release the notes you wish to be shorter and press the **Step>** button. The window on the right will change to show only the notes you are still holding with their longer durations.

If you make a mistake while you are entering notes, you have two ways to fix it. With Dub Mode set to **Merge**, if you are still holding the note, you can press the **<Back** soft button. If you set the Dub Mode to **Erase**, you can just press the **<Back** button to erase the previous event and then strike the correct note. Or you can set the Locate parameter to the proper spot and strike the correct note.

DubMode

DubMode determines if the note events entered on the STEP page will merge with, or erase all other existing MIDI events on the selected track as you step edit.

Set DubMode to **Erase** to replace all existing track data in the bars and beats you edit. Events before and after the edited locations are preserved. Set to **Merge** to add note events to existing track data.

The DubMode value reflects the value of the Mode parameter on the MAIN page in Song mode. Conversely, if you change the value of DubMode while in the Step Editor, you'll change the value of Mode accordingly.

Duration

The actual duration of a note event entered in Step time is determined by the values of the Duration, Modifier, and GateTime parameters.

The Duration parameter sets the base note duration: **1/1** is a whole note, **1/2** is a half note, **1/32** is a thirty-second note, and so on. The Duration value, along with the Modifier value, determines the size of the change in song location when you press **Step>** or **<Back**.

Use the alphanumeric buttonpad to quickly select a note duration and modifier whenever the Duration parameter is selected:

1	*whole note*
2	*half note*
3	*thirtysecond note*
4	*quarter note*
5	*sixtyfourth note*
6	*sixteenth note*
7	*applies a dotted modifier to current duration*
8	*eighth note*
9	*applies a triplet modifier to current duration*
0	*removes any modifiers*

Modifier

The Modifier parameter allows you to change the Duration value with three standard modifiers. Set Modifier to **None** to prevent any modification.

Use a value of **Triplet** for a duration that's 2/3 of the Duration value. For example, in 4/4 time, an eighth note is 240 ticks, while an eighth-note triplet is 160 ticks.

A value of **Dotted** increases the duration by 50% of the Duration value, while a value of **DotDot** (double dot) increases note duration by 75% of the Duration value. For example, an eighth note in 4/4 time has a duration of 240 ticks. The same eighth note with a dot occupies 360 ticks (240 + 120); with a double dot, it occupies 420 ticks (240 + 180).

GateTime

GateTime determines the percentage of the note duration that you hear. GateTime doesn't affect the interval between steps; it affects only the length of time that the the notes in each step are sustained.

The default value of **75%** works well in most cases. Increase the value for a more legato result, and decrease it for a more staccato result. (The range of values is **0%–250%**.) Values of more than **100%** cause notes to overlap for a kind of "hyperlegato." Keep in mind, however, that if notes with the same pitch overlap this way, the Note Off for the first note also cuts off the second note (since its Note On event occurs before the Note Off for the first note).

Double-press the **Decrement** and **Increment** buttons to increase this value in 20% increments.

Velocity

This parameter determines the attack velocity values of each note entered while step editing. Set the Value to **Played** to use the attack velocities of notes as you play them, or set a value of **1–127** to fix all notes at the sepdified velocity.

Locate

The value of Locate parameter indicates the bar, beat, and tick of the next step entry in the song. When you play a note (or press **Step>** to enter a rest), the value of Locate advances to the next step (as defined by the Duration and Modifier parameters). During playback of the song, the value of the Locate parameter gets updated as the song progresses (the Bar and Beat values change, but no the Tick value).

Playback almost always begins at the bar and beat specified by Locate. The only exception occurs when Locate is set beyond the song's end point, and you press **Play** without doing any step editing beforehand. In this case, the song starts at 1:1, regardless of the value for Locate.

When you press **Stop**, the song always returns to the bar and beat specified by Locate.

If you enter a negative value for Locate, you can't do any step editing. In other words, you can make step entries only within the song—not within the countoff.

Soft Buttons on the Edit Song: STEP Page

Play

Starts the playback of the song from the Bar and Beat set in the Locate parameter. When the song is playing, this soft button becomes **Pause**. When you press **Pause**, the sequencer stops playback but remains at the current location. The button changes to **Play**. Press **Play**, and song playback continues.

Stop

Stops song playback and returns the sequencer to the bar and beat specified by the value of the Locate parameter.

<Back / Step>

Moves the current location of the song backward or forward one step; the length of this step is determined by the values of the Duration and Modifier parameters.

Done

Takes you back to the COMMON page.

Song Editor: The ARRANGE Page

There are step-by-step instructions for creating arrangements in a tutorial beginning on page 3-11. The descriptions on this page list all the parameters on the ARRANGE page, also known as the Arrangement Editor.

On the ARRANGE page, you can create a special song called an arrangement. An arrangement doesn't have to contain any *recorded* tracks (although it can); it can consist entirely of sections called steps (not to be confused with step editing).These steps instruct the sequencer to play one

or more songs in a specified order—including repititions and transposition, if desired. You can even set things up so that you can start (and transpose) individual steps at the touch of a key.

The primary advantage to arrangements is that you can program a number of songs to play automatically (but still responsive to real-time changes). It's also a way to get up to 32 tracks in a song: just record a 16-track song, then make it an arrangement by adding one or more steps. If each of those steps plays a 16-track song, then you've got 32 tracks going simultaneously.

You can turn any song into an arrangement simply by going to the ARRANGE page and specifying a song ID and name for at least one step. If the song already contains recorded tracks, they'll still play back just as they did before you made the song into an arrangement. In fact, arrangements are almost exactly the same as regular songs. The only difference is that arrangements contain extra instructions that play back other songs—either alone, or with tracks recorded into the arrangement itself.

When you're on the MAIN page in Song mode, you can identify arrangements by the three hyphens (---) that appear above the word Track at the left side of the display. During playback of the arrangement, the hyphens are replaced with the song ID of the current step, as well as the step number.

The top line of the display includes a Step field. The first number in this field indicates the current step. the second number indicates the total number of steps in the arrangement. Use the **CHAN/BANK** buttons to select the current step.

```
EditSong:ARRANGE              <>Step:1/1
Step :1
Song :0 None
Mutes:---- ---- ---- ----
Xpose:0st Times:1x   Mode :Next

LoKey:Off HiKey:Off Latch:Off VelTrk:On
Add     Delete SetRng Play   Stop   Done
```

Parameter	Range of Values	Default
Step	1 – 99	1
Song	Any song	0 None
Mutes	- , M	- (Not muted)
Xpose	-128ST – 127ST	0ST
Times	1X – 120X, Infinite	1X
Mode	Next, Stop	Next
LoKey	C-1 – G9, Off	Off
HiKey	C-1 – G9, Off	Off
Latch	On, Off	Off
VelTrk	On, Off	On

Step

Even though this parameter defaults to a value of **1**, a song isn't an arrangement until at least the first step has a song assigned to it (with the Song parameter, described below). You can have as many as 99 steps in an arrangement. Each step can plays one song (any song in memory); each step also has its own set of additional parameters: muted tracks, transposition, number of repititions, triggering keys, and playback behavior.

Use the **Add** soft button to add steps to an arrangement. Use the **CHAN/BANK** buttons to select different steps

Playback of the arrangement can start on any step; it doesn't have to be Step 1. Use the StartStep parameter on the COMMON page to specify the beginning step of an arrangement. Once playback of an arrangement has begun, you can trigger (and transpose) steps using Note On events (see *Triggering Steps From the Keyboard* on page 3-60).

Song

The Song parameter defines the song assigned to the current step. Each step must have a song assigned to it, or it won't play back. During playback, the current step's assigned song plays in its entirety (unless you interrupt it by restarting/transposing it by triggering a note). If the arrangement also contains recorded tracks, the step plays back along with the arrangement. When the step completes playback, the sequencer either continues to the next step in the arrangement, or stops playback—depending on the setting for the Mode parameter (described below).

Mutes

Use the Mutes parameter for independent muting of each of the 16 tracks in the current step's assigned song. The Mutes parameter has 16 values, representing the 16 tracks. Each track's value is either a hyphen (unmuted) or an M (muted). To mute or unmute a track, select it with one of the cursor buttons, then press either **Decrement** or **Increment** to change its value.

Xpose

This parameter defines the amount of transposition (in semitones) applied to the current step's assigned song. This transposition gets applied to all tracks of the song—except those that are designated as drum tracks. The important thing to remember here is that you need to designate drum tracks *in the song assigned to the step*—not in the arrangement itself. Here's an example.

Suppose you're editing Song **204**, which is an arrangement. You're looking at Step 1 of the arrangement, which plays Song **201**. You set the Xpose parameter to **12S**. This means that Song **201** will play back an octave above normal. That's fine, except that Track 1 of Song **201** contains percussion, and you don't want to transpose the percussion track—because that would change all of the percussion sounds.

The first thing you do is save the current song, which is Song **204**, the arrangement. Now you return to the MAIN page in Song mode, and select Song **201** as the current song. You press **Edit** to get to the COMMON page in the Song Editor, and you select the value for Track 1 of the DrumTrack parameter. You change its value to **D**, which makes it a drum track. Finally, you save Song **201**.

Now you can play Song 204 (the arrangement), and when Step 1 plays, it'll play Song **201** with an octave of upward transposition on every track but Track 1.

Times

The Times parameter determines how many times a step plays during the playback of the arrangement. You can set it to play any number of times from 1 to 120. When the step has played the specified number of times, the sequencer either continues to the next step in the arrangement, or stops playback—depending on the setting for the Mode parameter (described below).

You can also set a value of **Inf** (infinite) for Times, in which case the sequencer never moves on to the next step when it complets the current step. Instead, it keeps playing the current step until you press **Stop**.

Mode

This parameter determines what the sequencer does when it completes playback of the current step in the arrangement. When the value is **Next**, the sequencer moves to the next step and continues playback. When the value is **Stop**, the sequencer stops playback and returns to the bar and beat specified by the Locat parameter on the MAIN page in Song mode (or the Locate parameter on the MISC page, which is the same thing).

Triggering Steps From the Keyboard

There are four parameters along the bottom of the ARRANGE page that are settings for real time control of the steps in an arrangement. These are the buttons that determine which notes (if any) trigger arrangement steps from the keyboard (or from incoming MIDI Note On events).

Each step of an arrangement can have its own range of notes for triggering steps. The lowest note in the range starts the step at its start point, with no added transposition (although the Xpose parameter on the ARRANGE page might add transposition). Each successively higher note in the range triggers the step fronm its start, but with an additional semitone of upward transposition. This tranposition doesn't affect tracks that have been designated as drum tracks (see page 3-37 and page 3-59)

See page 3-60 for step-by-step instructions for using this feature.

LowKey

The first parameter, LowKey, is the setting for the lowest note in a keyboard range. When you play this note on the trigger channel, you'll start the corresponding step, without any additional transposition.

HiKey

The highest note of the keyboard range designed to trigger the current step is set in the HiKey parameter. HiKey defines the largest transposition of a step from the key of the song triggered by the LowKey. The HiKey must be a higher note value than the LowKey in order to trigger any step from the keyboard.

Latch

If Latch is set to **Off**, each step you trigger the step with a key, the step plays only as long as you hold down the key (once the key goes up—or the note trigger switched to off, regardless of sustain), the step stops playing.

Set Latch to **On** if you want the step to keep playing after you release the key (or other trigger) that started the step. In this case, the step plays to its end point, or until you retrigger the step or press **Stop**.

VelTrk

VelTrk lets you set the playback volume of the step according to the attack velocity you use to trigger the step. Set VelTrk to On to do this. In this case, the original attack velocity of every Note event in the gets scaled proportionally to the attack velocity of the note you play when triggering.

Soft Buttons on the Edit Song: ARRANGE Page

Add

Adds another step to the arrangement. The new step gets inserted directly after the current step. Add a step to place a new section into an arrangement, or to define another keyboard range for triggering.

Delete

Removes the current step.

SetRng

Lets you quickly define the keyboard range for triggering the current step from the keyboard (or external MIDI source. When you press **SetRng**, the display prompts you with `Strike low key...`. Play the lowest note of the desired range, and you'll see `Strike high key...`. Play the highest note of the desired range, and you're finished.

Press the **Cancel** soft button at any time to stop the procedure. In ths case, the display shows `Canceled` to verify that you haven't set a range, then returns to the ARRANGE page.

Play

Lets you audition your arrangement from the ARRANGE page, starting playback from the currently selected Step.

Stop

Halts the playback of an arrangement from the ARRANGE page.

Done

Exits the ARRANGE page and returns to the COMMON page.

Selecting a Song for Playback

On the MAIN page in Song mode, select the CurSong parameter with the cursor buttons, then use any data entry method to scroll through the list of songs. Press the **Play** soft buttonto start playback. Press the **Stop** soft button to stop playback and return to the start point (the preset value of the Locat parameter). If you press **Play** while the song is playing, the song stops and the Locat parameter stops at the value of your current location in the song. At this point you have two options. If you press **Play** again, the song continues from its current location. If you press **Stop**, the song returns to the initial setting for the Locat parameter.

The K2000 automatically selects programs for playback based on the MIDI channel(s) and the programs assigned to them at the time the song was recorded. When you start playback, the K2000 sends program changes, on all relevant channels, to itself—and if the PChng parameter on the MIDI mode XMIT page is set to **On**, to the MIDI Out port as well.

If you want to use a different program for playback than the one originally recorded, you'll need to defeat this automatic program selection. To do so, set the ProgLock parameter to a value of **On**. The ProgLock parameter is found on the CHANLS page in MIDI mode; you can set it independently for each of the 16 MIDI channels. When a channel's ProgLock parameter is set to

a value of **On**, the K2000's sound engine ignores all program changes it receives on that channel, either via MIDI or from the K2000's front panel.

When you've set the ProgLock for each of the channels used in the song, you can go to Program mode, select the MIDI channels used by the song, and assign the programs you want to use. When you return to Song mode and play the song, the automatic program changes are defeated, and the song plays the programs you assigned.

Effect Selection During Recording and Playback

When you're recording or playing back a song, the preset effect applied to the song is determined by the program assigned to the FX Channel. Only one effect can be applied at a time, even for multi-part songs using more than one program. Depending on the combination of values for the FX Mode and FX Channel parameters in Effects mode, the FX channel may automatically track the current MIDI channel. In this case, if you change the current MIDI channel during playback, or during a MIDI recording, the current FX Channel, and consequently the current effect, will change also, which might not suit your needs. Consequently, there's a way to force the FX channel to remain constant during playback or MIDI recording, even if you move to another mode and change the MIDI channel during playback or MIDI recording.

To keep the FX channel constant, set the FX Mode parameter to a value of **Auto**, and the FX Channel parameter to a value of **Current**—which is the most generally useful combination of settings for these parameters. In this case, when you're in Song mode—or when you move to another mode during playback or MIDI recording—the FX Channel parameter is temporarily forced to a value of **1**. Therefore the effect is determined by the program assigned to MIDI Channel 1, and will not change, even if you change the current MIDI channel during playback or MIDI recording.

Of course, changing MIDI channels during playback or MIDI recording will not change the FX channel if the FX Channel parameter is set to a value from **1** to **16**, or if the FX Mode parameter is set to a value of **Master**.

Synchronizing Songs

The K2000 has an internal MIDI clock, which is always running at a speed set by the Tempo parameter. When you're in Song mode and the Clock parameter is set to a value of **Int** (Internal), songs synchronize to the K2000's internal clock. At this setting, the clock signal is sent to the K2000's MIDI Out port. This is standard MIDI Sync, and any device that accepts MIDI Sync will play in sync with the K2000.

If you set the Clock parameter to **Ext**, the K2000 expects to receive MIDI Sync at its MIDI In port. When you play back a song, pressing the **Play** soft button cues the K2000 to wait for the sync signal. It begins playing when it receives the signal, or when you press the **Record** button again. If no sync signal is received, the K2000 uses its internal clock at the tempo of the current song.

If you're using Song mode to capture a sequence that you've recorded on an external sequencer, you'll want to consider the Clock parameter's setting before you record via MIDI. If you have the Clock parameter set to **Ext**, the K2000 follows the clock of your external sequencer. As a result, the notes in the song you create will fall regularly on the beats (unless your externally recorded sequence uses a time signature other than 4/4). This makes it easier for you to find the notes in the Song Editor. If you set the Clock parameter to **Int**, the notes in the song don't necessarily align with the beats of the measures in the song—but the song plays back exactly as you recorded it on the external sequencer—including tempo changes you may have incorporated into the externally recorded sequence. If the Clock parameter is set to **Ext**, tempo changes don't carry over to the K2000, and aren't part of the playback.

Finally, keep in mind that when the Clock parameter is set to **Ext**, programs that use one or more of the Clock control sources (see the *Musician's Guide*) synchronize to external MIDI signals. If no external sync signal is received, the Clock control sources are disabled.

Memory Limits

While there's no actual time limit to the length of the songs you record, their size is limited to 64K (or to the maximum amount of available free RAM space you have, if it's less than 64K). However, you can create longer songs by recording each section as a separate song, then putting it together with the Arrangement Editor. If you run out of RAM space while recording a song, the recorder stops and prompts you to save the song. It's a good idea to check your free RAM space before you begin recording a song, and to check the Used readout as you record. If you've used all the available RAM for recording, you may find that when you go to the Song Editor to delete a song or edit its tempo, the K2000 tells you that there's not enough memory to edit. In this case you won't be able to edit any object greater than 4K in size. Objects smaller than 4K can still be edited, because the K2000 always reserves a minimum of 4K of RAM.

If you want to delete a song and the K2000 won't let you enter the Song Editor, select one of the Metronome songs. Since the metronome songs are smaller than 4K, you'll be able to enter the Song Editor. Press the **Delete** soft button, then use the Alpha Wheel to select the program you want to delete. Press the **Delete** button again; this erases the song, freeing up enough RAM to edit other songs.

Loading Songs From Disk

If you have a Type 0 (single-track, single- or multi-channel) MIDI sequence file stored on an MS-DOS disk (720K or 1.4 M), you can load it into one of the RAM banks, and the K2000 will be able to play it from Song mode.

Recording Multi-timbral Sequences via MIDI

You can record sequences from an external MIDI device using Song mode. Program numbers and MIDI channel assignments of multi-timbral sequences are recorded with the notes. To record via MIDI, connect the MIDI Out port of your sequencer to the K2000's MIDI In port. Select Song mode, and set the Clock parameter to External. This syncs the K2000 with the MIDI clock of the external sequencer.

You'll probably want to set the Local Keyboard Channel parameter to **None** when recording from an external sequencer, since the rechannelizing effect of that parameter could have unintended results.

To record all your tracks in one pass, set the RecTrk parameter to **Mult** and make sure that for each channel of information on your source sequence, you have a track enabled to record and a Channel a unique channel assigned to that track. (The default setting of all tracks enabled to record on Channels 1-16 will always work.)

You can also record individual tracks from your source sequence by setting the RecTrk parameter to a specific track. The K2000 will record only information coming in on the channel that the RecTrk parameter is set to.

Press the **Record** button; the K2000 waits for the first clock start from the sequencer. Make sure that your sequencer is set to send MIDI clock signals, and start the sequence. The K2000 begins recording when it receives the first MIDI clock start from the sequencer. When the sequencer has finished its playback, press the **Stop** soft button, and the K2000 stops recording and asks if you want to save the song.

Chapter 4
Disk Mode Enhancements in Version 3

Disk Mode in the K2000 has been greatly enhanced for Version 3. The new features have been provided to allow more flexibility to organize disk files and their contents. Many powerful operations are included that can save a lot of time by allowing you to easily specify exactly what you want to load or save. Examples of this range from organizing related files into directories, to loading macro lists of files or selected objects from multiple SCSI drives, to setting up programs to automatically link with samples off of a CD-ROM. Many new disk utility functions have been added and previously supported functions such as Disk Backup and Delete Files have been updated.

There are also several new object utility functions that make it easier to work with K2000 objects once they have been loaded into the on-board RAM.

Lastly, a new degree of compatibility with personal computers and workstations has been made possible with MS-DOS file system compatibility, sample transfer using the standard audio file formats AIFF and WAVE, and saving of song files as MIDI Type 0 format.

This chapter will take you through all of these features as well as provide you with all of the necessary information to get the most out of the Version 3 file system.

Disk Mode Page

The Disk Mode page (accessible by pressing the DISK button) has many new parameters and information fields. From this you can access all of the new file system features of Version 3.

```
DiskMode      Samples:65535K   Memory:747K
Path = \DRUMS\
(Macro on)
CurrentDisk:SCSI 4              Startup:Off
                               Library:Off

Direct Access, 121MB
TAXMOR XL3-1001    1.07
<more    Load    Save  Macro   Delete  more>
```

Directories

A directory is a file on the disk that lets you group other files together as you might separate documents using folders in a file cabinet. You can now create directories on K2000 Format SCSI and floppy disks.   You can even create directories within directories, which are also called *subdirectories*.

Directories are very useful for organizing your sample, song, and program files. Version 3 provides many operations for setting up and managing the directories on your disks and the files within them.

Until Version 3, the K2000 would store its files only in the top level or root directory. While this has all changed with Version 3, the lower-level disk format is still the same as it always was. If you already have disks formatted on any version of the K2000 Operating System prior to

Version 3, they are totally compatible with the new directory features. In fact we have tried to make it very easy to re-organize any existing disks that you have.

Path

The Path field shows the current directory on the current disk if it is a K2000 format disk. This field is displayed upon returning to the Disk mode page after you have pressed one of the disk function soft buttons and viewed the file contents of a specific disk. The current directory is always initialized to be the top-level or root directory when the K2000 is powered on, or when the CurrentDisk parameter is changed.   After this, the current directory is remembered by the K2000 as the most recent directory accessed by the disk functions.

The root directory is displayed as `Path = \`.

If you press the Load button and load in a file from a subdirectory called SOUNDS, the Path field will appear as `Path = \SOUNDS\`.

The slash character is also used as a directory separator, as in the following path:

`Path = \NEWTUNE\SAMPLES\DOGS\`

This represents the subdirectory **DOGS**, that is located in the **SAMPLES** subdirectory of the **NEWTUNE** directory in the root directory.   If the path is to long to fit on the top line of the screen, its display may be abbreviated. The maximum length of a path in the K2000 is 64 characters—including backslashes (\ ).

Startup

The Startup parameter determines what disk drive will be used for loading the power-up macro file **BOOT.MAC**. If this is set to **None**, then the K2000 will power-up in a normal fashion. If this is set to a SCSI device or **Floppy**, when the K2000 is next powered on it will look for the **BOOT.MAC** file in the root directory of the specified disk, and load in each of the entries in the macro specified within.

This feature provides a very flexible way to automatically configure your K2000's memory contents whenever you turn the power on.

Library

This feature works in conjunction with the macro feature to provide a way to distribute macro files that load data from removable media without having to know in advance the SCSI ID of the removable drive. A macro file stores its references to drives by drive ID (SCSI ID or Floppy), or by either a `Library` or `Unspecified` designation (see *Macros* on page 4-36.) Typically, you would set the Library parameter to be the same as the SCSI ID of your CD-ROM drive, if you were loading macro files from a floppy disk or another SCSI drive that referenced CD-ROM files containing samples or keymaps.

Disk Drive Information

Below the media type and disk capacity is now displayed specific information about the current disk's manufacturer, model number and internal mechanism. The K2000 requests this information from a SCSI drive when the drive is selected by setting the Current Disk parameter. This information may be needed when determining if a given drive is compatible for SCSI operation with the K2000.

Macro On Indicator

When you see ⟨Macro on⟩ in the display, it means that any load operation performed will be recorded in the K2000's macro table

Disk Function Soft Buttons

There are four new soft buttons on the Disk mode page in Version 3. These are **Macro**, **Move**, **Util**, and **NewDir**. To accommodate the new soft buttons, there are now three menus of soft buttons accessible by pressing the **<more** and **more>** buttons. Here is a brief description of each soft button:

<more   Load   Save   Macro   Delete   more>

Load	Loading files from the current disk into K2000 memory.
Save	Saving banks of objects, selected objects, or a macro as a K2000 file on the current disk.
Macro	Controls macro recording. Allows modifying entries from the current macro list.
Delete	Delete files from the current disk if it is a K2000 disk.

<more   Rename   Move   Util   NewDir   more>

Rename	Change the file name of a file on a K2000 disk.
Move	Change the location of a file from within one directory to another (on the same disk).
Util	Check the free space, find files, and view directory organization and sizes on the current disk.
NewDir	Create a new directory on K2000 disks.

<more   Backup   Copy   Sleep   Format   more>

Backup	Hierarchical file backup between drives.
Copy	Single file copy between drives.
Sleep	Send SCSI sleep command to the current disk.
Format	Format the current disk as a K2000 disk.

File List Dialog

The file list dialog is displayed anytime you select a disk function to operate on one or more files on a drive (such as Load or Rename.)   There have been many changes to this dialog for Version 3.

Here is a typical file list dialog, for the Load function:

```
Dir:\                Sel:0/3      Index:     1


        File to load:BASSOON .KRZ    3456K
                     MAY25          (dir)
                     PERC     .KRZ    101K
    Total:3557K
 Select  Root  Parent  Open   OK   Cancel
```

When you enter this dialog, the K2000 selects the current directory to display, and displays its files in an alphabetized scrolling list. If the current directory cannot be located (for instance, if a removable media disk has been changed), the default is to display the disk's root directory.   The root directory will also be selected if the disk drive was just chosen by the CurrentDisk parameter on the Disk mode page (remember that the current directory is always initialized when the CurrentDisk parameter is changed, or if the K2000 has just been powered on.)

If you are a user of SCSI, one of the first things you will notice about Version 3 is the improved speed to display the directory of a selected SCSI drive. This means less time spent watching the K2000 display `Please wait...` after pressing a disk function button such as **Load**.

The display for all drives (including floppy) now shows the 3-character extension of all files in the directory (except directories themselves). Extensions are created when the file is saved by the K2000. You cannot modify the extensions on the K2000. This is because the K2000 uses the extensions to tell it what kind of data is stored within the file.

Directories created by the K2000 have up to 8-character names, with no extension. A directory can have an extension if it is created on an external computer (more on this later on).

Here is a list of extensions used by or accepted by the K2000:

.KRZ   Kurzweil K2000 format file containing objects and/or sample data

.MID   MIDI type 0 sequence file

.MAC   Kurzweil K2000 disk macro file

.AIF   Audio Interchange File Format (AIFF)

.WAV   Microsoft RIFF WAVE format

When loading files, the K2000 will try to find out the type of file if the extension is not the same as is suggested above (with one exception, .MAC files.) The K2000 can create files with any of the above extensions.

The top line of the file list contains several items of information pertaining to the currently displayed directory contents. A typical information line looks like this:

```
Dir:..\HATS\         Sel:0/54      Index:    24
```

In the center of this line is an indicator of the number of files in the currently displayed directory. This number is grouped together with the number of selected files: `Sel:0/54`.

The first number means "No files selected" and the number after the slash means "Fifty-four files are in the directory." File selection is possible in several of the disk functions, more on this below. The total number of files also includes any subdirectories of the current directory.

On the left end of the top line of the file list page is the current directory, sometimes in an abbreviated form. If you are in the root directory, the display will read:

```
Dir: \              Sel:0/54      Index:    24
```

If you are in the directory **\MONDAY**, the display will read:

```
Dir:\MONDAY\        Sel:0/54      Index:    24
```

If you are in a directory that is more than one level down from the root directory, such as **\FX2\GLASS\BREAKING**, the display will read:

```
Dir:..\BREAKING\ Sel:0/54       Index:    24
```

The **..** indicator tells you that you are more than one level down from the root directory.

The File Index

On the right end of the top line is the Index field. This tells the position of the highlighted file relative from the beginning of the file list. The first entry in a file list is index 1.

```
Dir:\               Sel:2/23       Index:     3
                         AXM       .KRZ    122K
                         CHIME     .KRZ     42K
     File to load:DOORS       .KRZ    3456K
                         JUNE27        (dir)
                         LONGSMPS      (dir)
     Total:21034K        FLUTE     .KRZ     .5K
Select   Root   Parent   Open   OK   Cancel
```

Typing a number on the K2000 alphanumeric buttonpad will automatically scroll the display to the corresponding entry in the file list. Typing an out of range value such as **999** is a quick shortcut to get to the end of the file list.

In addition to remembering the current directory on the most recently used drive, the K2000 now also remembers the index within the file list for the current directory. For instance, if you were to hit **Cancel** on the above screen, and then either choose a different disk function (such as **Rename**), or even if you exited Disk mode, went to Program mode, and then later returned to Disk mode to load a file off of the same drive, the file index would still show up on 3 (**DOORS.KRZ**). This index is remembered until a new drive is selected by scrolling the Current Disk parameter on the Disk mode page.

There are exceptions to this however. For example, when a file is written to the drive using the Save function, the index will subsequently be set to the file that was just saved (see Save function). The index can also be explicitly set using the List and Find utilities (see below).

If there are no files in the current directory, then the index is 0, and the number of files is also zero:

```
Dir:\                 Sel:0/0      Index:    0



     File to load:



  Total: 0K
 Select  Root  Parent  Open   OK   Cancel
```

You will also see that there is a blank cursor bar, but no file names are displayed.

The maximum number of files that can be accessed within a single directory is 360. If you have more files than this amount in a single directory, then you will not be able to view the entries past index 360.

While in this dialog, pressing the **CHAN/BANK** buttons (to the left of the LCD display) will scroll the file list in either the forward or backward direction by "pages" of 5 entries. It is often easier to scroll the list this way when looking to see if a particular file is present in a directory.

Select

This soft button is used for multiple file selection in the Load, Delete, and Move functions. In the display below, there are two files selected, as indicated by the asterisk (∗) after the **.KRZ** file extension. If **OK** were pressed for the following screen,

```
Dir:\                 Sel:2/23     Index:    3
                    AXM     .KRZ     122K
                    CHIME   .KRZ      42K
     File to load:DOORS    .KRZ*  3456K
                    JUNE27       (dir)
                    LONGSMPS     (dir)
  Total:21034K      FLUTE   .KRZ*     .5K
 Select  Root  Parent  Open   OK   Cancel
```

the files **DOORS.KRZ** and **FLUTE.KRZ** would be loaded.

The **Select** button will toggle the selection, meaning that if you press **Select** on a given file, the asterisk will go on if it is currently off, and vice-versa. Selecting can only be done for files, not for directories. You can select as many files as you wish using the **Select** button. There is also a way to select all files at once, or clear all file selections at once, using a double-press of the cursor buttons:

- **Left**/**Right** cursor double-press: Select all files
- **Up**/**Down** cursor double-press: Clear all selections

Pressing either the **Left** or **Right** cursor individually performs a separate function for finding directories, described below.

You can only select multiple files from within a single directory. Changing directories clears any selections.

Once you have selected one or more files, press **OK** to perform the disk function (in this example, Load) on all files marked with an asterisk, whether or not they are visible on the screen. If there are no files marked with an asterisk, the function will operate only on the highlighted entry, as in earlier versions of the K2000 system software.

Root

The **Root** soft button returns the listing to the top-level or root directory. If the display is already at the root directory (as indicated by the `Dir:  \` field on the top line of the display) the only effect of pressing **Root** will be reset the file index to1 if there are files in the directory.

Parent

The **Parent** soft button is used to go up one level in the directory hierarchy. If the display is already at the root directory, this button will have no effect.

Open

Pressing Open on Directories

The **Open** soft button performs a different operation depending on the disk function and the type of file that is currently indexed in the display. In all disk functions, pressing open on a subdirectory (indicated by a `<dir>` after the file name) will open that directory, read in and display the file list.

When a directory is first opened for viewing, the index will be set to one (the first file in the list). You might notice that the K2000 remembers the index the previous directory you were in before you pressed Open, so that if you return to that directory by pressing **Parent**, you are put back where you were in the list. This index is only remembered for one level down, and therefore is useful when stepping through a list of subdirectories from a single directory level.

Pressing Open on Files

In the Load function, pressing open for a standard **.KRZ** file will start the Load Object feature. This allows selected individual objects from the file to be loaded in to the K2000. If **Open** is pressed on a macro file (**.MAC** extension), then individual file entries within a macro file can be selected for loading. Both of these features are explained in great detail below.

For all other functions, if **Open** is pressed when cursored to a **.KRZ** or a **.MAC** file, the object file or the macro file will be opened for viewing. For instance, pressing **Open** on a **.KRZ** file while in the Delete function will display the objects within the file in a scrollable list, however no delete action will be possible on the individual objects.

OK

Pressing this soft button will cause the K2000 to proceed with the selected function. After pressing **OK**, there may be further dialogs such as bank specification (for the Load function), confirmation (for Delete), or name entry (for Rename).

One exception to this is in the Load function, if the file list is scrolled to a directory (dir) entry, then the **OK** button will enter the directory, the same as if the **Open** button is pressed on a directory entry.

Cancel

The **Cancel** soft button is used to exit the file list dialog, completing the disk function with or without any operation taking place. The K2000 returns to the Disk mode page. Pressing the **Exit** button will do the same thing as **Cancel**.

Total

The total size of all the files in the directory is indicated at the bottom left of the file display above the soft buttons. In previous versions of K2000 software, this size would represent the amount of space used by all files stored on the drive. This was because only the root directory could be used for storing files in previous versions. In Version 3, this total represents only the disk space used by the files in the directory being viewed. Version 3 includes a free space utility that can be used find out how much space is being used on the current drive all of the files on the disk. Also, there is a List utility that can be used to calculate the size of all files within a selected directory sub-tree. These functions are described below in the section entitled *Disk Utilities* (page 4-54).

Quick Scrolling to Subdirectories

It is sometimes difficult to locate a subdirectory entry in the file list for the current directory, if there are many files in the current directory. To make this easier, individually pressing either the **Left** or **Right** cursor buttons will set the file index to the next or previous directory (respectively) in the current directory list. The index will wrap around the beginning or end of the list, so that repeated presses of either cursor button will cycle through all of the subdirectories. If you have many subdirectories, you can scroll through them all very quickly using this method.

For example, given the following file list display,

```
CYMBALS       (dir)
DOGS      .KRZ    122K
DOORS     .KRZ*  3456K
E4PROG    .KRZ     10K
LONGSMPS      (dir)
LUTE      .KRZ*    .5K
```

Pressing the **Right** cursor takes you two entries further to the next directory,

```
DOORS     .KRZ*  3456K
E4PROG    .KRZ     10K
LONGSMPS      (dir)
LUTE      .KRZ*    .5K
MOON      .KRZ*  3456K
TRIANGLE  .KRZ     10K
```

or, pressing the **Left** cursor takes you two entries back to the previous directory

```
ALTO              (dir)
BOOBAMS    .KRZ*    .5K
CYMBALS         (dir)
DOGS       .KRZ    122K
DOORS      .KRZ*  3456K
E4PROG     .KRZ     10K
```

Creating Directories

As stated above, Version 3 allows you to create directories for organizing your K2000 files, whether you are using SCSI or floppy disks. No reformatting is necessary to add directories to disks that were formatted with previous versions of the K2000 software (version 2.08 and before).

Directories appear in the normal file list with the indicator `(dir)` to the right of the directory name.

There are two ways to create new directories with Version 3.

First, the **NewDir** button can be pressed directly from the Disk mode page, or second, a new directory can be created and entered in one step during the Save operation, by pressing **Save**, then pressing **NewDir**.

Creating a Directory with NewDir

When you press **NewDir**, you will first name the directory that you are about to make, for instance:

```
Directory name: THINGS
```

```
Delete  Insert  >>End  Choose   OK   Cancel
```

This file name dialog has some new features and changes that have been added for Version 3. You will see the same dialog for all file naming functions in Version 3. The difference from previous versions is that the secondary cursor soft buttons (formerly **<<<** and **>>>**) have been removed in favor or the **>>End** and the **Choose** buttons. Pressing **>>End** will take the cursor to the last character in the name.

The **Choose** button allows you to grab a file name from the current disk (this is discussed later, in the section titled *Saving Files* (page 4-21). Otherwise, as in previous versions, the name will default to either **NEWFILE** after a power-up, or the name will be that of the most recent file saved or loaded. Once you choose a name to start with (or the default), you can edit the name using the **Left** and **Right** cursor buttons, the **Delete** and **Insert** soft buttons, and the **>>End** soft button.

After you have chosen the directory name and pressed **OK**, you have the choice of where (in what directory) to put the new directory you are creating.

```
Use current directory for THINGS?
(Path = \)
```

```
Change   OK   Cancel
```

Pressing **OK** will select the default path, which is the current directory. Pressing **Change** will allow you to view the disk, traversing its directories, until you find the one in which you want to create the new subdirectory, in this case **THINGS**. (see *The Directory Selection Dialog*, below)

Creating a Directory with Save -> NewDir

Pressing **Save** then **NewDir** is used as a convenience when saving files to a directory. This is accomplished by pressing **Save** from the Disk mode page and then pressing **NewDir.** at the `Save what:` prompt. After you have created the directory in this way, the current directory is automatically switched to while you are still in the save dialog.

When you have confirmed your choice of what directory to create a new subdirectory in, the K2000 will create the named directory on your drive, and print a brief message such as:

```
Created directory \THINGS
```

If the new directory function was created by pressing the **NewDir** button on the Disk mode page, the K2000 returns to the Disk mode page. Otherwise, if **NewDir** was pressed from the Save dialog, the K2000 returns to the `Save what:` prompt, having set the current directory to be the one just created.

The Directory Selection Dialog

When making a new directory, as well as in many of the Version 3 disk functions, you will be presented with the opportunity to change the current directory, or the default directory for a disk operation. A good example is the message above:
`Use current directory for THINGS? (Path = \)`. If you press **Change** you will see a familiar file list dialog, with a few changes, through which you can select any directory on the disk. The display looks like this:

```
Dir:\              Sel:0/23        Index:   ↑
                   MELLOTRN .KRZ      122K
                   N123AB   .KRZ       42K
Select directory:OCEANS   .KRZ     3456K
                   STRINGS        (dir)
                   T1             (dir)
   Total:21034K    UNDULATE .KRZ      .5K
   Root  Parent Open          Current Exit
```

When you enter this dialog, you will be in whatever directory was displayed as the default. From here you can go into other directories by using the soft buttons **Root**, **Parent**, and **Open**. Notice that there is no **Select** button. This is because the purpose of this dialog is to choose a single directory as opposed to selecting multiple files. However, the **Root**, **Parent**, and **Open** buttons function exactly as described above (for the file list dialog). The Sel parameter (on the top line) is useful as an indication of the number of entries in the directory you are looking at.

If you are scrolled to a directory entry, there is one additional soft button displayed: **SetDir**. Notice the **Current** button moves over one button to the left:

```
Dir:\                    Sel:0/23      Index:    8
                         N123AB    .KRZ       42K
                         OCEANS    .KRZ     3456K
Select directory:STRINGS           (dir)
                         T1                  (dir)
                         UNDULATE  .KRZ        .5K
   Total:21034K          ZORK      .KRZ        .5K
   Root   Parent  Open  Current  SetDir  Exit
```

There are two ways that you can select a directory in this dialog.

Press **Current**. This selects the directory you are currently in (whose file list you are viewing), as specified in the Dir parameter on the top line of the display. For instance if you wished to select the directory **STRINGS** using the **Current** button, you would first press **Open** to display the contents of that directory, and then press **Current**. If you instead wanted to choose the root directory, you would simply press **Current**, since that is the directory you are viewing (notice the `Dir:  \` at the top).

Press **SetDir**. This selects the directory you are scrolled to, such as **STRINGS** in the display above. This method is often quicker and more convenient than pressing **Open** followed by **Current**, which does the same thing. The **SetDir** soft button is present in the display only when the scrollbar highlights a directory entry.

Disk Mode Functions

Now that you are familiar with the basics of creating directories and moving around in the Version 3 file system, it is time to discuss some of the new features provided in the disk functions themselves.

Loading Individual Objects

In previous versions of software, an entire file had to be loaded into the K2000 at one time, as a bank. Since files can contain over 3000 objects, it can often be useful to load only a subset of the information contained in a K2000 file. Sometimes, this capability is necessary even to be able to load certain files, if the size of the file's samples or data is greater than the K2000's internal RAM size (in case you haven't gotten those extra SIMMs or the PRAM option yet).

In Version 3 it is now possible to select individual objects or groups of objects (samples, programs, keymaps, effects, songs) for loading from within a single K2000 file.

The Load Object feature is accessible from within the Load File dialog. To activate it, scroll the file list until you have highlighted the file that you wish to load objects from:

```
Dir:\              Sel:0/6         Index:      3
                BASSDRMS .KRZ      426K
                HIHATS   .KRZ      788K
      File to load:SAXES    .KRZ     2510K
                TOMS     .KRZ      301K
                TOMS1    .KRZ     1400K
    Total: 5037K  XCYMB    .KRZ     1012K
 Select   Root   Parent   Open    OK    Cancel
```

Press **Open** to begin the Load Object dialog. (Note: The file must have a **.KRZ** extension in order to load individual objects from it.) The K2000 then scans the file contents in order to present a list of all of the objects in the file. Sometimes this procedure can take a few moments, depending on how many objects are in the file. During this time, you will see the following display:

```
Reading file SAXES.KRZ  [...]


 Select   Next    Type   Multi     OK   Cancel
```

The soft buttons in the above display do not become active until the process of scanning is finished. When this happens, the K2000 will display a list of the file's objects, in the exact order that they are stored in the file:

```
Func:LOAD      Sel:0/5             Index:  1



Sample   200 Tenor Sax1         G 2S    250K
Sample   201 Tenor Sax2         C 3S    179K
Sample   203 Tenor Sax3         F#3S    198K
Keymap   200 Tenor Sax                  176
 Select   Next    Type   Multi     OK   Cancel
```

The objects in the list are usually grouped by type (sample, program, keymap, etc.) The list can be scrolled using the Alpha Wheel or the **Up**/**Down** cursors. The **CHAN/BANK** buttons on the front panel can be used for fast scrolling.

Note: When scrolling through large numbers of objects (more than 100), the K2000 may sometimes pause for a few seconds if it needs to get more information from the disk file. When this happens, some gyrating dots will briefly appear in place of the Index value on the top line of the screen.

Each line in the scrollable list represents one object in the file, and displays the object's type, ID, name, and size. Samples have additional information, the sample's root key and a stereo sample indicator:

Object type	*ID*	*Name*	*Root key and stereo indicator (for samples only)*	*Size*

```
Sample  203 Tenor Sax3        F#3S    198K
```

The ID numbers are the same numbers that were used to reference the objects when the file was last saved by the K2000.   These numbers will usually be different after the objects are loaded in, depending upon the bank (for example the 200s bank, with IDs from **200** to**299**) and mode that is specified for loading. See *Load Function Dialog Changes* on page 4-16 for more information.

The Size field is interpreted differently for samples and non-samples. For non-samples (songs, programs, etc.), it shows the number of bytes used by the object in the file, and hence the amount of program memory that the object will occupy in the K2000. For samples, the size field shows the size of the all sample data associated with the object, and is displayed in kilobytes (K).

For samples, the letter S after the root key indicates a stereo sample.

Due to display space constraints, if the sample's root key happens to be in the lowest MIDI octave range (C -1 through B -1), it will be displayed in a truncated form. For instance, if a sample's root key was set to G#-1, the display would read:

```
Sample  293 Tenor Sax     G#-     198K
```

The status line at the top of the screen specifies the object function being performed (Func:LOAD), the number of selected objects in the list followed by the total number of objects in the file (Sel:0/5), and the current list index: Index:1.

As with the file list, entering in a number from the alphanumeric buttonpad will jump to the indexed entry, and typing in a large number like **9999** will go to the end of the list.

The soft buttons on this page are used for multiple selection of the objects in the list as well as for moving around the list when there are many items selected or listed. This same dialog is also used for many other functions in Version 3, namely for saving selected objects to disk and for several object utility functions that are described later.

Here is a brief description of each button's function, followed by a detailed explanation of its operation.

Select   Select or deselect an object.
Next   Jump to the next selected object.
Type   Jump to the next object of a different type.
Multi   Go to the Multiple Object Selector page.
OK   Tell K2000 to proceed to load the selected objects.
Cancel   Exit back to the File List Dialog.

Press the **Select** button to choose the highlighted object for loading. An asterisk (∗) is placed in between the object name and the object ID for any items that are selected.   Deselecting a

selected object is done by pressing **Select** again. The asterisk will disappear. The easiest way to choose objects for loading is by scrolling the list and individually pressing **Select** on each object that you want to load.

If you only want to select one object for loading, you need not select it with the **Select** button. Instead, pressing **OK** will implicitly select the highlighted object if there are no other objects selected.

This screen shows three samples selected for loading:

```
Func:LOAD        Sel:3/20         Index:      4
Sample   201*Machine Snare        C 4S    100K
Sample   203*Big Bass Loop        C 4S    218K
Sample   304*Distorted Riff       C 4S    401K
Sample   305 EPiano1              D 2      24K
Sample   306 EPiano2              D 3      25K
Sample   313 EPiano3              D 4      15K
Select   Next    Type  Multi      OK   Cancel
```

The **Next** button will cause the index into the list to jump to the next selected object, forward in the list. When the end of the list is reached, the search will wrap around from the beginning. If you have more than one object selected, then if you repeatedly press **Next** you can easily cycle through all selected items. If there are no items selected, then this button doesn't do anything.

The **Type** button jumps to the next object of a different type from the one that is currently highlighted. This is a convenient way to find a particular type of object in the list. If you want to skip over the samples and the keymaps in an object list and jump right to the programs, press **Type** about two or three times, stopping when you notice that a program is highlighted.

Press the **Multi** button to enter the Multiple Object Selector (described on page 4-30.) This powerful utility can be used to control the selection or deselection of many objects, cross-referenced by object types and ranges of ID numbers.

When you are all done selecting objects to load, press **OK**. As stated above, if only one object is to be loaded, it is implicitly selected if it is the currently highlighted object and there are no other selected objects in the list.

Cancel returns to the file list dialog, highlighting the file you just opened. You can load the entire file after pressing **Cancel** by pressing **OK** when you return to the file list.

Shortcuts when Loading Objects

Select All/Deselect All

Selecting or deselecting all of the objects at once can be done with the same double presses as described for the file list dialog, namely:

- Left/Right cursor double-press: Select all objects
- Up/Down cursor double-press: Clear all selections

If you want to load most but not all of the items from a file (for instance, if there happens to be a Master Table in the file that you don't want to load), it may be fastest to first select all objects using the **Left/Right** double press, and then manually deselect any unwanted items.

Viewing the Name Table

The name table is an object that appears in files that were created using the "Save dependents by name" feature (see *The Name Table* on page 4-25). This object contains a list of dependent objects needed by the other objects in the file at the time the file was saved. There is more information about this later on, however it is worth mentioning here that a highlighted name table's contents can be viewed by pressing either one of the **Left** or **Right** cursor buttons.

• **Left** cursor OR **Right** cursor: View name table contents

Loading Dependents of Selected Objects

When you press **OK** after selecting one or more objects, the K2000 may ask the question:

```
Load dependent objects?
```

```
Yes     No
```

This question will be asked if any of the selected objects could possibly have dependents associated with them in the file. (Remember, dependents are those objects needed by other objects;—samples are dependents of keymaps; effects and keymaps are dependents of programs; and so on.) If this question is asked it does not necessarily mean that there really are dependents of the selected objects. The K2000 will not know whether there are dependent objects in the file until it begins to read in the selected objects, and determines what their dependents are.

Answering **Yes** to the question tells the K2000 to also load the dependents. You may wish to answer **No** if, for instance, you are simply loading in a program or a Keymap as a template for use with other objects. You can also manually select only some of an object's dependents, and then answer **No** to the `Load dependent objects?` prompt. This prevents other unwanted dependents from being loaded.

To summarize, it is not necessary to select any of the dependents of an object if you plan on loading all of the dependents in. As an example, for a file containing dozens of programs, keymaps, and samples, you may choose to highlight a certain program and press **OK**, and answer **Yes** to the `Load dependent objects?` prompt. The K2000 will do the rest, by only loading in the samples and keymaps that are needed by the selected program.

Similarly, if you were only to select certain keymaps from a file, and then answered **Yes** to `Load dependent objects?` the K2000 would figure out exactly what samples need to be loaded in as dependents of the selected keymaps.

Auditioning Samples from a Disk File

Often when working with files that contain samples it is helpful to be able to hear what the samples sound like before loading in all or part of the file. In Version 3 it is possible to audition samples in the file, from within the Load Object dialog.

To audition a sample, first scroll to the sample that you wish to hear. Then press either the **Left** or **Right** cursor. The K2000 will load in up to one second of the sample, or less if the total sample time is shorter than one second. The audition starts from the very beginning of the sample data

(note that if the first second of data is silence then you won't hear very much when the sample is auditioned.) If the loop points fall within the first second of the stored sample data, they will be loaded in as well. The K2000 display will blink after the completion of loading the sample audition data. When the sample segment has been loaded, it can then be played back at its root key as well as transposed up and down the keyboard.

Once a sample has been auditioned, it remains active across the keyboard until another sample is auditioned. The audition function ends when you press either **OK** or **Cancel**

There must be sufficient sample RAM in the K2000 to load in one second of the sound for auditioning. This amount varies according to the sample rate of the sample, but for most samples this will be less than 100K bytes. If the auditioned sample does not play, check that there is enough free sample memory in the K2000. It is also possible to see the following error if the K2000 object RAM is full or very near full:

```
Not enough memory to audition
```

Loading Objects from Floppy Disk Files

Individual objects can be loaded from K2000 floppy disk files, with the caveat that some samples in a multiple-floppy disk file cannot be auditioned because they reside on more than one disk. These samples will still appear in the object list, but their size will be in parentheses meaning they cannot be loaded (either explicitly or as dependent objects) and cannot be auditioned.

Load Function Dialog Changes

In Version 3, there are a couple of enhancements to the Load function that make it easier to specify how and where objects are to be loaded.

Bank Status Indicator

After you have chosen what you wish to load, you are presented with a dialog allowing you to determine what bank will be used to load in the file's data. This dialog has changed a bit in Version 3 with the addition of a bank status indicator.

This indicator takes the form of an asterisk after the bank. If an asterisk is present after the bank (for example, **400...499***), it means that there are objects in the bank, whether they are RAM or ROM objects. ROM objects are in the zeros and 100s bank, unless you have an optional ROM block installed. In that case ROM objects are also stored in the 800s and/or 900s bank. If there is no asterisk on the line for a bank, it means the bank is empty.

In the following screen, there are user objects in the 200s and 400s bank, and possibly also in other banks that become visible when the selection is scrolled.

```
Load this file as:200...299*
                  300...399
                  400...499*
                  500...599
                         OK   Cancel
```

This indicator makes it easier to find an empty bank to use for loading, if needed.

The bank status indicator is only present during the Load dialog, and is not available in the various similar K2000 dialogs.

Fill Mode

A new mode for renumbering objects from loaded files has been added. This mode is called Fill. It causes objects to be loaded into consecutive free object ID slots starting from the beginning of the bank. This may be desired when loading in multiple objects from a file where the objects IDs in the file itself are not already consecutively stored.

In previous versions of K2000 software, if you were loading into a bank that already had objects in it, pressing **OK** to the above dialog would display a choice of **Overwrite**, **Merge**, or **Append** soft buttons. If the bank were empty, the file load would begin, using the default mode **Append**.

In Version 3, once you have pressed **OK** to decide on what bank to use, you will see this screen if the bank is empty:

```
                         200...299*
Load this file as:300...399
                         400...499*
                         500...599
                         600...699
                               Append Fill  Cancel
```

You will see the following screen if the bank contains any objects (in RAM or ROM):

```
                         200...299*
                         300...399
Load this file as:400...499*
                         500...599
                         600...699
                         700...799
OvFill Overwrt Merge Append Fill  Cancel
```

The soft buttons control the mode for loading and renumbering of objects from the file. The meaning of these soft buttons in Version 3 is:

OvFill	First deletes all RAM objects in the selected bank, and then loads in objects using consecutive numbering.
Overwrt	First deletes all RAM objects in the selected bank, and then loads in objects using the object ID numbers stored in the file.
Merge	Preserve the object ID numbers stored in the file for the objects to be loaded, overwrite objects already in memory if necessary.
Append	Try to use the object ID numbers stored in the file for the objects to be loaded. If an ID number is already in use, increment the ID number until a free slot is found.

Fill	Ignore the object ID numbers stored in the file. Try to use consecutive numbering from the beginning of the selected bank. If an ID number is already in use, increment the ID number until a free slot is found.
Cancel	Cancel the mode selection, and go back to choosing a bank. Scrolling to a different bank value will have the same effect as Cancel.

Typically, you will always want to just use the Fill method. Append, Merge, and Overwrt try to preserve the numbers stored with the objects in the file, but this should only really be necessary if you depend on program numbers or effect numbers to be at a certain MIDI program change number. OvFill is like Fill except the selected bank (or Everything) is cleared out before loading.

Overwrt and OvFill operate in different ways after a selected bank has been filled up for a given object type (for example, after you have loaded in more than 100 programs into a bank). Overwrt will begin continue to preserve the objectIDs stored in the file, and will individually overwrite objects in the bank following the just filled bank. OvFill will not overwrite any further objects past the end of the selected bank; it instead skips over object IDs that are in use. Because of this difference, it can sometimes be faster to load in a file using OvFill rather than Overwrt. However, this only applies if the objects to be loaded would extend past the end of a selected bank.

Note that when loading into a specific bank (as opposed to loading as Everything), the object ID's in the file are used as follows: The "bank" digit is ignored, and the remainder of the number is used when the K2000 re-banks the object ID into the bank that you specify. For instance, if you save Program **453** into a file, and load it back into the 300s bank, the K2000 will use the number **53** when deciding upon a new object ID. If the 300s bank was previously empty, and the load mode is Append, then the Program will end up with ID **353**.

For loading as Everything, the ID number for an object stored in a file is taken literally, and not re-banked (except if Fill or OvFill mode is chosen, in which case the K2000 will use ID numbers starting from 200).

Here is an example that compares all of the above load modes.

EXAMPLE: Starting with the following objects already stored in the K2000 internal RAM:

```
Program 200 Existing Prog1
Program 204 Existing Prog2
Program 205 Existing Prog3
Program 210 Existing Prog4
Program 211 Existing Prog5
```

Suppose you were to load file containing the following objects into the 200s bank:

```
Program 405 Electric_Piano
Program 406 Stereo_EPiano
Program 409 Weird_Piano
Program 410 Wild Funk Piano
```

Here is what these programs would end up with as ID numbers when loaded in, depending on the load mode:

Name	Append	Fill	Merge	Overwrt	OvFill
Electric|Piano|	206	201	205	205	200
Stereo|EPiano||	207	202	206	206	201
Weird|Piano||||	209	203	209	209	202
Wild|Funk|Piano	212	206	210	210	203

In the Merge case, the existing programs **205** and **210** would have been deleted. In the Overwrite case, all of the existing programs in the 200s would have been deleted.

Multiple Selection of Files to Load

As stated previously, you can select multiple files for loading into the K2000 from within a single directory, in one operation. This is done from the file list dialog with the **Select** button.

After you have selected one or more files in this way, you will still choose a bank and mode to be used for the load process, just as with loading a single file. However, the dialog prompt will say `Load selected as:`

```
Load selected as:200...299*
                  300...399
                  400...499*
                  500...599
                            OK   Cancel
```

If you selected any macro files (**.MAC** extension) from the directory, then once you have select the mode for loading, you will see the question:

```
Load macros as specified?

                              Yes    No
```

The answer to this question instructs the K2000 that any macro files will have their macro entries loaded according to the bank and mode:

Yes   specified in the macro entry.

No   currently specified for this multiple file load. In other words, whatever you select for Bank and Mode will override the instructions for each entry in the macro.

At this point the files will begin to load. When all the files have been successfully loaded or the load process has been aborted, the K2000 returns to the Disk mode page.

If there are any errors encountered during a multiple file load, such as running out of object RAM, you will be asked once if you wish to abort the load. In some cases, you may wish to continue loading. If you continue (and don't abort), the only way to abort will be to use a special procedure described in the next paragraph.

Aborting a Multiple File Load

There is a way to abort the process of loading multiple files. Aborting can only be done "between" files that are being loaded, and not during the load of any one file (short of powering off, or soft-resetting the machine by simultaneously pressing **+/-** and **0** and **CLR**—which is not recommended).

Aborting a multiple file load is done by pressing and holding down either of the **Increment** (+) or the **Decrement** (-) buttons that are located just below the Alpha wheel. This should be done at least one-half second before you anticipate the current file to finish loading, or else the K2000 will not sense that you wish to abort the load.

You will see the following question after the current file being loaded is completed:

```
Abort the load?
```

```
 Yes    No 
```

It may be a good idea to practice using this method of aborting a multiple file load, so that when the time comes that you accidentally select 100 files, you will remember how to abort the process. This same method (of holding the **Increment** or **Decrement** buttons down) is also used to abort the Backup feature and the macro file load feature.

If you run out of object or sample RAM, you will have one opportunity to abort the load as explained above. However, if you continue from that point you may end up seeing the same error message `Memory is full` for each file that you had selected. This can be a rather tedious process, however it is still possible to abort out of this by holding down the **Increment** or **Decrement** button simultaneously while pressing **Yes** when you see the following question:

```
Abort this partial load?
```

```
 Yes    No 
```

Saving Files

There are many enhancements to the process of saving files in Version 3 software.   All of the new features having to do with saving files are accessed by pressing the **Save** soft button on the Disk mode page. In Version 3 you will see the following screen dialog when **Save** is pressed:

```
Save selection:200...299
               300...399
               400...499
               500...599
Export Macro  Object NewDir  Ok   Cancel
```

The meaning of the soft buttons in the `Save selection:` dialog is as follows:

Export   Save a sample or a song in an exported file format (AIFF, WAVE, MIDI Type 0).

Macro   Save entries from the current macro table as a macro file (.MAC). This soft button is only displayed if macro file recording is on.

Object   Save selected objects from the K2000's RAM.

NewDir   Create a new directory on the current disk, and return to this dialog afterwards.

OK   Save all the objects from the highlighted bank, and optionally also save dependent objects.

Cancel   Exit from the Save function.

Export, **Macro**, and **NewDir** are all explained elsewhere in this guide. This section will describe the process of saving K2000 objects into K2000 format disk files.

Saving Individual Objects

A new feature in Version 3 is the ability to select any group of objects in the K2000's RAM for saving into a single file. In previous versions of software, saving was limited to groups of all objects of all types within a single bank, all objects in the machine (`Everything`), or just the master table. These options are still provided for convenience, and they operate the same as always; you can scroll to the bank that you want to save (or else `Everything` or `Master`) and press **OK**.

To save individual objects, from the above dialog, press **Object**. The K2000 will display a scrollable list of all the objects in RAM, very similar to the display for the Load Object feature (described previously):

```
Func:SAVE       Sel:0/8            Index:     1


Sample   500 Lo Vocal          A 3S    250K
Sample   501 Hi Vocal          G 4S    179K
Keymap   500 VocalsMap                 176
Program  500 Dry Vocals                270
Select   Next    Type  Multi    OK   Cancel
```

The objects in the list are grouped by type (sample, program, keymap, etc.) The list can be scrolled using the Alpha wheel or the **Up**/**Down** cursors. The **CHAN/BANK** buttons on the front panel can be used for fast scrolling.

Each line in the scrollable list represents one object in RAM, and displays the object's type, ID, name, and size. Samples have additional information, the sample's root key and a stereo sample indicator:

Object type	*ID*	*Name*	*Root key and stereo indicator (for samples only)*	*Size*

Sample 501 Hi Vocal   G 4S   179K

The Size field is interpreted differently for samples and non-samples. For non-samples (songs, programs, etc.), it shows the number of bytes used by the object in the file, and hence the amount of program memory that the object will occupy in the K2000.   For samples, the size field shows the size of the all sample data associated with the object, and is displayed in kilobytes (K).

For samples, the letter S after the root key indicates a stereo sample.

Due to display space constraints, if the sample's root key happens to be in the lowest MIDI octave range (C -1 through B -1), it will be displayed in a truncated form. For instance, if a sample's root key was set to C -1, the display would read:

Sample 530 ReallyLoVoc   C -   198K

The status line at the top of the screen specifies the object function being performed (**Func:SAVE**), the number of selected objects in the list followed by the total number of objects in the file (**Sel:0/5**), and the current list index: **Index:1**.

Entering in a number from the alphanumeric buttonpad will jump to the indexed entry, and typing in a large number like **9999** will go to the end of the list.

The soft buttons on this page are used for multiple selection of the objects in the list as well as for moving around the list when there are many items selected or listed.

Here is a brief description of each button's function, followed by a detailed explanation of its operation.

Select	Select or deselect an object.
Next	Jump to the next selected object.
Type	Jump to the next object of a different type.
Multi	Go to the Multiple Object Selector page.
OK	Tell K2000 to proceed to save the selected objects.
Cancel	Exit back to the Disk Mode page.

Press the **Select** button to choose the highlighted object for saving. An asterisk (∗) is placed in between the object name and the object ID for any items that are selected.   Deselecting a selected object is done by pressing **Select** again. The asterisk will disappear. The easiest way to choose objects for saving is by scrolling the list and individually pressing **Select** on each object that you want to save.

If you only want to select one object for saving, you need not select it with the **Select** button. Instead, pressing **OK** will implicitly select the highlighted object if there are no other objects selected.

This screen shows three samples selected for saving:

```
Func:SAVE         Sel:3/20           Index:    4
Sample  201*Machine Snare         C 4S      100K
Sample  203*Big Bass Loop         C 4S      218K
Sample  304*Distorted Riff        C 4S      401K
Sample  305 EPiano1               D 2        24K
Sample  306 EPiano2               D 3        25K
Sample  313 EPiano3               D 4        15K
Select  Next   Type  Multi    OK    Cancel
```

The **Next** button will cause the index into the list to jump to the next selected object, forward in the list. When the end of the list is reached, the search will wrap around from the beginning. If you have more than one object selected, then if you repeatedly press Next you can easily cycle through all selected items. If there are no items selected, then this button doesn't do anything.

The **Type** button jumps to the next object of a different type from the one that is currently highlighted. This is a convenient way to find a particular type of object in the list. If you want to skip over the samples and the keymaps in an object list and jump right to the programs, press **Type** about two or three of times, stopping when you notice that a program is highlighted.

Press the **Multi** button to enter the Multiple Object Selector (described in a separate section below.) This powerful utility can be used to control the selection or deselection of many objects, cross-referenced by object types and ranges of ID numbers.

When you are all done selecting objects to save, press **OK**. As stated above, if only one object is to be saved, it is implicitly selected if it is the currently highlighted object and there are no other selected objects in the list.

Cancel returns to the Disk mode page, exiting the save function.

Shortcuts when Saving Objects

Select All/Deselect All

Selecting or deselecting all of the objects at once can be done with the following double-presses (two front-panel buttons simultaneously pressed):

• Left/Right cursor double-press: Select all objects
• Up/Down cursor double-press: Clear all selections

If you want to save most but not all of the items from a file (for instance, if there are some songs in RAM that you don't want to be saved in the file), it may be fastest to first select all objects using the **Left**/**Right** double press, and then manually deselect any unwanted items.

Viewing Selected Objects

When there are lots of objects selected, but they are scattered in the objects list, it can be helpful to be able to view a list of only the currently selected objects. Such a list is displayed by double-pressing the **CHAN/BANK** buttons to the left of the K2000's LCD display.

• Double-press of **CHAN/BANK** buttons: View selected objects

For instance, if there were 10 objects selected, and you pressed both **CHAN/BANK** buttons simultaneously, the K2000 would show a list similar to this:

```
View Selected Objects  10/134
Program 300 Biggest Kit            7124
Program 301 Repercussions          7124
Song    300 Drum Groove 7         12092
Song    301 Drum Groove 8         24700
Song    421 Nasty Funk             3122
Song    500 Beethoven              1024
                                     OK
```

The top line shows 10 objects selected out of 134 that are in RAM. If the number of selected objects is larger than the 6 objects that fit on one screen (as in this example), the list can be scrolled to view all of the information.

Note that this feature is not available in the Load Object dialog.

Auditioning Objects in RAM

When deciding which individual objects to save, it can be difficult to know if you are selecting the correct ones. This is especially true if many objects have similar or identical names, or if the names of the objects are not descriptive enough to know what they are. A feature has been provided in Version 3 that allows auditioning of samples, keymaps, programs, and Songs right from the Save Object dialog (as well as all of the other object utility dialogs that are discussed later.)

To activate this feature, scroll to an object of an appropriate type to be auditioned, and press either the **Left** or **Right** cursor button. The screen will blink, and the objects can now be heard as follows:

Samples	Play at their root key, as well as transposed across the keyboard. Stereo samples will play in stereo. Auditioning samples in this way is similar to listening to samples from the MASTER->Sample page. The samples are auditioned using a "hidden" program set up according to the parameters in Program **199 Default Program**. This default program can be customized if needed by editing and saving a new Program **199**.
	If you audition any sample objects, the last one that you audition will become the "preview" sample the next time you go to the MASTER->Sample page. This can be a quick way to edit the sample without having to edit a program and a keymap.
Keymaps	Are reproduced accurately, and are played according to the parameters in Program **199 Default Program**. This default program in ROM is set up to have a 0% effects level (dry). Therefore, auditioning keymaps can be a very convenient way to hear them isolated from the effects.
Programs	Play exactly as they would if they were selected from the Program mode page.

Songs   Start playing when either the **Left** or **Right** cursor button is pressed, and stop playing when either cursor is subsequently pressed. The most recent song that is auditioned from this page become the Current Song (as seen on the Song Mode page).

Once auditioned, the above object types remain active on the keyboard until another object is auditioned, or **Cancel** is pressed. If a song is being auditioned, no other objects are auditioned until the song audition is stopped (by pressing one of the Left or Right cursor buttons).

Saving Dependent Objects

Once you have selected objects for saving (either individually as just described or by bank selection), the K2000 will determine if any of the items chosen to save have any dependent objects in RAM that were not chosen. For instance, if you select a program to be saved and nothing else (using the Save Object feature), the program may have dependent effects, keymaps, and samples that are in RAM. Dependent objects that are in ROM (i.e., ROM samples or keymaps) do not get saved to disk.

You will see the following dialog displayed if there are any dependent objects in RAM of any objects that were selected for saving:

```
Save dependent objects?


                               Names   Yes    No
```

Choosing **Yes** will cause any dependent objects to be saved in the file together with the selected objects. Choosing **No** means that unselected dependents will not be saved. The **Names** button is a new option added in Version 3. This creates a new kind of object to be stored in the file, called the Name Table.

The Name Table

The name table is a list of any dependent objects that were not explicitly selected for saving in the file. Each entry in the name table contains the object type, object ID, and the name of a dependent object.

A file's name table is used by the K2000 at only one time, when the file is loaded in. At that time, the K2000 will search for dependent objects that were not saved in the file originally. The search matches dependent objects by name with objects that are already in RAM, and links them to the "parent" object. The name table data is then discarded when the file load is finished. This search feature is referred to as Relink-by-Name.

Relink-by-name offers new and very efficient ways of working with K2000 objects and disk files. Careful use of this feature can save you many megabytes of disk storage, as well as a lot of time spent working on music and production instead of waiting for sample data to be resaved.

Relink-by-Name allows you to save objects and their dependent objects separately (in multiple files) and be able to link them up later on by loading the files in the correct order. This can be a very efficient way of working with the K2000's many levels of dependent objects. The most

common way in which Relink-by-Name speeds up development of sounds is when making small adjustments to a program that has as its dependents a large amount of sample data. Until Version 3, it was necessary in most cases to re-save all sample data after any change to a program that uses the sample data. It is now possible to separate the program and sample data, so that after changing a program parameter, only a file containing the program and a name table need be resaved.

When loading in a file that contains a name table, the following rules should be observed in order for correct relinking to occur.

1. Use unique names for dependent objects at every level. As an example, this would mean that if you were going to be relinking several samples from one file with a program and a keymap from another file, that each sample should have a different name. Otherwise, the dependent objects (the samples) will not get relinked properly. This will create problems such as keymap ranges that don't play as they are supposed to.

2. The dependents to be relinked must already be loaded. Otherwise they will not be found and relinked when the file containing the parent objects is loaded in. This constraint on the order of file loading can be made easier to work with by using the macro file feature. You can construct a macro file to automatically load in the dependents files and the parent files in the correct order, making sure that any files containing dependents are loaded first. An alternative to loading the files with a macro would be to save the dependent and parent files in the same disk directory with similar file names such that they will appear consecutively in the alphabetized file list. Once you have done this, it is easy to select both files for loading in the correct order.

These rules may appear complicated at first, but they will seem natural once you have worked out a few examples with your own files.

The search algorithm used for relinking dependent objects to their parent objects during loading is as follows:

The search for a dependent object (whose name matches that of an entry in the name table) begins at the beginning of the bank that is specified for loading the parent file. All possible IDs are then consecutively searched. When the last ID of the 900s bank has been searched (typically **999**), the search will wrap around to ID **1** up until the end of previous bank to the specified bank. The search stops once a dependent with a matching name has been found and relinked.

For example, if a file containing a one-layer program is loaded into the 400s bank, and the file includes a name table that lists the layer's keymap by name, then the K2000 will begin to look through all possible keymap IDs starting at **400**, until ID **999**. The search then continues from ID **1**, stopping at ID **399**. If the search does not successfully find a match, the dependent will be unresolved, and in this example the program would show `Not found` as the value for its Keymap parameter. this value includes the ID of the unfound object.

The search is done in this "circular" manner to allow you to direct which dependent objects get relinked. This may be necessary if you end up with multiple copies of dependent objects with the same name; you can differentiate between them by loading the parent file into a specific bank that is the same bank or "before" the bank containing the objects you wish to re-link to. Note that this can only be taken so far, since it would be impossible for the K2000 to differentiate between objects with the same name within the *same* bank.

The relinking process happens in the background, without any notification or error messages if items cannot be relinked.

Working with Relink-by-Name

Here are a couple of more in-depth examples that can show how Relink-by-Name works in a practical situation.

Consider that your K2000's RAM contains the following one-layer program and also its dependent keymap and samples (the techniques used in this example could well apply no matter how many programs with any number of layers you want to save):

Program: **317 Steinwave Piano**
Keymap: **300 Steinwave Piano**
Samples: **300 StwaveG1 .... Sample 310 StwaveC7**

In this case you might wish to save the samples and the keymap in one file, and the Program in another file. So, from the Save Object dialog you could first select all the Samples **300-310**, and Keymap **300**, for saving into a file, let's say **STWAVE1.KRZ**.

You would then return to the Save Object dialog and save just Program **317** in a separate file in the same directory, let's say **STWAVE2.KRZ**....only this time, you will be asked the `Save dependent objects?` question pictured above. Answer this by pressing **Names**.

After saving, the file **STWAVE2.KRZ** will contain two objects in it, Program **317** and a name table. You can easily verify this by going to the Load function (or any other disk function) and pressing **Open** on the file just saved (which should come up already highlighted). The display of objects for the file will look like this:

```
Func:LOAD        Sel:0/2               Index: 1


Table     36 Names                           334
Program 317 Steinwave Piano                  274


Select   Next    Type   Multi    OK    Cancel
```

The name table will always be the first object in the list. You can verify the exact contents of the name table by using the View Name Table shortcut; make sure the name table is highlighted, and press either the **Left** or **Right** cursor button on the front-panel. You'll see the following informational display:

```
Name Table Contents
Keymap   300 Steinwave Piano
Sample   300 StwaveG1
Sample   301 StwaveD2
Sample   302 StwaveB2
Sample   303 StwaveE3
Sample   304 StwaveB3
Sample   305 StwaveG4
                                       OK
```

The Name Table Contents display shows what would have been saved in the file had you answered **Yes** to `Save dependent objects?` instead of answering by pressing **Names**. More importantly, it allows you to see what objects will need to be already loaded in to the K2000 before loading this file.

The object IDs shown in the table are the same numbers that those dependent objects used at the time this file was saved. (The ID numbers are necessary in order for Relink-by-Name to function, since they are the "link" between the higher level objects and the names of the dependents.)

An important thing to notice about this name table is that the sample names are not needed by the K2000 for relinking purposes. In fact, the only information necessary for relinking the dependent objects of this file is the keymap object. The reason for this is that when this file containing the program is loaded, all of these dependent objects should already have been loaded, and the keymap should already be correctly linked to the samples. Although the samples' names are redundant from the K2000's point of view, they are included for free, so to speak, and you may find them very helpful if you ever need to know exactly what the dependents of this file were intended to be.

The Name Table Contents List is scrollable if there is object data past the seven lines that fit on the screen.

Now that the two files **STWAVE1.KRZ** and **STWAVE2.KRZ** have been created using the name table, they can be loaded back in and correctly relinked. In fact, if you were to immediately reload just the file containing the program (**STWAVE2.KRZ**) , into any bank, you would find that it was automatically relinked to the correct keymap.

Furthermore, you could edit the program and create more variations of it that reference the **Steinwave Piano** keymap, add ROM layers, with new effects programs if desired, and resave all of the programs (and any effects) to the same or a new file (remember to press **Names** when you are asked `Save dependent objects?`.) You never have to resave the file **STWAVE1.KRZ** that contains the keymap and samples, if all you have done is edited the programs or added more of them. This can be a tremendous time-saver.

If the keymap and Sample files are found on a CD-ROM disk, then using Relink-by-Name is not only a time-saver, but a disk space saver as well. If you like the samples and keymaps from a CD-ROM file, there is no need to duplicate the sample data on your own writable hard drive. Instead, all you have to do is save a program file in the above manner, and then make sure the CD-ROM file is loaded first before you load the program file.

If you needed to add some sample data to the file (for instance, you want to add a root to the keymap or process and reloop a sample from the CD-ROM), you can do this by explicitly selecting the new sample data and the keymap for saving along with the program and the name table. Then, the new sample would not be listed in the name table (it would be in the same file as the name table), and the keymap would be relinked to all of the samples by name instead of the program being relinked to the keymap (as before). What you put in the different files is up to you, and there is no limit to where you can break up the objects in one file or another. The main thing to be aware of are the two rules for Relink-by-Name mentioned above:

1. Always use unique names for like objects types.

2. Files containing dependent objects must be loaded first.

As you will see later, you can create a macro file that will automatically load both of the files in the correct order, no matter what drives they are on or what disk directories they are in. By using macro files in this way, you can avoid having to explicitly load 2 files and remember the correct order each time.

You can also use the Multiple Object Selector (described in the next section) to help in the process of identifying dependent objects and parent objects that you want to place into separate files. For instance you could easily select all dependent Keymaps and Samples of any group of

programs, to create a "dependents" file. Then, you could quickly select the programs and any other objects that you wanted to be relinked later on, and save them in another file.

Here is another practical example using songs (sequences). Suppose you have loaded several files into your machine, such that you now have all your favorite instruments on-board in the K2000's RAM. Then, you make a bunch of songs using a combination of ROM programs and the RAM programs you loaded in.

The dependent object structure of the songs would look something like this:

Songs:	*400 Wild Jam, 401 Memphis Groove*
Programs:	*600 Drawbarz, 245 FendJazzBass, 231 Funky GTR, 400 ObieWarble Pad, 103 3 Layer Kit* (from ROM)
Effects:	*ROM effects*
Keymaps, Samples	*Lots of them...*

In this case you might want to save all of the songs in one file, and be able to automatically relink the dependent programs used by the song tracks. All of the programs are presumably already saved in separate files. The only file that needs to be created is one that contains all of the songs, plus a name table. Once again, this is done by selecting the songs from the Save Object dialog, and answering **Names** to `Save dependent objects?`. The contents of this file can then be displayed by pressing **Open** (as was done for the previous example).

```
Func:LOAD     Sel:0/2              Index:        1


Table    36 Names                           700
Song    400 Wild Jam                      12114
Song    400 Memphis Groove               34002

Select   Next    Type   Multi    OK    Cancel
```

Also as shown in the previous example, you can display the contents of the name table:

```
Name Table Contents
Program 231 Funky GTR
Program 245 FendJazzBass
Program 400 Obie Warble Pad
Program 600 Drawbarz
Keymap  220 Funk Guitar
Keymap  229 Jazz Bass
                                          OK
```

Notice that the ROM program, **103 3 Layer Kit**, will not be listed in the name table. Any dependent objects that are in ROM do not need to be relinked by name. ROM objects are always directly referenced by their object ID number, since they don't get saved in any files.

Once the song file has been saved, it can be loaded in at any time and correctly relinked, as long as the other files containing the necessary programs have already been loaded.

For this type of situation, where you may be working on songs always using a consistent set of programs, it is beneficial to make a macro file that can be loaded in one step to direct all of the various program files to be loaded in. After that, any time you load in a song file containing a name table referencing these programs, the songs should get relinked to the correct programs.

If you happen to have multiple copies of the necessary programs already loaded into different banks, you can control which bank of programs will be linked to the songs by choosing a certain bank to load the song file into. The relinked programs will be the first set encountered according to the Relink-by-Name search algorithm defined above.

Not Loading the Name Table

There may be a time that you wish to load in objects from a file containing a name table, but you don't want the K2000 to relink any dependent objects according to the name table. This can be accomplished by "opening" the file from the Load function, and selecting any desired objects from within the file, *except* the name table. The selected objects will be loaded in to the bank you specify, however the Relink-by-Name mechanism will not function.

Relink-by-Name Processing Time

Normally, the time taken to relink several dependent objects using the name search will be insignificant, relative to the time it takes to load in the data from the file. However, if you are attempting to relink a very large amount of dependents by loading one file (say, 200 samples or so), there may be a noticeable wait while the K2000 searches its object database for the dependents. If this happens, it's best to be patient.

The Multiple Object Selector Page

The Multiple Object Selector is used for making multiple selections of objects from an object list according to combinations of selection modes such as object type, object ID, and dependencies. This page is available for use in the Load Object dialog, the Save Object dialog, and all of the object utilities (Move, Copy, Name, Delete, and Dump Objects.)

The Multiple Object Selector page is entered by pressing the **Multi** soft button when in the dialog pages for the above functions. This page contains parameters to define a group of objects cross-referenced by object type and object ID.   Objects can be grouped according to the dependencies of one or more objects, for all of the object functions *except* Load Object. (As described previously, the LoadObject function can not determine exact object dependency relationships until the objects are actually being loaded into the K2000. The other object functions operate on lists of the objects currently stored in the K2000's RAM, and because of this, dependent relationships are available to be used as selection criteria.)

This is what is displayed by the K2000 when the **Multi** button is first pressed:

```
Multiple Object Selector
Select :Type/Range
Type   :Sample
Bank   :200's
StartId: 200      EndId: 299



   All     Type  Toggle Clear   Set  Cancel
```

This is the screen from which you can specify a range of object ID numbers cross-referenced with object type. If you increment the Select parameter to the **Dependents** setting, you will see the following additional parameter layout (not available for LoadObject), that is used for selecting dependent objects of either the object currently scrolled to (from the object list that you were just viewing before pressing Multi) or dependent objects of the selected objects (indicated with an asterisk in the object list):

```
Multiple Object Selector
Select :Dependents
Of     :Current Item
Specify:All

Current = Program 205 Viola Section

  All     Type  Toggle Clear    Set   Cancel
```

The Current parameter is for information only and represents the currently highlighted item in the object list that you are working with.

Two other selection modes do not have any additional parameter associated with them. These are **Everything** and **Search String**.

```
Multiple Object Selector
Select :Everything
```

```
Multiple Object Selector
Select :SearchStrg
```

Setting a value of **Everything** is one way to choose all objects in the list. The **All** button performs a similar function, as described below.

A value of **SearchStrg** allows you to enter a string to be searched for in all of the object names in the list. Any objects with names containing the string can be selected. (Like **Dependents**, this mode is available for all functions except Load Object.)

Multiple Object Selector Soft Button Functions

Here is a functional description of the soft buttons displayed on the Multiple Object Selector page. This is followed by an explanation of the parameter operation for all of the above object selection modes.

All   Returns the Select parameter to **Type/Range**, if it was not already set that way. Sets the Type to **All Types** and the Bank to **All Banks**, and also the StartId to **0** and the EndId to **999**. This soft button is provided as a quick way to define the selection range as **Everything**. Once the Type and Bank parameters have been set up in this manner, it is easy to change either parameter to further define the selection range (for example, all types of objects in the 400s bank, or programs in All Banks)

Type   Returns the Select parameter to **Type/Range**, if it was not already set that way. Sets the Bank to **All Banks**, and also the StartId to **0** and the EndId to **999**. The Type parameter is set so that it matches the type of the currently indexed object from the object list. For instance, if you were scrolled to a Setup object when you pressed Multi, pressing the Type soft button would set up the Type parameter to Setup. This is usually used to quickly select or deselect all objects of a particular type by scrolling to the first object of that type, and then pressing **Multi->Type->Set** or **Multi->Type->Clear**. If you don't want to include all banks in the selection range, it is easy to adjust the Bank or ID parameters to narrow the range.

The following three soft buttons will trigger the selection and deselection of items from the current object listing, according to the function of the particular button. Only objects that are included in the specified range will be selected or deselected. When this process is completed, the display returns to the object function dialog.

Toggle   For each of the objects in the specified range, "toggle" the selection status of the object. In other words, if an object is already selected, then the object will be deselected (the asterisk will go away). If an object is not already selected, it will be selected (as indicated by an asterisk in the display between the object ID and object name.)

Toggle is very useful for situations where you want to select all objects in the list except those that meet certain qualifications. For instance, in the Delete Object utility (from the MASTER page, press **Object->Delete**), you may want to delete all objects that are not being used by a song that you are working on, in order to free up sample or object RAM in the K2000. You could do this by first selecting the song and its dependents, and then returning to the Multiple Object Selector page, set the selection range to **Everything** (or press the **All** soft button), and press **Toggle**. This will return you to the object list display, with everything that is *not* in use by the song now selected for deletion. All you would have to do then is press **OK** and confirm the delete operation.

Clear   Clears the selection status of all objects within the specified range. A basic example of this would be if you wanted to save a file containing everything in RAM except Programs. You could first select all the objects with the **Left**/**Right** cursor button double-press, and then go to the Multiple Object Selector. From there you could set the selection range to be Programs in All Banks, and press **Clear**. The K2000 would return to the object list display, with the only the desired objects selected for saving.

Set   For each of the objects in the specified range, select the object. For example, to select all keymaps and Samples in the 300s bank for saving, you would first set the selection criteria to **Type/Range**, set the Type to **Samples**, set the Bank to 300s,

and press **Set**. Then, you would press **Multi** again, and just change the Type parameter to **Keymap**, and press **Set** again. The desired range of objects would then be selected and ready to proceed with saving.

Cancel   Exits from the Multiple Object Selector page, with no action, and returns to the object function, with the previously displayed object list.

Entering Selection Criteria in the Multiple Object Selector

This section describes the operation of the selection modes provided on the Multiple Object Selector page. These are accessed by scrolling the Sel parameter to different values, as pictured above.

Selection by Type/Range

This mode is used to set a specific range of object types cross referenced with a specific ID range.

Parameters	*Possible Values*	*Function*
Type	*Sample, Keymap, Effect, Program, Setup, QABank, VelMap, PrsMap, IntTbl, Song, Table, All Types*	*Sets the desired object type. The value **All Types** will select all of the other possible types.*
Bank	*000's, 100's, 200's, 300's, 400's, 500's, 600's, 700's, 800's, 900's, All Banks*	*Sets the desired bank. Changing this parameter causes the StartId and the EndId to be set to the limits of the chosen bank (i.e. setting this to 300's will set the StartId to 300 and the EndId to 399). Setting this parameter to the value All Banks will set the StartId to 0 and the EndId to 999.* *The actual range used for selections when Toggle, Set, or Clear is pressed is taken from the setting of the StartId and EndId parameters. The Bank parameter is used as a quick way to set up the Id range for an entire bank, or all banks.*
StartID	*0 - 999*	*Sets the specific starting ID of the selection range.*
EndID	*0 - 999*	*Sets the specific ending ID of the selection range.*

It is possible to set the EndId before the StartId. If this is the case, no selection range will be enabled.

Selection by Dependents

This mode is used to select a group of objects that are dependents of other objects.

Parameters	Possible Values	Function
Of	Current Item, Selected Items	If set to **Current Item**, selection range is confined to those objects in the object list that are dependents of the currently indexed item (**Current =**), including the currently indexed item itself. If set to **Selected Items**, then the selection range includes any objects in the object list that are dependents of any currently selected objects. The currently indexed item that is displayed is ignored unless it is already explicitly selected (has an asterisk).
Specify	All, All->Keymap, All->Program, Keymap->Sample, Samples Only	This parameter is used to limit which dependent objects are included in the selection range for the appropriate objects included via the **Of** parameter. The normal setting is **All**, which means all dependents are included. The other settings are primarily useful when separating objects into different files for reloading later using macros and Relink-by-Name. If set to **All->Keymap**, then the selection range will include any dependent objects down to the level of keymaps. That is, samples will be excluded from the selection range. If set to **All->Program**, then the selection range will include any dependent objects down to the level of programs and effects. Another way of saying this is that any Keymaps and Samples will be excluded from the selection range. **Keymap->Sample** cause the selection range to only include dependent objects that are keymaps or samples. **Samples Only** will just include sample dependents.
Current =	Type,ID, and name of the currently indexed object	Displays the object that will be used if Current Items is the value of the **Of** parameter.

Everything

Everything will include all objects in the list. You may prefer to use the **All** button for this purpose.

Search String

This selection mode will ask for a search string to be entered, as soon as either the **Toggle**, **Clear**, or **Set** button is pressed. The range for the selection/deselection will be any objects whose names contain the search string, ignoring the case.

Search String mode is not available in Load Object.

Working with the Multiple Object Selector

The Multiple Object Selector can be helpful to avoid a lot of button presses and quickly allow you select whatever group of items in the K2000's RAM that you want. It is available in all of the related object management functions of Version 3.

You may notice that the cursor positions and parameter settings are remembered whenever you exit the Multi Selector dialog, even if you exit the dialog and choose a different function. For instance, if you end up doing a lot of selecting of samples, or of dependents at various levels, the parameters will stay set up the way you left them as you move from function to function (for example, from Copy to Delete to Save, etc.)

Select Dependents mode is very useful not just for saving dependents, but also for splitting up groups of objects for placing in different files. By using the optional settings for the Specify parameter (**All->Keymap**, **All->Program**, **Samples Only** etc.), you can separate the group of objects that you want to save at any level of the object tree that is necessary.

Some common examples of operations that are possible using the Multiple Object Selector:

- Select all the keymaps that are dependents of a block of programs.
- Select all the samples starting from ID **398**.
- Select all the objects that have "piano" in their object name.
- Select the programs, setups, and effects that are dependents of Song **200**.
- Select all of the keymaps and samples that are depended on by Songs **400–410**.

More Enhancements to the Save Dialog

The Choose File Name Function

When entering in a file name for saving, there is a **Choose** soft button. When **Choose** is pressed from the file naming dialog, the K2000 will access the current disk directory and display the following:

```
Dir:\                  Sel:0/10      Index:    1


Choose file name:BOTTLE    .KRZ      48K
                 CLAV      .KRZ    1207K
                 REGGAE         (dir)
    Total:664K   STICK     .KRZ     550K
        Root   Parent          OK   Cancel
```

The function of this dialog is to grab the text of any file name on the current disk, and either use it as a starting point in the file naming dialog, or else use the chosen filename exactly. This helps when replacing files on the disk (where the name must exactly match the file being replaced), or adding files to the disk that have similar names or appended revision numbers. You can save time by not having to type the entire file name in from the K2000's keypad.

The **Open** soft button is visible at the `Choose file name:` prompt only when a subdirectory is highlighted.

Traversing directories from the Choose function does not change the current default directory.

Selecting the Directory to use for Saving a File

After you specify the file name when saving any file, you can then be choose either the default current directory for saving the file in, or any other directory on the current disk:

```
Use current directory for BOTTLE.KRZ?
(Path = \)
```

```
Change   OK   Cancel
```

Pressing **OK** will select the default path (the current directory), which in this display is the root directory (\). Pressing **Change** will allow you to view the disk, traversing its directories, until you find the one in which you want to save the file. If you choose a different directory from the default, it will become the new default directory.

Saving Any File sets the File Index

After saving a file in Version 3, you can go to any disk function (such as Load), and the just saved file will be automatically highlighted. This makes it easy to find a file that you have just saved, in case you want to delete it, add it to a macro, move it to a different directory, open it (if it is a **.KRZ** or a **.MAC** file), etc.

Macros

In the K2000 Version 3 software, you can create lists of disk files called macros. The files can be located on any drive, whether SCSI based or the internal floppy drive. Files from SCSI drives in Roland and Akai format can also appear in macros.

macros are stored in a data object called a macro table. These can exist in two forms:

1. A macro table object in the K2000's non-volatile RAM.

2. A disk file, containing one macro table object. This disk file is called a macro file, and it has a **.MAC** extension (visible in the directory listing).

Macros are primarily used to configure a K2000 with sound and sequence data from several files, or selected objects within files. When a macro file is loaded, every file that is listed in its macro table will be loaded, according to the order of the entries in the macro table.

The Macro Page

There can only be one macro table in the K2000's memory at any time. This object is created for the first time by turning on Macro Record mode, from the MACRO page. The MACRO page is directly accessible from the first Disk mode soft button menu; just press the **Macro** soft button.

```
DiskMode    Samples:12313K  Memory:102K
Path = \CYBER\

CurrentDisk:SCSI 2        Startup:Off
                          Library:Off
Direct Access, 84MB
Psyquest PS-427           XMC1.7
<more   Load    Save  Macro  Delete  more>
```

The following screen is what you will see if macro recording is off:

```
Func:MACRO       [ Off  ]        Index:    0




Select  Modify   Load   Record   On     Exit
```

The top line displays the disk function (Func:MACRO), the current Macro mode ([Off]), and an index value into the macro table: Index: 0.

Macro Modes

The K2000 has 3 Macro modes: Record, Pause, and Off.

Off	There is no macro object in the K2000 memory.
Record	A macro object exists, and the K2000 records any file load operations that occur.
Pause	A macro object exists, but the K2000 *does not* record any file load operations that occur.

Note that whenever the macro mode is **Off**, there are two soft buttons labeled **Record** and **On**. Pressing **On** will enable Macro Record mode, and then will return to the Disk mode page. As an alternative, pressing **Record** will also enable Macro Record mode, but the display will remain on

the MACRO page. Once you press **Record**, the soft buttons and the top line of the display will change. The screen will look like this:

```
Func:MACRO [Record]              Index:    0
```

```
Select  Modify   Load   Pause     Off   Exit
```

The new macro mode is displayed (**[Record]**), and the soft button that used to say **Record** now says **Pause**. The soft button that used to say **On** now says **Off**. Pressing **Pause** will cause the macro mode to read **[Pause]** and the **Record** soft button to reappear.   You can switch between Record and Pause by pressing this button repeatedly.

Whenever Macro Record mode is enabled, you will see the indicator (Macro on) near the top left of the display on the Disk mode page:

```
DiskMode     Samples:10022K   Memory: 42K
Path = \
(Macro on)
CurrentDisk:Floppy          Startup:Off
                            Library:Off
```

```
<more   Load    Save   Macro  Delete  more>
```

The Macro Table

When Macro Record mode is enabled after being in the Off state, a new object called a macro table gets created in the K2000's memory.   (The macro table is sometimes also referred to as a *macro list*.) In the Save Object function display list, the macro table would appear as:

```
Table   35 Macro                          14
```

A macro table can be deleted from memory only by pressing the **Off** soft button, or by performing a hard-reset of the K2000. Pressing the **Off** button will display the following question:

```
Reset macro?
```

```
Yes    No
```

Pressing **Yes** will delete the macro table from memory, and then will return to the Disk mode page. The macro mode is set to **Off**, and the ⟨Macro on⟩ indicator is no longer displayed on the Disk mode page.

Pressing **No** will return to the MACRO page with no action taken. The Reset macro? prompt is displayed to allow you to change your mind about deleting the macro table, in case you have accidentally pressed the **Off** button.

When the macro table is first created it takes up a minimal size (14 bytes) in your non-volatile RAM. With each new entry that is added, the macro table will increase in size by approximately 40 to 100 bytes (or possibly more if the entry specifies an individual object list). When **Pause** mode is entered, the macro table continues to remain in memory but does not change size since file operations are not being recorded. This is useful if you need to load some files into the K2000 but you don't want them to be entered into the macro table.

A macro table gets progressively larger as more file operations are recorded into it. Because of this, you will want to control when a macro table is stored in your K2000's memory. If you are concerned about keeping enough free space for all of your other objects, you may want to practice the following strategy: when you want to record a macro, enable Macro Record mode, and when you are finished (and possibly have saved some macro files), turn Macro mode **Off**. This will reclaim the storage space taken up by the macro table.

If you are confident that you have enough K2000 object memory installed and that you can allow the macro table to increase in size as you work, then you may wish to leave Macro Record mode enabled all the time. This can be useful if you want to keep a running history of files you have recently loaded in. Both the Macro mode and the macro table are remembered between power-cycles of the K2000 via the battery-backed memory.

A macro can hold as many entries as there is space for in your K2000's non-volatile RAM.

How to Make a Macro File

This section will take you through creating, saving, and loading in a macro file. A simple example will be used. Afterwards, you will be able to apply the example and create your own macro files.

The first step in making a macro file is to turn on Macro Record mode (from the MACRO Page, press **On**), if you have not already done so.

Creating the Macro

Suppose you have the following four files on your disk (on SCSI ID 5, in the directory **\ANALOG**) that contain analog style synthesizer patches, and you would like to have one macro file that will load them all in:

```
Dir:\ANALOG\        Sel:4/4        Index:      1



    File to load:MULTIVOX .KRZ*       98K
                 NOISE    .KRZ*       36K
                 RESONANT .KRZ*      109K
    Total:664K   SYNAPSE  .KRZ*      421K
    Select  Root  Parent  Open   OK   Cancel
```

Using multiple selection, you can select all four files, as shown. When you press **OK** you will see the `Load selected as:` prompt, but with the extra soft buttons **Macro** and **Insert**:

```
Load selected as:200...299
                 300...399
                 400...499
                 500...599
Insert                    Macro   OK  Cancel
```

The extra soft buttons are available only when a macro is being recorded. First, select the bank that you want, as usual. Pressing **OK** means to load all of the selected files into the K2000, and add all of the files to the Macro list. If all you are doing is creating a macro file, you may not want to load the files at this time. However, you still would like to enter the files into the macro list. Pressing **Macro** does exactly that. It means *don't load the files, but do enter them into the macro list*.

When you add entries to a macro, they will be added to the end of the macro list by default. **Insert** is for inserting file entries at any point in a macro list. It is discussed a bit later, in the section on macro editing.

Once you have pressed either **Macro** or **OK**, you will see the load modes soft button menu that contains all of the various load modes (OvFill, Overwrt, Merge, Append, and Fill), whether the bank is empty or not. The reason for this is that you might need to be able to specify a mode such as Overwrite even if at the current time, the selected bank is empty. Whatever you choose here for the load mode (as well as your choice of bank) will be saved in the macro list. For the sake of this example, let's choose the 200s bank and Fill mode. As soon as you choose the mode, the K2000 will either load in the selected files or not, depending upon whether you pressed **OK** or **Macro**. In either case, they will be added to the macro.

Saving the Macro File

You have now created a macro. You can immediately verify that the selected files have been added to the macro table by looking at the MACRO page (from the Disk mode page, press **Macro**).

But right now, let's proceed with this example by saving the macro file. From the Disk mode page, press **Save**, then **Macro**. You'll see the following screen:

```
Func:SAVE MACRO    Sel:0/4      Index:      1


5:\ANALOG\MULTIVOX.KRZ            200:F:
5:\ANALOG\NOISE.KRZ              200:F:
5:\ANALOG\RESONANT.KRZ           200:F:
5:\ANALOG\SYNAPSE.KRZ            200:F:
Select                  All    OK    Exit
```

This is called the Save Macro page. The soft buttons on this page control which macro list entries (*macro entries*) will appear in the macro table that will be stored in the macro file. You can do

multiple selection of entries with the **Select** soft button. Selected entries will have an asterisk on the first character of the display line, such as this:

```
*5:\ANALOG\RESONANT.KRZ          200:F:
```

You can use the following double-presses to select and deselect all entries in the list:

- **Left**/**Right** cursor double-press: Select all macro entries
- **Up**/**Down** cursor double-press: Clear all selections

The top line indicates how many total macro entries are in the current macro table, and how many are selected.

Pressing **OK** will cause only the selected macro entries to be saved in the file. If you press **OK** but have not selected any macro entries, then the macro file will only have one entry in it, that of the highlighted entry.

There isn't much use for a macro file with only one entry in it, however it can be useful as a way to create a link to an often used file on a drive. For instance, you could create a macro file called **\PERC.MAC** in the root directory on the disk that just loads in a file **\MYSOUNDS\PERC\GOOD\PERC.KRZ**. Then, you would have fast access to loading this file without having to go find it, yet the file would still be organized in a subdirectory.

If you know that you want to save all of the entries into the macro file (as we do for this example,) just press **All**. The K2000 will go through the standard file saving dialog in which you choose a file name and select a directory to save the file in.

Let's save the file as **\ANALOG\SYNTH.MAC.** Macro files are automatically saved with an extension of **.MAC**. You will see the following on the screen as the file is being saved:

```
Writing file SYNTH.MAC...


Table    35 Macro          - 162 b
```

Loading the Macro File

So far, so good. We have created a macro in memory and saved it to the disk, in the same directory as the files that are listed in the macro.

While this example only loads files from within a single directory on a single drive, this is for the simplicity of the example. You can have files from any drive or directory in a macro.

Now, let's go to the Load page and try to load the macro file. This should load all of the files of the macro one by one. When you return to the Load page, the file list will automatically

highlight the macro file that was just saved (as it would after any type of file that you save, in Version 3):

```
Dir:\ANALOG\       Sel:0/5        Index:    5
                   RESONANT .KRZ      109K
                   SYNAPSE  .KRZ      421K
          File to load:SYNTH     .MAC        .5K


    Total:664K
 Select   Root   Parent   Open    OK   Cancel
```

Press **OK** to load **SYNTH.MAC**. Now the display reads:

```
 Load this macro as:specified
                    300...399
                    400...499
                    500...599
 Insert                       Macro   OK   Cancel
```

There are a couple of things to notice here. The first is a new choice in the bank list, **specified**. `Load this macro as specified` means load all the files in the macro following the exact instructions for the bank and load mode for each file. All of the files were specified to be loaded into the 200s bank using Fill mode. If this is acceptable at the time you want to load the macro, you can just press **OK**. Otherwise, you can override the bank and mode settings for the entire macro by choosing a different bank and mode before pressing **OK** (this is called *rebanking* the macro.)

The other thing noticeable about the above display is that the Macro and Insert buttons are still available. This is because the Macro mode is still Record. It is also perfectly acceptable to load a macro file "into a macro." If you do this, then the K2000 will add all of the macro file's entries into the in-memory macro list. Later on, you will see how loading a macro file into the in-memory macro list is a convenient way to edit a macro file or combine elements of several macro files into one macro.

In this example, the in-memory macro is still there—it didn't go away after saving the macro file (this only happens when you turn Macro Off, as described above.) Since Macro Record is still enabled, loading in the **SYNTH.MAC** file will have the effect of adding a duplicate set of entries into the in-memory macro.

Whatever method of loading you choose (specified in the macro or overriding the macro), the K2000 will proceed to locate each file in the macro in the exact order in which the entries were listed when the macro was saved. If the files were on different drives in your disk system, you would be able to observe your various drives as they were selected in turn and files were loaded from them.

If the K2000 cannot locate one of the files, you'll see a `Not Found` error message. If a drive cannot be accessed (for instance, if the SCSI ID stored with the macro entries in this example was no longer the current SCSI ID of the drive), you will see the message `Problem mounting disk`, to which you must press **OK**. If Confirm is set to **On** on the Master mode page, loading will stop on the first error message, giving you a chance to cancel the

operation or keep going. If you answer **Yes** at this point, the operation will continue, even if the K2000 encounters subsequent errors. If you run into a lot of errors due to loading an out of date macro file, the macro process can be discontinued using a special procedure described in *Aborting a Macro Load* on page 4-52

When the macro is done loading, the display shows `Macro SYNTH.MAC completed...`.

The K2000 will then return to the Disk mode page. You should now be able to go to Program mode, or the Save Objects display, and verify that all of the objects from the files of the macro are now in the K2000's memory.

Macro Entries

Each file load operation that is recorded into the macro table is called a macro entry. While Macro Record is enabled, you have the option of either loading files into the K2000 or just adding files to the macro without actually loading them (see below.)

Each macro entry stores information about how a disk file should be loaded. Each entry is displayed as a single item in a scrollable list on the MACRO page, with various fields indicating the parameters of the entry. This diagram shows how the MACRO page might look once four files have been entered into the table:

```
Func:MACRO [Record]              Index:     1


  3:\DRUMS\REALKITS.KRZ           200:F:Obj
  3:\BASSES\WALKING.KRZ           200:F:
  3:\KEYS\CHROMA12.KRZ            200:F:
  F:\SONG42.KRZ                   200:F:
 Select  Modify   Load    Pause    Off   Exit
```

The following chart describes the information stored in a macro entry, and also tells how to the understand the settings of a displayed macro entry:

Disk drive ID	*This represents what drive the file is to be loaded from. There are 10 possible values:* *The numbers **0-7** represent SCSI 0 through SCSI 7.* *The letter **F** represents the Floppy drive.* *The letter **U** means Unspecified drive. (see below)* *The letter **L** means the Library drive. (see below)*
Directory path/file name	*This is the directory path and the file name of the file on the disk to be loaded by this macro entry. This is displayed to the right of the Disk drive ID, following a colon, using as many characters as needed that will fit in the display (up to 28). The internal macro table can store any path length, however.*
Bank	*The bank that the file should be loaded into. This will have a value from 0 through 900 (by 100s), or the letter **E** for Everything. This field is the first field to the right of the path/file name in the display.*
Mode	*The mode specified for loading in the file. The following one-letter codes are shown in the display:* ***O** means Overwrite mode (Overwrt)* ***V** means Overwrite/Fill mode (OvFill)* ***M** means Merge mode* ***A** means Append mode* ***F** means Fill mode* *This field is to the right of the bank field, after a colon.*
Object indicator	*If a list of objects will be loaded from the file, the macro entry display line will have an "Obj" indicator as the last field on the right. (see above, for the file \DRUMS\REALKITS.KRZ)*
Object list	*If the Obj indicator is present for a macro entry, it means a list of individual object types and IDs are stored in the macro entry for the particular file. When the macro is loaded in, only these individual objects will be loaded from this file.*
Disk Format type	*If the disk is a third-party SCSI format disk such as Akai or Roland, a format indicator will appear on the macro entry display line in the last field on the right. The following codes are used:* ***Aka** means Akai format* ***Rol** means Roland format* *Ensoniq format disks are not currently supported in macros.*

Using the Bank and Mode Fields

The bank and mode fields will only be used if a macro file is loaded "as specified." (This is one of the options when loading in a **.MAC** file, as described below) This means that each file listed in the macro will be loaded in exactly as the fields of the macro entry are specified. These fields can optionally be overridden in the Load dialog, and a new bank and mode can be chosen for the entire macro.

It is not always important what the bank and mode are set to in a macro entry, since the macro can really be loaded anywhere by overriding the bank and mode in the Load dialog. These fields are more important when you want to automatically configure the banks of your K2000 the same way each time you load a macro, with different files being explicitly loaded into different banks.

Viewing the Object List for a Macro Entry

If a macro entry contains an object list, it can be examined by scrolling the macro list display until the item with the Obj indicator is highlighted, and then by pressing either the **Left** or **Right** cursor button on the front panel. You will see a display that looks like this:

```
Macro Object List    (load dependents)
Program 210
Program 211
Program 212
Program 213


                                           OK
```

• **Left** or **Right** cursor button: Displays macro entry object list

The Macro Object List display, a scrollable list, shows what objects are to be loaded from the file specified in the currently indexed macro entry. You will not see the names of the objects in this display, because they are not stored in the macro table. The objects are referenced only by object type and object ID. The `(load dependents)` indicator means that the macro process should also load all dependents of the objects in this list.

If you need to know the names of objects in a macro entry object list, it is possible to begin a disk function (such as Load), find the file specified in the macro entry, press **Open** to display the file's objects, and look up what the objects are, using the information in this display.

Unspecified Disk Drive ID

Before the time a macro file is saved to disk, you can specify that a file's location will not be tied to a specific SCSI ID number. Instead, the file should be loaded from the same drive that contains the macro file itself. This is called the Unspecified drive ID, since the actual ID is not known until the time of loading the macro.

The Unspecified drive ID will typically be used by people who distribute K2000 sound files and macro files on removable disk media such as CD-ROMs or Magneto-Optical Cartridges. This feature makes it possible to avoid specifying the exact SCSI ID used in a macro file that is to be loaded on someone else's disk drive, since there is no way to predict the SCSI ID of the drive in advance.

Another use would be, if you are consistently working with macro files that load mostly files from the same drive, then if you set the macro's drive IDs to Unspecified you won't have to edit your macro files if you happen to change the drive's SCSI ID.

Setting macro entries to have an Unspecified drive ID is done from the Modify Macro page (press **Disk**->**Macro**->**Modify**), described later in this section.

The Library Disk

If a macro entry is set to the Library drive ID, it means that the file to be loaded should be found on the drive at the SCSI ID set by the Library parameter on the Disk mode page. This designation is similar in purpose to the Unspecified drive ID, because it is a way to avoid needing to hard-wire the SCSI ID in advance. The Library drive ID is intended to be used in

macro files that reside on removable media such as a floppy disk, whose macro entries are supposed to load in particular files on a specific sample CD.

The main purpose of this feature is so that macro files can be distributed on a floppy disks containing programs that link up with sample files from CD-ROMs. Formerly, a user would have to copy the CD-ROM file to their own hard drive if they wanted to make any new programs that use a CD-ROM file's sample and keymap data.

There are a lot of possibilities in the K2000 to come up with new programs for using with many available sample CDs. Now it is possible to distribute programs or sequences based on a floppy to other K2000 users who already have a certain sample CD in their collection. They should be able to load the correct sequences of files just by loading a macro, without those nasty SCSI ID conflicts.

A macro of this type would first load the CD-ROM files containing samples and keymaps (off the Library disk), and then load in files from the floppy disk. The program files from the floppy should correctly link up to the pre-loaded keymaps and samples via the Relink-by-Name feature.

In order for the files in the macro with a Library drive ID to be found, the user of the macro must have already set up their Library parameter to be the SCSI ID of their CD-ROM drive.

In the following diagram, notice that the Library parameter has been set to SCSI 3.

```
DiskMode      Samples:10022K  Memory:  42K
Path = \
(Macro on)
CurrentDisk:Floppy              Startup:Off
                                Library:SCSI 3


<more    Load    Save   Macro  Delete  more>
```

Assuming SCSI 3 is the user's CD-ROM drive, the user is now prepared to load a macro file from on a floppy disk that contains the following entries:

```
L:\PIANO4MB.KRZ                 200:F:Obj
F:\PNOPROGS.KRZ                 200:F:
```

When the above macro entries are loaded, the file **\PIANO4MB.KRZ** will be looked for on the drive with address SCSI 3, since this is what the Library parameter on the Disk mode page has been set to. If the correct CD-ROM has been placed in the drive, the K2000 will load the file, and then continue and load **\PNOPROGS.KRZ** from the floppy disk.

If the K2000 executes the above macro, but the Library parameter has not been set (is set to **Off**) an error message (Library has not been set) will be displayed when the macro process attempts to load **\PIANO4MB.KRZ**.

The above example is a typical case where the Relink-by-Name feature is used to have one file containing programs depend on another file containing samples and keymaps, yet the files are on different drives. The CD-ROM in the example might just as well have been an Akai or Roland format, and the file from the floppy would contain the latest custom K2000 programs making good use of the imported data.

The Library parameter is remembered by the K2000 across power-cycles, via the battery backed memory. This means that if you use this feature to load macros you only have to set it up once.

Setting macro entries to have a Library drive ID is done from the Modify Macro page (press **Disk**->**Macro**->**Modify**), described later in this section.

Although the Unspecified and Library drive IDs are meant to be used with distributable media such as CD-ROMs and floppy disks, these features will work with any supported disk drives.

Loading Selected Entries from a Macro File

It is possible to examine the contents of a macro file from any disk function page— the same way you would open a **.KRZ** file to check out what objects are stored in it - by highlighting the **.MAC** file and pressing **Open**:

```
Dir:\ANALOG\        Sel:0/5       Index:     5
                    RESONANT .KRZ       109K
                    SYNAPSE  .KRZ       421K
       File to load:SYNTH    .MAC        .5K


   Total:664K
 Select   Root   Parent   Open    OK    Cancel
```

The K2000 will need to read the macro file into a temporary area of internal memory, which means there needs to be enough free RAM to accommodate it. When **Open** is pressed from the Load function, a dialog similar to the MACRO page and the Save Macro page will be entered, called the Load Macro page:

```
Func:LOAD MACRO    Sel:2/4       Index:     1



  5:\ANALOG\MULTIVOX.KRZ            200:F:
 *5:\ANALOG\NOISE.KRZ               200:F:
  5:\ANALOG\RESONANT.KRZ            200:F:
 *5:\ANALOG\SYNAPSE.KRZ             200:F:
 Select  Check          All      OK     Exit
```

From the Load Macro page, you can select one or more individual macro entries for loading, instead of having to load the entire macro. This is done using the **Select** soft button, identical to the method of saving macro entries. In fact, this dialog operates identically to the Save Macro dialog, with one exception, the **Check** soft button.

The **Check** button will cross-check all of the macro entries in this opened macro file against the currently in-memory macro table, if there is one. Any entries in the opened macro file that are not in the in-memory macro table will be selected when you press the **Check** button. The selected macro entries can then be loaded in by pressing **OK**. This can be helpful to avoid loading in duplicate files if you...

a) use Macro Record to keep a running history of files that you have already loaded into the K2000, and

b) have a lot of macro files that load in a similar lists of files.

If the **Open** button is pressed from a disk function other than Load, you will see the View Macro page:

```
Func:VIEW MACRO    Sel:0/4      Index:     1


 5:\ANALOG\MULTIVOX.KRZ          200:F:
 5:\ANALOG\NOISE.KRZ             200:F:
 5:\ANALOG\RESONANT.KRZ          200:F:
 5:\ANALOG\SYNAPSE.KRZ           200:F:
                                       Exit
```

The only function of this dialog is to view the macro list entries stored in a macro file. This feature is useful when, for instance, you are about to delete a macro file and want to know what information is contained in the file before you remove it from the drive.

Editing Macros

The in-memory macro table can be edited from the MACRO page. You can select one or more macro entries and do any of the following operations to them:

1. Change the Drive ID.

2. Change the Bank and Mode settings.

3. Delete the selected macro entries.

To edit a macro file already saved on your disk, it is necessary to first load the macro file into the in-memory macro. If you recall, this is done by the following procedure:

Making sure that Macro Record mode is enabled, go to the Load function, highlight the macro file you wish to edit, and then either select certain entries from the macro file (by pressing **Open** to get to the Load Macro page), or just press **OK** to load the entire macro file. When you see the following display, press the **Macro** soft button, so that the K2000 will not try to load the files listed in the macro.

```
Load this macro as:specified
                    300...399
                    400...499
                    500...599
Insert                     Macro   OK  Cancel
```

If you want, you can rebank the macro on the way in by scrolling the bank list to something other than **specified**. Similarly, if you override the load mode, it will be reflected in the in-memory macro table as well.

To edit entries from the macro table, return to the MACRO page. For this example we will edit all the entries at once (like other similar dialogs, if you only are concerned with one list entry, it

does not need to be explicitly selected with the Select soft button.) You can use the following double-presses to select and deselect all entries in the list:

- Left/Right cursor double-press: Select all macro entries
- Up/Down cursor double-press: Clear all selections

With all the entries selected, our display looks like this:

```
Func:MACRO [Record]              Index:    1


*4:\NEWMIX\TRASHX12.KRZ              200:F:
*4:\POTS\TEAPOT.KRZ                  300:F:
*4:\PANS\FRYING.KRZ                  400:F:
*4:\KITCHEN\SINK.KRZ                 500:F:Obj
 Select Modify  Load  Pause   Off   Exit
```

Two soft buttons have yet to be explained. They are **Modify** and **Load**.

Press the **Modify** soft button to change any items mentioned at the top of this section. You will see the following display:

```
Modify Macro Entries

Modify:Drive
Drive :SCSI 4

4 entries selected.

                       Delete   OK   Cancel
```

This shows the screen that allows you to change the SCSI drive for the selected macro entries. If you increment the Modify parameter, the display switches to let you modify Bank and Mode information:

```
Modify Macro Entries

Modify:Bank/Mode
Bank  :200's        Mode:Fill

4 entries selected.

                       Delete   OK   Cancel
```

The initial settings of the parameters on these screens are always taken from the lowest indexed macro entry that is selected on the MACRO page. In addition, every time you return to the Modify Macro Entries page, both the Modify parameter and the cursored parameter field will be the same.

Macros

Pressing **OK** will set all of the selected macro entries to have drive ID or Bank and Mode settings according to the parameters set up on this page. The display will return to the MACRO page with the same entries still selected. Any modifications to the parameters will be visibly apparent.

Press **Delete** to remove the macro entries from the macro list. You will see the display:

Delete macro entries?

`  Yes     No  `

If you answer **Yes**, the display returns to the MACRO page and all of the previously selected entries will be gone from the list. If you answer **No**, the display will return to the Modify Macro Entries dialog.

Pressing **Cancel** in the Modify Macro Entries dialog will return to the MACRO page with everything that was selected still selected, but with no parameter changes made to any macro entries.

Here are the parameter values for Modify Macro Entries:

Parameter	Values
Modify	Drive, Bank/Mode
Drive	Floppy, SCSI 0, SCSI 1, SCSI 2, SCSI 3, SCSI 4, SCSI 5, SCSI 6, SCSI 7, Unspecified, Library
Bank	000's, 100's, 200's, 300's, 400's, 500's, 600's, 700's, 800's, 900's, Everything
Mode	Append, Merge, Fill, Overwrite, OvFill

Once you have made the necessary changes to the in-memory macro, you can go to the Save Macro page to write selected (or all) entries to a new disk file (or replace over the original macro file you may have loaded in for editing.)

You can load any group of files listed in the in-memory macro. This is done using the **Load** soft button on the MACRO page:

```
Func:MACRO      [Record]           Index:      1


 1:\STRINGS.KRZ                      200:F:
*1:\PIANO.KRZ                        300:F:
 1:\DRUMS.KRZ                        400:F:
*1:\NOISE.AIF                        500:F:
Select Modify  Load  Pause   Off   Exit
```

Pressing the **Load** button gives you the choice of loading either all of the files in the macro list or loading only the files that are selected:

```
Load selected items or all items?


                              All Selected Cancel
```

If you don't have any items explicitly selected (with an asterisk), the message you see when you press load is slightly different:

```
Load current item  or all items?
```

This word "current" means the highlighted entry in the display will be loaded.

The files that have been selected for loading will be loaded in their respective order in the macro list, using the bank and mode parameters that are specified in the list.   In the above screen, if you were to load selected items, first **\PIANO.KRZ** would be loaded in the 200s bank, and then **\NOISE.AIF** would be loaded in the 500s bank.

Macro Insert

It is possible to insert new macro entries into the middle of the macro table if necessary. This is done by pressing the **Insert** soft button at the `Load this file as:` prompt, when loading in a file (if Macro Record is enabled):

```
     Load this file as:200...299
                        300...399
                        400...499*
                        500...599*
Insert                          Macro  OK  Cancel
```

When you press Insert, you will see a dialog displaying the current in-memory macro list:

```
Set Macro Insert Point         Index:    2

5:\ABCFILE.KRZ                         200:F:
5:\METALIC.KRZ                         200:F:
5:\STEREOZX.KRZ                        300:F:Obj
5:\STRINGS\DBLBASS.KRZ                 400:F:
5:\STRINGS\CELLOS.KRZ                  400:F:
                                      OK  Cancel
```

Scroll the macro list until the entry before which you want to insert is highlighted. In the above display, any new macro entries added by this load operation will be inserted in the macro list just before the entry for **METALIC.KRZ**.

Press **OK** to enable the insert point. Press **Cancel** to disable the insert point.

The display will return to the `Load this file as:` prompt. If a macro insert point has been set, an indicator will appear at the top left of the screen:

`(Macro insert)`

```
Load this file as:200...299
                   300...399
                   400...499*
                   500...599*
Insert                        Macro   OK   Cancel
```

The insert point can be disabled before loading, by pressing **Insert** again and pressing Cancel from within the `Set Macro Insert Point` prompt. The `(Macro insert)` indicator will disappear.   Similarly, the insert point can be changed before loading by pressing **Insert** again (the screen will highlight the current insert point,) scrolling to a different insert point, and pressing **OK**.

Saving and Loading a Macro Table in a .KRZ file

Macro tables can be explicitly saved or loaded (without being executed) using Save Individual Object and Load Individual Object. If for some reason you wanted to save a macro table that was being worked on in-progress, and then be able to load it back in later on to be worked on some more, you would use this method. The macro table can be selected for saving and loading just like any other object. When you load in a macro table using Load Individual Object, it will overwrite any macro table already in memory. Once it is loaded in, you may have to go to the MACRO page and enable Macro Record mode to continue to record further load operations into the macro.

The Save Everything feature of the Save dialog will not include the macro table. This is done to prevent inadvertent distribution of what would most likely be a meaningless macro table to other users.

Aborting a Macro Load

There is a way to abort the process of loading a macro file. Aborting can only be done "between" files that are being loaded, and not during the load of any one file (short of powering off or soft-resetting the machine with [simultaneously pressing [**+/- 0 CLR**]...but this is not recommended!).

Aborting a macro load is done by pressing and holding down either of the **Increment** (**+**) or the **Decrement** (**-**) buttons that are located just below the Alpha wheel. This should be done at least one-half second before you anticipate the current file to finish loading, or else the K2000 will not sense that you wish to abort the load.

You will see the following question after the current file being loaded is completed:

```
Abort the macro?
```

```
Yes    No
```

It may be a good idea to practice using this method of aborting a macro file load, so that when the time comes that you load in an out of date macro with 25 entries all at the wrong SCSI ID. you will remember how to abort the process. This same method (of holding the **Increment** or **Decrement** buttons down) is also used to abort the Backup feature and the multiple file load feature.

If you run out of object or sample RAM, you will have one opportunity to abort the macro as explained above. However, if you continue from that point you may end up seeing the same error message `Memory is full` for each file that you had selected. This can be a rather tedious process, however it is still possible to abort out of this by holding down the **Increment** or **Decrement** button simultaneously while pressing **Yes** when you see the following question:

```
Abort this Partial load?
```

```
Yes    No
```

If the macro that you abort was loaded by multiple selection together with other files (that may or may not be macro files), you will have to abort twice, once to get out of the current macro file load, and a second time to get out of the multiple file load process.

If you are aborting a macro because the Disk Drive ID is incorrectly specified (as evidenced by lots of `Problem mounting disk` errors) you will need to hold down either the **Increment** or the **Decrement** button simultaneously while pressing **OK** to satisfy the error prompt. The screen may blink while you're holding down the repeating **Increment** or **Decrement** button, but as soon as you have pressed **OK** you will see the `Abort the macro?` prompt.

Disk Utilities

Version 3 includes a group of utility functions that provide certain necessary information about disks and their files and directories. These functions are useful when you want to know how your disks are organized and how much disk space you have available. They also help you to locate files and directories.

To access the Disk Utilities page, press the **Util** button from the Disk mode page. The Disk Utilities page looks like this:

```
DiskUtil: SCSI 2
```

```
Select utility function:
```

```
              Find  List  Free  Done
```

The functions on the Disk Utilities page are used for finding out information about the Current Disk. The Current Disk is always indicated on the top line of this page. If you want to use the utility functions for a different disk, you must first set it to be the Current Disk on the Disk Mode page.

Here is a brief description of each soft button:

Find	Find files utility. Allows you to search for files that match a certain character string in their file names.
List	Lists an expanded directory tree from any level of the hierarchy. This function can be used to determine the total size of files within any tree of subdirectory. It is also helpful for finding files on the disk.
Free	Calculates the available space on the disk.
Done	Exits back the Disk mode page.

Find Files

The Find files utility first prompts you to enter a character string to be searched for:

```
Search string: RAT
```

```
Delete  Insert  >>End  Choose   OK   Cancel
```

You can use the **Choose** button to grab the text of a file name from the current disk , as described previously.

If you press **OK**, the K2000 will begin to search the disk for any files or directories that contain the search string in their names. The search starts in the root directory and searches the entire disk. When a matching file or directory is found, you'll see one of the following:

```
Found file:

\BABYTOYS\RATTLE.KRZ

                    FindNext  Go To  Cancel
```

```
Found directory:

\CRATES

                    FindNext  Go To  Cancel
```

If the search string is found anywhere within a file name it will be matched. The search algorithm independently checks both the file name and the extension. For instance, if you wanted to find any macro file on the disk, you could enter in **MAC** for the search string. This would find any macro files as well as any files or directories that have **MAC** in their filename.

When a match is found, there are three choices displayed:

FindNext	Continue searching the disk for another file or directory that matches the search string.
Go To	Exit to the Disk mode page, setting the current directory and file index of the K2000 to the location of the found file or directory.
	The next disk function you choose will display the current directory with the found file already highlighted. If a directory was found, then the first file in the directory list will be highlighted.
Cancel	Exit to the Disk mode page.

When the search has checked all of the items on the disk, the K2000 displays this screen:

```
Search completed.

                                        OK
```

If no matching files were found, you will also see (No files found).

The K2000 will remember the last search string that you entered. This makes it easy to repeat the same search. If you press **Util**->**Find** again, the `Search string:` dialog will contain the previously used string.

List

The List utility allows you to view directories on a disk with the expanded contents of all sub-directories. Each line is indented according to its directory level, so that you can get a sense of how your directory tree is organized.

```
Dir:\               [    1968K]   Index:       1


ELEPHANT.KRZ                                  148K
BSOUNDS\
    TRUMPETS\
        JSBACH.KRZ                            712K
  Root     Up      Down              Go To   Exit
```

The Dir (Directory) parameter shows the directory that is being listed. The size value displayed on the top line of the display represents the total size of the directory subtree that is currently being viewed. The **Root**, **Up**, and **Down** soft buttons control going from one directory to another in the hierarchy:

Root	Display the disk from the top level, meaning that all of the files on the disk will appear in the scrollable list.
Down	Set the display to the level of the highlighted file or directory.
	For example, scrolling to **JSBACH.KRZ** in the above list, and pressing **Down**, would focus the list on the contents of the **TRUMPETS** directory.
Up	Set the display up one directory level.
Go To	Exit to the Disk mode page, setting the current directory and file index to the location of the highlighted file or directory.
Cancel	Exit back to the Disk mode page. The current directory is unchanged.

The files are listed in the order that they appear on the disk, unalphabetized. The traversal order of the directories is the same one that is also used for the Backup function (see below.)

Free

The Free utility calculates the amount of free space on the current disk and displays the result on the Disk Utilities page. This may take a small amount of time to calculate, depending on the drive.

```
Computing free space on SCSI 2

Please wait...
```

```
DiskUtil: SCSI 2          (DOS)
Used:23%    Free:94814K    Total:124396K

Select utility function:



        _____  _____  █Find█ █List█ █Free█ █Done█
```

The parameters tell you the following:

Used	The percentage of the disk that is taken up by the existing information stored on it.
Free	The amount of disk space available for new files.
Total	The size of the disk. This will be the size of the usable partition if MS-DOS format.

For SCSI drives, if the current disk was formatted on a PC or a Mac in MS-DOS format and contains at least one primary partition, you will see the (DOS) indicator on the top line. Using this format is described in the section on MS-DOS compatibility.

For floppy drives, the density (HD or DD) will be displayed. All K2000 floppy disks are MS-DOS format compatible.

Moving Files Between Directories

Files can be moved from one directory to another on a given disk. You can either choose multiple files to move using the **Select** soft button, or just move the single highlighted file or

directory (if no other files are selected). To use this function, press the **Move** soft button from the Disk mode page. Then choose the file or files that you want to move:

```
Dir:\                    Sel:0/15      Index:    1


    File to move:ATOMTOM .KRZ          98K
                 BLOWFISH.KRZ          36K
                 COLORS  .KRZ         109K
    Total:6846K  DRUMHITS      (dir)
 Select   Root   Parent   Open    OK   Cancel
```

Press **OK** when you have made your selection. Press **Cancel** to return to the Disk mode page.

The K2000 remembers the most recent destination directory that a file was moved to. If the current directory is different from the most recent destination directory, you will see the question:

```
Use default directory for ATOMTOM.KRZ?
(Path = \DRUMHITS\)


                        Change   OK   Cancel
```

Press **OK** to use the default.

Press **Change** if you want to select a different destination from the default shown. The K2000 will then display a directory selection dialog (described early in this chapter), and you can select the move destination directory from there:

```
Dir:\                    Sel:0/15      Index:    4
                 BLOWFISH.KRZ          36K
                 COLORS  .KRZ         109K
    Select dest dir:DRUMHITS      (dir)
                 EARTHLNG.KRZ         144K
                 HANDCLAP.KRZ         645K
    Total:6846K  INDUSTRY      (dir)
  Root   Parent  Open   Current  SetDir  Exit
```

The move operation begins when you press either **Current** or **SetDir**.

If the default destination directory is the same as the source directory, the K2000 will skip the `Use default directory?` prompt and instead go right to the `Select dest dir:` prompt.

A good way to organize files into subdirectories, with a disk drive that was being used with previous versions of K2000 software, is by using the Move command. First, create the subdirectories you need, using the **NewDir** function. Then, use multiple file selection to select the files to be grouped into a particular subdirectory. The files can be moved to their new location in one operation.

For each file that is moved, you will see a confirmation message:

```
\ATOMTOM.KRZ moved to
\DRUMHITS\ATOMTOM.KRZ
```

Note the following:

- If you are moving a directory, you cannot move it in to a subdirectory of itself.
- If the source and destination directories are the same, the file will not be moved, and an error message such as the one below is displayed. This would happen if you pressed **Current** above.
- The same message will be displayed if there is a file in the destination directory with the same name as the file to be moved.

```
File \ATOMTOM.KRZ not moved.
```

Renaming Files

Press the **Rename** soft button (from Disk mode) to rename files. The Rename function has changed for Version 3 to support directories. Both files and directories can be renamed.

```
Dir:\                    Sel:0/1         Index:      1


    File to rename:FILE9876 .KRZ     2048K


 Total:2048K
             Root   Parent  Open    OK    Cancel
```

This function can only be used to change the 8-character file name and not the extension.

Deleting Files and Directories

Press the **Delete** soft button (from Disk mode) to delete files and directories. The Delete function supports multiple selection of files for deletion.

```
Dir:\                    Sel:2/4         Index:      2
                         BLUES        (dir)
    File to delete:MOTOR    .KRZ*       98K
                         QUACKS   .KRZ        344K
                         ZAPPER   .KRZ*       802K
 Total:1244K
Select  Root   Parent  Open    OK    Cancel
```

A directory must be empty in order to delete it (that is, it must not contain any files or subdirectories.)

Backup and Copy Functions

The Backup and Copy functions have changed in Version 3 in order to support directories.

To access the Backup function, from the Disk mode page, first make sure that the Current Disk is set to be the drive that you want to make a backup of. Next, press the **Backup** soft button:

```
Dir:\                  Sel:0/15      Index:     1


     Set backup dir:ANIMALS .KRZ     1097K
                     BREAKAGE    (dir)
                     LOWINST     (dir)
Total:9040K          PLANKTON    (dir)
  Root  Parent Open           Current Exit
```

On this screen, choose the directory tree that you want to backup by selecting a directory (see Selecting Directories, near the beginning of this chapter.) Backup allows to you copy all of the files within a directory tree from one disk to another. All of the files within the directory that you choose, plus all of its subdirectories and files within them will be copied to the new drive. If you want to backup the entire disk, then make sure the current directory is the root directory (as in the picture), and press **Current**.

Next, you will see a dialog for choosing the destination disk:

```
    Destination disk:SCSI 0
                     SCSI 1
                     SCSI 2
                     SCSI 3
                            OK   Cancel
```

Select the disk you wish to transfer files to. It must be a different disk from the current disk.

Next, you can select a directory on the destination disk that will receive the transferred files.

```
Use default directory on SCSI 0?
(Path = \)



                  Change   OK   Cancel
```

The default is always the root directory on the destination disk. Press **OK** to select the default. To select a different directory, press **Change**.

Next, select the Backup mode when you see the following question:

`ReΡlace or increment mode?`

`  Help  `   `Replace  Increm  Cancel`

Replace	Any files to be transferred that already exist in the destination will be replaced (overwritten.)
Increm	Any files to be transferred that already exist in the destination will be skipped (not transferred.)
Help	Displays a reminder about the meaning of Replace and Increment modes.

After you select the Backup mode, you will see a confirmation screen with all of your selections so far:

```
Press OK to start backup:SCSI 4->SCSI 6
Mode  =ReΡlace
Source=\
Dest  =\
```

`SetFile   OK   Cancel`

OK	Begin the Backup function according to the parameters on this page.
Cancel	Exit to Disk mode.
SetFile	Set Backup starting file. This is mainly used when you are backing up files from a larger SCSI drive to several smaller removable media disks. Once one of the removable destination media is full, note the last file that was successfully copied. Enter the Backup function again, setting up the source and destination path parameters exactly as before. But this time use the **SetFile** button to start from the file after the last file copied.
	You will notice that the file list displayed when **SetFile** is pressed is not in alphabetical order, but in the actual order the files occur in the directory on the disk:

```
Dir:\              Sel:0/15     Index:    1


   Set start file:ZYXWVUTS .KRZ      418K
                  PLANKTON     (dir)
                  ANIMALS  .KRZ     1097K
   Total:9040K    VEGGIES  .KRZ     2801K
        Root   Parent  Open   OK   Cancel
```

Find the last file copied from the previous partial backup. Set the list index to one entry past the location of this file. If this file is already the last entry in the file list, the "next" file to continue the multi-part backup would be the file or directory that comes after the file list entry for the currently viewed directory. To find this file or directory, you will need to look in the parent directory.

A large SCSI drive backed up in this way can be restored by individually backing up the removable media in the reverse direction.

Backup and Copy will transfer files much faster than in previous versions of K2000 software, if you have cleared your object RAM first using the Delete Everything command (save any objects in RAM to disk first.)

When using the Backup function to transfer files from SCSI to floppy, directories are ignored (i.e. not created on the floppy.) This "flattens" out any directory structure so that multi-disk files can be created on the floppy disks.

File Copy

The Copy function now supports copying a single file from a directory on one disk to a specified directory on the destination disk.

Creating a Startup File

With Version 3, you can create a macro file that will automatically be loaded in when you power-on your K2000. This file, called the Startup file, or Boot Macro, can be on a disk drive at any SCSI ID or else on the floppy disk. See the section on macros for background information.

The steps needed to create a startup file are:

First, create a macro file called **BOOT.MAC** in the root directory of the SCSI or floppy disk that you will use as the startup disk. Specify in the macro the exact ordering of files that you would like to have loaded into the K2000 when powered on. When you save the macro file, just name the file **BOOT**, and the K2000 will add the **.MAC** extension.

Second, set the Startup parameter on the Disk mode page to be the drive ID of the Startup disk. So, if your **BOOT.MAC** file was on a floppy disk, set the Startup parameter to **Floppy** and make sure that you have the correct floppy in the drive when you next turn the K2000 on.

When the K2000 is powered on, it will display the following message (after the introductory VAST logo):

```
About to load startup file...
```

```
Cancel
```

The K2000 looks for a file **BOOT.MAC** in the root directory on the drive specified by the Startup parameter. If the file is not found, or the drive cannot be accessed, you will get an error message. The startup load can be bypassed in the first few seconds after the K2000 is turned on, by pressing the **Cancel soft** button that appears.

If **BOOT.MAC** is found by the K2000, it will begin to load the macro file as if you had loaded it explicitly from the Load function in Disk mode. When the macro has completed, you will see the following:

```
Macro BOOT.MAC completed...
```

The K2000 will go directly to Program mode afterwards.

Deleting Banks in a Startup File

You may want the startup file to clear out one or all banks in the K2000 before loading files. This could help overcome the problem of having "silent" copies of programs in your RAM that depend on samples that are no longer there (because they disappeared the last time the K2000's power was turned off.) The following trick will allow a macro entry to essentially function as a Delete Bank or Delete Everything command:

Create a file somewhere on (preferably) your startup disk, by saving an empty bank from the K2000. Call the file **NULL.KRZ**. Now, insert this file at the beginning of a boot macro you are creating—load the file, specify the bank you want to delete in the startup file (choose **Everything** to clear out all of the object RAM) ,and specify **Overwrite** for the load mode. Make sure you press **Macro** and not **OK**, so that the overwrite doesn't take place until you use the startup file.

Here is what that macro entry for this file might look like on the MACRO page, if you were doing a Delete Everything:

```
 3:\NULL.KRZ                         E:O:
```

The E:O stands for "Load as Everything, using Overwrite mode."

Object Utilities

In previous versions of K2000 software, if you were trying to organize a lot of objects in the K2000's RAM it could often be a tedious and time-consuming task. In Version 3, there is a new page of functions that hopefully can make the tasks of organizing objects a lot easier to do. These functions are useful for moving or copying objects into various banks, naming objects, deleting objects, and dumping objects over MIDI.

To access these functions, go to the Master Mode page (press **Master** from the front panel), and then press the **Object** soft button. You will see the following screen:

```
Select database function:
```

```
 Move    Copy    Name  Delete Dump   Done
```

The soft buttons are used to choose the various object utility functions.

Move	Move selected objects to a new bank or a specific starting ID.
Copy	Copy selected objects to a new bank or a specific starting ID.
Name	Name selected objects.
Delete	Delete selected objects.
Dump	Dump selected objects over MIDI.
Done	Exit from the object utilities.

Each function's multiple object selection interface is identical to the one used in the Save Objects dialog. For a complete description of this interface, see *Saving Individual Objects* on page 4-21. Here is what the **Move** object screen would look like (with several objects selected):

```
Func:MOVE        Sel:14/211       Index:      1


Sample   200*Zild 20 Ride Hrd C 4S      260K
Sample   201*Zild 20 Ride Sft C 4S      224K
Sample   202*Zild 16 Crash     C 4S     341K
Sample   203*Zild NewBeat.Open C 4S      198K
Select   Next    Type  Multi    OK    Cancel
```

The name of the function is displayed on the top line (`Func:MOVE`).

If you press **Cancel** while in one of the object utilities, you are returned back to the Object Utilities page (the `Select database function:` screen pictured above.) Any objects that were selected when you pressed Cancel will still be selected if you subsequently enter a different object utility (by pressing a different soft button such as **Name**, for instance.) The selections are reset when you exit the Object Utilities page (by pressing the **Done** button.)

All of the features of the Save Object dialog are accessible here:

You can use the Multiple Object Selector to select ranges of objects according to object types, IDs, strings in the object names, or dependent relationships.

You can quickly select or deselect all objects using the **Left**/**Right** cursor and **Up**/**Down** cursor double-presses.

You can audition any of the program, keymap, sample, and Song objects by pressing either the **Left** or **Right** cursor arrow button, when the desired object is highlighted. Songs will play until either cursor is pressed again.

Move

Pressing **Move** from the Object Utility page takes you to the Move utility. The Move utility allows you to select any group of objects and move them to a different bank. If you only select objects of a single type, then you are allowed to set a specific starting ID for the objects, of any number (**0-999**). For instance, you could move a group of samples from scattered IDs to a continuous range of IDs starting from ID **354**.

If you move objects that are dependent objects of other objects (such as samples that are dependents of a particular keymaps,) the parent objects are automatically relinked to their

dependents that have moved. What this means is that you can move any objects to any new ID numbers, without having to worry if your programs, keymaps or songs will still play correctly.

When you have selected the objects that you want to move, press **OK**. If you have selected more than one object, you will see the following dialog:

```
Move to bank:200...299
             300...399
             400...499
             500...599
             Append Fill  Cancel
```

This is similar to the Load function, where you are asked to choose a bank and mode for loading. If you have selected more than one object, and all of the selected objects have the same type, then there will be an additional mode available, ID:

```
   ID      Append Fill  Cancel
```

Append Try to use each object's ID offset within its current bank as the ID offset within the specified destination bank. If there is already an object at this offset in the new bank, increment the ID until a free ID slot is found. For example, if you were moving Programs **202**, **209**, **217**, and **230** to the currently empty 400s bank, the resulting IDs for the programs would be **402**, **409**, **417**, and **430**.

Fill Use consecutive numbering for each object that is moved, starting from the beginning of the specified destination bank. Any object IDs that are already being used in the specified bank will be skipped over. For instance, if you were moving Song **300**, **315**, **489**, and **841** to the 200s bank, which already contained Song **200**, then the moved song's ID numbers would be **201**, **202**, **203**, and **204**.

ID Use consecutive numbering for each object that is moved, skipping over IDs that are in use, starting from the ID that you specify. You will see the following dialog when you press the **ID** soft button:

```
Select starting ID: 231
```

```
                      OK   Cancel
```

Cancel Return to the Move object dialog.

The objects are moved as soon as **Append** or **Fill** is pressed, or when a starting ID is selected. After the Move function completes, you will still be in the Move object dialog, and you will still be scrolled to the previously highlighted object, even if it has moved to a new ID.

If you only select a single object to move, you will see a different dialog, similar to the Save/Replace dialog from the editor:

```
Move Awesome Click to: ID#198
(rePlace Click)


                              RePlace Cancel
```

Note that when you only select one object to move, you can replace another object. However, when you select multiple objects for moving you cannot overwrite any objects.

Copy

Pressing **Copy** from the Object Utility page takes you to the Copy utility. The Copy utility allows you to select any group of objects and copy them to a different bank. Only object data is copied, and not sample data. If you copy a sample object, you will end up with a "copy sample" that points to the same region of sample RAM as the original.

The operation of the Copy utility is identical to the Move utility just described.

If the objects to be copied in a single operation include any objects grouped together with any of their dependents, the new copies of the parent objects will reference the new copies of the dependent objects. As an example, suppose you select Song **400** and its three dependent programs, Program **200**, **210**, and **303**. If you copy all of these objects at once into the 700s bank, using Fill mode, you will see the copies at Song **700** and Program **700**, **701**, and **702**. Song **700** will reference the copies of the programs (at **700**, **701**, and **702**.) In contrast, if you had only made a copy of Song **400** as Song **700**, the song would reference the old programs (at **200**, **210**, and **303**.)

Name

The **Name** utility allows you to name one or more objects with the same name. This is much faster than naming each object individually, as was necessary in previous software versions. A lot of times you might want several objects to have the same name except for a unique identifier at the end of the name. Using this utility function, you could assign a common name to multiple objects at once, and then quickly name each one a little differently.

When you press **OK** after selecting objects, you will see the following screen prompting you for an object name, with a suggested default:

```
Object Name:     Zither


Delete  Insert   <<<    >>>    OK   Cancel
```

The default name that you are presented with is taken from the highlighted object in the object list, whether the highlighted object is selected or not. This makes it easy to copy the name of one object on to another.

As in all naming dialogs on the K2000, you can do a double-press of the **Left**/**Right** cursor buttons to put the naming cursor on the last character of the string. This is helpful when putting unique characters at the ends of names.

* **Left**/**Right** cursor button double-press: Move cursor to the end of the name

The Relink-by-Name feature (described earlier) relies on there being unique names for dependent objects of the same type, so it is a good practice to make object names unique, particularly samples.

Delete

The Delete Objects utility is very useful for reclaiming unused object and sample RAM in your K2000. In previous versions you could only delete one bank or one object at a time. This utility provides much more flexibility, in that you can select any arbitrary group of objects for deleting, and audition them if necessary before getting rid of them.

If any of the selected objects have dependents that were not selected, you will see the question:

```
Delete dependent objects?
```

```
Yes    No
```

If you answer **Yes** to this question, all dependent objects of the selected objects are deleted, unless they are being used as dependents of other objects that are to remain in memory.

Answering **No** will delete only those objects that were selected.

Dump

This utility is for dumping selected objects over MIDI. If any of the selected objects have dependents that were not selected, you will be asked the question
`Dump dependent objects?`

When you press **OK**, the objects will be sent one by one out the MIDI Out port of the K2000.

Note that only sample objects are dumped by this utility, and not RAM sample data. (RAM sample data can be dumped via the MIDI Sample Dump Standard from within the EditSample page.) Dumping the sample object of a RAM sample is not very useful because the sample memory address ranges are fixed in the object. This means that if you load the sample object back into the K2000 via MIDI, there is virtually no way it will point to and play back the same area of sample memory as when it was dumped, let alone the same sample data. However, this can lead to some interesting results.

Sample objects that reference the K2000's ROM sample area will reference the same area when you load them back in via MIDI.

Getting to Object Utilities From an Editor

The object utilities can also be accessed while editing any object. This is provided as a convenience, for example to be able to do certain housekeeping work such as deleting samples to free up room in your sample RAM, or making copies of objects. Access to the utilities can be done by pressing the **Object** soft button from any Save/Replace dialog in the editor:

```
Save Train Wreck as: ID#412
(replace Train Wreck)


Object                    Rename Replace Cancel
```

You can get to this Save/Replace dialog when editing an object by either exiting after you have modified the object, or pressing the **Save** soft button.

If you try to use the Copy utility to copy the exact object you are in the process of editing, you will make a copy of the edited version. With sample objects this would be one way to save off a copy sample that references a small part of a much larger sample. You could remain in the sample editor, and continue to edit the larger sample, by pressing **Done** followed by **Cancel** after making the copy. This may be a faster way to save many "snippets" out of a sample than continually re-entering the sample editor after saving copy samples to different IDs.

When using the Object Utilities from within the editor, you must be careful not to delete any of the objects you are currently editing. This could have unpredictable results.

MS-DOS File System Compatibility

Version 3 of the K2000 has been enhanced to allow compatibility with fixed and removable disk drives that use the MS-DOS hard disk format (K2000 floppy disks have always been MS-DOS compatible.)

If you want to use this feature, you must first format the disk media on a computer such as a PC compatible or a Mac running appropriate MS-DOS conversion software.

The MS-DOS hard disk format is structured so that the disk can be split up into multiple partitions. In Version 3, the K2000 can only use the first partition that it finds on the disk. Therefore, it is probably best to format the media with only one partition that takes up the entire usable space of the disk.

If you store K2000 files on a hard drive in MS-DOS format, they will be unreadable with a K2000 that has a pre-Version 3 version of software installed.

Working from the K2000 front-panel with an MS-DOS formatted drive will appear the same as working with a drive that has been formatted with the K2000's own Format function (on the Disk mode page.) The Free utility (Disk mode->**Util**->**Free**) can be used to identify whether a disk is DOS format or standard K2000 format. If the (DOS) indicator is displayed, it means the

K2000 has determined that the disk is a DOS format hard drive with at least one primary DOS partition. Floppy disks will not display the DOS message.

Some advantages of working with an MS-DOS compatible drive format over the standard K2000 format are:

- Easier sharing of K2000 files with other users over computer communications lines,
- Being able to use graphical file management interfaces for organizing files and directories,
- Being able to back up K2000 data using a PC compatible or Mac with commercially available software, and
- Easier transfer of data using standard file formats (supported in Version 3) such as AIFF, WAVE, and MIDI Type 0, for importing and exporting samples and sequences.

File Name Compatibility

DOS format does not support space characters in file names. The K2000 has always allowed spaces to be used within file names. If you plan to transfer files between the K2000 and an external computer that is DOS compatible, it is recommended that you only use file names that do not have any space characters in them. Otherwise, a computer may have trouble identifying the files.

Importing and Exporting Data

Version 3 adds support for three standard data-interchange file formats: Apple Interchange File Format (AIFF), Microsoft RIFF WAVE, and MIDI Type 0. The first two are used to transfer sample data, and the latter is used for sequences.

The K2000 can recognize these file types automatically on loading, regardless of the file extension. You can load these files as you would any standard K2000 file, and also as part of a macro file load. The most recent sample file loaded will become the "preview" sample, which means you can quickly access it for playing or editing on the Sample page (**MASTER**->**Sample**). Similarly, the most recent MIDI Type 0 file loaded in will become the current song on the Song mode page.

You can save files in these formats on the Export page. This page is accessible from the Disk mode page by pressing **Save**->**Export**.

```
Save AIFF file                    Index:     1


Sample  200 NewSample          C 4S     100K
Sample  201 Babaganoush        C 4S     444K
Sample  202 YaYaYa             C 4S     190K
Sample  203 GregorianChant     C 4S    6515K
  AIFF     WAVE     MIDI           OK    Cancel
```

The Export page allows you to save one sample or song object per file. Choose the format you wish to save in, and press the corresponding soft button. For AIFF and WAVE, only sample objects are listed. For MIDI Type 0, only song objects are listed.

Scroll to the object that you wish to save, and press **OK**. The dialog will proceed the same as if you were saving a K2000 file. You will be prompted for a file name, and will have the option to select a different default directory to save the file in.

The K2000 will automatically place a standard extension on the file when it is created on the disk. These extensions are sometimes necessary when transferring files to external programs that can recognize the file format based on the extension. They also help you to recognize what files are of a what format when looking at a directory listing. You can use the Find Files utility (Disk mode->**Util**->**Find**) to search for files that match a certain extension.

The standard extensions used on the files are:

.AIF	AIFF
.WAV	WAVE
.MID	MIDI Type 0

The first time you enter the Export page after powering on (or after a soft-reset of the K2000), the format defaults to AIFF. After that, the K2000 remembers the most recent format that you used. For example if you save a MIDI Type 0 file, and then go back to the Song Mode page to record more sequences, the next time you return to the Export page, the file format will still be set to **MIDI**, and all of the song objects will be listed.

You can audition the samples and songs the same way as you would on the Save Object or Object Utility pages (by pressing the **Left** or the **Right** cursor buttons on the front-panel.).

AIFF and AIFF-C Files

The K2000 can read 8 or 16 bit AIFF files, mono or stereo. The sample rate, sustain loop, loop mode, base note, sample name, and sample detuning are supported. AIFF-C files that do not use compression can also be read by the K2000. The K2000 will save 16-bit AIFF files, either mono or stereo.

WAVE Files

The K2000 can read 8 or 16 bit WAVE files, mono or stereo. WAVE files do not support looping. The K2000 will save 16-bit WAVE files, either mono or stereo.

MIDI Type 0 Files

Use this format to transfer a song to and from an external sequencer. Tempo information is supported. Time Signature is not supported. System Exclusive data is not supported.

Appendix A
Programs, Setups, and Quick Access Banks

Program List

The following list describes the control sources assigned to each program, and suggests how you might use them in performance situations You'll notice a variety of timbres as you browse through the list. Check Quick Access mode for sets of similar and orchestrally compatible timbres.

Abbreviation	Control
MW	Mod Wheel
MP	Mono Pressure
CS	Controller (Data) Slider
V	Velocity

ID	Program Name	Controller Assignments	Special Comments (Performance Notes)
1	3rd World Order	MW-Off, MP-Gain, CS-FX	Hold sustained octaves in the left hand for auto rhythm
2	Stereo Grand	MW-Off, MP-Off, CS- Amp. + FX Mix, V-Amp/ EQ	Stereo panned and highest octaves undamped
3	Touch Orchestra	MW-Off, MP-LFO, CS-Layer Switch, V-Layer Mix	Velocity levels introduce Horns, Timpani, Cymbal/Slider to Solo Instr
4	Preview Drums	MW-Off, MP-Off, CS-FX Early Lvl, Decay, V-Amp/EQ/Pitch	Assorted Acoustic and Electric Drums and Percussion
5	Crank It Up	MW-LFO, MP-Feedbk, CS-EQ/FX Mix, V-Amp/EQ	Pitch Wheel bends up-whole step & down-1 8ve; slider changes character
6	Dual Bass	MW+MP-LFO, CS-FX Early/Late Lvl, Mix, V-Layer Switch	Velocity cross switched between normal and slap
7	Fair Breath	MW-Off, MP-Layer Mix, CS-Off,V-Amp	Lots of air in this choir program
8	Trumpet & Bone	MW+MP-LFO, MP-Amp, V-Amp, CS-FX Early/Late Lvl/Mix	Classic brass section
9	Rock Stack	MW+MP-LFO, CS-FX Mix, V-Amp	Multi-layered program using organ, piano, and synth
10	Timershift	MW+MP-LFO, CS-Layer Pitch, V-Amp	Nice vectoring type program
11	Neo-Prophet	MW+MP-LFO, MP-Filter/Amp, V-Amp/Filter,.CS-FX ChrDly/ Feedbk/Mix	Very fat one layer analog type
12	Tine Elec Piano	MW-Detune, MP-Off, V-Amp/HiFreq, CS-FX Rev Decay/HiFreq Damp/Mix	Hi Freq Stimulated soft E. piano; lots of tine
13	Touch StringOrch	MW-Off, MP-Amp, CS-Gain/Pan, V-Amp/Env	Very dynamic touch control of envelopes
14	Orch Percussion	MW-Off, MP-Off, CS-FX Mix, V-Amp/Filter/Pitch	Shows edited ROM Keymaps (looped snare and tambourine rolls)
15	Steel Str Guitar	MW+MP-LFO, CS-HiFreq, V-Amp/HiFreq	Very crisp acoustic steel guitar
16	Funk Me Bass	MW+MP-LFO, V-Amp/EQ, CS-FX LFO/Delay/Mix	All slap bass; very bright
17	Mixed Choir	MW-Layer XFade, MP-Off,	Uses slider as macro changing choir's timbre and character
18	Miles Unmuted	MW+MP-LFO, CS-EQ, V-Amp/EQ	Dynamic use of filter to timbre
19	Bella Voce	MW-Layer Mix/EQ, MP-Layer Mix, CS-Layer Pitch/FX Mix, V-Amp	Bell and air pad
20	Big Jupiter	MW+MP-LFO, CS-Add Layer/FX Mix, V-Amp/Filter/Env	Huge analog pad; slider adds lower octave layer

ID	Program Name	Controller Assignments	Special Comments (Performance Notes)
21	Passion Source	MW-Layer Pitch/FX PreDly, MP-LFO, CS-Layer Pitch/FX Mix, V-Amp	Warm New Age Pad
22	Piano&SloStrings	MW-Off, MP-Off, CS-Layer Amp, V-Amp/Env	Slider allows live control on string volume
23	Grand Strings	MW-Off, MP-Off, CS-Layer Amp, V-Amp/Env	Slider adds lower octave
24	West Room Kit	MW-Off, MP-Off, CS-, V-Amp/EQ/Pitch	Punchy dance cracking snare, stereo imaged toms and cymbals
25	Press Wah Wah	MW-LFO, MP-Filter/Feedbk, V-Amp/Filter CS-FX Early Lvl/Decay	Pressure and velocity control filter 'wah' effect
26	No Frets	MW+MP-LFO, V-Amp, CS-FX HiFreq/Early Lvl/Shaper/Gain	Effective use of shaper to create fretless timbre
27	Low World Vox	MW+MP-LFO, MP-FX Mix, CS-Hi Freq, V-Amp	Nu Age choir; lots of reverb; slider adds breath
28	20's Trumpet	MW+MP-LFO, CS-Filter, V-Amp	Dynamic use of filter to simulate plunger effect
29	Ana's Saws	MW-LFO, MP-LFO/Filter, V-Amp/Filter/Env, CS-FX LFO/Mix to filter cutoff	Touch responsive analog program using velocity
30	Fun Delay Square	MW+MP-LFO,MP-FX Mix, CS-Filter, V-Amp/Filter	Square waves blended with a solo string wave create a moody pad
31	Fantasia	MW-, MP-LFO/Filter/Layer Mix/Amp, CS-Filter, V-Amp	Classic 80's synth emulation
32	Brite Klav	MW-EQ, MP-Off, CS-FX Mix/Layer Pitch, V-Amp/Filter/Env/Layer Mix	Very percussive and crisp
33	Marcato S. Strngs	MW-EQ/Env, MP-LFO, CS-FX Mix/Decay, V-Amp/EQ	Nice down bow bite
34	Castle Drums	MW-Off, MP-Off, CS-Layer Mix/FX Mix, V-Amp/Pitch	Slider changes snare
35	Dist Harmonics	MW-LFO, MP-Off, CS-Layer Pitch/EQ, V-Amp	Synthesized guitar harmonics
36	D House Bass	MW+MP-LFO, V-Amp/Filter	Funky and unique timbre great for house and hiphop
37	Perc Voices	MW-EQ, MP-Off, V-Amp, CS-Layer Pitch and Delay	Alternate choir attach is after any breath; creates a very percussive effect
38	Tenor Sax	MW+MP-LFO, MP-Amp, CS-Alt Attack/FX Mix, V-Amp/EQ	Nice real lip slur top 2 8ves
39	Car's Sync	MW+MP-LFO, V-Amp, CS-Sync Osc/FX ChrsDly/Mix	Effective hard sync demo
40	Islanders	MW-Off, MP-Off, CS-FX Mix, V-Amp	Percussive mallet ensemble
41	Auto Wavesession	MW-Filter, MP-Filter, V-Amp, CS-Layer Pitch/FX Mix	Hold low sustained octaves for auto rhythm
42	Bright Piano	MW-Off, MP-Off, CS-FX Mix, V-Hi Freq/Amp	Dramatic example of Hi Frequency Stimulator
43	Hall Horns	MW-LFO/EQ, MP-Amp/EQ, CS-FX Mix, V-Amp	Synthesized French Horn Ensemble
44	GeneralMIDI kit	MW-Off, MP-Off, CS-FX Mix, V-Amp/Pitch	Conforms as closely as possible to the GM spec for drums and percussion
45	Acoustic 12 String	MW-Layer Detune, MP-LFO, V-Amp, CS-FX HiFreq Damp/Later Lvl/Mix	Great acoustic classic
46	Big Mono Bass	MW+MP-LFO, MP-Filter, CS-FX Mix, V-Amp	Monophonic/legato mode
47	Bamboo Voices	MW-EQ, MP-Layer Mix, V-Amp, CS-FX LFO Depth/LFO Speed/Mix	Choir and velocity controlled synth timbre layer
48	StreetCorner Sax	MW+MP-LFO, V-Amp/EQ, CS-FX HiFreq Damp/Later Diff/Mix	EQ and reverb add character to this program
49	All In The Fader	MW+MP-LFO, CS-Layer Mix, V-Amp	Slider mutes layers
50	2000 Odyssey	MW+MP-LFO/EQ, CS-FX Mix, V-Amp	Takes a while to evolve; nice pad

ID	Program Name	Controller Assignments	Special Comments (Performance Notes)
51	Night Ryder	MW+MP-LFO, V-Amp, CS-Layer Pitch/FX Mix	Cymbal adds percussive attack
52	Dual Elec Piano	MW-LFO, MP-Off, CS-FX Mix, V-Amp/Sample Switch	Velocity cross switched from soft to hard strike
53	Orchestral Winds	MW-Off, MP-Off, V-Amp, CS-Layer Mix/FX Mix	Slider changes instrument balances
54	Rock Kit	MW-Off, MP-Off, CS-FX Mix, V-Amp/Pitch	Nice punchy hard rock kit with LP on the top octave
55	Slo Chorus Gtr	MW-LFO, MP-Off, CS-EQ, V-Amp	Clean; slider thins out the sound (re-EQ)
56	Pop Attack Bass	MW-FX Mix, MP-Off, CS-EQ	Great dance/house/hip hop bass
57	Wind Vox	MW+MP-LFO, MP-FX Mix, CS-Layer Pitch, V-Amp	Ethereal choir pad
58	Get Real Bari	MW+MP-LFO, CS-Shaper, V-Amp	Great simulation on the bottom end honk
59	Vectoring	MW+MP-LFO, MP-FX Mix, CS-Layer Pitch, V-Amp	Takes a while to evolve - emulates vector synthesis
60	Stereo Sweeps	MW-Layer Mix, MP-Off, Cs-Filter/FX Mix, V-Amp	Takes a while to develop; nice resonant filters and envelope shapes
61	Glasswaves	MW+MP-LFO, V-Amp/Env, CS-EQ/ASR(FX Mix)	Nice timbre sounding much like bells with a slow attack
62	Gospel Organ	MW-LFO(Roto Speaker), MP-Off, CS-Layer Mix(Percussion), V-Off	Good for Gospel music; percussion volume on slider
63	Solo Flute	MW-Gain, MP-LFO(EQ), CS-FX Mix, V-EQ/Amp	Great acoustic program
64	Real Drums	MW-Off, MP-Off, CS-FX Mix, V-Amp	Nice jazz kit with dual hardness snare
65	Guitar Mutes 1	MW-LFO, MP-Off, V-Amp/EQ, CS-FX Later Lvl/Decay/Mix	Clean and short
66	Finger Bass	MW+MP-LFO, CS-EQ, V-Amp	Softer attack and a bit deeper
67	Digital Choir	MW-Layer Pitch, V-Amp/Layer Mix, MP-EQ, CS-Layer Switch/FX Mix	Very synthesized sounding
68	Hip Brass	MW+MP-LFO, MP-Amp, CS-FX Mix, V-Amp	Punchy and good for short stabs (no falls)
69	Utopian Comp	MW+MP-LFO, CS-FX Mix, V-Amp	Great multi-layered program
70	Lucky Lead	MW-LFO, MP-Filter, V-Off, CS-Layer Pitch/FX LFO Depth/Chrs Lvl/Mix	Mono analog lead using DSP oscillators (fat), one layer
71	Gargantuan	MW+MP-LFO, CS-EQ/FX Mix, V-Amp	Big multi-timbral program
72	Williamsong	MW+MP-LFO, V-Amp, CS-Layer HiFreq/FX Mix	Trio style performance program
73	Solo Trumpet	MW+MP-LFO, MP-Amp, CS-EQ/FX Mix, V-Amp	Classic acoustic program
74	Dyn Percussion	MW-Off, MP-Off, CS-FX Mix, V-Amp/EQ	Effective timbral control via velocity to filters
75	Ravitar	MW-LFO, MP-Off, CS-Layer Pitch, V-Amp/VTrig(Pitch)	Effective use of shaper
76	Warm Bass	MW+MP-LFO, V-Amp, CS-LFO(Pan)/FX MIx	Deeper and less resonant
77	Mallet Voice	MW-HiFreq/Filter/Layer Mix, MP-Layer Mix, CS-Off, V-Amp	Percussive hybrid program using marimba and choir
78	Reed Section	MW+MP-LFO/Amp, CS-FX Mix, V-Amp/Filter	Good sax section
79	Outside L/A	MW-EQ, CS-Layer Mix, V-Amp, MP-EQ/Layer Mix/FX LFO Depth+Speed/Mix	Layered stack with piano and choir; slider mutes piano
80	Press For Effect	MW-LFO, MP-Layer Mix, CS-Layer Pitch/Mix/FX Mix, V-Amp	Pressure introduces 'wind blast' effect

ID	Program Name	Controller Assignments	Special Comments (Performance Notes)
81	Flatliners	MW-LFO, MP-Off, V-Amp, CS-Layer Pitch+Env	Time evolving panning pad
82	Perc Organ	MW+MP-LFO(Roto Speaker), V-Off, CS-Layer Mix(Percussion)	Percussion volume on slider
83	Orchestral Brass	MW-LFO, MP-Amp/Filter, V-Amp/Filter, CS-FX Early Lvl/Room Vol/Mix	Classic horn ensemble
84	Street Drums	MW-Off, MP-Off, CS-FX Early Lvl/Mix, V-Amp/Pitch/EQ	Modern kit with Orch strikes in upper octave
85	Cee Tuar	MW+MP-LFO/Filter, CS-FX Mix, V-Amp/Layer Pitch/Filter	Synthetic eastern instrument
86	Hammer Bass	MW+MP-LFO/Filter, V-Amp/Filter, CS-FX Early Lvl/Room Vol/Mix	Percussive sharp attack hybrid bass
87	DeathToTheVoices	MW-Shaper/Amp, MP-Off, CS-Gain/Layer Pitch, V-Amp	Shaper gradually destroys the clean choir; takes a while to evolve
88	BrassVTrigStab	MW-LFO, MP-Amp/Filter, CS-FX Mix, V-Amp/Pitch	Hard (strikes) velocities cause 'falling' pitch envelope.
89	Velveteen	MW-FX Mix,MW+MP-LFO, CS-Amp/Shape Mod Osc, V-Amp	Smooth almost FM timbral pad
90	Hybrid Sweep	MW-LFO, MP-Filter/Shaper/Amp, CS-Layer Pitch, V-Amp	Shaper creates sweep
91	Clockbells	MW-Off, MP-Off, CS-Layer Pitch, V-Amp	Thin; slider changes timbre
92	Digital E. Piano	MW-LFO(Detune), MP-Off, V-Amp/EQ, CS-Layer Switch/LFO(Pan)	Slider adds acoustic piano layer to electric piano
93	Slo Solo Strings	MW-EQ/Amp, MP-LFO(Depth), CS-FX Mix, V-Amp/EQ	Slow attack solo violin emulation
94	Beat Box	MW-Off, MP-Off, CS-FX Mix, V-Amp	Classic rap analog drum emulation
95	Sweetar	MW+MP-LFO, CS-Layer Mix, V-Amp	Multi-layered rhythm guitar program; slider changes timbre
96	Mondo Bass	MW+MP-LFO, CS-FX Mix, V-Amp/Filter	Long release filtered mono analog bass program
97	Brass Fanfare	MW-LFO, MP-Amp/Filter, CS-Layer Pitch/FX Mix, V-Amp	Classical small brass section
98	Jazz Quartet	MW-Layer Mix, MP-LFO/Amp, CS-Layer Switch, V-Amp	Velocity to drums in lower 2 8ves; slider changes lead; MWhl to solo drums
99	Modular Lead	MW+MP-LFO, CS-Layer Pitch, V-EQ/Filter	Classic analog lead
100	Balarimba	MW-LFO, MP-Off, CS-Layer Pitch, V-Amp/Filter	Medium sized synth bells
101	Ethereal Strings	MW-FX Mix, MP-LFO, CS-Filter, V-Amp/Layer Mix	Demonstrates the power of the filters
102	Piano / S. Strings	MW-Filter, MP-LFO(Depth), CS-FX Mix, V-Amp/Filter	Classical split for live performance
103	5 8ve Percussion	MW-Layer Pitch/Amp, MP-Off, CS-Layer Switch, V-Amp	An assortment of latin percussion; slider changes to metal percussion
104	Three Layer Kit	MW-FX Decay, MP-Off, CS-FX Mix, V-Amp/EQ	A useful kit that can be used on any MIDI channel
105	Guitar Mutes 2	MW+MP-LFO, V-Amp, CS-Layer Delay/FX ChrsDly/Mix	Interesting delay and placement effect
106	Too Bad Bass	MW-Amp/MW+MP-LFO, CS-FX Flange Feedbk, V-Amp/EQ	Very flanged bass; slider increased the flanging effect (FX wet/dry mix)
107	Pipes 1	MW-FX Mix, MP-Off, CS-Layer Pitch, V-Layer Mix	Slider changes the character by reassigning layer pitch
108	Jethro's Flute	MW+MP-LFO, CS-Amp, V-Amp/EQ	Lots of chiff
109	Pinger	MW+MP-LFO, CS-Layer Switch+Mix, V-Amp	Nice short percussive program; slider brings in new layer; nice timbre
110	DigThat DC Lead	MW-Amp, MW+MP-LFO, MP-Amp, CS-Shape Mod Osc, V-Amp/Filter	Very classic fusion type synth lead with bite

ID	Program Name	Controller Assignments	Special Comments (Performance Notes)
111	Klakran	MW-Filter(LFO), MW+MP-LFO, MP-Pan, CS-FX Mix, V-Amp	Unique pad combining acoustic and synthetic timbres; the VAST approach
112	DX Clav	MW-Off, MP-Shaper/Filter, CS-FX Mix, V-Amp/Filter	Velocity controls panning; No FM being used!
113	Baroque Strings	MW-FX Decay/Mix, MP-Amp, CS-Amp/Filter/Layer Pitch, V- Amp/Filter	Useful classical section
114	Dance Kit	MW-FX Mix, MP-Off, CS-Layer Switch, V-Amp	Slider changes snare and kick
115	Clean Lead Gtr	MW-Shaper, MP-LFO, CS-Filter/FX Mix, V-Amp	MWhl adds a touch of shaping creating a kind of clan distortion effect
116	WonderSynth Bass	MW+MP-LFO, MP-Filter, CS-Filter/Amp, V-Amp/Filter	Great synth bass for R & B; octaves + small amount of touch to filter
117	Stackoid	MW+MP-LFO, V-Amp/Filter, CS-Layer Mix/Filter/FX Delay/Mix	Move the slider forward for a nice pad
118	Orient Wind	MW-Filter, MW+MP-Filter, MP-LFO, CS-Filter, V-Amp	Synth shakuhachi type program; VTrig to pitch trill
119	40 Something	MW+MP-LFO, CS-Layer Pitch/Amp, V-Amp	Nice split showing acoustic guitar and synth pan flute
120	Dyno Synbrass	MW+MP-LFO, MP-Filter/FX LFOSpeed, CS-Layer Pitch/FX LFO Depth/Mix, V-Amp/Filter	Classic analog program with pressure to filter and vibrato
121	Lunar Dance	MW+MP-LFO/Filter, V-Amp, CS-Layer Pitch/FX Dly Feedback/Decay	Nice pad with some high sparkle
122	Ballad Organ	MW-LFO(Roto Speaker), MP-Off, CS-Layer Mix (Percussion), V-Off	Great classic ballad organ with rotary speaker controlled from the MWhl
123	Glockenspiel	MW-LFO, MP-Off, CS-Layer Pitch, V-Amp	Synth emulation-decay depends on key release vs. keys depressed and held
124	Bell Tree>BigBell	MW-Pan, MP-Off, CS-Layer Pitch/Amp, V-Amp	Useful percussion emulations
125	HelterSkelterGtr	MW-LFO, MP-Amp, CS-FX Delay/Mix, V-Amp/Shaper/Filter	Very distorted guitar with bi-range pitch wheel
126	Alaska	MW-Layer Switch, MP-Filter/Amp, CS-, V-Amp	Interesting use of Wrap function
127	Touchdown	MW-LFO/Env, MP-Off, CS-Amp, V-Amp	Nice pad; velocity engages pitch envelope
128	Almost Muted	MW+MP-LFO, CS-Amp/Filter, V-Amp	Simulated muted trumpet with velocity controlled filter (EQ)
129	PressFor Thunder!	MW-Filter, MP-Layer Amp, CS-FX Mix, V-Amp	Pressure introduces 'thunder effect'
130	Hi Res Sweeper	MW-LFO, MP-Filter/Shaper, CS-Amp/FX Mix, V-Amp	Nice filtered pad
131	Deep Atmospheres	MW-Filter/Shaper, MP-LFO, CS-Layer Pitch/FX Mix, V-Amp	Takes a while to evolve
132	Pipes 2	MW-Layer Mix, MP-Off, CS-Layer Pitch, V-Amp	MWhl brings in more stops
133	Hall Kettles	MW-Off, V-Amp/Filter/Pitch/EQ, MP-Off, CS-Pitch/EQ/Amp/FX Mix	Demonstrates powerful synthesis capabilities
134	Auto Percussion	MW-Off, MP-Off, V-Amp, CS-Layer Pitch/Wrap/Filter/EQ/FX Mix	Shows off percussion loops
135	Soon	MW-Layer Pitch, MP-LFO, CS-FX Mix, V-Off	MWhl bends one layer up 1 octave
136	Oh Bee !!!	MW+MP-LFO, V-Amp, CS-Layer Pitch/FX Mix	Fat one layer program
137	Sisternal	MW-ASR(Pitch), MP-FX Mix, CS-Osc XFade/HiFreq/Layer Pitch, V-Amp	Very new age type pad
138	A Kordian	MW-Amp, MP-LFO/Filter, CS-FX Mix, V-Filter	Synthesized from detuned timbre-shifted saxophones
139	Industrial Komp	MW-FX ChrsDly+LFO Speed, V-Amp, MW+MP-LFO, CS-FX Mix	Interesting hybrid program
140	Clock S&H Lead	MW-Sample & Hold, MP-ASR(Pitch+LFO), CS-Filter/, V-Amp/Filter	Program demonstrates sample and hold

ID	Program Name	Controller Assignments	Special Comments (Performance Notes)
141	Multi-Texture	MW-FX Mix/MW+MP-LFO, MP-Amp/Filter, CS-FX LFO(Depth+Speed), V-Amp/Filter	Nice use of resonant filters
142	Quillsichord	MW-LFO, MP-Off, CS-Layer Pitch, V-Amp	Sharp percussive plucked type program
143	Toto Brass	MW+MP-LFO, MP-Amp/Layer Pan, CS-Filter/Layer Pitch/FX Mix, V-Amp/Filter	Analog brass french horn type program
144	Belles	MW+MP-LFO, V-Amp, CS-Pitch(Env + Key)/Pan	High and bright small to med sized synth bells
145	Kotolin	MW-LFO/EQ/Amp, MP-Amp/FX Mix, CS-Env(Pitch), V-Amp	Nice eastern flavor; pitch envelope is controlled by slider
146	Walking Bass	MW+MP-LFO, CS-FX Mix, V-Amp/Filter/Pitch	Synthetic 'acoustic' type bass program
147	Vibratone	MW-LFO (Depth+Pan), V-Amp/EQ, MP-, CS-LFO (Speed)/FX Early+Later Lvl/Mix	Tremolo is assigned to the MWhl and Rate to the slider
148	Analog Brazz	MW-LFO/Filter, MP-Filter, CS-FX Mix, V-Amp	Good blat attack analog brass program
149	The Night Shift	MW-Env, MW+MP-LFO, MP-FX Mix, CS-Off, V-Amp	Demonstrates VAST using FX delay
150	7th World String	MW-Layer Pitch, MP-LFO, CS-FX Dly, V-Amp	Ethereal and very new age type program
151	Tranquility	MW-Osc XFade/LFO(Pan), MP-Off, CS-Layer Pitch, V-Amp	Takes a while to evolve
152	B-2000	MW+MP-LFO(Leslie), CS-Off, V-Off	Distorted organ
153	Trombone	MW+MP-LFO, CS-Shaper/Amp, V-Amp	Lots of character added by the shaper
154	Wave Bells	MW+MP-LFO, CS-Gain/FX Mix, V-Amp	Nice playable high synth bell program
155	AcousGtr&Strings	MW-, MP-LFO, V-Amp/HiFreq, CS-HiFreq/Layer Mix/FX Mix	Pleasant ballad program
156	Mogue Bass	MW-Filter(Cutoff), MP-LFO, CS-Filter(Res), V-Amp	Very versatile program; useful controller assignments
157	Orchestral Pad	MW-Off, MP-Off, CS-Filter, V-Amp	Example of synthesized woodwind section
158	A. Bass&Ride/Pno	MW+MP-LFO, CS-Layer Mix, V-Amp/EQ	Nice 'trio' program for live
159	In The Well	MW-EQ/Layer Amp, MP-Layer Pitch, CS-FX ChrsLFO(Depth +Speed)/Mix, V-Amp	Moody 'film' program
160	Synth Wood Flute	MW+MP-LFO, MP-Amp, CS-Filter/FX Mix, V-Amp	Linear type synthesis adding a clave to a DSP oscillator waveform
161	Shimmerling	MW-LFO/FX Mix, MP-Off, CS-Filter/Layer Pan, V-Off	Panning and swirling pad
162	Toy Box	MW-LFO, MP-Off, CS-Off, V-Amp	Takes advantage of DSP oscillators for bell effect
163	Orch Hit	MW-Off, MP-Off, CS-Layer Pitch, V-Amp/Env	Multi-layered orchestra 'hit' emulation
164	Glassy Eyes	MW-Filter, MW+MP-LFO/Amp, MP-CS-Amp/FX Mix, V-Amp/Filter	Emulates running finger around on a water glass rim sound
165	Syncro Taps	MW-Off, MP-Off, CS-Layer Pitch/FX Mix, V-Amp/EQ	Very touch sensitive; makes good use of FX delay
166	Metallica	MW+MP-LFO, CS-FX Mix, V-Amp	Sharp FM sounding timbre with lots of bite
167	Organarimba	MW+MP-LFO, MP-Filter, CS-Layer Pitch/Filter, V-Amp	Hybrid marimba/organ program
168	AM Square Synth	MW-LFO, MP-Filter, CS-FX Mix, V-Amp/Filter	Good example of AM synthesis
169	Through The Blue	MW-FIlter, MP-Layer Mix, CS-LFO/FX Mix, V-Amp	'Film' type program
170	Pulsar	MW+MP-Filter/LFO, CS-EnvLoop Rate, V-Amp	Rate is controlled by the slider and filter cutoff by the the MWhl

ID #	Program Name	Controller Assignments	Special Comments (Performance Notes)
171	Sweeper	MW-LFO/Filter, MP-LFO(Filter), CS-Layer Pitch/Filter, V-Amp	Moving and swirling program; lots of LFOs
172	Rock Quartet	MW+MP-LFO(Leslie), CS-Layer Mix, V-Amp/EQ	Good live performance program; pressure adds guitar support- lower 2 8ves
173	Ensemble Pizz	MW-LFO, MP-Off, CS-Layer Pitch/FX Mix, V-Amp	Synthesized pizz string section
174	Organellica	MW+MP-LFO, CS-Filter/FX Dly/Mix, V-Amp/Dist/Shaper/Filter	Synth organ type program
175	Classical Gtr	MW+MP-LFO, CS-Filter, V-Amp/Filter	Pitch wheel emulates sliding on fret board instead of pitch bending
176	Talk Talk	MW-Filter, MP-Pitch, V-Amp/Pitch, CS-Pitch/FX Dly Feedbk/EQ/ Mix	Synthesized speech program
177	Waterflute	MW-EQ, MP-ASR(Vibrato)/Layer Amp, CS-Layer Pitch/Layer Amp, V-Amp	Nice hybrid program
178	Lonely Fifths	MW-LFO, MW+MP-Shaper, CS-Layer Pitch, V-Amp	Classic analog fifth program with a newer twist- shaper and distortion
179	RainforestCrunch	MW-Pitch/Shaper, MP- CS-LFO/FX Mix, V-Amp	Interesting synthesized tonalities
180	Native Drum	MW-Off, MP-Off, CS-FX Mix, V-Amp/Pitch/EQ/Filter	Nice touch control
181	Stratosphere	MW+MP-LFO, CS-Layer Mix, V-Amp/Filter	Hybrid type pad
182	Guitar / Flute	MW-Layer Switch, MP-LFO/Amp, CS-HiFreq/FX Early Lvl/Decay/ Mix, V-Amp/HiFreq/EQ	Nice split program
183	Klarinet	MW+MP-LFO/Filter, V-Amp/Pitch, CS-Layer Amp/Filter/Env/FX Mix	Good synthesized emulation
184	Press Evolution	MW-LFO, CS-Layer Mix, V-Amp, MP-Layer Amp, FX Flange Fdbk+LFO Depth	Pressure to FX parameters creates unique changes; takes a while to evolve
185	Rockin' Lead	MW-LFO, MP-Shaper/Layer Amp, CS-Layer Amp/FX Mix, V-Amp	Great flanged lead guitar program
186	The Buzz	MW+MP-LFO, MP-Filter, CS-Filter/FX Mix, V-Filter	Very raunchy bite
187	Wood Bars	MW-Layer Pitch, MP-Off, V-Amp/HiFreq, CS-FX Envelopment/ Later Lvl/Mix	MWhl adds another layer playing down a fourth
188	Poly Analog 5th	MW-FX Mix, MW+MP-LFO, CS-Layer Pitch, V-Amp/Filter	Classic analog type program; slider changes pitch and pitch envelope
189	Northern Winds	MW-Off, MP-LFO(Speed)/Layer Amp, CS-Off, V-Off	Demonstrates noise (wind)
190	Doomsday	MW-Pitch/Shaper, MP-Off, CS-FX Mix, V-Amp	Takes a while to evolve; starts as explosion and becomes distorted pitch
191	Ethereal Echoes	MW+MP-LFO, MP-Filter, CS-Layer Amp, V-Amp/Filter	Unusual LFO wave forms assigned to pitch create the arpeggiations
192	Harp On It	MW-LFO, MP-Off, CS-FX Decay/Mix, V-Amp	Synthesized harp emulations
193	Solo Bass Horn	MW-Pitch/Shaper, MP-LFO, CS-Shaper, V-Amp	Synthesized tuba emulation
194	Alien Industry	MW-LFO/Shaper/Layer Amp, V-Amp, MP-FX Flange Depth+Speed, CS-FX Mix	Modifying the pitch of percussion loops is very interesting
195	Slo FlangedStrngs	MW+MP-LFO, V-Amp, CS-Layer Pitch/FX Mix	Allpass filters being controlled by LFOs create the nice sweeping effect
196	Riding The Rails	MW-Off, MP-Off, CS-Pitch/Filter, V-Amp	Interesting evolving program
197	Heavee Metal	MW+MP-LFO, V-Amp,CS-Layer Pitch/FX Chrs LFO Depth+Speed/Mix	Distorted synth lead
198	Click	MW-Off, MP-Off, CS-Off, V-Off	
199	Default Program	MW-Off, MP-Off, CS-Off, V-Amp	

Setup List

1	Mega Force	51	Pipe & Choir
2	Modern Keys	52	Pressure Keys
3	Classic Octaves	53	Piano & Cello
4	Total Orchestra	54	Double Manual
5	Port Control	55	Too Blue
6	Emperor's Son	56	Dead Zone
7	Jamming	57	Awaken
8	Strings & Winds	58	Gabriel's Horns
9	Jaco/Bell Tree	59	Lush Life
10	Ana's Revenge	60	Octave Pizz
11	China Garden	61	Pieroet
12	Passion Bells	62	Jazz Duet
13	Power Stack	63	Super Hybrid Synth
14	After You	64	Satellites
15	Harmonic Duet	65	Piano/Flute
16	Yo House!	66	Ballad E. Piano
17	Fluid Guitars	67	T Banks
18	Funcussion 1	68	Over The Edge
19	Native Song	69	Rhythm & Spice
20	Fusion Clav	70	Lounge Lizard
21	Hybrid Brass	71	Stab Stack
22	The Beginning	72	Mono & Poly
23	Ballad Piano	73	Guitar Duo
24	Cosmic Debris	74	Omega Drums
25	Orch Ensemble	75	Chamber Strings
26	Beat Box Master	76	Raga in D
27	Funkster	77	Vangelyes
28	SellYourOldGear	78	Night In Havana
29	Mega Pipes	79	S & H
30	OctaStrings	80	Picked SynthBass
31	Funcussion 2	81	Yahnee's Dream
32	Ballad Guitar	82	Soundtrack
33	Shipwrecked	83	Thunder In LA
34	Big Wet LeadGuitar	84	Mallet Games
35	Parisian	85	Funk Power Split
36	Kicking Brass	86	Unity Gain
37	Desert Wind	87	Olias
38	Guitar& Piano8ve	88	Methenian
39	Clean Fifths	89	Many Facets
40	Pacman Bass	90	Hybrid Brass 2
41	Stacked 1	91	Pizz & Bass
42	Liquid Image	92	Ringflute
43	Police Attack	93	Meditation
44	DTunedPercussion	94	Bars & Bells
45	Into The Gorge	95	Belles Amoure
46	Mighty Clav	96	Short Fuse
47	Big Monster Kit	97	Wavestream
48	GatesOf Delerium	98	Keep Talking
49	Stacked 2	99	New Age Ensemble
50	SaxSection &Lead	100	Basic Setup

List of Quick Access Banks

Bank 1 Klavier 1

Dual Elec Piano

Tine Elec Piano

Digital E Piano

Stereo Grand

Bright Piano

Piano & Slow Strings

Piano/Slow Strings

Perc Organ

Gospel Organ

Ballad Organ

Bank 2 Klavier 2

B-2000

Pipes 1

Pipes 2

Organellica

Organarimba

Brite Klav

DX Clav

Quillsichord

A Kordian

Toy Box

Bank 3 Orchestral 1

Touch String Orch

Baroque Strings

Grand Strings

Marcato Slow Strings

Slow Solo Strings

Ensemble Pizz

Touch Orchestra

Solo Flute

Klarinet

Orchestral Winds

Bank 4 Orchestral 2

Orchestral Pad

Hall Horns

Orchestral Brass

Solo Trumpet

Trombone

Solo Brass Horn

Harp On It

Orchestral Pad

Hall Kettles

Glockenspiel

Bank 5 Drum Programs 1

Preview Drums

3 Layer Kit

Rock Kit

Real Drums

Castle Drums

West Room Kit

General MIDI Drums

Dance Kit

Beat Box

Street Drums

Bank 6 Drum Programs 2

Dyn Percussion	Bell Tree>Big Bell	Vibratone
5 8ve Percussion	Belles	Wood Bars
Native Drum	Wave Bells	Click
	Clockbells	

Bank 7 Guitars 1

Steel String Guitar	Classical Gtr	Rockin' Lead
Acoustic 12 String	Slow Chorus Gtr	Press Wah Wah
Acous Gtr & Strings	Clean Lead Gtr	Crank It Up
	Sweetar	

Bank 8 Guitars 2

Helter Skelter	Kotolin	Guitar Mutes 1
Soon	Cee Tuar	Guitar Mutes 2
Heavee Metal	Ravitar	Dist Harmonics
	Syncro Taps	

Bank 9 Basses 1

Dual Bass	Funk Me Bass	Acous Bass & Ride/Piano
Finger Bass	Too Bad Bass	Pop Attack Bass
Warm Bass	No Frets	Hammer bass
	Walking Bass	

Bank 10 Basses 2

D House Bass	Mogue Bass	Dyno Synbrass
Big Mono Bass	Wonder Synth Bass	Alaska
Mondo Bass	The Buzz	Metallica
	Press For Effect	

Bank 11 Vocal Programs

Mixed Choir

Fair Breath

Wind Vox

Low World Vox

Digital Choir

Perc Voices

Bamboo Voices

Mallet Voice

Talk Talk

Death To The Voices

Bank 12 Jazz programs 1

Miles Unmuted

20s Trumpet

Almost Muted

Trombone

Trumpet & Bone

Hip Brass

Brass VTrig Stab

Jethro's Flute

Waterflute

Synth Wood Flute

Bank 13 Jazz Programs 2

Tenor Sax

Street Corner

Get Real Bari

Reed Section

Jazz Quarter

Rock Quartet

Dig That DC Lead

Pinger

Islanders

Orient Wind

Bank 14 Synth Programs 1

Neo-Prophet

Auto Wavesession

Gargantuan

Passion Source

Night Ryder

Flatliners

3rd World Order

Fantasia

Glasswaves

Glassy Eyes

Bank 15 Synth Programs 2

Klakran

Multi-Texture

Sweeper

Lunar Dance

Tranquility

Stratosphere

Ethereal Strings

Deep Atmospheres

Shimmerling

Ethereal Echoes

Bank 16 Synth Programs 3

Bella Voce

All In The Fader

Outside L/A

Ana's Saws

Vectoring

Velveteen

Rock Stack

Car's Sync

Utopian Comp

Modular Lead

Bank 17 Synth Programs 4

Press For Thunder!

Timershift

Northern Winds

Industrial Komp

Through The Blue

Orch Hit

40 Something

The Night Shift

Rainforest Crunch

In The Well

Bank 18 Synth Programs 5

Fun Delay Square

Lucky Lead

Hi Res Sweeper

2000 Odyssey

Hybrid Sweep

Clock S & H Lead

Big Jupiter

Stereo Sweeps

Balarimba

7th World String

Bank 19 Synth Programs 6

Touch Down

Auto Percussion

Brass Fanfare

Sisternal

Toto Brass

Oh Bee!!!

Stackoid

Default Program

Riding The Rails

Analog Brazz

Bank 20 Synth Programs 7

Pulsar

Press Evolution

Alien Industry

Lonely Fifths

Poly Analog 5th

Slow Flange Strings

AM Square Synth

Guitar/Flute

Doomsday

Slow Flange Strings

Appendix B
Effects Controller Numbers

The K2000 uses the Digitech 256 chip for its effects processor. When in Program Mode, the operating system in the 2000 allows you to assign any MIDI controller to Wet/Dry Mix plus two additional parameters related to the effect. (The choice of controllable parameters changes depending on the effect configuration. They are the parameters you see when you go to edit the effect.)

But if the FX Mode parameter on the Effects page is set to Master, then the remapping which takes place within the program is not applied. Instead, you use a predefined set of controller numbers. So to control the effects processor in real time when FX Mode is set to Master, you must use the following controller numbers.

To control the effects processor in this manner, hit the EFFECTS button. Change FX Mode to Master, and set FX Chan to the channel you will use to send the controller info. (You can also send program changes on this channel to switch effects, so it is usually best to pick a channel that is not being used for notes.) In version 3, these settings are remembered as long as the Power Mode parameter on the MIDI receive page is set to User. For earlier versions, you will have to re-enter the settings each time you power up.

In the following chart, the parameters are grouped by Configuration. Multi FX will contain parameters found in more than one configuration.

Ultimate Reverb

Decay time	77
Room volume	78
HF damping	14
Envelopment	32
Early Delay	29
Early Diffusion	30
Later Delay	n/a
Later Diffusion	93
Dry Level	28
Early Level	31
Later Level	92

Room Simulation

Gross Size	90
Decay Time	15
Listening Position	79
HF Damping	14
Dry Level	28
Reverb Level	88

Reverb in Multi FX

RevPre-Delay	80
Hi-Freq Damp	83
Reverb Decay	82
Revin dry	86
Revin flange	87
Revin Delay	85

Gated Reverb

Pre-Delay	80
Decay Time	38
Envelope	39
Accent Dly	01
Dry Level	57
Accent Level	02
Right Level	62
Left Level	94

Reverse Reverb

Pre-Delay	80
Reverse Time	89
Accent Delay	01
Accent Level	02
Dry Level	57
Right Level	66
Left Level	65
Accent Lvl L	50
Accent Lvl R	51

Parametric EQ

Band 1 Freq	03
Band 1 level	04
Band 2 Freq	05
Band 2 level	06
Band 3 Freq	07
Band 3 level	08
EQ level	58

Graphic EQ

63 Hz	41
125 Hz	43
250 Hz	45
500 Hz	47
1.0 Khz	42
2.0 Khz	44
4.0 Khz	46
8.0 Khz	48

Stereo Chorus

Chorus Delay	10
LFO Speed	13
LFO Depth	12
Dry Level	57
Right Level	54
Left Level	52
Chorus Level	53

Stereo Flange

Flange Delay	33
LFO Speed	37
LFO Depth	36
Feedback	35
Dry Level	57
Right Level	61
Left Level	59
Flange Level	60

Stereo Delay

Delay Time	22
Feedback	17
Dry Level	57
Right Level	56
Left Level	55
DelayDry In	19
Delay Chr In	18
Delay Flg In	21
Delay EQ In	20
Delay EQ Src	16

4 Tap Delay

Tap 1 Delay	24
Tap 2 Delay	25
Tap 3 Delay	26
Tap 4 Delay	27
Feed Delay	23
Feedback	17
Dry Level	57
Tap 1 Level L,R	67, 68
Tap 2 Level L,R	69, 71
Tap 3 Level L,R	72, 74
Tap 4 Level L,R	75, 76
Tap 2 Level	70
Tap 4 Level	73

Other

Wet/Dry Mix	91
Bypass	09
LowPass Filter	49

NOTES:

In the interest of signal to noise performance, the effects dry level parameter should be left at 0 and the Wet/Dry mix (91) should be used instead.

Some of the above parameters may only be found in a Multi FX patch.

Appendix C
Special Button Presses
Mode Buttons

The mode buttons to the left of the display have special functions in certain modes, as described below:

PROGRAM / Mute 1

When you're in the Program Editor, this button will mute Layer 1 of the current program or the currently displayed layer for drum programs. While in the Setup Editor, it will mute Zone 1 of the current setup. On MIXER page of Song mode, mutes either track 1 or 9.

SETUP / Mute 2

When you're in the Program Editor, this button will mute Layer 2 of the current program, if any. For drum programs, solos currently displayed layer. While in the Setup Editor, it will mute Zone 2 of the current setup. On MIXER page of Song mode, mutes either track 2 or 10.

QUICK ACCESS / Mute 3

When you're in the Program Editor, this button will mute Layer 3 of the current program, if any. For drum programs, solos currently displayed layer. While in the Setup Editor, it will mute Zone 3 of the current setup. On MIXER page of Song mode, mutes either track 3 or 11.

EFFECTS / FX Bypass

When you're in the Program Editor, pressing this button will bypass (mute) the preset effect assigned to the current program, letting you hear just the sound of the layer(s) you want to hear. On MIXER page of Song mode, mutes either track 4 or 12.

MIDI / Prev pg

In the Program Editor, pressing this button will take you to the previously selected editing page. The K2500 remembers the four most recently selected pages, so you can press this button up to four times to backtrack through the pages you've viewed. Pressing it a fifth time will take you back to the ALG page. On MIXER page of Song mode, mutes either track 5 or 13.

MASTER / Mark

This is handy for marking Program Editor pages that you use frequently. Pressing this button will mark the currently selected page. You can mark as many pages as you like. Then you can use the Jump button to select the marked pages in the order you marked them. Marked pages will show an asterisk in the top line of the display, just before the name of the page. A marked page can be unmarked by pressing the Mark button while the page is visible. On MIXER page of Song mode, mutes either track 6 or 14.

SONG / Jump

Use this button to jump to pages in the Program Editor that you've marked with the Mark button. This will cycle through all the currently marked pages in the order they were marked. On MIXER page of Song mode, mutes either track 7 or 15.

DISK / Compare

This button works in most editors, and lets you compare your edits with the original version of the object you're editing. When you press the Compare button, the display changes to remind you that you're listening to the original version. Press any button to return to the currently selected page of whatever editor you're in. On MIXER page of Song mode, mutes either track 8 or 16.

CHAN/BANK / Layer/Zone

In the Program Editor, these buttons let you scroll through the layers in the currently selected program. In the Setup Editor, you can scroll through the zones. In the Effects Editor, you can scroll through the effect configurations. In the Quick Access Editor, they scroll through the entries in the currently selected Quick Access bank. In the Keymap Editor, they scroll through the velocity levels of multi-velocity keymaps. In Song mode, switches record track.

EDIT

Whenever the selected parameter's value is an editable object or a programmable parameter, pressing the EDIT button will take you to that object's editor, or to the parameter's programming page.

Double Button Presses

Pressing two or more related buttons simultaneously executes a number of special functions depending on the currently selected mode. Make sure to press them at exactly the same time.

IN THIS MODE:	THESE BUTTONS: (Pressed simultaneously)	WILL DO THIS:
PROGRAM MODE	**Octav-, Octav+**	Reset MIDI transposition to 0 semitones. Double-press again to go to previous transposition.
	Chan-, Chan+	Set current MIDI channel to 1.
	Plus/Minus	Step to Program 100, 200. etc.
MASTER MODE	**CHAN/BANK**	Enables Guitar/Wind Controller Mode.
SONG MODE	**left/right cursor buttons**	Toggle between Play and Stop.
	up/down cursor buttons	Toggle between Play and Pause.
	Plus/Minus	Select Quantize Grid values on MISC page and Edit Song:TRACK Quantize page. Select duration for a step on Edit Song:STEP page. Increment GateTime by 20% intervals on Edit Song: STEP page.
	CHAN/BANK	Select all tracks on Edit Song:TRACK page.
DISK MODE	**2 leftmost soft buttons**	Issue SCSI Eject command to currently selected SCSI device.
	CHAN/BANK	Hard format SCSI device. List selected objects when saving objects.
	left/right cursor buttons	Select all items in a list. Move cursor to end of name in naming dialog.
	up/down cursor buttons	Clear all selections in a list. Move cursor to beginning of name in naming dialog.
PROGRAM EDITOR	**CHAN/BANK**	Select Layer 1.
SAMPLE EDITOR	**2 leftmost soft buttons**	Toggle between default zoom setting and current zoom setting.
	Plus/Minus	Set the value of the currently selected parameter at the next *zero crossing*.
ANY EDITOR	**Plus/Minus**	Scroll through the currently selected parameter's list of values in regular or logical increments (varies with each parameter).
	2 leftmost soft buttons	Reset MIDI transposition to 0 semitones. Double-press again to go to previous transposition.
	Center soft buttons	Select Utilities menu.
	2 rightmost soft buttons	Sends all notes/controllers off message on all 16 channels (same as Panic soft button).
SAVE DIALOG	**Plus/Minus**	Toggle between next free ID and original ID.

Appendix D
Orchestral ROM Soundblock

This appendix describes the contents of the Orchestral ROM Soundblock Upgrade for your K2000 or K2000R. The Orchestral ROM Soundblock option adds 8 Megabytes of samples, including a full array of winds, brass, and strings.

The Orchestral ROM Upgrade adds objects in the 900s bank. There you will find programs, keymaps, samples, effects, performance setups, and QA banks. All new sounds can be combined with your existing 8 Megs of base sound ROM and 8 Megs of (optional) Contemporary ROM.

The disks provided with this option include demos, General MIDI voicing, and hundreds of additional programs that make use of the new sounds. The additional programs are grouped according to category to make them easier to find.

Orchestral ROM Effects

900	Rich Delay
901	Glass Delay
902	Real Plate
903	Real Niceverb
904	ClassicalChamber
905	Empty Stage
906	Long & Narrow
907	Far Bloom
908	New Hall w/Delay
909	With A Mic

Orchestral ROM Programs

Orchestras
900	TotalCntrl Orch1
901	TotalCntrl Orch2
902	BaroqueOrchestra
903	Oboe&Flute w/Str
904	Horn&Flute w/Str
905	Trp&Horns w/Str

Winds
906	Piccolo
907	Orchestra Flute
908	Solo Flute
909	Orchestral Oboe
910	Solo Oboe
911	2nd Oboe
912	Orch EnglishHorn
913	Solo EnglishHorn
914	Orch Clarinet
915	Solo Clarinet
916	Orch Bassoon
917	Solo Bassoon
918	Woodwinds 1
919	Woodwinds 2

Brass
920	Dynamic Trumpet
921	Copland Sft Trp
922	Orch Trumpet
923	Soft Trumpet
924	Strght Mute Trp
925	French Horn MW
926	Slow Horn
927	F Horn Con Sord
928	F Horn a2 MW
929	French Horn Sec1
930	French Horn Sec2
931	Solo Trombone
932	Tuba
933	Dyn Hi Brass
934	Dyn Lo Brass
935	Dyn Brass & Horn
936	Soaring Brass

Solo Strings
937	MarcatoViolin MW
938	Solo Violin
939	2nd Violin
940	Orch Viola
941	Solo Viola
942	Slow Viola
943	Marcato Cello MW
944	Solo Cello
945	Slow Cello
946	Arco Dbl Bass
947	Slow Arco Bass
948	Brt Dbl Bass

Section Strings
949	Touch Strings
950	Fast Strings MW
951	Chamber Section
952	Sfz Strings MW
953	Sweet Strings
954	Baroque Strg Ens
955	Big String Ens
956	Bass String Sec
957	Pizzicato String
958	Wet Pizz
959	Arco & Pizz

Plucked Strings
960	Classical Guitar
961	Virtuoso Guitar
962	Acoustic Bass
963	Snappy Jazz Bass
964	Dynamic Harp
965	Harp w/8ve CTL
966	Harp Arps

Keyboards
967	Celesta
968	Pipes
969	Pedal Pipes
970	Church Bells

Percussion
971	Glockenspiel
972	Xylophone
973	Chimes
974	Timpani/Chimes
975	Timpani
976	Timpani & Perc
977	Big Drum Corp
978	Orch Percussion1
979	Orch Percussion2
980	Jam Corp
981	Conga & Perc
982	Woody Jam Rack
983	Metal Garden
984	Hot Tamali Kit
985	Funk Kit

Synths
986	Magic Guitar
987	Glass Bow
988	Synth Orch
989	Nooage InstaHarp
990	AC Dream
991	Synth Dulcimer
992	Glistener
993	Afro Multi CTL
994	Tranquil Sleigh
995	Batman Strings
996	Ethnoo Lead
997	Orch Pad CTL
998	Choral Sleigh
999	Pad Nine

Orchestral ROM Keymaps

Reeds

900	**Oboe**
901	**English Horn**
902	**Bassoon**
903	**Clarinet**
904	Bassoon/Oboe
905	Bsn/EHrn/Oboe
906	Flute 2
907	Eng Horn/Oboe

Brass

910	**Soft Trumpet**
911	**French Horn**
912	**French Hrn Sec**
913	**Tuba**
914	Tuba/Horn
915	Tuba/Hrn Sec
916	Tuba/Sft Trmpt
917	Trombet
918	Trumpbone
919	Trombone/SftTrmpt

Orchestral Percussion

920	**Timpani**
921	**Snare Roll**
922	**Snare Hit**
923	**Orch Bass Drum**
924	**Orch Crash**
925	**Tam Tam**
926	**Triangle**
927	**Tambourine Roll**
928	**Tamb Hit**
929	**Sleigh Bells**
930	**Woodblock**
931	**Low Clave**
932	**Castanet Hit**
933	**Castanet Up**
934	Dry Snares
935	Amb Snare
936	Bass Drums
937	Orch Perc Units
938	Orch Perc Full
939	Misc Percussion
940	2Hand Amb Kit
941	2Hand Dry Kit
942	2H Kit Unit1
943	2H Kit Unit2
944	**Xylophone**
945	**Glockenspiel**
946	**Chimes**
947	2Hand DrumCorp

948	Lite Metal
949	Woody Perc
950	Celeste

Pluck

951	**Plucked Harp**
952	Harp Gliss
953	**Nylon String Gtr**
954	Nylon Str noA2
955	Nylon for dulc
957	**Acoustic Bass**
960	**Pizz Strings**
961	Full Kbd DblBass

Strings

962	**Solo Violin**
963	**Solo Viola**
964	**Solo Cello**
965	Fast Solo Cello
966	Solo Double Bass
967	Bass/Cello
968	Bass/Cello/Vio
969	Cello/Vla/Cello
970	Cello/Vla/Vln
971	Ens Strings 2
972	Solo Section 1
973	Solo Section 2
979	BassDrum/Timp

Waveforms

980	**Organ Wave 8**
981	**Buzz Wave 2**
982	**Ahh Buzz Wave**
983	**OB Wave 1**
984	**OB Wave 2**
985	**OB Wave 3**

Variations

986	Tenor tune alt
987	Dual Ride 1
988	Black Fills C
989	Orc Perc Preview
990	<GM>Standard Kit
991	<GM> Orch Kit
992	Castanets x 3
993	Tambourine x 3
994	Black Fills B
995	Black Fills A
996	2HandDrumCrp NB
997	Sleigh Loop
998	Bs Drm Rumble
999	Church Bell

Note: Items in **bold** represent the primary keymap for each instrument.

Orchestral ROM Samples

900	Oboe			
901	English Horn	951	Harp
902	Bassoon	953	Nylon String Gt
903	Clarinet	957	Acoustic Bass
904	Dbl Reeds	960	Pizz Strings
910	SoftTrump	962	Solo Violin
911	French Horn	963	Solo Viola
912	FrenchHrnSect	964	Solo Cello
913	Tuba	965	Fast Solo Cello
914	Synth Accord	966	Solo Double Bass
915	Tuba % Horn	980	Organ Wave 8
920	Timp	981	Buzz Wave 2
921	Snare Roll	982	Ahh Buzz Wave
922	Snare Hit	983	OB Wave 1
923	Orch Bass	984	OB Wave 2
924	Orch Crash	985	OB Wave 3
925	Tam Tam	987	Drums & Perc 2
926	Triangle	988	Jackhammer
927	Tamb Roll	989	Scratch
928	Tamb Hit	990	Zap 1
929	Sleigh Bells	991	Alarm Bell
930	Woodblock	992	Deep House Clave
931	Low Clave	993	China Crash
932	Castanet Hit	994	Dry Sidestick
933	Castanet Up	995	Med Open Hi Hat
934	Bi TamTam<v2.0>	996	Vibraslap
935	Orch Crash ignf	997	Sleigh Loop
937	Dark Triangle	998	BD Rumble <v2.0>
938	MuteTriangle	999	Church Bell
939	Triangle (rel)		
944	Xylophone		
945	Glockenspiel		
946	Chimes		
950	Celeste		

Orchestral ROM Programs: Controller Assignments

The 100 preset programs in the K2000 Orchestral ROM are organized by category. We hope you will find these programs to be a good starting point for your own work. There are many ways to put expressivity and variety in a single program by assigning MIDI controllers to the various DSP functions in its layers. This list describes how each of the 100 factory preset programs can be modulated or altered by the various MIDI controls. Only those controls which may not be immediately evident are listed. Controls such as attack velocity and keynumber are understood to be assigned to most programs.

Prg #	*Program Name*	*Mod Wheel*	*Data*	*MPress*	*Comments*
	Orchestras				
900	*TotalCntrl Orch1*	Layer bal	Adds brass & flute, boosts strings	Swell (trp out - ww solo)	
901	*TotalCntrl Orch2*	Layer bal, adds harp	Layer balance, adds horns/cuts woodwinds	Swell	
902	*BaroqueOrchestra*	None	None	Swell	Sost Ped disables brass
903	*Oboe&Flute w/Str*	Strings fadeout	Disables strings	None	
904	*Horn&Flute w/Str*	Strings fadeout	Disables strings	None	
905	*Trp&Horns w/Str*	Strings fadeout	Disables strings	None	
	Winds				
906	*Piccolo*	None	W/D mix	None	
907	*Orchestral Flute*	Envelope control (slower)	W/D mix	None	
908	*Solo Flute*	Timbre (brighter)	W/D mix	None	
909	*Orchestral Oboe*	Swell	W/D mix, rate & depth	Vibrato	
910	*Solo Oboe*	Vibrato off	W/D mix	Swell	
911	*2nd Oboe*	Vibrato off	W/D mix	Swell	
912	*Orch EnglishHorn*	Swell	W/D mix, rate & depth	Vibrato	
913	*Solo EnglishHorn*	Vibrato off	W/D mix	Swell	
914	*Orch Clarinet*	Swell	W/D mix	Vibrato depth	
915	*Solo Clarinet*	Swell	W/D mix	Swell	
916	*Orch Bassoon*	Swell	W/D mix	Vibrato depth	
917	*Solo Bassoon*	Vibrato off	W/D mix	Swell	
918	*Woodwinds 1*	None	W/D mix	None	
919	*Woodwinds 2*	None	W/D mix, rate & depth	Swell, vibrato	
	Brass				
920	*Dynamic Trumpet*	Swell	W/D mix	Vibrato depth	

Prg #	Program Name	Mod Wheel	Data	MPress	Comments
921	*Copland Sft Trp*	Vibrato off	W/D mix	Swell	
922	*Orch Trumpet*	Timbre (darker)	Envelope Control	Swell, vibrato rate & depth	
923	*Soft Trumpet*	None	W/D mix	Vibrato depth	
924	*Strght Mute Trp*	Vibrato off	W/D mix	Swell	
925	*French Horn MW*	Timbre (brighter)	W/D mix	Vibrato rate & depth	
926	*Slow Horn*	Vibrato	W/D mix	None	
927	*F Horn Con Sord*	Timbre (brighter)	W/D mix	Vibrato depth	
928	*F Horn a2 MW*	Timbre (brighter)	W/D mix	None	
929	*French Horn Sec1*	None	W/D mix	Slight swell	
930	*French Horn Sec2*	None	W/D mix	Swell	
931	*Solo Trombone*	Selects legato layer	W/D mix	Slight swell when MW is off	
932	*Tuba*	Vibrato rate & depth	W/D mix	Vibrato rate & depth	
933	*Dyn Hi Brass*	Swell, legato	W/D mix	Swell	
934	*Dyn Lo Brass*	Swell, legato	W/D mix	Swell	
935	*Dyn Brass & Horn*	Timbre (darker)	W/D mix	None	
936	*Soaring Brass*	None	W/D mix	None	
	Solo Strings				
937	*MarcatoViolin MW*	Spiccato articulation	W/D mix	Vibrato rate & depth	
938	*Solo Violin*	Delays auto-vibrato	W/D mix	Vibrato rate & depth	
939	*2nd Violin*	Envelope control	W/D mix	Vibrato rate	
940	*Orch Viola*	Release time (shorter)	W/D mix	Vibrato depth	
941	*Solo Viola*	Delays auto-vibrato	W/D mix	Vibrato rate & depth	
942	*Slow Viola*	Timbre (darker)	W/D mix	Swell, vibrato rate & depth	
943	*MarcatoCello MW*	Spiccato articulation	W/D mix	Vibrato rate & depth	
944	*Solo Cello*	Delays auto-vibrato	W/D mix	Vibrato rate & depth	
945	*Slow Cello*	Timbre (brighter)	W/D mix	Vibrato rate, Swell	
946	*Arco Dbl Bass*	Bass boost	W/D mix	Vibrato depth	
947	*Slow Arco Bass*	Delays auto-vibrato	W/D mix	Swell, vibrato rate & depth	
948	*Brt Dbl Bass*	Decrescendo	W/D mix	Vibrato rate	
	Section Strings				
949	*Touch Strings*	Timbre (brighter)	Envelope Control	Swell	
950	*Fast Strings MW*	Selects faster strings	Timbre (darker), W/D mix	Swell	

Prg #	Program Name	Mod Wheel	Data	MPress	Comments
951	*Chamber Section*	None	W/D mix	Vibrato depth	
952	*Sfz Strings MW*	Tremolo	None	Swell	
953	*Sweet Strings*	Fade out	W/D mix	Vibrato depth	
954	*Baroque Strg Ens*	Bass boost, layer delay	W/D mix	Swell	
955	*Big String Ens*	None	W/D mix	Swell	
956	*Bass String Sec*	Bass boost on solo layer	W/D mix	None	
957	*Pizzicato String*	Timbre (darker)	W/D mix	None	
958	*Wet Pizz*	Treble boost	W/D mix	None	
959	*Arco & Pizz*	Timbre (brighter), layer balance	Enables 2nd string layer, stereo panning	Swell	
	Plucked Strings				
960	*Classical Guitar*	Fade/disables key-up layer	W/D mix	None	
961	*Virtuoso Guitar*	Vibrato rate & depth	W/D mix	None	Sost Ped enables stacato envelope
962	*Acoustic Bass*	Vibrato rate & depth	W/D mix	None	
963	*Snappy Jazz Bass*	Vibrato rate & depth	Pitch of snap, disables ride	Vibrato rate & depth	Sost Ped disables ride cymbal
964	*Dynamic Harp*	Release time (longer)	W/D mix	None	
965	*Harp w/8ve CTL*	Brightness	Enables octave	None	
966	*Harp Arps*	None	Selects diminished	None	
	Keyboards				
967	*Celesta*	None	W/D mix	None	
968	*Pipes*	Timbre (hollow)	W/D mix	None	
969	*Pedal Pipes*	None	None	None	
970	*Church Bells*	Distance	Timbre (brighter)	None	
	Percussion				
971	*Glockenspiel*	None	W/D mix	None	Sus Ped enables key-up layer (for rolls)
972	*Xylophone*	Timbre (fuller)	W/D mix	None	Sus Ped enables key-up layer (for rolls)
973	*Chimes*	None	W/D mix	None	
974	*Timpani/Chimes*	Alt attack (timp)	W/D mix	None	
975	*Timpani*	Alt attack	W/D mix	None	Sus Ped enables key-up layer (for rolls)

Prg #	Program Name	Mod Wheel	Data	MPress	Comments
976	*Timpani & Perc*	Alt attack (timp)	None	None	Sost Ped enables bass drum. Sus Ped dampens.
977	*Big Drum Corp*	None	Enables both fill layers (black keys f#3-a#4)	None	Sost Ped switches layers. Sus Ped dampens.
978	*Orch Percussion1*	None	Switches fill layers	None	Sus Ped dampens
979	*Orch Percussion2*	None	W/D mix	None	Sus Ped dampens
980	*Jam Corp*	Alt attack	Pitch control (black keys f#3-a#4)	None	
981	*Conga & Perc*	Pitch control	W/D mix	None	
982	*Woody Jam Rack*	Pitch control up to 1200ct	Enables random drum layer	None	
983	*Metal Garden*	Pitch control up to 1200ct	Pitch control down to -1200ct	None	
984	*Hot Tamali Kit*	Tunes drums, alt atk on snares	Switches to old drum map	None	
985	*Funk Kit*	Tunes drums	Switches to old drum map	None	
	Synths				
986	*Magic Guitar*	Vibrato depth	Layer balance	Vibrato depth	
987	*Glass Bow*	Vibrato depth	None	Vibrato depth	
988	*Synth Orch*	Filter modulation	None	Vibrato depth	
989	*Nooage InstaHarp*	Vibrato depth	Echo rate	Vibrato depth	
990	*AC Dream*	Vibrato depth	Enables bell layer	Vibrato depth	
991	*Synth Dulcimer*	Filter modulation	W/D mix	None	Sus Ped dampens
992	*Glistener*	Vibrato depth	None	Vibrato depth	
993	*Afro Multi CTL*	None	Pitch control	None	
994	*Tranquil Sleigh*	Panner rate	Bandpass width	None	
995	*Batman Strings*	Vibrato depth	None	Vibrato depth	
996	*Ethnoo Lead*	Vibrato depth	Pitch control	Vibrato depth	
997	*Orch Pad CTL*	Vibrato depth	Filter cutoff	None	
998	*Choral Sleigh*	Sleigh play	None	None	
999	*Pad Nine*	Vibrato depth	Filter cutoff	None	

Orchestral ROM Setups

The Performance Setup, or "Setup" is a combination of three zones, each with independent MIDI channel and controller transmission assignments. Designed initially for models with built-in keyboards, Setups can be played on K2000R via the Local Keyboard Channel feature: Find this parameter in MIDI mode on the RECV page, change it from None to a channel of your choice, and set your controller to send on only that channel. Now, any note that comes in on that channel will be re-mapped according to the display channel (in program mode) and according to the Setup (in Setup mode). Here are the Setups provided in the Orchestral ROM:

900	Common Manfare
901	Tutti Passage
902	Swan Lake
903	Magic Bell Pad
904	Take the L Train
905	Yankee Doodle
906	Lyric Cue
907	Orchestrator
908	Toy Jam
909	Ethereal Harp
910	Cemetary Night
911	Trumpet Trio
912	Overture
913	Snake Charmer
914	OrchScape 1
915	Glock & Celesta
916	Dual Pipes
917	Pastorale
918	Nylon Gtr/S. Cello
919	Concerto
920	DialogUnderscore
921	Mallet Justment
922	Octave Harp
923	Choir/Harp
924	Symphonic
925	Nighty Nite
926	Bela's Ensemble
927	Guitar & Strings
928	Astro Soundscape
929	Appalachian 1
930	Appalachian 2
931	Notre Organ
932	Plectrum
933	Harp/Chimes
934	TripleOctStrings
935	Folk Jam
936	OrchScape 2
937	ExoticPerc & Kit3
938	Bumper Orch
939	Madness Strings
940	Flute Trio
941	Tutti Str&Brs
942	Nylon Pad
943	Cartoon Score
944	Piano & Harp
945	Warm String Bed
946	Piano & Str/Cello
947	S.O.S. Pad
948	Piano Trio
949	TamaliKit/Bass
950	Finale Orch

Mirror Image Drum Map

The Mirror Image Drum Map is a new drumkit layout that enables a natural two-hand style of playing. The Mirror Image Drum Map gets its name by its instruments being laid out in a mirror image of itself with D4 being the point of reflection.

Getting Started

Play the key, D4. You'll notice that snare drum is assigned to it. From there, play 1 semitone down (C#4), and up 1 semitone (D#4). Notice that the two are the same snare drum. Play 2 semitones down (C4) and up 2 semitones (E4). Notice that the same bass drum is assigned to both keys. (Bass drum is also repeated on E3 and C4, which is particularly useful in fast double bass drum playing.) Notes 3 semitones down, and up 3 semitones, have the same hi-hat, etc.

There are, however, two instances – G4 and E6 – where the left and right sides do not match. They deviate from the mirror image scheme to accommodate the more familiar one hand playing of hi-hat and tambourine.

The layout of the drums and various percussion instruments are easy to remember. Just keep in mind that the basic drumkit consisting of Snare, Bass Drum, Toms, and Cymbals are in the range of C3-E5, or the "inner core" range. The two remaining ranges (C2-B2 and F5-C7) which extend out to the left and right edges of the keyboard make up the "outer edge" range, and will generally consist of auxiliary percussion instruments. This "inner" and "outer" range structure is also maintained in the drum corps programs (#977, #980) and orchestral percussion programs (#978, #979).

It is easy to memorize the placement of instruments if you think of the double and triple groupings of the black keys as one instrument or instrument type. Look at the center group of black keys, C#4 and D#4. Think of that grouping as the snare drum. Fanning out on both sides to the next group of black keys, F#3, G#3, A#3 on the left hand side, and F#4, G#4, A#4 on the right hand side, are the toms. Fanning out farther to the next set of double black keys are the cymbals. The next set of triple black keys are the timbales, and the next set of double black keys are the congas. The four white keys under the toms are the hi-hats.

In the "outer edge" range, white keys are generally hand-held percussion toys or various useful articulations of the congas laid out such that one can play typical conga patterns with one hand.

Try playing in a straight eighth note beat D#2, E2, F2, D#2, E2, F2, C2, C#2 and repeat. For easy right-hand tambourine playing, try playing in the same eighth note beat C7, A6, E6, C7, A6, E6, C7, A6 and repeat. Now combine the left-hand conga part and the right-hand tambourine. A combination of easily fingered patterns will often yield a useful rhythm section.

Sostenuto Pedal

One more bonus was added to the drumkit programs—the sostenuto pedal. Just hold down the sostenuto pedal and again play in a steady eighth note beat E3, G3, A3, B3, G3, A3, B3, G3 and repeat. The sostenuto adds percussion to the white keys ranging from F3 to C4, and C#4.

Sticking

The Mirror Image Drum Map lets you simulate the sticking that a real drummer would use. Try playing a tom tom fill from hi tom to low tom using a paradiddle sticking (RLRRLRLL). This should be very easy to execute with minimal physical motion. The symmetrical inward-outward motion also feels comfortable and smooth. Doubling or layering of instruments while maintaining the beat is as easy as grabbing chords. A good example of this can be illustrated with program 977, "Big Drum Corps".

Play a steady repeating sixteenth note snare drum pattern with your left and right thumbs alternating on the keys, C#4 and D#4. Keep that same left, right, left, right hand motion going but simply add your index fingers to play the next black keys which would be A#3 in the left hand and F#4 in the right hand. Finally, add the ring finger for the low tom on F#3 and A#4. If you look at your hands now the right hand is making an E flat minor chord and its mirror image chord, F# Major, is in the left hand. After playing with the drum programs you'll notice how easy it is to play multiple drums in unison or to add or drop a tom or crash cymbal while maintaining a continuous flow of rhythm.

For those of you who prefer the old Kurzweil drum map for the drumkit programs, it is available on the Controller slider.

Drumkit Programs: 984, 985

Drum Corps Programs: 977, 980

Orchestral Percussion Programs: 978, 979

General MIDI Soundset for the Orchestral ROM

Included with the Orchestral Sound ROM option is a General MIDI (GM) soundset that uses both the K2000 base ROM and the Orchestral ROM. You need at least 2 Megabytes of Sample RAM (SIMMs) to use this soundset.

If you don't have the Orchestral ROM, Young Chang also makes a GM set that uses only the K2000 base ROM (although it still requires the Sample RAM).

Loading the General MIDI Soundset

Objects for the General MIDI soundset will be stored in your K2000's 200s and 300s banks. Existing RAM objects in these banks will be overwritten. Therefore, you should save to disk any objects you want to retain from these banks before installing the GM set.

Before loading the "Orchestral ROM GM Soundset" disk, make sure that it is write-protected. Also, remember that you should always make backup copies of your disks.

1. **Insert the "Orchestral ROM GM Soundset" disk into your K2000's floppy drive.**

2. **Press the DISK button on the K2000's front panel.**

3. **Select "Floppy" , then press the Load soft button.**

    You will see the file names AGENMIDI and RESETMST.

4. **Highlight AGENMIDI, then press OK.**

    The display will read "Load this file as: 200-299".

5. **Turn the Alpha wheel until you see "Everything" in the display, then press OK.**

6. **Press the Overwrt soft button. Confirm by pressing Yes twice.**

    The K2000 now loads all the new GM objects, including new samples and programs from the disk. (This process will overwrite any RAM objects already stored in the K2000.)

You can now play GM sequences on your K2000. Do this either by hooking up your sequencer's MIDI OUT to the K2000's MIDI IN, or by loading type 0 MIDI files into your K2000. When loading a GM sequence into the K2000's 200s or 300s bank, choose Append. Alternatively, you can load the GM sequence into another available bank such as 400 or higher, which lets you save your GM sequences without having to re-save the entire GM sound set as well.

Normal K2000 Mode versus GM Mode

When you load the GM sound set, the K2000's normal master tables change as shown below:

Normal mode	*GM mode*
Drum Channel = 1	Drum Channel = 10
Effects = Auto	Effects = Master
Prog Change = Extended	Program Change = QA 0-127
Prog Change Lock = Off	Prog Change Lock = On
(Chan 10)	(Chan 10)
Ignore All Notes Off = Off	Ignore All Notes Off = On

Load the RESETMST file to re-initialize the K2000's master tables back to Normal mode. You can accomplish the same thing by performing a hard reset of the K2000, but this also removes the GM sounds. Load AGENMIDI followed by RESETMST (make sure you select Append, and not Overwrite) to restore the K2000's Normal master tables without removing the GM sounds.

Appendix E
Contemporary ROM Soundblock

This appendix describes the contents of the Contemporary ROM Soundblock option for your K2000 or K2000R. The Contemporary ROM Soundblock adds 8 Megabytes of samples, including ethnic percussion, electronic and processed drum sounds, electric guitars, synthesizer waveforms, contemporary keyboards, wind instruments, and much more.

The Contemporary ROM Upgrade adds objects in the 800s bank. There you will find 100 programs, 94 keymaps, 94 samples, 10 effects, 51 performance setups, and 11 QA banks. All new sounds can be combined with your existing 8 Megs of base sound ROM and 8 Megs of (optional) Orchestral ROM.

Contemporary ROM Effects

800	Percussive Room
801	Brt Empty Room
802	Mosque Room
803	New Gated
804	Chorus Slap Room
805	Chorus Bass Room
806	New Chorus Hall
807	Spacious
808	Wash Lead
809	New Hall w/Delay

Contemporary ROM Programs

Ethnic/World Instruments
800	Jungle Jam
801	Mbira Stack
802	Ritual Metals
803	Prepared Mbira
804	Balinesque
805	Ambient Bells
806	World Jam 1
807	World Jam 2
808	India Jam
809	Slo Wood Flute
810	Hybrid Pan Flute
811	Chiff Brass Lead
812	Bell Players
813	Prs Koto
814	Medicine Man
815	Mbira
816	Kotobira
817	Cartoon Perc
818	CowGogiBell
819	Perc Pan Lead
820	Trippy Organ
821	Koto Followers
822	Hybrid Horn

Keyboards
823	Dyno EP Lead
824	ParaKoto
825	Super Clav
826	StrataClav
827	Touch Clav
828	Bad Klav
829	Rad Rotor
830	B-2001
831	Perc Organ
832	Drawbar Organ CS

Brass/Reeds
833	Bebop Alto Sax
834	Soft Alto Sax
835	Soprano Sax
836	Low Soft Sax
837	Air Reeds CS
838	Jazz Muted Trp
839	Jazz Lab Band
840	Harmon Section
841	Sfz Cres Brass
842	Neo Stabs
843	Gtr Jazz Band
844	Full Rock Band

Drum Kits
845	World Rave Kit
846	Punch Gate Kit
847	Shadow Kit
848	Fat Traps
849	Generator Kit
850	Shudder Kit
851	Crowd Stomper
852	Econo Kit
853	EDrum Kit 1
854	EDrum Kit 2
855	Dog Chases Tail
856	Saw Loop Factory

Basses
857	Two Live Bass
858	Dual/Tri Bass
859	Clav-o-Bass
860	Chirp Bass
861	DigiBass
862	Mono Synth Bass
863	Touch MiniBass
864	Ostinato Bass
865	House Bass
866	Dubb Bass

Guitars
867	Straight Strat
868	Chorus Gtr
869	Strataguitar
870	Elect 12 String
871	Dyn Jazz Guitar
872	Pedal Steel
873	Strummer DistGtr
874	Rock Axe
875	Hammeron
876	Rock Axe mono

Synth Timbres
877	Attack Stack
878	Skinny Lead
879	Q Sweep SynClav
880	Anna Mini
881	Ballad Stack
882	Big Stack
883	BrazKnuckles
884	Hybrid Breath
885	Hybrid Stack
886	Eye Saw
887	Mello Hyb Brass
888	Sizzl E Pno
889	My JayDee
890	Slo SynthOrch
891	SpaceStation
892	Glass Web
893	Circus Music

Pads
894	Mandala
895	Slow Strat
896	Fluid Koto
897	Koreana Pad
898	Tangerine
899	Planet 9

Contemporary ROM Keymaps

Synth Multi-Samples
800	Hybrid Pan
801	Glass Rim Tone
802	Synth Vox
803	Orch Pad
804	Koreana
805	Heaven Bells
806	MIDI Stack
807	Synth Brass
808	DigiBass
809	AnaBass
810	Mini Saw

Instrument Multi-Samples
811	EBass Pick
812	EBass Slap
813	Clean Elec Gtr
814	Distorted Guitar
815	Dist Harmonics
816	Clav
817	Tone Wheel Organ
818	Muted Trumpet
819	Soft Alto Sax
820	Koto
821	Mbira

Individual Percussion Roots
822	Tabla Ta
823	Tabla Tin
824	Tabla Dhin
825	Tabla/Bayan Dha
826	Bayan
827	Ghatam Bass Tone
828	Small Ghatam
829	Ghatam Shell
830	Ghatam Slap
831	Dumbek Open Tone
832	Dumbek Brt Tone
833	Dumbek Tek
834	Dumbek Snap
835	Dumbek Dry Dum
836	Djembe Tone
837	Djembe Cl Slap
838	Djembe Open Slap
839	Djembe Finger
840	Djembe w/ Stick
841	Muzhar
842	Talking Drum Lo
843	Talking Drum Hi
844	Luna Drum Dry
845	Luna Drum Hi
846	Log Drum Lo
847	Log Drum Hi
848	Shakers/Tamborim
849	Gankogui Bell Lo
850	Gankogui Bell Hi
851	Tibetan Cymbal
852	Tibetan Bowl
853	Indo Bowl Gong

Percussion Kits
854	Prev Ethnic Perc
855	Cartoon Perc
856	Prev EDrum Map
857	Toms Map
858	ProcKick/Snr Map
859	EDrum Kit 1
860	EDrum Kit 2
861	1 Lyr Proc Kit
862	Industry Perc
863	Tuned Loops

Custom Percussion Keymaps
870	PreparedMbira L1
871	PreparedMbira L2
872	World Jam 1 L1
873	World Jam 1 L2
874	World Jam 1 L3
875	India Jam L1
876	India Jam L2
877	World Jam 2 L1
878	World Jam 2 L2
879	World Jam 2 L3
880	World Jam 2 L4
881	World Jam 2 L5
882	World Jam 2 L6
883	World Jam 2 L7
884	World Jam 2 L8
885	CowGogiBell L1
886	Dual Log Drum
887	Jungle ProcDrms
888	JungleBrushTip1
889	JungleBrushTip2
890	Jungle Birds
891	Jungle Ghtm rel
892	Jungle Tabla
893	Jungle Dumbek
894	Jungle ProcDrms2
895	Jungle Ghtm Strgt
896	Syn Bass Pick

Single-Cycle Waveforms
897	ARP SAW
898	ARP PW30%
899	OB PW25%

Contemporary ROM Samples

800	Hybrid Pan		850	Gankogui Bell Hi
801	Glass Rim Tone		851	Tibetan Cymbal
802	Synth Vox		852	Tibetan Bowl
803	Orch Pad		853	Indo Bowl Gong
804	Koreana		854	EDrum1 Kick
805	Heaven Bells		855	EDrum1 Snare
806	MIDI Stack		856	EDrum1 Rim
807	Synth Brass		857	EDrum1 Hi Tom
808	DigiBass		858	EDrum1 Crash
809	AnaBass		859	EDrum1 Cowbell
810	Mini Saw		860	EDrum1 Clave
811	EBass Pick		861	EDrum1 Shaker
812	EBass Slap		862	EDrum2 Kick1
813	Clean Elec Gtr		863	EDrum2 Kick2
814	Distorted Guitar		864	EDrum2 Kick3
815	Dist Harmonics		865	EDrum2 Snare1
816	Clav		866	EDrum2 Snare2
817	Tone Wheel Organ		867	EDrum2 Snare3
818	Muted Trumpet		868	EDrum2 HH Open
819	Soft Alto Sax		869	EDrum2 HH Close
820	Koto		870	EDrum2 Clap
821	Mbira		871	EDrum2 Conga
822	Tabla Ta		872	Hi Proc Tom
823	Tabla Tin		873	Hi Mid Proc Tom
824	Tabla Dhin		874	Lo Mid Proc Tom
825	Tabla/Bayan Dha		875	Lo Proc Tom
826	Bayan		876	Syn Toms
827	Ghatam Bass Tone		877	Proc Kicks
828	Small Ghatam		878	Proc Snares
829	Ghatam Shell		879	Rvs Proc Kicks
830	Ghatam Slap		880	Rvs Proc Snares
831	Dumbek Open Tone		881	Bayan Mute
832	Dumbek Brt Tone		882	Alt Muzhar Rim
833	Dumbek Tek		883	Alt Tabla Ta
834	Dumbek Snap		884	Alt Maracas
835	Dumbek Dry Dum		885	Alt Shakere
836	Djembe Tone		886	Syn Bass Pick
837	Djembe Cl Slap		887	Alt Log Drum Lo
838	Djembe Open Slap		888	Alt Tibetan Cym
839	Djembe Finger		891	Dumbek Mute Slap
840	Djembe w/ Stick		896	ROM Loops
841	Muzhar		897	ARP SAW
842	Talking Drum Lo		898	ARP PW30%
843	Talking Drum Hi		899	OB PW25%
844	Luna Drum Dry			
845	Luna Drum Hi			
846	Log Drum Lo			
847	Log Drum Hi			
848	Shakers/Tamborim			
849	Gankogui Bell Lo			

Programs and Controller Assignments

The 100 preset programs in the K2000 Contemporary ROM are organized by category. We hope you will find these programs to be a good starting point for your own work. There are many ways to put expressivity and variety in a single program by assigning MIDI controllers to the various DSP functions in its layers. This list describes how each of the 100 factory preset programs can be modulated or altered by the various MIDI controls. Only those controls which may not be immediately evident are listed. Controls such as attack velocity and keynumber are understood to be assigned to most programs.

Prg #	Program Name	Mod Wheel	Data	MPress	Comments
	Ethnic/World Instruments				
800	**Jungle Jam**				
		This program uses the mirror image drum mapping, symmetrical around D4. Identical or similar drum articulations are found at equal distances above and below D4, with extras outside the center region. Mod wheel disables layered "chirps" and fades rain stick on A0. Data slider enables "screamers" on G5-C6.			
801	**Mbira Stack**	Vibrato			
802	**Ritual Metals**	Vibrato		Vibrato	
803	**Prepared Mbira**		Pitch change		
804	**Balinesque**	Pan flute fade			
805	**Ambient Bells**	Vibrato		Vibrato	
806	**World Jam 1**		Pitch change		Mirror image drum mapping
807	**World Jam 2**		Pitch change	Layer pitch	Mirror image drum mapping
808	**India Jam**				
		Tablas appear at center with the mirror-image mapping, tuned to C. Pressure controls pitch for the bayan and RH lead sound. LH drone may be played as broken chord C2,G2,C3,G3 and held with sustain or sostenuto. Mod Wheel fades the drone. Data Slider controls W/D mix.			
809	**Slo Wood Flute**	Less tremolo		Filter ctl	
810	**Hybrid Pan Flute**	Tremolo		Tremolo	
811	**Chiff Brass Lead**	Vibrato, Swell	Unison layers	Vibrato, Filter	
812	**Bell Players**	Muzhar fade	Tibetan cym env ctl		
813	**Prs Koto**			Pitch mod	
814	**Medicine Man**				
815	**Mbira**	Release ctl	Tremolo		
816	**Kotobira**	Mbira balance			
817	**Cartoon Perc**		W/D mix		
818	**CowGogiBell**	Alt start	Layer select		
819	**Perc Pan Lead**	Vibrato			
820	**Trippy Organ**	Vibrato		Vibrato	
821	**Koto Followers**	Vibrato		Vibrato	
822	**Hybrid Horn**	Balance (bell)		Timbre ctl, Vibrato	

Prg #	Program Name	Mod Wheel	Data	MPress	Comments
	Keyboards				
823	**Dyno EP Lead**	Tremolo, Env ctl			
824	**ParaKoto**	Pad tremolo			
825	**Super Clav**	Phase Clav enable	Disable release	Filter rate	
826	**StrataClav**	Vibrato		Vibrato	
827	**Touch Clav**	EQ, Vibrato	Disables release	Filter control	
828	**Bad Klav**				
829	**Rad Rotor**	Rotary speaker			
830	**B-2001**	Rotary speaker	Perc balance	Rotary speaker	
831	**Perc Organ**	Rotary speaker	Perc balance	Rotary speaker	
832	**Drawbar Organ CS**	Rotary speaker	Filter ctl		
	Brass & Reeds				
833	**Bebop Alto Sax**	Attack ctl		Vibrato	
834	**Soft Alto Sax**			Vibrato, Swell	
835	**Soprano Sax**	Vibrato, Swell		Vibrato, Swell	
836	**Low Soft Sax**			Vibrato	
837	**Air Reeds CS**	Vibrato	Harmonica enable	Harmonica vibrato	
838	**Jazz Muted Trp**				
839	**Jazz Lab Band**			Vibrato, Swell	
840	**Harmon Section**	Vibrato		Vibrato, Swell	
841	**Sfz Cres Brass**	Vibrato	W/D mix	Vibrato, Swell	
842	**Neo Stabs**	Vibrato		Vibrato, Filter ctl	
843	**Gtr Jazz Band**	LH bass is layered with ride for walking rhythm section. LH hard strikes trigger kick/snare. Data slider switches RH from guitar to horn section; SostPed holds horns and adds bright tenor.			
844	**Full Rock Band**	LH bass is layered with kick/snare for driving rhythm section. At *ff*, crash cymbal is triggered. Mod wheel and pressure enable rotary speaker for RH organ. Data slider switches LH to walking rhythm section, and RH to guitar solo.			
	Drum Kits				
845	**World Rave Kit**	Disable chirps	W/D mix, Disable claps (G6-G#6)		
846	**Punch Gate Kit**		W/D mix		
847	**Shadow Kit**	Flanging (A#3-B3)	W/D mix		
848	**Fat Traps**	Filter (C2-A#2)	W/D mix		

Prg #	Program Name	Mod Wheel	Data	MPress	Comments
849	**Generator Kit**	Disable claps (G3-G#3)	W/D mix		
850	**Shudder Kit**		W/D mix		
851	**Crowd Stomper**		W/D mix		
852	**Econo Kit**	Gate time (G3-C#4)	W/D mix		
853	**EDrum Kit 1**	Gate time (B2-D#3, G3-C#4), Pitch (D6)	W/D mix	Pitch (D6)	Sust ped chokes cymbal (F#5)
854	**EDrum Kit 2**	Filter ctl (A#1-C2, F#6-C7)	W/D mix		
855	**Dog Chases Tail**	Various loop effects	Tempo (pitch)		Loops below E4 are tuned to play together, as are loops above E4.
856	**Saw Loop Factory**	Layer balance	Tempo (pitch)		
	Basses				
857	**Two Live Bass**	Vibrato	Layer select	Vibrato	
858	**Dual/Tri Bass**	Vibrato	Ghost note enable	Vibrato	
859	**Clav-o-Bass**	Vibrato	W/D mix	Vibrato	
860	**ChirpBass**	Vibrato	W/D mix	Vibrato	
861	**DigiBass**				
862	**Mono Synth Bass**		Filter		Pitch bend goes +2/-12ST
863	**Touch MiniBass**	Vibrato		Vibrato, Swell	
864	**Ostinato Bass**		EQ		
865	**House Bass**	Vibrato	Release ctl	Vibrato	
866	**Dubb Bass**	Vibrato	Release ctl	Vibrato	
	Guitars				
867	**Straight Strat**	Tremolo	EQ		
868	**Chorus Gtr**		W/D mix	Detune	
869	**Strataguitar**	Alt start			
870	**Elect 12 String**	Detune	W/D mix, EQ	Vibrato	
871	**Dyn Jazz Guitar**		W/D mix		PBend gives fretboard slide
872	**Pedal Steel**	Vibrato		Vibrato	
873	**Strummer DistGtr**	Vibrato		Vibrato	
874	**Rock Axe**	Alt start	EQ	Feedback	
875	**Hammeron**	Timbre ctl		Timbre ctl	
876	**Rock Axe Mono**	Alt start	EQ, Delay	Feedback	

Prg #	Program Name	Mod Wheel	Data	MPress	Comments
	Synth Timbres				
877	**Attack Stack**	Vibrato	W/D mix	Vibrato	
878	**SkinnyLead**	Vibrato	Overdrive enable	Vibrato, Filter	
879	**Q Sweep SynClav**	Vibrato	Sweep rate ctl	Vibrato	
880	**Anna Mini**	Vibrato		Vibrato	
881	**Ballad Stack**	Swell		Swell	
882	**Big Stack**	Vibrato	Env ctl	Vibrato	
883	**BrazKnuckles**	Swell	EQ		
884	**Hybrid Breath**	Envelope ctl, EQ	Envelope ctl, W/D mix	Vibrato	
885	**Hybrid Stack**		Layer balance		
886	**Eye Saw**	Vibrato	Release ctl, Filter	Vibrato	
887	**Mello Hyb Brass**				
888	**Sizzl E Pno**	Pad balance			
889	**My JayDee**	Vibrato	Release ctl	Vibrato	
890	**Slo SynthOrch**	Filter effect			
891	**SpaceStation**	Vibrato	Envelope ctl	Vibrato	
892	**Glass Web**	EQ	Delay ctl		
893	**Circus Music**	Vibrato		Vibrato	
	Pads				
894	**Mandala**	Filter ctl	Pitch change		
895	**Slow Strat**	Vibrato	Filter sweep enable	Vibrato	
896	**Fluid Koto**	Vibrato		Vibrato	
897	**Koreana Pad**	Tremolo	Filter, W/D Mix		
898	**Tangerine**	Enable 5th	Envelope Ctl	Vibrato	
899	**Planet 9**				

Special Note:

In addition to the 800's bank of new ROM objects documented here, your new ROM also includes a revised Default Program (Program 199). It features an output setting of +12dB with amplitude velocity tracking of 35dB, as well as streamlined default settings of the auxiliary envelopes and control modules. Program 199 is the template used for the New Layer and Preview Program functions. As always, you can overwrite this program to customize these functions.

Contemporary ROM Setups

The Performance Setup, or "Setup" is a combination of three zones, each with independent MIDI channel and controller transmission assignments. Designed initially for models with built-in keyboards, Setups can be played on K2000R via the Local Keyboard Channel feature: Find this parameter in MIDI mode on the RECV page, change it from None to a channel of your choice, and set your controller to send on only that channel. Now, any note that comes in on that channel will be re-mapped according to the display channel (in program mode) and according to the Setup (in Setup mode).

Here is a list of the Setups provided in the Contemporary ROM:

800	Dark Jungle	825	Plucky Toys
801	Lay It Down Funk	826	Big Pretender
802	World Bells	827	Low Octave Jam
803	Praise Hymn	828	Low C Groove
804	Perc Ensemble	829	Orient
805	Stackz	830	Earth Sing
806	Breath Stack	831	Bright Stack
807	Hybrid Jam	832	Ancient Future
808	Dance Split	833	Zen Divide
809	Perc Body & Pad	834	Muted Mood Split
810	TriplePress Lead	835	Spiced Out
811	Ethnic Machine	836	Loop & Groove
812	Hot Sauce	837	Stacks & Lead
813	Earth Drums	838	Club Date
814	Mystic	839	Bluegrass Split
815	Jazz Baby	840	E Guitar Trio
816	Trippy Planet	841	Hybrid Split
817	Big Brass	842	Trashed Trio
818	World Kit	843	Mega Drawbars
819	Way Bass Comp	844	Glory Days
820	World Ensemble	845	Retro Rock
821	Lullabye EP	846	Pedal Steel Splt
822	Amber Pad	847	Tender Split
823	Snake Dancer	848	Psycho Fun House
824	Lead Ensemble	849	In The Trenches
		850	Foggy Bells

Index

Numerics

A

B

C

D

E