



# ***Musician's Guide***

**Kurzweil K1000 Keyboard**

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# Section I

## INTRODUCTION

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### 1.1 About This Manual

This manual has been designed to provide you with all the basic information you'll need to set up and operate your new K1000 Keyboard.

**Section I** provides introductory information that is of interest to every K1000 owner. Section 1.3 (*Summary of Precautions*) is particularly important. We urge you to read it before you connect and operate your new instrument.

**Section II** shows how to connect your K1000 Keyboard.

**Section III** tells how to operate your new instrument. Procedures from basic program selection to creating multi-timbral polyphony with MIDI sequencers are explained in a step-by-step fashion.

**Section IV** presents instructions for basic program editing. Here, you will learn how to create layers, keyboard splits, and to modify existing Programs; how to add pre-programmed "compiled effects" to your presets; and how to save presets to the K1000's internal memory (RAM).

**Appendix I** contains technical information on interfacing your K1000 with the "outside world."

If you are making your own cables, or if you plan to use your K1000 in professional performance and recording studios, you'll want to refer to this section.

**Appendix II** presents detailed technical specifications for the Kurzweil K1000 Keyboard.

The Kurzweil K1000 features the exceptional sonic quality of Kurzweil samples, coupled with the richness of digital synthesis and the flexibility of modular synthesizers. We urge you to study this manual carefully, and keep it with your instrument for reference, in order to make best use of your K1000's extraordinary musical potential. Once you've become familiar with the information in this manual, you'll be ready to move on to its companion, the *1000 Series Programming Reference*, and begin exploring the immense creative potential of your K1000.

Thank you for your purchase of a Kurzweil K1000 Keyboard.

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### 1.2 Unpacking & Inspection

The Kurzweil K1000 is delivered in a single corrugated cardboard shipping container. Upon unpacking your K1000, immediately inspect it for shipping damage. If it has been damaged in transit, you must place a claim with the carrier or with your Kurzweil dealer. Kurzweil Music Systems assumes no responsibility for shipping damage.

The carton should contain:

- Your new K1000 Keyboard
- Two foot pedal switches
- A wire music rack
- A three-prong AC power cable
- This *Musician's Guide*
- The *1000 Series Programming Reference*
- A Warranty Registration Card

If any of these items is missing, contact your Kurzweil dealer.

When you first unpack your K1000, you'll notice that there is a strip of clear plastic tape covering the front-panel label plate. Its function is to protect the plate from scratches when the unit is being packed. You'll find that it peels off very easily.

We recommend that you save the shipping carton and protective inserts. For carrying and shipping, they provide the best protection short of a custom-made road case.

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# Section I

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## 1.3 Summary of Precautions

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- Keep this *Musician's Guide* and refer to it whenever you connect and operate your K1000 Keyboard.
- Make sure that your AC power connection conforms to the guidelines given in Section 2.1 of this manual.
- To protect against shock hazards and ensure proper operation, *never* cut or disconnect the power cable ground pin. Don't use the power cable if it appears frayed.
- If the fuse in your K1000 should blow, you must replace it with another of the same physical size and current rating. *Never* use a fuse with a higher rating, and *never* attempt to bypass the fuse with a hardwired connection.
- The Kurzweil K1000 is normally shipped ready to operate with a mains AC voltage of 100 to 120 volts. If your local AC service is 200 to 240 volts, you *must* set the unit for the higher voltage. Follow the procedure given in Section 2.1 of this manual. *Attempting to operate the K1000 at 200 - 240 volts AC without properly setting the voltage selector switch will cause extensive damage to the unit.*
- Do not open the K1000 case. There are no user-serviceable parts inside. Refer servicing to an authorized Kurzweil Service Center.
- Do not spill liquids into or on the K1000 chassis.
- Do not allow the K1000 to overheat. The K1000 Keyboard will operate at temperatures from 0-55° C (32-131° F). Make certain that your setup allows adequate ventilation to maintain this temperature range.
- Do not connect the audio outputs or MIDI connections to a voltage source such as a battery, power supply, mains AC source or amplifier output.
- Use only standard MIDI cables for MIDI connections. Do not use ordinary recording studio DIN cables. If you are uncertain how a cable is wired, *don't use it.*
- If you try a Hard Reset, be sure to press only the VALUE buttons, and no others, when you turn the Expander back on. Pressing any other buttons while powering up may cause the unit to lock up. Refer to Section 3.7.

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## 1.4 Description of Features

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### 1.4.1 The Kurzweil 1000 Series

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The Kurzweil 1000 Series is an integrated line of powerful, cost-effective electronic musical instruments for live performance and recording. Combining both sample playback and digital emulation of a traditional modular synthesizer in a single unit, each 1000 Series instrument offers prodigious programming flexibility and sonic variety.

The 1000 Series comprises four rack-mounted expander modules and a keyboard model. All are multi-timbral, and are capable of responding to information on all 16 MIDI channels in any combination. The full line:

**1000 PX Professional Expander** — A 24-note polyphonic module featuring 120 presets ranging from Grand Piano and Strings to Choir, Organs, Acoustic Bass, Vibes, Woodwinds and Brass.

**1000 SX String Expander** — A 20-note polyphonic module offering 99 preset sounds, from Professional Ensemble Strings to Solo Violin, Solo Cello and Pizzicato Strings.

**1000 HX Horn Expander** — A 20-note polyphonic module packed with 100 presets including Trumpet, Trumpet Mutes,

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Trombones, Saxophones and many others.

**1000 GX Guitar Expander** — A 20-note polyphonic module with a wide variety of acoustic and electric guitar timbres.

**K1000 Keyboard** — A 24-note polyphonic keyboard instrument combining 115 of the voice presets of the 1000PX with a weighted 76-note keyboard, dual pedal switches and three 10-location programmable memory banks.

The Kurzweil 1000 Series inherits the sonic legacy of the legendary Kurzweil 250®, the sampling keyboard whose extraordinary fidelity and realism have made it a mainstay of professional music. Through VLSI (Very Large Scale Integration) integrated-circuit technology, Kurzweil engineers have succeeded in packing each 1000 Series instrument with up to 120 preset Programs based on 16-bit floating-point digitally-sampled sounds. As a result, identical voices played on the Model 250 and on a 1000 Series instrument are virtually indistinguishable from one another.

1000 Series instruments also incorporate extensive programming features, including both Compiled Effects (pre-programmed, adjustable effects such as Chorus, Vibrato, Tremolo and Leslie) and Modular Effects (the

digital equivalent of a traditional modular synthesizer, with complete user control over patch configuration and settings). User-created Programs may be stored in any of 64 RAM (Random Access Memory) locations; the RAM is battery-backed so that user programs are retained when the instrument is turned off or unplugged.\* (Information on programming 1000 Series instruments is found in the *1000 Series Programming Reference*.)

Each 1000 Series instrument features a comprehensive and flexible MIDI implementation, with full user control over channel assignments, controller assignments, program change mapping and other parameters. Any of the instrument's voices may be assigned to any of the 16 MIDI channels for multi-timbral playback of sequences, and intelligent allocation of notes minimizes "note stealing." Finally, a unique, built-in MIDI-SCOPE function allows the instrument to provide a dynamic display of MIDI events as they are received, and self-diagnostic routines help to pinpoint malfunctions, should they occur.

#### 1.4.2 K1000 Structure

The Kurzweil K1000 Keyboard is a multi-timbral instrument which allows flexible creation of split and layered timbres in many combinations. An individ-

ual timbre, or a fully-defined split and/or layered timbre setup, is termed a **Program**.

The K1000 is furnished with a large number of preset Programs which reside in ROM (Read Only Memory). Each Program has a unique name (for example, Grand Piano or Jazz Organ) and a uniquely numbered memory location. Factory Programs are stored in memory locations 001 – 063 and 128 – 179.

Factory Programs cannot be erased; ROM is a permanent storage medium. They may, however, be modified by the user, and the modified Programs may be renamed and stored in RAM. The user RAM locations are numbers 064 – 127.

A Program may have up to four individual **Layers**. Each Layer may have its own **Soundfile**, or timbre, assigned to it, and each also may have a distinct set of **Effects** applied to that timbre.

Individual Layers can be assigned to respond to any range of keys on the K1000 keyboard (or that of a separate MIDI controller), and the key ranges for successive Layers of a Program may or may not overlap. Programs having Layers whose key ranges do not overlap are referred to as **Split Programs**.

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\* You may also use ObjectMover™ software to dump Programs and other items to your personal computer. ObjectMover is available from your Kurzweil dealer.

# Section I

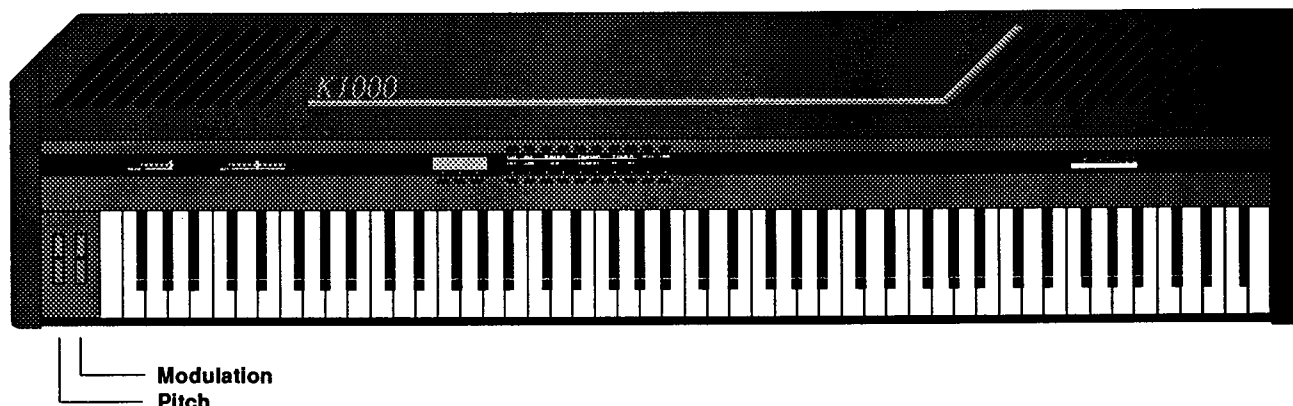


Figure 1-1 K1000 Front Panel

## 1.4.3 Front Panel Controls & Display

As the K1000 front panel graphics indicate, several of the control buttons serve different functions depending upon the instrument's operating mode. The K1000 has two basic operating modes: PLAY and EDIT. For each button whose action changes with the operating mode, the upper label indicates its PLAY mode function and the lower its EDIT mode function.

**PLAY / EDIT** — Toggles between the two operating modes of the K1000.

**MODE / LAYER** — In PLAY mode, this button selects MIDI receive modes (Omni, Poly, or Mult). In EDIT mode, it scrolls through the layers in the current Program.

**CHANNEL / MENU** — In PLAY mode, these buttons cycle through the 16 MIDI channels, wrapping at either end (for example, pressing the Down button when channel 1 is selected

takes you to channel 16). In EDIT mode, they are used to access the various Edit Menus.

**PROGRAM / PARAMETER** — These buttons cycle through the numbered Program memory locations in PLAY mode, wrapping at either end. In EDIT mode, they select specific programming Parameters.

**VALUE** — In PLAY mode these buttons have no function *unless* the K1000 is set for Mult mode play; in this case, they act to enable or disable the currently displayed MIDI channel (see Section 3.5 of this manual). In EDIT mode, they are used to alter the value settings of Parameters (YES/UP increases the value, and NO/DOWN decreases it) or to respond to question prompts from the K1000 (for example, "Delete Program?").

**Note** — *If you press and hold a button, its action will begin repeating rapidly after a brief interval. You can use this feature to move quickly through the range of a button's action. With*

*the three sets of dual buttons, pressing both at the same time will jump to frequently-used functions, or wrap from high to low limits of ranges.*

**DISPLAY** — This back-lit, two-line, 32-character LCD (Liquid Crystal Display) indicates the current status of the instrument. In EDIT mode, it displays Menu choices, Parameter values and prompts. The Display also functions as a power indicator.

**VOLUME** — This slider controls the K1000 audio outputs.

**DATA ENTRY** — This slider provides a quick method for entering Values in Edit mode.

**Pitch Wheel** — This spring-loaded, center-detent controller is used primarily to bend notes. Its range and action are programmable (see the *1000 Series Programming Reference*).

**Modulation Wheel** — The Mod wheel is also center-detented, but is not spring-loaded. It usually controls depth of modula-

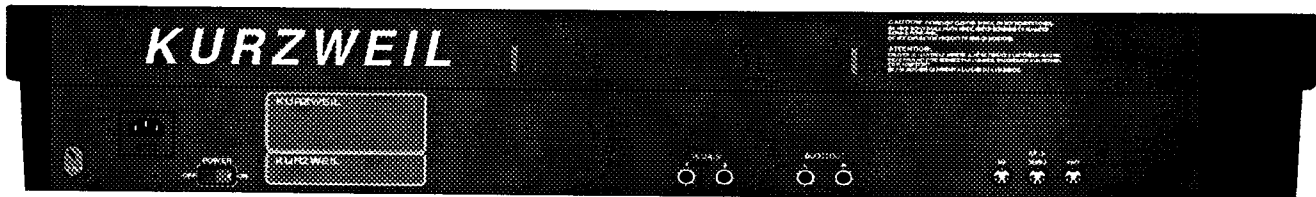


Figure 1-2 K1000 Rear Panel

tion, but may be programmed to control other functions.

*The K1000 calibrates its controls when power is applied, and the position of the Mod wheel at that time becomes its zero point. Be sure that the Mod wheel is at center before you turn on the K1000.*

**A, B, C** — These buttons select the K1000's Program Memory Banks (see Section 3.2).

**Numeric Buttons** — These buttons select locations in the Program Memory Banks. In conjunction with ENTER, they also may be used to access Programs directly by number.

**ENTER** — Used with the numeric buttons, this button allows access to Programs without using the PROGRAM button to scroll through long lists.

**STORE** — This button stores Programs to the Program Memory Banks for quick access in performance.

#### 1.4.4 Rear Panel Controls & Connectors

**AUDIO OUT** — The K1000 is provided with two outputs labeled LEFT and RIGHT, respectively. The connectors are standard 1/4 - inch monophonic phone jacks.

**PEDAL** — The K1000 pedals connect to these 1/4 - inch phone jacks. Normally, Pedal 1 controls Sustain and Pedal 2 Sostenuto. The pedals' functions are programmable.

*The K1000 calibrates its pedals when power is applied. If you hold a pedal down when turning on the K1000, its action will reverse. Be sure that the pedals are in the proper position when you turn on your K1000.*

**MIDI IN** — This port receives data from a MIDI control source (such as another keyboard or a computer sequencer).

**MIDI THRU** — When MIDI data are received at the MIDI In port, the K1000 echos the data at

this port. The Thru port is used to chain MIDI devices together.

**MIDI OUT** — This is the K1000's output port for transmitting MIDI data to other devices (see Section 3.3).

**AC Power Inlet** — This three-pin NEMA connector mates with the power cable supplied with the K1000 Keyboard. To ensure safety and proper operation, *do not use an ungrounded power cord with your K1000.*

**POWER** — This rocker switch controls AC power to the K1000.

**Fuse Compartment** — Your K1000 is protected by a 1 Amp, 125 volt fuse. To open the fuse compartment, remove the power cord and gently pry the compartment cover outward with a flat-blade screwdriver.

**WARNING:**  
*Never substitute a fuse with a higher rating, and never attempt to bypass the fuse.*

# Section II

## CONNECTIONS

### 2.1 AC Power

Please read this section carefully before you set up your K1000 Keyboard. When making connections, be sure to follow the precautions given here and in Section 1.3.

The recommended sequence of steps for connecting your K1000 is:

- 1) Make certain that your K1000 is set for the correct AC line voltage. If not, follow the instructions in the next section.
- 2) Plug the power cord into the AC Inlet of the K1000, then connect it to a grounded AC outlet.
- 3) Connect the K1000's audio outputs to your sound system.
- 4) Connect the K1000's MIDI Out to the MIDI input of the next instrument in your setup (optional).
- 5) Turn on the K1000 (it takes about 3 seconds to power up), then turn on your sound system.

The specific information that you need to perform these steps is given in this chapter. Refer to Figure 2-2 when you make your connections, and be sure to keep track of the Left and Right audio channels.

Before connecting your K1000, check to be sure that it is set for the correct line voltage. The line voltage selector is located on the rear panel, at the end nearest the AC power inlet (see Figure 2-2). Its setting is visible through a small opening in the panel.

To change the setting, insert a flat-blade screwdriver through the opening into the switch slot. Turn it gently clockwise until the switch clicks into place, then remove the screwdriver and inspect the switch to be sure that its setting corresponds to the local line voltage.

**Caution: Attempting to operate the K1000 at 220 volts without setting the voltage selector switch properly will seriously damage the unit.**

Your K1000 is supplied with a three-prong power cable, and will operate best if it is connected to a grounded AC outlet. This type of outlet is standard in the United States and is now quite common, although older buildings may have simple two-prong ungrounded outlets.

If your outlet is not furnished with a ground pin, you will have to use an adapter, as shown in Figure 2-1. You can purchase adapters like this at any hardware store. Notice that the adapter's ground wire (or lug) must be attached to the outlet plate mounting screw. *Don't cut or break off the ground pin on your K1000's power cable.*

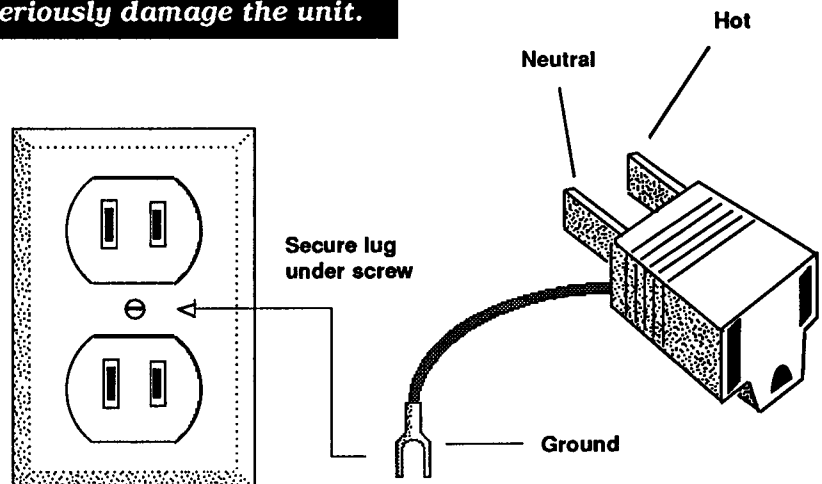
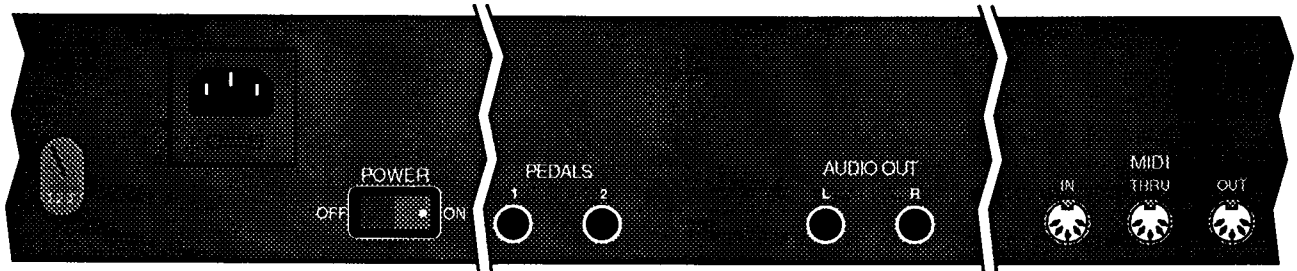


Figure 2-1 Grounding AC Adapter  
(Use ONLY on Ungrounded Outlets)

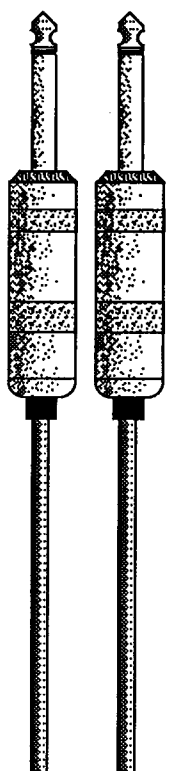




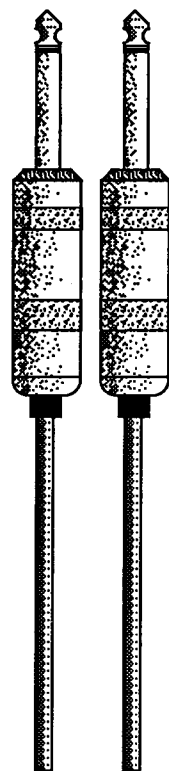
Voltage  
Selector  
Switch



To 110 Volt AC  
grounded outlet



Sustain    Sostenuto  
Foot pedals  
(supplied)



L    R  
To sound  
system inputs



MIDI  
cable

To 1000 Expander  
or other MIDI-  
controlled unit  
(optional - see  
Section 3.3)

Figure 2-2 Connecting The Kurzweil K1000 Keyboard

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# Section II

## 2.2 Audio Outputs

The K1000 Keyboard is actually a specialized computer and, like other types of computers, it is susceptible to AC power surges (these may cause it to “freeze up” unexpectedly or, in the worst case, could damage the internal circuitry). For this reason, you should make sure that the unit is connected to a source of clean AC power of the proper voltage and line frequency.

**Note** —You can protect your K1000 from power surges by purchasing and using a “surge suppressor” outlet. (Again, check with your local hardware store or a computer dealer.)

To connect the K1000 to your audio system, you’ll need to know two things:

**Input sensitivity** — Identify the *least sensitive* input (that is, the input which “expects” the highest signal level).

**Input connectors** — Determine what type of connector that input requires.

The K1000 Keyboard delivers a line-level (-10 dBV, or 0.3 Volts) stereo signal, and its output connectors are standard 1/4 - inch monophonic phone jacks. Most sound systems are designed to handle this type of output directly. If yours is not, then you may need to use special cables or adapters.

This section offers guidelines for connecting to various types of systems. Look for more information in the manual for your sound system.

### 2.2.1 Instrument Amplifiers

Instrument amplifiers are generally monophonic, and they usually feature inputs that are designed to connect directly to a guitar or other low-level source. The input connector is invariably a monophonic 1/4 - inch phone jack.

You can connect the K1000 directly to an instrument amplifier using a standard guitar cord, as shown in Figure 2-3(a). If your amplifier has dual inputs, you may connect each output to one of the inputs.

If your amplifier has only one input, use a guitar cord to connect one K1000 output to it (it doesn’t matter which), then use Master Parameter 006 to set your instrument for mono output (see Section 4.5). **Don’t try to use a “Y” adapter to connect both outputs to a single input.** We do not recommend using coiled cords, which are less reliable and noisier than straight cords.

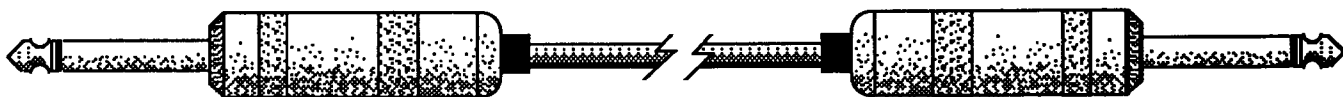


Figure 2-3(a) Standard Guitar Cable (Phone to Phone)

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Be aware that, since the K1000 puts out a stronger signal than a guitar does, you may have to lower the VOLUME setting to avoid distortion.

## 2.2.2 Stereo Systems

Home stereos normally have several inputs designed to handle a variety of sound sources. The K1000 is compatible with so-called "line level" home stereo inputs; these will be labeled LINE, AUX, TAPE, TUNER or CD IN. **Don't use the PHONO inputs.**

The connector required will usually be an RCA-type male (sometimes called a "pin jack"). While you can buy adapters that will fit on the end of a normal guitar cord and mate with an RCA input, we don't recommend that you use them because they are not very reliable. You'll get much better results if you use 1/4 - inch phone to RCA cables, as shown in Figure 2-3(b).

## 2.2.3 Mixing Consoles

Mixing consoles come in many shapes and sizes, with correspondingly varied capabilities and requirements. With consoles, it's particularly important to read and follow the recommendations given in the equipment's instruction manual.

Small semi-professional and DJ-type mixers usually incorporate LINE inputs with either 1/4 - inch phone or RCA-type connectors (on DJ mixers, the line-level inputs may be labeled TAPE). The K1000 is entirely compatible with such inputs; use whichever of the cables in Figure 2-3 is appropriate.

Some larger home recording consoles offer a choice of using either LINE or MIC inputs for line-level sources. (You can identify such consoles by looking for a MIC pad switch and/or trim control on the input strip.) The LINE input connectors may be either 1/4 -

inch phone or RCA; with consoles of this class, the MIC connectors are normally three-pin XLR-type.

In this case, you can easily connect the K1000 to the LINE inputs — but sometimes there are distinct advantages to using MIC inputs. To do so, you'll need either a pair of adapters or cables with 1/4 - inch phone connectors on one end and XLR-type on the other (or you might use either a direct box or impedance-matching transformers; see Appendix I). If your Kurzweil dealer doesn't stock the cables you need, try a home electronics store. You may not be able to find adapters or cables like this off-the-shelf, however, so you might have to get out the soldering iron. Refer to Appendix I of this manual for information on making your own cables.

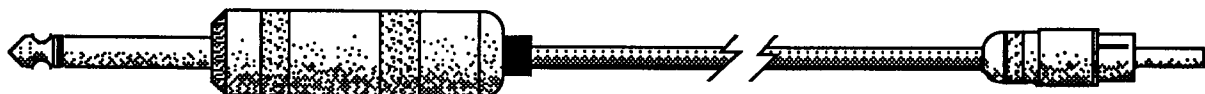


Figure 2-3(b) Adapter Cable (Phone to RCA)

# Section III

## OPERATION

### 3.1 Getting Started

Before you power up your K1000, set its Volume slider to minimum (fully to the left). Turn on the K1000 and wait for the display to come up, then turn on your sound system.

When you first turn on the K1000, the front-panel display should look similar to Figure 3-1. This is a typical PLAY mode display, showing the current MIDI mode and channel, the currently-selected Program Memory Bank (see Section 3.2), the Program number and the Program name.

If your display reads "No PRG Assigned," press either of the PROGRAM buttons to select a Program other than number 000.

#### 3.1.1 Setting the Output Level

The VOLUME slider allows you to match the level of the K1000 Keyboard's audio outputs to the input sensitivity of your sound system. In general, you should use the highest setting that does not overload the sound system input; this will result in the best audio quality with the least noise.

**Instrument amplifiers** — Most instrument amplifiers are designed to work with very low-level sources, and the K1000 can easily overload them. To avoid distortion, you'll have to use a fairly low VOLUME setting.

Starting with the K1000's VOLUME slider at minimum, set the amplifier's volume control to about 9 o'clock (a setting of 2 or 3). Then, while

playing the keyboard, slowly bring up the K1000 volume until the sound just begins to distort. (If it gets too loud, back off on the amp's volume control.) Now, reduce the K1000 volume just until the sound is clear again, and use the amp's volume control to adjust for a comfortable listening level.

**Home stereos** — With home stereos, you normally should be able to leave the K1000's volume at maximum and set the stereo's volume control to taste. If you get distortion, try backing off on the VOLUME slider until it disappears. *Use caution; more very-high and very-low frequency energy may be created by the K1000 than by the typical recorded program. These signals can damage your loudspeakers unless you keep the volume at a modest level.*

**Mixing consoles** — If you are using a LINE input, set the VOLUME slider to maximum and back it off only if distortion appears at normal fader settings.

With MIC inputs, engage the pad (if there is one). Set the K1000 VOLUME to maximum, and use the console input trim control to adjust for nominal OVU readings when the console faders are set to the unity gain position (usually marked '0' or highlighted on the panel markings). If you can't get enough level, try switching the pad out.

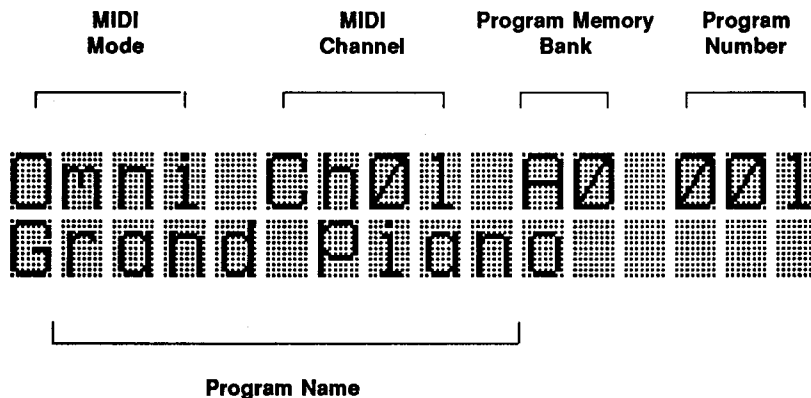


Figure 3-1 PLAY Mode Display

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## 3.2 Exploring Programs

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### If you don't get sound:

- Make sure that everything is turned on (don't laugh — even the most experienced pros get caught by this one!).
- Use MIDISCOPE to make sure the keyboard is sending information to the sound engine (see Section 3.6).
- Check your audio connections against Figure 2-2.
- If you're using a mixing console, be sure that the correct channels are enabled and assigned, the masters (and submasters, if applicable) are up, and the monitor is correctly assigned and turned up.
- Be sure that you haven't selected Program 000; it's not a sound.
- Turn the K1000 off, then on.
- Try replacing your audio and/or MIDI cables.
- Perform a Soft Reset (see Section 3.7.1).
- Perform a Hard Reset (see Section 3.7.2).
- Run the 1000's self-diagnostics (see Section 8.2.2 in the Programming Reference).
- Call your Kurzweil dealer.

- Call Kurzweil Music Systems at (617) 893-5900 and ask for Customer Service.

Now that you've got everything working, you're ready to explore the world of great sounds that your K1000 Keyboard offers!

Use the PROGRAM buttons to change Programs: the UP button increases the Program number, and the DOWN button decreases it. To move rapidly through several Programs, press and hold one of the buttons. After a brief delay, the K1000 will scroll through the Program list.

You will notice that the Program list jumps in the middle, from 063 to 128. Memory locations 064 - 127 are reserved for user-created Programs, and they don't appear in the list until you have stored something in them. This avoids your having to scroll through empty memory locations.

If you press both PROGRAM buttons at the same time, the K1000 will jump to the beginning of the next memory block (the beginning locations are numbers 000, 001, 064 if something is stored there, and 128). The "dual press" technique is used in many of the K1000's functions to allow you to quickly bypass long lists or get to frequently-used elements.

To provide the greatest ease of operation in a variety of practical situations, the K1000 actually offers three different ways to select Programs. The simplest and most direct is the one described above — using the PROGRAM buttons to scroll through the Program list. This method is best suited to songwriting, arranging and preproduction, since it fosters experimentation with the available timbres.

In live performance, however, it is usually necessary to select Programs much more rapidly and predictably. The K1000 allows you to do this in either of two ways: you can use the ENTER button in conjunction with the numeric keys to access Programs by number, or you can store selected Programs into, and recall them from, a set of three Program Memory Banks.

---

### 3.2.1 Selecting Programs By Number

If you know the memory location of the Program that you wish to select, you can call it up directly with the following procedure.

Press ENTER. The K1000 display will read:

Program #:

Using the numeric buttons, enter the memory location num-

---

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# Section III

ber of the Program that you want. (You don't have to enter leading zeros; for example, to get to Program 023, just press '2' and '3.')

The display will show the numbers as you enter them.

Press ENTER again, and the K1000 will revert to the standard PLAY mode display, with the Program that you selected ready to play.

## 3.2.2 Program Memory Banks

For even faster Program access, the K1000 incorporates a set of three Program Memory Banks. These banks, labeled A, B and C, each can hold any ten Programs that you designate.

To place the currently selected Program in a Memory Bank location, press STORE. The K1000 display will read:

Select A, B, or C:  
Grand Piano

(The Program name will be that of the currently selected Program.) Press the A, B or C button to select a Memory Bank. The display will then ask for the memory location within that Bank:

Select 0 thru 9:  
Grand Piano

Press one of the numeric buttons to select a memory loca-

tion. The current Program will be stored at that location in the selected Memory Bank, replacing any other Program that may already be stored there, and the K1000 will revert to the normal Play Mode display.

To recall a Program from one of the Program Memory Banks, simply press the A, B or C button to select a Bank, then press one of the numeric buttons to select a location within that Bank. The designated Memory Bank will remain selected until you change it (even if you go into Edit Mode or shut the K1000 off). To select a different location within that Bank, just press the corresponding numeric button.

If you change Programs using the PROGRAM or ENTER buttons, the Memory Bank letter in the display will be followed by a hyphen. Whenever you use a numeric button to select a Program from the Bank, the hyphen will change to the number of the location that you select.

The Program Memory Banks are particularly useful in live performance. For example, you can set up a Memory Bank to hold all of the Programs that you need in a given song set, then call them up immediately by simply pressing a numeric button. Alternately, you might want to store "ballad" Programs in Bank A, "uptempo" Programs in Bank B and so on.

## 3.3 MIDI Operation

MIDI (Musical Instrument Digital Interface) is an international standard for data communication between musical instruments.

One of MIDI's most basic features is that it allows one instrument to be played remotely from the keyboard of another (termed the "master" keyboard), or from a computer sequencer. MIDI also permits transmission of a wide variety of messages and commands such as program changes, pitch bender and aftertouch information, as well as "system exclusive" messages that can be unique to a particular brand of synthesizer.

MIDI-equipped instruments may be chained together so that a single master controller can play several synthesizers at once. In order to allow independent control of each unit in a multi-instrument system, MIDI provides for allocating data across a total of 16 "channels" in any combination. Just like a television, a MIDI synthesizer can be set to receive information on a single channel (normally termed the instrument's "basic channel") while ignoring all other channels.

The K1000 Keyboard features a comprehensive and flexible MIDI implementation that offers substantial advantages in live performance or studio applications.

### 3.3.1 Typical MIDI Connections

MIDI music systems range from very simple to extremely complex, depending upon the capabilities of the instruments and the demands of the application. Regardless of complexity, however, every MIDI system may be understood in terms of very simple models.

In live performance applications, many keyboardists use MIDI to control banks of synthesizers and outboard "expander" modules (such as the 1000 Series Expanders), broadening their repertoire of available timbres and permitting doubling to "fatten" the sound.

Figure 3-2(a) shows a simple MIDI setup of this type. The K1000 MIDI OUT port is connected to the MIDI IN of a 1000 Series Expander, and the

Expander's MIDI THRU port is connected to the MIDI IN of a TX-7 module. MIDI control signals from the K1000 flow to the 1000 Expander and are echoed from its THRU port to the TX-7. This setup permits a variety of doubling and soloing combinations through control of MIDI channel assignments and the settings of individual instruments.

When composing or recording, many musicians use a MIDI sequencer to record and play back individual musical "tracks" (much like a multitrack tape recorder), controlling one or more synthesizers over MIDI.

A simple MIDI sequencing setup based on the K1000 is shown in Figure 3-2(b). The K1000 MIDI OUT port is connected to the MIDI IN port of the sequencer, and the sequencer's MIDI OUT port returns to the K1000 MIDI

IN. The K1000 MIDI THRU port is routed to a 1000 PX Professional Expander.

In this case, MIDI control signals from the K1000 flow to the sequencer input and are recorded in computer memory. During playback, the MIDI data stream passes from the sequencer back to the K1000 MIDI IN and is echoed to the 1000 Expander from the K1000 MIDI Thru port. Individual recorded tracks are assigned separate channel numbers, and the instruments are set to respond accordingly. Because both the K1000 and the 1000 PX are 24-note polyphonic multitimbral instruments, this seemingly simple setup is capable of quite complex textures (up to 48 stacked notes utilizing up to 32 distinct timbres).

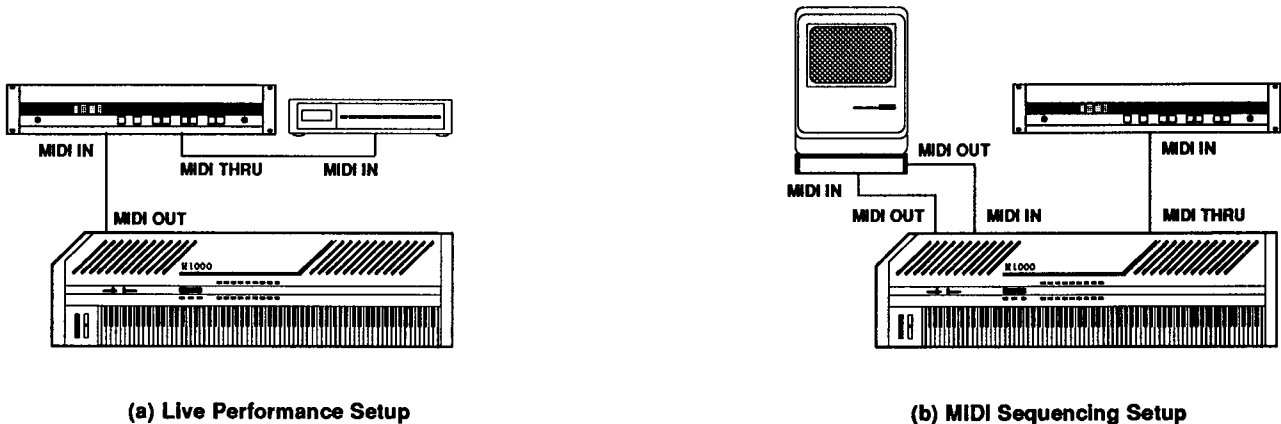


Figure 3-2 Typical MIDI Connections

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# Section III

## 3.4 MIDI Modes

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The MIDI specification includes a set of "Modes" which determine how an instrument will respond to incoming MIDI data. Normally, MIDI-equipped synthesizers are designed so that they can be switched among three or more different standard MIDI Modes. Each Mode has separate uses in multi-synthesizer and MIDI sequencer environments.

The K1000 features three different MIDI Modes: Omni, Poly and Mult. In all three MIDI modes, the K1000 operates *polyphonically* and *multitimbrally* (that is, it is capable of playing more than one note and more than one sound at a time). The polyphonic limit of the K1000 is 24 simultaneous notes.

*MIDI Modes are selected by pressing the MODE switch in PLAY mode. Regardless of the Mode selected, the K1000 will always transmit note data on the currently-displayed MIDI channel.*

### 3.4.1 Omni

---

When the K1000 is set to Omni, it will respond to all incoming MIDI data regardless of channel assignments, and will play everything using the currently-displayed voice Program.

Omni is the simplest of the K1000's MIDI Modes. It is most useful in systems that are limited to the K1000 and a single

master keyboard, since it eliminates the need to worry about MIDI channels. In multi-instrument systems, setting the K1000 to Omni may not be appropriate, since it will cause it to double *all* the instruments from which it receives MIDI data.

### 3.4.2 Poly

---

When set to Poly, the K1000 will recognize only MIDI data that it receives on the currently selected channel, which in Poly mode is the basic channel. If you change the current channel with a CHANNEL button, the basic channel changes accordingly.

Poly is the most useful MIDI Mode for multi-instrument systems in live performance. It allows independent control of the K1000, with full 24-note polyphony available to the currently-selected Program. When doing multi-track playback from a MIDI sequencer, you might also choose to use your K1000 in Poly mode if it is playing only one part.

### 3.4.3 Mult

---

In Mult mode, the K1000 is capable of responding to all 16 MIDI channels in any combination, *with a different Program assigned to each*. In other words, the K1000 can play channel 1 notes using Grand Piano, channel 2 notes using Acoustic Bass, and channel 5

notes using Clarinet — all at the same time!

Clearly, Mult mode is extremely useful for sequenced multitrack playback (Figure 3-2(b)), particularly if you have few synthesizers but want to create complex textures with several instrument sounds.

When the K1000 is set to Mult mode, the CHANNEL buttons scroll among the 16 MIDI channels. While only one channel may be displayed at a time, the others remain active and retain their Program assignments. The K1000 will transmit note data only on the currently-displayed channel, however.

The PROGRAM buttons are used to select the Program for the channel that is currently displayed. By scrolling sequentially through the channels and assigning a different Program to each, you can very quickly set up a complex multiple-instrument ensemble. No other synthesizer currently available gives this much flexibility this affordably.

While the concept of a "basic channel" has little meaning in Mult mode, the K1000 nevertheless remembers its basic channel assignment if you switch to Poly. In the Mult mode display, the basic channel is indicated by an asterisk next to the channel number, as shown in Figure 3-3(a).



### 3.5 Disabling & Deassigning Channels

There will be times when you will find it desirable to turn off a particular K1000 channel or group of channels. You may, for instance, wish to silence one or more channels when playing back a recorded sequence.

The K1000 offers two methods for doing this: a channel may be *disabled* or it may be *deassigned*. Each method has particular advantages.

**Disabling Channels** — To disable a channel, press one of the CHANNEL buttons until the channel that you want to disable appears in the display, then press the VALUE NO button. The display should look something like Figure 3-3(b).

A disabled channel will ignore all MIDI data including note events, program changes, and controller events. It retains its current Program assignment, however, and can be re-enabled simply by pressing the VALUE YES button when the channel is displayed.

The channel disable function is very useful when you are slaving several MIDI devices to a single controller. You can easily instruct the K1000 to ignore information on any channel simply by shutting the channel off.

*Note that this function works only in Mult mode, and that you cannot disable the K1000's basic channel.*

**Deassigning Channels** — To deassign a channel, first select the channel using the CHANNEL buttons, then press the two PROGRAM buttons at the same time until the assigned Program is number 000 (or use the ENTER button procedure). The display should look like Figure 3-3(c).

A deassigned channel simply plays a "null" Program. It still responds to MIDI note and controller events, but it won't be heard, since Program 000 is not a sound. To reassign the chan-

nel, you must select a different Program for it.

The deassign function is useful when you wish to automate the turning on and off of channels over MIDI. (You might, for example, want to do this to control doublings in live performance.) To deassign a channel automatically, send it a MIDI program-change message that selects Program 000. (You'll have to use the Program Map feature of the K1000 for this, since MIDI Program Change numbers range from 1-128. See the *1000 Series Programming Reference* for further information on MIDI Program Maps.) To reassign it at the appropriate time, send it another program-change message to select the Program that you want it to play.

*The deassign function works in all MIDI modes, and does not affect the K1000's transmission of note data.*

(a) Basic Channel

(b) Disabled Channel

(c) Deassigned Channel

Figure 3-3 Mult Mode Displays

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# Section III

## 3.6 MIDISCOPE

The K1000 incorporates a convenient function, called MIDISCOPE, which allows you to see and analyze incoming MIDI events. To run MIDISCOPE from PLAY mode, press the PLAY / EDIT, CHANNEL UP and CHANNEL DOWN buttons simultaneously. The display will read:

MIDI Scope  
any button quits

This message will remain until the K1000 receives a MIDI event

from the keyboard, or at its MIDI IN port. As soon as a MIDI event is received, the display will look something like Figure 3-4.

The upper line of the display shows the time in milliseconds since the last MIDI event, and the type of MIDI event that has been received. The lower line displays the MIDI channel (minus 1; e.g. 4 in the display means MIDI channel 5) over which the current event was transmitted, along with specific

information about the event (in the case of note events, the key number with attack and release velocity values; for controller events, the MIDI control number and value).

Pressing any front-panel button will cause the K1000 to exit MIDISCOPE and revert to PLAY mode.

Note that you will not hear any sound from your K1000 while in MIDISCOPE. This is normal.

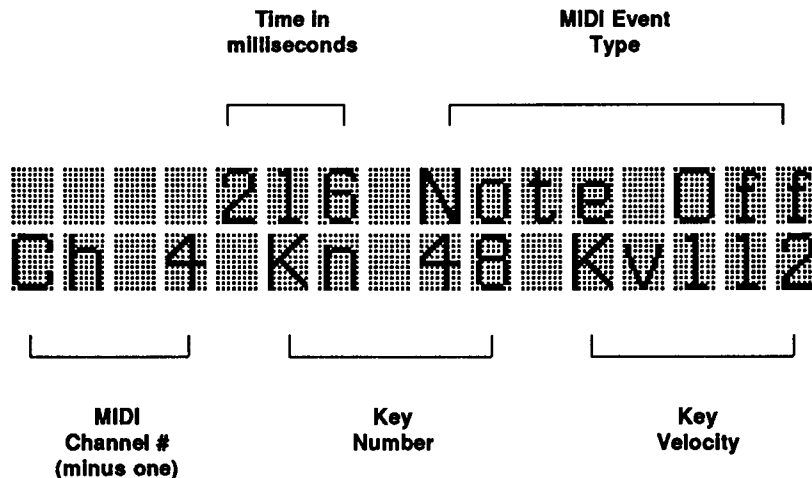


Figure 3-4 Typical MIDISCOPE Display

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## 3.7 Resetting The K1000

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On rare occasions, you may find that you will need to reset your K1000 Keyboard to get back in action.

A momentary power surge, for example, might "freeze up" the unit, making it unable to respond either to MIDI messages or to any of the front-panel buttons. Likewise, other unforeseen irregularities — such as SCR dimmer noise on the power line or electrical noise on the earth ground connection — may confuse the K1000's digital circuitry, resulting in unexpected behavior. The only solution to such problems may be to reset the unit.

The K1000 allows two types of resets: Soft and Hard.

### 3.7.1 Soft Reset

---

A Soft Reset is a less extreme measure than a Hard Reset, so you should try it first. To perform a Soft Reset, press the VALUE NO, VALUE YES and PLAY / EDIT buttons simultaneously. The K1000 should return to PLAY mode.

A Soft Reset re-initializes the K1000, but it preserves all Program and MIDI mode settings, and also leaves RAM-based user Programs intact.

### 3.7.2 Hard Reset

---

The Hard Reset is a last-resort measure, since it not only re-initializes the K1000 but also resets all user-defined settings.

In a Hard Reset, all RAM objects are deleted, and all Parameters of the K1000 are returned to factory settings.

To perform a Hard Reset, first turn the K1000 off. Then, press and hold the A and B buttons simultaneously. While holding them down, turn the K1000 back on. The K1000 will revert to PLAY mode.

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# Section IV

## BASIC EDITING

### 4.1 Introduction

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When you edit your K1000 Keyboard's Programs, you make the instrument truly your own by tailoring its response to your playing style and its sound qualities to your musical taste.

This section covers the basics of editing the K1000, providing the necessary foundation for personalizing your instrument. Once you are familiar with this material, you'll be ready to move on to the *1000 Series Programming Reference* and further explore the world that lies "behind the panel" of your instrument.

#### 4.1.1 Voice Structure In The 1000 Series

---

Figure 4-1 illustrates the hierarchical relationships among the major programming features of the K1000.

Each voice Program originates in a digitally coded waveform, called a **Soundfile**. The Soundfile may be a sampled acoustical sound (such as Grand Piano, Trumpet, Clarinet, and so on) or a digital representation of a basic electronic waveform (a Sine, Sawtooth or Square Wave, for example). The

Soundfile is the primary determinant of the timbre, or sound quality, of the Program.

Soundfiles are assembled into a Program in **Layers** (one Soundfile per Layer). Within each Layer, the assigned Soundfile is treated to add unique characteristics, or to fine-tune its timbre and playing response. Layer treatments consist of **Effects\*** — which may be either **Compiled** or **Modular** — as well as a number of standard **Layer Parameters**.

A Program may have from one to four distinct, individually-programmed Layers, each of which may be defined to span any portion of the total range of the keyboard. All of the Layers of a given Program are subjected globally to a set of **Program Parameters**, which determine playing characteristics (and MIDI Program Change mapping, if any) for the Program as a whole.

Finally, every Program in the K1000's memory is subject to a set of **Master Parameters** which determine the overall playing characteristics of the instrument.

#### 4.1.2 The Editing Process

---

Editing the K1000 is a process of moving among Menus, selecting Parameters within each Menu, and manipulating the Values of those Parameters.

**Parameters** — A Parameter is an individual programmable function of the K1000 (for example, Master Tuning or Pan). Parameters are selected using the PARAMETER UP and DOWN buttons while in EDIT Mode. By pressing both PARAMETER buttons at once, you can skip to frequently-used Parameters without having to scroll through a long list.

**Values** — Each Parameter has a Value which determines the way in which the K1000 executes the corresponding function. Most Parameter Values are numerical and, where possible, scaled to musically or technically rational units (tuning Values are in semitones, quartertones or cents, for instance). Figure 4-2 is a list of numerical Value units used by the K1000 Keyboard, along with their abbreviations as they appear in the K1000 display.

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\* Compiled Effects are preset sound-modifying programs that have been developed by Kurzweil's engineers to simulate various types of standard signal processing, such as Tremolo, Chorus, and Leslie effects. Modular Effects are sound-modifying programs that you design yourself, much as you would with a modular synthesizer. Editing of Modular Effects is covered in the *1000 Series Programming Reference*.

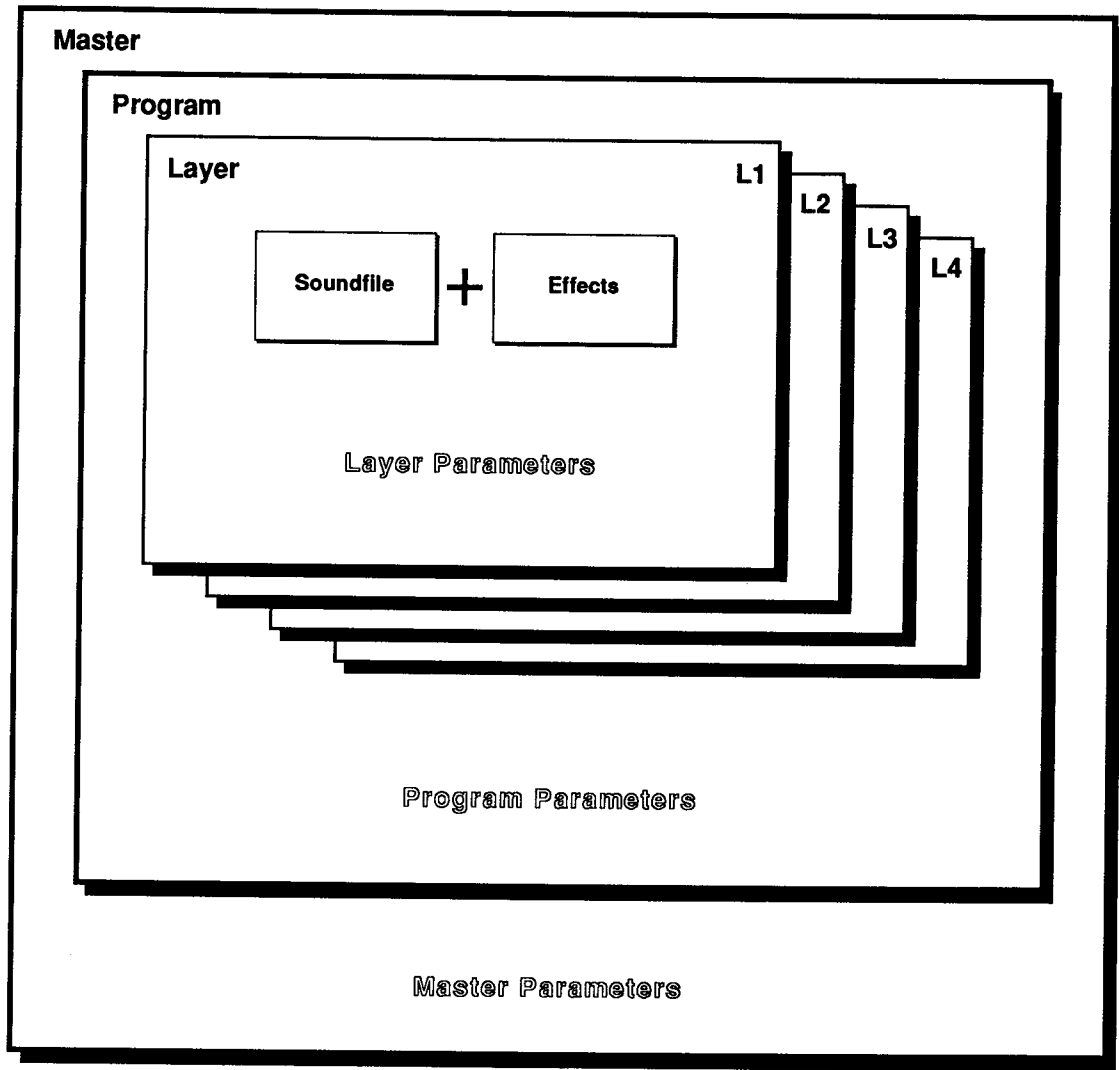


Figure 4-1 K1000 Programming Hierarchy

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In some cases, a Value may be expressed as a word (the name of a Soundfile, for instance), or a logical yes/no value (usually a response to a question prompt from the K1000). Values are assigned by pressing the VALUE YES and NO buttons; for numerical Values, YES increases the Value and NO decreases it.

**Menus** — To make the editing process as convenient and efficient as possible, Parameters with similar or related functions are organized into numbered Menus. The individual Parameters within each Menu are also numbered, and their numbering relates to the Menu number. For example, the sixth Parameter of the Master Menu (which

is Menu number 000) is number 006. Similarly, the sixth Parameter of the Layer Menu (Menu number 200) is number 206.

**Navigating** — You might visualize the K1000's Parameters as being organized by number into a dictionary. The MENU buttons move you from one chapter to another, while the PARAMETER buttons allow you to select specific entries.

You can jump from one Menu to another at any time. If you return to a Menu, the Parameter that you selected just before you left it will reappear in the display (as long as you have stayed in Edit Mode).

**Instant Feedback** — The K1000 remains fully functional and responsive to your control while in Edit Mode. Each change in the Value of a Parameter is quickly entered, so you can hear the effect of your edits by playing the keyboard as you change Values (provided, of course, that the Parameter you modify is assigned to affect the current Program).

None of your changes will be permanent, however, until you save the Program into RAM. Furthermore, it's impossible to erase or replace the ROM-based factory Programs. So, while you can hear the effects of all your edits, you needn't worry about being able to get the original Program back.

Feel free to experiment. When you have the sound you want, you can save it for future use.

**Confirmations** — Whenever you elect to make an edit that can't be undone (for example, deleting a Program), the K1000 will first ask you "Are you sure?" This gives you a last chance to change your mind; answering YES will cause the edit to be executed. You may turn off the confirmation function, once you become proficient at editing, using Master Parameter 017. Refer to the *1000 Series Programming Reference* for further information.

Unit	Display
Semitone	ST
Quartertone (1/2 ST)	QT
Cent (1/100 ST)	ct
Hertz (cycles per second)	Hz
Percent	%
Decibel	dB
Second	s
Degree	deg
MIDI Velocity	vel

Figure 4-2 Numerical Value Units

## 4.2 Creating Layers & Splits

### 4.1.3 Entering Edit Mode

To switch from PLAY to EDIT Mode, first select a Program to edit, then press the PLAY / EDIT button. The display should resemble Figure 4-3.

You are now in the Layer Menu. All of the Parameters in this Menu affect the individual Layers of a Program. The upper line of the display gives the current Layer number, the Menu name and the Parameter number. The lower line indicates the name of the current Parameter (Soundfile, in this example) and information associated with that Parameter — in this case, the name of the Soundfile assigned to this Layer.

*The only time that you will not see this display upon entering EDIT mode is when you have selected Program 000, a null Program. In this case, only the Master Menu will be available.*

By pressing the LAYER button, you can cycle through the Layers of the current Program and identify the Soundfile that is assigned to each one. If the Layer button appears to have no effect, then the Program has only one visible Layer (some Programs contain invisible Layers; see page 20).

The K1000's software has been designed to jump directly to Parameter 206 of the Layer menu because one of the most common (and most powerful) edits that you can make to a Program is to change its assigned Soundfile(s). You can try this now with the current Program: just press the VALUE UP or DOWN button to cycle through all of the Soundfiles. By playing the keyboard as you change Soundfiles, you can hear the effect of your changes. Using this method, you can quickly and easily create new voices.

The techniques of layering voices and creating keyboard splits are among the most powerful and widely-used tools in the synthesist's repertoire. The K1000 accommodates both of these techniques in a few simple editing commands, all of which are within the Layer Menu.

### 4.2.1 Layered Programs

Layered voices are Programs which play two or more sounds each time a key is pressed.

For example, one very popular layering combination is piano and strings: when the keyboard is played, the instrument produces the sound of a piano doubled by a string section. The effect allows a single accompanist to simulate a large ensemble. This combination is included as a factory preset on the K1000; it's Program 20, "Piano & Slow Strings."

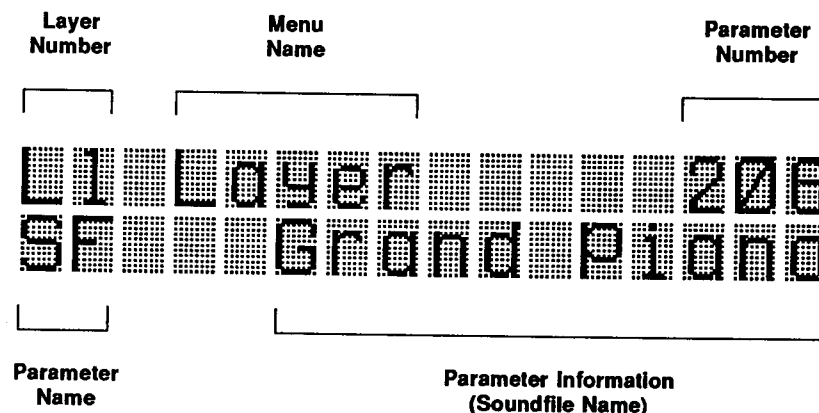


Figure 4-3 Edit Mode Display

# Section IV

The K1000's software provides two basic ways to create your own layered Programs. First, you may Import a Layer, along with all of its Effects and playing parameters, from another existing Program into the one that you are editing. (This procedure allows you to use some of the more complex voice setups that come with your K1000 without getting deeply into Modular Effect editing.) Second, you can create a new Layer from scratch.

**Getting Started** — To create a layered Program, begin in PLAY mode and select a base Program upon which to build. Then switch to EDIT mode and scroll through the Program's Layers with the LAYER button, so that you know how many Layers are available. (It's easiest to start with a Program having only one Layer, so that you have room to build on.)

**Importing a Layer** — Once you are sure that there is space to add another Layer, press the PARAMETER DOWN button to get to Parameter 203 of the Edit Menu. The screen display will read:

```
L1 Layer      203
Import Layer?
```

Answer YES to the prompt, and the display will resemble Figure 4-4.

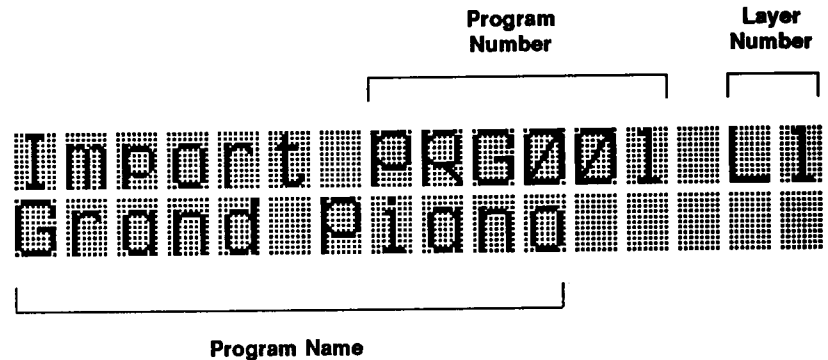


Figure 4-4 Importing a Layer

The K1000 has jumped to the first Layer of Program 001, the default for importing. From here, you can use the PROGRAM and LAYER buttons to scroll through the available Programs and Layers, trying out different Layers to import. While doing so, you can play the keyboard to hear the effect of your changes.

When you find a layered combination that you like, press YES to confirm your selection. The selected Layer will be added to your current Program, and the display will confirm the operation by showing:

```
Layer n
Imported
```

('n' will be the number of the new Layer). You've just created

a layered Program. If you want to save it, turn to Section 4.4.2, *Saving Programs*. If you still have room, you may also import additional Layers (up to a maximum of four). If you have used all available Layers and you try to import another, the K1000 will tell you that no more Layers are available.

*Some Compiled Effects require one or two additional 'invisible' Layers in order to achieve their effect. These added Layers don't show up when you scroll through the Program with the LAYER button. In some cases, then, you may not have room for another Layer in a Program, even though it may look as though you should. This can occur either because the Program has more Layers than are shown in the display, or be-*



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cause the Layer that you wish to import has invisible Layers associated with it. You may be able to circumvent this restriction by selecting different Effects (see Section 4.3).

**Creating a New Layer** — Adding a new Layer will give you a mostly empty, “fresh” Layer to work with.

Use the PARAMETER buttons to select Parameter 201 of the Edit Menu. The display will read:

```
L1 Layer      201
New Layer?
```

Answer YES, and the K1000 will add a new Layer to the current Program. The display will briefly show:

```
Layer n created
```

(‘n’ will be the number of the new Layer). The default Soundfile for the new Layer will be Grand Piano, and the Effects Level will be set to Compiled with no Effect selected.

You may now use Parameter 206 to try out various Soundfiles, playing the keyboard to hear the results in each case. Once you have selected a Soundfile and are ready to add Effects to the new Layer, turn to Section 4.3 of this manual. To save the Program, consult Section 4.4.2, Saving Programs.

## 4.2.2 Split Programs

A Split Program is one in which different voices are assigned to different ranges of the keyboard.

For example, in live performance, you might want to be able to play acoustic bass with your left hand and vibes with your right. This would require a keyboard split in which the lower keys are assigned to a bass sound and the upper keys to vibes. The K1000’s design easily accommodates such splits.

To create a keyboard split, first build a layered Program incorporating the voices that you want to use. Then, use the PARAMETER buttons to select Parameter 209. The display will read:

```
L1 Layer      209
Set MIDI Range?
```

Parameter 209 allows you to assign each Layer in a Program to a specific range of keys. Use the LAYER button to select a Layer for editing, then press YES.

The display will prompt you to “Strike 1st key.” Press the key on the keyboard that corresponds to one extreme of the range that you want this Layer

to cover. The display will ask you to “Strike 2nd key.” Press the key corresponding to the other extreme of the desired range.

The display will return to the “Set MIDI Range?” prompt. The range of the current Layer now includes the lowest and highest keys that you struck, plus all the notes in between. (Notice that you can strike the keys in any order — lowest first, or highest first.)

You can now select another Layer with the LAYER button and assign it to the range you desire. The ranges of successive Layers can even overlap, if you wish.

**Fine Tuning** — You can check and adjust the MIDI key range for any Layer using Parameters 210 (“Low Note”) and 211 (“High Note”). Each displays the corresponding extreme of the current Layer’s key range as a musical note Value (for example, C4 for middle C). Use the LAYER button to scroll through the Layers in your Program, and the VALUE buttons to adjust the range if necessary. The VALUE buttons step in semitone increments; pressing both at the same time will step upward by octaves. In either case, you can press and hold to scroll rapidly through note Values.

# Section IV

## 4.3 Using Compiled Effects

Effects are sound-modifying processes that add richness and character to your Programs.

In professional performance and recording, external effects units are almost always used to enhance the sound of electronic instruments. These "outboard" signal processors are powerful tools for making a track more distinctive and increasing its impact. They can also represent a substantial investment for the working musician.

The K1000 Keyboard incorporates a set of built-in Compiled Effects that emulate popular outboard processors. Designed by Kurzweil engineers to give you quick access to commonly-used synth effects, these Effects enable you to give your Programs the variety and complexity that contemporary music requires. Most importantly, you can apply different types of Effects separately to each Layer of your Programs — so you can achieve results that are much more complicated and subtle than those of external effects units.

### 4.3.1 Selecting Effects

In order to use Compiled Effects, you must make certain that the Effects Edit Level of the Layer that you're working on is set to "Compiled."

In the Layer Menu, select Parameter 215, "Effects." If the current Effects Level is Modular, the display will read:

```
L1 Layer      215
FX           Modular
```

In this case, the current Layer already employs Modular Effects. These Effects contribute to its sound quality. Remember that a single Layer may use only one type of Effect: if you change to Compiled Effects, you'll lose whatever contribution the Modular Effects provide. This may be fine — the change may not be extreme, and you might discover a new sound in the process. Just be aware that the results may be unexpected.

To change to Compiled Effects, press the appropriate PARAME-

TER button to select Parameter 216 and answer YES to the "Change Effects Edit Level?" prompt. If Master Parameter 017 ("Confirmation") is set to ON, the K1000 will ask if you are sure. Answer YES, and the K1000 will respond that the Effects Edit Level is changed to Compiled. You can now return to Parameter 215 and select an Effect.

When the current Effects Edit Level is Compiled, the display at Parameter 215 will resemble Figure 4-5. The upper line of the display shows the current Layer number, the name of the Menu (Layer) and the Parameter number (215). The lower line gives the Parameter name (FX) and the name of the currently-selected Effect. If no Effect is selected, the Effect name will be "None."

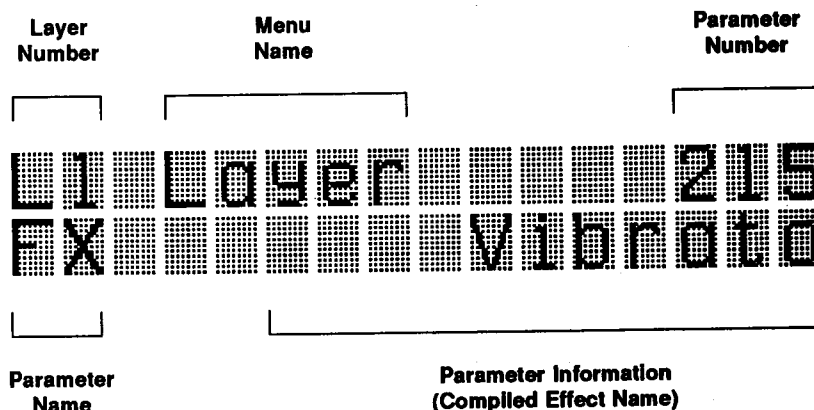


Figure 4-5 Selecting a Compiled Effect

Use the VALUE buttons to scroll through the list of available Compiled Effects. While you change Effects, you can play the keyboard to hear the results.

When you find an Effect that you like, you can do one of three things:

- Save the current Program as it is (see Section 4.4.2)
- Press LAYER to select the next Layer of your Program and add Effects to it
- Experiment with modifying the current Effect to fine-tune your sound

### 4.3.2 Modifying Effects

Once you have chosen a Compiled Effect that suits your taste, you can adjust its characteristics using the Parameters in the Effects Menu (#300).

Press one of the MENU buttons to reach Menu 300, then use the PARAMETER buttons to scroll through the available Parameters. You may change the value of any Parameter with the VALUE buttons. Play the keyboard as you change Values to hear the results.

The Effects Menu Parameter list varies depending on which Compiled Effect has been selected. Figure 4-6 summarizes the Parameters for each Compiled Effect. (See also the *1000 Series Programming Reference*.)

<b>Vibrato</b>	[301] Maximum Depth	<b>Vibrato / Chorus 2*</b>	[301] Maximum Rate
	[302] Maximum Rate		[302] Maximum Depth
	[303] Shape		[303] Shape
	[304] Depth Control		[304] Rate Control
	[305] Rate Control		[305] Depth Control
			[306] Transpose
<b>Delay Vibrato</b>	[301] Maximum Depth		[307] Detune
	[302] Maximum Rate		[308] Delay
	[303] Shape		[309] Enable
	[304] Delay		[310] Pan 1
	[305] Ramp		[311] Pan 2
	[306] Rate Control		
<b>Tremolo</b>	[301] Maximum Depth	<b>Phaser 2*</b>	[301] Maximum Rate
	[302] Maximum Rate		[302] Depth
	[303] Shape		[303] Ramp
	[304] Depth Control		[304] Shape
	[305] Rate Control		[305] Rate Control
			[306] Detune
<b>Delay Tremolo</b>	[301] Maximum Depth		[307] Delay
	[302] Maximum Rate		[308] Pan 1
	[303] Shape		[309] Pan 2
	[304] Delay		
	[305] Ramp	<b>Leslie 2*</b>	[301] Rate
	[306] Rate Control		[302] Depth
<b>Leslie</b>	[301] Rate		[303] Ramp
	[302] Depth		[304] Trigger
	[303] Ramp		[305] Pan 1
	[304] Trigger		[306] Pan 2
<b>Chorus 2*</b>	[301] Transpose	<b>Chorus 3*</b>	[301] Transpose
	[302] Detune		[302] Detune
	[303] Delay		[303] Delay
	[304] Enable		[304] Enable
	[305] Pan 1		[305] Pan 1
	[306] Pan 2		[306] Pan 2
			[307] Pan 3
<b>Tremolo 2*</b>	[301] Maximum Rate	<b>Echo 3*</b>	[301] Delay
	[302] Maximum Depth		[302] Decay
	[303] Shape		[303] Enable
	[304] Rate Control		[304] Pan 1
	[305] Depth Control		[305] Pan 2
	[306] Pan 1		[306] Pan 3
	[307] Pan 2		

\*Uses additional "invisible" Layers.

Figure 4-6 Parameters of the Effects Menu

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# Section IV

## 4.4 Naming & Saving Programs

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Once you have edited a Program to your satisfaction, you'll want to save it to a RAM location so that you can recall it when you need it.

If you've already made some basic edits and tried switching back to PLAY Mode, you know by now that the K1000 automatically gives you a chance to save an edited Program when you exit EDIT Mode. The series of dialogs that it takes you through is exactly the same as that described in Section 4.4.2, *Saving Programs*. This feature is very useful if you are editing "on the fly" and want to get back into PLAY Mode quickly, but it bypasses the step of renaming the Program.

The K1000's software also offers a more thorough and orderly way of manipulating Programs in memory, allowing you to give each Program a unique name and then save it without leaving EDIT Mode. All of the commands that are involved are found in the Program Menu (Menu 100).

### 4.4.1 Naming Programs

While the K1000 keeps track of Programs by number rather than name — and, in fact, allows you to have two or more Programs with the same name — you'll find it much easier



Figure 4-7 Naming Programs

to keep your Programs organized if you get into the habit of naming them before you save them.

To name or rename a Program, press one of the MENU buttons to get to the Program Menu (100), then press the PARAMETER UP button to select Parameter 101. In answer to the prompt "Name Program?" press the VALUE YES button.

The display should now resemble Figure 4-7. The bottom line of the display shows the current Program name. An underscore cursor appears beneath the first letter of the name, indicating that the K1000 is prepared to accept changes to that character.

The K1000's front-panel buttons take on special editing functions in the naming sequence, as shown in Figure 4-8.

**PLAY / EDIT** — Pressing the PLAY / EDIT button deletes the

character above the cursor. All characters to the right of the cursor will move one position to the left.

**LAYER** — Pressing the LAYER button inserts a space at the cursor location. The character above the cursor (and all the characters to the right of it) will move one position to the right.

**MENU UP and DOWN** — The MENU buttons serve as cursor controls. MENU UP moves the cursor to the right, while DOWN moves it to the left. Pressing both MENU buttons at once advances the cursor to the first alphanumeric character after a space (or after a non-alphanumeric character, such as '!'), allowing you to jump to the next word in the name.

**PARAMETER UP and DOWN** — The PARAMETER buttons select characters from a fixed list. UP advances forward through the list, while DOWN scrolls back-

ward. Pressing both PARAMETER buttons skips through sections of the list, as follows:

- 0 — Followed by numerals 1 through 9 and several symbols
- 'A' — Followed by upper case letters and assorted symbols
- 'a' — Followed by the rest of the alphabet in lower case
- Space — Followed by an assortment of symbols

*You may also use the data entry slider to scroll through the character list.*

When you are satisfied with the name, press the VALUE YES button to confirm it. (You can also press the VALUE NO button to revert to the original name.) You will return to the "Name Program?" prompt, and the new name will be stored. You are now ready to save the Program to RAM.

#### 4.4.2 Saving Programs

Once you have named your Program, press the PARAMETER

UP button to select Parameter 102. The K1000 will respond with the prompt, "Save Program?"

If you answer by pressing the VALUE NO button, the display will ask if you wish to revert to the original Program. Answering YES will erase your changes and restore the Program to its unedited state. Answering NO will return you to the "Save Program?" prompt.

If you answer YES to the "Save Program?" prompt, the K1000 will search its RAM for the next available location and suggest that your Program be saved there. Answering YES will cause the K1000 to save the Program in that location, and then return you to the "Save Program?" prompt. Alternatively, you may use either of the PARAMETER buttons to select a different RAM location, then press YES to save the Program there.

If you have re-edited a user-defined RAM Program, the location that the K1000 suggests

will be the same as the Program that you've edited. If you don't wish to replace the previous Program, use the PARAMETER buttons to select a different RAM location.

If all of the RAM locations are filled when you attempt to save a Program, then the Expander will suggest RAM location 064. You may use the PARAMETER buttons to choose another RAM location if you wish — but, since the memory is full, you'll have to choose between losing your new Program and replacing an existing one.

*Note that, if most of your Programs are very complex, you may run out of memory before you have used all 64 locations. The only solution for this, if you wish to save a new Program, is to replace an existing one.*

If you have ObjectMover,™ available from your Kurzweil dealer, you can avoid running out of available memory. See Section 1.2 in the Programming Reference.

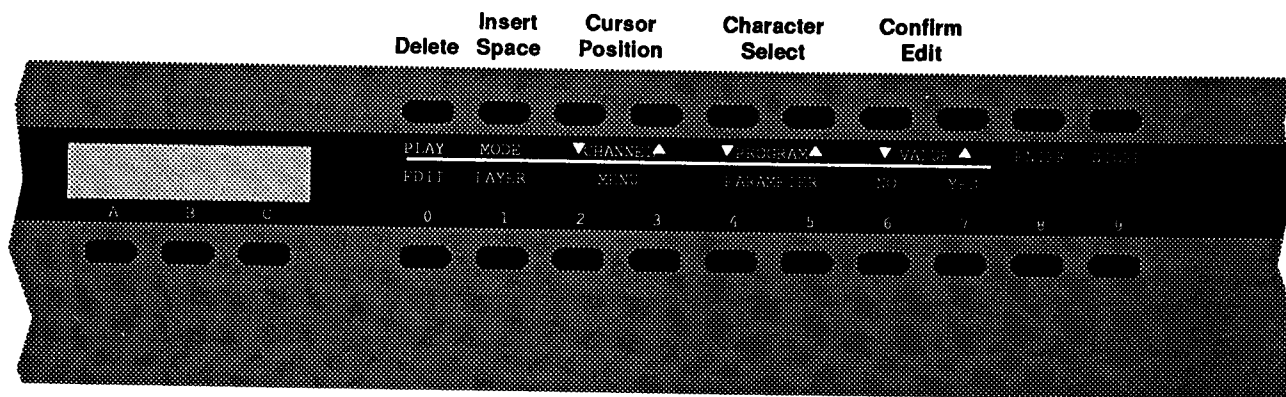


Figure 4-8 Functions of Buttons In the Naming Sequence

# Section IV

## 4.5 Monophonic Output Setting

There may be occasions when you won't be able to take advantage of the K1000's stereo output capability.

Your present sound system may have only one input, for example. Or you might be undertaking a particularly complex project with a lot of sound sources, and need to free up every channel of your mixer that you can spare. Under these circumstances, if you connect only one of the K1000's two outputs, you will lose some proportion of the sound of every stereo Program unless you set the K1000 for monophonic output.

To do so, use the MENU buttons to reach the Master Menu (number 000), then press the PARAMETER UP button to select Parameter 006, "Mono

Output." The display will look like Figure 4-9.

The upper line of the display shows the current Layer number, the Menu name (Master) and the Parameter number. On the lower line is the Parameter name and default Value, OFF.

You may use either VALUE button to toggle the Value on and off. A Value of ON will cause the K1000 to add its two audio channels and output the sum at both Output connectors, overriding all Pan settings of every Program. Note that this does not *erase* any Pan settings, however.

To restore stereo output capability, set this Parameter to OFF.

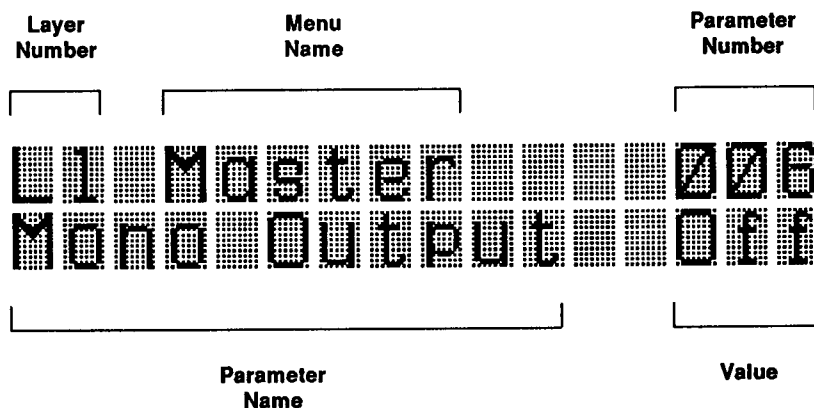


Figure 4-9 Setting the K1000 for Monophonic Output

## 4.6 Advanced Program Editing

Now that you are familiar with the basic principles of editing — accessing Parameters within Menus, changing their Values, and saving the results as a new Program — you have the skills to begin getting into advanced editing procedures.

At the advanced level, you'll start from scratch with a digital emulation of a traditional modular music synthesizer, putting together building-block elements to create Modular Effects. (The Compiled Effects that you've been working with were actually built using this same technique, and can be studied as examples of Modular Effect editing.) Advanced editing also gives you more control over the playing response of the K1000, allows you to explore alternate tuning systems, and permits extensive control over MIDI functions.

Advanced editing is covered in the *1000 Series Programming Reference*. When you're ready to explore advanced Program editing, we recommend that you set aside some time to study the *Programming Reference* carefully. You'll find that time spent at the outset to gain a clear overview of the K1000 Keyboard's software will pay off later in the efficiency of your work and the quality of your Programs.

*Have fun!*

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# Appendices

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# Section V

## APPENDIX I — INTERFACING

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### 5.1 Audio Outputs

Like most musical instruments, the K1000 Keyboard features unbalanced audio outputs. The nominal output signal level is -14 dBV, a compromise chosen to be compatible with both line-level consumer equipment and instrument amplifiers. With a maximum output signal level of +17 dBV, the K1000 has sufficient capability to drive most audio equipment to full power, but gain should be added (usually at the mix console input stage) when the unit is used in +4 dBm systems. The recommended load impedance for the K1000 outputs is 10 kohms; do not connect it to 600 ohm (actual low-Z) inputs.

Since it employs a 16-bit floating point sampling process, the K1000 is capable of very high audio quality. Care must be taken with the audio connections, particularly in recording applications, in order to preserve the inherent high fidelity of the Kurzweil samples.

#### 5.1.1 Choosing Cables

Where the sound system input accommodates phone jacks, the K1000 may be connected using guitar-type cables. Straight (rather than coiled) cords are preferred. Use only high-quality cables with good shielding and sufficient flexibility. Gold or MIL-spec brass connectors, if available, will provide the best long-term performance.

When making cables, choose highly flexible, rubber-jacketed cable with braided shielding (foil shielding is acceptable in fixed installations where the cables will not be handled or flexed). To minimize internal self-capacitance, use single-conductor (*not* dual-conductor) shielded cable.

#### 5.1.2 Audio Connector Wiring

Figure 5-1 (next page) illustrates wiring practices for phone, RCA and XLR type connectors.

In the case of XLR connectors at balanced inputs, there is no clear standard for pin assignments: while many now advocate pin 2 "hot," a large proportion of professional audio equipment is pin 3 "hot." Depending upon the input circuit design, the choice may make virtually no difference in sound quality and signal level, but we can't guarantee that this will be the case. The best approach is to consult and follow the recommendations in the equipment's instruction manual.

The proper method for handling the unused pin at the balanced input also may vary, dependent upon input circuit design. Some equipment will require that the unused pin be grounded; for other components, it may not matter. Again, check the instruction manual.

#### 5.1.3 Use of Direct Boxes

Both in the studio and in touring performance, some form of isolation may be required at the K1000 output to control induced noise and hum. The most common solution is to use a "direct box."

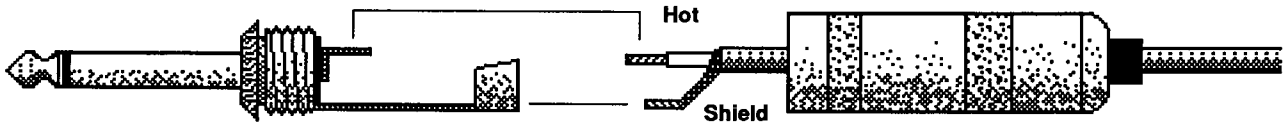
The quality of different direct boxes varies from reasonable to downright awful, however. Many direct boxes are not designed to handle the higher signal level and broad frequency range of the K1000 Keyboard. With such units, you will hear a very noticeable degradation in sound quality when the box is inserted in line. Particularly in recording applications, this is usually unacceptable.

*To preserve the sonic fidelity of the K1000, it is extremely important to select a high-quality direct box which is designed for line-level isolation.*

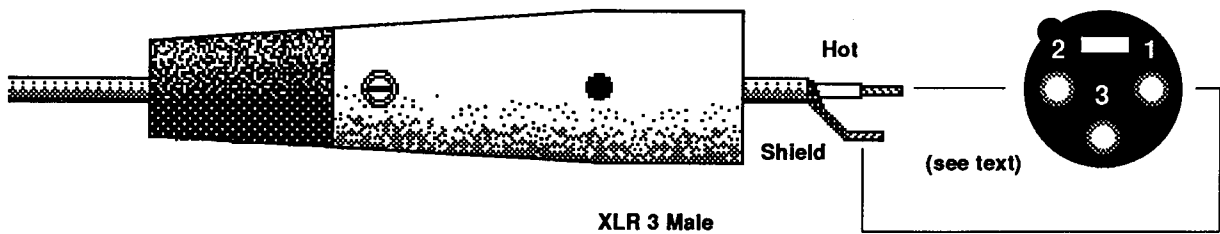
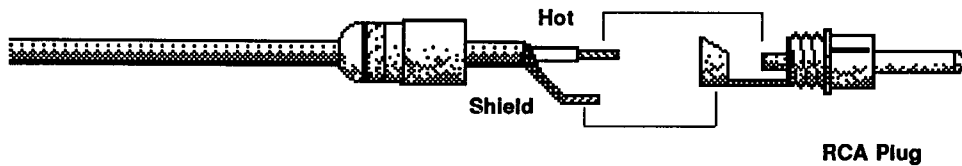
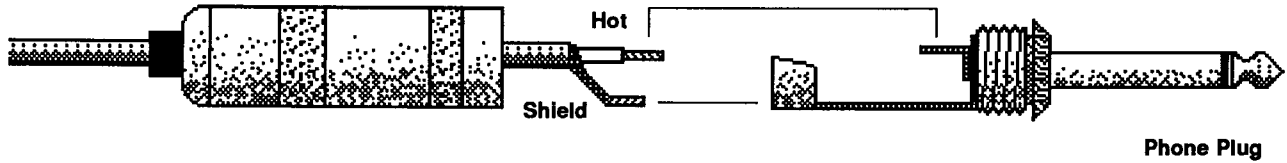
For best performance in recording, in fact, a better solution is to simply use a good line transformer (10 k $\Omega$  : 10 k $\Omega$ ), preferably with dual Faraday shields. An example of such a transformer is the Jensen model JE-11P-1D. Follow the manufacturer's recommendations regarding wiring.



**K1000 Output Connection:**



**System Input Connection:**



**Figure 5-1 Audio Connector Wiring**

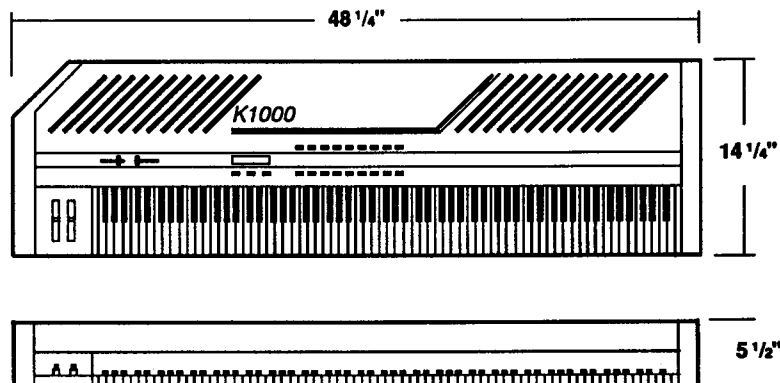
# Section VI

## APPENDIX II — SPECIFICATIONS

### K1000 Keyboard

Description	MIDI-controllable, polyphonic, multitimbral digital sample player and programmable wavetable synthesizer
Keyboard	76 keys, weighted action, spring return
<b>Program Memory</b>	
Factory Presets	ROM (Read Only Memory), 115 presets
User-Programmable	24 kbyte RAM (Random Access Memory), 64-Program maximum capacity
RAM Battery Backup	Lithium battery, 3 - 5 years life expectancy
<b>Audio Outputs</b>	
Type	Stereo, unbalanced
Connectors	1/4-inch tip/sleeve phone jack (x 2)
Nominal Output Level	-14 dBV
Maximum Output Level	+17 dBV
Impedance	100 $\Omega$
Recommended Load Impedance	10 k $\Omega$ minimum
Output Noise	-86 dBV typical
<b>MIDI Connections</b>	
Type	In, Out, Thru
Connector	Standard DIN 5-pin
<b>Accessories (Included)</b>	Two foot switches (Sustain, Sostenuto)
<b>Power Requirements</b>	
Voltage	100 - 120 VAC, 50/60 Hz 200 - 240 VAC field-selectable
Power Consumption	40 Watts
Mains Protection	AGC 1 Amp, 125 Volt fuse
<b>Physical Dimensions</b>	48 1/4" W x 14 1/4" H x 5 1/2" D
<b>Shipping Weight</b>	55 lbs. (25 kg)

### External Dimensions



## MIDI Implementation Chart

Manufacturer:  
Kurzweil Music Systems, Inc.

Dated: 01/01/88  
Version: 2.1

Digital Synthesizers

Model: K1000 Keyboard

FUNCTION	TRANSMITTED	RECOGNIZED	REMARKS
<b>Basic Channel</b> Default Changed	1 1 - 16	1 1 - 16	Memorized
<b>Mode</b> Default Messages Altered	Mode 1 Mode 1 & 3	Mode 1 Mode 1 & 3	Memorized *
<b>Note Number</b> True Voice	12 - 120	0 - 127 12 - 120	Key range: C0 - C8
<b>Velocity</b> Note ON Note OFF	O O	O O	
<b>After Touch</b> Keys Channels	X X	O O	
<b>Pitch Bender</b>	O	O	
<b>Control Change</b>	O      1 - 31 64 - 95	O      1 - 31 33 - 63 64 - 95	Controller assign- ments are program- mable**
<b>Program Change</b> True #	O	O      0 - 127 1 - 128	May be mapped
<b>System Exclusive</b>	O	O***	
<b>System Common</b> Song Pos. Song Sel. Tune	X X X	X X X	
<b>System Real Time</b> Clock Messages	X X	X X	
<b>Aux Messages</b> Local Control All Notes Off Active Sense Reset	X X X X	O O O X	

**Notes**

- \* Use MULT Mode to assign different Programs to each MIDI channel.
- \*\* Bi-directional mod wheel, two switch pedals
- \*\*\* Manufacturer's ID = 07. Device ID: default = 0; programmable 0 - 126

O = Yes  
X = No

Mode 1: Omni On, Poly  
Mode 2: Omni On, Mono  
Mode 3: Omni Off, Poly  
Mode 4: Omni Off, Mono

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# Section VII

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