

INTRODUCTION TO THE  
**KURZWEIL™**

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**250**



# KURZWEIL™

# 250

Congratulations on your purchase of a Kurzweil 250. Undoubtedly you already know something of what it can do, and are eager to try it out. Great! That's what it was designed for.

BUT... before you start plugging things in and pushing buttons, we cordially urge you to follow this manual, at least in the beginning. It gives you plenty of hands-on experience, while saving you time and frustration, as well as wear and tear on—or possible damage to—the instrument.

The sections entitled "SETTING UP" and "STARTING TO PLAY" are all you'll need to begin with. After that, feel free to read the other sections in whatever order interests you.

Included with this manual are:

1. A placard listing all the factory keyboard setups, as well as the setups in SOUND BLOCK A. Affix this placard to the left end of the front panel, just to the left of the MASTERS, where you can refer to it when you need to.
2. A two-piece keyboard guide that shows what instruments are assigned to which keys for the three DRUM KIT setups.
3. A set of templates to place over the front panel when using the SEQUENCE EDITOR. These templates label each button with its function in this mode.

Instructions for the SEQUENCE EDITOR, as well as for other functions not covered in this manual, can be found in A PLAYER'S GUIDE TO THE KURZWEIL 250, which came with your instrument. Once you have gone through the present introductory manual, you are encouraged to turn to the PLAYER'S GUIDE for more comprehensive and detailed information about the Kurzweil 250, and to answer any questions you might have.

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# THE KURZ

## MASTERS

Control the overall volume, stereo balance, and tuning.

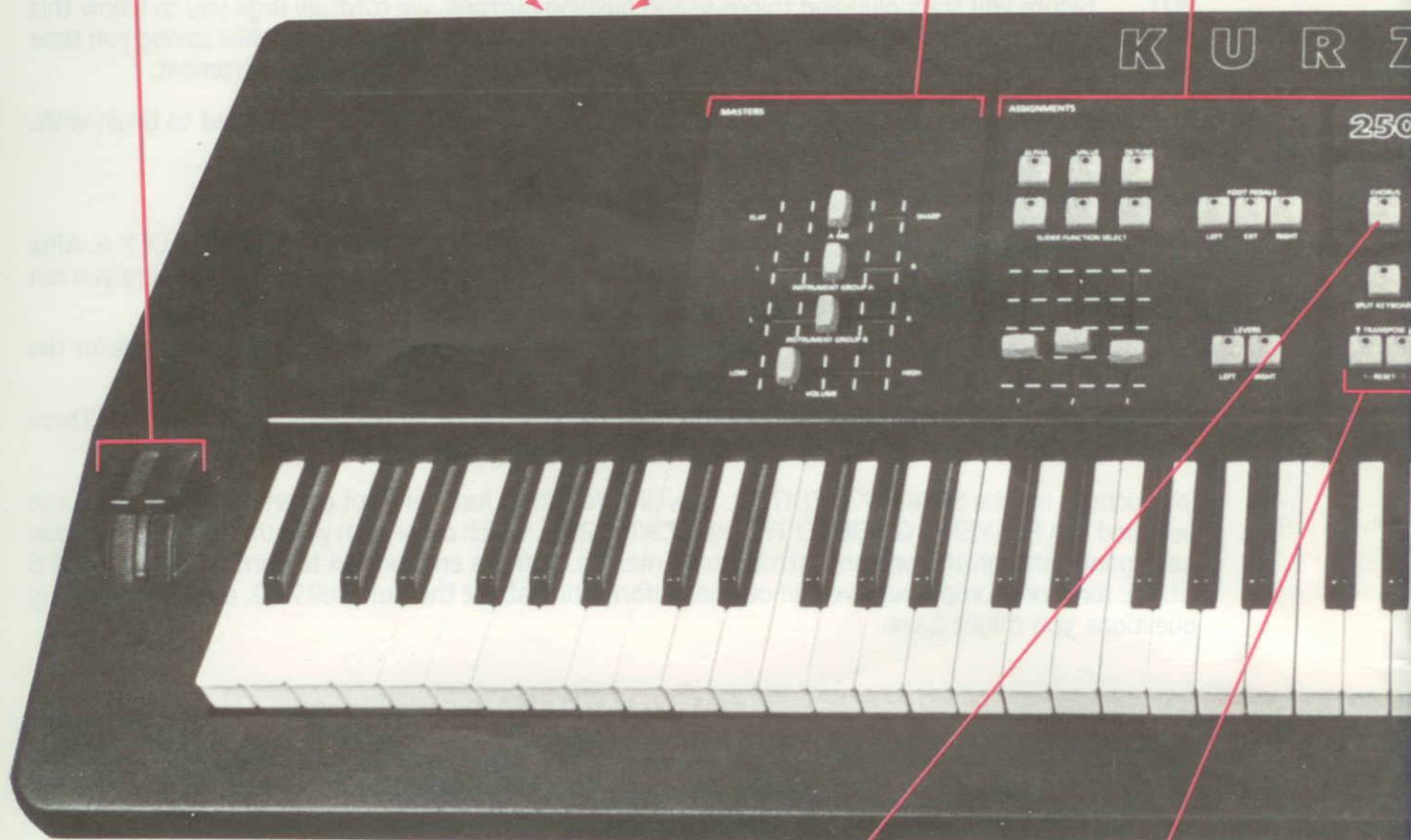
## ASSIGNMENTS

Modify the sounds with these controls, the control levers, and the pedals.

## CONTROL LEVERS

## HEADPHONE JACK

## OUTPUT JACKS



## CHORUS

Add special "multiplying" effects to the sound.

## TRANSPOSE

Move the sounds up or down in pitch.

## POWER ON/OFF SWITCH

# WEIL 250

## SELECTION

Choose the sounds you wish to play.

## PROGRAM

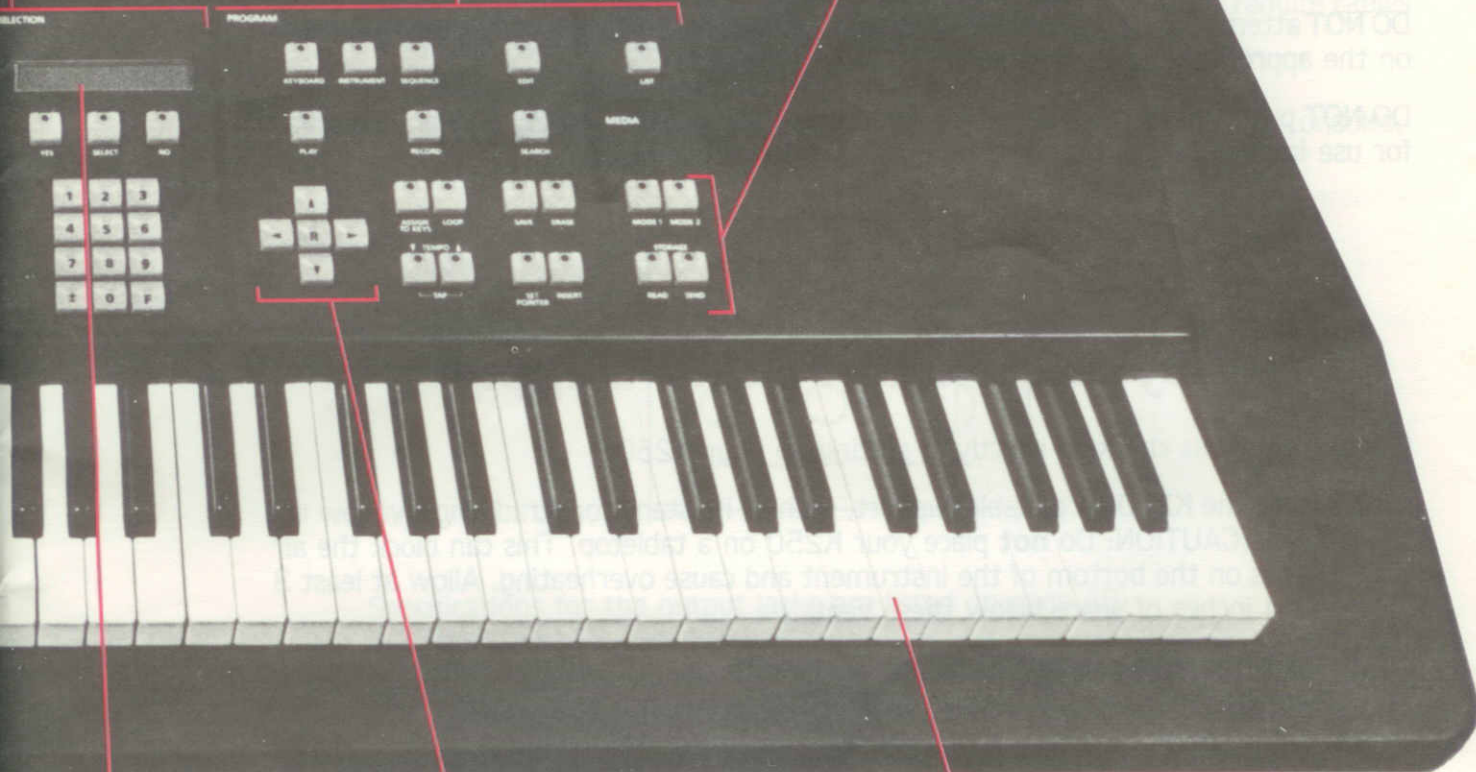
Engage different groups of functions, from selecting sounds to recording compositions.

## MEDIA

Communicate with a microcomputer or with other electronic musical instruments.

## POWER CONNECTOR

W E I L



## DISPLAY

See what's happening.

## CURSOR KEYS

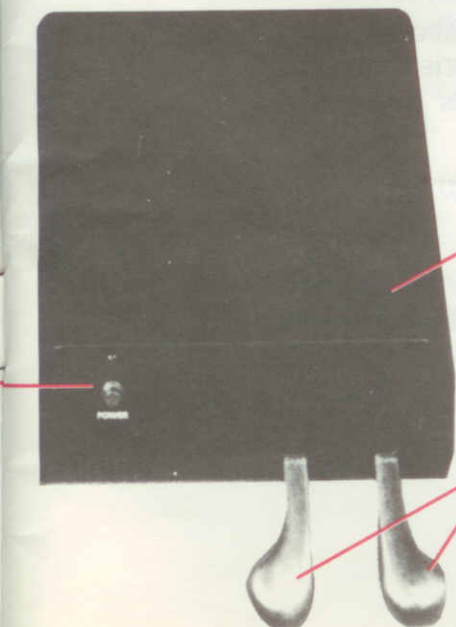
Move among options and possibilities.

## KEYBOARD

Play on 88 touch-sensitive keys.

## POWER SUPPLY

## PEDALS



# SETTING UP

## Warnings

DO NOT expose your K250 to rain or moisture.

DO NOT block the air vents in the instrument (especially the ones on the bottom).

DO NOT remove its cover. There are no user-serviceable parts inside.

BEFORE you connect the power supply unit to the K250, make sure the power supply is **not** plugged into an outlet (see "KEYBOARD AND POWER SUPPLY," below).

NEVER have your K250 serviced except by qualified personnel, at a Kurzweil authorized service center.

DO NOT attempt to play your K250 overseas without first having it converted to operate on the appropriate local voltages and power frequencies.

DO NOT put anything into the slot in the front underside of the K250. This is reserved for use in diagnostic procedures by qualified service technicians.

## Keyboard and Power Supply

Please follow this checklist exactly in setting up your K250.

1. Place the K250 on a stable support, such as its stand, or straddling two low tables. (CAUTION: Do **not** place your K250 on a tabletop. This can block the air vents on the bottom of the instrument and cause overheating. Allow at least 3 to 4 inches of space below these vents.)
2. Place the power supply/pedal unit beneath the K250, with the pedals facing the same direction as the keyboard. DO NOT plug it into an AC outlet yet.
3. Connect the thick cable from the power supply to the center socket on the rear panel of the K250. Match the white dot on the cable plug with the white dot on the socket, then gently turn the connecting collar clockwise until snug. Don't try to push or force it into place.
4. Plug the power supply into an AC outlet.
5. Press the POWER switch with your foot so that the red pilot light above it lights up. The LEDs (light-emitting diodes) on the control panel will flash briefly, and the display in the top center of the front panel will light up and, after a moment, should show this message:

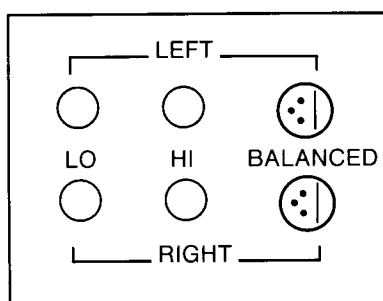
**KURZWEIL GRAND PIANO  
PLAY MODE.**

(If it shows anything else, perform the "hard reset" described in "In Case You Become Lost or Stuck," on p. 6. If the display message still isn't right, call your dealer or the nearest service center.)

# Audio Output

The K250 has no internal amplification or speakers, and so it is necessary to connect it to external audio equipment (such as a stereo) in order to hear it. Although this is easily done, and the same directions apply to recording as to amplification, it is nevertheless a good idea to read this entire section before starting to plug things together.

1. Move the VOLUME control (in the MASTERS section of the K250 control panel) to LOW, all the way to the left. That turns off the output volume. (Always turn off the volume before connecting an instrument to an amplifier.)
2. Select the appropriate audio outputs from the three stereo pairs located on the rear panel:
  - Low-level 1/4" jacks (marked LO). For home stereos or musical-instrument amplifiers. Home stereos require cables with shielded mono plugs: a 1/4" plug on one end and an RCA plug on the other. Musical-instrument amplifiers require cables with shielded 1/4" mono plugs on both ends.
  - High-level 1/4" jacks (marked HI).
  - Balanced XLRs (marked BALANCED). } For tape decks or mixing consoles.Be careful not to set amplification gain (volume) too high.



Specifications for the output jacks are listed on page 45.

Plug the cables into the correct output jacks. If you are only working with one cable, plug it into either the LEFT output or the RIGHT—and then make certain that both INSTRUMENT GROUP sliders on the front panel are all the way to whichever side, LEFT or RIGHT, that you've chosen.

3. Plug the cables (or cable) into whatever amplification you're using.
4. Turn the amplification on, keeping its volume low or off.
5. Push the VOLUME slider on the K250 to HIGH, all the way to the right. (With a few exceptions, this is the best position for this slider.)
6. While playing the K250, raise the volume of the amplification to a comfortable level.
7. Play up a storm.

The HEADPHONE jack, also located on the rear panel, accepts standard stereo headphones for playing without disturbing others or for monitoring yourself while performing or recording. Plugging in headphones does not disconnect the other audio outputs. No external amplification is necessary to use headphones. The VOLUME control affects the output to this jack.

# STARTING TO PLAY

## Play Mode

Once the K250 is hooked up, plugged in, and turned on, it is in PLAY MODE (as it says in the display).

PLAY mode is the basic operating level of the K250. It's what you begin with every time you turn the instrument on. Right now, since you're in PLAY mode, put this manual aside and **play** for a while. Enjoy the piano sound. Get a feel for its dynamic range and timbral richness.

There are 39 other "presets," in addition to the piano, that are provided by the factory. When you feel ready to explore them, come back and continue reading.

## In Case You Become Lost Or Stuck

When you first start working with the Kurzweil 250 you may become lost or make mistakes. Depending on how serious the mistake, or how lost you are, you can use one of three different escape routes.

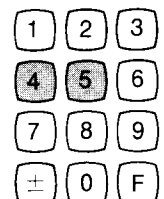
### 1. PLAY

In almost all instances on the K250, the way back to PLAY mode, and out of any trouble you may have fallen into, is to press PLAY one or more times.



### 2. SOFT RESET

If PLAY doesn't set things straight, try a "soft reset": press 4, 5, and SELECT at the **same** time. This will usually return the unit to its normal settings and playability, and will have no effect on what is stored in memory.



### 3. HARD RESET

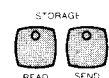
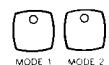
When all else fails, try a "hard reset."

THIS WILL WIPE CLEAN THE INTERNAL MEMORY AND LEAVE ONLY THE FACTORY SETTINGS, so that you lose everything you may have created in the way of your own keyboard setups and sequences. This is **not** something you should do without careful consideration.

Here's how you do it. First, turn off your K250. Then, while holding down READ, SEND, and LIST at the same time, turn it back on. Keep all three buttons down until you see the message LOAD FILE FROM COMPUTER? in the display and YES and NO begin flashing. At this point, press either NO or PLAY and you will enter PLAY mode with a completely reset K250.



MEDIA



# Keyboard Setups

The “presets” on the K250 aren’t the same as those in other electronic keyboards. Instead, they’re something we call KEYBOARD SETUPS.

A keyboard setup is a collection of instruments that have been arranged, or “set up,” across the keyboard of the K250 (hence the name “keyboard setup”). There are 40 keyboard setups programmed in at the factory, and room in memory for you to add another 20 to 30 of your own, depending on the complexity of them.

Keyboard setups can be very simple or very complex. The BARITONE HORN keyboard setup, #26, has only one instrument assigned across the entire keyboard, while DRUM KIT 1 (keyboard setup #20) has **14!**

On page 11 you’ll find a list of the keyboard setups supplied from the factory.

## VELOCITY SENSITIVITY

Most setups on the K250 are “velocity-sensitive”: their loudness is controlled by how hard or soft the keystroke is.

Five presets are not velocity-sensitive (all of them are Electric Organs). With them, no matter how hard or soft you hit a key, it sounds the same: **loud**; and if the volume of your amplifier is set for the quieter levels of the velocity-sensitive keyboard setups, you run the risk of doing some real damage to the amplifier or the speakers.

When you’re using a setup that is not velocity-sensitive, adjust the VOLUME slider on the K250 to a level that is comfortable for you—and your speakers.



## “CHANNEL STEALING”

If you experiment with playing many notes at once, you may run into a limit: the number of CHANNELS that are available to generate sound. A channel is a single, discrete K250 audio circuit: all of the actual hardware involved in producing one unit of sound. There are 12 channels in the K250, which means that the instrument can produce up to 12 sounds at the same time.

In some keyboard setups, like the BARITONE HORN, there is only one channel—one unit of sound— per keystroke. So you can play up to 12 keys at the same time before all the channels are used up. But if a keyboard setup is more complex (because it has several sounds layered on top of one another, or CHORUS is on), then more than one channel will be triggered with each keystroke. Two channels, or four, or seven—or even all 12 at once, if your keyboard setup is that complicated—will play . . . and the number of available channels will drop accordingly.

When you play more notes than the K250 can, it starts stealing channels away from old notes and assigning them to new ones, in order to keep up with you. It does this as unobtrusively as possible, so that, unless you play a lot of notes in a complex setup, you probably won't even notice it.

# Moving among the Setups

There are three ways to move around among the keyboard setups. Which one you prefer will depend on how you play and whether you are performing live, recording, or just sitting at the K250 exploring musical ideas.

SPECIAL NOTE: Remember to be careful of the volume levels on keyboard setups 10, 13, 15, 16, and 36—the nondynamic electric organs. If you aren't, you might damage your speakers.

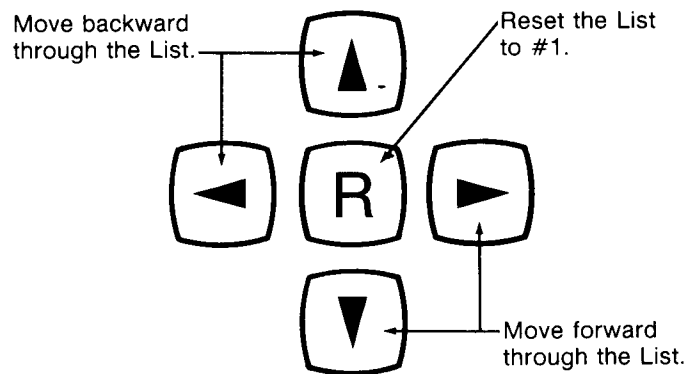
## LIST

The first method is the LIST. It allows you to step through and play up to 64 different keyboard setups in sequence.

## Learning to Use the List

1. While in PLAY mode, press LIST. It's the top righthand button on the panel. The display will change to show the current keyboard setup on the top line (or **NOT FOUND**), the **SETUP LIST MEMBER** —> **XX** on the bottom line. "XX" represents whatever number, from 1 to 64, is actually visible in your display. It will vary.
2. Locate and press the R (Reset) key, in the center of the cursor keys. Pressing R takes you to the top of the List—to #1. (That means you ought to see **KURZWEIL GRAND PIANO**, since when you get your K250 the first 40 items on the List match the 40 factory keyboard setups.)
3. Press the RIGHT cursor key. See the change in the display? You're now at the second item on the List, which is **ACOUSTIC BASS/PIANO**—as you will hear for yourself if you play a few low notes.
4. Experiment. Keep pressing RIGHT and then playing the K250. Then press the LEFT key and see how it steps you backward through the List. Play until you've explored as many of the keyboard setups as you want to.

NOTE: UP and DOWN work just as LEFT and RIGHT do in this instance. Try them.



To exit the List, press PLAY.

## The Repeater Effect

If you hold down any button or key on the control panel of the K250 for more than about half a second, it will begin to repeat. To test this, tap LIST, then press and hold the DOWN cursor key while looking at the display.

Holding any button or key down steadily has the same effect as tapping it repeatedly. This allows you to make large adjustments and to scan through long lists of possibilities quickly.

# Factory Keyboard Setups

A slash (/) means the setup is split; that is, the different instruments occupy different parts of the keyboard.

An ampersand (&) means the setup is layered; that is, the different instruments sound simultaneously when a key is played.

For a detailed description of the factory setups, see pages 38-43.

NUMBER:	NAME:
1	Kurzweil Grand Piano
2	Acoustic Bass/Piano
3	Piano/Fast Strings
4	Bowed Strings Fast
5	Bowed Strings Slow
6	Slow/Fast Strings
7	Bass/Slow Strings
8	Piano & Slow Strings
9	Acoustic Bass
10	Electric Organ 1
11	Electric Organ 2
12	Electric Organ 3
13	Electric Organ 4
14	Organ 2 & Organ 3
15	Organ 1/Organ 4
16	Organ 2 & Organ 4
17	Trumpet
18	Valve Trombone
19	Brass & Slow Strings
20	Drum Kit 1
21	Drum Kit 2
22	Drum Kit 1/2
23	Mini Drums
24	Layered Drums
25	Acoustic Bass/Drums
26	Baritone Horn
27	Layered Brass
28	Acoustic Guitar
29	Layered Guitars
30	Acoustic Bass/Guitar
31	Piano & Guitar
32	Slow Strings & Guitar
33	Guitar/Fast Strings
34	Sine Wave
35	Endless Glissando 1
36	Dual Attack Organ
37	Dual Attack Strings
38	Bass/Piano #2
39	Brass 5
40	Guitar & Baritone Horn

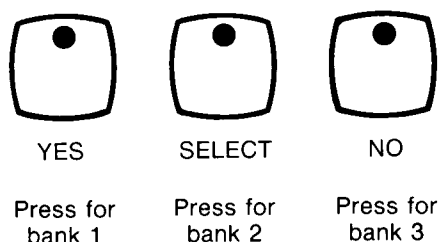


## KEYPAD BANKS

The second method of selecting keyboard setups involves using the KEYPAD BANKS. Rather than accessing the setups sequentially, as with the List, this method allows you a certain amount of freedom—especially valuable in performance.

There are three banks, or groups, each of which consists of ten keyboard setups ("bins"). You activate the banks with the three keys directly beneath the display.

1. Make sure you are in the PLAY mode (Press PLAY to make sure. The bottom line of the display should read **PLAY MODE**.)
2. Activate banks 1, 2, or 3 by pressing YES, SELECT, or NO, respectively.



Doing so causes the display to show **BIN BANK X**, where X is the number of the bank activated.

3. Call up one of the ten bins (setups) in the bank by pressing a number key. Each key, 1-0, activates a different bin (these are listed on page 13).

Try this a few times within one of the banks, then shift to another bank and try again. Keep playing, so you can hear the changes in sound that go along with the changes you see in the display.

**NOTE:** The banks are **always on** when the K250 is in PLAY mode. Don't press the number keys when you're in PLAY mode unless you actually want to shift to one of the keyboard setups in the keypad banks!

## About Bank 3

If you tried to call up any keyboard setups in bank 3, you quickly discovered that there aren't any. Here's why.

Bank 3 **isn't** empty. It comes from the factory with keyboard setups 250 through 259 assigned to it—numbers that are reserved for setups you create. But since you haven't created and stored any of those keyboard setups yet, there is nothing there when you try to call them up. Which is why the display says **NOT FOUND**.

As you create your first ten keyboard setups and save them, you'll find they automatically become available to you in Bank 3. (But only if you haven't already replaced the "blanks" that are stored there with other assignments. You'll learn how to do that in "Editing the Keypad Banks," on p. 26.)

## Factory Presets for the Bins

	BIN:	NAME:	SETUP NUMBER:
BANK 1	1	Kurzweil Grand Piano	1
	2	Acoustic Bass/Piano	2
	3	Drum Kit 1	20
	4	Bowed Strings Fast	4
	5	Bowed Strings Slow	5
	6	Electric Organ 3	12
	7	Baritone Horn	26
	8	Acoustic Guitar	28
	9	Layered Guitars	29
	0	Guitar & Baritone Horn	40
BANK 2	1	Bass/Slow Strings	7
	2	Piano & Slow Strings	8
	3	Electric Organ 2	11
	4	Trumpet	17
	5	Layered Drums	24
	6	Acoustic Bass/Drums	25
	7	Layered Brass	27
	8	Acoustic Bass/Guitar	30
	9	Piano & Guitar	31
	0	Sine Wave	34
BANK 3	These bins are preassigned to keyboard setups 250 through 259. They will say <b>NOT FOUND</b> at first; but if you don't replace them with new assignments, these "empty" slots will automatically be filled with the first ten keyboard setups you create for yourself.		

# SETUP SELECT

SETUP SELECT is the third way to move around among the keyboard setups. There are two ways to do it.

**METHOD #1**—when you already know the number of the keyboard setup you want:

1. While in PLAY mode, press KEYBOARD.
2. Use the numeric keypad to enter the number of the keyboard setup you want to play. (Notice that the bins are now off. Step 1 took you out of PLAY mode and into SETUP SELECT mode.)
3. Press SELECT twice—once or tell the K250 you are finished entering the number, and a second time to trigger the change.

NOTE: If you entered the wrong number, just press SELECT once, not twice. Then enter the correct number. When you are sure the number in the display is the one you want, **that's** when you press SELECT twice in a row.)

**METHOD #2**—when you DON'T know the number of the keyboard setup you want:

1. From PLAY mode, press KEYBOARD.
2. Use the cursor keys to search through all the keyboard setups, until the one you want is in the display. In SETUP SELECT mode, the cursor keys work as follows:  
  
Press UP or DOWN to move backward or forward, respectively, through the setups, one at a time.  
  
Press LEFT or RIGHT to jump immediately to the first or last numbered setup, respectively.
3. Press SELECT once to trigger the change.

These two methods will work together. You can alternate easily between using the keypad or the cursor keys to call up keyboard setups, in whatever way works best for you.

# More about Keyboard Setup Numbers

Your K250 can contain keyboard setups that do not appear in the list, but **all** keyboard setups appear, in numerical order, in SETUP SELECT mode. If your instrument is equipped with a Sound Block Module, for example (see p.46), those additional setups are accessible only in SETUP SELECT mode—at least until you move some of them onto the List or into a keypad bank.

## “STACKING” NOTES

Try the following:

1. In PLAY mode, turn on LIST.
2. Use the cursor keys to select #19, BRASS & SLOW STRINGS. Play a note. Hold the key down.
3. Keep holding the key while you use the RIGHT cursor key to move to #20, DRUM KIT 1.

Play some more notes. You'll find that the old, held note is still brass and strings, while the new ones are drums.

This ability to hold notes from one keyboard setup while changing to another—what we call “stacking” notes—is something to use creatively. Obviously, it works best with sounds that have an indefinite or extremely long sustain. But you can stack as many different setups as you care to try, and you can use any of the three methods (LIST, KEYPAD BANKS, or SETUP SELECT) to change setups.

The sustain pedal (see p.16) is useful in “holding” notes—especially notes that are beyond the reach of a single hand.



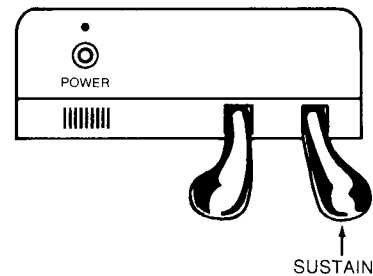
# MODIFYING THE SOUNDS

## Sustain

The **right** pedal generally functions as a SUSTAIN control, like the sustain pedal on a piano (there are exceptions to this; see "Mute," below).

Holding the pedal down allows you to sustain a note, just as if you held the key down, but allowing you to lift your fingers from the keys. If a setup has a built-in decay, as KURZWEIL GRAND PIANO does, it will eventually fade out. If it does not, as TRUMPET does not, the note will continue to sound for as long as you hold the pedal down.

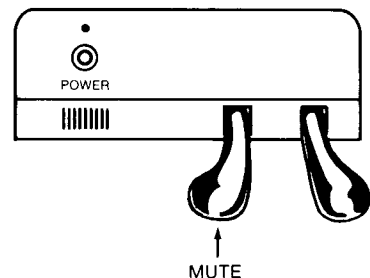
Lifting your foot from the pedal silences any keys that are not held down.



## Mute

The **left** pedal generally functions as a MUTE control. It does the opposite of SUSTAIN: pressing it silences all sounds, even if keys are being held down. This is especially useful for uniform cutoffs of large chords.

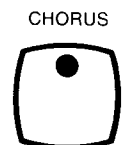
In certain setups, such as the DRUM KITS, the right pedal is the mute. Use it if you wish to cut off such sounds as the CRASH CYMBAL, which otherwise "rings" for a time, even after the keys are released.



## Chorus

As the name suggests, CHORUS produces the effect of more than one instrument playing at one time. It does this by triggering two (or more) separate channels each time you strike a key. The additional channels are delayed in time and offset in pitch (detuned) from the original, creating the chorus effect.

There is one implication to this approach that you should keep in mind: Using the chorus reduces the number of notes you can play before channel stealing sets in.



## TURNING CHORUS ON

Press the CHORUS button.

This changes the display. Across the top it shows the chorus type currently active (such as **FLANGING**), and across the bottom it says **DELAY:** and **DETUNE:**, giving the factory preset values for each (the former in milliseconds, the latter in hundredths of a half step).

There are four types of chorus available on the K250. They are:

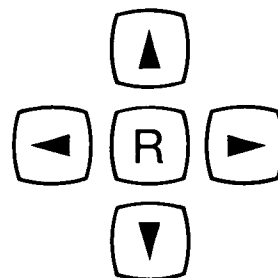
FLANGING	DOUBLING
FULL CHORUS	ECHO

All except FLANGING are stereo effects. They are described on the following page.

## CHANGING THE CHORUS TYPE

Use the LEFT and RIGHT cursor keys to cycle through the four chorus types. As each type appears in the display, you will see that it has its own set of DELAY and DETUNE settings. (You can change these DELAY and DETUNE settings, if you wish. For information on how to do so, see the CHORUS section of A PLAYER'S GUIDE TO THE KURZWEIL 250.)

The chorus type that appears in the display is the one that you will hear.



## THE FOUR CHORUS TYPES

### Flanging

FLANGING produces a “whooshing” sound, with greater or lesser effect depending on the instruments in the keyboard setup you are playing; cymbals, for example, show off FLANGING well.

### Full Chorus

FULL CHORUS seems to “shimmer,” reproducing the animated sound of a large group of instruments playing together. It uses several channels for each keystroke, pitched both above and below the original note and sounded in stereo, the notes alternating between INSTRUMENT GROUP A and INSTRUMENT GROUP B. (For widest stereo separation, push these sliders as far apart as they can go.)

NOTE: Since FULL CHORUS uses many channels for each keystroke, it can cause a lot of channel stealing—especially with a complicated keyboard setup.

### Doubling

DOUBLING “thickens” the sound. (Among other things, it produces a terrific “honky tonk” piano sound when used with KURZWEIL GRAND PIANO.) At its simplest, where there is only one instrument in a keyboard setup, two channels will sound for every keystroke, and each channel will be routed to a different INSTRUMENT GROUP. The first channel plays the original note, and the second plays the “doubled” note, delayed and detuned slightly from the original.

If more complex keyboard setups are used, the number of channels being doubled goes up and channel stealing sets in earlier.

### Echo

ECHO . . . Echo . . . echo . . . IS . . . Is . . . is . . . most effective for instruments with a short sustain, such as piano, acoustic bass, drums, or guitar. In general, the higher the pitch of the sound, the more audible the echo is.

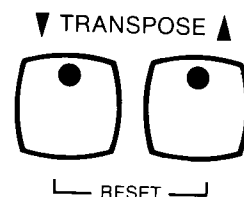
# Transpose

The TRANSPOSE DOWN and TRANSPOSE UP buttons shift the pitches of the keyboard setups down or up, respectively. When one of the buttons is activated, the LED in it illuminates.

You can shift one octave above normal pitch and as many as five octaves below. The display confirms the shift as it is activated. In addition to changing pitch, the shifts also affect the timbre, or tone quality, of the sounds. Try this feature with a number of different setups.

Pressing both TRANSPOSE buttons simultaneously resets the pitch to normal.

Several TRANSPOSE functions are available, including CHROMATIC TRANSPOSE and TIMBRE SHIFT. See A PLAYER'S GUIDE TO THE KURZWEIL 250 for information about all these functions and how to access them.

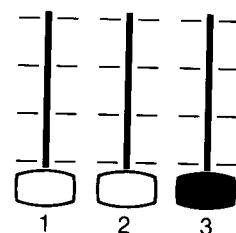
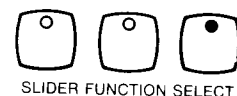


# Brightness

Pressing SLIDER FUNCTION SELECT button 3 engages slider 3, which serves as a BRIGHTNESS control. The higher the slider, the brighter the sound of the K250.

The slider actually controls a variable filter that reduces high frequencies. When the slider is moved all the way down, the highest pitches on the K250 become inaudible.

Pressing SLIDER FUNCTION SELECT 3 a second time turns the brightness control off.



# Vibrato

Two controls affect VIBRATO (the wavering of pitch): slider 1 in the ASSIGNMENTS section, along with its SLIDER FUNCTION SELECT button, and the **left** control lever.

Both controls must be on in order for vibrato to be heard. If SLIDER FUNCTION SELECT 1 is off, or if slider 1 is all the way down, no vibrato will be heard; if the left control lever is at its center position, no vibrato will be heard.

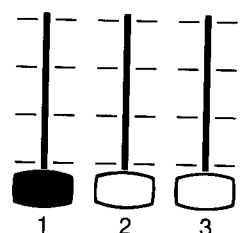
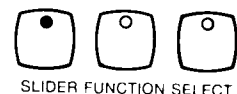
Slider 1 controls vibrato speed. The farther up the slider is moved, the faster the vibrato.

The left control lever controls vibrato depth—the amount that the pitch changes. The farther it is moved from its center position, the greater the changing in pitch. Moving it toward you causes a smoothly changing pitch; moving it away from you causes an abrupt alternation of low and high.

The lever is spring-loaded, so that it returns to center (off) when released.

For a natural vibrato sound to use with instrumental sounds such as TRUMPET, turn on SLIDER FUNCTION SELECT 1 and move the slider about halfway up. Move the left control lever down slightly while playing. Experiment with different settings.

Press SLIDER FUNCTION SELECT 1 a second time to turn slider 1 off.



↑ VIBRATO SPEED

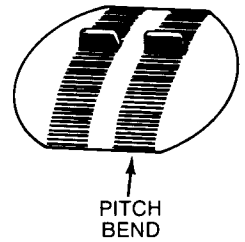


VIBRATO DEPTH

# Pitch Bend

The **right** control lever is used for “bending” the pitch of the K250. Moving the lever toward you raises the pitch; moving it away from you lowers the pitch.

The lever is set to bend the pitch as much as a whole step in either direction. The farther the lever is moved, the greater the change in pitch. When released, the spring-loaded lever returns the pitch to normal.



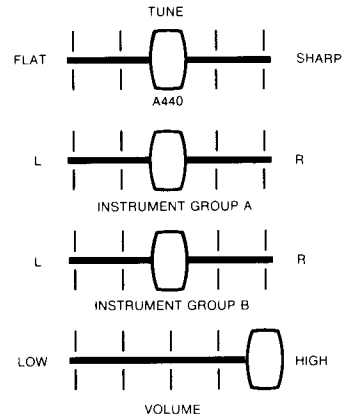
# Masters

There are four horizontal sliders in the MASTERS section. These control the pitch, stereo balance, and volume of the outputs on the K250.

## TUNE

TUNE, the top slider, sets the overall pitch of the K250. When the slider is centered, the K250 is at international standard concert pitch (A = 440 cycles per second). The pitch can be lowered or raised by moving the slider toward FLAT or SHARP, respectively.

You can adjust the pitch as much as a whole step in either direction from concert pitch, and thus are able to tune the K250 to other instruments or to recordings.



## INSTRUMENT GROUPS A AND B

An instrument in a K250 keyboard setup is assigned to either INSTRUMENT GROUP A or INSTRUMENT GROUP B for the purpose of allowing individual control of stereo balance. For example, in keyboard setup #19, BRASS & SLOW STRINGS, the strings are assigned to INSTRUMENT GROUP A, and the brass are assigned to INSTRUMENT GROUP B.

The stereo balance of each group is controlled by the slider of the same name. Moving the two sliders to opposite ends causes the two groups (strings and brass, in the case of setup #19) to come out of separate speakers. Between the two extremes, each slider balances the output of its instrument group between the left and right speakers. (Please note that the K250 must be connected in stereo for this effect. If you are only using a LEFT or a RIGHT output, instead of both, it will not work.)

When a slider is centered, the signal volume coming out of both left and right speakers is at maximum. As you move the slider to one side, the volume in one speaker will drop and the volume in the other will stay at maximum.

For details of how the keyboard setups are divided between INSTRUMENT GROUP A and INSTRUMENT GROUP B, see the descriptions on pages 38-43.

These sliders also control the stereo CHORUS effects, as noted on page 17.

## VOLUME

VOLUME is the bottom slider. It controls the loudness of all the outputs on the K250. For the best results on velocity-sensitive sounds with natural decays, such as the KURZWEIL GRAND PIANO, set it all the way to the right. Back it off from that setting only if the sound distorts.

For sounds that are not velocity-sensitive (such as electric organ keyboard setups 10, 13, 15, 16, and 36), set the slider at the highest level your equipment handles comfortably.



# ADVANCED FEATURES

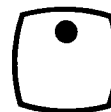
## Sequencer

The SEQUENCER on the K250 allows you to record musical compositions—"sequences" of notes—as digital information in memory. Because it records information, rather than sound, you can change tempo without affecting pitch, or transpose without altering the speed. And there is no loss in the quality of sound from recording to playback.

The sequencer has 12 available polyphonic tracks and memory for up to 7900 notes. You record sequences one track at a time, and can save them for recall later.

### TURNING ON THE SEQUENCER

Press SEQUENCE. As soon as you do, the two TEMPO buttons begin to flash, proof that you are now in SEQUENCER mode. While here, you can do anything that you can do in PLAY mode, including turning on CHORUS and using the keypad banks and setup select. Indeed, it's so much like PLAY mode that it sometimes says "PLAY MODE" in the display.



SEQUENCE

But you know you're really in SEQUENCER mode because of the illuminated SEQUENCE LED, the flashing TEMPO LEDs, and, initially, the message "SEQUENCER ACTIVATED" in the display.

Tempo is the first thing to focus on. The available range is from 10 beats per minute to 600 beats per minute. The TEMPO UP button will flash on every beat, and the TEMPO DOWN button will flash on the downbeat of every measure.

There's also a CLICK OUT signal coming from a jack on the rear panel. While you record or play back a sequence, this jack provides an audible click on every beat, just as TEMPO UP provides a visible flash.

You can plug a cable between CLICK OUT and your amplifier, so you can hear the click. This will give you a constant standard of time to go by. But it is not necessary to use the CLICK OUT or to follow the flashing of TEMPO UP in order to record a sequence; you can simply play at whatever tempo you desire, and the sequencer will record you accurately.

To turn off the sequencer (exit SEQUENCE mode), press SEQUENCE again.

## RECORDING

To start recording your first track, press RECORD. The display will read:

RECORD NEW SEQUENCE:  
BEATS PER MINUTE = XXX



BEATS PER MINUTE is the current tempo setting. If your CLICK OUT jack is connected, you'll be able to hear it. If you want to change it, enter a new number from the keypad and press SELECT. You can do this as many times as you wish, until you are pleased with your chosen tempo. When you are, press SELECT again, which locks in the tempo, turns the click off, and moves you to the next prompt, which is:



HIT RECORD BUTTON  
TO START AND STOP RECORD

This is your last chance to make changes before laying down your first track. Are you satisfied with the keyboard setup that's active? If not, press KEYBOARD or one of the keypad banks to select a new one.

When you are ready, press RECORD. In the display it will say:

COUNTING INTRO MEASURE



and you will see a count of 1, 2, 3, and 4 in the bottom line, as well as hear four clicks (if you have CLICK OUT connected). On the next beat after 4, the recording begins, and the sequencer will record everything you play on the keyboard of the K250. In addition, it will record the sustain pedal, keyboard setup changes made using the keypad banks, and, if MIDI is on, any MIDI IN note events (see pp. 24-25).

While you're recording, the display shows you the SEQUENCE, TRACK, MEASURE, and BEAT numbers, in this format:

SEQUENCE: 0    TRACK: 1  
MEASURE: XX    BEAT: X

The SEQUENCE number is 0 because this sequence has not yet been stored in the SEQUENCER LIBRARY. Instead, it is in a "work area," called the EDIT BUFFER. The TRACK number, since this is your first track, is 1. The MEASURE number counts upwards in time with the flashes of TEMPO DOWN. The BEAT number cycles through 1-2-3-4 along with the click and TEMPO UP.

To stop the take, press either RECORD or PLAY. The display will briefly show how many notes of memory are left for recording other tracks.



To listen to a playback of the take, press PLAY. (PLAY is a toggle switch; it starts playback when playback is off, and stops playback when it is on.)

## ADDING TRACKS

If you don't like your take, you can press ERASE, answer YES to the "ERASE RECORD TRACK?" prompt, and start from scratch.

But if you'd rather build on what you've done and add another track, press RECORD again. Now that there is a recorded track in the memory buffer, you get a different display message.



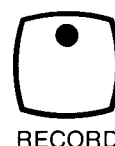
NEW TRACK (yes)      ABORT (no)

Answer YES if you want to go on recording, and NO if you don't. If you say YES, the display will change back to:



HIT RECORD BUTTON  
TO START AND STOP RECORD

Before you do, though, take the time to select another keyboard setup, so that your second track will sound distinctly different from your first. When you're ready, press RECORD, listen to the four-beat introduction, and play your second track into the sequencer memory while listening to the K250 play back your first.



Again, press RECORD or PLAY to stop. From here on, your choices are the same with every track you decide to add. NOTE: Remember that the K250 can play no more than 12 notes at a time. At the point where a sequence exceeds this limit, one or more notes won't sound.



## CHANGING TEMPO

You can change the tempo by pressing and holding either TEMPO UP (faster) or TEMPO DOWN (slower) while recording or playing back. The display will show the new settings as they change. You can also use a shortcut to change the tempo setting: press EDIT, then either TEMPO button, and enter a new tempo directly, using the number keypad. When you press SELECT, that tempo setting takes over and you are returned to the sequencer proper.

Changing tempo between takes allows you to record a complicated part slowly and precisely, then speed it up later. To make the faster tempo a permanent change in your sequence, you can do one of two things. The first is to record a new track at the faster tempo. The second is to "edit" the tempo as follow: press EDIT, SEQUENCE, TEMPO DOWN, SELECT, then enter the new tempo using the numeric keypad, press SELECT, SELECT, and PLAY; this puts you back where you were—in SEQUENCE mode, ready to record, play back, etc.—but with a new tempo.

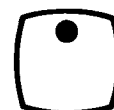
To make a track loop (repeat) indefinitely, stop the take with LOOP instead of RECORD.

To continue adding tracks, up to the limit of 12, just keep pressing RECORD, YES, RECORD, and then RECORD again after ending a take.

## SAVING A SEQUENCE

A sequence remains #0 until it is saved into the SEQUENCER LIBRARY. This means that, until you save it, you can continue to work on it, recording (or erasing) tracks up to the total of 12 allowed. You can exit SEQUENCE mode (by pressing SEQUENCE), or even turn off the K250, and still come back to this sequence.

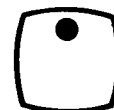
Once you are satisfied with your sequence, however, you can save it to the SEQUENCER LIBRARY. Do this by pressing SAVE. The K250 will ask you if you want to save the current sequence. If you answer YES, the K250 will assign it a number, to which you respond by pressing SELECT. The K250 will then let you give the sequence a name.



SAVE



YES



SELECT

## Naming a Sequence

When the time comes to name a sequence, the K250 will prompt you to enter a name. At this point the ALPHA button in the ASSIGNMENTS portion of the front panel will illuminate.

(If you're in a hurry, you can simply press SELECT at this point, and the K250 will save your sequence with the name "K250 SEQUENCE#XX." But it's a good idea to give it a more descriptive name, so you know what it is when you see it in the display.)

Move the ALPHA slider up and down and watch how different characters appear in the display:

**A B C D E F G H I J K L M N O P Q R S T U V W X Y Z (BLANK)**  
**0 1 2 3 4 5 6 7 8 9 ' . & ! + - \* / ? \$ # < > —**

When the character you want is visible in the display, press ALPHA. That character will lock into place. As you move the slider, new letters will appear in the space to the right of the old character. Continue selecting characters and pressing ALPHA in this way until the name is complete. Then press SELECT once to enter the name and make the save.



ALPHA

If you make a mistake while entering a character, or change your mind about the name before you save it, you can erase the display one letter at a time by pressing the R cursor key. Pressing the ALPHA button without moving the slider enters a blank character.



SELECT

## CALLING UP A SEQUENCE FOR PLAYBACK

The SEQUENCER LIBRARY can hold 25 12-track sequences (or however many sequences use up the available note memory, whichever comes first). To call a sequence back to listen to it, press LIST while the sequencer is on. The display will read:

SEQ: NUMBER/STEP?

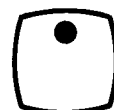
You can look through the library with the LEFT and RIGHT cursor keys, and then call up the sequence of your choice by pressing SELECT; or else just directly enter the number of the sequence you want with the number keypad, then press SELECT twice. If you then press PLAY, you'll hear the sequence. Press PLAY again to stop playback before the end of the sequence.



LIST



SELECT



PLAY

Press SEQUENCE to exit SEQUENCE mode and return to PLAY mode.



# MIDI

MIDI is an acronym for Musical Instrument Digital Interface. It's a system that allows electronic musical instruments to communicate with one another using a simple cable connection.

## MIDI CONNECTIONS

On the rear panel of the K250 are three five-pin MIDI jacks: IN, OUT, and THRU.

- IN is used to receive signals from other equipment.
- OUT is used to send signals to other equipment.
- THRU is used to pass on signals from one piece of equipment to another.

The last means that more than two MIDI-equipped instruments can be linked together in a chain, by plugging the OUT of the first into the IN of the second, the THRU of the second into the IN of the third, the THRU of the third into the IN of the fourth, and so on.

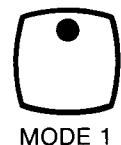
The simplest use of MIDI is to play two instruments at a time from the keyboard of one of them. This is known as a "master-slave" connection. Use a MIDI cable to connect the MIDI OUT jack of the "master" (the one whose keyboard you'll play) to the MIDI IN jack of the "slave."

If you connect IN to OUT, rather than OUT to IN, the other instrument becomes the master. If you use two cables, connecting IN to OUT and OUT to IN, you can use either instrument as the master.

You probably will want to use the K250 as the master keyboard.

## TURNING MIDI ON AND OFF

For instruments that were purchased before September 1985 and that have not yet been updated with Version 2.2 software, press the MODE 1 button, in the MEDIA section of the front panel, to turn MIDI on. Instruments purchased after September 1985 and instruments updated with V2.2 software will have the MODE 1 button turned on automatically when the instrument is powered up. Press MODE 1 (again) to turn MIDI off. You will see "MIDI TURNED OFF" in the display.



Once MIDI is on, it will stay on until you turn it off. NOTE: Always turn MIDI off—in all devices involved—before you turn their power off or disconnect them from one another. This isn't always necessary, but it is an excellent precaution. Otherwise, an instrument might send false MIDI commands as the power dies away, causing other instruments that are still on to sound incorrectly.

## WHAT MIDI TRANSMITS

Similarly to the sequencer, MIDI does not deal with sounds as such, but with digital information—when a note starts, what pitch it is, when it stops, and so on. For this reason it is possible, using MIDI, to play another electronic instrument from the keyboard of the K250, and have that instrument produce the sounds that it normally would if you were playing **its** keyboard. In fact, you can use the K250 sequencer to “play” another instrument through MIDI.

In addition to notes, MIDI on the K250 can send or receive information regarding the pedals, levers, sliders, and buttons. It is necessary to recognize one thing is this regard:

- MIDI cannot make an instrument do something it was not designed to do. For example, if you connect the K250 to a keyboard that doesn't have pitch bend, you won't be able to bend the pitch of that instrument, no matter how much you wiggle the pitch bend lever on the K250. The K250 itself, of course, will still respond as usual.

MIDI can also send or receive what are known as “program changes”—changes of the keyboard setup, to use the K250 terminology. If the K250 and another keyboard are connected using two cables, as described on the previous page, then activating preset #1 on the other keyboard will automatically engage keyboard setup #1 on the K250—KURZWEIL GRAND PIANO. In the same way, selecting keyboard setup #12 on the K250 will engage preset #12, whatever that is, on the other keyboard. If you wish to avoid having a program changed when you don't want one, simply press MODE 1 to turn off MIDI response.

Follow these tips to ensure successful MIDI communication:

- The cable(s) must be properly connected, keeping in mind which instrument will be the master.
- MIDI on the K250 must be turned on, by pressing MODE 1.
- If a slave does not sound when the K250 is played, or does not change presets when the K250 keyboard setup is changed, it may not be set to the correct MIDI channel.

There are 16 MIDI channels (not to be confused with the 12 audio channels on the K250), which are analogous to TV channels: the instruments have to be “tuned” to the same channel in order to communicate. The K250 is set at the factory to MIDI channel 1. Make sure any other keyboards you use are also set to this channel.

# Editing the Keypad Banks

To put the keyboard setup of your choice into the bin of your choice, this is what you do:

1. Select the bank you wish to use — 1, 2, or 3 — by pressing YES, SELECT, or NO.
2. Press EDIT, followed by the number of the bin you'd like to use.
3. The display will change to read "KEYBOARD OR SEQUENCE?" and the KEYBOARD and SEQUENCE LEDs will illuminate. Press the appropriate button to tell the K250 which you would like to store in that bin. (You can store a sequence in a bin, in which case pressing that number button while in PLAY mode starts playback of the sequence.)
4. The display will change to read either "KEYBOARD SETUP: NUMBER/STEP?" or "SEQUENCE: NUMBER/STEP?" depending on which button you pressed. At this point, you can use the cursor keys and numeric keypad to choose the keyboard setup or sequence you want.
5. When the keyboard setup or sequence you want to store in that bin is visible in the display, press SELECT. The K250 will store it and return to PLAY mode.

Remember to select the right bank **before** you press EDIT. Once you've pressed EDIT, you won't be able to change banks. If you do press EDIT in the wrong bank, simply press PLAY to return to PLAY mode, and start over.

NOTE: It is best not to mix sequences and keyboard setups in the same bank. If you do, you might accidentally trigger a sequence when all you wanted to do was change keyboard setups. If you do make this mistake, just press the same number key again, or PLAY, to turn off the sequence.

# Keyboard Setup Editor

The KEYBOARD SETUP EDITOR allows you to create your own keyboard setups (“edit” = “create”), using the instruments in the K250, and to store them for use at any time, in your “live” playing or in sequences. (NOTE: Once these setups are stored, they remain in memory, even if the K250 is turned off. If you perform a hard reset, however, you will erase all the keyboard setups—and sequences—that you’ve created.)

## LAYERS AND REGIONS

The setups you create can make use of the same two ways of combining instruments as the factory setups: layering and splitting.

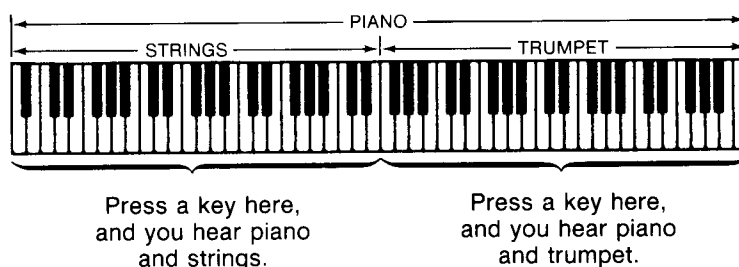
- A setup can have as many as 6 LAYERS, which is to say, as many as 6 different instruments sounding when a single key is pressed.

Each layer spans the entire 88-note keyboard.

- Each layer can be split into as many as 88 REGIONS, which are different parts of the keyboard.

Each region has only one instrument assigned to it (or no instrument at all, for silence).

The factory setups generally are either layered (SLOW STRINGS & GUITAR) or split (ACOUSTIC BASS/PIANO). But there is no reason your setups cannot combine these two techniques. For example, you might have one layer consisting of just the KURZWEIL GRAND PIANO across the entire keyboard, and another layer split between SLOW STRINGS and TRUMPET.



## ENTERING THE KEYBOARD SETUP EDITOR

To enter the KEYBOARD SETUP EDITOR, press EDIT and then KEYBOARD. (To exit, press PLAY.) The following series of choices will appear in the display, above flashing YES and NO LEDs:

1. “Modify Current KBD?” To create a new keyboard setup, you must start with one layer or region, and then add others to it. “Modifying” a setup means using that setup as the initial part of the new one you’ll create.

So: if the keyboard setup you can hear when you play the K250 (the “current keyboard”) is one you want to use as part of the setup you’re going to create, press YES in response to the question “Modify Current KBD?” You will then see “Select KBD EDIT function” (the all-purpose KEYBOARD SETUP EDITOR prompt) in the display, and you can begin adding to it.

On the other hand, if the keyboard setup you can hear isn’t one you want to use, press NO.

2. If you said NO above, the next prompt will read, “Modify an Existing KBD?” If you answer YES, you will be able to select the keyboard setup you wish to start with by using the cursor keys or the numeric keypad.

If you don’t want to start with an existing keyboard setup, but want to create one from scratch, answer NO.

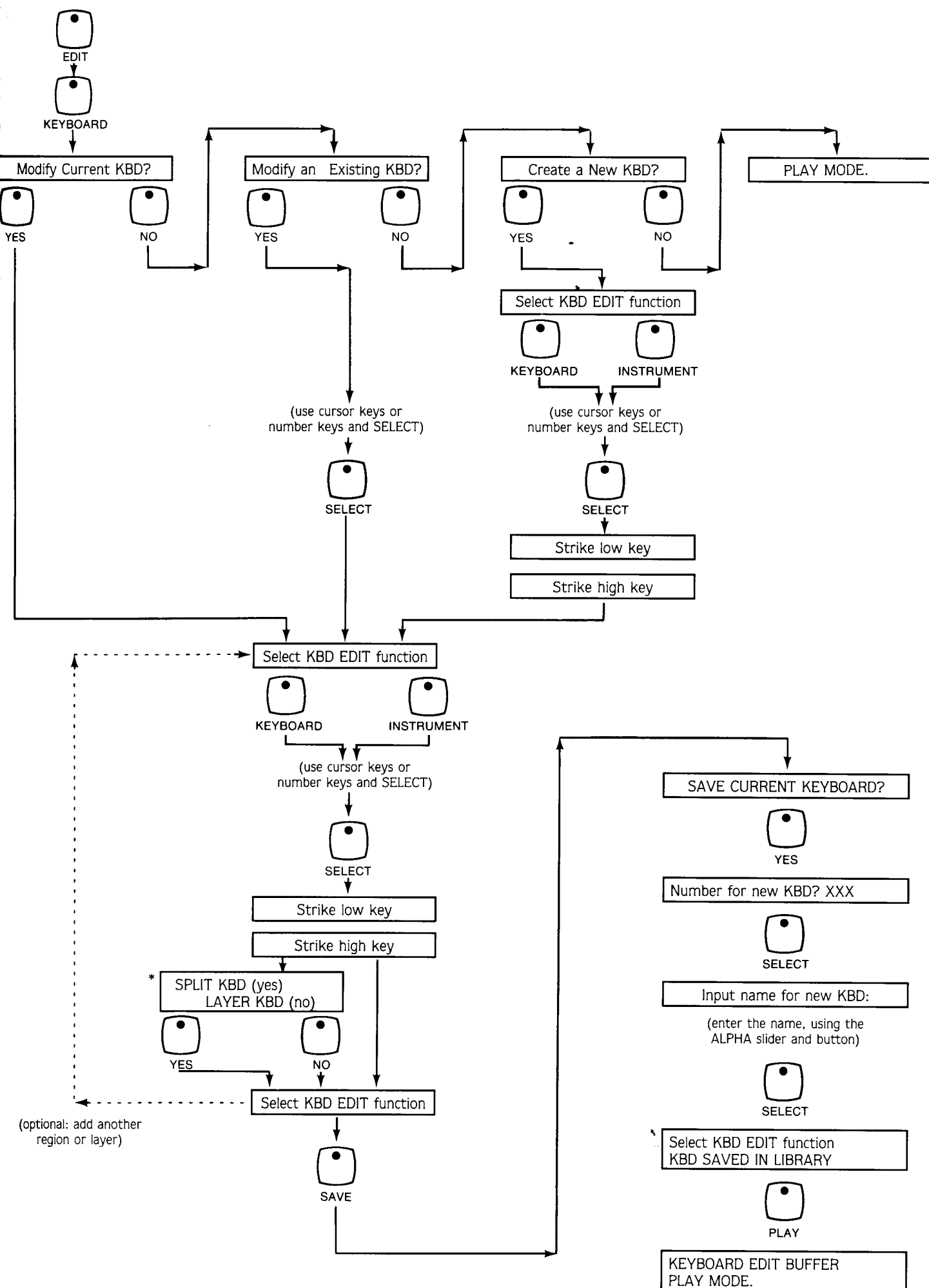
3. Your last option is “Create a New KBD?” Answering NO here will return to PLAY mode. Answering YES will send you to the KEYBOARD SETUP EDITOR with a blank keyboard setup—a fresh slate on which you can build—which means that at first you’ll hear nothing when you play, until you assign something to it by pressing either KEYBOARD or INSTRUMENT (covered on p.30).

Each of these three options can be used to accomplish many of the same things. For example, the hypothetical PIANO & SLOW STRINGS/TRUMPET mentioned on the preceding page could be created using any of the options. Furthermore, it doesn’t matter which sound you start with; to use the same example, you could begin with KURZWEIL GRAND PIANO, or SLOW STRINGS, or TRUMPET.

## OVERVIEW OF THE KEYBOARD SETUP EDITOR

The diagram on the following page gives you an overview of creating a keyboard setup using the KEYBOARD SETUP EDITOR. The buttons shown are the buttons that are to be pressed, and the prompts shown are those you will see in the display.

On the pages following the diagram, the individual steps are explained in detail.



\*You will be given the choice between **SPLIT** and **LAYER** if the **region** you just set up overlaps one or more other regions in the **layer** that you most recently set up. If regions do not overlap, **SPLIT** is chosen automatically and the display immediately changes to "Select KBD EDIT function."

## KEYBOARD OR INSTRUMENT?

While you're creating a keyboard setup—adding regions and layers together—the easiest way to work is to add one sound at a time. Your response to the prompt “Select KBD EDIT function” will be to press either **KEYBOARD** or **INSTRUMENT** to choose whether you want to add an existing keyboard setup or an individual instrument.

**KEYBOARD** is the easier of the two to work with for most purposes. If the sound you wish to add to your new keyboard setup already exists by itself as a keyboard setup (for example, **KURZWEIL GRAND PIANO**), press **KEYBOARD** and then use the cursor keys or the numeric keypad to **SELECT** that keyboard setup. The prompts “Strike low key” and “Strike high key” allow you to determine what range of that keyboard setup (from a single key to all 88 keys) you wish to add to your setup.

Pressing **INSTRUMENT** works in much the same way as pressing **KEYBOARD**, except that the choice you make of low and high keys works differently. When assigning an **INSTRUMENT** to a region, the **K250** matches the highest note of that instrument to the note you press in response to “Strike high key.” The result is that the keys may not play the correct pitches. For this reason, keep the following guideline in mind when deciding between **KEYBOARD** and **INSTRUMENT**:

- Use **KEYBOARD** to assign a sound that has a definite pitch, choosing a keyboard setup that consists of only that one sound. Use **INSTRUMENT** to assign unpitched sounds (such as the members of the **DRUM KITS**).

The instruments in the **DRUM KITS** sound best within a small range, so keep your low and high keys relatively close together when choosing them (notice about how many keys each instrument occupies in the **DRUM KITS**—shown in the descriptions that begin on p. 40). Here are the **INSTRUMENT** numbers (not to be confused with **KEYBOARD SETUP** numbers) for those percussion instruments:

### **#: NAME:**

- 20 KICK DRUM
- 21 SNARE DRUM
- 22 TOM-TOM #1
- 23 COWBELL
- 24 HANDCLAP
- 25 CRASH CYMBAL
- 26 HI HAT OPEN
- 27 HI HAT CLOSING
- 28 HIT HAT CLOSED
- 29 FINGER SNAP
- 30 TEMPLE BLOCK
- 31 GRATER DOWN
- 32 GRATER UP
- 33 SANDPAPER



## SPLIT OR LAYER?

When you assign a keyboard setup or an instrument to a region that overlaps a previously assigned region in the current layer, the display will ask you to choose between SPLIT (press YES) and LAYER (press NO). (If the new region doesn't overlap anything in the current layer, this choice doesn't appear in the display; logic dictates that it is a SPLIT.)

If you answer SPLIT, the K250 will replace whatever was assigned (on the current layer, and between the two keys you just pressed) with the new keyboard setup or instrument. This choice creates an entirely new region containing the assignment, and erases whatever was audible in that region on that layer before.

If you answer LAYER, the K250 will automatically move you up to the next layer and assign the keyboard setup or instrument you have selected to the section of the keyboard you just marked . . . but on that higher layer. That way, it doesn't replace the sound assigned earlier, and allows you to hear both at the same time when you strike a key.

NOTE: A layer does not have to have sound assigned all 88 keys. It is possible for a layer to have one or more keys with nothing—silence—assigned to it.

ALSO: The KURZWEIL GRAND PIANO is an exception to the rules of SPLITS and LAYERS. Due to its unique sonic requirements, you cannot SPLIT it with any K250 keyboard setups except itself. If you try, the K250 will give you something that sounds like a SPLIT, but is, in fact, a combination of a LAYER and a selective ERASE. In other words, KURZWEIL GRAND PIANO always takes up an entire LAYER by itself.

## THE CURSOR KEYS (TRANSPOSE A REGION)

You can transpose a region, using the cursor keys, immediately after choosing SPLIT or LAYER.

RIGHT transposes the current region up by half steps.

LEFT transposes the region down by half steps.

UP transposes the region up by octaves.

DOWN transposes the region down by octaves.

R returns the region to normal pitch.

This is useful both for SPLITS (for example, TRUMPET on one half of the keyboard and GUITAR on the other, with each in its normal range) and for LAYERS (for example, STRINGS sounding in octaves).

## SAVING A KEYBOARD SETUP

When you have a keyboard setup you like, you can save it by pressing SAVE. At that point it is given a number by the K250, and a name by you, exactly as in the SAVE procedure for sequences (see p. 23).

The numbers for the keyboard setups you create begin at 250. (All the keyboard setup numbers between 40 and 250 are reserved for additional factory setups.)

## EXITING THE KEYBOARD SETUP EDITOR

Press PLAY to exit the KEYBOARD SETUP EDITOR. The display will read:

KEYBOARD EDIT BUFFER  
PLAY MODE.

Where are you? You're where you've been all along: the "edit buffer" is the area in which you edit (create) your own keyboard setups. If you saved your setup, a **copy** of what was in the edit buffer was transferred to the KEYBOARD SETUP LIBRARY, where it can be recalled on demand. To exit the edit buffer, select a different keyboard setup using SETUP SELECT (press KEYBOARD, the cursor keys or the numeric keypad and SELECT, then SELECT).

## CALLING UP A KEYBOARD SETUP FOR PLAYING

When you saved your setup, the K250 assigned it a number (250 or above). Use that number to SELECT your setup, the same as you would any of the factory setups.

Also remember, if you haven't put anything else in KEYPAD BANK 3, your first 10 original keyboard setups will automatically appear there, one by one, as you create and save them.

## ADVANCED EDITING

There is a great deal more to the KEYBOARD SETUP EDITOR than it is possible to discuss here. Details of the capabilities and operation of this highly useful feature can be found in A PLAYER'S GUIDE TO THE KURZWEIL 250.

In addition, there is also an INSTRUMENT VOICING EDITOR, which allows you to modify the instrument sounds themselves. Again, refer to the PLAYER'S GUIDE for complete details.

# Sound Modeling Program

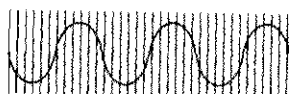
The Kurzweil 250 Sound Modeling Program gives you the tools you need to sample sounds into the K250 and play them from the keyboard. The techniques used in the Sound Modeling Program are simplified versions of the "Contoured Sound Modeling"™ system used in creating the K250 factory preset sounds; hence the name. The operational software of the Sound Modeling Program is termed the "digitizer." Below is a brief explanation of the way the digitizer works.

## WHAT IS SAMPLING?

The world of sound is a world of continuous changes. Sounds usually are represented, at their simplest, as waves:



But the world of computers (and the K250 is, at its heart, a computer) is one of numbers—discrete, individual numbers. Continuous changes cannot be dealt with directly. So, the K250 digitizer does what its name suggests: it breaks a continuous sound into "digits"—numbers. It does this by taking **samples** of the sound at a regular rate:



At the time of each sample, the level of the sound wave is measured. These measurements are the numbers into which the sound has now been translated.

The means by which the sound Modeling Program interprets those numbers in a condensed form to conserve memory (contoured sound modeling), and reinterprets them to restore the original sound upon playback, are much too complex to discuss here. But you at least have a general idea of what happens.

## STORAGE

The digitizer allows you to create up to 15 keyboard setups containing a total of 63 sounds.

**IMPORTANT:** The digitizer memory, unlike the other areas of memory in the K250, is erased when you turn the instrument off. The MacAttach Communications Software™ package is required for permanent storage of sound files, on Macintosh™ diskettes. The Macintosh must be hooked up to the K250 **before** you begin sampling if you intend to save the sound files you are creating. (For a detailed explanation of how to save files using MacAttach, see **Welcome to MacAttach**, the operator's manual for MacAttach.)

A single Macintosh diskette can store half of the sample memory; two diskettes are necessary to save the entire memory.

## INPUTS

There are two different inputs for the sounds you record: MIC and LINE IN. Both are located on the back panel of the K250, at the far right.

MIC is a 1/4" phone jack, designed to accept high-level, high-impedance dynamic microphones. If you have a low-level microphone, you will need a line transformer (female XLR to male phone connector) to boost the level.

Use the MIC input with great care, and watch out for situations in which feedback could occur. If you've just sampled a sound and want to try it out on the K250 before continuing, use headphones and disable the speakers, or, better yet, disable the microphone while you monitor the take.

LINE IN is also a 1/4" phone jack. Any standard guitar-type cord can be connected here. LINE IN generally is best for sampling other electronic instruments. To sample a sound from a tape recorder, use LINE IN with a 1/4" phone to RCA jack.

## OPERATION

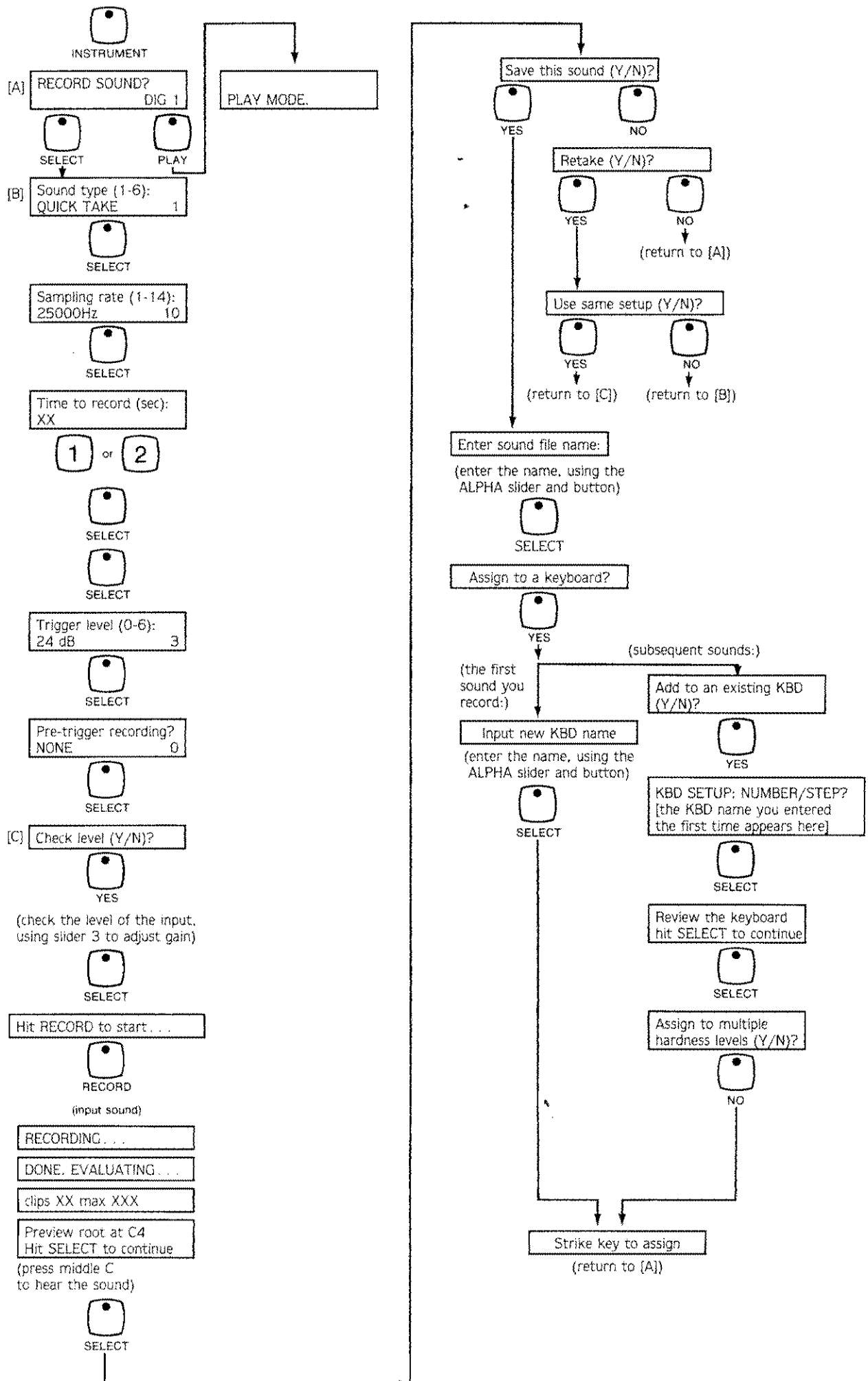
To turn the digitizer on, press INSTRUMENT when you are in PLAY mode. You will enter the digitizer menu at the option "RECORD SOUND?" ("DIG 1" appears in the lower right corner of the display, identifying this option as number 1 on the digitizer menu).

From here on, normal operation is simplicity itself. The flow chart on the next page illustrates each step (the following pages explain things further). The defaults (choices built in at the factory) usually are the easiest choices, so most of the time your response to a prompt will be to press either SELECT or, in the case of "Y/N" question, YES.

NOTE: As with many other aspects of the K250, a complete examination of the power and flexibility of the digitizer would exceed the space available in this manual. Use these pages to familiarize yourself with the basic operation of the feature; once you are comfortable with that, turn to A PLAYER'S GUIDE TO THE KURZWEIL 250 for a more thorough treatment of the subject.

# OVERVIEW OF THE SOUND MODELING PROGRAM

(Buttons shown indicate buttons to be pressed.)



## RECORDING, STEP BY STEP

Of the 6 sound types, QUICK TAKE is the fastest and generally most useful. It lets you record a sound and listen to it immediately. The other types, which are accessed by the LEFT and RIGHT cursor keys, take time to process the sound in different ways.

The SAMPLING RATE of 25000 Hz (25000 samples per second) is fairly high, thus ensuring good fidelity. The 14 rates range from 5000 to 50000 Hz. Higher rates mean higher fidelity, although a lower rate has the advantage of more total sampling time. The LEFT and RIGHT cursor keys can be used to move among the 14 rates.

TIME TO RECORD comes up as 20 seconds when you're recording your first sound at a rate of 25000 Hz. The time available ranges from 10 seconds at 50000 Hz to 100 seconds at 5000 Hz. Select 1 or 2 seconds for recording, which is more than enough time for most sounds. When you return to this option to record a second sound, the time shown will be 19 or 18 seconds; the 1 or 2 seconds you used the first time will have been subtracted from the total of 20 available.

TRIGGER LEVEL is the level of input signal necessary before recording will start. This is a useful feature that prevents the recording of unwanted silence at the beginning of a sound. The default of 24 dB is a good level. But if you wish to change it, you can choose among the possibilities with the LEFT and RIGHT cursor keys.

PRE-TRIGGER RECORDING allows sounds to be recorded before the trigger level is met; this ensures that the attack of a percussive sound is recorded in its entirety. For most sounds, however, the default of no pre-trigger recording works well.

It is a good idea to respond YES to CHECK LEVEL. This turns the display into a meter that shows you the level of the sound entering the input:

```
CONTINUOUS*****
PEAK HOLD  *      *          (not clipped)

CONTINUOUS*****++
PEAK HOLD  *          +      (clipped)
```

The top line of the display acts as a continuous level meter, and the bottom line holds peak values. The leftmost asterisks are always present. The meter bars can extend all the way to the righthand side of the display. Clips (distortion) are represented by "+" signs in the meter bars. A clip also causes the LED on the SPLIT KEYBOARD button to illuminate.

To use the level check meter to set a proper input gain, do the following: First, make sure the master VOLUME slider is moved all the way to the right (HIGH). The rightmost slider (slider 3) serves to adjust the gain. With this slider at its midpoint, produce an input signal that you consider typical and watch the meter. Using the slider, adjust the input gain until the meter readings are high but do not quite clip.

If you answer NO to CHECK LEVEL (which you might reasonably do when recording the same sound a second time), you move directly to the next item, "Hit RECORD to start..."

After you press the RECORD button to start recording, the display reads "RECORDING . . ." But that doesn't mean your time is running out. If you set a reasonable trigger level, such as the default of 24 dB, the K250 will wait for the input signal to exceed that level before it starts recording.

This useful feature can present a problem, however: If your input signal doesn't exceed the trigger level, the K250 will wait indefinitely. The easiest way out of this is to input a sound—any sound—loud enough to start recording (it doesn't have to last the full 1 or 2 seconds you've chosen; once recording starts, it will continue to the end), scrap that sound if it's unsuitable, and set a lower trigger level the next time around.

Watch for the display that shows CLIPS and MAX after recording—it goes by quickly. If you have more than 50 clips or a maximum level of less than 200, the take is not a good one.

When the display reads:

Preview root at C4  
Hit SELECT to continue

you can listen to the sound you just recorded by playing C4 (middle C); you can also play that sound on other keys, up to C5 and down to the bottom of the keyboard.

Saving the sound works the same as any other SAVE on the K250: use the ALPHA slider and button to enter the characters; erase any mistakes with the R cursor key; and enter the finished name by pressing SELECT. It bears repeating here that it is a good idea to give your creations descriptive names, so that in the future you can tell what they are at a glance.

Your sounds must be assigned to a keyboard in order to be heard, as all the factory instruments must. So you must also name a keyboard after saving your first sound. The K250 numbers both user-sampled sounds and the resulting keyboards beginning at 500.

STRIKE KEY TO ASSIGN calls for you to press the key that you want to produce the sound you recorded from now on. Two things are worth noting here:

- If your sound has a specific pitch, it makes sense to assign it to the key that normally produces that pitch; that way, if you play your sounds with other instruments, you'll be playing the right notes.
- To create an entire keyboard of a given kind of sampled sound—an instrument, for example—it is neither necessary nor practical to record a note for every key. Record one every 3 to 5 keys; the K250 will provide the notes in between.



# ADDITIONAL INFORMATION



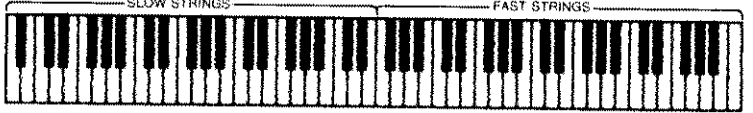

## Descriptions of the Factory Keyboard Setups

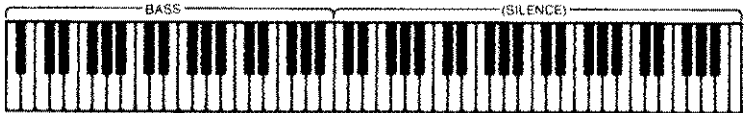

/ means the keyboard setup is split

& means the keyboard setup is layered

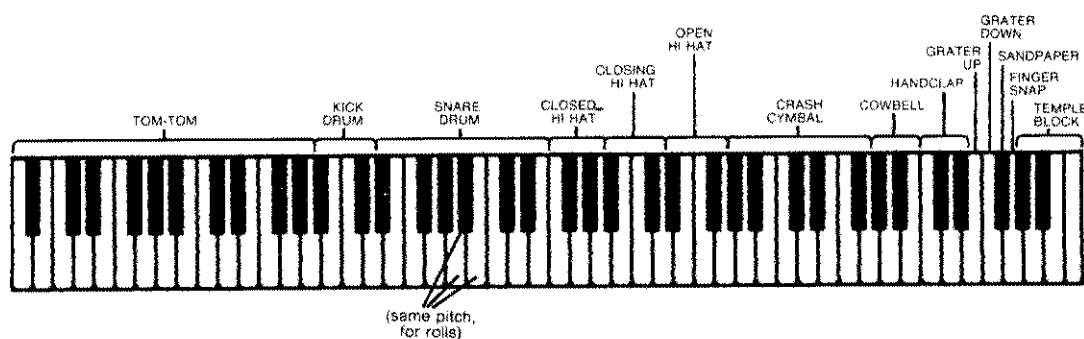
IG-A means the instrument is assigned to Instrument Group A

IG-B means the instrument is assigned to Instrument Group B

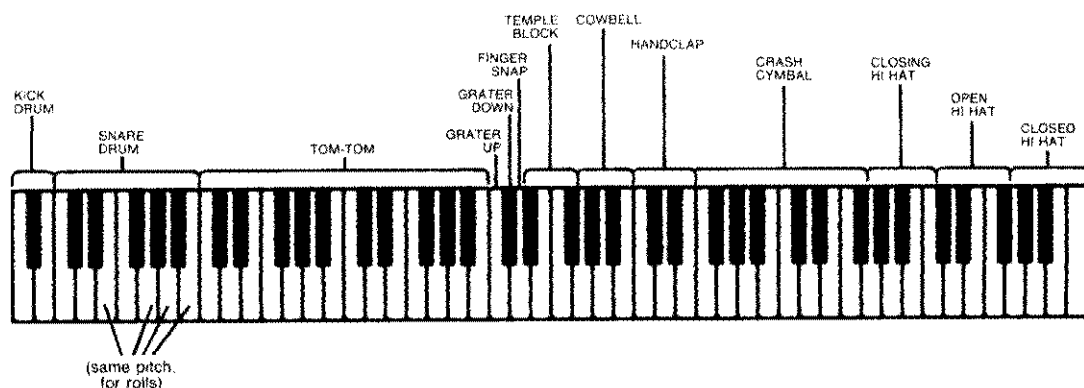
#:	NAME:	DESCRIPTION:
1	KURZWEIL GRAND PIANO	An acoustic grand piano, covering the full 88-note keyboard. IG-A.
2	ACOUSTIC BASS/PIANO	A split combination of setups 9 and 1. Piano is IG-A, Bass is IG-B.
		
3	PIANO/FAST STRINGS	A split combination of setups 1 and 4. IG-A
		
4	BOWED STRINGS FAST	Bass, cello, viola, and violin sections blended into one another across the full keyboard, each sounding in its correct range, and with a rapid attack. IG-A.
5	BOWED STRINGS SLOW	As above, but with a gentle attack. IG-A.
6	SLOW/FAST STRINGS	A split combination of setups 5 and 4. IG-A.
		
7	BASS/SLOW STRINGS	A split combination of setups 9 and 5. Bass, IG-B; Strings, IG-A.
		
8	PIANO & SLOW STRINGS	A layered combination of setups 1 and 5, each covering the full keyboard. IG-A. When you play any key you will hear both sounds.

#:	NAME:	DESCRIPTION:
9	ACOUSTIC BASS	String Bass. IG-B.
		
10	ELECTRIC ORGAN 1	WARNING: LOUD (volume on this setup is not velocity-sensitive). Electric organ with full drawbars. IG-B.
11	ELECTRIC ORGAN 2	Velocity-sensitive, and with different drawbar settings. IG-B.
12	ELECTRIC ORGAN 3	Velocity-sensitive, and with different drawbar settings. IG-B.
13	ELECTRIC ORGAN 4	WARNING: LOUD (volume on this setup is not velocity-sensitive). Electric organ percussion setting. IG-B.
14	ORGAN 2 & ORGAN 3	A layered combination of setups 11 and 12. IG-B.
15	ORGAN 1/ORGAN 4	WARNING: LOUD (volume on this setup is not velocity-sensitive). A combination of setups 10 and 13. Organ 1, IG-A; Organ 4, IG-B.
		
16	ORGAN 2 & ORGAN 4	WARNING: LOUD. A layered combination of setup 11, a dynamic (velocity-sensitive) electric organ, and setup 13, a nondynamic one. Altering the velocity of the keystroke will alter the balance of the first sound against the second. IG-B.
17	TRUMPET	A single trumpet across the full keyboard. IG-B.
18	VALVE TROMBONE	A single trombone across the full keyboard. IG-B.
19	BRASS & SLOW STRINGS	A layered combination of setups 17 and 5. Brass, IG-B; Strings, IG-A.

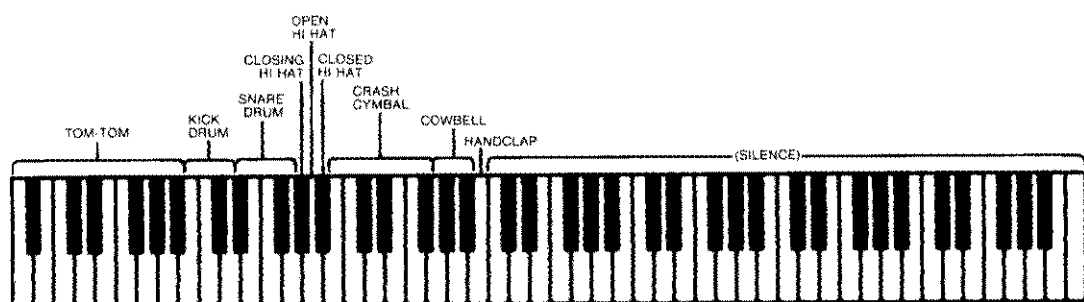
#:	NAME:	DESCRIPTION:
20	DRUM KIT 1	A full drum kit, and then some, across the entire keyboard. IG-B.



21	DRUM KIT 2	Another kit, arranged differently. IG-B.
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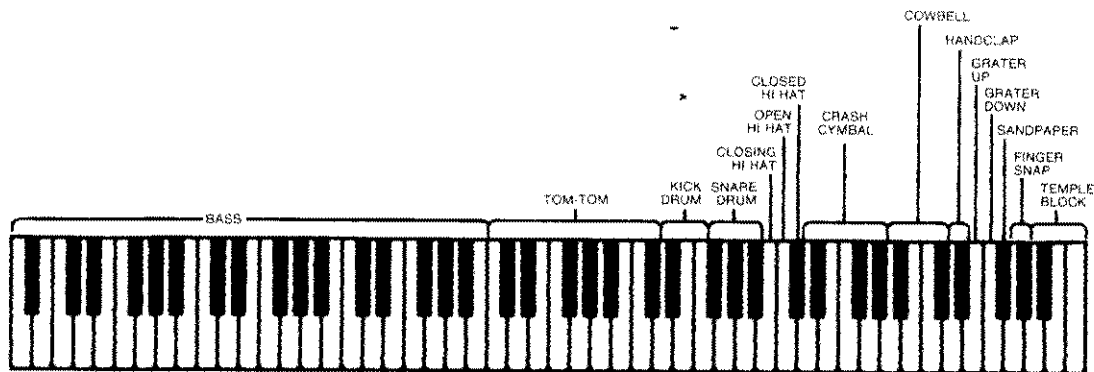
22	DRUM KIT 1/2	A compressed kit. IG-B.
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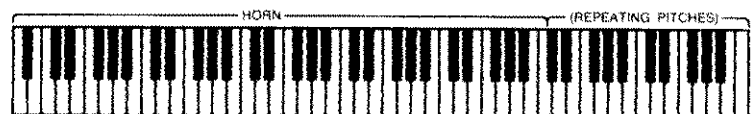
23	MINI DRUMS	A basic kit in a little more than an octave. IG-B.
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#:	NAME:	DESCRIPTION:
24	LAYERED DRUMS	Heavy sounds: a layered combination of setup 20 and a version of itself one octave lower. IG-B.
25	ACOUSTIC BASS/DRUMS	A split combination of setup 9 and a slightly compressed kit. IG-B.



26	BARITONE HORN	A single horn. IG-B.
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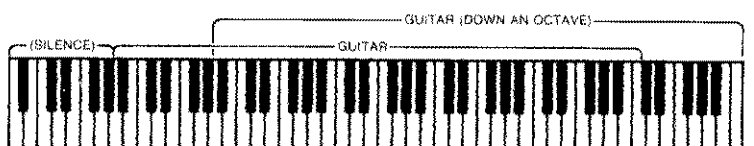
27	LAYERED BRASS	A layered combination of baritone horn and trumpet. IG-B.
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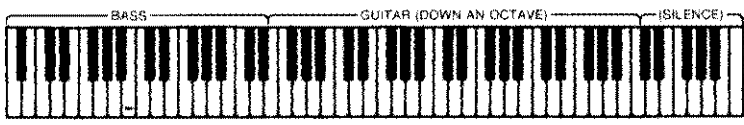
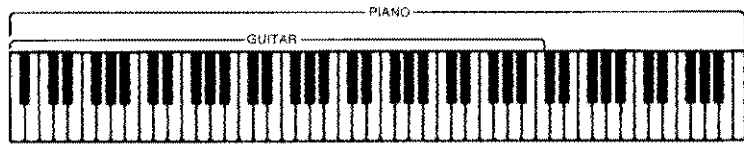
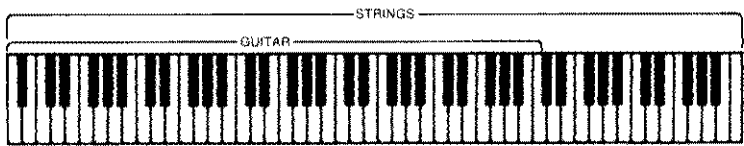



28	ACOUSTIC GUITAR	A nylon-string guitar. IG-B.
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29	LAYERED GUITARS	A layered combination of setup 28 and a version of itself one octave lower. IG-B.
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#:	NAME:	DESCRIPTION:
30	ACOUSTIC BASS/GUITAR	A split combination of setups 9 and 28. The guitar is tuned one octave lower than normal, to blend with the bass. IG-B.
		
31	PIANO & GUITAR	A layered combination of setups 1 and 28. Piano, IG-A; Guitar, IG-B.
		
32	SLOW STRINGS & GUITAR	A layered combination of setups 5 and 28. Strings, IG-A; Guitar, IG-B.
		
33	GUITAR/FAST STRINGS	A split combination of setups 28 and 4. Guitar, IG-B; Strings, IG-A.
		
34	SINE WAVE	A pure tone with a hard attack, across the full keyboard. IG-A.
35	ENDLESS GLISSANDO 1	A "Shepard tone" (named after the discoverer of the effect, psychologist Roger Shepard) across the full keyboard. Hold a key down and you will hear the illusion of an ever-rising pitch. IG-B.
36	DUAL ATTACK ORGAN	WARNING: LOUD. A layered combination of electric organs. The velocity of the keystroke affects the speed of the attack. IG-B.

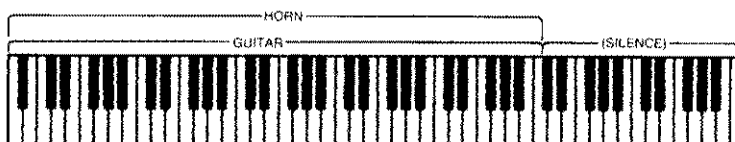
#:	NAME:	DESCRIPTION:
37	DUAL ATTACK STRINGS	A layered combination of slow and fast strings. The velocity of the keystroke affects the speed of the attack. IG-B.
38	BASS/PIANO #2	A split combination of setups 9 and 1. This is the same as setup 2, but with a different split point. Bass, IG-B; Piano, IG-A.



39	BRASS 5	Baritone horn, a fifth lower than normal. IG-B.
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40	GUITAR & BARITONE HORN	A layered combination of setups 28 and 26. IG-B.
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# Rear Panel

On the rear panel of the K250 are a number of input and output connectors. Here are descriptions of all of them.

## COMPUTER

This parallel communications port is used to send data back and forth between the K250 and a personal computer. The computer currently supported is the Apple Macintosh, using the MacAttach Communications Package (see p. 46).

## TRIGGER IN

This ¼" phone jack is used for the input of trigger signals. Such triggers are used in the SEQUENCER, to start recording or playback of a sequence.

## CLICK OUT

This ¼" phone jack puts out a 5-volt (positive) pulse. The number of pulses per minute matches the number of beats per minute of SEQUENCER TEMPO. This click pulse is used as an audible metronome when recording a sequence.

## SYNC IN, OUT

These ¼" phone jacks are used for receiving and producing (respectively) standard synchronization signals, which are used in synchronizing the SEQUENCER of the K250 to external devices, such as drum machines, or to tape, for multitrack tape recording.

SYNC OUT generates a 5-volt square wave, set at the factory for 96 pulses per beat. The number of beats per minute is set by SEQUENCER TEMPO.

## MIDI IN, THRU, OUT

These three 5-pin DIN connectors allow you to link the K250 with other MIDI-equipped instruments or gear (see p. 24).

## POWER

This is where you plug in the power supply cable from the power pod/pedal unit.



## AUDIO OUTPUTS

There are three pairs of stereo outputs used to connect the K250 with external amplifiers and speakers.

The ¼" LO jacks run 2.6 volts, peak to peak, with 600 ohms impedance.

The ¼" HI jacks run 26 volts, peak to peak, with 600 ohms impedance.

The BALANCED XLR connectors run 20 volts, peak to peak, with 600 ohms impedance.

The HI and BALANCED outputs are line level, with 16 dB of headroom. The level of all three pairs of outputs is governed by the VOLUME slider.

## HEADPHONE

This is a standard ¼" stereo headphone jack. Its volume is controlled by the VOLUME slider.

## EXT PEDALS

These two ¼" jacks are used for connecting external pedals #1 and #2. These pedals can be assigned a variety of control and performance functions.

Although external pedals made specifically for the K250 are not currently available, any volume-type pedal with a 10-100K ohm potentiometer can be made to work. Simply wire the wiper of the potentiometer—the middle lead—to the tip of a ¼" stereo plug, and the other two leads to the ring and sleeve of the plug.

## MIC, LINE IN

These ¼" jacks accept inputs that are used, along with the optional Sound Modeling Program, to sample your own sounds (see p. 34). The VOLUME slider and, in some instances, slider 3, govern input gain.

# Optional Accessories

## SOUND BLOCK A

If you own the basic K250, with only 40 factory-installed keyboard setups (consisting of 30 different instrument sounds), you can increase the number of sounds at your disposal by obtaining Sound Block A. Sound Block A provides 84 additional factory-installed keyboard setups, which make use of 15 additional sounds: CHOIR, FLUTE, ELECTRIC BASS (open), ELECTRIC BASS (slap), CLARINET, OBOE, HARP ARPEGGIOS, HARP GLISSANDO, CONGA (open), CONGA (slap), CONGA (ringing), CHIMES, MARIMBA, VIBES, and TIMPANI.

## SOUND MODELING PROGRAM

Your K250 can be retrofitted with the Sound Modeling Program if you do not already have it. This allows you to sample and edit your own sound for playing on the K250. Total sampling time ranges from 10 to 100 seconds, with a variable sampling rate of 5 to 50 kHz.

## MACATTACH COMMUNICATIONS PACKAGE

You can obtain additional storage for keyboard setups, keypad banks, sequences, your own sampled sounds, and more by using the MacAttach Communications Package to link the K250 to an Apple Macintosh computer. In fact, if you have the Sound Modeling Program, you need MacAttach to store your sampled sounds when the K250 is turned off. MacAttach also enables you to take advantage of the Sound Library disks (see below).

The MacAttach package consists of a cable, a 3½" hard-case disk, and an operations manual. The disk includes all necessary file-management software and several demonstration files. MacAttach will work with any Macintosh computer, although the recommended configuration is a 512 kB Macintosh (the so-called Fat Mac) with an external disk drive.

## SOUND LIBRARY

Available for use with the MacAttach interface is a Sound Library, which is a series of Macintosh disks of digitally sampled instruments, including ANALOG SYNTH and ELECTRIC BASS. Kurzweil plans to issue new sound disks regularly.

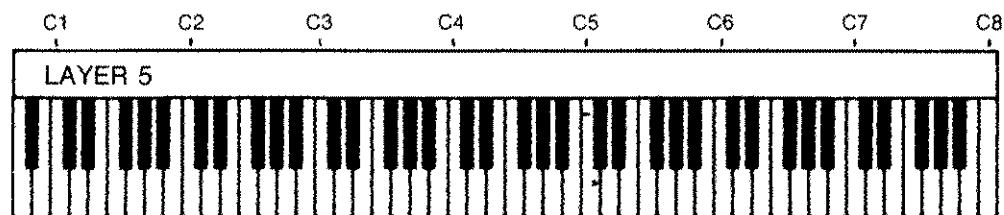
## **KURZWEIL 250 EXPANDER**

The resources of the K250 can be doubled with the addition of the K250 Expander. Essentially, the Expander is a K250 without the keyboard. It weighs less than 50 pounds, and is fully controllable through MIDI and by use of the same front-panel controls found on the K250.

Coupling the K250 Expander to the K250 doubles the number of output channels and voices, and the available sequencer capacity. The Expander can be equipped with the standard Kurzweil options, including Sound Block A and the Sound Modeling Program.

# Keyboard Setup Design Sheet

Use this to design and keep track of all layers and regions of your keyboard setups. Photocopy as many blank copies as you need.



# KURZWEIL 250 KEYBOARD SETUP LIST

1.	Kurzweil Grand Piano	154.	Fluid Harpsichord	54.	Shifting Choir	108.	Steel Syndrome
2.	Acoustic Bass/Piano	155.	Bowed Harpsichord	55.	Falling Choir	109.	Lunar Landing
3.	Slow Strings to Piano	156.	Alien Harpsichord	56.	Galactic Choir	110.	Alien Harp
4.	Bowed Strings Fast	157.	Harpsichord & Piano	57.	Harp/Cathedral Choir	111.	Piano/Flute
5.	Bowed Strings Slow	158.	Harpsichord & Strings	58.	Timpani/Choir	112.	Piano & Flute
6.	Slow to Fast Strings	159.	Harpsichord & 8va	59.	Timpani/Harp	113.	Guitar & Flute
7.	Acoustic Bass/Strings	160.	Harpsichord in Space	60.	Timp./Shim. Harps	114.	Strings & Flute
8.	Piano & Slow Strings	161.	Sci-Fi Harpsichord	61.	Chimes/Harps w/8va	115.	Clar. & Strings & Flute
9.	Acoustic Bass	162.	Sine Wave	62.	Harp/Chimes	116.	Strings & Oboe
10.	Bowed Acoustic Bass	163.	Bright Sine Wave	63.	Oboe	117.	Slow Strings 2
11.	Doubled Acoustic Bass	164.	Endless Glissando	64.	Dual Slow Oboes	118.	Slow Strings Doubled
12.	Fluid Acoustic Bass	165.	Synth Sweep 1	65.	Oboe Pipe Organ	119.	Dual Bass/Organ 4
13.	Infinite Acoustic Bass	166.	Synth Sweep 2	66.	Chimes	120.	Dual Bass/Rock Piano
14.	Electric Organ 1	167.	Ping Pong Piano	67.	Slow Chimes	121.	Piano & Marimba
15.	Electric Organ 2	168.	Sine Drops	68.	Digital Chimes	122.	Piano & Vibes
16.	Electric Organ 3	169.	Sci-Fi Piano 1	69.	Space Chimes	123.	Rock & Roll Piano
17.	Electric Organ 4	170.	Sci-Fi Piano 2	70.	Falling Chimes	124.	Bowed Piano
18.	Vibrato Organ 1	171.	Piano Choir 1	71.	Fluid Chimes	125.	Cow Piano
19.	Vibrato Organ 2	172.	Piano Choir 2	72.	Chimes & Vibes	126.	Piano in 4ths
20.	Drum Kit 1	173.	Orchestra 1	73.	Flute	127.	Pianomento
21.	Drum Kit 2	174.	Orchestra 2	74.	Flute w/Tremolo	128.	Choir & Percussion
22.	Drum Kit 1/2	175.	Orchestra 3	75.	Dual Attack Flute	129.	Slow Strings & Choir
23.	Mini Drum Kit	176.	Klav Guitar	76.	Woodwinds & Reeds 1	130.	Tine Sine
24.	Layered Drums	177.	Bubbling Oil	77.	Woodwinds & Reeds 2	131.	Acoustic Bass/Vibes
25.	Percussion Kit 1	178.	Slow (Strings & Piano)	78.	Flute & Choir	132.	Bar. Horn Section
26.	Percussion Kit 2	179.	Bell & Strings	79.	Flute & Marimba	133.	Horn Section 2
27.	Space Drums	180.	Stereo Split Piano	80.	Marimba	134.	Cymbal Winds
28.	Alien Percussion	181.	Piano & Guitar	81.	Bright Marimba	135.	Drum Kit 3
29.	Trumpet	182.	Slow Strings & Guitar	82.	Doubled Marimbass		
30.	Quick Trumpet	183.	Piano & Trumpet	83.	Marimba & Congas		
31.	Fluid Trumpet	184.	Piano & Slow Harpsichord	85.	Timpani/Flanged Timp.		
32.	Trombone	185.	Guitar & Baritone Horn	86.	Conga/Conga Slap/Ring		
33.	Trumpet & Trombone	186.	Acoustic Bass/Organ 4	87.	Vibes	300.	Rock Drums 1
34.	Horn Section	187.	Slow Ballad Organ 1	88.	Vibes w/Tremolo	301.	Rock Drums 2
35.	Fifth Horn Section	188.	Slow Ballad Organ 2	89.	Fluid Vibes	302.	Rock Drums 3
36.	Fifth Trumpets	189.	Layered Organs	90.	Stereo Panning Vibes	303.	Rock Drums 4
37.	Vibrato Trumpet	190.	Dbl. Harpsichord & Strings	91.	Digital Vibes	304.	Rock Drums 5
38.	Baritone Horn 1	191.	Synth Gamelan	92.	Vibes & Marimba	305.	Rock Drums 6
39.	Baritone Horn 2	192.	Sinamento	93.	1000 Wild Marimbass	306.	Rock Drums 7
40.	Fluid Baritone Horn	193.	Echo	94.	Clarinet	307.	Rock Drums 8
41.	Timbre Shift Bar. Horn	194.	Spaceleste	95.	Clarinet w/Vibrato	308.	Rock Drums 9
42.	Baritone Horn Section	195.	Pianorgan	96.	Fluid Clarinets	309.	Rock Drums 10
43.	Baritone Horn & Trumpet	196.	Noise	97.	Ambient Clarinet	311.	Synth 1
44.	Acoustic Guitar	197.	"The Landing..."	98.	Clarinet & Oboe	312.	Slow Synth 1
45.	Sustain Acoustic Guitar	198.	Null Keyboard (MIDI)	99.	Flute & Clarinet	313.	Synth Long Decay
46.	Fluid Acoustic Guitar			100.	E.Bass/Slap Bass	314.	Velocity Filter
47.	Doubled Acoustic Guitar			101.	Doubled Elec. Basses	315.	Solo Synth 5ths
48.	Tripled Acoustic Guitar			102.	Bright Basses	316.	Solo Synth 4ths
49.	Slow Acoustic Guitar			103.	Dual Electric Bass	317.	Slow Strings & Synth
150.	Harpsichord	50.	Choir	104.	Electric Gliss Bass	318.	Synth Beat
151.	Quick Harpsichord	51.	Doubled Choir	105.	Flute Pipe Organ	319.	A. Guitar & Synth
152.	Bright Harpsichord	52.	Cathedral Choir	106.	Clarinet Pipe Organ	320.	Alien Synth
153.	Doubled Harpsichord	53.	Synth Choir	107.	20th Century	321.	Slow Guitar

\* = DUAL AMPLITUDE

- 322. Guitoplex
- 323. Harmonic Fade-In
- 324. Electric Piano
- 325. Filter E. Piano
- 326. E. Piano & Slow Strings
- 327. E. Piano Chorused
- 328. E. Piano 4ths
- 329. E. Piano Doubled
- 330. E. Piano Tripled
- 331. A. Bass/E. Piano
- 332. A. Guitar/E. Piano
- 333. E. Piano/A. Guitar
- 334. E. Piano & Kurz. Piano
- 335. Fluid E. Piano
- 336. Lead Guitar
- 337. Mutes - Lead Guitar
- 338. Lead Guitar - Harmonics
- 339. Harmonics - Lead
- 340. E. Guitar Doubled
- 341. E. Guitar Tripled
- 342. Powerchords 1
- 343. Powerchords 2
- 344. Powerchords 3
- 345. Fluid E. Guitar
- 346. E. Piano & Slow Choir
- 347. E. Piano/Trem. Flute
- 348. E. Piano/Harp up
- 349. E. Bass/E. Piano

**SOUND BLOCK C  
(optional)**

- 400. Solo Violin
- 401. Solo Cello
- 402. S. Cello/S. Violin
- 403. S. Cello/S. Violin 2
- 404. S. Cello & S. Violin
- 405. Slow Solo Strings
- 406. Piano/Solo Violin
- 407. String Section 1
- 408. String Section 2
- 409. Pizzicato Strings
- 410. Pizz & Fast Strings
- 411. Plucked Harp
- 412. Harp & Pizz Strings
- 413. Harp & A. Guitar
- 414. Celeste
- 415. Hand Bells
- 416. Celeste & Hand Bells
- 417. A. Guitar/Solo Cello
- 418. Harp/Celeste
- 419. S. Strings Dbld 8va
- 420. Plucked Harp 5ths
- 421. Piano/Solo Cello
- 422. Solo Cello/Piano
- 423. Hawaiian Harp
- 424. Harp & Fast Strings
- 425. Piano & Harp
- 426. Piano & Pizz Strings
- 427. Harp/Solo Cello
- 428. Harp/Solo Violin
- 429. Bassoon
- 430. Bassoon w/Vibrato
- 431. Mello Bassoon
- 432. Bassoon (Tch Sens.)
- 433. Bassoon Dbld 8va
- 434. Bassoon & Fast Strings

- 435. Bassoon & Solo Cello
- 436. Bassoon/Solo Violin
- 437. Bassoon & Brass
- 438. Bassoon & Pizz Strings
- 439. Sawtooth Wave
- 440. Sawtooth (Tch. Sens.)
- 441. Lead Synth
- 442. Lead Synth 2 (5ths)
- 443. Electronic Piano 2
- 444. Cathedral Organ & Choir
- 445. Church Organ & Choir
- 446. Cathedral Organ 1
- 447. Cathedral Organ 2
- 448. Church Pipe Organ 1
- 449. Church Pipe Organ 2
- 450. Church Pipe Organ 3
- 451. Church Pipe Organ 4
- 452. Electric Pipe Organ 1
- 453. Electric Pipe Organ 2
- 454. Gospel Organ 1
- 455. Gospel Organ 2

**SOUND BLOCK D  
(optional)**

- 600. Solo Trumpet
- 601. Trumpet Mutes
- 602. Solo Trombone
- 603. Dual Hardness Tenor Sax
- 604. Tenor Sax
- 605. Growl Sax
- 606. Soft Tenor Sax
- 607. Stabs (Falls)
- 608. Square Wave
- 609. Digital Wave Form 1
- 610. Mellow Trombone
- 611. Bass Trumpet
- 612. Trumpet & Mutes
- 613. Trumpet & Tenor Sax
- 614. Trumpet & Soft Tenor
- 615. Trumpet & Soft Tenor & Mutes
- 616. Trumpet & Dual Tenor
- 617. Trumpet & Mutes & Dual Tenor
- 618. Trumpet & Stabs
- 619. Trump & Stabs & Mute
- 620. Dual Tenor & Stabs
- 621. Dual Tenor & Trumpet & Stabs
- 622. Big Band 1
- 623. Big Band 2
- 624. Trumpet & Trombone & Strings
- 625. Trumpet w/Vibrato
- 626. Muted Trumpet w/Vibrato
- 627. Dual Tenor w/Vibrato
- 628. Trombone w/Vibrato
- 629. Acoustic Bass/Trumpet
- 630. Acoustic Bass/Muted Trumpet
- 631. Acous. Bass/Trombone
- 632. Acoustic Bass/Soft Tenor
- 633. Acous. Bass/Dual Tenor

- 634. Trumpet & Trombone
- 635. Trombone & Soft Tenor
- 636. Trombone & Dual Tenor
- 637. Trombone & Muted Trumpet
- 638. Trombone & Trumpet & Soft Tenor
- 639. Trombone & Trumpet & Mute
- 640. Dual Tenor & Soft Tenor
- 641. Trombone & 2 Saxes
- 642. Trio Section 1
- 643. Trio Section 2
- 644. Sffz Trombone Swells
- 645. Sffz Sax Swells
- 646. Sax Synth
- 647. Square Wave Synth 1
- 648. Square Wave Synth 2
- 649. Slow Square Synth
- 650. Touch Sens. Square Wave
- 651. Digital Electric Piano
- 652. Digital Klav 1

**Total Instrument Voices: 96**

**Total Keyboard Setups: 341**