PC3K

Musician's Guide v2 Addendum

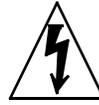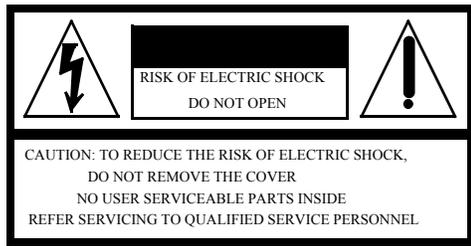### (includes PC3K6, PC3K7, and PC3K8)

KURZWEIL®

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE THE COVER
NO USER SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL

The lightning flash with the arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

IMPORTANT SAFETY & INSTALLATION INSTRUCTIONS

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

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

1. Read all of the Safety and Installation Instructions and Explanation of Graphic Symbols before using the product.

2. This product must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a power supply cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet which is properly installed and grounded in accordance with all local codes and ordinances.

   DANGER: Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Do not modify the plug provided with the product - if it will not fit the outlet, have a proper outlet installed by a qualified electrician. Do not use an adaptor which defeats the function of the equipment-grounding conductor. If you are in doubt as to whether the product is properly grounded, check with a qualified serviceman or electrician.

3. **WARNING:** This product is equipped with an AC input voltage selector. The voltage selector has been factory set for the mains supply voltage in the country where this unit was sold. Changing the voltage selector may require the use of a different power supply cord or attachment plug, or both. To reduce the risk of fire or electric shock, refer servicing to qualified maintenance personnel.

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

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

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

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

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

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

10. This product may be equipped with a polarized line plug (one blade wider than the other). This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace your obsolete outlet. Do not defeat the safety purpose of the plug.

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

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

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

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

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

    C. The product has been exposed to rain;

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

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

14. Do not attempt to service the product beyond that described in the user maintenance instructions. All other servicing should be referred to qualified service personnel.

15. **WARNING:** Do not place objects on the product's power supply cord, or place the product in a position where anyone could trip over, walk on, or roll anything over cords of any type. Do not allow the product to rest on or be installed over cords of any type. Improper installations of this type create the possibility of a fire hazard and/or personal injury.

RADIO AND TELEVISION INTERFERENCE

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

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

NOTE: This instrument has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This instrument generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this instrument does cause harmful interference to radio or television reception, which can be determined by turning the instrument off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.

• Increase the separation between the instrument and the receiver.

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

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

NOTICE

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

AVIS

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

SAVE THESE INSTRUCTIONS

Important Safety Instructions

1)Read these instructions

2)Keep these instructions.

3)Heed all warnings.

4)Follow all instructions.

5)Do not use this apparatus near water.

6)Clean only with dry cloth.

7)Do not block any of the ventilation openings. Install in accordance with the manufacturer's instructions.

8)Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9)Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10)Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11)Only use attachments/accessories specified by the manufacturer.

12)Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13)Unplug this apparatus during lightning storms or when unused for long periods of time.

14)CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type (CR2032).

15)Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Warning- To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.

To completely disconnect this equipment from the AC Mains, disconnect the power supply cord plug from the AC receptacle.

Kurzweil International Contacts

Contact the Kurzweil office listed below to locate your local Kurzweil representative.

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www.kurzweil.com

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Chapter 1
Introduction

This addendum contains updated sections for the printed copy of the PC3K Musician's Guide that was included with your PC3K. This addendum includes new features which are part of the v2 software update for the PC3K OS, as well as additional information that was not included in your printed copy of the PC3K Musician's Guide. When using the v2 OS, the sections in this addendum should be referenced instead of any similar sections in The PC3K Musician's Guide.

The OS version installed on your PC3K can be viewed on the bottom left of the start-up screen when the PC3K is first turned on. The OS version can also be viewed on the Object page in Master Mode by pressing the OBJECT soft button (see *OBJECT* on page 5-2 for details.)

You can download the most recent version of the PC3K OS at www.kurzweil.com by going to the Downloads section, then clicking on the PC3K link. For details on installing updates to your PC3K, see Appendix B, PC3K Bootloader, in the PC3K Musician's Guide.

You can also download the most recent version of the PC3K Musician's Guide in PDF format at www.kurzweil.com by going to the Downloads section, then clicking on the PC3K link.

Chapter 2
Program Mode

The Program Mode Page

```
ProgramMode XP:0st    KB3:10S      #Ch:1
┌─────────────────────┐ 997 Silent Program
│ Piano f Left        │ 998 Click Track
│                     │▐999 Default Program▌
│                     │ 1000 Diagnostic Sine
└─────────────────────┘ 1002 Tempo SyncPulse
 Octav─ Octav+ Panic   Info    XPose─ XPose+
```

The Soft Buttons in Program Mode

Press the **Info** soft button to see all of the controller assignments of the current program. Scroll down the page using the Alpha Wheel or the **Plus/Minus** buttons. Info text is automatically created when assigning a controller to a parameter within the Program Editor (see *Automatic Info Creation* on page 2-6 for details.)

KB3 Program Structure

There's nothing quite like the sound of the classic Hammond™ B-3 tone wheel organ, especially when played through a Leslie™ rotating speaker system. We've done extensive testing and analysis with several tone wheel organs, and created our own models to emulate the unique tone wheel sound. We even took into account the way that older organs start to sound different (and arguably better) as their capacitors begin to leak—and we included a parameter that lets you vary the amount of grunge (leakage) in your sound.

KB3 programs use oscillators to emulate the tone wheel sound. Each oscillator operates independently, and has its own pitch and amplitude control. You can control how many oscillators are used for a KB3 program. There are two oscillators per voice, for a total of 256. You can use up to 91 of them in a KB3 program (the 92nd is reserved to produce key click). Because the oscillators start running as soon as you select a KB3 program, there are always voices available—unlike VAST programs, which start "stealing" notes when you reach the polyphony limit.

The oscillators—we'll call them tone wheels from here on—are divided into an upper and lower group. The upper tone wheels use the samples in the PC3K's keymaps to generate sound, while the lower tone wheels use sine waves. You can change the keymap of a KB3 program's upper tone wheels to produce a large array of sounds. By changing the keymap from sine to a saw wave it is possible to emulate the sound of classic combo organs like the Vox™ and Farfisa™ models.

KB3 programs are also routed through vibrato, rotary speaker, preamp and distortion effects, see below for details.

KB3 Mode

KB3 programs are different enough from VAST programs that we use the term KB3 mode to describe what's going on when you play a KB3 program. Whenever you play a KB3 program, you are in KB3 mode. The blue LED in the KB3 button will light when the current program is a KB3 program.**You can play KB3 programs only on a single channel at a time.**

If you want to create your own KB3 program, start by editing an existing KB3 program.

KB3 Effects And Real-time Controls

You have real-time control over many components of KB3 programs directly from the front panel. The sliders emulate the drawbars that are so essential to the tone wheel sound, while the buttons above them (the Bank Buttons) can control the KB3 effects: Leslie, vibrato, chorus, and percussion. When using a KB3 program in Setup Mode, you must set the *Mutes* parameter to KB3 Control in order to use the Bank buttons for controlling KB3 effects (for details see the *Mutes* parameter in *The COMMON Page* section of the *Setup Mode* chapter in *The PC3K Musician's Guide*.)

Drawbars

One of the standard performance features of many tone wheel organs is the set of drawbars for emulating the stops on a pipe organ. Moving the drawbars controls the amplitude of either the fundamentals or the harmonics of the notes. The PC3K's sliders serve as the nine drawbars found on most tone wheel organs. Pushing the sliders up is the equivalent of pushing the drawbars in (removing fundamentals or harmonics).

Subharmonics		Fundamental	Harmonics					
16'	$5\,^1/3'$	8'	4'	$2\,^2/3'$	2'	$1\,^3/5'$	$1\,^1/3'$	1'
Slider A	Slider B	Slider C	Slider D	Slider E	Slider F	Slider G	Slider H	Slider I

Table 0-1   Standard Drawbar Settings for the Hammond B3

KB3 Mode Effects Buttons (Bank Buttons)

When using a KB3 program, the Bank buttons (above the sliders) control KB3 effects, instead of choosing program banks as they usually do in program mode. The KB3 function is labeled below each button, their LEDs indicate the status of the various effects for the current KB3 program. This status is saved as part of each program. You can change the effects in real time by pressing the buttons.

The KB3 effects return to their programmed settings the next time you select the program. If, however, you're in the Program Editor when you change the effects, you're actually editing the program. *(Each effect also has a corresponding parameter in the Program Editor, see the table below.)* If you like the changes, you can save the program with the new KB3 effects settings. If you don't like the changes, you can exit without saving, and the program will revert to its previous settings.

In KB3 mode the Bank buttons also respond to and send MIDI Controller messages. See Table 0-3 on page 2-4 for details.

Effect Category	Button Name	LED Color (relative to button name/ state)	Corresponding Page and Parameter	Comments
Rotary	Fast / Slow	red/green	MISC: SpeedCtl	
Vibrato	On / Off	red/off	MISC: VibChorCtl	
	Chorus / Vibrato	red/green	MISC: VibChorSel	Disabled if Button 2 is off
	Depth 1 / 2 / 3	green/orange/red	MISC: VibChorSel	Disabled if Button 2 is off
Percussion	On / Off	red/off	PERC: Percussion	
	Volume Loud / Soft	red/green	PERC: Volume	Disabled if Button 5 is off
	Decay Fast / Slow	red/green	PERC: Decay	Disabled if Button 5 is off
	Pitch High / Low	red/green	PERC: Harmonic	Disabled if Button 5 is off

Table 0-2   KB3 Mode Effects Buttons and Corresponding Parameters

Additional Controller Assignments In KB3 Mode

Other default assignments for factory KB3 programs include:

CC Pedal 1 (volume) controls **preamp volume**, which emulates the volume control of an organ preamp. The PreampResp parameter must be set to On for this to work (the default setting.) For details see the *PreampResp* parameter in *The MISC Page* section of the *Program Mode* chapter in *The PC3K Musician's Guide*.

The **Mod Wheel** controls **Distortion Drive**.

Switch Pedal 1 (sustain) controls the **SpeedCtl** parameter, which toggles the Rotary speed between slow or fast. (For details see the *SpeedCtl* parameter in *The MISC Page* section of the *Program Mode* chapter in *The PC3K Musician's Guide*.) This has the same effect as using Bank Button 1 (labeled Rotary Fast/Slow.)

MIDI Control of KB3 Programs

Controller Numbers

Table 0-3 lists the MIDI Controller numbers that control KB3 features. Send the listed controller number and appropriate controller value to control each KB3 feature via MIDI. The PC3K also sends these Controller numbers to its MIDI Out port when using each of these KB3 features.

KB3 Program Feature	MIDI Controller Number	Values	
Distortion Drive (Mod Wheel)	1	0 = Minimum Distortion Drive. 127 = Maximum Distortion Drive. Values between 0 and 127 scale between minimum and maximum Distortion Drive.	
Preamp Volume (Volume/Expression Pedal)	11	0 = Minimum Preamp volume. 127 = Maximum Preamp volume. Values between 0 and 127 scale between minimum and maximum volume.	
Drawbar1	6	With **Steps** parameter set to **(0-8)** (See *The DRAWBARS page* in the KB3 Editor)	With **Steps** parameter set to **(0-127)** (See *The DRAWBARS page* in the KB3 Editor)
Drawbar2	13		
Drawbar3	22		
Drawbar4	23		
Drawbar5	24		
Drawbar6	25	0-13 = volume 8 14-27 = volume 7 28-41 = volume 6 42-55 = volume 5 56-70 = volume 4 71-84 = volume 3 85-98 = volume 2 99-112 = volume 1 113-127 = volume 0	**127** = minimum volume. **0** = maximum volume. Values between 127 and 0 scale between minimum and maximum volume.
Drawbar7	26		
Drawbar8	27		
Drawbar9	28		
Rotating Speaker Fast/Slow	68	64-127 = Fast, 0-63 = Slow	
Chorus/Vibrato On/Off	95	64-127 = On, 0-63 = Off	
Chorus/Vibrato Selector and Chorus/Vibrato Depth	93	54-71 = select chorus with depth 1 72-89 = select chorus with depth 2 90-127 = select chorus with depth 3 0-17 = select vibrato with depth 1 18-35 = select vibrato with depth 2 36-53 = select vibrato with depth 3	
Percussion On/Off	73	64-127 = On, 0-63 = Off	
Percussion Loud/Soft	71	64-127 = Loud, 0-63 = Soft	
Percussion Decay Fast/Slow	70	64-127 = Fast, 0-63 = Slow	
Percussion Pitch High/Low	72	64-127 = High, 0-63 = Low	
Key Click Level	89	0 = -96 dB. 127 = Maximum Key Click Level set in Editor. Values between 0 and 127 scale between -96 dB and maximum Key Click Level.	
Leakage Level	90	0 = -96 dB. 127 = 0 dB. Values between 0 and 127 scale between -96 dB and 0 dB.	

Table 0-3   KB3 MIDI Controller Assignments

Editing VAST Programs

The COMMON Page

Portamento

This parameter is either on or off. The default value of **Off** means that portamento is disabled for the current program.

Portamento is a glide between pitches. On actual acoustic instruments like violin and bass, it's achieved by sliding a finger along a vibrating string. On most keyboards that offer portamento, it's achieved by holding down a key that triggers the starting note, then striking and releasing other keys. The pitch glides toward the most recently triggered note, and remains at that pitch as long as the note remains on. The PC3K gives you two ways to get portamento. See the Attack Portamento parameter below.

When applying portamento to multi-sampled sounds (Acoustic Guitar, for example), the PC3K will play more than one sample root as the pitch glides from the starting pitch to the ending pitch. This may cause a small click at each sample root transition. You can eliminate clicks by using the Mono Sample XFade parameter (see below.)

Attack Portamento

This parameter toggles between two types of portamento. When set to **On**, the PC3K remembers the starting pitch so you don't have to hold a note on to achieve portamento. The pitch always glides to each new note from the previously triggered note. When set to **Off**, the pitch will glide to the most recently triggered note only when the previous note is still on (in other words, you must use legato fingering).

Mono Sample XFade

When applying portamento to multi-sampled sounds (Acoustic Guitar, for example), the PC3K will play more than one sample root as the pitch glides from the starting pitch to the ending pitch. This may cause a small click at each sample root transition. You can eliminate clicks by setting the Mono Sample XFade parameter to **On**. When the Mono Sample XFade parameter is set to **On**, the PC3K performs a crossfade at each sample root transition to eliminate clicks.

The Program FX (PROGFX) Page

Output

Each **Output** parameter specifies the rear panel analog output to which the bus on the same line (Insert, Aux1, or Aux2) is routed. (The Output setting for Insert determines the output destination of the main program signal, even if no insert effects are used.) Setting the Output to **Main** routes the signal of the selected bus to the main outputs. Setting the Output to **Sec.** routes the signal of the selected bus to the auxiliary outputs.

INFO

Press the INFO soft button to go to the INFO page where you can edit the controller assignment info for the current program. On the INFO page, use the **Chan/Layer** buttons to scroll through the current program's list of controller assignment info. Each assignment info entry has a MIDI controller number and a Text parameter to describe what the assignment controls. One info entry can be made for each MIDI CC number.

To edit the text of a controller assignment, press the **Text** soft button. To create a new controller assignment info entry, press the **New** soft button (you will be prompted for a MIDI controller number.) To create a new controller assignment info entry with the same text as the current info entry, press the **Dup** soft button (you will be prompted for a new MIDI controller number, only one info entry can be made for each MIDI CC number.) To delete the current controller assignment info entry, press the **Delete** soft button (you will be prompted to confirm or cancel.) To return to the program editor press the **Done** soft button or the **Exit** button. . See *Export* on page 7-2 for details on exporting program info.

Automatic Info Creation

Note: The following does not apply to controller assignments made for effects within the Chains editor. Info text for Chains must be manually created using the INFO page in the Chains Editor.

When assigning a controller to a parameter on any of the Program Editor pages, an Info text entry is automatically created. Info text allows you to view controller assignments from the Program Mode main page by pressing the **Info** soft button. If the Display parameter is set to Ctls on the Master Mode MAIN page, controllers with info text will show the info on the left side of the Program Mode main page when moved (see *Display* on page 5-1 for details.)

When assigning a controller to a parameter on any of the Program Editor pages, an **i** appears on the top line of the page to indicate that Info text has been created. If you return the controller assignment to **OFF**, the **i** disappears, indicating that the Info text has been removed (unless you have gone to the INFO page, see note below.) The automatically created info will use the parameter name for the Info text. To rename the Info text, press the Edit button while the controller assignment field is still selected. This will bring you to the Info Editor page (see above) and the Info entry for the assigned controller. From the Info Editor page, press the Exit button to return to the page where you made the controller assignment.

Note: After assigning a controller to parameter, if you go to the INFO page, the Info text entries for each controller assignment will remain set unless you remove them with the Delete soft button on the INFO page. If you change the controller assignment for a parameter after going to the INFO page, the parameter's last Info text entry will remain in addition to the newer Info text entry automatically made for the controller assignment. This is done a to ensure that user renamed Info text does not get deleted if a controller assignment was accidentally changed while editing the program. To remove an unused Info text entry, locate the entry on the INFO page and use the Delete soft button.

Editing VAST Programs With KVA Oscillators

Setting KVA Oscillator Type

The PC3K comes with 22 different KVA oscillators. There are 11 high quality anti-aliased oscillators (free of digital artifacts,) and 11 oscillators that exhibit some aliasing (digital artifacts) in the higher octaves. The anti-aliased oscillators use up more DSP resources than the ones with aliasing, but the improvement in sound quality is quite noticeable. We strongly recommend using the anti-aliased oscillators for most applications.

The tables below list KVA oscillators by type and function block size. Before setting an oscillator, you must choose an algorithm which includes a block that matches the block size for the oscillator that you wish to use. See *The Algorithm (ALG) Page* and *Algorithm Basics* in The PC3K Musician's Guide for more on selecting algorithms. Once you have picked an algorithm with the desired block size, highlight the block and use the alpha wheel to scroll through the available functions until you find the desired oscillator.

The **SYNC SQUARE** oscillator is an 8 block oscillator that requires the use of two layers (4 blocks each) and the Alt Input feature of cascade mode. See The PC3K Musician's Guide for details on setting up the Sync Square oscillator.

Note: If you put more than one oscillator in an algorithm, you will only hear the output of the last oscillator in the algorithm, unless an algorithm is used to route the earlier oscillator around the last oscillator and into a MIX function block, or if the last oscillator processes its audio input.

Anti-Aliased Oscillators	
Size	**Name/Type**
1 Block	LPNOIZ (noise + low pass filter)
2 Blocks	SINE
	SINE+
	SAW
	RES NOISE (noise + low pass filter with resonance)
	SQUARE
3 Blocks	PWM (Pulse Width Modulation)
4 Blocks	SYNC SAW
	SUPER SAW
	TRIPLE SAW
8 Blocks	SYNC SQUARE (master) >>, >>SYNC SQUARE (slave) *(4 blocks each)*

Aliased Oscillators	
Size	**Name/Type**
1 Block	SINE
	SAW
	TRI
	SQUARE
	NOISE
	SINE+
	SAW+
	NOISE+
	SW+SHP (Sawtooth + Shaper)
2 Blocks	SHAPED SAW
	PWM (Pulse Width Modulation)

Advanced Use Of KVA Oscillators

Oscillator Specific Control And Modulation Parameters:

Several KVA oscillators also have their own modulation parameters that must be accessed to control the oscillator's intended function. Below is a list of these oscillators and their distinctive parameters, grouped by block size. Though the following parameters could be left at one setting, utilizing one of the DSPCTL or DSPMOD techniques described in the above examples will expose a wider range of expression from each oscillator.

1 Block:

SINE+ *[Aliased (not recommended)]*

Same as 2 block version, but without the **Sine+Am** parameter.

SAW+ *[Aliased (not recommended)]*

A saw oscillator that can add an input signal to its output.

NOISE+ *[Aliased (not recommended)]*

A noise oscillator that can add an input signal to its output.

Editing KB3 Programs

The MISC Page

LeakMode

Selects between different leakage models, determining which leakage harmonics are emphasized. **TypeA** provides an overall tone wheel leakage, with all tone wheels leaking a small amount. **TypeR, TypeX**, **TypeY**, and **TypeZ** emulate different degrees of drawbar leakage, where the leakage components correspond to the nine drawbars, instead of all the tone wheels.

The OUTPUT Page

Demo Song

The Demo Song parameter allows you to choose the demo song for the current KB3 program. The demo song is a short, pre-programmed song that gives you a demonstration of the program in a musical context. You can play a program's demo song in any page in the Program mode by pressing the **Play/Pause** button, and stop the song by pressing the **Stop** button (both buttons are located under the **MODE** buttons on the front panel).

When on the Program mode main page, you can hear a demo song in whatever program you want by pressing the **Play/Pause** button with one program selected, and then selecting another program.

Note: You can also trigger and stop demo songs with a simultaneous double button press of the up and down cursor buttons.

Exp Pedal

Use this parameter to set which rear panel CC Pedal input will control volume for the current KB3 program. With a setting of **Expression/Foot**, volume can be controlled by a CC pedal plugged into either the rear panel input labeled *CC Pedal 1 (volume)*, or the rear panel input labeled *CC Pedal 2 (wah)*. With a setting of **Expression**, volume can be controlled by a CC pedal plugged into the rear panel input labeled *CC Pedal 1 (volume).* With a setting of **Foot**, volume can be controlled by a CC pedal plugged into the rear panel input labeled *CC Pedal 2 (wah).* With a setting of **None**, volume control from both CC pedal inputs is disabled.

Chapter 3
Setup Mode

The Setup Editor

The Channel/Program (CH/PROG) Page

```
SetupMode:CH/PROG                  ‡Zone:1/10
Program       :129 Piano Stack
Destination:USBMIDI+MIDI+LOCAL  Out:Auto
Channel       :1          InputChannel:None
MidiBank      :1          BankMode    :Ctl 0/32
MidiProg      :1          EntryPrgChg :On
Status        :Active     Arpeggiator :On
  more  CH/PRG KEYVEL PANVOL BEND     more
```

Out

Use the **Out** parameter to set the rear panel audio outputs used for each zone of the current Setup. This parameter determines the output settings for the main program signal and insert effects of each zone (for Aux effects output settings, use the Output parameter on the Setup Mode AUX1 or AUX2 pages.)

A setting of **Auto** will make that zone output audio based on the settings for the program used by that zone. Program output settings are set in the Program Editor using the **Output** parameter on the top line of PROG FX page (see *Output* on page 2-6 for details) or the **Output** parameter on the LAYER FX page (see the PC3K Musician's Guide for details.) A setting of **Pri.** (primary) will output track audio to the **MAIN** Balanced Analog Outputs. A setting of **Sec.** (secondary) will output track audio to the **AUX** Balanced Analog Outputs.

Input Channel

In Setup mode, an external MIDI device (such as a keyboard or sequencer) will play notes of a single program by default (if the Local Keyboard Channel parameter is set to off, see page 6-5 for details.) The played program will be on a Zone that has a **Channel** parameter (on the CH/PROG page) which matches the channel on which the external MIDI device is transmitting. *(If no Zone's Channel parameter matches, the external device will play notes of the last program that was using that channel in Program Mode or from a previously loaded Song or Setup.)*

When the Program of a Setup Zone is played from an external MIDI device, Setup MIDI parameters (most noticeably key range and transposition) will not be applied. If you want these parameters applied, set the **Input Channel** parameter to match the channel on which the external MIDI device is transmitting. See the *Input Channel Settings* section below for details on setting an Input Channel. *(To play the entire Setup from an external MIDI device, see Local Keyboard Channel (LocalKbdCh) on page 6-5.)* When Local Keyboard Channel is set to something other than **Off**, the **Input Channel** parameter has no effect and will appear in parentheses.

Input Channel basically has the same effect as Local Keyboard Channel, except you can choose to play only one or some Setup Zones from an external device, instead of all Zones. To play more than one Zone from an external device, set each desired Zone's **Input Channel** parameter to match the channel on which the external MIDI device is transmitting. It is also possible to use the **Input Channel** parameter to use multiple external devices which each play a specific Zone or Zones. For details on controlling assignments made to the PC3K's physical controllers (sliders, switches, mod wheel, etc.) from an external MIDI device when using an Input Channel, see *Continuous Controller Messages From External MIDI Devices* on page 6-6.

Input Channel Settings

When setting a MIDI channel number for the Input Channel parameter, channel 1 for example, you can choose **1 L+M** or **1 M** (scroll past 16 L+M to see all the choices.) A channel number with a setting of **L+M** indicates that the zone will be playable from the PC3K keyboard (L for Local) and from the external MIDI controller (M for MIDI.) A channel number with a setting of **M** indicates that the zone will be playable only from the external MIDI controller, and not from the PC3K keyboard. You can also choose **Any L+M** or **Any M** for the Input Channel setting. **Any L+M** and **Any M** will make the zone receive MIDI on any channel that an external device is transmitting. This is useful if you are using a single external MIDI controller and are not sure which channel it is transmitting on.

Arpeggiator

The **Arpeggiator** parameter determines if the current Zone can be played by an arpeggiator. Normally, the **Arpeggiator** parameter should be set to **On**, and the arpeggiator for each Zone should be turned on or off with the *Active* parameter on the ARPEGGIATOR page for each Zone *(for details see The ARPEGGIATOR Page* in the *Setup Mode* chapter of *The PC3K Musician's Guide.)* If the **Arpeggiator** parameter is set to **Off**, the zone will not be arpeggiated even if the *Active* parameter on the ARPEGGIATOR page is set to *On*.

When a global arpeggiator is being used, the **Arpeggiator** parameter can be set to **Off** to exclude a Zone from being played by the global arpeggiator. See *Arpeggiator Global (ArpGlobal)* on page 3-5 for details on setting a global arpeggiator.

Controllers

Continuous Controller Parameters

Entry (Ent) and Exit Values

Entry value allows you to specify an initial value for a controller in a Setup that will be sent whenever you select that Setup. For example, if you want to make sure that all of the modulation for the Program in a Zone is turned off when you select a Setup, use the Setup Editor to assign a physical controller to a destination of MIDI 01 (MWheel) and set Entry Value to **0**. (The Mod Wheel is usually assigned to destination MIDI 01 MWheel, which is used to control a modulation parameter for most Programs.)

Entry values ignore the current position of the physical controller when the setup is selected. By default, once the Setup is loaded and the entry values have been sent, moving a controller will instantly send new controller values. This can cause a jump in values if the controller happens to be set to a value far from its entry value. To avoid these jumps, change the SetupCtls parameter in Master Mode to **PassEntry** (see *Setup Controllers (SetupCtls)* on page 11-2 of *The PC3K Musician's Guide* for details.) With SetupCtls set to **PassEntry,** moving the controller will have no effect until it moves past its entry value. In this case, continuing the modulation example above, moving the assigned controller won't turn on any modulation until it's pushed all the way *down* (passing entry value 0,) and then up again.

An entry value of **None** is quite different from a value of **0**. **None** means that there will be no initial controller command when the setup is selected, and any subsequent movement of the physical controller will be effective.

Exit Value tells the PC3K to send a value for that controller whenever you leave the setup, either by selecting another setup or by selecting a different mode altogether. It can be very useful when a controller is doing something to the sound, and you don't want that effect to continue after you leave the setup. For example, if you want to make sure a zone's pitch returns to normal whenever you leave a setup, you would set Exit Value to **64** for any controller whose Destination parameter is set to **PitchUp**. Again, **None** means no command is sent.

Note: Programs can also be saved with controller entry values (on the Program Editor CONTROLLERS page.) When a Setup is loaded, entry values for the Programs in the Setup are sent first, followed by the entry values for the Setup. Because of this, if a Setup and a Program used by a Setup have entry values set for the same controller, the entry value for the Setup will be used. If a Program used by a Setup has an entry value set for a controller, but the Setup has an entry value of **None** for the same controller, the entry value from the Program is used.

The RIBBON Page

```
SetupMode:RIBBON                    ↕Zone:1/1
        Dest      Scale  Add   Curv      Ent  Exit
Sect1 MIDI21      100%   0     Linear    None None
Sect2 OFF         100%   0     Linear    None None
Sect3 OFF         100%   0     Linear    None None

  more  ARP SW  SWITCH  RIBBON  RIBCFG   more
```

The RIBBON page lets you define the controller assignment for the PC3K's optional ribbon controller. The ribbon controller senses movement when you press on it and move your finger left or right; this creates numerous possibilities for controlling pitch, volume, panning, crossfades between zones, or any other uses you might imagine.

In Program mode the ribbon controls an octave of pitch bend by default. This is because when using the default Control Setup **126 Internal Voices,** the ribbon is set to the destination MIDI21, which controls Aux Bend 1 (for details, see *The Control Setup* and *The BEND Page* in the *Setup Mode* chapter of *The PC3K Musician's Guide*.)

The optional Ribbon controller can be used as a single long controller, or it can be divided into three separate sections, each with its own controller assignments (this is done on the RIBCFG page, see below). The two small arrows above the strip indicate the boundaries of the three sections. The large arrow above the ribbon points to the center of the ribbon, for when the ribbon is configured in one section.

Note that there are three assignable parameter groups on the RIBBON page. When the Ribbon is set to act as a single section controller, the only parameters that affect its behavior are those of Section 1 (Sect1). When the Ribbon is set to act as a three-section controller, each parameter group affects only its respective Ribbon section.

To modify other ribbon parameters, go to the *The Ribbon Configuration (RIBCFG) Page* (for details see *The Ribbon Configuration (RIBCFG) Page* in the *Setup Mode* chapter of *The PC3K Musician's Guide*.)

For details on the The RIBBON page parameters see the *Continuous Controller Parameters* section in the *Setup Mode* chapter of *The PC3K Musician's Guide* .

Note: When used as a one section controller, the ribbon sends two MIDI CC numbers (MSB and LSB in the MIDI spec,) giving the ribbon a resolution of 768 steps, instead of the 128 steps that one MIDI CC provides. This allows the ribbon to have finer control of a parameter compared to other continuous controllers. To take advantage of this, assign the destination for Sect1 to a CC number between 0 and 31, and the ribbon will additionally send to a destination 32 higher than the set destination. For example, MIDI22 would also send to the destination MIDI54. In this case, if you set a Program parameter source field to MIDI22, the parameter will automatically also use MIDI54 as a source, enabling the 768 step resolution when using the one section ribbon. The additional source that is automatically used will not be seen in the Program Editor (this happens behind the scenes,) but both CC numbers will be sent to the MIDI Out and USB port. (Also note, MIDI32 through MIDI63 are not available in the Program parameter source fields, as they are reserved for using CC numbers 0-31 as described above.) When the ribbon is used as a one section controller, if a MIDI CC above 63 is used as the destination for Sect1, only one CC number will be sent and the ribbon will have a resolution of 128 steps. When the ribbon is used as a three section controller, each section will only send one CC number and each section will have a resolution of 128 steps.

The ARPEGGIATOR & ARPEGGIATOR 2 (ARP1, ARP2) Pages

Real-time Control of Arpeggiator Parameters

Controller Number	Corresponding ARPEGGIATOR Parameter	Operation
172	ShiftPBank	A controller value selects the corresponding ShiftPatt Bank for the ARPEGGIATOR page of a controller's zone. For example, controller value 2 selects bank 2, controller value 7 selects bank 7.
174	VelPBank	A controller value selects the corresponding VelPatt Bank for the ARPEGGIATOR page of a controller's zone. For example, controller value 2 selects bank 2, controller value 7 selects bank 7.

The COMMON Page

Arpeggiator Global (ArpGlobal)

With the ArpGlobal parameter, you can set the Arpeggiator of a single Zone to play notes on all Zones in the Setup. For example, if ArpGlobal is set to **Arp 3**, all zones will be played by the arpeggiator in in Zone 3 (if the arpeggiator in Zone 3 is active.) In addition to **OFF**, there are as many ArpGlobal settings as there are Zones in the current setup. For example, in a seven-zone setup, you can select a value of **OFF**, or **Arp 1–7** for ArpGlobal.

To exclude a Zone from being played by the global arpeggiator, set the *Arpeggiator* parameter to *Off* on the CH/PROG page for that Zone (see *Arpeggiator* on page 3-2 for details.)

For details on the arpeggiator for each Zone, see *The ARPEGGIATOR & ARPEGGIATOR 2 (ARP1, ARP2) Pages* in the *Setup Mode* chapter of *The PC3K Musician's Guide*.

Chapter 4
MIDI Mode

The RECEIVE Page

Local Keyboard Channel (LocalKbdCh)

The Local Keyboard Channel enables an external MIDI device to function as if it is the PC3K's keyboard and physical controllers. This allows one MIDI channel of an external MIDI device to control multiple MIDI channels of the PC3K, even if the external MIDI device only transmits on one channel.

In **Setup Mode**, when the **LocalKbdCh** parameter is set to match the channel on which the external MIDI device is transmitting, the setup will play on the external MIDI device as it does on the PC3K's keyboard. See the *Continuous Controller Messages From External MIDI Devices* on page 4-2 section below for details on receiving continuous controller messages from an external MIDI device when a Local Keyboard Channel is set. Also, in Setup Mode, when the LocalKbdCh parameter is set to match the channel on which the external MIDI device is transmitting, external MIDI received by a Zone is sent to the destination set with each Zones' CH/PROG page **Destination** parameter (see the PC3K Musician's Guide for details on the CH/PROG page Destination parameter.) In this case, if a Zone is sending the external MIDI to the USB or MIDI Out ports, the MIDI messages will be remapped to the channel of the Zone, and any note transposition set for the Zone will be applied.

In **Setup Mode**, when the **LocalKbdCh** parameter is set to **None**, an external MIDI device will play a single Program. The played program will be on a Zone of the current Setup that has a **Channel** parameter (on the Setup Editor CH/PROG page) which matches the channel on which the external MIDI device is transmitting. *(If no Zone's Channel parameter matches, the external device will play the program that was last used by that channel in Program or Setup Mode.)* When the Program of a Setup Zone is played from an external MIDI controller with the **LocalKbdCh** parameter set to **None**, Setup MIDI parameters (most noticeably key range and transposition) will not be applied. (See *Input Channel* on page 3-1 for details on applying these parameters when playing a single zone from an external MIDI device.) Also, in Setup Mode, when Local Keyboard Channel is set to None, external MIDI sent to any channel is output from the MIDI Thru port, but not from the MIDI Out port or USB port.

The Local Keyboard Channel parameter also affects how external MIDI devices interact with **Program Mode**. In Program Mode, when the **LocalKbdCh** parameter is set to match the channel on which the external MIDI device is transmitting, the external MIDI device will play the Program on the channel currently selected on the Program Mode main page. *(The Program Mode main page shows the current channel on the right of the top line.)* Also, in this case, external MIDI received by a Program is sent to the destination set by the **Destination** parameter on the MIDI Mode Transmit page (see the PC3K Musician's Guide for details on the MIDI Mode Transmit page Destination parameter.)

In **Program Mode**, when the **LocalKbdCh** parameter is set to **None**, an external MIDI device will trigger the program on the channel that it is transmitting, no matter which channel is currently selected on the Program Mode main page. In this case, external MIDI sent to any channel is output from the MIDI Thru port, but not from the MIDI Out port or USB port.

Continuous Controller Messages From External MIDI Devices

When using an external MIDI device with the PC3K, you can control many of the PC3K's program parameters by sending MIDI Continuous Controller messages (CCs) from the external MIDI device. Each parameter that you wish to control must have a CC number assigned in the Program Editor (see the section below: *Assigning An External CC Number As A Control Source For A Program Parameter*.) See the sections below for details on using external CCs with the available settings in Program and Setup Mode.

For details on controllable parameters of VAST programs, see the following sections in The PC3K Musician's Guide: *The DSP Modulation (DSPMOD) Page* on page 6-29, *The LFO Page* on page 6-37, *The ASR Page* on page 6-39, *The Function (FUN) Page* on page 6-40, *The Envelope Control (ENVCTL) Page* on page 6-44, *The MOD Pages* on page 9-9, and *FXLFO, FXASR, and FXFUN pages* on page 9-10. For KB3 programs, see the following sections in The PC3K Musician's Guide: *The PITCH Page* on page 6-63, *The AMP Page* on page 6-62, *The LFO, ASR, and FUN Pages* on page 6-70, *The MOD Pages* on page 9-9, and *FXLFO, FXASR, and FXFUN pages* on page 9-10.

Assigning An External CC Number As A Control Source For A Program Parameter

For each program, the Program Editor can be used to assign an external MIDI controller CC number for each controllable parameter in that parameter's source field. Source fields are named differently depending on their page: Src1, Src2, RateCt, Trigger, Input a, Input b, and Source. To assign a CC number to a source field, enter the number with the alphanumeric pad, then press **Enter**. With the source field selected, you can also assign a CC number by holding the **Enter** button and sending a CC value from the external MIDI controller. When assigning a CC number to a source field, the number may be displayed in the source field as the name of that CC's default use.

Using External CCs In Program Mode, Local Keyboard Channel=None

To control a program parameter via external MIDI CC in Program Mode, the parameter must first have a source assigned within the Program Editor, as described in the *Assigning An External CC Number As A Control Source For A Program Parameter* section above. To control an assigned program parameter with **Local Keyboard Channel** set to **None**, send the assigned CC number to the channel which contains the program.

Using External CCs In Program Mode, Local Keyboard Channel Enabled

To control a program parameter via external MIDI CC in Program Mode, the parameter must first have a source assigned within the Program Editor, as described in the *Assigning An External CC Number As A Control Source For A Program Parameter* section above. When using Local Keyboard Channel in Program Mode, it is best to assign parameters to be controlled by the default CCs for physical controllers, because these match the default destinations (see the *External MIDI CC Remapping For Local Keyboard Channel and Input Channel* table below for default CCs).

The Local Keyboard Channel makes an external MIDI controller's continuous controllers behave as if they were the PC3K's physical controllers. In Program Mode, when an external MIDI controller is sending a CC on the channel set for **Local Keyboard Channel**, external CCs can control the destinations set for each of the PC3K's physical controllers. Send the default CC for a physical controller to control its destination (see the *External MIDI CC Remapping For Local Keyboard Channel and Input Channel* table below for defaults.) In Program Mode, these destinations are set in the Control Setup *(see Control Setup on page 7-2 of the PC3K Musician's Guide for details.)* By default, the destinations for the PC3K's physical controllers are the same as their default CC numbers. To control an assigned parameter, send the assigned default physical controller CC to the channel set for **Local Keyboard Channel.**

If a **Local Keyboard Channel** is set but you are sending CCs to a different channel, these CCs will be received normally by the Program in that channel.

Using External CCs In Setup Mode, Local Keyboard Channel=None, Input Channel=None

To control a program parameter via external MIDI CC in Setup Mode, the parameter must first have a source assigned within the Program Editor, as described in the *Assigning An External CC Number As A Control Source For A Program Parameter* section above. To control an assigned parameter, send the assigned CC number to the channel for the Setup Zone which contains the program.

Using External CCs In Setup Mode, Local Keyboard Channel Enabled, Input Channel=None

To control a program parameter via external MIDI CC in Setup Mode, the parameter must first have a source assigned within the Program Editor, as described in the *Assigning An External CC Number As A Control Source For A Program Parameter* section above.

The Local Keyboard Channel makes an external MIDI controller's continuous controllers behave as if they were the PC3K's physical controllers. In Setup Mode, when an external MIDI controller is sending a CC on the channel set for **Local Keyboard Channel**, external CCs can control the destinations set for each of the PC3K's physical controllers. Send the default CC for a physical controller to control its destination (see the *External MIDI CC Remapping For Local Keyboard Channel and Input Channel* table below for defaults.) The CC is received in Setup Mode and sent to a Program based on the destination set in Setup Mode. In the Setup Editor, use the alphanumeric pad to set each PC3K physical controller **Dest**, **OnControl** or **OffControl** field to the CCs you assigned in Program Mode. When setting a CC destination, the number may turn into the name of the PC3K physical controller which uses that CC by default. If you create a Setup using Setup **126 Internal Voices** as a template, the default CC numbers will already be set for each physical controller destination. *(Don't save a Setup at ID 126, setup 126 Internal Voices is the PC3K's default Control Setup, see Control Setup on page 7-2 of the PC3K Musician's Guide for details.)*

Note: In Setup Mode, when an external MIDI controller is sending a CC on the channel set for **Local Keyboard Channel**, any CC sent that is not in the *External MIDI CC Remapping For Local Keyboard Channel and Input Channel* table (see below) gets sent to Programs on all Zones of the Setup.

If a **Local Keyboard Channel** is set but you are sending CCs to a different channel, these CCs will be received normally by the Program in the Setup Zone for that channel.

Using External CCs In Setup Mode, Local Keyboard Channel=None, Input Channel Enabled

To control a program parameter via external MIDI CC in Setup Mode, the parameter must first have a source assigned within the Program Editor, as described in the *Assigning An External CC Number As A Control Source For A Program Parameter* section above.

To use an **InputChannel** (see page 3-1,) **Local Keyboard Channel** must be set to **None**. The **InputChannel** makes an external MIDI controller's continuous controllers behave as if they were the PC3K's physical controllers. When an external MIDI controller is sending a CC on the channel set for **InputChannel,** external CCs can control the destinations set for each of the PC3K's physical controllers. Send the default CC for a physical controller to control its destination (see the *External MIDI CC Remapping For Local Keyboard Channel and Input Channel* table below for defaults.) The CC is received in Setup Mode and sent to a Program based on the destination set in Setup Mode. In the Setup Editor, use the alphanumeric pad to set each PC3K physical controller **Dest**, **OnControl** or **OffControl** field to the CCs you assigned in Program Mode. When setting a CC destination, the number may turn into the name of the PC3K physical controller which uses that CC by default. If you create a Setup using Setup **126 Internal Voices** as a template, the default CC numbers will already be set for each physical controller destination. *(Don't save a Setup at ID 126, setup 126 Internal Voices is the PC3K's default Control Setup, see Control Setup on page 7-2 of the PC3K Musician's Guide for details.)*

Note: In Setup Mode, when an external MIDI controller is sending a CC on the channel set for **Input Channel**, any CC sent that is not in the *External MIDI CC Remapping For Local Keyboard Channel and Input Channel* table (see below) also gets sent to the Program on that channel.

If an **InputChannel** is set but you are sending CCs to a different channel, these CCs will be received normally by the program in the Setup Zone for that channel.

External MIDI CC Remapping For Local Keyboard Channel and Input Channel

PC3K Physical Controller	Default MIDI CC# Which Controls The Destination Assigned To Each PC3K Physical Controller In The Setup Editor
Pitch Wheel	NA, responds to MIDI pitch bend messages
Mod Wheel	1
Arp Button	69
SW Button	29, 70
Continuous Pedal 1	11
Continuous Pedal 2	4
Breath	2
Pressure (key pressure)	Not controllable by MIDI CC
Foot Switch 1	64
Foot Switch 2	66
Foot Switch 3	67
Ribbon Section 1	18, 21
Ribbon Section 2	19
Ribbon Section 3	20
Slider A (Data)	6
Slider B	13
Sliders C-I	22-28
Programmable Switches 1-8	Not controllable by MIDI CC
Bank Buttons (KB3 control buttons, Setup Zone Mute buttons)	Not controllable by MIDI CC

Chapter 5
Master Mode

MAIN

```
MasterMode:MAIN          Memory available:69%
Tune       : Oct         MasterLock: Off
Transpose: 0ST           DemoButton: On
FX Mode   : PerformanceButtons    : Off
DrumRemap: None          Display     : Lyr/Zone
Id Entry  : Global
SetupCtls : Instant
    more  MAIN    MAPS    OUTPUT TEMPO    more
```

Display

The **Display** parameter determines what will be displayed in the info box on the left side of the Program Mode and Setup Mode main pages. When **Display** is set to **Lyr/Zone**, the info box will display an overview of the keymap names and ranges for each layer in the current Program (while in Program Mode,) or an overview of the Program names and ranges for each zone in the current Setup (while in Setup Mode.) The line beneath the name of the keymap/program indicates the keyboard range of that layer/zone. For example, a line extending all the way across the info box represents a layer/zone that extends from C -1 to G 9—the full 128 note range of the PC3K. The representation of these layer/zone ranges is approximate; they're intended to let you know if you have a layered keyboard (lines overlapping) or a split keyboard (lines not overlapping). In Program Mode, stereo keymap layers are indicated in the info box with a double circle symbol. In Setup Mode, zones that have the **Riff** parameter set to **On** (On the Setup Editor RIFF1 page) are indicated in the info box with a riFF symbol. The info box can display up to four layers/zones at a time. If the current Program/Setup has more than four layers/zones, you can view their keymaps/programs by pressing and holding down the **Enter** button and scrolling with the **Chan/Layer** buttons.

When **Display** is set to **Ctls**, Program Mode and Setup Mode use the info box to display the controller assignment info and MIDI CC value for the last moved controller. The info box clears a few moments after displaying the controller info.

OBJECT

Pressing the **OBJECT** soft button calls up the OBJECTS page *(see below.)* From here you can choose one of two utility functions for renaming or deleting selections of user created (or edited) objects. Press the **Rename** or **Delete** soft button to access each function (see below for details.)

The OBJECTS page also displays the number of user objects saved to internal memory (in the **UserObjects** field,) the maximum number of user objects that can be saved to internal memory (in the **MaxUserObjects** field,) and the amount of free internal memory (in the **IntMemoryFree** field, this does not include user sample RAM.) *(The **MaxUserObjects** field shows the maximum amount of user objects that can be loaded/saved to internal memory **for all object types combined**. Keep in mind each object type only has 2560 ID#s available to save/load objects to, many of which are used by factory ROM objects.)*

    *Note: The number given for the **MaxUserObjects** field is based on loading/saving the smallest user objects to internal memory. When loading/saving larger user objects (such as Programs with many layers and Setups with many zones), the PC3K may run out of internal memory before the maximum number of user objects has been loaded/saved.*

The information on the OBJECTS page is helpful when organizing user objects. For example, when loading many user objects from an external source, you should first determine if there is enough internal memory available for the objects being loaded. If there is not enough internal memory available, use the **Delete** soft button to delete user objects. *(To save user objects before deletion, see The STORE Page on page 13-5 of The PC3K Musician's Guide.)*

The OBJECTS page also displays the current installed objects version (factory objects,) and the current installed OS version. This information is useful when installing updates.

```
MasterMode:OBJECTS
UserObjects     : 738
MaxUserObjects: 2400
IntMemoryFree   : 17 Mbytes
Object Ver      : 2.00.5
O/S Version     : 2.00.16134M


         Rename Delete        Done
```

Rename

The Rename utility allows you to rename an object without entering the object's editor. The Rename page shows a list of all user created objects, grouped by object type *(see below.)* Use the alpha wheel or plus/minus buttons to select an object from the list. Press **Rename** to bring up the object Rename screen and enter a new name by following the standard renaming procedure. For more information, see *Saving and Naming* on page 5-3 of The PC3K Musician's Guide.

```
Master:Rename
Program      1029 Default Program
Program      1030 Big LA Strings
Program      1031 Horowitz Grand
Program      1032 P-Bass
Program      1033 SynOrcWhaleCall

                          Rename Cancel
```

As in all naming dialogs on the PC3K, you can do a double-press of the **Left/Right** cursor buttons to put the naming cursor on the last character of the string. This is helpful when putting unique characters at the ends of names.

Left/Right cursor button double-press -> Move cursor to the end of the name in any naming dialogue.

Delete

The object Delete utility is useful for deleting unwanted user created objects in order to increase free RAM space in your PC3K. On the main Delete page, for each object type you can select a bank of objects to delete, a range of objects to delete, or delete all objects. On the Delete advanced page, you can select a single object or multiple objects to delete.

To delete a group or range of objects, use the main Delete page *(see below.)* Use the cursor to select the left column, then use the cursor, alpha wheel or plus/minus buttons to select one or more object types from the list. Use the **Select** soft button to make your selection(s), which will be marked with a star. Select "All Types" if you want to delete all user objects (this will select all object types and numbers automatically.) Next, use the cursor to select the right column, then use the cursor, alpha wheel or plus/minus buttons to select one or more ranges of object numbers from the list. You can select object numbers by bank grouping (groups of 128), by number range (select "1...100 Range" use the **SetRng** soft button and choose any range of 2048 objects) or select "Everything" to delete all objects of the selected type. Again, use the **Select** soft button to make your selection(s), which will be marked with a star. The **Clear** soft button will clear your selection(s) from the currently selected list. Press the **Delete** soft button to delete your selection, you will be given the choice to **Delete** or **Cancel**. The **Cancel** soft button on the main delete page will return you to the OBJECTS page.

```
MasterMode:Delete
Object type              Range/Bank

   All types               1...128
   Program               129...256
   Alg                   257...384
 Select  Clear   SetRng Advnce Delete  Cancel
```

To delete single or multiple objects, go to the Delete advanced page by pressing the **Advnce** soft button on the main Delete page *(see below.)* The right column shows you a list of all user created objects. The left column tells you what type each object is, and objects are grouped by type. Use the alpha wheel or plus/minus buttons to select one or more objects from the list. Use the **Select** soft button to make your selection(s), which will be marked with a star. Use the **Type** soft button to jump to the lowest numbered object of the next group of object types. You can use the alphanumeric pad to jump to an object of the selected type by number, or enter 0 to jump to the lowest saved object number of the currently selected type. To review which objects you have selected, press the **Next** soft button to move to the next selected object in the list. Press the **Delete** soft button to delete your selection, you will be given the choice to **Delete** or **Cancel**. The **Cancel** soft button on the Delete advanced page will return you to the main Delete page.

```
MasterMode:Delete advance
Program      1029 Default Program
Program      1030 Big LA Strings
Program      1031 Horowitz Grand
Program      1032 P-Bass
Program      1033 SynOrcWhaleCall
 Select  Next    Type           Delete  Cancel
```

For Delete and Delete advance, if any of the selected objects have dependents that were not selected, you will see the question: Delete dependent objects?

If you answer **Yes** to this question, all dependent objects of the selected objects are deleted, unless they are being used as dependents of other objects that are to remain in memory. Answering **No** will delete only those objects that were selected and not their dependents.

UTILS (UTILITIES)

Pressing the **UTILS** soft button calls up the UTILITIES page, which gives you access to two analytic and diagnostic tool. Additionally, pressing the two right-most soft buttons will call up the UTILITIES page from any mode or editor. The UTILITIES page appears as shown below:

```
Master: Utilities

Select what to display:




MIDI    Voices                          Done
```

Pressing the **MIDI** soft button launches MIDIScope™, a useful subprogram that lets you monitor the MIDI messages from the PC3K and those received via MIDI. This is a good way to make sure you're receiving MIDI from MIDI masters. It's also good for making sure your controls are assigned as you want them, checking your attack velocities, checking your controller values, etc.

Pressing the **Voices** soft button calls up the Voice Status page, which shows the PC3K's active voice channels as you play. The Voice Status pages displays each active voice as a solid rectangular block—for mono voices—or displays stereo pairs of voices as a > for the left channel voice and a < for the right channel voice. Whatever symbol the page displays, when the key of a voice is released, that voice's symbol on the Voices Status page turns into a dot during the release portion of that voice's envelope. When the voice decays to silence, it is no longer active, and the dot disappears. The Voice Status symbols appears as shown below:

```
■  ><  · ·
```

The Voice Status page gives you an indication of the envelope level of each voice, though not necessarily the volume level. Nonetheless, this can give you a valuable indication of how your voices are being used. For example, if all or most of the voices are active, then there's a good chance that when voice stealing takes place an audible voice will be reallocated.

The Voices utility works a bit differently for KB3 programs. The PC3K uses one voice of polyphony for every two tone wheels in a KB3 program. In the Voices utility, the voices used by the tone wheels appear as solid rectangular block, meaning that the voices are used for the KB3 program. They don't get reallocated at any time, since they're always on, even if you're not playing any notes. Any voices not dedicated to a KB3 program behave normally. So if you have a setup that contains a KB3 program in one zone, and VAST programs in one or more other zones, you can monitor the voice allocation of the non-KB3 voices in the section of the display that isn't constantly filled with solid rectangular blocks.

CPU usage is displayed in percent on the bottom of the page, which reflects how much of the PC3K's total available CPU power is being used from moment to moment. Generally, having more voices, complex Programs and effects in use at once will result in higher CPU usage.

Chapter 6
Song Mode and the Song Editor

Song Mode: The MAIN Page

Soft Buttons on the MAIN Page

The Delete Soft Button

Press the **Delete** soft button to delete the current song. The PC3K will present a prompt, at which point you may cancel, or confirm to delete the song.

Song Mode: The BIG Page

```
Song: BIG Time :TheKurzSuPremac Rec Track:2
           1      :1     :0              STOPPED
Time In:      1 :1 :0      Loop   : ----
Time Out: 109 :1 :0      RecMode:Linear
Song End: 109 :1 :0      Metron: :Rec
   more  BIG     Load    Save    Delete   more
```

Parameter	Range of Values	Default
RecMode	Linear, PunchIn, UnLoop	Linear
Metron	Off, Rec, Always, CountOff	Rec

RecMode

With the RecMode parameter set to **Linear**, the sequencer will record normally, from where ever you start, to where ever you stop, or until the Song End point is reached. With the RecMode parameter set to **PunchIn**, the sequencer will record events only between the points set for Time In and Time Out parameters on the BIG page.

To use the **UnLoop** setting, the **Loop** parameter must be set to **Loop**, and a loop length must be set with the Time In and Time Out parameters on the BIG page. With the RecMode parameter set to **Unloop**, any existing tracks will be played back as if they were looping from the Time In to the Time Out point, but they are actually being re-recorded linearly over absolute Bars and Beats until you press Stop. UnLoop allows you to record a linear track over a short looping section without first having to copy the section over and over again to achieve a new desired Song length. The End point of the Song is extended to the downbeat of the (empty) Bar immediately following the last Bar you were recording when Stop was pressed.

For example, let's say you have a recorded a four bar drum loop and now want to record an eight bar bass line. This would be a situation where UnLoop would come in handy. While the drum track keeps looping, the bass track will record in linear fashion, and the end point will be moved to the point at which you press Stop. Actually, the drum track will also change. It will play through its loop twice, but while the information is repeating in the loop, it will be recorded to the track. So now if you look at the drum track, you will see information in bars 5-8 (a duplicate of the information in bars 1-4).

Metron

The Metron parameter determines the recording modes in which the metronome will play. With Metron set to **Off**, the metronome doesn't play at all. With Metron set to **Rec**, the metronome only plays while recording is in progress. With Metron set to **Always**, the metronome plays during playback and recording. With Metron set to **CountOff**, the metronome plays only during count off (if the CountOff parameter on the METRONOME page is set to something other than **Off**.)

Song Mode: The MIXER Page

Out

Use the **Out** parameter to set the rear panel audio outputs used for each track of the current song. This parameter determines the output settings for the main program signal and insert effects of each track (for Aux effects output settings, use the Output parameter on the Song Mode AUX1 or AUX2 pages.)

A setting of **Auto** will make that track output audio based on the settings for the program used by that track. Program output settings are set in the Program Editor using the **Output** parameter on the top line of PROG FX page (see *Output* on page 2-6 for details) or the **Output** parameter on the top line of LAYER FX page (see the PC3K Musician's Guide for details.) A setting of **Pri.** (primary) will output track audio to the **MAIN** Balanced Analog Outputs. A setting of **Sec.** (secondary) will output track audio to the **AUX** Balanced Analog Outputs.

Song Mode: The METRONOME Page

```
Song:METRONOME
Metronome :Rec        CountOff:1   StartOnly
Program   :998 Click Track
Channel   :16
Strong Note:F#7       Soft Note:G#7
Strong Vel :127       Soft Vel :100

[Rec    ][Play   ][Stop   ]              [Done  ]
```

Metronome

This parameter determines the recording modes in which the metronome plays. With
Metronome set to **Off**, the metronome never plays. With Metronome set to **Rec**, the metronome
only plays during recording. With Metronome set to **Always**, the metronome plays during
playback and recording. With Metronome set to **CountOff**, the metronome plays only during
count off (if the CountOff parameter is set to something other than **Off**.)

Chapter 7
Storage Mode

Using USB Devices

There is a **USB Storage port** on the back panel of the PC3K, but it is easily accessible from the front of the instrument (see below.) You can plug a USB mass storage device such as a "thumb drive" into the PC3K for backing up, archiving, sharing your work, and updating your software. Any size USB mass storage device will work, though thumb drives are recommended for their portability, durability, and low price.
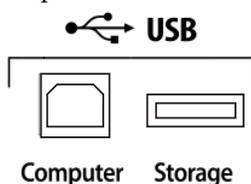
Note: *Most USB thumb drives are compatible with the PC3K, but some older USB thumb drives and larger USB bus powered drives will not work with the PC3K if they require more than 100 mA of current (high power USB devices.) When attempting to use an incompatible USB device, the PC3K will display the message "USB device requires too much power". The PC3K is designed to work with low power USB devices and can provide a maximum of 100 mA to a USB device. Power requirement specifications for thumb drives are not always made clearly available by the manufacturer, but a newly purchased thumb drive will most likely be compatible. If possible, check the power requirement specifications of your USB device before purchase.*

Caution: A USB connector will only fit into the port if oriented properly, so don't force it into the port, as this may damage your PC3K or USB device. If you are having trouble inserting your USB connector into the port, try flipping the connector over.

You can also transfer files directly to a computer that is equipped with a USB port by using the **USB Computer port** on the back panel of the PC3K (see above.) Connect a USB cable from the PC3K's USB Computer port to a USB port on your computer. When you enter Storage mode and select **USB PC Connection**, a virtual drive named **PC3K** will appear on your computer's desktop. Load files from your computer to your PC3K by putting files on the **PC3K** virtual drive, then selecting **USB PC Connection** in Storage mode to load the files. Save files from the PC3K to your computer by using this configuration with the Storage modes **Store** function**.** Saved files will temporarily appear on the **PC3K** virtual drive on your computers desktop, and you then must copy your saved files to another location on your computer. **You must copy data from the PC3K virtual drive to your computer's drive or else the data will be lost.**

Note: When transferring files to and from the PC3K via the USB Computer Port, the maximum size of files that can be transferred is approximately 1.6MB. This is suitable for most objects. For transferring audio sample files, use the USB Storage Port with a USB mass storage device such as a "thumb drive." When using the USB Storage Port to transfer files, the file size that can be transferred is limited only by the size of the USB mass storage device, and the PC3K's available object and sample memory.

When you leave Storage Mode, there will be a prompt telling you that the PC3K is turning back into a USB MIDI device. You must acknowledge this prompt. If you haven't copied the file(s) to your desktop (or other place on the computer) it won't be on the virtual disk when you leave storage mode.

Depending on your computer's operating system, you may sometimes see a scary device removal warning on your desktop after using the **PC3K** virtual drive. You may disregard such a message without worries of damage to your PC3K or computer.

⚠ *Caution: Do not remove a USB device while the display says **Loading...** or **Saving...**. Removing a USB device during a file transfer can cause data corruption.*

Export

Press the EXPORT soft button to go to the Export page. The Export page allows you to export MIDI files created in Song mode, lists of controller assignment info that are automatically created for each Program and each Chain, or a list of all objects in text format. Developers can also export an object in XML format, or export a a KPN.

To export a MIDI file created in Song mode, the song must be currently loaded in Song mode. Go to Song mode and load the desired song, then return to the Storage mode EXPORT page and press the **Song** soft button. You will be prompted first to choose a directory to save the file into, and then you will be prompted to name the MIDI file. When you name the file, you can use the **Type** field to choose to export either a Standard MIDI File type 1 (saves with multiple channels,) or Standard MIDI File type 0 (saves all channels as 1 channel.)

To export a list of controller assignment info for all Programs or for all Chains, press the **PrInfo** soft button or the **FXInfo** soft button. You will be prompted to choose a directory to save into, and then you will be prompted to name the info file. A comma separated value file will be exported.

To export a list of all objects in text format, press the **ObjLst** soft button. You will be prompted to choose a directory to save into, and then you will be prompted to name the file. A comma separated value text file will be exported, listing each object type with ID number, object name, and whether the object is internal or user.

To export an object in XML format, press the **ObjFmt** soft button. Choose an object from the list using the Alpha Wheel, -/+ buttons, or the alphanumeric pad, then press the Ok soft button. You will be prompted to choose a directory to save into, and then you will be prompted to name the file.

To export a KPN, press the **KPN** soft button. Choose a Domain and Channel, then press the Ok soft button. You will be prompted to choose a directory to save into, and then you will be prompted to name the file.

Appendix A
PC3K Legacy File Conversion

The PC3K can load objects from older Kurzweil K series products, as well as objects from the PC3. Loaded objects are converted to object types native to the PC3K (see below for object types that can be converted.) Some object parameters cannot be converted and must be adjusted by the user after conversion (see object types below for details.)

Note: Objects that use the K series ROM soundset can be converted after installation of the optional K2661 ROM compatibility file (available as a free download from www.kurzweil.com by going to the Downloads section, then clicking on the PC3K link.) For loaded keymap objects, keyranges that use **edited** ROM samples will NOT produce sound.

Only legacy objects ending with the file extension .K26, .K25, .KRZ or .PC3 can be loaded and converted.

Object Types and Conversion Details

Soundblock (Sample Objects)

All K series RAM sample objects can be loaded (see note above for details on ROM sample compatibility). The PC3K is unable to convert the sample skipping parameter (SmpSkp,) so samples converted for use in the PC3K can only be transposed upward by one octave.

Keymap Objects

All K series Keymap objects can be loaded, all parameters will be used or converted to PC3K specific parameters.

Program Objects

Most K series Program objects can be loaded, but FX are not converted and must be set by the user. A reverb effect is set by default for converted Programs. Some DSP ALGS and DSP objects (some filters, oscillators, etc.) can not be converted, so the user may have to adjust some Program layers to new ALGs or DSP objects. Program objects that use the K series ROM soundset can be converted after installation of the optional K2661 ROM compatibility file (available as a free download from www.kurzweil.com.) All PC3 Program objects can be loaded. KB3 programs created with a K2500 or K2600 cannot be loaded to the PC3K, however the PC3K contains a variety of KB3 programs which can easily be modified and edited. Also, Triple Mode programs created with the K26 series cannot be loaded to the PC3K, however PC3K programs can use Cascade Mode. Cascade Mode allows a program signal to be routed through up to 32 layers of DSP algorithms (for details see *Alt Input for Algorithms (Cascade Mode)* on page 6-17 of The PC3K Musician's Guide.)

Setup Objects

All K series Setup objects can be loaded, but FX are not converted and the Program effects are used by default. Also, any controller settings for a fourth switch pedal will not be converted (because the PC3K only has three switch pedals.) All PC3 Setup objects can be loaded.

Object Types and Conversion Details

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