Stage Piano

User's Guide

KURZWEIL
Music Systems

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│  ⚡      ┌──────────────────┐      ⚠          │
│ /\      │    CAUTION        │     /\          │
│/ ⚡\     │ RISK OF ELECTRIC  │    / ! \        │
│‾‾‾‾‾     │      SHOCK        │    ‾‾‾‾‾         │
│          │   DO NOT OPEN     │                 │
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│                                               │
│  CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,│
│         DO NOT REMOVE THE COVER               │
│     NO USER SERVICEABLE PARTS INSIDE          │
│  REFER SERVICING TO QUALIFIED SERVICE PERSONNEL│
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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 adapter 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

Young Chang Distributors

Contact the nearest Young Chang office listed below to locate your local Young Chang/Kurzweil representative.

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Chapter 1
Introducing the Stage Piano

Welcome!

Congratulations, and thank you for purchasing a Kurzweil / Young Chang Stage Piano. You've got your hands on an excellent-sounding and flexible—yet economical—performance instrument and MIDI controller.

This manual will get you started with your new instrument. You'll definitely want to keep the manual handy as you become an advanced user, also.

Stage Piano Overview

The Stage Piano is a great live performance instrument. It has many excellent keyboard sounds (voices), including the famous Kurzweil Grand Piano, already programmed and ready to go. It is also a flexible MIDI controller ideally suited for controlling additional sound modules and as input to a sequencer.

Sound, Internal Voices Setup, MIDI Setup

We'll use these three terms throughout this manual. They're the components of the Stage Piano's performance features.

Sounds are the 32 internal voices of the Stage Piano: pianos, organs, strings.

The *Internal Voices Setup* is the basic configuration of your Stage Piano for standalone performance (no external sound modules or sequencers). The Internal Voices Setup specifies which sound you'll hear, and with which audio effect (if any) applied to it. It specifies several other performance features as well:

- What the physical controllers (like ribbons and pedals) do

- Transposition

- MIDI channel

- MIDI Program Change commands

There's one Internal Voices Setup, and it's programmable—that is, you can change these specifications, and save those changes to the Stage Piano's memory.

There are 32 *MIDI Setups*, each of which controls the same features as the Internal Voices Setup. When you're using a MIDI Setup, the Stage Piano's keyboard has two zones, which can be anywhere on the keyboard (even overlapping). This enables you to play the Stage Piano and control two external MIDI instruments at the same time. You can edit and save each MIDI Setup.

The Keyboard

Depending on model, the keyboard has 76 keys (E1–G7) or a full 88 keys (A0–C8). These are full-sized, weighted keys, the equal of keyboards found on more expensive synthesizers and controllers. The keyboard is *velocity-sensitive*, meaning the harder (faster) you press a key, the louder the voice (except for organ voices which, realistically, are not velocity-sensitive).

As a MIDI controller, the keyboard is also *release*-velocity-sensitive, meaning that MIDI signals expressing how rapidly a key is *released* get sent to external equipment.

The Front Panel

The front panel has a 3-digit numeric display, 10 mode and editing status LEDS, 16 sound/setup select buttons with dual-color LEDs, and 4 editing buttons. The sound/setup select buttons make random selection of 32 different sounds or MIDI Setups quick and easy while the display and LEDs shows the unit's present status at a glance.

The Ribbon Controllers

The Stage Piano also has 3 ribbon controllers, which take the place of conventional wheels and offer significant advantages. The A ribbon (the one on the left) typically performs a pitch bending function with the upper half bending pitch upwards and the lower half bending pitch downwards. Pressing the center bar restores pitch to normal.

The B ribbon is actually split into upper and lower sections. Each section can control a different characteristic of the sound simultaneously. This is like having two conventional modulation wheels. Pressing the center bar removes both modulations.

NOTE: The sounds of the Stage Piano do not respond to pitch bending, or to the lower section of the B ribbon. External MIDI devices may respond to the signals sent by these controllers.

An advantage of ribbons over conventional wheels is that their *mode* is programmable. A conventional pitch wheel is spring-loaded so that it always returns to its center position (no pitch change) when released. Conventional modulation wheels usually do not spring back, and remain where they were when released. Likewise these are the default modes of the A and B ribbons respectively, but each can also be set to operate in the opposite mode. See *Hold or Center* and *Hold or Zero* on page 3-6 for details.

Other Controllers

The Volume/Controller slider is actually a general purpose control. Although its default setting is to control volume (MIDI Volume), it can be set to control any aspect of the sound. See *Control Slider, Control Pedal* on page 3-6 for more information.

One Control Pedal can be plugged into the rear panel to permit foot control over the sound. The foot controller can be set to control volume, modulation, or other sound parameters. See *Control Slider, Control Pedal* on page 3-6 for details.

A single or dual switch pedal (piano pedal) can also be plugged into the rear panel. By default, a single pedal or the right half of a dual pedal will perform a sustain (or damper) function while the left half of a dual pedal will perform sostenuto. See *Connecting Switch Pedals* on page 2-4 and *A Special Note About Switch Pedals* on page 2-4 for more.

Connectors

The rear panel has a total of 8 connectors:

- Left and Right audio jacks accept standard 1/4-inch mono plugs connected to your stereo audio system. (See *Changing to Mono Output* on page 2-5 for how to obtain a mono output.)

- Headphone jack accepts a standard 1/4-inch stereo plug.

- MIDI In and Out jacks for connecting to external sound modules or a computer.

- Control pedal jack for connecting to a continuous-control pedal.

- Switch pedals jack for connecting to a single or dual piano-pedal unit.

- DC power jack for receiving 12V DC power from the supplied power adapter.

Connecting to and using all of these connectors is described thoroughly in the following sections.

Modes

The Stage Piano operates in one of two fundamental *modes*.

When in *Internal Voices* mode, the Stage Piano is an easy to understand and operate, stand-alone performance instrument. To change sounds, just press one of the 16 sound select buttons. The entire keyboard will always play the sound named on the sound select button. See Chapter 3 for more on Internal Voices mode.

When in *MIDI Setups* mode, the Stage Piano becomes a sophisticated MIDI controller with a built-in sound module. The keyboard can be split into 2 sections or *zones*, each going to a different MIDI channel. Up to 32 different MIDI setups can be defined and stored in the built-in nonvolatile memory. You can quickly select these setups with the 16 sound/setup select buttons. In MIDI Setups mode, any sound (or none at all) can be associated with each setup. See Chapter 4 for details about MIDI Setups mode.

How to Use This Book

This *Stage Piano User's Guide* is designed to help you get up and running quickly. If you know electronic instruments and MIDI already and you know pretty much what you want to do with your Stage Piano, at least read *Quick Start* on page 2-1. If you need some more help on using the Stage Piano's many features, you should also read all of Chapters 3 and 4. Chapters 5 and 6 give more information on global functions and describe some typical applications. The remaining chapters provide troubleshooting and reference material that can be referred to when needed. Finally, don't underestimate the index. We've tried to think of every word and topic you may need quick access to—it's the next best thing to a search engine!

Also, don't forget to check our web site for any late-breaking information on the Stage Piano and other Kurzweil products:

http://www.youngchang.com/kurzweil

Above all, have fun, and make lots of great music with your Stage Piano!

Chapter 2
Getting Started

This chapter will help you hook up your Stage Piano and learn its basic functions.

Unpacking the Instrument

The box that your Stage Piano ships in contains the following:

• The Stage Piano

• AC Adapter (12V DC, 0.5A)

• Single switch pedal

• Four adhesive-backed rubber feet

• This manual

• Warranty card

Be sure to keep the box and packing materials, at least during the warranty period, in case you need to ship the unit for any reason.

Quick Start

We recommend that you read through this whole chapter at some point. However, if you want to start exploring your new instrument right away, follow these steps:

1. Carefully remove all the contents of the box.

2. Set the Stage Piano on a keyboard stand or table. For optimum stability, particularly of the 88-key model, make sure the ends are supported, not just the middle.

3. Turn the power switch (at the rear of the unit) off then plug the power adapter into the unit and into the wall. If you're not in the USA, check that the line-voltage rating of the adapter matches line voltage in your area.

4. Plug a pair of headphones into the Phones jack on the back of the unit—or connect the Left and Right audio outputs to your audio system or mixer. The outputs are unbalanced *line-level* (approximately 1V), so use the line or aux inputs to your audio system.

5. Plug the included switch pedal into the rear panel jack marked Switch Pedals.

6. Turn the power switch to the On position. The display and all of the LEDs should light briefly, then the Internal Voices and Grand Piano LEDs should light.

7. Play away. Use the Volume/Controller slider or your audio system's volume control to vary the volume. Press a sound/setup select button once to hear the red sound; twice to hear the green. See *Sound and Setup Select Buttons* on page 2-11 if you don't understand about red and green sounds.

Read on for more details about each of these steps.

Playing the Demo

To play the demonstration song, press the left-most two buttons (**Internal**/**Setup** and **MIDI Prog Change**) at the same time. You'll hear a short demonstration of the sounds and effects. The unit must be in *Play* mode (all LEDs to the left of the display off) for this to work. The demo can be stopped before it is complete by pressing any button.

NOTE: *MIDI signals from the demo song will not be sent.*

Placement and Support

The Stage Piano is designed to be used on a keyboard stand or on a flat table. For tables, we recommend attaching the included rubber feet to the bottom to avoid scratching the table when moving the unit. Refer to Figure 2-1 for the best places to attach the feet.
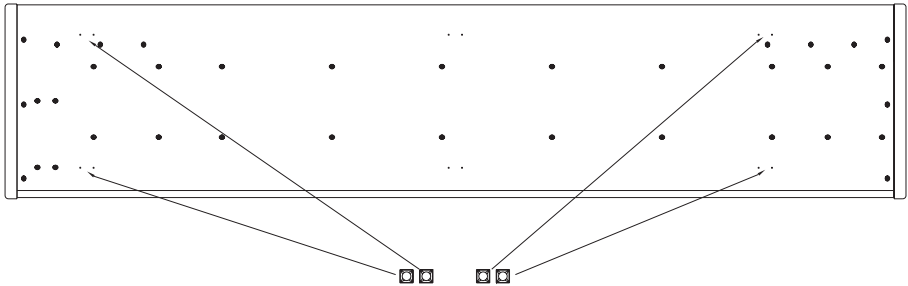
Figure 2-1   **Placement of Rubber Feet**

The Stage Piano will feel most stable when supported along its entire length, especially at both ends. Place it on a hard flat surface to keep it from rocking. If desired, it can be tilted without affecting the feel of the keyboard.

The Rear Panel

Here are descriptions of the rear-panel connectors, as illustrated in Figure 2-2.
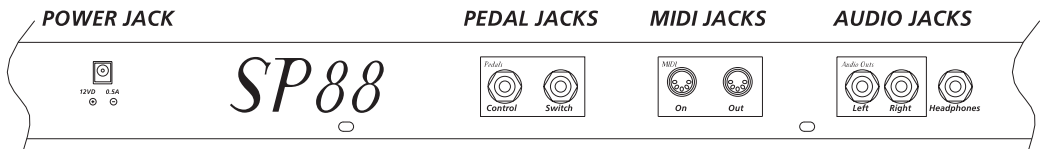
Figure 2-2   **Stage Piano Rear Panel**

Power Switch

Press the white dot to turn the Stage Piano on or the blank area to turn it off. If it will be off for a long period of time, unplug the power adapter from the wall. The Stage Piano's hi-tech EEPROM memory is like a computer's hard drive and needs no power or battery to retain information. So there is no advantage in leaving the power on.

Power Jack

Plug the cord from the included power adapter into this jack. Try to always use the adapter supplied with the unit. However, if it should become lost or forgotten, refer to *Specifications* on page 8-8 for information about possible substitutes.

To help prevent the power cord from being pulled out accidentally, a *cord retainer* is mounted near the power jack. To use, just wrap a 3/4 loop around it as illustrated.
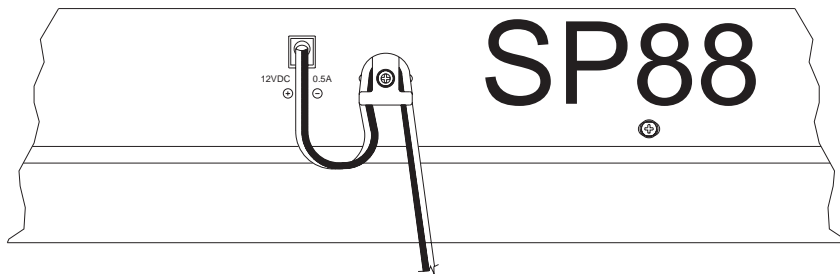
Figure 2-3   Power Cord Retainer

Audio Jacks

The left and right audio jacks are used to connect to your audio system. See *Connecting to Your Audio System* on page 2-5 for connection details.

Phones Jack

Plug your headphones in here. You'll need a "1/4 -inch to-1/8-inch" (or "phone-to-mini") adapter plug when using headphones that have a mini plug. See *Connecting Headphones* on page 2-6 for additional information.

Switch Pedal Jack

Use this jack to plug in the single piano pedal that came with your Stage Piano. For this pedal to work properly, it must be plugged in *before* power is turned on. See *A Special Note About Switch Pedals* on page 2-4 for info about using aftermarket single or dual pedals.

Control Pedal Jack

You can plug a *control pedal* in here but be careful, not every kind will work well. See *Connecting a Control Pedal* on page 2-4 for details.

MIDI Ports

Use the MIDI Out port to connect to an external sound module like a Kurzweil K2600R. Use the MIDI In port to connect to a computer for use in sequencer applications. See page 2-6 through page 2-10 for more possibilities.

Connecting Switch Pedals

The included single switch pedal will, by default, act like a piano damper pedal and will control sustain. Of course this can be changed by programming as described in Chapters 3 and 4.

The jack will also accept a *dual* switch pedal having a single stereo plug which is available separately (Kurzweil KFP-2M). The plug should be wired so that the left pedal connects to the *ring* contact and the right pedal to the *tip* contact. It's also possible to use *two* single pedals. First buy a 1/4-inch stereo-to-dual-mono Y adapter. This will have two mono 1/4-inch phone jacks and a stereo 1/4-inch plug. Combinations of adapters can be used if that exact item is not available. Then plug the pedal you wish to use for sustain into the *left* jack and your sostenuto pedal into the *right* jack. Note that the "left" pedal goes into the right jack and vice-versa—one of those confusing facts of life.

By default, the right pedal will control sustain as before and the left pedal will control the *sostenuto* function. If you're not familiar with traditional piano technique, the sostenuto (center) pedal on a grand piano allows one to hold chords in the bass while continuing to play the melody without the latter notes sustaining. Any keys that are down when you depress the pedal will sustain when you let go of the keys, but new notes played afterward will not be sustained. Releasing the pedal puts things back to normal. Of course it too can be programmed to do other functions as well.

A Special Note About Switch Pedals

If you choose to use aftermarket switch pedals, be aware that there are two kinds: normally-open (like the included one) and normally-closed. Much Japanese equipment uses the latter type. The Stage Piano will automatically adapt to either type—*if* it is plugged in *before* the power is turned on; just don't step on it until the power-up sequence is complete. If you find that your pedal has become schizoid, simply turn power off for a couple of seconds then back on and it will adapt.

⚠ *CAUTION: Be sure not to step on the switch pedals when powering up your Stage Piano!*

Connecting a Control Pedal

A control pedal can be very useful for controlling volume, vibrato, or other effect by foot. The Kurzweil CC-1 control pedal will plug in directly and work perfectly but it is also possible to use aftermarket "control" pedals designed for synthesizers. A volume pedal may or may not be satisfactory depending on how it is constructed. See *Control Pedal Problems* on page 7-4 for pedal specifications or if you are having trouble with your control pedal.

Connecting to Your Audio System

The Audio Output jacks are professional 1/4-inch "phone" jacks so if you are connecting to an audio system with "RCA" jacks, you will need two "phone plug-to-RCA plug" adapter cables. Remember: always lower the volume of your audio system when changing audio connections—or better yet, turn the power off!

⚠ *CAUTION: Be sure to lower the volume of your audio system or switch it off when changing audio connections!*

The source impedance of the audio output jacks is 1000 ohms, so they can drive relatively long cables if needed. If connecting to a mixer, use a high-impedance, unbalanced line input. If using a keyboard amplifier, its normal input should be fine. If using a home stereo system, inputs marked Aux should work well but Tuner and CD inputs are generally OK. A guitar amplifier may work if it has Line or Aux inputs. Avoid using a Guitar input though, it will likely be way too noisy and may distort your sound.

Changing to Mono Output

By default, the Stage Piano produces stereo audio signals. In cases requiring a mono signal, use the following procedure to change the outputs to mono:

1. Make sure you are starting from Internal Voices Play mode. This is the default right after power on. Only the Internal Voices LED and one of the sound LEDs will be on.

2. Press the **Play/Edit** button once.

3. Press the **Col Select** (Column Select) button twice. Both of the parameter-*column* LEDs should be off after doing so. (See *The Parameter Display* on page 2-12 if you don't know what we mean by "parameter-column LEDs.")

4. The top parameter-*row* LED should be blinking and the display should show *5 ᴸ ᴱ* (stereo) or *ᴬ ᴼ ᴬ* (mono). If not, press **Row Select** repeatedly until this is achieved.

5. To change the selection, press the **Up** arrow button or the **Down** arrow button.

6. If you would like for this change to be remembered next time power is turned on, press the **Store** button twice. Otherwise it will revert to the previous setting next time power is turned on.

7. Press **Play/Edit** to return to Play mode.

The above sequence may seem complicated, but after reading Chapter 3 it will seem quite simple and logical. When in mono mode, the left and right jacks produce the same signal.

Connecting Headphones

The Phones jack is designed to drive 100 ohm or greater headphones. Lower impedance is safe too but the volume level can be reduced. You can also use a stereo Y adapter and connect two headphones at the same time if they are 100 ohms or greater.

You can use headphones and an audio system at the same time; plugging in the phones does not affect the line outputs at all. Note that if the instrument is switched to mono mode as described above, the phones signal will also be mono, that is, the same signal is heard from left and right.

The signal at the phones jack is just as high a quality as that at the line output jacks described above. So if you prefer to use a single stereo cable to your audio system and do not intend to use headphones, you can use the headphones output to drive your audio system.

Connecting MIDI

The Stage Piano is a great live performance instrument all by itself but you can expand its capabilities almost endlessly by using its MIDI (Musical Instrument Digital Interface) connectors.

Basic MIDI Hookup

The simplest application of MIDI is to connect and control an external sound module for more sounds, more polyphony, and more timbre control than the internal sound module offers. The drawing below shows how simple this really is to do.
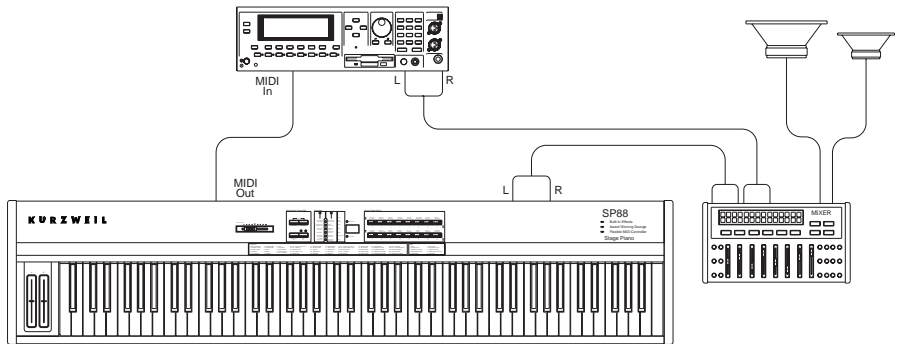
Figure 2-4   **MIDI Connections to External Module**

The external sound module can be almost anything: a K2000R, K2500R, K2600R, Kurzweil MicroPiano, and a world of other possibilities from alternative manufacturers. It could be another keyboard synthesizer or large digital piano as well, in fact nearly anything with a MIDI In connection.

With this simple setup you may be able to play up to 3 sounds at once; one from the Stage Piano's sounds and 2 from the external module, if it is *multitimbral*. The external module can make use of more of the Stage Piano's MIDI controls as well such as the A Ribbon, lower B ribbon, and control pedal. *MIDI Setups* mode, which is covered in Chapter 4, is used to control a setup like this.

Connecting More Sound Modules

With MIDI, you're not limited to just one add-on sound module; you could connect 2, 3, or even more using the basic method illustrated below. Although your Stage Piano will be able to play independent sounds on only 1 multitimbral or 2 monotimbral modules at once, you can address up to 16 different external sounds using MIDI Setups, all from your Stage Piano's front panel!
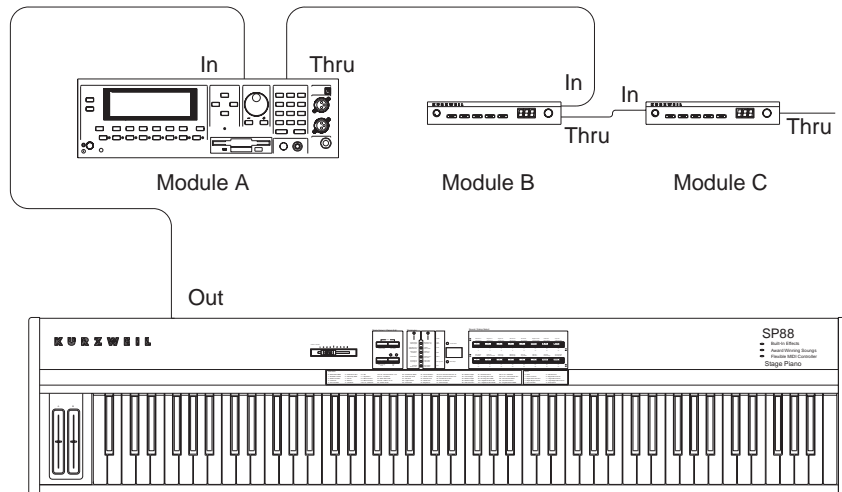
Figure 2-5   **MIDI Connections to Additional Modules**

Connecting to a Computer Sequencer

If you have a computer with a MIDI interface and MIDI sequencing software, your Stage Piano can become an integral part of a home MIDI recording studio. The basic connection pattern is shown below.
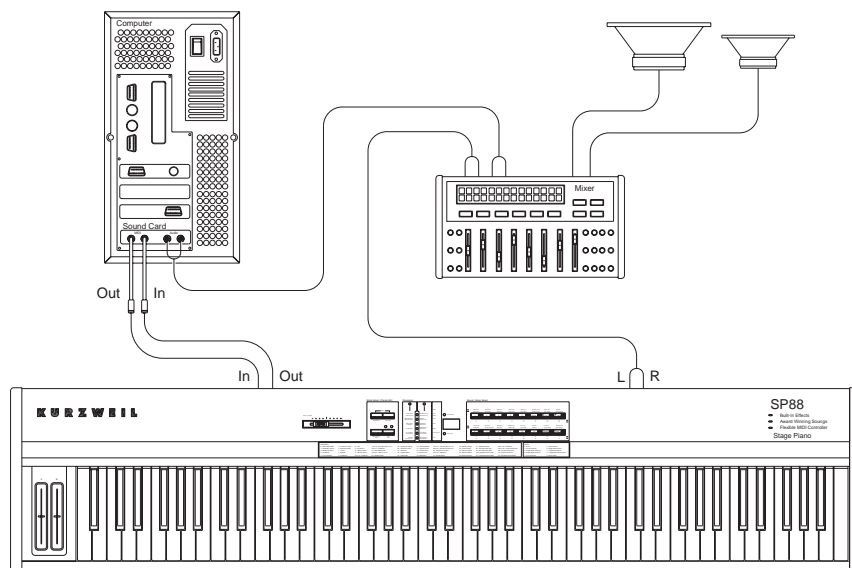
Figure 2-6   MIDI Connections: Computer and Sound Card

The cable from the Stage Piano's MIDI Out to the Computer's MIDI In allows the sequencing software to "hear" and record what you are playing. Likewise the cable from the computer's MIDI Out to the Stage Piano's MIDI In allows the computer to "play" the sounds of your Stage Piano.

NOTE: Depending on the sound card or MIDI interface in your computer, you may need to buy a special cable to make MIDI connections. See the manual that came with your computer or sound card.

When using a sequencer, you need to make two important configuration settings to avoid doubled notes when you are playing. First, the Local parameter (one of the global parameters) should be set to a value of **Off**. This disconnects the internal path from the keyboard (and other controls) to the sounds. Also you should be sure that MIDI In (another global parameter) is set to Normal ($nrñ$) to avoid creating a *MIDI loop*. If you're just starting out, that shouldn't be a problem because $nrñ$ is the default setting. See page *Local Control Off and Patch Thru On* on page 6-3 for information about changing the values of the Local and MIDI In parameters.

Second, the sequencer should be set to *Through* mode which means that it passes on what it hears at the computer's MIDI input to the computer's MIDI output. From there the MIDI signal goes to the Stage Piano's MIDI input where it will activate the sounds. If the sequencer is not in Through mode, you won't hear anything as you play the Stage Piano.

*NOTE: Different sequencer applications use different terms for what we're calling Through mode. For example, the sequencer may have a Patch Thru or Soft Thru parameter, which you should set to **On** in this case.*

If you want to use an external sound module with your Stage Piano and a sequencer, it should be connected into the loop *before* the Stage Piano, as illustrated below:
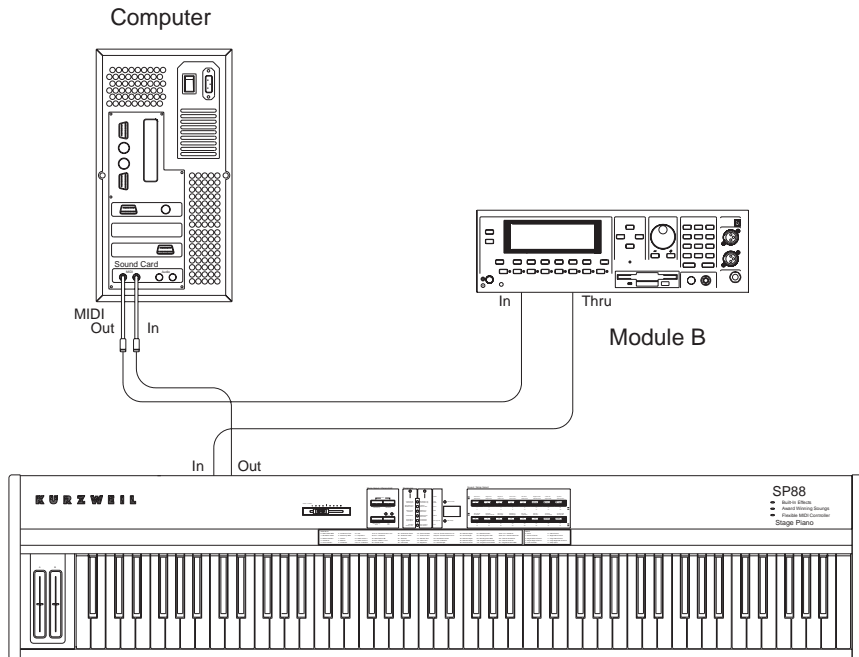
Figure 2-7   **MIDI Connections: Computer and Sound Module**

Full System

Even more complex setups are possible. Below is just one possibility using a Kurzweil ExpressionMate MIDI processor and K2600R to provide unprecedented expressive control over a vast palette of sounds.
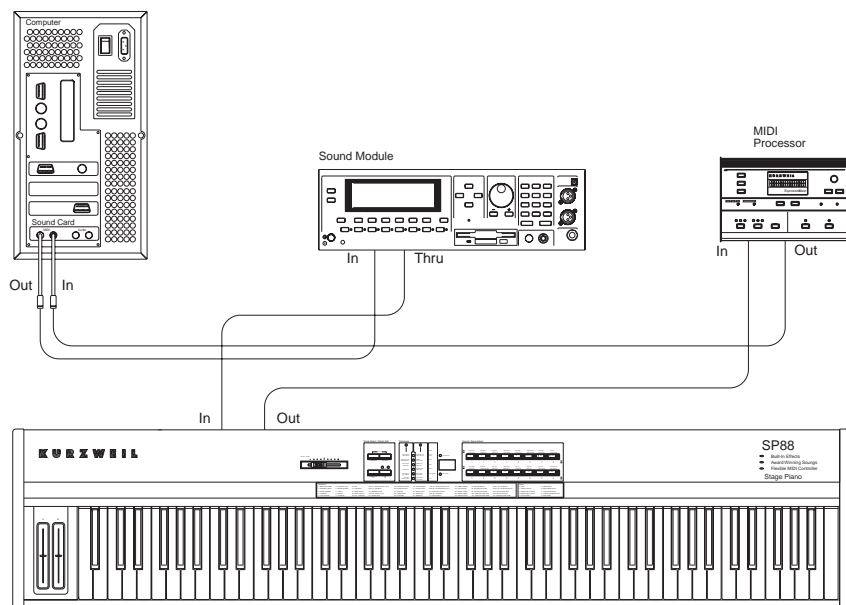
Figure 2-8   MIDI Connections: Compute, Module, Processor

With this setup, note signals from the Stage Piano first pass through the ExpressionMate where they can be processed into additional zones, have automatic arpeggiation added to them, or be processed in other ways as well. MIDI signals from the Stage Piano's controllers are also modified and combined with the ExpressionMate's own unique controls. Note and control signals then travel to the computer where they can be optionally recorded, then finally to the K2600R module and the Stage Piano's internal sound module. As always when using with a computer sequencer, set the Stage Piano's Local parameter to **Off**. See *Example: The Kurzweil ExpressionMate* on page 6-6 for more about what this example system can do.

The Front Panel

The Stage Piano's front panel is illustrated in detail below.
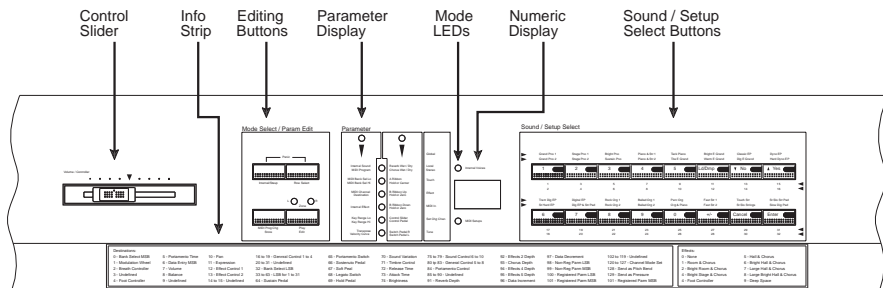
Figure 2-9   Stage Piano Front Panel

Sound and Setup Select Buttons

To the right of the display are the 16 sound and setup select buttons. When in Internal Voices mode (indicated by the LED over the display being on), each button can select the two sounds named in the label above the button. Press a button the first time, it'll glow red, and you'll get the "red" sound (the sound that's in the row that has a red arrow pointing to it). Press the same button again; it will turn green, and you'll get the green sound. In this way you can very quickly select any of the Stage Piano's 32 built-in sounds (voices).

When in MIDI Setups mode (indicated by the LED under the display being on), these same buttons allow you to select one of 32 possible MIDI Setups. For these, you'll want to use the numbers *under* the button; odd for red and even for green. Note that the sound associated with each setup is programmable and may be different from the sound named on the button.

In Edit mode (indicated by some of the LEDs to the left of the display being on), the sound or setup is frozen and these buttons serve a variety of data entry functions as marked on the buttons themselves. Refer to Chapter 3 for details on their use with the editors.

The Numeric Display

The numeric display is in the center of the panel and is better described as a 3-character display because sometimes it will also display stylized letters. The display shows 4 kinds of information depending on mode as follows:

1. In Internal Voices Play mode, it shows the current Sound Number, 1–32.

2. In MIDI Setups Play mode, it shows the current Setup Number, also 1–32.

3. In Edit mode, it shows the current parameter value, which may be a positive number, a negative number, or a string of 3 characters depending on the parameter.

4. Sometimes, regardless of mode, the display may show a message or even ask a question.

Each character in the display also has a small dot at the bottom right. If these dots are on, it means that the current setup has been edited but the change has not yet been made permanent by storing it into memory.

Mode LEDs

The two fundamental modes of the Stage Piano are Internal Voices mode and MIDI Setups mode. The mode LEDs above and below the display indicate which mode is current. One of them will always be on. Internal Voices Play mode is always selected when you first turn your Stage Piano on.

Parameter Editing Buttons

The 4 parameter-editing buttons are to the left of the display; most of them have dual markings. The top marking is active when in Play mode and the bottom marking when in Edit mode. One exception is **Row Select**, whose single marking is for Edit mode. The **Play/Edit** button is used to shift between Play mode and Edit mode.

The Parameter Display

Your Stage Piano has a total of 30 *parameters*, whose values determine sound selection, effects, what the player controls do, keyboard split, and a host of other options. The active parameter is indicated by 8 LEDs arranged around a list of the 30 parameter names.

The 30 parameters are arranged into 3 columns. The two column-designator LEDs identify the active column as follows:

Left column LED on Left parameter column is active

Right column LED on Center parameter column is active

Both column LEDs off Right (global) parameter column is active

Each column of parameters has 6 rows of (usually) two paired parameters each.

Each column of parameters consists of 6 rows, with two parameters for each row (except for the Effect parameter). There is a row-designator LED for each pair. If the row LED is on continuously, the upper parameter of the pair is active. If the row LED is blinking, then the lower parameter of the pair is active. The LED for the Efect parameter (left column, 4th row) always lights continuously when the Effect parameter is selected.

Use the **Col Select** and **Row Select** buttons to navigate to the parameter that you want to view or edit.

The Info Strip

This long strip below all of the buttons, LEDs, and display contains useful reference information. Most of the strip tells what each of the 128 possible MIDI destination numbers does. The remainder lists the 10 effects by number and name. Chapters 3 and 4 tell you how to use the information on the strip.

Button Combinations

How many ways can you press a button? Actually the Stage Piano recognizes 3 special cases beyond just "pressing a button."

Direct Select

In Play mode, if you want the red sound or odd-numbered setup next, it's simple—just press the corresponding sound/setup select button. Two presses, however, are required to get a green sound or setup. There may be cases where you'd prefer to skip the first (red or odd) selection and go directly to the second. So, if you press the same sound select button, twice, rapidly (like double-clicking a computer mouse), the intermediate selection will be skipped.

Panic

Simultaneously pressing the two buttons labeled **Panic** will start transmitting the *panic sequence*, which is a kind of "MIDI reset"—this will silence all sounding notes, turn sustain off, and so forth. Regardless of how long you hold the buttons, the minimum effective sequence will be sent (as described below). If you continue to hold them, a more elaborate (and more effective) sequence is sent. As long as the sequence is being sent, all of the parameter LEDs will light.

Here is the panic sequence:

1. All Notes Off, All Sound Off, Reset All Controllers to the internal sound module.

2. All Notes Off, All Sound Off, Reset All Controllers sent to the MIDI output on all 16 MIDI channels.

3. Individual Note Off messages sent to the MIDI output for all possible audible notes on all MIDI channels.

4. Present position of Stage Piano controls according to the current setup.

Steps 1 and 2 are always sent completely no matter how long the **Panic** buttons are held; this takes only a fraction of a second. Step 3 starts with low notes on Channel 1, progresses to higher notes, then moves on to Channel 2, etc. until you release the **Panic** buttons or the sequence is complete (about 3 seconds). Note that note numbers 0–11, which are not audible and perform special functions on some modules, are not affected by the panic sequence.

As soon as you release the Panic buttons, all player control positions get refreshed, according to the current setup. This takes only a fraction of a second, and it happens even if the entire panic sequence hasn't been sent.

Demo Song

If you press the two left-most edit buttons simultaneously when in Play mode, the short demo song will start to play. Release the buttons once the song starts playing. You can stop the demo song before it ends by pressing any other button. While the demo song is playing, the display will sequentially show $dΠ0$, $5Π G$, $PL R$.

What Mode Am I In?

We've used the word "mode" quite a bit in this chapter. Here is a reference list of all of the possible modes and how to recognize them. The significance of the modes will become clear as you read on through Chapters 3 and 4.

Mode	How to Recognize it	What You Can Do
Internal Voices, Play	Internal Voices LED on, all others off; display shows sound number	Directly select which of 32 sounds to play
MIDI Setups, Play	MIDI Setups LED on, all others off; display shows setup number	Directly select which of 32 MIDI setups to use
Internal Voices, Edit	Internal Voices LED, 1 or 2 Parameter Select LEDs on; display shows parameter value	Select parameter to edit and change its value
MIDI Setups, Edit	MIDI Setups LED, 1 or 2 Parameter Select LEDs on; display shows parameter value	Select parameter to edit and change its value
Number Entry	Display shows number being entered, blinking	Use Sound/Setup Select buttons to enter digits, accept entry, or cancel
Query	Display sequentially shows 2 or more abbreviated words as a question	Use **Up** arrow (Yes), **Down** arrow (No), or **Cancel** buttons to answer the query

Table 2-1   Stage Piano Modes

Chapter 3
Internal Voices Mode

This chapter describes Internal Voices mode in detail. This is the simpler of the two modes and is automatically selected when power is turned on. Internal Voices mode is indicated by the LED immediately over the display being on.

When in Internal Voices mode, the entire keyboard plays the selected sound. MIDI signals can also be sent so that an external sound module can "play along," or a computer sequencer can record your performance.

Selecting Internal Voices Mode

There are two ways to get to Internal Voices mode:

- If the Stage Piano is in Play mode (no LEDs to the left of the display are lit), simply press the upper-left editing button (marked **Internal/Setup**).

- If the Stage Piano is in Edit mode (LEDs to the left of the display *are* lit), press the lower right editing button (marked **Play/Edit**). This returns the Stage Piano to Play mode; all LEDs to the left of the display should turn off. If not, press **Play/Edit** repeatedly until they do. Then press **Internal/Setup**.

When successful, the LED above the display marked Internal Voices will light. Of course, turning the power switch off then on again will always return to Internal Voices mode.

Selecting Sounds

To select a sound for playing, simply locate its name and press the corresponding button once if it's a red sound, or twice if it's green). In case the button's LED is already on but is the wrong color, press the button once to change it.

Keys (or the sustain pedal) may be down when selecting the new sound. Notes already playing at the time a different sound is selected will continue to play using the *previous* sound. If the new sound has a different effects setting, however, the effects will change when the new sound is selected. This may or may not be noticeable, depending on the contrast between the two effects. Read on for more on effects settings.

Modifying Effects

To change the effect type or intensity of the currently selected sound, you will need to make a brief excursion into Edit mode. Do the following to temporarily change the effect setting of a sound:

1. Press the **Play/Edit** button once if in Play mode. This enters Edit mode.

2. Select the left column of parameters by pressing the **Col Select** button until the left-column LED lights. At most 2 presses will be required.

3. Select the Effect parameter by pressing the **Row Select** button repeatedly until the Effect-parameter LED lights. If you go past it, just keep pressing and the LED sequence will continue from the top.

4. The display should show a number between **0** and **9**. This is the number of the current effect. Check the right end of the Info Strip to find out the corresponding name.

5. To choose a different effect type, either use the **Up/Down** arrow buttons (in the Sound Select section) to scroll through the 10 possibilities, or press one of the digit buttons then the **Enter** button.

This procedure selects a different effect *type*. Use a similar procedure to adjust only the *intensity* of the existing effect's reverberation and/or chorus components (this is called the wet/dry mix; wetter is more intense):

1. Go to Edit mode, select the center column of parameters, and select either Reverb Wet/Dry or Chorus Wet/Dry (the top-row LED will light if you select Reverb; it will blink if you select Chorus). Remember that when there are two parameters for the same LED, the lower one always corresponds to a blinking LED.

2. The display should show a number between **0** (inaudible) and **100** (maximum). This is the percent proportion of the effect.

3. Either use the **Up/Down** arrow buttons (in the Sound Select section) to scroll through the values, or press one of the digit buttons then the **Enter** button.

Check out *Editing Basics* on page 3-6 for more about editing. When finished editing the effects for the current sound, press **Play/Edit** to return to play mode. Note that the effects changes just described are *temporary*; they will be forgotten when changing to another sound. To have them remembered, read on.

Saving a Sound's Effects Settings

1. Go to Edit mode and select one of the 3 effects parameters—Effect (left column, 4th row), Reverb Wet/Dry (right column, 1st row upper), or Chorus Wet/Dry (right column, 1st row lower). If you're not sure how to select parameters, see *Modifying Effects* on page 3-2 for an example.

   It's important to select one of these 3 parameters, because doing so tells the Stage Piano that you want to save only the effects settings for the current sound, and nothing else. If you select one of the other parameters, executing a save will save the Internal Voices Setup, which includes MIDI control information.

2. Press the **Store** button (the bottom-left button in the Edit Group).

3. The display will sequentially show $5 \sim d$, $5 \, R \, ?$, which means "Save the sound's effect?" If it shows $\iota \sim \varepsilon$, $5 \, \upsilon$, $5 \, R \, ?$,you're about to save the Internal Voices Setup, which is not what you want to do. In this case, press **Cancel**, and go back to Step 1. Be sure one of the 3 effects parameters (Internal Effect, Reverb Wet/Dry, or Chorus Wet/Dry) is selected, then try again. This ensures that all you're doing is associating a particular effect to a particular sound. Saving the Internal Voices Setup saves additional information, like the MIDI channel used by the sound.

4. Press the **Up** arrow (Yes) button (Sound Select Group) or **Store** button to execute the save. If you change you mind, press the **Down** arrow (No) button or **Cancel** instead.

5. The display will flicker briefly while the current effect number and intensity settings for the current sound are saved in EEPROM memory.

Now, whenever this sound is selected, the internal effects will change to the settings you just saved.

Modifying The MIDI Transmit Channel

When in Internal Voices mode, anything you play is also sent to the MIDI Out port, which can be connected to external sound modules, a synthesizer, or a computer. By default, the MIDI signals are transmitted on Channel 1 but you may need to change that to match the channel your external device is "listening" to. Do this to change the MIDI transmit channel:

1. Go to Edit mode, and select the MIDI Channel parameter (left column, third parameter; the LED should be on, not blinking). If you're not sure how to select parameters, see *Modifying Effects* on page 3-2 for an example.

2. Use the **Up** or **Down** arrow buttons—or the digit buttons plus **Enter**—to change to a new channel between **1** and **16**.

The next notes or control movements you make will be sent on the new MIDI channel. The MIDI channel change is temporary. To make it permanent for Internal Voices mode, press the **Store** button twice.

⚠ *CAUTION: If you change the MIDI channel while holding keys or the sustain pedal down, those notes may become "stuck." To silence them, press both buttons labeled **Panic** at the same time and hold until the stuck notes are silenced. Many LEDs will light while the panic sequence is sent.*

Sending a MIDI Program Change

You can change the program (sound) in an external device from the front panel of your Stage Piano quickly and easily without leaving Play mode:

1. While in Play mode, press the **MIDI Prog Chg** (MIDI Program Change) button—it's the lower-left editing button. The display will change to the last sent program number (or — if none).

2. Enter the desired new program number (1–128) by using the **Up** or **Down** arrow buttons —or the digit buttons.

3. When the desired number is showing, press the **Enter** button. Press **Cancel** instead if you decide not to send a program change. A MIDI Program Change command will be sent on the current MIDI Transmit Channel. The new program number will persist in the display briefly, then it will revert to the current Internal Voice selection.

The next notes you play will be the newly selected sound in your external module. Depending on the external module's design, notes that were sounding just before the program change was sent may either be unaffected, cut off, or take on some characteristics of the newly selected sound.

Just as opinions differ on whether 2000 or 2001 is the millennium year, some modules begin numbering their programs at zero while others begin at 1. The former type will switch to a program number that's 1 lower than you specify.

Modifying Other Internal Voice Parameters

Internal Voices mode is really a special *MIDI Setup* with a number of parameters governing what happens when you select Internal Voices mode, and how your keystrokes and control movements are interpreted and sent. This section describes the parameters used by Internal Voices mode. More detail can be found in Chapter 4, which describes MIDI Setups in general. However, even if you are not using MIDI, many of these parameters will still affect the internal sound module.

NOTE: Some parameters marked on the front panel are not relevant to Internal Voices mode, and cannot be selected for examination or editing.

MIDI Program

1–128 and Off
Specifies the MIDI Program Change number sent whenever changing to Internal Voices mode. **Off** means do not send a program change.

MIDI Bank Sel Lo

0–127 and Off
Specifies the MIDI Bank Select number(s) sent in conjunction with MIDI Program Change to further specify the program desired. See *MIDI Bank Sel Lo, MIDI Bank Sel Hi* on page 4-4 for more about Bank Select.

MIDI Channel

1-16 and Off
Specifies which MIDI channel to send on. No MIDI signals are sent if the value is **Off**.

Destination

Int, Mid, Bot
This specifies where your performance data should be sent. **Int** means the internal sound module, **Mid** means MIDI, and **Bot** means both.

Internal Effect

0-9, Noc
This is the effect number for the currently-selected sound. A value of **0** means no effect, and **Noc** (**no c**hange) means the effect doesn't change when this sound is selected. As you select different sounds, the value of this parameter will change.

Transpose

-60 to 60
Subtracts or adds the specified number of semitones to the notes you play. Caution: changing this parameter while keys are down may cause stuck notes.

Velocity Curve

1-8
Allows you to alter the relationship between keyboard playing effort (keystroke velocity) and the resulting sound volume (for velocity sensitive voices). **1** is normal. See page 4-11, and *Velocity Curve* on page 4-6 for more.

Reverb Wet/Dry, Chorus Wet/Dry

0-100, Noc
This is the effect intensity for the currently-selected sound. **Noc** means that the effect intensity doesn't change when this sound is selected.

A Ribbon

0-129, Off
Specifies where signals from the left ribbon are sent. See the Info Strip for corresponding MIDI controller names. Default is **Pitch Wheel**, which the internal sound module *does not* respond to.

Hold or Center

Hld, Ctr
Specifies whether the A ribbon signal remains at its last value or returns to center when your finger is lifted. Default is Center (**Ctr**).

B Ribbon Up, B Ribbon Down

0-129 and Off
Specifies where signals from the two halves of the right ribbon are sent. Defaults are Modulation Wheel (01) and Pan (10) respectively. Some sounds will respond to modulation but none will respond to Expression.

Hold or Zero

Hld, Zro
Specifies whether the B ribbon signal remains at its last value or returns to zero when your finger is lifted. Default is **Hold**.

Control Slider, Control Pedal

0-129 and Off
Specifies where signals from the front panel Volume/Controller slider and control pedal are sent. Defaults are Volume and Foot Controller. The internal sound module does not respond to Foot Controller signals.

Switch Pedal R, Switch Pedal L

0-129 and Off
Specifies where signals from the two possible switch pedals go. Defaults are Sustain Pedal and Sostenuto Pedal. The standard single switch pedal functions as Switch Pedal R.

You can examine and change the values of any of these parameters using the same procedure as Modifying MIDI Transmit Channel above except modify the first step to select the parameter of interest. And you can save your changes by selecting any non-effects parameter, then press **Store**. You'll see *i n t , 5 U , 5 R ?* when you do. Read on for more about editing and saving parameters.

Editing Basics

The way the Stage Piano responds to your playing and control movements is determined by the setting or *value* of various *parameters*. *Editing* is changing those values and thus changing the Stage Piano's response to your playing. You can use similar procedures to examine the current values of parameters without changing them.

Below is a drawing of the front panel pointing out the main groupings of buttons and displays that you use to edit. The following sections will refer to these groupings frequently so it pays to become familiar with them.
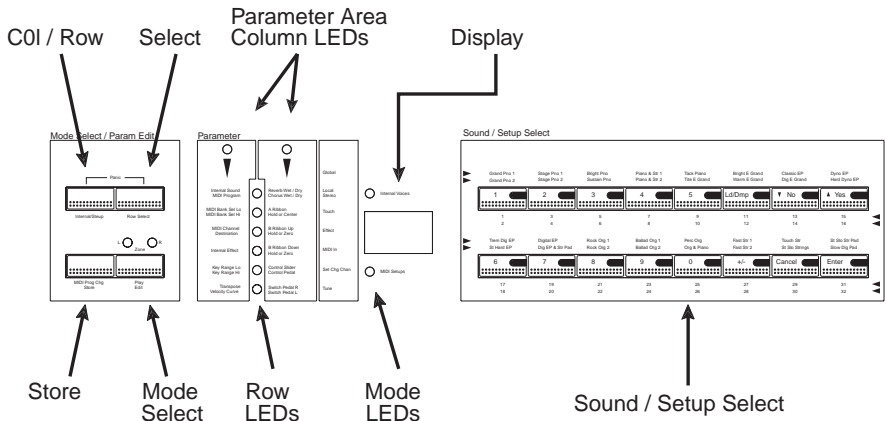

Figure 3-1   Stage Piano Front Panel

Edit vs. Play Mode

In Play mode you select different sounds (or MIDI Setups if in MIDI Setups mode) by pressing the **Sound/Setup Select** buttons to the right of the display. In Edit mode, the sound (or setup) is frozen and the **Sound/Setup Select** buttons perform a variety of editing functions as marked on the buttons themselves. That is really the main difference—you can play the keyboard and controls equally well in either mode.

In Play mode, the display shows the sound (or setup) number. A bi-color LED in one of the **Sound/Setup Select** buttons also indicates the current sound (or setup). All of the LEDs to the left of the display are off as well.

In Edit mode, the display shows the value of the currently selected parameter. LEDs to the left of the display indicate which parameter is current. The current sound (or setup) continues to be indicated in the **Sound/Setup Select** buttons.

The following assumes that you are in Edit mode.

Selecting a Parameter

The names of all 30 possible parameters are listed in the Parameters area. The listing is in 3 columns (Left, Right, and Global) and 6 rows. In each column, there are 1 or 2 parameters per row.

The 2 column-designator LEDs indicate a column, either Left or Right. If both are off, then the Global column is current.

The 6 row-designator LEDs indicate a row. If the LED is on continuously, then the upper parameter of the pair is current. If it is blinking, the lower parameter is current.

To select a different column, press the **Col Select** button repeatedly until the column LEDs indicate the desired column. Note that the current row LED may change from blinking to continuous when you change to a column with only one parameter for the current row.

To select a different row, press the **Row Select** button until the desired row and parameter are selected. If you overshoot, just keep pressing and the row selection will "wrap" from bottom to top again.

As you select different parameters, the display will change to show their value. If you return to Play mode then later reenter Edit mode, you will find that the parameter selection is remembered.

Increment/Decrement Editing

The easiest way to change the value of the currently selected parameter is to use the **Up/Down** buttons (the ones with the arrows on them) to cycle through all of the possible values for the parameter. This is particularly effective when the parameter's values are words like *int*, *Mid*, and *bot*, but is also effective for small changes in numerical values.

If you hold an arrow button down, its action will begin to repeat rapidly after a short delay which will speed up larger changes.

Direct Numerical Editing

Most parameters have numerical values which can also be entered directly using the **Sound/Setup Select** buttons marked with digits. You can enter a 1, 2, or 3-digit value, then press **Enter** to accept it. There are a couple of rules though:

- You cannot enter a value greater than **255**. If you try, the current entry value will revert to just the last digit entered.

- If you try to enter a value that is not valid for the current parameter (like **27** for the Internal Effect), it will change to the closest valid value when you press **Enter**.

Once numeric entry has started by pressing the first digit, the display will blink until you press **Enter** to accept it or **Cancel** to abandon it. If the parameter has a signed value, like Transpose or Tune, you can press the +/- button during numeric entry to change the sign from positive (not indicated) to negative (–) and back.

Cancelling Edits

As mentioned above, you can cancel numeric entry of a new parameter value once it's started (indicated by the blinking display) by pressing the **Cancel** button. The display will change back to the parameter's value before numeric entry started.

You can also cancel all changes you've made to a parameter's value since you selected it by pressing **Cancel** outside of numeric entry when the display is *not* blinking. However, once you select a different parameter, the only way to recover the original value of earlier selected parameters is to "reload" the Internal Voices setup. Read on to find out how this is done.

Saving The Edited Parameters

Until you save your changes, they will remain in effect only until you change modes (Internal Voices to MIDI Setups or back), change setups (when in MIDI Setups mode), change sounds (if you've edited an internal effects parameter in Internal Voices mode) or turn the power off. To save your changes in EEPROM memory so they'll come back next time you select the same mode, setup, sound, or turn power on, use the following general procedure:

1. Be sure you're in Edit mode then press the **Store** button in the edit group.

2. Depending on the mode and what parameter is selected, one of these *query sequences* will appear in the display:

Sequence	Meaning
! n t 5 U 5 R ?	Internal Voices Setup Save?
5 n d 5 R ?	Sound: Effects Settings Save?
5 U 5 R ?	MIDI Setup Save? (See Chapter 4)
C b L 5 R ?	Global Parameters Save? (See Chapter 5)

3. To execute the save, press **Up** arrow (Yes) or **Store**. To cancel the save, press **Down** arrow (No) or **Cancel**.

You may have noticed that on return to Play mode after editing a non-effects parameter, all of the dots in the display are lit. This is a signal that the Internal Voices Setup has been edited but not yet saved. Executing the above save procedure will turn them off.

If you attempt to change modes and the dots are on, you'll see one of the query sequences shown in Step 2 above, and you can do one of the following:

1. Press **Up** arrow or **Store** to save before the mode change.

2. Press **Down** arrow or **Cancel** to skip saving and continue with the mode change.

3. Press **Cancel** to abandon the mode change.

This is a safety feature to prevent accidental loss of your edits.

If you wish to abandon all of your edits since the last save, do this:

1. Exit Edit mode (press the **Play/Edit** button).

2. Change to MIDI Setups mode (press the **Internal/Setup** button).

3. Answer No to the ¦ ⌐ ᵗ 5 ᵘ 5 ᴿ ⌐ query (**Down** arrow).

4. Change back to Internal Voices mode (press the **Internal/Setup** button again).

The Internal Voices Setup will be reloaded from EERPOM memory thus erasing all edits since the last save.

Chapter 4
MIDI Setups Mode

Up to now you've been operating your Stage Piano exclusively in Internal Voices mode (unless of course you're like most readers and have tried MIDI Setups mode anyway). You've learned that you can set the physical controllers, like ribbons and pedals, to transmit to desired MIDI destination numbers; transpose the keyboard; send a MIDI Program Change; specify the MIDI channel; and set the effects for each of the 32 interval voices. This entire collection of information, along with a sound and an effect, constitutes the Internal Voices *Setup*, which you can save in memory.

Now imagine 32 of these setups, each of which can have different parameter settings, that can be called up at the press of a button. Then further imagine that each setup is split into two parts, *each* of which has all of these setup parameters but is active only over a part of the keyboard range. What you have imagined is MIDI Setups mode, which we'll explain next.

Selecting Setups

First you'll need to switch to MIDI Setups mode. Check that all of the LEDs to the left of the display are off meaning you're in Play mode. If they are not, press the **Play/Edit** button until they go out. Next check the LED beneath the display labeled MIDI Setups. If it is off, press the **Internal/Setup** button to change to MIDI Setups mode and illuminate the LED. If the display shows a question about saving (like 5ᴜ 5ᴀᴩ), and you don't know what that means, refer to *Saving The Edited Parameters* on page 3-8, or just press the **No** arrow button.

Now you're in MIDI Setups mode and can select different MIDI Setups the same way you selected different sounds before. The sound associated with each MIDI Setup is *programmable*, so it doesn't necessarily correspond to the labels above the **Sound/Setup Select** buttons (although the factory-default MIDI Setups *do* correspond). For this reason, it's good to think of MIDI Setups in terms of *numbers* (which are printed below the buttons and shown on the display) rather than names. See below for more on the sound and the two external MIDI programs that are associated with each MIDI Setup.

NOTE: The sound associated with a setup may be different from the name printed above its select button.

One other note about selection of MIDI Setups: it may be important to avoid passing through an intermediate setup when switching to an even-numbered (green) setup. By performing the necessary two button presses rapidly, the Stage Piano logic will skip the odd (red) setup entirely. Practice this a few times; you'll be able to see whether the red selection is skipped. You don't have to be super-quick; a tempo about like double-clicking a computer mouse is sufficient.

Zones

The biggest difference between the Internal Voices Setup and a MIDI Setup is that the latter has 2 *zones* whereas the former has only 1. This name comes about from its usual association with a split keyboard. In the Stage Piano, however, the zones can overlap partially or even completely thus making the term *layer* more accurate. Nevertheless, we'll use "zone." Figure 4-1 should help you better understand the concept of zones.
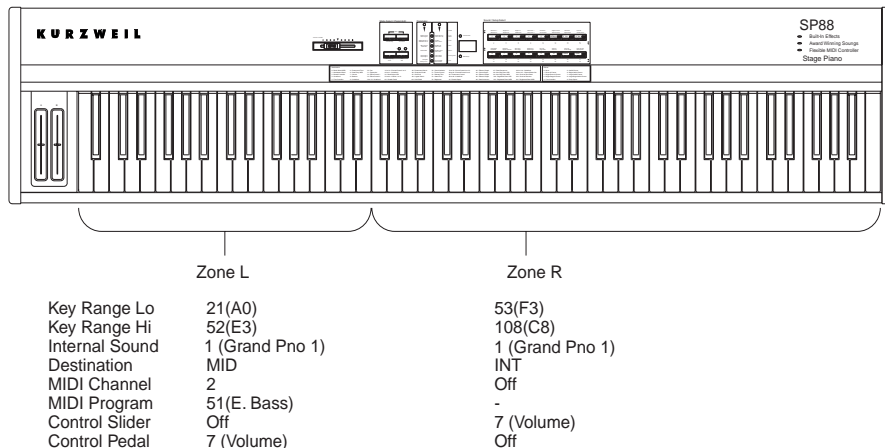

	Zone L	Zone R
Key Range Lo	21(A0)	53(F3)
Key Range Hi	52(E3)	108(C8)
Internal Sound	1 (Grand Pno 1)	1 (Grand Pno 1)
Destination	MID	INT
MIDI Channel	2	Off
MIDI Program	51(E. Bass)	-
Control Slider	Off	7 (Volume)
Control Pedal	7 (Volume)	Off

Figure 4-1   Zones

Let's say that one zone is a lead sound, like **Grand Piano 1**, playing through the internal sound module; the other is assigned to play a bass sound through an external module. You may want different controller assignments for each zone. For example, you may want to control the piano's volume with the slider, and the bass's volume with the control pedal. Figure 4-1 shows how these basic characteristics can be programmed using different parameter values for each zone.

First you arbitrarily choose the right zone to be the piano and the left zone to be the bass. We'll call these Zone R and Zone L. The Key Range Hi and Key Range Lo parameter settings determine where on the keyboard each zone lies. L and R actually refer to the zone indicator LEDs; either zone can cover any note range.

The Destination parameter makes Zone R send to just the internal sound module and Zone L send only to MIDI. This prevents Zone L notes from reaching the piano voice, and Zone R notes from being sent to MIDI. The MIDI Channel and MIDI Program settings for Zone L must match the external module's channel setting and program number for the desired bass sound.

Grand Piano 1 is the sound selection. Note that the sound selection always applies to both zones, but since the Destination parameter in Zone L specifies MIDI only, Zone L notes won't reach the internal sound module. Independent volume control by slider (Zone R) and Control Pedal (Zone L) is achieved by cross assignment to Destination 7 as shown.

The example above lists only a few of the many parameters available that can be assigned different functions in the two zones. Using the ideas outlined above, it's possible to specify quite elaborate custom setups. Read on for more about parameters and zones.

Editing MIDI Setups

Editing MIDI Setups is much like editing the Internal Voices Setup. The main difference is that you have the *two zones* to deal with now. The **Play/Edit** button now functions as a *zone selector* button as well. Starting from Play mode, the first press of **Play/Edit** will take you to Edit mode, Zone L. This is indicated by the Left Zone LED above the button being lit. The value shown for the current parameter is its value in Zone L. Pressing **Play/Edit** again takes you to Zone R and the right zone LED lights instead. A third press returns to Play mode.

A few parameters, like Internal Sound and the ribbon modes, are always the same in both zones. To remind you of this, both zone LEDs will be on when selecting such a parameter. If the current parameter is one of these, then the next press of **Play/Edit** will always exit to Play mode.

Except for these differences, the same procedures described in Chapter 3 for editing parameter values also apply to editing MIDI Setups parameters.

Saving a Modified MIDI Setup

As with Internal Voices mode, you can save a modified MIDI Setup either in Edit mode or in Play mode. It's good practice to save in Edit mode by pressing the **Store** button but if you forget, you'll be asked to save when changing MIDI Setups or changing to Internal Voices mode.

Regardless of where or how saving is initiated, you'll see a query sequence *5 U 5 A ?* . As before, you can press **Cancel** or **No** arrow to abandon the save. If you press **Yes** arrow, you'll first be given the opportunity to specify *where* to save your edited setup. This is shown by a blinking number on the display. You can press **Enter** or **Store** again to accept the number as shown or modify the number with the arrow or digit buttons first. The number showing when you press **Enter** or **Store** is *where* the current MIDI Setup will be saved.

/!\ *CAUTION: When you save a setup to a different number, the setup that was at that number is overwritten.*

Being able to save a setup to a different number means that you can move MIDI Setups around in the EEPROM memory. For example, you might adopt the convention to retain factory setups 1–10 (which are primarily solo pianos) and begin your own setup library with setup 11. You might always begin creating a new MIDI Setup by starting with 1, making your changes, then saving in the higher numbers. Further changes to your newly created setup are then saved in place. You can adopt other conventions as well. After a little practice you'll soon develop your own working style.

*NOTE: In Edit mode, pressing **Store** 3 times is a short cut for saving a MIDI Setup.*

Sending a MIDI Program Change

You can send a MIDI Program Change from Play mode using the same procedure that was described for Internal Voices mode on page 3-4. In MIDI Setups mode however you will need to specify which zone the program change is for. When the **MIDI Prog Chg** button is first pressed, Zone L is selected initially and its LED will be blinking. You can press the **Play/Edit** button to swap to Zone R at any time during number entry. Then when you press **Enter**, the program change will be sent on the MIDI channel associated with the zone that is blinking at the time.

Parameter Summary

Here is a detailed summary of all of the setup parameters. With a few exceptions, each can have a different value in each zone. Although most parameters are the same for Internal Voices mode and MIDI Setups mode, for those that differ the descriptions here are for MIDI Setups mode.

Internal Sound

1-32 and Off

This specifies the internal sound to be used by this MIDI Setup. This parameter applies to both zones so both Zone LEDs will be on when it is selected. That means that notes from both zones will play the same internal sound. You can change this action and prevent a zone from playing the internal sound by setting the Destination parameter for that zone to MID.

MIDI Program

1-128 and Off

MIDI Program Change number sent whenever *selecting* (changing to) this MIDI Setup. **Off** means do not send a program change. The program change is sent on the MIDI channel associated with this zone.

MIDI Bank Sel Lo, MIDI Bank Sel Hi

0-127 and Off

MIDI Bank Select number(s) sent in conjunction with MIDI Program Change to further specify the program desired. Some external sound modules and synthesizers use only Bank Select Low (often called MIDI 0) while others use only Bank Select High (MIDI 32). Many use both while older or simpler modules have fewer than 128 sounds and so do not need Bank Select. Using appropriate combinations of specific values and Off you can accommodate all of these variations but you'll need to consult the external device's manual to find out what is required. Note that when both Bank Select numbers are specified, Bank Sel Hi is sent first.

MIDI Channel

1-16 and Off

Specifies which MIDI channel to send on for this zone. No MIDI signals are sent from the zone if the value is **Off**.

Destination

Int, Mid, Bot

This specifies where your performance data for this zone should be sent. **Int** means the internal sound module, **Mid** means MIDI, and **Bot** means both.

Internal Effect

0-9, Noc

This is the effect number for the sounds for this setup and is the same for both zones. A value of **0** means no effect and **Noc** means no effects change when changing to this setup. Note that the Effect global parameter also influences effect selection and should be set to **Set** for this parameter to work. See *Effect* on page 5-3.

Key Range Lo, Key Range Hi

These parameters specify the range of keys that will be recognized by this zone. The value is the MIDI note number of the lowest (or highest) key that is recognized and notes outside the range from low to high will not transmit in this zone. Normally the value of Key Range Lo is lower than that of Key Range Hi. If the opposite is true, then only keys *outside* the range will transmit. See *More on Keyboard Splits* on page 4-11 for details.

Transpose

-60 to 60

Subtracts or adds the specified number of semitones to the notes you play for this zone. Using this feature permits each section of a split keyboard to be "moved" up or down in pitch independently. Two cautions, though. First, don't change the value of this parameter while keys are down, or you may get stuck notes. Second, if after transposition the keyboard zones overlap and both play the internal sound module, you may get interference between keys that play the same note. Finally, if a transposed note is out of the MIDI range of 0-127 (C 1–D$^\sharp$ 10), nothing is sent.

Velocity Curve

1-8

Allows you to alter the relationship between keyboard playing effort (keystroke velocity) and the resulting sound volume in this zone. Below are sketches of these curves.
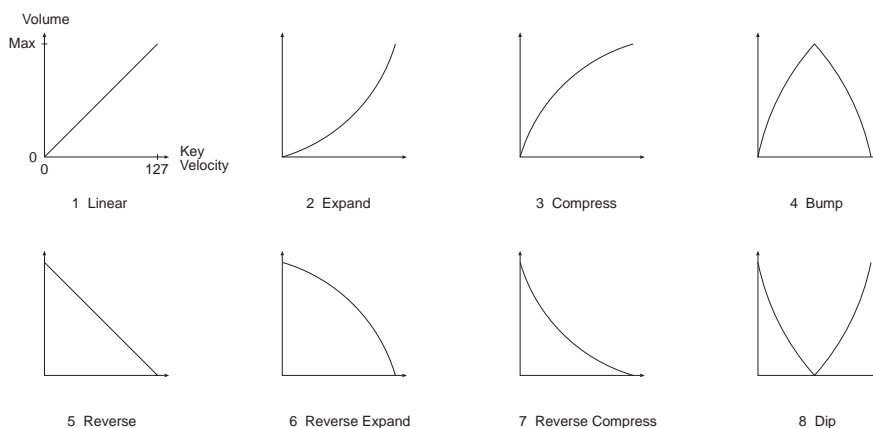
Figure 4-2   Velocity Curves

You can use Velocity Curves is several ways. Number 1 is normal but you can use 2 and 3 to alter the keyboard response to favor softer playing (2) or louder playing (3) without a loss of dynamic range. The others are typically used with overlapping zones (see Low Key, High Key, and Transpose) to create "crossfades" (see *More on Keyboard Splits* on page 4-11).

Reverb Wet/Dry, Chorus Wet/Dry

0-100, Noc

This is the effect intensity for the internal effect selected for this setup. It's the same for both zones.

A Ribbon

0-129 and Off

Specifies where signals from the left ribbon are sent for this zone. Default is Pitch Bend (**128**). See *MIDI Controller Destinations* on page 4-7 for a description of MIDI destination numbers. Note that the Stage Piano's sounds do not respond to Pitch Bend.

Hold or Center

Hld, Ctr

Specifies whether the A ribbon signal remains at its last value or returns to center when your finger is lifted. Default is Center (**Ctr**).

B Ribbon Up, B Ribbon Down

0-129 and Off

Specifies where signals from the two halves of the right ribbon are sent for this zone. Defaults are Modulation Wheel (**1**) and Pan (**10**) respectively. See *MIDI Controller Destinations* for a description of MIDI destination numbers. Some internal sounds will respond to Modulation but none will respond to Pan.

Hold or Zero

Hld, Zro

Specifies whether the B ribbon signal remains at its last value or returns to zero when your finger is lifted. Default is **Hold**.

Control Slider, Control Pedal

0-129 and Off

Specifies where signals from the front panel Volume/Controller slider and control pedal are sent for this zone. Defaults are Volume (**7**) and Foot Controller (**4**) respectively. The internal sound module does not respond to Foot Controller signals.

Switch Pedal R, Switch Pedal L

0-129 and Off

Specifies where signals from the two possible switch pedals go for this zone. Defaults are Sustain Pedal (**64**) and Sostenuto Pedal (**66**). The standard single switch pedal functions as Switch Pedal R.

MIDI Controller Destinations

As noted above, all of the performance controls have a *Destination* parameter. The Info Strip on the front panel has a very brief summary of the 130 possible MIDI destinations, which we'll detail here.

It's important to realize that the definitions below are merely conventions and may be different for some external modules, especially older ones. Your Stage piano, being programmable, can adapt to match most any sound module's assignment by changing the MIDI destination number for the control.

Continuous Controller Destinations

These communicate "continuous" (meaning smoothly varying) values of 0–127 to an external sound module or effects device. If you assign one of these to a switch pedal, 127 (maximum effect) will be sent when the pedal is down and 0 (minimum effect) when it is up. Destinations listed as Undefined can be used by some receivers for purposes that don't fit the defined functions.

MIDI #	Controller Name	Description
0	Bank Select MSB	High order sound bank select. See page 4-4.
1	Modulation Wheel	Usually controls vibrato depth, tremolo depth, or other expression for sustained sounds. **Default** destination of B Ribbon Up.
2	Breath Controller	Usually controls loudness or brightness and typically used with a breath pressure sensing device.
3	Undefined	
4	Foot Controller	Usually controls loudness or timbre and typically used with a control pedal. **Default** destination of Control Pedal.
5	Portamento Time	Controls time to glide from one note to the next when Portamento Switch (65) is on.
6	Data Entry MSB	Used in conjunction with Registered and Non-Registered Parameter Numbers (98-101) to edit sound parameters in some synthesizers.
7	Volume	Controls overall volume without affecting timbre. **Default** destination of Control/Volume slider.
8	Balance	Typically controls relative mix of 2-layered sounds.
9	Undefined	
10	Pan	Changes stereo pan position of sound. **Default** destination of B Ribbon Down.
11	Expression	Controls overall volume perhaps with timbre change. Used for note-to-note expression.
12	Effect Control 1	Used by external effects processors to vary some aspect (usually the most prominent) of its processing.
13	Effect Control 2	Same as 12 but typically controls a less prominent aspect.
14, 15	Undefined	
16–19	General Control 1-4	Function varies freely with receiving device.
20–31	Undefined	
32	Bank Select LSB	Low order sound bank select. See page 4-4.

Table 4-1   Continuous Controller Destinations

MIDI #	Controller Name	Description
33–63	LSB for 1-31	Originally defined for vernier (fine) control of destination numbers 32 less than these. The Stage Piano will send to these like any other destination and so they should be considered Undefined.

Table 4-1   Continuous Controller Destinations (Continued)

Switch Controller Destinations

These were originally reserved for binary (On-Off) switched functions, transmitted by momentary or locking action pedals and buttons. However, like destinations 0–63 above, a continuous 0–127 value is included in the message anyway so many of these are used for continuous control functions. For On-Off switch functions, values of 0–63 are regarded as Off and 64–127 as On.

MIDI #	Controller Name	Description
64	Sustain Pedal	Also known as Damper or Hold 1. When on, sounding notes are either held indefinitely or decay more slowly. **Default** destination of Right Switch Pedal (or single pedal).
65	Portamento Switch	Turns the portamento function on and off. See destination 5.
66	Sostenuto Pedal	Sustains notes that are sounding when the control switched from off to on but does not affect later notes. **Default** destination of Left Switch Pedal.
67	Soft Pedal	Lowers the volume or softens the timbre by a preset amount.
68	Legato Switch	Puts receiver into "legato" mode where only one note can sound at a time and overlapping notes result in a change of pitch rather than a newly attacked note.
69	Hold Pedal	A second hold control that may hold the sounding notes differently from 64.
Although the following are in "Switch Controller space", they are typically used as continuous controls.		
70	Sound Variation	Could control any aspect of sounding notes.
71	Timbre Control	Controls richness or intensity of timbre.
72	Release Time	Controls rate of sound decay.
73	Attack Time	Controls rate of sound attack.
74	Brightness	Controls high frequency portion of timbre.
75–79	Sound Control 6-10	Function varies freely with receiving device.
80–83	General Control 5-8	Function varies freely with receiving device.

Table 4-2   Switch Controller Destinations

Switch Controller Destinations

MIDI #	Controller Name	Description
84	84 Portamento Control	When Portamento Switch (65) is turned on and Portamento Time (5) is not zero, the value of this Controller is the MIDI note number from which the pitch glide will start.
85–90	Undefined	
91	Reverb Depth	Controls the mix ratio of reverberated sound to unprocessed sound (0 = all unprocessed, 127=all reverberation). The Stage Piano's internal sound module responds to this control.
92	Effects 2 Depth	General effects control.
93	Chorus Depth	Controls the mix ratio of chorus processed sound to unprocessed sound. The Stage Piano's internal sound module responds to this control.
94	Effects 4 Depth	General effects control.
95	Effects 5 Depth	General effects control.
96	Data Increment	Used in conjunction with Registered and Non-Registered Parameter Numbers (98-101) to decrement (lower the value of a particular parameter. Not all synthesizers respond to this.
97	Data Decrement	Same as 96 but increment edits the parameter.
98	Non Reg Parm LSB	This and 99 address a manufacturer-and model-specific parameter to be edited. Not all synthesizers respond to this.
99	Non Reg Parm MSB	See 98.
100	Registered Parm LSB	This and 101 address a standardized parameter to be edited.
101	Registered Parm MSB	See 100.
102–119	Undefined	Function varies freely with the receiving device. 118 is the Stereo/Mono switch for the internal sound module. 119 is the Tune control for the internal sound module (64=A440).
120–127	Channel Mode Set	These set the MIDI mode of the receiving device and generally should not be used as control destinations.
128	Send as Pitch Bend	The value is sent as a Pitch Bend (or Pitch wheel) message. **Default** destination of A Ribbon.
129	Send as Pressure	The value is sent as a Channel Pressure message. It allows some other control to assume the function of key pressure (or Aftertouch) which the Stage Piano's keyboard lacks.

Table 4-2   Switch Controller Destinations (Continued)

More on Keyboard Splits

The example given earlier described the simplest possible keyboard split where one section of the keyboard controls one sound and an adjacent section controls a different sound but there are other possibilities too.

Split-with-transpose is one of these possibilities. The Piano/Bass split discussed earlier might be modified to make the split between E 2 and F 2 thus giving the piano an octave more downward range. Then to permit the bass to reach notes above E 2, you could set Transpose in Zone L to **+12** which will raise its pitch by one octave. Note that although the keyboard sections don't overlap, the instrument pitches do for notes between F 2 and E 3. This is only a problem if both zones send on the same MIDI channel.

Another application of transpose is rationalizing the score written for a transposing instrument. For example, a B$^\flat$ trumpet part can be played as written and sound the correct pitch if transpose for the trumpet zone is set to **+2**.

The note ranges for zones can overlap. In that case, a key played within the overlap area will be sent *twice*, once for Zone L with its instrument sound and transpose, and again for Zone R with possibly a different sound and transposition. This means you can play an interval within the overlap region and single notes outside it. The overlap region can even cover the entire keyboard when the Low Key/Hi Key parameter pair values are the same.

One more possibility is a sort of 3-way split. By swapping Low Key and Hi Key parameter values, you can specify a keyboard region that *does not* play within a zone. For example, if Hi Key = 48 (C 3) and Low Key = 72 (C 5), then keys below C 3 or above C 5 will play while keys from C 3–C 5 inclusive will not play. You can then set the other zone for Low Key = C 3 and High Key = C 5 so that it fills the "hole" and gives you 3 keyboard regions. Finally, if you have an external module that also can split the keyboard and you assign the zone having the hole to it, the low and high halves of the zone could have different instrument sounds.

Velocity crossfading two sounds is another application of overlapping zones. The idea is to make the proportion of two different sounds dependent on the keystroke velocity. First, partially or completely overlapping zones are set up. Then the Velocity Curve parameter for the zone with the sound you wish to be dominant when keys are lightly struck is changed from **1** (Normal) to **5** (Reverse). Now light keystrokes will be predominantly the sound with the reverse curve; heavy mostly the sound with the normal curve; and intermediate, a mixture. Note that all keystrokes will create a loud sound in this case. (Try Reverse Expand, #6, and Compress, #3 if intermediate keystrokes are not loud enough.) You can combine other curves as well, like Bump and Expand, to get a varying mixture that also has dynamics.

Changing Setups: Special Considerations

When you change from the current setup to a new one, several messages may be sent as the change is made before any new notes or control changes are transmitted using the new setup. One example is the Program Change messages sent to external modules that specify the sounds they are to play for the setup. These messages are only sent at setup change time. That is why editing the MIDI Program parameter has no immediate effect.

Another example is the effects settings associated with the sound specified by the setup. The effect number, reverb mix value, and chorus mix value specified by the

setup are sent at setup change time. When the effect *type* (number) changes, the Stage Piano will briefly mute the effects processor to avoid any audible pops and clicks. Although much less objectionable than a click, this momentary muting will be audible if notes are sounding or still decaying during the changeover. However, if the effect number is the same in the old and new setup or the new setup specifies **Noc** (no change), then no muting occurs.

Another consideration when changing setups is *paired messages*. A note, for example is started by a Note On MIDI message when the key first goes down and is stopped by a Note Off message when the key returns to rest. If there is a setup change between the two that causes notes in that part of the keyboard to be sent on a different MIDI channel or with a different transposition, then the Note Off will not be "heard" by the sound module and a stuck note results.

Paired messages are also produced by switch pedals, notably Sustain and Sostenuto. When the pedal is pressed down, an On message is sent; when it is released, an Off message is sent. If the MIDI channel changes between the two, then the previous channel, and thus any notes being held by it, will never receive the Off message and the notes will be stuck.

When stuck notes occur you can always clear them with the **Panic** double-press but it's better to avoid the situation. One way is to ensure that both the current setup and the next setup have compatible MIDI channel assignments and transposition. Or, if they must be incompatible, you can make sure that all keys are up before the change. If the MIDI channels are incompatible, the switch pedals will probably need to be up as well.

Chapter 5
Global Parameters

Global parameters do just what their name implies: affect the operation of instrument-wide behavior (like the tuning of all the notes you play). There is one set of seven global parameters; they affect both Internal Voices mode and MIDI Setups mode.

Access to the Global Parameters

View or edit the global parameters in Edit mode (either Internal Voices or MIDI Setups) by pressing the **Col Select** button until both of the Parameters column LEDs are off. Then use the **Row Select** button to select a specific parameter. The names of the global parameters are in the right-most column under the label Global. We'll describe the function of each below.

Editing a global parameter is the same as editing any other parameter. You can increment or decrement its value with the **Down** and **Up** arrow buttons or enter a new value directly with the digit buttons and **Enter**. After editing, the new value will take effect immediately.

What the Global Parameters Do

Here is a description of what each global parameter does, in the order they appear on the front panel.

Local

Off, On
This parameter establishes (**On**) or breaks (**Off**) the internal link between the keyboard plus controls and the internal sound module. Default is **On** which is appropriate for standalone use and with external sound modules. **Off** is typically used with a computer sequencer or external MIDI processor.

Stereo

Stereo, Mono
This parameter switches the internal sound module between stereo audio output (default) and mono output. Use the **Mono** setting when you have a mono amplifier or only one input to a mixer available. When set to **Mono**, both Left and Right outputs will have the same signal. The Phones output will be mono as well. Note that this setting does not affect any external modules you may be using.

Touch

1–5

This parameter affects the response of the keyboard to your playing effort as follows:

1 Easier. Little effort is required to play notes loudly. Also, softly-played notes are louder than the other settings. Best for ensemble playing.

2 Easy. Less effort is required to play notes loudly than with the Normal setting. Softly played notes remain soft.

3 Normal. This is the default setting and is suitable for most players and circumstances where a wide dynamic range is desirable.

4 Hard. More effort is required to play notes loudly than with the Normal setting. The volume of the loudest possible note remains the same however.

5 Harder. Much effort is required to play notes loudly. The volume of the loudest possible note is also reduced somewhat.

Figure 5-1 is a graphical representation of what these settings do. The numbers on the Velocity axis represent MIDI velocity values.
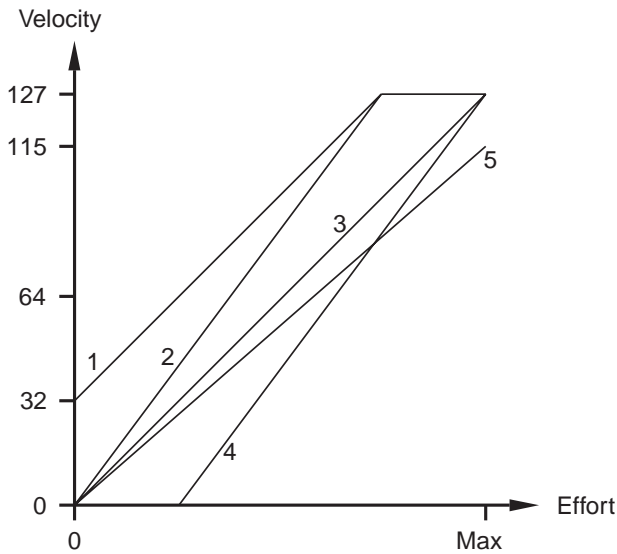

Figure 5-1   **Effect of Touch Parameter**

Effect

Snd, Set, Off

This parameter specifies how the effects processor in the internal sound module responds to MIDI Setup changes. The possibilities are:

Snd   Sound. The effect associated with the internal sound as defined for Internal Voices mode is selected regardless of the Effect specified by a setup. This is the default setting.

Set   Setup. The effect specified by a setup is what is used for the internal sound.

Off   Off. The internal effects processor is turned off.

MIDI In

Nrm, Mrg

This controls what happens to MIDI messages received by the MIDI In port. **Nrm** (Normal) means that received messages are only interpreted, not resent. **Mrg** (Merge) means that all MIDI messages (except System Exclusive) are merged with internally generated messages and then resent to the MIDI Out port.

Set Change Channel

Set Chg Chan: Off, 1–16

You can use a sequencer or external MIDI processor to automatically change MIDI setups on your Stage Piano. By default, this feature is off. To enable it, change this parameter's value to match the MIDI channel on which you want the Stage Piano to receive MIDI Program Change messages. The MIDI Program Change number should be the same as the setup number, from 1 to 32.

This parameter has an effect only in MIDI Setups mode. In Internal Voices mode, Program Change messages received on MIDI Channel 1 select sounds directly.

NOTE: The Stage Piano must be in Play mode to respond to Program Change messages.

Tune

-50 to +50

You can tune the internal sound module to match an external instrument or alternate tuning standard by using this parameter. The default of **0** gives A=440 tuning to a high degree of precision. Each increment above or below that represents a 1 *cent* change which is 1/100 of a semitone or about 0.06% frequency change. Thus the total range is a quarter-tone down or up (A=427.1 to A=453.3 Hertz). Note that tuning has an effect only when notes are started.

Saving Global Parameters

If you change a global parameter's value, the new value remains in effect until you turn the power off. To make your global edits permanent so they'll be effective next time your Stage Piano is turned on, you need to save them in the EEPROM memory. The following procedure will save all 7 global parameters as a group:

1. In Edit mode, select any of the global parameters by pressing **Col Select** until both Parameter-column LEDs turn off.

2. Press the **Store** button.

3. The display will ask ⏚ ⠃ ⏚ ⠑ 𝘈 𝘳 .

4. Press **Up** arrow (Yes) or **Store** to complete the save; press **Down** arrow (No) or **Cancel** to abandon it.

5. The display will flicker briefly while the global parameters are stored into the EEPROM memory then will change back to the value of the current parameter.

Chapter 6
Advanced Applications

You will find that your SP76 or SP88 is superb for straight-ahead solo or ensemble playing on stage and at home. With the addition of external equipment though it can do much more and can form the core of your own personal MIDI studio.

This chapter will present a few ideas to get you started but there are many, many more possibilities as well. Although Kurzweil equipment is cited in these examples, there is a whole world of possibilities out there and your Stage Piano will be equally adept at using any of them.

External Sound Modules

The simplest advanced application is using your Stage Piano with an external sound module or synthesizer. Refer to page 2-6 for the connections required when using a single external module.

As you have read, the Stage Piano's internal sound module is basically a solo (often termed *monotimbral*) device that can play one voice at a time. Actually, it's better to call these voices *sound programs* because a few, like **7 Piano and Strings 1**, are layers of two different voices playing simultaneously. Still, all notes received by the internal module will play the same sound program.

Example: The Kurzweil MicroPiano

Even a very simple external module, like a Kurzweil MicroPiano (which is also monotimbral), will allow you to make use of your Stage Piano's two zones. Try this as a starting point for making MIDI Setups:

Internal Sound	Set to the sound you wish to use.
MIDI Program	Set Zone L to the MicroPiano voice you wish to use.
MIDI Channel	Set Zone L to Channel **1** and make sure the MicroPiano is set to receive on Channel 1.
Destination	Set Zone L to **MID** and Zone R to **Int**.
Key Range	Set Low and High parameters in each zone to the key ranges you wish each module to respond to.
Other parameters	Unless they've been changed, the default settings for the remaining zones and parameters are suitable for starters.

Once you've mastered this simple setup, try the following for some variety in your setups:

- Transpose the two zones differently so that you play intervals.

- Try different Velocity Curve settings so you can emphasize one zone or the other according to your playing effort.

- Try setting the left or right zone to Both (**Bot**) so that it plays both modules.

- Set the Control Pedal destination in Zone L to 7 and R to **Off**. Then set the Control slider in Zone L to **Off**. Now you can vary the volume of the MicroPiano with the control pedal instead of the slider.

- Change the value of B Ribbon Down to **91** (Reverb Depth) or **93** (Chorus Depth) and use it to vary the effects intensity while playing. Just a tap on the ribbon is all it takes to change (be sure the Hold or Zero parameter is set to **Hold**).

There are many more possibilities; don't hesitate to try them.

Example: The Kurzweil K2600R

At the other end of the sophistication spectrum is a *multitimbral* module like a K2600R. The main advantage of an advanced instrument like this is that it can play several different voices at once (up to 16 for a K2600). Driven by your Stage Piano in MIDI Setups mode, the left and right zones can therefore play different voices.

When having two zones is not enough, sophisticated sound modules like this can usually do their own keyboard splits and transposition, thus multiplying the effect of the Stage Piano's own two zones. The K2600R, for example, can designate one MIDI channel as its Local Keyboard Channel, then treat it the same as the keyboard in the keyboard model which supports up to *eight* zones.

Even when used with an external sound module much more powerful than its own, your Stage Piano's internal module can earn its keep as a polyphony expander. Piano music uses polyphony (voices) faster than almost anything else. By dedicating zone R to the internal module (set Destination to **Int**) and zone L to the external module (set Destination to **MID**), you can offload the polyphony demands of the piano parts and leave your module free for more exotic instrument sounds. You'll find the quality of the internal piano and other voices equal if not superior to most any external module you're likely to encounter.

Computer Sequencers

Adding a computer running MIDI recording software to your setup takes you into the realm of composition and performance beyond what can be played at one time on one keyboard. The common term for MIDI recording software is sequencing software or just *sequencer*. You've probably already got one that came free with your computer's sound card, and it will likely be fine for getting started. Nevertheless, there are many more-sophisticated programs available on the market that you can grow into.

MIDI Hookup

The first step in using your Stage Piano with a sequencer is getting the MIDI connections happening. Few sound cards have MIDI ports built-in (the connectors are too big) so you'll probably have to use an adapter cable that plugs into the card's "game" or "joystick" port. Check the sound card's manual for information on making MIDI connections. If the computer lacks a sound card or the one present has no way to access MIDI, you can buy a dedicated MIDI interface.

After obtaining MIDI connectors for your computer, you'll need two MIDI cables to connect to your Stage Piano. Refer to page 2-6 for a drawing showing exactly how to make the connections. Be sure to read the labels on the ports when connecting!

Local Control Off and Patch Thru On

Once MIDI connections are made, you'll need to get your sequencer and Stage Piano talking to each other correctly. First you need to break the internal signal path between the player controls (keyboard, pedals, etc.) and the internal sound module. You do this by setting the Local parameter to **Off** (it's one of the global parameters). See page 5-1 for instructions if you need help changing the global parameters. Note that after you do this, the sounds will not play unless your computer is on, connected, and the sequencer program is running—so you may wish to leave the change temporary.

Next you need to configure your sequencer to combine messages received at the computer's MIDI In port with those it creates and send all to the computer's MIDI Out port. This function is often called *Patch Through* or *Soft Thru*, or perhaps *Merge* or something similar. After being set correctly, you will be able to play on the keyboard and hear the internal sound module again.

Quick summary: If you hear nothing, the sequencer's patch through function hasn't been set to **On**. If you hear double notes or a different timbre each time you strike a note, the Stage Piano's Local parameter has not been set to **Off**.

Basic Sequencer Operations

There's insufficient space to describe fully what you can do with a sequencer and your stage piano but the following should give you an idea.

Most fundamental is "recording" a performance and later "playing it back." However, since it is *MIDI messages* that are being recorded rather than the sound itself, you can modify the recording or *sequence* in ways impossible with a sound recording. Here are just a few of the possibilities:

Refine the sequence by editing out mistakes

Record while playing slowly then play back at normal speed

Perform a duet by recording the first part then playing the second part while the sequencer replays the first part

Re-record the duet. Most sequencers can play and record simultaneously

Similarly, build up a song part by part

Using the computer's sound card or an external sound module, build up a song that plays several instruments at once.

When using a sequencer keep in mind that although the Stage Piano can be set to *send* on any MIDI channel, its internal sound module will *receive* only on Channel 1. This means the sequencer must be instructed to play material intended for the internal sound module on Channel 1. The remaining 15 channels then are available for sound card and external sound modules to play additional instrument parts.

Saving Setup Memory

When connected to a computer sequencer, you can save the entire content of the Stage Piano's EEPROM memory as a sequence for backup purposes. You can also use this facility along with the Reload facility described below to effectively extend your Stage Piano's memory capacity after it's been filled.

The data are sent from the Stage Piano's MIDI output in a format known as a *System Exclusive Dump* (SysEx for short). Your sequencer then records it just like any other MIDI sequence. Later, you can play the sequence back to your Stage Piano which recognizes it as memory data and writes it back into the EEPROM memory.

To save the setup memory as a MIDI sequence, perform the following steps:

1.   Make sure a MIDI cable is connected from the Stage Piano's MIDI Out port to the computer or sequencer's MIDI In port.

2.   Go to Edit mode (either Internal Voices or MIDI Setups is OK).

3.   Press the **Ld/Dmp** button. The display will show ⌐ ⌐ ⌐ .

4.   Press the **Down** arrow (No) button. The display will then show ⌐ ⌐ ⌐ .

5.   Prepare your computer to record a MIDI song. If recording System Exclusive is optional, be sure it is enabled. If recording System Exclusive timing is optional, be sure that is enabled as well.

6.   Press the **Up** arrow (Yes) button. The memory content will be sent as 116 system exclusive messages spanning about 5 seconds. The display will show the progress of the dump then ⌐ ⌐ ⌐ (done). Finally normal edit mode operation resumes. If you want to abandon the dump before it starts or any time thereafter, press the **Cancel** button.

7.   Stop recording at the sequencer.

NOTE: The entire EEPROM content is saved. There is no way to specify that only some items be saved.

Reloading Setup Memory

It's even easier to reload saved data by following these steps:

⚠ **CAUTION**: *The entire EEPROM content will be reloaded, erasing all of your edits since the last time you reloaded.*

1. Make sure a MIDI cable is connected from the computer or sequencer's MIDI Out port to the Stage Piano's MIDI In port.

2. Go to Edit mode (either Internal Voices or MIDI Setups is OK).

3. Press the **Ld/Dmp** button. The display will show ⌐ ⌐ ⌐ .

4. Press the **Up** arrow (Yes) button. The display will then show ⌐ ⌐ ⌐ while waiting for data to come in.

5. Prepare your computer to play back the previously recorded memory content then start it playing.

6. As data are received, the display will change to show what was received. The display will briefly show ⌐ ⌐ ⌐ after the last of the data have been received. Press the **Cancel** button to stop loading manually.

7. Stop the sequencer if it doesn't do so automatically.

The newly loaded global parameters will take effect immediately, but the setup parameters and effects settings for the sounds won't be effective until you change modes or setups.

✎ **NOTE**: *You can "clone" your Stage Piano by dumping directly into another unit set up as above to load.*

External MIDI Processors

Another class of equipment that will complement your Stage Piano is a MIDI Processor. This is typically a standalone, programmable box although MIDI processing software for computers is also available. Among other things, these devices do the following:

- MIDI channel remapping

- Zone multiplication

- Note pitch transposition

- Note velocity remapping

- Controller redirection and remapping

- Arpeggiation

- Inputs for additional pedals, sliders, knobs, and ribbons

- Setup storage for itself and attached devices

- MIDI signal routing

Zone multiplication, for example, means that a full range of notes can be received on one MIDI channel then the device divides them into zones and retransmits them on a different MIDI channel for each zone. Typically a set of programmable parameters—like low/high key, transposition, and velocity curve—is available for each of the new zones.

Arpeggiation creates a series of musically related notes in response to or influenced by each note it receives. Rules for generating the series are usually highly programmable.

Receive Program Change

Setup storage for an entire MIDI system is one typical function of a MIDI processor. Besides configuring its own operating parameters, a setup change can configure connected equipment as well. This is accomplished by the MIDI processor sending MIDI Program Change messages to each device connected to it. In response, each device selects a predetermined setup from its own memory. Sequencers can do this as well when they replay recorded program changes.

For the Stage Piano to take advantage of such remote setup changes, it should be set to respond to program changes as follows:

- Set the Set Chg Chan global parameter to the MIDI channel the processor will be sending Program Changes on

- Make sure the Stage Piano is in MIDI Setups, Play mode

Example: The Kurzweil ExpressionMate

One MIDI processor/controller that works well with the Stage Piano is the Kurzweil ExpressionMate. Figure 2-8 on page 2-10 shows how it can be connected in a system with a Stage Piano, a sound module, and a computer. The wiring pattern is similar if the sound module and/or computer is omitted; just continue the cable through the missing device. The important feature is that the Stage Piano's output first passes through the ExpressionMate where it can be zone multiplied, remapped, arpeggiated, etc. then through the computer, additional sound modules, and finally back into the Stage Piano. You will want to turn the Stage Piano's Local parameter **Off** in this configuration.

Chapter 7
Troubleshooting

Maintenance

Aside from normal care in handling and use, your Stage Piano requires no regular maintenance. Clean with a soft cloth dampened with water. Never use abrasives or solvents as they may damage the unit's paint, markings, info strip and display lens.

There are no batteries inside to replace—ever. Instead of volatile SRAM used in most other instruments, your Stage Piano uses nonvolatile EEPROM for storage, which retains information as captured electrons, without power.

Common Problems

Below is a list of the most commonly encountered problems and diagnoses for each.

Power Problems

This is the normal power-up sequence:

1. Short pause (less than one second)

2. All LEDs turn on for 1 second

3. 1 second pause

4. Normal operation (Internal Voices mode, **Grand Piano 1** selected).

If nothing at all happens when you turn the power switch on (white dot pressed in), check these items:

- Power module not plugged securely in wall outlet.

- Cord from power module not fully plugged into Stage Piano.

- Input voltage rating of power module does not match your power system.

- Incorrect or defective power module. The power module specifications are: 12V DC, 0.5 amp, center pin positive, 5.5mm OD, 2.5mm ID coax type plug.

- Dead wall outlet, power strip, or extension cord.

If there's evidence of life but operation isn't quite normal, check these items:

- Input voltage rating of power module does not match your power system.

- Incorrect or defective power module. See above for power module specs. Voltage or current rating less than specified will cause unusual or intermittent operation.

- Power system voltage abnormally low. Try a different, unused outlet.

- Intermittent operation can be caused by a replacement power module with the wrong size plug. The correct plug fits snugly into the jack, and doesn't wobble.

Audio Problems

NOTE: *When diagnosing audio problems, set the Stage Piano to play its demo sequence.*

If there is no sound from your Stage Piano, check the following:

• Stage Piano Volume/Controller slider turned down. Move the slider to the right.

• Volume control on audio system or mixer turned down.

• Signal source selection on audio system or mixer is incorrect.

• Audio cables not securely plugged in at both ends.

• Incorrect type of audio cable.

If you can hear sound but it is low or distorted, look into these possibilities:

• Audio cables not securely plugged in at both ends.

• Low voltage output from power module. Check Power Problems above.

• A received MIDI volume message has specified a low volume.

• Current setup has set the Volume/Controller slider to a destination other than Volume (Destination 7) or another Controller has been assigned to Volume.

• Input to audio system is set for low impedance instead of high impedance.

• Input trim to audio system or mixer is set too low.

NOTE: *The Stage Piano uses digital volume control via MIDI destination 7. For normal operation, leave the default destination setting for the Volume/Controller alone. For best signal-to-noise ratio, use the slider for small adjustments in volume and your audio system for large adjustments.*

MIDI Problems

If you are experiencing problems *sending* MIDI to an external module, check these:

- MIDI cable not securely plugged in at both ends.

- Wrong MIDI connections. To send MIDI, plug into the Stage Piano's MIDI Out connector and the module's MIDI In connector. Don't assume; read the jack labels.

- Defective MIDI cable (refer to page 7-8 for how you can check MIDI cables with the Stage Piano's diagnostic software).

- MIDI Transmit channel specified by current setup does not match that of the receiving device.

If there are problems with the internal sound module *receiving* MIDI from an external device like a computer sequencer, try these:

- Transmitting device not sending MIDI on Channel 1.

- MIDI cable not securely plugged in at both ends.

- Wrong MIDI connections. To receive MIDI, plug into the Stage Piano's MIDI In connector and the source's MIDI Out connector.

Prerecorded General MIDI (or G or XG) sequences may not play through the Stage Piano correctly. Here is a list of differences between the Stage Piano's internal sound module and a typical General MIDI module:

- Most of the sound program numbers are different.

- The Stage Piano does not respond to Pitchbend messages.

- Effects setting messages are different.

- Only received on MIDI Channel 1.

Switch Pedal Problems

If you are having problems with the included switch pedal or an aftermarket pedal, check these:

- If Sostenuto is stuck on when using the included pedal, be sure the pedal is plugged in *before* switching on the power. Turn power off then on if necessary.

- If the pedal is acting backward (active when up instead of down), turn power off then on. Be sure the pedal is plugged in before turning power on and don't use the pedal until after the unit has completed its power up sequence.

- If a dual pedal is not working correctly, check its wiring as described below.

A dual switch pedal must be wired as shown below. Any other wiring pattern will not work correctly. In in doubt, check the Switch Pedal diagnostic described on page 7-7.
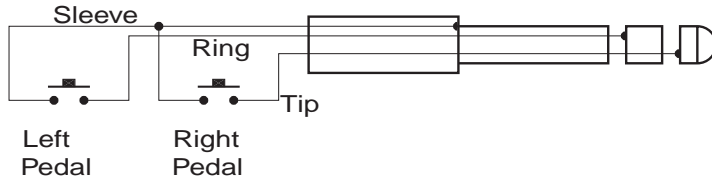
Figure 7-1 **Switch Pedal Wiring Diagram**

Control Pedal Problems

If you are having problems making a control pedal work properly, give these a try:

• If the pedal works backward, operates very abruptly (more like a switch), or not at all, it's most likely a wiring problem. See discussion below.

• When using adapter cables to adapt a pedal with two mono cables, verify that the Y adapter is a stereo splitter type and not just a Y adapter designed to plug two headphones into a single jack.

• Volume pedals typically won't work well because of impedance or taper problems. See below for details. "Active" volume pedals won't work at all.

The control pedal must be wired to a single stereo 1/4-inch plug as follows:

• Wiper to Tip connection of 1/4-inch plug

• Top end of resistance element to Ring connection

• Bottom end of resistance element to Sleeve connection

These connections are shown schematically below:
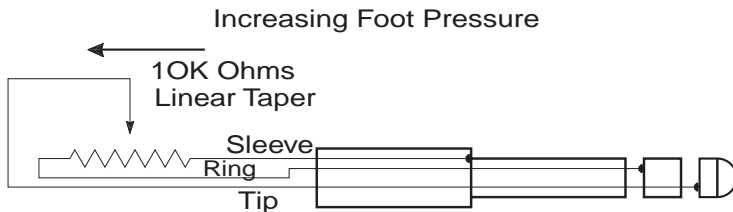
Figure 7-2 **Control Pedal Wiring Diagram**

Use the Right Impedance, Taper, and Range

For best results, use a Kurzweil CC-1 control pedal, available from your dealer. The CC-1 meets all of the requirements described below at an economical price.

A control pedal should have an *impedance* between 5,000 and 100,000 ohms. Less than 5,000 may overload the reference voltage source in the Stage Piano and interfere with operation of other controls like the Volume / Controller slider. More than 100,000 may result in electrically noisy operation, which may cause your Stage Piano to send MIDI Controller messages constantly.

The *taper* of the control should be linear for easy, predictable control. Pedals designed for volume control will typically have most of their range concentrated in the upper half of travel. To check taper, run the Control Pedal diagnostic and check the reading when the pedal is pressed halfway down. If it's less than 100, then it has an audio taper and will probably be difficult to use.

Pedals may have a control *range* that is less than 100%. To check this, run the Control Pedal diagnostic and check the reading at both extremes of pedal motion. 100% is a minimum reading of 0 or 1 and a maximum of 254 or 255. If one end is OK but doesn't quite reach 100% on the other end, it may be possible to adjust the linkage or gear to properly center its range.

If None of the Above…

If your problem is not covered above, or none of the suggestions seems to work, first check back and review the relevant sections of this manual. Many difficulties are just programming problems caused by inappropriate settings of setup parameters. If you want to be sure that all of the factory defaults are in place, refer to *Restoring Factory Defaults* on page 7-6.

Also be sure to check out Kurzweil's Internet web site for additional Stage Piano information that may have been published since this manual was written:

www.youngchang.com/kurzweil

Service Centers

Contact the nearest Young Chang office listed below to locate your local Young Chang / Kurzweil representative. See page iii for a list of Young Chang distributors worldwide.

Restoring Factory Defaults

1. Turn power off. Then hold down the two buttons labeled **Panic** and turn power on. Continue holding until the LEDs have flashed the second time.

2. Wait for the display to show *P.L.C.* then press the **Row Select** button once. The display should show *CPU*.

3. Press **Col Select** once. The display will flicker then show *rOM*.

4. Press **Row Select** 5 times until the display shows *Ini*; then press **Col Select** once.

5. The display will then show *OLr*. Press the **Up** arrow button.

6. The display will flicker again briefly, dim, then show *PAS*.

7. Turn the power off then back on to begin using the Stage Piano.

Diagnostics

The Stage Piano has extensive diagnostic software built-in that can be used to test for proper operation of almost every component. Although this chapter is intended primarily for service personnel, the diagnostic software can also be helpful for identifying problems with cables and external controls.

Starting Diagnostics

1. Turn the power switch off.

2. Press and hold the two buttons marked **Panic** on the front panel.

3. Turn the power switch on while continuing to hold the buttons.

4. Wait until all of the LEDs flash the second time then release the buttons.

After the second flash, the controller software version will be displayed briefly then the main Diagnostic Menu will become active with *PLC* showing on the display.

Main Diagnostic Menu

Each diagnostic group and individual diagnostics in each group have a 3-character name. The diagnostics are controlled using just two buttons: **Col Select** and **Row Select**. In general, **Row Select** will advance to the next entry in the current menu and **Col Select** will select the group or execute an individual diagnostic.

The Main Diagnostic Menu has the following items:

PLC   Player Control diagnostic

CPU   Controller board diagnostic group

Snd   Internal sound module diagnostic group

JPr   Jumper settings display

Exi   Exit diagnostics and begin normal operation

Player Control Diagnostic

The Player Control diagnostic is most likely to be of interest to the user. It displays the response of every user control to being played, moved, pressed, whatever—exactly as the internal computer sees it. If a control does not respond correctly for the diagnostic, then it will not respond appropriately during normal playing. Since the diagnostic displays the raw data in real time, it's easier to figure out what might be going wrong.

To start the Player Control diagnostic from the Main Diagnostic Menu, press **Row Select** until *PLC* shows then press **Col Select**. The display will blink a couple of times then go blank. You can then test any key, any control, or any button by simply playing, moving, or pressing it and observing the display.

Testing the Keyboard

Each key has two switches under it. The first switch closes when the key is pressed slightly then the second switch closes when the key is nearly all the way down. The display will indicate a partially pressed key (only the first switch closed) by showing its note name dimly. When the key is fully pressed, the note name will brighten. If the first switch is defective, the display will blink when the key is fully pressed. Every key should have the switch points in about the same place. Large differences lead to loud or soft keys and are usually caused by dirt in the switch contacts.

Testing the Ribbons

There are actually 4 sections to the ribbons. When a ribbon section is touched, the left digit of the display indicates which section (lower-left, upper-left, lower-right, upper-right) by illuminating the corresponding segment. The right two digits indicate your finger's position relative to the center line, using a 2-digit value from 0% to 99%.

A properly functioning ribbon section will activate everywhere with a light touch and immediately deactivate when your finger is lifted. The numeric display should react smoothly and linearly to finger movement and stop changing when finger movement stops. The range should be from 3 or less to 97 or more. Pressing the center ridge should activate the section above and below together and give a reading of 3 or less.

Testing the Switch Pedals

If already plugged in, first unplug the pedal. Now plug it in and check the display. It should read *SPI* (Switch Pedal In). Now operate the pedal. The included pedal should say *rPC* when stepped on and *rPO* when released. A dual pedal should react the same when the right pedal is operated and *LPC*, *LPO* when the left pedal is operated. Aftermarket pedals may show *LPO* or *rPO* when stepped on and *LPC* or *rPC* when released instead. This is OK because the Stage Piano operating system adapts to these when the power is turned on if they are plugged in.

Testing the Control Pedal

If already plugged in, first unplug the pedal. Now plug it in and check the display. I should read *CPI* (Control Pedal In). Now operate the pedal slowly over its range. When fully up (rocked back, toward you), the display should read 0 or 1. When midway down (forward), the reading should be around 130 (100–160 is OK if you're just estimating the halfway point). When fully down, you should be able to reach 254 or 255. If any of these checks fail, refer to *Control Pedal Problems* on page 7-4 for suggestions.

Testing the Buttons and LEDs

When pressed, any button should show a unique number on the display. The number should appear immediately when the button clicks down and should disappear immediately when released. Flickering while down may indicate a problem with the switch while a sluggish release is likely to be an alignment problem between the button and the front panel hole.

The **Sound/Setup Select** buttons will also turn on their LEDs when pressed. Red and green will show alternately each time pressed and the first press should always show red.

Press the **Col Select** and **Row Select** buttons together to exit this test mode.

CPU Diagnostics

This diagnostic group is second on the main diagnostic menu. It tests the controller section of the Stage Piano. Most tests are for service technicians but the MIDI test can be useful for checking MIDI cables.

As with the main menu, the **Row Select** button scrolls through the available diagnostics and the **Col Select** button runs the current selection. When a diagnostic runs, the display first flickers a couple of times then goes blank while the diagnostic runs. When complete, the result, either *P A S* or *F A L* , is displayed. The diagnostic can be immediately rerun by pressing **Col Select** again or the menu can be advanced to the next diagnostic by pressing **Row Select**.

ROM Test (*r O M*)

This test calculates the checksum of the controller software code and compares it with the correct value.

EEPROM Test (*E E r*)

This test first verifies that a special test pattern is present in a reserved area of the EEPROM. It then modifies that pattern and verifies that it can be read back. The pattern is different each time it is run. Running this test does not harm user setup data present in the EEPROM.

MIDI Test (*M I d*)

This will test the MIDI ports and whatever cable is used to connect them together. Before starting the diagnostic, connect a MIDI cable directly from the MIDI In port to the MIDI Out port on the rear panel.

⚠ *CAUTION: Use this diagnostic only for testing cables. The non-MIDI data used for testing may crash other devices like merge boxes and routers.*

Timers Test (*t I M*)

This tests the hardware timers used by the controller software.

Burnin Test (ᵇ ᵘ ᵣ)

This runs the above diagnostics in a continuous loop for reliability verification. A cable between MIDI Out and MIDI In must be installed before running it. After each run of the diagnostics, the pass count will be displayed briefly. If more than 255 times, the count will remain at 255.

Initialize EEPROM (ᴵ ᵣ ᴵ)

This "test" erases the EEPROM and then rewrites all of the factory default setups. The Internal Voices setup, 32 MIDI Setups, effects settings for the 32 sounds, and the global parameters are all restored to their factory default value. If there is a problem rewriting, the test will fail.

⚠

CAUTION: This test erases all user edits and replaces them with the original factory defaults.

Sound Board Diagnostics

This diagnostic group tests the internal sound module of the Stage Piano. Most tests are for service technicians but the Sine Wave test can be useful for checking audio systems. Individual tests are selected, run, and rerun as described above for the CPU diagnostic group.

When the Sound Board group is first started, a "sound board present" test is first executed. In the event of a serious malfunction, a ᵣ ᴼ ᔆ (No Sound Board) message may be displayed which means that communication with the sound board could not be established.

Interface Test (ᴵ ᵣ ᶠ)

This test verifies the integrity of message transmission to the sound board by sending thousands of pseudo-random bytes and checking them.

ROM Test (ᵣ ᴼ ᴹ)

This test calculates the checksum of the sound board software code and compares it with the correct value.

RAM Test (ᵣ ᴬ ᴹ)

Read/write memory on the sound board is checked by this test.

Timers Test (ᵗ ᴵ ᴹ)

This tests the hardware timers used by the sound board software.

Sound ROM Test (ᔆ ᵣ ᵣ)

This test calculates the checksum of the sound ROM content and compares it with the correct value.

Sound Chip Test (ᔆ ᵣ ᶜ)

This tests several functions of the sound ASIC.

Delay RAM Test (⌀ ⌐ ⊓)

This tests the memory used for the effects.

Sine Wave Test (⊆ ¦ ⌐)

This test produces a 1KHz sine wave until either select button is pressed. The Volume/ Controller slider will very the volume from full scale (3.15Vrms) down to -127dB below that (1.4uV) in steps of 1dB. Viewed on an oscilloscope, there should be no clipping of the full scale signal.

⚠ *CAUTION: Turn your audio system down before running this test! The level produced is much higher than the Stage Piano's normal level.*

Burnin Test (♭ ⊔ ⌐)

This runs the above diagnostics (except Sine Wave) in a continuous loop for reliability verification. After each run, the pass count will be displayed briefly. If more than 255 times, the count will remain at 255.

Jumper Settings Display

This diagnostic displays the settings of the 4 hardware jumpers. These jumpers identify the keyboard length and type plus other configuration information to the software. After noting the display, press **Row Select** to return to the main diagnostic menu.

Exiting Diagnostics

The simplest way to exit diagnostics and resume normal operation is to turn the power off then on again. Alternatively, you can return to the main diagnostic menu from a diagnostic group as follows:

• From the Player Control diagnostic, press the two **Panic** buttons

• From the CPU group, select the ♭ ⅋ ⊂ test and run it

• From the Sound group select the ♭ ⅋ ⊂ test and run it

• From either Burnin test, press any button then select ♭ ⅋ ⊂

Once back to the main diagnostic menu, select and execute ⅀ ⅃ ¦ (exi). Normal operation should then start in Internal Voices mode with **Grand Piano 1** selected.

Chapter 8
Reference

Display Characters

The 3-character display is often used to communicate nonnumeric information. As it has only 7 display segments, letters are not always well formed. Below is a list of all possible characters the display may be called upon to show.

A b C d E F G H I J r L A n O P C r S t U u u ʻ ʌ Z

A. b. C. d. E. F. G. H. I. J. r. L. A. n. O. P. C. r. S. t. U. u. u. ʻ. ʌ. Z.

0 1 2 3 4 5 6 7 8 9 " ' [ ] - _ ?

0. 1. 2. 3. 4. 5. 6. 7. 8. 9. " ' . [ ]. -. _. ?.

Factory Default Internal Voices Setup

The Internal Voices Setup defines the MIDI characteristics of Internal Voices mode. You also set the effects parameters for each of the 32 sounds while editing the Internal Voices Setup.

Internal Voices Parameters

Below is a list of the parameters and default values for the Internal Voices setup. The shaded parameters are not available in Internal Voices mode.

The default values of the 3 effects parameters vary according to which sound is selected.

Parameter (Column 1)	Default Value	Parameter (Column 2)	Default Value
Internal Sound		Reverb Wet/Dry	Varies
MIDI Program	Off	Chorus Wet/Dry	Varies
MIDI Bank Sel Lo	Off	A Ribbon	128
MIDI Bank Sel Hi	Off	Hold or Center	Ctr
MIDI Channel	1	B Ribbon Up	1
Destination	Both	Hold or Zero	Zer
Internal Effect	Varies	B Ribbon Down	10
		Hold or Zero	Zer
Key Range Lo		Control Slider	7
Key Range Hi		Control Pedal	4
Transpose	0	Switch Pedal R	64
Velocity Curve	1	Switch Pedal L	66

The Internal Voices

Below is a list of the 32 sounds (voices) available from the internal sound module. The list includes the factory default effects setting for each sound.

#	Sound Name	#	Sound Name
1	Grand Piano 1 (Solo, beat tuned)	17	Tremolo Digital E. Piano
2	Grand Piano 2 (Ensemble tuned)	18	Stereo Hard E. Piano
3	Stage Piano 1 (Solo, beat tuned)	19	Digital Electric Piano
4	Stage Piano 2 (Ensemble tuned)	20	Digital E. Piano & String Pad
5	Bright Piano	21	Rock Organ 1
6	Sustain Piano	22	Rock Organ 2
7	Piano and Strings 1	23	Ballad Organ 1
8	Piano and Strings 2	24	Ballad Organ 2
9	Tack Piano	25	Percussion Organ
10	Tight Electric Grand	26	Organ and Piano
11	Bright Electric Grand	27	Fast Strings 1
12	Warm Electric Grand	28	Fast Strings 2
13	Classic Electric Piano	29	Touch Strings
14	Digital Electric Grand	30	Stereo Slow Strings
15	Dyno Electric Piano	31	Stereo Slow String Pad
16	Hard Dyno Electric Piano	32	Slow Digital Pad

The first two piano voices are *beat* tuned, like an acoustic piano. Since the higher harmonics of a stretched string tend to be sharper than those of the real harmonic series, beat tuning ensures that the piano remains in tune with itself harmonically. For this reason, beat tuning is sometimes referred to as *solo* tuning. The second two voices offer straight tuning, where the fundamental of each note is tuned to A440 (if the Tune parameter is set to **0**). This allows for better mixing with other acoustic and electronic instruments. This type of tuning, therefore, is sometimes known as *ensemble tuning*.

Factory Default MIDI Setups

The 32 factory-default MIDI Setups are all the same except for the Internal Sound parameter which is set to be the same as the setup number. MIDI parameter settings are also similar to the Internal Voices Setup. In particular, only the Left Zone is enabled. In fact, until you edit the MIDI setups to meet your particular needs, there will be little difference between Internal Voices mode and MIDI Setups mode.

MIDI Setup Parameters

The following table lists the parameters and default values for MIDI Setup 1. The other MIDI setups have identical values, except for the Internal Sound parameter.

Values for Key Range Lo and Key Range Hi are given for the SP88. For the SP76, these values are 28–103. (E 1–G 7).

Noc stands for No Change, which means that a parameter retains its value when you select another MIDI setup.

Parameter (Column 1)	Default Value		Parameter (Column 2)	Default Value	
	Left	Right		Left	Right
Internal Sound	Grand Piano 1		Reverb Wet/Dry	Noc	Noc
MIDI Program	Off	Off	Chorus Wet/Dry	Noc	Noc
MIDI Bank Sel Lo	Off	Off	A Ribbon	128	128
MIDI Bank Sel Hi	Off	Off	Hold or Center	Ctr	Ctr
MIDI Channel	1	Off	B Ribbon Up	1	1
Destination	Bot	MIDI	Hold or Zero	Zer	Zer
Internal Effect	Noc	Noc	B Ribbon Down	10	10
			Hold or Zero	Zer	Zer
Key Range Lo	21 (A 0)	21	Control Slider	7	7
Key Range Hi	108 (C 8)	108	Control Pedal	4	4
Transpose	0	0	Switch Pedal R	64	64
Velocity Curve	1	1	Switch Pedal L	66	66

Factory Default Global Parameters

Parameter	Default Value	Comments
Local	On	Set Local to **On** for standalone use
Stereo	Stereo	Requires stereo sound system or phones
Touch	3	Normal keyboard touch and dynamic range
Effect	Snd	Sound's effect settings have priority
MIDI In	Nrm	MIDI In is not resent to MIDI Out
Set Chg Chan	Off	Program Change commands ignored
Tune	0	Normal (A=440Hz)

Stage Piano Effects

These are descriptions of the effect programs available from the internal sound module's effects processor. All programs include both reverberation and chorus components. To suppress one of these, set its corresponding Wet/Dry parameter to **0**.

	Effect Name	Description
0	None	The effects unit is turned off
1	Room & Chorus	Short decay, soft reverberation plus chorus
2	Bright Room & Chorus	"Harder" (brighter) reverberation than 1
3	Stage & Chorus	Medium decay, soft reverberation plus chorus
4	Bright Stage & Chorus	"Harder" (brighter) reverberation than 3
5	Hall & Chorus	Long decay, soft reverberation plus chorus
6	Bright Hall & Chorus	"Harder" (brighter) reverberation than 5
7	Large Hall & Chorus	Maximum decay, soft reverberation plus chorus
8	Large Bright Hall & Chorus	"Harder" (brighter) than 7
9	Deep Space	A unique combination of reverberation and echo

MIDI Implementation Chart

Model: K2500

Manufacturer:	**Date: 8/1/99**
Young Chang	**Version 1.0**
Digital Synthesizers	

Function		Transmitted	Recognized	Remarks
Basic Channel	Default	1, 2	1	
	Changed	1–16		
Mode	Default	Multi	Poly	
	Messages	Any	X	
	Altered	X		
Note Number	Transmitted	0–127	12–108	SP76: 28–103
	True Voice	0–127	12–108	
Velocity	Note On	O	O	
	Note Off	O	X	
After Touch	Keys	X	X	Keyboard doesn't send
	Channels	X	X	Aftertouch; controllers can
Pitch Bender		O	O	
Control Change		O 0–31 32–63 (LSB) 64–127	X	Controller assignments are programmable
Program Change		O 1–128	O 1–32	Sounds
	True #	0–127	1–32	
System Exclusive		O	O	Memory load / dump
System Common	Song Pos.	X	X	
	Song Sel.	X	X	
	Tune	X	X	
System Real Time	Clock	X	X	
	Messages	X	X	
Aux Messages	Local Control	X	X	
	All Notes Off	O	O	Panic sequence only
	Active Sense	X	X	
	Reset	X	X	

Mode 1: Omni On, Poly	Mode 2: Omni On, Mono	O = yes
Mode 3: Omni Off, Poly	Mode 4: Omni Off, Mono	X =no

Default MIDI Controller Assignments

	Transmit	Receive	Default Destination
1	O	O	B Ribbon, Upper
4	O	X	Control Pedal
7	O	O	Volume / Control Slider
10	O	X	B ribbon, Lower
64	O	O	Right Switch Pedal
66	O	O	Left Switch Pedal
83	O	O	Effect Selection
91	O	O	Reverb Wet / Dry Mix
93	O	O	Chorus Wet / Dry Mix
120	O	O	Panic Sequence Only
121	O	O	Panic Sequence Only

Specifications

Controllers

Standard

Keyboard (weighted 76 or 88 keys)
One pitch ribbon
Two modulation ribbons
One control/volume slider
One switch pedal

Optional

Dual switch pedal
Control pedal

User Interface

Display

3 character, LED, 7-segment plus dot
10 editing LEDs (single color)
16 selection LEDs (dual color)

Buttons

4 editing buttons
16 selection buttons

Audio

Output Connections

Line Outs	2 X 1/4-inch Mono Phone Plug
Phones	1 X 1/4-inch Stereo Phone Plug

Impedance

Line Outs	1.0K Ohms
Phones	47 Ohms
Output Level	3.45 Volts RMS (4.9V peak) Max 1.0 Volts RMS typical
Dynamic Range	>103 dB "A" weighted

Electrical Requirements

Input Voltage	12 Volts DC nominal, 16 volts maximum
Current Consumption	0.5 Amp maximum

Environment

Operating

Temperature	5*C to 40*C (40*F to 105*F)
Humidity	5% to 95% noncondensing

Storage

Temperature	-20*C to 70*C (-4*F to 158*F)
Humidity	5% to 95% noncondensing

Physical Dimensions

SP76

Height	90.0 mm	3.54"
Width	1200.0 mm	47.20"
Depth	292.0 mm	11.50"
Weight	12.5 kg	27.50 lb

SP88

Height	90.0 mm	3.54"
Width	1353.0 mm	53.30"
Depth	292.0 mm	11.50"
Weight	13.6 kg	30.0 lb

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