



Skx

MIDI

MIDI

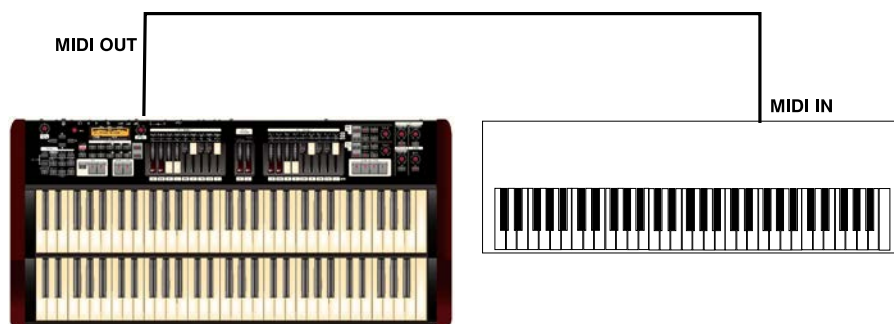
◆ A Word About What MIDI Can Do

The letters MIDI stand for Musical Instrument Digital Interface. MIDI is an international standard for allowing electronic musical instruments equipped with MIDI capability to exchange performance information. For example, a synthesizer can be used to communicate with a drum machine, an electronic piano can interface with a computer, and so forth. Additionally, since MIDI is an international standard recognized and implemented by all musical instrument manufacturers worldwide, instruments made by different manufacturers can communicate with each other via MIDI.

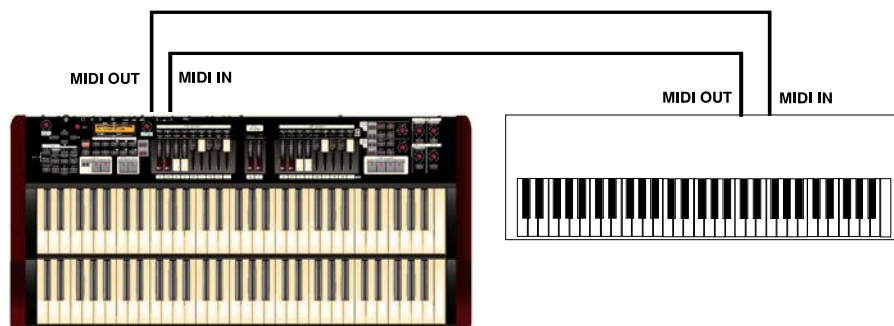
◆ MIDI Connections

MIDI IN and MIDI OUT

In order to allow communication to take place, all MIDI-equipped instruments have at least two MIDI jacks - MIDI IN and MIDI OUT. MIDI IN is for receiving MIDI data from another instrument, while MIDI OUT is for sending MIDI data out to another instrument.



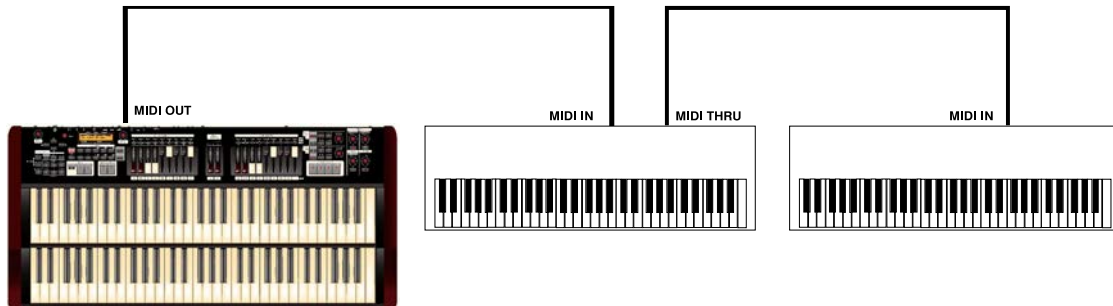
In the example above, the keyboard(s) of the sending or transmitting instrument (MIDI OUT) are being used to control the sound generators of the receiving instrument (MIDI IN). When a key is played on the sending instrument, the corresponding note will play on the receiving instrument as though the appropriate key had been pressed on the receiving instrument's keyboard. When the key is released on the sending instrument, the tone being played by the receiving instrument will stop. (This is called "Note On / Note Off" data.) The sending instrument is referred to as the **master**, while the receiving instrument is called the **slave**. This is the most basic MIDI hookup.



The above is an example of two-way communication between two MIDI-equipped devices. In this example, the keyboard(s) of either instrument can be used to control the sound generators of the other.

MIDI THRU

Many MIDI instruments also have an additional MIDI connection called MIDI THRU. MIDI THRU allows more than one instrument to be controlled by the same transmitting instrument - in other words, the data being sent from MIDI OUT goes to the MIDI IN, where it can be passed on to another instrument via MIDI THRU. The picture shown below shows how this is done.

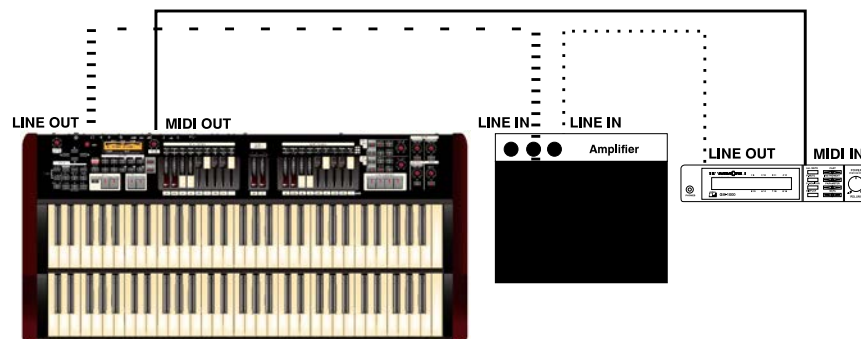


In the above example, the MIDI data goes from the master instrument (MIDI OUT) to the slave instrument (MIDI IN), which receives the data and passes it along to a third instrument via the MIDI THRU connection.

IMPORTANT NOTE: If you reverse the MIDI IN and MIDI OUT connections, you can play the other instrument from the synthesizer just as easily.

◆ Audio and MIDI Connections

Example: A sound module



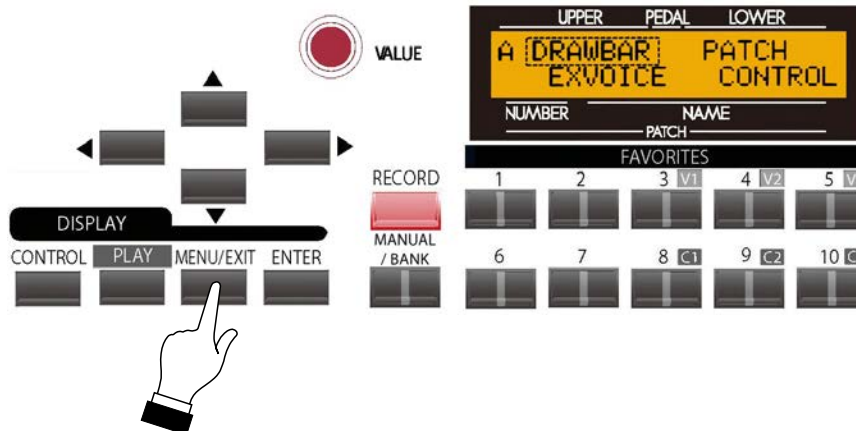
Note that the LINE OUT or AUDIO OUT signal connection is made to an external amplifier. The LINE OUT audio connection from the module, of course, could also be connected to the LINE IN of the SKX.

◆ MIDI Edit Menu

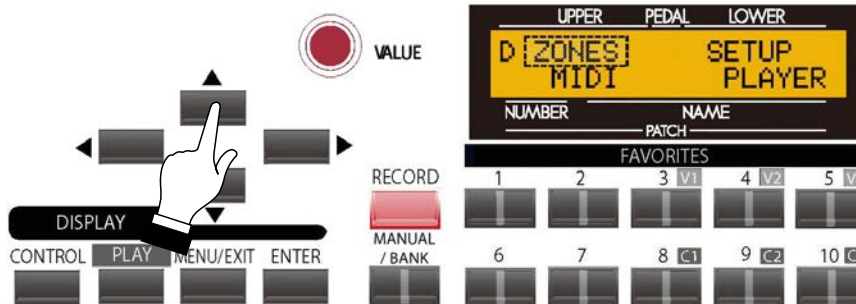
This Advanced Feature Menu allows you to set the overall MIDI parameters for the instrument.

TRY THIS:

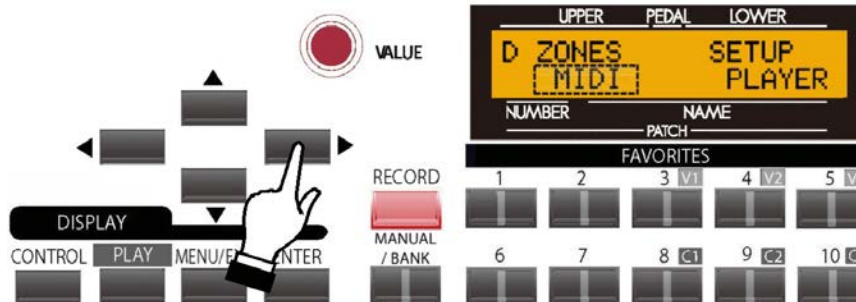
1. From any of the PLAY Screens, touch the MENU/EXIT Touch Button to see the first screen of the MENU Mode. You will see “A” displayed in the extreme upper left corner of the Information Center Display.



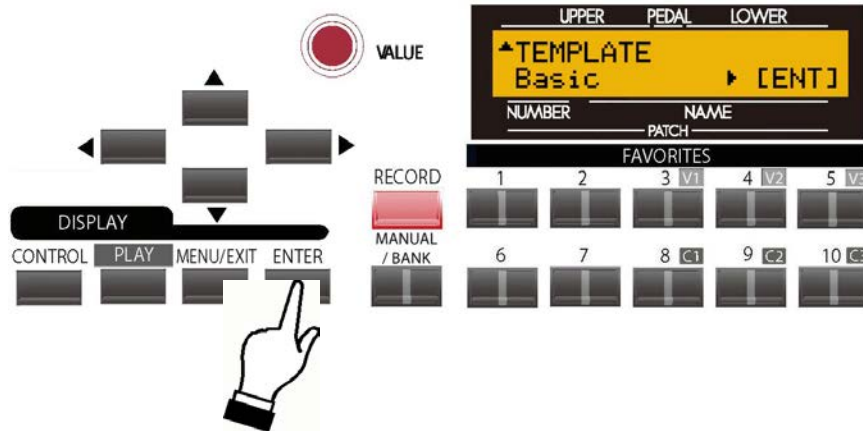
2. Touch the PAGE UP Touch Button **three** times. You will see “D” displayed in the extreme upper left corner of the Information Center Display. The word “ZONES” in the upper left corner of the Information Center Display will be blinking.



3. Touch the PAGE RIGHT Touch Button **once**. The word, “MIDI” in the lower left corner of the display will now blink.



4. Touch the ENTER Touch Button.



You are now in the MIDI Edit Menu. You may now use the PAGE NAVIGATION Touch Buttons in conjunction with the VALUE Rotary Control to change the MIDI performance of your **SKX**. This is explained starting below.

◆ How MIDI Works on the SKX:

The **SKX** can function in a large variety of MIDI environments. In addition to transmitting basic MIDI information such as Note On/Note Off and Note Velocity, the **SKX** also can transmit Program Changes, Control Changes, NRPN and System Exclusive (SyxEx) codes.

It is also possible to use the **SKX** as a MIDI Master Keyboard for layering or multi-timbral (playing more than one sound at the same time) applications. The following paragraphs explain this in more detail.

KEYBOARD (INTERNAL) CHANNELS

The internal sounds of the instrument - both Drawbars and Extra Voices - will play on what are called the **Keyboard** or **Internal Channels**. The Keyboard Channels transmit Note On/Note Off and Velocity data from the Upper, Lower and Pedal divisions. These channels will both send (MIDI OUT) and receive (MIDI IN) data, and are therefore used when recording and playing back sequences.

NOTE: The Upper Keyboard Channel, in addition to Note On/Note Off and Velocity, also is used for transmitting Controller data.

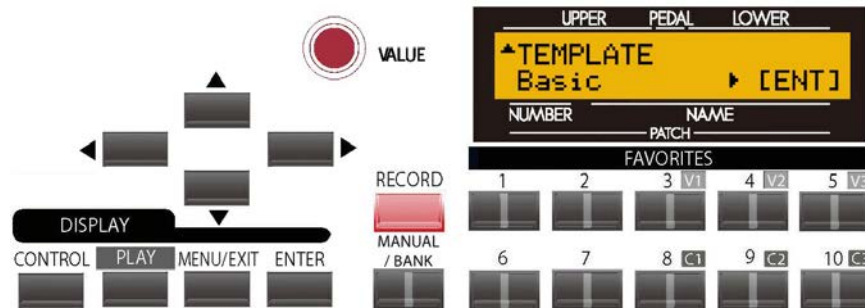
EXTERNAL ZONE CHANNELS

The **External Zone Channels** allow you to use the **SKX** as a MIDI Master Keyboard. These allow you to play additional sounds from another MIDI instrument such as a sound module. The External Zones transmit but do not receive MIDI data - in other words, they are MIDI OUT **only**.

There are three (3) External Zone Channels which can be assigned to the Upper Manual, Lower Manual or Pedals. In addition, different configurations can be saved to different Patches - for example, one Patch can have all three External Zones assigned to the Upper Manual, another Patch can have one External Zone each for Upper, Lower and Pedals, etc.

The Internal and External Channels of the instrument are referred to as **Zones**. The features available for the Zones are found in the ZONE Edit Menu. This is explained fully starting on page 20.

MIDI Edit Menu - Page 1 - MIDI Template



What Is a “MIDI Template?”

Because MIDI can be used with such a wide variety of devices - such as synthesizers, sound modules, sequencers, etc. - there are a number of features associated with MIDI, such as Program Change, Controller Change, etc., that allow each MIDI setup to be optimized for the best results in each application. However, making all of these settings manually can be quite time-consuming and error-prone.

Therefore, your **SKX** contains a number of pre-formatted settings for the various MIDI parameters which represent the most ideal settings for each MIDI environment. A group of these settings is called a **MIDI Template**.

This Advanced Feature Menu Page allows you to select the MIDI Template you want to use.

Use the PAGE RIGHT and PAGE LEFT Touch Buttons to see the various Template settings.

When you have made your selection, touch the ENTER Touch Button. The MIDI parameters will be set according to the Template you selected.

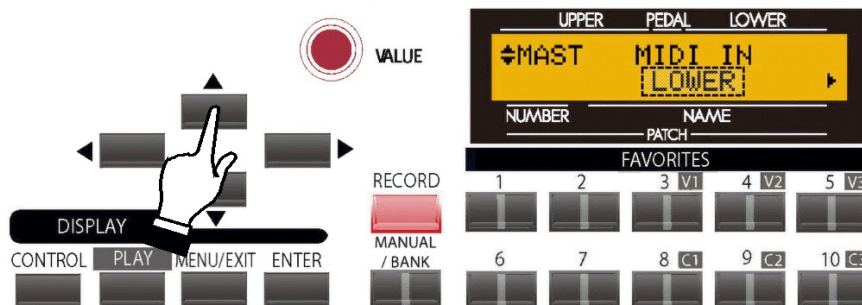
IMPORTANT NOTE: For a complete listing of the MIDI Templates for the **SKX**, consult the next page. In addition to the specific Parameter settings, the chart also contains explanations for the performing environment each Template is designed for. Therefore please read the descriptions carefully to determine the best setting for your particular setup.

MIDI Templates - SKX

Template		Basic	Pedal KBD	Use Ex. Zone
Messages	MIDI IN	Sequence	Pedal	Sequence
	Local Control	On	On	On
	NRPN	On	On	On
	Program Change	On	On	On
	Drawbar Registration	On	On	On
Transmit Channel	Tx. Upper	1	1	Off
	Tx. Lower	2	2	Off
	Tx. Pedal	3	3	Off
	Rx. Upper	1	1 (disregarded, off)	Off
	Rx. Lower	2	2 (disregarded, off)	Off
	Rx. Pedal	3	3 (disregarded, omni)	Off
	External Zone	Off	Off	On
Comments		Use this template to record/playback the performance of only SKX to the external sequencer.	Use this template to play on the Pedal keyboard connecting to the MIDI IN jack.	Use this template to play only on the SKX and control the MIDI equipment connected to the MIDI OUT jack with the External Zone.

Template		Use Ex. w/PK
Messages	MIDI IN	Pedal
	Local Control	On
	NRPN	On
	Program Change	On
	Drawbar Registration	On
Transmit Channel	Tx. Upper	Off
	Tx. Lower	Off
	Tx. Pedal	Off
	Rx. Upper	1 (disregarded, off)
	Rx. Lower	2 (disregarded, off)
	Rx. Pedal	3 (disregarded, omni)
	External Zone	On
Comments		Use this template to play on the SKX and the Pedalboard connected to the MIDI IN jack and control the MIDI equipment connected to the MIDI OUT jack with the External Zone.

*From the previous screen, touch the **PAGE UP Touch Button** once. **Page 2 of the MIDI Edit Menu** should display. The **Information Center Display** should now look like this:*



MIDI Edit Menu - Page 2 - Master MIDI Settings

This Advanced Feature Menu allows you to set the MIDI parameters which affect how the entire instrument will function in a MIDI environment. It consists of several screens.

Use the PAGE LEFT and PAGE RIGHT Touch Buttons to move back and forth among the various screens.

Screen 1 - MIDI IN jack

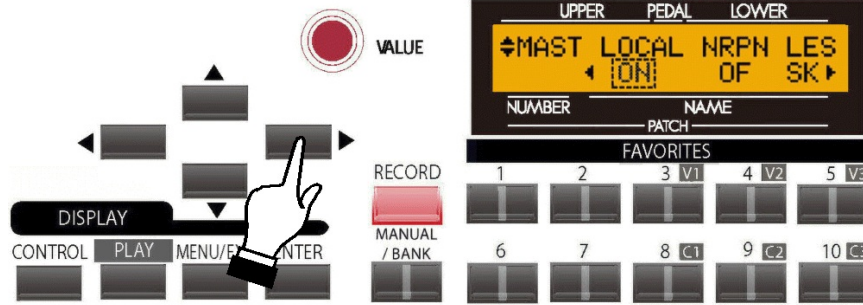
This Advanced Feature allows you to set how incoming MIDI data (external MIDI device connected via the MIDI IN port) is handled. The options are:

The data chart below shows the options you may select.

MIDI IN jack options	
Description	Function
LOWER	Incoming MIDI data plays the LOWER part and is retransmitted on MIDI Channel 13.
PEDAL	Incoming MIDI data plays the PEDAL part and is retransmitted on MIDI Channel 14.
LOW + PED	Incoming MIDI data plays both LOWER and PEDAL parts and is retransmitted on MIDI Channels 13 and 14.
SEQUENCE	Incoming MIDI data plays UPPER, LOWER and PEDAL parts, but is not retransmitted.
EXVOICE	Incoming MIDI data plays the EXTRA VOICE setting. Data is not retransmitted.

Turn the VALUE Rotary Control to make your selection.

From the previous screen, touch the PAGE RIGHT Touch Button once. The Information Center Display should now look like this:



Screen 2 - MIDI Local Control, NRPN & Leslie MIDI Parameters

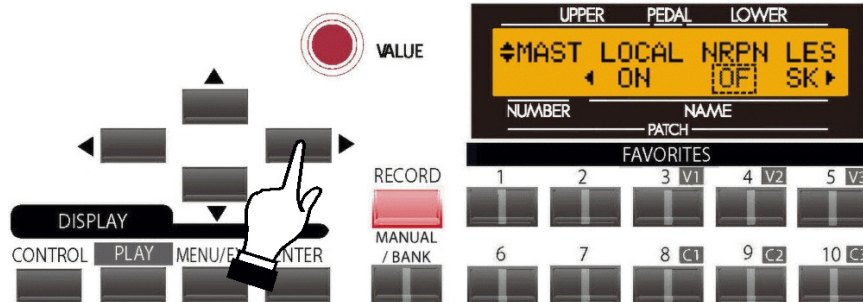
This Advanced Feature Menu screen contains 3 different functions. Use the PAGE LEFT and PAGE RIGHT Touch Buttons to move back and forth among the functions

MIDI Local Control

This Advanced Feature allows you to turn Local Control "ON" or "OFF." When Local Control is "ON," the **SKX** will play both its internal sounds and the sounds from a connected MIDI device. When Local Control is "OFF," the **SKX** will play only the sounds from a connected MIDI device and the **SKX**'s internal sounds are silenced.

Turn the VALUE Rotary Control to turn Local Control on or off.

From the previous screen, touch the PAGE RIGHT Touch Button once. The Information Center Display should now look like this:



MIDI NRPN

This Advanced Feature allows you to turn NRPN "ON" or "OFF."

What Is "NRPN?"

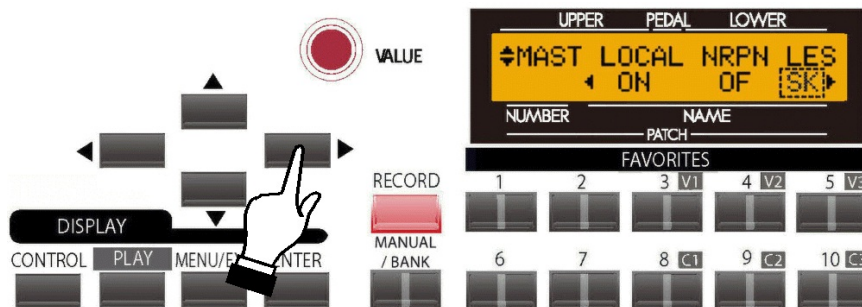
"NRPN," or Non-Registered Parameter Number, is an expanded control change message, each function of which is implemented differently by different manufacturers. The Hammond **SKX** uses NRPN to allow you to control parameters such as Percussion 2nd and 3rd Harmonic ON/OFF, Vibrato or Chorus ON/OFF, etc. Most of the Touch Tabs on the **SKX** have NRPN Controller numbers assigned to them. When NRPN is "ON," NRPN codes are transmitted along with other MIDI data. When NRPN is "OFF," NRPN codes will not be transmitted but other MIDI data such as Note On/Note Off, Note Velocity, etc. will continue to be transmitted..

NOTE: To see a complete list of all NRPN codes transmitted and recognized by the **SKX**, consult the APPENDIX.

NOTE: When this Advanced Feature is "ON," the **SKX** will both transmit and receive NRPN codes.

Turn the VALUE Rotary Control to turn NRPN ON or OFF.

*From the previous screen, touch the **PAGE RIGHT** Touch Button once. The Information Center Display should now look like this:*



Leslie MIDI Parameters

Many of the Leslie Parameters, such as Slow and Fast Speeds, Rise and Fall Times, etc. are sent out as MIDI NRPN codes. The rotors on the Leslie 21 system can receive these codes and respond accordingly. This Advanced Feature allows you to control how to send Leslie Parameters. The choices are:

“SK” - The Leslie Parameters will be sent out as normal NRPN codes.

“21” - The Leslie Parameters will be sent out as Leslie 21 series NRPN codes.

NOTE: For a listing of the Leslie 21 NRPN codes, please consult the MIDI Implementation Chart in the Leslie 21-series Owner's Guide (models 2101, 2103, 2101 Mark II and 2103 Mark II).

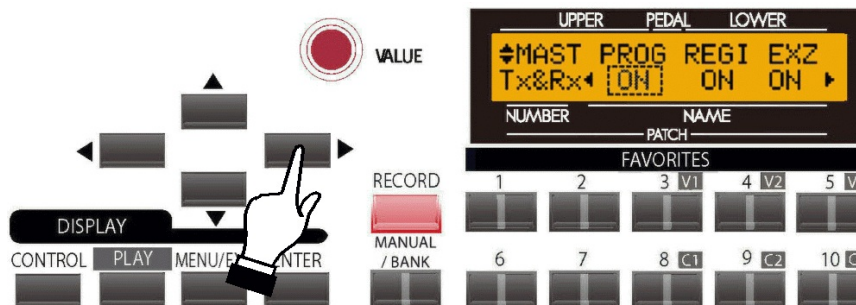
Turn the VALUE Rotary Control to make your selection.

NOTE: When a Cabinet Number is selected (i.e. by Patch), the Leslie Parameters are sent out also.

NOTE: The Leslie Parameters are sent out only on the UPPER Channel.

NOTE: This Advanced Feature will change automatically when a Leslie speaker is connected or disconnected via the 11-pin LESLIE Jack.

*From the previous screen, touch the **PAGE RIGHT** Touch Button once. The Information Center Display should now look like this:*



Screen 3 - MIDI Transmit & Receive - Program Change, Drawbar Data & External Zone

This Advanced Feature Menu screen contains 3 different functions. Use the PAGE LEFT and PAGE RIGHT Touch Buttons to move back and forth among the functions

MIDI Program Change

Program is the MIDI term for a particular sound or effect, such as Piano, Trumpet, Thunder, etc. Each MIDI program is assigned a number from 1 through 127, and these numbers are transmitted to a connected MIDI device such as a sound module. In this way, changes in sound, or what organists refer to as **registration**, can be made.

This Advanced Feature allows you to turn Program Change "ON" or "OFF." When Program Change is "ON," the **SKX** will send Program Changes out to a connected MIDI device. When Program Change is "OFF," Program Changes are not transmitted.

Turn the VALUE Rotary Control to make your selection.

What Is "General MIDI?"

With the advent of the newer General MIDI (GM) standard, it is now easier for someone to connect two or more brands of MIDI devices and use them. As an example, before General MIDI different manufacturers assigned different program numbers to different sounds. If, for example, Program Number 4 is Strings on a "brand X" MIDI device and Program Number 4 is Trumpet on a "brand Y" device, and you sent MIDI Program Number 4 from a keyboard you were playing to each device, you would hear Strings from one and Trumpet from the other. However, you wanted both units to play Strings.

The **General MIDI** addition to the original MIDI specification was created so that generic **Standard MIDI Files** created on a sequencer or notation application may be played back on another device while preserving the integrity of the original selection. It follows a standard that assigns **128 instrument sounds** to specific numbers. There are **sixteen specific families or types** of instruments and eight instruments within each group. A separate group of percussion sounds is usually available on MIDI channel 10, and they are assigned to specific notes on a MIDI keyboard.

GENERAL MIDI VOICE GROUPS			
Piano	Chromatic Percussion	Organ	Guitar
Bass	Strings	Ensemble	Brass
Reed	Pipe	Synth Lead	Synth Pad
Synth F/X	Ethnic	Percussive	Sound F/X

Here is the list of General MIDI voices followed by their program numbers.

General MIDI Instrument Chart

Program	Instrument	Program	Instrument	Program	Instrument	Program	Instrument
1	Grand Piano	33	Wood Bass	65	Soprano	97	Ice Rain
2	Bright Piano	34	Fingered	66	Alto Sax	98	Soundtrack
3	Electric	35	Pick Bass	67	Tenor Sax	99	Crystal
4	Honky Tonk	36	Fretless	68	Baritone	100	Atmospher
5	Electric	37	Slap Bass 1	69	Oboe	101	Brightness
6	Electric	38	Slap Bass 2	70	English	102	Goblin
7	Harpsichord	39	Synth Bass	71	Bassoon	103	Echo Drops
8	Clavi	40	Synth Bass	72	Clarinet	104	Sci-Fi
9	Celesta	41	Violin	73	Piccolo	105	Sitar
10	Glockenspiel	42	Viola	74	Flute	106	Banjo
11	Music Box	43	Cello	75	Recorder	107	Samisen
12	Vibraphone	44	Double	76	Pan Flute	108	Koto
13	Marimba	45	Tremolo	77	Blown	109	Kalimba
14	Xylophone	46	Pizzicato	78	Shakuhachi	110	Bagpipe
15	Tubular Bells	47	Harp	79	Whistle	111	Fiddle
16	Dulcimer	48	Timpani	80	Ocarina	112	Shanai
17	Drawbar	49	Strings 1	81	Square	113	Tinkle Bell
18	Percussive	50	Strings 2	82	Sawtooth	114	Agogo Bells
19	Rock Organ	51	Synth	83	Calliope	115	Steel Drum
20	Church	52	Synth	84	Chiff Lead	116	Wood Block
21	Reed Organ	53	Choir Aahs	85	Charanga	117	Taiko Drum
22	French	54	Choir Oohs	86	Voice Lead	118	Melodic
23	Harmonica	55	Synth Choir	87	Fifth Lead	119	Synth Tom
24	Tango	56	Orchestral	88	Bass & Lead	129	Reverse
25	Nylon String	57	Trumpet	89	New Age	121	Guitar Fret
26	Steel String	58	Trombone	90	Warm Pad	122	Breath
27	Jazz Guitar	59	Tuba	91	Poly Synth	123	Seashore
28	Clean Guitar	60	Muted	92	Choir Pad	124	Bird Tweet
29	Muted	61	French Horn	93	Bowed Pad	125	Telephone
30	Overdriven	62	Brass	94	Metal Pad	126	Helicopter
31	Distortion	63	Synth Brass	95	Halo Pad	127	Applause
32	Guitar	64	Synth Brass	96	Sweep Pad	128	Gunshot

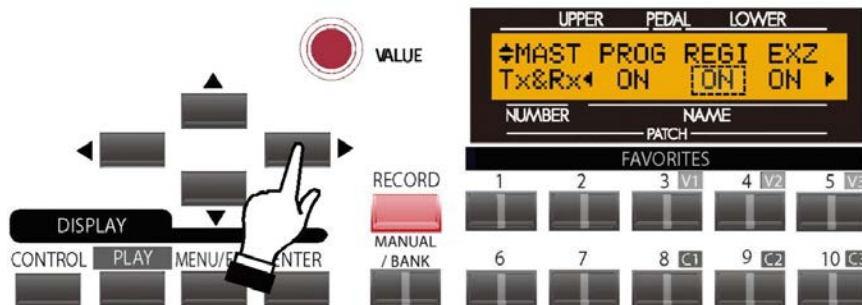
The General MIDI logo looks like this:



Any MIDI device with this logo will conform to the General MIDI Standard.

Any MIDI device that conforms to the **General MIDI Standard** will assign a specific number to each instrument, and will have at least a 24-note polyphonic capability.

*From the previous screen, touch the **PAGE RIGHT** Touch Button once. The Information Center Display should now look like this:*

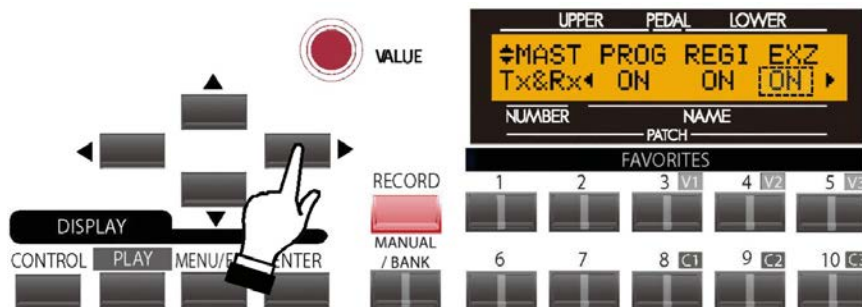


MIDI Drawbar Registration

This Advanced Feature allows you to decide whether you want to transmit the current Drawbar registration to a connected MIDI device such as a sequencer, another Hammond Organ, etc. When this switch is "ON," the **SKX** will send Drawbar Data out to a connected MIDI device. When this switch is "OFF," Drawbar Data will not be transmitted.

Turn the **VALUE** Rotary Control to make your selection.

*From the previous screen, touch the **PAGE RIGHT** Touch Button once. The Information Center Display should now look like this:*

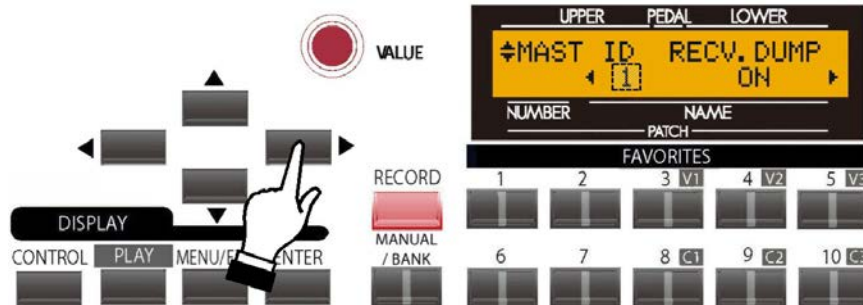


MIDI External Zone

This Advanced Feature allows you to decide whether you want to transmit External Zone data to a connected MIDI device. When this switch is "ON," the **SKX** will send External Zone data out to a connected MIDI device. When this switch is "OFF," External Zone data will not be transmitted.

Turn the **VALUE** Rotary Control to make your selection.

From the previous screen, touch the PAGE RIGHT Touch Button once. The Information Center Display should now look like this:



Screen 4 - MIDI Instrument ID & MIDI Dump

This Advanced Feature Menu screen contains 2 different functions. Use the PAGE LEFT and PAGE RIGHT Touch Buttons to move back and forth among the functions

MIDI Instrument ID

This Advanced Feature allows you to set the Device ID when transmitting System Exclusive messages.

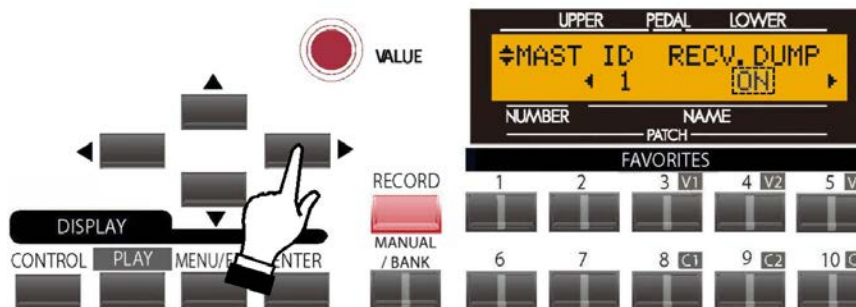
What Is a “Device ID?”

In order to facilitate communication between MIDI devices from different manufacturers, the MIDI Manufacturer’s Association (MMA) assigns each maker of MIDI devices a unique ID number. This ID number is treated as part of the System Exclusive information and is embedded in the firmware of each device from a particular manufacturer. This allows different MIDI instruments to identify each other and to transmit and receive MIDI information which may be unique to a particular maker.

Turn the VALUE Rotary Control to select the Device ID.

NOTE: Hammond’s Device ID number is “17.”

*From the previous screen, touch the **PAGE RIGHT** Touch Button once. The Information Center Display should now look like this:*



MIDI Receive Dump ON/OFF

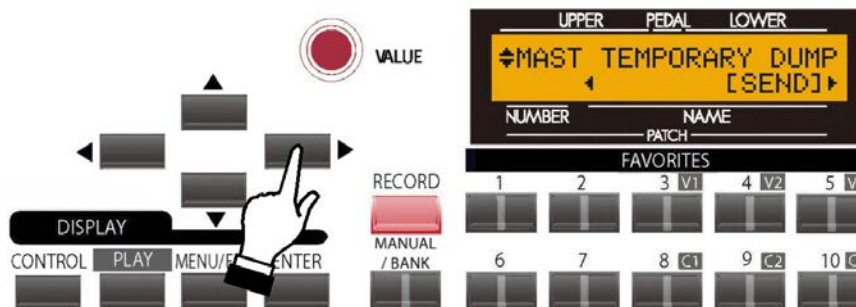
The MIDI Dump Advanced Features are for use when you want to record and save a musical performance to a connected MIDI Data recorder.

On the **SKXs**, the total onboard memory can be transmitted and received as a series of System Exclusive (Sysx) messages called a Memory Dump. This Advanced Feature allows you to select whether or not you want System Exclusive (SysEx) messages received as part of a Sequence. When this Advanced Feature is "ON," Sysx data will be received. When it is "OFF," Sysx data will not be received.

Turn the **VALUE** Rotary Control to make your selection.

IMPORTANT NOTE: If you attempt a Data Dump to the **SKX** when "OFF" is displayed, the Information Center Display will flash, "Data Protect !" This ensures that you do not accidentally overwrite data.

*From the previous screen, touch the **PAGE RIGHT** Touch Button once. The Information Center Display should now look like this:*



Temporary Dump Send

This Advanced Feature allows you to transmit the current registration to a connected MIDI recorder.

NOTE: It is recommended that you perform this operation prior to recording a sequence to ensure that your sequence will play back with the correct settings.

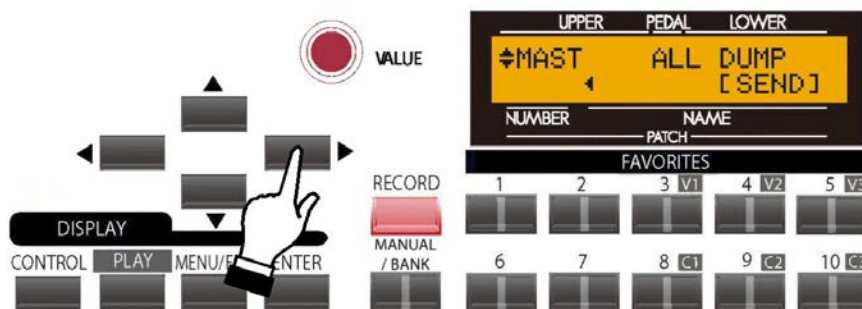
1. Make sure that the MIDI recorder is ready to receive data (RECORD).
2. Touch the **ENTER** Touch Button to start the data dump to the MIDI Data recorder. The Information Center Display will show:

Transmitting....

When all information has been sent, the Information Center Display will flash:

Data completed!

*From the previous screen, touch the **PAGE RIGHT** Touch Button once. The Information Center Display should now look like this:*



This Advanced Feature allows you to transmit all of the settings to a connected MIDI recorder.

To transmit your settings, do the following

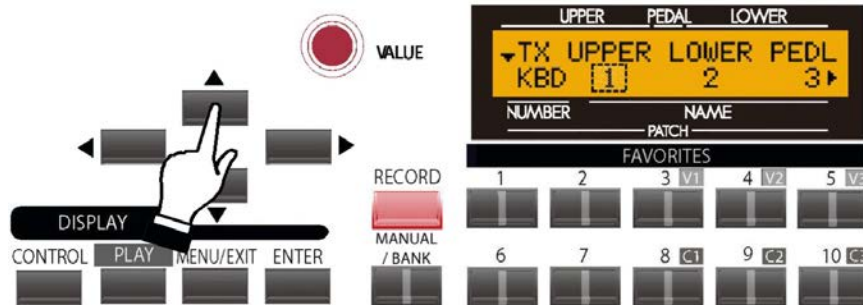
1. Make sure that the MIDI recorder is ready to receive data (RECORD).
2. Touch the ENTER Touch Button to start the data dump to the MIDI Data recorder. The Information Center Display will show:

Transmitting....

When all information has been sent, the Information Center Display will flash:

Data completed!

*From the previous screen, touch the **PAGE UP** Touch Button once. The Information Center Display should now look like this:*



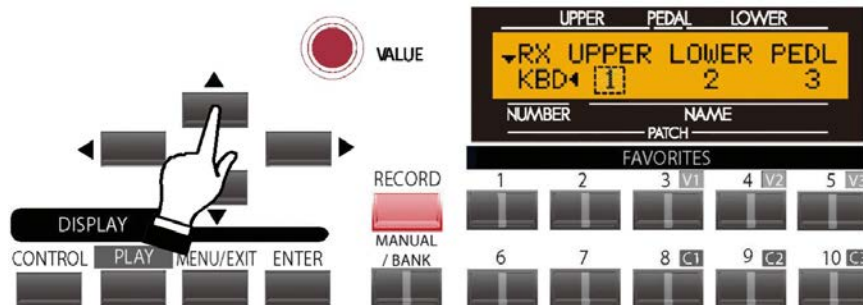
Screen 5 - MIDI Transmit - Keyboard Channels

This Advanced Feature Menu Page allows you to select on which MIDI Channel each of the Manuals and Pedals will transmit. You can select from “1” through “16” as well as “OFF.”

Use the PAGE LEFT and PAGE RIGHT Touch Buttons to move back and forth among UPPER, LOWER and PEDAL.

Turn the VALUE Rotary Control to make your selection.

*From the previous screen, touch the **PAGE RIGHT** Touch Button once. The Information Center Display should now look like this:*



Screen 6 - MIDI Receive - Keyboard Channels

This Advanced Feature Menu Page allows you to select on which MIDI Channel each of the Manuals and Pedals will receive. You can select from “1” through “16” as well as “OFF.”

Use the PAGE LEFT and PAGE RIGHT Touch Buttons to move back and forth among UPPER, LOWER and PEDAL.

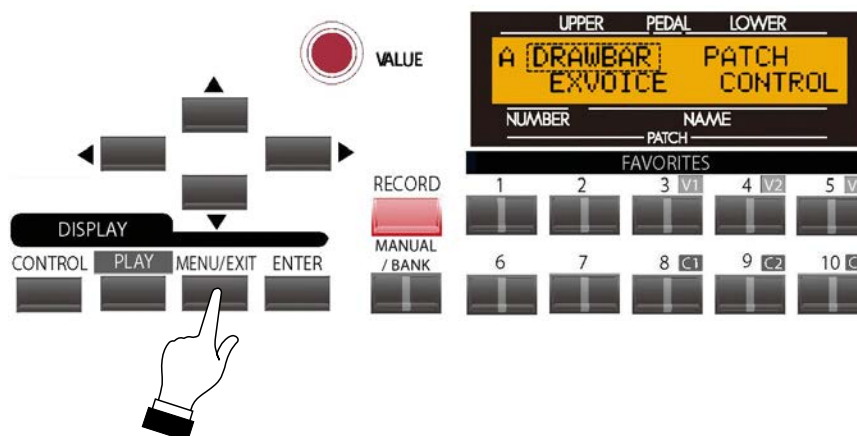
Turn the VALUE Rotary Control to make your selection.

◆ ZONES Edit Menu

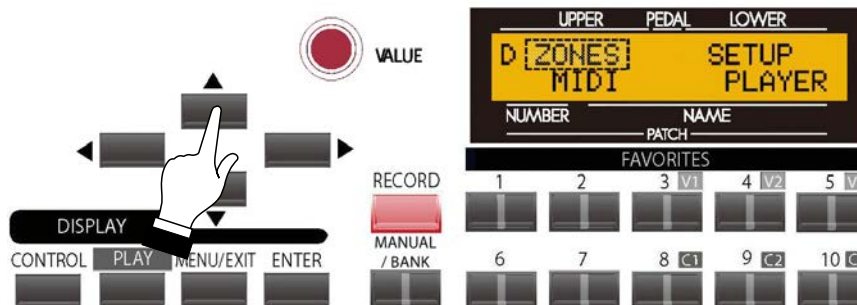
As explained on page 4, the Internal and External Channels of the instrument are referred to as **Zones**. The features available for the Zones are found in the ZONE Edit Menu. This is explained starting below.

TRY THIS:

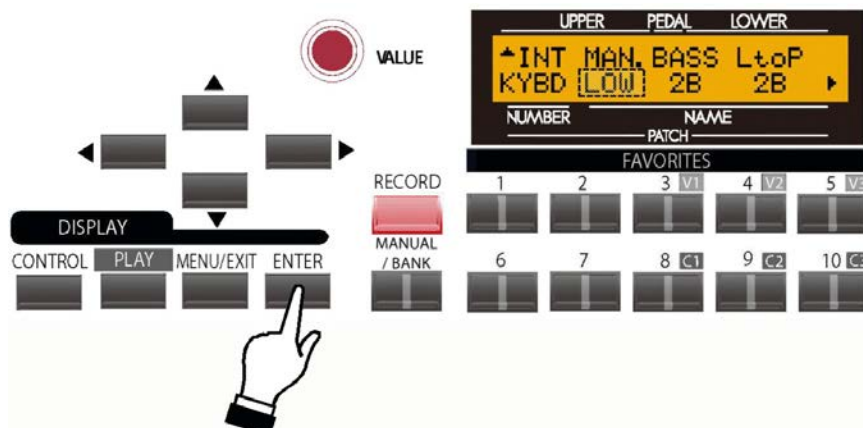
1. From either of the PLAY Screens, touch the MENU/EXIT Touch Button to see the first screen of the MENU Mode. You will see “A” displayed in the extreme upper left corner of the Information Center Display.



2. Touch the PAGE UP Touch Button **three** times. You will see “D” displayed in the extreme upper left corner of the Information Center Display. The word “ZONES” in the upper left corner of the Information Center Display will be blinking.



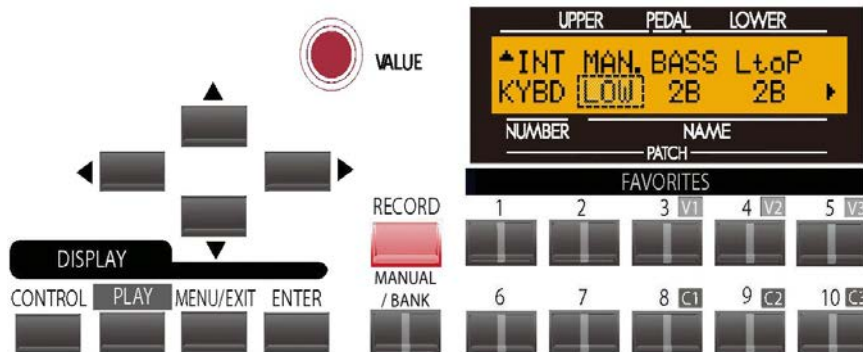
3. Touch the ENTER Touch Button once. The Information Center Display should now look like this:



You are now in the ZONES Edit Menu. You may now use the PAGE NAVIGATION Touch Buttons in conjunction with the VALUE Rotary Control to make changes to the Internal and External Keyboard Zones of your SKX. These changes are explained starting below.

Internal Zone Page 1 - Manual Bass

If you followed the above instructions, you should now see Page 1 of the ZONE Edit Menu. The legend underneath the word “MAN” should now be blinking.



Manual Bass Mode

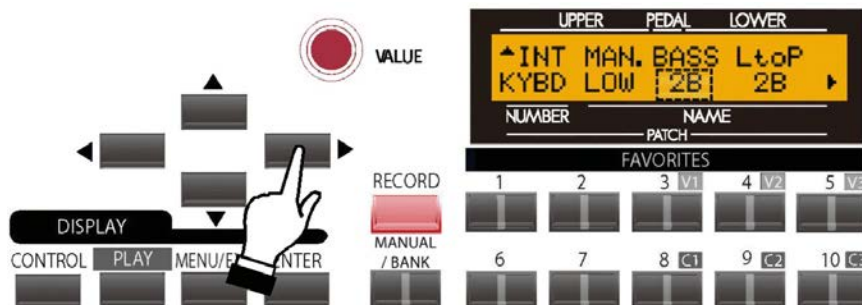
This Advanced Feature Menu Page allows you to select how the Manual Bass feature works. The data chart below shows the options you may select.

Manual Bass Options	
Description	Function
LOW	The bass note will play the lowest note selected if multiple notes are played.
CHRD	The keyboard is scanned for Chord Root and Chord Type and plays an appropriate bass note. For example, if the notes “G,” “C” and “E” are played, it will be interpreted as a C major chord and the bass note will sound the note “C.”
POLY	The bass tone will sound on all notes.

Playing keys on the Lower Manual with the MANUAL BASS feature enabled will allow you to hear the effects of the Mode setting.

Turn the VALUE Rotary Control to make your selection.

From the previous screen, touch the PAGE RIGHT Touch Button once. The Information Center Display should now look like this:



The legend underneath the word “BASS” should be blinking.

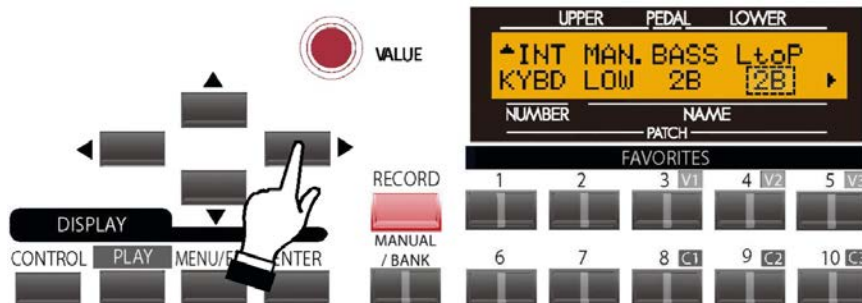
Manual Bass Split Point

This Advanced Feature Menu Page allows you to set the range of the Manual Bass on the keyboard. You can select from “1C” (the lowest note on the manual) to “3C” (the third “C” on the manual).

Turn the VALUE Rotary Control to the **right** to locate the Manual Bass Split Point **higher** on the manual.

Turn the VALUE Rotary Control to the **left** to locate the Manual Bass Split Point **lower** on the manual.

From the previous screen, touch the PAGE RIGHT Touch Button once. The Information Center Display should now look like this:



The legend underneath the word “LtoP” should be blinking.

Lower to Pedal Split Point

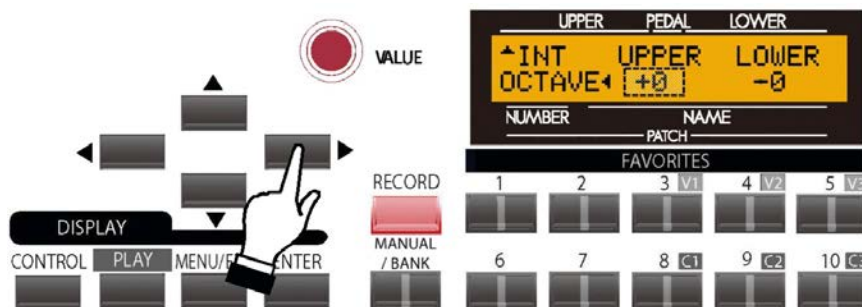
This Advanced Feature Menu allows you to set the highest note that will sound the Lower Manual registration when the LOWER TO PEDAL Touch Tab is “ON.” You can select from “1C” (the lowest note on the manual) to “3C” (the third “C” on the manual, which also is Middle “C.”

Turn the VALUE Rotary Control to the **right** to locate the note range **higher**.

Turn the VALUE Rotary Control to the **left** to locate the note range **lower**.

Internal Zone Page 2 - Octave

From the previous screen, touch the **PAGE RIGHT Touch Button** once. Page 2 of the Internal Zone Edit Menu should now display.



The legend just underneath the word “UPPER” should now blink.

Upper Octave Setting

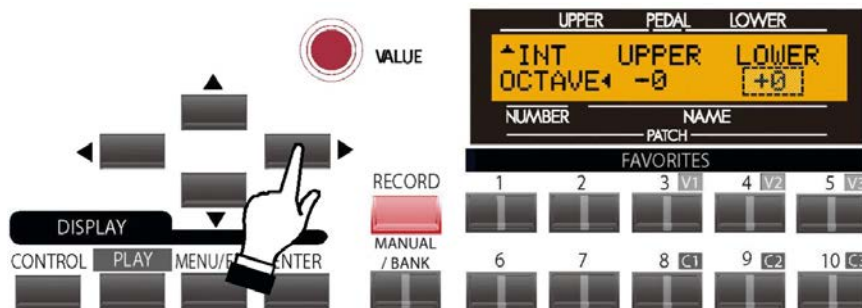
This Advanced Feature Menu Page allows you to select the Octave range in which the Extra Voices will play. The data chart below shows the options you may select.

UPPER Octave Options	
Description	Function
-2	The sound is two octaves below the regular pitch.
-1	The sound is one octave below the regular pitch.
0	The sound is at normal pitch.
+1	The sound is one octave above the regular pitch.
+2	The sound is two octaves above the regular pitch.

Turn the VALUE Rotary Control to the **right** to **raise** the Octave.

Turn the VALUE Rotary Control to the **left** to **lower** the Octave. It is linked with the [OCTAVE UP], [OCTAVE DOWN] buttons on the top panel.

From the previous screen, touch the **PAGE RIGHT** Touch Button once. The Information Center Display should now look like this:



Lower Octave Setting

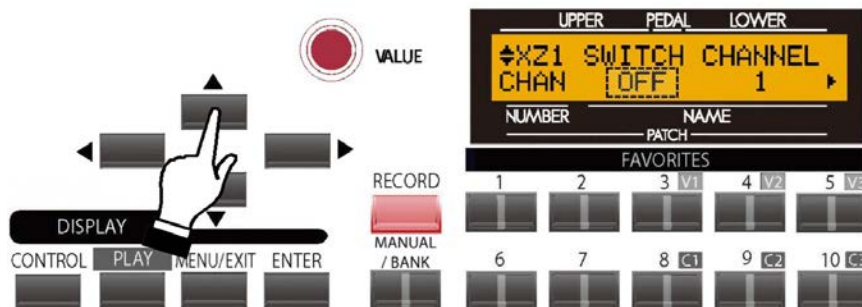
This Advanced Feature allows you to set the octave for the Lower Manual. The data chart below shows the options you may select.

LOWER Octave Options - REAL	
Description	Function
-2	The sound is two octaves below the regular pitch.
-1	The sound is one octave below the regular pitch.
0	The sound is at normal pitch.
+1	The sound is one octave above the regular pitch.
+2	The sound is two octaves above the regular pitch.

Turn the VALUE Rotary Control to the **right** to **raise** the Octave.

Turn the VALUE Rotary Control to the **left** to **lower** the Octave.

From the previous screen, touch the **PAGE UP** Touch Button once, then touch the **PAGE LEFT** Touch Button two times. The Information Center Display should now look like this:



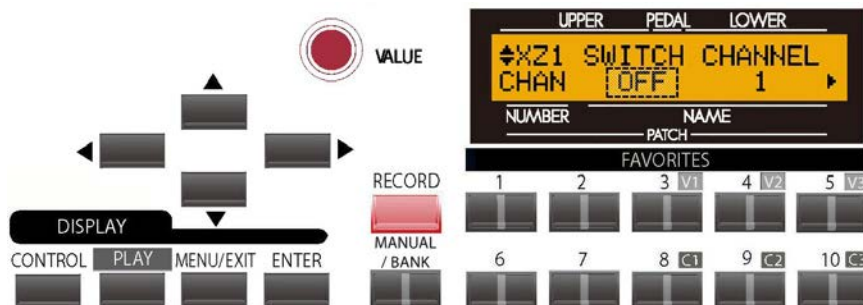
The legend underneath the word “SWITCH” should be blinking.

You are now in the section of the ZONE Edit Menu which allows you to control the operation of the External Zones.

Use the PAGE UP and PAGE DOWN Touch Buttons to move back and forth among the three External Zones, identified as “XZ1,” “XZ2” and XZ3.” The Advanced Feature selections are identical for all three External Zones; therefore for the sake of brevity only “XZ1” screens will be shown and described.

External Zone Page 1 - ON/OFF and Channel Selection

If you followed the instructions on the previous page, you should now see Page 1 of the External Zone Menu. The word underneath the word “SWITCH” should now be blinking.

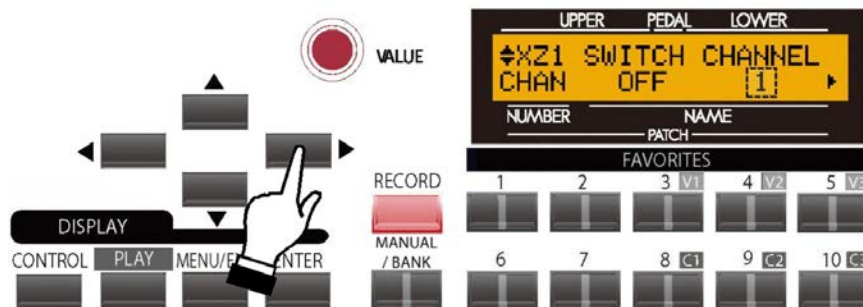


External Zone Switch

This Advanced Feature allows you to turn the selected External Zone “ON” (MIDI information will be transmitted) or “OFF” (no MIDI information will be sent).

Turn the VALUE Rotary Control to make your selection.

From the previous screen, touch the PAGE RIGHT Touch Button once. The Information Center Display should now look like this:



The number underneath the word “CHANNEL” should be blinking.

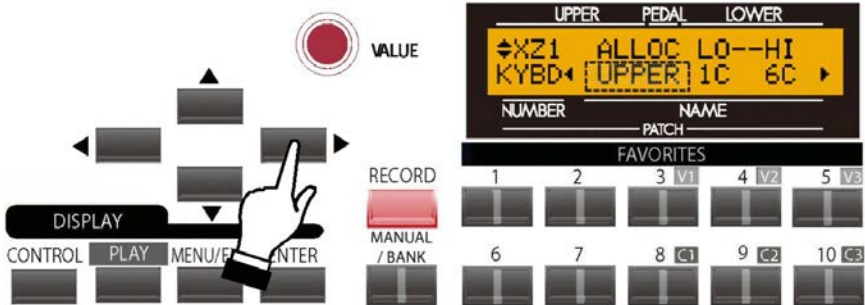
External Zone Channel

This Advanced Feature allows you to select the MIDI Channel on which MIDI data from the selected External Zone will be transmitted. You can select from “1” through “16.”

Turn the VALUE Rotary Control to make your selection.

External Zone Page 2 - Manual Allocation & Note Limits

From the previous screen, touch the **PAGE RIGHT Touch Button** once. Page 2 of the External Zone Edit Menu should now display. The legend just underneath the word “ALLOC” should now blink.



External Zone Allocate

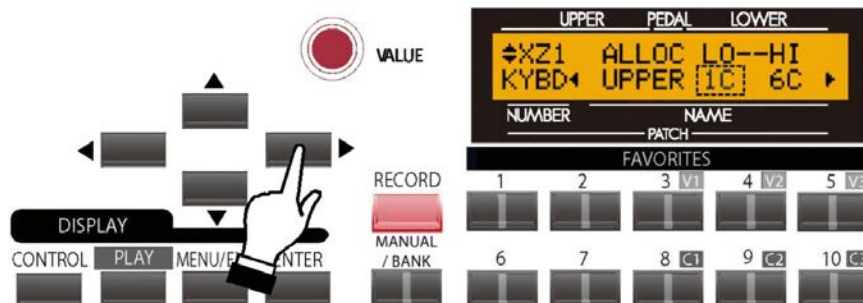
This Advanced Feature allows you to select which Manual will control the selected External Zone.

The data chart below explains each of the settings in more detail.

External Zone ALLOCATE Options	
Description	Function
UPPER	Use this setting if you have thr Sk1, Sk1-73 or Sk1-88 and are using it with no Lower Manual or MIDI pedalboard.
LOWER	Use this setting if you have the Sk2, or if you are using a connected MIDI keyboard as a Lower Manual on any of the "Sk1" instruments.
PEDAL	Use this setting if you are using a connected MIDI pedalboard with either an "Sk1" instrument or an Sk2
OFF	Use this setting if you have external MIDI instruments connected and you do not wish to send Note messages (Note On, Note Off and Note Velocity), but you still want to transmit MIDI Program Changes or Controller Changes.

Turn the VALUE Rotary Control to make your selection.

*From the previous screen, touch the **PAGE RIGHT** Touch Button once. The Information Center Display should now look like this:*



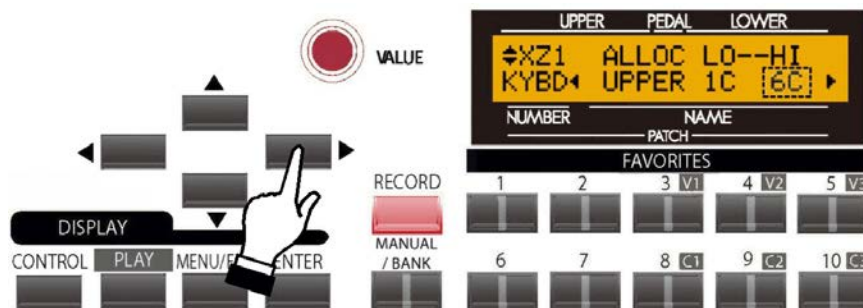
External Zone Lower Note Limit

This Advanced Feature allows you to set the lower note limit for the External Zone. You can select from “-2C” to “8G.”

Turn the VALUE Rotary Control to the **right** to locate the note range **higher**.

Turn the VALUE Rotary Control to the **left** to locate the note range **lower**.

*From the previous screen, touch the **PAGE RIGHT** Touch Button once. The Information Center Display should now look like this:*



External Zone Upper Note Limit

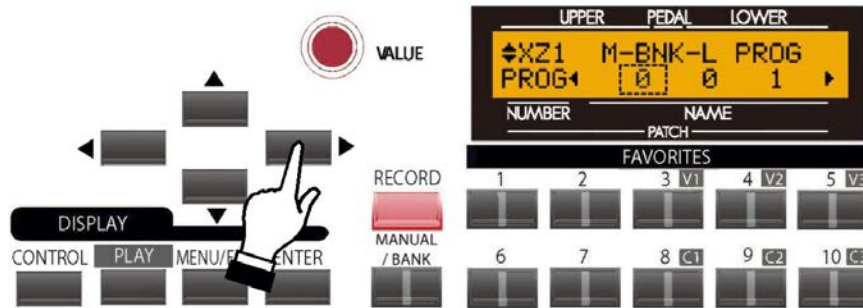
This Advanced Feature allows you to set the upper note limit for the External Zone. You can select from “-2C” to “8G.”

Turn the VALUE Rotary Control to the **right** to locate the note range **higher**.

Turn the VALUE Rotary Control to the **left** to locate the note range **lower**.

NOTE: The Upper Limit number **can not** be lower than the Lower Limit number.

*From the previous screen, touch the **PAGE RIGHT Touch Button** once. **Page 3 of the External Zone Edit Menu** should now display. The legend just underneath the word “M-BNK” should now blink.*



External Zone Page 3 - Program Change and Bank Select

What Is “Bank Select?”

“Bank Select” is closely related to “Program Change.” If you go to page 308, you will find a complete explanation of MIDI Programs, particularly as they relate to General MIDI. As explained there, General MIDI provides for a variety of different sounds, called Programs and grouped by instrument type. However, General MIDI only allows 128 separate Programs and does not allow for variations of instruments. Thus, if you want, say, an Acoustic Piano, you would have no choice but to use the one Acoustic Piano sound provided for by General MIDI, whereas actual acoustic pianos differ greatly in sound and timbral character.

In order to satisfy the requirement for different variations in tone quality within a specific sound category, several methods have been devised to allow one Program Number to represent multiple varieties or **Variations** of a basic sound such as Piano, Vibes, Trumpet, etc. The most common of these is the “GS” (**G**eneral **S**tandard or **G**eneral **S**ound) extension of the General MIDI specification.

The GS standard is fully compatible with General MIDI; however, instead of only 128 sounds, it provides the means to have up to 16,384 different sounds. This is accomplished by providing up to 128 banks of voices for each of the 128 Program Numbers in General MIDI ($128 \times 128 = 16,384$). It should be noted that this is a theoretical limit - the actual number is typically much less (anywhere from 300 ~ 900 sounds and/or drum samples).

GS uses a method called **Bank Switching** to select the different sound banks. It does this by sending two additional Controller Numbers ahead of the Program Number so that the instrument will know which sound to play. Controller #32 (Bank Select LSB - **L**east **S**ignificant **B**it) is used to select a particular bank scheme or “family,” while Controller #0 (Bank Select MSB - **M**ost **S**ignificant **B**it) is used to set a particular voice variation within that bank.

SPECIAL NOTE: The number of available voices will depend on the particular MIDI instrument you are using. Please consult the documentation provided with the MIDI instrument you are using to find which additional voices are available. This information will usually be found in either the Owner’s Manual or an additional Reference Guide.

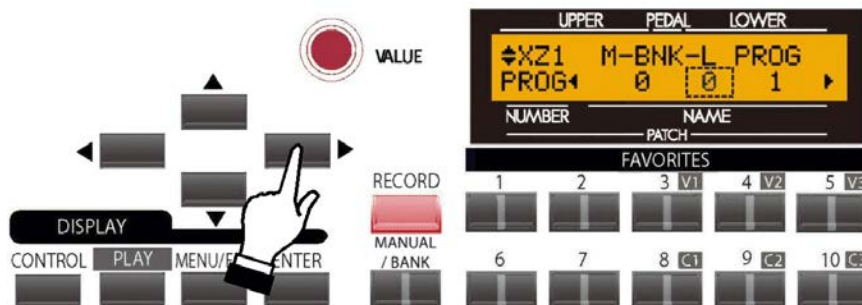
The next few paragraphs will show you how to use this feature on your **SKX**.

External Zone Bank Select MSB

This Advanced Feature allows you to set the value for Controller #0 - **M**ost **S**ignificant **B**it.

Turn the VALUE Rotary Control to make your selection.

*From the previous screen, touch the **PAGE RIGHT** Touch Button once. The Information Center Display should now look like this:*

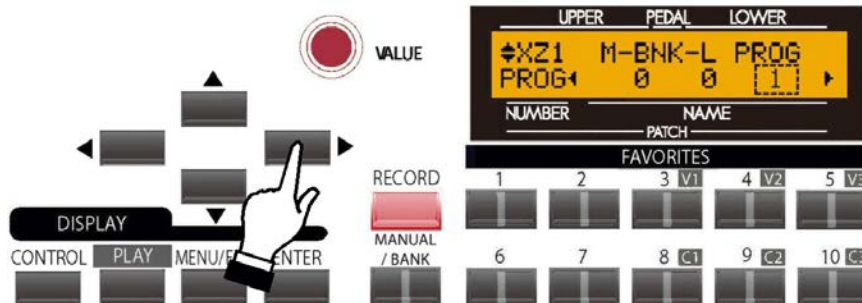


External Zone Bank Select LSB

This Advanced Feature allows you to set the value for Controller #32 - Least Significant Bit.

Turn the VALUE Rotary Control to make your selection.

*From the previous screen, touch the **PAGE RIGHT** Touch Button once. The Information Center Display should now look like this:*



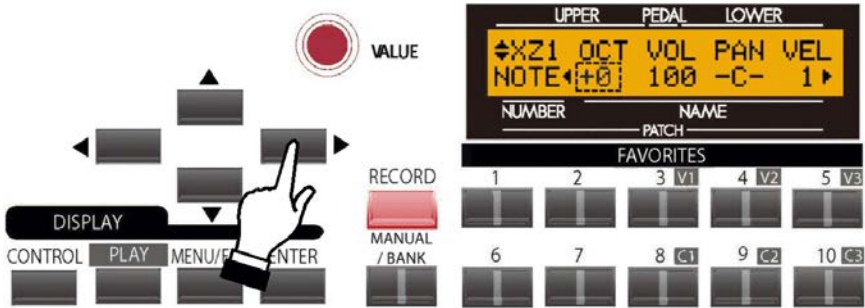
External Zone Program Number

This Advanced Feature allows you to select from the Program Number, and therefore the Voice, for the selected External Zone.

Turn the VALUE Rotary Control to make your selection.

External Zone Page 4 - Octave, Volume, Pan and Velocity Settings

From the previous screen, touch the **PAGE RIGHT** Touch Button *once*. Page 4 of the External Zone Edit Menu should now display. The legend just underneath the word “OCT” should now blink.



External Zone Octave

This Advanced Feature allows you to determine the Octave or pitch at which the External Zone will sound. Use this Advanced Feature if an external sound plays in a pitch range other than the one you find desirable.

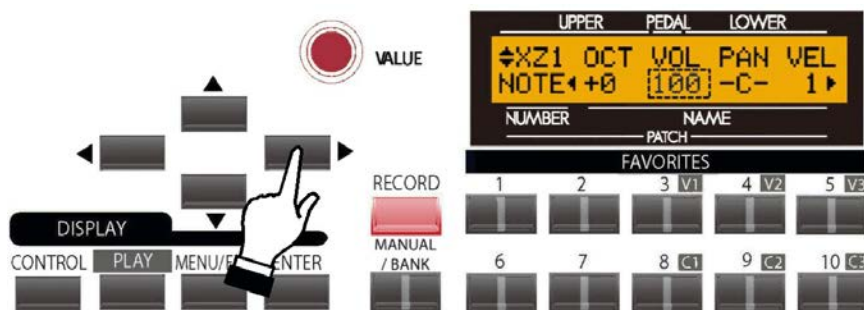
The data chart below shows the options you may select.

Octave Options	
Description	Function
-2	The sound is two octaves below the regular pitch.
-1	The sound is one octave below the regular pitch.
0	The sound is at normal pitch.
+1	The sound is one octave above the regular pitch.
+2	The sound is two octaves above the regular pitch.

Turn the VALUE Rotary Control to the **right** to **raise** the Octave.

Turn the VALUE Rotary Control to the **left** to **lower** the Octave.

*From the previous screen, touch the **PAGE RIGHT** Touch Button once. The Information Center Display should now look like this:*



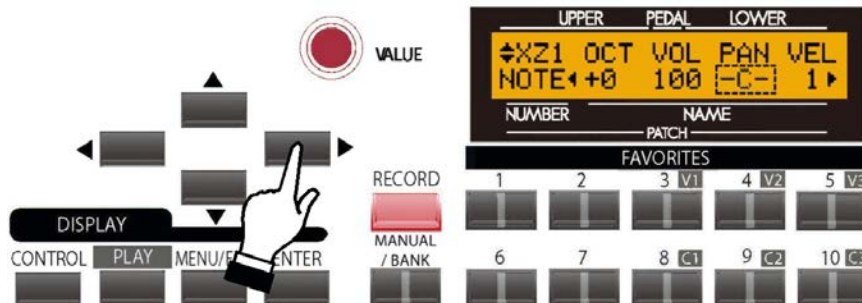
External Zone Volume

This Advanced Feature allows you to control the volume (Controller #7) of the sound controlled by the selected External Zone. You can select from “0” (no volume) through “127” (maximum volume).

Turn the **VALUE** Rotary Control to make your selection.

NOTE: In order for this Advanced Feature to work, the Expression Control Number must be set to “7:VOL.” If the Expression Control Number is set to “11:EXP,” changing this parameter will have no effect.

From the previous screen, touch the PAGE RIGHT Touch Button once. The Information Center Display should now look like this:



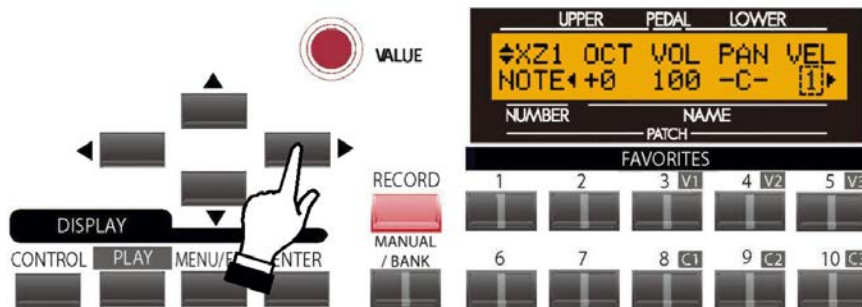
External Zone Pan

This Advanced Feature allows you to set the directionality or Pan setting (Controller #10). You can select from “L63” (the sound plays entirely through the Left channel), through to “0” (the sound is heard equally through both channels) and on through “R63” (the sound plays entirely through the Right channel).

Turn the VALUE Rotary Control to make your selection.

NOTE: In order to hear the effect of this Advanced Feature, the sound controlled from the External Zone must be connected vis Stereo (both Left and Right channel) outputs.

From the previous screen, touch the PAGE RIGHT Touch Button once. The Information Center Display should now look like this:



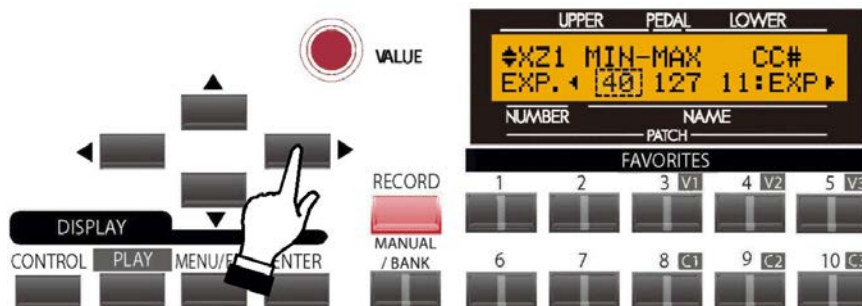
External Zone Velocity

This Advanced Feature allows you to set the character of the velocity to send to this zone. The setting range is OF and 1 to 4. At OF, the velocity is fixed at 100. The “touch” (velocity response) of the keyboard progresses from 1 (heavier) through 4 (lighter).

Turn the VALUE Rotary Control to make your selection.

External Zone Page 5 - Minimum & Maximum Volume and Controller Number Settings

*From the previous screen, touch the **PAGE RIGHT** Touch Button once. Page 5 of the External Zone Edit Menu should now display.*



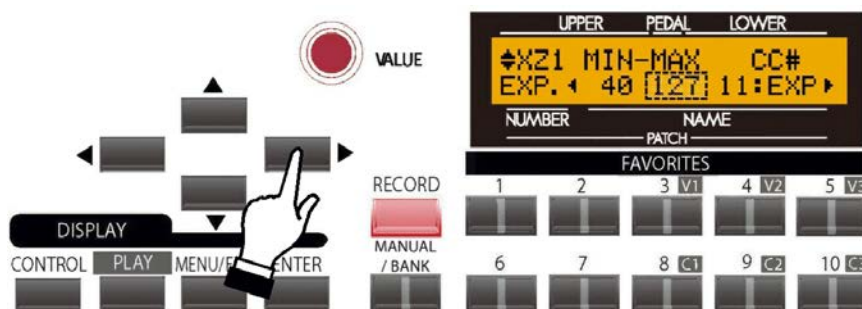
The legend just underneath the word “MIN” should now blink.

External Zone Minimum Volume

This Advanced Feature allows you to adjust the volume level when the Expression Pedal is “closed,” or set at minimum. You can select from “0” through “63.” At “0” no sound will be heard.

Turn the VALUE Rotary Control to make your selection.

*From the previous screen, touch the **PAGE RIGHT** Touch Button once. The Information Center Display should now look like this:*

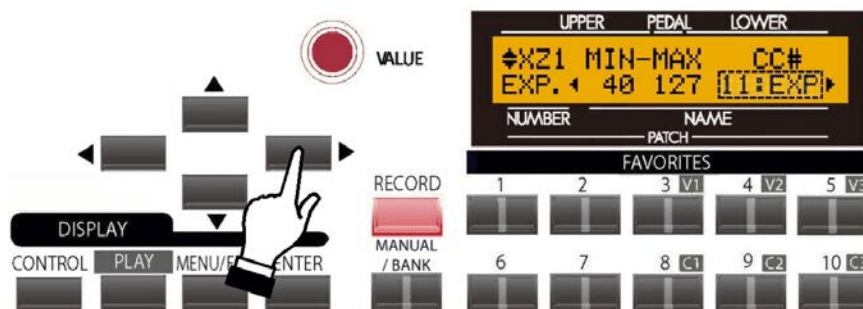


External Zone Maximum Volume

This Advanced Feature allows you to adjust the volume level when the Expression Pedal is all the way “open,” or set at maximum. You can select from “64” through “127.” At “0” no sound will be heard.

Turn the VALUE Rotary Control to make your selection.

*From the previous screen, touch the **PAGE RIGHT** Touch Button once. The Information Center Display should now look like this:*



External Zone Expression Control Number

This Advanced Feature allows you to select how you want to control the level of the selected External Zone. You can select either “VOL” (Volume or Controller #7) or “EXP” (Expression or Controller #11).

Turn the VALUE Rotary Control to make your selection.

What Is the Difference Between “Volume” and “Expression?”

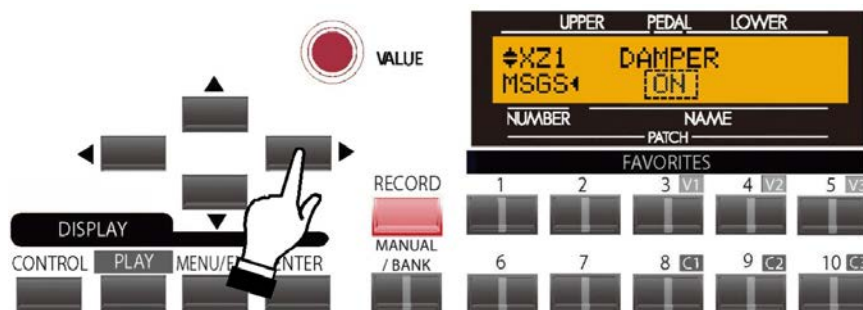
In purely technical terms, Volume and Expression are identical - both control loudness or sound level. The difference lies with how they are customarily used in MIDI applications, particularly in creating and playing back MIDI sequences.

The generally accepted protocol is to use Controller #7 (Volume) to set the overall or absolute level of a voice or sound, and use Controller #11 (Expression) to make variations (such as crescendi or diminuendi) against the overall level set by Controller #7. This is recommended particularly if you want to use your **SKX** as a MIDI input device to record a sequence.

NOTE: In order for the External Zone Volume feature to work, the Expression Control Number must be set to “7:VOL.” If this parameter is set to “11:EXP,” changing the External Zone Volume setting will have no effect.

External Zone Page 6 - Damper ON/OFF

*From the previous screen, touch the **PAGE RIGHT** Touch Button once. Page 6 of the External Zone Edit Menu should now display.*



The word just underneath the word “DAMPER” should now blink.

External Zone Damper

This Advanced Feature allows you to select whether you want to send Damper (Controller #64) information as part of the selected External Zone.

Turn the VALUE Rotary Control to make your selection.

MIDI All Notes Off and Parameter Reload (“MIDI Panic”)

MIDI plays notes from an external instrument by sending two commands - “Note On” which starts the note playing, and “Note Off” which releases the note and stops it from playing. These two commands are always sent in pairs.

Once in a while, a Note Off command may not follow a Note On command, causing a note or notes to cipher, or sound continuously (the phenomenon popularly referred to a “stuck notes”). In this case, you need to send a MIDI command to the receiving instrument to clear the ciphering notes.

To do this, touch the PAGE UP and PAGE DOWN Touch Buttons simultaneously.



Doing this will send a “MIDI All Notes Off” as well as a “MIDI Reset All Controllers” command to the receiving instruments. The stuck notes will be turned off and the settings for the External Zones will be reset, then the External Zone settings will be re-sent. Normal playing can then be resumed.