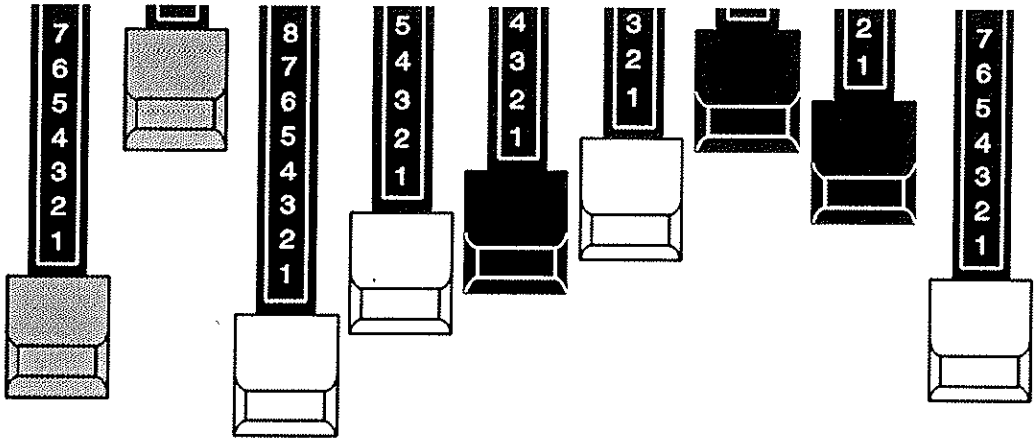


HAMMOND

Model XB-3
Model XC-3

OWNER'S PLAYING GUIDE

IMPORTANT SAFETY INSTRUCTIONS

WARNING - As with any electrical or electronic equipment, care should be exercised to prevent fire and shock hazard. The following information is provided to give guidance in the safe use of your Hammond Organ.

Read all of the instructions before using this product.

To reduce the risk of injury, close supervision is necessary when the product is used near children.

Do not use this product near water.

This product may be capable of producing sound levels that would 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 loss or ringing in the ears, you should consult an audiologist.

This product should be located so that its position does not interfere with proper ventilation and should not be placed near heat sources such as radiators or heat registers.

This product should be connected to a power source only of the type as marked on the product.

The power-supply cord should be unplugged from the outlet when left unused for a long period of time.

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

IF YOUR INSTRUMENT FAILS TO OPERATE:

1. Be sure your POWER ON/OFF switch is ON, and the TOTAL VOLUME control is set to at least the half way point.

2. Be sure that at least one voice is selected ON.

3. Make sure headphones are not plugged in to the headphone jack.

4. Make certain that the power cord is plugged in and the "AC" wall receptacle is not faulty.

In the event that the instrument is still inoperable, your Hammond Organ Dealer is best qualified to provide competent service.

THIS PRODUCT SHOULD BE SERVICED BY QUALIFIED SERVICE PERSONNEL WHEN:

A. The power-supply cord or plug has been damaged.

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

C. The product has been exposed to rain.

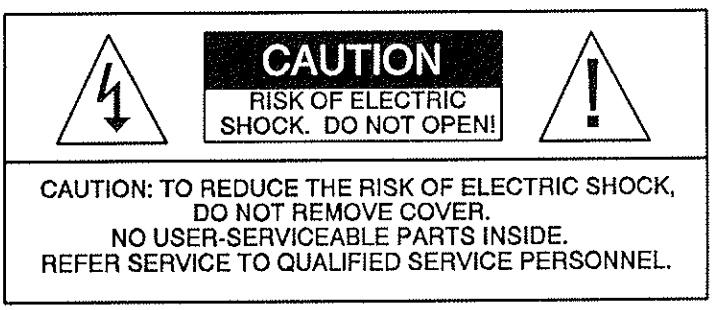
D. The product does not appear to operate normally or exhibits a marked change in performance.

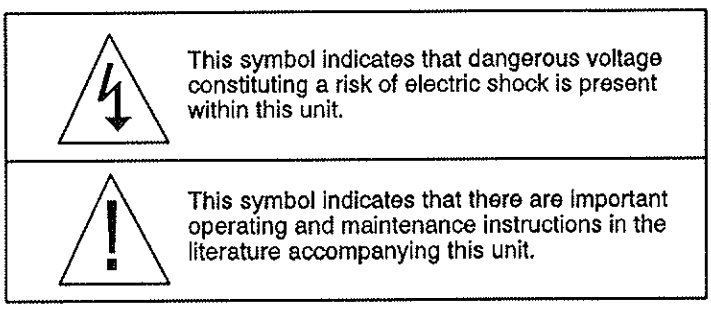
E. The product has been dropped or damaged.

Do not attempt to service this product. All servicing should be referred to qualified service personnel.

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 cord having an equipment-grounded conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

SAVE THESE INSTRUCTIONS





WARNING: TO AVOID THE HAZARDS OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR OTHER MOISTURE.

DANGER: Improper grounding of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the product is properly grounded. 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.

You've Selected The World's Most Popular Organ!

Welcome to the exclusive circle of Hammond Organ owners. We're proud you recognize the distinctive quality that has made it the overwhelming choice of beginners, "buffs," and professionals since Hammond first introduced the electric organ in 1935.

Hammond ingenuity has developed a unique digital sound voicing system combined with the traditional Hammond sound and quality. You own one of the world's great sounding instruments. Play it. Discover the exciting effects you can get. You'll achieve new levels of musical enjoyment with your Hammond.

We thank you for selecting this fine new instrument from Hammond, over the vast number of other instruments that are on the market today.

Hammond Organ Model XB-3/XC-3

Table of Contents

INTRODUCTION

TURN ON & PLAY

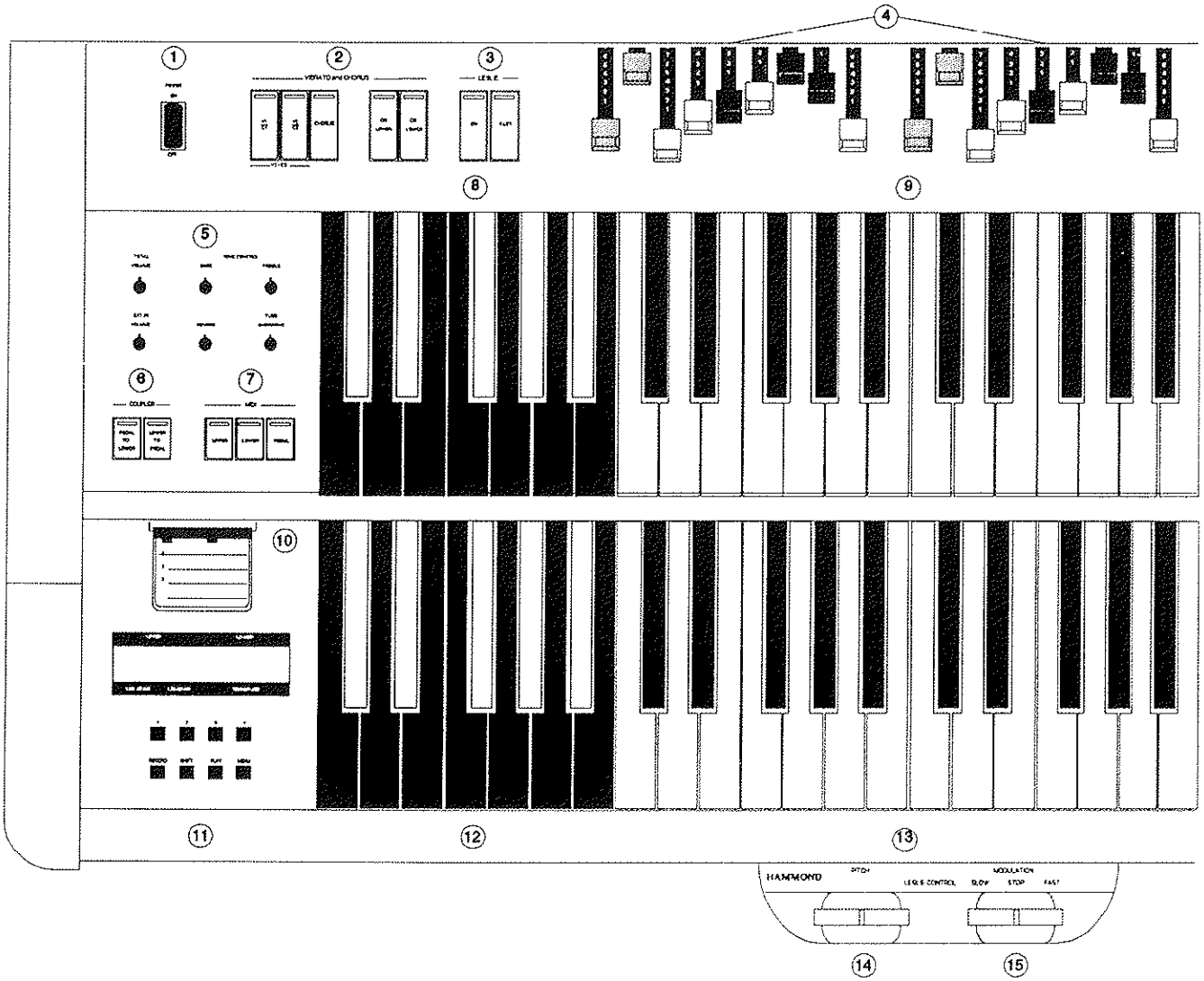
INFORMATION CENTER DISPLAY

DRAWBARS & PERCUSSION

Hammond Organ Model XB-3/XC-3

Introduction

FEATURE CALLOUT



1. **ON / OFF Power Switch** (pages 6, 12)

2. **Vibrato and Chorus Controls** (pages 16, 77)

3. **Leslie Touch Tabs** (page 83)

4. **Upper Manual Drawbars** (page 13, 40)

5. **Rotary Controls** (page 8)

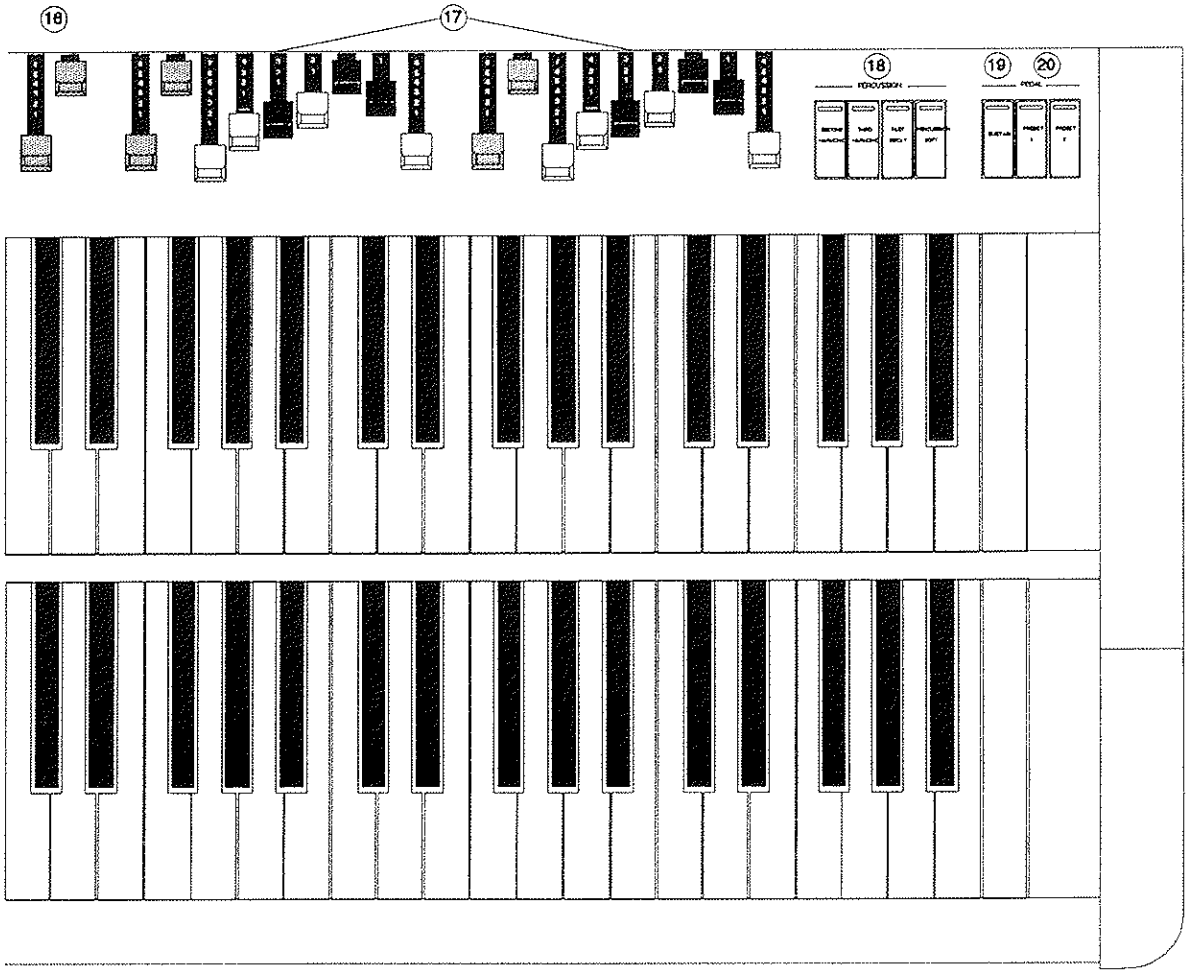
6. **Couplers** (page 49)

7. **MIDI Touch Tabs** (see MIDI Reference Guide)

8. **Upper Manual Preset Keys** (page 7, 102)

9. **Upper Manual**

10. **RAM Card Slot** (pages 9, 164)



11. Information Center Display (pages 6, 12, 25)

12. Lower Manual Preset Keys (page 7, 102)

13. Lower Manual

14. Pitch Bend Wheel (page 9)

15. Modulation Wheel (page 9)

16. Pedal Drawbars (page 13, 49)

17. Lower Manual Drawbars (page 13, 40)

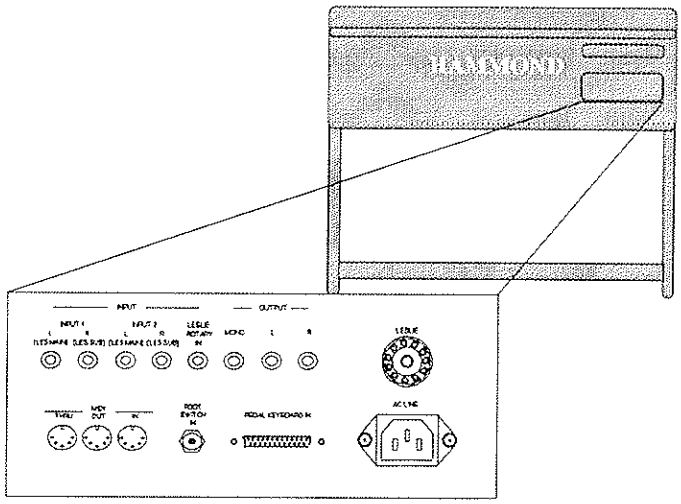
18. Percussion Touch Tabs (pages 23, 69)

19. Pedal Sustain Touch Tab (page 49)

20. Pedal Presets (page 104)

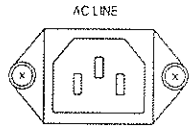
INTRODUCTION

◆ Basic Hook-Up



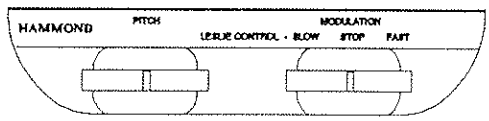
All connections are found on the back of the instrument in the Accessory Panel except for the Headphone Jack and the connection for the Pitch Bend / Modulation Wheel Control Box. Looking at the back of the organ, locate the Accessory Panel cover. Press in on the bottom and release the panel cover. The cover should pop up slightly. Now raise and flip the cover up into the open position. You should now see the Accessory Panel. (See the Reference section starting on page 175 for more detailed information about the Accessory Panel.)

A.C. Power



Your Hammond Organ is shipped from the factory set for local A.C. power. Locate the A.C. Power Cord and plug the female end into the A.C. Power receptacle located on the Accessory Panel of your organ, and the male end into your A.C. power outlet.

Pitch Bend / Modulation Wheel Control Connection



- Pitch Bend & Modulation Controls -

The Pitch Bend and Modulation Wheels are contained in a control box included with your organ. Before turning the organ power "ON", this control box should be mounted and connected to the organ. To do this:

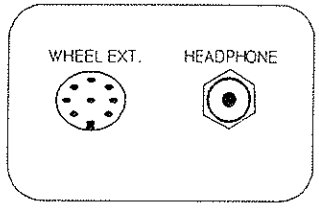
1. Locate the Pitch Bend / Modulation Wheel Control Box.

2. Locate two screws with large plastic heads.

3. Locate the mounting holes for the Pitch Bend / Modulation Wheel Control Box underneath the Lower Manual on the left side.

4. Mount the Pitch Bend / Modulation Wheel Control Box by lining up the holes on the box with the mounting holes on the organ, and turning the large plastic-headed screws by hand. Turn the screws until they are snug. Do not overtighten.

5. Locate the Connector Cable on the control box, and plug the male end of the cable into the WHEEL EXT. jack found on the underside of the organ on the left.



NOTE: The small jack panel containing the WHEEL EXT. connection also contains the Headphone Jack. For more information about the control connections of the organ, see the Reference section of this Owner's Playing Guide starting on page 175.

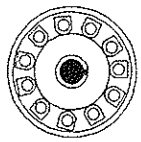
Audio and MIDI Control Connections

A Leslie™ Speaker Model 122XB is included with your organ. Before turning the organ power "ON", the Leslie Speaker should be connected to the organ. To do this:

1. Locate the Leslie Connector Cable.

2. Plug the female end of the Connector Cable into the receptacle on the back lower left corner of the Leslie Model 122XB Speaker.

3. Plug the male end of the Connector Cable into the 11-pin Leslie socket found on the Accessory Panel of your organ.



NOTE: Both the Leslie connections are "keyed", that is, each connection contains a notch which insures that the pins properly match up.

IMPORTANT NOTE: To connect the organ to a Leslie Speaker other than the Model 122XB, you may require a special adapter kit and/or Connector Cable. Contact your Hammond Organ Dealer for more information regarding which adapter kit and/or cable you may need.

Before turning the organ's ON / OFF Power Switch "ON", any MIDI devices that you wish to use should be connected. See the MIDI Reference Guide for information on how to connect MIDI devices to your organ.

Pedal Keyboard Connection

Your Hammond Organ is supplied with a 25-note Pedal Keyboard which should be connected to the organ. To set up the Pedal Keyboard:

1. Lay the Pedal Keyboard on the floor in front of the organ.

2. Carefully slide the Pedal Keyboard underneath the organ, and push it back all the way as far as it will go.

3. Locate the Pedal Keyboard connector cable, and plug it into the PEDAL KEYBOARD IN connection on the Accessory Panel on the back of the organ.

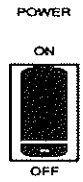
4. Secure the Pedal Keyboard connection by tightening the two screws on either side of the cable plug. These can be tightened by hand.

When you have made all of the Basic Hook-Up connections described above, your Hammond Organ will be ready to play. The remainder of this Owner's Playing Guide will describe in detail the playing features of your Hammond Organ.

Basic Controls

The panel controls on the organ include any of the Touch Tabs, Touch Buttons, Drawbars, Rotary and Wheeled Controls. These controls allow you to make adjustments and voice changes on the instrument.

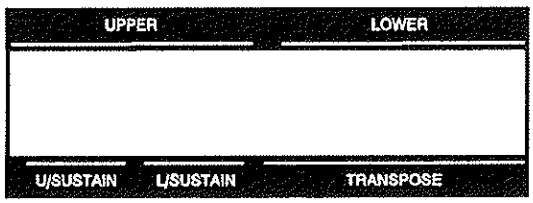
♦ ON / OFF Power Switch



The **ON / OFF Power Switch** is located on the extreme upper left side of the control panel. When this switch is in the "ON" or forward down position, the Information Center Display as well as certain LED's (**L**ight **E**mitting **D**iodes) will light up showing that the instrument is "ON".

♦ Information Center Display

The **Information Center Display** is an LCD (**L**iquid **C**rystal **D**isplay) located to the left of the Lower Manual.



The Information Center Display has two modes: (1) the PLAY mode, and (2) the MENU mode. The Play mode allows you to graphically see the Drawbar settings, add Sustain to the Upper and Lower Manual Drawbar tones, and Transpose the instrument into different keys. The Menu mode allows to change and edit the organ's software parameters such as Sustain length, Drawbar voicing, MIDI parameters and other advanced functions.

NOTE: The Play and Menu modes are covered starting on page 27 of this Owner's Playing Guide.

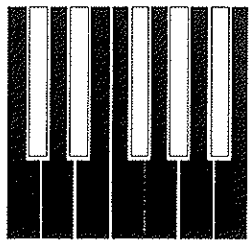
♦ Drawbars

The **Drawbars**, sometimes referred to as Tonebars, for the organ are located just above the Upper Manual. These Drawbars are responsible for all the sounds produced by the organ with the exception of Percussion tones. The two sets of nine Drawbars on the left control the sounds produced by the Upper Manual, while the two sets of nine Drawbars on the right control the sounds produced by the Lower Manual. The two Drawbars in the middle control the sounds produced by the Pedal Keyboard.

NOTE: More information about the Drawbars appears starting on page 39 of this Owner's Playing Guide.

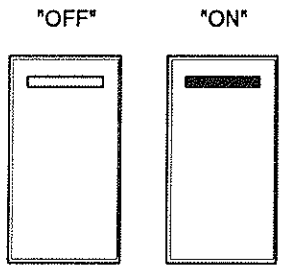
♦ Preset Keys

To the left of each manual are reverse-color keys which bring into play nine pre-set Drawbar combinations. The "A♯" and "B" keys of each group of Preset Keys serve to introduce your choice of Drawbar combinations set up on the Upper and Lower Manuals. See the Presets section of this Owner's Playing Guide starting on page 101 for more information about this feature.



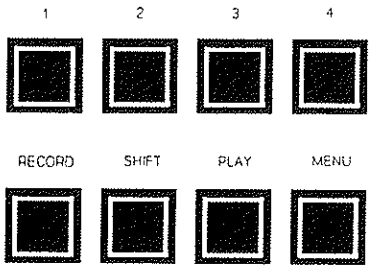
♦ Touch Tabs

Touch ON / Touch OFF Touch Tabs have red LED's or lights in them that will light up indicating "ON". Touch ON / Touch OFF Touch Tabs control specific functions such as Percussion, Vibrato, Leslie and MIDI.



♦ Touch Buttons

Touch Buttons are the two groups of black buttons located under the Information Center Display.



Touch Buttons have three different functions.

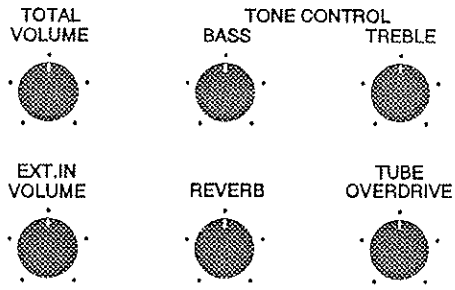
1. **Select Touch Buttons** will allow you to select among multiple functions such as selecting a Menu Page.

2. **Touch ON / Touch OFF Touch Buttons** turn "ON" or "OFF" specific functions such as SUSTAIN.

3. **Touch and Hold Touch Buttons** will increase or decrease their function in incremental steps when they are touched once, or "scroll" through the steps if touched and held. The new value will be shown in the Information Center Display.

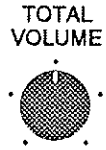
♦ Rotary Controls

These six controls are located to the left of the Upper Manual.



- Rotary Controls -

Total Volume



This Rotary Control allows you to control the total or maximum volume of the entire organ. Turning this control clockwise will increase the total volume, while turning it counter-clockwise will decrease the total volume.

EXT.IN Volume

This Rotary Control allows you to control the total or maximum volume of an external sound source connected to the organ via the EXT IN jacks. Turning this control clockwise will increase the volume, while turning it counter-clockwise will decrease the volume.

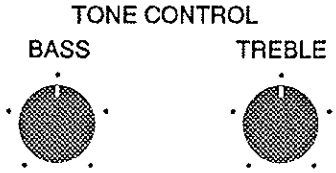
Reverb

This Rotary Control allows you to control the total or maximum amount of Digital Reverb. Digital Reverb is explained in detail in the "Effects" section of this Owner's Playing Guide.

Tube Overdrive

This Rotary Control allows you to control the total or maximum amount of "Tube Overdrive", the fuzzy, raspy sound produced by a tube amplifier when it is pushed to its sound limit. Turning this control clockwise will increase the amount of Tube Overdrive, while turning it counter-clockwise will decrease the amount.

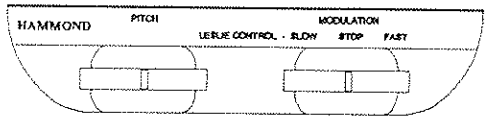
TONE CONTROLS



The Treble and Bass Tones of the organ can be controlled separately with the use of these two Rotary Controls. Turn each control to the left (counter-clockwise) for the Minimum amount of Treble or Bass. Turn each control to the right (clockwise) for the Maximum amount of Treble or Bass.

♦ Pitch Bend and Modulation Wheels

Pitch Bend



- Pitch Bend & Modulation Wheels -

You can adjust the pitch range, plus or minus, 12 half steps. For more information about how to change the Pitch Bend range, see "Advanced Feature - Bender" starting on page 125 of this Owner's Playing Guide.

Modulation Wheel

The Modulation Wheel has several functions that can be selected. The two main uses are;

1. To send MIDI modulation data to a connected MIDI device. For more information about this function, see the MIDI Reference Guide that accompanies this Owner's Playing Guide.

2. To control the speed of a connected Leslie Speaker from "SLOW" to "STOP" and to "FAST".

Besides these two main functions, the Modulation Wheel can also be programmed for two other internal functions;

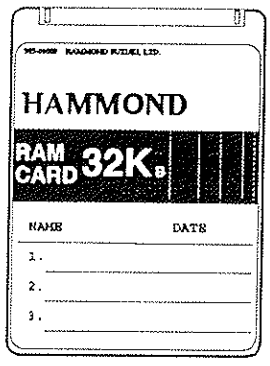
1. **Second Drawbar**. For more information about how to select and use this function, see "Modulation Wheel - Second Drawbar", starting on page 132.

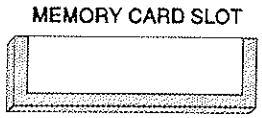
2. **Tube Overdrive Level**. For more information about how to select and use this function, see "Advanced Feature - Tube Overdrive Level", starting on page 93.

Moving either control to the right will increase the intensity of the corresponding control. Moving either control to the left will decrease the level.

♦ RAM Card Slot

The **RAM Card Slot** is located between the Upper and Lower Manuals just above the Information Center Display. It is designed to accommodate Hammond RAM (**R**andom **A**ccess **M**emory) Cards, which allow you to "Load" or "Save" your own Preset settings. Hammond RAM Cards are available from your Hammond Organ dealer. For more information about RAM Cards, see Using the RAM Card, starting on page 163.

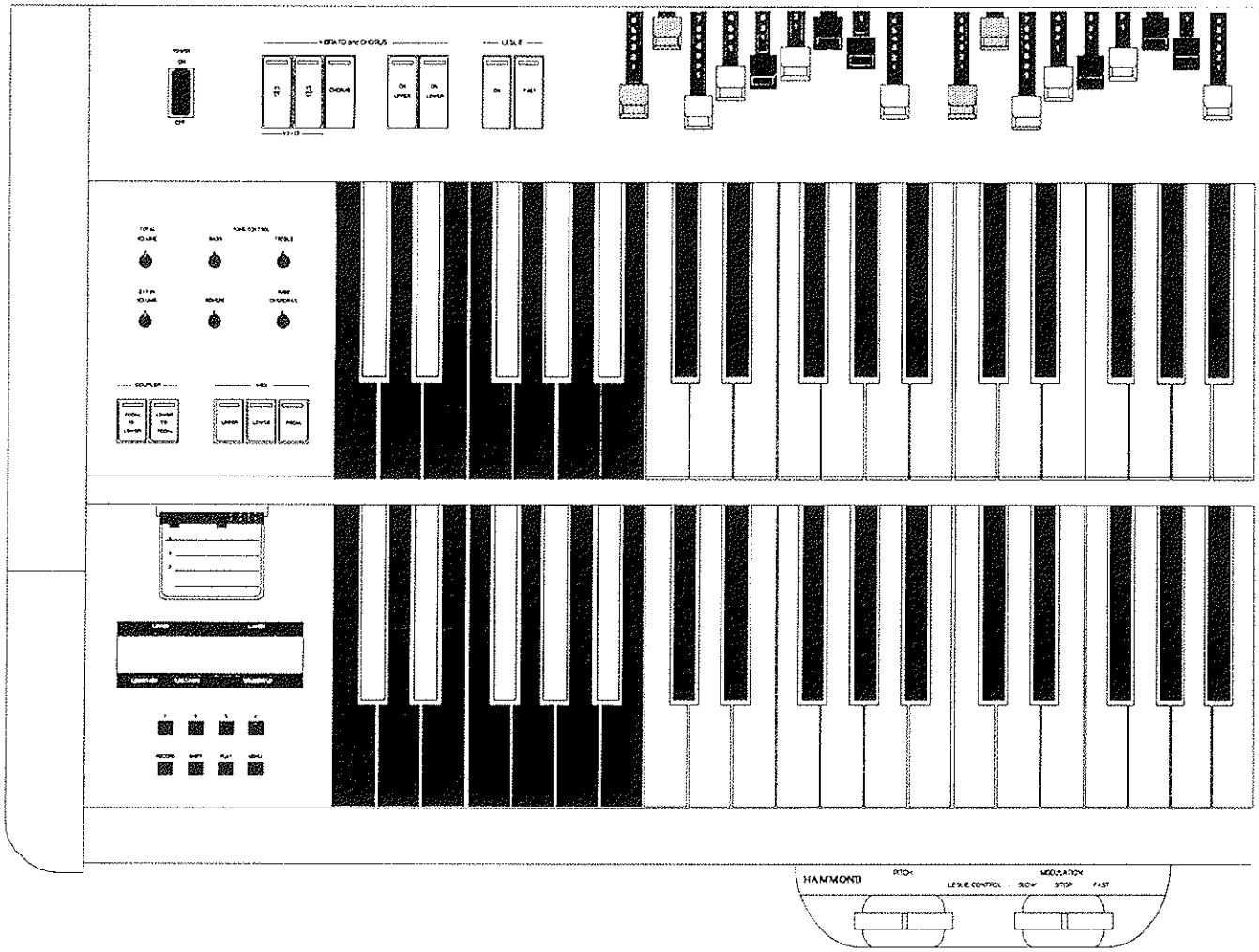




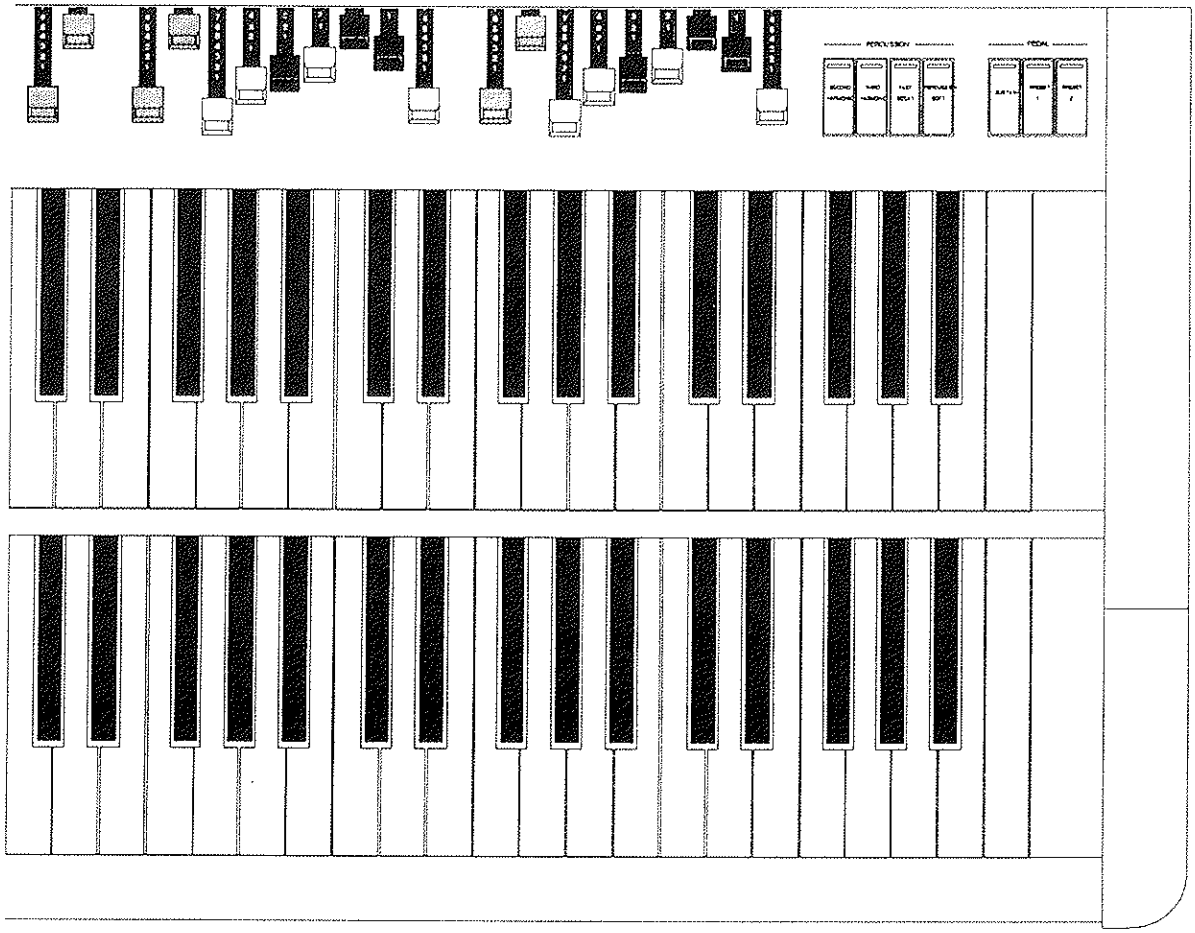
Hammond Organ Model XB-3/XC-3

Turn On & Play

TURN ON & PLAY

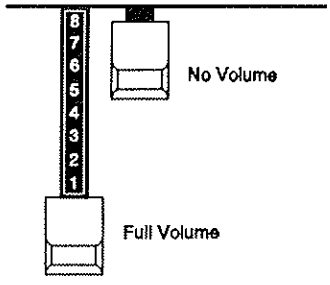


In the illustration above you will notice that there are five groupings of "Harmonic Drawbars" on your Hammond Organ, located above the Upper Manual. The first two groups control the Upper Manual. Next are two brown Drawbars (set slightly apart from the other Drawbars) which control the volume of the Pedal tones. Finally, there are two more groups of Harmonic Drawbars that control the Lower Manual. The tones for each manual are created by making arrangements of these Harmonic Drawbars. The principle behind the Harmonic Drawbars of the Hammond Organ is simplicity itself, yet it results in providing you with incredible versatility. See the Drawbars & Percussion section starting on page 39 for a complete explanation of the principle behind them and how they work. With two groups of Drawbars for each manual, it becomes necessary to be able to select which group you want. The first group of Drawbars for each manual is therefore controlled by the "A♯" Preset Key on that manual and can be played only when that Preset Key is active (LED lit), while the second group for each manual comes in when you select the "B" Preset Key for that manual. If no Preset Key is selected (LED not lit), the manual will not sound when keys are pressed.



The Harmonic Drawbar is a device for controlling the intensity of the harmonics. By varying the positions of these Drawbars, an unbelievable number of different tones can be created. Thus, the player of a Hammond Organ can "create" his own tones. Each harmonic is available in eight stages of intensity (volume) plus "OFF", the eight numbers being marked on the Drawbars. These numbers are used to record a tone quality so that the organist can duplicate, exactly, any tone which he desires to remember. The reason for providing two groups instead of one for each manual is so that you can have several of your favorite combinations ready and waiting for use.

Pulling a Drawbar out (toward you) will increase the volume in incremental steps from 0 (no volume) to 8 (full volume). Pushing the Drawbar back in (away from you) decreases the volume of that Drawbar.

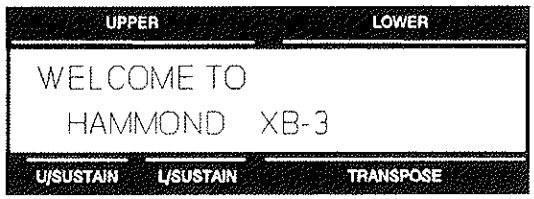


This section will introduce you to the basic sections of the instrument in order to help you get started making music right away.

♦ Turning the Organ "ON"

First, locate the **ON / OFF Power Switch**, which is at the extreme upper left side of the control panel. Next, locate the **Information Center Display**, which is at the left of the Lower Manual next to the Preset Keys.

To turn the organ "ON", simply press this switch at the top so that it is in the "ON" or forward down position. The Information Center Display will scroll the following message:



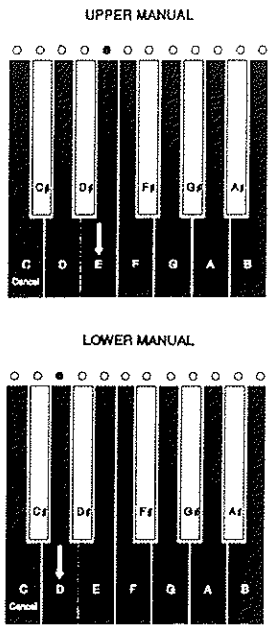
When the organ is "ON", the Information Center Display will show a yellow green background color, letting you know at a glance whether the organ is "ON" or "OFF".

NOTE: The Model XC-3 will display "WELCOME TO HAMMOND XC-3".

After about 5 seconds, the organ will be ready to play. However, if you are using a Leslie Speaker cabinet with a tube amplifier, wait about 20 seconds until the tubes warm up.

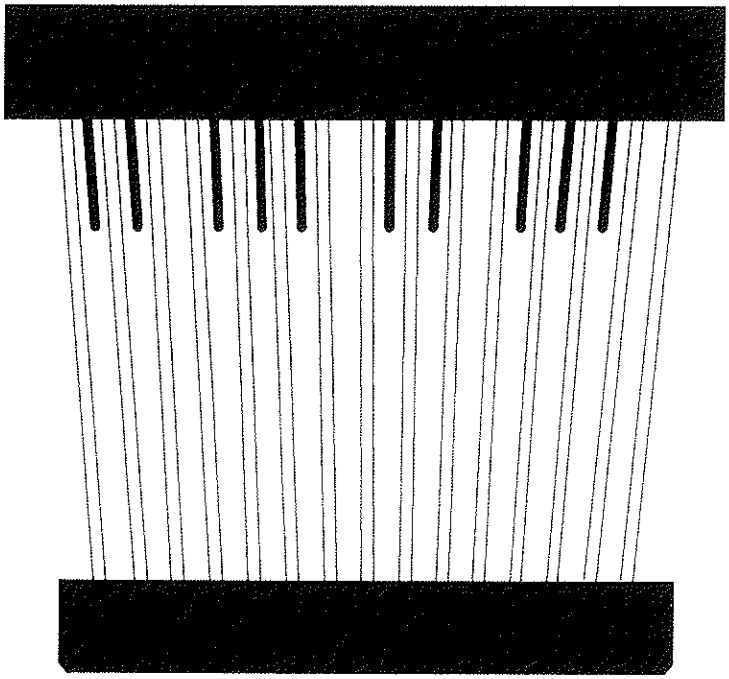
To shut off the organ, simply press the ON / OFF Power Switch "down" at the bottom.

♦ The Preset Keys



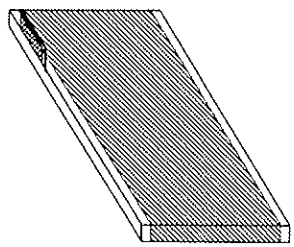
Located to the left of the Upper and Lower Manuals are the reverse-color keys called the **Preset Keys**. For the moment, press the keys (as shown) "E" on the Upper Manual and "D" on the Lower Manual. An LED (**L**ight **E**mitting **D**iode) above each Preset Key will light up indicating that these Presets are active. Now both manuals will play. The Presets section of this Owner's Playing Guide contains a complete explanation of the principle behind the Preset Keys and how they work.

♦ The Pedal Keyboard



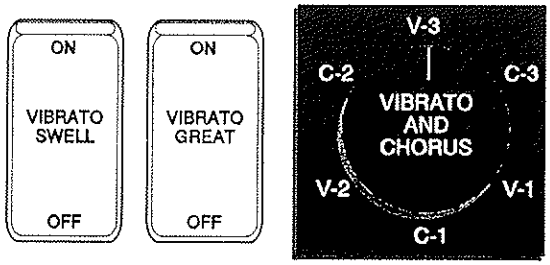
The large keyboard on the floor is known by two names - the pedal **keyboard** or the pedal **clavier**. The Pedal Keyboard is really nothing more then a keyboard large enough to play using your feet. On the pedal keys you play the low bass notes. When the foot plays the bass notes, the left hand is then free to play the harmony, and the pedal note will blend in smoothly since the foot can sustain the bass note as long as desired.

♦ The Expression Pedal

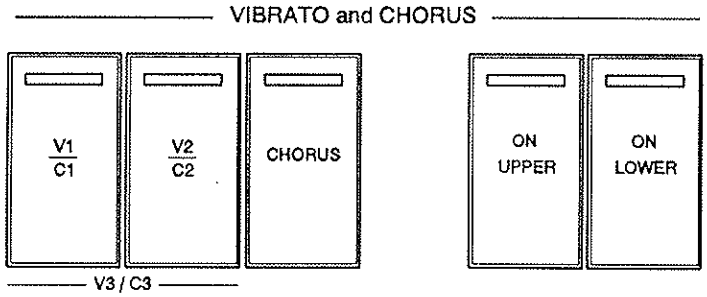


To the center and just above the Pedal Keyboard is the Expression or Volume Pedal, which you operate with your right foot, and with which you vary the volume of the organ to create "expression". One reason that the organ is so easy to play is that, unlike other keyboard instruments, you do not need to vary your touch or learn a difficult finger technique in order to provide expression for your music. You play the manuals and pedals with a minimum of pressure, and you use the Expression Pedal to let your music swell to grand effects, die away to a thrilling whisper, and for all the many variations of expression in between. Press forward with the front of your foot to increase the volume and back with your heel to decrease the volume. Practice using the Expression Pedal with a very slow and gradual pressure to secure a beautifully smooth flow of music, and to avoid sudden unmusical changes in volume. To begin, leave the Expression Pedal set halfway open.

♦ The Vibrato and Chorus Controls



- Original B-3 /C-3 Vibrato and Chorus Control Section -



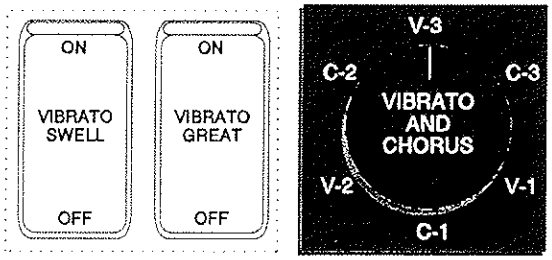
- New B-3 / C-3 Vibrato and Chorus Control Section -

If you are familiar with the original Hammond B-3, C-3, RT-3 or A-100 series organs, you may remember the rotary knob and two Vibrato ON / OFF tilt tablets that controlled the Vibrato and Chorus. The new B-3 / C-3 uses five Touch Tabs which control the Vibrato and Chorus.

The following is to show the relationship between the Vibrato and Chorus controls on the original models and on the new B-3 / C-3.

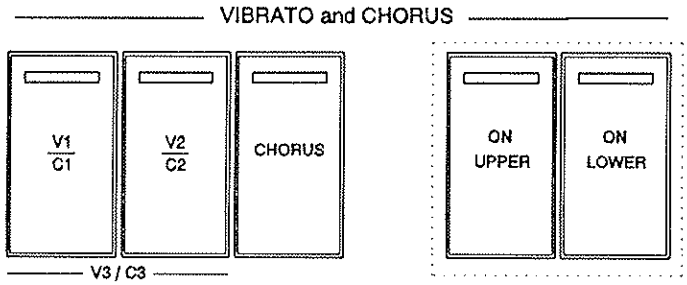
Vibrato and Chorus ON / OFF

The original B-3 and C-3 used tilt tabs marked, "Vibrato On Swell" (Upper) and "Vibrato On Great" (Lower) to turn the Vibrato / Chorus effect "ON" or "OFF".

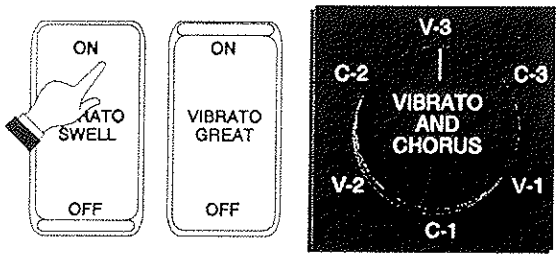


- Original B-3 / C-3 Vibrato and Chorus ON / OFF Tilt Tabs -

On the new B-3 / C-3, you select on which manual or manuals you wish to hear the Vibrato or Chorus effect by using the ON UPPER and/or ON LOWER Touch Tabs found in the Vibrato and Chorus control section.

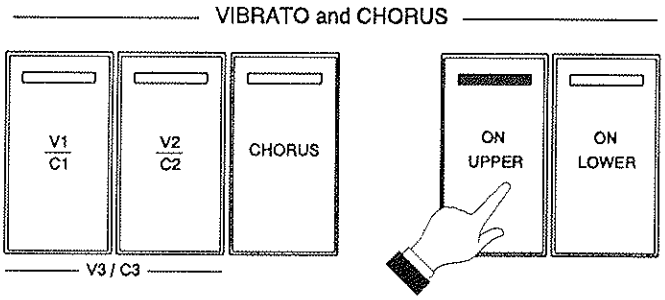


- New B-3 / C-3 Vibrato and Chorus ON / OFF Touch Tabs -



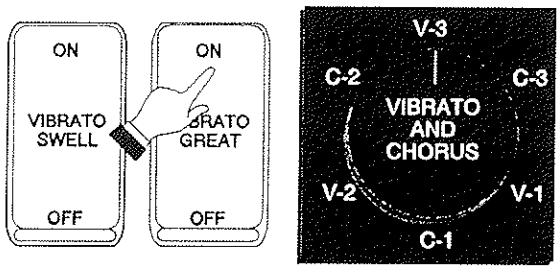
- Original B-3 / C-3 Vibrato and Chorus Swell "ON" -

To turn the Vibrato or Chorus effect "ON" for the Upper Manual of the original B-3 / C-3, you touch the top of the "Vibrato On Swell" tilt tab.



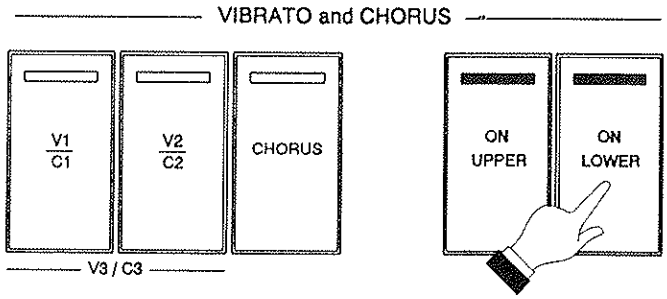
- New B-3 / C-3 Vibrato and Chorus Upper Manual "ON " -

To turn the Vibrato or Chorus effect "ON" on the Upper Manual of the new B-3 / C-3, you touch the ON UPPER Touch Tab "ON" (red LED lit).



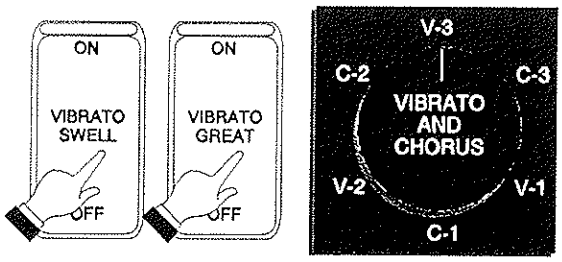
- Original B-3 / C-3 Vibrato and Chorus Great "ON" -

To turn the Vibrato or Chorus effect "ON" for the Lower Manual of the original B-3 / C-3, you touch the top of the "Vibrato On Great" tilt tab.



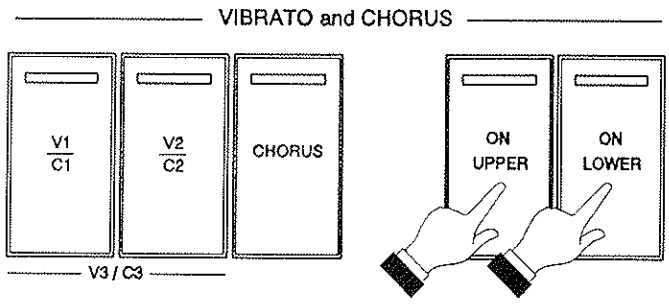
- New B-3 / C-3 Vibrato and Chorus Lower Manual "ON " -

To turn the Vibrato or Chorus effect "ON" for the Lower Manual of the new B-3 / C-3, you touch the ON LOWER Touch Tab "ON" (red LED lit).



- Original B-3 / C-3 Vibrato and Chorus "OFF" -

To turn the Vibrato or Chorus effect "OFF" for either the Swell (Upper), Great (Lower) or both manuals of the original B-3 / C-3, you touch the tilt tabs at the bottom.

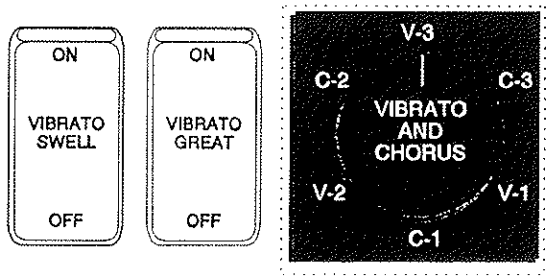


- New B-3 / C-3 Vibrato and Chorus "OFF" -

To turn the Vibrato or Chorus effect "OFF" for either the Upper or Lower Manual of the new B-3 / C-3, you simply touch the Touch Tabs "OFF" (red LED not lit).

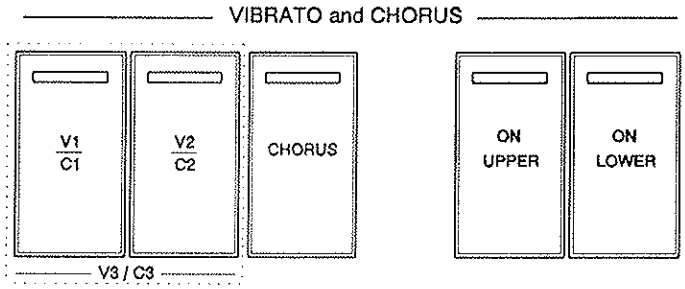
Amount of Vibrato and Chorus

The original B-3 / C-3 used a rotary knob to select the amount of Vibrato or Chorus by turning the knob and aligning the white line to the desired effect and amount.



- Original B-3 / C-3 Vibrato & Chorus Rotary Select Knob -

On the new B-3 / C-3 you use two Touch Tabs marked "V1/C1" and "V2/C2" in the Vibrato and Chorus control section. Simply touch the Touch Tab(s) to select the depth of Vibrato desired.

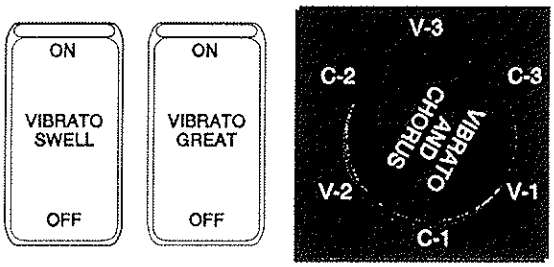


- New B-3 / C-3 Vibrato and Chorus ON / OFF Touch Tabs -

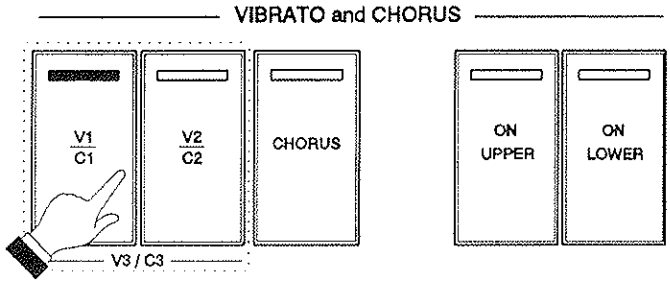
The following is to show the relationship between the original models B-3, C-3, RT-3 and A-100 rotary knob and the new B-3 / C-3 Vibrato controls.

Vibrato

V-1 (Small Vibrato)



- Original B-3 / C-3 V-1 or Vibrato 1 -



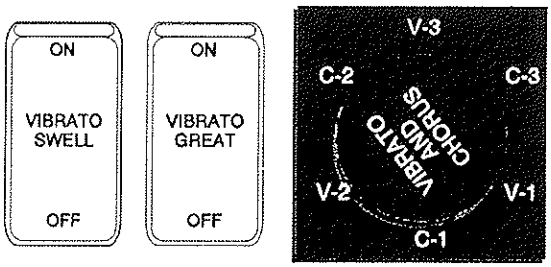
- New B-3 / C-3 V-1 or Vibrato 1 -

To select vibrato depth V-1 on the original B-3 / C-3, you turned the rotary knob to the desired position. This is the lightest depth and produces the vibrato equivalent of most orchestral solo instruments.

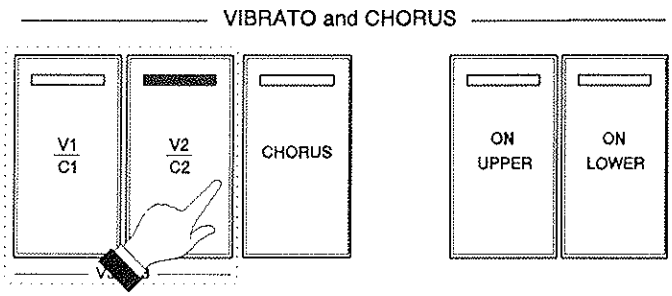
To select vibrato depth V-1 on the new B-3 / C-3, you simply touch the V1/C1 Touch Tab "ON" (red LED lit).

NOTE: One of the Vibrato/Chorus Touch Tabs is always "ON" (red LED lit) when the organ is turned on.

V-2 (Wide Vibrato)



- Original B-3 / C-3 V-2 or Vibrato 2 -



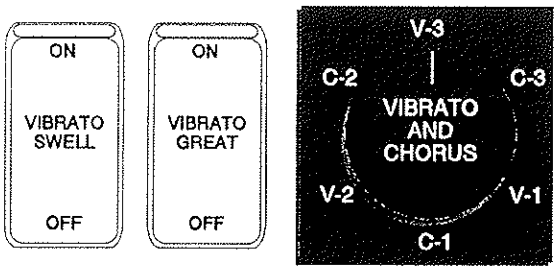
- New B-3 / C-3 V-2 or Vibrato 2 -

To select vibrato depth V-2 on the original B-3 / C-3, you turned the rotary knob to the desired position. This is the standard depth vibrato used with the Drawbars to produce the effect of a theater organ.

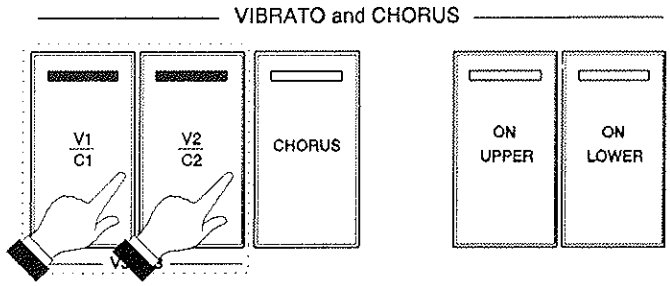
To select vibrato depth V-2 on the new B-3 / C-3, you simply touch the V2/C2 Touch Tab "ON" (red LED lit).

NOTE: One of the Vibrato/Chorus Touch Tabs is always "ON" (red LED lit) when the organ is turned on.

V-3 (Full Vibrato)



- Original B-3 / C-3 V-3 or Vibrato 3 -



- New B-3 / C-3 V-3 or Vibrato 3 -

To select vibrato depth V-3 on the original B-3 / C-3, you turned the rotary knob to the desired position. This is the fullest amount and adds much warmth and enhances your music.

To select vibrato depth V-3 on the new B-3 / C-3, you simply touch both the V1/C1 and V2/C2 Touch Tabs together and you will turn V-3 "ON" (both rec LED's lit).

NOTE: One of the Vibrato/Chorus Touch Tabs is always "ON" (red LED lit) when the organ is turned on.

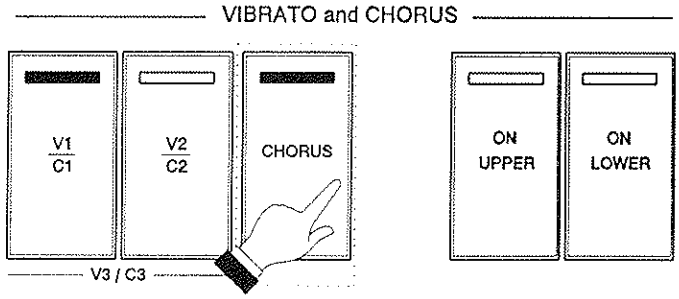
Remember, either one or both of the ON UPPER or ON LOWER Touch Tabs must be "ON" (red LED lit) to allow you to hear the selected Vibrato effect for each manual.

Touching the ON UPPER Touch Tab "ON" (red LED lit) will turn the Vibrato/Chorus effect "ON" for the Upper Manual.

Touching the ON LOWER Touch Tab "ON" (red LED lit) will turn the Vibrato/Chorus effect "ON" for the Lower Manual.

Chorus

To hear the Chorus effect on the new B-3 / C-3, turn "ON" the CHORUS Touch Tab in the Vibrato and Chorus control section.

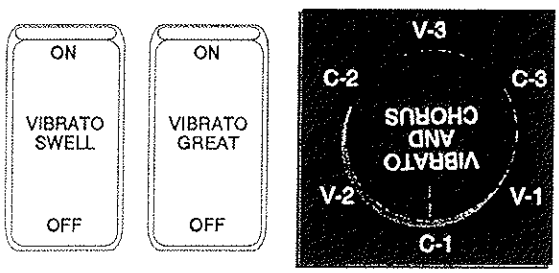


- New B-3 / C-3 Chorus ON / OFF Touch Tab -

When the CHORUS Touch Tab is used, *half* of the tone is heard without Vibrato, and *half* contains the vibrato amount selected by the first two Touch Tabs.

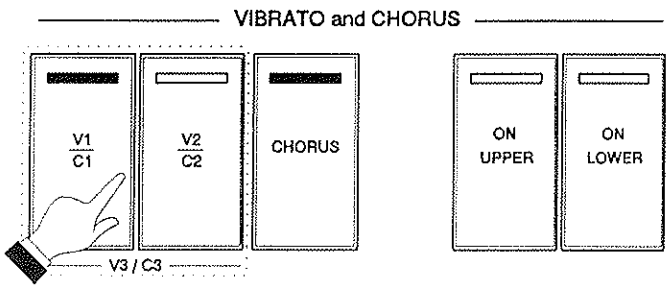
The following is to show the relationship between the original models B-3, C-3, RT-3 and A-100 rotary knob and the new B-3 / C-3 Chorus controls.

C-1 (Small Chorus)



- Original B-3 / C-3 Chorus 1 or C-1 -

To select chorus depth C-1 on the original B-3 / C-3, you turned the rotary knob to the desired position. This is the lightest depth, and produces the light chorus effect.

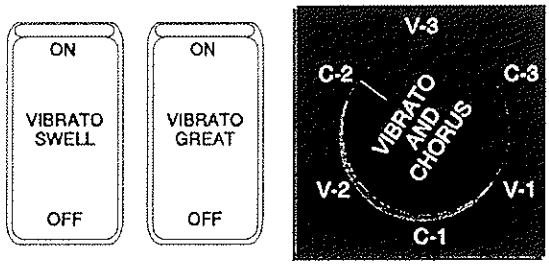


- New B-3 / C-3 Chorus 1 or C-1 -

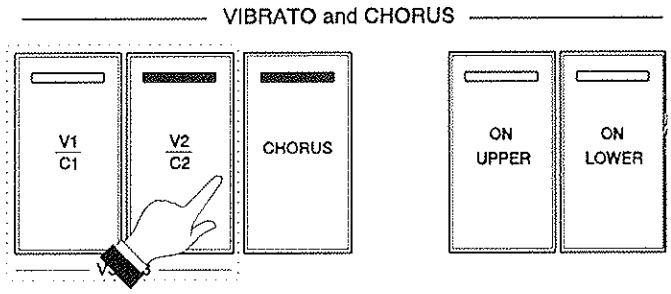
To select chorus depth C-1 on the new B-3 / C-3, you simply touch the V1/C1 and CHORUS Touch Tabs "ON" (both red LED's lit).

NOTE: One of the Vibrato/Chorus Touch Tabs is always "ON" (red LED lit) when the organ is turned on.

C-2 (Wide Chorus)



- Original B-3 / C-3 Chorus 2 or C-2 -



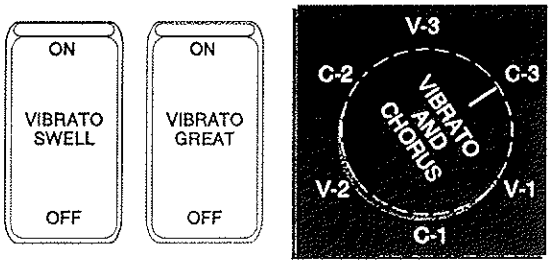
- New B-3 / C-3 Chorus 2 or C-2 -

To select chorus depth C-2 on the original B-3 / C-3, you turned the rotary knob to the desired position. This is the standard depth of the chorus effect.

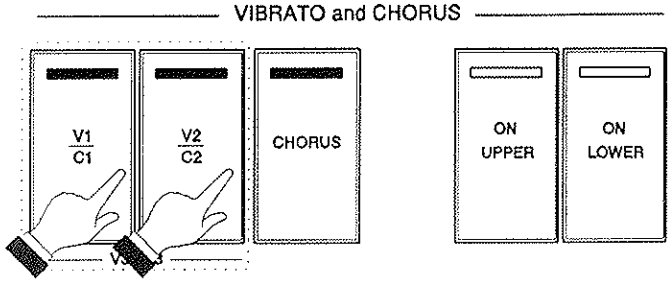
To select chorus depth C-2 on the new B-3 / C-3, you simply touch the V2/C2 and CHORUS Touch Tabs "ON" (both red LED's lit).

NOTE: One of the Vibrato/Chorus Touch Tabs is always "ON" (red LED lit) when the organ is turned on.

C-3 (Full Chorus)



- Original B-3 / C-3 Chorus 3 or C-3 -



- New B-3 / C-3 Chorus 3 or C-3 -

To select chorus depth C-3 on the original B-3 / C-3, you turned the rotary knob to the desired position. This is the fullest amount.

To select chorus depth C-3 on the new B-3 / C-3, you simply touch the V1/C1, V2/C2 and CHORUS Touch Tabs "ON" (three red LED's lit).

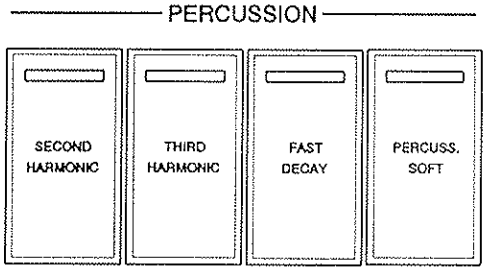
NOTE: One of the Vibrato/Chorus Touch Tabs is always "ON" (red LED lit) when the organ is turned on.

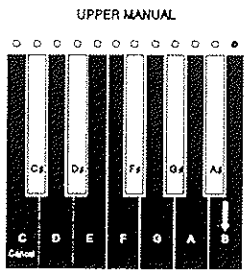
Remember, either one or both of the ON UPPER or ON LOWER Touch Tabs must be "ON" (red LED lit) to allow you to hear the selected Chorus effect for each manual.

Touching the ON UPPER Touch Tab "ON" (red LED lit) will turn the Vibrato/Chorus effect "ON" for the Upper Manual.

Touching the ON LOWER Touch Tab "ON" (red LED lit) will turn the Vibrato/Chorus effect "ON" for the Lower Manual.

♦ Percussion





The Percussion tones are normally available only with the second group of Upper Manual Drawbars. Thus the "B" Preset Key must be active (LED lit) to obtain Percussion.

The four Touch Tabs controlling the Percussion tones are located to the right of the Drawbars above the Upper Manual. The first two Touch Tabs determine the pitch at which the Percussion tones sound. (Be sure to depress Preset Key "B".)

NOTE: When either of these Touch Tabs are "ON" (red LED lit), all of the second group Upper Manual Drawbars will be effective except the 8th Harmonic Drawbar (last white Drawbar). When Percussion is "OFF", the 8th Harmonic Drawbar is effective as usual.

Second Harmonic

This Touch Tab causes the Percussion tone to sound up one octave with respect to the Fundamental Drawbar (first white Drawbar).

Third Harmonic

This Touch Tab causes the Percussion tone to sound up an octave and a fifth with respect to the Fundamental Drawbar.

Fast Decay

When this Touch Tab is "OFF" (LED not lit), the Percussion tone will decay (die away) slowly like a chime. When FAST DECAY is "ON" (LED lit) the Percussion effect will decay rapidly like a xylophone or glockenspiel.

Percussion Soft

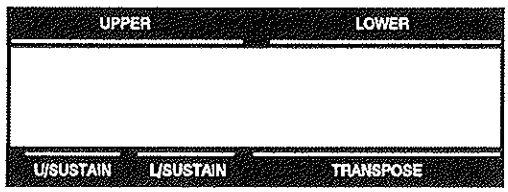
When this Touch Tab is "OFF" (LED not lit), the Percussion effect will be very prominent. You will also notice that the Upper Manual Drawbar tones are reduced in volume to compensate for the addition of the Percussion tones. When this Touch Tab is "ON" (LED lit), the Percussion effect is much less prominent. The Upper Manual Drawbar volume remains unaffected by the addition of the PERCUSS. SOFT Touch Tab.

Hammond Organ Model XB-3/XC-3

Information Center Display

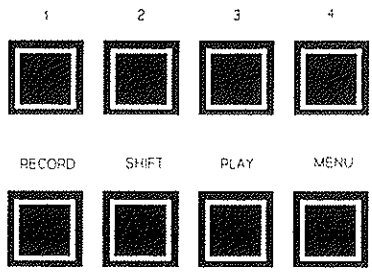
INFORMATION CENTER DISPLAY

The Drawbars, Touch Buttons, Touch Tabs, Rotary Controls and Wheeled Controls control the operations necessary for performance on the organ. Advanced Features such as Drawbar Voice Mode, Sustain Length, Attack Mode, etc., are accessed using the Information Center Display. This allows you to see and make changes.



♦ Touch Button Functions

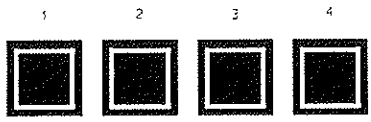
Below the display window are two rows of four black Touch Buttons.



These buttons have functions that change automatically as different modes and menus are used. These basic functions are:

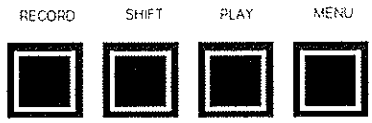
1. Turning something ON or OFF.
2. Modification of parameters - increasing or decreasing.
3. Selecting among multiple functions.
4. Confirmation - YES, NO or OK.
5. Formatting, Loading from and Saving to a Hammond RAM Card.

♦ Touch Buttons - Top Group



The Information Center Display has two basic modes of operation - PLAY Mode and MENU Mode. When using Menu Mode, these 4 Touch Buttons, marked 1 through 4, allow you to choose from among the various Menu choices in each screen. Menu Mode is explained starting on page 31.

♦ Touch Buttons - Bottom Group



These 4 Touch Buttons, marked RECORD, SHIFT, PLAY and MENU, allow you to choose from among the various options for using the Information Center Display. The following is a very brief explanation of each of these Touch Buttons.

RECORD - This Touch Button allows you to save Registrations and certain Advanced Feature settings to each of the Presets.

SHIFT - Using this Touch Button will allow you to page through the various choices within each Menu. The use of the SHIFT Select Touch Button will be explained in greater detail throughout the different Menus.

PLAY - This Touch Button allows you to place the Information Center Display into one of the 3 Play display modes. When in the Play mode, you can see the current Upper and Lower Manual Drawbar settings, Upper and Lower Sustain status and the current Transposition setting.

MENU - This Touch Button allows you to access each of the 6 Advanced Feature Menu pages.

As stated earlier in the **Introduction** and on the previous page, there are two basic modes of the Information Center Display - PLAY Mode and MENU Mode. The following is only the basic levels and NOT a complete explanation of all the functions. Detailed information for every function of the menus is given in each chapter of this Owner's Playing Guide as needed.

> **IMPORTANT:** It is assumed at this point that you have just turned the organ "ON" and have not touched either the PLAY or MENU Touch Buttons. If you have, please turn the organ "OFF", wait 5 seconds and turn it back "ON". Also the Drawbars should be "OFF" (pushed "in") so no numbers are showing.

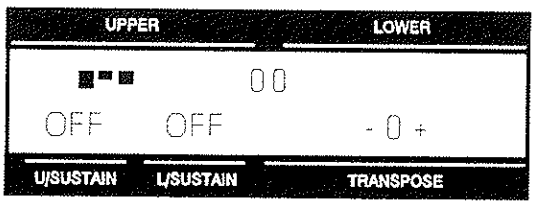
♦ Play Mode

There are three (3) screen displays to the Play Mode - Graphic with parameters, Numeric with parameters and Graphic without parameters.

Play Mode - Graphic Display with parameters.

Turn the instrument "ON". The LCD screen should look like this when it is first turned on. This information is only displayed for a short time.

Once the "WELCOME" message has disappeared, Touch the Upper Manual "C♯" Preset Key. The display screen of your instrument should now look similar to this:



The upper half of the display shows the following information from left to right:

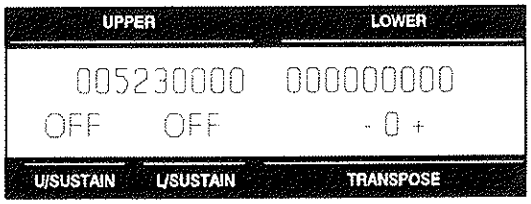
1. Upper Manual graphic Drawbar settings.
2. Lower Manual graphic Drawbar settings.
3. Pedal Numeric settings

The bottom half of the display shows the following information from left to right:

1. Upper Manual Sustain "OFF" or "ON".
2. Lower Manual Sustain "OFF" or "ON".
3. Transposition setting (how many half-steps up or down).

Play Mode - Numeric Display with parameters.

Next, touch the black PLAY Select Touch Button. The Information Center Display should now show the following:



Now you are in the Numeric Display of the Play Mode.

The upper half of the display shows the following information from left to right:

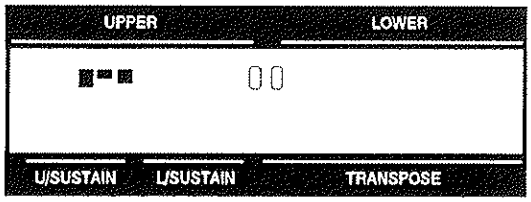
1. Upper Manual Numeric Drawbar settings.
2. Lower Manual Numeric Drawbar settings.
3. Pedal Graphic settings.

The bottom half of the display shows the following information from left to right:

1. Upper Manual Sustain "OFF" or "ON".
2. Lower Manual Sustain "OFF" or "ON".
3. Transposition setting (how many half-steps up or down).

Play Mode - Graphic Display without parameters.

Touch the black PLAY Select Touch Button once again. The Information Center Display should now show the following:



The upper half of the display shows the following information from left to right:

1. Upper Manual Graphic Drawbar settings.
2. Lower Manual Graphic Drawbar settings.
3. Pedal Numeric settings.

The bottom half of the display screen is now blank. This is so as not to change the parameter values by mistake.

Touching the black PLAY Select Touch Button again will return to the initial Graphic Mode display.

Normally when playing the organ, the Information Center Display should be set for one of the PLAY display modes.

♦ Menu Mode

There are 6 Levels or screens to the Menu Mode. Each of these levels or screens has Advanced Features. These Advanced Features allow you to change parameters, save or load data to and from RAM cards, turn something "OFF" or "ON", etc. These functions are explained in detail throughout this Owner's Playing Guide.

♦ Menu A

If you touch the black MENU Select Touch Button once from any of the Play Mode screens, the Information Center Display should look like this for the A Screen of the Menu Mode:

Four (4) choices from 1 through 4 should now appear in the display window with the letter A in the upper left hand corner.

Touching a numbered black Select Touch Button will enter the Information Center Display into an Advanced Feature selection.

This is a brief explanation of these 4 Sub-Screen functions:

A-1 DRAWBAR - Allows you to modify the characteristics of the Drawbars. (See page 50.)

A-2 VIBRATO - Allows you to set the Speed of the Vibrato for Upper and Lower Manuals. (See page 80.)

A-3 ATTACK - Allows you to set the amount of Key Click for Upper and Lower Manuals and Pedal Keyboard, as well as Normal or Slow Attack for Upper and Lower Manuals and Pedal Keyboard. (See page 66.)

A-4 SUSTAIN - Allows you to set the Sustain Length for Upper and Lower Manuals and Pedal Keyboard. (See page 89.)

♦ Menu B

From the A screen of the Menu Mode, Touch the black MENU Select Touch Button once. The Information Center Display should look like this for the B Screen of the Menu Mode:

Four (4) choices from 1 through 4 should now appear in the display window with the letter B in the upper left hand corner.

Touching a numbered black Select Touch Button will enter the Information Center Display into an Advanced Feature selection.

This is a brief explanation of these 4 Advanced Feature functions:

B-1 PERCUSS - Allows you to change the characteristics of the Percussion. (See page 70.)

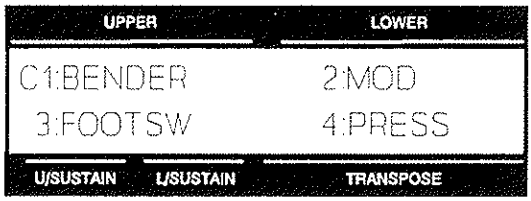
B-2 TUNE - Allows you to fine-tune the overall pitch of the entire organ up or down, and select the tuning temperament for the entire organ. (See page 118.)

B-3 KEYMAP - Allows you to set the Upper and Lower limits of each division of the instrument when transmitting via MIDI. (See the MIDI Reference Guide.)

B-4 KEYCHNG - Allows you to determine the desired octave offset of each division of the instrument when transmitting via MIDI. (See the MIDI Reference Guide.)

◆ Menu C

From the B screen of the Menu Mode, Touch the black MENU Select Touch Button once. The Information Center Display should look like this for the C Screen of the Menu Mode:



Four (4) choices from 1 through 4 should now appear in the display window with the letter C in the upper left hand corner.

Touching a numbered black Select Touch Button will enter the Information Center Display into an Advanced Feature selection.

This is a brief explanation of these 4 Advanced Feature functions:

C-1 BENDER - Allows you to set the Upper and Lower limits of the Pitch Wheel for Upper and Lower Manuals and Pedal Keyboard. (See page 125.)

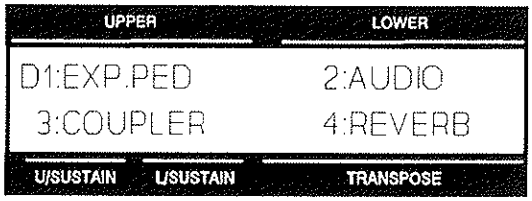
C-2 MOD - Allows you to set the characteristics for the Modulation Wheel. (See page 129.)

C-3 FOOTSW - Allows you to program the functions of two Foot Switches. (See page 137.)

C-4 PRESS - Allows you to select different functions for the Key Pressure (After Touch). (See page 141.)

♦ Menu D

From the C screen of the Menu Mode, Touch the black MENU Select Touch Button once. The Information Center Display should look like this for the D Screen of the Menu Mode:



Four (4) choices should now appear in the display window with the letter D in the upper left hand corner.

Touching a numbered black Select Touch Button will enter the Information Center Display into an Advanced Feature selection.

This is a brief explanation of these 4 Advanced Feature functions:

D-1 EXP.PED - Allows you to set the characteristics of the Expression Pedal. (See page 153.)

D-2 AUDIO - Allows you to set Tube Overdrive level, as well as set Leslie Channels. (See pages 93, 85.)

D-3 COUPLER - Allows you to set the characteristics of the Coupler (PEDAL TO LOWER and LOWER TO PEDAL) controls. (See page 158.)

D-4 REVERB - Allows you to select from among different Reverb programs. (See page 97.)

♦ Menu E

From the D screen of the Menu Mode, Touch the black MENU Select Touch Button once. The Information Center Display should look like this for the E Screen of the Menu Mode:

Four (4) choices should now appear in the display window with the letter E in the upper left hand corner.

Touching a numbered black Select Touch Button will enter the Information Center Display into an Advanced Feature selection.

This is a brief explanation of these 4 Advanced Feature functions:

E-1 MIDISYS - Allows you to set the overall MIDI parameters for the instrument, excluding MIDI Channel information. (See the MIDI Reference Guide.)

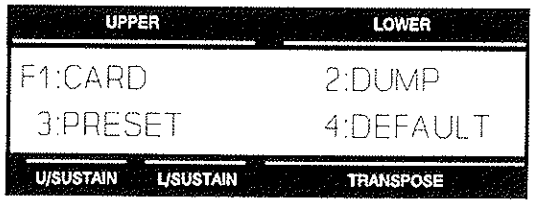
E-2 MIDI.CH - Allows you to set MIDI Channels information for the instrument. (See the MIDI Reference Guide.)

E-3 PROGRAM - Allows you to set MIDI Program information for the instrument. (See the MIDI Reference Guide.)

E-4 CONTROL - Allows you to set MIDI Controller information for the instrument. (See the MIDI Reference Guide.)

♦ Menu F

From the E screen of the Menu Mode, Touch the black MENU Select Touch Button once. The Information Center Display should look like this for the F Screen of the Menu Mode:



Four (4) choices should now appear in the display window with the letter F in the upper left hand corner.

Touching a numbered black Select Touch Button will enter the Information Center Display into an Advanced Feature selection.

This is a brief explanation of these 4 Advanced Feature functions:

F-1 CARD - Allows you to utilize a Hammond RAM Card for external data storage. (See Using the RAM Card, starting on page 163.)

F-2 DUMP - Allows you to perform a MIDI Data Dump to a MIDI data recorder or to another XB-3 or XC-3. (See the MIDI Reference Guide.)

F-3 PRESET - Allows you to determine the characteristics of the Preset Keys, such as whether you want to record Drawbar settings, MIDI Data settings, or both. (See page 106.)

F-4 DEFAULT - Allows you to perform a System All Reset of the instrument, as well as determine the default settings for the Preset Keys. (See pages 37, 111.)

Touch the black MENU Select Touch Button again and Menu A will reappear.

These are the Menu Mode functions. Their operation is discussed in greater detail under separate sections of this Owner's Playing Guide.

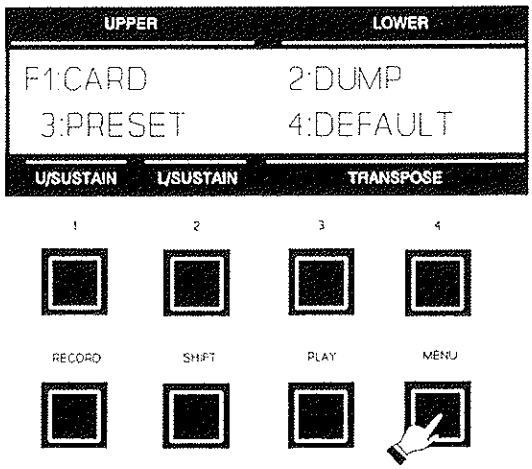
NOTE: When using the Information Center Display to access Advanced Features, you may notice a capital "S" in the lower right-hand corner of the display. This indicates that the selected Advanced Feature function has more than one selection. In this case, the different selections are accessed by touching the black SHIFT Select Touch Button.

♦ Reset Procedure

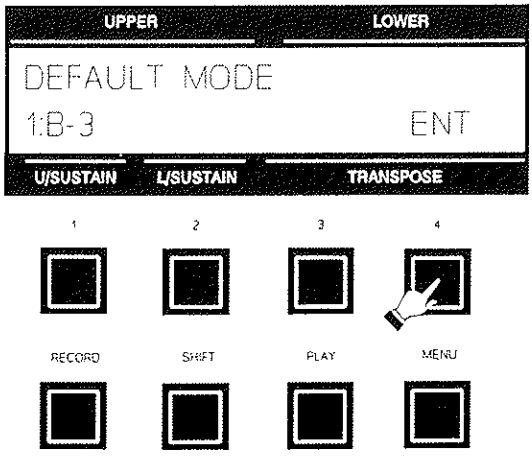
WARNING!: Doing the following procedure will erase all parameters, settings and registrations, returning the organ to the original Hammond factory default settings.

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the F Screen of the Menu Mode is displayed:



2. Touch the black Number 4 Select Touch Button. The Information Center Display should look like this:



3. Touch the black Number 4:ENT Select Touch Button to Reset the organ to its default settings. If you DO NOT wish to Reset, touch either the black MENU or PLAY Select Touch Button.

NOTE: The message, "1:B-3" in the Information Center Display refers to the fact that the black Number 1 Select Touch Button can be used to change the default settings for the Preset Keys. This will be explained under "Default Preset Settings" in the Preset section of this Owner's Playing Guide starting on page 111.

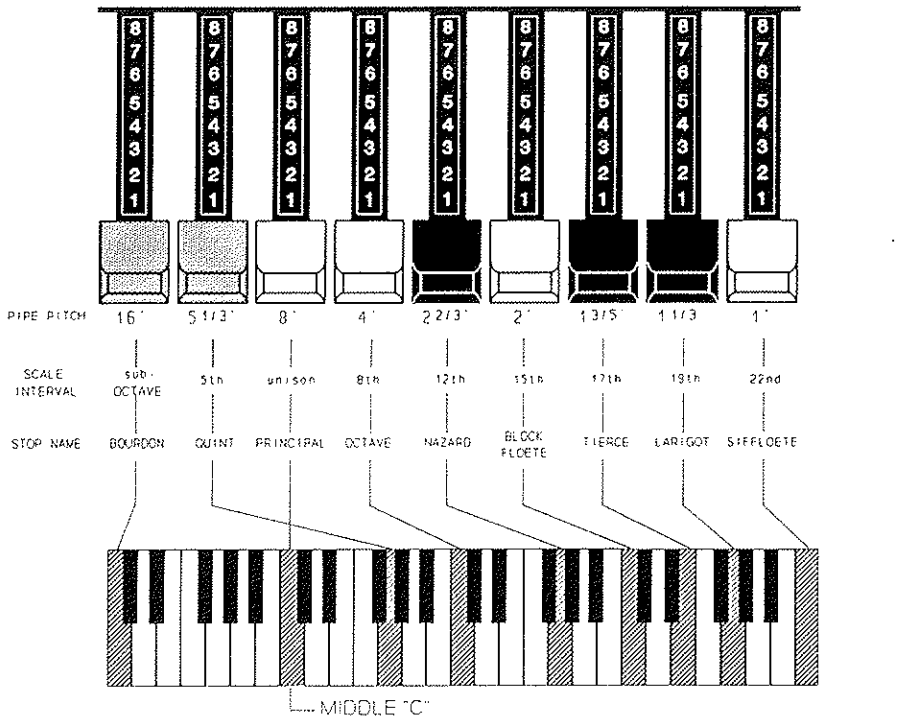
Hammond Organ Model XB-3/XC-3

Drawbars & Percussion

DRAWBARS

Your Hammond Organ has 4 sets of nine Drawbars, two for each manual. Drawbars, often called Tonebars, are the heart and the basis of the renowned Hammond Sound and have been used since the first Hammond Organ Model A introduced in 1935.

There are approximately 253,000,000 possible sound combinations that can be produced by these Drawbars. Each Drawbar consists of sine waves of different pitches (which means tone depth). The illustration below shows how each Drawbar relates to the manual when middle "C" is pressed.

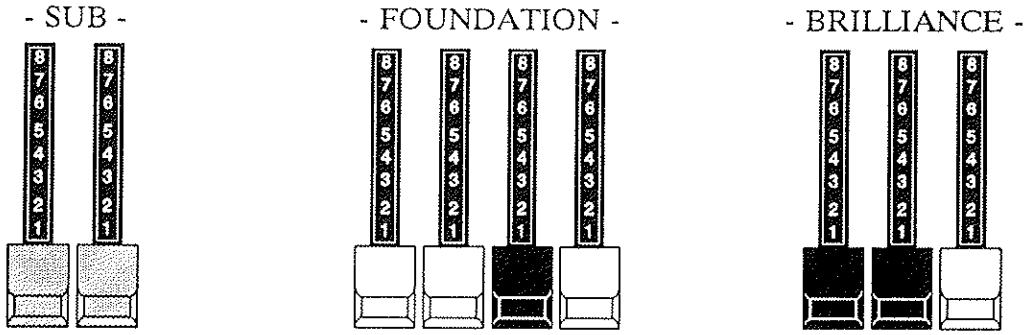


Each Drawbar is marked with a number followed by a footage mark. For example, the first white drawbar is marked "8'". This is pipe organ terminology indicating that the pipe used to produce the lowest note on the keyboard on a pipe organ is actually eight feet long. The numbers from "1" to "8" on each Drawbar represent degrees of loudness - number 1 being the softest, and number 8 being the loudest.

Drawbars are divided into 3 groups of sound as well as 3 groups of color. We will first look at the 3 sound groups.

♦ Sound Groups

You may think of these sound groups in terms of the three levels - The Sub being the deep pitches, the Foundation being the mid range of pitches and the Brilliance being the high pitches.



TRY THIS:

1. Make sure all Drawbars are "IN" (off).

2. Touch the "B" Preset Key on the Upper Manual. The red LED should light.

3. Hold down a "C" chord, starting with "E" above middle "C", ("E", "G" & "C" notes) with your right hand on the Upper Manual.

4. Starting with the 8' Drawbar in the second group of Drawbars for the Upper Manual, pull out and push in each of the Upper Manual Foundation Drawbars one group at a time until you have a sound that you like.

5. While still holding the "C" chord down, pull each of the Upper Manual brown Sub Drawbars out until you like the sound.

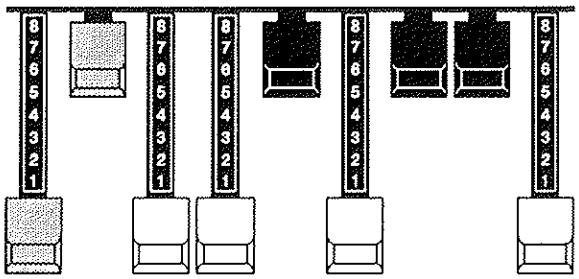
6. Now do the same with the Upper Manual Brilliance Drawbars.

It's that easy to create your own custom Drawbar settings.

♦ Color Groups

White Drawbars

The first white Drawbar represents the "fundamental" or "8' base" tone. All of the other white Drawbars are octave intervals or harmonics of the fundamental tone. The tonal brilliance is greatly increased by adding white Drawbars, but the harmonics added are always in "consonance" or harmony.



CONSONANT HARMONICS

TRY THIS:

1. Make sure all Drawbars are pushed "In" (off).

2. Touch the "B" Preset Key on the Upper Manual. The red LED should light.

3. Hold down middle "C" on the Upper Manual.

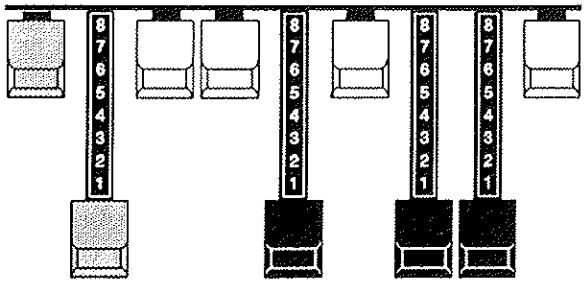
4. Pull the first white Drawbar in the second group for the Upper Manual, marked 8', all the way out.

5. Now, one by one, pull the other Upper white Drawbars out in sequence.

As you add each Drawbar, you will hear the addition of the same note an octave higher in each case.

Black Drawbars

The Black Drawbars on the Hammond Organ represent the dissonant (discordant) harmonics which are also necessary in building rich tone colors. The mellowness of a horn, the pungency of strings, and the brilliance of reed voices owe much of their character to the presence of these harmonics in different degrees.



DISSONANT HARMONICS

TRY THIS:

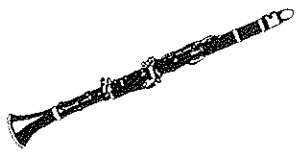
1. Make sure all Drawbars are pushed "in".

2. Touch the "B" Preset Key on the Upper Manual. The red LED should light.

3. Hold down middle "C" on the Upper Manual.

4. Pull the first white Drawbar in the second group of Drawbars for the Upper Manual, marked 8', all the way out.

5. Now pull the 3 Black Drawbars in the second group of Drawbars for the Upper Manual all the way out.



The sound produced by the Drawbars is that of a clarinet.

Brown Drawbars

In addition to the white and black Drawbars, there are two brown Drawbars in the group. These two Drawbars produce "sub-octave" effects. The first brown Drawbar is the sub-octave of the fundamental 8' Drawbar. It is "one octave" lower in sound.

TRY THIS:

1. Make sure all Drawbars are pushed "in".

2. Touch the "B" Preset Key on the Upper Manual. The red LED should light.

3. Hold down middle "C" on the Upper Manual.

4. Pull the first white Drawbar in the second group of Drawbars for the Upper Manual, marked 8', all the way out.

5. While continuing to hold middle "C" down, pull the first brown Drawbar in the second group of Drawbars for the Upper Manual, marked 16', all the way out.

You will now hear the sound of "C" one octave lower being added.

The second brown Drawbar is the "sub-octave" of the third harmonic. Both of these Drawbars are used to add depth and richness to many combinations. They also increase the range of the manual by one octave since a solo registration of the "8 foot," or normal pitch, can be set up using the first brown Drawbar as the fundamental and played one octave higher.

TRY THIS:

1. Make sure all Drawbars are pushed "in".

2. Touch the "B" Preset Key on the Upper Manual. The red LED should light.

3. Hold down middle "C" on the Upper Manual.

4. Pull the first white Drawbar in the second group of Drawbars for the Upper Manual, marked 8', all the way out.

5. While continuing to hold middle "C" down, pull the first brown Drawbar in the second group of Drawbars for the Upper Manual, marked 16', all the way out. You will now hear the sound of "C" one octave lower being added.

6. Now pull the second brown Drawbar in the same group out, and you will hear it add a richness to the sound of the "C" note that you are holding down.

♦ Tone Families By Shape

Regardless of the size of a pipe organ or its number of stops, all of its voices are related to four basic families of tone. The four basic families - Flute, Reed, String and Diapason - can be quickly set up on the Drawbars by relating a pattern or shape to each family.

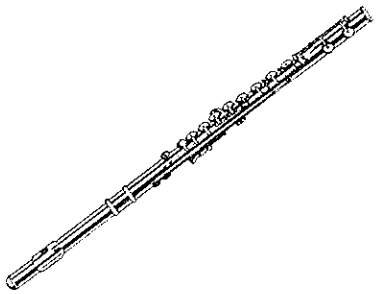
These are the generalities which apply to the tonal resources of the organ, and in themselves produce pleasant and usable effects. However, real beauty of tone is secured in two ways. The first way is to use registrations which have been devised by organists. The second way, and eventually the one that best expresses your own feeling for the music, is to create your own tonal effects, experimenting with and perfecting tones which you use to play your favorite selections.

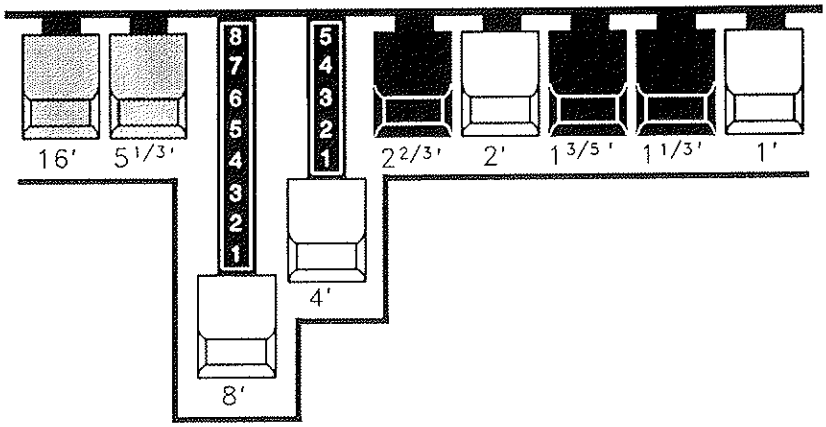
The Hammond Organ Drawbars allow you not only to set up any tonal effect you want, but also to make many fine variations of the tone. Only with the Hammond Drawbars can you play exactly the shade of tone you want for every selection and, perhaps even more important, for every size and type of room in which you play.

With the Hammond Organ Drawbars, a touch of a finger is all that is needed to make the tone quality softer or more brilliant, richer in one harmonic or another.

Typical Drawbar Registration Patterns For The Four Families Of Organ Sound

◆ Flute family (2 step pattern)





A Basic Flute Tone

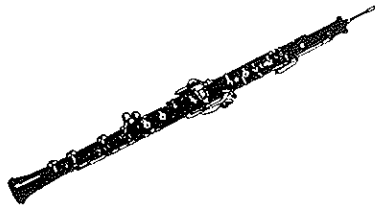
There are literally hundreds of flute tones available on the Hammond Organ, in contrast to other types of organs on which you can play only one or perhaps two or three tones which are set up at the factory. By simply changing the relative positions of the 8' and 4' Drawbars to 00 3700 000, you can create a light concert type of flute. Or by closing the 4' Drawbar altogether and adding a little of the $2^2/_3$' Drawbar plus a heavier fundamental, you can get a solo tibia - 00 8020 000.

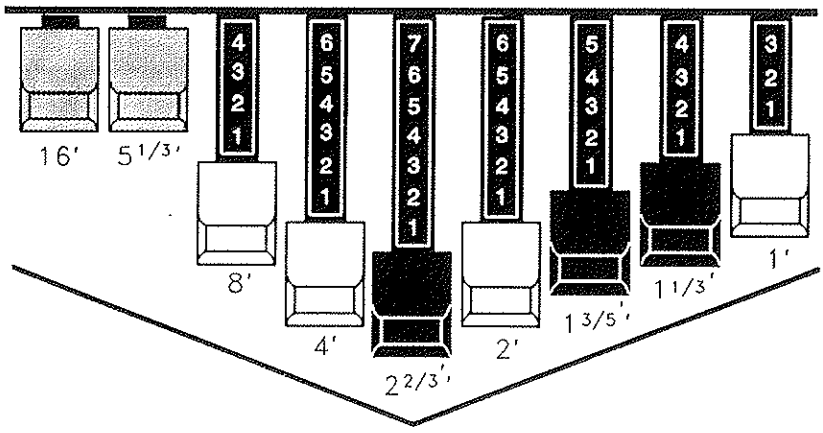
Any combination of white Drawbars provides various flute tones; the first brown Drawbar adds depth.

Flute Tones

Accompaniment Flute 8'	00 8460 000
	00 3220 000
	00 8600 000
Blokflote 8'	00 5310 000
Blokflote 4'	00 0503 010
Chorus of Flutes 16'	80 8605 002
Concert Flute 8'	00 6300 000
Flute 8'	00 6201 000
Flute 4'	00 0602 001
Flute 2'	00 0106 004
Flute (Organ type) 16'	50 3000 000
Flute (Organ type) 8'	00 5300 000
Flute (Organ type) 4'	00 0503 000
Flute (Organ type) 2'	00 0005 000
Nazard 2 2/3	00 0030 000
Open Flute 8'	00 7510 000
Orchestral Flute 8'	00 3831 000
Piccolo 2'	00 0006 003
Principal Flute 8'	00 8530 000
Stopped Flute 8'	00 5020 000
Tibia 8'	00 7030 000
Tibia 4'	00 0700 030
Tibia (Solo) 8'	00 8020 000
Tibia (Theater) 16'	80 8605 004
Wooden Open Flute 8'	00 8840 000

♦ Reed family (triangle pattern)





A Basic Reed Tone

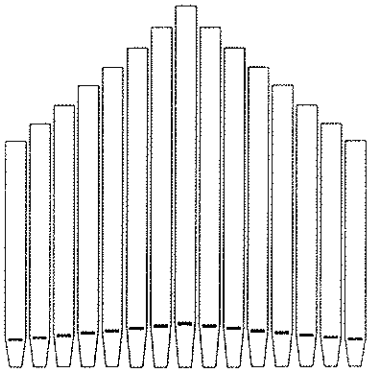
The reeds are more brilliant and numerous than any other tone group. Many are used as solo stops because of their strong personalities.

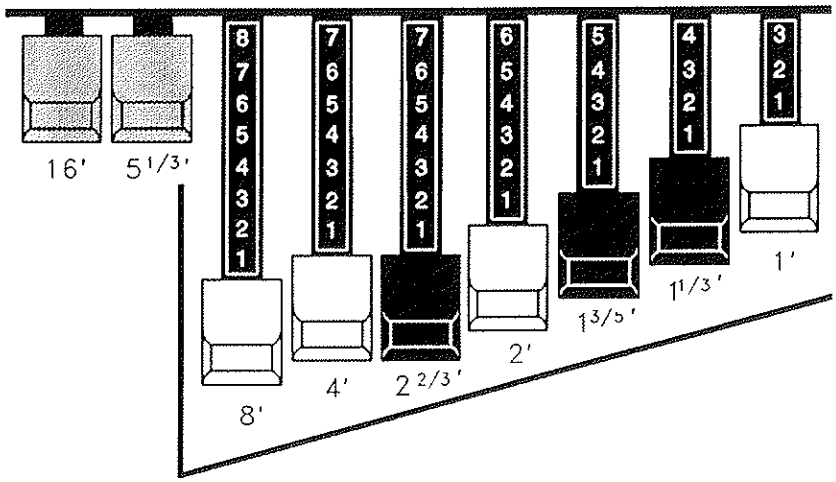
Reed tones include the brasses and woodwinds. The tones of the woodwinds are created by vibrating reeds. The oboe, a typical reed tone, is obtained by emphasizing the Drawbars in the middle of the group, with nearly as much of the first black Drawbar as the fundamental itself. Use of the first black Drawbar is typical of many reed registrations. It creates a "triangle" pattern that is easy to remember. The triangle pattern of a less powerful registration, 00 2333 200, is a useful accompaniment tone.

Reed Tones

Bassoon 16'	44 7000 000
Bassoon 8'	08 7500 000
Bombarde 16'	86 8400 000
Chorus Reed 8'	00 7777 750
Clarinet 8'	00 6070 540
Clarinet 8'	00 6060 300
English Horn 8'	00 3682 210
Flugel Horn 8'	00 5777 530
French Horn	00 7654 321
Kinura 8'	00 0172 786
Oboe (Orchestral) 8'	00 4764 210
Oboe (Organ type) 8'	00 4571 320
Oboe Horn 8'	00 4675 210
Post Horn 8'	00 6677 530
Reed Chorus	63 8888 863
Saxophone 16'	86 7100 000
Saxophone 8'	01 8762 431
Trombone 8'	01 8777 530
Trumpet (Orchestral) 8'	00 6788 650
Trumpet (Organ type) 8'	00 7677 320
Tuba (Organ type) 16'	88 8864 000
Tuba (Organ type)	03 6888 760
Tuba Sonora 8'	02 7788 640
Vox Humana 16'	33 6045 000
Vox Humana 8'	00 4720 123

♦ Diapason family (check mark pattern)





A Basic Diapason Tone

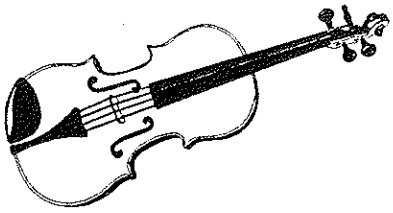
All diapason tones are characterized by a strong fundamental and second harmonic with relatively weak upper harmonics. Diapason tones are more affected by good or bad acoustics than are the tones of more pronounced character. Registration that is good in one location may not be satisfactory in another. The "phonon" type of diapason was developed on pipe organs by designers who wanted to produce a soft foundation tone.

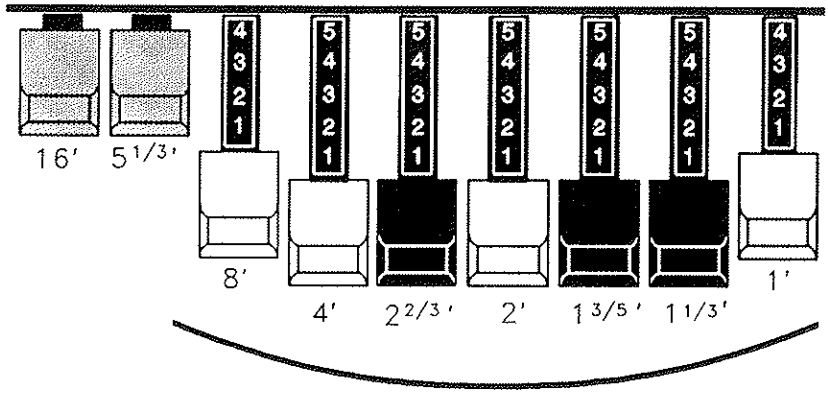
In discussing tone as a structure, diapason tones lie between the flute tones, which are almost devoid of upper harmonics, and the string tones, which are characterized by strong upper harmonic development.

Diapason Tones

Accomp. Diapason 8'	00 8874 210
Chorus Diapason 16'	84 8421 000
Chorus Diapason 8'	00 8686 310
Chorus Diapason 4'	00 0806 085
Diapason 8'	00 7785 321
	00 7783 210
Diapason Chorus 8'	61 8855 424
Echo Diapason 16'	43 4421 000
Echo Diapason 8'	00 4434 210
Harmonic Diapason 16'	85 8524 100
Harmonic Diapason 8'	00 8877 760
Harmonic Diapason	00 8678 453
Harmonic Diapason	00 6546 532
Harmonic Diapason 4'	00 0606 045
Horn Diapason 16'	77 7621 000
Horn Diapason 8'	00 8887 480
Open Diapason 8'	01 8866 430
Open Diapason	00 8745 423
Open Diapason	01 6655 320
Solo Diapason 16'	85 8544 000
Solo Diapason 8'	01 8855 331
Solo Diapason 4'	00 0818 055
Wood Diapason 16'	82 7311 000
Wood Diapason 8'	00 7754 321

♦ String family (bow pattern)





A Basic String Tone

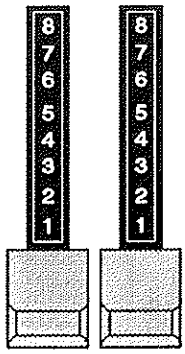
The fourth and last of the organ "family" groups is the string family, both organ and orchestral. String tone qualities are characterized by especially strong upper harmonic development. The fundamental and second harmonic structure is the opposite of flutes.

There are many hundreds of possible string tone registrations. Every string tone can be made either "dull" or "bright" by varying the amount of the upper harmonics. In fact, the string family, considered the most versatile of the four tone families, can be soft or loud, single strings or groups and used as solos or accompaniments.

String Tones

Cello 8′	00 3564 534
Cello 8′	00 3564 211
Dulciana 8′	00 7770 000
Gamba 8′	00 3484 443
Gamba 8′	00 3474 121
Gemshorn 8′	00 4741 321
Gross Gamba 8′	00 4786 543
Harmonica (Organ type) 8′	00 1233 321
Keen Strings 8′	00 1687 664
Muted String 8′	00 2452 010
Orchestral String 8′	00 1464 321
Salicional 16′	25 4321 000
Salicional 8′	00 2453 321
Salicional 4′	00 0204 052
Soft String 16′	13 3210 000
Soft String 8′	00 1332 320
Solo Cello 8′	00 3485 543
Solo Viola 8′	00 2474 341
Solo Violin 8′	00 3654 324
String Organ	22 5787 765
String Organ	22 4767 765
Viola da Gamba 8′	00 2465 432
Violin 8′	00 2334 434
Violin 8′	00 2382 233
Violin 8′	00 2476 264
Violina 4′	00 0103 064
Violine 16′	26 3431 000

♦ Pedal Drawbars



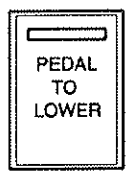
The two brown Drawbars located between the Drawbars for the Upper and Lower Manuals control the sounds produced by the Pedal Keyboard. The first Pedal Drawbar produces a tone at 16' pitch for a deep foundation bass, while the second Pedal Drawbar produces a tone at 8' pitch, or one octave higher.

♦ Sustain - Pedal

This Touch Tab is located on the extreme right of the front panel. When this Touch Tab is "ON", the Pedal tones will sound when a pedal is pressed, and then fade away gradually when the pedal is released.

NOTE: The default Sustain Length for Upper and Lower Manuals and Pedal Keyboard is "MID". However, the Sustain length can be set to "SHORT", "MID" or "LONG" for both manuals and pedals by using the SUSTAIN Advanced Feature.

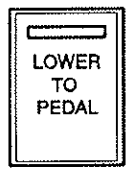
♦ Pedal To Lower



This Touch Tab is located to the left of the Upper Manual Preset Keys. When this Touch Tab is "ON", the tones produced by the Pedal Drawbars will sound from the Lower Manual starting with the lowest "C" (1C) and ending with the "C" two octaves above (3C), giving a total of 25 bass notes.

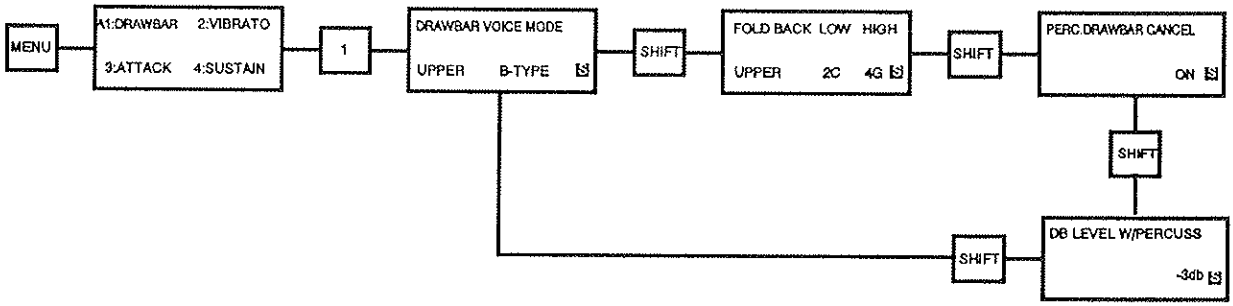
NOTE: For special applications, the PEDAL TO LOWER Touch Tab can be made to couple the Pedal tones to the Upper Manual. This will be explained under "Advanced Features - Coupler" in the Special Advanced Features section of this Owner's Playing Guide on page 161.

♦ Lower To Pedal



This Touch Tab is located next to the PEDAL TO LOWER Touch Tab. When this Touch Tab is "ON", the tones produced by the Lower Manual will sound from the Pedal Keyboard starting with the lowest "C" (1C) and ending with the "C" two octaves above (3C), giving a total of 25 notes.

Advanced Features - Drawbars



There are four Advanced Feature menus that allow you to make the following changes to the organ's Drawbars:

1. Drawbar Voice Mode -
   This Advanced Feature allows you to select from 1 of 3 types of Drawbar Voicing for the Upper and Lower Manuals: "B-TYPE", "MELLOW" and "BRITE". You can also select from 1 of 2 Voicing types for the Pedal Keyboard: Normal or Muted.

2. Drawbar Fold Back -
   This Advanced Feature allows you to set the Drawbar Fold Back points for both the 16' & 1' Drawbars of the Upper and Lower Manuals. The default settings are the same as the Hammond Models B-3, C-3, RT-3, and A-100: 16' Drawbar at C2 and the 1' Drawbar at 4G.

3. Percussion Drawbar Cancel -
   This Advanced Feature allows you to select whether or not the 1' Drawbar will cancel when using Percussion.

4. Drawbar Level With Percussion -
   This Advanced Feature allows you to select whether or not the volume of the Drawbars will decrease when Percussion is used at Normal volume.

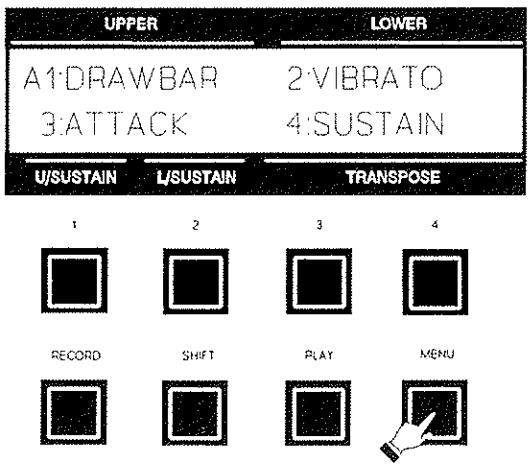
The following pages give a more detailed explanation of how these Advanced Feature Menus work.

♦ Drawbar Voice Mode

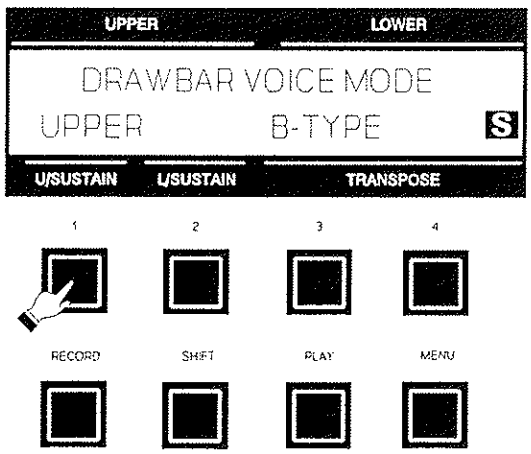
This Advanced Feature allows you to change the overall sound of the Drawbars. You can select: (1) "B-TYPE", which reproduces the sound of the B-3 tone-wheel generator, (2) "MELLOW", which produces a very pure sine-wave tone quality, or (3) "BRITE", which adds extra frequencies to the higher-pitched Drawbars for a very brilliant sound.

TRY THIS:

1. Touch the black MENU Select Touch Button until the A Screen of the Menu Mode is displayed:



2. Touch the black Number 1 Select Touch Button. The Information Center Display should look like this.



3. Now select the Voicing Type for each manual by doing the following:

Use the black Number 1 Select Touch Button to scroll through each of the manual and pedal selections.

Use the black Number 3 or Number 4 Select Touch Button to scroll through the Drawbar Voicing selections.

The data chart below shows the options you may select for Upper Manual, Lower Manual and Pedal Keyboard.

UPPER VOICING TYPE	LOWER VOICING TYPE	PEDAL VOICING TYPE
*B-TYPE	*B-TYPE	*NORMAL
MELLOW	MELLOW	MUTED
BRITE	BRITE	

* default setting

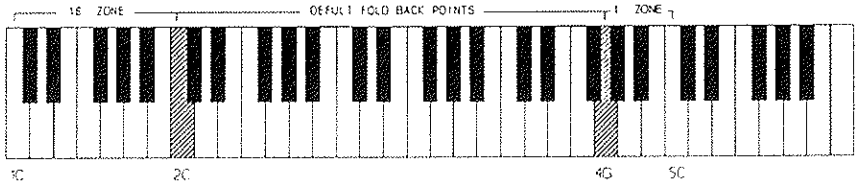
This data CAN be stored to a Preset, and recalled when Preset Play Mode is set to "STANDARD". This means that each of the Presets can store a different Drawbar Voicing setting. To see a total listing of all Commands that can be saved to the Presets, see Appendix B, "Preset Initial Data", starting on page 181. For more information about Preset modes, see "Advanced Features - Preset", starting on page 106.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons. To access the next Advanced Feature menu, Touch the black SHIFT Select Touch Button.

♦ Drawbar Fold Back

There are two function selections to the Drawbar Fold Back Advanced Feature Menu of the organ: (1) Select how low the 16' Drawbar will play on each manual. (2) Set the upper frequency limit for each manual.

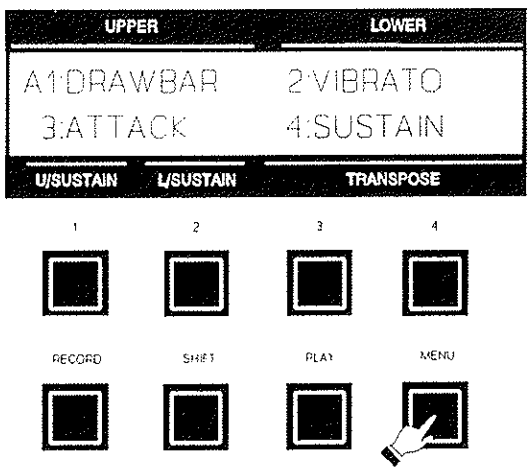
On the earliest model Hammond Organs, such as the original models A, B and C, the 16' Drawbar would continue to play all the way down to the lowest C (1C). Newer models such as the Hammond Models X-66, X-77, Concorde, and SX and CX Series do the same, however, the 1' Drawbar continues to play up the manual to the next to the highest C (5C) on the manual. The other higher-pitched drawbars perform similarly. The default settings for both the 16' and 1' foot Drawbars will replicate the original B-3, C-3, RT-3 or A-100.



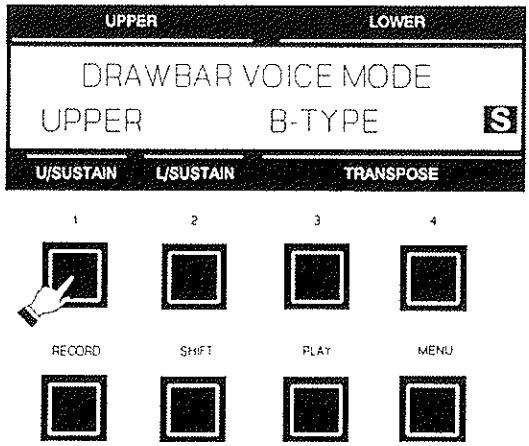
On a B-3, the lowest note produced by the 16' Drawbar is the 2nd C (2C) from the left end of the manual. The lowest octave on the manual, from the 1st B (1B) down to the lowest C (1C) repeats the same octave as the one above it, or "Folds Back". The highest note that can be played by the 1' Drawbar is the 4th F♯ from the left end of the manual. The higher keys on the manual also "Fold Back", in that they repeat the pitches played by lower notes.

TRY THIS:

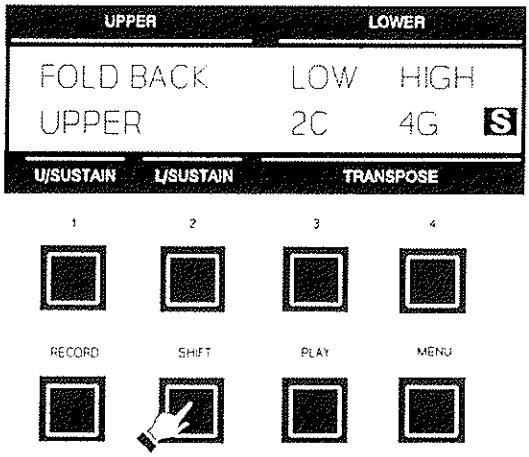
1. Touch the black MENU Select Touch Button until the A Screen of the Menu Mode is displayed:



2. Touch the black Number 1 Select Touch Button once. The Information Center Display should look like this.

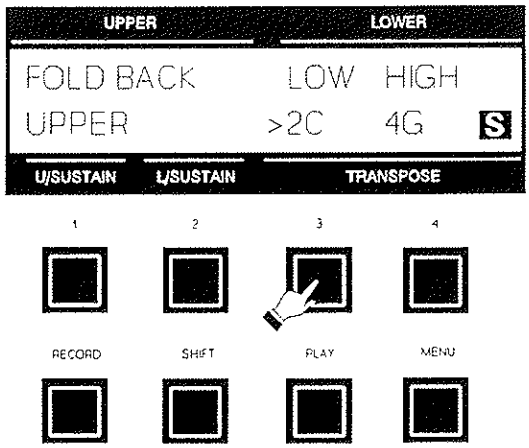


3. Touch the black SHIFT Select Touch Button. The Information Center Display should show the following:



4. Touching the black Number 1 Select Touch Button will change the word UPPER to LOWER. This is so you can change the Fold Back points for both the Upper and Lower Manuals.

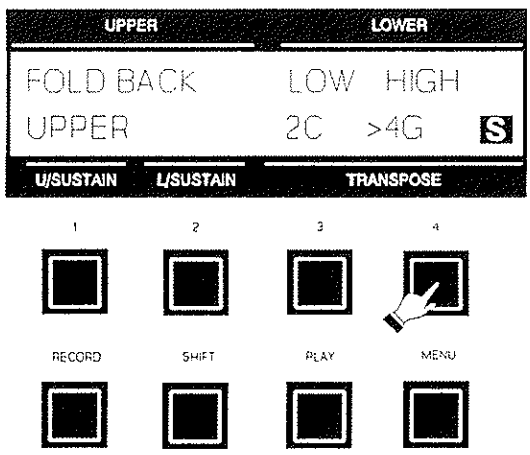
5. To change the 16' Drawbar Fold Back point, use your left hand and Touch and Hold the black Number 3 Select Touch Button.



When you Touch and Hold the black Number 3 Select Touch Button the "less than" sign (">") will appear to the left of "2C". "2C" is the second "C" key from the left of the currently selected manual.

With your right hand, Touch the key at which you wish to set the Fold Back Point. Remember, you are limited to only the keys between the first "C" and the second "C" of the manual, "1C-2C". Release the black Number 3 Select Touch Button when you have set the 16' Drawbar Fold Back point.

6. To change the 1' Drawbar Fold Back point, use your left hand and Touch and Hold the black Number 4 Select Touch Button.



When you Touch and Hold the black Number 4 Select Touch Button, the "less than" sign (">") will appear to the left of "4G". "4G" is the fourth "G" key from the left of the currently selected manual.

With your right hand, touch the key at which you wish to set the Fold Back Point. Remember, you are limited to only the keys between the fourth "G" and the fifth "C" of the manual, "4G-5C". Release the black Number 4 Select Touch Button when you have set the 1' Drawbar Fold Back point.

The data chart below shows the options that you may select. The default settings are the same as the Hammond Models B-3, C-3, RT-3, and A-100: 16' Drawbar at "C2" and the 1' Drawbar at "4G".

MANUAL	16' RANGE	1' RANGE
UPPER	1C-2C	4G-5C
LOWER	1C-2C	4G-5C

This data CAN be stored to a Preset, and recalled when Preset Play Mode is set to "STANDARD". This means that each of the Presets can store a different Drawbar Fold Back setting. To see a total listing of all Commands that can be saved to the Presets, see Appendix B, "Preset Initial Data", starting on page 181. For more information about Preset modes, see "Advanced Features - Preset", starting on page 106.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons. To see the next Advanced Feature menu, Touch the black SHIFT Select Touch Button.

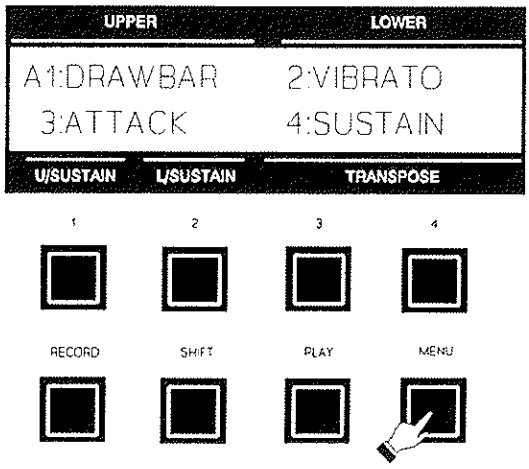
♦ Percussion Drawbar Cancel

On the original Hammond Organs with Touch-Response Percussion, such as the B-3, C-3 and RT-3, when the Upper Manual "B" Preset Key is engaged, and Percussion is "ON", the sound produced by the 1' Drawbar is canceled. However, some pros would re-wire the organ so that the 1' Drawbar would continue to play while Percussion is "ON".

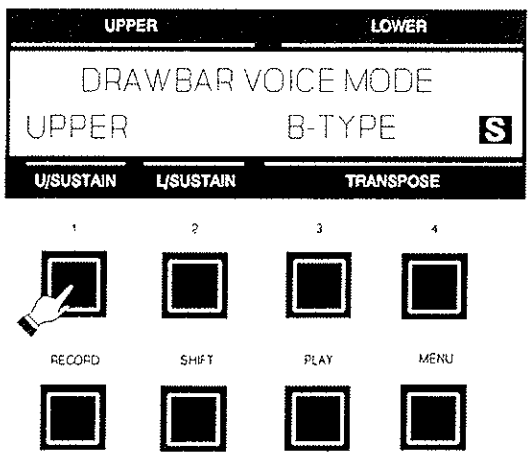
The Percussion Drawbar Cancel Advanced Feature allows you to select whether the 1' Drawbar will continue to sound when Percussion is turned "ON".

TRY THIS:

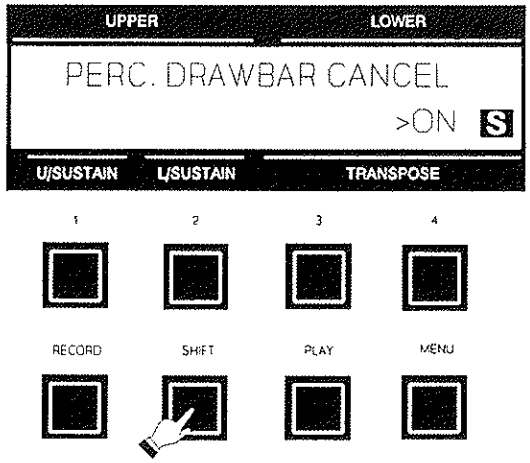
1. Touch the black MENU Select Touch Button until the A Screen of the Menu Mode is displayed:



2. Touch the black Number 1 Select Touch Button. The Information Center Display should look like this.



3. Touch the black SHIFT Select Touch Button repeatedly until the Information Center Display shows the following:



4. The default setting is "ON". To turn Percussion Drawbar Cancel "OFF", Touch any of the four black numbered Select Touch Buttons. The 1' Drawbar will sound while Percussion is "ON".

To turn it back "ON", Touch any of the four black numbered Select Touch Buttons again. The 1' Drawbar will be canceled when Percussion is "ON".

This data CAN be stored to a Preset, and recalled when Preset Play Mode is set to "STANDARD". This means that each of the Upper Manual Presets can store a different setting. To see a total listing of all Commands that can be saved to the Presets, see Appendix B, "Preset Initial Data", starting on page 181. For more information about Preset modes, see "Advanced Features - Preset", starting on page 106.

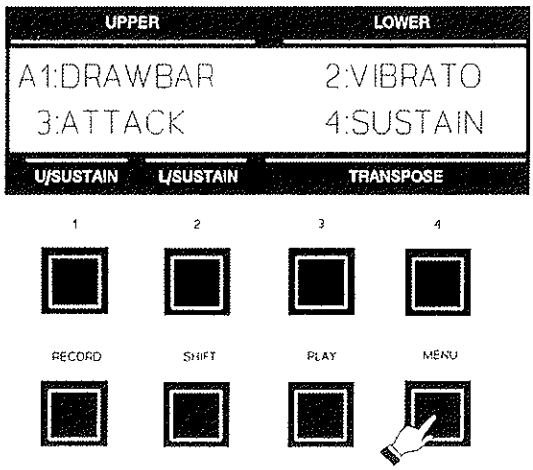
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons. To see the Drawbar Voice Mode menu again, Touch the black SHIFT Select Touch Button.

♦ Drawbar Level with Percussion

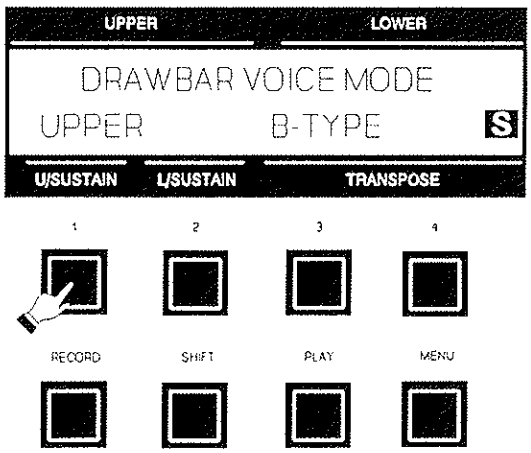
On the original Hammond Organs with Touch-Response Percussion, such as the B-3, C-3, RT-3 and A-100, when the Upper Manual "B" Preset Key is engaged, Percussion is "ON" at normal volume and a Drawbar setting is used, the volume of the Upper Manual Drawbars is reduced slightly in order to preserve the musical balance between Upper and Lower Manuals. However, some pros would perform a modification so that the "B" Preset Drawbar settings would remain at full volume even if Percussion were "ON" at normal volume. This Advanced Feature allows you to select either option.

TRY THIS:

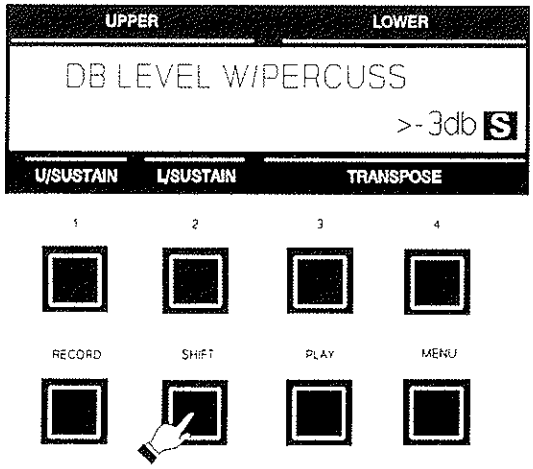
1. Touch the black MENU Select Touch Button until the A Screen of the Menu Mode is displayed:



2. Touch the black Number 1 Select Touch Button. The Information Center Display should look like this.



3. Touch the black SHIFT Select Touch Button repeatedly until the Information Center Display shows the following:



Notice that the display reads "-3db". This is the default setting, and means that the volume level of the Drawbars will be reduced by 3 decibels*, or a small amount.

To turn this function "OFF" Touch any of the four black numbered Select Touch Buttons. The volume of the Drawbars will now stay at the same level, or "0db", when Percussion is "ON" at normal volume.

To turn it back "ON" Touch any of the four black numbered Select Touch Buttons again. The Upper Manual Drawbars will be reduced, by "-3db", in volume when Percussion is "ON" at normal volume.

* A "decibel" is a unit of measurement for the loudness of sound waves.

This data CAN be stored to a Preset, and recalled when Preset Play Mode is set to "STANDARD". This means that each of the Upper Manual Presets can store a different setting. To see a total listing of all Commands that can be saved to the Presets, see Appendix B, "Preset Initial Data", starting on page 181. For more information about Preset modes, see "Advanced Features - Preset", starting on page 106.

NOTE: You can exit by touching either the black Menu or Play Select Touch Buttons.

◆ Second Drawbar

The organ has 2 sets of drawbars for each manual. Normally, as explained previously in the Presets section of this Owner's Playing Guide, only one Preset or one group of Drawbars can be used at a time on each manual. However, using the Second Drawbar Advanced Feature, you can "mix" the currently selected Preset setting with another Preset (on the same manual). The following explanation will give an example of how to use this feature.

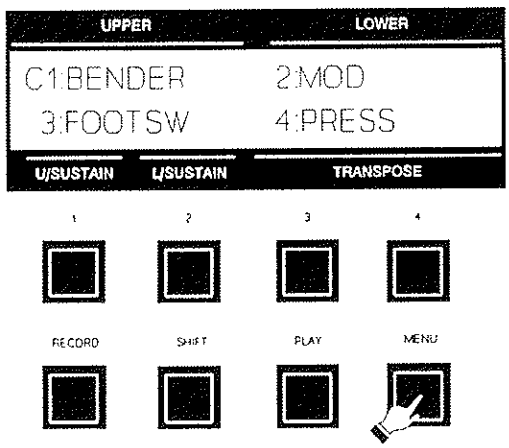
There are two ways to control this feature:

1. Using the Modulation Wheel.

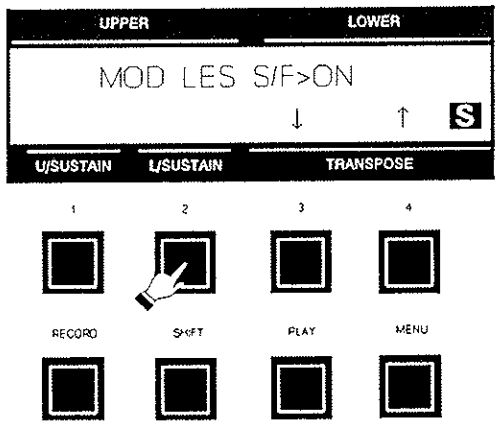
2. Using Key Pressure.

TRY THIS - To use the Modulation Wheel to control the Second Drawbar feature:

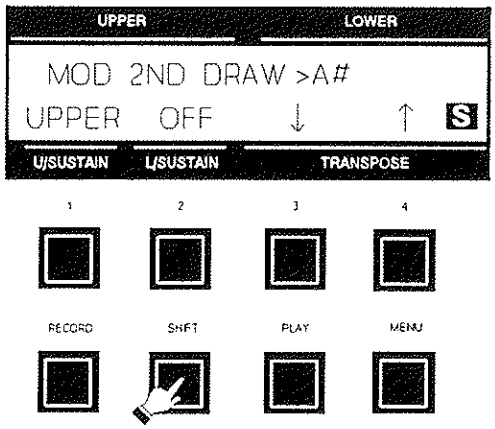
1. Touch the black MENU Select Touch Button repeatedly until the C Screen of the Menu Mode is displayed:



2. Touch the black Number 2 Select Touch Button. The Information Center Display should look like this:



3. Touch the black SHIFT Select Touch Button once. The Information Center Display should look like this:



When the Information Center Display is in this mode, you will be able to:

Use the black Number 1 Select Touch Button to select either the Upper or Lower Manual.

Use the black Number 2 Select Touch Button to turn the Second Drawbar function "ON" or "OFF" for the selected manual.

Use the black Number 3 "↓" Select Touch Button to scroll down through the selections (B - C).

Use the black Number 4 "↑" Select Touch Button to scroll up through the selections (C - B).

For this example, with the Information Center Display in the mode shown above, Touch the black Number 2 Select Touch Button to turn Second Drawbar "ON" for the Upper Manual.

TRY THIS:

1. Set up the Upper Manual "A♯" Drawbar set for the following registration: 00 8877 665.

2. Set up the Upper Manual "B" Drawbar set for the following registration: 00 8870 000.

3. Touch the "B" Preset Key on the Upper Manual. The red LED should light.

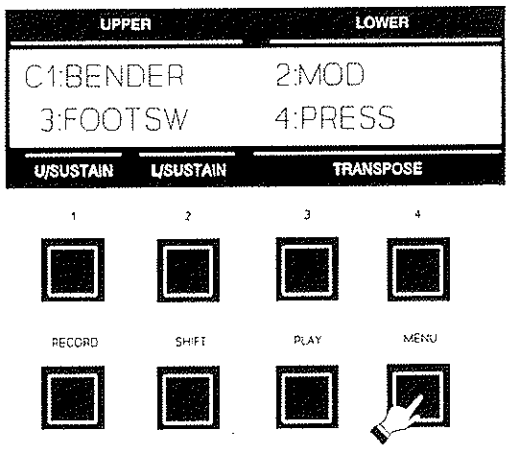
4. If "A♯" is not already displayed next to the ">" sign, Touch either the Number 3 or Number 4 Select Touch Button repeatedly until "A♯" displays.

5. Now, making sure that the Modulation Wheel position is all the way to the **left**, play and hold a "C" chord on the Upper Manual. You will hear the registration you set up for the "B" Preset Key.

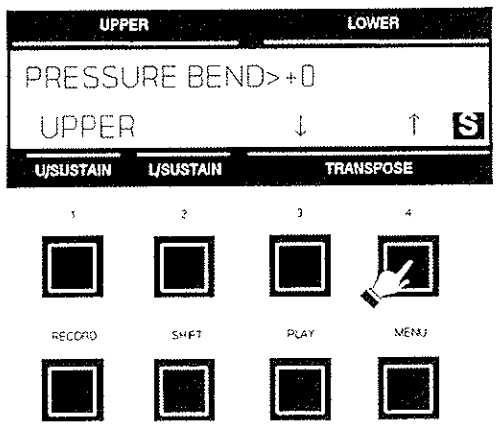
6. Move the Modulation Wheel slowly to the **right**, and you will hear the registration for the "A♯" Preset Key mixed with your "B" Preset Key registration. If you move the Modulation Wheel all the way to the right, your "B" Preset Key registration will fade out - only the "A♯" Preset Key registration will sound.

TRY THIS - To use Key Pressure to control the Second Drawbar feature:

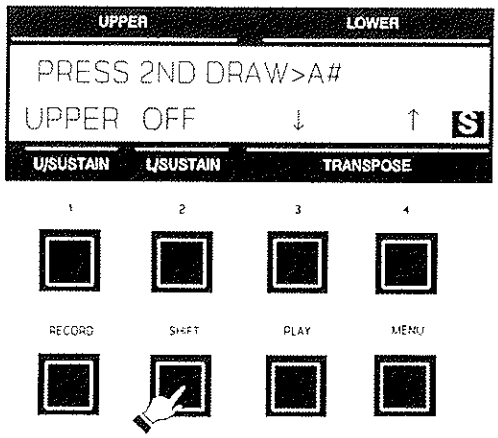
1. Touch the black MENU Select Touch Button repeatedly until the C Screen of the Menu Mode is displayed:



2. Touch the black Number 4 Select Touch Button. The Information Center Display should look like this:



3. Touch the black SHIFT Select Touch Button repeatedly until the Information Center Display shows the following:



When the Information Center Display is in this mode, you will be able to:

Use the black Number 1 Select Touch Button to select either the Upper or Lower Manual.

Use the black Number 2 Select Touch Button to turn the Second Drawbar function "ON" or "OFF" for the selected manual.

Use the black Number 3 "↓" Select Touch Button to scroll down through the selections (B - C).

Use the black Number 4 "↑" Select Touch Button to scroll up through the selections (C - B).

For this example, with the Information Center Display in the mode shown above, Touch the black Number 2 Select Touch Button to turn Second Drawbar "ON" for the Upper Manual.

TRY THIS:

1. Set up the Upper Manual "A♯" Drawbar set for the following registration: 00 8877 665.

2. Set up the Upper Manual "B" Drawbar set for the following registration: 00 8870 000.

3. Touch the "B" Preset Key on the Upper Manual. The red LED should light.

4. If "A♯" is not already displayed next to the ">" sign, Touch either the Number 3 or the Number 4 Select Touch Button repeatedly until "A♯" displays.

5. Now, play and hold a "C" chord on the Upper Manual. You will hear the registration you set up for the "B" Preset Key.

6. Press the keys you are holding with progressively more force, and you will hear the registration for the "A♯" Preset Key mixed with your "B" Preset Key registration. Continue to press harder, and eventually your "B" Preset Key registration will fade out - only the "A♯" Preset Key registration will sound.

This feature can be very useful when you want to make quick registration changes during the course of an arrangement. Any of the Preset Keys from "C" through "B" can be used as the alternate or "second" registration while any of the other Preset Keys are active. Select which Preset Key you want to be the "second" registration in the Information Center Display. This "second" registration will play when you apply Key Pressure by pressing harder on the keys. When you use normal key pressure, the currently selected Preset Key will play.

The data chart below shows the options that you may select for each manual.

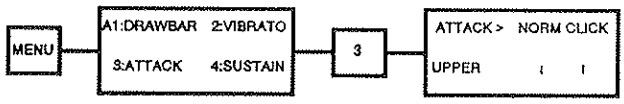
MANUAL	PRESET KEY NAME
UPPER	C - C♯ - D - D♯ - E - F - G - G♯ - A - *A♯ - B
LOWER	C - C♯ - D - D♯ - E - F - G - G♯ - A - *A♯ - B

* default setting

This data CAN be stored to a Preset, and recalled when Preset Play Mode is set to "STANDARD". This means that each of the Upper and Lower Manual Presets can store different settings. To see a total listing of all Commands that can be saved to the Presets, see Appendix B, "Preset Initial Data", starting on page 181. For more information about Preset modes, see "Advanced Features - Preset", starting on page 106.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

Advanced Feature - Attack



This Advanced Feature menu allows you to make the following changes to the organ's Drawbars.

Attack Click Volume -

This Advanced Feature allows you to select from 1 of 5 types of Attack for the Upper Manual, Lower Manual and Pedal Keyboard: "SLOW ATTACK", "NO CLICK", "SOFT CLICK", "NORMAL CLICK" & "MAX CLICK".

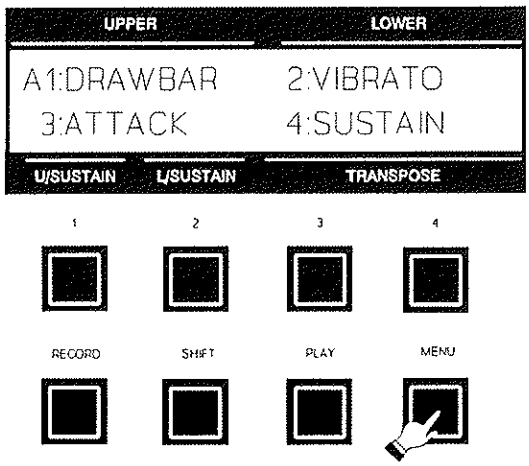
The following pages give a more detailed explanation of how this Advanced Feature Menu works.

♦ Attack - Click Volume

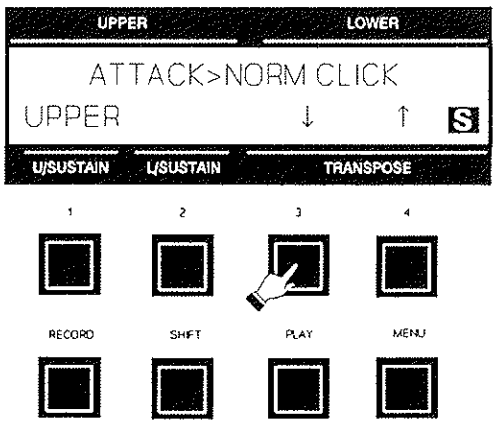
Each time a key was depressed on a tone-wheel Hammond Organ, a key-pop or CLICK was produced. With the Attack Advanced Feature you can change the personality of the key click and then store that information to each of the Presets.

TRY THIS:

1. Touch the black MENU Select Touch Button until the A Screen of the Menu Mode is displayed:



2. Touch the black Number 3 Select Touch Button. The Information Center Display should look like this.



3. Now select the Attack Click Volume for each manual by doing the following:

Use the black Number 1 Select Touch Button to scroll through each of the manual selections.

Use the black Number 3 "↓" Select Touch Button to scroll down through the Attack Click Volume selections.

Use the black Number 4 "↑" Select Touch Button to scroll up through the Attack Click Volume selections.

The data chart below shows the options that you may select for Upper Manual, Lower Manual and Pedal Keyboard.

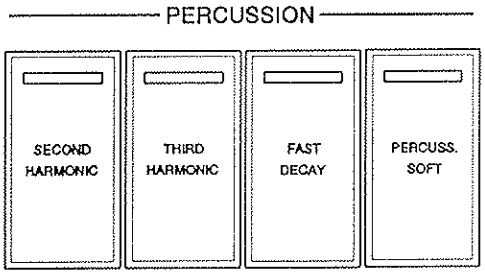
UPPER	LOWER	PEDALS
SLOW ATTACK	SLOW ATTACK	SLOW ATTACK
NO CLICK	NO CLICK	NO CLICK
SOFT CLICK	SOFT CLICK	SOFT CLICK
*NORMAL CLICK	*NORMAL CLICK	*NORMAL CLICK
MAX CLICK	MAX CLICK	MAX CLICK

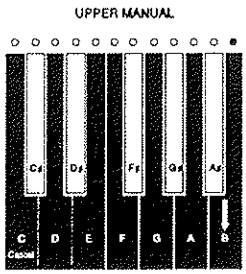
* default setting

This data CAN be stored to a Preset, and recalled when Preset Play Mode is set to "STANDARD". This means that each of the Presets can store a different Attack setting. To see a total listing of all Commands that can be saved to the Presets, see Appendix B, "Preset Initial Data", starting on page 181. For more information about Preset modes, see "Advanced Features - Preset", starting on page 106.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons. To access the next Advanced Feature menu, Touch the black SHIFT Select Touch Button.

Percussion

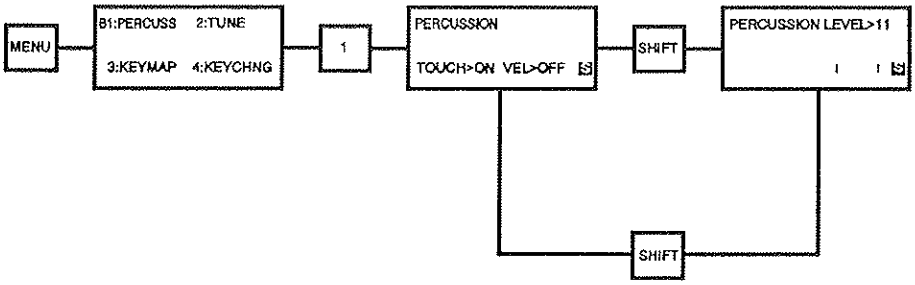




The Percussion tones are normally available only with the second group of Upper Manual Drawbars. Thus the "B" Preset Key must be active (LED lit) to obtain Percussion.

As stated earlier in the Turn On & Play section, the four Touch Tabs controlling the Percussion tones are located to the right of the Drawbars above the Upper Manual. Their function has already been covered in that section starting on page 23, however, the Percussion tones can be modified in various ways. The following pages give a detailed explanation of the Percussion Advanced Features.

Advanced Features - Percussion



These two Advanced Feature menus allow you to make the following changes to the organ's Percussion.

1. Percussion - Touch & Velocity Sensitivity -
   Allows you to select two options for the Percussion: (1) The type of Touch, "touch-response" (single) or "multi" (multi-trigger), (2) Turning "ON" or "OFF" Percussion Velocity Sensitivity.

2. Percussion Level -
   Allows you to select the overall level of the Percussion.

NOTE: The Percussion Level menu selection works independently of the PERCUSS. SOFT Touch Tab.

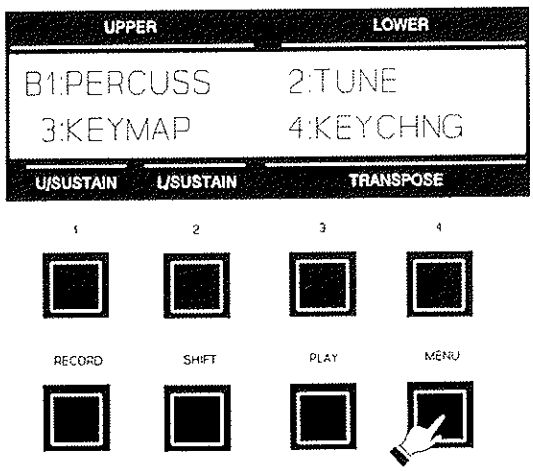
The following pages give a more detailed explanation of how these Advanced Feature Menus work.

♦ Percussion Touch & Velocity Sensitivity

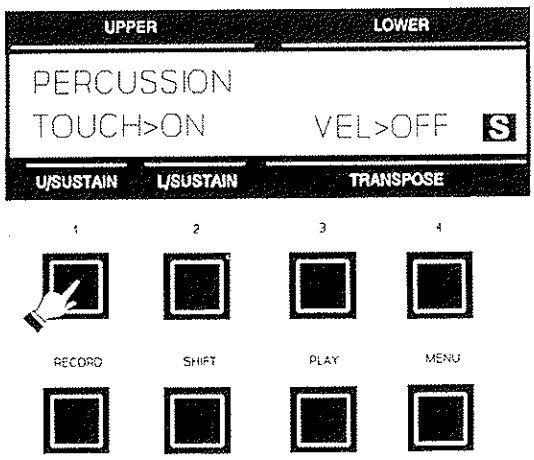
There are two functions to this Percussion Advanced Feature Sub-Menu: (1) To turn "ON" or "OFF" Percussion "multi" touch, (2) To turn "ON" or "OFF" Percussion Velocity Sensitivity. These two Advanced Features affect only the Upper Manual, as this is where Percussion is used.

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the B Screen of the Menu Mode is displayed:



2. Touch the black Number 1 Select Touch Button. The Information Center Display should look like this:



The Percussion Touch default setting is "ON". This replicates the Touch-Response Percussion function on the original models B-3, C-3, RT-3 or A-100. When "ON", remember that Touch-Response Percussion tones will sound only if you play the keys in a detached manner (non-legato). Any degree of detachment is sufficient.

When Percussion Touch is turned "OFF", all keys will sound when keys are played regardless of whether other keys are being held ("multi).

4. To turn "multi" touch "OFF", Touch the black Number 2 Select Touch Button. To turn it back "ON", Touch the black Number 2 Select Touch Button again.

5. To turn "ON" or "OFF" Percussion Velocity Sensitivity, Touch the black Number 4 Select Touch Button.

When Percussion Velocity is turned "ON" the volume of Percussion is controlled by how fast a key or keys are played. The harder a key or keys are played, the louder the Percussion sounds. The lighter a key or key is played, the softer the Percussion sounds.

The data chart below shows the options that you may select.

PERCUSSION TOUCH	PERCUSSION VELOCITY
*ON	*OFF
OFF	ON

* default setting

This data CAN be stored to a Preset, and recalled when Preset Play Mode is set to "STANDARD". This means that each of the Upper Manual Presets can store a different Percussion Touch and Velocity "ON" or "OFF" setting. To see a total listing of all Commands that can be saved to the Presets, see Appendix B, "Preset Initial Data", starting on page 181. For more information about Preset modes, see "Advanced Features - Preset", starting on page 106.

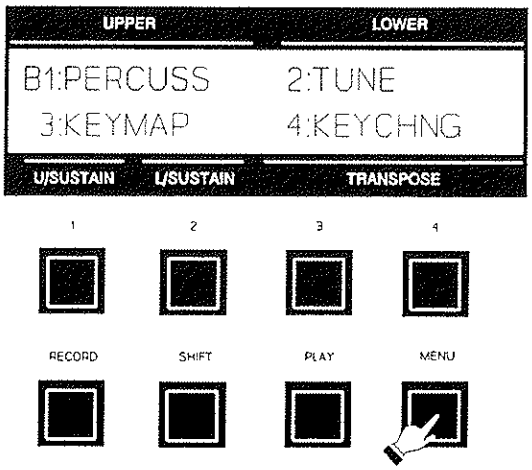
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons. To see the Attack Advanced Feature menu again, Touch the black SHIFT Select Touch Button.

♦ Percussion Level

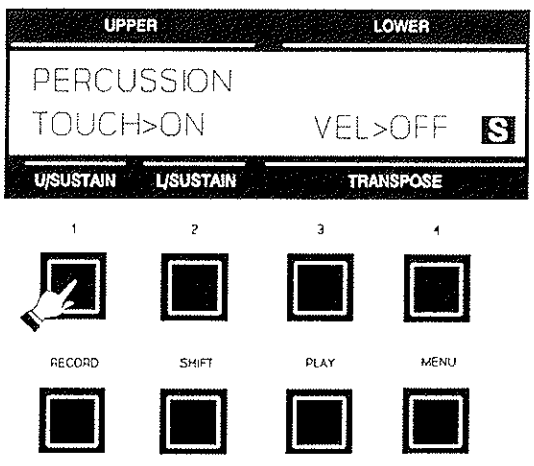
This Advanced Feature menu choice allows you to set the overall volume level of the Percussion tones. This will allow you to balance the amount of "normal" and "soft" Percussion sound (the choices provided by the Touch Tabs) with the sound produced by the Drawbars.

TRY THIS:

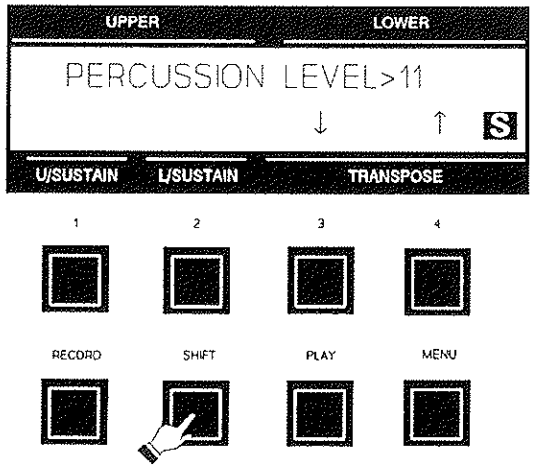
1. Touch the black MENU Select Touch Button repeatedly until the B Screen of the Menu Mode is displayed:



2. Touch the black Number 1 Select Touch Button. The Information Center Display should look like this.



3. Touch the black SHIFT Select Touch Button until the Information Center Display shows the following:



4. The default setting is "11". Now select the Percussion Level you wish by doing the following:

Use the black Number 3 "↓" Select Touch Button to scroll down through the Percussion Level selections.

Use the black Number 4 "↑" Select Touch Button to scroll up through the Percussion Level selections.

The data chart below shows the options that you may select.

PERCUSSION LEVEL
1 - 16

default setting is 11.

This data CAN be stored to a Preset, and recalled when Preset Play Mode is set to "STANDARD". This means that each of the Upper Manual Presets can store a different Percussion Volume level. To see a total listing of all Commands that can be saved to the Presets, see Appendix B, "Preset Initial Data", starting on page 181. For more information about Preset modes, see "Advanced Features - Preset", starting on page 106.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons. To see the Attack Advanced Feature menu again, Touch the black SHIFT Select Touch Button.

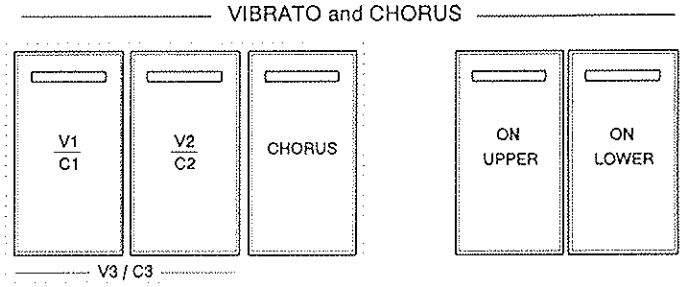
Hammond Organ Model XB-3/XC-3

Effects

EFFECTS

The organ has the effects of **Vibrato, Chorus, Leslie, Sustain, Tube Overdrive** and **Reverb.** By adding such effects, you can enhance the sound of your music.

Vibrato



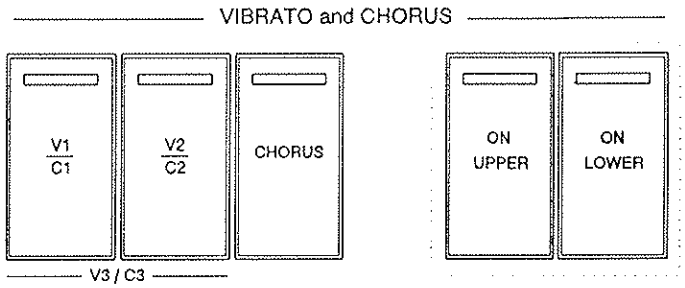
- New B-3 / C-3 Vibrato and Chorus ON / OFF Touch Tabs -

Your Hammond Organ has five Touch Tabs which control the degrees of Vibrato and Chorus, and from which manual the Vibrato or Chorus effects will sound.

For more information on the relationship between the Vibrato and Chorus Controls on the new B-3 / C-3 and the Vibrato and Chorus controls on the original B-3, C-3, RT-3 or A-100 series organs, see "The Vibrato and Chorus Controls" in the Turn On & Play section of this Owner's Playing Guide starting on page 16.

♦ Vibrato ON / OFF

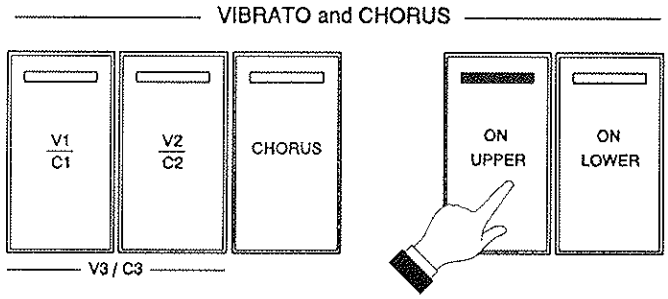
On the new B-3 / C-3, you select on which manual or manuals you wish to hear the Vibrato or Chorus effect by using the ON UPPER and/or ON LOWER Touch Tabs found in the Vibrato and Chorus control section.



- New B-3 / C-3 Vibrato and Chorus ON / OFF Touch Tabs -

Upper Vibrato ON / OFF

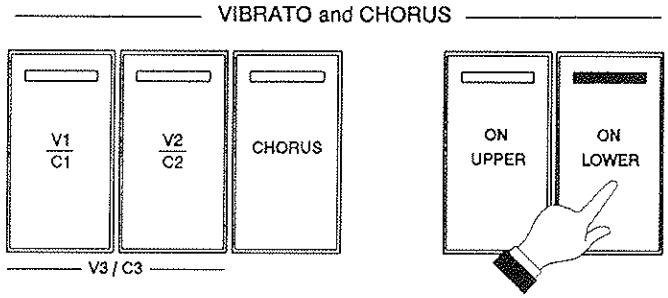
To turn the Vibrato or Chorus effect "ON" for the Upper Manual of the new B-3 / C-3, you touch the ON UPPER Touch Tab "ON" (red LED lit).



- New B-3 / C-3 Vibrato and Chorus Upper Manual "ON" -

Lower Vibrato ON / OFF

To turn the Vibrato or Chorus effect "ON" for the Lower Manual of the new B-3 / C-3, you touch the ON LOWER Touch Tab "ON" (red LED lit).

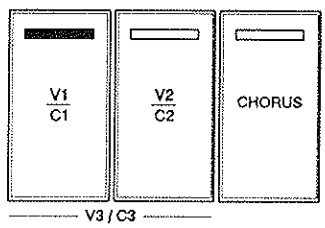


- New B-3 / C-3 Vibrato and Chorus Lower Manual "ON" -

To turn the Vibrato or Chorus effect "OFF" for either the Upper or Lower Manual of the new B-3 / C-3, you simply touch the Touch Tabs "OFF" (red LED not lit).

♦ V1 - (Small Vibrato)

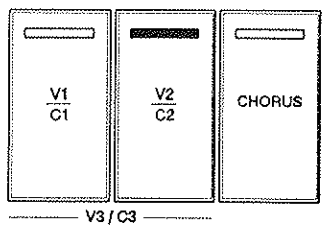
This produces the vibrato equivalent of most orchestral solo instruments. Touch the V1/C1 Touch Button to turn Vibrato 1 "ON".



- Vibrato 1 -

♦ V2 - (Wide Vibrato)

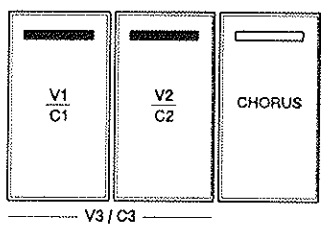
This is the standard depth vibrato used with the Drawbars to produce the effect of a theater organ. Touch the V2/C2 Touch Button to turn Vibrato 2 "ON".



- Vibrato 2 -

♦ V3 - (Full Vibrato)

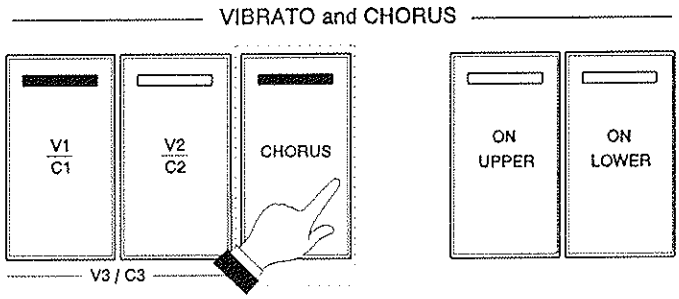
By pressing both V1/C1 and the V2/C2 Touch Buttons at the same time you turn "ON" Vibrato 3. Vibrato 3 gives the fullest amount of vibrato adding much warmth and enhancing your music.



- Vibrato 3 -

♦ Chorus

The third Touch Tab selects the CHORUS effect.

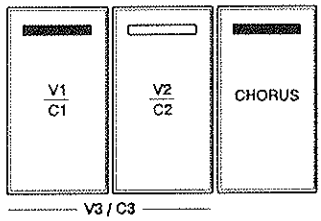


- New B-3 / C-3 Chorus ON / OFF Touch Tab -

When the CHORUS Touch Tab is used, *half* of the tone is heard without Vibrato, and *half* contains the vibrato amount selected by the first two Touch Tabs.

♦ C1 - (Small Chorus)

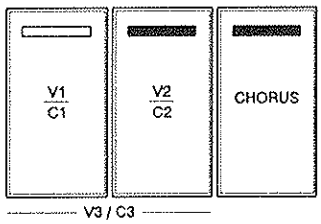
This produces the light chorus effect.



- Chorus 1 -

♦ C2 - (Wide Chorus)

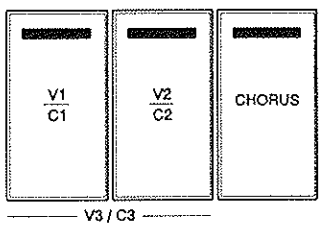
This is the standard depth of the chorus effect.



- Chorus 2 -

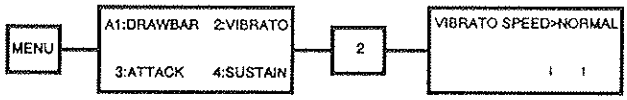
♦ C3 - (Full Chorus)

By pressing both Touch Buttons "ON" you get the fullest amount, adding warmth that enhances your Drawbar settings.



- Chorus 3 -

Advanced Feature - Vibrato and Chorus



The Advanced Feature Vibrato Menu allows you to make the following changes to the organ's Vibrato and Chorus:

Vibrato Speed -
You can select from 1 of 5 separate Vibrato/Chorus Speeds which affect both the Upper and Lower Manuals. The default setting is "NORMAL".

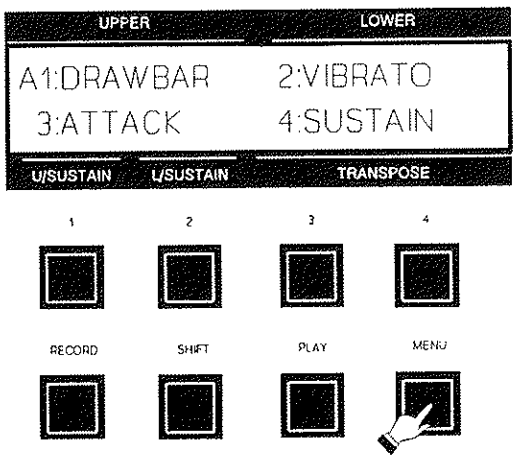
The following pages give a more detailed explanation of how this Advanced Feature Menu works.

♦ Vibrato and Chorus - Speed

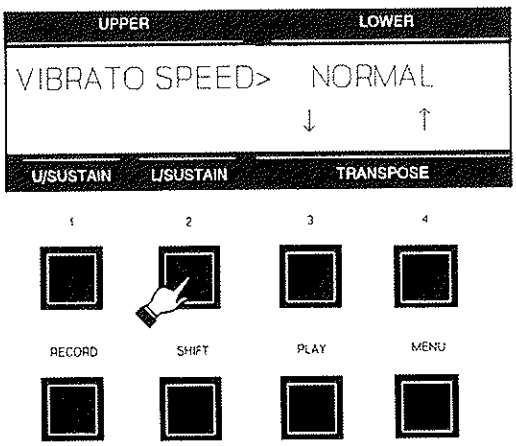
With this Advanced Feature, you can select the speed for the Vibrato and Chorus that you prefer.

TRY THIS:

1. Touch the black MENU Select Touch Button until the A Screen of the Menu Mode is displayed:



2. Touch the black Number 2 Select Touch Button. The Information Center Display should look like this:



3. Now select the Vibrato and Chorus Speed for each manual by doing the following:

Use the black Number 3 "↓" Select Touch Button to scroll down through the Vibrato Speed selections.

Use the black Number 4 "↑" Select Touch Button to scroll up through the Vibrato Speed selections.

The data chart below shows the options that you may select.

VIBRATO SPEED	
Display	Hz
SLOW	6.1Hz
MID	6.5Hz
*NORMAL	6.83Hz
MIDFST	7.Hz
FAST	7.25Hz

* default setting

This is a Global Command, and this data CAN NOT be stored to a Preset. To see a total listing of all Global Commands, see Appendix A, "Global Initial Data", on page 180.

NOTE: You can exit by touching either the black Menu or Play Select Touch Buttons.

Leslie

Your Hammond Organ is designed to directly interface with a Leslie Speaker Cabinet. A Leslie Speaker cabinet, in addition to amplifying the basic sound of the organ, also uses mechanical rotors which turn at different speeds to add different animation effects. The data chart below shows the options available.

LESLIE ROTOR SPEED OPTIONS	
DESCRIPTION	FUNCTION
SLOW (Chorale)	Rotors will turn slowly (Chorale), producing an effect suitable for use with hymns, classical style music and some slower songs.
OFF	Rotors do not turn. Animation can be provided by using the Vibrato and Chorus controls on the organ.
FAST (Tremolo)	Rotors will speed up and rotate fast (Tremolo) to produce a rich full sound.

NOTE: The above table shows the options which can be selected for either a single- or multi-channel Leslie Speaker cabinet using an 11-pin interface.

There are four ways to control the speed of the rotors of a connected Leslie Speaker cabinet:

1. Using the Touch Tabs. This is explained on the next page.

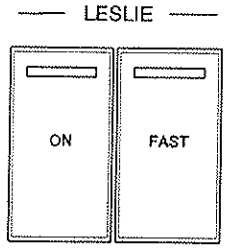
2. Using the Modulation Wheel. This is explained starting on page 130.

3. Using Key Pressure. This is explained starting on page 144.

4. Using a Foot Switch. This is explained starting on page 138.

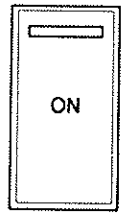
NOTE: If more than one of the above options is selected, the rotors of the connected Leslie Speaker cabinet will respond to whichever control is in use.

♦ Leslie Touch Tabs



Located to the left of the Upper Manual Drawbars are the two Touch Tabs that allow you to control a connected Leslie Speaker cabinet.

Leslie ON Touch Tab

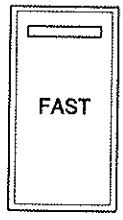


This Touch Tab performs in two ways, depending on the type of Leslie Speaker cabinet used.

1. Single-channel Leslie Speaker -
   Touching the Leslie ON Touch Tab "ON" (LED lit) will cause the rotors to turn. The speed at which the rotors turn depends upon the position of the Leslie FAST Touch Tab, which is explained below. When this Touch Tab is "OFF" (LED not lit), the rotors are in "STOP" mode - they do not turn.

2. Multi-channel Leslie Speaker -
   Touching the Leslie ON Touch Tab "ON" will switch the organ sounds from the Stationary channel to the Rotary channel. When this Touch Tab is "OFF" (LED not lit), the organ sounds will be heard through the Stationary channel.

Leslie FAST Touch Tab

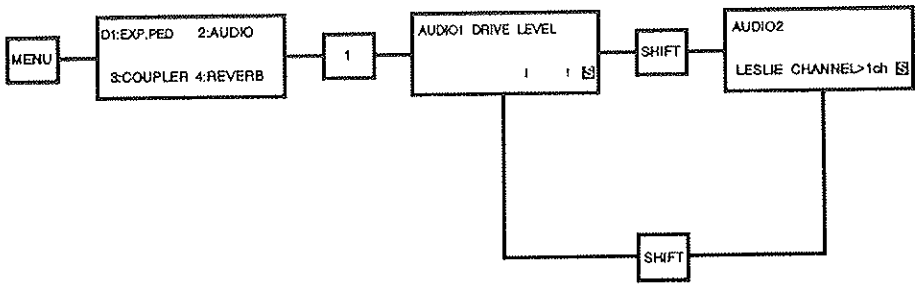


When this Touch Tab is "OFF" (LED not lit), the rotors in the Leslie Speaker cabinet will turn slowly (Chorale).

Touching the FAST Touch Button "ON" (LED lit) will cause the Leslie Speaker rotors to speed up and rotate fast (Tremolo).

NOTE: The Leslie FAST Touch Tab will function only if the Leslie ON Touch Tab is "ON" (LED lit).

Advanced Feature - Leslie



The Advanced Feature Leslie Menu allows you to make the following changes to the organ's Leslie channel output:

Leslie Channel - 1ch, 2ch or 3ch
Use this to determine how you want the organ to interface with single- or multi-channel Leslie Speaker cabinets.

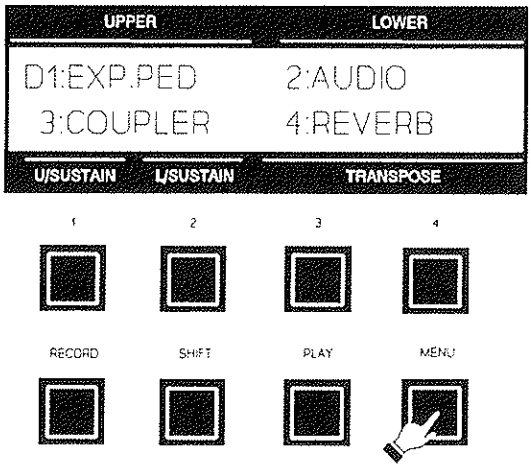
The following pages give a more detailed explanation of how this Advanced Feature Menu works.

♦ Leslie Channel - 1ch, 2ch or 3ch

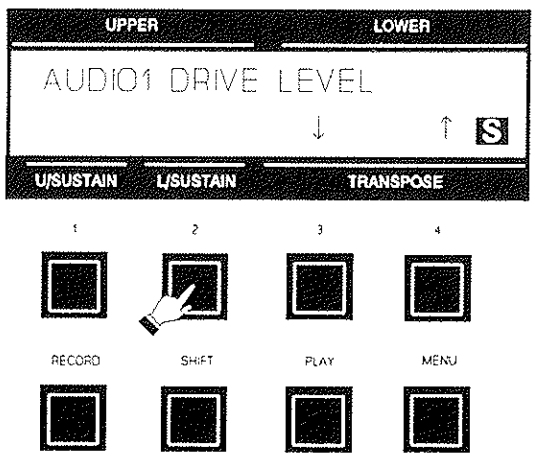
NOTE: For more information about Leslie Speakers, contact an authorized Leslie dealer.

TRY THIS:

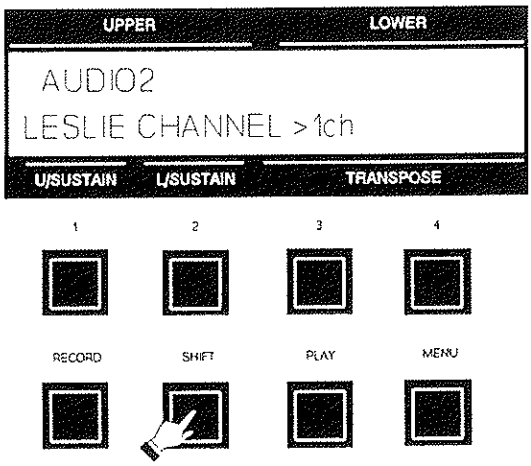
1. Touch the black MENU Select Touch Button repeatedly until the D Screen of the Menu Mode is displayed:



2. Touch the black Number 2 Select Touch Button. The Information Center Display should look like this:



3. Touch the black SHIFT Select Touch Button until the Information Center Display shows the following:



4. To select from among 1ch, 2ch or 3ch Leslie Channel options, Touch any of the four black numbered Select Touch Buttons.

The data chart below shows the channeling options.

LESLIE CHANNELING OPTIONS	
CHANNEL	ACTION
*1ch	All sound produced by the organ will be heard through the Rotary channel of the connected multi-channel Leslie Speaker cabinet.
2ch	When the Leslie Touch Tabs are "OFF", the sound produced by the organ will be heard through the Stationary channel of the connected multi-channel Leslie Speaker cabinet. When the Leslie Touch Tabs are "ON", the sound produced by the organ will be heard through the Rotary channel of the connected multi-channel Leslie Speaker cabinet.
3ch	Same as 2ch, except that the LINE OUT jacks may be used to feed the signal from an external sound module to the Auxiliary or Side Channel of a 3-channel Leslie Speaker cabinet.

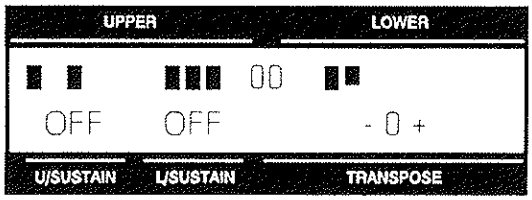
* default setting

This is a Global Command, and this data CAN NOT be stored to a Preset. To see a total listing of all Global Commands, see Appendix A, "Global Initial Data", on page 180.

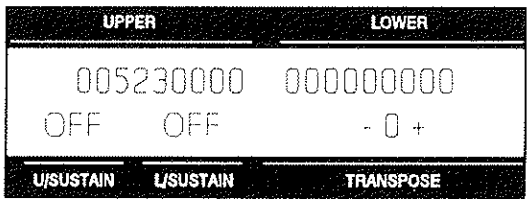
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

Sustain

Sustain is used with the Drawbars to produce a lingering tone when keys are released. It is suited for producing sounds like harps, chimes or bells. To add Sustain to the Drawbar tones, Touch the black PLAY Touch Button until the Information Center Display shows one of the following:



PLAY MODE - Graphic Display with parameters



PLAY MODE - Numeric Display with parameters

When the Information Center Display is in either of these Play Modes, Sustain can be added to the Upper or Lower Manual Drawbar tones.

♦ Upper and Lower Sustain ON / OFF

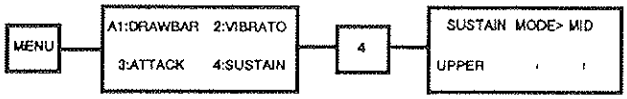
Touching the black number 1 Touch Button under the Information Center Display will change the word "OFF" above "U/SUSTAIN" to "ON". Doing this will turn the Sustain effect "ON" or "OFF" for the Upper Manual Drawbar tones.

Touching the black number 2 Touch Button under the Information Center Display will change the word "OFF" above "L/SUSTAIN" to "ON". Doing this will turn the Sustain effect "ON" or "OFF" for the Lower Manual Drawbar tones.

♦ Pedal Sustain

The Pedal Sustain Touch Tab is located on the far right side of the organ above the Upper Manual. Touching the SUSTAIN Touch Tab will turn the Sustain effect "ON" or "OFF" for the Pedal tones.

Advanced Feature - Sustain



The Advanced Feature Sustain Menu allows you to make the following changes to the organ's Sustain:

Sustain Length -

You can select from 1 of 3 Sustain Lengths for the Upper and Lower Manuals and the Pedal Keyboard. The default length is "MID" in all cases.

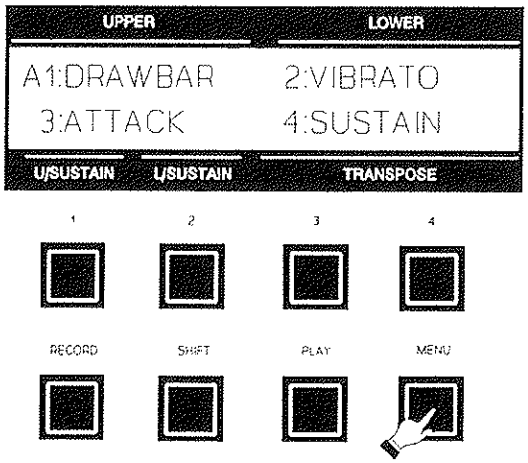
The following pages give a more detailed explanation of how this Advanced Feature Menu works.

♦ Sustain - Length

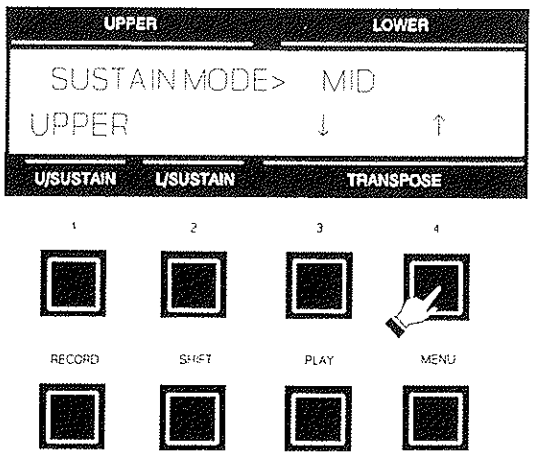
With the Sustain Length Advanced Feature, you can select from 1 of 3 Sustain Lengths for the Upper and Lower Manuals and the Pedal Keyboard.

TRY THIS:

1. Touch the black MENU Select Touch Button until the A Screen of the Menu Mode is displayed:



2. Touch the black Number 4 Select Touch Button. The Information Center Display should look like this:



3. To select the desired Sustain Mode for each manual and pedals, do the following:

Use the black Number 1 Select Touch Button to scroll through each of the manual and pedal selections.

Use the black Number 3 "↓" Select Touch Button to scroll down through the Sustain Length selections.

Use the black Number 4 "↑" Select Touch Button to scroll up through the Sustain Length selections.

The data chart below shows the options that you may select for each manual and pedals.

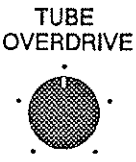
UPPER MANUAL, LOWER MANUAL & PEDAL KEYBOARD
SHORT
*MID
LONG

* default setting

This data CAN be stored to a Preset, and recalled when Preset Play Mode is set to "STANDARD". This means that each of the Presets can store a different Sustain Length setting. To see a total listing of all Commands that can be saved to the Presets, see Appendix B, "Preset Initial Data", starting on page 181. For more information about Preset modes, see "Advanced Features - Preset", starting on page 106.

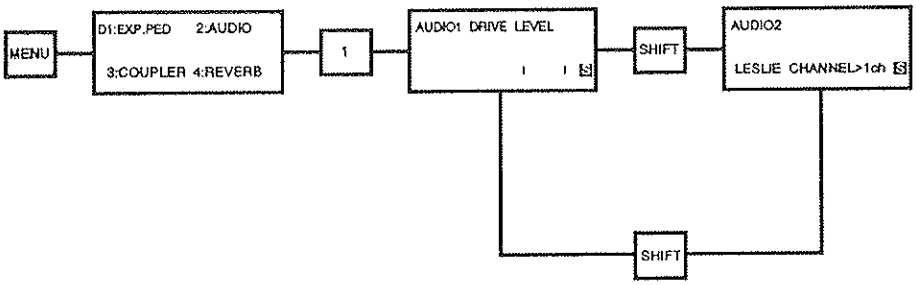
NOTE: You can exit by touching either the black Menu or Play Select Touch Buttons.

Tube Overdrive



Located to the left of the Upper Manual just below the Treble Tone Control is the TUBE OVERDRIVE Rotary Control. This control allows you to control the total or maximum amount of "overdrive", the fuzzy, raspy sound produced by a tube amplifier when it is pushed to its sound limit. Turning this control clockwise will increase the amount of overdrive, while turning it counter-clockwise will decrease the amount.

Advanced Feature - Tube Overdrive



The Advanced Feature Reverb Menu allows you to make the following changes to the organ:

Tube Overdrive Level -
You can select the amount of Tube Overdrive that will be added by the TUBE OVERDRIVE Rotary Control. The default Level setting is "3".

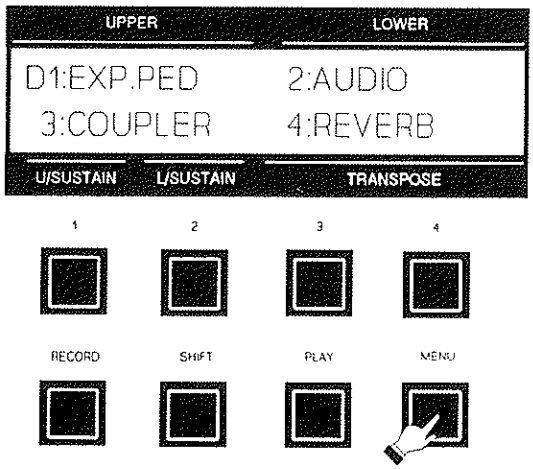
The following pages give a more detailed explanation of how this Advanced Feature Menu works.

♦ Tube Overdrive Level

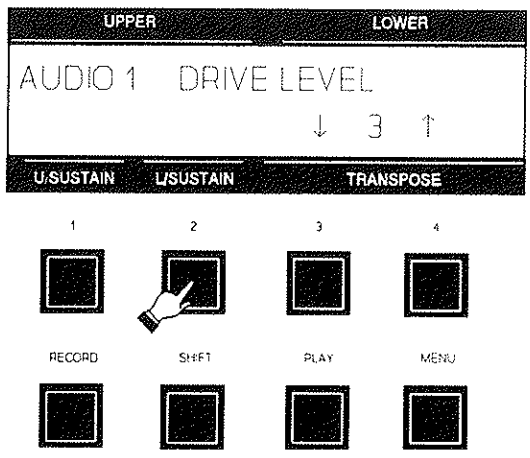
This Advanced Feature allows you to select the amount of Tube Overdrive that will be added by the TUBE OVERDRIVE Rotary Control.

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the D Screen of the Menu Mode is displayed:



2. Touch the black Number 2 Select Touch Button once. The Information Center Display should look like this:



3. To select the Tube Overdrive Level, do the following:

   Use the black Number 3 "↓" Select Touch Button to scroll down through the Tube Overdrive Level selections.

   Use the black Number 4 "↑" Select Touch Button to scroll up through the Tube Overdrive Level selections.

The data chart below shows the options that you may select.

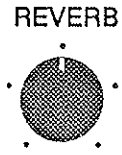
DRIVE LEVEL
1 - 16

default setting is 3.

This is a Global Command, and this data CAN NOT be stored to a Preset. To see a total listing of all Global Commands, see Appendix A, "Global Initial Data", on page 180.

NOTE: You can exit by touching either the black Menu or Play Select Touch Buttons.

Reverb



Located to the left of the Upper Manual just below the Bass Tone Control is the REVERB Rotary Control. Using Reverb adds the beautiful concert hall effect to all voices when you are playing. It counteracts the "deadening" effect of the carpets, drapes and the furniture in your home.

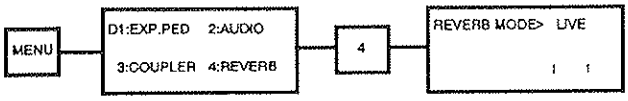
Turning this Rotary Control clockwise (right) will increase the overall amount of Reverb. Turning this control counter-clockwise (left) will decrease the amount of Reverb.

Turning the control to the center position (half way) or more will produce a medium amount of reverberation.

Turning the control below the half way point to no less then a quarter of the way will produce brisk reverberation best for many popular and jazz styles of music.

NOTE: The default value for Reverb is "HALL". However, the Reverb type can be set for "ROOM", "LIVE", "HALL" or "CHURCH" by using the REVERB Advanced Feature.

Advanced Feature - Reverb



The Advanced Feature Reverb Menu allows you to make the following changes to the organ's Reverb:

Reverb Mode -
You can select from 1 of 4 separate Reverb Modes for the organ. The default Reverb Mode is "HALL".

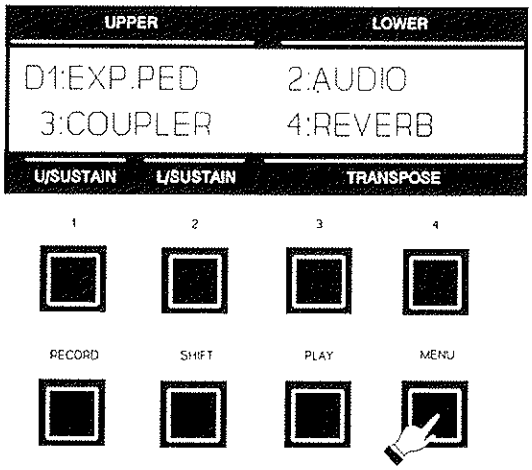
The following pages give a more detailed explanation of how this Advanced Feature Menu works.

♦ Reverb - Mode

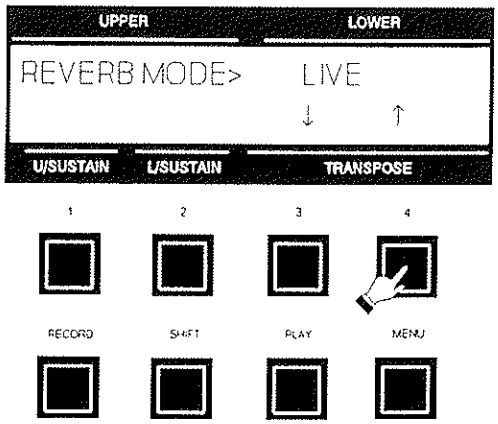
This Advanced Feature allows you to select from four different types of Reverb.

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the D Screen of the Menu Mode is displayed:



2. Touch the black Number 4 Select Touch Button. The Information Center Display should look like this:



3. To select the Reverb Mode, do the following:

   Use the black Number 3 "↓" Select Touch Button to scroll down through the Reverb Mode selections.

   Use the black Number 4 "↑" Select Touch Button to scroll up through the Reverb Mode selections.

The data chart below shows the options that you may select.

REVERB MODES
ROOM
LIVE
*HALL
CHURCH

* default setting

This is a Global Command, and this data CAN NOT be stored to a Preset. To see a total listing of all Global Commands, see Appendix A, "Global Initial Data", on page 180.

NOTE: You can exit by touching either the black Menu or Play Select Touch Buttons.

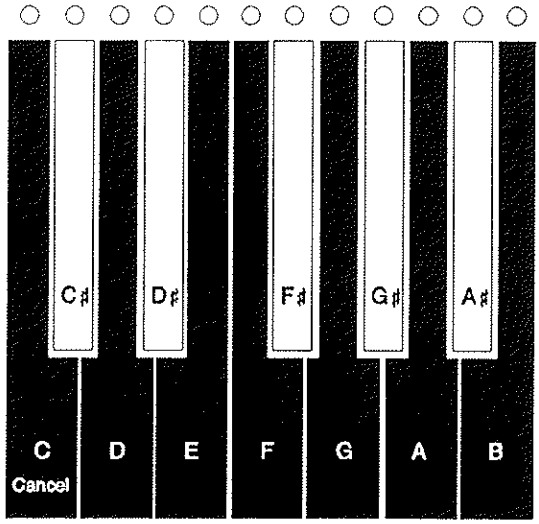
Hammond Organ Model XB-3/XC-3

Presets

PRESETS

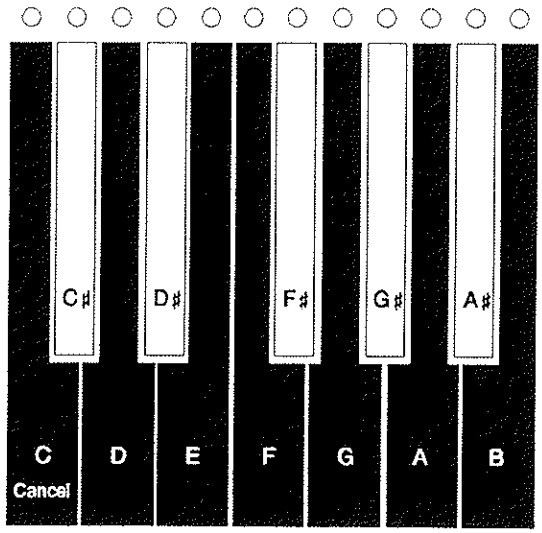
♦ The Preset Keys

UPPER MANUAL



To the left of each manual are the twelve Preset Keys. The first key on each manual is a Cancel key. The next nine keys, "C♯" through "A", are preset to the tones most often used by organists. These tones can be changed if you wish, to suit the acoustics of the room or to incorporate tone colors that you particularly like. The last two keys on each manual, "A♯" and "B", (sometimes called "Adjust" Keys) are actually "on-off" switches to control the tones created and set up on the four groups of Drawbars.

LOWER MANUAL



The white keys are the solo and single-tone qualities, while the black ones are the ensemble qualities. The softer tones are to the left, gradually growing louder to the right. They are generally used one at a time, and normally cannot be used in combination. The only exception to this is when using the "Second Drawbar" Advanced Feature, which is explained starting on page 146. Pressing one key cancels any other key.

Another important note is that there are 4 levels or presets of the organ. Three of these are for the Drawbar settings and one for nothing but MIDI data. You will find data charts of these factory settings starting on page 114. For information on how to retrieve these other Preset settings, see page 111.

♦ Saving To A Preset

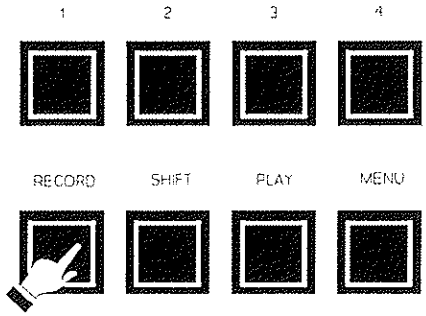
You can program the Preset Keys with your own Drawbar registrations.

TRY THIS:

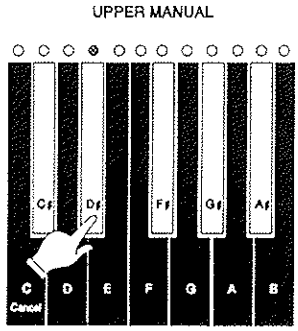
1. Press either the "A♯" or the "B" Preset Key for either manual.

2. Set up a Drawbar registration for the Drawbar set you have selected.

3. With your left hand Touch and Hold the black RECORD Touch Button.



4. Continue to hold the black RECORD Touch Button with your left hand. With your right hand, Touch one of the Preset Keys for the manual you have selected; for example, Upper "D♯".



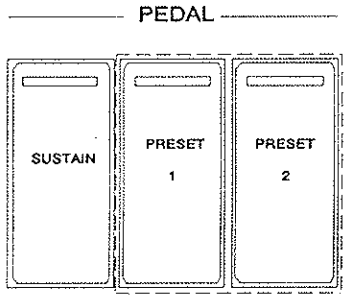
5. The LED of the Preset that you touched will flash several times, indicating that the information is being stored. Once the LED stops flashing, the Recording process is complete.

NOTE: Although it is not generally recommended, the "C" (Cancel) Key can also be programmed to store registrations, making a total of 10 preset combinations for each manual.

In addition to saving registrations to the Presets that data can then be stored to a RAM Card. To learn more about saving Preset data to a RAM card, see Using the RAM Card, starting on page 163 of this Owner's Playing Guide.

Pedal Presets

Located above the Upper Manual and to the extreme right are the two Pedal PRESET Touch Tabs. These allow you to save Pedal registrations.



- Pedal Presets -

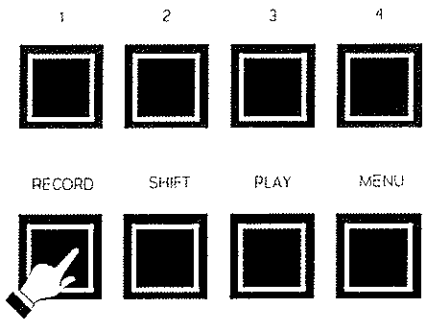
♦ Saving to a Pedal Preset

You can program the Pedal Presets with your own Drawbar registrations.

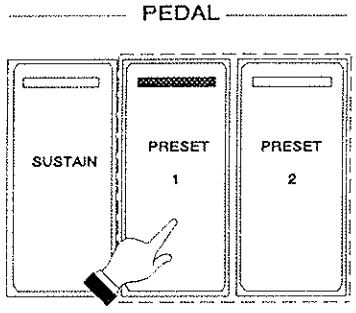
TRY THIS:

1. Set up a Pedal Drawbar registration that you wish to save.

2. With your left hand Touch and Hold the black RECORD Touch Button.



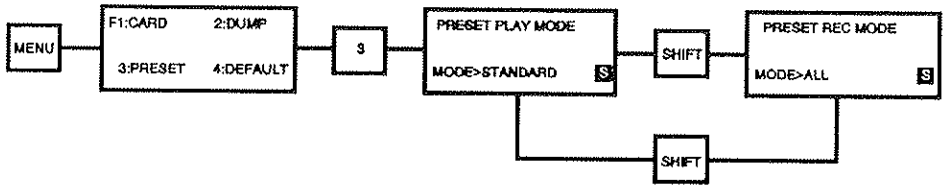
3. Continue to hold the black RECORD Touch Button with your left hand. With your right hand, Touch one of the two Pedal PRESET Touch Tabs.



4. The LED of the Touch Tab that you touched will flash several times, indicating that the information is being stored. Once the LED stops flashing, the Recording process is complete.

Registrations that have been saved to the Presets can then be saved to a RAM Card. To learn more about saving Preset data to a RAM card, see the Using the RAM Card section of this Owner's Playing Guide starting on page 163.

Advanced Features - Preset



There are two Advanced Feature Preset Menus that allow you to make the following changes to the organ's Presets.

1. Preset Play Mode -
   You can select whether or not changing Presets will change only the Drawbar settings (B-3 Mode) or front panel and Advanced Feature settings in addition to Drawbar settings (Standard mode).

2. Preset Record Mode -
   If you want to make your own Presets, you can select whether you want to record only Drawbar settings ("DRAWBAR"), only Control settings ("CONTROL") or both Drawbar and Control settings ("ALL").

The following pages give a more detailed explanation of how these Advanced Feature Menus work.

♦ Presets - Preset Play Mode

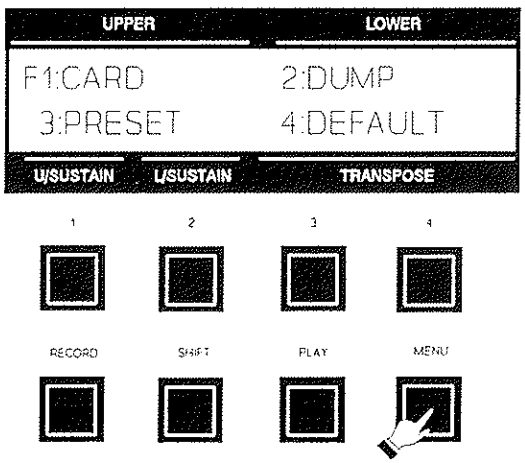
This Advanced Feature allows you to select which controls on the organ the Presets will change. There are two modes (1) B-3 and (2) Standard. The difference between the two modes is as follows;

1. B-3 Mode -
   When a Preset is selected while in B-3 mode, only Drawbar settings will change when different Presets are selected. All non-Drawbar settings such as Leslie, Vibrato/Chorus or Sustain settings do not change.

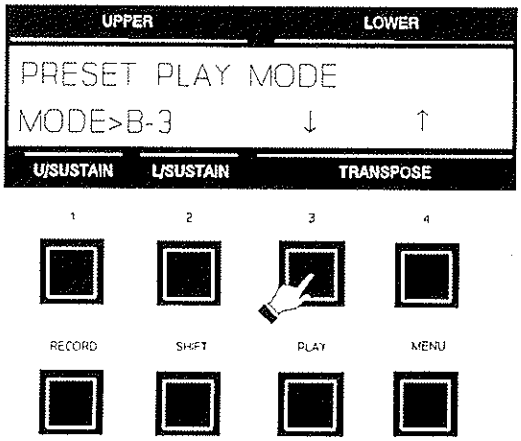
2. STANDARD Mode -
   When a Preset is selected while in Standard mode, you can program non-Drawbar settings such as Percussion, Leslie, different Vibrato or Chorus settings or Sustain settings in addition to Drawbar settings.

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the F Screen of the Menu Mode is displayed:



2. Touch the black Number 3 Select Touch Button. The Information Center Display should look like this:



3. To select the Preset Play Mode, do the following:

   Use any of the four black numbered Select Touch Buttons to make your Mode selection.

The data chart below shows the options that you may select for each manual and pedals.

PRESET PLAY MODES
*B-3
STANDARD

* default setting

This is a Global Command, and this data CAN NOT be stored to a Preset. To see a total listing of all Global Commands, see Appendix A, "Global Initial Data", on page 180.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

♦ Presets - Preset Record Mode

This Advanced Feature allows you to select which settings or controls on the organ will be saved to the Presets. There are three modes:

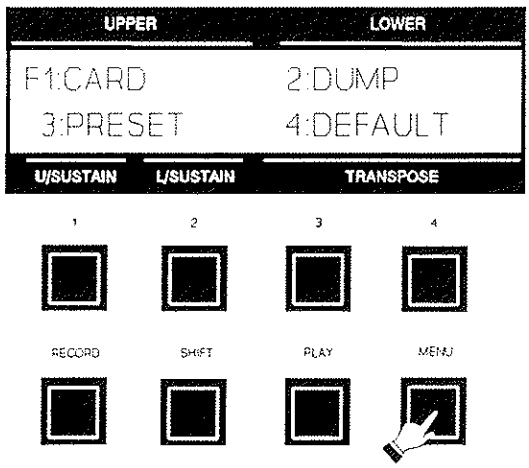
1. ALL Mode -
   When in this mode all Drawbar settings, Sustain, Leslie, Vibrato/Chorus and MIDI settings will be recorded.

2. DRAWBAR Mode -
   Only Drawbar registration information will be saved.

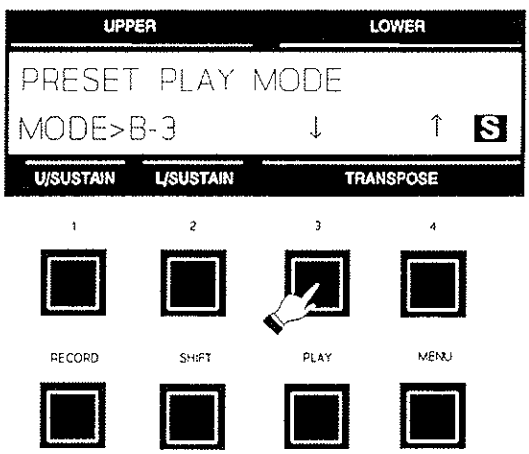
3. CONTROL Mode -
   If you wish to use the Presets to save MIDI data and other Control settings without affecting the Drawbars, use this mode.

TRY THIS:

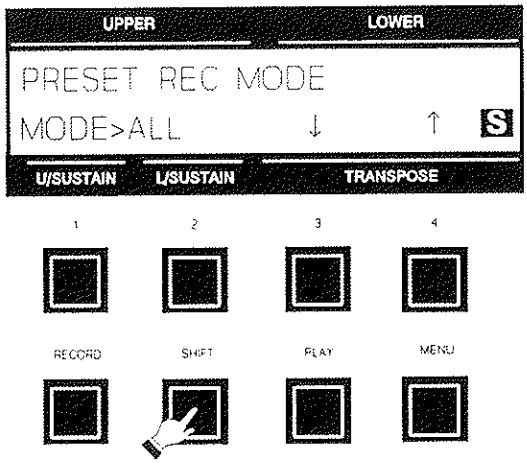
1. Touch the black MENU Select Touch Button repeatedly until the F Screen of the Menu Mode is displayed:



2. Touch the black Number 3 Select Touch Button. The Information Center Display should look like this:



3. Touch the black SHIFT Select Touch Button until the Information Center Display shows the following:



4. To select the Preset Play Mode, do the following:

   Use any of the four black numbered Select Touch Buttons to make your Mode selection.

The data chart below shows the options that you may select for each manual and pedals.

PRESET RECORD MODES
*ALL
DRAWBAR
CONTROL

* default setting

This is a Global Command, and this data CAN NOT be stored to a Preset. To see a total listing of all Global Commands, see Appendix A, "Global Initial Data", on page 180.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

♦ Default Preset Settings

The procedure for Resetting the organ is covered under "Reset Procedure" in the Information Center Display section of this Owner's Playing Guide starting on page 37. When the organ is Reset, the Preset Keys are reprogrammed with default settings. You can choose from four different default Preset settings when Resetting the organ:

1. B-3 -
   The Preset Keys are set for the original B-3 / C-3 settings.

2. JAZZ -
   The Preset Keys are set for Jazz and Gospel registrations.

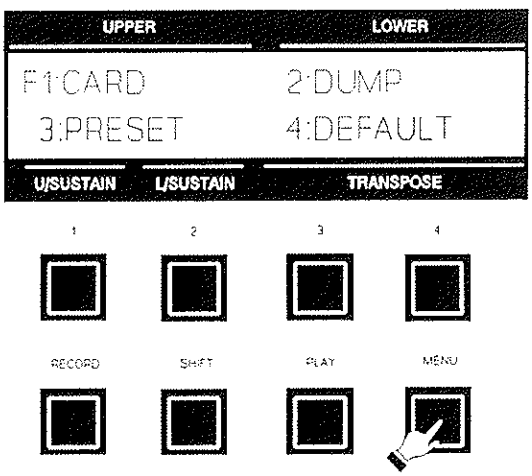
3. THEATRE -
   The Preset Keys are set for Theatrical registrations. These are similar to the registrations used for the Preset Keys on the X-66, X-77 and "Concorde" model Hammond Organs.

4. MIDI -
   The Preset Keys are set to transmit MIDI information.

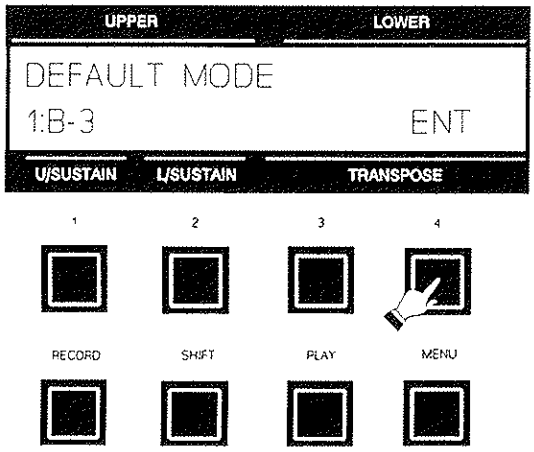
WARNING!: Doing the following procedure will erase any parameter changes you have made, returning the organ to the original Hammond factory default settings.

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the F Screen of the Menu Mode is displayed:



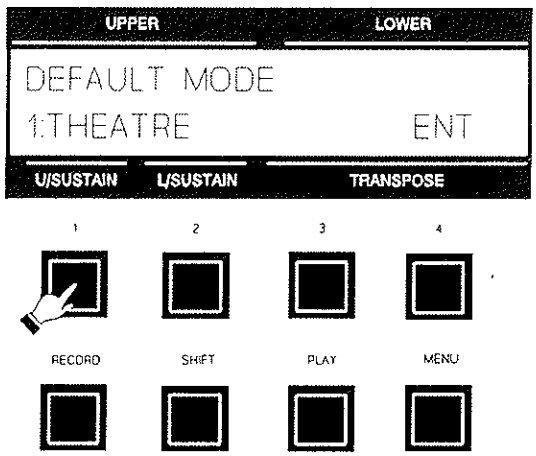
2. Touch the black Number 4 Select Touch Button. The Information Center Display should look like this.



3. When the Information Center Display is in this mode, you can select how you want the Presets to be programmed by doing the following:

> Use the black Number 1 Select Touch Button to scroll through the Default Preset Setting selections.

For example, suppose you wanted to program the Presets with theatrical settings. Touch the black Number 1 Select Touch Button repeatedly until the Information Center Display shows the following:



4. Touch the black Number 4 Select Touch Button to reprogram the Presets and Reset the organ. If you DO NOT wish to Reset, touch either the black MENU or PLAY Select Touch Button.

The data charts on the following pages show the default settings for each manual.

NOTE: When the MIDI Default Preset Setting is chosen, the Drawbars are all set at "zero" (0) for all Presets. Therefore, no chart is included for the MIDI settings.

Hammond Standard Presets (Original B-3 / C-3 Presets)

Upper Manual

PRESET KEY	DRAWBAR SETTING	TONE QUALITY	LOUDNESS VALUE
C		Cancel	
C♯	00 5320 000	Stopped Flute	pp
D	00 4432 000	Dulciana	ppp
D♯	00 8740 000	French Horn	mf
E	00 4544 222	Salicional	pp
F	00 5403 000	Flutes 8' & 4'	p
F♯	00 4675 000	Oboe Horn	mf
G	00 5644 300	Swell Diapason	mf
G♯	00 6876 540	Trumpet	f
A	32 7645 222	Full Swell	ff
A♯	Adjust harmonic Drawbars in 1st group, Upper Manual		
B	Adjust harmonic Drawbars in 2nd group, Upper Manual		

Lower Manual

PRESET KEY	DRAWBAR SETTING	TONE QUALITY	LOUDNESS VALUE
C		Cancel	
C♯	00 4545 440	Cello	mp
D	00 4423 220	Flute & String	mp
D♯	00 7373 430	Clarinet	mf
E	00 4544 220	Diapason, Gamba and Flute	mf
F	00 6644 322	Great, no reeds	f
F♯	00 5642 200	Open Diapason	f
G	00 6845 433	Full Great	ff
G♯	00 8030 000	Tibia Clausa	f
A	42 7866 244	Full Great with 16'	fff
A♯	Adjust harmonic Drawbars in 1st group, Lower Manual		
B	Adjust harmonic Drawbars in 2nd group, Lower Manual		

Hammond Jazz Organ Presets

Upper Manual

PRESET KEY	DRAWBAR SETTING	TONAL NAME
C		Cancel
C♯	00 8000 000	8'
D	80 8000 008	16' & 8'
D♯	88 8000 000	Basic 3
E	80 0000 888	Chords
F	80 8000 888	Funky
F♯	88 8000 000	Mellow
G	88 8000 888	Power
G♯	88 8000 008	Groove
A	88 8666 888	Full
A♯	Adjust harmonic Drawbars in 1st group, Upper Manual	
B	Adjust harmonic Drawbars in 2nd group, Upper Manual	

Lower Manual

PRESET KEY	DRAWBAR SETTING	TONAL NAME
C		Cancel
C♯	00 0800 000	4'
D	00 8000 000	8'
D♯	80 4000 000	Basic 3 (bass)
E	00 8532 008	Accomp.
F	82 8000 000	Funky (bass)
F♯	80 8000 000	Basic (bass)
G	84 8000 000	Power (bass)
G♯	00 8556 000	Full Accomp.
A	88 8060 000	Full (bass)
A♯	Adjust harmonic Drawbars in 1st group, Lower Manual	
B	Adjust harmonic Drawbars in 2nd group, Lower Manual	

NOTE: The notation "bass" indicated a Drawbar setting suitable for playing a bass line from the Lower Manual.

Hammond Theatre Presets

Upper Manual

PRESET KEY	DRAWBAR SETTING	TONE QUALITY
C		Cancel
C♯	00 8740 000	French Horn 8'
D	00 8408 004	Tibias 8' & 2'
D♯	00 8080 840	Clarinet 8'
E	08 8800 880	Novel Solo 8'
F	60 8088 000	Theatre Solo 16'
F♯	00 4685 300	Oboe Horn 8'
G	60 8807 006	Full Tibias 16'
G♯	00 6888 654	Trumpet 8'
A	76 8878 667	Full Theatre Brass 16'
A♯	Adjust harmonic Drawbars in 1st group, Upper Manual	
B	Adjust harmonic Drawbars in 2nd group, Upper Manual	

Lower Manual

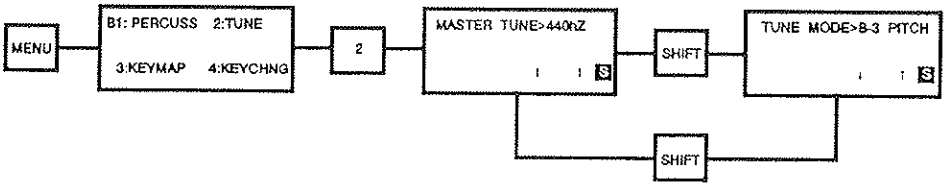
PRESET KEY	DRAWBAR SETTING	TONE QUALITY
C		Cancel
C♯	00 4545 440	Cello 8'
D	00 4432 000	Dulciana 8'
D♯	00 4800 000	Vibraharp 8'
E	00 2500 234	Vox 8' & Tibia 4'
F	00 6554 322	String Accomp. 8'
F♯	00 5642 200	Open Diapason 8'
G	00 7656 311	Full Accomp. 8'
G♯	00 8030 000	Tibia 8'
A	84 7767 666	Bombarde 16'
A♯	Adjust harmonic Drawbars in 1st group, Lower Manual	
B	Adjust harmonic Drawbars in 2nd group, Lower Manual	

Hammond Organ Model XB-3/XC-3

Special Advanced Features

SPECIAL ADVANCED FEATURES

Advanced Features - Tune



There are two Advanced Feature Tune Menus that allow you to make the following changes to the organ:

1. Tune -
   With this Advanced Feature you can change the overall tuning pitch of the organ.

2. Tune Mode -
   With this Advanced Feature you can select between Equal Temperament or B-3 temperament.

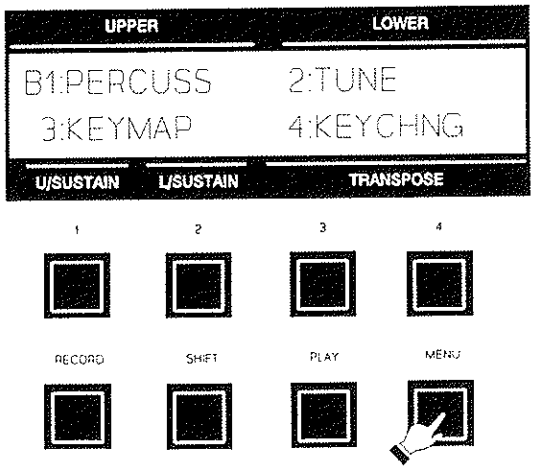
The following pages give a more detailed explanation of how these Advanced Feature Menus work.

♦ Tune - Tuning

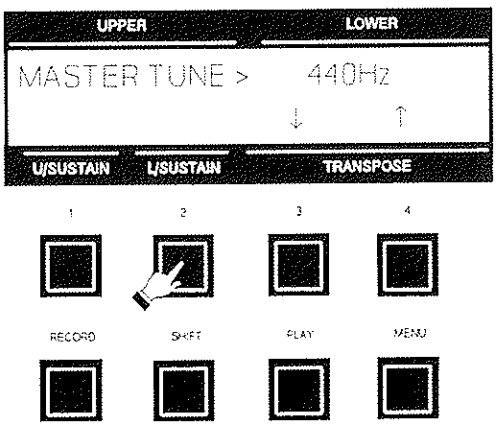
You can change the overall tuning pitch of the organ with this Advanced Feature.

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the B Screen of the Menu Mode is displayed:



2. Touch the black Number 2 Select Touch Button. The Information Center Display should look like this:



3. To change the Pitch of the organ, do the following:

   Use the black Number 3 "↓" Select Touch Button to lower the pitch of the organ.

   Use the black Number 4 "↑" Select Touch Button to raise the pitch of the organ.

The tuning limits are 430Hz (lowest) to 450Hz (highest). The default setting is "440Hz".

This is a Global Command, and this data CAN NOT be stored to a Preset. To see a total listing of all Global Commands, see Appendix A, "Global Data", starting on page 180.

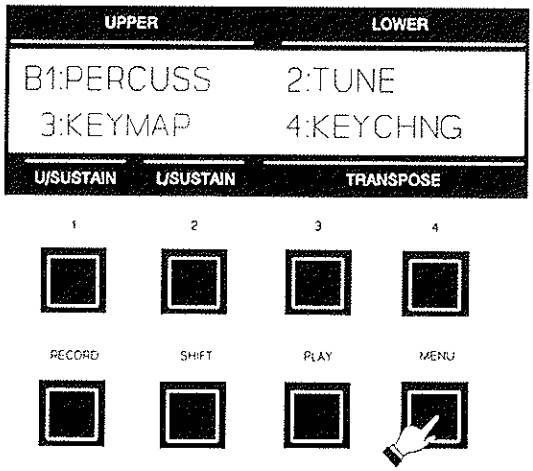
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons. To see the Tune menu again, Touch the black SHIFT Select Touch Button.

♦ Tune - Tune Mode

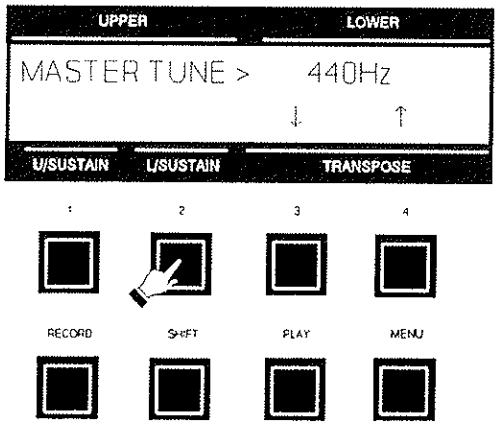
You can change the overall temperament of the organ with this Advanced Feature.

TRY THIS:

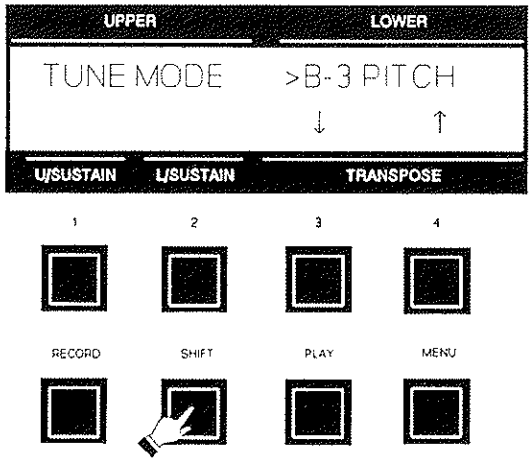
1. Touch the black MENU Select Touch Button repeatedly until the B Screen of the Menu Mode is displayed:



2. Touch the black Number 2 Select Touch Button. The Information Center Display should look like this:



3. Touch the black SHIFT Select Touch Button once. The Information Center Display should look like this:



4. To change the Tune Mode of the organ, do the following:

Use either the black Number 3 "↓" or the black Number 4 "↑" Select Touch Button to change the Tune Mode of the organ.

You can select either "E-TEMPERA" (Equal Temperament) or "B-3 PITCH", which will alter the frequency of certain notes in a manner similar to the characteristics of the tone-wheel generator used in the B-3, C-3, RT-3 and A-100. The default mode is "B-3 PITCH".

NOTE: The change in temperament is a subtle effect. It will not be obvious to the untrained ear.

This is a Global Command, and the data CAN NOT be stored to a Preset. To see a total listing of all Global Commands see, Appendix A, "Global Data", starting on page 180.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons. To see the Tune menu again, Touch the black SHIFT Select Touch Button.

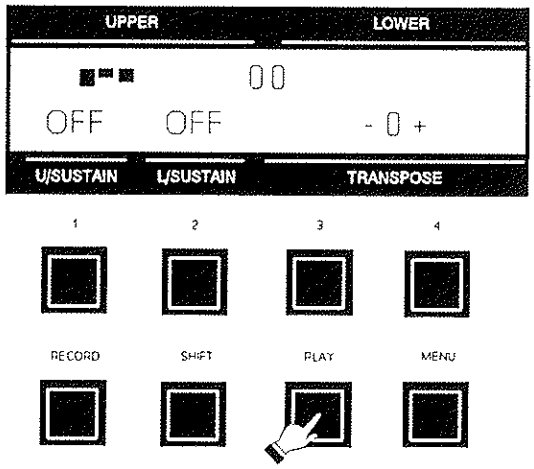
♦ Tune - Controller Offset

You can use the Pitch Bend Wheel to change the overall tuning pitch of the organ with this Advanced Feature.

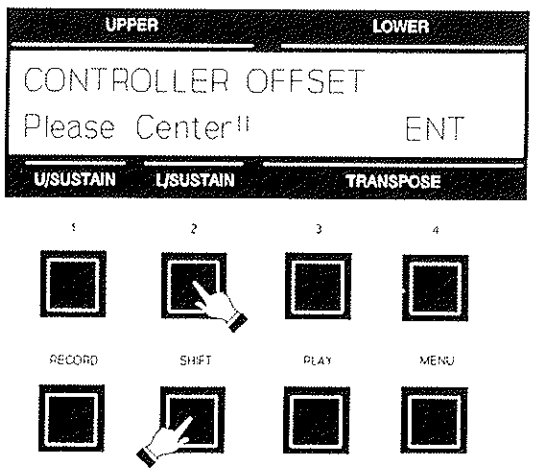
TRY THIS:

1. Move the Pitch Bend and Modulation Wheels to the center positions.

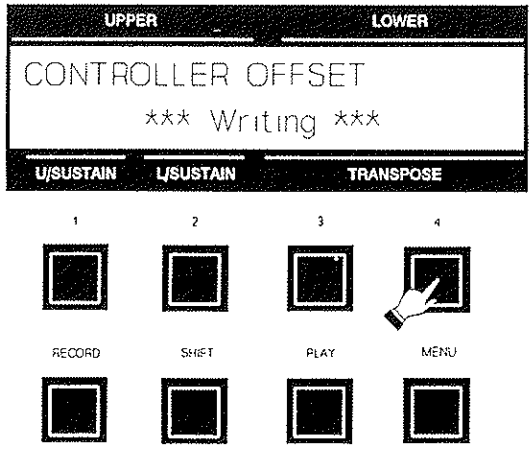
2. Touch the black PLAY Select Touch Button so that one of the Play modes is displayed:



3. With your left hand, Touch and Hold the black SHIFT Select Touch Button, and with your right hand, Touch the black Number 2 Select Touch Button. The Information Center Display should look like this:



4. Move the Pitch Wheel in either direction until it is at the pitch you want. While holding the Pitch Wheel at the desired point, Touch the black Number 4 Select Touch Button. The Information Center Display should show the following for about 1 second:



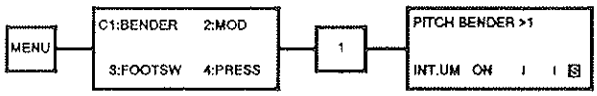
The tuning pitch of the organ will now be offset by the amount which you set using the Pitch Wheel.

NOTE: The pitch of the organ will be offset in the opposite pitch direction from which you moved the Pitch Wheel - for example, if you move the Pitch Wheel up by the amount you want, then perform the above procedure to change the pitch, the pitch of the organ will be lowered by the same degree.

This is a Global Command, and the data CAN NOT be stored to a Preset. To see a total listing of all Global Commands see, Appendix A, "Global Data", starting on page 180.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons. To see the Tune menu again, Touch the black SHIFT Select Touch Button.

Advanced Feature - Pitch Bend



This Advanced Feature Menu allows you to make the following changes to the organ.

Pitch Bend -

You can turn Pitch Bend "ON" or "OFF" and set the range of the Pitch Bend Wheel for the Upper Manual, Lower Manual and the Pedal Keyboard all separately. This would apply to both the sound produced by the Drawbars as well as to any connected external MIDI device.

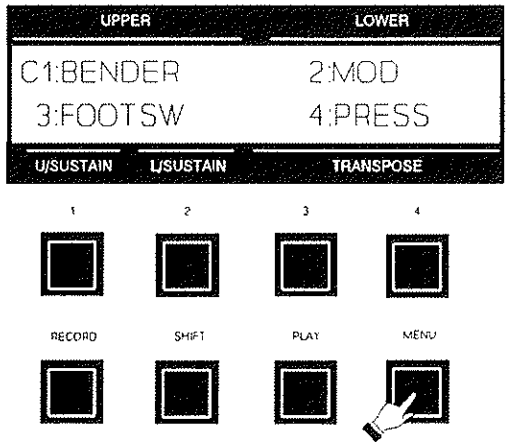
The following pages give a more detailed explanation of how this Advanced Feature Menu works.

♦ Bender - Pitch Bender

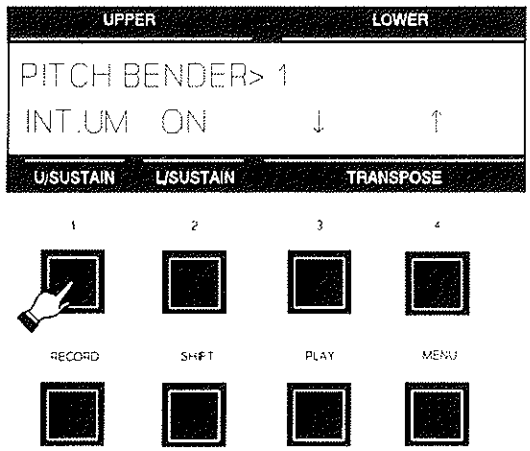
You can change the range of the Pitch Bend Wheel of the organ with this Advanced Feature.

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the C Screen of the Menu Mode is displayed:



2. Touch the black Number 1 Select Touch Button. The Information Center Display should look like this:



3. To select which manual to select the Pitch Bend Wheel parameters for, do the following:

Use the black Number 1 Select Touch Button to scroll and select either INTernal or EXTernal within each manual.

Use the black Number 2 Select Touch Button to turn the Pitch Bend Wheel "ON" or "OFF" for the manual or pedal choice indicated.

Use the black SHIFT Select Touch Button to scroll and select the manual to be assigned - Upper Manual, Lower Manual or Pedal Keyboard.

4. To select the Pitch Bend range for each manual and pedals, do the following:

Use the black Number 3 "↓" Select Touch Button to decrease the pitch range of the Pitch Bend Wheel. The lowest setting is 1 (one half-step up or down).

Use the black Number 4 "↑" Select Touch Button to increase the pitch range of the Pitch Bend Wheel. The highest setting is 12 (twelve half-steps, or one full octave up or down).

The data chart below shows the options that you may select for each manual and pedals.

PITCH BEND OPTIONS	
Manual On/Off	Pitch Bend Limits
UPPER	±1 - 12
LOWER	±1 - 12
PEDAL	±1 - 12
EXT.UM1,2,3	±1 - 12
EXT.LM1,2,3	±1 - 12
EXT.PK1,2,3	±1 - 12

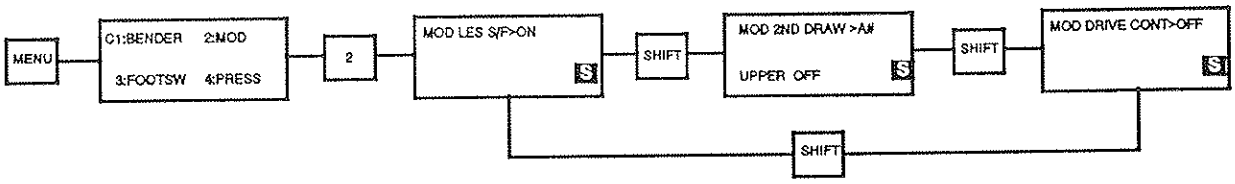
default setting is 1.

NOTE: The "INT." and "EXT." designations are abbreviations for "INTernal" and EXTernal", and refer to the fact that the organ is capable of transmitting MIDI information on more than one channel simultaneously from the same manual. For more information, consult the MIDI Reference Guide, which contains a complete explanation of the MIDI functions of the organ.

This data CAN be stored to a Preset, and recalled when Preset Play Mode is set to "STANDARD". This means that each of the Presets can store a different Pitch Bend setting. To see a total listing of all Commands that can be saved to the Presets, see Appendix B, "Preset Initial Data", starting on page 181. For more information about Preset modes, see "Advanced Features - Preset", starting on page 106.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons. To see the Bender menu again, Touch the black SHIFT Select Touch Button.

Advanced Features - Modulation Wheel



There are three Advanced Feature Modulation Wheel Menus that allow you to make the following changes to the organ.

1. LES S/F (Leslie Slow/Off/Fast ON / OFF) -
   You can select whether or not you want to control the speed of the rotors of an external Leslie Speaker cabinet by using the Modulation Wheel.

2. 2ND DRAW (Second Drawbar) -
   You can use the Modulation Wheel to fade from one Drawbar combination to another.

3. DRIVE LEVEL (Tube Overdrive Level) -
   You can use the Modulation Wheel to control the amount of Tube Overdrive.

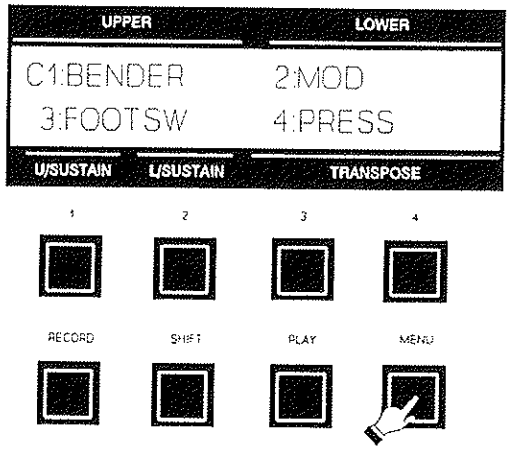
The following pages give a more detailed explanation of how these Advanced Feature Menus work.

♦ Modulation Wheel - Leslie Slow/Off/Fast ON / OFF

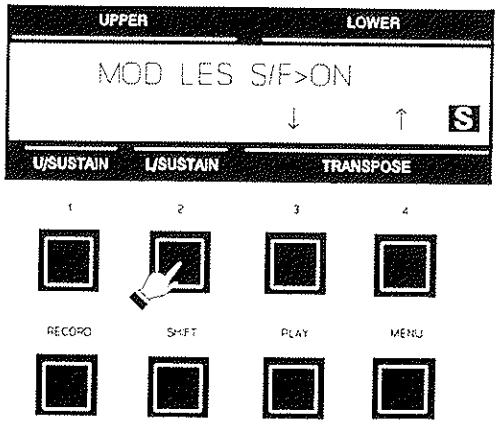
You can select whether you want the Modulation Wheel to control the speed of the rotors of a Leslie Speaker cabinet with this Advanced Feature.

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the C Screen of the Menu Mode is displayed:



2. Touch the black Number 2 Select Touch Button. The Information Center Display should look like this:



When the Information Center Display is in this mode, you will be able to:

Use either the black Number 3 "↓" or the black Number 4 "↑" Select Touch Button to select "ON" or "OFF". The default mode is "ON".

For a listing of the options that you may select for the rotors of a connected Leslie Speaker cabinet, refer to the data chart on page 83.

This data CAN be stored to an Upper Manual Preset, and recalled when Preset Play Mode is set to "STANDARD". To see a total listing of all Commands that can be saved to the Presets, see Appendix B, "Preset Initial Data", starting on page 181. For more information about Preset modes, see "Advanced Features - Preset", starting on page 106.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons. To see the Modulation Wheel menu again, Touch the black SHIFT Select Touch Button.

♦ Modulation Wheel - Second Drawbar

The organ has 2 sets of drawbars for each manual. Normally, as explained previously in the Presets section of this Owner's Playing Guide, only one Preset or one group of Drawbars can be used at a time on each manual. However, using the Second Drawbar Advanced Feature, you can "mix" the currently selected Preset setting with another Preset (on the same manual). The following explanation will give an example of how to use this feature.

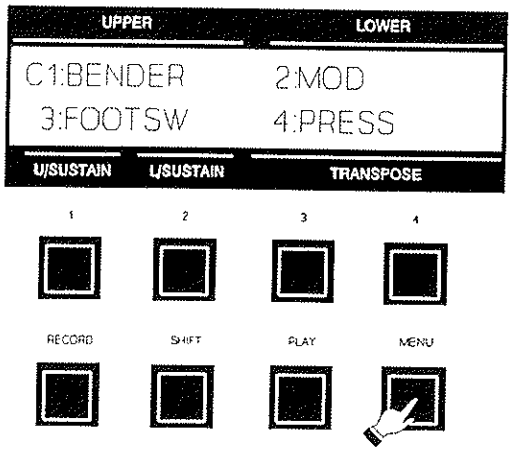
There are two ways to control this feature:

1. Using the Modulation Wheel. This will be explained below.

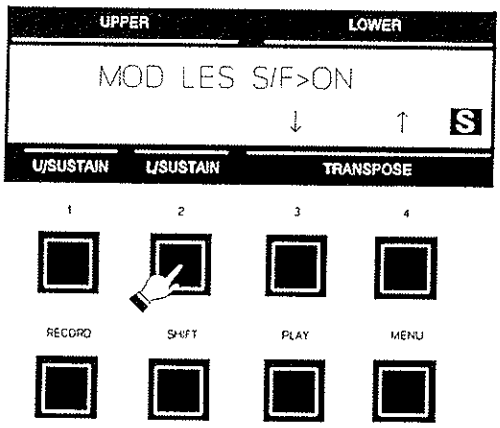
2. Using Key Pressure. This will be explained under "PRESS - Second Drawbar", starting on page 146.

TRY THIS - To use the Modulation Wheel to control the Second Drawbar feature:

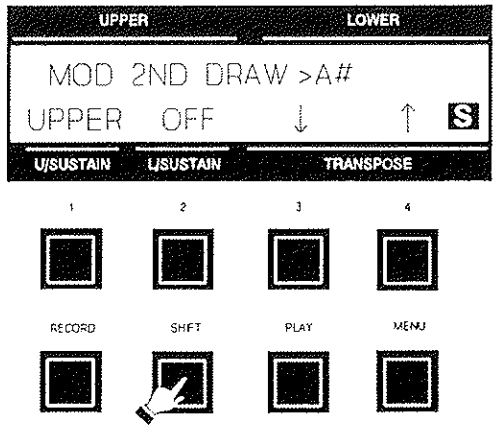
1. Touch the black MENU Select Touch Button repeatedly until the C Screen of the Menu Mode is displayed:



2. Touch the black Number 2 Select Touch Button. The Information Center Display should look like this:



3. Touch the black SHIFT Select Touch Button once. The Information Center Display should look like this:



When the Information Center Display is in this mode, you will be able to:

Use the black Number 1 Select Touch Button to select either the Upper or Lower Manual.

Use the black Number 2 Select Touch Button to turn the Second Drawbar function "ON" or "OFF" for the selected manual.

Use the black Number 3 "↓" Select Touch Button to scroll down through the selections (B - C).

Use the black Number 4 "↑" Select Touch Button to scroll up through the selections (C - B).

For this example, with the Information Center Display in the mode shown above, Touch the black Number 2 Select Touch Button to turn Second Drawbar "ON" for the Upper Manual.

TRY THIS:

1. Set up the Upper Manual "A♯" Drawbar set for the following registration: 00 8877 665.

2. Set up the Upper Manual "B" Drawbar set for the following registration: 00 8870 000.

3. Touch the "B" Preset Key on the Upper Manual. The red LED should light.

4. If "A♯" is not already displayed next to the ">" sign, Touch either the Number 3 or Number 4 Select Touch Button repeatedly until "A♯" displays.

5. Now, making sure that the Modulation Wheel position is all the way to the **left**, play and hold a "C" chord on the Upper Manual. You will hear the registration you set up for the "B" Preset Key.

6. Move the Modulation Wheel slowly to the **right**, and you will hear the registration for the "A♯" Preset Key mixed with your "B" Preset Key registration. If you move the Modulation Wheel all the way to the right, your "B" Preset Key registration will fade out - only the "A♯" Preset Key registration will sound.

This feature can be very useful when you want to make quick registration changes during the course of an arrangement. Any of the Preset Keys from "C" through "B" can be used as the alternate or "second" registration while any of the other Preset Keys are active. Select which Preset Key you want to be the "second" registration in the Information Center Display. This "second" registration will play when the Modulation Wheel is all the way to the **right**. When the Modulation Wheel is set to the **left**, the currently selected Preset Key will play.

The data chart below shows the options that you may select for each manual.

MANUAL	PRESET KEY NAME
UPPER	C - C♯ - D - D♯ - E - F - G - G♯ - A - *A♯ - B
LOWER	C - C♯ - D - D♯ - E - F - G - G♯ - A - *A♯ - B

* default setting

This data CAN be stored to a Preset, and recalled when Preset Play Mode is set to "STANDARD". This means that each of the Upper and Lower Manual Presets can store different settings. To see a total listing of all Commands that can be saved to the Presets, see Appendix B, "Preset Initial Data", starting on page 181. For more information about Preset modes, see "Advanced Features - Preset", starting on page 106.

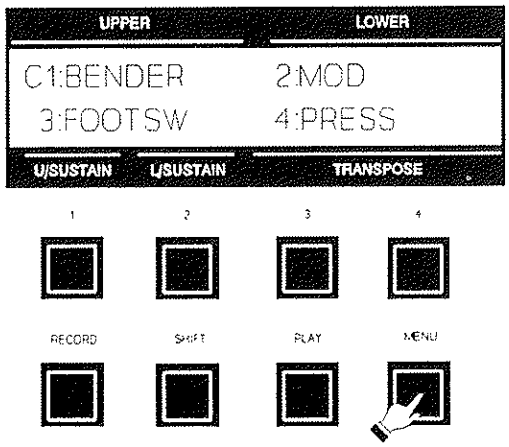
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons. To see the Modulation Wheel menu again, Touch the black SHIFT Select Touch Button.

♦ Modulation Wheel - Tube Overdrive Control

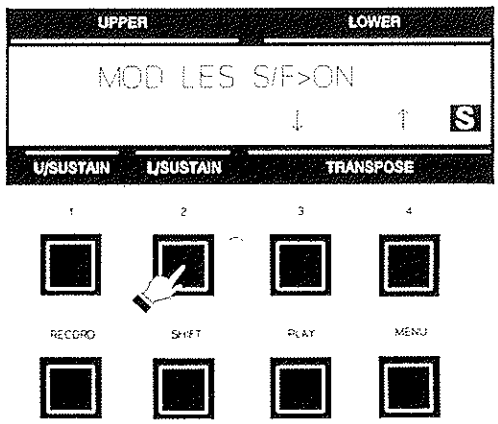
You can select whether you want to add the Tube Overdrive effect by moving the Modulation Wheel. This feature works in conjunction with the TUBE OVERDRIVE Rotary Control. You must have the Rotary Control turned to the right to use this function, otherwise you will not hear the Tube Overdrive effect.

TRY THIS:

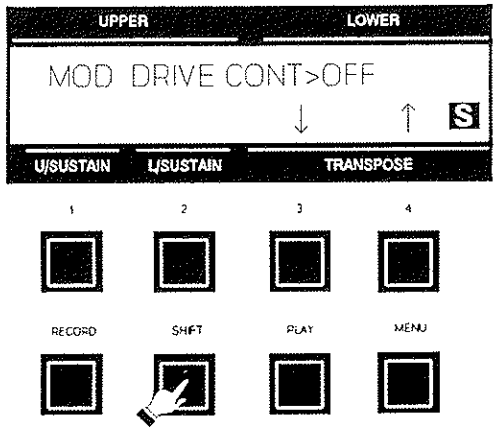
1. Touch the black MENU Select Touch Button repeatedly until the C Screen of the Menu Mode is displayed:



2. Touch the black Number 2 Select Touch Button. The Information Center Display should look like this:



3. Touch the black SHIFT Select Touch Button repeatedly until the Information Center Display shows the following:



When the Information Center Display is in this mode, you will be able to:

Use either the black Number 3 "↓" or the black Number 4 "↑" Select Touch Button to turn this Advanced Feature "ON" or "OFF". The default setting is "OFF".

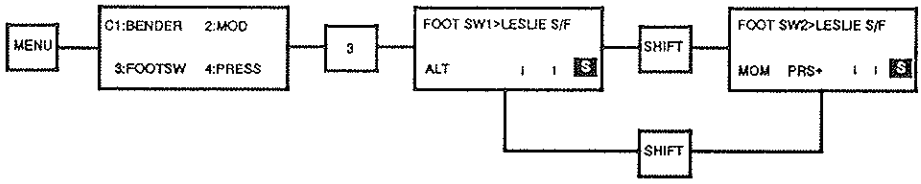
For more information about the Tube Overdrive effect see pages 8, 92 of this Owner's Playing Guide.

NOTE: The TUBE OVERDRIVE Rotary Control works in conjunction with the Modulation Wheel when this Advanced Feature is selected "ON". If the TUBE OVERDRIVE Rotary Control is set at a halfway point, the Modulation Wheel will add the Tube Overdrive effect up to the point allowed by the Rotary Control. In order to hear the full effect of Tube Overdrive, the Rotary Control must be turned up all the way.

This data CAN be stored to an Upper Manual Preset, and recalled when Preset Play Mode is set to "STANDARD". To see a total listing of all Commands that can be saved to the Presets, see Appendix B, "Preset Initial Data", starting on page 181. For more information about Preset modes, see "Advanced Features - Preset", starting on page 106.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons. To see the Modulation Wheel menu again, Touch the black SHIFT Select Touch Button.

Advanced Feature - Foot Switches



There are two Advanced Feature Foot Switch Menus that allow you to make the following changes to the organ.

1. FOOT SWitch 1 -
   You can program 1 of 11 separate functions for the Foot Switch mounted on the Expression Pedal.

2. FOOT SWitch 2 -
   You can program 1 of 11 separate functions for an additional Foot Switch. The FOOT SWITCH 2 jack is found in the Accessory Panel on the back of the organ.

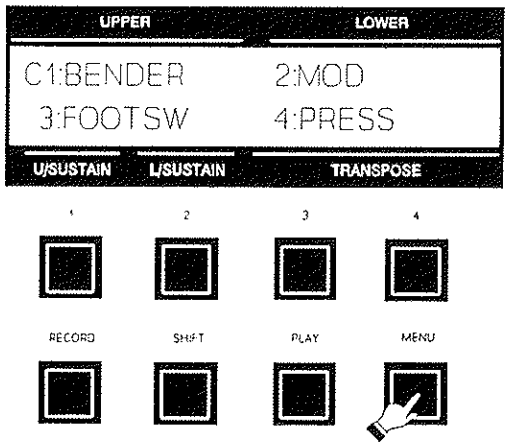
The following pages give a more detailed explanation of how these Advanced Feature Menu works.

♦ FOOTSW

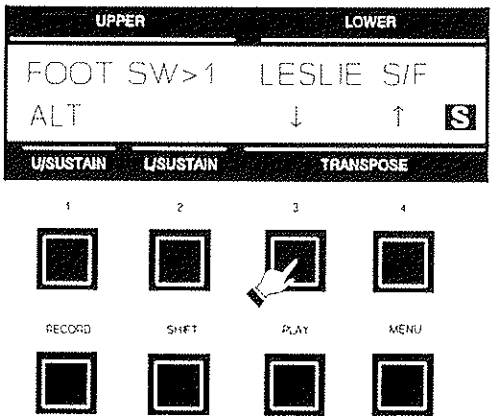
With this Advanced Feature, you can select a separate function for each Foot Switch.

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the C Screen of the Menu Mode is displayed:



2. Touch the black Number 3 Select Touch Button. The Information Center Display should look like this:



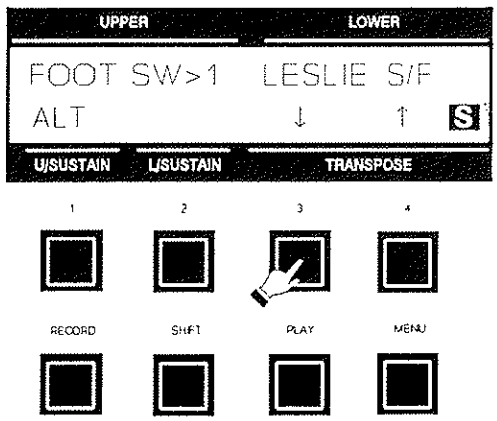
3. To select from the options for Foot Switch 1, do the following:

   Use the black Number 1 Select Touch Button to select either ALTernate (turn-on/turn-off) or MOMentary (turn-on-and-hold) function for the Foot Switch.

   Use the black Number 3 "↓" Select Touch Button to scroll down through the Foot Switch options.

   Use the black Number 4 "↑" Select Touch Button to scroll up through the Foot Switch options.

4. Touch the black SHIFT Select Touch Button until the Information Center Display shows the following:



5. To select from the options for Foot Switch 2, do the following:

   Use the black Number 1 Select Touch Button to select either ALTernate (turn-on/turn-off) or MOMentary (turn-on-and-hold) function for the Foot Switch.

   Use the black Number 2 Select Touch Button to select either "PRS+" or "PRS-". "PRS+" refers to a foot switch that "closes", or makes contact, when depressed, such as the Hammond foot switch. Some foot switches from other manufacturers "open", or break contact, when depressed. If you have one of these foot switches, use this Advanced Feature to select the mode of operation you desire.

   Use the black Number 3 "↓" Select Touch Button to scroll down through the Foot Switch options.

   Use the black Number 4 "↑" Select Touch Button to scroll up through the Foot Switch options.

The data chart below shows the options that you may select for each Foot Switch.

FOOT SWITCH OPTIONS		
FOOT SWITCH	OPTION	ACTION
FOOT SW1 (Foot Switch 1 - Expression Pedal) FOOT SW2 (Foot Switch 2)	OFF	Disables the foot switch, allowing it to be used strictly for sending MIDI Codes.
	*LESLIE S/F	Use for turning the Leslie rotor "ON" or "OFF".
	UPPER SUS	Turn Sustain "ON" for the Upper Manual.
	LOWER SUS	Turn Sustain "ON" for the Lower Manual.
	REV UM A♯/B	This will reverse the Drawbar settings for the two Adjust preset keys for the Upper Manual.
	REV LM A♯/B	This will reverse the Drawbar settings for the two Adjust preset keys for the Lower Manual.
	UM DAMPER	This will allow notes played on the Upper Manual to be "damped" or sustained.
	LM DAMPER	This will allow notes played on the Lower Manual to be "damped" or sustained.
	+UM SOSTENUT	This will allow individual notes played on the Upper Manual to be sustained.
	LM SOSTENUT	This will allow individual notes played on the Lower Manual to be sustained.
	MIDI ST/SP	Sends the MIDI Start and Stop command.

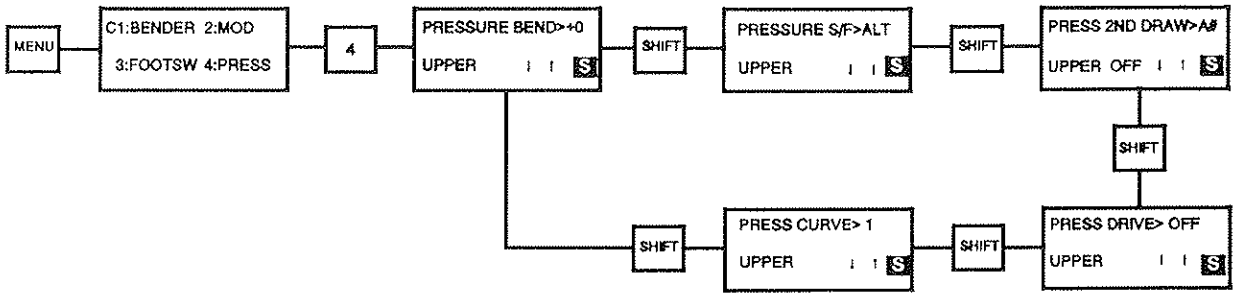
* default setting for Foot Switch 1
\+ default setting for Foot Switch 2

This data CAN be stored to a Preset, and recalled when Preset Play Mode is set to "STANDARD". To see a total listing of all Commands that can be saved to the Presets, see Appendix B, "Preset Initial Data", starting on page 181. For more information about Preset modes, see "Advanced Features - Preset", starting on page 106.

NOTE: The organ will automatically patch the foot switch on the Expression Pedal to Foot Switch 1. The Foot Switch port allows an optional foot switch to be connected to the organ. The function of the separate foot switch is set by the Foot Switch 2 (FOOTSW2) Menu selection.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

Advanced Features - Key Pressure



Your Hammond Organ has a feature called "After Touch", also called KEY PRESSURE. This is a feature which allows you to make changes to the sound of the organ by pressing harder on the keys while you are playing. This feature is most commonly used to change the sound produced by a connected MIDI sound source, and is therefore explained more fully in the MIDI Reference Guide. In addition, however, it is also possible to use Key Pressure to control internal features on the organ.

There are five Advanced Feature Key Pressure Menus that allow you to make the following changes:

1. PRESSURE BEND (Pitch Bend) -
   Allows you to select the range of the Pitch Bend for 1 half step to a full octave up or down (±12 note range) for both Upper and Lower Manuals.

2. PRESSURE S/F (Leslie Slow/Fast ON / OFF) -
   You can select whether you want to control the speed of the rotors of an external Leslie Speaker cabinet using Key Pressure on either Upper or Lower Manual.

3. PRESS 2ND DRAW (Second Drawbar) -
   Allows you to control the Second Drawbar feature with Key Pressure.

4. PRESS DRIVE (Tube Overdrive Level) -
   Allows you to use and control the Tube Overdrive effect with Key Pressure on either the Upper or Lower Manual.

5. PRESS CURVE (Pressure Curve) -
   Allows you to select the amount of pressure required to activate the Key Pressure Advanced Feature. There are different sensitivity settings to choose from for both Upper and Lower Manuals.

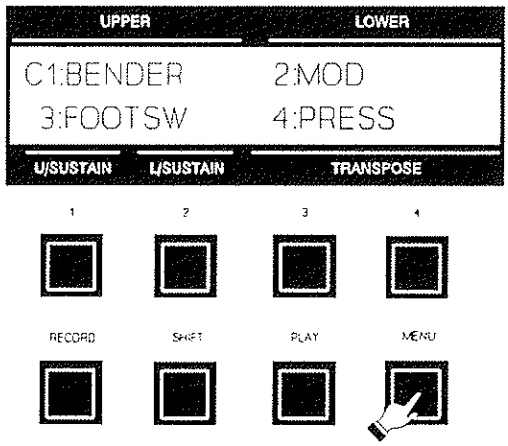
The following pages give a more detailed explanation of how these Advanced Feature Menus work.

♦ Key Pressure - Pitch Bend

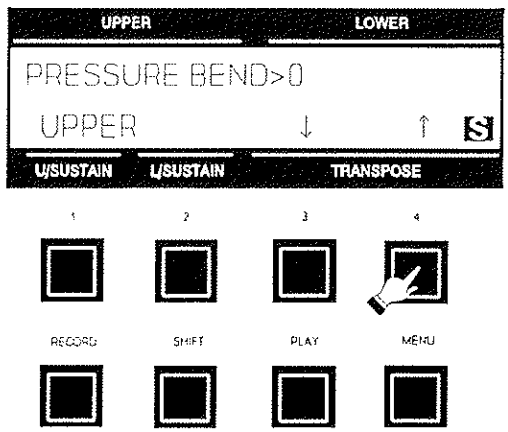
With this Advanced Feature, you can select the Pitch Bend range ± 12 half steps for both the Upper and Lower Manual.

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the C Screen of the Menu Mode is displayed:



2. Touch the black Number 4 Select Touch Button. The Information Center Display should look like this:



3. To select from among the Pressure Bend options of the organ, do the following:

Use the black Number 1 Select Touch Button to select either the Upper or Lower Manual.

Use the black Number 3 "↓" Select Touch Button to scroll down through the selections to the lowest setting of −12 half steps.

Use the black Number 4 "↑" Select Touch Button to scroll up through the selections to the highest setting of +12 half steps.

The data chart below shows the options that you may select for each manual.

MANUAL	LOWEST PITCH	HIGHEST PITCH
UPPER	0 to -12	0 to +12
LOWER	0 to -12	0 to +12

default setting is 0.

This data CAN be stored to an Upper or Lower Manual Preset, and recalled when Preset Play Mode is set to "STANDARD". This means that each of the Presets can store a different range setting. To see a total listing of all Commands that can be saved to the Presets, see Appendix B, "Preset Initial Data", starting on page 181. For more information about Preset modes, see "Advanced Features - Preset", starting on page 106.

NOTE: This Pressure Pitch Bend Advanced Feature will only affect the sound produced by the organ's Drawbars and not the sound of a connected MIDI device such as a sound module.

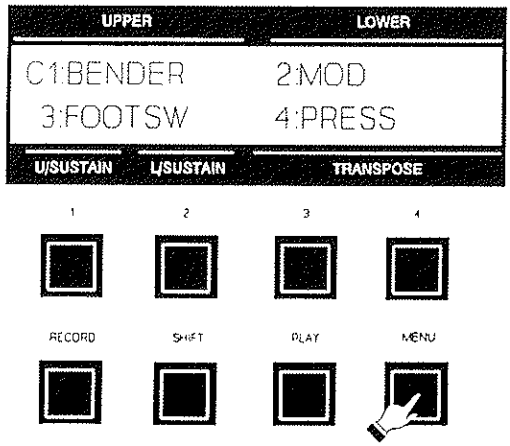
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

♦ Key Pressure - Leslie Slow/Fast ON / OFF

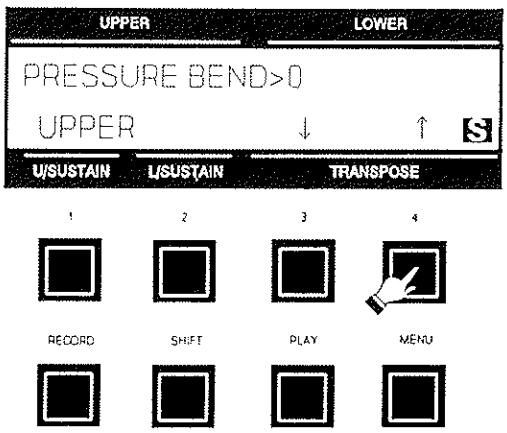
With this Advanced Feature you can control the speed of the rotors of a connected Leslie Speaker cabinet. You can select either ALTernate (turn-on/turn-off) or MOMentary (turn-on-and-hold). This can be done for both the Upper and Lower Manuals.

TRY THIS:

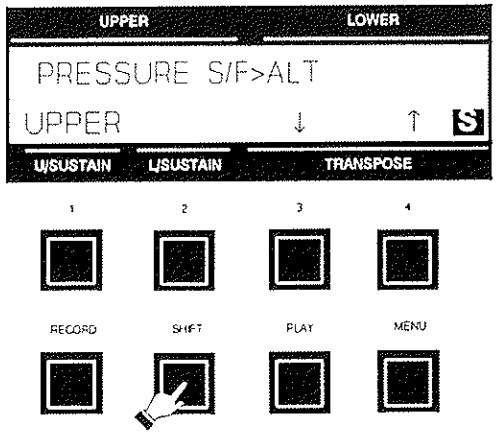
1. Touch the black MENU Select Touch Button repeatedly until the C Screen of the Menu Mode is displayed:



2. Touch the black Number 4 Select Touch Button. The Information Center Display should look like this:



3. Touch the black SHIFT Select Touch Button until the Information Center Display shows the following:



4. To select from among the Pressure Leslie Slow/Fast options of the organ, do the following:

Use the black Number 1 Select Touch Button to select either the Upper or Lower Manual.

Use the black Number 3 "↓" Select Touch Button to scroll down through the 3 options of "OFF", "ALT", or "MOM".

Use the black Number 4 "↑" Select Touch Button to scroll up through the 3 options of "OFF", "ALT", or "MOM".

The data chart below shows the options that you may select for each manual.

MANUAL	OPTIONS
UPPER	*OFF - ALT - MOM
LOWER	*OFF - ALT - MOM

* default setting

This data CAN be stored to an Upper or Lower Manual Preset, and recalled when Preset Play Mode is set to "STANDARD". This means that each of the Presets can store a different setting. To see a total listing of all Commands that can be saved to the Presets, see "Preset Initial Data", starting on page 181. For more information about Preset modes, see "Advanced Features - Preset", starting on page 106.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

4. If "A♯" is not already displayed next to the ">" sign, Touch the Number 3 Select Touch Button until "A♯" displays.

5. Now, play and hold a "C" chord on the Upper Manual. You will hear the registration you set up for the "B" Preset Key.

6. Press the keys you are holding with progressively more force, and you will hear the registration for the "A♯" Preset Key mixed with your "B" Preset Key registration. Continue to press harder, and eventually your "B" Preset Key registration will fade out - only the "A♯" Preset Key registration will sound.

This feature can be very useful when you want to make quick registration changes during the course of an arrangement. Any of the Preset Keys from "C" through "B" can be used as the alternate or "second" registration while any of the other Preset Keys are active. Select which Preset Key you want to be the "second" registration in the Information Center Display. This "second" registration will play when you apply Key Pressure by pressing harder on the keys. When you use normal key pressure, the currently selected Preset Key will play.

The data chart below shows the options that you may select for each manual.

MANUAL	PRESET KEY NAME
UPPER	C - C♯ - D - D♯ - E - F - G - G♯ - A - *A♯ - B
LOWER	C - C♯ - D - D♯ - E - F - G - G♯ - A - *A♯ - B

* default setting

This data CAN be stored to an Upper or Lower Manual Preset, and recalled when Preset Play Mode is set to "STANDARD". This means that each of the Presets can store a different setting. To see a total listing of all Commands that can be saved to the Presets, see Appendix B, "Preset Initial Data", starting on page 181. For more information about Preset modes, see "Advanced Features - Preset", starting on page 106.

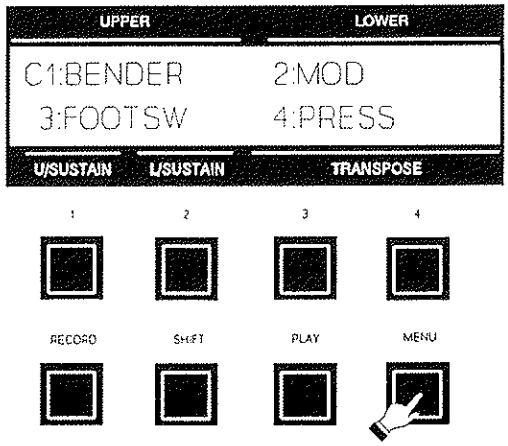
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

♦ Key Pressure - Tube Overdrive Control

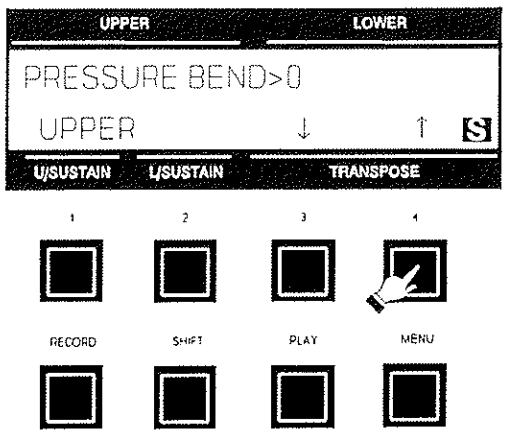
This allows you to use and control the Tube Overdrive effect with Key Pressure on either the Upper or Lower Manual. This feature works in conjunction with the TUBE OVERDRIVE Rotary Control. You must have the Rotary Control turned to the right to use this function, otherwise you will not hear the Tube Overdrive effect.

TRY THIS:

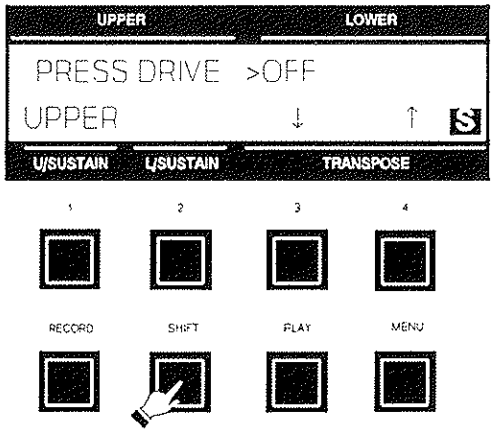
1. Touch the black MENU Select Touch Button repeatedly until the C Screen of the Menu Mode is displayed:



2. Touch the black Number 4 Select Touch Button. The Information Center Display should look like this:



3. Touch the black SHIFT Select Touch Button repeatedly until the Information Center Display shows the following:



4. To select from among the Pressure Drive options of the organ, do the following:

Use the black Number 1 Select Touch Button to select either the Upper or Lower Manual.

Use either the black Number 3 "↓" or the black Number 4 "↑" Select Touch Button to turn the Pressure Drive "ON" or "OFF".

The data chart below shows the options that you may select for each manual and pedals.

MANUAL	PRESS DRIVE OPTION
UPPER	ON or OFF
LOWER	ON or OFF

default setting is OFF.

For more information about the Tube Overdrive effect see pages 8, 92 of this Owner's Playing Guide.

NOTE: The TUBE OVERDRIVE Rotary Control works in conjunction with Key Pressure when this Advanced Feature is selected "ON". If the TUBE OVERDRIVE Rotary Control is set at a halfway point, using Key Pressure will add the Tube Overdrive effect up to the point allowed by the Rotary Control. In order to hear the full effect of Tube Overdrive, the Rotary Control must be turned up all the way.

This data CAN be stored to an Upper or Lower Manual Preset, and recalled when Preset Play Mode is set to "STANDARD". To see a total listing of all Commands that can be saved to the Presets, see "Preset Initial Data", starting on page 181. For more information about Preset modes, see "Advanced Features - Preset", starting on page 106.

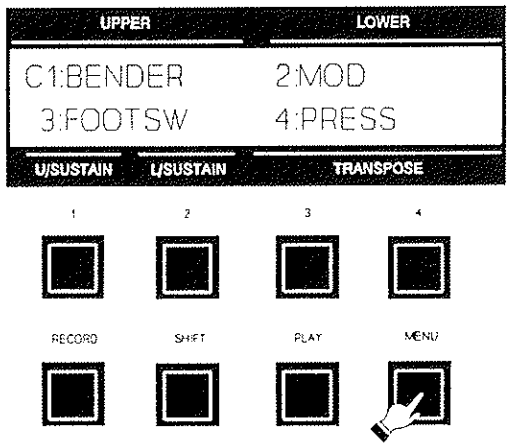
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

♦ Key Pressure - Pressure Curve

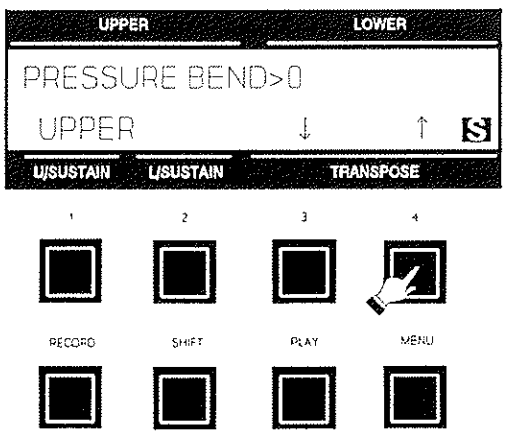
Using Pressure Curve you can select the amount of pressure required to activate the Key Pressure Advanced Feature. There are different sensitivity settings to choose from and they are selectable for both the Upper and Lower Manuals.

TRY THIS:

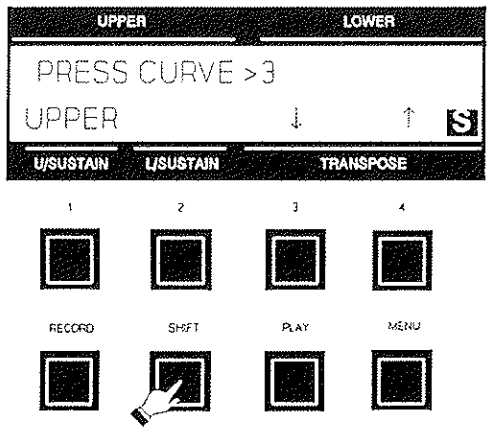
1. Touch the black MENU Select Touch Button repeatedly until the C Screen of the Menu Mode is displayed:



2. Touch the black Number 4 Select Touch Button. The Information Center Display should look like this:



3. Touch the black SHIFT Select Touch Button repeatedly until the Information Center Display shows the following:



4. To select from among the Pressure Curve options of the organ, do the following:

Use the black Number 1 Select Touch Button to select either the Upper or Lower Manual.

Use the black Number 3 "↓" Select Touch Button to scroll down through the Curve settings.

Use the black Number 4 "↑" Select Touch Button to scroll up through the Curve settings.

The data chart below shows the options that you may select for each manual and pedals.

MANUAL	CURVE OPTIONS
UPPER	1 - 6
LOWER	1 - 6

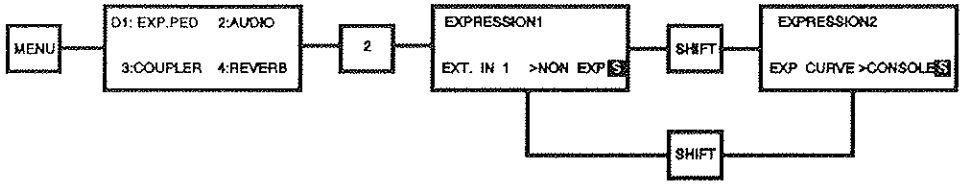
default setting is 3.

NOTE: To see a chart showing the curves for both Velocity and Pressure, consult the MIDI Reference Guide.

This data CAN be stored to an Upper or Lower Manual Preset, and recalled when Preset Play Mode is set to "STANDARD". This means that each of the Presets can store a different Pressure Curve setting. To see a total listing of all Commands that can be saved to the Presets, see Appendix B, "Preset Initial Data", starting on page 181. For more information about Preset modes, see "Advanced Features - Preset", starting on page 106.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

Advanced Features - Expression Pedal



There are two Advanced Feature Expression Pedal Menus that allow you to make the following changes to the organ.

1. EXPRESSION1 - EXT IN NON EXP/EXP -
   You can select whether you want to control the volume of external sound sources from the Expression Pedal.

2. EXPRESSION2 - EXP CURVE -
   You can select the response curve of the Expression Pedal. There are two choices - "CONSOLE" or "SPINET".

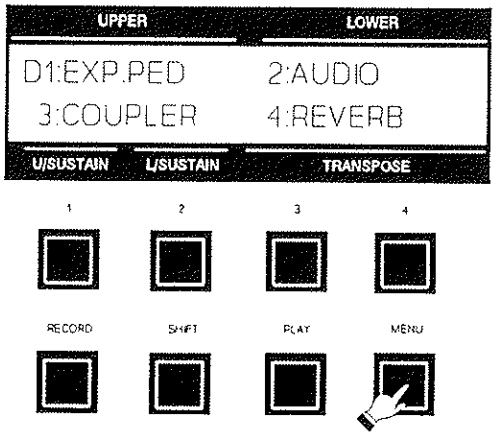
The following pages give a more detailed explanation of how these Advanced Feature Menus work.

♦ Expression Pedal - External In NON EXP / EXP

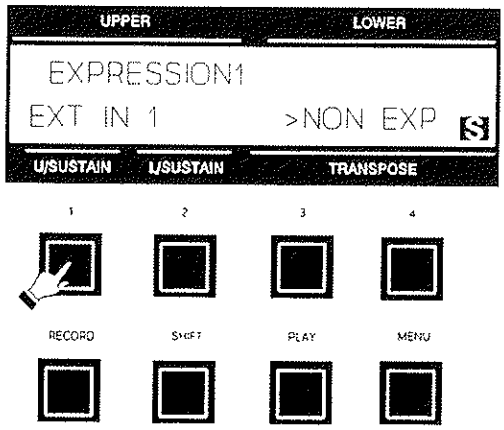
With this Advanced Feature, you can select whether you want to control the volume of external sound sources from the Expression Pedal.

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the D Screen of the Menu Mode is displayed:



2. Touch the black Number 1 Select Touch Button. The Information Center Display should look like this:



3. To select from among the options for this Advanced Feature, do the following:

Use the black Number 1 Select Touch Button to select either EXT IN 1 or EXT IN 2.

Use either the black Number 3 or Number 4 Select Touch Buttons to select either EXP or NON EXP.

The data chart below shows the options that you may select for each manual and pedals.

EXPRESSION OPTIONS			
Selection	**Function**	**Selection**	**Function**
EXT IN 1	Affects the signal coming into the INPUT 1 jacks.	*EXP/NON EXP	When NON EXP is selected, the incoming signal is not affected by the Expression Pedal. When EXP is selected, the volume of the incoming signal is regulated by the Expression Pedal in conjunction with the EXT.IN Rotary Control.
EXT IN 2	Affects the signal coming into the INPUT 2 jacks.	*EXP/NON EXP	

* default setting

This is a Global Command, and this data CAN NOT be stored to a Preset. To see a total listing of all Global Commands, see Appendix A, "Global Initial Data", on page 180.

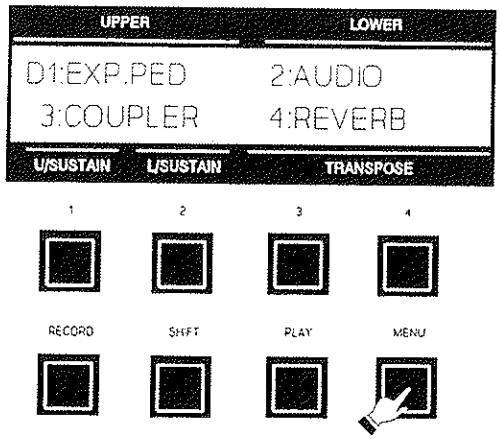
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

◆ Expression Pedal - Expression Curve

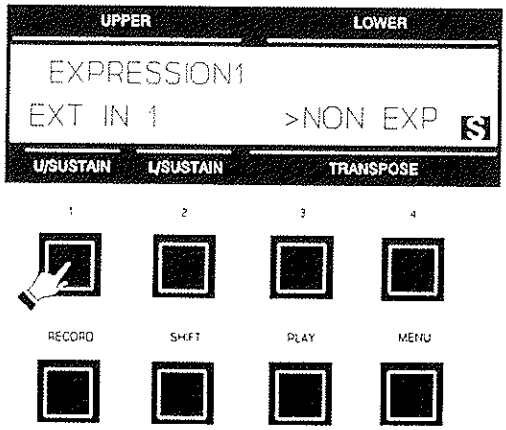
With this Advanced Feature, you can select the response curve of the Expression Pedal.

TRY THIS:

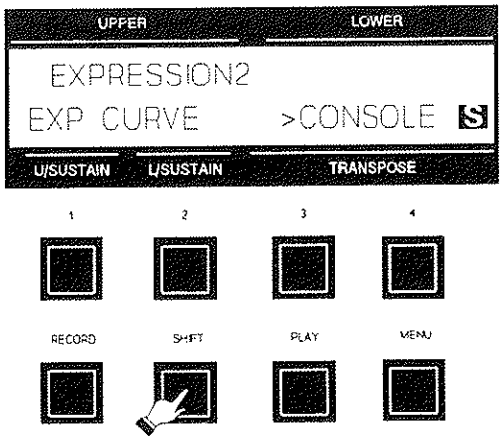
1. Touch the black MENU Select Touch Button repeatedly until the D Screen of the Menu Mode is displayed:



2. Touch the black Number 1 Select Touch Button. The Information Center Display should look like this:



3. Touch the black SHIFT Select Touch Button until the Information Center Display shows the following:



4. To select the desired Expression Pedal curve, do the following:

   Use any of the black numbered Select Touch Buttons to select either CONSOLE or SPINET.

The data chart below shows the options that you may select.

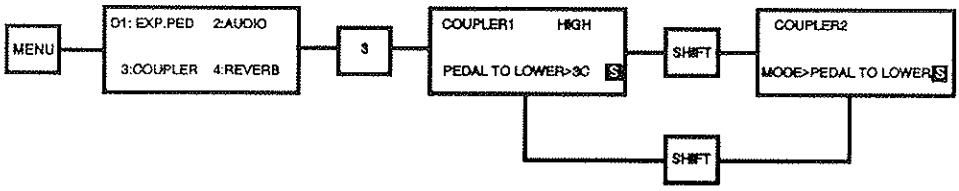
EXPRESSION2 OPTIONS	
Selection	**Function**
*CONSOLE	The response of the Expression Pedal will replicate that a Hammond tone-wheel console organ, such as the B-3, C-3, RT-3 or A-100.
SPINET	The response of the Expression Pedal will replicate that of a Hammond tone-wheel spinet organ, such as the M-3, L-100 or M-100.

* default setting

This is a Global Command, and this data CAN NOT be stored to a Preset. To see a total listing of all Global Commands, see Appendix A, "Global Initial Data", on page 180.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

Advanced Features - Coupler



There are two Advanced Feature Coupler Menus that allow you to make the following changes to the organ.

1. COUPLER1 - Upper Note Range
   You can set the uppermost note limit for each of the Coupler options.

2. COUPLER2 - Pedal To Upper
   This allows you to change the PEDAL TO LOWER Coupler to a PEDAL TO UPPER Coupler so that the Pedal tones can be coupled up to the Upper Manual.

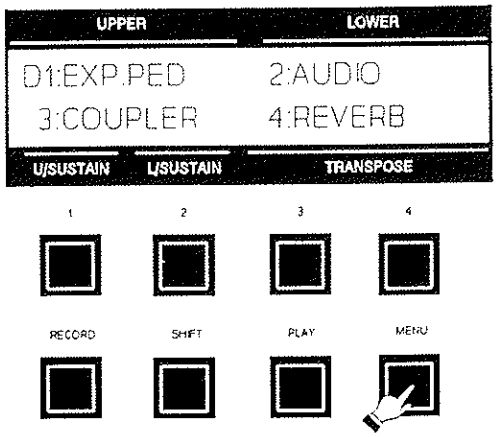
The following pages give a more detailed explanation of how these Advanced Feature Menus work.

♦ Coupler - Upper Note Range

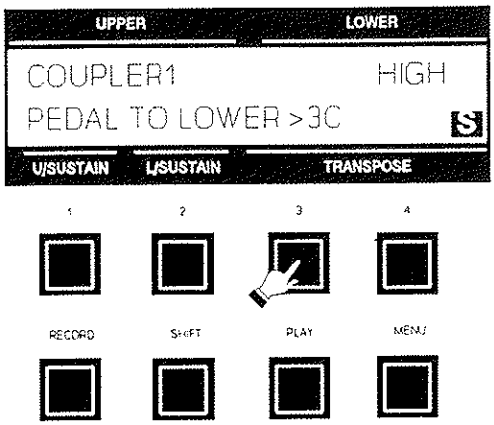
With this Advanced Feature, the uppermost notes of each of the Coupler options can be selected.

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the D Screen of the Menu Mode is displayed:



2. Touch the black Number 3 Select Touch Button. The Information Center Display should look like this:



3. To select from among the Coupler 1 options of the organ, do the following:

Use the black Number 1 Select Touch Button to select how you want Coupler 1 to function. There are three choices; PEDAL TO LOWER, LOWER TO PEDAL or PEDAL TO UPPER.

4. Using your left hand Touch and Hold either the black Number 3 or the black Number 4 Select Touch Button. Now with your right hand, Touch a key between the lowest "C" to the 3rd "C" on either manual.

The data chart below shows the options that you may select for each manual and pedals.

COUPLER OPTIONS	UPPERMOST NOTE LIMITS
PEDAL TO LOWER	1C - 3C
LOWER TO PEDAL	1C - 3C
PEDAL TO UPPER	1C - 3C

default setting is 3C.

This is a Global Command, and this data CAN NOT be stored to a Preset. To see a total listing of all Global Commands, see Appendix A, "Global Initial Data", on page 180.

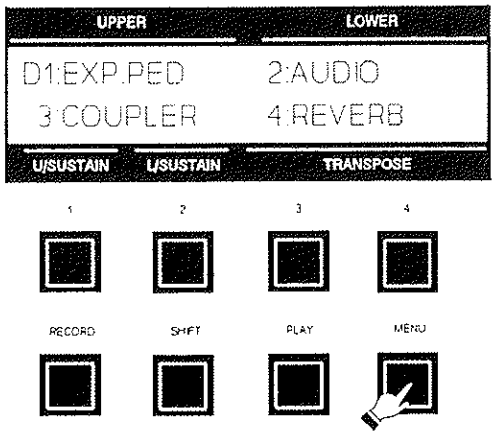
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

♦ Coupler - Pedal to Upper

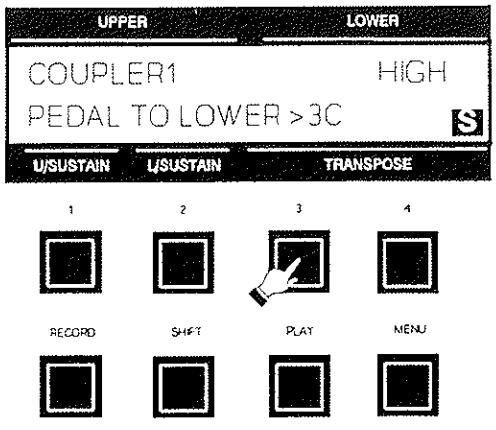
With this Advanced Feature, you can change the PEDAL TO LOWER Coupler to a PEDAL TO UPPER Coupler so that the Pedal tones can be coupled up to the Upper Manual. The following will show you how to change this option. To hear this Advanced Feature function, you must have the PEDAL TO LOWER Touch Tab "ON" (red LED lit).

TRY THIS:

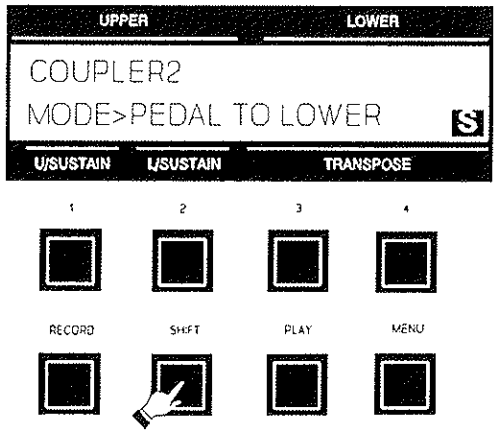
1. Touch the black MENU Select Touch Button repeatedly until the D Screen of the Menu Mode is displayed:



2. Touch the black Number 3 Select Touch Button. The Information Center Display should look like this:



3. Touch the black SHIFT Select Touch Button until the Information Center Display shows the following:



4. To select from among the Coupler 2 options of the organ, do the following:

> Use any of the black numbered Select Touch Buttons to select how you want Coupler 2 to function. There are two choices; PEDAL TO LOWER or PEDAL TO UPPER.

The data chart below shows the options that you may select.

OPTIONS
*PEDAL TO LOWER
PEDAL TO UPPER

* default setting

This is a Global Command, and this data CAN NOT be stored to a Preset. To see a total listing of all Global Commands, see Appendix A, "Global Initial Data", on page 180.

NOTE: This Advanced Feature works when the PEDAL TO LOWER Touch Tab is "ON".

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

Hammond Organ Model XB-3/XC-3

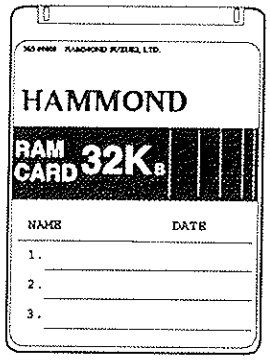
Using the RAM Card

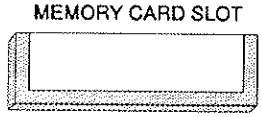
USING THE RAM CARD

The data that is stored in the organ's Preset Keys can be stored to a Hammond RAM Card. Once a RAM Card is formatted, Preset data can then be "stored" to the Card and "loaded" into the organ's memory.

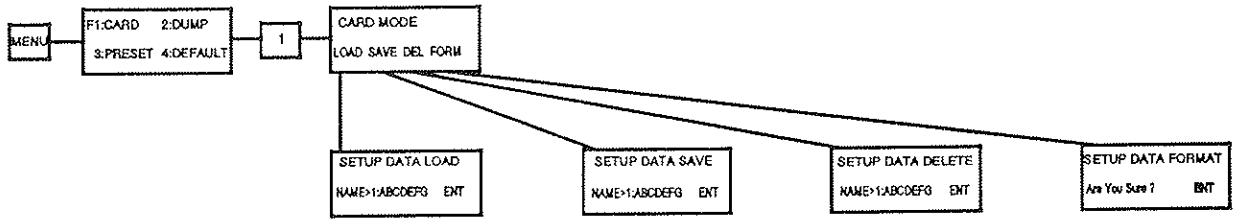
♦ RAM Card Slot

The RAM CARD SLOT is located between the Upper and Lower Manuals just above the Information Center Display. It is designed to accommodate Hammond RAM (Random Access Memory) Cards, which allow you to "Load" or "Save" your own Preset settings. Hammond RAM Cards are available from your Hammond Organ dealer.





Advanced Features - RAM Card



There are four parts to the Advanced Feature CARD Menu that allow you to do the following:

1. LOAD -
   For LOADing Preset data from the RAM Card into the organ.

2. SAVE -
   To SAVE Preset data to the RAM Card.

3. DEL -
   Use this to DELete Preset data that is stored on the RAM Card.

4. FORM -
   Use this to FORMat a RAM Card so that it can be used to store data.

The following pages give a more detailed explanation of how these Advanced Feature Menus work.

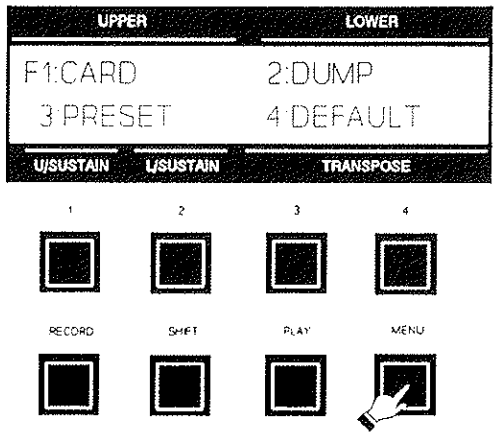
♦ CARD - Format

Since a RAM Card must be Formatted before it can be used, we will start with the Formatting process first. This only has to be done once, when a RAM Card is new.

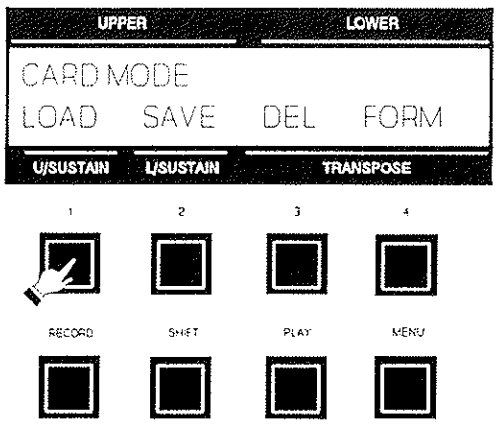
TRY THIS:

1. Make sure a RAM Card is inserted into the RAM Card Slot.

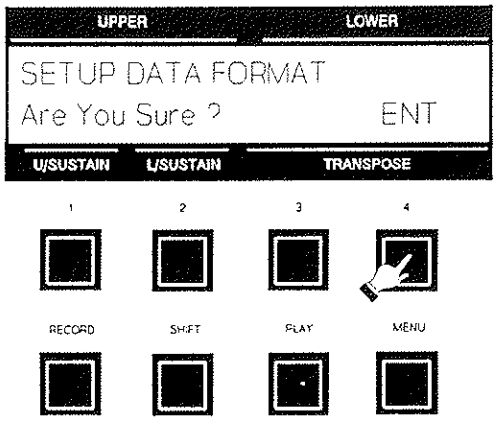
2. Touch the black MENU Select Touch Button repeatedly until the F Screen of the Menu Mode is displayed:



3. Touch the black Number 1 Select Touch Button. The Information Center Display should look like this:

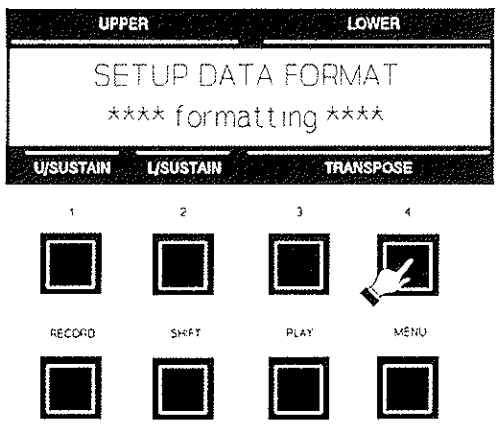


4. Touch the black Number 4 Select Touch Button. The Information Center Display should look like this:



NOTE: If a RAM Card already has Preset data stored on it, this procedure will erase all data.

5. To start the FORMAT process, Touch the black Number 4 Select Touch Button. The Information Center Display will flash the following:



If you wish to abort the FORMAT process, Touch either the black MENU or PLAY Select Touch Buttons instead of the Number 4 Select Touch Button.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons. If you wish to SAVE Preset data to a RAM Card, turn to the next page.

♦ CARD - Save

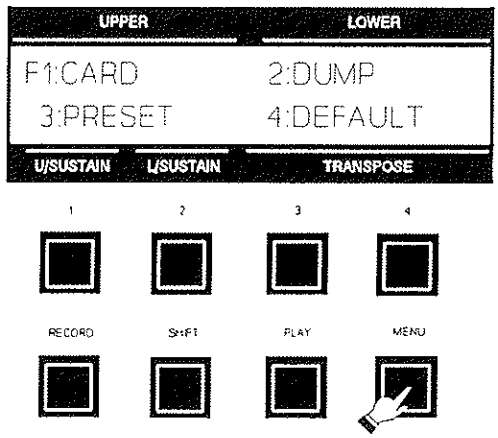
A single RAM Card can hold up to 9 banks of Presets. A bank consists of one group of Upper, Lower and Pedal Presets.

TRY THIS:

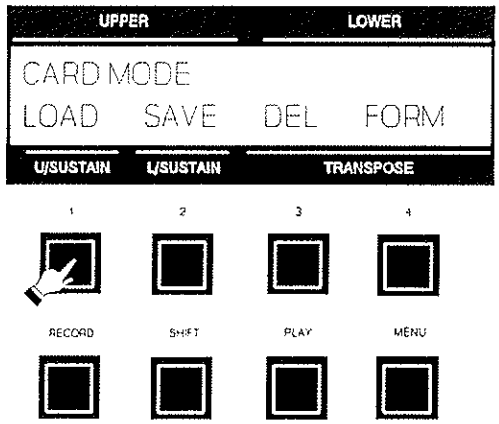
1. Program the organ's Preset Keys with your own Registrations using the "Saving to a Preset" procedure described starting on page 103.

2. Make sure a formatted RAM Card is inserted into the RAM Card Slot.

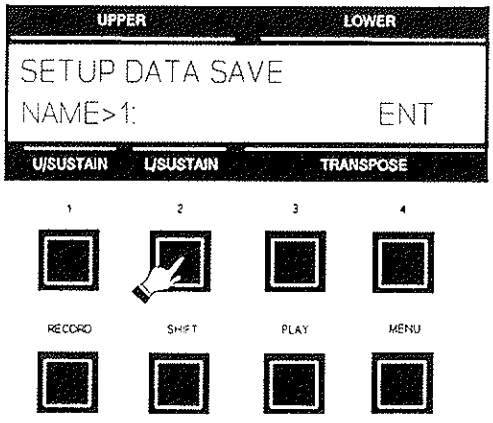
3. Touch the black MENU Select Touch Button repeatedly until the F Screen of the Menu Mode is displayed:



3. Touch the black Number 1 Select Touch Button. The Information Center Display should look like this:



4. Touch the black Number 2 Select Touch Button. The Information Center Display should look similar to this:



Use the black Number 1 Select Touch Button to scroll down through the banks.

Use the black Number 2 Select Touch Button to scroll up through the banks.

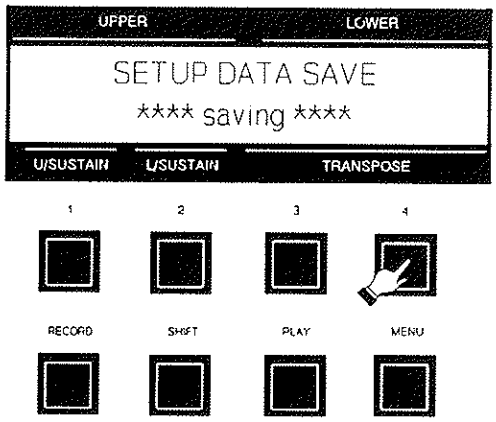
5. When the word "EMPTY appears, Touch the black Number 3 Select Touch Button. The word "EMPTY" will disappear.

6. Name your bank of Presets by using the Modulation Wheel to scroll through the characters. Touch the black Number 3 Select Touch Button at the end of each character selection. You may use up to 7 characters.

The data chart below shows the library of characters.

CHARACTERS FOR NAMING PRESET BANKS
Letters A - Z, Upper Case
Numerals 0 - 9
Asterisk (*)
Space

7. Touch the black Number 4 Select Touch Button and the Preset data will be SAVEd to the RAM Card. The Information Center Display will flash the following:



NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons. To see how to LOAD Preset data from a RAM Card into the organ, turn to the next page.

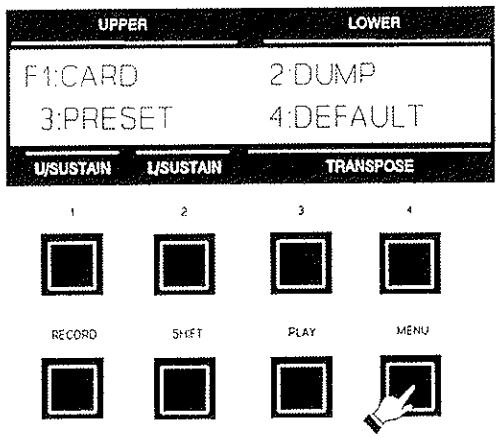
♦ CARD - Load

A single RAM Card can hold up to 9 banks of Presets. A bank consists of one group of Upper, Lower and Pedal Presets.

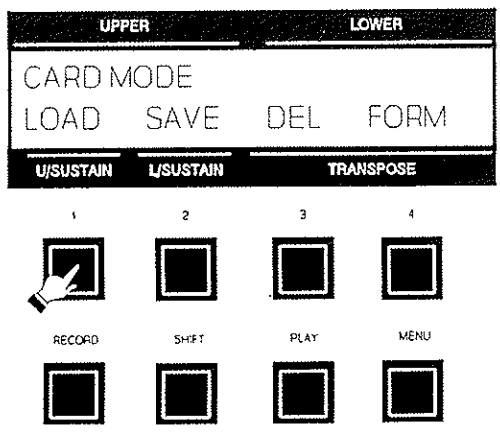
TRY THIS:

1. Make sure a RAM Card with Preset data is inserted into the RAM Card Slot.

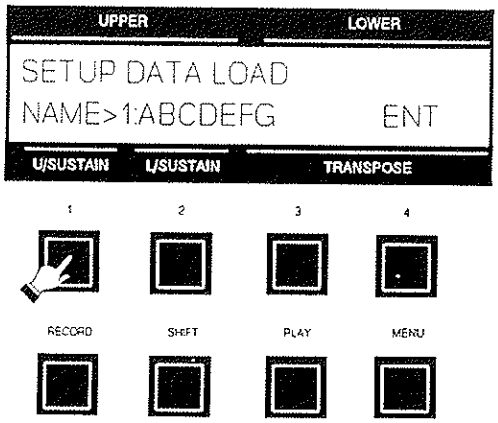
2. Touch the black MENU Select Touch Button repeatedly until the F Screen of the Menu Mode is displayed:



3. Touch the black Number 1 Select Touch Button. The Information Center Display should look similar to this:



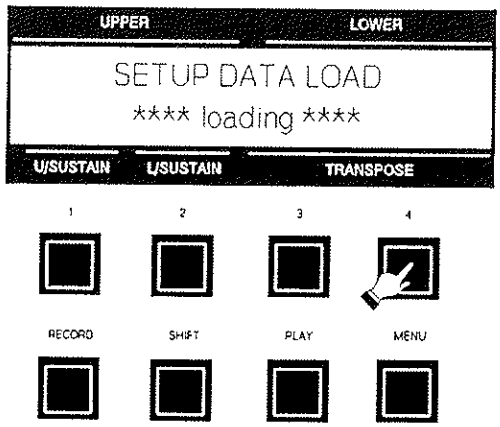
4. Touch the black Number 1 Select Touch Button again. The Information Center Display should look similar to this:



Use the black Number 1 Select Touch Button to scroll down through the banks.

Use the black Number 2 Select Touch Button to scroll up through the banks.

5. When the number of the bank you wish to Load is displayed, Touch the black Number 4 Select Touch Button and the Preset data stored on the RAM Card will be LOADed into the organ. The Information Center Display will flash the following:



NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons. To see how to DELete a single bank of Preset data from a RAM Card, turn to the next page.

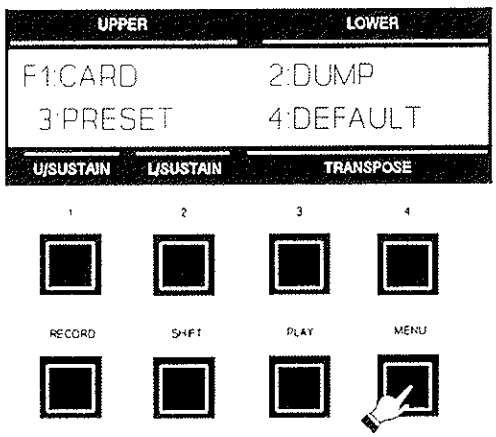
♦ CARD - Delete

A single RAM Card can hold up to 9 banks of Presets. A bank consists of one group of Upper, Lower and Pedal Presets. This Advanced Feature allows you to delete one bank of Presets at a time.

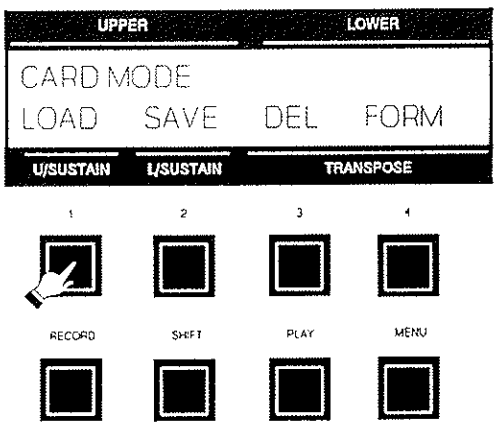
TRY THIS:

1. Make sure a RAM Card with Preset data is inserted into the Card Slot.

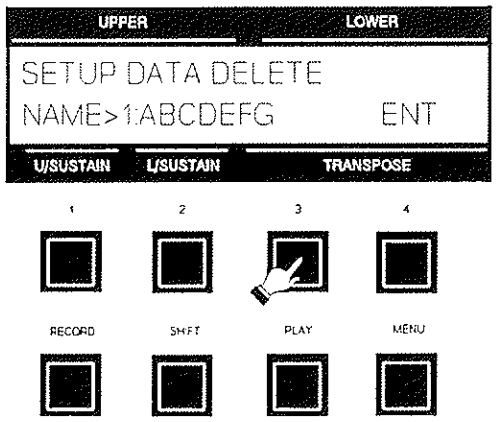
2. Touch the black MENU Select Touch Button repeatedly until the F Screen of the Menu Mode is displayed:



3. Touch the black Number 1 Select Touch Button. The Information Center Display should look like this:



4. Touch the black Number 3 Select Touch Button. The Information Center Display should look similar to this:



Use the black Number 1 Select Touch Button to scroll down through the banks.

Use the black Number 2 Select Touch Button to scroll up through the banks.

5. When the number and name of the bank you wish to delete appears in the Information Center Display, Touch the black Number 4 Select Touch Button and that Preset bank will be DELeted from the RAM Card.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

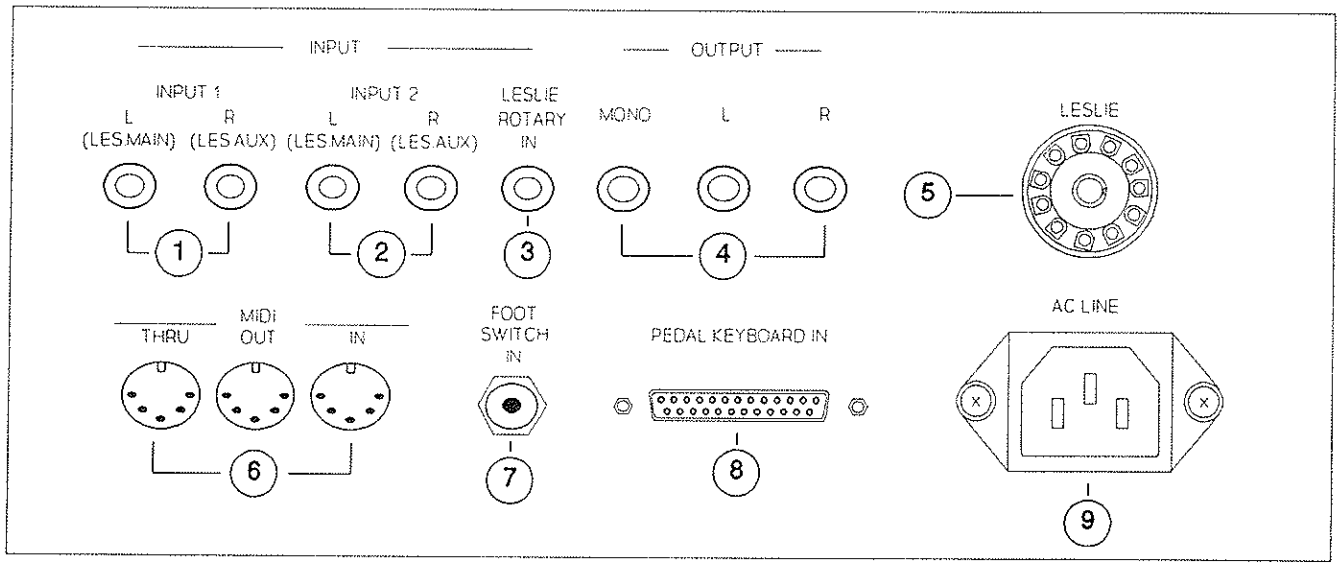
Hammond Organ Model XB-3/XC-3

Reference

REFERENCE

♦ Accessory Panel

The Accessory Panel is located on the back right hand side of the organ. To release the Accessory Panel cover, press in on the bottom of the cover. The cover should pop up slightly. Now raise and flip the cover up into the open position. You should now see the Accessory Panel.



1. External In 1 - Left & Right -
Use to connect the organ to the LINE OUTs of an external sound device, such as a keyboard or a tape recorder. The volume of the external sound device is controlled by the EXT.IN Rotary Control.

2. External In 2 - Left & Right -
Use to connect the organ to the LINE OUTs of a second external sound device, such as a keyboard or a tape recorder. The volume of the external sound device is controlled by the EXT.IN Rotary Control.

3. Leslie Rotary In -
Use to connect an external sound device, such as a keyboard or a tape recorder, when using a single-channel Leslie Speaker cabinet. The volume of the external sound device is controlled by the EXT.IN Rotary Control.

NOTE: If you use LESLIE ROTARY IN to connect an external sound source to a single-channel Leslie Speaker cabinet, the sound from the organ will be silenced. If you are using a single-channel Leslie Speaker and wish to hear both the organ and the external sound source through the Leslie Speaker, do the following:

1. Run an audio cable from the external sound source to the Left input of either INPUT 1 or INPUT 2.

2. Run another audio cable from the MONO output of the organ into the LESLIE ROTARY IN.

4. Line Out - Left & Right -
These are the signal outputs for the organ. You may connect these to an external amplifier.

NOTE: Use the MONO jack if you are connecting the organ to a monaural, or single-channel, amplifier.

5. 11-pin Leslie Connector -
Use to connect the Leslie Speaker Model 122XB provided with your organ. If you use a Leslie Speaker with a 6-or 9-pin connector, you will need to use a Leslie 11-to-6-or 11-to-9-pin connector kit. Contact your Leslie dealer for more details.

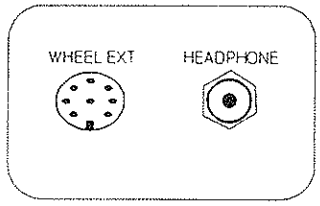
6. MIDI Jacks -
Use these standard MIDI jacks to connect to outboard MIDI instruments such as sequencers, sound modules and other devices.

7. Foot Switch In -
Connect an optional Hammond Foot Switch. This foot switch is identified as "FOOTSW2" (Foot Switch 2) in the Information Center Display (Screen C of the Menu Mode, Number 3 "FOOTSW").

8. Pedal Keyboard In -
Connect the Pedal Keyboard to the organ.

9. A.C. Power Line Connector -
Connect the 3-wire A.C. Power Cord provided with the organ.

In addition to the main Accessory Panel, there is also a small jack panel located underneath the Lower Manual on the left side. This panel contains the following connections:



WHEEL EXT.

Connect the Pitch Bend / Modulation Wheel Control Box to the organ.

HEADPHONE

A stereo headphone jack is provided so that you may play or practice in privacy.

Specifications

MANUALS
Upper - 61-note C1 to C6
Lower - 61-note C1 to C6

DRAWBARS
16', $5^1/_3$', 8', 4', $2^2/_3$, 2', $1^3/_5$', $1^1/_3$', 1, Slow Attack, Adjustable Key Click, Drawbar Voicing - B-Type, Mellow & Brite, Adjustable Fold Back

PERCUSSION
Second Harmonic (4)', Third Harmonic ($2^2/_3$'), Fast Decay, Percussion Soft, Adjustable Touch, Velocity, Adjustable Volume Level

VIBRATO
On Upper, On Lower, V1, V2, V3, C1, C2, C3, Speed - Slow, Mid, Normal, Midfast, Fast

KEY CLICK
Off, Soft, Normal, Max

TUBE OVERDRIVE
Continuously Variable

TUNING
1 Hz Steps (430Hz - 450Hz)

TRANSPOSE
Transpose Up 6 semitones, Transpose Down 6 semitones

LCD DISPLAY
20 Characters, 2 Lines

PRESETS
Cancel, Programmable

LESLIE
Off, Slow, Fast,

VELOCITY
Percussion Off, On
MIDI Velocity Off, 1 - 6

SUSTAINS
Upper, Lower, Pedal - Short, Mid Long

DIGITAL REVERB
4 Programs - Room, Live, Hall, Church

WHEELS
Modulation, Pitch Bend (±12 Semitones)

CONTROLS
Power On/Off, Total Volume Control, Reverb Intensity Control, External In Volume Control, Tube Overdrive Intensity Control, Treble Adjustment Control, Bass Adjustment Control, Programmable Foot Switches (2)

CONNECTIONS
External In 1, External In 2, Leslie Rotary In, Line Out Mono, Line Out Left, Line Out Right, MIDI In, MIDI Out, MIDI Thru, Foot Switch, Pedal Keyboard, A.C. Power Line Connector, 11-pin Leslie Connector

Appendix A - Global Initial Data

	NO	FUNCTION	B-3	JAZZ	THEATRE	MIDI
Touch Tabs	01	Vibrato Mode	1	1	1	1
	02	Vibrato Chorus	Off	Off	Off	Off
	03	Pedal To Lower	Off	Off	Off	Off
	04	Lower To Pedal	Off	Off	Off	Off
	05	Upper MIDI OUT On/Off	On	On	On	On
	06	Lower MIDI OUT On/Off	On	On	On	On
	07	Pedal MIDI OUT On/Off	On	On	On	On
A-2	08	Vibrato Speed	Normal	Normal	Normal	Normal
B-2	09	Master Tune	440Hz	440Hz	440Hz	440Hz
	10	Tune Mode	B-3 Pitch	B-3 Pitch	B-3 Pitch	B-3 Pitch
C-3	11	Foot Switch 1 Internal Mode	Leslie S/F	Leslie S/F	Leslie S/F	Leslie S/F
	12	Foot Switch 2 Internal Mode	LM Soste	LM Soste	LM Soste	LM Soste
	13	Foot Switch 1 Alt/Mom	Alt	Alt	Alt	Alt
	14	Foot Switch 2 Alt/Mom	Mom	Mom	Mom	Mom
	15	Foot Switch 2 Press Type	PRS+	PRS+	PRS+	PRS+
C-4	16	Pressure Internal Curve Upper	3	3	3	3
	17	Pressure Internal Curve Lower	3	3	3	3
D-1	18	Ext In 1 Expression On/Off	Non Exp	Non Exp	Non Exp	Non Exp
	19	Ext In 2 Expression On/Off	Non Exp	Non Exp	Non Exp	Non Exp
	20	Expression Curve	Console	Console	Console	Console
D-2	21	Tube Overdrive Level	3	3	3	3
	22	Leslie Channel	1ch	1ch	1ch	1ch
D-3	23	"Pedal To" Mode	Lower	Lower	Lower	Lower
	24	Pedal To Lower High Key	3C	3C	3C	3C
	25	Lower To Pedal High Key	3C	3C	3C	3C
	26	Pedal To Upper High Key	3C	3C	3C	3C
D-4	27	Reverb Mode	Hall	Hall	Hall	Hall
E-1	28	Local SW	On	On	On	On
	29	NRPN SW	Off	Off	Off	Off
	30	Expression Mode Int/Ext	Internal	Internal	Internal	Internal
	31	MIDI Drawbar Filter	Off	Off	Off	Off
	32	MIDI OUT Velocity Curve	1	1	1	1
	33	MIDI OUT Pressure Curve	1	1	1	1
	34	MIDI SOFT THRU On/Off	Off	Off	Off	Off
	35	Leslie S/F MIDI Code	Off	Off	Off	Off
	36	UM A♯ Drawbar MIDI Volume	Off	Off	Off	On
F-2	37	Dump Receive SW	On	On	On	On
	38	Dump Device ID Number	1ch	1ch	1ch	1ch
F-3	39	Preset Play Mode	B-3	B-3	B-3	Standard
	40	Preset Record Mode	All	All	All	All

Appendix B - Preset Initial Data

Upper Reverse Key Presets -- Standard and Theatre Presets

	NO	FUNCTION		C	C♯	D	D♯	E	F	F♯	G	G♯	A	A♯	B
SW	01	Vibrato On/Off		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	02	Leslie On/Off		On	On	On	On	On	On	On	On	On	On	On	On
	03	Leslie Slow/Fast		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	04	Percussion 2nd		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	05	Percussion 3rd		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	06	Percussion Fast		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	07	Percussion Soft		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
Play	08	Sustain On/Off		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
A-1	09	Drawbar Type		B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type
	10	Drawbar Fold Back		2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G
	11	Perc. Drawbar Cancel		On	On	On	On	On	On	On	On	On	On	On	On
	12	DB Level W/Percuss		-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db
A-3	13	Drawbar Attack Mode		Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C
A-4	14	Sustain Mode		Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid
B-1	15	Percussion Touch		On	On	On	On	On	On	On	On	On	On	On	On
	16	Percussion Velocity		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	17	Percussion Level		11	11	11	11	11	11	11	11	11	11	11	11
B-3	18	Keymap	Int. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
	19		Ext. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
	20		Ext. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
	21		Ext. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
B-4	22	Key Chng.	Ext. Oct. Key	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0
	23		Ext. Oct. Key	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0
	24		Ext. Oct. Key	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0
C-1	25	Bender On/Off	Int.	On	On	On	On	On	On	On	On	On	On	On	On
	26		Ext. 1	On	On	On	On	On	On	On	On	On	On	On	On
	27		Ext. 2	On	On	On	On	On	On	On	On	On	On	On	On
	28		Ext. 3	On	On	On	On	On	On	On	On	On	On	On	On
	29	Bend Length	(Internal)	1	1	1	1	1	1	1	1	1	1	1	1
C-2	30	Modulation Leslie S/f		On	On	On	On	On	On	On	On	On	On	On	On
	31	Modulation 2nd Drawbar		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	32	2nd Drawbar Preset No.		A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯
	33	Modulation Drive Cont.		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
C-4	34	Pressure Bend		0	0	0	0	0	0	0	0	0	0	0	0
	35	Pressure Leslie S/F		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	36	Pressure 2nd Drawbar		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	37	Pressure Drive Cont.		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
E-1	38	MIDI Ch. No.	Int.	On 1	On 1	On 1	On 1	On 1	On 1	On 1	On 1	On 1	On 1	On 1	On 1
	39		Ext. 1	On 2	On 2	On 2	On 2	On 2	On 2	On 2	On 2	On 2	On 2	On 2	On 2
	40		Ext. 2	On 3	On 3	On 3	On 3	On 3	On 3	On 3	On 3	On 3	On 3	On 3	On 3
	41		Ext. 3	On 4	On 4	On 4	On 4	On 4	On 4	On 4	On 4	On 4	On 4	On 4	On 4
E-3	42	Program No.	Ext. 1	On 1	On 2	On 3	On 4	On 5	On 6	On 7	On 8	On 9	On 10	On 11	On 12
	43		Ext. 2	On 1	On 2	On 3	On 4	On 5	On 6	On 7	On 8	On 9	On 10	On 11	On 12
	44		Ext. 3	On 1	On 2	On 3	On 4	On 5	On 6	On 7	On 8	On 9	On 10	On 11	On 12
C-3	45	Foot Sw1 Code	Ext. 1	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	46		Ext. 2	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	47		Ext. 3	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	48	Foot Sw2 Code	Ext. 1	64	64	64	64	64	64	64	64	64	64	64	64
	49		Ext. 2	64	64	64	64	64	64	64	64	64	64	64	64
	50		Ext. 3	64	64	64	64	64	64	64	64	64	64	64	64
C-2	51	Modulation	Ext. 1	1	1	1	1	1	1	1	1	1	1	1	1
	52	Code	Ext. 2	1	1	1	1	1	1	1	1	1	1	1	1
	53		Ext. 3	1	1	1	1	1	1	1	1	1	1	1	1
D-1	54	Expression	Ext. 1	7	7	7	7	7	7	7	7	7	7	7	7
	55	Code	Ext. 2	7	7	7	7	7	7	7	7	7	7	7	7
	56		Ext. 3	7	7	7	7	7	7	7	7	7	7	7	7
	57	Expression	Ext. 1	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	58	Code	Ext. 2	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	59		Ext. 3	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	60	Expression	Ext. 1	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press
	61	Code	Ext. 2	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press
	62		Ext. 3	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press

Appendix B - Preset Initial Data

Lower Reverse Key Presets -- Standard and Theatre Presets

	NO	FUNCTION	C	C♯	D	D♯	E	F	F♯	G	G♯	A	A♯	B
SW	01	Vibrato On/Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
Play	02	Sustain On/Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
A-1	03	Drawbar Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type
	04	Drawbar Fold Back	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G
A-3	05	Drawbar Attack Mode	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C
A-4	06	Sustain Mode	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid
B-3	07	Keymap Int. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
	08	Ext. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
	09	Ext. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
	10	Ext. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
B-4	11	Key Chng. Ext. Oct.	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0
	12	Key	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0
	13	Ext. Oct. Key	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0
		Ext. Oct. Key												
C-1	14	Bender On/Off Int.	On	On	On	On	On	On	On	On	On	On	On	On
	15	Ext. 1	On	On	On	On	On	On	On	On	On	On	On	On
	16	Ext. 2	On	On	On	On	On	On	On	On	On	On	On	On
	17	Ext. 3	On	On	On	On	On	On	On	On	On	On	On	On
	18	Bend Length (Internal)	1	1	1	1	1	1	1	1	1	1	1	1
C-2	19	Modulation 2nd Drawbar	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	20	2nd Drawbar Preset No.	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯
C-4	21	Pressure Bend	0	0	0	0	0	0	0	0	0	0	0	0
	22	Pressure Leslie S/F	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	23	Pressure 2nd Drawbar	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	24	Pressure Drive Cont.	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
E-1	25	MIDI Ch. No. Int.	On 5	On 5	On 5	On 5	On 5	On 5	On 5	On 5	On 5	On 5	On 5	On 5
	26	Ext. 1	On 6	On 6	On 6	On 6	On 6	On 6	On 6	On 6	On 6	On 6	On 6	On 6
	27	Ext. 2	On 7	On 7	On 7	On 7	On 7	On 7	On 7	On 7	On 7	On 7	On 7	On 7
	28	Ext. 3	On 8	On 8	On 8	On 8	On 8	On 8	On 8	On 8	On 8	On 8	On 8	On 8
E-3	29	Program No. Ext. 1	On 1	On 2	On 3	On 4	On 5	On 6	On 7	On 8	On 9	On 10	On 11	On 12
	30	Ext. 2	On 1	On 2	On 3	On 4	On 5	On 6	On 7	On 8	On 9	On 10	On 11	On 12
	31	Ext. 3	On 1	On 2	On 3	On 4	On 5	On 6	On 7	On 8	On 9	On 10	On 11	On 12
C-3	32	Foot Sw1 Ext. 1	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	33	Code Ext. 2	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	34	Ext. 3	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	35	Foot Sw2 Ext. 1	64	64	64	64	64	64	64	64	64	64	64	64
	36	Code Ext. 2	64	64	64	64	64	64	64	64	64	64	64	64
	37	Ext. 3	64	64	64	64	64	64	64	64	64	64	64	64
C-2	38	Modulation Ext. 1	1	1	1	1	1	1	1	1	1	1	1	1
	39	Code Ext. 2	1	1	1	1	1	1	1	1	1	1	1	1
	40	Ext. 3	1	1	1	1	1	1	1	1	1	1	1	1
D-1	41	Expression Ext. 1	7	7	7	7	7	7	7	7	7	7	7	7
	42	Code Ext. 2	7	7	7	7	7	7	7	7	7	7	7	7
	43	Ext. 3	7	7	7	7	7	7	7	7	7	7	7	7
	44	Expression Ext. 1	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	45	Code Ext. 2	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	46	Ext. 3	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	47	Expression Ext. 1	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press
	48	Code Ext. 2	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press
	49	Ext. 3	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press

Appendix B - Preset Initial Data

Upper Reverse Key Presets -- Jazz Presets

	NO	FUNCTION	C	C♯	D	D♯	E	F	F♯	G	G♯	A	A♯	B
SW	01	Vibrato On/Off	Off	On	On	Off	On	On	Off	On	On	Off	Off	Off
	02	Leslie On/Off	On	On	On	On	On	On	On	On	On	On	On	On
	03	Leslie Slow/Fast	Off	On	On	Off	On	On	Off	On	Off	Off	Off	Off
	04	Percussion 2nd	Off	Off	Off	Off	Off	Off	On	Off	Off	Off	Off	Off
	05	Percussion 3rd	Off	Off	Off	Off	Off	Off	Off	Off	On	Off	Off	Off
	06	Percussion Fast	Off	Off	Off	Off	Off	Off	On	Off	On	Off	Off	Off
	07	Percussion Soft	Off	Off	Off	Off	Off	Off	Off	Off	On	Off	Off	Off
Play	08	Sustain On/Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
A-1	09	Drawbar Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type
	10	Drawbar Fold Back	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G
	11	Perc. Drawbar Cancel	On	On	On	On	On	On	On	On	On	On	On	On
	12	DB Level W/Percuss	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db
A-3	13	Drawbar Attack Mode	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C
A-4	14	Sustain Mode	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid
B-1	15	Percussion Touch	On	On	On	On	On	On	On	On	On	On	On	On
	16	Percussion Velocity	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	17	Percussion Level	11	11	11	11	11	11	11	11	11	11	11	11
B-3	18	Keymap Int. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
	19	Ext. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
	20	Ext. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
	21	Ext. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
B-4	22	Key Chng. Ext. Oct.	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0
	23	Key	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0
	24	Ext. Oct.	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0
		Key												
		Ext. Oct.												
		Key												
C-1	25	Bender On/Off Int.	On	On	On	On	On	On	On	On	On	On	On	On
	26	Ext. 1	On	On	On	On	On	On	On	On	On	On	On	On
	27	Ext. 2	On	On	On	On	On	On	On	On	On	On	On	On
	28	Ext. 3	On	On	On	On	On	On	On	On	On	On	On	On
	29	Bend Length (Internal)	1	1	1	1	1	1	1	1	1	1	1	1
C-2	30	Modulation Leslie S/I	On	On	On	On	On	On	On	On	On	On	On	On
	31	Modulation 2nd Drawbar	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	32	2nd Drawbar Preset No.	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯
	33	Modulation Drive Cont.	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
C-4	34	Pressure Bend	0	0	0	0	0	0	0	0	0	0	0	0
	35	Pressure Leslie S/F	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	36	Pressure 2nd Drawbar	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	37	Pressure Drive Cont.	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
E-1	38	MIDI Ch. No. Int.	On 1	On 1	On 1	On 1	On 1	On 1	On 1	On 1	On 1	On 1	On 1	On 1
	39	Ext. 1	On 2	On 2	On 2	On 2	On 2	On 2	On 2	On 2	On 2	On 2	On 2	On 2
	40	Ext. 2	On 3	On 3	On 3	On 3	On 3	On 3	On 3	On 3	On 3	On 3	On 3	On 3
	41	Ext. 3	On 4	On 4	On 4	On 4	On 4	On 4	On 4	On 4	On 4	On 4	On 4	On 4
E-3	42	Program No. Ext. 1	On 1	On 2	On 3	On 4	On 5	On 6	On 7	On 8	On 9	On 10	On 11	On 12
	43	Ext. 2	On 1	On 2	On 3	On 4	On 5	On 6	On 7	On 8	On 9	On 10	On 11	On 12
	44	Ext. 3	On 1	On 2	On 3	On 4	On 5	On 6	On 7	On 8	On 9	On 10	On 11	On 12
C-3	45	Foot Sw1 Ext. 1	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	46	Code Ext. 2	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	47	Ext. 3	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	48	Foot Sw2 Ext. 1	64	64	64	64	64	64	64	64	64	64	64	64
	49	Code Ext. 2	64	64	64	64	64	64	64	64	64	64	64	64
	50	Ext. 3	64	64	64	64	64	64	64	64	64	64	64	64
C-2	51	Modulation Ext. 1	1	1	1	1	1	1	1	1	1	1	1	1
	52	Code Ext. 2	1	1	1	1	1	1	1	1	1	1	1	1
	53	Ext. 3	1	1	1	1	1	1	1	1	1	1	1	1
D-1	54	Expression Ext. 1	7	7	7	7	7	7	7	7	7	7	7	7
	55	Code Ext. 2	7	7	7	7	7	7	7	7	7	7	7	7
	56	Ext. 3	7	7	7	7	7	7	7	7	7	7	7	7
	57	Expression Ext. 1	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	58	Code Ext. 2	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	59	Ext. 3	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	60	Expression Ext. 1	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press
	61	Code Ext. 2	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press
	62	Ext. 3	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press

Appendix B - Preset Initial Data

Lower Reverse Key Presets -- Jazz Presets

	NO	FUNCTION		C	C♯	D	D♯	E	F	F♯	G	G♯	A	A♯	B
SW	01	Vibrato On/Off		Off	On	Off	On	Off	Off	On	Off	Off	Off	Off	Off
Play	02	Sustain On/Off		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
A-1	03	Drawbar Type		B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type
	04	Drawbar Fold Back		2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G
A-3	05	Drawbar Attack Mode		Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C
A-4	06'	Sustain Mode		Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid
B-3	07	Keymap	Int. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
	08		Ext. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
	09		Ext. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
	10		Ext. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
B-4	11	Key Chng.	Ext. Oct.	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0
	12		Key	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0
	13		Ext. Oct. Key	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0
			Ext. Oct. Key												
C-1	14	Bender On/Off	Int.	On	On	On	On	On	On	On	On	On	On	On	On
	15		Ext. 1	On	On	On	On	On	On	On	On	On	On	On	On
	16		Ext. 2	On	On	On	On	On	On	On	On	On	On	On	On
	17		Ext. 3	On	On	On	On	On	On	On	On	On	On	On	On
	18	Bend Length	(Internal)	1	1	1	1	1	1	1	1	1	1	1	1
C-2	19	Modulation 2nd Drawbar		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	20	2nd Drawbar Preset No.		A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯
C-4	21	Pressure Bend		0	0	0	0	0	0	0	0	0	0	0	0
	22	Pressure Leslie S/F		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	23	Pressure 2nd Drawbar		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	24	Pressure Drive Cont.		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
E-1	25	MIDI Ch. No.	Int.	On 5	On 5	On 5	On 5	On 5	On 5	On 5	On 5	On 5	On 5	On 5	On 5
	26		Ext. 1	On 6	On 6	On 6	On 6	On 6	On 6	On 6	On 6	On 6	On 6	On 6	On 6
	27		Ext. 2	On 7	On 7	On 7	On 7	On 7	On 7	On 7	On 7	On 7	On 7	On 7	On 7
	28		Ext. 3	On 8	On 8	On 8	On 8	On 8	On 8	On 8	On 8	On 8	On 8	On 8	On 8
E-3	29	Program No.	Ext. 1	On 1	On 2	On 3	On 4	On 5	On 6	On 7	On 8	On 9	On 10	On 11	On 12
	30		Ext. 2	On 1	On 2	On 3	On 4	On 5	On 6	On 7	On 8	On 9	On 10	On 11	On 12
	31		Ext. 3	On 1	On 2	On 3	On 4	On 5	On 6	On 7	On 8	On 9	On 10	On 11	On 12
C-3	32	Foot Sw1	Ext. 1	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	33	Code	Ext. 2	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	34		Ext. 3	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	35	Foot Sw2	Ext. 1	64	64	64	64	64	64	64	64	64	64	64	64
	36	Code	Ext. 2	64	64	64	64	64	64	64	64	64	64	64	64
	37		Ext. 3	64	64	64	64	64	64	64	64	64	64	64	64
C-2	38	Modulation	Ext. 1	1	1	1	1	1	1	1	1	1	1	1	1
	39	Code	Ext. 2	1	1	1	1	1	1	1	1	1	1	1	1
	40		Ext. 3	1	1	1	1	1	1	1	1	1	1	1	1
D-1	41	Expression	Ext. 1	7	7	7	7	7	7	7	7	7	7	7	7
	42	Code	Ext. 2	7	7	7	7	7	7	7	7	7	7	7	7
	43		Ext. 3	7	7	7	7	7	7	7	7	7	7	7	7
	44	Expression	Ext. 1	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	45	Code	Ext. 2	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	46		Ext. 3	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	47	Expression	Ext. 1	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press
	48	Code	Ext. 2	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press
	49		Ext. 3	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press

Appendix B - Preset Initial Data

Upper Reverse Key Presets -- MIDI Presets

	NO	FUNCTION		C	C♯	D	D♯	E	F	F♯	G	G♯	A	A♯	B
SW	01	Vibrato On/Off		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	02	Leslie On/Off		On	On	On	On	On	On	On	On	On	On	On	On
	03	Leslie Slow/Fast		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	04	Percussion 2nd		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	05	Percussion 3rd		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	06	Percussion Fast		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	07	Percussion Soft		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
Play	08	Sustain On/Off		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
A-1	09	Drawbar Type		B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type
	10	Drawbar Fold Back		2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G
	11	Perc. Drawbar Cancel		On	On	On	On	On	On	On	On	On	On	On	On
	12	DB Level W/Percuss		-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db
A-3	13	Drawbar Attack Mode		Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C
A-4	14'	Sustain Mode		Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid
B-1	15	Percussion Touch		On	On	On	On	On	On	On	On	On	On	On	On
	16	Percussion Velocity		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	17	Percussion Level		11	11	11	11	11	11	11	11	11	11	11	11
B-3	18	Keymap	Int. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
	19		Ext. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
	20		Ext. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
	21		Ext. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
B-4	22	Key Chng.	Ext. Oct.	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0
	23		Key	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0
	24		Ext. Oct. Key	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0
			Ext. Oct. Key												
C-1	25	Bender On/Off	Int.	On	On	On	On	On	On	On	On	On	On	On	On
	26		Ext. 1	On	On	On	On	On	On	On	On	On	On	On	On
	27		Ext. 2	On	On	On	On	On	On	On	On	On	On	On	On
	28		Ext. 3	On	On	On	On	On	On	On	On	On	On	On	On
	29	Bend Length	(Internal)	1	1	1	1	1	1	1	1	1	1	1	1
C-2	30	Modulation Leslie S/I		On	On	On	On	On	On	On	On	On	On	On	On
	31	Modulation 2nd Drawbar		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	32	2nd Drawbar Preset No.		A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯
	33	Modulation Drive Cont.		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
C-4	34	Pressure Bend		0	0	0	0	0	0	0	0	0	0	0	0
	35	Pressure Leslie S/F		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	36	Pressure 2nd Drawbar		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	37	Pressure Drive Cont.		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
E-1	38	MIDI Ch. No.	Int.	On 1	On 1	On 1	On 1	On 1	On 1	On 1	On 1	On 1	On 1	On 1	On 1
	39		Ext. 1	On 2	On 2	On 2	On 2	On 2	On 2	On 2	On 2	On 2	On 2	On 2	On 2
	40		Ext. 2	On 3	On 3	On 3	On 3	On 3	On 3	On 3	On 3	On 3	On 3	On 3	On 3
	41		Ext. 3	On 4	On 4	On 4	On 4	On 4	On 4	On 4	On 4	On 4	On 4	On 4	On 4
E-3	42	Program No.	Ext. 1	On 1	On 2	On 3	On 4	On 5	On 6	On 7	On 8	On 9	On 10	On 11	On 12
	43		Ext. 2	On 1	On 2	On 3	On 4	On 5	On 6	On 7	On 8	On 9	On 10	On 11	On 12
	44		Ext. 3	On 1	On 2	On 3	On 4	On 5	On 6	On 7	On 8	On 9	On 10	On 11	On 12
C-3	45	Foot Sw1	Ext. 1	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	46	Code	Ext. 2	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	47		Ext. 3	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	48	Foot Sw2	Ext. 1	64	64	64	64	64	64	64	64	64	64	64	64
	49	Code	Ext. 2	64	64	64	64	64	64	64	64	64	64	64	64
	50		Ext. 3	64	64	64	64	64	64	64	64	64	64	64	64
C-2	51	Modulation	Ext. 1	1	1	1	1	1	1	1	1	1	1	1	1
	52	Code	Ext. 2	1	1	1	1	1	1	1	1	1	1	1	1
	53		Ext. 3	1	1	1	1	1	1	1	1	1	1	1	1
D-1	54	Expression	Ext. 1	7	7	7	7	7	7	7	7	7	7	7	7
	55	Code	Ext. 2	7	7	7	7	7	7	7	7	7	7	7	7
	56		Ext. 3	7	7	7	7	7	7	7	7	7	7	7	7
	57	Expression	Ext. 1	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	58	Code	Ext. 2	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	59		Ext. 3	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	60	Expression	Ext. 1	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press
	61	Code	Ext. 2	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press
	62		Ext. 3	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press

Appendix B - Preset Initial Data

Lower Reverse Key Presets -- MIDI Presets

	NO	FUNCTION		C	C♯	D	D♯	E	F	F♯	G	G♯	A	A♯	B
SW	01	Vibrato On/Off		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
Play	02	Sustain On/Off		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
A-1	03	Drawbar Type		B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type	B-Type
	04	Drawbar Fold Back		2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G	2C-4G
A-3	05	Drawbar Attack Mode		Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C	Norm C
A-4	06	Sustain Mode		Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid
B-3	07	Keymap	Int. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
	08		Ext. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
	09		Ext. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
	10		Ext. Key	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C	1C-6C
B-4	11	Key Chng.	Ext. Oct.	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0
	12		Key	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0
	13		Ext. Oct.	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0	+0 +0
			Key												
			Ext. Oct.												
			Key												
C-1	14	Bender On/Off	Int.	On	On	On	On	On	On	On	On	On	On	On	On
	15		Ext. 1	On	On	On	On	On	On	On	On	On	On	On	On
	16		Ext. 2	On	On	On	On	On	On	On	On	On	On	On	On
	17		Ext. 3	On	On	On	On	On	On	On	On	On	On	On	On
	18	Bend Length	(Internal)	1	1	1	1	1	1	1	1	1	1	1	1
C-2	19	Modulation 2nd Drawbar		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	20	2nd Drawbar Preset No.		A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯	A♯
C-4	21	Pressure Bend		0	0	0	0	0	0	0	0	0	0	0	0
	22	Pressure Leslie S/F		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	23	Pressure 2nd Drawbar		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	24	Pressure Drive Cont.		Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
E-1	25	MIDI Ch. No.	Int.	On 5	On 5	On 5	On 5	On 5	On 5	On 5	On 5	On 5	On 5	On 5	On 5
	26		Ext. 1	On 6	On 6	On 6	On 6	On 6	On 6	On 6	On 6	On 6	On 6	On 6	On 6
	27		Ext. 2	On 7	On 7	On 7	On 7	On 7	On 7	On 7	On 7	On 7	On 7	On 7	On 7
	28		Ext. 3	On 8	On 8	On 8	On 8	On 8	On 8	On 8	On 8	On 8	On 8	On 8	On 8
E-3	29	Program No.	Ext. 1	On 1	On 2	On 3	On 4	On 5	On 6	On 7	On 8	On 9	On 10	On 11	On 12
	30		Ext. 2	On 1	On 2	On 3	On 4	On 5	On 6	On 7	On 8	On 9	On 10	On 11	On 12
	31		Ext. 3	On 1	On 2	On 3	On 4	On 5	On 6	On 7	On 8	On 9	On 10	On 11	On 12
C-3	32	Foot Sw1	Ext. 1	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	33	Code	Ext. 2	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	34		Ext. 3	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
	35	Foot Sw2	Ext. 1	64	64	64	64	64	64	64	64	64	64	64	64
	36	Code	Ext. 2	64	64	64	64	64	64	64	64	64	64	64	64
	37		Ext. 3	64	64	64	64	64	64	64	64	64	64	64	64
C-2	38	Modulation	Ext. 1	1	1	1	1	1	1	1	1	1	1	1	1
	39	Code	Ext. 2	1	1	1	1	1	1	1	1	1	1	1	1
	40		Ext. 3	1	1	1	1	1	1	1	1	1	1	1	1
D-1	41	Expression	Ext. 1	7	7	7	7	7	7	7	7	7	7	7	7
	42	Code	Ext. 2	7	7	7	7	7	7	7	7	7	7	7	7
	43		Ext. 3	7	7	7	7	7	7	7	7	7	7	7	7
	44	Expression	Ext. 1	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	45	Code	Ext. 2	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	46		Ext. 3	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	47	Expression	Ext. 1	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press
	48	Code	Ext. 2	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press
	49		Ext. 3	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press	Press

Appendix B - Preset Initial Data

Pedal Presets -- Standard/Jazz/Theater

	NO	FUNCTION		1	2	M
SW	01	Sustain On/Off		Off	Off	Off
A-1	02	Drawbar Type		Normal	Normal	Normal
A-3	03	Drawbar Attack Mode		Norm C	Norm C	Norm C
A-4	04	Sustain Mode		Mid	Mid	Mid
B-3	05	Keymap	Int. Key	1C-3C	1C-3C	1C-3C
	06		Ext. Key	1C-3C	1C-3C	1C-3C
	07		Ext. Key	1C-3C	1C-3C	1C-3C
	08		Ext. Key	1C-3C	1C-3C	1C-3C
B-4	09	Key Chng.	Ext. Oct.	+0 +0	+0 +0	+0 +0
	10		Key	+0 +0	+0 +0	+0 +0
	11		Ext. Oct. Key	+0 +0	+0 +0	+0 +0
			Ext. Oct. Key			
C-1	12	Bender On/Off	Int.	On	On	On
	13		Ext. 1	On	On	On
	14		Ext. 2	On	On	On
	15		Ext. 3	On	On	On
	16	Bend Length	(internal)	1	1	1
E-1	17	MIDI Ch. No.	Int.	Off 9	Off 9	Off 9
	18		Ext. 1	On 11	On 11	On 11
	19		Ext. 2	On 12	On 12	On 12
	20		Ext. 3	On 13	On 13	On 13
E-3	21	Program No.	Ext. 1	On 1	On 2	On 3
	22		Ext. 2	On 1	On 2	On 3
	23		Ext. 3	On 1	On 2	On 3
C-3	24	Foot Sw1	Ext. 1	Off	Off	Off
	25	Code	Ext. 2	Off	Off	Off
	26		Ext. 3	Off	Off	Off
	27	Foot Sw2	Ext. 1	64	64	64
	28	Code	Ext. 2	64	64	64
	29		Ext. 3	64	64	64
C-2	30	Modulation	Ext. 1	1	1	1
	32	Code	Ext. 2	1	1	1
	33		Ext. 3	1	1	1
D-1	33	Expression	Ext. 1	7	7	7
	34	Code	Ext. 2	7	7	7
	35		Ext. 3	7	7	7
	44	Expression	Ext. 1	Normal	Normal	Normal
	45	Mode	Ext. 2	Normal	Normal	Normal
	46		Ext. 3	Normal	Normal	Normal

Appendix B - Preset Initial Data

Pedal Presets -- MIDI						
	NO	FUNCTION		1	2	M
SW	01	Sustain On/Off		Off	Off	Off
A-1	02	Drawbar Type		Normal	Normal	Normal
A-3	03	Drawbar Attack Mode		Norm C	Norm C	Norm C
A-4	04	Sustain Mode		Mid	Mid	Mid
B-3	05	Keymap	Int. Key	1C-3C	1C-3C	1C-3C
	06		Ext. Key	1C-3C	1C-3C	1C-3C
	07		Ext. Key	1C-3C	1C-3C	1C-3C
	08		Ext. Key	1C-3C	1C-3C	1C-3C
B-4	09	Key Chng.	Ext. Oct.	+0 +0	+0 +0	+0 +0
	10		Key	+0 +0	+0 +0	+0 +0
	11		Ext. Oct. Key	+0 +0	+0 +0	+0 +0
			Ext. Oct. Key			
C-1	12	Bender On/Off	Int.	On	On	On
	13		Ext. 1	On	On	On
	14		Ext. 2	On	On	On
	15		Ext. 3	On	On	On
	16	Bend Length	(Internal)	1	1	1
E-1	17	MIDI Ch. No.	Int.	Off 9	Off 9	Off 9
	18		Ext. 1	On 11	On 11	On 11
	19		Ext. 2	On 12	On 12	On 12
	20		Ext. 3	On 13	On 13	On 13
E-3	21	Program No.	Ext. 1	On 1	On 2	On 3
	22		Ext. 2	On 1	On 2	On 3
	23		Ext. 3	On 1	On 2	On 3
C-3	24	Foot Sw1	Ext. 1	Off	Off	Off
	25	Code	Ext. 2	Off	Off	Off
	26		Ext. 3	Off	Off	Off
	27	Foot Sw2	Ext. 1	64	64	64
	28	Code	Ext. 2	64	64	64
	29		Ext. 3	64	64	64
C-2	30	Modulation	Ext. 1	1	1	1
	32	Code	Ext. 2	1	1	1
	33		Ext. 3	1	1	1
D-1	33	Expression	Ext. 1	7	7	7
	34	Code	Ext. 2	7	7	7
	35		Ext. 3	7	7	7
	44	Expression	Ext. 1	Normal	Normal	Normal
	45	Mode	Ext. 2	Normal	Normal	Normal
	46		Ext. 3	Normal	Normal	Normal

INSTRUMENT CARE

Cabinet

To clean the organ, use a soft cloth slightly moistened with water and a small amount of mild soap. After cleansing, immediately wipe dry with a soft dry cloth. Do not use any spray waxes, polish or solvents on finish.

Keys And Buttons

To clean keys and buttons, use a clean soft cloth moistened with water. Do not use any solvents, thinners or dryers such as alcohol, gasoline, lighter fluid, carbon tetrachloride, etc. These solutions may affect the letters and/or finish on the buttons and keys.

Moving Your Organ

It is not necessary to bolt or fasten any parts of the instrument when moving. Reasonable care should be taken, however, to avoid any violent impact to or dropping of the instrument.

Hammond maintains a policy of continuously improving and upgrading its instruments and therefore reserves the right to change specifications without notice. Although every attempt has been made to insure the accuracy of the descriptive contents of this owner's guide, total accuracy cannot be guaranteed. Should the player require further assistance, inquiries should first be made to your Authorized Hammond Dealer. If you still need further assistance then contact Hammond at the following addresses:

In Japan Contact:

HAMMOND SUZUKI, Ltd.
25-12, Ryoke 2 Chome
Hamamatsu 430 (Shizuoka)
JAPAN

In the United States contact:

HAMMOND SUZUKI U.S.A., Inc.
733 Annoreno Dr.
Addison, ILL 60101
UNITED STATES

In the United Kingdom contact:

HAMMOND U.K., LTD.
Potash House
Drayton Parslow
Bucks, MK17 OJE
UNITED KINGDOM

In Canada contact:

HAMMOND KEYBOARDS CANADA LTD.
P.O. Box 32587
9665 Bayview Avenue
Richmond Hill, Ontario L4C 0A2
CANADA

In Europe contact:

HAMMOND SUZUKI EUROPE B.V
Industriepark Hagestein
Ir. D.S. Tuynmanweg 4A
4131 PN Vianen
P.O. Box 282
4130 EG Vianen
THE NETHERLANDS

In Germany contact:

HAMMOND SUZUKI DEUTSCHLAND GmbH
Kirchstraße 19
D-7907 SETZINGEN/ULM
GERMANY

Technical materials are available and can be obtained by mailing a request to the appropriate address listed above marked ATTENTION: SERVICE DEPARTMENT.

CAUTION: Service instructions are for use by qualified personnel only. To avoid risk of electric shock, the user should not perform any servicing or changing of the instrument's specifications other than those listed in this guide. All other servicing should be referred to qualified service personnel.

Hammond Organ Model XB-3/XC-3

Index

CAUTION

Danger of explosion if lithium battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

ADVARSELL

Lithiumbatteri. Eksplosionsfare ved fejlagtig håndering. Udskiftning må kun ske med batteri af samme fabrikat og type. Lebér det brugte batteri tilbage til leverandøren.

Norge: **ADVARSEL**

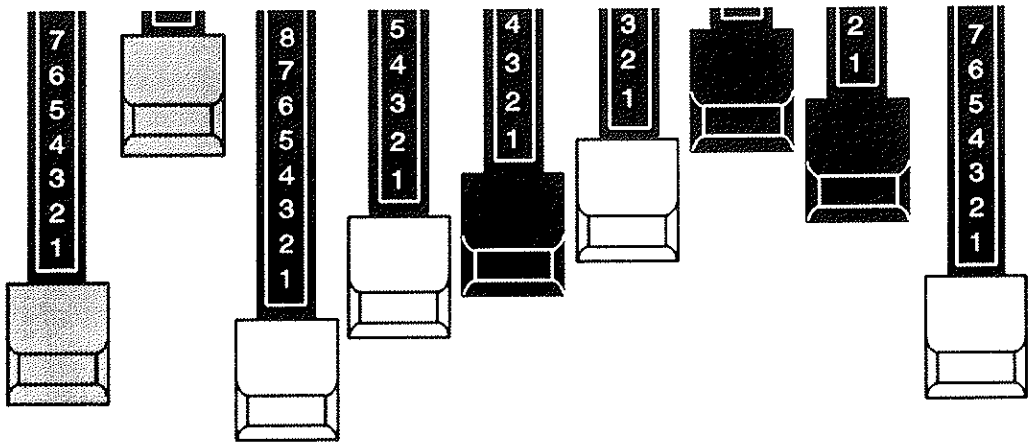
Lithiumbatteri - Eksplosjonsfare. Ved utskiftning benyttes kun batteri som anbefalt av apparatfabrikanten. Brukt batteri returneres apparatleverandøren.

Sverige: **VARNING**

Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller et ekvivalent typ som rekommenderes av apparattillverkaren, Kassera använt batteri enlig fabrikantens instruktion.

Finland: **VAROITUS**

Paristo voī räjähtää, jos se on virheelliseeti ansennettu Vaihda paristo ainoastaan laite-valmistajan suosittelemaan tyyppiin, Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.



HAMMOND

Model XB-3
Model XC-3

MIDI
Reference Guide

The purpose of this Guide is to give an explanation of what the MIDI features of your Hammond Organ are, and how to access them using the Information Center Display. The general outline of this Guide is as follows:

1. Each MIDI Advanced Feature of the organ is introduced.

2. If any explanation of a MIDI term is necessary, it will be given before the organ Advanced Feature is explained.

3. The Advanced Feature will then be explained.

Although this Guide will also give some brief explanations of various MIDI terms, it is not intended as a MIDI primer. If you are totally unfamiliar with MIDI, it would be a good idea to purchase one of a number of excellent books available on the subject of MIDI. These go into detail about how MIDI works, what the various terms mean, and how they may be applied to performance situations.

Also, since no two MIDI systems are alike, and there is such a vast proliferation of MIDI products on the market, it is not always possible to predict exactly how two MIDI devices will interact. In order to take full advantage of the MIDI features of your Hammond Organ, we suggest that you:

1. Acquaint yourself as thoroughly as you can with the basic operation of MIDI.

2. Study thoroughly the MIDI capabilities of each of your MIDI devices. Ask your dealer to provide you with assistance.

If after doing the above you are still experiencing difficulty, and the problem seems to be related to the Hammond Organ, please send a letter detailing what MIDI gear you have, what you are trying to get it to do, what it is doing, and any other questions to:

HAMMOND SUZUKI, U.S.A., Inc.
733 Annoreno Drive
Addison, IL 60101
Attention: MIDI Technical Support

Please be sure to include your telephone number(s), and what time of day it is best to call.

- Table of Contents -

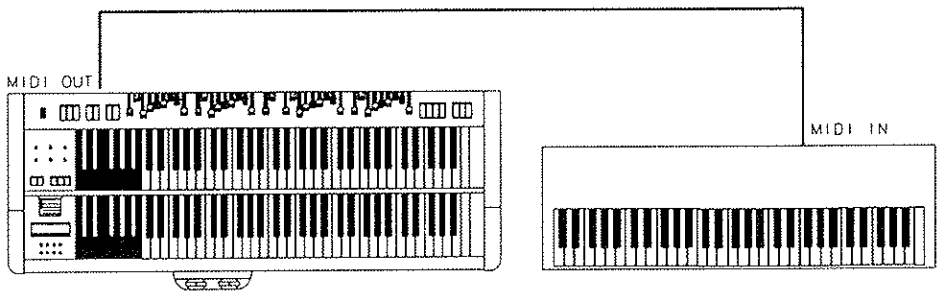
A Word About MIDI

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.

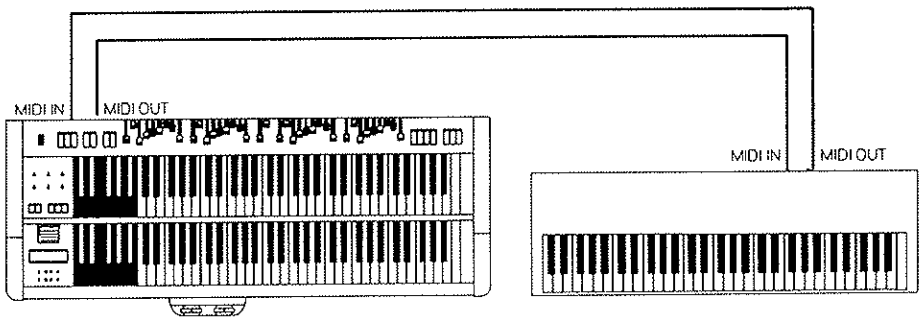
Typical MIDI Applications

♦ 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.



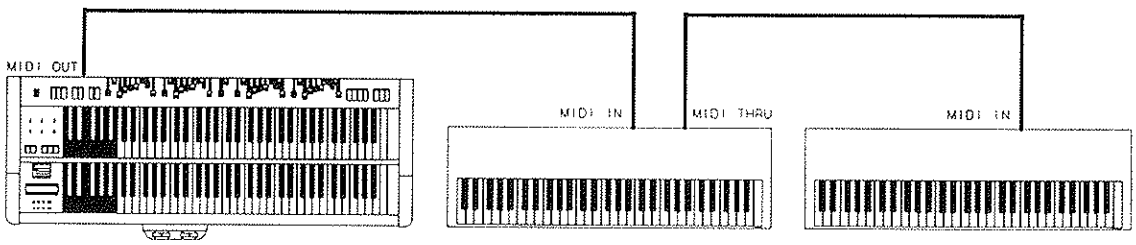
In the example above, the keyboard(s) of the sending or transmitting instrument (MIDI OUT) are being used to control the sound generators of the receiving instrument (MIDI IN). When a key is played on the sending instrument, the corresponding note will play on the receiving instrument as though the appropriate key had been pressed on the receiving instruments'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.) This is the most basic MIDI hookup, and is sometimes called a "closed loop".



The above is an example of an "open loop", which allows 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.

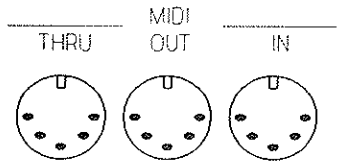
♦ MIDI THRU

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 sending instrument (MIDI OUT) to another instrument (MIDI IN), which receives the data and passes it along to a third instrument via the MIDI THRU connection.

Your Hammond Organ has MIDI IN, MIDI OUT and MIDI THRU jacks. These are located on the back right hand side of the instrument.

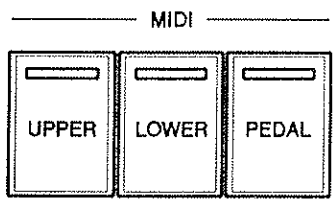


The MIDI interface on your Hammond Organ allows you to:

(1) Receive and transmit MIDI Note On/Note Off data on both manuals and pedals.
(2) Transmit MIDI Note Velocity data from both manuals.
(3) Receive and transmit controller data, including volume and sustain.
(4) Receive and transmit program numbers - codes for presets to change sounds.
(5) Set MIDI sending & receiving channel numbers to any number from 1 through 16.
(6) Turn LOCAL CONTROL "ON" and "OFF".

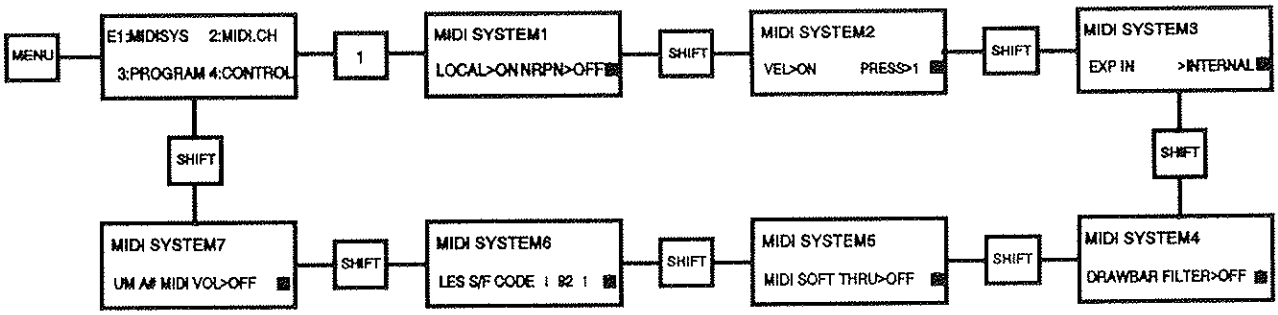
How to Turn On MIDI

The three MIDI Touch Buttons are located at the left end of the Upper Manual just beneath the Bass and Treble Tone Controls, and are marked UPPER, LOWER, and PEDAL. These Touch Buttons are used to turn MIDI "ON" or "OFF" in order to transmit MIDI signals. These switches will be illuminated when the power is turned on.



The following pages will describe the MIDI Advanced Features of your Hammond Organ.

Advanced Features - MIDI System



There are seven menu pages to the MIDISYS Advanced Feature Menu that allow you to do the following.

1. MIDI SYSTEM1 -
   There are two options to this menu page: (1) MIDI LOCAL "ON" or "OFF". (2) NRPN (Non Registered Program Number) "ON" or "OFF".

2. MIDI SYSTEM2 -
   There are two options to this menu page: (1) Set the MIDI Velocity Curve (2) Set parameters for MIDI After Touch.

3. MIDI SYSTEM3 -
   This page allows you to select either INTERNAL or EXTERNAL control for the Expression Pedal.

4. MIDI SYSTEM4 -
   Allows you to turn "ON" or "OFF" the Drawbar Filter.

5. MIDI SYSTEM5 -
   Allows you to turn "ON" or "OFF" the MIDI SOFT THRU.

6. MIDI SYSTEM6 -
   Allows you to set the control code for the Leslie Slow/Fast function.

7. MIDI SYSTEM7 -
   Allows you to turn "ON" or "OFF" the ability to control the volume of outboard MIDI modules using the Upper Manual "A♯" Drawbars.

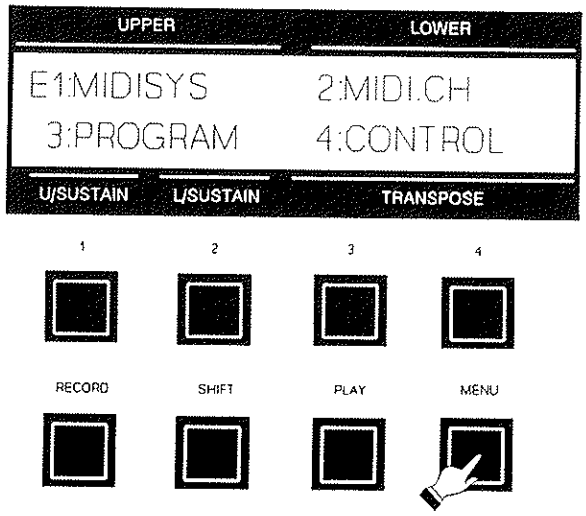
The following pages give a more detailed explanation of how these Advanced Feature Menus work.

♦ MIDISYS - MIDI SYSTEM1 - Local & NRPN ON / OFF

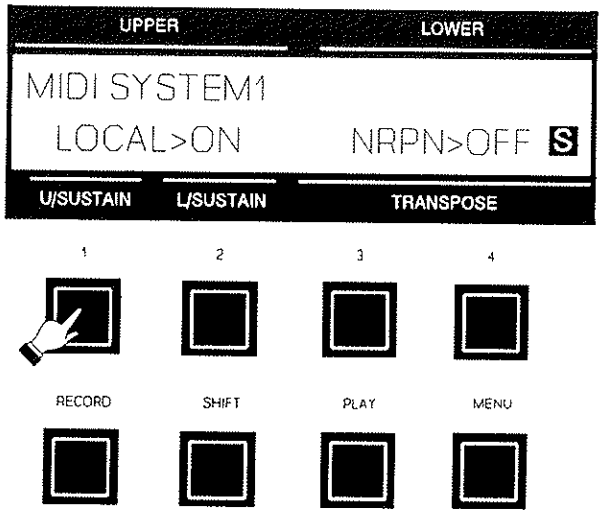
This menu page will allow you to change two MIDI options: (1) You can turn "ON" or "OFF" the MIDI LOCAL feature. (2) You can turn "ON" or "OFF" NRPN (Non Registered Program Number).

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the Information Center Display looks like this.



2. Touch the black Number 1 Select Touch Button. The Information Center Display should look like this.



"Local Control" in the MIDI realm refers to the ability of a MIDI instrument to play its own sounds. For example, your Hammond Organ is normally set up to play any sound registered for the manuals and pedals in addition to being able to transmit or receive MIDI data. However, there may be occasions when you want the organ to play the sounds from a connected MIDI instrument without also playing its own sounds.

4. Touch either the black Number 1 or Number 2 Select Touch Button to turn "ON" or "OFF" the MIDI LOCAL command. When MIDI LOCAL is "ON", and the organ is connected to another MIDI device such as a sound module, the sound produced by the organ will be silenced, allowing only the connected MIDI device to sound.

5. Touch either the black Number 3 or Number 4 Select Touch Button to turn "ON" or "OFF" the MIDI NRPN (Non Registered Program Number) command. When NRPN is "ON", the organ will send and recognize control codes, such as turning Touch Tabs "ON" or "OFF".

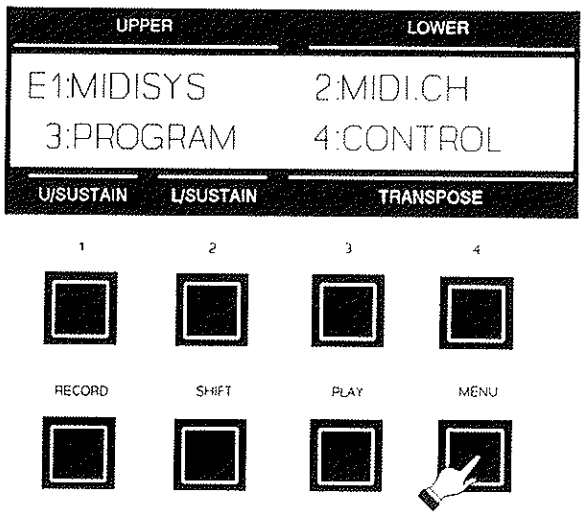
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Button.

♦ MIDISYS - MIDI SYSTEM2 - VELocity & PRESSure (After Touch)

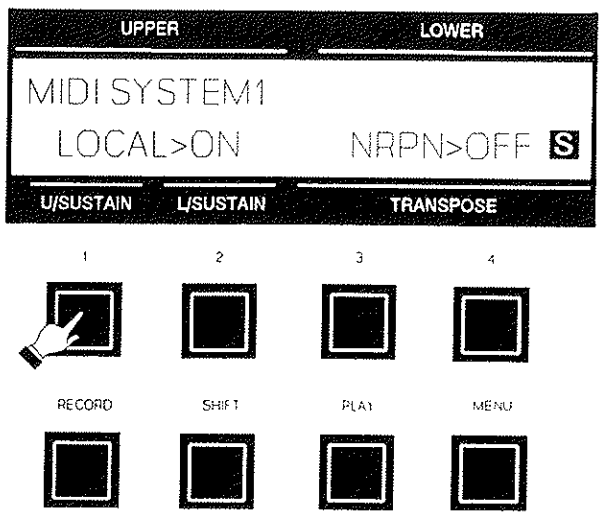
This menu page will allow you to change two MIDI options: (1) The organ's manuals transmit MIDI Note Velocity data, and you can select from 1 of 6 different velocity curves as well as "OFF". (2) The organ's manuals transmit MIDI After Touch data, and you can select from 1 of 6 different curves.

TRY THIS:

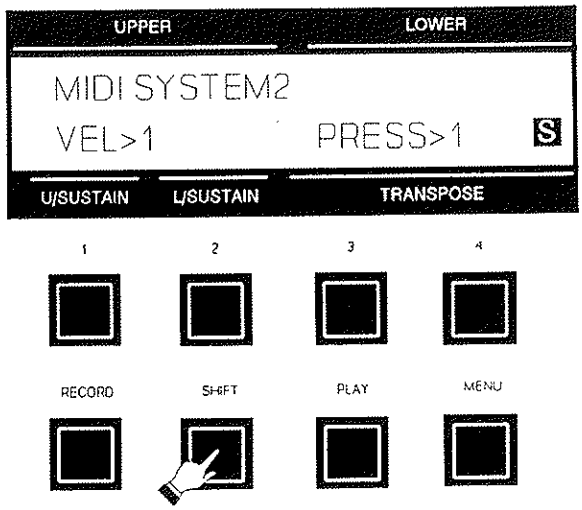
1. Touch the black MENU Select Touch Button repeatedly until the Information Center Display looks like this.



2. Touch the black Number 1 Select Touch Button. The Information Center Display should look like this.



3. Touch the black SHIFT Select Touch Button once. The Information Center Display should look like this.



4. To select one of the 6 different MIDI VELocity curves, do the following:

Touch the black Number 1 Select Touch Button to scroll down through the Velocity curve selections (OFF, 6, 5, 4, 3, 2, 1).

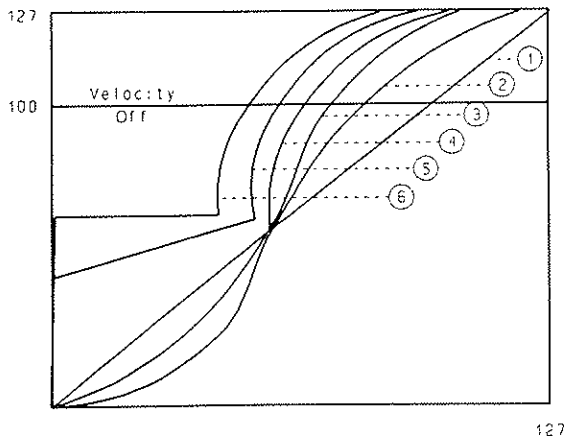
Touch the black Number 2 Select Touch Button to scroll up through the Velocity curve selections (1, 2, 3, 4, 5, 6, OFF).

Touch the black Number 3 Select Touch Button to scroll down through the After Touch curve selections (6, 5, 4, 3, 2, 1).

Touch the black Number 4 Select Touch Button to scroll up through the After Touch curve selections (1, 2, 3, 4, 5, 6).

The following chart shows the differences among each of the six curves.

MIDI OUT VELOCITY AND AFTERTOUCH CURVES



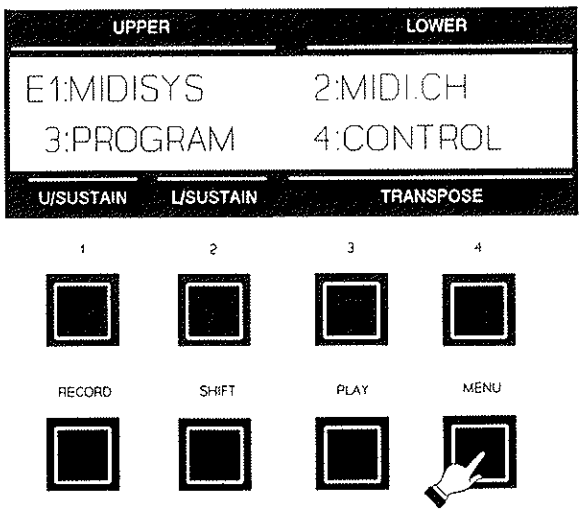
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Button.

♦ MIDISYS - MIDI SYSTEM3 - EXPression IN - INTERNAL / EXTERNAL

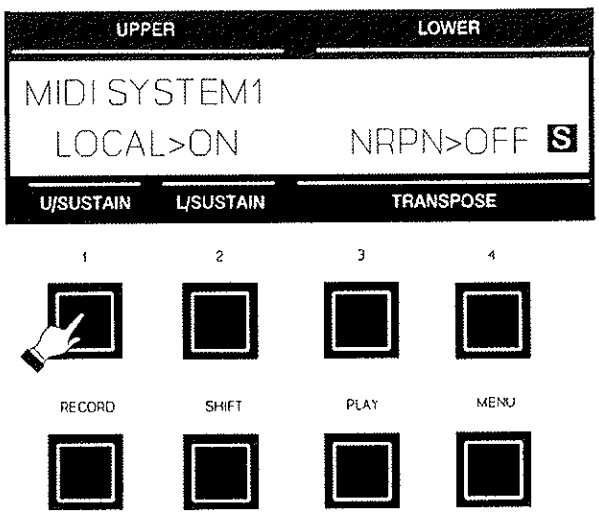
This menu page will allow you to choose whether you want to control the volume of a connected MIDI device from the organ's Expression Pedal.

TRY THIS:

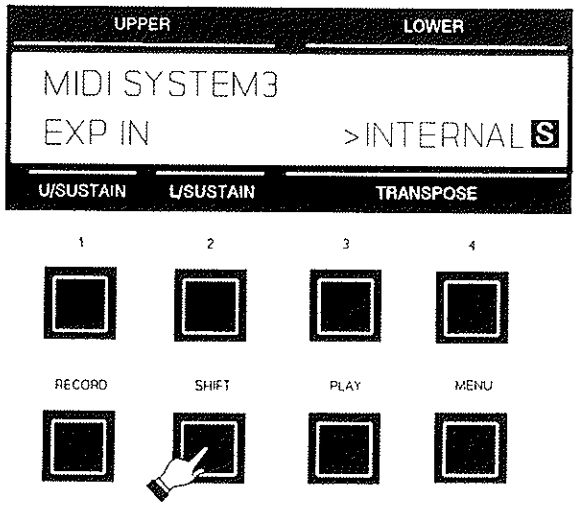
1. Touch the black MENU Select Touch Button repeatedly until the Information Center Display looks like this.



2. Touch the black Number 1 Select Touch Button. The Information Center Display should look like this.



3. Touch the black SHIFT Touch Button twice. The Information Center Display should look like this.



4. To select the options for this Advanced Feature, do the following:

   Touch any one of the four black numbered Select Touch Buttons to select "INTERNAL" or "EXTERNAL".

Each time a button is touched, "INTERNAL" or "EXTERNAL" will appear in the Information Center Display.

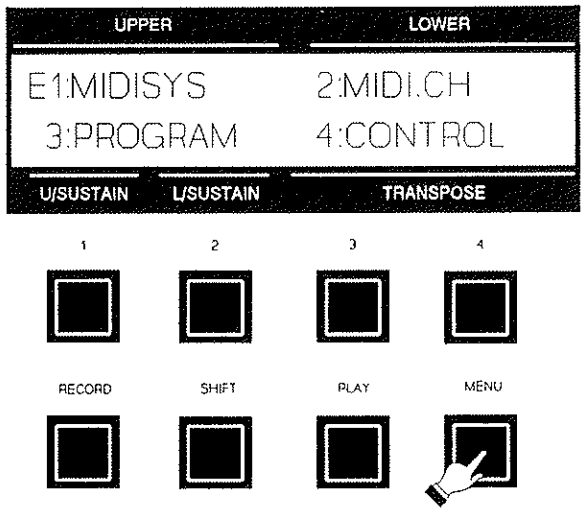
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Button.

♦ MIDISYS - MIDI SYSTEM4 - Drawbar Filter ON / OFF

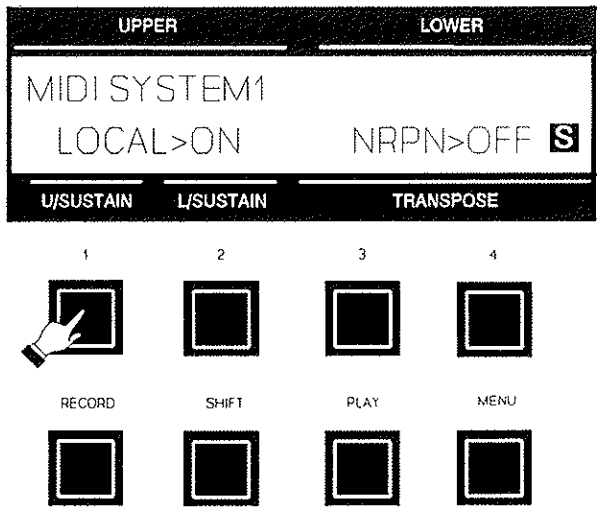
This menu page will allow you to turn "ON" or "OFF" the Drawbar Filter. This Advanced Feature will allow Drawbar changes to be recognized by a MIDI Sequencer that has the capability to save MIDI controller changes. You can also SEND Drawbar data changes to another organ that is connected via MIDI.

TRY THIS:

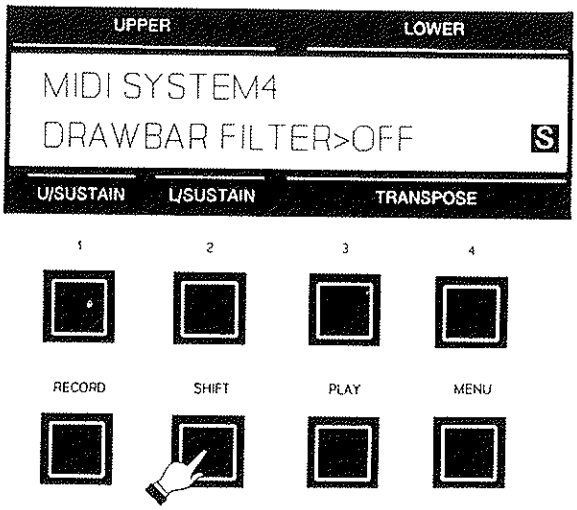
1. Touch the black MENU Select Touch Button repeatedly until the Information Center Display looks like this.



2. Touch the black Number 1 Select Touch Button. The Information Center Display should look like this.



3. Touch the black SHIFT Touch Button three times. The Information Center Display should look like this.



4. Touch any one of the four black numbered Select Touch Buttons to turn "ON" or "OFF" the MIDI Drawbar Filter. Each time the button is touched, "ON" or "OFF" will appear in the Information Center Display.

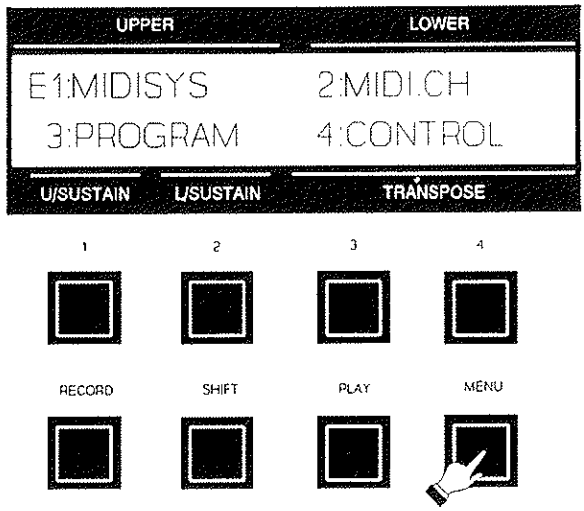
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Button.

♦ MIDISYS - MIDI SYSTEM5 - MIDI SOFT THRU ON / OFF

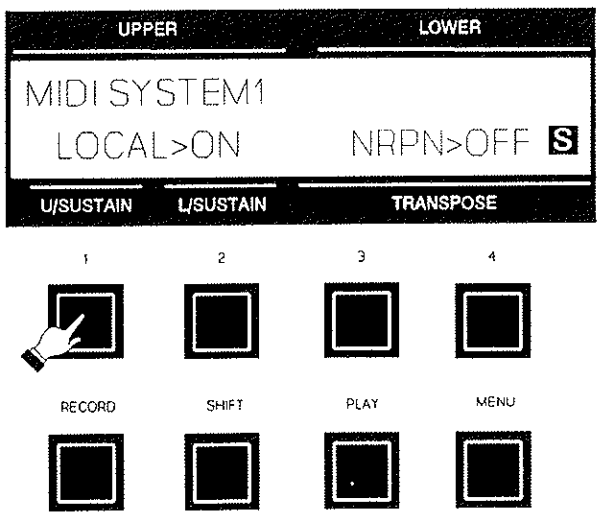
Some sequencers are capable of mixing MIDI IN information with MIDI OUT information. This is called SOFT THRU, and can be useful when you are recording sequences and want to listen to tracks previously recorded as well as what you are currently recording. Your Hammond Organ has MIDI SOFT THRU which can be turned "ON" or "OFF" using this menu page.

TRY THIS:

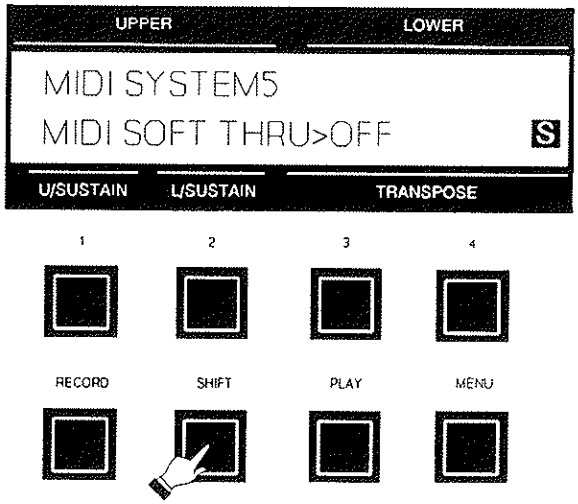
1. Touch the black MENU Select Touch Button repeatedly until the Information Center Display looks like this.



2. Touch the black Number 1 Select Touch Button. The Information Center Display should look like this.



3. Touch the black SHIFT Touch Button four times. The Information Center Display should look like this.



4. Touch any one of the four black numbered Select Touch Buttons to turn "ON" or "OFF" the MIDI Soft Thru.

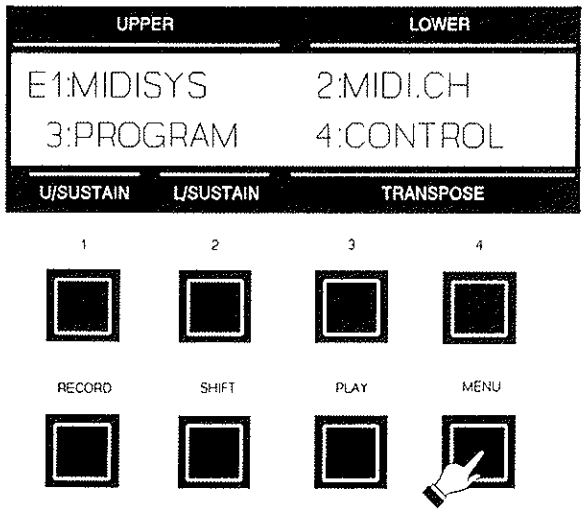
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Button.

♦ MIDISYS - MIDI SYSTEM6 - Leslie Slow/Fast Code

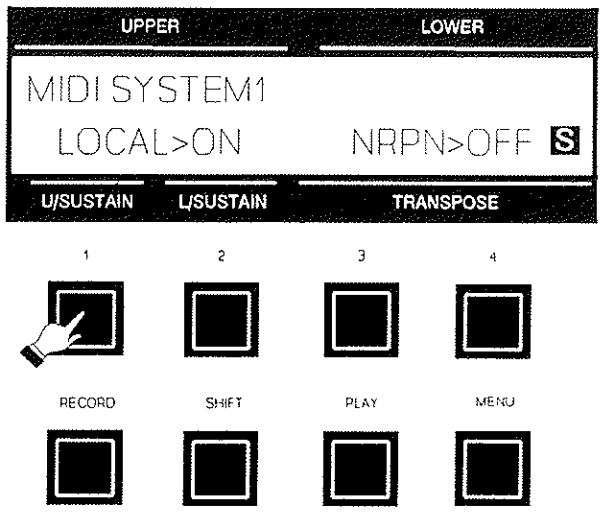
This menu page will allow you to select the controller code you want to use to control the rotor speed of an external Leslie Speaker cabinet.

TRY THIS:

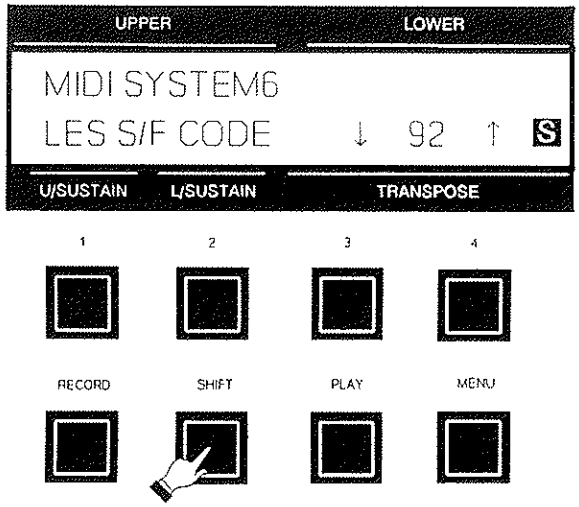
1. Touch the black MENU Select Touch Button repeatedly until the Information Center Display looks like this.



2. Touch the black Number 1 Select Touch Button. The Information Center Display should look like this.



3. Touch the black SHIFT Touch Button five times. The Information Center Display should look like this.



4. The default MIDI Controller number is "92". To select a different controller number, do the following:

Touch the black Number 3 Select Touch Button to scroll down through the selections (0 - 127).

Touch the black Number 4 Select Touch Button to scroll up through the selections (127 - 0).

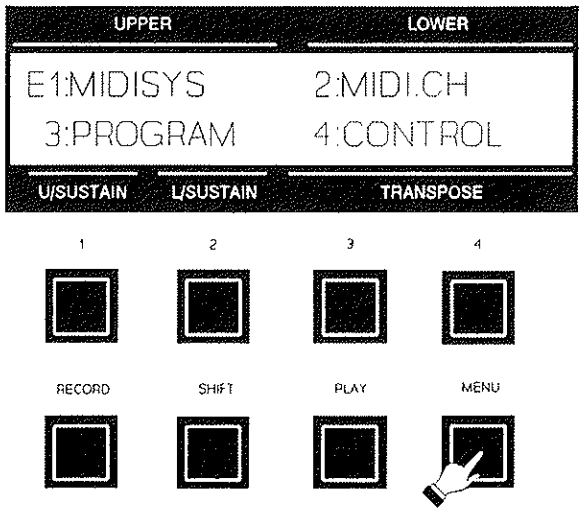
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Button.

♦ MIDISYS - MIDI SYSTEM7 - Upper "A♯" MIDI Volume ON / OFF

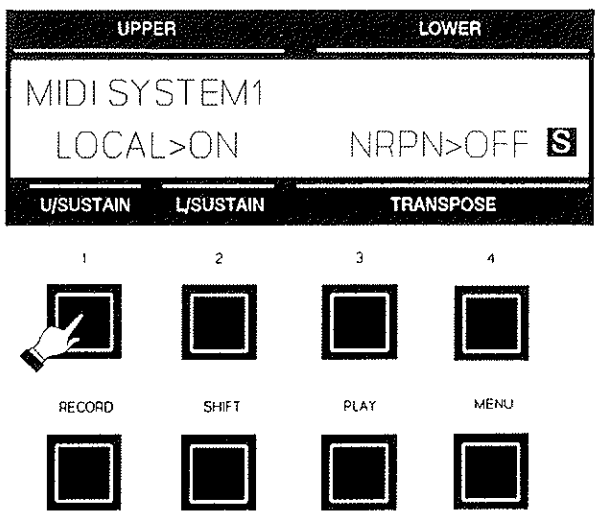
This menu page will allow you to select whether you want to use the Upper Manual "A♯" Drawbar set to control the volumes of outboard MIDI voices.

TRY THIS:

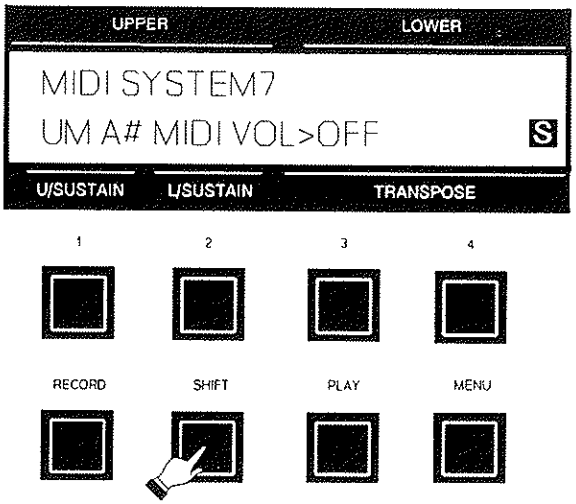
1. Touch the black MENU Select Touch Button repeatedly until the Information Center Display looks like this.



2. Touch the black Number 1 Select Touch Button. The Information Center Display should look like this.



3. Touch the black SHIFT Touch Button six times. The Information Center Display should look like this.



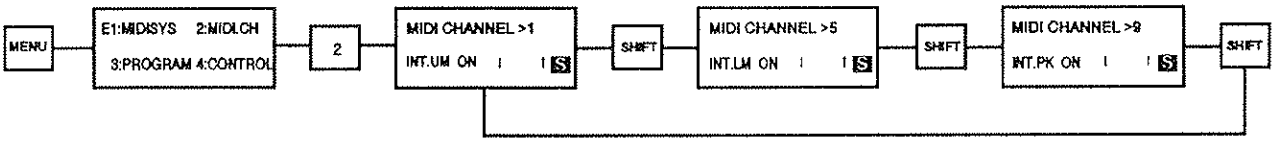
4. Touch any one of the four black numbered Select Touch Buttons to turn "ON" or "OFF" the Upper "A♯" MIDI Volume.

The following data chart shows the options for the Upper "A#" MIDI Volume Advanced Feature.

UPPER A♯ MIDI VOLUME OPTIONS	
Drawbar	Manual
16'	EXT UM1
5 1/3	EXT UM2
8'	EXT UM3
4'	EXT LM1
2 2/3	EXT LM2
2'	EXT LM3
1 3/5	EXT PK1
1 1/3	EXT PK2
1'	EXT PK3

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Button.

Advanced Features - MIDI Channel



The MIDI Channel Advanced Feature allows the assignment of the MIDI channels to the following: (1) Upper Manual, (2) Lower Manual, (3) Pedal Keyboard, (4) EXTernal Upper Manual 1, 2 and 3, (5) EXTernal Lower Manual 1, 2 & 3, (6) EXTernal Pedal Keyboard 1, 2 & 3.

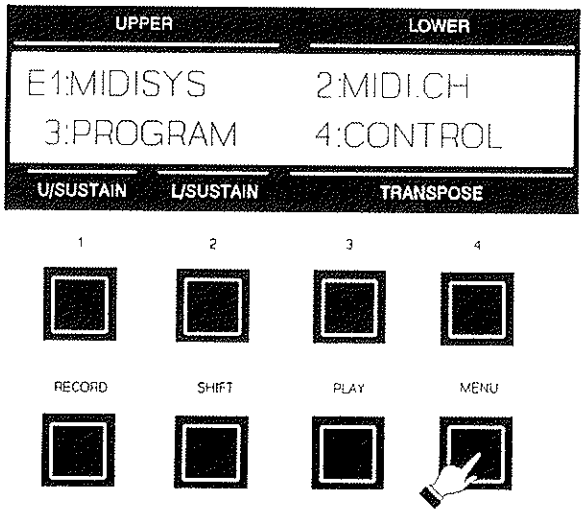
The following pages give a more detailed explanation of how these Advanced Feature Menus work.

♦ MIDI - MIDI Channel

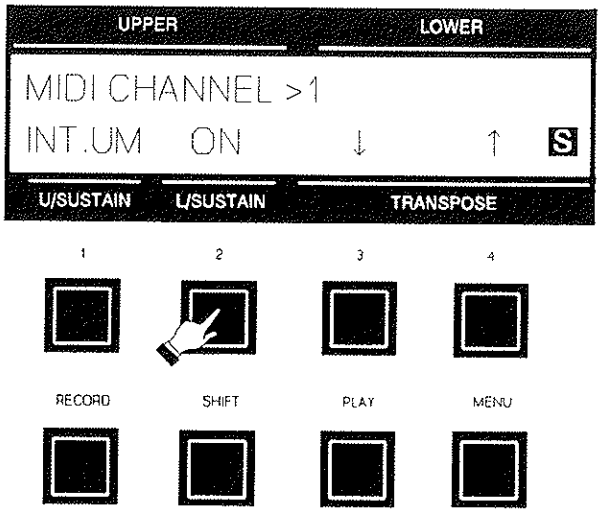
This menu page will allow you to assign MIDI Channels to the following: (1) Upper Manual, (2) Lower Manual, (3) Pedal Keyboard, (4) EXTernal Upper Manual 1, 2 & 3, (5) EXTernal Lower Manual 1, 2 & 3, (6) EXTernal Pedal Keyboard 1, 2 & 3.

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the Information Center Display looks like this.



2. Touch the black Number 2 Select Touch Button. The Information Center Display should look like this.



3. To change the manual and select the MIDI Channel options, do the following:

Selecting The Manual -

Touch the black Number 1 Select Touch Button to scroll and select either INTernal or EXTernal within each manual.

Touch the black Number 2 Select Touch Button to turn each manual assignment "ON" or "OFF". In the "OFF" mode, no MIDI data will be sent from the selected manual.

Touch the black SHIFT Select Touch Button to scroll and select the manual to be assigned - Upper Manual, Lower Manual or Pedal Keyboard.

MIDI Channel Assignment -

Touch the black Number 3 Select Touch Button to scroll down through the MIDI Channels.

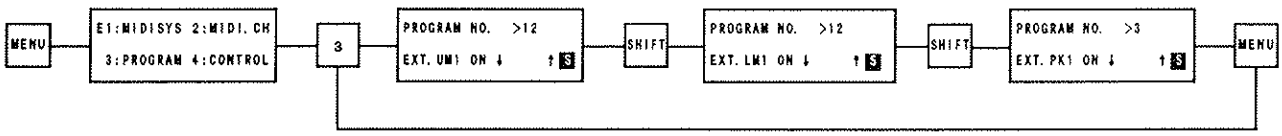
Touch the black Number 4 Select Touch Button to scroll up through the MIDI Channels.

The following data chart shows the options and limits for the MIDI Channel Advanced Feature.

MIDI CHANNEL OPTIONS		
MANUAL	Default Setting	Limit
UPPER	Channel 1	1 - 16
LOWER	Channel 5	1 - 16
PEDAL	Channel 9	1 - 16
EXT.UM1	Channel 2	1 - 16
EXT.LM1	Channel 6	1 - 16
EXT.PK1	Channel 11	1 - 16
EXT.UM2	Channel 3	1 - 16
EXT.LM2	Channel 7	1 - 16
EXT.PK2	Channel 12	1 - 16
EXT.UM3	Channel 4	1 - 16
EXT.LM3	Channel 8	1 - 16
EXT.PK3	Channel 13	1 - 16

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

Advanced Features - MIDI Program



The MIDI Program Advanced Feature allows you to assign MIDI Program numbers to the following: (1) EXTernal Upper Manual 1, 2 & 3, (2) EXTernal Lower Manual 1, 2 & 3, (3) EXTernal Pedal Keyboard 1, 2 & 3.

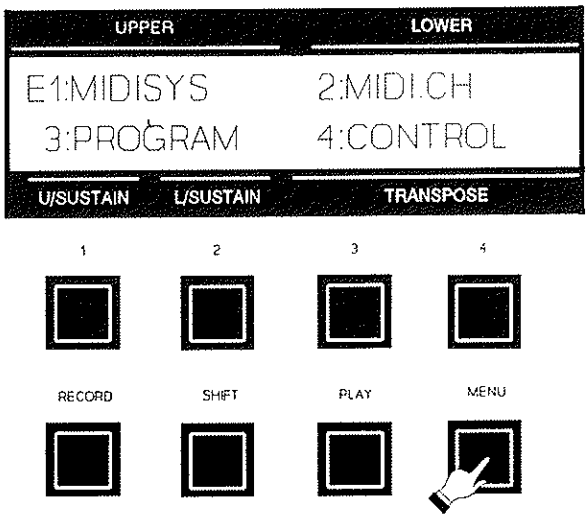
The following pages give a more detailed explanation of how this Advanced Feature Menu works.

◆ MIDI - Program Number

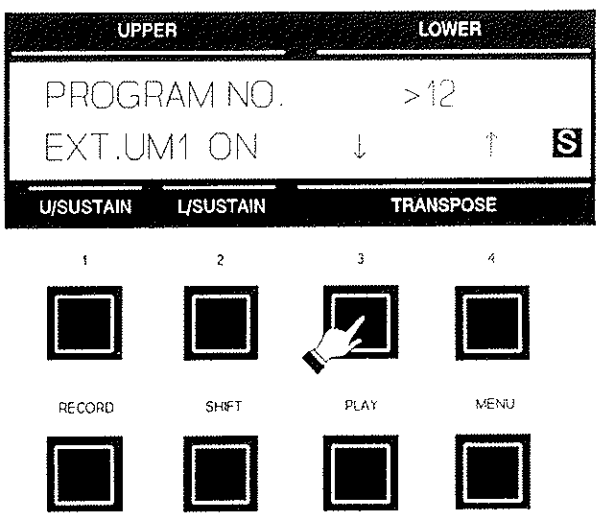
This menu page will allow you to assign a MIDI Program Number to the following: (1) EXTernal Upper Manual 1, 2 & 3, (2) EXTernal Lower Manual 1, 2 & 3, (3) EXTernal Pedal Keyboard 1, 2 & 3.

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the Information Center Display looks like this.



2. Touch the black Number 3 Select Touch Button. The Information Center Display should look like this.



4. To change the MIDI Program Number options, do the following:

   Touch the black Number 1 Select Touch Button to scroll and select the Manual to be assigned.

   Touch the black Number 2 Select Touch Button to turn each Manual "ON" or "OFF".

   Touch the black Number 3 Select Touch Button to scroll down through the MIDI Program Numbers.

   Touch the black Number 4 Select Touch Button to scroll up through the MIDI Program Numbers.

   Touch the black SHIFT Select Touch Button to scroll and select the manual to be assigned - **U**pper **M**anual, **L**ower **M**anual or **P**edal **K**eyboard.

The following data chart shows the options and limits for the Keymap Advanced Feature.

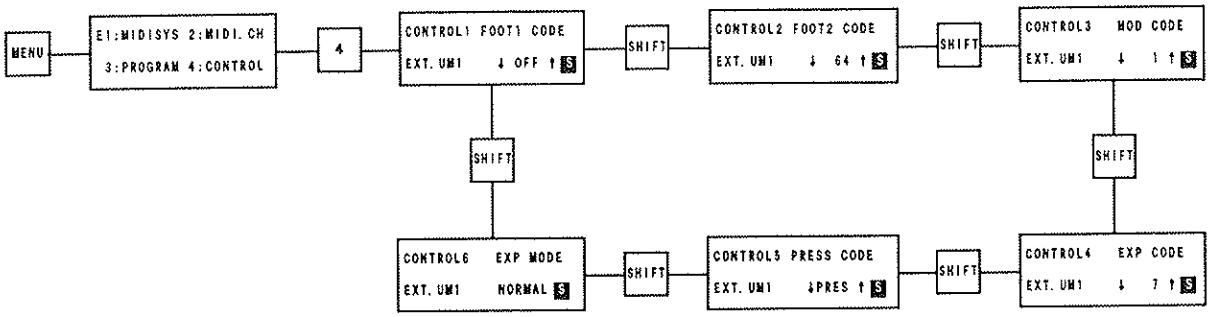
MIDI PROGRAM NUMBER OPTIONS	
Manual	Program Number Limits
* EXT.UM1, 2, 3	1 - 128
* EXT.LM1, 2, 3	1 - 128
+ EXT.PK1, 2, 3	1 - 128

* default setting is 12.

\+ default setting is 3.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

Advanced Features - MIDI Control



There are six menu pages to the MIDISYS Advanced Feature Menu that allow you to do the following.

1. CONTROL1 -
   Allows you to set the Controller number for Foot Switch 1 (the foot switch mounted on the Expression Pedal).

2. CONTROL2 -
   Allows you to set the Controller number for Foot Switch 2 (optional additional foot switch).

3. CONTROL3 -
   Allows you to set the Controller number for the Modulation Wheel.

4. CONTROL4 -
   Allows you to set the Controller number for the Expression Pedal.

5. CONTROL5 -
   Allows you to set the Controller number for After Touch.

6. CONTROL6 -
   Allows you to set the mode for the Expression Pedal.

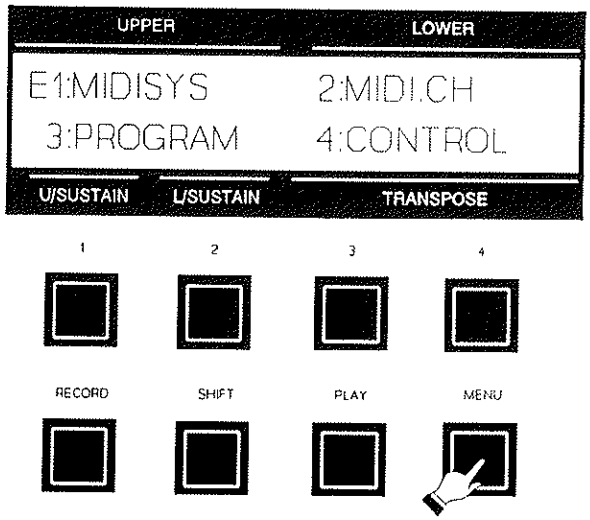
The following pages give a more detailed explanation of how these Advanced Feature Menus work.

♦ MIDI - CONTROL1 FOOT1 (Foot Switch 1)

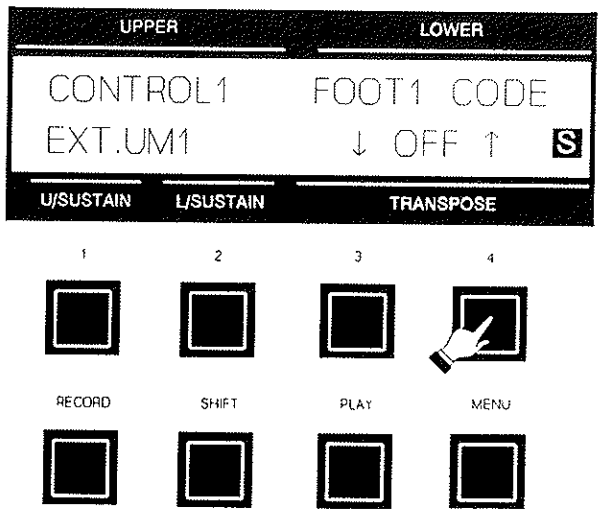
This menu page will allow you to set the Controller number for Foot Switch 1 (the foot switch mounted on the Expression Pedal).

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the Information Center Display looks like this.



2. Touch the black Number 4 Select Touch Button. The Information Center Display should look like this.



4. To change the MIDI Controller number for Foot Switch 1, do the following:

Touch the black Number 1 Select Touch Button to scroll and select the External Manual to be assigned (UM, LM or PK, 1, 2 or 3).

Touch the black Number 3 Select Touch Button to scroll down through the MIDI Controller numbers (0 - 127, OFF).

Touch the black Number 4 Select Touch Button to scroll up through the MIDI Controller numbers (OFF, 0 - 127).

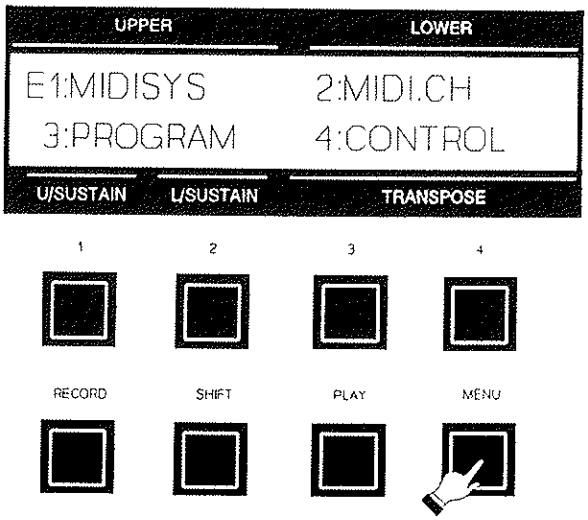
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

♦ MIDI - CONTROL2 FOOT2 (Foot Switch 2)

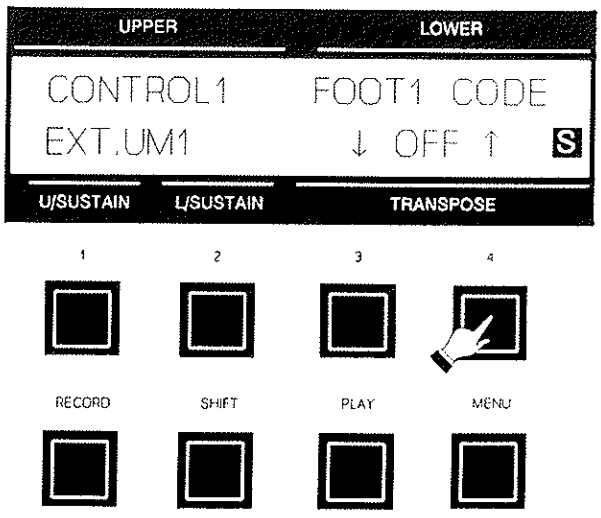
This menu page will allow you to set the Controller number for Foot Switch 2 (optional additional foot switch).

TRY THIS:

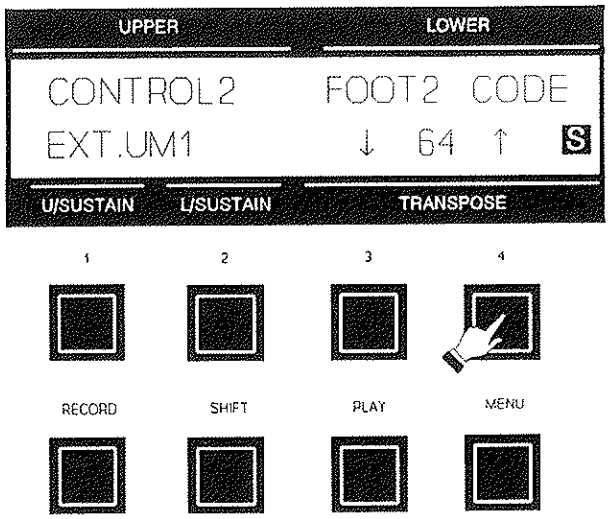
1. Touch the black MENU Select Touch Button repeatedly until the Information Center Display looks like this.



2. Touch the black Number 4 Select Touch Button. The Information Center Display should look like this.



3. Touch the black SHIFT Touch Button once. The Information Center Display should look like this.



4. To change the MIDI Controller number for Foot Switch 2, do the following:

Touch the black Number 1 Select Touch Button to scroll and select the External Manual to be assigned (UM, LM or PK, 1, 2 or 3).

Touch the black Number 3 Select Touch Button to scroll down through the MIDI Controller numbers (0 - 127, OFF).

Touch the black Number 4 Select Touch Button to scroll up through the MIDI Controller numbers (OFF, 0 - 127).

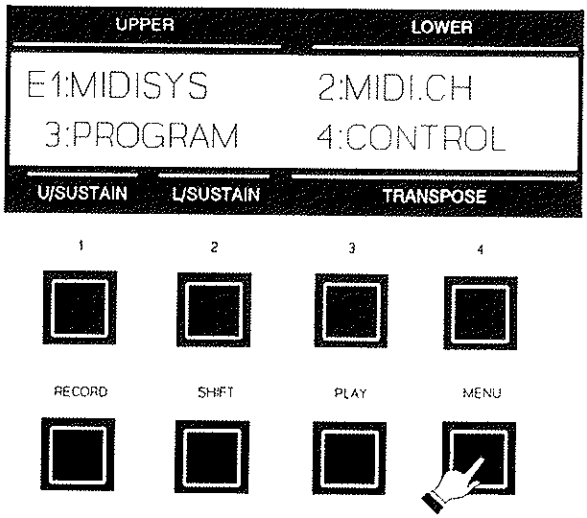
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

♦ MIDI - CONTROL3 MOD (Modulation Wheel)

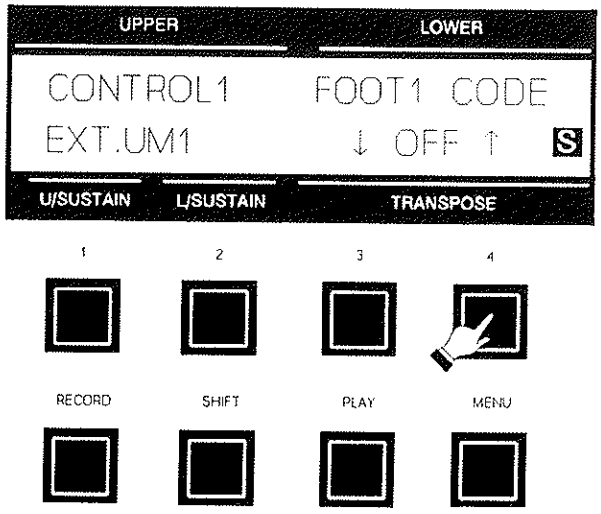
This menu page will allow you to set the Controller number for the Modulation Wheel.

TRY THIS:

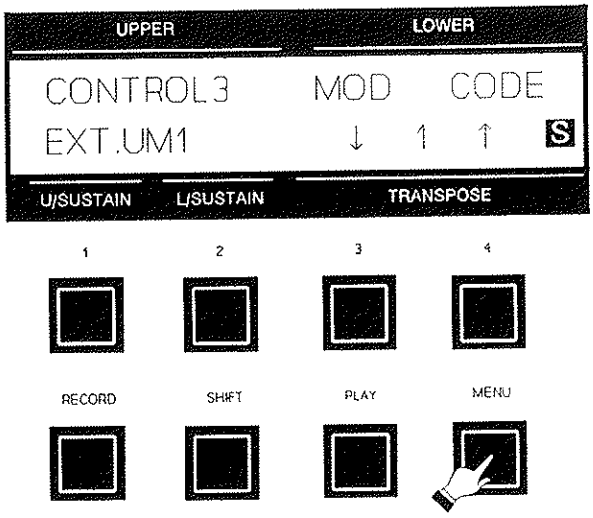
1. Touch the black MENU Select Touch Button repeatedly until the Information Center Display looks like this.



2. Touch the black Number 4 Select Touch Button. The Information Center Display should look like this.



3. Touch the black SHIFT Touch Button twice. The Information Center Display should look like this.



4. To change the MIDI Controller number for the Modulation Wheel, do the following:

   Touch the black Number 1 Select Touch Button to scroll and select the External Manual to be assigned (UM, LM or PK, 1 , 2 or 3).

   Touch the black Number 3 Select Touch Button to scroll down through the MIDI Controller numbers (0 - 127, OFF).

   Touch the black Number 4 Select Touch Button to scroll up through the MIDI Controller numbers (OFF, 0 - 127).

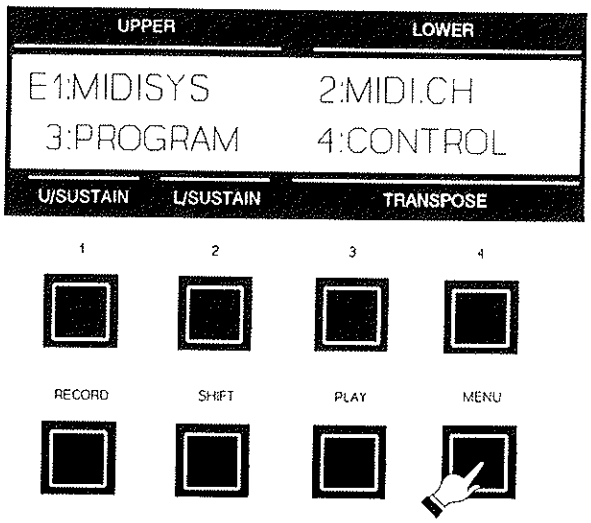
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

♦ MIDI - CONTROL4 EXP (Expression Pedal)

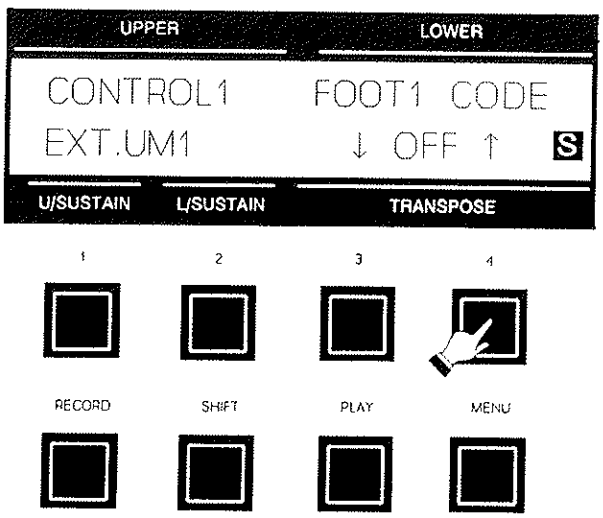
This menu page will allow you to set the Controller number for the Expression Pedal.

TRY THIS:

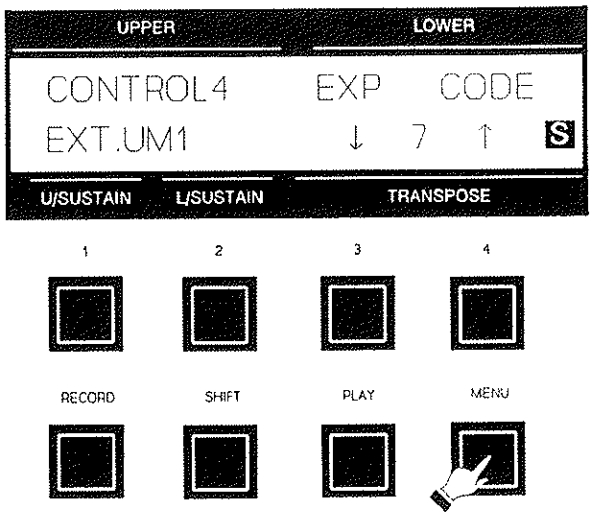
1. Touch the black MENU Select Touch Button repeatedly until the Information Center Display looks like this.



2. Touch the black Number 4 Select Touch Button. The Information Center Display should look like this.



3. Touch the black SHIFT Touch Button three times. The Information Center Display should look like this.



4. To change the MIDI Controller number for the Expression Pedal, do the following:

   Touch the black Number 1 Select Touch Button to scroll and select the External Manual to be assigned (UM, LM or PK, 1, 2 or 3).

   Touch the black Number 3 Select Touch Button to scroll down through the MIDI Controller numbers (0 - 127, OFF).

   Touch the black Number 4 Select Touch Button to scroll up through the MIDI Controller numbers (OFF, 0 - 127).

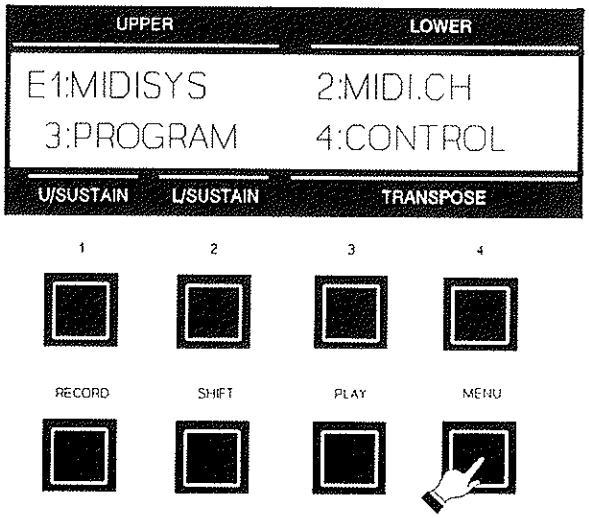
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

♦ MIDI - CONTROL5 PRESS (After Touch)

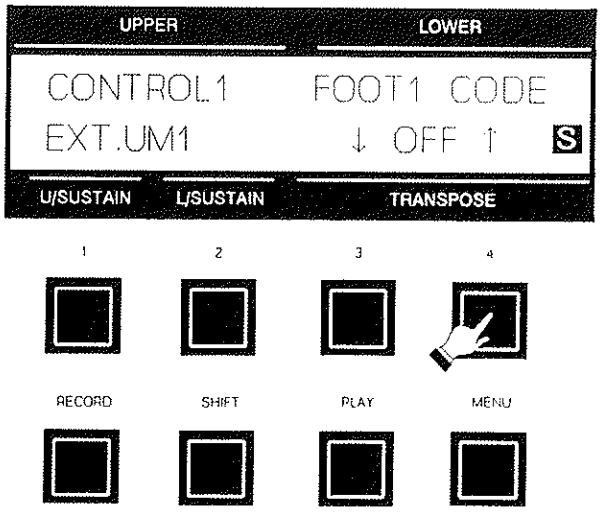
This menu page will allow you to set the Controller number for After Touch.

TRY THIS:

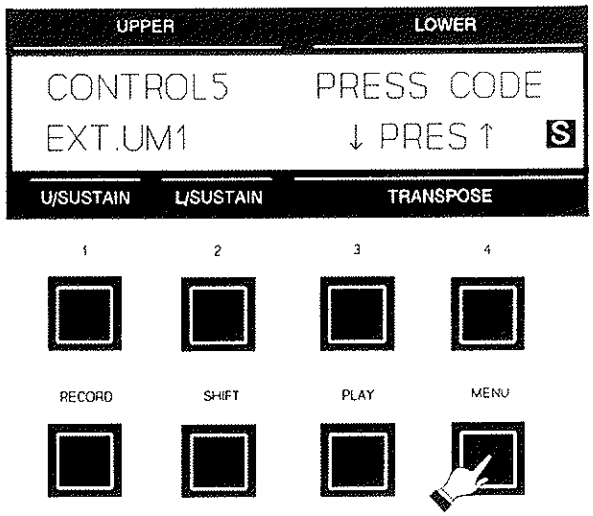
1. Touch the black MENU Select Touch Button repeatedly until the Information Center Display looks like this.



2. Touch the black Number 4 Select Touch Button. The Information Center Display should look like this.



3. Touch the black SHIFT Touch Button four times. The Information Center Display should look like this.



4. To change the MIDI Controller number for After Touch, do the following:

Touch the black Number 1 Select Touch Button to scroll and select the External Manual to be assigned(UM, LM or PK, 1, 2 or 3).

Touch the black Number 3 Select Touch Button to scroll down through the MIDI Controller numbers(0 - 127, "BEUP"(Pitch Bend UP), "BEDW"(Pitch Bend Down), "PRES"(After touch Code $D0), OFF).

Touch the black Number 4 Select Touch Button to scroll up through the MIDI Controller numbers(OFF, 0 - 127, "BEUP"(Pitch Bend UP), "BEDW"(Pitch Bend Down), "PRES"(After touch Code $D0)).

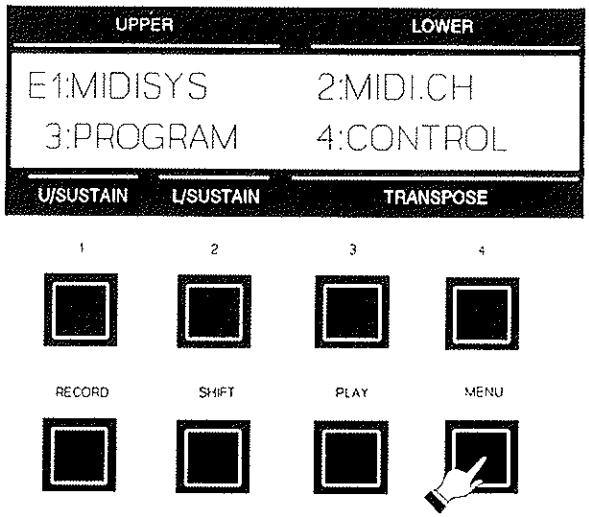
NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

♦ MIDI - CONTROL6 EXP MODE

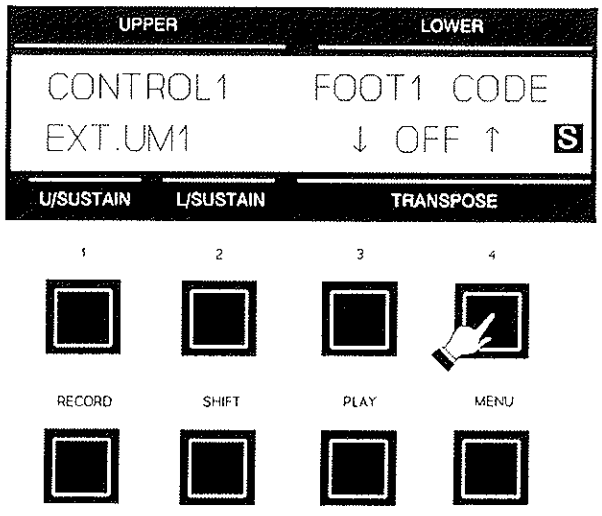
This menu page will allow you to set the mode for the Expression Pedal.

TRY THIS:

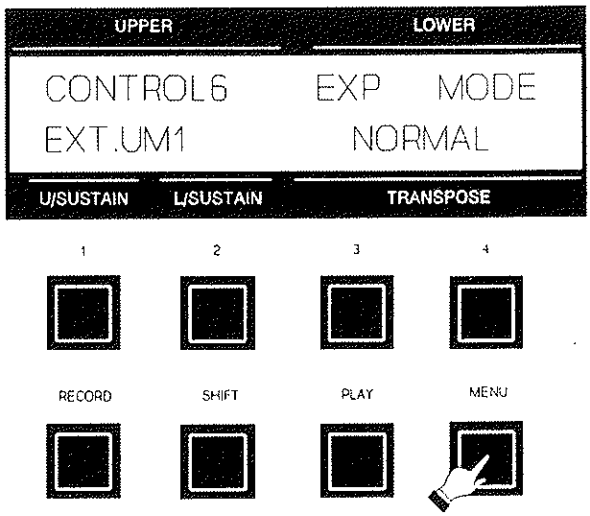
1. Touch the black MENU Select Touch Button repeatedly until the Information Center Display looks like this.



2. Touch the black Number 4 Select Touch Button. The Information Center Display should look like this.



3. Touch the black SHIFT Touch Button five times. The Information Center Display should look like this.



4. To change the mode of the Expression Pedal, do the following:

Touch the black Number 1 Select Touch Button to scroll and select the External Manual to be assigned (UM, LM or PK, 1, 2 or 3).

Touch the black Number 3 Select Touch Button to scroll down through the MIDI Controller numbers (127 - 1, OFF).

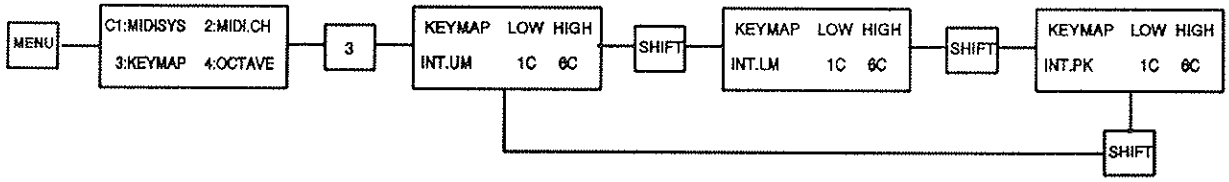
Touch the black Number 4 Select Touch Button to scroll up through the MIDI Controller numbers (OFF, 1 - 127).

The following data chart shows the options for the Expression Pedal modes.

EXPRESSION PEDAL MODES	
OFF	No information is transmitted via MIDI.
NORMAL *	The normal expression curve is transmitted via MIDI.
REVERSE	The expression curve is inverted. For example, if Volume (Controller #7) is transmitted via MIDI, pushing the pedal forward will decrease the volume, while pushing the pedal backward will increase the volume.

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

Advanced Features - MIDI Keymap



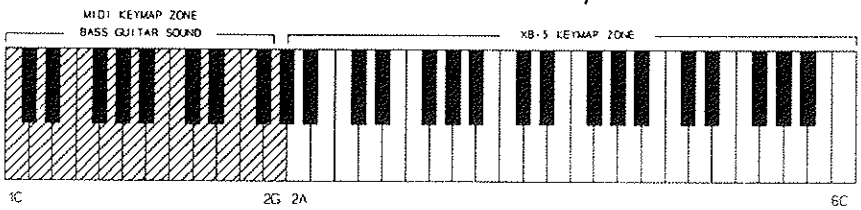
The MIDI Keymap Advanced Feature allows you to assign to each manual and pedals both an "organ keymap zone" and a "MIDI keymap zone".

Within the organ keymap zone, you will hear the sounds produced by the organ.

Within a MIDI keymap zone, if another keyboard or sound module is connected via MIDI, you will be able to control the sound produced by that connected MIDI device.

For example, on the Lower Manual you may wish to play a bass guitar produced by a sound module from "1C" to "2G" while the organ plays from "2G♯" to "6C".

LOWER MANUAL OF THE XB-3 / XC-3



To select and assign MIDI Channels and MIDI Voice Program Numbers for these MIDI keymap zones, turn to the section "Advanced Features - MIDI Channel".

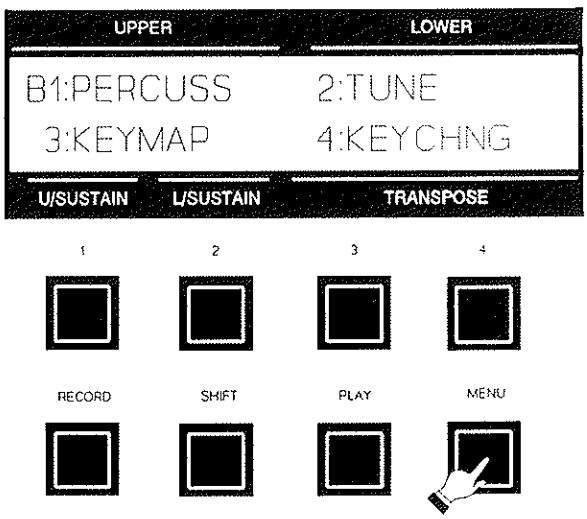
The following pages give a more detailed explanation of how this Advanced Feature Menu works.

♦ MIDI - Keymap

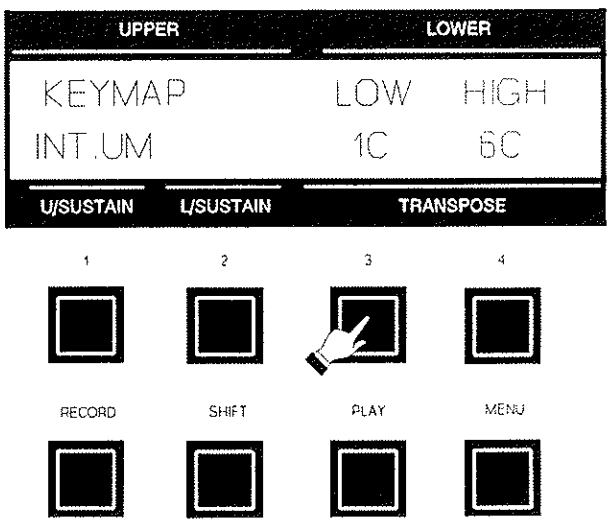
This menu page will allow you to change two Keymap options: (1) Turn "ON" or "OFF" the Key mapping (2) Set the Low and High note ranges for the Keymap zones. Keymap zones can be set for the following: (1) Upper Manual, (2) Lower Manual, (3) Pedal Keyboard, (4) EXTernal Upper Manual 1, 2 & 3, (5) EXTernal Lower Manual 1, 2 & 3, (6) EXTernal Pedal Keyboard 1, 2 & 3.

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the Information Center Display looks like this.



2. Touch the black Number 3 Select Touch Button. The Information Center Display should look like this.



3. To change the Keymap options for each manual, do the following:

Selecting The Manual -

Touch the black Number 1 Select Touch Button to scroll and select either INTernal or EXTernal within each manual.

Touch the black SHIFT Select Touch Button to scroll and select the manual to be assigned - Upper Manual, Lower Manual or Pedal Keyboard.

Low Note Range -

With your left hand, Touch and Hold the black Number 3 Select Touch Button and the "less than" sign (">") will appear to the left of the number and letter under the word LOW.

Continue to Hold the black Number 3 Select Touch Button with your left hand, and with your right hand Touch the key on the Manual that you want as the lowest key.

Once the key has been touched, the new range will be shown in the Information Center Display.

High Note Range -

With your left hand, Touch and Hold the black Number 4 Select Touch Button and the "less than" sign (">") will appear to the left of the number and letter under the word HIGH.

Continue to Hold the black Number 4 Select Touch Button with your left hand, and with your right hand Touch the key on the Manual that you want as the highest key.

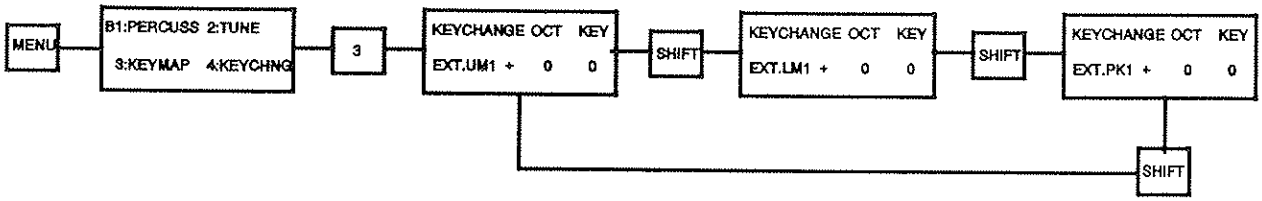
Once the key has been touched, the new range will be shown in the Information Center Display.

The following data chart shows the options and limits for the Keymap Advanced Feature.

KEYMAP OPTIONS	
MANUAL TO MAP (Button 1)	Default Keymap Range
UPPER	1C - 6C
LOWER	1C - 6C
PEDAL	1C - 3C
EXT.UM1	1C - 6C
EXT.LM1	1C - 6C
EXT.PK1	1C - 3C
EXT.UM2	1C - 6C
EXT.LM2	1C - 6C
EXT.PK2	1C - 3C
EXT.UM3	1C - 6C
EXT.LM3	1C - 6C
EXT.PK3	1C - 3C

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

Advanced Features - MIDI Keychange



The MIDI Keychange Advanced Feature allows the octave and note range of: (1) EXTernal Upper Manual 1, 2 & 3, (2) EXTernal Lower Manual 1, 2 & 3, and, (3) EXTernal Pedal Keyboard 1, 2 & 3 to be changed within ±4 octaves.

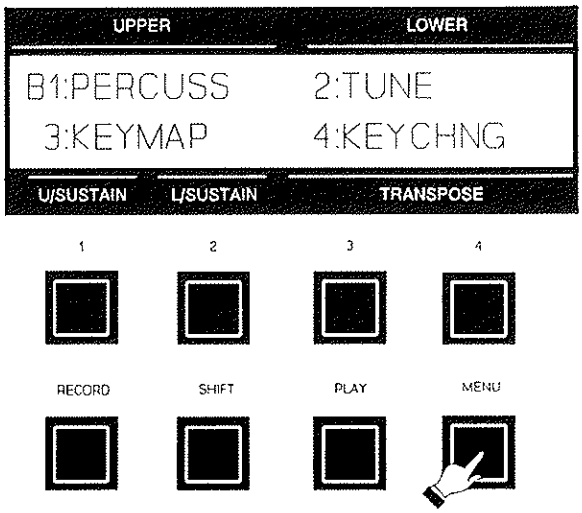
The following pages give a more detailed explanation of how this Advanced Feature Menu works.

♦ MIDI - Keychange

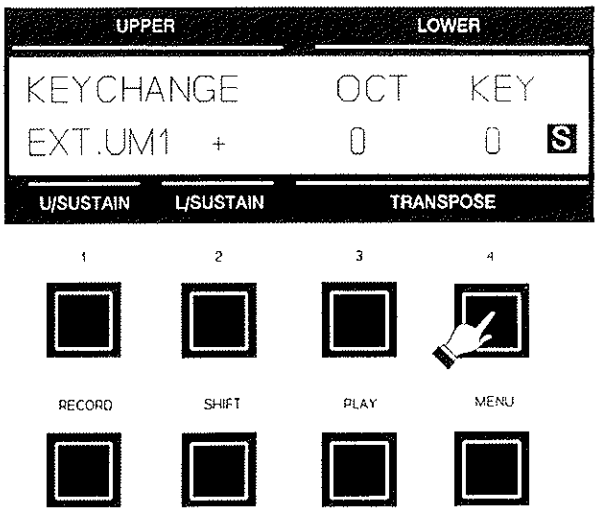
This menu page will allow you to change the Octave and note range of: (1) EXTernal Upper Manual 1, 2 & 3, (2) EXTernal Lower Manual 1, 2 & 3, and, (3) EXTernal Pedal Keyboard 1, 2 & 3.

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the Information Center Display looks like this.



2. Touch the black Number 4 Select Touch Button. The Information Center Display should look like this.



3. To change the Manual and select the octave and note range of MIDI-active External Manual options, do the following:

Selecting The Manual -

Touch the black Number 1 Select Touch Button to scroll and select the EXTernal Manual to be changed.

Touch the black SHIFT Select Touch Button to scroll and select the manual to be assigned - Upper Manual, Lower Manual or Pedal Keyboard.

Octave Assignment -

Touch the black Number 3 Select Touch Button to select the Octave.

Touch the black Number 4 Select Touch Button to select the interval or Key.

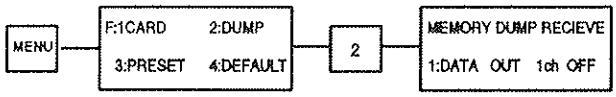
Normally, the Number 3 and 4 Select Touch Buttons will scroll "up" through the Octave or Key selections. Touch and Hold the black Number 2 Select Touch Button to select "-". This will cause the Number 3 and 4 Select Touch Buttons to scroll "down" through the Octave or Key selections.

The following data chart shows the options and limits for the Keymap Advanced Feature.

MIDI OCTAVE OPTIONS	
Manual	Octave Limits
EXT.UM 1, 2, 3	±4 octaves
EXT.LM 1, 2, 3	±4 octaves
EXT.PK 1, 2, 3	±4 octaves

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Button.

Advanced Features - MIDI Dump



By using the MIDI Dump Advanced Feature you can store whatever is in the organ's Presets and Global Data to a MIDI Data recorder, or to another organ.

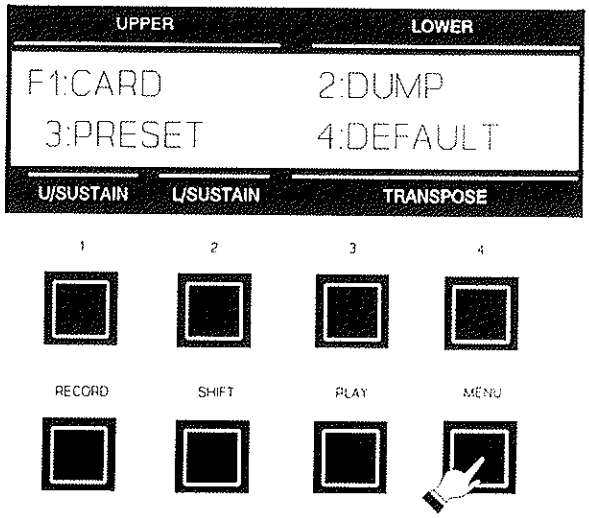
The following pages give a more detailed explanation of how this Advanced Feature Menu works.

♦ MIDI - Dump

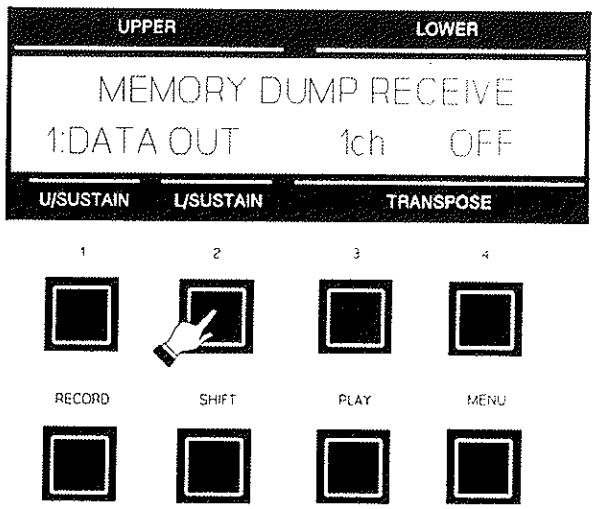
This menu page will shows you how to save and retrieve the organ's Presets and Global Data to and from a MIDI Data recorder.

TRY THIS:

1. Touch the black MENU Select Touch Button repeatedly until the Information Center Display looks like this.



2. Touch the black Number 2 Select Touch Button. The Information Center Display should look like this.



3. Make sure that the organ is connected to a MIDI Data recorder before you send or receive MIDI data, then do the following:

Sending Data Out -

Make sure that the MIDI recorder is ready to receive data (RECORD).

Make sure that the word "OFF" appears under the word "RECEIVE" in the Information Center Display. If "ON" is displayed, Touch the black Number 4 Select Touch Button to change the word "ON" to "OFF".

Touch the black Number 1 Select Touch Button to start the data DUMP to the MIDI Data recorder. When all information has been sent, the Information Center Display will flash, "Data Completed".

Receive Data -

Make sure that the word "ON" appears under the word "RECEIVE" in the Information Center Display. If "OFF" is displayed, Touch the black Number 4 Select Touch Button to change the word "OFF" to "ON". This will turn Receive Mode "ON", allowing the organ to receive incoming data.

Start the MIDI recorder. When all information has been sent, the Information Center Display will flash, "Data Completed".

NOTE: You can exit by touching either the black MENU or PLAY Select Touch Buttons.

Memory Dump - System Exclusive Information

1. MEMORY DUMP

F0H	system exclusive
55H	SUZUKI I.D. Number
0ddd dddd	Device I.D. XB-3=device channel
0FFF MMMM	model IDH(high) XB-3=10H
0MMM MMMM	model IDL(low) XB-3=03H
	F=Family I.D.
	M=Member I.D.
11H	Command Data Packet

[Data Start]

02H	Data Type 02H:User Program
PHHH	Packet Number(high) 0001~7F7F
PNLH	(low)
256 Byte	ASCII (128Byte data)
SUMH	Check Sum(7bit) 256Byte ASCII XOR

[Data End]

F7H End of system exclusive status byte(EOX)

2. ACKNOWLEDGE

F0H	system exclusive
55H	SUZUKI I.D.Number
0ddd dddd	Device I.D. XB-3=device channel
0FFF MMMM	model IDH(high) XB-3=10H
0MMM MMMM	model IDL(low) XB-3=03H
	F=Family I.D.
	M=Member I.D.
14H	Command Data Packet
AKH	AK Type 00H:Normal
	05H:Check Sum Error
	06H:Protect Sw On
PNHH	Packet Number(high) 0001~7F7F
PNLH	(low)

F7H End of system exclusive status byte(EOX)

3. HAND SHAKE COMMUNICATION (ONE WAY TRANSFER)

```
Master(XB-3)              Slave
Data Out Packet 1---->
                  <----   Acknowledge
Data Out Packet 2---->
                  <----   Acknowledge
      :                       :
      :                       :
      :                       :
Data Out Packet 37--->
                  <----   Acknowledge
```

The organ will wait for the data for 20 ms if no message is received and transmit the next data of the packet number. (ONE WAY TRANSFER)

Packet Numbers : 1~37

Appendix A - Parameter List

Global Initial Data

	NO	FUNCTION	B-3	JAZZ	THEATRE	MIDI
Touch Tabs	01	Vibrato Mode	1	1	1	1
	02	Vibrato Chorus	Off	Off	Off	Off
	03	Pedal To Lower	Off	Off	Off	Off
	04	Lower To Pedal	Off	Off	Off	Off
	05	Upper MIDI OUT On/Off	On	On	On	On
	06	Lower MIDI OUT On/Off	On	On	On	On
	07	Pedal MIDI OUT On/Off	On	On	On	On
A-2	08	Vibrato Speed	Normal	Normal	Normal	Normal
B-2	09	Master Tune	440Hz	440Hz	440Hz	440Hz
	10	Tune Mode	B-3 Pitch	B-3 Pitch	B-3 Pitch	B-3 Pitch
C-3	11	Foot Switch 1 Internal Mode	Leslie S/F	Leslie S/F	Leslie S/F	Leslie S/F
	12	Foot Switch 2 Internal Mode	LM Soste	LM Soste	LM Soste	LM Soste
	13	Foot Switch 1 Alt/Mom	Alt	Alt	Alt	All
	14	Foot Switch 2 Alt/Mom	Mom	Mom	Mom	Mom
	15	Foot Switch 2 Press Type	PRS+	PRS+	PRS+	PRS+
C-4	16	Pressure Internal Curve Upper	3	3	3	3
	17	Pressure Internal Curve Lower	3	3	3	3
D-1	18	Ext In 1 Expression On/Off	Non Exp	Non Exp	Non Exp	Non Exp
	19	Ext In 2 Expression On/Off	Non Exp	Non Exp	Non Exp	Non Exp
	20	Expression Curve	Console	Console	Console	Console
D-2	21	Tube Overdrive Level	3	3	3	3
	22	Leslie Channel	1ch	1ch	1ch	1ch
D-3	23	"Pedal To" Mode	Lower	Lower	Lower	Lower
	24	Pedal To Lower High Key	3C	3C	3C	3C
	25	Lower To Pedal High Key	3C	3C	3C	3C
	26	Pedal To Upper High Key	3C	3C	3C	3C
D-4	27	Reverb Mode	Hall	Hall	Hall	Hall
E-1	28	Local SW	On	On	On	On
	29	NRPN SW	Off	Off	Off	Off
	30	Expression Mode Int/Ext	Internal	Internal	Internal	Internal
	31	MIDI Drawbar Filter	Off	Off	Off	Off
	32	MIDI OUT Velocity Curve	1	1	1	1
	33	MIDI OUT Pressure Curve	1	1	1	1
	34	MIDI SOFT THRU On/Off	Off	Off	Off	Off
	35	Leslie S/F MIDI Code	Off	Off	Off	Off
	36	UM Ag Drawbar MIDI Volume	Off	Off	Off	On
F-2	37	Dump Receive SW	On	On	On	On
	38	Dump Device ID Number	1ch	1ch	1ch	1ch
F-3	39	Preset Play Mode	B-3	B-3	B-3	Standard
	40	Preset Record Mode	All	All	All	All

Appendix B - Global Data

Global Commands

NO	FUNCTION	DATA	MENU LOCATION
01	Master Tune	430Hz - 450Hz	MENU B - 2 TUNE
02	Reverb Mode	Room Live Hall Church	MENU D - 4 REVERB
03	Foot Switch 1	Leslie Slow/Fast UM Sustain LM Sustain Reverse UM A#/B Reverse LM A#/B UM Damper LM Damper UM Sostenuto LM Sostenuto MIDI Start/Stop OFF	MENU C - 3 FOOT SW
04	Foot Switch 2	Leslie Slow/Fast UM Sustain LM Sustain Reverse UM A#/B Reverse LM A#/B UM Damper LM Damper UM Sostenuto LM Sostenuto MIDI Start/Stop OFF	MENU C - 3 FOOT SW
05	Foot Switch 1 Press Type	+ / -	MENU C - 3 FOOT SW
06	Foot Switch 2 Press Type	+ / -	MENU C - 3 FOOT SW
07	MIDI Expression	Internal/External	MENU E - 1 MIDI SYSTEM 3
08	Local Switch	On/Off	MENU E - 1 MIDI SYSTEM 1
09	Control Code Foot Switch 1	0 - 127	MENU E - 4 CONTROL 1
10	Control Code Foot Switch 2	0 - 127	MENU E - 4 CONTROL 2
11	Control Code Modulation	0 - 127	MENU E - 4 CONTROL 3
12	Control Code Expression	0 - 127	MENU E - 4 CONTROL 4
	Control Code Pressure (After Touch)	0 - 127	MENU E - 4 CONTROL 5
	Control Expression Mode	Off, Normal, Reverse	MENU E - 4 CONTROL 6
13	MIDI Velocity	Off, 1 to 6	MENU E - 1 MIDI SYSTEM 2
14	MIDI Drawbar Filter	On/Off	MENU E - 1 MIDI SYSTEM 4
15	External In	Exp/ Non Exp	MENU D - 1 EXPRESSION
16	Expression Curve	Spinet/Console	MENU D - 1 EXPRESSION
17	Leslie Channel	1ch/2ch/3ch	MENU D - 2 AUDIO
18	Dump Protect	On/Off	MENU F - 2 DUMP

Appendix C - MIDI Implementation

FUNCTION		TRANSMITTED	RECOGNIZED	REMARKS
Basic Channel	Default Changed	1 1 - 16	1 1 - 16	Int. Upper Channel
Mode	Default Messages Altered	Mode 3 × **********	Mode 3 ×	
Note Number:	True voice	36 - 96 **********	36-96	
Velocity	Note ON Note OFF	o ×	o ×	
After Touch	Key's Ch's	× o	× o	
Pitch Bend		o	o	
Control Change	Modulation 1 Press Type 2 Main Volume 7 Expression 11 Tremolo 92 NRPN UM Drawbar 80 LM Drawbar 81 PK Drawbar 82	o × o × o o o o o	o o o o o o o o o	Expression " " Leslie Slow/Fast If Enable SW ON If Enable SW ON " "
Program Change	:True #	o 1 - 12 **********	o 1 - 12 1 - 12	
System Exclusive		o	o	
Common	:Song Pos :Song Sel :Tune	× × ×	× × ×	
System Real Time	:Clock :Commands	× o Start, Stop	× ×	By Foot Switch
Aux Messages	:Local On/Off :All Notes Off :Active Sense :Reset	× o o ×	× o o ×	(123)
Notes		INT.UM ch: 1 (1-16) INT.LM ch: 5 (1-16) INT.PK ch: 9 (1-16) EXT.UM1 ch: 2 (1-16) EXT.LM1 ch: 6 (1-16) EXT.PK1 ch: 10 (1-16) EXT.UM2 ch: 3 (1-16) EXT.LM2 ch: 7 (1-16) EXT.PK2 ch: 11 (1-16) EXT.UM3 ch: 4 (1-16) EXT.LM3 ch: 8 (1-16) EXT.PK3 ch: 12 (1-16)		

Mode 1 : OMNI ON, POLY
Mode 2 : OMNI ON, MONO
Mode 3 : OMNI OFF, POLY
Mode 4 : OMNI OFF, MONO

o : Yes
× : No

Appendix D - MIDI Implementation

Each Channel

	INTERNAL						EXTERNAL								
	UM		LM		PK		UM1	UM2	UM3	LM1	LM2	LM3	PK1	PK2	PK3
	Trans	Recog	Trans	Recog	Trans	Recog	Trans								
MIDI Ch. Default	1		5		9		2	3	4	6	7	8	10	11	12
Changed	1 - 16														
Note Number	36 - 96		36 - 96		36 - 60		36 - 96			36 - 96			36 - 60		
Vel. Note ON	o		o		x		o			o			x		
Note OFF	x		x		x		x			x			x		
After Touch Keys	x		x		x		x			x			x		
Ch's	o		o		x		o			o			x		
Pitch Bend	o														
Modulation 1	o		o	x	o	x	o								
Press Type 2	x	o	x												
Main Volume 7	o		o	x	o	x	o								
Hold1 (damp) 64	o														
Sostenuto 66	o														
UM Drawbar 80	o		x												
LM Drawbar 81	o		x												
PK Drawbar 82	o		x												
Leslie S/F 92	o		x												
NRPN Entry 6	o		x												
NRPN Lsb 98	o		x												
NRPN Msb 99	o		x												
All Notes Off 123	o														
Program Change	1 - 12		1 - 12		1 - 3		1 - 128								

Appendix D - MIDI Implementation

NRPN DATA CHART

```
Bx      62      00      x:basic channel(upper channel)
Bx      63      aa      aa:nrpn code
Bx      06      bb      bb:nrpn data
```

NO.	FUNCTION	HEX	DEC	DATA
1	Leslie Slow/Fast	00	0	off:00 on:7F
2	Sustain Upper	06	6	off:00 on:7F
3	Sustain Lower	07	7	off:00 on:7F
4	Sustain Pedal	08	8	off:00 on:7F
5	Leslie On/Off	09	9	off:00 on:7F
6	Vibrato Chorus	0B	11	off:00 on:7F
7	Second Harmonic (Perc)	12	18	off:00 on:7F
8	Third Harmonic (Perc)	13	19	off:00 on:7F
9	Percussion Soft	15	21	off:00 on:7F
10	Fast Decay (Perc)	16	22	off:00 on:7F
11	Vibrato Upper	17	23	off:00 on:7F
12	Vibrato Lower	18	24	off:00 on:7F
13	Pedal To Upper	1B	27	off:00 on:7F
14	Sustain Upper Manual	1C	28	short:00 mid:01 long:02
15	Sustain Lower Manual	1D	29	short:00 mid:01 long:02
16	Sustain Pedals	1E	30	short:00 mid:01 long:02
17	Pedal To Lower	2C	44	off:00 on:7F
18	Lower To Pedal	2D	45	off:00 on:7F
19	Drawbar Type Upper	38	56	B-TYPE:00 MELLOW:01 BRITE:02
20	Drawbar Type Lower	39	57	B-TYPE:00 MELLOW:01 BRITE:02
21	Drawbar Type Pedal	3A	58	NORMAL:00 MUTED:01
22	Attack Upper	3B	59	Slow attack:00 No click:01 Soft click:02 Normal click:03 Max click:04
23	Attack Lower	3C	60	Slow attack:00 No click:01 Soft click:02 Normal click:03 Max click:04
24	Attack Pedal	3D	61	Slow attack:00 No click:01 Soft click:02 Normal click:03 Max click:04
25	Vibrato Mode	45	69	1:00~3F 2:40~5F 3:60~7F

Appendix D - MIDI Implementation Drawbars

XB-3/XC-3 MIDI Drawbar Data

Control Change

Bx 50h yy :Upper
Bx 51h yy :Lower
Bx 52h yy :Pedal

x: Upper Channel Number
yy: Data

Upper / Lower Data Map

	DATA :yy								
DRAWBAR	16'	5 1/3'	8'	4'	2 2/3'	2'	1 3/5'	1 1/3'	1'
Label 0	00h(0)	09h(9)	12h(18)	1Bh(27)	24h(36)	2Dh(45)	36h(54)	3Fh(63)	48h-(72)
Label 1	01h(1)	0Ah(10)	13h(19)	1Ch(28)	25h(37)	2Eh(46)	37h(55)	40h(64)	49h-(73)
Label 2	02h(2)	0Bh(11)	14h(20)	1Dh(29)	26h(38)	2Fh(47)	38h(56)	41h(65)	4Ah-(74)
Label 3	03h(3)	0Ch(12)	15h(21)	1Eh(30)	27h(39)	30h(48)	39h(57)	42h(66)	4Bh-(75)
Label 4	04h(4)	0Dh(13)	16h(22)	1Fh(31)	28h(40)	31h(49)	3Ah(58)	43h(67)	4Ch-(76)
Label 5	05h(5)	0Eh(14)	17h(23)	20h(32)	29h(41)	32h(50)	3Bh(59)	44h(68)	4Dh-(77)
Label 6	06h(6)	0Fh(15)	18h(24)	21h(33)	2Ah(42)	33h(51)	3Ch(60)	45h(69)	4Eh-(78)
Label 7	07h(7)	10h(16)	19h(25)	22h(34)	2Bh(43)	34h(52)	3Dh(61)	46h(70)	4Fh-(79)
Label 8	08h(8)	11h(17)	1Ah(26)	23h(35)	2Ch(44)	35h(53)	3Eh(62)	47h(71)	50h(80

Pedal Data Map

	DATA :yy	
DRAWBAR	16'	8'
Label 0	00h(0)	09h(9)
Label 1	01h(1)	0Ah(10)
Label 2	02h(2)	0Bh(11)
Label 3	03h(3)	0Ch(12)
Label 4	04h(4)	0Dh(13)
Label 5	05h(5)	0Eh(14)
Label 6	06h(6)	0Fh(15)
Label 7	07h(7)	10h(16)
Label 8	08h(8)	11h(17)