HAMMOND

DRAWBAR SOUND MODULE

XM-1

Quick Reference Guide

HAMMOND SUZUKI, LTD.

Hamamatsu, Japan

IMPORTANT - READ THIS FIRST

Your Hammond XM-1 Drawbar Sound Module is designed to give you the true and authentic sound of Hammond Harmonic Drawbars, as well as provide you a large variety of features to allow great flexibility in how you want to use the module. This Quick Reference Guide is designed to explain the operating features of your Hammond XM-1 as simply and graphically as possible.

Because we want to make this manual, as well as the module itself, as easy to understand as possible, the explanations in this manual are grouped by **subject matter**, and **not** in the order in which they necessarily appear in the Information Center Display (the screen in the center of the module front panel). For example, all functions pertaining to Drawbars are grouped together, all Percussion features are treated as a group, and so on.

Also, each feature is treated as an explanation unto itself, and does **not** require you to already have prior working knowledge of some other feature. The explanations are presented such that, if you follow the steps outlined, the message you see in the Information Center Display screen will be identical to that shown in the manual at that stage of the explanation.

Do not be daunted by the number of steps required to perform each operation. Each step is simple. Simply bear these things in mind:

1. Read each step carefully.
2. Don't skip any of the steps.
3. Don't perform the steps out of sequence.

With these guidelines, you are well on your way to mastering all of the many sounds and features of your Hammond XM-1.

IMPORTANT SAFETY AND INSTALLATION INSTRUCTIONS

- Do not use this product near water - for example, near a bathtub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, or the like.
- This product, either alone or in combination with an amplifier and speakers or headphones, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
- This product should be located so that its location or position does not interfere with its proper ventilation.
- The product should be located away from heat sources such as radiators, heat registers or other products that produce heat.
- The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.
- This product may be equipped with a polarized line plug (one blade wider than the other). This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace your obsolete outlet. Do not defeat the safety purpose of the plug.
- The power supply cord of the product should be unplugged from the outlet when left unused for a long period of time. When unplugging the power supply cord, do not pull on the cord, but grasp it by the plug.
- Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
- The product should be serviced by qualified service personnel when:
  - A. The power supply cord or the plug has been damaged; or
  - B. Objects have fallen, or liquid has been spilled, into the product; or
  - C. The product has been exposed to rain; or
  - D. The product does not appear to be operating normally or exhibits a marked change in performance; or
  - E. The product has been dropped, or the enclosure damaged.
- Do not attempt to service the product beyond that described in the user maintenance instructions. All other servicing should be referred to qualified service personnel.
- **WARNING** - Do not place objects on the product's power supply cord, or place the product in a position where anyone could trip over, walk on, or roll anything over cords of this type. Do not allow the product to rest on or be installed over cords of any type. Improper installations of this type create the possibility of a fire hazard and/or personal injury.

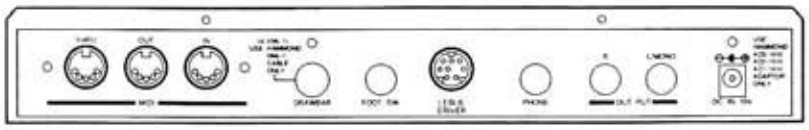
SAVE THESE INSTRUCTIONS

- Table of Contents -

INTRODUCTION

Basic Hook-Up

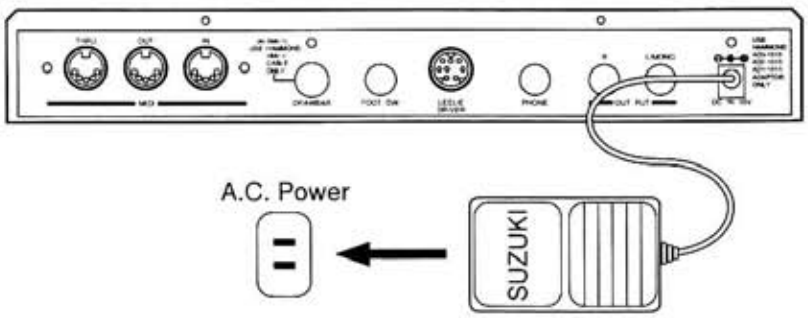
All connections are found on the Accessory Panel on the back of the module.



◆ A.C. Power

Your Hammond XM-1 is shipped from the factory set for local A.C. power. To connect the XM-1 to A.C. power:

1. Locate the A.C. Power Supply that came with your module.
2. Plug the small end of the Power Supply into the receptacle on the extreme right of the XM-1 Accessory Panel.
3. Plug the large end of the Power Supply into an A.C. power outlet.



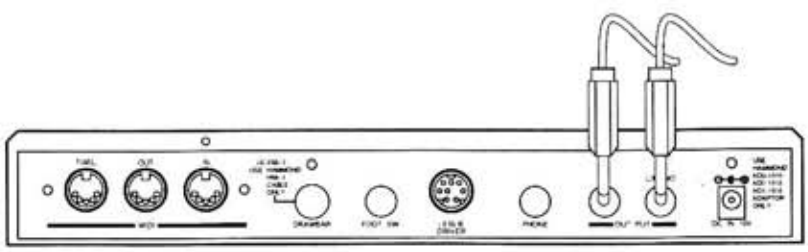
◆ Audio Connections

In order to hear the sounds produced by the XM-1, you will need to connect it to an amplifier or other external sound source. You can either:

1. Connect the XM-1 to an amplifier, or;
2. Connect the XM-1 to a Leslie Speaker cabinet.

Connecting to an Amplifier

1. Locate two audio cables with 1/4" plugs on both ends of each cable.
2. Connect one end of each of the audio cables to the audio output connectors on the back of the XM-1.

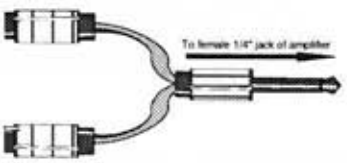


IMPORTANT: At this point it is assumed that you are using a keyboard or guitar amplifier that has 1/4" phono plug inputs. We assume this since this is the most common type of connector used on these types of amplifiers.

3. Connect the other ends of each cable to the female 1/4" audio input connectors of your amplifier.

If your amplifier has only a single (1) female 1/4" phono plug audio input, you can either:

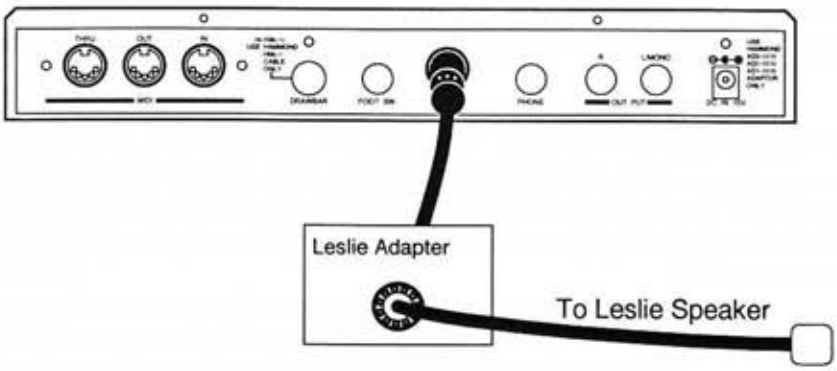
1. Connect one end of one cable to one audio output connector on the XM-1, and the other end to the female 1/4" audio input connector of your amplifier; or
2. Obtain a "Y" adapter and connect one end of each of the audio cables to the XM-1 audio output connectors, the other ends of each cable to the female audio input connectors of the "Y" adapter, and the output plug of the "Y" adapter to the audio input connector of your amplifier. You can purchase one of these adapters at a local audio supply store.



Connecting a Leslie Speaker

The XM-1 can be connected to an external Leslie Speaker cabinet using an optional Adapter Kit.

1. Connect one end of the Adapter Kit to the multi-pin plug on the back of your Leslie Speaker cabinet.
2. Connect the other end of the Adapter Kit to the LESLIE DRIVER jack on the back of the XM-1.



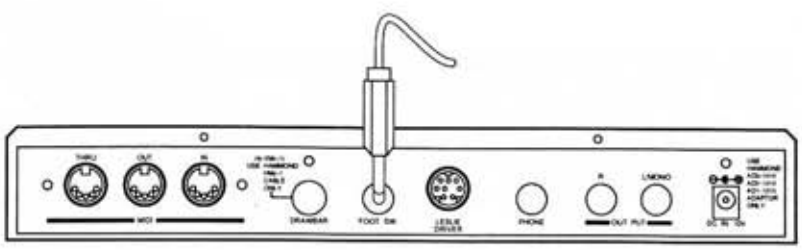
IMPORTANT: Since different models of Leslie Speakers have different pin configurations, you will need to know the model number of your Leslie Speaker to determine whether it is compatible. Contact your Hammond Organ Dealer for more information regarding which adapter kit and/or cable you may need.

◆ MIDI Connections

In order to play the sounds produced by your XM-1, the unit must be connected via MIDI to a keyboard or other MIDI-compatible device. See the **MIDI** section starting on page 44 for more information about MIDI connections and your Hammond XM-1.

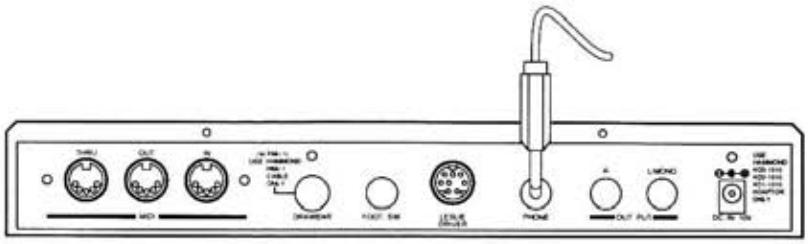
◆ Connecting a Foot Switch

You can connect an optional foot switch such as the Hammond model FS-9H foot switch to your XM-1. Simply plug the foot switch plug into the jack marked "FOOT SW" on the back of the XM-1.



◆ Connecting a Set of Headphones

A stereo headphone jack is provided so that you may play or practice in privacy.



◆ Connecting the XMc-1 Drawbar Controller

An optional accessory available for your XM-1 is the Hammond **XMc-1 Drawbar Controller**. There is a special jack on the Accessory Panel on the back of the XM-1 specifically for this controller. If you have this unit, a separate Quick Reference Guide was included with it. Please refer to the **XMc-1 Quick Reference Guide** for complete information on how to connect and use the XMc-1 with the XM-1.

Basic Controls

The panel controls on your Hammond XM-1 allow you to make adjustments to the sounds and performance of the module.

◆ ON / OFF Power Switch

The ON / OFF Power Switch is located on the extreme left side of the control panel. Push this switch in to turn the XM-1 "ON". To turn the unit "OFF", push the switch once and release it. When the XM-1 is "ON", the Information Center Display as well as certain LED's (Light Emitting Diodes) will light up showing that the unit is "ON".

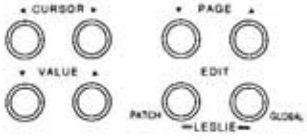
◆ Information Center Display

The Information Center Display is an LCD (Liquid Crystal Display) located in the center of the module.

The Information Center Display has two modes: (1) the PLAY mode, and (2) the MENU mode. The Play mode allows you to graphically or numerically see the Drawbar settings for whichever manual is selected. The Menu mode allows you to change and edit the XM-1's software parameters such as Sustain Mode, Drawbar Voicing, MIDI parameters and other advanced functions.

NOTE: The Play and Menu modes are covered starting on page 6 of this Guide.

◆ Touch Buttons



Touch Buttons are the two groups of four buttons located to the right of the Information Center Display. 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.

The Touch Buttons on the XM-1 operate in two different ways:

1. **Select Touch Buttons** will allow you to select among multiple functions such as selecting a Menu Page.
2. **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.

EDIT Touch Buttons

These two Touch Buttons allow you to access various Advanced Features pertaining to three specific parameter groups;

Patch Parameters - Touch the PATCH Touch Button.

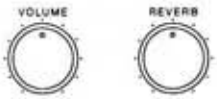
Global Parameters - Touch the GLOBAL Touch Button.

Leslie Parameters - Touch the PATCH and GLOBAL Touch Buttons together.

NOTE: More information about Parameters in covered under "Information Center Display".

◆ Rotary Controls

The two Rotary Controls are located to the right side of the ON / OFF Power Switch on the control panel. Turning a Rotary Control to the **right** (clockwise) will increase the intensity of the corresponding control. Turning the control to the **left** (counter-clockwise) will decrease the corresponding control's level.



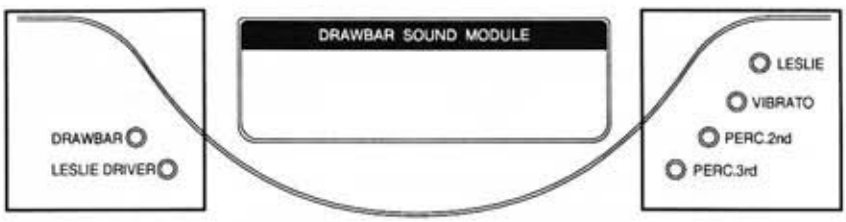
VOLUME Control

This Rotary Control allows you to control the total or maximum volume of the entire module. Turn this control to the right to increase the total volume, and to the left to decrease the total volume.

REVERB Control

This Rotary Control allows you to control the total or maximum volume of digital Reverb. Turn this control to the right to increase the amount of Reverb, and to the left to decrease the amount of Reverb. Reverb is explained in detail starting on page 40.

◆ LED Indicators



These red LED's (**L**ight **E**mitting **D**iodes) allow you to tell at a glance which of the various sound-enhancing features of your XM-1 are active.

DRAWBAR

When this LED is lit, the XMc-1 Drawbar Controller is connected.

DRAWBAR

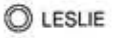
LESLIE DRIVER

When this LED is lit, a Leslie adapter is connected to the LESLIE DRIVER port on the back of the XM-1.

LESLIE DRIVER

LESLIE

This LED indicates the setting for the built-in digital Leslie effect.



LED "Off" - The Leslie OFF Mode is set at "THRU".

LED "On" - The Leslie OFF Mode is set at "BRAKE".

LED Blinking Slowly - The Leslie Speed is set at "SLOW".

LED Blinking Rapidly - The Leslie Speed is set at "FAST".

NOTE: Please turn to page 32 for a full explanation of the Leslie OFF Mode, and to page 33 for more information about Leslie Speed selection.

VIBRATO

When this LED is lit, the built-in Vibrato effect is added to whatever Drawbar registration is active.

Perc. 2nd

When this LED is lit, the Percussion Second Harmonic is added to whatever Drawbar registration is active.

Perc. 3rd

When this LED is lit, the Percussion Third Harmonic is added to whatever Drawbar registration is active.

INFORMATION CENTER DISPLAY

The Drawbars, Touch Buttons and Rotary Controls control the operations necessary for performance on the XM-1. Advanced Features such as Drawbar Voice Mode, Attack Mode, etc., are accessed using the Information Center Display.

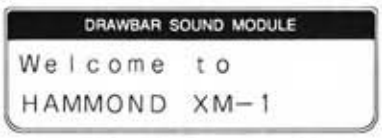
IMPORTANT: It is assumed at this point that you have just turned the XM-1 "ON" and have not touched either of the EDIT Touch Buttons. If you have, please turn the XM-1 "OFF", wait 5 seconds and turn it back "ON".

Play Mode

There are two (2) screen displays to the Play Mode - Graphic with parameters, and Numeric with parameters.

◆ Play Mode - Graphic Display with parameters.

When the XM-1 is turned "ON", the LCD screen should look like this. This information is only displayed for a short time.

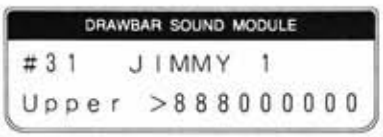


Once the "WELCOME" message has disappeared, the display screen of your instrument should look similar to this:

The upper half of the display shows the Patch Number and the Patch Name. The bottom half of the display shows, from left to right, the name of the Manual currently being displayed and the Graphic Drawbar setting for the manual.

◆ Play Mode - Numeric Display with parameters.

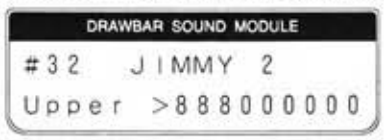
Now, touch either the CURSOR "▶" or the CURSOR "◀" Select Touch Button. The Information Center Display should now look like this:



Now you are in the Numeric Display of the Play Mode. The upper half of the display shows the Patch Number and the Patch Name. The bottom half of the display shows, from left to right, the name of the Manual currently being displayed and the Numeric Drawbar setting for the manual.

Use either the CURSOR "▶" or the CURSOR "◀" Select Touch Button to select Graphic or Numeric Drawbar Display.

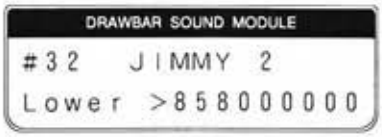
Now, touch the VALUE "▲" Select Touch Button. The Information Center Display should now look like this:



Now you see the next numbered Patch displayed. Your Hammond XM-1 has an in-built library of 128 Patches. Numbers 1 through 100 are preset with various Drawbar combinations and Advanced Feature settings, while Patch numbers 101 through 128 are left blank. This is so you can create your own custom Patches without changing any of the factory-set combinations, although all 128 Patches can be edited to your taste. Connect XMc-1, then perform reset, Patch Number 101 will be displayed. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

Use the VALUE "▲" Select Touch Button to scroll **forward** through the Patch Numbers, and the PAGE "▼" Select Touch Button to scroll **backward** through the Patch Numbers.

Now, touch the PAGE "▲" Select Touch Button. The Information Center Display should now look like this:



You can use the PAGE Select Touch Buttons to select the following:

1. The Manual you want to display - Upper, Lower or Pedal.
2. The Leslie Type currently selected.

Use the PAGE "▲" Select Touch Button to scroll **forward** through the selections, and the PAGE "▼" Select Touch Button to scroll **backward** through the selections.

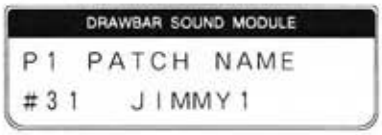
Menu Modes

There are three (3) Menu Modes. Each of these modes has Advanced Features which allow you to change parameter values, turn something "OFF" or "ON", etc.

NOTE: The term "parameter" is one you will encounter frequently throughout this Guide. The term describes a performance characteristic such as Drawbar Sustain Length, Drawbar Voice Mode, Vibrato ON/OFF, MIDI Channel setting, or any other feature which affects how the instrument performs.

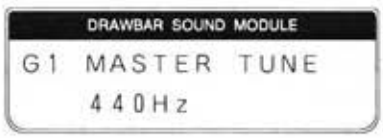
The three Menu Modes are grouped as follows:

◆ **Patch Parameters** - Touch the PATCH Select Touch Button.



These are all of the features and settings which collectively constitute a **Patch**, and which can be saved to a Patch. (The term "patch" is a holdover from the early days of modular synthesizers when signal connections were made using literal patch cords. Although with today's digital instruments patch cords are no longer necessary, the term has still survived as a convenient way to describe a group of settings which together comprise a specific sound. Analogous terms in the organ realm are "registration" or "combination".)

◆ **Global Parameters** - Touch the GLOBAL Select Touch Button.



These are features, such as Master Tune, Transpose, etc., which affect the entire instrument. Although these parameters cannot be saved as part of a Patch, you may change their settings and your changes will be remembered, even if you turn the power to your XM-1 "OFF".

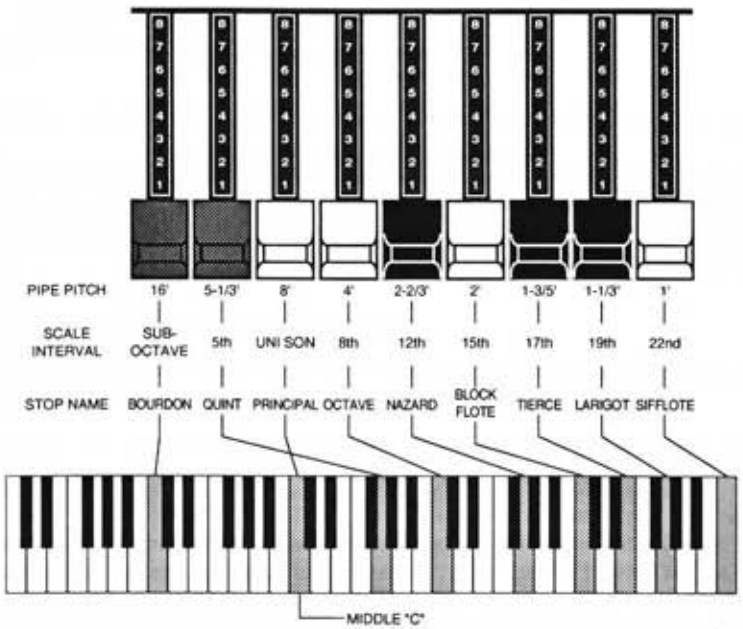
◆ **Leslie Parameters** - Touch the PATCH and GLOBAL Select Touch Buttons together.

These are performance characteristics of the Leslie effect which collectively constitute a Leslie Type. This gives you many different Leslie settings available all at once instead of your having to set each one individually. When you have chosen or created the Leslie Type most appropriate for your music, you can then save the Leslie Type to a Patch.

DRAWBARS

Your Hammond XM-1 Sound Module recreates the sounds of Hammond **Harmonic Drawbars**. Therefore, before explaining the features pertaining to Drawbars a few words of explanation about the Drawbars themselves are in order.

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.

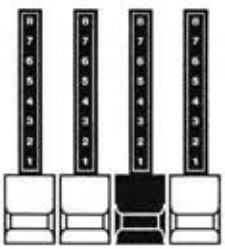
Drawbars are divided into 3 groups of sound as well as 3 groups of color. We will first look at the 3 sound groups.

Sound Groups

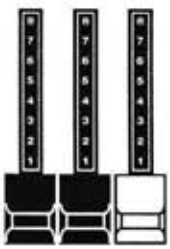
You may think of these sound groups in terms of the three levels - The Sub being the deep pitches, the Foundation being the mid range of pitches and the Brilliance being the high pitches.

- SUB -

- FOUNDATION -



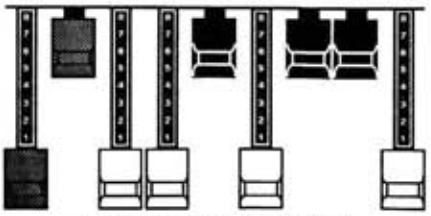
- BRILLIANCE -



Color Groups

◆ White Drawbars

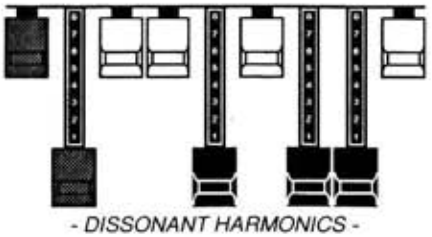
The first white Drawbar represents the "fundamental" or "8' base" tone. All of the other white Drawbars are octave intervals or harmonics of the fundamental tone. The tonal brilliance is greatly increased by adding white Drawbars, but the harmonics added are always in "consonance" or harmony.



- CONSONANT HARMONICS -

◆ Black Drawbars

The Black Drawbars 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 -

◆ 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 and is "one octave" lower in sound. The second brown Drawbar is the "sub-octave" of the third harmonic and sound a "fifth" or five tones above the fundamental. 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.

Your Hammond XM-1 is capable of recreating all of the sounds of the Drawbars. If you have the XMc-1 Drawbar Controller, you can make your own Drawbar settings by using the Drawbar set on the XMc-1. If you do not have the XMc-1, you can still make your own Drawbar registrations using the Advanced Features of the XM-1.

The following pages explain in detail how to use the Drawbar features of your XM-1. As explained previously in the **Information Center Display** section, the XM-1 has several different kinds of parameters. The **Global** and **Patch** Parameter lists each have settings for the Drawbars.

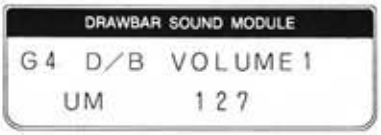
◆ Drawbar Volume

This Advanced Feature allows you to set the volume of the Drawbar registrations for the following: (1) Upper Manual ("UM"), (2) Lower Manual ("LM") and (3) Pedal Keyboard ("PK").

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:

2. Touch the PAGE "▲" Select Touch Button **three** times. The Information Center Display should look like this:



3. Now select the option you wish by doing the following:

   Use the CURSOR "▶" Select Touch Button to scroll **forward** through the manual selections ("UM" or **U**pper **M**anual, "LM" or **L**ower **M**anual, and "PK" or **P**edal **K**eyboard).

   Use the CURSOR "◀" Select Touch Button to scroll **backward** through the manual selections.

   Use the VALUE "▲" Select Touch Button to scroll **up** through the volume increments.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the volume increments.

NOTE: Drawbar Volume is linked with MIDI information such as "Volume" and "breath control" and the latest information received will have the priority.

The data chart below shows the options you may select.

DRAWBAR VOLUME OPTIONS		
Upper Manual	**Lower Manual**	**Pedal Keyboard**
0 ~ *127	0 ~ *127	0 ~ *127

*default setting

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the **Parameter Lists Supplement**.

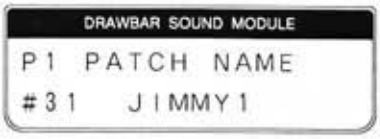
NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 72 for information on how to reset Global Parameters to their factory-default settings.

◆ Drawbar Registration

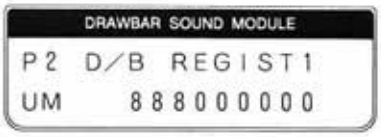
This Advanced Feature allows you to set the position of the Drawbars for the following: (1) Upper Manual ("UM"), (2) Lower Manual ("LM") and (3) Pedal Keyboard ("PK").

TRY THIS:

1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **once**. The Information Center Display should look like this:



3. Now select the option you wish by doing the following:

   Use the PAGE "▲" Select Touch Button to scroll **forward** through the manual selections ("UM" or Upper Manual, "LM" or Lower Manual, and "PK" or Pedal Keyboard).

   Use the PAGE "▼" Select Touch Button to scroll **backward** through the manual selections.

   Use the CURSOR Select Touch Buttons to advance the cursor to the Drawbar you want to modify. The CURSOR "▶" Select Touch Button moves the cursor to the right, while the CURSOR "◀" Select Touch Button moves the cursor to the left.

   Use the VALUE "▲" Select Touch Button to scroll **up** through the numbers for each Drawbar.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the numbers for each Drawbar.

The data chart below shows the options you may select.

DRAWBAR REGISTRATION OPTIONS		
Upper Manual	**Lower Manual**	**Pedal Keyboard**
All 9 Drawbars available at any setting from "0" to "8".	All 9 Drawbars available at any setting from "0" to "8".	The first brown Drawbar ("16'") and the first white Drawbar ("8'") available at any setting from "0" to "8".

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

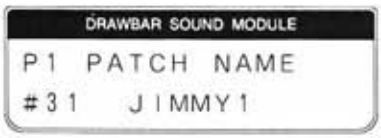
NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

◆ Drawbar Attack - Key Click Volume

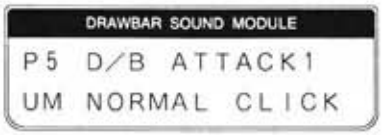
Each time a key was depressed on a tone-wheel Hammond Organ, a key-pop or click was produced. With the Attack Advanced Feature, you can change the type of attack or the personality of the key click.

TRY THIS:

1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **four** times. The Information Center Display should look like this:



3. Now select the option you wish by doing the following:

   Use the CURSOR "▶" Select Touch Button to scroll **forward** through the manual selections ("UM" or **U**pper **M**anual, "LM" or **L**ower **M**anual, and "PK" or **P**edal **K**eyboard).

   Use the CURSOR "◀" Select Touch Button to scroll **backward** through the manual selections.

   Use the VALUE "▲" Select Touch Button to scroll **up** through the Drawbar Attack options.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the Drawbar Attack options.

The data chart below shows the options you may select.

ATTACK OPTIONS		
Upper Manual	**Lower Manual**	**Pedal Keyboard**
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

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

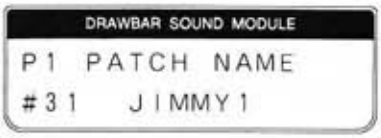
NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

◆ Drawbar Sustain

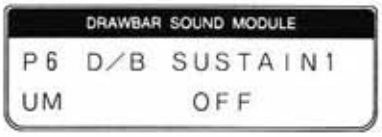
Sustain is used with the Drawbars to produce a lingering tone when keys are released. It is suited for producing sounds like harps, chimes or bells. This Advanced Feature allows you to select the Sustain Length for the following: (1) Upper Manual ("UM"), (2) Lower Manual ("LM") and (3) Pedal Keyboard ("PK").

TRY THIS:

1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button five times. The Information Center Display should look like this:



3. Now select the option you wish by doing the following:

   Use the CURSOR "▶" Select Touch Button to scroll **forward** through the manual selections ("UM" or Upper Manual, "LM" or Lower Manual, and "PK" or Pedal Keyboard).

   Use the CURSOR "◀" Select Touch Button to scroll **backward** through the manual selections.

   Use the VALUE "▲" Select Touch Button to scroll **up** through the options.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the options.

The data chart below shows the options you may select.

DRAWBAR SUSTAIN OPTIONS

Upper Manual	Lower Manual	Pedal Keyboard
OFF	OFF	OFF
SHORT	SHORT	SHORT
MID	MID	MID
LONG	LONG	LONG

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

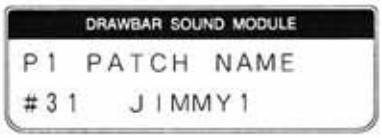
NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

◆ Drawbar Voice Mode

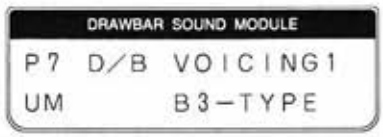
This Advanced Feature allows you to change the overall sound of the Drawbars. You can select: (1) "B3-TYPE", which reproduces the sound of the B-3 tone-wheel generator, (2) "MELLOW", which produces a very pure sine-wave tone quality, or (3) "BRITE", which adds extra frequencies to the higher-pitched Drawbar tones for a very brilliant sound.

TRY THIS:

1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **six** times. The Information Center Display should look like this:



3. Now select the option you wish by doing the following:

   Use the CURSOR "▶" Select Touch Button to scroll **forward** through the manual selections ("UM" or **U**pper **M**anual, "LM" or **L**ower **M**anual, and "PK" or **P**edal **K**eyboard).

   Use the CURSOR "◀" Select Touch Button to scroll **backward** through the manual selections.

   Use the VALUE "▲" Select Touch Button to scroll **up** through the Drawbar Voicing options ("B3-TYPE", "MELLOW" or "BRITE").

   Use the VALUE "▼" Select Touch Button to scroll **down** through the Drawbar Voicing options.

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

DRAWBAR VOICING OPTIONS		
Upper Manual	**Lower Manual**	**Pedal Keyboard**
B3-TYPE	B3-TYPE	NORMAL
MELLOW	MELLOW	MUTED
BRITE	BRITE	

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

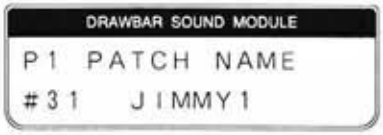
◆ Drawbar Fold Back (Drawbar Voice Mode : "B-3 TYPE")

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

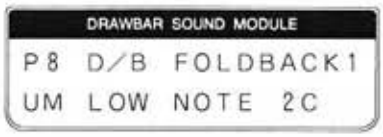
On the earliest model Hammond Organs, the Sub-Fundamental Drawbar would continue to play all the way down to the lowest "C" ("1C"). Newer models such as the Hammond Models X-66, X-77, Concorde, and SX and CX series do the same, however, the 8th harmonic Drawbar continues to play up the manual to the next to highest "C" ("5C") on the manual. On a B-3, the lowest note produced by the Sub-Fundamental Drawbar is the 2nd "C" ("2C") from the left end of the manual, while the highest note that can be played by the 8th harmonic Drawbar is the 4th "F#" from the left end of the manual. The lower and higher keys on the manual "Fold Back", in that they repeat the pitches played by other notes.

TRY THIS:

1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **seven** times. The Information Center Display should look like this:



3. Now select the option you wish by doing the following:

   Use the CURSOR "▶" Select Touch Button to scroll **forward** through the manual and note selections.

   Use the CURSOR "◀" Select Touch Button to scroll **backward** through the manual and note selections.

   Use the VALUE "▲" Select Touch Button to scroll **up** through the Foldback numbers.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the Foldback numbers.

The data chart below shows the options you may select.

DRAWBAR FOLD BACK OPTIONS (B-3 TYPE ONLY)		
Manual	**LOW NOTE (Sub-Fundamental) Range**	**HIGH NOTE (8th harmonic) Range**
Upper	1C-2C	4G-5C
Lower	1C-2C	4G-5C

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

Percussion

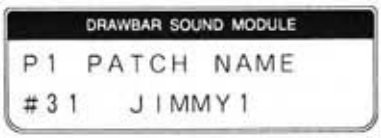
Your Hammond XM-1, in addition to recreating the sounds of Hammond Harmonic Drawbars, also faithfully replicates the Hammond **Touch-Response Percussion Control**. This feature is found on Hammond Organs containing a "3" as part of their model number (B-3, C-3, M-3, RT-3) as well the A-100 and D-100 series. On later tone-wheel Hammond models, the Percussion feature consisted of preset voices rather than harmonics. The Percussion feature on the XM-1 recreates the original implementation of Percussion. The following pages explain each part of this feature in detail.

◆ Percussion 2nd / 3rd Harmonic

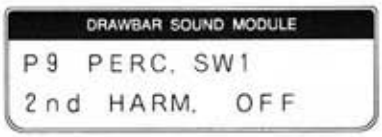
This Advanced Feature allows you to turn the Percussion tones "ON" or "OFF".

TRY THIS:

1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **eight** times. The Information Center Display should look like this:



3. Now select the option you wish by doing the following:

   Use either the CURSOR "▶" or the CURSOR "◀" Select Touch Button to select "2nd" or "3rd".

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to turn the selected Percussion tone ON" or "OFF".

NOTE: Percussion can be produced only in the upper manual.

NOTE: When in Percussion mode effects such as Reverb, Overdrive, Digital Leslie, and Vibrato will not activate.

The data chart below shows the options you may select.

PERCUSSION SWITCH OPTIONS	
Option	**Function**
2nd HARM. ON/OFF	When this feature is "ON", the Percussion tone will sound up one octave with respect to the Fundamental Drawbar (first white Drawbar), and the red **Perc. 2nd** LED will light.
3rd HARM. ON/OFF	When this feature is "ON", the Percussion tone will sound up an octave and a fifth with respect to the Fundamental Drawbar, and the red **Perc. 3rd** LED will light.

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

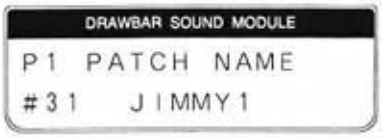
NOTE: When this feature is "ON" (LED lit), all of the Drawbars will be effective except the 8th harmonic Drawbar (last white Drawbar). When Percussion is "OFF", the 8th Harmonic Drawbar is effective as usual.

◆ Percussion Decay

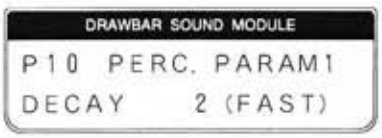
This Advanced Feature allows you to select the decay of the Percussion tone.

TRY THIS:

1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **nine** times. The Information Center Display should look like this:



3. Now select the option you wish by doing the following:

   Use the VALUE "▲" Select Touch Button to scroll **up** through the numbers.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the numbers.

The data chart below shows the options you may select.

PERCUSSION DECAY OPTIONS
1 ~ 8

NOTE: The words "FAST" and "SLOW" in parentheses next to the numbers "2" and "7" indicate the traditional **Fast** and **Slow** Percussion Decay settings on a B-3, C-3, A-100 or similar instrument.

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

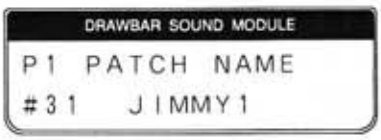
NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

◆ Percussion Volume

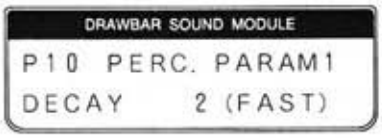
This Advanced Feature allows you to select either "NORMAL" or "SOFT" volume for the Percussion tone.

TRY THIS:

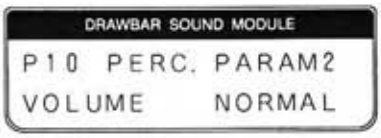
1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **nine** times. The Information Center Display should look like this:



3. Touch the CURSOR "▶" Select Touch Button **once**. The Information Center Display should look like this:



4. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to select either "NORMAL" or "SOFT" Percussion Volume.

The data chart below shows the options you may select.

PERCUSSION VOLUME OPTIONS	
Option	**Function**
NORMAL	The Percussion effect will be very prominent. You will also notice that the Drawbar tones are reduced in volume to compensate for the addition of the Percussion tones.
FAST	The Percussion effect is much less prominent. The volume of the Drawbars remains unaffected.

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

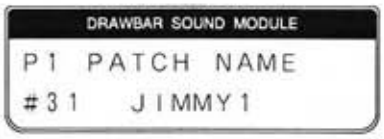
NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

◆ Percussion Touch

This Advanced Feature allows you to turn "ON" or "OFF" the Percussion Touch-Response.

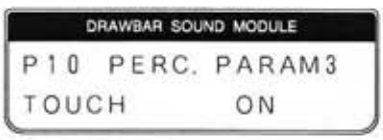
TRY THIS:

1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **nine** times. The Information Center Display should look like this:

3. Touch the CURSOR "▶" Select Touch Button **two** times. The Information Center Display should look like this:



4. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to turn Percussion Touch "ON" or "OFF".

The data chart below shows the options you may select.

PERCUSSION VOLUME OPTIONS	
Option	**Function**
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.
OFF	This replicates the Percussion function on the X-66, Concorde and later model Hammond Organs. Each key will sound when played regardless of whether other keys are being held.

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

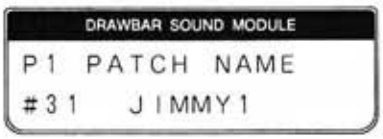
NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

◆ Percussion Velocity Sensitivity

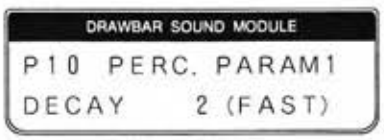
This Advanced Feature allows you to turn "ON" or "OFF" Percussion Velocity Sensitivity.

TRY THIS:

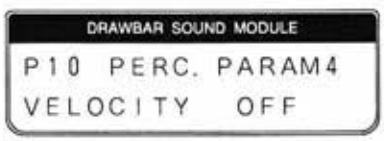
1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **nine** times. The Information Center Display should look like this:



3. Touch the CURSOR "▶" Select Touch Button **three** times. The Information Center Display should look like this:



4. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to turn Percussion Velocity "ON" or "OFF".

The data chart below shows the options you may select.

PERCUSSION VELOCITY OPTIONS	
Option	**Function**
ON	The volume of Percussion is controlled by how fast keys are played. The faster keys are played, the louder the Percussion sounds. The more slowly keys are played, the softer the Percussion sounds.
OFF	Each key will sound at the same volume level when played regardless of the speed or force with which the keys are struck.

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

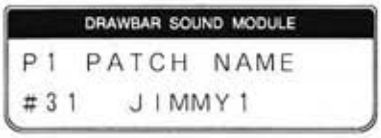
NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

◆ Percussion Level

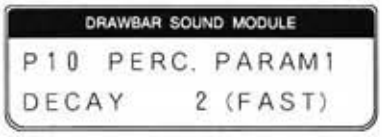
This Advanced Feature allows you to set the overall volume level of the Percussion tones. This will allow you to balance the amount of "normal" and "soft" Percussion sound (the choices provided by the Touch Tabs) with the sound produced by the Drawbars.

TRY THIS:

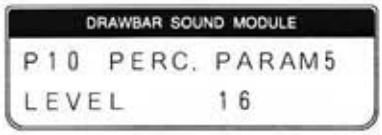
1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **nine** times. The Information Center Display should look like this:



3. Touch the CURSOR "▶" Select Touch Button **four** times. The Information Center Display should look like this:



4. Now select the option you wish by doing the following:

   Use the VALUE "▲" Select Touch Button to scroll **up** through the numbers.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the numbers.

The data chart below shows the options you may select.

PERCUSSION LEVEL
1 ~ 16

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

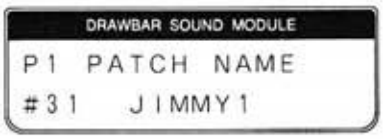
◆ Percussion Drawbar Cancel

On the original Hammond Organs with Touch-Response Percussion Control, such as the B-3, C-3 and RT-3, when the Swell Manual "B" Preset Key is engaged, and Percussion is "ON", the sound produced by the 8th harmonic Drawbar is canceled. However, some pros would re-wire the organ so that the 8th harmonic Drawbar would continue to play while Percussion is "ON".

The Percussion Drawbar Cancel Advanced Feature allows you to select whether the 8th harmonic Drawbar will continue to sound when Percussion is turned "ON".

TRY THIS:

1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **nine** times. The Information Center Display should look like this:

3. Touch the CURSOR "▶" Select Touch Button **five** times. The Information Center Display should look like this:

4. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to turn Percussion Touch "ON" or "OFF".

The data chart below shows the options you may select.

PERCUSSION DRAWBAR CANCEL OPTIONS	
Option	**Function**
ON	The 8th harmonic Drawbar will be canceled when Percussion is "ON".
OFF	The 8th harmonic Drawbar will sound while Percussion is "ON".

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

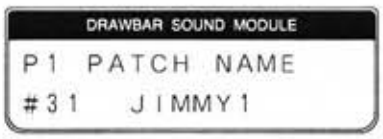
NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

◆ Percussion Drawbar Level

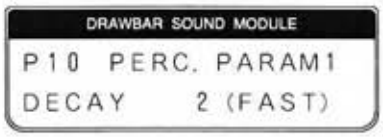
On the original Hammond Organs with Touch-Response Percussion Control, such as the B-3, C-3, RT-3 and A-100, when the Swell Manual "B" Preset Key is engaged, Percussion is "ON" at normal volume and a Drawbar setting is used, the volume of the Swell Manual Drawbars is reduced slightly in order to preserve the musical balance between Swell and Great 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 PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **nine** times. The Information Center Display should look like this:



3. Touch the CURSOR "▶" Select Touch Button **six** times. The Information Center Display should look like this:

4. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to select either "-3db" or "0db".

NOTE: The setting of Percussion Drawbar Level (-3db) is effective only when the Percussion soft is set to NORMAL.

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

The data chart below explains the options you may select.

PERCUSSION DRAWBAR LEVEL OPTIONS	
Option	**Function**
-3db	The Drawbars will be reduced by "-3db" in volume when Percussion is "ON" at normal volume.
0db	The volume of the Drawbars will stay at the same level, or "0db", when Percussion is "ON" at normal volume.

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

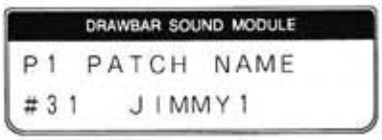
NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

◆ Percussion Key Tracking

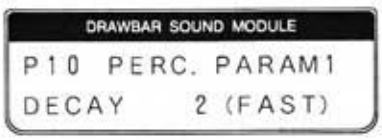
On the original Hammond Organs with Touch-Response Percussion Control, such as the B-3, C-3, RT-3 and A-100, the Percussion sounds would taper off slightly at higher frequencies. This Advanced Feature is designed to replicate this characteristic of the Percussion.

TRY THIS:

1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **nine** times. The Information Center Display should look like this:



3. Touch the CURSOR "▶" Select Touch Button **seven** times. The Information Center Display should look like this:

4. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to turn Key Tracking "ON" or "OFF".

The data chart below explains the options you may select.

PERCUSSION KEY TRACKING OPTIONS

Option	Function
ON	The Drawbars will be reduced by "-3db" in volume when Percussion is "ON" at normal volume.
OFF	The volume of the Drawbars will stay at the same level, or "0db", when Percussion is "ON" at normal volume.

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

EFFECTS

The XM-1 has the effects of **Vibrato, Chorus, Leslie, Reverb** and **Overdrive**. By adding such effects, you can enhance the sound of your music.

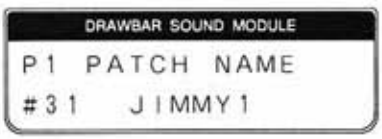
Vibrato

◆ Vibrato/Chorus ON/OFF

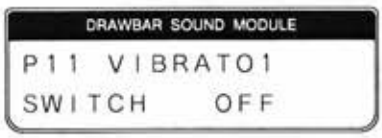
This Advanced Feature allows you to turn the Vibrato effect "ON" or "OFF" for the entire instrument.

TRY THIS:

1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **ten** times. The Information Center Display should look like this:



3. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to turn Vibrato "ON" or "OFF".

NOTE: When Vibrato/Chorus is "ON", the red LED marked **VIBRATO** on the front panel will light.

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

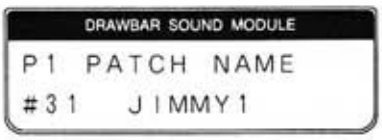
NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

◆ Vibrato/Chorus Mode

This Advanced Feature allows you to select the Vibrato effect for the entire instrument.

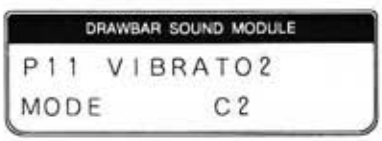
TRY THIS:

1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **ten** times. The Information Center Display should look like this:

3. Touch the CURSOR "▶" Select Touch Button **once**. The Information Center Display should look like this:



4. Now select the option you wish by doing the following:

   Use the VALUE "▲" Select Touch Button to scroll **up** through the options.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the options.

The data chart below shows the options you may select.

VIBRATO MODE OPTIONS	
Option	**Function**
V1	This produces the vibrato equivalent of most orchestral solo instruments.
V2	This is the standard depth vibrato used with the Drawbars to produce the effect of a theater organ.
V3	This gives the fullest amount of vibrato, adding much warmth and enhancing your music.
C1	This produces the light chorus effect.
C2	This is the standard depth of the chorus effect.
C3	This produces the fullest amount of Chorus, adding warmth that enhances your Drawbar settings.

NOTE: When the Chorus effect (C1, C2 or C3) is used, **half** of the tone is heard without Vibrato, and **half** contains the vibrato amount indicated by the number 1, 2 or 3.

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

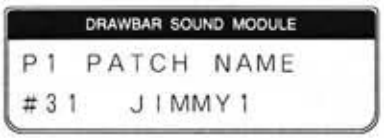
NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

◆ Vibrato/Chorus Speed

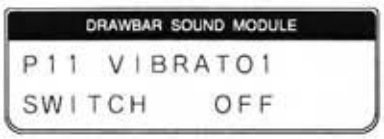
This Advanced Feature allows you to select the speed for the Vibrato and Chorus that you prefer.

TRY THIS:

1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **ten** times. The Information Center Display should look like this:



3. Touch the CURSOR "▶" Select Touch Button **two** times. The Information Center Display should look like this:

4. Now select the option you wish by doing the following:

   Use the VALUE "▲" Select Touch Button to scroll **up** through the options.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the options.

The data chart below shows the options you may select.

VIBRATO SPEED Display
SLOW
MID
NORMAL
MIDFAST
FAST

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

Leslie

Your Hammond XM-1 has a built-in digital Leslie effect with many capabilities. The following pages will explain these in detail.

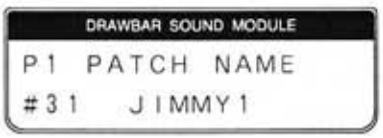
◆ Leslie Type

This Advanced Feature allows you to specify the Leslie Type for each Patch.

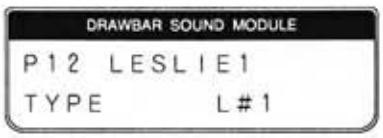
NOTE: Please refer to page 8 for more information about Leslie Types. More information about Leslie Parameters is covered starting on page 35.

TRY THIS:

1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **eleven** times. The Information Center Display should look like this:



3. Now select the option you wish by doing the following:

   Use the VALUE "▲" Select Touch Button to scroll **up** through the options.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the options.

The data chart below shows the options you may select.

LESLIE TYPE OPTIONS

Leslie Type	Description
L#1 122-TYPE	A mellow tube-type Leslie Speaker.
L#2 147-TYPE	A bright tube-type Leslie Speaker.
L#3 710-TYPE	A mellow solid-state Leslie Speaker.
L#4 760-TYPE	A bright solid-state Leslie Speaker.
L#5 825-TYPE	A solid-state Leslie Speaker with one rotor.
L#6 122-USER	User-programmable - similar to 122-TYPE
L#7 147-USER	User-programmable - similar to 147-TYPE
L#8 710-USER	User-programmable - similar to 710-TYPE
L#9 760-USER	User-programmable - similar to 760-TYPE
L#10 825-USER	User-programmable - similar to 825-TYPE (**NOTE:** When programming this Leslie Type, only the Bass Rotor parameters will take effect, since this is a single-rotor simulation.)

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

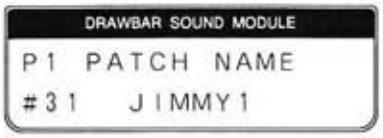
NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

◆ Leslie ON/OFF

This Advanced Feature allows you to turn the Leslie effect "ON" or "OFF".

TRY THIS:

1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **eleven** times. The Information Center Display should look like this:

3. Touch the CURSOR "▶" Select Touch Button **once**. The Information Center Display should look like this:

4. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to turn Leslie "ON" or "OFF".

The data chart below explains the options you may select.

LESLIE ON/OFF

Option	Function
ON	Adds the Leslie effect to the sounds produced by the Drawbars.
OFF	The Drawbars will sound with no Leslie effect.

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

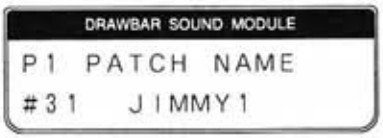
NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

◆ Leslie SLOW/FAST

This Advanced Feature allows you to select "SLOW" or "FAST" for the Leslie effect.

TRY THIS:

1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **eleven** times. The Information Center Display should look like this:

3. Touch the CURSOR "▶" Select Touch Button **two** times. The Information Center Display should look like this:

4. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to select "SLOW" or "FAST".

The data chart below explains the options you may select.

LESLIE SLOW/FAST	
Option	**Function**
SLOW	The Leslie effect is that of an acoustic Leslie Speaker Cabinet with the rotors turning slowly (Chorale).
FAST	Causes the Leslie effect to speed up and rotate fast (Tremolo) to produce a rich, full sound.

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

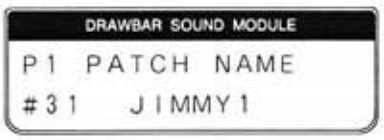
◆ Leslie OFF Mode

This Advanced Feature allows you to simulate the operation of a single- or multi-channel Leslie Speaker using the built-in digital Leslie effect.

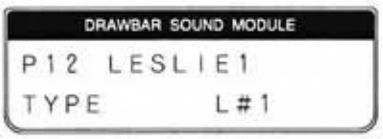
NOTE: This Advanced Feature DOES NOT affect a connected external Leslie Speaker cabinet.

TRY THIS:

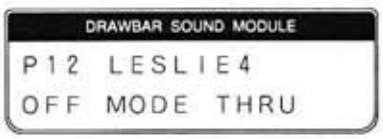
1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **eleven** times. The Information Center Display should look like this:



3. Touch the CURSOR "▶" Select Touch Button **three** times. The Information Center Display should look like this:



4. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to select "THRU" or "BRAKE.

The data chart below explains the options you may select.

LESLIE OFF MODE	
Option	**Function**
THRU	When the Leslie effect is "OFF", the sound quality changes to simulate the effect of the Drawbar tones speaking through the Stationary channel of a multi-channel Leslie Speaker such as models 723, 750 or 914.
BRAKE	When the Leslie effect is "OFF", the digital Leslie effect is "stopped" and the sound quality remains unchanged. This simulates the effect produced by a single-channel Leslie Speaker such as a 122 or 147.

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

◆ Leslie Parameters

In addition to the Leslie Advanced Features mentioned above, your Hammond XM-1 also has a special group of **Leslie Parameters**. Using these special Leslie features, you can define different characteristics of how the built-in digital Leslie effect will perform, and save them as **Leslie Types**. This makes it very convenient to call up the Leslie performance characteristics you want all at once, rather than setting each one by hand each time you make a change. The following pages will describe these Leslie Parameters in detail.

Leslie Type Edit

This Advanced Feature allows you to select the type of speaker cabinet that the Leslie effect will emulate.

TRY THIS:

1. Touch the PATCH and GLOBAL Select Touch Buttons together. The Information Center Display should look like this:

2. Now select the option you wish by doing the following:

   Use either the CURSOR "▶" or the CURSOR "◀" Select Touch Button to select the Leslie Type.

The data chart below explains the options you may select.

LESLIE TYPE EDIT
1 – 10

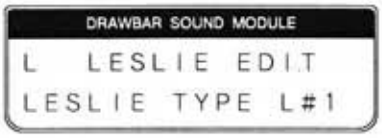
NOTE: You can exit by touching either the PATCH or the GLOBAL Select Touch Button. When you touch either Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Leslie Parameters is explained more thoroughly on page 70.

Leslie Name

This Advanced Feature allows you to assign a name to each Leslie Type. There are 10 types in all.

TRY THIS:

1. Touch the PATCH and GLOBAL Select Touch Buttons together. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **once**. The Information Center Display should look like this:

3. Name your Leslie Type by doing the following:

   Use the CURSOR "▶" Select Touch Button to move the cursor to the **right**.

   Use the CURSOR "◀" Select Touch Button to move the cursor to the **left**.

   Use the VALUE "▲" Select Touch Button to scroll **up** through the letters and numbers.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the letters and numbers.

The data chart below explains the options you may select.

CHARACTERS FOR NAMING LESLIE TYPES
Letters A ~ Z, Upper Case
Letters a ~ z, Lower Case
Numerals 0 ~ 9
Hyphen (-)
Asterisk (*)
Number sign (#)
Ampersand (&)
Space

This data can be stored as part of a Leslie Type, then the Leslie Type can be stored to a Patch. To see a total listing of all Leslie Parameters, see the Leslie Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching either the PATCH or the GLOBAL Select Touch Button. When you touch either Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Leslie Parameters is explained more thoroughly on page 70.

Leslie Speed

Although each Leslie Speaker is carefully calibrated at the factory, several factors such as motor age and placement of the belts on the pulleys can affect the speeds of the rotors, as well as time required for the rotors to speed up (Rise Time) and slow down (Fall Time). This Advanced Feature allows you to select the settings for the digital Leslie Slow & Fast Speeds and Rise and Fall Times that you prefer.

NOTE: This Advanced Feature DOES NOT affect a connected external Leslie Speaker cabinet.

TRY THIS:

1. Touch the PATCH and GLOBAL Select Touch Buttons together. The Information Center Display should look like this:

2. Touch the PAGE "▲" Select Touch Button **two** times. The Information Center Display should look like this:

3. Now select the option you wish by doing the following:

   Use the PAGE "▲" Select Touch Button to scroll **forward** through the options ("**SLOW SPEED**", "**FAST SPEED**", "**RISE TIME**", or "**FALL TIME**").

   Use the PAGE "▼" Select Touch Button to scroll **backward** through the options.

   Use either the CURSOR "▶" or the CURSOR "◀" Select Touch Button to select **Horn** or **Bass**.

   Use the VALUE "▲" Select Touch Button to **increase** the number setting.

   Use the VALUE "▼" Select Touch Button to **decrease** the number setting.

The data chart below explains the options you may select.

LESLIE SPEED OPTIONS	
Function	**Options**
SLOW SPEED - Horn Rotor	0, 24 rpm ~ 48 rpm
SLOW SPEED - Bass Rotor	0, 24 rpm ~ 48 rpm
FAST SPEED - Horn Rotor	0, 375 rpm ~ 435 rpm
FAST SPEED - Bass Rotor	0, 375 rpm ~ 435 rpm
RISE TIME - Horn Rotor	0.2 ~ 5.0 sec.
RISE TIME - Bass Rotor	0.5 ~ 12.5 sec.
FALL TIME - Horn Rotor	0.2 ~ 5.0 sec.
FALL TIME - Bass Rotor	0.5 ~ 12.5 sec.

NOTE: The setting of "0" for the Slow and Fast Speeds enables you to prevent a rotor from turning when the Leslie is switched back and forth from "SLOW" to "FAST". For example, if you want only the Horn Rotor to respond to SLOW/FAST speed selection, set both the Slow and Fast Speeds for the Bass Rotor to "0". With this setting, only the Horn Rotor will run either SLOW or FAST and the Bass Rotor will remain stationary.

This data can be stored as part of a Leslie Type, then the Leslie Type can be stored to a Patch. To see a total listing of all Leslie Parameters, see the Leslie Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching either the PATCH or the GLOBAL Select Touch Button. When you touch either Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Leslie Parameters is explained more thoroughly on page 70.

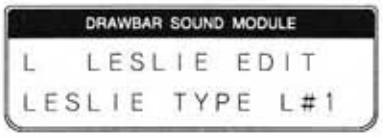
Leslie Brake Time

Although each Leslie Speaker is carefully calibrated at the factory, several factors such as motor age and placement of the belts on the pulleys can affect the speeds of the rotors, as well as time required for the rotors to slow down to a dead stop (Brake Time). This Advanced Feature allows you to select the settings for the digital Leslie Brake Times that you prefer.

NOTE: This Advanced Feature DOES NOT affect a connected external Leslie Speaker cabinet.

TRY THIS:

1. Touch the PATCH and GLOBAL Select Touch Buttons together. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **six** times. The Information Center Display should look like this:

3. Now select the option you wish by doing the following:

   Use either the CURSOR "▶" or the CURSOR "◀" Select Touch Button to select **Horn** or **Bass**.

   Use the VALUE "▲" Select Touch Button to **increase** the number setting.

   Use the VALUE "▼" Select Touch Button to **decrease** the number setting.

The data chart below explains the options you may select.

LESLIE BRAKE TIME OPTIONS

Function	Options
BRAKE TIME - Horn Rotor	0.2 ~ 5.0 sec.
BRAKE TIME - Bass Rotor	0.5 ~ 12.5 sec.

This data can be stored as part of a Leslie Type, then the Leslie Type can be stored to a Patch. To see a total listing of all Leslie Parameters, see the Leslie Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching either the PATCH or the GLOBAL Select Touch Button. When you touch either Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Leslie Parameters is explained more thoroughly on page 70.

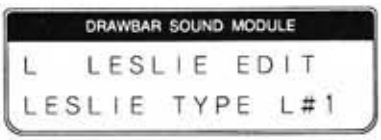
Leslie Volume Balance

This Advanced Feature allows you to adjust the balance between the Horn and Bass Rotors of the digital Leslie.

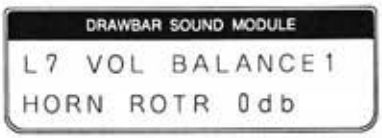
NOTE: This Advanced Feature DOES NOT affect a connected external Leslie Speaker cabinet.

TRY THIS:

1. Touch the PATCH and GLOBAL Select Touch Buttons together. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **seven** times. The Information Center Display should look like this:



3. Now select the option you wish by doing the following:

   Use either the CURSOR "▶" or the CURSOR "◀" Select Touch Button to select between Horn and Bass Rotors.

   Use the VALUE "▲" Select Touch Button to **increase** the number setting.

   Use the VALUE "▼" Select Touch Button to **decrease** the number setting.

The data chart below explains the options you may select.

LESLIE VOLUME BALANCE	
Function	**Options**
Horn Rotor Volume	0db ~ -12db
Bass Rotor Volume	0db ~ -12db

NOTE: A "decibel" (db) is a unit of measurement for the loudness of sound waves.

This data can be stored as part of a Leslie Type, then the Leslie Type can be stored to a Patch. To see a total listing of all Leslie Parameters, see the Leslie Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching either the PATCH or the GLOBAL Select Touch Button. When you touch either Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Leslie Parameters is explained more thoroughly on page 70.

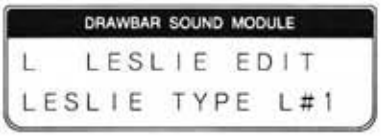
Leslie Microphone Setting

When a Leslie Speaker cabinet or cabinets are used in a large facility such as an auditorium or outdoor arena, the Leslie(s) are frequently "miked" to insure that the sound carries adequately. Sound technicians have discovered that the placement of the microphones greatly affects the character of the sound heard by the audience from the Leslie Speaker(s). This Advanced Feature allows you to simulate various microphone distances and angles using the built-in digital Leslie effect.

NOTE: This Advanced Feature DOES NOT affect a connected external Leslie Speaker cabinet.

TRY THIS:

1. Touch the PATCH and GLOBAL Select Touch Buttons together. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **eight** times. The Information Center Display should look like this:

3. Now select the option you wish by doing the following:

   Use either the CURSOR "▶" or the CURSOR "◀" Select Touch Button to select "ANGLE" or DISTANCE".

   Use the VALUE "▲" Select Touch Button to **increase** the number setting.

   Use the VALUE "▼" Select Touch Button to **decrease** the number setting.

The data chart below explains the options you may select.

LESLIE MICROPHONE SETTINGS

Function	Option	Description
ANGLE	0 ~ 180°	This Advanced Feature recreates the effect of two microphones - one for the Horn rotor and one for the Bass rotor. "0" setting is monaural, or both microphones placed in the center. Each higher number has the effect of moving the microphones further apart from each other. For example, a setting of "45° means that you have the effect of two microphones forming a 45-degree angle around a Leslie Speaker cabinet.
DISTANCE	0.3 ~ 2.7 m	This Advanced Feature recreates the effect of setting the microphones at different distances from a Leslie Speaker cabinet, since distance has an effect on how the Leslie Speaker reproduces through a sound system.

NOTE: Both these are subtle effects and may require careful listening to detect the differences among the various settings.

This data can be stored as part of a Leslie Type, then the Leslie Type can be stored to a Patch. To see a total listing of all Leslie Parameters, see the Leslie Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching either the PATCH or the GLOBAL Select Touch Button. When you touch either Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Leslie Parameters is explained more thoroughly on page 70.

◆ Using a Leslie Speaker Cabinet

Your Hammond XM-1 is designed to directly interface with a Leslie Speaker Cabinet. A Leslie Speaker cabinet, in addition to amplifying the basic sound, 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 Vibrato and Chorus.
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 Patch Parameter. This is explained on page 33.
2. Using the Foot Switch. This is explained starting on page 65.
3. Using After Touch. This is explained starting on page 55.
4. Using the Touch Buttons of the XMc-1 Drawbar Controller. This is explained in the **XMc-1 Quick Reference Guide**.

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.

Reverb

Using Reverb adds the beautiful concert hall effect to all voices when you are playing. It counteracts the "deadening" effect of carpets, drapes or furniture in whatever acoustical environment you may be in.

Located to the right of the VOLUME Rotary Control is the REVERB Rotary Control. This Rotary Control allows you to control the total or maximum volume of digital Reverb. Turn this control to the right to increase the amount of Reverb, and to the left to decrease the amount of Reverb. Setting the REVERB Rotary Control to the center position (half way) or more will produce a moderate amount of reverberation.

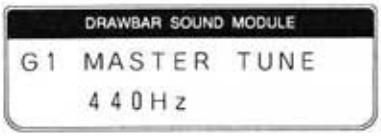
NOTE: The volume of reverb is only able to be altered by REVERB Rotary Control on XM-1.

◆ Reverb Mode

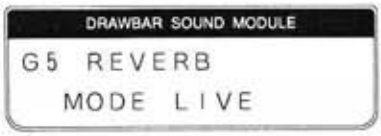
This Advanced Feature allows you to select from four different types of Reverb.

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **four** times. The Information Center Display should look like this:



3. Now select the option you wish by doing the following:

   Use the VALUE "▲" Select Touch Button to scroll **up** through the options.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the options.

The data chart below explains the options you may select.

REVERB MODES	
Mode	**Description**
ROOM	A medium-sized enclosure - reverb time of about 1 sec.
*LIVE	A moderately dry enclosure, similar to a recording studio - reverb time of about 1.5 sec.
HALL	A school gymnasium or recital hall - reverb time of about 2 sec.
CHURCH	A large enclosure with a tall ceiling and hard surfaces - reverb time of about 4 sec., and prominent "back-wall" reflection.

*default setting

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the **Parameter Lists Supplement**.

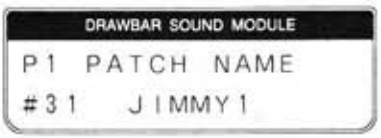
NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 75 for information on how to reset Global Parameters to their factory-default settings.

Overdrive

Overdrive adds the fuzzy, raspy, "dirty" sound created by the vacuum tubes of a tube-style Leslie Speaker when its volume is pushed past its sound limit. This Advanced Feature allows you to adjust the amount of Overdrive that you prefer.

TRY THIS:

1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **twelve** times. The Information Center Display should look like this:

3. Now select the option you wish by doing the following:

   Use the VALUE "▲" Select Touch Button to scroll **up** through the numbers.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the numbers.

The data chart below explains the options you may select.

OVERDRIVE OPTIONS
0 – 15

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

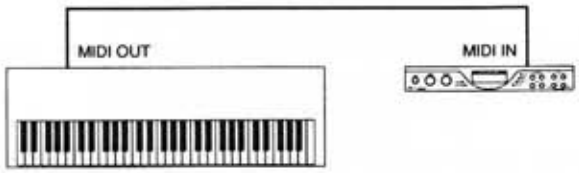
MIDI

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

MIDI Connections

◆ MIDI IN and MIDI OUT

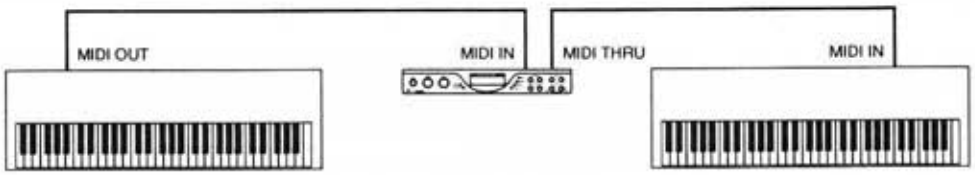
In order to allow communication to take place, all MIDI-equipped instruments have at least two MIDI jacks - MIDI IN and MIDI OUT. MIDI IN is for receiving MIDI data from another instrument, while MIDI OUT is for sending MIDI data out to another instrument.



In the example above, the keyboard of the sending or transmitting instrument (MIDI OUT) is 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. 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 and is the most basic MIDI hookup.)

◆ MIDI THRU

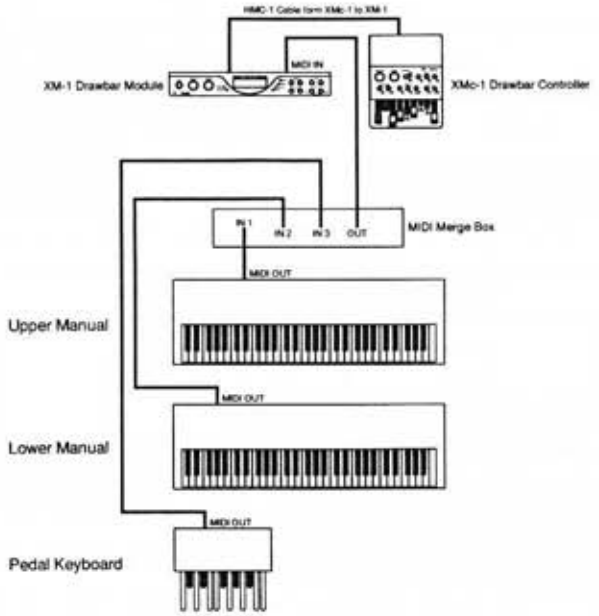
The MIDI THRU function allows more than one instrument to be controlled by the same transmitting instrument - in other words, the data being sent from MIDI OUT goes to MIDI IN, where it can be passed on to another instrument via MIDI THRU. The picture shown below shows how this is done.



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.

◆ MIDI Hookup to Simulate "B-3" operation

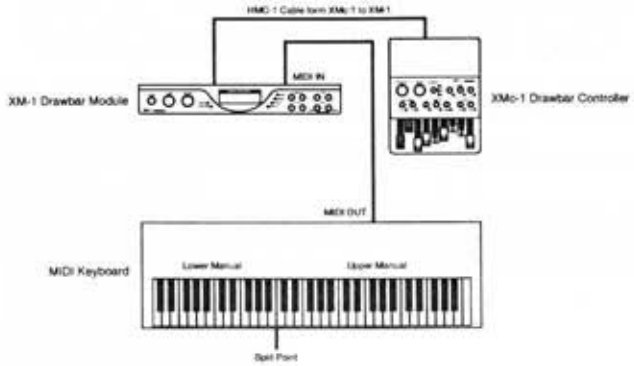
The diagram below shows how to make MIDI connections using the XM-1, the XMc-1 Drawbar Controller, two MIDI Keyboards, a MIDI pedalboard and a MIDI Signal Mixer or "merge box" to create the effect of a two-keyboard-and-pedal Hammond Organ.



NOTE: When connecting XMc-1 Drawbar Controller, turn the volume of XMc-1 to maximum as a general rule. You will be able to receive a clear tone with little interference.

◆ Using a Single Keyboard with Split

The diagram below shows how the MIDI connection would work using the XM-1, the XMc-1 Drawbar Controller and a MIDI Keyboard which has a Keyboard Split feature.

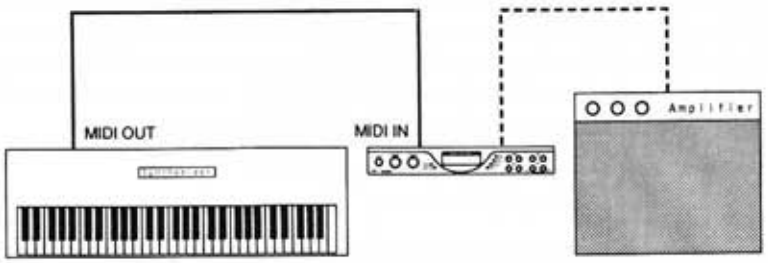


In order to take full advantage of the above hook-up, the MIDI keyboard you use should have the ability to have different MIDI channels assigned to the two portions of the keyboard. The many MIDI master keyboards available all include this capability; however, many inexpensive personal keyboards do not.

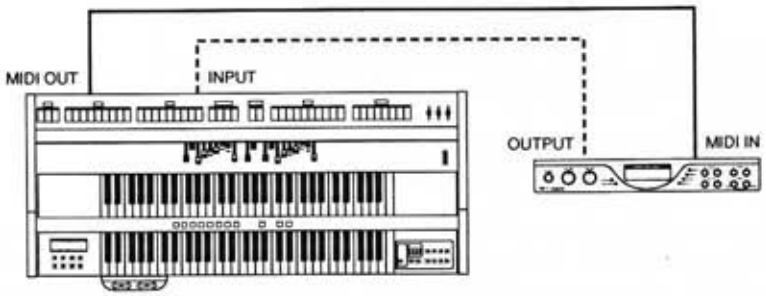
Also, if your keyboard has this feature, you will find it helpful to know what its MIDI channel assignments are, and if they do not correspond to the default Upper and Lower channel assignments of the XM-1, whether there is any provision for changing them. If not, you can make the proper MIDI channel assignments using the XM-1. This is explained on page 47.

Typical Applications

Example 1: The XM-1 connected to an amplifier.



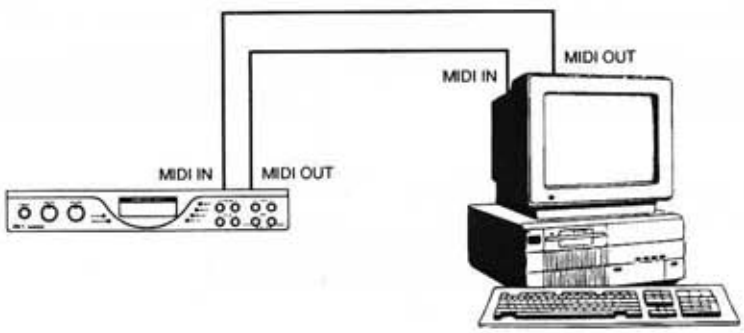
Example 2: The XM-1 sounding through a self-contained keyboard instrument.



If you connect the audio output from the XM-1 to the INPUT jack(s) of an instrument with self-contained speakers, such as an organ or electronic piano, you will be able to hear the XM-1 through the speaker system of the other instrument.

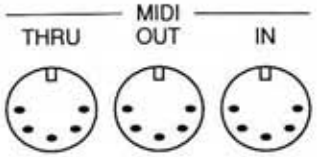
NOTE: The recommended tone range for MIDI Note number is from 36 to 96 (61 keys). It will still produce sound outside this range but it may not sound the way that Hammond should sound.

Example 3: A personal computer



If you wish to use a personal computer, run a standard MIDI cable from the MIDI OUT of the computer to the MIDI IN connector of the instrument. You will also need a MIDI interface and MIDI software for your computer.

Your Hammond XM-1 has MIDI IN, MIDI OUT and MIDI THRU jacks. These are located on the back right hand side of the instrument.



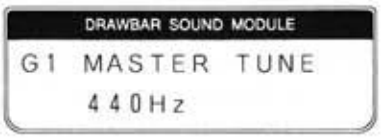
The following pages will describe the MIDI Advanced Features of your Hammond XM-1.

MIDI Channel

This Advanced Feature allows you to assign MIDI channels for the following: (1) Upper Manual ("UM"), (2) Lower Manual ("LM") and (3) Pedal Keyboard ("PK").

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **two** times. The Information Center Display should look like this:

3. Now select the option you wish by doing the following:

   Use the CURSOR "▶" Select Touch Button to scroll **forward** through the manual selections ("UM" or **U**pper **M**anual, "LM" or **L**ower **M**anual, and "PK" or **P**edal **K**eyboard).

   Use the CURSOR "◀" Select Touch Button to scroll **backward** through the manual selections.

   Use the VALUE "▲" Select Touch Button to scroll **up** through the MIDI Channel numbers.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the MIDI Channel numbers.

The data chart below explains the options you may select.

MIDI CHANNEL OPTIONS

Manual	Default Setting	Limit
Upper	Channel 1	ON / OFF, 1 ~ 16
Lower	Channel 2	ON / OFF, 1 ~ 16
Pedal	Channel 3	ON / OFF, 1 ~ 16

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 75 for information on how to reset Global Parameters to their factory-default settings.

MIDI NRPN

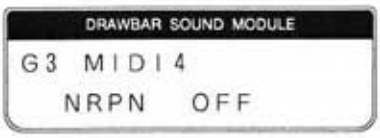
This Advanced Feature allows you to turn "ON" or "OFF" NRPN.

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:

2. Touch the PAGE "▲" Select Touch Button **two** times. The Information Center Display should look like this:

3. Touch the CURSOR "▶" Select Touch Button **three** times. The Information Center Display should look like this:



4. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to turn NRPN "ON" or "OFF".

The data chart below explains the options you may select.

MIDI NRPN OPTIONS

Option	Function
ON/*OFF	"NRPN", or Non-Registered Parameter Number, is an expanded control change message, each function of which is implemented differently by different manufacturers. The Hammond XM-1 uses NRPN to allow you to control such parameters as Percussion 2nd and 3rd Harmonic ON/OFF, Vibrato or Chorus ON/OFF, Leslie ON/OFF and Leslie Slow/Fast.

*default setting

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the **Parameter Lists Supplement**.

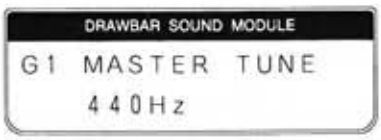
NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 75 for information on how to reset Global Parameters to their factory-default settings.

MIDI Omni Mode

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

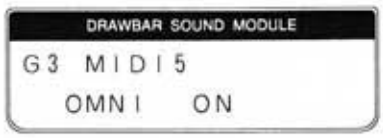
TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **two** times. The Information Center Display should look like this:

3. Touch the CURSOR "▶"Select Touch Button **four** times. The Information Center Display should look like this:



4. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to turn NRPN "ON" or "OFF".

The data chart below explains the options you may select.

MIDI OMNI MODE OPTIONS	
Option	**Function**
ON	When Omni Mode is "ON", the XM-1 will recognize MIDI data being sent to it on MIDI Channel 1.
*OFF	When Omni Mode is "OFF", the XM-1 recognizes MIDI data being sent to it from any MIDI Channel.

*default setting

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 75 for information on how to reset Global Parameters to their factory-default settings.

MIDI Program Change

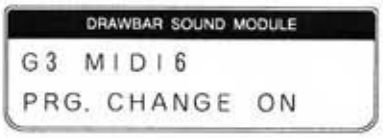
This Advanced Feature allows you to turn the MIDI Program Number Gate "ON" or "OFF".

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:

2. Touch the PAGE "▲" Select Touch Button **two** times. The Information Center Display should look like this:

3. Touch the CURSOR "▶" Select Touch Button **five** times. The Information Center Display should look like this:



4. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to turn Program Change "ON" or OFF".

The data chart below explains the options you may select.

MIDI PROGRAM CHANGE OPTIONS	
Option	**Function**
*ON	When this switch is "ON", incoming Program changes made during performance are recognized by the XM-1.
OFF	When this switch is "OFF", the XM-1 ignores all outgoing and incoming Program change messages.

*default setting

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the **Parameter Lists Supplement**.

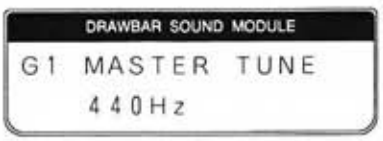
NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 75 for information on how to reset Global Parameters to their factory-default settings.

MIDI Drawbar Change

This Advanced Feature allows you to turn the NRPN and MIDI Drawbar Change Gate "ON" or "OFF".

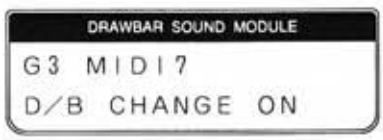
TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **two** times. The Information Center Display should look like this:

3. Touch the CURSOR "▶" Select Touch Button **six** times. The Information Center Display should look like this:



4. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to turn Drawbar Change "ON" or "OFF".

The data chart below explains the options you may select.

MIDI DRAWBAR CHANGE OPTIONS	
Option	**Function**
*ON	When this switch is "ON", incoming Drawbar changes made during performance (Controllers #50, 51 & 52) are recognized by the XM-1. (**NOTE:** These are treated separately from the other Controllers such as Volume, Modulation, Expression, etc. See the next page for information about MIDI Control Change. See the MIDI Controller list in the **Parameter Lists Supplement** for a complete listing of Controllers.)
OFF	When this switch is "OFF", the XM-1 ignores incoming Drawbar Changes.

*default setting

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 75 for information on how to reset Global Parameters to their factory-default settings.

MIDI Control Change

This Advanced Feature allows you to turn the MIDI Control Change Gate "ON" or "OFF".

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:

2. Touch the PAGE "▲" Select Touch Button **two** times. The Information Center Display should look like this:

3. Touch the CURSOR "▶" Select Touch Button **seven** times. The Information Center Display should look like this:

4. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to turn Control Change "ON" or "OFF".

The data chart below explains the options you may select.

MIDI CONTROL CHANGE OPTIONS	
Option	**Function**
*ON	When this switch is "ON", incoming Control changes made during performance, such as Volume, Modulation, Expression, etc., are recognized by the XM-1.
OFF	When this switch is "OFF", the XM-1 ignores all incoming Control change messages other than Drawbar changes. (**NOTE:** See the previous page for information about MIDI Drawbar Change. See the MIDI Controller List in the **Parameter Lists Supplement** for a complete listing of Controllers.)

*default setting

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 75 for information on how to reset Global Parameters to their factory-default settings.

MIDI Maximum Volume

This Advanced Feature allows you to assign the amount of volume when MIDI recognizes expression = 127 (maximum) incoming information.

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:

2. Touch the PAGE "▲" Select Touch Button **two** times. The Information Center Display should look like this:

3. Touch the CURSOR "▶" Select Touch Button **eight** times. The Information Center Display should look like this:

4. Now select the option you wish by doing the following:

   Use the VALUE "▲" Select Touch Button to scroll **up** through the numbers.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the numbers.

The data chart below explains the options you may select.

MIDI MAXIMUM VOLUME OPTIONS
64 – 127

default setting is "127".

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the **Parameter Lists Supplement**.

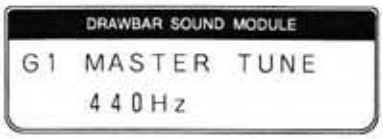
NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 75 for information on how to reset Global Parameters to their factory-default settings.

MIDI Minimum Volume

This Advanced Feature allows you to assign the amount of volume when MIDI recognizes expression = 0 (minimum) incoming information.

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **two** times. The Information Center Display should look like this:

3. Touch the CURSOR "▶" Select Touch Button **nine** times. The Information Center Display should look like this:

4. Now select the option you wish by doing the following:

   Use the VALUE "▲" Select Touch Button to scroll **up** through the MIDI Channel numbers.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the MIDI Channel numbers.

The data chart below explains the options you may select.

MIDI MINIMUM VOLUME OPTIONS
0 ~ 64

default setting is "40".

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 75 for information on how to reset Global Parameters to their factory-default settings.

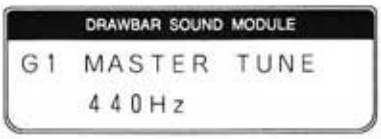
MIDI After Touch

This Advanced Feature allows you to assign special functions to After Touch.

NOTE: This function will work **ONLY** if you have a MIDI keyboard which has After Touch.

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **two** times. The Information Center Display should look like this:

3. Touch the CURSOR "▶" Select Touch Button **ten** times. The Information Center Display should look like this:

4. Now select the option you wish by doing the following:

   Use the VALUE "▲" Select Touch Button to scroll **up** through the options.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the options.

The data chart below explains the options you may select.

MIDI AFTER TOUCH OPTIONS

Option	Function
OFF	No function using After Touch
*LES S/F	Using After Touch will switch between "SLOW" and "FAST" speeds either of the built-in Leslie effect or a connected Leslie Speaker cabinet.
OVERDRIVE	Using After Touch adds the Overdrive effect.
BEND	Using After Touch bends the pitch.

*default setting

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 75 for information on how to reset Global Parameters to their factory-default settings.

MIDI Modulation

This Advanced Feature allows you to assign special functions to the Modulation Wheel of your MIDI keyboard.

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:

2. Touch the PAGE "▲" Select Touch Button **two** times. The Information Center Display should look like this:

3. Touch the CURSOR "▶" Select Touch Button **eleven** times. The Information Center Display should look like this:

4. Now select the option you wish by doing the following:

   Use the VALUE "▲" Select Touch Button to scroll **up** through the options.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the options.

The data chart below explains the options you may select.

MIDI MODULATION OPTIONS

Option	Function
OFF	No function using the Modulation Wheel.
*LES S/F	Using the Modulation Wheel will switch between "SLOW" and "FAST" speeds either of the built-in Leslie effect or a connected Leslie Speaker cabinet.
OVERDRIVE	Using the Modulation Wheel adds the Overdrive effect.

*default setting

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the **Parameter Lists Supplement**.

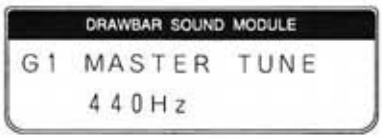
NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 75 for information on how to reset Global Parameters to their factory-default settings.

MIDI Bend Length

This Advanced Feature allows you to assign the range of the Pitch Bend Wheel of your MIDI keyboard.

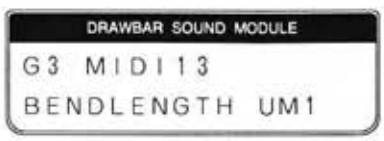
TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **two** times. The Information Center Display should look like this:

3. Touch the CURSOR "▶" Select Touch Button **twelve** times. The Information Center Display should look like this:



4. Now select the option you wish by doing the following:

   Use the CURSOR "▶" Select Touch Button to scroll **forward** through the manual selections ("UM" or **U**pper **M**anual, "LM" or **L**ower **M**anual, and "PK" or **P**edal **K**eyboard).

   Use the CURSOR "◀" Select Touch Button to scroll **backward** through the manual selections.

   Use the VALUE "▲" Select Touch Button to scroll **up** through the numbers.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the numbers.

The data chart below explains the options you may select.

MIDI BEND LENGTH OPTIONS
0, ± 1 ~ 12

default setting is "1".

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 75 for information on how to reset Global Parameters to their factory-default settings.

MIDI Implementation

Version:1.0

FUNCTION			TRANSMITTED	RECOGNIZED	REMARKS
Basic Channel	Default		1-3	1-3	Memorized
	Changed		1-16	1-16	
Mode	Default		×	Mode 3, 1	Memorized
	Messages		×	×	
	Altered		**********		
Note Number:	True voice		×	36-96	Transpose ±6
Velocity	Note ON		×	○	Percussion
	Note OFF		×	×	
After Touch	Key's		×	×	Leslie S/F, Overdrive,
	Ch's		×	○	Bend
Pitch Bend			×	○	
Control Change	Modulation	1	×	○	Leslie S/F, Overdrive
	Breath Control	2*	×	○	D/B Volume
	Main Volume	7*	○	○	D/B Volume
	Expression	11*	×	○	Expression
	Tremolo	92	○	○	Leslie Slow/Fast
	Hold 1	64*	×	○	Damper
	NRPN	98, 99	○	○	If NRPN Sw ON
	RPN	100*, 101*	○	○	Bend Sensitivity
	Data Entry	6	○	○	
	UM Drawbar	80	○	○	If Drawbar Sw ON
	LM Drawbar	81	○	○	If Drawbar Sw ON
	PK Drawbar	82	○	○	If Drawbar Sw ON
	Reset All Controllers	121	×	○	Bend, Expression, Hold 1
Program Change	: True #		○ 1-128 **********	○ 1-128	If Program Sw ON
System Exclusive			○	○	
Common	: Song Pos		×	×	
	: Song Sel		×	×	
	: Tune		×	×	
System Real Time	: Clock		×	×	
	: Commands		×	×	
Aux Messages	: Local On/Off		×	×	
	: All Notes Off		○	○	(123)
	: Active Sense		○	○	
	: Reset		×	×	
Notes			Upper Ch: Default 1 (1-16) Lower Ch: Default 2 (1-16) Pedal Ch: Default 3 (1-16) Control Change & Program Change = Only for UPPER except*		

Mode 1: OMNI ON, POLY
Mode 2: OMNI ON, MONO
Mode 3: OMNI OFF, POLY
Mode 4: OMNI OFF, MONO

○ : Yes
× : No

MIDI Implementation - Each Channel

	FUNCTION			UPPER		LOWER		PEDAL		
				OUT	IN	OUT	IN	OUT	IN	
1	MIDI CHANNEL			1~16	1~16	1~16	1~16	1~16	1~16	
2	PROGRAM NUMBER			1~128	1~128	×	×	×	×	
3	PITCH BEND			×	O	×	×	×	×	
	CONTROL CHANGE	MODULATION	1	×	O	×	×	×	×	
		BREATH CONTROL	2	×	O	×	O	×	O	
		MAIN VOLUME	7	O	O	O	O	O	O	
		EXPRESSION	11	×	O	×	O	×	O	LESLIE S/F
		TREMOLO	92	O	O	×	×	×	×	
		HOLD 1	64	×	O	×	O	×	O	
		NRPN LSB	98	O	O	×	×	×	×	
		NRPN MSB	99	O	O	×	×	×	×	
		RPN LSB	100	O	O	O	O	O	O	
		RPN MSB	101	O	O	O	O	O	O	
		DATA ENTRY	6	O	O	O	O	O	O	
		UM DRAWBAR	80	O	O	×	×	×	×	
		LM DRAWBAR	81	O	O	×	×	×	×	
		PK DRAWBAR	82	O	O	×	×	×	×	
		RESET ALL CONT.	121	×	O	×	O	×	O	
		ALL NOTES OFF	123	O	O	O	O	O	O	

MIDI Drawbar Data

Control Change
Bx 50yy :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	09h	12	1B	24	2D	36	3F	48
Label 1	01h	0Ah	13	1C	25	2E	37	40	49
Label 2	02h	0Bh	14	1D	26	2F	38	41	4A
Label 3	03h	0Ch	15	1E	27	30	39	42	4B
Label 4	04h	0Dh	16	1F	28	31	3A	43	4C
Label 5	05h	0Eh	17	20	29	32	3B	44	4D
Label 6	06h	0Fh	18	21	2A	33	3C	45	4E
Label 7	07h	10h	19	22	2B	34	3D	46	4F
Label 8	08h	11h	1A	23	2C	35	3E	47	50

Pedal Data Map		
	DATA :yy	
DRAWBAR	**16'**	**8'**
Label 0	00h	09h
Label 1	01h	0Ah
Label 2	02h	0Bh
Label 3	03h	0Ch
Label 4	04h	0Dh
Label 5	05h	0Eh
Label 6	06h	0Fh
Label 7	07h	10h
Label 8	08h	11h

MIDI Implementation - NRPN Data Chart

NO.	FUNCTION	CODE (hex)	DATA (hex)
1	Drawbar Attack Upper	3B	SLOW ATTACK: 00 NO CLICK: 01
2	Drawbar Attack Lower	3C	SOFT CLICK: 02 NORM CLICK: 03
3	Drawbar Attack Pedal	3D	MAX CLICK: 04
4	Drawbar Sustain Upper	1C	OFF: 00 SHORT: 01 MID: 02 LONG: 03
5	Drawbar Sustain Lower	1D	
6	Drawbar Sustain Pedal	1E	
7	Drawbar Voice Type Upper	38	B3–TYPE: 00 MELLOW: 01 BRITE: 02
8	Drawbar Voice Type Lower	39	B3–TYPE: 00 MELLOW: 01 BRITE: 02
9	Drawbar Voice Type Pedal	3A	NORMAL: 00 MUTED: 01
10	Drawbar Foldback Upper Lo	5B	1C ~ 2C: 00 ~ 0C
11	Drawbar Foldback Upper Hi	5C	4G ~ 5C: 2B ~ 30
12	Drawbar Foldback Lower Lo	5D	1C ~ 2C: 00 ~ 0C
13	Drawbar Foldback Lower Hi	5E	4G ~ 5C: 2B ~ 30
14	Percussion 2nd	12	OFF: 00 ON: 7F
15	Percussion 3rd	13	OFF: 00 ON: 7F
16	Percussion Decay	14	SLOW: 00 FAST: 7F (Recieve Only)
17	Percussion Decay Speed	16	1 ~ 8: 00 ~ 07 (SLOW: 7 FAST: 2)
18	Percussion Soft	15	NORMAL: 00 SOFT: 7F
19	Percussion Touch	57	OFF: 00 ON: 7F
20	Percussion Velocity	58	OFF: 00 ON: 7F
21	Percussion Level	59	1 ~ 16: 00 ~ 0F
22	Percussion Drawbar Cancel	5A	OFF: 00 ON: 7F
23	Percussion Drawbar Level	5F	0db: 00 -3db: 7F
24	Percussion Key Tracking	6C	OFF: 00 ON: 7F
25	Vibrato ON/OFF	17	OFF: 00 ON: 7F
26	Vibrato Mode	45	V1 ~ V3: 00 ~ 02 C1 ~ C3: 03 ~ 05
27	Vibrato Speed	3F	SLOW ~ FAST: 0 ~ 04
28	Leslie Type	6F	1 ~ 10: 00 ~ 09
29	Leslie ON/OFF	09	OFF: 00 ON: 7F
30	Leslie S/F	00	SLOW: 00 FAST: 7F
31	Leslie Thru/Brake	6E	THRU: 00 BRAKE: 7F
32	Leslie Slow Speed Horn	70	0, 24 ~ 48 rpm: 00 ~ 0 C
33	Leslie Slow Speed Bass	71	0, 24 ~ 48 rpm: 00 ~ 0 C
34	Leslie Fast Speed Horn	72	0, 375 ~ 435 rpm: 00 ~ 15
35	Leslie Fast Speed Bass	73	0, 375 ~ 435 rpm: 00 ~ 15
36	Leslie Rise Time Horn	74	0.2 s ~ 5.0 s: 00 ~ 18
37	Leslie Rise Time Bass	75	0.5 s ~ 12.5 s: 00 ~ 18
38	Leslie Fall Time Horn	76	0.2 s ~ 5.0 s: 00 ~ 18
39	Leslie Fall Time Bass	77	0.5 s ~ 12.5 s: 00 ~ 18
40	Leslie Brake Time Horn	78	0.2 s ~ 5.0 s: 00 ~ 18
41	Leslie Brake Time Bass	79	0.5 s ~ 12.5 s: 00 ~ 18
42	Leslie Horn Volume	7A	0 ~ -12 db: 00 ~ 0 C
43	Leslie Bass Volume	7B	0 ~ -12 db: 00 ~ 0 C
44	Leslie Microphone Angle	7C	0 ~180°: 00 ~ 06
45	Leslie Microphone Distance	7D	0.3 m ~ 2.7 m: 00 ~ 09
46	Reverb Mode	7E	ROOM: 00 LIVE: 01 HALL: 02 CHURCH: 03
47	Overdrive Level	6D	0 ~ 15: 00 ~ 0F

System Exclusive Message

Transmits this message when you executed "ALL DATA OUT".
It doesn't transmit this message in "CURRENT DUMP",
transmits control change message.

1. FORMAT	
F0h	System Exclusive
55h	SUZUKI I.D. Number
00h	Device Number
10h	Model I.D. Number (High)
08h	Model I.D. Number (Low)
11h	Command (Data Packet)
[BODY]	DATA
F7h	End of Exclusive

2. BODY	
02h	Data Type (02: User Program)
[PNH]	Packet Number (High) 0001 ~ 7F7F
[PNL]	Packet Number (Low)
[DATA]	256byte ASCII (128byte data)
[SUM]	Check Sum (7bit) 256byte ASCII XOR

3. PACKET	
[PNH]	00h
[PNL]	01 ~ 43h
[DATA]	ALL DATA (GLOBAL, PATCH, LESLIE)

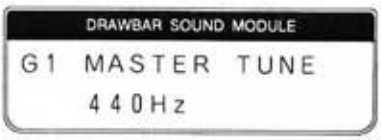
SPECIAL ADVANCED FEATURES

Master Tune

This Advanced Feature allows you to change the overall tuning pitch of the entire module.

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:



2. To change the pitch of the XM-1, do the following:

   Use the VALUE "▲" Select Touch Button to **lower** the pitch.

   Use the VALUE "▼" Select Touch Button to **raise** the pitch.

The data chart below shows the options you may select.

MASTER TUNE OPTIONS
430Hz ~ 450Hz

default setting is "440Hz".

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the **Parameter Lists Supplement**.

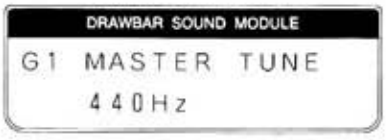
NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 75 for information on how to reset Global Parameters to their factory-default settings.

Transpose

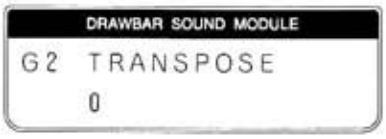
This Advanced Feature allows you to shift the musical key of the entire module. This is useful if you have a piece of music written in one key but which needs to sound in another key.

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **once**. The Information Center Display should look like this:



3. To transpose the module, do the following:

   Use the VALUE "▲" Select Touch Button to **raise** the pitch by semitones.

   Use the VALUE "▼" Select Touch Button to **lower** the pitch by semitones.

The data chart below shows the options you may select.

TRANSPOSE OPTIONS
Semitones
-6 ~ 0 ~ +6

default setting is "0"

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the **Parameter Lists Supplement**.

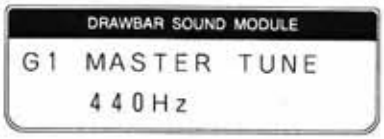
NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 75 for information on how to reset Global Parameters to their factory-default settings.

Tune Mode

This Advanced Feature allows you to change the overall temperament of the entire module.

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **once**. The Information Center Display should look like this:

3. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to select either "E-TEMPERA" or "B3-Pitch".

The data chart below shows the options you may select.

Option	TUNE MODE OPTIONS Function
E-TEMPERA	Equal-tempered scale similar to standard piano tuning.
*B3-PITCH	Alters the frequency of certain notes in a manner similar to the characteristics of the tone-wheel generator used in the B-3, C-3 and similar instruments.

*default setting

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 75 for information on how to reset Global Parameters to their factory-default settings.

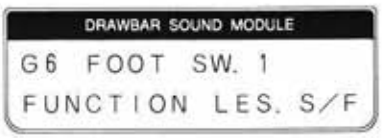
Foot Switch Function

This Advanced Feature allows you to select different functions for the Foot Switch.

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:

2. Touch the PAGE "▲" Select Touch Button **five** times. The Information Center Display should look like this:



3. Now select the option you wish by doing the following:

   Use the VALUE "▲" Select Touch Button to scroll **up** through the options.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the options.

The data chart below shows the options you may select.

FOOT SWITCH OPTIONS	
Option	**Function**
OFF	Disables the foot switch, allowing it to be used strictly for sending MIDI Controller #64 (Sustain).
*LES S/F	Use for turning the Leslie rotor(s) "ON" or "OFF".
UM DAMPER	Allows Upper Manual Drawbar tones to be "damped" or sustained.
LM DAMPER	Allows Lower Manual Drawbar tones to be "damped" or sustained.
PRESET FW	Allows you to change Presets. Each time the Foot Switch is pressed the next Preset number in sequence will be selected.

*default setting

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the **Parameter Lists Supplement**.

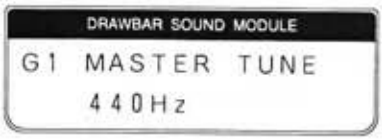
NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 75 for information on how to reset Global Parameters to their factory-default settings.

Foot Switch Press "ON"/Press "OFF"

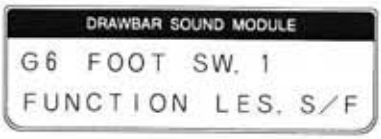
This Advanced Feature allows you to select different modes of operation for the Foot Switch.

TRY THIS:

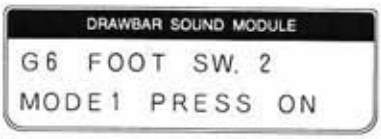
1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **five** times. The Information Center Display should look like this:



3. Touch the CURSOR "▶" Select Touch Button **once**. The Information Center Display should look like this:



4. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to select either "PRESS ON" or "PRESS OFF".

The data chart below shows the options you may select.

FOOT SWITCH PRESS ON/PRESS OFF OPTIONS	
Option	**Function**
*PRESS ON/ PRESS OFF	"PRESS ON" refers to a foot switch that "closes", or makes contact, when depressed, such as the Hammond model FS-9H foot switch. Some foot switches from other manufacturers "open", or break contact, when depressed. Use this Advanced Feature to select the correct mode of operation for your particular Foot Switch.

*default setting

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 75 for information on how to reset Global Parameters to their factory-default settings.

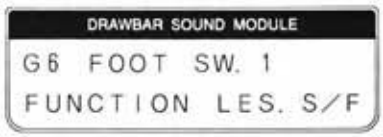
Foot Switch Alternate/Momentary

This Advanced Feature allows you to select either "ALTERNATE" (turn-on/turn-off) or "MOMENTARY" turn-on-and-hold) function for the Foot Switch.

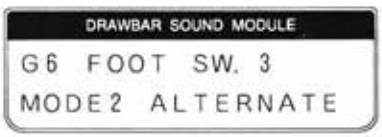
TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:

2. Touch the PAGE "▲" Select Touch Button **five** times. The Information Center Display should look like this:



3. Touch the CURSOR "▶" Select Touch Button **two** times. The Information Center Display should look like this:



4. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to select either "ALTERNATE" or "MOMENTARY".

The data chart below shows the options you may select.

FOOT SWITCH ALT./MOM. OPTIONS	
Option	**Function**
*ALTERNATE	Pressing and releasing the Foot Switch toggles between "ON" and "OFF".
MOMENTARY	Pressing the Foot Switch turns its function "ON", while releasing the Foot Switch turns the selected function "OFF".

*default setting

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the **Parameter Lists Supplement**.

NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 75 for information on how to reset Global Parameters to their factory-default settings.

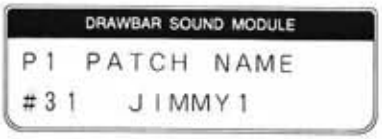
SPECIAL UTILITY FEATURES

Patch Name

This Advanced Feature allows you to name your Patches.

TRY THIS:

1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Name your Patch by doing the following:

   Use the CURSOR "▶" Select Touch Button to move the cursor to the **right**.

   Use the CURSOR "◀" Select Touch Button to move the cursor to the **left**.

   Use the VALUE "▲" Select Touch Button to scroll **up** through the letters and numbers.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the letters and numbers.

The data chart below explains the options you may select.

CHARACTERS FOR NAMING PATCHES
Letters A ~ Z, Upper Case
Letters a ~ z, Lower Case
Numerals 0 ~ 9
Asterisk (*)
Number sign (#)
Ampersand (&)
Hyphen (-)
Space

This data CAN be stored to a Patch. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

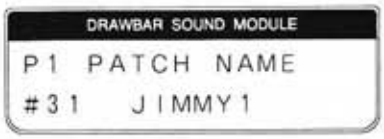
NOTE: You can exit by touching the PATCH Select Touch Button. When you touch the PATCH Select Touch Button, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button. Saving Patch Parameters is explained more thoroughly on page 69.

Saving Parameters

You can save Patch Parameters and Leslie Parameters.

◆ Saving Patch Parameters - TRY THIS:

1. Touch the PATCH Select Touch Button. The Information Center Display should look like this:



2. Make whatever changes you wish to the Patch Parameters. To see a total listing of all Patch Parameters, see the Patch Parameter List in the **Parameter Lists Supplement**.

3. After you have made all of your changes, touch the PATCH Select Touch Button. The Information Center Display should look like this:

4. To exit without saving, touch the VALUE "▼" Select Touch Button. To continue with the saving procedure, touch the VALUE "▲" Select Touch Button. If you touch the VALUE "▲" Select Touch Button, the Information Center Display should look like this:

5. To return to the previous screen, touch the VALUE "▼" Select Touch Button. To continue with the Save procedure, select the Patch Number you want by doing the following:

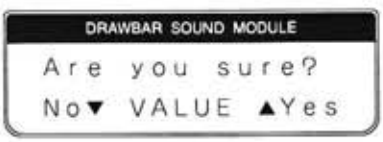
   Use the CURSOR "▶" Select Touch Button to scroll **up** through the numbers.

   Use the CURSOR "◀" Select Touch Button to scroll **down** through the numbers.

The data chart below shows the options you may select.

PATCH NUMBER OPTIONS
1 – 128

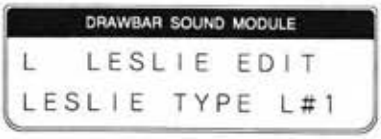
6. After you have made your Patch Number selection, touch the VALUE "▲" Select Touch Button. The Information Center Display should look like this:



To return to the previous screen, touch the VALUE "▼" Select Touch Button. To save, touch the VALUE "▲" Select Touch Button. If you touch the VALUE "▲" Select Touch Button, the Information Center Display will flash, "**saving ...**", after which the PLAY Screen will return. The Saving procedure is now complete.

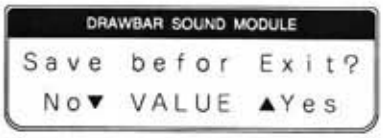
◆ Saving Leslie Parameters - TRY THIS:

1. Touch the PATCH and GLOBAL Select Touch Buttons together. The Information Center Display should look like this:

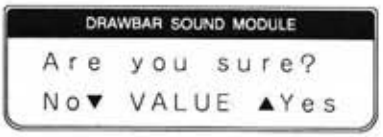


2. Make whatever changes you wish to the Leslie Parameters. To see a total listing of all Leslie Parameters, see the Leslie Parameter List in the **Parameter Lists Supplement**.

3. After you have made all of your changes, touch either the PATCH or the GLOBAL Select Touch Button. The Information Center Display should look like this:



4. To exit without saving, touch the VALUE "▼" Select Touch Button. To save your settings, touch the VALUE "▲" Select Touch Button. If you touch the VALUE "▲" Select Touch Button, the Information Center Display should look like this:



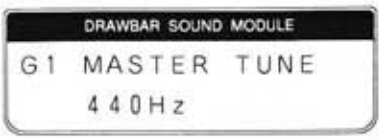
To return to the previous screen, touch the VALUE "▼" Select Touch Button. To save, touch the VALUE "▲" Select Touch Button. If you touch the VALUE "▲" Select Touch Button, the Information Center Display will flash, "**saving ...**", after which the PLAY Screen will return. The Saving procedure is now complete.

Memory Dump - All Data

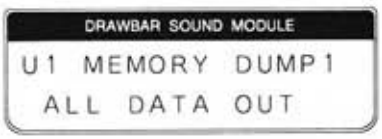
This Advanced Feature allows you to save and retrieve the XM-1's Patch, Global and Leslie Parameters to and from a MIDI Data recorder.

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button **six** times. The Information Center Display should look like this:



3. Make sure that the module 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). Touch the CURSOR "▶" Select Touch Button, then touch the VALUE "▲" to start the data dump to the MIDI Data recorder. The Information Center Display will show, "Transmitting...". When all information has been sent, the Information Center Display will flash, "Data completed!".

Receive Data In – Touch the CURSOR "▶" Select Touch Button **two** times. Make sure that the word "ON" appears to the right of the word "RECEIVE" in the Information Center Display. If "OFF" is displayed, Touch either the VALUE "▲" or the VALUE "▼" Select Touch Button to change the word "OFF" to "ON". This will turn Receive Mode "ON", allowing the XM-1 to receive incoming data. Start the MIDI recorder. When all information has been received, the PLAY Screen will return.

NOTE: If you attempt a Data Dump to the XM-1 when "OFF" is displayed, the Information Center Display will flash, "Data Protect !" This ensures that you do not accidentally overwrite data.

NOTE: You can exit by touching the GLOBAL Select Touch Button. When you touch the GLOBAL Select Touch Button, if you have not changed any Global Parameters, the PLAY Screen will return. If you have changed any of the Global Parameter settings, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button.

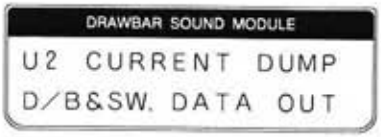
Memory Dump - Current Settings

This Advanced Feature allows you to send the current registration (Switches, Menu parameters, etc.) to a Sequencer in preparation for playing back a Sequence.

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:

2. Touch the PAGE "▲" Select Touch Button **seven** times. The Information Center Display should look like this:



3. Make sure that the XM-1 is connected to a MIDI Data recorder before you send or receive MIDI data and that the MIDI recorder is ready to receive data (RECORD).

4. Touch the CURSOR "▶" Select Touch Button, then touch the VALUE "▲" Select Touch Button to start the Data Dump to the MIDI Data recorder. The Information Center Display will show, "Transmitting...". When all information has been sent, the Information Center Display will flash, "Data completed!".

NOTE: You can exit by touching the GLOBAL Select Touch Button. When you touch the GLOBAL Select Touch Button, if you have not changed any Global Parameters, the PLAY Screen will return. If you have changed any of the Global Parameter settings, you will be asked if you want to save your adjustments, if you have made any, before exiting. If you do, touch the VALUE "▲" Select Touch Button. If not, touch the VALUE "▼" Select Touch Button.

Memory Dump - System Exclusive Information

1. FORMAT

FOH	System Exclusive
55h	SUZUKI I.D. Number
[DID]	Device No. (00)
10h	Model I.D. Number (High)
08h	Model I.D. Number (Low)
11h	Command (Data Packet)
[BODY]	DATA
F7h	End of Exclusive

2. BODY

02h	Data Type (02h: User Program
[PNH]	Packet Number (high) 0001 ~ 7F7F
[PNL]	Packet Number (low)
[DATA]	256byte ASCII (128byte data)
[SUM]	Check Sum (7bit) 256byte ASCII XOR

3. PACKET

PNH	PNH	DATA
00h	01 ~ 43h	ALL DATA (GLOBAL, PATCH, LESLIE)

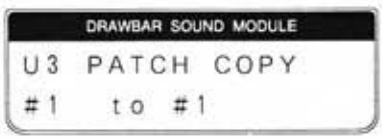
Patch Copy

This Advanced Feature allows you to copy the entire contents of one Patch number to another Patch number. This is useful if you have two or more registrations you want to use with many parameter settings in common.

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:

2. Touch the PAGE "▲" Select Touch Button **eight** times. The Information Center Display should look like this:



3. Now select the option you wish by doing the following:

   Use the CURSOR "▶" Select Touch Button to select your **source** Patch - the Patch you want to copy **from**.

   Use the CURSOR "◀" Select Touch Button to select your **destination** Patch - the Patch you want to copy **to**.

   Use the VALUE "▲" Select Touch Button to scroll **up** through the Patch numbers.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the Patch numbers.

4. After you have made your selections, touch the CURSOR "▶" Select Touch Button. The Information Center Display should look like this:

5. Touch the VALUE "▲" Select Touch Button to complete the Patch Copy process. The Information Center Display will flash the following message:

The Patch Copy process is now complete.

Patch Back

This Advanced Feature allows you to restore the contents of one Patch to the factory default settings. This is useful if you don't want to reset the entire instrument, but only one or a few Patches.

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:

2. Touch the PAGE "▲" Select Touch Button **nine** times. The Information Center Display should look like this:

3. Now select the option you wish by doing the following:

   Use the VALUE "▲" Select Touch Button to scroll **up** through the Patch numbers.

   Use the VALUE "▼" Select Touch Button to scroll **down** through the Patch numbers.

4. After you have made your selections, touch the CURSOR "▶" Select Touch Button. The Information Center Display should look like this:

5. Touch the VALUE "▲" Select Touch Button to complete the Patch Back process. The Information Center Display will flash the following message:

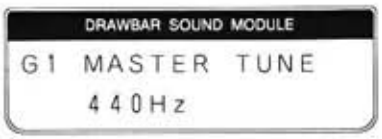
The Patch Back process is now complete.

Reset Procedure

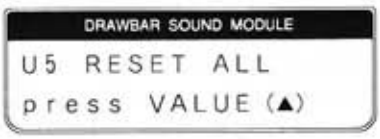
WARNING!: Doing the following procedure will erase all parameters, settings and registrations, returning the XM-1 to the original Hammond factory default settings. To ensure that important data is saved, save your information to a MIDI Data recorder before doing this procedure.

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button ten times. The Information Center Display should look like this:



3. Now select the option you wish by doing the following:

   Use the CURSOR "▶" Select Touch Button to scroll up through the options.

   Use the CURSOR "◀" Select Touch Button to scroll down through the options.

The data chart below shows the options you may select.

RESET OPTIONS	
Option	**Function**
RESET ALL	Restores the entire instrument to its factory default settings.
RESET GLOBAL	Restores all of the Global Parameters to their factory default settings.
RESET PATCH	Restores all of the Patch Parameters to their factory default settings.
RESET LESLIE	Restores all of the Leslie Parameters to their factory default settings.

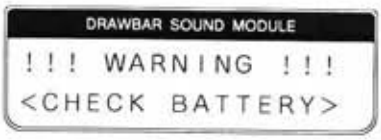
After making your selection, touch the VALUE "▲" Select Touch Button. You will be asked, "Are you sure?" If so, touch the VALUE "▲" Select Touch Button and the Information Center Display will flash, "** INITIALIZE **". If not, touch the VALUE "▼" Select Touch Button.

NOTE: When reset is performed there maybe interference. When performing reset turn down the volume of XM-1.

◆ Important Note - Battery

Your Hammond XM-1 uses a battery-backed RAM to remember your changes to the Patch, Leslie and Global Parameters. When the battery voltage becomes low, the Information Center Display will show this message:

If you see this message, you should immediately back up your parameter changes, if you have made any. If there is no battery installed in the unit, or if the battery is completely dead, the Information Center Display will show this message:



After the above message is displayed, the XM-1 will re-initialize itself, and the factory default settings will be restored. Therefore, it is a good idea to periodically back up your data.

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 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, contact Hammond at the following addresses:

In the United States contact:

HAMMOND SUZUKI USA, Inc.
733 Annoreno Dr.
Addison, IL 60101
UNITED STATES

In the United Kingdom contact:

HAMMOND SUZUKI U.K. LTD.
19 Presley Way
Crownhill
Milton Keynes MK8 OE5
UNITED KINGDOM

In Germany, Switzerland and Austria contact:

HAMMOND SUZUKI DEUTSCHLAND GmbH
Karlstraße 38
D-89129 LANGENAU/ULM
GERMANY

In Europe contact:

HAMMOND SUZUKI EUROPE B.V
Industriepark Hagestein
Ir. D.S. Tuynmanweg 4A
4131 PN Vianen
THE NETHERLANDS

All other countries contact:

HAMMOND SUZUKI Ltd.
25-12, Ryoke 2 Chome
Hamamatsu 430 (Shizuoka)
JAPAN

Technical materials are available and can be obtained by mailing a request to the appropriate address listed above marked **ATTENTION: SERVICE DEPARTMENT.**

Manufacturer:
SUZUKI MUSICAL INSTRUMENT MFG. CO., Ltd
25-12, Ryoke 2 Chome
Hamamatsu 430 (Shizuoka)
JAPAN

ACKNOWLEDGEMENTS

In appreciation of the many fine players who have made their contributions to Hammond over the years:

Axel Alexander
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Jackie Davis
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Lenny Dee
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Artie Dunn
Eddie Dunstedter
Charles Earland
Richard Ellsasser
Keith Emerson
Fred Feibel
Virgil Fox
Ken Griffin
Jon Hammond
Glenn Hardman
Porter Heaps
Richard "Groove" Holmes
Milt Herth
Al Kooper
Eddie Layton
Jon Lord
Captain Jack McDuff
Jimmy McGriff
Lee Micheals
Don Patterson
Big John Patton
Richard Purvis
Rosa Rio
Freddie Roach
Bryan Rodwell
Dr. Mario Salvador
Shirley Scott
Hal Shutz
Ethel Smith
Jimmy Smith
Paul Taubman
Shay Torrent
Juan Torres
Rick Wakeman
Thomas "Fats" Waller
Walter Wanderly
Lew White
Baby Face Willette
George Wright
Pietro Yon
Larry Young

and many others too numerous to list.

- 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. Anvand samma batterityp eller et ekvivalent typ som rekommenderes av apparattillverkaren, Kassera anvant batteri enlig fabrikantens instruktion.

Finland:

VAROITUS

Paristo voi rajahtaa, jos se on virheelliseeti ansennettu Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin, Havita kaytetty paristo valmistajan ohjeiden mukaisesti.

Manufacturer assumes no responsibility for loss of memory caused by damage to the unit after purchase, such as power surges, battery replacement, repair etc.

HAMMOND SUZUKI, LTD., Hamamatsu, Japan

Printed in Japan
122-9607020
122-04602-1

HAMMOND

DRAWBAR SOUND MODULE

XM-1

PARAMETER LISTS SUPPLEMENT

HAMMOND SUZUKI, LTD.

Hamamatsu, Japan

Global Parameter List

NO	FUNCTION	PARAMETERS	DEFAULT SETTINGS
01	Master Tune	430 450 Hz	440
02	Transpose	-6 ~ 0 ~ +6	0
03	Tune Mode	E-TEMPERA, B3-PITCH	B3-PITCH
04	MIDI Channel Upper	1 ~ 16	1
05	MIDI Channel Lower	1 ~ 16	2
06	MIDI Channel Pedal	1 ~ 16	3
07	NPRN	ON / OFF	OFF
08	Omni Mode	ON / OFF	ON
09	Program Number Change	ON / OFF	ON
10	Drawbar Change	ON / OFF	ON
11	Control Change	ON / OFF	ON
12	Volume Max	64 ~ 127	127
13	Volume Min	0 ~ 40	40
14	After Touch	OFF, LES S/F, OVERDRIVE, BEND	OFF
15	Modulation	OFF, LES S/F, OVERDRIVE	OFF
16	Bend Length Upper	0 ~ 12	1
17	Bend Length Lower	0 ~ 12	1
18	Bend Length Pedal	0 ~ 12	1
19	Drawbar Volume Upper	0 ~ 127	127
20	Drawbar Volume Lower	0 ~ 127	127
21	Drawbar Volume Pedal	0 ~ 127	127
22	Reverb Mode	ROOM, LIVE, HALL, CHURCH	LIVE
23	Foot Switch Function	LES S/F, UM DAMP, LM DAMP, PRESET	LES S/F
24	Foot Switch ON/OFF Mode	PRESS ON/PRESS OFF	PRESS ON
25	Foot Switch Alt/Mom Mode	ALTERNATE/MOMENTARY	ALTERNATE

Leslie Parameter List

NO	FUNCTION	PARAMETERS	DEFAULT SETTINGS
01	Leslie Edit (Type #)	1 ~ 10	Patch Dependant
02	Leslie Name	10 ch. A ~ Z, a ~ z, 0 ~ 9, <space>, *, -, #, &	Patch Dependant
03	Slow Speed - Horn Rotor	0, 15 ~ 120rpm	Patch Dependant
04	Slow Speed - Bass Rotor	0, 15 ~ 120rpm	Patch Dependant
05	Fast Speed - Horn Rotor	0, 300 ~ 498rpm	Patch Dependant
06	Fast Speed - Bass Rotor	0, 300 ~ 498rpm	Patch Dependant
07	Rise Time - Horn Rotor	0.2 ~ 5.0 sec.	Patch Dependant
08	Rise Time - Bass Rotor	0.2 ~ 5.0 sec.	Patch Dependant
09	Fall Time - Horn Rotor	0.5 ~ 12.5 sec.	Patch Dependant
10	Fall Time - Bass Rotor	0.5 ~ 12.5 sec.	Patch Dependant
11	Brake Time - Horn Rotor	0.2 ~ 5.0 sec.	Patch Dependant
12	Brake Time - Bass Rotor	0.5 ~ 12.5 sec.	Patch Dependant
13	Balance - Horn to Bass Volume	0 ~ -12db	Patch Dependant
14	Microphone Setting - Angle	0 ~ 180°	Patch Dependant
15	Microphone Setting - Distance	0.3 ~ 2.7 meters	Patch Dependant

MIDI Controller List

NO	CONTROLLER
1	Modulation
03 ~ 06	Not Assigned
7 (2)	Volume
08 ~ 10	Not Assigned
11	Expression
12 ~ 49	Not Assigned
50	Upper Drawbar
51	Lower Drawbar
52	Pedal Drawbar
53 ~ 63	Not Assigned
64	Hold 1
65 ~ 91	Not Assigned
92	Effect depth (Amplitudo Modulation)
93 ~ 120	Not Assigned
121	Reset All Controllers
122	Not Assigned
123	All Notes Off
124 ~ 127	Not Assigned

Patch Parameter List

NOTE: All of the parameters which can be saved to a Patch are listed in the first column of each table starting with PATCH NAME.

PATCH NO.		1	2	3	4	5	6	7	8	9	10
PATCH NAME		CHURCH C#	CHURCH D	CHURCH D#	CHURCH E	CHURCH F	CHURCH F#	CHURCH G	CHURCH G#	CHURCH A	FULL CHRCH
DRAWBAR REGIST.	UPPER	00 5320 000	00 4432 000	00 8740 000	00 4544 222	00 5403 000	00 4675 000	00 5644 300	00 6876 540	32 7645 222	82 8868 226
	LOWER	00 4545 440	00 4423 220	00 7373 430	00 4544 220	00 6644 322	00 5642 200	00 6845 433	00 8030 000	42 7866 244	00 6735 222
	PEDAL	06	05	25	35	53	44	35	45	76	77
D/B ATTACK	UPPER	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK
	LOWER	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK
	PEDAL	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK
D/B SUSTAIN	UPPER	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	LOWER	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	PEDAL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
D/B VOICING	UPPER	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE
	LOWER	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE
	PEDAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
D/B FOLDBACK	UPPER	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G
	LOWER	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G
PERCUSSION	2nd	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	3rd	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PERCUSSION DECAY		SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW
PERCUSSION VOLUME		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
PERCUSSION TOUCH		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
PERCUSSION VELOCITY		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PERCUSSION LEVEL		11	11	11	11	11	11	11	11	11	11
PERCUSSION D/B CANCEL		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
D/B LEVEL W/PERCUSS.		-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db
PERC. KEY TRACKING		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
VIBRATO/CHORUS ON/OFF		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
VIBRATO MODE		V1	V1	V1	V1	V1	V1	V1	V1	V1	V1
VIBRATO SPEED		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
LESLIE TYPE		122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE
LESLIE ON/OFF		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
LESLIE SLOW/FAST		SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW
LESLIE OFF MODE		BRAKE	BRAKE	BRAKE	BRAKE	BRAKE	BRAKE	BRAKE	BRAKE	BRAKE	BRAKE
OVERDRIVE LEVEL		0	0	0	0	0	0	0	0	0	0

NOTE: These are the original settings that were factory-set on the B-3, C-3, RT-3, A-100 and D-100 series organs. The note references "C#", D", "D#" etc., refer to the reverse-color Preset Keys which were used to call up preset Drawbar combinations. For example, "C#" means that you would hear this Drawbar combination if you were to latch both the Upper Manual "C#" and the Lower Manual "C#" Preset Keys of a B-3 or similar instrument.

PATCH NO.		11	12	13	14	15	16	17	18	19	20
PATCH NAME		THEATRE C#	THEATRE D	THEATRE D#	THEATRE E	THEATRE F	THEATRE F#	THEATRE G	THEATRE G#	THEATRE A	FULL THTRE
DRAWBAR REGIST.	UPPER	00 8740 000	00 8408 004	00 8080 840	08 8800 880	60 8088 000	00 4685 300	60 8807 006	00 6888 654	76 8878 667	86 8868 446
	LOWER	00 4545 440	00 4432 000	00 4800 000	00 2500 234	00 6554 322	00 5642 200	00 7656 311	00 8030 000	84 7767 666	00 6644 222
	PEDAL	05	25	35	25	55	35	55	36	76	66
D/B ATTACK	UPPER	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK
	LOWER	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK
	PEDAL	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK
D/B SUSTAIN	UPPER	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	LOWER	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	PEDAL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
D/B VOICING	UPPER	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE
	LOWER	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE
	PEDAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
D/B FOLDBACK	UPPER	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G
	LOWER	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G
PERCUSSION	2nd	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	3rd	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PERCUSSION DECAY		SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW
PERCUSSION VOLUME		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
PERCUSSION TOUCH		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
PERCUSSION VELOCITY		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PERCUSSION LEVEL		11	11	11	11	11	11	11	11	11	11
PERCUSSION D/B CANCEL		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
D/B LEVEL W/PERCUSS.		-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db
PERC. KEY TRACKING		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
VIBRATO/CHORUS ON/OFF		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
VIBRATO MODE		V1	V1	V1	V1	V1	V1	V1	V1	V1	V1
VIBRATO SPEED		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
LESLIE TYPE		122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE
LESLIE ON/OFF		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
LESLIE SLOW/FAST		SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW
LESLIE OFF MODE		BRAKE	BRAKE	BRAKE	BRAKE	BRAKE	BRAKE	BRAKE	BRAKE	BRAKE	BRAKE
OVERDRIVE LEVEL		0	0	0	0	0	0	0	0	0	0

NOTE: These are the original settings that were factory-set on the X-66, X-77, H-series and "Concorde" series organs. The note references "C#", D", "D#" etc., refer to the reverse-color Preset Keys which were used to call up preset Drawbar combinations. For example, "C#" means that you would hear this Drawbar combination if you were to latch both the Upper Manual "C#" and the Lower Manual "C#" Preset Keys of an X-66 or similar instrument.

PATCH NO.		21	22	23	24	25	26	27	28	29	30
PATCH NAME		TIBIA 8&4	TIBIA 8&2	TIBIA&VOX	TIBIA 84&2	TIBIA 16&8	TIBIA 16&4	TBIA 168&4	TBIA 16842	TBA 168421	FULL TIBIA
DRAWBAR REGIST.	UPPER	00 8800 000	00 8006 000	00 1844 420	00 8806 000	80 8000 000	80 0800 000	80 8800 000	80 8806 000	80 8806 005	82 8828 028
	LOWER	00 6400 000	00 6644 210	00 4443 210	00 5511 000	00 4300 000	00 4432 100	00 5522 000	00 6654 211	00 6544 310	00 7625 002
	PEDAL	24	34	34	34	34	43	43	44	34	54
D/B ATTACK	UPPER	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK
	LOWER	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK
	PEDAL	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK	SOFT CLICK
D/B SUSTAIN	UPPER	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	LOWER	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	PEDAL	MID	MID	MID	MID	MID	MID	MID	MID	MID	MID
D/B VOICING	UPPER	MELLOW	MELLOW	MELLOW	MELLOW	MELLOW	MELLOW	MELLOW	MELLOW	MELLOW	MELLOW
	LOWER	MELLOW	MELLOW	MELLOW	MELLOW	MELLOW	MELLOW	MELLOW	MELLOW	MELLOW	MELLOW
	PEDAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
D/B FOLDBACK	UPPER	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G
	LOWER	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G
PERCUSSION	2nd	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	3rd	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PERCUSSION DECAY		SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW
PERCUSSION VOLUME		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
PERCUSSION TOUCH		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
PERCUSSION VELOCITY		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PERCUSSION LEVEL		11	11	11	11	11	11	11	11	11	11
PERCUSSION D/B CANCEL		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
D/B LEVEL W/PERCUSS.		-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db
PERC. KEY TRACKING		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
VIBRATO/CHORUS ON/OFF		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
VIBRATO MODE		V2	V2	V2	V2	V2	V2	V2	V2	V2	V2
VIBRATO SPEED		SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW
LESLIE TYPE		147-TYPE	147-TYPE	147-TYPE	147-TYPE	147-TYPE	147-TYPE	147-TYPE	147-TYPE	147-TYPE	147-TYPE
LESLIE ON/OFF		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
LESLIE SLOW/FAST		FAST	FAST	FAST	FAST	FAST	FAST	FAST	FAST	FAST	FAST
LESLIE OFF MODE		BRAKE	BRAKE	BRAKE	BRAKE	BRAKE	BRAKE	BRAKE	BRAKE	BRAKE	BRAKE
OVERDRIVE LEVEL		0	0	0	0	0	0	0	0	0	0

PATCH NO.		31	32	33	34	35	36	37	38	39	40
PATCH NAME		JIMMY 1	JIMMY 2	JIMMY 3	BURNER	GROOVE	SMOOTH BAS	SHIRLEY	JIMMY MC	FAT BASS	ALL NINE
DRAWBAR REGIST.	UPPER	88 8000 000	88 8000 000	80 0008 888	88 8800 000	88 8000 008	88 8000 000	88 8000 000	88 8000 000	88 8000 010	88 8888 888
	LOWER	85 8000 000	85 8000 000	85 8000 000	84 8000 000	84 8000 000	80 8000 000	82 8000 000	83 8000 000	85 8020 000	85 8000 000
	PEDAL	44	44	44	44	44	44	44	44	44	66
D/B ATTACK	UPPER	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	MAX CLICK	NORMAL CLICK	MAX CLICK	NORMAL CLICK	NORMAL CLICK
	LOWER	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	MAX CLICK	NORMAL CLICK	SOFT CLICK	NORMAL CLICK	NORMAL CLICK
	PEDAL	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	MAX CLICK	NORMAL CLICK	NO CLICK	NORMAL CLICK	NORMAL CLICK
D/B SUSTAIN	UPPER	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	LOWER	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	PEDAL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
D/B VOICING	UPPER	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE
	LOWER	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE
	PEDAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
D/B FOLDBACK	UPPER	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G
	LOWER	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G
PERCUSSION	2nd	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
	3rd	ON	OFF	OFF	ON	OFF	OFF	OFF	ON	ON	OFF
PERCUSSION DECAY		FAST	FAST	FAST	FAST	FAST	FAST	FAST	FAST	FAST	FAST
PERCUSSION VOLUME		SOFT	SOFT	SOFT	SOFT	SOFT	SOFT	SOFT	SOFT	SOFT	SOFT
PERCUSSION TOUCH		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
PERCUSSION VELOCITY		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PERCUSSION LEVEL		7	7	7	11	11	9	11	9	13	11
PERCUSSION D/B CANCEL		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
D/B LEVEL W/PERCUSS.		-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db
PERC. KEY TRACKING		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
VIBRATO/CHORUS ON/OFF		ON	ON	OFF	ON	ON	ON	ON	OFF	OFF	OFF
VIBRATO MODE		C2	C2	C2	C3	C2	C3	C2	C3	C3	C3
VIBRATO SPEED		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
LESLIE TYPE		122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE
LESLIE ON/OFF		OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	ON	ON
LESLIE SLOW/FAST		SLOW	SLOW	FAST	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	FAST
LESLIE OFF MODE		THRU	THRU	BRAKE	THRU	THRU	THRU	THRU	BRAKE	BRAKE	BRAKE
OVERDRIVE LEVEL		0	0	0	0	0	0	0	0	0	0

PATCH NO.		41	42	43	44	45	46	47	48	49	50
PATCH NAME		MODEL A	MODEL B	82 WHEELS	HAM VIBR I	HAM VIBR 2	LENNY 1	LENNY 2	CLARINET	SWEET SND	HAM VIBR 3
DRAWBAR REGIST.	UPPER	80 8080 800	87 6530 000	80 8848 005	82 8826 002	88 8888 888	88 8000 808	00 8000 800	00 8080 800	88 8800 000	88 8888 880
	LOWER	00 6655 542	00 6412 000	00 7513 100	00 6401 000	00 8776 543	00 4776 540	00 4776 540	00 7650 000	00 6765 430	00 7665 431
	PEDAL	65	65	65	65	65	55	55	55	55	55
D/B ATTACK	UPPER	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK
	LOWER	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK
	PEDAL	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK
D/B SUSTAIN	UPPER	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	LOWER	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	PEDAL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
D/B VOICING	UPPER	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE
	LOWER	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE
	PEDAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
D/B FOLDBACK	UPPER	lo 1C hi 4G	lo 1C hi 4G	lo 1A hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G
	LOWER	lo 1C hi 4G	lo 1C hi 4G	lo 1A hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G
PERCUSSION	2nd	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	3rd	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PERCUSSION DECAY		SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW
PERCUSSION VOLUME		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
PERCUSSION TOUCH		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
PERCUSSION VELOCITY		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PERCUSSION LEVEL		11	11	11	11	11	11	11	11	11	11
PERCUSSION D/B CANCEL		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
D/B LEVEL W/PERCUSS.		-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db
PERC. KEY TRACKING		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
VIBRATO/CHORUS ON/OFF		OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	ON	ON
VIBRATO MODE		V3	V3	V3	V3	V3	V3	V3	V3	V3	V3
VIBRATO SPEED		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
LESLIE TYPE		760-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	760-TYPE	760-TYPE
LESLIE ON/OFF		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
LESLIE SLOW/FAST		SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW
LESLIE OFF MODE		BRAKE	BRAKE	BRAKE	THRU	THRU	BRAKE	BRAKE	BRAKE	THRU	THRU
OVERDRIVE LEVEL		0	0	0	0	0	0	0	0	0	0

PATCH NO.		51	52	53	54	55	56	57	58	59	60
PATCH NAME		GEDECKT 8	FLUTE 8&4	PRINCIPL 8	PRINC CHRS	ROHR FLUTE	GAMBA CLST	CORNET	SESQUIALTR	CHRS & MXT	SFORZANDO
DRAWBAR REGIST.	UPPER	00 8020 000	00 8820 010	00 8753 100	00 8856 012	00 8140 000	00 1455 321	00 8888 800	00 8060 400	00 7885 045	80 8888 088
	LOWER	00 3211 000	00 4321 100	00 4423 000	00 6634 001	00 4312 010	00 4423 001	00 6634 001	00 6240 000	00 6654 033	24 8888 066
	PEDAL	13	23	23	33	43	43	34	33	66	67
D/B ATTACK	UPPER	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK	NO CLICK	NO CLICK
	LOWER	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK	NO CLICK	NO CLICK
	PEDAL	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK	SLOW ATTACK
D/B SUSTAIN	UPPER	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	LOWER	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	PEDAL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
D/B VOICING	UPPER	MELLOW	MELLOW	MELLOW	MELLOW	MELLOW	MELLOW	BRITE	MELLOW	BRITE	BRITE
	LOWER	MELLOW	MELLOW	MELLOW	MELLOW	MELLOW	MELLOW	MELLOW	MELLOW	BRITE	BRITE
	PEDAL	MUTED	MUTED	NORMAL	NORMAL	MUTED	MUTED	NORMAL	MUTED	NORMAL	NORMAL
D/B FOLDBACK	UPPER	lo 1C hi 4G	lo 1C hi 4G	lo 1C hi 4G	lo 1C hi 4G	lo 1C hi 4G	lo 1C hi 4G	lo 1C hi 4G	lo 1C hi 4G	lo 1C hi 4G	lo 1C hi 4G
	LOWER	lo 1C hi 4G	lo 1C hi 4G	lo 1C hi 4G	lo 1C hi 4G	lo 1C hi 4G	lo 1C hi 4G	lo 1C hi 4G	lo 1C hi 4G	lo 1C hi 4G	lo 1C hi 4G
PERCUSSION	2nd	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	3rd	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PERCUSSION DECAY		SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW
PERCUSSION VOLUME		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
PERCUSSION TOUCH		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
PERCUSSION VELOCITY		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PERCUSSION LEVEL		11	11	11	11	11	11	11	11	11	11
PERCUSSION D/B CANCEL		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
D/B LEVEL W/PERCUSS.		0db	0db	0db	0db	0db	0db	0db	0db	0db	0db
PERC. KEY TRACKING		OFF	ON	ON	ON	ON	ON	ON	ON	ON	ON
VIBRATO/CHORUS ON/OFF		OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF
VIBRATO MODE		V1	V1	V1	V1	V1	V1	V1	V1	V1	V1
VIBRATO SPEED		SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW
LESLIE TYPE		710-TYPE	710-TYPE	710-TYPE	710-TYPE	710-TYPE	710-TYPE	710-TYPE	710-TYPE	710-TYPE	710-TYPE
LESLIE ON/OFF		OFF	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
LESLIE SLOW/FAST		SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW
LESLIE OFF MODE		THRU	THRU	THRU	THRU	THRU	THRU	THRU	THRU	THRU	THRU
OVERDRIVE LEVEL		0	0	0	0	0	0	0	0	0	0

PATCH NO.		61	62	63	64	65	66	67	68	69	70
PATCH NAME		GOSPEL 1	GOSPEL 2	GOSPEL 3	GOSPEL 4	PRAISE 1	PRAISE 2	PRAISE 3	PRAISE 4	MEDITATN	FULL GOSPL
DRAWBAR REGIST.	UPPER	88 8800 000	88 8800 000	88 8800 000	88 8800 000	80 8868 000	80 8850 000	00 8856 038	80 8808 088	84 8510 000	88 8800 000
	LOWER	80 8808 000	08 8068 110	88 8800 008	85 7814 038	00 8700 000	00 8824 000	00 8845 001	00 8846 025	00 8621 000	88 8888 888
	PEDAL	76	76	76	76	56	56	56	56	44	76
D/B ATTACK	UPPER	MAX CLICK	MAX CLICK	MAX CLICK	MAX CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	SOFT CLICK	MAX CLICK
	LOWER	MAX CLICK	MAX CLICK	MAX CLICK	MAX CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	SOFT CLICK	MAX CLICK
	PEDAL	MAX CLICK	MAX CLICK	MAX CLICK	MAX CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	SOFT CLICK	MAX CLICK
D/B SUSTAIN	UPPER	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	LOWER	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	PEDAL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
D/B VOICING	UPPER	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE
	LOWER	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE
	PEDAL	MUTED	MUTED	MUTED	MUTED	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	MUTED
D/B FOLDBACK	UPPER	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G
	LOWER	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G
PERCUSSION	2nd	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	3rd	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PERCUSSION DECAY		FAST	FAST	FAST	FAST	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW
PERCUSSION VOLUME		SOFT	SOFT	SOFT	SOFT	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
PERCUSSION TOUCH		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
PERCUSSION VELOCITY		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PERCUSSION LEVEL		11	11	11	11	11	11	11	11	11	11
PERCUSSION D/B CANCEL		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
D/B LEVEL W/PERCUSS.		-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db
PERC. KEY TRACKING		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
VIBRATO/CHORUS ON/OFF		OFF	ON	ON	ON	OFF	OFF	OFF	OFF	ON	ON
VIBRATO MODE		C3	C3	C3	C3	V3	V3	V3	V3	C2	C3
VIBRATO SPEED		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
LESLIE TYPE		122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	760-TYPE
LESLIE ON/OFF		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
LESLIE SLOW/FAST		SLOW	SLOW	FAST	FAST	FAST	FAST	FAST	FAST	SLOW	FAST
LESLIE OFF MODE		BRAKE	THRU	THRU	THRU	BRAKE	BRAKE	BRAKE	BRAKE	THRU	THRU
OVERDRIVE LEVEL		0	0	0	0	0	0	0	0	0	0

NOTE: The Gospel registrations (GOSPEL 1, 2, 3, 4) have a Keyboard Bass registration for the Upper Manual and the Melody registrations on the Lower Manual since this is the way Gospel Organ is usually played. If you wish to hear the Melody registrations from the Upper Manual, simply switch the MIDI Channel settings for Upper and Lower Manuals; i.e., set the Upper Manual to transmit on MIDI Channel 2 and the Lower Manual to transmit on MIDI Channel 1. (See "MIDI Channel" in the **XM-1 Quick Reference Guide**.)

PATCH NO.		71	72	73	74	75	76	77	78	79	80
PATCH NAME		HARP 1	HARP 2	CELESTA	X-66 GLOCK	VIBES 16	VIBES 8	CHIMES	XYLOPHONE	LOWER SUST	NINE & SUST
DRAWBAR REGIST.	UPPER	00 8000 000	00 8800 000	00 0800 000	80 0800 800	80 0800 000	00 8008 000	00 0888 000	00 0800 800	84 8803 000	84 8846 226
	LOWER	00 4400 000	00 4400 000	00 4400 000	00 5510 000	00 4400 000	00 4400 000	00 3310 000	00 4400 000	00 8300 000	00 6532 221
	PEDAL	33	33	34	44	34	34	43	43	54	56
D/B ATTACK	UPPER	NO CLICK	NO CLICK	NO CLICK	NO CLICK	NO CLICK	NO CLICK	NO CLICK	SOFT CLICK	SOFT CLICK	NO CLICK
	LOWER	SOFT CLICK	SOFT CLICK	SOFT CLICK	NO CLICK	SOFT CLICK	SOFT CLICK	NO CLICK	NO CLICK	NO CLICK	NO CLICK
	PEDAL	NO CLICK	SOFT CLICK	SOFT CLICK	NO CLICK	SOFT CLICK	SOFT CLICK	NO CLICK	NO CLICK	NO CLICK	NO CLICK
D/B SUSTAIN	UPPER	LONG	LONG	LONG	MID	LONG	LONG	LONG	SHORT	OFF	MID
	LOWER	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	LONG	OFF
	PEDAL	MID	MID	MID	MID	MID	MID	MID	MID	MID	MID
D/B VOICING	UPPER	B3-TYPE	B3-TYPE	B3-TYPE	MELLOW	MELLOW	MELLOW	B3-TYPE	B3-TYPE	MELLOW	MELLOW
	LOWER	B3-TYPE	B3-TYPE	B3-TYPE	MELLOW	MELLOW	MELLOW	B3-TYPE	B3-TYPE	MELLOW	MELLOW
	PEDAL	NORMAL	MUTED	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	MUTED	MUTED
D/B FOLDBACK	UPPER	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 1C hi 4G	lo 1C hi 4G	lo 2C hi 4G	lo 1C hi 5C	lo 2C hi 4G	lo 2C hi 4G	lo 1C hi 4G
	LOWER	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 1C hi 4G	lo 1C hi 4G	lo 2C hi 4G	lo 1C hi 5C	lo 2C hi 4G	lo 2C hi 4G	lo 1C hi 4G
PERCUSSION	2nd	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	3rd	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PERCUSSION DECAY		SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW
PERCUSSION VOLUME		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
PERCUSSION TOUCH		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
PERCUSSION VELOCITY		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PERCUSSION LEVEL		11	11	11	11	11	11	11	11	11	11
PERCUSSION D/B CANCEL		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
D/B LEVEL W/PERCUSS.		-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db
PERC. KEY TRACKING		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
VIBRATO/CHORUS ON/OFF		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
VIBRATO MODE		V1	V1	V1	V1	V1	V1	V1	V1	V1	V1
VIBRATO SPEED		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
LESLIE TYPE		147-TYPE	147-TYPE	147-TYPE	710-TYPE	147-TYPE	147-TYPE	710-TYPE	147-TYPE	147-TYPE	710-TYPE
LESLIE ON/OFF		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
LESLIE SLOW/FAST		SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW
LESLIE OFF MODE		THRU	THRU	THRU	THRU	THRU	THRU	THRU	THRU	THRU	THRU
OVERDRIVE LEVEL		0	0	0	0	0	0	0	0	0	0

PATCH NO.		81	82	83	84	85	86	87	88	89	90
PATCH NAME		PURPLE	PERC HOLOW	SOME LOVIN	BOOKER	ROCK 1	ROCK 2	ROCK 3	FULL 1	FULL 2	FULL OVERD
DRAWBAR REGIST.	UPPER	88 8800 000	88 0400 000	88 8800 000	88 8800 000	88 8000 000	88 8880 000	88 3808 808	88 8435 678	88 8838 824	88 8888 888
	LOWER	00 8800 000	00 7650 000	00 8880 006	84 8000 000	80 8000 000	88 8000 000	88 8000 000	84 8000 000	86 8000 000	88 8888 888
	PEDAL	76	66	76	54	76	76	76	76	76	76
D/B ATTACK	UPPER	MAX CLICK	NORMAL CLICK	MAX CLICK	NORMAL CLICK	MAX CLICK	MAX CLICK	MAX CLICK	MAX CLICK	MAX CLICK	MAX CLICK
	LOWER	MAX CLICK	NORMAL CLICK	MAX CLICK	NORMAL CLICK	MAX CLICK	MAX CLICK	MAX CLICK	MAX CLICK	MAX CLICK	MAX CLICK
	PEDAL	MAX CLICK	NORMAL CLICK	MAX CLICK	NORMAL CLICK	MAX CLICK	MAX CLICK	MAX CLICK	MAX CLICK	MAX CLICK	MAX CLICK
D/B SUSTAIN	UPPER	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	LOWER	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	PEDAL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
D/B VOICING	UPPER	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE
	LOWER	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE
	PEDAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
D/B FOLDBACK	UPPER	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G
	LOWER	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G
PERCUSSION	2nd	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	3rd	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
PERCUSSION DECAY		FAST	FAST	FAST	FAST	FAST	FAST	FAST	FAST	FAST	FAST
PERCUSSION VOLUME		NORMAL	SOFT	SOFT	SOFT	SOFT	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
PERCUSSION TOUCH		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
PERCUSSION VELOCITY		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PERCUSSION LEVEL		16	11	11	11	16	16	16	16	16	16
PERCUSSION D/B CANCEL		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
D/B LEVEL W/PERCUSS.		-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db
PERC. KEY TRACKING		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
VIBRATO/CHORUS ON/OFF		OFF	OFF	OFF	OFF	ON	OFF	ON	ON	ON	OFF
VIBRATO MODE		C3	C3	C3	C3	C3	C3	C3	C3	C3	C3
VIBRATO SPEED		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
LESLIE TYPE		147-TYPE	147-TYPE	147-TYPE	147-TYPE	760-TYPE	760-TYPE	760-TYPE	122-TYPE	122-TYPE	760-TYPE
LESLIE ON/OFF		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
LESLIE SLOW/FAST		SLOW	SLOW	FAST	SLOW	SLOW	FAST	SLOW	SLOW	SLOW	FAST
LESLIE OFF MODE		BRAKE	BRAKE	BRAKE	BRAKE	THRU	BRAKE	THRU	THRU	THRU	BRAKE
OVERDRIVE LEVEL		10	0	10	4	15	8	12	8	10	15

PATCH NO.		91	92	93	94	95	96	97	98	99	100
PATCH NAME		LO & HI 1	LO & HI 2	LO & HI 3	ODD HARM	M3 LOW MAN	PERC 16&4	SOLO 16&2	CUTE SOLO	EDDIESWIND	FULL HAMM
DRAWBAR REGIST.	UPPER	80 0000 008	88 0000 088	88 8000 088	88 0080 880	80 8848 334	80 0400 000	82 1128 010	00 8000 007	00 8006 600	68 8888 765
	LOWER	00 6510 000	00 7600 000	85 8000 000	83 8000 000	00 6643 221	00 7700 000	00 6544 310	00 4311 000	00 4424 221	00 8887 654
	PEDAL	56	56	56	46	50	55	45	45	53	76
D/B ATTACK	UPPER	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	SOFT CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK
	LOWER	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	SOFT CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK
	PEDAL	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK	SOFT CLICK	NORMAL CLICK	NORMAL CLICK	NORMAL CLICK
D/B SUSTAIN	UPPER	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	LOWER	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	PEDAL	OFF	OFF	OFF	OFF	SHORT	OFF	MID	OFF	OFF	OFF
D/B VOICING	UPPER	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	MELLOW	B3-TYPE	B3-TYPE	B3-TYPE
	LOWER	B3-TYPE	B3-TYPE	B3-TYPE	B3-TYPE	BRITE	B3-TYPE	MELLOW	B3-TYPE	B3-TYPE	B3-TYPE
	PEDAL	NORMAL	NORMAL	NORMAL	NORMAL	MUTED	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
D/B FOLDBACK	UPPER	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G
	LOWER	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G	lo 2C hi 4G
PERCUSSION	2nd	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
	3rd	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PERCUSSION DECAY		SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW	SLOW
PERCUSSION VOLUME		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
PERCUSSION TOUCH		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
PERCUSSION VELOCITY		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PERCUSSION LEVEL		11	11	11	11	11	11	11	11	11	11
PERCUSSION D/B CANCEL		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
D/B LEVEL W/PERCUSS.		-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db	-3db
PERC. KEY TRACKING		ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
VIBRATO/CHORUS ON/OFF		OFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF
VIBRATO MODE		V2	V2	C2	C2	C2	C1	V2	C1	V3	V3
VIBRATO SPEED		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	SLOW	NORMAL	NORMAL	NORMAL
LESLIE TYPE		122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	122-TYPE	147-TYPE	122-TYPE	122-TYPE	122-TYPE
LESLIE ON/OFF		ON	ON	ON	OFF	OFF	ON	ON	OFF	ON	ON
LESLIE SLOW/FAST		FAST	FAST	SLOW	SLOW	SLOW	SLOW	FAST	SLOW	FAST	FAST
LESLIE OFF MODE		BRAKE	BRAKE	THRU	THRU	THRU	THRU	BRAKE	BRAKE	BRAKE	BRAKE
OVERDRIVE LEVEL		0	0	0	0	0	0	0	0	0	0

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HAMMOND SUZUKI, LTD., Hamamatsu, Japan

HAMMOND

DRAWBAR SOUND MODULE

XM-1

Version 2.0 Addendum

HAMMOND SUZUKI, LTD.

Hamamatsu, Japan

00122-04607

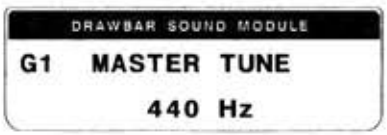
The Hammond Organ Company is constantly looking for ways to enhance and improve the playability and desirability of its products. As a result of this ongoing effort and in answer to many requests from owners and players, Hammond is pleased to announce the new Version 2.0 system software for the model XM-1 Drawbar Module. The purpose of this Guide is to give an explanation of each of the new features, and how to access them using the Information Center Display.

MIDI Expression Control

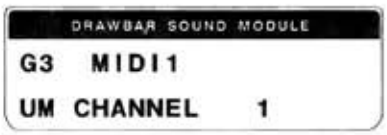
This Advanced Feature allows you to control how Expression data (Controller #11) is sent from the XM-1.

TRY THIS:

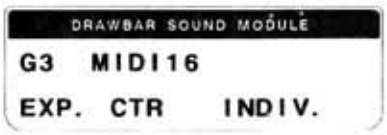
1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:



2. Touch the PAGE "▲" Select Touch Button two times. The Information Center Display should look like this:



3. Touch the CURSOR "▸" Select Touch Button fifteen times. The Information Center Display should look like this:



4. Now select the option you wish by doing the following:

   Use the VALUE "▲" Select Touch Button to scroll up through the choices.

   Use the VALUE "▼" Select Touch Button to scroll down through the choices.

The data chart below explains the options you may select.

MIDI EXPRESSION CONTROL OPTIONS	
Option	Function
*INDIV.	Expression data is received individually for Upper, Lower and Pedal on whatever MIDI Channel each is set for.
CH 1–16	On personal keyboards and home organs by certain manufacturers, Expression data is transmitted on one MIDI Channel only. By using this parameter, you can select on which MIDI channel the XM-1 will receive. In this way, all sounds from the XM-1 will receive expression while receiving Expression data on one MIDI Channel. (NOTE: If you are also using the Keyboard Split function of the XM-1, the MIDI channel setting for the Expression Control parameter must be the same as the MIDI channel setting for the Upper Manual in order for the entire instrument to receive expression.)

*default setting

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the Parameter List Supplement.

NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 77 for information on how to reset Global Parameters to their factory-default settings.

Keyboard Split Octave Up - Addendum:

An additional capability has been added to the Keyboard Split feature of Version 2 software for the XM-1:

> The Keyboard Split Octave Up feature will operate regardless of the status of the Keyboard Split ON/OFF setting. This is useful if your XM-1 is connected to two keyboards, one for the Upper Manual and one for the Lower Manual, because you will still be able to independently transpose the Lower Manual using the Keyboard Split Octave.
>
> NOTE: The Keyboard Split Octave feature does not transpose the PEDAL voices. This is important to remember if you are connected in the manner described above, and you are using Keyboard Split Octave to play the Pedal sounds from the keyboard you are using as your Lower Manual.

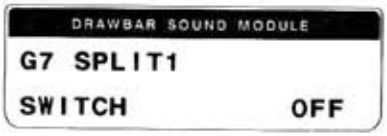
Keyboard Split ON/OFF

This Advanced Feature allows you to turn Keyboard Split "ON" or "OFF". This is particularly useful if you are using the XM-1 with a single-keyboard instrument.

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:

2. Touch the PAGE "▲" Select Touch Button six times. The Information Center Display should look like this:



3. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to turn Keyboard Split "ON" or "OFF".

The data chart below shows the options you may select.

SPLIT ON/OFF OPTIONS	
Option	Function
*OFF	The XM-1 functions as a single-manual instrument. All incoming MIDI data is reproduced on one MIDI channel.
ON	The XM-1 forces a split on the keyboard. All data to the right of the split is treated as the Upper Manual (UM) while all data to the left of the split is treated as either Lower Manual (LM) or Pedal Keyboard (PK). If you are using the XMc-1 Drawbar Controller, you can use the Drawbars in conjunction with the MANUAL Select Touch Button to control the UM, LM and PK sounds just as you would normally. (NOTE: The XM-1 is not multi-timbral when the Keyboard Split feature is "ON". Note ON/Note OFF, Pitch Bend and Hold {Controller #64} data is received on one MIDI channel. Therefore, the MIDI channel used by the sending keyboard must be the same as the MIDI Channel setting for the Upper Manual of the XM-1.)

*default setting

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the Parameter List Supplement.

NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 77 for information on how to reset Global Parameters to their factory-default settings.

Keyboard Split Point

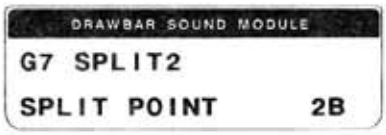
This Advanced Feature allows you to set the point at which the keyboard splits between Upper Manual (right of split) and Lower Manual or Pedal Keyboard (left of split).

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:

2. Touch the PAGE "▲" Select Touch Button six times. The Information Center Display should look like this:

3. Touch the CURSOR "▶" Select Touch Button once. The Information Center Display should look like this:



4. Now select the option you wish by doing the following:

   Use the VALUE "▲" Select Touch Button to scroll up through the options.

   Use the VALUE "▼" Select Touch Button to scroll down through the options.

The data chart below shows the options you may select.

SPLIT POINT OPTIONS	
Option	Function
1C ~ 6C	You can select from "1C 9the lowest note on a 61-note manual) through "6C" (the highest note on a 61-note manual). The note shown will be the highest note of the left-of-split point. For example, if "2B' is displayed the left-of-split setting will sound from 1C through 2B, while the Upper Manual setting will sound from 3C up through 6C.

*default setting

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the Parameter List Supplement.

NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 77 for information on how to reset Global Parameters to their factory-default settings.

Keyboard Split Octave Up

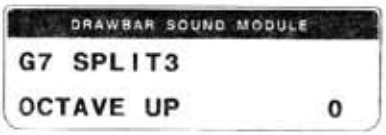
This Advanced Feature allows you to raise the left-of-split settings by octaves. This is so that the left-of-split region can be used to play chords as you would play them on the lower manual of a two-manual organ such as a B-3.

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:

2. Touch the PAGE "▲" Select Touch Button six times. The Information Center Display should look like this:

3. Touch the CURSOR "▸" Select Touch Button two times. The Information Center Display should look like this:



4. Now select the option you wish by doing the following:

   Use the VALUE "▲" Select Touch Button to scroll up through the options.

   Use the VALUE "▼" Select Touch Button to scroll down through the options.

The data chart below shows the options you may select.

SPLIT OCTAVE UP OPTIONS
0 ~ 2 octaves

*default setting

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the Parameter List Supplement.

NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 77 for information on how to reset Global Parameters to their factory-default settings.

Keyboard Split Voice

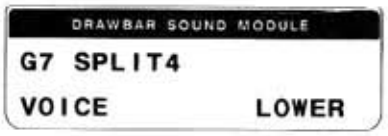
This Advanced Feature allows you to select whether you want the Lower Manual or the Pedal Keyboard settings to play to the left of the Keyboard Split Point when Keyboard Split is "ON".

TRY THIS:

1. Touch the GLOBAL Select Touch Button. The Information Center Display should look like this:

2. Touch the PAGE "▲" Select Touch Button six times. The Information Center Display should look like this:

3. Touch the CURSOR "▶" Select Touch Button three times. The Information Center Display should look like this:



4. Now select the option you wish by doing the following:

   Use either the VALUE "▲" or the VALUE "▼" Select Touch Button to select "LOWER" or "PEDAL".

The data chart below shows the options you may select.

SPLIT VOICE OPTIONS	
Option	Function
LOWER	When Split is "ON", the left-of-split region of the keyboard plays the Lower Manual settings.
PEDAL	When Split is "ON", the left-of-split region of the keyboard plays the Pedal Keyboard settings.

*default setting

This is a Global Parameter, and this data CAN NOT be stored to a Patch. To see a total listing of all Global Parameters, see the Global Parameter List in the Parameter List Supplement.

NOTE: You can exit by touching the GLOBAL Select Touch Button. Your changes will be remembered, even if you turn the power to your XM-1 "OFF". See page 77 for information on how to reset Global Parameters to their factory-default settings.

MIDI Implementation - NRPN Data Chart

NO.	FUNCTION	CODE hex	DATA (hex)
1	Drawbar Attack Upper	3B	SLOW ATTACK: 00 NO CLICK: 01 SOFT CLICK: 02 NORMAL CLICK: 03 MAX CLICK: 04
2	Drawbar Attack Lower	3C	
3	Drawbar Attack Pedal	3D	
4	Drawbar Sustain Upper	1C	OFF: 00 SHORT:01 MID: 02 LONG: 03
5	Drawbar Sustain Lower	1D	
6	Drawbar Sustain Pedal	1E	
7	Drawbar Voice Type Upper	38	B3-TYPE: 00 MELLOW: 01 BRITE: 02
8	Drawbar Voice Type Lower	39	B3-TYPE: 00 MELLOW: 01 BRITE: 02
9	Drawbar Voice Type Pedal	3A	NORMAL: 00 MUTED: 01
10	Drawbar Foldback Upper Lo	5B	1C ~ 2C: 00 ~ 0C
11	Drawbar Foldback Upper Hi	5C	4G ~ 5C: 2B ~ 30
12	Drawbar Foldback Lower Lo	5D	1C ~ 2C: 00 ~ 0C
13	Drawbar Foldback Lower Hi	5E	4G ~ 5C: 2B ~ 30
14	Percussion 2nd	12	OFF: 00 ON: 7F
15	Percussion 3rd	13	OFF: 00 ON: 7F
16	Percussion Decay	16	1 ~ 8: 00 ~ 07
17	Percussion Soft	15	NORMAL: 00 SOFT: 01
18	Percussion Touch	57	OFF: 00 ON: 7F
19	Percussion Velocity	58	OFF: 00 ON: 7F
20	Percussion Level	59	1 ~ 16: 00 ~ 0F
21	Percussion Drawbar Cancel	5A	OFF: 00 ON: 7F
22	Percussion Drawbar Level	5F	0db: 00 -3db: 7F
23	Percussion Key Tracking	6C	OFF: 00 ON: 7F
24	Vibrato ON/OFF	17	OFF: 00 ON: 7F
25	Vibrato Mode	45	V1 ~ V3: 00 ~ 02 C1 ~ C3: 03 ~ 05
26	Vibrato Speed	3F	OFF: 00 ON: 7F
27	Leslie Type	6F	1 ~ 10: 00 ~ 09
28	Leslie ON/OFF	09	OFF: 00 ON: 7F
29	Leslie S/F	00	SLOW: 00 FAST: 01
30	Leslie Thru/Brake	6E	THRU: 00 BRAKE: 01
31	Leslie Slow Speed Horn	70	0, 24 ~ 48rpm: 00 ~ 0C
32	Leslie Slow Speed Bass	71	0, 24 ~ 48rpm: 00 ~ 0C
33	Leslie Fast Speed Horn	72	0, 375 ~ 435rpm: 00 ~ 15
34	Leslie Fast Speed Bass	73	0, 375 ~ 435rpm: 00 ~ 15
35	Leslie Rise Time Horn	74	0.2s ~ 5.0s: 00 ~ 18
36	Leslie Rise Time Bass	75	0.5s ~ 12.5s: 00 ~ 18
37	Leslie Fall Time Horn	76	0.2s ~ 5.0s: 00 ~ 18
38	Leslie Fall Time Bass	77	0.5s ~ 12.5s: 00 ~ 18
39	Leslie Brake Time Horn	78	0.2s ~ 5.0s: 00 ~ 18
40	Leslie Brake Time Bass	79	0.5s ~ 12.5s: 00 ~ 18
41	Leslie Horn Volume	7A	0 ~ -12db: 00 ~ 0C
42	Leslie Bass Volume	7B	0 ~ -12db: 00 ~ 0C
43	Leslie Microphone Angle	7C	0 ~ 180°: 00 ~ 06
44	Leslie Microphone Distance	7D	0.3m ~ 2.7m:00 ~ 08
45	Keyboard Split ON/OFF	69	OFF:00 ON:7F
46	Reverb Mode	7E	ROOM: 00 LIVE: 01 HALL: 02 CHURCH: 03
47	Overdrive Level	6D	0 ~ 15: 00 ~ 0F

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