HAMMOND ORGAN

Model   B-3 mk2
C-3 mk2
B-3P mk2

Thank you, and congratulations on your choice of this organ.

In order to get the most out of this instrument for many years to come, first take the time to read this manual in full.

Owner's Manual

IMPORTANT SAFETY INSTRUCTIONS

Read these instructions.

Keep these instructions.

Heed all warnings.

Follow all instructions.

Do not use this apparatus near water.

Clean only with dry cloth.

Do not block any ventilation openings.

Install in accordance with the manufacturer's instructions.

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

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

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

Only use attachments/accessories specified by the manufacturer.

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

PORTABLE CART WARNING

S3125A

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

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

Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.

WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
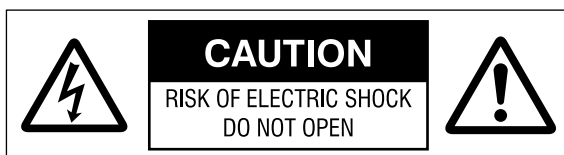
注意：感電の恐れありキャビネットをあけるな
ATTENTION: RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR
**WARNING:**
  TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK,
  DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

The lightning flash with arrowhead symbol within an equilateral triangle, indicates that dangerous voltage constituting a risk of electric shock is present within this unit.

The exclamation point within equilateral triangle, indicates that there are important operating and maintenance instructions in the literature accompanying this unit.
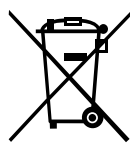
In case in the future your instrument gets too old to play/use or malfunctions beyond repair, please observe the instructions of this mark, or, if any question, be sure to contact your dealer or your nearest town or municipal office for its proper disposal.

HAMMOND B-3 mk2, C-3 mk2, B-3P mk2 **Owner's Manual**

FOR UNITED KINGDOM:

FOR YOUR SAFETY, PLEASE READ THE FOLLOWING TEXT CAREFULLY

This appliance is supplied with a molded 3-pin mains plug for your safety and convenience.

The plug contains a 5 amp fuse.

Should the fuse need to be replaced, please ensure that the replacement fuse has a rating of 5 amps and that it is approved by ASTA or BSI to BSI1362.

Check for the ASTA mark ⬦ or the BSI mark ♡ on the body of the fuse.

If the plug contains a removable fuse cover, you must ensure that it is refitted when the fuse is replaced.

If the fuse cover is lost, the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be obtained from your local Hammond Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME, THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.

THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT-OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.

If a new plug is to be attached to the cord, please observe the wiring code as shown below.

If in any doubt, please consult a qualified electrician.

IMPORTANT - The wires in this mains lead are coloured in accordance with the following code:

    Blue: Neutral

    Brown: Live

As the colours of the wires in the mains lead of this unit may not correspond with the coloured marking identifying the terminals in your plug, proceed as follows.

The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

Under no circumstances should either of these wires be connected to the earth terminal of the three-pin plug, marked with the letter E or the Earth Symbol ⏚.

To replace the fuse, open the fuse compartment with a screwdriver and replace the fuse and fuse cover.

Fuse
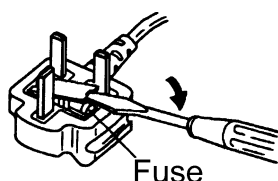
IMPORTANT - PLEASE READ

The Hammond B-3 is the most popular organ evermade, and its sound is legendary. We have designed this model to be true and authentic to the exact vintage detail, as well as providing a large variety of modern features that allow greater flexibility no matter the musical style you wish to play. This Owner's Manual is designed to explain the operating features of this Hammond organ as simply and graphically as possible.

Because we want to make this manual, as well as the keyboard 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 display (the screen in the left of the keyboard 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, 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:
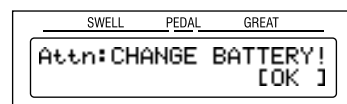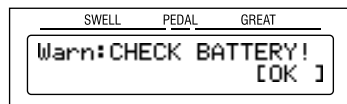
1. Read each step carefully.
2. Don't skip any of the steps.
3. Don't perform the steps out of sequence.

With these guidelines, you are well on your way to mastering all of the many sounds and features of your Hammond organ.
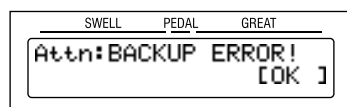
BATTERY BACK UP

This organ uses a battery-backed RAM to remember your changes to the Parameters.

When the battery voltage becomes low, the Display will show:

```
     SWELL    PEDAL    GREAT
 ┌──────────────────────────┐
 │ Warn:CHECK BATTERY!      │
 │              [OK ]       │
 └──────────────────────────┘
```

```
     SWELL    PEDAL    GREAT
 ┌──────────────────────────┐
 │ Attn:CHANGE BATTERY!     │
 │              [OK ]       │
 └──────────────────────────┘
```

If you see these messages, 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 compeletely dead, the Display will show:

```
     SWELL    PEDAL    GREAT
 ┌──────────────────────────┐
 │ Attn:BACKUP ERROR!       │
 │              [OK ]       │
 └──────────────────────────┘
```

After the above message is displayed, this organ will re-initialize itself, and the factory default settings will be restored (except Presets, Leslie Cabinets and Cutsom Tone-Wheels). It is a good idea to periodically save your data to CompactFlash card.

CAUTION: Batteries should only be changed by your dealer or a qualified technician.

Table Of Contents

IN THIS MANUAL:

NOTE:s and **tips** appear frequently.

The **NOTE:** is a supplementary explanation.

The **tips** are explanations of terms and applications.

Index

MAIN FEATURES

◆MULTI-CONTACT MANUALS

The keyboards used in this organ have been totally redesigned and 100% faithfully replicates the "Direct Analog Keying System" used on the original B-3.

◆TONE-WHEELS REBORN THROUGH DIGITAL TECHNOLOGY

The "Digital Tone-Wheel System" replicates the Tone-Wheel wave-forms created by the mechanical system of the original B-3. The 96 wave-forms are always in oscillation just as in the original.

◆ALL CONTROLS EXACTLY AS ON THE ORIGINAL

All the controls from the Panel Switches to the Preset Keys have been faithfully replicated. This organ can be played with the same technique as the original B-3.

◆TUBE PRE-AMPLIFIER

A pre-amp circuit using a 12AU7 tube is built in, and unique tube over-drive sounds are obtained. The bias-voltage-adjustment function enables not only general clip distortion but also nonlinear distortion.

◆DIGITAL LESLIE/VIBRATO

The scanner vibrato and Leslie speaker are replicated via a DSP effects section. The Vibrato & Chorus effects are the same as on the original B-3. The built-in Leslie gives the familiar Leslie sound when no actual Leslie speaker is available or when practicing with headphones.

◆EQUALIZER AND TONE CONTROL

A 3-band equalizer and tone-control are now built in. The equalizer can make fine or coarse tonal adjustments to the bass, treble, and mid frequency ranges. The tone-control simulates the unique circuit built in on the vintage B-3 pre-amp to obtain a gently-cut treble.

◆MIDI MASTER KEYBOARD

3 external zones are available on each manual and pedalboard to enable this organ to be used as a master keyboard. A MIDI pedalboard can also be used instead of the traditional pedalboard.

◆CompactFlash™ CARD

You can use a CompactFlash Card to save various Parameter files.

Components

Organ
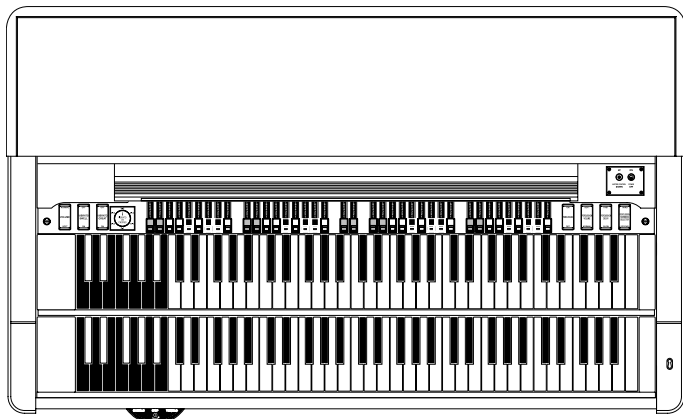
Music Rack

Key

CompactFlash Card
(inserted into the organ)

HAMMOND°
COMPACT FLASH® CARD
32MB   HCF-32
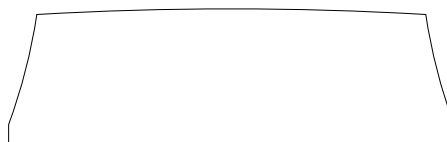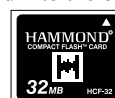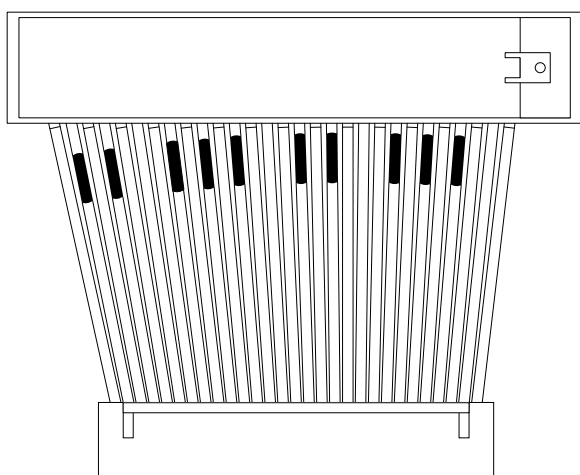
Pedalboard

Hexagonal Wrench

AC Power Cord

Bench

USA Only

CHORALE   STOP   TREMOLO
Leslie
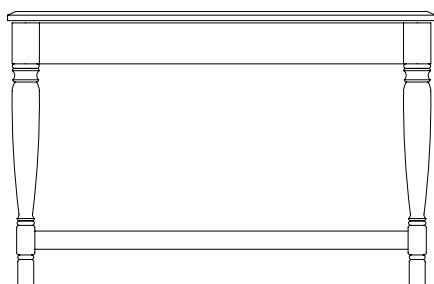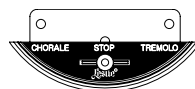
Leslie Speed Switch

Wire Clamp

Tapping Screws

Connect the Pedalboard
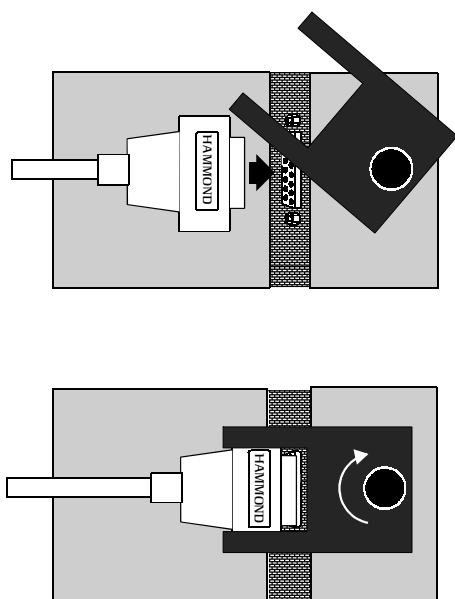
1. Place the Pedalboard on the floor in front of the organ.
2. Take the Pedal Cable out of the organ and insert the plug into the connector on the Pedalboard.
3. Hold the plug with the "Retention Hook" and lock it on by turning the screw knob.
4. Slide and push in the Pedalboard beneath the organ until it stops.

Attach the Leslie Speed Switch (USA only)
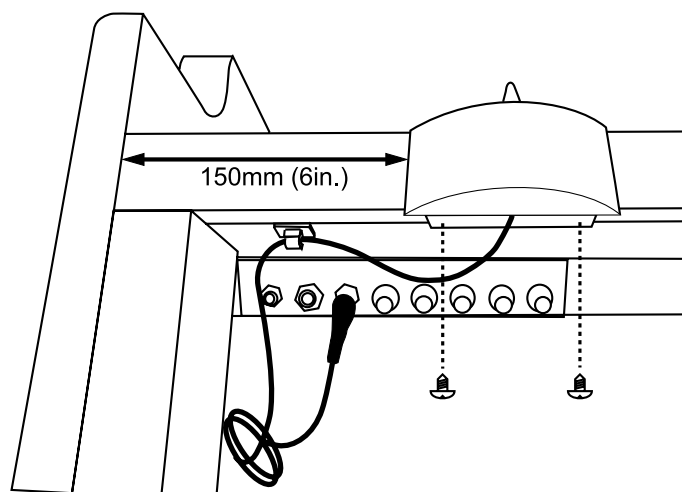
150mm (6in.)

1. Locate a #2 Phillips Screw Driver.
2. Position the Leslie Speed Switch on the front left of the Great Manual. The distance it from the left sideboard must be 150 mm (6 in.) to allow for mounting the Main/Echo Switch.
3. Attach the switch from the bottom with the tapping screws supplied.
4. Insert the plug of the Leslie speed switch into the LESLIE SWITCH Jack on the Volume Panel.
5. Affix the wire clamp on the bottom of the organ and affix the cable.

Attach the MAIN/ECHO Switch (optional)

This switch is for selecting either of the Leslie speakers if 2 are connected.
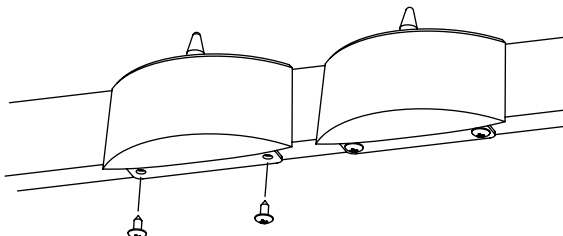
1. Locate a #2 Phillips screw driver.
2. Position the Main/Echo Switch to the front left of the Great Manual.
3. Attach with the 4mm tapping screws from underneath.
4. Insert the plug of the Main/Echo Switch cable into the MAIN/ECHO Jack on the Volume Panel.

Bench

The space underneath the top board of the bench is provided for storing scores, music rack, etc.

⚠ CAUTION

Be careful not to pinch your fingers, by the folding metal arms when you close the lid.

Do not adjust the position of the bench while sitting. Avoid the risk of pinching your fingers between the lid and the box.

⚠ ATTENTION

Don't tilt the bench when moving it to avoid books etc. from dropping out of the box.

Do not put in anything taller than 7 cm (2.7 in.) into the bench. The lid will not close and may damage the contents.

Manual Lid
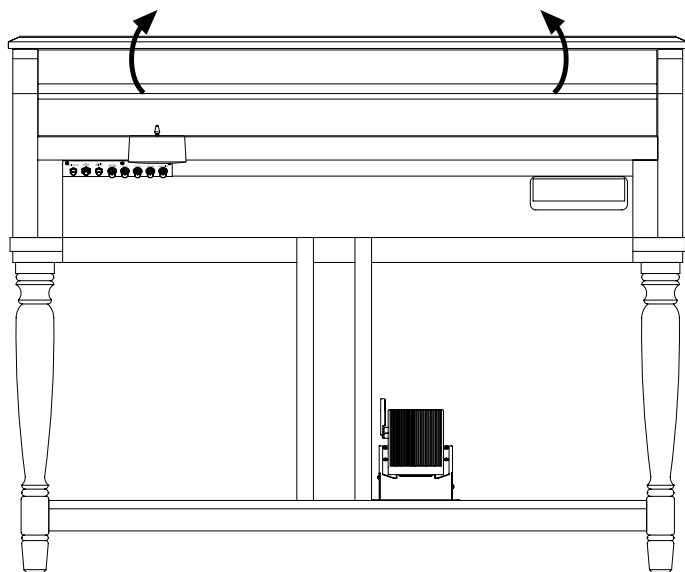
1. When you open the lid, hold and lift the front gently with both hands and fold it.
2. When you close the lid, hold the front of the folded lid with both hands and put down gently to close.

⚠ ATTENTION

Be careful not to pinch your fingers when you open or close the lid. If the player is a small child, be sure to help him/her to open or close the lid.

Be sure to close and lock the lid before you move/carry the organ and avoid any risk of injury.

Do not leave the score or music rack on the manual when you close the lid.

LOCK   UNLOCK
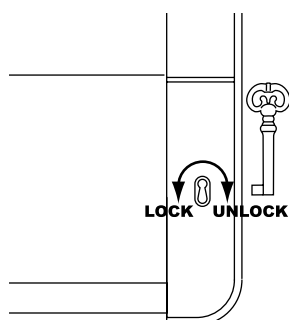
You can lock the key lid.

[B-3 mk2] The key hole is on the right side board.

[C-3 mk2] The key hole is on the front center.

Put on the Music Rack

Insert the Music Rack into the rail whenever necessary.
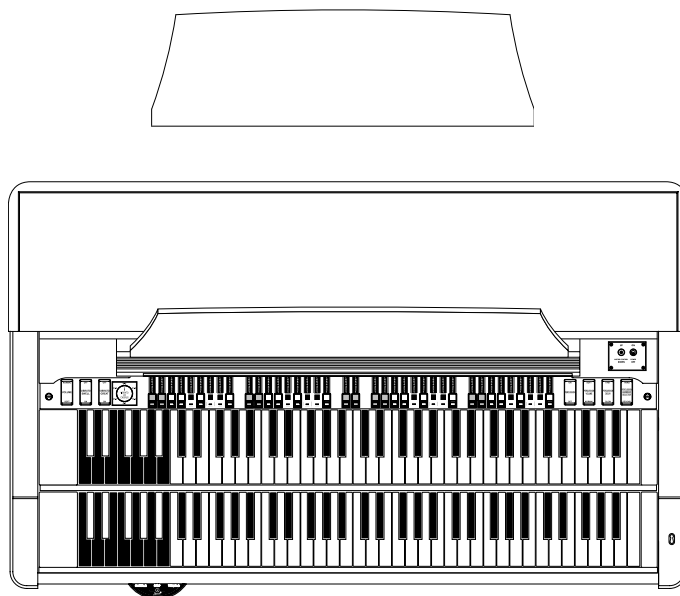
⚠ ATTENTION

Do not put excessive pressure on the music rack.

Components

Organ (closed view)
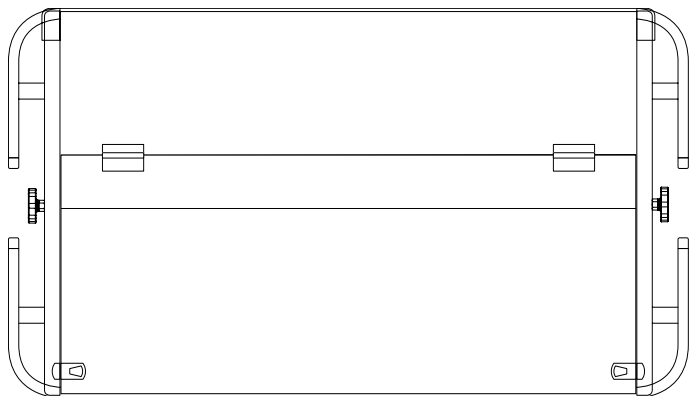
Music Rack (inside of the lid)
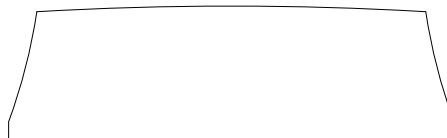
CompactFlash Card
(inserted into the organ)

Stand
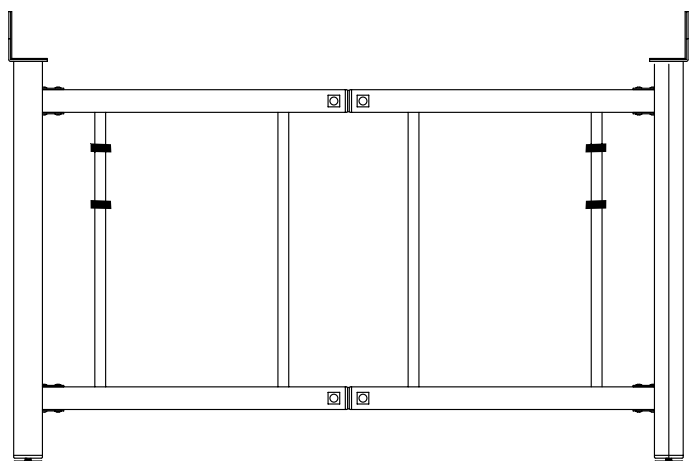
Hexagonal Wrench

AC Power Cord

Leslie Speed Switch, Spacer
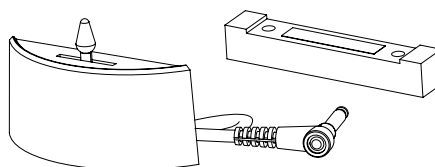
Expression Pedal
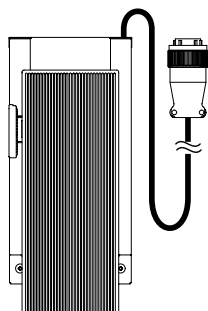
Wire Clamp

Mount the Organ on the Stand

⚠ **CAUTION**

The organ must be mounted on the stand by two persons using both hands.

Side Handle
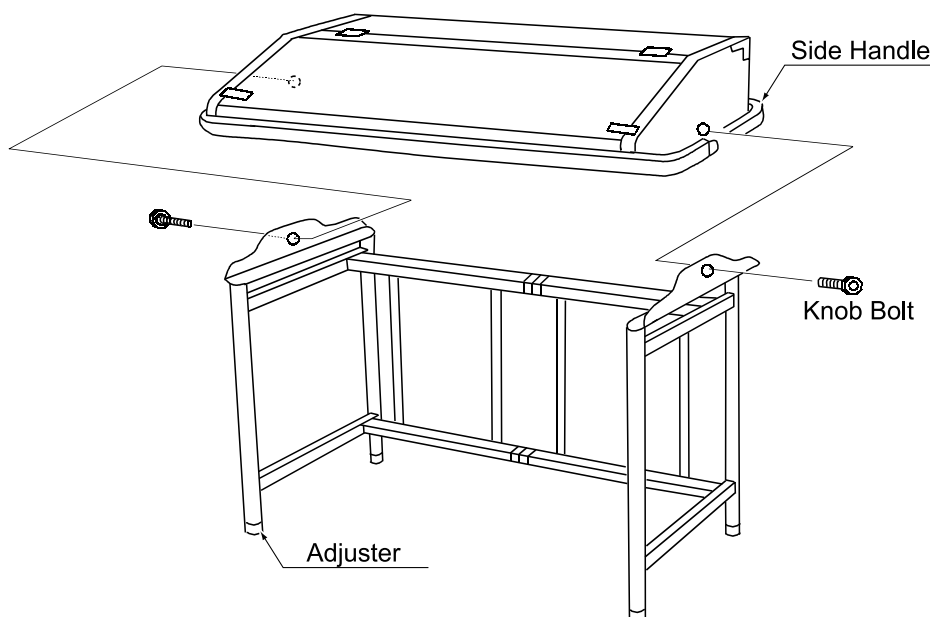
Knob Bolt

Adjuster

1. Remove the Knob Bolts on both sides of the organ.
2. Unfold the stand and place it in the upright position.
3. The stand must be placed flat on the floor. Turn the adjusters, if necessary, to level the stand.
4. With a helper, lift the organ gripping the side handles, then carefully mount it on the stand.

    ⚠ **CAUTION**

    Be careful not to get your fingers pinched! This could occur if they are caught between the organ and the stand.

5. After mounting the organ on the stand, insert the Knob Bolts through the screw holes on both sides of the stand and also on the organ, and tighten them securely.

    Insert the Knob Bolts straight through horizontally. If the knobs are askew, they may damage the screw threads on the stand and/or the organ.

Connect the Expression Pedal
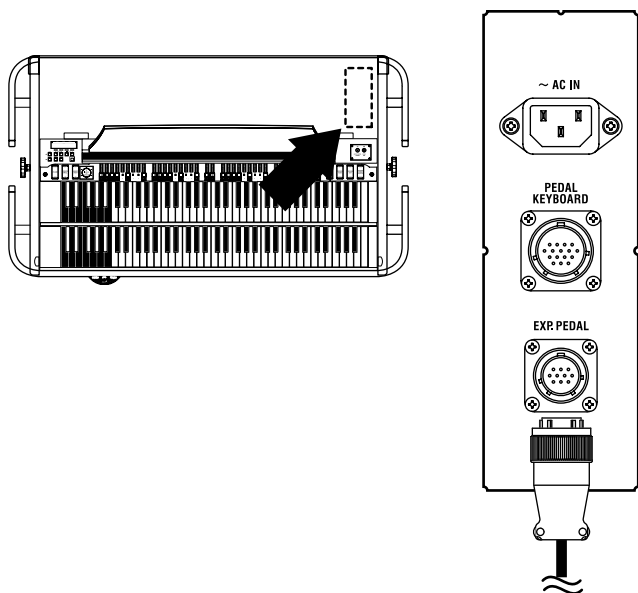
Insert the plug the cable from the Expression Pedal to the EXP.PEDAL connector on the power panel (on the bottom of the organ), matching the direction, then tighten it by turning the ring on it.

Connect the Pedalboard (optional)
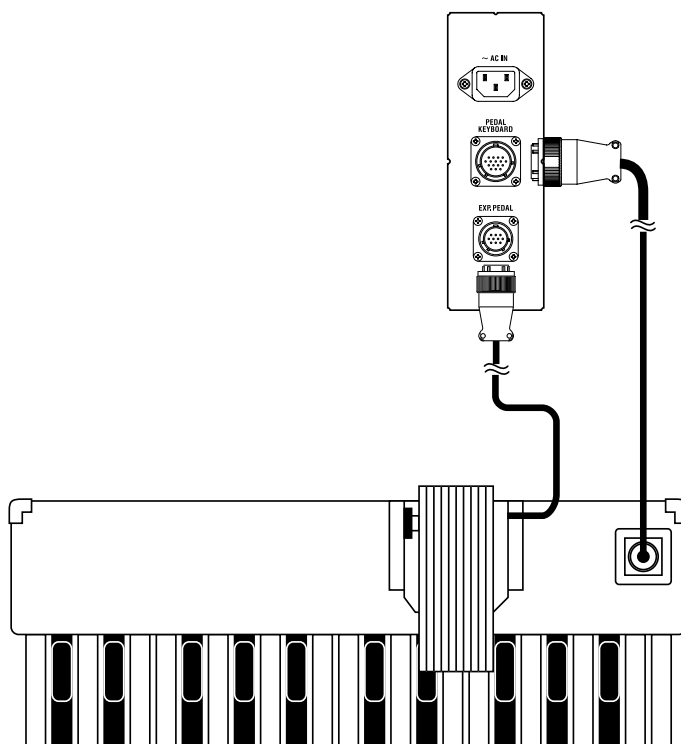
1. Insert the cable of the Pedalboard PK-25PR to the connector of the Pedalboard and the PEDALBOARD connector on the power panel (on the bottom of the organ), matching the direction, and secure it by turning the ring on the plug clockwise.
2. Insert the plug of the cable from the Expression Pedal to the EXP.PEDAL connector on the power panel (on the bottom of the organ), matching the direction, then fix it by turning the ring on the plug clockwise.

Attach the Leslie Speed Switch

1. Remove the 2 inside knob screws on the front left of the Great Manual.
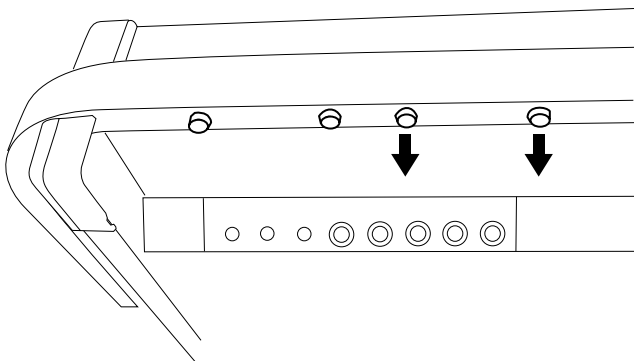
2. Put the spacer on the plate of the Leslie Speed Switch.
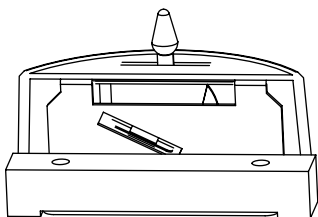
3. Attach the Leslie Speed Switch on the organ with the knob screws.
4. Insert the plug of the Leslie Speed Switch cable to the LESLIE SWITCH jack on the volume panel.
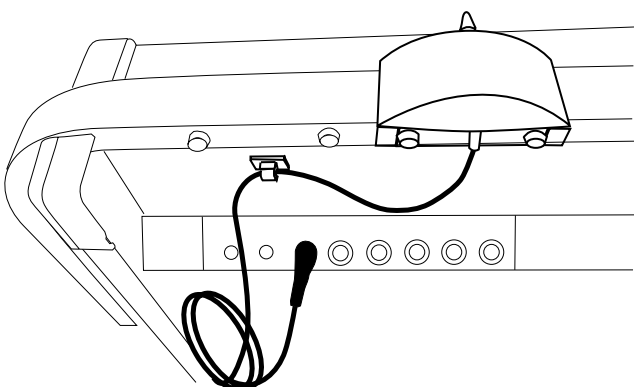
Attach the MAIN/ECHO Switch (optional)

1. Remove the 2 outside knob screws on the front left of the Great Manual.
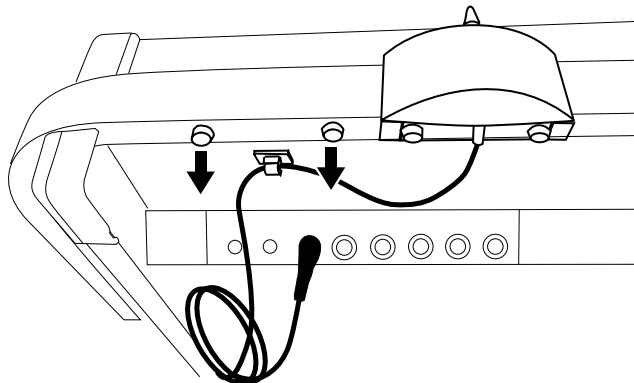
2. Put the spacer on the plate of the Main/Echo switch.
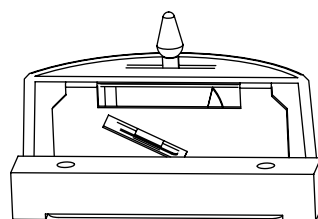
3. Attach the Main/Echo switch on the organ with the knob screws.
4. Insert the plug of the Main/Echo switch cable to the MAIN/ECHO jack on the volume panel.
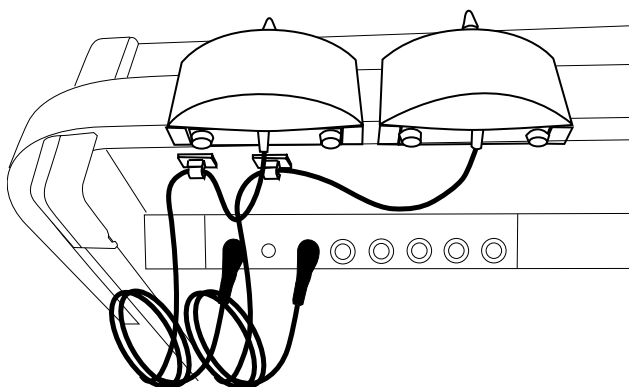
Open the Manual Lid
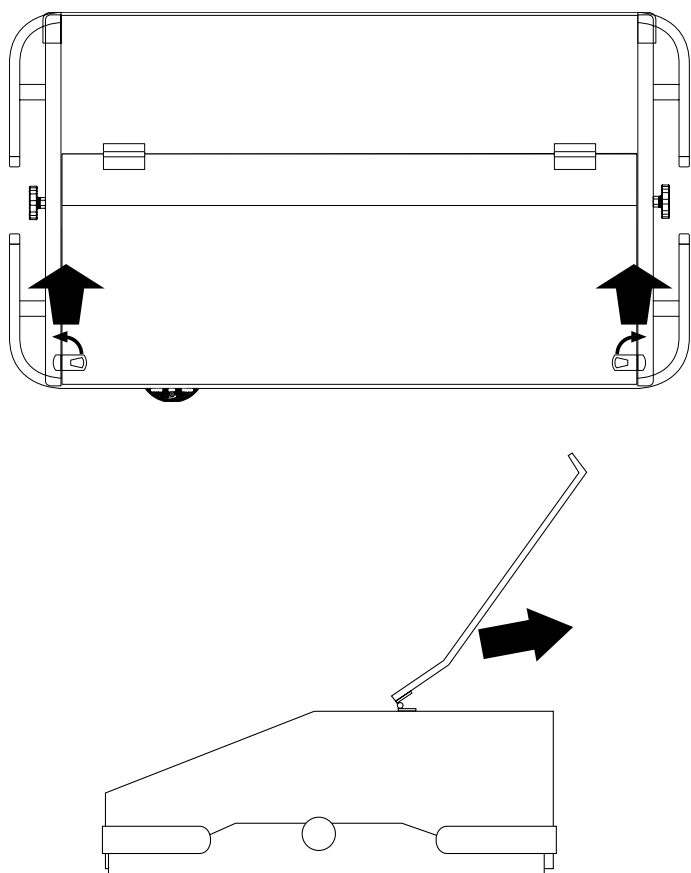
1. To open the manual lid, release the lock on both sides, then gently lift it holding the knobs on both sides bwith both hands. When the lid opened about 135 degrees, slide it back and off the hinge.
2. To close, hook the lid on the hinge and put it upright to 90 degrees. Hold the knobs with both hands and put it down gently. When the lid is closed, lock it again.

⚠ ATTENTION

Do the steps above with care, and do not pinch your fingers. If a small child plays the organ, an adult must help him/her open or close the lid.

When it is necessary to move the organ, be sure to do it with the lid closed and locked.

Do not close the lid while music sheets or rack are still on the manual.

Install the Music Rack

The Music Rack is inside the back of the manual lid.
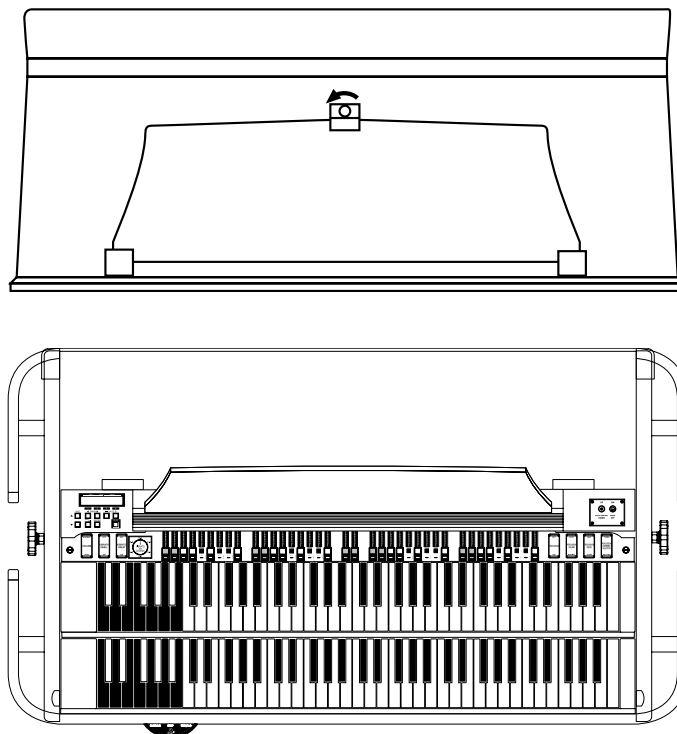
1. Turn the knob screw inside the manual lid counter-clockwise and remove the stopper.
2. Slide the music rack into the music rail.

⚠ ATTENTION

Do not put any excessive pressure on the music rack.
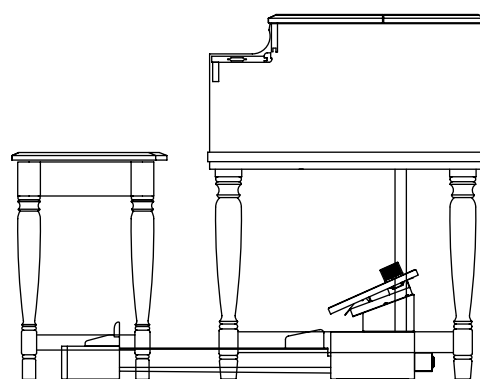
Top View of the Organ
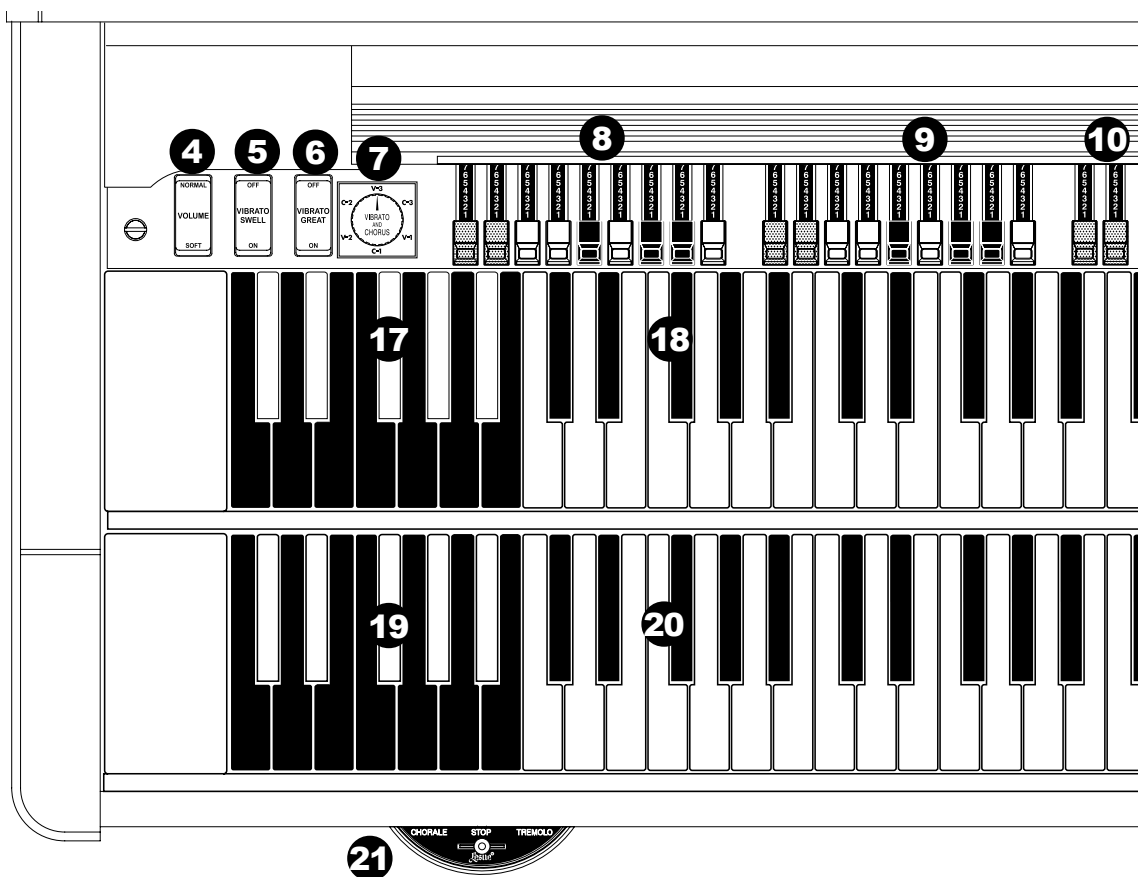
◆SWITCH PLATE

1. POWER Switch

This switch turns the power on and off.

⚠ **CAUTION**

Even when the POWER switch is turned off, electricity is still flowing to the instrument at a minimum level. When you are not using the instrument for an extended time, make sure you unplug the power cord from the wall AC outlet.

2. MOTOR CONTROL Switch

This is for changing the pitch while playing. If you move it back, the pitch rises. If forward, it falls.

3. PILOT LAMP

Lights while the power is on.

◆LEFT TABLETS

4. VOLUME Tablet

This is for switching the volume; NORMAL or SOFT.

5. VIBRATO SWELL Tablet

This is for switching the vibrato and chorus on/off on the Swell Manual Drawbars.

6. VIBRATO GREAT Tablet

This is for switching the vibrato & chorus on/off on the Great and Pedal Drawbars.

7. VIBRATO & CHORUS MODE Knob

This is for switching the depth of vibrato and the chorus effects.

◆DRABARS

8. SWELL(Upper) A♯ Drawbars

These are for adjusting the harmonics of the Swell(Upper) Manual, when the Preset Key [A♯] of the Swell Manual is selected.

9. SWELL(Upper) B Drawbars

These are for adjusting the harmonics of the Swell(Upper) Manual, when the Preset Key [B] of the Swell Manual is selected.

10. PEDAL Drawbars

These are for adjusting the harmonics of the Pedalboard.

11. GREAT(Lower) A♯ Drawbars

These are for adjusting the harmonics of the Great(Lower) Manual, when the Preset Key [A♯] of the Great Manual is selected.

12. GREAT(Lower) B Drawbars

These are for adjusting the harmonics of the Great(Lower) Manual, when the Preset Key [B] of the Great Manual is selected.
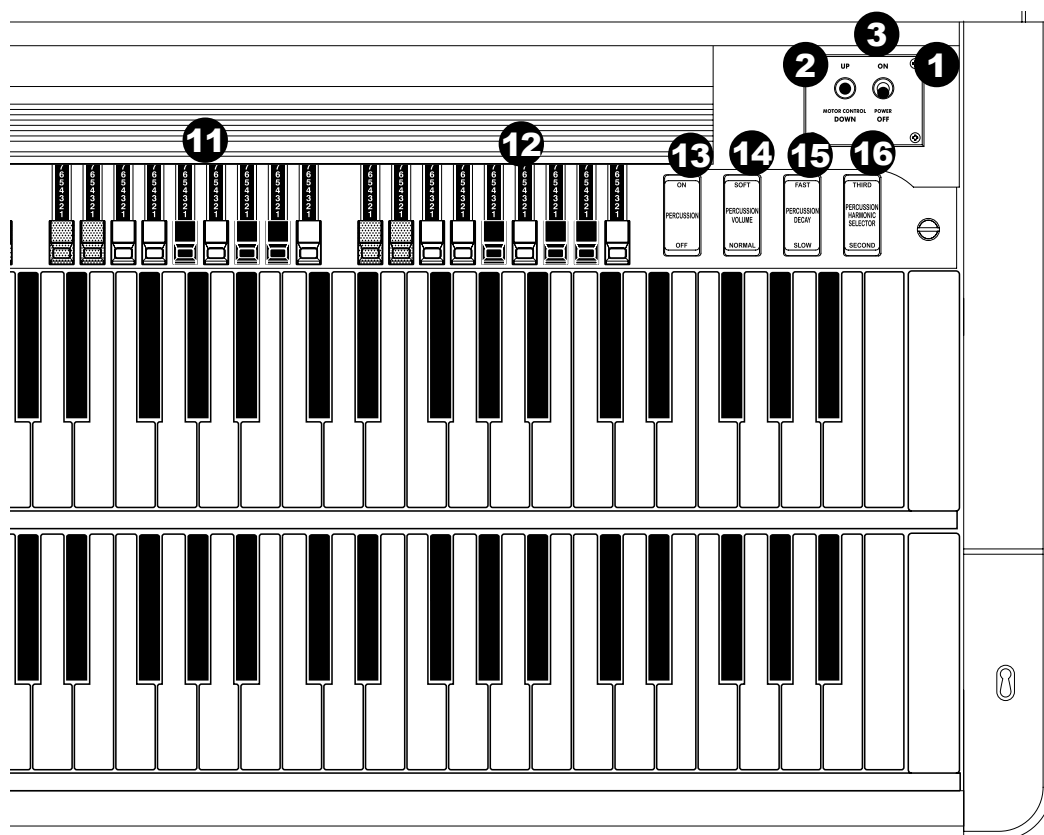
◆RIGHT TABLETS

13. PERCUSSION Tablet

This is for switching the Percussion on/off.

14. PERCUSSION VOLUME Tablet

This is for switching the volume of Percussion: NORMAL/SOFT.

15. PERCUSSION DECAY Tablet

This is for switching the decay time of Percussion: FAST/SLOW.

16. PERCUSSION HARMONIC SELECTOR Tablet

This is for switching the pitch of Percussion: THIRD harmonics / SECOND harmonics.

◆MANUALS

17. SWELL(Upper) Preset Keys

These are for selecting the Presets of the Swell(Upper) Manual.

18. SWELL(Upper) Manual

This is a manual with 61 notes, multi-contacts (for Drawbars & Percussion) with contacts (for MIDI OUT).

19. GREAT(Lower) Preset Keys

These are for selecting the Presets of the Great(Lower) Manual.

20. GREAT(Lower) Manual

This is a manual with 61 notes, multi-contacts (for Drawbars) with contacts (for MIDI OUT).

◆LESLIE SWITCH

21. LESLIE SPEED SWITCH

This is for switching the speed of the external Leslie speaker or built-in Leslie effects.

Volume Panel
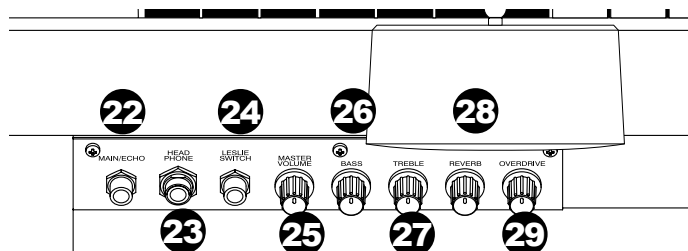
22. MAIN/ECHO Jack
This is for connecting the Main/Echo Switch MES-1.

23. HEADPHONE Jack
This is for connecting Headphones. The external Leslie speaker is turned off, when a plug is inserted to this jack.

24. LESLIE SWITCH Jack
This is for connecting the Leslie Speed Switch (provided).

25. MASTER VOLUME Knob
This is for controlling the total volume of this organ.

26. BASS Knob
This is for increasing/decreasing the volume of the Bass frequencies.

27. TREBLE Knob
This is for increasing/decreasing the volume of the Treble frequencies.

28. REVERB Knob
This is for adjusting the depth of the Reverb effects.

29. OVERDRIVE Knob
This is for adjusting the depth of the Overdrive effects.

Control Panel

Contained in the drawer on the bottom right of the manual. [B-3 mk2 and C-3 mk2]

Located inside the lid on the left-hand-side front panel. [B-3P mk2]
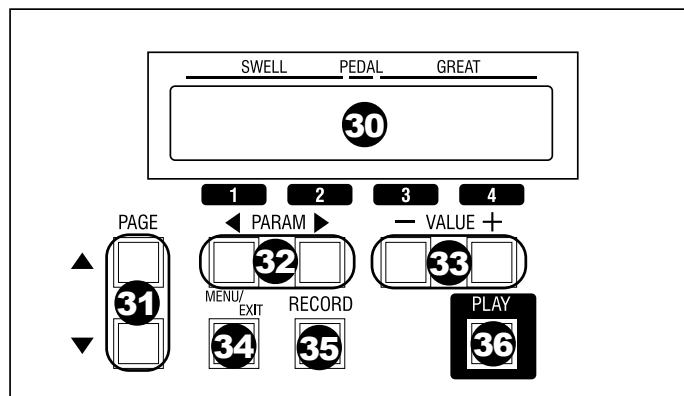
30. Display
Various information is displayed here.

31. PAGE Button
Used to scroll through the various pages of controls and parameters.

32. PARAM Button
This is used for selecting the parameter item to edit, also to select items #1 and #2 on the basic edit pages.

33. VALUE Button
This is used to increase or decrease values, also to select items #3 and #4 on the basic edit pages.

34. MENU/EXIT Button
This is for calling the MENU mode, A for exiting from various function modes, and jump to function modes.

35. RECORD Button
This is for recording Presets, also for shifting values or items.

36. PLAY Button
This is for jumping to the basic Play mode. It is also for using the temporary scope function, or for changing the registrations while the Preset Keys from [C♯] to [A] are selected.

Accessory Panel (B-3 mk2, C-3 mk2)
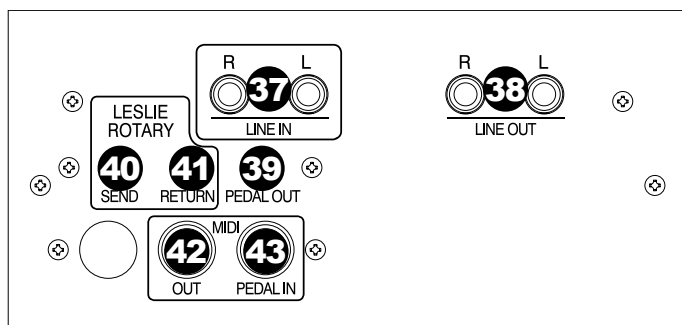
◆SOUND INPUT TERMINAL

37. LINE IN Jack

This is the terminal for connecting an external sound module or a CD player. The signals input to this jack are output to the LINE OUT jack, headphone jack, the stationary channel of each Leslie. (Rating Input Level: 1.23V +4dBm, Input Impedance: 5kΩ)

◆SOUND OUTPUT TERMINAL

38. LINE OUT Jack

The main output terminals, post internal effects (includes the built-in Leslie effect).

Use both L and R, if the connected mixer or monitor speaker is stereo, and use only L, if monaural.

When the Leslie speaker is connected, the built-in Leslie effect appars on the L output only.

39. PEDAL OUT Jack

This is an independent output terminal for the Pedal part.

◆EFFECT LOOP

40. SEND Jack

This is a post-internal effects patch-out point.

If a plug is inserted to this jack, signals inside the organ are cut off. (Rating Output Level: 1.23V +4dBm, Output Impedance: 600Ω)

41. RETURN Jack

This is a post-internal effects patch-in point.

This jack is used also as the input terminal to the rotary channel from an external sound source. (Rating Input Level: 1.23V +4dBm, Input Impedance: 10kΩ)

◆MIDI TERMINAL

42. MIDI OUT Jack

This is for sending playing information to external MIDI equipment such as a Synthesizer or a Sound Module.

43. MIDI PEDAL IN Jack

This is the input for a MIDI Pedalboard.

Power Panel (B-3 mk2, C-3 mk2)
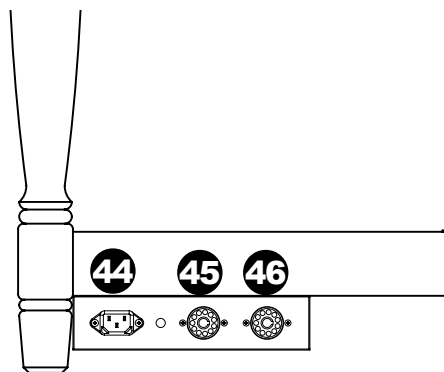
42. AC Inlet

Connects the A.C. Power Cable.

⚠ CAUTION

This organ shall be connected to a MAINS socket outlet with a protective earth (ground) connection.

◆LESLIE SOCKETS

45. MAIN

Connect the first Leslie speaker here. If the Main/Echo switch (optional) is connected to the MAIN/ECHO jack on the Volume Panel(#22), the sound is not output unless you set the switch at the MAIN position.

46. ECHO

Connect the second Leslie speaker to this. Sound is sent here, if you set the optional Main/Echo switch to the echo position when the Main/Echo switch is connected to this organ.

Accessory Panel (B-3P mk2)
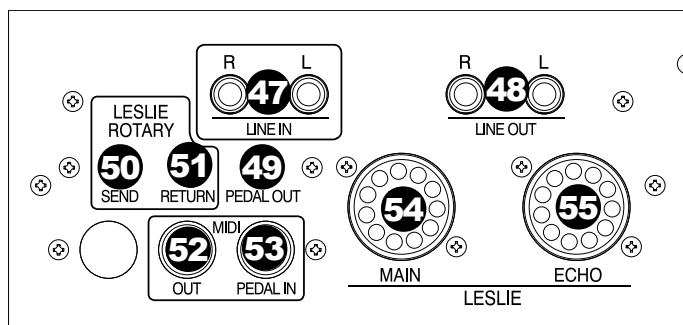
◆SOUND INPUT TERMINAL

47. LINE IN Jack

These jacks are for connecting an external sound module or a CD player. The signals input to this jack are output to the LINE OUT jack, and headphone jack, the stationary channel of a so-equipped Leslie Spaker. (Rating Input Level: 1.23V +4dBm, Input Impedance: 5kΩ)

◆SOUND OUTPUT TERMINAL

48. LINE OUT Jack

These jacks are a stereo main out for the organ post-internal effects.

Use both L and R, if the connected mixer or monitor speaker is stereo, and use only L, if monaural.

When a Leslie speaker is connected, the built-in Leslie effect appears only on the L jack.

49. PEDAL OUT Jack

This is an independent output terminal for the Pedal part.

◆EFFECT LOOP

50. SEND Jack

This is a post-internal effects patch-out point.

When a plug is inserted to this jack, signals inside the organ are cut off. (Rating Output Level: 1.23V +4dBm, Output Impedance: 600Ω)

51. RETURN Jack

This is a post-internal effects patch-in point.

This jack is used also as the input terminal to the rotary channel from an external sound engine. (Rating Input Level: 1.23V +4dBm, Input Impedance: 10kΩ)

◆MIDI TERMINAL

52. MIDI OUT Jack

This is for sending MIDI information to external MIDI equipment such as a Synthesizer or Sound Module.

53. MIDI PEDAL IN Jack

This is the input terminal for a MIDI Pedalboard.

◆LESLIE SOCKETS

54. MAIN

Connect the first Leslie speaker to this socket. If the Main/Echo switch (optional) is connected to the MAIN/ECHO jack on the Volume Panel (#22), Sound is not passed unless you set the switch at the MAIN position.

55. ECHO

Connect the second Leslie speaker to this socket. Sound is not passed unless you set the switch to the ECHO position when the Main/Echo switch (optional) is connected to this organ.

Power Panel (B-3P mk2)
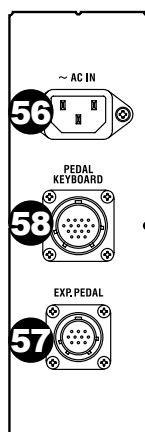
◆AC INLET

56. AC INLET

Connects the A.C. Power Cable.

⚠ CAUTION

This organ shall be connected to a MAINS socket outlet with a protective earth (ground) connection.

◆PEDAL CONNECTORS

57. EXP. PEDAL Connector

Connect the Expression Pedal (provided) here.

If no expression pedal is connected, the volume is set to maximum, as if the pedal were fully depressed.

58. PEDALBOARD Connector

Connect the Pedalboard PK-25PR (optional) here.

PEDALS

59 B-3 mk2

B-3P mk2

60 **61**
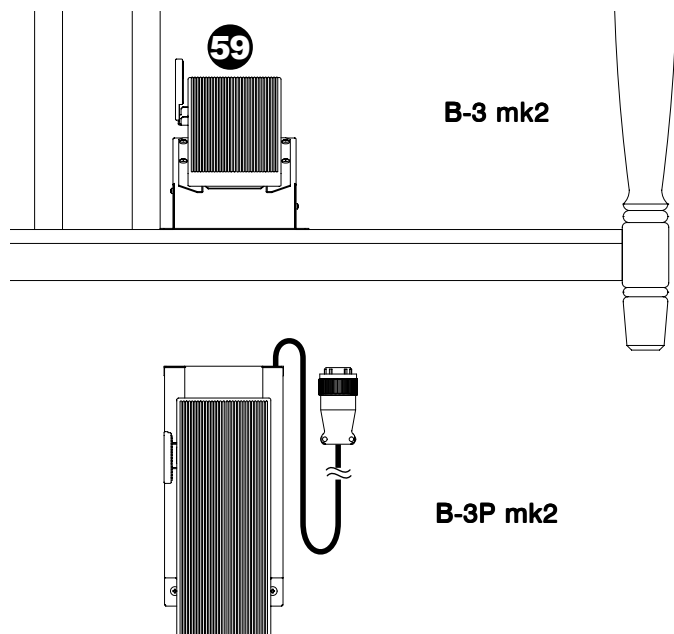
59. EXPRESSION Pedal

This is for changing the total volume of the organ.

The Foot Switch is attached on the bottom left.
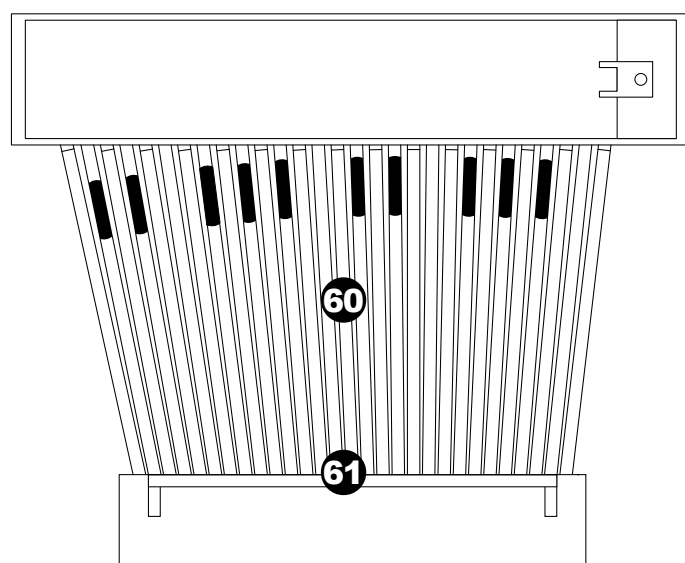
60. Pedalboard

25 notes. Radial flat type, non-velocity keyboard.

61. Foot Rest

Rest your feet when you are not playing the Pedalboard.

HOOK-UP
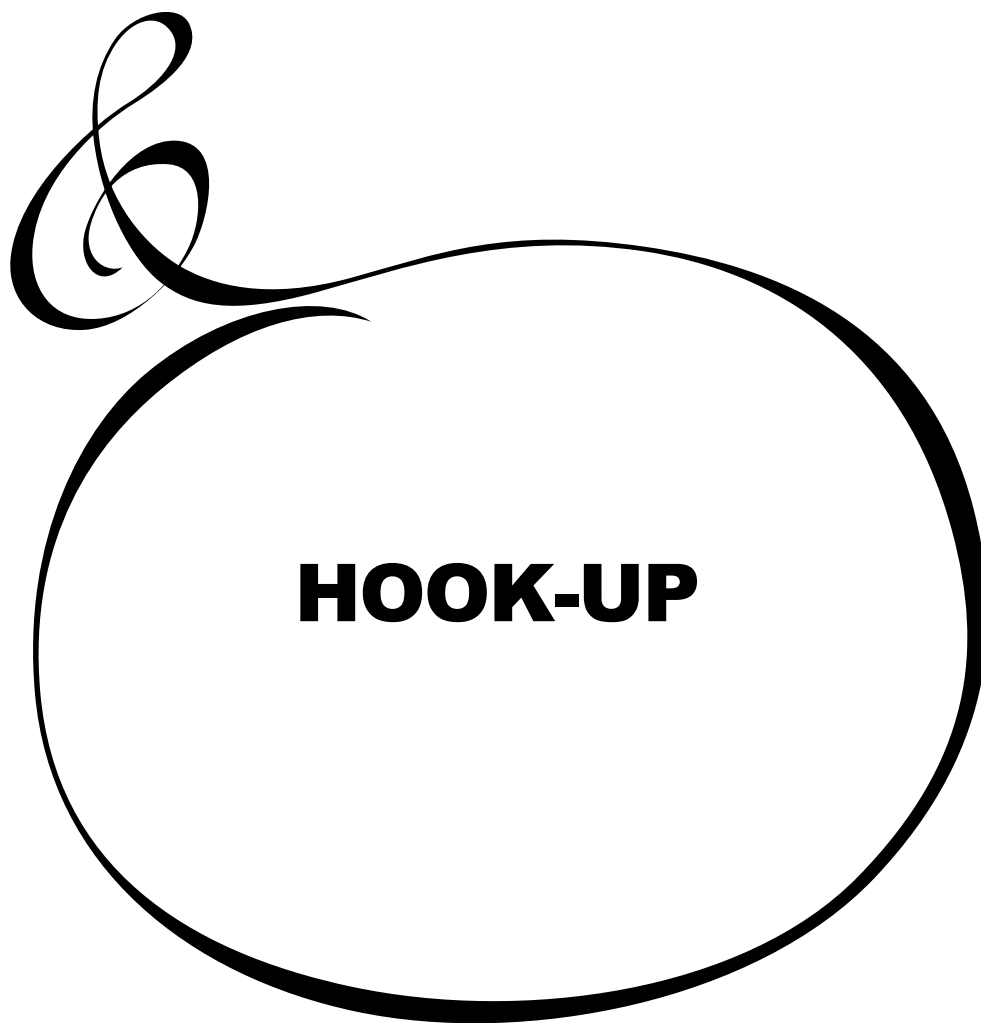
See the figure below for connection.

This organ has no built-in speaker or amplifier. Before you connect a Leslie Speaker to the organ, be sure to turn OFF the power of the organ and the external equipment, if any is connected.

The Leslie Speaker is connected to the LESLIE/MAIN jack on the organ using the exclusive 11-pin Leslie Cable attached to the speaker or the LC-11-7M (optional).

Plug in the Leslie Cable to the jack, correctly matching the notches.

NOTE: Non-11-pin Leslie Speakers can also be connected to the organ using a special adaptor kit. Ask your Hammond Organ / Leslie dealer for details.

B-3 mk2, C-3 mk2

Leslie 11pin Cable

To AC Outlet
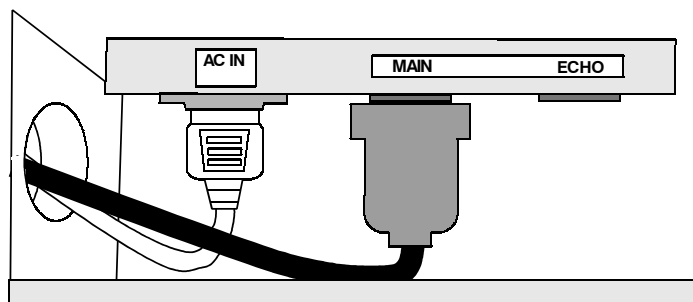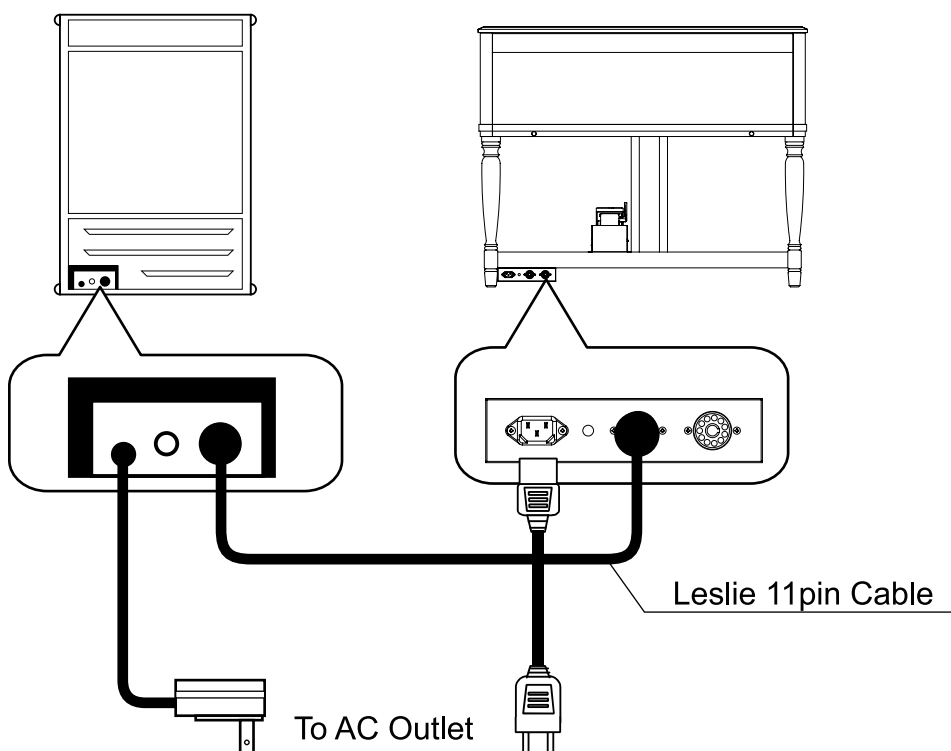
HOLES FOR CABLES (C-3 mk2)

Drilled holes are located on the side of the cabinet of the C-3 mk2 for your convenience.

B-3P mk2

Leslie 11pin Cable

To AC Outlet
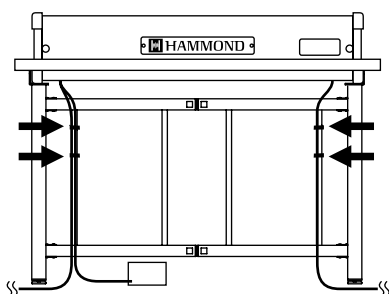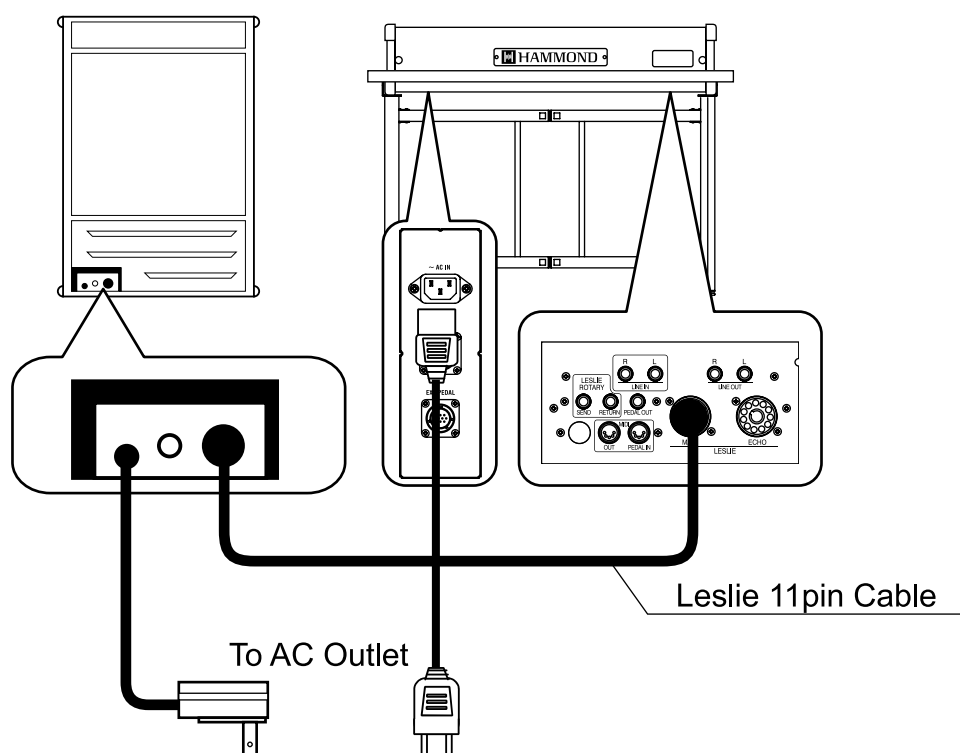
Fasten the cables using hook-and-loop fastners.

USING EFFECT LOOP

External effects may be used while a Leslie Speaker is connected to the organ using the Effect Loop.

The effects unit should have the same input/output gain and corresponding with the rating level of +4dBm.

NOTE: The Effect Loop is inserted between the built-in Effect (Leslie, Reverb, etc.) and the Master Volume.

NOTE: If using the LINE OUT jack and the HEADPHONE jack, simultaneously the Effect Loop will only function on the R (right) side.
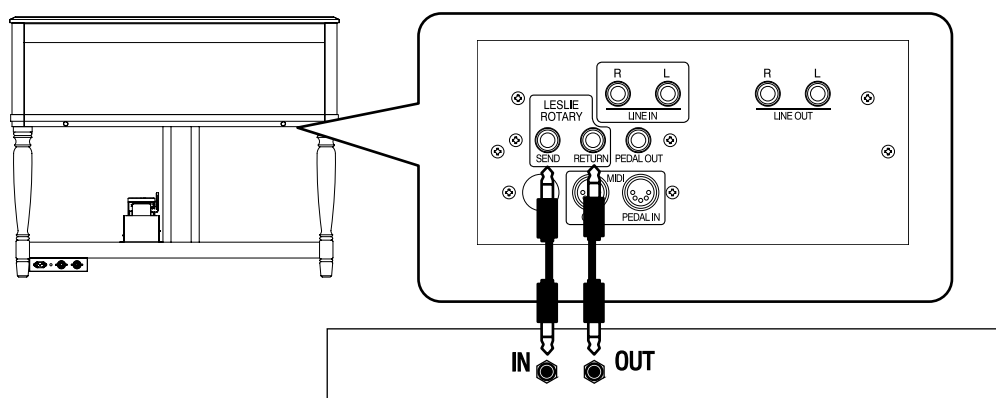
USING A MIDI SOUND MODULE

Each Manual and the Pedalboard on this organ has 3 External Zones for controlling an external MIDI sound module. When connected to the LINE IN jacks, the external MIDI sound module output is sent to the stationary channel of the Leslie terminal (on a so-equipped Leslie), the LINE OUT jack and the headphone jack.

NOTE: Adjust the volume of the equipment connected to the LINE IN jack on the external equipment itself.
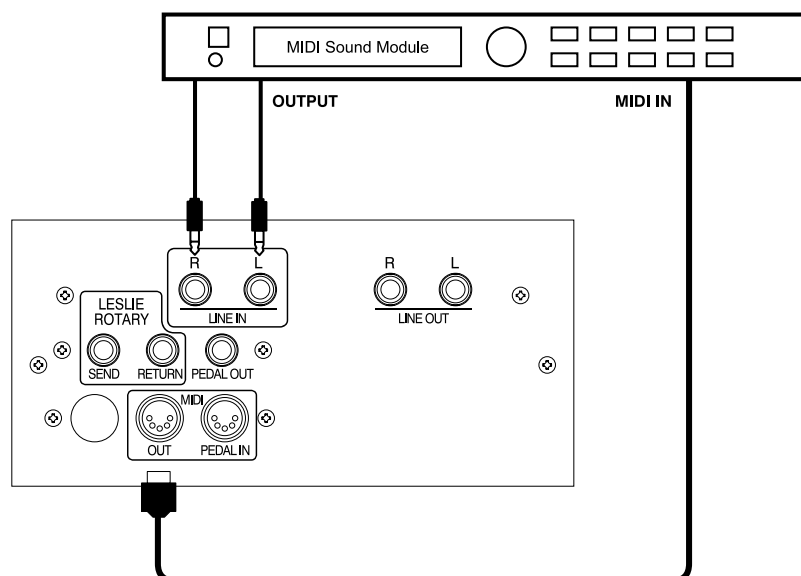
Two Leslie Speakers may be connected to this organ.
Connect the first Leslie Speaker to the MAIN socket and the second to the ECHO socket. The organ sounds are usually produced from both Leslie Speakers. If you connect the MAIN/ECHO switch, you can select which Leslie sounds while you are playing.

The sound that is input from LINE IN jack will be sent out to both Leslie speakers regardless of the position of the MAIN/ECHO switch.

MAIN Speaker   ECHO Speaker
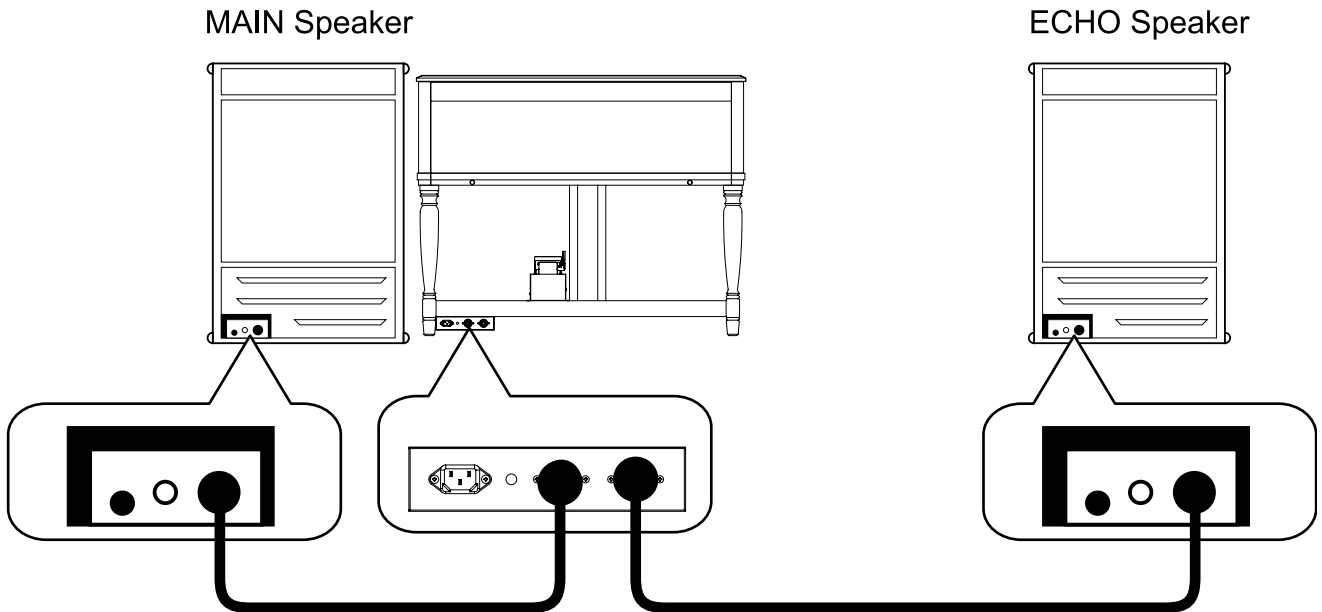
REINFORCING THE BASS

To reinforce the bass, or if you do not wish to have the Pedals speak through the Leslie, you can send the Pedal part directly to a bass amp or PA system using the independent PEDAL OUT jack. Set your PEDAL OUT preference by the OUTPUT parameter of the OUTPUT on the PEDAL PART page in the SYSTEM function mode. (P. 96 #1)

Powered Sub Woofer

Swell & Great

Pedal

Hook-Up
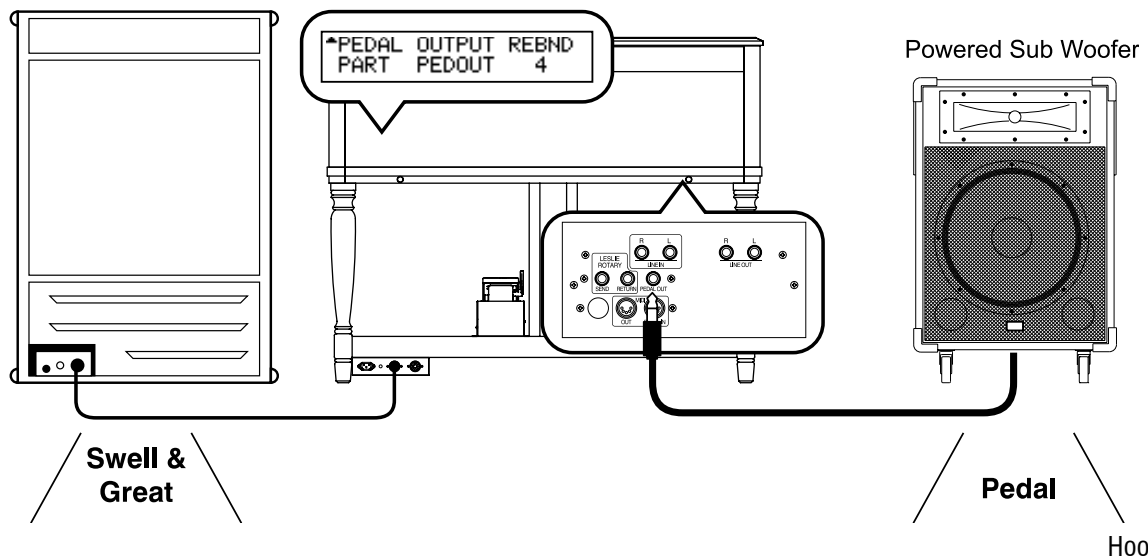
If no Leslie Speaker is available, you can use the built-in Leslie
Effect by means of the LINE OUT jack.
If the Leslie Speaker and the LINE OUT jack are used together,
the built-in Leslie Effect is heard only on the L channel.
You may also use a traditional keyboard amp or PA system.
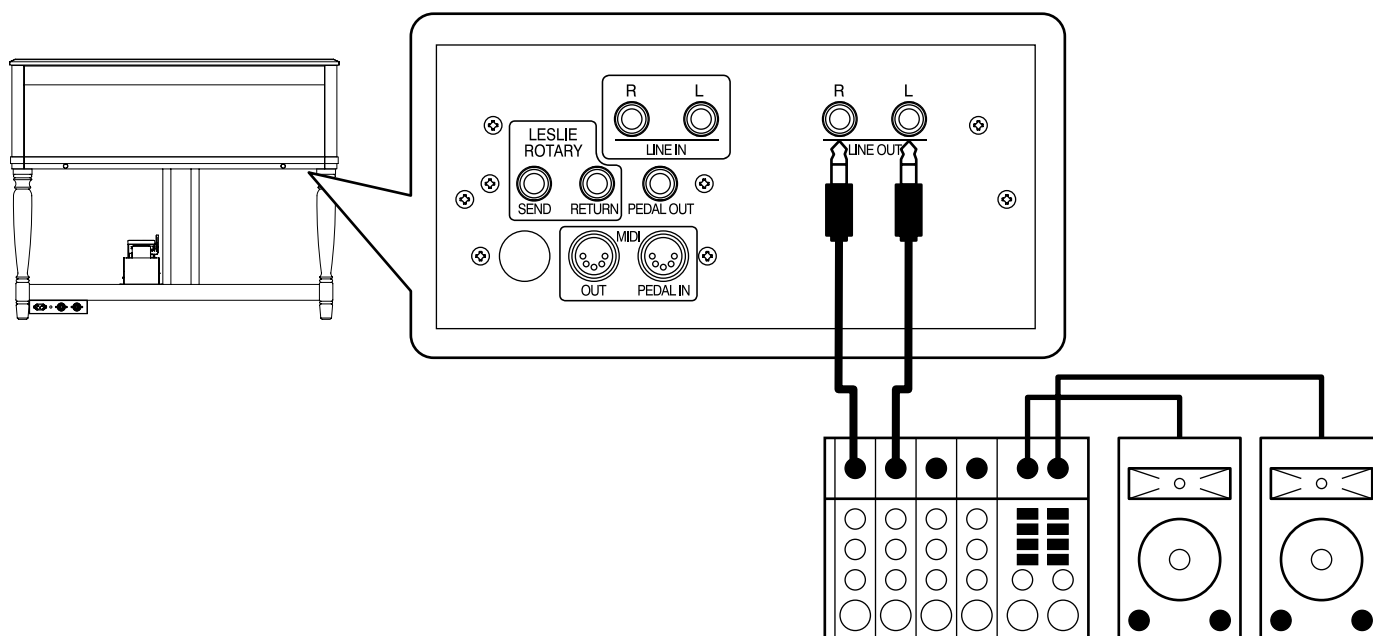
USING HEADPHONES

You can practice silently by connecting the stereo headphones to
the HEADPHONE jack of this organ.
When the plug is inserted to the HEADPHONE jack, the Leslie
Speaker is turned off, and the built-in digital Leslie Effect comes
online in the headphones.

⚠ **ATTENTION**

Hold the moulded part of the plug of the cord when you connect
or disconnect it to avoid the risk of breaking the cable.
Do not use excessive volume with headphones, due to risk hear-
ing damage.
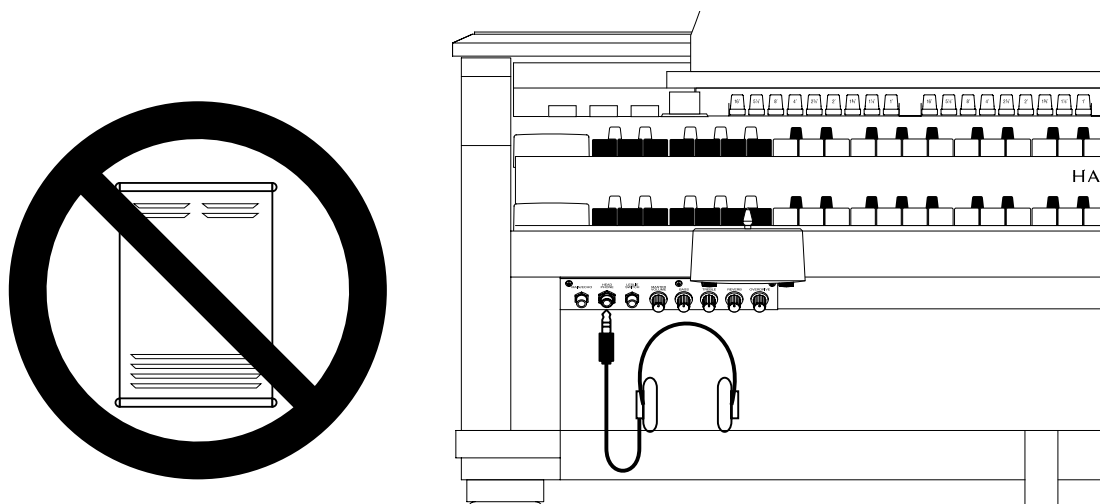
You may connect a MIDI Pedalboard, instead of the traditional Pedalboard.

All the note information received at the MIDI PEDAL IN jack is output as the Pedal Part, regardless of the MIDI channel.

The following MIDI pedalboards connectable to this organ are also available from us as optional accessories:

XPK-100 (13 notes)

XPK-200 (20 notes)

NOTE: You can attach an expression pedal (provided with the B-3P mk2) on the XPK-200.

NOTE: You can not use the functions of the XPK-100 such as transpose, control, etc., if the XPK-100 is connected.

TURN ON AND PLAY
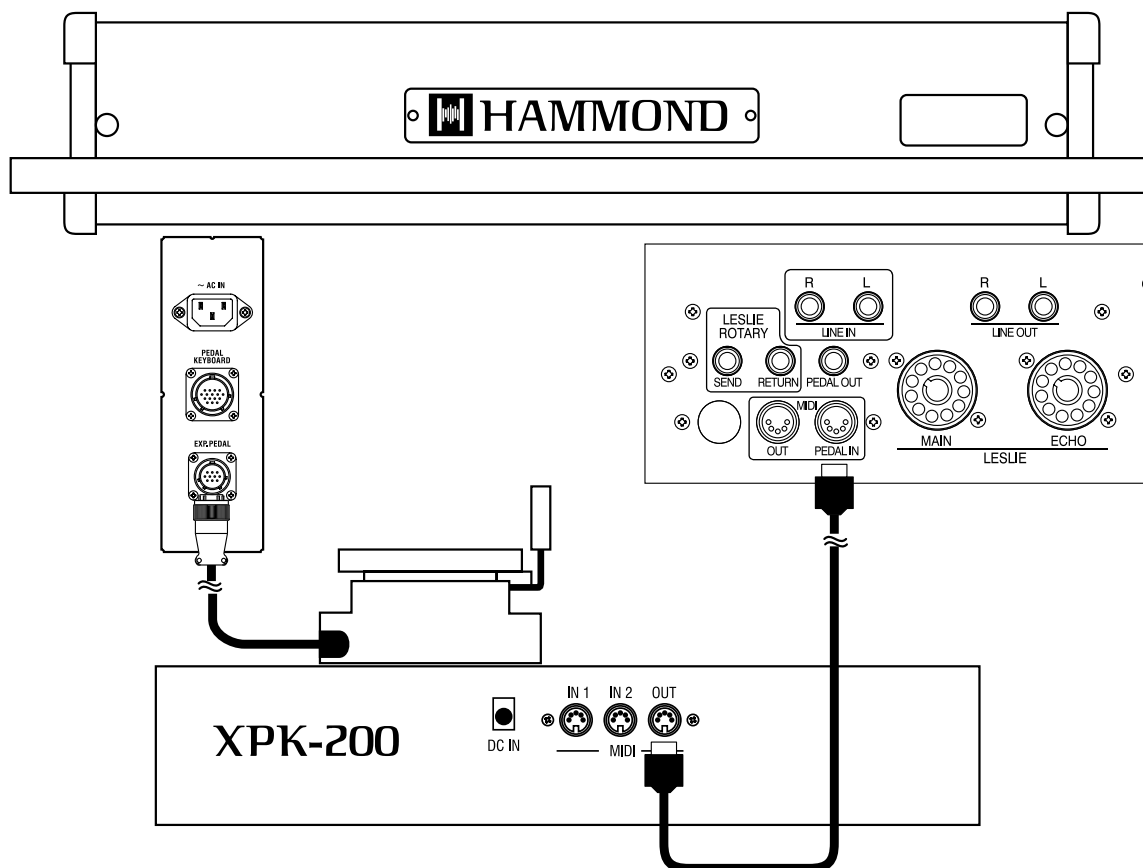
How to power on

After connecting your organ to the power outlet, please follow this procedure before switching on the power. To avoid possible damage to your speakers, please follow this procedure exactly.
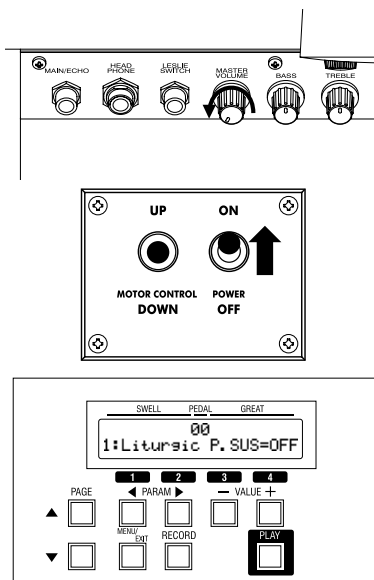
1.   Set the [MASTER VOLUME] Knob at minimum.
2.   Switch on the power of any external effects devices.
3.   Turn on the [POWER] switch of the organ. The pilot lamp will light up and the PLAY mode (fig.) is displayed, following the title. The Leslie Speaker is automatically turned on simultaneously, if connected.
    ❖   *It takes a few seconds to reach play mode, because of the circuit-protection devices.*
    ❖   *The tubes require 10 to 20 seconds to warm up.*
4.   Turn on the power of the amplifier etc., if any connected to the LINE OUT.
5.   Holding down a key, adjust the [MASTER VOLUME] by turning the Knob.
    ❖   *The Preset Key [B] does not produce sound when intially first turned on. Draw the B Drawbars, or press either of the Preset Keys [C♯] - [A] to start.*
6.   Adjust the volume of the amplifiers etc.
    ❖   *Reverse the above steps when you switch off the power. (Switch off the power of the amplifiers etc. first.)*

Back-Up

This organ memorizes the settings of the parameters immediately before it is switched off. The organ will start with these settings when it is switched on again.

Reset to the initial status

To reset the organ to the initial default setting:

1.   Switch off the power of the organ.
2.   Holding the [RECORD] button, switch on the power.
3.   Keep pressing the [RECORD] button until "`Loading Default...`" appears on the display.
4.   When the reset is complete, PLAY mode appears on the display. (Completed)

The registrations (settings) of the Drawbars and other parameters may be recorded to the Preset Keys on the left-hand side of each manual.

There are 5 Banks with 11 Presets in each.

The 4 Banks are loaded with a default library of Presets allowing you to play your organ immediately.
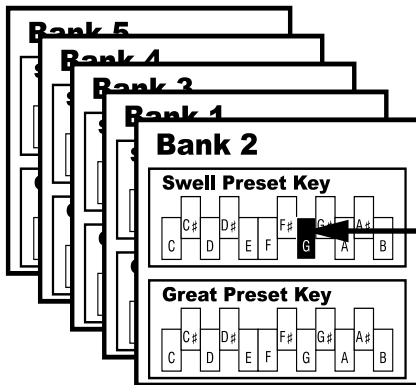
The chart on the left outlines the Bank/Preset structure.

The "Bank" is common for the entire organ, but the Preset Keys for the Swell and Great are independent of each other and are selected separately.

Let's call this in the example below.

> NOTE: **The Preset Key [C] produces no sound but releases the Preset Key previously selected. It is called "cancel".**

How to call the Preset

Ex. Select "2-G"
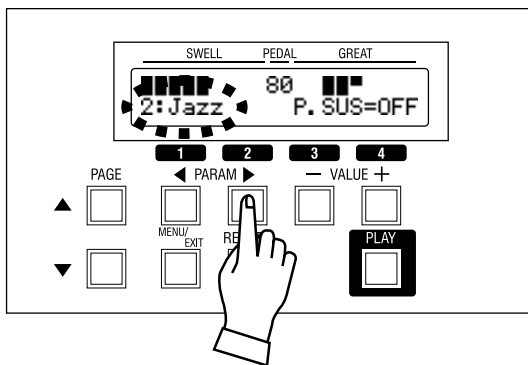
1. Select the BANK

Select Bank 2 using [PARAM] Buttons in the PLAY mode.

2. Select the KEY

Press the Preset Key [G].

The [G] key remains depressed and the contents of the Preset Key are called.

Try calling various Presets. See the Appendix "Factory Presets" (P. 124) at the back of this manual for details of the contents of each Preset.

> NOTE: **Only the Drawbar registrations were able to be called on the original B-3. The factory settings of this new organ are the same as the factory settings of the original. You can change to call other parameters by the Preset Keys. See the "PRESET" section for details. (P. 76)**
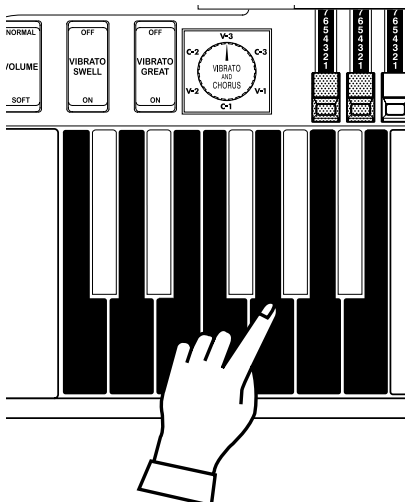
Play the Pedalboard
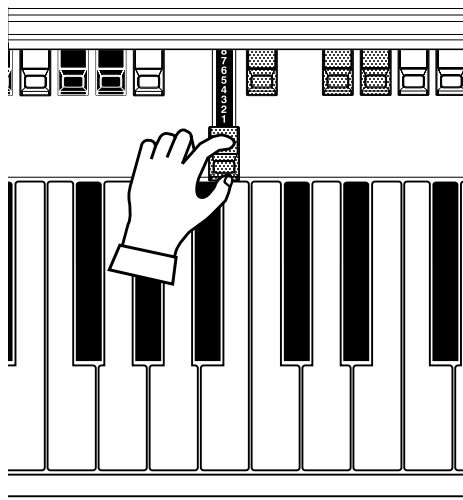
The Pedal tones are controlled by the Pedal Drawbars which are in the center of the Drawbar row. Pull out the 16' Drawbar as shown at left to the full length. Play the Pedalboard. The Drawbar to the right of the 16' is the 8'. Pull that Drawbar out and play the Pedalboard (Explanations of the Drawbars and the "foot" names are included in the next section "Creating the Settings").

The Pedal Part settings were not called at the Preset Keys on the original B-3. The factory setting of this organ is the same way.

> **NOTE:** **You can change to record/call out the Pedal Part settings at the Great Preset Keys. For details, see the "Preset" section. (P. 76)**

Expression Pedal
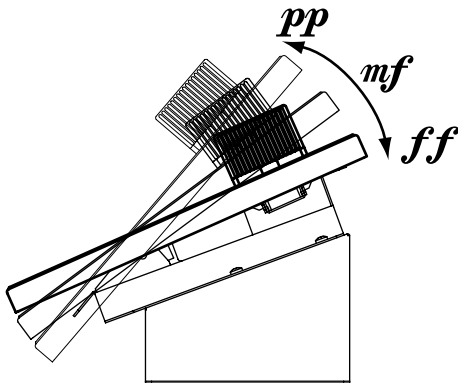
Unlike the piano, the organ does not get louder, the harder you play the keys. The organ's volume is controlled by using the expression pedal.

As you depress the pedal forward, the volume rises, and lowers when you return it.

NOTE: You can adjust the curve of the expression pedal. (P. 91)

Foot Switch
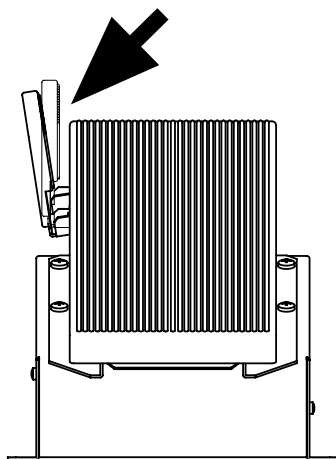
The Foot Switch, on the left side of the Expression Pedal can be programmed for various functions. "Leslie Chorale / Tremolo - Alternate" is the factory default. Every time you depress the Foot Switch, the Leslie changes speed.

NOTE: You can change the Foot Switch assignment. (P. 91)

Motor Control Switch
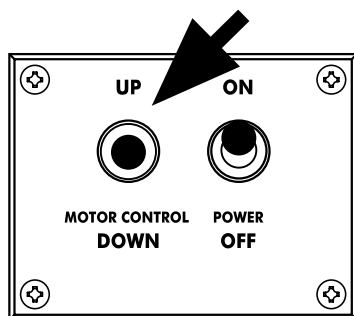
You can bend the pitch if you operate this switch while playing, same as the START and RUN switches on the original B-3. While the toggle is at the UP position, the pitch gradually goes up, and, while at the DOWN position, the pitch gradually goes down to 2 octaves lower and also the volume gradually gets smaller.

NOTE: You can change the time of the pitch bend. (P. 91)

tips START AND RUN

The original B-3 required a two-step procedure to power up. You would first "start" the motors by holding the spring-loaded left switch, and after a few seconds, you would release the "start" switch and turn on the "run" switch. Organists discoverd that if you engaged the start switch while the organ was running, it would give a distinctive "pitch bend" to the organ tone. This organ, being totally digital only needs the power switch, but to remain authentic, the motor control switch is included, and the "pitch bend" effect is duplicated.

TRY MAKING YOUR OWN SOUND

You will be able to produce your own sound by using the exclusive features of your HAMMOND ORGAN, such as Drawbars, Percussion, Vibrato/Chorus, Overdrive, and the Leslie effects. Let's go through the first steps:

Select the Preset Key [B]
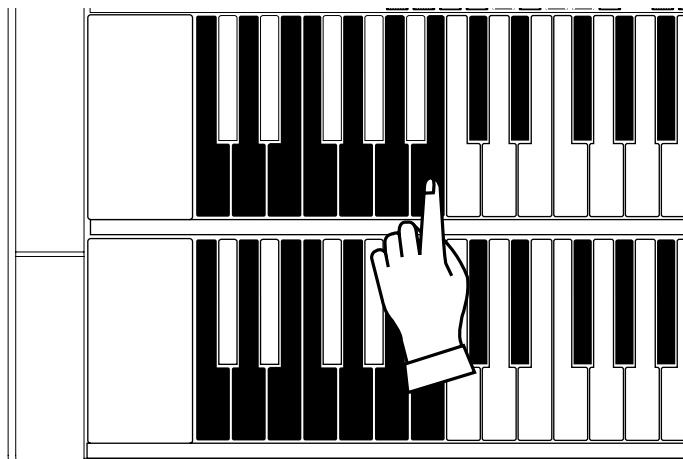
Select the Preset Key [B] first.

The Presets Key [A♯] and [B] are special Presets called "Adjust Presets", directly connected with A♯ Drawbars and B Drawbars respectively. That means the Drawbar registrations on the panel and the internal registration, each position of tablets or knobs and internal values correspond with each other.

Selecting these keys are helpful when you create a new registration or when you want to manually operate the Drawbars while playing.

> **NOTE: You can initialize the contents to the default setting. (P. 95)**

Pull out the B Drawbars
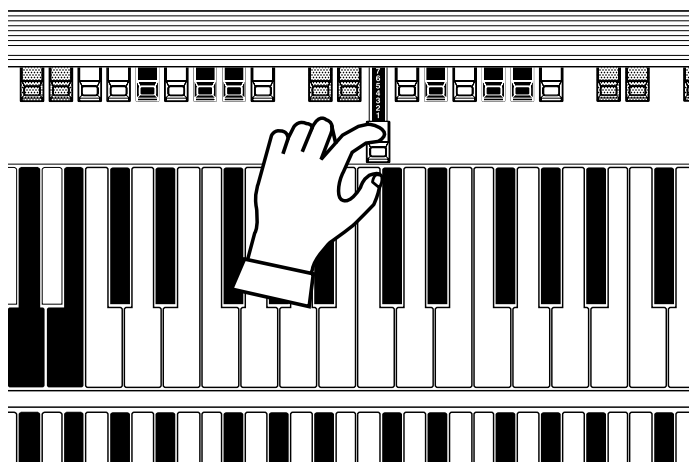
Pull out the B Drawbars on the left-hand side to any length, while playing the Swell(Upper) manual.

The tones vary corresponding to how far the Drawbars are "Pulled". The Drawbars create the fundamental tones of this organ.

The volume increases as each Drawbar is pulled out to its full length. And decreases as it is pushed back in. The tones of the Drawbars gradually get higher in frequency from left to right.

The most popular patterns or registrations are (1) to pull out only all the three left side Drawbars to the full, (2) to pull the far-left and only the white bars to the full, or (3) to pull all the bars.

> **NOTE: You can change the characteristics of the Drawbars. (P. 72)**
>
> **NOTE: The present registration is shown on the "Play" mode display. (P. 65)**

Add Percussion
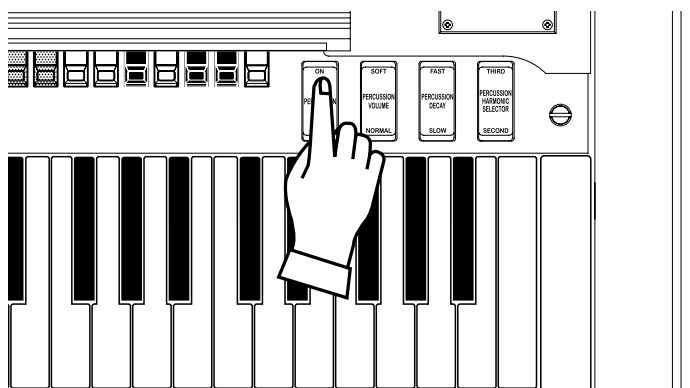
The "Percussion" referred to here is not a percussion instrument itself, but an extra voice which adds a clear-cut "attack" to the organ sound. You can add this "attack" to mix with the Drawbar sound when you want.

Percussion sounds only when using Swell Manual preset [B]. This is the same as on the vintage B-3.

Switch the percussion tab to "On", the percussion voice will speak. An octave up(second) or a twelfth up(third) by using the [PERCUSSION HARMONIC SELECTOR] tab. Switch the decay time by [PERCUSSION DECAY] and the volume by [PERCUSSION VOLUME].

> **NOTE: The volume etc. of Percussion can be finely set. (P. 74)**

Add Effects

VIBRATO AND CHORUS
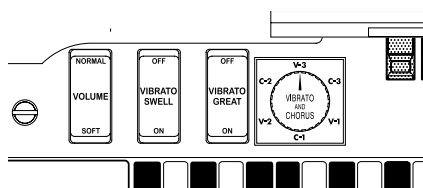
"Vibrato and Chorus" slightly changes the Drawbar pitch and adds warmth to the sound.

[SWELL] Tablet, [GREAT] Tablet

Switches the Vibrato/Chorus on and off for each manual.

[VIBRATO AND CHORUS MODE] Knob

Controls the Vibrato and Chorus Depth.

The degree of depth corresponds with the number. "V" adds Vibrato sound by changing the pitch, "C" adds the original shimmering Hammond chorus.

> NOTE: You can fine-adjust the speed etc. of the Vibrato&Chorus. (P. 82)

OVERDRIVE
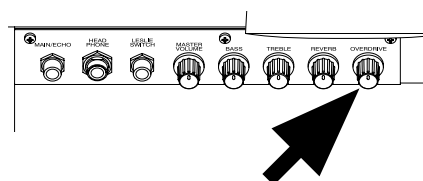
Adds tube-based distortion to the sound.

[OVERDRIVE] Knob

Controls the distortion amount. Full left is "clean". The distortion effect increase as you rotate the knob clockwise.

> NOTE: Overdrive distortion can be fine-set. (P. 80)

LESLIE
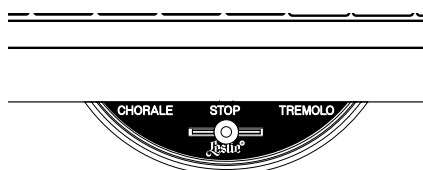
The Leslie speaker uses a rotating treble horn and a woofer firing into a rotating drum to give the organ a "3-D" sound, with motion and lively dynamics. It is the traditional partner of the Hammond Organ.

LESLIE SPEED Switch

This is for switching the mode of the Leslie Speaker or the built-in Leslie Effect.

At CHORALE the rotor turns slowly, at TREMOLO fast. It stops at STOP.

> NOTE: You can fine-adjust the rotation speed etc. of the internal LESLIE Effect. (P. 84)

REVERB
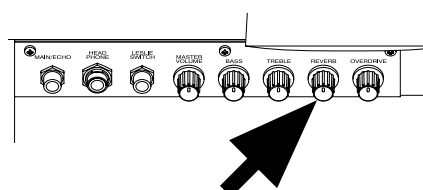
The reverb effect simulates performing in a concert-hall.

[REVERB] Knob

Controls the depth of the Reverb Effect. At full left the Reverb Effect is off. The effect deepens as you rotate the knob.

> NOTE: You can fine-control time etc. of Reverb. (P. 88)

EQUALIZER
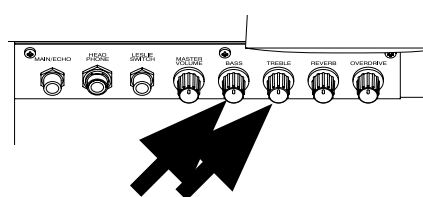
Controls the overall tone of the organ.

[BASS] Knob

Increases or decreases the emphasis of the Bass range of sound.

[TREBLE] Knob

Increases or decreases the emphasis of the Treble range of sound.

> NOTE: Each BASS, TREBLE knob can be assigned to a different band respectively. (P. 88 #6, 7)

Turn On And Play
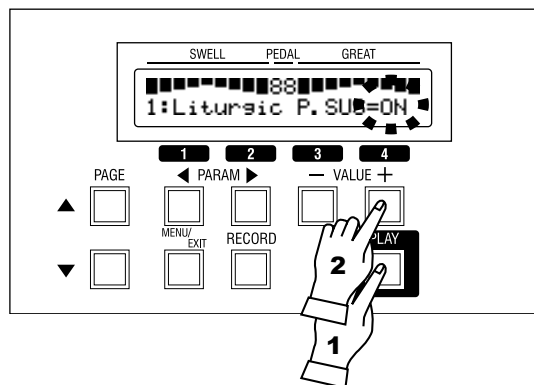
PEDAL SUSTAIN

The Pedal Part sound can be set to smoothly decay after the key is released. This is called "PEDAL SUSTAIN".

To use this "Pedal Sustain" function, refer to the control panel.

1. Press the [PLAY] button, and display "P. SUS" on the bottom right of the display.

2. Switch ON the PEDAL SUSTAIN using the [VALUE] button.

If you release your foot off the Pedalboard (or your finger from the Great Manual, if you are using the Manual Bass function, as explained later in this manual), the Pedal Part sound smoothly decays.

NOTE: You can change the decay time of the Pedal Sustain. (P. 73 #8)

MANUAL BASS
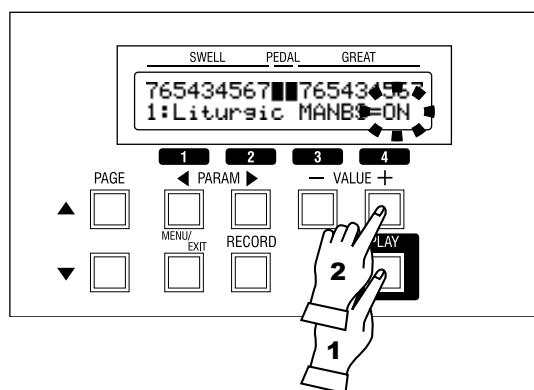
You can play Bass using the lowest keys of the Great manual. This is called "Manual Bass".

To use the Manual Bass function, refer to the control panel.

1. Press the [PLAY] button, and display "MANBS" on the bottom right.

2. Switch ON the MANUAL BASS using the [VALUE] button.

When playing the Great manual, the lowest note (or chord) played will be sounded by the Pedal voice.

Manual Bass

The factory default Manual Bass range is set to "B" of the second octave.

NOTE: You can move the upper limit of the Manual Bass. (P. 90)
NOTE: You can choose sounding polyphonic (POLY) or lowest note (MONO). (P. 73 #9)

Recording Preset Keys

You can record your Drawbar registrations in the Preset Keys. You can also freely change the preset data loaded as the factory default.

To record Drawbar registrations in the Preset Keys, refer to the control panel.

Ex. Memorize to "2-D"
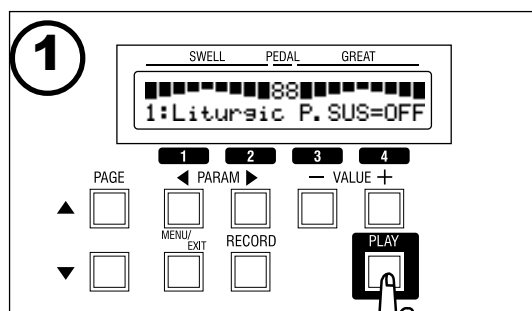
1. Go to the PLAY mode.
   Press the [PLAY] button to go to the PLAY mode.
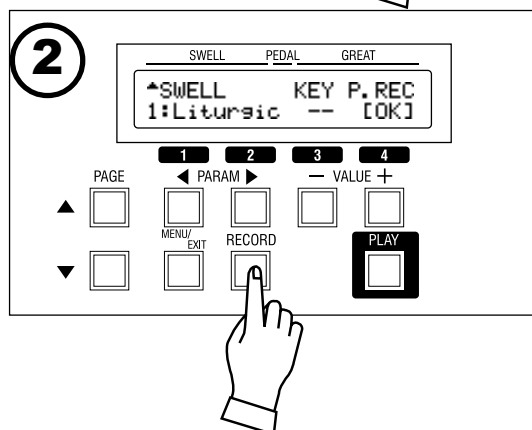
2. Go to the Record mode.
   Press the [RECORD] button and go to that mode.
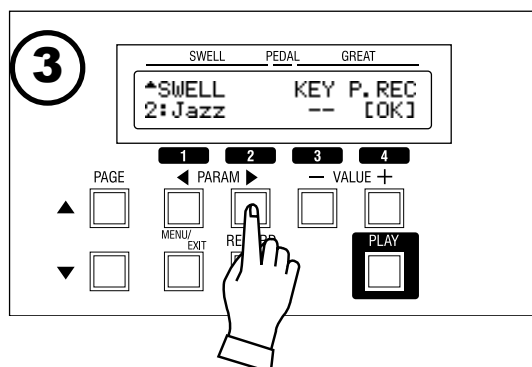
3. Designate the Bank.
   Press the [PARAM] button and select the Bank to record. For this example select "2".

*to be continued to the next page.

```
       SWELL      PEDAL      GREAT
   ▾GREAT        KEY P.REC
④ 2:Jazz           --  [OK]

      ▬1▬  ▬2▬   ▬3▬   ▬4▬
   PAGE   ◀ PARAM ▶   — VALUE +

    ▲
          MENU/    RECORD        PLAY
          EXIT
    ▼
```
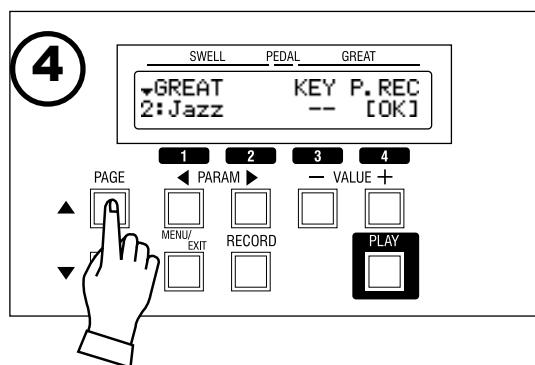
4. Select the Part to record.

Press the [PAGE] button and select either SWELL or GREAT to record the Preset.

For this example select "GREAT".

> **NOTE:** You can select the part to record by the Preset Key, as well.

```
       SWELL      PEDAL      GREAT
   ▾GREAT        KEY P.REC
⑤ 2:Jazz           D   [OK]
```
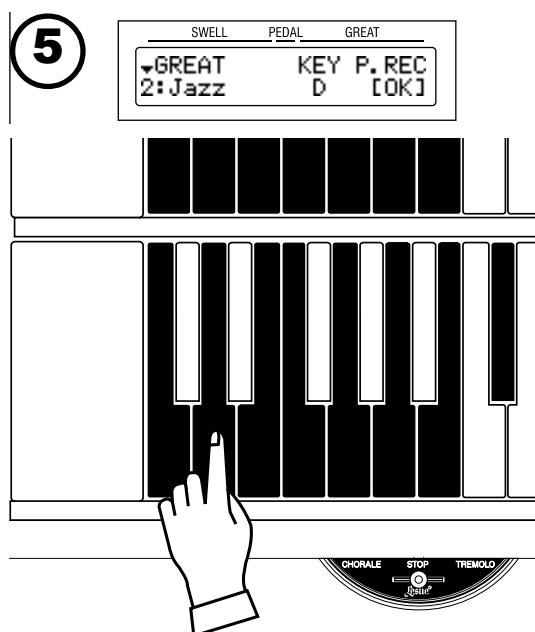
5. Select the Preset Key.

Select the Preset Key ([C♯] - [A]) to record. For this example, Press [D].

```
       SWELL      PEDAL      GREAT
   ▾GREAT        KEY P.REC
⑥ Recording PRESET...

      ▬1▬  ▬2▬   ▬3▬   ▬4▬
   PAGE   ◀ PARAM ▶   — VALUE +

    ▲
          MENU/    RECORD
          EXIT
    ▼
```
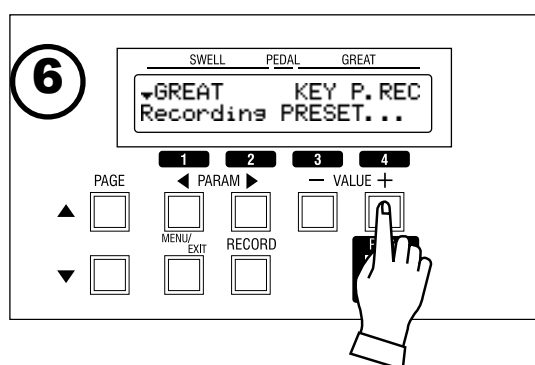
6. Commit the Preset.

Press [4] OK. The Preset is recorded and the following message appears on the display for a few seconds.

`Recording PRESET...`

> **NOTE:** The recorded Preset data is retained when if the power is switched off.
>
> **NOTE:** When recording the presets, not only are the Drawbar registrations saved, but also various parameters. For details, see the PRESET section. (P. 76)

SETTING UP

System structure of this Organ

Pedal Virtual Tonewheel Set

Great&Swell Virtual Tonewheel Set

Pedalboard

Great(Lower) Manual

Swell(Upper) Manual

Pedal Drawbars

Great Drawbars

Swell Drawbars

Percussion

Vibrato & Chorus

Swell & Great

Tube Overdrive

Pedal

Expression

switchable

TC & Equalizer

Leslie Simulator

Reverb

Tube Buffer

Effect Loop

send   return

●● Line Out

⬤ Leslie 11Pin

HAMMOND B-3 mk2, C-3 mk2, B-3P mk2 Owner's Manual

See the illustrated System Structure of your organ on the left page.

TONE-WHEELS

The sound source or "engine" of Hammond Organ is the Virtual Tone-wheel. Generator. As on the original B-3, each of the 96 Virtual Tone-wheels are oscillating at a different pitch. There are NO moving parts inside this organ.

KEYS

The tones of the 96 Virtual Tone-wheels are switched at the keyboard with the "Direct Analog Keying System" exactly as on the original B-3. There are 9 contacts at each key responding to each of the 9 Drawbars. When you press a key, the contacts are made to play the corresponding Drawbars to the pitch of the key depressed.

DRAWBARS

The Drawbars represent simple harmonics. Each bar adjusts the value of each harmonic. The combinations of different harmonics create a more complex sound.

PERCUSSION

The Percussion adds a voice with clear attack to the Swell manual. This effect is an essential part of the Hammond Sound.

VIBRATO AND CHORUS

The classic Hammond "Chorus-Vibrato" gives depth and richness to the organ sound by slightly varying the pitch (Vibrato) or doubling the voice, just slightly out of tune (Chorus). This effect is a hallmark of the vintage B-3 sound.

> NOTE: **On this organ the mechanical scanner of the original B-3 is simulated, with no moving parts.**

TUBE PRE-AMPLIFIER

A real tube in the pre-amplifier gives this organ the "vintage" sound. By changing the amount of the drive, you can obtain various tube sound from "clean" (no clipping), to the hard-distorted fuzzy and raspy "overdrive" popular in rock music.

The Pedal Part is designed not to pass through the tube pre-amp in order to obtain a clear Bass-Pedal tone.

EFFECTS

The built-in Effects are as follows: an Equalizer for controlling the tonal quality, a Leslie Effect for giving rotary speaker effects, a Reverb (for giving reverbration), a Tube Buffer for adding tube "warmth". (The built-in Leslie Effect does not appear in the signal of the Leslie 11-pin terminal.)

EFFECT LOOP

The External Effect Loop is located post-internal Effects.

tips TONE-WHEEL SET

The Tone-wheel Sets are divided into the Manuals and the Pedal Part. This is to give the Pedal Part the Decay (= the sound gradually fading out while pressing the key) or Sustain Effect. (= the sound gradually fading out after the key is released).

tips HARMONICS

Harmonic is a pitch of a different ratio to a certain pitch; for example, the one octave higher C to the middle C. The more Harmonics, the brighter and richer sound is obtained.

The 9 Drawbars (plus 2 for the Pedal) on this organ are used to create the basic sounds. Each Drawbar is marked with the numbers 1 - 8. If you push back the Drawbar until you cannot see any number at all, the sound of the Drawbar is not heard. If you pull it out to the fullest position The sound level is maximum.

No Volume

Full Volume

| 16' | $5^1/_3$' | 8' | 4' | $2^2/_3$' | 2' | $1^3/_5$' | $1^1/_3$' | 1' |
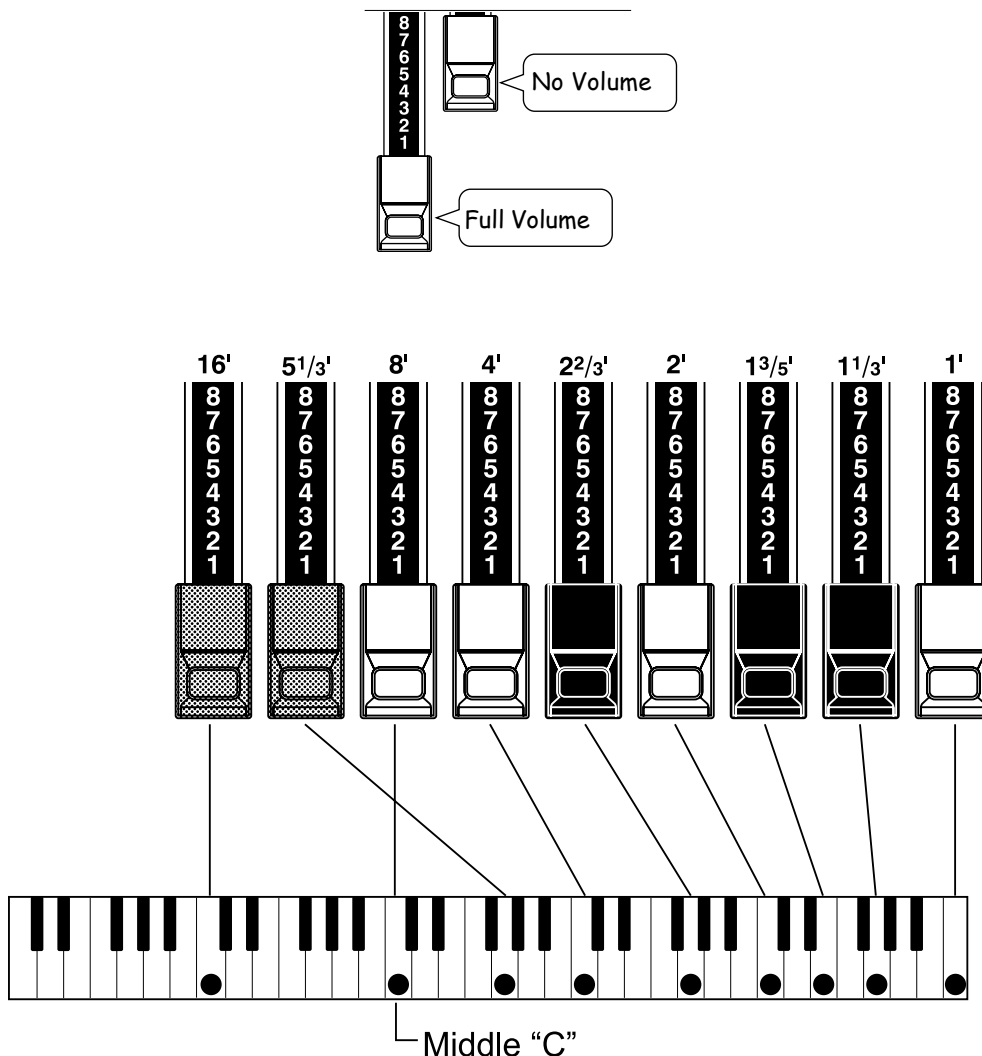
Middle "C"

The pitch of each Drawbar is as shown above, when the middle C is depressed. The footage marked (') on the handle end of each Drawbar is originated from the length of pipes on a pipe organ.

The numbers 1 - 8 on the "bar" portion of each Drawbar indicate the volume of the sound to be produced as well as the guide to remember Drawbar settings.

Pull the fundamental (8'), the third harmonic ($2^2/_3$') plus the fifth harmonic ($1^3/_5$') Drawbars out completely and play the keyboard. Notice how the sound resembles a clarinet.

If you push the 8' Drawbar half-way, you'll notice the sound becomes more high-pitched and a bit "harder". Now pull the 8' drawbar back out fully and push the $2^2/_3$' and $1^3/_5$' in halfway. notice how the sound becomes mellower. Experiment with the Drawbars to obtain your own personal favorite sounds.

NOTE: You can change the characters of the Drawbars. (P. 72)

Drawbars for the Swell/Great Manuals

Relation between the Preset Keys and the Drawbars

The two sets of Drawbars on the left-hand side are for the Swell Manual and the two on the right-hand side are for the Great Manual. To actuate them, use the Preset Key [A♯] or [B] respectively. When the other [C♯] to [A] Preset Keys are selected, the Drawbar registrations are recalled inside the organ, and the tone that plays will not match the Drawbars physical settings.

> NOTE: Even while the Preset Keys [C♯] to [A] are selected, you can operate the Drawbars and the preset registration will temporarily change. (P. 52)
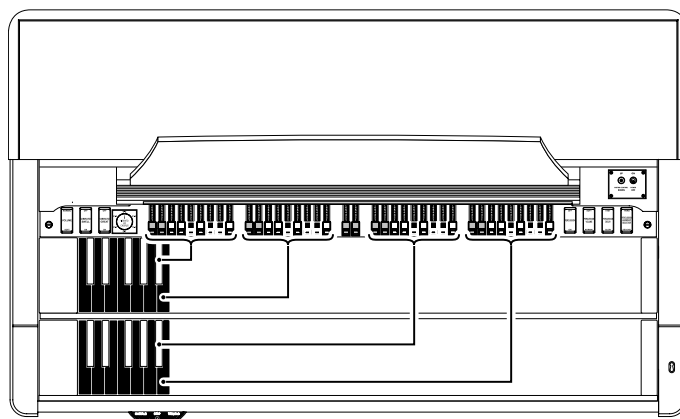
WHITE DRAWBARS
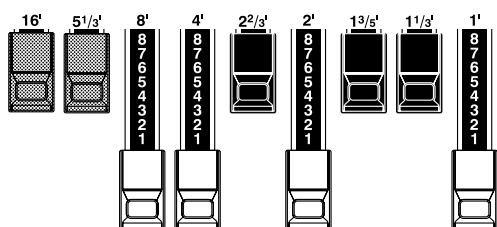
In each Drawbar set, the white Drawbar (8') on the left end correspond to the fundamental sound. Each succeeding Drawbar to right controls the next octave harmonic.

BLACK DRAWBARS
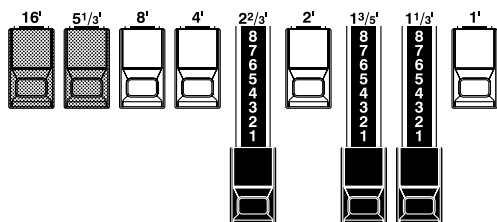
The sounds of the black Drawbars, too, play important roles in building rich tones. Their pitches are fifth and third to the fundamental. They contain the elements of all different harmonics of such as the sweet and soft horn, mellow strings and so on.

BROWN DRAWBARS
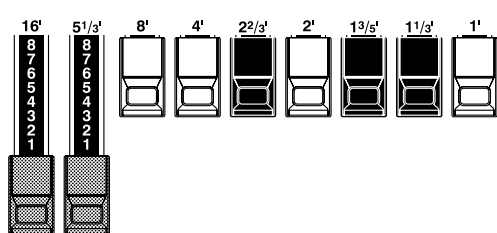
The two brown Drawbars on the far left give depth and richness to the sound. The left 16' is one octave lower than the 8', and $5^1/_3$' is the third harmonic of the 16' fundamental.

Normally, the tones are built on the 8' fundamental, but, if you want to add depth to the tone or to expand the playing range on the manual by one octave, the tones are built on the 16' fundamental.

Drawbars for the Pedalboard
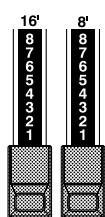
The Pedalboard plays the bass line and uses two Drawbars -16' and 8'.

The first Pedal Drawbar produces a tone at 16' pitch for a deep foundation bass, while the second Pedal Drawbar produces a tone at 8' pitch, or one octave higher.

Drawbar Registration Patterns

The Drawbar Registration is matched by digits. It is easy to remember the typical combinations of the 9 Drawbars by their forms.

The Drawbar Registrations are grouped into the following 4 patterns:

Flute family (2 step pattern)
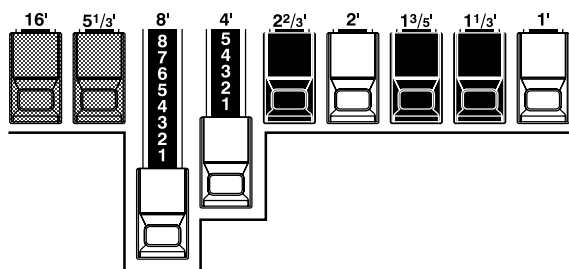
Accompaniment Flute 8' I	00 8460 000
Accompaniment Flute 8' II	00 3220 000
Accompaniment Flute 8' III	00 8600 000
Chorus of Flutes 16'	80 8605 002
Orchestral Flute 8'	00 3831 000
Piccolo 2'	00 0006 003
Stopped Flute 8'	00 5020 000
Tibia 8'	00 7030 000
Tibia 4'	00 0700 030
Tibia (Theater) 16'	80 8605 004
Wooden Open Flute 8'	00 8840 000

Diapason family (check mark pattern)
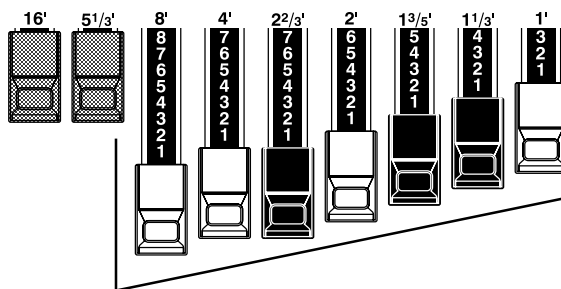
Accomp. Diapason 8'	00 8874 210
Chorus Diapason 8'	00 8686 310
Diapason 8'	00 7785 321
Echo Diapason 8'	00 4434 210
Harmonic Diapason 16'	85 8524 100
Harmonic Diapason 8'	00 8877 760
Harmonic Diapason 4'	00 0606 045
Horn Diapason 8'	00 8887 480
Open Diapason 8'	01 8866 430
Solo Diapason	01 8855 331
Wood Diapason 8'	00 7754 321

NOTE: Some of the names on this page may be unfamiliar. They represent the names of types of pipes on a pipe organ. The "Diapason" is the fundamental type of pipe on a pipe organ.

Reed family (triangle pattern)
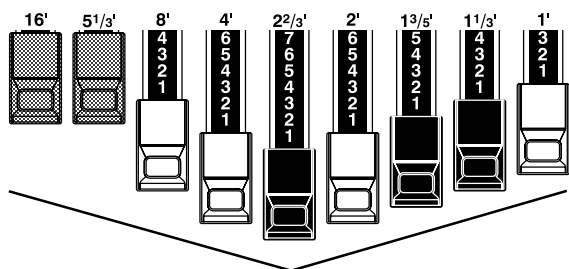
Bassoon 16'	44 7000 000
Clarinet 8'	00 6070 540
English Horn 8'	00 3682 210
Flugel Horn 8'	00 5777 530
French Horn	00 7654 321
Kinura 8'	00 0172 786
Oboe 8'	00 4764 210
Trombone 8'	01 8777 530
Trumpet 8'	00 6788 650
Tuba Sonora 8'	02 7788 640
Vox Humana 8'	00 4720 123

String family (bow pattern)
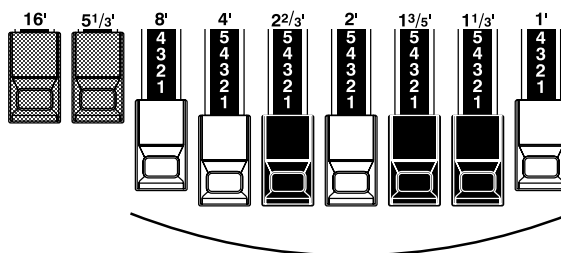
Cello 8'	00 3564 534
Dulciana 8'	00 7770 000
Gamba 8' I	00 3484 443
Gemshorn 8'	00 4741 321
Orchestral String 8'	00 1464 321
Salicional 8'	00 2453 321
Solo Viola 8'	00 2474 341
Solo Violin 8'	00 3654 324
Viola da Gamba 8'	00 2465 432
Violina 4'	00 0103 064
Violone 16'	26 3431 000

NOTE: The "Strings" and "Reeds" mentioned here are not analogous to orchestral voices. The names here refer to types of pipes found in a pipe organ and the sounds are not meant to sound as actual violins, trumpets, oboes, etc.

Modern Drawbar Registrations

The Drawbar registrations introduced on the previous page are typically for classical music.

They were created at the dawn of the Hammond Organ, when it was intended to sound like a pipe or church organ.

Later on, as the Hammond Organ spread throughout Jazz, Pop, Rock and (especially) Gospel music, Some timeless registrations become common.

Jazz
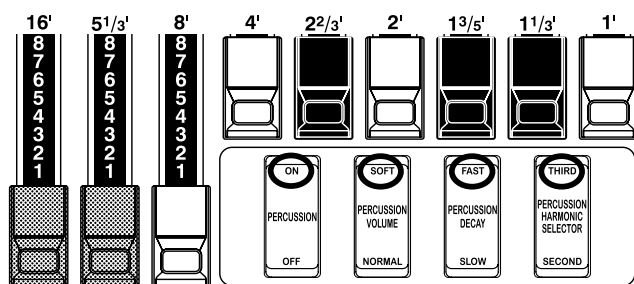
Bluesey
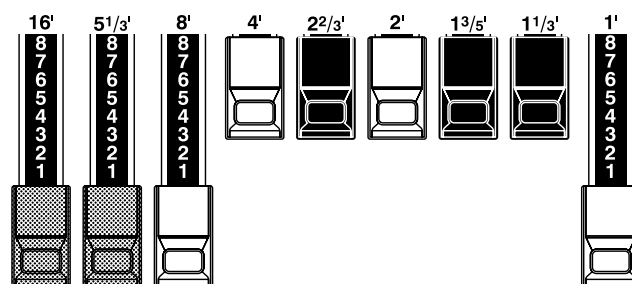
Groovy & Funky
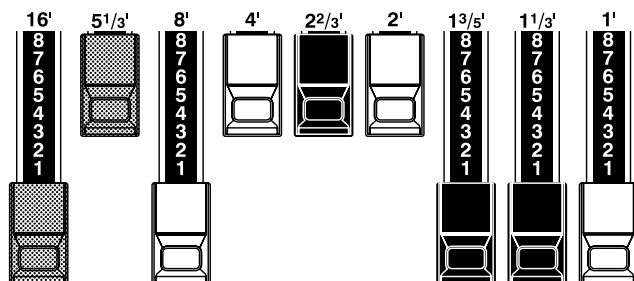
Max Power
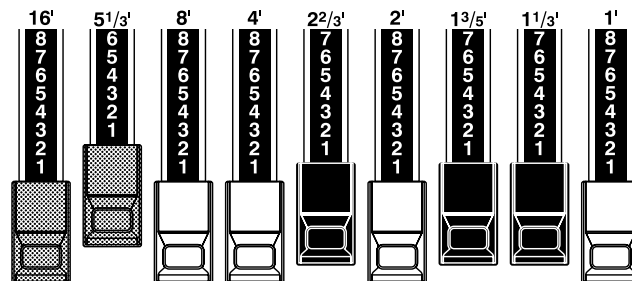
tips **APPLICATION OF PERCUSSION**

When Percussion is used, the sound of the 1' Drawbar is cancelled. This enables the technique of playing the organ switching "Jazz" or "Bluesey" by turning on/off [PERCUSSION] while the registration itself is set at "Bluesey".

Controlling the Registration while playing a Preset

To temporarily modify the registration by operating Drawbars, while a Preset Key is selected between [C♯] and [A], operate either [A♯] or [B] holding down the [PLAY] button.

In the registration, only the operated bar's footage changes. For example, draw 1' of the Swell Drawbar [A♯] or [B] holding down the [PLAY] button, if you want to add 1' while playing the Preset Key [G] of the Swell Manual.

NOTE: Pedal Drawbars are always working regardless of Preset Keys and link Great / Pedal (P. 76 #3).
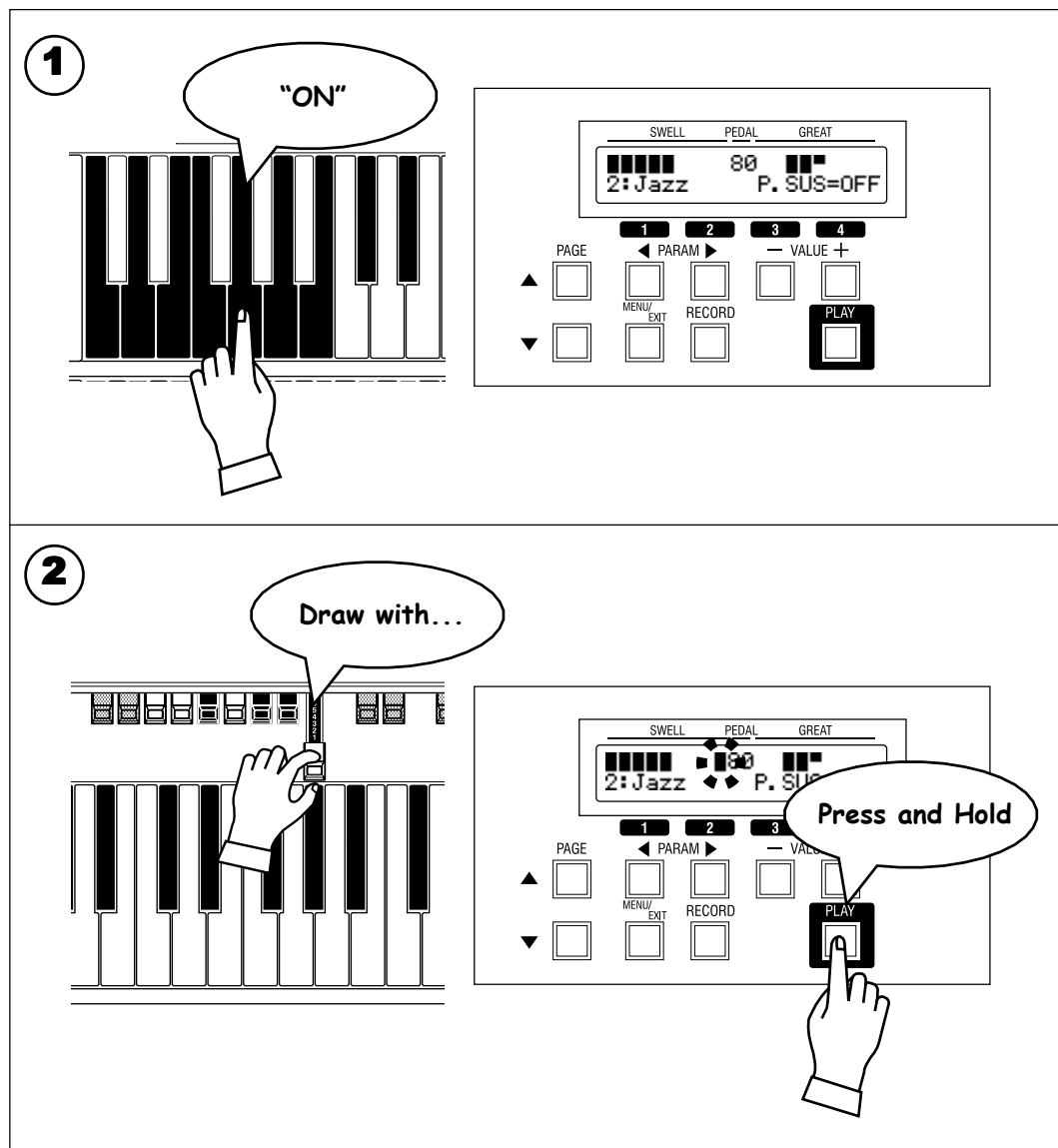
The touch-response percussion adds a clear-cut "attack" to the organ sound. It is a Hammond exclusive. Percussion is usually combined with the Drawbar sound.
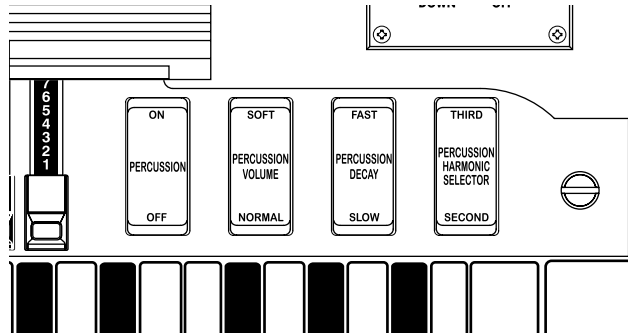
[PERCUSSION] Tablet

Turns on the Swell (Upper) manual percussion when swell Preset [B] is selected. When percussion is activated the 1' Drawbar does not sound.

[PERCUSSION VOLUME] Tablet

This is for controlling the Percussion volume. SOFT for lower Percussion volume, and NORMAL for higher Percussion volume with the Drawbar volume a little lower.

[PERCUSSION DECAY] Tablet

This is for controlling the decaying speed of Percussion. SLOW for decaying slowly like a chime, and FAST for decaying rapidly as a xylophone.

[PERCUSSION HARMONIC SELECTOR] Tablet

This is for setting the Percussion pitch. SECOND for the 2nd harmonic, i.e. the pitch of the 4' Drawbar. THIRD for the 3rd harmonic, i.e. the pitch of the 2 ^{2}/$_3$' Drawbar.

NOTE: You can fine-set Percussion. (P. 74)

tips DECAY

Piano sound gradually fades even if you keep the key down. This is called "decay". A violin, keeps sounding at a certain volume. This is called "sustain".

Notes
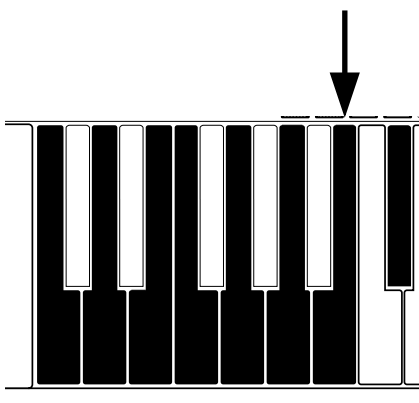
"Percussion does not sound!"

The factory default setting: Percussion will not sound except at the Preset Key [B] (See left).

NOTE: You can set any Preset Key to sound Percussion. (P. 77 #7)

DRAWBAR CANCEL

While [PERCUSSION] is on, 1' of the Swell Drawbars is disabled.

NOTE: You can set to play 1' Drawbar, while Percussion is on. (P. 74 #5)

SINGLE TRIGGER

If you play legato on this organ, only the first note of Percussion is output, and it does not trigger again unless you fully release all keys held on the Swell Manual.

VIBRATO adds warmth to the tone by slightly oscillating the Drawbar pitch.

CHORUS adds richness to the sound by doubling the fundamental slightly detuned.
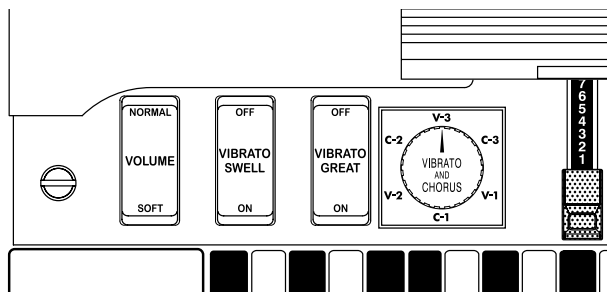
[VIBRATO SWELL] Tablet

This enables the Vibrato and Chorus effects on the Swell manual.

[VIBRATO GREAT] Tablet

This enables the Vibrato and Chorus effects on the Great manual.

> **NOTE:**   **You can choose to add Vibrato & Chorus effects on the Pedalboard. (P. 82 #10)**

[VIBRATO AND CHORUS MODE] Knob

This knob controls the depth of Vibrato and switches ON and OFF the Chorus Effect.

- **V-1**:   Light Vibrato
- **V-2**:   Standard depth Vibrato
- **V-3**:   Deepest Vibrato
- **C-1**:   Light Chorus
- **C-2**:   Standard depth Chorus
- **C-3**:   Deepest Chorus

> **NOTE:**   **You can fine-adjust the Vibrato and Chorus Effect. (P. 82)**

The overdrive gives distortion to the sound by highly increasing the pre-amplifier input gain. The genuine tube circuitry allows a wide range of sound from unclipped warm and clean to a hard distorted overdrive, by varying the amount of the overdrive control.
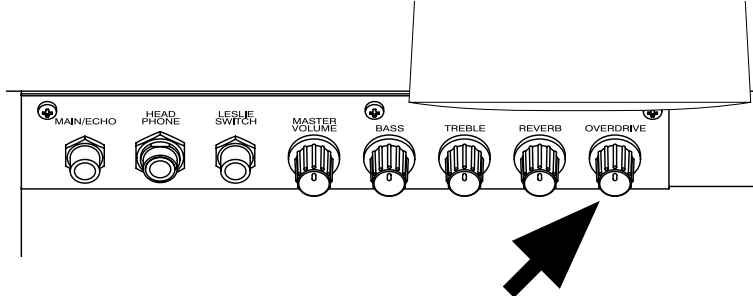
[OVERDRIVE] Knob

This is for controlling the amount of overdrive of the tube amp circuit.

Controls the distortion amount. Full left is "clean". The overdrive effect increases an you rotate the knob.

NOTE: You can fine-set the overdrive. (P. 80)

tips **TUBE AMP CIRCUIT**

Tubes are rarely used in modern electric apparatuses because semi-conductors have better characteristics and tubes are inferior in many aspects.

In the matter of sound production, the qualities of a genuine tube preamp have not been surpassed or duplicated.

In this organ, a real Tube circuit is used in the preamp.

The Leslie Speaker produces its unique effect by utilizing rotors that give tremolo, vibrato and motion to the sound.

The Leslie Speaker is controlled by the Leslie Speed Switch. If no Leslie Speaker is connected, this switch controls the built-in Leslie Effect.

CHORALE   STOP   TREMOLO
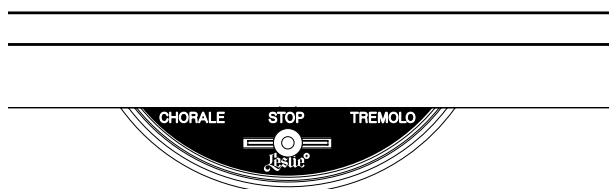
[CHORALE]

Rotors will turn slowly, producing an effect suitable for use with hymns, classical style music and some slower songs.

[STOP]

Rotors do not turn. Animation can be provided by using Vibrato and Chorus.

[TREMOLO]

Rotors will speed up and rotate fast to produce a rich full sound.

> **NOTE: Some Leslie Speakers will not recognize the "stop" position.**
>
> **NOTE: You can finely set the charactics of the built-in Leslie effect etc. (P. 84)**
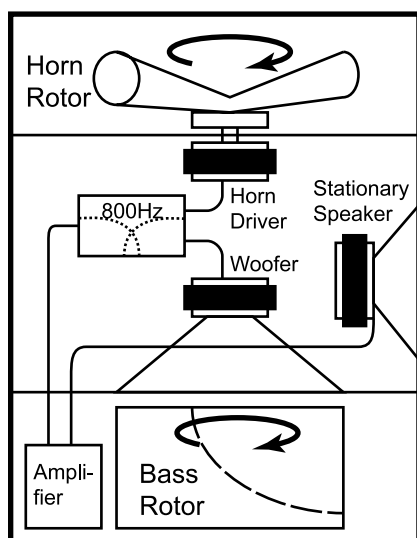
tips **WHAT IS THE LESLIE EFFECT?**

In the Leslie speakers, an amplifier and two rotors are incorporated, the "Horn Rotor" for the treble and the "Bass Rotor" for the bass.

The Horn Rotor uses a horn driver, and a Woofer speaker (usually a 15") fires into the Bass rotor. Each is driven by a speed controlled motor. The motion causes the "Doppler effect" that creates the distinctive Leslie sound.

There are also models that have not only rotors but stationary speakers.

The circuit that sends the sound to the rotors is called "Rotary Channel" and the stationary speaker circuit is called "Stationary Channel".

The built-in "Virtual" Leslie simulates the sound of the Mechanical speaker. The best effect is obtained when connected to a stereophonic amp or sound system.

When a Leslie Speaker is connected, the sound of this organ is sent only to the rotary channel, and the sound input from the LINE IN jack is sent to the stationary channel.

Horn Rotor

Horn Driver

800Hz

Stationary Speaker

Woofer

Amplifier

Bass Rotor

The Equalizer and the Reverb add a final touch to the tone.

The Equalizer regulates the tonal quality. The Reverb adds the effect of playing in a concert hall.

You control their basic functions on the panel under the left side of the keydesk.

Equalizer
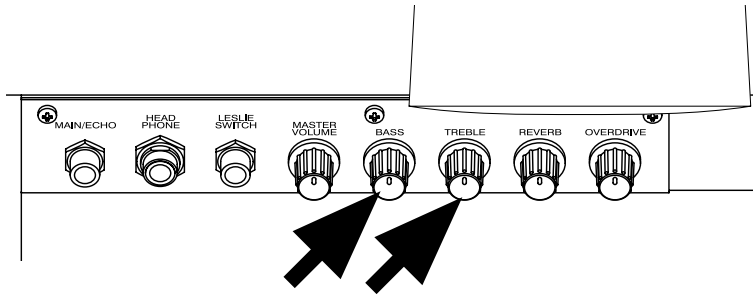
[BASS] Knob

BASS is assigned here at the time of shipment from the factory. This increases/decreases the bass sound. About ±9dB is adjustable at 100Hz.

[TREBLE] Knob

TONE is assigned here at the time of shipment from the factory. It increases/decreases the treble sound. About -9 to +3dB is adjustable at 10kHz.

> NOTE: The Equalizer actually has 3 bands and 1 tonal function, and one function is assignable to each BASS, TREBLE knob. (P. 88)

> NOTE: The "Tone" function here refers to the unique internal control on the vintage B-3 that gently cut the treble. This is a different function than the "Treble" EQ.

Reverb
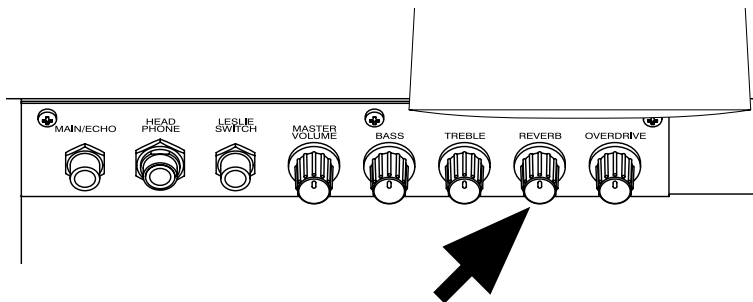
[REVERB] Knob

This is for controlling the depth of the reverb effect. It gives no reverb effect at full counter-clockwise. The reverb gets deeper as it is turned further clockwise.

> NOTE: You can finely set the reverb. (P. 89)

You can record all the aforementioned settings to the Presets. In the factory default setting, only the Drawbar registrations are called as on vintage B-3's.

BANK and KEY
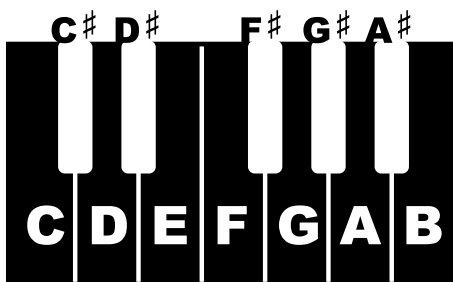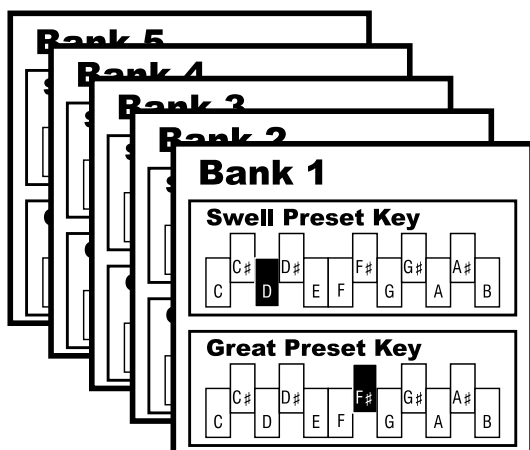
There are 5 "BANKS" of presets, each containing 12 presets corresponding to the reverse keys to the left of each manual. The SWELL and GREAT presets are independent of each other, but the BANKS are common to both manuals. You may only select one BANK at a time.

To select a "BANK", press the [PARAM] button in the PLAY mode. Then select a "KEY" by simply pressing a Preset Key. Refer to the chart below for each Key and the name.

> NOTE: The preset keys have no association with the "key signature" of the music that you might play.

The left-most key [C] is called "CANCEL" and used to mute the manual. No setting can be recorded to this key.

You can record the settings to all the keys [C♯] to [A].

The right-hand side keys [A♯] and [B] are also called "ADJUST PRESETS", and are used for creating sounds using the Drawbars A♯ or B respectively.

Please refer P. 43 for recording Presets, and P. 37 for calling Presets.

tips COMBINATION PRESETS

On the original B-3 organ the preset keys only stored drawbar registration information.

On this organ, various parameters such as Vibrato & Chorus and Percussion are recorded to the Preset Keys, as well as the Drawbar registrations. These are called "Combination Presets".

> NOTE: You can set the parameters to call on the Preset keys Bank by Bank. (P. 76)

Using Plural Presets at the Same Time
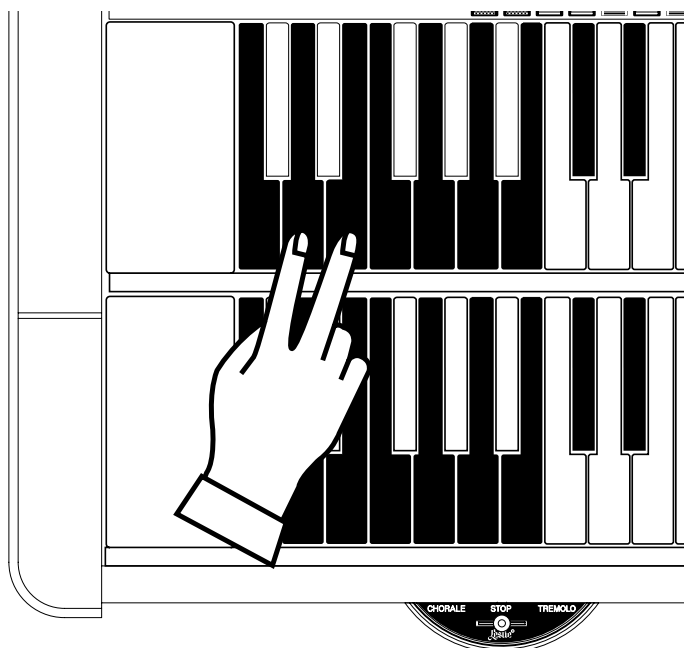
When pressing a Preset Key, the previously selected key is released. However, it does not mean you can not select more than one key.

If you select more than one Preset Key at the same time, the registrations recorded for all those keys are mixed. Try this.

If the other parameters than the registrations in the Preset Function Mode are contained in the preset, the contents of the key pressed last are called out.

In case you select all the Preset Keys by mistake and the Preset Keys do not function, press the [C] Preset Key, to release all of the Preset Keys.

Naming the BANK

You can name each BANK. (The KEYs have no name.)

① Go to MENU.
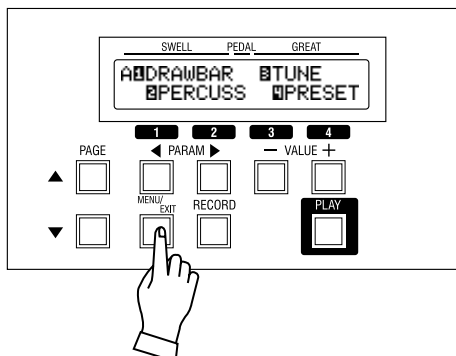
Press the [MENU/EXIT] button.

The [MENU] mode appears.

② Go to the PRESET FUNCTION mode.
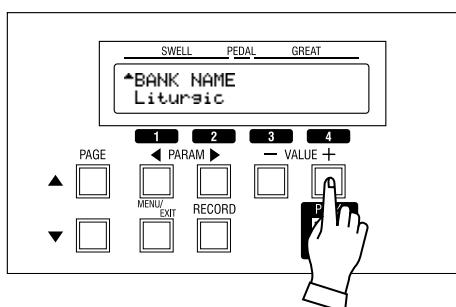
Press the [4] PRESET button, and go to the PRESET FUNCTION mode.

③ Input the NAME.
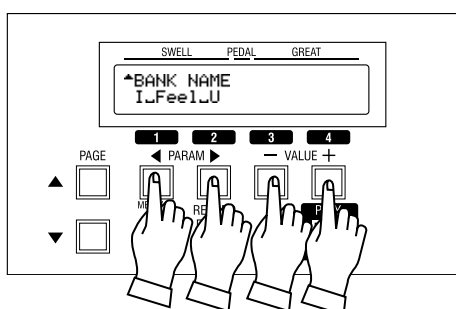
Up to 8 characters can be input.

    [PARAM] button: moves the cursor.

    [VALUE] button: selects the letters.

The characters available are signs, numerals, Capital and small letters.

To return to the top of each character selection, press the [VALUE] button holding down the [RECORD] button.

The Bank Name is recorded at the time of input. No recording operation is needed.

VOLUME

The volume of this organ is controlled in three ways.

[MASTER VOLUME] Knob
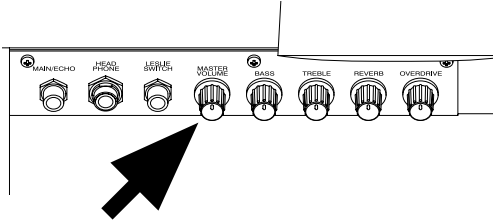
This controls the total volume of this organ (except the sound input from the LINE IN jack). This is the same as a volume knob on an ordinary electronic musical instrument or audio equipment.

Expression Pedal
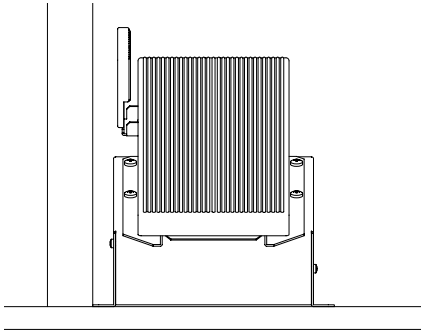
This is operated by foot. The volume increases as you fully depress the pedal. As you pull back the pedal, the volume decreases. As the volume is lowered, the tone becomes warmer as a side effect.

> **NOTE:** The volume and tone change can be adjusted by the Expression Pedal.(P. 91)
>
> **NOTE:** The Overdrive depth can be controlled by the Expression Pedal. (P. 80 #1)

[VOLUME] Tablet
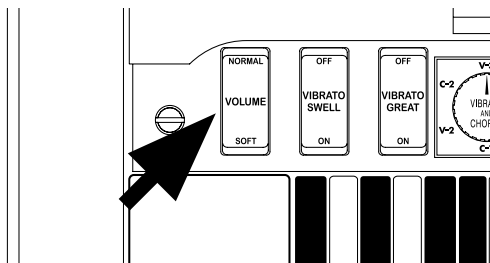
Normal volume at NORMAL. The volume is reduced to 1/3 of the normal volume at SOFT, with a small amount of Bass reinforcement.

When you play in a small room or practicing alone, you may play bass with rich deep tonal quality even at reduced volume by setting the [VOLUME] tablet at SOFT, instead of lowering the volume by using the [MASTER VOLUME] knob.

Digital Virtual Tone-Wheels and Bus-Bar Multi-contact manuals are used in this organ to replicate the sound, touch and feel of the original Hammond B-3 as faithfully as possible. Let's examine these exclusive patented features a bit deeper.

On modern electronic musical instruments, when a key is depressed, the sound engine plays. When multiple keys are pressed, the ear hears multiple notes, but this is an audio illusion. In actuality, only one voice is sounding at a time, but they are cycling so fast it sounds as if many notes are playing at once. The onboard processor "scans" the manual for the notes pressed and feeds that information to the sound engine. The technology is called "Keyscan" and "Dynamic Voice Allocation".

These technologies have worked admirably for synths, but they have problems for replicating the original B-3 sound and touch. In the mentioned technologies, there is one contact point, and even that is subject to latency.

When the Hammond Organ was born in 1934, there was no digital technology to rely on for the keying system. An ingenious mechanical system was devised using a stack of 9 contacts under each key, 9 bus-bars that ran the length of the manual, and an actuator rod which would close the contacts from top to bottom as the key was depressed.

Those bus-bars corresponded to each of the harmonics represented on the drawbars. A complex wiring harness completed the matrix, which sent the signals from the closed contacts of the manual to the drawbars, which allowed, or suppressed the tones from the ever-spinning, ever-playing Hammond Tone-Wheels.

As the Hammond Organ gained popularity, musicians noted a few curious side-effects courtesy of that mechanical action. One was a rudimentary "touch sensitivity". The actuator rod did not trip all nine contacts at once, in fact, if the key was not fully depressed, only a few contacts were closed. This put a randomness in the sound, and was almost instantly exploited by organists everywhere. Dr. Lonnie Smith wows audiences by simulating the sounds of Congas on his Hammond. Jazz, Blues and Gospel organists developed a move where they lightly "skipped" a chord up the manual, only to blaze a glissando back down. The sound was, and is, indescribable, but was an outlet for pure emotion. The great Jimmy Smith invented a registration/technique called "squabbling" that took full advantage of the manual response.

The other happy side-effect was really a defect. When you consider the Hammond Keying system, it might be easier to think of it as a whole bunch of electric switches. By nature; through age, corrosion, and contamination, electric switches become "dirty". Witness the "crackle" on older radios, or the flicker of a light. The Bus-Bar switches on Hammond were not exempt, and they started to exhibit symptoms of noise right from the start. The funny thing was, this little random chatter gave a distinctive edge to the organ's sound, very much like the pick noise on a guitar, or the resinous scrape of the bow on a violin. The key-click, as it was called made the electric organ sound less electric, and...more organic! The sound was fresh and new. The Hammond engineers tried valiantly to correct this, but happily, they never did.

When the New B-3 was being designed, the hallmark was authenticity. But it didn't make sense to recreate the mechanical Tone-wheels of old. After all, it was just sine waves that they put out, and that's a child's game in today's digital technology. Previously, modern organ manufacturers (including Hammond) relied on looped samples of vintage instruments. Close, but no cigar. What if the entire concept of the B-3 was expressed in modern terms? 96 virtual tone wheels, each putting out their sine-wave constantly, just as the mechanical ones did, so that when keys were played, the entry point into each sine wave was random. The resultant phase relationship between the tones was chaotic, and in this case chaotic is good. The richness of tone would rival the sweetest vintage B-3. Whereas the mechanical tone generator was not the way to go, the bus-bar multi contact keying system could not be rightly duplicated in the digital realm.

Hammond-Suzuki engineers found a way to leap 1930's technology to the cutting edge by being faithful to the past with an eye on the future. They reinvented the buss-bar multi-contact keying system in such a way that the touch is indistinguishable from a vintage B-3.

Their efforts lie before you today, in your organ.

USING THE
CONTROL PANEL

You can refine and tailor the settings made on the topside controls here, as well as adjust the MIDI settings and all other parameters.

The display modes are PLAY, MENU, and FUNCTION.

The controls are explained on the following pages.

PLAY mode

```
■■■■■■■■■■88■■■■■■■■■
1:Liturgic P.SUS=OFF
```

MENU mode

```
A DRAWBAR    B TUNE
  C PERCUSS   D PRESET
```

FUNCTION mode

```
▲VIB   V1  V2  V3
DEPTH   8  10  14    ▶
```
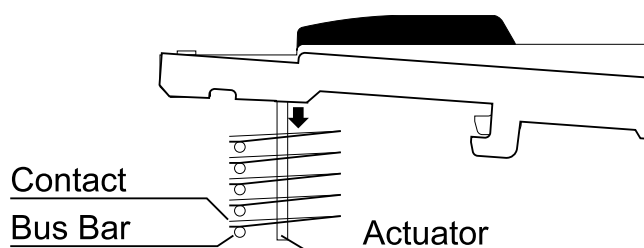
The PLAY MODE is the basic display for all the operations. The necessary information for the normal play will be displayed.

To locate this mode:
1. Immediately after powering ON and the start up process is complete, the PLAY mode is displayed.
2. If a different mode is displayed, press the [PLAY] button.

How to read the Display

Drawbar registration
SWELL Kbd/ PEDAL Part/ GREAT Kbd

BAR display

You can toggle the two PLAY mode displays (the bar display and the digital display) by pressing the [PLAY] button.

Preset Bank : Name   PLAY   Pedal Sustain

DIGITAL display

Manual Bass

Button operation in this mode

SWELL   PEDAL   GREAT

Switch the Bank.

Bar display:
turns on/off the Pedal Sustain.
Digital display:
 turns on/off the Manual Bass function.

PAGE   PARAM   VALUE

MENU/EXIT   RECORD   PLAY

Display the Menu.   Record the Presets.   Switch the display, Bar or Digital.

The MENU mode is the path for each function.

To locate this mode:

Press the [MENU/EXIT] button.

The FUNCTION displays are distributed over several pages. Use the [PAGE] buttons to scroll through them and reach the desired display.

How to read the Display

PAGE   FUNCTION ITEM

```
D DEFAULT   SETUP
  SYSTEM    CF FORM
```

```
C EX.ZONE   CONTROL
  MANBS     CUST.TW
```

```
B TUBE AMP  LESLIE
  VIB&CHO   REVERB
```

```
A DRAWBAR   TUNE
  PERCUSS   PRESET
```

PAGE

▲

▼

Button operation in this mode

SWELL   PEDAL   GREAT

```
A DRAWBAR   TUNE
  PERCUSS   PRESET
```

1   2   3   4

PAGE

◄ PARAM ►   — VALUE +

MENU/EXIT   RECORD   PLAY

▲

▼

These buttons are for scrolling from page to page. You can jump to the top or bottom page by pressing these buttons holding down the [RECORD] button.

These are for entering each FUNCTION MODE corresponding with the item displayed.

This button is for returning to the PLAY mode.

The FUNCTION MODE is where you adjust the various parameters of the organ.

The displays generally follow the same format.

How to read the Display

This indicates there are PAGEs above (or below).

PARAMETER

This indicates there is another section to this page on the right (or on the left).

```
↕HORN SLOW FAST LEV
 SPD   36  393    0▶
```

PAGE NAME

VALUE

CURSOR (Flashing VALUE)
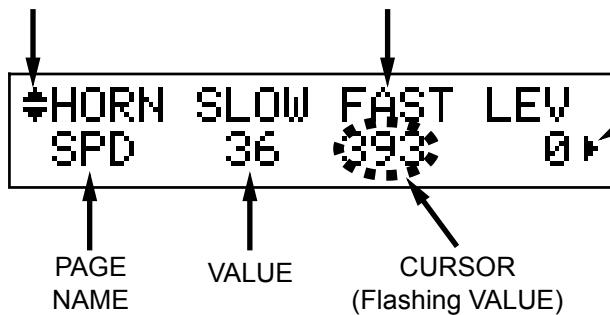
tips CURSOR

In the display window of this organ, the CURSOR is displayed by flashing the current value.

Button operation in this mode

SWELL   PEDAL   GREAT

```
↕HORN SLOW FAST LEV
 SPD   36  393    0▶
```

1   2   3   4

PAGE   ◀ PARAM ▶   — VALUE +

MENU/EXIT   RECORD   PLAY

These buttons are for scrolling within the pages of the display.
You can jump to the top or bottom page by pressing these buttons with holding down the [RECORD] Button.

These buttons are used to move the CURSOR right or left for selecting the PARAMETER to change.
The CURSOR moves to the edge of the display and on to the next page (on the right or left), if there is one.
Pressing this button holding [RECORD] button, you can move to the right or left page regardless of where the cursor is.
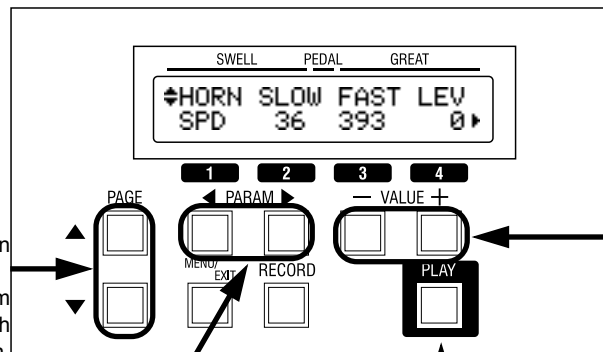
Increases or decreases the value of the Parameter indicated by the flashing CURSOR.
Holding it increases (or decreases) the value continuously.
Pressing it while holding the [RECORD] button increases (or decreases) the value quickly.

Return to the PLAY mode.

Example: Increase the depth of Vibrato at [V-3].

1 Locate the MENU Mode.

```
       SWELL     PEDAL     GREAT
  A DRAWBAR   B TUNE
    PERCUSS     PRESET
```

        1   2   3   4

PAGE   ◀ PARAM ▶   — VALUE +

▲

▼   MENU/EXIT   RECORD   PLAY
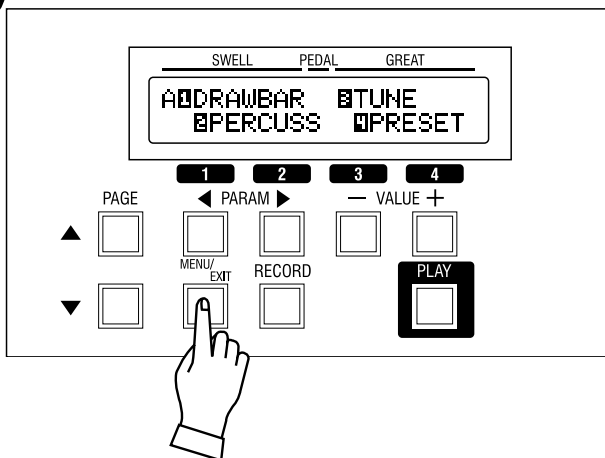
Press the [MENU/EXIT] button.

The MENU mode is displayed.

2 Selet the PAGE.

```
       SWELL     PEDAL     GREAT
  B TUBE AMP  B LESLIE
    VIB&CHO     REVERB
```

        1   2   3   4

PAGE   ◀ PARAM ▶   — VALUE +

▲

▼   MENU/EXIT   RECORD   PLAY
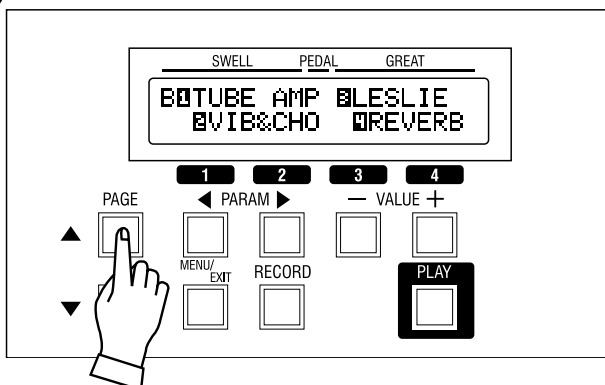
Search for the VIB&CHO page, using the [PAGE] button.

"VIB&CHO" is on PAGE B. Select PAGE [B].

3 Press the Number button.

```
       SWELL     PEDAL     GREAT
  ▲VIB   RATE   TREM
   V&C  6.83Hz    10   ▶
```

        1   2   3   4

PAGE   ◀ PARAM ▶   — VALUE +

▲

▼   MENU/EXIT   RECORD   PLAY
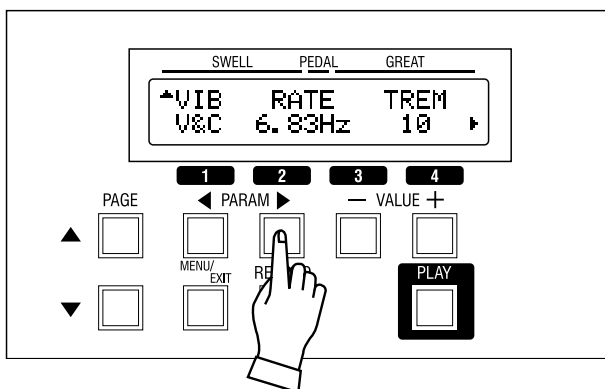
Press the [2] button for "VIB&CHO".

This calls the first page of the Vibrato and Chorus function mode.

④ Move the CURSOR to the Parameter you want to change.

```
        SWELL    PEDAL    GREAT
   ‡VIB   V1   V2   V3
   DEPTH   8   10  ►14◄  ►
```
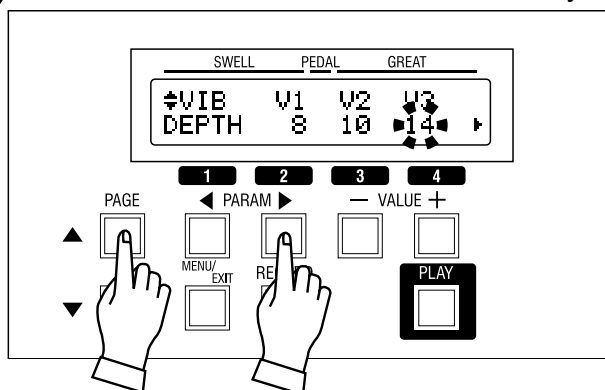
Vibrato Depth is on the "DEPTH" page. Move to that page using the [PAGE] button.

"V3" is on the right end. Move the cursor (flashing value) to "V3" using the [PARAM] button.

⑤ Change the Value.

```
        SWELL    PEDAL    GREAT
   ‡VIB   V1   V2   V3
   DEPTH   8   10  ►15◄  ►
```
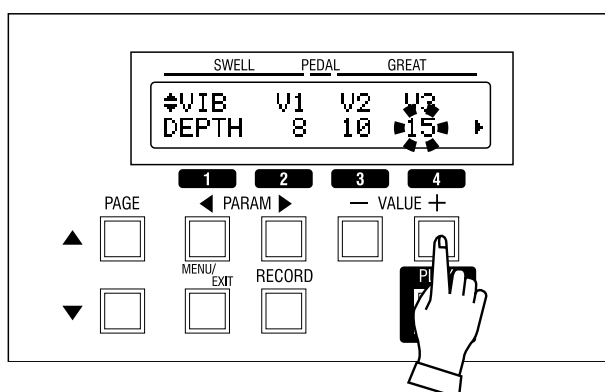
Increase the value, using the [VALUE] button.

> NOTE: Repeat the operation 1 - 5, if you want to change other parameters.

⑥ Record in to the Preset Key.

The "Vibrato Depth V3" is a Preset Parameter, it will revert to the set value, if you select any Preset Key (when the PRESET - P. LOAD - ANI/OD is "ON").

If you wish to continue using the changed value, you must record the value into the Preset Key.

```
        SWELL    PEDAL    GREAT
   ▲SWELL       KEY P.REC
   1:Liturgic  --  [OK]
```
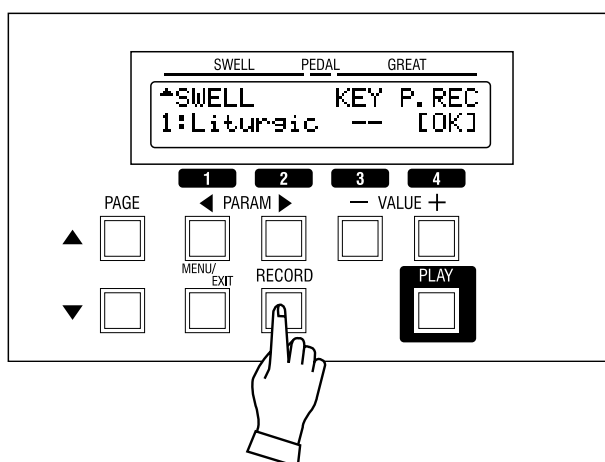
tips **PRESET PARAMETERS**

Preset Parameters may be recorded into each Preset Key.

They include the Parameters for setting the status of the buttons/knobs on the top panel, such as "Vibrato Depth V3" and others.

The overall common Parameters (which are not included in the Presets) are called "Global Parameters."

This advanced feature allows you to put the organ into a special playing mode whereby the Control Panel is rendered inoperative. Pressing any of the Select Touch Buttons will have no effect. This is useful when you want to place the organ in public halls, Churches or auditoriums.
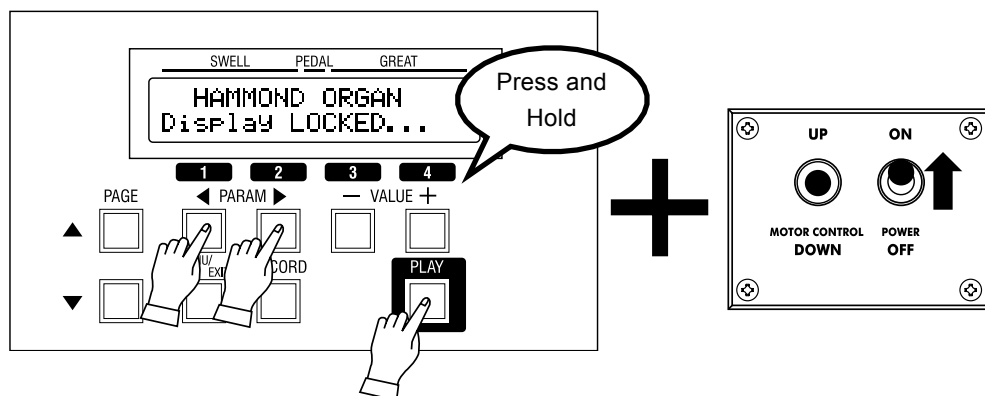
To initiate the Display Lock function, switch on the power pressing and holding both PARAM [◀], [▶] buttons and the [PLAY] button together. "Display LOCKED..." will be displayed for a few seconds. To unlock it, do the same thing as above. This time "Display UNLOCKED.." will appear for a few seconds.

NOTE: You can operate the BANK switch, Pedal Sustain and Manual Bass while the Display Lock function is on.

SETTING THE PARAMETERS
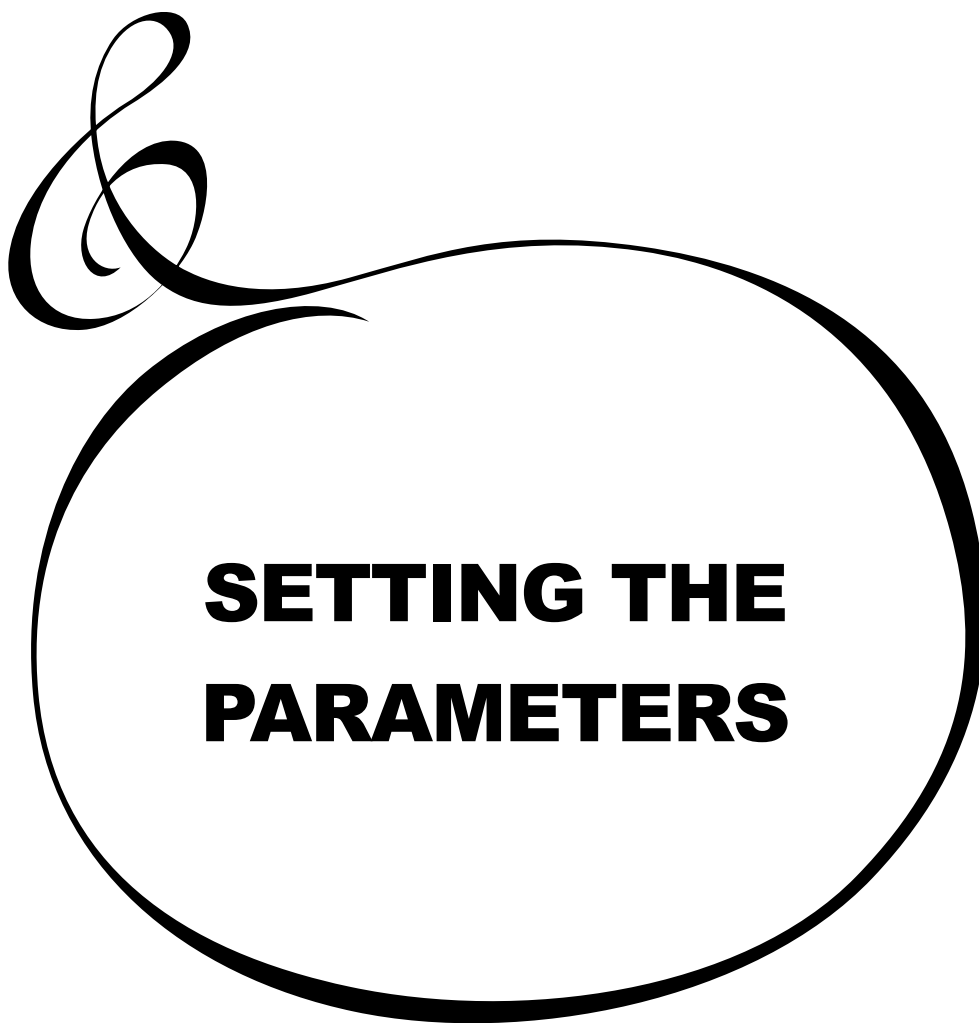
In this mode, you set the Drawbar Parameters.

To locate this mode:

Press the [MENU/EXIT] button and display MENU, press the [PAGE] button, and select PAGE A, and choose [1] DRAWBAR.

```
❺
 ▾PEDAL     ATTACK     ▾PEDAL  DCY SL MODE   ▾PEDAL  ⓫8'--555555-
  Normal ❻NORM CLK   ▸ Normal❼C❽3❾POLY▸   SUBDB ❿16'85851111-
 ▴SWL&GRT   LEAKAGE    ▴SWL&GRT LO-FOLD-HI
  BType1 ❷    64    ▸ BType1❸2C      ❹4G
❶
```
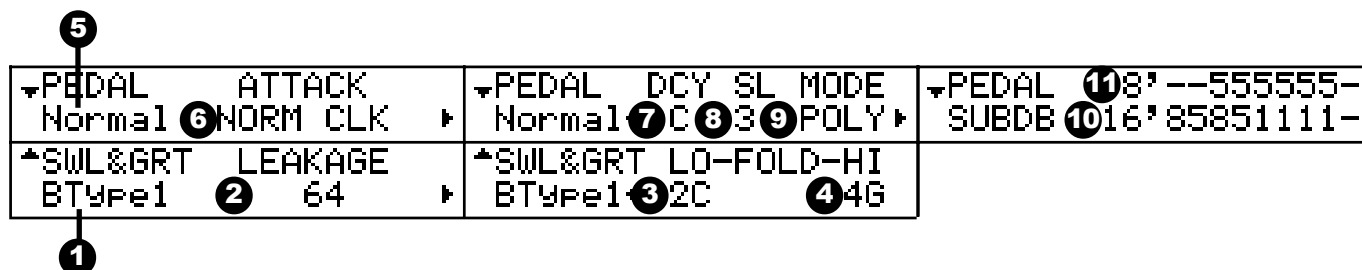
◆Setting the SWELL and GREAT Manual

1. TONE-WHEELS

Select the TONE-WHEEL SET (waveform) for the manuals.

BType1:
Traditional tone-wheel sound of the original B-3. Leakage noise is included in the waveform. You can not adjust the volume of the inherent leakage noise.

BType2:
Traditional tone-wheel sound of the original B-3. Leakage noise is not included in the waveform. You can add and adjust the volume of leakage noise.

Mellow: Transparent sine wave

2. LEAKAGE

This is for setting the volume of Leakage Noise.

Setting Range is 0 to 127. The more you increase the value, the louder gets the volume.

3. FOLD-BACK - LOW

This allows you to set which key the FOLD BACK of the 16' Drawbar starts. (Fold-back: Repeating the same octave in a certain range on the manual.)

The first key (= the far left key on the manual, next to the Preset Keys) is displayed as "1C". The setting range is 1C - 2C.

4. FOLD-BACK - HIGH

This allows you to set which key the FOLD BACK of the 1' Drawbar starts (= repeat the same octave) in the upper-most range. The set range is 4G - 5C.

NOTE: The FOLD-BACK sets the 1' and also 1^1/$_3$', 1^3/$_5$', 2' and 2^2/$_3$' Drawbars.

tips **TONE-WHEEL SET**

Each Tone-wheel Set allows you to make fine adjustment. (P. 92)

tips **LEAKAGE NOISE**

On the original B-3, while the sound created by a certain tone-wheel goes through various circuits, the sounds of the other plural tone-wheels are mixed. This is called Leakage Noise. Leakage noise itself is unnecessary for synthesizing pure sounds. However, it is accepted rather as one of the unique characteristics of Hammond Organs.

Leakage Noise allows you to make finer adjustment. (P. 92)

tips **FOLD-BACK**

As the number of the tonewheels was limited on the original B-3, the organs were designed to repeat the same octave in the upper-most or lower-most range. This feature of this organ will simulate that.

◆Setting the PEDAL Part

5. TONE-WHEELS

This allows you to select the Virtual Tone-wheel set (waveform) of the PEDAL Part.

Normal: The traditional B-3 Tone-wheel sound
Muted: Analog-oscillating sound represented by the X-5.
Synth1: Sawtooth waveform with sweep filter.
Synth2: Dull square waveform.

6. ATTACK

This allows you to set the Attack Rate and the Key-Click Volume at ATTACK and RELEASE.

MAX CLK: Immediate attack with loud key-click.
NORM CLK: Immediate attack with normal key-click.
SOFT CLK: Immediate attack with soft key-click.
NO CLK: A slightly slower attack without key-click.
SLOW ATK: Slow attack without key-click.

7. DECAY RATE

This allows you to choose whether the voice is continuously sustained, or decays while the pedal is depressed.

The setting range is 1 - 5 and C. The higher the value gets, the longer the decay time. There is no decay at C (=continuous).

8. SUSTAIN - LENGTH

This allows you to set the Release Rate (= the decay time after you release the key) of Pedal Sustain, when the "P.SUS" on the PLAY Mode (P. 42) is ON.

1 is the shortest, and 5 is the longest decay time.

9. KEY MODE

This allows you to set the Pedal Part voice mode.

POLY: Makes it possible to play up to 8 notes together.
MONO: Only the lowest note will sound, regarless of how many keys are depressed.

NOTE: The previously released note will be cut when you play the next one, even when the PEDAL Part is in the POLY mode and "P. SUS" is ON.

10. SUB-DRAWBAR 16'

This is for controlling the harmonic combination of Pedal Drawbar 16'.

It is possible to control each footage of 16', $5^{1}/_{3}$', 8', 4', $2^{2}/_{3}$', 2', $1^{3}/_{5}$', $1^{1}/_{3}$'.

11. SUB-DRAWBAR 8'

This is for controlling the harmonic combination of Pedal Drawbar 8'.

It is possible to control each footage of 8', 4', $2^{2}/_{3}$', 2', $1^{3}/_{5}$', $1^{1}/_{3}$'.
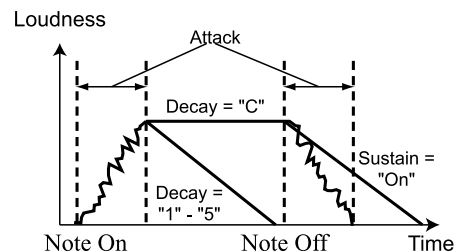
tips SUSTAIN

Not like the "Sustain" segment of a synth envelope generator. On this organ "Sustain" refers to the decay of the note after the key or pedal is released.

tips SUB-DRAWBARS

The two Pedal Drawbars, 16' and 8', of on the original B-3, did not simply produce the corresponding tone-wheel sounds but the sounds of registrations composed of several harmonics. These registrations differ from model to model depending when the organs were made. Sub-Drawbar function is for controlling the registrations of Pedal Drawbars.

NOTE: All the parameters in these modes are Preset Parameters. They are recorded into the Combination Preset.

In this mode, you set the parameters of the PERCUSSION.

To locate this mode:

1. Press the [MENU/EXIT] button and display MENU, then select PAGE A by the [PAGE] button and press the [2] PERCUSS button.
2. Or, move any [PERCUSSION] tablet pressing the [MENU/EXIT] button.

```
▼PERC    1'CANC  LEVEL
 DRAWB  ❺ON   ❻-3dB
```
```
▲▼PERC    SLOW    FAST
 DECAY  ❸8      ❹3
```
```
▲PERC    SOFT    NORM
 LEVEL  ❶6      ❷12
```

1. **LEVEL - SOFT**
2. **LEVEL - NORMAL**

These are for setting the Percussion volume level. SOFT is the level when the [PERCUSSION VOLUME] tablet is in "SOFT", and NORMAL is the level when it is in "NORMAL".

3. **DECAY - SLOW**
4. **DECAY - FAST**

These are for setting the Percussion Decay time.

SLOW is the time when the [PERCUSSION DECAY] tablet is in "SLOW", and FAST is the time when it is in "FAST".

The setting range is 1 - 15 and C. The higher the value gets, the longer the Decay time. At C, there is no decay (Percussion sound is continuous).

5. **DRAWBAR - 1' CANCEL**

This mutes the 1' of the SWELL Drawbar while using PERCUSSION.

ON: Mute
OFF: Does not mute.

6. **DRAWBAR - LEVEL**

Decreases the volume of the Swell Drawbars while using PERCUSSION, and [PERCUSSION VOLUME] tablet is in "NORMAL".

-5dB: Decreases the volume 5dB
-3dB: Decreases the volume 3dB
0dB: No decrease in volume

NOTE: The parameters in those modes are all Preset Parameters. They are recorded to each Combination Preset.

tips 1' CANCEL

The original B-3 had no key contact exclusive for percussion but uses the 1' contact for percussion. On this organ, this is simulated.

tips DRAWBAR LEVEL

On the original B-3, the Drawbar volume was slightly softer, when percussion was enabled. This is simulated on this organ.

In this mode, you can tune and transpose the organ for playing in ensemble with other instruments and performers.

To locate this mode:

Press the [MENU/EXIT] button (MENU will be displayed), select PAGE A by the [PAGE] button and press the [3] TUNE button.

```
TUNE XPOSE MASTER
MAST ❶+0   ❷A=440
```

1. TRANSPOSE

You can transpose the entire keyboard by semi-tones.

The setting range is -6 to +6.

Transpose affects:

- The Organ Manuals/Pedals and Digital Toneweheel system
- The MIDI External Zones

2. MASTER TUNE

This is for adjusting the PITCH of the entire organ.

The setting range is A = 430 - 450 Hz.

NOTE: The parameters in this mode are Global Parameters. They are recorded when the value is set. Also, they are common at each Combination Preset.

In this mode, you name your Bank, and determine how to recall the Combination Presets.

To locate this mode:

Press the [MENU/EXIT] button and display MENU, then press the [PAGE] button to select PAGE A and press the [4] PRESET button.

```
▼P.LOAD   GREAT-PEDAL   ▼P.LOAD SWELL GREAT    ▼P.LOAD DRAWB PERCUS
 LINK        ❷OFF      ▶  RESIST❸ON   ❹ON   ▶  DB/PC ❺OFF  ❻OFF▶
▲BANK NAME
❶Liturgic
```

◆BANK NAME

1. BANK NAME (B)

This allows you to name the current Bank using up to 8 letters.

Move the cursor by the [PARAM] button, and choose the letters by the [VALUE] button or the [VALUE] knob.

The BANK name is recorded at the time of operation, so no recording operation is needed.

◆PRESET LOAD

This allows you to choose the operation of the Preset Keys.

2. PRESET LOAD - LINK GREAT/PEDAL (B)

This is for setting whether or not to call out the Pedal part Preset simultaneously by the Great Preset Key.

In this mode, recording a preset on the Great (Lower) manual will also record the Pedal registration. This was not possible on vintage B-3's.

3. PRESET LOAD - REGISTRATION SWELL (B)

This is for setting whether or not to call out the registration of the Swell manual by the Swell Preset Key.

4. PRESET LOAD - REGISTRATION GREAT (B)

This is for setting whether or not to call out the Great Manual registration by the Great Preset Key.

5. PRESET LOAD - DRAWBAR (B)

This is for setting whether or not to call out the Drawbar Parameters by the Swell Preset Key.

tips **PRESET LOAD**

Only the Drawbar registrations were recorded to the Preset Keys on the original B-3. On this organ, not only the Drawbar registrations, but also various parameters will be recorded simultaneously. These are called "Combination Presets".

As the factory default, only the Drawbar registrations are called out as on the original B-3(except Bank 4: ShowCase). But you may save various parameters that can be called out by turning on the Preset Load.

```
┌─────────────────────────┬─────────────────────────┐
│▾P.LOAD MBS S-EXT-G      │▾P.LOAD EQ/RV ANI/OD    │
│ ZONE  ❼OFF❽OFF❾OFF ▸    │ EFFECT❿OFF   ⓫OFF     │
└─────────────────────────┴─────────────────────────┘
```

6. PRESET LOAD - PERCUSSION (B)

This is for setting whether or not to permit the Percussion division to play while the selection of the Swell Preset Key is other than [B] and whether to call out the tablets of Percussion, or Percussion Parameter by the Swell Preset Key.

7. PRESET LOAD - MANUAL BASS (B)

This is for setting whether or not to call out the Manual Bass ON/OFF, and upper limit by the Great Preset Key.

8. PRESET LOAD - EXTERNAL ZONE SWELL (B)

This is for setting whether or not to call out the External Zone Parameter of the Swell manual by the Swell Preset Key.

9. PRESET LOAD - EXTERNAL ZONE GREAT (B)

This is for setting whether or not to call out the External Zone Parameters of the Great manual by the Great Preset key. The External Zone Parameters of the Pedal part is also called out, if the Link-Great/Pedal is on.

10. PRESET LOAD - EQUALIZER/REVERB (B)

This is for setting whether or not to call out the Parameters of the Equalizer and Reverb by the Swell Preset key.

11. PRESET LOAD - ANIMATION/OVERDRIVE (B)

This is for setting whether or not to call out the tablets and parameters of Vibrato, Leslie and Overdrive by the Swell Preset Key.

NOTE: Each Parameter (B) of Preset Load is a Bank Parameter. It is set only for the BANK currently selected.

See the current value (Temporary Scope)

The Combination Presets recall settings internally, and these settings will not reflect the current physical positions of the Drawbars, tablets and knobs on the organ's top panel.

By means of the Temporary Scope function, you can tell the present value of each tablet or knob as selected by the Combination Preset.
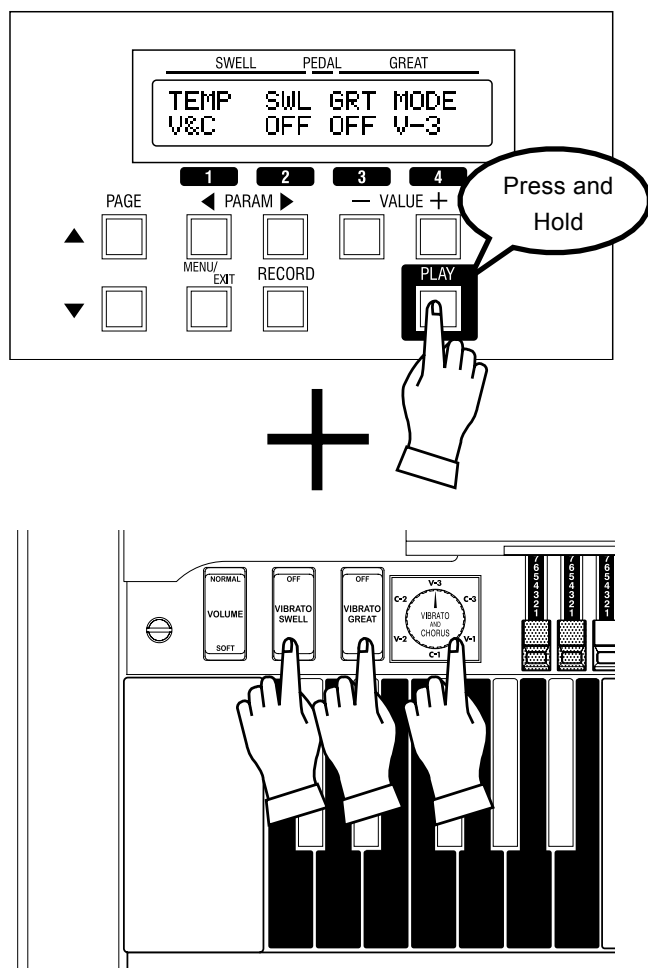
◆VIBRATO AND CHORUS

To see the value of each tablet and knob of Vibrato and Chorus, move either knob of the [VIBRATO SWELL], [VIBRATO GREAT] or [VIBRATO and CHORUS] knob, holding down the [PLAY] button on the Control Panel.

The present value of Vibrato & Chorus is displayed. Their values are not affected by the actual physical positions of the tablet or knobs.

◆PERCUSSION
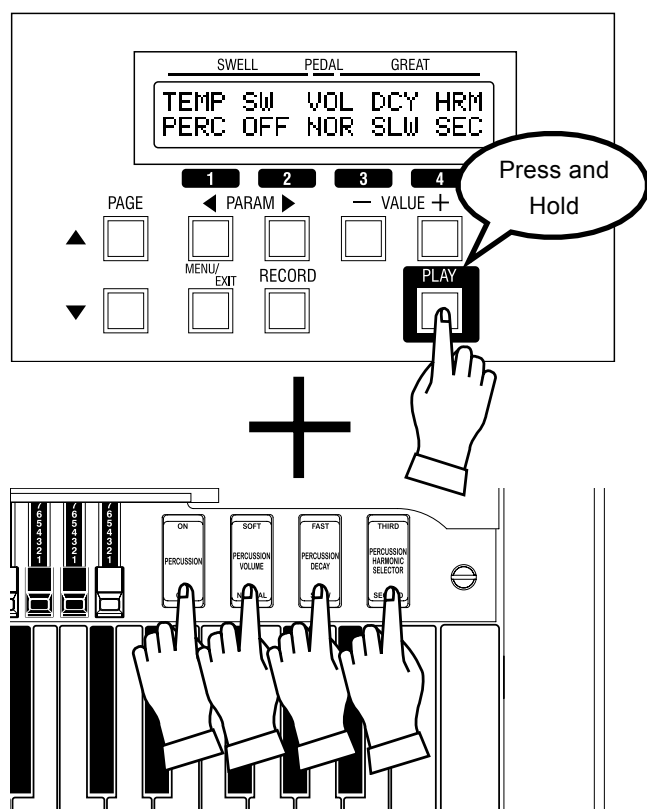
To see the present value of the Percussion tabs, move any of the [PER-CUSSION], [PERCUSSION VOLUME], [PERCUSSION DECAY], [PERCUSSION HARMONIC SELECTOR] tablets, holding down the [PLAY] button on the Control Panel.

The present value of Percussion appears on the display. At this time, the present value is not affected by the current position of the tablet.

◆LESLIE
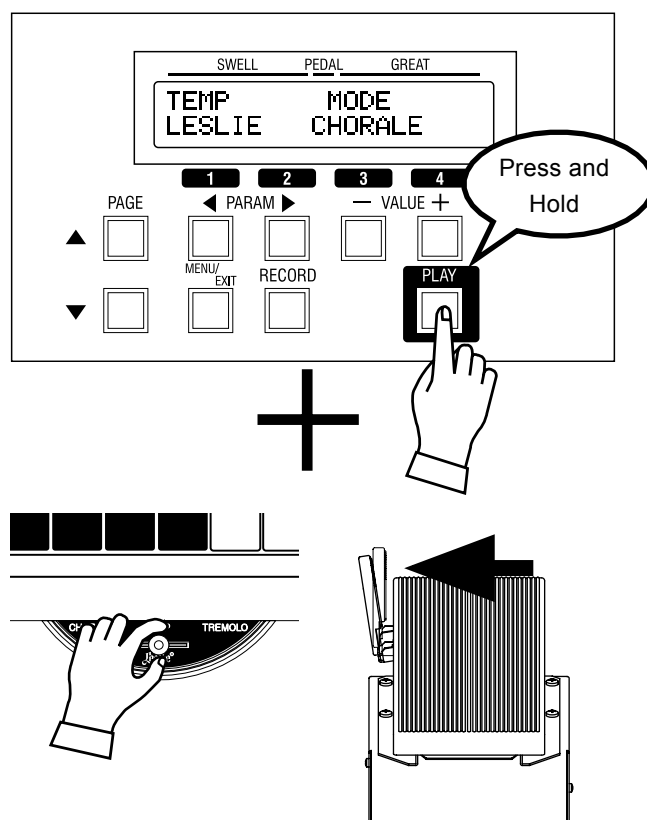
To know the present Leslie mode, operate the Leslie Speed Switch or the Foot Switch (if Leslie C/T is assigned), holding down the [PLAY] button on the Control Panel.

The present Leslie mode is displayed. The Leslie mode itself is not affected by this operation.

◆Other Knobs

Besides the aforementioned knobs. The [OVERDRIVE], [REVERB], [BASS], [TREBLE] knobs are on this organ. If you operate them holding down the [MENU/EXIT] button, you can short cut to the function mode relating to those knobs.

The Tube Pre-Amp settings are made in this mode.

To locate this mode:

1. Press the [MENU/EXIT] button to display the MENU, select PAGE B by the [PAGE] button, and then press the [1] TUBE AMP button.
2. Or, move [OVERDRIVE] knob pressing the [MENU/EXIT] button.

```
▼BUFFER   TUBE BIAS
      ❹OFF ❺+ 0

▲OD    EXP   BIAS DRIV
  ❶EX-OD +  0   ❸0
            │
            ❷
```
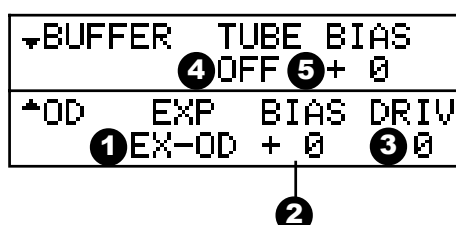
1. OVERDRIVE - EXPRESSION

This is for varying the Overdrive value by operating the Expression.

EX-OD:
If you operate the Expression Pedal, the overdrive changes along with the volume.

OD-EX:
The Expression affects only the volume and not the overdrive value.

2. OVERDRIVE - BIAS

This parameter finely adjusts the bias voltage of the tube 12AU7.

The setting range is -32 to +31.

3. OVERDRIVE - DRIVE

This is for adjusting the Overdrive Value.

The overdrive increases as the value increases.

This is linked with the [OVERDRIVE] knob on the volume panel.

4. BUFFER - TUBE AMP

This is for switching the buffer on/off by the tube 12AX7. All the signals of the Swell, Great, Pedal pass through this circuit.

NOTE: If you are using the LINE OUT jack and the HEADPHONE jack, the Buffer Amp works only on R (right).

5. BUFFER - BIAS

This parameter finely adjusts the bias voltage of the tube 12AX7.

The setting range is -32 to +31.

NOTE: The parameters in these modes are Preset Parameters and are recorded to each Combination Preset.

❖ *Please understand that the tone color or the depth of Overdrive varies from organ to organ even if the parameter are the same, as the characteristic of each tube is different.*

tips **USING THE EQUALIZER TOGETHER**

If you distort the sound by overdrive or by changing the bias, new harmonics are added. By using the equalizer, a wider range of tones may be acquired.

tips **BUFFER AMPLIFIER**

A Buffer Amp changes the characteristics of the sounds passed through it, without modifying the gain. This organ uses a tube and a transformer in its buffer amp.

Bias voltage and Nonlinear Distortion

To make the vacuum tube function as an audio amplifier, a minus voltage called bias voltage is added to the input terminal (called grid) as well as the audio signal.

Although, the bias voltage is generally fixed so that the distortion of the output wave-form of the tube is at the minimum, the bias voltage can be changed when the tube amplifier is overdriven on this model.

By this parameter, you can adjust the characteristic of distortion to your taste.

DRIVE: 40
BIAS: -31

Output Wave
DRIVE: 40
BIAS: 0

Output Wave
DRIVE: 40
BIAS: +31
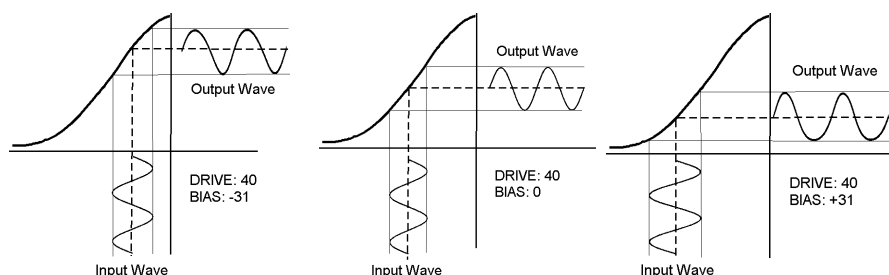
The change the bias voltage gives to the sound distortion may not be very noticeble, depending on the drive amount or the drawbar registration. The best way to check it precisely is as follows:

1. Set the Drawbar registration at "00 8000 000" (either manual).
2. Locate the TUBE AMP - OD page.
3. Set the Drive near 40. (Make sure it is not the maximum value.)
4. Move the cursor to BIAS.

```
▲OD   EXP  BIAS DRIV
EX-OD +  0    40
```

5. Play the chord on the manual as shown.
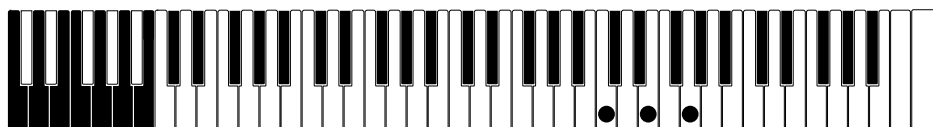
Change the value of BIAS, pressing the keys. The degree of distortion is slight near "0", but the distortion increases, if you change the value towards "+" or "-". Such a distorting sound is called "nonlinear distortion".

NOTE: On the original B-3, distortion occasionally would occur naturally as the instrument would age. On this organ, you can create natural-sounding distortion intentionally.

tips GRID

The grid is one of the poles of the tube. In the triode tube used on this model, there are 3 poles, the cathode, the plate and the grid. The electrons are attracted towards the plate if the heated cathode is loaded with voltage. By changing the voltage on the grid, the voltage flowing to the plate greatly changes.

tips NONLINEAR DISTORTION

An amplifier without distortion amplifies input in proportion (=linear) with output, as shown in the figure below.

Input Wave   TUBE AMP: OFF
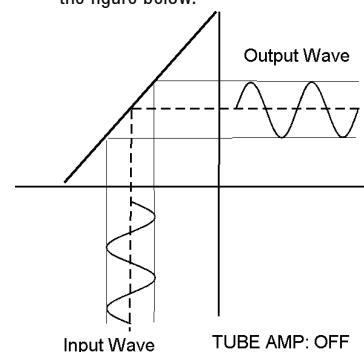
If the bias voltage is changed, input and output are not in proportion with each other, as shown in the figure on the left. The distortion caused by this is called non-linear distortion.

tips CLIPPING DISTORTION

If the drive is at the maximum, the end of the waveform is cut (off), as shown in the figure below. This is called clipping distortion.

12AU7

12AX7

Input Wave
DRIVE: 63
BIAS: +24

VIB&CHO (VIBrato and CHOrus)
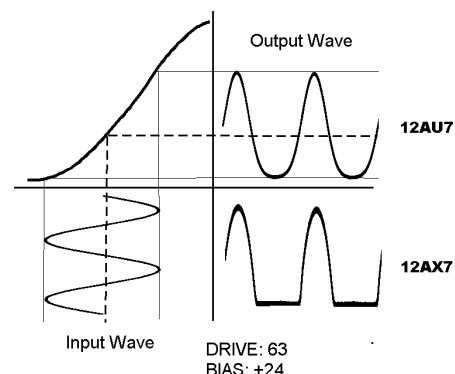
In this mode, you change the settings of the Vibrato and Chorus.

To locate this mode:

1. Press the [MENU/EXIT] button to display the MENU, select PAGE B by the [PAGE] button, and then press the [2] VIB&CHO button.
2. Or, move any [VIBRATO] tablet pressing the [MENU/EXIT] button.

```
↓VIB     GREAT          ┃
 TAB ❿GREAT&PEDAL       ┃
╪VIB  V1  V2  V3        ┃ ╪VIB   C1  C2  C3
DEPTH ❹8❺10 ❻14    ▶  ┃ DEPTH◀❼8 ❽11 ❾14
↑VIB  RATE  TREM        ┃ ↑VIB    EMPHASIS
 V&C❶6.83Hz ❷10    ▶  ┃ CHO.◀   ❸9
```

1. **VIBRATO - RATE**

   This is for setting the Speed of the Vibrato and Chorus effect.

   The setting range is 6.10 - 7.25 Hz.

2. **VIBRATO - TREMOLO**

   This is for setting the Tremolo (amplitude modulation) of the Vibrato and Chorus effect.

   The setting range is 0 - 15.

3. **VIBRATO - EMPHASIS**

   This is for setting the Emphasis (high frequency boost) of the Chorus effect (C1/C2/C3).

   The setting range is 0 - 9 dB.

4. to 9. **VIBRATO - DEPTH V1 to C3**

   These are for setting the Depth of the each Vibrato and Chorus effect mode.

   The setting range is 0 - 15.

10. **VIBRATO - TABLET GREAT**

   This is for setting on which part to put the Vibrato & Chorus effect by the [VIBRATO GREAT] tablet.

   GREAT & PEDAL:
      The Vibrato and Chorus effect works on the Great manual and Pedalboard.
   GREAT ONLY:
      The Vibrato and Chorus effect works only on the Great manual.

   NOTE: The parameteres in these modes are Preset Parameters and are recorded to each Combination Preset.

Vibrato and Chorus of Hammond Organs

On string instruments, the vibrato effect is created by changing the string tension by one's fingers. On wind instruments, by changing the strength of breath. On electronic instruments with analog circuitry, by modulating the oscillator. As the rotation of the tone-wheels of the original B-3 was stabilized by the synchronous motor, it was not possible to provide a vibrato effect. On these models, the vibrato effect was obtained by modulating the signal post-generator.

The vibrato & chorus system of the original B-3 consisted of a 9 stage delay line using LC phase shift circuits. This produced a very short delay of about 1 ms. Tones were passed through coils, delaying the phase. Several coils were connected in tandem and when the output of each tap was passed from the top to the last by turns, the pitches gradually lowered. By taking the output of each tap from the last to the top by turns on the contrary, the pitch would gradually rise. These operations were automatically made by turning the scanner with a motor.

The scanner was used to select one of multiple input terminals by the static connection. As each terminal was selected by the "blades" which approached each other, a popping noise like that of a switch did not occur and the signals of neighboring terminals cross-faded and switched themselves.

The mode-selection of vibrato effects was made by changing the range of the connecting tap. As this system modulated the produced tonal signals and not the oscillator, the original sound could be heard without the vibrato effect. By mixing the sound with the vibrato effect and the original sound, the chorus effect was obtained.

On this model, the chorus and vibrato effects are simulated and modeled in the original fashion digitally, by the DSP, without using moving parts.

Sections Of Vibrato Line

Amplifier

Scanner

Amplifier

Fundamental diagram of VIBRATO equipment
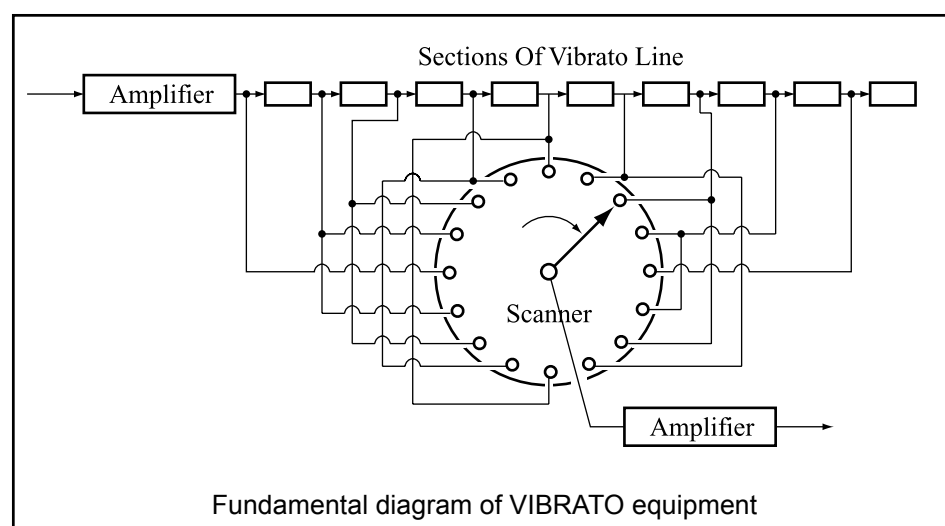
In this mode, you make the settings for the built-in Leslie Effect.

There are many parameters for the built-in Leslie Effect. These individual settings are not recalled by the Combination Presets, or by bank settings. The built-in Leslie parameters are grouped in macro-settings called "CABINETS". You select the CABINET NUMBER in the Combination Presets where this selection is saved as part of the Preset.

To locate this mode:

1. Press the [MENU/EXIT] button to display the MENU. Then select PAGE B by the [PAGE] button and press [3] LESLIE.
2. Or, move Leslie Speed Switch pressing the [MENU/EXIT] button.

```
▼SWITCH   STOP MODE
      ⓴STOP
╪MIC   ANGLE DISTANCE
      ⓲150°  ⓳0.6m
╪BASS CHOR TREM LEV   ╪BASS RISE FALL BRAK
 SPD  ⓬36 ⓭393  ⓮ 0▸  TIME⓯7   ⓰5  ⓱10
╪HORN CHOR TREM LEV   ╪HORN RISE FALL BRAK  ╪HORN CHARACTER
 SPD  ❺36 ❻393  ❼ 0▸  TIME❽2.2 ❾1  ❿1.2▸  TYPE⓫MID
╪AMP/  AMP  SPEAKER
 SPK❸Solid RotLarge
╪CAB. NAME
❷147-Type       ❹
▲CAB. NUMBER
      ❶1:147-Type
```

◆CABINET NUMBERS

1. CABINET NUMBER

Here you select the CABINET NUMBER to use in the Combination Presets.

The setting range is 1 - 8. The "∗" will be displayed when the Leslie Parameters are changed from this Cabinet Number.

◆LESLIE PARAMETERS

2. CABINET NAME

This is for assigning the Cabinet Names.

Move the cursor by the [PARAM] button and select letters by the [VALUE] button.

In this mode, only the present value "Temporary" changes and there is no determining operation. You must record the name by doing "Recording the Cabinet" as explained in the next paragraph. Otherwise the data will be lost.

3. AMPLIFIER

This sets the type of the virtual power amplifier.

  Solid: Simulated Solid-State Amplifier with a flat characteristic
  Tube: Simulated Tube Amplifier with a warm characteristic.

tips

CONCEPT OF THE CABINET NUMBERS

Each Cabinet represents one virtual Leslie Speaker prepared by the Leslie Parameter.

This parameter is the only Preset Parameter in this mode.
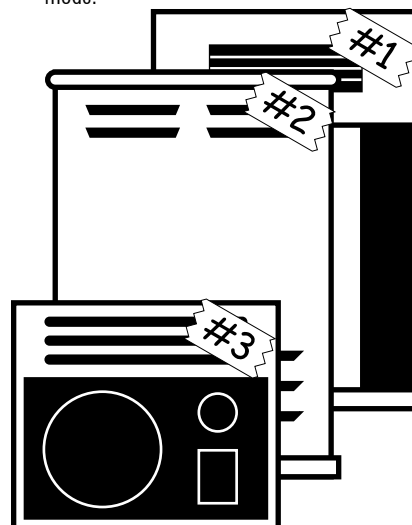
4. SPEAKER

This sets the type of the virtual speaker.

RotSmall: A small Leslie speaker represented by Leslie 145
RotLarge: A large Leslie speaker represented by Leslie 122
Station: A stationary speaker represented by Hammond PR-40

5. CHORALE SPEED - HORN

12. CHORALE SPEED - BASS

Here the Speed of the virtual Rotor is set for Chorale mode.

The setting range is 0, 24 - 318 rpm. It does not rotate at 0.

6. TREMOLO SPEED - HORN

13. TREMOLO SPEED - BASS

Here the Speed of the virtual Rotor is set for Tremolo mode.

The setting range is 0, 24 - 453 rpm. It does not rotate at 0.

7. HORN LEVEL

14. BASS LEVEL

The Volume of each virtual Rotor is set. The setting range is 0 to -12dB.

8. RISE TIME - HORN

15. RISE TIME - BASS

Here the Time is set for the Rotor to reach the maximum Tremolo Speed, when changing from Chorale or Stop to Tremolo mode. The setting range for the Horn Rotor is 0.2 - 5.0s, and that for the Bass Rotor is 0.5 - 12.5s.

9. FALL TIME - HORN

16. FALL TIME - BASS

Here the Time is set for the virtual Rotor to reach the minimum Chorale speed, when changing from Tremolo to Chorale mode. The setting range for the Horn Rotor is 0.2 - 5.0s, and that for the Bass Rotor is 0.5 - 12.5s.

10. BREAK TIME - HORN

17. BREAK TIME - BASS

Here the Time is set for the virtual Rotor to stop, when changing from Tremolo mode to Stop mode. The setting range for the Horn Rotor is 0.2 - 5.0s, and that for the Bass Rotor is 0.5 - 12.5s.

11. HORN CHARACTER

Here the Tone of the Horn Rotor is set.

"FLAT" has no boost or cut in freqencies, and the others are have "peaks" in various tonal ranges.

18. MIC - ANGLE

This is the parameter to set the virtual LOCATIONS of the two "microphones" for the virtual Leslie Speaker.

The ANGLE decides the distance between the two virtual mikes.

The setting range is 0 - 180 degrees. Farther settings exhibit more stereophonic characteristics.

19. MIC - DISTANCE

This is the parameter to set the DISTANCE between the virtual Leslie Speaker and the "microphones".

The setting range is 0.3 - 2.7m. The more the value increases, the less intense the sound.

NOTE: When you operate the parameters 2 - 19, the setting range will be lost after the power is switched off, if you do not do the recording operation of the next paragraph.
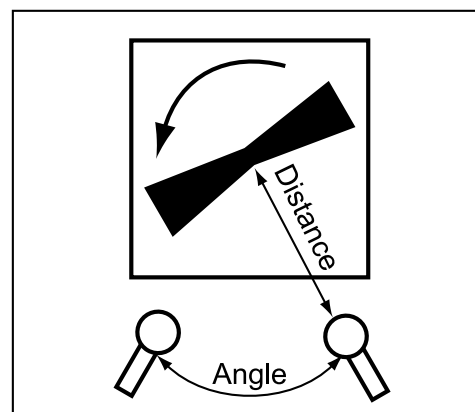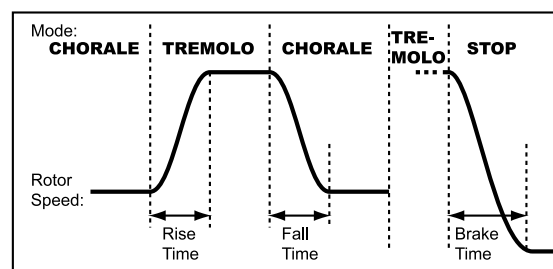
20. STOP MODE

This sets the mode when the Leslie Speed Switch is at "STOP".

STOP:

The virtual rotors stop.

THROUGH:

The Leslie Effect is bypassed. (Through)

NOTE: This parameter is a Preset Parameter. It is recorded to each Combination Preset.

Record the Cabinets

The Leslie parameters (2 - 20 of the previous paragraph) can be
recorded with the Cabinet Numbers, enabling their choice in each
Combination Preset.

1

```
↕CAB. NAME
 MyCabinet_
```

Enter the desired name for the Cabinet.

2

```
SWELL    PEDAL    GREAT
↑CAB. RECORD
1:147-Type    [OK]
```
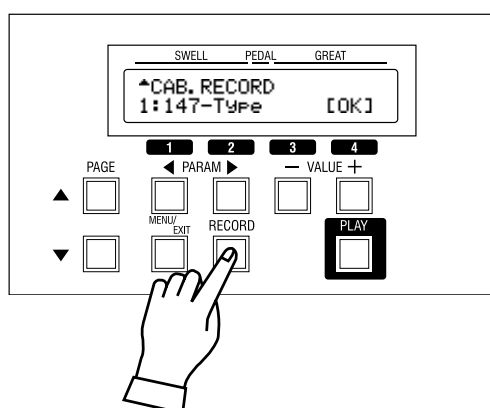
Press the [RECORD] button in the setting mode of the Leslie Parameter.
The Cabinet Selection mode is displayed.

3

```
SWELL    PEDAL    GREAT
↕CAB. RECORD
4:710-Type    [OK]
```
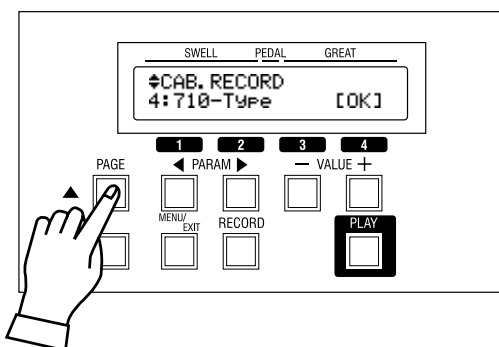
Select the Cabinet Number to record by the [PAGE] button.

4

```
SWELL    PEDAL    GREAT
↕CAB. RECORD
Recording Cabinet...
```
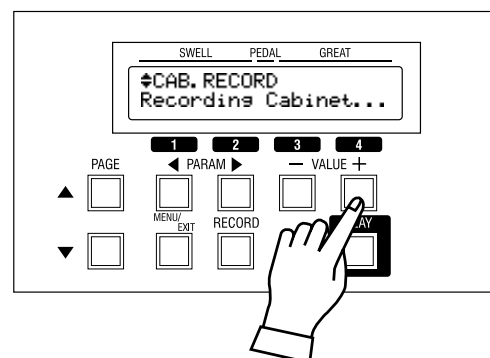
Press [4] OK, and the Cabinet's parameters are recorded.
The display during the recording the recording operation shows as illustrated.

> NOTE: If you wish to cancel the recording, press the [MENU/EXIT] button.

In this mode, you adjust the settings for the Equalizer and Reverb.

An Equalizer is used to adjust the tonal quality. The built-in Equalizer consists of 3 bands and a a recreation of the unique "tone" control that was part of the vintage B-3. The Bass and Treble bands are handled by "shelf" equalizers, and the Mid band is handled by parametric control.

The Reverb effect is for adding the atmosphere of a concert hall, room, and other chambers.

To locate this mode:

Press the [MENU/EXIT] button for the MENU, select PAGE B by the [PAGE] button, and then press the [4] EQ/REV button.

```
▼REV   DEPTH  TYPE    ▼REV  R-TIME-D  D.FB   ▼REV      LESONREV
 MAST  ❽15  ❾Hall 1▶   AD❿31 ⓫1000m�12296%▶  CONN◀    ⓭OF
♦EQ      BASS  TREB
 KNOB  ❻BASS ❼TONE
▲EQ TC BS G-MID-F TR
   ❶0❷0❸0 1.0k❺0
         ❹
```

◆EQUALIZER

1. TONE CONTROL

This is a simulated original B-3 TONE CONTROL. Its response is unique, but its basic response is to gently cut the overall treble.

The setting range is -9 to +9, and it becomes neutral when set at "0".

"-1" corresponds to the maximum of the original B-3 tone control, "-5", the middle, "-9", the minimum. The tone control found on the original B-3, its value can not be set at "+", but on this model it's possible to boost treble to some extent.

NOTE: You can locate this page by moving [BASS] or [TREBLE] knob pressing the [MENU/
EXIT] button.

2. GAIN - BASS
3. GAIN - MIDDLE
5. GAIN - TREBLE

These are for doing the Boost/Cut of Bass, Mid-range and Treble respectively.

The setting range is -9 to +9. It is neutral at 0.

4. FREQUENCY - MIDDLE

This is for setting the Central Frequency to vary at Gain - Middle (3).

The setting range is 180Hz - 2.9kHz.

NOTE: These parameters are Preset Parameters and are recorded to each Combination Preset.

6. KNOB - BASS
7. KNOB - TREBLE

These sets the functions to assign to the [BASS], [TREBLE] knobs.

Bass and Middle gains can be assigned to the [BASS] knob, and Treble gain and Tone Control to the [TREBLE] knob.

NOTE: These parameters are global parameters and are recorded at the time the value is set. It is common for each Combination Preset.
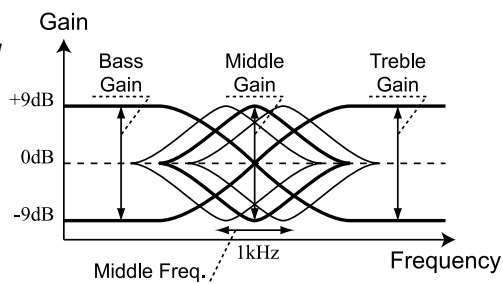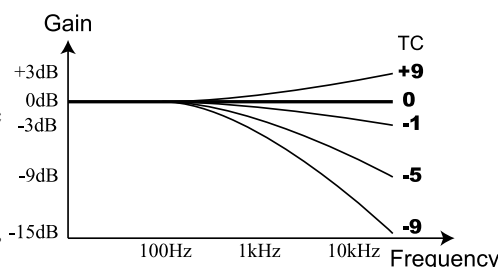
tips

THE EFFECTIVE USE OF THE MIDDLE FREQUENCY

The frequency response of the horn rotor in the Leslie speaker is not flat. It has a peak from 1kHz to 3kHz. This peak is effective in "cutting through" any ensemble playing.

If you use this organ through line out without a Leslie speaker, you can duplicate effect by setting the FREQUENCY - MIDDLE to approximately 2kHz, and the GAIN - MIDDLE to "+".

◆REVERB

8. REVERB - DEPTH

This sets the Depth of the Reverb Effect.

The setting range is 0 - 15. As you increase the value, it will give the effect of performing in a larger room.

> **NOTE: You can locate this page by moving [REVERB] knob pressing the [MENU/EXIT] button.**

9. REVERB - TYPE

This sets the Types of Reverb Effect.

> **Room 1**: Small room
> **Room 2**: Large room
> **Live**:   Ambient room
> **Hall 1**: Large Hall
> **Hall 2**: Small Hall
> **Church**: Church
> **Plate**:   Iron-plate Reverb
> **Spring**: Spring Reverb
> **Delay**: Delay
> **PanDly**: Panning Delay
> **RevDly**: Reverb + Delay

10. REVERB - TIME

When the Type (9) is set at Room 1 to Spring or RevDly, it sets the Time for Reverb to decay.

The setting range is 0 - 31. The higher the value, the longer the decay.

11. REVERB - DELAY TIME

When the Type (9) is set at Delay, PanDly, RevDly, this sets the delay time.

The setting range is 4.7 - 2000 ms. The higher the number, the longer the delay.

> **NOTE: You can set the delay time with the foot switch (P. 91 #4).**

12. REVERB - DELAY FEEDBACK

When the Type (9) is at Delay, PanDly, RevDly, it sets the amount of Feedback. (How many times the sound repeats.)

The setting range is 0 - 96%. The higher the value, the more repeats.

13. LESLIE ON REVERB

This sets the routing of the Reverb and Leslie Effect.

> **OF**:   Leslie before Reverb
> **ON**: Reverb before Leslie

> **NOTE: These parameters are Preset Parameters and are recorded to each Combination Preset.**

tips **PRESET PARAMETERS**

Equalizer and Reverb are Preset Parameters, designed to be actively used as one of the tone-making parameters.

If you are using the EQ and Reverb to compensate for the space you are performing in, It is advisable to switch off the P.LOAD EQ/RV in the Preset function mode so, the Equalizer and the Reverb value will not change when a preset is recalled. (P. 77 #11)

This mode is for setting the highest note to that will play using the Manual Bass function.

To locate this mode:

Press the [MENU/EXIT] button for the MENU, select PAGE C by the [PAGE] button, and then press the [2] MANBS button.

```
┌─────────────────────────────┐
│ MAN        LIMIT            │
│ BASS      ❶2B              │
└─────────────────────────────┘
```

1. MANUAL BASS - LIMIT

Sets the highest note of the Manual Bass functions on the Great manual.

NOTE: In this parameter, you can set the value by pressing the [RECORD] button, while holding down a note on the Great manual.

This mode is for setting the Motor Control Switch, Foot Switch and Expression Pedal.

To locate this mode:

Press the [MENU/EXIT] button and display the MENU and select PAGE C by the [PAGE] button, and then press the [3] CONTROL button.

```
▾EXP. LEV LF-LIM-HF   ▾EXPR    CURVE   MON
 MIN❺-35❻-25 ❼-30▸     ESSN◂  ❽:SDnCap 127
⬍FOOT      MODE
 SW❹LESLIE C/T ALT
▴MOTOR DOWN  UP   AMP
 SW  ❶3.0❷1.0❸ON
```

◆MOTOR CONTROL SWITCH

1. MOTOR - DOWN (G)

2. MOTOR - UP (G)

This is for setting the time required for the pitch change, when you operate the [MOTOR CONTROL] Switch.

The setting range is 0.1 - 9.9 seconds.

> **NOTE: You can locate this page by moving Motor Control switch pressing the [MENU/EXIT] button.**

3. MOTOR - AMP (G)

This is for setting the motion of the amp when you push the [MOTOR CONTROL] switch to "DOWN".

If you switch ON, the pitch and volume drop together.

◆FOOT SWITCH

4. FOOT SWITCH - FUNCTION (G)

This is for setting the function of the Foot Switch.

OFF: Foot Switch is disabled.
LESLIE C/T ALT, MOM:
These are for switching Chorale/Tremolo of the Leslie Effect. At ALT, Chorale/Tremolo is alternately switched at each press of the Foot Switch, and switches to Stop if pressed for longer than 1 second. At MOM, the Leslie effect switches to Tremolo, as long as the foot switch is depressed, and switches to Chorale when you release it.
SPRING:
This is for producing the effect of shaking a spring reverb.
DELAY TIME:
This function sets the delay time (P. 89 #11) of the reverb effect(if the "delay" setting is selected), by rhythmic tapping the foot-switch. The delay time will be set to the tempo at which you tap the foot switch. By pressing and holding the foot-switch, the delay sound will be erased.
REVERB DEPTH:
Changes the Reverb Depth to MAXIMUM while pressing the Foot Switch regardless of the Reverb parameter setting.

> **NOTE: You can locate this page by pushing Foot switch while pressing the [MENU/EXIT] button.**

◆EXPRESSION PEDAL

5. EXPRESSION - MINIMUM LEVEL (G)

Sets the minimum level when the Expression pedal at its "back" position. The setting range is OFF, -40db to 0db. "OFF" renders the organ silent, when the Expression is at minimum, "0dB" produces no reduction in volume.

6. EXPRESSION - LIMIT LF (G)

7. EXPRESSION - LIMIT HF (G)

These are for setting the levels to maintain for low and high frequencies when the Expression is minimum.

The setting range is OFF, -40dB to -5dB. This function does not work at "OFF". Otherwise the level is maintained even if the Expression is minimum.

8. EXPRESSION - CURVE (S)

This is for setting how the value varies corresponding to the depressing angle of the Expression Pedal. 1 - 3 are curves for playing while sitting on the bench, 4 - 5 are those for the playing while standing. See the bottom right figure for details.

9. EXPRESSION - MONITOR

Displays the present Expression Value.

> **NOTE: The parameters by the names with (G) on the tail are for "Global". These parameters will be recorded when set, and are common in each Combination Preset. (S) is for "System". These parameters will be recorded when set, and are common in each Combination Preset, and it does not save to setup.**
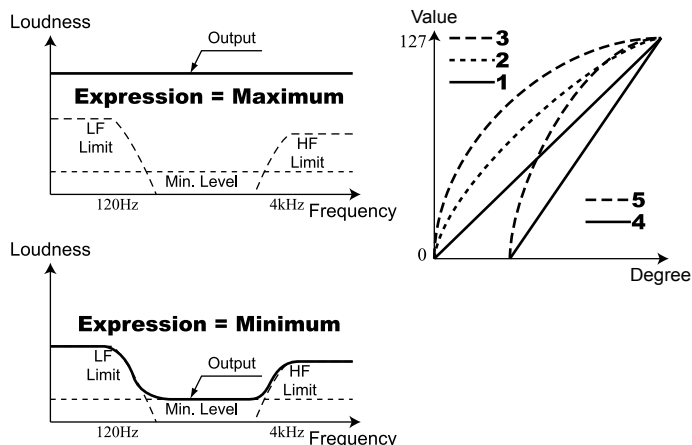
In this mode, you can regulate the tonal qualities of the virtual tone-wheel generator, wheel by wheel.

The virtual tone-wheel generator consists of 96 different pitches, where one wheel may correspond with plural notes and the "foot" designation of the Drawbars.

The relation is complicated. For example, the middle C of 8' and the C one octave lower of 4' use the identical wheel.

In this organ, you can save 2 types of settings per virtual Tone-Wheel Set. These are called "CUSTOM TONE-WHEELS".

The factory default gives a choice of B-3 "types". You may create your own.

To locate this mode:

Press the [MENU/EXIT] button and display MENU, select PAGE C by the [PAGE] button, and then press the [4] CUST. TW button.

```
 ▼WHEEL   WHEL-LKG-LEV
❹14:2C# ❻62:6C#   ❼64
 ♦WHEEL LEVEL
❹14:2C#  ❺0.0
 ♦CUSTOM NAME
❸Real_B-3__
 ♦CUSTOM NUMBER
  B-Typ❷1:Real B-3
 ♠TONEWHEEL
❶BType1
```

1. TONE-WHEEL SET

This is for selecting the Tone-Wheel set.

2. CUSTOM NUMBER

This is for selecting the "CUSTOM NUMBER" to use or compile. The "*" will be displayed when the Tone-wheel parameters are changed from this Custom Number.

NOTE: This parameter is a Global Parameter. It is not recorded into the Combination Preset.

3. CUSTOM NAME

You can name the CUSTOM TONEWHEELS using up to 10 letters.

Move the cursor by the [PARAM] button and choose the letters by the [VALUE] button.

By pressing the [VALUE] button while holding down the [RECORD] button, it jumps to the top of each letter type (space, 0, A, a).

The name set here, as well as the Tonewheel parameters below, will be deleted, if you do not do the recording operation as explained on the next paragraph.

4. WHEEL NUMBER

Select the number of the wheel you want to adjust.

To select the Wheel Number, select the [VALUE] button, or slightly move the feet of the Drawbar while depressing the key you want to regulate. (See the illustration.)

When the Wheel Number is selected, the level for the wheel (#5) is displayed.

tips

INITIAL VALUE OF THE CUSTOM NUMBER

As the initial value, the typical setting is recorded to each Custom No. 1.

For example, "Real B-3", a simulated original B-3 in good condition, is in B-Type 1.
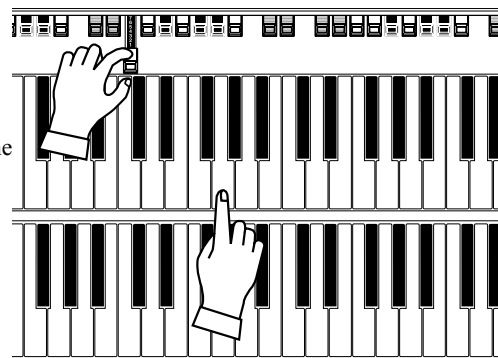
How to select the WHEEL NUMBER

5. LEVEL

This is for setting the volume of this wheel.

The setting range is -20 to 0dB. As you increase the value, the volume increases.

6. LEAKAGE WHEEL NUMBER

On this organ, you can produce the sound of each wheel: 61:6C to 91:8F# on the "fundamental" wheel: 01:1C to 60:5B; as Leakage Noise at each volume. (See the right figure.)

Select the wheels to output as leakage noise together with the fundamental sound wheel appearing on the left side of the display.

To select the Leakage Wheel Number, select it by the [VALUE] button or by slightly moving the feet of the drawbar holding down the key you want to adjust.

7. LEAKAGE WHEEL LEVEL

This is for adjusting the volume of the selected leakage wheel.

Setting range is 0 to 127. However, depending on the situation, the volume may not rise higher than a certain level, when increasing the value.

NOTE: These parameters are the Tonewheel parameter. If you do the recording operation of the next page, it works commonly to the same Tonewheel Set (in this example, "BType1") of each Combination Preset.

NOTE: When you operate these parameters, if you do not do the recording operation of the next page, it is lost when you turn off the power.
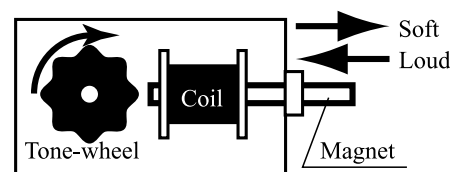
Concept of the level adjustment
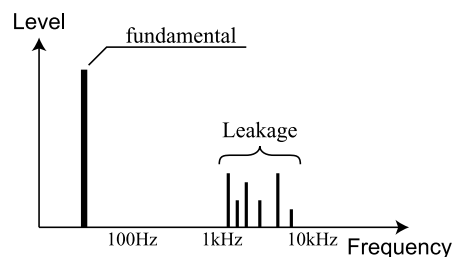
Concept of the leakage noise

Record the Custom Tone-Wheels

The Tonewheel parameters (= 3 - 5 of the previous Section) are for
determining the Custom Number for recording.

1

```
↕CUSTOM NAME
 My_Wheels_
```

Enter the Custom Name.

2

```
SWELL    PEDAL    GREAT
▲CUSTOM RECORD
1:Real B-3      [OK]
```
PAGE ◀ PARAM ▶ — VALUE +

MENU/EXIT RECORD PLAY
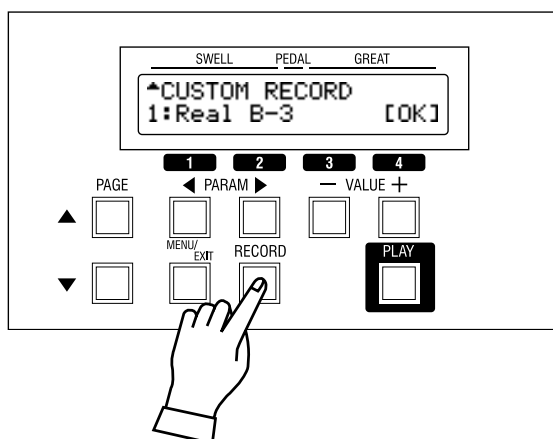
Press the [RECORD] button in the setting mode of the virtual
Tonewheel parameters.

The mode for selecting the Custom Number to be recorded will be
displayed.

3

```
SWELL    PEDAL    GREAT
↕CUSTOM RECORD
2:WantReplace   [OK]
```
PAGE ◀ PARAM ▶ — VALUE +

MENU/EXIT RECORD PLAY
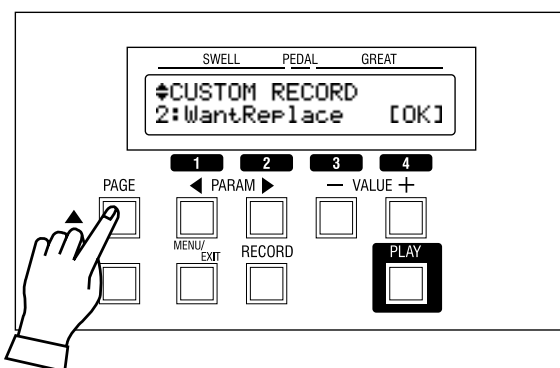
Select the Custom Number to be recorded by the [PAGE] button.

4

```
SWELL    PEDAL    GREAT
↕CUSTOM RECORD
Recording Tonewheel.
```
PAGE ◀ PARAM ▶ — VALUE +

MENU/EXIT RECORD PLAY
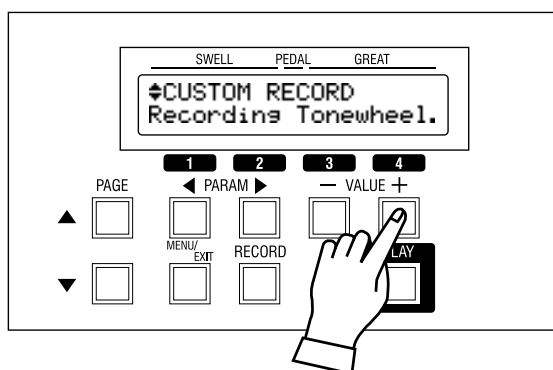
It will be recorded when you press the [4] OK button.

The display will be as illustrated, while the recording is proceeded.

NOTE: To cancel recording, press the [MENU/EXIT] button.

In this mode, you can totally or partially recall the factory default settings.

To locate this mode:

Press the [MENU/EXIT] button for the MENU display, select PAGE D by the [PAGE] button, and then press the [1] DEFAULT button.

```
┌─────────────────────────┐ ┌─────────────────────────┐ ┌─────────────────────────┐
│DEFAULT                  │ │DEFAULT                  │ │DEFAULT                  │
│❹LESLIE      ▸   [OK]    │ │❺TONE-WHEEL▸   [OK]     │ │❻ALL         [OK]        │
└─────────────────────────┘ └─────────────────────────┘ └─────────────────────────┘

┌─────────────────────────┐ ┌─────────────────────────┐ ┌─────────────────────────┐
│DEFAULT                  │ │DEFAULT                  │ │DEFAULT                  │
│❶ADJ.PRESET▸   [OK]     │ │❷PRESETS     ▸   [OK]   │ │❸GLOBAL      ▸   [OK]    │
└─────────────────────────┘ └─────────────────────────┘ └─────────────────────────┘
```
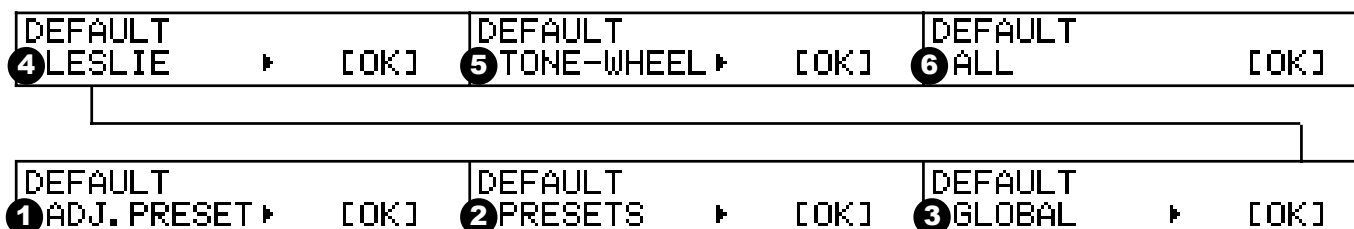
To initialize each parameter, press the [PARAM] button and then [4] OK.

1. **ADJUST PRESETS**

   Initializes the content of the Preset Keys [A♯] and [B].

2. **PRESETS**

   Initializes the contents of all Combination Presets.

3. **GLOBAL**

   Initializes the Global Parameters such as Master tune or assignment of the Foot Switch.

4. **LESLIE**

   Initializes the content of all Internal Leslie cabinets.

5. **TONE WHEEL**

   Initializes the Custom Tonewheels.

6. **ALL**

   Initializes all parameters of this organ.

   If any unstable condition occurs on this organ system, initializing "all" sill usually clear the problem.

   NOTE: You can also totally initialize your organ by switching the Power ON while pressing and holding the [RECORD] button.

In this mode, you can set the SYSTEM PARAMETERS of this organ and the display information.

To locate this mode:

Press the [MENU/EXIT] button to display the MENU, select PAGE D by the [PAGE] button, and then press the [2] SYSTEM button.

```
▾VERSION    GEN INFO ▾VERSION    GEN BOOT
        ⑪ 1.000 ▸         ⑫ 1.000
```

```
▾VERSION   GENERATOR ▾VERSION    KEYSCAN ▾VERSION       BOOT
        ⑧ 1.000 ▸        ⑨ 1.000 ▸        ⑩ 1.000 ▸
```

```
▾VERSION       MAIN ▾VERSION INFORMATION ▾VERSION        DSP
        ⑤ 1.000 ▸        ⑥ 1.000 ▸        ⑦ 1.000 ▸
⬍DRAW-       MODE
  BARS    ❹A#/B
▴PEDAL OUTPUT REBND
 PART  ❶BOTH   ❷4 ❸✶
```
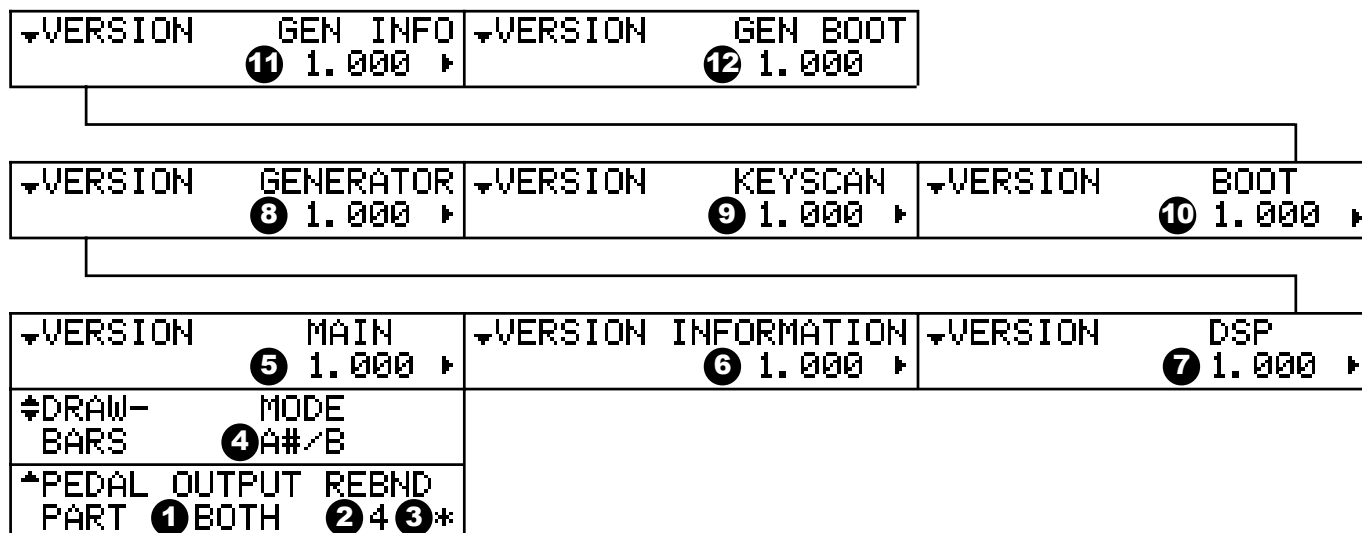
1. PEDAL PART - OUTPUT

This is for setting which jack to outputs the Pedal part.

BOTH:　Outputs the Pedal part to all the sound output jacks.
PEDAL:　Outputs the Pedal part only to the PEDAL OUT jack.

2. PEDAL PART - REBOUND TIME

The Pedalboard sometimes sounds twice caused by the "rebound" which happens when the keys are played staccato and released, depending on the condition of the sheet spring used on it. This can be avoided by adjusting the "rebound time".

The setting range is 1 - 128 x 1.4 msec. The initial value is 40 x 1.4 msec.

NOTE: If the rebound time is too long, it causes a sound delay.

3. PEDAL PART - MIDI MESSAGE

"✶" is displayed while the Pedal part sound is output by the MIDI message from the PEDAL MIDI IN jack.

4. DRAWBARS - CONTROL MODE

This sets the condition for activating the registrations with the Manual Drawbars.

A#/B:
　The Drawbars are active only when the Preset Keys [A#] and [B] are selected, same as the original B-3/C-3.
ALWAYS:
　The Drawbars are active regardless which Preset Keys are selected, same as the XK-3.

5. - 12. VERSIONS

These are the versions of each software built in this organ.

These are only for displaying the version number.
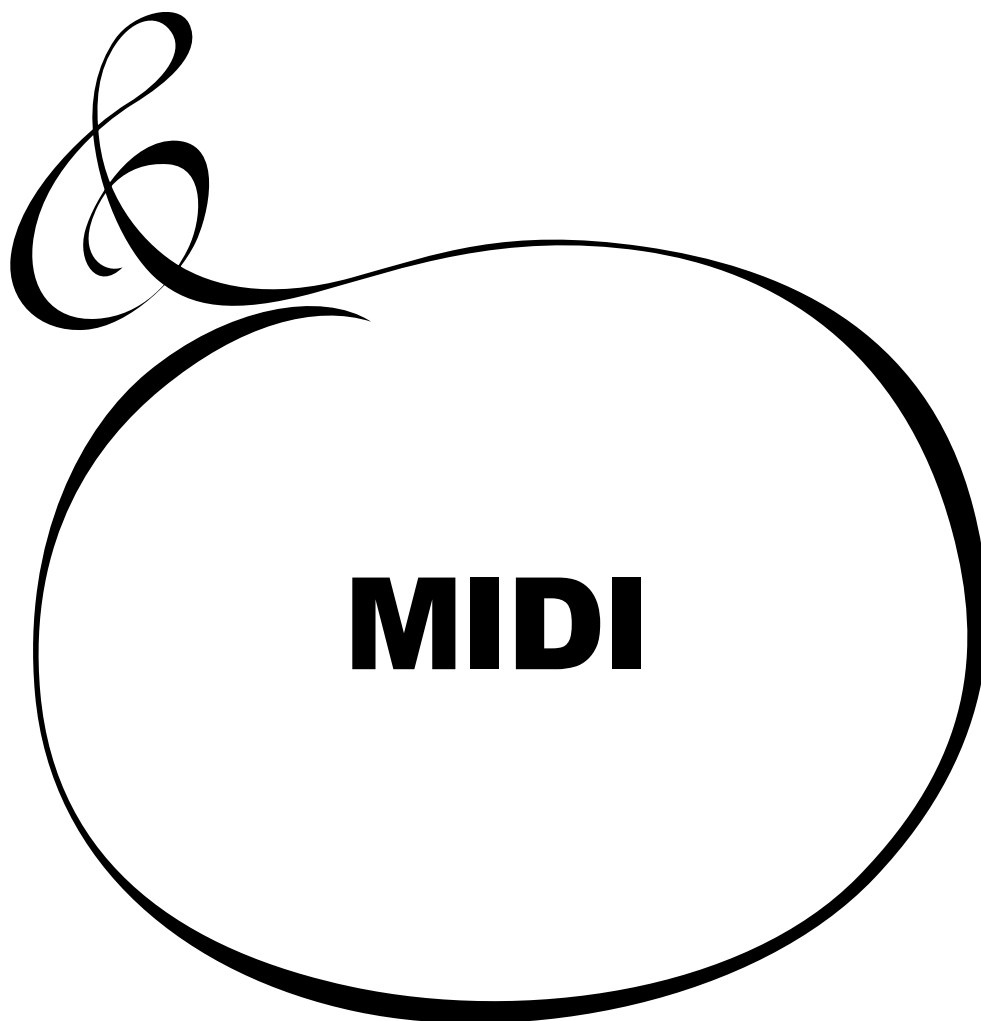
MIDI

What is "MIDI"?

MIDI is an abbreviation of **M**usical **I**nstrument **D**igital **I**nterface.

MIDI is the musical instrument industry standard for exchanging performance information between electronic musical instruments and a sequencer, effects, lighting, and sound reiinforcement gear, etc.

The MIDI standard allows instruments made by different manufacturers to effectively communicate with each other.

Many types of data can be transmitted and received, including all performance information, settings of parameters, and global commands.

MIDI terminals on this Organ
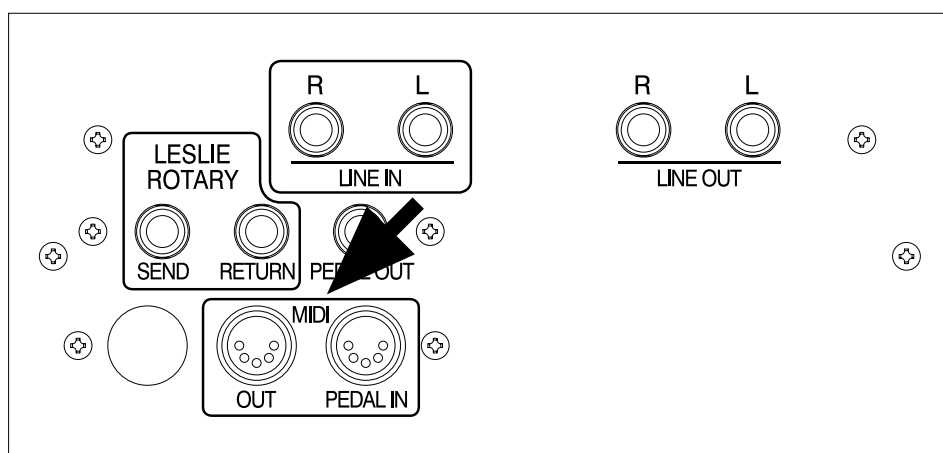
MIDI OUT

Sends Performance Information.

MIDI PEDAL IN

Receives the performance information of the Pedal part.

Receives only the note message and the setting is fixed at OMNI ON.

What the MIDI can do on your Organ

On this organ, the MIDI terminals are intended to do the following:

- control an external sound generator such as a synthesizer or sampler.
- use a MIDI Pedal board instead of the traditional Pedalboard.
    - ❖ *Due to the exclusive electro-mechanical "Direct Analog Keying System", it is impossible to "play" this organ from a remote MIDI source, such as a sequencer or MIDI controller.*

MIDI CHANNEL

MIDI has 16 "CHANNELS". Information divided into 16 channels can transmit through one MIDI cable.

The channel must match between the sender and the receiver. If not, the machines can not "hear" what the other "says".

MAJOR MIDI MESSAGE

The MIDI infomation is grouped into a channel message per each of the 16 channels and a system message for all channels. There are more details in the MIDI IMPLEMENTATION CHART.

CHANNEL MESSAGE

♦ NOTE ON / NOTE OFF

This data tells: which key (Note Number) is played, at what Speed (Velocity) and whether played or released (Note On/Off).

The MIDI PEDAL IN jack on this organ receives only Note On/Note Off.

It does not recognize velocity commands.

♦ PROGRAM CHANGE

Switches the programs of External MIDI equipment.

♦ CONTROL CHANGE

Data will be sent corresponding to the action of the Expression Pedal, Foot Switch, etc.

SYSTEM MESSAGE

♦ SYSTEM EXCLUSIVE MESSAGE

This organ does not send/receive the system exclusive message.

This organ has 3 "External Zones" on each of the Swell, Great and Pedalboards for controlling the external MIDI equipment.

Keymap Overview

Zones
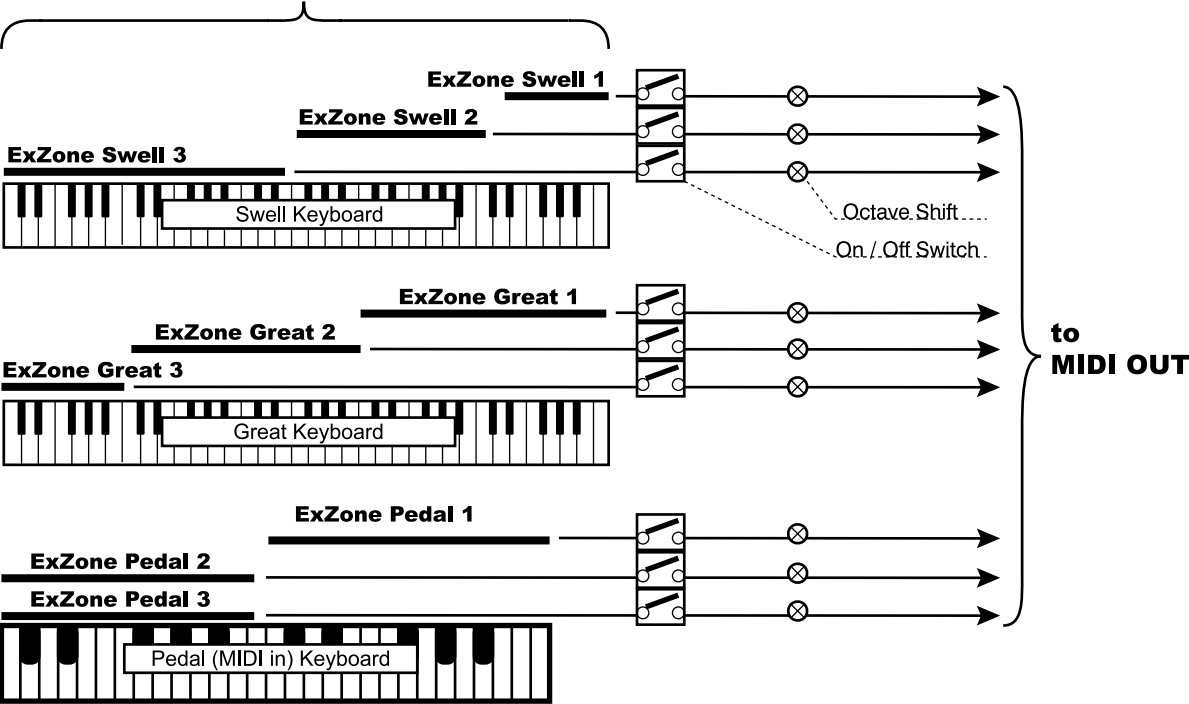
You can control external MIDI equipment with up to 3 zones per each of the Swell, Great manuals and Pedalboard.
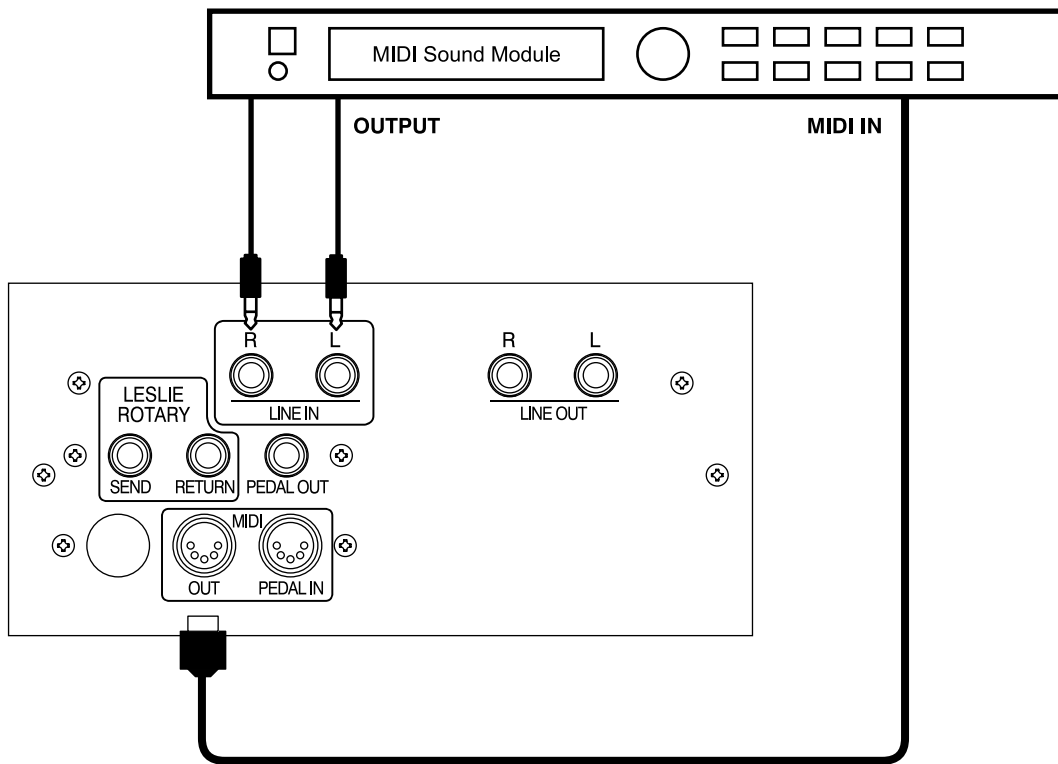
1. **Connect as shown above.**

   Connect the MIDI OUT of this organ to the MIDI IN of the equipment you wish to control.

   When the MIDI Pedal board is connected to the MIDI PEDAL IN jack, the performance is treated the same as the traditional Pedalboard.

2. **Set the parameters of each zone, and record it to the Combination Preset, as desired.**

   Read the next page "EX. ZONE (External Zone)" for setting each zone.

tips **NOTE ON THE SOUNDING POINT**

The External Zones sound at a deeper point of the key than the Drawbar tones.

This is for outputting the velocity info. to the External Zone.

This is due to the extra velocity-sensing MIDI keyboard contact that lies below the direct analog keying system.

EX. ZONE (EXternal ZONE)

To control external MIDI equipment, ranges on the keyboard of this organ are assigned. They are called "External Zones".

A MIDI Pedalboard connected to the MIDI PEDAL IN can control the MIDI equipment by the Pedal EXTERNAL ZONE.

To locate this mode:

Press the [MENU/EXIT] button and display MENU, select Page C by the [PAGE] button, then press [1] EXZONE.

```
▼XP3 SW CH  LO--HI      ▼XP3  M-BNK-L PROG     ▼XP3 OCT  VOL PAN VEL
ZONE OF  1  1C  3C  ▶   PROG◀    0    0    1 ▶ NOTE◀+0   100 -C- OF▶

⬍XP2 SW CH  LO--HI      ⬍XP2  M-BNK-L PROG     ⬍XP2 OCT  VOL PAN VEL
ZONE OF  1  1C  3C  ▶   PROG◀    0    0    1 ▶ NOTE◀+0   100 -C- OF▶

⬍XP1 SW CH  LO--HI      ⬍XP1  M-BNK-L PROG     ⬍XP1 OCT  VOL PAN VEL
ZONE OF  1  1C  3C  ▶   PROG◀    0    0    1 ▶ NOTE◀+0   100 -C- OF▶

⬍XG3 SW CH  LO--HI      ⬍XG3  M-BNK-L PROG     ⬍XG3 OCT  VOL PAN VEL
ZONE OF  1  1C  6C  ▶   PROG◀    0    0    1 ▶ NOTE◀+0   100 -C-  1▶

⬍XG2 SW CH  LO--HI      ⬍GR2  M-BNK-L PROG     ⬍XG2 OCT  VOL PAN VEL
ZONE OF  1  1C  6C  ▶   PROG◀    0    0    1 ▶ NOTE◀+0   100 -C-  1▶

⬍XG1 SW CH  LO--HI      ⬍XG1  M-BNK-L PROG     ⬍XG1 OCT  VOL PAN VEL
ZONE OF  1  1C  6C  ▶   PROG◀    0    0    1 ▶ NOTE◀+0   100 -C-  1▶

⬍SL3 SW CH  LO--HI      ⬍XS3  M-BNK-L PROG     ⬍SL3 OCT  VOL PAN VEL
ZONE OF  1  1C  6C  ▶   PROG◀    0    0    1 ▶ NOTE◀+0   100 -C-  1▶

⬍XS2 SW CH  LO--HI      ⬍XS2  M-BNK-L PROG     ⬍XS2 OCT  VOL PAN VEL
ZONE OF  1  1C  6C  ▶   PROG◀    0    0    1 ▶ NOTE◀+0   100 -C-  1▶

▲XS1 SW CH  LO--HI      ▲XS1  M-BNK-L PROG     ▲XS1 OCT  VOL PAN VEL
ZONE OF  1  1C  6C  ▶   PROG◀    0    0    1 ▶ NOT +0   100 -C-  1▶
     (1)  (2) (3)  (4)           (5)  (6)  (7)     (8)    (9) (10) (11)
```

There are 3 External Zones (SL1, 2, 3) for the Swell manual, 3 (GR1, 2, 3) for the Great manual and 3 (PD1, 2, 3) for the Pedalboard.

1. SWITCH

This switch "turns on" the selected External Zone.

2. MIDI CHANNEL

This is for choosing the External Zone's transmitting MIDI channel.

The range is 1 - 16, and OFF.

3. MAP - LOW

4. MAP - HIGH

These set the playing range of the chosen External Zone on each of the Swell, Great manuals and Pedalboard.

Set the lowest note at LO and the highest one at HI. To forbid sending note data, set the HI parameter to "OFF".

NOTE: For 3 and 4, you can set the value by pressing the [RECORD] button, while holding down the desired note on the manual (or pedalboard).

```
┌─────────────────────────────┬─────────────────────────────┐
│▾XP3 MIN-MAX    CC#  │▾XP3      DAMPER │
│EXP.◂ 40 127 11:EXP▸ │MSGS◂       ON   │
├─────────────────────────────┼─────────────────────────────┤
│⬍XP2 MIN-MAX    CC#  │⬍XP2      DAMPER │
│EXP.◂ 40 127 11:EXP▸ │MSGS◂       ON   │
├─────────────────────────────┼─────────────────────────────┤
│⬍XP1 MIN-MAX    CC#  │⬍XP1      DAMPER │
│EXP.◂ 40 127 11:EXP▸ │MSGS◂       ON   │
├─────────────────────────────┼─────────────────────────────┤
│⬍XG3 MIN-MAX    CC#  │⬍XG3      DAMPER │
│EXP.◂ 40 127 11:EXP▸ │MSGS◂       ON   │
├─────────────────────────────┼─────────────────────────────┤
│⬍XG2 MIN-MAX    CC#  │⬍XG2      DAMPER │
│EXP.◂ 40 127 11:EXP▸ │MSGS◂       ON   │
├─────────────────────────────┼─────────────────────────────┤
│⬍XG1 MIN-MAX    CC#  │⬍XG1      DAMPER │
│EXP.◂ 40 127 11:EXP▸ │MSGS◂       ON   │
├─────────────────────────────┼─────────────────────────────┤
│⬍XS3 MIN-MAX    CC#  │⬍XS3      DAMPER │
│EXP.◂ 40 127 11:EXP▸ │MSGS◂       ON   │
├─────────────────────────────┼─────────────────────────────┤
│⬍XS2 MIN-MAX    CC#  │⬍XS2      DAMPER │
│EXP.◂ 40 127 11:EXP▸ │MSGS◂       ON   │
├─────────────────────────────┼─────────────────────────────┤
│▴XS1 MIN-MAX    CC#  │▴XS1      DAMPER │
│EXP.⑫40 127 11:EXP▸ │MSGS◂     ⑮ON    │
└─────────────────────────────┴─────────────────────────────┘
         ⑬        ⑭
```

5. PROGRAM - BANK MSB

6. PROGRAM - BANK LSB

7. PROGRAM - PROGRAM CHANGE

These are for setting the Bank Select and the Program Change data to be transmitted by this zone.

Please consult the users guide/manual for your specific piece of outboard gear that you wish to control for the exact combination of commands that allow bank and program change.

You can choose 0 - 127 in the Bank MSB and the Bank LSB, and 1 - 128 in the Program Change.

8. NOTE - OCTAVE

This is for selecting the octave to be transmitted by this zone. The octave that is transmitted may be set to be different than the octave that you may be playing.

9. NOTE - VOLUME

This is for setting the volume (= Control Change #7) of this zone. However, the set value will be null, if the CC# (item #14) is at "7.VOL".

10.NOTE - PAN

This is for setting the Pan (= Control Change #10) of this zone.

tips **NUMBER BASE**

Some MIDI modules map their presets from 0 - 127, and some from 1 - 128. If your instrument does not respond to the exact number of program change, you may need to decrease the program change number here by the value [1].

▾PD3	SW	CH	LO--HI		▾PD3	M-BNK-L	PROG		▾PD3	OCT	VOL	PAN	VEL
ZONE	OF	1	1C 3C	▸	PROG◂	0 0	1	▸	NOTE◂	+0	100	-C-	OF ▸
◆PD2	SW	CH	LO--HI		◆PD2	M-BNK-L	PROG		◆PD2	OCT	VOL	PAN	VEL
ZONE	OF	1	1C 3C	▸	PROG◂	0 0	1	▸	NOTE◂	+0	100	-C-	OF ▸
◆PD1	SW	CH	LO--HI		◆PD1	M-BNK-L	PROG		◆PD1	OCT	VOL	PAN	VEL
ZONE	OF	1	1C 3C	▸	PROG◂	0 0	1	▸	NOTE◂	+0	100	-C-	OF ▸
◆GR3	SW	CH	LO--HI		◆GR3	M-BNK-L	PROG		◆GR3	OCT	VOL	PAN	VEL
ZONE	OF	1	1C 6C	▸	PROG◂	0 0	1	▸	NOTE◂	+0	100	-C-	1 ▸
◆GR2	SW	CH	LO--HI		◆GR2	M-BNK-L	PROG		◆GR2	OCT	VOL	PAN	VEL
ZONE	OF	1	1C 6C	▸	PROG◂	0 0	1	▸	NOTE◂	+0	100	-C-	1 ▸
◆GR1	SW	CH	LO--HI		◆GR1	M-BNK-L	PROG		◆GR1	OCT	VOL	PAN	VEL
ZONE	OF	1	1C 6C	▸	PROG◂	0 0	1	▸	NOTE◂	+0	100	-C-	1 ▸
◆SL3	SW	CH	LO--HI		◆SL3	M-BNK-L	PROG		◆SL3	OCT	VOL	PAN	VEL
ZONE	OF	1	1C 6C	▸	PROG◂	0 0	1	▸	NOTE◂	+0	100	-C-	1 ▸
◆SL2	SW	CH	LO--HI		◆SL2	M-BNK-L	PROG		◆SL2	OCT	VOL	PAN	VEL
ZONE	OF	1	1C 6C	▸	PROG◂	0 0	1	▸	NOTE◂	+0	100	-C-	1 ▸
▴SL1	SW	CH	LO--HI		▴SL1	M-BNK-L	PROG		▴SL1	OCT	VOL	PAN	VEL
ZONE **❶**	OF **❷**	1 **❸**	1C **❹** 6C	▸	PROG◂ **❺**	0 **❻** 0	**❼** 1	▸	NOT **❽** +0 **❾** 100 **❿** C- **⓫** 1	▸

11. NOTE - VELOCITY

This is for setting the Velocity Curve to send to this zone.

The setting range is OF, 1 - 4. The velocity of OF is fixed at 100. At 1 - 4, the higher the value increases, the higher velocity is transmitted regardless how the key is played.

> **NOTE:** As the Pedalboard of this organ has no velocity sensing function, the velocity of PD1 - 3 is fixed at OF.

12. EXPRESSION - MINIMUM

13. EXPRESSION - MAXIMUM

These set the range of expression to "compress" to send to this Zone.

If the expression pedal of this organ is fully returned the organ will still be heard.

With many types of external sound gear, the volumes do not react the same. This parameter allows a smooth and equal flow in the expression pedal.

You can select 0 - 63 by MIN, and 64 - 127 by MAX.

14. EXPRESSION - CONTROL NUMBER

This is for setting the MIDI continuous Control Number of the Expression Pedal.

Depending on your external equipment, it may react to CC#7 (Volume) or CC#11 (Expression). This parameter allows you to make that choice.

15. MESSAGE - DAMPER

This is for setting the transmission of Damper (Control Change #64) to this zone using the Foot Switch on the Expression Pedal.

The message is sent at ON, and is not at OFF.

> **NOTE:** All the parameters in these modes are Preset Parameters. They can be recorded to the Combination Presets. See the Appendix for details of the Preset Parameters.

```
⊽PD3 MIN-MAX   CC#   | ⊽PD3      DAMPER
EXP.◄ 40 127 11:EXP► | MSGS◄        ON
⬍PD2 MIN-MAX   CC#   | ⬍PD2      DAMPER
EXP.◄ 40 127 11:EXP► | MSGS◄        ON
⬍PD1 MIN-MAX   CC#   | ⬍PD1      DAMPER
EXP.◄ 40 127 11:EXP► | MSGS◄        ON
⬍GR3 MIN-MAX   CC#   | ⬍GR3      DAMPER
EXP.◄ 40 127 11:EXP► | MSGS◄        ON
⬍GR2 MIN-MAX   CC#   | ⬍GR2      DAMPER
EXP.◄ 40 127 11:EXP► | MSGS◄        ON
⬍GR1 MIN-MAX   CC#   | ⬍GR1      DAMPER
EXP.◄ 40 127 11:EXP► | MSGS◄        ON
⬍SL3 MIN-MAX   CC#   | ⬍SL3      DAMPER
EXP.◄ 40 127 11:EXP► | MSGS◄        ON
⬍SL2 MIN-MAX   CC#   | ⬍SL2      DAMPER
EXP.◄ 40 127 11:EXP► | MSGS◄        ON
⬆SL1 MIN-MAX   CC#   | ⬆SL1      DAMPER
EXP.⓬40 127 11:EXP► | MSGS◄      ⓯ON
           ⓭        ⓮
```

PANIC FUNCTION and PARAMETER RELOAD

If any problem happens in the MIDI system, it may cause ciphering (sticking notes). Immediately after this organ and an external MIDI equipment are connected, a glitch or "MIDI hangup" may occur.

If this occurs, press PAGE [▲] and [▼] at the same time. [All Note Off] and [Reset All Controller] will be transmitted to all External Zone MIDI channels (Panic Function) and then all the EXTERNAL ZONE settings will be re-sent.
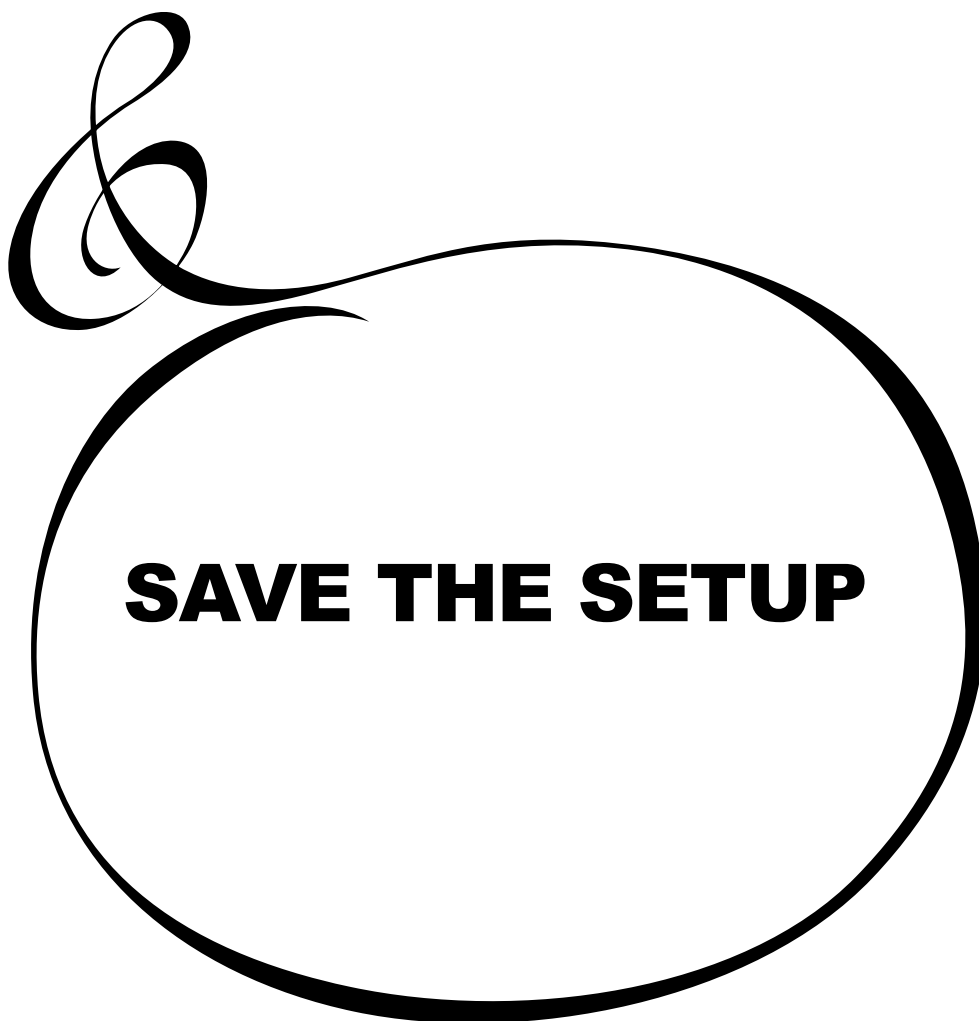
SAVE THE SETUP

On this organ you can save the setting of each Parameter as a file, into a CompactFlash™ card (hereinafter "CF card") up to 99 files.

How to access the CF card slot

B-3 mk2, C-3 mk2

B-3P mk2

Turn the screws with the #2 Phillips screw driver and take off the HAMMOND plate on the back of the organ.

Turn and remove the knob bolts with a coin from the back of the organ. Then take off the rear panel.

About the CF Card

Eject Button

USE ONLY CompactFlash™
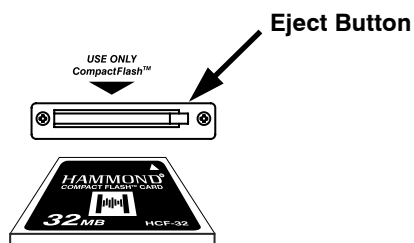
CF CARD YOU CAN USE

The manufacturer recommends genuine Hammond 65971-02128 as your CF card.

Please consult URL: http://www.hammondsuzuki.com before you try to use other cards on the market.

CF CARD SLOT

1. First please read the label on the CF card carefully and insert it correctly.
2. To take out the card, push the EJECT button on the right hand side of the slot.
3. Don't eject the card or switch the power off during initializing or setting it up.

THE CARD CAPACITY AND CONTENT TO BE SAVED

The CF card can save:

 * Combination Presets
 * Global Parameters
 * Custom Tonewheels
 * Leslie Cabinets
 * Adjust Presets [A♯], [B]
 * Temporary Parameters

Also, this card can save/read out all of them as a whole by the unit called "SET-UP". The capacity of one SET-UP is approximately 44 KB.

The CF CARD must be "INITIALIZED" first (= before you use it). Perform the following, step by step, to do the initializing operation.

❖*This operation erases all data in the CF card.*

1
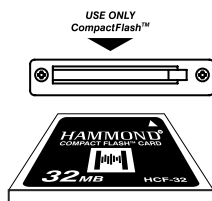
Insert the CF card into the slot.

2
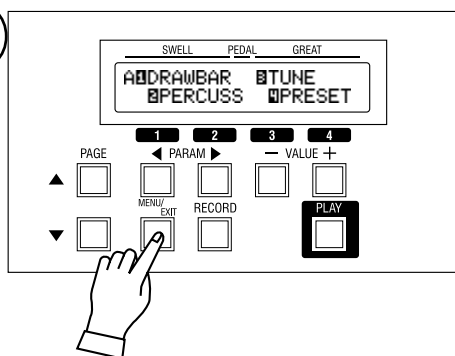
Press the [MENU/EXIT] button.

3
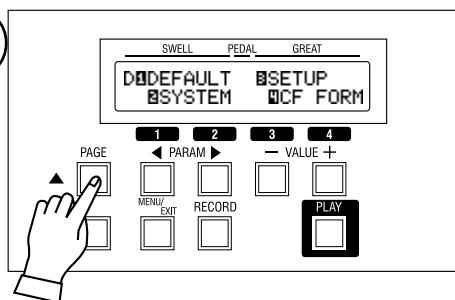
Select PAGE D by the [PAGE] button.

4
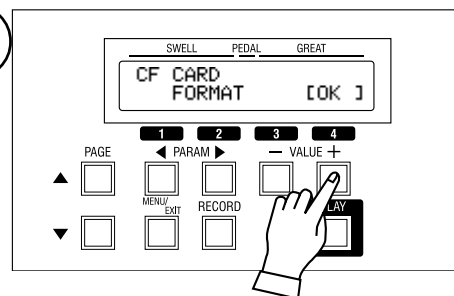
Press [4] CF FORM.

The FORMAT mode is displayed.

5
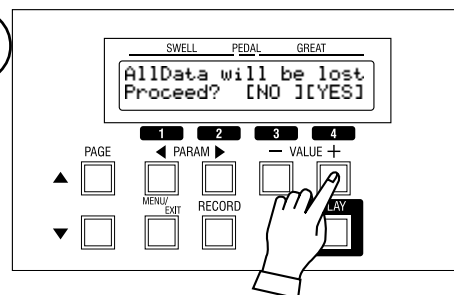
Press the [4] OK button.

The Confirmation message is displayed.

6
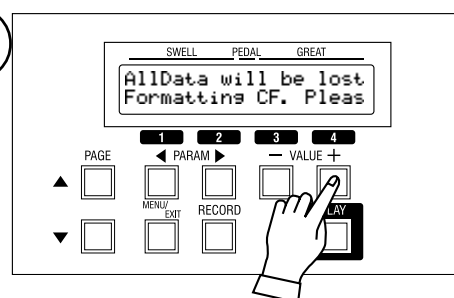
Press the [4] YES button.

The initialization starts and takes only a few seconds.

NOTE: **To cancel initializing, press the [3] NO button.**

7

To return to the PLAY mode, press [PLAY].

Save or Load the SET UP to/from the CF card in the SETUP mode. In this mode, you can do all the operations except the initialization of the CF card.

To come to this menu:

Press the [MENU] button to display the MENU, select PAGE D by the [3] SETUP button.

How to read the Display

Setup Name

This indicates there is another SETUP file above (or below).

```
‡Amazing Grace
[LOD][SAV][NAM][DEL]
```

Load

Save

Rename

Delete
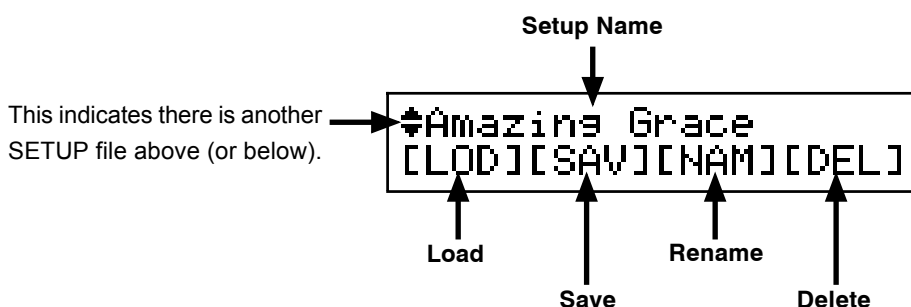
Save the SETUP

1

Check that the CF card is correctly inserted.

2

```
‡Amazing Grace
[LOD][SAV][NAM][DEL]
```

Go to the SETUP mode.

WHAT DOES THIS MEAN?

```
CF is not ready
```

The CF card is not correctly inserted.

3

```
SWELL      PEDAL      GREAT
▼*NewSetup*
[LOD][SAV][NAM][DEL]
```
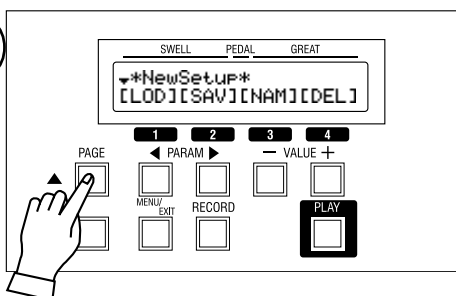
Select the SET UP NAME "NewSetup" by the [PAGE] button.

> **NOTE:** "NewSetup" means a fresh save. If you select an existing SET UP NAME, it will be deleted and written over.

4

```
SWELL      PEDAL      GREAT
▼*NewSetup*
Saving SETUP. Please
```
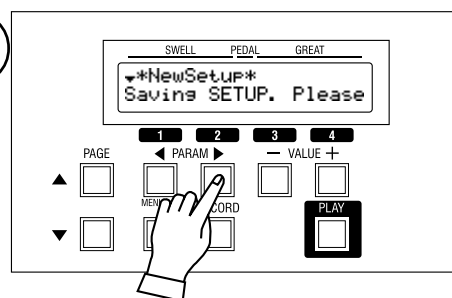
Press the [2] SAV button.

SAVE starts.

5

```
▼Setup01
[LOD][SAV][NAM][DEL]
```

A temporary name is put to the saved SETUP "Setup xx" automatically.

Change the SETUP name

1

Select the SETUP file you want to change the name of.

2
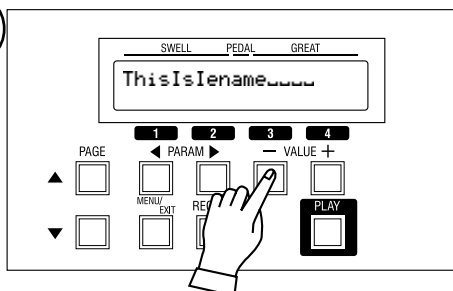
Press the [3] NAM button. This is the SETUP NAME IN-PUT mode.

3

Input the new SET UP NAME.

[PARAM] BUTTON

Move the cursor.

You can use up to 16 letters.

[VALUE] BUTTON

Choose the letters by this.

You can use Large and small characters, digits and signs/symbols.

If you press this button, holding down the [RECORD] button, you can move to the head/the first letter of each type (= space, 0, A, a).

4
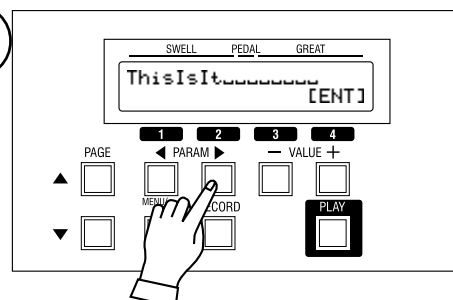
Move the cursor to the right end by the [PARAM] button.

[ENT] will be displayed.

5
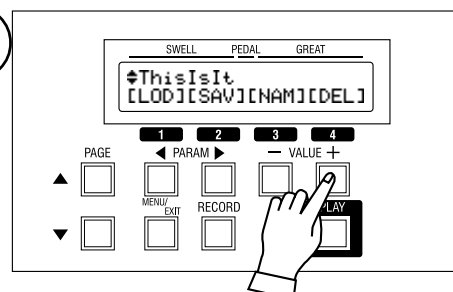
Press the [4] ENT button.

The SETUP NAME will be changed.

Loading the SETUP

❖ *After the operation, the settings already in this organ will be replaced by the newly loaded SETUP.*

1

Check the CF card is correctly inserted.

2

⬩Amazing Grace
[LOD][SAV][NAM][DEL]

Navigate to the SETUP mode.

3

SWELL   PEDAL   GREAT
⬩WantToLoad
[LOD][SAV][NAM][DEL]
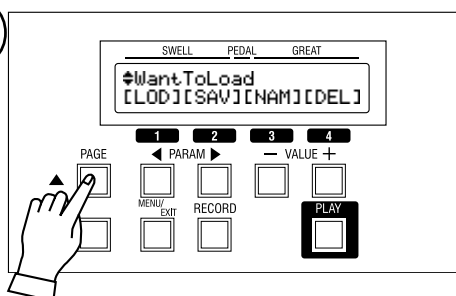
Choose the SETUP file to load by the [PARAM] button.

4

SWELL   PEDAL   GREAT
⬩WantToLoad
Loading SETUP. Pleas
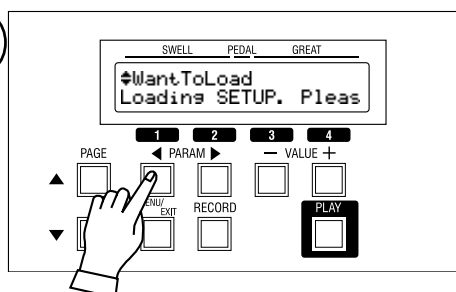
Press the [1] LOD button.

The SETUP will be loaded in a few seconds.

How to delete the SETUP

1

Check the CF card is correctly inserted.

2

⬩Amazing Grace
[LOD][SAV][NAM][DEL]

Navigate to the SETUP mode.

3

SWELL   PEDAL   GREAT
⬩WantToDelete
[LOD][SAV][NAM][DEL]
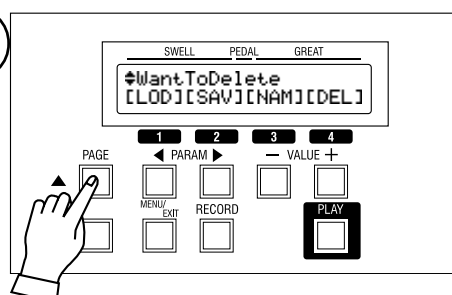
Choose the SETUP file you want to delete by the [PAGE] button.

4

SWELL   PEDAL   GREAT
WantToDelete
Delete?   [NO][YES]
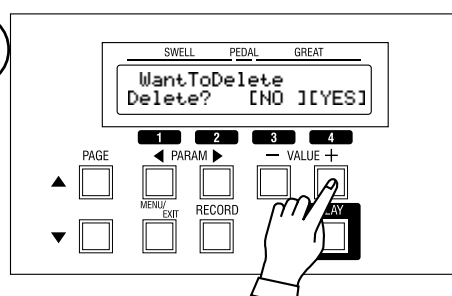
Press the [4] DEL button.

The Confirmation message will be displayed.

5

SWELL   PEDAL   GREAT
⬩WantToDelete
Deleting SETUP. Plea
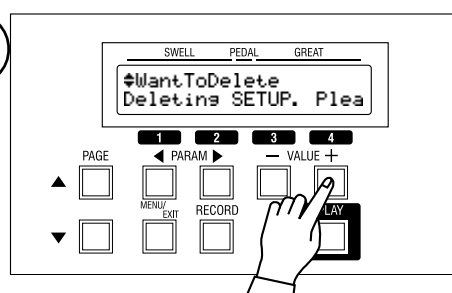
Press the [4] YES button.

The Delete operation starts.

NOTE: To cancel the delete action, press the [3] NO button.

FREQUENTLY ASKED QUESTIONS

◆ **How to control the leakage sound:**
- The leakage volume of the whole tone-wheel set currently selected is adjustable by the LEAKAGE Parameter in the DRAWBAR Function mode. (P. 72 #2)
  Adjustment of the leakage interval and or volume per each wheel can be made by using the Custom Tone-wheel. (P. 92)

◆ **How to turn on PEDAL SUSTAIN:**
- Press [PLAY] and display "P.SUS", then select "ON" by [VALUE]. The length of sustain effects is controlled by the SL parameter in the DRAWBAR function mode. (P. 73 #8)

◆ **How to record other parameters than drawbars to the preset keys:**
- The memory/record operation on this organ also enables you to record various parameters along with the Drawbar registrations. To set the parameter to call when the preset key is selected, set the parameters on the P. LOAD page in the PRESET function mode. (P. 76)

◆ **How to see the actual values of a preset:**
- In case the physical location of the controller and the actual value do not exactly match when you call a preset such as the [VIBRATO] tablet, you can display the actual value by operating the controller holding down the [PLAY] button. (P. 78) The actual Drawbar registration is displayed in PLAY mode.

◆ **How to locate each function mode easily?**
- You can "short-cut" to each function mode by moving some controllers (e.g. tablets, knobs) while pressing the [MENU/EXIT] button.

◆ **How to adjust the Drawbar settings while playing with the Preset C♯ - A:**
- To temporarily adjust the Drawbar settings while you are playing with the preset keys [C♯] - [A], operate Drawbars holding down the [PLAY] button. (P. 52)

◆ **Relation between the built-in Leslie effect and the external Leslie speaker:**
- If no Leslie speaker is connected or headphones are used while a Leslie speaker is connected, the built-in Leslie effects are added to both (L & R) channels.
- If a Leslie speaker is connected, the built-in Leslie effects are added only to the L channel.

◆ **How to avoid adding Leslie effects on the Pedal part:**
- The Pedal Part sound is independently output at the PEDAL OUT jack. The built-in Leslie effects, Reverb, Tube Buffer do not function at this jack.
  By connecting the PEDAL OUT jack and the PA equipment and setting the SYSTEM-PEDAL PART OUTPUT parameter to "PEDAL", the manual part and the pedal part are separately output to the Leslie speaker and the PEDAL OUT jack respectively (P. 96 #1).

◆ **How to change the motion of the built-in Leslie effect when the Leslie mode switch is set at "STOP".**
- The default setting of the built-in Leslie effects on this organ is to bypass (thru) when the Leslie mode switch is set at "STOP", so you can enjoy the sound engine's original sound.
  To get the effect of the rotor stop of the Leslie speaker at this time, set the STOP mode at "STOP" in the LESLIE function mode. (P.86 #20)

◆ **How to totally cut off the sound when the expression pedal is returned.**
- The characteristic of the Expression Pedal can be freely changed.
  To turn off the sound completely when the Expression Pedal is returned, set all the minimum level, limit LF, limit HF at "OFF" in the CONTROL function mode. (P. 91 #5, #6, #7)

◆ **Malfunction of the buttons, the keys, etc.**
- Turn off the POWER switch once, then turn it on again. If this procedure is not successful, turn off the POWER switch. While pressing the [RECORD] button, turn the POWER switch on again. (Note that in this case, all parameters return to their factory-preset status.)

◆ **No sound is produced when the keys are pressed.**
- The MASTER VOLUME is at the minimum setting.⇨
  Adjust the volume with the MASTER VOLUME control. (P. 22 #25)
- No Preset key is selected. ⇨
  Select a Preset key.
- A plug is inserted to the HEADPHONE jack. ⇨
  While a plug is inserted here, the Leslie speaker is disabled.

◆ **The Foot Switch does not work.**
- The Foot Switch settings are not correct.⇨
  Reset the Foot Switch correctly in the CONTROL mode. (P. 91 #4)

◆ **The sound does not come out immediately after switched on.**
- A Vacuum Tube circuit is mounted in this organ. It takes approximately 10 to 20 seconds after switched on before you will hear the sound.

◆ **The sound is not distorted if the OVERDRIVE knob is turned.**
- When the Overdrive Expression is at "EX-OD", it does not distort if the Expression pedal is low. In such a case, increase the Expression pedal, or set the Overdrive Expression at "OD-EX" if you want to distort regardless of the Expression value. (P. 80 #1)

◆ **Leslie speaker sound is distorted.**
- If the sound is distorted regardless of the position of the volume of the Leslie speaker when you are using a Leslie adapter (such as the 11 pin/6 pin converter), the power of this organ seems to be so large that the sound is distorted inside the Leslie adapter. In such a case, return the [MASTER VOLUME] knob to 10 o'clock position.

◆ **The rotor of the external Leslie speaker does not stop, if the Leslie mode is switched to [STOP].**
- Some Leslie Speaker models do not [STOP]. [STOP] is possible on 2101/2102, 122XB, 971 and 3300 (current models).

◆ **Audio is interrupted when a Combination Preset is selected.**
- Between the Combination Presets with different Tonewheel Settings, the sound will be cut off while the Tonewheel Settings are switched.
- The sound is once cut between the presets with different key mode (MONO/POLY) on the Pedal part, for switching the sound algorithm.

◆ **There is excessive MIDI latency compared to the organ (Drawbar) sound.**
- The position of the key contact for MIDI send is deeper than that of the multi-contacts for Drawbars.
- There are too many zones to send. ⇨
  Turn [OFF] the switches of unnecessary external zones.

◆ **No sounds of Pedal part from the headphones.**
- PEDAL OUTPUT set at "PEDOUT". ⇨
  Set the PEDAL OUTPUT at "BOTH" when using the headphones (P. 96 #1).

◆ **Manual contact does not work well.**
- The multi-contacts used for the manuals on this organ is designed to be used for a long time. Refer for the contact refreshing procedures to the "Instruction for keyboard contact cleaning function".
  And, if all the contact points have been worn out and the problem is not solved any longer by refreshing the contacts, please consult your local dealer or store for further maintenance.

◆ How to care for your organ:
  - When you want to clean the keys or cabinets, use only a soft cloth. If they are extremely dirty, use a barely damp cloth with a neutral detergent. Never apply alcohol, thinner or benzine.

◆ There is no MIDI IN jack for the manual part;
  - Because of electro-mechanical direct analog keying mechanism is adopted on this organ, the information of each of the multi-contacts is not defined with a MIDI message.

◆ The Leslie Speed Switch cord is too long:
  - A rather long cord is provided for the Leslie Speed Switch, so the player can move the unit as desired. If it is longer than desired, please bind and fix the extra portion with a wire clamp.

◆ Do I need to oil my organ?
  - There is no part needing oiling on your organ.

APPENDIX
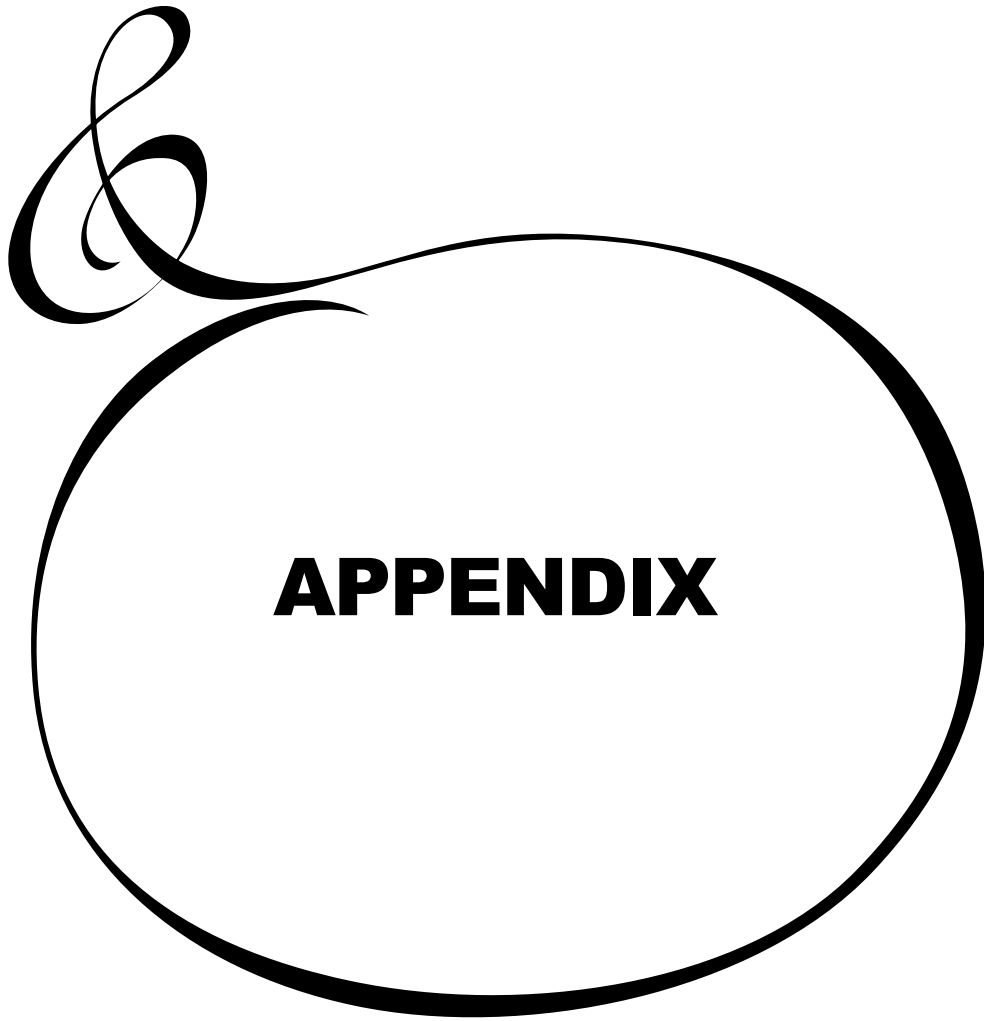
MIDI IMPLEMENTATION CHART

[Hammond Console Organ]   Date: 9-June-2008
Model: B-3 mk2   MIDI Implementation Chart   Version: 1.0

Function		Transmitted	Recognized	Remarks
Basic	Default	Off	Omni On	Tx: External Zones
Channel	Changed	1 - 16	*****	Rx: Pedal Part
Mode	Default	3	1	
	Messages	X	X	
	Altered	*****	X	
Note		12 - 120	36 - 60	
Number	: True Voice	*****	36 - 60	
Velocity	Note ON	O	X	
	Note OFF	X	X	
After	Key's	X	X	
Touch	Ch's	X	X	
Pitch Bender		X	X	
Control Change	0, 32	O	X	Bank Select MSB, LSB
	7	O	X	Volume
	10	O	X	Pan
	11	O	X	Expression
	64	O	X	Hold 1
	121	O	X	Reset All Controllers
Program Change	: True #	O 0 - 127	X	
		*****	X	
System Exclusive		X	X	
System Common	: Song Position	X	X	
	: Song Select	X	X	
	: Tune	X	X	
System Real Time	: Clock	X	X	
	: Commands	X	X	
Aux Messages	: Local On/Off	X	X	
	: All Notes Off	O	O	
	: Active Sense	O	O	
	: Reset	X	X	

Mode 1:   OMNI ON, POLY   Mode 2: OMNI ON, MONO   O: Yes
Mode 3:   OMNI OFF, POLY   Mode 4: OMNI OFF, MONO   X: No

Global Parameters

Category	Global Parameters		
	Parameter	Data Range	Default
Bank Name	(8 Characters)		each bank
Tune	Transpose	-6 - 0 - 6	0
	Master Tune	430 - 440 - 450	440
Expression	Min. Level	Off, -40dB - -0dB	-27dB
	Min. Limit LF	Off, -60dB - -0dB	-20dB
	Min. Limit HF		-30dB
	Curve	00 - 04 (1 - 5)	1
Foot Switch	Mode	Off Leslie C/T (alternate) Leslie C/T (momentarily) Spring Shock Delay Time Reverb Depth	Leslie C/T (alternate)
Motor Control	Bend Time Down	0.1 - 9.9s	5.0s
	Bend Time Up	0.1 - 9.9s	1.0s
	Bend Amplitude	Off / On	On
Combi. Preset Load	Link Great-Pedal (G-P)	Off / On	Off
	Manual Bass (MANBS)	Off / On	Off
	External Zone Swell (EXT-S)	Off / On	Off
	External Zone Great (EXT-G)	Off / On	Off
	Reverb, Equalizer (RV/EQ)	Off / On	Off
	Leslie, Vibrato (ANI/OD)	Off / On	Off
	Registration Swell (SWELL)	Off / On	On
	Registration Great (GREAT)	Off / On	On
	Drawbar (DRAWB)	Off / On	Off
	Percussion (PERCUS)	Off / On	Off

Preset Parameters

Category	Combination Preset Parameters		
	Parameter	Data Range	P. load
Swell Drawbar Effect	Leslie Mode	Choral, Stop, Tremolo	ANI/OD
	Leslie Stop Mode	Through / Stop	
	Leslie Cabinet	1 - 8	
	Vibrato On Swell	Off / On	ANI/OD
	Vibrato Mode	V1 - C3	
	Vibrato Rate	6.1 - 7.25Hz	
	Vibrato Tremolo	0 - 15	
	Vibrato Cho. Emphasis	0 - 9	
	Vibrato Depth V1	0 - 15	
	Vibrato Depth V2	0 - 15	
	Vibrato Depth V3	0 - 15	
	Vibrato Depth C1	0 - 15	
	Vibrato Depth C2	0 - 15	
	Vibrato Depth C3	0 - 15	
	OD Drive Level	0 - 63	ANI/OD
	OD Exp. Ctrl	Off / On	
	OD Bias	-32 - +31	
	Buffer Amp	Off / On	
	Buffer Bias	-32 - +31	
	EQ Bass Gain	-9 - 0 - +9 dB	EQ/REV
	EQ Mid Freq	180Hz - 2.9kHz	
	EQ Mid Gain	-9 - 0 - +9 dB	
	EQ Treble Gain	-9 - 0 - +9 dB	
	EQ Tone Control	-9 - 0 - +9	
	Reverb Type	Room 1 Room 2 Live House Hall 1 Hall 2 Church Plate Spring Delay Pannning Delay Reverb + Delay	EQ/REV
	Reverb Depth	0 - 15	
	Reverb Time	0 - 31	
	Reverb Delay Feedback	0 - 96%	
	Reverb Delay Time	4.7 - 1000ms	
	Leslie On Reverb	Off / On	

Category	Combination Preset Parameters		
	Parameter	Data	P. load
Manual Bass	Manual Bass On	Off / On	MANBS
	Manual Bass Range High	1C - 6C	
External Zone	Switch	Off / On	EXT (Swell 1 - Swell 3) EXT and G-P (Great 1 - Pedal 3)
	Channel	1 - 16, Off	
	Bank MSB	0 - 127	
	Bank LSB	0 - 127	
	Program Change	1 - 128	
	Octave Shift	-2 - 0 - +2	
	Volume	0 - 127	
	Pan	L64 - C - R63	
	Vel. Curve	Off, Normal - Easy	
	Exp. Min	0 - 63	
	Exp. Max	64 - 127	
	Exp. CC#	7, 11	
	Tx. Damper	Off / On	
	Key Range Low	1C - 5B	
	Key Range High	1C# - 6C, Off	

Category	Combination Preset Parameters		
	Parameter	Data	P. load
Swell/ Great Drawbar Voice	Tone-wheel Set	B-Type Mellow	DRAWB
	Leakage Level	0 - 127	
	Fold Back Low	1C - 2C	
	Fold Back High	4G - 5C	
Percussion Voice	Percussion On	Off / On	PERCUS
	Decay Fast	Off / On	
	Soft	Off / On	
	Harmonic	Second / Third	
	Level Soft	1 - 16	
	Level Normal	1 - 16	
	Decay Fast	1 - 15, Cont.	
	Decay Slow	1 - 15, Cont.	
	Drawbar 1' Cancel	Off / On	
	Drawbar Level	0, -3dB	
Swell Drawbars	16'	0 - 8	SWELL
	5 1/3'	0 - 8	
	8'	0 - 8	
	4'	0 - 8	
	2 2/3'	0 - 8	
	2'	0 - 8	
	1 3/5'	0 - 8	
	1 1/3'	0 - 8	
	1'	0 - 8	

Category	Great Preset Parameters		
	Parameter	Data	P. load
Great Drawbars	16'	0 - 8	GREAT
	5 1/3'	0 - 8	
	8'	0 - 8	
	4'	0 - 8	
	2 2/3'	0 - 8	
	2'	0 - 8	
	1 3/5'	0 - 8	
	1 1/3'	0 - 8	
	1'	0 - 8	
Great Drawbar Effect	Vibrato On Great	Off / On	ANI/OD
	Vibrato Tablet Great	Great Great and Pedal	
Pedal Drawbar Voice	Tone-wheel Set	Normal Muted Synth 1 Synth 2	DRAWB and G-P
	Drawbar Attack	Slow Attack No Click Soft Click Normal Click Max Click	
	Sustain On	Off / On	
	Sustain Length	1 - 5	
	Pedal Key Mode	Mono / Poly	
	Decay Length	1 - 5, Cont.	
Pedal Drawbars	16'	0 - 8	G-P
	8'	0 - 8	
Pedal Sub Drawbars	Normal 16' - 16'	0 - 8	DRAWB and G-P
	Normal 16' - 5 1/3'	0 - 8	
	Normal 16' - 8'	0 - 8	
	Normal 16' - 4'	0 - 8	
	Normal 16' - 2 2/3'	0 - 8	
	Normal 16' - 2'	0 - 8	
	Normal 16' - 1 3/5'	0 - 8	
	Normal 16' - 1 1/3'	0 - 8	
	Normal 8' - 8'	0 - 8	
	Normal 8' - 4'	0 - 8	
	Normal 8' - 2 2/3'	0 - 8	
	Normal 8' - 2'	0 - 8	
	Normal 8' - 1 3/5'	0 - 8	
	Normal 8' - 1 1/3'	0 - 8	

Leslie Parameters

Category	Leslie Parameters	
	Parameter	Data Range
Cabinet	Name	(10 Characters)
	Slow Speed Horn	0, 24 - 318rpm
	Slow Speed Bass	0, 24 - 318rpm
	Fast Speed Horn	0, 375 - 453rpm
	Fast Speed Bass	0, 375 - 453rpm
	Rise Time Horn	0.2 - 5.0s
	Rise Time Bass	0.5 - 12.5s
	Fall Time Horn	0.2 - 5.0s
	Fall Time Bass	0.5 - 12.5s
	Brake Time Horn	0.2 - 5.0s
	Brake Time Bass	0.5 - 12.5s
	Volume Horn	-12 - 0dB
	Volume Bass	-12 - 0dB
	Mic. Angle	0 - 180deg
	Mic. Distance	0.3 - 2.7m
	Horn Character	Flat, Mid, Deep
	Amplifier	Solidstate, Tube
	Speaker	Rotary Small Rotary Large Stationary

System Parameters

Category	System Parameters		
	Parameter	Data Range	Default
Ext. Leslie	Horn	Mellow / Flat	Mellow
Audio	Pedal	Both / Pedal Out	Both
Key Scan	Pedal Rebound	1-128	4
Display	Lock	Off / On	Off

Sound Generator

Swell and Great
DTW1 Digital Tone-Wheels

Pedal
VASE III

Polyphony

Swell and Great
Full

Pedal
8

Keyboard

Swell and Great
61-keys (Multi Contact for Drawbars and Rubber Contact for MIDI)
Direct Analog Keying
Water Fall type

Pedal (except B-3P mk2)
25-keys
Radial Flat type

Preset Key

Swell and Great
12-keys (Mechanical Latch)

Harmonic Drawbars

Swell and Great
9 Pitches, 2 sets per keyboard
B-type/Mellow

Pedal
2 Pitches,
Muted/Normal/Synth 1/Synth 2

Percussion

Tablets
On, Harmonic Selector, Decay, Volume

Adjustable
Decay (Fast, Slow)
Level (Soft, Normal)

Effects

Internal Leslie
Advanced Digital, 2 Rotors

Vibrato and Chorus
Digital Scanner
Swell On, Great On
V1, V2, V3, C1, C2, C3
5 Speeds (6.10 - 7.25Hz)
Tremolo, Emphasis, Depth

Pre-amp
Vacuum tubes
(12AU7 for Overdrive and 12AX7 for Buffer)

Equalizer
3 Bands and Tone Control

Reverb
11 Programs
with Leslie on Reverb

Sustain
5 Lengths (Pedal)

Coupler
Manual Bass

Combination Presets

Common
5 banks

Swell
9 Presets

Great and Pedal
9 Presets
Switchable: Link/Independent Pedal

Controllers

Switches
Power On / Off
Motor Control

Rotary Controllers
Master Volume
Overdrive
Bass
Treble
Reverb

Foot Controller
Expression Pedal (with foot switch) except B-3P mk2

Display
20-characters, 2 lines
with 9 control switches

Storage
CompactFlash card slot

MIDI

Zones
3 (Swell), 3 (Great), 3 (Pedal)

Connections
AC Inlet
MIDI Pedal In, MIDI Out
Leslie Switch, Main/Echo Switch
Effect Send, Return
Line In L, R
Line Out L, R
Pedal Out
Headphones
11-pin Leslie Main, Echo
Expression Pedal (B-3P mk2 only)
Pedalboard (B-3P mk2 only)

Dimension

B-3 mk2
console only:
123(W) x 73(D) x 97(H)cm
48"(W) x 29"(D) x 38"(H)
with music rack, bench and pedalboard:
123(W) x 126(D) x 117(H)cm
48"(W) x 50"(D) x 46"(H)

C-3 mk2
console only:
125(W) x 73(D) x 97(H)cm
49"(W) x 29"(D) x 38"(H)
with music rack, bench and pedalboard:
125(W) x 126(D) x 117(H)cm
49"(W) x 50"(D) x 46"(H)

B-3P mk2
on stand:
123(W) x 73(D) x 117(H)cm
48"(W) x 29"(D) x 38"(H)

Weight

B-3 mk2
console only:
95 kg, 209 lbs
with music rack, bench and pedalboard:
132 kg, 291 lbs

C-3 mk2
console only:
107kg, 236 lbs
with music rack, bench and pedalboard:
144 kg, 318 lbs

B-3P mk2
console only:
65 kg, 143 lbs
with stand:
85 kg, 187 lbs

Accessory

B-3 mk2, C-3 mk2
Pedalboard, Bench
Music Rack
CompactFlash card
Leslie Speed Switch
AC Cable
Hexagonal Wrench

B-3P mk2
Stand, Music Rack
Expression Pedal
CompactFlash card
Leslie Speed Switch
AC Cable
Hexagonal Wrench

1: Liturgic

Swell Keyboard

Key	Registration	Tone Quality	Loudness
C	N/A	Cancel	N/A
C♯	00 5320 000	Stopped Flute	pp
D	00 4432 000	Dulciana	ppp
D♯	00 8740 000	French Horn	mf
E	00 4544 222	Salicional	pp
F	00 5403 000	Flutes 8' & 4'	p
F♯	00 4675 300	Oboe Horn	mf
G	00 5644 320	Swell Diapason	mf
G♯	00 6876 540	Trumpet	f
A	32 7645 222	Full Swell	ff
A♯	Drawbars A♯	Adjust	N/A
B	Drawbars B	Adjust	N/A

Great Keyboard

Key	Registration	Tone Quality	Loudness
C	N/A	Cancel	N/A
C♯	00 4545 440	Cello	mp
D	00 4423 220	Flute & String	mp
D♯	00 7373 430	Clarinet	mf
E	00 4544 220	Diapason, Gamba and Flute	mf
F	00 6644 322	Great, no reeds	f
F♯	00 5642 200	Open Diapason	f
G	00 6845 433	Full Great	ff
G♯	00 8030 000	Tibia Clausa	f
A	42 7866 244	Full Great with 16'	fff
A♯	Drawbars A♯	Adjust	N/A
B	Drawbars B	Adjust	N/A

2: Jazz

Swell Keyboard

Key	Registration	Tone Quality
C	N/A	Cancel
C♯	88 8000 000	Jimmy 1
D	88 8800 000	Power
D♯	88 8800 008	Jimmy 2
E	80 0008 888	Squabble
F	80 0800 000	Walter
F♯	88 8000 008	Groove
G	88 8880 000	Pop
G♯	88 0888 080	Jackie
A	88 8888 888	All Nine
A♯	Drawbars A♯	Adjust
B	Drawbars B	Adjust

Great Keyboard

Key	Registration	Tone Quality
C	N/A	Cancel
C♯	83 8000 000	Jimmy 1 Bass
D	00 8800 000	Accomp.
D♯	84 8000 000	Jimmy 2 Bass
E	82 8000 000	Squabble Bass
F	80 8000 000	Smooth Bass
F♯	85 8000 000	Groove Bass
G	00 8840 000	Pop Accomp.
G♯	84 8010 000	Fat Bass
A	00 8886 540	Full Accomp.
A♯	Drawbars A♯	Adjust
B	Drawbars B	Adjust

3: Theatre

Swell Keyboard

Key	Registration	Tone Quality
C	N/A	Cancel
C♯	00 8740 000	French Horn 8'
D	00 8408 004	Tibias 8' & 2'
D♯	00 8080 840	Clarinet 8'
E	08 8800 880	Novel Solo 8'
F	60 8088 000	Theatre Solo 16'
F♯	00 4685 300	Oboe Horn 8'
G	60 8807 006	Full Tibias 16'
G♯	00 6888 654	Trumpet 8'
A	76 8878 667	Full Theatre Brass 16'
A♯	Drawbars A♯	Adjust
B	Drawbars B	Adjust

Great Keyboard

Key	Registration	Tone Quality
C	N/A	Cancel
C♯	00 4545 442	Cello 8'
D	00 4432 000	Dulciana 8'
D♯	00 4800 000	Vibraharp 8'
E	00 2500 234	Vox 8' & Tibia 4'
F	00 6554 322	String Accomp. 8'
F♯	00 5642 200	Open Diapason 8'
G	00 7656 311	Full Accomp. 8'
G♯	00 8030 000	Tibia 8'
A	84 7767 666	Bombarde 16'
A♯	Drawbars A♯	Adjust
B	Drawbars B	Adjust

4: ShowCase

Swell Keyboard

Key	Registration	Tone Quality
C	N/A	Cancel
C♯	68 8000 000	The Gnome (Swell)
D	88 8800 000	Highway Star (Swell)
D♯	85 7303 000	Born To Be Wild (Swell)
E	88 8888 888	Telstar (Swell)
F	88 8888 080	HM Soloist (Swell)
F♯	77 7331 000	Funky Up (Swell)
G	80 8808 006	Full Tibias (Swell)
G♯	88 6000 008	Groove 2 (Swell)
A	87 8878 668	Theatre Brass (Swell)
A♯	Drawbars A♯	Adjust
B	Drawbars B	Adjust

Great Keyboard

Key	Registration	Tone Quality
C	N/A	Cancel
C♯	66 6666 888	The Gnome (Great)
D	00 5504 004	Highway Star (Great)
D♯	00 5414 004	Born To Be Wild (Great)
E	00 5678 763	Telstar (Great)
F	88 8000 000	HM Soloist (Great)
F♯	00 6600 000	Funky Up (Great)
G	00 8630 000	Full Tibias (Great)
G♯	00 8855 000	Groove 2 (Great)
A	84 7767 666	Theatre Brass (Great)
A♯	Drawbars A♯	Adjust
B	Drawbars B	Adjust

This Bank introduces you this organ's advanced features.

Each Preset of this Bank calls out various parameters other than Drawbar registration, such as Leslie, Overdrive.

5: User

Swell Keyboard

Key	Registration	Tone Quality
C	N/A	Cancel
C♯		
D		
D♯		
E		
F		
F♯		
G		
G♯		
A		
A♯	Drawbars A♯	Adjust
B	Drawbars B	Adjust

Great Keyboard

Key	Registration	Tone Quality
C	N/A	Cancel
C♯		
D		
D♯		
E		
F		
F♯		
G		
G♯		
A		
A♯	Drawbars A♯	Adjust
B	Drawbars B	Adjust

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 Manual, total accuracy cannot be guaranteed.

Should the owner 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

Website:
www.hammondorganco.com

In Europe contact:

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

E-mail: Info@hammondsuzuki.com
Website: www.hammondsuzuki.com

All other countries contact:

HAMMOND SUZUKI Ltd.
25-11, Ryoke 2 Chome,
Naka-ku, Hamamatsu
430-0852 (Shizuoka)
JAPAN

Website: www.suzuki-music.co.jp

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, Naka-ku,
Hamamatsu 430-0852 (Shizuoka)
JAPAN

INSTRUCTION

Please keep this instruction with the attached hex wrench.

FOR KEYBOARD CONTACT CLEANING FUNCTION (B-3mk2,C-3mk2)
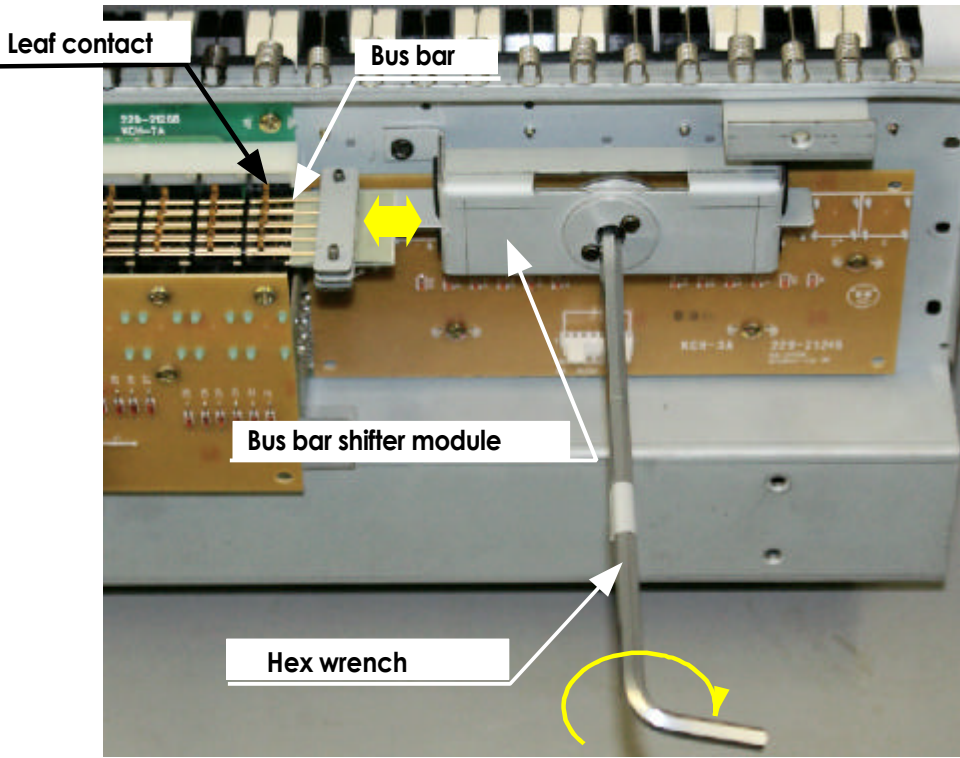
B-3 KEY CONTACT CLEANING

The B-3/C-3 utilizes multi-contact manuals to produce the drawbar and key click sounds the same way as the original B-3. There are a total of 1220 gold-plated contacts in both manuals. After some extended period of time, the contacts will get dirty and will need to be cleaned.

This condition can be recognized by an increase of key-click noise and intermittent/scratchy sounds from the drawbars. After this condition occurs, the following key-contact procedure needs to be followed.

PROCEDURE OVERVIEW

Please refer to the picture below.

There are ten bus bars that cover the distance between key 1 and key 61.

One end of the bus bars are clamped in the Bus Bar Shifter Module.

The Hex wrench is inserted into the hex opening in the center of the module.

Rotating the Hex wrench one complete turn will shift the bus bars through both the right and left limits.

CLEANING INSRUCTIONS

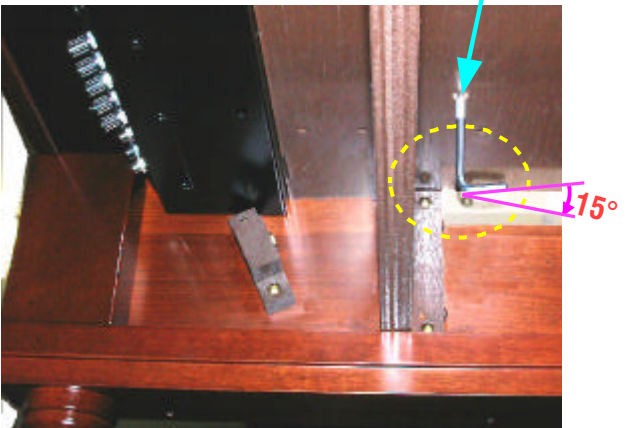### Lower manual

Step 1. Remove two(2) big screws, and the wood panel. (see above picture)
Step 2. Locate the adjustment hole behind the BASS knob as shown below.
　　　　 (see left picture below)
Step 3. Insert the hex wrench and rotate slowly until the shifter cam hole is located.
Step 4. Turn the wrench clockwise slowly until turning pressure increases if the wrench turns easily at first. After pressure increases, turn an additional 15 degrees.
Step 5. If turning pressure is high initially, then only turn the wrench 15 degrees and stop.
Step 6. Remove the wrench and check for key noise. If the noise is gone, the contact has been cleaned successfully.
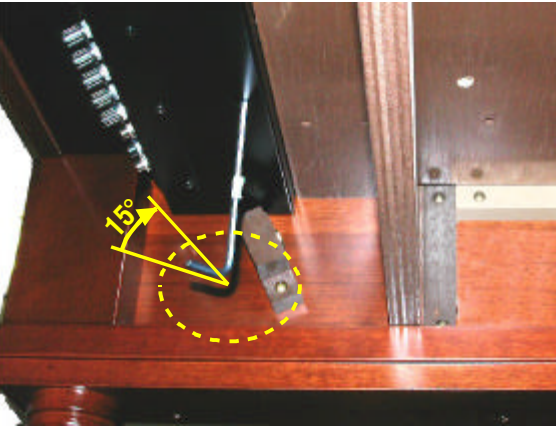
Upper manual　　　(see right picture above)

Step 1. Locate the upper manual adjustment hole and insert the hex wrench until the shifter hole is located.
Step 2. Follow steps 3 to 5 above.

INSTRUCTION   Please keep this instruction with the attached hex wrench.

FOR KEYBOARD CONTACT CLEANING FUNCTION (B-3Pmk2)
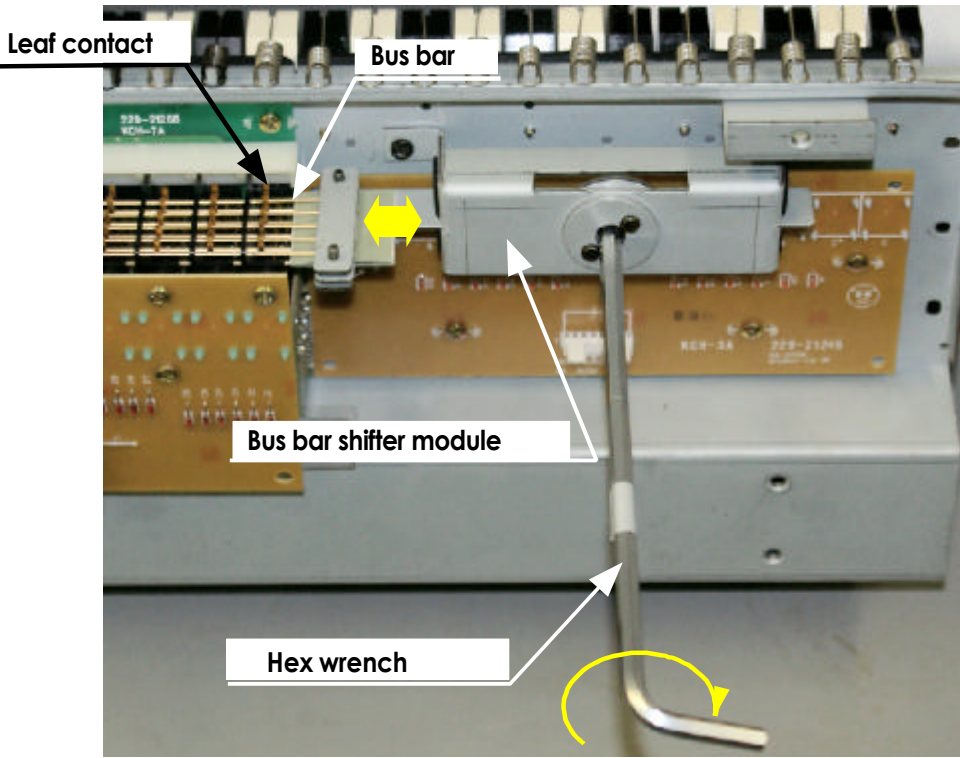
B-3 KEY CONTACT CLEANING

The B-3/B-3P utilizes multi-contact manuals to produce the drawbar and
key click sounds the same way as the original B-3. There are a total of
1220 gold-plated contacts in both manuals. After some extended period of time,
the contacts will get dirty and will need to be cleaned.
This condition can be recognized by an increase of key-click noise and
intermittent/scratchy sounds from the drawbars. After this condition occurs,
the following key-contact procedure needs to be followed.

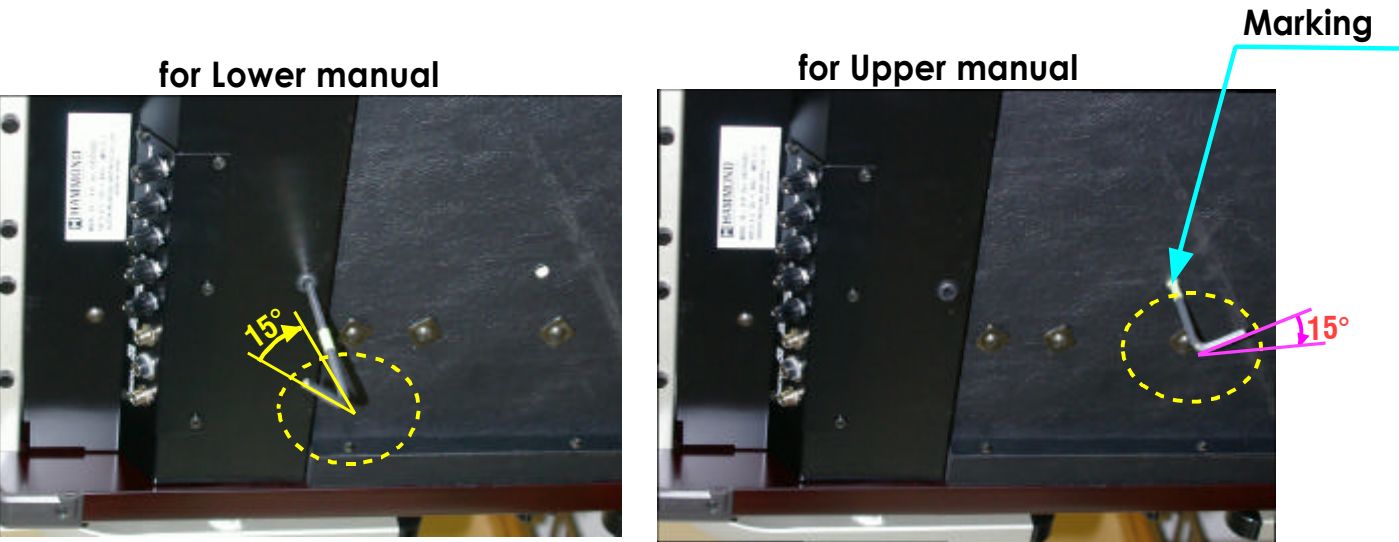## PROCEDURE OVERVIEW

Please refer to the picture below.
There are ten bus bars that cover the distance between key 1 and key 61.
One end of the bus bars are clamped in the Bus Bar Shifter Module.
The Hex wrench is inserted into the hex opening in the center of the module.
Rotating the Hex wrench one complete turn will shift the bus bars through
both the right and left limits.

CLEANING INSRUCTIONS

Lower manual   (see left picture below)

Step 1. Locate the adjustment hole behind the BASS knob as shown below.

Step 2. Insert the hex wrench and rotate slowly until the shifter cam hole is located.

Step 3. Turn the wrench clockwise slowly until turning pressure increases if the wrench
turns easily at first. After pressure increases, turn an additional 15 degrees.

Step 4. If turning pressure is high initially, then only turn the wrench 15 degrees and stop.

Step 5. Remove the wrench and check for key noise. If the noise is gone, the contact has
been cleaned successfully.

Upper manual   (see right picture above)

Step 1. Locate the upper manual adjustment hole and insert the hex wrench
until the shifter hole is located.

Step 2. Follow steps 3 to 5 above.