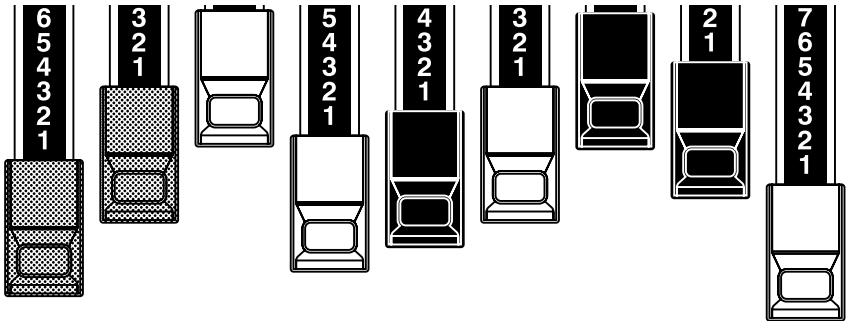
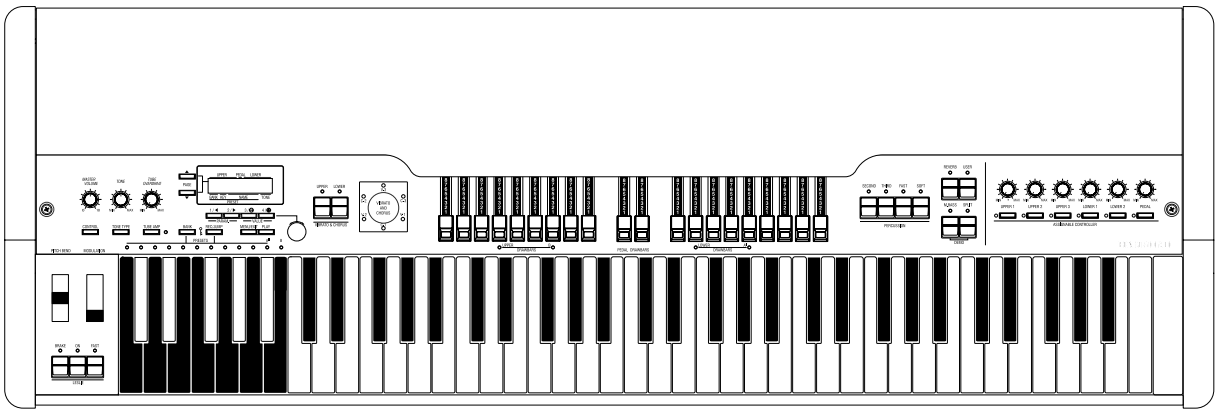


HAMMOND

Model XK-3C

Thank you, and congratulations on your choice of a Hammond XK-3C.
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.

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.

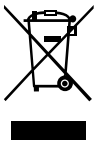
Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.

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

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 witnin 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.

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

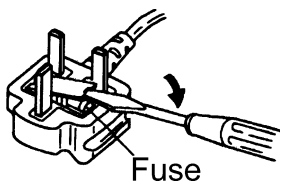
As the colours of the wires in the mains lead of this unit may not correspond with the coloured marking identifying the terminals in your plug, proceed as follows.

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.



IMPORTANT - PLEASE READ

Your Hammond XK-3C Drawbar Keyboard is designed to give you the true and authentic sound of Hammond Harmonic Drawbars, as well as provide you a large variety of features to allow great flexibility in how you want to use the keyboard. This Owner's Manual is designed to explain the operating features of your Hammond XK-3C 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.

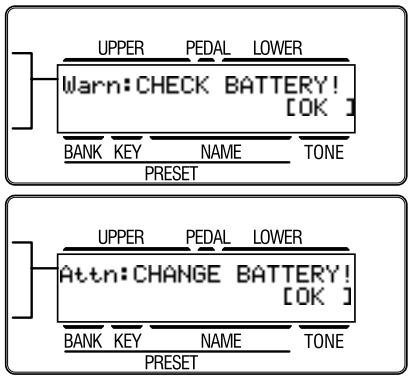
Do not be daunted by the number of steps required to perform each operation. Each step is simple. Simply bear these things in mind:

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 XK-3C.

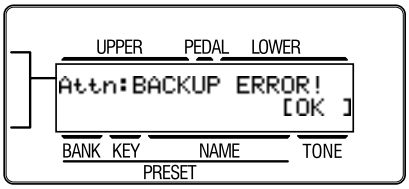
BATTERY BACK UP

Your XK-3C uses a battery-backed RAM to remember your changes to the Parameters.
When the battery voltage becomes low, the Display will show:



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:

After the above message is displayed, the XK-3C will re-initialize itself, and the factory default settings will



be restored (except Combination Presets, Leslie Cabinets and Cutsom Tone-Wheels). Therefore, it is a good idea to periodically save your data to CompactFlash card.

CAUTION: In order to change batteries, be sure to ask your dealer or store.

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

♦ACCURATELY REPRODUCES THE TONE-WHEEL SOUND.

Your new XK-3C contains (96) independent oscillating digital tone-wheels that accurately reproduce the sound of the Vintage B-3/C-3.
In addition, this keyboard has full polyphony.

♦KEYBOARD OPERATES LIKE THE VINTAGE MODELS.

This keyboard operates exactly like the vintage B-3, C-3, etc did.
Presets are selected by means of the Reverse Colored Keys.
Vibrato effects can be selected by the rotary Vibrato control.
The keyboard has Waterfall keys and you can also attach a Leslie Switch (optional) to the front rail as well.

♦VACUUM TUBE PREAMPLIFIER.

This keyboard has a circuit for a pre-amplifier with 2 characteristically different tubes, a 12AX7 and a 12AU7, so as to offer a variety of overdrive sounds. The pre-amp circuit consists of dual bands. You can assign bass and treble to respective tubes, thus can realize purer harmonic sounds. Of course, the general single band operation is also possible. By adjusting the bias voltage, you can obtain not only the distortion by the general clip but also the nonlinear distortion.

♦DIGITAL LESLIE / VIBRATO EFFECTS.

The XK-3C keyboard is equipped with a DSP effect generator to simulate the Scanner-Vibrato and Leslie Speaker. The range of sounds that you can create is expanded by the use of Vibrato and Chorus effects, and by the real sounding Leslie effects which effectively simulates the rotation of the two Rotors which are present in traditional Leslie.

♦EQUALIZER AND TONE CONTROL.

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

♦11 PIN LESLIE SPEAKER SOCKET.

Your new XK-3C contains a 11 pin Leslie speaker socket for direct connection to Leslie Speakers.

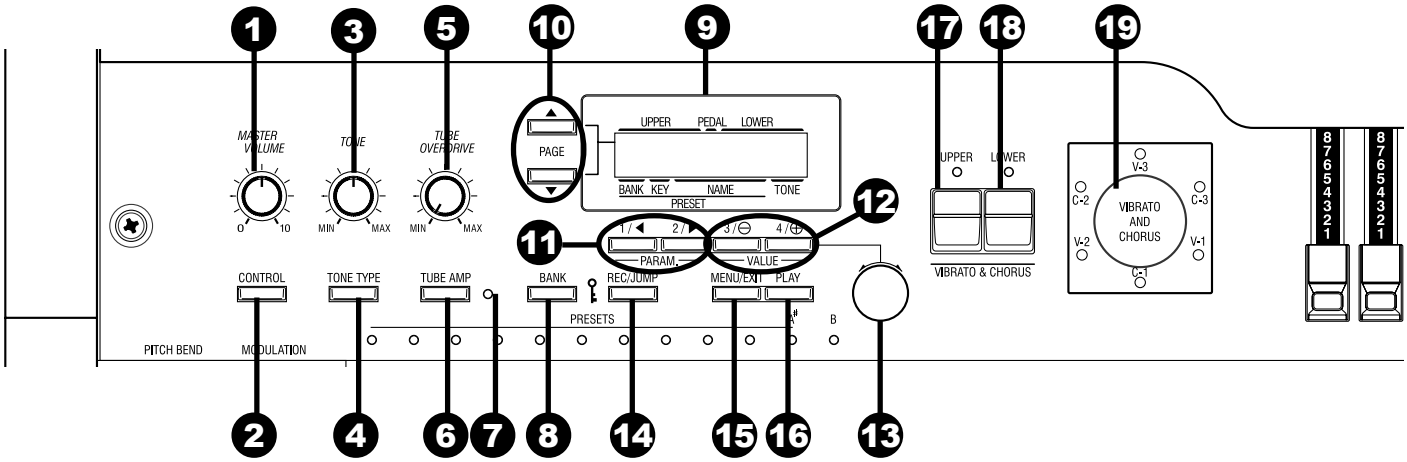
♦CAN BE EXPANDED BY USE OF EXTERNAL MIDI PRODUCTS.

You can expand your keyboard by connecting and playing with additional external MIDI equipment.
This includes keyboards, sequencers, etc.

♦CompactFlash™ CARD

You can use a CompactFlash Card (not included) to save various Parameter files.

Front Panel



♦UPPER LEFT

1. MASTER VOLUME Knob
Controls the total volume.

2. CONTROL Button
Sets up various controls.

3. TONE Knob
Controls the tone quality.

4. TONE TYPE Button
Assigns the function of TONE CONTROL (3).

5. TUBE OVERDRIVE Knob
Controls the distortion of TUBE AMP (6).

6. TUBE AMP Button
Switches whether the sound of the UPPER/LOWER parts pass the tube amp circuit.

7. TUBE AMP. LED
Indicates the status of the TUBE AMP.

8. BANK Button
Switches Bank by pressing together the bank switch with the Preset key (37).

♦CONTROL PANEL

9. DISPLAY
Indicates various information.

10. PAGE Button
Selects Pages.

11. PARAM Button
Selects Parameters.

12. VALUE Button
Increases and decreases the value.

13. VALUE Knob
Adjusts the value.

14. REC/JUMP Button
Records Presets. This is also used to allow you to quickly page through the various choices within each function.

15. MENU/EXIT Button
Recall the MENU screen. This is also used to return from each function screen.

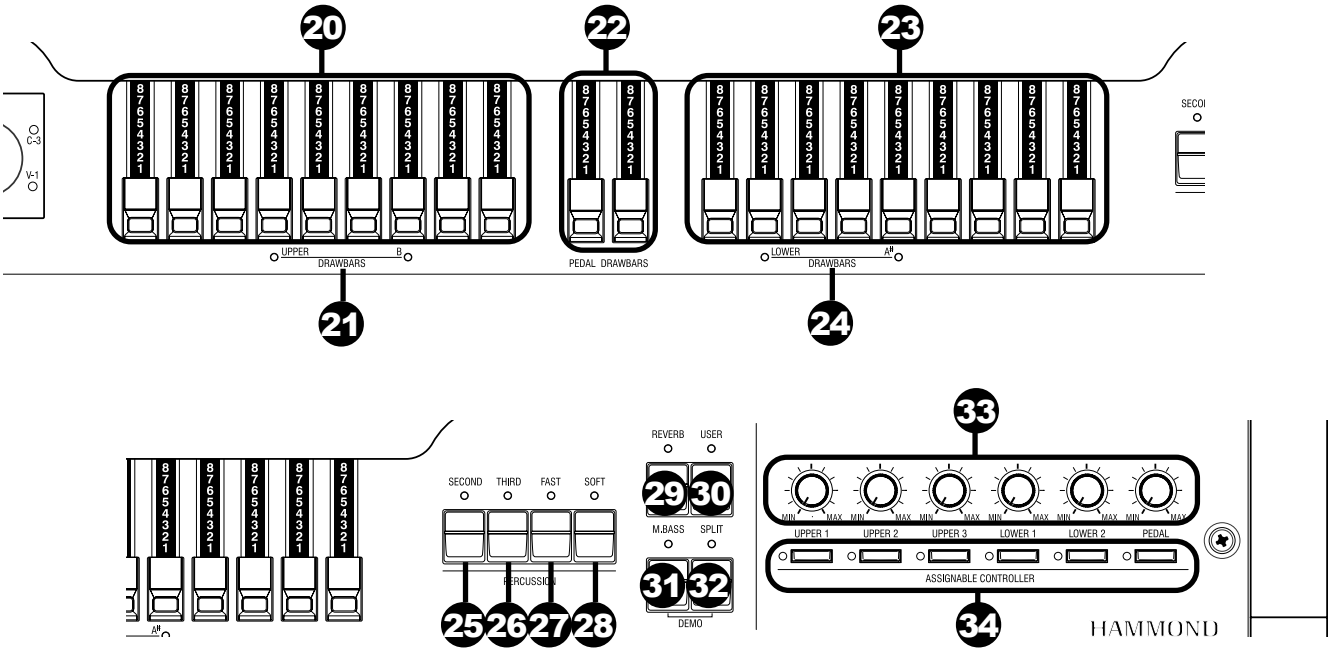
16. PLAY Button
Jumps to the PLAY screen, the basic screen.

♦VIBRATO & CHORUS

17. UPPER Button
Switches on and off the Vibrato/Chorus Effects on the UPPER part.

18. LOWER Button
Switches on and off the Vibrato/Chorus Effects on the LOWER part.

19. VIBRATO & CHORUS MODE Knob
Changes the depth of Vibrato and Chorus Effects.



♦DRAWBARS

20. LEFT DRAWBARS

Controls UPPER part or B key harmonics.

21. LEFT DRAWBARS LED

Indicates the function of the left drawbars.

22. PEDAL DRAWBARS

Controls PEDAL part harmonics.

23. RIGHT DRAWBARS

Controls LOWER part or A♯ key harmonics.

24. RIGHT DRAWBARS LED

Indicates the function of the right drawbars.

♦PERCUSSION

25. SECOND Button

Adds 4' Percussion (Decay sound) to UPPER part.

26. THIRD Button

Adds $2^{2}/_{3}$' Percussion (Decay sound) to UPPER part.

27. FAST Button

Changes Decay time of Percussion.

28. SOFT Button

Changes Percussion volume.

♦UPPER RIGHT

29. REVERB Button

Switches on and off the REVERB Effect.

30. USER Button

With this button you can assign the function you want.
PEDAL SUSTAIN ON/OFF is assigned as the factory setting.

31. MANUAL BASS Button

Produces Pedal sound by playing the lowest notes on the manual keyboard.

32. SPLIT Button

Divides the keyboard into two parts: UPPER and LOWER.

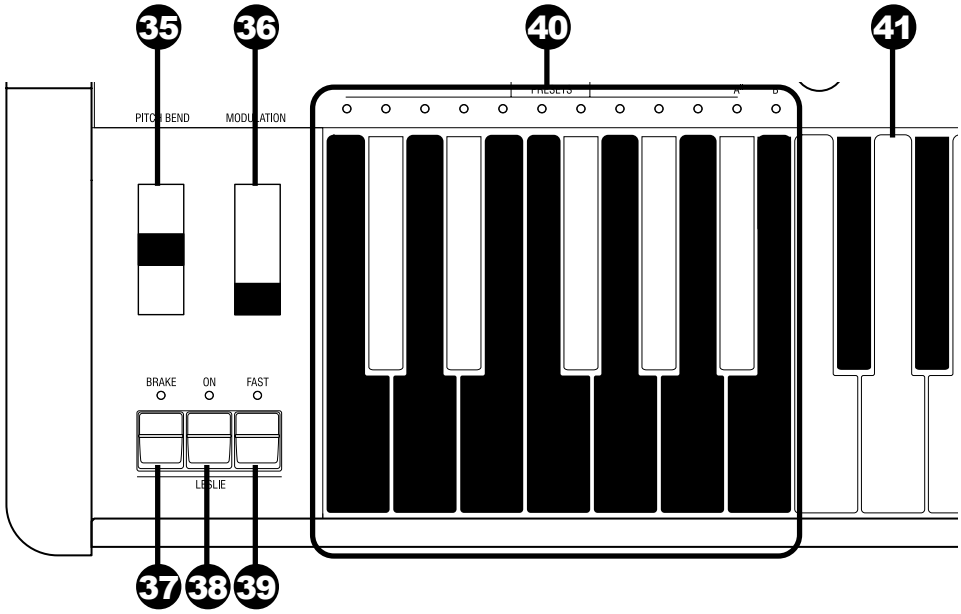
33. ASSIGNABLE Knobs

With this knob you can assign the function you want.
EXTERNAL ZONE VOLUME is assigned as the factory setting.

34. ASSIGNABLE Buttons

With this button you can assign the function you want.
EXTERNAL ZONE SWITCH is assigned as the factory setting.

End Block



♦WHEEL

35. PITCH BEND Wheel

Slides the pitch up or down.

The pitch goes up when moved up, and goes down when moved down.

36. MODULATION Wheel

On this keyboard, this is used mainly to send MIDI information to connected MIDI equipment.

♦LESLIE

37. LESLIE BRAKE Button

This button selects whether to produce sound from the stopped rotor (=Brake) or not to use the Leslie effect (= Through) when the LESLIE ON(38) Button is “off”.

Brake is ON when the LED is on.

38. LESLIE ON Button

When it is turned ON, the rotor turns and the sound come from the Rotor.

When the lamp is lighting, it is ‘ON’.

39. LESLIE FAST Button

Changes the speed of the Rotor from Slow to Fast and vice versa.

It is FAST when the LED is on.

♦KEYBOARD

40. PRESET Key

This is used to select the Combination Presets.

The Bank is selected by pressing this key, holding down BANK (8).

The selected BANK/PRESET is indicated by the LED above the Preset Key.

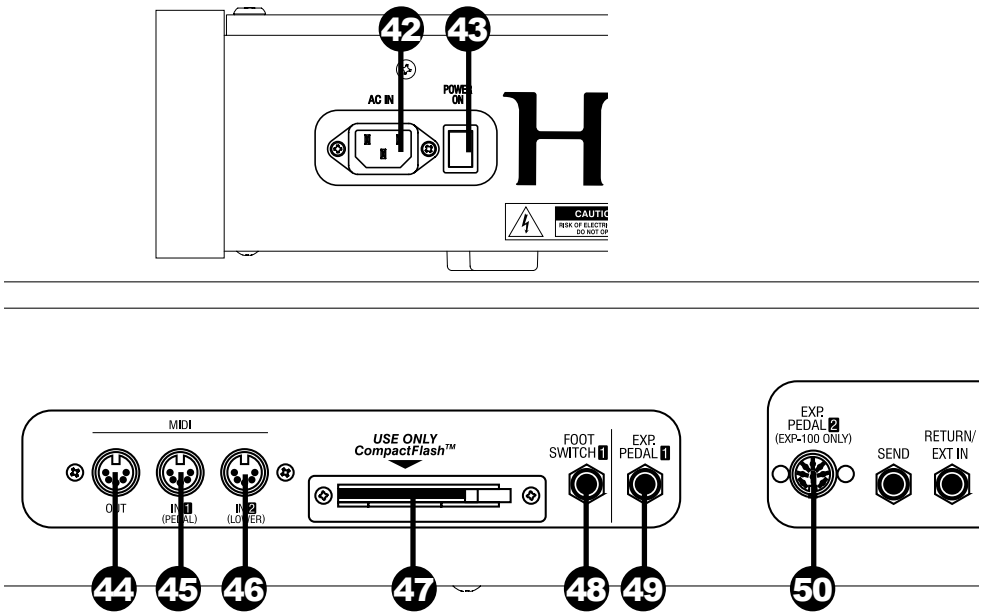
The “C” key is used to cancel all presets or drawbar settings.

41. MANUAL KEYBOARD

This keyboard contains 61 waterfall shaped keys.

Keyboard is velocity sensitive.

Rear Panel



♦LEFT SIDE OF REAR

42. AC Inlet

Connects the A.C. Power Cable.

⚠ CAUTION

This keyboard shall be connected to a MAINS socket outlet with a protective earth connection.

43. 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 the minimum level. When you are not using the instrument for a long time, make sure you unplug the power cord from the wall AC outlet.

♦MIDI TERMINAL

44. MIDI OUT

Sends out the performance information of this keyboard.

45. MIDI IN 1(PEDAL)

This is the MIDI IN Terminal used mainly for the Pedal Keyboard.

[The factory setting] The MIDI information received by channel. You can set that through this terminal functions as PEDAL, regardless of the channel.

46. MIDI IN 2(LOWER)

This is the MIDI IN Terminal used mainly for the Lower Keyboard.

[The factory setting] The MIDI information received by channel. You can set that through this terminal functions as LOWER, regardless of the channel.

♦STORAGE

47. CF CARD SLOT

Insert the CompactFlash™ Card here.

This is used to store the setting of this keyboard.

Use required CompactFlash™ Card.

♦CONTROLLER TERMINAL

48. FOOT SWITCH1

This terminal is for the Foot Switch (= FS-9H - optional) and the Leslie Switch (= CU-1 - optional).

You can switch the speed of the Leslie effect and the Combination Preset, etc. while playing.

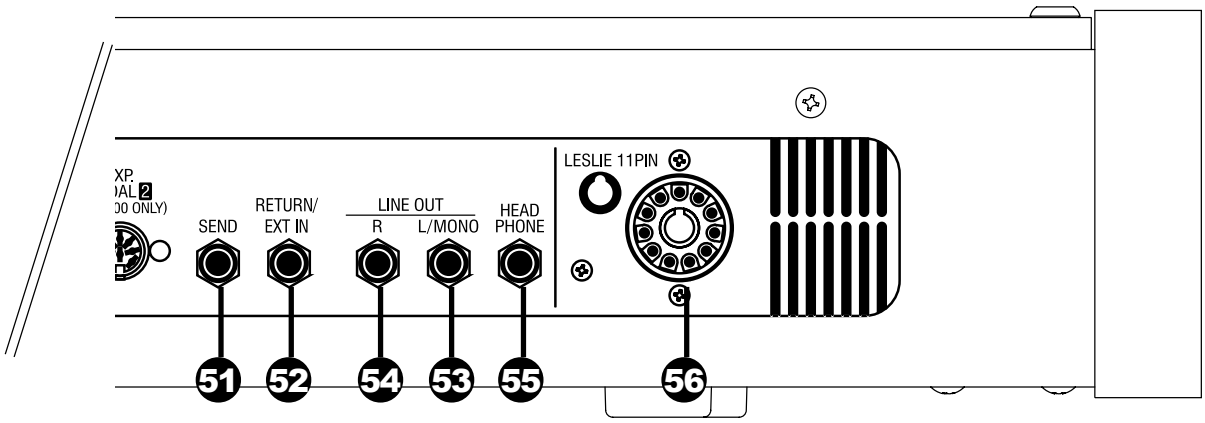
49. EXP. PEDAL1

This terminal is for the Expression Pedal (= V-20R etc. - optional.)

You can control the volume while you play.

50. EXP. PEDAL2

This terminal is for the exclusive Expression Pedal (= EXP-100F or EXP-100AN - optional).



♦EFFECT LOOP

51. SEND

This jack is for sending to external Effects.

The signal after passing through the built-in Tube Amp. is sent out.

If you insert a plug into this jack, it disconnects the internal unit, and signals are not put out from the output jack, except the signal input from RETURN jack.

(The rated output level is 1.23V +4dBm. The output impedance is 600Ω.)

52. RETURN/EXT IN

This jack is for receiving external Effects.

This jack can be used as the input jack of a external sound source.

(The rated input level is 1.23V +4dBm. The input impedance is 10kΩ.)

NOTE: Depending on the connected equipment, a setting may be required for the RETURN jack. (P. 83)

♦SOUND OUTPUT TERMINAL

53. LINE OUT L/MONO

If your amplifier has only a single (1) female 1/4” audio input connector (MONO input), use this Jack.

54. LINE OUT R

This is the Right channel output of the XK-3C.

Use the Left and Right output Jacks if your mixer or amplifier has stereo input.

Use only the L/MONO terminal, if the input is monaural.

The built-in Leslie Effect is only on L (the left), when the Leslie Speaker (56) is connected.

55. HEADPHONE

This is for connecting the stereo headphones.

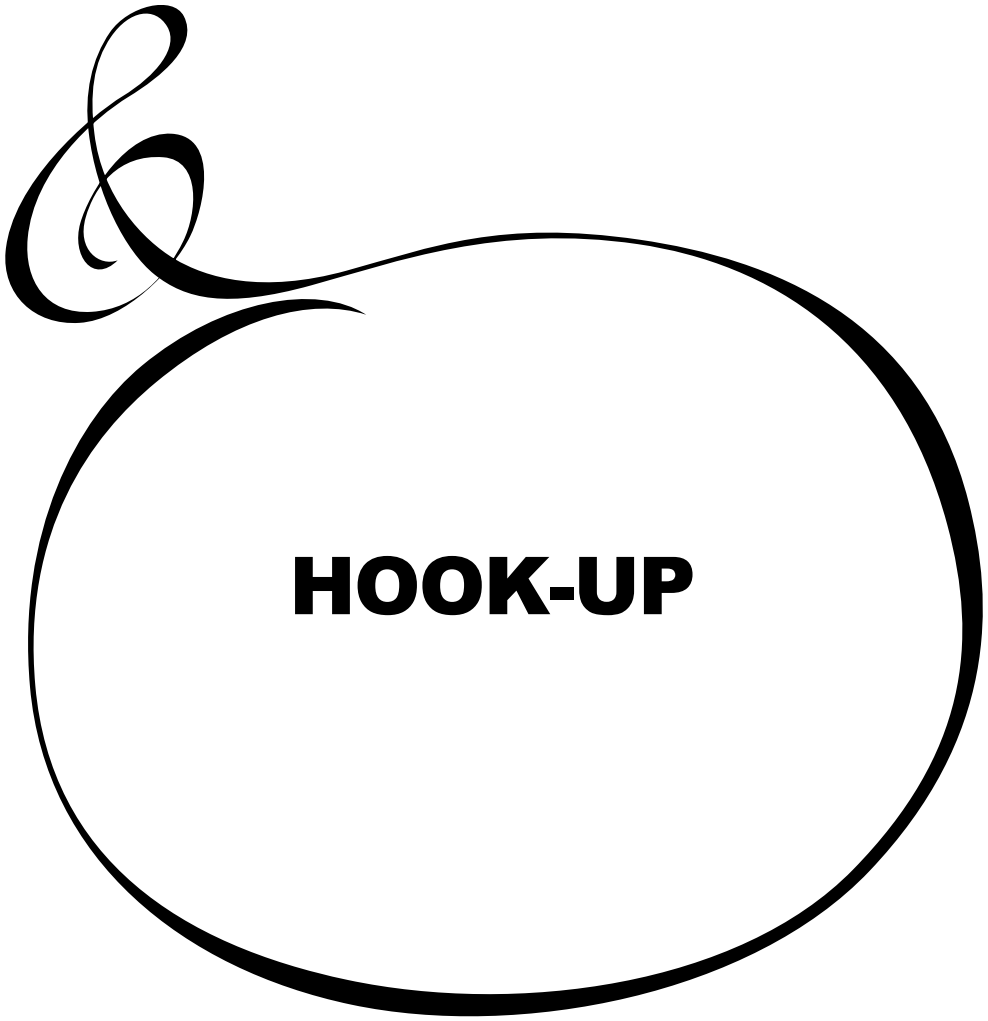
Sound is sent out from the LINE-OUT (53, 54) and LESLIE 11PIN (56), also when this terminal is used.

The built-in Leslie Effect is only on L (the left), when the Leslie Speaker (56) is connected.

56. LESLIE 11PIN

This is for connecting the Leslie Speaker.

Read “CONNECTING THE LESLIE SPEAKER” for more details.



HOOK-UP

See the figure below for connection.

Amplifiers or speakers are not mounted in this keyboard. You must connect an external amplifiers and speakers (or Powerd Speaker) in order to hear the keyboard sounds.

You can also enjoy playing this keyboard by connecting Stereo Headphones to the Headphone Jack.

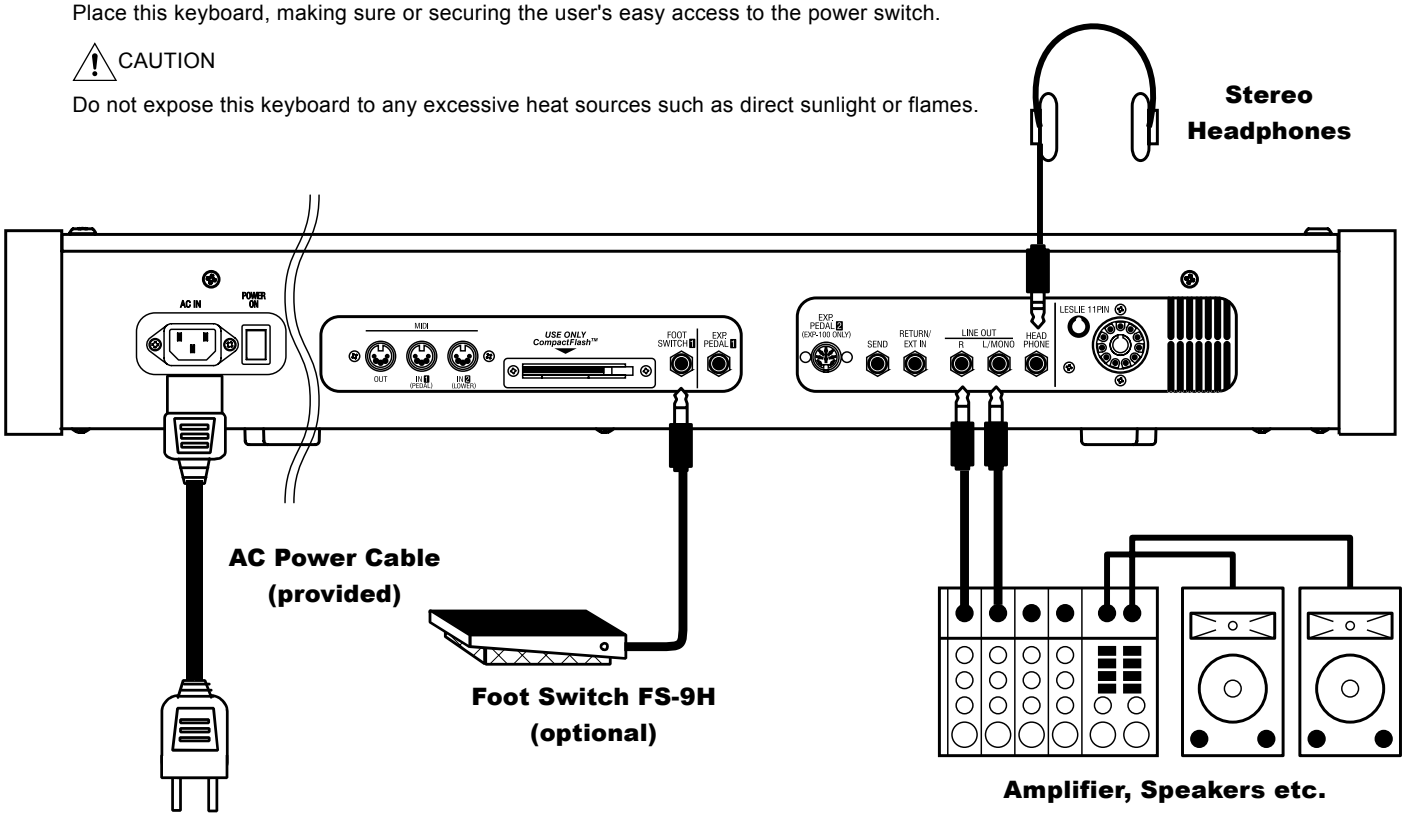
Be sure to do the connection after you switch the Power OFF on this keyboard and all connected equipment.

⚠ CAUTION

Place this keyboard, making sure or securing the user's easy access to the power switch.

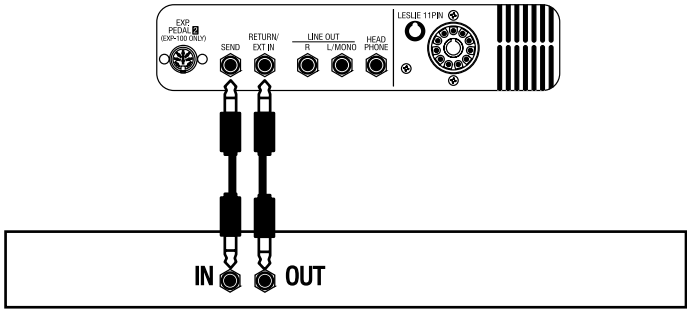
⚠ CAUTION

Do not expose this keyboard to any excessive heat sources such as direct sunlight or flames.



USING EFFECT LOOP

The Effect Loop is used when you want to connect the Leslie Speaker and the external Effects module which provides audio prior to the built-in Leslie Effect.



Use effects modules which have a output gain of less than +4dB.

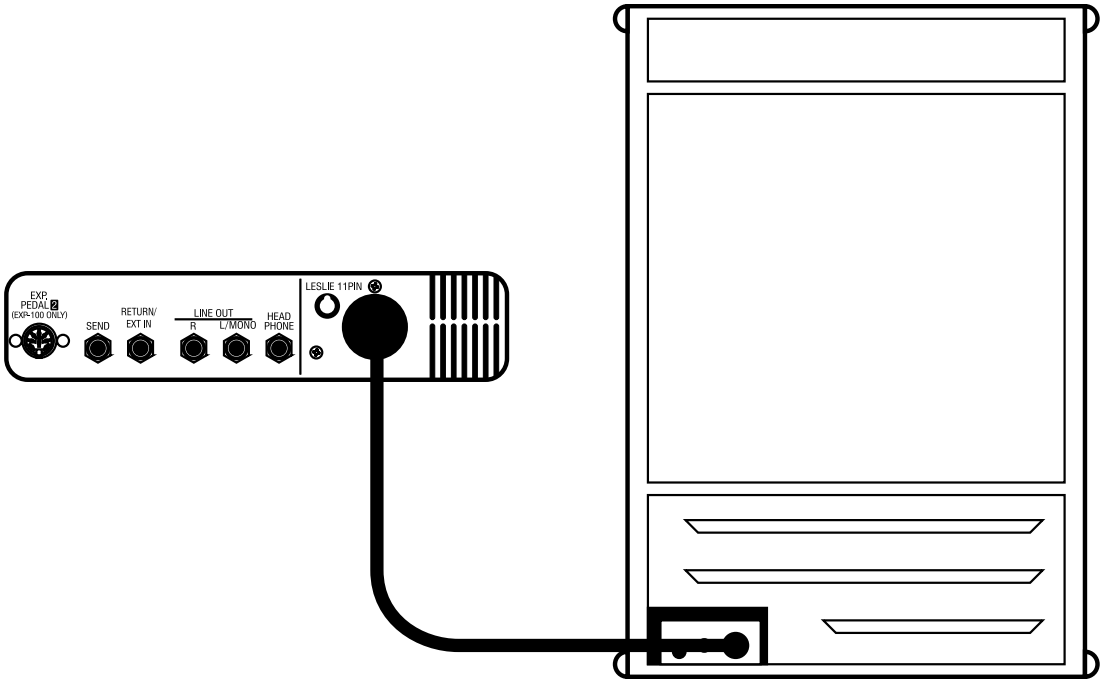
NOTE: The Effect Loop is inserted between built-in Tube Amp and built-in Effect (Leslie, Reverb, etc.)

NOTE: Depending on the connected equipment, a setting may be required for the RETURN jack. (P. 83)

CONNECTING THE LESLIE SPEAKER

This keyboard is equipped with a 11 Pin Leslie Connector, so you can directly connect the Leslie Speaker.

❖ *Do this connection after switching OFF the keyboard.*



Connect the Leslie Speaker to the 11 Pin Terminal on the keyboard, with the exclusive 11-Pin Leslie Cable (= LC-11-7M - to be separately purchased - with the other Leslie Speaker accessories).

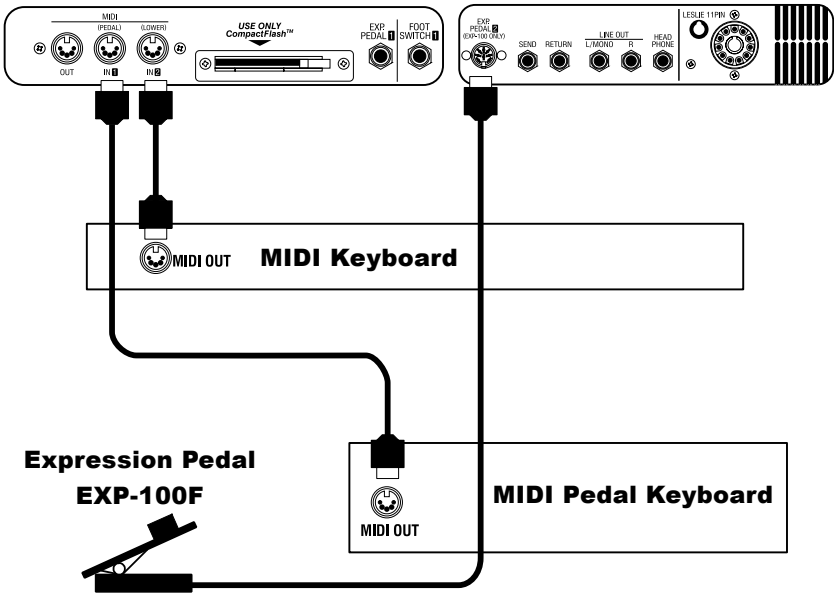
Adjust the setting of the “EXT. LESLIE CH”, in accordance with the Leslie Speaker connected. (P. 74)

eg. Typical Leslie Speaker Channel
122XB, 3300, 771 -- 1CH
2101/2102, 812/814, 3300 (with Stationary Unit) -- 3CH

Please carefully read the User’s Guide of the Leslie speaker.

CONNECTING THE MIDI KEYBOARD

You can upgrade this keyboard to an organ by connecting an external MIDI Keyboard and pedal keyboard.



1. Hook-up external MIDI keyboard and pedal keyboard per the figure above.
2. Use the MIDI Template “Seq. Record” of this keyboard. (P. 96 #1)
3. To use Expression Pedal, set the parameter “EXPRESSION SOURCE” for the model of expression pedal that you have connected. (P. 64 #10)

The MIDI Keyboard connected to the PEDAL Jack functions as the PEDAL part, and the one connected to the LOWER Jack as the LOWER part.

Please also read the User’s Guide of the connected MIDI Keybaord.

Recommend MIDI keyboards

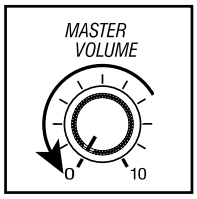
These our products are available:

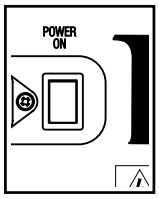
- MIDI LOWER KEYBOARD XLK-3 (61 notes + 12 preset keys)
- MIDI PEDALBOARD XPK-100 (13 notes)
- MIDI PEDALBOARD XPK-200 (20 notes)
- MIDI PEDALBOARD PK-25PXK (25 notes)

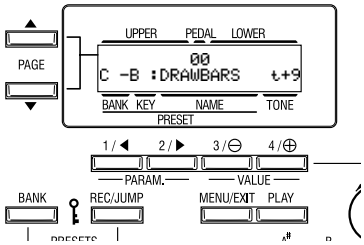
TURN ON AND PLAY

HOW TO POWER ON

After connecting your XK-3C to the power outlet, please perform the following steps before switching on the power. To avoid possible damages to speakers, please do not change the order of the steps.







STEPS TO TAKE

1. Set the MASTER VOLUME Knob at 0 (minimum), before switching the power on.
2. Switch on the POWER on the rear panel. "PLAY" Mode appears, following the TITLE, in the Display window.
   - ❖ *It takes a few seconds before the XK-3C gets ready, because of the circuit-protection devices.*
   - ❖ *It requires 10 to 20 seconds to warm up the tubes to get ready, when the [TUBE AMP] Button is ON.*
3. Switch on the power of the amplifiers etc. connected to the XK-3C.
4. Holding down a key, adjust the MASTER VOLUME by turning the Knob.
   - ❖ *The Preset Key [B] does not produce sound when initially first turned on. Draw the left Drawbar(s), or press either of the Preset keys [C♯] - [A] to start.*
5. 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

Your XK-3C memorizes the setting of the keyboard immediately before it is switched off. So, The keyboard will start with these settings when it is switched on again. This is called "Back-up".
The XK-3C is initially shipped from the factory with the Preset Key [B] in "pressed" status.

RESET TO THE INITIAL STATUS

Please perform the following steps to reset the XK-3C to the initial default setting.

STEPS TO TAKE

1. Switch off the power of the XK-3C.
2. Holding the [REC/JUMP] Button, switch on the power.
3. Hold down / Keep pressing the [REC/JUMP] Button until "Loading Default..." appears on the Display.
4. If everything is in order, PLAY Mode appears on the Display. (Completed)

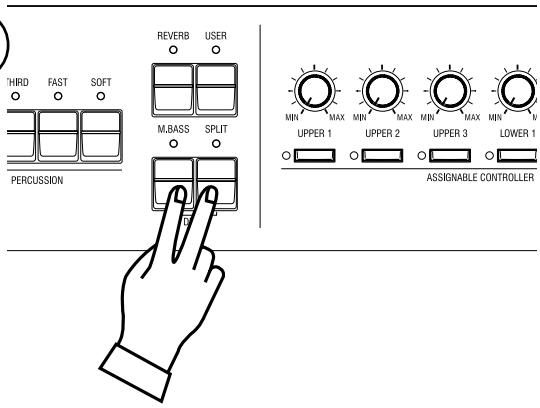
RESET FOR XK-SYSTEM

If you want the Upper and Lower manual Reverse color Presets to function just like they do on B-3/C-3 organ when using the XK-System, follow the above procedure except in step 2 press the [BANK] instead of [REC/JUMP].
Initial Preset Bank is [B] (refer to Factory Presets), Preset Load (P. 58) works only for Drawbar registration, Preset - Link Lower / Pedal is "Off", and MIDI IN mode (P. 96 #2) is "Lower / Pedal".

In your XK-3C, the demonstration performance is built in for introducing the features and sound.

STEPS

1

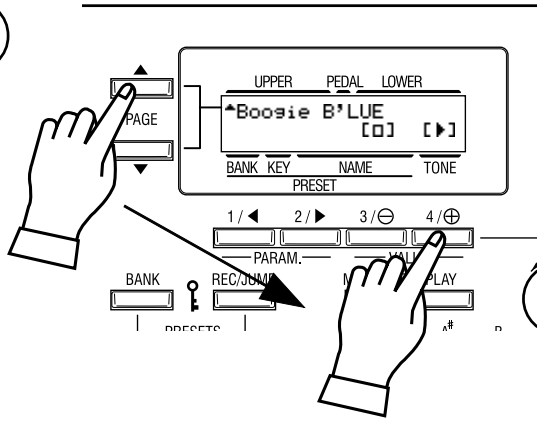


Touch and hold the [MANUAL BASS] and [SPLIT] Button for 2 seconds.

The Display will be as shown in step 2.

NOTE: You can locate this mode another way. Touch the [MENU/EXIT] Button to display the MENU, touch the [PAGE] Button and select page E, and touch the [3]DEMO.

2



Press the [PAGE] Button and select a desired song.

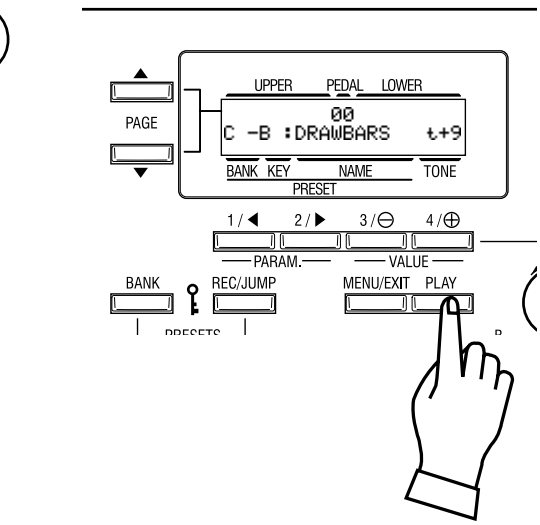
The performance starts when the [4] "▶" Button is pressed.

NOTE: After the song is over, the next one starts automatically.

To select a new song while you are playing, touch the [3]"□" Button. The performance that is playing will stop.

NOTE: You can not operate the controllers while playing the demonstration, except [MASTER VOLUME], [LESLIE BRAKE], [LESLIE ON], [LESLIE FAST], [VIBRATO & CHORUS] and [REVERB].

3



If you press the [M. BASS] and [SPLIT] buttons for holding 2 seconds, and press the [MENU/EXIT] or [PLAY] buttons, the performance stops.

PLAY WITH THE COMBINATION PRESET

You can record various settings to the Preset Keys mounted on the left-hand side of the XK-3C. This is called "Combination Preset".

The Combination Preset consists of the "BANK" and "KEY" (2-dimensional) such as "C-D", and appears for each setting on the Display.

The Preset data is recorded in the Banks C to B at the factory. Thus you can start playing immediately.

Combination Presets

Bank \ Key	C	C♯	D	D♯	E	F	F♯	G	G♯	A	A♯	B
C												
C♯												
D												
D♯												
E												
F												Adjust B
F♯												
G												
G♯												
A												
A♯												
B												

The chart on the left is for the Combination Preset. The "BANK" is shown vertically (line) and the "KEY" horizontally (column). Select one combination from this chart and play.

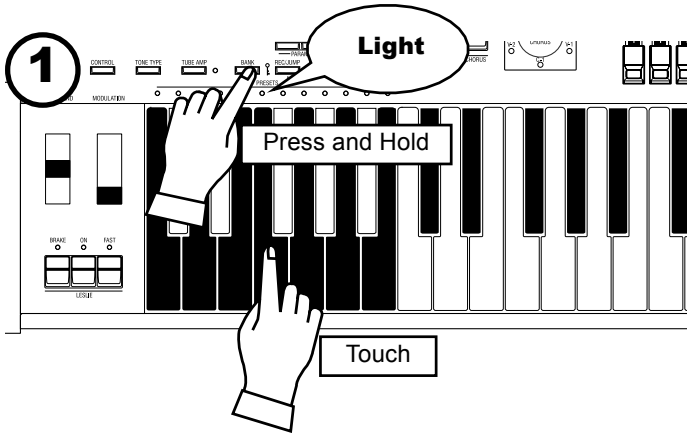
"C - B" is initially selected at the factory.

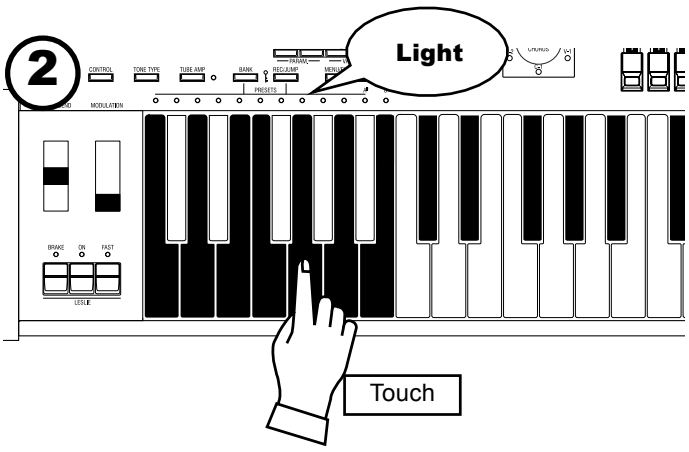
The example below recalls this.

NOTE: The Preset Key "C" creates no sound (, if combined) with any Bank in default. This is called "Cancel".

HOW TO RECALL THE PRESET

EX. Select "F - G"





1. Select the BANK

While holding down the [BANK] Button, press the Preset Key [F].

NOTE: The LED for the Preset Key indicates the "BANK", while the [BANK] Button is pressed.

2. Select the KEY

Press the Preset Key [G].

At this time the Preset is decided and the setting changes.

NOTE: While the [BANK] Button is released, the LED indicates the "KEY".

"F - G" appears on the bottom left of the Display.

Recall various Combination Presets and play.

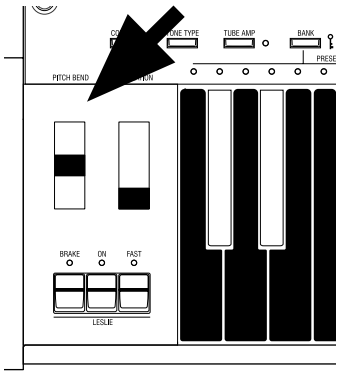
When you recall a Combination Preset, not only Drawbars but also the Effects such as Leslie and Reverb change altogether. However, the BANK B of the factory setting changes only the Drawbars. This action is the same as on B-3 or C-3.

NOTE: You can set the types of the Parameter you recall. (P. 58)

NOTE: Some Combination Presets cause sound cut-off or audio interruption, when they are selected while pressing keys.

Your performance will be more expressive, if you play on the manual using the controllers. You will see on this page how to use the controllers generally used with the electronic musical instruments. (How to use the exclusive Hammond Organ controllers is shown on the next page.)

PITCH BEND WHEEL



This is used to slide the pitch up or down while playing.
The frequency goes up when you move it back, and it goes down when you move it forward.
When you release your hand from the PITCH BEND wheel, it returns automatically to the center position.

NOTE: You can adjust the value of the pitch bend. (P. 62)

The [MODULATION WHEEL] on the right is not usually used. It is used when you transmit the modulation information to external MIDI equipments.

EXPRESSION PEDAL

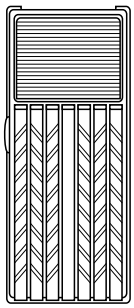


Fig.: V-20R (optional)

Generally, organs can not express dynamics or the velocity of the key touch, while all the piano can.
However, if you connect the Expression Pedal to the organ, you can express the velocity, corresponding to the degree of your foot-pressure on the pedal, and add intonation to make your music more expressive. [The Expression Pedal is to be separately purchased.]
The volume is loudest when you fully press down by means of your toe, and it is quietest when you fully press down by means of your heel.

NOTE: Set the parameter at "Expression source" for the model of expression pedal that you have connected. (P. 64)

FOOT SWITCH

Fig.: FS-9H (optional)

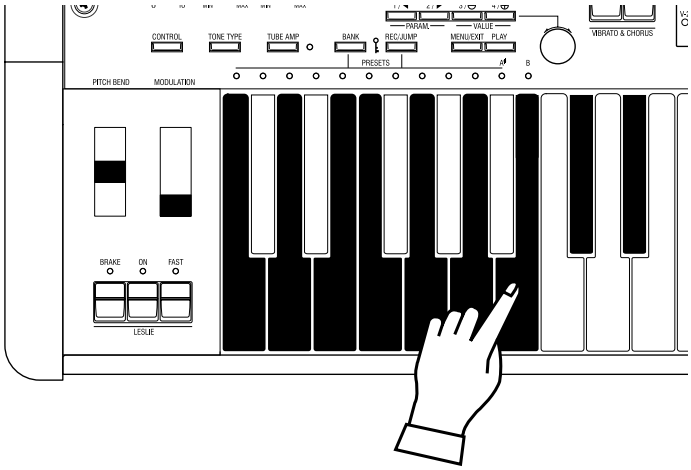
This switch is used to operate and control the organ by your foot instead of pressing various switches by your hand while playing. [The Foot Switch is to be separately purchased.]
The initial factory assignment is "LESLIE FAST".

NOTE: You can change the Foot switch assignment. (P. 65)

TRY TO MAKE YOUR OWN SOUND

You will be able to freely produce your own sound by using the exclusive features of your HAMMOND ORGAN, such as Drawbars and Percussion sound, as well as Vibrato and the Leslie effects. The steps to take after you receive your XK-3C from your dealer are as follows:

SELECT THE PRESET KEY [B]

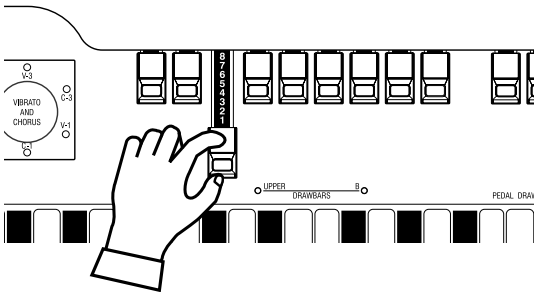


First select the Preset Key [B].

This is a special key, also called “Adjust Preset”. While this key is selected, your setting is always memorized, and the Drawbar registration on the panel (= the length of the Draw-bars) always corresponds with the internal registration.

NOTE: You can initialize the contents to the default setting. (P. 82)

PULL OUT THE LEFT DRAWBARS



Pull out the Left Drawbars on the left-hand side to your desired length, pressing a key on the keyboard to be certain.

The tone varies corresponding to the extent or the length of the Drawbar. So it is the Drawbars that make the fundamental tones of this keyboard.

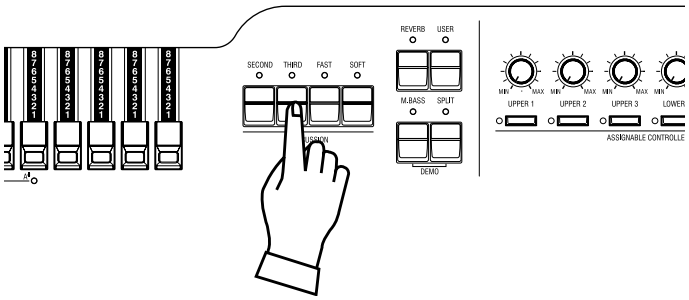
The volume gets loudest when each Drawbar is pulled out to the full length. The XK-3C gets silent when it is totally pressed back. The tones of the Drawbars gradually get higher in frequency from left to right.

The most popular patterns or registrations are (1) to pull out only all the three left side Draw-bars 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. 56)

NOTE: The present registration is shown on the “Play” mode display. (P. 48)

ADD PERCUSSION



The “Percussion” referred to here is not a percussion instrument itself, but it is a “decay” to add a clear-cut “attack” to the organ sound. You can add this "attack" to mix with the Drawbar sound when you want.

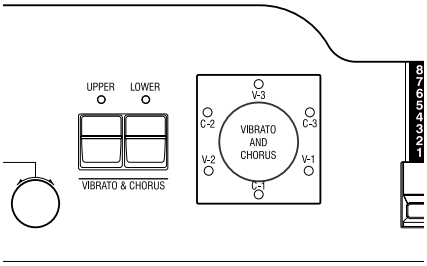
If you turn on the [SECOND], [THIRD] Buttons, decays of the harmonic overtones (= one octave higher “C” and “G”) are added.

If you turn on the [FAST] Button, the decay goes quick. And, if you press on the [SOFT] Button, the Percussion volume reduces.

NOTE: You can do fine volume setting etc. of the percussion. (P. 71)

ADD EFFECTS

VIBRATO & CHORUS



"Vibrato and Chorus" slightly changes the Drawbar pitch at a certain ratio and add warmth to the sound.

[UPPER] Button

Switches on and off the Vibrato effect. The LED turns on when it is ON.

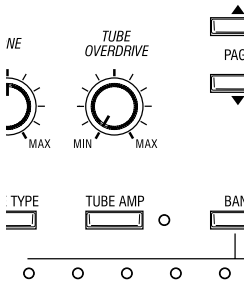
[VIBRATO & CHORUS MODE] Knob

Controls the Vibrato Depth and switches to and from the Chorus effect.

The degree of the depth corresponds with the number. Also "V" adds only Vibrato sound by changing the pitch, "C" mixes Vibrato and original sound (= Chorus Effect) and adds richness to the sound.

NOTE: You can finely adjust the rotation speed etc. of the Vibrato/Chorus. (P. 76)

OVERDRIVE



The overdrive effect simulates the effect of applying an excessively high signal to the amplifiers input which causes distortion of the sound.

[TUBE AMP] Button

Press this button to switch on the LED, and get the Overdrive Effect.

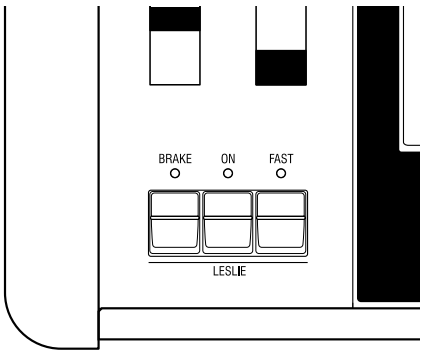
[TUBE OVERDRIVE] Knob

This knob controls the degree of distortion.

NOTE: The LED for the TUBE AMP Button varies the color according to the distortion degree. When it is through the TUBE AMP without distortion, it is green. It goes red when the distortion degree increases.

NOTE: You can finely adjust the Overdrive Effect. (P. 78)

LESLIE



The rotor and the rotating horns produce the effect of the spatial and dynamic and lively theater stage performance.

[LESLIE ON] Button

Touch "ON" to switch on the LED.

[LESLIE FAST] Button

This button controls the rotor at two different speeds. When the LED is ON, it is FAST. When the LED is OFF, it is SLOW. The most effective and popular way to use this is to mainly play SLOW and lead to the climax by changing to FAST.

[LESLIE BRAKE] Button

This is to set the action when the LESLIE ON Button is OFF.

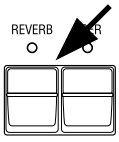
When the LED is ON, BRAKE is on. The rotation gradually slows down and stops finally).

When the light is OFF, it is THROUGH. The Leslie effect is by-passed.

NOTE: You can control the rotors by these buttons when you connect the LESLIE to the external equipment.

NOTE: You can finely adjust the rotation speed etc. of the internal LESLIE Effect. (P. 72)

REVERB



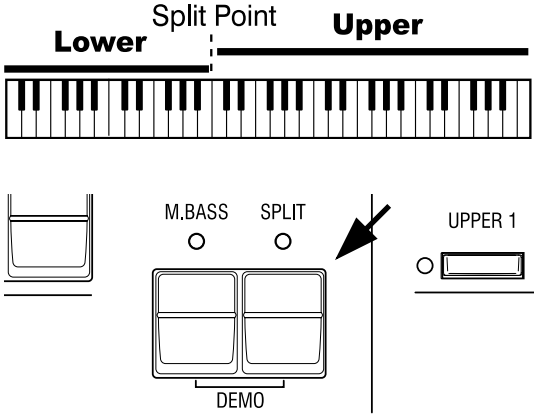
This gives the reverberation effect of being in a concert-hall.

[REVERB] Button

To get the Reverb Effect, touch the button and switch on the LED.

NOTE: You can finely control time etc. of Reverb. (P. 81)

Divide the keyboard into two parts - left and right. [SPLIT]



This keyboard has only a single manual. But you can change the setting and play it as it was a double keyboard organ, using this "SPLIT" function.

[SPLIT] Button

Switch on the LED by pressing the button, to "split" the manual.

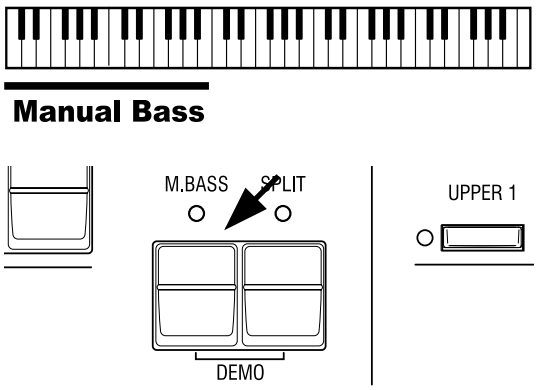
The factory "SPLIT" setting is to divide it between B and C in the center.

NOTE: Split Point or Octave can be moved. (P. 92 #4)

NOTE: The Split function does not work, when the MIDI IN jack is used for "LOWER/PEDAL". (P. 96 #2)

The right-hand side of the split point is called UPPER to make sound by the left Drawbars and Percussion. The left-hand side is called LOWER and makes sound with the right Drawbars. Percussion does not sound with LOWER.

Add bass part on the manual keyboard. [MANUAL BASS]



You can play the Bass using the lowest keys.

This is called "Manual Bass".

[M. BASS] Button

To use the Manual Bass function, press the button and switch on the LED.

Not to interfere with the Melody performance, this function is limited only up to B in the center when it leaves the factory.

NOTE: You can move the upper limit of the Manual Bass. (P. 92 #1)

NOTE: The Manual Bass function is controlled by connected MIDI keyboard when the purpose of the MIDI IN jack is at "LOWER/PEDAL". (P. 94 #2)

The bass part obtained by the Manual Bass is called the PEDAL, and makes sound controlled by the Pedal Drawbars. This is designed so that the Bass is played by the pedal keyboard as on the three-keyboard organ.

NOTE: You can choose sounding polyphonic (POLY) or lowest note (MONO). (P. 57 #15)

You can use both the Manual Bass and the Split at the same time. So, you will be able to play Bass, Chord and Melody all by yourself.

What is "Part"?

A "PART" plays like a "player" in a band or an orchestra does.

Like the three-keyboard organs, this keyboard has three parts, UPPER, LOWER and PEDAL, and so you can play three different tones.

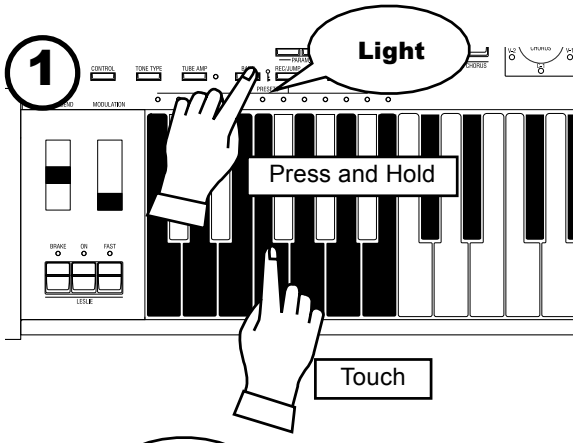
This keyboard has only a single manual, but it is possible to play plural parts, using the SPLIT and/or using the MIDI keyboards to expand the keyboard.

NOTE: The function for plural tones is called "Multi-timbre".

STORING REGISTRATIONS IN COMBINATION PRESET

All the afore-mentioned settings can be memorized to the Combination Preset.
The data stored at the factory can also be freely re-written.

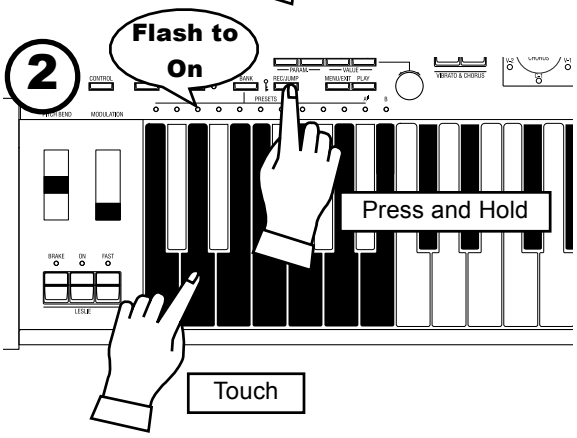
EX. Memorize to “F - D”.



1. While pressing the [BANK] Button, press the Preset Key [F].

The LED on the Preset Key indicates BANK while the [BANK] Button is pressed.

NOTE: The LED goes out if you release the button. This means the Preset is not final.

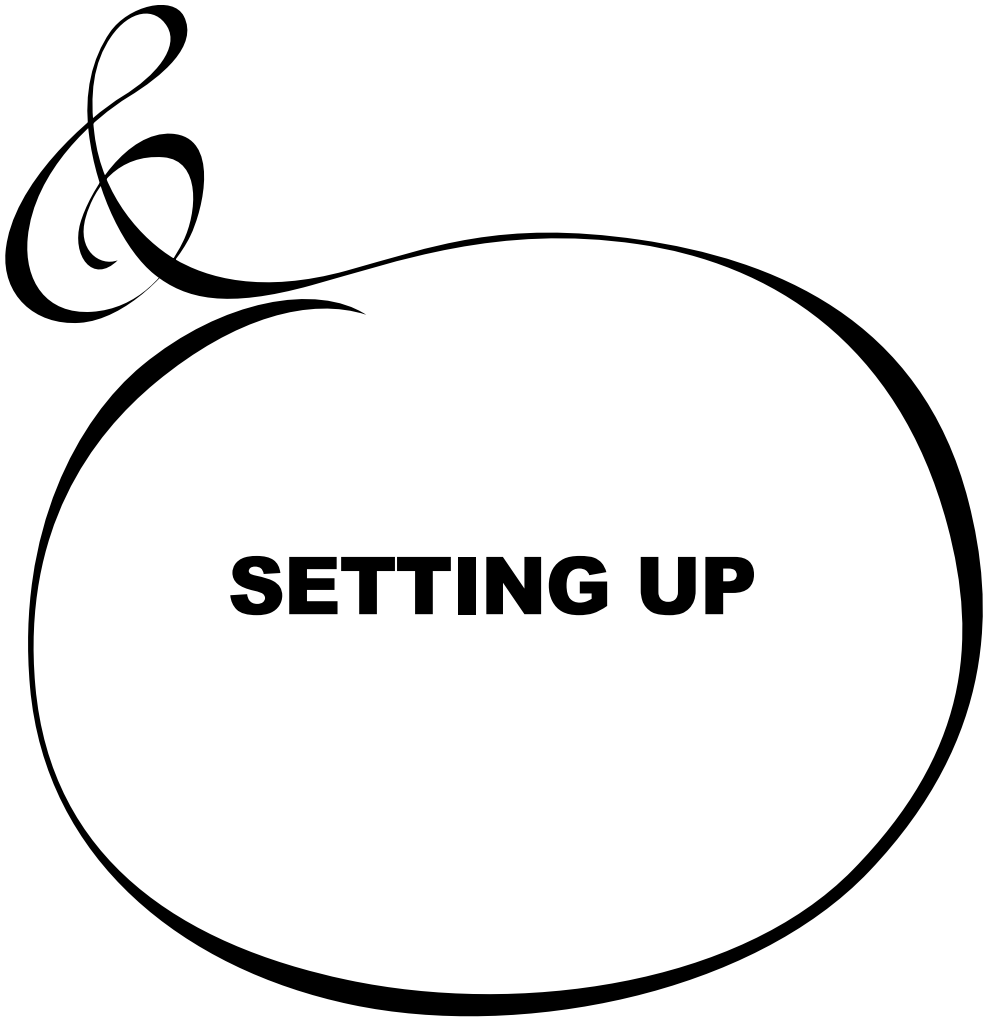


2. While pressing the [REC/JUMP] Button, press the Preset Key [D].

The Preset is finalized and Recording Preset appears on the display for a while. When the recording is completed, the LED on the Preset Key [D] flashes for a few seconds and then switches on. The Display returns to the previous mode. The recorded Preset will be automatically selected.

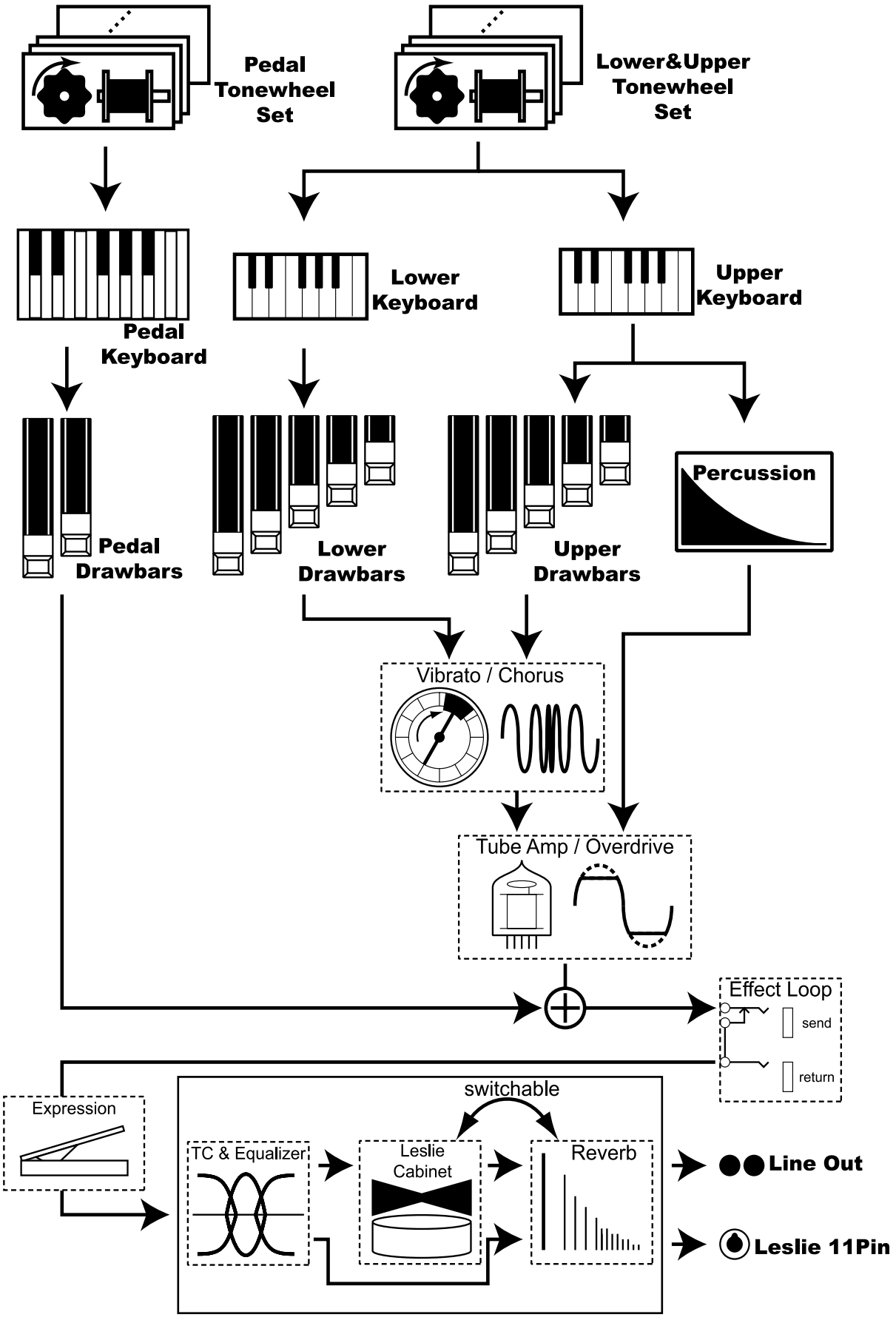
❖ *The Preset Key [B] (or [A♯] - when the control mode is in “Upper A♯/B”) does not memorize registrations by this operation.*

NOTE: The recorded Preset data does not go out if the power is switched off.



SETTING UP

SYSTEM STRUCTURE OF THIS KEYBOARD



To fully enjoy playing this keyboard, please read the following section of this manual.

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

TONE-WHEELS

The sound source or "engine" of Hammond Organ is the Tone-wheels. They are like the strings and pick-ups on the electric guitar. While running, each of the 96 Tone-wheels keeps oscillating at a different pitch/frequency.

KEYS

Each of the sound signals made by the 96 Tone-wheels is switched at each key. Each signal corresponding with each pitch and harmonic is distributed to each key (as an example, 9 signals for the manual keyboard). The keys are switched on and off by depressing (= touching) and releasing the keys.

DRAWBARS

The Draw-bars prepare the basic sounds. Each bar adjusts the value of each harmonic (as an example, 9 harmonics for the manual keyboard).

PERCUSSION

The Percussion makes decay sound, synchronizing with the key touch of the UPPER part.

VIBRATO/CHORUS

Vibrato gives vibration to the pitch. By mixing the vibrato sound with the fundamental sound, Chorus effect is obtained.

NOTE: On this keyboard the scanner circuit of the B-3/C-3 is simulated, which gives more effects than the changes of the pitch.

TUBE AMP

Having a real tube in the Amp gives the XK-3C a unique tube sound. By changing the amount of the drive you can obtain various tube sounds from "clean" no clipping, to the hard-distorted fuzzy and raspy "overdrive".

The Pedal Part, however, is designed not to pass through the Vibrato/Chorus or the Tube Amp, in order to obtain the clear Bass-line.

EFFECT LOOP

If you connect an effector to the effect-loop input (send/return) which is located on the back of the keyboard, it will no pass thru the overdrive tube amp.

EQUALIZER, LESLIE and REVERB

The sound comes out of the output terminal, after passing the spatial effects: the Equalizer (for tone regulation), the Cabinet (for the rotating speaker effects) and the Reverb (for resonance). The built-in Leslie Effect does not work at the Leslie 11-pin terminal.

NOTE: The built-in Leslie Effect is designed to smoothly simulate the rotations of the two rotors.

tips TONE-WHEEL SET

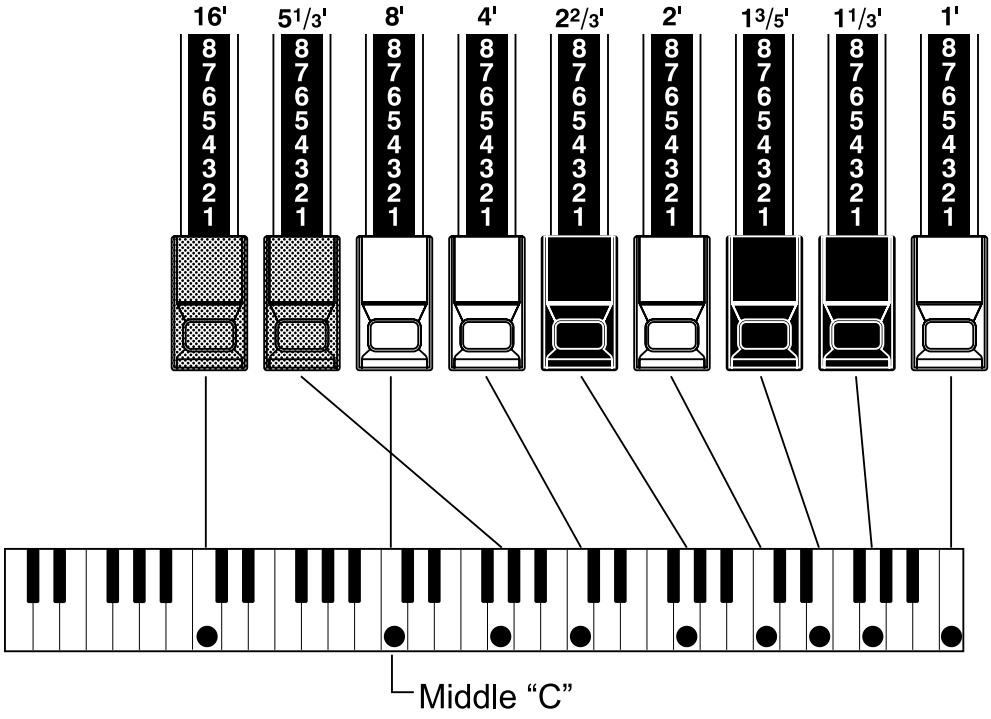
The Tone-wheel Sets are divided into the Manual Keyboard and the Pedal Part. This is to give the Pedal Part the Decay (= the sound gradually fading out while pressing the key) or Sustain Effect. (= the sound gradually fading out after the key is released).

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 keyboard are used to make the basic sounds. Each Drawbar is marked with the numbers 1 - 8. If you push back the Drawbar until you can not 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.

Except when the Preset Key is B, the actual Drawbar Registration is the value displayed in the (display-)window. The “Drawbar Registraion” shows the length of the pulled-out Drawbar(s). The display shows only the Drawbar(s) you operate.



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

The numbers 1 - 8 on each Drawbar indicate the volume of the sound to be produced as well as the guide to simply set the Drawbar.

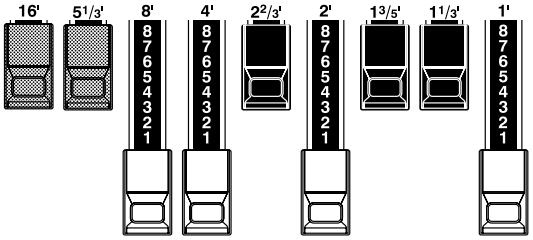
For example, when you blow clarinet, the internal air vibrates, and the fundamental (8') and the third harmonic ($2^2/_3$') plus the fifth harmonic ($1^3/_5$') come out at the same time. On this keyboard, if you pull out 3 Drawbars, you can get the clarinet sound. If you pull out the right hand side one of the 3 Drawbars a little longer and the left hand side one a little shorter, the element/component of the high pitch increases and a hard sound comes out. If you pull out the left hand one a little longer, on the contrary, the sound gets mellow.

Thus, you can make delicate changes to the sound, depending on the flow of the tune/music or your choice/preference, by fully utilizing the Drawbars.

NOTE: You can change the characters of the Drawbars. (P. 56)

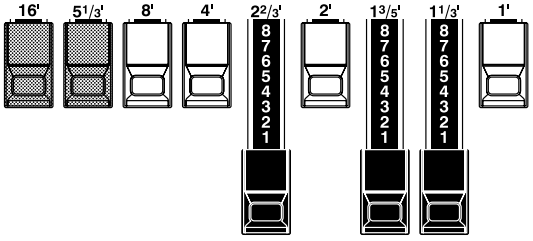
MANUAL DRAWBARS

WHITE DRAWBARS



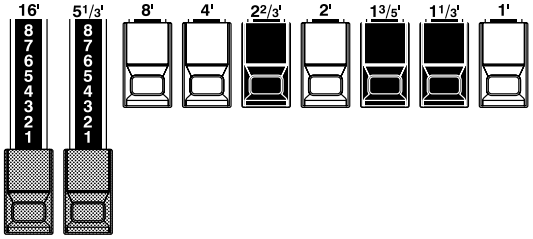
In each Drawbar set, the white Drawbar (8') on the left end makes the basic/ fundamental sound. The other white Drawbars get higher by the octave to the right.

BLACK DRAWBARS



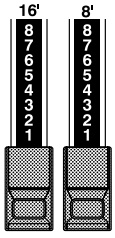
The sounds of the black Drawbars, too, play important roles in building rich tones. Their pitches are fifth and third to the fundamental. They contain the elements of all different harmonics of such as the sweet and soft horn, mellow strings and so on.

BROWN DRAWBARS



The two brown Drawbars on the far left have the role to give depth and richness to the sound. The left 16' is one (1) 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 (1) octave, the tones are built on the 16' fundamental.

PEDAL DRAWBARS

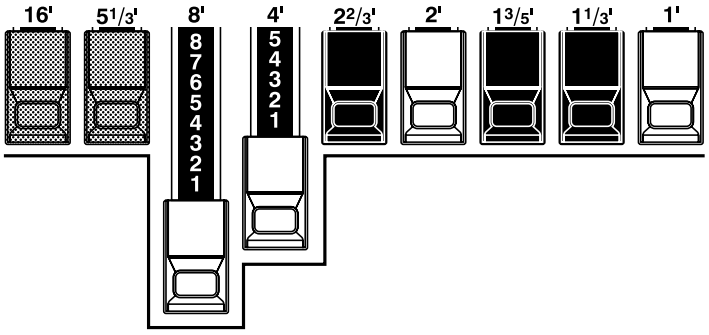


The Pedal Part for playing the bass line usually uses the two Drawbars -16' and 8'.
The first Pedal Drawbar produces a tone at 16' pitch for a deep foundation bass, while the second Pedal Drawbar produces a tone at 8' pitch, or one octave higher.
The registration of the Pedal Part is displayed on the center of the display, left one is 16', and the right one is 8'.

DRAWBAR REGISTRATION PATTERNS

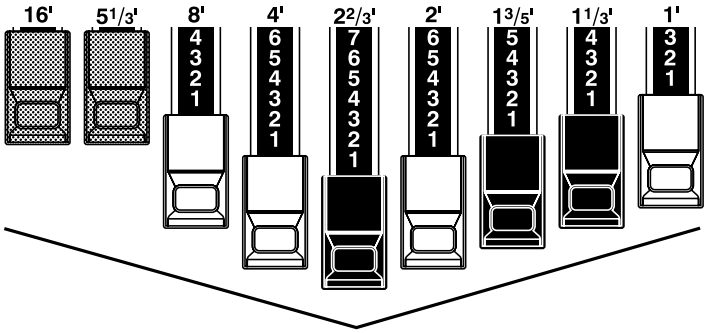
The Drawbar Registration is matched by digits, if precisely. However, in the usual play, it is rather reasonable to remember the typical combinations of the 9 Drawbars by their forms/shapes.
The Drawbar Registrations are roughly grouped into the following 4 patterns:

Flute family (2 step pattern)



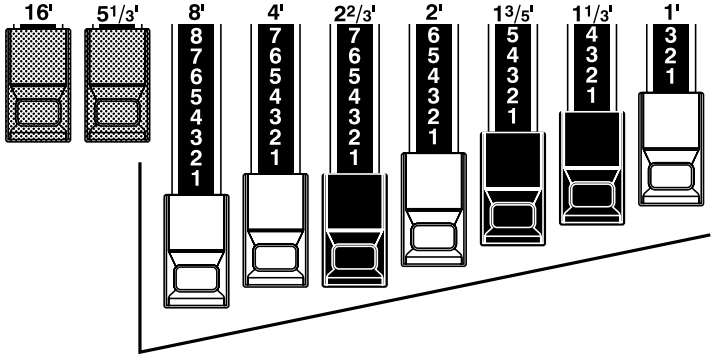
Accompaniment Flute 8' I	00 8460 000
Accompaniment Flute 8' II	00 3220 000
Accompaniment Flute 8' III	00 8600 000
Chorus of Flutes 16'	80 8605 002
Orchestral Flute 8'	00 3831 000
Piccolo 2'	00 0006 003
Stopped Flute 8'	00 5020 000
Tibia 8'	00 7030 000
Tibia 4'	00 0700 030
Tibia (Theater) 16'	80 8605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

Reed family (triangle pattern)



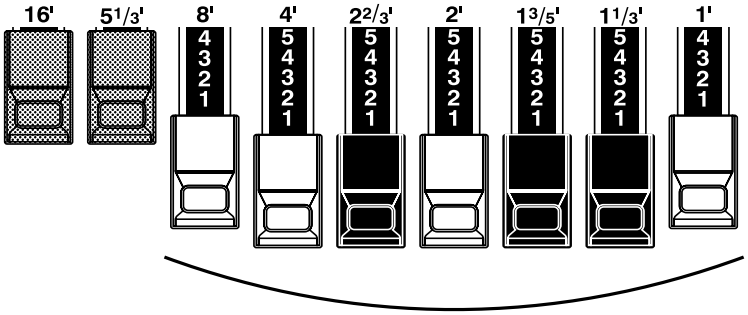
Bassoon 16'	44 7000 000
Clarinet 8'	00 6070 540
English Horn 8'	00 3682 210
Flugel Horn 8'	00 5777 530
French Horn	00 7654 321
Kinura 8'	00 0172 786
Oboe 8'	00 4764 210
Trombone 8'	01 8777 530
Trumpet 8'	00 6788 650
Tuba Sonora 8'	02 7788 640
Vox Humana 8'	00 4720 123

Diapason family (check mark pattern)



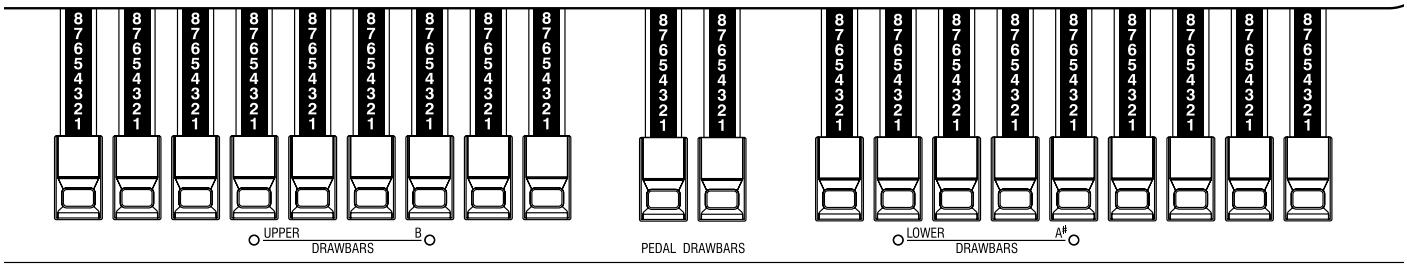
Accomp. Diapason 8'	00 8874 210
Chorus Diapason 8'	00 8686 310
Diapason 8'	00 7785 321
Echo Diapason 8'	00 4434 210
Harmonic Diapason 16'	85 8524 100
Harmonic Diapason 8'	00 8877 760
Harmonic Diapason 4'	00 0606 045
Horn Diapason 8'	00 8887 480
Open Diapason 8'	01 8866 430
Solo Diapason	01 8855 331
Wood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

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

3 SETS OF DRAWBARS AND PARTS



On this keyboard, there are 3 Parts: UPPER, LOWER and PEDAL, and each of them has the corresponding Drawbars.

The manual on the keyboard is usually assigned to the UPPER position. If you want to play the LOWER or PEDAL Part, use the Split or Manual Bass functions, or connect the MIDI keyboard and assign each part.

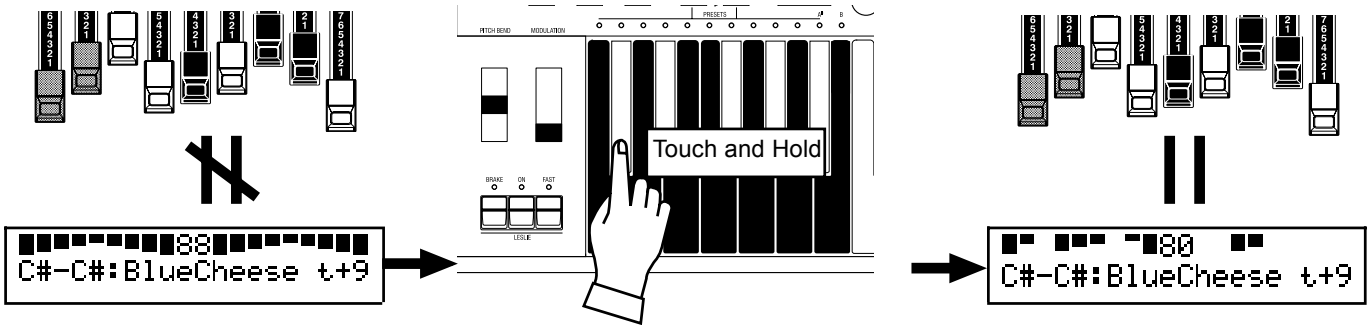
There are lamps(= LED's) in front of the two sets of 9 Drawbars, marked with "UPPER/ B" and "LOWER/A♯". They indicate the assignment of the Drawbar Sets. They are assigned to UPPER and LOWER when shipped from the factory.

A♯ and B are used when you want to operate it like the Upper Manual of the B-3/C-3. In this case, both Drawbar Sets correspond with the Preset Key A♯ and B, and control only the UPPER Part. The LOWER Part is not controled. Please read the CONTROL Chapter for further details. (P. 62 #1)

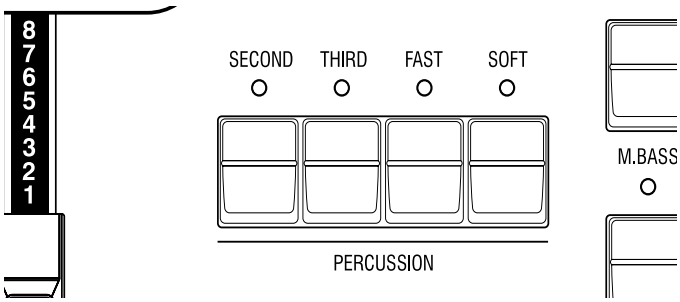
MATCH THE REGISTRATION TO DRAWBARS

If you recall the Combination Preset, the Drawbar Registration is not physical but is replaced with the recorded/memorized one. If you move any Drawbar at this stage, only the Footage moved is reflected.

To match only the Registration to the Drawbars, while using the content of the Combination Preset, keep depressing the Preset Key for a while. Combination Preset is recalled and then the physical Drawbar Registration is reflected.



The attack feeling of the percussion is a Hammond exclusive.
Percussion is usually used with the Drawbar sound.



[SECOND] BUTTON

The second harmonic, or 4' Drawbar decay, is added to the UPPER Part.
To use this, press the [SECOND] button, and the LED will light.

[THIRD] BUTTON

The third harmonic, or $2^{2}/_{3}$' Drawbar decay, is added to the UPPER Part. By mixing it with the Drawbars, power and solidness is obtained.
To use this, press the [THIRD] button, and the LED will light.

[FAST] BUTTON

This cuts short the decay time of Percussion.
It is effective if you use this to play with a clear-cut rhythm in an up-tempo piece.
When the LED is OFF, it is SLOW. It gets "FAST" when you press the [FAST] button, and the LED will light.

[SOFT] BUTTON

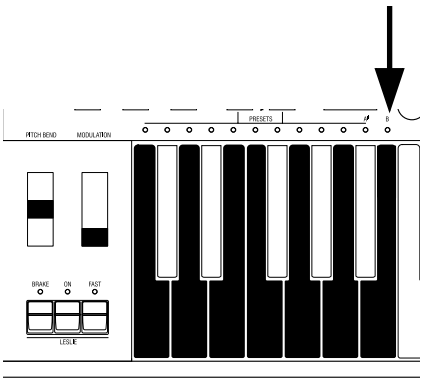
This reduces the volume of Percussion.
When the LED is OFF, it is NORMAL. If you press the [SOFT] button, the percussion level is soft, and the LED will light.

NOTE: You can fine-adjust Percussion. (P. 71)

tips DECAY

The piano sound gradually goes out even if you keep the key down. This is called "decay". The violin, on the contrary, keeps sounding at a certain volume. This is called "sustain".

NOTES



"Percussion does not sound!"

The factory default setting: Percussion does not produce sound except at the Preset Key [B], if the Combination Preset is Bank B. (See left.) This setting is the same as on the B-3/C-3.

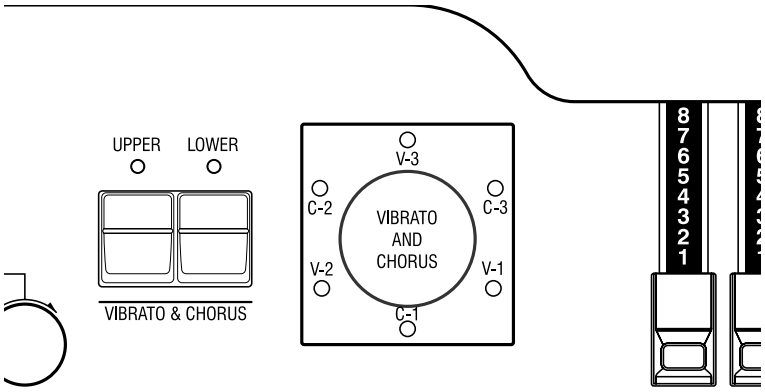
NOTE: You can set any Preset Key to sound Percussion. (P. 58 #5)

DRAWBAR CANCEL

When either the [SECOND] or the [THIRD] button is ON, 1' in the Upper Part Drawbars does not produce sound. This is the same action as on the B-3/C-3.

NOTE: You can set to play 1' Drawbar, while Percussion is ON. (P. 71 #8)

VIBRATO adds warmth to the tone, by slightly changing the Drawbar pitch at a certain speed.
You can also add richness to the sound by mixing the Vibrato sound with the fundamental (= Chorus Effect).



[UPPER] BUTTON

This switches ON and OFF Vibrato and Chorus Effects.
It affects the UPPER Part.
To get this effect, press the button and the LED will light.

[LOWER] BUTTON

This switches ON and OFF Vibrato and Chorus Effects.
It affects the LOWER Part.
To get this effect, press the button and the LED will light.

[VIBRATO & CHORUS MODE] KNOB

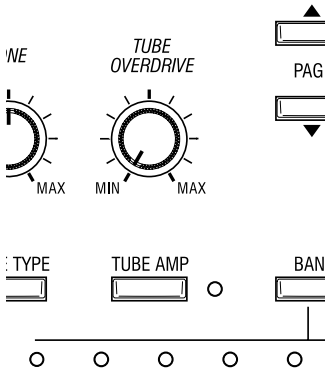
This knob controls the depth of Vibrato and switches ON and OFF the Chorus Effect.

- V-1: Comparatively slight Vibrato
- V-2: Standard depth Vibrato
- V-3: Deepest Vibrato
- C-1: Comparatively slight Chorus
- C-2: Standard depth Chorus
- C-3: Deepest Chorus

NOTE: While the power is ON, either of Vibrato and Chorus is selected.
NOTE: You can fine-adjust the Vibrato and Chorus Effect. (P. 76)

TUBE AMP

The TUBE (= Vacuum Tube) AMP produces a unique “Tube Feeling” sound.
By changing the amount of the Drive, various Tube Sound is obtained, from the unclipped clean to the hard-distorted fuzzy, raspy Overdrive sound.



[TUBE AMP] BUTTON

This is for determining whether or not to go through the Tube Amp circuit.
To get this effect, touch the button and and the LED will light.

NOTE: You can see the tube through the ventilation hole on the back.

[TUBE OVERDRIVE] KNOB

This is for adjusting the distortion value of the Tube Amp circuit.
It does not clip, if turned to the left all the way, but the tone quality is slightly different from when the [TUBE AMP] button is OFF, because it passes through the Tube Amp circuitry.
As you turn it to the right, the distortion value increases, and the color of the LED of the [TUBE AMP] button changes from green to red, in accordance with the amount of distortion.

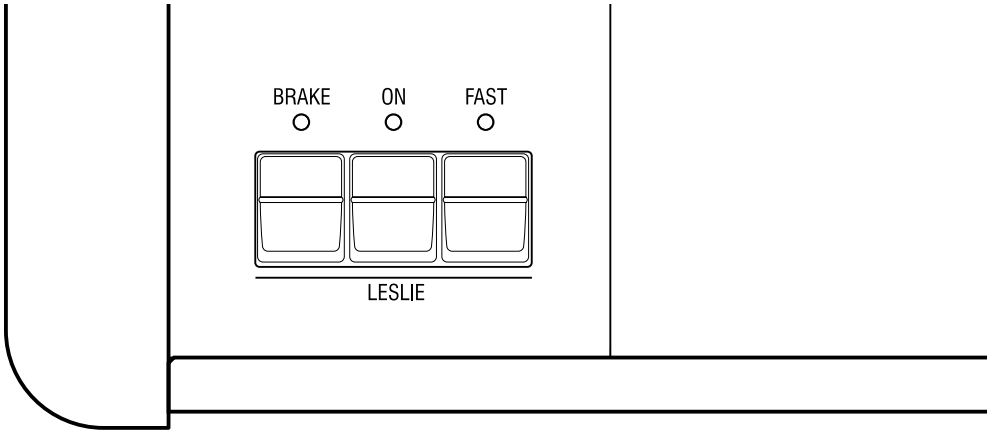
NOTE: You can fine-set the distortion degree. (P. 78)

tips TUBE AMP CIRCUIT

Tubes are rarely used in modern electric apparatuses but because semi-conductors are better characteristics and because tubes are inferior in many aspects.
However, in some areas, tubes are again popular because of their specific characteristics, which are produced only by tubes.
People are still searching for the sound simulating that of tubes for effectors.
In this keyboard, a real Tube circuit is used.

LESLIE

LESLIE EFFECT is the simulated sound of the rotating speakers.
If you connect the real Leslie speakers to this keyboard, it controls those (speakers).



[ON] BUTTON

If you touch this button, the LED will light, and the rotor starts turning. Also the voice is heard thru the rotary channel.

[FAST] BUTTON

This switches the speed of the rotor in two steps. It switches every time you touch it. When the LED is ON, it is FAST, and when the LED is off, it is SLOW.

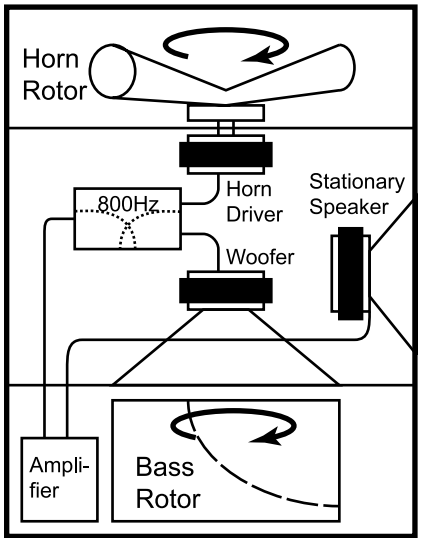
[BRAKE] BUTTON

This button sets the action when the [ON] button is OFF.
When the LED is light, it is BRAKE (= The speed gradually slows down and stops.) and if the LED is OFF, it is THROUGH. (= The Leslie effect is by-passed and the voice comes out of the stationary channel.)

NOTE: You may not be able to control the Break or Through on some Leslie models.
NOTE: You can fine-set the LESLIE effect i.e. speeds. (P. 72)

tips BUTTONS AND LESLIE MODES

Button			Mode	
BRAKE	ON	FAST	CH=1	CH=2or3 & Internal Leslie Effect
On	On	On	Fast	
Off	On	On		
On	On	Off	Slow	
Off	On	Off		
On	Off	On	Brake	
On	Off	Off		
Off	Off	On	Fast	Through
Off	Off	Off	Slow	Through

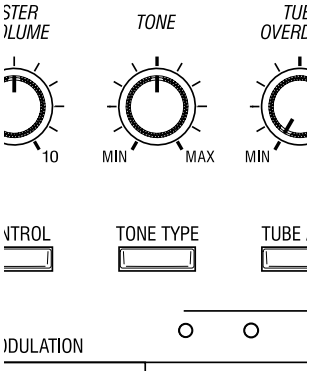


tips WHAT IS THE LESLIE EFFECT?

In the Leslie speakers, generally, an amplifier and two rotors are incorporated, i.e. the “Horn Rotor” responsible for the treble and the “Bass Rotor” for the bass.
Each rotor has a speaker or speakers and a motor for controlling speed to give the unique trembling sound gained by the Doppler effect.
There also exist such models as have not only the rotors but stationary speakers - switchable.
The circuit to send the sound to the rotor is called “Rotary Channel” and that to the stationary speaker is called “Stationary Channel”.
The built-in Leslie Effect simulates them and you can get the best effect when connected stereophonic.

The Equalizer and the Reverb effects give the final touch to the tone.
The Equalizer regulates the tone, and the Reverb adds the resonance of the hall performance.
You can control portions of their functions on the panel buttons and knobs

EQUALIZER



[TONE] KNOB

One optional Parameter out of the Equalizer is assigned and regulated.
TONE is assigned as the factory setting. If you turn this knob to the right, it gives flat characteristics and, if to the left, the treble is decreased.

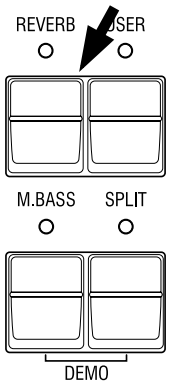
[TONE TYPE] BUTTON

This assigns the settings to the [TONE] KNOB.
At every touch, the assignment changes in the order of [B]ass, [M]iddle, [T]reble, and [t]one. The initial letter of the word is displayed in the PLAY mode.

NOTE: For further details, please read the section "EQUALIZER" (P. 80)

The illustration indicates [t]one is at +9.

REVERB



[REVERB] BUTTON

This is for switching ON and OFF the Reverb Effect.
To get the Reverb Effect, press the button and the LED will light.

NOTE: You can change the time and the depth of the Reverb. (P. 81)

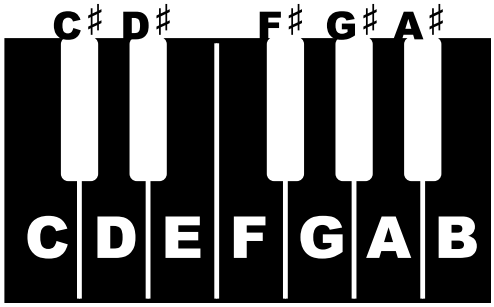
The settings you have made can be recorded into the Combination Presets.

BANK AND KEY

Combination Presets

Bank \ Key	C	C♯	D	D♯	E	F	F♯	G	G♯	A	A♯	B
C												Adjust B
C♯												
D												
D♯												
E												
F												
F♯												
G												
G♯												
A												
A♯												
B												

The combination preset chart to the left, shows the [BANK] and the [KEY], information.
Access is made by the Preset Keys. To select the [BANK], press the key, holding down the [BANK] button. To select the [KEY], just press the Preset Key.
Recording and recall is determined when the Key is designated. Only designating the Bank does not switch the recording or recall.
Refer to the illustration on the left bottom for each Key and Name.



The [B] key on the right end is a special Preset, called “Adjust Preset”. Here the Drawbar Registration on the panel always matches the internal registration.

NOTE: The setting of the Preset Keys [C] to [A] on the B-3/C-3 is fixed, and the [A♯] and [B] are used to switch the Drawbar Registration on the panel. However, on this model, you can change the setting by moving the Drawbars, even while using the keys [C] to [A].

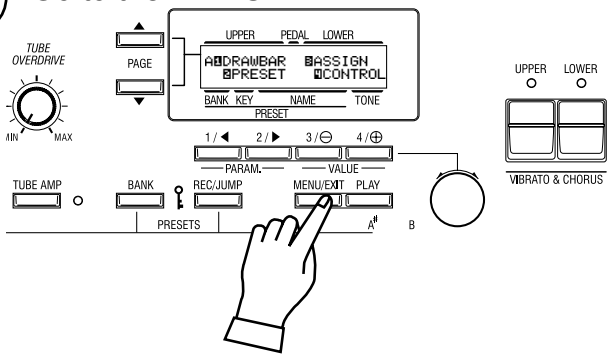
tips COMBINATION PRESETS

On the original B-3 organ the preset keys only stored drawbar registration information. On the XK-3C however in addition to drawbar registration you can store many various parameters to a preset. Thus the name “Combination Preset”.

NOTE: The parameters to be recalled by the Preset Keys can be limited Bank by Bank. (P. 58)

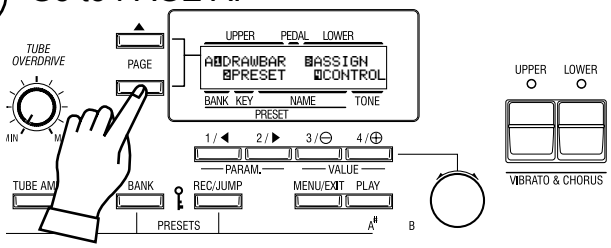
NAME THE COMBINATION PRESETS

1 Go to the MENU.



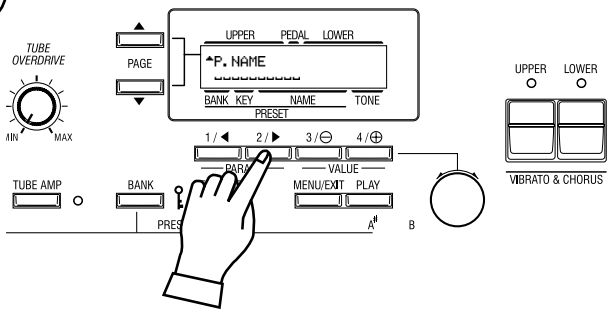
Touch the [MENU/EXIT] button.
The MENU mode will be displayed.

2 Go to PAGE A.



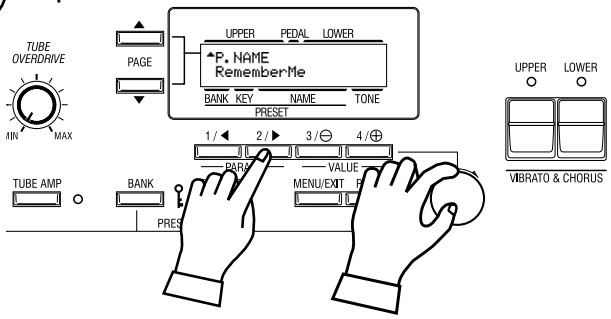
If the PAGE A is not displayed, touch the [PAGE] button and go to PAGE A.

3 Go to the PRESET FUNCTION mode.



Touch the [2] PRESET button and go to the PRESET FUNCTION mode.

4 Input THE NAME.



You can store names up to 10 letters.

[PARAM] BUTTON: moves the cursor.
[VALUE] BUTTON: selects letters.

You can use all the Alphabet letters large and small, signs/symbols and digits.

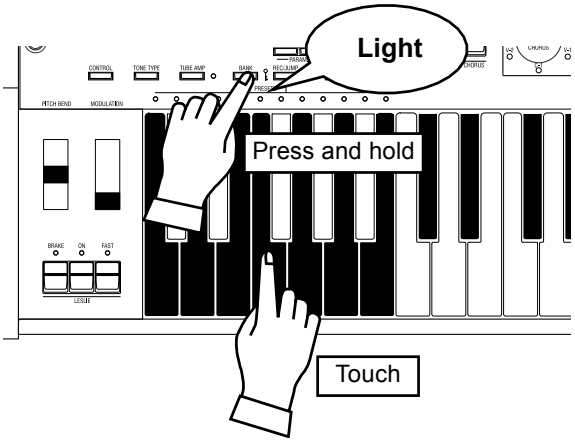
To jump to the beginning of each list, hold down the [REC/JUMP] button, and touch the [VALUE] button. You can select letters etc. by the [VALUE] knob, as well.

The name put here is only temporary. Do the recording operation to save it, as explained on the next page.

RECORD INTO THE COMBINATION PRESETS

EXAMPLE: Record into “F-D”.

1 Select the Bank.

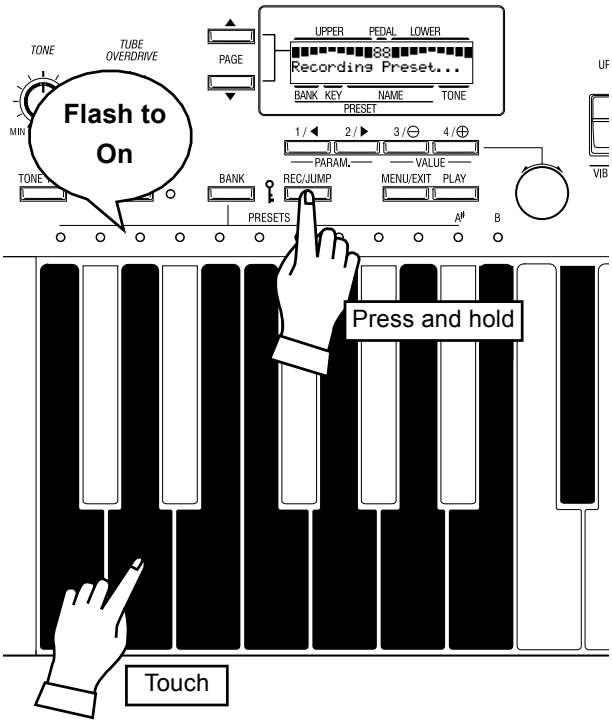


While holding down the [BANK] button, touch the Preset Key [F].
The LED on the Preset Key indicates the BANK while you are holding down the [BANK] button.

NOTE: The LED will be OFF, if you release the button. This means the Preset is not stored.

This operation is not necessary, if you do not change the Bank.

2 Select the Key.



Press the Preset Key [D], while holding down the [REC/JUMP]. The Preset becomes final and the display shows as follows for a few seconds.

```
Recording Preset...
```

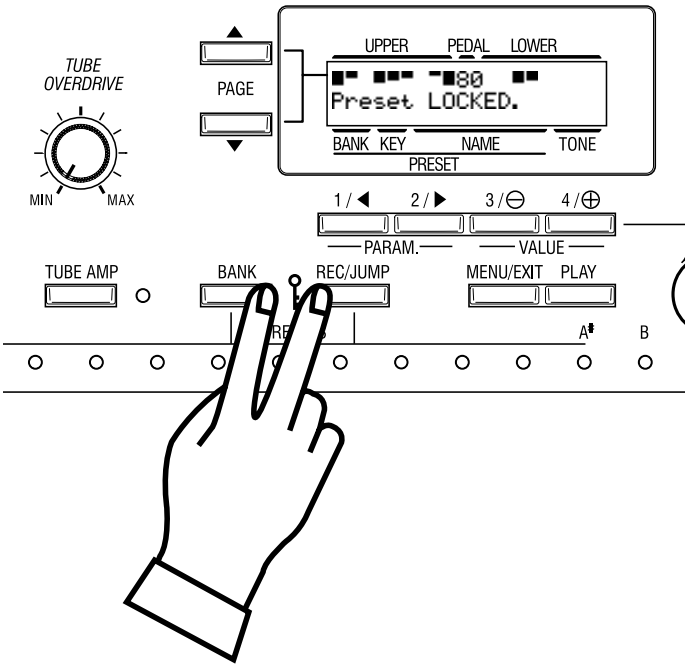
When the recording is completed, the LED on the Preset Key [D] flashes for a while. (The recorded Preset will be automatically selected.)
The display will return to the previous screen.

❖ You can not record to the Preset Key [B] (or [A♯] - when the control mode is in “Upper A♯/B”) by this operation.

NOTE: The Preset data recorded will not be lost even after you switch off the power.

LOCKING THE COMBINATION PRESET

You can lock the Combination Preset to avoid calling it out by mistake while playing.



To lock the Combination Preset, press both the [BANK] and the [REC/JUMP] buttons for longer than 1 second, after calling out the Ccombination Preset you want to lock. "Preset LOCKED" will be displayed for a certain length of time and the Combination Preset will be locked.

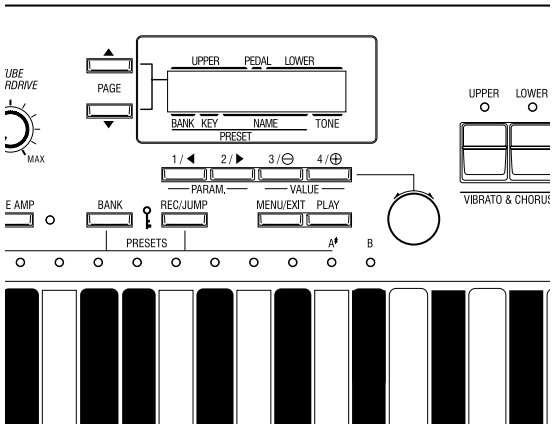
While the combination preset is locked, the lamp of the called-out preset key blinks and nothing is recorded to the combination preset.

To release the lock, keep pressing both the [BANK] and the [REC/JUMP] buttons again for longer than 1 second. "Preset UNLOCKED" will be displayed for a certain length of time and the lock will be released.

If the MIDI IN mode is in "LOWER/PEDAL", receiving of the program change also will be locked.

USING THE CONTROL PANEL

You now know you can do many settings by using the buttons and knobs on your keyboard. You can do even finer settings like the delicate speed of the Leslie Effect or the MIDI equipments, using the display buttons on the Control Panel.

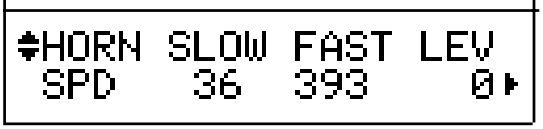


There are PLAY, MENU and FUNCTION modes in the display.
The buttons and knobs in each mode is explained on the following pages.

PLAY mode

MENU mode

FUNCTION mode

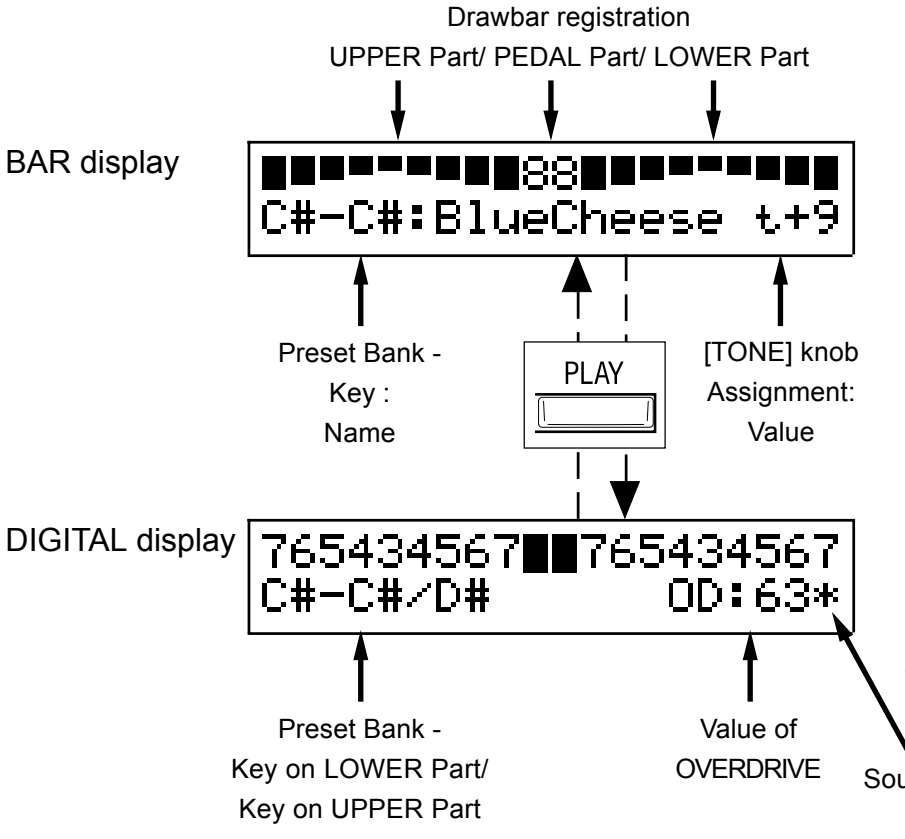


The PLAY MODE is the basic display for all the operations. The necessary informations for the normal play will be displayed.
There are two types of PLAY MODE screens to display the Drawbar Registration. One is by showing the length of the bars and the other by digits.

To locate this mode:

1. Immediately after powered ON and the start up process is complete, the PLAY mode is displayed.
2. If a different mode is displayed, touch the [PLAY] button.

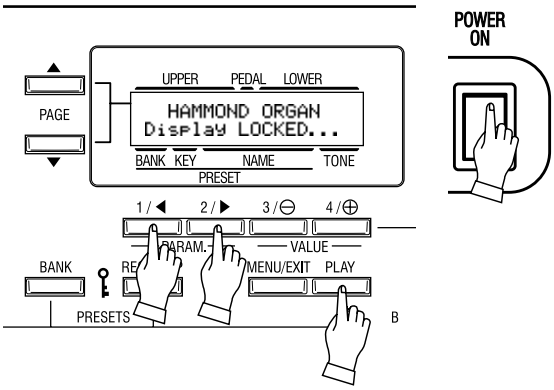
HOW TO READ THE DISPLAY



These two PLAY mode displays (= the bar display and the digital display) will be switched every time you touch the [PLAY] button.
In the bar display, the Combination Preset name is shown but another Preset Key, if assigned to the LOWER Part is not shown.
Also, the function assigned to the [TONE] knob and its value is displayed.

The Preset name is not shown in the digital mode display, but you can see the Preset Key of the LOWER Part.
Also, the value of the Overdrive and the MIDI IN Note Information is displayed.

Advanced Feature - DISPLAY LOCK



This advanced feature allows you to put the organ into a special playing mode whereby the Control Panel is rendered inoperative. Touching any of the Select Touch Buttons will have no effect. This is useful when you want to place the organ in such places as public halls or auditoriums.

To effect this Display Lock function, switch on the power pressing PARAM [◀], [▶] and [PLAY]. Then “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.

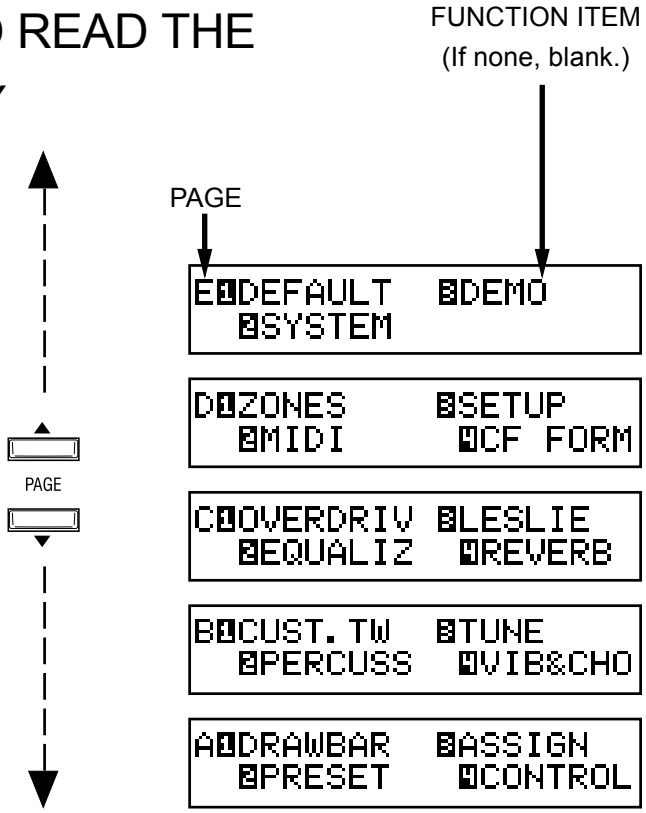
The MENU mode is the path for each function.

To locate this mode:

Touch the [MENU/EXIT] button.

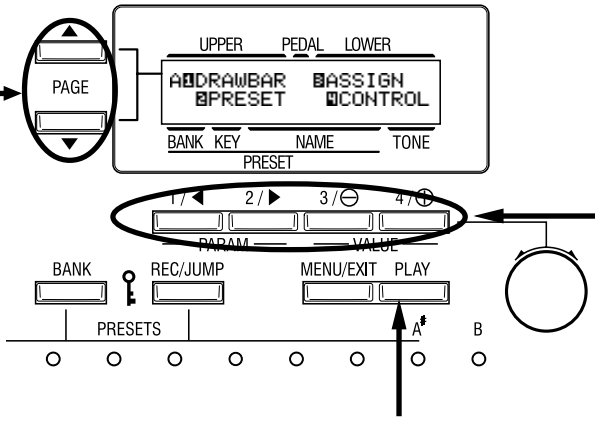
There are several pages which contains many various FUNCTION displays. Move from page to page and find the item where you want to go and touch the numbered button to see the desired display.

HOW TO READ THE DISPLAY



BUTTON OPERATION IN THIS MENU

Moves from a page to another.
You can jump to the top or bottom page by touching these buttons with holding down the [REC/JUMP] Button.

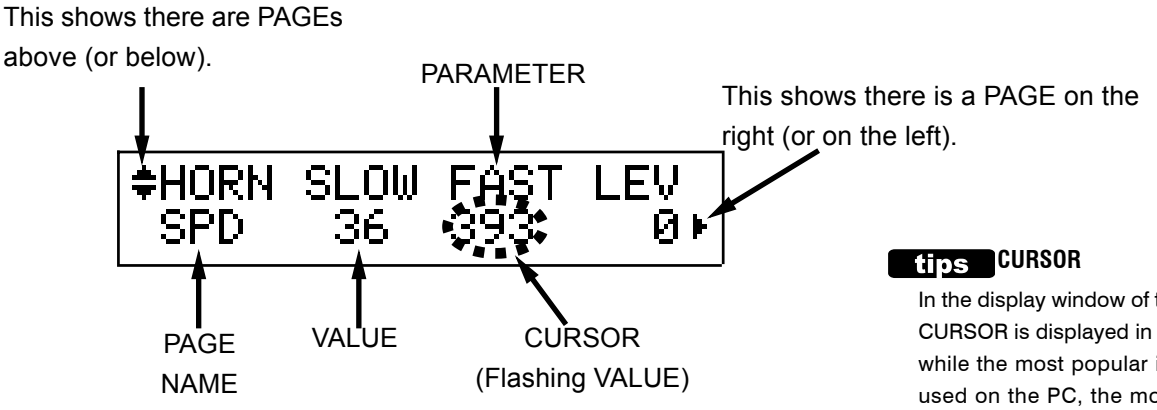


These are for entering to each FUNCTION MODE corresponding with the item displayed.

Returns to the PLAY mode.

The FUNCTION MODE is for making each setting and adjustment.
There are many displays, but the basic operation is the same.

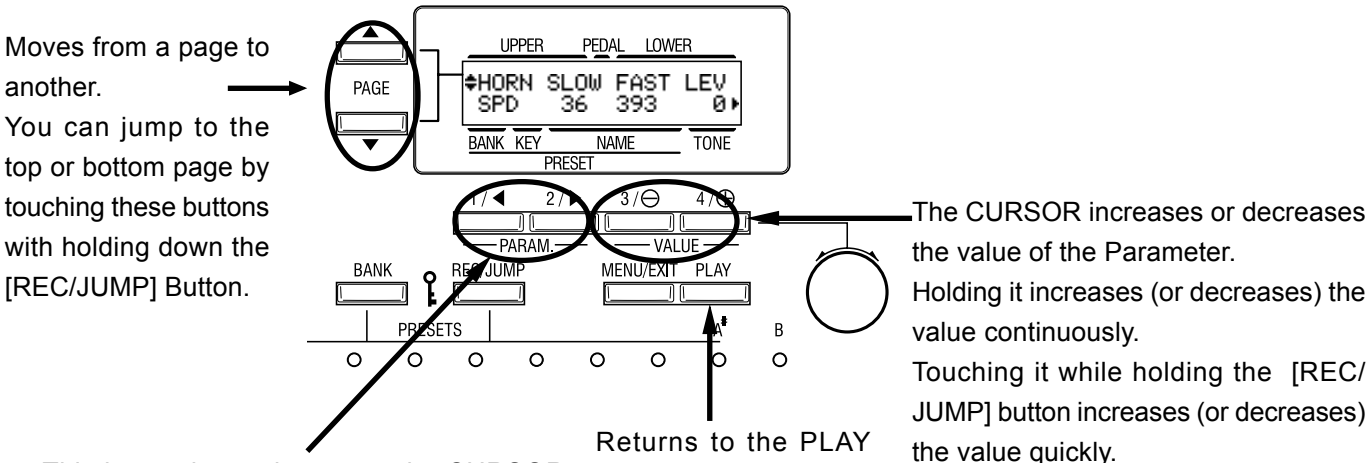
HOW TO READ THE DISPLAY



tips **CURSOR**

In the display window of this keyboard, the CURSOR is displayed in the flashing style, while the most popular indicator - cursor used on the PC, the mobo, etc. is in the shape of an arrow, a square or an I-shape.

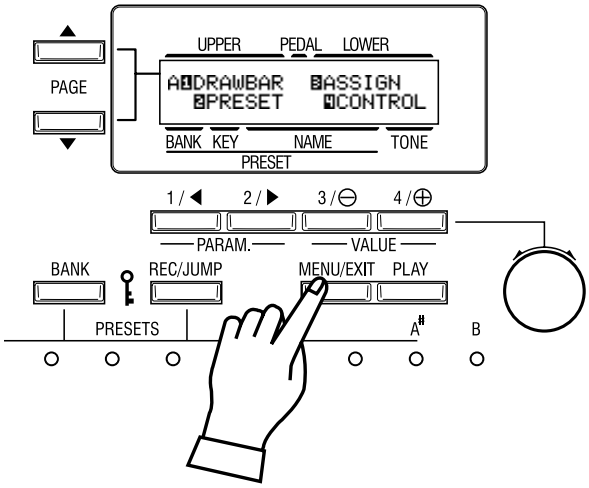
BUTTON OPERATION IN THIS MODE



Example of operation:

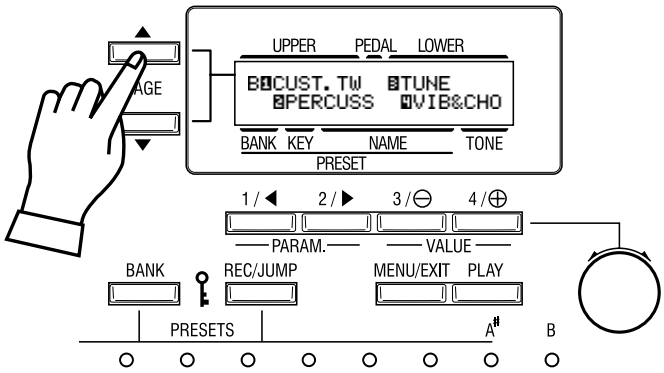
Adjusting the DECAY TIME of the Percussion [FAST]

1 Go to the MENU Mode.



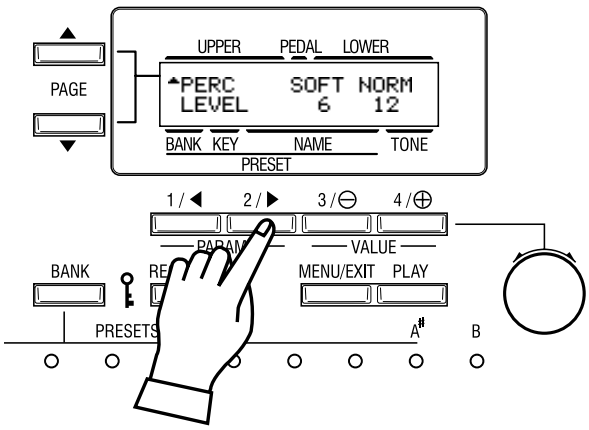
Touch the [MENU/EXIT] button.
The [MENU] mode is displayed.

2 Select the PAGE.



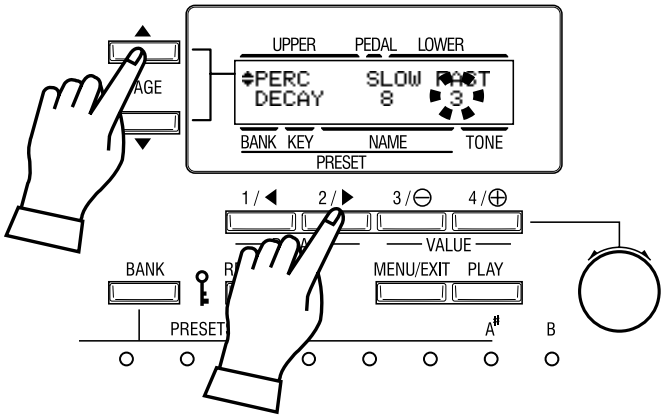
Search for the PERCUS page, using the [PAGE] button.
“PERCUS” is on PAGE B. So select PAGE [B].

3 Touch the Number button.



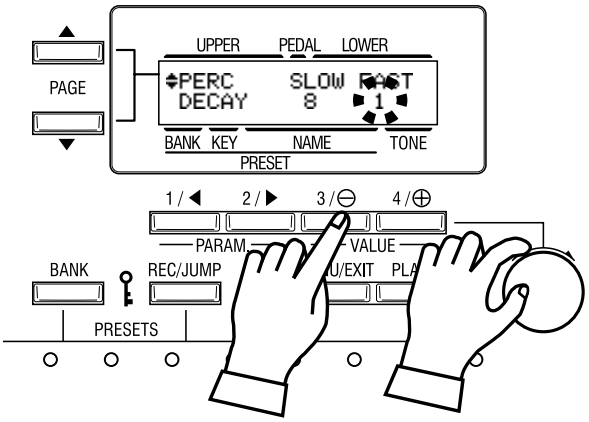
Touch the [2] button for “PERCUSS”.
Now you are on the (first page) of the Percussion Function display.

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



DECAY TIME is on the "DECAY" PAGE. Move to that page using the [PAGE] button.
"FAST" is on the right end. Move the CURSOR (flashing value) to underneath "FAST" using the [PARAM] button.

5 Change the value.

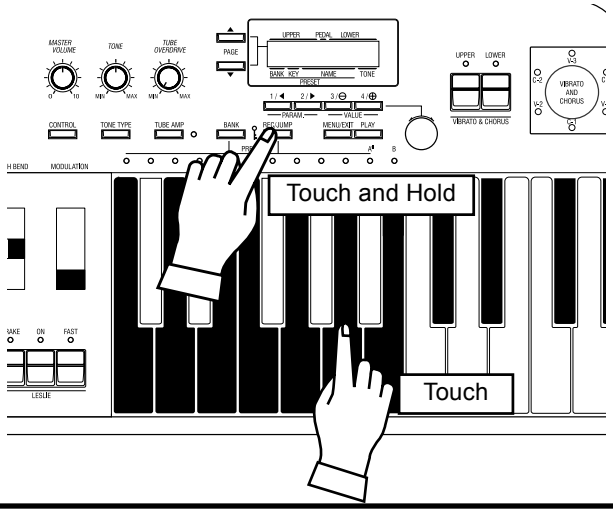


Decrease the value, using the [VALUE] button or the [VALUE] knob on the right bottom.

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

6 Record into the Combination Presets.

The "DECAY FAST" is a Preset Parameter, it will go back to the set value, if you call out the other (or current) Combination Preset.
If you want to continue to use the changed value hereafter, you must record the value into the Combination Preset.



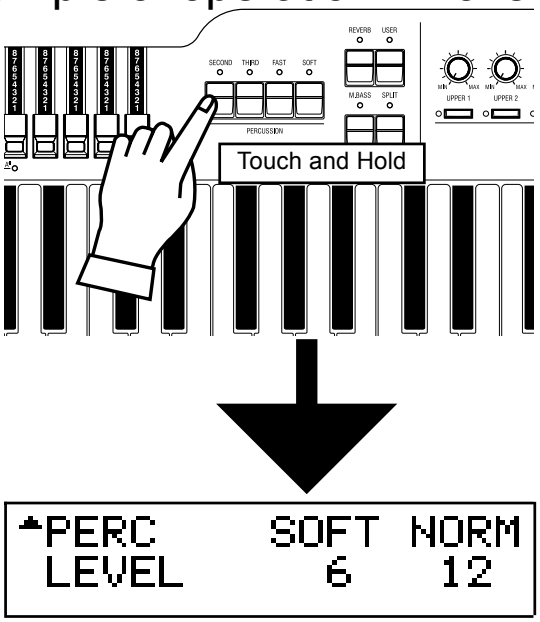
tips PRESET PARAMETERS

They are the Parameters to be recorded into each Combination Preset.
They include the Parameters for setting the status of the buttons/knobs on the panel, "Decay Fast" and many others.
The overall/general common Parameters (which are not included in the Combination Presets) are called "Global Parameters."

SHORT CUT TO THE FUNCTION MODE

Each button on the panel has a “SHORT-CUT” capability, so that you can easily go to each Function mode. By holding down the button, you can easily go to the desired mode display. You can save time to search the page for the parmeters you want to change.

Example of operation: Move to the Percussion Function Mode.



For example, if you want change the Percussion setting, you can go to the PERCUSSION FUNCTION MODE display, by holding down either [SECOND], [THIRD], [FAST], or [SOFT] for a while. This is called “SHORT CUT”.

Short-cut buttons will be explained in the next Chapter “SETTING THE PARAMETER”.

NOTE: You can change the time for holding down the button for “SHORT CUT”. (P. 65 #21)

RECORD THE PAGE YOU FREQUENTLY USE

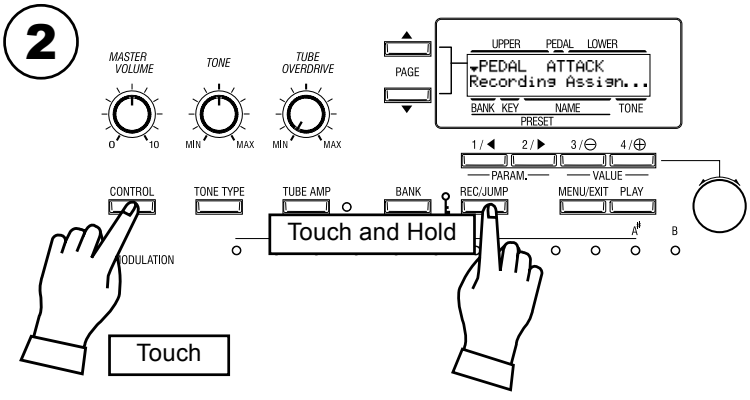
You can record the page which your usually use, and go to that page by only touching the [CONTROL] button.

Example of operation: Record the Drawbar - Pedal Page

1

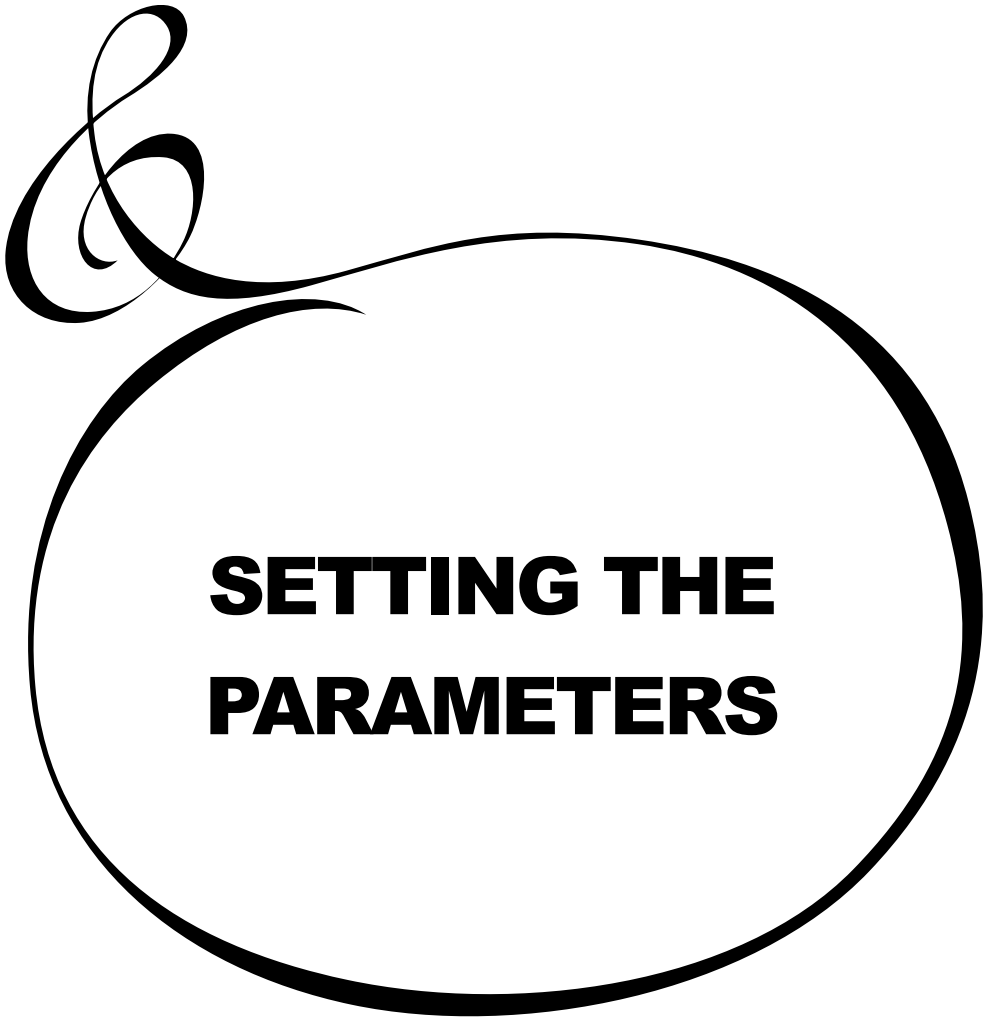
Go to the page to be recorded by using MENU etc.

2



Touch and hold the [REC/JUMP] , and touch the [CONTROL] button.

Next time, you can come to this page by only touching the [CONTROL] button.

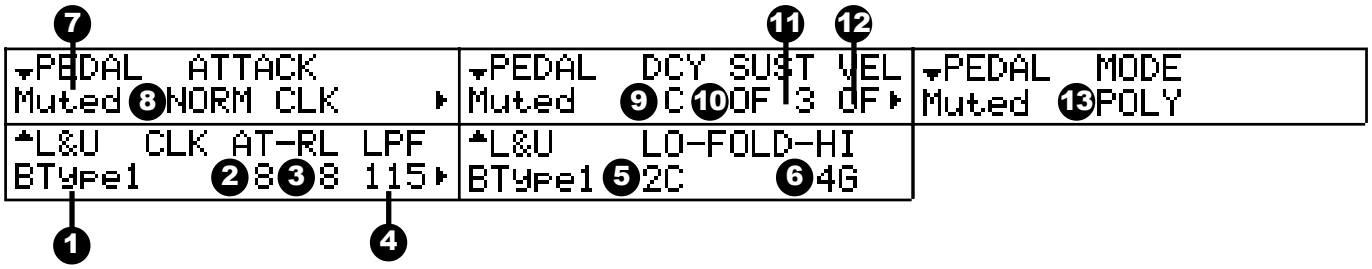


SETTING THE PARAMETERS

In this mode, you can set the Parameter relating to the Drawbar sound of each part.

To locate this mode:

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



♦Setting the Manual Part (LOWER and UPPER)

1. TONE-WHEELS

Select the TONE-WHEEL SET (waveform) for the manual part.

- **BType1**: The traditional Tonewheel Sound of B-3/C-3
- **BType 2**: This sound includes more leakage noise and flutter
- **Mellow**: Transparent sine wave
- **Brite**: The analog-oscillating sound represented by X-5
- **Saw**: Sawtooth waveform.

2. CLICK - ATTACK LEVEL

The larger the value gets, the louder the click volume. At 4 no key click is pronounced. Also, the smaller the value gets below 4, the slower gets the attack rate (= the drawbars' starting-up speed).

3. CLICK - RELEASE LEVEL

The larger the value gets, the louder the click volume. At 4 no key click is pronounced. Also, the smaller the value gets below 4, the slower gets the release rate (= the drawbar volume's fading speed).

4. CLICK - LPF

This allows you to set the tone of the Key-Click.

The setting range is 0 - 127. The larger the value, the brighter the Key-Click.

5. FOLD-BACK - LOW

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

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.

6. FOLD-BACK - HIGH

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

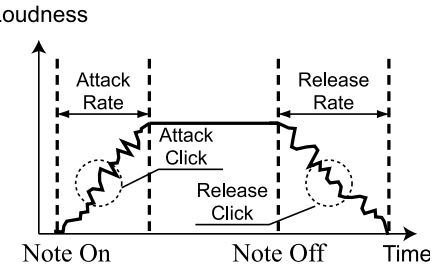
NOTE: The FOLD-BACK sets not only the 1' but also $1^1/_3$', $1^3/_5$', 2' and $2^2/_3$' Drawbars.

tips TONE-WHEEL SET

Each Tone-wheel Set allows you to make finer adjustment. (P. 68)

tips KEY-CLICK

The "Key Click" is the noise heard every time the key is touched or released on the B-3/C-3, as the voice is generated by mechanically switching ON and OFF on these models. The function on this model simulates the good old noise.



tips EXAMPLE OF CLICK

Simulating the multi-contact keyboard represented by the B-3/C-3: AT=8, RL=8

Simulating the PCM Synthesizer that only attack pronounces the key click: AT=8, RL=4

Simulating the single-contact keyboard represented by the X-66: AT=4, RL=4

The slow envelope like the pipe organ: AT=0, RL=0

tips FOLD-BACK

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

♦Setting the PEDAL Part

7. TONE-WHEELS

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

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

NOTE: You can locate this page by holding down the [MANUAL BASS] Button as well.

8. ATTACK

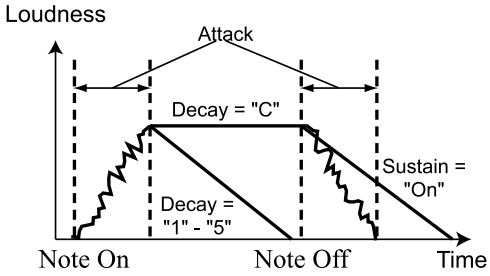
This allows you to set the Attack Rate and the Key-Click Volume at ATTACK and RELEASE.

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

9. DECAY RATE

This allows you to determine whether to keep a voice on or to set a decay time, while holding down the key.

The setting range is 1 - 5 and C. The higher the value gets, the longer gets the decay time. No decay at C.



10. SUSTAIN - ON

This allows you to set whether or not to use the Sustain function.

It functions at ON.

tips SUSTAIN

This is the function that the volume slowly fades out after the key is released, not like that of the synthesizers.

11. SUSTAIN - LENGTH

This allows you to set the Release Rate (= the decay time after you release the key), when the SUSTAIN - ON (item #12) is ON.

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

12. VELOCITY

This allows you to set a value for the Velocity. The setting range is OF and 1 - 4. At OF, the volume does not change however hard you touch the key. As the value increases from 1 - 4, the sound gets louder even if you touch the key softly.

❖ *When the velocity is 1 - 4, it sounds when you touch the key slightly further than OF.*

tips VELOCITY

"Velocity" is the strength to touch the key.

When you touch the piano hard, the hammer hits the string hard and so the sound gets loud.

In an organ, the sound level does not change however hard you touch the key.

So this function is effective if you use when the Decay Rate is other than C, or Decay.

13. KEY MODE

This allows you to set the Pedal Part voice mode.

POLY: Makes it possible to play harmony (up to 8 notes)
MONO: Only the lowest note will sound, when you press several keys together.

NOTE: The previously released note will be cut when you touch the new one, even when the PEDAL Part is in the POLY mode and SUSTAIN is ON.

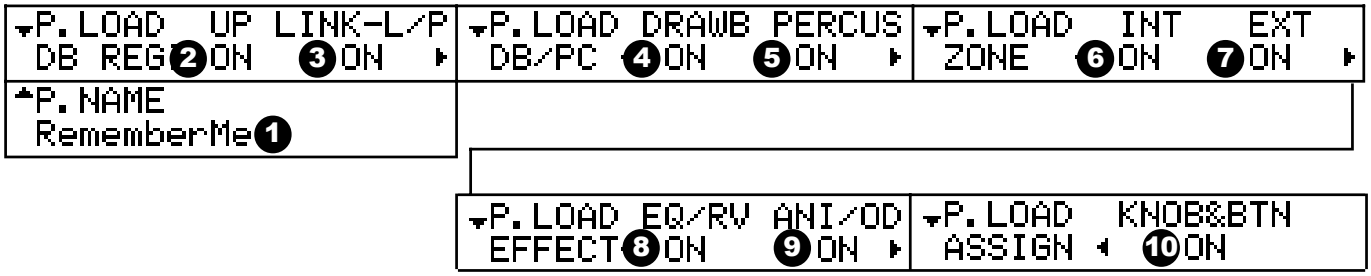
NOTE: When the note-data of the Pedal Part are received from the MIDI IN jack while the value of the parameter [MIDI IN] (P. 96 #2) is "IN1/IN2", the Pedal Part produces polyphonic sound, regardless of the value.

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

In this mode, you can name your Combination Presets and determine how to recall them.

To locate this mode:

Touch the [MENU/EXIT] button and display MENU, then touch the [PAGE] button to select PAGE A and touch the [2] PRESET button.



♦PRESET NAME

1. Preset Name (P)

This allows you to name the present Combination Preset using up to 10 letters.

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

This change will be lost if you do not record it, same as the other Preset Parameters.

NOTE: The parameters by the names with (P) on the end are Preset Parameters, and are recorded to each Combination Preset.

♦PRESET LOAD

This allows you to set the operation when you depress the Preset Key.

2. PRESET LOAD - UPPER (B)

This allows you to set whether or not to recall the Drawbar Registration of UPPER Part.

3. PRESET LOAD - LINK LOWER/PEDAL (G)

This allows you to determine whether or not to recall the Drawbar Registration of the LOWER and PEDAL Part.

4. PRESET LOAD - DRAWBAR (B)

This allows you to determine whether or not to recall the Parameters relating to the Drawbars of each Part, such as the Tonewheel Set.

5. PRESET LOAD - PERCUSSION (B)

This allows you to determine whether or not to sound PERCUSSION with the Preset Keys other than [B] Key and recall the Parameters relating to Percussion.

6. PRESET LOAD - INTERNAL ZONE (B)

This allows you to determine whether or not to recall the Parameters relating to the Internal Zone such as SPLIT or MANUAL BASS.

7. PRESET LOAD - EXTERNAL ZONE (B)

This allows you to determine whether or not to recall the Parameters relating to the External Zone to control the external MIDI equipment.

8. PRESET LOAD - EQ/RV (B)

This allows you to determine whether or not to recall the Parameters relating to the EQUALIZER and REVERB.

9. PRESET LOAD - ANI/OD (B)

This allows you to determine whether or not to recall the Parameters relating to VIBRATO, OVERDRIVE and LESLIE.

10. PRESET LOAD - KNOB & BUTTON (B)

This allows you to determine whether or not to recall the Parameters relating to ASSIGNABLE CONTROLLERS.

NOTE: Each Parameter (B) of Preset Load is a Bank Parameter (except Link Lower/Pedal). It is set only for the BANK currently selected. Link Lower/Pedal is a Global Parameter. It is common on all the BANKs.

EFFECTIVE USE OF LINK-LOWER/PEDAL

This is the function to switch/record only from the connected MIDI equipment, and not to operate the Preset for LOWER and PEDAL Part on this keyboard.
The Preset Keys on B-3/C-3 are independent, key by key, and so they were operated independently. This function simulates that.

WHEN LINK LOWER/PEDAL IS ON:

When you recall the Combination Preset by the Preset Key, the content of all UPPER/LOWER and PEDAL Parts will change.
If you want to change the Lower Part to another Preset Key, send the Program Change corresponding with the key by the MIDI keyboard connected to MIDI IN (LOWER) (hereinafter "Lower Keyboard").

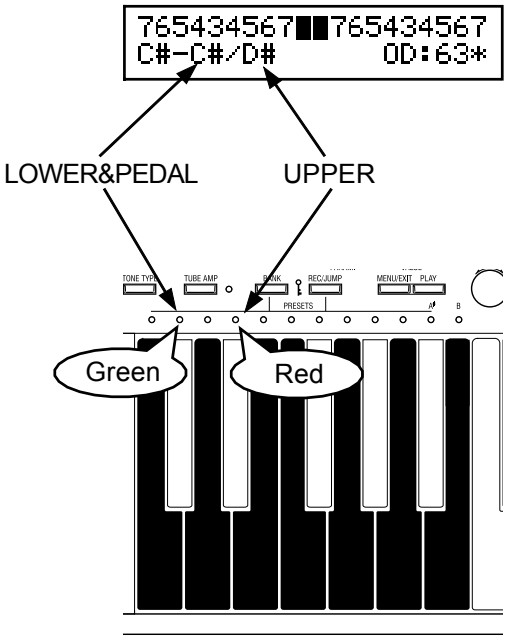
NOTE: Refer to the Appendix for the details on Program Change and Keys.

The recording to the Combination Preset is made to all the UPPER/ LOWER and PEDAL Parts on this keyboard. It is made only to the LOWER Part on the Lower Keyboard.
To record to the LOWER Part Preset, send the Program Change from the Lower Keyboard, depressing the [REC/JUMP] button of this keyboard.

WHEN LINK LOWER/PEDAL IS OFF:

If you recall the Combination Preset by the Preset Key of this keyboard, the content of only the UPPER Parts will be switched.
To recall LOWER Part Preset, send the Program Change corresponding to the key by the Lower Keyboard.
To the Combination Presets, on this keyboard, only the UPPER Part is recorded by the Preset Keys, and only the LOWER Part is recorded by the Lower Keyboard.

If different Preset Keys are selected between the UPPER and the LOWER/PEDAL Part, the display will be like this.

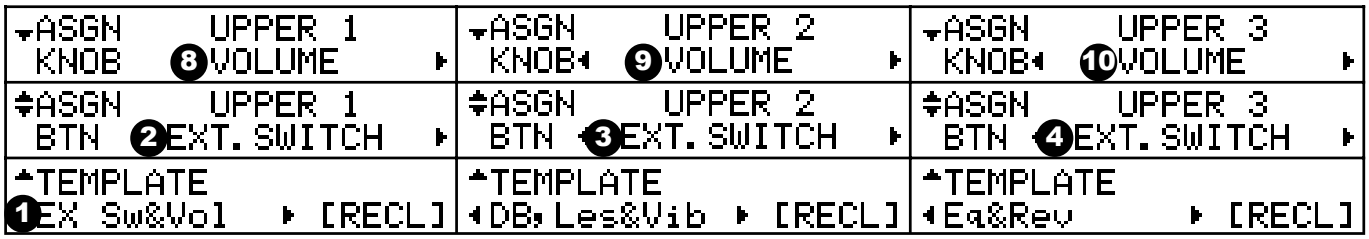


In this mode, the settings of the ASSIGNABLE CONTROLLERS are made.

The purpose is assigning functions whenever necessary for controlling the external MIDI equipment using the external zones or controlling vibrato or Leslie on the organ by your right hand. For making the settings easily, several assigning patterns are available - prepared as templates.

To locate this mode:

Touch the [MENU/EXIT] button and display the Menu. Select Page A by the [PAGE] button, and touch the [3] ASSIGN button.



♦ASSIGN TEMPLATES

1. ASSIGN TEMPLATES

This is the mode for easily making the settings purpose by purpose.
Select the purpose by the [PARAM] button and press the [4]RECL button to call out the typical settings.

♦CONTROLLERS

2. to 7. ASSIGNABLE BUTTONS

Assign each function to a desired assignable button.

8. to 13. ASSIGNABLE KNOBS

Assign each function to a desired assignable knob.

CONTENTS OF ASSIGN TEMPLATES

EX Sw&Vol

	UPPER 1	UPPER 2	UPPER 3	LOWER 1	LOWER 2	PEDAL
KNOB	CC #7	CC #7	CC #7	CC #7	CC #7	CC #7
BUTTON	SWITCH	SWITCH	SWITCH	SWITCH	SWITCH	SWITCH

DB, Les & Vib

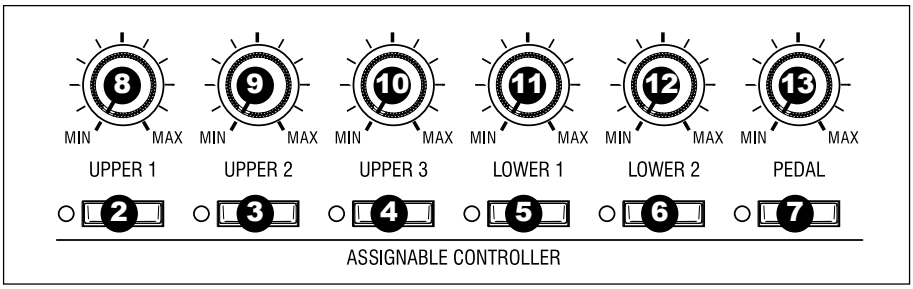
	UPPER 1	UPPER 2	UPPER 3	LOWER 1	LOWER 2	PEDAL
KNOB	L&U ATK CLICK	L&U RLS CLICK	PED. ATTACK	PED. DECAY	PED. SUS LEN	OFF
BUTTON	LESLIE BRAKE	LESLIE ON	LESLIE FAST	OFF	VIB. LOWER	VIB. UPPER

Eq & Rev

	UPPER 1	UPPER 2	UPPER 3	LOWER 1	LOWER 2	PEDAL
KNOB	TONE CONTROL	BASS GAIN	MID GAIN	TREBLE GAIN	REV. DEPTH	REV. TIME
BUTTON	OFF	OFF	OFF	OFF	OFF	OFF

Seq Control

	UPPER 1	UPPER 2	UPPER 3	LOWER 1	LOWER 2	PEDAL
KNOB	TEMPO	OFF	OFF	OFF	OFF	OFF
BUTTON	STOP	CONTINUE	START	OFF	OFF	OFF



▼ASGN LOWER 1 KNOB◀ 11 VOLUME ▶	▼ASGN LOWER 2 KNOB◀ 12 VOLUME ▶	▼ASGN PEDAL KNOB◀ 13 VOLUME
▲▼ASGN LOWER 1 BTN 5 EXT. SWITCH ▶	▲▼ASGN LOWER 2 BTN 6 EXT. SWITCH ▶	▲▼ASGN PEDAL BTN 7 EXT. SWITCH
▲TEMPLATE ◀Seq. Control [RECL]		

ASSIGNABLE BUTTONS

The following functions are assignable to the ASSIGNABLE BUTTONS.

EXT. SWITCH

This function switches SEND ON/OFF to the external zone.

LESLIE BRAKE, ON, FAST

These function are what the LESLIE [BRAKE], [ON]. [FAST] buttons do.

VIB. LOWER, UPPER

These functions are what the VIBRATO [LOWER], [UPPER] buttons do.

STOP, CONTINUE, START

These functions send each MIDI message.

ASSIGNABLE KNOBS

The following functions are assignable to the ASSIGNABLE KNOBS.

VOLUME, PAN

These finely adjust the Volume and Pan of the external zones.

L&U ATK CLICK, L&U RLS CLICK

These finely adjust the key-click of the Lower and Upper Part.

PED. ATTACK, PED. DECAY, PED. SUS LEN

These finely adjust the envelope of the Pedal Part.

BASS SLOW SPD, BASS FAST SPD,
HORN SLOW SPD, HORN FAST SPD

These finely adjust the speed of the built-in Leslie effect.

VIB. TREMOLO, VIB. RATE

These finely adjust the tremolo and the speed of Vibrato.

TONE CONTROL

In this mode, they control the tone like a Equalizer does.

BASS GAIN, MID GAIN, TREBLE GAIN

In this mode, they control the Gain like a Equalizer does.

REV. DEPTH, REV. TIME

These adjust the depth and the time of the Reverb effect.

TEMPO

This sends the MIDI Clock corresponding to the set tempo.

CC #2 - 95

These functions send Control Changes to the external zones.

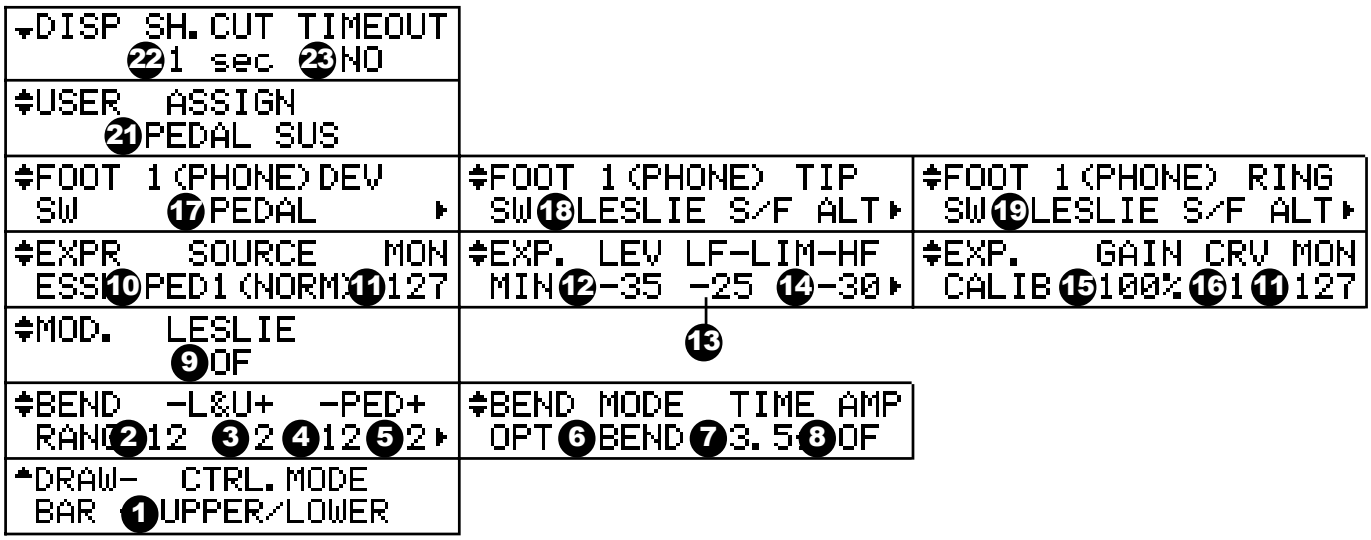
NOTE: All the parameters in these modes are Preset Parameters. They are recorded into the Combination Preset.

In this mode, you can control the setting relating to each controller.

You may change the roles of several knobs and switches mounted on this keyboard. Also, on the rear panel are two jacks for connecting the Foot-switch and the Expression Pedal. You must choose either of them in this mode.

To locate this mode:

1. Touch the [MENU/EXIT] button and display the MENU and select PAGE A by the [PAGE] button, and then touch the [4] CONTROL button.
2. Or, you may touch the [CONTROL] button (in default).



♦DRAWBAR

1. DRAWBAR - CONTROL MODE (G)

This is for setting how the right and left Drawbars function, when [A♯] or [B] of the Preset key is selected.

UPPER/LOWER:

The left Drawbar controls the UPPER and the right one the LOWER Part respectively.

A♯/B:

While [A♯] is ON, the right Drawbar controls the UPPER Part and the left Drawbar does not operate. Also, while [B] is ON, the right Drawbar does not operate but the left Drawbar controls the UPPER Part. While [A♯] or [B] is ON, you can not operate the Drawbar Registration of the LOWER Part.

♦PITCH BEND

2. BEND - L&U DOWN (P)
3. BEND - L&U UP (P)
4. BEND - PEDAL DOWN (P)
5. BEND - PEDAL UP (P)

These are for setting the changing range of the PITCH-BEND WHEEL by the semi-tone. Both the LOWER and the UPPER Parts change at the same time, as they use the same Tone-Wheels.

The setting range is 0 - 12 for up, 0 - 24 for down.

tips **MOTOR**

There is no pitch-bend function on the B-3/C-3. So some musicians turned off the power while playing in order to get that effect.
If the B-3/C-3 is turned off, the Tone-wheel motor gradually slows down and stops, and the amplifier does as well. This function is to simulate that on this model.

6. BEND - MODE (P)

It switches the function of the PITCH BEND wheel.

BEND: You can slide the pitch by rotating the PITCH BEND wheel.

MOTOR:

You can control the TONE-WHEEL motor. The motor turns on when it is in the center or in the neutral position, stops when you rotate it forward (toward yourself), and accelerates when you push it back.

7. BEND - TIME (P)

This sets the time for slowing down to stop or accelerating the motor when it [= MODE(6)] is in the MOTOR mode.

The value ranges from 0.1[s] to 5.0[s].

8. BEND - AMPLIFIER (P)

This decides whether to turn off the amplifier or not by rotating the PITCH BEND wheel forward (toward yourself).

When the value of this parameter is "OF", the pitch goes down and the sound gradually fades out.

♦MODULATION

9. MODULATION - LESLIE (P)

Assigns the Modulation Wheel to Leslie Speed Function.

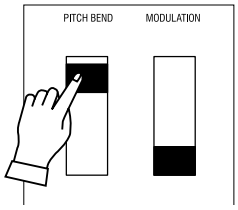
OFF: Does not function.

SPEED: If you push back and pull foward the Modulation Wheel, the speed of Leslie effect changes fast to slow continuously.

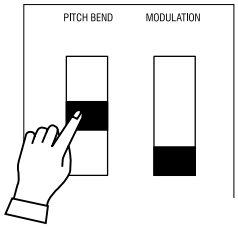
FAST: If you push back the Modulation Wheel, it is FAST mode, and if you pull it forward, SLOW.

NOTE: The parameters by the names with (P) on the end are Preset Parameters, and are recorded to each Combination Preset. (G) is for "Global". These parameters will be recorded when set, and are common in each Combination Preset.

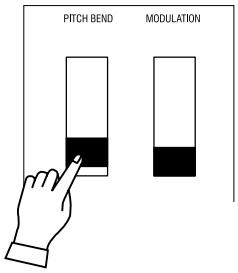
tips **HOW PITCH BEND MODE WORKS**



BEND: The pitch immediately rises.
MOTOR: The pitch gradually rises up to the set point.



BEND: The pitch immediately comes to normal.
MOTOR: The pitch gradually comes to normal.



BEND: The pitch immediately falls.
MOTOR: The pitch gradually falls down to the set point.

♦EXPRESSION

10. EXPRESSION - SOURCE (G)

Determines what to use for controlling the Expression.

PED1(NORM):
Uses V-20R etc.

PED1(REV):
Uses KORG XVP-10 etc.

EXP-100:
Uses EXP-100F.

MIDI IN:
Uses the Expression Information received at the keyboard channel UPPER.

11. EXPRESSION - MONITOR

Displays the present Expression Value. You can find the causes for such troubles as “no sound”, “non-function” of the Expression Pedal, by checking if the Expression Value changes normally. Also, this can be a guide when you want to play the “fade in” from “quiet”.

12. EXPRESSION - MINIMUM LEVEL (G)

It sets the output level when the Expression is minimum.

The setting range is OFF, -40db to 0db. “OFF” makes no sound when the Expression is minimum, “0dB” does not reduce volume level.

13. EXPRESSION - LIMIT LF (G)

14. EXPRESSION - LIMIT HF (G)

These are for setting the level 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.

15. EXPRESSION - GAIN (S)

This is for adjusting the gain (=range of the change) of the connected expression pedal. It sometimes occurs that even if you press the expression pedal to the bottom limit, the expression value does not reach the maximum value (127) due to the difference of each expression pedal model. In such a case, adjust this parameter for getting the maximum range.

16. EXPRESSION - CURVE (S)

This parameter sets how the value should vary corresponding to the depth of the expression pedal. The setting range is 1 to 3. Refer to the curves on the bottom right figure.

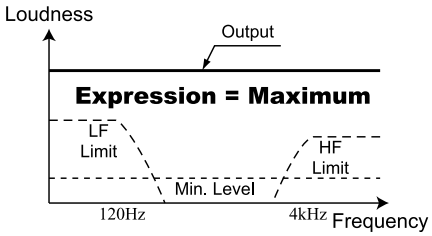
NOTE: These parameters are System Parameters. These parameters will be recorded when set. It is common in each Combination Preset. It is not recorded to the “Setup”.

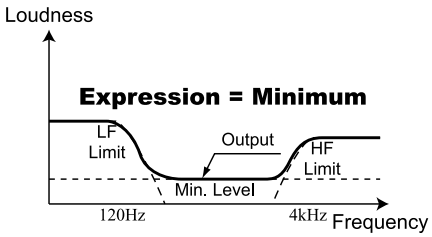
tips EXPRESSION LIMIT

One of the human ear’s characteristics is that when the volume falls, the sound of high or low frequency becomes difficult to hear.

On this model, it is rectified. The volume is maintained above a certain level even when the volume goes down in order to keep the sound of high or low frequency audible.

The similar function is adopted on most home audio equipments. It is called the “loudness” function.





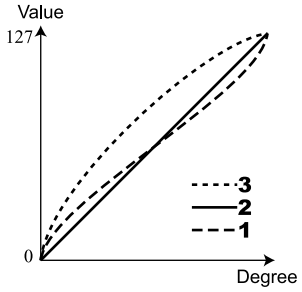
♦FOOT SWITCH

17. FOOT-SWITCH - 1 DEVICE (G)

This is for deciding which equipment is connected to the Foot Switch 1 jack.

PEDAL: for Foot switch.

CU-1: for the Leslie switch CU-1 (= optional).



18. FOOT-SWITCH - 1 TIP (G)

This is for setting the function of the Foot Switch 1 jack.

If you are using the Foot Switch with a stereo plug, this sets the function on the tip contact.

OFF: Does not work.

LESLIE S/F ALT, MOM:

These are for switching SLOW/FAST of the Leslie Effect.

At ALT, SLOW/FAST is alternately switched at each step of the Foot Switch, and it switches OFF if pressed for longer than 1 second.

At MOM, the Leslie effect gets Faster, as long as you keep pressing the foot switch, and it gets Slower if you release it.

DAMPER UPPER, LOWER, PEDAL:

They hold the Notes of the UPPER, LOWER and PEDAL Parts, respectively, as long as you keep depressing the footswitch.

PRESET FWD, REV:

They are for switching one Combination Preset to the right (FWD) or the left (REV).

SPRING:

This is for producing a springing sound of the Spring Reverb.

DELAY TIME:

This function sets the delay time (P. 81 #4) of the reverb effect, by the interval of pressing the foot-switch. By pressing and holding the foot-switch, the delay sound will be erased.

19. FOOT-SWITCH - 1 RING (G)

This is for setting the function on the RING contact, if you use the FOOT SWITCH equipped with the Stereo plug.

20. FOOT-SWITCH - 2 MODE (G)

This is for setting the function of the FOOT SWITCH attached to the Expression Pedal EXP-100F (= optional).

♦USER

21. USER (G)

This is for setting the function of the [USER] BUTTON.

PEDAL SUS: Switches On/Off Sustain of the PEDAL Part.
LOWER OCT: Switches 0/+1 of the LOWER Octave.
LES. BRAKE: Means the [LESLIE BRAKE] Button.
LES. ON: Means the [LESLIE ON] Button.
LES. FAST: Means the [LESLIE FAST] Button.
VIB. UPPER: Means the VIBRATO & CHORUS [UPPER] Button.
VIB. LOWER: Means the VIBRATO & CHORUS [LOWER] Button.
LESONREV: Switches On/Off Leslie On Reverb.

♦DISPLAY

22. DISPLAY - SHORT CUT (G)

It sets the time limit to the short cut function.

The range is 0s to 2s and NO short cut. The short cut function does not work when the value is in "NO".

23. DISPLAY - TIME OUT (G)

It sets the time limit to return to the previous screen from the one displayed by using the short cut operation.

The range is 4s to 16s and NO time out. The time out function does not work when the value is in "NO".

tips DAMPER

The word "Damper" comes from the damper pedal of the piano.

The piano stops sounding when you release your finger from the key. This is because of the damper system. While you hold the damper pedal, the system does not work and so it keeps sounding even after you release the key.

tips SPRING REVERB

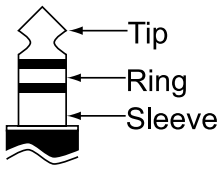
The Spring Reverb is a reverb effect to obtain the reverberation using the spring resilience. It was easily affected by a shock and it use to give a big "clang".

However, this drawback has come to be used as an effect in the genre of progressive rock. This keyboard gives the simulated sound.

tips TIP AND RING

When you look at the plug of the stereo headphones, there are 3 metal parts. The head portion is called "Tip" and the middle portion is the "Ring". The part on the cord side is called "Sleeve".

The ordinary foot-switch has only the Tip and the Sleeve, but the footswitch with two switches in one plug or two footswitches using the L/R converting cable can be connected.



NOTE: The parameters by the names with (P) on the end are Preset Parameters, and are recorded to each Combination Preset. (G) is for "Global". These parameters will be recorded when set, and are common in each Combination Preset.

THE EFFECTIVE USE OF THE CONTROL MODE

The DRAWBAR - CONTROL MODE is normally set on the "UPPER/LOWER" side.

"UPPER A♯/B" is used when you want to quickly switch to the Drawbar Registration, improvised during the performance.

It is like the House DJ's preparing the next tune while playing a certain tune, using the Cross-Fader.

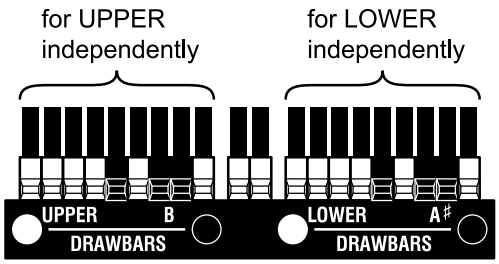
You can prepare the next registration by the Drawbars for [A♯] during your play by [B]. (No need for the recording operation.) By pressing the [A♯] key next, it is switched to that. You can do vice versa.

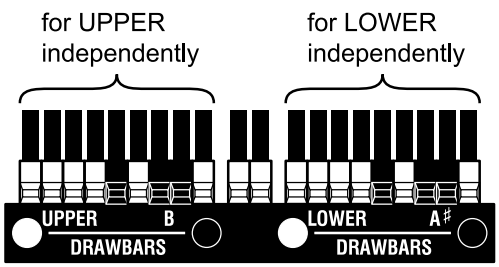
In this case, if you select [A♯] or [B] by the Preset Key, the left and right Drawbars work only for the UPPER Part.

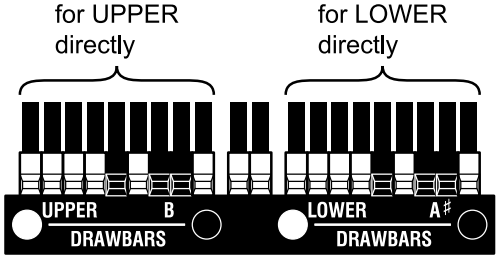
Operate the [B] Registration by the left Drawbars, and the [A♯] Registration by the right ones. (Note the order of the Drawbars and the Key is different.)

To set the registration for the LOWER Part, first select one from the Preset Keys [C] ... [A] on this keyboard, then make sounds using the right Drawbars. To memorize the registration to [A#] or [B] key, select [A#] or [B] (or on the Lower Keyboard, in case the keyboard is expanded).

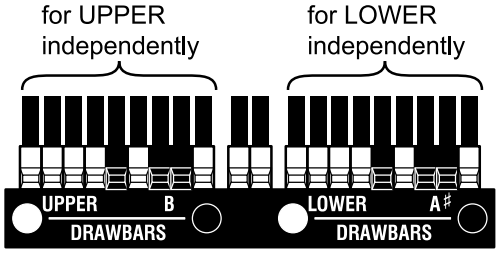
Control Mode: UPPER/LOWER

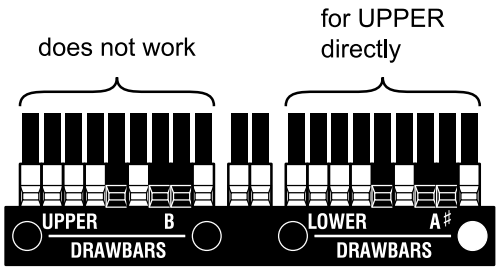


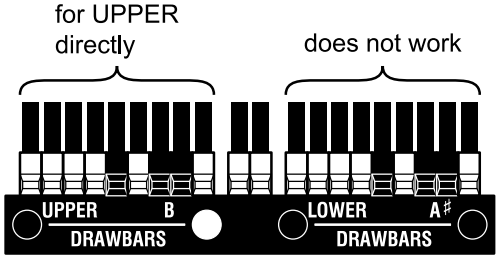


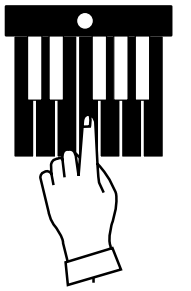


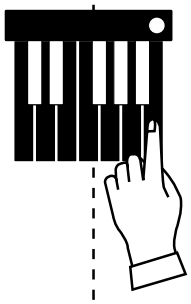
Control Mode: UPPER A♯/B











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

To locate this mode:

Touch the [MENU/EXIT] button (MENU will displayed), select PAGE B by the [PAGE] button and touch the [3] TUNE button.

1. TRANSPOSE

You can transpose the entire keyboard by the semi-tone.
The setting range is -6 to +6.

Transpose effects:

- between the manual keyboard and the built-in sound engine, and
- between MIDI IN and the built-in sound engine.
- External Zone.
- If you connect the MIDI Pedalboard XPK-100, the parameter will be changed by the transpose operation, too.

2. MASTER TUNE

This is for changing the PITCH of this entire keyboard.
The setting range is A = 430 - 450 Hz.

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

tips

TRANSPOSE AND TONEWHEELS

If you set the transpose value at other than 0, the relation between the keys and the Tonewheels gets off. So, if you try to tune the Tonewheels by the keyboard and the Drawbars at this time, you cannot select the desired wheels.

In this mode, you can regulate each Tone-Wheel Set of the Manual Keyboard, wheel by wheel.

The Tonewheel Set consists of 96 Tonewheels of different pitches, and one wheel corresponds with plural notes and the feet of the Drawbars.

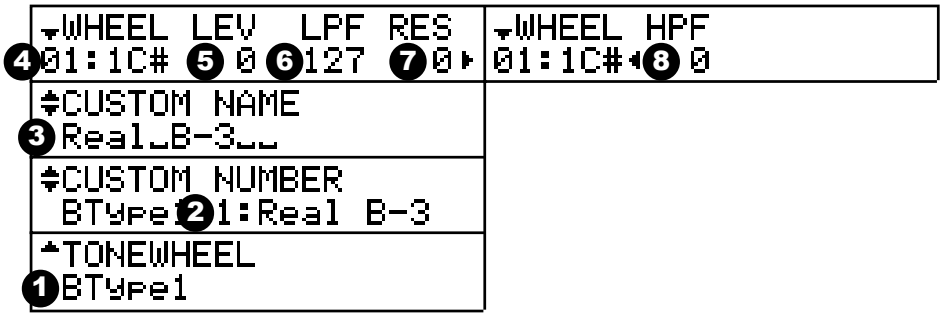
The relation is complicated. For example, the middle C of the 8' and the C one octave lower of the 4' use the identical wheel.

In this keyboard, you can save 5 types of settings per 1 Tone-Wheel Set. We call this "CUSTOM TONEWHEELS".

As a sample for customization, the typical 3 (or 4) types of settings are recorded when delivered from the factory.

To locate this mode:

Touch the [MENU/EXIT] button and display MENU, select PAGE B by the [PAGE] button, and then touch [1] CUST. TW button.



1. TONE-WHEEL SET

This is for selecting the Tone-Wheel set. Also, the Temporary (= the present setting) automatically switches to the selected Tone-Wheel Set just selcted now.

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 Preset Parameter. It is recorded into the Combination Preset.

3. CUSTOM NAME

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

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

By touching the [VALUE] button while holding down the [REC/JUMP] button, it jumps to the head/first 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 page.

tips

INITIAL VALUE OF THE CUSTOM NUMBER

The typical settings are saved to the Number 1 - 3 (or 4), as the initial value.

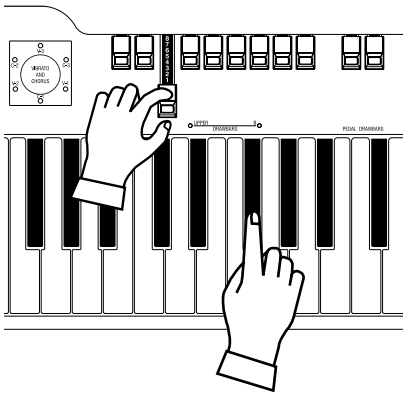
For example, to the BType1, "Real B-3" simulating the well-preserved B-3/C-3 and "80's Clean" with less noise, rough sound "Noisy", and "Noisy 60" with louder leakage noise is stored.

4. WHEEL NUMBER

Select the Number of the Wheel you want to regulate.

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

When the Wheel Number is selected, each parameter for the wheel (5, 6, 7, 8) is displayed.

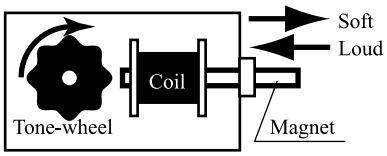


How to select the WHEEL NUMBER

5. LEVEL

This is for setting the volume of this wheel.

The setting range is -20 to +2dB. If you increase the value, it gets louder.



Concept of the LEVEL ADJUSTMENT

6. CUT OFF FREQUENCY - LPF

This is for setting the FREQUENCY to cut the TREBLE of this wheel.

If you increase the value, a leakage noise is heard besides the original tonewheel pitch.

If you decrease the value, the sound gets sweet and mild, as the treble is cut off.

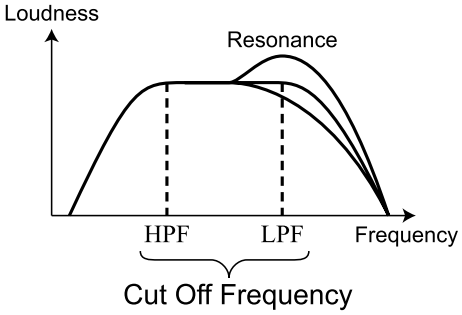
The setting range is 0 - 127.

NOTE: If you decrease the value too low below the original Tonewheel pitch, the wheel volume will be reduced.

7. RESONANCE - LPF

This is for setting the boost or reduce the level in and around frequency by Cut-Off Frequency - LPF(5).

The setting range is -100 to +100. The more the value gets boost, and less the value treble is cut smoothly.



8. CUT OFF FREQUENCY - HPF

This is for setting the FREQUENCY to cut the BASS of this wheel.

If you decrease the value, a motor hum (= noise) is heard besides the original Tonewheel sound.

The setting range is 0 - 127.

NOTE: If you increase the value too high above the original tonewheel pitch, the sound will get "thin".

NOTE: The parameters 2 - 7 are the Tonewheel parameters. If you do the recording operation of the next page, it works commonly to the same Tonewheel Set of each Combination Preset.

NOTE: When you operate the parameters 2 - 7, if you do not the recording operation of the next page, it is lost when you turn off the power.

tips LEAKAGE NOISE

On the B-3/C-3, the signal leakes in the route from the pick-up mounted for the Topnewheels to the output terminal, thus noise (= mixed Tone-wheel sound) was also heard, This is called "Leakage Noise".

The "Leakage Noise" is an obstacle in making pure tones, but it is recognized as a character now.

"Mellow", "Brite" and "Saw" does not include the Leakage Noise.

tips DISTORTION

If you raise the Level and Resonance values too much, it changes the gain in the sound engine and may sometimes cause distortion, i.e. unpleasant noise.

In such a case, please lower these values.

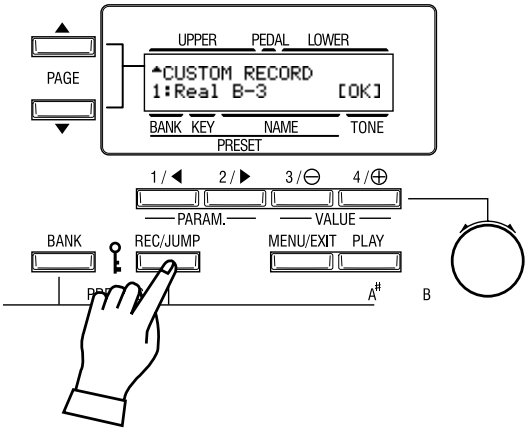
RECORD THE CUSTOM TONEWHEELS

The Tonewheel Parameters (= 3 - 8 of the previous Section) are for determining the Custom Number for recording. The Custom Number is selected and used, when you play.

1

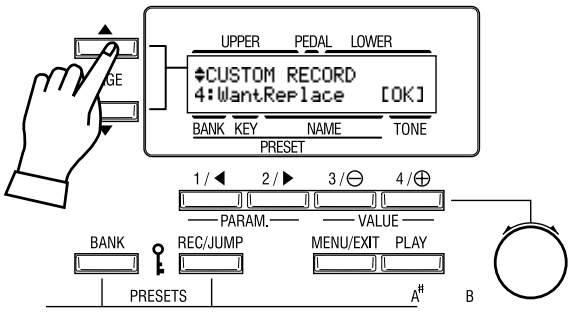
Enter the Custom Name if necessary.

2



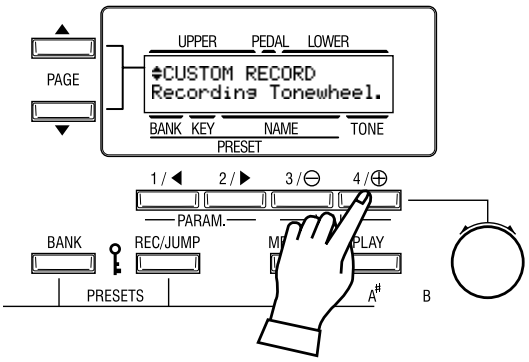
Touch the [REC/JUMP] button in the setting mode of the Tonewheel Parameters.
The mode for selecting the Custom Number to be recorded will be displayed.

3



Select the Custom Number to be recorded by the [PAGE] button.

4



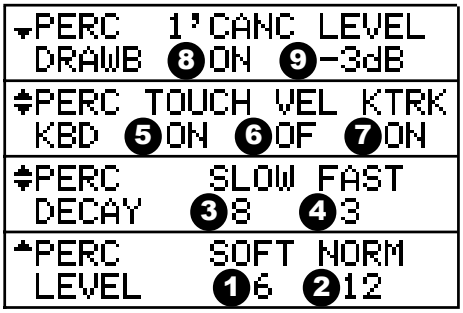
It will be recorded if you touch the [4] OK button.
The display will be as illustrated, while the recording is treated.

NOTE: If you do not want to record it, just touch the [MENU/EXIT] button.

In this mode, you can set the parameter of the PERCUSSION sound.

To locate this mode:

1. Touch the [MENU/EXIT] button and display MENU, then select PAGE B by the [PAGE] button and touch [4] PERCUSS button.
2. Or, hold down either [SECOND],[THIRD],[FAST],or [SOFT] button for a certain length of time.



1. LEVEL - SOFT

2. LEVEL - NORMAL

These are for setting the Volume of Percussion. SOFT is the volume when the [SOFT] button is ON, and NORMAL is the volume when the [SOFT] button is OFF.

3. DECAY - SLOW

4. DECAY - FAST

These are for setting the Speed of the Decay of the Percussion. SLOW is the speed when the [FAST] button is OFF, and FAST is the speed when the [FAST] button is ON.

The setting range is 1 - 9 and C. The more the value gets, the longer gets the Decay Time. At C, no decay (= continuous).

5. KEYBOARD - TOUCH

This is for setting the method of sound production of Percussion.

ON: If you play legato, the notes including and after the second note do not sound. (The envelope will not be reset.)

OF: Even if you play legato, all the notes produce sound, like the piano.

6. KEYBOARD - VELOCITY

Corresponds the Volume of Percussion with the Velocity.

ON: If you play forte, it sounds loud.

OF: It sounds at a certain volume regardless of the play.

❖ *When the Velocity is ON, it sounds at a slightly deeper point of the key action.*

7. KEYBOARD - KEY TRACK

Changes the Percussion Volume by the note.

ON: The higher notes reduce more volume.

OF: It sounds at a certain volume regardless of notes.

8. DRAWBAR - 1' CANCEL

This mutes the 1' of the UPPER PART while using PERCUSSION.

ON: Mute

OF: Does not mute.

9. DRAWBAR - LEVEL

Decreases the volume of UPPER DRAWBARS while using PERCUSSION.

-5dB: Decreases the volume by B-3/C-3 frequency response

-3dB: Decreases the volume flatly

0dB: Does not decrease the volume

NOTE: This parameter works only when the [SOFT] is OFF.

NOTE: The parameters in those modes are all Preset Parameters.

tips TOUCH

The B-3/C-3 had only one built-in Envelope Generator, and was not recharged until all the UPPER Manuals were released. This looks like a drawback, but it had the advantage that the sound did not get loose when chords were roughly played.

tips 1' CANCEL

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

tips DRAWBAR LEVEL

On the B-3/C-3, the Drawbar Volume got slightly smaller, if percussion works This is simulated on this keyboard.

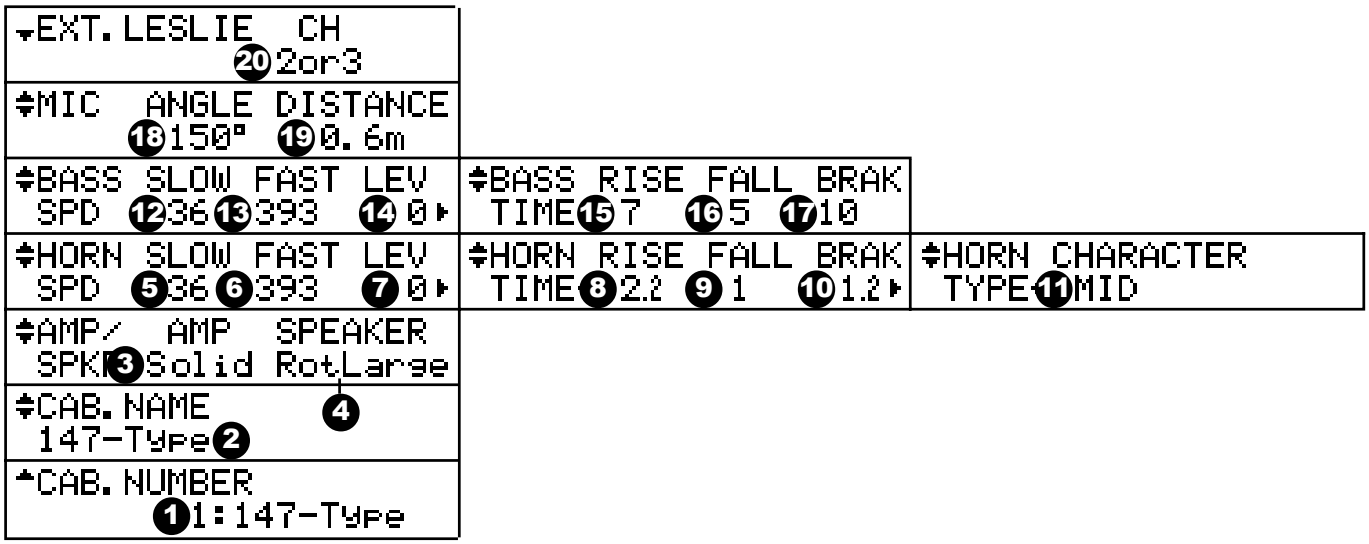
In this mode, you can do the setting for the built-in Leslie Effect and the External Leslie Speaker.

There are many parameters for the built-in Leslie Effect, and so you can do various settings, but not per each Combination Preset independently.

The parameters are treated by the group called "CABINET". You can select the CABINET NUMBER in the Combination Presets.

To locate this mode:

1. Touch the [MENU/EXIT] button to display the MENU. Then select PAGE C by the [PAGE] button and touch [3] LESLIE.
2. Or, hold down either [LESLIE BREAK], [LESLIE ON] or [LESLIE FAST].



♦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 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].

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 imaginary power amplifier.

Solid: Amplifier with a flat characteristic

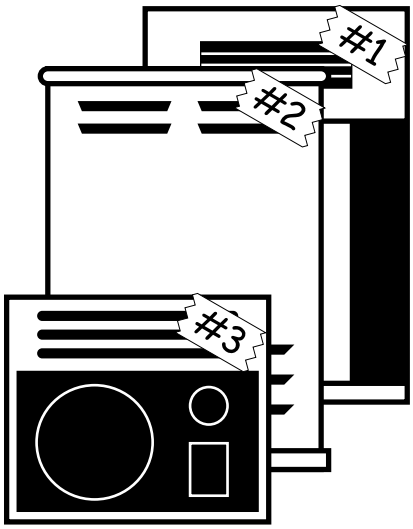
Tube: Simulated Tube Amplifier with a mild characteristic.

tips

CONCEPT OF THE CABINET NUMBERS

Each Cabinet represents one imaginary 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 imaginary 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. SLOW SPEED - HORN

12. SLOW SPEED - BASS

Here the Speed of the Rotor is set for Slow mode.
The setting range is 0, 24 - 318 rpm. It does not rotate at 0.

6. FAST SPEED - HORN

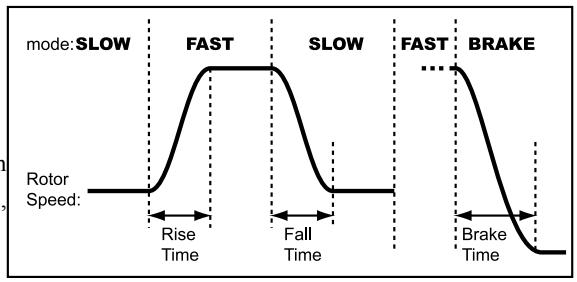
13. FAST SPEED - BASS

Here the Speed of the Rotor is set for Fast 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 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 Fast Speed, when you go from Slow or Break to Fast 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 Rotor to reach the Slow speed, when you go from Fast to Slow 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 Rotor to stop, when you go from Fast mode to Break. 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

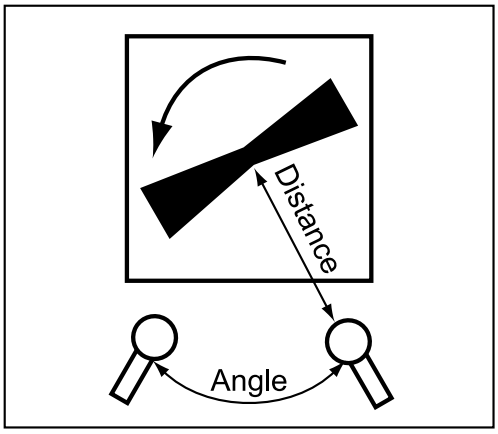
Here the Tone of the Horn Rotor is set.
"FLAT" is a flat tone, and the others are the tones with each "peaky" characteristic.

18. MIC - ANGLE

This is the parameter to set the LOCATIONS of the two Microphones for the imaginary Leslie Speaker.

The ANGLE decides the distance between the two mikes.

The setting range is 0 - 180 degrees. The farther, the more stereophonic feeling it gives.



19. MIC - DISTANCE

This is the parameter to set the DISTANCE between the imaginary Leslie Speaker and the Microphones.

The setting range is 0.3 - 2.7m. The more the value increases, the less effective it gets.

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.

♦EXTERNAL LESLIE SPEAKER

20. LESLIE CHANNEL

The Channel is set for the Leslie Speaker connected to the 11-pin terminal.

At “1”, the sounds always comes out of the Rotary Channel.

At “2 or 3”, the sounds are put out to the stationary channel when the [LESLIE] button gets OFF and the [BREAK] button gets OFF. Otherwise, the sound comes out of the Rotary Channel.

tips

CHANNELS OF CURRENT LESLIE MODELS

122XB, 3300: 1ch

2101/2102: 3ch

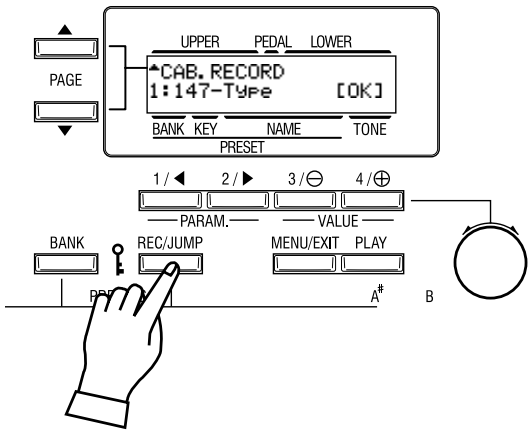
RECORD THE CABINETS

The Leslie parameters (2 - 19 of the previous paragraph) can be recorded with the Cabinet Numbers, and you can choose and use them in each Combination Preset.

1

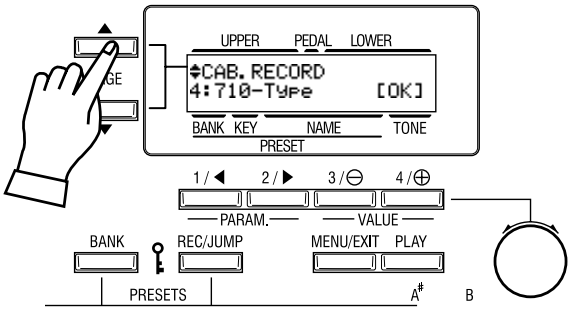
Enter the name for the Cabinet as you want.

2



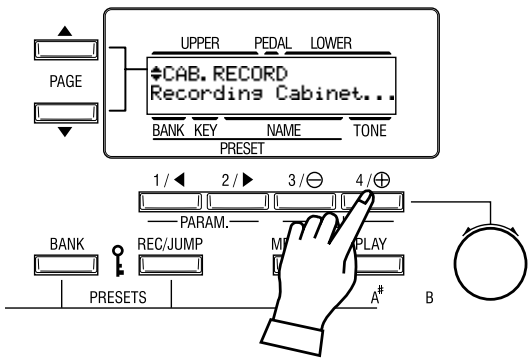
Touch the [REC/JUMP] button in the setting mode of the Leslie Parameter.
The Cabinet Selection mode is displayed.

3



Select the Cabinet Number to record by the [PAGE] button.

4



Touch [4] OK, and it is recorded.
The display during the recording treatment shows as illustrated.

NOTE: If you do not want to record it, just touch the [MENU/EXIT] button.

VIB&CHO (VIBrato and CHOrus)

In this mode, you can change the settings relating to each Effect for Vibrato and Chorus.

To locate this mode:

1. Touch the [MENU/EXIT] button to display the MENU, select PAGE B by the [PAGE] button, and then touch the [4] VIB&CHO button.
2. Or, hold down the Vibrato & Chorus [UPPER] or [LOWER] button for a while.

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 - 9dB.

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.

NOTE: The parameters 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 ones 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 B-3/C-3 is stablized by the synchronous motor, you can not obtain the oscillation accompanied by a vibrato effect. So on these models, the vibrato effect is obtained by modulating the tonal signal having passed through the drawbars.

The vibrato & chorus system of the B-3/C-3 consists of a phase-delaying circuit by plural coils and a part called “scanner”.

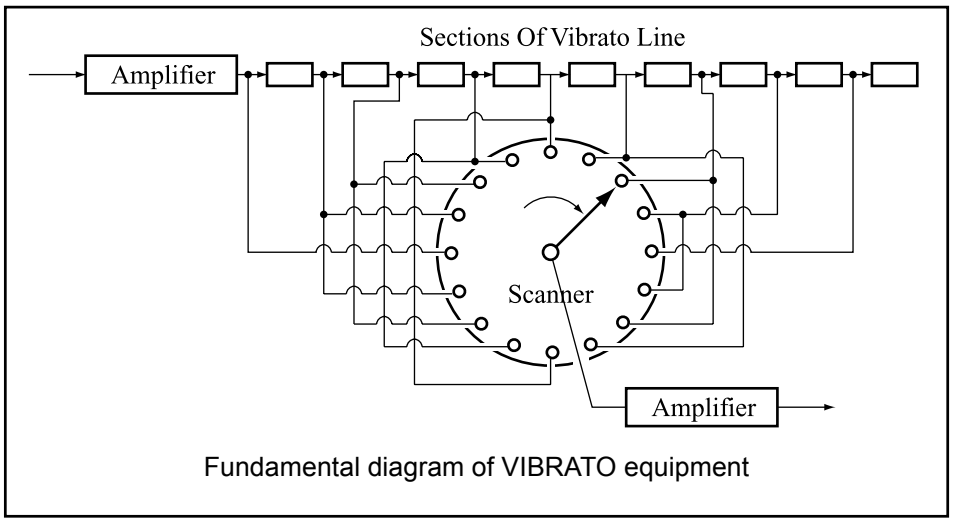
When a tonal signal is passed through a coil, the phase delays. If plural coils are connected in tandem and taking the output out of each tap from the top to the last by turns, the sounds which pitches gradually lower are obtained. By taking the output out of eack tap from the last to the top by turns on the contrary, the sounds which pitch gradually rise are obtained. These operations are automatically made by turning the scanner by the motor.

The scanner is a part used to select one of multiple input terminals by the static connection. As each terminal is selected by the “blades” which approach each other, a popping noise like that of a switch does not occur and the signals of neighboring terminals cross-fade and switch themselves.

The mode-selection of vibrato effects is made by changing the range of the connecting tap.

As this system modulates the produced tonal signals and not the oscillator, you can take out the original sound without vibrato effect. By mixing the sound with the vibrato effect and the original sound, the chorus effect is obtained.

On this model, these operations are simulated by the DSP.



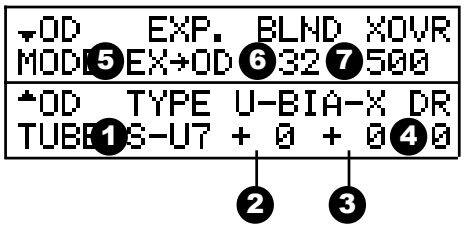
Fundamental diagram of VIBRATO equipment

OVERDRIV (OVERDRIVe)

In this mode, you can change the settings relating to each Effect for Overdrive and Vibrato/Chorus.

To locate this mode:

1. Touch the [MENU/EXIT] button to display the MENU, select PAGE C by the [PAGE] button, and then touch the [1] OD/VIB button.
2. Or, hold down the [TUBE AMP] button for a while.



1. PREAMP - TYPE

This is for choosing the Tube Amp Circuit.

S-U7: This is an amplifier with only one circuit, same as the general overdrive effects.It treats all tonal range by 1 circuit by using the 12AU7.

S-X7: This is an amplifier with only one circuit, using the 12AX7.

D-UX: This is an amplifier with 2 circuits for two different bands. The 12AU7 treats the bass band and the 12AX7 treats the treble band.

D-XU: This is an amplifier with 2 circuits for two different bands. The 12AX7 treats the bass band and the 12AU7 treats the treble band.

2. BIAS U

This parameter finely-adjusts the bias voltage of the tube 12AU7.
The setting range is -32 to +31.

3. BIAS X

This parameter finely-adjusts the bias voltage of the tube 12AX7.
The setting range is -32 to +31.

4. DRIVE

This is for adjusting the Overdrive Value.
The higher the value gets, the more distortion you can get.
This is linked with the [TUBE OVERDRIVE] knob on the front panel.

5. EXPRESSION

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

EX-OD: If you operate the Expression, not only does the volume change, but also the distortion.

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

6. BLEND

This is for setting the Tone Range for Distortion.
The setting range is 0 to 63. The higher the value, the more the treble will distort. The lower the value gets, the more the bass will be distorted. The treble and bass distortion effects are equal at 32.

NOTE: This parameter functions when the Preamp - Type (1) is at "D-UX" or "D-XU".

7. CROSSOVER

Here you can set the Crossover Frequency of two bands of the Tube-Amp circuits.
The setting range is 125 - 800 Hz.

NOTE: This parameter functions when the Preamp - Type (1) is at "D-UX" or "D-XU".

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 product from product even if the parameter value is the same, as the characteristic of each tube is different, from piece to piece.*

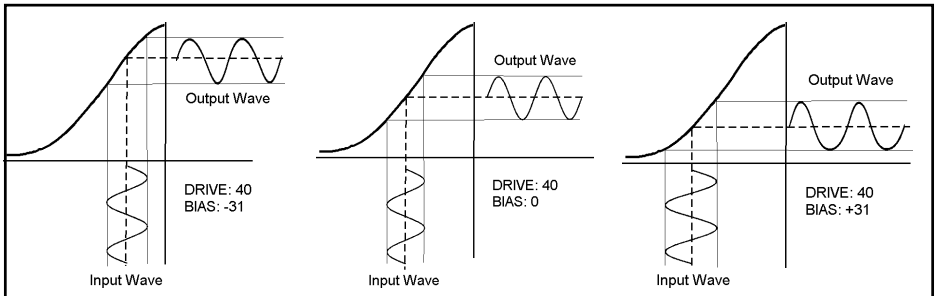
tips USING THE EQUALIZER TOGETHER

If you distort the sound by overdrive or by changing the bias, new harmonics are added. This means, you can expect colorful change of tones by the equalizer. For example, if you set the middle frequency at "1.0kHz" and the middle gain at "+9", you can obtain a sound with an clear interval feeling at the closed voicing, too.

BIAS VOLTAGE AND NONLINEAR DISTORTION

To make the vacuum tube function as a 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 a setting that you like.

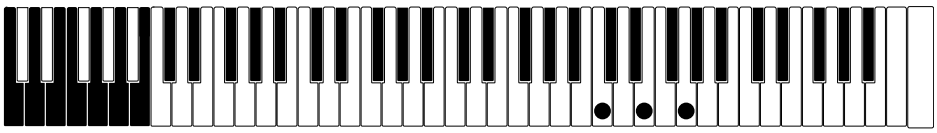


BIAS VOLTAGE AND NONLINEAR DISTORTION OF THE TUBE

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

1. Set the drawbar registration at “00 8000 000”.
2. Keep pressing the [TUBE AMP] button and display the OD TUBE page.
3. Set the Pre-Amp - Type at “S-U7”.
4. Set the Drive near 40. (Make sure it is not the maximum value.)
5. Move the cursor to BIAS U.

6. Press the chord on the keyboard as shown.



Try to change the value of BIAS U, pressing the keys. The degree of distortion is slight near “0”, but you can hear the distorted sound “rrr” getting loud, if you change the value towards “+” or “-”. Such a distorting sound is called “nonlinear distortion”. Likewise, try to change the pre-amp. type to S-X7 and also the value of BIAS X.

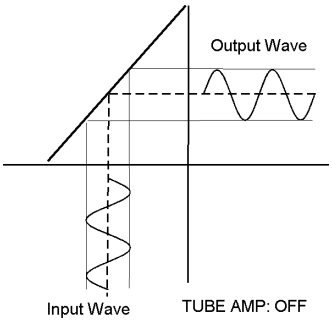
NOTE: On the vintage B-3/C-3, such distortion may occur as they get older. On this model, you can create such distortion intentionally.

tips GRID

The grid is one of the poles of the tube. In the tube called triode 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. It is called amplification operation of the tube.

tips NONLINEAR DISTORTION

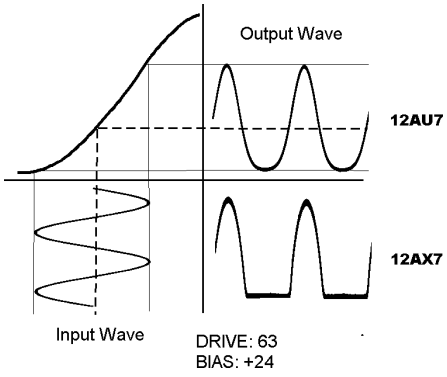
An amplifier without distortion amplifies input in proportion (=linear) with output, as shown in the figure below.



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

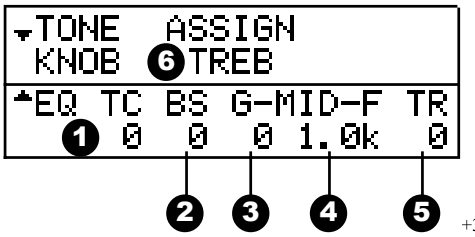
If the drive is at the maximum, the end of the waveform is cut (off), as shown in the figure below. It is called clipping distortion.



In this mode, you can adjust the settings for the Equalizer.
An Equalizer is used to adjust the tonal quality. The built-in Equalizer consists of 3 bands and Tone Control. With the 3 bands ranging bass to treble, you can boost or cut any of them.

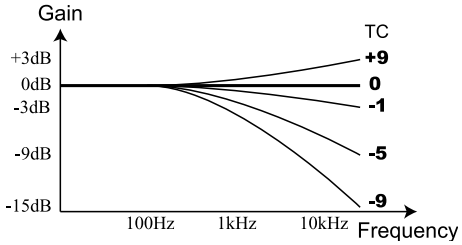
To locate this mode:

1. Touch the [MENU/EXIT] button for the MENU, select PAGE C by the [PAGE] button, and then touch the [2] EQUALIZ button.
2. Or, hold down the [TONE TYPE] button for a while.



1. TONE CONTROL

This is a simulated B-3/C-3 TONE CONTROL. This is a type of tone control for gently cutting the treble.
The setting range is -9 to +9, and it becomes neutral when set at "0".
"-1" corresponds to the maximum of the B-3/C-3 tone control, "-5", the middle, "-9", the minimum. The tone control found on the B-3/C-3, it's value can not be set at "+", but on this model it's possible to boost treble to some extent.

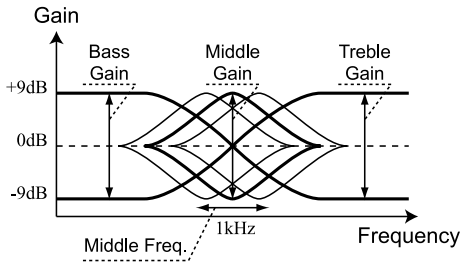


2. GAIN - BASS

3. GAIN - MIDDLE

5. GAIN - TREBLE

This is for doing the Boost/Cut of Bass, Mid-range and Treble respectively.
The setting range is -9 to +9. It gets neutral at 0.



4. FREQUENCY - MIDDLE

This is for setting the Central Frequency to vary at Gain - Middle (3).
The setting range is 480Hz - 2.9kHz.

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

6. TONE - ASSIGN

This sets the function to assign the parameter of each gain: either Bass, Middle or Treble, and tone control to the [TONE] knob. You can change this while playing.

NOTE: This parameter is the Global Parameter. It is recorded when the value is set. Also, it is common at 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 that sensitive range for human ears. The character is the well-through sound in the band ensemble.
When you use this keyboard on line out without a Leslie speaker, you can get the similar effect by setting the FREQUENCY - MIDDLE to about 2kHz, and the GAIN - MIDDLE to "+".

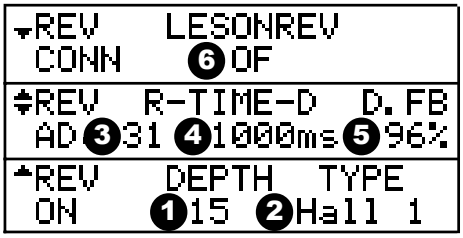
tips **PRESET PARAMETERS**

Equalizer is a Preset Parameter, designed to actively use as one of the tone-making parameters. However, it is not practical to use Equalizer as a tonal complementary tool to match the location. In such a case, if you switch OFF the P.LOAD RV/EQ in the PRESET function mode, the Equalizer value does not change when the preset is recalled. (P. 58)

In this mode, you can change the setting for the REVERB EFFECT.

To locate this mode:

1. Touch the [MENU/EXIT] button for the MENU display, select PAGE C by the [PAGE] button, and then touch the [4] REVERB button.
2. Or, hold down the [REVERB] button for a while.



1. DEPTH

This sets the Depth (= Volume) of the Reverb Effect.
The setting range is 0 - 15. If you increase the value, it will give the audience the impression that the player is performing in a larger room.

2. TYPE

This sets the Types of Reverb Effect.

Room 1: Inside the room (short)
Room 2: Inside the room (long)
Live: Live house
Hall 1: Concert Hall (long)
Hall 2: Concert Hall (short)
Church: Church
Plate: Iron-plate Reverb
Delay: Delay
PanDly: Panning Delay
RevDly: Reverb + Delay

3. REVERB TIME

When the Type (3) is set at Room 1 to Plate, it sets the Time for Reverb to fade out.
The setting range is 0 - 31. The higher the value, the greater the impression of a large building.

4. DELAY TIME

When the Type (3) is set at Delay, PanDly, RevDly, it sets the delaying time.
The setting range is 4.7 - 2000 ms. The higher the number, the longer the delay gets.

NOTE: You can set the delay time with the foot switch (P. 65).

5. DELAY FEEDBACK

When the Type (3) is at Delay, PanDly, RevDly, it sets the amount of the Feedback. (The delaying sound repeats.)
The setting range is 0 - 96%. The higher the value, the more Feedback you get.

6. LESLIE ON REVERB

This sets the route of the Reverb and Leslie Effect.

OF: Leslie to Reverb
ON: Reverb to Leslie

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

tips PRESET PARAMETERS

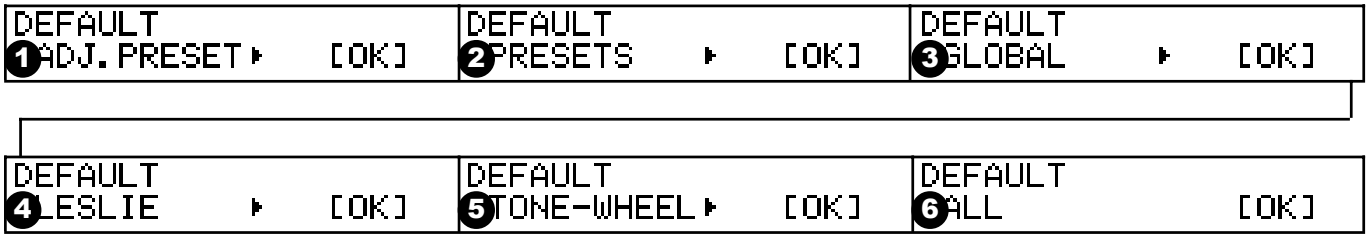
Reverb is a Preset Parameter, designed to be actively used as one of the tone-making parameters.
However, it is not practical to use Reverb as a tonal complementary tool to match the room/stage/hall. In such a case, if you switch off the P.LOAD RV/EQ in the Preset function mode, the Reverb On/Off value does not change when the preset is recalled. (P. 58)

DEFAULT

In this mode, you can go back entirely or partially to the default setting as per shipped from the factory.

To locate this mode:

Touch the [MENU/EXIT] button for the MENU display, select PAGE E by the [PAGE] button, and then touch the [1] DEFAULT button.



To initialize each parameter, touch the [PARAM] button and then [4] OK.

1. ADJUST PRESET

Initializes the content of the Preset Key [B].
If the Drawbar Control mode is at "UPPER A♯/B", the content of [A♯] is also initialized.
If you do this operation before you start a new setting, you can start from the fresh status.

2. PRESETS

Initializes the content 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 Cabinets.

5. TONE WHEEL

Initializes the Custom Tonewheels.

6. ALL

Initializes all parameters of this keyboard.
If anything caused an unstable condition on this keyboard system, the trouble would be cleared.

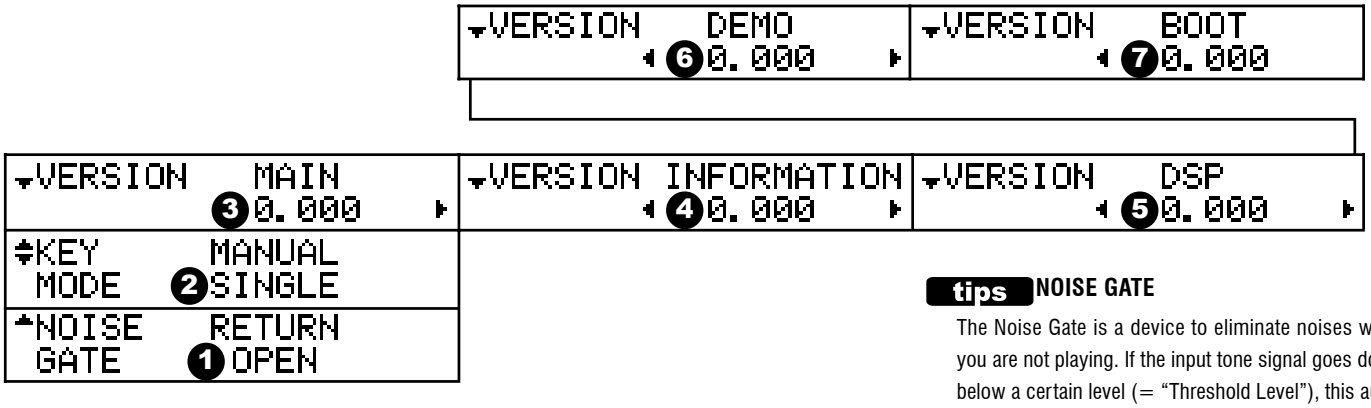
NOTE: You can also totally initialize your module by switching the Power ON while touching and holding [REC/JUMP] button.

NOTE: The value of the Preset Key [B] set by this function is different from Default - Adjust Preset (#1).

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

To locate this mode:

Touch the [MENU/EXIT] button to display the MENU, select PAGE E by the [PAGE] button, and then touch the [2] SYSTEM button.



1. NOISE GATE - RETURN

Switches the action of the Noise-Gate of the Effect Loop and the Return jack.

THRESHOLD 1:

THRESHOLD 2:

The audio output is switched ON/OFF according to the volume input to the Return jack.

THRESHOLD 2 switches ON/OFF at lower volume than THRESHOLD 1.

OPEN:

The audio output is always ON.

2. KEY MODE - MANUAL

This is for using this keyboard with a MIDI keyboard as a LOWER keyboard or not.

SINGLE:

Select this when you use this keyboard as a single keyboard.

The parameter MIDI IN (P. 96 #2) sets "IN1/IN2", LINK LOWER / PEDAL (P. 58 #3) "ON".

DOUBLE:

Select this when you use this keyboard with a MIDI keyboard as a LOWER keyboard, such as XK-System.

The parameter MIDI IN (P. 96 #2) sets "LOWER/PEDAL", LINK LOWER / PEDAL (P. 58 #3) "OFF".

NOTE: The parameter MIDI IN is synchronized with this parameter. The Parameter Link Lower / Pedal is set by this parameter, but you can set a different value after this procedure.

3. VERSION - MAIN PROGRAM

4. VERSION - TONE INFORMATION

5. VERSION - D.S.P. PROGRAM

6. VERSION - DEMONSTRATION DATA

7. VERSION - BOOT LOADER

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

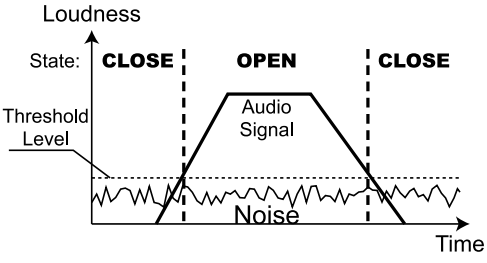
These are only for displaying the version number.

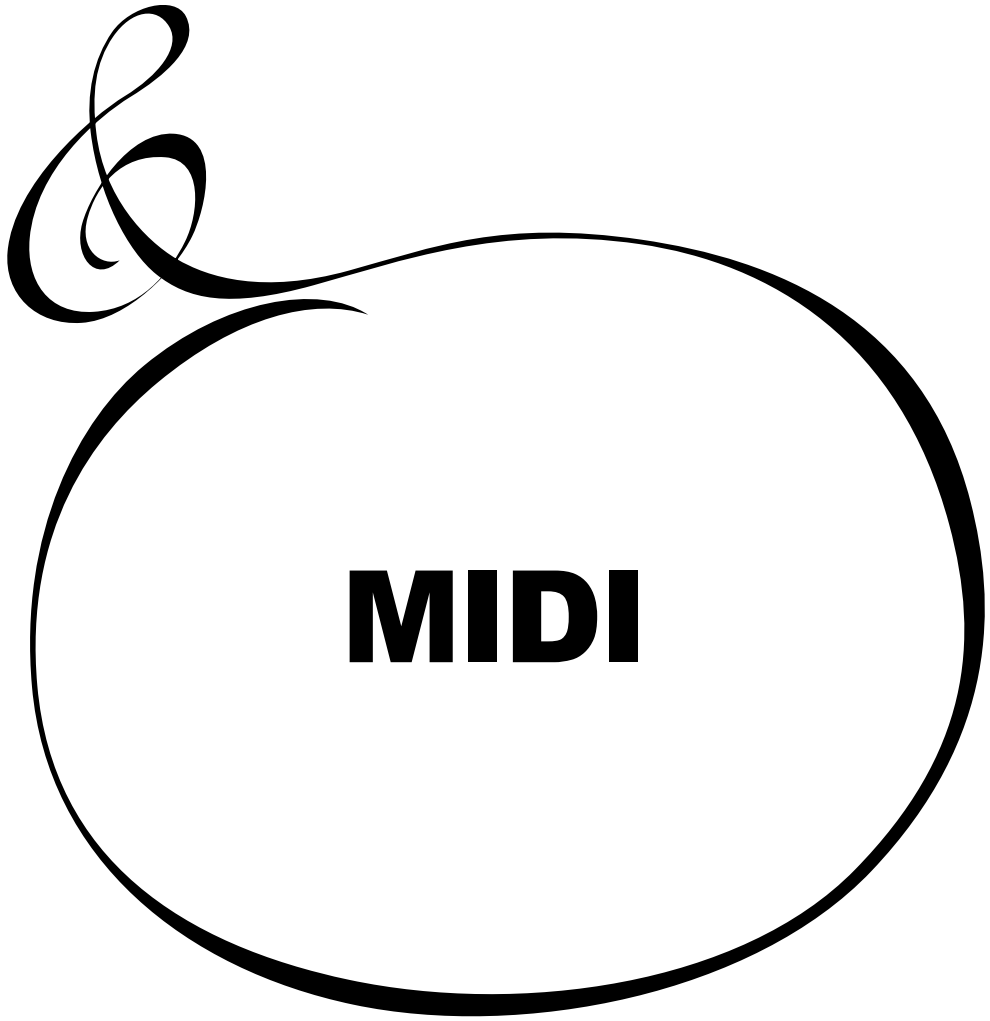
tips NOISE GATE

The Noise Gate is a device to eliminate noises while you are not playing. If the input tone signal goes down below a certain level (= "Threshold Level"), this automatically "close"s the gate and becomes silent, to cut the noise.

However, this sometimes could be a problem. This happens when a sound signal with a slow attack or release is put in, for example, when such an Effector as Slow Gear or Delay is connected to the Effect Loop of this keyboard. The sound may suddenly come out or be cut off.

In such a case, you must always "open" the gate to pass all signals.



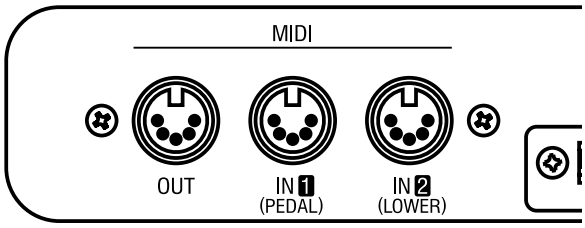


MIDI

What is “MIDI”?

MIDI stands for Musical Instrument Digital Interface. (The capital letters of these four words.)
MIDI is for exchanging the performance information between an electronic musical instrument and a sequencer etc.
MIDI is an international standard, by which instruments made by different manufacturers can be connected to communicate with each other.
The control information is exchanged, such as the performance infos. of a key being touched/released and the tone being switched, the damper pedal being pressed/released.

MIDI TERMINALS ON THIS KEYBOARD



MIDI OUT

Sends Performance Information.

MIDI IN 1 (PEDAL)

MIDI IN 2 (LOWER)

These receives the MIDI Signal. Each MIDI terminal is set to do the same function, when this keyboard is delivered from the factory.

NOTE: Each MIDI IN terminal can be set for exclusively receiving the LOWER and PEDAL PART. (P. 94 #2)

WHAT THE MIDI CAN DO ON YOUR KEYBOARD

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

- expand the keyboard and use this as an organ.
- record or playback your performance to external computer or sequencer.
- control the external sound source such as a synthesizer and a sampler.

Also, to do the setting simply, the “MIDI Template” function is prepared.

MIDI CHANNEL

MIDI has the “MIDI CHANNELS” 1 - 16. Thus, you can send your playing information divided into 16 channels through one MIDI cable.

However, the channel must match between the sender and the receiver. Otherwise, you can not “hear” what the other “says”.

MAJOR MIDI MESSAGE

The MIDI infomation is grouped into the channel message per each of the 16 channels and the system message for the total channels. The main MIDI message is as follows: See for details in the MIDI IMPLEMENTATION CHART.

CHANNEL MESSAGE

♦ NOTE ON

This is for the 3 data: which key (Note Number), at what Speed (Velocity) and Play (Note ON).

The sound engine of this keyboard receives velocity only for Percussion and Pedal. Manual Drawbars oscillates at a certain volume, regardless of the velocity.

♦ PROGRAM CHANGE

KEYBOARD CHANNEL:

Switches the Combination Presets.

EXTERNAL ZONE:

Switches the program of the External MIDI equipments.

♦ CONTROL CHANGE

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

SYSTEM MESSAGE

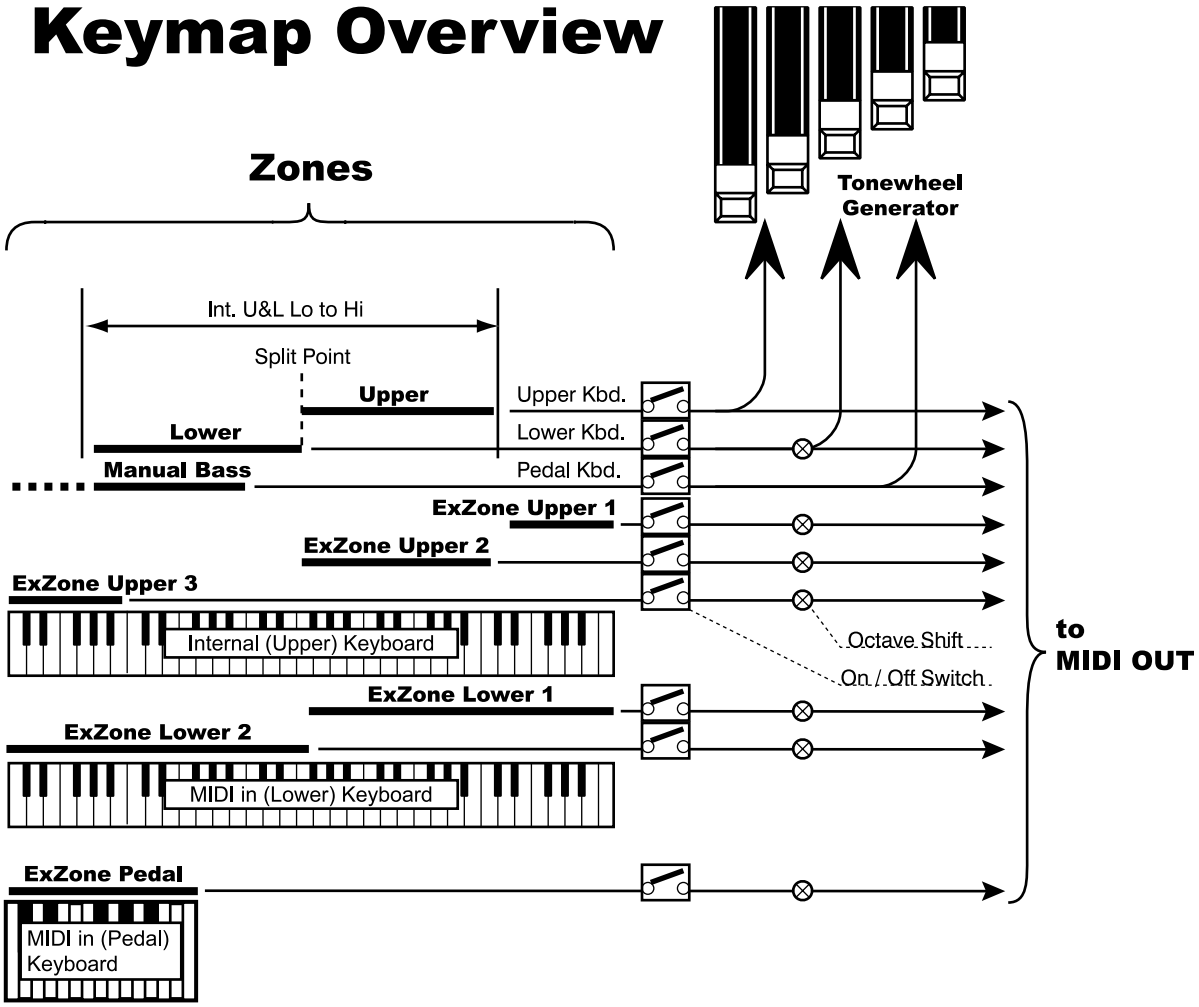
♦ SYSTEM EXCLUSIVE MESSAGE

These messages are for sending and receiving the characteristic data between the same model or the products made by the same manufacturer.

This keyboard has the Memory Dump (transmit the total present setting) and can record the data to the External Sequencer.

This organ has only a single keyboard. However, its sound engine provides 3 parts of UPPER/LOWER/PEDAL, and, furthermore, 3 "EXTERNAL ZONES" for the internal keyboard of this organ and 3 for external keyboard, for controlling external MIDI equipment.

For these special reasons, this unit has 9 MIDI channels.



♦KEYBOARD CHANNEL

UPPER

This is for sending and controlling the UPPER Part performance information, switching the Combination Presets and sending/receiving Expression.

LOWER

This is for the LOWER Part performance information not only for controlling but switching data of the Preset for the LOWER Part independently.

PEDAL

This is for sending and receiving the PEDAL Part performance information and controlling.

♦EXTERNAL ZONE CHANNELS

These channels are for controlling external MIDI equipment respectively while using this unit as an easy master keyboard. Making a different setting per each combination preset is possible.

EX. ZONE UPPER 1, 2, 3

This is for controlling the external MIDI equipment, using the desired range of the internal keyboard on this organ.

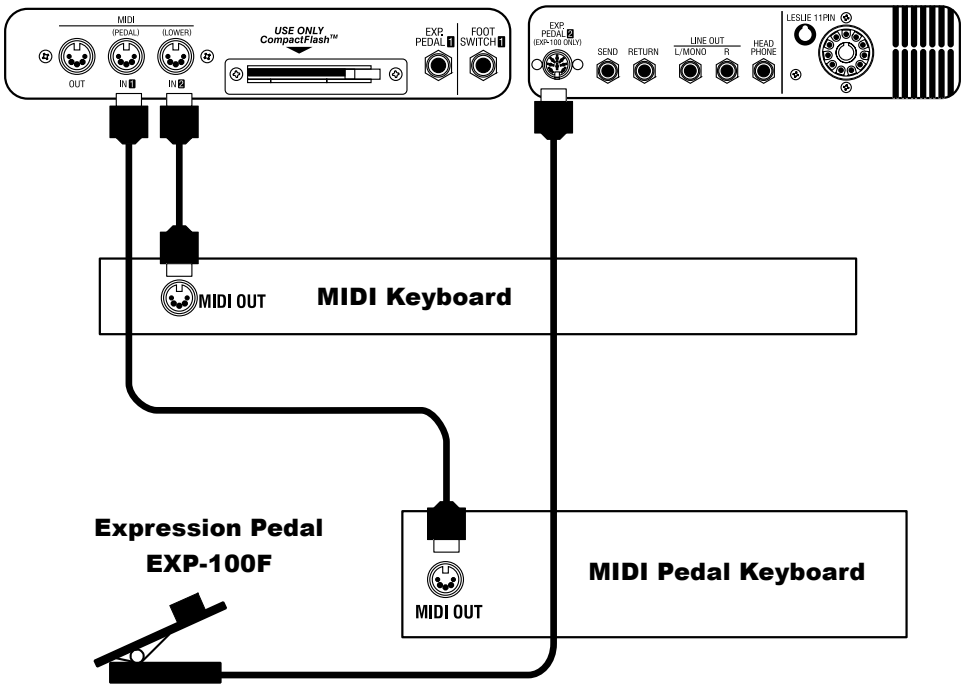
EX. ZONE LOWER 1, 2

This is for controlling the external MIDI equipment by the MIDI keyboard connected to the MIDI IN (LOWER) jack.

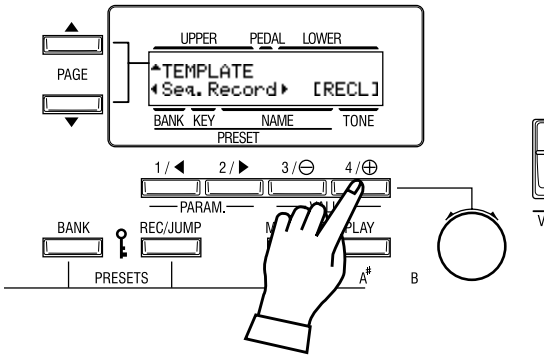
EX. ZONE PEDAL

This is for controlling the external MIDI equipment by the MIDI keyboard connected to the MIDI IN (PEDAL) jack.

This is the method how to connect the XK-3C to the MIDI keyboard and play on the full manual (3 keyboard) instrument.



1. Hook up as shown above.
2. Recall “Seq. Record” by the MIDI template.



3. If you use the Expression Pedal, set the “Expression Source” corresponding to the connected Expression Pedal. (P. 64 #10)

When you play the MIDI keyboard connected to the MIDI IN (LOWER) jack of the XK-3C (hereinafter LOWER keyboard), the LOWER Part will sound, and when you play the MIDI keyboard connected to the MIDI IN (PEDAL) jack (hereinafter PEDAL keyboard), the PEDAL Part will sound.

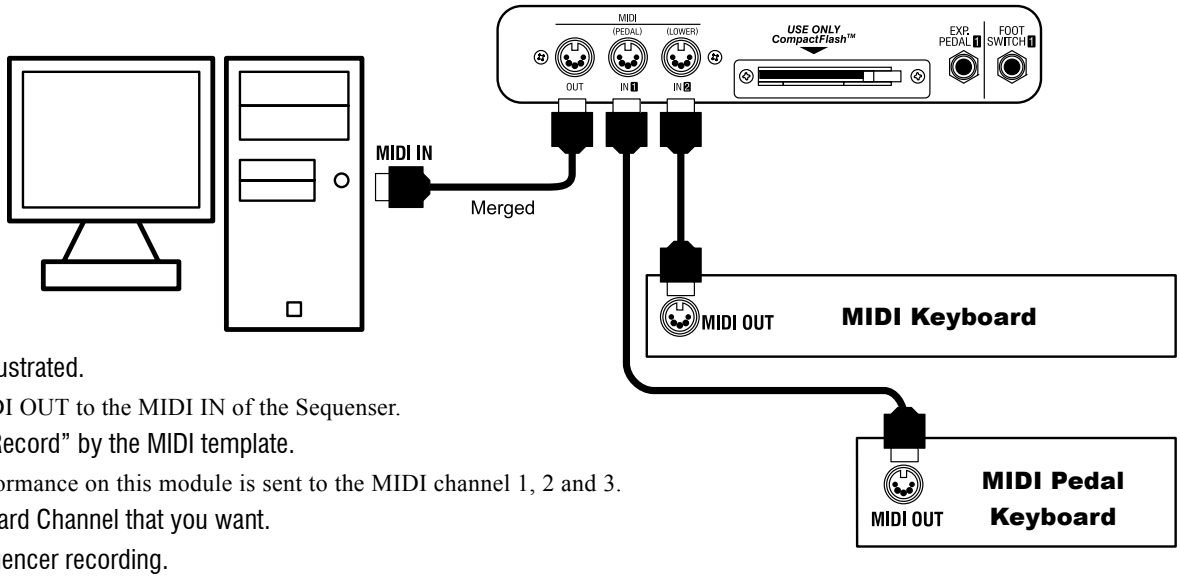
Also, if you send the Program Change by the LOWER Keyboard, the Preset of the LOWER Part will be switched.

The Manual Bass Function is effective on the Lower Keyboard instead of the Manual of itself.

❖ *Set OFF the poly-pressure sending function, if any, on the Lower Keyboard you use. Otherwise, it may cause abnormal sounds.*

This is the method to record and playback your performance, by connecting the Sequencer or Computer to your XK-3C.

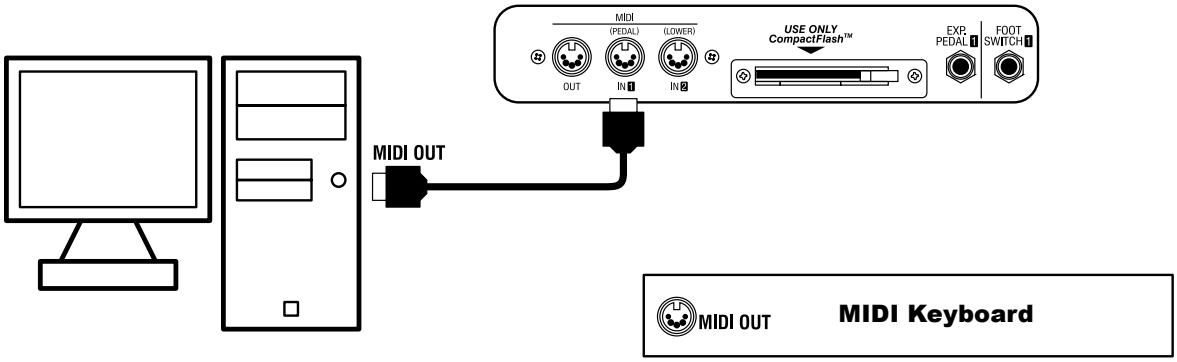
♦Recording to the Sequencer or the Computer



1. Hook up as illustrated.
   Connect the MIDI OUT to the MIDI IN of the Sequenser.
2. Recall “Seq. Record” by the MIDI template.
   By this, the performance on this module is sent to the MIDI channel 1, 2 and 3.
3. Set the Keyboard Channel that you want.
4. Start the Sequencer recording.
5. Send the Memory Dump that you want.
6. Start the playing.

NOTE: If the MIDI Keyboard is connected to the MIDI IN terminal of this keyboard, these performance information will be transmitted to each MIDI channel and sent out of the MIDI OUT terminal.

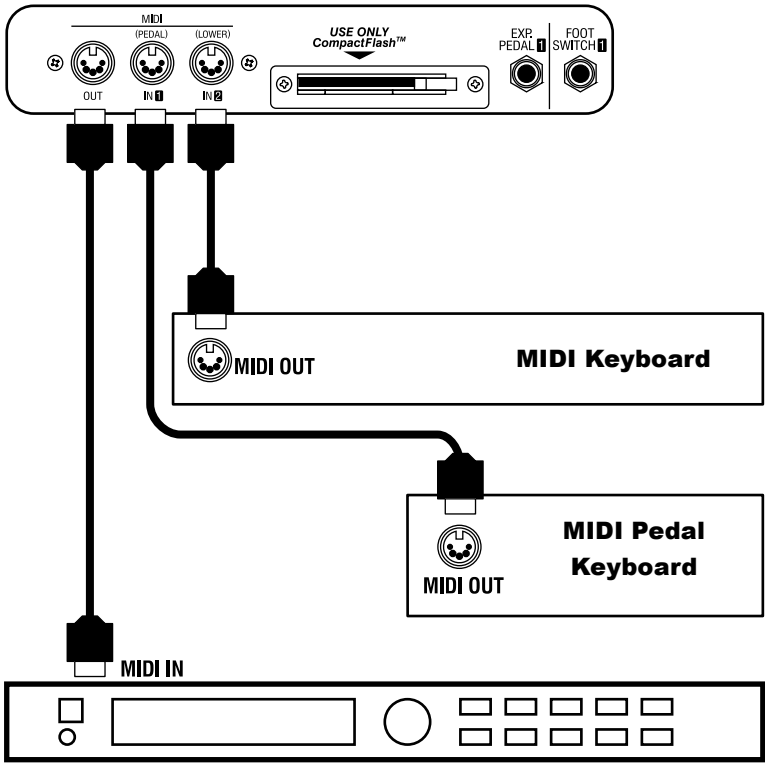
♦Playback from the Sequencer or the Computer



1. Hook up as illustrated above.
   If a MIDI keyboard is connected, unplug it and connect the MIDI OUT of the Sequencer to the MIDI IN of this keyboard.

2. Recall “Seq. Play” by the MIDI Template.
   By this, the messages received at the MIDI Channels 1, 2 and 3 are distributed to each Part.
3. Do the setting of the Keyboard Channel if necesary.
4. Starts Playback on the Sequencer.
   ❖ *Only the built-in sound source can be recorded. The control of the External Zone is not played back.*

You can control the External MIDI Equipment such as Sound Modules up to 3 (internal keyboard), 2 (external Lower keyboard), 1 (external Pedalboard) Zones by your XK-3C.



MIDI Sound Module

1. Hook up as shown above.

   Connect the MIDI OUT of this unit to the MIDI IN of the equipment you want to control.
   If necessary, connect the MIDI OUT of the Lower Keyboard to the MIDI IN 2 (LOWER) and the MIDI OUT of the Pedal Keyboard to the MIDI IN 1 (PEDAL) of this unit.

   ❖ *Set OFF the poly-pressure sending function, if any, on the Lower Keyboard you use. Otherwise, it may cause abnormal sounds.*

2. Recall the MIDI template "Use Ex. Zone" (without Lower and Pedal keyboard) or "Use Ex. w/3KBD" (with Lower and Pedal keyboard) (P. 96 #1).

   By this, the transmission of the Keyboard Channel stops and the infos. of the External Zone is sent from MIDI OUT.

3. Set the Zone, and the data that is to be recorded to the Combination Preset, if necessary.

   See "ZONES" on the next page for how to set the Zone.

tips **NOTE ON THE SOUNDING POINT**

The External Zone sounds at a little deeper point of the key than the Drawbar tone.
This is for outputting the velocity infos. to the External Zone.

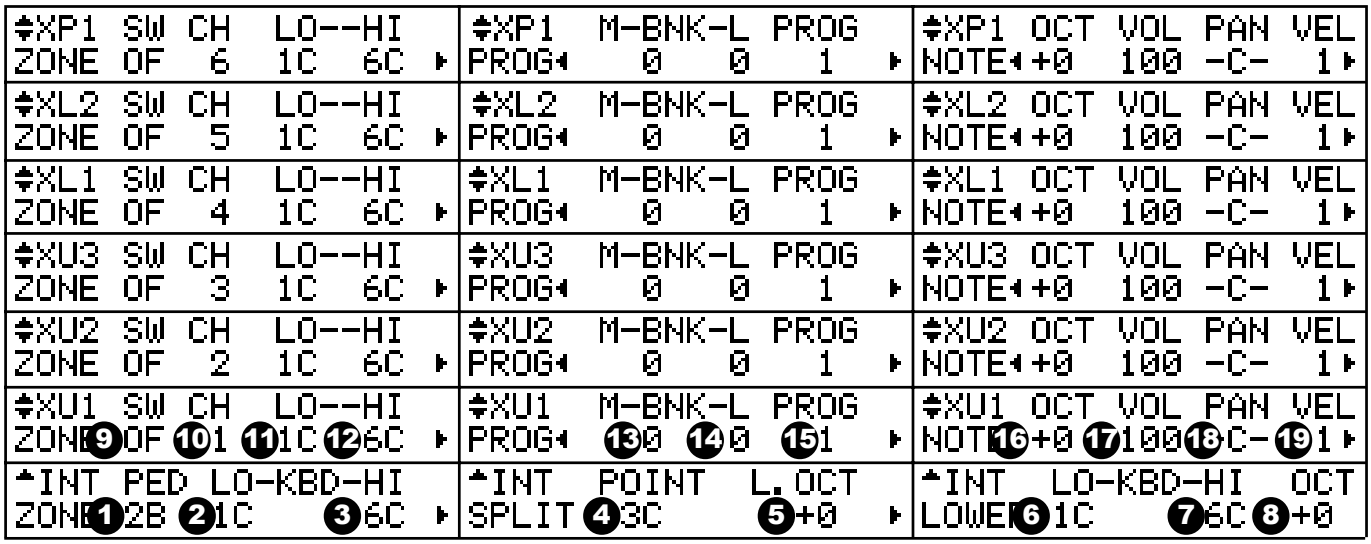
To control the external MIDI equipment, a certain range of the manual keyboard of this keyboard is used for that. Each of them is called the "EXTERNAL ZONE".

At the same time, you can set the oscillating range (= "INTERNAL ZONE") of the built-in sound engine and play it on the same single keyboard.

Also, each MIDI keyboard connected to the MIDI IN (LOWER and PEDAL) can control the MIDI equipment by the EXTERNAL ZONE.

To locate this mode:

Touch the [MENU/EXIT] button to display the MENU, select PAGE D by the [PAGE] button, and then touch [1] ZONES.



♦INTERNAL ZONE

1. PEDAL

2. INTERNAL KEYBOARD - LOW

3. INTERNAL KEYBOARD - HIGH

This is for setting the playing range of each part of the built-in sound engine by the internal keyboard.

Set the lowest note at LO and the upper most note at HI. The upper most function of the manual bass is set at PED.

4. SPLIT POINT

If you use the Split function, set the KEY on where to split the LOWER and the UPPER Parts on the keyboard.

The setting value is the highest note used in the LOWER Part.

NOTE: You can come to this mode by holding down the [SPLIT] button as well.

NOTE: For 1 to 4, you can set the value by touching the [REC/JUMP] button, while holding down a note on the keyboard.

5. LOWER OCTAVE

This is for setting the pitch of the split LOWER Part by the octave.

If you use the SPLIT function, the pitch of the LOWER Part may go down too low for the harmony play. In that case, you can move up the Lower octave up to the pitch suitable for harmony play.

6. LOWER KEYBOARD - LOW

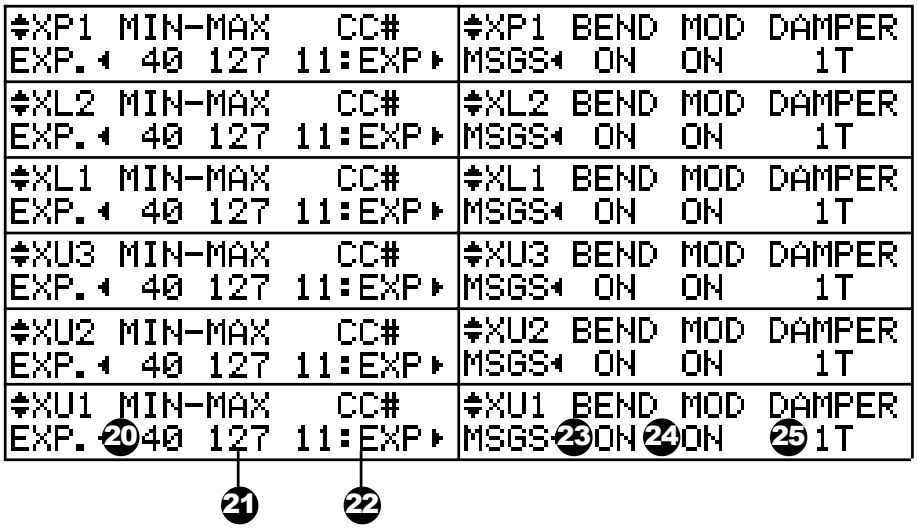
7. LOWER KEYBOARD - HIGH

In case the MIDI IN (P.96 #2) is "LOWER/PEDAL", this sets the tonal range for playing the built-in sound engine (LOWER PART and PEDAL PART by MANUAL BASS) by the Lower Keyboard. Set the lower limit note by LO and the higher limit note by HI.

8. LOWER KEYBOARD - OCTAVE

This shifts the note information by a octave for the built-in sound engine played by the Lower keyboard.

In case the built-in sound engine does not pronounce as a result of having set the playing range by the Lower Keyboard - Low/High (#6, 7), adjust it using this parameter. The setting range is from -2 to +2. The note does not sound, in case the shifted note information is out of the pronouncing range of the built-in sound engine.



♦EXTERNAL ZONE

3 EXTERNAL ZONES (XU1, 2, 3) are provided for the internal keyboard of this organ, 2 (XL1, 2) for the MIDI keyboard connected to the MIDI IN (LOWER) (hereinafter Lower Keyboard) and 1 (XP1) for the MIDI keyboard connected to the MIDI IN (PEDAL) (hereinafter Pedal Keyboard).

You must switch the MIDI IN mode to "LOWER/PEDAL", when you use the External Zones on the Lower Keyboard and the Pedal Keyboard (P. 96 #2).

9. SWITCH

This switch is set whether to send the MIDI message or not by this zone. It is sent when switched ON.

10. MIDI CHANNEL

This is for choosing the MIDI channel to send to the External Zone.

The range is 1 - 16.

11. MAP - LOW

12. MAP - HIGH

This is for setting the playing range of this zone on the keyboard. Set the lowest note by LO and the highest one by HI. To forbid the sending note data, set the "OFF" in the parameter HI.

NOTE: For 11 and 12, you can set the value by touching the [REC/JUMP] button, while holding down a note on the keyboard.

13. PROGRAM - BANK MSB

14. PROGRAM - BANK LSB

15. PROGRAM - BANK PROGRAM CHANGE

This is for setting the Bank Select and the Program Change to send to this Zone.

Generally, the tone of the synthesizer or the Sampler is switched by the Bank Select and the Program Change. There are such models as do not receive the Bank Select. The receiving range is different from equipment to equipment.

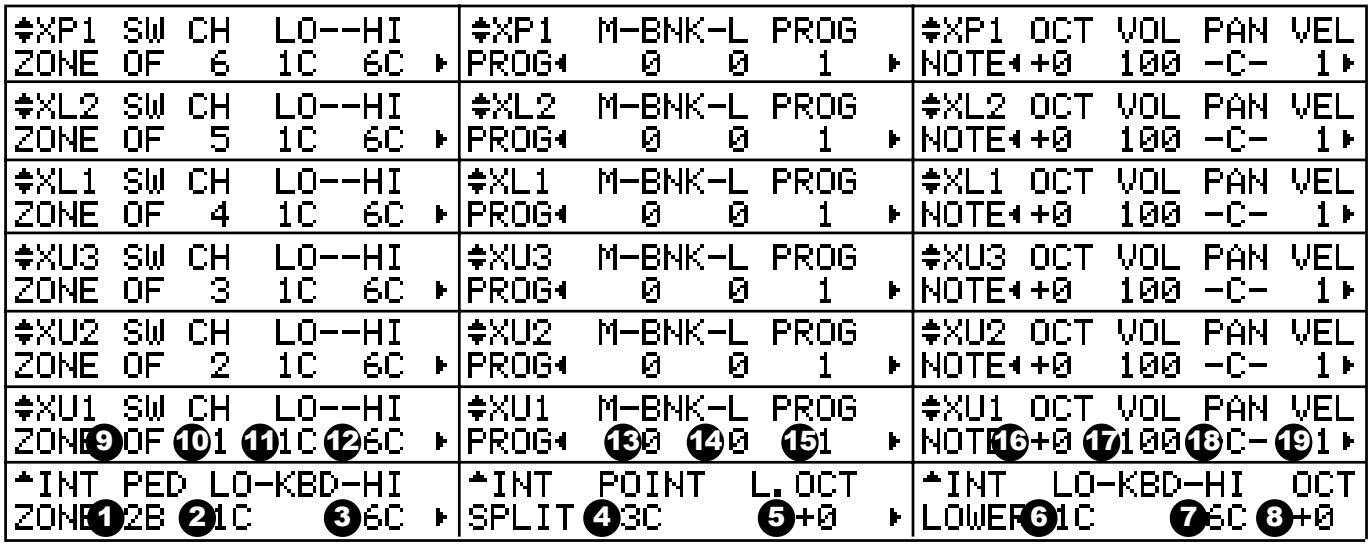
You can choose 0 - 127 in the Bank MSB and the Bank LSB, and 1 - 128 in the Program Change.

16. NOTE - OCTAVE

This is for moving the octave to send to this zone. You can set the pitch to be sent to the key by the octave, if the desired range is different from that prepared by MAP LO/HI.

17. 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 #22) is at "7.VOL".



18. NOTE - PAN

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

19. 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 more the value increases, the intense velocity is sent regardless how light the key is touched.

20. EXPRESSION - MINIMUM

21. EXPRESSION - MAXIMUM

This is for setting the range of the expression to "compress" to send to this Zone.

If the expression pedal is connected to this keyboard, generally, the electronic organ will sound, even when the expression pedal is fully returned or at 0.

With the GM sound engine, the sound does not come out at the same setting. This parameter is to balance it.

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

22. EXPRESSION - CONTROL NUMBER

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

There are various methods of the volume control, depending on the connected equipment. you can here set the number to nicely control the volume of the connected equipment by this parameter.

You can select 7:Vol or 11:EXP.

23. MESSAGE - PITCH BEND

24. MESSAGE - MODULATION

25. MESSAGE - DAMPER

This is for determining whether or not to send the control information to this zone.

For example, by using two zones, suppose you have set to sound the piano and sax by touching one key. The damper is effective on the piano but strange on sax. On the other hand, Pitch Bend is suitable for sax but not necessary for the piano. Now, you need to limit the message to send to each zone.

ON sends the message, but OF does not.

You can also select which footswitch to use for sending the damper.

OF:

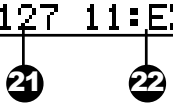
does not send the damper information.

1T, 1R 2:

each sends the damper information by the tip of the footswitch 1, ring, and EXP-100F.

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

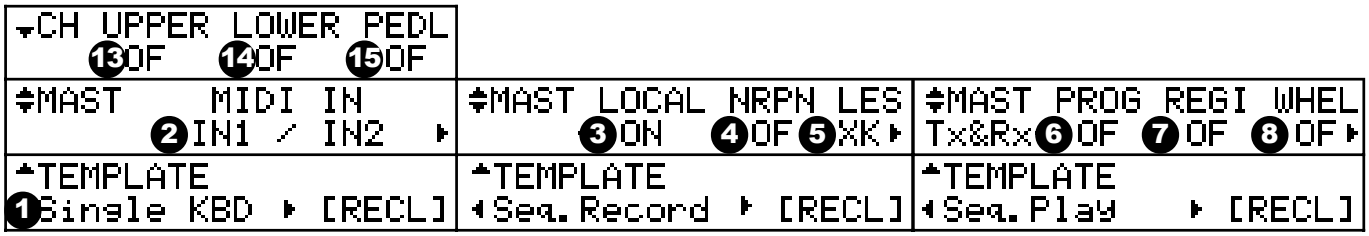
⇕XP1 MIN-MAX CC#	⇕XP1 BEND MOD DAMPER
EXP.◂ 40 127 11:EXP▸	MSGS◂ ON ON 1T
⇕XL2 MIN-MAX CC#	⇕XL2 BEND MOD DAMPER
EXP.◂ 40 127 11:EXP▸	MSGS◂ ON ON 1T
⇕XL1 MIN-MAX CC#	⇕XL1 BEND MOD DAMPER
EXP.◂ 40 127 11:EXP▸	MSGS◂ ON ON 1T
⇕XU3 MIN-MAX CC#	⇕XU3 BEND MOD DAMPER
EXP.◂ 40 127 11:EXP▸	MSGS◂ ON ON 1T
⇕XU2 MIN-MAX CC#	⇕XU2 BEND MOD DAMPER
EXP.◂ 40 127 11:EXP▸	MSGS◂ ON ON 1T
⇕XU1 MIN-MAX CC#	⇕XU1 BEND MOD DAMPER
EXP.◂ 40 127 11:EXP▸	MSGS◂ ON ON 1T



This is the mode to do the basic setting of the MIDI.

To locate this mode:

Touch the [MENU] button to display the MENU, select PAGE D by the [PAGE] button, and then touch the [2] MIDI button.



♦MIDI TEMPLATE

1. MIDI TEMPLATE

This is the mode for setting each function simply.

Typical settings can be recalled, by touching the [PARAM] button to select the usage and touching [4] RECL.

♦MASTER

2. MIDI IN

This is for setting the behavior of the two MIDI IN jacks.

LOWER / PEDAL:

- Each MIDI IN jack acts as a receiving terminal for the LOWER and PEDAL Parts, regardless of the channel (#13 - 15).
- This assigns the Manual Bass Function to the MIDI IN (LOWER) jack.
- The Split function will be disabled. (Disregard the [SPLIT] Button.)
- Input from each MIDI IN jack is resent by each of (#14, 15) keyboard channel and the external zone.
- The Combination Preset Lock will be effective to MIDI IN.

IN 1/IN 2:

- Each acts in accordance with each designated channel.
- Assigns the Manual Bass Function to the Manual Keyboard of this keyboard.
- The Pedal Part produces polyphonic sound, regardless of the value of the Key Mode (POLY/MONO).
- While the Combination Preset is locked, you can call out the Combination Preset by receiving the program change.

3. LOCAL

This is for switching ON/OFF the LOCAL CONTROL (internal).

If ON, the keyboard of this module and the sound engine are connected.

If OFF, the keyboard and the sound engine are cut off. The keyboard does not sound, if touched.

You can treat this module as if it was two different pieces of equipment: a MIDI keyboad and a Sound Module.

4. NRPN

This is for switching ON/OFF the transmission of (= send and return) NRPN (Non-Registered Parameter Number).

On this keyboard, it switches ON/OFF whether to send/receive the message of Drawbar Fold-Back, Leslie ON, etc.

When ON, the message is sent/received. When OFF, it is not.

5. LESLIE

This is for controlling how to send Leslie Parameters.

The Leslie Parameters sent on Upper Channel.

XK:

- The Leslie Parameters will be sent out on XK-3C original NRPN address and data.

21:

- The Leslie Parameters will be sent out for Leslie 21 series NRPN address and data.
- When the Cabinet Number is selected, the parameters are sent out also.

6. PROGRAM CHANGE

This is for switching the sending and receiving of the Program Change/Bank Select by the Keyboard Channel.

On this keyboard, this is for switching the Combination Preset using the Program Change and the Bank Select.

When ON, this does send/receive. When OFF, it will not.

7. REGISTRATION

This is for switching ON/OFF the Drawbar Registration send/receive at the Keyboard Channel.

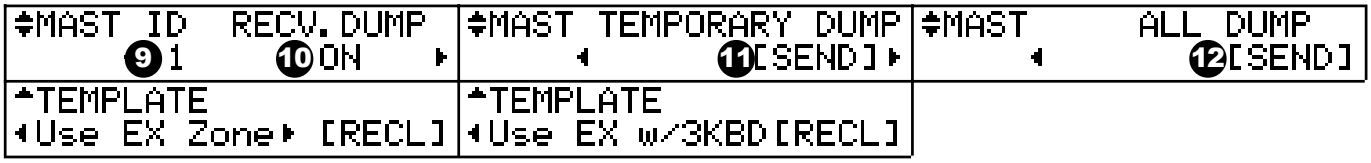
This is to select whether or not to send/return the information of the movement of each footage of the Drawbars.

When ON, it transmits/receives. When OFF, it does not.

8. WHEEL

This switches ON/OFF the Send/Receive of the Pitch Bend and Modulation information at the Keyboard Channel.

When ON, it transmits/receives. When OFF, it does not.



9. DEVICE ID

This sets the Device ID for sending/receiving the system exclusive messages such as Memory Dump.

The setting range is 1 - 32.

10. RECEIVE DUMP

This is for determining whether or not to receive the MEMORY DUMP.

On this module, you can transmit/receive the current settings by the System Exclusive Message as the MEMORY DUMP, but you must switch this OFF if you do not want the settings of this keyboard to be changed.

When ON, it receives. But at OF, it does not.

11. TEMPORARY DUMP

This is for sending the MEMORY DUMP.

If you touch [4] SEND in this page, this keyboard sends the whole TEMPORARY (= the current setting information) data from the MIDI OUT jack. This is for recording the TEMPORARY data to a external MIDI Sequencer.

12. ALL DUMP

This is for sending the MEMORY DUMP too.

If you touch [4] SEND in this page, this keyboard sends ALL data from the MIDI OUT jack. This is for recording the ALL data to a external MIDI Sequencer.

♦KEYBOARD CHANNEL

13. UPPER

14. LOWER

15. PEDAL

This is for setting which MIDI CHANNEL you use to send/receive each Part.

You can choose 1 - 16 and OF. If OF, nothing is sent/received.

❖ *To avoid confusion of the MIDI signals, be careful not to duplicate each MIDI channel, including the External Zone.*

NOTE: All the parameters in these modes are not recorded in to the Combination Presets. This is common with all Presets.

tips

DETAILS OF THE MIDI TEMPLATES

For the details at each Template's call out, refer to the Appendix.

tips **CONTENT OF TEMPORARY DUMP**

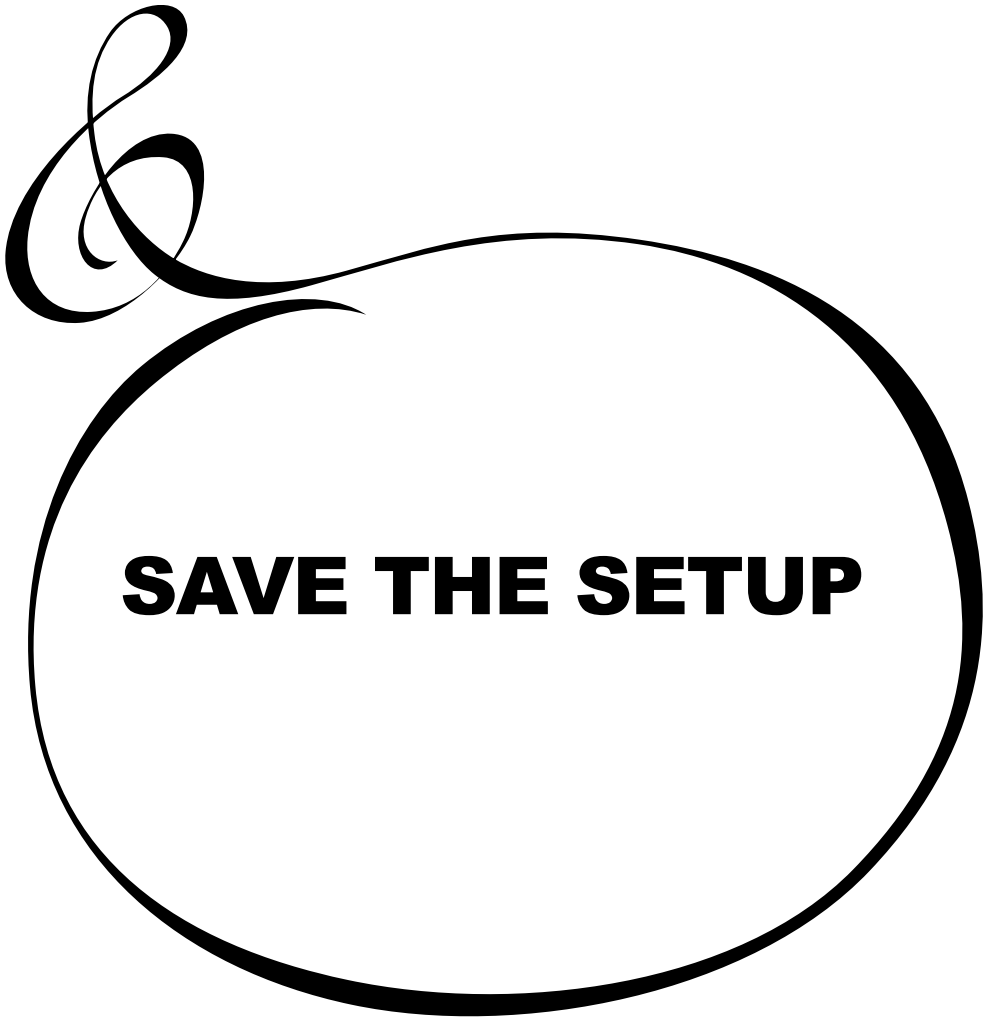
The PRESET Parameters, GLOBAL Parameters and SYSTEM Parameters of TEMPORARY (= the current status) are sent and received.

The content of each Combination Preset and that of each Leslie Cabinet is not sent or received.

To save these, you must use the ALL DUMP or CF card.

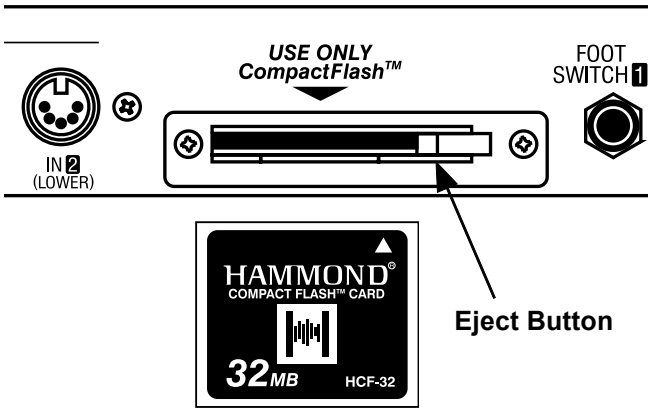
tips **THE "PANIC" FUNCTION**

When any trouble happens in the MIDI system, it sometimes causes sticking notes. In such a case, you can send the command messages "All Notes Off" and "Reset All Controllers" by touching the [BANK] button and the [REC/JUMP] button at the same time. This is called "Panic" function.



SAVE THE SETUP

On this keyboard you can save the setting of each Parameter as a file, into the CompactFlash™ card (hereinafter “CF card”).



CF CARD YOU CAN USE

The manufacturer recommends HCF-32 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 CONTENT AND CAPACITY TO BE SAVED

The CF card can save:

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

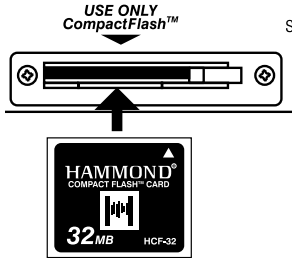
Also, this card can save/read out all of them as a whole by the unit called “SET-UP”. The capacity of one SET-UP is approximately 44 KB.

INITIALIZE THE CF CARD

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

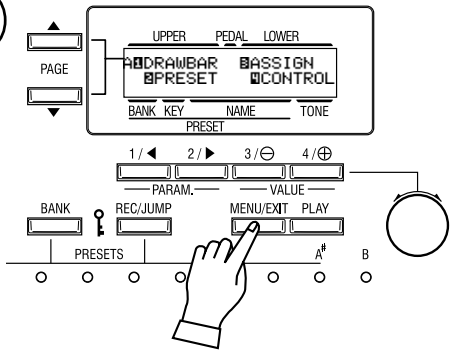
❖*This operation erases all data in the CF card.*

1



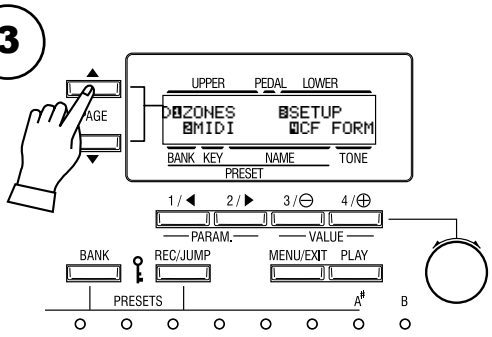
Insert the CF card into the slot.

2



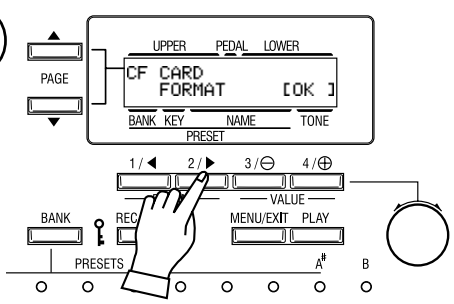
Touch the [MENU/EXIT] button.

3



Select PAGE D by the [PAGE] button.

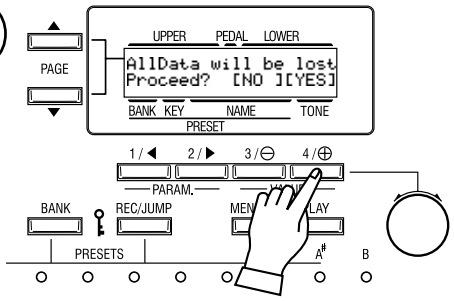
4



Touch [4] CF FORM.

The FORMAT mode is displayed.

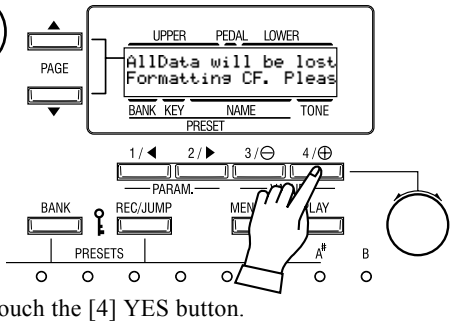
5



Touch the [4] OK button.

The Confirmation message is displayed.

6



Touch the [4] YES button.

The initialization starts. It takes only a few seconds.

NOTE: If you do not want to initialize, just touch the [3] NO button.

7

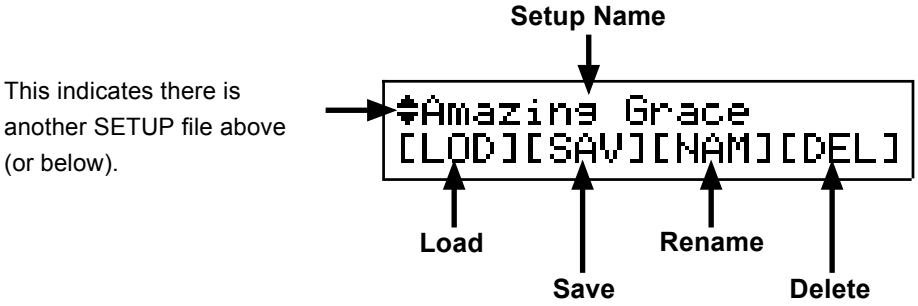
To return to the PLAY mode, touch [PLAY].

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:

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

HOW TO READ THE DISPLAY



SAVE THE SETUP

1

Check that the CF CARD is correctly inserted.

2

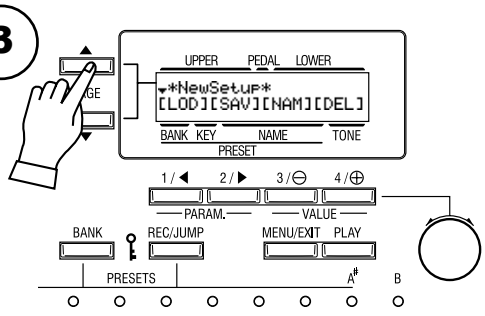
Go to the SETUP mode.

WHAT DOES THIS MEAN?

CF is not ready

The CF CARD is not correctly inserted.

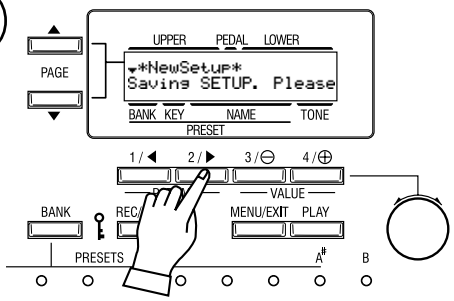
3



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 (= renewed).

4



Touch the [2] SAV button.
SAVE starts.

5

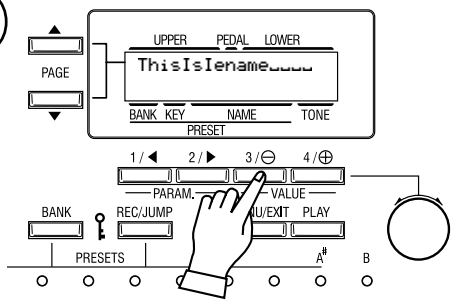
A temporary name is put to the saved SET UP “Setup xx” automatically.

CHANGE THE SETUP NAME

1

Select the SETUP file you want to change the name.

2



Touch the [3] NAM button. You have come to SETUP NAME INPUT mode.

3

Input the new SET UP NAME.

[PARAM] BUTTON

Move the cursor.

You can use up to 16 letters.

[VALUE] BUTTON

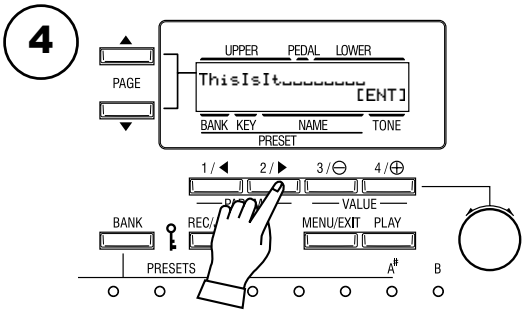
Choose the letters by this.

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

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

The [VALUE] knob can also be used to choose letters etc.

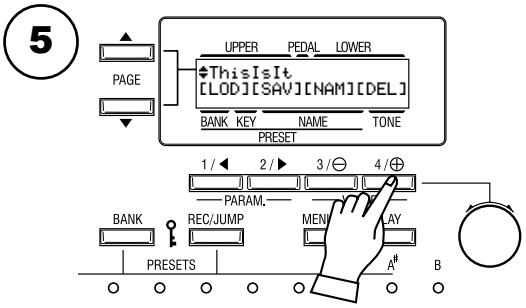
4



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

[ENT] will be displayed.

5



Touch the [4] ENT button.

The SETUP NAME will be changed.

LOADING THE SETUP

❖ *After the operation, the settings already in this keyboard will be replaced by the newly loaded SET UP. So you had better save them in advance.*

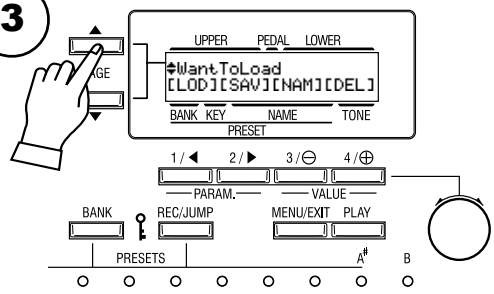
1

Check the CF card is correctly inserted.

2

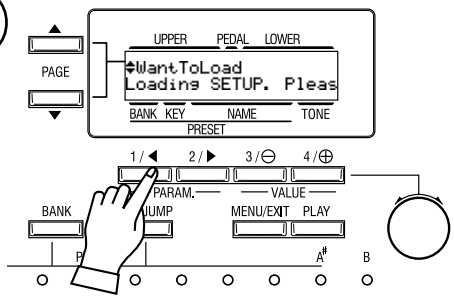
Come to the SETUP mode.

3



Choose the SETUP file to load by the [PARAM] button.

4



Touch the [1] LOD button.
The SETUP will be loaded in a few seconds.

HOW TO DELETE THE SETUP

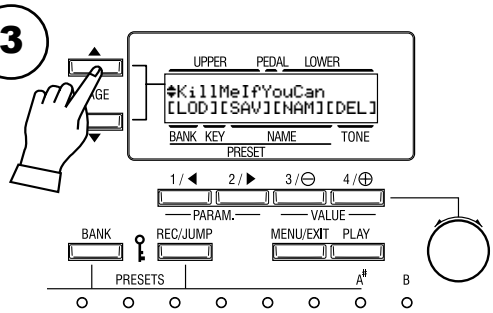
1

Check the CF card is correctly inserted.

2

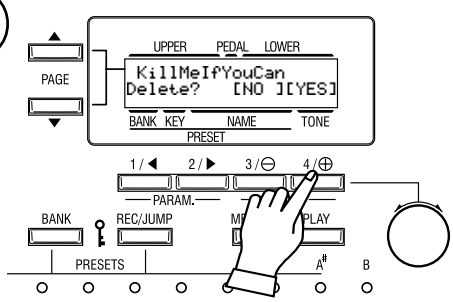
Come to the SETUP mode.

3



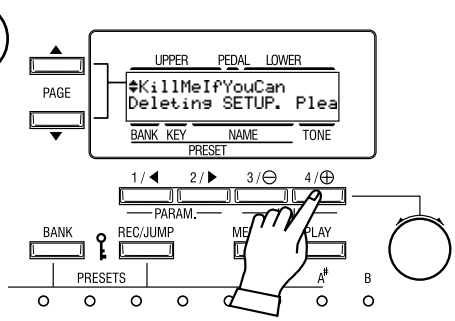
Choose the SETUP file you want to delete by the [PAGE] button.

4



Touch the [4] DEL button.
The Confirmation message will be displayed.

5



Touch the [4] YES button.
The Delete operation starts.

NOTE: If you do not want to delete the data, touch [3] NO button.

TROUBLE SHOOTING

♦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 [REC/JUMP] 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. 10 #1)
- The LOCAL CONTROL is set to OFF. Set the local control to ON. (P. 96 #3)
- The SEND terminal is plugged in. Use RETURN terminal for return signal. (P. 16)

♦Expression does not change.

- The EXPRESSION - SOURCE is not correctly set. Set the EXPRESSION - SOURCE in the "CONTROL" screen correctly. (P. 64 #10)

♦The Foot Switch does not work.

- The Foot Switch settings are not correct.
  Reset the Foot Switch correctly in the CONTROL mode. (P. 64 #16)

♦The sound is distorted.

- The sound is distorted not as the [TUBE OVERDRIVE] knob screen shows.
  If you are playing this keyboard using the Combination Preset, the actual value of the drive is different from the position of the knob.
  Switch OFF the [TUBE AMP] button, or, turn the [TUBE OVERDRIVE] knob to the left, to the point where it is not distorted. You can easily check the actual drive value by the [TUBE AMP]. (P. 39)
- Depending on the headphones you use, the sound is sometimes distorted when you turn the [MASTER VOLUME] to the maximum. In such a case, set the [MASTER VOLUME] in the middle.

♦The sound does not come out immediately after switched on.

- The [TUBE AMP] button is ON. A Vacuum Tube circuit is mounted in this keyboard. It takes approximately 10 to 20 seconds after the [TUBE AMP] button is switched ON before you will hear the sound.

♦The sound is not distorted if the [TUBE OVERDRIVE] knob is turned.

- When the Overdrive Expression is at "EX-OD", it does not distort if the value of Expression is low. In such a case, increase the Expression value, or set the Overdrive Expression at "OD-EX" if you want to distort regardless of the Expression value. (P. 78 #5)

♦How to set the Velocity:

- The built-in sound engine of this organ corresponds only to the velocity of the Percussion and the Pedal parts, and not to that of the Drawbars of the Upper or the Lower parts.
  Refer to P. 57 #14 for setting the Pedal part and P. 71 #6 for setting the Percussion.

♦How to transpose:

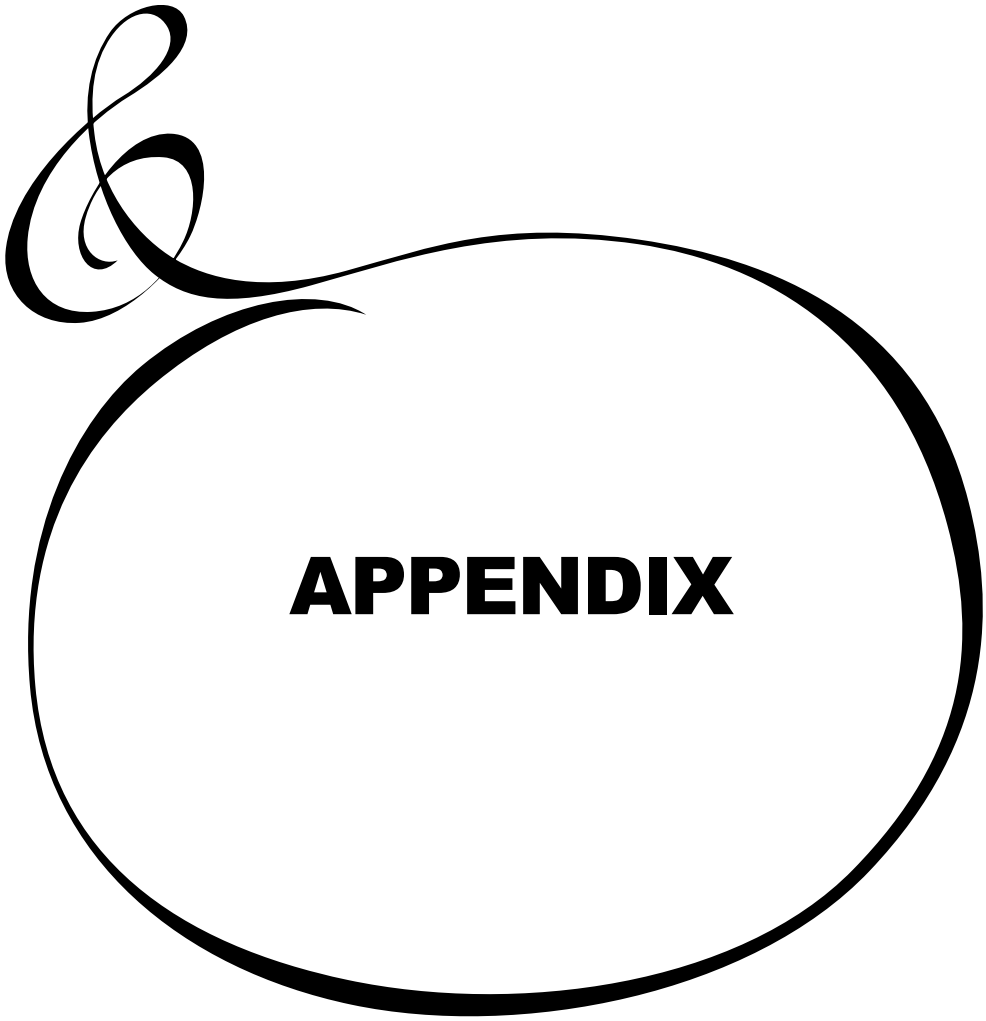
- You can transpose within the range of 6 upper and lower semitones, and change the Master-tune in the range of A = 430 - 450Hz.
  Refer to P. 67 for details.

♦The status of the External Speaker does not change, if switching ON the [BRAKE] button.

- Some Leslie Speaker models do not [BRAKE]. [BRAKE] is possible on 2101/2102, 122XB 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.
- Because the sounding systems must be switched between the Combination Presets with different values of the Percussion velocity, no sound comes out until another key is touched.



APPENDIX

Custom Tone-wheel Templates

BType1, BType2

Real B-3

This template faithfully simulates the classic model, B-3. It contains low motor hum and some leakage noise.

80's Clean

This template simulates the B-3 sounds in the 80's. It contains reduced leakage noise.

Noisy

This template is for passing all sounds of picked-up signal. It contains full motor hum and leakage noise.

Noisy 60

This template boosts noise sounds. It contains full motor hum and leakage noise.

Mellow

Full Flats

This template simulates the most ideal tone-wheel set. Their values are the same at each wheel.

Husky

This template has the characteristic of lower middle range.

Flute Lead

This template has the characteristic of lower bass and treble, contrasting "Husky".

Brite

Classic X-5

This template faithfully simulates the classic model, X-5. It contains dull triangle waveform and flat output levels on every wheel.

Voxy Full

This template has the most bright sounds. It is suitable for surfin' music.

Cheap Tr.s

This template simulates an old transistor organ. It contains insufficient bass and treble.

Saw

Farf. Norm

This template faithfully simulates the classic Farf. organ. It contains dull sawtooth waveform and flat output levels on every wheel.

Farf. Boost

This template has the most bright sounds of the templates.

Cheap Tr.s

This template simulates an old transistor organ. It contains insufficient bass and treble.

MIDI Templates

Template		Single KBD	Seq. Record	Seq. Play
MIDI In		In1 / In2	Lower / Pedal	In1 / In2
Messages	Local Control	On	On	On
	NRPN	On	On	On
	Program Chg.	On	On	On
	Registration	On	On	On
	Wheel	On	On	On
Transmit Channel	Upper Kbd.	1	1	1
	Lower Kbd.	2	2	2
	Pedal Kbd.	3	3	3
Control	Exp. Source	does not set	does not set	MIDI IN
		Use this template when you play only this unit by itself without extending keyboards.	Use this template for connecting the organ to an external MIDI sequencer without the "Echo Back" function, and recording songs.	Use this template for connecting the organ to an external MIDI sequencer for playing back songs.

Template		Use Ex.Zone	Use Ex. w/3KBD	Data Range
MIDI In		In1 / In2	Lower / Pedal	Lower / Pedal , In1 / In2
Messages	Local Control	On	On	Off/On
	NRPN	Off	Off	Off/On
	Program Chg.	On	On	Off/On
	Registration	Off	Off	Off/On
	Wheel	Off	Off	Off/On
Transmit Channel	Upper Kbd.	Off	Off	Off, 1 - 16
	Lower Kbd.	Off	Off	Off, 1 - 16
	Pedal Kbd.	Off	Off	Off, 1 - 16
Control	Exp. Source	does not set	does not set	Ped1, 100, MIDI IN
		Use this template for connecting the organ to an external MIDI sound generator, such as a synthesizer or a sound module, to play it from the organ.	Use this template for connecting the organ to an external MIDI sound generator, such as a synthesizer or a sound module, to play it from the organ with extended Lower and Pedal keyboards.	

[Hammond Combo Organ] Date: 13-Jul-2007
Model: XK-3C MIDI Implementation Chart Version: 1.0

Function		Transmitted	Recognized	Remarks
Basic	Default	Off	Off	
Channel	Changed	1 - 16	1 - 16	
	Default	3	3	
Mode	Messages	X	X	
	Altered	*****	X	
Note		12 - 120	36 - 96	
Number	: True Voice	*****	36 - 96	
Velocity	Note ON	O	O	
	Note OFF	X	X	
After	Key's	X	O*2	*2 receives as note message for
Touch	Ch's	X	X	Lower External Zones.
Pitch Bender		O	O	
	0, 32	O	O	Bank Select MSB, LSB
	1	O	O	Modulation
	6, 38	O	O	Data Entry MSB, LSB
	7	O	X	Volume
	10	O	X	Pan
	11	O	O	Expression
	12 - 20	X	O	Drawbar Reg. Upper
Control	21 - 29	X	O	Drawbar Reg. Lower
Change	33, 35	X	O	Drawbar Reg. Pedal
	48	O	O	Spring Shock
	64	O	O	Hold 1
	80, 81, 82	O	O	Drawbar Reg. U, L, P
	98, 99	O	O	NRPN LSB, MSB
	120	X	O	All Sound Off
	121	O	O	Reset All Controllers
	2 - 95	O	X	Assignable Controller
Program		O 0 - 127	O 0 - 127	
Change	: True #	*****	O 0 - 127	
System Exclusive		O	O	
System	: Song Position	X	X	
Common	: Song Select	X	X	
	: Tune	X	X	
System	: Clock	O	X	
Real Time	: Commands	O	X	
	: Local On/Off	X	X	
Aux	: All Notes Off	O	O	
Messages	: 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

Part and MIDI Messages

		External Zone (Tx. Only)	Upper Keyboard	Lower Keyboard	Pedal Keyboard
Note		O	O	O	O
Pitch Bend		O	O *1	X	O
Modulation	(1)	O	O	X	X
Volume, Pan	(7, 10)	O	X	X	X
Expression	(11)	O *2	O *3	X	X
Hold 1	(64)	O	O	O	O
Drawbar Reg.		X	CC#80, 12 - 20 (Upper), 21 - 29 (Lower), 33, 35 (Pedal)	CC#81	CC#82
Spring Shock	(48)	X	O	X	X
RPN	(100, 101)	X	X	X	X
NRPN	(98, 99)	X	O	X	X
All Notes Off	(123)	O	O	O	O
All Sounds Off	(120)	X	O *4	O *4	O *4
Reset All Ctrl.	(121)	O	O	O	O
After Touch		X	X	X	X
Bank Select	(0, 32)	Change voice each zone.	Combination Presets	X	X
Program Change				Lower/Pedal Presets	

*1: It works for both Upper and Lower.
*2: It works for each zone.
*3: It work for all parts (audio controlled).
*4: For Rx. only.

MIDI Information

[Channel Voice Message]

Note Off

Status	2nd Byte	3rd Byte	
8n	kk	vv	or
9n	kk	00	

n=MIDI Channel Number: 0 - F(Ch.1 - 16)
kk=Note Number: 00 - 7F(0 - 127)
vv=Velocity(disregard): 00 - 7F(0 - 127)

Note On

Status	2nd Byte	3rd Byte
9n	kk	vv

n=MIDI Channel Number: 0 - F(Ch.1 - 16)
kk=Note Number: 00 - 7F(0 - 127)
vv=Velocity: 00 - 7F(0 - 127)

Control Change

The value set by the Control Change is not reset even when Program Change messages etc. are received.

Bank Select

Status	2nd Byte	3rd Byte
Bn	00	mm
Bn	20	ll

n=MIDI Channel Number: 0 - F(Ch.1 - 16)
mm,ll=Bank Number: 00 00 - 7F 7F
Default Value = 00 00

This device process the Lower Byte (ll) of the Bank Number as 00. However, when you send the Bank Select, be sure to send both Upper Byte(mm) and Lower Byte(ll).
Until you send the Program Change, the Bank Select process is reserved.

Modulation

Status	2nd Byte	3rd Byte
Bn	01	vv

n=MIDI Channel Number: 0 - F(Ch.1 - 16)
vv=Modulation Depth: 00 - 7F

Volume

Status	2nd Byte	3rd Byte
Bn	07	vv

n=MIDI Channel Number: 0 - F(Ch.1 - 16)
vv=Volume: 00 - 7F(0 - 127)
Default Value = 64(100)

The volume message is used to set the volume balance of each Ex. zone.

Pan

Status	2nd Byte	3rd Byte
Bn	0A	vv

n=MIDI Channel Number: 0 - F(Ch.1 - 16)
vv=Pan: 00(Left) - 40(Center) - 7F(Right)
Default Value = 40(64)

Expression

Status	2nd Byte	3rd Byte
Bn	0B	vv

n=MIDI Channel Number: 0 - F(Ch.1 - 16)
vv=Expression: 00 - 7F(0 - 127)
Default Value = 7F(127)

Spring Shock

Status	2nd Byte	3rd Byte
Bn	30	vv

n=MIDI Channel Number: 0 - F(Ch.1 - 16)
vv=Any: 00 - 7F(0 - 127)

Hold 1

Status	2nd Byte	3rd Byte
Bn	40	vv

n=MIDI Channel Number: 0 - F(Ch.1 - 16)
vv=Control Value: 00 - 7F(0 - 127) 0-63 = Off, 64-127 = On

Program Change

Status	2nd Byte
Cn	pp

n=MIDI Channel Number: 0 - F(Ch.1 - 16)
pp=Program Number
Upper Channel: Change Combination Preset.
Lower Channel: Change Lower Preset only.

Pitch Bend Change

Status	2nd Byte	3rd Byte
En	ll	mm

n=MIDI Channel Number: 0 - F(Ch.1 - 16)
mm=Upper Byte
ll=Lower Byte 00 00(-8192) - 40 00(0) - 7F 7F(8191)

[Channel Mode messages]

All Sounds Off

Status	2nd Byte	3rd Byte
Bn	78	00

n=MIDI Channel Number: 0 - F(Ch.1 - 16)
When this message is received, all currently-sounding notes on the corresponding channel will be turned off immediately.

Reset All Controllers

Status	2nd Byte	3rd Byte
Bn	79	00

n=MIDI Channel Number: 0 - F(Ch.1 - 16)
When this message is received, the following controllers will be set to their reset values.

Controller	Reset Value
Pitch Bend Change	±0 (Center)
Modulation	0 (off)
Expression	127 (Maximum)
Hold 1	0 (off)
NRPN	unset; previously set data will not change

All Notes Off

Status	2nd Byte	3rd Byte
Bn	7B	00

n=MIDI Channel Number: 0 - F(Ch.1 - 16)
When All Notes Off is received, all notes on the corresponding channel will be turned off. However if Hold 1 is On, the sound will be continued until these are turned off.

NRPN MSB/LSB

Status	2nd Byte	3rd Byte	
Bn	63	mm	(MSB)
Bn	62	ll	(LSB)

n=MIDI Channel Number: 0 - F(Ch.1 - 16)
mm=Upper Byte of the Parameter Number designated by NRPN[MSB].
ll=Lower Byte of same[MSB].
The value set by NRPN is not reset even if "Program Change", "Reset All controllers", etc. are received.

Data Entry

Status	2nd Byte	3rd Byte	
Bn	06	mm	(MSB)
Bn	26	ll	(LSB)

n=MIDI Channel Number: 0 - F(Ch.1 - 16)
mm,ll=Value for the Parameter designated by NRPN.

Drawbar Data List 1

Control number: Upper 50h(80)
Lower 51h(81)
Pedal 52h(82)

Data Map:

	Upper/Lower									Pedal	
Level	16'	5 1/3'	8'	4'	2 2/3'	2'	1 3/5'	1 1/3'	1'	16'	8'
0	00h(0)	09h(9)	12h(18)	1Bh(27)	24h(36)	2Dh(45)	36h(54)	3Fh(63)	48h(72)	00h(0)	09h(9)
1	01h(1)	0Ah(10)	13h(19)	1Ch(28)	25h(37)	2Eh(46)	37h(55)	40h(64)	49h(73)	01h(1)	0Ah(10)
2	02h(2)	0Bh(11)	14h(20)	1Dh(29)	26h(38)	2Fh(47)	38h(56)	41h(65)	4Ah(74)	02h(2)	0Bh(11)
3	03h(3)	0Ch(12)	15h(21)	1Eh(30)	27h(39)	30h(48)	39h(57)	42h(66)	4Bh(75)	03h(3)	0Ch(12)
4	04h(4)	0Dh(13)	16h(22)	1Fh(31)	28h(40)	31h(49)	3Ah(58)	43h(67)	4Ch(76)	04h(4)	0Dh(13)
5	05h(5)	0Eh(14)	17h(23)	20h(32)	29h(41)	32h(50)	3Bh(59)	44h(68)	4Dh(77)	05h(5)	0Eh(14)
6	06h(6)	0Fh(15)	18h(24)	21h(33)	2Ah(42)	33h(51)	3Ch(60)	45h(69)	4Eh(78)	06h(6)	0Fh(15)
7	07h(7)	10h(16)	19h(25)	22h(34)	2Bh(43)	34h(52)	3Dh(61)	46h(70)	4Fh(79)	07h(7)	10h(16)
8	08h(8)	11h(17)	1Ah(26)	23h(35)	2Ch(44)	35h(53)	3Eh(62)	47h(71)	50h(80)	08h(8)	11h(17)

ex: Set Lower 8' to level 7 via MIDI... Bx 51 19 *(x=Lower Channel)*

Drawbar Data List 2

Data Map:

	Control Number								
Part	16'	5 1/3'	8'	4'	2 2/3'	2'	1 3/5'	1 1/3'	1'
Upper	0Ch(12)	0Dh(13)	0Eh(14)	0Fh(15)	10h(16)	11h(17)	12h(18)	13h(19)	14h(20)
Lower	15h(21)	16h(22)	17h(23)	18h(24)	19h(25)	1Ah(26)	1Bh(27)	1Ch(28)	1Dh(29)
Pedal	21h(33)	-	23h(35)	-	-	-	-	-	-

	Level								
	0	1	2	3	4	5	6	7	8
Value	00 - 0Fh 0 - 15	10 - 1Fh 16 - 31	20 - 2Fh 32 - 47	30 - 3Fh 48 - 63	40 - 4Fh 64 - 79	50 - 5Fh 80 - 95	60 - 6Fh 96 - 111	70 - 7Eh 112- 126	7Fh 127

ex: Set Lower 8' to level 7 via MIDI... Bx 17 70 *(x=Upper Channel)*

System Exclusive Message

Current Dump/Global Dump

1.Each Packet

F0	System Exclusive
55	SUZUKI ID
dd	Device ID
10	Model ID MSB
19	Model ID LSB
11	Command: Data Packet
[TYPE]	Data Type 02h= All Data Dump 07h= Combi. Temp. Dump 08h= Lower Temp. Dump 09h= Global Dump 0Ah= System Dump
[PNH]	Packet Number MSB
[PNL]	Packet Number LSB
[DATA]	128 Bytes Data 256 Bytes nibblized ASCII ex: 7Eh = 37h, 45h
[CHD]	Check Digit Lower 7 bits of XOR [DATA]
F7	End of Exclusive

2.Acknowledge

F0	System Exclusive
55	SUZUKI ID
dd	Device ID
10	Model ID MSB
19	Model ID LSB
14	Command: Acknowledge
[TYPE]	Data Type
[AK]	Result: 00h=OK 05h=Check Digit Error 06h=Receive Protected
[PNH]	Packet Number MSB
[PNL]	Packet Number LSB
F7	End of Exclusive

3. # of Packets

All Data Dump: 709
Combi. Temp. Dump: 3
Lower Temp. Dump: 2
Global Dump: 3
System Dump: 1

Dump Request (Rx. only)

F0	System Exclusive
55	SUZUKI ID
dd	Device ID
10	Model ID MSB
19	Model ID LSB
12	Command: Dump Request
[TYPE]	Data Type 02h= All Data Dump 07h= Combi. Temp. Dump 08h= Lower Temp. Dump 09h= Global Dump 0Ah= System Dump
F7	End Of Exclusive

Mode Setting Exclusive Message

Full Parameters Reset (Rx. only)

F0	System Exclusive
55	SUZUKI ID
dd	Device ID
42	Model ID for DT1
12	Command: DT1
40	Address MSB
00	Address
7F	Address LSB
7F	Reset
42	Check Sum
F7	End of Exclusive

NRPN Switch

F0	System Exclusive
55	SUZUKI ID
dd	Device ID
10	Model ID MSB
19	Model ID LSB
02	Command: NRPN Sw.
[DATA]	00h=Off, 7Fh=On
F7	End Of Exclusive

When this device receives this message, switch Tx&Rx NRPN in Control channel.

Data Set (Rx. only)

F0	System Exclusive
55	SUZUKI ID
dd	Device ID
10	Model ID MSB
19	Model ID LSB
13	Command: Data Set
aa	Address MSB
bb	Address
cc	Address LSB
[DATA]	Data (Flexible bytes)
F7	End Of Exclusive

Identity Reply (Tx. only)

F0	System Exclusive
7E	Universal non real-time
dd	Device ID
06	Sub ID #1
02	Sub ID #2
55	SUZUKI ID
00 10	Device Family code
00 19	Device Family number
00 00	
00 00	
F7	End Of Exclusive

When Identity Request is received, Identity Reply will be transmitted.

Identity Request (Rx. only)

F0	System Exclusive
7E	Universal non real-time
dd	Device ID
06	Sub ID #1
01	Sub ID #2
F7	End Of Exclusive

Global Parameters

Category	Global Parameters									
	Parameter	NRPN LSB (62)	NRPN MSB (63)	SysEx Address MSB	SysEx Address	SysEx Address LSB	SysEx Length	Data	Default	Description
Tune	Transpose	01	00	00	01	00	01	3A - 40 - 46 (-6 - 0 - 6)	40	0
	Master Tune	01	02	00	01	02	02	032E - 0338 - 0342 (430 - 440 - 450)	0338	440
Expression	Source	02	00	00	02	00	01	00 - 03 00: Exp. Pedal 1 (Normal) 01: Exp. Pedal 1 (Reverse) 02: EXP-100 03: MIDI IN	02	EXP-100
	Min. Level	02	08	00	02	08	01	00 - 09 (Off, -40dB - 0dB)	06	-35dB
	Min. Limit LF	02	09	00	02	09	01	00 - 08 (Off, -40dB - -5dB)	05	-20dB
	Min. Limit HF	02	0A	00	02	0A	01		03	-30dB
Foot Switch	FS1 Device	02	01	00	02	01	01	00 - 01 (Foot Sw, CU-1)	00	Foot Sw
	Mode FS1 Tip	02	02	00	02	02	01	00 - 09 00: Off 01: Leslie Fast(alternate) 02: Leslie Fast(momentarily) 03: Damper Upper 04: Damper Lower 05: Damper Pedal 06: Preset Fwd. 07: Preset Rev. 08: Spring Shock 09: Delay Time	01	Leslie Fast (alternate)
	Mode FS1 Ring	02	03	00	02	03	01		01	Leslie Fast (alternate)
	Mode FS2	02	04	00	02	04	01		01	Leslie Fast (alternate)
Tone Knob	Mode	02	05	00	02	05	01	00 - 03 (Bass / Mid / Treble / Tone)	03	Tone
Drawbar Knob	Mode	02	06	00	02	06	01	00 - 01 00: Upper / Lower 01: A# / B	00	Upper / Lower
User Switch	Mode	02	07	00	02	07	01	00 - 07 00: Pedal Sustain 01: Lower Octave 02: Leslie Brake 03: Leslie On 04: Leslie Fast 05: Vibrato Upper 06: Vibrato Lower 07: Leslie On Reverb	00	Pedal Sustain
Combi. Preset Load	Link Lower/Pedal(Link L/P)	50	00	00	50	00	01	00, 01 (Off/On)	01	On
	Upper Regist. (UK)	6b	00	00	6b	00	01	00, 01 (Off/On)	01	On
	Split, ManBs (INT)	6b	01	00	6b	01	01	00, 01 (Off/On)	01	On
	External Zone (EXT)	6b	02	00	6b	02	01	00, 01 (Off/On)	01	On
	Reverb, Equalizer (RV/EQ)	6b	03	00	6b	03	01	00, 01 (Off/On)	01	On
	Leslie, Vibrato (ANI/OD)	6b	04	00	6b	04	01	00, 01 (Off/On)	01	On
	Drawbar (DRAWB)	6b	05	00	6b	05	01	00, 01 (Off/On)	01	On
	Percussion (PERCUS)	6b	06	00	6b	06	01	00, 01 (Off/On)	01	On
	Assignable (KNOB&BTN)	6b	08	00	6b	08	01	00, 01 (Off/On)	01	On

b: Bank Number
00 - 0B (C - B)

Example Set transpose 0 via NRPN... Bx 62 01 63 00 06 40 (x = Upper channel)
Set transpose 0 via SysEx... F0 55 dd 10 19 13 00 01 00 40 F7 (dd=Device ID)

Preset Parameters

Category	Combination Preset Parameters								
	Parameter	NRPN		SysEx Address			SysEx Length	Data	P. load
		LSB (62)	MSB (63)	MSB		LSB			
Name	10 Characters	--	--	01	00	00	0A	7 bit ASCII	always
Drawbar Effect	Leslie On	09	00	01	09	00	01	00, 01 (Off/On)	ANI/OD
	Leslie Fast	09	01	01	09	01	01	00, 01 (Slow/Fast)	
	Leslie Brake	09	06	01	09	06	01	00, 01 (Through / Brake)	
	Leslie Cabinet	09	07	01	09	07	01	00 - 07 (1 - 8)	
	Leslie Mod. Ctrl	09	08	01	09	08	01	00 - 02 (Off, Speed Fast)	
	Vibrato On Upper	09	02	01	09	02	01	00, 01 (Off/On)	ANI/OD
	Vibrato On Lower	09	17	01	09	17	01	00, 01 (Off/On)	
	Vibrato Mode	09	03	01	09	03	01	00 - 05 (V1 - C3)	
	Vibrato Rate	09	04	01	09	04	01	00 - 04 (6.1 - 7.25Hz)	
	Vibrato Tremolo	09	15	01	09	15	01	00 - 0F (0 - 15)	
	Vibrato Cho. Emphasis	09	16	01	09	16	01	00 - 09 (0 - 9)	
	Vibrato Depth V1	09	0F	01	09	0F	01	00 - 0F (0 - 15)	
	Vibrato Depth V2	09	10	01	09	10	01	00 - 0F (0 - 15)	
	Vibrato Depth V3	09	11	01	09	11	01	00 - 0F (0 - 15)	
	Vibrato Depth C1	09	12	01	09	12	01	00 - 0F (0 - 15)	
	Vibrato Depth C2	09	13	01	09	13	01	00 - 0F (0 - 15)	
	Vibrato Depth C3	09	14	01	09	14	01	00 - 0F (0 - 15)	
	OD On	09	09	01	09	09	01	00, 01 (Off/On)	ANI/OD
	OD Preamp Type	09	0A	01	09	0A	01	00 - 03 (S-U7, X7, D-UX, XU)	
	OD Drive Level Master	09	05	01	09	05	01	00 - 3F (0 - 63)	
	OD Blend Master	09	0B	01	09	0B	01	00 - 3F (0 - 63)	
	OD Exp. Ctrl	09	0C	01	09	0C	01	00, 01 (Off/On)	
	OD Crossover Freq	09	0D	01	09	0D	01	00 - 05 (125 - 800Hz)	
	OD Bias U	09	18	01	09	18	01	00 - 3F (-32 - +31)	
	OD Bias X	09	19	01	09	19	01	00 - 3F (-32 - +31)	
	EQ Bass Gain	0A	00	01	0A	00	01	00 - 09 - 12 (-9 - 0 - +9 dB)	EQ/REV
	EQ Mid Gain	0A	01	01	0A	01	01	00 - 09 - 12 (-9 - 0 - +9 dB)	
	EQ Treble Gain	0A	02	01	0A	02	01	00 - 09 - 12 (-9 - 0 - +9 dB)	
	EQ Mid Freq	0A	03	01	0A	03	01	00 - 0A (480 - 2.9kHz)	
	EQ Tone	0A	0B	01	0A	0B	01	00 - 09 - 12 (-9 - 0 - +9)	
	Reverb On	0A	04	01	0A	04	01	00, 01 (Off/On)	EQ/REV
	Reverb Type	0A	05	01	0A	05	01	00 - 09 00: Room 1 01: Room 2 02: Live House 03: Hall 1 04: Hall 2 05: Church 06: Plate 07: Delay 08: Pannning Delay 09: Reverb + Delay	
	Reverb Depth	0A	06	01	0A	06	01	00 - 0F (0 - 15)	
	Reverb Time	0A	07	01	0A	07	01	00 - 1F (0 - 31)	
	Reverb Delay Feedback	0A	08	01	0A	08	01	00 - 1F (0 - 96%)	
	Reverb Delay Time	0A	09	01	0A	09	01	00 - 44 (4.7 - 2000ms)	
	Leslie On Reverb	0A	0A	01	0A	0A	01	00, 01 (Off/On)	

Category	Combination Preset Parameters								
	Parameter	NRPN LSB (62)	NRPN MSB (63)	SysEx Address MSB	SysEx Address	SysEx Address LSB	SysEx Length	Data	P. load
Internal Zone	Split On	07	00	01	07	00	01	00, 01 (Off/On)	INT
	Manual Bass On	07	01	01	07	01	01	00, 01 (Off/On)	
	Internal Key Range Low	07	02	01	07	02	01	24 - 60	
	Internal Key Range High	07	03	01	07	03	01	24 - 60	
	ManBs. Key Range High	07	04	01	07	04	01	24 - 60	
	Split Point	07	05	01	07	05	01	24 - 50	
	Split Lower Octave	07	06	01	07	06	01	00, 01 (0, +1)	
	Lower Key Range Low	07	07	01	07	07	01	24 - 60	
	Lower Key Range High	07	08	01	07	08	01	24 - 60	
	Lower Key Octave	07	09	01	07	09	01	3E - 40 - 42 (-2 - 0 - +2)	
External Zone	Switch	4p	10	01	4p	10	01	00, 01 (Off/On)	EXT Link L/P (Lower1, Lower2, Pedal)
	Channel	4p	00	01	4p	00	01	00 - 10 (1 - 16, Off)	
	Bank MSB	4p	01	01	4p	01	01	00 - 7F	
	Bank LSB	4p	02	01	4p	02	01	00 - 7F	
	Program Change	4p	03	01	4p	03	01	00 - 7F	
	Octave Shift	4p	0A	01	4p	0A	01	3E - 40 - 42 (-2 - 0 - +2)	
	Volume	4p	04	01	4p	04	01	00 - 7F	
	Pan	4p	05	01	4p	05	01	00 - 40 - 7F (Left - Center - Right)	
	Vel. Curve	4p	06	01	4p	06	01	00 - 04 (Off, Normal - Easy)	
	Exp. Min	4p	08	01	4p	08	01	00 - 3F (0 - 63)	
	Exp. Max	4p	09	01	4p	09	01	40 - 7F (64 - 127)	
	Exp. CC#	4p	07	01	4p	07	01	00, 01 (7, 11)	
	Tx. Bend On	4p	0B	01	4p	0B	01	00, 01 (Off/On)	
	Tx. Modulation On	4p	0C	01	4p	0C	01	00, 01 (Off/On)	
	Tx. Damper Source	4p	0D	01	4p	0D	01	00 - 03 (Off, 1T, 1R, 2)	
	Key Range Low	4p	0E	01	4p	0E	01	Upper 1 - Upper 3: 24 - 60 (36 - 96) Lower 1 - Pedal: 15 - 6C (21 - 108)	
	Key Range High	4p	0F	01	4p	0F	01	Upper 1 - Upper 3: 24 - 61 (36 - 96, Off) Lower 1 - Pedal: 15 - 6D (21 - 108, Off)	
								p: Zone Number *00 - 05* *(Upper 1 - Pedal)*	

Category	Combination Preset Parameters								
	Parameter	NRPN LSB (62)	NRPN MSB (63)	SysEx Address MSB	SysEx Address	SysEx Address LSB	SysEx Length	Data	P. load
Assignable Controller	Knob U1	10	00	01	10	00	01	00 - 6C (Functions)	ASSIGN
	Knob U2	10	01	01	10	01	01	00 - 6C (Functions)	
	Knob U3	10	02	01	10	02	01	00 - 6C (Functions)	
	Knob L1	10	03	01	10	03	01	00 - 6C (Functions)	
	Knob L2	10	04	01	10	04	01	00 - 6C (Functions)	
	Knob P	10	05	01	10	05	01	00 - 6C (Functions)	
	Button U1	10	06	01	10	06	01	00 - 09 (Functions)	
	Button U2	10	07	01	10	07	01	00 - 09 (Functions)	
	Button U3	10	08	01	10	08	01	00 - 09 (Functions)	
	Button L1	10	09	01	10	09	01	00 - 09 (Functions)	
	Button L2	10	0A	01	10	0A	01	00 - 09 (Functions)	
	Button P	10	0B	01	10	0B	01	00 - 09 (Functions)	

Category	Combination Preset Parameters								
	Parameter	NRPN		SysEx Address			SysEx	Data	P. load
		LSB (62)	MSB (63)	MSB		LSB	Length		
Upper/ Lower Drawbar Voice	Tone-wheel Set	20	00	01	20	00	01	00 - 04 00: B-Type1 01: B-Type2 02: Mellow 03: Brite 04: Sawtooth	
	Drawbar Click Attack	20	01	01	20	01	01	00 - 0F (0 - 15)	
	Drawbar Click Release	20	02	01	20	02	01	00 - 0F (0 - 15)	
	Fold Back Low	20	05	01	20	05	01	00 - 0C (C1 - C2)	
	Fold Back High	20	06	01	20	06	01	2B - 30 (G4 - C5)	
	Bend Range Down	20	07	01	20	07	01	00 - 18 (0 - 24)	DRAWB
	Bend Range Up	20	08	01	20	08	01	00 - 0C (0 - 12)	
	Bend Mode	20	0A	01	20	0A	01	00 - 01 (Bend / Motor)	
	Bend Time	20	0B	01	20	0B	01	00 - 31 (0.1 - 5.0s)	
	Bend Amplitude	20	0C	01	20	0C	01	00 - 01 (Off/On)	
	Drawbar Click LPF	20	09	01	20	09	01	00 - 7F (0 - 127)	
	Custom TW B-Type 1	20	0D	01	20	0D	01	00 - 04 (1 - 5)	
	Custom TW B-Type 2	20	0E	01	20	0E	01	00 - 04 (1 - 5)	
	Custom TW Mellow	20	0F	01	20	0F	01	00 - 04 (1 - 5)	
	Custom TW Brite	20	10	01	20	10	01	00 - 04 (1 - 5)	
	Custom TW Sawtooth	20	11	01	20	11	01	00 - 04 (1 - 5)	
Percussion Voice	Second On	08	00	01	08	00	01	00, 01 (Off/On)	
	Third On	08	01	01	08	01	01	00, 01 (Off/On)	
	Decay Fast	08	02	01	08	02	01	00, 01 (Off/On)	
	Soft	08	03	01	08	03	01	00, 01 (Off/On)	
	Level Soft	08	04	01	08	04	01	00 - 0F (1 - 16)	
	Level Normal	08	05	01	08	05	01	00 - 0F (1 - 16)	
	Decay Fast	08	06	01	08	06	01	00 - 09 (1 - 9, C)	PERCUS
	Decay Slow	08	07	01	08	07	01	00 - 09 (1 - 9, C)	
	Touch	08	08	01	08	08	01	00, 01 (Off/On)	
	Velocity	08	09	01	08	09	01	00, 01 (Off/On)	
	Key Track	08	0A	01	08	0A	01	00, 01 (Off/On)	
	Drawbar 1' Cancel	08	0B	01	08	0B	01	00, 01 (Off/On)	
	Drawbar Level	08	0C	01	08	0C	01	00, 01 (0, -3dB)	
Upper Drawbars	16'	--	--	01	01	00	01	00 - 08 (0 - 8)	
	5 1/3'	--	--	01	01	01	01	00 - 08 (0 - 8)	
	8'	--	--	01	01	02	01	00 - 08 (0 - 8)	
	4'	--	--	01	01	03	01	00 - 08 (0 - 8)	
	2 2/3'	--	--	01	01	04	01	00 - 08 (0 - 8)	UPPER
	2'	--	--	01	01	05	01	00 - 08 (0 - 8)	
	1 3/5'	--	--	01	01	06	01	00 - 08 (0 - 8)	
	1 1/3'	--	--	01	01	07	01	00 - 08 (0 - 8)	
	1'	--	--	01	01	08	01	00 - 08 (0 - 8)	

Category	Lower Preset Parameters							
	Parameter	NRPN LSB (62)	NRPN MSB (63)	SysEx Address MSB	SysEx Address LSB	SysEx Length	Data	P. load
Lower Drawbars	16'	--	--	01	02 00	01	00 - 08 (0 - 8)	Link L/P
	5 1/3'	--	--	01	02 01	01	00 - 08 (0 - 8)	
	8'	--	--	01	02 02	01	00 - 08 (0 - 8)	
	4'	--	--	01	02 03	01	00 - 08 (0 - 8)	
	2 2/3'	--	--	01	02 04	01	00 - 08 (0 - 8)	
	2'	--	--	01	02 05	01	00 - 08 (0 - 8)	
	1 3/5'	--	--	01	02 06	01	00 - 08 (0 - 8)	
	1 1/3'	--	--	01	02 07	01	00 - 08 (0 - 8)	
	1'	--	--	01	02 08	01	00 - 08 (0 - 8)	
Pedal Drawbar Voice	Tone-wheel Set	22	00	01	22 00	01	00 - 03 00: Normal 01: Muted 02: Synth 1 03: Synth 2	Link L/P
	Drawbar Attack	22	01	01	22 01	01	00 - 04 00: Slow Attack 01: No Click 02: Soft Click 03: Normal Click 04: Max Click	
	Bend Range Down	22	02	01	22 02	01	00 - 18 (0 - 24)	
	Bend Range Up	22	03	01	22 03	01	00 - 0C (0 - 12)	
	Sustain On	22	04	01	22 04	01	00, 01 (Off/On)	
	Sustain Length	22	05	01	22 05	01	00 - 04 (1 - 5)	
	Pedal Key Mode	22	06	01	22 06	01	00, 01 (Mono/Poly)	
	Decay Length	22	07	01	22 07	01	00 - 05 (1 - 5, Cont.)	
	Velocity	22	08	01	22 08	01	00 - 04 (Off, 1 - 4)	
Pedal Drawbars	16'	--	--	01	03 00	01	00 - 08 (0 - 8)	Link L/P
	8'	--	--	01	03 01	01	00 - 08 (0 - 8)	

Tone-wheel Parameters

Category	Tone-wheel Parameters				
	Parameter	Address	Length	Data	Description
Temporary Tone-wheels	Name	02 s0 00	0A	(10 Characters)	
	Level	02 s1 tt	01	00 - 16 (-20 - +2 [dB])	*s: Tone-wheel set* *0 = B-Type 1* *1 = B-Type 2* *2 = Mellow* *3 = Brite* *4 = Sawtooth* *tt: Tone-wheel number* *00 - 5F (01- 96)*
	HPF Cut Off	02 s2 tt	01	00 - 7F (0 - 127)	
	LPF Cut Off	02 s3 tt	01	00 - 7F (0 - 127)	
	LPF Resonance	02 s4 tt	02	00 00 - 0C 08 (-100 - +100)	*nibblized hexadecimal* *06 04 = 0*

Leslie Parameters

Category	Leslie Parameters									
	Parameter	NRPN on XK		NRPN on 21		SysEx Address			SysEx Length	Data
		LSB (62)	MSB (63)	LSB (62)	MSB (63)	MSB		LSB		
Cabinet	Name	--	--	--	--	03	00	00	0A	(10 Characters)
	Slow Speed Horn	06	00	7F	00	03	06	00	01	00 - 63(0, 24 - 318rpm)
	Slow Speed Bass	06	01	7F	01	03	06	01	01	00 - 63(0, 24 - 318rpm)
	Fast Speed Horn	06	02	7F	02	03	06	02	01	00 - 1B(0, 375 - 453rpm)
	Fast Speed Bass	06	03	7F	03	03	06	03	01	00 - 1B(0, 375 - 453rpm)
	Rise Time Horn	06	04	7F	04	03	06	04	01	00 - 18(0.2 - 5.0s)
	Rise Time Bass	06	05	7F	05	03	06	05	01	00 - 18(0.5 - 12.5s)
	Fall Time Horn	06	06	7F	06	03	06	06	01	00 - 18(0.2 - 5.0s)
	Fall Time Bass	06	07	7F	07	03	06	07	01	00 - 18(0.5 - 12.5s)
	Brake Time Horn	06	08	7F	08	03	06	08	01	00 - 18(0.2 - 5.0s)
	Brake Time Bass	06	09	7F	09	03	06	09	01	00 - 18(0.5 - 12.5s)
	Volume Horn	06	0A	--	--	03	06	0A	01	00 - 0C(-12 - 0dB)
	Volume Bass	06	0B	--	--	03	06	0B	01	00 - 0C(-12 - 0dB)
	Mic. Angle	06	0C	7F	0A	03	06	0C	01	00 - 06(0 - 180deg)
	Mic. Distance	06	0D	7F	0B	03	06	0D	01	00 - 08(0.3 - 2.7m)
	Horn Character	06	0E	7F	0D	03	06	0E	01	00 - 02(Flat, Mid, Deep)
	Amplifier	06	0F	--	--	03	06	0F	01	00, 01(Solid, Tube)
	Speaker	06	10	--	--	03	06	10	01	00 - 02 00: Rotary Small 01: Rotary Large 02: Stationary

System Parameters

Category	System Parameters		
	Parameter	Data Range	Default
MIDI	MIDI In Port	Lower/Pedal , In1/In2	In1/In2
	Local	Off / On	On
	TRx. NRPN	Off / On	Off
	Tx. Leslie Param.	XK / 21	XK
	TRx. Prog. Change	Off / On	On
	TRx. Drawbar Regi.	Off / On	Off
	TRx. Wheel Control	Off / On	Off
	Rx. Dump	Off / On	On
	TRx. Channel Upper	1 - 16, Off	Off
	TRx. Channel Lower	1 - 16, Off	Off
	TRx. Channel Pedal	1 - 16, Off	Off
	Device ID	1 - 32	17
Display	To Shortcut	0, 1, 2s, No	1s
	Time Out	4, 8, 16, No	No
Ext. Leslie	Channel	1, 2or3	1
Noise Gate	Return	Threshold1, Threshold2, Open	Threshold2

Combi. and Bank/Program Messages

Program Change		Preset Key												
Bank Select MSB	Bank	1	2	3	4	5	6	7	8	9	10	11	12	Adjust B
		C	C#	D	D#	E	F	F#	G	G#	A	A#	B	
0	C													
1	C#													
2	D													
3	D#													
4	E													
5	F													
6	F#													
7	G													
8	G#													
9	A													
10	A#													
11	B													

ex: Change to Bank E - Key C# via MIDI... Bx 00 04 Cx 01 (x=Upper Channel)

Specifications

Sound Generator
2 x VASE III as
Digital Tone-wheels

Keyboard
73 (61 + 12 Preset keys)
Water Fall with Velocity

Harmonic Drawbars
Upper
9 Pitches,
B-type 1/B-type 2/Mellow/Brite/
Saw
Lower
9 Pitches
Pedal
2 Pitches,
Muted/Normal/Synth 1/Synth 2

Percussion
Tabs
Second On, Third On,
Fast Decay, Soft
Adjustable
Touch, Velocity,
Decay (Fast, Slow)
Level (Soft, Normal)

Tuning
Master
430 - 450 1Hz Steps
Transpose
-6 - 0 - +6 semitones

Effects
Internal Leslie
Advanced Digital, 2 Rotors
On, Fast, Brake
Vibrato and Chorus
Digital Scanner
V1, V2, V3, C1, C2, C3
Upper On, Lower On
Speed: 5 (6.10 - 7.25Hz)
Tremolo, Emphasis, Depth
Pre-amp
Vacuum tubes
(12AX7 and 12AU7)
Preamp On, Overdrive
Equalizer
3 Bands, Tone Control
Tone Type, Tone knob
Reverb
10 Programs
with Leslie on Reverb
Reverb On
Sustain
5 Lengths (Pedal)

Internal Zone
Tabs
Split
Manual Bass
Adjustable
Map Low, High
Split Point
Lower Octave
Pedal Top key

Combination Presets
12 banks x 11 Presets
+ Adjust B
Switchable: Link/Independent

Controllers
Switches
Power On / Off
Control
User
Rotary Controllers
Master Volume
Tube Overdrive
Tone
Wheels
Pitch Bend
Modulation
Assignable Controllers
6 switches and 6 knobs for:
Upper 1, Upper 2, Upper3,
Lower 1, Lower 2, Pedal

Display
20-characters, 2 lines
with 9 control switches
and Rotary encoder

Storage
CompactFlash card slot

MIDI
Templates
5 modes
Zones
3 (Upper)
2 (Lower)
1 (Pedal)
and Keyboard Channels:
Upper, Lower, Pedal

Connections
AC Inlet
MIDI In1/Pedal, In2/Lower, Out
Exp. Pedal 1 (phone), 2 (EXP-100)
Foot Switch 1
Effect Send, Return
Line Out L/Mono, R
Headphones
11-pin Leslie

Dimension
119(W) x 40 (D) x 12(H)cm
47”(W) x 15.8”(D) x 4.7”(H)

Weight
18.5 kg
40.8 lbs

Demonstration Songs and Composers

Playing the demonstration performance:

1. Touch and hold the [M.BASS]+[SPLIT] Button.
2. Select the song by using [PAGE] Button.
3. Touch the [4]▶ Button to play.

Songs / Composers

1. **Boogie B'LUE** — Tony Monaco
2. **Midnight Scream** — Daisuke Kawai
3. **XK-3 Happy** — Joey DeFrancesco
4. **Acid Wash** — Tony Monaco
5. **Shooting Star** — Daisuke Kawai
6. **B-3 Cookin'** — Deryl Winston
7. **Liberation** — Takanobu Masuda
8. **Somthing Slow** — Joey DeFrancesco
9. **Shakin'** — Joey DeFrancesco

Tony Monaco

Tony started playing the accordion when he was eight years old. When he was twelve, he was given a Jimmy Smith album and instantly knew that Jazz Organ was his calling. Tony began playing in Jazz nightclubs around Columbus Ohio while he was still learning the art of Hammond B3 organ. He was influenced by hometown Organists such as Hank Marr and Don Patterson. Tony's newfound fascination led him to jazz organ legends Jimmy McGriff, Richard "Groove" Holmes, Charles Earland, Jack McDuff, and Dr. Lonnie Smith. Here he found an unlimited source of inspiration ; he just couldn't get enough! On Tony's sixteenth birthday, he received a phone call from Jimmy Smith. This was a great honor and really boosted his enthusiasm as an organist. When he was twenty, Jimmy Smith invited Tony to come play with him at his club in Woodland Hills LA., California. An experience Tony would never forget. In April 2000, Tony met jazz Organist Joey DeFrancesco while Joey was playing in Columbus, Ohio. The two of them became instant friends. Joey recognized Tony's talents right away and offered to produce a CD for him. Tony's recording "Burnin' Grooves" sparked international attention. Tony now travels and plays the "New B3" organ as his relationship with Hammond Suzuki has grown.

Daisuke Kawai

A Hammond Organ Player. Born in Toyohashi City, Aichi Prefecture, on 23 July, 1965.
Fascinated by the Hammond Organ sounds played in the background of the TV drama "Taiyo ni Hoero (Cry to the Sun)" in his boyhood, he had ambition at 10 to self-learn and master the Hammond Organ playing. At 13 he was shocked at the organ performance of Jimmy Smith. Since then he has been challenging to attain to his utmost capability with the Hammond Organ. From 1988 he learned under Nobuo Kurata. Started his own activities as a studio musician in 1989. In 1992, he participated in the "Tokyo's Coolest Combo", the unit produced by Yasuharu Konishi of (the) Pizzicato Five. Youngest in the members, he leads the band as (the) band master. Started collaborating with Tommy Campbell (drs) as "Organ-EYES Session Band" in 2003. In the same year the band performed at Blue Note New York. In parallel with various recording, live-session activities, he is receiving very favorable reviews for the epoch-making duo of only Minako Yoshida's songs and the Hammond Organ since 2004.

Joey DeFrancesco

Joey started playing at the age of four. He recalls, "I could just play. I was already hearing Jimmy Smith and stuff like that around the house. Then one time my Dad, "Papa John" DeFrancesco, brought the Hammond organ home from the gig. When I heard that sound I really got into it. My Dad guided me in the right direction, the do's and the don'ts, but he was never very forceful about it." At the age of 10, Joey was already playing for money on weekend gigs. By high school, he was working steadily around Philadelphia, receiving first-hand instruction from the top-shelf organists who come through the city such as Jimmy Smith, Jack McDuff, and numerous others. His high visibility career kicked off when Miles Davis asked Joey to join his late 80s band. Joey then signed a contract with Columbia that resulted in five records from 1989 to 1994. With the release of his album, "All of Me" in 1989, Joey emerged on the jazz scene. The global jazz community has credited Joey and his recordings, from the late 1980s and early 1990s, as the singular sensation for rekindling a love for the Hammond B-3 organ. In 2003, Joey and his band released their latest hit CD, "Falling in Love Again". This CD featured the Hammond "New" B-3 organ. For the year 2002/2003, the magazine Downbeat chose Joey as "the Jazz Organist of the Year". Besides participating at dealer promotions, national conventions, concerts, and clinics, he contributes to Hammond product development.

Deryl Winston

Deryl Winston is a long time resident of San Diego. He began playing the Hammond Organ at age 14 while still living in his native home of Seattle Washington. Deryl was tutored by two of the finest Gospel musicians in the form of his mother Alice Winston (a concert pianist) and Aunt Jean McGraw (Hammond Organist). It was not long before many in the Seattle area became familiar with Deryl and the amazing talent and skill he showed on the Hammond Organ. By early 2000, Deryl was introduced to the Executives at Hammond Suzuki USA. They were very impressed with Deryl and invited him to the Annual Namm Convention in Anaheim Ca. to become one of their artist's. Deryl still continues to travel in the capacity as a Hammond Concert Artist. He provides dedication concerts and conducts seminars on Hammond Organ and it's importance in Gospel music. He's very thankful and proud to represent such a fine company as Hammond Suzuki USA. Deryl's motto is "You ain't Jammin, unless there's a Hammond"!

Takanobu Masuda

Started playing the organ when small. Has been interested in the Hammond Organ since about 15. Purchased the new X-5 and Leslie #760 at the age of 18, then studied mainly Rock style performance and approach.
Later, as a session keyboardist, joined the recordings and lives of various artists. Now gives advice to the makers (Hammond Suzuki) about the XB/XM series from the viewpoint of a professional musician.

Factory Presets

	Program Change	1	2	3	4	5	6	7	8	9	10	11	12
Bank Select MSB	Bank	Preset Key											
		C	C♯	D	D♯	E	F	F♯	G	G♯	A	A♯	B
0	C Default	Cancel	Jimmy	Lo & Hi 1	Warmth	Groove	Funky	Purple	Funky 2	Full Tibias	Full Organ	Full Church	Adjust B
1	C♯ Jazz	Cancel	Jimmy 1	Jimmy 2	Jimmy 3	Burner	Groove	Smooth Bass	Shirley	Jimmy MC	Fat Bass	All Nine	
2	D Gospel	Cancel	Gospel 1	Gospel 2	Gospel 3	Gospel 4	Praise 1	Praise 2	Praise 3	Praise 4	Medita-tion	Full Gospel	
3	D♯ Rock	Cancel	Purple	Emerson	Some Lovin	Booker	Rock 1	Rock 2	Rock 3	Full 1	Full 2	Full Overd	
4	E Theatre	Cancel	Theatre C#	Theatre D	Theatre D#	Theatre E	Theatre F	Theatre F#	Theatre G	Theatre G#	Theatre A	Full Theatre	
5	F Tibia	Cancel	Tibia 8 & 4	Tibia 8 & 2	Tibia & Vox	Tibia 8,4 & 2	Tibia 16 & 8	Tibia 16 & 4	Tibia 16, 8 & 4	Tibia 16,8,4&2	Tibia 16,8,4,2,1	Full Tibia	
6	F♯ Church	Cancel	Gedeckt 8	Flute 8 & 4	Principl 8	Princ Chrs	Rohr Flute	Gamba Clst	Cornet	Sesquialtr	Chrs & Mxt	Sforzando	
7	G Lo & Hi	Cancel	Lo & Hi 1	Lo & Hi 2	Lo & Hi 3	Odd Harm	M3 Low Man	Perc 16 & 4	Solo 16 & 2	Cute Solo	Eddies-wind	Full Hamm	
8	G♯ Intro 1	Cancel	White Shade	Percuss Bass	Four Beat	Funk Bass	Surf Coast	Blue Tigers	10th Avenue	Popcorn	Doubling	N. E. S.	
9	A Intro 2	Cancel	Soloist	Choke Nose	S.F. 4ever	Tea Lounge	Pretty Baby	Triplet 90	Triplet 100	Triplet 110	Triplet 120	Triplet 130	
10	A♯ Demo Song	Cancel	SomeSlow 1	SomeSlow 2	SomeSlow 3	AcidWash 1	AcidWash 2	B-3 Cookin'	Shooting 1	Shooting 2	Liberatio 1	Liberatio 2	
11	B B-3	Cancel	Stopped Fl	Dulciana	Fr. Horn	Salicional	Flutes 8 & 4	Oboe Horn	Diapason	Trumpet	Full Swell	Full Church	

ex: Change to Bank E - Key C ♯ via MIDI... Bx 00 04 Cx 01 (x=Upper Channel)

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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:

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IR. D.S. Tuynmanweg 4A
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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.
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