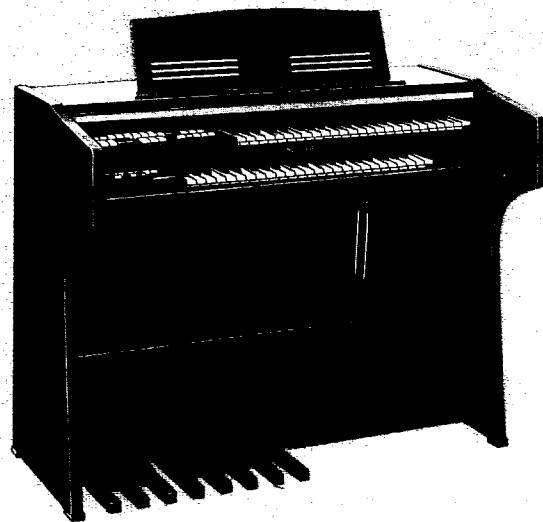


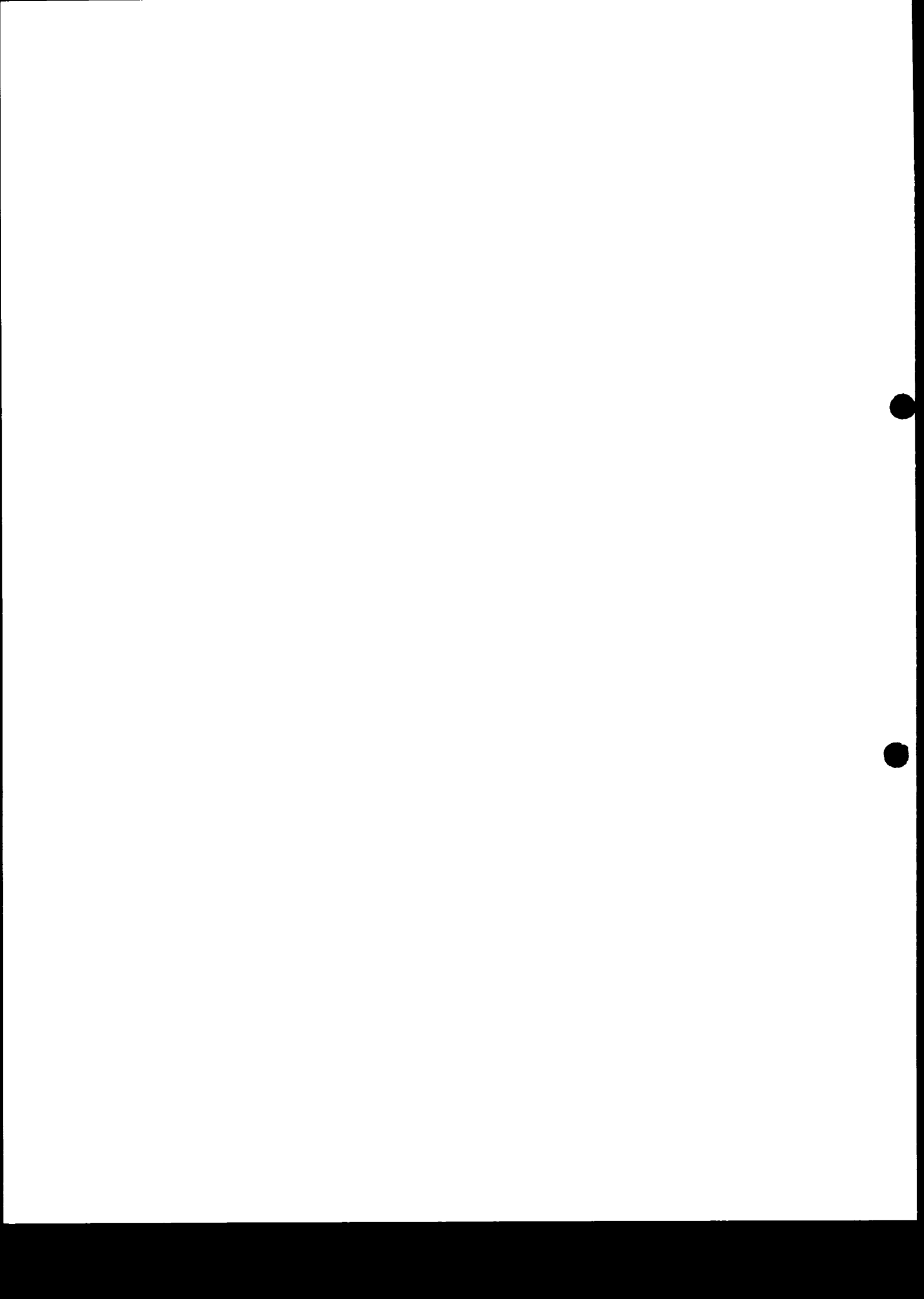
Operating Instructions

Electronic Organ
SX-3500R



 **National**

Before operating this set, please read these instructions completely.



THE NATIONAL ELECTRONIC ORGAN OPERATING INSTRUCTIONS

We are sure that you will get many years of pleasure from your new National Electronic Organ. This organ is a unique musical instrument designed for the performance of the simplest and the most complicated music, by all players, from the beginner to the competent musician.

Read this booklet carefully for the proper use of your National Electronic Organ.

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INTRODUCTION TO THE ELECTRONIC ORGAN



The diagram on the opposite page will help you to identify the various controls of the National Electronic Organ. The controls are fully explained in the following pages, but you set them as shown. This will enable you at once to produce musical sounds from the Electronic Organ.

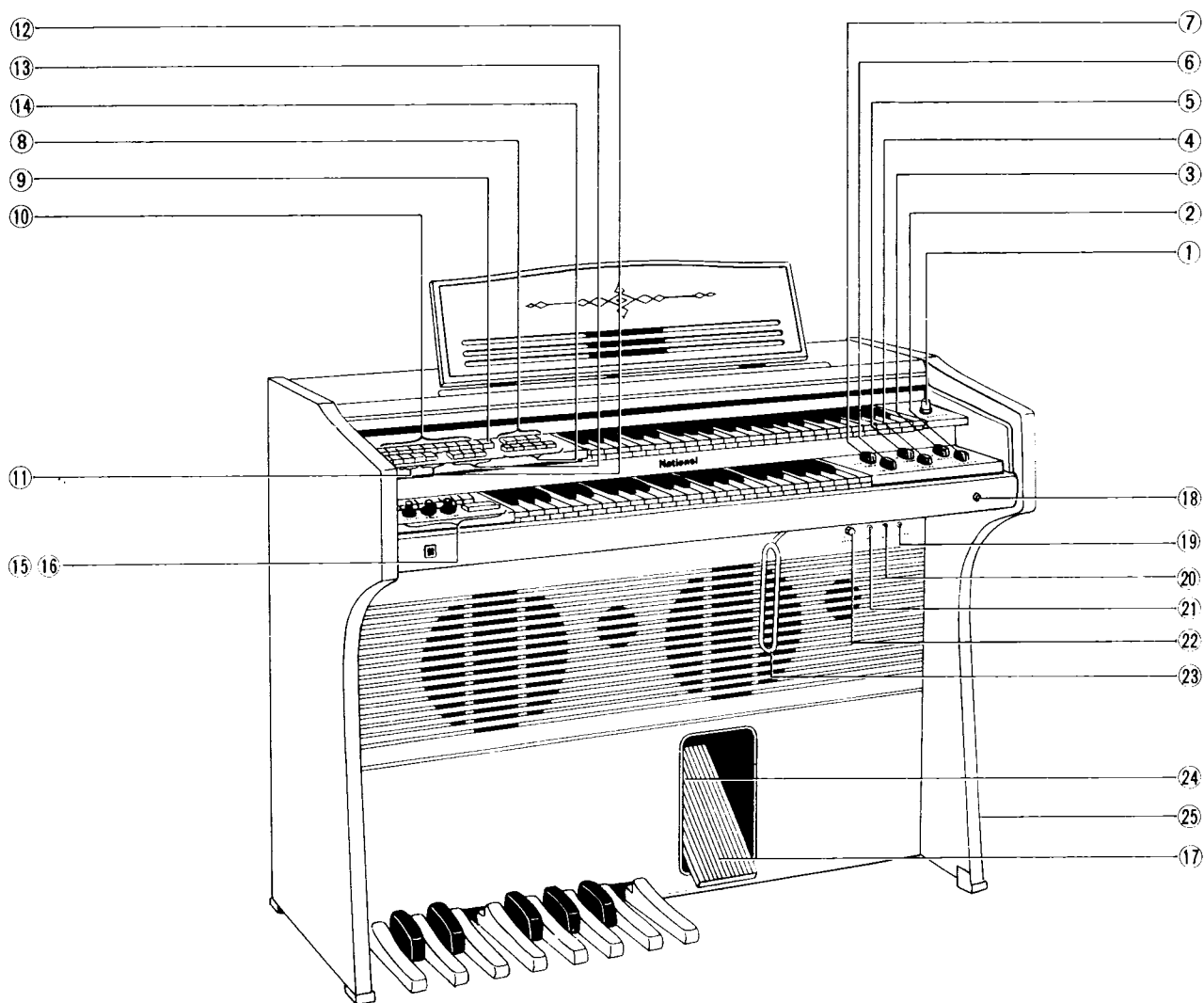
If you have any knowledge of music and can perhaps play the piano even moderately well, it is possible for you to play the National Electronic Organ in its simplest form. Even if, on the other hand, you have no musical knowledge, you will become a good player after referring to the following pages which explain, step by step, how to play the Electronic Organ in its special musical effects.

1. Power Switch & Volume Control
This is turned to the right (clockwise) and set with the pointer upright.
2. Pedal Volume Lever
This is set to the "2nd" position.
3. Brilliance Lever
This is set to the center point.
4. Upper Sustain Lever
This is left as it is.
5. Reverberation Lever
This is set to the "3rd" position.
6. Manual Balance Lever
This is set to the center point.
7. Reverberation Select Lever
This is set to the center point.
8. Vibrato Tabs
The tab marked ON is depressed at the bottom.
9. Upper Sustain Tab
This is not depressed.
10. Upper Manual Tone Tabs
The tab marked FLUTE 8' is depressed at the bottom.
11. Pedal Keyboard Tone Tabs
The tab marked BASS is depressed at the bottom.
12. Pedal Sustain Tabs
The tab marked ON is depressed at the bottom.
13. Lower Manual Tone Tabs
The tab marked FLUTE is depressed at the bottom.
14. Upper Pre-Set Sounds Buttons
These are not depressed.
15. Auto-Play-Chord Buttons
These are left as they are. (Instructions on the following pages will explain how to use them.)
16. Automatic Rhythm Controls
These are left as they are. (Instructions on the following pages will explain how to use them.)
17. Expression Pedal
This is depressed forward with the toe of the right foot. (Instructions on the following pages will explain how to use it.)

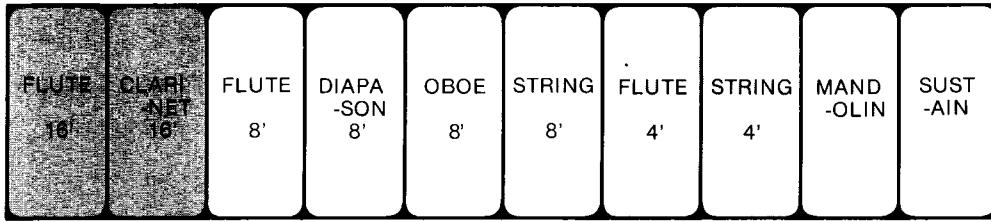
NAMES OF PARTS



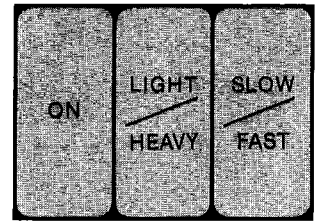
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|----------------------------------|-----------------------------------|
| 1. POWER SWITCH & VOLUME CONTROL | 14. UPPER PRE-SET SOUNDS BUTTONS |
| 2. PEDAL VOLUME LEVER | 15. AUTO-PLAY-CHORD BUTTONS |
| 3. BRILLIANCE LEVER | 16. AUTOMATIC RHYTHM CONTROLS |
| 4. UPPER SUSTAIN LEVER | 17. EXPRESSION PEDAL |
| 5. REVERBERATION LEVER | 18. PILOT LAMP |
| 6. MANUAL BALANCE LEVER | 19. HEADPHONE JACK |
| 7. REVERBERATION SELECT LEVER | 20. INPUT TERMINAL |
| 8. VIBRATO TABS | 21. MIC. JACK |
| 9. UPPER SUSTAIN TAB | 22. MIC. VOLUME |
| 10. UPPER MANUAL TONE TABS | 23. SUSTAIN KNEE LEVER |
| 11. PEDAL KEYBOARD TONE TABS | 24. GLIDE CONTROL SWITCH |
| 12. PEDAL SUSTAIN TABS | 25. OUTPUT TERMINAL (at the rear) |
| 13. LOWER MANUAL TONE TABS | |



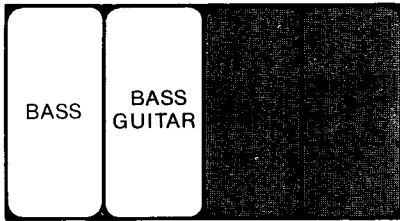
NAMES OF CONTROLS



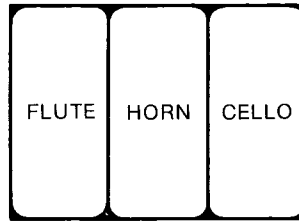
UPPER



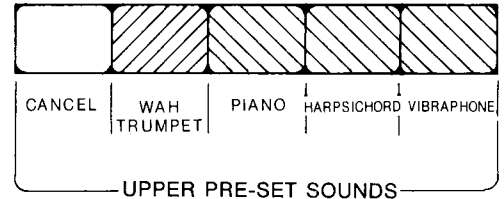
VIBRATO



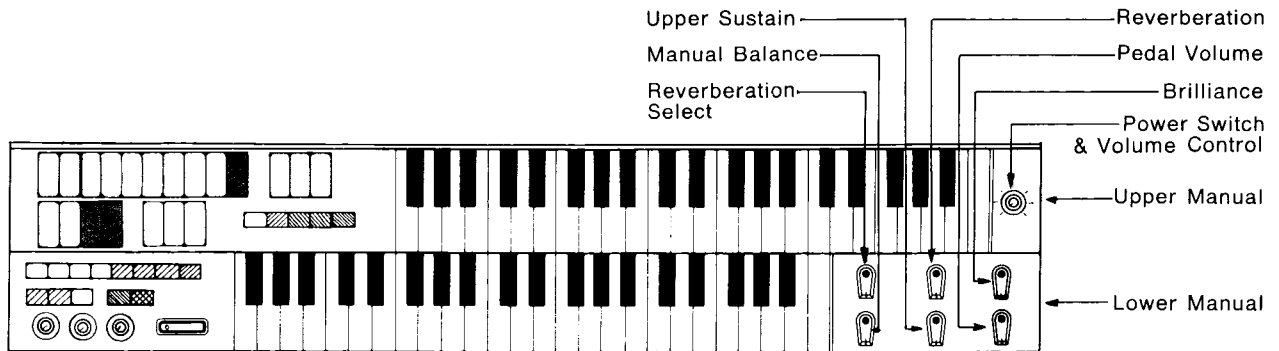
SUSTAIN PEDAL



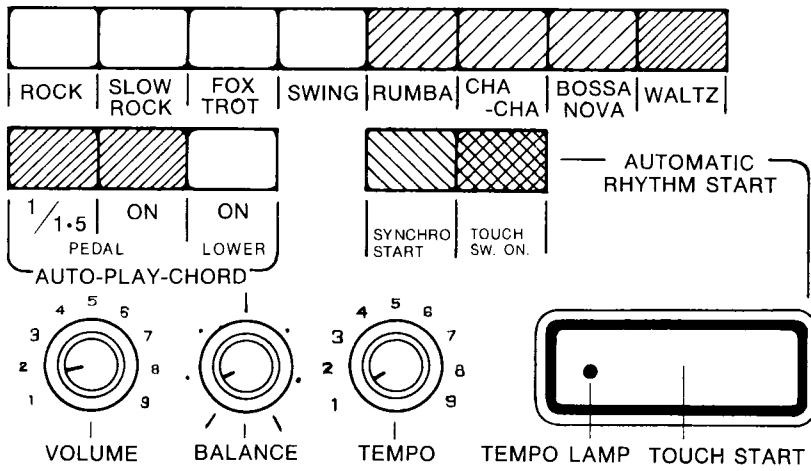
LOWER



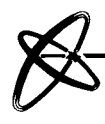
UPPER PRE-SET SOUNDS



AUTOMATIC RHYTHM & AUTO-PLAY-CHORD



KEYBOARDS & COMPASS CHART



Keyboards

There are three keyboards—UPPER MANUAL, LOWER MANUAL and PEDAL KEYBOARD.

The UPPER MANUAL keys are depressed (with the right fingers) mainly for melodies; the LOWER MANUAL keys (with the left fingers) mainly for accompaniments; and the PEDAL keys (with the toe of the left foot) mainly for bass.

Range

UPPER MANUAL	Extends from f to c 44 keys, 3½ octaves (medium to high-pitched tones)
LOWER MANUAL	Extends from F to c 44 keys, 3½ octaves (low to medium-pitched tones)
PEDAL KEYBOARD	Extends from C to c 13 keys, 1 octave (bass tones)

Touch

Unlike the piano, the touch on the Electronic Organ keys does not change the volume or quality of sounds produced. You do not need to change your touch nor to learn a difficult finger technique, you may play the keys with a minimum of pressure.

Compass Chart

Upper Manual

Lower Manual

Pedal Keyboard

U.M. tone (4')

U.M. tone (8')

U.M. tone (16')

L.M. tone

P.K. tone

middle C

8va

8va played one octave higher than written.

MAIN FEATURES



Auto-Play-Chord

The Auto-Play-Chord is a new function which makes the rhythm accompaniment by the left hand and left foot much easier and automatic. This elementary step in playing has been considered very difficult. The organist can play the melody on the upper manual and the rhythm accompaniment can be automatically played with a selected rhythm, such as Rumba or Rock, by simply pressing the accompanying chord, which corresponds to that melody, on the lower manual and the pedal keyboard, if the organist becomes very proficient, he can have automatic play using only the lower manual or only the pedal keyboard.

Regarding the pedal keyboard, the bass accompaniment of only the sound from the depressed key can be automatically played or the sound from the depressed key and its 5th tone above (for example, the tone G for the sound C) can be automatically played without moving your foot.

Automatic Rhythm

The Automatic Rhythm offers several types of rhythm, such as Rock and Bossa Nova with the sounds of many musical instruments, such as cymbals and maracas. Eight types of rhythm can be selected, and using two or more rhythm buttons or by using the rhythm balance lever, many different rhythms can be created.

The Automatic Rhythm can be used together with the Auto-Play-Chord, and by using the synchronous start and the touch start switches to start the rhythm, a full variety of rhythm play can be easily obtained.

Sustain Effect

After a finger is lifted from a keyboard, the sustain effect causes the tone to decay gradually over a period of time controlled by the upper sustain lever.

The SX-3500R is designed to give the sustain effect to each of the 16', 8' and 4' tones.

Because of it, wide variations can be obtained when light music is played and can be enhanced pleasure.

Pre-Set Sound

Tones which are ordinarily difficult to produce by the combination of several tone tablets are preset; the funky tone of a muted trumpet, the richness of a piano, the clear and delicate tone of the harpsichord and the subtle reverberation of the vibraphone can be produced quickly and easily by one-touch operation, even by beginners.

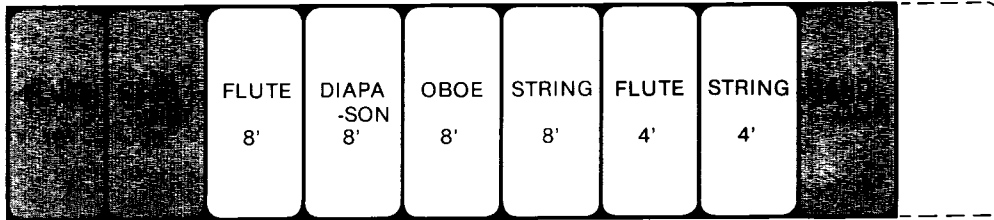
Glide Control Effect

With a switch inside the expression pedal, the tone of the keyboard glides down a half-tone. And when the switch is turned off, portamento is added and the sound is returned to normal. This effect produces an effect like a steel guitar and the portamento produces an effect like a trombone.

TONE TABS



Upper Manual Tone Tabs



UPPER

FLUTE 16'

The FLUTE 16' tone has the simplest harmonics, and its tone quality is soft and mellow, like an orchestral flute, and is suitable for playing melodies. Its pitch is lower by one octave than written on a music score.

CLARINET 16'

The CLARINET 16' tone has a smooth and hollow tone quality, like an orchestral clarinet, and is especially suitable for playing melodies. Its pitch is lower by one octave than written on a music score.

FLUTE 8'

The FLUTE 8' tone has the simplest harmonics; its tone quality is soft and mellow like an orchestral flute and is suitable for playing melodies.

DIAPASON 8'

The DIAPASON 8' tone has a foundation tone quality found in no other instrument than the pipe organ and has a special tone color. It is slightly heavy and dull, rather than brilliant in tone quality, and is suitable for playing chords.

OBOE 8'

The OBOE 8' tone has a strong personality characterized by heavy upper harmonics, and its tone quality is rather reedy and more brilliant than any other tone.

STRING 8'

The STRING 8' tone is a rather bright tone, like an orchestral violin; its tone quality is characterized by especially intense upper harmonics and is suitable for playing melodies and chords.

FLUTE 4'

The FLUTE 4' tone is the same quality as that of the Flute 16' tone, but its tone pitch is higher by one octave than written.

STRING 4'

The STRING 4' tone is the same quality as that of the STRING 8' tone, but its tone pitch is higher by one octave than written.

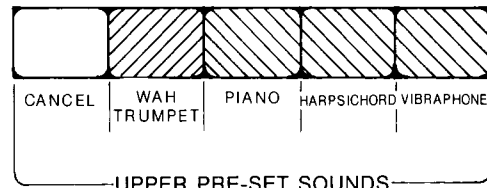
MANDOLIN

The MANDOLIN tone is a repeated percussive tone, like a mandolin, and has a brighter tone quality. It is suitable for playing melodies, and it can be used as special effects in tone color.

Pre-Set Sounds Buttons

Preset tones take precedence over and cancel out the tone tablets of the upper keyboard. However, if you wish to change from a preset tone to the regular tones during play, simply press the cancel button on the extreme left of the button, and the change over will be automatic.

Although various sound effects can be added to the preset sounds, only the sustain effect is present at all times.



CANCEL

The cancel button is used when changing from a preset tone to the regular tones of the upper keyboard. This change over is an automatic process.

WAH TRUMPET

One of the pre-set tones which can be used to produce the effect of a muted trumpet which is often used in jazz. A humorous effect can be obtained by playing staccato, but the muted tone is not produced when played at legato.

PIANO

A pre-set tone which combines the tones of the flute group with an appropriate sustain length; the tone gradually decays when the fingers are lifted from the keyboard.

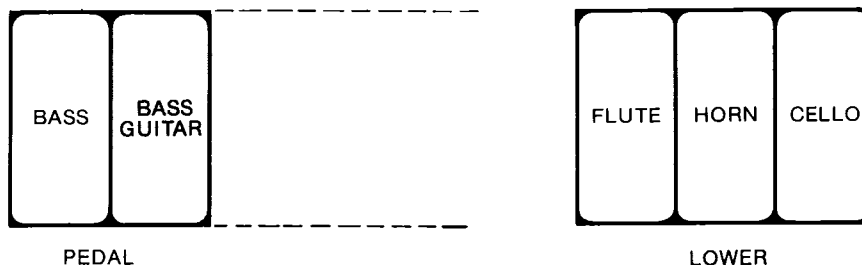
HARPSICHORD

Most widely used during the 17th and 18th centuries, the harpsichord tone is delicate, yet lively...like the snapping of fingernails on the strings of a chord.

VIBRAPHONE

The vibraphone resembles an iron xylophone. The pre-set tone causes the sound to vibrate and decay in the trembling manner characteristics of a vibraphone.

Lower Manual Tone Tabs



FLUTE

The FLUTE tone is round, soft and mellow and has a quality similar to that of the FLUTE 8' tone of the upper manual. It is suitable for playing melodies.

HORN

The HORN tone is a solo tone having a particular personality of harmonics and is suitable for playing melodies. This tone can be compared to the OBOE 8' tone of the upper manual.

CELLO

The CELLO tone is rather brighter than other tones of the lower manual, and has a full and rich tone which imparts strength to any combination of tone color tabs. It is suitable for playing melodies and chords.

Pedal Keyboard Tone Tabs

BASS

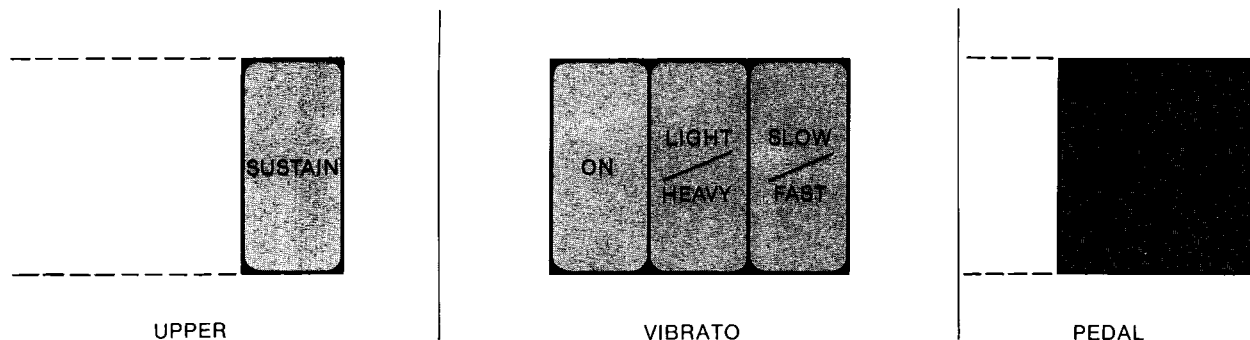
The BASS tone has the foundation of characteristics of the flute tone and the richness of the string tone. It is a round, mellow and heavy tone which is suitable for playing bass solo or accompaniment.

BASS GUITAR

Combines a tone similar to the bass of a flute with the snapping attack effect of a bass guitar chord. The pitch of the tone is the same as that of the written note, and it is used to accent a clear tone at the head of a basic tone. When the bass tabs are depressed at the same time, a deep bass sound with the attack effect will be produced.

These tone tabs of the upper manual, lower manual and pedal keyboard can be used either separately or in any combination. The sound appears "fuller" as you use more tone tabs. By combining the various tone tabs, more than 4,000 variations of tone color can be obtained.

EFFECT TABS



Vibrato Tabs

The three vibrato tabs give the vibrato effect and change the depth and speed of vibrato.

VIBRATO ON-OFF

The VIBRATO ON-OFF tab gives vibrato to the music when depressed at the bottom and eliminates it when depressed at the top. The other two tabs (Vibrato Heavy-Light & Vibrato Fast-Slow) can change the degree of vibrato. When you adjust the degree of vibrato to suit the tune to be played, you can produce or eliminate the vibrato effect instantly by operating the VIBRATO ON-OFF tab even while playing.

VIBRATO HEAVY-LIGHT

The VIBRATO HEAVY-LIGHT tab can change the depth of vibrato by making vibrato heavier (when depressed at the bottom) or lighter (when depressed at the top).

Note that Vibrato Heavy-Light and Vibrato Fast-Slow tabs operate only when the Vibrato On-Off tab is in the ON position.

VIBRATO FAST-SLOW

The VIBRATO FAST-SLOW tab can change the speed of vibrato by making vibrato faster (when depressed at the bottom) or slower (when depressed at the top).

Though the combinations of these vibrato tabs are at the discretion of the player, Light and Slow Vibrato is most suitable to church and classical music, while Heavy and Fast Vibrato is suitable for popular music in general.

Upper Sustain Tab

The UPPER SUSTAIN tab gives the sustain effect to the two 16' tones, four 8' tones, two 4' tones and the Mandolin tone on the upper manual, as mentioned previously. You may try to play your favorite piano score with the Flute tone sustained moderately in a staccato touch on the upper manual.

Pedal Sustain Tabs

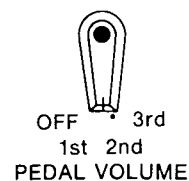
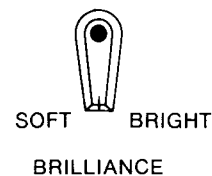
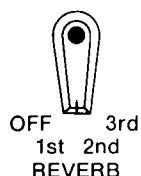
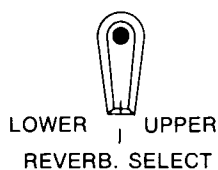
PEDAL SUSTAIN ON-OFF

The PEDAL SUSTAIN ON-OFF tab gives the pedal sustain effect to the pedal tones. The pedal sustain effect means that a bass tone produced by the pedal keyboard decays gradually after the depressed pedal is released. When this tab is ON, you can obtain the pedal sustain effect.

PEDAL SUSTAIN SHORT-LONG

The PEDAL SUSTAIN SHORT-LONG tab can change the duration of the sustained bass tones. By depressing the tab at the bottom or at the top, you can obtain long or short pedal sustain effect.

EFFECT LEVERS



Reverberation Lever

The REVERBERATION lever can change the length of the reverberation effect, giving a spaciousness and warmth to the music from OFF to 3rd degree. By changing the degree of the reverberation effect, you can bring various special effects to the music.

Reverberation Select Lever

The REVERBERATION SELECT lever can select the reverberation ratio of the Upper Manual tones and the Lower Manual tones. When you set this lever to the center point, the reverberation length of both manuals becomes equal. When this lever is turned to the UPPER position, the reverberation of the Upper Manual tones exceeds that of the Lower Manual tones, and vice versa with the lever turned to the LOWER position.

Brilliance Lever

The BRILLIANCE lever is similar to the brilliance knob or the tone control knob on a good highfidelity amplifier system. It can control the upper harmonics of tones from SOFT to BRIGHT, and its normal position is the center point. When turned to the BRIGHT position, the brilliance of tones of the manual keyboards is emphasized, and when turned to the SOFT position, the brilliance is reduced completely. This lever is particularly effective in making the String tone and the Oboe tone more brilliant.

Manual Balance Lever

The MANUAL BALANCE lever can control the volume balance between the Upper Manual and the Lower Manual at the discretion of the player. When this lever is set to the center point, the volume of both manuals becomes nearly equal. The lever set to the Upper position causes the volume of the Upper Manual to exceed that of the Lower Manual, and vice versa with the lever set to the Lower position.

Pedal Volume Lever

The PEDAL VOLUME lever can control the volume of the sounds of the Pedal Keyboard from OFF to 3rd degree. Set the Pedal Volume lever to the proper position to balance the sound volume of the Pedal Keyboard with those of the Upper and Lower Manuals.

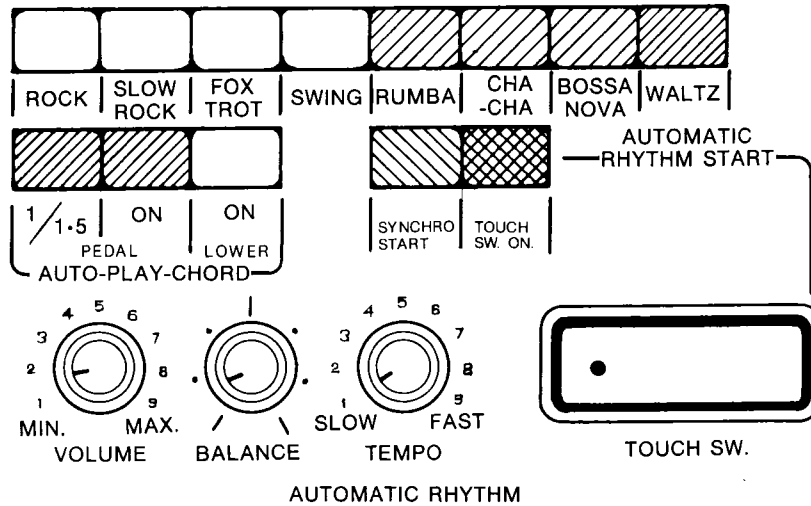
Upper Sustain Lever

The UPPER SUSTAIN lever can change the length of the sustain effect of the upper manual. When this lever is set to the 3rd degree, the sustained sound decays slowly, and when set to the 1st degree, it decays faster. Setting this lever to the proper position at your discretion and the Sustain On-Off tab to "ON", you can obtain the sustain effect all through the music. When the Sustain On-Off tab is set to "OFF", you can temporarily give the sustain effect to the music by operating the Sustain On-Off Knee lever at your disposal.

AUTOMATIC RHYTHM CONTROLS



The automatic rhythm section has three rhythm control knobs, eight rhythm selector buttons, two rhythm start switches, one tempo lamp and touch start switch.



Rhythm Selection Buttons

This rhythm section has eight rhythm selectors. They are Rock, Slow Rock, Fox Trot, Swing, Rumba, Cha-Cha, Bossa Nova and Waltz. Select your favorite and push the corresponding button.

This button switch turns on the rhythm when you push it. These are interlocking switches, so that when you push a rhythm selection, the previous rhythm turns off automatically.

If you push two or more rhythm selection buttons at the same time, a complex and interesting rhythm can be created.

Rhythm Volume Knob

When the RHYTHM VOLUME knob is turned to the right (clockwise), the volume of the rhythm increases gradually. Adjust the volume of the rhythm according to the volume of the keyboard sounds

It should be noted with caution that the main volume and expression pedal of the organ have some influence on the volume of the rhythm.

Rhythm Balance Knob

If the knob is turned clockwise, the percussion instrument sound of the cymbals and the maracas becomes gradually louder, while the sound of the other percussion instruments becomes lower. If the knob is turned counterclockwise, the sound of the claves, the cowbell and the drums become louder and the sound of the cymbals and the maracas becomes lower. Thus, set it to the desired position. Also, if this knob is turned clockwise or counterclockwise until it stops, it can be used as a cancel effect, and in this way various rhythms can be created.

Tempo Control Knob

If you turn the TEMPO CONTROL knob clockwise, the tempo of the rhythm increases. The tempo of the rhythm should be adjusted according to the music you play.

The Tempo Lamp in the touch start switch is designed to illuminate on the first beat. Therefore, you can easily adjust the tempo by watching the tempo lamp. If the synchronous start switch is turned to the ON position, the tempo lamp indicates a beat interval even though the rhythm has not yet started. It is, therefore, possible to adjust the beat without emitting the percussion instrument sounds.

Rhythm Start Switches

There are two starting methods for rhythm as shown below. In both cases, the rhythm begins with the first beat.

SYNCHRONOUS START BUTTON

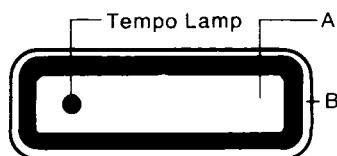
If the SYNCHRONOUS START button is pushed beforehand (in the condition where the button is depressed), the rhythm will start when either the lower manual or the pedal keyboard is played. In this manner, it is very convenient. Using the Touch Start switch, you can stop the rhythm.

If the performance is conducted without using the synchronous start button, this button should be pressed again to set it to the OFF position (in the condition where the button is not depressed). The rhythm will be turned off by pushing this button during performance.

TOUCH START SWITCH

This TOUCH START switch is especially convenient because on-off control of the rhythm can be quickly accomplished by simply gently touching it (when the Touch Switch button is set to the ON position). Note that, even when the Synchronous Start button is ON, that this Touch Start switch can be used to control on-off operation.

*When using the Touch Start switch, be sure to touch the inside of the switch, part [A] and the outside, part [B], at the same time. Parts [A] and [B] are designed to be touched simultaneously and, if only one part is touched, the start switch will not operate. Therefore, care should be exercised.



TOUCH SWITCH ON-OFF BUTTON

This button is to prevent mistaken operation of the Touch Start Switch, located on the control panel. When not using the rhythm, it should be set to the OFF position (upper position). When so set, the rhythm cannot be started even if the Touch Start switch is accidentally touched. To use the rhythm, press this button (lower position) and then use the touch start switch. The touch start switch can, however, be used to stop the rhythm no matter to which position this button (ON or OFF) is set.

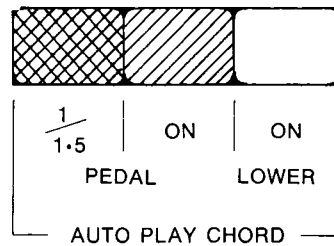
AUTO-PLAY-CHORD CONTROLS



The Auto-Play-Chord is a new function which makes the rhythm accompaniment by the left hand and left foot much easier and automatic. This elementary step in playing has been considered very difficult. The organist can play the melody on the upper manual and the rhythm accompaniment can be automatically played with a selected rhythm, such as Rumba or Rock, by simply pressing the accompanying chord, which corresponds to that melody, on the lower manual and the pedal keyboard. Accordingly, even those who are just beginners can easily play the melody with the right hand while playing the accompaniment.

Because this Auto-Play-Chord is connected to the automatic rhythm, if one of the rhythm selection buttons is not pushed, the automatic accompaniment will not be obtained. In another words, only when the automatic rhythm is operating does the Auto-Play-Chord function. When you don't require the percussive instrument tones of the automatic rhythm, turn the "Rhythm Volume" knob completely counterclockwise (Min.) and only the lower manual and pedal tones will play the rhythm. Control the speed with the "Tempo" knob. The starting function of the Auto-Play-Chord is the same as that of the automatic rhythm.

Also, with this Auto-Play-Chord, automatic accompaniment using only the lower or manual, only the pedal keyboard, or using both the lower manual and the pedal can be obtained. Accordingly, it is very convenient when practicing the lower manual and the pedal keyboard.



Auto-Play-Chord Lower On-Off Button

By simply pushing this button to the ON position (lower position) and depressing the chord, which corresponds to the playing melody, with the lower manual, accompaniment by the lower manual at the selected rhythm can be automatically obtained.

When not using, please be sure to push this button again to set it to the OFF position (upper position).

Auto-Play-Chord Pedal On-Off Button

Push this button to the ON position (lower position), push the root tone among the chord, which is played on the lower manual (C. if the chord is C, E, and G), at the pedal keyboard, and the bass sound at the selected rhythm will be automatically obtained. If using together with the Auto-Play-Chord of the lower manual, the rhythm accompaniment may be played by simply pressing the lower manual and the pedal keyboard. Thus, you are able to play very easily.

When not using this button, be sure to set it to the OFF position (upper position)

Auto-Play-Chord Pedal 1/1-5 Button

Automatically rhythm accompanying bass sound is accomplished by only the pressing pedal key tone when this button is set to the "1" position (upper position). If this button is set to the "1-5" position (lower position), the pressing pedal key tone and its fifth tone (G tone when the C key is pressed) will create a rhythm automatically without moving the foot.

Also, this effect is applicable to "Fox Trot", "Rumba", "Cha-Cha" and "Waltz". It is not applicable to other rhythms because it is not suitable.

When you select the Rumba rhythm with the Auto-Play-Cord, the sound from the lower manual and pedal is as follows:

The diagram shows two staves of music in 4/4 time. The top staff, labeled "Lower Manual Sound", contains a sequence of eighth notes: C4, D4, E4, F4, G4, A4, B4, C5. The bottom staff, labeled "Pedal Sound", contains a sequence of quarter notes: C4, G3, C4, G3, C4, G3, C4, G3. Dotted lines connect the notes in the top staff to the notes in the bottom staff, showing that the manual notes are played over the pedal notes.

The accompaniment is repeated according to the following rhythm pattern, when another rhythm is selected, by the same method.

[Rock]

Musical notation for Rock rhythm in 4/4 time. The staff shows a sequence of notes: C4 (quarter), D4 (quarter), E4 (quarter), F4 (quarter), G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter). There are rests in the second and fourth measures.

[Slow Rock]

Musical notation for Slow Rock rhythm in 2/4 time. The staff shows a sequence of notes: C4 (quarter), D4 (quarter), E4 (quarter), F4 (quarter), G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter). There are triplets over the last two notes of each measure.

[Fox Trot]

Musical notation for Fox Trot rhythm in 4/4 time. The staff shows a sequence of notes: C4 (quarter), D4 (quarter), E4 (quarter), F4 (quarter), G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter). There are rests in the second and fourth measures.

[Swing]

Musical notation for Swing rhythm in 4/4 time. The staff shows a sequence of notes: C4 (quarter), D4 (quarter), E4 (quarter), F4 (quarter), G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter). There are rests in the second and fourth measures.

[Cha-Cha]

Musical notation for Cha-Cha rhythm in 4/4 time. The staff shows a sequence of notes: C4 (quarter), D4 (quarter), E4 (quarter), F4 (quarter), G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter). There are rests in the second and fourth measures.

[Waltz]

Musical notation for Waltz rhythm in 3/4 time. The staff shows a sequence of notes: C4 (quarter), D4 (quarter), E4 (quarter), F4 (quarter), G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter). There are rests in the second and fourth measures.

[Bossa Nova]

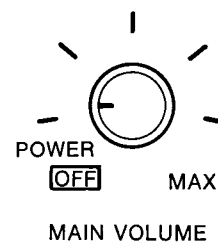
Musical notation for Bossa Nova rhythm in 4/4 time. The staff shows a sequence of notes: C4 (quarter), D4 (quarter), E4 (quarter), F4 (quarter), G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter). There are rests in the second and fourth measures.

OTHER CONTROLS



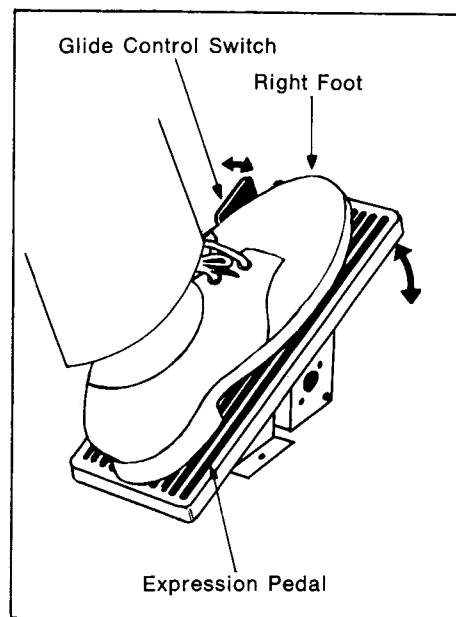
Power Switch & Volume Control

The POWER SWITCH & VOLUME CONTROL are set to the maximum level of the organ when the Expression Pedal is used. If the Expression Pedal is not used, the Volume Control should be adjusted to the desired level. After playing the organ, the Volume Control is turned counterclockwise to a position at which the power is switched off.



Glide Control Switch

The GLIDE CONTROL SWITCH is on the left of the expression pedal. (Refer to the figure at the right.) This switch is operated by the toe of the right foot. If this switch is pushed to the left, the sound glides down approximately one-half of a tone. When the switch is no longer operated, the sound will return to the original tone by portamento.



Sustain On-Off Knee Lever

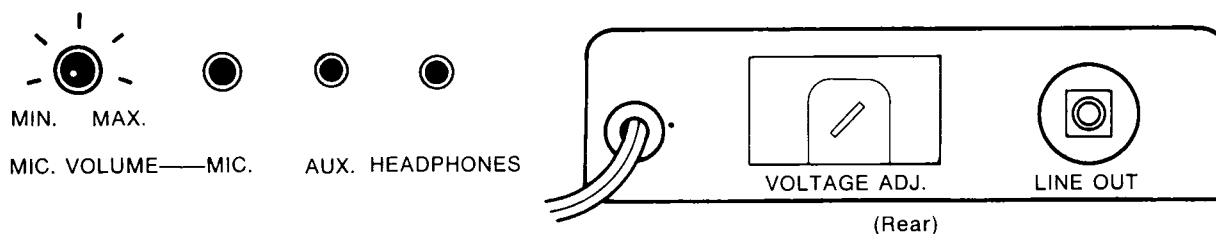
The SUSTAIN ON-OFF KNEE LEVER can give the sustain effect to the Upper Manual tones when pushed toward the right with your knee while playing. When this knee lever is not used, you may push it toward the left and fold it up.

Expression Pedal

The EXPRESSION PEDAL is operated with the right foot. It changes the volume of the electronic organ to create musical expression. Pressing forward with your toe increases the volume, pressing back with your heel decreases it.

Headphone Jack

The HEADPHONE JACK is under the right side of the keyboard. Headphones (optional) are plugged into the Headphone Jack, and the amplifier is automatically switched off. Thus you may practice in a room where people are talking without disturbing others.



(Under the Right side of the Keyboard)

Microphone Terminal <MIC.>

The performer can, by connecting a microphone (separate purchase) to this jack, accompany his own performance vocally or act as master of ceremonies, etc. The microphone used should be a dynamic microphone (uni-directional). (input level of 5mV, 20K Ω)

The MICROPHONE VOLUME CONTROL sets the level of the microphone volume. When this knob is turned to the right (clockwise), the volume of the microphone increases.

Output Terminals <LINE OUT>

The OUTPUT TERMINAL can be connected with an external amplifier or tape recorder when you use this Electronic Organ in a large hall or to record the music of this organ without outside noises (output level 360 mV 600 Ω).

Input Terminal (AUX.)

The INPUT TERMINAL can be connected with a tape recorder etc., for the purpose of reproducing their sounds. It is located on the lower side of the Keyboard (input level 25mV 20K Ω).

SOME TYPICAL REGISTRATIONS



Here are some examples of registrations which will help you find out effective tones of your performance. These registrations are only typical ones. You will be able to find many variations referring these examples.

Flute

Upper: FLUTE 8'	VIB. On-Heavy-Slow
Lower: HORN	
Pedal: BASS	

AU CLAIR DE LUNE

Andantino con grazia

Oboe

Upper: OBOE 8'	VIB. On-Light-Slow
Lower: CELLO	
Pedal: BASS SUSTAIN On-Short	

SCENE
(The Swan Lake, ballet suite)

Moderato ed espressivo

Violin

Upper: STRING 8'	VIB. On-Heavy-Slow
Lower: FLUTE	
Pedal: BASS SUSTAIN On-Long	

ZIGEUNERWEISEN

Lento

Cello

Upper: FLUTE 8'	VIB. On-Heavy-Slow SUSTAIN On
Lower: CELLO	
Pedal: BASS SUSTAIN On-Long	

GREEN SLEEVES

Andante con moto

Mandolin

Upper: MANDOLIN	VIB. On-Light-Slow
Lower: HORN	
Pedal: BASS, SUSTAIN On-Long	

SANTA LUCIA

Andantino

Sleigh Bells

Upper: OBOE 8' OBOE 8'	VIB. On-Heavy-Fast SUSTAIN On
Lower: FLUTE	
Pedal:	

TROIKA

Allegro

Light Music Tone

Upper: FLUTE 16' FLUTE 8' FLUTE 4'	VIB. On-Slow
Lower: FLUTE, HORN BASS	
Pedal: BASS, GUITAR SUSTAIN On-Long	

WHEN THE SAINTS GO MARCHING IN

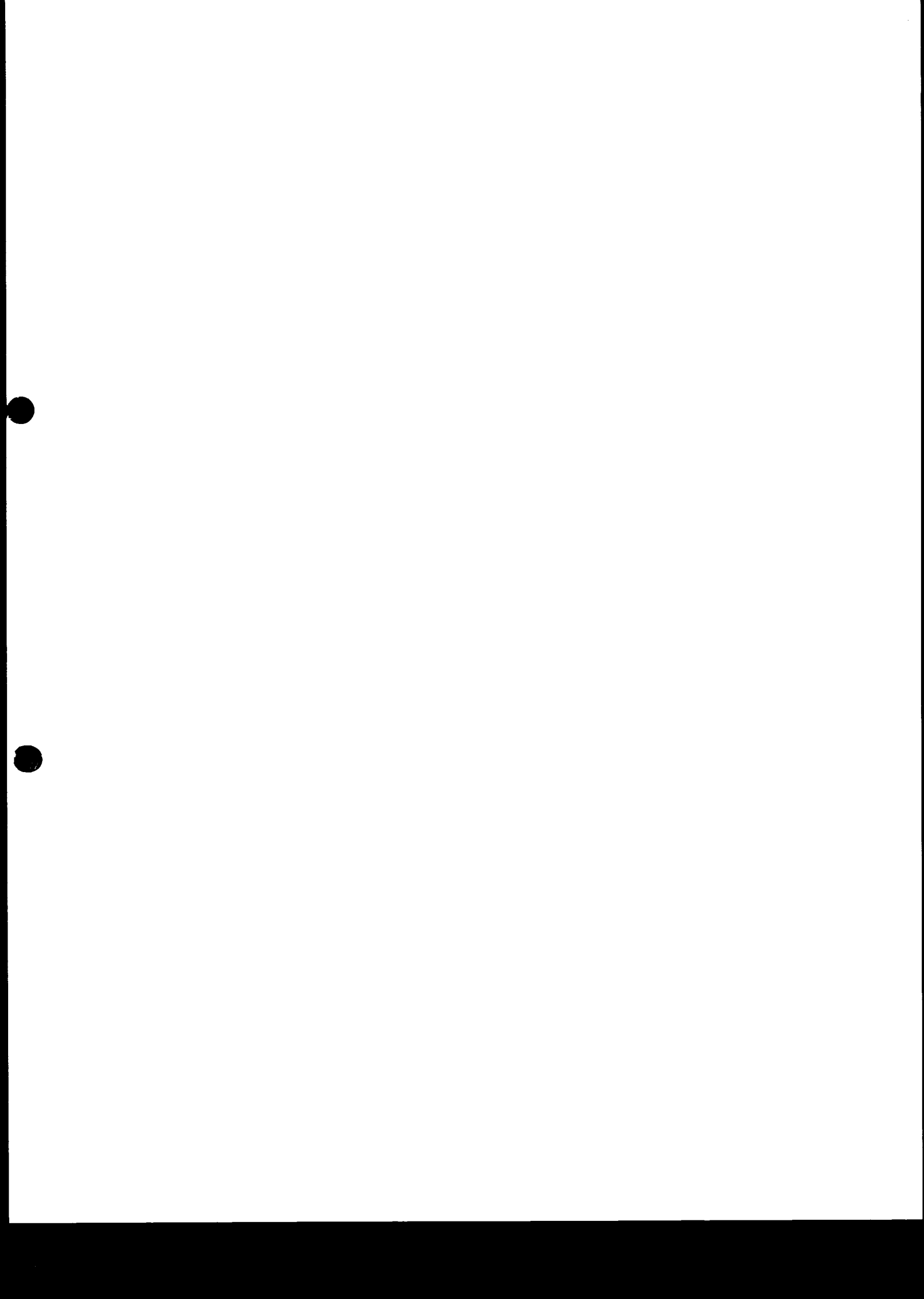
Brightly
No Chord

MAINTENANCE & SPECIFICATIONS



- *Be sure to turn the switch off after playing.
- *Because the keys are plastic, do not use thinner, benzine or other petro-chemicals, but polish them with a dry, soft cloth.
- *Never attempt to touch the inner parts of the unit. For service or repairs, contact the store where purchased. When replacing a fuse, be sure it is the correct rating.
- *The National Electronic Organ creates sounds with IC's and transistors, so tuning is entirely unnecessary.

Keyboards:	Upper Manual	44 keys	f-c	(3½ octaves)
	Lower Manual	44 keys	F-c	(3½ octaves)
	Pedal Keyboard	13 keys	C-c	(1 octave)
Tones:	Upper Manual	Flute 16', Clarinet 16', Flute 8', Diapason 8', Oboe 8', String 8', Flute 4', String 4', Mandolin		
	Upper Pre-Set Sound	Cancel, Wah Trumpet, Piano, Harpsichord, Vibraphone		
	Lower Manual	Flute, Horn, Cello		
	Pedal	Bass, Bass Guitar		
Effects:	Vibrato (On-Off, Short-Long, Light-Heavy)	Upper Sustain (On-Off, Length)		
	Reverberation, Brilliance, Pedal Sustain (On-Off, Short-Long), Glide Control	Manual Balance, Reverberation Select, Pedal Volume,		
Automatic	Rhythm Selectors			
Rhythm:	Rock, Slow Rock, Fox Trot, Swing, Rumba, Cha-Cha, Bossa Nova, Waltz			
	Rhythm Volume, Tempo Control, Synchronous Start, Touch Switch On-Off	Rhythm Balance, Tempo Lamp, Touch Start Switch,		
Auto-Play-Chord:	Auto-Play-Chord Lower, Auto-Play-Chord Pedal, Auto-Play-Chord Pedal 1/1•5			
Others:	Power Switch & Volume Control, Microphone Terminal (with Volume), Expression Pedal, Headphone Jack, Sustain Knee Lever, Input Terminal (25mV, 20kΩ), Output Terminal (360mV, 600Ω), Pilot Lamp			
Output:	35W (P.M.P.)			
Speakers:	20 cm (8") × 2, 8 cm (3") × 2			
L.S.I.:	1			
IC's:	13			
Transistors:	310			
Diodes:	149			
Power Requirement:	60W AC 100/120/220/240V 50-60 Hz			
Cabinet:	Teak Grain			
Dimensions:	111 cm (43.7") [W] × 92 cm (36.2") [H] × 59 cm (23.2") [D]			
Net Weight:	68 kg (150 lbs.)			



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