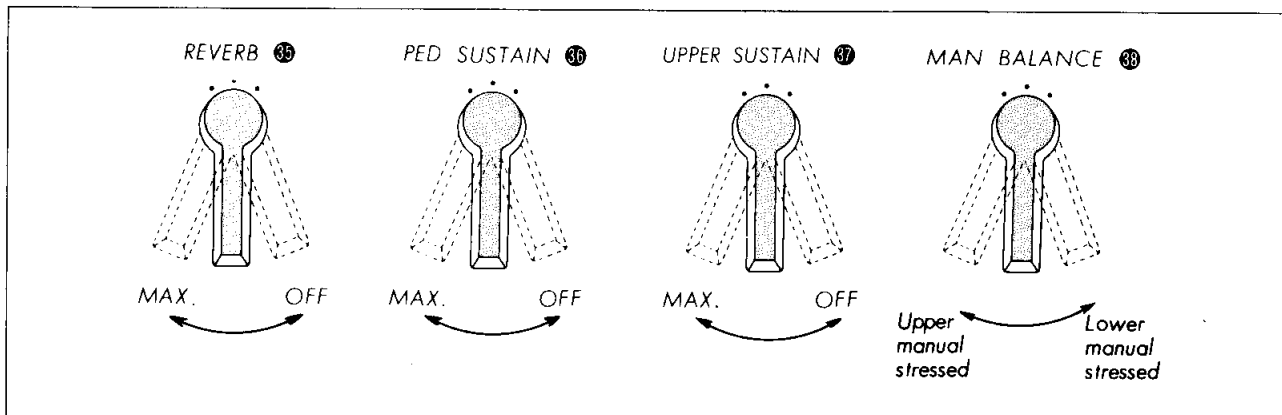


Effect Controls

The four black knobs situated to the left of the upper manual are the effect controls ①. These controls are all continuously variable for the maximum in expressive freedom as shown below.



Manual Balance : ③⑧

The manual balance control governs the relative strength of the upper and lower manuals, and is normally left in the center position. But when it is desired to strengthen one manual—for example, when the upper manual plays the melody and the lower its accompaniment—the control may be turned (in this case to the right) to emphasize the upper manual. Similarly, the balance control is turned to the left when a strongly played accompaniment is required or when the melody is played on the lower manual and requires greater emphasis.

Upper Sustain : ③⑦

Upper sustain effect, the prolonging of notes on the upper manual, is so essential in effective legato performance. It permits sharp tones to be produced simultaneously with smoother treatment, thereby further increasing the expressive range.

The upper manual sustain effect is in the form of a three-way control with the control ③⑦ linked to the sustain selector ②⑧ and the knee lever ①. Their respective functions may be outlined as follows:

Sustain Control : ③⑦

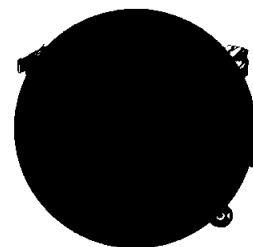
This control is used to set the maximum possible sustain, and may be set before or during the performance. It is turned fully to the left for no sustain, and progressively to the right to lengthen the effect.

Sustain Selector : ②⑧

This selector is used before or during the performance to choose the sustain effect. (See page 14.)

Knee Lever : ①

This lever is operated with the right knee for instantaneous implementation or stop of the sustain effect preset by the sustain control and selector, allowing passage-by-passage or even phrase-by-phrase sustain control precision.



In producing the sustain, set the sustain control first to the desired effect length, turn on the sustain selector, and then open the knee lever to the right. Sustain can be switched on and off with a slight pressure of the knee.

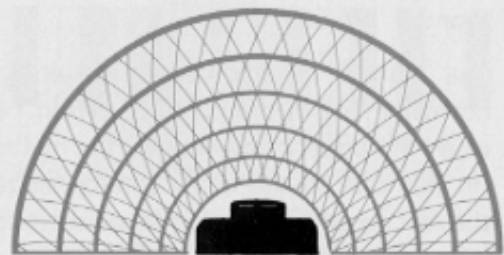
In passages where sustain is not required, the sustain selector can be left on, since no sustain will be produced unless there is pressure on the knee lever. Also, pressure on the knee lever alone will not produce the sustain unless the sustain control is set to the right and the sustain selector turned on. **Upper manual sustain can be applied to all 8' and 4' upper voices over the full 49-key range of upper manual.**

Pedal Sustain : 36

The pedal sustain control provides a sustain effect for all the voices of the pedalboard. The length of the effect can be controlled as illustrated. If used together with the pedal attack lever 27, it produces a real bass tone played pizzicato.

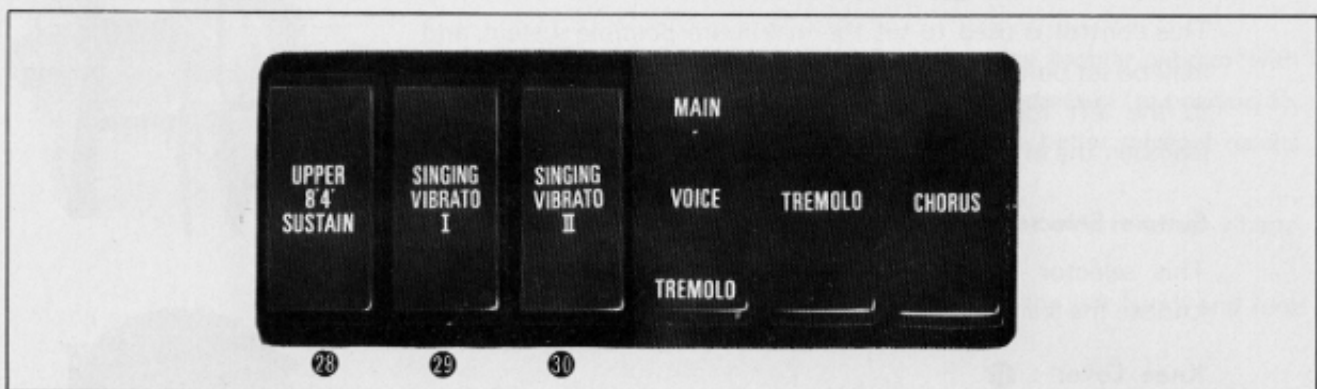
Reverb : 35

Reverberation is the quality that is imparted to musical sound as a result of the acoustical properties of a large auditorium or hall. The use of this effect, therefore, allows you to attain this grandeur at will, evoking the aura of professional performance in your own living room. The control serves to regulate the strength of the reverberatory effect, softer or louder as the music requires.



Effect Selectors

The three tablet controls situated to the right of the lower manual are called Effect Selectors. They are all of a two-position design for easy selection while playing.



Singing Vibrato I, II The explanation of these selectors are given under Singing Vibrato, page 15.

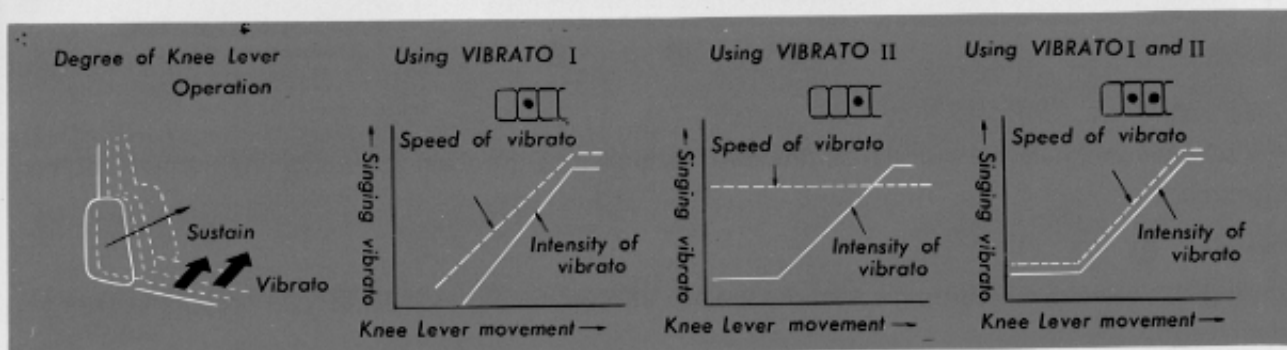
Upper Sustain : 28 The explanation of this selector is given under Manual Sustain, page 13.

Singing Vibrato

In addition to the Touch Vibrato, model C-5AR features another vibrato control which, like the touch vibrato, enables the organist to project the complete depth of the music's emotional feeling directly to his audience. This Singing Vibrato effect comes from innovations which enable you to vary both the intensity of the vibrato and its speed in combination.

When the Singing Vibrato I selector is selected, it cancels the Vibrato Lever control ① on the control panel and no vibrato effect is produced. Then, as the Knee Lever ② is opened to the right, a progressively faster and deeper vibrato is produced. When the Singing Vibrato II selector is selected, it also cancels the vibrato lever control ①, and pressure on the knee lever increases intensity of vibrato only. When both selectors are used together, a slow, shallow vibrato is produced without any pressure on the

knee lever, and as the knee lever is applied, it sweeps into a full, rich vibrato as in the case of VIBRATO I. A slow, shallow vibrato thus produced is similar to the chorus effect given by the tremolo speaker, and useful for religious or slow tempo music. Subtle knee pressure on the lever enables you to implement these singing vibrato effects smoothly and naturally mid-way in a piece, and to provide instant, effortless response of the singing vibrato to any variety of musical mood.



Helpful hints

- 1) Combined with the String voice and Sustain on the upper manual, for example, it imparts a true violin tone, closing the knee lever for staccato notes and opening the lever for sustained notes. This also can be applied to oboe, cello, clarinet and flute solo sounds. It also enables you, with the movement of the knee, to change from a staccato, non-vibrato organ into a beautiful, sustained, vibrant, melodious one.
- 2) Although the overall end result of both the singing vibrato and touch vibrato effects are very similar, the method of application is different. Singing vibrato is applied with the knee lever while, on the other hand, touch vibrato is effected by the organist's finger movement on the key. This permits the organist to exercise a more delicate control over the exact nuance of the effect and to project a deeper "feeling" into the performance.
- 3) On the other hand, singing vibrato is somewhat easier to use, especially for the beginner. In addition, when chords are played on the upper manual, it is particularly difficult, even for the experienced player, to use touch vibrato. It is suggested, therefore, that the singing vibrato be used in this instance. And, in the fast-moving passages of jazz and other types of music, it is easier to control the vibrato with the knee lever.

Sound in Motion

Mellow, throbbing harmony that sings from every corner of your room or hall—that's the unique Yamaha Tremolo. A true moving sound source, the tremolo speaker itself actually spins for exciting richness no mere moving baffle could equal.

The Tremolo selectors ❶ which accomplish this are three black tablets to the right of the effect selectors. Each has a simple ON-OFF type action which allows quick operation while playing.

For extra-sensitive expressive possibilities use the Yamaha-only continuous Tremolo speed control ❷ to match any mood or selection.



Voice : ❶

This selector channels the sound from the two manuals into the main speaker or the tremolo speaker, as desired.

Tremolo : ❷

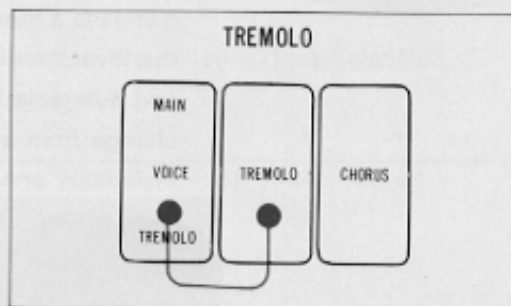
Turning this selector on turns the tremolo speaker at seven revolutions per second producing Tremolo effect.

Chorus : ❸

This selector turns the tremolo speaker at one revolution per second producing Chorus effect.

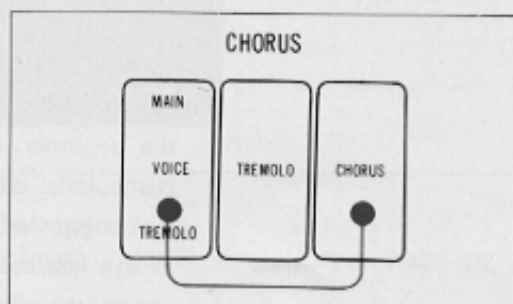
Producing the Tremolo Effect

Set the selectors as shown in the figure (voice and tremolo tablets all on). Moving and natural pulsations of sound lend greater depth, fuller meaning to serious passages, and a touch of genius to pieces which have perhaps lost some of their original freshness. This effect is especially useful for rich, tremulant work.




Producing the Chorus Effect

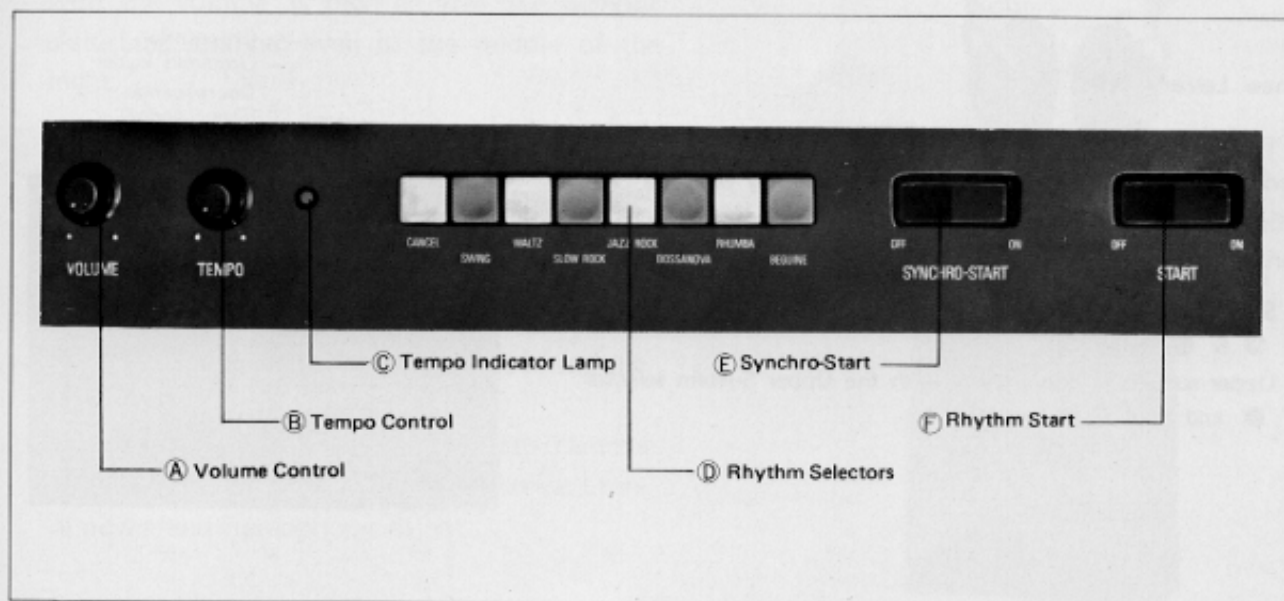
Set the voice and chorus selectors as in the figure, which will provide the dignity and solemnity of choral voices, so effective in the performance of sacred music or other works of slow tempo.



Auto Rhythm Section

Electone C-5AR incorporates an auto rhythm section . This section provides a variety of rhythm accompaniments, from Latin beats to today's popular rock rhythms, at the simple push of a selector button.

In addition, the system employs the exclusive Yamaha Synchro-start, which automatically begins the rhythm accompaniment when the first lower manual or pedal note is struck. These features assure extra versatility from a virtual built-in rhythm band.



How to Use the Auto Rhythm Section



- 1) Push the rhythm selector **D** of your choice. To change rhythms, just push another button; if no rhythm is desired, push the Cancel button.
- 2) Press the Rhythm Start tablet **F** and the rhythm will immediately begin. Then use the Volume **A** and Tempo **B** controls to regulate. The tempo indicator lamp **C** flashes the first beat of every rhythm.
- 3) Then, when ready to play, switch on the Rhythm Start tablet **F** and begin your selection after the beat is fixed in your mind. Use the tempo indicator lamp as a guide.



- 4) For more advanced players, use the Synchro-start tablet **E** instead. This permits the selection to begin first, providing a more impressive performance that can begin with a beat-free upper melody. This Yamaha exclusive is the world's first of its kind, and will assure more professional-sounding selections for any advanced player.
- 5) At the end of the selection, turn the Rhythm Start or Synchro-start tablet off.

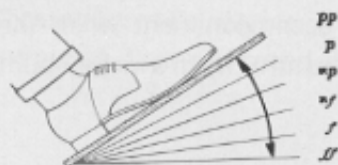
Other Controls

Master Volume :

This control determines the maximum volume obtained from the Electone and can be varied as desired.

Expression Pedal :

Expressive shading within each phrase, and accenting of individual notes can be achieved with this pedal, within the overall range set by the Master Volume.







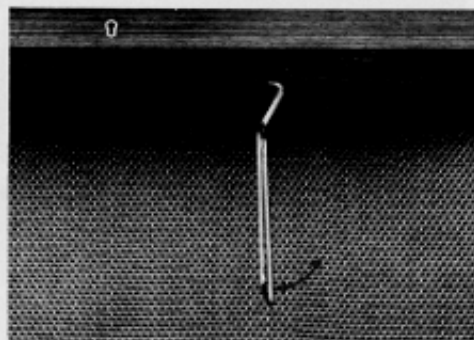
Crescendo
Gradually louder

Decrescendo
(Diminuendo)
Gradually softer

Knee Lever :

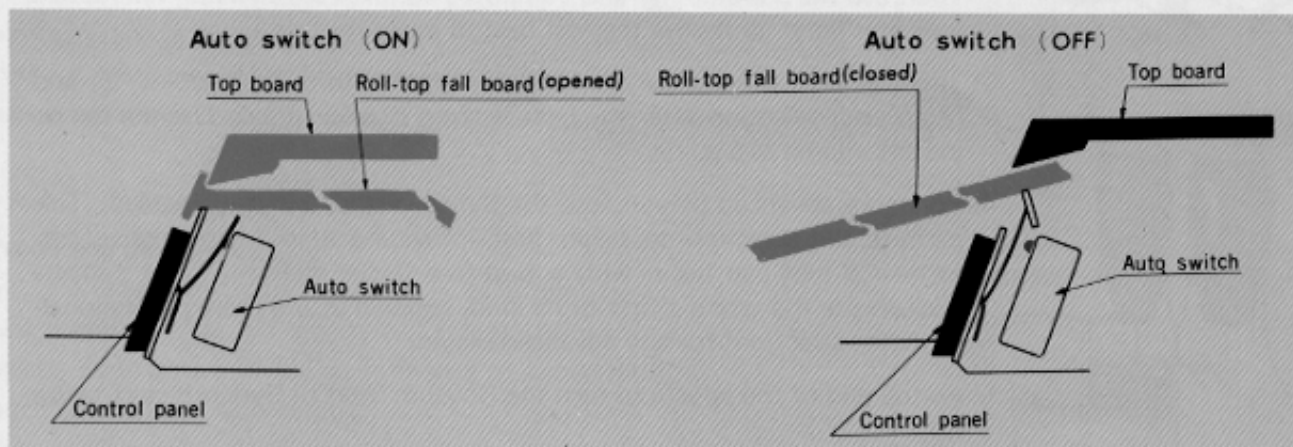
The metal lever folded horizontally underneath the keyboard is the knee lever. It allows passage by passage precision control of the following (Note that the latter two can be used in combination.):

- Singing vibrato in conjunction with the Singing Vibrato selectors  &  (page 15).
- Upper sustain in conjunction with the Upper Sustain selector  and control  (page 13).



Automatic Power Switch

The automatic power switch is linked to the roll-top fallboard. When the fallboard is closed, it automatically switches off the Electone and on again when reopened. There is thus no danger of the organ being left on inadvertently. This is however designed as a safeguard, and power should normally be turned on and off using the main switch.



To Fully Enjoy Your Electone . . .

Besides many tone levers and effect controls through which almost infinite varieties of voice and expression can be obtained, the Yamaha Electone C-5AR offers you some extra special features to further enhance your playing pleasure.

Headphone Jack

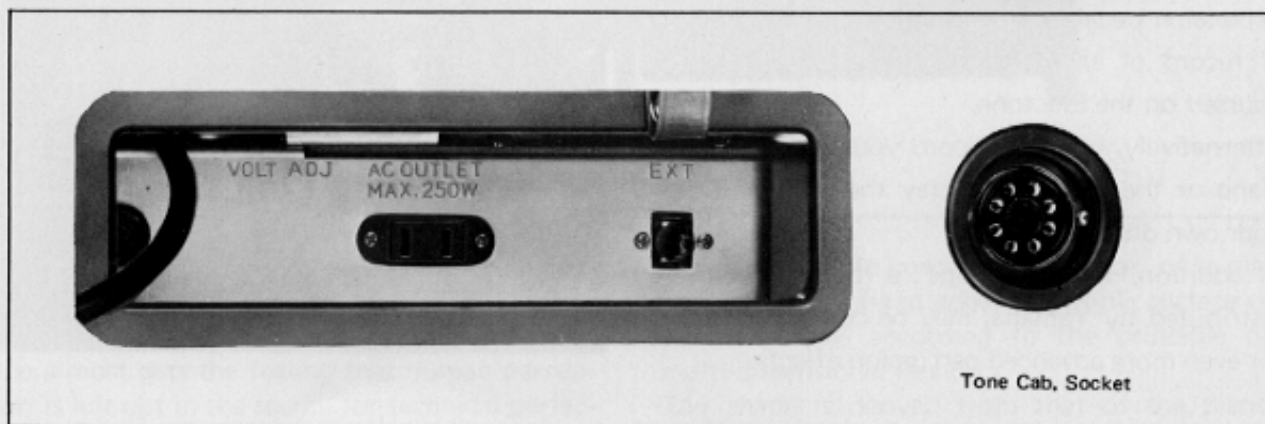
Plug a headphone set (optional accessory) into the jack under the keyboard and you can play with the volume as high as you like without disturbing anyone, even in the middle of the night.



Tone Cabinet Socket

This socket is available at the lower lefthand corner of the back of the Electone. (See the photo below.) It allows you to connect a Yamaha Tone Cabinet without rewiring the amplifier.

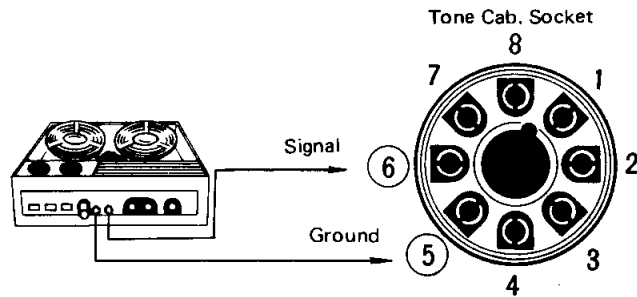
Yamaha Tone Cabinets equipped with Yamaha Natural Sound speakers will give increased tonal power and stereophonic effect.



Recording

When it is desired to record your performance, the use of the tone cabinet socket will provide a much clearer, higher fidelity tape than will a microphone. To connect a tape recorder to the US-type socket (see Fig. 1), obtain a US-type plug and connect the signal terminal of the tape recorder 'record' plug to terminal #6 and the ground terminal to #5.

(Fig. 1)



Note: Be sure to adjust the recording level of the tape recorder to the most suitable level before recording.

External Input Jack

This jack is located to the right of the tone cabinet sockets. It allows you to connect a tape recorder, record player or radio directly, using the amplifier and Natural Sound speaker of the Electone. Thus these external inputs will come to life under Natural Sound reproduction and give you an opportunity to broaden your musical experience.

Since their tones are not controlled by the expression pedal, you can play a tape recording or record of an orchestral concert and 'sit in' yourself on the Electone.

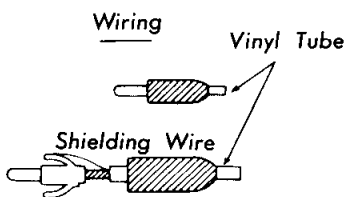
Alternatively, you can record yourself playing a piano or the Electone, replay the tape, and be your own duet partner.

In addition, the 'Mini-Pops', a rhythm cabinet distributed by Yamaha, may be connected here for even more advanced percussion effects.

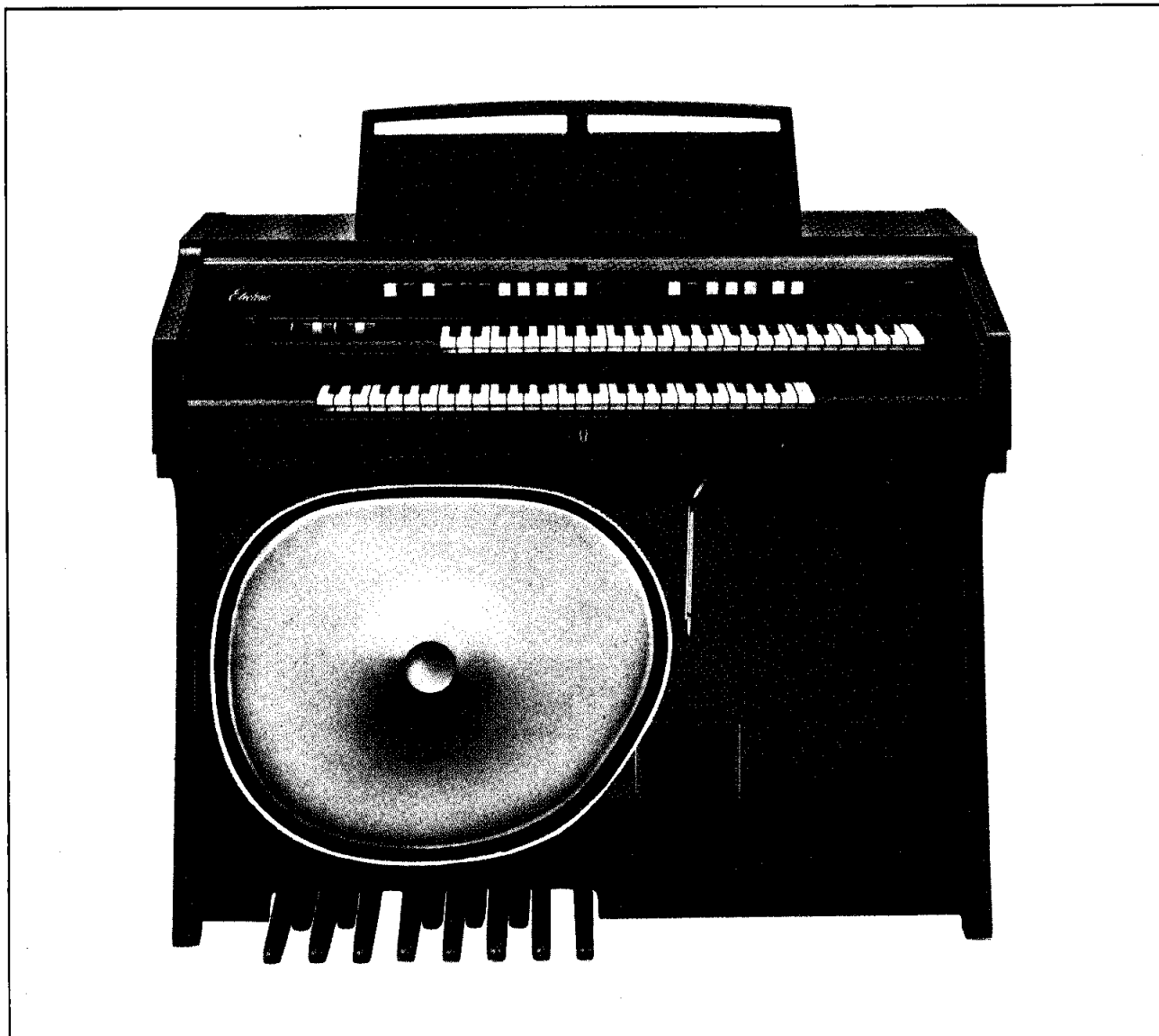


Note:

1. Connect the EXT. IN Jack and the output jack of a tape recorder with shielding wire. Use a spare plug inserted in the EXT. IN Jack.
2. Volume setting for playback tends to differ with the make or model of tape recorder.
3. Adjust the volume of the Electone and the tape recorder to avoid distortion of the sound quality.
4. Make absolutely sure never to touch or otherwise interfere with the circuits or internal elements of the Electone.



A Word about Yamaha's Exclusive Natural Sound Speaker



In this age of electronic marvels, we are accustomed to speakers which offer 'only X% distortion' or 'high fidelity throughout the range'. One almost gets the feeling that human perception is left out in the search for technical perfection.

And if you examine the 'tonal characteristics curve' of a violin, or of a cello, or piano or organ, you will realize that this is exactly what has happened. The natural imperfections which are the emotion and the power of live performance will obviously elude the scientists' intent on mathematical exactness and symmetry.

We at Yamaha believe that music must satisfy the man, not the equation. This is why we have built the Natural Sound speaker.

Here is a speaker which is not symmetrical. It is not a cone, nor a horn nor any other conven-

tional shape. It consists, in essence, of a diaphragm with a fixed edge, the whole surface of which vibrates according to the principle of multi-dimensional flexion.

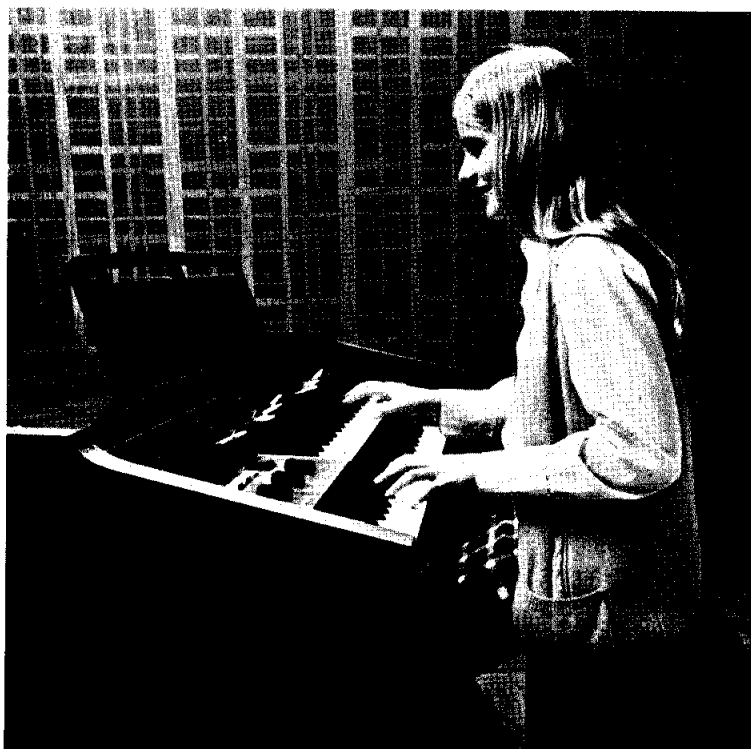
The shape is derived from that of the piano soundboard, and like the soundboard of any other musical instrument, it is 'imperfect'. Like your ear and like everything else in nature, it follows no pat formula, it obeys no regular rule. It is not a Hi-Fi speaker, for what musician wishes to be faithful to someone else's concept of sound?

Surely the musician, as a creative artist, deserves a sound system which is designed for the human ear; designed for Nature; designed not for reproduction but for creative musicianship. We believe the Natural Sound speaker fulfills this aim.

Care of Your Electone

In general you should treat your Electone with the same care you would give any fine musical instrument. However, the following points are suggested to assure optimum enjoyment.

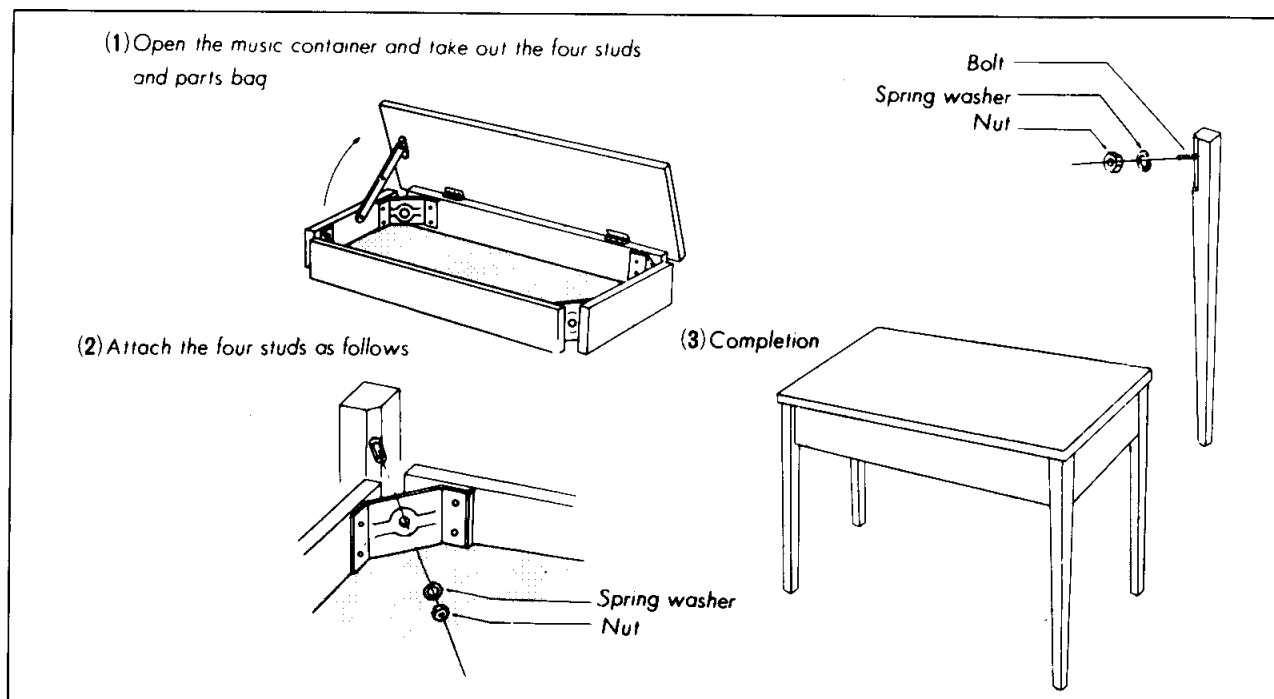
1. Be sure to use your Electone only on the correct voltage. If it is necessary to change the voltage of the Electone, please consult your Yamaha Electone service agent.
2. If any trouble develops, contact your Yamaha Electone service agent. In any case make absolutely sure never to touch or otherwise interfere with the circuits or the internal elements of the Electone.
3. When you have finished playing, be sure to turn off the power switch.
4. In order to clean the plastic keys, tabs, etc., use a damp cloth. Never apply organic solvents such as alcohol as it may result in damage to the plastic materials used.
5. Do not expose the Electone cabinet to the direct rays of the sun, as this may result in bleaching of the finish or separation along the joints of the wood.
6. Be absolutely sure never to strike or scratch the surface of the organ cabinet with a hard stuff.
7. It is also advisable to place the Electone in such a way that it is not exposed to excessive humidity or currents of heated air.
8. In opening and closing the fallboard, grasp the handle with both hands and slide the fallboard gently in its groove. Never attempt to raise the fallboard directly upwards and do not place heavy objects on it.
9. During a thunderstorm turn off the Electone power switch by all means. Unplug the unit if possible.



Do not Be Alarmed If...

- 1. A note should sound the instant you turn on the switch.**
This merely indicates normal operation consequent to a flow of electricity in the main amplifier.
- 2. Only one note is produced even when two pedals are depressed simultaneously.**
When the pedal sustain effect is used, notes overlap following notes. In order to achieve tonal clarity, the Electone is designed so that a note is electronically suppressed the instant the next note is struck. If two pedals are struck simultaneously, only the higher one sounds.
- 3. $2\frac{2}{3}$ voices are not obtainable from keys above F in the highest octave.**
This means that the highest note which this Electone can produce is c5. (See the Compass chart on page 7.)
- 4. Neighboring objects resonate.**
Since the Electone produces a continuous stream of sound, windows, china or other such objects may be found to resonate. To prevent this, reduce the volume of the Electone or take steps to remove resonance.
- 5. Occasional unpleasant static.**
In the majority of such cases, the cause can be traced to the turning on or off of refrigerators, washing machines, electric pumps or other household appliances. Electrical fault in a neighboring outdoor neon sign may also be to blame.
When the cause is a home appliance, connect the Electone to an outlet as far as possible away from the offending appliance. This phenomenon, although perhaps annoying, poses no danger to the Electone's circuitry.
If the cause is a fault in neon or fluorescent lighting fixtures, the fault should be repaired. When the cause is unknown, or in case of doubt, contact your Yamaha dealer.
- 6. The Electone reproduces radio or TV sound signals.**
This kind of phenomenon can occur when there is a powerful radio or TV transmitter, or an amateur radio operator located in the vicinity. If this situation is distracting, contact your Yamaha dealer.

HOW TO SET UP THE BENCH



Specifications of Model C-5AR

KEYBOARDS

Upper Manual	49 keys c~c ₄ (4 octaves)
Lower Manual	49 keys C~c ₃ (4 octaves)
Pedals	13 keys C ₁ ~C (1 octave)

TONE LEVERS

Upper Manual	Flute	16'
	Trombone	16'
	Flute	8'
	Clarinet	8'
	Brass	8'
	Oboe	8'
	String	8'
	Flute	4'
	String	4'
	Flute	2 $\frac{2}{3}$ '
Lower Manual	String	2 $\frac{2}{3}$ '
	Wood	8'
	Horn	8'
	Cello	8'
Pedals	Wood	4'
	Cello	4'
	Bass	16'
	Bass	8'
	Tuba	8'

EFFECT LEVERS

Brilliance
Vibrato
Percussive 4' (Upper)
Percussive 2 $\frac{2}{3}$ ' (Upper)
Percussive Length (Upper)
Repeat Speed (Upper)
Touch Vibrato (Upper)
Pedal Attack (Pedals)

EFFECT CONTROLS

Reverb
Pedal Sustain
Upper Sustain
Manual Balance

EFFECT SELECTORS

Upper Sustain
Singing Vibrato I
Singing Vibrato II

TREMOLO SELECTORS

Voice (Main/Tremolo)

Tremolo
Chorus

AUTO RHYTHM SECTION*

Rhythm Selectors	
Swing	Bossanova
Waltz	Rhumba
Slow Rock	Beguine
Jazz Rock	Cancel

Rhythm Controls	
Rhythm Start	
Synchro-Start	
Tempo	
Volume	
Tempo Indicator Lamp	

OTHER CONTROLS

Master Volume
Expression Pedal
Knee Lever
Tremolo Speed Control
Power Switch with Pilot Lamp

OTHER FITTINGS

Headphone Jack
External Input Jack
Tone Cabinet Socket
Music Rest
Roll-top Fallboard with Auto Switch and Lock
Matching Bench with Music Storage Space

NATURAL SOUND SPEAKERS

Main:	JA-5101	59x48cm (23 $\frac{1}{4}$ x 14 $\frac{1}{2}$ ")
Tremolo:	JA-1701A	16x23cm (6 $\frac{1}{2}$ x 9")
Electro-control 2-speed		

CIRCUITRY

Solid State (Incl. ICs and FETs)
Main Amplifier: OCL SEPP System
Output Power: 60 Watts
Power Consumption: 130 Watts
100/110/117/125/220/240V AC,
50/60Hz

DIMENSIONS

Width:	114cm (45")
Depth:	70cm (27 $\frac{1}{2}$ ")
Height:	94cm (37")

WEIGHT	90kg (198 lbs.)
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FINISH	Natural American Walnut, Oil Finish
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* C-5AR only

SINCE 1887  **YAMAHA**