

CSY-2A

GUIDE TO YOUR YAMAHA ELECTONE



Congratulations on your selection of a Yamaha Electone Organ Model CSY-2A with synthesizer.

It's the world's most advanced and newest musical instrument, carefully designed and built to provide a lifetime of musical enjoyment. In addition to the familiar Electone voices, 13 realistic instrumental voices and one more creative sound effect, "Funny", are available.

To make sure you get the most from its many features and electronic circuitry, please read this manual thoroughly before attempting to play your Yamaha CSY-2A.

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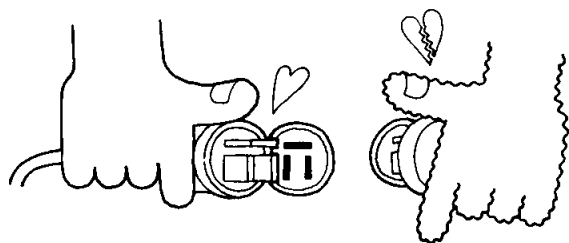
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Read the following before playing

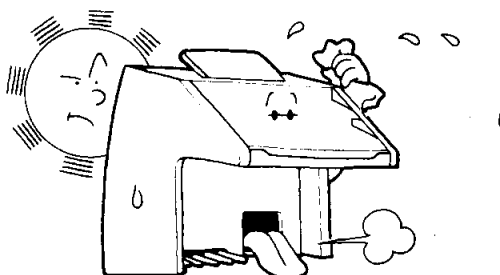
In general, treat your Electone with the same care you would any fine musical instrument. The following points are suggested for optimum enjoyment.

1. Use only proper line voltage. Consult your Yamaha serviceman for changes.

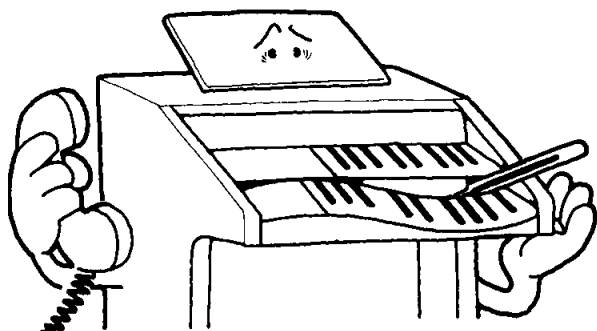
As to British-Standard Model, its information is in 'Specifications' on the last page.



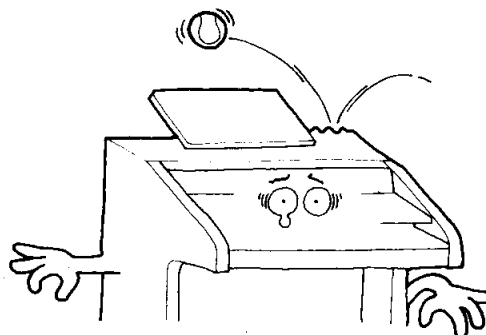
4. Shield the cabinet from direct sunlight, humidity and heat to protect the finish and joints.



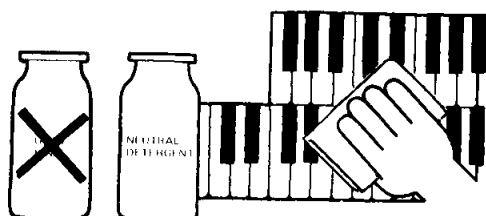
2. Never touch the inside parts yourself.



5. Do not hit or scratch the cabinet with a hard object.



3. Clean keys, etc, with a damp cloth only. Never use solvents such as gasoline; they will damage the finish.

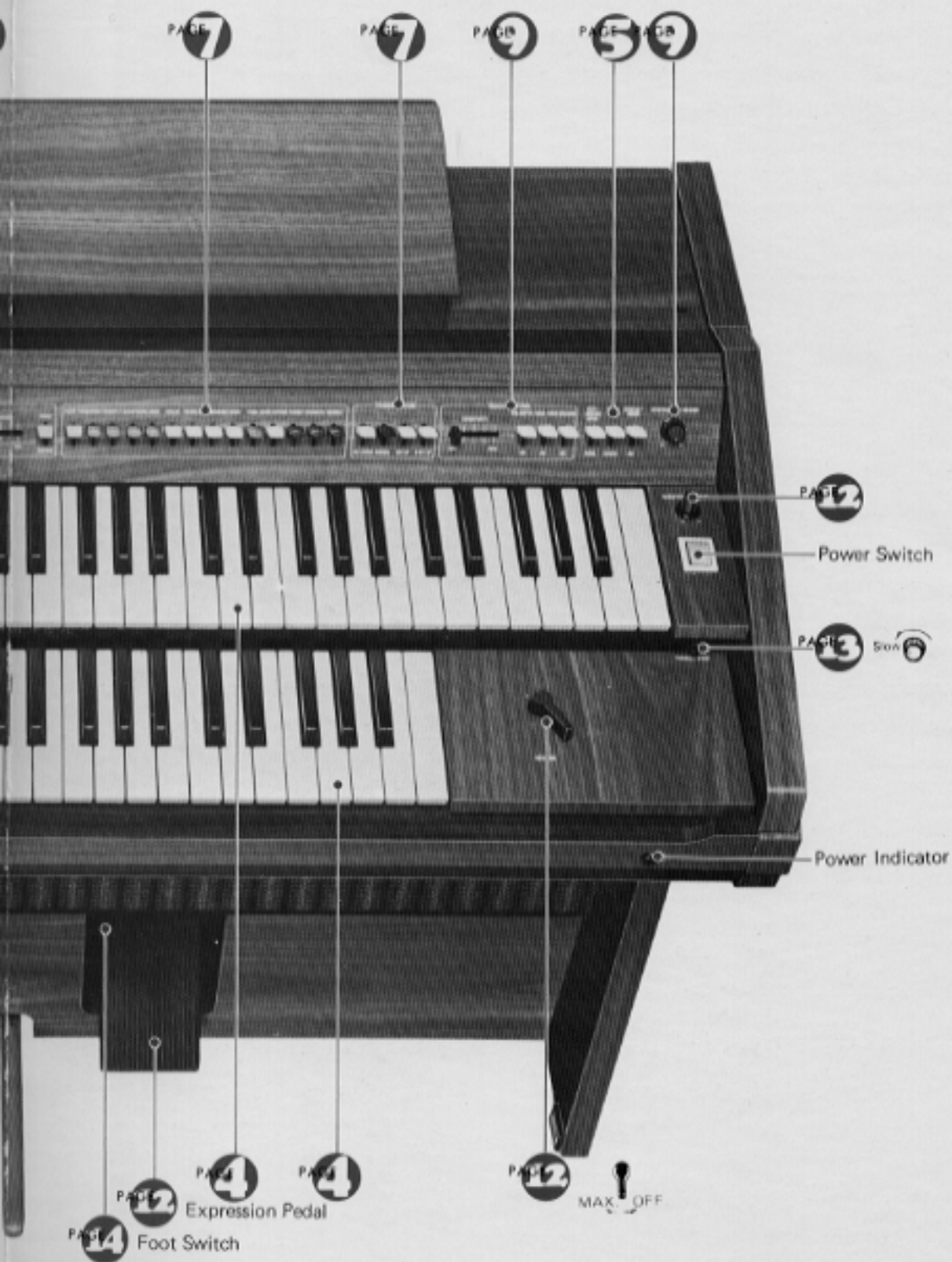


6. Always shut off the power after playing.

This is Your Electone



While reading the manual, keep this page open for reference.



Specifications subject to change without notice.

A New Sound in the World of Music

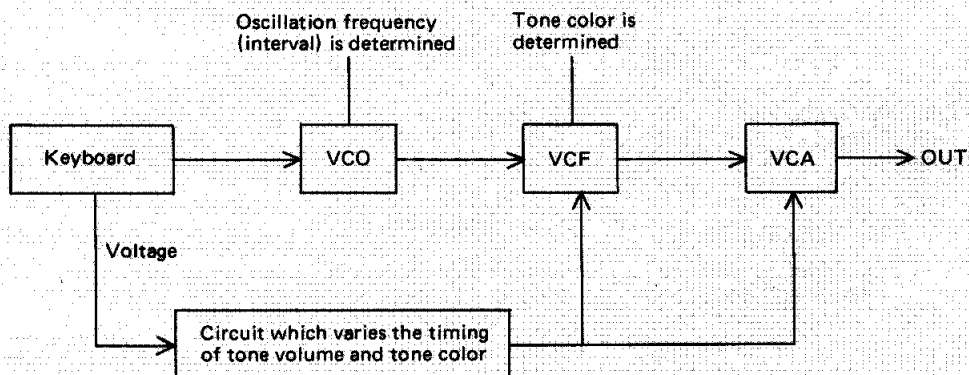
Yamaha is continually striving for the production of sound which is "lively" and "rich". The CSY-2A has thus been hailed as a great success — it features a new "live sound". Furthermore, it incorporates functions by which this sound can be freely varied. The synthesizer function is a new addition, bringing an even wider range of music to the fingertips of the performer.

In the synthesizer section of the CSY-2A, all basic tones are pre-set to solve complex operational problems which often hamper the effectiveness of synthesizers. A system which allows freedom of variation in tone color, intervals, pre-set tone volume, and the creation of new sounds is built into the synthesizer section of the CSY-2A.

The synthesizer is a system to control the oscillator which generates tones, a filter which affects tone color and an amplifier which amplifies tones by voltage. Thanks to the synthesizer, we can now control tone color according to time, control the starting and damping of tones, and freely vary intervals.

As for the tones of natural instruments such as the trumpet, violin, etc. which we hear all the time without paying much attention to, at the points of the tones' beginning, continuation, and decay, the color, interval and volume are subtly changing. The time required for these changes is not the same for all instruments, and this time plays an important part in forming the tone color of each instrument. Therefore, with the use of the synthesizer tones extremely close to the natural tones can be created, while in addition completely new musical sounds can also be created.

To briefly describe the principle of this synthesizer, there is a voltage-controlled oscillator (VCO), a voltage-controlled filter (VCF) and a voltage-controlled amplifier (VCA), which are linked as shown in the diagram below. When a key is pressed, a certain voltage is generated which affects the VCO to determine the interval. The signal passed through the VCO enters the VCF, where tone color is determined. The spacing of the tone color changes is controlled by signals from another circuit (the envelope generator). Finally, amplification is carried out in the VCA. Start, decay and length of sustain are also determined, and the sound is emitted. Sounds produced in this way have a natural and vivid feel.



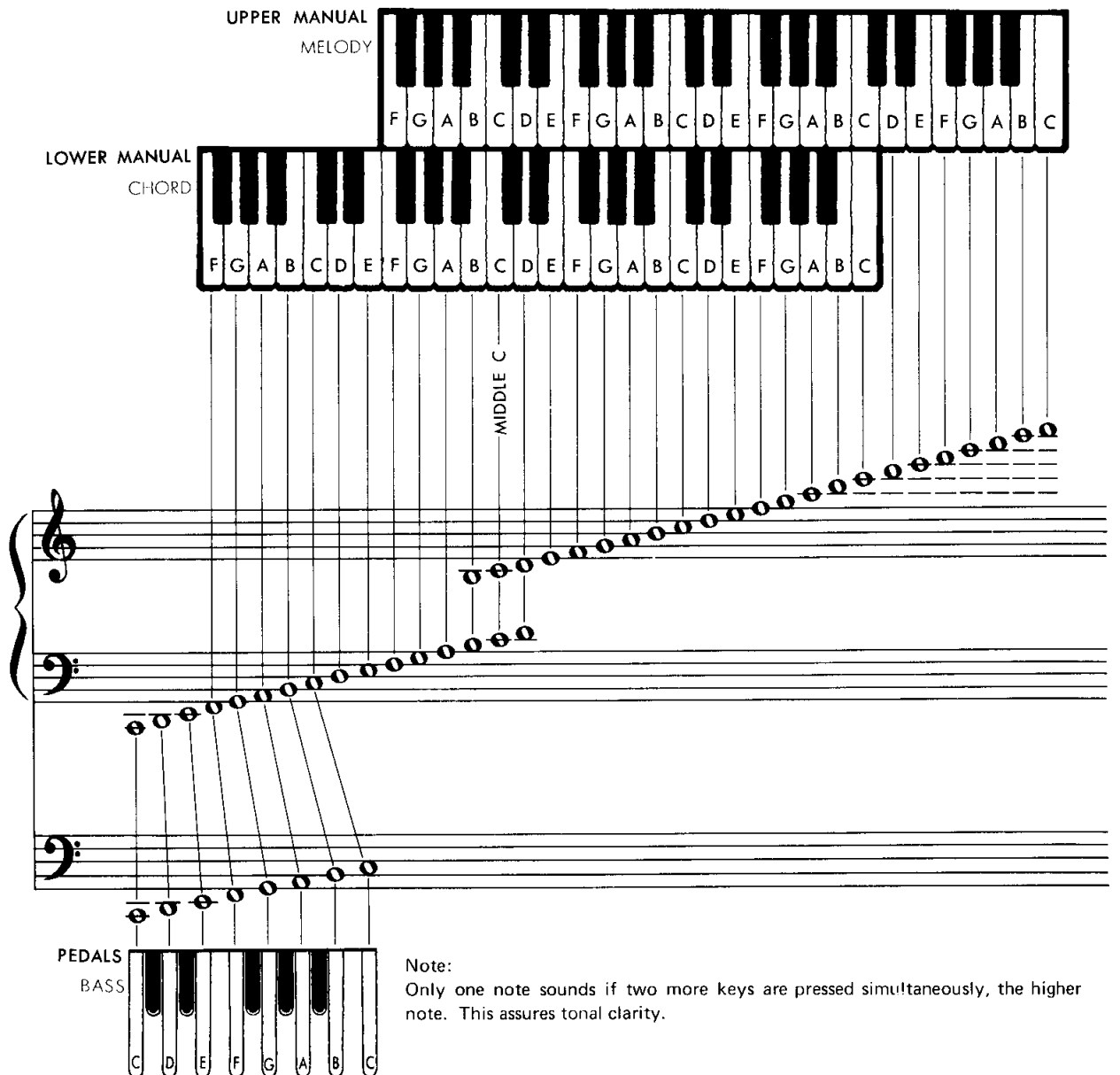
Keyboards

The CSY-2A has three keyboards. The upper two are called "manuals" and the lower one, played with the feet, "pedals." They have keys and octaves as follows:

Upper Manual	44 keys (3 ² / ₃ octaves)
Lower Manual	44 keys (3 ² / ₃ octaves)
Pedals	13 keys (1 octave)

The CSY-2A is designed to permit playing the melody on the upper manual with the right hand, the chords on the lower manual with the left hand, and bass notes on the pedals with the left foot.

All keys are arranged in the keyboard method layout shown below. Each white key has a name (from C to B), and the blacks are sharps or flats.

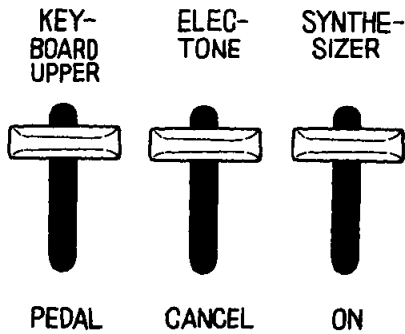


Note:
Only one note sounds if two more keys are pressed simultaneously, the higher note. This assures tonal clarity.

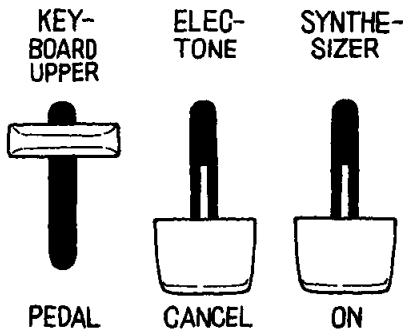
Electone and Synthesizer Selectors

You can play synthesizer voices on either the upper manual or the pedals. Many combinations can be made by combining the positions of the three levers at the right of the panel: Keyboard, Electone, and Synthesizer Selector levers.

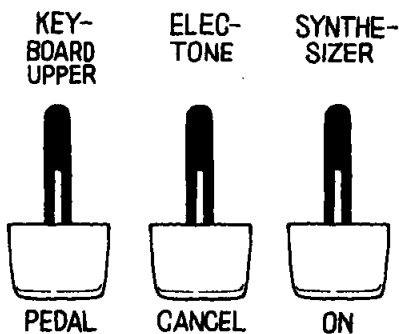
1. When you want to play the Electone voices, but not the synthesized voices.



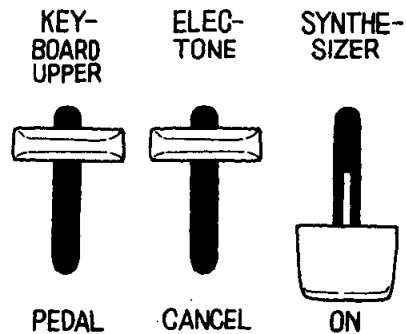
2. When you want to play the synthesized voices, but not the Electone voices, on the upper manual:



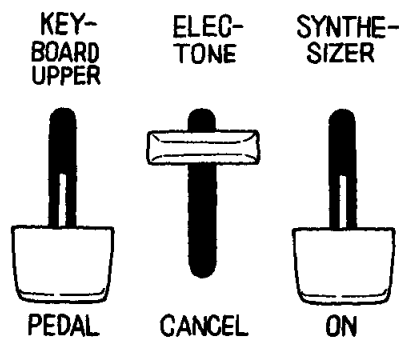
3. When you want to play the synthesized voices, but not the Electone voices, on the pedals:

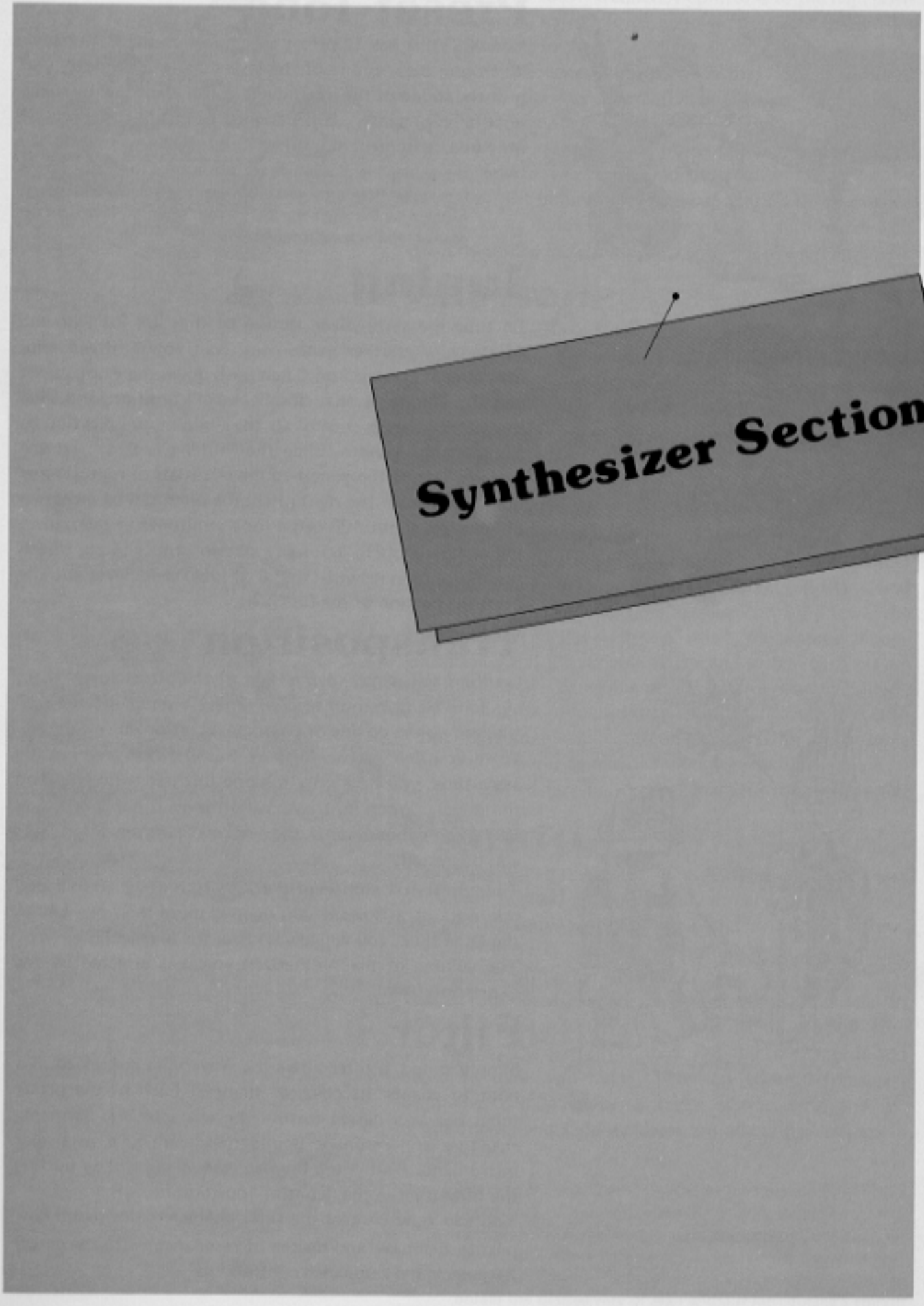


4. When you want to play both the synthesized and the Electone voices on the upper manual:

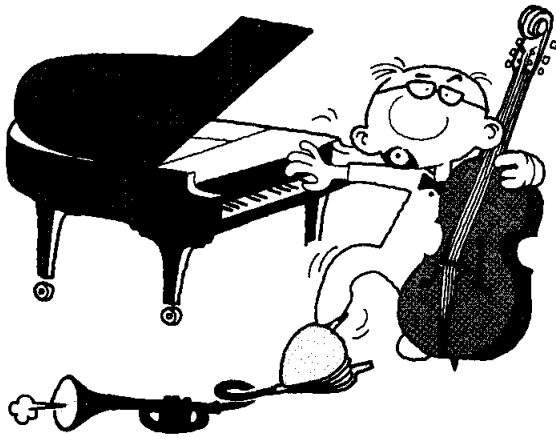


5. When you want to play both the synthesized and the Electone voices on the pedals:





Synthesizer Section



Preset Tone

Your CSY-2A has 14 preset tone levers on the front panel. When you depress one of the levers and push a note, you hear the sound of the instrument voice identified by name on the lever panel. It is designed to create the sound of only one instrument at a time.

Note: If you depress more than one preset tone lever at the same time, you hear only the instrument selected by the lever furthest to the right on the panel. When no levers are depressed, you hear no synthesized voices.

Tuning

To tune the synthesizer section of the CSY-2A with the Electone or another instrument, wait about fifteen minutes after it is turned on. Then push down the Flute preset and the vibrato lever to the "control" position, and slide the vibrato depth control to the "minimum" position to eliminate the vibrato. Slide the "tuning control" (at the extreme left of the panel) to the left (flat) or right (sharp) until you obtain the right pitch; the pitch can be increased or lowered about 100 cents (one semitone) in relation to the standard pitch. To easily obtain proper pitch, match the Flute preset with the 8' Flute tone lever on the Electone portion of the CSY-2A.

Transposition

On the front panel, to the right of the preset tones, there are four transposition levers. These levers shift the synthesized voices up one or two octaves, or down one octave. When you depress two or more transposition levers at the same time, you hear only the one furthest to the right on the panel. When no transposition lever is depressed, you hear the keyboard as if the "normal" transposition lever was depressed.

The synthesizer section of the CSY-2A is designed to sound one note at a time; if you depress more than one key at the same time, you will always hear the highest note.

The volume of the synthesized voices is affected by the expression pedal.

Filter

Simply stated, a filter alters the harmonics contained in a note to change its color or timbre. Each of the preset tones has as a design feature the characteristic harmonic structure and resonant points that identify a particular instrument. Switch the filter to manual control by putting the filter lever in the "control" position (down).

You can now control the filter characteristics (from low-pass to highpass, and degree of resonance) with the cutoff frequency and resonance controls.



The closer the cutoff frequency control is to the high position, the more harmonics are allowed to pass through the filter resulting in a very "brilliant" sound. When you slide the cutoff frequency control from the "low" to "high" while holding a key down, the sound you hear changes from soft and muted to bright and crisp. In the meantime, the closer the resonance control is to the maximum position, the more nasal the sound becomes, emphasizing the frequency just before cutoff. When you set the resonance control in its center position, you can create a wah-wah effect by sliding the cut off frequency control left and right.

Envelope

The term "envelope" may seem strange, however, every sound event has an envelope. If you draw a heavy line connecting the peaks of the sound's waveform, you would have the event, or "envelope" waveform. Synthesizers employ separate envelope generators with a varying number of controls to adjust the different portions of the envelope wave shape.

The Yamaha CSY-2A preset voices all have preset attack and sustain envelope patterns. In the preset position, the "attack" (the time required for a note to reach full volume) and the length of time the note sounds (sustain and release) are adjusted for you in advance. By placing the envelope lever in the control position, the preset envelope is cancelled and the variable attack and sustain controls are now functional. When the attack control is set to "slow", a long rise time results. When the sustain control is set to "long" the tone will continue to sound for quite some time after the key is released. Conversely, when the controls are set to fast and short, a staccato tone will result.

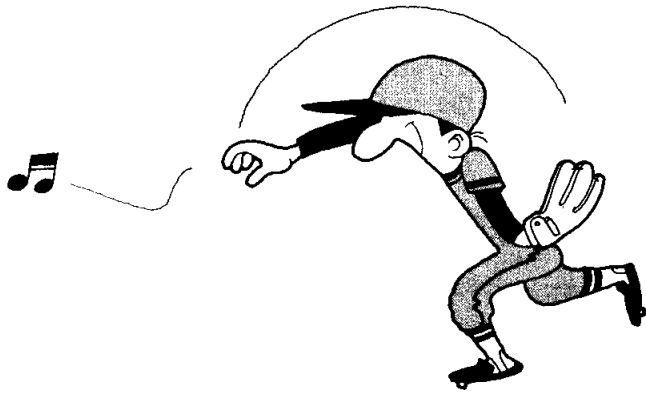


Vibrato

The effect called "vibrato" is a familiar one to almost every one involved in music. The term actually indicates a change in frequency, both above and below the normal pitch of the note. This change is quite small and is not to be confused with other effects.

The vibrato lever cancels the preset vibrato included in some of the preset voices, i.e., flute, trumpet, oboe, etc., and enables the performer to adjust the rate (speed) and depth to their own taste. There are controls for speed (right-hand slide causes a faster vibrato rate) and for depth (right-hand slide increases the amount of change in pitch).

Note: The rate of "wah-wah" included in the tone of "funny" as a preset part of the voice, can be altered using the vibrato controls. Place the vibrato lever to "control" position, set the vibrato depth control to the minimum (extreme left) position. You can now adjust the vibrato speed control to obtain the desired rate of wah without introducing a vibrato effect.



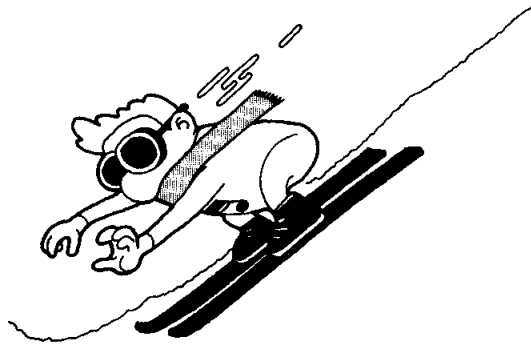
Attack Bend

Attack bend has two levers: the pitch bend that lowers a note a little in pitch the moment it is pressed and the tone bend that changes the timbre. With the pitch bend lever depressed, a note will be lower by about 100 cents (one semitone) in pitch the moment a key is depressed, then return to the normal pitch gradually. The tone bend lever alters timbre by adjusting the extent to which a note changes in tone to sound its intended sound after the key is pressed. Since the levers are independent, you can introduce pitch bend or tone bend or both at any time.

Note: It affects only the upper manual.

Portamento

The term "Portamento" is a latin musical notation used to indicate a sound gliding continuously from some selected note (frequency) to a second selectable point, sounding all the intermediate frequencies. This effect is designed to function between any two keys played in sequence, either higher or lower. The time required for the pitch to shift from the first note played to the second (oscillator slew rate) is controlled by the portamento control. Sliding the control to the right increases the time required for the pitch to reach the normal pitch of the second key played. Conversely, sliding it to the left results in a very short period (fast slew rate).



Touch Control

Your Yamaha Electone Organ with synthesizer is equipped with special touch controls that adjust the vibrato depth, wah-wah and volume in direct proportion to the downward pressure on the keys.

There are three levers to the right of the panel and next to the transposition levers: vibrato depth, wah-wah and volume. There is also a sensitivity control that adjusts the overall effect of the touch controls. (These controls do not function when the synthesizer is being used on the pedals. When the vibrato depth lever is depressed, and a key is played lightly, you hear almost no vibrato. When you press the key harder, the vibrato effect will increase. You can adjust the sensitivity of this effect with the sensitivity control.

All of the touch-sensitive effects can be used in combination with each other. For example, when the vibrato depth and volume levers are depressed, a subtle change in finger pressure on a note alters both the vibrato depth and the volume.

Synthesizer Volume

The synthesizer volume control adjusts the overall volume of the synthesized voices, so you can achieve a balance in volume between the synthesized and Electone voices or other instrument.



Electone Section

Tone Levers

To the left of the upper and lower manuals are series of tone levers which control the Electone voices that will sound when the keys are depressed. They are divided into groups for upper, lower and pedals, so that different registrations can be set for each.

Upper Manual Levers	6 voices
Lower Manual Levers	3 voices
Pedal Levers	2 voices

Each lever provides two methods of control. One is by continuously moving the lever from off to full, to achieve the exact setting for that tone, and thus balancing the overall tone setting with perfect precision. Each lever also has two easy-to-feel click stops, at 1/3 and 2/3 positions. This lets you refind any setting with mathematical precision and no guesswork in a matter of seconds.

PITCHES OR FOOTAGES

The Electone section of your CSY-2A has three different pitch levels, indicated by the numbers 16', 8', 4'. These are standard organ abbreviations showing the tone's pitch in relation to the fundamental (written note). An 8' tone will sound just as it has been written. A 16' tone will provide a tone exactly one octave lower than the written note. Similarly, 4' tones are one octave higher than the written note.

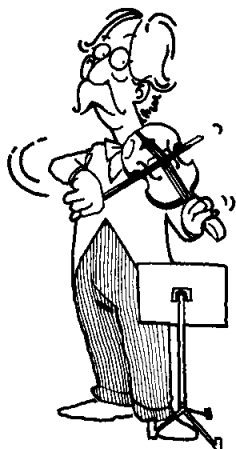
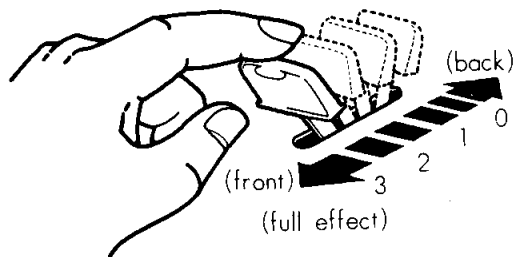
Vibrato

Vibrato is a waving of the tone. You will see violin and cello players use it freely by an oscillating motion of the left hand, that increases the emotional quality of the violin tone. This vibrato levers produces the same vibrato effect.

Upper Percussive

Changing the beginning of some or all notes can do wonders for lively selections. Your CSY-2A's percussive effects provide subtle but important shading at the moment each note is heard. The special popping 4' percussive drive can be smoothly blended into all upper manual tones with a single variable lever (percussive 4'), and a separate lever (percussive length) regulates the length of decay for this effect.

With percussive, use a detached fingering. Each note should be played cleanly; slurred notes will diminish the percussive impact.



Reverb

The reverberation effect, which makes your playing sound full and rich as if you were playing in a large hall, can be adjusted continuously and smoothly to suit your taste.

Note: You can add reverberation to the synthesized voices, too.

Pedal Sustain

This control provides continuous adjustment of the sustain effect on the pedals. For the pedals, this is the only sustain control, and it affects all pedal tones with the exception of Bass Guitar, which sustains automatically.

Manual Balance

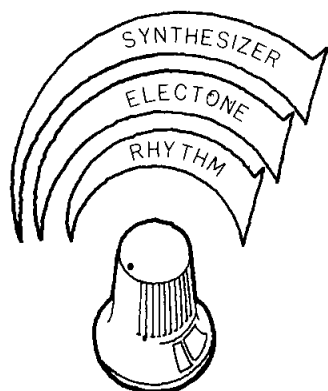
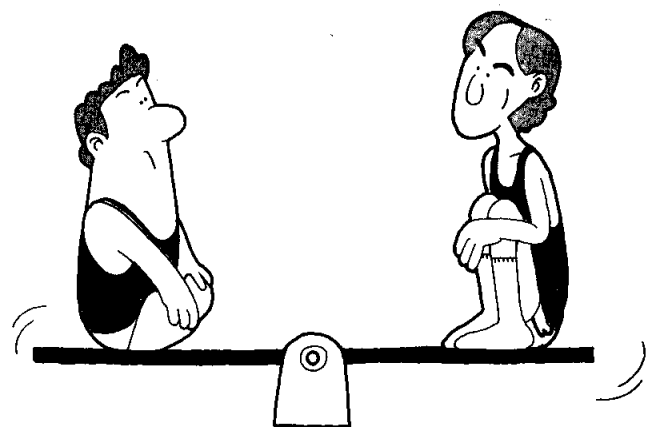
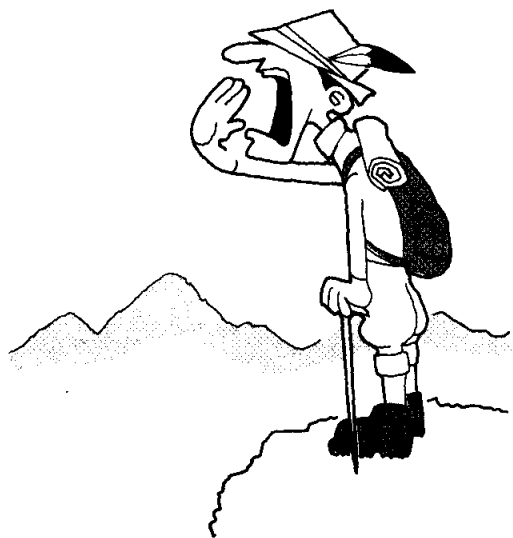
This control governs the volume strength of the upper and lower manuals. It is normally left in the center position, but can be shifted to stress the melody or accompaniment in a selection or passage. This control can also be used to compensate for a higher number of total tone lever settings (which would ordinarily result in higher volume) on one of the two manuals.

Expression Pedal

Push down the pedal to control the volume of each note or phrase. This pedal is extremely important for adding emotion to your playing. The pedal is balanced to stay in any position once set. Rest the entire right foot on the pedal and relax it, pressing with the toe to increase volume, with the heel to decrease it.

Master Volume

The master volume control adjusts the overall volume of the whole organ function, including the synthesized voices, Electone voices and rhythm section voices.



MIN • • MAX

Tremolo/Chorus



The Electone's special tremolo is produced by a rotating baffle that actually spins just behind the rotary speaker grille on the side of the cabinet.

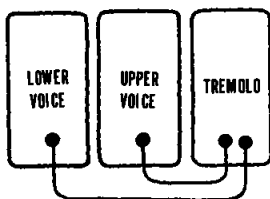
The tremolo selector is complemented by a continuous tremolo speed control knob.

When the speed control is set to its maximum position, the Tremolo will turn the baffle at normal revolution. The Chorus will turn it at one revolution. Once either tablet is switched on, it takes several seconds for the rotary speaker to attain the standard speed. This is also true when switching to a slower speed (Tremolo to Chorus), the speed variation will be heard in the music.

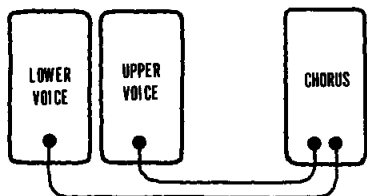
If you wish an instant tremolo or chorus sound, be sure to switch on that tablet well in advance of the speaker selector. For special selections you can use this speed variation by switching the speaker on first, the Tremolo or Chorus switch later.

Note: Only Tremolo is produced when Tremolo and Chorus are switched on simultaneously.

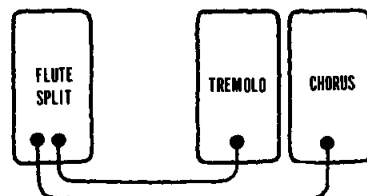
Note: Unless either the Tremolo or Chorus tablets is depressed, you hear no Tremolo Voices regardless of the positions of the Upper, Lower Voice, Synthesizer Voice, or Flute Split Selectors.



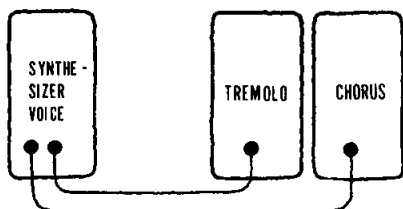
CHORUS



FLUTE SPLIT



SYNTHESIZER VOICE



UPPER VOICE

Lets you divert upper manual voices from the main to the rotary speaker.

LOWER VOICE

Does the same for lower manual voices.

FLUTE SPLIT

This tablet feeds Flute voices of the upper and lower manuals and preset Combinations to the rotary speaker. Combined with other manual voices through the main speaker it creates a rich, singing blend.

Note: The Flute Split control maintain precedence, and supersede the Upper and Lower Voice functions.

SYNTHESIZER VOICE

If you switch this tablet on, you can hear the synthesized voice with tremolo from the Rotary speaker. Other voices come out of the Main speaker.

Auto Rhythm Section

This section provides eight catchy rhythms, each one called forth by a simple button. You can also create more rhythm variations with the variation button. In addition to a combined volume and balance knob, tempo control and tempo indicator light, there are two other switches: ordinary Start and the Yamaha Synchro-Start which begins the rhythm accompaniment on the first beat of a measure when the first lower manual or pedal note is depressed. A foot switch fitted in the expression pedal housing lets you stop and restart the rhythm at any point during play.

NORMAL START

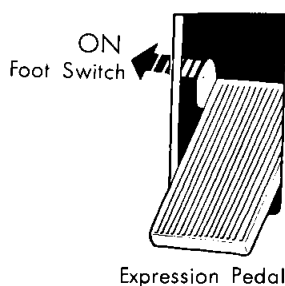
For instant rhythm at the beginning of a selection. Push the rhythm selector desired, then flick the Start switch on.

SYNCHRO-START

Select the rhythm, switch on the Synchro-Start and begin to play once you have the tempo established. The rhythm will begin as soon as you strike a lower manual or pedal note. This switch permits you to lead in with a rhythm-free melody at first if so desired.

You can switch off the Auto Rhythm with the foot switch.

When you wish to continue hearing the Auto Rhythm, be sure to switch on with the foot switch.



RHYTHM FOOT SWITCH

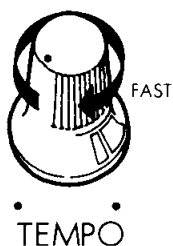
Once the rhythm is on, push this switch once to instantly stop it, once again to restart. It lets you stop and restart the rhythm in the middle of a selection without using your hand.

Note: If the foot switch has been used, be sure it is reset to normal after you finish playing your selection, and then make sure both Start and Synchro-Start switches are off. Otherwise you may turn on one of the switches in the middle of a new number only to find the rhythm still cancelled.

TEMPO

The tempo of the Auto Rhythm section can be adjusted by a continuous control knob. This is best accomplished by turning on the Synchro-Start switch.

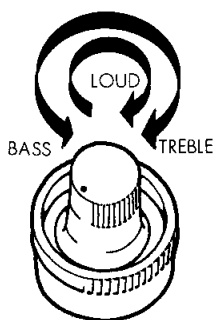
Although no sound will be produced, the indicator lamp will flash each quarter note, letting you visually check the tempo while you adjust.



BALANCE

This control lets you balance the low rhythm sounds, such as drums, and the high sounds (i.e., cymbals) according to your taste and the selection. It can make a big difference even when using the same rhythm. Turn the knob to the right to accentuate the higher (treble) sounds, to the left for lower (bass). If you accentuate the treble sounds the rhythm becomes brighter.

Check the playing hints for specific settings.

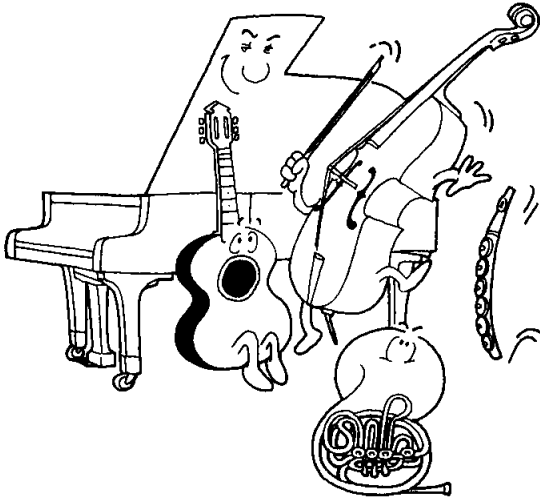


VOLUME — BALANCE

VOLUME

Use it to balance the volume of the rhythm section and the manuals. This volume is then varied during the selection by the expression pedal, just like that of the other tones.

Auto Bass/Chord Fun Blocks



The CSY-2A is equipped with a "Fun Block" section of five buttons which can be used in conjunction with the Auto Rhythm section (see p. 14). It enables you to play a variety of alternating bass chord rhythms, with the pedal and chords automatically matching the melody notes, simply by holding down either a single lower manual key or a lower manual chord, according to which fun block button you press. From your very first keyboard attempt, the fun block feature will let you sound like a pro, making full rhythmic use of the lower manual and pedals. Here is how it works.

Note: You cannot add synthesized voices to the Auto Bass/Chords. When the Auto Bass/Chord is in its ON position, pressing the pedals produces no bass, unless the keyboard, electone and synthesizer selector levers are properly arranged. To do so, move all the pedal tone levers to their "OFF" positions and depress the synthesizer selector lever to its "ON" position. Then play chords with your left hand and depress the pedals; you will hear the Auto Bass/Chords and the synthesized bass voices.

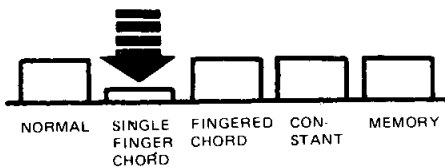
SINGLE FINGER CHORDS (THE EASY PLAY WAY)

- Set the tone levers for the tones you want on the lower manual both Piano and Guitar sounds are available); use either or both levers to adjust the Auto Bass Chord tone color and volume in the normal way.
- Match the setting of the Pedal tone lever to the lower manual tones.
- Select a rhythm pattern and push the corresponding button until it clicks and stays down.
- Set the Rhythm Start switch on.
- Adjust the rhythm tempo and volume.
- Press the Single Finger Chord button.

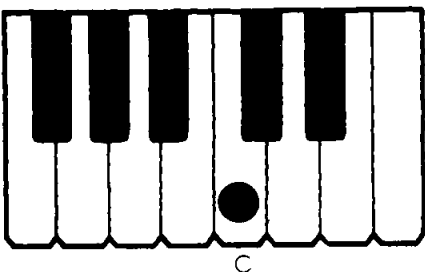
Now, if you press a C key on the lower manual, a C major chord will play in an alternating pattern which matches the rhythm pattern and tempo set.

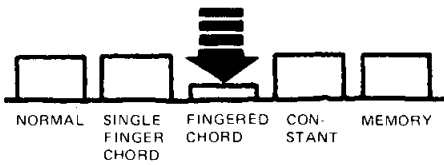
As long as the key is held down, the bass chord rhythm continues. When the Black-key pedal is pressed, the chord changed from major to minor, and when released, the chord returns to major. When the White-key pedal is pressed, the chord changes from major to seventh, and when released, the chord returns to major. When both Black- and White-key pedals are pressed, a minor seventh results.

Note: The bass note will play the root and fifth of any chord pressed, except when the Jazz Rock rhythm is used; in that case the bass sounds the root only.

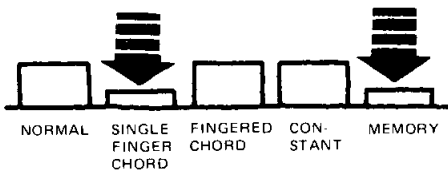
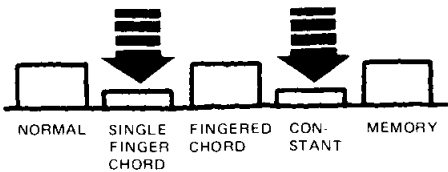
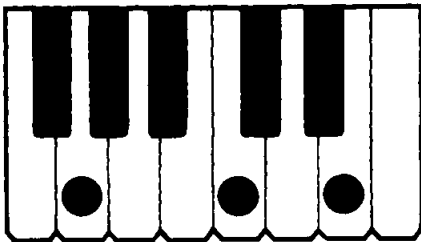


C chord





C Major chord



FINGERED CHORDS

- Select the rhythm and set both its tempo and volume as explained earlier.
- Depress the Fingered Chord button.
- Play a desired chord (major, minor, seventh, minor seventh) on the lower manual.

Now as long as you hold that chord it will play according to the rhythm and tempo you have set.

If the Single Finger Chord and Fingered Chord buttons are both pressed, the Single Finger Chord takes precedence.

CONSTANT

- Select the rhythm and set both its tempo and volume as explained above.
- Depress the Constant button and either Single Finger Chord button or the Fingered Chord button.
- Press the desired key or chord on the lower manual. As long as the keys are held down, the chord, as well as a pedal note, will sound as if they were held down during normal play, without any rhythm pattern. As soon as this key is released the chord stops.

MEMORY

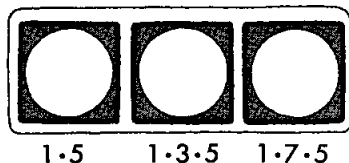
This button can be used in conjunction with the (Single Finger Chord button only) press both buttons and set the rhythm (including tempo and volume) as explained above. Now, when a lower manual key is held down the bass chord rhythm will play according to the rhythm set, but will also continue to play even when the key is released. The memory function also has another use. When this button is depressed along with both the Single Finger-Chord and Constant buttons, it provides a continuing bass chord just as when the latter two buttons are used alone. In this case, however, the bass chord will continue to sound even after the key is released.

NORMAL

This button cancels the other Fun Blocks, returning the lower manual and the pedals to normal playing functions.

Note: The Flute voices on the lower manual are not affected by the "Auto Rhythm" rhythm pattern. If it is set on it will sound continuously for any key held down. Use it to soften the mood of the Auto Bass Chord accompaniment.

Bass Variation



After you have mastered this simplest use of the Auto Bass/Chord system, you can vary the effect by choosing between the three Bass Variation selector buttons.

It is also possible to combine the Auto-Rhythm sounds with the Auto Bass/Chord accompaniment; simply turn up the rhythm volume.

By using the ordinary Start switch instead of Synchro-Start, the combined rhythm sounds will play before and after the chord is pressed.



1-5

This is the basic pattern; it alternates the root (1) and fifth (5) in the bass regardless of rhythm chosen or type of chord. The one exception is the Jazz Rock rhythm, which maintains root (1) pedal and no alternation.

Note: The Slow Rock and Jazz Rock rhythms play only the root (1), when the Rhythm Variation is switched on.



1-3-5

This selector effects the Slow Rock and Rhumba rhythms, with which it will play a root (1), third (3), and fifth (5) pattern. All other rhythms function as with the (1.5) selector.

Note: The Rhumba rhythm will play a root (1), third (3), and fifth (5) pattern, when the Rhythm Variation is switched on.



1-7-5

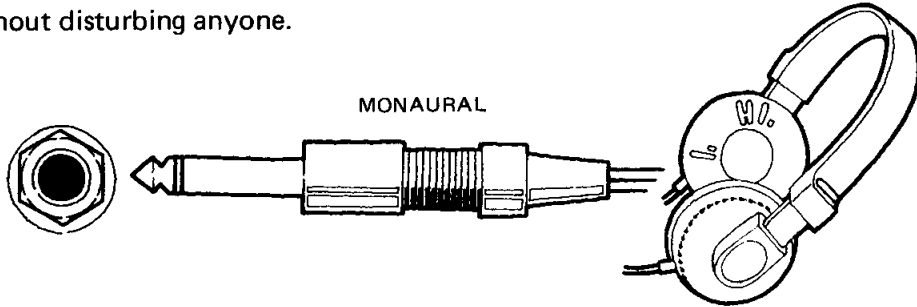
This selector effects the Slow Rock and Rhumba rhythms when a seventh or minor seventh chord is being played, with which you will hear the root (1), seventh (7), and fifth (5) bass notes. When playing a major or minor chord the unit will perform exactly as it does with the second Bass Variation selector (1-3-5).

Note: The Rhumba rhythm will play a root (1), seventh (7), and fifth (5) pattern, when the Rhythm Variation is switched on.

To Fully Enjoy Your CSY-2A

HEADPHONE

A Yamaha headphone set (optional) can be plugged into the jack under the keyboard. With the headphone connected, the speaker is automatically shut off, allowing you to play or practice at any volume level without disturbing anyone.



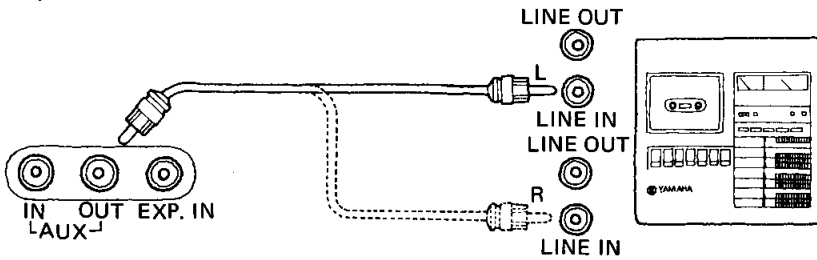
EXP. IN

This jack accepts any sound source and reproduces it through the CSY-2A speakers.

Note: The volume of the sound source can be controlled by the expression pedal.

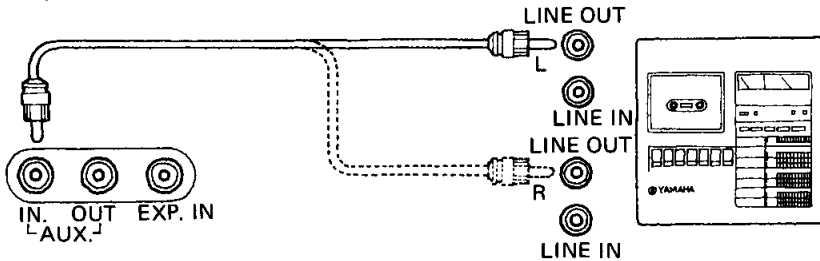
AUX OUT

For recording, connect the AUX OUT jack with the tape-deck's LINE IN jack. Control the recording levels on the tape deck.



AUX IN

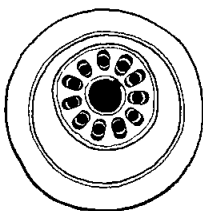
For playback, connect the AUX IN jack with the tape-deck's LINE OUT jack. Control the playback levels on the tape-deck.



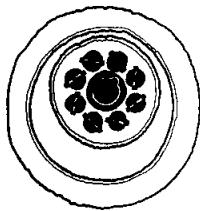
Note: These sound sources (Tape recorder etcetera) are not affected by the expression pedal.

STONE CABINET

These sockets are on the rear panel. Use it to connect a Yamaha Tone Cabinet, without any rewiring required.



SPLIT



GENERAL

Electone is not out of order If . . .

1.the set does not go on when the power switch is turned on. Check the following.

Is the AC plug fully inserted into the electric wall outlet? Reinsert it to be sure. Is there power coming from that outlet?

If there is power in the outlet but the Electone does not play, unplug the cord and contact your Yamaha dealer. There are NO USER SERVICEABLE PARTS inside.

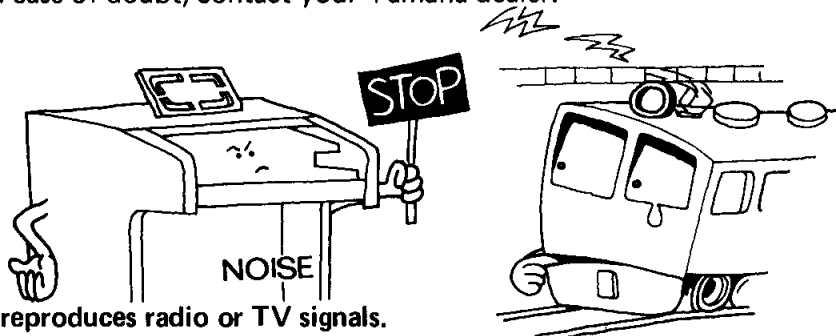
2.a sound should occur the instant you turn on the switch.

This merely indicates normal operation consequent to a surge of electricity in the main amplifier.

3.occasional unpleasant static occurs.

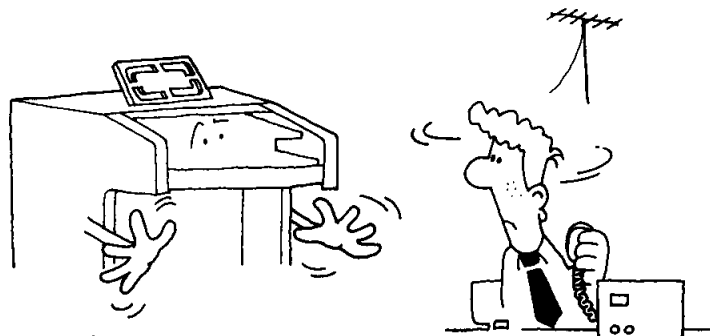
In the majority of such cases, the cause can be traced to the turning on or off of refrigerators, washing machines, electric pumps or other household appliances. Electrical faults in a neighboring outdoor neon sign may also be to blame.

If the cause is a fault in a neon or fluorescent lighting fixture, it should be repaired. When the cause is unknown, or in case of doubt, contact your Yamaha dealer.



4. the Electone reproduces radio or TV signals.

If there is a powerful transmitter such as a radio station in the vicinity this can occur. Contact your Yamaha dealer.



5.rattling (sympathetic vibration) occurs.

All materials have critical resonance frequencies at which they vibrate. The Electone's continuous tones will naturally cause other objects (windows, shelves, etc.) to vibrate.



6.pedal notes sound too high, upper keyboard notes too low. This is especially noticeable when comparing the Electone and piano. Piano tones are combinations of harmonics and must interact with their surroundings, while Electone harmonics are simpler (multiples of the fundamental tone), requiring the Electone to be adjusted differently at the assembly stages.

Specifications

KEYBOARDS

Upper Manual	44 keys f ~ c ₄ (3-2/3 octaves)
Lower Manual	44 keys F ~ c ₃ (3-2/3 octaves)
Pedals	13 keys C ₁ ~ C (1 octave)

SOLO SYNTHESIZER SECTION

(Operated by Upper Manual or Pedals)

PRESET TONE LEVERS

Flute	Harpsichord
Trombone	Bass
Trumpet	Tuba
Saxophone	Bass Guitar
Oboe	Funny
Violin	Trumute
Piano	Double

FILTER CONTROLS

Preset/Control Selector
Cutoff Frequency
Resonance

ENVELOPE CONTROLS

Preset/Control Selector
Attack
Sustain

VIBRATO CONTROLS

Preset/Control Selector
Speed
Depth

TRANSPOSITION LEVERS

One Octave Down
Normal
One Octave Up

Two Octaves Up

TOUCH CONTROLS

Vibrato Depth (On/Off)
Wah-Wah (On/Off)
Volume (On/Off)
Sensitivity

ATTACK BEND CONTROLS

Pitch (On/Off)
Tone (On/Off)

OTHER CONTROLS

Tune
Portamento
Synthesizer Volume

OTHER SELECTORS

Keyboard (Upper/Pedal)
Electone (On/Cancel)
Synthesizer (On/Off)

ELECTONE SECTION

TONE LEVERS

Upper Manual	Flute	16'
	Trombone	16'
	Flute	8'
	Oboe	8'
	String	8'
	Flute	4'
Lower Manual	Flute	8'
	Horn	8' or Piano
	Cello	8' or Guitar
Pedals	Bass	16'
	Bass Guitar	

EFFECT LEVERS

Vibrato
Percussive 4' (Upper)
Percussive Length (Upper)
Pedal Sustain (Upper)

EFFECT CONTROLS

Reverb
Manual Balance (Upper/Lower)

TREMOLO SELECTORS

Synthesizer Voice
Flute Split
Upper/Lower Voice (Main/Rotary)
Tremolo
Chorus

AUTO RHYTHM SECTION

Rhythm Selectors	
March	Jazz Rock
Waltz	Rhumba
Swing	Bossanova
Slow Rock	Samba
Variation	

Rhythm Controls

Normal Start
Synchro-Start
Rhythm Stop (Foot Switch)
Tempo
Volume
Tone Balance
Tempo Indicator Lamp

AUTO BASS/CHORD FUN BLOCKS

ABC Selectors
Normal
Single Finger Chord
Fingered Chord
Constant
Memory
Bass Variation Selectors
1 · 5 1 · 3 · 5 1 · 7 · 5

GENERAL

CONTROLS

Master Volume
Expression Pedal
Tremolo Speed Control
Power Switch

FITTINGS

Headphone Jack
Expression Input Jack
AUX IN Jack
AUX OUT Jack
Tone Cabinet Socket
Pilot Lamp
Music Rest
Matching Bench with Music Storage
Space

SPEAKERS

Main (3): 30cm (12"), 20cm (8"), 5cm (2")
Tremolo (2): 16cm x 23cm (6½ x 9")
5cm (2")

CIRCUITRY

Solid State	
Output Power:	Main 30 Watts (RMS)
	Rotary 15 Watts (RMS)
Power Consumption:	130 Watts
Power Source:	AC, 50/60 Hz


DIMENSIONS

Width	: 110 cm (43-1/4")
Depth	: 59 cm (23")
Height	: 91 cm (35-3/4")
WEIGHT	: 69 kg (151 lbs)

Specifications subject to change without notice.

Special Instructions for British-Standard Model

As the colours of the wires in the mains lead of the apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows.

The wire which is coloured GREEN-and-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol  or coloured GREEN or GREEN-and-YELLOW.

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

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

IMPORTANT

THE WIRES IN THE MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE.

GREEN-AND-YELLOW:	EARTH
BLUE:	NEUTRAL
BROWN:	LIVE

WARNING:

THIS APPARATUS MUST BE EARTHED.

SINCE 1887



YAMAHA

NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN