

# B·20CR

**GUIDE TO YOUR YAMAHA ELECTONE**

Welcome to the Yamaha world of music. We are sure your selection of a Yamaha Electone was a wise one, and we want you to know that we will do everything possible to help you derive a lifetime of enjoyment from this fine musical instrument.

Please read this manual carefully to be sure you are familiar with each of the Electone's features and their expressive possibilities. In that way you and your Electone can become lifelong partners in musical creativity.

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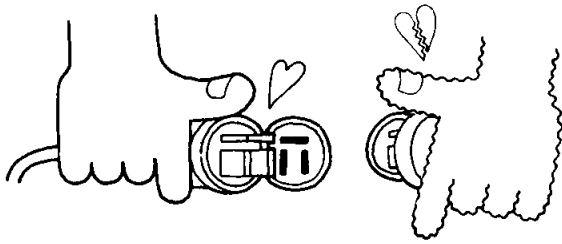
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# Read the following before playing

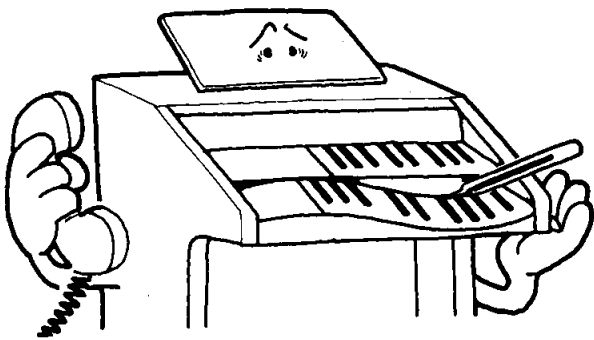
In general, treat your Electone with the same care you would any fine musical instrument. The following points are suggested for optimum enjoyment.

- 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.*

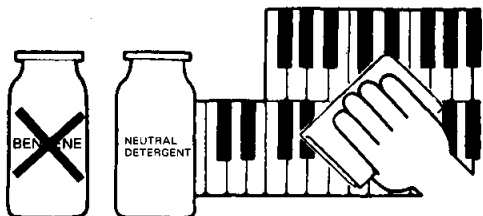


- 2. Never touch the inside parts yourself.

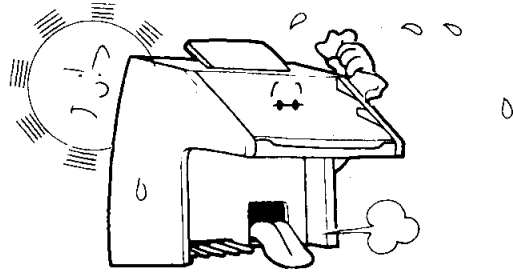


- 3. Always shut off the power after playing.

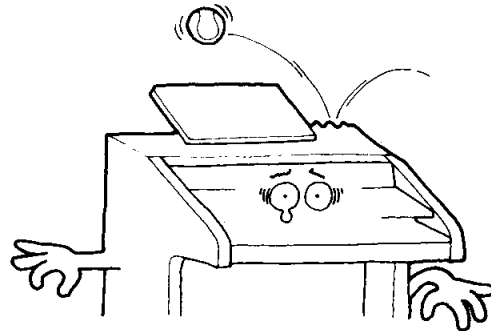
- 4. Clean keys, etc, with a damp cloth only. Never use solvents such as benzene; they will damage the finish.



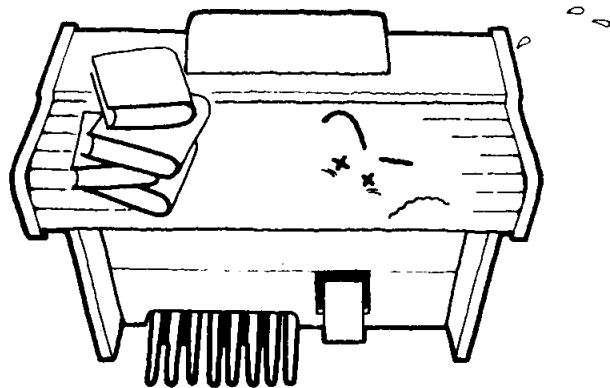
- 5. Shield the cabinet from direct sunlight, humidity and heat to protect the finish and joints.



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



- 7. To open or close the fallboard grasp the front lip with both hands and slide gently. Never pull directly upwards. Do not place anything heavy on the fallboard.



# This is the B-20CR

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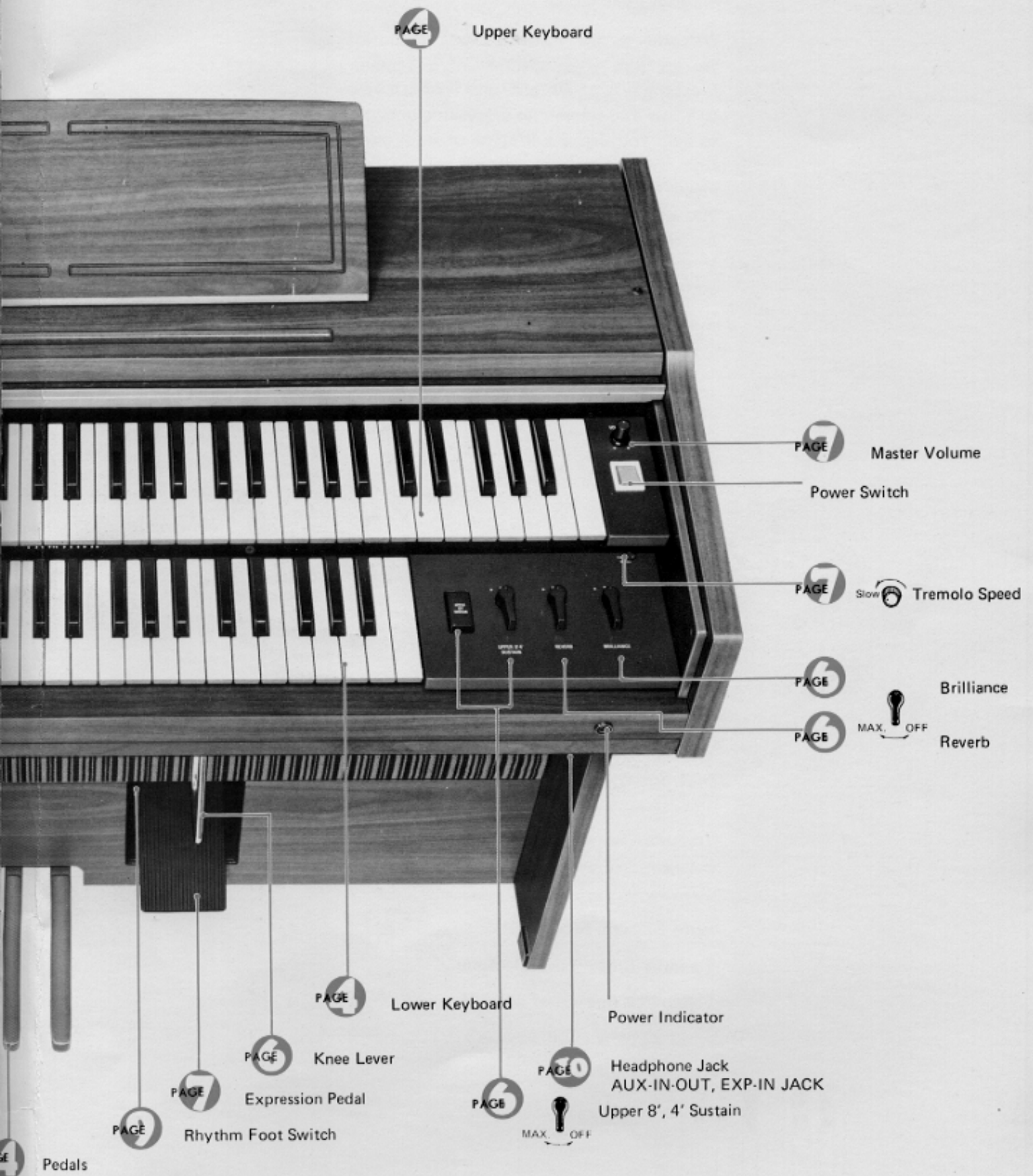
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Upper Keyboard  
Tone Levers

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



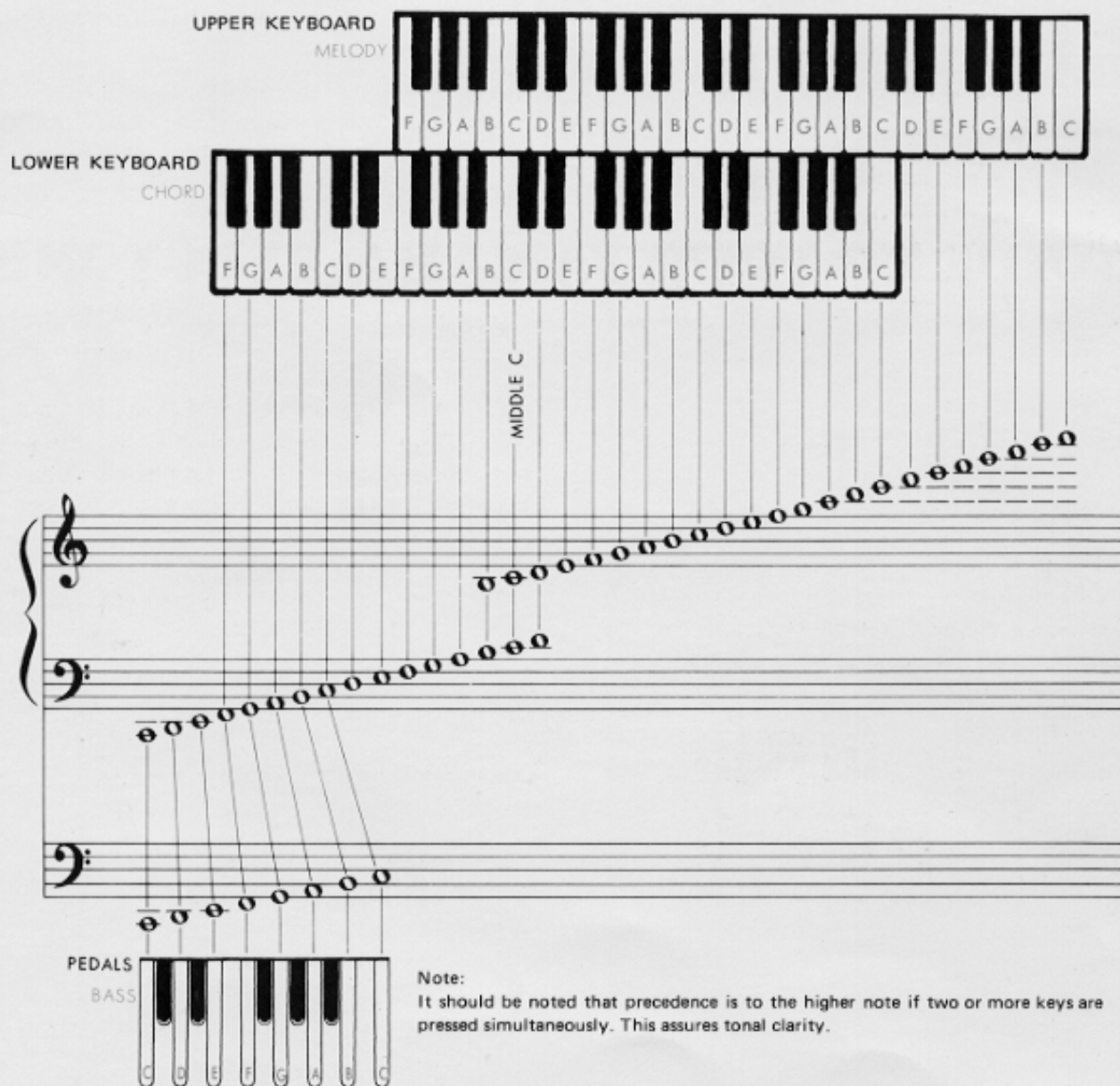
# Keyboards

This Electone has three keyboards. They have keys and octaves as follows:

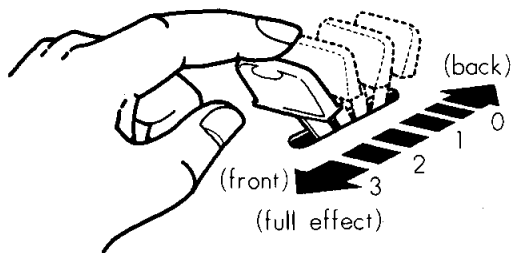
Upper Keyboard	44 keys (3-2/3 octaves)
Lower Keyboard	44 keys (3-2/3 octaves)
Pedals	13 keys (1 octave)

This Electone is designed to permit playing the melody on the upper keyboard with the right hand, the chords on the lower keyboard with the left hand, and bass note 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.



# Tone Levers



To the left of the upper and lower keyboards are series of tone levers which control the Electone voices which 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 Keyboard Levers	8 voices
Lower Keyboard Levers	5 voices
Pedal Levers	2 voices



## PITCHES OR FOOTAGES

The B-20CR has four different pitch levels, indicated by the numbers 16', 8', 4' and 2 $\frac{2}{3}$ '. These are standard musical abbreviations showing the tone's pitch in relation to the fundamental (written note). An 8' tone will sound just as it has been written. As the numbers increase, the tones lower. 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, 2 $\frac{2}{3}$ ' tones are one octave and a fifth higher than the 8' fundamental.

# Preset Tones

To the left of the lower keyboard are eight Upper Preset Tone selectors (seven tones plus Cancel). These on/off switches are special tonal blends that most closely resemble the instruments they name (Accordion, Piano, Hawaiian Guitar, Banjo) as well as three special preset combinations.

Since these buttons are factory preset, they automatically cancel all other upper keyboard tone lever settings. This lets you switch back and forth. In addition, precedence is to the right. This means that if two or more buttons are pressed, the one to the right will take effect. To switch from one button to another it is not necessary to first press the cancel button.

Note: Upper Sustain control lever does not work with the Accordion, Piano, Hawaiian Guitar and Banjo preset selectors.



## Vibrato

Vibrato is a wavering 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 lever produces the same vibrato effect.

## Brilliance

With this single, continuously-variable control you can pinpoint the degree of overall softness or clarity desired for any mood of music.

## Upper Percussive

Changing the beginning of some or all notes can do wonders for lively selections. Your B-20CR's percussive effects provide subtle but important shading at the moment each note is heard. The special popping 4', 2 $\frac{2}{3}$ ' percussive drive can be smoothly blended into all upper keyboard tones with percussive, 4', 2 $\frac{2}{3}$ ', and a percussive length lever regulates the length of decay for this effect.

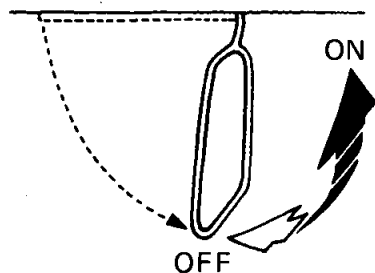
With percussive, use a detached fingering. Each note should be played cleanly; slurred notes will diminish the percussive impact.

Note: If Upper Percussive 4' is set at the same time as Upper Sustain, no sound will be heard.

## Repeat Speed

Cuts and repeats each note just like the double-strumming effect of a mandolin. The lever provides continuous speed adjustment to create a full variety of different moods. Affect upper keyboard notes only.

## Upper 8' 4' Sustain

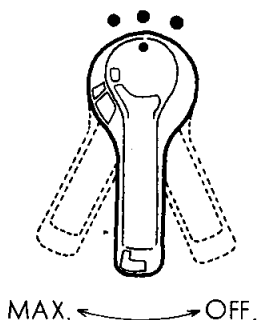


When this is switched on, the sustain effect is evoked. As the name of the tab implies, only 8' and 4' tones are affected. The length of such sustain is set by the Upper Sustain control. When combined with Upper Percussive 4', all sound is cancelled.

### KNEE LEVER

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.

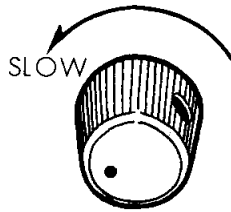
## Reverb



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.

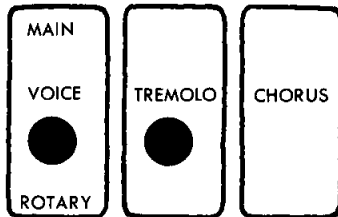


# Tremolo/Chorus

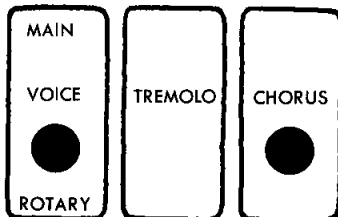


TREMLO SPEED

## TREMLO



## CHORUS



The Electone's special tremolo is produced by a Rotary speaker 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 speaker 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.

### VOICE (Main/Rotary)

Lets you divert the sound from the main to the tremolo speaker.

## Pedal Sustain

This control provides continuous adjustment of the sustain effect on the pedals and allows the pedal note to continue to sound a few seconds after you have released it.

## Manual Balance

This control governs the volume strength of the upper and lower keyboards. 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 keyboards.

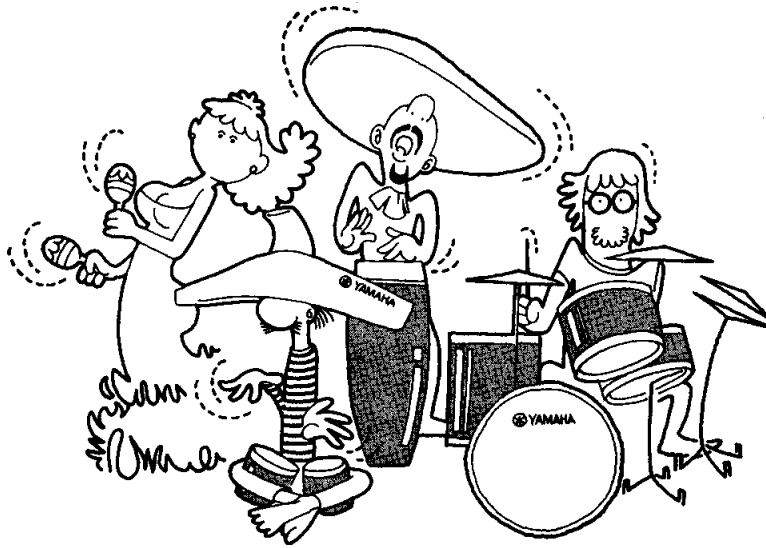
## Expression Pedal

Affect the emotional mood of every passage by letting you vary the volume continuously with your right foot. This works within the range set by the master volume control.

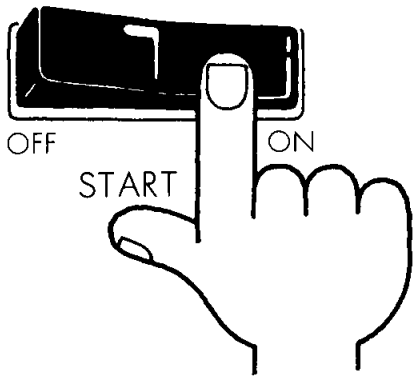
## Master Volume

Determines the maximum volume obtainable by depressing the expression pedal.

# Auto Rhythm Section

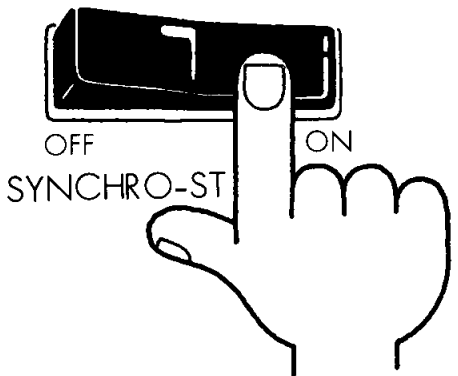


This section provides eight catchy rhythms, each one called forth by a simple button. You can also enjoy more rhythm variations with the variation button. In addition to a combined volume and balance knob, tempo control and tempo indicator light, there are two other switches: ordinary Start and the Yamaha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



## NORMAL START

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

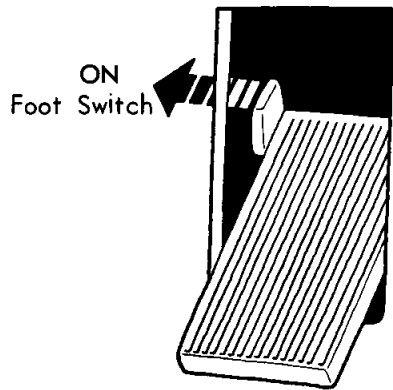


## SYNCHRO-START

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 keyboard 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.

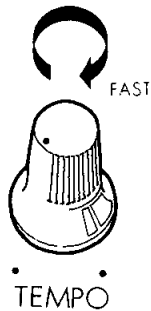


Expression Pedal

### 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.

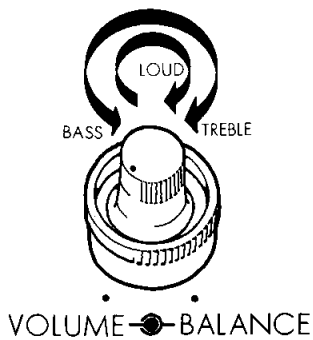
Note: If the foot switch has been used, be sure it is reset to normal after you finish playing your selection, and then make sure both Start and Synchro-Start switches are off. Otherwise you may turn on one of the switches in the middle of a new number only to find the rhythm still cancelled.



### 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.



### VOLUME

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

### BALANCE

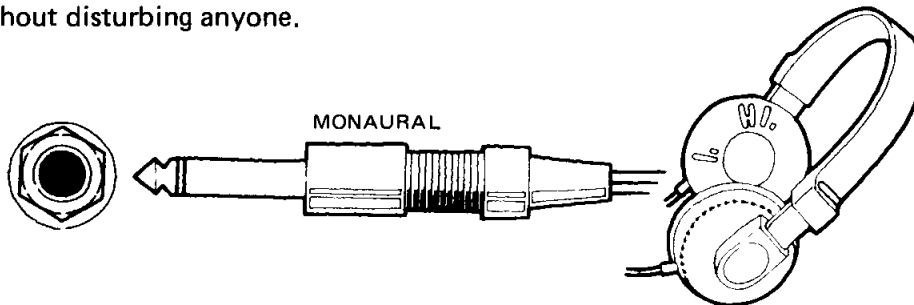
This control lets you balance the low rhythm sounds, such as drums, and the high sounds (i.e., cymbals) according to your taste and the selection. It can make a big difference even when using the same rhythm. Turn the knob to the right to accentuate the higher (treble) sounds, to the left for lower (bass).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

Check the playing hints for specific settings.

# To Fully Enjoy Your Electone

## HEADPHONES

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



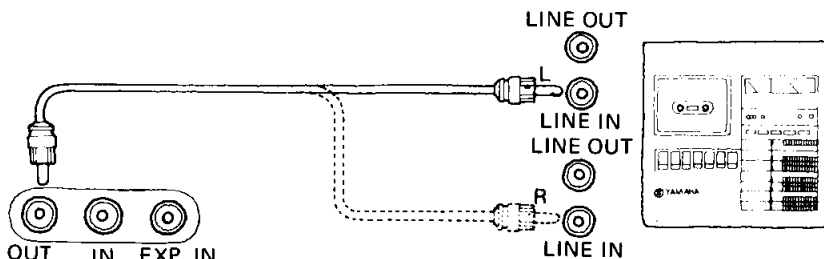
## EXP. IN

This jack accepts any sound sources and reproduces them through this Electone's speakers.

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

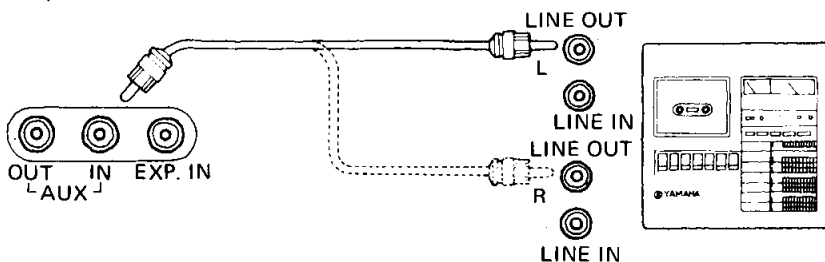
## AUX OUT

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, etc.) are not affected by the expression pedal.

# 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.

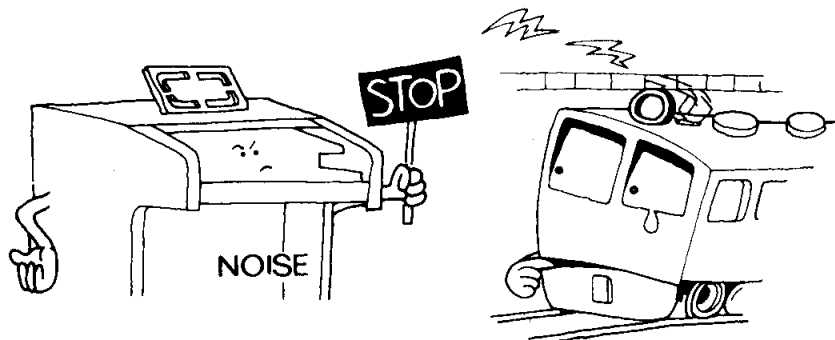
2. .... a sound should occur the instant you turn on the switch.

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

3. .... occasional unpleasant static occurs.

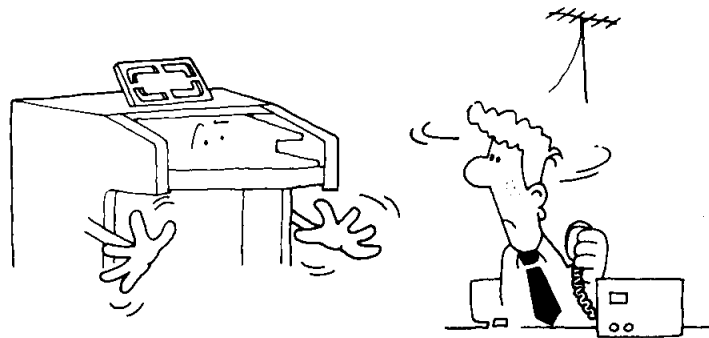
In the majority of such cases, the cause can be traced to the turning on or off of refrigerators, washing machines, electric pumps or other household appliances. Electrical faults in a neighboring outdoor neon sign may also be to blame.

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.**

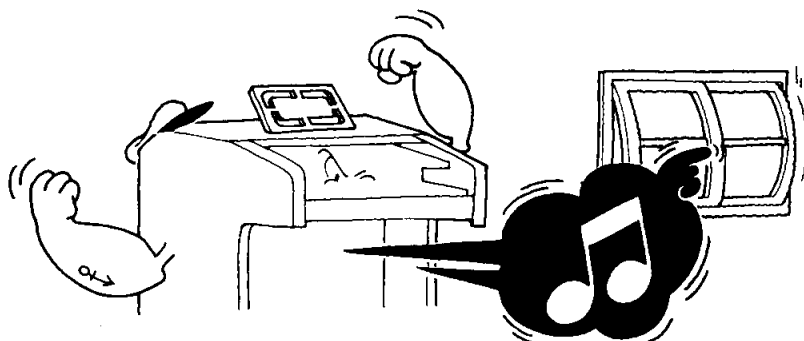
If there is a powerful transmitter such as a radio station in the vicinity this can occur. Contact your Yamaha dealer.



**5. .... pedal notes sound too high, upper keyboard's notes too low.** This is especially noticeable when comparing the Electone with 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.

**6. .... 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.



# Specifications

## KEYBOARDS

Upper Keyboard	44 keys f ~ c4	(3 $\frac{3}{4}$ octaves)
Lower Keyboard	44 keys F ~ c3	(3 $\frac{3}{4}$ octaves)
Pedals	13 keys	(1 octave)

## TONE LEVERS

Upper Keyboard	Flute 16'	Trombone 16'
	Flute 8'	Oboe 8'
	Flute 4'	String 8'
	Flute 2 $\frac{3}{4}$ '	String 4'
Lower Keyboard	Flute 8'	Cello 8'
	Flute 4'	Cello 4'
	Horn 8'	
Pedals	Bass 16'	
	Bass 8'	

## PRESET TONE SELECTORS

Combination 1, 2, 3  
Accordion (Upper)  
Piano (Upper)  
Hawaiian Guitar (Upper)  
Banjo (Upper)  
Cancel

## EFFECT LEVERS

Vibrato  
Percussive 4' (Upper)  
Percussive 2 $\frac{3}{4}$ ' (Upper)  
Percussive Length (Upper)  
Repeat Speed (Upper)  
Pedal Sustain

## EFFECT CONTROLS

Brilliance  
Upper 8', 4' Sustain  
Reverb  
Manual Balance

## TREMOLO SELECTORS

Tremolo Voice  
Tremolo  
Chorus  
Tremolo Speed Control

## AUTO RHYTHM SECTION

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

## Rhythm Controls

Rhythm Start  
Rhythm Stop (Foot Control)  
Synchro-Start  
Tempo  
Volume  
Tone Balance  
Tempo Indicator

## OTHER CONTROLS

Master Volume  
Power Indicator  
Expression Pedal  
Rhythm Foot Switch  
Power Switch  
Knee Lever

## OTHER FITTINGS

Headphone Jack  
External Jack  
Expression Input Jack  
Aux In Jack  
Aux Out Jack

## SPEAKERS

Main: 30cm (12"), 20cm (8"), 5cm (2")  
Rotary: 16x23cm (6 $\frac{1}{2}$ x9"), 5cm (2")

## CIRCUITRY

Solid State (Incl. LSIs and FETs)  
Output Power: 30 Watts (RMS)  
Power Consumption: 85 Watts  
Power Source: 50/60Hz, AC

## DIMENSIONS

Width: 111 cm (43")  
Depth: 56 cm (22")  
Height: 90 cm (35")

## WEIGHT


69 kg (152 lbs.)

## FINISH

American Walnut Grain  
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