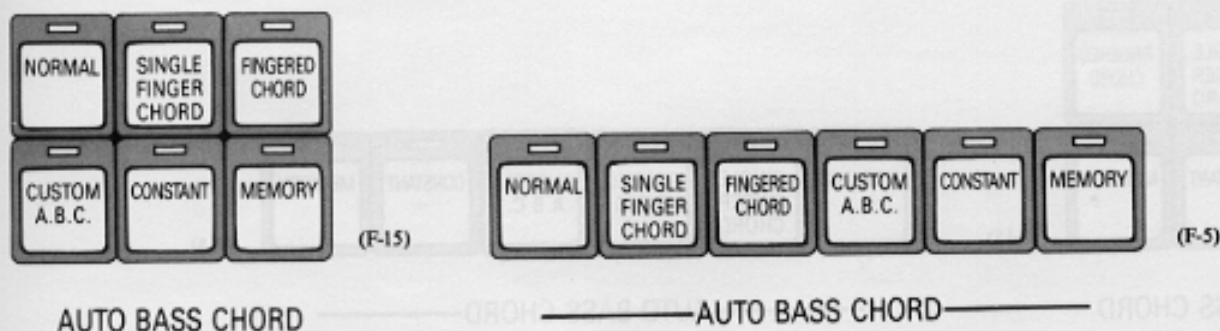


# AUTOMATIC FEATURES

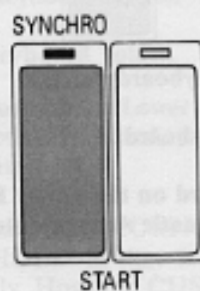


## AUTO BASS CHORD

The AUTO BASS CHORD section is sometimes referred to as the "Easy Play" section in that advanced styles of chord and bass accompaniment can be produced with almost no musical background. From beginners to advanced players, the Auto Bass Chord feature will always add to your performance.

### Automatic Accompaniment with the Touch of a Finger <SINGLE FINGER CHORD>

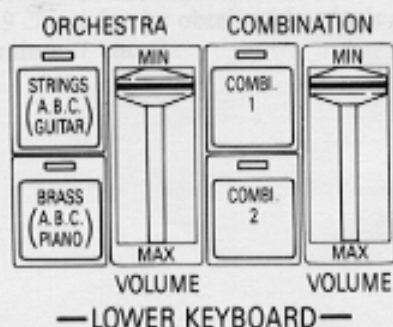
- 1) Select the rhythm pattern and depress the SYNCHRO START button.



- 2) Turn on SINGLE FINGER CHORD.

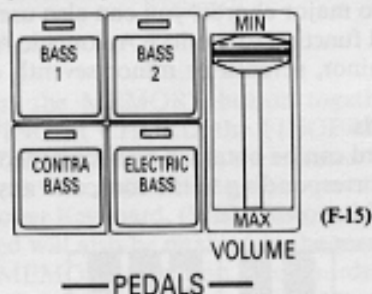


- 3) Set the Lower Keyboard voices.



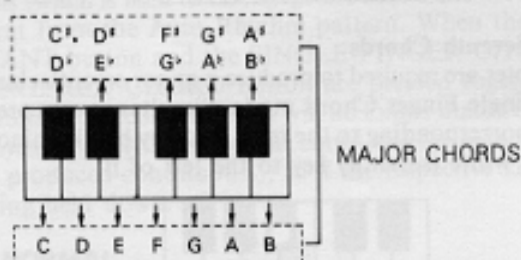
The strings and brass ORCHESTRA voices automatically switch to guitar and piano voices for automatic accompaniment synchronized with the Auto Rhythm Unit. The COMBINATION voices can be used for constant accompaniment.

- 4) Set the Pedal Keyboard voices.

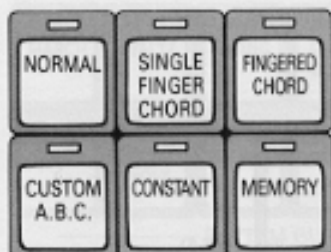


- 5) Now if you hold down one of the keys on the Lower Keyboard, the chord and bass accompaniment will automatically be "animated" in a style that complements and is synchronized with the selected rhythm.

By pressing only one note, a major chord (whose root or fundamental is the key played on the Lower Keyboard), will result. The diagram below shows the relationship between the key which is pressed and the major chord which is produced.



Therefore, if you pressed a "C", you are hearing a "C major chord". If you want an "F major chord", you need only to press the "F" note.



(F-15)



(F-5)

AUTO BASS CHORD

AUTO BASS CHORD

### ● Producing Minor or Seventh Chords

In addition to major chords, you can also use the Single Finger Chord function to produce Automatic Accompaniment with minor, seventh or minor seventh chords.

#### Minor Chords

A minor chord can be obtained by simultaneously pressing the key corresponding to the root, and any black key to the left of it.

(Example: G<sub>m</sub>)



#### Seventh Chords

By pressing the key corresponding to the root and any white key to the left of it, you can obtain a seventh chord (also known as a dominant seventh chord).

(Example: G<sub>7</sub>)



#### Minor Seventh Chords

Three notes are required to produce a minor seventh chord in the Single Finger Chord mode. Simultaneously press the key corresponding to the root, and any black (minor) and any white (seventh) key to the left of it.

(Example: G<sub>m7</sub>)



#### ★ When using SINGLE FINGER CHORD:

1. The proper bass note will be automatically provided, based on the Lower Keyboard notes played.
2. The chord produced will sound in the same octave regardless of where it is played on the keyboard.
3. CUSTOM VOICES cannot be played on the Lower Keyboard. (F-15)

### Automatic Accompaniment by playing an Entire Chord <FINGERED CHORD>

#### 1) Set the Auto Rhythm.

If you depress the SYNCHRO START button, you can make the rhythm and the accompaniment start at the same time.

#### 2) Turn on FINGERED CHORD.



#### 3) Set the Lower Keyboard voices.

#### 4) Set the Pedal Keyboard voices.

#### 5) If you play a chord on the Lower Keyboard, you can now obtain Automatic Accompaniment synchronized with the rhythm.

Instead of merely pressing a root note (and additional note(s) to determine chord "type" as in Single Finger Chord), FINGERED CHORD permits you to form the chord yourself (by playing the proper 3 or 4 notes). It will then determine what chord you are playing and will automatically select and play the corresponding bass note.

**Automatic Accompaniment Using Both Lower and Pedal Keyboards <CUSTOM A.B.C.>**

- 1) Set the Auto Rhythm.
- 2) Turn on the CUSTOM A.B.C.

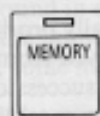


- 3) Set the Lower Keyboard voices.
- 4) Set the Pedal Keyboard voices.
- 5) If you play a chord on the Lower Keyboard, and press a key on the Pedal Keyboard, you can obtain Automatic Accompaniment.

In its most basic usage, CUSTOM A.B.C. is very similar to FINGERED CHORD in that it permits you to play the chords manually. However, CUSTOM A.B.C. allows even further participation on your part, advancing your musical growth even more.

Instead of automatically providing the bass, you can press the pedal corresponding to the chord you are playing. At the same time, because the pedals are independent of the Lower Keyboard in the Custom A.B.C. mode, more complex harmonic structures become available. For example, a C major 9 chord can be obtained by playing a C pedal and an E minor 7 chord.

● MEMORY



If you press the MEMORY button together with the SINGLE FINGER CHORD, the FINGERED CHORD or the CUSTOM A.B.C. button, the automatic rhythm accompaniment will continue even if you remove your hand from the Lower Keyboard. (With Custom A.B.C. the bass note selected will also be retained in the memory.) When using the MEMORY function, the chords will change when you play different notes on the Lower Keyboard.

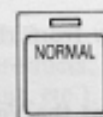
★ The memory functions only when the Auto Rhythm Unit is on.

● CONSTANT



This switch is used to disengage the automatic accompaniment from the Auto Rhythm pattern. When the CONSTANT button and the SINGLE FINGER CHORD or FINGERED CHORD button are pressed together, the Automatic Accompaniment will no longer match the Auto Rhythm pattern. Instead, the chord and the bass note will be produced continuously, as if the respective keys were being held down.

● NORMAL



This button is used to cancel all AUTO BASS CHORD modes and to return your Electone to a normal (conventional) operating mode. When the NORMAL button is pressed, you may manually play the Lower Keyboard and pedals to provide your own desired accompaniments without introducing any AUTO BASS CHORD functions.



## **AUTO ARPEGGIO (F-15 only)**

This function automatically produces arpeggios (a series of notes, most often derived from a chord, in which one note at a time is played in succession, from the lowest note to the highest), providing a sparkling background accompaniment. Due to technological advancement, what once took many hours of practice to be able to execute can now be accomplished automatically by simply holding one or more notes on the Lower Keyboard.

To familiarize yourself with the operation of this function, please try the following example:

### **1) Select a rhythm and press SYNCHRO START.**

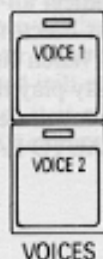
Auto Arpeggio operates in synchronization with the Auto Rhythm Unit, and therefore, you must activate the rhythm in order to hear the arpeggios. Please note that in this case, because SYNCHRO START is being used, the rhythm and arpeggio will start simultaneously (when you reach step #4).

### **2) Select and press one of the Pattern Selectors.**



The patterns will vary from rhythm to rhythm.

### **3) Select and press one of the Voice Selectors.**



### **4) Pull the VOLUME slide control toward you, and hold some notes on the Lower Keyboard.**

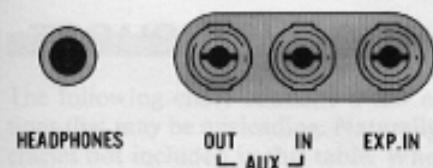
You will now hear an arpeggio based on those notes which you have pressed. The Auto Arpeggio section will also produce arpeggios when the Auto Bass Chord (see page 9) function is in use.

- ★ Arpeggios will be produced based on any chords created by the Single Finger Chord system.
- ★ With Fingered Chord and Custom A.B.C., arpeggios will be produced based on the Lower Keyboard notes pressed.
- ★ If MEMORY is on, the arpeggio will continue to play even after your fingers are removed from the Lower Keyboard.

### **● SUSTAIN**

By using the SUSTAIN control, each note in the arpeggio pattern will "Linger" for a short time depending upon the position of this slider.

### III. USEFUL INFORMATION ABOUT THE ELECTONE



#### ACCESSORY JACKS

Several jacks have been included in the design of your Electone in order that a variety of optional accessories may be used.

##### ● HEADPHONE Jack

This jack is to be used to connect monaural headphones (optional). When headphones are connected, there will be no sound from the Electone's speakers. This allows you to play your Electone at any time without disturbing others.

**NOTE:** You can also use stereo headphones with this jack without damaging either the Electone or the headphones.

**IMPORTANT:** Do not use this jack for any purpose other than connecting headphones!

##### ● AUX.OUT Jack

This jack has been provided to permit connection of your Electone to most tape recorders that have a "Line In" jack. This allows a direct recording without any outside noise.

##### ● AUX. IN Jack

The "Aux. In" jack can be used to connect most tape recorders/players having "Line Out" jacks. This permits you to play back recordings through the Electone's speaker system. By using this jack, you can also perform together with previously recorded music.

**NOTE:** The sounds reproduced utilizing this jack are not controlled by the volume pedal.

##### ● EXP.IN Jack

This jack accepts a monaural signal from synthesizers or similar accessories. The volume of the equipment attached here will be controlled by the Electone expression pedal.

**WARNING:** The connection or disconnection of any accessory (other than headphones) while the Electone is ON, can result in extensive damage to the Electone and/or the accessory.

Damage caused by the improper connection of accessories is not covered by the manufacturer's warranty.

#### ELECTROMAGNETIC INTERFERENCE

"Interference" can be a two way street; something you are operating can interfere with others or, something someone else has may interfere with something of yours. Naturally, it is also possible that two or more of your own electronic (electric) devices may interfere with each other. Your Electone has been designed to minimize all these possibilities and meets all applicable standard worldwide.

Electromagnetic interference with your Electone can show itself in a variety of ways. You may hear speech, music, "beeps", static, or buzzing noises. Yamaha Electones are designed to reject RF (radio frequency) signals that are many times the levels found in any normal environment. If, however, you are in the immediate proximity of a very high power transmitter, some interference may still occur.

If this should happen, please try to identify the radio (TV) station and record the time of day that the interference occurs. Station identification is essential in order that the offending frequencies can be established and the authorized (legal) operating power level of the transmitter causing the interference can be verified. If the interference continues, please follow the corrective measure suggestions provided later in this section.

If the interference is in the form of occasional buzzing or static, it is highly probable that the cause can be traced to the turning on or off of some household appliance. The offending appliance can also be outside your own residence. Usually a "time" pattern (i.e., evenings only, etc.) will be involved. Noises of this type rarely originate in the Electone itself. If the condition continues, please contact your local authorized Yamaha Electone dealer for assistance.

Main power line disturbances and electrical storms (lightning) can also be the source of static interference. Generally speaking, problems generated by these two sources will also be present in your other audio or video equipment. Lightning can also be very destructive. The following special warning also applies to virtually all electronic products.

##### IMPORTANT NOTICE

Modern electronic products, (i.e., computers, video games, electronic organs, etc.), contain components that, under normal conditions, extend the service free life of the products they make up by an almost unbelievable period of time. This is especially true when you consider the vast number of equivalent components incorporated within one given part. These "parts," called "integrated circuits," are however, subject to destruction by high voltage discharges, such as a close proximity lightning strike. This can occur even if the unit is turned off.

**IN PERIODS OF ELECTRICAL STORM PROBABILITY, IT IS ADVISABLE THAT YOU DISCONNECT ANY ELECTRONIC DEVICE NOT ACTUALLY IN USE, FROM ITS WALL SOCKET.**

## INSTALLATION AND MAINTENANCE

Your new Electone does not require professional installation or routine maintenance. However, it is **IMPORTANT** that you be aware of the following:

### ● INSTALLATION

- 1. WARNING:** Do not allow your Electone or its bench to rest on or be installed over power cords of any type. An electrical shock and/or fire hazard could possibly result from this type of improper installation.
- 2. WARNING:** Do not place objects on your Electone power cord or place it in a position where anyone could trip over, walk on or roll anything over it. An improper installation of this type creates a personal injury/fire hazard possibility.
- 3. Main Power Supply Verification:** Your Electone has been manufactured specifically for the main supply voltages used in your area. If you should move, or if any doubt should exist, please consult your local authorized Electone dealer for instructions.
- 4. Environment:** Your Electone should not be installed in a position that exposes the cabinet to direct sunlight or air currents having high humidity or heat levels. This type of installation can cause contact oxidation, case joint separation, and cabinet finish problems.
- 5. Vinyl Products:** Do not set vinyl items, (i.e., headsets, vinyl doilies, etc.) on the finished surfaces of your Electone or use a polyvinyl material to cover the unit for any extended period of time. A chemical reaction may occur between the finish chemicals and those contained in the polyvinyl products resulting in a permanent marring of the finish.
- 6. Electromagnetic Interference (RFI):** Your Electone has been type tested and found to comply with all applicable regulations. However, if it is installed in the immediate proximity of other electronic devices, some form of interference may occur.  
Please refer to page 13 for additional information.

### ● MAINTENANCE

- 1. SERVICE:** Your Electone contains no user serviceable components. Refer all service to qualified service technicians only.
- 2. BENCH STRUCTURAL INTEGRITY:** If any motion or an "unsteady" sensation is noted in the bench, please check its structural integrity immediately. Discontinue use until any and all troubles are resolved. The bench was designed for seating only. No other applications are recommended.
- 3. POWER/PILOT LIGHT:** When not in use, always turn your Electone "OFF." A **PILOT LIGHT** has been provided as a reminder.
- 4. CLEANING/CARE**
  - A) GENERAL:** **DO NOT** use chemically harsh (i.e., alcohol, paint thinner, etc.) or abrasive cleaners on any portion of your Electone.
  - B) KEYS/CONTROL PANEL:** When cleaning the keys and control panels of your Electone, please use a soft absorbent-type cloth that has been dampened with a very mild solution of liquid soap and lukewarm water. If it is your custom to use spray type dispensers, **DO NOT** spray directly on or towards the keys or control panels. Direct the spray toward the cleaning cloth to be used, then gently wipe the surfaces to be cleaned. When cleaning the keys, the wiping motion should be in the direction of the length of the key. A second wiping (polishing) of the areas cleaned using a soft dry cloth, will restore much of the original luster and your Electone will maintain its "Like New" look for many years to come.
  - C) CABINET/BENCH:** Clean the cabinet wood/veneer portions of your Electone with a slightly dampened cloth containing a neutral cleaning agent. The cleaning agent selected should not contain a high wax content or any other substance that would have a tendency to fill the pores of the wood or form a "build-up" on the wood surface.

**IMPORTANT NOTICE:** This product has been tested and approved by independent safety testing laboratories in order that you may be sure that when it is properly installed and used in its normal and customary manner, all foreseeable risks have been eliminated. **DO NOT** modify this unit or commission others to do so unless specifically authorized by the manufacturer. Product performance and/or safety standards may be diminished. Claims filed under the expressed warranty terms may be denied if the unit is/has been modified. The warranty of title (patent infringement, etc.) will not be defended by the manufacturer in the area(s) that relate to the modification. Implied warranties may also be affected.

## TROUBLESHOOTING

The following chart contains a few examples of conditions that may be misleading. Naturally, there are idiosyncracies not included in this table. When in doubt, please don't hesitate to contact your dealer for assistance, if the information found in this owner's guide does not adequately answer your questions.

Phenomenon	Possible Cause	Probable Solution
No sound—All indicator lights function normally.	Nothing is On in the Ensemble Section and/or the Volume Sliders are at the MINIMUM position. (F-15)	Turn on at least one section in the Ensemble Section and make sure that the Volume Slider for that Section is "ON".
Extraneous Sounds coming from the Speaker System (Voices, Chirps, Buzzing Sounds, etc.).	Radio Frequency Interference, CB, Electric Appliances, etc.	See Electromagnetic Interference Section on Page 13.
Extraneous sounds not being reproduced through the Speaker System (Buzzes, Vibration, etc). Everything has a critical point where it will vibrate. This phenomena is called "Resonance," and may also be referred to by your technician as "Sympathetic Vibration."	A Combination of excessive volume and a phenomenon called "resonance." The continuous nature of the tones developed by electronic musical instruments, the board range of the frequencies available, and the power levels (volume) involved will naturally cause some objects (i.e., windows, objects on shelves, picture, etc.) to vibrate.	If the rattle is outside of the Electone, identify and move the object causing the rattle.  It is possible that something within the Electone itself could generate a rattle, especially if the volume used approaches the maximum and/or a specific note is held for some time. A slight reduction in volume should eliminate the rattle. If satisfactory results are not achieved using this method, please contact your dealer for assistance.
TV or Radio Reception is degraded when the Electone is "ON".	The Radio, TV, or their antennas are installed too close to the Electone.	Relocate either the Electone or the Radio or TV. See Electromagnetic Interference Section on Page 13.
One Pedal Plays constantly. Pedals to the right of this note will play. Pedals to the left of this note will not.	Bent Pedal Actuator.	Straighten and adjust actuator of pedal that plays constantly.
Lower and Pedal Keyboard continues to produce sound, even when hands/feet are removed.	The Memory button (located in the Auto Bass Chord Section) is on.	If the light is illuminated, that effect is being used. To cancel the effect, press that button until the light goes out.
Even if Auto Bass Chord is set, the Lower Orchestra voices do not switch to guitar or piano.	The Auto Rhythm Unit is not being used.	Please set both Auto Bass Chord and Auto Rhythm.
Sustain does not work. (F-15)	The Knee Lever is in the vertical position.	Either move the Knee Lever to the right (to add the sustain effect) or return it to its up and locked position.



# SPECIFICATIONS

## [F-15]

### KEYBOARDS

Upper: 44 Keys f-c4 (3 2/3 Octaves)  
Lower: 44 Keys F-c3 (3 2/3 Octaves)  
Pedals: 13 Keys C-c (1 Octave)

### UPPER COMBINATION/ORCHESTRA

Voices: Combi. 1, Combi. 2, Combi. 3, Combi. 4,  
Combi. 5, Strings, Brass, Reed  
Control: Volume

### UPPER SPECIAL PRESETS

Voices: Piano, Harpsichord, Vibraphone, Guitar  
Control: Volume

### UPPER (/LOWER) CUSTOM VOICES

Voices: Flute, Saxophone, Trumpet, Trombone  
Control: Volume

### LOWER COMBINATION

Voices: Combi. 1, Combi. 2  
Control: Volume

### LOWER ORCHESTRA

Voices: Strings (A.B.C. Guitar), Brass (A.B.C.  
Piano)  
Control: Volume

### PEDALS

Voices: Bass 1, Bass 2, Contra Bass, Electric  
Bass  
Control: Volume

### ENSEMBLE

Upper Combi. Orches., Upper Special, Upper Custom,  
Custom To Lower

### EFFECTS/CONTROLS

Vibrato: Delay, Depth  
Sustain: Upper Sustain (Switch), Upper, Pedal

### AUTO RHYTHM

Rhythm Pattern: March, Waltz, Swing, Slow Rock, Jazz  
Rock, Disco, Tango, Bossanova, Rhumba,  
Mambo, Samba, 16 beat  
Auto Variation: On (4 Bar), 8 Bar  
Controls: Synchro Start, Start, Tempo, Volume,  
Tempo Indicator Lamp, Rhythm Stop  
(Foot Switch Control)

### AUTO BASS CHORD

Normal, Single Finger Chord, Fingered Chord, Custom  
A.B.C., Constant, Memory

### AUTO ARPEGGIO

Pattern: 1, 2, 3, 4  
Voices: 1, 2  
Controls: Sustain, Volume

### MAIN CONTROLS

Manual Balance, Master Volume, Expression Pedal, Knee  
Lever, Foot Switch, Power Switch, Pilot Lamp

### OTHER FITTINGS

Headphones Jack, Aux. Out Jack, Aux. In Jack, Exp. In  
Jack, Music Rest, Matching Bench

### AMPLIFIERS

30W (rms)

### SPEAKERS

30 cm (12"), 5 cm (2")

### CIRCUITRY

Solid State (incl. LSIs and ICs)  
Power Consumption: See Electone Nameplate  
Power Source: 50/60 Hz AC

### DIMENSION

44 1/2"(W) x 20 3/4"(D) x 34 3/4"(H)

### WEIGHT

116.5 lbs.

### FINISH

Simulated American Walnut

## [F-5]

### KEYBOARDS

Upper: 44 Keys f-c4 (3 2/3 Octaves)  
Upper: 44 Keys F-c3 (3 2/3 Octaves)  
Pedals: 13 Keys C-c (1 Octave)

### UPPER SPECIAL/COMBINATION/ORCHESTRA

Voices: Piano, Harpsichord, Combi. 1, Combi. 2,  
Combi. 3, Combi. 4, Strings, Brass  
Control: Volume

### UPPER CUSTOM VOICES

Voices: Flute, Saxophone, Trumpet, Trombone  
Control: Volume

### LOWER COMBINATION

Voices: Combi. 1, Combi. 2  
Control: Volume

### LOWER ORCHESTRA

Voices: Strings (A.B.C. Guitar), Brass (A.B.C.  
Piano)  
Control: Volume

### PEDALS

Voices: Bass 1, Bass 2  
Control: Volume

### EFFECTS/CONTROLS

Vibrato: Delay, Depth  
Sustain: Upper Sustain (Switch), Upper, Pedal

### AUTO RHYTHM

Rhythm Pattern: March, Waltz, Swing, Slow Rock,  
Jazz Rock, Disco, Tango, Bossanova,  
Rhumba, Mambo, Samba, 16 beat  
Controls: Synchro Start, Start, Tempo, Volume,  
Tempo Indicator lamp

### AUTO BASS CHORD

Normal, Single Finger Chord, Fingered Chord, Custom  
A.B.C., Constant, Memory

### MAIN CONTROLS

Manual Balance, Master Volume, Expression Pedal,  
Power Switch, Pilot Lamp

### OTHER FITTINGS

Headphones Jack, Aux. Out Jack, Aux. In Jack, Exp. In  
Jack, Music Rest, Matching Bench

### AMPLIFIERS

30W (rms)

### SPEAKERS

30 cm (12"), 5 cm (2")

### CIRCUITRY

Solid State (incl. LSIs and ICs)  
Power Consumption: See Electone Nameplate  
Power Source: 50/60 Hz AC

### DIMENSION

44 1/2"(W) x 20 3/4"(D) x 34 3/4"(H)

### WEIGHT

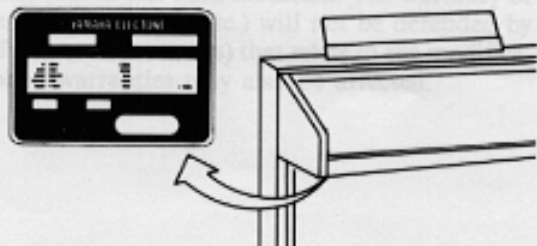
115.5 lbs.

### FINISH

Simulated American Walnut

★ Specifications subject to change without notice.

### [Where to find the nameplate]





## **FCC CERTIFICATION (USA)**

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While the following statements are provided to comply with FCC Regulations in the United States, the corrective measures listed are applicable worldwide.

The digital series of Yamaha Electones™ use frequencies that appear in the radio frequency range, and if installed in the immediate proximity of some types of audio or video devices within three meters (approximately ten feet), interference may occur.

This series of Yamaha Electones™ has been type-tested and found to comply with the specifications set for a class B computer in accordance with those specifications listed in sub-part J, part 15 of the FCC rules. These rules are designed to provide a reasonable measure of protection against such interference. However, this does not guarantee that interference will not occur.

If your Electone™ should be suspected of causing interference with other electronic devices, verification can be made by turning your Electone™ off and on. If the interference continues when your Electone™ is off, the Electone™ is not the source of the interference. If your Electone™ does appear to be the source of the interference you should try to correct the situation by using one or more of the following measures:

- Relocate either the Electone™ or the electronic device that is being affected by the interference.
- Utilize power outlets for the Electone™ and the device being affected that are on different branch (circuit breaker or fuse) circuits, or install a/c line filters.
- In the case of radio-TV interference, relocate the antenna or if the antenna lead-in is 300 ohm ribbon lead, change the lead-in to coaxial type cable.

If these corrective measures do not produce satisfactory results, please contact an authorized Yamaha Electone™ dealer for suggestions and/or corrective measures. If you can not locate an authorized Yamaha Electone™ dealer in your general area, please contact the Electone™ Service Department, Yamaha International, 6600 Orangethorpe Ave., Buena Park, CA 90620, U.S.A.

If for any reason, you should need additional information relating to radio or TV interference, you may find a booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems." This booklet, Stock #004-000-00345-4, is available from the U.S. Government Printing Office, Washington DC. 20402.

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KORTNO



**YAMAHA INTERNATIONAL CORP.**  
6600 Orangethorpe Ave.  
Buena Park, CA 90620