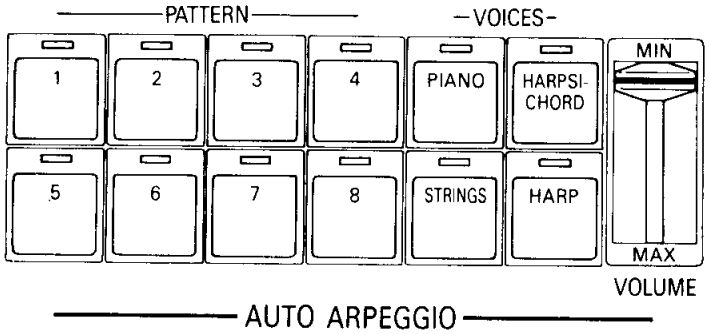
AUTOMATIC FEATURES
AUTO ARPEGGIO



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 eight Pattern Selectors. The patterns will vary from rhythm to rhythm.

3) Select and press one of the four Voice Selectors. This determines which voice will execute the selected Arpeggio pattern.

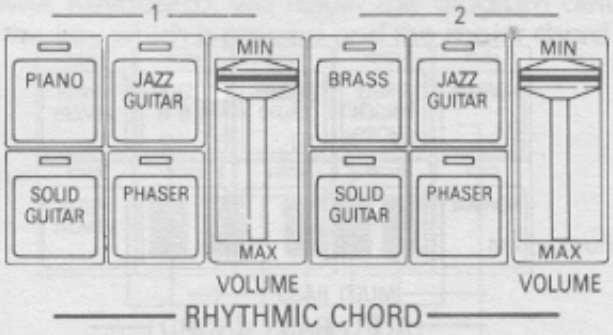
4) Move the VOLUME slider downward, and hold some notes on the Lower Keyboard. You will now hear an arpeggio based on those notes which you have pressed. Because arpeggios are generally derived from chords, your Auto Arpeggio section will also produce arpeggios when the Auto Bass Chord (see page 36) function is in use.

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

   NOTE: When either BREAK VARIATION or AUTO VARIATION is activated, the Auto Arpeggio will temporarily stop until the break is completed.

5) Try the many different patterns and voices to become familiar with the numerous possibilities.

RHYTHMIC CHORD

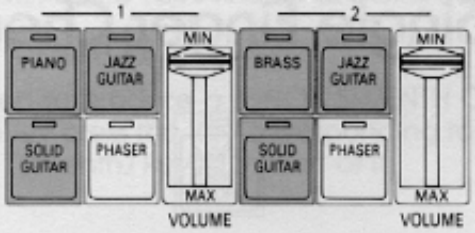


This section produces an instrumental accompaniment (in addition to the rhythm instruments) that accentuates the rhythmic pattern to enhance your Lower Keyboard playing. Simply stated, RHYTHMIC CHORD takes the Lower Keyboard notes and "animates" them (makes them active) in a rhythmic style which is complementary to the rest of the rhythmic accompaniment. It can be used either independent of, or in conjunction with, the Auto Bass Chord section.

The following example was devised to assist you in learning about the operation of the Rhythmic Chord function.

1) Select a rhythm and press SYNCHRO START. Since the Rhythmic Chord operates in synchronization with the Auto Rhythm Unit, you must activate the rhythm in order to hear the Rhythmic Chord. Please note that in this case, because SYNCHRO START is being used, the RHYTHMIC CHORD and the RHYTHM will start simultaneously (when you reach step #4.)

2) Select which instrument(s) you wish to use for this accompaniment.



- As you can see by the above illustration, the Rhythmic Chord function is divided into two independent groups, (called Voice 1 and Voice 2), enabling two different accompaniment patterns to be simultaneously produced. Each section incorporates three different instruments. Only one instrument per group may be used at any given time.

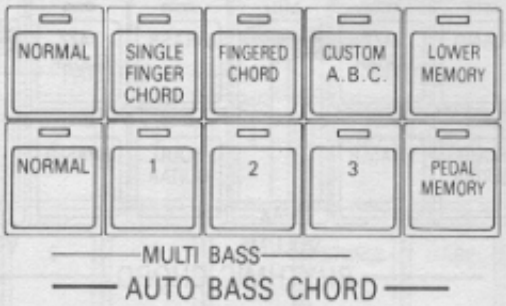
The PHASER, when added to the Rhythmic Chord voices, is similar to the effect produced by a guitar player using a wah pedal or a trumpet player rapidly inserting and removing a mute. It may be added to either one or both sections, and is automatically controlled by the Auto Rhythm Unit.

3) Move the VOLUME slider downward for the Group(s) you wish to utilize. (If no RHYTHMIC CHORD is desired, be sure that both sliders are in the MINIMUM position.)

4) Press some keys on the Lower Keyboard. You will now hear those notes articulated in a pre-determined pattern (using the voices that you selected in Step #2), in exact tempo with the rhythm. The patterns will vary both from rhythm to rhythm, and even within variations of the same rhythm. Therefore, take a few moments to listen to the vast number of possibilities.

NOTE: When a BREAK VARIATION (or AUTO VARIATION) is in use, the RHYTHMIC CHORD pattern will continue by changing to a pattern which complements the "fill-in" for the duration of the BREAK VARIATION, and then will resume its normal pattern.

AUTO BASS CHORD OR ABC



The AUTO BASS CHORD section is sometimes referred to as the "Easy Play" section in that with almost no musical background, very advanced styles of chord and bass accompaniments can be produced. No matter how polished a performer you become, use of the Auto Bass Chord features will always add to your performance.

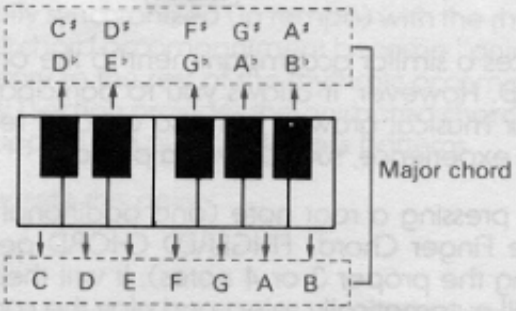
There are three different modes (or levels) involved in this set of features: SINGLE FINGER CHORD, FINGERED CHORD and CUSTOM ABC. Some of these may seem a little too "basic" for your use. However, if you will take a few minutes to familiarize yourself with each level, you're sure to find a use for each and every one of them.

Single Finger Chord

SINGLE FINGER CHORD is the fastest and easiest mode of play in the AUTO BASS CHORD section. When in use, you can obtain a total of 48 different **chords and bass notes** by pressing one, two or three notes on the Lower Keyboard as follows:

1) Major Chords

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.

2) 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.

3) 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 DOMINANT SEVENTH CHORD).

4) Minor Seventh Chords

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

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.

Fingered Chord

This feature produces a similar accompaniment to the one you experienced with SINGLE FINGER CHORD. However, it allows you to participate a little more, as you continue along in your musical growth. It is also a good feature for someone who has previous keyboard experience, such as with a piano.

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.

With FINGERED CHORD you can obtain a variety of other chords, above and beyond the 48 basic chords available in the Single Finger mode, including Augmented and Diminished Chords. The chord produced will also sound in the same octave in which it is played, and the resulting performance becomes even more professional.

Custom ABC

In its most basic usage, CUSTOM ABC is very similar to FINGERED CHORD because it permits you to play the chords manually. However, CUSTOM ABC 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 ABC mode, more complex harmonic structures become available. For example, a C maj 9 chord can be obtained by playing a C pedal and an E minor 7 chord.

Normal

This button is used to cancel all ABC 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 accompaniment without introducing any AUTO BASS CHORD functions.

Auto Bass Chord And The Auto Rhythm Unit

When any mode of the ABC section is used with the Auto Rhythm Unit, the resulting accompaniment is automatically synchronized (in tempo) with the rhythm. Instead of a continuous sound, the bass and chord accompaniment become "animated" in a rhythmic style which is complementary to the rest of the rhythmic accompaniment. In these instances, the RHYTHMIC CHORD section provides the animated **chord** accompaniment, while the MULTI BASS section supplies the automatic **bass** patterns.

The following example will illustrate this point:

1) Select a rhythm and variation.

2) Select and press one of the three styles (modes) of play (SINGLE FINGER, FINGERED, or CUSTOM ABC.)

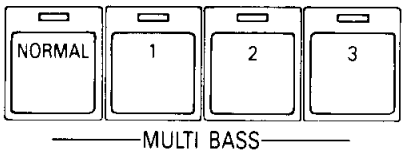
3) Choose from the RHYTHMIC CHORD section those sounds that will provide the chord accompaniment.

4) Select the desired Pedal sounds.

5) Make sure that all corresponding VOLUME sliders are moved downward.

Now, once the Auto Rhythm Unit is activated, and the Lower Keyboard is held (Pedal Keyboard also, in CUSTOM ABC mode), you will hear an automatic accompaniment (both drums and instrumental) in synchronization with the Auto Rhythm Unit.

Multi Bass



This section allows you to change the automatic bass pattern from a NORMAL pattern (generally root only or root-fifth [1-5]) to three other, more interesting alternatives. The pattern will change, depending upon the Rhythm, the Rhythm Variation and the MULTI BASS pattern selected. So take a few moments to listen to some of the possibilities.

IMPORTANT: MULTI BASS™ operates in synchronization with the Auto Rhythm Unit and therefore the RHYTHM (and ABC SYSTEM) must be activated to hear these patterns.

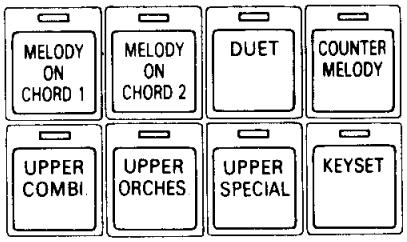
NOTE: When a BREAK VARIATION (or AUTO VARIATION) is in use, the MULTI BASS™ pattern will continue by changing to a pattern which complements the "fill-in" for the duration of the BREAK VARIATION, and then will resume its normal pattern.

Lower Memory And Pedal Memory

(Operates **only** when the Auto Rhythm Unit is ON)

The purpose of these effects is to provide a continuation of the Pedal or Lower Keyboard sounds even after you have removed your hand (foot) from the Lower Keyboard (Pedal). The MEMORY sections are **independent** of each other and can, therefore, be used either separately or together. These effects are available with **all** modes of Auto Bass Chord (including NORMAL) and are especially useful when using Rhythmic Chord, Auto Arpeggio, Multi Bass or Play Assist.

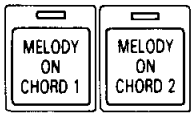
PLAY ASSIST



— PLAY ASSIST —

The PLAY ASSIST section enhances single note melodies by transforming them into beautiful harmonies (based on the Lower Keyboard notes played) in four different playing styles: MELODY ON CHORD 1, MELODY ON CHORD 2, DUET, and COUNTER-MELODY.

Melody On Chord 1 And Melody On Chord 2



Often called "Closed Harmony" (because the notes involved are spaced close together), these modes provide a "Full Chord" style. Up to two additional notes will be automatically added beneath the melody when MELODY ON CHORD 1 is used. An additional harmony note becomes available when using MELODY ON CHORD 2.

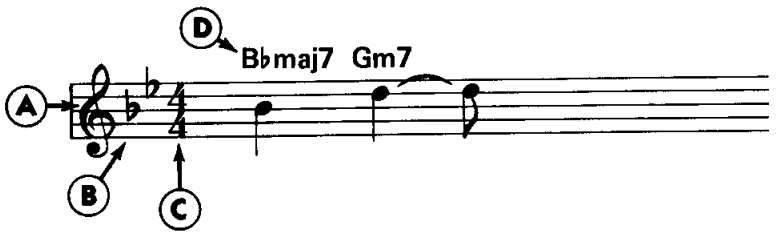
Duet

DUET analyzes the melody and chord that you are playing and automatically selects and adds a second note. However, because the melody is supported only by one additional note, that note is **extremely** important. For this reason, YAMAHA has provided a KEY SET function (which should be used with the DUET mode) to help your Electone™ in selecting the best possible note.

Key Set

If you are not sure what key a selection is in, the following procedure may be helpful.

1) At the very beginning of a song, there are always a number of elements.



A) Clef Sign (in this instance, Treble Clef)

B) Key Signature (two flats)

C) Time Signature (4/4)

D) Chord Symbols

2) Note and count the number of sharps (♯) or flats (♭) in the Key Signature and find the corresponding column in the chart below.

	Flats----------							---------Sharps					
KEY SIGNATURE	6	5	4	3	2	1	0	1	2	3	4	5	6
MAJOR	G♭	D♭	A♭	E♭	B♭	F	C	G	D	A	E	B	F♯
MINOR	E♭	B♭	F	C	G	D	A	E	B	F♯	C♯	G♯	D♯

The preceding key signature had two flats, so we know that our selection is either in the key of B♭ major or G minor.

3) If you are not sure which of the two keys this song is in, the first and/or last chord might help you determine between the two.

Please note that the first chord is B♭ major, so therefore we can **reasonably assume** that this is our key.

– – – – – – – – – – – –

Once you have determined which key the selection you wish to perform is in, play a three-note chord (triad) comprising the "tonic" chord on the Lower Keyboard.

For example, play a B♭ major triad (B♭, D, and F) if the musical composition is in the key of B♭ major; likewise, play a C minor triad (C, E♭ and G) if the composition is in the key of C minor, etc.

While holding this triad, press the KEY SET button. When the lamp flashes, it indicates that the key has been stored in Memory. (If you modulate [change keys] during a selection, be sure to enter the new key into the KEY SET function.)

Counter Melody

Instead of having chords move in exact tempo and direction as the melody, it is often more desirable to create a secondary melody which complements the main theme. This melody is called a "COUNTER MELODY" and your Electone™ automatically "composes" a counter melody which will enhance many of your selections. With this mode **only,** it is not necessary to play any UPPER KEYBOARD notes to obtain the Counter Melody.

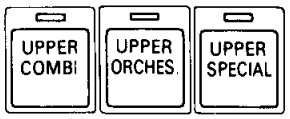
Now that you understand what each of the PLAY ASSIST modes is, to utilize any of them requires only three simple steps:

1) Select and press the button corresponding to which mode you wish to use.

   (If DUET is to be used, remember to program the KEY SET function as described above).

2) Select and press which voice you wish to use to play the MELODY and be sure that the appropriate Voice Section has been turned on in the ENSEMBLE SECTION.

3) Select which voices you wish to use to play the HARMONY notes, and activate that section(s) by using one or more of the three selectors in the PLAY ASSIST (not ENSEMBLE) SECTION.

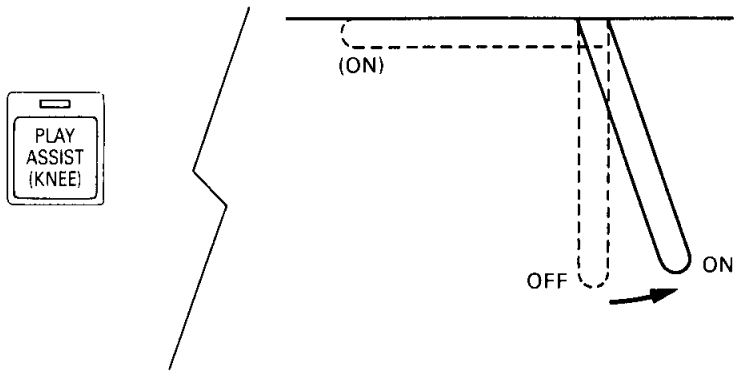


   REMEMBER TO MOVE THE VOLUME SLIDERS FOR THE MELODY AND HARMONY VOICES DOWNWARD.

4) Now, play a melody on the Upper Keyboard and hold a chord on the Lower Keyboard to hear the resultant harmony. The "assist notes" (harmony) will be produced at a slightly softer level than the melody.

Play Assist And Auto Bass Chord

The PLAY ASSIST section will also operate in any mode of ABC, making it even easier to obtain the sounds of a "professional" from the very beginning. (In addition, if both the LOWER MEMORY and RHYTHM are on, it is not necessary to hold down the Lower Keyboard notes to obtain the "assist notes" (harmony).



The KNEE LEVER (located beneath the keyboards) can be used to turn the PLAY ASSIST functions "ON" or "OFF," thus enabling a variety of voicings in any given song. To operate, press the PLAY ASSIST (KNEE) button (located in the SUSTAIN section) and then move the KNEE LEVER into a vertical position, placing it to the right of your right knee.

When you arrive at a point in your musical performance where you want to use the PLAY ASSIST function, move the KNEE LEVER to the right. Hold the lever in this position for as long as you desire that function to be active, and release the lever when you want to turn it off. In this way, you can obtain a more musical performance and therefore avoid the monotony of having everything sound "mechanical."

REGISTRATION MEMORY

The Registration Memory Selectors (illustrated above), are located between the Upper and Lower Keyboards of your Electone™. These eight selectors, along with CANCEL, DISABLE and RESET, make your Electone™ one of the easiest in its class to operate and, at the same time, one of the most versatile. This system allows you to instantly memorize every pertinent piece of information on the entire control panel at any given moment (including all voices, Rhythm Type and Tempo, Rhythm Sequence Programs, Auto Arpeggio, Rhythmic Chord, Tremolo, Symphonic Chorus, Vibrato, Play Assist Information...and the **precise** position of **all** Sliders [Volume, Brilliance, Reverb, Manual Balance, Rhythm Balance, Sustain, Detune, Slide Control]).

You were introduced to the basic functions of these Memory Selectors when you first began exploring the contents of this manual. Now it's time for you to learn the first of two different ways that the contents of these selectors can be changed.

Let's take a moment and actually program one of these Selectors to familiarize yourself with the operation of this valuable function. IMPORTANT: This new registration will replace one of the existing sounds (when step #2 is performed), therefore it is important that you choose the selector whose sound is least appropriate for your use.

1) After pressing the RESET (R.) button, set up your instrument according to the following instructions:

   A) UPPER ORCHESTRA SECTION: Brass 2; Volume MAX

   B) ENSEMBLE SECTION: Lower Combi; Upper and Lower Orchestra (Remain On)

   C) LOWER COMBI SECTION: Preset 2; Volume 1/2

   D) LOWER ORCHESTRA SECTION: String 1 (Remains On); Volume 1/2

   F) SUSTAIN SECTION: Pedal Sustain (Button); Pedal Sustain Slider at 1/2

   G) TREMOLO SECTION: Lower Combi; Tremolo

   H) REVERB: 1/2

Please understand that this is only a basic registration and does not contain any Automatic Features.

2) While holding the red MEMORY (M.) button, press the Memory Selector (1-8) corresponding to where you wish to store this registration.

   A) The indicator lamp on the selector will flash to confirm that your registration is now contained in this Memory.

   B) For your protection, YAMAHA has provided a battery back-up system to insure that registrations stored in Memory cannot be erased (unless a new registration is later stored in the same Memory), even if the power is turned off or the Electone™ is unplugged.

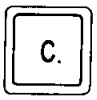
3) At any time during a performance when you wish to recall that registration, simply press the appropriate Memory Selector. The indicator lamp will illuminate, all controls will move to their memorized positions and the sound you programmed will be instantly available.

Any registration may be altered in any way you choose, by manually changing the controls. When a control is moved from its stored-in-Memory status, the indicator lamp on the Memory Selector will go off, however, the contents in Memory **will not be changed.** If you prefer the "altered" registration to be stored in Memory, simply repeat step #2 above.

4) By following the procedure outlined above, the remaining 7 Memory Selectors can be used to store/recall additional registrations.

The second method of changing the contents of the Registration Memory Selectors will be discussed soon. But, for now, let's move on to the CANCEL selector.

CANCEL (C.)

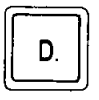


Pressing this control will return you to the registration that existed just prior to the use of one of the eight Memory Selectors. This, in effect, provides you with a "9th" preset, in that a frequently used registration can be saved (temporarily) in the CANCEL Memory.

Moving any control, even slightly, while a Memory Selector is "ON" changes the CANCEL Memory to the new, altered settings. Please note that the original "piston" Memory will not be changed.

Turning the Electone™ "OFF" will cause the CANCEL Memory to change to the Registration that was on the Control Panel at that time.

DISABLE (D.)



When each Memory Selector is programmed, information regarding the Rhythm Unit, Auto Arpeggio, Auto Bass Chord, Rhythmic Chord and Play Assist functions are included in each Memory. Frequently, a change in **sound** is desired, but a change in the **automatic features** is not. The DISABLE selector isolates these functions, allowing you the versatility of changing the sound while, at the same time, ensuring rhythmic continuity.

SLIDER DRIVE

SLIDER DRIVE

Your Electone™ is equipped with motor driven Slider Controls. Pressing the SLIDER DRIVE button eliminates the mechanical movement (and therefore the slight electrical noise) and is particularly helpful for recording purposes.

RESET (R.)

This button instantly returns the control panel to "neutral" status, helping to assure that nothing is overlooked. For your information, when the RESET button is pressed:

1) The upper left button in each section will be automatically selected, along with PRESET VIBRATO and TOUCH TONE.

2) The UPPER and LOWER ORCHESTRA SECTIONS will automatically be selected in the ENSEMBLE SECTION.

3) **All volume sliders** will revert to their MINIMUM positions.

4) The BRILLIANCE and BALANCE controls will move to the middle position.

5) The Rhythm Speed will change to 120 beats per minute.

6) The "SYMPHONIC" effect indicator light will be illuminated. Since the Symphonic and Celeste effects are related functions, one of these lights will always be "ON".

7) All other buttons will revert to OFF or NORMAL status.

MEMORY WHEN POWER IS OFF

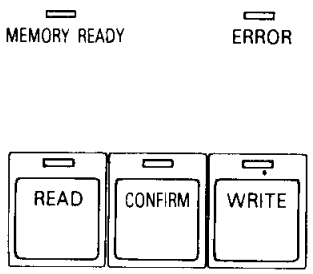
At the time the power is turned off, the control panel setting is automatically stored in Memory. When the power is again turned on, the Electone™ will return to that previous registration **even if the setting was changed while the power was off.** However, if a Memory Selector is being used (button illuminated) when the power is turned off, that setting will return as described above, but the indicator lamp **will not** be illuminated.

NOTE: On extremely rare occasions (i.e. electrical storms, major power line disturbances, etc.) the REGISTRATION MEMORY may be altered to the extent that no sound will be produced when keys are pressed. If this should happen, turn the Power Switch OFF. Then, while pressing the RESET button, turn the Power Switch ON. Your Electone™ will be registered to a factory position and sound should be produced.

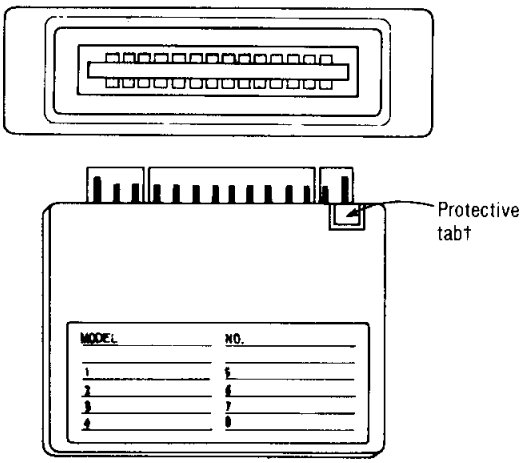
IMPORTANT: This operation **erases** all eight registrations and therefore, they must be re-programmed either manually or by using a Registration Pack.

The Registration Memory System should now function normally. If the Registration Memory System still fails to operate as indicated in this Owner's Guide, please contact your dealer for assistance.

REGISTRATION PACK



REGISTRATION PACK



We are now ready to explore the second method of changing the contents of the Memory Selectors, the use of a REGISTRATION PACK.* A Registration Pack contains a solid-state device (LSI), similar to those found in computers, which performs Memory functions for you. It can store (and later recall) all the information required to register your Electone™ eight completely different ways, and can do so in mere seconds. A small "library" of Registration Packs can be extremely valuable to the performer who wants an assortment of registrations immediately available.

The following chart explains what each of the two major operating functions are used for:

OPERATION	FROM	TO
WRITE	ELECTONE™ MEMORY SELECTORS	REGISTRATION PACK
READ	REGISTRATION PACK	ELECTONE™ MEMORY SELECTORS

* Your Registration Pack may have a plastic contact cover (not pictured) that must be removed before you insert it into the slot. This cover should always be used to protect the contacts when the Registration Pack is not in use. If not, please return your Registration Pack to its plastic case.

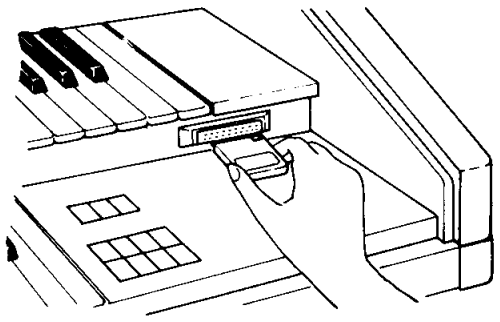
† When this protective tab is removed, the contents of the Registration Pack are preserved, and **cannot** be changed.

Write

THE OPERATION "WRITE" INVOLVES THE TRANSFERRING OF INFORMATION FROM THE ELECTONE™'S MEMORY SELECTORS TO THE REGISTRATION PACK.

1) Using the Memory Selectors (1-8), set your desired registrations as described previously on Page 44.

2) Firmly insert the Registration Pack straight into the slot as shown below.



When the Registration Pack is properly inserted, the MEMORY READY lamp will flash briefly and then remain on, indicating that the Memory is now ready to receive the information from the Electone™.

MEMORY READY ERROR

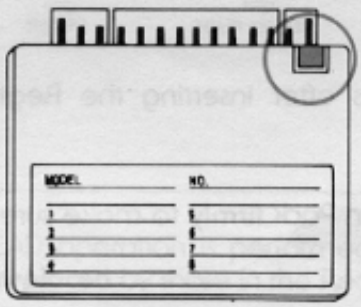
If the ERROR lamp flashes after inserting the Registration Pack, please re-insert the Registration Pack **firmly** to make sure that the contacts are properly seated.

If the ERROR lamp continues to flash, it may be that this Registration Pack was previously used to memorize registrations for a different class Electone™ (i.e. a console). If the protective tab is still in place, disregard the flashing error lamp and continue with step #3 (following):

3) While holding the CONFIRM button, press the WRITE button. The WRITE LAMP will flash indicating that the Registration Pack has received and stored the information from the Electone™.†

For your protection, YAMAHA has provided a battery back-up system to insure that information stored on a Registration Pack will not be erased unless new information is later entered into it.

If the ERROR lamp begins to flash at this time, the contents of the Registration Pack have been previously protected by removal of the tab (see below).



NOTE: If you wish to preserve the contents of a Registration Pack, simply break the tab on top of the pack. When this tab is missing, the WRITE operation cannot be performed and therefore the contents of the Registration Pack cannot be erased.

Please be sure that the contents of Memory Selectors 1-8 are **exactly** the way you want them before you break this tab, because **this process cannot be reversed.**

In addition, to assure that this Registration Pack is not used on a different class Electone™ (i.e. a **console**) please mark the Model Number clearly in the appropriate space on the label. Although the information can be transferred (by the READ operation) to a model of a different class, the resultant registrations will not be as expected.

† THIS NEW INFORMATION REPLACES (ERASES) ANY PRIOR CONTENTS OF THE REGISTRATION PACK.

Read

THE OPERATION "READ" INVOLVES THE TRANSFERRING OF INFORMATION FROM THE REGISTRATION PACK TO THE ELECTONE™'S MEMORY SELECTORS.

1) Firmly insert the Registration Pack straight into the slot.

When the Registration Pack is properly inserted, the MEMORY READY lamp will flash briefly and then remain on, indicating that the Electone™ is now ready to receive information from the Registration Pack.

If the Error Lamp flashes after inserting the Registration Pack, please do the following:

A) Re-insert the Registration Pack **firmly** to make sure that the contacts are properly seated.

B) Check to be sure that this Registration Pack was originally "written" (programmed) on a similar model Electone™ (in this case, a spinet). (Look for the model number which should have been written in the appropriate space on the label.)*

If the Error lamp still flashes, please contact your nearest Yamaha Electone™ dealer for assistance.

*If a Registration Pack is used that was originally written on a console, the resultant registrations will not be as expected.

When a Registration Pack is inserted, the Memory Selectors **do not** automatically contain the information from that Registration Pack. The READ operation (see below) **must be** performed in order to transfer the information from the Registration Pack to the Memory Selectors.

2) While holding the CONFIRM button, press the READ button.

The READ lamp will now flash, indicating that the information on the Registration Pack has been transferred to the Electone™'s Memory.†† Now, Memory Selectors 1 through 8 will contain the information that it just received, **even** if the Registration Pack is now removed.

IMPORTANT: When the READ operation is performed, any prior registrations in Memory Selectors 1-8 are **replaced** by those in the Registration Pack.

When the WRITE operation is performed, any prior registrations stored on that Registration Pack are **replaced** by those registrations just received from the Memory Selectors.

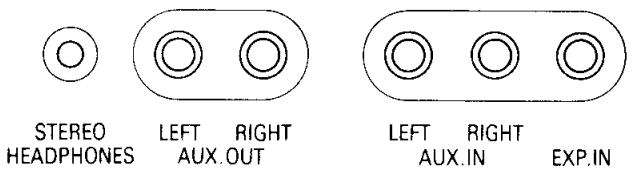
If, after the above steps have been taken, the transfer of information does not take place, please contact your nearest Yamaha Electone™ dealer for assistance.

†† THIS NEW INFORMATION REPLACES (ERASES) ANY PRIOR CONTENTS OF MEMORY SELECTORS 1 - 8.

ACCESSORY JACKS AND SOCKETS

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

The YAMAHA design application of the jacks and sockets is as follows:



STEREO HEADPHONE JACK

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

Note: You can also use monaural headphones in this jack without damaging either the Electone™ or the Headphones.

Important: Do not use this jack for any purpose other than Headphones!

AUX OUT (LEFT/RIGHT) JACKS

These jacks have been provided to permit the connection of your Electone™ to most stereo tape recorders that have "Line In" jacks. This allows a direct recording without any outside noise.

AUX IN (LEFT/RIGHT) JACKS

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

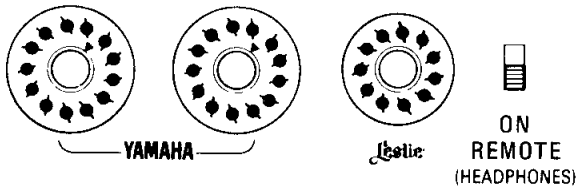
Note: The sounds reproduced utilizing these jacks are not controlled by the volume pedal.

EXP IN JACK

This jack accepts a monaural signal from synthesizers or similar accessories (designed to provide approximately 2 vpp [two volts, peak-to-peak] into a 10K ohm load.) 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.

TONE CABINET CONNECTORS/REMOTE ON SWITCH



These three sockets are designed to be used with **amplified** speaker systems. Two (2) thirteen (13) pin sockets have been provided to permit the connection of Yamaha designed and produced Tone Cabinets†. A third socket having eleven (11) pins has been provided to allow the connection of Leslie® Speaker Systems or other comparable systems having the exact same engineering requirements.

THE REMOTE "ON" SWITCH HAS **NO** FUNCTION UNLESS HEADPHONES ARE CONNECTED.

When headphones are connected and the switch is in the DOWN position, sound will be heard **only** from the headphones, even if a tone cabinet is connected. Moving the switch to the UP position will permit sound from the tone cabinet as well as from the headphones.

The following chart shows where the sounds will come from in relation to the switch position:

SWITCH POSITION	HEADPHONES	INTERNAL SPEAKERS	EXTERNAL TONE CABINET
DOWN	YES	NO SOUND	NO
UP	YES	NO SOUND	YES

† Yamaha Tone Cabinets may not be readily available in all markets areas. Contact your dealer for information.

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 three possibilities and meets all applicable standards 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.

FCC CERTIFICATION (USA)

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 interferece. 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 D.C. 20402.

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™, its Pedal Keyboard, or 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 sun light 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. **Roll Top/Key Cover:** The roll top was **not** designed to support decorative items or body pressures. Do not permit anyone to sit, lean or climb on this assembly. The roll top assembly is designed to **slide** into the interior of the console, and we recommend that you use both hands to control the rate of movement until this cover reaches its rest position. Do not **lift** the entire assembly to operate.

7. **Electro Magnetic 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 54 for additional information.

MAINTENANCE

1. **SERVICE:** Your Electone™ contains no user serviceable components. Refer all service to qualified service technicians **only.**

2. **BENCH:** If any motion or an "unsteady" sensation is noted in the bench, please check its structural integrity immediately. Discontinue use until any and all discrepancies are resolved. The bench was designed for seating only. No other applications are recommended.

3. **POWER/PILOT LIGHT:** When not is use, always turn your Electone™ "OFF." The roll-top (cover) does not include an automatic power switch and therefore, closing the roll top **does not** automatically shut off the instrument. A **PILOT LIGHT** (visible when the roll top is closed) has been provided as a reminder. Use of your Electone™ as a "night light" is not recommended.

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. Freeman's Furniture Cream, Guardsman Furniture Cream or their equivalents are recommended.

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 and all **WARRANTIES WILL BECOME INVALID.**

TROUBLESHOOTING

Why doesn't it work? Your Electone™, like all man made devices, can require service. However, our records indicate that a very high percentage of Service requests are the result of some misleading phenomena or a lack of understanding on the part of the Owner as to just how the product is supposed to work. For this reason, YAMAHA has prepared this concept in an Owner's Guide. We trust that the step-by step format will be useful to you and that you will enjoy all the versatility that your Electone™ has to offer.

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. Please refer to either the Table of Contents or pages 2 and 3 for specific page location.

Phenomenon	Possible Cause	Probable Solution
No sound - All indicator lights function normal.	Nothing is On in the Ensemble Section and/or the Volume Sliders are in the MINIMUM position.	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 Page 54.
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 variation of the frequencies, and the power levels (volume) involved will naturally cause some objects (i.e., windows, objects on shelves, pictures, 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 Page 53.

Phenomenon	Possible Cause	Probable Solution
Lower and/or Pedal Keyboard continues to produce sound, even when hands/-feet are removed.	One or both of the Memory Buttons (located in the ABC 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.
Pedal sounds produced in the Fingered Chord mode do not sound correct.	This mode does not recognize 6th chords and may/may not recognize 9ths, 11ths, or 13ths, etc, depending on inversion.	When using the Fingered Chord mode, play basic triads and seventh chords only.
Slide effect is not working.	The slide effect is not automatically added, but rather is dependent on how the keys are played.	Please refer to page 20 where this effect and how to obtain it is described.
Sustain does not work.	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.
Slider controls button do not move.	Slider Drive button is on.	Press Slider Drive button until the light goes out, and the effect will be cancelled.
Error light flashes and won't go out.	Either the wrong type of Registration Pack was inserted or the Read and/or Write buttons were pressed without a pack being inserted.	Press the Confirm button to stop the flashing Error lamp.
The Rhythm and Automatic functions do not change when a different Memory Selector is pressed.	Disable button is on.	Press the Disable button until the light goes out, and the effect will be cancelled.

SPECIFICATIONS†
FS-500/FS-300

KEYBOARDS

***Solo:** 37 Keys c1-c4 (3 Octaves)
Upper: 49 Keys c-c4 (4 Octaves)
Lower: 49 Keys C-c3 (4 Octaves)
Pedals: 13 Keys C-c (1 Octave)

COMBINATION

Upper: Combi. Lever, Memory 1 · 2 · 3,
Preset 1 · 2 · 3 · 4, Volume,
Levers: 16', 8', 5 1/3', 4', 2 2/3', 2',
1', Attack 4' · 2 2/3' · 2', Attack Length
Lower: Combi. Lever, Memory 1 · 2 · 3,
Preset 1 · 2 · 3 · 4, Volume,
Levers: 8', 4', 2 2/3', 2'
Pedals: Combi. Lever, Memory, Preset 1 · 2, Volume,
Levers: 16', 8', 4'

ORCHESTRA

Upper: Strings 1, Strings 2, Strings 3, Brass 1, Brass 2, Reed 1, Reed 2,
Vocal, Spice 1, Spice 2
Controls: Preset Vibrato, Touch Tone, Volume

Lower: Strings 1, Strings 2, Brass 1, Brass 2, Reed, Vocal 1, Vocal 2,
Spice
Controls: Preset Vibrato, Touch Tone, Volume

SPECIAL PRESETS

Upper: Piano, Harpsichord, Celesta, Vibraphone, Marimba, Mandolin, Banjo, Jazz Guitar, Brass 1, Brass 2, Cosmic
Controls: Touch Tone, Volume

Lower: Piano, Electric Piano, Harpsichord, Harp, Acoustic Guitar, Jazz Guitar, Brass 1, Brass 2, Cosmic
Controls: Touch Tone, Volume

† Specifications subject to change without notice.
* FS-500 Only.
§ Located on Preset Panel.

CUSTOM VOICES

Upper/Lower: Flute, Oboe, Clarinet, Saxophone, Trumpet, Trombone, Violin, Jazz Guitar, Cosmic 1, Cosmic 2, Cosmic 3, Cosmic 4
Controls: Preset Vibrato, Touch Vibrato, Touch Tone, Volume

Pedals: Contra Bass 1, Contra Bass 2, Contra Bass 3, Tuba, Electric Bass 1, Electric Bass 2, Electric Bass 3, Cosmic
Controls: Brilliance, Volume

SOLO*

Piccolo, Flute, Oboe, Clarinet, Saxophone, Trumpet 1, Trumpet 2, Horn, Trombone, Violin, Jazz Guitar, Harmonica, Cosmic 1, Cosmic 2
Controls: Detune, Coupler, Transposition (Down, Normal, Up,) Preset Vibrato, Touch Vibrato, Touch Tone, Brilliance, Volume, Slide Control

ENSEMBLE

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

EFFECTS · CONTROLS

Sustain: Switches: Upper Sustain (Knee), Lower Sustain (Knee), Pedal Sustain
Controls: Upper, Lower, Pedal

Symphonic: Celeste, Symphonic, Upper Combi., Upper Orches., Lower Combi., Lower Orches.
Tremolo: Chorus, Tremolo, Upper Combi., Upper Orches., Lower Combi., Lower Orches., Variable Tremolo Speed Control

§**Combination:** Program Set, Response Fast, Timbre Variation
§**Vibrato:** Set, Lever, Player, Preset
Controls: Touch Depth, Delay, Depth, Speed
Indicator Lamps: Solo*, Upper Orches., Upper/Lower Custom, Lower Orches., Pedals

Reverb

AUTO RHYTHM UNIT

Pattern Selectors: March, Waltz, Ballad, Swing, Bounce, Slow Rock, 8 Beat 1, 8 Beat 2, Tango, Latin 1, Latin 2, Bossanova, Samba, Latin Rock, Disco, 16 Beat, Variation 1 · 2 · 3 · 4
Break Variation: 1 · 2 · 3 (16 x 3 patterns), Break On, Break Variation (Foot Switch Control)
Auto Variation: Normal, 4-Bar, 8-Bar, 16-Bar
Rhythm Sequence Programmer: Program 1 · 2 · 3 · 4 (64 Bars x 4)
§ On, Record, Blank, End, Back, Forward
Digital Display: Tempo, Bar/Beat

Controls: Synchro Start, Start, Tempo, Volume, Balance, Tempo Indicator Lamp, Rhythm Stop (Foot Switch Control)

AUTO ARPEGGIO

Pattern Selectors: 1 · 2 · 3 · 4 · 5 · 6 · 7 · 8
(16 x 8 Patterns)
Voice Selectors: Piano, Harpsichord, Strings, Harp
Controls: Volume

RHYTHMIC CHORD

Pattern 1: Piano, Jazz Guitar, Solid Guitar, Phaser (effect), Volume
Pattern 2: Brass, Jazz Guitar, Solid Guitar, Phaser (effect), Volume

AUTO BASS CHORD

Mode Selectors: Normal, Single Finger Chord, Fingered Chord, Custom A.B.C.
Multi Bass: Normal, 1, 2, 3
Memory: Lower Memory, Pedal Memory

PLAY ASSIST

Modes: Melody On Chord 1, Melody On Chord 2, Duet, Counter Melody
Controls: Key Set (Duet), Play Assist (Knee Lever)
Voice Selectors: Upper Combi., Upper Orches., Upper Special

REGISTRATION MEMORY

Memory Selectors: 1 · 2 · 3 · 4 · 5 · 6 · 7 · 8
Controls: Memory, Cancel, Disable, Slider Drive, Reset
Registration Pack: Selectors: Read, Confirm, Write
Indicator Lamps: Memory Ready, Error

OTHER CONTROLS

Knee Lever Controls: Play Assist, Upper Sustain, Lower Sustain
Foot Switch Controls: Glide, Rhythm Stop, Break Variation
Manual Balance, Master Volume, Expression Pedal, Main Light Switch, Power Switch, Power/Pilot Light, Pitch Control

OTHER FITTINGS

Stereo Headphone Jack, Aux. Out Left-Right Jacks,
Aux. In Left-Right Jacks,
Exp. In Jack

Yamaha Tone Cabinet Connectors (13 pins · 13 pins)
Leslie™ Tone Cabinet Connector (11 pins)
Remote (Headphones),

Registration Pack, Music Rest, Matching Bench, Locking Roll-top Fallboard

AMPLIFIERS

Center: 90W(rms), **Left:** 60W(rms), **Right:** 60W(rms)

SPEAKERS

Center: Woofer 12" (Enclosed), Mid-range 8", Tweeter 2"
Left: Mid-range 8", Tweeter 2"
Right: Mid-range 8", Tweeter 2"

CIRCUITRY

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

DIMENSIONS

Cabinet (FS-500): 46 3/4" (W) x 29 1/2" (D) x 42 1/2" (H)
(FS-300): 46 1/2" (W) x 26 1/2" (D) x 41" (H)
Bench: 30 1/2" (W) x 14" (D) x 22" (H) (40 1/2" x 14 1/4" x 24")

WEIGHTS

Cabinet (FS-500): 334 lbs.
(FS-300): 305 lbs.
Bench: 31 lbs.

CABINETRY/FINISH

Cabinetry: Real American Walnut Veneer with selected solid hardwood components.
Finish: American Walnut

KEYING PRIORITIES

The following Keying Priorities and speaking capabilities are a part of the design of your Electone™.

Upper Keyboard And Lower Keyboard

A total of twelve keys may be played at any one time. These twelve keys are available in any Upper/Lower Keyboard ratio. For example, if you press ten keys on the Upper Keyboard, only two keys will produce sound on the Lower Keyboard.

CUSTOM VOICES are available on either the Upper **or** the Lower Keyboard, but not on both simultaneously.

- Custom Voices are MONOPHONIC, meaning that only one note at a time can be played.
- When used alone (not combined with any other Voice Section on the same keyboard) and more than one note is played, the last note pressed will be heard.
- When combined with another Voice Section on the same keyboard, and more than one note is pressed, the Custom Voice will play the note farthest to the right.

Pedal Keyboard

The Pedal Keyboard is MONOPHONIC (meaning that only one note at a time can be played). When more than one pedal is pressed, the highest note (pedal farthest to the right) will be heard.

Solo Keyboard

The Solo Keyboard is MONOPHONIC, meaning that only one note at a time can be played. When more than one note is pressed, the last note played will be heard.

The COUPLER allows Solo Keyboard voices to be produced on the Upper Keyboard. When the COUPLER is ON:

- -and Solo Voices are played on the Upper Keyboard, the keying priority changes to the highest (farthest to the right) note played.
- -and both the Upper Keyboard and Solo Keyboard are played simultaneously, the Solo Voice will be produced on the Solo Keyboard.

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