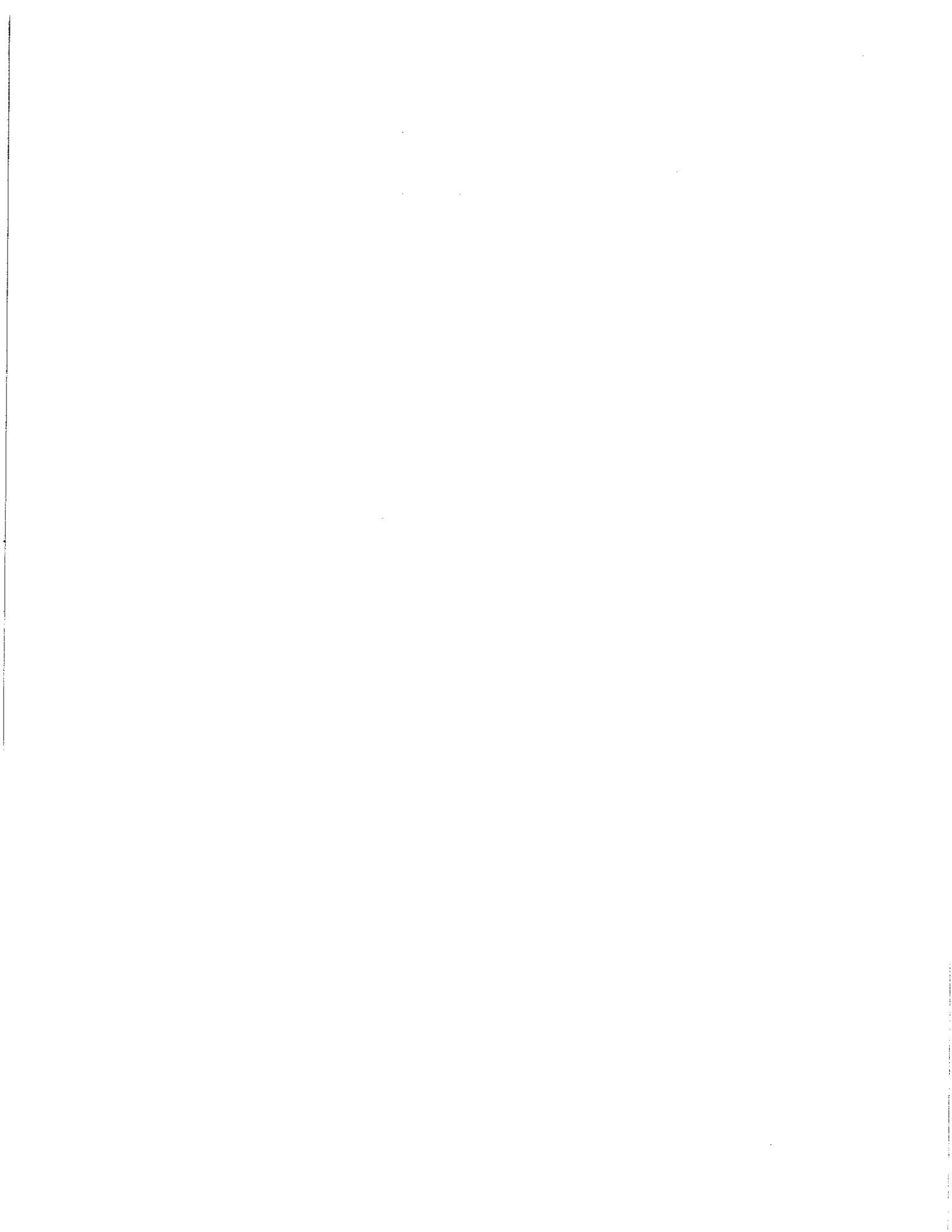


**SYSTEM 500 & 700
SERIES**

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AOC P/N 033-0013



ALLEN ORGAN COMPANY

For over thirty-five years - practically the entire history of electronic organs - Allen's role has been to build the finest organs technology allows.

In 1939 Allen built and marketed the world's first purely electronic oscillator organ. The tone generators for this first instrument used two hundred forty-four vacuum tubes, contained about five thousand components, weighed nearly three hundred pounds; with all this, the specification included relatively few stops.

By 1959, Allen replaced vacuum tubes in their oscillator organs with transistors. Hundreds upon hundreds of such instruments were built, including some of the largest, most sophisticated oscillator organs ever built.

Only a radical technological breakthrough could improve upon the fine performance of Allen's solid-state oscillator organs. Such a breakthrough came from the U.S. Space Program in the form of highly-advanced digital microcircuits.

Today, the computer in Allen's unique digital tone generation system weighs mere ounces, yet produces more than three dozen stops. Like squeezing an acre into a square inch, tiny reliable large scale integrated circuits contain the equivalent of thousands of individual electronic components.

The result is an instrument of remarkably advanced tone quality and performance.

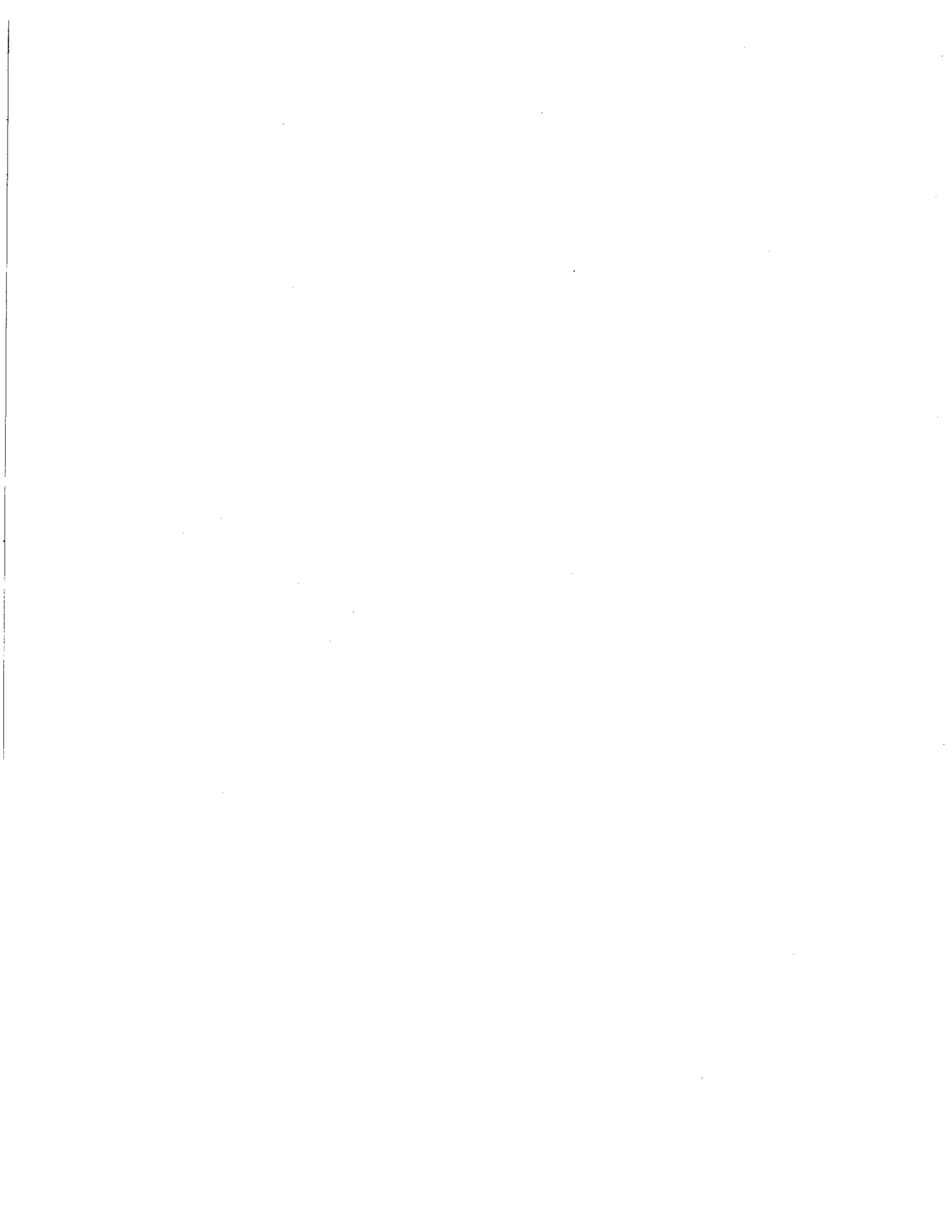
Warning: This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. As temporarily permitted by regulation, it has not been tested for compliance with the limits for Class A or for Class B computing devices pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Congratulations on the purchase of your new Allen Computer Organ! You have acquired the most advanced electronic organ ever built, one which harnesses a modern computer to the creation and control of beautiful organ tone.

Familiarize yourself with the instrument by reading through this booklet. We call your attention particularly to sections on Doubling, Alterable Voices, Transposer, and Capture Action since these elements are important to realizing the full potential of the instrument.

The sections on stop description and organ registration are intended for immediate use as well as future reference. These subjects are actually large ones, fully worthy of treatment in a separate volume. Because the new Computer Organ offers limitless tonal possibilities, plus absolutely authentic tone quality, these subjects can now be more readily explored than ever before.

- I An Introduction to the 500 & 700 -- Doubling
- II Stop Description
- III Registrations
- IV Alterable Voices -- Percussions, Chimes
- V Transposer
- VI Capture Action
- VII Installation, Voicing, Care of the Organ



AN INTRODUCTION TO THE 505 - 705'S -- DOUBLING

The Systems 505 and 705 Series Digital Computer Organ uses two complete computer tone generation systems, each one a duplicate of the other. In most cases, when a single stop is played, the same tone is created in both computers simultaneously and caused to speak through separate sound systems. When 30 stops are played, each computer produces the complete registration separately; and the sound outputs from each computer are projected separately. Because every registration is created twice, exactly the same in every detail, and made to sound simultaneously, we call the concept "doubling."

Musicians have long known that two instruments playing the same note create a tonal effect which goes beyond merely increased volume. The orchestral literature is replete with examples of "doubling" for aesthetic effect. The unison trumpets in the "Triumphal March from Aida" are a spectacular example. More routinely, there is the usual "doubling" of woodwinds in tutti orchestral passages.

The piano, of course, with its two and three strings per note, is a prime example of "doubling" (and tripling) within a single instrument.

The organ builders of antiquity -- especially the French -- were certainly well aware of doubling. The frequent inclusion of second reed choruses, almost identical to the first, and often in the same division, produced a combined effect of great splendor.

What does "doubling" do for a sound? We suggest you perform this little experiment, using the Swell Reeds (Contra Fagotto 16', Trompette 8', and Clairon 4'): Play a short passage on the Swell with the stop tab "Doubling Off" depressed. Repeat the passage with the "Doubling Off" removed. If you have difficulty perceiving any difference, owing perhaps to poor speaker/console location, have someone else perform the playing, and move to where the organ sounds best. When both computers are playing, the sound is dramatically improved and more exciting.

To assist the organist in registration, the two computers are designated "A" and "B." Many controls, such as sustain controls, are duplicated for each computer.

Ultimate success of the doubling concept depends upon careful installation and voicing. It is essential that both computers be equal in volume. If one overshadows the other, the richness of which the system is capable will not be fully realized.

STOP DESCRIPTION

PITCH FOOTAGE

The number appearing on each stop along with its name indicates the "pitch" or "register" of the particular stop. It is characteristic of the organ that notes of different pitches may be sounded from a single playing key. When this sound corresponds to the actual pitch of the playing key, the note (or stop) is referred to as being of 8' pitch. If it sounds an octave higher, it is called 4' or octave pitch. If it sounds two octaves higher, it is called 2' pitch. Likewise, a 16' stop sounds an octave lower.

Stops of 16', 8', 4', 2' and 1' pitch all have octave relationships. That is, these "even numbered" stops all sound octaves of whatever key is depressed. Pitches other than octaves are also used in organ work, and because their footage number always contains a fraction, they are referred to as fractional pitch stops, or mutations, or simply fractionals. These are the Quinte 2-2/3', Nasat 2-2/3', and Terz 1-3/5'. Because they introduce unusual pitch relationships with respect to the fundamental (8') tone, they are most effective when combined with other stops and used in solo passages, thus providing additional tonal possibilities.

TONAL FAMILIES

Organ tones may be grouped into several large categories, with subdivisions as follows:

Principal Tones	Principals	Characteristic organ tone, non-imitative of orchestral instruments. Usually present at many pitch levels, as well as all divisions.
	Diapasons	
	Octaves	
	Super Octaves	
	Quintes Mixtures	
Flute Tones	Open Types: Harmonic Flute, Melodia, etc.;	Tones of lesser harmonic development than Principals. Open types sometimes imitative; Stopped types not. Present at all pitch levels including fractionals.
	Flute Mutation Stops	
	Stopped Types: Gedacks, Bourdons, Quintadenas, Rohrflötes, etc.	
Strings	Salicionals	Mildly imitative voices of brighter than Principal harmonic development. Appear usually at 8' pitch; Celestes involve two ranks of tone, one slightly sharp of the other, producing a shimmering effect.
	Violas	
	Dulcianas	
	String Celestes	

	Chorus or Ensemble Types:	Tones of great harmonic
	Trumpets, Bombardes,	development; some imitative,
	Clairons, etc.	others not. Limited in general
Reeds	Solo Types:	to 16', 8' and 4' pitches.
	Oboe, Clarinet,	
	Cor Anglais, etc.	

The Allen Computer Organ provides authentic examples of every type of tone listed above. Certain of these tones are the subject of copyrights owned by the Allen Organ Company. The tones are embodied in memory devices, each such device having affixed to it a copyright notice, © 1981 AOCO, pursuant to Title 17 of the United States Code, Section 101 et seq. A discussion of the individual stops and how they are generally used follows.

SWELL ORGAN

Flute Conique 16'	-- Open Flute that adds support to any Flue combination in the Swell. Its cone shape allows for a somewhat strong fundamental with a fringe of brightness at the top.
Salizional 8'	-- Full bodied string tone.
Gemshorn 8'	-- Gentle string tone of lesser harmonic development, closer in tone to Principal family. Useful accompanimental voice.
Gedackt 8' (with Chiff)	-- Stopped Flute tone of moderate harmonic development. Includes the initial upper harmonic transient (chiff) phenomenon exhibited by low pressure, unnicked organ pipes.
Spitzprinzipal 4'	-- Bright Principal tone.
Koppelflöte 4' (with Chiff)	-- Distinctive Stopped Flute voice, which balances equally with 8' Flute or string tones.
Nasat 2-2/3'	-- Stopped Flute mutation at the twelfth. Always used with other stops (usually 8') for coloration.
Blockflöte 2'	-- Open Flute tone at the 2' pitch level. Stop combines with other Flute effectively, as well as other tones.
Terz 1-3/5'	-- Open Flute mutation stop at the 17th, roughly corresponding to the fifth harmonic of an 8' stop. Always used in combination with other stops, either flute, string or reed.
Siffelöte 1'	-- Highest pitched Flute stop, open type tone. Octave sounding.

****Mixtur III**

- A compound stop of Principal tone. One key produces three distinct pitches, at octave and fifth relationship to the key being pressed. Mixture "breaks" as it ascends the keyboard, shifting to the next lower octave or fifth in the series. Mixtures are never used without other lower pitched stops. Typically, the Mixture is added to Reed Choruses 16', 8', 4', or to Diapason and Flute ensembles.

- Contra Fagotto 16' -- Chorus reed tone at the 16' pitch level. Designed to supplement and undergird the other chorus reeds. Also usable as a distinctive solo reed tone.

- Hautbois 8' -- Solo reed voice imitative of the oboe.

- Trompette 8' -- Chorus reed stop reminiscent of the trumpet. A voice of rich harmonic development.

- Clairon 4' -- The chorus reed at the 4' level. Combines with the Contra Fagotto 16' and Trompette 8' to form full reed chorus. Also usable as a solo voice.

- Alterable Voice 1 (A)]
Alterable Voice 2 (B)] -- See separate section on Alterable Voices.

- Alterable Voice 3 (A)]
Alterable Voice 4 (B)] -- See separate section on Alterable Voices.

- Delay -- Causes some stops to speak slightly later than others. Like a pipe organ with deep chambers or pipes in different locations. Though the introduction of Digital Delay is particularly effective in smaller rooms, it provides a pleasing extra dimension with installations of all sizes. Effects Swell manual only.

- Percussion -- Produces percussive attack and release dimension appropriate to percussion type voices.

- Celeste Tuning -- Alters the pitch of the B computer, to create a celeste tuning between computers in the Swell division of stops.

- Tremulant -- Affects all stops of the Swell division.

- *Doubling Off -- Cancels the "B" computer output (Swell stops only), leaving the "A" computer to play alone.

- *Sub Octaver A -- Shifts all Swell stops in the "A" computer one octave lower.
- *Sub Octaver B -- Shifts all Swell stops in the "B" computer one octave lower.
- GREAT ORGAN
- Quintaden 16' -- Stopped Flute tone characterized by extremely strong third harmonic, which, at the 16' level, corresponds closely to the fifth above an 8' stop, hence the name Quintaden. Designed to be used with full Great organ without unduly muddying the sound.
- Erzähler 16' -- A 16' manual stop that supports a full Flue combination without adding undue weight. It points up the pitches of the stops being played with it without masking them.
- Prinzipal 8' -- Foundation stop of Great manual Principal Chorus.
- Dulciana 8' -- Soft accompanimental voice, actually a small scaled Principal.
- Hohlflöte 8' -- Full bodied Open Flute tone.
- *Flute Dolce 8' -- Soft accompaniment stop. Blends well with Dulciana.
- Octav 4' -- Second stop in the Great Principal Chorus.
- Spitzflöte 4' -- Bright Open Flute tone designed to balance with Great 8' stops.
- Quinte 2-2/3' -- Principal tone at the twelfth, softer than Octav and Doublette ranks. Generally not used without the Doublette 2'.
- Doublette 2' -- 2' Principal tone, which combines with Octav 4', Principal 8', and occasionally the Quinte 2-2/3' to comprise the basic Great Principal Chorus without Mixture.
- Waldflöte 2' -- Open Flute tone at 2' pitch level.
- **Mixtur IV -- A compound stop of Principal tone. Four notes, in octaves and fifths relationship, sound when a single key is depressed. As pitches progress upward, they "break" back to the next lower octave or fifth. Used to cap the Great Principal Chorus, adding brilliance and pitch definition to the entire compass.

- Cor Anglais 8' -- French for "English Horn." Solo Reed voice imitative of the Orchestral English Horn.
- *Alterable Voice 5 (A)]
] -- See separate section on Alterable Voices.
*Alterable Voice 6 (B)]
- *Alterable Voice 7 (A)]
] -- See separate section on Alterable Voices.
*Alterable Voice 8 (B)]
- Delay -- See Swell division -- same function for the Great manual.
- *Percussion A & B -- Produces percussive attack and release dimension appropriate to percussion type voices.
- Chorus Tuning -- Alters the pitch of the B computer to create a Chorus Tuning between computers in the Great division of stops.
- Tremulant -- Affects all stops in the Great division.
- Swell to Great -- Intermanual coupler connecting all Swell stops to the Great manual.
- PEDAL ORGAN
- Contra Bass 32' -- Principal tone at the deep 32' pitch. The foundation of the Pedal Principal chorus.
- Diapason 16' -- Major 16' stop in Pedal division.
- Violone 16' -- Voiced as a Diapason-String hybrid. This stop is a useful "bridge" between the Diapason and Flute stops in the Pedal.
- Bourdon 16' -- Stopped Flute tone of weight and solidity.
- Lieblich Gedeckt 16' -- Softer Stopped Flute voice of delicacy and definition. Useful where soft 16' pitch is required.
- Octave 8' -- Principal tone, part of the Pedal Principal chorus.
- Gedacktfloete 8' -- Stopped Flute tone at the 8' pitch, useful with either Bourdon 16' or Lieblich Gedeckt 16' for Pedal lines.
- Choralbass 4' -- Pedal 4' Principal tone.

- Flute Ouverte 4' -- Open Flute tone at the 4' pitch.
- **Mixtur II -- Compound stop of Principal tone, at the 2-2/3' and 2' pitch levels; comprises the crown of Pedal Principal chorus beginning at the 32' (or 16') level and progressing upward.
- Bombarde 16' -- A powerful, well developed Chorus Reed tone at the 16' pitch.
- Trompete 8' -- Trumpet Chorus Reed at the 8' pitch level.
- Schalmei 4' -- Reed tone at 4' pitch. Adds clarity to Pedal line.
- Great to Pedal -- Coupler
- Swell to Pedal -- Coupler
- GENERALS
- *Mixtur Breaks -- This stop changes the location of the breaks in the Mixtures on the 705 and above. You will note when you try the Mixtur IV on the Great, the breaks occur between B2 and C3, B3 and C4, and F#5 and G6. When you depress "Mixtur Breaks," these will now occur between B1 and C2, B2 and C3, F#4 and G4. The "brighter" Germanic sound will be with the "Mixtur Breaks" tablet depressed. Affects both the Swell Mixtur V and the Great Mixtur IV.
- "Mixtur Breaks" tablet down: "brighter" - Germanic sound.
- "Mixtur Breaks" tablet up/off: more romantic - French literature.
- Chiff MF]
]]
Chiff F]
- Upper harmonic transient imitative of "Chiff" phenomenon exhibited by low pressure, unnicked organ pipe voicing. Affects all stops,
- Random Motion Off -- The 505 and 705 instruments feature random activity, normally on at all times. This simulates the natural movement found in notes of windblown pipe instruments and is aesthetically desirable in almost all musical situations.

Speech Articulation Off

-- Normally, all stops speak with a slight pitch waver or discrepancy sometimes referred to as "pitch fringe" in organ pipes. Depressing this stop removes pitch fringe element from speech of notes. Rarely used, this stop tab might find occasional application with certain percussion effects and reed tones, or for demonstration purposes.

**CHORUS MIXTURES (705 ONLY)

A third independent computer and audio system is used to produce the Mixtures in the Swell, Great and Pedal of the Model 705. The Mixtures are as follows: Swell Mixture V, Great Mixture IV; Pedal Mixture III. This system allows greater flexibility in the Mixture stops.

EXPRESSION PEDAL

One Master Expression Pedal, affects all divisions.

CRESCENDO PEDAL

One Master Crescendo, for all divisions, gradually adds stops as Pedal is opened. Indicator lights show relative position of Pedal. Indiscriminate use of the Pedal, in lieu of careful registration, should be avoided.

*SFORZANDO

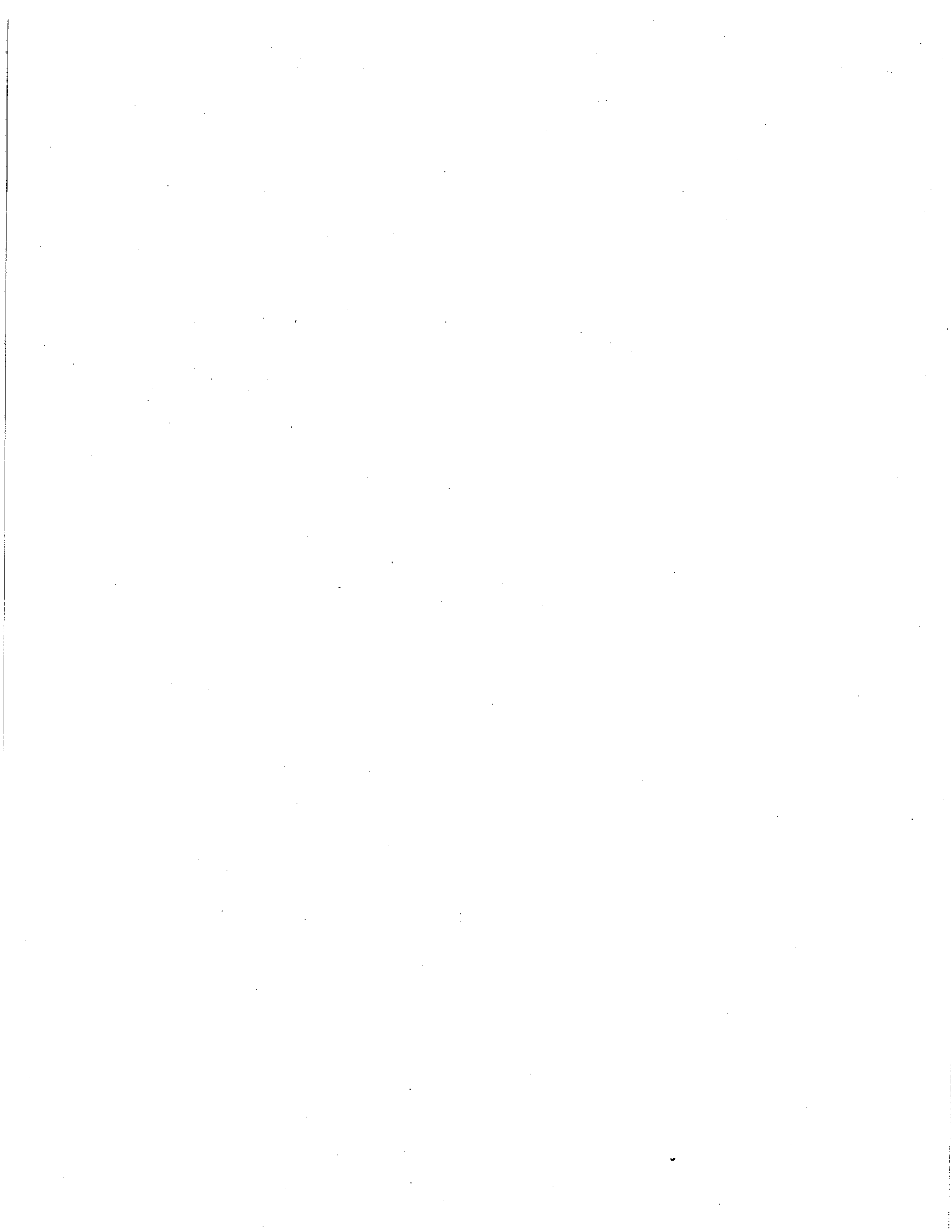
Toe Stud (with red indicator light) located to extreme right, above other combination action toe studs. It is Reversible. Pressing this stud will turn Sforzando either on or off. Provides instant full organ registration and turns on red signal light. Like the Crescendo, indiscriminate use of this device should be avoided.

*REVERSIBLES

Reversible pistons are provided for actuating the Swell to Great, Swell to Pedal, and Great to Pedal couplers. Pressing the appropriate piston moves the coupler visibly either "on" or "off," depending on its position. Pressing the piston repeatedly will cycle the stop "on" and "off." Each reversible is also equipped with a duplicating toe piston for foot operation in the event that hands are not free.

Accessibility to these frequently used stops -- even during actual performance -- is therefore at a maximum.

*Available only on 705



ARTISTIC REGISTRATION

Organ registration falls into two broad categories: Solo Combinations and Ensembles.

Since solo combinations are easy to produce, let us consider them first. What is required, of course, is a solo voice and an accompaniment and pedal. Almost any stop or combination of stops will sound well as a solo voice. Remember to choose, whenever possible, a contrasting tone quality for the accompaniment, and be sure the accompaniment is softer than the solo voice.

All 8' reed tones make interesting, usually excellent solo tones. The addition of a 4' flute, or flute mutations (Nasat, Terz), colors the sound further and increases its volume slightly. Combinations of flutes also sound well as solo tones.

For accompaniment, the softest voices are the Great Dulciana, the Swell Salizional, Gemshorn, or Gedackt. The correct choice depends on the volume of the solo tone (a soft solo voice requires the softest accompanimental stop) and the element of contrast. A bright, harmonically rich solo reed, for example, can be accompanied by either a string or flute; but the flute will often contribute greater interest because of its greater contrast.

Try to seek a "natural" balance of volume between solo and accompaniment. This combination can then be expressed as a whole with the expression pedal.

SOME TYPICAL SOLO REGISTRATIONS

OBOE SOLO

Swell: Hautbois 8' (Trem optional)
Great: Dulciana 8' (Chorus Tuning optional)
Pedal: Lieblich Gedeckt 16', Gedacktflöte 8', Great to Pedal

Play solo on Swell. For more color add Koppelflöte 4' to Hautbois.

COR ANGLAIS SOLO

Swell: Gedackt 8'
Great: Cor Anglais 8'
Pedal: Lieblich Gedeckt 16', Swell to Pedal

Play solo on Great. For more color add Spitzflöte 4' or Quinte 2-2/3'.

SWELL SOLO COMBINATION TONE

Swell: Gedackt 8', Koppelflöte 4', Blockflöte 2', Terz 1-3/5'
Great: Dulciana 8', Hohlflöte 8', Chorus Tuning (Trem optional)
Pedal: Lieblich Gedeckt 16'

Play solo on Swell.

FLUTE SOLO

Swell: Gedackt 8' (Trem optional)
Great: Dulciana 8'
Pedal: Lieblich Gedeckt 16', Great to Pedal

Play solo on Swell.

TRUMPET SOLO

Swell: Trompette 8'
Great: Hohlflöte 8', Spitzflöte 4'
Pedal: Lieblich Gedeckt 16', Gedackt 8'

Play solo on Swell.

These few combinations demonstrate the basic techniques of solo registration. In making some of your own, remember these two simple rules:

1. Seek tonal contrast between solo and accompaniment.
2. Be sure the solo is louder than accompaniment.

ENSEMBLE REGISTRATIONS

Ensemble registrations are groups of stops being played together, usually, but not always, with both hands on one keyboard. They are characterized by homogeneity of tone, clarity, and on occasion, power. These are the types of registrations used in hymn singing, choir accompaniments, and a large part of the contrapuntal literature.

Volumes have been written on the subject of ensemble registration so that it would be presumptuous of us to do more here than just touch the highlights.

Ensembles are created by combining stops. Two factors are always to be considered: the tone quality and the pitch. Ensembles begin with a few stops at the 8' and/or 4' pitch and expand "outward" in pitch as they build up. New pitches are usually added in preference to another 8' stop.

Ensembles are generally divided into three tonal groupings or "choruses":

The Principal chorus is the most proliferating, with representation in all divisions of the organ, and at every pitch from 32' (Contra Bass) to high mixtures. Principal choruses are sometimes called the narrow scale flue chorus, a pipe reference to the relative thinness of Principal tone pipes in relation to their length.

The Flute chorus is also well represented with a diversity of stops at various pitches. Generally speaking, the Flute chorus is comprised of less harmonically developed tones, and is smoother and of lesser volume than the Principal chorus. The Flute chorus is sometimes called the wide scaled Flue chorus, owing to the generally "fatter" look of Flute pipes as compared to Principals.

The Reed chorus includes those reed tones designed to be used in the ensemble buildup. Not all reed voices are ensemble tones. A French Horn, for example, is strictly a solo effect. The various Trumpets, Posaunes, Contra Fagottos, etc., are ensemble voices and add brilliance, power, and incisiveness to the sound.

In classic registration, the wide and narrow Flue choruses are rarely combined in ensembles; generally, it would be one chorus or the other. As the last Principals were drawn into the ensemble, the first reeds would be added. In many typical ensembles, particularly full-bodied contrapuntal ones, the first reed to appear would be drawn in the Pedal, usually the 16'.

The Swell reed chorus of 16' Contra Fagotto, 8' Trompette, 4' Clairon (frequently the Mixtur III or V is added as well) represents an entity important to French organ music and the full ensemble of the organ. These stops create a "blaze" of richly harmonic sound, a "crown" over both "flue" choruses.

Here are typical ensemble combinations for the Swell and Great manuals:

On the Great

1. Prinzipal 8' alone
2. Prinzipal 8', Spitzflöte 4'
3. Prinzipal 8', Octav 4'
4. Prinzipal 8', Hohlflöte 8', Octav 4'
5. Prinzipal 8', Hohlflöte 8', Octav 4', Spitzflöte 4'
6. Prinzipal 8', Hohlflöte 8', Octav 4', Spitzflöte 4', Waldflöte 2'
7. Prinzipal 8', Hohlflöte 8', Octav 4', Spitzflöte 4', Waldflöte 2', Doublette 2'
8. Prinzipal 8', Hohlflöte 8', Octav 4', Spitzflöte 4', Doublette 2', Waldflöte 2', Mixtur IV

On the Swell

1. Gemshorn 8'
2. Gemshorn 8', Koppelflöte 4'
3. Salizional 8', Gemshorn 8', Koppelflöte 4'
4. Salizional 8', Gemshorn 8', Gedackt 8', Spitzprinzipal 4', Koppelflöte 4'
5. Salizional 8', Gemshorn 8', Gedackt 8', Spitzprinzipal 4', Koppelflöte 4', Blockflöte 2', Siffelöte 1'
6. Salizional 8', Gemshorn 8', Gedackt 8', Spitzprinzipal 4', Koppelflöte 4', Blockflöte 2', Siffelöte 1', Mixtur III (or Mixtur V), Trompette 8'

Of course, the use of the Swell to Great coupler allows these separate ensembles to be combined in the Great manual.

The procedure for building the Pedal ensemble is much the same as with the Swell and Great, except that it must be balanced volumewise to the particular manual it is to be played under.

Please notice that the softest stops and flute mutations are normally not used with ensembles.

IMPORTANT:

The Computer Organ provides more independent stops than any electronic organ in its price class or even those selling at substantially higher prices. Yet, certain factors should be kept in mind as follows:

"TUTTI" OR "FULL ORGAN"

The Computer Organ produces the effect of 38 stops, plus alterables. Such comprehensive performance is possible only because the capability of the heart of the instrument - the digital computer - is enormous. Even a high-speed computer has its limitations, however. This means that if all stops and couplers are drawn at one time, a distortion of sound can result.

This limitation also extends to the Alterable Stops. For instance, the addition of a HEAVY REED to an already very full combination could create distortion. Removal of one or two lesser 8' stops, hardly noticeable in the ensemble would quickly correct this phenomenon.

The Cornet is a compound stop, of French origin, used profusely in baroque French music. It is created by using the following Swell stops: Gedackt 8', Koppelflöte 4', Nasat 2-2/3', Blockflöte 2', and Terz 1-3/5'.

With respect to doubling, there are no special techniques of registration to be observed. The instrument functions automatically, providing the benefits of doubling to whatever registrations the organist selects. The "Doubling Off" tab, therefore, will find only occasional use, most likely when a rather "pure" or cold sounding solo effect is desired.

Celeste Tuning, on the other hand, need not be limited exclusively to Celeste effects. A full ensemble can be "romanticized" to some extent by adding Celeste or Chorus Tuning. The increase of tuning beats lends added warmth to the overall sound. This effect, of course, should not be overused.

Celestes other than string types are also available. The Swell Salizional 8', Gemshorn 8', or Gedackt 8', or the Great Dulciana 8', or Hohlflöte 8' are made into very attractive and useful Celestes by the simple addition of Chorus Tuning.

*USING THE SUB OCTAVERS

These special stops expand the registration potential of the Swell manual, by causing either (or both) computers to shift Swell manual stops one octave lower.

When just one Sub Octaver is used (either one) the effect is rather like a 16' coupler, except that no notes are "missing" where octaves are played, as is the case with conventional couplers. Thus, for passages involving "big" registrations played in the upper octaves -- such as Widor's Toccata in F -- the use of one Sub Octaver (whichever sounds best) will provide extra richness and tonal depth.

The Sub Octavers also allow 16' tones to be programmed through the Alterable Voice/Card Reader. Any 8' voice automatically becomes a 16' when the Sub Octaver is applied.

In like manner, 4' tones such as the Tubular Chimes can be played in the normal 8' range simply by using the Sub Octavers.

CARILLON -- a realistic Carillon bell type tone can be obtained in the Swell division, using the Sub Octaver:

Use standard "Tubular Chime" or "Carillon" voice cards in Alterable Voices 1 and 3. Use special "Carillon Sub Harmonic" card on Alterable Voice 2. Add Percussion tab and the Sub Octaver B.

This combination adds the sub harmonic tone needed for this type of bell sound.

This short treatment barely scratches the surface of a highly interesting subject. Your Allen Computer Organ, however, has the tonal potential to pursue the subject to its limits. For those interested in gaining further insight into this vital area of organ playing, we recommend the following text:

Dictionary of Pipe Organ Stops, 1962

Stevens Irwin
G. Schirmer, Inc., New York NY

*Available only on 705

- Flute Ouverte 4' -- Open Flute tone at the 4' pitch.
- **Mixtur II -- Compound stop of Principal tone, at the 2-2/3' and 2' pitch levels; comprises the crown of Pedal Principal chorus beginning at the 32' (or 16') level and progressing upward.
- Bombarde 16' -- A powerful, well developed Chorus Reed tone at the 16' pitch.
- Trompete 8' -- Trumpet Chorus Reed at the 8' pitch level.
- Schalmei 4' -- Reed tone at 4' pitch. Adds clarity to Pedal line.
- Great to Pedal -- Coupler
- Swell to Pedal -- Coupler

GENERALS

- *Mixtur Breaks -- This stop changes the location of the breaks in the Mixtures on the 705 and above. You will note when you try the Mixtur IV on the Great, the breaks occur between B2 and C3, B3 and C4, and F#5 and G6. When you depress "Mixtur Breaks," these will now occur between B1 and C2, B2 and C3, F#4 and G4. The "brighter" Germanic sound will be with the "Mixtur Breaks" tablet depressed. Affects both the Swell Mixtur V and the Great Mixtur IV.
 - "Mixtur Breaks" tablet down: "brighter" - Germanic sound.
 - "Mixtur Breaks" tablet up/off: more romantic - French literature.
- Chiff MF]
Chiff F] -- Upper harmonic transient imitative of "Chiff" phenomenon exhibited by low pressure, unnicked organ pipe voicing. Affects all stops.
- Random Motion Off -- The 505 and 705 instruments feature random activity, normally on at all times. This simulates the natural movement found in notes of windblown pipe instruments and is aesthetically desirable in almost all musical situations.

ALTERABLE VOICES - PERCUSSIONS, CHIMES

The Alterable Voice stop tabs constitute a totally new development in organ design, permitting the organist to add stops or adjust specifications to suit a variety of musical situations. A brilliant Harmonic Trumpet, for example, could be programmed for special festive occasions. A classic flute or reed voice especially suited for a certain piece can be programmed. Any number of "percussion" type voices, including chimes, bells, harp, etc., can be used as desired.

Alterable stops are numbered 1 through 8 (1-4 on 505). Odd numbers for A computer; even numbers for B. Card Reader has selector knob with eight positions, one for each stop. To program an alterable stop, simply turn selector to the appropriate stop and insert card, printed side up, arrow pointing toward slot. Stop feeding when resistance is felt (about 1" of card remains outside). Card may then be removed. It is not required that the Alterable stop tab be down.

To "double" alterable stops, program the same card in two consecutive alterables -- Nos. 1 and 2 or 3 and 4, etc. Note that even if the same card is to be repeated in different Alterable Voices, the card must be completely removed and reinserted each time.

If a tone of special loudness is needed, the extra volume can be obtained by programming the tone two, three or even four times. For a Harmonic Trumpet effect, for example, program a bright Trumpet card four times, and add the specification Trompette 8' as well. The organist should listen carefully, however, to the total sound produced when Alterables are added to the regular stops of the organ. It is possible that the combined sound could go beyond the distortion-free performance of the system. If any distortion is encountered, remove one or two of the stops that contribute practically nothing to the ensemble. With any large organ, pipe or electronic, the best ensemble sound is not necessarily achieved by putting down every stop on the organ.

To change an Alterable Voice to a new tone, simply insert the new card. Old voice is automatically erased.

NOTE: Alterable Voice information is stored in special access memory units which retain this information only so long as the organ is ON. Alterable Voices will, therefore, be erased when organ is switched OFF. However, if on occasion some information remains, this should not be considered to be a malfunction.

You will find the Alterable Voices one of the most interesting developments in the history of organ playing. The unprecedented flexibility they offer brings new excitement to organ registration, and a built-in protection against obsolescence.

PERCUSSION VOICES

In System 705 Series instruments, percussion tones may be programmed in either Swell or Great divisions (the 505 only in Swell). The Alterable Voice/Card Reader provides the "window" through which these effects may be added to the instrument's computers. The "percussion" stop tab, of course, must also be used with percussion voices, to obtain the "attack and decay" appropriate to sounds of this type.

CHIMES

The Tubular Chime, Chime, Carillon and Flemish Bells alterable voice cards may be used wherever chime effects are called for. Sixty-one notes are provided. In general, however, these stops should be played one octave lower than written.

For additional volume, better sound and increased sustain length time, these tones should be programmed four times.

For maximum authenticity, adjust voicing controls to full mellow.

Sustain controls should be full "on."

CHRYSOGLOTT

The Chrysoglott (Greek for "Golden Bell") has a silvery, glockenspiel type quality, and may be programmed either once, twice, or four times, as circumstances require. It is of 8' pitch, and passages using this stop may be played as written.

Other bell and percussion stops provide various related effects. In most cases, their effect is enhanced with "double" programming.

CARILLON BELL

See Section III, Page 5 for instructions in programming this most realistic bell sound.

A NOTE ABOUT IMITATIVE ORCHESTRAL VOICES

Many true orchestral tones are available for the Computer Organ in Alterable Voice card form. In most instances, these voices have been obtained directly from the instrument involved. In using them, one should keep in mind the normal range of the particular instrument. The Oboe, for example, has Middle "C" as its lowest note. Its natural range extends upwards about two and a quarter octaves. When you program this voice into the Computer Organ, however, you have a five octave compass. It will sound most authentic when played in its natural range. Played toward the ends of the keyboard, either extremely low or high, the tone will sound less authentic since the Oboe is incapable of producing these notes.

The general rule of using imitative orchestral stops is to adhere as closely as possible to the natural compass of these instruments.

TRANSPOSER

The vast capability of the computer makes it possible to perform the sometimes difficult task of transposing within the system so that the organist merely plays the notes as written.

Operation of the Transposer is controlled by the Transposer knob. Neutral (no transposition) position for this knob is marked "N."

To shift the music to a higher key, move the knob upward one or more steps. The key can be raised a maximum of five half steps, in half step increments.

To shift to a lower key, move the Transposer knob downward from N. It can be lowered a total of seven half steps.

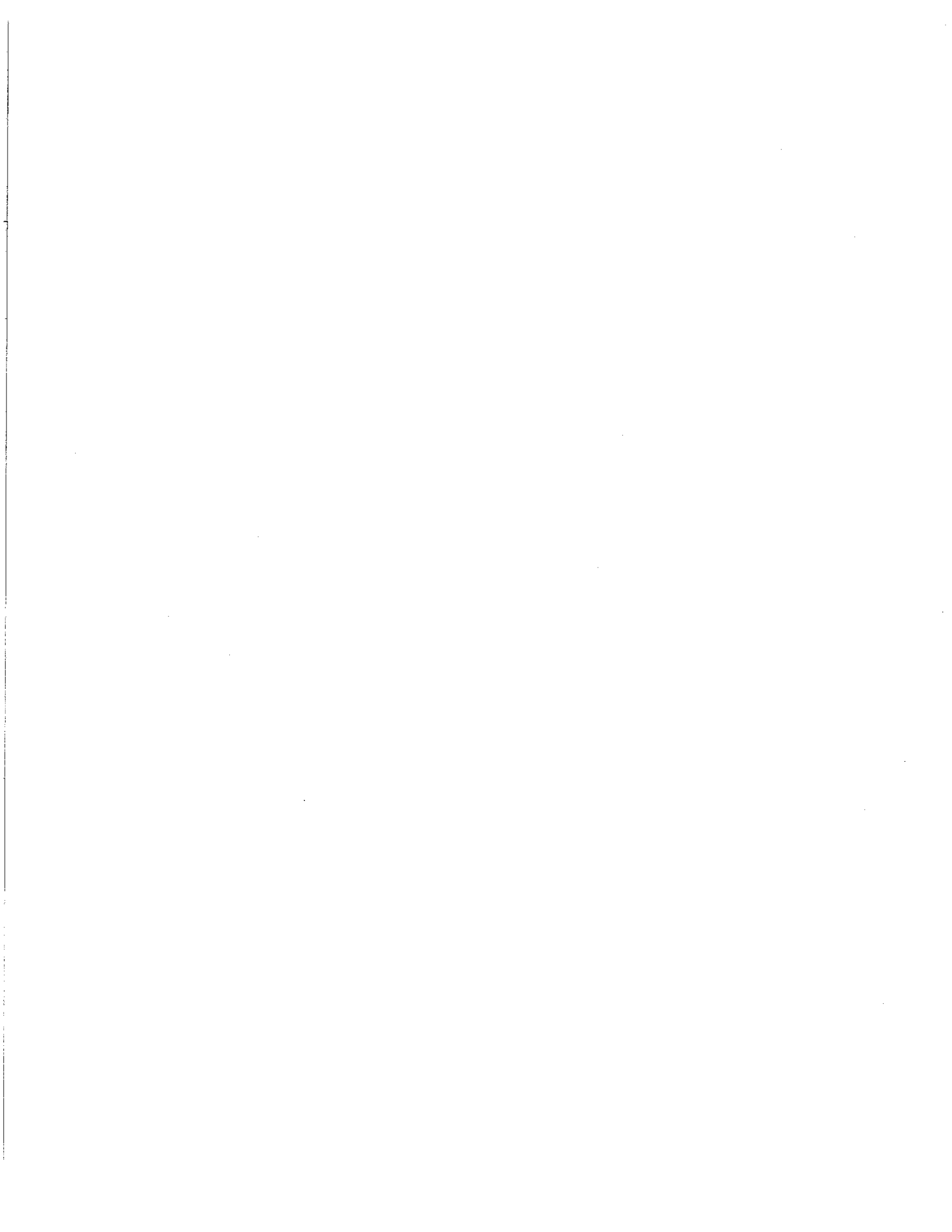
A RED LIGHT COMES ON WHENEVER TRANSPOSER KNOB IS MOVED FROM "N" POSITION.

WHY TRANSPOSE?

Because the range of a given song will not always suit the vocal range of a particular singer. By adjusting the key upward or downward, whichever is appropriate, it can be sung more effectively.

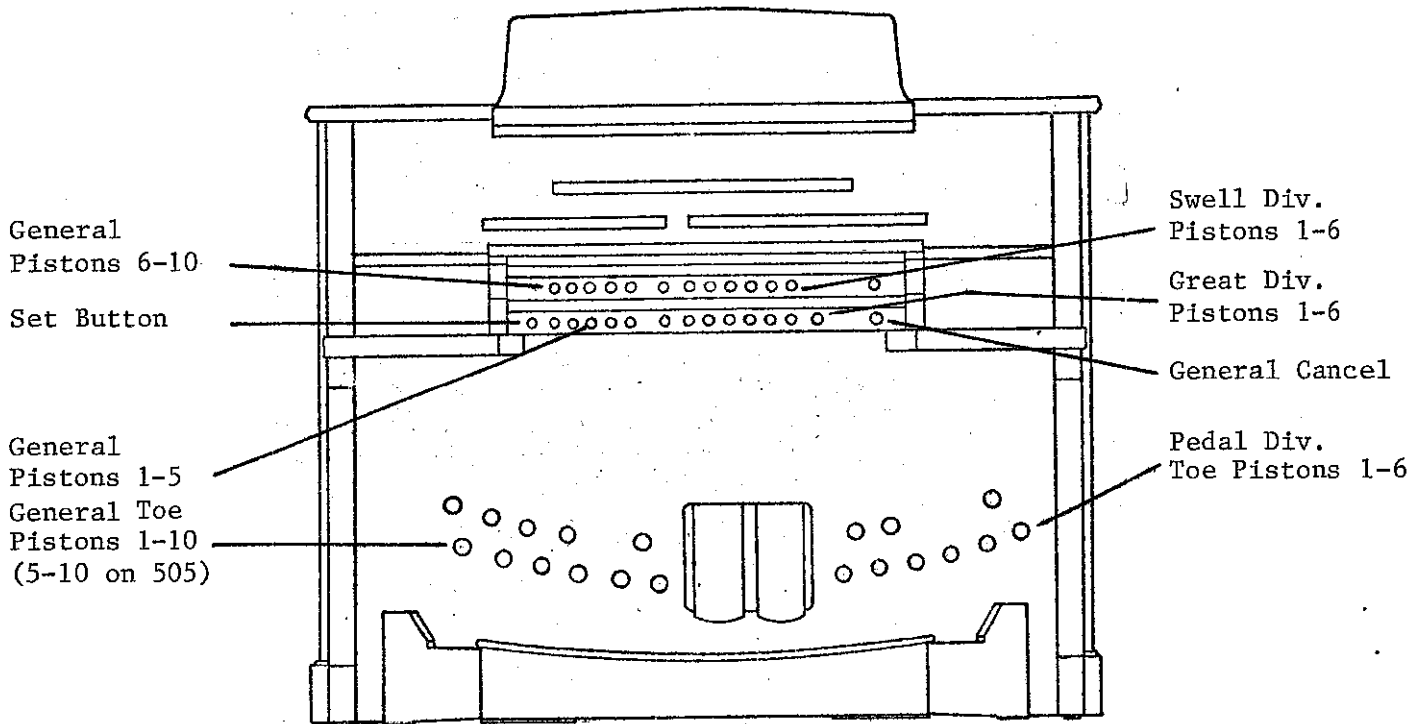
Because some instruments are non-concert pitch. A trumpet in Bb, for example, can read the same music as the organist, if the Transposer knob is set two half steps lower.

Because hymn singing can sometimes be improved by a more favorable key selection.



CAPTURE COMBINATION ACTION

Organs equipped with Allen's Double Memory Capture Action offer the ultimate in registration control and convenience. Twin memories provide a total of 56 separate combinations. Memory "B" is accessible only through special key lock switch, thus preventing unauthorized "tampering" with these combinations.



THINGS TO REMEMBER

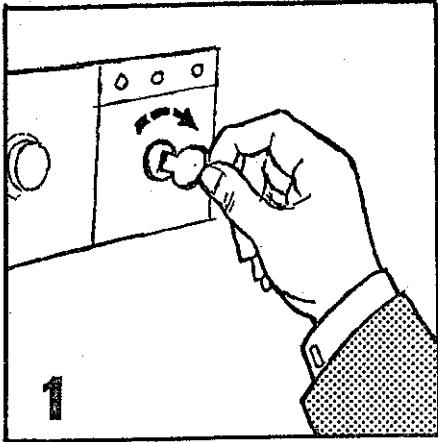
General Pistons (duplicated by toe pistons) affect all stops.

Swell, Great, and Pedal Pistons only affect stops in their division.

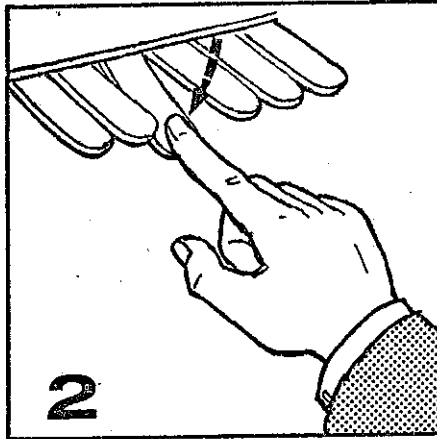
Pedal Pistons are toe operated only.

All pistons operate independently from each other.

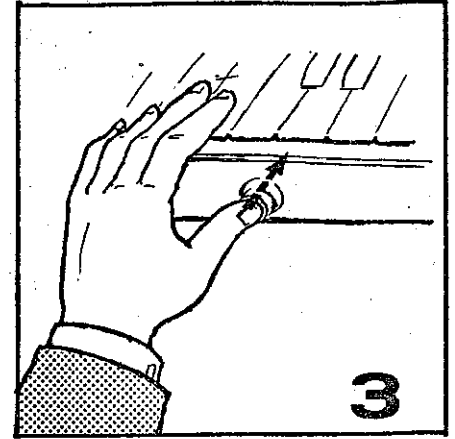
HOW TO SET A PISTON COMBINATION



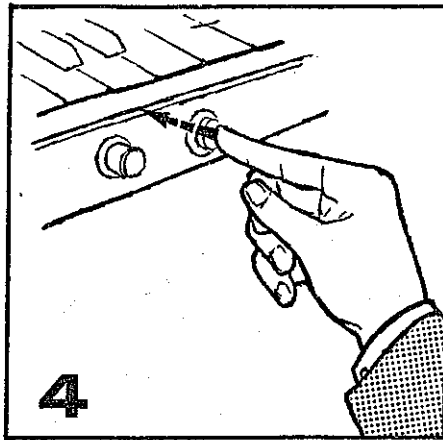
Select Memory "A" or "B." Key can be removed in "A" position only.



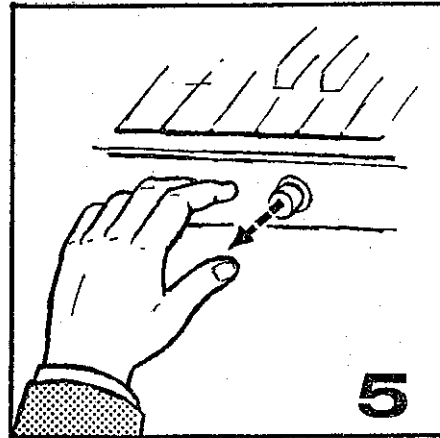
Select Registration



Press and HOLD Set Button



Press and Release Piston on which Registration is to be Retained



RELEASE Set Button

IMPORTANT

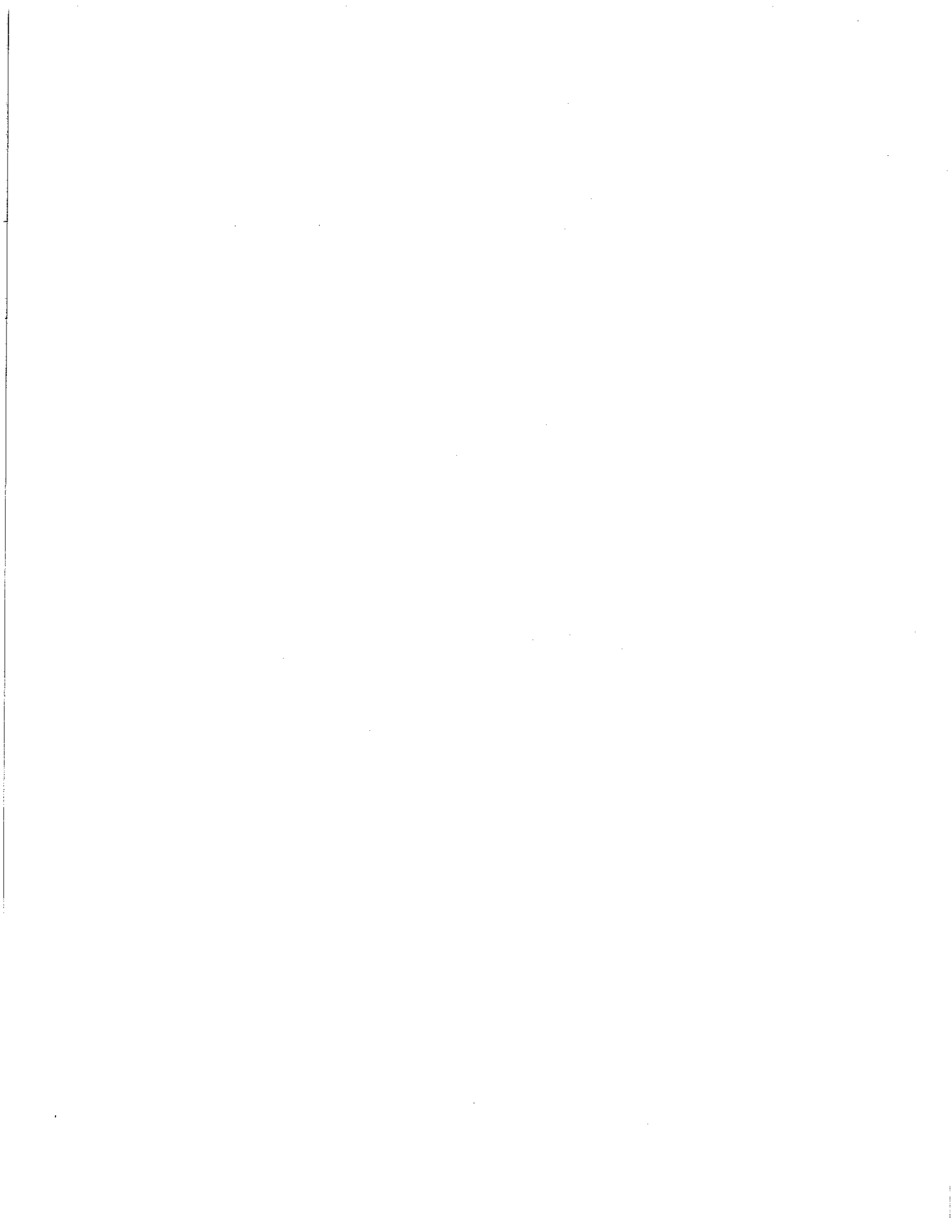
THE CAPTURE ACTION MEMORY IS DEPENDENT UPON ELECTRICAL POWER (A TINY AMOUNT) BEING AVAILABLE AT ALL TIMES. THOUGH THE ORGAN IS SWITCHED ON AND OFF AS DESIRED, THE MEMORY PORTION OF THE COMBINATION ACTION ALWAYS REMAINS ENERGIZED.

In order to prevent memory loss, the organ must remain plugged in at all times, and the AC power to this outlet maintained.

Where the possibility exists for routine unplugging of the console AC, steps must be taken to prevent this. A screw-type yoke, holding the power cord in its outlet, is recommended.

Where circuit breakers are shut off between services, etc., that circuit breaker affecting the organ console AC power should have a guard installed to prevent its being accidentally switched off.

The microcircuit capture action is equipped with a rechargeable battery which serves to hold the memory during momentary power interruptions. In the event of an extended power interruption, however, the battery will eventually exhaust itself. Stop combinations will be lost and must be reset when power is restored. The battery system will automatically recharge with the return of AC power and hold itself in readiness for any subsequent power interruption.



INSTALLATION, VOICING AND CARE OF THE ORGAN

INSTALLATION

In all cases, whether your 500 or 700 Series organ is installed in a church or a home, careful installation is a prerequisite for successful results. Your Allen representative is well qualified to guide you in planning for this.

Factory assistance in planning the installation is also available and may, in fact, be sought by your representative, in order that maximum results will be obtained.

CAUTION

Do not plug the instrument into any current source other than 110 - 120 volts, 60 cycle alternating current (AC). To do so may involve costly repairs. If you are in doubt about the current in your situation, consult your local power company office.

Read and comply with all instructions and labels which may be attached to the instrument.

VOICING

The System 500 and 700 Series Computer Organs enjoy flawless voicing and scaling of every note and stop. This musical breakthrough is an inherent part of the engineering design of the instrument. Very little further voicing is required, other than adjustment of volume.

Other adjustments in the voicing, involves controls within the console, and are best left to a service technician. These adjustments are normally a part of installation, and once done, should not require readjustment unless instrument is moved to a new location.

It should also be remembered with respect to bass frequency projection that speaker placement often has a profound effect. Where poor bass response is experienced, a shift in speaker placement can sometimes eliminate the deficiency. The best procedure is first to determine which speaker location yields the deepest bass response; then if additional bass is deemed necessary, adjust the bass boost control in the console accordingly.

CARE OF THE ORGAN

Your Computer Organ constitutes a major advance in long term maintenance-free operation. There are no regular maintenance procedures required and, therefore, no periodic maintenance schedules to be observed.

Reasonable care will keep the instrument looking beautiful for years to come. If desired, polish the wood portions with a high grade furniture wax. Do not use abrasive type polishes, cleaners, or waxes containing silicone.

Keys and stop tablets should be cleaned in the following manner: Use two clean cloths. Immerse one in clear lukewarm water and wring it thoroughly damp dry. Loosen the dirt with this cloth, then immediately polish with the dry cloth. Do not use soap or detergent on keys or stop tablets.