ADC 4900 Thru
ADC 8350
INCLUDES "A" VERSIONS

ALLEN ORGAN COMPANY

For approximately fifty 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 and weighed nearly three hundred pounds; with all this, the specification included relatively few stops.

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

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

Your ADC organ is the product of years of refining of digital techniques by Allen engineers. It represents the apex of computer technology applied to exacting musical tasks. The result is an instrument of remarkably advanced tone quality and performance.

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

Familiarize yourself with the instrument by reading through this booklet. We call your attention particularly to sections on Alterable Voices (Card Reader), 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. Because the Allen Digital Computer Organ offers limitless tonal possibilities, plus authentic tone quality, these subjects can now be more readily explored than ever before.

NOTE: "A" versions include as standard two items which were optional on previous models. They are:

1. <u>ADR-4 Digital Reverb</u>. This feature provides the spatial ambience of a large reverberant auditorium. Although most effective in poor acoustic environments, it even enhances the tones in an ideal acoustic setting.

    The "Reverb" stop is not included in the Capture System.

    Adjustment of the Reverb effect can be accomplished by your service technician or sales representative.

2. <u>Swell Second Classical Voicing</u>. A single tab converts the Swell manual to a voicing concept which is a bit less "classical." This provides a desirable voice flexibility, giving the organist increased registration latitude. (Optional on ADC 4900)

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. Therefore, when an 8' stop is selected and middle C is depressed, the pitch heard will be middle C. If it sounds an octave higher, it is called 4' or octave pitch. If it sounds two octaves higher, it is called 2' pitch, while a stop sounding three octaves higher is at 1' pitch. Likewise, a 16' stop sounds an octave lower, and a 32' stop sound two octaves lower.

Stops of 32', 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. Their footage number always contains a fraction, and they are referred to as mutations. These are the Quinte 2-2/3, Nasat (or Nasard 2-2/3), Terz (or Tierce 1-3/5), Quintflöte 1-1/3 or Quinte 1-1/3, and in the Pedal the Quint 5-1/3. Because they introduce unusual pitch relationships with respect to the fundamental (8') tone, they are most effective when combined with other stops and used either in solo passages or in small ensembles of flutes (see explanation of Cornet in Section II).

TONAL FAMILIES

Organ tones divide into two main categories: flues and reeds. In a pipe organ, flue pipes are those in which the sound is set in motion by wind striking directly on the edge of the mouth of the pipe. Flues include principal tones, flute tones, and string tones. Compound stops and hybrid stops are "variations" on these three families.

The term "imitative" means that the organ stop imitates the sound of the corresponding orchestral instrument. For example, an imitative "Viola 8'" would be one voiced to sound like an orchestral viola.

Principal Tones

Principal	Characteristic organ tone, non-imitative of
Diapason	orchestral instruments. Usually present at
Octave	many pitch levels, as well as all divisions.
Super Octave	Rich, warm, and well-developed harmonically.
Quinte	

Flute Tones

Open Types:	Tones of lesser harmonic development than
Harmonic Flute	principals. Open types somewhat imitative;
Melodia, etc.;	stopped types not. Present at all pitch
Flute mutation stops	levels.

Stopped Types:
   Gedeckt, Bourdon,
   Quintadena,
   Rohrflöte, etc.

String Tones

Salicional Viola Voix Celeste	Mildly imitative voices of brighter harmonic development than principal. Usually appear at 8' pitch.

Compound Tones

Mixture Cornet	Tones produced by more than one rank sounding simultaneously.

Hybrid Tones

Gemshorn Erzähler Spitzflöte	Tones which combine the tonal characteristics of two families of sound, i.e. flutes and principals or strings and principals.

In reed pipes a tongue vibrates against an opening in the side of a tube called a shallot. The characteristic sounds of different reeds are produced through resonators of different shapes. The family of reeds subdivides as follows:

Reed Tones

Chorus or Ensemble Types:
   Trumpet, Posaune,
   Clairon, etc.
Solo Types:
   Hautbois, Clarinet,
   Krummhorn, etc.
	Tones of great harmonic development; some imitative, others not.

The Allen Digital 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, © 1983 AOCO; © 1984 AOCO, etc. pursuant to Title 17 of the United States Code, Section 101 et seq.

A discussion of individual stops and how they are generally used follows. Please note that these are sample specifications only - custom voicing makes it impossible to list every possible stop. If you have questions concerning a stop which does not appear on this list, consult your Allen Organ representative or one of the references listed at the end of this section. Note that all of these stops do not appear on every model.

The stops appear by name in alphabetical order. General stops, such as Alterables, are treated in the separate section designated "General."

Basson 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.

Blockflöte 2'
A delicate, clear open flute at 2' pitch.

Bombarde 16'
A solid, powerful, chorus reed tone with considerable harmonic development.

Bourdon 16'
Stopped flute tone of weight and solidity.

Chimes
Tubular chimes.

Choralbass 4'
Pedal 4' principal tone.

Clairon 4'
A bright 4' chorus reed. Combines with the Basson 16' and Trompette 8' to form the full Swell reed chorus.

Contra Violone 32'
Rich string tone at the bottom of the Pedal division.

Contre Basse 32'
Principal tone at the deep 32' pitch which underpins the Pedal principal chorus.

Contre Bombarde 32'
Robust French reed.

Contre Bourdon 32'
Stopped flute tone at the 32' pitch.

Cymbal III
See Mixtures.

Diapason 16'
The 16' member of the Pedal diapason chorus. Strongest 16' Pedal flue stop.

Diapason 8'
Mellow foundation tone.

Doublette 2'
Bright 2' principal tone which combines with the Montre 8' and Prestant 4' to comprise the French Great principal chorus without mixtures.

Erzähler 8'
Hybrid stop combining flute and string qualities - a small scale gemshorn. Useful in accompaniments.

Erzähler Celeste
Stop used in combination with the Erzähler 8' to create a warm celeste.

Fagott 16'
Light trumpet-like tone which completes the choir reed chorus.

Fagott 8'
Light German trumpet tone.

Festival Trumpet 8'	Strong solo trumpet voice of great brilliance and flair.
Flageolett 1'	Pure, clear flute imitative of the small instrument of the same name.
Flûte à Bec 2'	Open flute stop imitative of the Flûte à Bec, a French instrument similar to the English recorder.
Flûte à Fuseau 4'	Flute of medium brightness which has chiff. Works well in ensembles of flutes or strings, or as a solo voice.
Flûte Bouchée 8'	Chiffing stopped flute tone of moderate harmonic development. Provides the 8' member of the Swell flute chorus and is useful by itself or with other flutes and mutations in creating solo voices.
Flute Dolce II 8'	Soft accompaniment stop. Becomes a beautiful Flute Celeste with the addition of the Celeste Tuning.
Flûte Harmonique 8'	Open flute with a full-voiced quality. Makes a wonderful solo flute.
Flûte Ouverte 4'	Open flute tone of 4' pitch.
Fourniture IV	See Mixtures.
Gamba 8'	Rich string tone which takes its name from the Viola da Gamba, the medieval ancestor of the cello.
Gedacktflöte 8'	Stopped flute tone of 8' pitch, useful in adding clarity to a pedal line in combination with the Bourdon 16' or Lieblich Gedackt 16'.
Gemshorn 16'	A useful stop which blends well with any of the families of tone on the Great organ. Provides sub-octave pitch.
Gemshorn 8'	Hybrid stop which combines tonal characteristics of the string and flute families, resulting in a light diapason quality. Useful accompanimental voice.
Gemshorn Celeste 8'	Stop used in combination with the Gemshorn 8' to create a warm celeste.
Hautbois 8'	Solo reed with the pungent nasal timbre of an oboe.

Hohlpfeife 2'	Open flute with a strong fundamental and octave overtone.
Holzgedackt 8'	A stopped wooden flute with chiff.
Klarine 4'	4' German trumpet.
Kleine Trompete 8'	Light clear trumpet, literally "little trumpet."
Krummhorn 8'	Solo reed imitative of the medieval krummhorn. Its timbre is similar to that of the clarinet, but with a more nasal quality.
Lieblich Gedackt 16'	Softer stopped flute voice of delicacy and definition. Useful where soft 16' pitch is required.
Mixtur IV	See Mixtures.
Mixtures	Compound stops of principal tones. One key produces several pitches which are at octave and fifth relationships to the key being pressed. The number of ranks in the mixture is indicated by the Roman numeral behind its name. For example, the Mixtur IV produces four pitches per key. 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, a mixture is added to diapason or flute ensembles or to reed chorus 16', 8', and 4'.
Montre 8'	Full-bodied French principal at the 8' level.
Nasard 2-2/3 Nasat 2-2/3	Flute mutation which sounds one octave and a fifth above the keys played. Always used with other stops (usually 8') for coloration.
Octav 4'	The 4' member of the Great principal chorus, which consists of the Prinzipal 8', Octav 4' and Super Octav 2'.
Octave 8'	8' member of the Pedal principal chorus.
Octave 2'	2' member of the principal family.
Oktav 2'	2' principal which adds brightness and fullness to a Choir ensemble.
Posaune 16'	A strong Pedal reed which lends strength and snarl to the pedal line.
Prestant 4'	The bright 4' member of the Montre family.

Principal Conique 4'	Modified principal tone.
Prinzipal 8'	Foundation stop of Great principal chorus.
Prinzipal 4'	Bright, classic principal on the Choir.
Quint 5-1/3'	Open diapason mutation which sounds a pitch one octave and a fifth above the pedal played. Because it is based on the 16' overtone series, this stop must be combined with at least a 16' stop.
Quintaten 16'	Stopped flute tone characterized by an extremely strong third harmonic which sounds an octave and a fifth above the note played, hence the name Quintaten.
Quinte 2-2/3	Principal tone at the twelfth which colors the Great principal chorus. Generally not used without a 2' principal.
Quintflöte 1-1/3'	Open flute mutation which sounds a pitch two octaves and a fifth above the key played.
Rohrflöte 8'	Full bodied partially stopped flute tone.
Rohrkrummhorn 16'	Variant of the Krummhorn. Used to provide reed definition and depth in the Pedal without the weight of the Bombarde 16'.
Salicional 8'	Full-bodied string tone.
Schalmei 8'	The tone quality of the shawm, a medieval ancestor of the clarinet, is the basis for this light, bright nasal reed. It can be used alone as a solo or combined with light flues for a somewhat rounder reed solo effect.
Schalmei 4'	Bright pungent pedal reed, usually used as a solo voice.
Scharff III	See Mixtures.
Sifflet 1'	An open metal flute stop; the highest stop in the Swell flute chorus.
Spitzflöte 4'	Partially closed flute tone.
Spitzgeigen 8'	Hybrid stop which combines aspects of the string and principal tone qualities.
Spitzprinzipal 8'	Hybrid stop which is predominantly principal tone with a string-like edge.
State Trumpet 8'	Large solo trumpet.

Super Octav 2'	An open metal stop which produces foundation tone at the 2' pitch level.
Terz 1-3/5 Tierce 1-3/5	Flute mutation which causes the pitch to sound a seventeenth (two octaves and a third) higher than played. Used with 8' stops or flute ensembles.
Traversflöte 4'	Wooden flute tone with chiff.
Trompete 8'	German trumpet useful as a chorus reed or a smooth solo reed.
Trompette 8'	Chorus reed stop of rich harmonic development. Can also be used as a solo voice.
Trompette Harmonique 8'	Very bright, edgy trumpet.
Untersatz 32'	Stopped German flute at the 32' pitch.
Viole 8'	A string stop with a brighter timbre than that of the Swell Salicional.
Viole Celeste 8'	String voice used in combination with the Choir Viole 8'.
Violone 16'	Lowest member of the string family.
Violone Celeste 16'	String voice used in combination with the Swell Violone 16' to create a deep romantic string celeste combination (mostly used with 8' Celestes as well).
Voix Celeste 8'	Celeste used with the 8' Salicional, creating a warm string tone.
Waldflöte 2'	Open flute tone at 2' pitch level.
Zimbel III	See Mixtures.

GENERALS

Great-Pedal Unenclosed (Not included with ADC 4900, 8300 or 8350)	Causes the Great and Pedal divisions to remain at full volume regardless of the position of the "Great-Choir-Pedal" Expression Pedal, as traditional in pipe organ building. The expression pedal continues to affect the Choir.
Articulate Voicing Off (On ADC 6300 thru 8350)	Voices on the ADC three manual organs include many of the complex pipe organ sounds such as articulate attacks. When this stop is depressed, it modifies these voices, some more noticeably than others, to a less articulate or smoother type voicing.

Chiff Off (ADC 4900)	When Chiff is employed, an extra articulate dimension of short duration is heard on each note, an effect exhibited by low pressure, unnicked organ pipes. This is useful in adding clarity to large combinations and authenticity to baroque literature.
Swell Romantic Tuning ("Romantic Tuning" on ADC 4900)	When activated, a second, "broader" tuning is drawn on the Swell division, resulting in a warmer sound.
Second Voicing (Optional on some models)	When actuated, certain voices will change to different sounds.
Reverb (Optional on some models)	Stop engages optional reverberation system.
Swell Main Off	Used in conjunction with the "Swell to Antiphonal" tab. This causes the Swell to speak only from the Antiphonal speakers and not from the Main speakers.
Swell to Antiphonal	Causes the Swell to speak from the Antiphonal speakers. The Swell will speak from both Antiphonal and Main divisions unless the Swell Main Off is also used.
Gt.-Ped. Main Off	Used in conjunction with the "Gt.-Ped. to Antiphonal" tab. This causes the Great and Pedal divisions to speak only from the Antiphonal speakers and not from the Main speakers.
Gt.-Ped. to Antiphonal	Causes the Great and Pedal divisions to speak from the Antiphonal speakers. These divisions will now sound from both Antiphonal and Main speakers unless the Gt.-Ped. Main Off is also used.
Choir Main Off	Used in conjunction with the "Choir to Antiphonal" tab. This causes the Choir to speak (only from the Antiphonal speakers and not from the Main speakers).
Choir to Antiphonal	Causes the Choir to speak from the Antiphonal speakers. The Choir will speak from both Antiphonal and Main divisions unless the Choir Main Off is also used.
All Swells to Swell (Certain Models Only)	Allows the organist to control the volume on all keyboards and Pedal by simply manipulating the Swell expression. See "Expression Pedals."
Alterable F	Increases the volume of the alterable stop(s). (Located in Swell).

Percussion	Produces percussive attack and release dimension appropriate to percussion-type voices. Use with green Alterable Voice cards. (Located in Swell). Be aware that on the ADC 6300 & 7300 the Percussion will also affect all of the voices on the Swell except the 8' flues. Therefore, if an alterable percussion voice is being used, even if the Alterable is being played in a division other than the Swell, these voices will percuss and should not be used.
Alterable Voices	See separate section on Alterable Voices.
Celeste Tuning	Used to give added warmth to celestes located in specific divisions. (See separate section on Celestes).
Couplers	All three-manual ADC models feature the following couplers: Swell to Great, Choir to Great, Swell to Choir, Swell to Pedal, Great to Pedal, Choir to Pedal. These stops do not have their own tones; rather, they enable the organist to make stops which are sounding in one division also sound in another division. For example, if the Hautbois 8' is drawn on the Swell, and the Swell to Great is added, the Hautbois will sound on both the Swell and Great. This greatly expands registration possibilities.

In addition to the aforementioned couplers, the organ includes Alterable couplers which can couple the Alterable Voices to the Great, Choir, or Pedal. These couplers affect <u>only</u> the Alterable Voices, allowing them to be played anywhere on the organ independent of the Swell. |
| Tremulant | Tremulants are independent and affect only the stops in their division. Use of this stop provides a vibrato effect, natural in the human voice and wind instruments. |

EXPRESSION PEDALS

All three manual ADC organs have a separate expression pedal for the Swell. The Pedal division expresses with the Great. Depending on the particular model, the Choir either has a separate expression pedal or expresses with the Great and Pedal. In the latter case depressing the "Great-Pedal Unenclosed" tab (not on ADC 4900, 8300 or 8350) causes the Great and Pedal divisions to remain "open" despite the position of the expression pedal; the Choir, however, remains under expression. If "All Swells to Swell" is used, the "Swell" pedal becomes a master Swell for all divisions. A label above each expression pedal designates the division controlled by that pedal.

CRESCENDO PEDAL

One Master Crescendo, for all divisions, gradually adds stops as this Pedal is opened. Indicator lights show relative position of the Pedal. Note that if either Tutti is added while the Crescendo Pedal is open, the green Crescendo light(s) will go off. The light(s) will come back on when the Tutti is removed. Indiscriminate use of the Crescendo Pedal, in lieu of careful registration, should be avoided.

TUTTI I & II

The Tutti I and II are settings of full organ registration. Tutti II is a fuller registration than Tutti I, most noticeably in the Pedal division. They can be turned on by using either a toe stud or manual piston. The Tutti toe studs are located to the extreme right, above other combination action toe studs. The pistons are found beneath the Great manual, directly above the cancel button. Both are reversible, meaning that pressing either the toe stud or the manual piston will turn the corresponding Tutti on or off. The cancel button will also turn off the Tuttis. Pressing Tutti II will cancel Tutti I. Red signal lights, appropriately labelled and located on the right side of the console, turn on when the Tutti I or II are in operation. Like the Crescendo, indiscriminate use of this device should be avoided.

REVERSIBLES

Six reversible pistons are provided for actuating the 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.

CELESTES

There are several stops on the Swell, Great and Choir whose names contain the word "celeste." (ADC 4900 includes Celeste only on Swell). These stops, when combined with their "partner" stop, (i.e. Viole and Viole Celeste) create a celeste. If the Celeste Tuning is then added, a faster "beat" and warmer Celeste is created. The Celeste Tuning can also be used to create a faster celeste between two Alterable stops. Adding the Celeste Tuning to the Erzähler Celeste II or Flute Dolce II will create faster celestes on these stops as well.

ARTISTIC REGISTRATION

Organ registrations fall into two broad categories: Solo Combinations and Ensembles.

Let us consider solo combinations first. What is required is a solo voice, an accompaniment, and pedal. Almost any stop or combination of stops will sound well as a solo voice. Whenever possible, remember to choose a contrasting tone quality for the accompaniment, and be sure the accompaniment is softer than the solo voice. The Pedal needs to provide a foundation for the sound without covering it.

All 8' reed stops make interesting solo tones. The addition of a 4' flute, or flute mutations (Nasard, Tierce), colors the sound further and increases its volume slightly. Adding an 8' flute to a reed will add body to the sound.

Likewise, flutes can be used alone or in combinations as solo voices. One special combination of flutes which creates an appealing and historically significant solo combination is the Cornet. The Cornet is created by using the following Swell stops: Flûte Bouchée 8', Flûte à Fuseau 4', Nasard 2-2/3', Flûte à Bec, and Tierce 1-3/5. Historically, this combination was used as a solo in Baroque English and French music, but it is just as appropriate for some modern music.

When choosing stops for a solo voice, it is not necessary to always include an 8' stop. For example, since the 4' flute has a different tone quality than the 8' flute, the 4' flute can be used as an independent solo voice. By playing the solo an octave lower than written, the notes will sound at the correct pitch. In similar fashion, a 16' stop can be selected and the notes played an octave higher than written. The tonal variety gained in this way is possible because each stop has its own tone color.

For accompaniment, the most desirable voices are the 8' flutes and strings on each manual. Celestes often make effective accompaniments. The correct choice depends on the volume of the solo tone (a soft solo voice requires the softest accompanimental stop), the element of contrast, and the location of the solo stop. 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 will be especially helpful if the solo and accompaniment are under separate expression.

SAMPLE SOLO REGISTRATIONS

Following are four possible registrations for a three manual organ. Note that the specifications may not be exactly like those on your organ. If this is the case, simply substitute a stop of similar tone quality.

<u>REED SOLO</u>

     Swell: Hautbois 8' (Tremulant optional)
     Great: Rohrflöte 8'
     Choir: Krummhorn 8' (Tremulant optional)
     Pedal: Lieblich Gedackt 16', Gedecktflöte 8'

Play solo on the Swell or Choir, accompany on the Great. For more color, experiment with adding a 4' flute or a flute mutation to either reed. Adjust expression pedals as needed.

<u>FLUTE SOLO</u>

     Swell: Flûte à Fuseau 4' (Tremulant optional)
     Great: Rohrflöte 8'
     Choir: Viole 8' (Viole Celeste 8' optional)
     Pedal: Lieblich Gedackt 16', Choir to Pedal

Play solo on the Swell or Great, accompany on the Choir.

<u>ROMANTIC SOLO</u>

     Swell: Salicional 8', Voix Celeste 8', Gemshorn 8', Gemshorn Celeste 8',
            Celeste Tuning
     Great: Prinzipal 8', Erzähler 8', Erzähler Celeste 8', Rohrflöte 8',
            Spitzflöte 4', Swell to Great, Choir to Great
     Choir: Quintaten 16', Viole 8', Viole Celeste 8', Erzähler 8', Celeste
            Tuning, Swell to Choir
     Pedal: Bourdon 16', Octave 8', Swell to Pedal

Play solo on the Choir or Great, accompany on Swell.

<u>TRUMPET SOLO</u>

     Swell: Trompette 8', Alterables 1 & 2 with Trumpet 8' A or another
            trumpet card installed in both, Alterable F
     Great: Prinzipal 8', Octav 4', Super Octav 2', Mixtur IV
     Choir: Spitzprinzipal or Holzgedackt 8', Prinzipal 4', Oktav 2'
     Pedal: Diapason 16', Octave 8', Great to Pedal

Play solo on the Swell and accompany on the Great. The Choir can be used as an echo ensemble.

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

    1.   Seek <u>tonal</u> contrast between solo and accompaniment.

    2.   Be sure the solo is louder than the accompaniment.

    3.   Choose a solo whose character is appropriate to the specific piece.

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 compatibility 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 fully developed with representation in all divisions of the organ and at every pitch from 32' (Contre Basse) 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 scale 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. If you have questions as to whether a specific reed is a solo or ensemble stop, refer to the stop glossary in the preceding section.

In classic registration, the wide and narrow Flue choruses were rarely combined in ensembles. Generally, it would have been one or the other because of wind supply problems. 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 Basson 16', Trompette 8', and Clairon 4' (frequently the Fourniture IV 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 which tops off both "flue" choruses.

Another special ensemble combination important in French music is the Cornet which was introduced in the section on Solo Registration. This compound stop combines with the chorus reeds and mutations to create the "Grand Jeu." The Cornet is also useful in Romantic ensembles (i.e. the works of Reger) to add weight and thickness to the sound.

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

On the Great

1. Rohrflöte 8', Spitzflöte 4', Waldflöte 2'
2. Montre 8', Prestant 4'
3. Montre 8', Prestant 4', Doublette 2'
4. Prinzipal 8', Octav 4'
5. Prinzipal 8', Octav 4', Super Octav 2', Mixtur IV
6. Prinzipal 8', Octav 4', Super Octav 2', Mixtur IV, Trompete 8'

On the Swell

1. Flûte Bouchée 8', Flûte à Fuseau 4'
2. Flûte Bouchée 8', Flûte à Fuseau 4', Flûte à Bec 2', Sifflet 1'
3. Gemshorn 8', Principal Conique 4'
4. Gemshorn 8', Principal Conique 4', Octave 2'
5. Gemshorn 8', Principal Conique 4', Octave 2', Fourniture IV
6. Gemshorn 8', Principal Conique 4', Octave 2', Fourniture IV, Trompette 8'

On the Choir

1. Holzgedackt 8', Traversflöte 4'
2. Holzgedackt 8', Traversflöte 4', Blockflöte 2, Flageolett 1'
3. Spitzgeigen 8' or Spitzprincipal 8', Holzgedackt 8'
4. Spitzgeigen 8' or Spitzprincipal 8', Prinzipal 4'
5. Spitzgeigen 8' or Spitzprincipal 8', Prinzipal 4', Oktav 2'
6. Spitzgeigen 8' or Spitzprincipal 8', Prinzipal 4', Oktav 2', Mixtur IV

The use of the couplers allows these separate ensembles to be combined on the Great or Choir manuals. It is also possible to combine some of these ensembles within a keyboard. For example, the #3 & #5 registrations suggested above for use on the Great combine to form a nice round hymn combination.

The Pedal ensemble is created in much the same way as the manual ensembles, starting at 16' pitch. Be careful that the volume of the pedals is not greater than that of the manuals. Although the manual to pedal couplers are useful in bringing clarity into the pedal line, especially on softer registrations, avoid the temptation to rely constantly on one or two 16' stops and a coupler.

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

FULL ORGAN

Due to the immense capabilities of the Allen Digital Computer Organ, distortion will not result if the organ is adjusted properly even if all stops and couplers are used simultaneously. However, in good registration practice the organist would not haphazardly put on every stop on the instrument. For best results, listen and include only those stops which really contribute to the fullness and brilliance of the ensemble. Eliminate soft stops and solo stops which make no purposeful contribution.

This short treatment barely scratches the surface of a highly interesting subject: organ registration. 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 texts:

Audsley, George Ashdown. _Organ-Stops and their Artistic Registration._
   Longwood Press: Wakefield, N.H.

Irwin, Stevens. _Dictionary of Pipe Organ Stops._
   H. W. Gray Co.: New York, N.Y.

ALTERABLE VOICES
(Optional on some Models)

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 bright Trompette 8', 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.

Most three-manual ADC organs include two Alterable stops, whose tabs or drawknobs are located with those of the Swell division. (ADC 4900 has one optional Alterable stop). To program an Alterable stop, simply put down the Alterable stop, 1 or 2, and insert the computer card with the printed side up and the arrow pointing toward the slot. Stop feeding the card when resistance is felt (about 1" of the card remains outside of the slot). The card should then be removed. It is not necessary to insert the computer cards particularly slowly.

If both Alterable stop tabs are down when the computer card is inserted, the tone will automatically be programmed into both Alterables simultaneously. You then have two separate identical voices, each coming from a different speaker system. A celeste beat between them will speed up when Celeste Tuning is added. If more volume is desired, add the "Alterable F" (forte) tab.

Turning off the organ will not cancel the Alterable voices - the same voices will still be there when the organ is turned back on. To change an Alterable Voice to a new tone, simply insert the new card. The old voice is automatically erased.

Although the controls for the Alterables are located in the Swell division, the voices are not limited to that keyboard. Through the use of special couplers, labelled "Alterable to Great," "Alterable to Choir," and "Alterable to Pedal," it is possible to couple Alterable Voices to these other divisions without coupling the entire Swell division. This is what is meant by "floating." For example, if the organist wanted to add a special 4' reed to the Pedal division, he or she could do so by putting down Alterable 1 and/or 2, inserting the appropriate tone card, then adding the "Alterable to Pedal." Keep in mind that the Alterables are affected by the Celeste Tuning and Tremulant in the Swell, and they are controlled by the Swell expression pedal, even if they are coupled to the Great or Pedal.

Alterable Voices are available in a wide variety of tones and pitch levels. They are color-coded by families: red cards are reeds, green are percussions, yellow are strings, and white are flutes and diapasons. More information about specific cards and their uses is available in the Tone Card Library Catalog. 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

Green computer cards are intended to be used as percussion voices. Program them like any other Alterable Voice, then add the "Percussion" tab. This will add the "attack and decay" appropriate to sounds of this type. A percussion length knob on the console adjusts the length of the decay for percussion voices, thereby increasing the authenticity of the sound. For example, the decay should be shorter for a harpsichord than it would be for chimes. Be aware that on the ADC 6300 & 7300 the Percussion will also affect all of the Swell voices except the 8' flues. Therefore, if an alterable percussion voice is being used, even if the Alterable is being played in a division other than the Swell, these voices will percuss and should not be used.

CHIMES AND CARILLON

Certain Chimes and Carillon bells are produced by using two different computer cards, a "left" and a "right." Each of these cards is programmed into one Alterable stop. It does not matter which card goes into which of the two Alterables. When both Alterable tabs and the Percussion are depressed, the resulting bells are amazingly accurate. Although these bell effects can be played on all sixty-one notes, they are most effective when the parts are played one octave lower than written.

A NOTE ABOUT IMITATIVE ORCHESTRAL VOICES

Many true orchestral tones are available for the Computer Organ with Alterable Voice cards. 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. However, when you program this voice into the Computer Organ, you have a five octave range. The voice 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 half-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 comfortably and effectively.

Because some instruments are non-concert pitch. A trumpet in B^b, 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. Hymn singing can also be enhanced by playing the hymn in its original key, playing a short modulation at the end of the verse which leads into the key one-half step above the key in which the hymn is written, then turning the Transposer up a half-step. Thus, the organist can play the next verse in its original key and it will sound one-half step higher. If the hymn is already in a fairly high key, it may be preferable to play the first few verses with the Transposer set down one-half or one whole step, then modulate up to the original key for the final verse. The use of modulation with the aid of the Transposer creates a climactic effect for the last verse of a hymn.

CAPTURE COMBINATION ACTION

All three manual ADC organs are equipped with Allen's Quad Memory Capture Action which offers the ultimate in registration control and convenience. Quad memories provide a total of 144 separate combinations. A special key lock switch allows the organist to set combinations on any memory, turn the switch to another memory, and remove the key, thus preventing unauthorized "tampering" with these combinations.
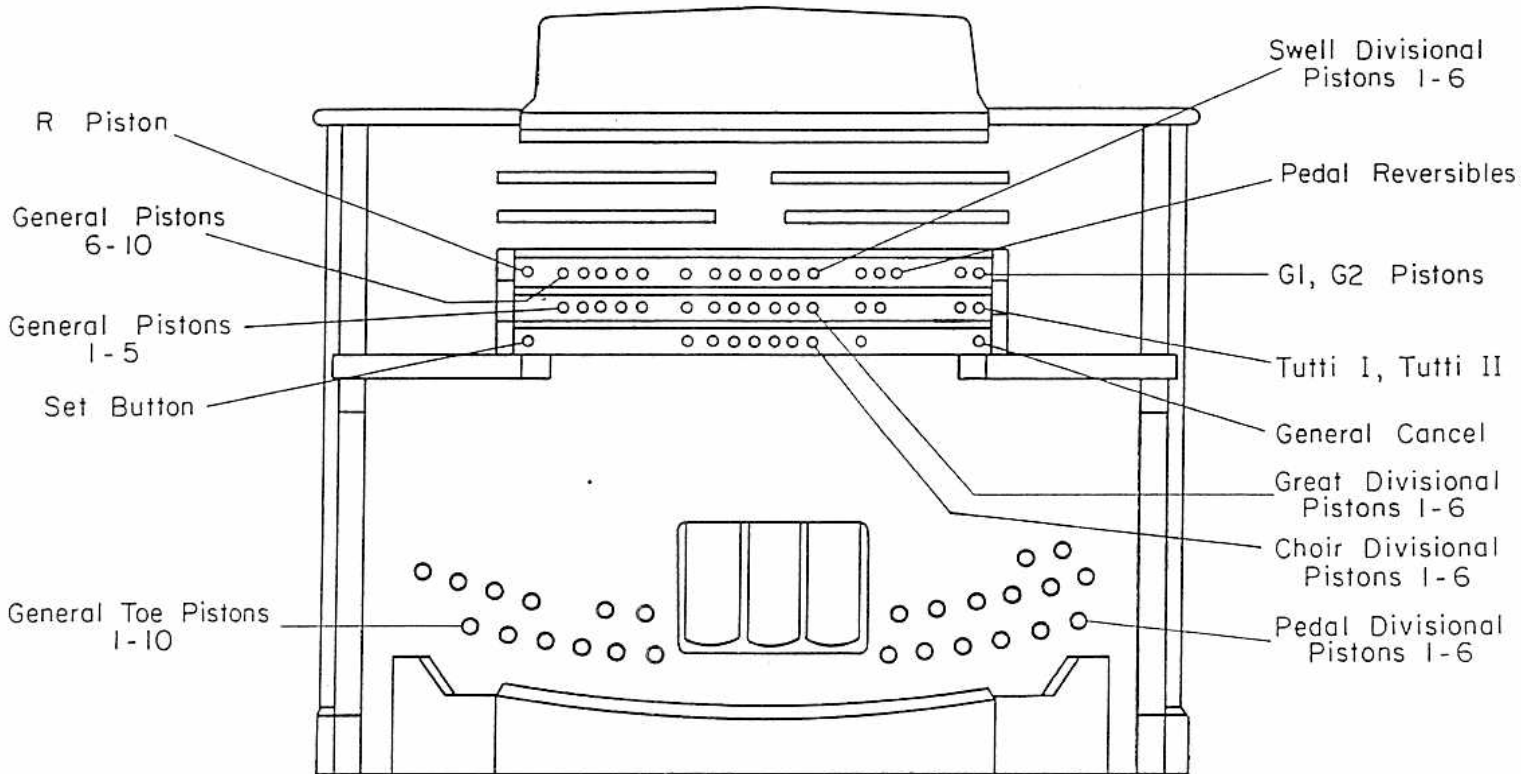
THINGS TO REMEMBER

"R" Piston, when activated, will recall the last combination set prior to using any general or divisional pistons. "G1" or "G2" are divisional pistons affecting the General stops only.

General pistons (duplicated by toe pistons) affect all stops. Swell, Great, Choir, and Pedal pistons only affect stops in their division. Intermanual couplers (Swell to Great, Swell to Pedal, Great to Pedal) operate from the General Pistons only.

Pedal pistons are toe operated only.

All pistons operate independently from each other. Tutti and coupler pistons are reversible.

The capture action is not fully operable until approximately six seconds after the organ is turned on.
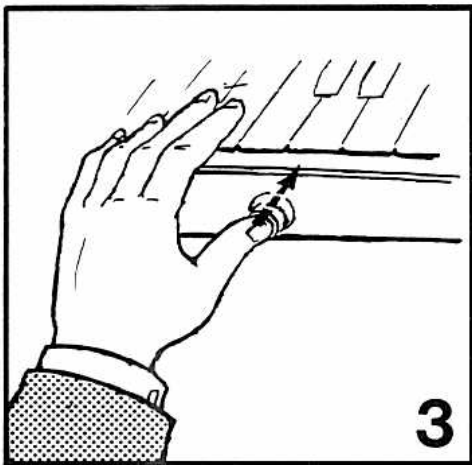
The layout of the toe studs on the ADC 8300/8350 is slightly different from the above sketch due to the addition of a fourth expression pedal. The pistons on a drawknob console are set up identically to those on the stop-tab console shown above.
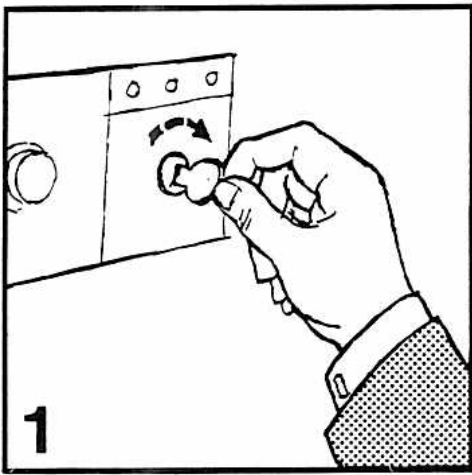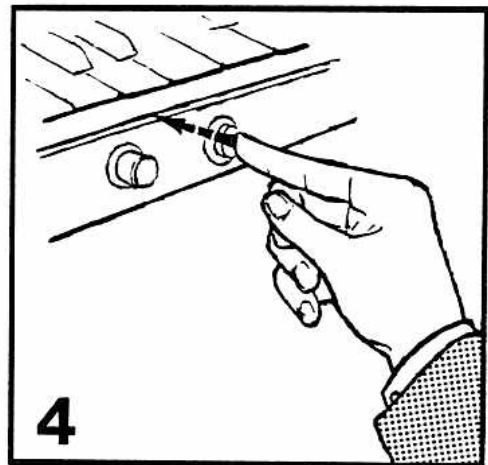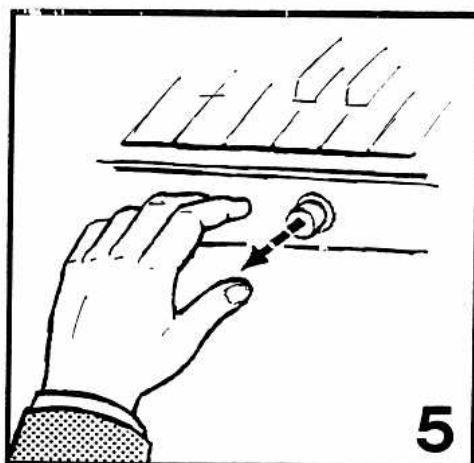
Select Memory A, B, C, or D
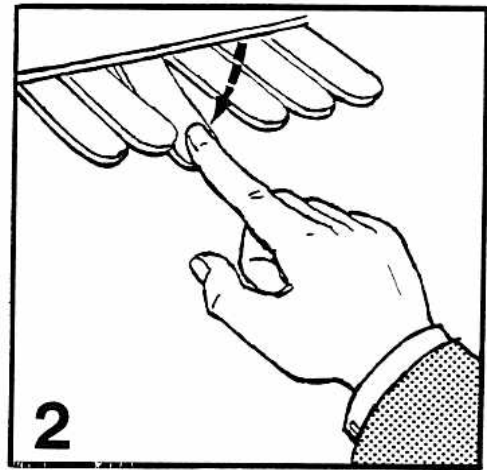
Select Registration

Press and HOLD
Set Button

Press and Release
Piston on which
Registration is to
be Retained

RELEASE Set Button

INSTALLATION, VOICING AND CARE OF THE ORGAN

INSTALLATION

Wherever your three manual organ may be situated, 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 may be obtained.

CAUTION

Do not plug the instrument into any current source other than 105-128 volts, 50/60 Hertz alternating current (AC). A verified earth grounded outlet is essential to proper operation and protection of the instrument. Proper polarity should be checked with an A.C. circuit analyzer before connecting the organ.

Do not change the cable plug or remove the ground pin or connect with a two pole adaptor.

If you are in doubt about your electrical connection, consult your local electrician or power company.

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.

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

VOICING

The three manual Allen Digital Computer Organs enjoy unprecedented accuracy in the voicing and scaling of each note of every stop. This musical breakthrough is an inherent part of the engineering design of the instrument. Once the instrument has been delivered to the owner, final musical adjustments are then made to match the organ to the acoustics of the room in which it is played. These voicing adjustments are carefully made by trained personnel from your Allen Organ dealer.

This voicing procedure involves the adjustment of controls both within the console and in equipment connected to the console. These adjustments are normally a part of installation, and once done, should not require readjustment unless instrument is moved to a new location.

Bass frequency projection is strongly affected by tone cabinet location. Although none of the tone cabinets should be moved once the installation has been completed, extra care should be exercised not to inadvertently move bass tone cabinets.

CARE OF THE ORGAN

Your Allen Digital 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.

A silent key can be caused by a foreign substance on the contact surface. Depressing the key with rapid repetition usually clears the phenomenon.

* * * * *

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. It has been type tested and found to comply with the limits for a Class A Computing Device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, operation of this equipment in a residential area may cause interference. If this equipment does cause interference to radio communications, the user at his own expense will be required to take whatever measures may be required to correct the interference. Whether this equipment actually causes the interference to radio communications can be determined by turning the equipment off and on. The user is encouraged to attempt to correct the interference by one or more of the following measures:

Reorient the receiving antenna.
Relocate the computing device (organ) with respect to the receiver.
Move the computing device (organ) away from the receiver.
Plug the computing device (organ) into a different electrical outlet so that the computer device (organ) and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio technician for additional suggestions.

* * * * *

You have purchased a remarkable organ which not only faithfully reproduces the organ traditions of the past but also anticipates the innovations of the future. Should you have questions which are not dealt with in this manual, please do not hesitate to contact your local Allen Organ representative. Welcome to the family of satisfied Allen Organ owners!