

**ADC-221,  
222/222A**

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AOC P/N 033-0029

## 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.

NOTE: The ADC 222A version, in addition to the standard items offered in the ADC 221, includes:

1. Romantic Tuning. This feature is a stop operated function which provides an alternate tuning program having more "warmth" or activity to the sound.
2. Bass Coupler. A stop activated feature of special help to new organists with basically a piano background. When the organist draws a Great manual registration and a Pedal registration together with the Bass Coupler, the lowest note played on the Great will automatically key the Pedal stop at the appropriate pitch. Thus, a player not yet proficient in pedal technique can play hymns and still sound as though the pedals are being played. A somewhat detached playing style is recommended rather than legato.
3. Programmable Presets. Instead of having presets which have been predetermined by the factory, the organist can select the preferred voice combinations to be used for each piston.

See Section III, pages 1 through 4 for a description of this system.

Congratulations on the purchase of your new Allen Digital Computer Organ! You have acquired an amazing instrument 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 the sections on Artistic Registration and the Transposer, 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.

- I Stop Description
- II Artistic Registration
- III Using the Pistons
- IV Transposer
- V Installation, Voicing, Care of the Organ

## 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. Likewise, a 16' stop sounds an octave lower.

Stops of 16', 8', 4', and 2' 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. Your ADC organ contains one mutation: the Nasat 2-2/3'. Because it introduces an unusual pitch relationship with respect to the fundamental (8') tone, the Nasat is most effective when combined with other stops and used either in solo passages or in small ensembles of flutes.

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

## Compound Tones

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

## Hybrid Tones

Spitzprinzipal                    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:        Tones of great harmonic development; some  
    Trumpet, Posaune,               imitative, others not.  
    Clairon, Basson, etc.

Solo Types:  
    Oboe, Clarinet, Trumpet,  
    Krummhorn, etc.

The Allen Digital Computer Organ provides authentic examples of every family 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 slight variations in specifications can be encountered.

STOPLIST  
ADC 221

PEDAL ORGAN

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'	8' member of the Pedal principal chorus.
Gedeckt 8'	Stopped flute tone of 8' pitch, useful in adding clarity to a pedal line in combination with the Bourdon 16' or Lieblich Gedeckt 16'.
Choralbass 4'	Pedal 4' principal tone.
Mixtur II	Compound stop of principal tone. One pedal produces two distinct pitches at octave and fifth relationships to the pedal being pressed. Used to crown the Pedal principal chorus.
Basson 16'	A Pedal reed which lends strength and "snarl" to the Pedal line.
Trumpet 8'	Strong bright pedal reed.
Great to Pedal	Connects Great stops to the Pedal.
Swell to Pedal	Connects Swell stops to the Pedal.

SWELL ORGAN

Bourdon 16'	Rich stopped flute at the sub-octave pitch.
Gedeckt 8'	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.
Viola 8'	Full bodied string tone.
Viola Celeste 8'	Celeste used with the 8' Viola, creating a warm string tone.
Spitzprinzipal 4'	Bright principal tone which works well with the Viola 8'.

Koppelflöte 4' Distinctive stopped flute voice which works well in ensembles of flutes or strings, or as a solo voice.

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.

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

Basson 16' Chorus reed tone at the 16' pitch level, designed to supplement and undergird the Trumpet 8'. Also usable as a distinctive solo reed tone.

Trumpet 8' Reed stop of rich harmonic development, usable as a solo or ensemble voice.

Percussion Produces percussive attack and release dimension appropriate to percussion type voices. Affects all stops drawn on the Swell.

Celeste Tuning Used to add extra warmth to a celeste. See paragraph on Celestes at the end of Section I.

Tremulant Use of this stop provides a vibrato effect natural in the human voice and wind instruments to the stops in the Swell division.

#### GREAT ORGAN

Principal 8' Foundation stop of the Great principal chorus.

Gedeckt 8' Stopped flute tone of moderate harmonic development. Provides the 8' member of the Great flute chorus and is useful by itself or with other flutes in creating solo voices.

Octave 4' A bright 4' principal which complements the Principal 8'.

Koppelflöte 4' Distinctive stopped flute voice which works well in ensembles of flutes or strings, or as a solo voice.

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



Mixture IV	A compound stop of principal tone. Four notes in octave and fifth relationships sound together 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 foundation chorus of Principal 8', Octave 4', and Blockflöte 2', adding brilliance and pitch definition to the entire compass.
Trumpet 8'	Reed stop of rich harmonic development, usable as a solo or ensemble voice.
*Chimes	Tubular Chime sound.
*Krummhorn 8'	Solo reed imitative of the medieval krummhorn. Its timbre is similar to that of the clarinet, but with a more nasal quality.
Tremulant	Same as Tremulant in Swell, but affects stops in the Great and Pedal.
Swell to Great	Intermanual coupler connecting Swell stops to the Great manual.
*Your organ will feature either the Chimes <u>or</u> the Krummhorn, not both.	

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#### GENERALS

Memory B	Use of this tab gives the organist access to seven additional general pistons which are completely independent of those on the "A" memory.
Chiff	When Chiff is employed, a high pitched sound 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. The Chiff should not be used with reed stops.
Percussion Short	When added to Swell stops and the Swell Percussion, the "Percussion Short" reduces the length of the decay of the notes. This is useful in creating bell or percussive effects which should have a quicker decay, such as a music box effect. The "Percussion Short" will also affect the decay length of the Great Chimes.

Reverb	Adds reverberation to all voices.
Vibrato (prepared for)	Imparts a deep theatrical or gospel tremulant to all stops.
Great Bass Coupler	When used, the lowest note played in the Great will automatically key the appropriate Pedal note, providing stops have been drawn in the Pedal division as well as in the Great.
Console Speakers Off	If this option is ordered, causes the organ to speak only from the external speakers.
External Speakers Off	If this option is ordered, causes the organ to speak only from the console speakers.

#### EXPRESSION PEDAL

One master Expression Pedal affects all divisions.

#### CELESTES

Celestes are created by using two ranks of sound, one playing unison pitch and one tuned slightly sharp of the other, creating a warm, undulating "celestial" effect. The combination of the Viola 8' and the Viola Celeste 8' on the Swell division will create a beautiful string celeste. If Celeste Tuning is added to this combination, a faster celeste "beat" results.

## ARTISTIC REGISTRATION

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

Let us consider solo combinations first. A solo combination is one in which a melody is played on one keyboard, with the accompaniment on the other keyboard and, usually, the pedal providing a light bass line. 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.

Reed stops make interesting solo tones. Adding an 8' flute to a reed will add body to the sound.

Flutes can be used alone or in combinations as solo voices. Both the Gedeckt 8' and the Koppelflöte 4' make beautiful solo voices with or without Tremulant. The combinations of flutes 8' & 4'; 8' and 2'; 8' and 2-2/3'; 8', 4', & 2-2/3'; etc. all work well as solo combinations.

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.

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.

## SOME TYPICAL SOLO REGISTRATIONS

### CHIMES OR KRUMMHORN SOLO

Swell: Viola 8', Viola Celeste 8'  
Great: Chimes or Krummhorn 8'  
Pedal: Lieblich Gedeckt 16', Swell to Pedal

Play solo on Great.

### SWELL SOLO COMBINATION

Swell: Gedeckt 8', Koppelflöte 4', Nasat 2-2/3', Blockflöte 2'  
Great: Gedeckt 8'  
Pedal: Lieblich Gedeckt 16', Gedeckt 8'

Play solo on Swell.

### FLUTE SOLO

Swell: Viola 8'  
Great: Gedeckt 8' (Tremulant optional) or Koppelflöte 4'  
Pedal: Lieblich Gedeckt 16'

Play solo on Great.

### GREAT SOLO COMBINATION

Swell: Viola 8', Viola Celeste 8'  
Great: Principal 8', Gedeckt 8', Tremulant  
Pedal: Lieblich Gedeckt 16', Swell to Pedal

Play solo on Great.

### TRUMPET SOLO

Swell: Trumpet 8'  
Great: Principal 8', Octave 4',  
Pedal: Bourdon 16', Octave 8'

Play solo on Swell.

For additional solo combinations, refer to the Preset chart.

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

1. Seek tonal 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 hymns, 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 8' Principal 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. The Swell Basson 16' and Trumpet 8' are in this category.

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

### On the Great

1. Gedeckt 8', Koppelflöte 4'
2. Gedeckt 8', Koppelflöte 4', Blockflöte 2'
3. Principal 8', Octave 4'
4. Principal 8', Octave 4', Blockflöte 2'
5. Principal 8', Gedeckt 8', Octave 4', Koppelflöte 4', Blockflöte 2'
6. Principal 8', Gedeckt 8', Octave 4', Koppelflöte 4', Blockflöte 2',  
Mixture IV

### On the Swell

1. Gedeckt 8', Koppelflöte 4'
2. Gedeckt 8', Koppelflöte 4', Blockflöte 2'
3. Viola 8', Spitzprinzipal 4'
4. Viola 8', Spitzprinzipal 4', Blockflöte 2'
5. Viola 8', Gedeckt 8', Spitzprinzipal 4', Koppelflöte 4', Blockflöte 2',
6. Viola 8', Gedeckt 8', Spitzprinzipal 4', Koppelflöte 4', Blockflöte 2', Trumpet 8'

The use of the Swell to Great coupler allows these separate ensembles to be combined on the Great manual.

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 to 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.

### PERCUSSION & CHIMES

The ADC 221 provides a useful variety of percussion and related effects.

A Percussion tab on the Swell provides a percussive attack and release to whatever registration is selected. For example, the Gedeckt 8' with the Percussion tab added becomes a harp. Adding the Tremulant and Vibrato modifies it further into a Vibraharp.

The Chimes stop provides a Tubular Chime type tone, effective over a wide range of the keyboard. It is most useful, however, in the lower octaves. Always play only one note at a time on the chimes; dissonant harmonies result if two or more notes are played simultaneously. Usually the Chimes are unaccompanied, with the melody played in single notes. If the Chimes are being accompanied, use the Viola 8' on the Swell. Make sure that the Percussion Short in the General division is not on with the Chimes, as this will cut short the appropriate chime sustain.

You can experiment with creating your own bell effects by using various combinations of flutes and even strings on the Swell and adding the Percussion. For example the Koppelflöte 4', Percussion, and Percussion Short will yield a Music Box effect, while the Viola 8', Spitzprinzipal 4', Percussion and Percussion Short will produce a Harpsichord-like effect.

## FULL ORGAN

Due to the immense capabilities of the Allen Digital Computer Organ, distortion should 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.

## SUMMARY

You can assure satisfying results by observing the following suggestions:

1. DO read this Owner's Manual thoroughly, especially the registration section.
2. DO remember that the best combinations are not necessarily the ones with the most stops depressed -- or the most keys. One of the most famous and well respected organists of all time used three or four stops at a time but changed them often for continual color changes.
3. DO try all the combinations at least once to see if you like them or can improve upon them.

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

## USING THE PISTONS

Each ADC 221 has seven general pistons which control stops in all divisions of the organ except the general division. On the standard ADC 221 these combinations are factory preset, although capture action is available as an option (See Section III, page 4).

If Memory A is desired, the organist need only push the button of the desired number to have the "A" combination sound. In order to get a Memory B combination, the "Memory B" tab must be depressed. If one of the "A" presets is on and the "Memory B" tab is depressed, the piston will automatically change to the same number on Memory B. For example, if the organist is playing Memory A, #5 and puts on the "Memory B" tab, Memory B, #5 will automatically be engaged.

In reality, therefore, there are fourteen general combinations on your ADC organ.

- NOTE:
1. On organs with presets, it is possible to add stops manually to the preset combinations. However, on organs with capture action it is not possible to add stops to the combinations which the organist sets.
  2. The cancel affects only preset combinations, not combinations registered manually.
  3. It is possible, of course, to register combinations completely independently of the presets by depressing the stops.

The following two pages apply to the standard ADC 221 with factory presets. The next page, page 4, illustrates how to set the pistons if you have the capture action option.



ADC 221 PRESETS

		A							B						
		1	2	3	4	5	6	7	1	2	3	4	5	6	7
<u>PEDAL</u>															
Bourdon	16'														
Lieblich Gedeckt	16'	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Octave	8'			X	X	X	X	X							
Gedeckt	8'		X	X	X	X	X	X	X	X	X				X
Choralbass	4'					X	X	X							
Mixtur II							X	X							
Basson	16'							X							
Trumpet	8'							X							
Great to Pedal							X	X							
Swell to Pedal				X	X	X	X	X				X	X		X
<u>SWELL</u>															
Bourdon	16'														
Gedeckt	8'		X	X	X	X	X	X		X	X				
Viola	8'	X	X	X	X	X	X	X	X			X	X	X	X
Viola Celeste	8'	X	X	X	X	X	X	X				X	X	X	X
Spitzprinzipal	4'					X	X	X							
Koppelflöte	4'				X	X	X	X	X	X					
Nasat	2'2-3'					X	X		X	X					
Blockflöte	2'						X	X		X	X				
Basson	16'							X							
Trumpet	8'							X							
Percussion															
Celeste Tuning		X	X									X	X	X	X
Tremulant															
<u>GREAT</u>															
Principal	8'		X	X	X	X	X	X					X	X	
Gedeckt	8'	X	X	X	X	X	X	X	X	X	X	X	X	X	
Octave	4'				X	X	X	X					X		
Koppelflöte	4'			X	X	X	X	X				X	X	X	
Blockflöte	2'					X	X	X							
Mixtur IV							X	X							
Trumpet	8'													X	
Chimes															X
Tremulant															
Swell to Great			X	X	X	X	X	X					X	X	

## Description of Presets for ADC 221

### A Memory

1. Soft combination on both keyboards, suitable for background music during a quiet part of a service
- 2-7. Ensemble build-up, ranging from 8' foundations on #2 up to foundations and reeds at a variety of pitch levels on #7.

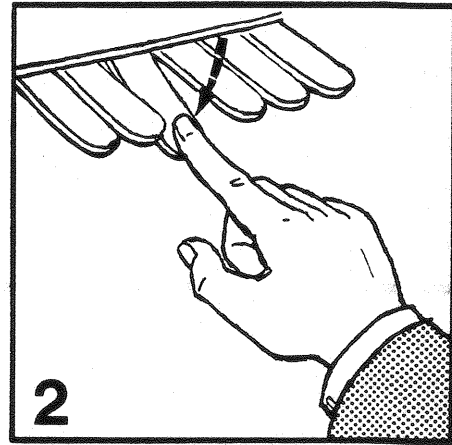
### B Memory

1. Colorful string ensemble solo on Swell, accompaniment on Great
2. Flute chorus as solo on Swell, accompaniment on Great
3. Lighter flute solo on Swell, accompaniment on Great
4. Flute solo on Great, string celeste accompaniment on Swell
5. Foundation solo on Great, string celeste accompaniment on Swell
6. Reed solo on Great, accompaniment on Swell
7. Chimes solo on Great, accompaniment on Swell

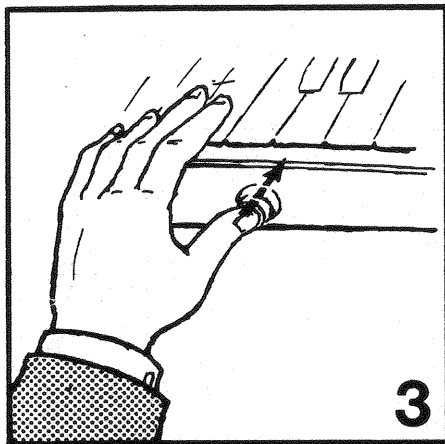
# HOW TO SET A PISTON COMBINATION

(OPTIONAL CAPTURE SYSTEM)

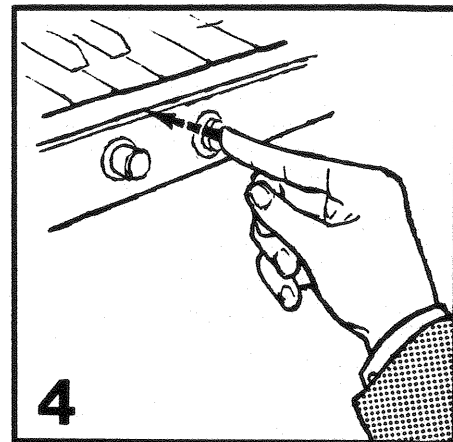
1. Select either Memory A or Memory B by using the Memory Piston B stop tab. The up position is Memory A. Depressing the stop tab selects Memory B.



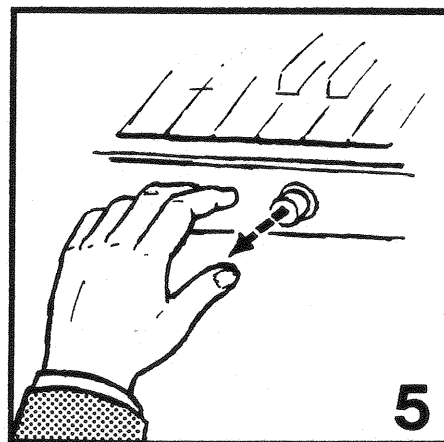
Select Registration



Press and HOLD  
Set Button



Press and Release  
Piston on which  
Registration is to  
be Retained



RELEASE Set Button

## 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<sup>b</sup>, 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.

## INSTALLATION, VOICING AND CARE OF THE ORGAN

### INSTALLATION

Wherever your ADC 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.

#### 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.

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

### VOICING

The ADC 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. Very little further voicing is required, other than adjustment of volume.

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

Bass frequency projection is strongly affected by speaker location. Therefore, in the case of the addition of external speaker cabinets, these cabinets should not be moved once the installation is completed. In the ADC 221 this also applies to the console, since the speakers are located in the console.

The intensity of "reverb" should be adjusted to suit the environment and your musical taste.

## 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 B 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!

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Note: The content of this DVD was previously  
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