

**ADC 3600/4600**

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AOC P/N 033-0036

## 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, 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 Capture Action and 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. Because the Allen Digital Computer Organ offers limitless tonal possibilities, plus absolutely authentic tone quality of both theatrical and classical voices, these subjects can now be more readily explored than ever before.

- I. Stop Description
- II. Registrations
- III. Alterable Voice with Card Reader (Optional)
- IV. Transposer
- V. Automatic Rhythms
- VI. Capture Action
- VII. MIDI
- VIII. 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, while a stop sounding three octaves higher is at 1' pitch. Likewise, a 16' stop sounds an octave lower, and a 32' stop sounds 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, or fractional pitch stops, or simply fractionals. These are the Tibia Quint  $5\text{-}1/3'$ , Sub-Tierce  $3\text{-}1/5'$ , Tibia Tenth  $3\text{-}1/5'$ , Twelfth  $2\text{-}2/3'$  and Tierce  $1\text{-}3/5'$ . Because they introduce unusual pitch relationships with respect to the fundamental (8') tone, they are most effective when combined with other stops and used 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 "Clarinet 8'" would be one voiced to sound like an orchestral clarinet.

### Principal Tones - Diapasons, Diaphones, Principals, Octaves

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

Flute Tones - Open Types: Flutes, Melodia, etc.; Flute mutation stops

Stopped Types: Tibias, Tibia Clausas

Tones of lesser harmonic development than principals. Open types somewhat imitative; stopped types not. Present at all pitch levels.

String Tones - Sal (Salicionals), Cellos, Violones, Violes, etc.

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

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.

Reed Tones - Chorus or Ensemble Types: Tubas, Tuba Horns, Trumpets, Saxophones, etc.

Solo Types: Vox Humanas, Oboes, Krumets, Clarinets, etc.

Tones of great harmonic development; some imitative, others not.

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, for example, © 1987 AOCO; © 1988 AOCO, 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 may be encountered.

### STOP GLOSSARY

(Stops are listed in alphabetical order, with the percussions stops, couplers, generals and tremulants listed separately).

Cellos II	String voices designed for a lush pedal combination.
Clarinet 8'	Solo reed imitative of orchestral instrument. Can also be used as an ensemble stop.
Diapason 16', 8'	Basic sound of the church organ. These stops make excellent accompaniments, or add fullness to a combination.
Diaphone 16'	Smooth, strong diapason-like stop which provides weight and roundness to a pedal combination.
Lieblich Flute 8', 4'	Light flute voices useful as a delicate accompaniment.
Fife 1'	Pure clear flute imitative of the small instrument of the same name. Highest pitched flute on the organ. Blends with Tibias 16', 8', 4', and 2' for brilliant theatrical tibia chorus (with Tibia trem).

Kinura 16'	Bright, buzzy solo reed. Used with 8' Tibia Clausa for novelty effects.
Krumet 8'	A colorful, moderately-loud, nasal reed voice most often used with the Tibia Clausa 4'.
Orchestral Oboe 8'	Solo reed with a pungent nasal timbre.
Octave 4'	The 4' member of the principal chorus, designed to work with the Diapason 8'.
Piccolo 2'	High, bright flute.
Post Horn 16', 8'	Bright, brassy reed stops. The Post Horn is buzzy and incisive.
Quintadena 8'	Stopped metal flute with a strong overtone at the fifth. Although classically voiced and useful in light classical literature, the Quintadena is a very successful choice for theatre accompaniments.
Saxophone 16'	NOT the orchestral variety! This stop was included in larger theatre pipe organs and was very popular when used in combination with Tibias -- really an overgrown Vox Humana.
Tibia 4'	Matches the 8' Tibia Clausa.
Tibia Clausa 16', 8'	Stopped wooden flute voices with strong fundamentals and mild third harmonic development.
Tibia Quint 5-1/3'	Flute mutation which sounds a pitch a fifth above the note played. Because it is based on the 16' overtone series, this stop must be combined with at least one 16' stop.
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.
Trumpet 16', 8'	Bright solo reed sound.
Tuba 16'	Mellow 16' reed - a solo or ensemble stop. In the Pedal it is the biggest 16' stop.
Tuba Horn 8'	8' reed, mellow solo stop. Useful to provide reed quality without being overpowering.
Twelfth 2-2/3'	Tibia tone at the twelfth (one octave and a fifth). A coloration stop never used alone.

Violone 16', Violin 8',  
Viola 4'

Keen, full-bodied string stops.

Vox Humana 8'

Famous whisper "vox" sound, added to strings or flutes. Originally a solo voice intended to imitate the human singing voice.

Violin Celeste 8',  
Viola Celeste 4'

A second "rank" or set of strings slightly detuned from their unison counterparts to give that shimmering string quality. Normally, only the celeste string has a yellow stop tab.

## PERCUSSIONS

The following are independent percussion stops included on both the ADC 3600 and ADC 4600 and playable on the designated divisions:

Bass Drum	Pedal
Tambourine	Accompaniment
Cymbal	Pedal & Accompaniment
High Hat	Accompaniment (ADC 4600)
Snare Drum	Accompaniment
Snare Drum Roll	Accompaniment (ADC 4600)
Tom Tom	Accompaniment
Wood Block	Accompaniment

The following are tuned percussions. When using the percussions, be sure to adjust the Percussion Sustain knob to a setting appropriate to that particular percussion. For example, the sustain should be shorter for the Glock than for the Chrysoglott. (Percussion Control does not affect the Xylophone or Piano).

Chimes Tubular chimes.

Chrysoglott "Golden bells" - a beautifully delicate percussion useful as a solo or as an added sparkle in an ensemble combination.

Glockenspiel Bright glockenspiel bell.

Harp Beautiful 8' harp sound.

Piano 8' Creates an authentic 8' piano sound.

Xylophone Stop imitative of the orchestral percussion instrument of the same name.

Percussion Length Adjusts the length of the decay of the chimes, chrysoglott, glock and harp. This control also affects the Alterable Percussion if this option is chosen.

## COUPLERS

Couplers cause stops from the original division to sound on another division. NOTE: The Percussions do not couple.

## GENERALS

### Celeste Tuning

Celestes are created by using two ranks of sound (as in two violins instead of one), one playing unison pitch and one tuned slightly sharp or flat. This creates the very warm "celestial" effect. By using a string stop and its celeste, you can create a celeste. If Celeste Tuning is added to any combination, a faster "beat" results. When playing with tremulants on, the Celeste Tuning should be on.

### Reverb

People often tend to think of an organ apart from its acoustic environment. Some may expect that it will sound the same wherever it is placed. The organ, perhaps more than any other musical instrument, benefits from having a live, reverberant room as its sounding board. Any organ will be more satisfying to play and enjoy when placed in a sympathetic "live" environment, whether a small living room or a large auditorium.

Lack of reverberation can exist in rooms of any size, but especially in the typical living room.

Digital reverberation, which is included on your organ, lends highly desirable interest to most organ music. Auditoriums capable of producing such reverberation are considered to have "good acoustics."

## TREMULANTS

### Main

Adds theatrical tremulant to all non-tibia voices (except the Vox Humanas) on the Great (or Solo on the ADC 3600) and Accompaniment divisions.

### Solo (ADC 4600 only)

Adds theatrical tremulant to all non-tibia voices (except the Saxophone) on the Solo division.

### Tibia

Adds theatrical tremulant to all tibia voices, plus the Vox Humanas and Saxophone.

## EXPRESSION PEDALS

The ADC 4600 has two expression pedals. The expression pedal on the left controls the Main (non-tibia) voices, while the Tibias and Percussions are controlled by the pedal on the right. The ADC 3600 has one expression pedal that controls the entire organ.



## REGISTRATIONS

### HOW TO GET THE MOST OUT OF YOUR NEW ALLEN ORGAN

Before considering the specifics of recommended registrations, it would be well to cover a brief history of the pipe organ.

Sometime in the dim past, perhaps thousands of years ago, someone discovered that by blowing air into a piece of reed or cane a sound could be produced. Thus was born the first flute. Later holes were added to vary the pitch.

Still later in history, approximately two thousand years ago, a predecessor of the pipe organ appeared, called the hydraulus. This instrument used water to generate air pressure, which in turn "energized" a number of flute pipes. By the Middle Ages churches were installing organs using hundreds of "flue" pipes. These included a later development; namely, Principal or Diapason tone. Pipes producing Principal tone were similar to Flute pipes, except that such pipes had somewhat more harmonic development, thus producing a tone somewhat less pure than that of Flutes.

It was not long thereafter that two other families of tone were added; namely, Reeds and Strings. These tones were characterized by having many more harmonics produced by each pipe as compared to those of Flutes and Principals. When a properly designed pipe organ with an aggregation of all of these families of tones was placed in the reverberant building characteristic of that period, a very thrilling sound was achieved. It is most probable that the emotional response thereby achieved represented a tremendous addition to the worship services of those churches. Who could help but be moved by the sound of "state trumpets" sounding the Agincourt Hymn, or Purcell's Trumpet Tune in such a tonal environment!

By the 1920's theatre pipe organs had arrived and were flourishing. Such organs included all of the families of tones previously described, except that the tonalities produced were specifically directed toward the playing of romantic and popular music within the theatre environment. The earlier church type Flutes were modified into large Tibias with deep tremulants. Principal sound became less important with such an instrument. In fact, the Tibias became the "Principal" sound of the theatre organ. The Strings and Reeds became perhaps even keener in character, and certain special playing techniques were developed so as to afford the best presentation of such tonalities in the popular music idiom.

More recently, the application of electronics to the production of organs has allowed such instruments to be installed in homes. However, because the tonal environment of the average home is lacking in natural reverberation, the presence of certain musical problems must be considered.

Within the intimate tonal environment of the home, flutes present no particular problem. However, when reeds or strings are utilized either alone or in combination, it must be recognized that this same intimacy and the lack of natural reverberation cause the high frequencies to appear to be

overemphasized. This becomes especially apparent when an attempt is made to play such combinations in a slow moving, ponderous fashion. Bright reeds, in particular, can become a problem unless the volume is kept "within bounds."

The "Suggested Registration" section in this owner's manual is a handy introduction to the subject of organ registration. It is recommended for a start, at least, that you follow the procedures it outlines and the piston combinations it describes. This will serve to introduce some of the main features of the Allen Organ, including Alterable Voices, Percussions, etc.

For those with a few years playing experience, very little additional explanation is required in the areas of registration techniques. Others, lacking this experience, may find themselves somewhat mystified by the profusion of unfamiliar names and controls. In this section we will attempt to organize the subject for the beginner.

The main rule, in matters of organ registration, is a simple one: If the combination sounds good to you, then go ahead and use it! All registration, ultimately, is a matter of discriminating listening; therefore, it is good to develop this critical faculty from the start.

Registrations generally fall into one of two categories: "Solo" and "Ensemble."

"Solo" combinations are those in which one hand plays the melody (or solo) on one keyboard, with the accompaniment played on a different keyboard.

"Ensembles" are those in which both hands play on the same keyboard.

### SOLO COMBINATIONS

Most popular music registrations are of the solo type. The solo may be played using just one stop, or the stop registration can be quite full. In either case, it is still a solo registration; that is, the melody and the accompaniment are played on different keyboards.

Almost any group of stops can be used for solo purposes, particularly when only single note melodies are involved. Where the solo part involves chords, more care is needed since some stops do not blend so well in close harmonies. Fractional pitch stops or pungent sounding reeds are the ones to avoid, unless their particular "spice" is the sought-after effect.

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 the accompaniment, two factors guide stop selection:

1. Whenever possible, the tone color of the accompaniment should contrast with the solo. A "reedy" sounding solo combination, for example, should be accompanied by strings or, for even more contrast, flutes.
2. The accompaniment must be softer than the solo.

Celestes are often particularly beautiful as an accompaniment.

### ENSEMBLES

When a musical passage calls for both hands on one keyboard, registration becomes simpler. Ensemble combinations can range from a single stop or two all the way to Full Organ. Often a full solo keyboard combination can also be used for ensemble playing as well.

### A WORD ABOUT "CLASSIC ORGAN" REGISTRATION - 2ND VOICING

Your ADC 3600 or ADC 4600 has the ability to change from Theatrical voicing to Classical voicing in an instant. By moving the stop tab(s) "2nd Voicing," you change several of the manual stops to classical voices. These are the voices that change:

#### ACCOMPANIMENT

Theatre Voicing		Second Voicing	
Tuba Horn	8 ..	Trompete	8
Diapason	8 ..	Prinzipal	8
Tibia Clausa	8 ..	Bourdon	8
Clarinet	8 ..	Krummhorn	8
*Violin	8 ..	Gamba	8
Violin Celeste	8		
Quintadena	8 ..	Quintaten	8
Lieblich Flute	8 ..	Klein Gedackt	8
Vox Humana	8 ..	Schalmei	8
Tibia	4 ..	Octave	4
Viole	4 ..	Super Octave	2
Viole Celeste	4		
Lieblich Flute	4 ..	Spitzflöte	4
Piccolo	2 ..	Mixture IV	
Solo to Accomp.			
Piano	8		
Chrysoglott			
Harp			
Snare Drum			
Snare Drum Roll			
Tom Tom			
Tambourine			
Wood Block			
High Hat			
Cymbal			

\*ADC 4600 only

GREAT (Solo on ADC 3600)

Theatre Voicing		Second Voicing	
Tuba	16	.. Bombarde	16
Diapason	16	.. Gemshorn	16
Tibia Clausa	16	.. Quintaten	16
Violone	16	.. Contra Viole	16
Tuba Horn	8	.. Trompette	8
Diapason	8		
Tibia Clausa	8		
Orchestral Oboe	8	.. Hautbois	8
*Violin	8	.. Salicional	8
Violin Celeste	8		
Vox Humana	8		
Octave	4		
Tibia	4	.. Koppelflöte	4
Viole	4		
Twelfth	2-2/3	.. Quinte	2-2/3
Piccolo	2		
Tierce	1-3/5		
Fife	1	.. Mixture IV	
Piano	8		
Xylophone			
Glockenspiel			
Chimes			
Solo to Great			

\*ADC 4600 Only

A few suggested registrations for classical playing (2nd Voicing Stoptab(s) On):

Accompaniment

1. Diapason 8'; Lieblich Flute 8'
2. Diapason 8'; Lieblich Flute 8', Tibia 4' (Octave 4)
3. Diapason 8'; Lieblich Flute 8', Tibia 4' (Octave 4), Viole 4' (Super Oct. 2)
4. Diapason 8'; Lieblich Flute 8', Tibia 4' (Octave 4), Viole 4' (Super Oct. 2), Lieblich Flute 4', Piccolo 2' (Mixture IV)

Great (Solo on ADC 3600)

1. Diapason 8'
2. Diapason 8', Octave 4'
3. Diapason 8', Octave 4', Piccolo 2'
4. Diapason 8', Octave 4', Twelfth 2-2/3' (Quinte 2-2/3'), Piccolo 2', Fife 1' (Mixture IV)
5. Tuba 16' (Bombarde 16'), Tuba Horn 8' (Trompette 8'), Diapason 8', Octave 4', Twelfth 2-2/3' (Quinte 2-2/3'); Piccolo 2', Fife 1' (Mixture IV)

NOTE: REMEMBER! These combinations are to be used with the 2nd Voicing Tab(s) ON. Do not use Tremulants with these combinations. On any of the above combinations, it is best to play both hands on one manual. Remember to register a suitable pedal combination.

For those interested in knowing more about classical type registrations, we suggest you obtain, through your Allen representative, an owner's manual for Allen church-type instruments. We also 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.

### 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 most 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.

### HINTS FOR REGISTRATION

You can assure satisfying results by observing the following "DO'S":

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 suggested registrations at least once to see if you like them or can improve upon them.

### SUGGESTED REGISTRATIONS

On the following pages are Registration Charts for the ADC 3600 and the ADC 4600. Obviously, these are only a few of the many hundreds of combinations possible and should be used merely as a place to start.

NOTE: 1) The Pedal stops set with the Accompaniment divisional pistons. When setting the Accompaniment pistons (1-6 Accompaniment-Divisionals), be sure to select your Pedal registrations, too.

2) The Solo Tremulant (ADC 4600 only) sets with the Solo divisional pistons.

3) The Traps (Drums, Cymbals, etc.) have their own division - two pistons labelled T1 and T2.

		GENERAL										DIVISIONAL					
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6
<b>PEDAL</b>																	
Tuba	16									X	X						X
Diaphone	16						X	X	X	X	X					X	X
Tibia Clausa	16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Post Horn	8										X						
Tuba Horn	8						X		X	X	X						X
Diapason	8						X	X	X	X	X					X	X
Tibia Clausa	8					X	X	X	X	X	X				X	X	X
Quintadena	8		X	X	X		X	X	X	X	X			X	X	X	X
Piano	8									X	X						X
Accomp. to Pedal																	
Bass Drum																	
Cymbal																	
<b>ACCOMPANIMENT</b>																	
Tuba Horn	8									X	X						X
Diapason	8				X	X	X	X	X	X	X			X	X	X	X
Tibia Clausa	8						X	X	X	X	X					X	X
Clarinet	8																X
Violin Cel. II	8						X	X	X	X	X				X	X	X
Quintadena	8		X	X			X	X	X	X	X	X	X		X	X	X
Lieblich Flute	8		X	X	X		X		X	X	X		X	X	X	X	X
Vox Humana	8						X	X	X	X	X					X	X
Tibia (Octave)	4																
Viole (Super Oct. 2)	4										X						X
Viole Celeste	4																X
Lieblich Flute	4										X						X
Piccolo (Mixture IV)	2																
Piano	8									X	X						X
Chrysoglott		X	X	X	X		X	X	X			X	X	X	X		
Harp																	
Snare Drum																	
Tom Tom																	
Tambourine																	
Wood Block																	
Cymbal																	

		GENERAL										DIVISIONAL					
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6
<b>SOLO</b>																	
Post Horn	16									X					X	X	
Tuba	16					X		X	X	X						X	
Diapason	16					X	X	X	X	X							
Tibia Clausa	16			X		X	X	X	X	X			X			X	
Saxophone	16	X		X		X	X	X	X	X			X			X	
Violone	16	X		X		X	X	X	X	X							
Tuba Horn	8		X		X				X	X		X					
Diapason	8		X		X		X	X	X	X		X					
Tibia Clausa	8			X	X		X	X	X	X	X	X	X		X	X	
Orch. Oboe	8				X	X							X				
Violin Cel. II	8	X				X	X	X	X	X							
Vox Humana	8	X		X	X		X	X	X	X	X	X	X	X			
Tibia Quint	5-1/3															X	
Octave	4					X		X	X	X							
Tibia	4	X	X	X	X	X	X	X	X	X	X	X	X	X			
Viola	4	X				X		X	X	X							
Twelfth	2-2/3				X								X				
Piccolo	2				X		X		X	X							
Tierce	1-3/5				X												
Fife (Mixt IV)	1				X					X							
Piano (Alt Voice)	8																
Xylophone																X	
Glockenspiel						X								X			
Chimes																	
<b>GENERALS</b>																	
Main Trem		X	X	X	X		X	X	X	X	X						
Tibia Trem		X	X	X	X	X	X	X	X	X	X						
Celeste Tuning		X	X	X	X	X	X	X	X	X	X						
2nd Voicing S/A																	

		GENERAL										DIVISIONAL					
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6
<b>PEDAL</b>																	
Tuba	16									X	X					X	
Diaphone	16						X	X	X	X	X					X	
Tibia Clausa	16	X	X	X	X	X	X	X	X	X	X		X	X	X	X	
Violone	16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Post Horn	8										X						
Tuba Horn	8						X		X	X	X					X	
Diapason	8						X	X	X	X	X					X	
Tibia Clausa	8					X	X	X	X	X	X					X	
Clarinet	8			X	X		X	X	X	X	X		X	X	X	X	
Cellos II	8						X	X	X	X	X					X	
Quintadena	8					X	X	X	X	X	X			X	X	X	
Accomp. to Pedal																	
Great to Pedal																	
Piano									X	X						X	
Bass Drum																	
Cymbal																	
<b>ACCOMPANIMENT</b>																	
Tuba Horn	8									X	X						X
Diapason	8				X	X	X	X	X	X	X		X	X	X	X	
Tibia Clausa	8						X	X	X	X	X					X	
Clarinet	8																
Violin	8						X	X	X	X	X			X	X	X	
Violin Celeste	8						X	X	X	X	X			X	X	X	
Quintadena	8		X	X			X	X	X	X	X	X	X	X	X	X	
Lieblich Flute	8		X	X	X		X		X	X	X		X	X	X	X	
Vox Humana	8						X	X	X	X	X					X	
Tibia (Octave)	4																
Viole (Super Oct. 2)	4										X						
Viole Celeste	4																
Lieblich Flute	4									X	X						X
Piccolo (Mixt. IV)	2																
Solo to Accomp.																	
Piano									X	X							X
Chrysoglott		X	X	X	X		X	X	X				X	X	X	X	
Harp																	
Snare Drum																	
Snare Drum Roll																	
Tom Tom																	
Tambourine																	
Wood Block																	
High Hat																	
Cymbal																	
<b>GENERALS</b>																	
Celeste Tuning		X	X	X	X			X	X	X	X						
Great 2nd Voicing																	
Accomp. 2nd Voicing																	



		GENERAL										DIVISIONAL					
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6
<b>GREAT</b>																	
Tuba	16					X		X	X	X							
Diapason	16					X	X	X	X	X							X
Tibia Clausa	16			X		X	X	X	X	X				X	X	X	
Violone	16	X		X		X	X	X	X	X				X	X	X	
Tuba Horn	8		X		X	X			X	X			X				
Diapason	8		X		X	X	X	X	X	X			X				X
Tibia Clausa	8			X	X	X	X	X	X	X	X	X	X		X	X	X
Orchestral Oboe	8				X	X								X			
Violin	8	X				X	X	X	X	X					X	X	
Violin Celeste	8	X				X	X	X	X	X					X	X	
Vox Humana	8	X		X	X	X	X	X	X	X	X	X	X		X	X	
Octave	4							X	X	X							
Tibia	4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Viola	4					X		X	X	X							
Twelfth	2-2/3				X									X			
Piccolo	2				X		X		X	X	X		X				X
Tierce	1-3/5				X												
Fife (Mixt. IV)	1				X						X						
Piano	8																
Xylophone																	
Glockenspiel						X											
Chimes																	
Solo to Great		X		X	X					X	X						
<b>SOLO</b>																	
Post Horn	16					X			X		X				X	X	
Trumpet	16								X	X	X						X
Tibia Clausa	16																X
Saxophone	16	X		X					X	X	X						X
Kinura	16								X							X	X
Trumpet	8		X		X					X			X				
Tibia Clausa	8					X	X		X			X		X		X	X
Krumet	8				X												
Clarinet	8				X												
Tibia Quint	5-1/3													X			
Tibia	4		X							X	X	X	X				
Piccolo	2				X		X										
Piano	8																
Chrysoglott																	
Harp																	
Xylophone									X							X	
Glockenspiel						X	X							X			
<b>TREMULANTS</b>																	
Main		X		X	X	X	X	X	X	X							
Solo		X		X	X	X			X		X	X	X				
Tibia		X		X	X	X	X	X	X	X							

### ALTERABLE VOICE (Optional)

The Alterable Voice stop tab constitutes a totally new development in organ design, permitting the organist to add stops or adjust specifications to suit a variety of musical situations. For example, a bright Posthorn could be programmed, or a classic flute or reed voice especially suited for a certain piece can be added. Any number of "percussion" type voices, including chimes, music box, harp, etc., can be used as desired.

The ADC 4600 and ADC 3600 may be ordered with one Alterable Voice in lieu of the Piano stops. One Alterable Voice would be located on the Solo division. To program the Alterable stop, simply put down the stop tab 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.

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

In order to couple Alterable Voices to other keyboards, it is necessary to use the Alterable Couplers. These couplers function like any others but affect only the Alterable Voice. The Alterable Voice will not couple with the rest of the Solo if the Solo is coupled to another division unless the Alterable coupler is also drawn.

Alterable Voice tone cards 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 Voice one of the most interesting developments in the history of organ playing. The unprecedented flexibility it offers 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 Alterable Percussion Tab. This tab will add the "attack and decay" appropriate to sounds of this type. A percussion length knob on the right side of 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.

All bell effects can be played on all 61 notes. However, some bells, such as the chimes and carillon, 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 THE TRANSPOSER KNOB IS MOVED FROM THE "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.

## ARTE - ALLEN RHYTHM TRAPS EFFECTS UNIT

The ADC Theatre Organs are equipped with the Allen Rhythm Traps Effects, a rhythm and special effects unit. It is located in a drawer to the left side of the console under the lower keyboard.

Inside this drawer are four rows of white buttons. When a button is depressed, the small amber light on the button will go on.

The top row of buttons activates the "effects" part of the unit. The effects are labelled: they include a bass drum, cymbal, snare drum, tom tom, wood block, high hat, and two "special effects." Special Effect 1 is a police whistle, while Special Effect 2 is a siren. When the appropriate button is pressed, the effect will occur one time - the effects are not continuous as are the rhythms.

The second and third rows from the top of the unit are the buttons for the various rhythms, while the fourth row is the controls. Each of the rhythm buttons is actually used to play two rhythms, an "A" rhythm and a "B" rhythm listed above the button. For example, in the second row of buttons, the first one to the left will activate both the Samba, the "A" rhythm, and the Mambo, the "B" rhythm. Therefore, although there are 16 rhythm buttons, there are actually 32 rhythms available.

In order to get the desired "A" rhythm, it is necessary only to press the button under the desired name and the "Start/Stop" button in the bottom row. However, if the "B" rhythm is desired, the rhythm button, the "Start/Stop" button, and the "B" Rhythms" button must be depressed. The "B Rhythms" button is located in the bottom row, the first button on the left.

The second and third buttons from the left on the bottom row control the volume of the unit. By pressing and holding the "Volume Down" button, the rhythm pattern will be made softer, while holding the "Volume Up" button will increase the volume. Likewise, "Tempo Down" will make the rhythm pattern play slower, while "Tempo Up" will increase the tempo.

There are three different ways to start the rhythm pattern. The most common way is by using the "Start/Stop" button - press it once to start the rhythm, and again to stop it. The Solo Intro is a second alternative. When this button is pressed, the unit will play a two measure introduction appropriate to the selected rhythm, then go right into the rhythm pattern.

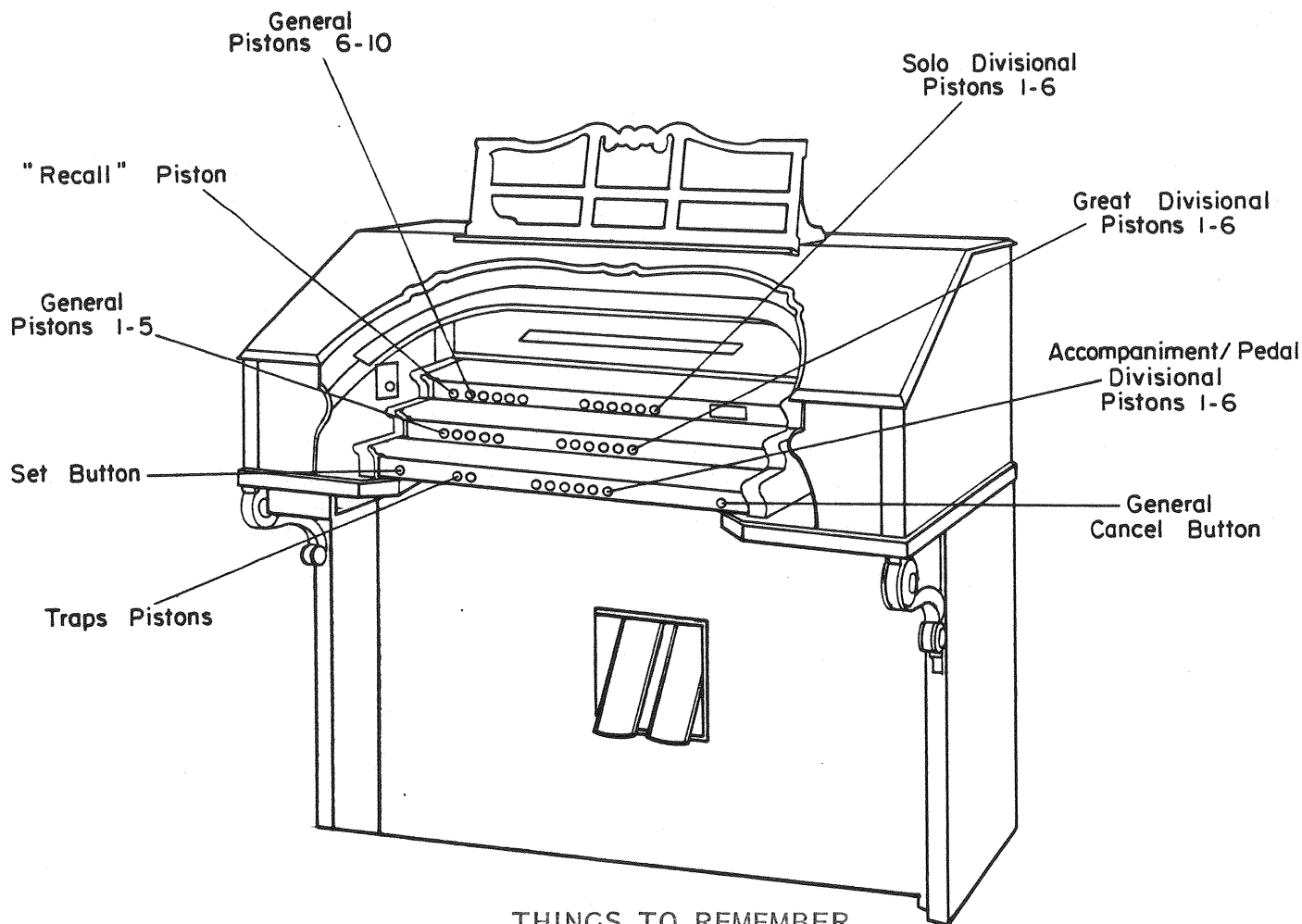
The third method for starting the rhythm is by using the Pedal Start. By depressing this button, the rhythm unit will not be activated until the first pedal is played. This is useful when playing a piece with an introduction during which no rhythm is desired. The organist can then play only on the manuals until it is time for the rhythm, then bring in the pedals, and the rhythm will start as well. NOTE: If the organist stops playing pedals at some point during the piece, the rhythm will only last for one more measure, then it will stop.

On the right side of the ARTE is a digital numerical readout. When a rhythm is not being played, this readout will show a number from 18 to 305. This number corresponds to a metronome, and indicates to the player the speed in beats per minute at which the rhythm will play. This is a very useful feature, since the organist can decide on the best tempo for a piece, write this number in the music, then set the rhythm unit quickly and accurately each time before playing. It is also useful in matching the exact tempo desired by a composer when the metronome marking is listed in the music.

Once the rhythm unit is activated, the readout will show two single-digit numbers. The number on the left tells which measure in the pattern the rhythm unit is playing. Each rhythm pattern is either a one (i.e. the Beguine), two (i.e. the Waltz), four (i.e. the Bossa Nova), or eight (i.e. Rock 1) measure repetitive pattern. If a rhythm that has only a one measure pattern has been selected, this number will always be one. However, if a two, four, or eight measure pattern is selected, the number will change to indicate which measure the pattern is on. The number on the right tells which beat of the measure is playing. For example, in a Waltz the number on the right will count up to three, while in a 4/4 March it will count to four. This enables the player to more easily find the downbeat or first beat of the measure in order to start with the rhythm.

## CAPTURE COMBINATION ACTION

Your Allen Organ is equipped with Allen's Four Memory Capture Action offering the ultimate in registration control and convenience. As many as 10 general registrations and 6 registrations on each division can be retained and summoned at the touch of a button. The keyswitch located on the right side of the console will allow you to select one of four memories. In other words, you have four sets of 10 General pistons and 6 pistons for each Manual Division (A, B, C & D).



### THINGS TO REMEMBER

General pistons affect all stops.

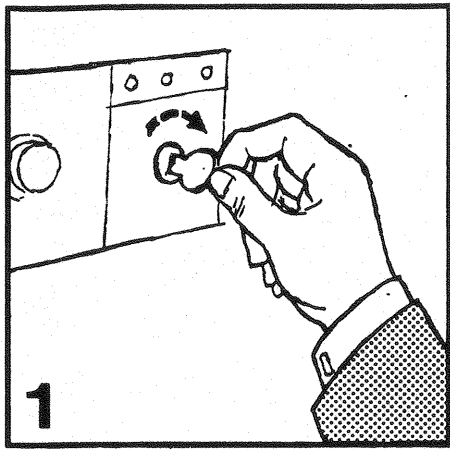
Solo and Great pistons only affect stops in their division. The Accompaniment divisional pistons control both the Accompaniment and Pedal divisions. T1 and T2 control only the traps (bass drum, cymbal, snare drum, etc.).

All pistons operate independently from each other.

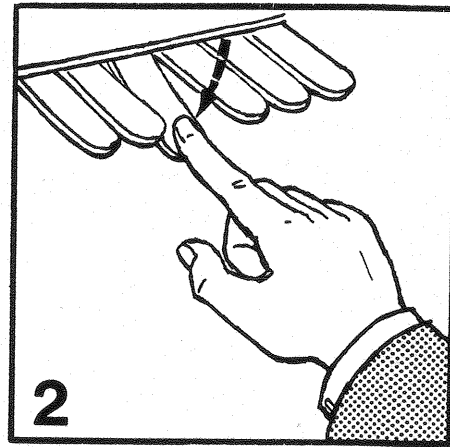
The capture action is not fully operable until approximately six seconds after the organ is turned on.

"R" or Recall Piston, when activated, will recall the last combination prior to using any General or Divisional Piston.

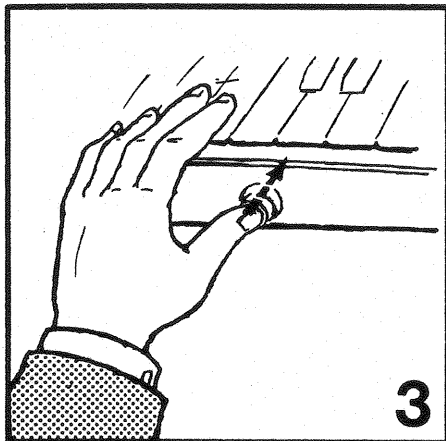
HOW TO SET A PISTON COMBINATION



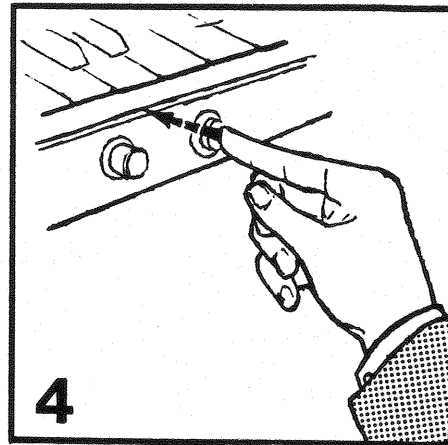
Select Memory A, B, C, or D



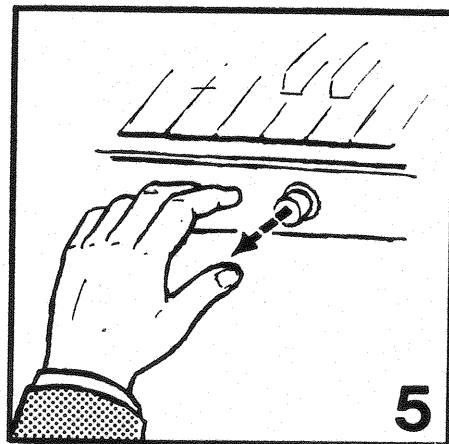
Select Registration



Press and HOLD  
Set Button



Press and Release  
Piston on which  
Registration is to  
be Retained



RELEASE Set Button

Now when you have the keyswitch in Memory A position, you may set one piston 10 (example); but, when you change to Memory B, C or D, you can have entirely separate piston 10's. This is true with all pistons.



## MIDI

Your Allen Digital Computer Theatre Organ is equipped with MIDI. MIDI is the acronym for Musical Instrument Digital Interface. This device lets your Allen Organ communicate its key/note information to other keyboards, sequencers, or computers. In its simplest form, you may want to play a synthesizer from the keyboard of the Allen. The synthesizer must, of course, be equipped with a MIDI interface. Simply plug one end of a MIDI cable (5-pin din connectors are the MIDI standard) into the MIDI OUT connector of your Allen Organ and the other end of the cable to the MIDI IN connector of the synthesizer. Note: The synthesizer must have its own audio (amplifier and speaker).

Now, you're ready to play. Turn on the synthesizer and your Allen Organ. Depress the stop or stops labelled MIDI. MOST of the newer synthesizers will "wake up" in what is called OMNI mode. OMNI mode means that any data coming into its MIDI port will be played. Sometimes the synthesizer will "wake up" on CHANNEL 1. This means the synthesizer will only respond to information on CHANNEL 1. This does not refer to an audio channel, but it would be more equivalent to a channel on a television set. The ADC 4600 "broadcasts" to MIDI on CHANNELS 1, 2, 3, and 4. These are associated with keyboards: Solo = 1, Great = 2, Accompaniment = 3, and Pedal = 4. If your synthesizer only receives on CHANNEL 1, then the Solo manual will be the only one capable of broadcasting to your synthesizer. Since the ADC 3600 has no third manual, its CHANNELS are: Solo = 2, Accompaniment = 3, and Pedal = 4.

Most synthesizers have the capability of changing their CHANNEL configuration; read the owner's manual for your synthesizer to find out how to do this. The easiest way to use your synthesizer is to leave it in OMNI mode. This will allow you to play the synthesizer on any keyboard.

If you have more than one synthesizer, then the CHANNEL configuration becomes very useful. For example: Let's assume you own four synthesizers. Set each of the synthesizers to a different CHANNEL (remember, see the synthesizer owner's manual to find out how to do this). Synthesizer A = CHANNEL 1; Synthesizer B = CHANNEL 2; Synthesizer C = CHANNEL 3; and Synthesizer D = CHANNEL 4. Now (on the ADC 4600), Synthesizer A will play on the Solo, Synthesizer B will play on the Great, Synthesizer C will play on the Accompaniment, and Synthesizer D will play on the Pedal (the stoptab(s) for MIDI must be on for MIDI signals to be sent to the synthesizers)!

Sequencers are also an important MIDI tool. These allow you to "record" your organ keys -- that is, they record the fact that you depress and release keys on your keyboard. You can then play the "recording" back, but you can alter the registration and expression to suit your needs on playback. A sequencer must be hooked up in a similar manner to the synthesizer. This time, however, we need two MIDI cables. One connects from ALLEN MIDI OUT to SEQUENCER MIDI IN; while the other cable connects from ALLEN MIDI IN to SEQUENCER MIDI OUT; this allows data to flow either direction. One thing to remember in this hook-up, the Allen always receives MIDI data (regardless of how the MIDI stop(s) is(are) set); however, when you record into the sequencer, the MIDI stop(s) must be on. This is where the CHANNEL information becomes very important. When you record, the Allen is sending information on CHANNELS 1, 2, 3, and 4; obviously, we hope that it comes back on those same channels so that the organ will play properly when the data comes back. Some sequencers DO NOT do this!!! Check the sequencer carefully before you buy!

The hook-up to computers is the same as the sequencer, but the computer must be equipped with a MIDI interface. Computer programs are available to compose and print music, record and edit MIDI data (take out those wrong notes!), and a variety of other tasks.

### TERMS

MIDI: Acronym for Musical Instrument Digital Interface

CHANNEL: Somewhat like a television channel; different information can be sent on one cable to different CHANNELS.

<u>ADC 4600</u>	SOLO = 1	<u>ADC 3600</u>	SOLO = 2
	GREAT = 2		ACCOMP = 3
	ACCOMP = 3		PEDAL = 4
	PEDAL = 4		

OMNI MODE: Device will respond to any data sent to its MIDI port.

SEQUENCER: A recording device that records the digital data from a MIDI port.

## MIDI PROBLEM CHECK LIST

### MIDI TOTALLY INOPERATIVE

1. External unit is not turned on.
2. External unit is not connected to organ correctly.
3. External unit is not communicating on the same channel(s) as the organ.

CHECK YOUR OWNERS MANUAL FOR EXTERNAL UNIT!

NOTE: If none of the above corrects the problem, try another external unit, if available.

### NOTES STAY ON

Usually when using a sequencer. Do not disconnect or leave computer program while sequencer is playing. MIDI note information is NOT like a closed switch, but only records the change from notes off to on and on to off. If notes are playing when you disconnect a sequencer, there is no note off command to stop the playing of a note!

### PLAYBACK -- ALL NOTES PLAY ON ONE KEYBOARD

Again, using a sequencer, this is probably caused by the sequencer not recording or playing back on the proper channels. See the owner's manual for your sequencer and make sure it records AND plays back on all channels. Some units force all MIDI data to one channel.

### DELAY ON KEYING

Usually caused by connecting too many external units in series. If you have this problem, you should purchase a MIDI THROUGH BOX.

## INSTALLATION, VOICING AND CARE OF THE ORGAN

### INSTALLATION

Wherever your ADC theatre 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.

Where circuit breakers may be shut off for long periods of time, 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 ADC Theatre 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 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.

Bass frequency projection is strongly affected by console and/or tone cabinet location. The location of the console or tone cabinets should not be changed once the installation has been completed.

## 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!