

Quantum™
2/3/4/5 Manual Series Theatre Organs

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ALLEN ORGAN COMPANY

For more than sixty years--practically the entire history of electronic organs-- Allen Organ Company has built the finest organs that technology would allow.

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

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

Only a radical technological breakthrough could improve upon the performance of Allen's oscillator organs. Such a breakthrough came in conjunction with the United States Space Program in the form of highly advanced digital microcircuits. In 1971, Allen produced and sold the world's first musical instrument utilizing digitally sampled voices!

Your organ is significantly advanced since the first generation Allen digital instrument. Organs with Quantum™ technology are the product of years of advancements in digital sound and control techniques by Allen Organ Company. This system represents the apex of digital technology applied to exacting musical tasks. The result is a musical instrument of remarkably advanced tone quality and performance.

Congratulations on the purchase of your new Allen Organ! You have acquired the most advanced electronic organ ever built, one that harnesses a sophisticated custom computer system to create and control beautiful organ sound. Familiarize yourself with the instrument by reading through this booklet.

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I. ORGAN STOPS

PITCH FOOTAGE

The number appearing on each stop, along with its name, indicates the “pitch” or “register” of the particular stop. Organs can produce notes of different pitches from a single playing key. When this sound corresponds to the actual pitch of the played key, the stop is referred to as being of 8’ (eight foot) pitch; therefore, when an 8’ stop is selected and Middle C is depressed, the pitch heard is Middle C. If the sounds are an octave higher, it is called 4’ or octave pitch. If two octaves higher, it is called 2’ pitch. A stop sounding three octaves higher is at a 1’ pitch. Similarly, a 16’ stop sounds an octave lower and a 32’ stop two octaves lower.

Stops of 16’, 8’, 4’, 2’ and 1’ pitch all have octave relationships, that is, these whole numbered stops all sound at octaves of whatever key is depressed. Non-octave pitches are also used in organs. Their footage numbers contain a fraction and they are referred to as *Mutations*. Among these are the $2\text{-}2/3$ ’ *Nasard*, $1\text{-}3/5$ ’ *Tierce*, $1\text{-}1/3$ ’ *Quintflöte* and $2\text{-}2/3$ ’ *Twelfth*. Because they introduce unusual pitch relationships with respect to the 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

1. Flues

Organ tones divide into two main categories: *flues* and *reeds*. In pipe organs, 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, flute and string tones. Compound stops and hybrid stops are variations within these three stop families.

The term “imitative” means that the organ stop imitates the sound of a corresponding orchestral instrument; for example, an imitative 8’ Viola stop sounds like an orchestral viola.

2. Reeds

In *reed* pipes, a metal tongue vibrates against an open flattened side of a metal tube called a shallot. The characteristic sounds of different reeds are produced through resonators of different shapes. The family of reeds subdivides as follows:

Your Allen Organ provides authentic, digitally sampled voices. They are protected by copyrights owned by the Allen Organ Company and are stored in memory devices, each having affixed to it a copyright notice; e.g., © 2003 AOCO, © 2001 AOCO, etc., pursuant to Title 17 of the United States Code, Section 101 et seq.

UNIFICATION

In theatre organs, and occasionally in classical organs, the system of “unification” was used. This allowed the same “rank” of pipes to be used at multiple pitches and on several manuals. Unification was the system theatre organs used to have large numbers of stops on the console with relatively few ranks of pipes as compared to a classical organ. For example, a Tibia Clausa rank may be drawn at 16’, 8’, $5\text{ }1/3$ ’, 4’, $2\text{ }2/3$ ’, 2’, and $1\text{ }3/5$ ’ on a given manual and then still have some or all of those pitches duplicated on other manuals. In most classical organs, one rank would have one stop key on the console; however, in a theatre organ one rank could have many stop keys controlling it. Allen Quantum™ Theatre Organs are unified in the authentic theatre organ style.

II. RANKS

Note: *This Section includes a general listing of Ranks found on Theatre organs. Not all of these Ranks are included in every Allen Theatre Organ model.*

Tuba Mirabilis	Very powerful Tuba sound. 16' stop usually called Bombarde.
English Post Horn	Bright, brassy reed stop. Sometimes named "Post Horn" or "English Horn" on a theatre organ.
Brass Trumpet	Useful as a smooth solo voice or chorus reed.
Tuba Horn	A mellow solo reed that is also useful in providing ensemble development without being overpowering. Notice how the bottom octave of the 16' Ophicleide becomes more powerful as you approach bottom 'C.'
'D' Trumpet	Very imitative trumpet stop found on the style 'D' Wurlitzer theatre pipe organ.
Open Diapason	Foundation stop that adds fullness to the ensemble. The 16' stop is usually called "Diaphone" because the bottom octave of the 16' is a metal Diaphone sound. This lends power and a good pitch sense to the pedal.
Horn Diapason	Diapason sound that tends to have a slight string quality. Nice accompaniment voice.
Horn Diapason Celeste	Matching celeste rank for the Horn Diapason.
Tibia Clausa	The "foundation" rank of the theatre organ. This rank, coupled with its distinctive tremulant, is one of the main ingredients of a theatre organ.
Solo Tibia Clausa	A larger, more harmonic version of the above. In the GW-4Q, there are two Solo Tibias. George Wright had three tibias in his Hollywood Philharmonic Recording organ: Wurlitzer Tibias in the solo and main with a Robert Morton Tibia in the center. The Robert Morton Tibia is Solo Tibia #2 and comes out of the percussion speakers (center).
Clarinet	Imitative solo reed that can also be used as an ensemble stop.
Saxophone	More developed version of the Vox Humana that works well when used in combination with Tibia stops.
Solo Violin	Imitative string in the solo chamber. These were special strings to George Wright. They were very early Wurlitzer, and very bright.
Solo Violin Celeste	Matching celeste for the Solo Violin.
Salicional	A milder string in the main chamber.
Salicional Celeste	Matching celeste for the Salicional.

Gamba	An E. M. Skinner Gamba.
Gamba Celeste	Matching Celeste.
Violins III	Three string tones slightly detuned from each other, that create a shimmering quality in the sound.
Orchestral Oboe	Solo reed with a pungent nasal timbre somewhat imitative of its orchestral counterpart.
Kinura	Bright, buzzy solo reed that can be used for comic effects.
Krumet	Another “buzzy” reed many times used as an alternative to the Orchestral Oboe.
Musette	Yet another variation of the “bee-in-the-bottle” buzzy reed sound.
Oboe Horn	Reed stop with tone quality sounding with both the oboe and horn qualities.
Quintadena	Stopped metal flute tone characterized by an extremely strong third harmonic that sounds an octave and a fifth above the note played. Very good accompaniment stop when used with the Oboe Horn, Concert Flute, and/or Dolces.
Dolce	Soft “hybrid” stop – part string and part diapason sounding. Very effective for the softest combinations. (E. M. Skinner)
Dolce Celeste	The matching celeste for the Dolce.
Vox Humana	Voice originally intended to imitate the human singing voice but really sounds more like a goat! Used with the Tibia Clausa for the traditional theatre organ sound.
Solo Vox Humana	The Solo Vox Humana is a “brighter” more harmonic version.
Concert Flute	Typical wood open flute of the 1920’s.
Lieblich Flute	This particular Lieblich Flute is the redwood (Murray Harris) Lieblich Flute from the Hollywood Philharmonic Organ.
Pedal Tibia Clausa Pizz.	When a pedal is held down, this tibia “plucks” the pedal notes. Used to emphasize the 8’ pedal line in jazzy numbers.
Pedal Violone 32’-16’	Independent pedal rank of rich string tone.
Traps and Percussions	are imitative of their orchestral counterparts.

COUPLERS

Couplers couple one manual to another, or in other cases (depending on model) couplers may also couple within a manual at octave related pitches. This enlarges the use of the organ.

Note: This Section includes a general listing of controls found on Theatre organs. Not all of these controls are included in every Allen Theatre Organ model.

Acc. Traps to Pedal	Couples the Accompaniment traps to Pedal.
Acc. Traps 2 nd Touch	Moves the Accompaniment traps from Accompaniment keying to Accompaniment 2 nd Touch keying.
Acc. Violins > Dolces	Changes the Accompaniment Violins to Dolces.
Chrysoglott > Wood Harp	Changes the Chrysoglott into a wood harp.
Chrysoglott > Vibraharp	Changes the Chrysoglott into a metal bar harp with a stronger strike tone.
Wood Harp Re-it	Adds Reiteration to all Wood Harp stops.
Percussion Unexpressed	Takes most percussion off expression.
Solo String(s) Off	Turns off solo chamber rank(s) of the multi-rank string celeste stops.
Melody Coupler	When used with an appropriate solo stop, such as a Solo reed, this feature will automatically key the highest note played on the Great keyboard allowing accentuation of the melody.
Master Expression	Couples all expressions to Solo expression.

There are also a select set of “specialized” control pistons found on many of the signature model Allen Theatre models which control various different functions. Some controls can switch the actual sound samples to a different sound sample, such as the control labeled “Morton Tibia On”. Activating this piston switches the standard Tibia sample to a Robert Morton type Tibia sample on the specific manual the piston is located. These “specialized” pistons are labeled and are self-explanatory.

MIDI

MIDI couplers are available on all manuals. These couplers open a MIDI channel to the specific division.

<u>DIVISION</u>	<u>MIDI Channel</u>
Great	1
Accompaniment	2
Pedal	3
Bombarde (STR-4), Orchestral (TO-5Q), Solo (Q315T, T321Q-SP, LL-324Q-SP)	4
Accompaniment 2 nd Touch	5
Solo (STR-4, TO-5Q only)	6
Great 2 nd Touch	7
General Pistons	8
Trems (STR-4), Ancillary (TO-5Q only)	9
Traps Pistons	10
Bombarde (TO-5Q only)	11

TREMULANTS

Your new Quantum™ Theatre organ has the most advanced authentic sounding tremulant system in the world today. In addition to digitally sampling the individual ranks without tremulant, Allen also sampled individual ranks with tremulants on. When more than one rank is on the same tremulant system in a pipe organ the tremulant sound that results from the playing of the pipes is not identical from rank to rank. Each rank “reacts” to the varying supply of wind (tremulant) differently. With this in mind, Allen sampled each rank of the Quantum™ Theatre organs with tremulant “on” to reproduce the authentic tremulant sound you hear. As a result, even stops that are “ganged” together on one tremulant stop or tremulant motor will have a different tremulant sound. This Sampled Waveform Tremulant™ technology contributes to the huge ensemble sound of these Quantum™ Theatre Organs.

III. EXPRESSION & CRESCENDO SHOES

The organ’s control pedals (called “shoes”) control expression and crescendo.

- ❑ The left-most shoe expresses the Percussion Division (*available on the STR-4, TO-5Q*).
- ❑ The next shoe expresses the Main. (*left-most shoe on models other than STR-4, TO-5Q*)
- ❑ The next shoe expresses the Solo.
- ❑ The right-most shoe is the Crescendo shoe. It is a master Crescendo for all divisions. It gradually adds stops as it is opened. Indiscriminate use of the Crescendo, in lieu of careful registration, should be avoided.

The Crescendo B thumb piston is associated with the Crescendo shoe. Crescendo B accesses a second set of Crescendo registrations that can be different from the standard Crescendo registrations. See the Console Controller™ Guide later in this Manual for more information relating to changing the registration settings of this secondary Crescendo.

IV. TUTTI I and TUTTI II (*not available on all models*)

The Tutti I and II pistons are sets for full organ registrations. Tutti II has a larger, louder registration, than Tutti I. The Tuttis are turned on and off by pressing manual thumb pistons TUTTI I or TUTTI II. The pistons are “toggled” meaning that pressing them a second time reverses the ON or OFF setting of the corresponding Tutti. Only one Tutti can be turned ON at a time. Pressing the other Tutti piston that is not turned ON will turn OFF the Tutti that was ON and turn ON the Tutti that was OFF. The *Cancel* piston button will turn OFF the Tuttis.

Red signal lights illuminate when Tutti I or II is in operation. A second set of Tuttis can be programmed by the organist. Like the Crescendo, indiscriminate use of Tuttis should be avoided. See the Console Controller™ Guide later in this manual for more information relating to changing secondary Tutti settings.

V. SETTING PISTONS

SETTING GENERAL PISTONS

Your Allen Organ's capture system lets you set stop registration combinations in each of its memories. Each Allen Organ model has different piston layouts to accommodate organ size. The maximum number of available capture memories is 16. *Note: This number varies between the various models.*

To set a capture combination...

- ❑ First, select and depress the stops you wish to save.
- ❑ Press and hold the SET Piston.
- ❑ Press and release the desired GENERAL piston.
- ❑ Finally, release the SET Piston.

Remember, the General pistons are customarily set from soft to loud using graduated stop combinations. The pistons you have set "remember" the registration combinations that you have assigned to each of them. Each time a General piston is pressed, the registration assigned to it is recalled. You can change stop registration combinations at any time by repeating the above procedures. For more advanced information on setting capture combinations in multiple memories see the Console Controller™ Guide later in this manual.

SETTING DIVISIONAL PISTONS

If your Allen Organ has Divisional pistons in addition to General pistons. The piston setting process in each case is the same as SETTING GENERAL PISTONS described above. However, only divisionally related stops can be set with the Divisional pistons.

The MIDI stops can be set on either Divisional or General pistons. The intermanual couplers can only be set on General Pistons. These rules can be modified if you wish to reconfigure the pistons. See the Console Controller™ Guide later in this Manual for more information relating to reconfiguring pistons.

SETTING TOE PISTONS (STUDS)

Stop registration combinations may be set and drawn by toe studs, as well as by pistons. Toe Studs, located on each side of the Expression and Crescendo shoes, are set in the same manner as thumb pistons. The Toe Studs on the left are duplicates of General Pistons. The Toe Studs on the right are Pedal Divisional Toe Studs.

To set a Pedal Divisional Toe Stud...

- ❑ Select the desired Pedal stops.
- ❑ Hold the SET button, and momentarily press the desired Pedal Toe Stud.
- ❑ Finally, release the SET button.

When you set a General Piston, that combination is set automatically on the Toe Stud of the same number. That is, setting General Piston 3 also places its combination on General Toe Stud 3.

Note: The organ's capture system is not operable until about six seconds after the organ is turned on.

RECALL PISTON

The “R” Piston recalls the last combination set prior to using any General or Divisional piston.

SECOND TOUCH

A division or divisions of stops and couplers that sound by depressing the keys on the Accompaniment or Great manuals “all the way down” (*Only Accompaniment manual on Q315T*). This device is useful for counter-melodies or accents and can be found only on Theatre organs.

TRAPS (T1 & T2)

Some theatre organs are equipped with two pistons known as Traps (T1 & T2) and they are used to register any non-tonal percussion stop combination such as Bass Drum, Tom-Tom, and Snare Drum. These may be reconfigured to affect other stops if desired – see the Console Controller™ guide later in this manual.

SOUND EFFECT PISTONS

(T321Q-SP and larger models)

In addition to playing their respective sounds, these pistons output on MIDI Channel 10 (General MIDI Drum channel) with a particular key (trigger note).

Note: If individual stop voicing is done, these sound effects may not play until the organ is switched off and back on again.

VI. ARTISTIC REGISTRATION

(Trained organists might not need to review this section.)

Organ registrations fall into two broad categories: solo combinations and ensembles. A solo combination is one in which a melody is played on one keyboard, the accompaniment on another keyboard, and the pedal often provides a light bass line. Almost any stop or combination of stops will sound good as a solo voice. A contrasting tone quality should be chosen for the accompaniment, so that the accompaniment is softer than the solo voice. The pedal stops must provide a foundation for the sound without covering it.

Most 8’ reed stops make interesting solo voices. The addition of a 4’ Tibia or a Tibia mutation (e.g., Twelfth or Tierce) to a light reed such as the Clarinet or Orchestral Oboe colors the sound further and increases its volume slightly. Adding an 8’ Tibia to a reed will add body to the sound.

In creating registrations 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 involve groups of stops that are played together, usually, but not always, with both hands on one keyboard. They are characterized by compatibility of tone, clarity, and occasionally power. Such registrations are used in hymn singing, choir accompaniments, and much of the contrapuntal organ literature.

Ensembles are created by combining stops. Two factors to be considered are: tone quality and pitch. Ensembles begin with a few stops at 8’ pitch and expand “outward” in pitch as they build up. New pitches are usually added in preference to additional 8’ stops.

Ensembles are generally divided into three tonal groupings or “choruses”:

- The Tibia Clausa chorus is the most fully developed with representation in various divisions of the organ and at every pitch from 16’ (Tibia) through 1’ (Fife). Lighter stops can be added to the basic 8’ and 4’ Tibia combinations and then the Diapasons, Strings and Tubas can be added to fill out an ensemble registration.
- The Reed stops include those reed tones designed to be used in the ensemble buildup. Not all reed voices are ensemble tones. An Oboe, for example, is usually a solo stop. The various Trumpets, Horns, and Vox Humana’s are usually ensemble voices that 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.

The Pedal ensemble is created in much the same way as the manual ensembles, with the Pedal starting at 16’ pitch instead of 8’. 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. Many times in more rhythmic pieces you will want to have a predominantly 8’ sound in the pedal.

This short treatment barely scratches the surface of the fascinating subject of organ registration. For those interested in gaining further insight into this vital area of organ playing, we recommend the following texts:

Theatre Organ Registration:

Strony, Walter. *Theatre Organ Registration*
P. O. Box 3532, Carefree, AZ 85377-3532

Classical/General Organ Registration:

Audsley, George Ashdown. *Organ Stops and their Artistic Registration.*
Hialeah, FL: C.P.P. Belwin, 1985.

Irwin, Stevens. *Dictionary of Pipe Organ Stops*, 2nd Ed.
New York: Macmillan Books, 1983.

VII. TRANSPOSER

The organ can perform the difficult task of transposing, while allowing the organist to play in the noted key. Operation of the Transposer is controlled by the Transposer knob, found on the face of the Console Controller™. Neutral (no transposition) position for the knob is marked “●.” To shift the music to a higher key, rotate the knob counter-clockwise. The key can be raised a maximum of five half steps and can be lowered a total of seven half steps.

A RED INDICATOR LIGHT COMES ON WHENEVER THE TRANSPOSER KNOB IS MOVED FROM THE NEUTRAL (“●”) POSITION. This is to warn the organist that the instrument is not ready to play in the same key as when in the Neutral position. It is a good habit to operate the organ with the Console Controller™ drawer open (if applicable).

Why Transpose?

- ❑ Because a song's range does not always suit the vocal range of a particular singer. By adjusting the Transposer, the piece can be sung more comfortably and effectively.
- ❑ Because some instruments are non-concert pitch. A trumpet in B^b, for example, can play 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.

VIII. ACOUSTIC PORTRAIT™ SETTINGS

Acoustic Portrait™ — Quantum™ instruments are the only digital organs to bring the science of sampling to acoustics! Ordinary electronic reverb is a synthetic imitation of acoustics “applied to” the sound, not created as an integral part of it. Acoustic Portrait™ produces the real thing in exacting detail!

Acoustic Portrait™ begins with a sampling process using impulse responses that measure an actual room's acoustic properties. These measurements are then stored in the organ's computer memory. Through an advanced real-time mathematical process called convolution, the acoustics of the sampled room actually become an integral part of the organ's sound, producing a noticeably smoother, more natural result than synthetic reverb. Allen engineers have recorded the acoustics of cathedrals and other acoustically desirable buildings throughout the world. With advanced processors (DSP) and patented low-latency convolution algorithms, Acoustic Portrait™ reproduces the true acoustic response of each original room with stunning realism! Each Quantum™ organ features 10 different Acoustic Portraits™, ranging from intimate rooms to cavernous cathedrals.

The switch labeled ACOUSTIC PORTRAIT™ in the Console Controller™ must be ON to hear the selected Acoustic Portrait™. The overall Acoustic Portrait™ gain can be changed. The selected Acoustic Portrait™ gain, measured in dB (decibels), is shown in the Console Controller™ window. The range of control for each Acoustic Portrait™ is from +6dB to minus 35dB. Minus 35dB is the least amount of gain. +6dB is the maximum amount of gain.

When changing to a different Acoustic Portrait™, the new selection will automatically load in 3 seconds.

IX. ACOUSTIC DIMENSION™ *(Q215T, Q315T models only)*

Acoustic Dimension™ provides dedicated “presence projection” speakers installed on the organ console to enhance the effect of Acoustic Portrait™. These speakers include their own separate amplification system. A separate volume adjustment is included to control the amount of Acoustic Dimension. Since Acoustic Dimension operates in tandem with the Acoustic Portrait, if the Acoustic Portrait switch is in the OFF position, the Acoustic Dimension speakers will not produce any sound.

X. VOICING

Quantum Theatre Organs include several additional voicing suites in addition to a standard Allen Theatrical voicing suite. In addition to the standard Allen Theatre Suite are Morton, Wurlitzer and Barton Suites as well as a traditional Classical Suite. These specifications are comprised of pipe samples from the world's finest examples of theatre organ building. The touch of a button changes the entire Theatre organ specification to one of the additional voicing specifications. The active voice specification is selected and viewed within the Console Controller. See the Console Controller guide, later in this manual, for instructions on how to select the different voicing suites.

XI. REAL XPRESSION™

Your Allen Organ is equipped with Real Xpression™. Real Xpression™ not only changes the organ's volume, but also its response. This is the same thrilling feeling you get when you hear a pipe organ really open up. Real Xpression™ faithfully recreates how expression shutters affect a pipe organ's sound.

XII. INSTALLATION, VOICING, AND CARE OF THE ORGAN

INSTALLATION

Wherever your organ may be situated, careful installation is a prerequisite to successful results. Your Allen representative is well qualified to guide you in planning the finest possible installation. Factory assistance in planning the installation is also available and may, in fact, be sought by your Allen Organ representative.

VOICING

Your organ presents unprecedented accuracy in the scaling and voicing of each note of every stop. Should you require that these parameters be changed, your Allen Organ representative is able to help make such changes. Final adjustments in scaling and voicing involve procedures that are best left to an expert. These adjustments normally are a part of installation, and once done, should not require changes. If the organ is moved to a new location or major changes are made to the acoustical properties of the room the organ resides in, the instrument may need to be tonally finished again.

BATTERY BACKUP SYSTEM

A Lithium battery sustains the memory for the capture system on your Allen Organ. This allows capture settings and other related items to be retained in memory when the organ is switched off or unplugged. Under normal circumstances, the Lithium battery should last for several years. A built-in warning system alerts you when the battery becomes weak and needs to be replaced. You need to have the Console Controller™ drawer open before the organ is turned on. If there is a problem, the window displays:

**WARNING
REPLACE BATTERY**

This message displays for only six seconds or so after the organ is switched on; so, this is why the Console Controller™ drawer should be opened *before* turning the organ ON. Should the battery in your organ require replacement, contact your local certified Allen Organ service representative.

TIME-OF-DAY CLOCK

The main function window in the Console Controller displays a time-of-day clock as a convenience to the organist. The clock displays the current time in hours, minutes and seconds as well as the AM/PM declaration. The time-of-day clock is maintained by a separate “integrated” Lithium battery, other than the Lithium battery which maintains the capture settings, within the organ. If this battery ever fails, a warning message will be displayed in the Console Controller.



POWER FAILURE
RESETTING CLOCK

If this warning message is displayed when the organ is turned on, you will notice the time will reset to 12:00:00AM each time. Please contact your local certified Allen Organ service representative to have this corrected.

CARE OF THE ORGAN

Your Allen Organ constitutes a major advance in long-term maintenance-free operation. There is 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. The wood surfaces may be cleaned using a soft cloth dampened with lukewarm water. A mild solution of lukewarm water and dish detergent may be used to remove fingerprints, etc. Polish dry with a soft cloth. Do not use wax, sprays or oils on the finish. Satin finished surfaces will take on a semi-gloss appearance when waxed and will eventually become yellowed.

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, and then polish immediately with the dry cloth. Do not use soap or detergent on keys or stop tablets.

To polish the clear music rack, a furniture wax polish may be sprayed on a soft dry cloth and rubbed on the front of the music rack. Keep the wax off of the wood finishes. This will help keep the music rack clear.

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

XIII. SAFETY INFORMATION

USA ONLY

CAUTION

Never plug the instrument into any current source other than 110 to 120 volts, 50/60 Hertz alternating current (AC). A verified grounded outlet is essential to proper operation and protection of the instrument. Proper polarity should be checked with an AC circuit analyzer before connecting the organ.

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

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

In facilities where circuit breakers are turned off between uses (as for example, between worship services), the circuit breaker affecting the organ console AC power should have a guard installed to prevent it from accidentally being switched off.

It is important that you read and comply with all instructions and labels that might be attached to the instrument.

INTERNATIONAL ONLY

CAUTION

Do not plug the instrument into any current source other than that stated by the selling dealer. Proper polarity should be checked with an AC circuit analyzer before connecting the organ.

Do not change the cable plug or remove the ground pin (if applicable).

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

In facilities where circuit breakers are turned off between uses (as for example, between worship services), the 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 that may be attached to the instrument.

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. Should this equipment cause interference to radio communications, the user at his own expense will be required to take whatever measures may be necessary 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 organ with respect to the receiver.

Move the organ away from the receiver.

Plug the organ into a different electrical outlet, so that the organ and receiver are on different branch circuits.

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

CE mark shows compliance with the EMC Directive.

XIV. CONSOLE CONTROLLER™ GUIDE

Note: This Guide is designed to serve various Console Controller™ software versions. As a result, there may be variations in the way a particular Console Controller™ operates.

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INTRODUCTION

The Console Controller™ is an interface that controls many organ functions and a variety of MIDI functions. The Console Controller is pictured below and includes an LCD window that displays functions, one at a time, as well as two rows of buttons used to make selections. Each window function is described in this booklet.



A. BASIC OPERATION

1. Start-Up Sequence

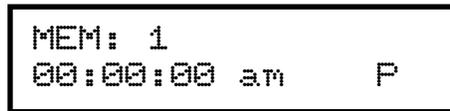
Open the Console Controller drawer before turning the organ on. Now turn on the organ's main power switch. The window in the drawer will display:

```
RENAISSANCE  
BY ALLEN
```

Next it will display:

```
VERSION X.XXX  
Please wait...
```

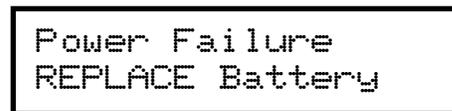
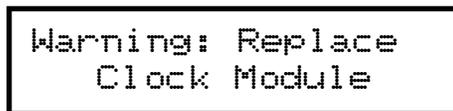
Then finally the *Main Window* function is displayed:



The symbol "U", "P", or "N" in the window's lower right corner indicates the organ's mode (See Section C-2).

WARNING: If a warning is displayed in this sequence, you should contact your Allen authorized representative immediately!

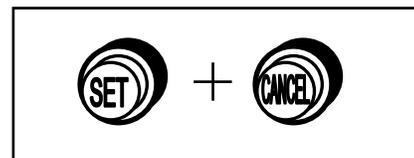
The Allen Organ includes several self-testing features. Here are examples of what **WARNING** displays might look like when viewing the Console Controller display:



2. Advancing Through the Windows

Normally, the Allen Organ will be played while in the *Main Window* function (see Section A-1). The operating software contains many settings that are user-programmable. Each setting can be programmed via the Console Controller's™ display. These settings are divided up into many window functions. There are two methods in which the user can access the Console Controller's window functions.

1) Press and hold the organ's **SET** piston. Then, while holding **SET**, press the **R** piston. Each time you press and release **R**, the display will advance to the next window function. When the last window function is reached the display will "wrap around" to the first window function. The display will only advance when using the **SET** and **R** pistons. To go back to the *Main Window* function, press and hold the organ's **SET** piston, then while holding **SET** press the **CANCEL** piston.



2) The Console Controller has three buttons labeled: **BACK**, **FORWARD**, **ENTER/EXIT**. To enter the Console Controller's window functions, first press the **ENTER/EXIT** button in the Console Controller. Pressing either the **BACK** or **FORWARD** buttons will move the window functions either forward or reverse. The last window function will roll over to the first and the first window function will roll over to the last when using these buttons. To return to the *Main Window* function press the **ENTER/EXIT** button. When re-entering the Console Controller's window functions, the Console Controller will return the user to the window function which was exited from.

3. Selecting the Capture Memories

The *Main Window* function must be displayed (*see Section A-2*). Then, locate the two buttons marked "▲" and "▼" in the Console Controller™. Press one of these buttons to move through the memories, forward or backward. The memories move sequentially forward from MEM 1 to MEM 2 to MEM 3, ...or backwards MEM 1 to MEM 16 to MEM 15, etc. as you press either the "▲" and "▼" button. **Note:** The number of available memories is dependent on the Allen Organ model you have. There may be 16 or less memories in an organ.

The memories allow you to save different registrations on each piston/toe piston. This means General Piston 1 on MEM-1 may be totally different from General Piston 1 on MEM-2, MEM-3, etc.

Note: On most Allen Organs (excluding customized organs) a factory set of registration examples is stored on each piston of the last available capture memory. You may change these registrations; however, they can then be restored to the original factory settings. Please see, **RESTORING FACTORY SETTINGS** in Section B-4, of this manual.

4. Saving Registrations Using Pistons and Toe Studs

A **registration** is any combination of stoptabs and/or drawknobs. These registrations can be stored (remembered) by the organ's capture memory system. The pistons and toe studs/toe pistons provide a way to make changes quickly from one registration to another.

General Pistons are those that affect all stops on the organ. These are located on the left side, underneath the keyboards on the piston rails.

Divisional Pistons affect only those stops associated with the particular manual above them. They are located in the center of the piston rails below the keyboards.

Located just above the pedalboard are **Toe Studs**. Toe Studs to the left of the expression shoes duplicate the General Pistons (GEN-10, GEN-9, GEN-8, etc.). Those to the right of the shoes are Pedal Divisional Pistons (PED-1, PED-2, PED-3, etc.).

To Save a Registration to a General Piston

The *Main Window* function in the Console Controller™ drawer must be displayed (*See Section A-2*). Select any memory number (MEM-2, MEM-3, ... MEM-16, etc.); however, for this example use MEM-1. (Press the "▲" and "▼" buttons, if necessary.) Next, select the desired stops you want General Piston 1 to remember. Once the stops are drawn, press and hold the **SET** piston, then press and release General Piston 1. Finally, release the **SET** piston. General Piston 1 will now store in memory the stops you selected.

Note: General Pistons are often set gradually from soft to loud with General 1 the softest and General 10 the loudest.

To Save a Registration to a Divisional Piston

The *Main Window* function must be displayed, (*See Section A-2*). Select a memory (MEM-1, MEM-2, etc.) using the "▲" and "▼" buttons. Select the division stops you want the associated Divisional piston to remember. While holding the SET piston, press and release the Divisional Piston you want to save to. Finally release the SET piston. The Divisional Piston pressed will now store the stops selected.

Saving Intermanual Couplers/Reversibles

The intermanual coupler's, (e.g., Solo to Great, Great to Pedal, etc.) settings can be remembered only by the General pistons, not Divisional pistons unless Divisional pistons are reconfigured. (See Section B-2).

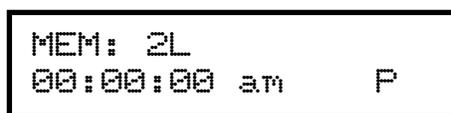
Reversible pistons also control Intermanual couplers. These pistons reverse the condition or "toggle" the related intermanual coupler. If an intermanual coupler is ON when the associated Reversible piston is pressed, that coupler will turn OFF. If the coupler is OFF when pressed, it will turn ON.

To Save Registrations using Toe Studs/Toe Pistons

Toe Studs/Toe Pistons can store registrations similar to General and Divisional pistons. Toe Studs allow stored registrations to be addressed using feet instead of hands. Note: Setting a General Toe Stud/Piston will change the registration for BOTH the toe stud and the corresponding hand piston, i.e. General Piston 10 is identical to General Toe Stud 10, while General Piston 6 is identical to General Toe Stud 6.

5. Locking Capture Memories

All memories, except Memory 1, may be locked or unlocked individually to prevent unintentional or unauthorized changes to that memory's contents. Memory 1 remains unlocked as a convenience to visiting or substitute organists. The Console Controller™ must display the *Main Window* function in the drawer (See Section A-2). Select the memory to lock by "▲" and "▼". After registrations are stored to pistons, (See Section A-4) choose three digits you can easily remember (e.g., 1-2-3, 0-0-7, etc.). Use General Piston 1 for the 1 digit and General Piston 10 for the zero digit. In the Console Controller™ locate the **MEMORY** button. Press and hold the **MEMORY** button. While holding **MEMORY**, press the General Pistons that correspond to your three-digit code. Release the **MEMORY** button and an "L" will appear next to the MEM number in the display, indicating this memory is now locked.

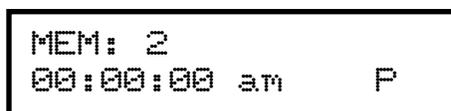


MEM: 2L
00:00:00 am P

As long as the memory remains locked, the piston registrations on that memory cannot be changed. Other organists will still be able to use the locked registrations; however, they cannot be changed. Remember; choose an easy to remember three-digit code.

6. Unlocking Memories Using Your Code

The *Main Window* function must be displayed (See Section A-2). To unlock a memory, select the memory to be unlocked, using the "▲" and "▼" buttons. Once a memory is selected, press and hold the **MEMORY** button in the Console Controller™. While pressing **MEMORY**, enter the same three-digit code that was used to lock this memory (See Section A-5), using General Pistons 1 through 10 (Piston 10 = zero). Then release the **MEMORY** button. The "L" will disappear, indicating that this memory is now unlocked.



MEM: 2
00:00:00 am P

7. Unlocking All Memories If You Forget Your Code

Advance to the 'UNLOCK ALL CAPTURE MEMORIES' window function (*see section A-2*).

```
UNLOCK ALL  
CAPTURE MEMORIES
```

Press and hold the **MEMORY** button on the Console Controller™ and press General Pistons 2-5-5. Release the **MEMORY** button, the window will display:

```
DONE !!
```

The display will automatically return to the *Main Window* function. All capture memories are now unlocked, including those memories, other organists may have locked. Registrations remain unchanged.

8. Setting the Clock

Advance to the 'SET CLOCK' window function (*see Section A-2*).

```
SET CLOCK  
00:00:00 a.m
```

Use the "▲" and "▼" buttons to change the digits and "◀" and "▶" to move between hours and minutes. To activate the new clock settings, press and hold the **SET** piston and then press the **CANCEL** piston or press the **ENTER/EXIT** button on the Console Controller.

Note: The clock always resets the seconds to zero when you exit this window function.

The clock is controlled by a real-time clock device which contains its own internal battery. The battery in this device will last many years. A warning will appear in the Console Controller display when it is time to replace the battery/device.

```
POWER FAILURE  
RESETTING CLOCK
```

This warning will only display when the organ is first switched on for a few seconds and the clock will reset to 12:00:00am each time the organ is switched off until the device is replaced. This will not affect the normal operation of the organ, only the time-of-day clock if affected!

The device is non-user replaceable. Please contact your local Allen organ representative to schedule a service call to replace the battery/device.

9. Stop Action and Capture Self Check

This feature self-checks the capture system. It tests to insure each stop is functioning properly and controllable by the capture system. Advance to the 'SELF CHECK' window function (*see Section A-2*).



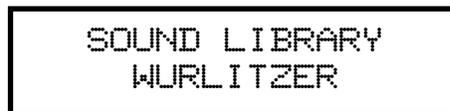
To start the self-check, press Great Piston 1. The stop tablets will move down and up consecutively. *If any stop does not move, notify your Allen service technician.* During this testing process you can interrupt and return to the *Main Window* function at any time (*see Section A-2*).

10. Sound Library

Several Quantum™ Theatre organs may include additional Theatrical voicing suites and a Classical voicing suite.

Q215T: Wurlitzer, Morton, Barton and Classic
Q315T/e: Wurlitzer, Morton, Barton and Classic
T321Q-SP: Wurlitzer, Morton, Barton and Classic
LL324Q-SP: Lyn Larsen Spec w/Classical Suite
STR-4: Walt Strony Spec w/Classical Suite
TO-5Q: Theatrical Spec Only

The voicing suite may be selected from the Console Controller™ at any given time. To change the voicing suite, advance to the 'SOUND LIBRARY™' window function (*see Section A-2*).



The display will indicate the current voicing specification loaded. Use the "▲" or "▼" buttons in the Console Controller™ to change the voicing specification. When the desired voicing specification is displayed, press and hold the **SET** piston. Then press the **MEMORY** button in the Console Controller™. Release both. **Note:** The organ will not play while a new voicing specification is loading. Once the new specification is loaded the capture system will automatically cancel all stops. At this point, the organ is now ready to play.

Note: It is a normal condition for the organ's power indicator to flash when turning the organ on. This action indicates that the voicing specification is loading. When the power indicator stops flashing the capture system will automatically cancel all stops indicating that the voicing specification is loaded and the organ is ready to play.

11. Acoustic Portrait™ Settings

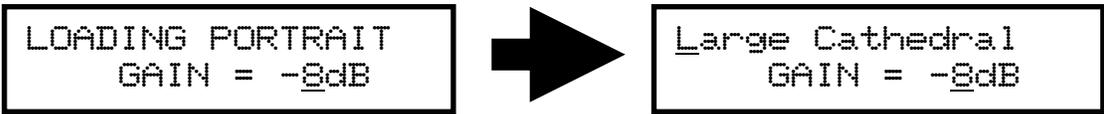
There are 10 available Acoustic Portrait™ pallets to select from. The rocker switch labeled ACOUSTIC PORTRAIT™ in the Console Controller™ drawer must be ON to hear the Acoustic Portrait™ selection. The Acoustic Portrait™ gain (volume) can be adjusted. The gain is indicated in dB (decibels). The Acoustic Portrait™ gain range is adjustable from +6dB to minus 35dB. Minus 35dB is the least amount of gain while +6dB is the most available.

To change the active Acoustic Portrait™ or adjust the Acoustic Portrait™ gain, advance to the ‘ACOUSTIC PORTRAIT™’ window function (*see Section A-2*). The window will display the name of the currently selected Acoustic Portrait™ pallet on line 1 with the Gain setting on line 2.

```

Pipe Chamber
GAIN = -8dB
    
```

To change to a different Acoustic Portrait™ pallet, use the "◀" or "▶" buttons in the Console Controller™ to highlight the Acoustic Portrait™ name on line 1 of the display. Use the "▲" or "▼" buttons in the Console Controller™ to select a different pallet. The change will not be immediate. You must wait 3 seconds for the newly selected pallet to load. The display will indicate that the pallet is loading:



To change the Gain setting use "◀" or "▶" to highlight the Gain value on line 2 of the display. Use the "▲" or "▼" to raise or lower the Gain.



Acoustic Portrait Pallet List:

1. Pipe Chamber	6. Medium Room #3
2. Small Theatre	7. Large Room #1
3. Small Church	8. Large Room #2
4. Medium Room #1	9. Cathedral
5. Medium Room #2	10. Large Cathedral

B. ADVANCED OPERATION

1. Configuring Divisional Pistons and General Pistons

This procedure enables pistons to control stops that are normally not controlled by those pistons. **Note:** The Piston Configuration is common to all memories. E.g., (1) Divisional Pistons can be configured to respond like General Pistons. (2) Divisional Pistons normally *will not remember* the settings (on/off) of the Intermanual Couplers, (i.e., Solo to Great, Great to Pedal). Divisional Pistons can be configured such that the Divisional Pistons will remember the Intermanual Couplers' settings. (3) A Divisional Piston can be configured so that it will only affect the Tremulant stops in all divisions. (4) A General Piston can be configured to respond like a Divisional Piston.

Note 1: Changing the configuration of a piston *will not affect the registrations* previously remembered by that piston prior to its reconfiguration.

Note 2: Reconfiguring a piston does not change its MIDI channel assignment.

EXAMPLES:

Configuring Divisional Pistons to become additional General Pistons:

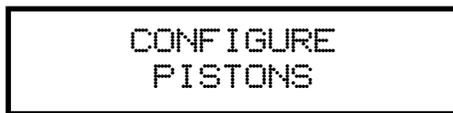
Advance to the 'CONFIGURE PISTONS' window function (*see Section A-2*).



Select all of the stops. Any stops not engaged, will not be able to be registered later. While holding in the **SET** piston, press the Divisional piston that you want to respond like a General Piston. Return to the *Main Window* to store General registrations to the Divisional pistons you pressed (*see Section A-4*).

To add the SOLO TO GREAT Intermanual Coupler to the Great Divisional Pistons:

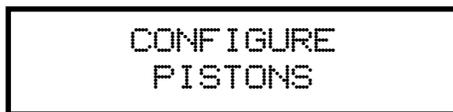
Advance to the 'CONFIGURE PISTONS' window function (*see Section A-2*).



Select all of the Great Division stops and the SOLO TO GREAT intermanual coupler. Press and hold the **SET** piston. While holding **SET**, press the Divisional Piston(s) that you will use when finished saving registrations. Return to the *Main Window* and save registrations to these Divisional Pistons, using combinations of stops and the SOLO TO GREAT coupler.

To reconfigure a Divisional Piston so it controls only the Tremulant stops:

Advance to the 'CONFIGURE PISTONS' window function (*see Section A-2*).



Select all of the organ's Tremulant Stops. Next press and hold **SET**. While holding **SET**, press a Divisional piston. Return to the *Main Window*. You can use this reconfigured divisional piston to control just the Tremulant Stops without affecting any other stops.

Restoring Original Factory Settings

See Section B-4 for the window that displays:

```
RE-INITIALIZE  
PISTON CONFIG.
```

REMEMBER: The examples above determine only which stops will become accessible by the reconfigured pistons; they will not change previously saved registrations.

2. Modifying the Crescendo and Tuttiis (*Tutti's on STR-4 and TO-5Q only*)

The original factory settings include a second set of Tuttiis and a second set of Crescendo settings that can be altered to suit the organist's needs.

Advance to the window function 'SET CRESC B AND TUTTI B' (*see Section A-2*). You have the ability to set and/or view the Crescendo B sequence from the Console Controller™. There are two modes available in this window function, "SET" and "SHOW".

SET Mode: Set mode allows the organist to create or edit a Crescendo B sequence.

SHOW Mode: Show mode allows the organist to view the Crescendo B sequence using the "▲" or "▼" buttons in the Console Controller™ or by using the Crescendo Shoe.

To toggle between modes press "◀" or "▶" in the Console Controller™. The display will indicate which mode is activated.

```
SET CRESC B AND  
TUTTI B
```

```
SHOW CRESC B AND  
TUTTI B
```

To view the stops registered to the second TUTTI I or TUTTI II, press either TUTTI. This will cause all associated stops programmed on the TUTTI selected to turn on.

The Crescendo includes 50 positions evenly dispersed along the Crescendo shoe's range of travel. To set a Crescendo B sequence, use the two buttons in the Console Controller™ labeled "▲" and "▼" to move through the steps. Pressing either "▲" or "▼" in the Console Controller™ or moving the Crescendo Shoe will cause the display to change to...

```
SET CRESC B AND  
TUTTI B step xxx
```

The word "step xxx" will appear on the second line indicating that you are now editing or viewing (*dependent if SET or SHOW mode is active*) the Crescendo B sequence. The "step xxx" indicator will display either "step off" to indicate position 0 (*Crescendo shoe off*) or any step between 1 and 50. Any stops/controls associated with a particular Crescendo step will move to indicate their status **when using the Crescendo Shoe only**. While in 'SET' mode, using the "▲" or "▼" buttons will not cause the stops/controls to indicate their status.

To set a Crescendo B sequence, use the "▲" or "▼" in the Console Controller™ to select step 1. Adjust the stops to a suitable registration for step 1. (*Note: You can play the organ at any time to hear your selected registration*) Then press and hold the **SET** piston. Then, while holding **SET** press the **MEMORY** button in the Console Controller™. The display will briefly flash the word "DONE!!" on the first line. Release both the **SET** piston and **MEMORY** button. Step 1 is now programmed. Repeat the above procedure to set all available step positions.

CAUTION: DO NOT USE THE CRESCENDO SHOE TO MOVE BETWEEN STEPS WHILE PROGRAMMING CRESCENDO B STEP POSITIONS. Crescendo B data in other step positions will cause the current stop registration on the stopboard to change, i.e. a blank step position would turn all stops off or another subsequent step position with data (*not yet re-programmed*) will change the current stop registration on the stopboard. When programming Crescendo steps always use the "▲" or "▼" buttons in the Console Controller™ to move between steps.

To copy the current Crescendo step's stop registration to another step, use the "▲" or "▼" buttons on the Console Controller™ to select a different step. Press and hold the **SET** piston. Then, while holding **SET** press the **MEMORY** button in the Console Controller™. The display will briefly flash the word "DONE!!" on the first line. Release both the **SET** piston and **MEMORY** button. The previous step has now been copied to the step position indicated in the display.

Editing a Crescendo B Sequence

Advance to the window function "SET CRESC B AND TUTTI B" (*see Section A-2*). Enter "SHOW" mode by pressing either "◀" or "▶" in the Console Controller™. The display will change to indicate which mode is activated. Press either the "▲" or "▼" buttons in the Console Controller™ or depress the Crescendo Shoe to activate the "SHOW" mode. The display will indicate which step is currently activated. Use the "▲" or "▼" in the Console Controller™ to move through the step positions one by one while observing the stops/controls. The stops/controls will change accordingly as to which step position is currently active.

To make a change to a step position you must re-enter the "SET" mode by pressing the "◀" or "▶" buttons in the Console Controller™. The display will indicate which mode is active. The step position counter will remain at the current step position that was selected in "SHOW" mode. Adjust the stop registration for that step. **CAUTION:** DO NOT MOVE THE CRESCENDO SHOE AT THIS TIME. Once changes to the registration are complete, save the step by pressing and holding the **SET** piston. Then, while holding **SET** press the **MEMORY** button in the Console Controller™. The display will briefly flash the word "DONE!!" on the first line. Release both the **SET** piston and **MEMORY** button. The step is now saved to the step position indicated in the display. To continue viewing steps you must return to "SHOW" mode by pressing either "◀" or "▶" in the Console Controller™.

SHORTCUT: While in "SET" mode you can view the Crescendo B sequence without having to enter the "SHOW" mode by using the Crescendo shoe. However, it is important that all Crescendo step positions be programmed before doing this. By depressing the Crescendo shoe, the stops/controls will move accordingly as to the step displayed. You may play the organ while doing this to hear the Crescendo sequence.

Manually disabling Celestes and Tremulants:

You can manually disable the celestes and tremulants at any of the available Crescendo steps or Tutti I or Tutti II positions. Advance to the 'SET CRESC B AND TUTTI B' window function (*see Section A-2*).



```
SET CRESC B AND  
TUTTI B
```

Select the stops for the Crescendo step you wish to program or select a current Crescendo step or Tutti I or II position. If the current Crescendo step or Tutti position has already been programmed, the stops will turn on or off in respect to the Crescendo step or Tutti position selected. Turn the Transposer switch until the Transposer's Red LED lights. Press and hold the **SET** piston. Then, while holding **SET** press the **MEMORY** button in the Console Controller™. The display will briefly flash the word "DONE!!" on the first line. Release both the **SET** piston and **MEMORY** button. **Note:** To retain the manual disabling of the celestes and tremulants in a Crescendo sequence, the above procedure must be programmed into all subsequent Crescendo steps. After you complete this process, return to the *Main Window* function (*See Section A-2*).

Note: Registrations and memory settings for the PISTONS are not affected by resetting the CRESCENDO "B".

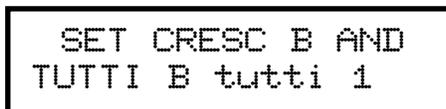
Play Organ Using Secondary Crescendo "B"

The *Main Window* function must be displayed (*see Section A-2*). Press the **CRES. B** piston. On the bar-graph display, the green CRESC-B indicator will illuminate. Push open the Crescendo Shoe and play.

Editing Tutti B Registrations

Advance to the window function 'SET CRESC B AND TUTTI B' (*see Section A-2*). There is only one mode available for setting Tutti B registrations, "SET" mode. The display will automatically revert to "SET" mode when pressing either Tutti piston if in the "SHOW" mode.

To view a Tutti registration, press either Tutti piston. The display will indicate which Tutti was selected.



```
SET CRESC B AND  
TUTTI B tutti 1
```

You may now view/edit the Tutti registration. To save any changes press and hold the **SET** piston. Then press the **MEMORY** button in the Console Controller™. The display will briefly flash the word "DONE!!" on the first line. Release both the **SET** piston and **MEMORY** button. The new registration is now stored as the Tutti number indicated in the display.

Playing the organ Using Secondary Tuttiis

The *Main Window* function must be displayed (see Section A-2). Press the **CRES. B** piston. On the bar-graph display, the green CRESC-B indicator will illuminate. Press the **Tutti** piston of your choice. The bar-graph's red Tutti indicators will light to indicate which Tutti is active. The Tutti pistons function like General Pistons and customarily have large registrations. However, the registered stops do not move to their ON positions when a Tutti piston is selected.

3. Restoring Original Factory Settings

Advance to the RE-INITIALIZE window function (see Section A-2).

```
RE-INITIALIZE
PISTON CONFIG.
```

Certain functions can be restored to the original factory settings. They are:

```
RE-INITIALIZE
PISTON CONFIG.
```

```
RE-INITIALIZE
MIDI SETTINGS
```

```
RE-INITIALIZE
CAPTURE MEM. XX
```

```
RE-INITIALIZE
CRESC B SETTINGS
```

```
RE-INITIALIZE
TUTTI/VENTIL B
```

Each of these functions can be restored individually. Select the factory settings you wish to restore by using the "▲" and "▼" buttons on the Console Controller™. Press and hold the **MEMORY** button in the Console Controller™. While holding the **MEMORY** button, press General Pistons 2-5-5 in sequence. The display will briefly flash the word "DONE!!" on the first line of the display to indicate that the current selection has been re-initialized.

Notice the term VENTIL B on the TUTTI/VENTIL B initialize window. This is a function that is used on an Allen custom organ. On most Allen Organs you can disregard the term VENTIL B as it does not apply. If you are playing a custom model, the RE-INITIALIZE procedure described above will return the secondary TUTTI B as well as the VENTIL B settings to the original factory settings.

4. Sostenuato

Sostenuato is an Italian word meaning "sustained." Unlike the sustain switch, which sustains any notes played as long as the sustain switch is held on, the *Sostenuato* switch sustains only the notes being held at the very moment it is pressed. *Sostenuato* is actuated by the organ's Sustain switch located to the left of the Great/Pedal expression shoe. The *Sostenuato* function must first be enabled before using it.

Advance to the 'SOSTENUTO' window function (*see Section A-2*).



```
SOSTENUTO
GT = ON
```

The LCD will indicate what keyboard Sostenuto is assigned to and show the current on/off status. The keyboard that Sostenuto is assigned to cannot be changed, but the on/off status can. Use the "▲" and "▼" buttons in the Console Controller™ to turn the Sostenuto function ON/OFF. Sostenuto will affect the internal voices of the organ as well as a MIDI instrument connected to the MIDI output. Keep in mind that the Sustain function will operate in tandem with the Sostenuto function. **Note:** Check your specific MIDI instrument's owner's manual to verify that it will receive and/or respond to MIDI Sostenuto messages.

5. Global Tuning

Global Tuning allows the organist to adjust the pitch of the entire organ. This tuning adjustment allows the organ to be tuned to another instrument more easily. Tuning can be adjusted either ± 100 cents from A-440 pitch. To adjust Global Tuning, advance to the 'GLOBAL TUNING' window function (*see Section A-2*).



```
GLOBAL TUNE:
0
```

Use the "▲" and "▼" buttons in the Console Controller™ to raise or lower the pitch. The Global Tuning adjustment will be retained in memory when the organ is powered off.

C. MIDI FUNCTIONS

This section deals with the MIDI capabilities of your organ. Knowledge of this section is **not** required for everyday use of the organ, normal service playing, or use of Allen SmartMIDI™ devices. This information's usefulness will ultimately be determined by your needs, along with the type and capabilities of any external MIDI devices you choose to use--e.g., sequencers, voice/sound modules and external MIDI keyboards. The MIDI topics covered by this manual are limited in scope. You need to understand the terms MIDI-IN, OUT and THRU and their basic functions. To increase your understanding of MIDI you will need to read books that describe how to use MIDI. **Note:** You must also consult the owner's manual that covers the external MIDI device you are using for more details.

1. Standard MIDI Channel Assignments

These are the Allen Organs' standard MIDI channels settings:

Classical Organs	
Channel	Organ Division
1	= Swell
2	= Great
3	= Pedal
4	= Choir
5	= Solo
6	= Not Used
7	= G1/G2
8	= General

Theatre Organs	
Channel	Organ Division
1	= Great
2	= Accomp
3	= Pedal
4	= Solo
5	= Acc. 2 nd T
6	= Not Used
7	= T1/T2
8	= General

Note: The Base Channel always resets to Channel 1 whenever the organ is turned on (*see section C-5*).

2. Selecting Program Change Modes, Viewing Program Numbers or General MIDI Sound Names

Program change modes establish how MIDI program changes will be sent from the organ when a piston is pressed and what the resulting display will be in the Console Controller™ window. Once a particular program change mode is selected, the organ will retain this same program change mode (even if the organ is turned off) until a new program change mode is selected. During normal playing conditions, the *Main Window* displays one of three letters, "U", "P" or "N", in the lower right-hand corner to signify the current program change mode. These three mode options determine how the organ sends program change information to MIDI devices.

Selecting a Program Change Mode

Advance to the 'PROG CHG' window function (*see Section A-2*).

```
PROG CHG:  USER
DISPLAY:  NUMBERS
```

Use the "◀" and "▶" buttons in the Console Controller™ to select either "Preset", "User" or "No" modes. **Note:** You must understand how to operate and when to use each of these modes before you change them!

“P” is for PRESET MODE: This mode causes the organ to send a program change number equal to the piston number that is pressed. The General Pistons will send program changes 1-10 on MIDI Channel 8, the organ’s General Piston control the channel. The Divisional Pistons (1-6) for each division will send program changes 1-6 on the channels as shown on the previous page. For example, Swell Piston 1 will send Program Change 1 on Channel 1. Great Piston 2 will send Program Change 2 on Channel 2, etc., (*See Section C-6*).

“U” is for USER MODE: With this mode the organ is enabled to send program change information that will select voices, change banks, or change program “patch” numbers on another MIDI device. Any MIDI program change number from 1 through 128 can be assigned to any General or Divisional Piston (blank or no digit may also be selected). Any MIDI bank switch number between 0 and 127 can be assigned to any Divisional Piston. As in PRESET mode, General Pistons will send program change information on MIDI Channel 8. Divisional Pistons will send information on their respective MIDI channels. (*See Section C-6*)

“N” is for NO MODE: With this mode selected, NO information is transmitted or received. This mode cancels transmission and reception of all program change information.

3. General MIDI Sound Names or Program Numbers

The Console Controller™ window can display MIDI program changes as either MIDI program numbers or as General MIDI sound names. Use the "▲" and "▼" buttons to select one of the two modes.

General MIDI Sound Names

With General MIDI selected, the 'PROG CHG' window will display:

```
PROG CHG:  USER
DISPLAY:  GEN MIDI
```

Make sure the word USER is selected as the mode and that GEN MIDI has been selected following the word DISPLAY. You must advance to the next window function then press a piston to view the sound names for any General MIDI device. The next window will display:

```
MIDI PROG CHANGE
```

As you press a General or Divisional Piston, the Console Controller™ window will now display the General MIDI sound name that corresponds to the MIDI program change selected. For example, press General Piston 1. The Console Controller™ will display the MIDI program change names.

```
GEN 1   BANK   0  
P:Ac Grand Piano
```

Note: In some cases, the General MIDI sound name will be abbreviated in the Console Controller window.

Program Numbers:

With NUMBERS selected as the display mode, the 'MIDI PROG CHANGE' window function will display:

```
GEN 1   BANK   0  
P:XXX
```

With PRESET selected as the program change mode, press a General or Divisional Piston. The Console Controller™ window will display the same MIDI program change number as the associated piston pressed. For example, pressing General Piston 1 will display:

```
GEN 1   BANK   0  
P: 1
```

The MIDI program change number will be displayed in PRESET mode, no matter if NUMBERS or GEN MIDI is displayed. You must select USER mode to view the GENERAL MIDI sound names. You must also select USER mode to assign MIDI program change numbers larger than 10 (the largest number of any piston).

With USER selected as the program change mode, along with NUMBERS as the display mode, you will be able to assign “- -” (OFF) or any program change number from 1 through 128 to any General or Divisional Piston.

There may be a number or “- -” following the “P:”. This “P:” represents the Program Change Number and does not stand for PRESET in this window. If there is “- -” following “P:”, this means that the “ZERO” Program Change Number will be sent from the associated piston.

Use the "▲" and "▼" buttons in the Console Controller™ to change the Program Change Numbers. Use the "◀" and "▶" buttons in the Console Controller™ to change the BANK Numbers (See Section C-). **Note:** The Allen Organ uses MIDI Program Change Zero as a message for "MIDI OFF." Therefore, MIDI Program Change 1 corresponds to the General MIDI sound "Acoustic Grand Piano." Some MIDI devices do not use Program Change zero for MIDI OFF. Consequently, Program Change Zero, (" - - " in the window) when sent from the organ, will correspond to Program Change 1 on those MIDI devices. Program Change 1 sent from the Allen will correspond to Program Change 2 on those MIDI devices etc.

4. Assigning MIDI Program Changes to Organ Pistons

This function allows the organist to select any voice from an external MIDI device by pressing any General or Divisional piston on the organ. The "USER" program change mode must be selected (See Section C-2). Advance to the 'MIDI PROG CHANGE' window function (see Section A-2).

```
MIDI PROG CHANGE
```

For this example press the Swell Division Piston 1. The display will change to:

```
SW 1      BANK  0  
P:  1
```

The window displays the last piston pressed and the MIDI program number being sent by that piston. Use the "▲" and "▼" buttons in the Console Controller™ to raise or lower the program number.

```
SW 1      BANK  0  
P:128
```

A program number of (1-128) will be transmitted on the channel assigned to the division from which you selected the piston; in this case, the Swell Division on Channel 1. (See Section C1). **Note:** Reconfiguring a Divisional Piston to become a General Piston will NOT change the MIDI channel it transmits on. Also, refer to the program number chart in the owner's manual of the external MIDI device you are using. Once you have assigned a MIDI program change number to a piston, that number will remain assigned to that piston even if the organ has been turned off.

5. MIDI Bank Selecting

Many MIDI devices permit access to a variety of sounds in addition to the General MIDI sounds. Normally these additional sounds are stored in groups called BANKS. A BANK in MIDI terminology means a group of voices or sounds. There are two levels of banks. One level offers two choices, High Bank and Low Bank. Each of these, High Bank and Low Bank, has as sub-groups other level of banks, BANK Numbers.

MIDI devices can have as many as 128 sounds/voices per BANK Number. There are also 128 BANK Numbers (Ø through 127). Therefore it is possible that a MIDI device that is only High Bank or Low Bank compatible. With 128 BANK Numbers, each could contain up to 128 voices/sounds, for a total of 16,384 sounds. Think of these BANK Numbers as floors or stories in a tall building. Each floor would contain 128 rooms and each room could then contain 128 voices.

There are MIDI devices that are High Bank and Low Bank compatible. It would be possible for these MIDI devices to have as many as $(128 \times 128 \times 2 = 32,768)$ voices/sounds) 128 voices/sounds in each of the 128 BANK Numbers, in each of the High and Low Banks. Most MIDI devices do not use all of the locations available. It would be very expensive as well as difficult to remember the address for each sound location. There are also MIDI devices that offer only General MIDI sounds/voices. These General MIDI devices may operate using High Bank or Low Bank, but only the sub-group Ø Bank Number is used to store the 128 General MIDI sound settings. Allen Organs are able to access any of the Banks and therefore can communicate with all MIDI devices. **Note:** You **MUST** know the capabilities of, and understand how to operate, the MIDI device you intend to use with any organ!

Selecting High Bank or Low Bank:

Advance to the 'MIDI BASE CHANNEL' window function (*see Section A-2*).

```
MIDI BASE CH: 1
BANK: LOW
```

Use the "◀" and "▶" buttons in the Console Controller™ to select either HIGH or LOW Bank priority.

Selecting MIDI Bank Numbers:

Bank Numbers are assignable in the same way that MIDI Program Numbers are (*See Section C-3*); except that you must only use Bank numbers on the Divisional Pistons. You **MUST** have USER mode selected before assigning Bank numbers! Advance to the 'MIDI PROG CHANGE' window function (*see Section A-2*).

```
MIDI PROG CHANGE
```

For this example press the Great Division Piston 1. The display will change to:

```
GT 1    BANK  Ø
P:  1
```

The window displays the last piston pressed, the MIDI BANK Number, and the program number being sent by that piston. Use the "◀" and "▶" buttons in the Console Controller™ to select MIDI BANK Number. The BANK number (Ø-127) will be transmitted on the channel assigned to the division from which you selected the piston, in this case, the Great Division on Channel 2. (*See Section C-1*). Also, refer to the Bank selection/program number chart in the owner's manual for the external MIDI device you are using.

Once you have assigned a MIDI BANK Number to a piston, that number will remain assigned to that piston even if the organ has been turned off.

6. Changing the MIDI Base Channel

This function allows you to change the setting of the MIDI Base Channel. The Base Channel is a reference point to establish the positioning of the other 15 MIDI channels. On Allen Organs, the Base Channel equals the Swell Division's channel of transmission (i.e., if the Base Channel = 1, then the Swell Channel = 1, if the Base Channel = 2, then the Swell Channel = 2, etc.). Moving the Base Channel allows you to shift the organ's range of MIDI channels, helpful when reassigning an external MIDI device from one organ division to another. **Note:** The Base Channel always resets to Channel 1 whenever the organ is turned on.

Advance to the 'MIDI BASE CH' window function (*see Section A-2*).

```
MIDI BASE CH: 1
BANK: Low
```

Use the "▲" and "▼" buttons in the Console Controller™ to change the Base Channel. All functions associated with a particular division will transmit and receive on its assigned channel. For example, MIDI Channel 1 is normally assigned to the Swell Division and the Swell Manual. Therefore, keying velocity or on/off messages, and program changes (Swell Divisional Pistons) will be transmitted and received on Channel 1 (*See Section C-1 for Allen MIDI Channel Assignments*).

If the Base Channel is reset to 2, in the display all of the channels will shift higher by one. Now, Swell = 2, Great = 3, Pedal = 4, Choir = 5, and the General Pistons = 9. **Note:** MIDI Channel numbers will wrap, i.e. channel numbers go only to 16 and will then repeat to 1. FOR NORMAL USE, DO NOT USE A BASE CHANNEL LARGER THAN 9.

7. MIDI Expression Settings

Advance to the 'MIDI EXPRESSION' window function (*see Section A-2*).

```
MIDI EXPRESSION
POLY-VOLUME
```

There are four modes for transmitting expression data via MIDI. They are selected by pressing the "▲" and "▼" buttons in the Console Controller.

POLY-VOLUME — This setting will always be selected when the organ is turned on. In this mode the expression data is distributed among the appropriate MIDI channels. This is the proper mode to use when recording to, or playing back from, a sequencer.

POLY-VELOCITY — This mode should be selected if you are using a percussion-type voice from a sound module or an external MIDI keyboard. For example, if a digital piano sound were played from the organ keyboard through MIDI Channel 1, the piano could be made to sound more realistic. By opening the Swell expression shoe, the piano strings would appear to be struck harder than when the Swell pedal was in the closed position.

Note: In POLY-VELOCITY mode, all expression information is sent in key velocity form. Changes in velocity will occur only when a new key is struck. Consequently, if you change the position of the Swell pedal after a key is struck there will be no change in velocity until a new key is struck. Use this mode only when a velocity-sensitive external MIDI device is connected. If this mode is selected when recording to a sequencer, the expression on the organ will not function when playing back from the sequencer.

SWELL-VOLUME — This mode causes MIDI expression data to be sent only on the Swell MIDI channel. Some early sequencers can only interpret one volume message.

NO EXPRESSION — No MIDI expression (volume) data sent.

8. MIDI Sustain Kick Switch

A lever located to the left of the Great/Pedal expression shoe and controlled by the organist's foot, operates MIDI sustain. This function can be assigned to any one of or all of the instrument's manuals. Advance to the 'MIDI SUSTAIN' window function (*see Section A-2*).

```
MIDI SUSTAIN
GT = OFF
```

Use the "◀" and "▶" buttons in the Console Controller™ to select an organ division. Use the "▲" and "▼" buttons in the Console Controller™ to turn the selected manual **ON/OFF**. **OFF** will not allow MIDI sustain messages to be transmitted, **ON** will allow MIDI sustain messages to be transmitted on a given division or MIDI channel. For example, when a **PIANO** voice in an external MIDI device (voice module) is selected and the MIDI sustain for that given MIDI channel (division) is turned **ON**, and the foot controlled sustain lever is actuated, the piano sound will slowly decay.

9. Organ Local Off

Organ Local Off is a function that allows the user to “virtually” disconnect the organ's keyboards, pedalboard and pistons from the tone generation and capture system. In essence, the organ is transformed into a multi-manual MIDI controller. To enable/disable the Organ Local Off function, advance to the 'ORGAN LOCAL OFF' window function (*see Section A-2*).

```
ORGAN LOCAL OFF
= DISABLED
```

```
ORGAN LOCAL OFF
= ENABLED
```

Use the "▲" and "▼" buttons in the Console Controller™ to enable/disable the Organ Local Off function. **Note:** When Organ Local Off is enabled, the MIDI stops do not need to be on to play the external MIDI device(s).

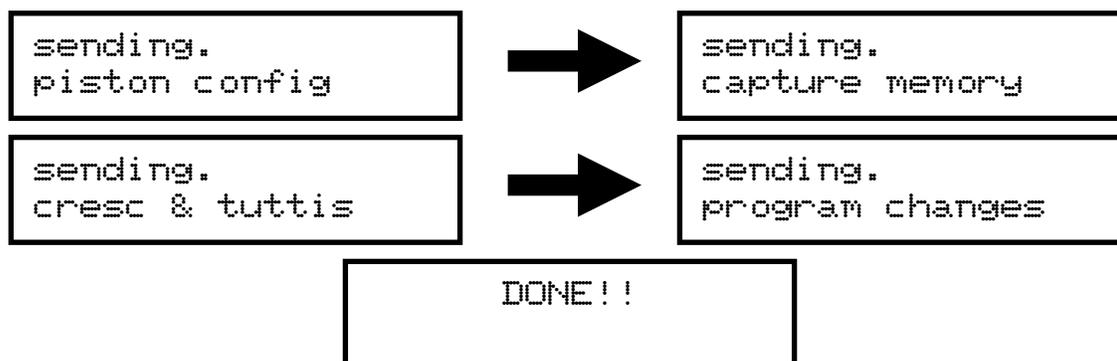
10. Transferring and Saving Capture Memory Data to a Sequencer

CAPTURE MEMORY refers to all of the piston registrations on all available memories, plus secondary Crescendo “B” settings, secondary Tutti “B” settings, MIDI program change/bank mapping, and all the custom Piston Sequencer data. With this operation, the organist can copy and save all of this stored information to a digital MIDI sequencer. Advance to the 'CAPTURE MEMORY SAVE' window function (*see Section A-2*).

```
CAPTURE MEMORY  
SAVE
```

Set your sequencer to the record mode and begin recording as you normally would. Press and hold the **MEMORY** button in the Console Controller™. While holding **MEMORY**, press General Pistons 2-5-5 in sequence. The Capture Memory information will be transmitted to the sequencer.

During the memory data transfer process the window will display:



The 'dot' behind the word 'SENDING' on line one of the display, will “move” as the data is transmitted to the sequencer.

Note: Depending on the number of capture memories this procedure can take an extended period of time, please be patient.

11. Return Capture Memory Data from a Sequencer to the Organ

To replace previously recorded Capture Memory information into the organ from your sequencer, simply press "Play" on the sequencer and the recorded capture data will automatically be transmitted to the organ. You must have a MIDI cable from the OUT port of the sequencer to the IN port of the Allen Organ. It does not matter what window function the Console Controller displays. **Note:** The Capture Memories must be unlocked (*see section A-6*) before you press “Play” on the sequencer, allowing the organ’s available memories to receive capture information. It is a good idea to first save whatever is stored in the organ’s memory because, it will be erased by this procedure. The display will indicate that the organ is receiving data.

```
RECEIVING DATA  
...
```

The 'dot' on line two of the display will move as the data is received.

12. Transmitting Stop Data

This function allows the organist to turn off the transmission and reception of individual stop data, known in MIDI terminology as "Non-Registered Parameters". In some cases individual stop data (on/off) from the organ may conflict with data from an external MIDI device. When this occurs, select the "OFF" position by pressing the "▲" and "▼" buttons. **Note:** Piston changes will still be transmitted and received, because they are program changes. Advance to the 'TRANSMIT / RECEIVE STOPS' window function (*see Section A-2*).



```
TRANSMIT/RECEIVE
STOPS ON
```

Press "▲" and "▼" buttons in the Console Controller™ to change the transmit/receive mode.

D. QUICK REFERENCE GUIDE

1. Basic Operations Review

a. ADVANCING THROUGH THE WINDOWS:

Hold **SET**, press "**R**" or use the **ENTER/EXIT**, **BACK**, **FORWARD** buttons in the Console Controller.

b. RETURN TO THE FIRST WINDOW:

Hold **SET**, press **CANCEL**, release both or use the **ENTER/EXIT** button in the Console Controller.

c. SETTING PISTONS:

Main Window. Select desired registration. Hold **SET** and press piston to remember registration.

d. SELECT MEMORY AND LOCK IT:

Main Window. Select desired memory using "**▲**" and "**▼**" buttons. Press and hold **MEMORY**, enter three-digit code, release **MEMORY**, "L" will appear.

e. UNLOCK A MEMORY:

Repeat d. above. "L" will disappear.

f. UNLOCK ALL MEMORIES WITHOUT CODE:

Advance to display "Unlock All Capture Memories". Press and hold **MEMORY**, press General Pistons 2-5-5, release **MEMORY**. Window will display "DONE!!"

g. SET CLOCK:

Advance to display: "Set Clock". Use "**▲**" and "**▼**" to change the digits. Use "**◀**" and "**▶**" to move from hours to minutes. Press and hold **SET**, press **CANCEL**, or press the **ENTER/EXIT** button in the Console Controller to reset clock.

h. SELF-CHECK CAPTURE AND STOP ACTION:

Advance to display: "Self-Check". Press Great Piston 1. To discontinue, Press and hold **SET**, press **CANCEL**, then release both, or press the **ENTER/EXIT** button in the Console Controller.

2. Advanced Operations Review

a. RECONFIGURING PISTONS:

Advance to display: "Configure Pistons". Select the desired stops. Press and hold **SET**, press the desired piston. Return to *Main Window* (press **SET** and **CANCEL** or press the **ENTER/EXIT** button in the Console Controller) and set new registrations (*see section E-1, c.*).

b. SET SECONDARY CRESCENDO "B":

Advance to display: "Set Cresc B and Tutti B". Maneuver/Set step positions using the Console Controller™ buttons, **SET** piston.

c. SET SECONDARY TUTTIS:

Advance to display: "Set Cresc B and Tutti B". Press Tutti piston you want to program. Select/Adjust Stops. Use **MEMORY** button in conjunction with the **SET** piston to set the Tutti piston.

d. RESTORE FACTORY SETTINGS:

Advance to display: "Re-Initialize Piston Configuration". Use "▲" and "▼" to select the settings you want to restore. Press and hold **MEMORY**, press 2-5-5 using General Pistons.

F. MIDI GUIDE

1. MIDI for Organists

The term MIDI is an acronym for Musical Instrument Digital Interface. MIDI has been adopted by the music industry as a standard means of communication between digital musical devices enabling devices of different types and manufacturers to communicate. MIDI by itself will not make a sound. It is not necessary to understand all of the technical aspects of MIDI in order to take advantage of the benefits it offers. It is important to explore the potential MIDI holds for musicians, as well as the various MIDI applications available today.

Types of MIDI Devices

MIDI devices fall into two categories.

1. The first category consists of musical instruments such as organs and synthesizers that transmit and receive MIDI data.
2. The second category includes controllers and processors that, as their name implies, can transmit, receive or manipulate MIDI data, but do not necessarily produce sound themselves. Sequencers, which are MIDI recording devices, fall into this category. Although the technical nature of their recording and editing processes differs from those of a tape recorder, many operate in similar fashion. Most are equipped with record, playback, fast forward and reverse controls that function in the same way as their tape recorder counterparts.

Types of MIDI Data

There are several types of MIDI messages that can be sent from one device to another. The most common is keying information, allowing one device to sense which keys have been played on another device. This means an organ equipped with MIDI can send information to other MIDI devices, e.g., synthesizers or sequencers, and can play those devices simultaneously or record information to be played back later.

Allen Organs incorporate an advanced MIDI system allowing the transmission and reception of all types of MIDI information (velocity keying, volume change, sustain, registrations, Crescendo settings and more). It is even possible to control several devices from one manual simultaneously, or control a different device from each manual of the console.

MIDI as a Practice Tool

For the organist/choir director, the MIDI organ console and sequencer are valuable rehearsal tools for both choral and organ works. Anthem accompaniments may be recorded in advance and played back by the sequencer during choir rehearsal. The director, freed from the role of accompanist, can focus entirely on directing the choir. The sequencer can play the music back at a slower tempo without affecting pitch, or at a lower pitch without affecting tempo, features that are useful in rehearsing difficult choral passages.

If the sequencer allows multi-tracking, each vocal section's part may be recorded on a different track, and then played back individually, or in any combination, for more flexibility. Multi-tracking can also be used in teaching and learning new organ works. The teacher may record each hand or pedal part on a different track, allowing the student to "mute" or turn off any part being practiced while still being able to hear the sequencer play the rest of the composition. The student's ability to hear the piece in its entirety from the earliest stage of learning a composition, and to become aware of the interrelationship of its voices, is especially valuable in learning contrapuntal works.

MIDI as a Registration Tool

In some churches and auditoriums it is difficult to judge the effectiveness of a registration from the organ console. Due to the acoustics of the room, or positioning of the console, the sound of the instrument may be different when listened to from the congregation's or audience's vantage point. MIDI allows the organist to evaluate registrations by recording the music using a sequencer, and then listening from different locations in the room during the music's playback.

Other MIDI Uses

MIDI has created new possibilities for the organist. The ability of the organ console to control external keyboards or sound modules puts an ever-increasing array of non-traditional sounds at the organist's fingertips. A superior degree of control is made possible by the flexibility of an organ console. The ability to record MIDI data using a sequencer opens a variety of new possibilities during practice and performance situations.

Computer software programs are also available that allow musicians to play MIDI devices connected to a computer, and have their performance printed as conventional five-line musical notation. Because MIDI is an industry-wide standard, today's MIDI instruments will be compatible with tomorrow's MIDI innovations.

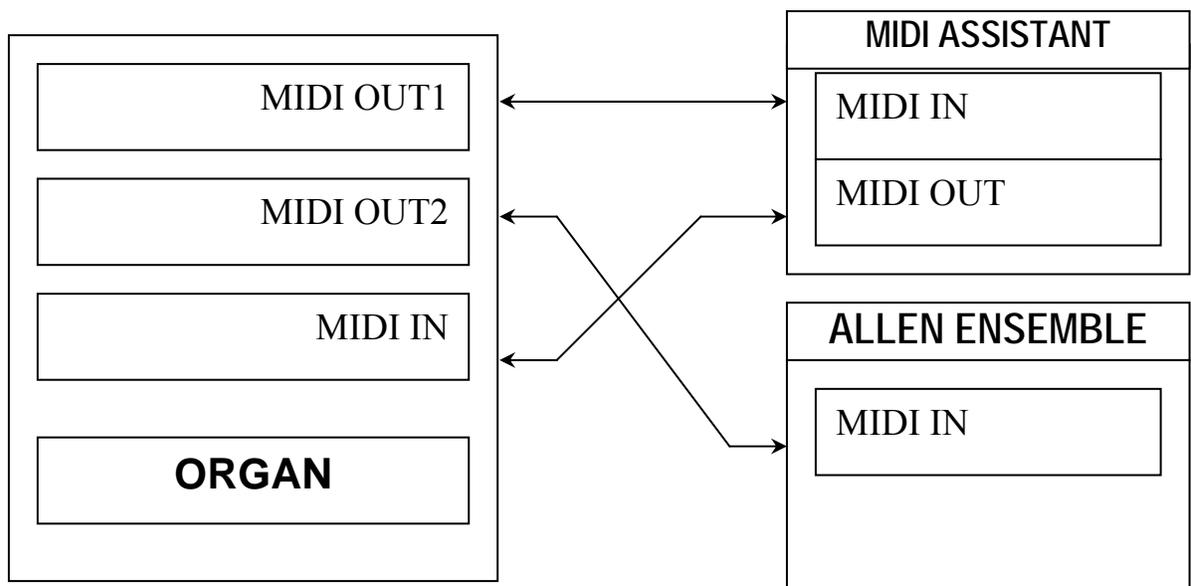
2. Connecting Allen Organs to Other MIDI Devices

Allen Organs can be connected to a variety of MIDI devices. A connecting diagram for a variety of MIDI devices can be found at the end of this section. Although the diagram is not meant to be an exhaustive list of possibilities, it illustrates the most commonly used connections of MIDI devices. If more specific information is required, please consult the owners' manuals of the external devices being connected to the organ.

3. MIDI

Allen Organs organ feature an advanced MIDI system. This system provides a comprehensive interface between MIDI sound modules, such as the Allen Ensemble™, and digital sequencers such as the Allen Smart Recorder™. Two MIDI Out ports, one switched and one unswitched, allow unprecedented control over external MIDI devices attached to the organ.

Under normal circumstances, MIDI sound modules should be connected to the switched MIDI port labeled MIDI OUT 2. Doing so allows the organist to disable the sending of MIDI data from the organ to the sound module. Devices such as MIDI sequencers should be connected to the unswitched MIDI port labeled MIDI OUT 1, eliminating the necessity of having to draw the MIDI stop controls before recording a digital sequence. The drawing below illustrates the proper procedure for connecting the Allen Ensemble™ and Allen Smart Recorder™ to a Allen Organ.



4. MIDI Transmission Channels

MIDI information may be transmitted on several different channels simultaneously. This allows many channels of information to be sent through one cable and used independently from one another, similar to the way many television broadcasts can be sent through one cable. In order to receive the intended information, a MIDI device must be tuned to the same channel as the device that is sending the information.

Your Allen Organ transmits MIDI information on several channels. When external MIDI devices are connected to the organ, it is important to make sure that the devices' channels of transmission and reception match the MIDI channels of the Allen Organ divisions to which they are assigned.

MIDI Program Change Messages are transmitted from the organ's General Pistons on MIDI Channel 8. These program change messages can be used to change the settings of MIDI sound modules or synthesizers that are connected to the organ. Please consult the owner's manual of your MIDI device(s) for more information on how MIDI Program Change Messages are handled by that particular device.

In addition to keying and divisional registration information, MIDI Volume Messages are sent on the individual MIDI channels for each division of the organ. These volume messages are controlled by the division's expression shoe. In this manner, the volume of connected MIDI devices may be controlled.

Please consult the owner's manual of your MIDI device(s) for more information on how MIDI Volume information is handled by that device. If any external MIDI device is used to transmit information to the Allen organ, the same assignment of MIDI channels must be used as described elsewhere in this manual.

5. GENERAL MIDI SOUND SET

1. Acoustic Grand Piano
2. Bright Acoustic Piano
3. Electric Grand Piano
4. Honky-tonk Piano
5. Rhodes Piano
6. Chorused Piano
7. Harpsichord
8. Clavinet
9. Celesta
10. Glockenspiel
11. Music Box
12. Vibraphone
13. Marimba
14. Xylophone
15. Tubular Bells
16. Dulcimer
17. Hammond Organ
18. Percussive Organ
19. Rock Organ
20. Church Organ
21. Reed Organ
22. Accordion
23. Harmonica
24. Tango Accordion
25. Acoustic Guitar (nylon)
26. Acoustic Guitar (steel)
27. Electric Guitar (jazz)
28. Electric Guitar (clean)
29. Electric Guitar (muted)
30. Overdriven Guitar
31. Distortion Guitar
32. Guitar Harmonics
33. Acoustic Bass
34. Electric Bass (finger)
35. Electric Bass (pick)
36. Fretless Bass
37. Slap Bass 1
38. Slap Bass 2
39. Synth Bass 1
40. Synth Bass 2
41. Violin
42. Viola
43. Cello
44. Contrabass
45. Tremolo Strings
46. Pizzicato Strings
47. Orchestral Harp
48. Timpani
49. String Ensemble 1
50. String Ensemble 2
51. SynthStrings 1
52. SynthStrings 2
53. Choir Aahs
54. Voice Oohs
55. Synth Voice
56. Orchestra Hit
57. Trumpet
58. Trombone
59. Tuba
60. Muted Trumpet
61. French Horn
62. Brass Section
63. Synth Brass 1
64. Synth Brass 2
65. Soprano Sax
66. Alto Sax
67. Tenor Sax
68. Baritone Sax
69. Oboe
70. English Horn
71. Bassoon
72. Clarinet
73. Piccolo
74. Flute
75. Recorder
76. Pan Flute
77. Bottle Blow
78. Shakuhachi
79. Whistle
80. Ocarina
81. Lead 1 (square)
82. Lead 2 (sawtooth)
83. Lead 3 (caliope lead)
84. Lead 4 (chiff lead)
85. Lead 5 (charang)
86. Lead 6 (voice)
87. Lead 7 (fifths)
88. Lead 8 (brass + lead)
89. Pad 1 (new age)
90. Pad 2 (warm)
91. Pad 3 (polysynth)
92. Pad 4 (choir)
93. Pad 5 (bowed)
94. Pad 6 (metallic)
95. Pad 7 (halo)
96. Pad 8 (sweep)
97. FX 1 (rain)
98. FX 2 (soundtrack)
99. FX 3 (crystal)
100. FX 4 (atmosphere)
101. FX 5 (brightness)
102. FX 6 (goblins)
103. FX 7 (echoes)
104. FX 8 (sci-fi)
105. Sitar
106. Banjo
107. Shamisen
108. Koto
109. Kalimba
110. Bagpipe
111. Fiddle
112. Shanai
113. Tinkle Bell
114. Agogo
115. Steel Drums
116. Woodblock
117. Taiko Drum
118. Melodic Tom
119. Synth Drum
120. Reverse Cymbal
121. Guitar Fret Noise
122. Breath Noise
123. Seashore
124. Bird Tweet
125. Telephone Ring
126. Helicopter
127. Applause
128. Gunshot

XV. APPENDIX II (Advanced MIDI Information)

KEYBOARDS: Manuals that contain 2nd touch keying are not OST (optical sensor technology) and will therefore not transmit key "velocity" values other than a value of '64'. All other manuals, that do not contain 2nd touch keying, are OST. Key velocity values are determined by how hard the keys are played. This is similar to the effect of a piano. Valid velocity values of 1-127 may be transmitted. A velocity value of '0' is considered a note off event.

MANUAL DIVISIONS:

<u>Manual</u>	<u>MIDI Channel</u>
Solo (STR-4, TO-5Q)	6
Solo (T321Q-SP, LL-324Q-SP), Orchestral (STR-4, TO-5Q)	4
Great	1
Great 2 nd Touch	7
Accompaniment	2
Accomp 2 nd Touch	5
Pedal	3
General Pistons	8
Trem Pistons (Ancillary Pistons TO-5Q)	9
Trigger and Traps Pistons	10
Bombarde	11

MIDI note information has three pieces of data: 1) Status/Channel, 2) Note Number and 3) Velocity (listed here as a value). If you use a program such as PowerTracks for the IBM type computers, these three will be listed in the "event view" as follows:

<u>TRACK</u>	<u>TIME</u>	<u>CHANNEL</u>	<u>EVENT</u>	<u>VALUE</u>	<u>DURATION</u>
1	XX:XXX:XX	1	NOTE G5	64	100

This means that on track 1 (or whatever track you have recorded on) there is a message sent via MIDI for a note-on on channel 1 to play "G5" (which is really the "G" above middle "C" on the keyboard in MIDI terms) at a velocity of "64" for a duration of "100" ticks (a length measurement used by PowerTracks).

PISTONS: These are generally listed as "Program Changes" or a "Patch Change" in MIDI language and usually correspond to the manual they are attached to. "Patch" information in MIDI starts at "0", but our first piston in each division is "1" so you must subtract by "1" to get the piston's equivalent program change number. The "additional" divisions of pistons are:

GENERALS = MIDI Channel 8
 TRAPS = MIDI Channel 10
 TREMS = MIDI Channel 9

<u>TRACK</u>	<u>TIME</u>	<u>CHANNEL</u>	<u>EVENT</u>	<u>VALUE</u>	<u>DURATION</u>
1	XX:XXX:XX	1	Program Change	0	
1	XX:XXX:XX	8	Program Change	9	

The first message means that piston 1 was pressed on channel 1. The second message indicates that General piston 10 was pressed.

EXPRESSION: This is a more complex subject. MIDI expression (Volume) changes are under the broad heading of "Control Changes." Control changes can be many things from expression, to stops, to "pitch bend" changes for a MIDI keyboard. Each of these has a separate number to indicate what kind of control change it is. Volume (expression) is control change number seven. The control change data will contain channel information, the type of control change, and a number for the control change "value." In the case of volume, the control change value would be between 0 and 127. Since the organ never truly goes to "0" with the expression shoe, the lower limit on the Allen is approximately 20. In PowerTracks, the expression data might look like this:

<u>TRACK</u>	<u>TIME</u>	<u>CHANNEL</u>	<u>EVENT</u>	<u>VALUE</u>	<u>DURATION</u>
1	XX:XXX:XX	1	Volume 7	100	
1	XX:XXX:XX	1	Volume 7	98	
1	XX:XXX:XX	1	Volume 7	96	

Here we see that the volume is reducing on channel 1. You will notice on your GW-4Q or TO-5Q organ that many channels are sent on a single expression shoe. All manual divisions must be sent at some point for your external MIDI devices to understand expression.

STOPS: This is even more complex than the expression. We have a "Map" for all organs that will allow the data recorded on one organ to be played back on another organ. Individual stops are handled by control numbers. MIDI has a "catchall" for anything not specifically defined by the MIDI standard called "NON-REGISTERED PARAMETERS." These are under control numbers 98 and 99, 99 being the "high" byte and 98 being the "low" byte. "Control 6" is the "on and off" byte: Control 6 with a value of 127 turns the stop on. Control 6 with a value of 0 turns the stop off. As an example, in the list of stops for the GW-4Q you will note that the Great Solo Tibia Clausa 8' is listed as 1,040. "1,040" means that this stop is on Channel 1 (Great) and its "map" number is 40. If you checked the Primary Tibia 8' on any of our organs, you would find that it would be "40." The best way to show this is to show you an example in PowerTracks. The first three pieces of data turn on the Tibia Clausa 8' on the Great. The second three pieces of data turn off the Tibia Clausa 8' on the Great.

<u>TRACK</u>	<u>TIME</u>	<u>CHANNEL</u>	<u>EVENT</u>	<u>VALUE</u>	<u>DURATION</u>
1	XX:XXX:XX	1	Control 99	0	
1	XX:XXX:XX	1	Control 98	40	
1	XX:XXX:XX	1	Control 6	127	

<u>TRACK</u>	<u>TIME</u>	<u>CHANNEL</u>	<u>EVENT</u>	<u>VALUE</u>	<u>DURATION</u>
1	XX:XXX:XX	1	Control 99	0	
1	XX:XXX:XX	1	Control 98	40	
1	XX:XXX:XX	1	Control 6	0	

If the stop "map" number (NRPN) is 128 or larger, then you must split it into "bytes." If you look at the Great Clarinet 8' on your list, it has a number of "1,132." The "1," means that this stop is on the Great. The 132 must be divided in order to use it as a MIDI number. The Great Clarinet 8' would look like this in PowerTracks:

<u>TRACK</u>	<u>TIME</u>	<u>CHANNEL</u>	<u>EVENT</u>	<u>VALUE</u>	<u>DURATION</u>
1	XX:XXX:XX	1	Control 99	1	
1	XX:XXX:XX	1	Control 98	4	
1	XX:XXX:XX	1	Control 6	127	

<u>TRACK</u>	<u>TIME</u>	<u>CHANNEL</u>	<u>EVENT</u>	<u>VALUE</u>	<u>DURATION</u>
1	XX:XXX:XX	1	Control 99	1	
1	XX:XXX:XX	1	Control 98	4	
1	XX:XXX:XX	1	Control 6	0	

Control 99 = 1 X 128 = 128. Add the value of control 98 (4) and get a total of 132, the value of an 8' Clarinet! This extends to all divisions. If, for example, you wanted the MIDI number of the Solo Tibia Clausa 8' in the Accompaniment, you would find that number to be "40" like the Great Solo Tibia Clausa 8'. However, the total MIDI number would be "2,040." The "2" would tell you it is on the Accompaniment manual.

These are the individual stop numbers that are sent when a single stop is moved. The stop number (Stp#) is really meaningless except it is the internal wiring order for the stops. NRPN is Non-registered parameter. This is the stop information sent by Allen organs.

Important Note: All NRPN data is now located on the Allen Organ Support section of our website. It has been placed there so the latest NRPN information can be obtained.