

MDS-70-S

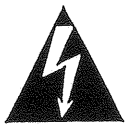
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Explanation of Graphical Symbols:



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the instrument's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.



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

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For safety reasons, make sure any equipment or accessories connected to this instrument bear the UL listing symbol.

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In churches where circuit breakers are turned off between worship services, the circuit breaker affecting the organ console AC power should have a guard installed to prevent its being accidentally switched off.

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For approximately fifty years--practically the entire history of electronic organs--the Allen Organ Company has sought to build the finest organs that technology would allow.

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

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

Familiarize yourself with the instrument by reading through this booklet. We call your attention particularly to sections on Octave Couplers, Second Voicing, Transposer, Console Controller™, Performance Recorder™, and Capture Action, since these elements are important to realizing the full potential of the instrument.

The sections on stop description and organ registration are intended for immediate use as well as for future reference. Because the Allen Digital Computer Organ offers limitless tonal possibilities, plus authentic tone quality, these subjects can now be more readily explored than ever before.

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DESCRIPTION OF STOPS

PITCH FOOTAGE

The number appearing on each stop along with its name indicates the "pitch" or "register" of the particular stop. It is characteristic of the organ that notes of different pitches may be sounded from a single playing key. When this sound corresponds to the actual pitch of the playing key, the note (or stop) is referred to as being of 8' pitch; therefore, when an 8' stop is selected and middle C is depressed, the pitch heard will be middle C. If it sounds an octave higher, it is called 4' or octave pitch. If it sounds two octaves higher, it is called 2' pitch, while a stop sounding three octaves higher is at 1' pitch. Likewise, a 16' stop sounds an octave lower, and a 32' stop sounds two octaves lower.

Stops of 32', 16', 8', 4', 2', and 1' pitch all have octave relationships, that is, these "even numbered" stops all sound octaves of whatever key is depressed. Pitches other than octaves are also used in organ work. Their footage number always contains a fraction, and they are referred to as mutations. Among these are the Nasard and Quinte $2\text{-}2/3'$, Tierce $1\text{-}3/5'$, and Quintflöte $1\text{-}1/3'$. Because they introduce unusual pitch relationships with respect to the fundamental (8') tone, they are most effective when combined with other stops and used either in solo passages or in small ensembles of flutes (see explanation of Cornet in Section II).

TONAL FAMILIES

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

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

Principal Voices

Principal
Diapason
Octave
Superoctave
Quinte

Characteristic organ tone, not imitative of orchestral instruments. Usually present at many pitch levels, as well as in all divisions. Rich, warm, and harmonically well developed.

Flute Voices

Open Types:

Harmonic Flute
Melodia
Flute mutation stops

Voices of lesser harmonic development than principals. Open types somewhat imitative; stopped types not. Present at all pitch levels and in all divisions.

Stopped Types:

Gedackt, Bourdon,
Quintadena
Rohrflöte

String Voices

Salicional
Viola
Voix Céleste

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

Compound Voices

Mixture
Cornet

Voices produced by more than one rank sounding simultaneously.

Hybrid Voices

Gemshorn
Erzähler
Spitzflöte

Voices that combine the tonal characteristic of two families of sound, e.g., flutes and principals, or strings and principals.

In *reed* pipes, a metal tongue vibrates against an opening in the 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:

Reed Voices

Chorus or Ensemble Types:

Trumpet, Posaune,
Clairon

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

Solo Types:

Hautbois, Clarinet,
Krummhorn

The Allen Digital Computer Organ provides authentic examples of various types of voices as listed above. Some of these are protected by copyrights owned by the Allen Organ Company. The voices are stored in memory devices, each having affixed to it a copyright notice; e.g., © 1990 AOCO, © 1991 AOCO, etc., pursuant to Title 17 of the United States Code, Section 101 et seq.

Following is a discussion of individual stops and how they are generally used. Please note that slight variations in specifications may be encountered.

MDS-70-S STOPLIST

PEDAL ORGAN

Contre Bourdon 32'	Deep flute tone that adds "rumble" to a full combination.
Diapason 16'	The 16' member of the Pedal diapason chorus. Strongest pedal flue stop.
Bourdon 16'	Stopped flute tone of weight and solidity.
Lieblichgedackt 16'	Softer stopped flute of delicacy and definition. Useful where soft 16' pitch is required.
Octave 8'	8' member of the Pedal principal chorus.
Gedacktflöte 8'	Stopped flute tone of 8' pitch, useful in adding clarity to a pedal line in combination with the Bourdon 16' or Lieblichgedackt 16'.
Choralbass 4'	Pedal 4' principal tone.
Flûte Ouverte 4'	Open flute tone of 4' pitch.
Mixtur IV	Compound stop of principal tones. One pedal produces four distinct pitches at octave and fifth relationships to the pedal being pressed. Used to crown the Pedal principal chorus.
Scharf III	Compound stop of principal tones. One pedal produces three distinct pitches at octave and fifth relationships to the pedal being pressed. The mixture should never be used without stops of lower pitches. The Scharf III is typically added to diapason or flute ensembles after the Mixtur IV.
Contre Bombarde 32'	Robust French reed; adds "snarl" to the Pedal division. Use with large combinations.
Bombarde 16'	A strong Pedal reed that lends strength and "snarl" to the Pedal line.

Fagott 16'	Light trumpetlike tone often used to accentuate the Pedal line in the absence of other reeds.
Trompette 8'	Clear Pedal reed useful in adding definition to a full Pedal combination, or as a solo Pedal trumpet.
Clairon 4'	A bright 4' chorus reed. Combines with the Bombarde 16' and Trompette 8' to form the full Pedal reed chorus. Particularly useful as a solo voice.

SWELL ORGAN

Geigen Diapason 8'	Foundation tone, with greater harmonic development than a principal.
Flûte Bouchée 8'	Chiffing stopped flute tone of moderate harmonic development. Provides the 8' member of the Swell flute chorus and is useful by itself or with other flutes and mutations in creating solo voices.
Salicional 8'	Full-bodied string tone.
Voix Céleste 8'	Celeste used with the 8' Salicional, creating a warm string tone.
Principal Conique 4'	Bright principal tone.
Flûte à Fuseau 4'	Distinctive flute voice with chiff that works well in ensembles of flutes or strings, or as a solo voice.
Nasard 2-2/3'	Flute mutation that sounds one octave and a fifth above the keys played. Always used with other stops (usually beginning with 8') for coloration.
Flûte à Bec 2'	A delicate, clear open flute at 2' pitch.
Tierce 1-3/5'	Flute mutation that causes the pitch to sound a seventeenth (two octaves and a third) higher than played. Used with 8' stops or flute ensembles.

Furniture IV	Compound stop of principal tones. Each note played produces four distinct pitches at octave and fifth relationships to the key being pressed. The mixture should never be used without stops of lower pitches. The Furniture IV is typically added to diapason or flute ensembles, or to a reed chorus.
Basson 16'	Chorus reed tone at the 16' pitch level, designed to supplement and undergird the other chorus reeds. Also usable as a distinctive solo reed.
Trompette 8'	Chorus reed stop of rich harmonic development. Can also be used as a solo voice.
Hautbois 8'	Solo reed with the pungent nasal timbre of an oboe.
Vox Humana 8'	Solo voice with Tremulant intended to imitate the human singing voice.
Clairon 4'	A bright 4' chorus reed. Combines with the Basson 16' and Trompette 8' to form the full Swell reed chorus. Also usable as a solo voice.
Swell to Swell 16'	Swell suboctave coupler. See separate section on octave couplers.
Unison Off	Turn off stops in the Swell division at the pitch level at which they are drawn, while allowing them to speak at octave and suboctave pitch levels when octave and suboctave couplers are drawn. See separate section on octave couplers.
Swell to Swell 4'	Swell octave coupler. See separate section on octave couplers.
Orchestral Voices On	See separate section on Second Voicing.
Tremulant	Use of this stop provides a vibrato effect, natural in the human voice and wind instruments, when used with stops in the Swell division.

GREAT ORGAN

Gemshorn 16'	Hybrid stop that combines tonal characteristics of the string and flute families, resulting in a light diapason quality. Useful accompanimental voice.
Prinzipal 8'	Foundation stop of the Great principal chorus.
Rohrflöte 8'	Full-bodied, partially stopped flute tone.
Flûte Céleste II (8')	Soft accompanimental stop, a beautiful flute celeste.
Octav 4'	The 4' member of the Great principal chorus, which consists of the Prinzipal 8', Octav 4', and Super Octav 2'.
Spitzflöte 4'	Partially closed flute tone.
Quinte 2-2/3'	Principal mutation that causes the pitch to sound an octave and a fifth higher than played.
Super Octav 2'	An open metal stop that produces foundation tone at the 2' pitch level.
Waldflöte 2'	Open flute tone at 2' pitch level.
Mixtur IV	A compound stop of principal tones. Four notes in octave and fifth relationships sound together when a single key is depressed. As pitches progress upward, they "break" back to the next lower octave or fifth. Used to cap the Great principal chorus, adding brilliance and pitch definition throughout the entire compass.
Scharf III	Compound stop of principal tones. One key produces three distinct pitches at octave and fifth relationships to the key being pressed. The mixture should never be used without stops of lower pitches. The Scharf III is typically added to diapason or flute ensembles after the Mixtur IV.

Posaune 16'	A strong reed that lends strength and "snarl" to the reed chorus.
Trompete 8'	German trumpet useful as a smooth solo voice or chorus reed.
Klarine 4'	A bright 4' chorus reed. Combines with the Posaune 16' and Trompete 8' to form the full Great reed chorus. Also usable as a solo voice.
Great 2nd Voices	See separate section on Second Voicing.
Tremulant	Same as Tremulant in Swell, but affects stops in the Great and Pedal, except for the bottom octave in both divisions.
Gt-Ch Manual Transfer	Transposes stops in Great and Choir divisions so that the stops from the Great division are played from the bottom manual and the stops from the Choir division are played from the second manual.

CHOIR ORGAN

Harmonic Flute 8'	Open flute of considerable harmonic development. Can be used as a solo or ensemble stop.
Erzähler 8'	Hybrid stop that combines tonal characteristics of the string and flute families, resulting in a small-scale gemshorn. Useful accompanimental voice.
Erzähler Celeste 8'	Stop used in combination with the Erzähler 8' to create a warm celeste.
Prinzipal 4'	Bright, classic principal.
Traversflöte 4'	Distinctive flute voice with chiff that works well in ensembles of flutes or strings, or as a solo voice.
Nasat 2-2/3'	Flute mutation that sounds one octave and a fifth above the keys played. Always used with other stops (usually beginning with 8') for coloration.

Oktav 2'	An open metal stop that produces foundation tone at the 2' pitch level.
Blockflöte 2'	A delicate, clear, open flute at 2' pitch.
Terz 1-3/5'	Flute mutation that causes the pitch to sound a seventeenth (two octaves and a third) higher than played. Used with 8' stops or flute ensembles.
Quintflöte 1-1/3'	Open flute mutation that causes the pitch to sound a nineteenth (two octaves and a fifth) higher than played. Used with 8' stops or flute ensembles.
Zimbel IV	A compound stop of principal tones. Four notes in octave and fifth relationships sound together when a single key is depressed. As pitches progress upward, they "break" back to the next lower octave or fifth. Used to cap the Choir foundation chorus, adding brilliance and pitch definition throughout the entire compass.
Cor Anglais 16'	A round, relatively dark sounding reed at 16' pitch. Useful as a unique solo stop.
Festival Trumpet (Deluxe Version only)	Large, powerful solo reed. Becomes a quieter chorus reed when other Choir stops are added.
Krummhorn 8'	The tone quality of the shawm, a medieval ancestor of the clarinet, is the basis for this light, bright, nasal reed. It can be used alone as a solo or combined with light flues for a somewhat rounder reed solo effect.
Tremulant	Use of this stop provides a vibrato effect, natural in the human voice and wind instruments, when used with stops in the Choir division.

COUPLERS

Great to Pedal 8'	Connects all Great stops to the Pedal.
Swell to Pedal 8'	Connects all Swell stops to the Pedal.
Swell to Pedal 4'	Octave coupler from the Swell to the Pedal. See separate section on octave couplers.
Choir to Pedal 8'	Connects all Choir stops to the Pedal.
Swell to Great 16'	Intermanual suboctave coupler connecting all Swell stops to the Great manual. See separate section on octave couplers.
Swell to Great 8'	Intermanual coupler connecting all Swell stops to the Great manual.
Swell to Great 4'	Intermanual octave coupler connecting all Swell stops to the Great manual. See separate section on octave couplers.
Choir to Great 8'	Intermanual coupler connecting all Choir stops to the Great manual.
Swell to Choir 16'	Intermanual suboctave coupler connecting all Swell stops to the Choir manual. See separate section on octave couplers.
Swell to Choir 8'	Intermanual coupler connecting all Swell stops to the Choir manual.
Swell to Choir 4'	Intermanual octave coupler connecting all Swell stops to the Choir manual. See separate section on octave couplers.

GENERALS

Great-Pedal Unenclosed	When used, the expression for the Great and Pedal divisions is disabled, i.e., the Great and Pedal stops will sound at full volume, regardless of the position of the Great-Choir-Pedal expression shoe. The Choir division will continue to be under expression using the Great-Choir-Pedal expression shoe.
Swell-Great Melody Coupler	When used with an appropriate solo stop, such as a Swell reed or 2nd voice orchestral stop, this feature will automatically key the highest note played on the Great, allowing accentuation of the melody.
Great Bass Coupler	When this coupler is used, the lowest note played on the Great manual will automatically key the appropriate Pedal note, playing those stops that have been drawn in the Pedal division as well as those in the Great division.
Swell Romantic Tuning Off	When activated, a second, "tight" tuning is drawn on the Swell, resulting in a less warm sound.
MIDI to Pedal	Opens MIDI channel to the Pedal.
MIDI to Great	Opens MIDI channel to Great.
MIDI to Swell	Opens MIDI channel to Swell.
MIDI to Choir	Opens MIDI channel to Choir.
Reverb	The control for the reverberation system is located on a toggle switch on the MIDI port box underneath the left key cheek.

ANTIPHONAL CONTROLS (OPTIONAL)

Swell Main Off, Choir Main Off & Great/Pedal Main Off	Used in conjunction with the Swell to Antiphonal Choir to Antiphonal, and Great/Pedal to Antiphonal tablets. This causes the organ to speak from the Antiphonal speakers and not from the Main speakers.
Swell to Antiphonal, Choir to Antiphonal, & Great/Pedal to Antiphonal	Causes the organ to speak from the Antiphonal speakers. The organ will speak from both Main and Antiphonal divisions unless the Main Organ Off is also added.

EXPRESSION PEDALS

There are three expression pedals on the MDS-70-S. The one on the far right is the Crescendo pedal (see below). The pedal on the left expresses the Great, Choir, and Pedal divisions, while the center expression pedal affects the Swell division.

CRESCENDO PEDAL

One master Crescendo, for all divisions, gradually adds stops as this pedal is opened. Indicator lights show relative position of the pedal. Crescendo B is a secondary Crescendo that can be programmed by the organist (see p. 29). Indiscriminate use of the Crescendo pedal, in lieu of careful registration, should be avoided.

TUTTI I & II

The Tutti I and II are settings of full organ registration. Tutti II is a fuller registration than Tutti I, most noticeably in the Pedal division. They are turned on by using manual pistons located beneath the Swell manual directly above the cancel button. The pistons are reversible, meaning that pressing them will turn the corresponding Tutti on or off. The cancel button will also turn off the Tuttis. Pressing Tutti II will cancel Tutti I. Red signal lights, appropriately labeled and located on the right side of the console to the left of the expression indicators, turn on when Tutti I or II is in operation. A second set of Tuttis can be programmed by the organist (see p. 29). Like the Crescendo, indiscriminate use of these devices should be avoided.

CELESTES

Celestes are created by using two sounds, one tuned slightly sharp or flat of the other, creating a warm, undulating "celestial" effect. For example, the combination of the Salicional 8' and the Voix Céleste 8' in the Swell division will create a beautiful string celeste.

ARTISTIC REGISTRATION

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 needs to provide a foundation for the sound without covering it.

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

Flutes can be used alone or in combinations as solo voices. One special combination of flutes that creates an appealing and historically significant solo combination is the Cornet (pronounced kor-NAY). The Cornet is created by using the following Swell stops: Flûte Bouchée 8', Flûte à Fuseau 4', Nasard 2-2/3', Flûte à Bec 2', and Tierce 1-3/5'. This solo combination was used widely in Baroque organ music, but it is just as appropriate for some modern music. Useful variations of the Cornet may be achieved by eliminating the 4', the 2', or both.

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

For accompaniment, the most desirable voices are the 8' flutes and strings on each manual. Celestes often make effective accompaniments. The correct choice depends on the volume of the solo tone (a soft solo voice requires the softest accompanimental stop), the element of contrast, and the location of the solo stop. A bright, harmonically rich solo reed, for example, can be accompanied by either a string or flute, but the flute will often contribute greater interest because of its greater contrast.

Try to seek a "natural" balance of volume between solo and accompaniment. This will be especially helpful if the solo and accompaniment are under separate expression.

SUGGESTED SOLO REGISTRATIONS

OBOE SOLO

Swell: Hautbois 8' or Orchestral Oboe using Orchestral Voices On (Tremulant optional)
Great: Flute Celeste II (8')
Choir: Erzähler 8', Erzähler Celeste 8'
Pedal: Lieblichgedackt 16', Great to Pedal

For more color, add Flûte à Fuseau 4' or Nasard 2-2/3' to Hautbois 8'.

CHIMES SOLO

Swell: Flûte Bouchée 8', Salicional 8', Voix Céleste 8'
Great: Chimes (Gemshorn 16'), Great 2nd Voices
Choir: Erzähler 8', Erzähler Celeste 8'
Pedal: Lieblichgedackt 16', Swell to Pedal

Play solo on Great.

MELLOW REED SOLO

Swell: Flûte Bouchée 8' or Salicional 8', Voix Céleste 8'
Great: Flûte Céleste II (8')
Choir: Krummhorn 8', Tremulant
Pedal: Lieblichgedackt 16', Swell to Pedal

Play solo on Choir.

SWELL SOLO COMBINATION

Swell: Flûte Bouchée 8', Flûte à Fuseau 4', Nasard 2-2/3', Flûte à Bec 2', Tierce 1-3/5'
(Tremulant optional)
Great: Rohrflöte 8'
Choir: Erzähler 8'
Pedal: Lieblichgedackt 16', Gedacktblöte 8'

Play solo on Swell.

FLUTE SOLO

Swell: Salicional 8', Voix Céleste 8'
Great: Flûte Céleste II (8'), Swell to Great 8'
Choir: Harmonic Flute 8'
Pedal: Lieblichgedackt 16'

Play solo on Choir.

TRUMPET SOLO

Swell: Trompette 8', Brass I (Bassoon 16'), Brass II (Nasard 2-2/3'), 2nd Voices On, Swell to Choir 8' (optional)
Great: Prinzpal 8', Octav 4', Super Octav 2', Mixtur IV
Choir: Festival Trumpet (if so equipped)
Pedal: Diapason 16', Octave 8', Choralbass 4', Mixtur IV, Great to Pedal 8'

Play solo on Swell or Choir.

These few combinations demonstrate basic techniques of solo registration. 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.

Volumes have been written on the subject of ensemble registration. Following is a summary of the major points.

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

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

The principal chorus is the most fully developed with representation in various divisions of the organ and at every pitch from 16' (Diapason) to high mixtures. The principal chorus is sometimes called the narrow-scale flue chorus, a pipe reference to the relative thinness of principal pipes in relation to their length.

The flute chorus is also well represented with a diversity of stops at various pitches. Generally speaking, the flute chorus is composed of less harmonically developed tones, and is smoother and of lesser volume than the principal chorus. The flute chorus is sometimes called the wide-scale flue chorus, owing to the generally "fatter" look of flute pipes as compared to principals.

The reed chorus includes those reed tones designed to be used in the ensemble buildup. Not all reed voices are ensemble tones. An Hautbois, for example, is usually a solo stop. The various Trumpets, Clairons, Bassons, etc., 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 Swell reed chorus of Basson 16', Trompette 8', and Clairon 4' represents an entity important to French organ music and the full ensemble of the organ. These stops create a "blaze" of richly harmonic sounds that tops off both flue choruses.

Another special ensemble combination important in French music is the Cornet, which was discussed in the section on Solo Registration. This combination can be used with the chorus reeds and mutations to create the "Grand Jeu." The Cornet is also useful in Romantic ensembles to add weight and thickness to the sound.

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

Great

1. Rohrflöte 8', Spitzflöte 4'
2. Rohrflöte 8', Spitzflöte 4', Waldflöte 2'
3. Prinzipal 8', Octav 4'
4. Prinzipal 8', Octav 4', Super Octav 2'
5. Prinzipal 8', Octav 4', Super Octav 2', Mixtur IV
6. Prinzipal 8', Octav 4', Super Octav 2', Mixtur IV, Trompette 8'

Swell

1. Flûte Bouchée 8', Flûte à Fuseau 4'
2. Flûte Bouchée 8', Flûte à Fuseau 4', Flûte à Bec 2'
3. Geigen Diapason 8', Principal Conique 4'
4. Geigen Diapason 8', Principal Conique 4', Flûte à Bec 2', Fourniture IV
5. Geigen Diapason 8', Principal Conique 4', Flûte à Bec 2', Fourniture IV, Trompette 8'
6. Geigen Diapason 8', Principal Conique 4', Flûte à Bec 2', Fourniture IV, Basson 16', Trompette 8', Clairon 4'

Choir

1. Erzähler 8', Traversflöte 4'
2. Erzähler 8', Traversflöte 4', Blockflöte 2'
3. Harmonic Flute 8', Prinzipal 4'
4. Harmonic Flute 8', Prinzipal 4', Oktav 2'
5. Harmonic Flute 8', Prinzipal 4', Oktav 2', Zimbel IV
6. Harmonic Flute 8', Prinzipal 4', Nasat 2-2/3', Oktav 2', Blockflöte 2', Zimbel IV

The use of the Swell to Great and Choir to Great couplers allows these separate ensembles to be combined on the Great manual. It is also possible to combine some of these ensembles within the same division; for example, the #2 and #4 registrations suggested above for use on the Great combine to form a nice round hymn combination.

The Pedal ensemble is created in much the same way as the manual ensembles, starting at 16' pitch 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. Please note that the softest stops and flute mutations are normally not used with ensembles.

FULL ORGAN

Due to the immense capabilities of the Allen Digital Computer Organ, every stop and coupler on the instrument could be used simultaneously without distortion, if the organ is adjusted properly. In good registration practice, however, the organist would not haphazardly put on every stop on the instrument. For best results, listen and include only those stops that really contribute to the fullness and brilliance of the ensemble. Eliminate soft stops and solo stops that make no purposeful contribution.

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:

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.

OCTAVE COUPLERS

Octave couplers, when properly designed, can greatly expand an organ's ensemble and flexibility. The dynamic capabilities of the MDS-70-S are significantly enhanced through the use of octave and suboctave couplers in the Swell division. An octave coupler "couples down" the octave of notes **above** the pitch level of the stops drawn. For example, when the Swell to Swell 4' coupler is drawn with the Trompette 8' in the Swell division, the Trompette 8' will speak at both 8' and 4' pitch levels. A suboctave coupler, by comparison, "couples up" the octave of notes **below** the pitch level of the stops drawn. Consequently, when the Swell to Swell 16' coupler is drawn with the Trompette 8' in the Swell division, the Trompette 8' will speak at both 8' and 16' pitch levels.

The Swell Unison Off control can be used in conjunction with the octave and suboctave couplers to further expand the tonal choices on the MDS-70-S. It allows the organist to turn off the stops at the pitch level drawn, while permitting those stops to play at their octave and suboctave pitch levels. For example, if the Swell Unison Off and the Swell to Swell 4' coupler are drawn with the Swell Trompette 8', the Trompette 8' will speak only at the 4' pitch level. The Swell Unison Off works in a similar fashion with the suboctave couplers, in this case allowing the Trompette 8' to speak only at the 16' pitch level.

The intermanual octave and suboctave couplers e.g. Swell to Great 4', Swell to Choir 16', etc., allow stops from the Swell division to be coupled to other manuals at octave and suboctave pitch levels.

SECOND VOICING

In addition to the comprehensive list of pipe organ sounds on the MDS-70-S, there are many special percussion and orchestral stops that can be accessed with the "Great 2nd Voices " and "Orchestral Voices On" controls.

In the Great division, the second voices are percussion stops: Chimes, Celesta, Chrysoglott, Harp, Handbells, Harpsichord 4', and Harpsichord 8'. The Second Voices are marked in red on their respective drawknobs. They may be activated by first drawing the "Great 2nd Voices" drawknob and then selecting the voice of your choice.

The Second Voices in the Swell division are orchestral in nature: Orchestral Flute, Brass Choirs I and II, Clarinet, and Orchestral Oboe. They may be activated by first drawing the "Orchestral Voices On" drawknob and then selecting the voice of your choice.

TRANSPOSER

The vast capability of the computer makes it possible to perform the sometimes difficult task of transposing while allowing the organist to play in the notated key.

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

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

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

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

WHY TRANSPOSE?

1. Because the range of a given song will not always suit the vocal range of a particular singer. By adjusting the key upward or downward, whichever is appropriate, the piece can be sung more comfortably and effectively.
2. Because some instruments are non-concert pitch. A trumpet in B^b, for example, can read the same music as the organist, if the Transposer knob is set two half-steps lower.
3. Because hymn singing can sometimes be improved by a more favorable key selection. Hymn singing can also be enhanced by playing the hymn in its original key, playing a short modulation at the end of the stanza that leads into the key one-half step above the key in which the hymn is written, then turning the Transposer up a half-step for the next stanza. In this way, the organist can play the next stanza in its original key, and it will sound one-half step higher. If the hymn is already in a fairly high key, it may be preferable to play the first few stanzas with the Transposer set *down* one-half or one whole step, then modulate up to the original key for the final stanza. The use of modulation with the aid of the Transposer can create a climactic effect for the final stanza of a hymn.

CONSOLE CONTROLLER™

I. BASIC OPERATION

- A. Moving through the windows
- B. Selecting the capture memories
- C. Setting pistons
- D. Locking capture memories
- E. Unlocking capture memories
- F. Setting the clock
- G. Automatically checking the capture and stop action

II. ADVANCED OPERATION

- A. Selecting alternate tunings
- B. Changing the way in which pistons work
- C. Setting your own Crescendo and Tuttis
- D. Restoring factory settings
- E. Selecting speech articulation

III. PERFORMANCE RECORDER™

- A. Entering the Sequencer Mode
- B. Recording
- C. Playback
- D. Positioning the Sequencer
- E. Changing Playback Speed
- F. Recording an External MIDI Device
- G. Exiting the Sequencer

I. BASIC OPERATION

A. MOVING THROUGH THE WINDOWS

1. When the organ is turned on, you will see this display in the Controller window:

MEM - 1
(hours, minutes, seconds)

This is the first window.

2. Press and hold the "Set" piston, and then press and release the "R" piston, which advances the Controller to the next window. Every time you press the "R" piston you will see an additional window--a total of fourteen, including the first one.
3. To return to the first window at any time, press and hold "Set" and then press and release the "Cancel" button.

B. SELECTING THE CAPTURE MEMORIES

1. Return to the first window for this operation.
2. Depending on which Allen Organ you are playing, you will have access to four or six capture memories. To determine the number of capture memories available, refer to the first window on the Console Controller™. To make sure you are viewing the first window, hold the "Set" piston and press "Cancel." Release the "Set" piston. This procedure will return the Console Controller™ to the first window. Find the two buttons marked with " ^ " and " v " on the Console Controller™. As you press either one of these, you will see that you can scroll through the memories. You will see the memories move sequentially from 1-4 or 1-6 as you press the " ^ " and " v " buttons. NOTE: The last capture memory (either 4 or 6) has been programmed at the factory with combinations on all pistons, although it may be reprogrammed by the user. If the last memory is changed, the original factory settings are stored and can be recalled by using the tenth window, "Re-initialize Factory Settings."

C. SETTING PISTONS

First window.

1. Allen's multiple memory system allows an organist to set several complete groups of piston combinations covering the entire organ, or each of several organists to set and lock his own combinations on one memory. Select the capture memory you want to use by pressing the " ^ " or " v " buttons on the Console Controller™.
2. Choose a stop combination that you wish to place on General Piston 1, for example. General pistons are found on the left side of the console underneath the keyboards and are numbered 1 through 10. Remember that generals are customarily set using graduated stop combinations from soft to loud. After you have selected your stops, press and hold the "Set" button and then press and release General Piston 1. Release the "Set" button. From now on, General Piston 1 will bring on that combination, until someone changes it.
 - a. The groups of six pistons located in the center of the console affect only the stops for the keyboard directly above them. Follow the same procedure to set these divisional pistons. You can go through the whole organ this way.
 - b. The group of six toe studs marked "Ped-1" through "Ped-6" are used to set combinations for the Pedal division. They are set by pressing and holding "Set" and then pressing the selected toe stud with the foot.
 - c. The intermanual couplers (e.g., Swell to Great) can be set only on the general pistons. They are not affected by the divisional pistons, unless you reconfigure the pistons as described in section II.A.

D. LOCKING CAPTURE MEMORIES

First Window.

1. All memories but memory 1 can be locked individually to prevent unintentional or unauthorized changes. To do this, you must choose a three-digit code, such as 1-2-3, 6-5-4, etc. Any combination of three numbers will do. Select the memory you wish to lock, using the " ^ " and " v " buttons. Set your desired combinations first, then press and hold the Memory button (the word *Memory* is printed underneath it) on the Console Controller™. Enter your three numbers by using the General Pistons 1 through 10 as a typewriter (use Piston 10 for zero digit). Release the "Memory" button. An "L" will appear next to your memory number in

the window, indicating that the memory is now locked. As long as it remains locked, no one can change your piston settings on that memory; however, other organists will still be able to use the combinations in the locked memory. It is important that you remember your personal code.

E. UNLOCKING CAPTURE MEMORIES, EVEN IF YOU FORGET YOUR CODE

1. You must be in the first window to unlock a memory using your secret code.
2. Choose the memory you wish to unlock by using the "Λ" or "∨" buttons. Press and hold the "Memory" button on the Console Controller™ and enter your three-digit code by using the General Pistons 1 through 10 as a typewriter (use Piston 10 for zero digit). Release the "Memory" button. The "L" will disappear, indicating that the memory is now unlocked.
3. Use the following procedure if you forget your code number. Advance to the window that reads:

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, and the window now reads "Done!". All capture memories are now unlocked, including memories that other organists may have locked. This will not change your piston settings.

F. SETTING THE CLOCK

Tenth window.

1. Advance to the window that reads:

SET CLOCK
0:00:00

2. Use the "Λ" and "∨" buttons to change the digits and the "<" and ">" buttons to move from hours to minutes. **THE CLOCK ALWAYS RESETS THE SECONDS TO ZERO WHEN YOU USE SET AND CANCEL TO ESCAPE FROM THIS WINDOW.**

G. AUTOMATICALLY CHECKING THE CAPTURE AND STOP ACTION

Twelfth window.

1. Advance to the window that reads:

DEMO/SELF-CHECK
(GR-1)

2. This is a self-check of the capture system to see that every individual stop is controllable by the capture action. The self-check is started by pressing Great Piston 1. The stops will move consecutively down and up or out and in. If any stop does not move, notify your service technician. You may interrupt the scanning process at any time by pressing and holding "Set" and then pressing the "Cancel" button.

IN BRIEF

1. Moving through the windows: first window. Hold "Set", press "R".
2. Return to the first window: hold "Set", press and release "Cancel".
3. Setting Pistons: hold "Set", press the piston you want.
4. Locking a capture memory: first window. Select desired memory using "∧" or "∨" buttons. Hold "Memory" button, enter three-digit code, release "Memory" button. "L" will appear.
5. Unlock a capture memory: repeat 4. above.
6. Unlock all memories without code: thirteenth window. Hold "Memory" button, press General Pistons 2-5-5, release "Memory" button.
7. Set the clock: tenth window. Use "∧" and "∨" buttons. Use "<" and ">" to move from hours to minutes.
8. Check capture and stop action: twelfth window. Press Great Piston 1. Hold "Set", press "Cancel" to interrupt.

II. ADVANCED OPERATION

A. SELECTING ALTERNATE TUNINGS

Second window.

1. There are a variety of tunings available on the MDS-70-S. The standard tuning is a general purpose romantic tuning. The first two alternate tunings, "Classic" and "Baroque", are tighter tunings. In other words, most intervals in these tunings are tuned slightly narrower than the intervals in the standard tuning. The remaining tunings, "Kirnberger III", "Werckmeister III", "Just Intonation", "Young II", and "Pythagorean" are of historical interest. **NOTE:** These historical tunings are limited in their application to modern music. It is normal for some intervals to be out of tune. The organ may also sound strange when played in certain keys.
2. Advance to the window display that reads:

ALTERNATE TUNING

- a. Choose the desired alternate tuning using the " ^ " and " v " buttons on the Console Controller™. The selected tuning is then activated by pulling on the "Alternate Tuning" drawknob. The selected tuning will remain the alternate until it is reprogrammed to another alternate tuning. **NOTE:** When the "Alternate Tuning" drawknob is not pulled out, the standard romantic tuning will be in effect.

B. CHANGING THE WAY IN WHICH PISTONS WORK

Eighth window.

1. This operation allows pistons to be reassigned to stops that are different from the factory settings. Some examples are: (1) divisional pistons can be changed to become general pistons; (2) intermanual couplers, which are not normally operable from divisional pistons, can be reassigned to divisionals; (3) a divisional piston can be reconfigured to be used for only the Tremulant and/or Vibrato stops in all divisions.
2. Advance to the window display that reads:

CONFIGURE PISTONS

- a. Turn on any stops that you want to be able to capture with the reconfigured piston(s). In the case of converting divisionals to extra generals, you would put on all the stops.

Please note that reverb is never included in the capture system. (You may wish to press the divisional piston first to see what stops it is currently affecting.)

- b. While holding the "Set" piston, press any divisional pistons that you want to convert to the new configuration. Once a piston has been converted, you can verify your settings by pressing the reconfigured piston to see what stops it now affects. NOTE: Changing the configuration of a piston will not affect combinations previously set in the capture memory.
 - c. Return to the first window and set new combinations as described in section I.C. NOTE: Steps a. and b. above only determine which stops can be accessed by the reconfigured pistons; they do not capture them.
3. Sit at the console and actually go through the process in the following example of adding the Swell to Great coupler to the Great pistons:
- a. Be sure that the "Configure Pistons" window is displayed.
 - b. Put on all the Great stops and the Swell to Great coupler.
 - c. Hold "Set" while consecutively pressing all the Great pistons.
 - d. Press "Set" and "Cancel" together to get back to the first window.
 - e. Note that your original capture settings for the Great pistons are still intact. As reconfigured in this example, however, you can now reset them with new combinations that can include the Swell to Great coupler. NOTE: Steps b. and c. above only enable the coupler to be captured by the Great pistons. It is not necessary to include it in all of your stop combinations if you do not wish to do so.
4. Remember that you can always return to the factory settings via the "Re-initialize Piston Configuration" window.

C. SETTING YOUR OWN CRESCENDO AND TUTTIS

Seventh window.

1. In addition to the factory settings, there is a second set of Tuttis and a second Crescendo available that can be altered to suit the organist. Advance to the window that reads:

SET SECONDARY CRESC. AND TUTTIS

Now slowly depress and pull back the Crescendo pedal and you will see the stoptabs or drawknobs move in response to the pedal movement. Press "Tutti I" and "Tutti II" to see what stops each of them brings on.

2. There are 22 positions to set in the Crescendo. They correspond to General Pistons 1-10 (Cresc. positions 1-10), Great Pistons 1-6 (Cresc. positions 11-16), and Swell Pistons 1-6 (Cresc. positions 17-22). Set each position as you would set the capture action, starting with General Piston 1. Keep in mind that you must set every position. It is normal to progress from soft settings to louder ones. For each new position, you merely add the new stop(s) that you want to include. You can use all controls on the organ, including celestes, tremulants, and vibratos; however, celestes and tremulants are automatically disabled when the louder stops, such as reeds or mixtures, are added. NOTE: SETTINGS FOR THE CAPTURE ACTION ARE NOT AFFECTED BY SETTING THE CRESCENDO.
3. The Tutti pistons are set like general pistons. Select manually the desired stop combination. Press and hold "Set", and then press the Tutti piston you wish to change. The new setting is now memorized and can be accessed under normal playing conditions by pressing the "Cres. B" piston and then pressing the Tutti piston of your choice when it is needed.

D. RESTORING FACTORY SETTINGS

Eleventh window.

1. Advance to the window that reads:

RE-INITIALIZE
PISTON CONFIG.

There are certain functions that can be restored to the original factory settings. They are: Piston Configuration, Tutti B settings, Crescendo B settings, Capture Memory 6 (or 4, depending on model), and MIDI settings.

2. Choose the factory setting that you wish to restore by using the " ^ " and " v " buttons on the Console Controller™. Press and hold the "Memory" button and press General Pistons 2-5-5 in sequence. When the window reads "Done!", the factory settings for that particular function have been restored.

E. SELECTING SPEECH ARTICULATION

Fourteenth window.

1. When turned on, speech articulation makes the organ appear to have the slight fluctuations in wind pressure that occur in divisions of some pipe organs. It is important to note that this is not necessarily a desirable quality, and most properly designed pipe organs will not exhibit noticeable drops in wind pressure. Many people, however, have come to recognize the effects of speech articulation as a quality unique to the pipe organ, and some pipe organ builders will engineer speech articulation into their instruments
2. Advance to the window that reads:

SPEECH ARTICULATION

Use the " ^ " and " v " buttons to turn the speech articulation on or off. To hear the effect of speech articulation, draw the Super Octave 2' in the Great division. Hold a high note, such as C-5, and while holding it, quickly key a low note such as C-2. Each time you key the low note, you will hear the high note drop slightly in pitch for a very short period of time before it equalizes.

IN BRIEF

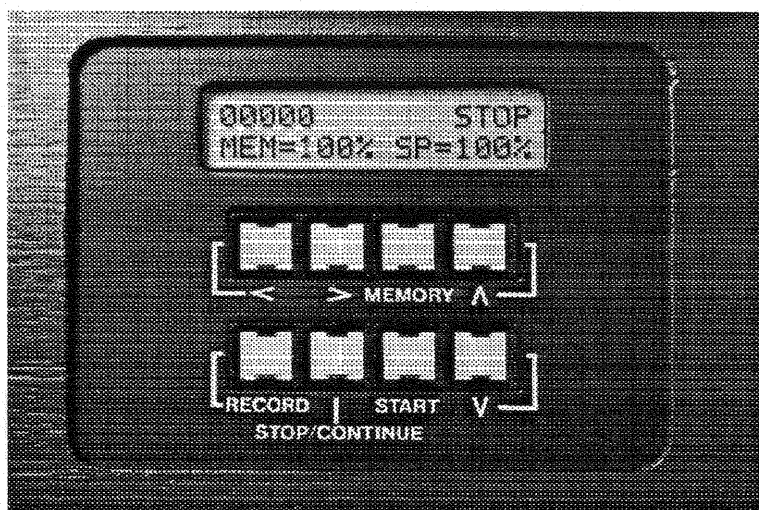
1. Selecting alternate tunings: second window. Use " ^ " and " v " to select desired tuning. Pull out "Alternate Tuning" drawknob to activate.
2. Reconfiguring pistons: eighth window. Select desired stops. Press and hold "Set", press divisional piston. Return to first window and set new stop combinations as desired using procedure described in section I.C. above.
3. Set secondary Crescendo: seventh window. Set stops in all 22 positions (Generals 1-10, Great 1-6, and Swell 1-6), just as you would set capture action. **YOU MUST FILL ALL 22 POSITIONS.**
4. Set secondary Tutti: seventh window. Select stops. Press and hold "Set", touch the Tutti piston you want to set.
5. Restore factory settings: eleventh window. Use " ^ " and " v " buttons to select the settings you want to restore. Press and hold "Memory" button, press 2-5-5 using general pistons.
6. Selecting speech articulation: fourteenth window. Use the " ^ " and " v " buttons to turn speech articulation on or off.

III. PERFORMANCE RECORDER™ - OPERATING INSTRUCTIONS

Allen Organs that are equipped with a Console Controller™ also include an internal sequencer, called the Performance Recorder™, that is able to record and play back notes, expression, and registration information. Recordings can be made from the Allen console or from an external MIDI device connected to the console.

A. ENTERING THE SEQUENCER MODE

All operations of the Performance Recorder™ are done through the Console Controller™ buttons. To use the sequencer, press the Console Controller™ button marked "RECORD." The Console Controller™ display window will read:



B. RECORDING

1. START RECORDING

To begin recording, press and hold the button marked "RECORD" (lower left) and momentarily depress the button marked "START." You may now register the organ and begin to play.

CAUTION! ANY PREVIOUSLY RECORDED MATERIAL WILL BE ERASED.

Note: At the beginning of a recording, the sequencer automatically checks which stop tablets or drawknobs are currently engaged, as well as the current expression pedal, Crescendo pedal, and Tutti settings. Therefore, to minimize automatic registration time during playback, set your registration before starting the recording process. This information is then placed at the beginning of the recording. Upon playback, the organ is automatically returned to the same settings that were in effect at the beginning of the original recording. The reverb stop is not activated by the capture action.

2. STOP RECORDING

After you have finished playing, press the button marked "STOP/CONTINUE" to end recording.

3. RESUME RECORDING

You may record additional material while retaining previously recorded material.

- a. Position the sequencer at the end of the last recording that is to be retained. (See "POSITIONING THE SEQUENCER" below.)
- b. Select registration for the beginning of the next recording.
- c. Press and hold the "RECORD" button and momentarily depress the "STOP/CONTINUE" button to resume recording.

Note: Any material from a prior recording located past the recording resumption point will be erased by this procedure. Current registration and expression, Crescendo, and Tutti settings are automatically inserted at the beginning of each recording segment. Recordings will be retained even if organ is turned off.

C. PLAYBACK

IMPORTANT - Make sure the expression pedals are fully depressed before starting any playback sequence.

1. BEGIN PLAYBACK

To play back all previously recorded material, press the button marked "START."

2. STOP PLAYBACK

Press the button marked "STOP/CONTINUE."

3. CONTINUE PLAYBACK

To continue playing when the sequencer is stopped at a given point, press the button marked "STOP/CONTINUE."

Note: When resuming playback from any point after the starting point of a recording, the organ will not automatically select registrations at the resumption of playback. **BE SURE THE APPROPRIATE STOPS HAVE BEEN SELECTED** before resuming playback from within a recording. If capture pistons were used during recording, be sure the same capture memory (1, 2, 3, or 4) is used during playback.

D. POSITIONING THE SEQUENCER

Use the following procedure to select the point in an existing recording at which playback or subsequent recording will begin.

When the sequencer is stopped, the "<" and ">" buttons on the Console Controller™ may be used to decrease or increase the sequencer counter value, shown in the upper left-hand corner of the display window. Think of these two buttons as having the same functions as the "Rewind" and "Fast Forward" buttons on a tape recorder. During recording, the counter increases at a rate of one count per second. Playback or Record may be resumed from any counter position specified. (See below.)

Recording can be resumed by pressing and holding the "RECORD" button and then momentarily pressing the "STOP/CONTINUE" button. Playback can also be resumed by pressing the "STOP/CONTINUE" button alone.

E. CHANGING PLAYBACK SPEED

When the sequencer is stopped, or during playback, the playback speed can be gradually increased or decreased by using the "^" and "v" buttons. The playback speed ranges from 50% to 200%, with the original recorded rate being 100%. Changes are made incrementally and remain in effect until further adjustments are made or until the organ's AC power is turned off. Turning off the organ's AC power will automatically return playback speed to the originally recorded speed (100%).

During playback, you can momentarily alter playback speed by pressing and holding the "<" button to reduce the playback speed instantly to 50% of the recorded speed. Releasing this button returns playback to its original speed. Pressing and holding the ">" button during playback will instantly increase playback speed to 200% of recorded speed. Releasing this button also returns playback to its original speed. This process is especially useful in scanning an existing recording to find a desired point for subsequent resumption of playback or recording. Upon reaching the desired point in the recording, press the "STOP/CONTINUE" button to stop the playback.

F. RECORDING AN EXTERNAL MIDI DEVICE

Input from an external MIDI device can be recorded to the sequencer. Make sure the MIDI OUT of the external device is connected to the Allen Organ MIDI IN. The same rules apply when recording from an external MIDI sequencer.

Note: The external MIDI device's current tonal and expression settings are not recorded automatically at the beginning of recordings. For this reason, it is best to begin recording before setting registration and expression levels of external devices.

For the external MIDI keyboard or box to sound on playback, the MIDI stop for the appropriate division on the organ must be turned on, and the MIDI OUT of the organ must be connected to the MIDI IN of the external device. The audio output of the device must also be connected to an audio system.

CAUTION! Make sure that the external MIDI device has been properly programmed to transmit the types of messages desired (program changes, control data, etc.) before recording is started.

G. EXITING THE SEQUENCER

To exit from the sequencer and return to normal play mode, press the button marked "MEMORY" on the Console Controller™ panel.

MIDI GUIDE

I. MIDI FOR ORGANISTS

- A. What is MIDI?
- B. Type of MIDI Devices
- C. Types of MIDI Data
- D. MIDI as a Practice Tool
- E. MIDI as a Registration Tool
- F. Other Uses for MIDI
- G. Connecting the Allen Organ to other MIDI Devices

II. MIDI OPERATIONS

- A. Saving Capture Memory to a Sequencer
- B. Resetting the MIDI Base Channel
- C. MIDI Expression Settings
- D. MIDI Program Changes
- E. Transmitting Stop Data

I. MIDI FOR ORGANISTS

A. WHAT IS MIDI?

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. This enables devices of different types and manufacturers to communicate with ease. It is not necessary to understand all of the technical aspects of MIDI in order to take advantage of the benefits it offers. Most of today's MIDI devices are easy to operate. It is important to explore the potential MIDI holds for musicians, as well as the various MIDI applications available today.

B. TYPES OF MIDI DEVICES

MIDI devices fall into two categories. The first category consists of musical instruments such as organs and synthesizers, which transmit and receive MIDI data. 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.

C. 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. This means that 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.

Most Allen Organ models incorporate a total MIDI system, allowing the transmission of volume information, registrations, Crescendo settings and more. It is even possible to control several devices from one manual simultaneously, or control different devices from each manual of the console.

D. 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, freeing the director from the role of accompanist, and allowing him to concentrate on directing the choir. The sequencer may even 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 (most sequencers do), each vocal section's part may be recorded on a different track, and then played back individually, or in any combination, for increased 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 and to become aware of, from the earliest stage of learning a composition, the interrelationship of its voices, is especially valuable in learning contrapuntal works.

E. 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 check registrations by recording his playing and registration to a sequencer and then listening from different locations in the room during the music's playback.

F. OTHER USES FOR MIDI

MIDI has opened new possibilities to the organist. The MIDI organ console's ability to control external keyboards or sound modules puts an ever increasing array of non-traditional sounds at the organist's fingertips, with a degree of control only possible through the flexibility of an organ console. The ability to record MIDI data with the use of a sequencer opens a variety of new possibilities, both in practice and performance situations. Computer programs are even available that allow musicians to play MIDI devices connected to a computer and have their performance printed out 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.

G. CONNECTING THE ALLEN ORGAN TO OTHER MIDI DEVICES

MIDI-capable Allen Organ consoles may be connected to a variety of MIDI devices. The last page of this manual contains diagrams illustrating the proper procedures for connecting the Allen Organ to an assortment of MIDI devices. Although the diagrams are not meant to be an exhaustive list of possibilities, they illustrate the most commonly used combinations of MIDI devices. If more specific information is required, please consult the owner's manuals of the external devices being connected to the Allen Organ.

II. MIDI OPERATIONS

The following information deals with the MIDI capabilities of your organ. For an in-depth description of MIDI, refer to Part II, MIDI GUIDE. The usefulness of these operations will ultimately be determined by the type and capabilities of the particular external MIDI devices--e.g., sequencers, samplers, and external keyboards--being used. Knowledge of these operations is not required for normal service playing or everyday use of the organ.

A. SAVING CAPTURE MEMORY TO A SEQUENCER

Eighth window.

1. With this operation the organist can save all capture memories (piston settings, MIDI settings, Crescendo B, and Tutti B settings) to a digital sequencer. When used with a sequencer that can save MIDI files to a computer floppy disk, this feature allows the organist to save a backup copy of all of the capture, crescendo, and tutti settings on the organ to a floppy disk, insuring that those settings can be restored to the organ's memory if they are inadvertently changed. The organist can also create and retain several complete sets of capture settings that can be loaded into the organ's capture memory at will. The window display reads:

CAPTURE MEMORY SAVE

Set your sequencer to the record mode and begin to record as you would normally. Press and hold the "Memory" button on the Console Controller™ and press General Pistons 2-5-5. Capture data will then be transmitted to the sequencer. The window will read "Done!" when transmission is complete.

2. To place capture information into the organ from your sequencer, you simply "play" it from the sequencer into the organ as you would a piece of music.
3. NOTE: It is not necessary to unlock your capture memories in order to save them to a sequencer; however, you must unlock the memories in order to place capture information into the organ from the sequencer. Use window 12 to unlock all capture memories as described in section I.E.3.

B. RESETTING THE MIDI BASE CHANNEL

Second window.

1. The base channel for the MIDI interface is normally set to channel 1. This operation permits you to change the MIDI base channel setting. Some external MIDI devices that can be used with the Allen Organ do not have the capability of changing the channels on which they transmit and receive MIDI information. If, for example, the external MIDI device you are using can only transmit and receive on channel 1, by resetting the Allen Organ's MIDI base channel to channel 2, channel 1 is freed for use by the external MIDI device. Consequently, when recording to a MIDI sequencer using the Allen Organ and an external MIDI device of this type, both devices will transmit and receive MIDI data from the sequencer. Advance to the window that reads:

MIDI BASE
CHANNEL = 1

Following are the default (normal) settings for the MIDI channels:

<u>MIDI Channel</u>		<u>Organ Division</u>
1	=	Swell
2	=	Great
3	=	Pedal
4	=	Choir (if applicable)
5	=	Solo
6	=	Not Used
7	=	G1 and G2 pistons
8	=	General Pistons

All functions associated with any particular manual will transmit and receive on its assigned channel; for example, MIDI channel 1 is normally assigned to the Swell; therefore, key on/off messages, program changes (divisional pistons), and the Swell expression will be transmitted and received on channel 1.

2. Use the " ^ " and " v " buttons to change the base channel; for example, if the base channel is reset to "2", all the channels will move higher by one, so that the last channel would be channel 9.
3. NOTE: 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 ABOVE 9.

C. MIDI EXPRESSION SETTINGS

Third window.

1. Advance to the window that reads:

MIDI EXPRESSION POLY - VOLUME

There are four modes for transmitting expression data via MIDI. They are changed by using the " ^ " and " v " buttons on the Controller.

- a. Poly - Volume: this is the default (normal) mode. If the MIDI base channel is set to 1 as described in section B above, the Swell expression shoe will send its expression data on channel 1. Channel 2 would carry Great expression data, etc. This is the proper mode to use when recording to, or playing back from, a sequencer.
- b. Poly - Velocity: should be selected if you are using a percussion-type voice from an external MIDI keyboard; for example, if a digital piano sound were played from the organ keyboard through channel 1, the piano could be made to sound more realistic. By depressing the Swell pedal, the piano "strings" would appear to be struck "harder" than when the Swell pedal was in the closed position. NOTE: When in this 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 an external keyboard is connected. If this mode is used when recording to a sequencer, the expression on the organ will not function when playing back from the sequencer.
- c. Swell - Volume: will send MIDI expression data only on the Swell MIDI channel.
- d. No Expression: cancels transmission/reception of expression data.

D. MIDI PROGRAM CHANGES

Fourth window.

1. Many external MIDI sound modules allow the user to select the various sounds by responding to program changes. More specifically, each sound in the sound module will be assigned a different number. By sending that number over the MIDI interface to the sound module, it will automatically call up the voice assigned to that particular number. The Allen Organ can be configured to transmit any program change number between 1 and 128 on any general or divisional piston. Advance to the window that reads:

MIDI PROGRAM CHANGE PRESET P-CHANGE

There are three options available from this window. They are selected by using the "<" and ">" keys on the Console Controller™.

- a. Preset: the default (normal) setting, allows your piston changes to be recorded by a sequencer. The divisional pistons (1-6) for each division will send program changes 1-6 on their respective channels; for example, Swell Piston 1 would send program change 1 on channel 1. Great Piston 2 would send program change 2 on channel 2, etc.
- b. No: cancels transmission and reception of program change data.
- c. User: allows you to select program changes, such as sounds from a remote MIDI keyboard that responds to program change information. Program changes other than the preset ones can be assigned to any piston, including generals. To change a program number, press the piston you wish to change. Use Swell 1 for this example. Note that the display changes to read:

SWELL 1 => ---
USER P-CHANGE

This shows the piston pressed and the program number being sent by that piston. Use the "^" and "v" buttons to raise and lower the program number. The program number (1-128) will be transmitted on the channel assigned to the division from which you selected the piston; in this case, the Swell on channel 1.

E. TRANSMITTING STOP DATA

Fifth window.

1. Advance to the window that reads:

TRANSMIT/RECEIVE
STOPS = ON

2. This operation 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 from the organ may conflict with data from an external MIDI keyboard. When this occurs, select the "off" position by pressing the "Λ" or "∨" buttons. NOTE: Piston changes will still be transmitted and received, because they are program changes.

MUSIC MEMORY™

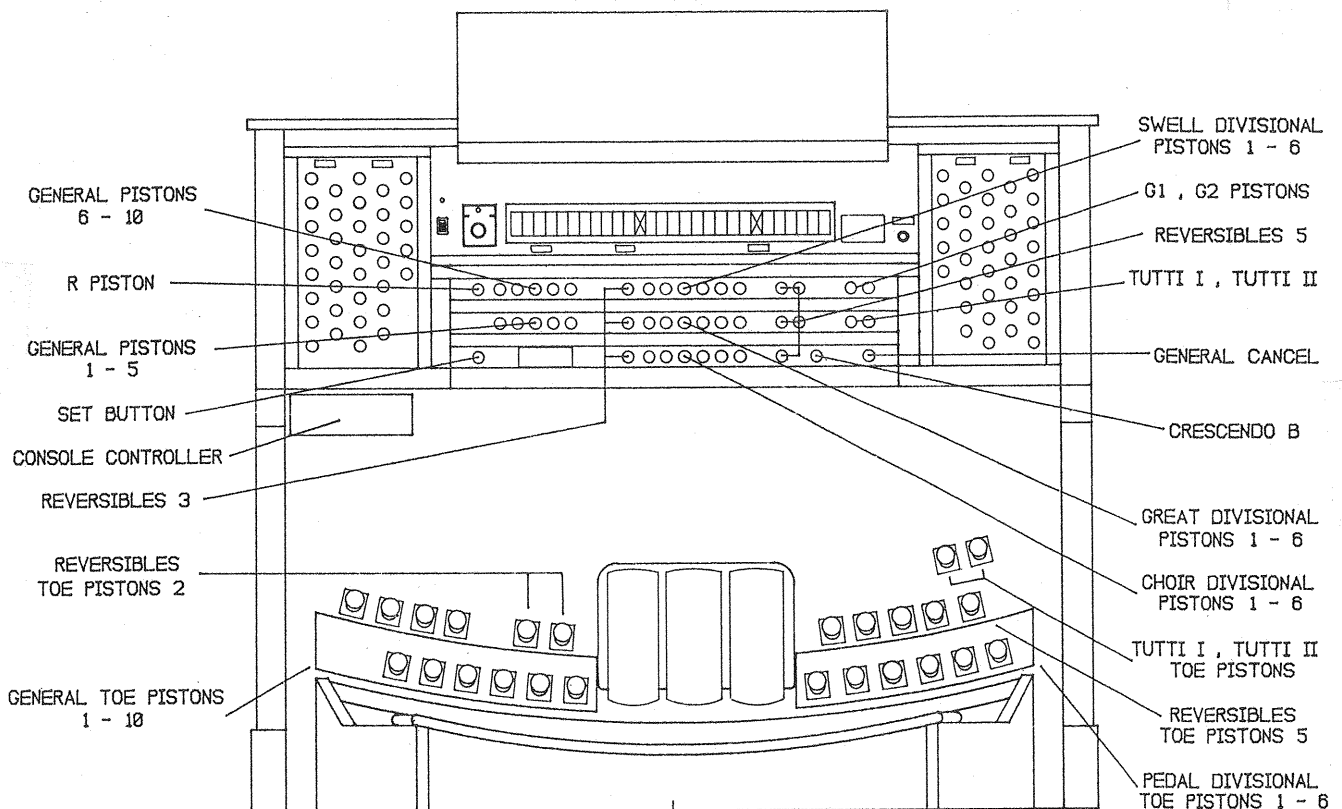
Many Allen Organs equipped with Performance Recorder™ also include pre-recorded demonstrations of a variety of tonal combinations and musical styles called Music Memory™. To access these recordings, advance the Console Controller™ to the "DEMO/SELF-CHECK" window by first pressing the "Set" and "Cancel" pistons together. Then, while holding in the "Set" piston, repeatedly press the "R" piston until the "DEMO/SELF-CHECK" window appears. If you inadvertently go past this window, press the "Set" and "Cancel" pistons and start again.

Within the "DEMO/SELF-CHECK" window, the demo recordings may be accessed through the Swell pistons. Swell Pistons 1 through 5 begin Demo recordings 1 through 5 respectively. Swell Piston 6 acts as a stop/continue switch for stopping or continuing any of the Demos. To skip directly to a different Demo, merely press the desired piston number which will interrupt the existing Demo and automatically start the new one. Note: Demo 4 contains two selections.

To exit the Demo window, press the "Set" and "Cancel" pistons together and release. This returns the Console Controller™ to its normal playing mode.

CAPTURE COMBINATION ACTION

The MDS-70-S organ is equipped with Allen's Six Memory Capture Action, which offers the ultimate in registration control and convenience. Six memories provide a total of 216 separate combinations. The organist can set combinations on any memory and then lock the memory (except Memory 1) using a three digit code. This prevents unwanted tampering with capture combinations. See the section on the Console Controller™.



THINGS TO REMEMBER

The "R" Piston, when activated, will recall the last combination set prior to using any general or divisional piston.

"G1" and "G2" are divisional pistons that affect only the General stops.

General pistons (all of which are duplicated by toe studs) affect all stops. Swell, Great, Choir, and Pedal pistons affect only stops in their division. Interdivisional couplers (Swell to Great, Swell to Pedal, Great to Pedal, etc.) operate from the general pistons only, not from divisional pistons.

Pedal pistons are available only on toe studs.

All pistons operate independently from each other.

Tutti I and II are reversible (i.e., pressing once will activate either Tutti; pressing again will deactivate).

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

INSTALLATION, VOICING, AND CARE OF THE ORGAN

INSTALLATION

Wherever your MDS-70-S organ may be situated, careful installation is a prerequisite to successful results. Your Allen representative is well qualified to guide you in planning for this.

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

VOICING

The MDS-70-S organ enjoys unprecedented accuracy in the scaling and voicing of each note of every stop. This musical breakthrough is an inherent part of the engineering design of the instrument. Final adjustments in scaling and voicing involve controls within the console and are best left to an expert. These adjustments are normally a part of installation and, once done, should not require changes, unless the instrument is moved to a new location.

Bass frequency projection is strongly affected by tone cabinet location. Although none of the tone cabinets should be moved once the installation has been completed, extra care should be exercised to prevent inadvertent movement of the bass tone cabinets.

REVERBERATION

The ADR-4 Digital Reverberation System provides the spatial ambience of a large reverberant auditorium. Although most effective in poor acoustic environments, it even enhances the tones in an ideal acoustic setting.

The Reverb stop is not affected by the capture system.

Adjustment of reverberation can be accomplished by your service technician or sales representative.

CARE OF THE ORGAN

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

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

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

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!

USA ONLY
CAUTION

Do not plug the instrument into any current source other than 105-128 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 adapter.

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

In churches where circuit breakers are turned off 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.

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.

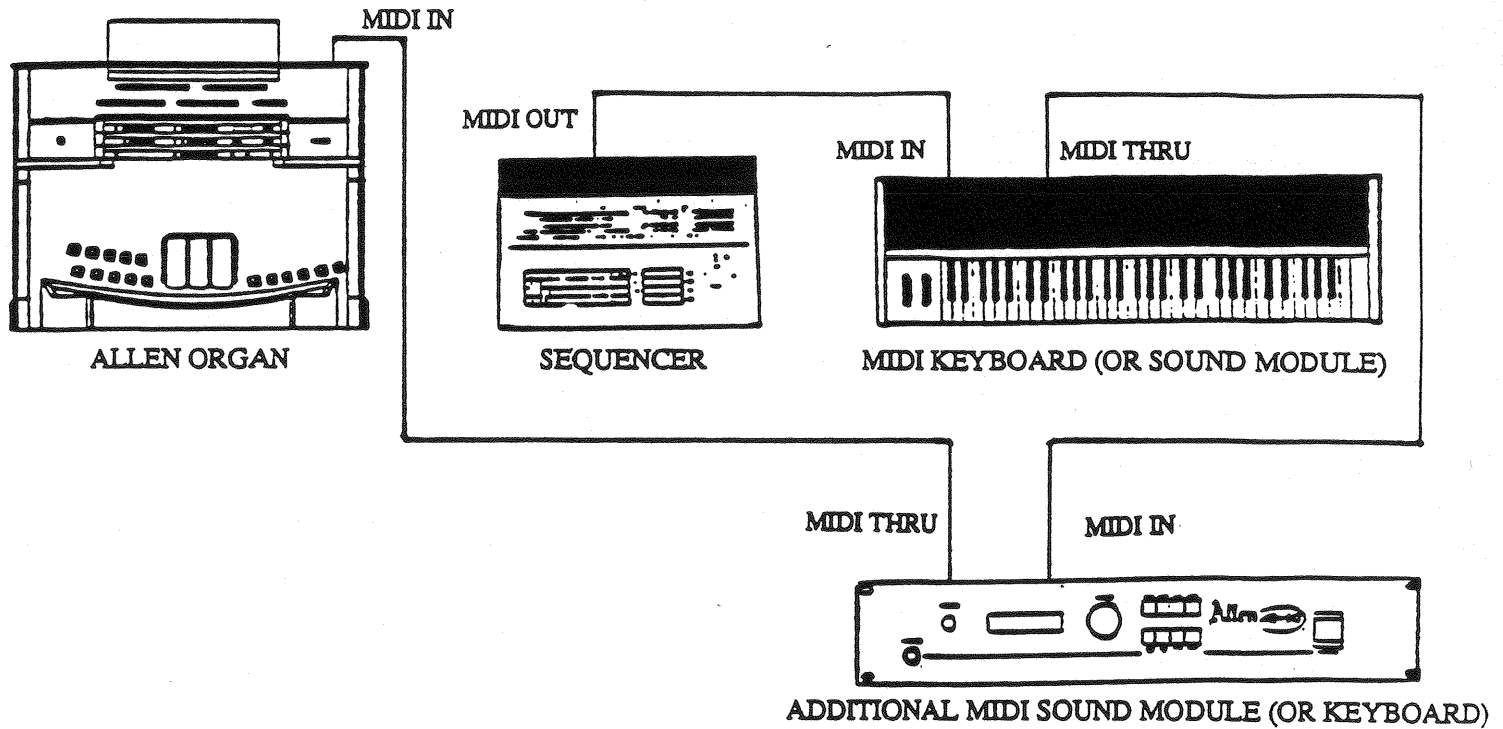
Do not change the cable plug or remove the ground pin (if applicable).

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

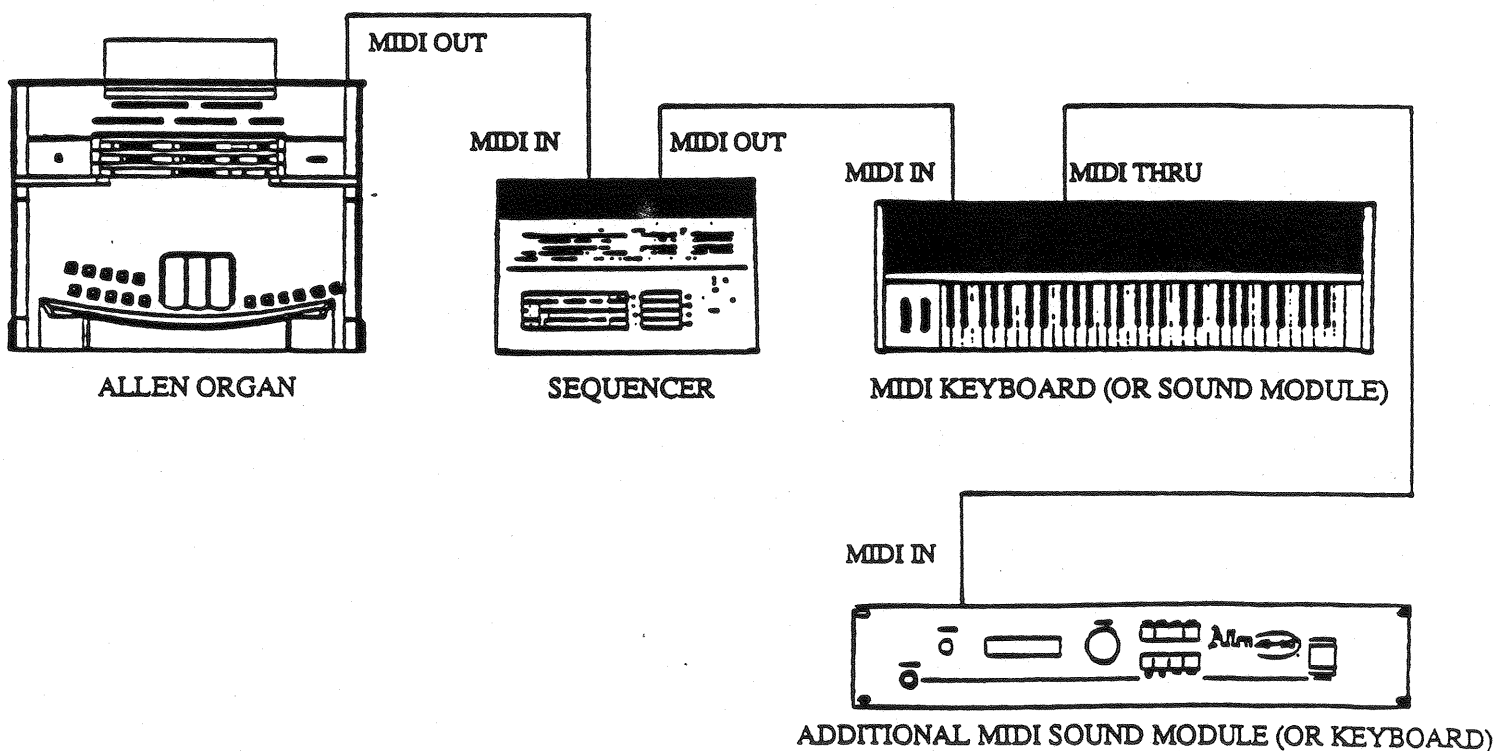
In churches where circuit breakers are turned off between worship services, the circuit breaker affecting the organ console AC power should have a guard installed to prevent its being accidentally switched off.

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

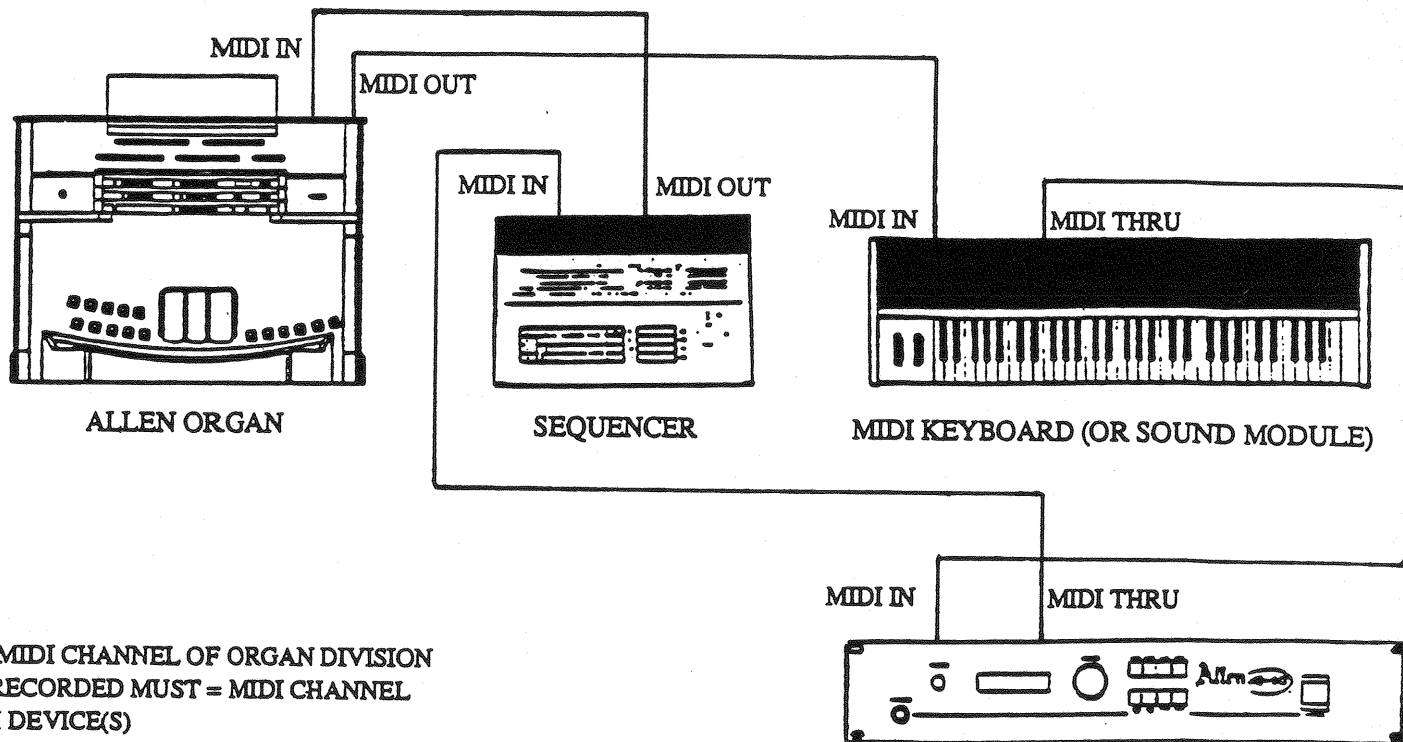
PLAYBACK OF ALLEN ORGAN AND MIDI DEVICE(S) FROM SEQUENCER



RECORDING FROM ALLEN ORGAN TO SEQUENCER WHILE MIDI DEVICE(S) PLAYS PRE-RECORDED SEQUENCER TRACK



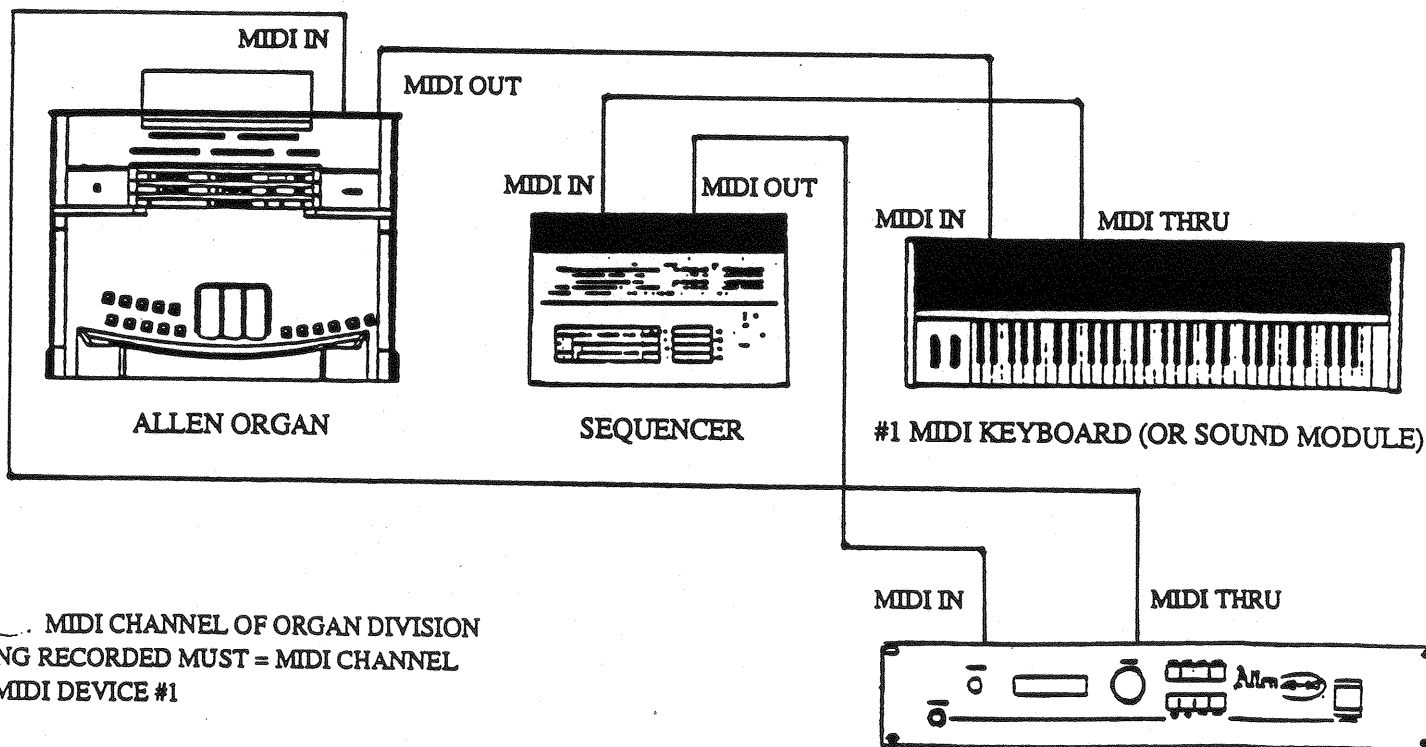
RECORDING FROM ALLEN ORGAN TO SEQUENCER. MIDI DEVICE(S) PLAYS TRACK BEING RECORDED. ORGAN PLAYS PRE-RECORDED TRACK FROM SEQUENCER



NOTE: MIDI CHANNEL OF ORGAN DIVISION BEING RECORDED MUST = MIDI CHANNEL OF MIDI DEVICE(S)

ADDITIONAL MIDI SOUND MODULE (OR KEYBOARD)

RECORDING FROM ALLEN ORGAN TO SEQUENCER. MIDI DEVICE #1 PLAYS TRACK BEING RECORDED. ALLEN ORGAN & MIDI DEVICE #2 PLAY PRE-RECORDED SEQUENCER TRACK(S)



NOTE: MIDI CHANNEL OF ORGAN DIVISION BEING RECORDED MUST = MIDI CHANNEL OF MIDI DEVICE #1

#2 ADDITIONAL MIDI SOUND MODULE (OR KEYBOARD)

ADDENDUM

BATTERY BACKUP SYSTEM

The memory for the capture system on your MDS organ is sustained by a Lithium battery. This allows capture settings and 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 will alert you when the battery becomes weak and needs to be replaced.

On Allen MDS organs that include a Console Controller™, the LCD display will flash a warning message for a few seconds during power-up when the battery requires replacement. The display will read as follows:

WARNING!!
Replace Battery

On Allen MDS organs without a Console Controller™, the green power light will flash for about ten seconds after the organ is switched on.

Should the battery in your MDS organ require replacement, contact your local Allen authorized service representative.

ADDENDUM TO MIDI INFORMATION

TOTAL MIDI PLUS™

Some MDS-15 and larger Allen organ models now feature Total MIDI Plus™, an expanded MIDI system with increased flexibility. Through the use of Allen's SmartMIDI™, Total MIDI Plus™ provides a comprehensive interface between MIDI sound modules such as the Allen MDS-Expander™, and digital sequencers. 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. Refer to the drawing below for information on the proper procedure for connecting multiple MIDI devices to the organ.

