TX217
Theatre Model w/GeniSys Display

IMPORTANT! Organs which contain GeniSys™ technology no longer include the GeniSys Overview Guide within the model specific Owner's Manual. The GeniSys Overview Guide must be downloaded and/or printed separately.

AOC P/N 033-00289 Revised 12/2024

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 GeniSys™ technology are the product of years of advancements in digital sound and control techniques by Allen Organ Company. GeniSys™ 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.

Contents

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 *2-2/3' Nasard*, *1-3/5' Tierce*, *1-1/3 Quintflöte* and *2-2/3 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:

UNIFICATION

In Theatre organs, and occasionally in classical organs, a system called "unification" was used. Unification allowed the same "rank" of pipes to be used at multiple pitches and on several manuals. Unification was commonly used on Theatre organs which is what enabled them to have large numbers of stops on the console with relatively few ranks of pipes as compared to that of a classical organ. For example, a Tibia Clausa rank may be drawn at 16', 8', 5-1/3', 4', 2-2/3', 2', 1-3/5' and 1' 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 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 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.
Ophicleide	Loud, brassy reed sound with that contains both fundamental and overtones (similar to that of a Posaune).
Diaphone	Similar to a reed, but in a class by itself. The Diaphone employs a beating pallet to help produce its unique tone. The Diaphone is a full, smooth and weighty type tone. Used only in 16' pedal rank.
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.'
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.
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.
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.
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.
Violin (2rks)	Imitative string and celeste in the solo chamber. These were special strings to George Wright. They were very early Wurlitzer, and very bright.
Orchestral Oboe	Solo reed with a pungent nasal timbre somewhat imitative of its orchestral counterpart.
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.
Concert Flute	Typical wood open flute of the 1920's.

Traps and Percussions are imitative of their orchestral counterparts.

COUPLERS

Couplers combine the stops from one manual to another, or in other cases (depending on model) a coupler may also combine octave related pitches within the same manual. 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 Theatre organ model.*

Accomp To Pedal — Couples the Accompaniment stops to the pedalboard.

MIDI *(optional)*

MIDI couplers are available for all manuals/pedals. On the TX217 model, the Solo, Accompaniment manuals and Pedals have MIDI stops which when turned "on" allows the keying information from the associated manual or pedals to be transmitted out of the "switched" MIDI port (#2). This is useful should an external MIDI sound device be connected to the organ for additional sounds. MIDI port #1 is designated as the sequencer port and is designed to be "live" at all times and does not depend on the status of the MIDI couplers. All associated MIDI data is transmitted out of that port at all times regardless of the state of the MIDI couplers.

DIVISION	MIDI Channel
Solo	1
Accompaniment	2
Pedal	3
General Pistons	8
Traps	10

TREMULANTS

Allen Theatre organs have 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 with the tremulant turned "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/effect. This Sampled Waveform Tremulant™ technology contributes to the huge ensemble sound.

III. GENISYS VOICES™

GeniSys™ Voices is a set of over 260 classical and contemporary style voices, including eight drum kits and various special effect voices, which can be assigned and activated by designated stop controls within each division of the organ. Each division contains two GeniSys™ Voices stop controls. On the TX217, the GeniSys™ Voices stop controls are located on buttons within the right side console drawer with the GeniSys™ Display. Each button contains an LED to indicate whether the GeniSys Voice assigned to the button is turned on or off. The GeniSys Voice stop controls are programmed within the GeniSys™ Voices selection window within the GeniSys™ Display. In addition to selecting a voice for a stop control's position, the voice's gain (volume), tuning, pitch and key range or split may also be adjusted. All voice settings are retained when the organ is turned off. GeniSys™ Voices expands the organ's sound capabilities by offering literally dozens of many different and creative sound configurations and is all dependent on the requirements of the music and the creativity of the organist.

For more detailed instructions on how to use GeniSys™ Voices, please refer to the GeniSys Overview Guide.

IV. EXPRESSION SHOE

The organ's expression pedal (called a "shoe") controls the overall expression of the organ. The Master expression shoe is also equipped with a foot switch (right side mounted) to control MIDI Sustain and Sostenuto. Reference the GeniSys™ Overview Guide for additional information on the adjustments and settings for the MIDI Sustain and Sostenuto functions.

V. SETTING PISTONS

SETTING GENERAL PISTONS

The Allen Organ's capture system allows stop registration combinations to be programmed in each of its available memories. Each Allen Organ model have different piston layouts to accommodate organ size. The maximum number of available capture memories on the TX217 is 128.

To set a capture combination:

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

Usually, the General pistons are customarily set from soft to loud using graduated stop combinations. The pistons that have been set "remember" the registration combinations assigned to them. Each time a General piston is pressed, the registration assigned to that piston is activated.

Stop registration combinations may be changed at any time by repeating the above procedure. For more advanced information on setting capture combinations in multiple memories please refer to the GeniSys Overview Guide.

SETTING DIVISIONAL PISTONS

If an Allen Organ contains 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 on Divisional pistons.

The MIDI couplers can be set on either Divisional or General pistons. However, the intermanual coupler may only be set on General Pistons. These rules can be modified as the piston configuration may be changed. Refer to the GeniSys Overview Guide for additional information relating to re-configuring pistons.

RECALL PISTON

The "R" or Recall piston recalls the last registration setting prior to using any General or Divisional piston. For example;

- Press a General or Divisional piston/toe stud. The stop registration programmed on that particular piston/toe stud will appear.
- Manually register additional stops to the current stop registration.
- Now, press a different General or Divisional piston/toe stud. The stop registration programmed on that particular piston/toe stud will appear.
- Press the "R" piston. The previous stop registration, including those stops registered manually, will re-appear.

What happens is that the capture system takes a "snapshot" of the current stop registration and stores it within the Recall piston memory before it actually changes to the new stop registration selected. Then, when the "R" piston is pressed, the capture system "recalls" the previous registration stored before the last piston/toe stud selection was made.

SOUND EFFECT PISTONS

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

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*

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 from within the GeniSys™ Display *(refer to the GeniSys Overview Guide for Transposer operation instructions)*. The key can be raised a maximum of five half steps and lowered a total of seven half steps.

The color of the Transposer button within GeniSys™ Display will change to RED whenever the Transposer is not within the neutral or "0" position. This is to warn the organist that the instrument is not ready to play in the same key as when in the Neutral or "0" position.

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™

Allen Organ 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 that utilizes the impulse responses which 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 meticulously recorded the acoustics of various cathedrals and other acoustically desirable buildings throughout the world. With highly advanced processing power and patented low-latency convolution algorithms, Acoustic Portrait™ reproduces the true acoustic responses of each original room with stunning realism! Allen Theatre organs feature 10 different Acoustic Portraits™ selections, ranging from intimate rooms to cavernous cathedrals.

Available Reverb Selections

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

Acoustic Portrait™ is controlled within the GeniSys™ Display and must be turned ON to hear the selected reverb selection. The Acoustic Portrait™ selection as well as the gain (volume), measured in dB (decibels), can be accessed and adjusted within the GeniSys™ Display. *Reference the GeniSys Overview Guide for more detailed instructions on the Acoustic Portrait™ adjustments.*

IX. CLASSICAL VOICING

Allen Theatre organs include a set of Classical voices in addition to the three standard Theatrical voicing suites (Wurlitzer, Barton and Morton). The Classical specification is comprised of pipe samples from the world's finest examples of organ-building. The touch of a button changes the entire Theatre organ specification to a Classical voicing specification.

Note: Some of the stops on the organ may contain a secondary engraving, in red color, indicating a change in the function of that particular stop when the Classical Voicing suite is loaded.

For more information on changing/switching between the different voicing suites, reference the GeniSys Overview guide.

X. 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.

XI. INSTALLATION, VOICING, AND CARE OF THE ORGAN

INSTALLATION

Wherever an Allen 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

Allen Organs present unprecedented accuracy in the scaling and voicing of each note of every stop. Final adjustments in scaling and voicing involve procedures that are best left to an expert. These adjustments are normally a part of the installation, and once done, should not require any changes. If the organ is moved to a new location or major changes/renovations are made to the acoustical properties of the room the organ resides in, the instrument may need to be tonally finished again. Please contact your local Allen Organ representative for more details.

SOPHISTICATED FLASH MEMORY TECHNOLOGY

Voicing and scaling settings are stored within the Allen organ's internal Flash Memory system. Organ's equipped with Flash Memory Technology eliminates the need for batteries.

CARE OF THE ORGAN

Your Allen 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. 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.

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!!

XII. 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.

APPENDIX A: (Audio, Voicing Charts)

TX217 – 2Ch

CAGE "A" **Wurlitzer/Barton/Morton** **AUDIO LAYOUT** **11/22/2024**

Ch1 – Main	Ch2 – Main	Ch3 – Solo	Ch4 – Solo	Channel 5	Channel 6	Ch7 – Perc/Traps	Ch8 – Perc/Traps
1-14 Chrysoglott	1-15 Chimes	1-6 Tibia -Low	1-1 Tibia Unit			1-2 Persian Cymbal	1-3 Bass Drum
1-17 Concert Flute	1-22 Xylophone	1-8 Post Horn	1-5 Vox Humana			1-4 Siren/Train Whistle	1-7 Tap Cymbal
1-18 Clarinet	1-23 (Pd) Violone	1-9 Orch Oboe	1-10 Glockenspiel			1-19 Snare Drum	1-20 Tom Tom
1-21 Open Diapason	1-24 (Pd) Tibia Pizz		1-11 Diaphone -Low			1-26 Bird/Horn/Bell Tree	1-31 Tambourine
1-25 Violin Unit	1-29 Kinura		1-12 Quintadena				
	1-30 Violin Unit (Cel)		1-13 Tuba Horn				
1 > 3	2 > 4	M10-1	M10-2			7 > 3	8 > 4

Classic

1-17 Harmonic Flute	1-15 Chimes	1-6 Flute -Low	1-1 Flute Unit			1-2 Persian Cymbal	1-7 Tap Cymbal
1-18 Clarinet	1-23 (Pd) Violone	1-8 French Trumpet	1-5 Vox Humana			1-4 Siren/Train Whistle	1-20 Tom Tom
1-21 Diapason	1-24 (Pd) Tibia Pizz	1-9 Oboe	1-10 So: Mixture III			1-19 Snare Drum	1-31 Tambourine
1-22 So: Mixture IV	1-29 English Horn		1-11 Pd: Diap/Mixture III			1-26 Bird/Horn/Bell Tree	
1-25 Violin Unit	1-30 Violin Unit (Cel)		1-12 Quintadena				
			1-13 Tuba				

Tremulant Groups:

1 = Strings
2 = Open Diapason
3 = Tuba Horn
5 = Clarinet/Flute
6 = Tibia
7 = Vox
10 = Kinura
11 = Orch Oboe

Audio Channels

Channel 3	Main/Solo
Channel 4	Main/Solo

APPENDIX B: (Advanced MIDI Information – MIDI Event Data)

This appendix section is for those advanced users that use MIDI.

KEYBOARDS: The keyboards utilized on the TX217 will transmit key "velocity" values other than a static value of '64'. 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 between 1-127 may be transmitted depending on how hard a key is played.

Note: A velocity value of '0' is considered a note off event.

MANUAL DIVISIONS:

Manual	MIDI Channel
Solo	1
Accompaniment	2
Pedal	3
General Pistons	8
Trigger and Traps Pistons	10

MIDI note events contain three pieces of data: 1) MIDI Channel, 2) Note Number, and 3) Velocity (listed here as a value). Use of your favorite sequencer program will list the MIDI data as "MIDI Events". The data can be displayed within a "view MIDI event" window of the sequencer program. For example:

TRACK	TIME	CHANNEL	EVENT	VALUE	DURATION
1	XX:XXX:XX	1	NOTE G5	64	100

This example illustrates that Track 1 contains a Note-On event to be transmitted via MIDI for MIDI channel #1 to play note "G5" with a velocity value of "64" for a duration of "100" ticks (a length measurement used by most sequencer programs).

Note: The length measurement value is dependent on the note resolution setting within the sequencer program and MIDI Song File. The note resolution setting determines the number of TICKS per quarter note.

PISTONS: These are generally listed as "MIDI Program Changes" or "Patch Changes" in MIDI speak and usually correspond to the manual they are attached to. "Patch" events in MIDI begin at "0", but note the first piston in each division is "1". Therefore, by subtracting "1" from each piston number will equal the equivalent MIDI program change number.

Example:

TRACK	TIME	CHANNEL	EVENT	VALUE	DURATION
1	XX:XXX:XX	1	PC	0	
1	XX:XXX:XX	8	PC	9	

The first MIDI event indicates piston #1 was pressed on MIDI channel #1.

The second MIDI event indicates General piston #10 was pressed.

Note: There are no duration values transmitted for MIDI Program Change events.

EXPRESSION: MIDI expression (volume) changes fall under the broad heading of "MIDI Control Changes". MIDI Control Changes can consist of many items from expression (volume), to stops, to sustain, to sostenuto, etc. Each control type has a separate control number value assigned to them to differentiate the type of MIDI Control it is. For example, MIDI volume is assigned a MIDI Control Change value of 7. MIDI Control Change event data will contain 1) MIDI channel, 2) Control type, and 3) a number for the control change "value". In the case of MIDI volume, the control change value could be any number between 0 and 127. Since an organ's volume level never truly goes to "0", the lower limit on an Allen is approximately a value of 20. Expression event data, within a sequencing program, may look similar to this example:

TRACK	TIME	CHANNEL	EVENT	VALUE	DURATION
1	XX:XXX:XX	1	Volume	100	
1	XX:XXX:XX	1	Volume	98	
1	XX:XXX:XX	1	Volume	96	
1	XX:XXX:XX	1	Volume	94	

This brief example illustrates the volume is reducing/lowering on the division assigned to MIDI channel #1.

It is important that any external MIDI devices (MIDI tone generation or sound devices, in particular) connected to the organ respond to the current expression setting. Therefore, it is good practice to move the expression shoes when an organ is first turned on to align the MIDI sound device's volume to the organ.

Note: There are no duration values transmitted for MIDI Control Change events.

STOPS: Allen organs contain an internal MIDI stop control number system or “map” which allows a MIDI Song File recorded on one Allen organ to be played back on another Allen organ of the same OR different model. If the piston registration changes (i.e. MIDI Program Changes) within the MIDI Song File are converted to transmit the individual MIDI stop control numbers of the individual stops within the organ's various piston registrations, the MIDI Song File could then be used on various model Allen organs without the need to change or reprogram the organ's various capture memory registrations.

Note: *The Allen MIDI Assistant Librarian program, included with the purchase of the Allen MIDI Assistant, features a MIDI stop control conversion function within the program. Contact your local Allen Organ dealership representative for more details.*

Individual stops on the organ are handled by specially assigned MIDI stop control numbers. MIDI has a "catchall" for anything not specifically defined by the MIDI standard called "Non-Registered Parameter Numbers" or simply NRPN. NRPN numbers are classified as MIDI stop control changes and use the assigned Control Change number values of 98 and 99. NRPN messages are arranged as 3 byte MIDI events:

- Byte #1: MIDI Control Change #99 is the "high" byte value or MSB and the first MIDI event transmitted.
- Byte #2: MIDI Control Change #98 is the "low" byte value or LSB and the second MIDI event transmitted.
- Byte #3: MIDI Control Change #6 or DATA value is the third MIDI event transmitted. The third byte is the "on and off" byte for the NRPN value figured within the first 2 bytes. MIDI Control Change #6 with a value of 127 turns the stop on, while a value of 0 turns the stop off.

For example, a Tibia Clausa 8' is assigned a MIDI control number value of “40” within the MIDI system map of the organ. The Primary Tibia 8' on any of our organs would be assigned the value of "40". Therefore, any MIDI Song File which transmits a NRPN value of “40” will turn on or off the stop assigned the MIDI stop control number value of “40”.

The best way to illustrate this is to display an example (see below). The first MIDI event message packet displayed will turn on the Tibia Clausa 8' on the division assigned to MIDI channel #1. The second MIDI event message packet will turn off the Tibia Clausa 8'.

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

TRACK	TIME	CHANNEL	EVENT	VALUE	DURATION
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 a MIDI stop control number value is 128 or larger, the number must then be “split” into separate "bytes" using both MSB and LSB byte values because MIDI can only transmit values between 0 and 127.

For example, suppose a stop contains an assigned MIDI stop control number value of 132. The number 132 must be split into separate bytes in order for MIDI to be able use it as a valid MIDI stop control number. The MIDI event message data would look like this:

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

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

How did the displayed values get computed? The formula to compute the MSB and LSB values is relatively simple:

- First, figure out the MSB value. As a rule, any number value assigned to the MIDI Control #99 (MSB) will be multiplied by 128. Since the MIDI stop control number value is 132, this example is simplified as 128 will divide by 132 one time for a value of 1.
  Note: *Only use the whole number value to the left of the decimal when dividing by 128 as the result. The remainder or numbers to the right of the decimal are dropped.*
  Therefore, MIDI Control #99 (MSB) = 1.
- To find the LSB value, subtract the MIDI stop control number, which in this case is 132, from the computed MSB value (1 x 128 = **128**). In this case, 132 – 128 = **4**. 4 will be the number value entered within MIDI Control #98 (LSB).
- To verify the number values are correct, add the LSB value to the computed MSB value (4 + 128 = 132). 132 is the value of the stop being transmitted so the conversion is correct!

Here is another example with an even larger value MIDI stop control number:

A stop is assigned a MIDI stop control number value of 290. In order to transmit the correct MIDI stop control number, the number is split into two bytes using both MSB and LSB values:

- First, figure the MSB value. 290 divided by 128 = 2 *(remember, only use the whole number value to the left of the decimal as the result, the remainder or the numbers to the right of the decimal are dropped)*. Therefore, MIDI Control #99 (MSB) = 2.
- Figure the LSB value. First, compute the MSB value (2 x 128 = **256**) and then compute the LSB value by subtracting the computed MSB value from the MIDI stop control number
  (290 – 256 = **34**). Therefore, MIDI Control #98 (LSB) = 34.
- Verify, add the computed MSB value to the LSB value: (256 + 34 = **290**) Conversion is correct!

APPENDIX C: (Advanced MIDI Information – NRPN Stop Data)

** Note: The stop number is not transmitted and is for reference only.*

* **PEDAL** Division

Num	Chan	NRPN	Name	Comment
S001,	3,	115,	Ophicleide 16 {OPH} [R],	---
S002,	3,	009,	Diaphone 16 {DIA},	---
S003,	3,	012,	Tibia Clausa 16 {TIBIA},	---
S004,	3,	017,	Violone 16 {VIOL},	---
S005,	3,	127,	English Post Horn 8 {HORN} [R],	---
S006,	3,	128,	Tuba Horn 8 {TUBA} [R],	---
S007,	3,	031,	Open Diapason 8 {OPEN},	---
S008,	3,	041,	Tibia Clausa-Pizz 8 {PIZZ},	---
S009,	3,	040,	Tibia Clausa 8 {TIBIA},	---
S010,	3,	132,	Clarinet 8 {CLAR} [R],	---
S011,	3,	042,	Flute 8 {FLUTE},	---
S012,	3,	248,	Accomp. To Pedal {ACCOMP} [B],	---
S013,	3,	202,	Bass Drum,	---
S014,	3,	203,	Tap Cymbal	---
S015,	3,	224,	MIDI On Pedal {MIDI} [B],	---

* **ACCOMP.** Division

Num	Chan	NRPN	Name	Comment
S016,	2,	127,	English Post Horn 8 {HORN} [R],	---
S017,	2,	128,	Tuba Horn 8 {TUBA} [R],	---
S018,	2,	031,	Open Diapason 8 {OPEN},	---
S019,	2,	040,	Tibia Clausa 8 {TIBIA},	---
S020,	2,	132,	Clarinet 8 {CLAR} [R],	---
S021,	2,	034,	Violins 2 rks 8 {CEL} [Y],	---
S022,	2,	044,	Quintadena 8 {QUINT},	---
S023,	2,	042,	Concert Flute 8 {FLUTE},	---
S024,	2,	138,	Vox Humana 8 {VOX} [R],	---
S025,	2,	056,	Octave 4 {OCT},	---
S026,	2,	063,	Piccolo 4 {PICC},	---
S027,	2,	059,	Violins 2 rks 4 {CEL} [Y],	---
S028,	2,	065,	Concert Flute 4 {FLUTE},	---
S029,	2,	166,	Chrysoglott {CHRYS},	---
S030,	2,	205,	Snare Drum,	---
S031,	2,	209,	Tom Tom	---
S032,	2,	204,	Tambourine	---
S033,	2,	203,	Tap Cymbal	---
S034,	2,	223,	MIDI On Accomp. {MIDI} [B],	---

* **SOLO** Division

Num	Chan	NRPN	Name	Comment
S035,	1,	113,	English Post Horn 16 {HORN} [R],	---
S036,	1,	115,	Tuba Horn 16 {TUBA} [R],	---
S037,	1,	009,	Diaphone 16 {DIA},	---
S038,	1,	012,	Tibia Clausa 16 {TIBIA},	---
S039,	1,	118,	Clarinet 16 {CLAR} [R],	---
S040,	1,	120,	Orchestral Oboe 16 {OBOE} [R],	---
S041,	1,	017,	Violins 2 rks 16 {CEL} [Y],	---
S042,	1,	121,	Vox Humana 16 {VOX} [R],	---
S043,	1,	127,	English Post Horn 8 {HORN} [R],	---
S044,	1,	128,	Tuba Horn 8 {TUBA} [R],	---
S045,	1,	031,	Open Diapason 8 {OPEN},	---
S046,	1,	040,	Tibia Clausa 8 {TIBIA},	---

```
S047,   1,  132,  Clarinet 8 {CLAR} [R],              ---
S048,   1,  140,  Kinura 8 {KIN} [R],                 ---
S049,   1,  135,  Orchestral Oboe 8 {OBOE} [R],       ---
S050,   1,  034,  Violins 2 rks 8 {CEL} [Y],          ---
S051,   1,  138,  Vox Humana 8 {VOX} [R],             ---
S052,   1,  053,  Fifth (Tibia) 5-1/3 {5TH},          ---
S053,   1,  056,  Octave 4 {OCT},                     ---
S054,   1,  063,  Piccolo 4 {PICC},                   ---
S055,   1,  059,  Violins 2rks 4 {CEL} [Y],           ---
S056,   1,  076,  Twelfth 2-2/3 {12TH},               ---
S057,   1,  084,  Piccolo 2 {PICC},                   ---
S058,   1,  091,  Tierce 1-3/5 {TIERCE},              ---
S059,   1,  162,  Glockenspiel {GLOCK},               ---
S060,   1,  163,  Xylophone {XYLO},                   ---
S061,   1,  161,  Cathedral Chimes {CHIME},           ---
S062,   1,  225,  MIDI On Solo {MIDI} [B],            ---
```

* **TREMULANTS**

```
Num  Chan   NRPN  Name                                Comment
---- ----   ----  ----                                -------
P008,   8,  176,  Main,                               ---
P009,   8,  177,  Tibia/Vox,                          ---
P010,   8,  178,  Solo,                               ---
```

* **GENISYS VOICES**

```
Num  Chan   NRPN  Name                                Comment
---- ----   ----  ----                                -------
P001,   3,  501,  GeniSys Voice 1                     Pedal
P002,   3,  502,  GeniSys Voice 2                     Pedal
P003,   1,  503,  GeniSys Voice 3                     Solo
P004,   1,  504,  GeniSys Voice 4                     Solo
P005,   2,  505,  GeniSys Voice 5                     Accompaniment
P006,   2,  506,  GeniSys Voice 6                     Accompaniment
P001,   8,  500,  GeniSys Voices Couple               ---
```

APPENDIX D: MIDI IMPLEMENTATION CHART

FUNCTION		TRANSMITTED	RECEIVED
Basic	Default	1 – 16	1 – 16
Channel	Changed	1 – 16	1 – 16
	Default	3	3
Mode	Messages	X	X
	Altered	X	X
Note Number		O (1 – 127)	O (1 – 127)
Velocity	Note ON	9nH, v = 1 – 127	9nH, v = 1 – 127
	Note OFF	9nH, v = 0	9nH, v = 0
Aftertouch	Keys	X	X
	Channels	X	X
Pitch Bend		O	O
Control Change	0 (bank select)	O	X
	6 (Data MSB)	O	O
	7 (volume)	O	O
	64 (sustain)	O	O
	66 (sostenuto)	O	O
	98 (NRPN: LSB)	O	O
	99 (NRPN: MSB)	O	O
Program Change		O (1 – 127)	O (1 – 127)
System Exclusive		O	O
System Common		X	X
System Real Time		X	X
Aux Messages		X	X

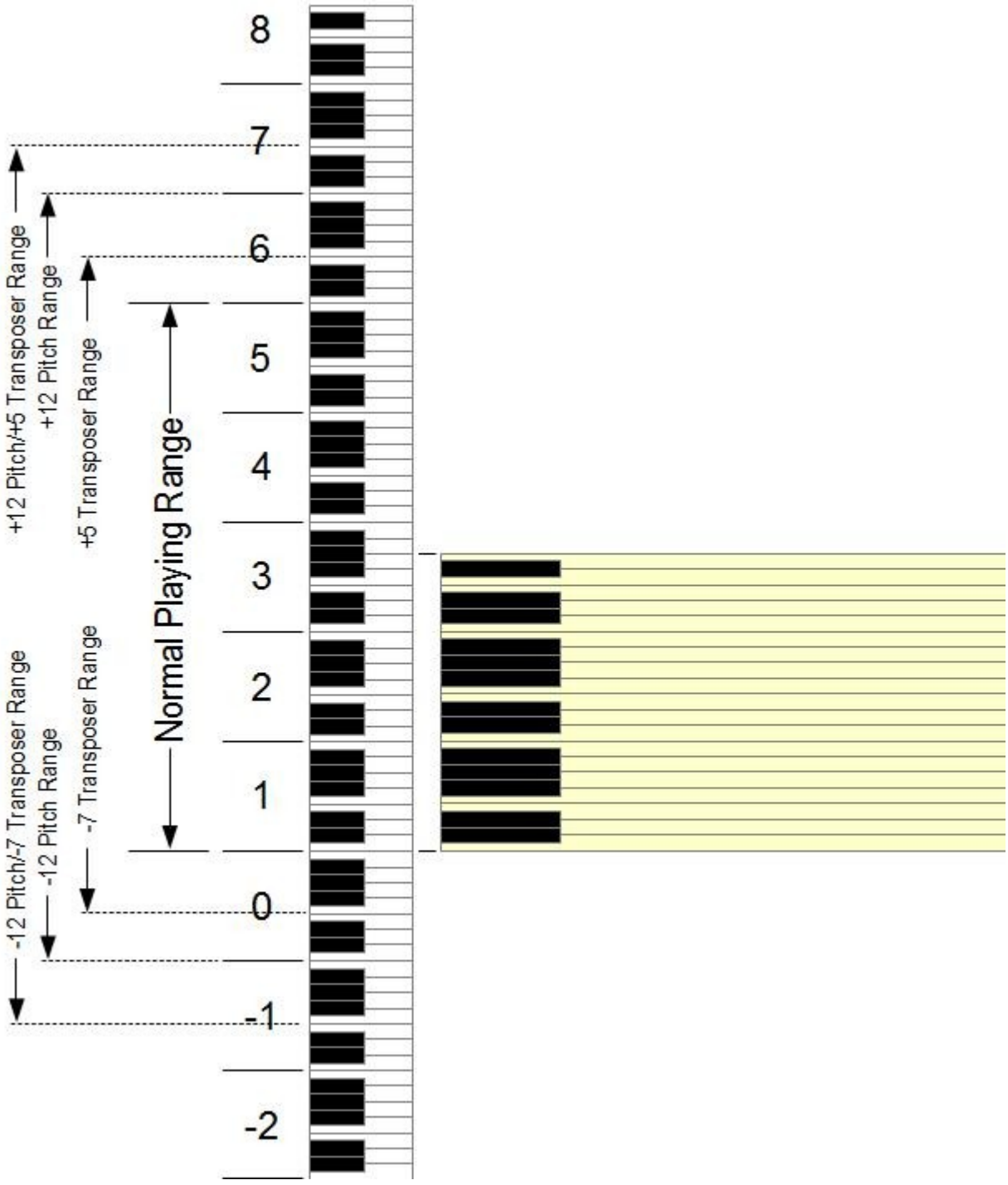
Mode 1: Omni On, Poly Mode 2: Omni On, Mono O: Yes
Mode 3: Omni Off, Poly Mode 4: Omni Off, Mono X: No

APPENDIX E: GENISYS™ VOICES SOUND LIST

Grand Piano	001	Harmonica	023	Muted Trumpet	060
Grand Piano	001A	Tango Accordian	024	French Horn	061
Grand Piano	001B	Ac Guitar Nylon	025	Brass Section	062
Grand Piano	001C	Ac Guitar Steel	026	BrassEnsemb	062A
Grand Piano	001D	El Guitar-Jazz	027	Synth Brass 1	063
Piano Resonance	001E	El Guitar-Clean	028	Synth Brass 2	064
OctavPiano 16-4	001F	El Guitar-Muted	029	Soprano Sax	065
Piano 16	001G	Ovrdrive Guitar	030	Alto Sax	066
Bright Piano	002	Distortd Guitar	031	Tenor Sax	067
Bright Piano-XL	002A	Guitar Harmoncs	032	Baritone Sax	068
Bright Piano-L	002B	Acoustic Bass	033	Oboe	069
Bright Piano-M1	002C	Acoustc BassSub	033A	English Horn	070
Bright Piano-M2	002D	Finger Bass	034	Bassoon	071
El Grand Piano	003	Finger BassSub	034A	Clarinet	072
Honky-Tonk	004	Picked Bass	035	Piccolo	073
El Piano 1	005	Picked BassSub	035A	Flute	074
EPiano Tines-XL	005A	Fretless Bass	036	Recorder	075
Epiano Tines-L	005B	Fretlss BassSub	036A	Pan Flute	076
El piano FM-L	005C	Slap Bass 1	037	Blown Bottle	077
Epiano-FM-Soft	005D	Slap BassSub	037A	Shakuhachi	078
El Piano 2	006	Slap Bass 2	038	Whistle	079
Harpsichord	007	Synth Bass 1	039	Ocarina	080
Harpsichord-XL	007A	Synth Bass 1Sub	039A	Lead1-square wv	081
Harpsichord-L	007B	Synth Bass 2	040	Lead2-saw2th wv	082
Harpsichord-M1	007C	Synth Bass 2Sub	040A	Lead3-Calliope	083
Harpsichord-M2	007D	Violin	041	Lead4-Chiff	084
Harpsichord 8-4	007E	8va Violin	041A	Lead5-Charang	085
Harpsichord16-8	007F	Viola	042	Lead6-Voice	086
Clavinet	008	Cello	043	Lead7-5ths	087
Celesta	009	Cello Ensemble	043A	Lead8-bass+lead	088
Glockenspiel	010	Contrabass	044	Fantasia	089
Chrysoglott	010A	Tremolo Strings	045	Warm	090
Orchestra Bells	010B	Pizzcato Strngs	046	Polysynth	091
Handbells	010C	Orchestral Harp	047	Choir	092
Music Box	011	Timpani	048	Bowed	093
Vibraphone	012	String Ensemb 1	049	Metallic	094
Vibraphone-L	012A	String Ensemb 2	049A	Halo	095
Vibraphone-M	012B	String Ensemb 3	049B	Sweep	096
Vibraharp	012C	String Ensemb 4	049C	Rain	097
Marimba	013	Slow Strings 1	050	Soundtrack	098
Marimba 2	013A	Slow Strings 2	050A	Crystal	099
Xylophone	014	Slow Strings 3	050B	Atmosphere	100
Wood Harp 8	014A	Synth Strings 1	051	Brightness	101
Wood Harp 4	014B	Synth Strings 2	052	Goblins	102
Tubular Bell	015	Choir Aahs	053	Echoes	103
Chimes	015A	Choir-L-S	053A	Sci-Fi	104
Carillon	015B	Choir-M	053B	Sitar	105
Dulcimer	016	Voice Oohs	054	Banjo	106
Drawbar Organ	017	Synth Voice	055	Shamisen	107
Percuss Organ	018	Orchestra Hit	056	Koto	108
Rock Organ	019	Trumpet	057	Kalimba	109
Organ	020	Bugle	057A	Bag Pipe	110
Reed Organ	021	Trombone	058	Fiddle	111
Accordion	022	Tuba	059	Shanai	112

Tinkle Bell	113	4 Engl Octave	148	8 Clarinet	183
Agogo	114	4 Harmonic Flt	149	8 Schalmei	184
Steel Drums	115	4 Viole	150	8 Vox Humana A	185
Woodblock	116	2 Piccolo	151	8 Vox Humana B	186
Taiko Drum	117	1 1/3 Larigot	152	4 Klarine	187
Melodic Tom	118	1 1/7 Septieme	153	4 Clarion	188
Synth Drum	119	1 Fife	154	4 Schalmei	189
Reverse Cymbal	120	Zimbel III	155	2 Zink	190
Fret Noise	121	Cymbale III	156	Organ – MF	191
Breth Noise	122	Mixture IV	157	Organ – F	192
Seashore	123	Grand Mixt IV	158	Organ – FF	193
Bird Tweet	124	Sesquialtera II	159	Organ – FFF	194
Phone Ring	125	Cornet V	160	8-4 Flute	195
Helicopter	126	32 Posaune	161	8-2 Flute	196
Applause	127	16 Posthorn	162	Tibia 8	197
Gunshot	128	16 Posaune	163	Tibia-Vox 8	198
32 Violone	129	16 Tuba	164	Tibia/Vox 8-4	199
16 Diapason	130	16 C Trumpet	165	Tiba 16-8-4	200
16 Diaphone	131	16 Clarinet	166	Bell Tree	201
16 Gamba	132	16 Dulzian	167	Snare Roll	202
16 Bourdon	133	16 Rankett	168	Cymbal Roll	203
16 Quintaden	134	16 Musette	169	Crash Cymbal	204
10 2/3 Quint	135	16 Vox Humana A	170	Thunder	205
8 Principal	136	16 Vox Humana B	171	Cannon	206
8 Engl Diapason	137	8 Festival Trpt	172	Drums- Standard	207
8 Bourdon	138	8 Posthorn	173	Drums- Room	208
8 Quintadena	139	8 Tuba	174	Drums- Power	209
8 Gedackt	140	8 Trumpet	175	Drums- Electric	210
8 Harmonic Flt	141	8 Trompette	176	Drums- TR808	211
8 Viole Celeste	142	8 Cromorne	177	Drums- Brush	212
8 Flute Celeste	143	8 Rankett	178	Drums- Orchstrl	213
8 Dulcn Celeste	144	8 Musette	179	Drums- SFX	214
5 1/3 Quinte	145	8 Krumet	180		
5 1/3 Quint	146	8 Cor Anglais	181		
4 Octave	147	8 French Horn	182		

APPENDIX F: VISUAL KEY RANGE CHART



APPENDIX G: GNU PUBLIC LICENSE INFORMATION

NOTICE:

Portions (but not all) of the software contained within this device are covered by the GNU General Public License shown below. As Such, for a period of three years after the manufacture date, you are entitled to a machine-readable copy of the applicable source code for a fee that covers the distribution costs. You may request a copy by sending that request in writing to:

GENISYS GPL REQUEST
ALLEN ORGAN COMPANY LLC
150 LOCUST ST.
MACUNGIE, PA 18062

Please include your name, address, and phone number.

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

PREAMBLE

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too. When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things. To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it. For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights. We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software. Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations. Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all. The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

1. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you". Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.
2. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program. You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.
3. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:
    a. You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.
    b. You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.
    c. If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.) These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it. Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program. In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.
4. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:
    a. Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
    b. Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c. Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.) The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable. If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

5. You may not copy, modify, sub-license, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sub-license or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.
6. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.
7. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.
8. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program. If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances. It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice. This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.
9. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.
10. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns. Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

11. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

12. Because the program is licensed free of charge, there is no warranty for the program, to the extent permitted by applicable law. Except when otherwise stated in writing the copyright holders and/or other parties provide the program "as is" without warranty of any kind, either expressed or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. The entire risk as to the quality and performance of the program is with you. Should the program prove defective, you assume the cost of all necessary servicing, repair or correction.
13. In no event unless required by applicable law or agreed to in writing will any copyright holder, or any other party who may modify and/or redistribute the program as permitted above, be liable to you for damages, including any general, special, incidental or consequential damages arising out of the use or inability to use the program (including but not limited to loss of data or data being rendered inaccurate or losses sustained by you or third parties or a failure of the program to operate with any other programs), even if such holder or other party has been advised of the possibility of such damages.

End of terms and conditions