



CHURCH ORGAN WORLD

MAKIN ◦ COPEMAN HART ◦ JOHANNUS



Organ Owners Manual

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1. Introduction

Congratulations on your decision to purchase a new Church Organ World organ. Church Organ World appreciates your patronage and welcomes you to our family of customers. You have now become the owner of a truly exceptional instrument.

Church Organ World produce many instruments, both standard and custom which makes it difficult to create a manual that exactly fits each specific instrument. To enable you to get to know all of the particular functions of your instrument this manual describes all the standard functions available on Church Organ World organs.

Church Organ World instruments are continually being developed as a result of ongoing research and dialogue with our Customers. While we try to keep the manual up to date you may find a function on your organ that is not in the manual or is different from the manual. It is also possible that your instrument may have additional functions that do not appear in the manual because you, the client, have specially commissioned the additional requirements. Should information you require not be in the manual, you can always contact us so that we may supplement the information you have.

This owner's manual contains all kinds of useful information that will allow you to explore the instrument, and put it into use. We, the builders of this instrument, would be pleased to help you explore its properties.

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2. An Overview

2.1. Type of Wood

An instrument is finished partly with veneer and partly with solid wood. Medium or light oak finishes are standard but your instrument may have another colour or be another type of wood.

2.2. The Organ Bench

Your organ is provided with a bench. Roll Shutter consoles will normally have a fixed height bench that contains a music shelf or box. On Cabinet style consoles this will normally be an adjustable height bench. There is the option to order an adjustable height bench for any organ if required. The bench is supplied in the same type of wood as the cabinet.

2.3. The Keyboards

Keyboards are designed with a toggle touch system to attain a church organ feel.

Standard keyboards are finished with synthetic key surfaces. Alternatively instruments may be fitted wooden keyboards.

2.4. The Pedalboard

The pedalboard is removable. At the front of each pedal key is a magnet. This magnet normally sits in close proximity to a reed switch, which is invisibly mounted behind the front panel at the bottom of the console. When you depress a pedal key, the reed switch is activated by the magnet at the end of the key.

2.5. The Music Desk

2.5.1. Horizontally and Vertically Adjustable Music Desk

This music desk can be horizontally adjusted by pulling it towards you or pushing it away. When pushing the music desk forwards or backwards, care should be taken that the music desk is moved equally on both sides. This will prevent the music desk from skewing, which may jam it. The music desk can be vertically adjusted by tweaking the grips left and right behind the music desk simultaneously and moving the music desk up or down. After the music desk has been adjusted to the right height, it can be locked by first releasing the grips and only then the music desk itself. When moving the music desk vertically, care should be taken that the music desk is moved up and down on both sides at the same time. This will prevent the music desk from slanting, which may jam it. In either case the music desk is automatically stopped at its limit of travel. The adjustable music desk may need to be repositioned to allow the roll top cover or the top lid of the instrument to be closed.

2.5.2. Horizontally Adjustable Music Desk

This music desk can be horizontally adjusted by pulling it towards you or pushing it away. In either case the music desk is automatically stopped at its limit of travel. When pushing the music desk forwards or backwards, care should be taken that the music desk is moved equally on both sides. This will prevent the music desk from skewing, which may jam it. The adjustable music desk may need to be repositioned to allow the roll top cover or the top lid of the instrument to be closed.

2.5.3. Cabinet Console Music Desk

The cabinet console has a fold down music desk that is both vertically and horizontally adjustable. It has a locking catch on the right hand side that when released allows the music desk to be folded down so that the cabinet sliding cover and doors can be closed.



To fold the music desk down. Pull the music desk gently forward a few inches then reach up under the right hand side and release the catch. The music desk will then fold down. When the music desk is put in the upright position the catch will self lock.

2.6. The Roll-Top Cover

On models fitted with a lockable wooden roll top cover, the roll top cover lock is located on top of the instrument, behind the music desk. The lock comes with a key.

Warning

You can lock the cover without using the key but the key is necessary to open the organ. Therefore, always take care that the key is not left within the console before closing the cover.

Open the instrument as follows:

1. Insert the key in the roll top cover lock.
2. Turn the key a quarter of a turn to the left; this brings the lock up.
3. Push the roll top cover up.

Close the instrument as follows:

1. Make certain that the key is not in the lockable space (see warning).
2. Check that if there is an adjustable music desk it is positioned so that it will not foul the closing cover.
3. Pull the roll top cover towards you.
4. Push the roll top into the locked position.

2.7. Console Cabinet Doors

On models fitted with slide tops and cabinet doors, the doors may be latched or locked.

To open:-

1. Unlock console with the key
2. Open glass fronted doors. So they start to fold back.
3. Release bolts so doors open fully
4. Fold doors back to side of the console
5. Slide the console top back to storage position
6. Angle adjustable music desk as appropriate

Closing the console is the reverse process but make sure the music desk has been set so as not to foul the case when closing the slides and doors.

2.8. Construction Standards

When building your instrument, the accepted standards in organ building are taken into account. The most important standards are:

- The Incorporated Society of Organ Builders (ISOB) Standard 1967 “Organ Console Standardization Code” in the UK. It specifies a concave radiating pedalboard with both splay and concave radii at 8ft 6in together with other important layout measurements.
- The American Guild of Organists (AGO) Standard 2002 is mainly used in the USA. Like the ISOB standard the AGO standard has an 8ft 6in concave radiating pedal board.
- The Bund Deutscher Orgelbaumeister (BDO) Standard 2000 is mainly used for instruments built for mainland Europe. The BDO standard allows for straight 30 key or radiating 32 key concave pedal boards where the concave radius is 3680 mm (12ft 1in) and 3350 mm (11ft) splay radius.
- The Royal College of Organists (RCO) specification 1904. It is often quoted as a standard but in fact the specification was for a single instrument built for the RCO Lecture Hall by Norman and Beard. It is notable for having a pedalboard concave radius of 12ft 6in and a splay radius of 8ft 6in.

Many pipe organs were built before any standard existed, other than those imposed by the builders, and it is therefore not uncommon to find organs that do not comply fully with any standards. It is not unknown for instruments, in the UK where the European continental influence has always been very strong, to be built utilizing part of any of these standards. The standard adopted for your organ will depend on the model you have chosen. The order of stops will be, as much as possible, in accordance with the standards applicable to your instrument.

2.9. Available Space and Symmetry

The available space is especially important. Stops and Pistons have to be far enough apart to allow for ease of operation. A reasonable symmetry has to be achieved between the left and right stop jambs for draw stops. On instruments with tab stops these are generally located above the manuals in accordance with the appropriate layout standard. Every attempt has been made to make the overall finish aesthetically pleasing. The following illustrations show typical layouts for instruments.

Illustration of a Typical Tab Stop Instrument

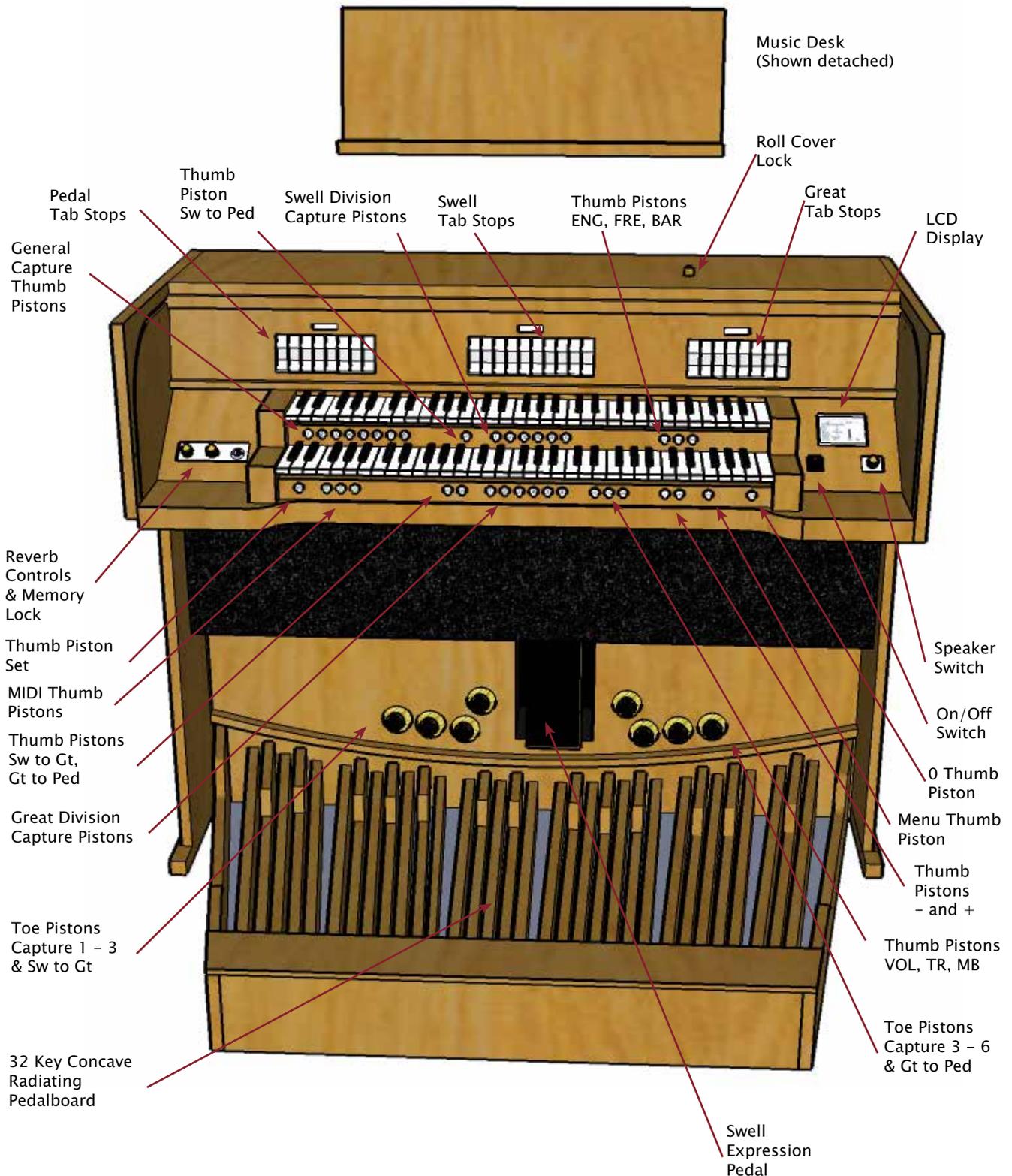
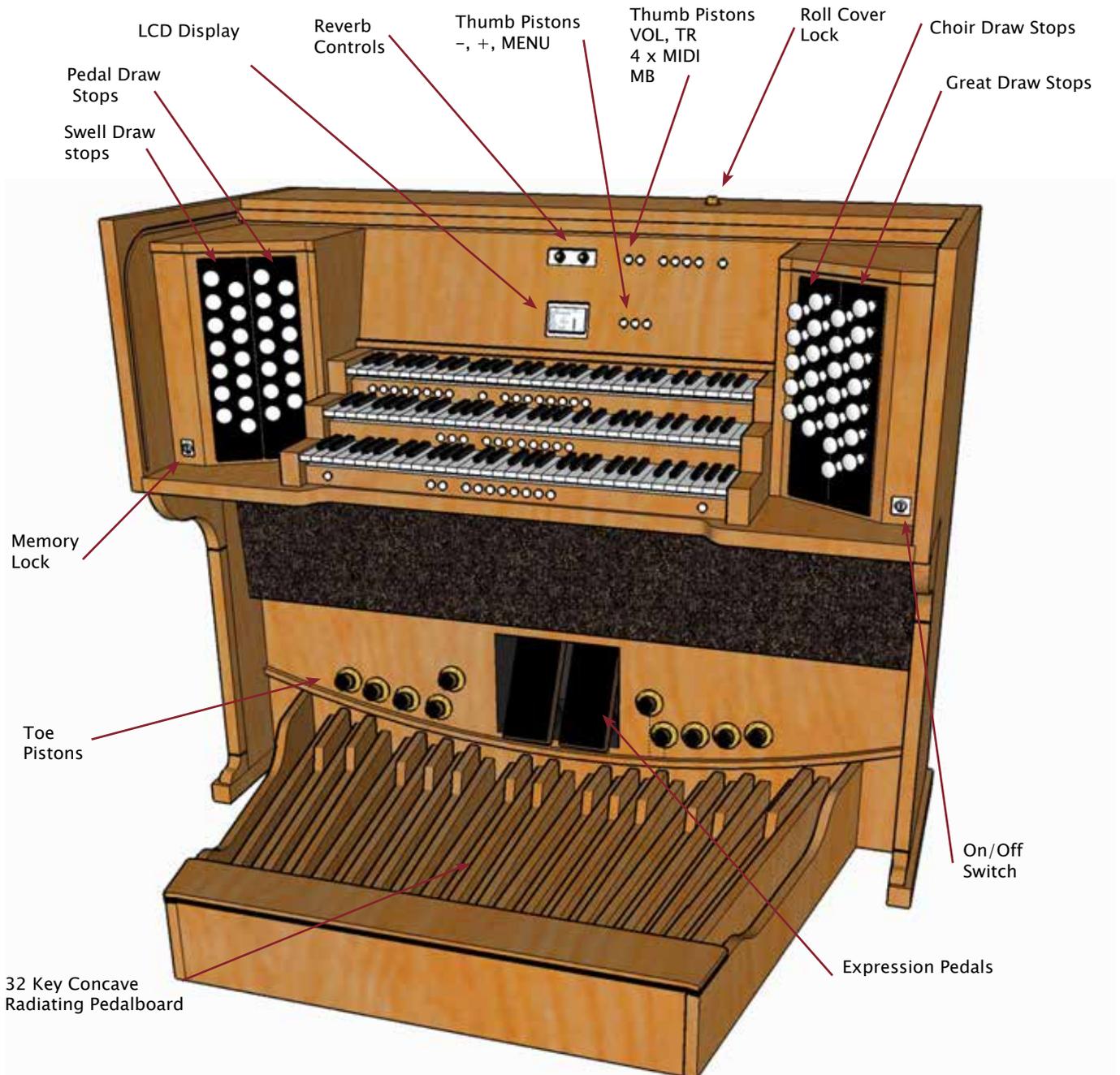


Illustration Of A Typical Three Manual Draw Stop Instrument



The Music Desk has been omitted to show the controls that it would normally cover. The keyboard pistons have a similar arrangement to the two manual illustration with couplers, general capture divisional capture, SET and 0 pistons occupying similar positions on the keyboard frontal. The stop layout will normally be, couplers and non speaking stops at the bottom of the columns followed by Flue pipes in order of length with smallest at the bottom, then Mixtures and then Reeds by length. Tremulants will be normally be placed immediately under the stops they affect.

2.10. Stops

Depending on the model, the instrument will be fitted with one of the types of stops mentioned below:

2.10.1. Lighted rocker tabs



The speaking stops and accessories are designed as lighted rocker tabs. They will normally be situated above the keyboard but may also be sited in the playing table adjacent to and either side of the keyboard. After activating or deactivating a stop, a lighted rocker tab springs back to the central position. Each stop has a lamp which lights up as soon as the stop is activated. The rocker tab has a push for on, push for off action and can be activated by pushing at the top or bottom of the tab.

2.10.2. Drawstops



A Drawstop can be turned on (activated) by pulling a stop knob out. A stop can be turned off (deactivated) by pushing in a stop. The position of a stop shows if a stop is activated or deactivated. On British instruments the draw stops of the Swell are located on the left of the keyboards and the stops of the Great on the right. Drawstop columns are offset vertically to maximize the space surrounding the stop which allows easier access.

2.11. Position of Accessories

The positions of the accessories may vary. In order to create more space for the speaking stops certain accessories such as couplers and tremulants may be designed as pistons, which are located on a front under the keyboards. On some instruments the accessories may be with the stop group with which they have an operational affinity. e.g. Swell Tremulant with the stops on the Swell division and the Swell to Great coupler with the Great division stops. Other instruments may have the accessories for all divisions grouped together.

2.12. Thumb Pistons



Depending on the design of your instrument, you may come across a number of thumb pistons which are normally located beneath the keyboard with which they are associated.

Pistons come in two types:

- Thumb pistons that stay in (on) or out (off). The position of these thumb pistons indicates whether they are switched on or off.
- Thumb pistons that spring back to the central position. These are usually the preset and numbered capture combination thumb pistons. When these thumb pistons are used, the stops indicate which stops have been switched on or off by the thumb pistons.

2.13. Toe Pistons



Besides having thumb pistons under the keyboards, your instrument may be fitted with a number of toe pistons (foot switches). These are generally located either side of the expression pedals.

2.13.1. Coupler Toe Pistons

With these toe pistons the couplers can be operated. When a coupler is switched off, it can be switched on by pressing the coupler toe piston. If the coupler is on it will be switched off.

2.13.2. Capture Toe Pistons

These toe pistons have the same functions as the numbered thumb pistons of the capture system.

2.13.3. Special Toe Pistons

Toe pistons can have special functions, depending on the specification of your instrument.

2.14. Expression Pedals



Depending on the number of manuals, one or more expression pedals may be found on your instrument. Usually each division is assigned its own expression pedal, so that the volume of the various divisions can be adjusted independently (of each other). The volume setting of the various expression pedals can be viewed on the LCD display. The positions of the expression pedals have been specified in the ISOB, AGO and BDO standards. The position of the expression pedals may also vary depending on the type of instrument. The ISOB standard specifies a position centrally between D# and F# pedals, while the AGO standard requires the Swell pedal to be opposite the pedal E - F gap and BDO specify the position to the right of console center. This means that the swell pedal is off centre so that depending on the number of expression pedals and the standard positions to left or right of the Swell pedal the expression pedal group may be asymmetrical with respect to the console center line.

3. The Organ Sound

There are a number of factors which will affect the way your organ sounds such as the place it is sited, the siting of speakers, the selection of voices, the intonation and the temperament. Adjustments will be made, by the Church Organ World installer, when it is first installed to get the best sound for the environment in which the instrument is situated.

3.1. Intonation

Intonation determines the timbre of the instrument. In organ building, voicing and tuning are very important. Every organ is adjusted, stop by stop, for the area where the instrument is installed. With sampled sounds you will get the voice of the pipe from which the sample was taken. The sound from two organ pipes of the same type; for example a Dulciana, from two different manufacturers will each sound slightly different. This is the voicing of the pipe and comes from the slight mechanical differences in design, from the wind pressure and from adjustments made by the voicer after the pipe is made. It is also important that the various voices in an organ all work together and that pipes in a rank have the same volume to produce a good overall sound. These variations in voice, from different organ builders, have led to some notable differences in the sounds that organs produce around the world while still sounding like a pipe organ.

Examples are:

- The work of Robert Hope-Jones (1859 – 1914) in the United States which eventually evolved into the unique sound of the Wurlitzer organ.
- The work of Aristide Cavaille – Coll (1811 -1899) in France which resulted in the French symphonic organs.
- The work of Henry Willis (1821 – 1901) who introduced redesigned reed pipes, pneumatic pistons for setting stops and many other innovations.

There were many other organ builders in Europe and the USA that developed the technology to produce the fine organs that we know today. Whether you like or dislike a particular pipe sound or the way that it has been voiced is nearly always a matter of personal preference.

The sampled sounds delivered on the organ have all been set up prior to delivery so that there is a good sound on individual pipes and there is a satisfactory sound balance across the whole organ.

3.2. Choice of Temperament

Temperament or temperature is the arrangement of tones within an octave. In the course of time, this arrangement has continually changed and has been adapted to changing tastes or to other and newer instruments. The debate over temperament still goes on but, since the beginning of the 20th century, equal temperament has been the accepted standard throughout Europe and America. Wherever the influence of western music has had an impact equal temperament has been adopted. Equal Temperament is a tuning system based on the division of the octave into 12 equal semitones. This is the normal tuning of your instrument. On an instrument tuned according to this principle music can be played in all the major and minor keys. Other Temperaments may be available on your instrument and if this is the case they may be selected using the LCD display with the MENU, SET, + and - pistons or may be designed as a stop or as a thumb piston on some instruments. Equal temperament is the default setting for the instrument.

4. Set Up

4.1. Connecting the Organ

Pay close attention to the following points when you connect your instrument:

- Check whether the mains voltage, as indicated on the serial number plate, matches the voltage of the mains to which the instrument is to be connected. The serial number plate is located on the left side under the keyboards.
- Connect the instrument to an earthed outlet. If this is not observed, there is a possibility that certain functions of the instrument will not operate correctly.
- The speaker boxes of instruments with a separate loudspeaker front should be connected only with the appropriate loudspeaker cables and with the organ power off. In many cases a separate loudspeaker front will be connected at installation by technicians of Church Organ World.
- Be sure that, if you connect the loudspeaker front yourself, the instrument is switched off. Switch on the instrument only after all the loudspeaker cables have been connected. Loose loudspeaker cables may cause a short circuit which may result in a break down of the power amplifiers.

4.2. Fitting the Pedalboard

In placing the pedalboard, please note the following:

- Make certain the surface, on which the instrument together with the pedalboard is placed, is flat. Carpeted floors are not generally a good surface because the pedal board may move relative to the main console causing non-sounding notes or sticking pedals.
- To fit the pedalboard correctly, it may be necessary to tilt the instrument a little backward.
- Shift the pedalboard as close as possible against the pedalboard panel
- If brass pin(s) are supplied they can be used to hold the pedalboard in place. The console and pedal board will be pre-drilled for the pins to fit. (This will normally be done for you by the installer.)
-

4.3. Switching On

Switch on the organ by depressing the power switch or turning the power key switch normally located on the right hand side of the keyboards. The LCD display will indicate when the instrument is switched on by displaying the current settings for your instrument and if there is a toggle power switch a red LED indicator will come on. It takes a few seconds before all the controls of the instrument are working. The various electronic circuits need this time to attain the correct settings (initializing).

4.4. Pedalboard Lighting

Your instrument is fitted with pedalboard lighting which is switched on or off when the instrument is switched on or off.

5. Functions

The following functions are available, although some are optional and may or may not be fitted to your instrument.

5.1. The 0 Thumb Piston



The 0 piston causes, with a few exceptions, all the activated stops to be switched off in one go. Exceptions are the: Combination Couplers, Chorus, Intonation (FRE, ENG, BAR), and MIDI stops.

5.2. Numbered Pistons



An instrument may have one or several groups of numbered pistons whose purpose is to set stops according to pre-programmed requirements referred to as a 'personal registration'. Pistons may be associated with a division i.e. Great, Swell etc.(referred to as Divisional capture pistons) or the whole instrument (referred to as General capture pistons). Normally piston 1 is set to a quiet registration with increasing volume or more stops set as the piston numbers get higher. How you program the pistons is entirely according to your own personal preference.

5.3. Menu



The Menu piston is used for displaying the menu on the LCD display.

5.4. + and -



The + and - pistons can be used to:

- Select a memory group
- Set the Volume, Tune and Transposer
- Select LCD Menu items



When the piston is held down it continues to increment (+) or decrement(-) the count for the item being set i.e. when setting the volume the volume will increase as long as the + piston is pressed.

5.5. English (ENG) English Intonation.



Selects English Intonation which has its roots in the German Baroque instruments. It has less “chiff” than a baroque instrument and a more modern design of reeds. When this piston is set, it switches off all other intonation pistons.

5.6. French (FRE) French Intonation.



Selects French Intonation which provides a noticeable difference in tonal colour compared to the English intonation. This comes mainly from the use of a different tonal design for the mixtures. When this piston is set, it switches off all other intonation pistons.

5.7. Baroque (BAR) Baroque intonation.



Selects the Baroque intonation which has more “chiff” and quicker speech than the English Intonation. Early instruments of this era may also have been tuned to a different temperament eg. Werckmeister III. When this piston is set, it switches off all other intonation pistons.

5.8. Manual Bass (MB)



For switching the coupler Manual Bass on or off. By switching on the stop (or the thumb piston) Manual Bass (MB), with appropriate pedal stops selected, the pedal can be coupled to the great. This coupler is a so-called monophonic coupler. This means that one key at a time is coupled from the pedal to the great. When a chord is played on the great, the lowest tone of that chord is coupled from the pedal to the great. This is normally used to accompany hymns. It gives a greater weight and depth to the music when pedals are not used. This coupler may be designed as a stop or as a thumb piston.

5.9. Transposer (TRANS)



Thumb piston for setting and storing the transposer setting. Used in conjunction with the + and - pistons the pitch of the instrument can be adjusted in half tone steps. Default is A = 440hz

5.10. SET



This is a thumb piston for programming:

- Free (capture) combinations.
- Volume, Tune and Transposer settings.
- Selection of Menu Items.

5.11. MIDI



The MIDI-stops or pistons send a MIDI message to turn On or Off a voice on an external device. MIDI stops can be programmed using the Menu system. When turned on this will show on the LCD display. By default this will set Voice 1, Bank 0,0 using the default channel for the keyboard, e.g. Swell=channel 2, on the external MIDI device.

5.12. Volume (VOL)



Thumb piston for setting and storing the volume setting. The general volume of the instrument can be adjusted by means of the thumb pistons VOL, SET, - (minus) and + (plus). Independent of the position of the expression pedals, the general volume of your instrument can be adjusted with the thumb piston VOL. In combination with the thumb pistons - and +. A general volume setting can be stored into the memory. When the instrument is switched on, the programmed volume setting will automatically be selected from the memory. A programmed volume setting can be changed later. The memory in which the volume setting is stored is protected so that it cannot be erased when you switch off the organ or when you unplug the organ from the main power.

To set the volume permanently

- ‘Open’ the memory by turning key switch MEMORY LOCK a quarter of a turn to the right.
- Press and ‘hold in’ thumb piston VOL
- Adjust the required volume by pressing the – or the + piston once or more times until the display shows the required volume
- Press the SET-piston when the correct volume is displayed. The display will briefly show a message that the volume setting has been programmed into the memory
- Release the VOL thumb piston
- Close the memory by turning key switch MEMORY LOCK a quarter of a turn to the left (taking the key from the switch, if necessary). The volume setting is now stored into the memory. When the instrument is switched on again, the volume setting programmed into the memory, will be automatically selected.

To set the volume for the current session only

- Press and ‘hold in’ thumb piston VOL
- Adjust the required volume by pressing the – or the + piston once or several times until the display shows the required volume
- Release the VOL thumb piston

5.13. Tremulants



Tremulants vibrate the sound of an organ to reduce the rigidity of tone. When the tremulant stops have been fitted under the music desk they are generally designed as rocker tabs. When the tremulant stops are placed at the stop jambs of their related divisions, the same type of stops are used for tremulant stops as for the speaking stops. If there is not enough space on the stop consoles or under the music desk the tremulant stops can also be thumb pistons located under the keyboards. The tremulant pistons bear the legend TREM.CH, TREM.GR, TREM.SW and TREM.SL for Choir, Great, Swell and Solo divisions respectively. Tremulants are particularly effective with slow or soft music.

5.14. Couplers



Couplers are standard on instruments with 2 or more manuals. Unless otherwise stated, all the couplers are full, that is to say, that all the keys which are pressed are coupled. The couplers may appear as stops, as thumb pistons, toe pistons or as a combination of these. A coupler may have more than one appearance and can therefore be operated in more than one way: with a stop, with a thumb piston under the keyboards and / or with a toe piston. Coupler stops are normally the same type of stops as those used for the speaking stops. Pressing any appearance of a coupler will turn it on, then pressing any appearance will turn the coupler off and vice versa. For example a Swell to Great coupler appears as a tab stop and a thumb piston. Pressing the tab will turn the coupler on then pressing piston will turn the coupler off.

5.15. Manual Couplers

With a manual coupler, one manual can be coupled to another manual. If for example the coupler SWELL TO GREAT is switched on, the coupled key of the swell will also sound, as soon as a key of the great is pressed. In this way the stops of the great can be supplemented with the stops of the Swell. Your instrument may be designed with following manual couplers:

- SWELL TO GREAT (instrument with 2 or more manuals)
- CHOIR TO GREAT (instrument with 3 or more manuals)
- SWELL TO CHOIR (instrument with 3 or more manuals)
- SOLO TO GREAT (instrument with 4 manuals)
- SOLO TO CHOIR (instrument with 4 manuals)
- SOLO TO SWELL (instruments with 4 manuals)

Instruments with more than 4 manuals may have a larger number of manual couplers.

5.16. Pedal Couplers

With a pedal coupler a manual can be coupled to the pedal. For example if the coupler GREAT TO PEDAL is switched on, the coupled key of the great will also sound as soon as a pedal key is pressed. In this way the stops of the pedal can be supplemented with the stops of the great. Your instrument may be designed with the following pedal couplers:

- GREAT TO PEDAL (instrument with 2 or more manuals)
- SWELL TO PEDAL (instrument with 2 or more manuals)
- CHOIR TO PEDAL (instrument with 3 or more manuals)
- SOLO TO PEDAL (instrument with 4 or more manuals)

Instruments with more than 4 manuals may have a larger number of pedal couplers

5.17. Sub and Super Couplers

Apart from the usual manual and pedal couplers, sub and super couplers may be added to your instrument. When one manual is coupled to another manual, the usual couplers will make the stops that are coupled to the other manual sound at their own, true footage pitch. When a sub coupler is switched on, the stops that are coupled to the other manual will sound an octave lower. When a super coupler is switched on, the stops that are coupled to the other manual will sound an octave higher. Apart from the sub and super couplers between the manuals, sub and super couplers functioning within the same manual (intra-manual couplers) may be fitted. An example of a super coupler is:-

- SWELL OCTAVE TO GREAT (super coupler swell to great)

5.18. Liquid Crystal Display (LCD)



The function of the display is to show various settings of the instrument and to allow the settings to be programmed. The display Shows:-

- Selected capture memory group .
- Volume setting.
- Pitch setting.
- Selected Temperament
- Expression Pedal Indicators
- Selected Intonation
- Midi Indicators

When MENU is selected the display will change to show the first Menu. You can scroll through the available menus using + and -. This will allow you to make changes to default settings and other programmable functions on your instrument. The number of menu items available on your instrument depends on the specification of the instrument.

5.19. Memory Lock



The Memory Lock (shown in the off position) is used to store personal registrations, volume, tune, transposer settings, MIDI-stop settings and Menu settings. The memory has to be “opened” by turning the memory lock key to allow changes to be stored in the instruments memory.

Warning

Do not forget to set the memory lock switch back to the off position when you have finished making changes or you may inadvertently change programmed settings.

5.20. Acoustics (Reverberation)

The built-in digital acoustic effect provides a special reverberation of the organ sound. Your instrument may be fitted with Rotary controls or thumb pistons or menu control via thumb pistons and visual indication on the LCD display.

5.20.1. Rotary Reverberation Controls



With the rotary control the volume and length of this acoustic effect can be adjusted continuously.

5.20.2. Thumb piston reverberation controls

With the thumb piston controls, reverberation may be set using the LCD display with the Menu (Reverb), Set, + and - thumb pistons.

5.21. Audio & MIDI External Connections

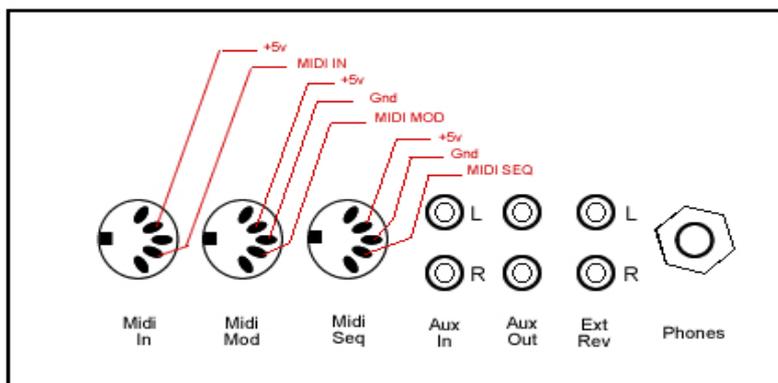
Your instrument may be fitted with a number of external connections. Depending on your preference, these connections can be found:

- On the left under the keyboard.
- At the back of the instrument.
- Inside the instrument.



The usual connections are:

- MIDI IN - For receiving MIDI-codes from other devices.
- MIDI THRU - For passing on incoming MIDI-codes from other devices.
- MIDI OUT - For sending MIDI-codes to other devices.
- MIDI MOD - When your instrument is fitted with programmable MIDI, the MIDI THRU is changed into a MIDI MOD output (MIDI output for connecting a sequencer)
- MIDI SEQ - When your instrument is fitted with programmable MIDI, the MIDI OUT is changed into a MIDI SEQ output (MIDI output for connecting a sequencer)
- AUX IN - This input is meant to reproduce the sound of an external device via the amplifiers of the instrument. For example, an expander which is controlled via the MIDI OUT of the instrument, can be played via the loudspeakers of the instrument. The volume of the device that is connected via the AUX IN, cannot be adjusted with the general volume setting or with the expression pedals (except when the external device is controlled via the MIDI OUT of the instrument).
- AUX OUT - This output is meant for connecting an external amplifier (stereo).
- EXT. REV. - The EXTERNAL REVERB connector is especially meant for connecting an external acoustics device. This is a system that, with four separate loudspeaker boxes, imitates the special effect of a concert hall or a cathedral in the space where the instrument is placed. Using this output for other purposes is not advisable.
- PHONES This connection for the headphones (stereo) is suitable for headphones with an impedance of 2000 ohms. When using so-called low-impedance headphones the volume may be too high. This can be adjusted with the general volume setting. When using the headphones, the internal and / or external loudspeakers of the instrument are automatically switched off. The various loudspeaker channels are now evenly spread over two headphone channels. This is two separate sound channels not Stereo.



6. The Menu System

Pressing the Menu piston brings up the menu system on the LCD display. Navigation of the menu is by means of the Set, Menu, + and - pistons. The bottom of the display shows the action that each piston will perform. The tree structure of the menu system is designed to allow you to step through the options and select those that you want. The Set piston moves down a menu level or sets the chosen value in memory. Menu selects the menu or moves the menu display up a level. Plus (+) and Minus (-) allow scrolling through the options on the chosen menu level.

Important

In order to program these items into memory the memory lock key must be inserted and turned to the right. Some instruments allow changes to the menu with the memory lock key in the off position in which case the selected value will be lost when the instrument is turned off. Only Menu Items that are appropriate for your instrument will appear.

6.1. Programmable MIDI



Allows the keyboards to be assigned to MIDI channels and patches (Voices) in combination with the MIDI stop or piston associated with the keyboard. With the programmable MIDI stops, you can control any module voice (1-128) through any MIDI channel (1- 16).

To program MIDI:-

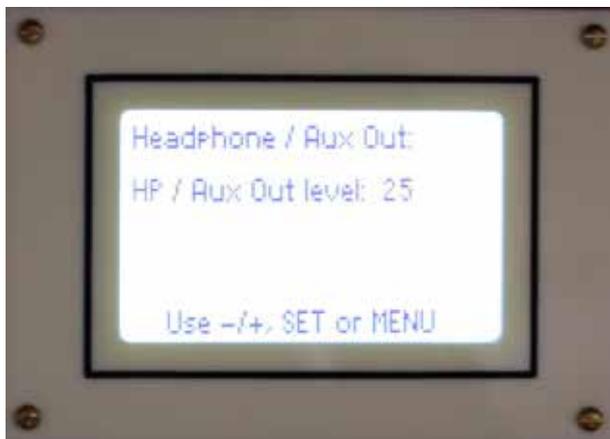
1. Press the MENU piston. Programmable MIDI appears on the display.
2. Press the SET piston.
3. Select the MIDI stop to be programmed (for example MIDI Swell). On the display, after MIDI:, there now appears the selected stop.
4. Use the - and + pistons to select the desired MIDI channel.
5. Press the SET piston.
6. Use the - and + pistons to select the desired MIDI voice number.
7. Press the SET piston. The selected adjustments are now stored in memory.
8. Select another MIDI stop to be programmed, if desired.
9. Press the MENU piston to return to the main menu.
10. Press the MENU piston again to exit the Menu.

6.2. General Volume



Allows the General Volume to be pre-set in the range 1 - 30.

6.3. Headphone/Aux Volume Level



Allows the output level of the Headphone/Auxilliary to be pre-set in the range 1 - 30

6.4. Tuning Mode



Allows the adjustment of the frequency setting of the instrument by stepping up or down with the + or - pistons. The default setting is 440 Hz corresponding to A in the same octave as middle C. The range is 426 Hz to 454 Hz in steps of 1 Hz allowing up to a quarter note change in each direction.

6.5. Temperaments

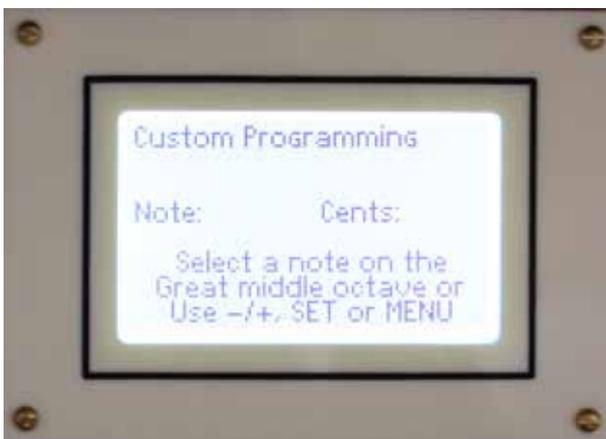


Allows the selection of Temperaments. The default setting is Equal.

Depending on the specification of your instrument one or more of the following temperaments may be present: -

- Equal
- Young II
- Vallotti
- Kirnberger I
- Kirnberger II
- Neidhart
- Werckmeister III
- 1/6 Meantone
- 1/5 Meantone
- 1/4 Meantone
- Pythagorean
- Custom

6.6. Custom Temperament



Allows the note value in all Octaves to be changed in the range, plus or minus, 1 to 50 cents.

6.7. Keyboard Mode



Allows the keyboard sensitivity to be adjusted.
The default is Automatic.

To change the settings:-

1. Press the MENU piston.
2. Use the - and + pistons to select the Keyboard Mode function on the display.
3. Press the SET piston. The display shows the current manual setting of one of the manuals.
4. Use the - and + pistons to select the manual the setting of which must be Changed.
 - Solo - (On instruments with 4 keyboards)
 - Choir - (On instruments with three or more keyboards)
 - Great
 - Swell
5. Press the SET piston. Use the - and + pistons to select a setting for the operation of the keys.
 - Automatic
 - High
 - Low
 - Velocity
6. Press the SET piston. The manual setting is now saved in the memory.
7. Press the MENU piston to return to the main menu.
8. Press the MENU piston again to exit the Menu.

6.8. Reset Procedures



Allows the capture system to be reset to Factory default settings.

Warning

Church Organ World make adjustments to the factory settings, before delivery of your instrument. These may be lost together with any settings made by you if the instrument is reset to Factory settings.

To do a reset:

Press the MENU button.

1. Use the - and + buttons to select the Reset Procedures function on the display.
2. Press the SET button. The display shows the menu for the Reset Procedures.
3. Use the - and + buttons to select the desired procedure.
 - Memory - clears the entire capture memory
 - Midi - resets the MIDI stops to the factory settings
 - Preset - Resets the factory settings of fixed combinations
4. Press the SET button. The display requests confirmation.
5. Use the - and + buttons for No or Yes.
6. Press the SET button for confirmation.
7. Press the MENU button to return to the main menu.
8. Press the MENU button again to exit the Easy Menu.

6.9. Data Dump Mode



Creates a data dump to the MIDI SEQ (out) port giving details of all the registration data on your instrument. This includes:-

- Capture memory
- Midi stop data
- Volume setting
- Transposer setting
- Tune setting

Warning

Do not use the organ when the **Sending Data** message is displayed on the screen.

6.10. Standard Intonation



This enables the Intonation to be set so that when the instrument is switched on the intonation set in memory (default) will be selected.

Typical options are:-

- English
- French
- Baroque

To set the intonation:-

1. Press the MENU piston.
2. Use the - and + pistons to select the Std. Intonation function.
3. Press the SET piston. The display shows the set intonation.
4. Use the - and + pistons to select an intonation to be the default activated when the organ is switched on.
5. Press the SET piston. The selected intonation is stored in the memory.
6. Press the MENU piston to return to the menu.

6.11. Reverb

6.11.1. For instruments fitted with length and Volume setting knobs



Allows the setting of Reverberation (Reverb) from a sub menu selection.

Typically:-

- Abbey Church
- Town Church
- Concert Hall
- Marble Church
- Basilica
- City Cathedral
- Music Room
- Royal Auditorium
- Village Chapel
- Hill Church
- Palace Hall

To set the Reverb selection:-

1. Press the MENU button.
2. Use the - and + buttons to select the Reverb function on the display.
3. Press the SET button. The display shows the selected intonation and reverberation.
4. Use the ENG, FRE and BAR buttons to select an intonation.
5. Use the - and + buttons to select the desired reverberation.
6. Press the SET button. The selected reverberation is saved in the memory and you will automatically return to the main menu.
7. Press the MENU button to exit the Menu.

6.11.2. For instruments with Menu setting



Allows Reverb to be set from a series of sub menus

The Reverb Length and Reverb Volume sub-menus allow a digital value to be set,

To set the Reverb Program

1. Set the pointer to Reverb Program using + and - keys then press the SET button.
2. Set the pointer to the required music space e.g. Marble Church using the + and - buttons then press the SET button.

To set the Reverb Length

1. Set the pointer to Reverb Length using + and - keys then press the SET button.
2. Set the number to the required value using the + and - buttons then press the SET button.

To set the Reverb Volume

1. Set the pointer to Reverb Volume using + and - keys then press the SET button.
2. Set the number to the required value using the + and - buttons then press the SET button.

To set the Reverb 3D surround Sound

1. Set the pointer to Reverb 3D Surround using + and - keys then press the SET button.
2. Set the value to ON or OFF using the + and - buttons then press the SET button.
3. Step back up a menu level by pressing the MENU button.

6.12. Key Volumes



Allows the setting of volume for individual keys per stop and intonation. The function consists of the following sub-functions:-

- Adjust
- Reset one Stop
- Reset all Stops

Warning

Church Organ World make adjustments to the voicing of the instrument before delivery. These settings may be lost if the key volumes are adjusted or reset. You are advised to take notes of settings before making adjustments.

To set Key Volumes:-

1. Set all stops to off
2. Select an intonation
3. Press the MENU button
4. Use the + and - buttons to select the key volumes function on the display
5. Press the SET button
6. Activate one stop
7. Press one key on the corresponding division keyboard and hold the key down. The display will show KEY: followed by the key indicator and VOL: followed by the volume indicator.
8. Use the + and - buttons to select the desired volume.
9. Press the SET button to save the changes
10. The display requests confirmation. Use the + and - buttons for yes and no respectively
11. Press the SET button to confirm
12. Press the MENU button to return to the main menu
13. If the changes have not been saved the display will show "Discard Changes ?" . Use the + and - buttons for yes and no respectively.
14. Press the SET button for confirmation
15. Press the MENU button twice to exit the menu.

The Reset one stop function resets the key volumes for all stops in one intonation to the factory setting.

To Reset one stop

1. Set all Stops to off.
2. Select an intonation.
3. Press the MENU button.
4. Use the - and + buttons to select the Key Volumes function on the display.
5. Press the SET button.
6. Use the - and + buttons to select the Reset One stops function on the display.
7. Press the SET button. The display requests confirmation.
8. Activate one stop. The display requests confirmation.
9. Use the - and + buttons to for yes and no respectively.
10. Press the SET button for confirmation.
11. Press the MENU button twice to exit the Menu

To Reset ALL stops

The Reset ALL stops function resets the key volumes for all stops in one intonation to the factory setting.

1. Select an intonation.
2. Press the MENU button.
3. Use the - and + buttons to select the Key Volumes function on the display.
4. Press the SET button.
5. Use the - and + buttons to select the Reset ALL stops function on the display.
6. Press the SET button. The display requests confirmation.
7. Use the - and + buttons for No or Yes.
8. Press the SET button for confirmation.
9. Press the MENU button twice to exit the Menu

6.13. Sound Reproduction System



Some instruments have a three position switch which allows switching between internal (I) speakers, external (E) speakers and having both internal & external (B) speakers. Other instruments have their own internal speaker system or will have an external loudspeaker system. At the rear of the instrument (or possibly mounted internally) are connectors (octal sockets) that can be connected with a special cable to an external loudspeaker system.

All speaker types are carefully selected to match the amplifier system to ensure a good sound reproduction with the instrument.

7. Using the Capture System

7.1. Capture Combinations

The capture combinations allow registrations to be composed, stored into the capture memory and recalled again. This is especially useful when many different registrations occur when playing a piece of music. It makes registration assistants unnecessary. The memory in which the capture combinations are stored is protected so that it cannot be erased when you switch off the organ or when you unplug the organ from the main power.

Parts of the capture system are (depending on the type of instrument):

- Key switch MEMORY LOCK
- Thumb pistons - and +
- Display
- SET-Piston
- Numbered Capture Pistons

With the capture system, a number of personal registrations can be stored into a memory (programmed). These registrations can be recalled at any time. The capture system is built up from a number of memory groups. Each memory group has number of memory locations corresponding to the number of capture pistons in each group of pistons. At each of these, a registration of your own choice can be stored. When your instrument has MIDI-stops they can be stored into the capture system. Capture pistons may be grouped as General which set any stop on the instrument or Divisional which set stops on the division with which they are associated.

7.2. Setting the Capture Combinations

You may find it useful to note down the settings you have programmed. The systems can be programmed as follows:

1. To avoid accidentally changing a programmed MIDI-stop setting check that the MIDI stops are off. (Visible on the LCD display.)
2. 'Open' the capture memory by turning the key switch MEMORY LOCK a quarter of a turn to the right.
3. Select the required registration to be stored into the capture memory.
4. Select the memory group by pressing the - or the + piston once or several times until the display shows the desired memory group (in this example the number 6).
5. Press SET (hold it) and next select the memory location (press e.g. piston 3). The display will show a brief message, as a sign that the selected registration is being programmed into the capture memory.
6. First release the piston for the memory location (in this example piston 3) and only then the SET-piston. (Steps 2 to 6 can be repeated to set other combinations.)
7. 'Close' the capture memory by turning key switch MEMORY LOCK a quarter of a turn to the left (taking the key from the switch, if necessary).

Your personal registration for piston 3 is now stored into memory 6.

7.3. Recalling Capture Combinations

When recalling a combination it is NOT necessary to open the capture memory with the key switch MEMORY LOCK. Stops can be added or switched off manually in a recalled registration except on an instrument with wooden drawstops,

To recall a captured combination:

1. Determine which capture combination has to be recalled (e.g. Memory 6 piston 3)
2. Select the required memory (6) with the + and - pistons. The display will show the selected
3. memory.
4. Select the required memory location (e.g. piston 3)

8. MIDI system

8.1. What is MIDI?

MIDI is the abbreviation for Musical Instruments Digital Interface. With MIDI, musical instruments can be coupled to each other, to a computer or to another MIDI device. Thus, it is, possible to play simultaneously both your instrument and a synthesizer or expander. The MIDI standard is partly based on hardware. In addition, it is a description of the way in which music and sound are translated and in which communication takes place between devices equipped with MIDI-functionality.

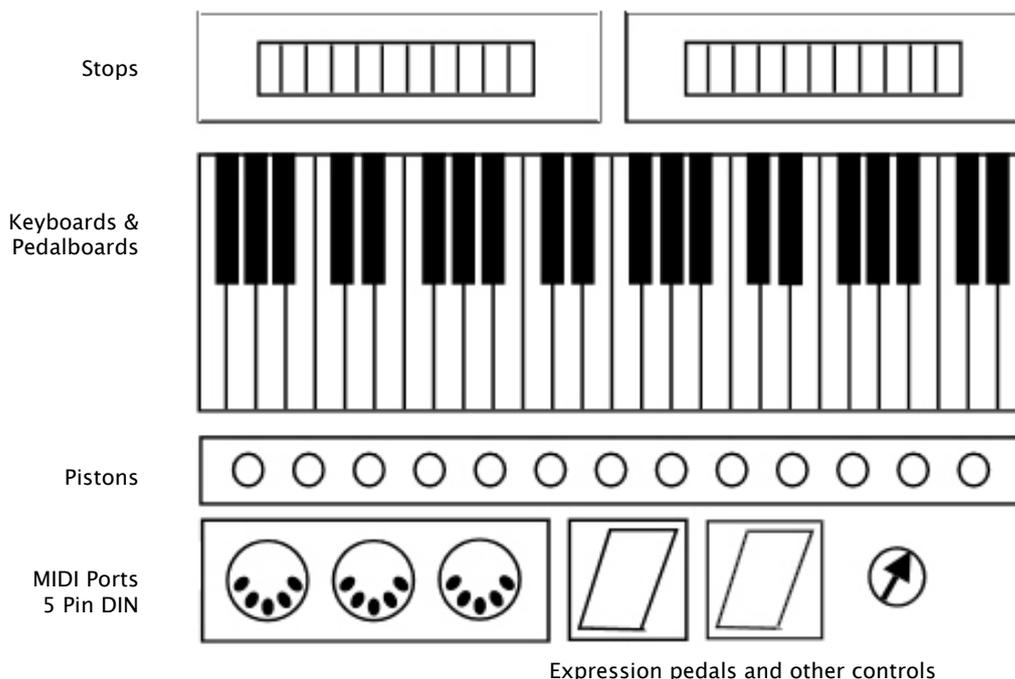
8.2. MIDI Terminology

The following table lists of some of the MIDI terminology that you may encounter. For more information consult the MIDI Manufacturers Association web site.

Term	Description
Sequencer	A device for playing musical performances. The more sophisticated sequencers also record MIDI as well as other inputs and they will also allow editing of saved data. The most common sequencers are software computer programs running on Personal Computer hardware. There are many of these available ranging from the simple to very sophisticated.
Patch	A patch is the sound that a device can produce i.e. a musical instrument such as a piano, violin or drums. Patches are also referred to as “instruments, programs, algorithms or timbres”. Some devices contain multiple patches and the MIDI specification pre-defines a number of sounds allocated to patches.
Channel	Although there is only one physical MIDI connection between devices it is divided by the MIDI signals into 16 command slots known as channels. An instrument can generally be set to respond to one or all of the channels.
Multitimbral	An instrument, synthesizer or sound generator is said to be multitimbral if it is capable of producing two or more different instrument sounds simultaneously
Polyphony	The ability to play more than one note at a time.
Expander	A MIDI device that provides patches or other MIDI control function or a device that replicates data coming to a MIDI IN port to multiple MIDI OUT ports.
Voice	Are the qualities of an individual note or group of notes that give a particular timbre or sound. For example: a Trumpet or a Diapason
Synthesizer	A device for generating sound usually to emulate an instrument. Most modern synthesizers can create more than one instrument sound or voice and are often incorporated into sequencers for replaying sound files.
Controller	Is any MIDI input device that implements a function but does not sound a note as a direct result of its operation e.g. a piston, stop, expression peddle, switch, knob, etc. MIDI allows 128 controllers per device. Many of the controller functions are predefined by the MIDI specification.
Module	A device that can generate musical sounds. Typically a module will incorporate one or more patches but require external (MIDI) keyboard input to make them sound. Also referred to as an Expander or Synthesizer.
SysEx	System Exclusive MIDI messages. These are generally used by manufacturers to generate messages that the Standard MIDI system does not provide or to send a chunk of data in one message rather than using a lot of MIDI messages
Program Change	The MIDI message used to select an instrument, patch or program. There are 128 program changes available.
Bank Select	The MIDI message used to select an instrument patch or program on a device that has more than 128 patches. A device could have 128 programs with 128 banks of patches, programs, instruments or timbres. Note that your instrument does not implement ‘bank select’.

8.3. Components Relevant to MIDI:

The Diagram shows the main MIDI hardware components available on the instrument. Control of Reverberation, Overall Volume and memory settings are also MIDI related functions although they may not all be implemented on your instrument. Example: Reverberation is not available as a MIDI setting and the Pitch is transmit only.



8.4. Working with MIDI

In order to work with MIDI on your instrument the following components are required:

- MIDI-connections (MIDI IN, MIDI THRU, MIDI OUT). Standard on instruments without programmable MIDI-stops (or switches) or MIDI-connections (MIDI IN, MIDI MOD, MIDI SEQ). Standard on instruments with programmable MIDI.
- A device (e.g. synthesizer or sequencer) you wish to work via MIDI.
- Connection cables.

The MIDI-stops may be designed as thumb pistons, or as stops. On instruments with a programmable MIDI-function they can be changed by the user (See Menu System). MIDI has 16 channels through which information can be transmitted. With the MIDI-stops, you determine from which keyboards you wish to transmit MIDI-signals with key information to other devices. If your instrument has no MIDI-stops, key information is always transmitted from all of the keyboards

8.5. MIDI Channels

By default the organ with a standard keyboard layout transmits MIDI data on the following channels:

Channel	1 Manual	2 Manual	3 Manual	4 Manual
1	Keyboard	Great	Choir	Choir
2		Swell	Great	Great
3		Pedal	Swell	Swell
4			Pedal	Solo
5				Pedal
12	Stops	Stops	Stops	Stops

The instrument will also recognize incoming (received) data on these channels.

Note that some MIDI functions are not recognized by the instrument and will be ignored if sent.

8.6. MIDI Controllers

Note the following information gives the codes to be used by the instruments MIDI controllers. Numbering in MIDI code is usually given in numbers to a base of 16 (Hexadecimal). A Hexadecimal number uses characters 0 to 9 and A to F or a to f to represent a decimal equivalent of 0-15. A hexadecimal number is denoted by the number followed by the letter h.

8.6.1. Control Changes Transmitted

Information is transmitted from the following MIDI controllers:

Controller 7 (07h) is the general volume control. It can have values in the range 40 (28h) -127 (7Fh)

Controller 11 (0Bh) is the expression pedal with values from 63 (3Fh) - 127 (7Fh).

Controller 6 (06h) has a dual function as the Pitch controller and Transposer controller.

The pitch control is in the range 33(21h) - 95(5Fh) where the pitch value 64 (40h) is 440 Hz =A

The transposer is in the range 61(3Dh) - 67(43h) where the value 64(40h) is 440 Hz = A

Only Controller 7 (General Volume) and Controller 11 (Expression) can receive data.

The MIDI set controller command is of the form: bn cc xx where:

- n = The channel number
- cc = the controller number
- xx = the value to be set

The channel number can be taken from the keyboard table for your instrument.

8.6.2. Control Changes Received

Information can be received by the following MIDI controllers

To change the Volume use MIDI code Bn 07 xx where xx = a value from 00 to 7F.

To change the expression setting use MIDI code Bn 0B xx where xx = a value from 00 to 7F

8.6.3. System Exclusive Messages

The SysEx messages all have the same format. The first 7 bytes and the last byte are always the same. Only the value of the 8th byte changes. The message format is:

F0 00 4A 4F 48 41 53 xx F7 where xx is the changeable byte

For all stops off, xx has the value 7F

To set thumb pistons xx has the value of the thumb piston 1 - 8 (01h - 08h)

8.7. How and What To Connect?

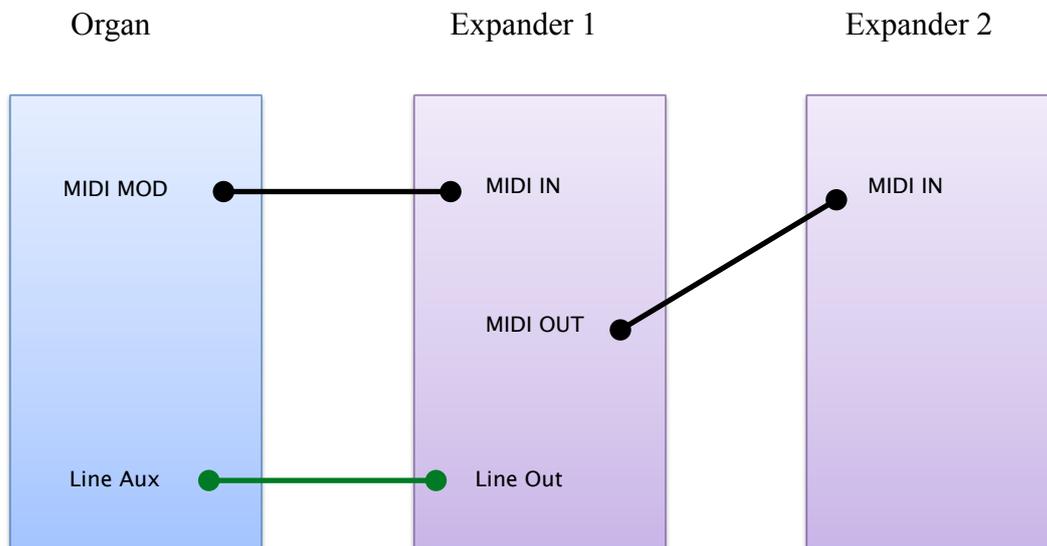
Other MIDI devices can be connected to your instrument using the MIDI ports. Note that for connecting to personal computers an adapter may be required to convert the MIDI connections to a D connector serial port or to an USB port.

8.8. Programmable MIDI

If your instrument has been fitted with programmable MIDI, the MIDI THRU is changed into MIDI MOD output (MIDI output for connecting a MIDI device). The MIDI MOD is a programmable MIDI output. It enables you to get optimal use from a module/expander. In the case of a programmable MIDI, the “normal” MIDI OUT is changed into a MIDI SEQ output (MIDI output for connecting a sequencer). The MIDI SEQ is a non-programmable MIDI output. This MIDI output gives a constant data output with all the necessary data (data dump) for a sequencer.

8.9. Connecting to an Expander

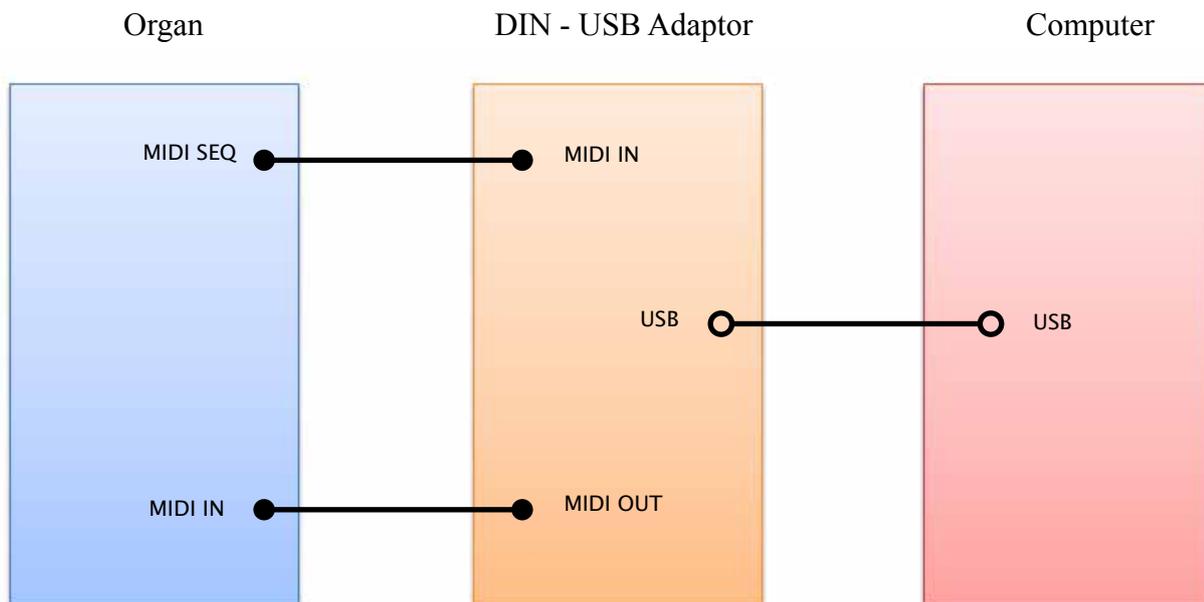
To connect to an expander, use a 5 pin DIN MIDI connecting lead to connect the MIDI IN port on the expander to the MIDI MOD port on the organ. If the expander is using the organ speakers for the sound output then connect an audio cable from Line out on the expander to AUX IN on the organ. Expanders can be connected together by connecting MIDI OUT on one expander to MIDI IN on the next expander.



There is a limit on the number of expanders that can be added to the resulting daisy chain because of the time taken to reproduce an input signal on the output port. This varies depending on the products used. An alternative method of handling sound on the expander Line Out port would be to take it to a separate amplifier sound system. This will allow the user to have better control of the polyphonic sound quality. Each expander should be set to receive signals on the channel shown in the MIDI channel chart appropriate to your instrument keyboard or to the channels that you have programmed for output.

8.10. Connecting a Computer via a USB Port

To connect a computer via a USB port, plug the USB adapter into the USB port on the computer. Plug the 5 pin DIN connectors from the adapter into the MIDI SEQ or OUT port and the MIDI IN port on the organ.



When using the computer to monitor programmed settings use the MIDI MOD port instead of MIDI SEQ.

9. Maintenance

9.1. The Console

The console consists of wooden veneer and solid wooden parts. To clean the cabinet use a normal duster or a light wet cloth or chamois and polish with a dry cloth. The keys can be treated the same as the woodwork.

Warning

We do not recommend, the use of, furniture polish because this will damage the lacquer.

Direct sunlight may also discolour the cabinet, especially light oak consoles.

Do not try to remove spots with abrasive or aggressive liquids like thinners or acetone as these will damage the instrument case.

9.2. Pipes

Warning

When your instrument has a pipe front, we advise you not to touch the pipes. The pipes are made of tin and lead alloy which is a soft material, easily damaged with handling. The acid from human skin will corrode pipes made of tin and lead alloy. Dusting the pipes, even if a soft cloth is used, will irrevocably leave tiny scratches on the surface.

If the mouth and labia of the pipes are gold plated, they should not be touched, dusted or sponged as this will cause the thin layer of gold to be damaged.

9.3. Pedalboard Lights

Models with incandescent pygmy light bulbs for the pedals are 15 watt SES (Small Edison Screw). They can be replaced by LED pygmy bulbs at 2 or 3 watts. It is suggested that “Warm White” rather than “Cool White” LEDs are used because the light is less harsh.

Some Makin and Copeman Hart models are fitted with LED strip lights which will have an expected life of 20, 000 hours or more and should not need replacement.

9.4. Resetting to Factory Defaults

Should you have a need to reset the instrument to factory defaults please contact Church Organ World as this process will wipe out information set in your instrument after manufacture. Any voicing work completed after manufacture will also be lost.

10. Miscellaneous Advice

10.1. Pedalboard

If you have placed your instrument on a carpet or an uneven floor and experience problems with pedals then place a 25 mm (1 inch) thick sheet of ply or block board on the carpet/floor and under the whole instrument. It is a good idea to give the board a couple of coats of Matt varnish before installing it. Your local wood supplier can probably cut it to the correct size for your instrument. Alternatively Church Organ World can supply a base board or purpose built plinth to meet your requirements.

10.2. Organ Bench



From time to time the organ bench may need to be moved either for cleaning or for a visiting organist. Stick a small piece of masking tape, or something similar, on the pedal board side frame in line with the bench and you will always be able to return the bench easily to your favorite position.

If you have installed a baseboard or you have a varnished floor you may find that the bench slips on the board. This can be overcome by sticking rubber feet or pads (obtainable from most DIY stores) to the bottom of the bench legs.

11. Information

If you want more information about your instrument or on other products supplied by Church Organ World please contact us (write, phone or e-mail).

Church Organ World has an interesting web site with topical information about Makin, Copeman Hart and Johannus Organs as well as a diary of ongoing activities.

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