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# The story of Eminent and Solina organs

Research Solina A.G. in Flamatt and Bern (Switzerland) is the client for the large assortment of Solina organs made by Eminent B.V.

Both ranges of organs are very progressive instruments based on a large number of new, exciting and unique inventions.

The starting point for all organs is the pure musical sound of the instrument. With this sound as a base, a large number of suitable effects are projected and realised using the newest techniques in electronics. In this way, real musical instruments are produced in all price ranges. This assortment of electronic organs offers to every category of organist and musical hobbyist the instrument he likes most. Unique innovations, often patented, are exclusively used in the Eminent and Solina line of product.

## Multivoice

Creates a symphony of sound in the organ. An extension to the sound colours by multiplication. Wind instruments and strings can be produced in the purest way possible. Multivoice registration is obtainable on the upper manual, lower manual and pedals.

## String Ensemble

A perfection of Multivoice features through more than one channel. This String Ensemble can be supplied as an instrument itself, which makes it an ideal combination with ARP Synthesizers such as the ARP Axse and ARP Odyssey.

Manufactured in Bodegraven, Holland.

In Bodegraven, situated between Utrecht and The Hague, in the so-called "Green Heart" of Holland, Eminent and Solina organs are manufactured. Eminent B.V. in Bodegraven is an ultra-modern factory, equipped with the most modern machinery and checking equipment in the field of electronics. The organ cabinets are made in Waddinxveen, a distance of ten miles away, in Eminent's own production plant;





#### Orbitone

The ideal electronic realisation of the "Leslie" sound effect with two speeds: a low acoustic tremolo for classical and modern organ music (chorus), as well as a quick acoustic tremolo for modern theatre music (tremolo).

#### Combomatic

A simple "Automatic" rhythm unit which can be played with one finger. If the organ is supplied without a Rithmix (R 110) the Combomatic has its own 3/4 and 4/4 rhythms and is complete in itself.

#### Rithmix

A rhythm unit which can be built-in into a number of organs as it is based on many basic patterns, with a large number of possible combinations.

#### Rith-O-Matic

Is one of the most comprehensive rhythm units on the market. It is possible to play accompanied by any rhythm, such as Samba, Bossa Nova, Rock etc., without difficulty, because the Rith-O-Matic automatically interrupts the chord depressed on the lower manual in the rhythm selected. Pedal technique can be taken over by the "Automatic Bass"; with bass notes automatically formed from the chord rhythm chosen. Through this it is possible to play the most complicated bass patterns. If desired, one can even complete them with one's own pedal play. The attached Chord Memory System offers unprecedented possibilities on the upper and lower manuals.

This booklet is written to clarify for every organist, playing an Eminent or Solina organ, many of the special features used. It also tells how to use and combine electronic organs with separate amplifiers, synthesizers, tape-recorders etc. Last but not least, some interesting details are given in regard to the organisations behind the product; the factories and sales organisation covering the whole world.

Each organ is supplied with its own specific owner's manual "How-To-Play" which illustrates, mainly in a visual way, how to use the many registers in combination to obtain specific musical results and effects.

## Guarantee

Eminent and Solina organs are constructed with the utmost care and attention. We guarantee the instruments for one year from delivery date against all manufacturing defects which may arise from faulty factory assembly. The guarantee is valid only if the guarantee registration card (located at the rear of the organ in the plastic envelope) is returned to us within eight days of the purchase. All information in respect of your organ should be directed to your organ dealer. If any adjustments are needed, the dealer should be informed of the model and serial number of the organ (this may be found on the back of the instrument), and the date of purchase.





## Electronics serve music

Today, electronic organs are a part of the normal daily life. In a period of 15 years, these musical instruments have had an enormous revolutionary development. In the world of musical instruments this phenomenon has never been surpassed. The expensive and very delicate musi-

cal instrument the happy few could allow themselves at the beginning of the sixties, has grown into a musical instrument that in many countries reaches sales far superior to the sales of pianos, both in number and value. In this short period, the electronic techniques have seen many changes. The radio valves and tubes of the sixties were substituted by transistors, first by Germanium transistors and later by the still more reliable Silicon transistors. During the last two or three years new mini-techniques have been introduced; integrated circuits (i.c.) on which hundreds - indeed thousands - of components can be combined on one i.c. of hardly a square centimeter in size. These mini-techniques, tested through many applications in space programmes, have a million applications. The creativity of inventors is, at this moment, not the largest problem of research departments particularly in a factory producing electronic organs. It is even more important - and an art in itself - to choose the correct feature at the right moment in marketing time from the multitude of possibilities available in electronics.

Eminent and Solina use, on a large scale, the digital techniques which play such an important part in the production of computers. In using these techniques it is made one hundred percent certain that the musical interpretation of the organ, the pure sound, and the natural reproduction of the solo voices, is kept in all respects. An electronic organ from Eminent or Solina is - first of all - a real musical instrument!

## Eminent and Solina organs from A to Z







## ADSR

See "Attack".

## Arpeggio

Arpeggio effects, well known from harp music in particular, are mainly found on organs in the higher price ranges.

In music, an arpeggio can be defined as the notes of a chord, played one note after another, instead of simultaneously. To achieve the best musical effect from the arpeggio unit, play a chord of three or four notes, which will be copied by the unit. The arpeggio will also function when playing only one or two notes, however, this creates a repeat effect rather than an arpeggio effect.

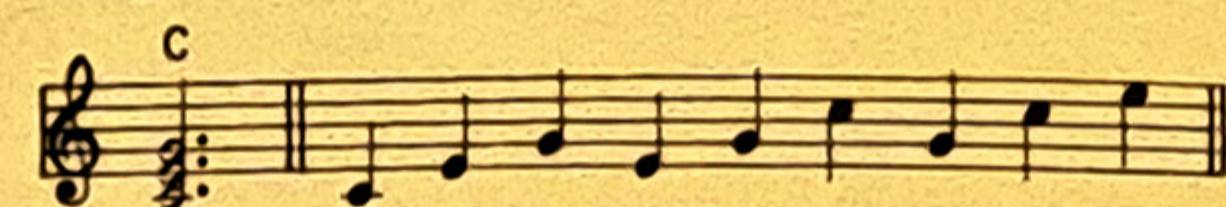
To operate the arpeggio the percussion-sustain buttons and the String Ensemble button can both be used. The three selector buttons Arpeggio I - Arpeggio II - Strum - establish the manner in which the notes of a chord will be arpeggiated.

**Arpeggio I** - is a single arpeggio, playing one single note after the other.



To create a chromatic scale sequence, press down all the white and black keys (12) in an octave.

**Arpeggio II** - is a double arpeggio, giving a doubling effect to the scale.



**Strum** - is a strumming effect such as one would obtain on a banjo or guitar, depending on the voices chosen.



C chord (2 octaves)



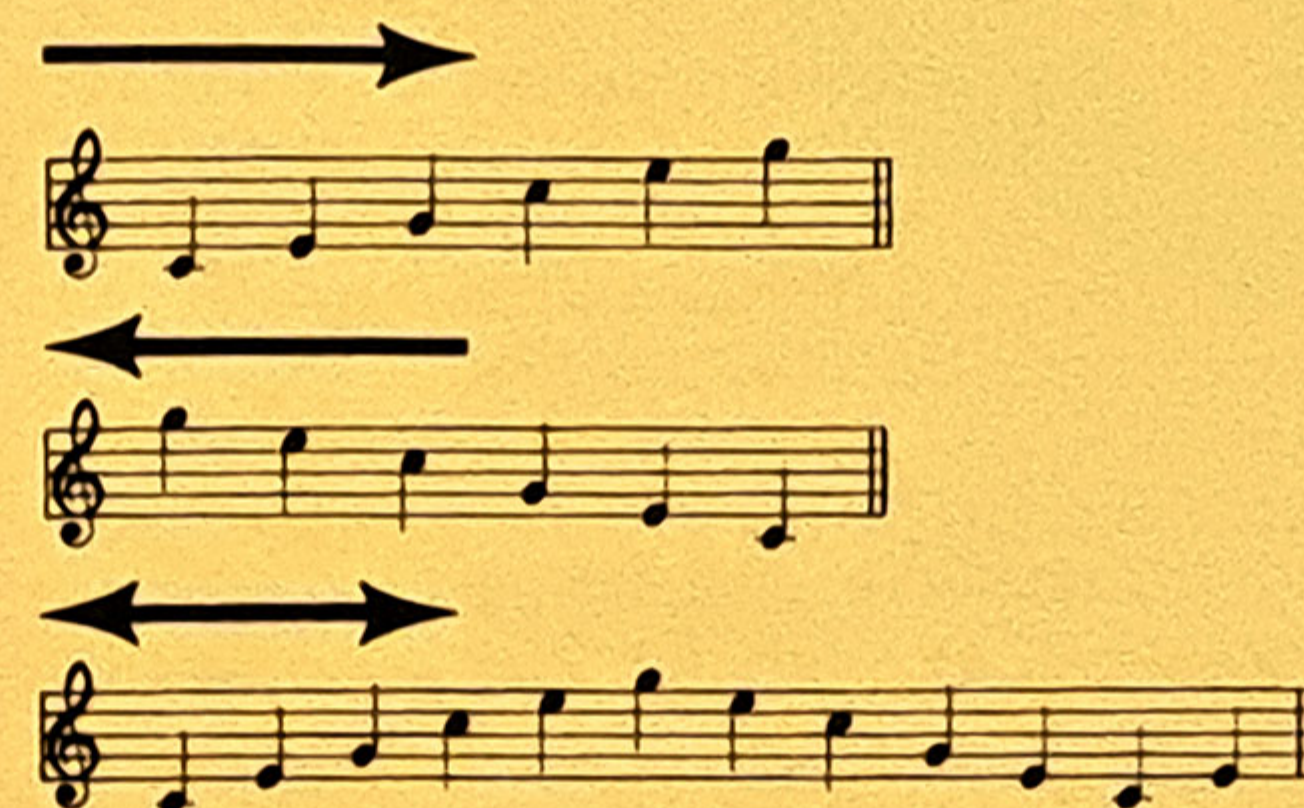
C chord (4 octaves)

### TEMPO

The slider control labelled "Tempo" establishes the speed at which the notes of a chord will be arpeggiated. The notes become faster as the slider is moved towards you.

### MANUAL START MODE

There are three "Manual Start Mode" buttons. The arrow below each button indicates the direction(s) in which arpeggio will be played. To illustrate:



### OCTAVES

The "Two Octave" button enables you to arpeggiate any chord for two (2) octaves, the "Four Octave" button obtains a four octave arpeggio.

To demonstrate the arpeggio effect, begin by selecting the piano in the percussion sustains section. Also, for the most authentic piano sound, press the percussion sustains modulator marked "Norm". Next press the percussion sustains, Arpeggio I, Manual Start Mode 1, and the Two Octaves buttons on the Arpeggio Unit.

Arpeggio is now programmed to create an ascending arpeggio over a two-octave range when any chord is played and held on the lower manual. Regardless of where the chord is played, the arpeggio will always begin in the lowest possible chord position on the manual. The following musical example illustrates a C Major chord on the arpeggio.



Note: The arpeggio will play only once, unless the chord is held down. To disengage the arpeggio before the sequence is completed press a white or black key in the lowest octave of the lower manual (first 12 keys).

### MEMORY

When the Memory button is depressed the memory bank memorizes the last note(s) or chord which was played and programmed for the arpeggio effect. Once played and released, the arpeggiated note(s) or chord will continue to repeat indefinitely in the selected modes until another note(s) or chord is played.

The memory can be stopped in one of two ways:

- a) Repress the memory button to disengage it.
- or b) Play any key or keys in the lowest octave on the lower manual.

### RITHMIX TEMPO

When this button is depressed, the tempo of both the arpeggio and the rhythm are controlled by the tempo slider on the Rith-O-Matic or Rithmix unit. In other words the arpeggio is keyed to the rhythm and speed selected.







## Auto Mute Pedal

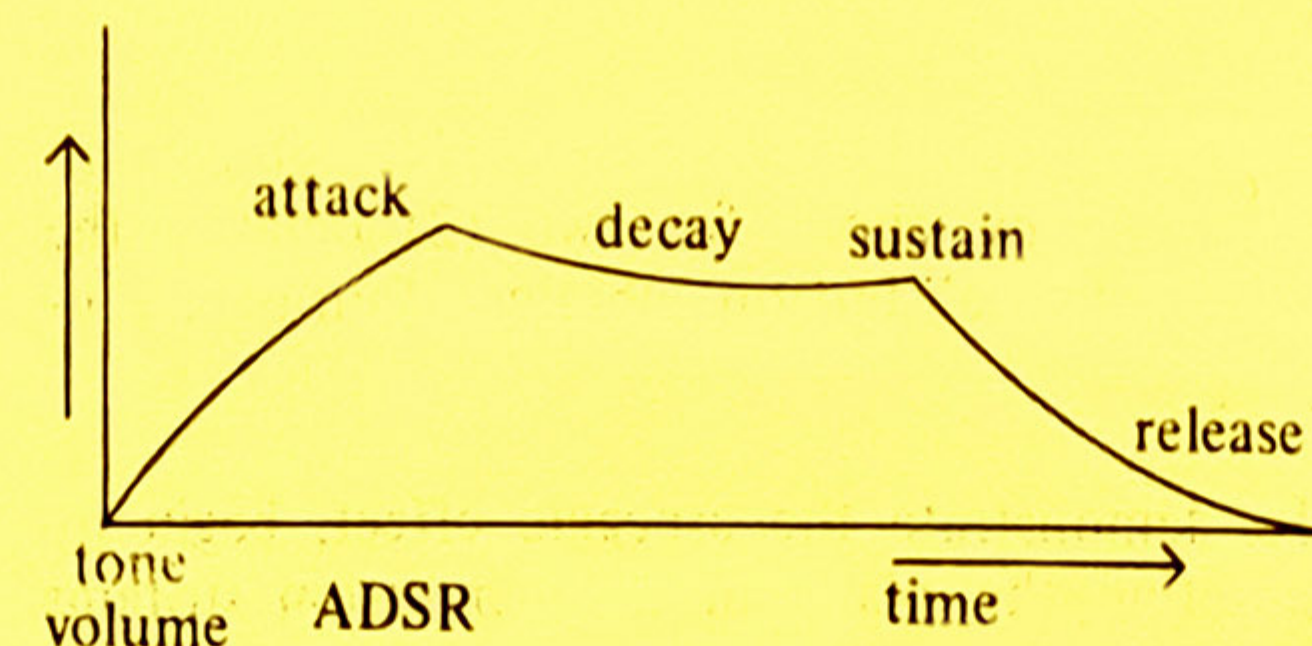
Organs in the highest price ranges are often equipped with an Auto Mute pedal. In engaging the Auto Mute, the pedal registration will sound softer in playing a simple registration on the lower manual and the pedal registration will sound louder in playing a full registration on the upper manual. The volume of the pedal is in this way controlled.

## Attack

Attack is the name for all phenomena present at the beginning of a sound when a key is pressed. This is realised in an electronic organ in different ways:

- \* Percussion, that is mono-percussion (see Percussion)
- \* Percussion-sustain (see Percussion-sustain)
- \* with indicated solo-stops (see the organ disposition list), for which effects, that are determining for strings - and wind instruments - are realised in a natural way.

For organs in which a synthesizer is integrated, and by the synthesizers themselves, words like "Attack", "Delay" and "Release" are popping up. Attack in this case is a light kind of percussion, Delay and Release are the beginning and respectively, the final stage of a sustain. On synthesizers, in most cases, an envelope generator of the ADSR type is found. A complete description cannot be given here, but the following graphic will be helpful to understand this conception:



## Balance

The balance control enables the adaptation of the volume of the lower manual to the volume of the upper manual. This is important and prevents the accompaniment from drowning the solo voices. This control is indicated sometimes with the words "lower manual volume".

## Cabinet

The case of your organ. Cabinet: Keep your organ clean with a dry cloth. If the cabinet is dirty, use a moistened, but **not** a wet, washleather. Grease spots can be taken away with a cloth moistened in spirits. Don't touch the back parts and the synthetic parts next to the manuals with spirits.

Keys, stops and back parts to be cleaned with a moistened cloth. Take care not to allow water to get between the stops or the keys.

## Combomatic

The Combomatic represents an automatic bass and chord group. When **one** key of the lower manual is pressed down, the Combomatic produces the right chords and the root of the key in question.

As is shown on the drawing of the lower manual, with Two Octaves the indications "major" and "minor" are printed. When one selects a key on

the "major" octave, the major chords and bass key in question are reproduced. In selecting a key of the "minor" octave, the minor chord and the bass key in question are reproduced. The chords and bass can sound rhythmic or not, depending on rhythms engaged. Playing rhythmically, the bass will be reproduced as an automatic bass (prime/quint).

### Memory

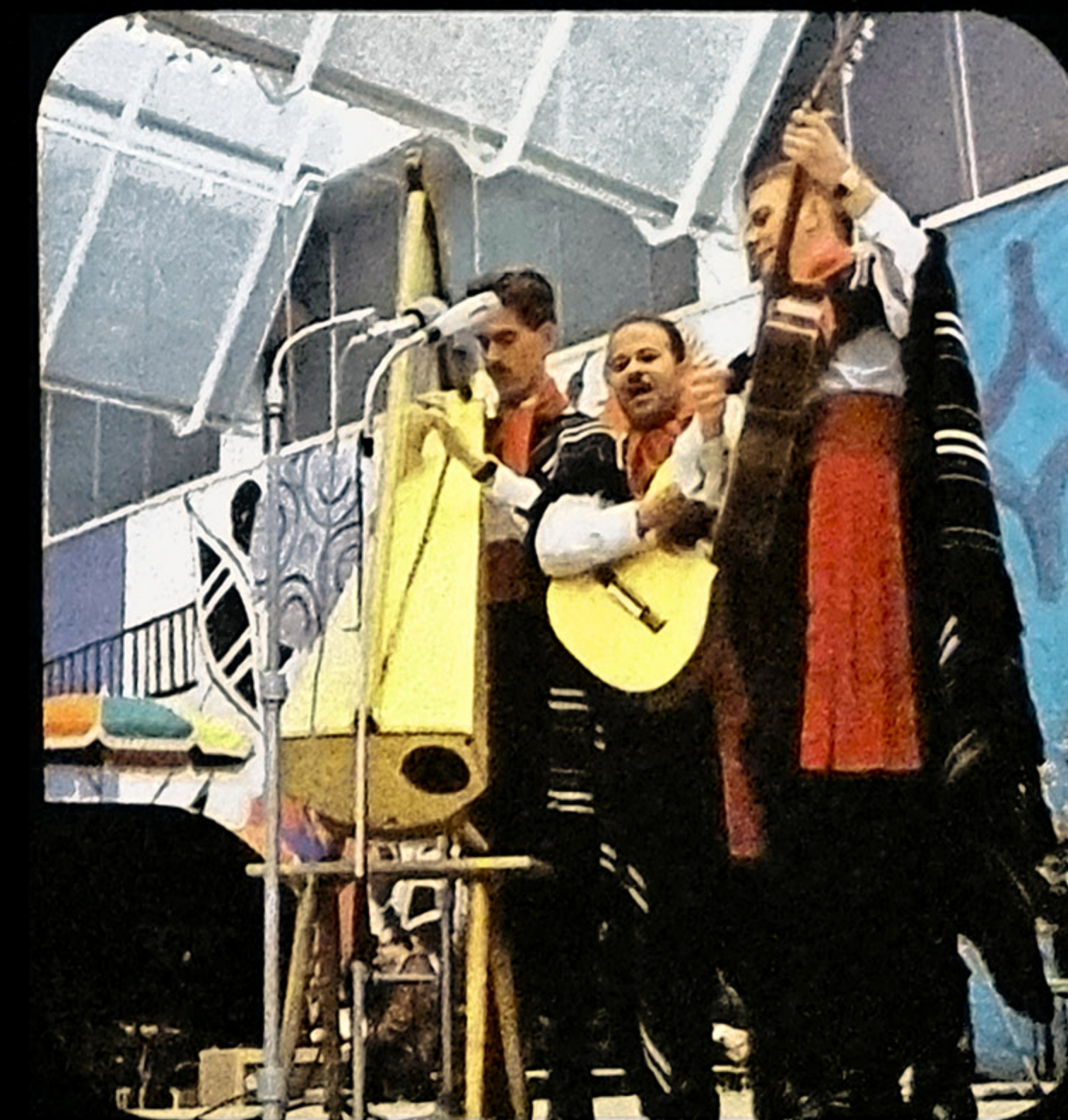
When the memory button is pressed down, the chords chosen with the bass will continue to play after the player's hand is lifted from the keyboard. These notes will be maintained until another key is played.

### Pedal Sustain

If the Combomatic is NOT used, but the memory button is engaged, the pedals will have sustain. This possibility is, of course, cancelled when the Combomatic is engaged.

### Reset

The drawing shows the lowest keys of the lower manual are indicated by the word "reset". In pressing down one of these reset keys it is possible to stop the Combomatic - played with the memory engaged - at the moment desired, with or without Rithmix.





# D1



Two variations of the Combomatic are in existence:

#### The Combomatic with a self supporting Rithmic Steering Unit.

Through this the following controls are available:

a) Button "Combomatic" ON: When a key is pressed down the chords and bass of the key in question will be reproduced.

b) Button "Rhythm" ON: When a key is pressed down the chords and bass will be reproduced as a rhythmic automatic bass in the tempo chosen: buttons 3/4 or 4/4.

c) The 3/4 and 4/4 buttons allow the player to select the desired rhythm, the speed of which is controlled by the Tempo control.

d) The memory button being depressed will continue the chord and rhythm indefinitely.

#### The Combomatic with Rithmix:

In this variation of the Combomatic the Rithmix has the steering function. A large choice of rhythms and many other percussive effects on the Rithmix are available. The following controls are present:

a) Button "Combomatic" ON: In case the

Rithmix is not used the pressing down of a key on the lower manual will reproduce the proper chords and bass of that key. If the Rithmix is engaged, chords and bass will percuss and sound rhythmic when the key is pressed down.

b) "Memory" button: Chords and bass will continue after being depressed and released until another key is pressed down.

#### The Combomatic with Rhythm:

When one starts the Rithmix with a particular rhythm engaged, the chords and bass will reproduce rhythmically each time a key on the lower manual is pressed down. The tempo of the rhythm can be regulated with the tempo slide control of the Rithmix.

#### Manual Start

If the pedal start button on the Rithmix is engaged as well as the Combomatic ON button, the Combomatic/Rithmix combination can be started by depressing a key on the lower manual. When the key is no longer depressed, the Combomatic/Rithmix stops. However, if the memory button is engaged, the Combomatic/Rithmix will only stop if a key in the reset section is depressed.

## Drawbars

Drawbars are stops designed as slider controls. These controls can be adjusted from 0 - 8 (maximum). A description is given under R - Registration.

## Expression Pedal

The expression pedal is one of the most important controls on the organ. The volume control is played with the right foot. Depressing the expression pedal increases the volume of the organ and returning it to the highest position decreases the volume. Therefore the expression pedal used properly gives a loud or soft expression and accents the type of music being played.

## Fuses

The fuses are installed for the technical safety of the instrument and the player. The fuseholders

are situated inside the organ, in the neighbourhood of the transformer. The factory supplies spare fuses with each organ. In substituting fuses, it is necessary to make sure that fuses of the same value are used.

## Headphones

### PLAYING WITH THE USE OF HEADPHONES

The socket for using the headphones is located at the front of the organ, left, below the keyboard. When the plug of the headphones has been connected, the loudspeakers of the organ will automatically cut off. You will then be able to practise at your ease without disturbing anyone. In contrast with the earlier acoustic systems, it is now possible, with the Orbitone system to obtain the stereo dimensional effect through the headphones. This means the sound of the organ, when using headphones, has become infinitely more beautiful.

It is important to use headphones suitable for the electronic organ. You do need the best and your dealer will be glad to advise you.

#### Technical details for headphones:

Connection: 8-16 Ohm

Maximum Power: 0,5 Watt

Frequency Range: 25-15000 Htz

# E1 F1 H1





# I1 K1 L1 L2



## Input

An extra input is located on the back of the organ. This input enables the connection of e.g. a rhythm unit or a synthesizer such as the ARP Pro Soloist. The technical data are as follows: 350 mV and 10 KOhm - 25 KOhm. The connection is made by a mono-guitar plug. Some organs have a special input so in this case a specification is always given separately.

## Knee lever

Through the use of a knee lever, you have available a "third hand" to engage or disengage at any given moment certain voices and effects on the instrument. The knee lever is a metal con-

trol, located under the lower manual, approximately above the expression pedal. When the knee lever is pushed to the right, the effect chosen is selected, altered or cancelled. The knee lever control enables a number of effects to be introduced. For example:

Orbitone, tremolo/chorus; with the knee control the orbitone can be changed from tremolo to chorus and vice versa.

Arpeggio; using the knee control the arpeggio can be engaged or disengaged.

The knee lever control has a great variety of possibilities and these are specified in the owner's manual provided with each instrument.

## Leslie

The electro-acoustic tremolo and chorus effect in the Eminent and Solina organs is obtained by using the Orbitone system.

## Loudness

### SPECIAL VOLUME

Some electronic organs have a special volume control. On engaging this the volume of the instrument can be brought to a lower level. The expression pedal remains completely effective (from 0 to maximum) when the lower volume is used.

## Loudspeakers

The loudspeakers in the organ are of utmost importance. They are located at the front and sometimes at the lefthand side, depending on the number of channels (e.g. organs with Orbitone). With such instruments it is recommended to keep at least 40 cm free space between the left hand side of the organ and the wall. In every organ the speakers are completely balanced. Therefore it is not recommended to connect a

loose speaker which is not balanced. Of course a complete amplifier can be connected, preferably an amplifier unit, which is designed for use with organs.

## Mainswitch

By means of the mainswitch, the instrument can be switched on and off. Carefully check the organ is adjusted to the right voltage (specified at the back of the organ). Your dealer is able to adapt the instrument if it has been set to the wrong voltage.

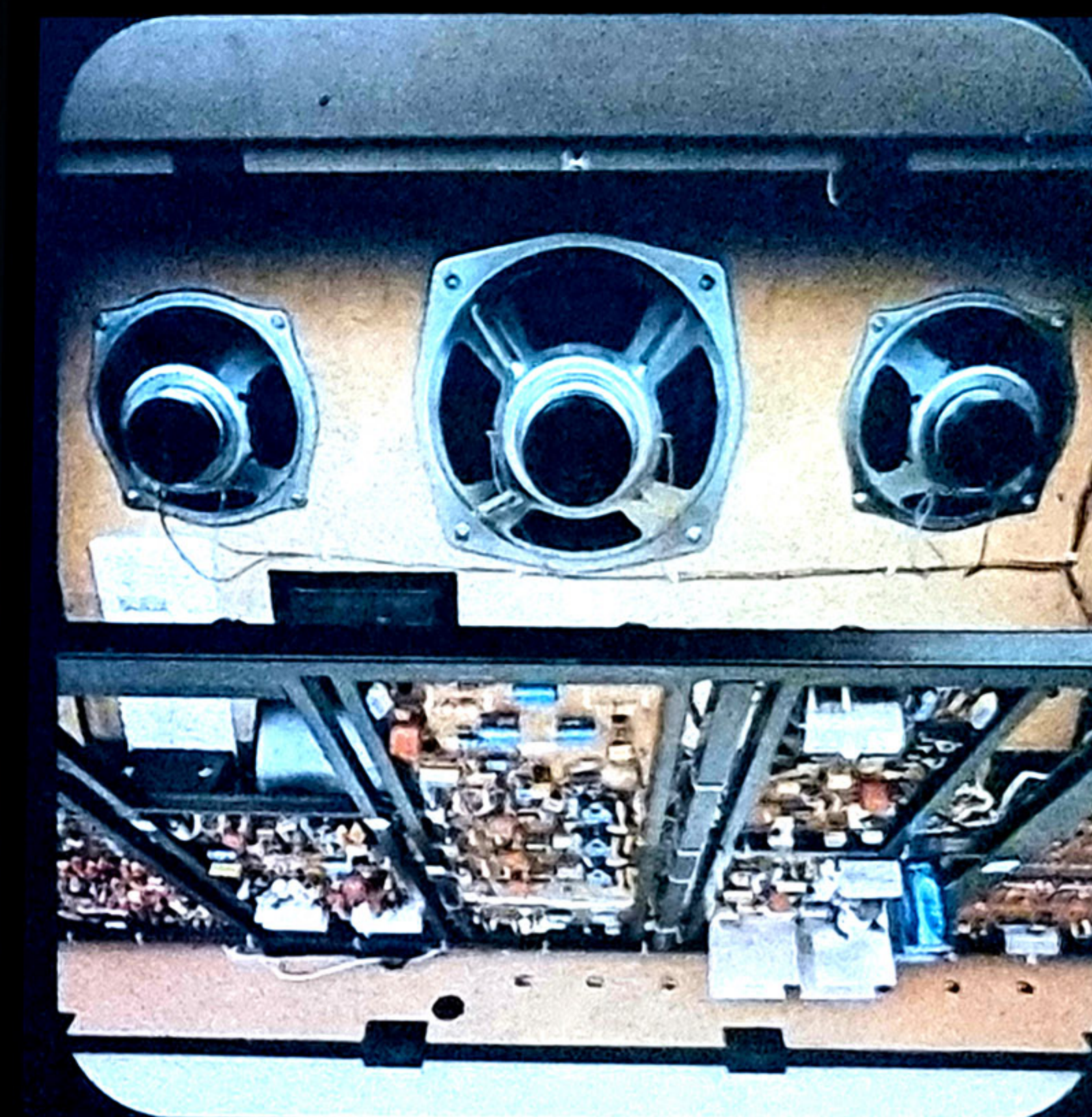
## Manuals

A good organ consists of two or more keyboards, each with at least 3½ octaves (44 keys), plus at least a 13 note pedalboard. The expression pedal, situated at the righthand side of the organ, controls the volume.

The two manuals enable a large number of possibilities, the solo voices are normally played on the upper manual and the accompaniment on the lower manual.

The manuals are specified by the number of octaves. One octave consists of 7 white and 5 black keys. Most organs have 2 x 3½ octaves (2 x 44 keys). Large organs often have 2 x 4 octaves (2 x 49 keys) or 2 x 5 octaves (2 x 61 keys).

# L3 M1 M2







## Multivoice

If your organ is equipped with the Multivoice system, three push buttons will be found on the register panel of the organ. The tone colours of the instrument gain an extra dimension with the Multivoice system, because it enables you to imitate the sounds of brass-bands and symphony-orchestras.

In fact, with the Multivoice system you have a symphony-orchestra inside the organ.

If you play a trumpet solo on the upper manual, one trumpet is heard. By engaging Multivoice this solo trumpet is multiplied, so that it is possible to hear an entire band of trumpet players. This multiplication system can normally be applied on the following registers:

Oboe - French Horn - Trumpet - Bass Clarinet - Cello - Principal - String - Octave - Salicet.

By mixing the Multivoice registration with the Tibias, other tone colours are obtained.

The combination registers of the lower manual can also be connected to the Multivoice system with Multivoice on the Salicional 8' you will obtain an imitation of a symphony-orchestra. If you depress the Tibia 8' the organ produces an imitation of wind instruments.

By depressing the Multivoice pedal button, the pedal registers Pedal 16' and Pedal 8' produce a

"bowed bass" effect and the pedal tones are multiplied by the Multivoice system. The pedal tones now imitate the sound of a cello or double bass.

By combining the normal organ registration and the Multivoice system, many new and exciting sounds are obtained.

When playing with percussion or repeat effect and you depress the Multivoice upper manual button, these effects are automatically cancelled. This makes it possible to rapidly change the registration of the organ (preset).

## Modulation

Modulation in music and its application in the world of electronics means to regulate. This takes place with vibrato, tremolo, chorus, orb-tone, multivoice and string ensemble.

Modulation influences the signal of the organ e.g. vibration (vibrato). It is a variation of the pitch and/or amplitude of a tone. The modulator is present on one button of the transportable string ensemble as well as other organs. In this case the signal is lead through the modulators in engaging or disengaging this button. The button on "off" gives the signal without the effect of modulation, "on" produces the modulation effect.

On large organs modulator groups are present. In such a group the normal signal can be used (without modulation) or, with chorus, tremolo, vibrato, multivoice or vibra effects.

## Octave Selectors

Several models of the Solina organs are equipped with Octave Selectors. These enable you to switch from a 16' register to an 8' or from an 8' to a 4' and vice versa, by simply pressing a button. Even the character of register sometimes changes by switching the Octave Selectors so that, for instance, an Oboe 8' register gets the tone colour of an English Horn 16'.

## Output

Every organ has an output socket for connecting other apparatus. Organs without Orbitone (1 channel) have a one-channel output. This output can be connected with a guitar plug. The value is: 1 Volt eff. 100 Ohm.

Organs with a multi-channel Orbitone have a 3-channel output. Output data of every channel: 750 mv, 100 Ohm. For amplification of the Orbitone effect you have to use the special 3-channel loudspeaker consoles produced by Eminent B.V. and Research Solina A.G.

### Recording

To record the organ it is best to use a microphone. You then have the full advantage of the sound quality and the natural, acoustic sounds of the organ. This is especially important for organs with more than one channel.





## Orbitone

(Chorus - Tremolo) - a Solina invention.

Orbitone is an electronic-acoustic effect for tremolo and chorus. This makes Orbitone a very important feature, bound up closely with the conception of modern electronic organs.

With Orbitone the organ signals are modulated in an acoustic and electronic way (see Modulation). This effect is based on the well-known "Doppler - effect" in physics: the siren of an ambulance passing by raises in tone as the distance between you and the ambulance decreases; the tone will lower when this distance grows smaller.

This effect can be obtained mechanically by placing in front of the loudspeaker a rotating barrel which disperses the sound. By attack and release of this barrel the changes in speed become noticeable. The effect that is thus created can be called an acoustic tremolo and vibrato; it has a very special lively and spartial effect and sound.

Leslie adapted two speeds and called them "Tremolo" inspired on theatre organs, and a slower "Chorus" used in straight church music or jazz.

Such a large and mechanically rotating unit doesn't fit the conception of the organs based

on electronic mini-technology. Many organ manufacturers therefore looked for an electronic solution. Research Solina and Eminent found this solution with Orbitone for now not only the effects of the rotating barrel are reproduced, but in some cases also the attack and release effects, which do have a certain charm.

Orbitone has the great advantage, that the signal can pass immediately to the amplifiers. Therefore you can use the loudspeaker consoles, that are manufactured in Bodegraven, Holland: the Solina V 70 and the Eminent V 150.

Organs with Orbitone normally have a spatial sound because of their multi-channel system, which makes the organ sound naturally. The Orbitone system also has the advantage, that you can hear the Orbitone effect over the headphone which makes the use of the headphone (see Headphone) more agreeable.

The operation of the Orbitone system consists of:

- \* Push button "on":  
in position "on" there is Orbitone, in position "off" the registers sound without Orbitone, through the "normal" channel.
- \* Push button "chorus":

a slow tremolo for classical music and modern music.

\* Push button "tremolo":

a fast tremolo effect for modern music and theatre music.

## Pedal

The pedal is played by the left foot, most organs are equipped with a small pedalboard of 13 keys for classical music and study, professional organists need a larger pedalboard with 27, 30 or 32 notes in a straight board or in a concave radial arc board.

Pedals can be monophonic or polyphonic. With a monophonic pedalboard - which applies to most 13 note pedalboards - you can only play one note; it is not possible to play two notes at the same time. In this case you play with only one foot.

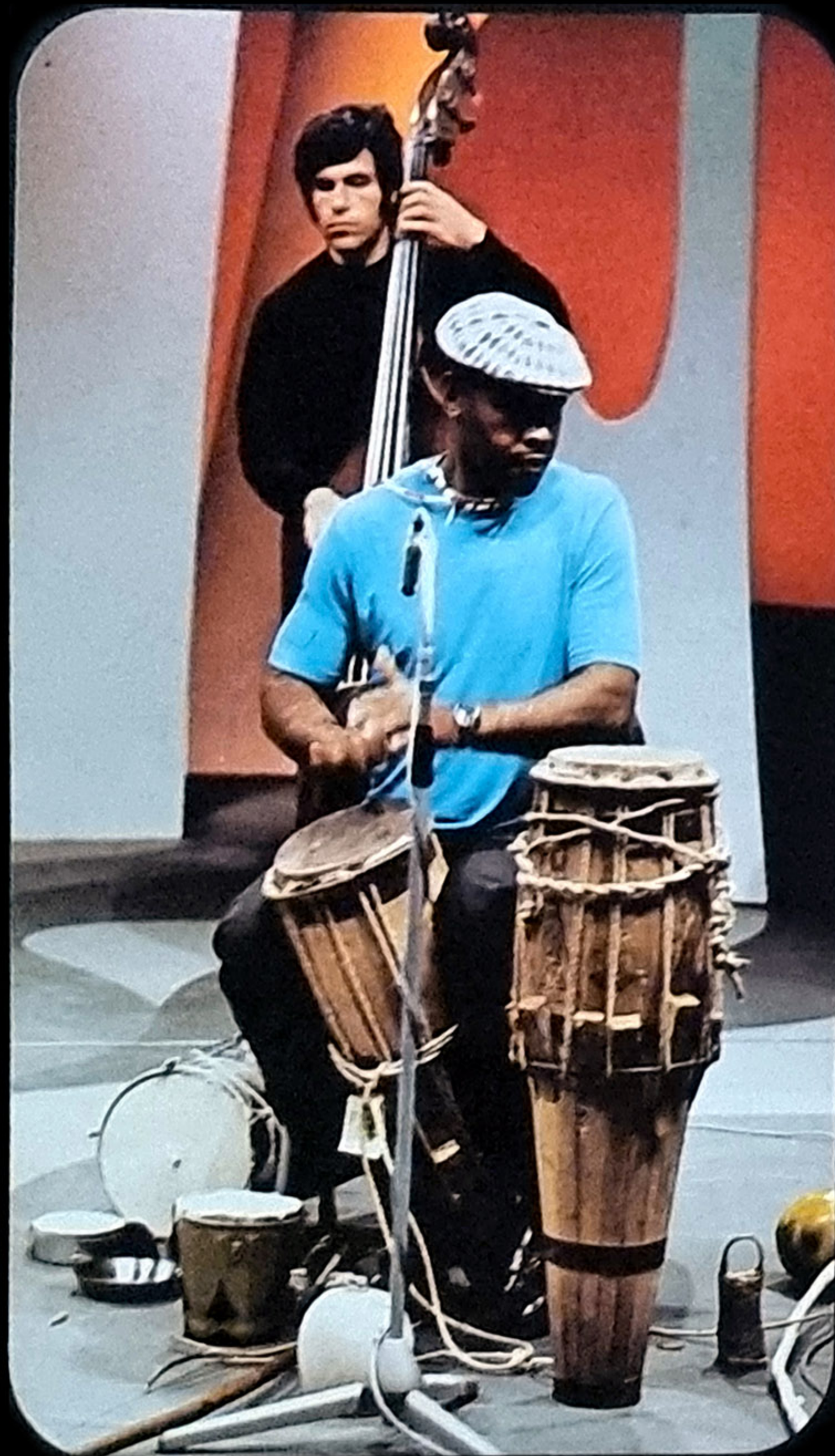
A large pedalboard, with several octaves, which is played with both feet, is polyphonic: you can play several notes at the same time.

N.B. It may happen that some notes of the 13 note pedalboard appear to be faulty. The reason often is that the organ sinks in a deep pile carpet or floor covering and the gap between the pedals and the floor becomes too narrow. By putting an extra piece of floor covering under the cabinet, you can prevent such a complaint.





P2 P3



## Pedal volume control

If your organ is equipped with a pedal volume control you have the possibility of adapting the volume of the pedal registration to the volume of the registers on the upper manual and the lower manual.

## Percussion

One of the best known features in Percussion. Percussion means "Beat effect" for instance, beating a drum. In the organ, Percussion, is generated in an electronic way. Normally the sound only disappears when the key of the manual is released. With Percussion the tone is built up slowly, even while holding the key depressed. Most Percussion registers offer the possibility of choosing this built-up time, via a slide control to be long or short. This control is called "Percussion Length Control". Of course Percussion is a monophonic effect, that can only be obtained when you play staccato. Normally Percussion is only possible on Solo registers. If you play with a registration that consists of Percussion registers as well as non-percussion registers, then staccato and non-staccato play makes a remarkable difference, although the organ registration itself does not change. You can obtain beautiful accents and variations. This way of playing asks some exercise.

## Percussion sustain

Piano, harpsichord, vibraphone, are examples of instruments played with Percussion sustain. The idea becomes clear with this example: when a harp is touched slightly the chord (= percussion) the sound of the chord will slowly fade away (= sustain).

This combination of percussion and sustain characterises these groups of instruments although

they can be recognised by their tone colour. Modern electronics make it possible to realise the sound of these particular instruments. Only the larger organs are equipped with Percussion sustain. These instruments have Percussion sustain on every key, which makes this Percussion sustain effect completely polyphonic.

When you depress a key you can hear immediately a very short Percussion effect. When you release the key, but also when you hold it, you will hear the sustain effect. This sustain effect, while releasing the key, can be controlled by means of the "Sustain Length Control". With the register "Accent" you can underline the Percussion effects of the piano, harp, harpsichord, etc. Percussion sustain enables you for example to play the piano effect on the upper manual while having organ sounds on the lower manual.

## Pilot light

The pilot light indicates if the organ is on or off.

## Preset

Some organs have "preset" buttons. These are fixed register-combinations, which make it possible to change the sound quickly. They can be operated with one push button (preset in/out) or with a preset-cancel-push-button.

P4 P5 P6







## Registration

The registration while playing the organ is very important. With the registers you can change the sound and you can play the same melody each time in a surprisingly different way, by means of a varied and contrasting registration. The bigger the organs, the bigger the number of registers. The operation elements of the organ can be described in two groups.

- speaking controls, when activated, produce a distinct voice or sound.
- non-speaking controls, when activated, produce no sound of their own, but affect the tone and versatility of the speaking voices, for instance, with Vibrato, Volume, Repeat, etc.

In form and kind a technical subdivision can be made, which is also important:

**Controls** - switches, each with its own sound character, in which we find all sound families in music, like woodwind, brass strings.

These controls reproduce the sound of a musical instrument, such as a bassoon, a trumpet, and they normally have many overtones. Besides these controls, rich with overtones, there are also controls which reproduce a warm sound tone (tibias).

**Drawbars** - reproducing only the key note and not having any overtones. Drawbars are a kind of slider-control which can be set up in several positions (from 0 to 8) this controls the volume of the tone. By using a number of corresponding drawbars in different positions you can add overtones to one key note. In this way you possess an almost unlimited number of tone colour possibilities. This method of registration is called the synthetic registration, which has a particular flute-character because of the sine-character, the round tone.

**Disposition** - the upper manual, lower manual and pedal each have one or more groups of controls. The name of the controls gives the footage and the name of the character of the control. The entire registration is called the disposition of the organ.

### Footages

"Footage" is a traditional conception used in the pipe organ terminology. They serve as a means to indicate the length (and to every length belongs a certain diameter) in English feet, with the sign '. A short pipe of e.g. 2' produces a high sound a long pipe of e.g. 8' ( $\pm 2.5$  meters) produces a low tone.

The registration of an organ can be set up from an 8' tone. A very simple organ always has a registration that consists of an 8', such an organ is a one voice organ. An organ with e.g. five footages (controls 1', 2', 4', 8' and 16') enables you, when these controls are set up one by one, to make a swing on one key from one octave from high (1') to low (16'). Such an organ is an organ with five voices.

In practice there are also footages that are indicated by  $1\frac{1}{3}'$ ,  $1\frac{3}{5}'$ ,  $2\frac{2}{3}'$ ,  $5\frac{1}{3}'$ . If you play a 'C' on such organs you will obtain the following result:

a 'G' with  $1\frac{1}{3}'$ ,  $2\frac{2}{3}'$ ,  $5\frac{1}{3}'$

an 'E' with  $1\frac{3}{5}'$

a 'C' with 8'

Such footages provide an enrichment of the tone colour. These footages are also called the simple voices to which are mostly adapted the  $2\frac{2}{3}'$  and  $5\frac{1}{3}'$ .

### Names on stops/tabs

The names of many controls mostly are traditional and they were used in the time of the pipe organ builders. But new words and conceptions have also found their place.

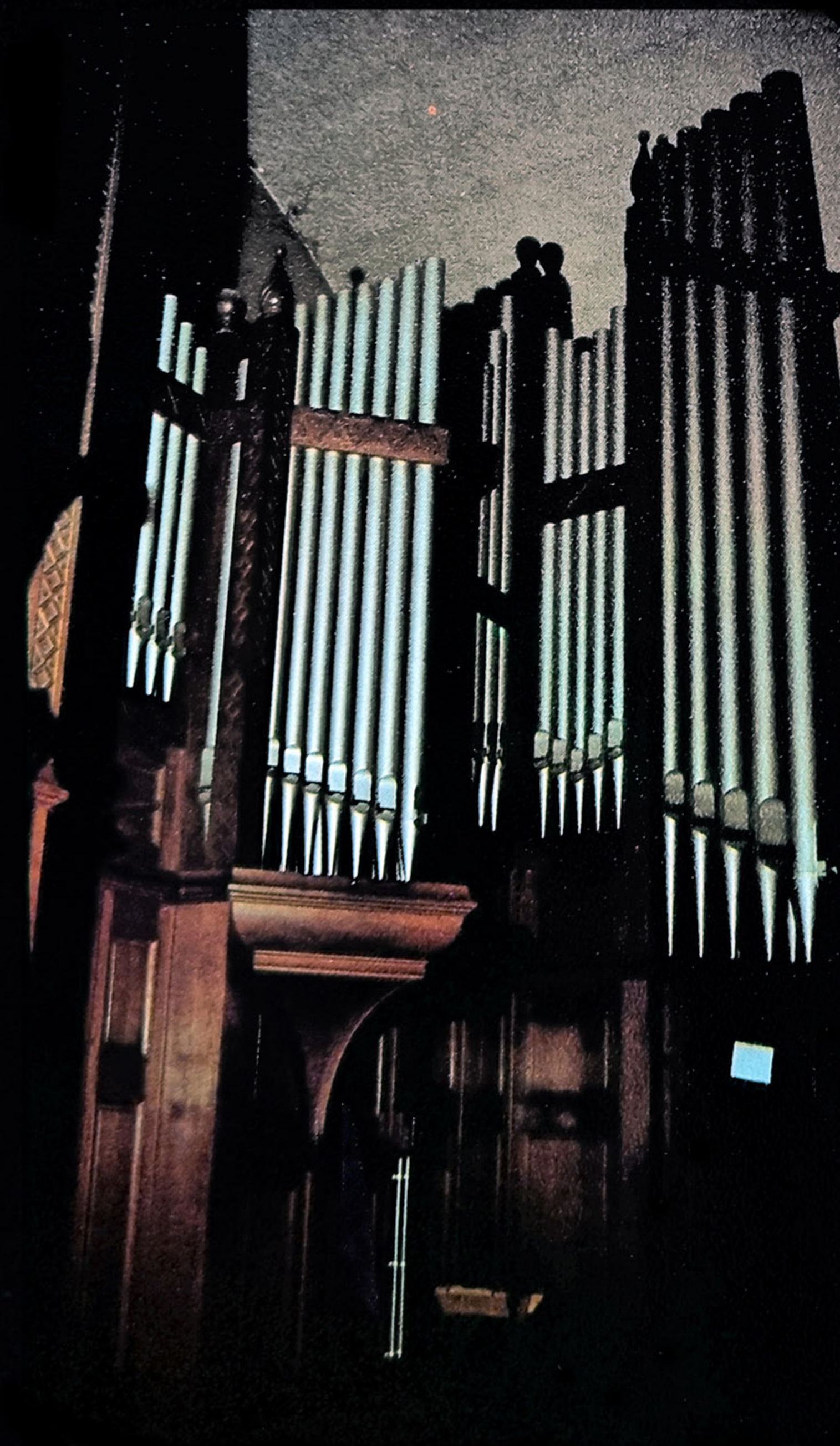
### Upper manual

On the upper manual you generally find the largest number of controls. On this solo manual the melodies are played. We can make the following division:

**Solo voices** - e.g. Cello 16', Violin 8', Bassoon 16', English Horn 16', Oboe 8', Clarinet 8', French Horn 16', Trumpet 8', Flute 8'.

**Principals** - e.g. the principal controls: Diapason 16', Principal 8', Octave 2', Quint  $2\frac{2}{3}'$ ; and strings: String 8', Salicional 4'.

**Tibias** - which produce in fact the key notes of the organ and which therefore are indicated by the footage: Tibia 16', Tibia  $2\frac{2}{3}'$ , etc.





The tibias of the organ, that can be set up through the drawbars, are the typical drawbar stops.

## Lower manual

The lower manual - accompaniment manual usually has a smaller number of stops.

The lower manual of smaller organs normally has a combination registration, for instance, tibia/flute and string, which enables four tone colours. If you don't depress a stop, there will be a tibia sound. By depressing the flute stop there will be a flute sound. If you depress only String, you obtain a string registration and with string and flute you have a combination of both. With such a combination you can create four sounds with three stops.

Larger organs of course have more stops on the lower manual, with both principal and tibia groups.

## Pedal

The pedals have a smaller number of stops such as Subbass 16' - Bourdon 8' - Octave 4' - as well as of the so-called "instrument" stops such as Stringbass and Guitarbass. These stops have a built-in percussion sustain effect, which enable you to realise the authentic sound of the instruments.

Most organs have pedal sustain, the sustain effect can be used separately.

The large instruments have Bassoon or Tuba stops, and in this case there are also Tibia stops for the pedal.

## Features

Besides the main registration the organ has many other features, which enable you to enrich the sound and the possibilities of the organ, for instance Reverberation, Vibrato/Tremolo, Balance and Volume controls.

Special effects can be distinguished in the traditional universal effects: Vibrato, Vibra, Percussion, Repeat, Sustain, Reverberation, Wah-Wah, Wow, Wow Echo, etc.

Further the unique inventions of Eminent and Research Solina: Multivoice/Stringensemble, Combomatic, Rith-O-Matic, Rithmix, Orbitone, Eminent-Arpeggio. You can obtain unique effects with the combination of organs with synthesizers. To be played separately as two separate instruments or when the synthesiser is integrated in the organ. Several models of the Eminent and Solina organs are equipped with Octave Selectors (see Octave Selectors) which enable you to switch from a 16' stop to an 8' or from an 8' to a 4' just by depressing the button.

## Repeat

The repeat effect - repeat percussion - should be mentioned together with the percussion effects. You find Repeat mostly on the Upper Manual, and this polyphonic effect offers the possibilities of plucked instruments such as Banjo, Mandoline, Balalaika etc. The speed of the repeat effect can be regulated from slow to fast. You can play repeat via the stops that can be played with percussion.

## Reverberation

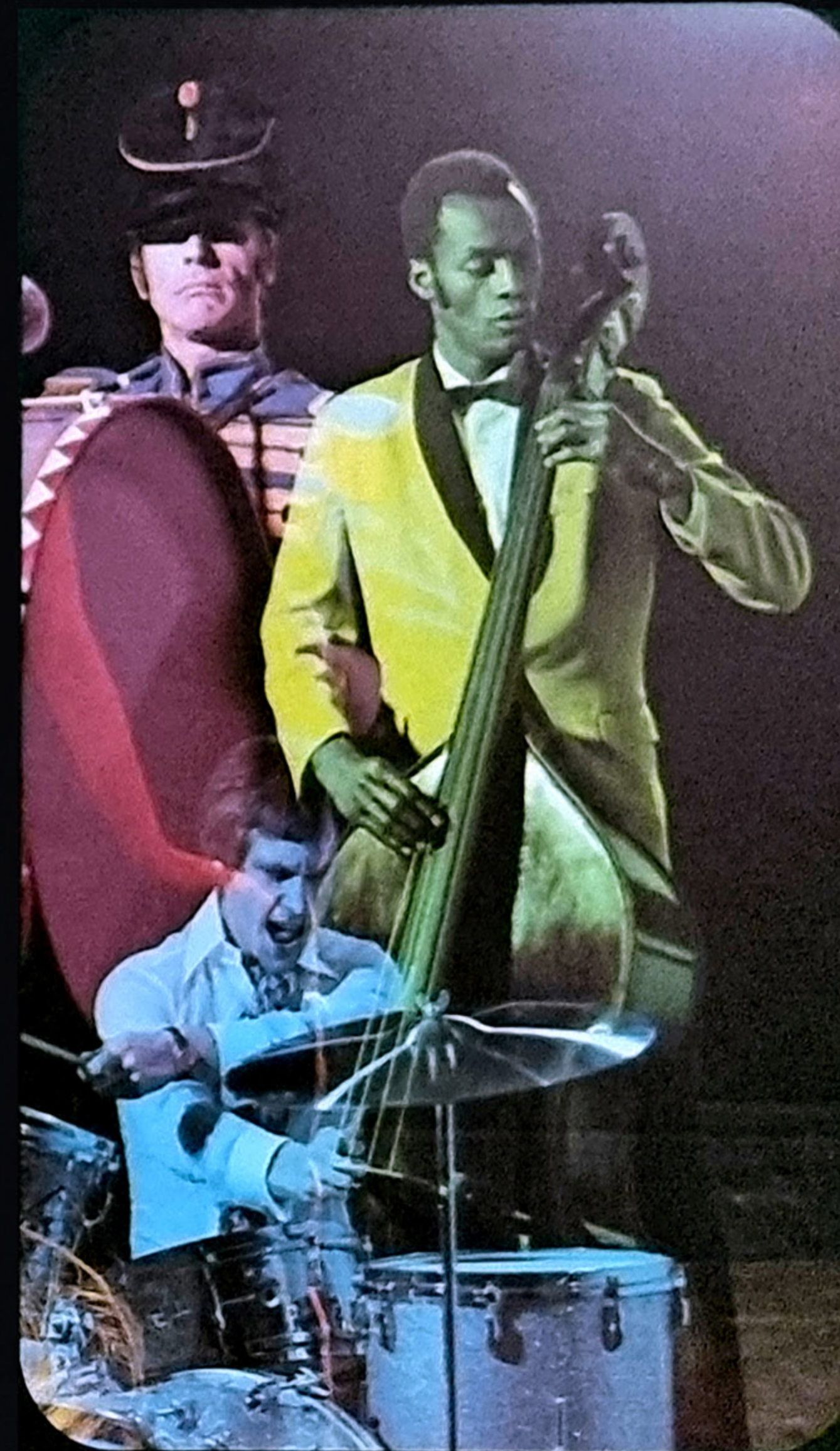
The sound of a concert hall or a cathedral in your own house! This can be achieved by the re-

verberation or reverb in your organ. The natural echo that is determined by the acoustics in a concert hall stirs up through the mechanical way in the reverberation unit. The electric signal of the organ makes one or two coiled springs vibrate in the reverberation unit via a grill. These vibrations are transposed in electrical signals by a second grill and the extreme point of the springs. Of course the springs will continue to vibrate several seconds after the signal of the first grill stopped, and this echo will be assimilated by the last grill. The original signal and the prolonged signal come together in the pre-amplifier and there the reverberation effect can be heard. The reverberation can be regulated with a button or a slider control from 0 (= no reverb) to maximum. This control is called "Reverberation".

## Rithmix

The Solina Rithmix used in the Eminent organ, has a number of rhythms such as Waltz, March, Swing, Slow Rock, Rock, Cha Cha, Bossa Nova etc. These rhythms can be combined, and this creates other surprising rhythms.

With slider controls you can for instance set up the volume as the rhythm tempo. The Rithmix can be started normally with a push button and then it's fully automatic. Another push button (pedal start) offers the possibility of starting the Rithmix with pedal play. If you interrupt your pedal play the Rithmix will stop after two measures. By depressing a pedal key it will start again.





has been developed by the research department of Eminent with the help of a computer. This I.C. is the heart of the Rith-O-Matic. It is one of the most comprehensive ever made and it has a surface of 27,3 mm<sup>2</sup> carrying 5000 transistors and many thousands of other electronic elements.

The ROM is a composition of the Rithmix, a unique automatic bass and a chord memory system on both manuals, which does not yet have its equal. The Rith-O-Matic has a special owners manual. This feature, with its thousand-and-one functions can be described shortly as follows:

The Rithmix is the base of the Rith-O-Matic. Next to the buttons of the Rithmix section (the lowest series) you'll find three other buttons for accompaniment: guitar, banjo and piano. With the slider "accomp" you can regulate the volume of this group.

All three instruments of the accompaniment section should be used as percussion stop for the lower manual. Rithmix and accompaniment can be played together with the rhythmical chord accompaniment.

If you hold a chord on the lower manual, and you select the accompaniment stop(s), you can activate the Rithmix: the chord will be interrupted automatically in the chosen rhythm. The volume control "accomp" regulates the volume.

## Rith-O-Matic

The Solina Rith-O-Matic (ROM) can be considered as a miracle of modern technology. Siemens fabricated an I.C. (Integrated Circuit) that

The automatic bass - nine push buttons on the first range of the ROM - offers the possibility of playing the most complicated themes for bass rhythms. The automatic bass themes may only be played in combination with one of the rhythm of the Rithmix. When playing a chord - or a pedal key - the bass starts automatically in the chosen theme and voice.

The nine push buttons can be described in three sections:

- stringbass and bassguitar - these voices may be combined or selected individually.
- bass rhythms - the bass tones are doubled. This means that they are reproduced twice instead of once.
- prime - prime/quint - boogie - rock - shuffle - latin.

When the prime (= latin) button is engaged, you hear the correct root of the chord - the prime/quint produces the root and the correct quint - the other four each give a rhythmical support. You can only use one button of the automatic bass; combinations are not possible. The automatic bass on the pedal has a special charm. If you play a pedal key by the first number of a measure, you will have automatically the chosen bass theme in the correct mode, but however only if there is no chord memory.

The Solina chord memory system is not only unique; it opens up a wealth of new playing possibilities. For instance, you play a chord on the lower manual, you release the keys..... and the notes you played continue playing, thus freeing your left hand. The memory unit in the ROM

remembers which keys you have depressed. When pressing another chord the first one will discontinue and the new chord will activate.

Chord memory on the upper manual gives another gamut of possibilities. When you play three or more notes at the same time on the upper manual, you have automatically an accompaniment on the lower manual without touching it.

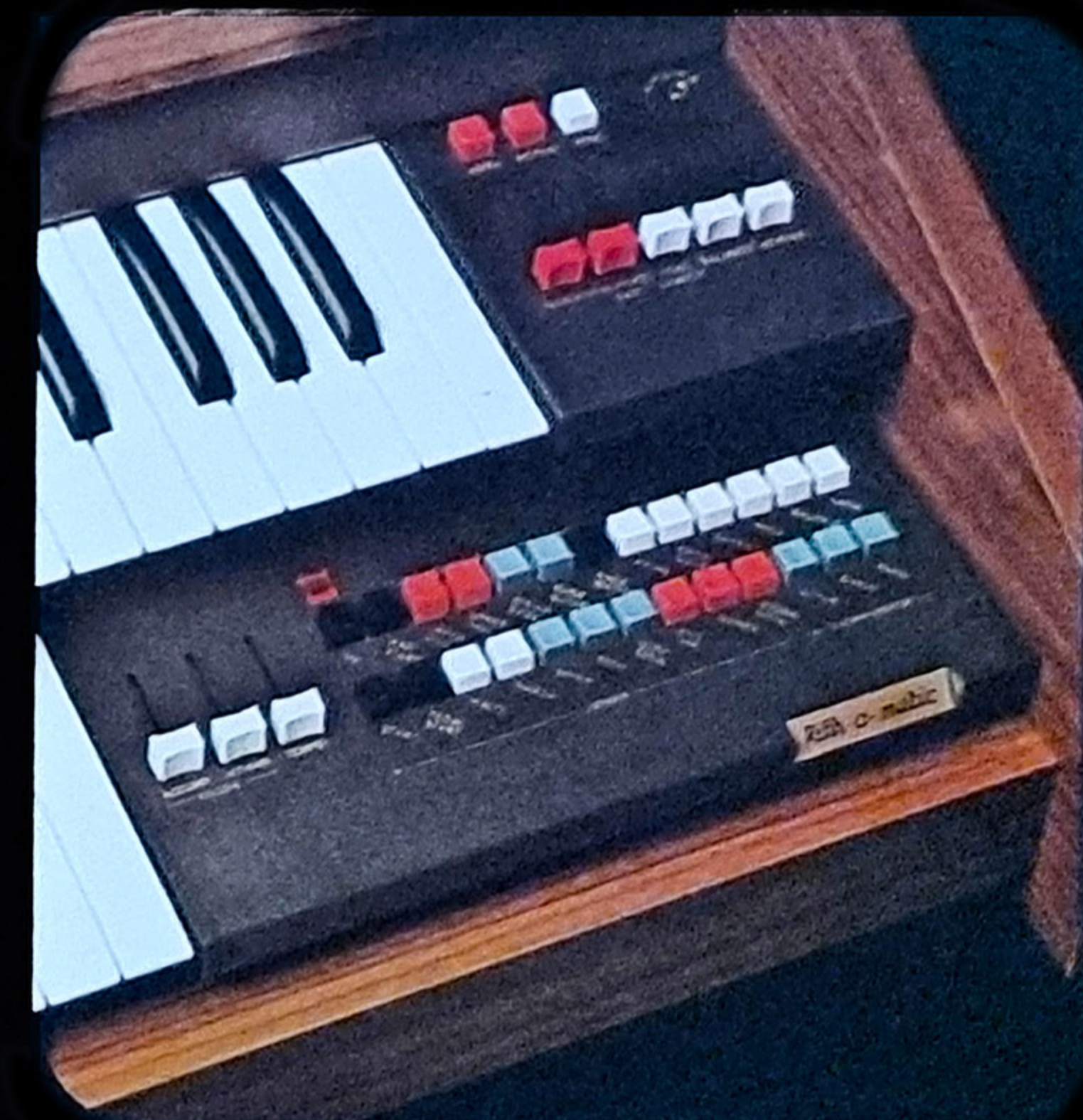
When you combine this chord memory system with the automatic bass and the correct set-up of the Rithmix, you have at your disposal an orchestra of brilliant accompaniment, and you can use both hands for organ solos.

The set up of chord memory is simple: one push button for the upper manual and one for the lower manual.

If you set up chord memory on the lower manual and you activate the Rithmix, you get a wonderful combination; the organ registration continues sounding constantly, e.g. by using Multivoice while e.g. piano, guitar or banjo continue sounding rhythmically.

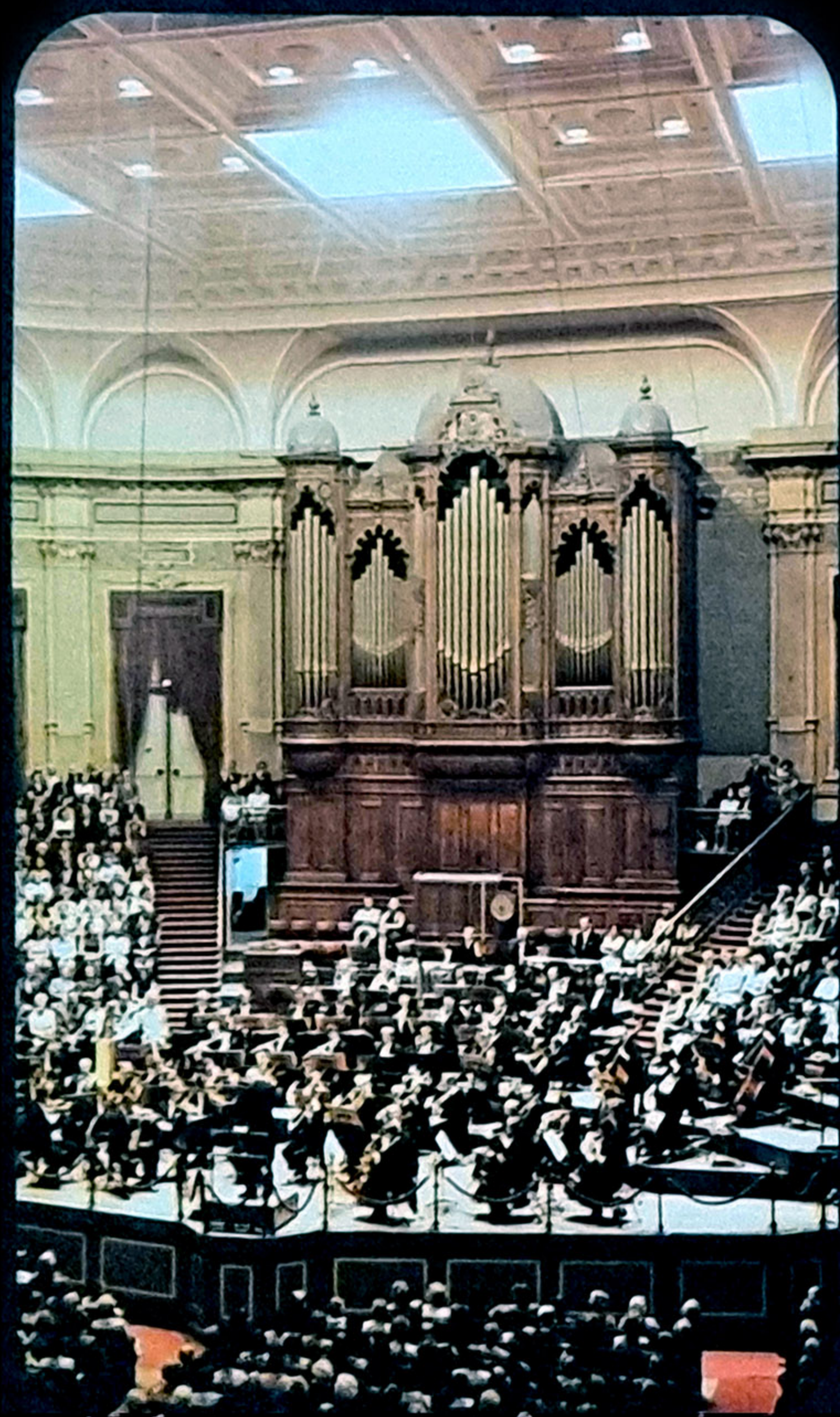
Chord memory and rithmix together on the upper manual give automatically the accompaniment chords and the automatic bass, when you press three or more keys at the same time, without you playing on the lower manual or the pedal.

You can also combine chord memory on the upper manual with normal pedal playing.





# S1 S2



## String Ensemble

The String Ensemble is a further perfection of the Multivoice effect (see multivoice) with the accent on the Strings orchestra. This String Ensemble can be found in several variations on the instruments, and it has its own registration group.

These registrations are set up by one or more of the following possibilities.

- push buttons (or stops) for 4' and 8' violins without sustain.
- push buttons (or stops) for 4' and 8' violins with sustain.
- push buttons to switch the organ registrations of the upper manual and/or pedal via the String Ensemble.

In these cases the simple register voices are multiplied so that i.e. one French Horn becomes a brass ensemble. The String Ensemble realises a

Cello group or a group of Double Basses on the pedal.

Combining the possibilities of the String Ensemble with those of the organ offers an incredible number of registration possibilities and sound effects.

The character of the String Ensemble makes it possible to realise music for wind and strings orchestras on the organ.

## Sustain

Sustain is also a very important effect. Sustain means, that the tone continues after having released the key. The "Sustain Length Control" controls the amount of time a note continues to sound. The sustain effect is a polyphonic system and is present on every key, if you possess an organ with manual sustain. Sustain does not require special experience. The sustain effects can be combined easily, and with remarkable results, with other effects. Together with Vibrato you have a very romantic effect. The combination of sustain effects (upper manual) with normal organ playing (lower manual) offers many possibilities.

With pedal sustain you have this same effect on the pedal keys, and the sustain length sometimes can be controlled separately. For classical music pedal sustain has a particular significance, (see Legato - pedal play). On smaller organs the pedal sustain will be cancelled if you start the Rith-O-Matic or the Combomatic.

## Selectors

Larger organs are equipped with selectors. By means of those selectors you can choose certain registrations on the upper manual, the lower manual and the pedal. The registration groups can be preselected when those selectors are not yet set up. The preselected register groups or drawbar groups can be heard by means of the selectors.

The selectors are indicated as follows:

- Upper manual selectors
- Lower manual selectors
- Pedal selectors

## Tuning

The digital technology, the base for the most modern electronic organs, is the means whereby

one main oscillator, the tone source of the instruments - operates the whole organ. Therefore your organ can be tuned with one knob (tuning). The arrow on the knob indicates the standard (A= 440 Herz). If you play together with other instruments, it is possible that you have to deviate from this standard. Of course you can use the tuning for making effects: one slide to higher or lower tones.

## Tremolo

In general tremolo is a quick variation of the volume. It is adapted in big organs on the Vibraphone registration. A quick variation of the pitch, which is called Vibrato, is often also indicated as tremolo. You can find a combination of both effects; then the sound is divided over different loudspeakers, as with Orbitone.

## Vibra

Vibra is a perfection of the Vibrato effect, because a delay has been incorporated. The tone starts fixed and then it begins to float. This monophonic effect demands non-legato playing (see WAH), and gives beautiful, natural, sounds when playing i.e. violin, cello, hawaiian guitar.

# S3 T1 T2 V1





# V2 V3 W1



## Vibrato

Almost every organ is equipped with a Vibrato control which gives your music a brilliant, floating and romantic effect, i.e. when playing strings. Vibrato should never be used together with repeat or percussion. Its "floating" can be slight or heavy and deep. The vibrato depth can be regulated with a sliding control or a knob.

## Volume Control

The volume control regulates the volume of, for instance, a group of registers from minimum to maximum. Volume controls exist as sliding controls or as knobs.

## Wah Wow Echo

Some instruments with the characteristics of a combo or theatre organ have very special effects, such as Wah, Wow, and Echo. "Wah" and "Wow" are the effects of a trumpet mute.

To play the Wah, Wow and Echo effects you should select Trumpet 8'. Then you press the Wah button and play several notes on the upper manual using a non-legato\* touch. Listen closely to the wah-wah sound....the sound you hear when moving a mute back and forth in front of the bell of a brass instrument. Press the Wah button again to disengage it. Press now the Wow button and play again a few notes in the upper manual. This time, the sound will be that of a wow-wow. When both buttons are depressed, only wow is in effect. If the wow button is disengaged you press the Echo button. You play and hold a note on the upper manual, then you'll hear a repeating (echoed) wow-wow effect. Only the wow effect can be repeated by the echo.

\* Non-legato means: releasing a key (or chord) before pressing another key (or chord). This is necessary to make the (mono) effect start again.

### WAH AND WOW TIMING DRAWBARS

The Wah and Wow Timing Drawbars control how quickly the Wah and Wow effect actually develops.



About the organs...  
...built in Bodegraven/Holland!

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