nord C1

COMBO ORGAN

USER MANUAL

CAUTION AVIS

RISK OF ELECTRIC SHOCK
DO NOT OPEN
RISQUE DE SHOCK ELECTRIQUE
NE PAS OUVRIR

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE COVER (OR BACK).
NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED PERSONNEL.
ATTENTION :POUR EVITER LES RISQUES DE CHOC ELECTRIQUE, NE PAS ENLEVER LE COUVERCLE.
AUCUN ENTRETIEN DE PIECES INTERIEURES PAR L´USAGER.
CONFIER L´ENTRETIEN AU PERSONNEL QUALIFE.
AVIS: POUR EVITER LES RISQUES D´INCIDENTE OU D´ELECTROCUTION, N´EXPOSEZ PAS CET ARTICLE A LA PLUIE OU L´HUMIDITET.

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

Le symbole éclair avec le point de flèche à l´intérieur d´un triangle équilatéral est utilisé pour alerter l´utilisateur de la presence à l´intérieur du coffret de "voltage dangereux" non isolé d´ampleur suffisante pour constituer un risque d´éléctrocution.

The exclamation mark within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

Le point d´exclamation à l´intérieur d´un triangle équilatéral est employé pour alerter l´utilisateur de la présence d´instructions importantes pour le fonctionnement et l´entretien (service) dans le livret d´instructions accompagnant l´appareil.

Instructions pertaining to a risk of fire, electric shock or injury to persons.

IMPORTANT SAFETY INSTRUCTIONS
SAVE THESE INSTRUCTIONS

Warning - When using electric products, basic precautions should always be followed, including the following:

1. Read all the instructions and observe the graphic symbols above before using the product.
2. Do not use this product near water - for example near a bathtub, washbowl, kitchen sink, in a wet basement, near or in a swimming pool, a swamp or the like.
3. This product should be used only with a cart or a stand that is recommended by the manufacturer.
4. This product, either alone or in combination with an amplifier and headphones or speakers may be perfectly capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
5. The product should be located so that its location or position does not interfere with or obstruct its normal flow of ventilation.
6. The product should be located away from heat sources such as radiators, heat registers or other products that produce heat.
7. The product should be connected to a power supply only of the type described in these operation instructions or as marked on the product.
8. The power supply cord of the product should be unplugged from the outlet when the product is left unused for a long period of time.
9. Care should be taken so that objects do not fall, or liquids are not spilled into the enclosure through openings.
10. The product should be serviced by qualified service personnel when:
    A. The power supply cord has been damaged; or
    B. Objects have fallen or liquids have been spilled onto the product; or
    C. The product has been exposed to rain; or
    D. The product does not appear to operate normally or exhibits a marked change in performance; or
    E. The product has been dropped or the enclosure has been damaged.
11. Do not attempt to service the product beyond those means described in this operating manual. All other servicing should be referred to qualified service personnel.
12. To completely disconnect the apparatus from the mains, remove the mains plug.
13. ensure possible protective earting connections of other equipment when the apparatus is connected to multimedia systems.
13. Where the Mains plug is used as the disconnect device, the disconnect device shall remain readily operable.

Introduction

THANK YOU!

We would first like to thank you for purchasing the Nord C1 Combo Organ! We hope you will find it to be everything you wished for and that you'll have many hours of great fun with your new instrument.

DEVELOPMENT GOALS

First some history: at the time of designing the Nord C1 Combo Organ, Clavia had already been developing digital tonewheel organ models for a decade. The first model featured in the Nord Electro series of instruments was designed to fit comfortably in a multi electro-mechanical instrument along side various piano implementations. With focus given to fit several mechanical instruments into a single package, you are always forced to make some compromises. We never intended the Electro to be the perfect vintage tonewheel organ replacement, but it turned out to be one of the more popular units on the market, much due to it's high quality of sound, portability and attractive price.

Though not surprised we were definitely thrilled when the Electro started to appear in different magazine's tonewheel clone tests and shoot-outs. It was included for its fabulous sound that some found to be better that far more expensive hard core clone units. However, due to its single manual and additional piano samples, it was generally included "out of contest".

With the Nord C1 Combo Organ we wanted to design an instrument without having to find the right blend of things; like piano vs. organ keyboard action, or multi-effects suited for a wide array of sounds. We wanted to focus on the things needed for killer organ sounds, and those things only.

Also we had developed some great transistor organ models for the Nord Stage series of instruments. An obvious choice was to include these as well for the ultimate three-in-one lightweight vintage organ package.

Some areas we knew were up for improvement prior to the start of the project, others were found along the way. What really paid off was focusing on each of the components involved in the sound generating process, rather than just the sounding outcome. After spending thousands of man hours leaving no detail untouched - no matter how small and seemingly insignificant - we believe we have not only reproduced the perfect tonewheel sound but also the proper response and feel of playing the original instrument.

We hope this instrument will give you as much fun to play as it has given us to develop.

FEATURES

The Nord C1 Combo Organ features high quality simulations of three vintage organs, a bunch of effect pedals as well as several amp and speaker cabinets combinations in a single lightweight package.

The dual keyboards, bass pedal input and high level outputs allows you to use the instrument in the exact same application and set-up as with the vintage originals - and several more!

By focusing on each individual component involved in the sound generating process you get not only a vintage sound experience but also spot-on response and feel of playing the original instruments.

The Nord C1 Combo Organ has the following features:

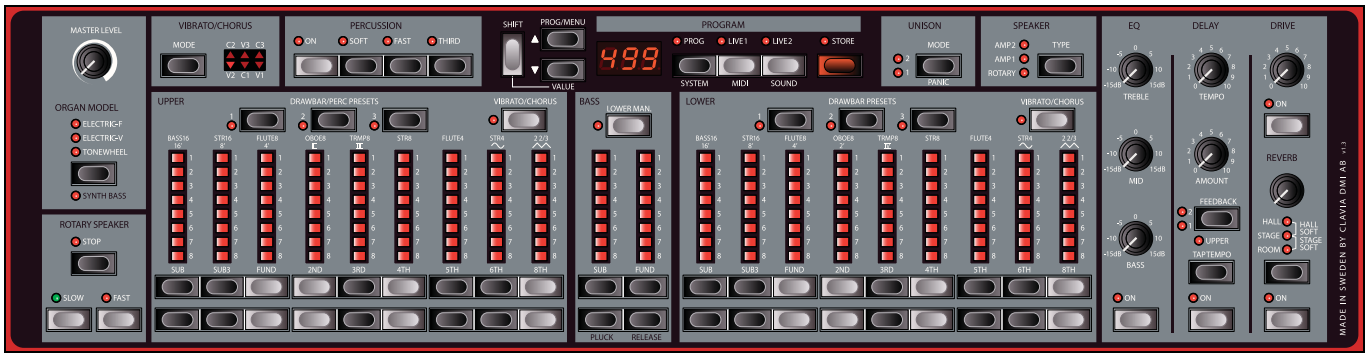
- 1 model of a vintage Tonewheel organ
- 2 models of vintage Electric-V and Electric-F transistor organs
- 3 Amplifier models
  Featuring simulations of the gain and frequency characteristics of two popular combo amps as well as a rotary speaker cabinet.
- Overdrive
  Offering a gentle to massive amount of tube-style distortion.
- Vintage-sounding delay
  With tap-tempo function and possibility to limit operation to upper manual.
- 3-band EQ
  5 types of Reverberation
  Room, Stage and Hall-types with variations
- Dual manuals with 2x61 waterfall keys
  Featuring high trigger point for the optimal organ keyboard feel and response time.
- Bass pedal board input
  Dedicated MIDI connector for use with any MIDI note sending pedal board.
- High level outputs
  Featuring quarter-inch as well as 11-pin Leslie standard connectors you can connect directly to rotary speakers. When using the 11-pin connector controls for rotation speed are transferred as well.

ABOUT THIS USER MANUAL

This manual is arranged mainly as a reference manual. In many cases you'll get tips on how to practically use functions. In this manual, references to knobs and buttons on the unit is printed LIKE THIS, e.g. 'press the STORE button'. The LED-display is referred to as the DISPLAY. Whenever there is a reference to the 'keyboard', that reference also applies to incoming MIDI note messages.

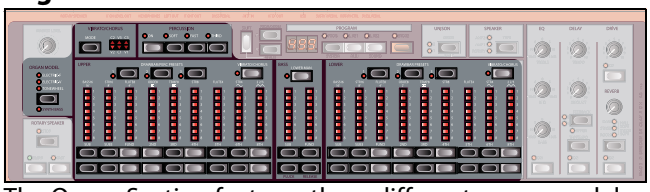
Overview

THE FRONT PANEL



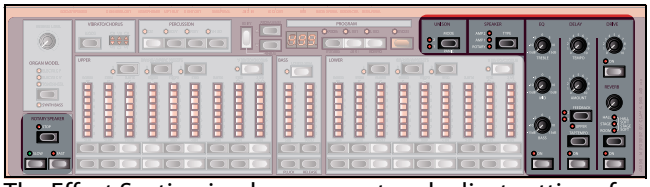
The Nord C1 Combo Organ front panel consists of 3 sections:

Organ section



The Organ Section features three different organ models, and this is where you select what model to play and make model specific adjustments. Please refer to “The Organ Section” on page 9.

Effect section



The Effect Section is where you set and adjust settings for delay, drive, EQ, unison, reverb and speaker simulation. Please refer to “The Effect Section” on page 13.

Program Section

The Program Section is where you store and recall sound settings into Programs, and also adjust system specific parameters. Please refer to “The Program Section” on page 8.

MASTER LEVEL KNOB

The **MASTER LEVEL** knob controls the overall output level for all audio outputs, including **HIGH LEVEL OUTPUT** and **HEADPHONE** output. The **MASTER LEVEL** knob’s physical position is always the same as the output level.

THE KEYBOARD

The Nord C1 Combo Organ keyboards have a fast trigger response which closely mimics the feel and response times of a real organ. The fast trigger response is not velocity sensitive, which might not be preferable when using external sound sources. Please refer to “Playing an external sound source” on page 18.

ABOUT KNOBS

The knobs are of potentiometer type. Except for the **MASTER LEVEL** knob, this means that when you load a Program the values of the parameters can be totally different from the knobs physical positions. As soon as you begin turning a knob, the parameter value will ‘snap’ to the knob’s physical position.

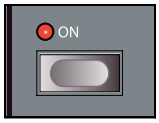
ABOUT BUTTONS

Buttons have different behaviour depending on their functionality:

Selector buttons

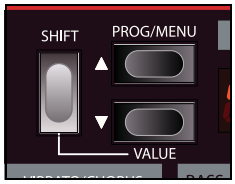
Press the Selector button repeatedly to select between options printed next to the corresponding LEDs. Note that some options are selected by lighting several LEDs simultaniously.

On/Off buttons



The On/Off buttons have a LED next to them to indicate the status.

Shift Button



Some buttons have a secondary function, available by holding **SHIFT** while pressing the button. The name of the secondary function is printed just below the button.

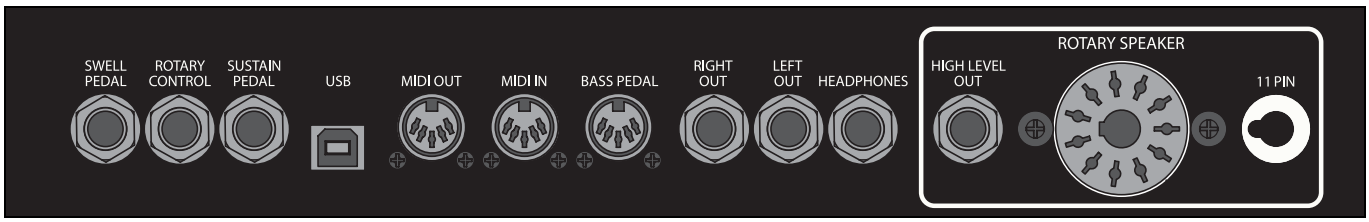
Panic button

By pressing the **SHIFT** + **UNISON MODE** buttons all sounding notes will be silenced.

Note: equipment connected via **MIDI OUT** is not affected.

Connections

THE REAR PANEL



AUDIO CONNECTIONS

The Nord C1 Combo Organ has three types of audio connectors:

Main stereo output

The main stereo output consist of the LEFT OUT and RIGHT OUT connectors. These are unbalanced line level outputs.

Headphone output

Stereo output for connecting headphones.

High level output

The HIGH LEVEL OUTPUT consist of a quarter inch and 11-pin Leslie standard connector. The HIGH LEVEL OUT are 14V RMS high level and unbalanced, and are only intended to be used directly connected to a rotary speaker cabinet with built in amplifier. Any other form of use might result in damaged equipment.

It is possible to route the tonewheel organ to LEFT OUT and HIGH LEVEL OUT, and transistor organs to RIGHT OUT. Please refer to "Output Routing" on page 15.

General guide for audio connections

- Make all connections before turning on the power to your amplifier.
- Turn on the power to your amplifier last.
- Turn off the power to you amplifier first.
- Make sure you properly align the guide pin when using an 11-pin connector.

MIDI CONNECTIONS

MIDI transmit and receive behaviour is adjustable via the MIDI menu. Please refer to "MIDI Implementation" on page 17 for more information.

The Nord C1 Combo Organ has three MIDI connector ports:

MIDI OUT

Both manuals, all knobs and buttons (SHIFT, STORE and MASTER LEVEL excluded), pedal connector ports as well as BASS PEDAL input send messages via MIDI OUT.

Please refer to "Playing an external sound source" on page 18, and "Recording MIDI in a sequencer" on page 19 for more information.

MIDI IN

Used for receiving MIDI messages.

BASS PEDAL

To play the Nord C1 Combo Organ's dedicated bass registers, connect MIDI OUT of your external controller (preferably a bass pedal board) to the BASS PEDAL connector. The bass registers will respond to all MIDI note messages received regardless of MIDI channel.

Please refer to "Connecting a bass pedal unit" on page 18 for detailed instructions.

USB CONNECTION

The USB connector is used for upgrading the system OS. Please refer to "Upgrading the OS" on page 19.

PEDAL CONNECTIONS

The Nord C1 Combo Organ has three pedal inputs:

Swell Pedal input

Used for controlling the swell level of the selected organ model. Please note that the pedal must have a stereo output jack, and you must always use a stereo cable (Tip-Ring-Sleeve). Pedals from different manufacturers have various span characteristics but this can easily be adjusted in the system menu.

Please refer to "Swell Pedal Type" on page 15, or "Adjusting the swell pedal span" on page 18 for detailed instructions.

Rotary Control input

Used for controlling the rotary speaker's speed. You can use any standard sustain pedal, switch pedal or the Half Moon Switch accessory. When using the Half Moon Switch accessory you will have to configure the Control Pedal Type in the system menu.

Please refer to "Rotary Pedal Mode" on page 15 or "Setting up the Half Moon Switch" on page 18 for further instructions.

Note: when using the Half Moon Switch accessory, the ROTARY SPEAKER controls of the front panel are disabled.

Sustain Pedal input

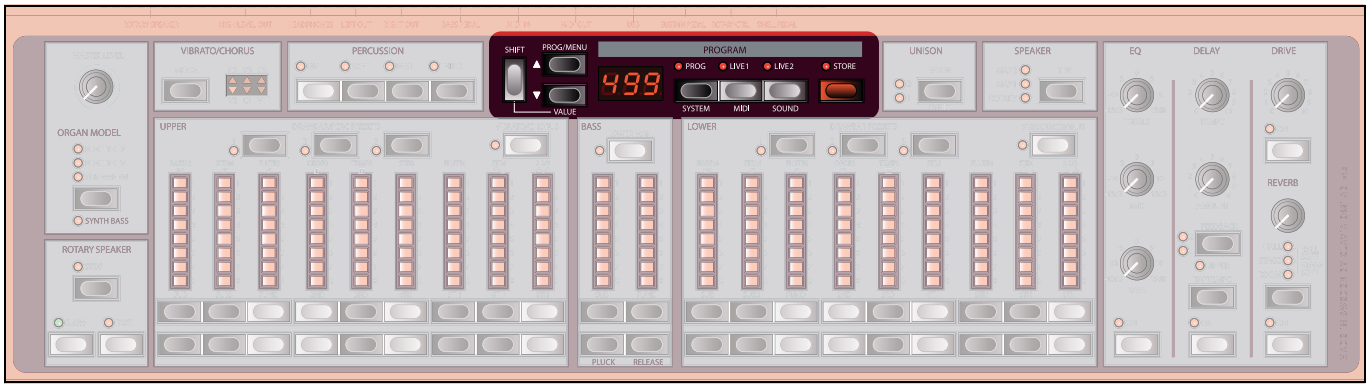
Used for sustaining notes. You can use any standard sustain type pedal. The polarity can be adjusted in the system menu.

Please refer to “Sustain Pedal Polarity” on page 15 or “Adjusting the pedal polarity” on page 18 for detailed instructions.

For use with external sound devices you can disable the Nord C1 Combo Organ from responding to sustain messages, but still send them via MIDI out.

Please refer to “Playing an external sound source” on page 18 for setup instructions.

The Program Section



WHAT IS A PROGRAM?

All sound related knob and button settings, including **PRESETS** can be stored into any of three storage areas; **PROG**, **LIVE 1** and **LIVE 2**, selectable with the corresponding buttons.

With **PROG** activated, 126 program locations are available. The current program location is shown in the **DISPLAY**. Changes need to be stored in order not be lost.

LIVE 1 and **LIVE 2** contains one single program each. Changes are saved automatically, so when you load a stored program or even when you power off, all settings will be exactly as you left them the next time you return to that live program.

LOADING A PROGRAM

When **PROG** is activated, you can load a program by navigating the **PROG/MENU** buttons. Programs will be loaded automatically.

When a **LIVE** program is activated, you can select a stored program in the **PROG** area by navigating the **PROG/MENU** buttons, but the program will not be loaded until you press the **PROG** button.

STORING A PROGRAM

To store a program to any of the 126 program locations:

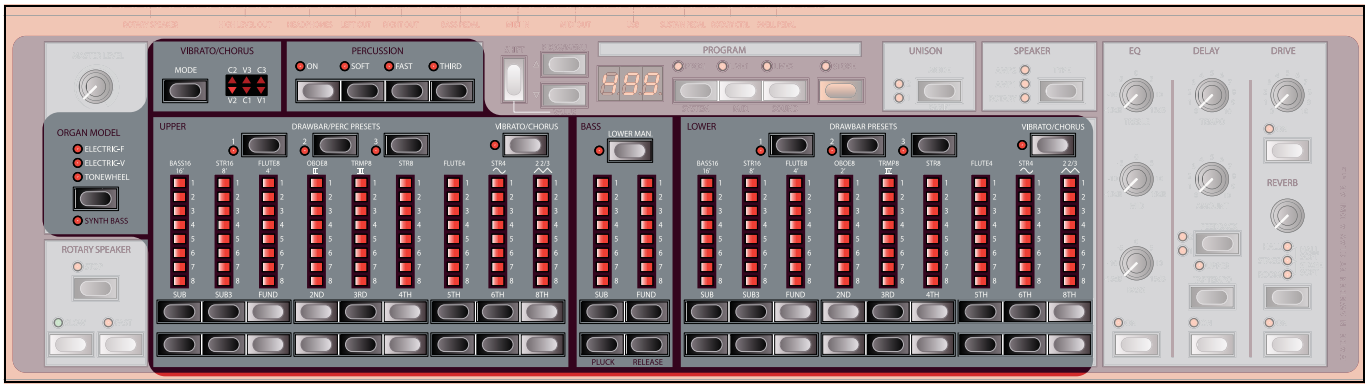
1 Press the store button.
The current program number will flash repeatedly in the **DISPLAY** to indicate you are in store mode.

If the **DISPLAY** shows "PrO", you must turn off memory protection in the system menu. Please refer to "System Functions" on page 15.

2 Select program location
Use the **PROG/MENU** buttons to select a program location to store to.

3 Press the store button
The **DISPLAY** will briefly indicate "StO" to confirm that the program has been stored.

The Organ Section

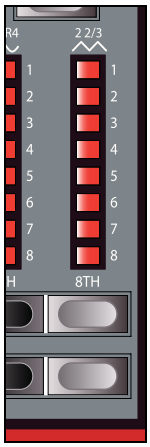


The Nord C1 Combo Organ features simulations of three classic organ models; one tonewheel and two transistor (Electric-V and Electric-F).

The Organ Section features three main areas for control:

- The Drawbar section is where you set-up the basic organ sound structure. It is divided into three areas connected to the **UPPER** and **LOWER** manuals, plus the **BASS PEDAL** input.
- The **PERCUSSION** area is where you control the percussion effect (available to the Tonewheel organ model only)
- The **VIBRATO/CHORUS** area is where you select the chorus and/or vibrato effect depending on the selected organ model.

THE DRAWBARS



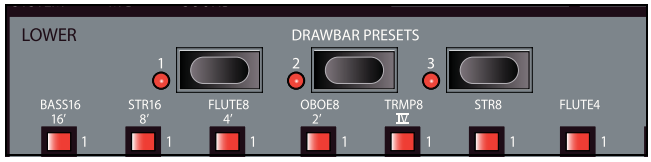
The drawbars of Nord C1 Combo Organ are represented by buttons and LED chain graphs instead of ordinary mechanical drawbars. This gives you a big advantage: when you change **PRESET** or **PROGRAM**, the correct drawbar settings are recalled immediately and shown by the LEDs. In other words, no need for the regular "trial and error" method. It's very easy to get the hang of changing the drawbar settings in a natural way with the buttons.

The drawbars of Nord C1 Combo Organ behave similar to their mechanical counterparts, i.e. with the Tonewheel and Electric-V models you "pull out" and "push in" the drawbars using the **DRAWBAR** buttons. The buttons are special in the way that they auto-increment/decrement the drawbar value when held. I.e. if you hold a **DRAWBAR** button the corresponding drawbar value will continue to increment or decrement (within its range) until you release the button.

Also, while holding a **DRAWBAR** button, you can press its sibling button to momentarily auto-increment/decrement in the opposite direction.

With the Electric-F model, **DRAWBAR** buttons functions as switches, toggling each register between on and off.

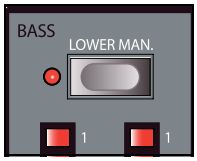
PRESET BUTTONS



The **PRESET** buttons lets you change back and forth between different drawbar set-ups instantly. Changes are automatically saved and recalled the next time you activate the same preset.

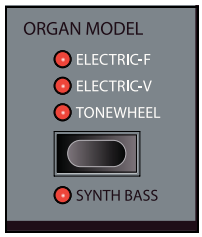
- The **UPPER** and **LOWER** drawbars have their own set of preset buttons. Further to storing the drawbar settings, the **UPPER** manuals percussion on/off setting is stored as well.
- In **PROG** mode, **PRESET** changes will be lost if the program is not saved.

THE SPLIT FUNCTION



By activating the **LOWER MAN** button you split the lower manual in two sections at the key of C3. The lower section is now connected to the **BASS** drawbars. The upper section of the lower manual is connected to **LOWER** drawbars as usual.

SELECTING ORGAN MODEL



You select which model to play using the **ORGAN MODEL** button. Only one model can be used at a time.

•When the Tonewheel model is activated, the **BASS** drawbars control the tonewheel bass registers.
•When the Electric-V or Electric-F models is activated, the **BASS** drawbars control the synth bass model.

- When the Tonewheel model is activated you can activate the Synth Bass model by pressing **SHIFT** + **ORGAN MODEL** button.

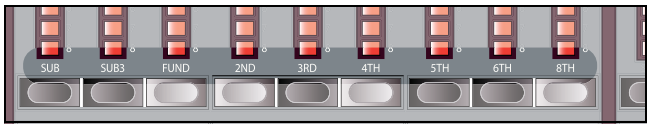
THE TONEWHEEL MODEL

This model is based on a digital simulation of the classic mechanical tone wheel organ. This simulation utilizes innovative and advanced methods to capture every nuance of the original sound, for example:

- An extremely accurate digital model of the original chorus and vibrato scanner.
- Modeling of the individual random contact bounces for each harmonic.
- Modeling of the unique frequency characteristics of the built-in pre-amplifier which forms the "body" of the sound.
- Simulation of the energy stealth on the tone wheels that results in the typical "compressed" sound.
- Authentic tuning of the tone wheels according to the original design.
- Extremely fast keyboard response.
- Full polyphony.

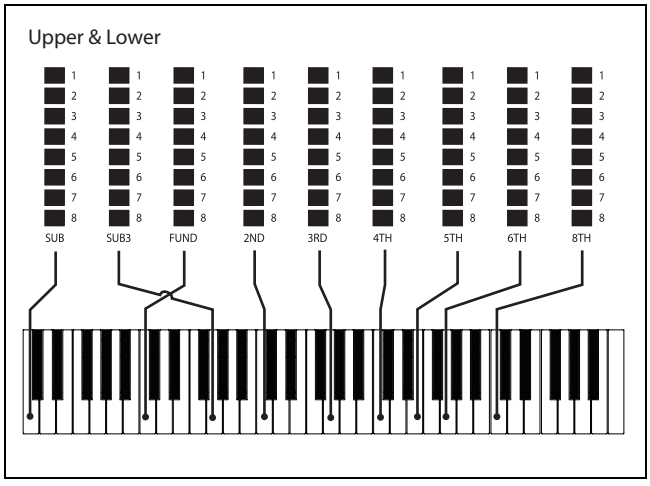
The Drawbars

The harmonic intervals for the Tonewheel organ are printed below the drawbars.

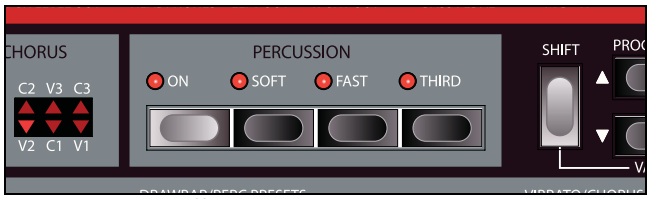


For basic drawbar operation, please refer to "The Drawbars" on page 9.

Each drawbar represents a partial with a fixed harmonic interval relating to the played note. The illustration below shows the pitch interval among the nine drawbars when the key of C3 is played. Note that the SUB3 drawbar actually lies a 5th above the fundamental harmonic. However, in most situations it is perceived as sounding below the basic harmonic.



Percussion



The Percussion effect adds extra attack to the sound by having a single envelope generator controlling either the 2nd or 3rd harmonic. The envelope "opens up" for a short moment in the beginning of the sound when you press the key(s).

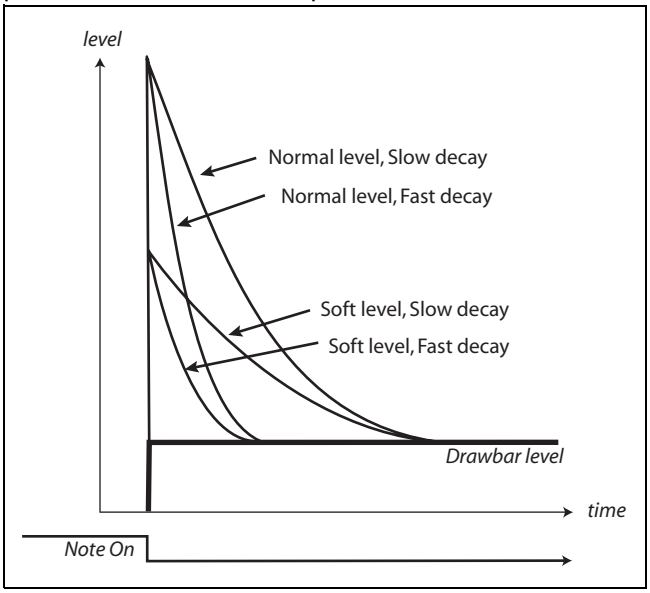
The Percussion is a single-triggered non-legato effect. By "single-triggered" we mean that the percussion is only present when you hit the keys when no other note is sounding. In other words, if you play a note or a chord and then add on more notes without releasing the previously pressed keys, there will be no percussion effect in the new notes. You have to release all keys to be able to play new notes with the percussion effect.

The percussion effect is available to the **UPPER** manual, and is activate and deactivate by pressing the **ON** button.

The **SOFT** button toggles between Normal and Soft percussion level.

The **FAST** button toggles between Slow and Fast decay times.

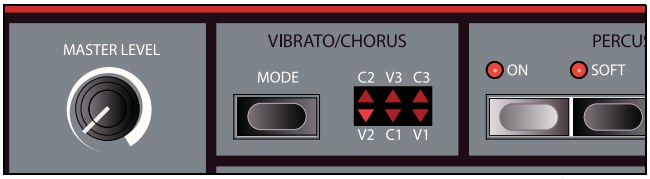
The **THIRD** button toggles between using the 2nd or 3rd partial as the source for the percussion effect.



The percussion decay time can be fine-tuned for Fast and Slow mode individually. Please refer to "The Sound Menu" on page 16 for details.

Note: With the original instrument, you could not use the percussion effect and 9th drawbar simultaneously. However with Nord C1 Combo Organ you can!

Vibrato



The original vibrato and chorus scanner consists of a tapped delay line in combination with a rotating scanner. For the Vibrato effect, phase shift is applied to the signal. For the Chorus effect, the phase modulated signal is added to the original signal. Three different types of choruses (C1-C3) and three different types of vibratos (V1-V3) are available. Select one of these types by pressing the **MODE** button. The effect can be activated/deactivated for both manuals individually by pressing the **VIBRATO/CHORUS** button of the **UPPER** and **LOWER** drawbars.

Please note that the **VIBRATO/CHORUS** button for the **LOWER** manual also controls the effect for the bass registers.

Key click control

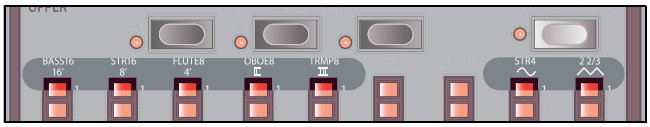
The key click produced by the random contact bounces is actually an audio artifact. This particular artifact later became a desirable effect amongst musicians. You can adjust the click level by adjusting the **TREBLE** control of the EQ section.

THE ELECTRIC-V MODEL

The original instrument is probably the most famous of all the transistor-based combo organs that emerged in the early 60's. Transistor technology made it possible to manufacture much more compact and portable organ instruments. Compared to the mighty sound of tonewheel based organs, transistor organs generally sounded reedier and weaker, but this one had a distinctive sound character which together with the portability and cool design (inverse keyboard and chrome "Z-frame" stand) made the instrument massively popular at the time. The sound is timeless and recreated faithfully in Nord C1 Combo Organ.

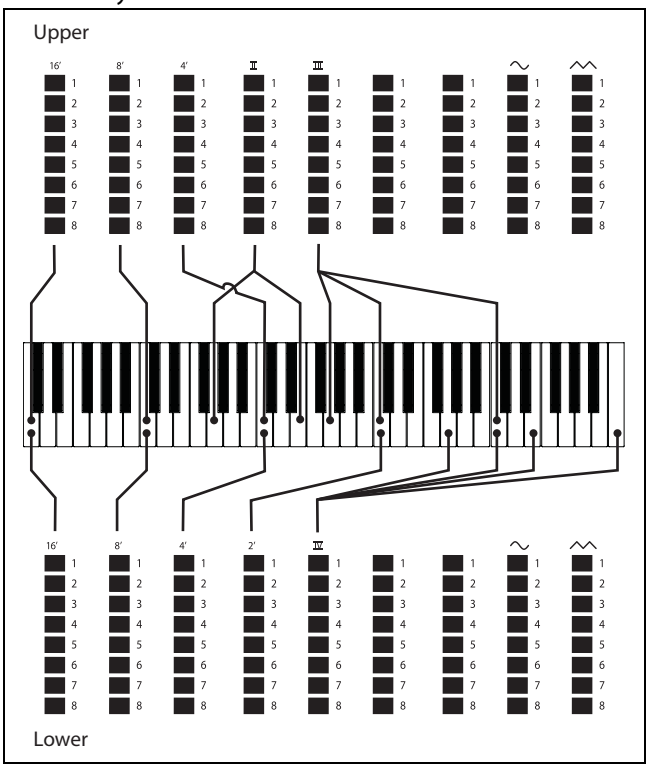
The Drawbars

The labels used for the Electric-V drawbars are printed on the lower row above the drawbars. Note that only the first five, and two last drawbars are used for this model.



For basic drawbar operation, please refer to "The Drawbars" on page 9.

The five leftmost drawbars control the level of each partial. Each partial has a fixed harmonic interval relating to the played note. The illustration below shows the pitch interval of the 5 drawbars when the key of C3 is played. The intervals vary for the **UPPER** and **LOWER** manual.



The two rightmost drawbars control the sum of all partials in the form of a filtered triangle-like signal sounding soft and dark, and an un-filtered square signal sounding bright and intense.

If these drawbars are both fully "pushed in", the organ will produce no sound.

Vibrato

There is only one type of vibrato available for the Electric-V, which is activated using the **ON** button in the Vibrato section. Note that the Electric-V vibrato is common for both the upper and lower manual drawbars.

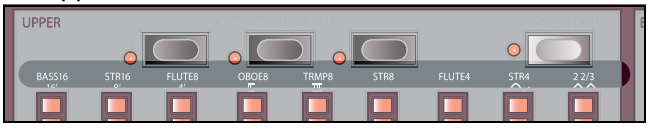
THE ELECTRIC-F MODEL

This typical "buzzy" sound of this vintage instrument is one of the most distinct and easily recognizable organ sounds ever created, yet it is actually possible to get quite a wide range of sounds out of the instrument.

Note that the voices aren't supposed to replicate the instruments they are named after, but rather to describe the basic tonal characteristic of the voice; **FLUTE** - soft, **OBOE** - reedy, **TRUMPET** - brassy.

The Register selectors

The labels used for the Electric-F drawbars are printed on the upper row above the drawbars.



The drawbars act as on/off switches, or "Register selectors" when the Electric-F model is selected. Instead of drawbars, the original instrument featured "rocker"-type switches to

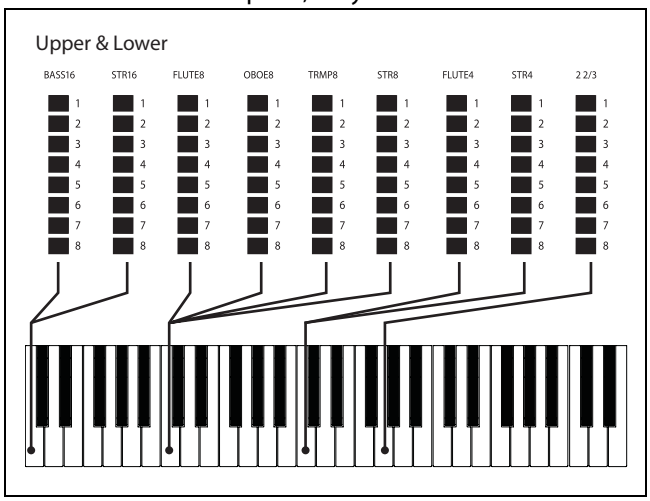
select instrument "voices" (actually different filter settings) in various footage (octave) ranges.

The Drawbar buttons are used to turn voices on and off. The drawbar LEDs 5-8 are lit up for an activated voice, and drawbar LEDs 1-4 are lit up for a deactivated voice.

The table below shows the original registor name.

Register selector #	Voice	Panel Name
1	Bass 16	BASS16
2	Strings 16	STR16
3	Flute 8	FLUTE8
4	Oboe 8	OBOE8
5	Trumpet 8	TRMP8
6	Strings 8	STR8
7	Flute 4	FLUTE4
8	Strings 4	STR4
9	A bright voice, pitched an octave and a fifth above the fundamental.	2 2/3

The illustration below shows the pitch interval between each voice when the key of C3 is played. Though some voices have the same pitch, they differ in tonal character.



Vibrato

The Electric-F Model has two basic vibrato modes; "Light" and "Heavy", with different rates for each mode. The **MODE** button of the **CHORUS/VIBRATO** section is used for selecting vibrato mode according to the table below.

V1	Light mode, slow.
V2	Light mode, fast.
C1	Heavy mode, slow.
C2	Heavy, fast.

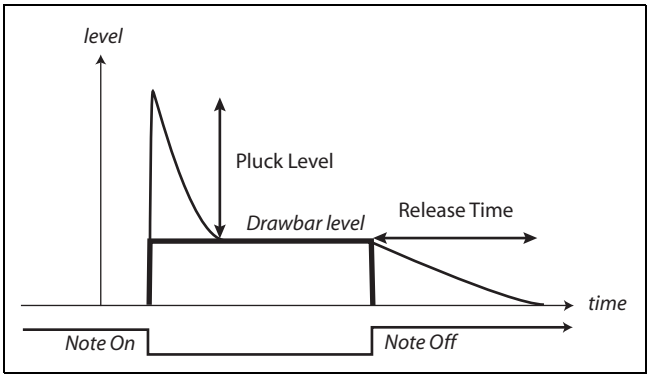
The **VIBRATO/CHORUS** buttons are common for both **UPPER** and **LOWER** manual.

THE SYNTH BASS MODEL

The synth bass model is available when the Electric-V or Electric-F models are activated. For the Tonewheel model you can alternate between the original tonewheel bass registers or the synth bass model by pressing **SHIFT** + **ORGAN MODEL** buttons.

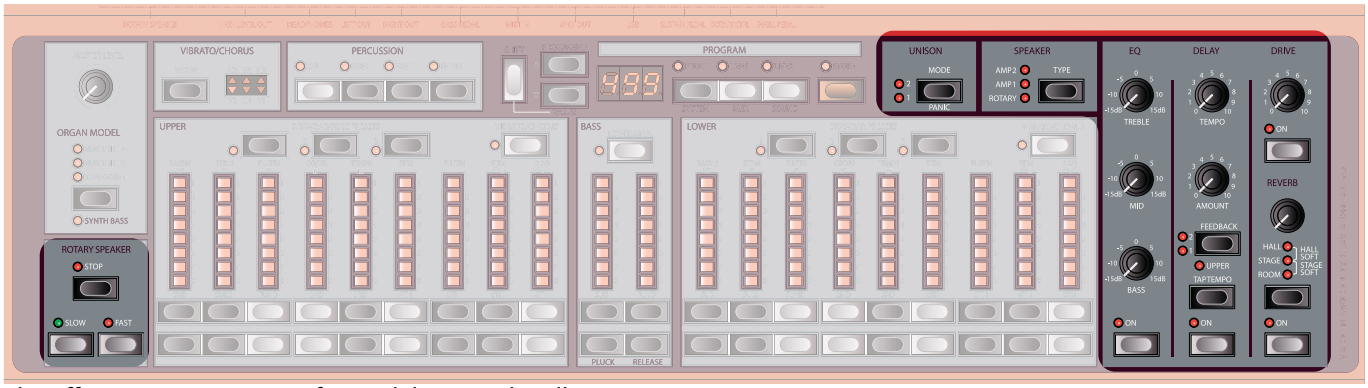
The main feature of the synth bass model is a monophonic 2 partial bass synthesizer with adjustable release time, giving you more time to move your foot when using a foot pedal board. But it can also be played from the lower manual, by pressing the **LOWER MAN** button. Please refer to "The Split Function" on page 9 for detailed information.

The synth bass model also features a pluck control giving you an extra attack in some ways similar to the percussion effect of the Tonewheel model.

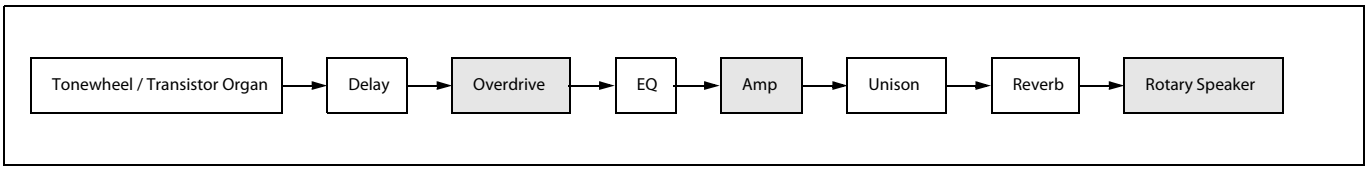


Pluck and release time are adjusted with the **BASS** drawbars while holding down the **SHIFT** key.

The Effect Section



The effect section consists of 7 models, routed as illustrated below.



The Overdrive, Amp and Rotary Speaker models are used one at a time, depending on the **SPEAKER** *button setting.*

If present, the **ON** button activates/deactivates the effect. Note: all knobs and buttons will always be active and change state though the effect needs to be activated in order for the change to be audible.

DELAY

A vintage-sounding delay featuring echoes/repeats with adjustable tempo and feedback settings.

The **TEMPO** knob controls the delay time.

The **AMOUNT** knob adjusts the balance between the dry signal and the delayed repeats.

The **FEEDBACK** button selects number of repeats, starting with 1 repeat (no LEDs lit) to many (both LEDs lit).

By activating the **UPPER** function (**SHIFT** + **FEEDBACK**), the delay effect is limited to the upper manual.

The **TAP TEMPO** button allows you to set the delay time by tapping the button repeatedly.

DRIVE

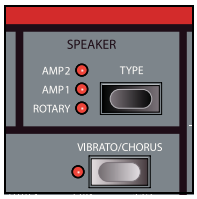
The **DRIVE** knob controls the amount of gain applied to the Overdrive, Amp or Rotary Speaker effects respectively, depending on the **SPEAKER** effect setting.

EQ

A 3-band EQ featuring controls for bass, midrange and treble, with ± 15dB cut/boost for each band.

As the **TREBLE** knob operates in the same frequency area as the click sound, it also functions as a click level control.

SPEAKER

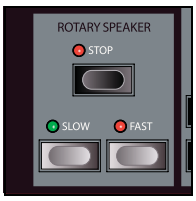


There are three different amp simulations available, including rotary speaker simulation, selectable with the **MODE** button. The **DRIVE** knob controls the amount of gain applied to the selected model, or if no model is activated to the overdrive effect.

- **ROTARY SPEAKER** model of a L-type rotary speaker cabinet.
- **AMP 1** model of a F-type Twin.
- **AMP 2** model of a R-type Jazz Combo.
- When no LED is lit the effect is bypassed.

When using an external cabinet connected via the high level outputs the **ROTARY SPEAKER**'s LED will flash repeatedly if activated to indicate that the internal rotary speaker simulation is bypassed. Please note that this is dependant on the external cabinet circuitry, and if the LED do not flash but lit constantly you will experience a double rotary speaker effect.

Controlling the Rotary Speaker speed



The rotary speaker speed is set with the buttons of the **ROTARY SPEAKER** section.

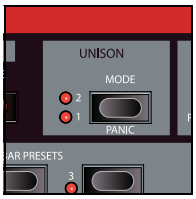
You can also connect an external control to the **ROTARY CONTROL** input, such as a sustain pedal or the Half Moon Switch Accessory.

A sustain pedal can operate by momentarily changing the speed setting or by toggling between **SLOW** and **FAST**.

- When used momentarily the speed is changed between **SLOW** and **FAST** only.
- When used in toggle mode you can switch to **STOP** by holding the pedal in the down position for the duration of 1 second.

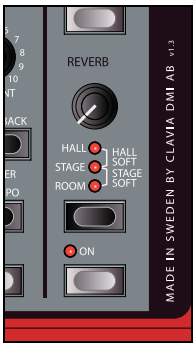
Please refer to the “System Functions” on page 15 for further information.

UNISON



A chorus pedal simulation. The **MODE** button toggles between different presets:

- **UNISON 1** has a stereo setting with medium intensity.
- **UNISON 2** has a stereo setting with heavy intensity.
- When no LED is lit the effect is bypassed.



REVERB

The reverb simulates the natural sound reflections in various acoustic environments.

The **REVERB** knob sets the balance between the unprocessed and the processed signal.

By pressing the **REVERB** button you can choose between five reverb types, indicated by the three LEDs lit one or two at a time.

Hall Soft	A reverb with the response and character of a spacious hall, with a long decay and a mellow character.
Hall	A Hall reverb with a slightly brighter character.
Stage Soft	A reverb with a medium decay time and mellow character.
Stage	A medium decay reverb, with slightly brighter character.
Room	Room ambience with a rather short decay time.

System Functions

ABOUT SYSTEM SETTINGS

System settings are global; they are not stored within a program, but applies to all programs all of the time.

The system settings are divided into 3 menus:

- System menu
- MIDI menu
- Sound menu

A list of each menu and it's functions is printed on the front panel.

CHANGING SYSTEM SETTINGS

To change a a system function:

1 Select the appropriate menu
Press **SHIFT** + **SYSTEM** / **MIDI** / **SOUND** buttons.

2 Select function
The current functions number is shown in the **DISPLAY**, as well as it's current setting. Navigate through the available functions by using the **PROG/MENU** buttons.

3 Change setting
Press **SHIFT** + **VALUE** buttons to navigate though the functions possible settings.

Changes are automatically saved.

4 Press any of the SYSTEM / MIDI / SOUND buttons to exit the menu

THE SYSTEM MENU

1 Memory protect	default value: OF
On	Program store is disabled.
OF	Program store is enabled.
2 Output Routing	default value: St
SP	Split Output: tonewheel organ is directed to **HIGH LEVEL OUT** and **LEFT OUT**. Electric-V and Electric-F organs are directed to **RIGHT OUT**.
St	Stereo Output.
3 Transpose	default value: 0
-6 - +6	Sets transpose of both manuals and **BASS PEDAL** input in range of -6 semi notes to + 6 semi notes, steps of 1 semi note.
4 Fine Tune	default value: 40
27 - 53	Sets the tuning from 427 Hz to 453Hz, in steps of 1 Hz. Default value is 40 (440Hz).
5 Sustain Pedal Polarity	default value: CL
CL	Pedal Closed: for use with a sustain pedal with closed polarity.
OP	Pedal Open: for use with a sustain pedal with open polarity.
6 Sustain Pedal	default value: On
Controls weather the selected organ model should respond to sustain pedal messages. When a pedal is connected to the **SUSTAIN PEDAL** input, sustain pedal messages are always send via **MIDI OUT** regardless of this setting.	
On	Sustain pedal messages enabled.
OFF	Sustain pedal messages disabled.
7 Rotary Control Type	default value: CL
Specifies the type of controller connected to the Rotary Control input. If the Half Moon Switch option is selected the speed control buttons on the front panel are disabled.	
HA	Half Moon Switch: for use with the Half Moon Switch accessory.
OP	Pedal Open: For use with a sustain pedal with open polarity.
CL	Pedal Closed: For use with a sustain pedal with closed polarity.
8 Rotary Pedal Mode	default value: Hd
tO	Toggle: rotary speed is changed between **SLOW** and **FAST** each time the pedal is pressed down. By holding the pedal pressed downed for the duration of 1 second the speed will change to **STOP**.
Hd	Hold: rotary speed follows the state of the pedal.
9 Swell Pedal Type	default value: rO
Here you can match the swell pedal characteristic for various manufacturers.	
FA	Fatar.
Er	Ernie Ball.
YA	Yamaha.
rO	Roland.
10 Factory Reset	
Press **STORE** to recall all system settings. Stored **PROGRAM MODE** data is not affected. **LIVE 1** and **LIVE 2** data will be overwritten.	

THE MIDI MENU

1 Upper Channel	default value: 1
Sets how messages are sent and received from the **UPPER** manual via **MIDI IN** and **MIDI OUT**.	
OFF	Messages are not sent.

1- 16	Note messages are sent on the corresponding MIDI channel using the fast trigger mode, with fixed velocity data (use this when recording MIDI events in sequencer for internal playback). **MIDI IN** is enabled.
E1 - E9	Note messages are sent on the corresponding MIDI channel using normal trigger mode, with velocity sensitive data (use this when controlling other sound sources). **MIDI IN** is disabled.

2 Lower Channel default value: 2

Same as above, only for lower manual.

3 Bass Channel default value: 3

Same as above, only for controller connected to **BASS PEDAL** input and lower section of lower manual when split mode is active.
Note: the **BASS PEDAL** input is always in OMNI mode.

4 Local Control default value: On

Determines if the organ should respond to local controls (keyboard, knobs and buttons).

On	Local control is enabled.
OFF	Local Control is disabled.

5 Continuous Controller mode default value: Sr

Specifies how the front panel's knobs and buttons are handled via MIDI.

Sr	Messages are sent and received.
r	Messages are received only.
S	Messages are sent only.
OFF	Messages are neither sent nor received.

6 Program Change mode default value: Sr

Specifies how Program Change messages are handled via MIDI.

Sr	Messages are sent and received.
r	Messages are received only.
S	Messages are sent only.
OFF	Messages are neither sent nor received.

7 Send Continuous Controller messages

Press **STORE** to send the current state of the selected organ model's buttons and knobs as Continuous Controller messages via MIDI. Common parameters (including **ROTARY SPEED** and **SWELL**) and Upper-specific parameters are sent on the Upper Channel. Lower-specific parameters are sent on the Lower Channel. Bass-specific parameters are sent on the Bass Channel.
Note: Messages are not sent if Channel setting is set to "OF".

8 Dump One

Press **STORE** to send the current program as sysex messages via MIDI.

9 Dump All

Press **STORE** to send all stored program data as sysex messages via MIDI.

THE SOUND MENU

1 Treble Horn Speed default value: n0

Adjusts the speed setting (fast and slow-speed) of the rotary speaker simulation's horn.

HI	High.
n0	Normal.
LO	Low.

2 Treble Horn Acceleration default value: n0

Adjusts the acceleration and retardation time of the rotary speaker simulation's horn.

HI	High.
n0	Normal.
LO	Low.

3 Bass Rotor Speed default value: n0

Adjusts the speed setting (fast and slow-speed) of the rotary speaker simulation's rotor.

HI	High.
n0	Normal.
LO	Low.

4 Bass Rotor Acceleration default value: n0

Adjusts the acceleration and de-acceleration time of the rotary speaker simulation's rotor.

HI	High.
n0	Normal.
LO	Low.

5 Tonewheel mode default value: u 1

Controls the level of tonewheel crosstalk and cable leakage artefacts of the Tonewheel organ.

u2	Vintage 2: high level of artefacts.
u 1	Vintage 1: medium level of artefacts.
CL	Clean: low level of artefacts.

6 Percussion Fast Decay Time default value: n0

Adjusts the fast mode decay time of the Tonewheel percussion effect.

LO	Long.
n0	Normal.
SH	Short.

7 Percussion Slow Decay Time default value: n0

Adjusts the slow mode decay time of the Tonewheel percussion effects.

LO	Long.
n0	Normal.
SH	Short.

MIDI Implementation

MIDI IMPLEMENTATION CHART

Function	Transmit	Receive	Comment
MIDI channels	1 - 16 E1 - E9	1 - 16	Channel setting1 - 16 transmits MIDI Note messages on MIDI channels 1 - 16 with fixed velocity data, using the keyboards fast trigger response. MIDI In is enabled. Channel setting E1 - E9 transmits MIDI Note messages on MIDI channel 1 - 9 with variable velocity data, using the keyboards normal trigger response. MIDI IN is disabled. Note: fast trigger response is always used internally.
Aftertouch	No	No	
Pitchbend	No	No	
Control Change	Yes	Yes	
Program Change	Yes	Yes	0 - 125, 126 = Live 1, 127 = Live 2
System Exclusive	Yes	Yes	

MIDI CONTINUOUS CONTROLLER LIST

Function	MIDI CC Number	Comment
Preset Focus	3	Upper and Lower MIDI channel
Swell pedal	4	Upper MIDI channel
Organ Model	9	Upper MIDI channel
Drawbar1	16	Upper, Lower and Bass MIDI channel
Drawbar2	17	Upper, Lower and Bass MIDI channel
Drawbar3	18	Upper and Lower MIDI channel
Drawbar4	19	Upper and Lower MIDI channel
Drawbar5	20	Upper and Lower MIDI channel
Drawbar6	21	Upper and Lower MIDI channel
Drawbar7	22	Upper and Lower MIDI channel
Drawbar8	23	Upper and Lower MIDI channel
Drawbar9	24	Upper and Lower MIDI channel
Bass Pluck	18	Bass MIDI channel
Bass Release	19	Bass MIDI channel
Perc Decay	27	Upper MIDI channel
Perc Level	28	Upper MIDI channel
Delay Upper	75	Upper MIDI channel
Sustain pedal	64	Upper, Lower and Bass MIDI channel
Delay Amount	76	Upper MIDI channel
Delay Tempo	77	Upper MIDI channel
Delay Feedback	78	Upper MIDI channel
Delay On/Off	80	Upper MIDI channel
Speaker Type	81	Upper MIDI channel
Rotary speed	82	Upper MIDI channel
Vibrato Mode	84	Upper MIDI channel
Vibrato On/Off	85	Upper and Lower MIDI channel
PercState On/Off	87	Upper MIDI channel
Perc Harmonic	95	Upper MIDI channel
Reverb Type	96	Upper MIDI channel
Reverb On/Off	97	Upper MIDI channel
Reverb Amount	102	Upper MIDI channel
Unison Mode	109	Upper MIDI channel
Bass Model	110	Upper MIDI channel
Drive Amount	111	Upper MIDI channel
Drive On/Off	112	Upper MIDI channel
Eq Treble	113	Upper MIDI channel
Eq Bass	114	Upper MIDI channel
Eq On/Off	115	Upper MIDI channel
Eq Mid	116	Upper MIDI channel
BassLManual	117	Upper MIDI channel

How-tos

This section contains detailed guides on how to quickly set-up your instrument to match various conditions.

CONNECTING A BASS PEDAL UNIT

Connect a MIDI cable between MIDI OUT of your bass pedal unit and BASS PEDAL input.

- All MIDI messages will be received via the BASS PEDAL input regardless of MIDI channel setting.
- MIDI messages received via the BASS PEDAL input is sent on the BASS MIDI CHANNEL via MIDI OUT.
- MIDI messages will be received on the BASS MIDI CHANNEL via MIDI IN.
- Local Control settings apply to devices connected via the BASS PEDAL input.

SETTING UP THE HALF MOON SWITCH

The Half Moon Switch is an accessory item and sold separately. When set to Half Moon Switch operation, the ROTARY SPEAKER buttons on the front panel, as well as Rotary Speed Continuous Controller messages received via MIDI IN are disabled.

1 Mount the Half Moon Switch following the included instructions.

2 Connect the Half Moon Switch to the ROTARY CONTROL input

3 Press SHIFT + SYSTEM to enter the System Menu

4 Navigate with the PAGE/MENU buttons to page 7

5 Change setting
Press SHIFT + PAGE/MENU buttons and change setting to "HA"

6 Press SYSTEM / MIDI / SOUND buttons to exit menu

ADJUSTING THE PEDAL POLARITY

If you encounter the sustain or rotary control pedal operating "backwards" you can adjust the pedal polarity in the System Menu.

1 Press SHIFT + SYSTEM to enter the System Menu

2 Navigate with the PAGE/MENU buttons
For adjusting the sustain pedal, navigate to page 5.
For adjusting the rotary pedal, navigate to page 7.

3 Change setting
Press SHIFT + PAGE/MENU buttons to change setting.

4 Press SYSTEM / MIDI / SOUND buttons to exit menu

ADJUSTING THE SWELL PEDAL SPAN

As expression pedals from different manufacturers have various span characteristics, you can select span preset in the System Menu.

1 Press SHIFT + SYSTEM to enter the System Menu

2 Navigate with the PAGE/MENU buttons to page 9

3 Change setting
Press SHIFT + PAGE/MENU buttons to change setting.

FA	Fatar
Er	Ernie Ball
YA	Yamaha
rO	Roland

If the manufacturer of your pedal is not listed above, you can try operating the pedal to it's end positions. The pedal range is briefly shown in the DISPLAY as a value between 0 and 100. Select the setting that best match the range of your pedal.

PLAYING AN EXTERNAL SOUND SOURCE

Since both manuals send MIDI data on separate MIDI channels, it is possible to connect an external sound source and control it from one manual while playing internally on the other.

Follow the steps below as necessary:

1 Connect MIDI OUT to MIDI in on the external device

2 Match MIDI channels
Match the MIDI channel setting of the manual you want to use with your external device. Please refer to "The MIDI Menu" on page 15 for detailed instructions.

- MIDI channel setting 1 - 16 uses the fast trigger keyboard response which result in MIDI note messages being sent with fixed velocity data.
- MIDI channel setting E1 - E9 uses normal trigger response which result in velocity variable data being sent via MIDI OUT. Fast trigger response is still used internally.

3 Set MIDI CC Mode to "Off"
Normally all buttons and knobs send MIDI continuous controller data, which can lead to undesirable results when an external sound generator is connected.

This can be turned of by setting the MIDI CC Mode to "Off" or "Receive". This is done in the MIDI menu. Please see "Continuous Controller mode" on page 16 for detailed instructions.

4 Set Sustain Pedal Mode
If you want the sustain pedal to operate the external device only, set the sustain pedal setting in the System menu to "OF". Please refer to "Sustain Pedal" on page 15 for detailed instructions.

5 Set program change mode
Normally program change messages are sent via MIDI OUT on the channels specified by the UPPER, LOWER and BASS channel settings in the MIDI menu. This way your external device will receive program change messages and follow as you change programs.

By setting the Program Change Mode to "Off" or "Receive" your external device will not follow as you change programs.

6 Turn off all drawbars for the selected manual
By doing this no sound is generated internally.

7 Play!

RECORDING MIDI IN A SEQUENCER

When recording MIDI in a sequencer you need to keep track of the MIDI channel setting for UPPER, LOWER and BASS, below referred to as "keyboard".

When recording MIDI data to be played back on the Nord C1 Combo Organ:

- Use channel settings 1 -16 for each keyboard individually. This it the default setting.
- Never set the keyboards to the same channel.

Note: The default behaviour of many sequencer applications is to merge incoming data into one MIDI channel. For the correct behaviour set the MIDI channel setting of your sequencer program to OMNI, sometimes also describes as "Any" or "All". Please refer to the documentation of your sequencer software for more information.

When recording MIDI data to be played back on other equipment:

- Use channel settings E1 - E9. This setting will use the keyboards normal trigger response, and incorporate velocity sensitive data. When using this setting, MIDI IN is disabled for the selected keyboard.

Please refer to "The Keyboard" on page 5 for more information.

INSTALLING THE USB DRIVER (WINDOWS ONLY)

A driver is not needed for computers running OS X operating systems. The Windows USB driver is compatible with the following Windows versions:

- Windows 2000
- Windows XP (x32 and x64 versions)

The Driver can be found at www.clavia.se

1 Connect a USB cable between the unit and your computer
The "Found New Hardware" wizard should appear. Follow the on-screen instructions.

USB-cable is an accessory item and sold separately.

UPGRADING THE OS

OS upgrades can be found at www.clavia.se when available.

The currently installed OS version is shown in the DISPLAY at power up.

1 Download the latest OS version

2 Connect a USB cable between the unit and your computer

3 Un-compress and run the downloaded application
Wait for the application to find your instrument. Click the UPDATE button. The progress bar will show you when the update is finished.

ABOUT PROGRAM SYSEX DUMPS

Program Sysex Dumps can be used for storing a single program (Dump One) or the complete program bank (Dump All) including Live 1 and Live 2 on an external device such as a computer, or for transferring program data between two units.

- For sending program Sysex messages, please refer to "The MIDI Menu" on page 15.
- MIDI Sysex data will be received regardless of MIDI channel setting.
- For a Dump All to be received, Memory Protect must be turned off. Please refer to "The System Menu" on page 15.
- A Dump One will be received regardless of Memory Protect setting, but needs to be stored in order to not get lost.
- While Program Sysex messages are received, the display will indicate "rCv" in a flashing manner.

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