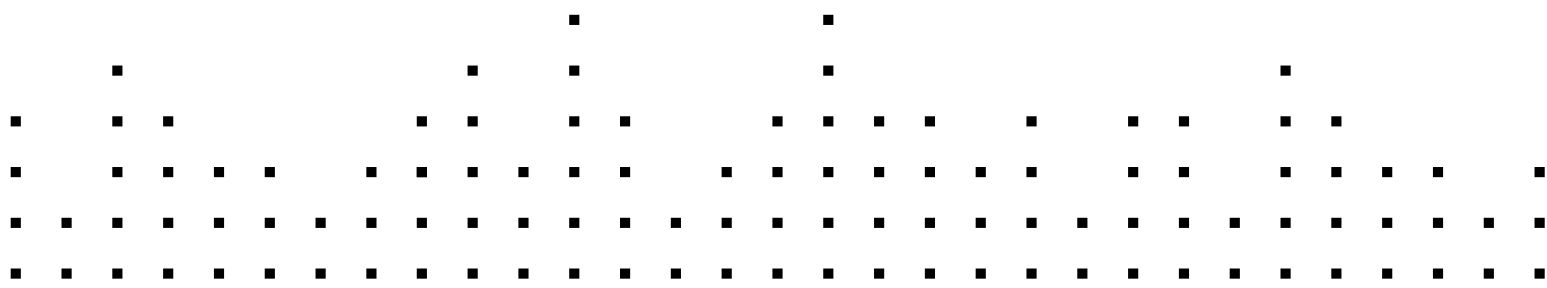


# SCARBEE CLAVINET/PIANET

USER MANUAL



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# Table Of Contents

- 1 Introduction (Clavinet).....6
- 2 Introduction (Pianet) .....9
- 3 Controls (Clavinet) ..... 12
  - 3.1 Sustain Pedal ..... 12
  - 3.2 Pitch Bend ..... 12
  - 3.3 Bass String ..... 12
  - 3.4 Mute ..... 13
  - 3.5 “Off Center” String Strike ..... 13
  - 3.6 Click ..... 13
  - 3.7 Pickups ..... 14
  - 3.8 Filter Switches..... 15
  - 3.9 Original Noise Adjustment ..... 16
- 4 Controls (Pianet)..... 17
  - 4.1 Sustain Pedal ..... 17
  - 4.2 Click ..... 17
  - 4.3 Original Noise Adjustment ..... 18
  - 4.4 Tremolo ..... 18

<b>5</b>	<b>Effects (Clavinet and Pianet) .....</b>	<b>19</b>
5.1	Reverb.....	19
5.2	Delay.....	20
5.3	Pan .....	20
5.4	Auto-Wah.....	21
5.5	Compressor .....	21
5.6	Chorus.....	22
5.7	Distortion .....	22
5.8	Phaser.....	23
5.9	Amp .....	23
<b>6</b>	<b>Credits .....</b>	<b>24</b>

# 1 Introduction (Clavinet)



Scarbee Clavinet is a unique and totally authentic reproduction of the most funky keyboard ever made, recreating not only its signature sound but also the unique dynamic response of the original instrument. It has a big round twanging bottom and a wiry and tight top end. For many, this is as close as they will ever get to a sound which could compete with the cut of an electric guitar. The sharp tone and the percussive playing style made it a first choice for many funk recordings, where it complemented funk guitar rhythms like no other instrument. These days, it's a testament to the unique and legendary status of the original instrument and the music to which it was part of. Virtually every synthesizer you power up has a program called "clav." Thankfully, the Scarbee Clavinet preserves the true sound of the instrument for generations of keyboard players to come. Of course, as most electro-mechanical instruments, the original instrument had its shortcomings: it was quite a heavy beast considering its svelte dimensions. Now Scarbee Clavinet weighs just a few grams ;). The original instrument suffered from the usual wear and tear you might expect from an instrument of this design. Most commonly, strings rusted, went out of tune and broke, keys broke under performance stress or froze due to wear in the rubber key guides, and rubber hammer tips split, causing notes to stick or sound dead. The Scarbee Clavinet was in perfect condition when sampled and will sound that way forever. No tuning problems, no broken strings, no hammer tips to cut up and install—just load it and play. The original instrument's output lasted only as long

as the 9 volt battery powering its preamp. No battery meant no sound. Just like the single pole pickups found on electric guitars, the original instrument's pickups had a tendency to amplify transformer noise and any other type of hiss and hum within range, leading to a niche business for the instrument's tweaking with improved RF shielding inside the instrument's housing. The original had a very specific sonic envelope, and it could not be used in conjunction with a piano style sustain pedal. Now that Scarbee has poured the funk machine into the more fluid environment of a sampler, the original's classic tone is available for far more experimental approaches to synthesis, from envelope alteration to filter modification to layering to just about anything your imagination can bring to bear. The sound is one of the most easily identifiable and unique amongst classic keyboards. Although its legendary status and popularity have led to frequent imitation and sampling, until now the essence and vibrant dynamics of the original keyboard have never truly been captured. Just as we did with the MARK I, the A-200 and Scarbee Pianet, the Scarbee Clavinet delivers the sound of the original in the kind of vivid and inspiring detail which—once you've started playing—you will see you want to play on, and on, and on.

### **How much detail is there in the instrument?**

In order to accurately reproduce the original keyboard's dynamics, both the sustained and release sounds have been sampled at up to 20 different sustained velocities—including samples of the occasional 'off center' string strike, a well known characteristic of the original instrument. All samples are full length (no loops) and with the Clavinet, Scarbee introduces "Horizontal Release Technology," whereby release samples are chosen from the wave pool depending on how long a key has been held. This allows a staccato played note to create a different release tone than a note sustained for a longer period. To achieve this, each key sampled on the Scarbee Clavinet has 24 release samples assigned to it! This was the only way to reproduce the very special action and soul of the original instrument. We sampled each of the four standard pickup settings: Lower, Upper, Both (out of phase) and Both, each in a standard version and a version with mutebar switched ON, resulting in 8 unique sounds! We also made it possible to switch Standard/Mute modes with the Mod-Wheel. In addition we have created a set of Impulse Responses for the KONTAKT 4 Convolution effect, which offers you an exact simulation of the original and very special Filter/EQ on the original instrument.

## RESTORATION

From the start we had decided to sample the black and metal colored “road” model of the original instrument because it was better shielded and more recent. And I managed to get a great looking instrument, it looked almost new. I spent the Christmas holidays to change strings and hammers, which seriously stressed my back. Then I started the initial recordings, but it just didn’t sound as good as the recording clips I had from my friend Christian Vinten’s recently restored version, the classic wooden one. I went to see my friend Preben Lyngmark, who had two of the wooden ones in his repair shop and we compared both models directly, with the result that they did sound different. We discovered a slightly different preamp and modified the road one’s amp to our liking. But still the sound was not right—probably due to the metal case of my version. Although Preben did a great job (as usual), we never got the road version to sound as good as the wooden one, so one day I called Christian and begged him to lend me his instrument for a few months...(it took a year before I returned it). Preben now replaced a single transistor in the preamp to reduce noise a little bit. Another problem was that sometimes the switches wouldn’t work. Fortunately we could fixed that. The original is driven by a 9 Volt battery (!) and we had to change it quite often to avoid bad sound... Changing the rubber hammers was easy, but the green yarn (wow), each string had to be put through very gently and in exactly the right way, was a headache. If any of this got broken, it would have been a complete disaster, the yarn is the damper of the strings! The strings came in four sizes: three different bass gauges and one treble string. It was no fun at all to replace those. Tuning the instrument was also quite cumbersome; some of the strings were very hard to turn and you had the feeling they would break any second. I had to retune pretty often while sampling, but in the end the instrument sounded as if it came directly from the factory.



## 2 Introduction (Pianet)



One day I received a mail from Dave Stewart, who had reviewed Scarbee MARK 1 and the A-200 (they had other names in earlier versions) for Sound On Sound magazine and awarded them both with five stars. In the mail Dave asked me if I could do him a favor and bring his beloved electric piano back to life and sample it for him. How could I say no? Back in the 70s, Dave's keyboard rig consisted of an organ and this rare electric piano, both of which were often played through effect pedals. This specific instrument was featured on all of Dave's early bands' albums (including Hatfield & The North's legendary "The Rotters' Club"), and was an intrinsic part of his keyboard sound for many years. Dave's original instrument, manufactured in 1968-69, has been restored to full working order and was sampled extensively for this keyboard collection. Dave says: "It's great to play this delightful old instrument again—thanks to Thomas' meticulous restoration and painstaking sampling, it sounds as clean, rich and vibrant as the day I bought it!" Dave Stewart is a UK keyboardist/composer who first came to the public's attention in the early '70s as a member of the experimental rock groups Egg, Hatfield & The North and National Health. The Scarbee Pianet has a sound that sonically lies somewhere between the reedy bite of the Scarbee A-200 and the purer bell tone of the Scarbee MARK I. The result is a vibraphone type tone with a very percussive envelope and almost no dynamic response due to its sticky hammers. Although more portable than either of these pianos, the instrument's lack of a sustain pedal and limited dynamic response often

saw it dismissed by the pros. On the other hand, its smaller size and lower cost made it the first electric piano owned by many. Being an electro-mechanical beast, the original piano had its troubles. Sometimes a sticky pad would tear loose from the key. Other times, when the adhesive on the pads dried out, reeds would be dropped sooner or later, creating a much softer note and uneven keyboard response. Worn reeds were almost impossible to tune, and replacement or soldering was quite time consuming. Rust plagued the reeds of any piano in proximity to the ocean, and pickups tended to pick up more than just the dulcet bell tone of reed vibration. The Scarbee Pianet not only leaves those electro mechanical woes behind, providing a clean, accurate 24 bit full length, multi sampled, multi velocity reproduction of the original, but it also adds new possibilities for the adventurous keyboardist in terms of variable envelope shapes, filters, tunings, modulation, patch layering and even (finally) a sustain pedal. With the fusion of classic tone and cutting edge programming options, the Scarbee Pianet may yet get its “day in the sun.”

### **How much detail is there in the instrument?**

Well, this unique keyboard used a special technique to produce its charming sound: so-called (rubber-made) “sticky hammers” lifted the tine—more or less like a Harpsichord and when a hammer released its tine, its classic sound was produced. This technique means that the instrument is virtually without dynamics, but even so, it has got a really cool sound! As with the Scarbee MARK 1 and Scarbee Clavinet, Scarbee Pianet takes advantage of the “Horizontal Release Technology,” whereby different release samples are chosen from the wave pool depending on how long a key has been held—allowing a staccato played note to create a different release tone compared to a note which is sustained for a longer period. This technology makes it possible to imitate the action of these keyboards. The result is a very inspiring and authentic playing experience, which we find is very important when creating music. Due to the simple mechanical design of the instrument, it was only necessary to sample five release sounds per key to obtain a perfect simulation of the original keyboard.

### **RESTORATION**

As usually, Preben Lyngmark from Musikpartner was giving me a helping hand and managed to fix a broken power cable and to clean the outputs. He also could explain some inside quirks of the keyboard; For some reason the output was loudest when inserting the foot-swell jack

(a tip from the owner). Carefully we pulled out the shielded top. Looking inside, we saw the two contacts: Power On and Vibrato. No gradual setting of the vibrato, either On or OFF! The power supply was actually very quiet, no hum so no need for changes. The preamp produced strange noise from time to time and at one point I thought I would never be able to finish the project. The instrument had no real Dampers except for a blue felt to rest on. The reeds were very similar to the A-200 reeds—tuning the instrument is equally fun. Thankfully this one was tuned perfectly straight away! But when we received the instrument, it didn't make a single sound. The reason was that all the rubber hammers were worn out. I could lift them off the reeds without tools. It was magic when I had put on all the new sticky hammers I ordered from the USA. I just instantly loved the sound!

## 3 Controls (Clavinet)

### 3.1 Sustain Pedal

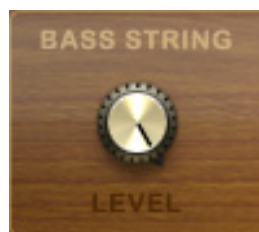
Although the original had no such pedal, we have of course added this feature to the instrument.

### 3.2 Pitch Bend

If you press a key harder on the original instrument, the note will pitch slightly. We have recreated this to be controlled with aftertouch. We also made it possible to use normal pitch bend and play in the style of George Duke, who played live on a special transparent version of the instrument with a giant vibrato arm attached.

### 3.3 Bass String

Since the original instrument was sampled with new strings for a bright and crisp sound, there is a significant difference in volume (at least 8 dB) between the hardest velocity of the the bass strings (F0-D#2) and the much thinner treble string. In real life you would adjust your playing style so that the left hand plays more softly, but it has often been a wish among musicians to be able to adjust the volume of the bass strings. This is now possible.



**LEVEL:** Here you can adjust the volume of the bass strings (F0-D#2). Don't turn it completely down, as the relative levels of all velocities then will be flattened out and show velocity—which isn't good at all. A level between -0 dB to -5 dB should work fine for most players.

## 3.4 Mute

To the right of the keys on the original instrument you have a Mutebar. By pressing it the sound will be muted. We recorded all sounds with the Mutebar on and you can switch between normal and muted sound using the Mod-Wheel.



**Off/On:** whether to use mute. Click on and off. You can also use modulation wheel CC01 to control this.

## 3.5 “Off Center” String Strike

Musicians who have played the real instrument probably remember the occasional “off center” string strike, a well known characteristic of the original instrument. We have included that too and programmed it to appear as often as within the original instrument. And since we didn't use random “round-robin” features, but instead mapped it to particular velocities it now *is* possible to edit the sound away—if you think that your track wasn't quite perfect...

## 3.6 Click

When playing the original instrument with the Mutebar ON, you get much more clicks on the release of the string, even on a well adjusted instrument. This is probably due to the fact that

the Mutebar presses strings a bit closer to the board making the escape shorter. This only affects the thinner Treble strings (from E2 up).



**Level:** Determines the level of the click that comes when the rubber hammer tips suck hard on a string. Original recording level of the click is middle position.

## 3.7 Pickups

Select between the 4 pickups. There are 2 single pickups; Lower/Upper and 2 dual pickups: Out of phase / normal



- **Lower pickup:** for a warm sound. Use key-switch C7 to select it directly from your keyboard.
- **Upper pickup:** for a bright sound. Use key-switch D7 to select it directly from your keyboard.
- **Both pickups (out of phase):** for kind of a thin sound. Use key-switch E7 to select it directly from your keyboard.
- **Both pickups: for a full sound.** Use key-switch F7 to select it directly from your keyboard.

## 3.8 Filter Switches

Like on the original instrument, you can use these four switches to filter out different frequencies to change the overall sound.

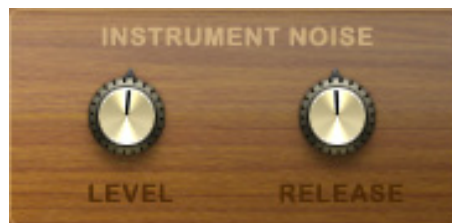


- **Brilliance:** Turn this off to filter out high treble frequency. You can use the keyswitches G7-C8 to set the preferred filter combination, but you must press all four keys simultaneously. It's not possible to toggle the switches on/off one by one from the keyboard. You can only do this via the interface. The Keyswitch is G7.
- **Treble:** Turn this off to filter out treble frequency. You can use the keyswitches G7-C8 to set the preferred filter combination, but you must press all 4 keys simultaneously. It's not possible to toggle the switches on/off one by one from the keyboard. You can only do this via the interface. The Keyswitch is A7.
- **Medium:** Turn this off to filter out middle tone frequency. You can use the keyswitches G7-C8 to set the preferred filter combination, but you must press all four keys simultaneously. It's not possible to toggle the switches on/off one by one from the keyboard. You can only do this via the interface. The Keyswitch is B7.
- **Soft:** Turn this off to filter out bass frequency. You can use the keyswitches G7-C8 to set the preferred filter combination, but you must press all four keys simultaneously. It's not possible to toggle the switches on/off one by one from the keyboard. You can only do this via the interface. The Keyswitch is C8.

## 3.9 Original Noise Adjustment

For the Scarbee Clavinet, we recorded the original noise before we removed the noise from the samples using sophisticated noise-reduction. We made certain that samples were not degraded in quality after removing the noise, not even the highest frequencies.

The default setting is the exact original level of noise. Noise will play along with other samples when you hit a key and since the noise sample is mapped to 1 note polyphony, you always get the same amount of noise no matter whether you play 1 key or 30. Feel the magic when turning down the noise to zero!



- **Instrument Noise level:** move the knob to set the level of the hum & hiss noise. Original recording level of the noise is middle position.
- **Instrument Noise release:** move the knob to set the release time of the noise. Default setting is middle. If you want noise to be present the whole time in a song or on stage you should turn the knob beyond middle position.



## 4 Controls (Pianet)

### 4.1 Sustain Pedal

Although the original had no such pedal, we have off course added this feature.

### 4.2 Click

The original instrument used a special technique to produce its charming sound: So called “Sticky hammers” (made from rubber) sucked the tine, more or less like a Harpsichord and when the hammer lifts from the tine the sound is produced. This means that the instrument is virtually without dynamics, but a cool sound indeed! However, the release sound can be a bit annoying since it almost sounds like a click. Therefore we decided to add an option for the Pianet to turn down the click—but off course we recommend keeping it natural as it adds charm to the sound.

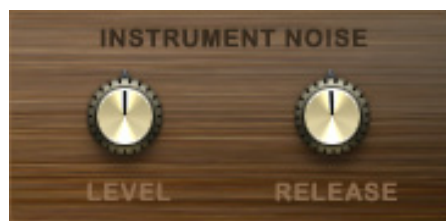


**Level:** Determines the level of the click that comes when the sticky rubber sucks hard on the reed. Original recording level of the noise is middle position.

## 4.3 Original Noise Adjustment

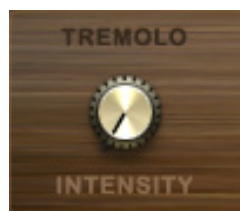
For the Scarbee Pianet, we recorded the original noise before we removed the noise from the samples using clever noise-reduction. We made certain that samples were not degraded in quality after removing the noise, not even the highest frequencies.

The default setting is the exact original level of noise. Noise will play along with other samples when you hit a key and since the noise sample is mapped to 1-note polyphony, you always get the same amount of noise no matter if you play 1 key or 30. Feel the magic when you turn down noise to zero!



- **Instrument Noise Level:** move the knob to set the level of the hum & hiss noise. Original recording level of the noise is middle position.
- **Instrument Noise Release:** move the knob to set the release time of the noise. Default setting is middle. If you want noise to be present the whole time in a song or on stage you should turn the knob beyond middle position.

## 4.4 Tremolo



**Intensity:** We recreated the Vibrato amount and speed of the original instrument for total authenticity. Move the knob to set the modulation intensity. You can also use modulation wheel CC#1 to control this. Notice that on the original electric piano there was just one setting which is around Mod-Wheel value 64 (middle).

## 5 Effects (Clavinet and Pianet)

In this new edition released by Native Instruments we have included some cool effects to make the instrument sound even better!

- **FX Type:** switches between Send and Insert effect pages



- **Effect Preset:** selects between ten FX presets. It is possible to save five User presets.



### 5.1 Reverb



- **Size:** Determines the room size by setting the length of the reverb. Higher values simulate larger rooms, lower values smaller rooms.
- **Level:** Sets the level of the reverb.

## 5.2 Delay



- **Time:** Determines the interval in milliseconds between hearing the straight signal and the first delay of the delayed signal. This Parameter can be synchronized to an external MIDI clock. Click on the arrow to select the time value from the menu.
- **Feedback:** Sends a portion of the output back into the input of the delay line, which creates repeating echoes. A value of zero produces only one echo, higher values give multiple echoes.
- **Level:** Sets the level of the delay signal.

## 5.3 Pan



- **Level:** move the knob to set the modulation intensity. Higher values will pan further to the sides.
- **Speed:** Determines the speed of the panning. This Parameter can be synchronized to an external MIDI clock. Click on arrow to select time value from the menu.

## 5.4 Auto-Wah



- **Speed:** Determines the speed of the modulation of the effect. This Parameter can be synchronized to an external MIDI clock. Click on the arrow to select the time value from the menu.
- **Tone:** controls the initial frequency of the effect and decides the timbre of the sound

## 5.5 Compressor



- **Threshold:** sets a level above which the compressor starts reducing peaks. Only signals above the threshold are affected by the compression ratio, signals below are unaffected.
- **Output:** Sets the output of the module.

## 5.6 Chorus



- **Depth:** sets the amount of LFO modulation applied to a signal. Higher amounts result in a stronger chorusing effect.
- **Level:** sets the dry/wet balance of the chorus

## 5.7 Distortion



- **Drive:** determines the amount of distortion applied to the sound. Higher values increase the distortion effect.
- **Output:** sets the output of the module

## 5.8 Phaser



- **Depth:** sets the amount of LFO modulation applied to a signal. Higher amounts result in a stronger phaser effect.
- **Level:** sets the dry/wet balance of the phaser

## 5.9 Amp



- **Bass:** boosts/cuts the level of the lower frequencies
- **Treble:** boosts/cuts the level of the higher frequencies

# 6 Credits

## **Production Credits**

**Recording, Editing, Programming and FX Presets:** Scarbee

**Kontakt Script Developer:** Nils Liberg

**Instrument Graphics:** Stefan Kengen

## **Beta-testers**

Christian Vinten, Lars Daniel Terkelsen.

## **THANKS TO**

Nils Liberg for the fantastic scripting (wow we did crazy stuff this time!). Stefan Kengen, great work! The whole Native Instruments crew: Sascha Kubiak, Tobias Menguser, Gerald Zollner, Alexander Stamm, Marcus Rossknecht and Dinos Vallianatos. Rick Chadwick for helping me with all kinds of stuff, Christian Vinten and Sevan Gökoglu for their great playing! Preben Lyngmark for all his help and guidance.

My dear wife Anne—for all your work, support and love. And finally a very special thanks to my wonderful children: Nikolaj, Oscar & Victor.