Gospel Drawbars
for NI Kontakt & EXS24

There's already a bunch of tone wheel organ libraries and simulators out there, so what's the point with this one, you might think?

Our goal has not been to make a generic virtual recreation of an organ but to capture the character of a unique instrument, in this case one of the first ever Hammond organ models made, a Hammond AB from the late 1930s.

We have created a user-friendly control panel for blending a number of pre-made settings. The drawbar settings have been carefully chosen to include both mellow standards and trebles with attitude. We recorded all the settings through the organ's own Leslie speaker, in stereo, which gives a warm and pleasing colour to the sound. Gospel Drawbars has 22 recorded settings and 955 stereo wav samples in total.

We found the Hammond AB in a chapel in Stockholm, where it's still in use, more than seventy years after its birth.

Gospel Drawbars for NI Kontakt 3, 4 & 5

The file in NI Kontakt 3, 4 & 5 format <u>requires the full version of NI Kontakt</u> and does not work fully with the free Kontakt player!

Drawbars page

On the Drawbars page, you can choose organ sounds and combine them in different ways. Each organ sound represents a unique drawbar setting on the Hammond AB.

Organ sounds are loaded into two **slots**, which can then be played simultaneously across the keyboard (**stack mode**) or assigned to different areas of the keyboard (**split mode**).

Whichever mode is chosen, the lowest octave (C0-B0) always plays **bass pedal** sounds.

You can have as many as three organ sounds mapped across the keyboard at once – the bass pedals in the lowest octave, then slot 1 mapped over a range of your choice, followed by slot 2 mapped over the remaining keys.

The **mode** button, on the left of the GUI, changes the arrangement of the sounds in slots 1 and 2. In stack mode, they both play at once when you press any key between C1-C6. In split mode, each slot plays in its own area of the keyboard, which you can assign anywhere between C1-C5.

Depending on which mode is selected, different controls appear on the Drawbars page of the GUI. Let's examine the modes in turn.

When the mode button is set to **Stack**, the GUI looks as follows:

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Here, the sounds you select for each slot will be played simultaneously whenever you press a note between C1-C6 – in other words, they are 'stacked' on top of each other.

Slot 1

Setting: chooses a combination of drawbars for slot 1. You can also disable slot 1 by changing its *Setting* menu to 'Off'.

The numbers in the *Setting* menu represent the drawbars and their volume. Each drawbar in the sampled organ generates a harmonic. So, for example, 008000000 means that the third drawbar, which generates the second harmonic above the fundamental tone, is at full volume, while the other drawbars are silent.

Bass pedal sounds can also be loaded into slots. See the section below, 'How the Bass Pedals Work'.

Volume: sets the level in decibels of the sound in slot 1.

Tune: sets the tuning of the sound in slot 1, between -/+ 5 semitones.

Slot 2

Setting: chooses a combination of drawbars for slot 2. You can also disable slot 2 by changing its *Setting* menu to 'Off'.

Volume: sets the level in decibels of the sound in slot 2.

Tune: sets the tuning of the sound in slot 2, between -/+ 5 semitones.

When the mode button is set to **Split**, the GUI looks as follows:

Here, the sounds you select for each slot will be played in different areas of the keyboard – in other words, they are 'split'.

Key: sets the note between C1-C5 on which the sound in slot 1 ends and the sound in slot 2 begins. The highest available split point is C5, so that there is always at least one octave (C5-C6) in which slot 2 is playable.

MIDI learn: when this button is pressed, Gospel Drawbars waits for you to play a note between C1-C5, then assigns the split point to that note. The *Key* dial will update to show the selected note.

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Slot 1

Setting: chooses a combination of drawbars for slot 1. You can also disable slot 1 by changing the *Setting* menu to 'Off'.

Octave: transposes the sound of slot 1 by up to +2 octaves. This means that even though slot 1 is mapped to the lower octaves of your MIDI keyboard, you can play higher notes there. The *Octave* control does not repitch the samples, so it sounds exactly as if you were playing the slot 1 sound higher up the keyboard.

Volume: sets the level in decibels of the sound in slot 1.

Tune: sets the tuning of the sound in slot 1, between -/+ 5 semitones.

Slot 2

Setting: chooses a combination of drawbars for slot 2. You can also disable slot 2 by changing the *Setting* menu to 'Off'.

Octave: transposes the sound of slot 2 by up to -2 octaves. This means that even though slot 2 is mapped to the upper octaves of your MIDI keyboard, you can play lower notes there. The *Octave* control does not repitch the samples, and sounds exactly as if you were playing the slot 2 sound lower down the keyboard.

Volume: sets the level in decibels of the sound in slot 2.

Tune: sets the tuning of the sound in slot 2, between -/+ 5 semitones.

How the Bass Pedals Work

In addition to its keyboard, the Hammond AB has two pedals that play bass notes between C0-C2. The pedals are called Pedal 16 and MixturPedal.

In Gospel Drawbars, we've mapped the bass pedal samples to the C0-B1 octave, where they're always playable irrespective of whether the instrument is in stack or split mode. On the **Dynamics** page (see below), there is a *Bass mix* dial to adjust the blend of the pedals in that lowest octave.

Additionally, you can load bass pedal sounds into the slots. You can then stack or split them as you please. Slot 1 can load the Pedal 16 sound, and slot 2 can load the MixturPedal. These are available in the drop-down *Setting* menus, beneath the other drawbar configurations.

Because the bass pedals have a maximum range of two octaves (C0-C2) on the Hammond AB, we've not stretched or transposed them artificially in Gospel Drawbars. This means that by default, when you load a bass pedal sound into a slot, it will play only in the C1-C2 octave. By setting the *Bass mix* (see below) dial to the same pedal sound, you can play your chosen pedal sound continuously across C0-C2.

Dynamics page

On the Dynamics page, you can adjust the envelope and volume of the sound. From left to right, the controls are:

Envelope

Attack: sets the time in milliseconds for the sound of the organ to reach full volume when a note is played.

Decay: sets the time in milliseconds for the sound of the organ to die away to silence when a note is released.

Levels

Release: sets the volume in decibels of the samples that play when a note is released, which represent the sounds of organ keys returning to their positions after being pressed.

Bass mix: blends between the Pedal 16 and MixturPedal sounds in the octave C0-B0. This dial ranges between -/+12. At -12, only Pedal 16 plays in the lowest octave. At +12, only MixturPedal plays in the lowest octave. When the dial is at 0, both Pedal 16 and MixturPedal play in the lowest octave, at equal volume.

Response

Velocity: sets the relationship between how hard you strike the keys (MIDI velocity) and the volume of the sound. At 0%, the volume of the sound is unaffected by how hard you play. This is the default behaviour for an organ. At 100%, the volume of the sound is strongly affected by how hard you play, which is more like a piano.

Tone page

On the Tone page, you can adjust the frequency and stereo image of the sound. From left to right, the controls are:

EQ

Lo: sets the volume of low frequencies, between +/-6 decibels.

Mid: sets the volume of mid frequencies, between +/-6 decibels.

Hi: sets the volume of high frequencies, between +/-6 decibels.

The EQ frequencies have been pre-tweaked by Precisionsound to suit the Gospel Drawbars instrument.

Stereo

Width: sets the stereo width of the organ samples, where 0% = mono, and 100% = natural stereo.

Because we sampled the organ in stereo through its Leslie speaker, the sound includes the natural chorale effect (slow rotary speaker), which is great in itself. However, a possible drawback is that a non-desired cross modulation effect may occur when using Kontakt's Rotator effect (or third party alternatives) to achieve the fast speed of the rotor. To reduce this, we recommend that you set Width to mono when using a rotary speaker simulator.

Rotator

Speed: sets the speed of the rotating speaker simulation, slow or fast. This dial is linked to the modulation wheel (MIDI CC1), so that raising the wheel from 0 to 127 changes the rotator speed from slow to fast, and vice versa.

Rotator on/off: enables or disables the rotating speaker simulation.

FX page

On the FX page, you can add reverb and delay to the sound. From left to right, the controls are:

Reverb

Level: sets the volume in decibels of the convolution reverb effect.

Type: changes the impulse response of the convolution reverb. Thirteen impulse responses are available, ranging from short springs to churches and cathedrals. You can also disable the reverb by setting this menu to 'Reverb off'.

Delay

Level: sets the volume in decibels of the delay effect.

Delay on/off: enables or disables the delay effect.

Time: sets the gap in milliseconds between delay repetitions.

Tone: sets the high-frequency damping of the repetitions generated by the delay, where 0% = no damping, and 100% = full damping for a darker sound.

Feedback: sets the extent to which repetitions generated by the delay are fed back into the delay, to produce more repetitions. At 100%, the delay continues regenerating indefinitely.

Spread: sets the stereo image of the repetitions generated by the delay, where 0% = mono, and 100% = full stereo for a ping-pong delay effect.

Credits page

Recording by Daniel Nässtrom and Lars Westin

Sound editing by Lars Westin

Kontakt scripting by Iain Morland http://sound.iainmorland.net

GUI Graphics by Lars Westin

This product includes impulses from the free Bricasti M7 library by Acousticas, used under license.

The Gospel Drawbars manual was written by Iain Morland.

Gospel Drawbars for NI Kontakt 2 and Apple EXS24

The files in NI Kontakt 2 format <u>require the full version of NI Kontakt</u> and do not work fully with the free Kontakt player!

The patches for Kontakt 2 and EXS24 contain one sampled configuration of drawbars per patch, as well as patches for each of the bass pedals.

Patch names represent the drawbars and their volume. Each drawbar in the sampled organ generates a harmonic. So, for example, 008000000 means that the third drawbar, which generates the second harmonic above the fundamental tone, is at full volume, while the other drawbars are silent.

The bass pedal patches, Pedal 16 and MixturPedal, are mapped from C0-C2; the other patches are mapped from C1-C6.

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