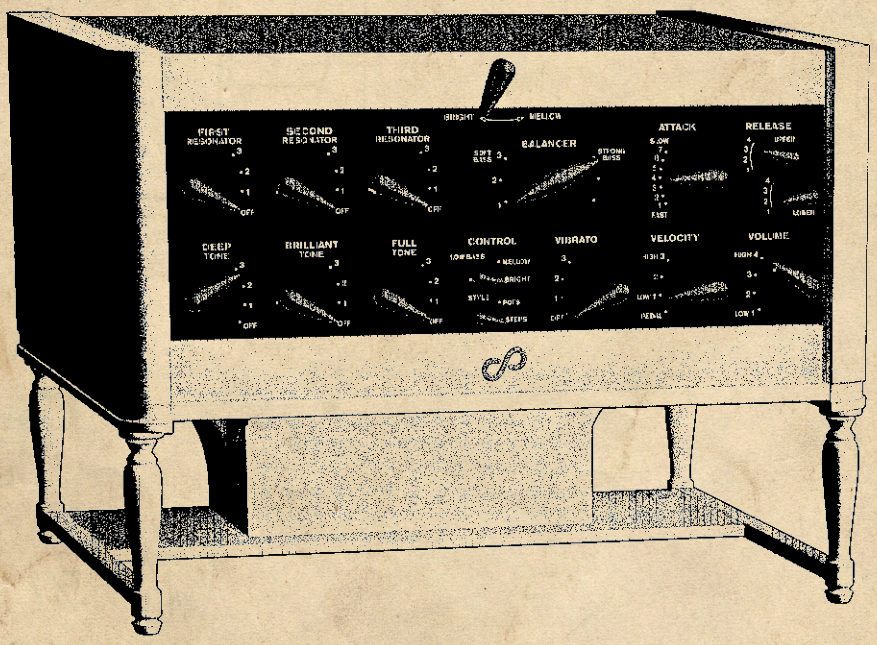
SuperNova


BRIGHT
MELLOW
FIRST RESONATOR
SECOND RESONATOR
THIRD RESONATOR
BALANCER
ATTACK
RELEASE
DEEP TONE
BRILLIANT TONE
FULL TONE
CONTROL
VIBRATO
VELOCITY
VOLUME

Welcome to the JPS Champagne SuperNova, a spiritual desktop recreation of what is commonly regarded as the world's first polyphonic synthesizer: the Novachord!

Developed in the late 1930s by the Hammond Organ company, the Novachord was an instrument that, despite using a vacuum tube oscillator and divide-down circuits, was perhaps forty years ahead of its time, in providing not only a level of polyphony most synthesizers of today can't reach (72!) but also featuring Attack/Delay/Release and Attack/Hold/Release envelopes (with a Release stage separately adjustable for lower and higher keyboard range, set in a way that's a wonder that I've never seen elsewhere: it allows the upper range to be nice and lush with a long release, while preventing lower notes making everything too muddy by setting those to a separate, shorter release), six slightly rate-offset LFOs controlling vibrato to note pairs, and five mixers controlling tone from parallel filters: a high pass, a low pass, and three formant bandpass resonators. An additional control mixes the unfiltered tone. Finally an additional low pass filter could adjust overall brightness. According to one piece of research, an early prototype even featured velocity! Many of the Novachord's features would not be seen again until the mid to late 60s, or even into the 80s.

Few of these epic instruments were made, partly due to the manufacturing soon being suspended due to the Second World War, partly due to issues with reliability, and, it is often noted, due to it being "misunderstood" by many contemporary musicians. (On the latter point, one wonders if that's an anachronistic misreading by modern writers. Often with historical failures later considered "ahead of their time", the reason for the failure usually seems to default to it being "misunderstood", a pejorative notion that people back then were just too stupid to understand it. It's never simply it might have been too expensive, or, heaven forbid, everyone actually understood it perfectly well but just didn't like it).

Whatever the reality of contemporary opinions, and surely everyone who saw it must have thought it to be a beautiful looking thing, and the actual production issues aside, the Novachord did however, carve out a niche in Hollywood soundtracks in the war and post-war period, with a number of composers occasionally scoring for the instrument. Legendary composers of the era, including Dmitri Tiomkin, Jerry Goldsmith and most regularly, in recording music for several monster and sci-fi B-movie scores throughout the 1950s, Herman Stein, called on the Novachord to add an unusual texture.

In collaboration with the late Steve Howell's Hollow Sun, in 2009 we released a lovely ReFill featuring a number of preset position setups from one of the rare working machines still active.

For this Rack Extension, however, I have taken a rather different approach and instead used newly created, clean waveforms inspired by the Novachord, to create a device that I hope is in keeping with the spirit of the original, both in design and in creating a very 1940s/50s synthesizer soundtrack tone, while being a little more flexible in terms of being able to dial back the noise and instability and adjust the tone during or post performance when required, which preset samples can't do particularly well. So don't consider this a strict emulation of the Novachord, so much as a stylistic reinterpretation based on its design ethos. I hope you enjoy its warm and extraordinary vintage charms, and on loading it, it is immediately playable: you won't need to wait for those vacuum tubes to warm up!

Designed as a desktop module, be aware that there is no ability to screw the device into a modular rack. Fortunately it is compact enough that it should fit into most Swedish modular software rack setups. It is highly recommended to stand it on top of another device that is securely screwed in, or preferably keep it at the bottom and stack less weightier devices upon it.

Manuf. London, England, 2018

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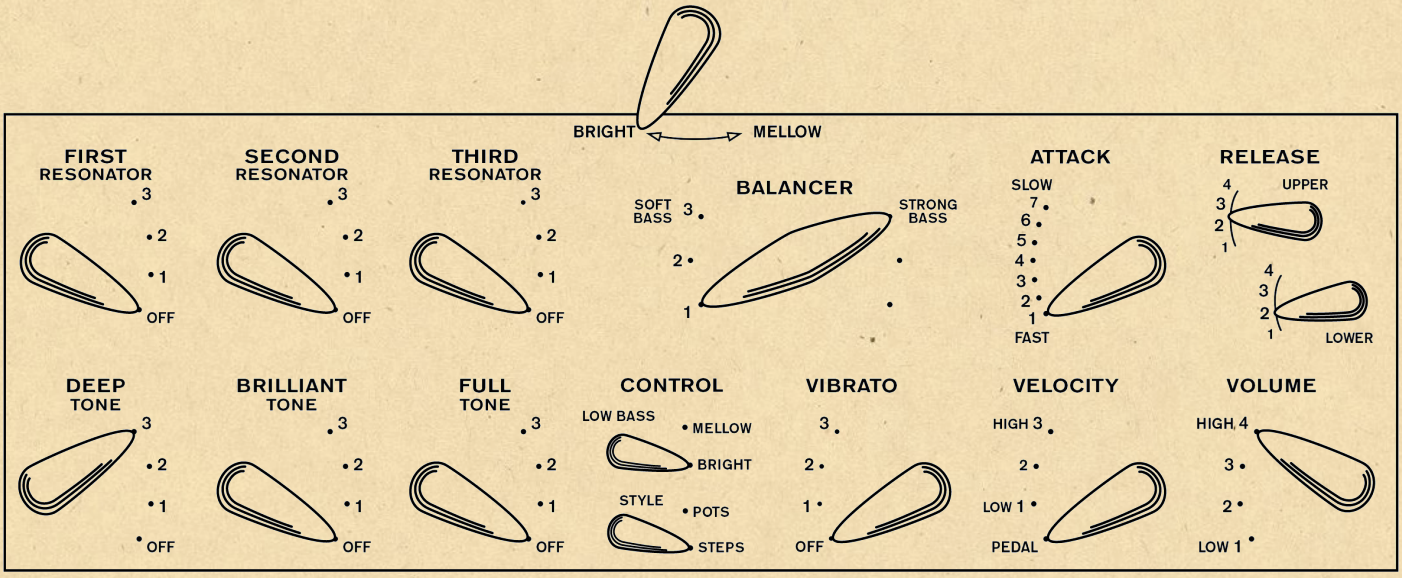
OPERATION OF THE SUPERNOVA

The SuperNova is unique among musical instruments in that the player may control the "attack", or growth and decay characteristics, of the tones produced in addition to having available a wide range of effective tone qualities.

The control panel immediately above the keyboard contains the various controls affecting the tones of the instrument.

The main control panel is below.



TONE CONTROLS

The first six controls at the left side of the control panel are the Tone controls. "Deep Tone" is a low pass filter which emphasises the lower frequencies; "First Resonator", "Second Resonator" and "Third Resonator" are tuned circuits which emphasize particular ranges of frequency; "Brilliant Tone" is a high pass filter which emphasizes the higher frequencies; and "Full Tone" passes all frequencies equally.

The tone controls are connected in the output circuit of the tone generator and act on all notes of the instrument. Each has three loudness positions in addition to "Off". When all six are "off" no sound may be produced by the instrument.

BALANCER

The Balancer, located in the centre of the control panel, slightly reduces the volume of the lower half of the keyboard by shunting fixed resistors across the output circuits. In position 1 ("Strong Bass") it is open and has no effect.

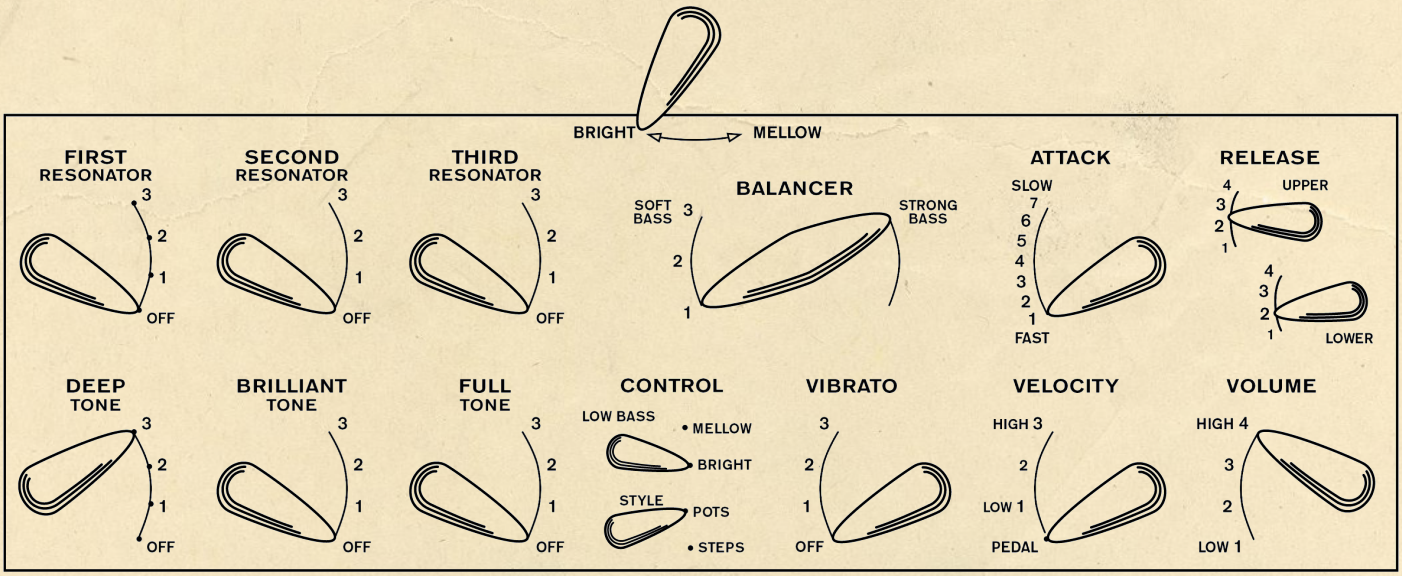
BRIGHT-MELLOW CONTROL

This control, located above the Balancer, affects the entire keyboard except the lowest 18 notes. In the mellow position it closes switches which reduce the harmonic content of the tone by introducing condensers into the control tube circuits. External control of Bright-Mellow can be made via a rear connection.

CONTROL (LOW BASS / STYLE)

Below the Balancer are two Control switches. The upper switch is Low Bass, and allows the lowest 18 notes that are normally unaffected by the Bright-Mellow control to also be routed into it when set to the "Mellow" position.

At the bottom is a very special switch called Style. By default the SuperNova generally uses stepped knobs, where indicated by dotted knob labels. By changing the Style from Steps to Pots, all the stepped knobs can be turned into potentiometers with continuous values, indicated, as shown below, by lines instead of dots. As well as this finer level of control, Style also allows you to effectively set the device up to switch between two presets, one stepped and one potted. The exceptions are the Bright-Mellow and Release knobs: these are always continuous and only have one stored value.



ATTACK

The tone of the Novachord may be made percussive, with a sharp attack after which the tone gradually dies away, or the tone may be made to have a perceptible period of growth after which it is sustained as long as a key is depressed. These effects are governed by the attack control which is located at the right of the balancer. The attack control has seven positions ranging from "Fast" to "Slow" and operates a multi-contact switch which varies the operating voltage applied to the key circuits.

When using Pots Style, Attack is a standard, single-stage modern attack.

RELEASE

The release controls, located to the right of Attack, are similar in affect to the "damper" pedals on a piano. They cause the tones of the Novachord to sustain after the playing keys are released by removing cut-off bias from the control tubes. The Lower Release control affects only the lower notes of the keyboard, while the Upper Release control operates notes of middle C and above.

EXPRESSION PEDAL / VELOCITY

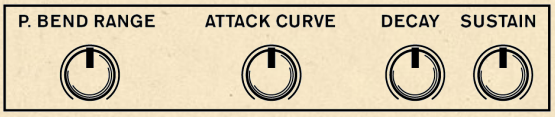
When connecting an expression pedal to regulate the volume of the instrument, set the Velocity control to Pedal. It operates a variable condenser connected in the pre-amplifier circuit. For low key velocity output set the Velocity to 1 (or less if using Pots Style), and increase the knob value for greater key velocity sensitivity.

VIBRATO

Use the Vibrato to add a subtle modulation of the oscillator. When using Pots Style, the depth range available is vastly increased. Keep below 1 for normal use, or use a higher value for special effect.

That covers the standard SuperNova controls. Additional adjustment of the tone can be provided by opening the lid and exposing further controls. A 3-way switch labelled Extras provides two sets of controls. The middle position, "Extras", provides tonal adjustments. The second, "Advanced Tuning", refinement of the filters and note pitches.

EXTRAS

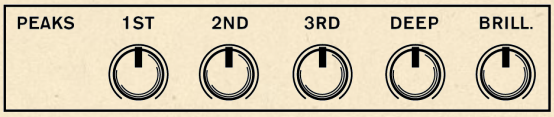


To the left of the Bright-Mellow knob are six potentiometers. Wave changes the oscillator waveform. Vibrato Rate speeds up or slows down the rate of LFO. Note that each consecutive pair of notes has a slightly different LFO rate, and this control adjusts them relatively.

The tubes can be pushed into distortion using Drive, while the pitch instability of the oscillator can be increased with the Drift control. The amount of electrical hum and noise and be reduced or raised with the last two controls.

On the right-hand side of the Bright-Mellow knob you can change the Pitch-Bend Range up to +/- 24 semitones. Here you can also adjust the Attack Curve, Decay rate, and Sustain level for the Pots Style Envelope. These latter controls have no function when using the Steps Style Envelope, as those envelope values are fixed as per the preset selector.

ADVANCED TUNING



The second position of the Extras switch allows you to tweak the centre frequencies of the main Tone controls, while on the right you can adjust the global tuning of the instrument in semitones, and the pitch, in cents, of consecutive note pairs.

OUTPUT

The SuperNova can be run from the direct output or through the built-in amp and cabinet, with or without FX chain, by changing the DI jack.

```
//Remote Map template for       Instruments     Jiggery-Pokery Sound    Champagne SuperNova Vintage Synthesizer
Scope   Jiggery Pokery   com.jiggerypokery.Novachord
//Control Surface Item   Key     Remotable Item  Scale   Mode

Map     _control_               Control Style
Map     _control_               Low Bass
Map     _control_               Extras
Map     _control_               DI

Map     _control_               Volume Stepped
Map     _control_               Volume Potted
Map     _control_               Velocity Stepped
Map     _control_               Velocity Potted
Map     _control_               Bright Mellow
Map     _control_               First Resonator Stepped
Map     _control_               First Resonator Potted
Map     _control_               Second Resonator Stepped
Map     _control_               Second Resonator Potted
Map     _control_               Third Resonator Stepped
Map     _control_               Third Resonator Potted
Map     _control_               Deep Tone Stepped
Map     _control_               Deep Tone Potted
Map     _control_               Brilliant Tone Stepped
Map     _control_               Brilliant Tone Potted
Map     _control_               Full Tone Stepped
Map     _control_               Full Tone Potted
Map     _control_               Balancer Stepped
Map     _control_               Balancer Potted
Map     _control_               Vibrato Rate
Map     _control_               Vibrato Stepped
Map     _control_               Vibrato Potted
Map     _control_               Attack Stepped
Map     _control_               Attack Potted
Map     _control_               Attack Curve
Map     _control_               Decay
Map     _control_               Sustain
Map     _control_               Lower Release
Map     _control_               Upper Release

Map     _control_               Oscillator Waveform
Map     _control_               Drive
Map     _control_               Drift
Map     _control_               AC Hum
Map     _control_               Noise
Map     _control_               Pitch Bend Range

Map     _control_               First Resonator Peak
Map     _control_               Second Resonator Peak
Map     _control_               Third Resonator Peak
Map     _control_               Deep Cutoff
Map     _control_               Brilliant Cutoff

Map     _control_               Transpose
Map     _control_               C#/D Tuning
Map     _control_               B/C Tuning
Map     _control_               D#/E Tuning
Map     _control_               F/F# Tuning
Map     _control_               G/G# Tuning
Map     _control_               A/A# Tuning
```

Continued overleaf

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Map     _control_           Chorus Enable
Map     _control_           Chorus Mode
Map     _control_           Chorus Rate
Map     _control_           Chorus Depth
Map     _control_           Chorus Delay
Map     _control_           Chorus Mix

Map     _control_           Fazer Enable
Map     _control_           Fazer Speed
Map     _control_           Fazer Depth
Map     _control_           Fazer Phase
Map     _control_           Fazer Feedback
Map     _control_           Fazer Mix

Map     _control_           Phlanger Enable
Map     _control_           Phlanger Speed
Map     _control_           Phlanger Depth
Map     _control_           Phlanger Phase
Map     _control_           Phlanger Feedback
Map     _control_           Phlanger Mix

Map     _control_           Delay Enable
Map     _control_           Delay Time
Map     _control_           Delay Damp
Map     _control_           Delay Mode
Map     _control_           Delay Feedback
Map     _control_           Delay Mix

Map     _control_           Rotary Enable
Map     _control_           Rotary Speed
Map     _control_           Rotary Acceleration
Map     _control_           Rotary Phase

Map     _control_           Reverb Enable
Map     _control_           Reverb Decay
Map     _control_           Reverb Size
Map     _control_           Reverb Lo Cut
Map     _control_           Reverb Damp
Map     _control_           Reverb Mix

Map     _control_           Mod Wheel
Map     _control_           Expression
Map     _control_           Sustain Pedal
Map     _control_           Pitch Bend
```

JPS Champagne SuperNova Rack Extension: user guide vaguely adapted from the original NovaChord manual.

Produced and Designed by Matt Black.

FROM THE MAKER OF...

Rack Extensions

- **Ammo 100LA Modulation Oscillator** - Portable single-channel oscillator for audio and CV rate synthesis and LFOs, featuring 128 waveforms
- **Ammo 400R Modulation Oscillators** - 4-channel LFO generator with audio output, featuring 136 waveforms and advanced modulation mixing
- **Ammo 1200BR Modulation Synthesizer** - Advanced 4-channel LFO generator and audio synthesizer adds S&H, Comparator and Electro-Switch
- **Anansi Mid/Side Mastering Router** - Mid/side audio router with mono compatibility check, 3-in merger and 3-out splitter
- **Charlotte Envelope Generator** - 9-stage EG with time, level, curve and velocity control per stage, and a priority-selectable MIDI-to-cv-pitch splitter
- **Chenille BBD Chorus Ensemble** - Realistic BBD chorus device, based on the 70s string synth ensembles and the classic Roland Dimension D rack unit
- **Combo 310 Unique Organ** - The legendary Dutch electronic home/church organ, best known as the "Jarre" organ of Oxygene and Equinoxe.
- **Combo B3T Organ** - The famous American tonewheel organ and Leslie combo in highly tweak-able and addictive Rack Extension format
- **Combo Compact Organ** - The classic Italian transistor organ now in a brilliant, easy to use and equally compact Rack Extension format. Bags o' fun!
- **Combo Continental Organ** - The classic British transistor organ in a fantastic Rack Extension for that instant 60s feel!
- **Combo X~705 Space Organ** - An inspirational Frankensynth monster: an all-in-one Hammond clone, synthesizer and Rhapsody 610 string ensemble!
- **Itsy Stereo/Phase Inverter** - L/R channel flip, cv-controllable 180° stereo inverting width adjust, stereo phase inverters and phase correlation metering
- **JPS Harmonic Synthesizer** - Vintage additive synthesizer emulation, based on the ultra-rare RMI keyboard
- **Lolth CV Delay Splitter** - 4x4 channel cv splitter with independently adjustable gain and inversion controls, channel delay, and mirroring
- **Melodic Electric Glockenspiel** - The fabulous Czech keyboard, the deliriously delicious deep clang of the delightfully delovely Delicia Melodic
- **Miranda CV Delay Merger** - 4x4 channel cv merger with independently adjustable gain and inversion controls, channel delay, and mirroring
- **Mordred Audio Bypass Merger** - 4 x 5 channel stereo audio merger with independently switch-able outputs and auto-fade control
- **Shelob Audio Bypass Splitter** - 4 x 5 channel stereo audio splitter with independently switch-able outputs, mirroring, and auto-fade control
- **Steerpike BBD Delay Ensemble** - Vintage style 6-tap BBD device, with multiple delay modes including parallel, serial, and reverse
- **Titus BBD Delay Line** - A lightweight 1U delay device featuring a single Steerpike delay line, with reverse

ReFills

- **Guitars vol.1+2: Stratocaster & Telecaster** - Multi-sampled guitars with slides, mutes, signature L6 effects and key-switching
- **Elements²: Vector Synthesis Workstation** - Massive patch collection featuring Korg Wavestation/MS2000, Waldorf Blofeld and Roland SC-8850
- **Additions: Vintage Additive Synthesizers** - DK Synergy + Kawai K5m + Thor FM.
- **Blue Meanie: Virtually an ARP2600** - Thor and Kong-based analogue synth machine
- **Kings of Kong Classic Drum Machines*** - the premier ReFill for Reason 5+, with over 50 classic beat-boxes for Kong Drum Designer
- **Retro Organs v1.5** - Hammond B3 + Farfisa Combo Compact + Vox Continental in one brilliant ReFill. Also available for Reason Essentials
- **B3 Tonewheels v1.5** - the original 24-bit non-Leslie samples ReFill with advanced rotary speaker emulation
- **Farfisa Combo Compact Deluxe v1.5** - the complete set of original 24-bit Farfisa samples covering, both standard and Deluxe models
- **Vox Continental v1.5** - a complete set of original samples from the classic C300 organ, featuring original and extended Continental footages
- **Hammond Novachord*** - the near-antique pre-WW2 monster polyphonic valve synthesizer
- **Retrospective: 40 years of Synthesizer History*** - Over 1Gb of vintage samples from synths and electronic keyboards from the Hollow Sun archive

FreeFills

- **Additives** - demo version of Additions
- **8-BIT Magic**: The ZX Spectrum ReFill
- **Classic Drum Machine Collection v1.1**
- **Eminent 310 Strings** v3** - a very old set of samples of miscellaneous quality, so you don't need this anymore. You've got this lovely Combo 310 Unique Organ for your Rack now, with every note recorded in 24-bit at 96kHz, so it's much better!
- **Harpe Laser**** - the famous Laser Harp sound, the Elka Synthex preset 46 "Ring Mod"
- **Moog Taurus Bass Synthesizer** v1.1**

For more information on these products and for direct downloads of these latest versions, plus a wide range of great Combinator skins, please visit **www.jiggery-pokery.com**

* Includes samples licensed from HollowSun.com
** demo ReFills for Retrospective