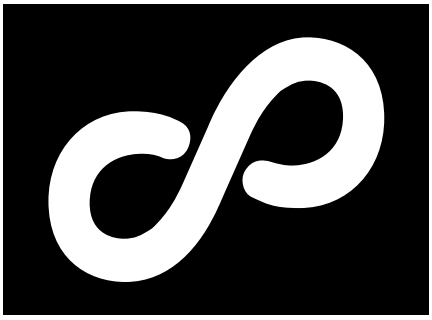

JIGGERY-POKERY

COMBO ELECTRIC HARPSICHORD

OWNER'S MANUAL

From the Instrument Developers --

This manual is prepared as an introduction to your new Combo Electric Harpsichord. It will also serve to guide you in the use of your instrument. The information contained herein is as up-to-date as possible in view of the rapid advances in this radically new instrument. Specifications and details are, of course, subject to change.

The Baldwin SOLID BODY HARPSICHORD

SUMMARY SPECIFICATIONS

A. MUSICAL FEATURES

Range: 4-3/4 octaves, A to F (57 notes), Middle "C" at keyboard center.

Two Basic Contrasting Voices: "Blue" - a clear, deep-throated, resonant string tone with long sustaining power; somewhat reminiscent of the haunting quality of the bass clarinet; pickups "listen" to string at midpoint.
"Red" - a driving, twangy, shallow string sound with pronounced plucking and long sustaining; the biting power of an electric guitar; pickups "listen" to string ends.
"Light Blue" - An extra string that can be selected between 8' or 4' range.
"Light Red" - An extra string that can be selected between 8' or 4' range.

Damped Effect on Each Voice: Muted "Blue" - a strongly plucked, "covered", subtle string tone, with foreshortened sustaining: practically indistinguishable from a harp.
Muted "Red" - a tune percussive tone, rhythmically powerful without being harsh; resembling a banjo.

Delay Effect on Each Voice: All four voices can be delayed to create a subtle or extreme grace note/strum effect. For best results always leave at least one voice with no delay applied.

Tuning: All four voices can be independently detuned by up to a semitone. A two-semitone Pitch-bend is also available for guitar-like bends.

Special External Effects: The guitar amplifier can add spring and room reverberation, and specially tailored drive and cabinet effects, all external to the harpsichord.

B. CONTROLS

Two-Manual Flexibility - Single-Manual Simplicity: Keyboard divides at Middle-"C" into treble/bass section, so that the right can contrast the left. Tonal colors can be set up and volume adjusted independently in the bass and treble ends of the keyboard, or pedal controlled.

Handswitches: one for each voice range. Each switch has three positions directing the voice it controls either to the left output, off, or to the right output, when the instrument is in Stereo mode and using either no amplifier or the stereo transistor amplifier. If the instrument is Dual Mono mode or is using a mono amplifier, each voice is sent to both outputs.

Pedal: a standard swell/expression pedal located in a separate housing on the floors serves as remote volume control to the amplifier.

Damper: Increase the Damp fader to apply damping effect.

Special External Effects Control: Controls on the Harpsichord permit fast selection of external effects set on the amplifier. Select between five different Amplifiers and eight Cabinets, or turn them off entirely to use direct. Drive will increase the distortion, and you can adjust the tone with Bass and Treble. There is a built-in Spring tank and the Room can also be adjusted.

Additional Controls: Unlike other harpsichords, the keys can be velocity-enabled, by increasing the Velocity control to maximum. The sensitivity of the pickups to the release mechanism can also be tweaked. To remove any release noise set the Release fader to minimum, or boost it by raising it above 100%. Leave at 100% for the standard amount. A brick-wall High Pass Filter can be used to filter out sub-40 Hz low end by increasing it up to around 20-25%, or push it further for a thinner sound.

C. DESIGN DETAILS

Stringing: two strings per note, "Blue" and "Red", and "Light Blue" and "Light Red".

Layout: string lengths, diameters and plucking points based on The Cannon Guild classical acoustic harpsichords, specially modified for solid body instrument.

Case and Finish: welded aluminum case/frame, baked-on black finish.

Music Desk and Lid: Plexiglas music desk folds to become keyboard cover.

Legs: rubbed mahogany with non-marring ball casters; legs easily detached for transporting instrument.

Action: Delrin jacks, adjustable plectra timing and dampers.

Keyboard: standard piano dimensions, rugged plastic covers.

Tuning system: tuning readily adjusted with tuning screws provided.

Dimensions: Standard 3U Eurorack format.

1. AN INTRODUCTION TO YOUR NEW INSTRUMENT

1.1 Design Background:

The Combo Electric Harpsichord brings a family of new sounds that are musically rich and natural in color. Where others have turned to electronics to generate the tone, this instrument uses the string - one of the most colorful tonal generators possible. Where others use multiple strings to a note, we limit ourselves to one to retain the purity in chord playing. Modern electronics enable us to seek out previous unavailable rich tonal qualities, amplify them, control them, and mix them into a large number of new combinations.

Basically, the instrument uses a harpsichord action to pluck a "harp" of strings. A sophisticated electric-guitar-like system picks up the string vibrations.

The keyboard player has available to them a new instrument with wide volume and tonal flexibility. If you are at home with any other keyboard instrument, you can soon master this potential since the controls are simple - even if unique - and readily understandable.

The instrument design represents a careful balance between ruggedness, reliability, stability and moderate cost. Tradition has not been allowed to hamper the design, yet tradition is referred to as an aid in styling and where proven techniques could be called forward to be used in the new instrument. The result is an optimum (not a maximum) design; no one requirement has been allowed to overshadow. For instance, steel (in place of the aluminum actually used) would have improved tuning stability, but would have made the instrument too heavy to be readily carried about.

1.2 The Player's Responsibility to Their Instrument:

Let's face reality - you will need to tune and mechanically adjust ("Regulate") your new instrument. But there is a really practical plus here. This new instrument is carefully designed to that the adjustments can be made by the players themselves, without prior training - you thus can become self-sufficient, with no need to call on the often-unavailable tuners, repairpersons and other technicians needs for many instruments.

But, most important of all, there is a musical advantage to participating in your own instrument's upkeep. You will find your listening sharpened as you school yourself at taking care of the instrument. Your sense of intonation and sensitivity will be continually improved. These music sensitivities will help you as a keyboard player in understanding musical performance and in playing with other musicians.

2. GETTING THE MOST OUT OF YOUR INSTRUMENT

2.1 The Two Basic Open Voices:

Since the tonal characteristics of this new instrument are unique and not strictly imitative of other instruments, they are assigned colors rather than names to avoid confusion with existing nomenclature:

"Blue": a clear, deep-throated, resonant string tone, with long sustaining power; somewhat reminiscent of the haunting quality of the bass clarinet. This voice comes from "listening" to the midpoint of the string, the "Mid Pickup".

"Red": a driving, twangy, shallow string sound, with pronounced plucking and long sustaining; the "biting" power of an electric guitar. As would be expected, this voice comes from "listening" to the string ends, the "Top Pickup".

2.2 Muted Basic Voices:

By slightly damping the strings ends, the two "colors" become more muted, with the results described below:

Muted "Blue": a strongly plucked, "covered", subtle string tone, with foreshortened sustaining; practically indistinguishable from a harp.

Muted"Red": a tuned percussive tone, rhythmically powerful without being harsh; resembling a banjo.

2.3 The Two Doubled Voices:

To create further tonal contrasts, the Red and Blue Voices can be "doubled" using the "Light Red" and "Light Blue" strings. They can play the same 8' footage as the normal Voices, or you can select a 4' pitch, raising the tone by an octave. By detuning these voices against the basic colors, you can create a richer, chorused tone, or by delaying the pluck, create a "flam" effect, which sounds like hitting the string twice.

2.4 Split Keyboard:

To provide the contrasts and flexibility of a two-manual instrument, the basic voice pickups are divided as middle-"C". The player thus can select contrasting voices or voice mixtures in the treble and bass sections of the keyboard. The left hand can thus contrast the right.

2.5 Velocity:

To give the player control over note volume, the "VEL" faderswitch can be turned on and set to an appropriate position.

2.6 Special Effects:

The Combo Harpsichord depends solely on the amplifier for special electronic effects such as tremolo, reverberation, bass or treble boost/attenuate, etc. The built-in custom amplifier provides the widest possible tone coloring, giving all the desired special external effects to the "pure" or "natural" tones produced by the harpsichord.

"Channels": When set to "mono", voices set to Left Channel or Right Channel are sent to the outputs in mono, i.e., both left and right output jacks. When set to "stereo", the Left Channel voices are sent to the left output, Right Channel voices to the right output.

"Spring": a long spring reverb.

"Room": a short room reverb.

"Amp":
"TY"- select Type from "No Amp" or "Transistor", both of which can operate when "Channels" are set to mono or stereo; or "Tube", "Class A" or "Plexi" types, which only operate in mono, thus the "Channels" setting is disregarded.
"DR"- adjust the drive amount for the given amp type.

"Tone":
"BS"- boost or attenuate the bass eq.
"TR"- boost or attenuate the treble eq.

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"BS"- boost or attenuate the bass eq.
"TR"- boost or attenuate the treble eq.

"Trem": The classic Tremolo effect.
"SP"- sets the Speed of the tremolo rise and fall.
"IN"- adjusts the Intensity of the tremolo effect.

"Cabinet": you can run the amp through "No Cabinet", or select from one of eight cabinet types for the amp.

Two additional faderswitch controls are available.

"REL": the level of the key off ("release resonance") noise can be adjusted. 100% is the nominal, true level.

"HPF": a high pass filter allows you to quickly cut low frequencies.

2.7 Handswitch System:

Eight handswitches are provided, one of each of the voice pick-up sections: "Blue" voice - Bass, "Blue" - Treble, "Red" - Bass, "Red" - Treble, "Light Blue" - Bass, " Light Blue" - Treble, " Light Red" - Bass, " Light Red" - Treble. Each

switch has three position: "Left Channel" (switch handle to left), "off" (center position), and "Right Channel" (handle to right). Thus the player can assign any combination of voice to either channel of the amplifier. In practice, this allows full use of the external effects capability of the guitar amplifier since the player can combine any voice, keyboard section and external effect in any way they desire.

2.7 Familiarizing Yourself With the Basic Working Tonal Colors:

It is now apparent that you have an almost unlimited variety of timbres at your command; exercising this flexibility is worth some systematic study on your part.

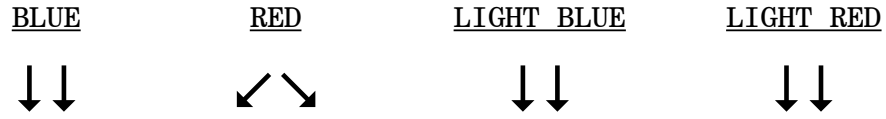
You will undoubtedly evolve a family of tonal colors which suits your particular form of musical self-expression.

As a start, limit yourself to working with the basic voices separately. First play the "Blue" voice as a solo stop. The handswitches on the harpsichord should be set thus:

with a basic amplifier setting as follows, and the jacks connected in stereo:

Level: both channels about $^{2}/_{3}$ open.
Channels: Mono.
Bass/Treble Tone Controls: about 6 and 12dB boost respectively.
Tremolo: off.
Reverb: off.
Amp/Cabinet: "Transistor" amp, and "1x12 Fender" cabinet
Volume: Set to around -12dB.

After familiarizing yourself with the "Blue" voice, try shifting to the "Red" voice as solo, thus:



Leave the amplifier set up as before.

Now change Channels to stereo. You'll hear the Red bass section on the left and the Red treble section on the right. Try connecting the jacks to separate external mixers to adjust their pans individually.

Time spent really familiarizing yourself with these basic voices is well spent. You will find synthesis of your own expressive sounds much easier in future.

2.8 Some Interesting Tonal Combinations:

You are now ready to explore more widely the capability of the instrument. Using the previous setup, now add the Light Red voices, thus:

BLUE	RED	LIGHT BLUE	LIGHT RED
↓↓	↙↘	↓↓	↙↘

With the Light Red voice set to 4' octave, you'll here it doubling the Red voice an octave up. Now you can take it further: adjust the Light Red Delay control to between 2ms and 3ms.

Located between the Level and Delay controls of each Voice is small Tuning knob. Try twisting the Light Red Tuning knob a little to right to detune it slightly, creating a unison or chorus effect.

You can also try live detuning by using a pitch wheel, which provides up to 2 semitones of pitch adjust.

One other useful trick is the ability to individually control the level of the Bass and Treble by using both the normal voices and Light voices, but set the Light Voice to 8'. Try this:

BLUE	RED	LIGHT BLUE	LIGHT RED
↙↓	↓↓	↙↓	↓↓

Now you can use the separate Level control of the Blue and Light Blue voices to boost or attenuate the bass and treble ranges of the same tone type independently as required.

R E M O T E M A P P I N G

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//Remote Map template for       Instruments     Jiggery-Pokery Sound    Combo Electric Harpsichord
Scope   Jiggery Pokery   com.jiggerypokery.ComboHarpsichord
//Control Surface Item   Key     Remotable Item  Scale   Mode

Map     _control_               Volume
Map     _control_               Channels
Map     _control_               Spring Reverb
Map     _control_               Room Reverb
Map     _control_               Cabinet
Map     _control_               Amp Type
Map     _control_               Drive
Map     _control_               Bass Tone
Map     _control_               Treble Tone
Map     _control_               Tremolo Speed
Map     _control_               Tremolo Intensity

Map     _control_               Damp
Map     _control_               Velocity
Map     _control_               Release Level
Map     _control_               High Pass Filter

Map     _control_               Mid Pickup Bass
Map     _control_               Mid Pickup Treble
Map     _control_               Mid Pickup Pedal
Map     _control_               Mid Pickup Level
Map     _control_               Mid Pickup Delay
Map     _control_               Mid Pickup Tuning

Map     _control_               Top Pickup Bass
Map     _control_               Top Pickup Treble
Map     _control_               Top Pickup Pedal
Map     _control_               Top Pickup Level
Map     _control_               Top Pickup Delay
Map     _control_               Top Pickup Tuning

Map     _control_               Mid Doubler Pickup Bass
Map     _control_               Mid Doubler Pickup Treble
Map     _control_               Mid Doubler Pedal
Map     _control_               Mid Doubler Level
Map     _control_               Mid Doubler Delay
Map     _control_               Mid Doubler Tuning
Map     _control_               Mid Doubler Range

Map     _control_               Top Doubler Pickup Bass
Map     _control_               Top Doubler Pickup Treble
Map     _control_               Top Doubler Pedal
Map     _control_               Top Doubler Level
Map     _control_               Top Doubler Delay
Map     _control_               Top Doubler Tuning
Map     _control_               Top Doubler Range
```

COMBO ELECTRIC HARPSICHORD v1.0.0

Combo Electric Harpsichord Rack Extension: user guide lovingly adapted from the original Baldwin Solid Body Harpsichord manual.

The Combo Electric Harpsichord was Produced, Sampled, Photographed and Designed by Matt Black.

Special thanks to the Beta and Demo team.

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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 Electric Harpsichord** - A rare example of a lovely 60s curio, the Baldwin Solid Body, aka Electric, Harpsichord!
- **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
- **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
- **Super-Spider Bundle** - Anansi, Itsy, Lolth, Miranda, Mordred and Shelob: buy all six and get one and a couple of knobs on another absolutely free!
- **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
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- **B3 Tonewheels v1.5** - the original 24-bit non-Leslie samples ReFill with advanced rotary speaker emulation
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- **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: the fantastic Additives tracks from PUF Challenge #2 can be found at **http://soundcloud.com/groups/additives**
- **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