

Desert Moon Audio

COIL

CSB - 08

Dispersive Spring Reverb · Seven Tanks



A spring reverb is a coil of wire with a transducer at each end. Twist one end and the wave takes its time getting to the other — and the highs travel faster than the lows, so every echo arrives as a little downward chirp. That drip is the spring sound, and it is the thing most digital springs approximate instead of building. Coil is built around it.

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A NOTE ON THE MODELS

The seven tanks are original models informed by how spring reverbs physically work — spring count and length, transition frequency, drive electronics, transducer voicing. They are not sample-matched copies of any particular unit, and Coil is not affiliated with or endorsed by any manufacturer of hardware spring reverbs.

1.1 What Gets Installed

The installer offers four pieces. You only need the ones your host uses.

FORMAT	LOCATION
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Audio Unit	/Library/Audio/Plug-Ins/Components/Coil.component
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VST3	/Library/Audio/Plug-Ins/VST3/Coil.vst3
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AAX	/Library/Application Support/Avid/Audio/Plug-Ins/Coil.aaxplugin
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1.2 The 14-Day Trial

Coil runs **fully featured for fourteen days** from the first time it loads — every tank, every control, no interruptions. The black band above the panel counts the days down. When the trial ends, the plug-in stops reverberating and passes audio through dry until a license is entered, so a session opened later is never damaged — just dry.

1.3 Entering Your License

Click the trial notice on the black band and paste the license key from your purchase email — one long line beginning DMA 1-. That's the whole procedure: no account, no activation server, no machine limit, and the plug-in never phones home. One key covers every format on all of your own machines, forever.

2.1 Five Minutes In

Put Coil on a send, or straight on a track if you prefer. Then:

1. **Pick a tank.** The cream buttons under TANK. Start with **Surf Twin** — the drippy classic — then try **Vienna** to hear the opposite end of the family.
2. **Set Decay.** The big dial. It is calibrated: 2 on the scale measures two seconds. Springs live around 1.5–3 s.
3. **Use Low Cut.** Keeping bass out of the springs is what stops them flapping. 150–250 Hz is normal.
4. **Set Mix.** 100% on a send; 25–40% on an insert.
5. **Hit SHAKE.** Because you were going to anyway.

2.2 Typing Exact Values

Double-click any read-out to type a number into it. Units are understood: **250** in Low Cut means 250 Hz, **1.8** in Decay means 1.8 seconds. Hold  while dragging for fine adjustment.

2.3 Resizing

Drag the bottom-right corner. The whole unit keeps its proportions from 860 px wide up to 1700. The size is stored with your session.



- 1 Preset bar.** Step, name window, A/B, undo, redo, save, revert, list.

2 The coil. The unit's pilot light — it glows and breathes while the power is on.

3 Power. Bypass as a latching push button; the red lamp is lit while the unit is live.

4 Tank selector. Seven tanks on cream push-buttons; the loaded one lights.
- 5 Overload lamp.** Glows as the springs are driven; white-hot at clipping.

6 Decay. Mid-band RT60, calibrated in seconds.

7 The knob row. Drip, Tension, Boing, Filter, Input, Mix, Output — or the Tweak set.

8 Shake, Freeze, Tweak. Kick the pan, hold it open, or turn the page.

3.1 How the Signal Runs

Knowing the order explains most of what the controls do to each other.

STAGE	WHAT HAPPENS
Input	Trim. Sets level <i>and</i> how hard the drive amp is hit.
Filter	Low and high cut, on the send only. The dry signal is untouched.
Drive amp	Valve or solid-state, depending on the tank.
Boing tap	The pan's longitudinal thump, fed by transients, under its own dial.
Transducer	The driver's bandwidth — it cannot push everything into a spring.
Pre-delay	Up to 250 ms before the springs answer.
The springs	Two detuned banks of dispersive loops. See §12.1.
Pickups	Each tank's pickup resonance and tilt.
Tone	Bass and Treble shelves — wet only.
Width, Duck, Mix	Stereo spread, level ducking, and the wet/dry balance.
Output	Final trim.

WHY THE FILTERS COME FIRST

Low Cut and High Cut sit on the send, before the springs. Filtering the input keeps the pan from being excited by energy it should never have seen — a different, and usually better, result than filtering the tail afterwards. To shape the tail itself, use Bass and Treble on the Tweak page.

Each tank is a different machine: its spring count and lengths, its transition frequency, its drive electronics and its pickups. Changing tank changes all of them at once.

They are level-matched to within a hundredth of a decibel, so switching between them compares character rather than loudness. The one that sounds "better" at first is usually just the brighter one — these are matched so that cannot happen.



TANK	CHARACTER	DISPERSION
Surf Twin	Long twin-spring pan, small valve driver. Splashy chirps on every pick attack. The drippy classic.	4.72 ms
Trio	Three-spring combo-amp tank, transistor driven. Tighter and more polite than the surf pan.	3.32 ms
Vienna	Studio twin-tank with long damped coils. Dark, dense, chamber-smooth. Almost no drip, no boing. Vocals.	1.34 ms
Hex	Six short springs in parallel. Fast, bright, dense — spring character with hi-fi manners.	1.31 ms
Brick	One cheap short spring in a folded-steel box. Narrow, honky, proudly boingy.	2.49 ms
Dub Box	Portable twin-spring unit with a hot valve preamp. Push it and the front end growls.	2.45 ms
Vault	No such tank was ever built. Six long springs, full bandwidth, even decay. Modern polish.	1.69 ms

4.1 What the Dispersion Figure Means

The right-hand column is measured, not marketing: it is how far ahead a 2 kHz band arrives compared with a 150 Hz band, through that tank's spring loops. Surf Twin holds the low end back by almost five milliseconds — per circulation — which is why every echo drips. Vienna barely does it, which is why it sits behind a vocal without commenting on it.

4.2 Decay Is Not Flat, and Should Not Be

Set the Decay dial to 2 s and the tanks do not all decay for two seconds at every frequency — real springs never did. The mid band is calibrated to the dial; the lows and the top sit where that tank's damping and transition frequency put them.

TANK	LOW	MID	HIGH
Surf Twin	2.38 s	2.23 s	1.32 s
Trio	2.01 s	2.08 s	1.27 s
Vienna	2.54 s	2.03 s	1.37 s
Hex	1.84 s	1.94 s	1.43 s
Brick	1.62 s	2.02 s	1.23 s
Dub Box	2.19 s	2.17 s	1.31 s
Vault	2.36 s	1.99 s	1.57 s

Measured with the dial at 2 s, High Damp at 50%, Low Decay at 1.00x. Brick's lows read short because its cheap single spring genuinely cannot hold them; that is the charm.



DECAY

0.2 s – 20 s

Mid-band RT60. The printed scale is calibrated: set it to 2 and the mid band measures two seconds. Hardware pans were fixed near two seconds or damped by hand; this dial goes far past anything a damper felt could reach, in both directions.

Low and high bands decay around it according to the tank — see §4.2 — and can be pushed either way with Low Decay and High Damp on the Tweak page.

DRIP

0 – 150%

The dispersion itself — the spring signature. At 100% each tank drips the way its geometry says it should. Push to 150% and every transient becomes a cartoon splash; pull to 0 and Coil becomes an ordinary — good, but ordinary — small reverb. The factory bank ships **Drip Max** and **Drip Off** next to each other for exactly this comparison.

TENSION

0 – 100%

Coil tension. Loose springs carry the wave slowly: longer echoes, darker top, more pronounced drip. Tight is faster, brighter, better behaved. It retunes the whole pan — the echo period, the transition frequency and the chirp move together, as they would on a real spring being stretched.

BOING

0 – 100%

The pan's longitudinal thump — the knock a real spring adds to every transient whether you wanted it or not. Here it is a dial: at zero the pan is cleaner than any hardware ever was, at full it knocks like a kicked amp. Each tank has its own thump pitch and appetite; Vienna barely boings at any setting, Brick barely does anything else.

DRIVE AND INPUT ARE NOT THE SAME CONTROL

Input trims the whole signal going into the unit, which also changes how hard the drive amp is hit — exactly as the send knob on a hardware unit would. Drive (on the Tweak page) pushes the amplifier without changing what the springs are fed. On a send, reach for Drive; on an insert where you want more level into the box, use Input.



The knob row: Drip, Tension and Boing shape the springs; the Filter pair shapes the send; Input, Mix and Output are the level section.

FILTER · LOW

20 Hz – 2 kHz

High-pass on the send. A spring fed full-range low end flaps and muddies; keeping bass out of it is the single biggest improvement most people can make to a spring sound. 150–250 Hz on vocals and guitar, 280 Hz and up on drums and dub sends.

FILTER · HIGH

500 Hz – 20 kHz

Low-pass on the send. Real tanks barely pass anything above their transition frequency anyway; this narrows the window further for the classic dark splash. 4–6 kHz is deep dub territory.

INPUT · MIX · OUTPUT

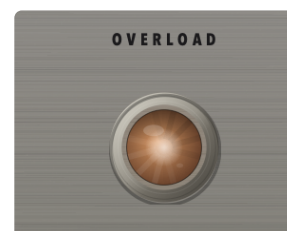
±24 dB · 0–100% · ±24 dB

Input trims into the unit, ahead of everything, and therefore also sets how hard the drive amp is hit. Mix is wet against dry — 100% on a send; at 0% the dry path passes at unity, measured. Output is the final trim.

6.1 The Overload Lamp

The only metering the hardware ever had, and the only metering this unit needs. The jewel idles dark, breathes amber as the springs are driven, and goes hard white at clipping. If it is furious all the time, pull Input down.

A little glow on peaks is healthy — that is the drive amp working. The lamp reads the greater of input and output, so it also catches a resonant tank running away with itself at long decays.



Press **TWEAK**, on the key row at the top, for the pan's construction and the finishing controls. The tank bank and Decay stay where they are — only the knob row changes. Nothing here is needed to get a good sound, but this is where the pan stops being a preset and starts being yours.



PRE-DELAY

0 – 250 ms

The gap before the springs answer. Real pans had none; 15–35 ms keeps the splash off the transient and the vocal in front of its own tail.

HIGH DAMP

0 – 100%

The damper felt. At 0 the top of the tail rings nearly as long as the mids; at 100 it dies fast, the way a felt pressed against the coils does.

LOW DECAY

0.15 – 3.00 ×

Bass decay relative to the mid band. Above 1× the low end blooms and hangs; below, it tightens. A multiplier, so it tracks the Decay dial.

WOBBLE

0 – 100%

Slow movement in the coils. A little stops long decays ringing on one pitch without detuning anything; a lot is seasick, which has its uses.

DRIVE

0 – 100%

Pushes the drive amp. What you get depends on the tank: the valve units (Surf Twin, Dub Box) thicken and growl with second harmonic, the transistor units bite. Dub Box is already dirty before you touch it. The dry signal is never distorted.

SPREAD

0 – 100%

The stereo is two complete spring banks, one per side, built to the same drawing with different tolerances. Spread is how far bank B's coils stray from bank A's. At 0% the two are identical — one mono pan. Up, they decorrelate into true stereo with no widener anywhere in the path.

BASS · TREBLE

–18 – +18 dB

Shelves on the wet signal only, at 220 Hz and 4.5 kHz. They shape the tail rather than what goes into the springs.

WIDTH

0 – 200%

0% is mono, 100% is what the two banks actually produce, and above that the difference is exaggerated. Check anything past 130% in mono before you commit.

DUCK

0 – 100%

Pulls the splash down while the dry signal plays and lets it back up in the gaps. The dub-desk trick for keeping a huge send behind a vocal. 30–50% is plenty.

8.1 Shake

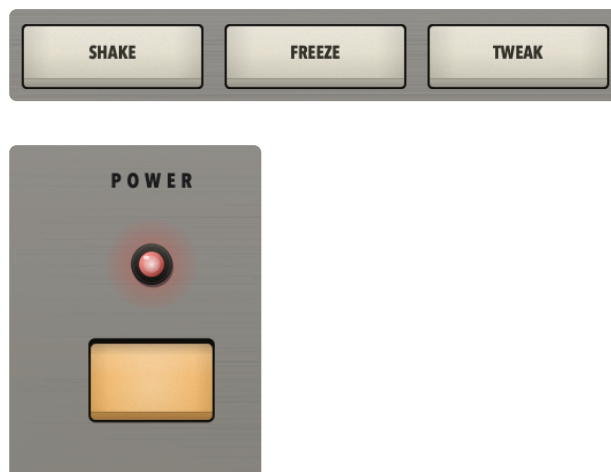
SHAKE kicks the pan. The springs crash and ring out through whatever settings are loaded — the classic spring-tank stunt, on a key instead of on your amp's chassis. It is momentary: press it again for another kick. It is also a host-automatable parameter, so crashes can land exactly on the downbeat.

8.2 Freeze

Holds the springs open indefinitely: input muted, damping removed, whatever is in the pan sustains until you let go. It latches, lights, and breathes while engaged. Automate it for a held chord under a transition.

8.3 Power

The latching push button at the left is bypass, drawn the way the hardware drew it: latched in with the red pilot lamp lit while the unit is live, out and dark when bypassed. It is offered to the host, so your DAW's bypass and this button are the same control. The bypassed signal is delayed by exactly the reported latency and the change is crossfaded, so switching never clicks or slides the track.



The preset bar: step keys, the name window (click it for the full list), then A/B, undo, redo, save, revert and menu. A dot beside the name means the settings have been edited since the preset was loaded.

9.1 A/B Comparison

The lettered key holds two scratch settings. Click it and your current sound parks in the slot you are leaving while the other loads; the letter shows which one you are hearing. The first flip seeds B as a twin of A, so nothing jumps — tweak one, flip back and forth, keep the winner. The slots are working memory, deliberately not saved anywhere.

9.2 Undo and Redo

Every parameter move is undoable — knob drags (grouped into sensible steps, not hundreds of micro-moves), preset loads, A/B flips. The keys dim when there is nothing left in that direction. History starts fresh with each session.

Sixteen, reachable from the bar or from your host's own preset menu. They are starting points — every one of them expects you to move Decay and Mix.

Surf's Up The drippy classic. Tremolo guitar goes in, 1963 comes out. SURF TWIN · 2.4 S · DRIP 120% · 38%	Amp In The Room The spring that lives in a combo amp, politely doing its job. TRIO · 1.7 S · 28%
Spaghetti Western Loose tension, heavy drip, too much mix. Correct. SURF TWIN · 3.2 S · TENSION 35% · 45%	Vienna Vocal The dark studio twin-tank doing what it was built for. VIENNA · 2.6 S · 30 MS · 26%
Dark Crooner Vienna damped further, boing at zero. Ballads. VIENNA · 3.4 S · DAMP 70% · 30%	Dub Splash Driven, filtered narrow, far too wet. The echo-chamber growl. DUB BOX · 3.8 S · DRIVE 55% · 55%
Kicked Cabinet Brick with everything up. Hit SHAKE and duck. BRICK · 2 S · BOING 100% · 50%	Snare Splash Short, bright, ducked. The snare sounds like a record. HEX · 1.3 S · DUCK 30% · 32%
Boing Machine Maximum thump, maximum drip, loose springs. An instrument. BRICK · 1.1 S · DRIP 150% · 42%	Rhodes Rinse Hex spread wide for keys. Clean and expensive-sounding. HEX · 2.2 S · WIDTH 130% · 30%
Hi-Fi Spring Vault behaving beautifully. Spring motion, no vintage grime. VAULT · 2.8 S · 20 MS · 30%	Vault Bloom Six and a half seconds of the flagship. A bed, not an effect. VAULT · 6.5 S · 50 MS · 40%
Frozen Coils Loads with Freeze engaged. Play a chord and hold it. VAULT · FROZEN · 50%	Drip Max The spring signature at full strength. Snare, plucked guitar. SURF TWIN · DRIP 150% · 45%
Drip Off The same idea with dispersion at zero. A/B these two. VIENNA · DRIP 0% · 45%	Init Everything at its default. The blank page. SURF TWIN · 2 S · 35%

9.4 Your Own Presets

The disk key saves under a name you choose; the ring-arrow key puts back whatever the current preset holds, discarding your edits. Your presets live as files, so they outlive the session that made them and appear in every other one:

~/Library/Desert Moon Audio/Coil/Presets

They are plain .clpreset XML — easy to back up, easy to share. **Open Preset Folder** in the list menu takes you there.

WHY YOUR PRESETS ARE NOT ON THE HOST'S LIST

A host stores a preset *number* in its session. If your own presets joined the factory list, saving a new one today would silently change what an old session recalls. The factory presets keep fixed numbers; yours live on the bar, where they cannot renumber anything. Bypass and Shake are left out of presets entirely — one would arrive switched off, the other is a gesture, not a setting.

10.1 Guitar

This is home ground. **Surf Twin**, 2–2.5 s, Drip past 100%, a little Drive, Mix to taste — the classic pick-attack splash. For a rhythm part that just needs air, **Trio** at 1.5 s stays out of the way. Roll Tension down for the loosest, drippiest version of any of it.

10.2 Vocals

Vienna, 2–3 s, Low Cut at 180 Hz, Pre-Delay 25–35 ms, Boing at or near zero. It reads as a dark chamber more than a spring — which is precisely why the big studio units were taken seriously. If the tail crowds the words, add Duck at 35% before reaching for less Mix.

10.3 Dub and Effects

Dub Box on a send, fed by an echo. Drive up until the front growls, High Cut at 5 kHz, Mix higher than seems reasonable. Ride the send live and hit **SHAKE** at section changes. This is not subtle, and it is not supposed to be.

10.4 Drums

Hex short (1–1.5 s) with Low Cut at 300 Hz for a snare that sounds produced; **Brick** with Boing up when it should sound like the reverb cost thirty dollars, in the best way. Duck 40–50% keeps a whole kit punchy under it.

10.5 Keys, Pads and the Flagship

Vault is the tank nobody could build: six long springs with full bandwidth and even decay. Use it wherever a spring flavour is wanted without vintage bandwidth — keys, synths, ambient guitar. Long (5 s and up), Pre-Delay 50 ms, Width 120%, and it is a modern studio reverb with spring motion inside it.

10.6 Hearing What a Spring Actually Is

Load **Drip Max**, put it on a snare at 40% Mix, and listen to each hit arrive as a little downward chirp — the top of the spring's answer first, the bottom dragging in behind. Now load **Drip Off**. The density does not change. The decay does not change. What goes away is the spring.

That comparison is worth doing once. Everything else in this manual is detail; that is the instrument.

IF IT SOUNDS MUDDY

In order: raise Low Cut, shorten Decay, lower Low Decay, then lower Mix. Most "too much reverb" is really "too much low reverb", and the first control on that list fixes it more often than the last one does.

Every control, its range and where it starts. All of them are automatable and all of them are saved with a preset, except where noted.

CONTROL	RANGE	DEFAULT	PAGE
Tank	7 models	Surf Twin	Main
Decay	0.2 – 20 s	2.00 s	Main
Drip	0 – 150%	100%	Main
Tension	0 – 100%	50%	Main
Boing	0 – 100%	35%	Main
Filter · Low	20 Hz – 2 kHz	20 Hz	Main
Filter · High	500 Hz – 20 kHz	20 kHz	Main
Input	–24 – +24 dB	0.0 dB	Main
Mix	0 – 100%	35%	Main
Output	–24 – +24 dB	0.0 dB	Main
Shake	Momentary	—	Key row · not in presets
Freeze	Off / On	Off	Key row
Power (bypass)	Off / On	On	Panel · not in presets
Pre-Delay	0 – 250 ms	0.0 ms	Tweak
High Damp	0 – 100%	50%	Tweak
Low Decay	0.15 – 3.00 ×	1.00 ×	Tweak
Wobble	0 – 100%	35%	Tweak
Drive	0 – 100%	0%	Tweak
Spread	0 – 100%	50%	Tweak
Bass	–18 – +18 dB	0.0 dB	Tweak
Treble	–18 – +18 dB	0.0 dB	Tweak
Width	0 – 200%	100%	Tweak
Duck	0 – 100%	0%	Tweak

AUTOMATING SHAKE AND FREEZE

Freeze is a switch, not a ramp — automate it as a step. Shake fires on the rising edge of its parameter, so a short automation pulse is one kick; holding it high does not keep kicking.

ITEM	DETAIL
Formats	Audio Unit (v2), VST3, AAX
System	macOS 10.15 or later, Apple Silicon and Intel (universal)
Channels	Stereo in / stereo out, and mono in / stereo out
Sample rates	11.025 kHz to 192 kHz
Engine	Two detuned banks of dispersive spring loops, up to 160 allpass stages per spring
Oversampling	2× below 64 kHz session rate, off above it
Latency	4 samples at 48 kHz (oversampling filter), reported to the host
Presets	16 factory, unlimited user
Trial / license	14 days fully featured, then dry passthrough; offline license keys
Panel	Resizable 860 – 1700 px wide, proportions locked

12.1 What the Engine Actually Does

Below its transition frequency, a helical spring carries torsional waves whose speed falls with frequency. Twist one end and the highs arrive first; the lows drag in behind as a downward chirp, and every trip through the spring chirps the echo again. That is dispersion, and it is the entire spring sound.

In Coil every spring is a feedback loop carrying a cascade of up to 160 first-order allpass filters whose group delay is greatest at DC — the same shape as the physics. The loop lengths are prime and mutually coprime so the echo trains never stack into a comb, and each loop's absorption filter is solved against the shelves' actual response with the dispersion's group delay measured at each band's own frequency, which is what keeps the Decay dial honest from tank to tank.

The stereo is two of everything: two complete banks with independently detuned lengths. The boing is a resonant tap at the pan's thump frequency, fed by the send and injected into the loops — modelled rather than suffered, so it has a dial.

12.2 Troubleshooting

SYMPTOM	CAUSE
No reverb, dry passes	Trial expired — the band says so. Click it and enter your license.
No sound at all	Power button out (bypassed), or Mix at 0%.
Muddy low end	Low Cut too low. Raise it before touching anything else.
Too much flutter	That is Drip and Boing doing their jobs. Lower either, or change tank — Vienna and Vault are the polite ones.
Reverb sounds detuned	Wobble too high for pitched material. Below 30% on piano and pads.
Won't appear in host	Force a plug-in rescan. Logic revalidates Audio Units only when it sees a new one.
Pro Tools can't load it	Retail Pro Tools requires the PACE-signed build; check you installed the AAX from the current installer.

Desert Moon Audio

Built and designed by a producer and musician.

Coil CSB-08 · Version 1.0 · Made in the USA

The tank models are original designs informed by the physics of spring reverberation. They are not sample-matched copies of, and are not affiliated with or endorsed by, any manufacturer of hardware spring reverbs. VST is a trademark of Steinberg Media Technologies GmbH. AAX is a trademark of Avid Technology, Inc. All trademarks are the property of their respective owners.