

Desert Moon Audio

PLATE DADDY

PD - 06

Dispersive Plate Reverb · Seven Plates



A real plate reverb is a sheet of steel under tension. Bending waves travel through it faster at high frequencies than at low ones, so the top of a sound arrives before the bottom. That head start is the plate sound, and it is the thing most digital plates leave out. Plate Daddy is built around it.

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A NOTE ON THE MODELS

The seven plates are original models informed by how plate reverbs physically work — plate size and thickness, the metal's loss factor, the drive amplifier's generation, the pickup positions. They are not sample-matched copies of any particular unit, and Plate Daddy is not affiliated with or endorsed by any manufacturer of hardware plate reverbs.

1.1 What Gets Installed

Plate Daddy installs two plug-ins. You only need the one your host uses.

FORMAT	LOCATION
Audio Unit	~/Library/Audio/Plug-Ins/Components/Plate Daddy.component
VST3	~/Library/Audio/Plug-Ins/VST3/Plate Daddy.vst3

1.2 First Launch

Most hosts scan for new plug-ins on startup. Logic validates Audio Units the first time it sees them, which takes a moment and only happens once. If Plate Daddy does not appear, force a rescan in your host's plug-in manager.

2.1 Five Minutes In

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

1. Pick a plate. The switch on the left travels up and down and locks at each of the seven. Start with **Big Steel** — it is the classic, and the one with the most dispersion.

2. Set Decay. The big control. The dial is calibrated: 2.5 on the scale measures 2.5 seconds. Around 1.5 s suits drums, 2–3 s vocals, 4 s and up for washes.

3. Use Low Cut. This is the one step people skip. Keeping bass out of the plate is what stops it flapping and muddying the low mids. 180–250 Hz on a vocal is normal; 300 Hz on a snare is not extreme.

4. Set Mix. 100% on a send. On an insert, start around 25–35%.



The preset bar: step back and forward, the name window, A/B, undo and redo, save, discard changes, and the full list. A dot beside the name means the settings have been edited since the preset was loaded.

2.2 A/B and Undo

The lettered key holds two working states. Dial in a sound, click it, dial in a variant, then flip between them — the letter tells you which one you are hearing. The first flip copies the current sound across, so nothing jumps until the two sides diverge. A/B is a listening tool, not a setting: the slots are not saved with your session.

The arrow keys beside it step through every parameter change, one knob gesture at a time. A flip of the A/B key counts as one step, so undo takes you straight back across it.

2.3 Typing Exact Values

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

2.4 Resizing

Drag the bottom-right corner. The panel keeps its proportions and every element scales with it, from 880 px wide up to 1600. The size is stored with your session.



- 1

Preset bar. Step, name, A/B, undo, save, revert, list.
- 2

Freeze. Holds the tank open. Lights blue.
- 3

Plate selector. Seven plates on a detented slide switch.
- 4

Decay. Mid-band RT60, calibrated in seconds.
- 5

Pre-Delay and Modulation. Gap before the plate, and movement inside it.
- 6

Filter. Low and high cut on the send, ahead of the plate.
- 7

Drive, Input, Mix, Output. The level section.
- 8

Tweak. Opens the second page of controls.
- 9

Meters. Input and output, side by side.
- 10

Bypass. Lit red while the unit is live.

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 plate's amplifier is driven.
Filter	Low and high cut, on the send only. The dry signal is untouched.
Drive amp	Valve or solid-state, depending on the plate.
Transducer	The driver's own bandwidth — it cannot push everything into the sheet.
Pre-delay	Up to 500 ms before the plate responds.
Diffusion	Smears the input before it reaches the tank.
The plate	16 delay lines, each with dispersion and absorption. See §12.1.
Pickups	Two positions on the sheet, with their own resonance.
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 plate. Filtering the input rather than the tail keeps the plate from being excited by energy it should never have seen, which is a different — and usually better — result than filtering the reverb afterwards. To shape the tail itself, use Bass and Treble on the Tweak page.

Each plate is a different sheet: its size, its metal, its drive amplifier and its pickups. Changing plate changes all of them at once.

They are level-matched to within a tenth 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.



PLATE	CHARACTER	DISPERSION
Big Steel	2×1 m tensioned steel, valve drive amp. Heavy, dark, endlessly lush. The classic.	2.02 ms
Steel SS	The same plate rebuilt with solid-state electronics. Tighter lows, more air, less thickening when pushed.	1.58 ms
Gold Foil	Small gold-foil plate. Fast, bright, tight; transients stay sharp because there is so little dispersion.	0.32 ms
Eco	Big American steel plate. Deep extended lows, silky top, almost no grain. Beautiful on vocals.	1.13 ms
Bronze	Bronze alloy. Mid-forward and thick with some bite. Cuts through a dense mix where steel disappears.	0.98 ms
Pocket	Small budget plate, and proud of it. Grainy, metallic, short. Ugly in solo and perfect on drums.	0.32 ms
Chrome	No such plate was ever built. Maximum density, dead-even decay, dispersion without the grain.	2.18 ms

4.1 What the Dispersion Figure Means

The right-hand column is measured, not marketing: it is how far ahead a 6 kHz band arrives compared with a 150 Hz band, through that plate's delay lines. Big Steel holds the low end back by two milliseconds. Gold Foil, being a small thin sheet, barely does it at all — which is exactly why it stays out of the way of a vocal.

4.2 Decay Is Not Flat, and Should Not Be

Set the Decay dial to 2.5 s and the plates do not all decay for 2.5 seconds at every frequency — real ones never did. The mid band is calibrated to the dial; the low and high bands sit where that plate's material and damping put them.

PLATE	LOW	MID	HIGH
Big Steel	3.33 s	2.37 s	1.30 s
Steel SS	2.87 s	2.43 s	1.61 s
Gold Foil	1.99 s	2.41 s	1.98 s
Eco	3.00 s	2.47 s	1.96 s
Bronze	2.21 s	2.34 s	1.75 s
Pocket	1.49 s	2.13 s	1.83 s
Chrome	2.76 s	2.50 s	2.14 s

Measured with the dial at 2.5 s, High Damp at 50%, Low Decay at 1.00×. Pocket reads short across the board because it has the heaviest in-loop saturation in the bank, and that genuinely compresses the tail.



DECAY

0.15 s – 30 s

Mid-band RT60. The printed scale is calibrated: set it to 2 and the mid band measures two seconds. The red arc shows how far up the scale you are at a glance.

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

PRE-DELAY

0 – 500 ms

The gap before the plate responds. Real plates had none; the gap is what keeps the reverb off the transient and lets a vocal stay in front of its own tail. 20–40 ms is the useful range on vocals. Past about 120 ms it stops sounding like space and starts sounding like a delay, which is sometimes exactly what you want.

MODULATION

0 – 100%

Slow movement in the delay lines. Real plates do not modulate, but a very small amount stops long decays from ringing on a single pitch without detuning anything audibly. The default of 35% is nearly transparent. Above 70% it becomes an effect in its own right — lovely on pads and guitars, obvious on piano.

The speed of that movement is **Mod Rate** on the Tweak page.

DRIVE

0 – 100%

Pushes the plate's drive amplifier. What you get depends on which plate is loaded, because the amplifiers are not the same: **Big Steel** is a valve amp and thickens with strong second harmonic, **Steel SS** is solid-state and bites rather than blooms, and **Pocket** is already dirty before you touch it.

Drive affects the send only. The dry signal is never distorted.

DRIVE AND INPUT ARE NOT THE SAME CONTROL

Input trims the whole signal going into the unit and therefore also changes how hard the drive amp is hit — exactly as turning up the send on a hardware unit would. Drive pushes the amplifier without changing what the plate is fed. On a send, reach for Drive. On an insert where you also want more level into the box, use Input.



Low and High cut the send, not the tail. This is the most important pair of knobs on the panel.

FILTER · LOW

20 Hz – 2 kHz

High-pass on the send. A real plate fed full-range low end flaps and smears; keeping bass out of it is the single biggest improvement most people can make to a reverb sound. 150–250 Hz on vocals, 250–400 Hz on drums, higher still on bass-heavy sources.

FILTER · HIGH

500 Hz – 20 kHz

Low-pass on the send. Darkens the tail without dulling the dry signal. Pulling this to 6–8 kHz is the fastest way to make a bright plate sit behind a vocal instead of on top of it.



INPUT

–24 – +24 dB

Trim into the unit, ahead of everything. Also sets how hard the drive amp is hit. The IN meter reads after it, so what the meter shows is what the plate is actually being fed.

MIX

0 – 100%

Wet against dry. Set to 100% on a send. At 0% the dry path passes through at unity.

OUTPUT

–24 – +24 dB

Final trim, after the mix.

6.1 The Meters

Input and output sit next to each other so the two can be read against one another rather than across the whole unit. Twenty segments spanning –48 dB to +6 dB: green to –9, amber from –9, red at and above 0 dBFS. The peak indicator holds briefly, then falls.

Both meters read the left channel and use a fast attack with a slow release, so percussive material stays readable.



Press **TWEAK**, at the bottom-left of the panel, for the plate's construction and the finishing controls. Nothing here is needed to get a good sound — but this is where the plate stops being a preset and starts being yours.



SIZE 35 – 200%

Scales the plate's dimensions. Smaller is denser and more metallic; larger opens the modal spacing and deepens the whole thing. Moving it while sound is passing pitches the tail briefly, exactly as re-tensioning a real sheet would.

DISPERSION 0 – 150%

How far the highs run ahead of the lows. This is the plate signature. At 0 the unit becomes an ordinary — good, but ordinary — reverb. At 150% the chirp on a transient is unmistakable.

The factory bank ships with **Dispersion Max** and **Dispersion Off** next to each other for exactly this comparison.

DIFFUSION 0 – 100%

Smears the input before the tank. High settings give a smooth wash; low settings let individual echoes show through, which on a short setting turns the plate into a slap.

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 rather than a time, so it tracks the Decay dial.

HIGH DAMP 0 – 100%

The damper plate. At 0 the top rings almost as long as the mids; at 100 it dies quickly, which is what a felt damper pressed against a real sheet does.

MOD RATE 0.05 – 4.00 ×

Speed of the delay-line movement set by Modulation. Slow is a drift, fast is a chorus.

BASS –18 – +18 dB

Low shelf on the wet signal only, at 220 Hz. Shapes the tail rather than what goes into the plate.

TREBLE –18 – +18 dB

High shelf on the wet signal only, at 4.5 kHz.

WIDTH 0 – 200%

0% is mono. 100% is what the two pickups actually hear on the sheet. Above that the difference signal is exaggerated — wider, but check it in mono before you commit.

DUCK 0 – 100%

Pulls the reverb down while the dry signal is playing and lets it back up in the gaps. The classic trick for keeping a big plate on a lead vocal without losing a word of it. 30–50% is plenty.

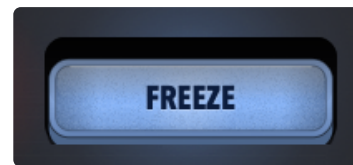
FREEZE ON THE TWEAK PAGE

Freeze stays on the switch row at the top, so it is reachable from both pages. Tweak is a page selector, not a performance control — Freeze is.

Freeze holds the tank open indefinitely. The input is muted and the damping is removed, so whatever is in the plate at the moment you press it sustains until you let go.

It is a latching switch: it stays mechanically down, lights blue and breathes while engaged — worth noticing from across the room.

Automate it for a held chord under a transition, or leave it on and play the plate as a pad.



8.1 Bypass

The red lamp beside Freeze takes the whole plate out of circuit — lit while the unit is live, dark when bypassed. It is offered to the host too, so your DAW's bypass and this one are the same control. The bypassed signal is delayed by exactly the latency the plug-in reports, so switching cannot slide the track against the mix, and the change is crossfaded, not cut.

9.1 Factory Presets

Seventeen, 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.

Vocal Plate The default answer. Big Steel, filtered, sits behind a lead without argument. BIG STEEL · 2.2 S · 25 MS · 28%	Tight Vocal Smaller and drier, for busy arrangements where a long tail would clutter. STEEL SS · 1.6 S · 20 MS · 24%
Silk Vocal Eco with extra dispersion and a lift on top. Ballads. ECO · 2.6 S · 30 MS · 26%	Snare Plate Short, grainy, driven. The reason Pocket exists. POCKET · 1.35 S · 12 MS · 30%
Drum Duck Bronze with ducking, so the kit stays punchy and the tail fills the gaps. BRONZE · 1.7 S · DUCK 45% · 34%	Room Slap Tiny plate, low diffusion, no pre-delay. Barely a reverb. POCKET · 0.55 S · SIZE 60% · 38%
Big Ballad Eco opened up, with the low end allowed to bloom. ECO · 3.6 S · LOW 1.25x · 30%	Lush Guitar Valve drive and heavy modulation. Cleans nothing up, and that is the point. BIG STEEL · 4.5 S · MOD 60% · 35%
Cathedral Steel Oversized sheet, long decay, dispersion pushed. Enormous. BIG STEEL · 7 S · SIZE 150% · 34%	Bright & Short Gold Foil doing what it does — present, quick, out of the way. GOLD FOIL · 1.1 S · 8 MS · 26%
Dark Chamber Filtered hard and damped, with the bass shelf lifted. Not really a plate any more. BIG STEEL · 3.0 S · HC 6 KHZ · 32%	Wide Sheen Chrome, widened, with air added. Good on synths and backing stacks. CHROME · 2.8 S · WIDTH 150% · 30%
Long Ambience Eight seconds of Chrome. A bed rather than an effect. CHROME · 8 S · 60 MS · 40%	Freeze Pad Loads with Freeze already engaged. Play a chord and hold it. CHROME · FROZEN · 50%
Dispersion Max The plate signature at full strength. Listen to a snare through it. BIG STEEL · DISP 150% · 40%	Dispersion Off The same idea with dispersion at zero. A/B these two. CHROME · DISP 0% · 40%

9.2 Your Own Presets

The disk key saves; the 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/Application Support/Desert Moon Audio/Plate Daddy/Presets

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

WHY YOUR PRESETS ARE NOT ON THE HOST'S LIST

Bypass is also left out of a preset entirely: a preset that arrived with the unit switched off would read as broken. Beyond that, a host stores a preset *number* in its session. If your own presets joined that 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.

10.1 Vocals

Start on **Big Steel** or **Eco**, 2–2.6 s, Low Cut around 200 Hz, Pre-Delay 25–35 ms. If the reverb crowds the words, that is almost always the top end — pull High Cut down to 7 kHz before you reach for less Mix. If it still crowds them, add Duck at 35%.

For a vocal that needs to stay forward in a dense mix, use **Steel SS** instead and shorten to 1.6 s.

10.2 Snare and Drums

Pocket is built for this. Short (1–1.5 s), Low Cut at 300 Hz or above, and some Drive. Solo it and it sounds cheap and metallic; in the mix it is the thing that makes the snare sound like a record.

For a whole kit, **Bronze** with Duck at 40–50% keeps the transients intact while filling the gaps.

10.3 Guitars and Keys

Big Steel with Modulation at 55–70% and a little Drive is the lush setting. On clean electric, try Pre-Delay near 0 and let the plate bloom straight off the pick.

On piano, keep Modulation below 30% — pitched sustained material shows movement more readily than anything else.

10.4 Ambience and Pads

Chrome, 6–10 s, Pre-Delay 60 ms, Low Cut 150 Hz, Width 130%. Add Modulation to keep it from settling on a pitch. For something you can play, engage Freeze.

10.5 Hearing What a Plate Actually Is

Load **Dispersion Max**, put it on a snare or a plucked source at 40% Mix, and listen to the chirp on each hit — the top of the plate's response arrives first and the bottom follows. Now open the Tweak page and take Dispersion to 0. The density does not change. The decay does not change. What goes away is the plate.

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

10.6 A Note on the Dry Path

At 0% Mix the dry signal passes through at unity — measured, not assumed. On a send, run Mix at 100% and let the desk do the balancing.

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.

CONTROL	RANGE	DEFAULT	PAGE
Plate	7 models	Big Steel	Main
Decay	0.15 – 30 s	2.40 s	Main
Pre-Delay	0 – 500 ms	0.0 ms	Main
Modulation	0 – 100%	35%	Main
Drive	0 – 100%	0%	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
Freeze	Off / On	Off	Switch row
Bypass	Off / On	Off	Switch row
Size	35 – 200%	100%	Tweak
Dispersion	0 – 150%	100%	Tweak
Diffusion	0 – 100%	75%	Tweak
Low Decay	0.15 – 3.00 ×	1.00 ×	Tweak
High Damp	0 – 100%	50%	Tweak
Mod Rate	0.05 – 4.00 ×	1.00 ×	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

11.1 Printed Scales

The Decay control carries a printed numeric scale rather than a percentage, and the figures are placed by asking the control where each value actually falls — so they stay honest under the dial's taper instead of being spaced evenly and lying about it. Every other knob has a tick scale with an arc that fills from its minimum, except Bass, Treble, Input and Output, which are bipolar and fill outward from centre.

AUTOMATING FREEZE

Freeze is a switch, not a ramp. Automate it as a step rather than a fade — a host that interpolates between 0 and 1 will chatter the tank on and off through the middle of the move.

ITEM	DETAIL
Formats	Audio Unit (v2), VST3
System	macOS 10.15 or later, Apple Silicon and Intel
Channels	Stereo in / stereo out, and mono in / stereo out
Sample rates	11.025 kHz to 192 kHz
Engine	16-line dispersive feedback delay network, orthonormal Hadamard mixing
Oversampling	2× below 64 kHz session rate, off above it
Latency	4 samples at 48 kHz (oversampling filter), reported to the host
Presets	17 factory, unlimited user
Panel	Resizable 880 – 1600 px wide, proportions locked

12.1 What the Engine Actually Does

Bending waves in a thin plate travel at a speed that rises with the square root of frequency. Hit a real sheet and the high frequencies get across it first. That is dispersion, and a conventional feedback delay network has none of it — which is why most digital plates sound like dense reverbs rather than like plates.

In Plate Daddy every one of the sixteen delay lines carries a cascade of first-order allpass filters whose group delay is greatest at DC and falls toward Nyquist. The low end is held back, the top runs ahead, and the plate chirps.

The rest follows from that decision. The mixing matrix is orthonormal, so it is lossless and every bit of the decay comes from the absorption filters rather than from the matrix. The delay lengths are prime and mutually coprime, so the lines' modes do not cluster and the tail does not turn metallic. Each line's absorption is designed from the target decay time with the dispersion's group delay measured *at each band's own frequency* — which is what keeps the Decay dial calibrated instead of drifting from plate to plate.

12.2 Why Oversampling Switches Itself Off

The drive amplifier and the in-loop saturation generate harmonics above the audio band. At 44.1 and 48 kHz those would fold back, so the engine runs at double rate. At 88.2 kHz and above there is already room above the band for them, and the extra cost buys nothing — so it is switched off automatically. The panel says which mode is running.

12.3 Troubleshooting

SYMPTOM	CAUSE
No sound	Mix at 0%, or Freeze engaged with an empty tank. Disengage Freeze and play something.
Muddy low end	Low Cut too low. Raise it before touching anything else.
Tail is metallic	Size very small, or Diffusion low. Both are working as intended — raise either.
Reverb sounds detuned	Modulation too high for the material. Below 30% on pitched sustained sources.
Won't appear in host	Force a plug-in rescan. Logic revalidates Audio Units only when it sees a new one.
Tail cut off at bounce	Extend the render past the end of the region — the tail length is reported, but offline bounces still need the room.

Desert Moon Audio

Built and designed by a producer and musician.

Plate Daddy PD-06 · Version 1.0 · Made in the USA

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