

Manley Labs Steelhead phono preamplifier

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The Manley Steelhead tube MM/MC phono preamplifier was first demonstrated at the 2001 Consumer Electronics Show. Nine months later, my long-promised review sample of Eveanna Manley's new baby was delivered. While Ms. Manley may have given birth to the audacious product, it was conceived by the company's chief hi-fi designer, Mitch Margolis.

The Steelhead is the most flexible, user-friendly phono section I've ever encountered. There are two moving-coil (MC) inputs on the rear panel, one with RCA jacks, the other a female DIN connector. There's a single set of RCAs for the moving-magnet (MM) input. There are fixed and variable outputs, the latter associated with a front-mounted volume control and three ground lugs: one for the phono input cable, and a pair by the output jacks labeled Chassis and Circuit. Also on the back panel is one of those humongous multi-pin power-supply connectors.

The front panel's left side features a gain switch with four positions (50, 55, 60, and 65dB), which auto-mutes when you use it so that there are no speaker explosions; and a three-position input selector switch (MC1, MC2, MM). On the right side is a "big honkin' " volume control (Manley website terminology for a Noble audiophile-quality pot) and four pushbuttons, labeled Standby, Sum, Dim, and Mute. Between those, a smaller "honkin' " selector switch performs different functions, depending on whether you're using the MM or MC inputs. In MM, it allows you to select impedances of 25, 50, 100, 200 ohms, and 47k ohms. Why would you need those? Read on.

In MC mode, the switch controls a "variable-load auto tranny" (more Manley lingo), which is the Steelhead transformer/autoformer that gives the preamp its name. The switch controls five taps on the proprietary "dual-primary, bifilar wound, high-bandwidth, low-resistance, and multiple-shielded nickel-core step-up autoformer," which allows you to choose among 25, 50, 100, 200, and 400 ohm settings.

By impedance matching the cartridge with the step-up transformer, you can maximize power transfer. That means efficient, low-loss conversion of the ultra-low-voltage/high-current cartridge output to high voltage and low current. When you resistively load down an MC cartridge, you throw away power, which is why conventional loading tends to "close down" the sound as well as lowering the output—sometimes for the better, sometimes not (footnote 1). The front panel also includes switches that permit individual channel control of cartridge termination capacitance in 10pF steps up to 1100pF.

Design

The Steelhead looks like a piece of homely medical equipment from the 1950s. Call it drop-dead ugly, retro studio, or whatever—I don't think you could ever say that it looks "sleek" or "smart." Apparently, Manley is switching to a steel-colored faceplate, which should help considerably. As delivered to me, with its gaudy gold front, large ice-blue LEDs, clunky black knobs, and backlit "Manley Steelhead" TV screen-like logo, it's about as attractive as a severed fish head.

An umbilical cord terminated with a gold-plated 16-pin connector provides juice from the heavy-duty regulated outboard multichannel power supply to the main unit, each channel supplied independently (hot and ground) via multi-core shielded interconnects. The RIAA and amplifier sections each use one 6922 and two 7044 tubes in their circuits. According to the very-well-written and extremely informative instructions, the circuit "makes the best use of active and passive components and circuit developments generated over the past half-century"—which, as I found out when I asked, is an elliptical way of saying without saying that there's a JFET in the first gain stage.

When I asked Eveanna Manley whether there was a transistor in the signal path—which I suspected because of the huge amount of gain accompanied by pitch-black silence—she told me there was a large-geometry JFET in front of the first tubed gain stage. "The hybrid cascode gain blocks simultaneously deliver wide-band, high-gain, low-noise, and low-distortion performance without (large amounts of) negative feedback." The design is said to make the amplification factor of each stage insensitive to tube gain or the transconductance variations that can occur due to tube manufacturing tolerances or aging.

Mitch Margolis makes a point of comparing his design to "typical current-starved 12AX7-based preamplifier circuits," contending that the Steelhead features high quiescent and operating current in each gain stage, which lowers both static and dynamic impedances, thus raising system bandwidth.

The RIAA EQ circuit addresses all four RIAA corner frequencies or time constants (see September's "Analog Corner"), including the oft-neglected 3.2 μ s, which shelves to flat response at 50kHz instead of continuing to roll off HF response, as many (if not most) phono sections do. The instructions contend that allowing HF rolloff to continue causes "somewhat lifeless and remote" sound that loses impact, detail, and percussiveness. The RIAA circuit uses factory-set variable capacitors, as well as hand-selected and/or 1% tolerance resistors.

Endless Choices, Sleepless Nights

Using the Steelhead was simple, though its multiplicity of gain, loading, and other options make it a questionable choice for electrically correct, terminally obsessed audiophiles who may forever wonder whether their chosen setting is the correct or accurate one. Even the choice of MM or MC input is made more difficult—the Steelhead has sufficient gain through its MM input to accommodate a low-output MC cartridge. I'm listening right now to the new low-output (220 μ V) Lyra Helikon SL through the Steelhead's MM input on the 60dB gain setting, the Manley driving the Musical Fidelity Nu-Vista 300 power amp directly. The Steelhead's volume control is at 2 o'clock and it's *loud*! Think of that.

When you're not using it, the Steelhead can be left in Standby mode. This essentially removes all operating voltages from the unit except for system-control logic functions, which are fed by a small separate power transformer in the power supply. Push the Standby button again and the Steelhead comes to life. The Sum button combines the channels for monophonic use, but works only in the variable-output configuration—as does the Dim button, which drops output by 20dB for cueing up an LP or answering the phone. Push the Dim and Sum buttons simultaneously and small steamed morsels wrapped in delicate dough issue forth from the brightly lit Manley logo on the front panel. Fortunately, the Mute button works on both fixed and variable outputs.

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Both fixed and variable outputs are tube-buffered, with low output impedance. "No wanky cathode-follower (oh so boring) outputs like the other guys," Manley's website proclaims, adding, "Okay, drive those audiophile high-capacitance cables, why doncha'?" I did.

Choose Your Sound

Because there are so many variables and you can choose them so easily, describing the specific sound of the Steelhead is almost impossible. You can, within certain limits, make it and your cartridge sound any way you like. But no matter how you vary the impedance in MC input, the resistance in MM, or capacitive loading in MM; whether you run your low-output MC via the MM or MC inputs; or whether you drive your amps directly or through your preamp (whew!), the Steelhead delivers a few sonic constants, among which are unusually low noise (regardless of gain, loading, etc.), spectacular transient speed, rhythmic certainty, clarity of musical line, breathtaking transparency, and positively astounding dynamics.



If you own a low-output MC cartridge, your natural first choice would be to use the MC input. You then set the impedance switch to the position that best matches your cartridge's output impedance. But that's not the same as your cartridge's DC resistance, which is what some confused cartridge manufacturers list as "internal impedance." But we're *all* confused. The best thing you can do is set the impedance by *listening*.

To set capacitive loading for a MM cartridge, you first find out the load capacitance recommended by the cartridge manufacturer, then subtract your phono cable's capacitance (per unit length), which most cable manufacturers should be able to provide. If the cartridge calls for 150pF and the cable has 50pF total, you dial in 100pF.

Then you play some music, twiddle the transformer's impedance knob, and what do you find? Unlike with resistive loading, the lower you set the Manley's impedance, the louder and more energetic the sound. That's because—at least with the Helikon SL, which has a relatively low source impedance—you maximize power transfer the lower you set the autoformer's input impedance.

But be sure to try even the lowest-output MC cartridge into the MM section, as I did. With the 220 μ V Helikon SL, there was more than enough gain and pitch-black backgrounds. This resulted in even greater purity and delicacy, which is why Manley provides variable loading for the MM input, which normally would be fixed at 47k ohms. If your MC cartridge's manufacturer suggests running it at 47k and you're

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Michael Fremer compared the Steelhead with the Boulder 2008 in July 2002 (Vol.25 No.7):

Rockport's Antares speakers—400 lbs each and \$41,500/pair—had been in my system for about a month when I sat down for my first listen to the Boulder 2008, so I'd become accustomed to and quite familiar with their performance using my reference system. The Antares is an impressive, full-range design. Driven by the Manley Steelhead phono stage, the Hovland HP-100 preamplifier, and the Musical Fidelity Nu-Vista 300 power amp, their sonic picture was big, full-bodied, and just plain *tactile*. No pain, but plenty of gain!

So it was with much skepticism that I substituted the 2008 for the Steelhead. I'll spare you a list of some of the well-known audio pros who've bought Steelheads. They hear what I hear: stupendous bass dynamics, transparency, purity, quiet, and on and on. It's a major accomplishment.

That's what I was thinking as I dropped the stylus in the groove for my first listen to the Boulder 2008. Would it be brighter, tighter, faster, "etchier," *more* transparent, better organized, more lush? I tried to imagine what the 2008 could possibly deliver to better the Steelhead and Zanden. One was more analytical, one was lusher, and both were incredibly accomplished—enough so that, between them, they seemed to cover all the sonic bases at the very highest level of analog reproduction. And the Pass Xono wasn't far behind, if at all, depending on your preferences.

Unfortunately, my imagination could not prepare me for what the 2008 delivered. I don't remember the first LP I played, but within a minute of listening I was no longer concerned with the *sound* of the music. What the 2008 delivered was the music's *meaning*. That's what you get for \$29,000: communication—a direct connection to the *intentions* of the musicians. That may sound pretentious, but it's what I experienced in those first few hours of listening, with every genre of music.

I hate saying some of these things because I'm sure I've said them before, and probably in my review of the Manley Steelhead. The Steelhead is a wonderful phono preamp, does everything terribly well, and will keep me very happy until I win the lottery. But when I reinserted it in my system following my love affair with the Boulder, it sounded softer, more distant and slow, less dynamic, and less together. The Boulder was like being hit over the head in a nice way with a 2 by 4, the Steelhead like being flogged with a wet noodle.

That's gonna make EveAnna Manley unhappy, but the facts that the Steelhead is still one of the finest phono sections I've ever heard, the one I gladly bought, and one that costs about a quarter of what the Boulder costs, should take away some of the sting for both of us.—**Michael Fremer**

Manley Labs Steelhead phono preamplifier Manufacturer's Comment

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Phono Preamp Reviews

Manufacturer's Comment

Editor: WOW! Mikey likes it! Thank you so much for your honkin' great review of our new Steelhead Phono Stage. That the only severe complaint you have about our upstream-swimming Fono Fish is regarding our gaudy gold cosmetics, well, hell, I couldn't agree with you more! Although there are those audiophiles who prefer the shiny gold look, it hasn't ever been my personal favorite, so I started moving us back to our ol' black'n'blue cosmetics in September. By CES we'll be fully switched over and in compliance, although if you don't like my *knobs*, I will have to take personal offense at that. :) Being the Tube Queen (not too much competition for that title), when Mitch told me he was going to sneak a JFET into my world, I reacted to this much as you did: with equal suspicion and prejudice, as most thermionic devotees would. But then, seeing as it would perform no voltage amplification and function as a transconductance amplifier by turning voltage fluctuations into current fluctuations, thus harboring none of the nasties that people usually associate with FETs, even I started to warm up to the idea. Early listening tests induced smiles all around, and our beta testers voted positively with their wallets. That JFET is so the right tool for the job, and definitely key to the Steelhead's subterranean noise floor and the gateway to the list of superlatives—"spectacular," "rhythmic," "musical," "breathtaking," "coherent," "unrestrained," "astounding"—that you have graciously heaped on the unit. Dang, I haven't been so enlightened by a new technology since my folks gave me my first Close and Play and a Jackson 5 single.

You know, we love to have fun at this gig, and Michael, I dig how you picked up on our twisted audio humor in our manuals, website, and on the product itself—and especially how you dish it right back at us. Good one. One question, though: when you do the secret Dim+Sum button trick, do you find yourself hungry after two hours?—*EveAnna Manley, President, Manley Laboratories*

using MM mode, you can easily warm up bright recordings somewhat by experimenting with loading. In theory, if the cartridge is underdamped, it will "ring" when fed a squarewave, with visible overshoot. If it's overdamped, it will react too slowly and the wave's corners will be rounded off.

In practice, and for a variety of reasons, it's not that simple. In MC mode, you can achieve similar results by moving away from the setting that provides the best impedance match. In the end, especially with a phono preamp that permits such convenient on-the-fly adjustments, listening is the best way to fine-tune resistive loading or match impedances.

So I played and equalized away, finding the setup that sounded best to me. No matter what I did, the Steelhead never sounded lush, romantic, or warm—unless the recording did. I played a German pressing of Stevie Wonder's "You Are the Sunshine of My Life" four times, running the Helikon SL into the MM and MC inputs using the variable output, and then again into both inputs but through the fixed output into the Hovland HP-100. Each rendition sounded different. In the end, I preferred the MM input with the Steelhead driving the Hovland, even though the direct connection sounded "faster" and more pure.

Finally, I played the Wonder track through the Hovland's built-in phono section. Though the Hovland is very, very good, it couldn't compete with the Steelhead, especially in bass dynamics, transient speed, and overall clarity. But on "You Are the Sunshine of My Life," the Hovland's slightly warmer, slower, softer presentation was the more pleasing!

But with the *best* recordings—the ones I use as references—and driving the power amp directly, the Steelhead had unsurpassed resolution of ultra-low-level detail, sometimes dug out surprising new musical information from very familiar recordings, and gave the finest macrodynamic bass performance I've heard from vinyl, with high-frequency transients that were crisp yet delicate—as you might hear them live.

Overall, the Steelhead delivered the best vinyl playback I've heard from my system. It combined speed, frequency extension, resolution, harmonic structure, focus, air, stage depth, image specificity, and, most important, overall musical coherence in a way that made the music seem to fly from the speakers unrestrained by mechanical or electrical bounds.

Will the Steelhead be perfect for everyone? Nothing is, and I'd bet some listeners will find it lacking in midrange bloom and overall plushness. A solid-state system might require a pure-vacuum-tube phono section, such as Audio Research's Reference, to balance out the Steelhead's honest high-frequency extension and blazing speed. And, of course, bad recordings—of which there are more than we like to acknowledge—have no place to hide when confronted with so ruthlessly revealing a phono section. Then again, I've got a set of lush-sounding Amperex Bugle Boy ECC88s that might take this assault on the state of the analog art to exalted levels.

Unfortunately, the Steelhead was designed as a price-no-object component. When the financial dust had settled, Eveanna Manley found that admission was a steep \$7300. But remember: If you're a turntable-only audiophile, you don't need another preamplifier, and you can use the fixed outputs as a "Record Out." Multi-sourcers will have to do what I did during the review period: I have two sets of interconnects running to the amplifier, one from the Steelhead, the other from the preamp. Will this become my permanent setup? I'm considering it.

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Phono Preamp Reviews

Paul Bolin compared the Steelhead with the Aesthetix Rhea in September 2003 (Vol.26 No.9):

On really massive orchestral material, the Aesthetix Io Signature and Manley Steelhead have a slightly superior sense of ease when coping with huge transients, but the Aesthetix Rhea was not in the least embarrassed by the comparison.

There was perhaps a bit more image-to-image bleed-through [with the Aesthetix] than with the Io Signature or the Steelhead. Things were just a fraction more loose down low than with the Io Sig or the Steelhead....On the Beethoven concerto, the spacious acoustic of Boston's Symphony Hall filled the back of my room, though the Manley Steelhead and the Io Signature illuminate the rearmost corners of the stage a pinch more evenly and completely.

[The Aesthetix Rhea] doesn't have quite the sheer speed and resolution of the Manley Steelhead or quite the massive technological overkill of the Boulder 2008—and none of that matters a bit or a smidgen.—

Paul Bolin

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Michael Fremer compared the Steelhead with the ARS Basis Exclusive in October 2003 (Vol.26 No.10):

With the ASR Basis Exclusive on Cisco's upcoming reissue of Ian and Sylvia's stunning *Northern Journey* (Vanguard/Cisco VSD 79154), the guitars, mandolin, and autoharp crackled with sparkling, transient-snapping excitement yet with plenty of body, while Ian's and Sylvia's voices had a you-are-there clarity and presence. Image definition was precise, three-dimensional, and well focused, while Russ Savakus' bass was taut, with plenty of wood behind the string plucks.

Switching back to my reference Manley Steelhead phono preamp presented a completely different take on the same music: a more mellow overall balance, softer transients, and greater emphasis on midbass warmth. This made for a smoother balance that was easier to listen to yet still had plenty of detail—but it couldn't match the ASR's sheer excitement, or its ability to resolve the lowest-level detail in stark relief, all without sounding bright, etched, or hyper-detailed. Some listeners might prefer a bit more midband plushness, but a great deal can be accomplished by experimenting with cartridge loading. Still, I'm sure some will find the Exclusive's sound a bit too stark, perhaps too literal and a tad mechanical. I didn't.

I compared the Steelhead and the ASR with the classic Mercury Living Presence LP of Aaron Copland's *Rodeo*, *El Salón México*, and *Danzón Cubano*, recorded in 1957 (!) by Antal Dorati and the London Symphony (SR90172). I found the ASR's overall presentation in fully balanced mode airier, more transparent, deeper, wider, and more dynamic overall. The brass had a lifelike, piercing, yet plush realism that the more softly sprung Steelhead couldn't equal, and there was no match in the reproduction of the *thwack* of the timpani, which had far greater impact through the ASR.

It was an impressive presentation of a recording that, like many Mercurys, can sound thin and ungrounded. Perhaps my Steelhead is finally due for new tubes—because what the ASR did best in the mids, upper mids, and highs is what one usually expects from tubes! Yet some will prefer the Manley's lush, more mellow rendering compared to the brash, tightly sprung ASR's. Through both phono sections, when it got to the part of which composition copped by the Beef Council (or whatever the trade organization is called) for its television ads touting beef, my mouth watered.—**Michael Fremer**

Manley Labs Steelhead phono preamplifier Specifications

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Sidebar 1: Specifications

Description: Tubed/JFET, two-chassis phono preamplifier. Tube complement: one 6922, two 7044.

Dimensions: 19" W x 4.125"H x 18"D (allow an additional 6" depth for PSU umbilical cord projecting out in the center) (Steelhead); 13.5"W x 4.625"H x 12.5"D (allow an additional 6" depth for PSU umbilical cord projecting out in the left) (power supply). Weight: 19 lbs (Steelhead); 18 lbs (power supply).

Price: \$7300. Approximate number of dealers: 25.

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