

the absolute sound

ELECTRONICALLY REPRINTED FROM JANUARY 2015

EQUIPMENT REPORT



Constellation Audio Inspiration Series Preamp 1.0 Linestage, Stereo 1.0 Stereo Amplifier, and Mono 1.0 Monoblock Amplifiers

Progeny

Robert Harley

Get more reader letters complaining about the prices of some of the products we review than on any other topic. Six-figure amplifiers are bound to offend many sensibilities. But I'm about to demonstrate how the development of those cost-no-object components can benefit music lovers of more modest means.

Exhibit A is the new and relatively affordable Inspiration Series electronics from Constellation Audio. You may recall that back in 2008 this newly formed company launched a no-holds-barred assault on the state of the art in solid-

state amplification by assembling a team of the world's greatest electronics designers—a "constellation" of audio stars, if you will, that included Peter Madnick, Bascom King, the late James Bongiorno, John Curl, and Demian Martin. They were given a mandate to do the best work of their illustrious careers without regard for time or cost. No idea, design, or implementation, however expensive or exotic, was off the table.

The result of that effort was the \$78,000 Altair preamplifier and \$180,000-per-pair Hercules monoblock power amplifiers. The design and

EQUIPMENT REPORT - Constellation Audio Inspiration Series

execution of these electronics were beyond heroic. To give you but a single example, the Altair's volume control attenuated the signal by inserting in the signal path a single resistor—without any mechanical connections or relays. This feat was achieved with an elaborate circuit that involved 48 pairs of light-dependent resistors, corresponding LEDs, and a DAC, all under software control. (I could have cited any number of additional cutting-edge circuits developed for the Reference Series—this was clearly a landmark effort.)

So how did the Reference Series sound? In my review in Issue 215, I concluded, “Constellation has established a benchmark against which all other linestages and power amplifiers can be compared.”

Constellation followed that success with the Performance Series that included the \$32,000 Virgo preamplifier and Centaur power amplifier (\$32,000 stereo, \$64,000 monoblocks). The Virgo and Centaur employed the same circuitry as the Altair and Hercules, but in less elaborate implementations. The Performance Series delivered a surprising degree of the Reference Series' magic at a still high, but less-than-stratospheric price. The Virgo II and Centaur monoblocks sound so good that I've used them in my system for most of the past year driving the Magico Q7s.

Looking back now, I can see that the development of the Altair and Hercules wasn't purely intended to sell \$78,000 preamps and \$180,000 power amps. Rather, Constellation wanted to create platforms for discovering optimum circuit topologies and to establish a performance benchmark. Once created, the reference-level products would inform more affordable implementations that would be accessible to a wider audience. In my view, the ultimate goal of the Altair and Hercules design project was the Inspiration Series reviewed here.

It sounds simple in theory, but creating a successful trickle-down model is easier said than done. It requires that the initial development effort produce components that are truly world-class—which is far from a given. Then the reference-level products must sell in sufficient numbers to sustain the company. Finally, the firm's founders must possess long-term vision, not to mention adequate capitalization. But when it works, trickle-down engineering can bring to mid-priced products the essential DNA of cost-no-object components.

The three products in the Inspiration Series are the Preamp 1.0 linestage (\$9,900), Stereo 1.0 stereo power amplifier (200Wpc, \$10,000), and Mono 1.0 monoblock power amplifiers (400W, \$20,000 per pair). Although not budget-priced by any stretch, Constellation products at these prices represent quite a breakthrough. This is particularly true when you consider that the Inspiration Series uses exactly the same audio circuits designed for the Altair and Hercules. The \$9000 Preamp 1.0's schematic (and even the audio circuit-board layout) is identical to that of the \$78,000 Altair (and to the Virgo). The Stereo 1.0 and Mono 1.0 amplifiers employ the identical topology as the Hercules, along with many of the same components, including the transistors in the input, driver, and output stages. The cost savings are realized with simpler implementations of the same fundamental platforms. The circuit design isn't what's expensive in an audio component (after the R&D has been amortized), so why not use the best topology at every price level? I don't think I've encountered an example of trickle-down engineering in which the progeny hews as closely to the parent as it does here (see sidebar for details).

Even the Inspiration's styling, build, and visual aesthetic come close to those of the Performance and Reference Series. I had the \$32,000 Virgo III and \$9,900 Preamp 1.0 in my rack at the same time, and sometimes had to do a double-take to know which was which. A closer look, however, reveals some clever techniques for saving money on the casework without diluting the aesthetic. The Preamp 1.0's front panel, for example, is flat rather than sculpted, and the aluminum case is smooth instead of rippled. The same is true for the visual difference between the Centaur power amplifier and the Stereo 1.0. Yes, the Performance Series has a more upscale look, but if you didn't see the Inspiration side-by-side with it, you could easily believe that the Inspiration preamp and amplifier carried Performance Series price tags.

I'm in the fortunate position of having had Reference, Performance, and now Inspiration electronics in my home for extended auditions. Although the Reference Series was returned a long time ago, I still have the Virgo II

preamp and Centaur monoblocks on-hand for direct comparison with Inspiration. It's been fascinating to hear how Constellation has taken that original groundbreaking design and translated it into products that cost a fraction of the originals. Consider that the Inspiration Stereo 1.0 is just 7% of the Hercules' price. But how much of what made the Reference Series so special ended up in Inspiration?

Quite a bit, it turns out. For starters, the fundamental “Constellation sound” survives intact down the line. By “Constellation sound” I don't mean a set of easily identifiable colorations. Rather, I'm referring to the brand's most salient and salubrious sonic qualities. First among these is the extraordinary transparency—the impression of hearing back through the playback and recording chains to the original musical event. The Constellation electronics have so little opacity that it's as though I could sense the air in the room in which the music was performed. The second defining character of Constellation electronics has been a treble presentation that's unique among amplifiers, in my experience—exceedingly highly resolved yet exceedingly delicate and refined.

This combination of transparency and resolution without etch that defines the brand was readily apparent in all three Inspiration products. I have so much experience with Constellation that there was no mistaking the Inspiration's crystalline transparency and openness for anything else. This see-through quality didn't just allow me to hear instruments in the back of the hall or deep into a multitrack mix; it also conveyed an impression of immediacy, of the air in which the instruments exist being “charged” with the life and vitality of the hall or studio. Many otherwise excellent electronics overlay the presentation with a kind of electronic haze that dilutes this impression of “aliveness,” but the Preamp 1.0 and both Inspiration power amplifiers produced a sound that made me feel as though I were in the presence of the original music-makers. This quality goes a long way toward promoting deep immersion in the music.

The Inspiration's resolution was far beyond what I expected at this price. The treble, in particular, had that unmistakable delicacy and inner detail that most electronics smear. Think brushes on snares, hi-hat, tambourine, and other percussion instruments with very fine micro-dynamic structures. Many electronics are resolving, but not in the same way as Constellation's products are. What makes this brand special is the subtlety and refinement with which treble detail is presented. This isn't detail for the sake of detail, but rather an understated sophistication that provides all the cues that make instruments sound lifelike. Consequently, the top end is silky smooth and perfectly integrated into the musical fabric without any metallic edge. The Virgo and Centaur are, not unexpectedly, smoother in the top end than the Inspiration electronics, but that doesn't take anything away from the Inspiration's achievement.

There's another Constellation quality that the Inspiration preamp and amp embody, and that's a lack of tonal and spatial homogenization. Even compared with mega-buck amplifiers, the Inspiration is superb at defining individual instruments within an ensemble. The Inspiration's ability to differentiate tonal color, even among the individual brass and woodwind instruments in a big band playing unison phrases, is up there with the best amplifiers I've heard. Speaking of tone color, the Inspiration comes very close to maintaining the richness and saturation I've heard in the Performance and Reference Series. The Preamp 1.0, however, doesn't have quite the textural density and timbral warmth of the Virgo II. Timbres are more richly portrayed through the Virgo II—more “meat on the bone.” The Preamp 1.0 is a little leaner by contrast with less apparent density in the lower mids. Nonetheless, we're talking about reference-level tonal quality in the Virgo II, a level to which the Preamp 1.0 comes very close. In fact, the Inspiration's tonal beauty may be unprecedented at this price.

Incidentally, I found the “preamp bypass test” a useful tool in hearing exactly how each preamplifier affected the signal passing through it. I first drove the Stereo 1.0 with the output from the Berkeley Alpha DAC Reference with no preamp in the signal path. I then inserted into the signal path the Virgo II set at unity gain (the input level was the same as the output level). I repeated this comparison, this time with the Preamp 1.0 in the signal path.

Details

The Preamp 1.0 looks very much like the Virgo, with a front-panel display flanked by two large knobs, volume and balance. Inputs and outputs are identical in the two preamps—not surprising since they are built with the same audio circuit board. Four balanced and four unbalanced inputs are provided, along with two balanced and two unbalanced outputs. The front-panel display shows the selected input along with the volume-control setting. The Preamp 1.0's machined aluminum remote is the same as that supplied with the Virgo. The remote's contoured shape, large buttons, and sensible layout make it easy to use. But as with the Virgo, the Preamp 1.0 isn't perfectly responsive to commands from the remote. For example, if you want 1dB more level (two 0.5dB steps), pushing the remote's volume up button may not immediately change the level, or it may increase it by 2dB. This happens only occasionally, but it does happen.

The Stereo 1.0 and Mono 1.0 look the same, and act identically. The front-panel operation is the same as the Centaur; a wide horizontal bar, hinged at one end, is pressed to turn the amplifier on and off, as well as to put it in Mute mode. A hard-mute switch is also included on the rear panel. The front-panel bar contains a tri-color LED that indicates the amplifier's operational status. Note that the Mono 1.0 isn't a stereo amplifier that is bridged into mono. This means that if you buy a Stereo 1.0 now you can't buy another Stereo 1.0 and convert them to a pair of mono amps.

Inputs include one unbalanced, one balanced, and an input marked "Constellation Direct." The latter input bypasses the power amplifier's input stage, but can be connected only to a Constellation preamp. The power amplifier's input stage, which is bypassed when using the Constellation Direct input, assures perfectly matched amplitude between the positive and negative halves of the balanced signal. But because that balancing circuit is the last stage in Constellation preamplifiers, it's superfluous in the power amp. This arrangement removes from the signal path one entire active stage.

The bypass test allows you to compare the preamplifier under evaluation with no preamplifier.

Soundstaging is outstanding for a preamplifier and amplifier of any price. Inspiration has a huge, open, and airy presentation that easily makes the loudspeakers disappear. Soundstage dimensionality is also sensational, and among the best of the amplifiers I've heard. Just like its antecedents, the Inspiration excels at portraying the bloom around instrumental outlines. The Virgo II and Centaur monoblocks are a touch wider and deeper, but this essential characteristic remains intact.

There's one area in which the Inspiration power amplifiers depart from the sound of the original Reference Series and of the Centaur amplifiers—the bass performance. In my previous reviews of Reference and Performance I've noted that both tend toward a more polite, rather than visceral, bottom end. In my Reference Series review I wrote that the bass "favored articulation and pitch definition rather than weight and warmth." In my Centaur review

I noted: "The Centaur's bottom end is full and satisfying, but not the last word in weight and heft." You bought Constellation for qualities other than bottom-end slam.

I'm happy to report that with the Inspiration Series, bass performance is no longer a caveat. In fact, the Stereo 1.0's bass is outstanding, combining weight and authority with dynamic agility and a wonderful tunefulness. For example, Ray Brown's incomparable playing on the high-res download of *Soular Energy* has plenty of weight, along with the ability to convey the instrument's dynamics and tone color. The Mono 1.0s are even better, offering greater dynamic impact and effortlessness. Compared with the Centaur monoblocks, the Inspiration's fuller bottom gave the entire presentation a bolder, more forceful character. The Centaur (and Hercules) fosters an impression of elegance, grace, and refinement, not one of raw, primal power. The Stereo 1.0 and Mono 1.0 largely retain the midrange and treble refinement of the Centaur while giving the presentation a more muscular quality. It isn't just power music that benefits; even on a record like Duke Ellington's *Duke's Big Four* the Inspiration's fuller bass better conveys the swing and drive of this terrific band. Incidentally, the circuit changes that improved the bass were developed for the new Hercules II, and have been incorporated first into the Inspiration amplifiers.

Several years ago a visiting loudspeaker designer had just finished setting up a pair of reference-quality speakers in my room, and asked to hear the various amplifiers I had on-hand. After the auditioning, he pointed to a non-Constellation amp and said, "I want the bass extension and power of *that* amplifier," and then pointing to the Constellation continued "with the midrange and treble of *that* amplifier." If he were to visit again, he would

SPECS & PRICING

Preamp 1.0

Inputs: Four balanced, four unbalanced (USB input for control)

Outputs: Two balanced, two unbalanced, 12V trigger

Input impedance: 20k ohms balanced, 10k ohms unbalanced

Output impedance: <50 ohms

Weight: 25 lbs.

Dimensions: 17" x 5.25" x 15"

Price: \$9,900

Stereo 1.0

Power output: 200Wpc into 8 ohms, 400Wpc into 4 ohms (1kHz, 0.1% THD)

Inputs: Balanced, Constellation Direct (balanced), unbalanced

Input impedance: 20k ohms (balanced, Constellation Direct), 10k ohms (unbalanced)

Output impedance: 0.1 ohm

Gain: 14dB unbalanced, 26dB balanced

Weight: 55 lbs.

Dimensions: 8.5" x 17" x 19"

Price: \$11,000

Mono 1.0

Power output: 400Wpc into 8 ohms, 800Wpc into 4 ohms (1kHz, 0.2% THD)

Inputs: Balanced, Constellation Direct (balanced), unbalanced

Input impedance: 20k ohms

(balanced, Constellation Direct), 10k ohms (unbalanced)

Output impedance: 0.1 ohm

Gain: 14dB unbalanced, 26dB

balanced

Weight: 55 lbs each

Dimensions: 8.5" x 17" x 19"

Price: \$22,000 per pair

CONSTELLATION AUDIO

3533 Old Conejo Road, Suite 107

Newbury Park, CA 91320

constellationaudio.com

wish for no such chimera; the Inspiration leaves nothing to be desired in bass weight and tonal balance. This is particularly true with the Mono 1.0 monoblocks, which have greater bass authority, wider dynamic contrasts, and sound more composed during complex passages than the Stereo 1.0, as you'd expect from twice-the-power monoblocks. Nonetheless, the Stereo 1.0's bottom end is fully satisfying.

If you're getting the idea that these electronics are spectacular values, you're right. It seems almost churlish to point out the Inspiration's shortcomings relative to the world-class Performance Series, but since I've heard them all I would be remiss not to share my experience. I must reiterate, however, that if you didn't hear the two Series side by side, you wouldn't miss anything in the Inspiration. You'd still get the essential quality of Constellation electronics, which as I mentioned earlier is an extraordinary transparency, high resolution, gorgeous tone color, and tremendous soundstage dimensionality. The differences in sound between Performance and Inspiration are more quantitative rather than qualitative. Moreover, the Performance Series, despite its not insignificant price, is still a terrific value, delivering close to the benchmark established by the Altair and Hercules in the Reference Series. I should mention that I've heard the Inspiration Series at three shows driving a variety of loudspeakers, and thought (along with many other showgoers) that the sound was superb on each occasion.

After I'd finished auditioning the Preamp 1.0 and Mono 1.0 I returned to the \$55k Soudation 725 preamplifier and \$165k-per-pair 701 monoblock amplifiers. One would think that this juxtaposition would only highlight the limitations of the one-eighth-the-price Inspiration pair. Instead, the comparison threw into sharp relief just how extraordinary the Inspiration electronics are. Not surprisingly, the Soudation was decidedly better (see Jonathan Valin's review this issue and my comments). But the Inspiration had some exceptional qualities that drove home what a great achievement and value these electronics represent.

Conclusion

The Inspiration Series brings more than a taste of world-class performance to electronics within reach of music lovers for whom six-figure amplifiers are out of the question. Although not budget-priced, the Inspiration Series delivers much more than a taste of the musical virtues of the Altair and Hercules. The sonic differences between the Reference, Performance, and Inspiration Series are a matter of degree, not of fundamental character.

The Preamp 1.0, mated to the Stereo 1.0 or a pair of Mono 1.0s, bring a level of transparency, resolution, refinement, and soundstaging to this price segment once reserved for much more expensive electronics. Coupled with these traditional Constellation qualities is a newfound bass performance that adds a welcome authority, bottom-end

dynamics, and tonal richness that were not the strong suits of the Reference and Performance Series.

It's unlikely that the Inspiration's combination of performance and value could have been realized from a clean sheet of paper. By taking the long view and investing in developing cost-no-object electronics, Constellation is able to offer the identical circuit topologies, and many of the design tricks, of those cutting-edge products in the relatively affordable Inspirations.

For those of you who find \$78,000 preamps and \$180,000 amps morally objectionable, take heart knowing that the existence of those products made it possible for music lovers of more modest means to own very close to the best for a fraction of the price. That's something we can all celebrate. **TAS**

Similarities and Differences Between Reference, Performance, and Inspiration Series

So, what exactly are the technical differences between the Reference, Performance, and Inspiration Series? Looking first at the Preamp 1.0, its circuit topology is identical to that of the \$32k Virgo and to the \$78k Altair. You read that right—all three preamplifiers share the same schematic and circuit-board layout. The differences are in the implementations. Where the Virgo's power supply is housed in a separate chassis, the Preamp 1.0's supply is integral. Nonetheless, both preamps employ three transformers, one for each audio channel plus a third to power the control circuitry (the two R-core transformers supplying the audio circuits are the same between the series). The regulation in the Inspiration is a little less elaborate, with three regulation stages rather than four.

All the preamps in Constellation's line are fully balanced and built around what the company calls the Line Stage Gain Module. This is the same module used throughout Constellation's various product ranges. Some of the parts in the module are identical, and others diverge in quality. For example, Reference uses the best parts available without regard for cost (\$7 apiece resistors, for example). The resistors in Performance are significantly less expensive (\$1), while the Inspiration employs carefully chosen but even-more-cost-effective devices. In all three lines, servos maintain perfect amplitude symmetry between the two halves of the balanced signal. As with the Altair and Virgo, the Preamp 1.0's audio circuit board floats on a "raft" that is decoupled from the chassis and even from the rear panel.

Substantial savings in the Inspiration Preamp 1.0 were realized with a volume control made from an addressable monolithic resistor-array chip. The Virgo features the same elaborate light-dependent resistor scheme developed for the Reference, a technique far too expensive for a \$9,900 preamp.

The chassis and casework build is the same; interlocking pieces of machined aluminum are joined by steel reinforcements to create a rigid structure. The differences are mostly cosmetic. In addition to the Inspiration Series' smooth surface, the side vent-holes of the power amplifiers are larger which requires fewer milling operations. If I hadn't been told about the Inspiration's larger holes, I wouldn't have noticed.

The stereo and monoblock amplifiers are based on the same Balanced Bridged topology developed for the Hercules. In this unusual circuit, each amplifier channel is composed of two separate amplifiers, one driven by the positive half of the balanced signal and the other by the other half of the balanced signal. The loudspeaker is connected as the "bridge" between the two amplifier channels. The two amplifier channels are not referenced to ground. Moreover, the entire output stage is built from transistors of a single polarity (N-channel) rather than the typical pairs in which each N-channel transistor is mated to its P-channel counterpart. For a more thorough technical description, see my review of the Reference Series in Issue 215—the topology is identical.