

VTL

TL-7.5 Series III Reference Preamplifier

by Paul Bolin, January 5, 2013

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It is not an exaggeration to say that the introduction of VTL's original TL-7.5 line stage in 2002 was a seismic event in the annals of high-end audio. The first tube line stage incorporating truly 21st-century thinking, the '7.5 went on to become one of the most acclaimed components of its era, and justifiably so.

The original '7.5 was even partially responsible for the beginnings of this very website. When a mutual friend put Marc Mickelson and me in touch with each other, the first thing we discussed were our reviews of the '7.5 -- his for *Soundstage* and mine for *Stereophile*. We heard exactly the same sonic character -- or lack thereof -- in the big VTL. Despite our very different writing styles, it was at that point we both recognized that we would be compatible in terms of sonic tastes and editorial goals, the TL-7.5 pounding in the golden spike, so to speak.

The first '7.5 was not just groundbreaking; it was a durable and utterly sound piece of audio engineering. The original design was not replaced by the Series II until 2006. At that time the gain-stage tube was changed from a 12AX7 to a 12AU7, which addressed some noise issues that arose when

the '7.5 was paired with power amps that had a particularly high gain structure, though I never experienced any such problems in the years I used the original preamp as my principal reference, even with the notoriously high-gain amplifiers from Lamm Industries.

Several years on, Luke Manley, Bea Lam and their engineering team at VTL developed the Series III updates that have been applied to many VTL products, and the '7.5 received its makeover for introduction at the 2010 Rocky Mountain Audio Fest in the company of the Series III version of the venerable MB-450 Signature power amps, where they took home one of my two Best of Show commendations. Systems centered around the TL-7.5 III repeated this feat at the 2011 and 2012 Rocky Mountain shows.

Evolution is a subtle thing

Some things have not changed throughout the evolution of the '7.5. Luke Manley explained to me that the first priority in the rethink that resulted in the Series III was to maintain the basic architecture and time-tested integrity of the design while upgrading



everything within. Given this, the Series III retains the two-box configuration of its forbears, with the control chassis housing all the power supplies and microprocessors (and their noise), while the audio chassis contains only the amplification circuitry, relays, and switching facilities. Connection to the clean audio box is via two 50-pin SCSI computer cables, one for each channel, with only a 5V DC signal traveling between the two chassis.

The power supply/control chassis holds a single knob, which can be switched to control volume level, input offset, and balance, simplifying the signal path and eliminating parts. Source selection and volume are controlled with specially selected low-signal, instrumentation-quality reed relays. The volume control offers 95 steps of 0.7dB each, and the signal passes through only one relay-selected series resistor at any setting. The dual-mono circuit boards and tube sockets are shock-mounted to isolate them from their environment. Everything about the '7.5's world-class interface and appearance will be familiar to anyone who knows VTL preamplifiers of the last decade.

What goes on inside the boxes is quite different indeed than in the earlier iterations, at least in the details where subtle and incremental, yet sometimes highly significant improvements dwell. Luke Manley provided me with a complete overview of the Series III's technical background, and it makes for fascinating reading, particularly in how VTL's design team approached the process. As with its predecessors, the circuitry of the latest '7.5 is minimalist in the extreme, with a single tube per channel operating as the entire gain stage. This gain stage then drives a buffer circuit. VTL examined the design holistically and focused on improvements to the power supply, gain stage and buffer circuit.

The power supply came first, as it always should, for the quality of the power supply determines the ultimate ceiling

for the quality of everything downstream. VTL investigated tube regulation and determined that though tube- and MOSFET-regulated supplies measured identically, the best sound came from the tube-regulated supply. VTL believes, however, that tubes are inappropriate for use as power-supply regulators because of their inherent current limiting. Tubes also wear and change as they age, which, in VTL's view, is not good for power-supply applications.

They discovered that the primary reason for the better sound of the tube-regulated supply was that the tubes had "far lower gain" than the MOSFETs and logically concluded that the high degree of amplification was negatively affecting the signal's sound. VTL's engineers



subsequently experimented with various FET-based circuits and eventually developed a MOSFET-based shunt-regulated power supply and compared it to the MOSFET error-amplifier regulators used in the '7.5 Series I and II and the tube-based supply. Listening tests resulted in the shunt power supply being "far superior in dynamics and signal purity" to both.

Once the power supply had been addressed, the gain stage was "re-linearized" and the feedback loop was eliminated, resulting in a true zero-feedback circuit. The MOSFET buffer stage was examined, and a new, simpler design was used. VTL discovered that the power JFETs being developed for various green technologies such as solar panels and



electric automobiles were just the thing they were looking for, and a JFET-like device served as the basis for the new circuit, which was then compared to the prior circuit and yet another tube-based design. Manley explained that “JFETs are more like tubes in their operation, insofar as they do not need to bias on, as MOSFETs do, but are normally on, like tubes are” and that this is why they sound better than MOSFETs. Furthermore, “no bias is required for [JFETs], and the circuit is simpler, with fewer components.” The result, says Luke, is a buffer that is superior in “linearity and resolution, and able to drive loads . . . yet sounds very tubelike.”

Lastly, a thorough re-evaluation of the capacitors used throughout the '7.5 was undertaken, and polypropylene bypass caps were chosen for use over all caps in the signal path. While Teflon caps are used in power-supply bypass areas, Manley explained that using them in the signal path resulted in a sound too forward in the upper midrange -- though measurements did not show this, “resulting in an overblown

soundstage, with high listener fatigue from an apparent over-presence in the upper midrange that was simply not accurate and is not found in any live listening that we have ever experienced.” Not touted as a major improvement, but important for those

who use high-gain power amps, the latest '7.5 allows the user to internally adjust the line stage's overall gain structure.

As an aside, lest anyone think that such details are beyond human ability to hear repeatedly and critically, allow me to introduce you to VTL's Bea Lam. I have known her for more than ten years, and her auditory acuity and perception are nearly beyond belief, though she is far too modest to admit it. Bea -- who has studied piano seriously for most of her life and owns a Hamburg Steinway -- has the last word on the voicing of every VTL product. During my 15-plus years in the world of audio journalism I have encountered no other listener who is her superior.

So what is the result of this massive rethink of a component that has already qualified as an enduring audio classic?

When even less is even more

On a stifling July day, near 100 degrees and with truly tropical humidity to boot, Luke Manley arrived at my Minneapolis home with a number of large, very heavy boxes in tow. They contained the TL-7.5 III and a pair of MB-450 Series III Signature monoblocks. Installation was quick, and Luke walked me through the basics of the highly flexible '7.5, some of which I had forgotten about since my time with its predecessor. I won't recount them here, but it is safe to say that there is no system configuration that it cannot accommodate with a minimum of fuss and a maximum of ultimate user convenience.

One of the first recordings I popped on for serious listening after letting the '7.5 settle in was the Japanese LP of Jaco Pastorius Big Band's *Twins I* [Warner Bros. P-11317]. The fruits of VTL's labors were immediately apparent. The Series III had a singularly

convincing way with spaces and the images located within them. Some years ago I posited that there are three sorts of space a component must successfully integrate into a seamless whole in order to create a convincing soundscape. These are the point source, the field source

and the contextual source. The point source is defined by the outlines of the actual instruments or singers; the field source can be described as air energized by the instrument or vocalist in the close proximity of the vibrating sound source; and the contextual source is the sound of the venue or studio in which the recording was made. Few components get all of these sources in the proper balance, even with exceptional recordings. Right out of the box, so to speak, it was abundantly clear that the '7.5 Series III was one of that select group. Each brass instrument on *Twins I* was located with remarkable precision yet surrounded by a readily audible aura -- the field source -- and a superb sense of the venue's sonic context. The sound was spatially complete in





a way that is a very rare thing indeed. Get any one of these foci out of whack and images will be too sharp, as when the point source is exaggerated, where razor-cut cardboard ships will be heard to sail on the audio equivalent of a cardboard sea. Not enough inner focus and things become slightly amorphous.

Years of listening and several months of paying particularly close attention to the big VTL have led me to conclude that it is the field source that is the hardest to get just so. Even if it is not "just right," if a component is able to communicate the spatial placement and relationships of point and contextual sources, it can be quite spatially convincing. It is getting that energized aurora of the field source -- the way an instrument or a voice speaks into the space immediately around it -- that creates a vastly more believable illusion. Which was

underrated Horenstein was one of the most meticulous and sensitive conductors of his time. Musicianship and interpretive skills of this level require nothing less than the finest sound to attain their maximum emotional and intellectual impact, and the '7.5 Series III pulled it off. The spatial relationships between the piano and the orchestra as a whole, and within the sections of the orchestra itself, in the Second Piano Concerto were exemplary, and quite possibly at the limits of what is available with this recording. The performance swept me away with an aliveness and presence that were immediately and utterly enthralling.

Information density -- the resolution of more music from both digital and analog sources --- was an ongoing source of surprise, even with music I have been listening to for far

longer than I care to remember. In "Meeting of the Spirits" from the Mahavishnu Orchestra's *The Inner Mounting Flame* LP [Columbia KC31067], the main section that follows the explosive introduction opens with John McLaughlin's electric twelve-string playing an ostinato that sounds like a ball of writhing snakes. McLaughlin's complex, sinuous, vaguely sinister riff loops back on itself and is quickly joined by Jerry Goodman's dancing electric violin, Jan Hammer's fleet keyboards and the ferociously complex drums of the great Billy Cobham. The combination of the



very much the case with the Pastorius LP; the '7.5 made every instrument pop into the room in a way that made the suspension of disbelief nearly effortless.

The quality of the spatial relationships among instruments was noteworthy in ways I have not previously experienced, and this was unsurprisingly revealed on the most demanding music -- the full orchestra. The *Romantic Rachmaninoff* box from *Readers' Digest*, recorded by the legendary Kenneth Wilkinson and featuring conductor Jascha Horenstein, pianist Earl Wild and the Royal Philharmonic [Readers' Digest/RCA RDA-29], is a spectacular example of Golden Age recording, with an all-star lineup from stem to stern. Wild's pianism hearkened back to an earlier age of idiosyncratic, personality-filled playing, and the absurdly

'7.5 and its sibling, the TP-6.5 phono stage (the example sent along by VTL was equipped with a transformer to step up the moving-magnet input, because Luke Manley believed my reference Dynavector XV-1s cartridge prefers to see a transformer -- and he was correct) unraveled this furiously fast, supremely virtuosic music more effectively than any electronics I have auditioned. It should be pointed out that Tri Mai's mid-December installation of his Tri-Planar Mk VII Ull tonearm on the Kronos turntable ratcheted up the resolution by another few vital ticks. The sheer amount of information that poured through the Series III made profound emotional connection with music second nature. From the other end of the complexity spectrum, Natalie Merchant has one of those voices that can do bittersweet yearning so as to carve itself on your soul. She does just that on "Cherry Tree"



and “Don’t Talk” from 10,000 Maniacs’ *In My Tribe* (LP, [Elektra 9-637081]). With the ‘7.5, these lovely songs were absolutely heartbreaking, rather than just pretty and affecting.

Timbrally, the Series III was as revelatory as it was with space. That the two are closely interrelated was something else that was clarified in a hurry. The revisions described to me by Manley correlated exactly with the sound of the ‘7.5. There was an unmistakable sense of a profoundly natural and very extended treble, a midrange that was consistently as lifelike as the source material allowed, and firmly controlled but expressive and bloomy bass. Janos Starker’s traversal of the Bach suites for solo cello (CD, [Mercury 432 757 2]) is a real acid test for tonal naturalness and completeness. Mercury’s recording team placed Starker and his cello in an appropriately sized venue. They also miked him at a proper distance, instead of in a manner that presented a room-sized cello. It is a wonderfully natural-sounding recording with a rich, unaffected ambience. The result is a recording with every last detail and nuance of his sophisticated, superbly controlled sound and matchless technique that came through in the fullest of measures. Even more impressive was how the most ordinary of CDs and LPs revealed subtleties I’d heard hinted at but never openly revealed, even with the cutting-edge Kronos turntable, through lesser electronics.

But when the recording was superb, as is the case with Neville Marriner/Academy of St. Martin in the Fields’ performance of Tchaikovsky’s *Serenade for Strings* [Argo ZRG 584], the Series III revealed a constant fundamental neutrality, from double-bass fundamentals to the highest of violin overtones, that leaves me searching for appropriate descriptors. It simply sounded like music. Though there must be some sins of omission *somewhere*, they were not audible in my room with my system. On a clean, well-made rock recording like Ian Dury’s *New Boots and Panties* [Stiff Records SEEZ 4], Dury’s alternately warm, growling, crooning and screaming Cockney voice was totally true to form. Norman Watt-Roy’s melodically funky bass-guitar work and Charley Charles’ taut and ever-thoughtful drumming had a natural, unprocessed, live-in-the-studio sound. My listening notes kept returning, time after time, to “what I am hearing is exactly what is on this record, no more and no less,” and I’ve been listening to *New Boots* since it came out in 1978.

Dynamics set a new standard. Whether it be the hugely dynamic, live Pastorius LP, the thundering science-fiction oratorio of Magma’s *Mekanik Destruktiw Kommandoh* LP

[A&M SP-4397] (composer/drummer Christian Vander’s sensibilities at the time of this 1974 recording combined the musical style of Carl Orff, the ambitions of Richard Wagner, the melodic sensibility of Frank Zappa’s avant-garde works and Sun Ra-style arrangements; furthermore, he invented his own language for his works, and it sounds a lot like Klingon), or my much-loved Otto Klemperer rendition of Wagner’s *Meistersinger* Prelude (*Klemperer Conducts Wagner* LP, [Angel 3610 B], gold “Stereo” stamp), the Series III always seemed to be loafing along, with multiple higher gears constantly available for yet bigger moments. The ‘7.5’s ability to place every instrument in the most precise and accurate place with respect to its fellows, discussed above, was astonishing with the Wagner, particularly after the Tri-Planar arrived on the scene.

Quantifying the indescribable

In my October 2003 review of the first ‘7.5 for *Stereophile*, I vented some frustration about the review process, bemoaning the fact that it was extraordinarily difficult to describe the sound of a component that had less intrinsic character than any other I had reviewed to that time. I now find myself confronted with the same frustration -- times two. As you might have deduced, the TL-7.5 Series III is very much more of the kind of rare and serious excellence that VTL brought to the first ‘7.5 more than ten years ago. It is the finest line stage I have heard, tube or solid-state. It does more -- by doing less to the signals that pass through it -- than any piece of audio equipment I have heard to date. This is one of the supreme paradoxes of superb music reproduction. The more one invests, the less the equipment ideally *does* to the music.

The Series III does much less, in that sense, than any line stage of my acquaintance and therein lies its true greatness. There is greater detail retrieval -- of the characteristics of space, of the finest dynamic gradations, of minuscule timbral variations -- than the competition I have heard. It sounds clichéd to say merely that it has less of a sound than any other component -- just as the original had some ten years ago -- but there is really nothing more accurate or germane that I can write. Logic dictates that it is not perfect. No human-made instrumental can be. And one day it will be bettered, as surely as the sun arises in the east. But today the TL-7.5 Series III somehow manages to combine the full portfolio of harmonic virtues that only tubes can provide, even at this late day, with the kind of bandwidth and speed of the very finest solid state.



As obvious as the Series III's multiple strengths -- and virtually non-existent weaknesses -- are, what left me marveling most about listening to music through it were the things that had always been there for the hearing but which the big VTL made so much more obvious: the slinky, strip-joint swing of the bass and muttering rhythm guitar on "Clever Trevor" from Ian Dury's *New Boots*, the dancing, distant woodwinds -- all by themselves, way back in the orchestra -- in the middle of the *Meistersinger* Prelude, to name but two. The '7.5 simply made it easier, much easier, to pay attention to *all* of the threads in the fabric of music -- and to hear that music as a complete entity.

Components with this kind of resolution too often approach the task of music reproduction with the fanatical attention to detail of Sir Joseph Blaine, the fictional spymaster in Patrick O'Brien's Aubrey-Maturin novels of the Napoleonic-era British navy. Sir Joseph was obsessed with beetles and their individual particulars, a taxonomist by nature and inclination. The problem with audio components of the taxonomic inclination is that while they manage to describe, in exquisite detail, the particulars of every bug or tree in the musical forest, they cannot manage to encompass the majesty and beauty of the forest's entirety. The handful that can manage to do both -- shortchanging nothing dynamically, timbrally, spatially or emotionally --

communicate the unalloyed experience of music to the extent it can be recorded and reproduced.

Reproduced music can transcend such parsing -- can be transcendent itself. The late Leonard Bernstein famously said that music can name the unnamable and communicate the unknowable, and to my view that describes those magic moments better than I ever could. I nearly drove my car off the freeway the first time I heard Patti Smith's "Because the Night" (on AM radio). The song was that powerfully immediate to me. I believe we audiophiles spend so much time and treasure on our stereo systems in order to re-create moments like that on a regular basis. Unfortunately the road to such experiences is filled with detours, dead ends, speed bumps, potholes and frustrations. But there are those times when the transcendence we seek from our favorite music arrives.

What puzzles and delights me is the existence of that special handful of components that make transcendence almost commonplace, even with recordings that are the essence of commonplace. Such components are not found often and the number that have done this in my audio lifetime would amount to a rather short list. The original TL-7.5 was one of them, and the TL-7.5 Series III Reference currently stands at the front of that very small pack.

Price: \$20,000.

Warranty: Five years parts and labor.

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Associated Equipment

Analog: Kronos Audio Turntable, SME V-12 and Tri-Planar Mk VII Ull tonearms, Dynavector XV-1s cartridge, Nordost Odin tonearm cable, Pass Labs XP-25 and VTL TP-6.5 phono stages.

Digital: BMC BDCD 1.1 CD player.

Power amplifiers: Lamm Industries M1.2 Reference and VTL MB-450 Signature Series III monoblocks.

Loudspeakers: Wilson Audio Specialties Sasha W/P.

Interconnects: Nordost Odin.

Speaker cables: Nordost Odin.

Power conditioners: Quantum QBase 4 and 8, four Quantum QX4s (two for sources, phono stage and line stage, two for power amplifiers).

Power cords: Nordost Odin.

Accessories: Grand Prix Audio Monaco stands and two F1 carbon-fiber shelves, Ultra Resolution Technologies Bedrock stand, Ganymede isolation footers, Nordost Titanium Pulsar Points, Shun Mook Iso-Qubes, Caig Labs Pro Gold, Ayre/Cardas IBE system-enhancement CD, Argent Room Lenses, Disc Doctor and LAST record-care products.



A second second opinion

Paul Bolin and I hadn't met in the mid-2000s, but we knew of each other because of our reviews of the VTL TL-7.5 line-stage preamp. As Paul has said since our acquaintance, "You could have written my review and I could have written yours." His point was not that we were both dazzled by the TL-7.5 (even though that was true), but that we both observed and described many of the same things about its sound -- or lack thereof -- praising it for its seeming invisibility within our systems, among *many* other things.

The original TL-7.5 was upgraded in late 2005, the resulting Series II featuring a change in the tube in the preamp's gain stage, from a 12AX7 to a 12AU7, "both for linearity and to better be able to drive the FET buffer," according to Luke Manley. That tube change also decreased the preamp's gain, which could be an issue when the '7.5 was used with high-gain amps and sensitive speakers. I was briefly able to audition the TL-7.5 Series II in my system, and it was more of a lateral move than a clear upgrade in my opinion, not achieving quite the same stunning level of transparency as the earlier version of the preamp.

Perhaps in response to this, the TL-7.5 Series III is wholly transformed, its changes happening in the power supply, the gain stage and the output-stage buffer. VTL honestly could have dropped the TL-7.5 model designation in favor of a completely new one befitting the new level of performance. This is something Luke Manley and crew wouldn't consider, however, instead wanting to support their longtime TL-7.5 customers, who can have their preamps upgraded, no matter the vintage. Returned is the transparency of the earliest '7.5, along with dynamic prowess that is state of the art here and now. The Series III is a dynamics beast, springing off the mark like no other preamp I've heard and also reaching full output also like no other preamp. Along with this is its ability to

reveal the subtlest shifts in level down to the very noise floor, all within the music's intrinsic dynamic range.

Transparency remains the heart of the '7.5's sound, this largely defined by a tonal even-handedness that translates to a lack of even slight tinting. In this respect, its performance falls into the rare category of not being understood until heard, as words to describe it -- other than the most obvious ones -- are essentially impossible to come by. Resolution is absolute, the latest '7.5 being just as adept at conveying the fine texture of cymbals or brass as it reels off drum whacks that will test your speakers' ability to capture them. I wouldn't call the '7.5 ruthless in this endeavor; it completely and naturally communicates every particle of musical detail, but never in an aggressive or ostentatious way. It comes by detail honestly.

One of the preamps within its general price range that would be a natural competitor (if it were still available, that is) is the Audio Research Reference Anniversary (\$25,000 when produced). Putting aside matters of usability (although I must call attention to the '7.5's input-offset feature, which I adore), these two preamps excel sonically in rather different ways. The Reference Anniversary has more of a sound, including a treble range with a bit more shimmer and a denser midrange. Its low frequencies are slightly fuller, and it portrays space in a more grand fashion -- as all Audio Research products do. But the TL-7.5 III makes me wonder if these traits, all of which can be considered positive, represent additions to the music, instead of portraying it as it is on the recordings -- and as the VTL preamp seems to do.

What I can say with surety is that the TL-7.5 Series III easily makes its way onto my preamp top-five list, all the more so if the amps it's paired with are the VTL Siegfried II monoblocks -- review forthcoming.

-Marc Mickelson