

# REPRINT

*an interview with...*

## Luke Manley

by Richard Hardesty



*VTL (Vacuum Tube Logic) was founded in the US in 1986 by David and Luke Manley. In 1993 the original company, which was involved in diversified endeavors, was divided and the father-and-son business partnership dissolved.*

*David Manley, a well-known recording engineer and designer, left VTL to concentrate on music recording and the development of professional studio electronics, which are sold under the Manley brand name. Luke Manley and wife, Beatrice Lam, took over the VTL name and inventory and refocused the company on a single pursuit—developing and efficiently manufacturing vacuum tube amplification components for high-end home music systems.*

A decade of innovation and development has enabled the continuous refinement of existing products in the VTL line and produced new products, like the TL 7.5 Reference preamplifier and Siegfried Reference 800-watt monoblock amplifiers, designed to advance the state of the art in consumer audio. The VTL manufacturing plant builds components using techniques which have been developed to produce exceptional reliability and consistent unit-to-unit performance.

I visited Luke and Bea at the VTL factory in Chino, California, on a hot day in early summer 2003 to learn about these new products and see how they're

made. Bea showed me the facility and the team that proudly builds each component and Luke and I discussed the high-end audio

industry and the future of vacuum tube electronics in general and VTL products in particular. Here's an edited version of our conversation.

*Luke, let's start with some background information about you and the history of your company. When and how did you become interested in music and why did you decide to enter the business of manufacturing high-end home audio components?*

My father has been a recording engineer as long as I can remember, so music was always part of my life. There was music in our home on the hi-fi system, and he took us to live classical music performances starting when I was young. Piano lessons as a kid made me realize early on that I can't play a lick but, being around studios and equipment doing wiring and speaker projects with my father, I learned how to solder pretty well.

When I went to college I studied commerce, figuring that I would apply my skills to a business that interested me. I'm a good problem solver, and I knew that I wanted to be an entrepreneur—I guess that's the great Chinese candle, as my Dad has always been self-employed.

Anyway, Dad started the original VTL company in the UK, and after I heard the early VTL amplifiers at the Chicago CES in 1986 I joined him in the audio business. We decided to move the manufacture over here to keep VTL competitive in this market, this being by far the largest market in the world for this type of equipment.

Although I started at VTL by developing and running the business operations, it wasn't long after that I had to develop the QC process for the company, which is when I learned how the VTL designs worked, and what was going wrong when they didn't.

Dad did the design work and taught me about parts buying and finished product sales, and I pretty quickly learned how the audio business worked, as I dealt with customers and handled repairs. I never worked on the assembly line, so I'm definitely not as good at soldering as our production people are.

*You've stated that music is an important part of your life. Expand on that.*

I have always been very keen on live music, and of course I enjoy my audio system at home. Bea and I are extremely fortunate to be able to have access to live music in both Northern and Southern California. In the LA area where the factory is located we regularly go to Catalina's Jazz Club where, if you sit forward of the sound reinforcement system, there is a real natural sound to the instruments that gives a good perspective on how things should sound. We also often catch performances in Orange County that we wouldn't normally be able to see in the Bay Area, where we live.

When I took over the company in 1993 I moved up to the San Francisco Bay Area, where I met my soul mate Bea, who is an avid music lover and audiophile. When we are at home on the weekends we go to the San Francisco Symphony and opera performances regularly, and we often take a trip out to New York to hear a particularly rare performance that we might not be able to catch on the West Coast.

*When you and your father were partners VTL was also involved in music recording and the design of professional components for the recording industry. Did this dilute VTL's commitment to high-end audio?*

Yes, definitely. For one thing, with multiple product categories engineering gets spread really thin trying to work with different disciplines and product specs and requirements, and it is difficult to excel at any one thing.

For an example of this one might look back to the early VTL products that came from different models, similar in design,

with pretty good sound but quite inadequate user interfaces, and honestly, not super high reliability.

It's hard enough just to keep on top of one engineering discipline, let alone multiple and completely different businesses. The notion of what is acceptable design practice in the pro studio market is totally different from the high-end high performance playback market. There are vastly different requirements for products that are in the sound creation/recording domain, where coloration is often part of the creative process, than in the playback domain, where coloration is generally not considered desirable.

Even analog and digital are two very different engineering disciplines, with somewhat different test equipment and principles. This is the main reason that VTL does not make digital products, and probably won't in the foreseeable future.

The record business is a totally different business again, with completely different customers and distribution channels, and when Dad and I split up it was a really good decision to spin the pro studio and record divisions off. Otherwise VTL would never have gotten to where we are today, with the level of sophistication that the market has achieved and that is required of products today.



You can look at our new TL 7.5 line pre-amplifier and Siegfried power amplifiers to see what I mean when I say "sophistication." In my opinion we never could have developed these products if we had continued trying to do so many other different things.

*Some people think vacuum tubes represent old-fashioned or obsolete technology. I'm sure that this question has been asked many times but, in this remote-control, networked digital age, why do you continue to champion vacuum tube amplification for home music reproduction?*

While it's true that in some circuits tubes would represent old-

fashioned technology—in power supplies, for example—it is quite clear to me that for a number of solid technical reasons vacuum tubes simply sound best when used within their capabilities, and when used in the right places. And sound quality should surely be the *raison d'être* of any company in the high-end audio business.

The major technical reasons that tubes sound better is that tubes are very linear voltage amplifiers (while transistors are not), and tube components usually use far simpler circuits and need very little error correction, also known as negative feedback. This translates to both purer sound and a closer emotional connection to music.

Most people get this when they listen to our products, but then they ask me, “Why now? How come tubes didn’t sound like this in the old days?” I respond that in the old days modern components that allowed the designer to get the most out of tubes were not available.

Examples of the modern components available today that weren’t available when tubes were in their heyday are the solid-state power supply components. The rectifiers available now are designed to address a far larger capacitor than the old tube rectifiers could, and they don’t age as tube rectifiers do, so we get stiffer and more reliable power supplies, which directly affect the sonic capabilities of the tubes in the amplifier stages.

So with modern components we are now getting far more from tubes, and with modern circuits and modern test equipment we are making tubes even more viable today than ever before, while engineering out the known typical drawbacks of tubes.

I can tell you that there’s nothing old-fashioned about our latest products, especially the TL 7.5 preamp and the Siegfried amplifiers. I truly believe that they represent the latest in amp and preamp design thinking.

*Some proponents claim that a tube is a more linear device than a transistor. Others say that audiophiles who prefer tubes are seeking euphonic coloration rather than accuracy. Would you care to weigh in on this controversy?*

As I mentioned, tubes are known to be superior (more linear) voltage amplifiers and, therefore, need less error correction

(negative feedback) than transistors generally do. To further this point, I have found that audiophiles who prefer tubes are typically real music lovers and, in my experience, musically knowledgeable listeners demand accuracy and full frequency response.

However, another reason why tubes sound the way they do is that tubes have quite a different distortion characteristic and tend to go into overload more gracefully. Generally speaking, the onset of distortion when clipping from overdrive is quite different in tubes than in transistors. Transistors typically produce high-order harmonics under such conditions, while tubes produce low-order harmonics, which, even though the acceptable distortion figures are typically higher for tubes, seem to be benign to the human ear.

The gentle onset of overload distortion and the low-order harmonics seem to yield more relaxing listening sessions for tube users.

Having said that though, I wouldn’t say that all tubed equipment is necessarily accurate. In my opinion a well-designed circuit does not rely on euphony, unless euphony is intentionally made part of the design for some kind of retro sound. There is plenty of equipment out there being manufactured today that is serving the retro sound of yesteryear, and certainly such products have their following, but VTL has never catered to that crowd. Since Bea and I regularly go to live music performances our goal at VTL is to make our equipment reproduce as accurately as possible what we hear in the live venue.

*Do you advocate the use of tubes for all circuits or do you find that solid-state devices perform better for some purposes?*

No, we don’t use tubes for all of our circuits, as we prefer to be able to make a choice and use the best component for the particular application. For example, we have historically always used solid-state rectifiers rather than any tube components in our power supplies because transistors are very linear current amplifiers, and they don’t change much as they age, so we can use them to their best advantage for reliability in power supplies.

We are presently expanding our use of transistors in the power supply area, with the new Siegfried amplifiers coming out this year, and also in the R&D work we are doing currently in



power-factor-corrected power supplies.

As far as signal path components go, transistors are also very good as true constant current sources (approaching the ideal of infinite impedance and infinite voltage) and for their capabilities with impedance matching, for which tubes are not as well suited.

However, we always use tubes in all our gain stages because, as I mentioned before, tubes are such linear voltage amplifiers. We have found that we can always get the best sound that way.

In our more recent designs—like our new TL 7.5 Reference line preamplifier—we use transistors in the output stage buffer, which I feel contributes greatly to neutrality and predictable performance into a wide variety of loads.

However, there are other issues that crop up in such designs, and the trick is to figure out how to match MOSFET transistors, with their high gate capacitances, to the high output impedance of tubes, without high frequency roll off, and one has to take care to match these components together carefully.

*Those who have never owned tube equipment are often worried that tube amplification components will be unreliable or require lots of maintenance. Are these realistic concerns?*

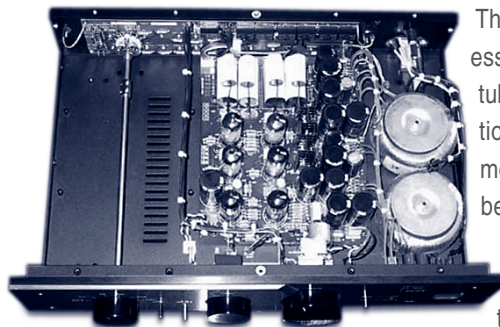
Preamp tubes usually require very little maintenance and, at their low-running currents, they should last well over 10,000 hours. This might be an easy way for users who are new to tubes to get a taste of the tube sound: Start with a tube pre-amp, which will mean little or no maintenance, and which will bring noticeable sonic improvement to a solid-state amplifier.

Power tubes certainly will eventually require replacement as they do wear out, but how quickly they wear out depends on the equipment design and the usage. For instance, tubes will wear out faster if the amplifier is played consistently at high

levels. But the worst that can happen with worn out tubes is that the amplifier will sound like it doesn't have the snap in the top end or the bass punch that it used to when the tubes were new. Replacing the tubes completely rejuvenates the amplifier and the sound quality.

In all the VTL amplifier designs the output tubes are biased for very low current, which extends tube life under idle and at low power. And in our newest designs we are extending tube life by optimizing the operating points of the output tubes and warming up the tubes slowly, as well as providing very low trickle current ever-on positions.

As far as failure modes go, I must point out that any circuit not properly designed can be unreliable, whether designed with tubes or transistors. Unfortunately, when transistors fail they tend to take everything else out on the board, so repair can be very expensive.



This is not necessarily so with tubes. By definition tubes are modular and can be easily replaced!

Seriously, though, tubes are very rugged and can stand adverse conditions far longer and recover far quicker than solid-state components can. Tubes are also very forgiving with circuit tolerances, and so they tend to be in very simple circuits, which then have the benefit of less to go wrong, and the amplifier is far simpler to repair if something inconvenient does happen.

There are some very simple things one can do to get maximum protection should a tube fail, so that the major problem then becomes one of replacement to maintain sound performance when they wear out. For instance, one can keep high voltages and currents only on highly insulated Teflon wiring, rather than running it on circuit traces, and one can use up-rated components on the board to handle surges and high-tension fuses to open before any damage is done.

However, we are cognizant of the fact that people don't want to have to know a lot about maintaining a tube amp, and our new

Siegfried amplifier eliminates most maintenance questions, with fully logic-controlled auto bias to keep the tubes in optimal operating condition all the time, fault sensing for protection if a tube does fail and diagnostics for estimating tube life, with service reminders to alert users of the need to check and replace worn tubes.

*Your TL 7.5 preamp contains just two inexpensive vacuum tubes. Your Siegfried amplifiers have auto bias and a complete system of fault detection and protection, all of which makes them very user-friendly. Will some of this technology trickle down to the more affordable products in your line?*

The main reason for starting with an expensive design is to have the budget to solve problems, and then the challenge becomes figuring out how to make the same technology available in less expensive products.

For instance, both the TL 7.5 and the Siegfried were 5-man 5-year projects—each. Just to give an idea of the R&D costs involved in these types of projects...

Certainly we will leverage as much of the huge investment we have made into lower-priced products in the line, but this will take some time, and it will probably raise the cost of the models that get the new technology somewhat.

*Components that combine FETs with vacuum tubes, utilizing microprocessors and numerical displays, must be designed by a team of engineers from various disciplines. How did you bring these advanced product ideas to fruition?*

It is pretty different now from the days when Dad did all the engineering. The market for high-performance products has become far more demanding of performance, while consumers expect to interact far less with the equipment. At VTL we have to have five engineers designing new products, each with quite different skill sets.

We have one engineer working for us who has seen and serviced just about every piece of test gear ever made, and who specializes in tube differential circuits. He nuts out the basic audio circuits based upon the design spec that we are starting with.

Another of our engineers specializes in switching power sup-

plies using MOSFETs and complex interleaved magnetics, and from this we have the capability to completely understand the power supplies in all the VTL products and their effect on the sound of the design.

Two other engineers are responsible for all the control systems that keep the circuits operating properly and the software that controls the hardware to do that. And the fifth engineer specializes in PC board layouts and mechanical engineering (metal packaging and industrial design).

However, I have to point out that even with all the engineering and sophisticated test equipment that we use, we still have to rely on our ears to verify that what we see on the bench actually correlates with what we hear in the concert hall, and at VTL it has become our specialty to reconcile the two. As I mentioned, Bea, who is actually also an EE, and I regularly attend live music concerts, and one of the engineers here is also a very good listener, so between the three of us we are able to do the final voicing after a new design leaves the bench.

Between these five members of the VTL design team the products get designed, spec'd and tested so that they are ready for the market, which is quite different from the way we did it in the old days when my father was the sole engineer and critical listener.

*Single-ended triode amplifiers and transformerless tube amplifiers are fashionable these days but your company hasn't jumped on either bandwagon. Why?*

I would think that with single-ended triode amplifiers it is technically unfeasible to get full frequency response because the output transformer saturates, and I feel that midrange-only tends to sound rather boring after a while.

Regarding transformerless tube amplifiers, since tubes are voltage amplifiers and are not ideal current amplifiers, and because of the high output impedance of power tubes, OTLs are not equipped to efficiently couple into the low impedances of speakers, which makes it hard to get good bass performance into real-world loads.

VTL is not fashion-oriented, and we require full frequency response into real-world loads, so SETs and OTLs are pretty much ruled out for what our customers demand.

*Is it possible to make a really quiet tube preamp? How about a high-gain phono stage?*

It's true that, with their higher impedances, tubes can be more susceptible to noise, but in that respect I believe our current line preamps are pretty quiet. The TL 2.5, 5.5 and 7.5 are all about -110dB, and the differential input of 7.5 offers increased CMR and lowered signal-to-noise with the extra 6dB of gain that comes from balanced operation.

There is always some gain noise in high gain circuits, which, depending upon the particular design, can come equally from tubes or transistors, and which shows up as a soft high frequency hiss. But how much of this noise is transmitted into the room depends upon the sensitivity of the amplifiers and the speakers.

Tubes are desirable in phono stages, which are the highest gain circuits, but they have strengths (linear voltage gain) and weaknesses (noise and susceptibility to interference). Even though tubes can be made to be quiet, people have different tolerances for noise level and the noise output depends heavily upon the rest of the system.

One would think that step-up transformers might have much to offer in this application, but we have found that they are not the way to go because of their unpredictable reactance to transmitted capacitances. They also sound artificial. Audiophiles know this and usually aren't very accepting of input coupling transformers.

At VTL we have an entry level TP 2.5 standalone phono stage in our Performance series that has about 60dB of gain, which means it can take moving coil cartridges down to about 0.5mV before the noise level becomes too high. And we have an internal phono stage for the TL 5.5 that can take cartridges down to 0.1mV, and that will likely be made into a Signature standalone phono stage in the near future.

We have been working on a Reference level phono stage, but when we introduce a new product in the Reference series it has to be able to address a need that is currently not being addressed in any other product.

It seems that some sort of hybrid circuit might be the way to go for a phono stage, but we are still looking at the best way to

achieve this and still get the best of both worlds. So our big phono stage is still some years away.

*Negative feedback has a significant sonic impact on solid-state amplification components. What is your position on negative feedback and how is it used in your tube products?*

At VTL our position on negative feedback is that it is useful and even desirable, but in small amounts. It's kind of like spice in cooking—if you add too much the spice overpowers the meal.

The reason solid-state gain stages need so much negative feedback is that they typically have a lot of gain, and they also are not very linear voltage amplifiers, so they need lots of error correction, or NFB. The problem is that, while high NFB circuits yield measurements that are really good, negative feedback tends to cause sonic and emotional disconnects and products with high NFB sound flat and lifeless.

Because tubes are such linear voltage amplifiers and because we use only tubes in all our gain stages, extremely low amounts of NFB are used in VTL components, and the exact amount is determined by listening. VTL designs typically use very low amounts of NFB: under 5dB in preamplifiers and around 10dB in power amplifiers to help handle complex loudspeaker loads.

*What are you developing now and what can we expect to see from VTL in the future?*

We're working on getting the Siegfried into production, for shipping release September 1st. After that we'll have a stereo version of Siegfried in a tower chassis at 300 watts per channel, as well as a one-box version of the TL 7.5 line preamp, which will be priced between the 5.5 and the 7.5, and called the 6.5. As I mentioned above we'll also eventually do two stand-alone phono stages for the 5.5 and the 7.5.

We're in the research stage on some other projects that I'll be able to talk about in more detail later this year when we're closer to completion, and we'll probably pursue some applications for multichannel products in the not-too-distant future.

Lots of work to be done, and some exciting products!

*Is there anything else you'd like to share that might help **Journal** readers in their search for musically satisfying amplification components?*

From this discussion you know I feel that tubes, with their inherently simple circuits and low NFB, sound the best, but I would think that the key to enjoyment of one's audio system is to buy equipment that makes sense to the listener. In other words, I would choose only the equipment that sounds good to me and suits my system, rather than something that was highly recommended by somebody that might not know my system.

On the technical side, I would say that specs and measurements don't always tell the whole story, but some specs are important. For instance, impedance matching and overload headroom would be conducive to good sound that is predictable under a wide variety of conditions, and balanced differential circuits (without use of a reactive transformer) seem to sound more dynamic, but I would make sure that the balanced circuitry is properly implemented, rather than just something glued on by the marketing department.

In closing, I would like to say that I sincerely hope that all of this information is of help and use to **Journal** readers, and I want to thank you for visiting us today.

*Thank you both for allowing me to visit your production facilities and for providing lots of information for our readers. **API***

## VTL 7.5 REFERENCE

LINE STAGE PREAMPLIFIER by Shane Buettner

*The first in VTL's new "Reference" line of products, the VTL 7.5 is a preamp I've had an eye on since I saw a preproduction model with a clear plastic lid at CES a couple of years back.*

*Looking inside and learning how the 7.5 is made, it's hard not to let the gear head side of me take over. The proof is always in the listening, but knowing that a piece is clearly a smart run on the state of the art gives me a charge.*

*At a hefty \$12,500 with no phono stage, the 7.5 is a two-box hybrid design that uses mostly solid-state components and just two tubes in the gain stage to provide what VTL refers to as "harmonic opulence."*

*This preamp keeps all the "dirty" (read noisy) stuff, like the control microprocessor and power supply, in a separate box from the audio circuits. As you'll read below you'll also get as feature-laden a preamp as there is out there. The very idea of reviewing a component like the VTL 7.5 is an opiate to a reviewer like me.*

### The Two Boxes



First, don't stack the 7.5's two boxes—they need ventilation. Make room for them

somehow, some way. The smaller of the two boxes that comprise the 7.5 is the control box with the display and volume control knob and buttons on the outside. In addition to selections for input sources, tape and processor loops, there are also buttons for inverting phase, balance and muting. The mute button also doubles when held down to disable an unused input entirely.

The solid-state power supply and control electronics are on the inside of this box, with two toroids that look like they'd be just as comfy in a power amplifier. An umbilical carries power to the audio circuit box, and two control cables, one for each channel, with SCSI (physical) interfaces carry control signals that switch inputs and shift relays that switch discrete resistors for the volume controls of each channel. Only two relays and two resistors per phase, per channel, are in signal path at all times.

The audio box is fully balanced from input to output in a mirrored, dual-mono topology. There are four labeled inputs and two tape loops and two sets of outputs, all with balanced and single-ended connections. The only tubes in the box are two 12AX7s used in the input/gain stage, which is direct-coupled to a MOSFET output/buffer stage. This makes for longer tube life and less expense when they do finally need replacement—very user-friendly, as the VTL motto says.

The output stage employs high-output MOSFETs creating super-low output impedance (rated at 25 ohms with a maximum of 150 ohms at 10Hz) making it a match for virtually any amplifier or

cable run imaginable. The volume control has 95 steps of approximately 0.7dB performed by discrete relay attenuators. The overall topology is short and simple, with a very low 1.5dB of negative global feedback.

As you'd expect with a product of this caliber, the parts and construction quality are rock solid and of the highest order. The only thing I'd interject, although I feel bad about mentioning something so seemingly superficial, is that for this amount of money some consumers might expect a little more tactile sensation on the fit & finish front. Although the 7.5's two boxes are finely finished in aluminum (especially in black), at least one big, bitchin volume knob would be good—the 7.5's volume control is pretty much a nondescript dial.

### Features and Functions

The VTL 7.5 is incredibly well thought out and is one of the most versatile products I've ever encountered in any category. For starters, VTL is clearly aware that two-channel audio isn't the only game in town and that many listeners (like me) have built, or may want to build, a home theater system around their music playback rigs. The 7.5 is ready. Any of its inputs can be configured for unity gain for processor pass-through.

There are four programmable trigger outputs for amplifiers, controllers, screens, et cetera. And, on top of that, the remote commands have been designed to operate in a discrete fashion for each command—separate on and off commands instead of a single button that switches between the two states, for example—so that the 7.5 fits right into a Crestron/AMX-style automated control system.

Beyond that, holding down any of the input selection buttons on the front panel switches that input between balanced and single-ended operation and, of course, the 7.5 remembers the selection. An LED at each input glows blue for balanced and green for single-ended. Additionally, holding down the mute button with a particular input selected will disable the input, and holding down the input and the mute button will reenable.

Volume offsets can be established to compensate for varying gain levels between source components with a simple combination of button pushes, and another combination of button pushes can lock out the programming features so you don't walk into your listening room one day to find that someone's

messed with your setup once you have it all dialed in.

The 7.5's remote is a heavy aluminum job and the only issue I have with it is that the buttons are all the same color and size and the font explaining each button's function is tiny black scrawl. Beyond that, all of the inputs can be directly accessed and, in addition to balance, mute, and phase inversion, there is a "fade" button that gently drops the volume down from its current level to 20dB. Also, a "soft" start-up sequence fires up the 7.5 over 90 seconds with a countdown on the front panel displayed for the duration. Among other things, this is supposed to be easier on the tubes for increased longevity.

### Performance

The 7.5 has more neutrality, clarity, and inner detail than I've ever heard from any preamplifier component. It's free of distortion and color of any kind and yet is so relaxed and at ease with the way it goes about its business that you almost take it for granted.

When I had the 7.5 in my system it simply wasn't making the impression on me in the same way that the ARC or even the little VTL 5.5 were. I kept noticing astonishing little pockets of detail and things that weren't quite apparent with any of the other preamps, but it's so completely neutral that none of these things hit me over the head. And hey, sometimes reviewers need a product to stand and wave its hands in the air and say, "Look at me." The 7.5 doesn't do that. It's confident waiting for you to figure out how damned good it is.

The first thing that started creeping up on me is the sheer delicacy of its resolving power. Details are so remarkably free of any form of grain or glare or anything resembling stridence. It's completely nonmechanical and antithetical of any form of "hi-fi" sound. It's smooth, clear and easy, and yet you can look more deeply into the music, which hangs together in between and around the speakers (never at them) in an entirely convincing fashion.

Spatially, none of the other preamps reviewed here were in its league. The 7.5 pushed vocals and instruments way back in the soundstage, with layers of music in between in clearly delineated spatial planes. Musical events were focused in space in a more precise and holographic manner than any of the other preamps could deliver.



While what's been said already applies mostly to the midrange, let me assure you that extension at both frequency extremes is nothing short of remarkable. It's unbelievably clean in both directions and it just keeps on going. Piano keys and cymbals splash and light up the soundstage, and then the decay just floats onward and upward naturally and convincingly.

With the deepest bass the 7.5 seemed to have an extra octave of extension that the other preamps didn't. And yet, it was clear that this was not an emphasis of any kind, just clear authoritative and articulate bass that will go down as far as your speakers allow.

Most of these revelations came to me only after the 7.5 had gone and I was left wondering if the music had gone with it! Listening to the other preamps in the 7.5's wake made them sound woolly and colored in comparison, and altogether less refined. The 7.5 is a remarkable piece, lacking only in the dynamic contrast and authority that the ARC and the little VTL (!) have in spades. I can't find a reason why this would be, especially since the VTL 7.5 had as black a background as I've heard—I mean pitch black and lined with plush luxuriant velvet.

Since the 7.5 was still coming into its own when it had to leave I was left wondering if that swing might have been a week or two away in break-in. It's hard to imagine that the bigger, out-board power supply of the 7.5 couldn't match its little brother's dynamics and I hope to follow up on that aspect of its performance in a future issue.

## Conclusion

Simply put, the VTL 7.5 is the finest preamplifier I've heard. It sounds exactly like what it's intended to be: the ultimate combination of the noise-free clarity and focus of solid-state, with just enough tube sound to impart some of the vividness, life and musicality that will keep you listening for hours on end.

As if all that weren't enough, the 7.5 is the most fully-featured preamp I've seen, with extraordinary capability for assimilation into the most complex music/cinema systems. The VTL 7.5 is the pinnacle of technical innovation and performance in preamplifiers. [APJ](#)

## VTL 5.5 LINE STAGE PREAMPLIFIER by Shane Buettner

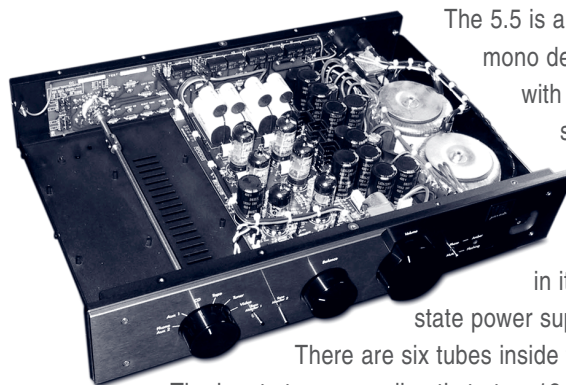
*Vacuum Tube Logic's tag line is "Making Tubes User-Friendly" and their \$3,500 attempt at doing just that is the TL5.5 line stage. This tube preamp has six inputs, one of which is a phono input that can be configured with an integral phono stage for an additional \$750. As you've read, we were fairly wowed with the big VTL preamp, which appears to have put its stamp on the state of the art. So, how's the little brother?*

## Outside

Good looks aren't what you get for the dough you throw down on a VTL 5.5. Its look is decidedly retro, and is utilitarian even by that standard. On the other hand, the performance-oriented among you will be stoked that what's inside is what you've paid for. There are three large knobs for input source selection, balance and volume, in addition to some toggle switches that switch in the tape and surround processor loops, and another double-duty toggle with a status LED that inverts phase and mutes the preamp.

The 5.5 has five line level inputs, plus a unity gain processor pass-through input, a tape loop in/out, and an input for the optional phono stage with a ground (all single-ended). There are two sets of single-ended outputs and a single pair of balanced outputs. And, of course, the AC cord is removable.

## Inside



The 5.5 is a dual-mono design with two surprisingly large toroids in its solid-state power supply.

There are six tubes inside the 5.5.

The input stage runs directly to two 12AX7 tubes, which are the first differential gain stage. The two other pairs of tubes are output to the differential buffer stage—one tube for each leg of the signal for the left and right channel so it has a balanced output section.

When phase is inverted, different tubes are selected, and when you use the single-ended outputs just one signal leg per channel is selected. The volume control is a continuously variable, laser-trimmed, motorized pot by Alps. Although much of the circuitry in the 5.5 is balanced, the inputs aren't and the primary reason is that the 5.5 would have to be much more expensive in order to have a properly matched, fully differential volume control.

Another thing you'll notice in the 5.5 is the expanse of real estate along one side of the box. That's for the \$750 optional phono stage, which adds six more tubes of its own to the box. Two of the tubes are used for left and right channel gain for moving coil cartridges, and two others are used for l/r channel gain for moving magnet cartridges. The RIAA network is active with a feedback loop varying gain at different frequencies. The final two tubes feed the buffer stage and the phono stage as a whole shares the 5.5's main power supply.

The 5.5's remote control has volume, mute and phase inversion but not input selection or selection of the tape or surround processor loops. Those must be addressed on the front panel. Further, with a continuously variable pot volume control, fine volume adjustments from the remote are difficult to make. But what the 5.5 lacks in convenience it makes up for in pure performance, as you're about to find out.

### Performance—The Life of the Party

The first thing that quite literally jumped out at me with the VTL 5.5 is that it has dynamic swing and contrast up the wazoo. The bass is big and robust without bloat, and the midrange is full and rich with a very airy and lively form of tube life. It has air and transparency up top and is a driving force of musical intensity and, well, fun!

This preamp had me pulling out my records one after another. Not audiophile records to dissect and discern what it was doing and what it wasn't doing, just records of stuff I like, old and new, all genres. All the adjectives I can come up with revolve around snap, crackle and pop, as well as musical bloom and life. The music erupts to life with authority and shocking amounts of texture.

All the 5.5 gives up to the big boys that cost 2 to 3 times more are small amounts of microdetail, a diopter of spatial focus and image holography, and greater ability to play louder without strain.

The 5.5 is a little rough around the edges when it's pushed hard. You'll hear just a bit more musical expression and articulation in an A/B, head-to-head with one of the big boys but that's about it. And the system in which you perform this comparison must be at the very tiptop of its game to reveal these differences.

Unless you've got something right next to the 5.5 that goes to the nth degree, you're going to be too damned busy listening to music to worry about any of that. It's spatially defined, especially front-to-back, and the soundstage is expansive. This thing is just right on the money. And I mean that. This isn't a good, entry-level preamp, it's a damned good preamp, period.

As the review period was coming to a close, VTL sent over a 5.5 outfitted with the optional \$750 phono stage. The loading was fixed at 750 ohms, and was used with my Linn LP12 table, and Linn's Akiva cartridge which has a specified output of 0.4mv. The 5.5's phono stage seemed to have very high gain.

A fair amount of "tube rush" was audible, and while it diminished significantly once the needle was dropped onto a record it didn't disappear entirely. The solid-state Linn Linto was dead quiet in comparison, and the much more expensive (\$4K) Aesthetix Rhea, which also uses tubes, was also much quieter through the 5.5's line stage than was the 5.5's integral phono stage. The Rhea's tube noise disappeared completely once a record began playing, where the 5.5's phono seemed to let more noise through during quieter passages than I wanted to hear.

Beyond that, the integral phono sounded like the 5.5, which is to say airy, lively, and fun, through the midrange and on top, with snap and musicality to spare. The bottom end is a bit bloated and lacking in articulation.

The 5.5 didn't quite come to life with its own phono stage the way it did with the Linto, which is lighter in the bottom but also more articulate and fast. There is definitely a good degree of that vivid tube sound that I like so much in the 5.5 with other sources, and perhaps enough to recommend the integral phono at an additional \$750. I found more magic pairing the 5.5 with the Linto at \$1,600, so in that case you do get a little more for the extra bucks, in my opinion.

### Conclusion

Except for Ayre's K-1x, there isn't a single preamp I've listened to that beats the VTL 5.5 for apparent dynamic swing and

impact. Its only rival is the ARC Ref 2MKII, which costs nearly three times as much.

While some of my initial fascination with the 5.5 was what it was doing relative to its price point, that only lasted during the initial listening period. Even after extended listening to the other excellent preamps reviewed for this issue, I could always sit right down and listen to the 5.5 with a big grin on my face.

I enjoyed it in its own right under all circumstances. The VTL 5.5 is one of the most continuously engaging components I've ever experienced. If you're shopping anywhere near this price point and don't check this thing out, you're just plain nuts. [APJ](#)

## **VTL** *Richard Hardesty comments on...* **5.5 & 7.5** LINE STAGE PREAMPLIFIERS

*The VTL 7.5 combines neutrality and transparency with a unique blend of accuracy and emotional satisfaction that beats all rivals. It has all the transparency and freedom from coloration of the finest solid-state designs and resolves every subtle detail in the recording. This resolution is combined with the most natural and satisfying presentation of music I've heard. Nothing in the recording jumps out and becomes more or less prominent to the listener, but substituting any other preamplifier allows the listener to become clearly aware of what's missing without the VTL 7.5 in the system.*

*The VTL 7.5 was the best preamplifier I've auditioned and it made the others sound slightly colored by comparison.*

*The VTL 5.5 was perhaps the most musically satisfying preamplifier in this group. It couldn't be singled out as the most detailed and revealing. It didn't have the most up-to-date cosmetics or the newest remote control features. It lacked balanced inputs and it used a motorized pot for attenuation. But the VTL 5.5 reached out and grabbed me by the soul and implored me to simply sit back and enjoy the music.*

*This is perhaps one of the most enjoyable preamplifiers ever, regardless of cost. It gets the music right and faithfully follows the rhythm and dynamics of the performance. No musical nuance ever sounds wrong and the thrill lasts through many hours of extended listening. I urge every **Journal** reader to seek out and listen to the VTL 5.5. When you do, you'll know*

*what high-end audio is all about. Finding out that you can buy one for just \$3,500 will surely add to your excitement.* [APJ](#)

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