

## Paring down to essentials elevates the performance: A glimpse into the vacuum-tube powered heart of current ARC Reference preamplifiers.

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In developing the first Reference series vacuum-tube preamplifier, Audio Research's founder Bill Johnson set out to re-think the circuit landscape – where he had been in a long and storied career in audio design and where he yet wanted to take it. Where many Audio Research designs were known for their complexity, Bill divined upon a simpler solution than ever before and the results have paved our way forward, shaping our preamplifier design philosophy to this day.

Once you hit upon a solution where any further attempt to either further reduce or increase complexity takes you backward, your instinct and ears let you know that you have entered 'the zone.' The Reference 1, with its single gain stage, was the culmination in 1995.

Where has that taken us?

Let's begin by examining the design hallmarks of the current Reference 6 preamplifier, inarguably the finest single-chassis vacuum-tube preamplifier crafted in our 47-year history.

The Ref 6 builds on the previous REF 1, 2, 3 and 5 with substantially heavier aluminum side panels. Their added mass provides a more effective energy sink for the attached beefy transformers. It also improves structural rigidity and torsional chassis stiffness, which reduces tube and circuit board vibration, lowering distortion levels dramatically.

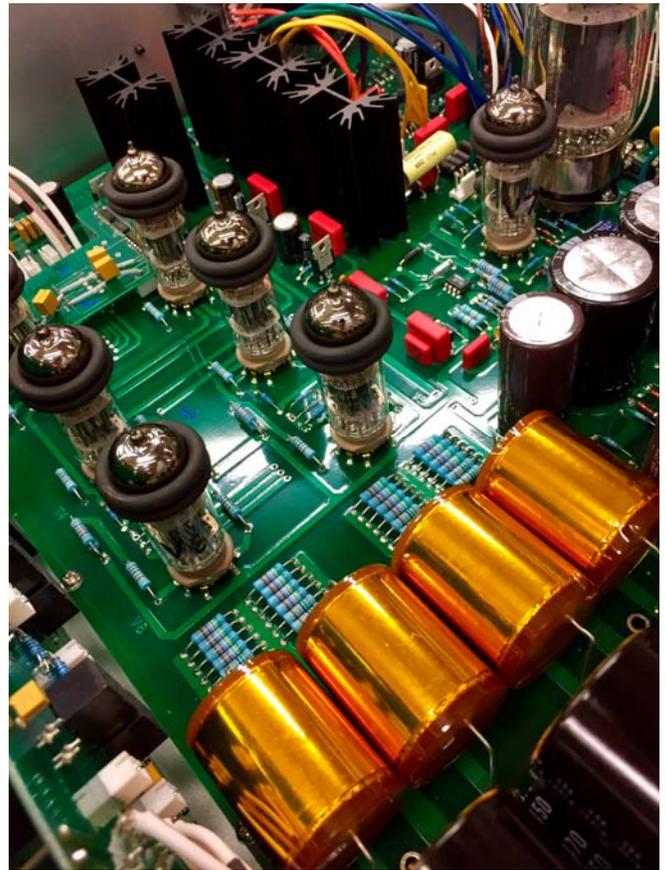
Employing vacuum tube regulation in the power supply, along with bulk capacitance reserves normally employed in a large power amplifier, dynamic integrity is improved under all music signal conditions.

Internal wiring is selected to achieve increased time coherence, applied with large cross-section pure copper circuit traces, cryogenic treatment techniques, and tube damping to further reduce distortion and improve low-level music information retrieval. Non-metallic covers reduce chassis vibrations and internal energy-field reflections to lower distortion, improve signal-to-noise ratio and further improve resolution.

Finally, there is the 6H30-based vacuum-tube amplifying heart, the working essence of all our Reference (and Foundation series) preamps. Multiple 6H30 tubes are employed in each channel for the most robust gain and drive capability of any nine-pin miniature-based tube design. The 6H30 was sonically evaluated at length and chosen for its superior current swing capabilities, dynamic drive and lower noise and distortion vs. previous-generation 12AX7 and 6922 tubes used for many decades.

Most importantly, this circuit topology features the three listening-proven, fundamentally superior operating parameters ideal for low-level signal amplification: class-A operation, triode design, and zero feedback. Pure and simple: nothing in vacuum tube preamplifier technology has yet surpassed this combination for sheer musicality and realism.

While future generations of our preamplifiers will push to further erase perceived boundaries between you and the performers, it is clear that circuit simplicity over unnecessary complexity must guide this mission.



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