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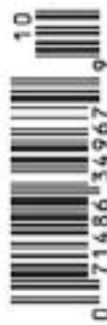
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Audio Research Reference 160M monoblock power amplifier



At a recent dealer event in Seattle, after being impressed by the musical rightness of an Audio Research Corp. LS28 preamplifier and VT80SE power amplifier driving a pair of Sonus Faber Guarneri loudspeakers, I spoke with ARC's Dave Gordon about reviewing one of the company's new amplifiers. Less than a month later, two ARC Reference 160M tubed monoblock amplifiers (\$30,000/pair) were headed my way.

Soon thereafter I received a huge, pallet-bound stack of boxes as tall as my neck: the two monoblocks, plus one ARC preamp—their hefty, one-piece Reference 6 (REF 6) line preamplifier (\$14,000), which Michael Fremer reviewed in [December 2016](#). Standing on tiptoe to disassemble that tower

and get everything into my music room and set up? Loads of fun!

Light of weight, but . . .

When Dave Gordon visited to check out my system and help set up the Reference 160Ms, he removed their top covers and carefully installed the four KT150 output and two 6H30 gain-stage tubes, each tube bearing a label indicating the socket that tube was to be inserted in. He then connected each amp's cooling fan—mounted on the back of the removable tube cage/cover—by plugging its electrical lead into a 12V socket on the amp itself.

One thing that made unpacking the 160Ms relatively easy was that each weighs only 56.2 lb and, for a monoblock, isn't huge: 19" wide by 10" high by 19.25" deep, including the handles on the front. I had no trouble moving them around on my own, either by grabbing the handles or taking hold of their undersides toward the rear, where most of the weight is. But I'm used to heavy amps—my reference [Pass Laboratories XA200.8](#) monoblocks (\$42,000/pair) weigh 160 lb each, and the Dan D'Agostino Master Systems Progression monoblocks (\$38,000/pair), which I reviewed in [October 2017](#), weigh 125 lb each. I couldn't help wondering if light of weight would mean light of sound.

After his visit, Gordon explained by phone that, because the 160M's design allows heat to dissipate from the tubes, there's no need for the huge, heavy heatsinks that greatly increase the weight of solid-state amplifiers. He also noted that ARC prefers the sound of E-core transformers, using toroidal transformers only in their preamps (along with R- and E-core transformers). All transformers are designed by ARC, and custom-manufactured out of house in North America.

ARC also designs its own critical capacitors and hook-up wire, also outsourced, and their printed circuit boards. The 160M is the first ARC product to include a four-layer PCB; it's assembled by hand using a special solder, and is composed of materials that Gordon said sound better. "We

think a properly laid out circuit board sounds better than point-to-point wiring, because it eliminates connections that act as antennas for noise," he explained. "We've been able to lower the noise floor remarkably with a four-layer board."

The Reference 160M is the first amp in a series that is projected to include at least one bigger mono sibling and two stereo cousins. It's also ARC's first Reference amp with single-ended inputs and fuses for each tube, and one of their first amps to offer an auto-bias system that both compensates for tube aging and allows the use of pentodes other than the supplied KT150s.

Those KT150 tubes are used in many other ARC amplifiers. "Sonically, we like everything that they do," said Gordon. "They're more dynamic, have a finer grain structure, deliver more information, a bigger stage, and a great sense of air. Their authority is pretty spectacular, and there are no downsides except their price. They also last 50% longer. We've gone from 2000 hours with our former 6550 and KT120s to 3000 hours with the KT150." Given that ARC recommends 400–600 hours of break-in for the 160M to achieve its full potential, the longer tube life is significant.

The circuits of ARC products are tuned using various damping devices, and are voiced using, primarily, speakers made by Wilson and Sonus Faber, and sometimes Magnepan. "We started designing with Wilson Grand SLAMMs in the late '90s, when Dave Wilson brought over a pair," Gordon noted. "We've since used the MAXX, MAXX 2, MAXX 3, WATT/Puppy 5, 6, and 8, Sasha 1 and 2, and now the Alexia 2. The cabling we use with them is mainly Transparent Reference XL and Shunyata, but we've also listened to Nordost, Kimber, Cardas, and AudioQuest to ensure no odd interactions."



Gordon insisted that ARC's design philosophy and goals have remained the same since the late [William Zane Johnson](#) founded the company in 1970, at a time when no manufacturers of tubed home-audio hi-fi gear remained in the US. "Bill played the piano and didn't think that solid-state equipment sounded like music," Gordon said. "Solid-state was efficient, less expensive to build, and not as hot as tubed gear, but Bill believed that we can hear things with tube equipment we can't measure. He also valued attributes that many people don't associate with tubes. He wasn't interested in sweetening, softening, or making music sound more listenable in a system that's maybe a little on the edge."

Bill Johnson designed all of ARC's earliest products, then brought in other engineers. In 2008, at age 81, Johnson sold ARC to the Italian group Fine Sounds, who, according to Gordon, "understood who we were and said they wouldn't change distribution or sound." Fine Sounds, since renamed the McIntosh Group, also owns McIntosh Laboratory, Sonus Faber, Sumiko, and Wadia. The last ARC engineer who worked with Bill Johnson,

Ward Fiebiger, had some input into the Reference 160M before his death last year.

"We believe that tubes have a character that draws you," Gordon said.

"That's the only reason to buy tubed products. We've designed our products so that you can turn them on, not have to worry about anything, and just enjoy the music."

Features

On the Reference 160M's front panel are four buttons, labeled Power, Meter Light, Tube Monitor, and Ultralinear/Triode. When Power is depressed, a green LED blinks for two minutes until the voltage stabilizes and the monoblock is ready to pass signals. (I always allowed a good hour for warm-up after that.) The acrylic "tube window" on the front panel is made with two layers, etched to create an illuminated power meter; the Meter Light button toggles through three levels of illumination plus an off position. I loved seeing the large white watt meters illumined. The Tube Monitor Button, when pushed and held, illuminates an LED on the front panel for each tube; these light up green when a tube is okay. The fourth button switches between Ultralinear (*ca* 150Wpc) and Triode (*ca* 75Wpc) modes. In Triode, the green LED above the button turns a blue/white that's hard to distinguish from green unless you're close to it and looking at it from the right angle. But as you'll read below, once you listen, you'll be able to tell what mode the 160Ms are in.



Given that the 160M's manual is [available online](#), here I confine my description of its features to those I consider most important. First among these is that the 160M requires a 20-amp power cord (a 12-gauge, 20-amp cord is supplied), which may be a consideration for audiophiles who've already dropped considerable sums of money on aftermarket 15-amp power cords.

The 12 bolts that must be removed to lift off the 160M's cover to install the tubes unscrew painlessly with a tool supplied by ARC—nothing like the horror I endured every time I needed to bias my old, considerably heavier Jadis Defy-7 by turning it on its side and removing from its bottom plate 16 frequently jamming screws.



The cooling fan's speed is controlled with one of three small toggle switches on the 160M's rear. With the fan switched to High, I could hear it whirring in quiet musical passages; I stuck with Low. The only problem I encountered was that one fan didn't turn on—its connector cable had developed a kink. This kink master soon managed to bend the connection.

The other toggles enable auto shut-off (which powers-down the amp after 2 hours of no signal, and which I disabled), and the choice of balanced or single-ended inputs. As I quickly learned, if you use balanced cables (XLRs) but forget to flip the switch from single-ended (RCA), you'll hear lots of noise. Otherwise, the 160Ms were remarkably quiet. (Ditto the REF 6 preamp, at the volume levels I used.)

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One very cool feature is the 160M's tube-hours counter, just below the three toggles. I checked it frequently while completing the 400–600 hour break-in process that ARC had begun. Many makers of tube amps caution against turning on their amps when they're not connected to speakers. Although Dave Gordon had told me that I could break in the 160Ms' tubes without connecting the amps to my speakers, ARC later sent me two huge, heavy brass resistors. I connected these to the 160Ms' speaker terminals, to ensure that break-in would occur evenly.

Setup

I positioned the 160Ms on [Grand Prix Audio Monaco](#) amp stands equipped with Grand Prix's new donut dampers, provisionally named the Visco Voids. Though their name may invoke images of the ominous black hole that gobbled up the Starship Enterprise, my limited experience of the Visco Voids suggests that they're now Grand Prix's best dampers for controlling resonance and ensuring tight bass. Nordost Odin 2 balanced interconnects (XLR) linked the 160Ms to either the [dCS Vivaldi](#) DAC or ARC's REF 6 preamp; in the latter case, single-ended Nordost Odin 2s (RCA) connected the REF 6 to the Vivaldi.



The 160M has separate speaker terminals for 4, 8, and 16 ohm loads. Given that the [Wilson Audio Alexia 2](#) has a nominal impedance of 4 ohms, my first inclination was to use the 160Ms' 4 ohm taps. But when Gordon visited, he made a point of hooking up the Alexias to the amps' 8 ohm taps, insisting that all 4 ohm Wilson speakers sound best through the 8 ohm taps of ARC amps.

Wilson's Peter McGrath insisted, in a subsequent exchange, that, indeed, "Every Audio Research amp we've used with every Wilson speaker we've made has sounded best on the 8 ohm tap, without exception. The minute you'd go to the 4 ohm tap, the bass would become thicker, woollier, or out of control." It never occurred to me until after I'd sent the amps on to John Atkinson to be measured that, regardless of those cautions from ARC and Wilson, I should have tried the 160Ms' 4 and 16 ohm taps to confirm their findings for myself.

Listening

From the get-go, music through the Reference 160Ms elicited a loud "Whoa!" In short order, all my expectations of what I'd thought was ARC's house sound—and the sound of most tubed gear—went out the window.

The first track I played, via the dCS Paganini transport, was Antonio Bertali's sometimes riotous Ciaccona for Violin, Keyboard, and Chitarrone, from violinist Rachel Podger's *Perla Barocca: Early Italian Masterpieces* (SACD/CD/DSD64, Channel Classics 36014). While I'd heard "blacker" backgrounds, the distinctive tone of Podger's gut-strung period instrument was there to savor in full. Undertones and overtones were present in equal measure, and the piquant sounds of Podger's plucked strings contrasted beautifully with the warmth of Marcin Swiatkiewicz's pump organ and Daniele Caminiti's theorbo.

"Simply delicious," I wrote in my notes. I especially noticed a musical transition about four minutes in, when the violin, guitar, and theorbo take over from the bubbling organ. When instrumental lines doubled, the sound was just yummy. When everybody revved up at once and the intensity increased, hard-to-distinguish details and sonorities emerged with clarity.

Next came Vadim Gluzman performing the Brahms Violin Concerto, with the Luzerne Symphony Orchestra under James Gaffigan (SACD/CD, BIS 2172). I reveled in the gorgeous colors of Gluzman's instrument, the soaring freedom of his playing, the living quality of this performance. When in reviewer mode I often listen to only snippets of long works, but Gluzman's violin sang so beautifully that I couldn't turn it off. What a heavenly performance!



Lulled by the beauty, I also took in the start of Brahms's Violin Sonata 1, in which Gluzman is joined by his wife, pianist Angela Yoffe. Her piano sounded gorgeous, and was presented in correct perspective to the violin.

I upped the ante and plumbed the depths with Mahler's Symphony 2, as performed by Iván Fischer and the Budapest Festival Orchestra (SACD/CD, Channel Classics CCS SA 23506). At the beginning of the first movement, when the cellos and double basses double an octave apart, they sounded natural, their colors fully fleshed out. At the first raucous cymbal crash, my eyes opened wide. And when Mahler transitions from darkness to light, it felt as if the sun was finally coming out, however briefly (hey, it's Mahler).

Over the next 24 hours I listened to some favorite test tracks whose sounds I've heard through more combinations of audio gear than Donald Trump has issued tweets: the title track of Sarah Vaughan and the Count Basie Orchestra's *Send in the Clowns*, an incomparable rendition of Sondheim's song in a 1981 studio recording (Pablo/JVC-XRCD VICJ-60246); lyric

soprano Elly Ameling's singing Schubert's "Die Sterne," with pianist Dalton Baldwin, from *The Artistry of Elly Ameling* (CD, Philips 473-4512); Murray Perahia's performance, on piano, of Handel's joyous Harpsichord Suite in E, HWV 430 (CD, Sony Classical 62785); and soprano Carolyn Sampson's and pianist Joseph Middleton's superb performance of Purcell's song "Sweeter than Roses," from her recital disc *Fleurs* (SACD/CD, BIS 2102). They all sounded exceptional.

Via USB sticks inserted in the dCS Network Bridge, I turned to high-resolution files of recordings I've reviewed for Stereophile.com: Semyon Bychkov and the Vienna Philharmonic's performance of Schmidt's Symphony 2 (24-bit/48kHz WAV, Sony Classical 8898535552/Primephonic); the marvelous finale of Debussy's Sonata for Flute, Viola, and Harp, respectively performed by Emmanuel Pahud, Gérard Caussé, and Marie-Pierre Langlamet and recorded in a naturally resonant acoustic (24/96 WAV, Erato 565142); the beginning of Mahler's expansive Symphony 3, in the superbly recorded performance by Iván Fischer and the Budapest Festival Orchestra (DSD128, Channel Classics CCS SA 38817/NativeDSD); "Electrified II," from Yello's *Toy* (24/48 WAV, Polydor 4782160/HDtracks); and more. As track followed track, what I heard was consistent: sound so natural, full-range, and beautiful that I was totally won over.

Enter the Audio Research REF 6 preamplifier

To help move amps and offer a second opinion as I compared the Reference 160Ms with the Dan D'Agostino Master Systems Progression monoblocks, I welcomed to my listening room my physician and percussionist friend, Gary Forbes. Bless his heart, Gary brought over two non-classical CDs. From old-time American music specialist Catherine Russell's irresistible *Bring It Back* (Jazz Village 579001) we chose Koehler and Arlen's fabulous "Public Melody Number One," and our track of choice from Gregory Porter's *Be Good* (Motéma 75) was "Real Good Hands." For major contrast on all levels, we returned to my DSD128 files of Mahler's

Symphony 3.

While, with the Mahler, the Progressions granted more natural weight to bass and percussion, more air and complexity to timbres, and set a wider and more transparent soundstage farther back, the 160Ms sounded excellent in their own right. But when we added the REF 6 preamp—I turned the Vivaldi DAC's volume all the way up to unity gain and used the REF 6 to control volume—the sound of the 160Ms got even better.



Porter's "Real Good Hands" presented the first of many "wow" moments, as Gary and I marveled at the enhanced air and depth, and the increased

beauty of the midrange. Gary was especially struck by the additional air and space around the saxophone. Russell's singing, in turn, unquestionably swung more and was even more engaging. The sound of the horns was to die for, and bass lines were well defined. In the Mahler, the depth and beauty of the midrange were notably enhanced: the deep bass was weightier and more in control, and the sound remained "of one piece," with no timbre or frequency range over-emphasized.

"The massed strings and decay in the room sound more natural to my ears," said Gary. "The horns seem part of the ensemble rather than sticking out, and the solo violin has more of a sense of wood." I noted the extra emotional impact made by Mahler's radiant transition from darkness to light, and an increase in natural overtones. Everything sounded more substantial, and gained in emotional impact.

Granted, the Progressions were better at conveying soundstage depth and width, image weight, and the ability to let me hear the sides of the hall. Though I loved the Progressions most without the REF 6 in the chain, during a later comparison session I enjoyed how the REF 6 enhanced some of the Pass Labs XA200.8s' most endearing qualities. Regardless, the bloom we heard with the ARC pairing of Reference 160Ms and REF 6 sounded heavenly to our ears. Forget the oft-invoked "It's all good"—what we heard was much better than that.

For all my listening from that point on, I stuck with the synergistic combo of REF 6 and Reference 160M. When I compared the 160Ms' Ultralinear and Triode modes, I was surprised at how musical the amps sounded feeding the Alexia 2s the 75Wpc of Triode mode. Nonetheless, Triode sounded warmer than neutral, especially around the edges of notes. Drums sounded a little flatter, rapid timpani rolls were a mite smudged, and colors and images were less naturally defined. Instead of major exclamation points, Triode delivered lots of warm'n'fuzzies. While I could certainly hear why many audiophiles, especially with smaller-scale

material or with smaller speakers, will be seduced by the sound of Triode mode, I remain an Ultralinear man.

I did lots more listening as I reviewed multiple recordings. No matter what I played, my love for the Reference 160Ms remained constant.

The Wrap

Of all the power amplifiers, integrated amplifiers, and pre-power combinations to have spent time in my reference system, the pairing of Audio Research's tubed Reference 160M monoblocks and REF 6 preamplifier stands out as having sounded the most musically neutral and natural. Other components may offer more warmth and glow, or wider soundstages, or greater dynamic contrast, or more bass slam, transparency, and detail—but there was an inherent rightness to the sound of this supremely musical ARC pairing that puts it in a class by itself.

Since hearing the Reference 160Ms and REF 6 together, all of my preconceptions about the sound of tubed equipment have gone out the window. While choosing an amplifier will always be based upon many factors—economic means, personal taste, and the willingness to monitor and occasionally replace tubes among them—I'm convinced that the Reference 160M will find a home on many a solar- or wind-powered desert island. It's that good.

Audio Research Reference 160M monoblock power amplifier Specifications

Description: Fully balanced, class-AB tubed monoblock power amplifier. Tube complement: four KT150 (output), two 6H30 (gain stage). Inputs: unbalanced (RCA), balanced (XLR). Three sets of speaker output taps: 4, 8, 16 ohms. Output power: 140W continuous, 20Hz–20kHz (21.5dBW). Frequency response: 0.5Hz–110kHz, –3dB at 1W. Power bandwidth: 5Hz–70kHz, –3dB. Input sensitivity: 2.4V RMS balanced for rated output (25.5dB gain into 8 ohms). Input impedance: 300k ohms balanced, 100k ohms single-ended. Output regulation: *ca* 0.6dB into 16 ohm load to open circuit (damping factor: *ca* 14). Signal/noise: 101dB, re: 0dBW A-weighted. Overall negative feedback: 14dB. Slew rate: 13V/μs. Rise time: 2.0μs. Power requirements: 400–700W, 260W at idle, 1W off.

Dimensions: 19" (438mm) W by 10" (254mm) H by 17.7" (450mm) D; with handles, 19.25" (489mm) D. Weight: 56.2 lb (25.5kg) net, 73.2 lb (33.2kg) shipping.

Serial numbers of units reviewed: 50745, 50746.

Price: \$30,000/pair. Approximate number of dealers: 60.

Manufacturer: Audio Research Corp., 6655 Wedgwood Road N., Suite 115, Maple Grove, MN 55311. Tel: (763) 577-9700. Fax: (763) 577-0323. Web: www.audioresearch.com.