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& Record Review

## MUSIC MACHINE

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- it's a belter!



**'A musical Molotov'**

**Classic Venues - Hammersmith Palais, p78**

**Audio Research REF75**

**ARC's new beauty steals the show**

**Quadral Titan VIII**

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# Audio Research REF75 (£8500)

To the delight of those who want to join the Audio Research 'REF club', here's a new stereo power amplifier priced *below* the REF150... And it's an absolute killer

Review: **Ken Kessler** Lab: **Paul Miller**

**A**s one who has hankered after Audio Research Reference Series models since their inception, I am pleased to say that I do own one of them: the REF5 preamp. Aspiring to the Reference phono stage or the power amps has been put on hold, but the Minnesotans know a thing or two about serving even those of (relatively) limited means: every so often, they bring out smaller power amps to widen the potential 'REF' market.

Still, for most of us they remain out of reach, though the REF110 – supplanted by the REF150 we reviewed [*HFN* Feb '12] – might have been a possibility, provided a few hit the second-hand market. But lo, ARC has heard our prayers and introduced the REF75, with a price tag of four grand less than the REF150. And as I have a small room and easy-to-drive speakers...

Like the REF110 it replaced, the REF150 amplifier was an instant success, not least because it uses the new KT120 valve, as described in February. Audio Research must have recognised that some of us craving Reference status lack the funds even for that amplifier, or don't need all that power and could manage with half the output. The new amplifier thus falls nicely into my own personal category of 'sweet-sounding amplifiers': those rated between 35W/ch and 100W/ch. (I have no rational explanation for this, other than that nearly all of my favourite classics are of that power classification, eg, the McIntosh MC275 and the Dynaco Stereo 70.)

Talk of vintage kit leads right to something retro-refreshing about the REF75: instead of hideous, luminous displays that could have come off a microwave oven or DAB radio, the REF75 sports two illuminated electromechanical meters reminiscent of the milestone ARC power amps of the past and seen on the REF250. Better still, they enable the user

to perform simple bias adjustments via the front panel and without the need for an AVO meter.

## RECIPE FOR SUCCESS

To create this half-pint sibling, ARC saved on metalwork by keeping to the outer dimensions of the REF150. The front panel, handles and top cover are seen here in black, but the amp is also available in the company's more traditional 'natural' finish. Power output is specified as 75W/ch as the name suggests, and it is based on the same push-pull, fully-balanced circuit of the REF150, but with half the valve complement: only two KT120 output valves per channel. As each KT120 is good for around 60W, pessimists need not be concerned about valve health.

I contacted Terry Dorn, ARC's president, who says, 'There are several things that make the REF75 somewhat special in its sonic signature. First, the power and

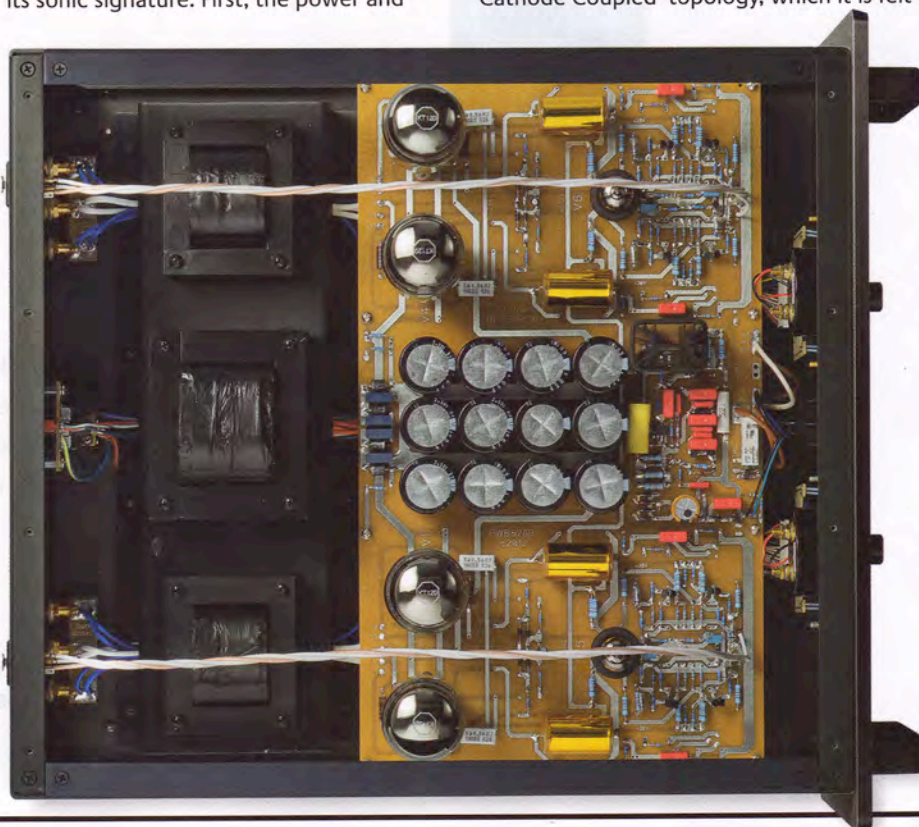
output transformers are custom-designed to maximise performance when combined with the two matched pairs of KT120s. This also boosts musical dynamics when paired with the hefty bulk power supply.

'Second, we chose special materials in other critical components – including the improved interstage coupling caps, as well as the point-to-point wiring used in selected locations.

'Third, the simplicity of the overall design, with optimally short signal paths, improves the speed, transparency and perceived air of the REF75.'

For the rest, it's all familiar ground for fans of 21st century ARC offerings: direct-coupled JFETs with a single 6H30 driver valve per channel in the input stages, with a power supply the same as that serving the more powerful REF110. The output stage coupling is a combination of ultralinear and ARC's patented 'Partially Cathode Coupled' topology, which it is felt

**RIGHT:** Large PSU (centre) and output coupling transformers are joined by two matched-pair KT120 beam tetrodes and 6H30 double-triode driver tubes – exactly half the complement of ARC's REF 150 [*HFN* Feb '12]







delivers better sound than conventional pentode or triode operation.

Also like its more powerful brother, the REF75 only accepts input via XLRs for balanced operation. A benefit of being a lower-powered model is the elimination of the need for cooling fans. In fact, I couldn't believe how coolly this runs; then again, it didn't have to work very hard to power Wilson Audio Sophia 3s. In this and many other respects, it was a mutual love affair, sonically *and* fiscally.

All that remains for the user to access are an on/off rocker on the front with green LED, multi-way speaker terminals for 4 and 8ohm loads, two 12V triggers (input and output), a meter illumination switch mounted on the rear and a 20A IEC mains socket. I used it with sources including the SME 30/12 with Series V-12 arm and Kiseki Blue MC, and the Marantz CD12/DA12 CD player. Between these and the REF75,

an Audio Research LS27 preamp, in fully balanced mode, and PH5 phono stage. As usual, YTER cable was used throughout.

### A FIRM FOUNDATION

Confession time: I *wanted* this to be astonishing. When I learned the price, after searching in vain for some months to find a mint REF110 before some canny shopper had snapped it up, I was praying that this would be the power amp for my final reference – with a small 'r' – system.

With our phono stage group test simultaneously under way, LPs were the initial source of choice. One surprised me to the soles of my feet: the otherwise-familiar *Garden Party* [Decca DL 7-5391] by Rick Nelson and The Stone Canyon Band from 1972. This superb set, known for its poignant title track, delivered bass of a quality rarely heard outside of an audiophile LP – and this was a standard

“The Scorpions  
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### ARC'S NEW MARCH

Never in its history has Audio Research been so prolific, nor so quick to realise new designs. The past 18 months have seen the REF5 reach SE level in the wake of the Anniversary preamp, a host of new power amps and a DAC-cum-'Media Bridge' have appeared; and one could say that this is thanks to new owners who understand that ARC was worth the investment. More is on the way, but Audio Research's own words to describe the REF75 state that it 'rounds out the line', so don't anticipate a REF 50. Newly released at the far end of the catalogue is the mighty REF750 monoblock to replace the REF610. For the less financially endowed there's a new entry-level phono stage called the LP1: only 13in wide, minimal controls, a hybrid circuit with a single valve, 47dB of gain and – wait for it – a price of £1995. See? ARC thinks of all of us.

**ABOVE:** Below the meters, a rotary chooses between 'Operate', showing the output, and selecting the bias for each valve; the adjustment screws are labelled V1 through V4

pressing. It belied everything 'received knowledge' tells you about the need for power when dealing with bass.

Admittedly, the Sophias are the most accommodating of speakers, but this wasn't about power, slam or dynamics: it was about richness, quality, authenticity. It created precisely the foundation that the music required – no more, no less – and that was for a genre not associated with dominant lower registers. Above it hovered Nelson's voice, a delicate rather than forceful instrument, surrounded by guitars that begged for both clarity and attack.

As has been the nature of Audio Research amplifiers that bear the REF prefix, the REF75 gave us both. What an extra 3dB of headroom from the doubling of the power might contribute is irrelevant in my system and/or room, and with my preference for sane SPLs. The room is medium-sized, the speakers easy to power. But it was clear that the REF75 was to the REF150 exactly what you would expect of two cars that differ only in the displacement and horsepower of the engine. Two identical 3-Series BMWs, a brace of Fiat 500s, differing only in power. But drive them both at 70mph...

Even more apposite, given that analogy, the added power (horses or wattage) would only ever be called upon in abnormal, or at best, occasional, moments bearing no resemblance to day-to-day listening (or driving). With the raucous Scorpions CD, *Comeblack* [Sony ⇨



## LAB REPORT

### AUDIO RESEARCH REF75 (£8500)

It's rare to encounter power meters that are anything more than decorative but, driving an 8ohm load through its 8ohm tap, the REF75's meters paint a fairly accurate picture. They over-read slightly, so the '30W' line is closer to 25W/8ohm but the 75W end stop is close enough to clipping that I'd not want to push the amp above this, continuously, for too long. In practice, the REF75 will hold to 2x72W/8ohm up to 1% THD, increasing to 78W under dynamic conditions, with 2x68W achievable into 4ohm and a full 121W/1ohm (or 11A) dynamically at <2% THD [see Graph 1, below]. Distortion inevitably increases with frequency and output but maintains ~0.015% through the midrange at 1W/8ohm, ~0.095% at 10W/8ohm and ~0.45% at 50W/8ohm.

At 20kHz, distortion increases to 0.12% (1W) and 0.7% (10W) but our sample showed a far bigger variation in low bass performance, the right channel giving just 0.12%, the left higher at 0.8% (both 20Hz at 10W). Suggesting this was a slight difference in the left/right transformers, distortion jumped from 0.5% to 2.3%, right vs. left at a subsonic 5Hz/1W [dashed line, Graph 2 below]. This is reasonably academic bearing in mind the REF 75's output impedance is 1.05ohm (8ohm tap). The frequency response is fabulously extended down to 5Hz (-0.05dB) and gently rolled-off at HF, reaching -0.4dB/20kHz. Once again, the amp/speaker impedance interaction will likely have a bigger impact. And noise? Astonishingly low, yielding a 97dB S/N ratio (A-wtd, re. 0dBW). Readers are invited to view a comprehensive QC Suite test report for the Audio Research Reference 75 power amplifier by navigating to [www.hifinews.co.uk](http://www.hifinews.co.uk) and clicking on the red 'download' button. PM



**ABOVE:** Meter illumination is switched on/off here. Balanced (XLR) inputs only plus screw-down 8ohm and 4ohm speaker terminals. These will accept bare wire and are sufficiently well-spaced to accommodate 4mm spade adapters

88697 83074 2], the pounding percussion was enough to show that the REF75 could punch above its weight, especially the relentless attacks in the remake of 'Rock You Like A Hurricane' and a wild cover of 'Tainted Love'. Massive? Palpable? That and more besides.

Scorpions is not a band I think of when the word 'subtle' traverses my mind, but their take of The Beatles' 'Across The Universe' hit the system just in time to cosset one's ears. Lush strings, beautiful harmonies, lots of air – the REF75 matched exactly the grace and comportment of the REF150, virtues far more important than SPLs.

#### PEELING APART THE LAYERS

It even presented the impressive scale and three-dimensionality of the REF150. The way it resolves space, air and positioning also called to mind the finesse of the Anniversary preamp, and of old Denon MCs. But it did not obviate the need for a REF150 – hungrier speakers and larger rooms notwithstanding.

Here's why: it was possible, even with the Sophias, to reach the REF75's limits if in a mischievous mood. Again, it was Scorpions, with a brutal cover of The Kinks' 'All Day And All Of The Night' – full marks for recording this well before The Kinks and Ray Davies became topical, thanks to the Olympics. It begs to be played loud: obscenely, jarringly, neighbour-worryingly loud. But slight (and truly insignificant) compression can be heard in the lowest registers.

Why it doesn't create any concern is due to everything else remaining unaffected. That includes glorious, breath-taking attack – perfect to convey the speed of Rudolph Schenker's guitarwork, the imaging, the detail retrieval. Better still, it never gets so agitated that sibilance is excited. Here we have an

ARC for the headbanger, provided his or her speakers are amenable to limited power.

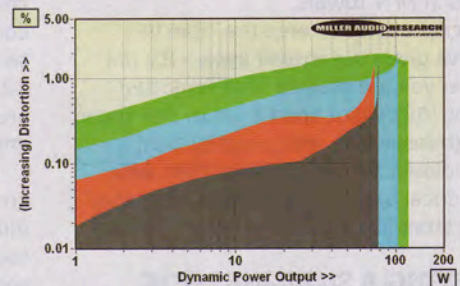
Eldritch recordings, like The Cardinals' *The Door Is Still Open* [Collectables COL-CD-9977], may be adored for exhibiting sublime valve warmth, but a brittleness might also be present if the headroom of the day had been breached. So powerful are the vocals on this set that the mics themselves might have been challenged. Deliriously for me, a devoted mono lover, the REF75 possesses in its entirety the skills of the REF150 for peeling apart layers of sound – mono or stereo – in order for the listener to be immersed in the music with a thoroughness bordering on the baptismal.

It remains only to finish off my time with the REF75 in the manner of the REF150, which made me think of fine wines. You might need to dig out your copy of *Gambero Rosso* to savour precisely the analogy, but the REF75 is to the REF150 what Ornellaia is to Masseto. Don't send this off to 'Pseud's Corner': look it up and you'll understand why I'm buying a REF75. ☺

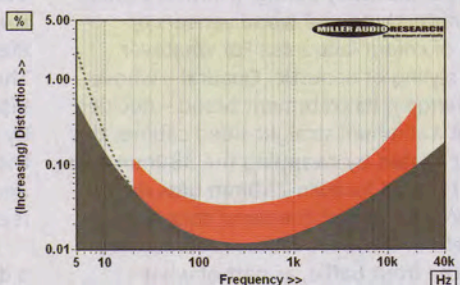
#### HI-FI NEWS VERDICT

It's enough that the power from the KT120s seemed like there were four per side, as if this was a REF150 in drag. The '75 rocked, it sang, it made the Sophias do what I'd heard from the '150, or from amps costing two or more times as much. Sweet, open, detailed, warm without being soft, with the cool composure of a banker before a select committee ... what more can I do but repeat: I'm buying a REF75.

Sound Quality: 88%



**ABOVE:** Dynamic power output versus distortion into 8ohm (black trace to 1%), 4ohm (red to 1%), 2ohm (blue to 2%) and 1ohm (green to 2%) speaker loads



**ABOVE:** Distortion versus frequency, 5Hz-40kHz at 1W/8ohm (black) and 20Hz-20kHz at 10W (red)

#### HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	72W / 68W
Dynamic power (<2% THD, 8/4/2/1ohm)	78W / 72W / 104W / 121W
Output impedance (20Hz-20kHz)	1.07-1.45ohm
Frequency response (20Hz-100kHz)	-0.04dB to -5.4dB
Input sensitivity (for 0dBW/75W)	165mV / 1435mV (balanced)
A-wtd S/N ratio (re. 0dBW/75W)	96.9dB / 115.7dB
Distortion (20Hz-20kHz, 10W/8ohm)	0.54 (2.28)-0.18 (0.41)%
Power consumption (Idle/Rated o/p)	210W/405W
Dimensions (WHD)	483x222x495mm