

AUDIO RESEARCH D-250MKIIS AMPLIFIER

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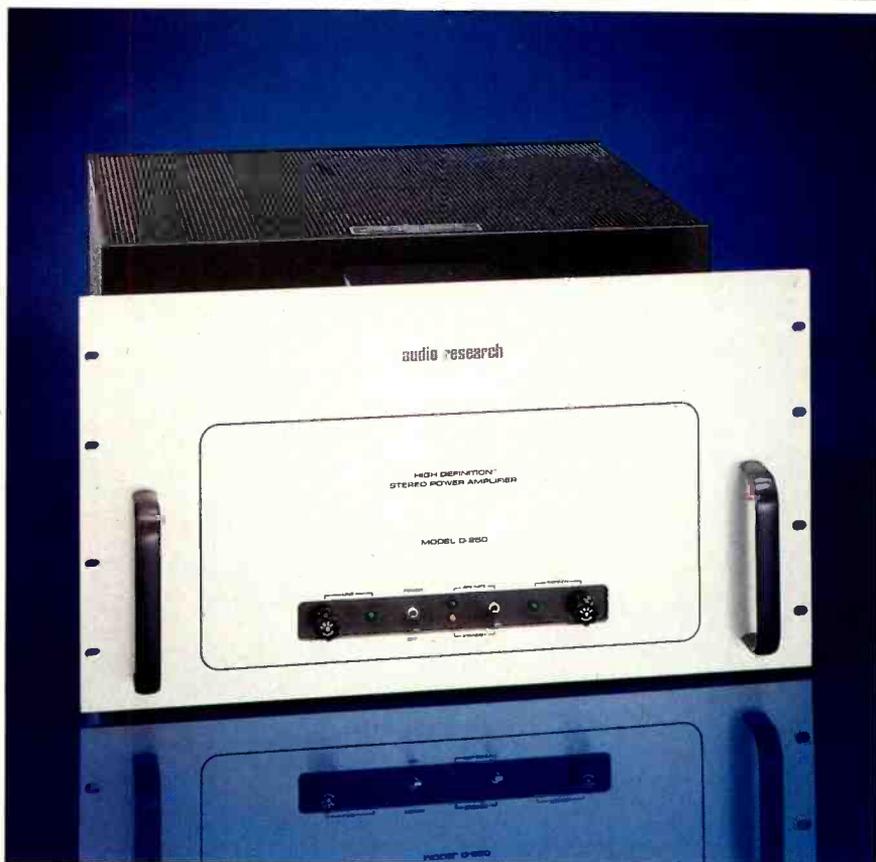
For literature, circle No. 96

The Audio Research D-250 Mark II Servo is the third generation of one of the most widely praised vacuum-tube power amplifiers ever built. It is also one of the most expensive—it costs \$6,900—and one of the most powerful. The D-250MKIIS will deliver about 240 watts per channel into 4-, 8-, and 16-ohm loads. While this kind of power is not exceptional when compared to transistor designs, it is amazing in a tube amplifier.

As you might expect from its power rating, the D-250MKIIS is not small; it measures 19 in. × 10½ in. × 20¾ in. and weighs 138 pounds. It is not the power amplifier for an audiophile without strong friends. It also is not simply a tube amplifier, it is a 32-tube amplifier. The D-250MKIIS uses 16 6550s for amplification, four 6550s for electronic regulation, and 12 smaller tubes for the input amp (6DJ8), cross coupler (7044), driver amp (6DJ8), driver cathode follower (7044), and regulator driver (12AT7).

A glance at the inside is also very impressive. The circuit layout is very clean for so complex a design, and the passive components are all top quality. The tubes are placed along both sides and the rear of the chassis, with two exceptionally large output transformers and a massive power transformer in front. With the filaments glowing, one feels a little like asking for certification by the Nuclear Regulatory Commission, but the D-250MKIIS has proved to be an exceptionally stable and trouble-free unit.

Such reliability is important in any amplifier, but particularly in one so heavy and complex. Fortunately, Audio Research has been able to draw on both experience and technology to correct the problems that affected the



original D-250. The company is now using 6550 output and regulator tubes that are made by Philips (USA) rather than by G.E., and has found that the Philips tubes have a life of up to 2,000 hours in the D-250. The circuit's fusing and key resistors were changed in the Mark II version, and soft-start circuitry is used to largely eliminate any risk of the kind of "meltdown" that would require a service call.

As for design features, the Mark II is more the result of Audio Research's steady refinement of tube design than a radical breakthrough. The main change from the previous versions of the D-250 is the introduction of "servo" circuitry first seen in the Audio Research M-100 mono power amplifier. This adjusts the bias to keep tube pairs balanced in spite of tube aging, and is particularly valuable because the D-250MKIIS does not have the front-panel bias adjustment of the M-100. Once the bias is properly set up—and mine came right on the money from the factory—the D-250MKIIS can be left alone

and simply enjoyed. This amp also has a new direct-coupling circuit, taken from the M-100, and a number of other circuit refinements. It is probably enough to say this is the new state of the art from the firm which has as much experience in top-quality tube designs as anyone in the business.

As with most tube amplifiers, the technical specifications of the D-250MKIIS are good, without reaching the hyperbolic performance levels of the most expensive transistor designs. It is conservatively rated as having typical harmonic-distortion levels of 1% from 20 Hz to 20 kHz. The power bandwidth (−3 dB) is 12 Hz to 60 kHz. IM distortion is less than 0.1% at 1 dB below rated output. Input sensitivity is 1.2 V rms, and input impedance is 75 kilohms. The slew rate is 25 V/μS, rise-time is 3 μS, negative feedback is 19 dB, and output regulation is 0.4 dB with a 16-ohm load to open-circuit. The D-250MKIIS also has the relatively low damping factor common with all tube amplifiers (about 20).

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These specifications, however, tell relatively little about the sound of this amplifier, and it is unquestionably one of the best-sounding amplifiers ever built—whether tube or transistor. One of the most sonically revealing and musically realistic, it does not have anything like the classic "tube sound";

there is no tube warmth or forgiveness. The D-250MKIIS will reveal everything a top-ranked transistor amplifier will reveal. At the same time, it still has the air, the natural harmonics and upper frequency performance, and the freedom from listening fatigue that have characterized the best tube units.

The D-250MKIIS has an almost faultless midrange, and appears exceptionally linear in terms of frequency response and timbre. This gives it outstanding performance in two areas which seem particularly important, the upper bass/lower midrange, and the upper midrange. The D-250MKIIS is one of those few amplifiers whose midrange seems to make a seamless transition into the bass and treble. Most amplifiers call attention to themselves with characteristic colorations in these areas. Tube amplifiers tend to be slightly warm in the lower midrange; transistor amplifiers tend to be too lean and recessed. Tube amplifiers tend to be forgiving and lose detail in the upper midrange and treble; transistor amplifiers tend to overemphasize the upper midrange and be too hard. In contrast, the D-250MKIIS has no apparent coloration other than a slightly forward sound character. Even this sound character may stem from the amplifier's exceptional transparency and ability to reveal normal miking and recording techniques, rather than being a true coloration.

The D-250MKIIS is not as "sweet" as some top-quality tube amplifiers (such as the Counterpoint SA-4 or the New York Audio Laboratory OTL designs), but it provides equal upper octave detail, without a trace of hardness. The treble, upper midrange, and midrange also "float" together in a musically natural way. Most power amplifiers good enough to float an image—that is, providing a natural illusion of imaging, sound-stage size, and depth—tend to emphasize some aspect of the sound stage or frequency spectrum over others. The D-250MKIIS minimizes these effects to an exceptional degree.

The sound stage is extremely three-dimensional, although there is less depth than in some competing designs, like those of Conrad-Johnson. The width, height, and placement of instruments are all excellent. The sound stage is, however, a large one and has a somewhat forward character. You feel you are sitting close to the performance rather than in mid-hall. This impression may be reinforced by the amplifier's apparent tendency to make the upper midrange a bit more live or detailed than may be fully natural. However, because so many rea-

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cordings are made under conditions in which this is the natural sound, it is again unclear to me whether the characteristic is in the amplifier or the source material.

The bass is surprisingly well controlled and natural. The D-250MKIIS does not have the power, control, and bass extension of the best transistor amplifiers, but it comes very close. In fact, with many speakers it produces a more natural feeling of bass power than its transistor counterparts. Many speakers benefit from a slight increase in low bass, provided that the amplifier involved does not run out of power and begin to lose control. Organ fanatics may still prefer transistors, but anyone who pays close attention to the pitch and character of bass strings will find the D-250MKIIS is one of the few amplifiers which can reproduce bass strings in a fully convincing manner.

As for the value of 240 watts per channel, this unit demonstrates how sheer power pays off in terms of superb dynamics and power-handling capability. Many amplifiers handle either loud passages or soft passages well, but few handle both well. Few provide a full range of convincing musical detail when there is a great deal of low-level information mixed in with major musical climaxes. The D-250MKIIS deals effortlessly with such shifts in the music, and it's exceptionally good in handling grand opera and symphonic and choral music like Mahler's Eighth Symphony. This ability to combine power with superb sound staging also helps to free the listener from the consciousness that he is listening to a recorded performance.

The D-250MKIIS also performs well into a range of loads that is unusually wide for a tube amplifier. However, since it uses an output transformer, it is not the amplifier for speakers with ultra-low impedances, in the 2-ohm range, say, and a little care will be needed to ensure a proper match of speaker and amp. Nevertheless, the D-250MKIIS is far less sensitive to speaker load, and far more predictable in sound character, than are lower power tube amplifiers.

Minor caveats aside, the Audio Research D-250MKIIS is one of the few amplifiers that audiophiles seeking a *ne plus ultra* system virtually must au-

dition before making their choice. It is also a product that audiophiles should listen to even if they can't afford its steep price tag. It helps provide a benchmark for evaluating the sound of other components and for judging the strengths and weaknesses of other amps. Most important, it provides a

real-world education in what the High End can do. Used with other equipment of comparable quality, the D-250MKIIS shows both that components really do sound different and that selecting the very best can pay off in a tremendously more enjoyable and musical system. *Anthony H. Cordesman*

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