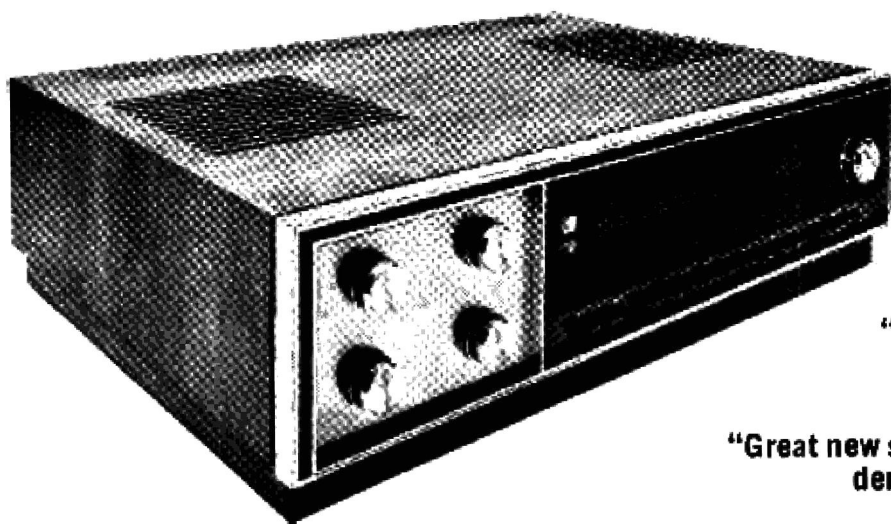


New Heathkit AR-1500 stereo receiver



... the critics
say it all:

"The AR-1500 is the most powerful and sensitive receiver we have ever measured..."

—JULIAN HIRSCH, *Stereo Review*

"... a stereo receiver easily worth twice the cost (or perhaps even more)..."

—*Audio Magazine*

"Great new solid-state stereo receiver kit matches the demands of the most golden of golden ears."

—*Radio Electronics*

Mr. Hirsch goes on to say: "The FM tuner section of the AR-1500 was outstandingly sensitive. We measured the IHF sensitivity at 1.4 microvolts, and the limiting curve was the steepest we have ever measured... The FM frequency response was literally perfectly flat from 30 to 15,000 Hz. ... Image rejection was over 100 dB (our measurement limit)..."

"The AM tuner was a pleasant surprise... It sounded very much like the FM tuner, with distinct sibilants and a quiet background, and was easily the best-sounding AM tuner we have had the pleasure of using..."

"... all input levels can be matched and set for the most effective use of the loudness compensation. This valuable feature is rarely found on high fidelity receivers and amplifiers..."

"The phono equalization was perfectly accurate (within our measuring tolerance)... The magnetic phono-input sensitivity was adjustable from 0.62 millivolt to about 4.5 millivolts, with a noise level of -66 dB, which is very low... When properly set up, it would be impossible to overload the phono inputs of the AR-1500 with any magnetic cartridge..."

"... it significantly bettered Heath's conservative specifications. Into 8-ohm loads, with both channels driven, the continuous power at clipping level was 81.5 watts per channel. Into 4 ohms it was 133 watts per channel, and even with 16-ohm loads the receiver delivered 46.5 watts per channel. Needless to say, the AR-1500 can drive any speaker we know of and with power to spare..."

"At 1,000 Hz, harmonic distortion was well under 0.05 per cent from 1 to 75 watts per channel... The IM distortion was under 0.05 per cent at a level of a couple of watts or less, and gradually increased from 0.09 per cent at 10 watts to 0.16 per cent at 75 watts... The heavy power transformer is evidence that there was no skimping in the power supply of the AR-1500, and its performance at the low-frequency extremes clearly sets it apart from most receivers..."

"Virtually all the circuit boards plug into sockets, which are hinged so that boards can be swung out for testing or servicing without shutting off the receiver. An 'extender' cable permits any part of the receiver to be operated 'in the clear' — even the entire power-transistor and heat-sink assembly! The 245-page manual has extensive tests charts that show all voltage and resistance measurements in key circuits as they should appear on the receiver's built-in test meter..."

"With their well-known thoroughness, Heath has left little to the builder's imagination, and has assumed no electronic training or knowledge on his part. The separate packaging of all parts for each circuit board subassembly is a major boon..."

"In sound quality and ease of operation, and in overall suitability for its intended use, one could not expect more from any high-fidelity component."

From the pages of *Audio Magazine*: "... the AR-1500 outperforms the near-perfect AR-15 in almost every important specification..."

"The FM front end features six tuned circuits and utilizes three FETs, while the AM RF section has two dual-gate MOSFETs (for RF and mixer

stages) and an FET oscillator stage. The AM IF section features a 12-pole LC filter and a broad band detector. The FM IF section is worthy of special comment. Three IC stages are used and there are two 5-pole LC filters..."

"... IHF FM sensitivity... turned out to be 1.5 μ V as opposed to the 1.8 μ V claimed. Furthermore, it was identical at 90 MHz and 106 MHz (the IHF spec requires a statement only for IHF sensitivity at 98 MHz but we always measure this important spec at three points on the dial). Notice that at just over 2 microvolts of input signal S/N has already reached 50 dB. Ultimate S/N measured was 66 dB and consisted of small hum components rather than any residual noise. THD in Mono measured 0.25%, exactly twice as good as claimed! Stereo THD was identical, at 0.25% which is quite a feat..."

"... the separation of the multiplex section of the AR-1500 reaches about 45 dB at mid-band and is still 32 dB at 50 Hz and 25 dB at 10 kHz (Can your phono cartridge do as well?)..."

"The real surprise came when we spent some time listening to AM... This new AM design is superb. We still have one classical music station that has some simultaneous broadcasting on its AM and FM outlets and that gave us a good opportunity to A-B between the AM and FM performance of the AR-1500. There was some high-frequency roll-off to be sure, but BOTH signals were virtually noise-free and we were hard pressed to detect more THD from the AM than from the FM equivalent. Given AM circuits like this (and a bit of care on the part of broadcasters), AM may not be as dead as FM advocates would have us believe!..."

"As for the amplifiers and preamplifier sections, we just couldn't hear them — and that's a commendation. All we heard was program material (plus some speaker coloration, regrettably) unencumbered by audible distortion, noise, hum or any other of the multitude of afflictions which beset some high fidelity stereo installations."

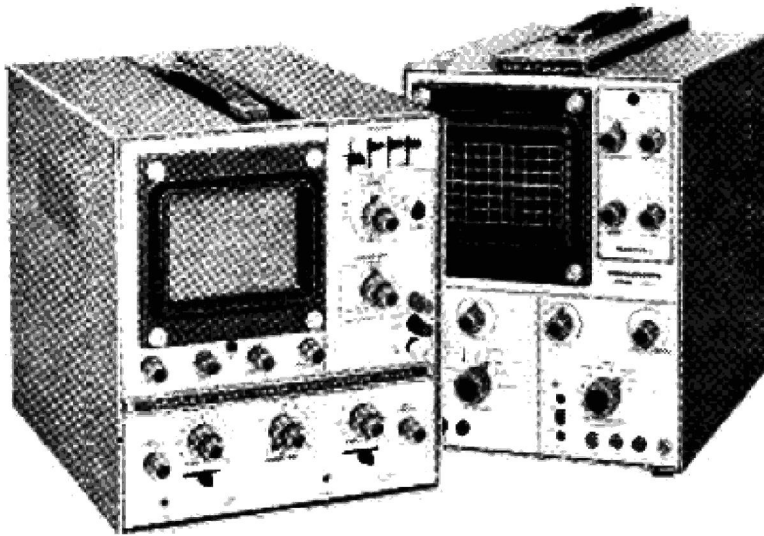
"Rated distortion [0.24%] is reached at a [continuous] power output of 77.5 watts per channel with 8 ohm loads [both channels driven]. At rated output (60 watts per channel) THD was a mere 0.1% and at lower power levels there was never a tendency for the THD to 'creep up' again, which indicates the virtually complete absence of any 'crossover distortion' components. No so-called 'transistor sound' from this receiver, you can be sure. We tried to measure IM distortion but kept getting readings of 0.05% no matter what we did. Since that happens to be the 'limit' of our test equipment and since the rated IM stated by Heath is 'less than 0.1% at all power levels up to rated power output' there isn't much more we can say except that, again, the unit is better than the specification — we just don't know how much better..."

"As always, construction instructions are lucid enough for the inexperienced kit-builder and there is enough technical and theoretical information to satisfy even the most knowledgeable audio/RF engineer."

Kit AR-1500, less cabinet, 53 lbs. 349.95*
ARA-1500-1, walnut cabinet, 8 lbs. 24.95*

and two precedent-setting oscilloscopes

New Heathkit dual trace DC-15 MHz solid-state scope sets a low-price precedent in high performance



Heathkit 5" IO-102 brings you solid-state scope performance on a budget

The new Heathkit IO-105 brings you a high performance scope designed for a wide range of measurements in instrumentation courses, engineering, R&D and electronics...at a fraction of the cost of comparable scopes. The big 5" (8x10 cm flatface) CRT provides separate signal display in channel 1 or channel 2 modes, direct comparison display in alternate and chopped modes, x-y mode for presentation of signals as a function of each other. Has triggered time base with 18 calibrated rates, 0.2 us/cm — 100 ms/cm in 1,2,5 sequence, $\pm 3\%$; x5 sweep magnification. Compare the price, compare the specs... then order your IO-105 today.

Kit IO-105, 40 lbs., mailable **399.95***

IO-105 SPECIFICATIONS — VERTICAL — Accuracy: $\pm 3\%$. **Input impedance:** 1 megohm shunted by 35 pF. **Maximum input voltage:** 600 VDC. **Sensitivity:** AC or DC, 0.05 V/cm. **Frequency response:** DC to 15 MHz, 3 dB with 4 cm deflection. **Vertical windows:** 2 minimum. **Rise time:** 24 ns. **Overshoot:** Less than 10%. **Attenuator:** 9 positions in a 1,2,5 sequence. 0.05 V/cm to 20 V/cm, $\pm 3\%$. **Variable gain (uncalibrated)** thru entire range. **Vertical display in sweep mode:** Channel 1, Channel 2, Channel 1 & 2 alternately; or Channel 1 & Channel 2 chopped (50 kHz). **HORIZONTAL — Time base:** Triggered with 18 calibrated rates, 0.2 us/cm to 100 ms/cm in a 1, 2, 5 sequence, $\pm 3\%$. **Continuously variable (uncalibrated)** within the same range. **Sweep magnifier:** x5 (time base accuracy is $\pm 5\%$ when the magnifier is being used). **External horizontal input:** 750 millivolts/cm (uncalibrated & not adjustable). 100 K ohm minimum input impedance, DC to 100 kHz. **X-Y MODE — Sensitivity:** 0.05 V/cm to 20 V/cm, $\pm 3\%$. **Frequency response:** -3 dB @ 100 kHz (Channel 2). **Phase shift between channels:** $\pm 5^\circ$ or less from DC to 50 kHz within graticule limits. **TRIGGERING — Delay:** Approx. 600 ns. **Auto:** Zero crossing $\pm 1/2$ cm of zero crossing. **Norm:** Within viewing area. **Source:** Channel 1, Channel 2, or Channels 1 & 2. **Polarity:** + or - slope. **Coupling:** AC or DC. **Sensitivity:** Internal, $1/2$ cm; external, 100 mV minimum, 7 V max. **GENERAL — Blanking in:** TTL compatible (Logic 0-blank). **Gate out:** 3.5 volts minimum. **Input connections:** Vertical, coaxial & BNC; horizontal, binding post; external trigger, binding post on $3/4$ " center with ground. **CRT accelerating potential:** 2200 VDC regulated. **CRT type:** 8x10 cm, rectangular, flat-face, D14-107GA. **Retrace suppression:** DC coupled unblanking of the CRT. **Graticule:** 8 cm x 10 cm grid, edge lighted. **Power requirements:** 105-125 or 210-250 VAC, 50/60 Hz, 60 watts. **Warm-up time:** CRT heating time, approx. 30 seconds; for full calibration, approx. 15 minutes. **Overall dimensions:** 12 $3/4$ "

H x 10 $1/4$ " W x 15" D. **Note:** Specifications measured at 25°C with 120 VAC line voltage.

The Heathkit IO-102 general purpose scope combines the virtues of top performance, maximum convenience and low cost. All solid-state design is your assurance of long-term reliability under sometimes rough shop conditions. Wide 5 MHz bandwidth, 30 mV/cm sensitivity and 80 nanosecond rise time add up to truly unusual value at this low price. Switch-selected AC or DC coupling adds extra convenience and versatility. Frequency-compensated 3-position attenuator accommodates varying input levels. A separate switch position grounds the input to provide a zero reference line. One megohm FET input minimizes circuit loading. The recurrent, automatic sync type sweep generator provides continuous sweep from 10 Hz to 500 kHz. Front panel external horizontal and sync inputs. One volt P-P output included. The 5" flat-face 5DEP1 CRT gives a brilliant, highly visible trace, even in high light levels. 6x10 cm ruled graticule makes amplitude easy to determine. All supplies are zener-regulated to give the IO-102 excellent display stability. 120/240 VAC wiring options. Put this top value scope to work for you now.

Kit IO-102, 31 lbs. **119.95***

Assembled IO-102, 29 lbs. **179.95***

IO-102 SPECIFICATIONS — VERTICAL CHANNEL — Sensitivity: 30 mV/cm, uncalibrated. **Frequency Response:** DC to 5 MHz, ± 3 dB. **Rise Time:** 80 nanoseconds. **Input Impedance:** 1 megohm shunted by 35 pF. **Attenuator:** 3-position, frequency compensated; x1, x10, x100. **HORIZONTAL CHANNEL — Sensitivity:** 0.1 V/cm. **Frequency Response:** 1 MHz ± 3 dB. **Input Impedance:** 1 megohm shunted by 50 pF. **Sweep Generator-Type:** Recurrent, automatic sync. **Range:** 10 Hz to 500 kHz in five switch-selected steps, continuously variable between steps. **GENERAL — Cathode Ray Tube:** Type, 5DEP1, green medium persistence phosphor. **Viewing area,** 6x10 cm. **Power Supplies:** All solid-state rectifiers. All amplifier supplies regulated. **Power Requirements:** 120/240 VAC, 50-60 Hz, 35 watts. **Overall Dimensions:** 12 $3/4$ " H x 9 $1/4$ " W x 13 $1/4$ " L, including knobs, handle, feet, etc.

See these kits at your local Heathkit Electronic Center... or fill out the coupon at right.

ARIZ.: Phoenix, 2727 W. Indian School Rd.; CALIF.: Anaheim, 330 E. Ball Rd.; El Cerrito, 6000 Potrero Ave.; Los Angeles, 2509 S. Flower St.; Redwood City, 2001 Middlefield Rd.; San Diego (La Mesa), 8363 Center Dr.; Woodland Hills, 22504 Ventura Blvd.; COLO.: Denver, 5940 W. 38th Ave.; FLA.: Miami (Hialeah), 4705 W. 16th Ave.; GA.: Atlanta, 5285 Roswell Rd.; ILL.: Chicago, 3462-66 W. Devon Ave.; Downers Grove, 224 Ogden Ave.; KANSAS: Kansas City (Mission), 5960 Lamar Ave.; MD.: Rockville, 5542 Nicholson Lane; MASS.: Boston (Wellesley), 165 Worcester St.; MICH.: Detroit, 18645 W. Eight Mile Rd. & 18149 E. Eight Mile Rd.; MINN.: Minneapolis (Hopkins), 101 Shady Oak Rd.; MO.: St. Louis, 9296 Gravois Ave.; N.J.: Fair Lawn, 35-07 Broadway (Rte. 4); N.Y.: Buffalo (Amherst), 3476 Sheridan Dr.; New York, 35 W. 45th St.; Jericho, L.I., 15 Jericho Turnpike; Rochester, Long Ridge Plaza; OHIO: Cincinnati (Woodlawn), 10133 Springfield Pike; Cleveland, 5444 Pearl Rd.; PA.: Philadelphia, 6318 Roosevelt Blvd.; Pittsburgh, 3482 Wm. Penn Hwy.; TEXAS: Dallas, 2715 Ross Ave.; Houston, 3705 Westheimer; WASH.: Seattle, 2221 Third Ave.; WIS.: Milwaukee, 5215 Fond du Lac.

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