

HEATHKIT®

Over 350 kitbuilding ideas

1973



New in this issue:

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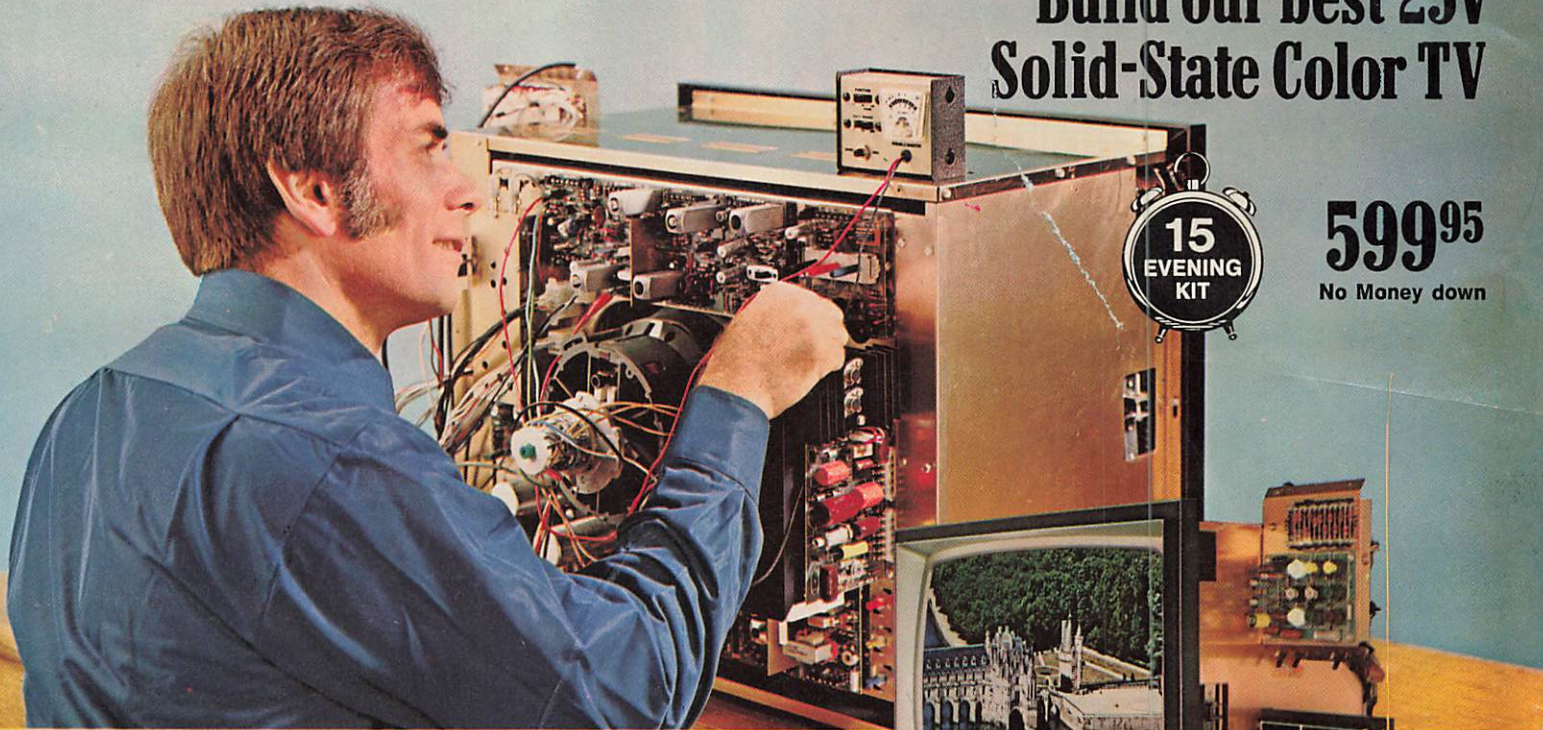
Factory Mail Order Catalog 810/73

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See index on back cover

Build our best 25V Solid-State Color TV

599⁹⁵
No Money down



Simulated TV Pictures

Greater Tuning Convenience — power tunes 12 UHF & 12 VHF channels, either direction

Improved Sensitivity — with voltage-controlled varactor UHF tuner & MOSFET VHF tuner

More Constant Flesh Tones — with exclusive angular tint control

Brighter Pictures — with exclusive Heath MTX-5 matrix ultra-rectangular tube

The top-of-the-line Heathkit GR-900

You build the best when you build the Heathkit GR-900. Heath engineers poured all the features and design know-how into this one. Features like detent power tuning on any 12 UHF and 12 VHF channels — in either direction; ultra sensitivity varactor UHF tuner; exclusive angular tint-control...to provide you with the best in color performance and convenience...plus the fun and personal satisfaction of "doing it yourself" that's exclusively Heathkit Color TV.

New tuning convenience

The GR-900 lets you preselect any 12 of your favorite UHF channels 14 through 83. Then you can scan in both directions either with push-button power tuning or remote control, while the exclusive Heath detent tuning feature zeroes in on each channel with the precision you're accustomed to on regular VHF. Controls for presetting the 12 UHF positions are mounted on the tilt-out convergence panel for easy access. A simple push button selects either UHF or VHF channels, while a lighted dial indicates the UHF or VHF channel number you're tuned to. In remote control operation, an electronic latching circuit replaces the UHF/VHF switch to provide you with full remote selection of all 12 VHF and 12 preset UHF channels. Also featured is a new angular tint control switch giving you selection of "normal" or "wide angle" color demodulation to reduce tint and flesh tone change when switching channels or when stations change from one program source to another.

Heath-exclusive MTX-5 matrix tube

The GR-900 comes to you with the exclusive Heath MTX-5 ultra-rectangular tube — the largest color picture tube available to the industry, with a full 25 in. diagonal or 315 sq. in. viewing area. You see the transmitted image in its entirety, with nothing hidden from view. A specially etched face plate cuts glare, increases contrast without sacrificing brightness, while a matrix screen around the phosphor dots stops reflected light.

An "Instant-On" feature brings you picture and sound in seconds — can be overridden for normal "on/off" operation. Other features include VHF and UHF power tuning at the touch of a button or remote control; Automatic Fine Tuning for perfect picture and sound at a touch; adjustable tone control; an output for playing the TV audio through your stereo/hi-fi system for the ultimate in sound reproduction.

Solid-state reliability

At the heart of the GR-900's outstanding performance, long-life and reliability is the solid-state modular circuitry including 46 transistors, 57 diodes and four ICs containing another 54-transistors and 15 diodes. Picture tube and high voltage rectifier are the only tubes used. Assembly, service, and adjustments are simplified through the use of individual plug-in glass epoxy circuit boards containing major circuit functions. Better fringe-area reception, increased sensitivity, lower noise and cross-modulation are the result of a specially designed solid-state VHF tuner with MOS Field Effect Transistor. Sensitivity is further enhanced by the RF amplifier and hot-carrier diode design of the varactor tuner. Other features are a three-stage solid-state high-gain IF, Automatic Chroma Control, adjustable video peaking, adjustable noise limiting and gated AGC.

Built-in self-service savings

The built-in dot generator and tilt-out convergence panel let you perform the periodic adjustments required of all color TV sets. A volt-ohm meter is also included, along with complete new step by step programmed trouble-shooting instructions. Versatile installation flexibility is yours in the GR-900, too. Install it in the new Heathkit electronic hide-away TV wall mount (next page); your choice of luxurious preassembled cabinets (next page); or in your own custom mount.

Kit GR-900, TV less cabinet, 125 lbs., Express/Frt. **599.95**

Kit GRA-900-6, Wireless Remote Control, gives you 8-function control of on/off; 3 preset volume levels; power tuning (up & down); color; tint; UHF/VHF channel selection, 8 lbs., mailable **79.95**

GR-900 SPECIFICATIONS — Tuning range: VHF TV channels 2-13; UHF TV channels 14-83 presettable in each of 12 detent positions. Hi-Fi output: Impedance, 2.2 K ohms. Output voltage: 1V rms nominal. All other specifications same as GR-371MX, Page 4.

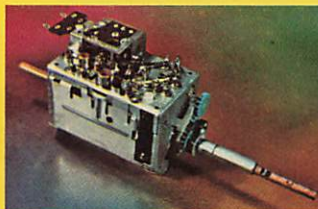
Wife pleasing cabinetry options for your GR-900 & 371MX TVs



Convenient UHF preselection controls



Exclusive Heathkit varactor UHF tuner



Exclusive MOSFET solid-state VHF tuner



Front panel pushbuttons for fingertip control



New programmed Trouble-shooting Procedure manual



New angular Tint Control Switch



Armchair wireless remote control for GR-900

A) Our finest Mediterranean Console with hide-away doors...179.95

The finest cabinet in our line. Factory assembled with prefinished rich-grained pecan veneers on hand rubbed furniture grade hardwood solids. Two beautifully scalloped double-hinged doors hide TV screen when not in use, fold neatly to sides when opened. Ornate brass "Canterbury Antique" handles add the perfect finishing touch. Measures 29 3/4" H x 46 1/4" W x 22 5/8" D (25 1/2" D incl. cup).

Assembled GRA-405-25, 100 lbs., Express/Freight179.95

B) Luxurious Mediterranean Cabinet...139.95

Factory assembled of fine furniture grade hardwoods and finished in flawless Mediterranean pecan. Statuary bronze trim handles add just the right touch of understated elegance. Measures 30 7/8" H x 48 3/4" W x 20 5/8" D (23 1/2" D incl. cup).

Assembled GRA-404-25, 87 lbs., Express/Frt.139.95

C) Contemporary Walnut Cabinet...81.95

Clean, contemporary design blends in beautifully with your modern home or apartment furnishings. Factory assembled of fine hardwood solids and veneers with oil-rubbed walnut finish. Measures 30 3/8" H x 37 1/8" W x 19 7/8" D (22 3/4" D incl. cup).

Assembled GRA-401-25, 62 lbs., Express/Freight81.95

D) Deluxe Early American Cabinet...122.95

Adds the rustic charm of our early American heritage to your home furnishings and surroundings. Factory assembled of a special combination of hardwoods and veneers, finished in classic Salem Maple. Measures 32 1/2" H x 38 1/2" W x 19 3/4" D (22 5/8" D incl. cup).

Assembled GRA-403-25, 75 lbs., Express/Freight122.95

E) TV Wall Mount with "electronic doors"...from 109.95

Push the frame-mounted button or touch the optional GRA-900-6 Wireless Remote Control and the tambour doors silently glide open to reveal your GR-900 or GR-371MX color TV picture. Picture and sound come on automatically when doors are opened. Another touch of the button (or remote) and doors slide quietly closed. An easy-slip clutch transmits power from electric motor to doors. Doors also may be operated manually. Ideal for bedroom, office, den... wherever you want to hide your TV. Or use it as the perfect hide-away for hi-fi components, wall safe, bar, etc. Includes everything for easy custom installation including preassembled trim frame, tambour doors, motor assembly, and enclosure complete with tilt-out speaker baffle & convergence panel. Assembly slides out for TV maintenance. Measures 23 1/8" H x 38 1/8" W x 22 3/8" D. Frame is 26 1/8" H x 39 3/8" W x 1 5/8" D. Available prefinished in walnut, or unfinished.

Kit GRA-402-25, walnut finish, 50 lbs., Express/Freight114.95

Kit GRA-407-25, unfinished, 50 lbs., Express/Freight109.95

Simulated TV Pictures



(A)



(B)



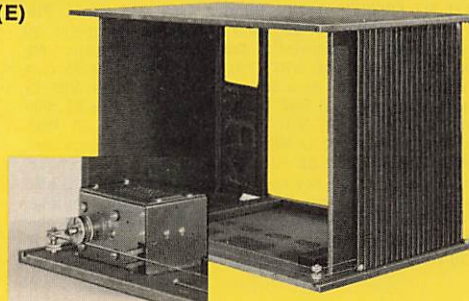
(C)



(D)



(E)



25 diagonal inches of color perfection

Heathkit GR-371MX 25V Solid-State Color TV

Compare the features. Compare the price. You'll see why this big-screen color set gets rave notice wherever it's seen. Only Heath gives you the solid-steel wrap-around Magna Shield to help keep colors pure...Lustra-Coated to form a barrier against corrosion. And the swing-out chassis has individual plug-in circuit boards for every major circuit function, plus built-in alignment and trouble-shooting aids and instructions to keep your set working to perfection.

As soon as you get your hands on this great TV kit, you'll begin to sense the quality. And through every step of the easy assembly you'll share in the pride of fine workmanship. The GR-371MX is packaged in sub-kits. You build one component circuit function at a time. It couldn't be easier.

All the quality features that count most

The exclusive Heath MTX-5 ultra-rectangular tube provides a full 215-sq.-in. viewing area. A specially etched face plate cuts glare, increases contrast without sacrificing brightness, and a matrix screen around the phosphor dots reduces reflected light. And there is famous Heathkit modular plug-in circuit board design with transistor sockets; factory-assembled & aligned tuners, IF, AFT & high voltage section for easier assembly; exclusive MOSFET design solid-state tuner for good sensitivity, low noise, best reception; completely shielded 3-stage IF for high gain, good picture quality; push-button Automatic Fine Tuning for "locked-on" sound & picture; pushbutton VHF power tuning scans all VHF and one UHF channel at a touch; Automatic Chroma Control for constant color under varying signal conditions; adjustable noise limiting and gated AGC to minimize pulse interference and maintain constant signal strength; adjustable video peaking for selecting degree of picture sharpness you want; adjustable tone control; defeatable "instant-on"; automatic degaussing; 75 & 300 ohm antenna inputs; and hi-fi output for playing TV audio through your own hi-fi system. Choose one of the three cabinet options shown, or the Heathkit Door Cabinet or Custom Wall Mount shown on preceding page.

Kit GR-371MX, all parts including chassis, 315 sq. in. picture tube, mask, UHF & VHF tuners, AFT & speaker, 125 lbs., Exp./Frt. **579.95**

Kit GRA-70-6, Remote Control, 6 lbs., mailable **64.95**

GR-371 MX SPECIFICATIONS: Viewing Area: 315 sq. in. Picture Tube High Voltage: 25,000 V. Deflection: Magnetic, 90 degrees. Focus: Electrostatic. Convergence: Magnetic. Antenna Input Impedance: VHF, 300 ohm balanced or 75 ohm unbalanced. UHF, 300 ohm balanced. Tuning Range: VHF TV channels 2 through 13; UHF TV channels 14 through 83. Picture IF Carrier: 45.75 MHz. Sound IF Carrier: 41.25 MHz. Color IF Subcarrier: 42.17 MHz. Sound IF Frequency: 4.5 MHz. Video IF Bandwidth: 3.58 MHz. Hi-Fi Output: Output impedance, 1 k ohm. Frequency response ± 1 dB 50 Hz to 15 kHz. Harmonic distortion, less than 1% at 1 kHz. Output voltage, 0.3 V rms nominal. Audio Output: Output impedance, 4 ohm or 8 ohm. Output power, 2 watts. Power requirements: 110 to 130 volts AC, 60 Hz, 240 watts.

579⁹⁵
less cabinet



Assembled **GRA-403-25**, Early American cabinet in classic Salem Maple, constructed of fine hardwoods & veneers. 32½" H x 38½" W x 19¾" D (22⅝" D incl. cup), 75 lbs., Exp./Frt. **122.95**



Assembled **GRA-404-25**, Mediterranean cabinet of furniture grade hardwoods & solids, beautifully finished in pecan. 30⅞" H x 48¾" W x 20⅝" D (23½" D incl. cup), 87 lbs., Exp./Frt. **139.95**



Assembled **GRA-401-25**, contemporary walnut cabinet of hardwood solids & veneers with oil-rubbed walnut finish. 30¾" H x 37⅜" W x 19⅞" D (22¾" D incl. cup), 62 lbs., Exp./Frt. **81.95**



Exclusive tilt-out convergence & secondary control panel



New programmed Troubleshooting Procedure manual.



Exclusive Heathkit Check-out meter



Hi-fi Sound Output

Build this Wireless Remote Control for your Heathkit GR-371MX

Gives you across-the-room control of on/off, volume, channel selection, color and tint without moving from the comfort of your chair. Fast, easy assembly and installation.

Kit GRA-70-6, 6 lbs., mailable **64.95**

Simulated TV Pictures



Last call on one of our most popular color TV kits

489⁹⁵

less cabinet



the Heathkit GR-270 20V TV has the same great solid-state specs as the magnificent 371 — with a space saving smaller tube

When you build your Heathkit GR-270 you're working with the same advanced circuitry that is used in our GR-371. And the 10-circuit-board modular design has you assembling this sophisticated receiver like a professional.

Top-quality features at a new low price

The premium quality 20" diagonal picture tube, one of industry's best 227 sq. in. bonded face, etched glass tubes, delivers crisp, true color pictures. Automatic fine tuning is standard, as is power tuning of all VHF channels and one pre-selected UHF channel. Factory assembled and aligned 3-stage IF is completely shielded to eliminate external interference. Solid-state VHF tuner with MOSFET delivers improved sensitivity, lower noise and less cross-modulation for better reception under marginal conditions. Other features include built-in automatic degaussing; automatic chroma control; adjustable noise limiting and gated AGC; high resolution circuitry; adjustable video peaking; "instant on"; adjustable tone control; hi-fi output; 75 and 300 ohm VHF antenna inputs.

Service-it-yourself savings, too

For further self-service savings, a built-in dot generator, tilt-out convergence/secondary control panel and comprehensive Heath manual team up to offer simple step-by-step home service. And the Volt-ohm meter supplied lets you troubleshoot and adjust entire set. Order your GR-270 now — quantity limited!

Kit GR-270, all parts incl. chassis, picture tube, mask, VHF and UHF tuners, AFT and spkr., 109 lbs., Express/Frt. **489.95**

Kit GRA-70-6, Remote Control, 6 lbs., mailable **64.95**

GR-270 SPECIFICATIONS: Viewing Area: 227 sq. in. All other specifications same as GR-371MX, opposite.



Save \$35 on Mediterranean cabinet:

Assembled GRA-202-20 Mediterranean cabinet, finished in Luxurious pecan, above, 28 1/8" H x 42 3/8" W x 19 7/8" D (22 3/4" D incl. cup), 85 lbs., Express/Frt. **WAS 119.95** **NOW 84.95**



Assembled GRS-203-6, walnut finished contemporary cabinet and base combo. Cabinet 21 1/8" H x 31 1/2" W x 18 5/8" D (21 1/2" D incl. cup), 59 lbs., Express/Frt. **NOW 56.95**
GRA-201-20, base only, 13 lbs., Exp./Frt., **CLOSE OUT — ONLY \$5.00**



Assembled GRA-203-20 cabinet, 46 lbs., Express/Frt. **51.95**
GRA-204-20 roll-around cart, 19 lbs., Express/Frt. **19.95**
GRS-203-5 cart & cabinet combo, 65 lbs., Express/Frt. **61.95**



Modular design with Plug-in circuit boards



Transistor & IC sockets



Swing-out chassis



Solid-state tuners

New Expedited 48-Hour No-Charge Warranty Service Plan for Solid-State TV Modules! Special service facilities have been established at the factory and all Heathkit Electronic Centers to expedite service and return of Solid-State TV circuit modules within two working days. During the 90-day warranty period, TV modules will be serviced or replaced with no charge for labor or parts. After the initial 90-day warranty period expires, TV modules will be serviced or replaced at a fixed charge of \$5.00 per module for labor and parts for the life of the set. All picture tubes warranted for two full years.



HEATHKIT TV CAN BE BUILT BY BEGINNERS

If you can follow simple directions, we believe you can assemble any Heathkit TV set ... with no prior experience, special tools or skills. The construction manual shows you how. Even shows you how to perform many normal service and adjustment procedures with no outside help. Remember, when you buy Heathkit TV, we won't let you fail, for our entire staff of TV experts stands ready to help you.



Save \$50 on Heathkit 18V Color TV

Solid-state modular circuitry makes this kit a pleasure to build — the new low price makes it a fantastic value in full 180-sq.-in. color viewing. And like all Heathkit TVs, the GR-269 gives you a full complement of alignment and self-service equipment — dot generator, convergence board, troubleshooting meter and the troubleshooting book.

The factory assembled & aligned AFT module gives you perfect picture and sound automatically at just a push of the front panel button. The exclusive Heath designed VHF tuner uses advanced MOSFET circuitry to assure higher sensitivity, less noise and lower cross-modulation ... gives you visibly superior reception, especially under marginal conditions. The UHF tuner uses hot-carrier diode design for lower noise and increased sensitivity. Both tuners are factory assembled & aligned. Solid-state 3-stage IF is assembled & aligned. "Instant-On" and switch-controlled degaussing, hi-fi sound output; 75 & 300 ohm antenna inputs; exclusive Heath Magna-Shield are standard.

Kit GR-269, all parts including chassis, 180 sq. in. picture tube, mask, VHF & UHF tuners, AFT, speaker, 100 lbs., Express/Frt. **Was 399.95, now only 349.95**

Assembled GRA-401-18. Striking contemporary cabinet (right above) finished in hand-rubbed oiled walnut. 29" H x 28 1/4" W x 18 1/4" D. 41 lbs., Express/Frt. **59.95**

GR-269 SPECIFICATIONS: Picture Size: 180 sq. in. viewing area. Tube-type: Non-etched. Deflection: Magnetic, 90°. Focus: Electrostatic. Convergence: Magnetic. Antenna Input Impedance: VHF — 300 ohm balanced or 75 ohm unbalanced; UHF — 300 ohm balanced. Tuning Range: VHF — Channels 2-13; UHF — Channels 14-83. Picture IF Carrier: 45.75 MHz. Sound IF Carrier: 41.25 MHz. Color IF Frequency: 4.5 MHz. Video IF Bandwidth: 3.58 MHz. Audio Output Power: 1 watt, 8 ohm impedance. Power Requirements: 110-130 VAC, 140 watts. Dimensions: 15 3/4" H x 24 3/2" W x 18" D. Required installation clearances are given in spec sheet and manual.



GRA-403-18. Roll-around Cart with walnut finished wood and pale brass accents. 27" W x 15 5/8" D x 22" H. 23 lbs., Express/Frt. **19.95**

Assembled GRA-402-18 walnut-grained vinyl clad wood cabinet 16 1/2" H x 25" W x 11" D (17 7/8" D incl. cup), 33 lbs., Express/Frt. **29.95**

Save \$50 on our 14V Color Portable



Swivel Wall Shelf for GR-169 . . . mounts on any wall, swivels for most convenient viewing angle. Platform finished in walnut; pale brass plated tubing. Platform 24" W x 15 7/8" D.
GRA-169-1, 15 lbs., Express/Frt. **18.95**

Simulated TV Pictures

Imagine — Incomparable Heathkit solid-state color television at this low price. We supply the ultimate in design and components, you furnish the final assembly. Build-up 10 circuit boards, prepare the chassis, terminals and connectors. Install and solder the wiring harness and point-to-point conductors. Assembling the Heathkit GR-169 is not a one evening project, but the work itself is just that easy. The end result is a 14 inch diagonal color portable with picture purity, and brightness that puts it at the top of its class.

And thanks to the exclusive Heathkit built-in maintenance equipment, you keep it that way. If it ever needs service, plug-in modular circuit boards and the troubleshooting meter and data book help you fix it at home. The GR-169 is really a big little TV, with all the secondary controls found in our larger models. Color, tint, contrast, horizontal and vertical hold, height, AGC, color killer, switch-controlled degaussing. Carry it from room to room or across the country. This is the portable that bounces back with console-like performance.

Kit GR-169, 69 lbs., Express/Frt. **Was 349.95, now only 299.95**

GR-169 SPECIFICATIONS — Picture Size: 102 sq. in. viewing area. Deflection: Magnetic, 90°. Focus: Electrostatic. Convergence: Magnetic. Antenna Input Impedance: VHF — 300 ohm balanced or 75 ohm unbalanced; UHF — 300 ohm balanced. Tuning Range: VHF — Channels 2-13; UHF — Channels 14-83. Picture IF Carrier: 45.75 MHz. Sound IF Carrier: 41.25 MHz. Color IF Subcarrier: 42.17 MHz. Sound IF Frequency: 4.5 MHz. Video IF Bandwidth: 3.58 MHz. Audio Output: Power — 1 watt. Impedance — 8 ohms. Power Requirements: 120 VAC, 130 W. Dimensions: 16" H x 20 1/2" W x 16" D.

Every Heathkit product is backed 100% by our "plain-language" warranty

We've Never Offered a 23V Color Set for So Little

399⁹⁵

less cabinet



Tube-type design makes possible the unbelievably low price. And traditional Heath thoroughness makes it one of the easiest TV kits you can build. But this set is no economy "special." With your GR-200 you get as standard: Automatic fine tuning for locked-in picture reception at the touch of a button. Non-etched 23 inch (measured diagonal) tube for extra bright mirror-image picture. Automatic degaussing to eliminate problems caused by magnetic interference, keep colors pure. Three-stage audio IF strip for reduced interference, improved reception. Dynamic pincushion correction circuit to keep all edges straight, eliminate distortion. Built-in 6" x 9" speaker, and two hi-fi outputs for super sound. Plus the exclusive Heath self-service built-in's.

Kit GR-200, all parts, incl. chassis, picture tube, mask, tuners, AFT and spkr., 133 lbs., Express/Frt. . . . **399.95**

Assembled GRA-301-23, contemporary walnut cabinet (main illus). Constructed of fine veneers & solids with an oil-rubbed walnut finish; 29⁵/₈" H x 35⁷/₈" W x 19⁷/₈" D (22⁵/₈" D incl. cup), 60 lbs., Express/Frt. **81.95**

GR-200 SPECIFICATIONS — Picture Size: Rectangular viewing area 295 sq. in. Deflection: Magnetic 90°. Focus: Electrostatic. Convergence: Magnetic & dynamic. Antenna Input Impedance: 300 ohm balanced, or 75 ohm unbalanced (VHF). Picture IF Carrier Frequency: 45.75 MHz. Sound IF Carrier Frequency: 41.25 MHz. Color Subcarrier: 42.17 MHz. Video IF Bandpass: 3.58 MHz. Sound IF Frequency: 4.5 MHz. Tuning Range: VHF channels 2-13, UHF channels 14-83. Sound Cathode Follower: Output impedance, 3K. Audio Output: Output impedance, 8 ohms. Power requirements: 120 VAC, 60 Hertz AC, 330 W. Chassis & Tube Dimensions Only: 20¹/₂" H x 25¹/₈" W x 19⁵/₈" D. Control panel assembly, 6¹/₂" W x 7⁷/₈" H x 7" D. Required installation clearances are given in spec. sheet and manual.



Assembled GRA-303-23, Early American cabinet factory assembled of hardwoods & veneers, finished in Salem Maple; 29³/₄" H x 37¹/₄" W x 19³/₄" D (22⁵/₈" D incl. cup), 73 lbs., Express/Frt. . . **119.95**



Assembled GRA-304-23, Mediterranean cabinet. Made from furniture grade hardwoods & luxurious veneers; 30¹/₈" H x 47¹/₂" W x 20⁵/₈" D (23¹/₂" D incl. cup), 95 lbs., Express/Frt. **139.95**

A b&w Portable a Youngster Can Build

This is the kit-form TV even a beginner can build. And this 12 in. diagonal b&w TV is the ultimate portable.

At home, it plugs into any standard 120 VAC outlet, in the car, boat or camper it operates off of 12 VDC. For outdoor use, there's an optional rechargeable battery-pack base and snap-on sun shield. The GR-104B features shell bond picture tube, automatic gain control, front panel speaker, three video IF amplifiers, four circuit VHF "memory" tuner, double circuit breaker protection. The high-impact plastic cabinet takes plenty of abuse — cleans easily with a damp cloth.

129⁹⁵

includes cabinet

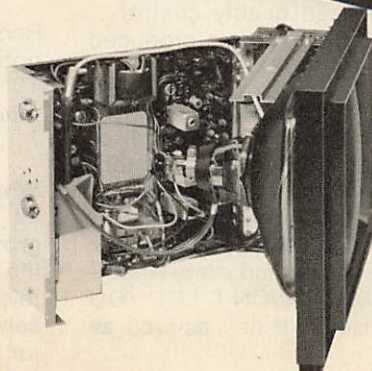


Kit GR-104B, 35 lbs., mailable **129.95**

Kit GRA-104-3, rechargeable battery pack & sun shield, 9 lbs., mailable **42.95**

GRA-104-2, sun shield only, 1 lb., mailable **1.95**

GR-104B SPECIFICATIONS: Picture Size: 74 sq. in. viewing area, picture diagonal 12". Deflection: Magnetic, 110 degrees, 20 mm neck. Focus: Electrostatic. Antenna Input Impedance: 300 ohm balanced. Tuning Range: VHF TV Channels 2 thru 13, UHF TV Channels 14 thru 83. Picture IF Carrier: 45.75 MHz. Sound Carrier: 41.25 MHz. Sound IF Carrier: 4.5 MHz. Video Response: To 3.5 MHz. Audio Power Output: 500 milliwatts into 24 ohm load. Controls (front panel): UHF coarse tuning; UHF fine tuning, VHF channel selector, VHF fine tuning. OFF/ON volume, brightness, contrast, vertical hold, horizontal hold. Controls (rear panel): Height, Low voltage adjust, AGC. Tube & Semi-conductor Complement: 27 transistors, 16 diodes, 1 IC, 1 picture tube. Power Requirements: 110-130 volts AC, 40 watts; 12 volts DC @ 24 watts. Overall Size: 11¹/₂" H x 15³/₄" W x 9³/₈" D.



A neat kit for novice and expert alike. The GR-104B puts most components on two roomy circuit boards. A single wiring harness connects the boards to chassis-mounted parts. Wire cutting and stripping are held to a minimum, and UHF and VHF tuners come factory assembled and aligned.

Simulated TV Pictures

No money down on any kit — up to 2 years to pay — see order blank for details.

WHY BUILD YOUR OWN HEATHKIT COLOR TV?

There are probably as many answers to that question as there are the countless thousands who've assembled their own Heathkit sets. Our customers tell us that the overriding reason why they chose a Heathkit color TV was the sheer fun and enjoyment of putting it together. Heathkit building, they say, offers them a creative outlet resulting in a true sense of achievement and personal satisfaction — a chance to create something wholly different from the usual hobby fare. There are many other compelling reasons for building your own Heathkit color TV, of course, and here are just a few of them:

More value for your TV dollar

The dollars you spend on Heathkit TV buy more TV... better TV! Here's why: Heath Co. engineers don't design ordinary TV sets. They start by designing a superior set, with performance specifications that normally exceed any existing comparably priced set on the market. Then they go a step beyond, by designing in such convenience and self-service features as modular plug-in solid-state circuit boards; easy-access swing-out chassis; built-in test meter and dot generator; tilt-out convergence and secondary control panel — many features that simply are not available on any other TV set, at any price. Finally, we demand that every part and component put into your Heathkit Color TV set deliver long life and dependable performance — and follow up on that promise with an iron-clad, plain-language warranty.

Designed for beginner-building

All Heathkit television sets are designed for first time kit-builders, who have no prior knowledge of electronics or kit-building experience. The Kitbuilders Guide that comes with each kit shows you how basically simple it is to make good solder connections; how to identify and mount parts. The plain-language Heathkit assembly manuals which are famous for their completeness, lead you one non-technical step at a time from carton to completion. You check off each step as you go along. Nothing is left to chance or your imagination. Big, clear drawings and wiring diagrams help map your way. And at the end, detailed check-out and operating procedures insure that your set is working to perfection. It adds up to 100% personalized quality control... something seldom associated with ordinary mass-produced products.

Should you encounter difficulty anywhere along the way, a trained staff of technical consultants is only a phone call or letter away, here at the plant or at Heathkit Electronic Centers in major cities from coast to coast — both ready and able to help you at no cost. Complete service facilities also are available at all locations should the need arise. And, of course, our Heathkit Plain-Language warranty stands behind every Heathkit TV set we sell. In short, WE SIMPLY WON'T LET YOU FAIL! And that goes for the entire Heathkit line as well as Heathkit television.

Self-service savings

Every Heathkit Color TV set comes to you with trouble-shooting and self-service capabilities built in. An easy-to-use volt-ohm meter comes with every solid-state color TV set — lets you check out circuits as you assemble them — check out the entire set when completed. The manual shows you what to do and how to do it — with absolutely no knowledge of electronics on your part. A built-in dot generator puts a dot pattern on your TV screen, lets you do the periodic convergence adjustments required of all color TVs for peak performance. And finally, a special programmed Trouble Shooting Procedure Manual takes all the guesswork out of tracking down and solving most other service problems.

Expedited 48-hour no-charge TV module warranty service

Should you need it, special service facilities have been established at the factory and all Heathkit Electronic Centers to expedite service and return of any Heathkit solid-state TV module within two working days. During the 90-day warranty period, the modules will be serviced or replaced with no charge for labor or parts. After the initial 90-day warranty period expires, TV modules will be serviced or replaced at a fixed charge of \$5 per module for labor and parts for the life of the set. All picture tubes are warranted for two full years.

Complete installation flexibility

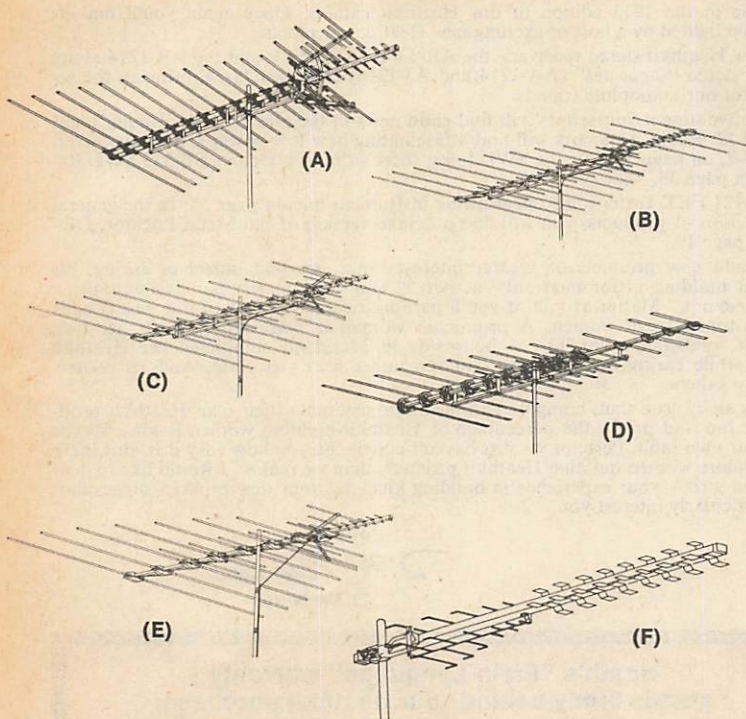
Only Heathkit color TV gives you so many options. Not only do you have a wide choice of size, price and features, but once you've made your selection, the installation possibilities are practically unlimited. You can choose attractive high quality Contemporary, Mediterranean or Early American cabinetry — or perhaps you prefer to fashion your own; you can install your set in a wall or bookcase to save both space and cabinet cost; and there's even the ultimate custom installation — a Heathkit hideaway TV Wall Mount unit with electronic slide-away tambour doors that can be opened and closed by remote control.

Remote control options are another Heathkit convenience option. They're available for most Heathkit solid-state color TV receivers, and can be purchased with the set or added later on.

Whatever your particular reason for building your own Heathkit color TV, of one thing you can be sure — you'll join a growing legion of people of all ages and from every walk of life who have successfully assembled their own Heathkit television sets, had the fun and satisfaction of doing it themselves, and are enjoying the performance of a vastly superior product.



There's a Heath TV antenna for every home, every area



A) The "Super Antenna" for optimum reception no matter where you live

The ultimate antenna for the Heathkit GR-900 maximum-performance color receiver.

GD-750, 20 lbs. (less mast & coaxial cable), Express/Frt. **79.95**

GD-750 SPECIFICATIONS — Reception Area: Deepest fringe. Impedance: 300 ohms. Front-to-back ratio: VHF low 23 dB, high 23 dB, UHF 24 dB. Beamwidth: VHF low 68°, high 33°; UHF 30°. Elements: VHF 13 driven, 13 parasitics; UHF 1 driven, 44 passive. Length: 196". Turning radius: 116".

B) Deep Fringe VHF-UHF-FM Coaxial

GD-650, 20 lbs. (less mast & coaxial cable), Express/Frt. **49.95**

GD-650 SPECIFICATIONS — Gain: Low 6½ dB, high 12 dB, UHF 11 dB. Front-to-back ratio: 20 dB. Elements: VHF 9 active, 14 passive; UHF 1 active, 27 passive. Length: 112¾". Width: 106". Turning radius: 87½".

C) Fringe/Near-Fringe VHF-UHF-FM Coaxial

GD-450, 15 lbs. (less mast & coaxial cable), Express/Frt. **39.95**

GD-450 SPECIFICATIONS — Gain: Low 5½ dB, High 10 dB, UHF 9 dB. Front-to-back ratio: Low 18 dB, High 17 dB, UHF 20 dB. Elements: VHF 8 active, 9 passive; UHF 1 active, 15 passive. Length: 118¾". Width: 106". Turning radius: 77½".

D) Fringe Area VHF-FM Coaxial

GD-219, 19 lbs. (less mast & coaxial cable), Express/Frt. **29.95**

GD-219 SPECIFICATIONS — Elements: Active-10; Passive-13. Front-to-back ratio: 20. Usable distance: 180 mi. (over flat terrain with best reception conditions) FM — 90 mi. Includes 300 to 75 ohm antenna mounted matching balun. Length: 142". Width: 102". Turning radius: 88".

E) City-Suburban VHF-UHF-FM Coaxial

GD-550, 10 lbs. (less mast & coaxial cable), Express/Frt. **29.95**

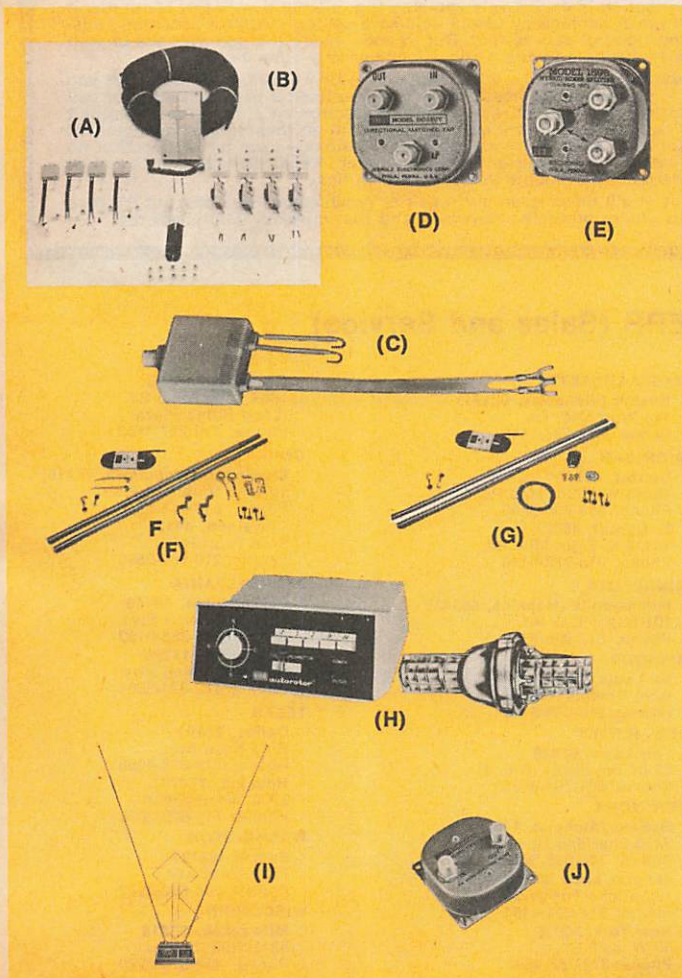
GD-550 SPECIFICATIONS — Gain: Low 5 dB, High 8½ dB, UHF 8 dB. Front-to-back ratio: Low 14 dB, High 15 dB, UHF 20 dB. Elements: VHF 7 active, 7 passive; UHF 1 active, 13 passive. Length: 106¾". Width: 102". Turning radius: 76".

F) City-Suburban UHF Coaxial

GD-188, 4 lbs. (less mast & coaxial cable), mailable **9.95**

GD-188 SPECIFICATIONS — Elements: Active-11; Passive-8. Front-to-back ratio: 19. Usable distance: 60 mi. (over flat terrain with best reception conditions). Includes 300 to 75 ohm antenna-mounted matching balun. Length: 46". Width: 8". Turning radius: 44".

Heath antenna accessories bring out the best in every set



A) Coaxial Distributor for 4-room TV/FM network — Solid-state Jerrold design distribution amp takes single coax input from any all-channel antenna, amplifies all signals & feeds 4 outlets. Each terminates at surface mounted box or mount flush in electrical boxes. Everything supplied...200' coax cable, connectors, crimping tool, 4 matching transformers/frequency splitters.

GD-248, 14 lbs., mailable **89.95**

B) Reception Proven Coax Cable For Color TV —

GD-228, 50' coax, w/connectors and antenna boot installed, 3 lbs., mailable **7.95**

GD-238, 75' coax, w/connectors and antenna boot installed, 4 lbs., mailable **9.95**

GD-328, 100' coax, w/connectors and antenna boot installed, 5 lbs., mailable **11.95**

C) 75-300 Ohm Matching Transformer/Splitter — Matches one all-channel 75-ohm download to separate 300 ohm VHF and UHF TV inputs. With hardware, instructions.

GD-298, 1 lb., mailable **4.95**

D) All Channel Coupler With FM Tap — For taking FM signal off coax line ahead of distribution system or TV set. 2.25 dB insertion loss, 12 dB isolation. Includes hardware, instructions.

GD-308, 1 lb., mailable **10.95**

E) 75 Ohm Mixer-Splitter To Operate Two Sets — Operates two sets from one coax download, or combines two 75 ohm antennas into one lead. 12 dB isolation, instructions, hardware included.

GD-318, 1 lb., mailable **7.95**

F) Antenna Chimney Mount — Two 5' masts, chimney mount, 50 foot 300 ohm transmission line, standoffs, two 10 foot steel traps, complete instructions.

GD-208, 10 lbs., Express/Frt. **7.95**

G) Antenna Roof Mount Kit — Two 5' masts, mast base, 50 foot 300 ohm transmission line, 50 foot guy wire, all standoffs, screw eyes, wire clamps.

GD-218, 9 lbs., Express/Frt. **6.95**

H) Cornell-Dubulier AR-33 Antenna Rotator — Solid-state control operated by dial or set-and-forget pushbuttons. ±1° accuracy, heavy duty rotor, instructions included. (5-wire power cable not supplied).

GDP-258, 16 lbs., mailable **49.95**

I) New 82-Channel/FM Indoor Antenna — Has exclusive Double Diamond UHF element, adjustable phase control for peak VHF, 12-position selector. Gives superb FM reception, too.

GD-301, 3 lbs., mailable **10.95**

J) FM Band Rejection Filter — Reduces FM input signal strength by a minimum of 18 dB. Recommended where local FM stations cause broadband amplifiers of a system to overload. Reduces FM signal strength by minimum of 18 dB. Insertion loss to VHF/UHF TV channels is 1 dB. 75 ohm impedance.

GD-250, 1 lb., mailable **9.95**



President's Letter

Dear Friends:

Welcome to the 1973 edition of our Heathkit catalog. Once again you'll find its pages highlighted by a host of exciting new Heathkit products.

Two new Heathkit stereo receivers, the AR-1302 on page 75, and the AR-1214 along with its stereo "separates" (AA-1214 and AJ-1214) on pages 73-74, broaden the selection for our audiophile friends.

Automotive tune-it-yourselfers will find good news in the new CI-1040 Timing Light on page 12. Radio Amateurs will find a fascinating new low power CW Transceiver, the HW-7, on page 33. For the SWL folks, there's the new Deluxe SB-313 SWL Receiver on page 38.

The IT-121 FET Tester joins our growing instrument line on page 55. In the general classification of products, you will find a deluxe version of the Metal Locator, GD-348, on page 19.

As we add new products of greater interest range, we find ourselves asking, "Is Heathkit building a 'for men only' activity?" Our own answer is a resounding... "of course not." Matter of fact, if you'll pardon the cliché, some of our best friends (and customers) are women. A prominent woman in Minneapolis built her own Heathkit solid-state color TV. A housewife in Maryland completed her Heathkit TV set while caring for her three children under four years old. And, of course, there are others.

But it is sadly true that, compared to men who assemble their own Heathkit products for fun and profit, the percentage of Heathkit-building women is low. Maybe that's our own fault. Perhaps we just haven't convinced you how easy it is. But there may be more women building Heathkit products than we realize. I would like to hear from you girls — your experience in building kits, and your new product suggestions that particularly interest you.

Sincerely,

D. W. Nurse
D. W. Nurse

Need help...

with a technical or kitbuilding question, or ordering a kit?

Call us anytime...

day, night, weekends or holidays. During non-business hours your call will be answered in person and help sent on its way to you at the start of the next working day. See "How to Order" section on page 40 for telephone numbers and routing information.



Heath's "Plain Language" warranty stands firmly behind your Heathkit purchase:

Your Heathkit Warranty... During your first 90 days of ownership, any parts which we find are defective, either in materials or workmanship, will be replaced or repaired free of charge. And we'll pay shipping charges to get those parts to you — anywhere in the world.

If we determine a defective part has caused your Heathkit to need other repair, through no fault of yours, we will service it free — at the factory, at any retail Heathkit Electronic Center, or through any of our authorized overseas distributors.

This protection is exclusively yours as the original purchaser. Naturally, it doesn't cover damage by use of acid-core solder, incorrect assembly, misuse, fire, flood or acts of God. But, it does insure the performance of your Heathkit anywhere in the world — for most any other reason.

After-Warranty Service... What happens after warranty? We won't let you down. If your Heathkit needs repairs or you need a part, just write or call the factory, your nearest retail Heathkit Electronic Center, or any Heathkit authorized overseas distributor. We maintain an inventory of replacement parts for each Heathkit model at most locations — even for models that no longer appear in our current product line-up. Repair service and technical consultation are available through all locations.

We hope you'll never need our repair or replacement services, but it's nice to know you're protected anyway — and that cheerful help is nearby.

HEATHKIT ELECTRONIC CENTERS (Sales and Service)

ARIZONA

Phoenix, 85017
2727 W. Indian School Rd.
Phone: 602-279-6247

CALIFORNIA

Anaheim, 92805
330 E. Ball Rd.
Phone: 714-776-9420

El Cerrito, 94530
6000 Potrero Ave.
Phone: 415-236-8870

Los Angeles, 90007
2309 S. Flower St.
Phone: 213-749-0261

Pomona, 91767
1555 Orange Grove Ave. N.
Phone: 714-623-3543

Redwood City, 94063
2001 Middlefield Rd.
Phone: 415-365-8155

San Diego (La Mesa, 92041)
8363 Center Dr.
Phone: 714-461-0110

Woodland Hills, 91364
22504 Ventura Blvd.
Phone: 213-883-0531

COLORADO

Denver, 80212
5940 W. 38th Ave.
Phone: 303-422-3408

CONNECTICUT

Hartford (Avon, 06001)
395 W. Main St. (Rte. 44)
Phone: 203-678-0323

FLORIDA

Miami (Hialeah, 33012)
4705 W. 16th Ave.
Phone: 305-823-2280

GEORGIA

Atlanta, 30305
5285 Roswell Rd.
Phone: 404-252-4341

ILLINOIS

Chicago, 60645
3462-66 W. Devon Ave.
Phone: 312-583-3920

Chicago (Downers Grove, 60515)
224 Ogden Ave.
Phone: 312-852-1304

INDIANA

Indianapolis, 46220
2112 E. 62nd St.
Phone: 317-257-4321

KANSAS

Kansas City (Mission, 66202)
5960 Lamar Ave.
Phone: 913-362-4486

MARYLAND

Baltimore, 21234
1713 E. Joppa Rd.
Phone: 301-661-4446
Rockville, 20852
5542 Nicholson Lane
Phone: 301-881-5420

MASSACHUSETTS

Boston (Wellesley, 02181)
165 Worcester St.
Phone: 617-237-1510

MICHIGAN

Detroit, 48219
18645 W. Eight Mile Rd.
Phone: 313-535-6480

E. Detroit, 48021
18149 E. Eight Mile Rd.
Phone: 313-772-0416

MINNESOTA

Minneapolis (Hopkins, 55343)
101 Shady Oak Rd.
Phone: 612-938-6371

MISSOURI

St. Louis, 63123
9296 Gravois Ave.
Phone: 314-638-5100

NEW JERSEY

Fair Lawn, 07410
35-07 Broadway (Rte. 4)
Phone: 201-791-6935

NEW YORK

Buffalo (Amherst, 14226)
3476 Sheridan Dr.
Phone: 716-835-3090
Jericho, Long Island, 11753
15 Jericho Turnpike
Phone: 516-334-8181
New York, 10036
35 W. 45th St.
Phone: 212-765-4590

Rochester, 14626

1384 Long Pond Rd.
(Long Ridge Plaza)
Phone: 716-227-4750

OHIO

Cincinnati (Woodlawn, 45215)
10133 Springfield Pike
Phone: 513-771-8850

Cleveland, 44129
5444 Pearl Rd.
Phone: 216-886-2590

PENNSYLVANIA

Philadelphia, 19149
6318 Roosevelt Blvd.
Phone: 215-288-0180
Pittsburgh, 15235
3482 Wm. Penn Hwy.
Phone: 412-824-3564

TEXAS

Dallas, 75201
2715 Ross Ave.
Phone: 214-826-4053
Houston, 77027
3705 Westheimer
Phone: 713-623-2090

WASHINGTON

Seattle, 98121
2221 Third Ave.
Phone: 206-682-2172

WISCONSIN

Milwaukee, 53216
5215 Fond du Lac
Phone: 414-873-8250



Heathkit 8-digit Electronic Desk-top Calculator

Thousands sold prove it to be one of the finest kit values we've ever offered!

Here's what just a few proud owners have to say:

"...This is the best designed kit I have built...congratulations."
— R.G.M. N.C.

"...That manual was a masterpiece...This was a pure pleasure to put together."
— A.C.M. Wis.

"...You continue in the tradition of the finest kit manufacturer in the world!"
— P.W.M. Fla.

"...The calculator worked perfectly as soon as I first plugged it in! We are 100% satisfied and plan to order several more in the near future,"
— W.R.K. Va.

"...It only took 6 hours to build...and the assembly is fantastically simple."
— J.B.F. Calif.

"...Except for lack of memory banks, this unit must compare with calculators in the \$400 to \$500 class...congratulations on a wonderful kit."
— J.L.S. Wash.

Deluxe features at do-it-yourself savings

Just a couple of evenings puts it all together. And, like all Heathkit assembly manuals, the non-technical instructions lead you a simple step at a time to successful completion, even if you've never built anything before. The

new Heathkit IC-2008 Calculator performs addition, subtraction, multiplication and division electronically, and gives you the answers in up to 8-figure totals on bright, easy-to-read Sperry Rand display tubes. You punch up a problem the same way you would write it out ($7 \times 8 =$) ...and the answer is there before your eyes.

And the screen displays each number as you hit the key, so you can check your work as you go. The simplified keyboard provides 10 numerical keys (0-9), decimal, plus, minus, multiply, divide, and $+ / -$ for performing algebraic calculations with positive and negative numbers. You can use the Heathkit Calculator for either constant or chain operation. Simply push the K (constant) key and you can multiply or divide a series of figures by one preselected number, or multiply the constant by itself for squaring or taking it to a power. Release the constant key and you can perform any function or series of functions with the calculator holding all data until you push the total key.

Floating decimals

The IC-2008 can automatically indicate a minus result—making it ideal for credit balancing. To balance the family checkbook, for instance, you merely punch in your credits and debits to come up with a total. It's one easy operation with no need to sub-total. A thumbwheel lets you place the decimal in one of 7 fixed positions. Or, you can select the floating decimal mode for totals carried out to completion.

Overflow capabilities, too

Overflow for plus or minus totals is indicated on the ninth display tube at the extreme left of the readout screen. This tube also displays a minus sign when using a negative number or in the case of negative result as: ($10 - 11 = -1$). In the event of overflow, the calculator always protects the most significant portion of the total (the largest portion of the number, or that portion to the left of the decimal), and retains these figures on the display screen.

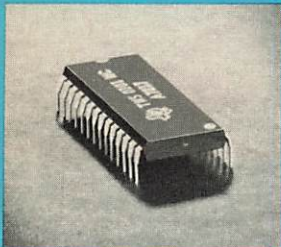
Two convenient clearance keys

Should you make an error in setting up a problem, the clear-display (Cd) key permits erasing the last entry from the circuit and proceeding ahead without losing the entire problem. At the completion of a problem, or to correct an overflow, you simply push the "C" key to clear the machine completely. For state-of-the-art features and performance in an electronic calculator—at kit-form savings—order your Heathkit IC-2008 today.

Kit IC-2008, 5 lbs., mailable **129.95**



129⁹⁵



Reliable Texas Instrument LSI logic "chip" is the "brain" of the IC-2008.



SPECIFICATIONS — Operating Temperature: 0 to 40 degrees C; 32 to 104 degrees F. Line Voltage: 120/240 volts AC, 50/60 Hz. Power Dissipation: 6.5 watts. Protection: 1/8-ampere slow-blow fuse (120 VAC operation); 1/4-ampere slow-blow fuse (240 VAC operation). Initial Display Light Up Time: Up to 60 sec., depending on ambient light. Dimensions: 3 1/2" H x 6" W x 10 1/4" D.

No money down on any kit — up to 2 years to pay — see order blank for details.

Build Your Own Tune-up Gear and Save Twice

New Heathkit Inductive Pickup Timing Light 29.95

The most convenient timing light you've ever used. With the new Heathkit CI-1040 you simply hook-up to the battery terminals, snap the inductive pickup around the wire to the #1 spark plug, and you're ready to go. There's no need to get at the plug itself and you can connect-up while the engine is running. It can't interfere with the operation of other tune-up instruments either. At this great kit price the new CI-1040 is well worth the modest two-hour building time. You get solid-state circuitry and Heath's high intensity flash that's visible in direct sunlight. High impact focusing lens concentrates the beam for greater accuracy. Rugged blue plastic housing that insulates you against electrical shock. Circuit protection against reversed polarity. The Heathkit Inductive Pickup Timing Light — simple to build, simpler to use. Order one for your garage.

Kit CI-1040, 4 lbs., mailable 29.95

CI-1040 SPECIFICATIONS — Useful light range: Up to 2 ft. in daylight. Engine speed range: Full flash brightness up to 2000 rpm. Operation above 2000 rpm should be intermittent only. Triggering: Current pickup coil. Connecting cables: 7-ft. battery cable with clips. 5-ft. trigger pickup cable with clips. Power requirements: 12 VDC automotive storage battery or separate 15 VDC power supply with 1.5 amp capacity. Dimensions: 6½" H x 2" W x 10" D.

Heathkit Solid-State Timing Light 19.95

Provides a high intensity flash that won't wash out even in direct sunlight. High-impact focusing lens concentrates the beam for even more accurate ignition set up. Connect one cable to the car's battery, the other cable to spark plug. Adapter is included for distributor cap hook-up. Charcoal green, high-impact plastic housing protects you from electrical shock. Circuit protected against reversed polarity.

Kit CI-1020, 3 lbs., mailable 19.95

CI-1020 SPECIFICATIONS — Useful light range: Up to 2 feet in daylight. Engine speed range: Full flash brightness up to 2000 rpm. Operation above 2000 rpm should be intermittent only. Triggering requirements: Direct connection to number one spark plug of engine ignition system. Connecting cables: Battery cable with clips (7 feet). High voltage cable with clip (5 feet). Adapter/connector: Connects to either a spark plug or distributor. Power requirements: Automotive storage battery or separate 15 volt DC power supply. Size: 6½" H x 10" L x 2" W.

Heathkit Automatic Battery Charger 29.95

A lifesaver for 12 VDC batteries. Will not start unless it's correctly connected, ending hot sparking cables and ruined batteries. Simply won't overcharge no matter how long it's hooked up. Just plug it into a convenient 120 VAC outlet and hook up the terminal cables. When battery voltage reaches 13.4 volts (full charge), the GP-21 shuts itself down, maintaining just enough current through the battery to compensate for internal leakage. And you can leave the cables connected indefinitely — for weeks or months. There's no charge-rate selector, so amperage can't be set too high or too low.

Kit GP-21, 13 lbs., mailable 29.95

GP-21 SPECIFICATIONS — Charge rate: 10 amperes maximum at 120 VAC line, decreasing to leakage rate of battery. Output voltage: Between 13.2 VDC and 13.6 VDC depending on battery condition. Power requirements: 105-130 VAC, 60 Hz, 200 watts maximum (at 10 amperes charge rate.) Dimensions: 5½" H x 9" W x 6¾" D.

Heathkit 3-in-1 Tune-up Meter 29.95

Measures dwell on all 4-cycle 3, 4, 6 or 8 cylinder engines with conventional (not solid-state) ignitions (45-120 degrees full scale, depending on number of cylinders). Has two rpm scales — 0-1500 and 0-4500. Analyzes DC voltage from 0 to 15 volts. Operating the ID-29 is as simple as connecting two leads, with auto engine providing both signal and power. There's no need to reconnect probes to change from dwell to rpm measurement. Can be used on both 6 and 12 volt systems without changing leads. Stable solid-state circuitry assures accuracy within 3%.

Kit ID-29, 5 lbs., mailable 29.95

ID-29 SPECIFICATIONS — Dwellmeter: Four direct reading scales; 8 cyl. — 0-45 degrees; 6 cyl. — 0-60 degrees; 4 cyl. — 0-90 degrees; 3 cyl. — 0-120 degrees. Tachometer: Two RPM ranges; Low range — 0-1500 RPM; High range — 0-4500 RPM. Voltmeter: Direct reading scale, 0-15 VDC. Power requirements: 10 mA approximate average current. Meter: 4½", 1 mA (100 degree movement). Accuracy: ±3% of full scale. Dimensions: 4¼" H x 8½" W x 7¼" D (including handle).



129⁹⁵

Save on Auto Repairs, Save on Test Equipment the Heathkit Way



Troubleshoot any ignition with this great new analyzer

Now you can troubleshoot ignition problems in practically any engine — in the shop or on the road — with a professional-quality, low-cost Heathkit analyzer. The all new Heathkit CO-1015 Solid-State Ignition Analyzer can be used with any standard, transistorized or capacitive discharge system on three, four, six or eight-cylinder engines to detect shorted spark plugs, bad points, defective wiring, worn distributor parts, incorrect dwell time, coil, condenser or transistor or CD circuitry problems. An added convenience feature in the new CO-1015 is a built-in tachometer on the front panel with 0 to 1000 and 0 to 5000 ranges, allowing you to make carburetor adjustments at the same time the ignition system is being checked. Another feature is the constant pattern width circuitry, which means there is no need for you to continually readjust the sweep width for changes in rpm. You simply set the sweep or pattern width once . . . and the specially-designed circuitry holds it constant throughout the servicing procedure. Convenient front-panel controls give you selection of four different patterns — primary or secondary, in either parade or superimposed displays. And you can expand the views for more detailed analysis through horizontal expansion of 10 to 1 and vertical expansion of 2 to 1. Manual shows typical tell-tale patterns for various ignition conditions. The optional Heathkit inverter (COA-1015-1) can be mounted permanently to the rear panel of the analyzer, and with the cigar lighter adapter, gives you on-the-road testing capability of the vehicle under load. Whether you're a pro or part time mechanic, you'll find the CO-1015 an invaluable trouble-shooting tool. Order yours today.



Complete set of cables supplied with kit for all testing procedures.



Optional power inverter mounts on rear panel for convenient on-the-road testing capacity.

Kit CO-1015, 22 lbs., mailable 129.95

Kit COA-1015-1, 12V Inverter, 4 lbs., mailable 24.95

CO-1015 SPECIFICATIONS — Power Requirements: 120/240 50/60 Hz, 16 W. RPM Range: 400-5000. Cylinders: 3, 4, 6 or 8. Ignition Systems: Standard Transistorized or Capacitive Discharge. Displays: Parade or superimposed on both primary and secondary waveforms. Vertical Expand: Approx. 2 to 1. Horizontal Expand: Approx. 10 to 1. Sweep Length: (Referenced to Calibrate Position) ±5% over entire RPM range. Intensity: Fixed. Presets: Focus, Astigmatism, Trigger Adjust, Tac Cal. Connection Cables: 12' pick-up clamp; ground and secondary clip leads extend 2' beyond pick-up clamp. Front Panel Controls: Vertical Position; Vertical Expand (Pull Vert. Pos.); Horizontal Expand; Horizontal Position; Parade/Superimposed (Pull Horiz. Pos.); Power On/Off; Function Switch — Standard ignition primary, secondary; Calibrate; Capacitive Discharge primary, secondary. Tac Hi/Low. Tac 6/8 cyl. (pull Horiz. Exp.). Tachometer: 0-1000 RPM, 0-5000 RPM ±5% of full scale. Dimensions: 7" H x 10½" W x 17½" D.

Typical Ignition Patterns



Standard Ignition Primary Superimposed

Standard Ignition Secondary Superimposed

Standard Ignition Secondary Parade

CD Ignition Secondary Parade

New 3-in-1 Hanson Basic Tester Set...10.95



The Hanson basic tester set brings you three fundamental tools used in all automotive tune-up work. Set includes Model 1604 Remote Starter Switch with push button and long leads for under the hood starting; Model 1605 Compression Tester that reads 0-300 lbs., has 15° offset to reach back cylinders; Model 1606 Vacuum/Fuel Pump Tester with 2½-in. three-color dial, calibrated 0-30 inches for vacuum and 0-7 lbs. for pressure. Send for this handy set, today.

CGP-1036, 3 lbs., mailable 10.95

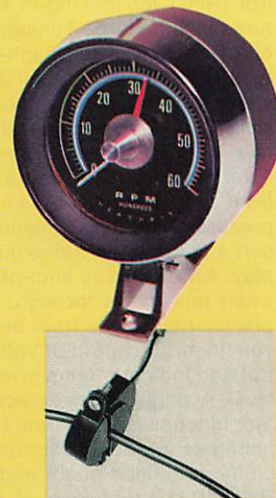
Heathkit Solid-State Tachometer...29.95

Wide angle 250° edge lighted dial with white indicator, adjustable pointer, non-scratch glass face. Available with black and chrome case, or for panel mount. Triggers from breaker points or inductive pickup.

Kit MI-18-1, panel model, 3 lbs., mailable 29.95

Kit MI-18-2, with case, 3 lbs., mailable 32.95

MI-18 SPECIFICATIONS — Trigger Sensitivity (Minimum Requirements): Pickup Coil, 25 mA peak, 5 μs rise time. Tach Connection: 30 V negative pulse, 20 μs rise time. Meter Range: 0-6000 r/min. or 0-9000 r/min. Engine Capability: 1 to 6 cyl., 2 cycles; 2 to 8 cyl., 4 cycles. Accuracy: ±3% at calibrating temperature (when calibrated at full scale). ±5% from 0° F. to +120° F. Power Requirements: 10.5 to 17.5 V DC, 25 mA at 12 V DC, 125 mA with lamp. Dimensions: Model MI-18-1: 3¾" overall face diameter. Mounts in 3¼" hole. 2¼" over-all case depth. Model MI-18-2: 3¾" overall face diameter. 4¼" high. 3" overall case depth.



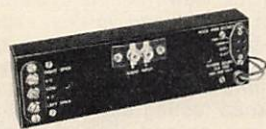
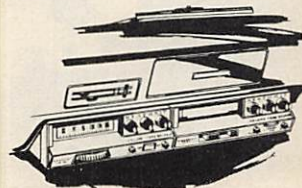
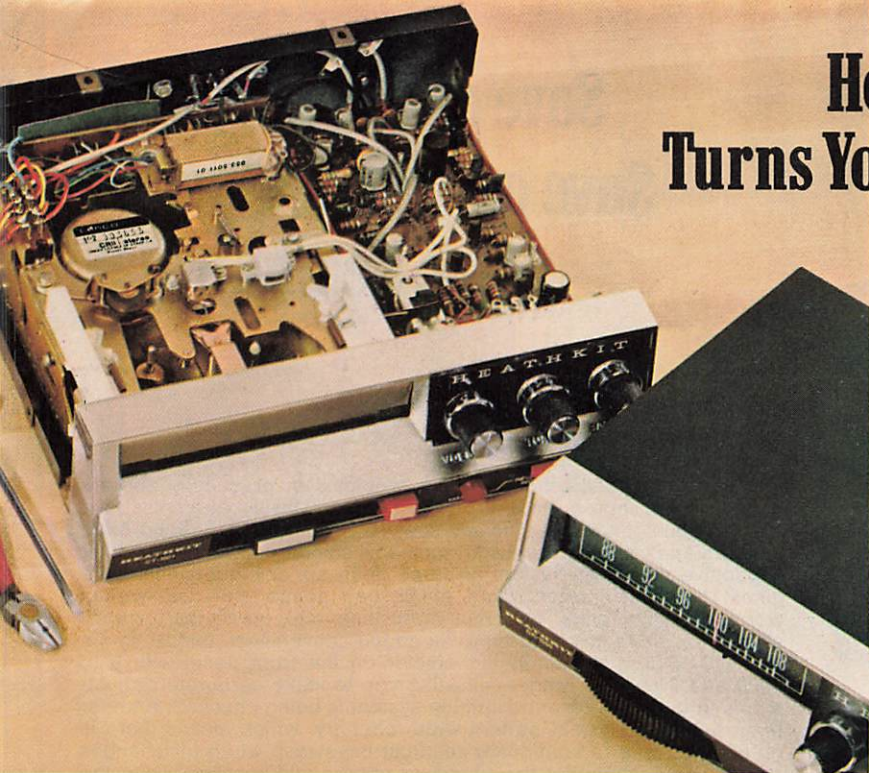
Inductive pick-up coil snaps easily into place on coil wire when points are inaccessible.

No money down on any kit — up to 2 years to pay — see order blank for details.

Heathkit Stereo Excellence Turns Your Car into a Concert Hall

Traditional Heathkit Quality — the standard of the industry — now gives you superb audio components for the road

Total Component Flexibility — separate FM Tuner, Cassette Deck, Power Amp and speakers — buy and build just what you need



One CRA-1000-1 Power Amp. is all you need to power either the FM car Tuner, or Cassette, or both.

Choice of 5" cone speakers for door panel installation or 6"x9" rear-deck models.

Units may be stack mounted on transmission hump or under dash.

Units may be mounted side by side under dash.

The new Heathkit CR-1000 FM Stereo Tuner brings living-room fidelity in stereo broadcasting to the privacy of your own automobile. And simplified circuit board assembly plus a factory-assembled & aligned FM tuning unit make it all an enjoyable four-evening project. Combined with the CRA-1000-1 Power Amplifier, the Tuner offers performance specifications rivaling those of many costly home stereo hi-fi systems . . . an honest 7 watts of car-filling power (3.5W min. per channel into 4 ohms) with less than 2% THD; frequency response ± 1 dB, 3 Hz to 15,000 Hz; 3 μ V sensitivity; 60 dB selectivity; 40 dB min. separation. Ten transistors, 4 ICs and 4 diodes make up the reliable solid-state tuner circuitry. Advance-design features include a muting circuit for noise quieting between stations; automatic frequency control (AFC) for locking-in FM stations. Front-panel convenience features include large Tuning, Volume, Tone and Balance control knobs; on-off rocker switch; high-visibility stereo indicator light and center-tune indicator light . . . all designed to give you fingertip control of FM stereo programming without taking your eyes off the road. All hardware supplied for under-dash or transmission hump mounting. The new CT-1001 Stereo Cassette Deck puts high fidelity stereo cassette entertainment — as well as single-channel dictation — right in your front seat. And it's a fun kit to build — with printed circuit boards and preassembled tape transport simplifying assembly. To use, simply insert a cassette cartridge into the front-panel slot and the unit starts to play. An electronic shut-off circuit automatically ejects the cartridge when tape plays through. An automatic "record interlock" protects prerecorded tapes from being accidentally erased. Three knobs give you fingertip control of Volume, Tone and Balance, while another control and indicator lamp give you peripheral-vision control of recording level. A single 3-way Reject Bar performs fast-forward, rewind and reject functions. A separate Record Bar is provided, with the Reject Bar acting as interlock. Microphone plugs into side panel. Solid-state circuitry, regulated motor and quality power amp. combine to deliver 30 Hz to 10 kHz response; 45 dB S/N; 0.3% wow & flutter; 2% THD; and 30 dB channel separation. Hardware supplied for under-dash or transmission hump mounting. Microphone included.

Add the amp and speakers and you're ready to go

The CRA-1000-1 Power Amp fits on the back of either the FM Tuner or Cassette Deck. One amp powers both units in tandem installations. For door panel installation choose the 5" speakers. Select 6" x 9" speakers for rear-deck installation. Any way you match them — Heathkit mobile components are a moving sound experience.

Kit CR-1000, Tuner only, 6 lbs., mailable 64.95

Kit CT-1001, Cassette Deck only, 9 lbs., mailable 89.95

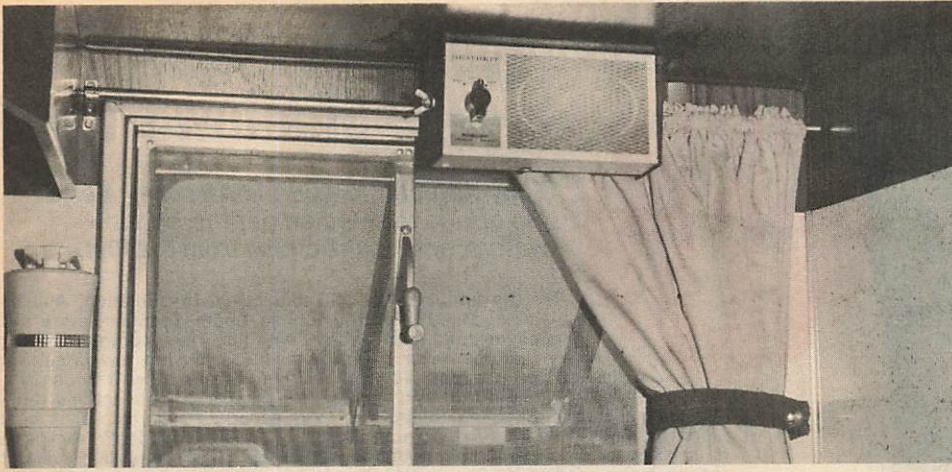
Kit CRA-1000-1, Power Amplifier, 3 lbs., mailable 29.95

CRA-1000-2, 5" cone, 4-ohm door-mount hi-fi speakers for Radio or Cassette (including grilles, adapter plates for most speaker size openings and 24' speaker lead) 6 lbs., mailable (pair) 19.95

CRA-1000-5, 6"x9" 4-ohm rear deck mount hi-fi speakers for Radio or Cassette (including grilles and 24' speaker lead). 7 lbs., mailable (pair) 19.95

CR-1000 SPECIFICATIONS — FM MONO — Intermediate Frequency (IF): 10.7 MHz. Antenna Input Impedance: 50-75 ohm unbalanced. Sensitivity: 3 μ V max. THD: 2% or less at rated output. IM Distortion: 0.5% max. Image Rejection: 45 dB min. at 98 MHz. Spurious Rejection: 65 dB min. at 98 MHz. IF Rejection: 65 dB min. Noise: 65 dB min. Selectivity: 60 dB min. Capture Ratio: 1.8 dB. Tone Control Cutoff (Ref. 1 kHz): 18 dB at 10 kHz, typical. FM STEREO — 19 kHz and 38 kHz Suppression: 20 dB min. SCA Suppression: 45 dB min. Separation: 40 dB min. (measured using 15 kHz low-pass filter). THD: 2% or less at rated output. GENERAL — Tuning Range: 88 to 108 MHz. Frequency Response: ± 1.5 dB, 30 Hz to 15 kHz. Power Requirements: 13.8 VDC at 1.5A. Controls: Tuning, Volume, Tone, Balance and OFF/ON switch. Indicators: Center Tune & Stereo. Transistor Complement: 10 transistors. Integrated Circuit Complement: 4 ICs. Diode Complement: 4 diodes. Dimensions: 2 1/2" H x 7 5/8" W x 7" D (8" D with CRA-1000-1).

CT-1001 SPECIFICATIONS — PLAYBACK — Response: 30 Hz to 10 kHz. Signal to Noise: 45 dB. Wow & Flutter: 0.3%. THD: 2%. Channel Separation: 30 dB. Tone Control Cutoff: 18 dB at 10 kHz (1 kHz reference). RECORD — Signal Erasure: 35 dB. THD: 5%. Signal to Noise: 45 dB. GENERAL — Motor: DC, solid-state regulated. Tape Speed: 1 7/8" in./sec. Tape Cartridge: C-30, C-60, C-90 Cassettes. Primary Controls: Volume, Tone, Balance. Secondary Controls: Fast Forward/Reject-Rewind, Record, Mic. Level. Transistor Complement: 18 transistors. Diode Complement: 5 diodes. Power requirements: 13.8 VDC at 1.5A. Dimensions: 2 1/2" H x 7 5/8" W x 8" D.

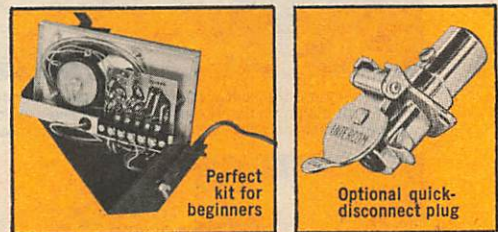
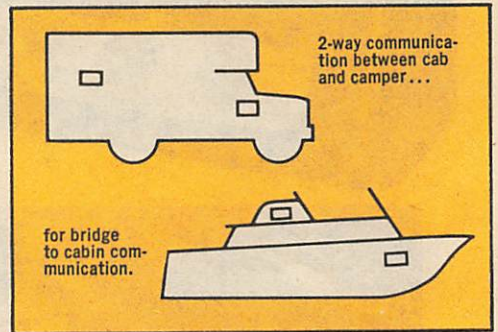


Solid-state Communicator for Folks on the Go

The Heathkit "Mobilink" — an economical, easy-to-build kit that puts 2-way communication in your camper, boat or trailer

Ride relaxed, knowing you're in full command of any situation with the new Heathkit GD-160 "Mobilink" Intercom System. Provides instant 2-way communication between camper and cab, car and trailer, ship's bridge and cabin, or for any other mobile application where a 12-volt, 250 milliamp DC power source is available. The 3-position switch on the Master unit selects "Stand-By", "Monitor" and "Talk" modes of operation. If the nippers are napping in the camper, you can monitor every noise from the cab in the "Monitor" position. When noise in the camper gets a bit too much, you can shut it out by moving the Master control to "Stand-By." A push of the switch to the spring-loaded "Talk" position puts you in instant voice communication with the Remote unit. The Remote unit has a "Radio" position which brings entertainment into the camper direct from the cab radio... as well as "Stand-By" and "Talk" positions. The "Talk" position on both Master and Remote units overrides all other functions, so either station can initiate a call. Battery power is drawn only when units are in "Talk" or "Monitor" positions. The all solid-state amplifier circuit provides instant operation when the Master is on "Monitor" or "Talk", or when the Remote is in the "Talk" position. Both units are ruggedly constructed to take the toughest mobile use and abuse in stride. Mounting brackets are included for installing both units on either horizontal or vertical surfaces. A 15' five-conductor cable also is furnished for connecting the Master unit to the Remote. The optional quick-disconnect accessory plug features a chrome-plated 5-prong plug and socket allowing removal of the camper from the cab without disturbing the interconnecting cable.

Kit GD-160, Master, Remote and cable, 5 lbs., mailable 25.95
GDA-160-1, Accessory Plug, 1 lb., mailable 2.50



GD-160 SPECIFICATIONS — Number of Stations: Two; one master and one remote. **Controls** — Master Unit: Three-position function switch; Std by, Monitor, and Talk. Gain control; accessible through rear of cover. **Controls** — Remote Unit: Three-position function switch: Radio, Std By, and Talk. **Circuit:** Transistor 3-stage class A amplifier. **Speaker/Microphone:** 25 ohm nominal, 3" x 5" weather resistant. **Power Output:** 1 watt. **Interconnecting Cable:** 5-conductor (fifteen feet furnished). **Power Requirements:** 13.2 volts DC at 250 milliamperes. **Dimensions:** Unit Size, 3 7/8" H x 7 3/4" W x 3" D. Required Mounting Area; 4" H x 8 3/4" W x 3 3/4" D. **Net Weight:** Master Unit, 1 3/4 lbs. Remote Unit, 1 1/2 lbs.



For automobiles with a mission — Heathkit Siren/PA System

The Heathkit GD-18 Siren/PA System assembles in only two evenings...and offers you performance that compares with the best, at a fraction of the cost. Functions as an electronic siren at a full 55 watts, with adjustable pitch. Functions as a PA system with 20 watts for booming voice communication. Functions as a radio call alert by letting you hear calls away from your vehicle. Choice of speakers, concealed or exposed horn. Concealed speaker requires 4 1/2" x 4 1/2" x 13" behind grille.

Kit GD-18, Siren/PA Amplifier, 6 lbs., mailable 59.95
Assembled GDA-18-1, exterior horn, 10 lbs., mailable 49.95
Kit GDA-18-2, concealed horn, 10 lbs., mailable 49.95
GD-18A (GD-18 & exterior horn), 16 lbs., mailable 104.95
GD-18B (GD-18 & concealed horn), 16 lbs., mailable 104.95



You're never out of touch with the Heathkit 5-watt CB Rig

Anyone can build this one and enjoy instant, reliable 2-way communication from car to car, home to office. The GW-14A offers you 23-channel capability with crystal-controlled reliability. Solid-state circuit provides instant operation, long life, minimum battery drain. Draws only 0.75A in transmit mode, 0.12A on receive. Husky 3W RF minimum output for reliable communication over maximum range. 12 to 14 VDC operation.

Kit GW-14A, 8 lbs., less crystals, mailable 89.95
GWS-14A System: GW-14A plus 23 channel crystal pack, 9 lbs., mailable 159.95
Kit GWA-14-1, AC power supply, 5 lbs., mailable 14.95
GWA-14-2, 23 channel crystal pack, 1 lb., mailable 79.95

No money down on any kit — up to 2 years to pay — see order blank for details.

New Heathkit Dual Range Depth Sounder "Sounds Off" in Shallow Waters

NEW



Fully Adjustable Audible Alarm — alerts the bridge to selected depths, shallow waters, and obstructions from 5-240 ft.

It's the bold new look in nautical instrumentation. And the Heathkit MI-1031 Visual/Audible Depth Sounder sets a new precedent in kit-form value — with accuracy, convenience and safety features never before available at such a low price. The flasher-type readout provides the big picture of what's below — depth to bottom, terrain and vegetation — shows schools and individual fish, submerged floating objects. For extra security afloat, high-pitch beep alerts you to shallow waters or objects above any pre-selected depth from 5-240 ft. Just set the front-panel alarm control and forget it. The two switch selected ranges make reading depths to 240 ft. easier and permit far more accurate readings in waters 60 ft. or less.

The state-of-the-art design features all-transistor circuitry with electronically controlled silent-running motor and built-in fixed noise rejection circuit to eliminate ignition interference.

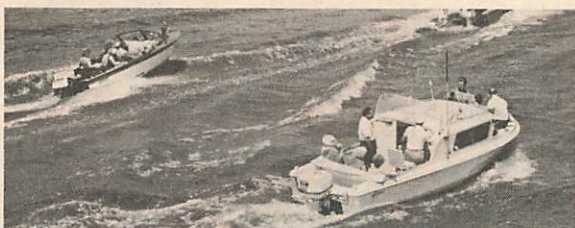
Diode protection against accidental reversal of polarity when connecting to your ship's 12 VDC system. The marine-white water-resistant Cycolac® cabinet has a glare-free black bezel and integrated sun shield that lets the Super Bright neon indicator light stand out even in bright sunlight. The gimbal mount and quick-disconnect power and transducer leads let you easily remove your depth sounder when your boat is not in use.

The MI-1031 is available with transom mount for permanent installation on planing hulls, or thru-hull transducer for installation on displacement hulls.

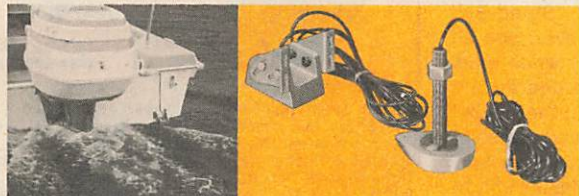
You can easily build your MI-1031 in a couple of evenings. Solder components to the single printed circuit board, make minimal point-to-point connections, then install everything in the housing. Your kit includes 15-ft. power cord and a complete operations manual that'll have you reading depths like a master pilot the first day out.

Kit MI-1031-1, sounder with thru-hull transducer & 15' cord, 6 lbs., mailable **99.95**

Kit MI-1031-2, sounder with transom transducer & 25' cord, 6 lbs., mailable **99.95**



Transom-mount transducer (below, left) is recommended for high-speed craft with planing hulls. Through-hull transducer (below, right) is ideal for permanent installation in larger boats with displacement hulls.



MI-1031 SPECIFICATIONS — Range: 0-240' on hard bottom. Sounding: 60' range: rate 2400/min. or 40/sec. 240' range: rate 600/min. or 10/sec. Frequency on both ranges approx. 200 kHz. Accuracy: Within 2% of actual depth. Depth indication: Neon lamp flashes at zero and again at indicated depth from object. Transducers: Barium titanate ceramic element encased in watertight housing. Controls: RANGE, 0-60' or 0-240'; ALARM, adjustable from 5'-240' with on-off capability; SENSITIVITY, with on-off switch. Transistor & diode complement: 26 transistors, 10 diodes. Power requirements: 0-60' range, 225 mA @ 11-15 VDC; 0-240' range, 125 mA 11-15 VDC with one return pulse. Dimensions: 6½" H x 5¾" W x 7¼" D.



Heathkit Digital Depth Sounder ... 139.95

Bright numerical display tubes and solid-state digital circuitry eliminate need to interpret dials or meter scales. Dual-range scale automatically switches to give depth from 2.5 to 19.9 ft. in increments of 0.1 ft., and from 20 to 199 ft. in increments of 1 ft. A red warning light alerts you to shoals of 10 ft. or less. A single knob controls on-off, and readout brightness. Has automatic noise rejection and gain control, 42 silicon transistors, seven TTL integrated circuits with regulated power supply.

Completely silent in use. Other features are a weatherproof Cycolac® case with blue and white finish with grey tinted window that turns midnight black when not in use; matching gimbal mounting bracket. Kit goes together in about 8 hours.

Kit MI-101-1, with through-hull transducer & 15' cord, 6 lbs., mailable . **139.95**

Kit MI-101-2, with transom transducer & 25' cord, 9 lbs., mailable . . . **139.95**

MI-101-1 & -2 SPECIFICATIONS — Ranges: 2.5-19.9' and 20-199', automatically switched. Sounding rate: 200 kHz. Sounding rate: Maximum of 11/sec on both ranges for a total of 22/sec. Normal rate of approx. 1/sec. Accuracy: ±2%, ±1 digit. Current drain: 300-500 mA. Power requirements: 10-17 VDC @ 500 mA. Display: 7 segment incandescent display tubes — 3 digit red warning indication for depths 10' or less. Controls: Display intensity with on-off switch. Transducer: Barium titanate ceramic element encased in watertight housing. Dimensions: 2¼" H x 6½" W x 8½" D (less gimbal hardware).

The new value-leader in quality depth sounders — Heathkit MI-1030

Featuring Heath's new styling for the sea, the MI-1030 reads to 240 feet with less than 2% error. Displays underwater terrain, spots fish and other submerged objects. And it's our simplest sounder to build and use. Everything goes on one printed circuit board. One control turns it on and off, adjusts sensitivity.

Circuitry includes electronic motor control, noise-rejection circuit, diode protection against polarity reversal, 12 VDC power requirement, SUPER BRIGHT neon light for visibility in direct sunlight. The rugged, water-resistant black and white Cycolac® case has quick-disconnect jacks and gimbal bracket for easy removal from boat when not in use. You choose either transom-mount or thru-hull transducer for perfect permanent installation. Kit includes 15' power cord. We believe this is the best buy in a flasher-type depth sounder anywhere!

Kit MI-1030-1, sounder with thru-hull transducer, & 15' cord, 5 lbs., mailable **69.95**

Kit MI-1030-2, sounder with transom transducer & 25' cord, 5 lbs., mailable **69.95**

MI-1030 SPECIFICATIONS — Range: 0-240' on hard bottom. Scale: 0-120'. Sounding: Rate, 1200/min. or 20/sec. Frequency, approx. 200 kHz. Accuracy: Within 2% of actual depth. Depth indication: Neon lamp flashes at zero and again at the indicated depth from the object. Transducer: Barium Titanate ceramic element encased in watertight housing. Controls: Sensitivity with on-off switch. Transistor & diode complement: 16 transistors, 7 diodes. Power requirements: 125 mA @ 11-15 VDC. Dimensions: 6½" H x 5¾" W x 7¼" D.

You can build any Heathkit with no prior knowledge or experience. We won't let you fail

Easy-to-build Fish Spotter

Spots Fish Down to 200' — fully portable, runs on two 6-volt lantern batteries

89⁹⁵

The MI-29 fish spotter can be assembled easily in two evenings. This rugged portable will provide years of trouble-free use — years of great fishing. It has proved itself time and again to both charter skippers and amateurs in tracking Coho on the Great Lakes. The MI-29 detects schools or individual fish, indicates underwater terrain type, and reads depth to 200 feet.

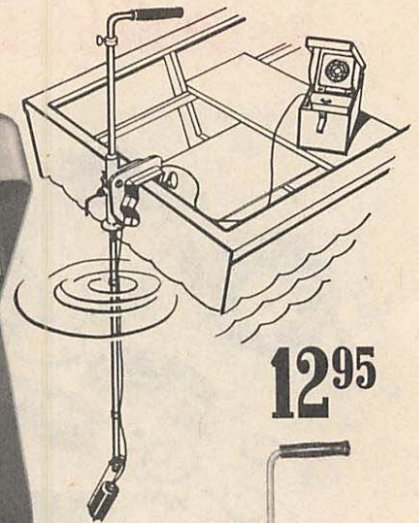
Completely self-contained in weatherproof all-metal case, the MI-29 is powered by two 6 volt lantern batteries — available almost anywhere — and it utilizes solid-state circuitry for minimum current & drain. Cells last over 40 hours in normal use. The portable transducer can be suspended over the side of the boat, or quickly installed on the hull with the suction-cup mount supplied.

The MI-29 provides the exclusive Heath noise rejection circuit that lets you place the transducer near the engine without ignition interference; adjustable sensitivity control for achieving maximum signal; sun-shielding case, and glare-free dial.

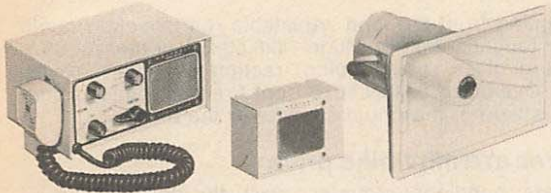
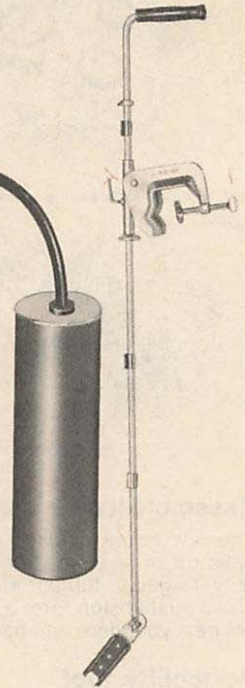
The incomparable Heathkit assembly manual reduces building to simple step-by-step soldering operations — and there's a section to show you exactly how the fish spotter works. The separate operations manual is a complete guide to electronic fishing, with illustrated instructions on how to interpret dial readings, tips on using your fish spotter in various climate conditions, different waters.

Kit MI-29, with transducer, 8 lbs., mailable 89.95

MI-29 SPECIFICATIONS — Range: 0-200' on hard bottom. Sounding: Rate 1440/min. or 24/sec. Frequency, approximately 200 kHz. Accuracy: Within 5% of actual depth. Depth indication: Neon lamp flashes at zero and again at the indicated depth from the object. Transducer: Barium titanate ceramic element encased in a watertight housing. Controls: Sensitivity, with on-off switch. Noise rejection level. Power requirements: 120 mA at 12 VDC. Batteries: 2 required (not supplied). 6V lantern type NEDA #908 or 916, Burgess F4M, Everready #409 or 509, Ray-O-Vac #941. Dimensions: 7" H x 6 1/8" W x 10 1/8" D.



12⁹⁵



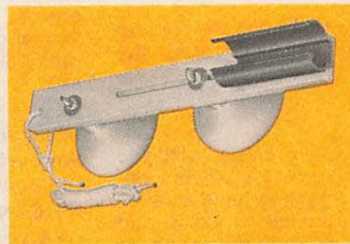
Heathkit Foghorn/Hailer . . . 89.95

Foghorn, hailer, bothorn, intercom — all in one handy package that runs on 12-volt DC. Kit includes 20-ft. deck speaker cable and gimbal mount. Printed circuit-board and cable harness make assembly easy.

Kit MD-19A, with horn speaker, 16 lbs., mailable 89.95

Kit MDA-19-1, optional intercom speaker, 2 lbs., mailable 9.95

MD-19A SPECIFICATIONS — Output power: 55 W peak. Boat horn frequency: Approx. 530 Hz. Foghorn frequency: Approx. 390 Hz. Foghorn rate: Approx. 2-90 sec., variable. Foghorn duration: Approx. 2-20 sec., variable. Speaker: 8 ohm weather resistant horn. Microphone: Ceramic with push-to-talk switch. Controls: Call volume; Listen volume; Station select; Function; Foghorn rate and duration. Power requirements: 12 VDC nominal, 4.5 A max. Idle current: 750 mA or less. Dimensions: 4 3/4" H x 9 3/4" W x 7 1/4" D. Color: White wrinkle and dark blue.



Portable transducer transom mount included with MI-29.

"Scanning" Transducer Bracket adds new versatility & convenience to your Heathkit Fish Spotter. "C" clamp mounting on gunwale or transom; scans 360° in horizontal plane (90° in vertical plane); locks in any position; bracket adjustable between straight down & parallel to water surface; entire bracket tilts & locks up out of water while under way; stainless steel & nickel-plated hardware for corrosion resistance; measures 45 in. overall; accepts 1 3/8" cylindrical transducers. **Kit MIA-2900-1, 4 lbs. 12.95**



24⁹⁵

This one-evening kit gives you an edge on the fish . . . 24.95

Seek out the water temperature where your favorite fish feed with the Heathkit MI-104 Thermo Spotter. Ideal for still fishing or thermo-plotting your favorite trolling grounds. The unit is completely self-contained with a submersible sensing element on a 100-ft. cable and battery-powered meter circuitry all housed in a rugged, high-impact plastic take-up reel case. To use, you simply lower the line, press the spring-loaded meter button for temperature readout, then check depth as indicated by marks on the cable. All electronics are located inside reel hub, so there are no rubbing contacts to malfunction. Kit includes operation manual with fish temperature preference charts by Stanley J. Lievense, Fisheries Division, Michigan Dept. of Natural Resources; calibrating thermometer; sensor line depth marking material. Easy two-hour assembly. And you can put it to good use skin diving, or for swimming pools too. Add this latest piece of electronic fishing gear to your tackle box now.

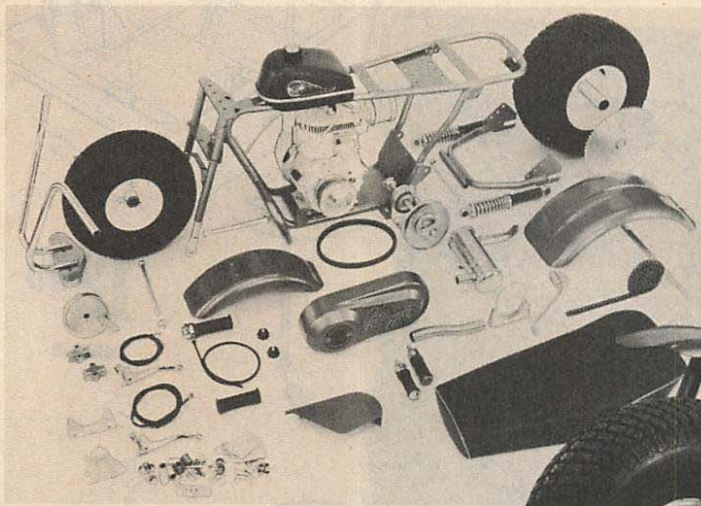
Kit MI-104, 3 lbs., mailable 24.95

MI-104 SPECIFICATIONS — ELECTRICAL: Circuit: Bridge type with thermistor sensor in one arm. Indicator: 50 uA meter. Temperature scale: 32°-86°F. (0°-30°C). Accuracy: Within ±3°F. Current drain: Less than 3 mA when in use. Battery: Size AA penlight cell (NEDA 15). PHYSICAL: Case: Molded high-impact plastic. Cable length: 100 ft. Reel takeup: speed: 1 ft. per turn (approx.). Dimensions: 10 1/4" x 5 3/4" x 3 1/4".

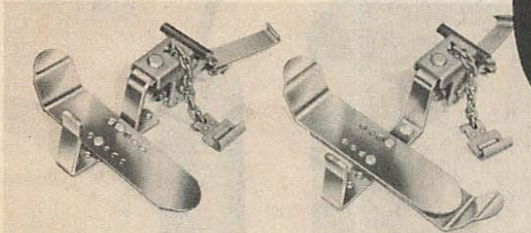
No money down on any kit — up to 2 years to pay — see order blank for details.

Put together a brand-new adventure ...the Heathkit Hilltopper

Only
249⁹⁵



Kit supplied with engine mounted to frame



Handy bumper carrier (left)

...attaches to car or camper bumper in minutes to carry your bike securely and safely. Accommodates either Heathkit Boonie Bike or Hilltopper.

GTA-101-3, 24 lbs., mailable **22.95**

Assemble it over a weekend

The few hours it takes you to put together the Heathkit Hilltopper pays off in season after season of family fun and adventure. Heavy duty 13-gauge tubular steel frame, powerful drive train and sophisticated suspension form a two-wheeler that eats up the roughest trails, yet gets you there and back in comfort.

Portability, too!

And the bike is portable at heart, with fold-down handlebars, fold-up footpeg for easy stowing in camper, trailer or truck. Or order the handy bumper carrier shown above.

Gutsy performance

A Tecumseh 5 hp, 4-cycle engine gives you lively going, and you don't have to pre-mix oil & gasoline. Built-in alternator powers optional running lights. Forestry approved spark arresting muffler takes the worry out of timberland travel. Power is transmitted via a load sensing automatic torque converter for no shift going in the rough, or for speeds up to 35 mph on the straightaway. Big bike suspension

with 16-in. telescoping front fork and adjustable rear shocks smooth your way over the toughest terrain. Huge 18x8.50x8 low pressure flotation-type rear tire gives sure-gripping traction over hills, rocks, sand, even snow. Oversized 5.30x4.50x6 front tire has rounded contours for positive steering, maximum stability in the turns.

Big bike features at a mini-bike price

Other features are handlebar-mounted twist throttle, ignition-off switch, front & rear brake handles; seal-vent 4 1/3 qt. gas tank to run you about 3 hours at 80 mpg; heavy gauge wrap-around fenders; optional running lights and, for snow going, an optional front-wheel ski.

Bike is styled in bronze with white engine, sports a 44" wheel base, measures 39" high & 24" wide at handlebars, 27 3/4" high at seat.

For cycle-style looks and handling at a mini-bike price — order your Hilltopper today.

Kit GT-101, 180 lbs., Exp./Frt. **249.95**

GTA-101-1, ski accessory, 12 lbs., Exp./Frt. **19.95**

GTA-101-2, running lights, 5 lbs., mailable **19.95**



Heathkit Darkroom Aids

A) Heath/Mitchell Colorval® II computer

Improved features. Enlarger light passing thru the scan pack on top of the color probe is adjusted so that the reflected spot (a reflection of area under study) is seen in a small mirror on the probe. This spot is compared to the adjustable neutral reference light surrounding it. The area under study is rendered neutral by adjusting enlarger printing pack. Other improvements: permanent scan filter; visual color-integrating scrambler for integrating color negatives visually; precision exposure probe; simplified testing system; test negatives; special filter mosaics.

Kit PM-17A, includes Color Wheel & 35 mm. b/w test neg., 8 lbs., mailable **99.95**

B) Heathkit photo timer

Gives accurate exposure control of all contact or enlarging operations. Two switch selected ranges; up to 99 seconds in 1 second steps, 9.9 seconds in 0.1 second steps. Repeatable to 2%. AC outlets for enlarger & safelight. All electronic.

Kit PT-15, 4 lbs., mailable **34.50**

New Deluxe Heathkit Metal Locator with a mother lode of advanced features

New handle-mounted sensitivity controls for fingertip, convenient adjustment

New submersible search head — for offshore treasure hunting in up to 2 feet of water.

New improved circuitry — for rock-solid stability

New advanced styling — for fold-up portability, easier handling

New simplified assembly — build it in one evening... use it next day

89⁹⁵

NEW

Professional features at do-it-yourself savings

The all new Heathkit GD-348 offers you accurate, sensitive metal detecting capabilities comparable to detectors costing far in excess of this low kit price. And what a sweet kit it is! With easy check-by-step instructions and simplified circuit board solid-state design, a single evening puts it all together... and you're ready for treasure hunting the next day.

Advanced solid-state design

Many low and medium-priced locators use a "beat frequency" system, requiring the user to hear a frequency change in the constant tone. The GD-348 uses an improved "induction balance" system in which no tone is heard until a metal object enters the field of the search coils and upsets the balance between them. This unbalanced condition results in a signal which is amplified and coupled to the built-in speaker, producing a loud tone which increases or decreases in volume as you get closer or farther away from the metal object. New solid-state circuitry results in more "transmitted" power, offers improved stability, minimum drift, and less need for readjustment. Convenient front-panel meter pinpoints your "find." Built-in jack is provided for use with optional headphones. The null and ten-turn sensitivity controls are conveniently located on the carrying handle for precision fingertip setting.

New, improved versatility and portability

All new styling makes the GD-348 easier and more fun to use. The new pistol grip and control console are designed for perfect balance and effortless use. The search coil features new stainless steel hardware, lightweight anodized aluminum and space-age plastic parts, enabling you to search under water in depths up to two feet. The handle telescopes down and rotates so that search coil, handle and control console all fold into a neat, flat, compact, portable package you can slip into a suitcase, or carry with you, in the optional leatherette case with shoulder strap (below).

Opens up a whole new world of adventure

Simple, fun, easy to use... just turn the GD-348 on, adjust the height of the search coil and walk slowly over the ground you wish to check. It's designed for perfect balance and effortless use in your hand. Use it for hunting through ghost towns, abandoned farms, mines, ancient battlegrounds; finding buried treasure and Indian relics; searching for lost jewelry and coins on beaches or off-shore; locating old property markers; buried pipes, conduits, even stud nails in walls... hundreds of other uses. Whether you're a weekend hobbyist or a professional treasure hunter, the new GD-348 is the locator for you. Order yours today!

Kit GD-348, Locator only, 6 lbs., mailable 89.95
GDA-48-1, 9-volt battery, 1 lb., mailable 1.50
GD-396, headphones, 2000 ohm (Superex), 1 lb., mailable 4.50
GDA-348-1, carrying case, 3 lbs., mailable 6.95



Easy one-evening circuit-board assembly



Convenient handle-mounted controls



Save \$10 on the popular Heathkit GD-48 Metal Locator...now only 64.95

The Heathkit CD-48 Metal Locator is a quality piece of equipment at a pleasingly low price. And you can put it together in as little as two evenings. It detects metal objects as small as a dime and performs prospecting jobs comparable to detectors selling for much more. Heathkit Metal Locator produces no tone until a metal object enters the field of the search coils and upsets the balance between them. You hear the tone either through the speaker or earphone. As buried metal is approached, the tone gets louder. A built-in meter helps you estimate size/depth ratio of find. You can set the locator to work at specific levels, too — to comb surface for small objects, or probe deeper for larger items. All-solid-state circuitry means light weight, reliable operation and minimum battery drain (typical battery life is about 80 hours). Power is supplied by a single 9-volt battery (not supplied). Dig out your treasure maps — and send for your Heathkit Metal Locator today at this new, attractively low price!

Kit GD-48, Metal Locator, 6 lbs., mailable 64.95
GDA-48-1, 9-volt battery, 1 lb., mailable 1.50
GD-396, headphones, 2000 ohm (Superex), 1 lb., mailable 4.50



No money down on any kit — up to 2 years to pay — see order blank for details.

Choose Single or Dual Stick...

Buy a complete
Single Stick System
SAVE 34.70

Special system price: Order GDA-405-S Single Stick Transmitter with GDA-405-2 Receiver, GDA-405-3 Battery Pack, any combination of four GDA-405-4 Miniature Servos or four GDA-505-4 Sub-Miniature Servos.

269⁹⁵

Includes all batteries
(up to \$39 retail value)
NO MONEY DOWN

Buy a complete
Dual Stick System
SAVE 34.70

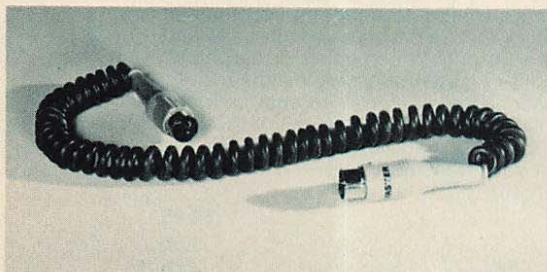
Special system price: Order GDA-405-D Dual Stick Transmitter with GDA-405-2 Receiver, GDA-405-3 Battery Pack, any combination of four GDA-405-4 Miniature Servos or GDA-505-4 Sub-Miniature Servos.

249⁹⁵

Includes all batteries
(up to \$39 retail value)
NO MONEY DOWN



Trainer Link Accessory



Six-foot coiled cord connects any two GDA-405 transmitters for "buddy system" dual-control in-flight instruction. Simply plug the link into receptacles at the bottom of the transmitters and one becomes a master control module and the other a "slave". When master transmitter operator depresses the trainer button on his unit, the student freely controls the receiver in the model. If the instructor feels it advisable to take-over control, he simply releases the trainer button.

GDA-405-6, 1 lb., mailable 7.95



New Heathkit 8-channel R/C Gear

Pick either Single or Dual Stick Control — with switch selection of adjacent channel

Ultra-compact, super light Transmitters — put 8 channels into thin profile cases no bigger than most 4-channel models

If you are into RC modeling, Heathkit-building is a natural extension of your hobby. It gives you the top-quality electronics — to pull the maximum performance from your models — at low kit-form prices. Literally thousands of the RC fraternity use Heathkit systems. And these great new 8-channel rigs are bound to bring many more into the ranks.

The Heathkit GD-405 series transmitters put eight independent channels in a package no larger than most 4-channel units. An exclusive Heath-designed IC encoder in the transmitters and 8-channel decoder IC in the receiver keep the size and weight to a minimum — while substantially increasing reliability. Now you can choose between single or dual-stick proportional control! Both are housed in blue-vinyl-covered extra light aluminum cases with telescoping antenna. This clean, thin-profile design — uncluttered by exposed fastenings — now gives you high-style electronics to complement your most beautiful model. And there are special system prices for both new transmitters when ordered with receiver, battery pack and your choice of four Miniature or Sub-Miniature Servos. Each system includes all inter-connections and batteries.

Trim tabs on all channels

The new GDA-405-S Single-Stick Transmitter provides one-hand simultaneous control of three independent channels. The stick utilizes a gimbal coupling to actuate two functions, while the third is controlled by the return-to-center knob at the top of the stick. The GDA-405-D Dual-Stick Transmitter provides two-hand control of four independent channels. A friction adjust permits removing the spring from one function at each stick to retain the control in any desired position. And both transmitters have positive trim adjust tabs for neutralizing channel action without effecting stick position. A relative power meter monitors radiated signal.

Secondary controls common to both 8-channel transmitters include: A two-position switch that's perfect for landing gear; finger adjust tabs for any auxiliary functions you have in mind. But that's just the beginning.

Deluxe features at down-to-earth prices

Each transmitter is equipped with two coin-switch selected adjacent channels (except when 75.640 is specified). Trainer jacks accommodate the new Heathkit Trainer Link (shown below left) for inter-connecting two transmitters for beginner training purposes. A master pushbutton puts the student in command, releasing the button gives full control back to the instructor. Internal circuitry and an external jack let you charge both the transmitter battery and the receiver battery pack simultaneously with no more than an inter-connecting line cord and 120 VAC source. Eight range controls, one for each channel, provide a method of adjusting servo travel for a given amount of transmitter control movement.

Low flying weights

The new GDA-405-2 super lightweight receiver has been given the same exacting attention to detail. Weighing in at a mere 2.5 ounces,

it has its own on-off switch, features an external two-channel frequency switch, plus a newly designed internal connector block to take the wasted space and time out of servo and battery hookups.

When ordering either GD-405 system, you may select either Heathkit GDA-405-4 Miniature Servos or Heathkit GDA-505-4 Sub-Miniature Servos. With receiver, battery pack and four miniature servos airborne weight is 13.3 oz. Substituting four Sub-Miniatures brings system weight down to 11.3 oz.

For the man who wants 8-channel flexibility, the Heathkit GD-405 RC Systems are unquestionably the most exciting rigs we've ever offered. And at build-it-yourself Heathkit prices, they're the best buy too.

Kit GDA-405-S, single stick transmitter only, 4 lbs., mailable . . . **139.95**

Kit GDA-405-D, dual stick transmitter only, 5 lbs., mailable . . . **119.95**

Kit GDA-405-2, receiver only, 1 lb., mailable **54.95**

Kit GDA-405-3, receiver battery pack only, 1 lb., mailable **9.95**

GDA-405-4, one miniature servo only, 1 lb., mailable **24.95**

GDA-505-4, one sub-miniature servo only, 1 lb., mailable **24.95**

GDA-405-S & GDA-405-D SPECIFICATIONS — TRANSMITTER — RF carrier frequency: Crystal controlled on 27 MHz, 53 MHz, and 72 MHz. Frequency stability: Within $\pm .005\%$ on 27 MHz band. Within $\pm .002\%$ on 53 and 72 MHz bands. Temperature range: 0 to 160 degrees F. RF output circuit: Pi network. RF input power: 500 mW Min. Modulation: On-Off carrier keying. Approx. current drain: 100 mA on all bands. Controls: Eight channels, four with trim. On-Off switch. Frequency selector switch. Trainer push button. Power Supply: Internal 9.6V 500 mA nickel-cadmium battery. Rechargeable simultaneously with receiver battery at 35 to 400 mA from 120 volt power line. Dimensions: 7" H x 7" W x 2" D. Net weight: w/battery, 234 lbs.

GDA-405-2 SPECIFICATIONS — RECEIVER — Local oscillator operating frequency: Crystal controlled on 27 MHz, 53 MHz and 72 MHz. Frequency stability: $.003\%$ on 53 and 72 MHz bands. Temperature range: 0 to +160 degrees F. Sensitivity: 5 μ V or better. Selectivity: 6 dB down at \pm kHz; 30 dB down at ± 9 kHz. Current Drain: 10 mA. Intermediate frequency: 453 kHz. Power supply: 4.8 V Battery Pack GDA-405-3. Controls: ON-OFF switch. Frequency selector switch. Dimensions: 1 $\frac{3}{8}$ " H x 1 $\frac{3}{8}$ " W x 2 $\frac{1}{4}$ " D. Net weight: 2.5 oz.

GDA-405-3 SPECIFICATIONS — RECEIVER BATTERY — Type: Nickel-cadmium. Rechargeable simultaneous with the transmitter batteries at 35 to 40 mA from 120 V power line. Voltage: +2.4 V and +4.8 V outputs. Current rating: 500 mA hours. Dimensions: 1 $\frac{1}{4}$ " H x 1 $\frac{1}{4}$ " W x 2 $\frac{3}{8}$ " D. Net weight: 3.8 oz.

GDA-405-4 SPECIFICATIONS — Input signal: Pulse 1-2 msec wide, 4 V P-P. Thrust: 3 lbs. at rack; 24 in./oz. at rotor. Travel time: 0.6 sec. Linear output travel: $\frac{1}{2}$ " end to end. Rotary output travel: 90° rotation. Temperature range: 0°-160° F. Power requirements: Battery — 4.8 VDC. Idle current — 15 mA. Stall current — 450 mA. Gear train backlash: Less than .002". Mechanical output: 1 rotary arm; 1 rotary wheel; 2 linear racks. Position accuracy: 1.0%. Dimensions: 1 $\frac{5}{8}$ " H x 7 $\frac{7}{8}$ " W x 2 $\frac{1}{32}$ " L (length includes mounting ears; height includes outputs). Net weight: 1.75 oz.

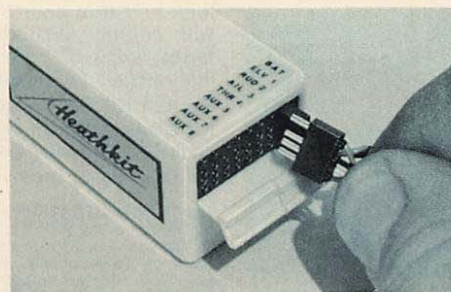
GDA-505-4 SPECIFICATIONS — Input signal: Pulse, 1-2 msec. wide; 4 V, P-P. Thrust: 3 lbs. at rotor. Rotary output travel: 90° rotation. Temperature range: 0°-160° F. Power requirements: Battery, 4.8 V CT; idle current, 15 mA maximum; stall current, 450 mA nominal. Gear train backlash: Less than .002". Mechanical output: 1 large rotary arm, 1 small rotary arm, 1 offset rotary arm, 1 rotary wheel. Position accuracy: 1.0%. Dimensions: 1 $\frac{7}{32}$ " H x 2 $\frac{3}{32}$ " W x 1 $\frac{7}{8}$ " L (length includes mounting ears, height includes the outputs). Net weight: 1.25 oz.

FREQUENCY COMBINATIONS AVAILABLE — Adjacent channels: 27 MHz: 26.995/27.045, 27.095/27.145, 27.145/27.195. 53 MHz: 53.1/53.2, 53.3/53.4, 53.4/53.5. 72 MHz: 72.08/72.24, 72.16/72.32, 72.40/72.96. Available only as single channel: 75.640.



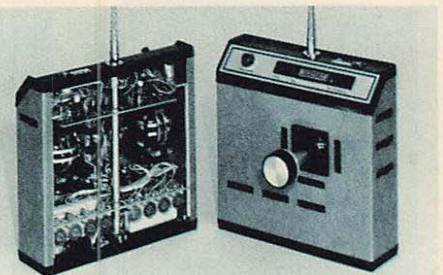
Unmistakable channel identification

A complete set of frequency identification decals is supplied with each GD-405 series Transmitter. The coin slot frequency selector switch on the transmitter makes it impossible to accidentally actuate adjacent channel.



Hook-up's easier, neater than ever

The newly-designed 8-channel connector block on the GDA-405-2 receiver is built right into the case. In-line connectors that add weight and clutter to your model are a thing of the past.



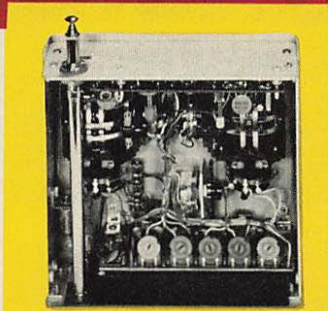
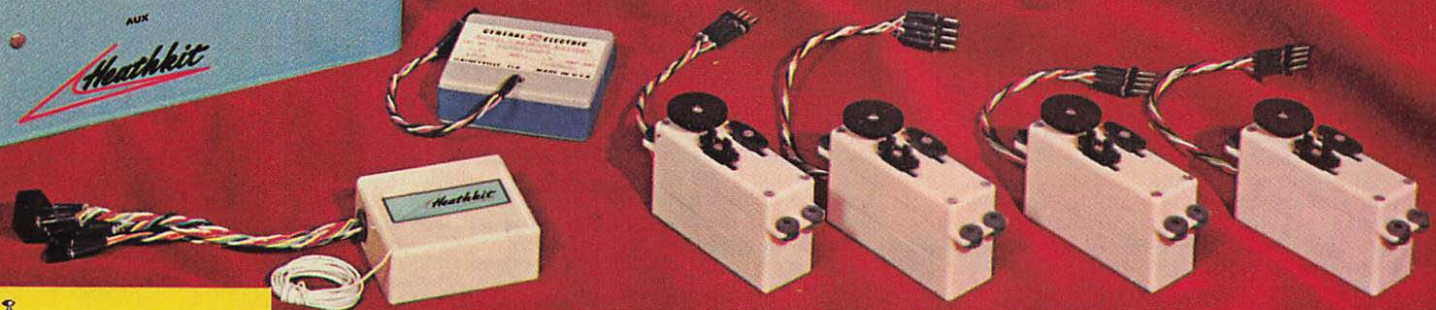
Thin-profile design

Heathkit GD-405 transmitters sport super-thin-profile cases, with a heft and feel that make for hours of fatigue free flying. The removable back panel lets you get at everything for quick adjustment in the field.

No money down on any kit — up to 2 years to pay — see order blank for details.



Dual Kraft-stick control on a Heathkit budget



Step up to — or start out with — the GD-19 5-Channel RC system at traditional Heathkit savings. This dual-stick system utilizes GDA-19-4 servos to give you a low 16.6 oz. flight weight. The Slim Line Transmitter has factory-assembled high output RF stage, Kraft sticks for precise control, built-in charging circuit that charges both transmitter and receiver batteries with one cord. The system price also includes a Heathkit Miniature Receiver with three ceramic IF filters for increased selectivity and reliability without bothersome alignment, double tuned front end, RF amplifier and dual AGC for interference-free reception, and high im-

pact nylon case. Four servos and nickel-cadmium batteries for both transmitter and receiver complete the package. The GD-19 System also provides an exclusive Heath block connector to simplify connection of servos to receiver, plus your choice of frequencies (see specifications below).

- System Kit GD-19**, with standard servos, specify frequency desired, 11 lbs., mailable **199.95**
- Kit GDA-19-1**, transmitter, battery, charging cord, specify frequency; 6 lbs., mailable **86.50**
- Kit GDA-19-2**, receiver only, specify frequency; 1 lb., mailable **49.95**
- Kit GDA-19-3**, receiver battery pack only; 1 lb., mailable **9.95**
- Kit GDA-19-4**, one standard servo only; 1 lb., mailable **19.95**

GDA-19-1 SPECIFICATIONS — TRANSMITTER — RF Carrier frequency: 1 channel, crystal controlled on 27, 53 or 72 MHz. **Frequency stability:** ±.005% on 27 MHz, ±.002% on 53 and 72 MHz. **Temperature:** 0°-160° F. **RF output circuit:** Pi-network. **Modulation:** On-off carrier keying. **Approximate current drain:** 100 mA. **Controls:** 5 channels; 4 with trim; on-off switch. **Power supply:** Internal 9.6 V nickel-cadmium battery. Rechargeable simultaneously with receiver battery at 35 to 40 mA from 120 V. **Frequencies available:** 27 MHz (11 meters) — 26,995, 27,045, 27,095, 27,145 & 27,195. 53 MHz (6 meters) — 53,100, 53,200, 53,300, 53,400, 53,500. 72 MHz (4 meters) for R/C planes only — 72,080, 72,240, 72,400, 72,960 & 75,640. (NOTE: An amateur radio operator's license is required for 6 meter operations. Class C Citizen's Band license required for 27 and 72 MHz). **Dimensions:** 6³/₄" H x 6³/₄" W x 2¹/₈" D. **Net weight:** 2³/₄ lbs. with battery.

GDA-19-2 SPECIFICATIONS — RECEIVER — Frequency: 1 channel, crystal controlled on 27, 53 or 72 MHz. **Frequency stability:** .003% on 27 MHz, .002% on 53 and 72 MHz. **Temperature range:** 0°-160° F. **Sensitivity:** 5 uV or better. **Selectivity:** 6 dB at ±4.0 kHz, 30 dB at ±9.0 kHz. **Approximate current drain:** 6 mA. **Intermediate frequency:** 453 kHz. **Power supply:** Heath GDA-19-3 battery pack. **Controls:** On-Off switch. **Dimensions:** 4¹/₂" H x 2" W x 2¹/₂" D. **Net receiver weight:** 2.3 oz.

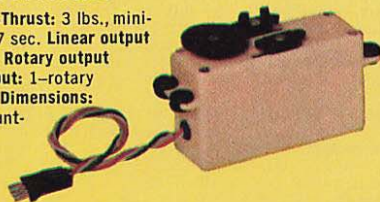
GDA-19-3 SPECIFICATIONS — RECEIVER BATTERY — Type: Nickel-cadmium. Rechargeable. **Voltage:** +4.8 V outputs. **Dimensions:** 5¹/₈" H x 2¹/₈" W x 2³/₈" D. **Net weight:** 3.9 oz.

Heathkit Standard Servo

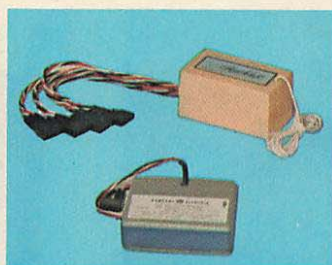
(for use with Heathkit GD-57 and GD-19 systems only)

Kit GDA-19-4, 1 lb., mailable **19.95**

GDA-19-4 SPECIFICATIONS — SERVO — Thrust: 3 lbs., minimum. **Transit time for 1/8" travel:** 0.7 sec. **Linear output travel:** 5/8" end-to-end, 1/2" nominal. **Rotary output travel:** 0 to +100°. **Mechanical output:** 1—rotary arm, 1—rotary wheel, 2—linear arms. **Dimensions:** 1³/₄" H x 1¹/₈" L (length includes mounting ears; height includes arms). **Net weight:** 2.5 oz.



Economy-minded Heathkit 3-channel R/C System



Ideal for R/C newcomers. Perfect for model cars, boats, small planes and gliders, the GD-57 System gives you a powerful 500 mW transmitter with factory-assembled and aligned RF section, safety switch lock and trim control that leaves sticks centered; miniature receiver with ceramic IF filters and rugged nylon case; nickel-cadmium batteries (GDA-19-3 for receiver); two standard servos (GDA-19-4). Kit includes all cables, connectors and charging cord.

- System Kit GD-57**, specify frequency, 8 lbs., mailable **129.95**
- Kit GDA-57-1**, transmitter, battery, charging cord; specify frequency desired, 5 lbs., mailable **54.95**
- Kit GDA-57-2**, receiver only, specify freq., 3 lbs., mailable **34.95**

GDA-57-1 SPECIFICATIONS — TRANSMITTER — RF Carrier Frequency: One frequency, crystal-controlled on 27 MHz, 53 MHz or 72 MHz. **Operating temperature:** 0°-160° F. **Controls:** 3 channels; 2 with trim on front panel and 1 without trim on rear panel for easy hand operation. **Power supply:** Internal 9.6 V nickel-cadmium battery. Rechargeable simultaneously with receiver battery at 40 to 50 mA from 120 V. **Frequencies available:** Same as with GD-19 systems. **Dimensions:** 6¹/₂" H x 6¹/₈" W x 2¹/₈" D.

GD-57-2 SPECIFICATIONS — RECEIVER — RF Carrier Frequency: 1 frequency crystal-controlled on 27 MHz, 53 MHz or 72 MHz. **Operating temperature:** 0°-160° F. **Power supply:** Heath GDA-19-3 Battery Pack. **Dimensions:** 1¹/₈" H x 1³/₈" W x 2¹/₂" L. **Net receiver weight:** 2.0 oz. **Servo channels:** 3. **GENERAL — Complete system weight:** 12.0 oz. (1 receiver, 1 receiver battery, 1 switch, 2 servos).

Best buy in R/C racing

Heathkit "Spectre"... top performance, unbeatable value

The one piece chrome plated steel chassis is a true frame, results in tracking and handling like a real Grand Prix machine. Adjustable caster and toe-in allow trimming for optimum performance. Special formula rubber tires and independent front suspension give "Spectre" traction to take curves at speeds that would put other cars off the track. 5.5:1 gearing provides maximum torque at all speeds.

A simple straightforward design. "Spectre" will not only outperform all other R/C cars, it will outlast them, too. Good engineering practice is evident throughout. Virtually indestructible high-impact plastic body snaps on instead of bolting on...simple coil spring suspension...a dirtproof, oilproof box inside to protect R/C gear...tires that lock onto mag-type wheels...husky, simple gear design in place of fragile shiftable transmissions...locking hardware used throughout.

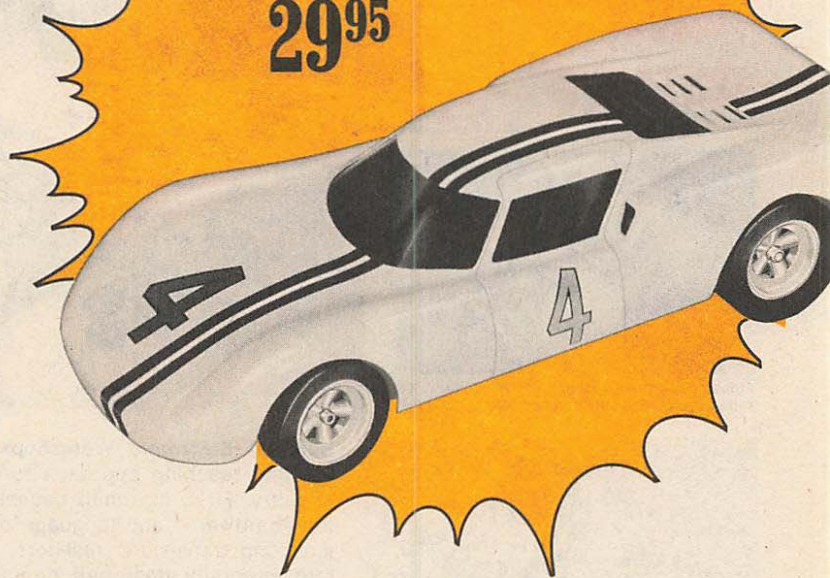
The only complete car available... includes everything you need except engine and R/C gear—body, chassis, wheels and tires, fuel tank and tubing, R/C equipment case and foam padding, gears, axles, servo linkages and mounting tape, all hardware, decals, numbers, comprehensive manual. Body: white Cyclocac®, suitable for finish of your choice.

Get on the track with a winner...order your new "Spectre" now!

Kit GD-101, R/C car only, 11 lbs., mailable29.95

GD-101 SPECIFICATIONS — GENERAL — Chassis: 16 gauge chrome plated steel. Body: GT-Sports, 3/8 scale, high-impact plastic. Drive: Gear driven, live rear axle. Gear Ratio: 5.5:1. Clutch: 1" centrifugal type, adjustable. Brake: Neoprene-cork shoe. Suspension: Front coil spring. Front tire: 3" x 1.125". Rear tire: 3.250" x 1.375". Weight: 6 lbs. 6 oz. (approximately) without radio equipment. Engine Requirements: .15 to .23 cubic inches (2.5 to 3.5 cubic centimeters) displacement, R/C throttle glow plug model airplane engine. Fuel tank capacity: 4 ounces. Approximate running time (1 tank of fuel): 15 to 30 minutes depending on average running speed. Speed: 0 to 25 mph (0 to 200 mph scale). CAR DIMENSIONS — Wheelbase: 12". Track (front): 7 1/8". Track (rear): 7 1/4". Length: 19 3/4". Height (body): 5". Width (body): 8 7/8". Ground clearance: 3/8".

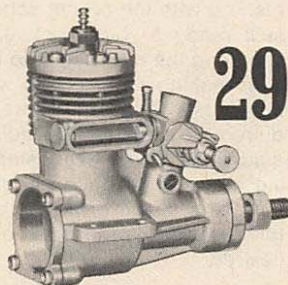
29⁹⁵



Veco .19 Engine

For R/C-car side-winder mounting. Has solid aluminum hemispherical head, coupled exhaust/intake throttle control linked to carburetor for smooth idle. Includes glo plug.

Assembled GDA-101-2, 1 lb., mailable29.95



29⁹⁵

Heathkit "Thumb" Tach

Two rpm ranges: 0-5000, 0-25,000. Ideal for needle valve adjustments, selection of glow plugs, gears and props — permits peaking engine for rpm change you can't hear.

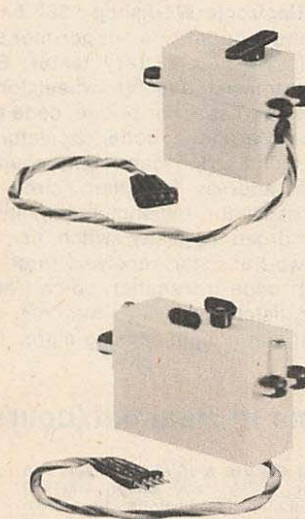
Kit GD-69, 2 lbs., mailable19.95

Heathkit servo simulator

Replaces transmitter and receiver for making servo adjustments — just plug in servo — runs from either optional internal battery or 120 VAC line. Can also be used to charge both receiver and glow plug batteries from 120 VAC line.

Kit GD-206, 2 lbs., mailable19.95

Kit GDA-19-3, receiver battery pack only; 1 lb., mailable9.95



Heathkit sub-miniature servo

GDA-19-42 SPECIFICATIONS — Input signal: Pulse, 1-2 msec. wide; 4 volts, P-P. Thrust: 3 lbs. at rotor. Rotary output travel: 90°. Temp. range: 0° to +160° F. Power requirements: Battery, 4.8 V CT; idle current, 15 mA max; stall current, 450 mA nominal; no load current, 80 mA. Gear train backlash: Less than .002". Mechanical output: 1 large rotary arm, 1 small rotary arm, 1 offset rotary arm, 1 rotary wheel. Position accuracy: 1.0%. Dimensions: 1 1/4" H x 3/32" W x 1 7/8" L (length includes mounting ears, height includes the outputs). Net Weight: 1.25 oz.

Kit GDA-19-42, 1 lb., mailable24.95

Heathkit miniature servo

GDA-19-41 SPECIFICATIONS — Input signal: Pulse 1-2 msec. wide, 4 V P-P. Thrust: 3 lbs. at rack; 24 in./oz. at rotor. Travel time: 0.6 sec. Linear output travel: 1/2" end to end. Rotary output travel: 90° rotation. Temp. range: 0° to 160° F. Power requirements: Battery — 4.8 V DC. Idle current — 15 mA. Stall current — 450 mA. No load current — 80 mA. Gear train backlash: Less than .002". Mechanical output: 1 rotary wheel; 2 linear racks. Position accuracy: 1.0%. Dimensions: 1 5/8" H x 7/8" W x 2 1/4" long (length includes mounting ears; height includes outputs). Net weight: 1.75 oz.

Kit GDA-19-41, 1 lb., mailable24.95

Heathkit 1/32 "slotless" raceway fun for the whole family



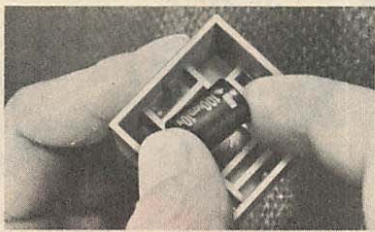
Each car is driven by two motors, one for each rear wheel. Each motor has its own control circuit, which responds to only one specific frequency. When the steering wheel on the controller is turned, it slows the motor at one wheel, while speeding up on the other, causing the car to turn. The throttle control increases the speed of both motors simultaneously for acceleration. Each car and controller combination has its own specific frequencies, assuring independent operation of all cars (up to 4) on the track. Kit includes enough track for an 8' x 4' oval with guard rails. Power transformer that can be wired for either 110 or 220 VAC household current with plug-in jacks for up to 4 controller handles. Two cars (Ferrari and Ford J). Two hand-grip controllers with identification decals to match cars.

Kit GD-79, 23 lbs., mailable129.95

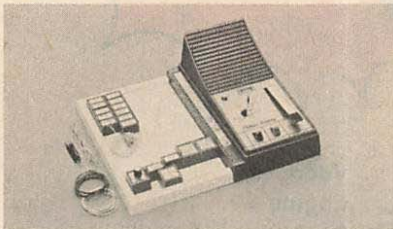
Kit GDA-79-1, one extra car, controller and frequency module, 3 lbs., mailable21.95

No money down on any kit — up to 2 years to pay — see order blank for details.

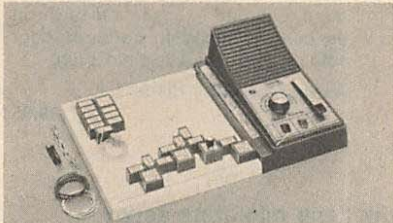
Heathkit Jr. "career starters"



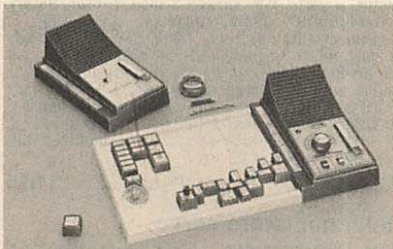
Actual components mount inside modules carrying the component's schematic symbol.



Electronic Workshop "12"



Electronic Workshop "25"



Electronic Workshop "36"

Heathkit Electronic Workshops take a simple modular teaching approach to basic electronic circuitry. First, the child becomes familiar with the "hardware" and language of electronics by mounting transistors, resistors, capacitors, etc. into specially designed component modules marked with the proper schematic symbols. Now he's ready to build actual working circuits by snapping the modules onto the working platform, then making connections with the pre-cut plug-in wiring supplied. There's no soldering required. The extra-large, fully illustrated manual guides the novice every step of the way — showing him how to build circuits and, more important, why they work. And every project can be taken apart and rebuilt as often as the youngster desires.

The Electronic Workshop "36" has 36 interesting and educational experiments: continuity tester, 1½-volt battery tester, 6-volt battery tester, transistor tester, wheatstone bridge, diode tester, capacitor bridge, code flasher, timing device, earphone code oscillator, rain alarm, electronic flasher, metronome, sound level meter, public address amplifier, siren, loudspeaker code oscillator, experimental multivibrator, electronic organ, capacity switch, field strength meter, two-transistor receiver, three-transistor receiver, code transmitter, voice transmitter, light meter, listening device, intercom, electronic target hit alarm, light sensing alarm, L.D.R. flasher,

L.D.R. oscillator, voice indicator, four-transistor receiver, automatic radio, burglar alarm. Kit includes master and remote control consoles, four working platforms, parts and components for 36 different experiments.

Kit JK-1033, 11 lbs., mailable 29.95

The Electronic Workshop "25" includes master control console, three working platforms, parts and components for twenty-five different experiments; continuity tester, 1½-volt battery tester, 6-volt battery tester, transistor tester, wheatstone bridge, diode tester, capacitor bridge, code flasher, timing device, earphone code oscillator, rain alarm, electronic flasher, metronome, sound level meter, public address amplifier, siren, loudspeaker code oscillator, experimental multivibrator, electronic organ, capacity switch, field strength meter, two-transistor receiver, three-transistor receiver, code transmitter, voice transmitter.

Kit JK-1022, 8 lbs., mailable 24.95

The Electronic Workshop "12" includes master control console, two working platforms, parts and components for twelve different experiments. Continuity tester, 1½-volt battery tester, 6-volt battery tester, transistor tester, wheatstone bridge, diode tester, capacitor bridge, code flasher, timing device, earphone code oscillator, rain alarm, and electronic flasher.

Kit JK-1011, 6 lbs., mailable 19.95

A useful product is your diploma in Heathkit/courses



How to understand and use your VTVM. Theory and applications of the VTVM. Power supply and text lets you learn-by-doing. For beginner or professional.

Kit EF-1, text and power supply (for VTVM owners), 3 lbs., mailable 10.95

Kit EF-1-5, includes EF-1 and IM-18, 13 lbs., mailable 39.95

Kit EF-1-6, includes EF-1 and IM-28, 15 lbs., mailable 49.95

Manuals Only for EF-1, (single copy) 5.00; (10 or more) ea. 3.00



How to understand and use your oscilloscope includes experimental chassis for constructing many different circuits. Change circuits as desired... special solderless spring-clip connectors. Large 150-page textbook for future reference.

Kit EF-2, text, special chassis and parts, 4 lbs., mailable 11.95

Manuals Only for EF-2, (single copy) 5.00; (10 or more)ea. 3.00



How to understand and use your signal generator. Text covers theory, and use of RF and AF generators. Textbook a valuable reference.

Kit EF-3, text, test chassis and parts, 4 lbs., mailable 14.95



Kit EF-3-2, includes EF-3 and IG-102, 17 lbs., mailable 44.95

Manuals Only for EF-3 (single copy) 5.00; (10 or more) ea. 3.00

Basic electricity kit/course. Learn about electricity and electronic theory, do interesting experiments to demonstrate principles, and you build a handy DC volt-ohm milliammeter.

Kit EK-1, 4 lbs., mailable 24.95



Basic radio — 2 parts kit/course. Start by building a simple crystal receiver...improve it chapter by chapter. Result: a regenerative tube-type receiver! In Part II you learn more advanced circuits and build a 2-band superheterodyne receiver. Requires EK-1 meter or equivalent...EK-2A required for completion of EK-2B.

EK-2A, part I, 7 lbs., mailable 21.95

EK-2B, part II, 5 lbs., mailable 21.95

AK-8, cabinet for radio, 3 lbs., mailable 3.95

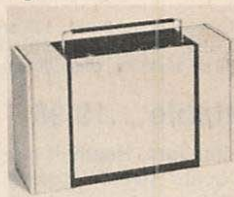


Basic transistors kit/course. Simple, thorough introduction to solid-state electronics. No difficult math involved. Builds a handy two-station intercom.

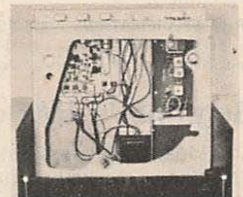
Kit EK-3, 4 lbs., mailable 21.95

Heathkit instant party maker

99⁹⁵



Folds up to put the show on the road.



Easy-to-build 18-watt amplifier.

Delightfully wild portable party maker with big system sound and AM radio

The Heathkit GD-111 combines a dynamic stereo phonograph system and a powerful AM radio in a primal purple package that folds up to go. The record changer, 18-watt amplifier and two 4½" high-compliance speakers are taken from the popular Heathkit GD-109, one of the best sounding portable phonos on the market. The solid-state AM tuner section with built-in antenna has high sensitivity for performance to match the overall high quality of the system.

Versatile entertainer that's always "on"! The dependable record changer flips down for easy access and hassle-free manual or automatic operation — plays 16, 33½, 45 and 78 rpm discs, includes 45 rpm spindle adapter. The GD-111 front panel provides power-on switch, AM/Phono selector, AM tuning dial, and volume, tone and balance audio controls. The stereo speaker sections can be lifted from their hinges and placed as far as 5 feet away from the main section for maximum stereo separation. To stash it all and go, simply re-attach speaker enclosures, snap them closed, lock the changer

tone arm (or lock both tone arm and changer spring assembly for long hauls), flip up the handle.

Get it together in a few hours! Changer and cabinet are pre-assembled, so you simply build the AM and amplifier circuit boards, install changer, speakers and circuitry in cabinet. The GD-111 makes a great back-to-schooler, or an excellent stereo for apartment dwellers. Order one today!

Kit GD-111, 46 lbs., mailable 99.95

GD-111 SPECIFICATIONS: AM TUNER: Tuning Range: 535-1620 kHz. Intermediate Frequency (IF): 455 kHz. Sensitivity: Better than 75 uV/meter for 10 dB signal-to-noise ratio, or 200 uV/meter for 20 dB signal-to-noise ratio. Better than 300 uV/meter for rated output. **AMPLIFIER:** Music Power: 9 W per channel.* Continuous Power Output: 4½ W at 1.5% total harmonic distortion.** Frequency Response: ±3 dB from 20 Hz to 15 kHz. Sensitivity: 2 V at 1 megohm. Harmonic Distortion: Less than 1.5%. Hum and Noise: -60 dB. Channel Separation: Greater than 40 dB. Damping Factor: Greater than 25. Controls: Volume, Tone and Balance. **CHANGER:** Turntable Speeds: 16, 33, 45 and 78 rpm. Record size: 12", 10", or 7". **Cartridge Type:** Ceramic stereo cartridge. **Stylus:** Diamond/sapphire; 7 mil diamond for LP records, 3 mil sapphire for 78 rpm records. **Stylus Pressure:** 3½ grams. **Separation:** 30 dB average. **GENERAL:** Speakers: 4½" cloth suspension cone type, 8 ohms nominal impedance, 2.5 oz. Alnico 5 magnet. **Power requirements:** 120 VAC, 60 Hz, 26 W idling, 62 W full output. **Dimension (overall):** 14½" H x 24½" W x 7½" D.

*Rated EIA (Electronics Industries Association) standards.
**Rated IHF (Institute of High Fidelity) standards.

Component-quality stereo you can carry



The Heathkit GD-109 portable stereo phonograph proves that a low cost portable need not compromise on audio quality. Solid-state 18-watt stereo amplifier, dependable four-speed changer, and two 4½-in. high-compliance speakers. Changer folds down, speakers swing out and can be positioned up to 5 feet away from cabinet for better stereo separation. Entire kit assembles in 5-7 hours. Start enjoying component quality sound you can carry...order today.

Kit GD-109, 47 lbs., mailable 79.95

No money down on any kit — up to 2 years to pay — see order blank for details.



Stereo to go... on a budget

Here's solid-state stereo in a solid one-piece case that's built for rugged dependability. Features four-speed changer for automatic or manual play, dual diamond/sapphire stylus in ceramic cartridge and 4 x 6-in. speakers in "in-depth" cabinet for superior reproduction. Includes 45 rpm adapter spindle. Order one now... and assemble it in just an evening.

Kit GD-107, 38 lbs., mailable 59.95

Great Sounding Portables That Any Novice Can Build

(A) AM/FM Solid-state Portable Radio...44.95

Enjoy the best of both FM and AM worlds in a battery-powered portable that plugs in, too, with the optional converter/charger below. Three tuned AM transformers and amplified AGC offer clean, stable AM listening. On the FM side, a collapsible 34" whip antenna, three IF stages and an amazing 5 uV sensitivity combine to give you sharp, accurate FM reception over great distances. And the AFC keeps your favorite FM station locked in for enjoyable, drift-free listening. The portable won't eat its own weight in batteries every week, either. It runs 200-300 hours on six "D" cells (not supplied) that last even longer with the optional charger/converter. The handsome rich brown simulated leather case featuring slide rule tuning dial, tone control, built-in external earphone jack and earphone measures 6 $\frac{3}{4}$ " H x 8 $\frac{3}{4}$ " W x 4" D. Order one now... for the greatest portable sound around.

Kit GR-17, 6 lbs., mailable 44.95

GRA-43-1, converter/charger, 1 lb., mailable 6.95

GR-17 SPECIFICATIONS — AM SECTION — Tuning Range: 535 kHz-1620 kHz, IF: 455 kHz. Sensitivity: 200 uV per meter for 20 dB signal-to-noise ratio. FM SECTION — Tuning Range: 88-108 MHz, IF: 10.7 MHz. Sensitivity: Better than 5 uV for 30 dB quieting. Audio Output: 350 mV. Size: 6 $\frac{3}{4}$ " H x 8 $\frac{3}{4}$ " W x 4" D.

(B) Beginner's AM Portable...19.95

The ideal kit for first-time builders. Heathkit manual, supplementary theory of radio, clearly marked circuit board give the novice a rewarding introduction to electronics. Receiver has 4" x 6" speaker, pre-aligned coil and IF transformer, built-in antenna, tan simulated leather case.

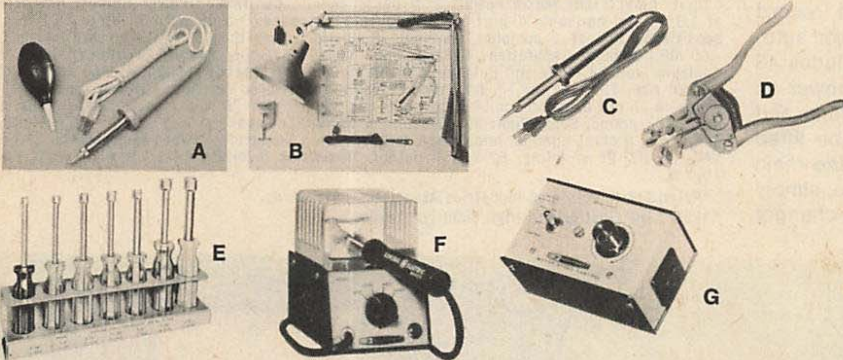
Kit GR-151B, 5 lbs., mailable 19.95

(C) Solid-state AM Portable...29.95

Six-transistor circuit, tuned RF stage and double-tuned IF stage offer excellent sensitivity and selectivity. Push-pull audio output stage produces clean sound — even when batteries are low. Operates on six long-lasting "D" cells (not included). Handsome brown simulated leather case, chrome-finished frame, anodized aluminum grille, 7" H x 8 $\frac{3}{4}$ " W x 3 $\frac{3}{4}$ " D.

Kit GR-24, 5 lbs., mailable 29.95

Heathkit Tools make the job go faster



A) New Heathkit solder/de-solder set: Weller W-PS 25-watt pencil soldering iron and de-solder squeeze bulb with heat resistant nozzle. Makes assembly, and disassembly easy.

GDP-1009, 2 lbs., mailable 6.95

B) Extension lamp kit: 45-in. reach, 360° sweep; vented shade, moveable base clamp. Bulb not included. Kit GDP-202, 5 lbs. (mfrs. list 14.50), mailable 12.95

C) Weller W-PS 25-watt pencil soldering iron: develops 860° heat fast, ready to go to work in seconds. U.L. and C.S.A. approved.

Model GDP-207, 1 lb., mailable 5.50

D) Speedex wire & cable stripper: no. 10, 12, 14, 16, and 22 wire.

Model GDP-663, 2 lbs., (mfrs. list 9.95), mailable 6.50

E) Vaco hollow shaft nut driver set: Seven drivers, most common nut sizes, $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{1}{2}$ ", $\frac{3}{8}$ ", $\frac{7}{16}$ " and $\frac{1}{2}$ ". Handles color-coded for easy identification.

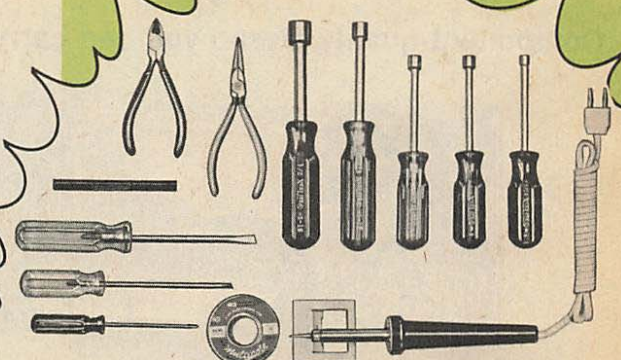
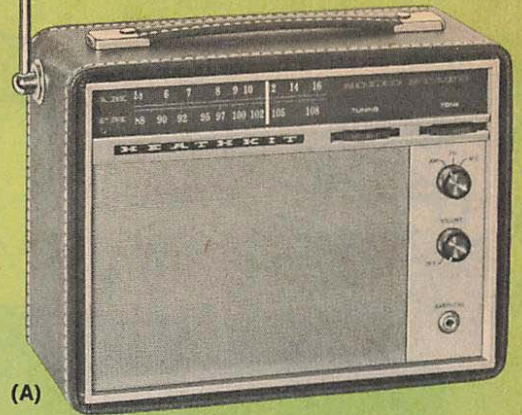
Model GDP-204, 3 lbs., mailable 7.95

F) Heathkit soldering iron: Low, medium and high heat ranges. 6-ft. cord. 117 VAC.

Kit GH-17A, 5 lbs., mailable .. 15.95

G) Heathkit motor speed control: Saves power, blades, bits, saws, etc. A feedback circuit lets you slow down power tools while maintaining almost full torque.

Kit GD-973A, 1 lb., mailable .. 17.95



Basic Heathkit-builder's Tool Set

All you'll ever need to construct most kits in this catalog. When special tools are required, we supply them with your kit. Includes combination wire stripper and diagonal side cutter, midjet long-nose pliers; three screwdrivers ($\frac{3}{16}$ ", $\frac{1}{8}$ ", $\frac{3}{16}$ "), Weller W-PS Soldering iron; five nut drivers ($\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ "); nut starter; soldering aid; solder, and "Kit Builder's Guide".

Model GH-25, 4 lbs., mailable 19.95

Kit-form Entertainers For Everyone in the Family

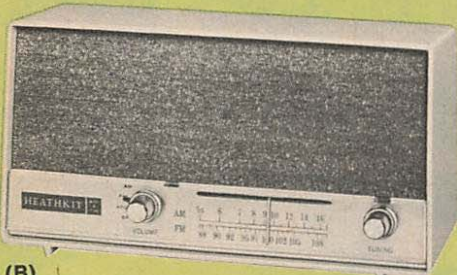


(A)

(A) Heathkit Solid-state FM Stereo Radio ... 69.95

Provides beautiful music via two 5 1/4" wide range speakers. A stereo-indicator light tells you when stations are broadcasting FM multiplex. Adjustable phase control lets you achieve maximum stereo separation. Features include automatic frequency control, 5 uV sensitivity, automatic switching between mono and stereo, adjustable tone control, preassembled and aligned front end for easier assembly. Walnut finish wood cabinet measures 9 1/4" H x 19" W x 6 1/2" D. Easy 10-hour construction and low price make the Heathkit GR-36 a favorite with everyone who enjoys good music. Order yours today.

Kit GR-36, 24 lbs., mailable 69.95



(B)

(B) Heathkit Solid-state AM/FM Radio ... 39.95

Delivers the clear, refreshing sound of FM...news, weather and "pop" sound of AM. AFC on FM for drift-free tuning...AGC on AM keeps volume constant. Built-in AM and FM antennas for better reception. Back-lighted dial for easy reading in the dark. Avocado green cabinet with matching grille cloth or design your own grille. 5 1/4" H x 10" W x 4 7/8" D.

Kit GR-48, 5 lbs., mailable 39.95

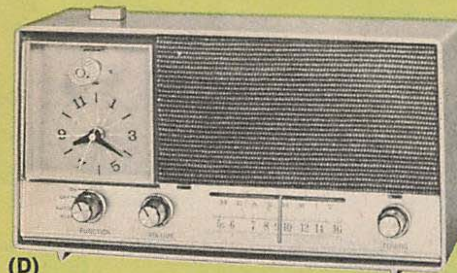


(C)

(C) Heathkit Solid-state AM Radio ... 24.95

Seven-transistor, 3-diode circuit assures top performance, long life. Automatic gain control keeps volume constant. Ferrite rod antenna, extra untuned RF stage and high sensitivity for excellent reception. Husky audio output to the big 3"x5" speaker for clean, natural sound. Full wave transformer power supply eliminates annoying line hum. Styled in handsome gold and brown with matching grille cloth supplied...or design your own to match drapes or carpet. An excellent "first" kit ...easy, enjoyable with the famous Heathkit manual. Measures 5 1/4" H x 10" W x 4 7/8" D.

Kit GR-28, 5 lbs., mailable 24.95

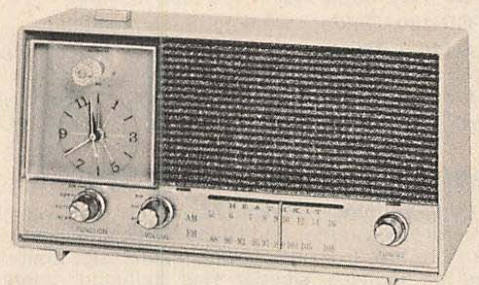


(D)

(D) Heathkit Solid-state AM Clock Radio ... 32.95

Features "Snooze Alarm" that wakes you up with music ten minutes before the alarm goes off. Auxiliary rear panel clock-controlled 1200 W socket ideal for perking coffee, turning lights on. Back-lighted clock dial is easily read at night. High sensitivity, extra untuned RF stage and built-in antenna. AGC provides constant volume under varying signal conditions. Attractive coral cabinet with matching grille...or add your own grille. Compact...5 3/8" H x 10" W x 4 7/8" D.

Kit GR-38, 6 lbs., mailable 32.95



Heathkit Solid-state AM/FM Clock Radio ... 49.95

"Snooze Alarm" wakes you to music in the morning, 10 minutes before the alarm goes off. Enjoy the clear, bright sound of FM, or news and weather on AM with just a turn of a knob. Auxiliary clock-controlled 120 watt socket on rear panel for perking coffee in the morning. Back-lighted clock dial for easy reading at night. Built-in AM and FM antennas. AGC on AM; AFC on FM. Fast, easy circuit board assembly. Compact powder blue cabinet measures just 5 3/8" H x 10" W x 4 7/8" D. Color coordinated grille cloth supplied or custom design your own. Order an easy way to get up in the morning...the Heathkit GR-58.

Kit GR-58, 6 lbs., mailable 49.95



No money down on any kit - up to 2 years to pay - see order blank for details.

Heathkit home security

29⁹⁵

Heathkit Economy 2-station Intercom System

A "natural" for the first-time kit builder. Simple, step-by-step instructions make the assembly an easy weekend project! Enjoy the convenience of a quality home intercom. And what convenience! You get step-saving room-to-room communication or babysitter monitoring in the home. Great at the office, too, for paging, interoffice communication or "hands-off" dictation. Master station accommodates up to two remotes. Either remote can initiate "private" only calls to Master. Master can call either or both remote stations. Master controls Sta. 1, Sta. 2, Talk, Dictate, & Volume. Remotes have Talk & Dictate controls. Both Master and remotes feature big 3" x 5" combination microphone-speakers. Low-profile cabinets come with plastic feet for desk, shelf or tabletop use, as well as mounting holes for wall mounting.

Kit GD-140, one Master, one Remote, 5 lbs., mailable 29.95

Kit GDA-110-2, 100 ft. 4-conductor cable, 2 lbs., mailable . . . 5.95

Kit GD-120, one extra Remote, 3 lbs., mailable 12.95



Master controls let you talk, dictate, monitor & regulate volume

Versatile Remote lets you talk or dictate to Master

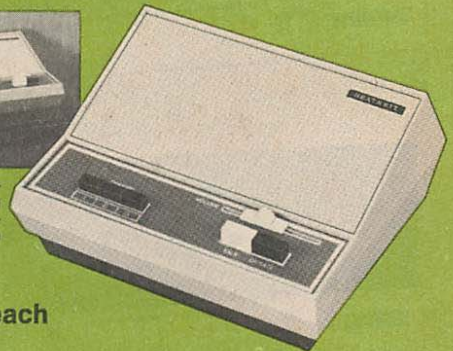
Heathkit "Wireless" Intercom System

Just assemble the intercoms you need, plug them into your home electrical outlets. That's all there is to it. You can move units at will — monitor the nursery tonight, use in the workshop tomorrow. Each intercom has three channels. In a three-unit installation one station can talk to another without disturbing the third. In a six-intercom system, you can carry on three separate conversations at the same time. Pushbuttons provide channel selection. "Talk" mode, and "Dictate" position to hold channel open for extended one-way conversation. Linear slide controls volume, and internal squelch adjustment suppresses noise when no signal is present. Each GD-113 uses about as much current as an electric clock, so you leave them plugged in all the time. Attractive light green cabinet measures 4 1/8" H x 8 1/2" W x 6 3/4" D.

Kit GD-113, 5 lbs., mailable (each) 29.95



Convenient plug-in capability means you can move GD-113 units anywhere in your home to fit your needs.



29⁹⁵ each

Heathkit Indoor/Outdoor Intercom System

GD-110 master functions include "All Call", "Talk", "Dictate" and volume control...plus monitoring of up to four Remotes. Individual Indoor Remotes can be rendered private to shut out monitoring. GD-110 and GD-120 have light green cabinets, measure respectively 4 1/2" H x 8 1/2" W x 6 3/4" D and 3 3/4" H x 6" W x 5 3/4" D. GD-130 has weatherproof crinkle finish cabinet, measures 5 3/8" H x 3 5/8" W x 2 5/8" D.

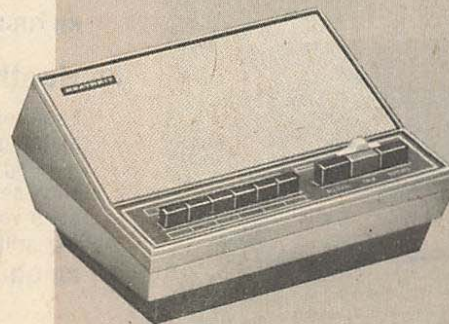
Kit GD-110, Master Station, 4 lbs., mailable 39.95

Kit GD-120, Indoor Remote, 3 lbs., mailable 12.95

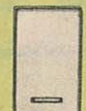
Kit GD-130, Outdoor Remote, 3 lbs., mailable 9.95

GDA-110-2, 100' 4-conductor cable for indoor units, 2 lbs., mailable 5.95

GDA-110-4, 100' 2-conductor cable for outdoor units, 2 lbs., mailable 2.95



Indoor Remote features "Talk" & "Dictate"



Outdoor Remote identifies front-door visitors.

Heathkit Home Security System

A) Early-Warning Receiver Alarm. For use with the Heathkit Fire Detector/Transmitter and Utility Transmitter to alert your family to intrusion, fire, freezing, power failure, etc. Emits piercing tone to raise the soundest sleeper. Has "fail-safe" continuously charged nickel-cadmium battery to trigger alarm in case of power failure.

Kit GD-77, 4 lbs., mailable 49.95

B) Fire detector/transmitter triggers Receiver Alarm upon detecting very low density smoke or 133°F. heat. "Fail-safe" circuit, adjustable smoke sensitivity. Remote heat sensors can be added.

Kit GD-87A, 4 lbs., mailable 49.95

C) Utility transmitter accepts any switch or sensor that produces a closed circuit, such as Heathkit GDA-97-1 miniature magnetic-reed switch or GDA-97-2 miniature micro switch for doors and windows, or new, improved easily-mounted heat sensor switches GDA-97-4 (135°F) and GDA-97-5 (175°F). "Fail-safe" circuit.

Kit GD-97, 3 lbs., mailable 35.95

GDA-97-1, 1 lb., mailable 1.80

GDA-97-2, 1 lb., mailable 2.00

GDA-97-4, 1 lb., mailable 2.95

GDA-97-5, 1 lb., mailable 2.95



Heathkit wifesavers for your home

Heathkit Microwave Oven... only 379.95

The Heathkit GD-29 prepares meals in minutes. No pre-heating — just pop the food in the oven, set the timer, and cook. You have a baked potato in 4 minutes, baked beans in 7, a 5-lb. roast in 45! For entertaining — or fixing leftovers — dishes prepared earlier can be quickly reheated. Frozen foods can be defrosted in 2-3 minutes per pound, and often left to cook in their original containers! Invisible microwaves, similar to radar waves, instantly pass through foods, agitating the molecular structure and cooking with extreme speed. Included with each oven is a helpful, illustrated cookbook, written for Heath by Home Economist Ann Balcam...providing recipes and timing charts for your favorite dishes.

Stays home in style, or goes along! The handsome, low-profile cabinet sits neatly on a countertop, beneath cupboards — yet the oven cavity is one of the largest in the industry! And the Heathkit Microwave Oven goes anywhere there's a 120 VAC outlet. Its compact size is perfect for camper or boat. Optional roll-around cart with handy utensil-holding lower shelf adds convenience & mobility.

Feature for feature, gives you more! Only the Heathkit GD-29 has the patented 3-way safety door interlocks; 2 electrical, 1 mechanical. The oven stops cooking when the door is opened, and the door cannot be opened unless interlocks are functioning! Front panel lights indicate "hi-temp", "cook" and "door-open" conditions. Other features are: a warm air purging device to eliminate condensation; vinyl-clad steel case; vapor-venting door, and long-life Litton magnetron tube.

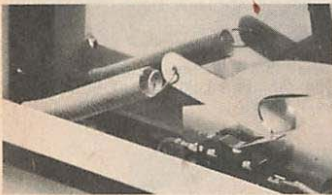
Kit GD-29, 97 lbs., Express/Frt. 379.95

GDA-29-1, Cart of hardwood solids, walnut finish, sturdy 5/8" x 1" tubing and sealed-in disc casters, 31 5/8" H x 27" W x 15 5/8" D., 25 lbs., Express/Frt. 27.50

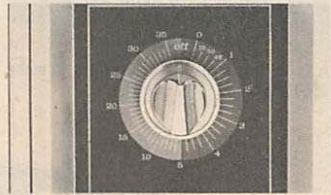
GD-29 SPECIFICATIONS — Power output: 650 watts minimum at 120 volts AC, 60 Hz. Frequency: 2450 MHz ±50 MHz. Microwave leakage: 1 mw/cm² or less. Magnetron tube: Litton Industries, type L-5201. Stirrer: 3-blade, rotates at approximately 65 rpm. Interlocks: Door guide microswitch, door latch switch. Timer: 0-35 minutes range split scale; 0-5 minutes in one-minute steps; 5-35 minutes in five-minute steps. Cooling: Forced air. Oven lamp: Fluorescent type F8T5/WW. Cooking space: 7 1/4" H, including glass tray, 15 1/2" W x 14" D. Power requirements: 110-120 VAC, 60 Hz, 15 amperes. Outside dimensions: 15 1/8" H, 25 1/2" W, 14 3/4" D (15 1/4" D including handle).



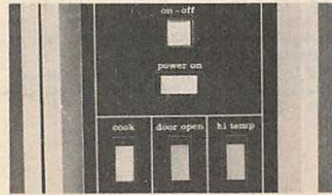
NOTE: The GD-29 complies with all requirements of the Performance Standard for Microwave Ovens (42 CFR 78.212) as set forth by the U.S. Dept. of Health, Education & Welfare.



Patented door safety interlock



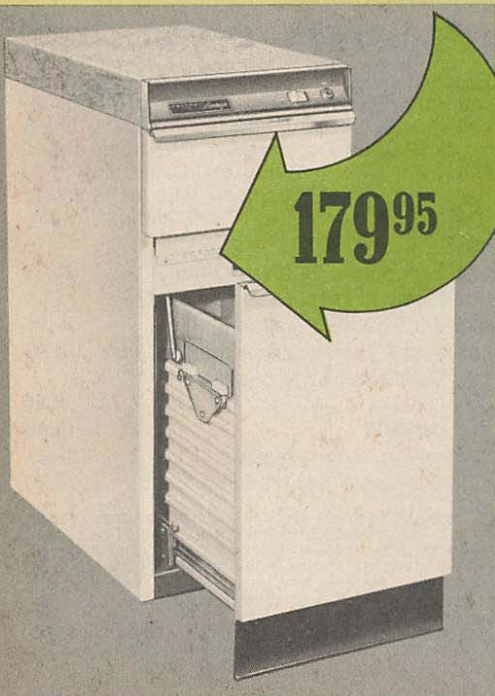
Automatic Timer



Front panel lights



Conventional 120 VAC grounded 3-wire operation



Heathkit "Minimizer" trash compactor

Now you only have to carry out the trash once a week...in a single, lock-folded bag. The "Minimizer" compresses cans, bottles and kitchen trash into one neat, odor-free package...holds up to a week's trash for an average family of four. A packing ram descends with 2,000-lb. force to reduce refuse to almost 1/4 its original size. When the bag's full, you simply fold over the top and remove a neat, dry package for normal rubbish pickup. And the "Minimizer" deodorizes the contents each time the drawer is used. For safety, a key lock switch is provided, and an interlock automatically turns unit off if drawer is not fully closed. Unit fits under counter or can be used free-standing. Measures 35 1/8" H x 15" W x 25 1/2" D. Bright white enamel finish and marble-tone vinyl-clad top complement any decor. Kit assembles easily in 6-10 hours...includes troubleshooting instructions so you can do any periodic adjustments or servicing yourself. Five plastic-lined bags and 9-oz. can of deodorant included. Operates from any conventional 120 VAC 3-wire grounded household outlet. Let the "Minimizer" take over your chores. Order yours, today.

Kit GU-1800, 210 lbs., Exp./Frt. 179.95

GUA-1800-1, 15 plastic-lined bags, 10 lbs., mailable 4.99

Accepts up to one week's trash before emptying.



Safety key lock switch



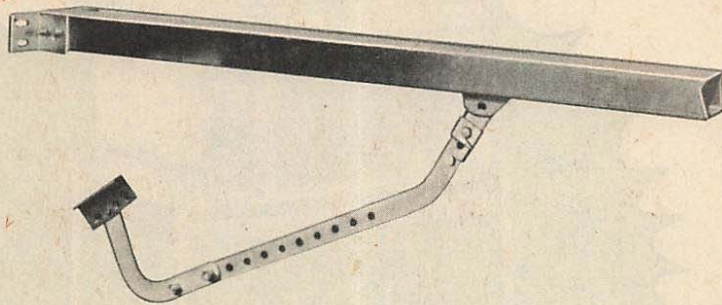
Built-in deodorizer



Bag lock — folds for neat disposal



Automate your garage at Heathkit savings



Heathkit Screw-Drive Opener...139.95

Assemble the GD-209 system in an evening, install it the next day. The easy-to-follow sequence of operations in the Heathkit manual takes you start-to-finish without a hitch. A husky 1/4-inch motor drives the virtually maintenance free screw-drive mechanism. Has self-locking feature, time-delay light for extra security. Operates standard 7 1/2' track doors, jamb and pivot doors with GDA-209-2 adaptor, or "California" style doors with GDA-309-3 Speed Reducer Adaptor.

Kit GD-209A, system with 1 transmitter, 66 lbs., Express/Frt. . . 139.95

Kit GD-209B, system with 2 transmitters, 66 lbs., Express/Frt. . . 154.95

Kit GDA-209-1, mechanism only, 61 lbs., Express/Frt. 104.95

Kit GDA-209-2, adaptor for jamb & pivot doors, 3 lbs., mailable . . 7.95

Kit GDA-309-3, Adaptor for "California" style doors, 4 lbs., mailable 9.95

GDP-99, transmitter, 1 lb., mailable 17.95

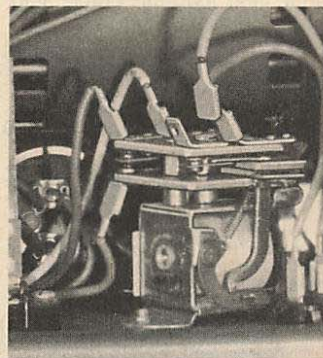
GDP-119, 1 transmitter, 1 receiver, 2 lbs., mailable 39.95

GDP-129, 2 transmitters, 1 receiver, 2 lbs., mailable 54.95

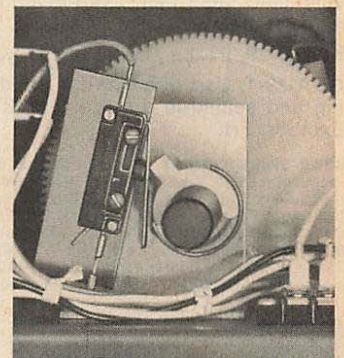
KIT MECHANISM SPECIFICATIONS: 120" long x 12" high x 9" wide. 117 VAC 1/4 HP. Open and Close Time: Approximately 11 seconds. **Safety:** Door travel reverses, returns to full open position, and stops if obstructed while closing. **Mounting Clearance:** 3" above highest point of door travel. **Safety Lamp:** 75 watt max., automatically turns on when mechanism is activated. Delay circuit keeps lamp on for approx. 90 sec. after motor stops. **UHF TRANSMITTER SPECIFICATIONS:** Powered by standard 9-volt transistor type battery. RF Frequencies: 290 to 320 MHz. Useful Temperature Range: -50°F. to +140°F. **UHF RECEIVER SPECIFICATIONS:** Powered by 24 VAC from opener mechanism. Usable on any mechanism having 24 volt AC NEC class II circuit. R.F. Frequencies: 290 to 320 MHz. Useful Temperature Range: -55°F. to +140°F.



Assembled transmitter and receiver.



All wiring has plug-in connectors to make assembly quick and easy.



Adjustable cams on idler gear shaft give you infinite adjustment of up & down door travel.

Heathkit "Economy" Chain-Drive Opener...99.95

Build and install your Heathkit GD-309 system in a weekend. Just follow the step-by-step operations in the manual, compare your installation with the detailed illustrations and you have a 1/4-hp chain drive opener for a great price. Operates standard 7 1/2' track doors, jamb and pivot doors with GDA-309-2 adaptor, or "California" style doors with GDA-309-3 Speed Reducer Adaptor...with self-locking security, automatic reversing if obstructed, quick-release pin to disengage mechanism in the event of power failure.

Kit GD-309A, system with 1 transmitter, 51 lbs., mailable 99.95

Kit GD-309-B, system with 2 transmitters, 51 lbs., mailable . . 114.95

Kit GDA-309-1, mechanism only, 52 lbs., mailable 69.95

Kit GDA-309-2, adaptor for jamb & pivot doors, 3 lbs., mailable . . 3.95

Kit GDA-309-3, adaptor for "California" style doors, 4 lbs., mailable 9.95

GDP-99, transmitter, 1 lb., mailable 17.95

GDP-119, 1 transmitter, 1 receiver, 2 lbs., mailable 39.95

GDP-129, 2 transmitters, 1 receiver, 2 lbs., mailable 54.95

SPECIFICATIONS: Door Size and Type: Overhead residential garage doors up to 7' high. (Max. travel of opening mechanism 8 2/2"). **Control:** Wall-mounted, doorbell-type push-button switch, or optional devices (transmitter-receiver, key switch, etc.). **Opening Force:** 100 lbs. **Closing Force:** Adjustable up to 100 lbs. **Maximum Door Opening or Closing Time:** Approximately 9 seconds (on 7' high door). **Safety:** Door travel reverse, returns to fully open position, and stops if obstructed while closing. **Overhead Mounting Clearance:** 2 1/2" above highest point of door travel. **Safety Lamp:** 60-watt, lamp automatically turns on when the door starts to open and stays on until door is fully closed. **Motor:** 120 VAC, 60 Hz, 1/4 horsepower, capacitor-run, 1500 rpm. **Power requirements:** 120 VAC, 60 Hz, 660 W (excluding lamp). **Dimensions:** 123" long x 10" high x 8 1/2" wide.

TRANSMITTER SPECIFICATIONS: See above.



Factory assembled solid-state UHF receiver has adjustable tone coding to prevent interference from neighboring units.

The solid-state transmitter comes preassembled, operates door from up to 150' away. Fits in your pocket or clips to visor.



Listen in on the world

New Heathkit Professional Solid-State SWL Receiver... 339.95

Covers 9 switch-selected shortwave bands between 3.5 and 21.8 MHz; receives SSB, CW, and AM with professional performance. A 5 kHz AM crystal filter is supplied with the kit, with separate SSB and CW crystal filters available as optional accessories. Outstanding stability, selectivity and sensitivity are the result of advanced-design all solid-state circuitry including 19 transistors — four of which are MOSFETs; 11 oscillator crystals and one IC. Preamsembled and aligned Heath LMO for good linearity and highly stable tuning. Large dial calibrated in 1 kHz increments for easy tuning. An IC crystal calibrator provides markers every 100 kHz or 25 kHz. Other features are a transistor-regulated power supply for stable voltage to all oscillators under varying line and load conditions; an RF attenuator that lets you adjust sensitivity for best signal handling; and virtually backlash-free dial tuning; modular plug-in circuit boards plus ready-to-use wiring harness for easy assembly; and special extender boards for troubleshooting even while set is operating. An 11 megohm input VTVM, an 8-ohm speaker or headphones, and an antenna are all you need for alignment.

- Kit SB-313, 22 lbs., mailable 339.95
- Kit SB-600, 8-ohm, 6"x9" speaker & cab., 7 lbs., mailable... 19.95
- SBA-301-2, deluxe CW Filter, 1 lb., mailable 22.95
- SBA-310-2, deluxe SSB Filter, 1 lb., mailable 39.95

SB-313 SPECIFICATIONS — Frequency Range (MHz): 3.5 to 4.0, 5.7 to 6.2, 7.0 to 7.5, 9.5 to 10.0, 11.5 to 12.0, 14.0 to 14.5, 15.0 to 15.5, 17.5 to 18.0, 21.3 to 21.8. Intermediate Frequency (IF): 3.395 MHz. Frequency Stability: Less than 100 Hz per hour after 10 minutes warmup under normal ambient conditions. Less than 100 Hz drift for ±10% line voltage variation. Sensitivity: Less than 0.5 microvolt for 10 dB signal-plus-noise to noise ratio for SSB operation. Selectivity: AM: 5.0 kHz at 6 dB down, 15 kHz maximum at 60 dB down (crystal filter supplied). SSB: 2.1 kHz 6 dB down, 5.0 kHz maximum at 60 dB down (crystal filter available as an accessory). CW: 400 Hz at 6 dB down, 2.0 kHz maximum at 60 dB down (crystal filter available as an accessory). Image Rejection: 60 dB or better. IF Rejection: 3.395: Greater than 55 dB. 8.595: Greater than 40 dB. Spurious Response: All below 1 microvolt equivalent signal input except at 10.0 MHz and 15.375 MHz. Dial Accuracy: Electrical: Within 400 Hz after calibration at nearest 100 kHz or 25 kHz point. Visual: Within 200 Hz. Calibration: Every 100 kHz or 25 kHz. Dial Backlash: No more than 50 Hz. Antenna Input Impedance: 50 Ω nominal unbalanced. Audio Output Impedance: Matching Speaker: 8Ω. Matching Headphones: Low impedance. Audio Output Power: 8 watts at less than 10% distortion. Muting: Open external ground at Mute socket. Power Requirements: 105 to 130 or 210 to 260 volts AC, 40 watts max. Overall Dimensions: 7 3/4" H x 12 1/4" W x 14" D.



Last call on this popular Heathkit 9-Band Tube-Type SWL Receiver... 269.95

9 switch-selected bands: 49, 41, 31, 25, 19 and 16 meter shortwave, 11 meter CB and 80, 40 and 20 meter amateur bands. And to receive AM, CW and SSB with crystal-clear fidelity, a 5 kHz crystal filter is included. Features a crystal controlled front end for same tuning rate on all bands; true linear tuning with 1 kHz dial calibrations; tuning knob ratio of approximately 4 to 1; built-in switch-selected automatic noise limiter; prebuilt and aligned LMO; separate RF and AF gain controls; calibrated "S" meter; switch-selected mode; separate diode (AM) and product (SSB, CW) detectors; built-in 100 kHz crystal calibrator; headphone jack for easy DX-ing. 20 hours gets it all together.

- Kit SB-310, less speaker, 24 lbs., mailable 269.95
- Kit SB-600, 8 ohms, 6"x9" speaker & cab., 7 lbs., mailable 19.95
- SBA-301-2, deluxe CW filter, 1 lb., mailable 22.95
- SBA-310-2, deluxe SSB filter, 1 lb., mailable 39.95



Heathkit-4-Band Solid-State "Beginners" SWL Receiver... only 59.95

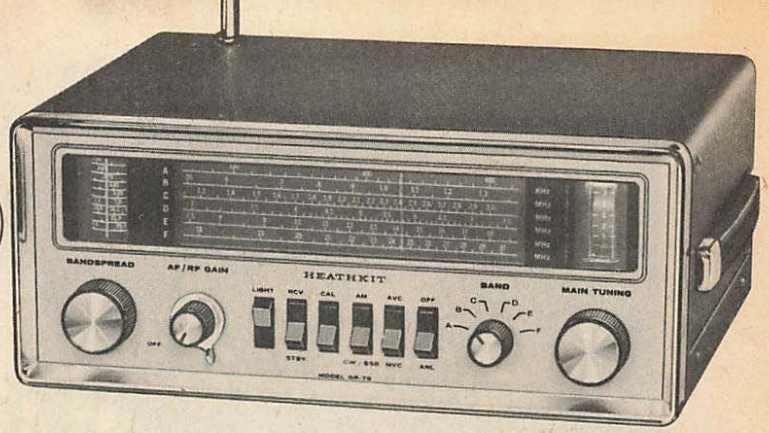
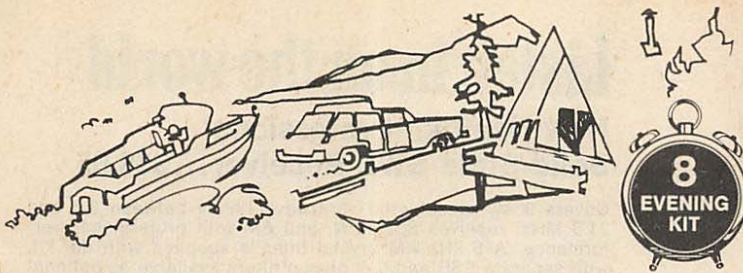
Ideal beginner's kit... most components mount on single circuit board for easy check-by-step assembly in about three evenings. Tunes foreign broadcasts from around the globe — weather reports — ships at sea — amateur and CB bands — plus local AM entertainment. Features slide-rule tuning; log-scale; bandspread tuning for separating adjacent stations; variable BFO for clear code reception; built-in speaker; front panel jack for headphone or external speaker; switched automatic noise limiting; signal strength meter; built-in AM rod antenna plus connection for SWL antenna.

- Kit SW-717, 10 lbs., mailable 59.95

SW-717 SPECIFICATIONS — Frequency Coverage: Band A — 550 kHz — 1500 kHz. Band B — 1.5—4 MHz. Band C — 4—10 MHz. Band D — 10—30 MHz. Meter: Indicates relative signal strength. Headphone Jack: Accepts low impedance headphones or external speaker. Loudspeaker: Built-in. Controls: Volume with on/off switch; Mode (AM, Standby & CW); BFO; Main Tuning; Bandspread Tuning; ANL on/off. Transistor Complement: 40673, Mixer & RF amplifier; 2N3393, Audio preamplifier; 2N5232A, IF amplifier, AGC amplifier; 2N5308, IF amplifier; MPF105, oscillator; S2090, final audio amplifier; S2091, final audio amplifier; X29A829, Audio driver. Power Supply: Transformer operated; full-wave bridge rectifier. Voltage Requirements: 120/240 VAC, 50-60 Hz, 8 W. Dimensions: 5 1/2" H x 14 1/2" W x 8" D.



No money down on any kit — up to 2 years to pay — see order, blank for details.



Heathkit 6-Band Solid-State SWL Portable... 129.95

Modular circuit board design makes the GR-78 an enjoyable six-evening project. A favorite of discriminating SWLs, hams needing a reliable standby receiver, and campers, hunters, travelers and vacationers wanting a ready-to-go portable. 190 kHz to 30 MHz coverage in 6 bands; AM or SSB/CW reception; AVC; switched ANL; signal meter; external antenna connection; receiver/standby switch; muting connection; headphone jack; 500 kHz crystal calibrator; carry-handle; whip antenna. Runs on nickel-cadmium battery with built-in charger.

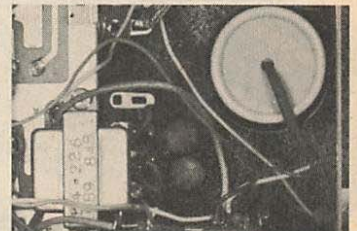
Kit GR-78, 14 lbs., mailable 129.95

GR-78 SPECIFICATIONS — Frequency coverage: Band A, 190 kHz-410 kHz; Band B, 550 kHz-1300 kHz; Band C, 1.3 MHz-3.0 MHz; Band D, 3.0 MHz-7.5 MHz; Band E, 7.5 MHz-18.0 MHz; Band F, 18.0 MHz-30 MHz. Meter: Indicates relative signal strength. Intermediate frequency: Band A thru E: 455 kHz; Band F (Double conversion): 1st IF, 4.034 MHz; 2nd IF, 455 kHz. Sensitivity: 0.2 μ V — 10 μ V depending on band and portion thereof. Selectivity: 7.5 kHz \pm 1 @ 6 dB down. Audio output: 300 milliwatts @ 10% distortion. Battery: 9.6 VDC 500 mAh Nickel-Cadmium rechargeable. Battery charge rate: The battery is always being charged at 20 to 25 mA when the built-in trickle charging circuit is connected to an external power source with the Receiver turned off. A full battery charge will be maintained if the Receiver is connected to an external power source and used an average of 5 hours daily at a normal listening level. Overall size: 6 1/4" H x 11 1/2" W x 9" D.

*Signal level for 10 dB signal + noise/noise ratio.



Built-in 500 kHz crystal calibrator for tuning accuracy



Nickel cadmium battery with built-in recharger

Tunes 6 bands:

- A) 200 kHz to 400 kHz
- B) 550 kHz to 1300 kHz
- C) 1.3 MHz to 3.0 MHz
- D) 3.0 MHz to 7.5 MHz
- E) 7.5 MHz to 18.0 MHz
- F) 18.0 MHz to 30 MHz

Heathkit Fire, Weather, Police & Aircraft Monitors... 49.95

Both feature vernier tuning, single channel crystal (not supplied), squelch, solid-state battery operation, carrying handle/stand, whip antenna, external antenna jack, rugged brown leatherette case.

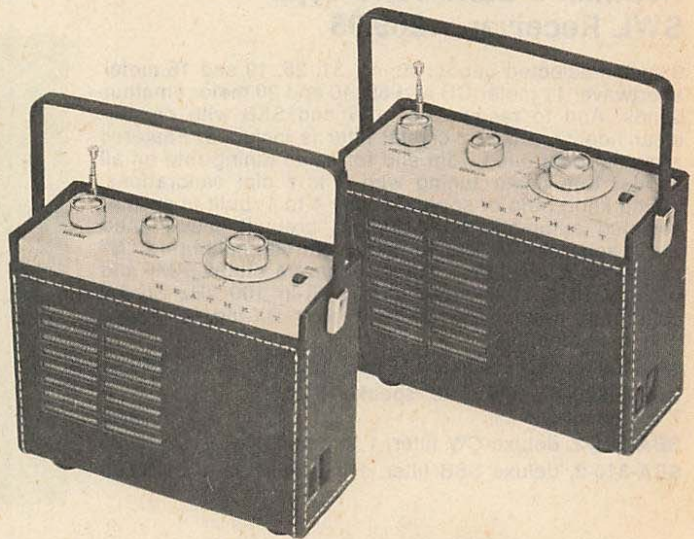
Kit GR-88, Fire, Weather, Police Monitor, 5 lbs., mailable 49.95

Kit GR-98, Aircraft Monitor, 5 lbs., mailable 49.95

Kit GRA-88-1, AC power supply for both above, 2 lbs., mailable 8.50

GR-88 SPECIFICATIONS — Tuning range: 152-174 MHz. Antenna input: 50-75 ohms. Sensitivity: 2.0 μ V or less for 20 dB quieting. IF frequency: 10.7 MHz. IF selectivity: \pm 40 kHz @ 6 dB down. Image rejection: 40 dB or greater. IF rejection: 80 dB or greater. Audio output: 250 mW at less than 10% distortion. Speaker: 3" round, 24 ohms, permanent magnet. Transistor complement-tuner: (2) 2SC784 and (1) SE-5006. Transistor complement-IF audio: (5) 2N2369, (4) 2N3393, (1) X29A829, (1) 2N2430, (1) 2N2431, (1) 40481. Diode complement: (2) 1N191 and (2) 1N4646. Batteries: Six 1.5 V "C" cells, not supplied. Dimensions: 7 1/2" H x 8 3/4" W x 3 1/2" D.

GR-98 SPECIFICATIONS — Tuning range: 108-136 MHz. Antenna input: 50 to 75 ohms. Sensitivity: 1.5 μ V or less for 10 dB signal-to-noise plus noise ratio @ 1000 Hz 30% modulation. IF frequency: 10.7 MHz. IF selectivity: 40 kHz @ 6 dB down; 100 kHz @ 30 dB down. Image rejection: 40 dB or greater. IF rejection: 80 dB or greater. Audio output: 250 mW at less than 10% distortion. Speakers: 3" round, 24 ohm, permanent magnet. Transistor complement-tuner: (2) 2SC784 and (1) SE-5006. Transistor complement-IF & audio: (4) 2N2369, (3) 2N3393, (2) X29A829, (1) MPF-105, (1) 2N2430, (1) 2N2431 and (1) 40481. Diode complement: (2) 1N191, (1) 1N4646 and (1) S-160. Batteries: Six 1.5 V size "C" cells (not included). Dimensions: 7 1/2" H x 8 3/4" W x 3 1/2" D.



Heathkit Accessories expand your SWL enjoyment



Superex headphones

... ideal for all Heath SWL receivers except GR-43A. Dual coils; wide headband; 2 k ohm impedance.

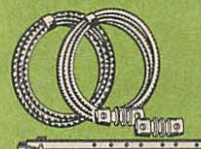
GD-396, 1 lb., mailable 4.50



SWL guide

1972 edition ... lists worldwide SW, FM, TV stations, call signs, frequencies & addresses.

GDP-315, 2 lbs., mailable 6.95



Long wire antenna

... includes a 75' long wire antenna with 30' of lead-in, all insulators & hardware.

GRA-72, 2 lbs., mailable 2.95

Introducing the new Heathkit "Mini-Rig".. 69.95

NEW

Up to 3 watts input of dauntless QRP flea-power — for DXing and local contacts

Sensitive Synchrondyne Detector — readable copy from signals of 1 uV or less

Take-along convenience — operates on 12V batteries or DC power supply

Transceive operation — with built-in VFO or Xtal transmit

New Heathkit HW-7 CW QRP Transceiver

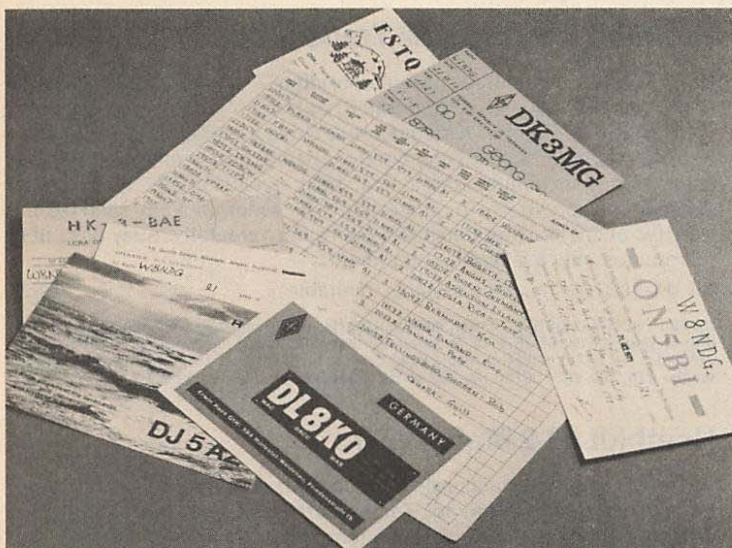
Tired of banging your kilowatts against the high-power crowd? Relax. Join the flea-power fraternity... and get some old-fashioned satisfaction working stations as distant as Europe, Asia, South America, Africa — local contacts, too — with just a few watts of power. The new Heathkit HW-7 is a three-band QRP (low power) CW Transceiver with VFO and provision for crystal transmit operation. Band coverage is the CW portion of 40, 20 and 15 meters. Whether you're an experienced amateur, QRP fan, or novice, you'll appreciate the dependability and versatility of this rugged little performer. The reliable solid state transceiver circuitry featuring both built-in VFO and crystal transmit capabilities, makes the HW-7 ideally suited for novice use. The sensitive Synchrondyne Detector receiver circuitry offers you a readable signal with 1 uV input or less. Carefully designed transmitter circuitry provides input powers of 3 watts on 40 meters, 2.5 watts on 20 meters, and 2 watts on 15 meters. Band changing and tune-up are a snap, with pushbutton band selection and single-control main tuning featuring 6 - 1 vernier drive with virtually backlash-free operation; Pushbutton crystal transmit provision is great for the novice or QRP roundtables. Built-in sidetone and a relative Power Meter are other top quality features. The HW-7 can be operated from the accessory Heathkit AC power supply, HWA-7-1 (below), an equivalent low impedance power supply, or 12V batteries... offering you complete flexibility whether you use it for standby, camping, emergency operation, or as your primary rig. And it's a fun kit to build, too, with single-circuit-board design and concise check-by-step instructions making it an easy two evening project. For brand new challenges and thrills working the world with flea-power... step down to the Heathkit HW-7 today!

Kit HW-7, Transceiver, less batteries, 6 lbs., mailable 69.95
Kit HWA-7-1, low voltage power supply provides 13 VDC to power the HW-7 Transceiver from an AC power source. 120/240 VAC operation. 4 lbs., mailable 14.95

HW-7 SPECIFICATIONS — TRANSMITTER: RF Power Input: 3 watts on 40 meters. 2.5 watts on 20 meters. 2 watts on 15 meters. Frequency Control: 40 meter crystal, or built-in VFO on 40 meters. 20 meter crystal or built-in VFO on 20 meters. 15 meter crystal, or built-in VFO on 15 meters. Output Impedance: 50 Ω unbalanced. Sidetone: Built-in. Spurious and Harmonic Levels: At least 25 dB down. RECEIVER: Sensitivity: Less than 1 microvolt provides a readable signal. Selectivity: 2kHz at 6 dB down. Types of Reception: CW or SSB. Audio Output Impedance: 1000 Ω nominal. Receiver frequency response is ±3 dB at 200 Hz to 2500 Hz. GENERAL: Frequency Coverage: 40 meters, 7.0 to 7.2 MHz. 20 meters, 14.0 to 14.2 MHz. 15 meters, 21.0 to 21.3 MHz. Frequency Stability: Less than 100 Hz drift after 10 minutes warmup. Power Required: 13 volts DC, 35 mA receive and 450 mA transmit. Dimensions: 4 3/4" H x 9 1/4" W x 8 1/2" D, including knobs and feet.



Below are actual Log Sheet entries and QSL cards from contacts made by Heath Hams using the HW-7 Transceiver.



Heathkit High-Performance CW Rig

Operates on the first 250 kHz of the 80, 40 & 15 meter bands. Has adjustable input from 50-90 W; crystal control transmit with VFO receiver tuning; provision for external VFO such as Heathkit HG-10B.

Kit HW-16, 25 lbs., mailable 99.95

HW-16 SPECIFICATIONS — TRANSMITTER SECTION: RF power input: 50-90 W (adjustable). Frequency control: 80-meter crystal or VFO on 80-meter band. 80 or 40-meter crystal, or VFO on 40-meter band. 40-meter crystal or VFO on 15-meter band. Keying: Grid-block. Break-in with automatic antenna switching and receiver muting. Output impedance: 50 ohm, unbalanced. SWR less than 2:1. Sidetone: Neon lamp relaxation oscillator. RECEIVER SECTION: Sensitivity: Less than 1 uV for 10 dB signal-plus-noise to noise ratio. Selectivity: 500 Hz at 6 dB down. Intermediate frequency: 3395 kHz. Antenna impedance: 50 ohm, unbalanced. External speaker impedance: 8 ohm. GENERAL: Frequency coverage: 3.5 to 3.75 MHz. 7.0 to 7.25 MHz. 21.0 to 21.25 MHz. Power: 120 VAC, 50-60 Hz. Dimensions: 6 1/2" H x 13 3/4" W x 11 1/2" D.

Heathkit Solid-State Electronic Keyer

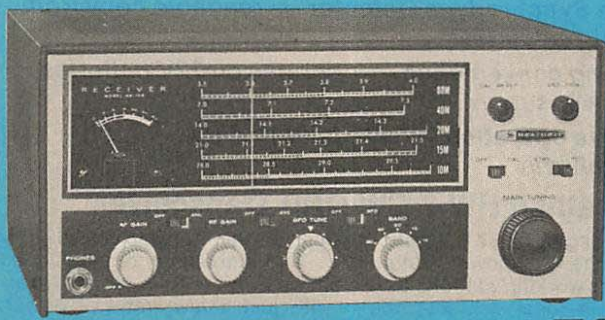


Ideal companion to the HW-7 "Mini Rig". Features 15-20 wpm slow-speed option; self-completing dashes; adjustable paddle "feel"; right or left hand & semi-automatic adaptability; variable dot-space ratio; "hold" for transmitter tuning; built-in side-tone, speaker, transformer-operated power supply. For use only with transmitters with grid-block keying circuits, negative 105V @ 35 ma max. 4 1/2" H x 3 3/4" W x 10 1/2" D.

Kit HD-10, 6 lbs., mailable 39.95

No money down on any kit — up to 2 years to pay — see order blank for details.

Ham gear for the novice...at Heathkit savings



79⁹⁵

Heathkit 5-Band Receiver

Ideal for the novice or beginning general class ham who demands top performance at a modest price. Tunes AM, CW & SSB, with excellent stability for CW & sideband. Full 80 through 10 meter coverage with each band separately displayed on the accurately calibrated illuminated slide-rule dial. Separate RF and AF gain controls provide extra convenience...BFO allows easy, fast sideband tuning. A high quality crystal capability that puts many more expensive receivers out of the QSO. Built-in "S" meter, switchable AVC and automatic limiter provide the versatility you expect in a first-rate communications receiver. Provision for the optional HRA-10-1 kHz crystal calibrator. Alignment requires an RF signal generator and VTVM.

Kit HR-10B, less speaker, 20 lbs., mailable **79.95**

Kit HRA-10-1, plug-in 100 kHz crystal calibrator, 1 lb., mailable . **.95**

HR-10B SPECIFICATIONS — Frequency coverage: 80 Meter Band, 3.5 to 4.0 mc.; 40 Meter Band, 7.0 to 7.3 mc.; 20 Meter Band, 14.0 to 14.35 mc.; 15 Meter Band, 21.0 to 21.5 mc.; 10 Meter Band, 28.0 to 29.7 mc. Intermediate frequency (IF): 1681.0 kc. Sensitivity: 1 microvolt for a 10 dB signal plus noise-to-noise ratio. Selectivity: 3 kc at 6 dB down, 9 kc at 40 dB down. Image rejection: 40 dB or better. Input impedance: 50 to 75 Ω, coaxial. Audio output impedance: 8 Ω, or 500 Ω. Panel controls: AF GAIN, AC OFF-ON; RF GAIN; BFO TUNE; BAND Switch; MAIN TUNING; CALIBRATE; ANTenna TRIMMER; REC-STBY Switch; CALIBRATE ON-OFF; BFO On-OFF; AVC On-OFF; ANL On-OFF. Tube complement: 6BZ6 RF Amplifier; 6EA8 Mixer Oscillator; 6BA6 1st IF Amplifier; 6EA8 2nd IF Amplifier-BFO; 6BJ7 Detector-AVC-ANL; 6EB8 1st Audio-Audio Output; 6X4 Rectifier. Power requirements: 120/240 VAC, 50/60 Hz, 50 watts. Cabinet size: 6½" H x 13¾" W x 11½" D.



79⁹⁵

Heathkit Phone & CW Transmitter

Run 75 watts CW input for novice operation — a full 90 watts phone or CW when you move up to general. Pi output provides fast, easy tune-up into any 50-75 ohm resistive load. Drive Level control, grid/plate current meter and Drive Tune control enable proper tune-up for maximum output, minimum harmonics, best quality audio. Four crystal sockets and provision for operation with external VFO such as the HG-10B below provide maximum operating versatility. Easy assembly . . . requires only a VTVM for alignment.

Kit DX-60B, 24 lbs., less crystals, mailable **79.95**

DX-60B SPECIFICATIONS — Power input: 90 watts, peak; controlled carrier phone, or CW. Output impedance: 50-75 ohm (coaxial). Output coupling: Pi-network. Operation: CW or AM phone — crystal or VFO control. Band coverage: 80 through 10 meters. Power requirements: 120/240 VAC, 50/60 Hz, 225 watts. Dimensions: 6½" H x 13¾" W x 11½" D.



47⁵⁰

Heathkit 80-2 Meter VFO

Features separate, accurately calibrated scales for each band. Smooth 28:1 vernier tuning. Temperature-compensated circuitry for drift-free tuning. Provides 5 V rms (enough to drive most transmitters) in the 3.5-4, 7-7.425 and 8-9 MHz ranges. "Spot" switch for easy off-the-air tuning. Compatible with virtually all grid-block keyed transmitters (DX-60 series, HW-16) and most cathode-keyed transmitters (DX-40). Alignment requires a receiver of known accuracy covering either the 80-2 meter bands or 3.5 to 8.222 MHz range.

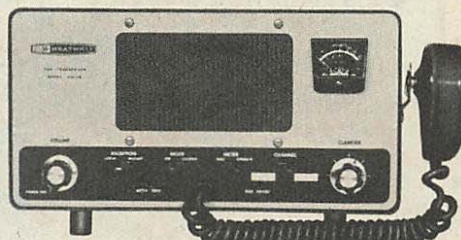
Kit HG-10B, 12 lbs., mailable **47.50**



**Heathkit
100 kHz
Crystal
Calibrator**

Produces a signal every 100 kHz thru 54 MHz. Can be calibrated with trimmer against WWV. 9V battery, not included.

Kit HD-20, 1 lb., mailable **14.95**



**Heathkit
SSB
Transceiver**

Frequency tolerance of .005%. Features 200W SSB input & 40W input with carrier for compatibility with AM stations; 2 crystal-controlled channels; clarifier control for ±100 Hz frequency variation; solid-state T/R switching; local/distance switch; 45 dB carrier & sideband suppression; 2.1 kHz selectivity; 1 uV sensitivity for 15 dB S + N/N; 50 ohm coax output; PTT mike & built-in speaker; fixed or mobile operation with HP-13A or HP-23A power supplies. Mobile mount included. Requires voltmeter, ohmmeter & dummy load for alignment. 6¼" H x 12¼" W x 10" D.

Kit HW-18-1, w/crystals for 2 channels, specify from list below, 16 lbs., mailable . . . **124.95**
Crystals: 4506.0, 4466.0, 4469.0, 4509.0, 4583.5, 4586.5, 4601.0, 4604.0, 4628.5, 4631.5, kHz channel frequencies. 1 lb., mailable each **4.95**

Heathkit HW-101 80-10 Meter SSB-CW Tranceiver

Direct descendant of the widely acclaimed Heathkit HW-100, the "101" brings you even greater performance...with improved receiver circuitry & dial drive, new front-panel SSB/CW filter selection, and superior overall performance specifications. Check them yourself...and order your HW-101, today.

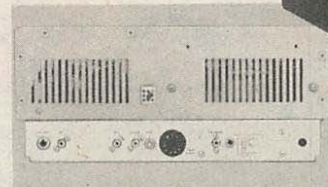
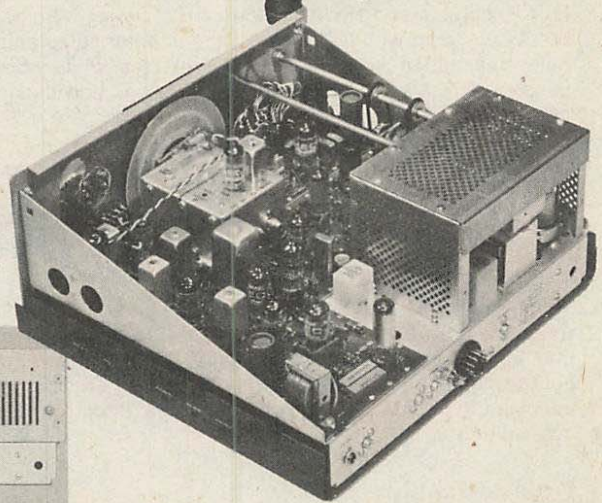
- Kit HW-101, 21 lbs., mailable 259.95
- Kit HP-23A, AC power supply, 19 lbs., mailable . . 51.95
- Kit HP-13A, DC power supply, 7 lbs., mailable . . 69.95
- SBA-301-2, 400 Hz crystal filter, 1 lb., mailable . . 22.95
- SBA-100-1, mobile mount, 6 lbs., mailable 15.95
- Kit HS-24, mobile speaker, 4 lbs., mailable 9.50

HW-101 SPECIFICATIONS — RECEIVER: Sensitivity: Less than 0.35 microvolt for 10 dB signal-plus-noise to noise ratio for SSB operation. SSB selectivity: 2.1 kHz minimum at 6 dB down; 7 kHz maximum at 60 dB down (3.395 MHz filter). CW selectivity: (with optional SBA-301-2 CW crystal filter installed); 400 Hz min. @ 6 dB down; 2.0 kHz max. @ 60 dB down. Input: Low impedance for unbalanced coaxial input. Output impedance: 8 ohm speaker, and high impedance headphone. Power output: 2 watts with less than 10% distortion. Spurious response: Image and IF rejection better than 50 dB. **TRANSMITTER:** DC power input: SSB (A3J emission), 180 watt PEP (normal voice, continuous duty cycle). CW (A1 emission) 170 watts (50% duty cycle). RF power output: 100 watts on 80 through 15 meters; 80 watts on 10 meters (50 ohm non-reactive load). Output impedance: 50 ohm to 75 ohm with less than 2:1 SWR. Oscillator feed-through or mixer products: 55 dB below rated output. Harmonic radiation: 45 dB below rated output. Transmit-receive operation: SSB: PTT or VOX. CW: Provided by operating VOX from a keyed tone, using grid-block keying. CW sidetone: Internally switched to speaker or headphone in CW mode. Approximately 1000 Hz tone. Microphone input: High impedance with a rating of -45 to -55 dB. Carrier suppression: 45 dB down from single-tone output. Unwanted sideband suppression: 45 dB down from single-tone output at 1000 Hz reference. Third order distortion: 30 dB down from two-tone output. RF compression (TALC*): 10 dB or greater at .1 mA final grid current. **GENERAL:** Frequency coverage: 3.5 to 4.0; 7.0 to 7.3; 14.0 to 14.5; 21.0 to 21.5; 28.0 to 28.5; 28.5 to 29.0; 29.0 to 29.5; 29.5 to 30.0 (megahertz). Frequency stability: Less than 100 hertz per hour after 45 minutes warmup from normal ambient conditions. Less than 100 Hz for ±10% line voltage variations. Modes of operation: Selectable upper or lower sideband (suppressed carrier) and CW. Dial calibration: 5 kHz. Calibration: 100 kHz crystal. Audio frequency response: 350 to 2450 Hz. Transistors: MPF105 FET-VFO; 2N3393—Voltage regulator. Rear apron connections: CW key jack; 8 ohm output; ALC input; Power and accessory plug; RF output; Spare. Power requirements: 700 to 850 volts at 250 mA with 1% maximum ripple; 300 volts at 150 mA with .05% maximum ripple; -115 volts at 10 mA with .5% maximum ripple; 12 volts AC/DC at 4.76 amps. Cabinet dimensions: 6 1/4" H x 14 3/8" W x 13 3/8" D.

*Triple Action Level Control



Clean open chassis layout for easy assembly. Note completely shielded final, upper left.



Rear panel connection for key, speaker, ALC, spare equipment, power supply & antenna.

Heathkit 80, 40, & 20-Meter Single-Banders

The Heathkit transceivers designed to get you on the air on a budget. Choice of 80, 40, or 20 meter models with full 200W PEP input SSB; choice of fixed or mobile operation with Heathkit power supplies (page 37); 2 kHz dial calibration, ALC input; S-meter; VOX & PTT. Order your favorite model, today.

- Kit HW-12A, 80-meter, 15 lbs., mailable 112.50
- Kit HW-22A, 40-meter, 15 lbs., mailable 112.50
- Kit HW-32A, 20-meter, 15 lbs., mailable 112.50
- Kit HRA-10-1, plug in 100 kHz crystal calibrator, 1 lb., mailable 9.95
- Kit HP-13A, DC Power Supply, 7 lbs., mailable . . 69.95
- Kit HP-23A, AC Power Supply, 19 lbs., mailable . . 51.95

SPECIFICATIONS — RF input: 200 watts PEP. Sideband generation: Crystal lattice bandpass filter method. Stability: 200 Hz per hour after warm-up. Carrier & unwanted sideband suppression: 45 dB. Frequency coverage: HW-12A, 3.8—4.0 MHz; HW-22A, 7.2—7.3 MHz; HW-32A, 14.2—14.35 MHz. Receiver sensitivity: 1 μV for 15 dB (S+N/N) ratio. Operation: LSB, USB. Audio output: 1 watt @ 8 ohms. Mike input: Hi-Z. Tube complement: Fourteen tube heterodyne circuit; (3) 6EA8's mic. amp. VOX relay amp., IF amp., RF amp., Recvr. mixer; (5) 6AU6's, VFO, VOX amp., IF amp., Xmt. mixer; (1) 6BE6, VFO isolator (HW-12A), Het. osc. and mixer (HW-22A & HW-32A); (1) 12BY7 Driver; (1) 12AT7 Xtal. osc., product det., (1) 6EB8 Audio amp. and output; (2) 6GE5 RF output. Power requirements: 800 VDC @ 250 mA peak, 250 VDC @ 100 mA, -130 VDC @ 5 mA, 12 VAC or VDC @ 3.75 amperes. Cabinet dimensions: 6 1/4" H x 12 1/4" W x 10" D.



Mobile PTT Mike

Rugged, high impedance ceramic mike ideal for mobile work. Color matches SB & HW-Series gear. With cable, less connector. Excellent accessory for "Single-Band" gear.

GH-12A, 1 lb., mailable 9.95

Heathkit Mobile Speaker

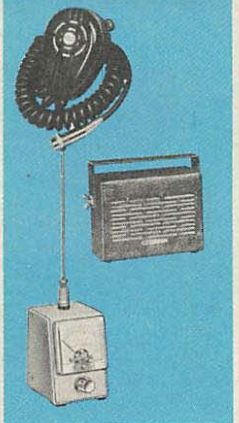
Rugged 8 ohm mobile speaker in steel forest green cabinet. Gimbal mount included. 6 1/2" W x 4 3/4" H x 2 1/2" D. A "must" for mobile "Single-Banders"!

Kit HS-24, 4 lbs., mailable 9.50

Heathkit Relative Power Meter

Features 0.3V rms sensitivity at antenna; 100 kHz — 250 MHz frequency range; magnetic base. Requires no power ... operates from radiated transmitter signal.

Kit PM-2, 2 lbs., mailable 12.95



No money down on any kit — up to 2 years to pay — see order blank for details.

Move into the computer age with the Heathkit SB-102/SB-220

Heathkit SB-650 Digital Frequency Display ... 179.95

Another "first" from the hams at Heath — to put you right on frequency every time

The new Heathkit SB-650 is a digital frequency counter that counts the three different frequencies produced in your receiver, then computes and displays operational frequency to within 100 Hz accuracy. Six bright digital readout tubes show you exactly where you are as you tune across the 80 through 10 meter bands. You read kHz to five places, plus tenths of a kHz. And there's no bandswitching necessary on the SB-650 itself.

Compatible with Heathkit gear

The SB-650 is designed to operate with all Heathkit SB-Series Amateur Receivers and Heathkit SB- or HW-Series Multiband Transceivers. When used with transceivers the counter calculates and displays both transmitted and received frequencies. Installation couldn't be simpler. The SB-650 manual fully describes and illustrates all interconnections necessary for the specific Heath gear you own. The addition of a Digital Frequency Display will in no way degrade your station's performance — and when teamed with budget equipment, such as the Heathkit HW-101, the SB-650 can give you pinpoint tuning accuracy to rival transceivers costing hundreds of dollars more!

Computer age circuitry

The Heathkit SB-650 has all solid-state circuitry with 35 ICs and six transistors. An IC voltage regulator protects the devices from failure due to overvoltage, a common problem with discrete regulators. A built-in "memory" assures non-blinking operation, plus there's a special circuit to minimize the last-digit jitter found in many low-cost counters.

Easy assembly

You can have your Heathkit SB-650 together in just 4-5 hours. All ICs and display tubes plug into sockets on the double-sided glass epoxy board — and, since there are no tuned circuits, four easy internal adjustments are all that are needed to have your counter peaked up and ready to go.



Solid-state mobile power supply for SSB rigs

Kit HP-13A, DC supply, 7 lbs., mailable ... 69.95

HP-13A SPECIFICATIONS — Input voltage: 12 to 16 VDC (neg. ground only). Input current: 25 amp. max. full load. High voltage output: 800 VDC, no load; 750 volts DC @ 250 mA. AC ripple: less than 1% @ 250 mA. Duty cycle: Continuous up to 150 mA; 50% up to 300 mA. Low voltage output: (high tap) 310 VDC, no load; 300 VDC @ 150 mA. (low tap) 265 VDC, no load; 250 VDC @ 150 mA. AC ripple: Less than .05% @ 150 mA. Continuous duty cycle to 175 mA. Adjustable bias voltage: -40 to -130 VDC @ 20 mA max. Duty cycle: Continuous. Switching frequency: 1500 Hz (approx.). Ambient temperature: -10° to 122°F. Dimensions: 7 3/4" W x 7 1/2" L x 2 3/8" D. All voltages referenced at 13 VDC.



Fixed-station power supply for SSB rigs

Kit HP-23A, AC supply, 19 lbs., mailable ... 51.95

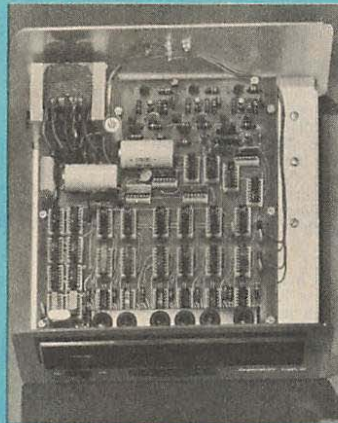
HP-23A SPECIFICATIONS — Power requirements: 120/240 VAC, 50-60 Hz, 350 watts maximum. High voltage output: 820 VDC no load; 700 VDC @ 250 mA ±10%. AC ripple: Less than 1% @ 250 mA. Duty cycle: 150 mA continuous to 300 mA @ 50%. Low voltage output: (High tap) 350 VDC, no load; 300 VDC @ 150 mA ±10%. (Low tap) 275 VDC, no load; 250 VDC @ 100 mA, +10%. Less than .05% AC ripple @ 150 mA, continuous duty to 175 mA. Fixed bias: -130 VDC ±10%, no load; -100 VDC @ 20 mA. Adjustable bias: -40 to -80 VDC @ 1mA maximum. Less than .5% AC ripple. Filament voltage: 6.3 VAC @ 11 amps; 12.6 VAC @ 5.5 amps. Dimensions: 9" L x 4 3/4" W x 6 3/4" H.

Upgrade your station — now

Get your order in now for what is bound to be one of the most popular pieces of ham gear — and one of the nicest values — we've ever offered. The Heathkit SB-650 Digital Frequency Display will bring your station into the computer age with a true digital readout and circuitry providing unrivaled station-frequency accuracy and tuning convenience.

Kit SB-650, 9 lbs., mailable ... 179.95

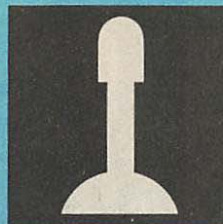
SB-650 SPECIFICATIONS — Frequency range: 3-40 MHz (80-10 meters). Frequency display: 6 display tubes (kHz to 5 places, plus tenths of kHz). Maximum viewing distance: 30 ft. Maximum input signal: 5V rms. Accuracy: 100 Hz ±1 count. Compute time: 160 msec. Sensitivity: Adjustable. Input impedance: 2 k ohm. Internally generated spurious frequencies: Less than 0.25 uV equivalent signal level. Crystal (clock) frequency: 1 MHz. Crystal aging rate: Approx. 10 ppm/yr. Ambient crystal stability: Approx. 10 ppm from +10 to +65° C. Ambient operating temperature: 0° — +40° C. Ambient storage temperature: -55° to +80° C. Power source: 120/240 VAC, 50/60 Hz, 10 W. Dimensions: 3 1/2" H x 10" W x 10" D.



Double-sided circuit board and extensive use of socket mounted ICs make assembly an enjoyable 4-5 hour project. Readout tubes are socket mounted, too.

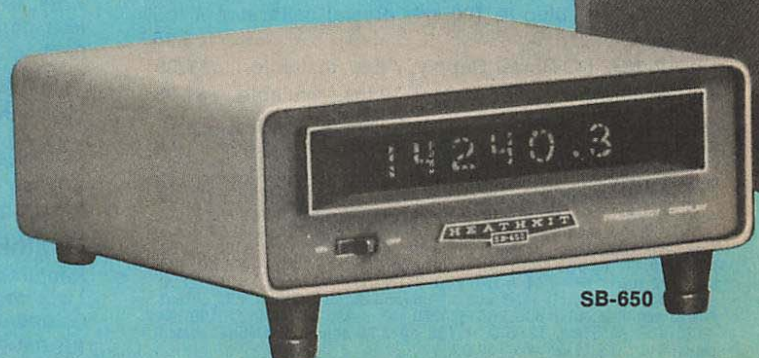


Manual gives you step-by-step procedure for installation with your Heathkit receiver or transceiver. Unit computes received or transmitted frequencies by reading internal values at heterodyne oscillator, LMO and BFO.



AT HEATH, AMATEUR RADIO IS MORE THAN A BUSINESS ... IT'S OUR HOBBY.

And small wonder, when you consider there are over 60 active hams here at Heath — including our President, Dave Nurse — involved in virtually every phase of company operations. The interest, enthusiasm and talent of these licensed operators has kept the company responsive to the communication needs of our customers... and has helped make Heathkit Amateur gear a traditional value leader for hams the world over.



SB-650

"Maxi Rig" plus Digital Display

Heathkit SB-220 Linear Amplifier... 369.95

The complete 2 KW rig in a desktop unit — with a compact price to match

The "220" uses a pair of conservatively rated Eimac 3-500Z's in grounded grid circuitry to provide up to 2000 watts PEP SSB input. And it can be loaded to a full 1 kW input on both CW and RTTY. A broadband pre-tuned pi-input delivers maximum efficiency with low distortion over 80 thru 10 meters. Requires only 100 watts drive. Built-in solid-state power supply can be wired for either 120 or 240 VAC. Built-in circuit-breaker protection. Zener diode regulated operating bias reduces idling current for cooler running, extended tube life. A large quiet fan is another plus feature.

Just set band-switch, push CW-Tune/SSB rocker switch to CW-Tune position, adjust Tune & Load controls for maximum relative power. Push rocker switch to SSB position and you're ready with a full 2 kW PEP input, a full gallon on CW or RTTY.

Other features include ALC to the driving unit to prevent overdriving; front panel switch-selected monitoring of grid current, relative power and high voltage; easy, enjoyable 20 hour assembly.

Kit SB-220, 69 lbs., mailable 369.95

SB-220 SPECIFICATIONS — Band coverage: 80, 40, 20, 15 and 10 meters. Driving power: 100 W. Max. power input: SSB, 2000 W. PEP; CW, 1000 W.; RTTY, 1000 W. Duty cycle: SSB, Continuous voice modulation. CW, Continuous (maximum key-down 10 minutes). RTTY, 50% (maximum transit time 10 minutes). Third order distortion: -30 dB or better. Input impedance: 52 ohm unbalanced. Output impedance: 50 ohm unbalanced; SWR 2:1 or less. Front panel controls: Tune, Load, Band, Sensitivity Meter Switch, Power, CW/Tune — SSB, Plate meter, Multi-meter (Grid mA, Relative Power and High Voltage). Rear panel: Line cord, circuit breakers (two 10 A), Antenna Relay (phono), ALC (phono), RF Input (SO-239), Ground post, RF Output (SO-239). Tubes: Two Eimac 3-500Z. Power required: 120 VAC, 50/60 Hz at 20 amp. max. 240 VAC, 50/60 cycles, at 10 amp. max. Cabinet size: 8¼" H x 147/8" W x 14½" D.

Heathkit SB-102 80-10 Meter Transceiver... 385.00

The incomparable Heathkit Transceiver — that's at home in the shack or in the field

The Heathkit SB-102 Transceiver offers you exceptional stability and dial linearity — the result of an all solid-state factory-assembled and aligned LMO with 1 kHz calibration. The "102" stabilizes in a fast 10 minutes, drifts less than 100 Hz per hour after initial warmup. Receiver section delivers S+N/N ratio less than 0.35 uV for 10 dB — with front panel selection of built-in 2.1 kHz SSB crystal filter or optional 400 Hz crystal filter. And there's a dial resettable to 200 Hz; 180 W PEP SSB input, 170 W CW input; switch selection of upper or lower sideband and CW; built-in side-tone for monitoring; built-in 100 kHz crystal calibrator; triple action level control to reduce clip-

ping and distortion; built-in VOX, and complete metering. A top value leader in anybody's logbook.

Kit SB-102, 24 lbs., mailable 385.00

SBA-301-2, optional 400 Hz CW crystal filter, 1 lb., mailable ... 22.95

Kit HP-23A, AC power supply, 19 lbs., mailable 51.95

Kit HP-13A, DC power supply, 7 lbs., mailable 69.95

SBA-100-1, mobile mount, 6 lbs., mailable 15.95

SB-102 SPECIFICATIONS — RECEIVER SECTION: Sensitivity: Better than 0.35 microvolt for 10 dB signal-plus-noise to noise ratio for SSB operation. SSB selectivity: 2.1 kHz minimum at 6 dB down, 5 kHz maximum at 60 dB down — 2:1 nominal shape factor — 6 to 60 dB. CW Selectivity: (With optional CW filter SBA-301-2 installed) 400 Hz minimum at 6 dB down, 2.0 kHz maximum at 60 dB down. Input Impedance: Low impedance for unbalanced coaxial input. Output impedance: Unbalanced 8 and 600 ohm speaker, and high impedance headphone. Power output: 2 watts with less than 10% distortion. Spurious response: Image and IF rejection better than 50 dB. Internal spurious signals below equivalent antenna input of 1 microvolt. **TRANSMITTER SECTION:** DC power input: SSB 180 watts P.E.P. continuous voice, CW: 170 watts — 50% duty cycle. RF power output: 100 watts on 80 through 15 meters; 80 watts on 10 meters (50 ohm non-reactive load). Output impedance: 50 ohms to 75 ohms with less than 2:1 SWR. Oscillator feed-through or mixer products: 55 dB below rated output. Harmonic radiation: 45 dB below rated output. Transmit-receive operation: SSB: Push-to-talk or VOX. CW: Provided by operating VOX from a keyed tone, using grid-block keying. CW side-tone: Internally switched to speaker in CW mode. Approx. 1000 Hz tone. Microphone input impedance: High impedance. Carrier suppression: 50 dB down from single-tone output. Unwanted sideband suppression: 55 dB down from single-tone output at 1000 Hz reference. Third order distortion: 30 dB down from two-tone output. Noise level: At least 40 dB below single-tone carrier. RF compression (TALC): 10 dB or greater at .1 ma final grid current. **GENERAL:** Frequency coverage: 3.5 to 4.0; 7.0 to 7.3; 14.0 to 14.5; 21.0 to 21.5; 28.0 to 28.5; 28.5 to 29.0; 29.0 to 29.5; 29.5 to 30.0 (megahertz). Frequency stability: Less than 100 Hz per hour after 10 minutes warm-up from normal ambient conditions. Less than 100 Hz for +10% line voltage variations. Modes of operation: Selectable upper or lower sideband (suppressed carrier) and CW. Visual dial accuracy—"Resettable": Within 200 Hz on all bands. Electrical dial accuracy: Within 400 Hz after calibration at nearest 100 kHz point. Dial mechanism backlash: Less than 50 kHz. Calibration: 100 kHz crystal. Audio frequency response: 350 to 2450 Hz +3 dB. Phone patch impedance: 8 ohm receiver output to phone patch; high impedance phone patch input to transmitter. Front panel controls: Main (LMO) tuning dial; Driver tuning and Preselector; Final tuning; Final loading; Mic and CW Level Control; Mode switch; Band switch; Function switch; Freq. Control switch; Meter switch; RF gain control; SSB-CW filter switch; Audio Gain control. Internal controls: VOX Sensitivity; VOX Delay; Anti-Trip; Carrier Null (control and capacitor); Meter Zero control; CW Side-Tone Gain control; Relative Power Meter Adjust control; P.A.—Bias; Phone Vol (headphone volume); Neutralizing. Rear Apron Connections: CW Key jack; 8 ohm output; Spare A; Spare B; Phone patch input; ALC input; Power and accessory plug; RF output; Driver Output for SB-500. Power requirements: 700 to 800 volts at 250 ma; 300 volts at 150 ma; -115 volts at 10 ma; 12 volts at 4.76 amps. Cabinet dimensions: 147/8" W x 65/8" H x 133/8" D.



No money down on any kit — up to 2 years to pay — see order blank for details.



The Amateur Receiver that's got it all!

Heathkit SB-303 Solid-State Amateur Receiver

If you're a General-through-Extra Ham, the Heathkit SB-303 delivers all the signal seeking capability you could possibly want, plus a complement of performance features most other receivers can only offer as a lengthy (and costly) list of options. The "303" brings you USB, LSB, AM, CW and RTTY, 80-10 meters; 15 MHz WWV reception; solid-state instant warmup, 100 Hz stability in 10 minutes, and superior tracking. The exclusive Heath LMO with 1 kHz dial readout is factory-assembled and aligned for peak performance and incredibly smooth linear tuning. And an RF attenuator lets you adjust sensitivity for optimum signal handling.

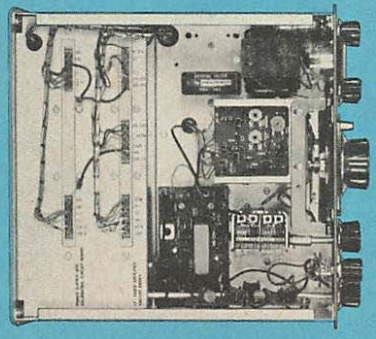
Other standard features are complete SSB/CW transceive compatibility with the famous Heathkit "400" or "401"; three-position AGC (off, fast, slow); 25 kHz and 100 kHz crystal calibrator for spotting the new subbands; antenna & power connections for up to two VHF converters, with front panel switch eliminating need for changing cables; four spare sockets on rear panel for connecting a wide range of Heathkit station accessories. Compare the specs . . . then order your "303" today.

- Kit SB-303, 21 lbs., mailable **319.95**
- SBA-301-1, optional 3.75 kHz AM crystal filter, 1 lb., mailable **21.95**
- SBA-301-2, optional 400 Hz CW crystal filter, 1 lb., mailable **22.95**

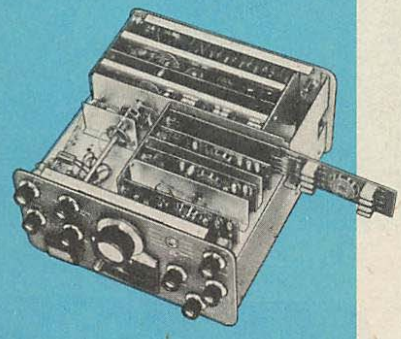
SB-303 SPECIFICATIONS — Frequency range (MHz): 3.5 to 4.0, 7.0 to 7.3, 14.0 to 14.5, 15.0 to 15.3, 21.0 to 21.5, 28.0 to 30. Intermediate frequency (IF): 3.395 MHz. Frequency stability: Less than 100 Hz drift/hr. after 10 min. warmup under normal ambient conditions. Less than 100 Hz drift for +10% line voltage variation. Frequency selection: Built-in Linear Master Oscillator. Modes of operation: SSB, CW, AM, RTTY. Sensitivity: Less than 0.25 uV for 10 dB S+N/N for SSB operation. Overall gain: Less than 1.5 uV input for 0.5 audio output (single tone SSB). AGC Characteristics: Blocking — Greater than 3.0 V CW/SSB/RTTY. Dynamic Range — Greater than 150 dB CW/SSB. RF Attenuator — Variable 0-40 dB nominal. Selectivity: SSB — 2.1 kHz @ 6 dB down, 5.0 kHz maximum at 60 dB down (crystal filter supplied). CW — 400 Hz at 6 dB down, 2.0 kHz maximum at 60 dB down (crystal filter available as an accessory). AM — 3.75 kHz at 6 dB down, 10 kHz maximum at 60 dB down (crystal filter available as an accessory). RTTY — 2.1 kHz at 6 dB down, 5.0 kHz maximum at 60 dB down (uses SSB crystal filter). Image rejection: 60 dB or better. IF rejection: 3.395 — greater than 55 dB. 8.595 — greater than 50 dB. Spurious response: All below 1 uV equivalent signal input. Temperature ranges: 10°C-50°C ambient. Dial accuracy: Electrical — Within 400 Hz after calibration at nearest 100 kHz or 25 kHz point. Visual — Within 200 Hz. Calibration: Every 100 kHz or 25 kHz. Dial Accuracy: No more than 50 Hz. Antenna Input Impedance: 50 ohm nominal unbalanced. Audio response: SSB — 350-2450 Hz nominal at 6 dB. CW (with accessory filter) — 800-1200 Hz nominal at 6 dB. AM (with accessory filter) — 200-3500 Hz nominal at 6 dB. RTTY — 1840-3940 Hz nominal at 6 dB. Audio output impedance: Speaker — 8 ohm. Headphones — Low impedance. Audio Output Power: 4 W at less than 10% distortion. Muting: Open external ground at mute socket. Power Requirements: 120/240 VAC, 40 W max. Front Panel Controls: Main tuning dial; function switch; mode switch; band switch; AGC switch; converter switch; AF gain/power on-off; RF gain/speaker disable; preselector; RF Attenuator. Circuit board controls: IF/Audio — Bias adjust; meter zero; meter full scale. Power Supply/BFO — +15 V adjust; 100 kHz adjust. RTTY — Wide shift; narrow shift; CW shift. Connections: Rear Panel — Phones; HF antenna; VHF antenna #1, VHF antenna #2; mute, anti-vox; speaker; HFO out; LMO out; BFO out; CW shift; 3 spare sockets; 3-wire line cord socket; accessory, VHF Converter, +15 VDC @ 25 mA, switched. RTTY Keyboard. Cabinet Dimensions: 6⁵/₈" H x 12¹/₄" W x 13" D. Overall Dimensions (with knobs & feet installed): 7¹/₄" H x 12¹/₄" W x 14" D.



319⁹⁵



Plug-in bandswitch, power supply and IF/audio amplifier circuit boards mount easily and conveniently on the bottom of the chassis.



Exclusive Heath extender boards allow easy Switch-Board and circuit board access for in-circuit voltage and resistance measurements.

Ham shack luxuries at Heathkit savings



Heathkit Signal Monitor

Gives accurate display of transmitted and received AM, CW, SSB and RTTY signals. Operates 160-6 meters, 15 W — 1 kW. Shows signal envelope, AF and RF trapezoid patterns. Operates with receiver IFs up to 6 MHz. Grey cabinet measures 6⁵/₈" H x 10" W x 11¹/₂" D.

Kit SB-610, 14 lbs., mailable **89.95**



Heathkit Spectrum Analyzer

Offers 10 and 50 kHz sweep widths for single signal analysis. Variable width to 500 kHz for IFs above 455 kHz, up to 100 kHz for 455 kHz IFs. Has log and linear displays, operates with common receiver IFs up to 6 MHz. Grey aluminum cabinet matches SB series, measures 6⁵/₈" H x 10" W x 10¹/₂" D.

Kit SB-620, 15 lbs., mailable **129.95**



Heathkit Station Console

Four control-monitor units in one. Has 24-hour clock with digital readout; SWR meter for proper matching; hybrid phone patch, and automatic resettable electronic 10-minute timer with red "Identify" light and buzzer. SB styled cabinet measures 6⁵/₈" H x 10" W x 11¹/₂" D.

Kit SB-630, 10 lbs., mailable **89.95**

Built-in Heathkit self-service features save you money



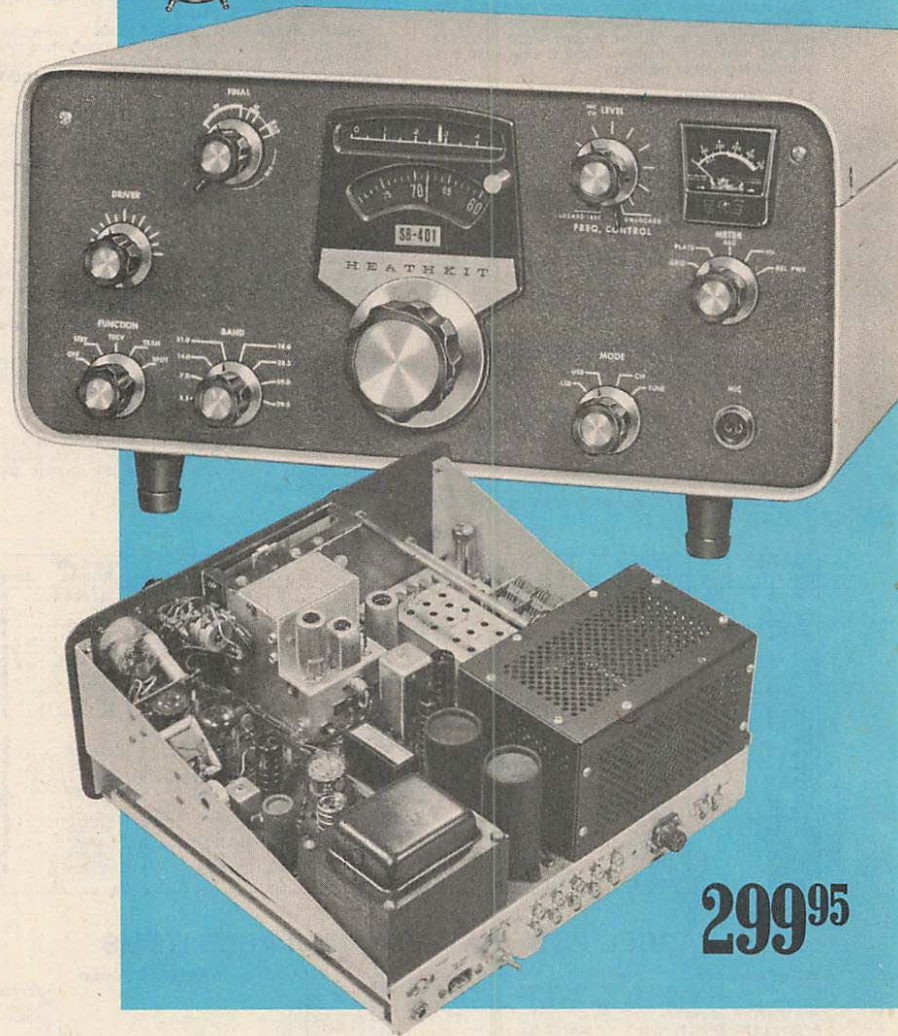
Add "Transceive" Capability to your "303"

Heathkit SB-401 USB/LSB/CW Transmitter with "separate" or "transceive" capability

The perfect companion to the SB-303 Receiver, the "401" offers full transceive operation plus top performance on 80 through 10 meters... with single-knob LMO control. And you can go from transceive operation to independent transmitter-receiver operation with the flip of a switch — ideal for DXing. In combination with the "303", the "401" derives all necessary crystal oscillator voltages from the receiver, eliminating redundant circuitry. Add the SBA-401-1 Crystal Pack, and you've got independent transmitter operation with other receivers as well. Other features include: complete shielding and isolation of circuits for maximum TVI protection; preassembled LMO and crystal SSB filter to eliminate critical adjustment; and circuit board design plus precut wiring harness for simplified kit assembly. Check the features, check the specifications, check the price... you'll see why the Heathkit SB-401 rates a "Best Buy" among the amateur fraternity. Order yours, today.

Kit SB-401, 36 lbs., mailable 299.95
SBA-401-1, crystal pack, 1 lb., mailable 29.95

SB-401 SPECIFICATIONS — Emission: SSB (upper or lower sideband) and CW. Power input: 170 W CW, 180 W P.E.P. SSB. Power output: 100 W (80-15 meters), 80 W (10 meters). Output impedance: 50-75 ohm — less than 2:1 SWR. Frequency range: (MHz) 3.5-4.0; 7.0-7.5; 14.0-14.5; 21.0-21.5; 28.0-28.5; 28.5-29.0; 29.0-29.5; 29.5-30.0. Frequency stability: Less than 100 Hz/hr. after 20 min. warmup. Carrier suppression: 55 dB below peak output. Unwanted sideband suppression: 55 dB @ 1 kHz. Intermodulation distortion: 30 dB below peak output (two-tone test). Keying characteristics: Break-in CW provided by operating VOX from a keyed tone (Grid block keying). CW sidetone: 1000 Hz. ALC characteristics: 10 dB or greater @ 0.2 mA final grid current. Noise level: 40 dB below rated carrier. Visual dial accuracy: Within 200 Hz (all bands). Backlash: Less than 50 Hz. Oscillator feedthrough or mixer products: 55 dB below rated output (except 3910 kHz crossover which is 45 dB). Harmonic radiation: 35 dB below rated output. Audio input: High impedance microphone or phone patch. Audio frequency response: 350-2450 Hz ±3 dB. Power requirements: 80 W STBY, 260 W key down @ 120/240 VAC, 50/60 Hz. Dimensions: 6 5/8" H x 14 7/8" W x 13 3/8" D.



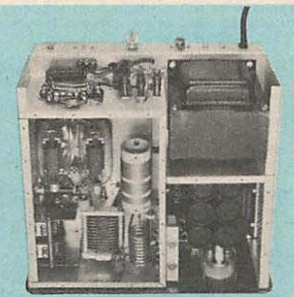
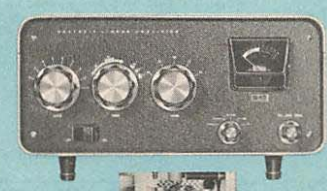
299⁹⁵

Heathkit SB-200 1kw Amplifier... 229.95

Get on the air with 1200 watts SSB, 1 kw on CW. Build it in just 5 evenings.

Kit SB-200, 50 lbs., mailable 229.95

SB-200 SPECIFICATIONS — Band coverage: 80, 40, 20, 15 & 10 meters. Maximum power input: 1200 W P.E.P. SSB, 1000 W CW. Driving power required: 100 W. Duty cycle: SSB, continuous voice modulation; CW 50% (key down time not to exceed 5 min.). Third order distortion: 30 dB or better at 1000 W P.E.P. Output impedance: 50-75 ohm unbalanced; variable pi-output circuit. SWR not to exceed 2:1. Input impedance: 52 ohm unbalanced; broadband pretuned input circuit requires no tuning. Meter functions: 0-100 mA grid current, 0-1000 mA plate current, 0-1000 relative power, 1:1-3:1 SWR, 1500-3000 volts high voltage. Front panel controls: Load; Tune; Band; Relative Power Sensitivity; Meter Switch, Grid-Plate-Rel. Power-SWR-HV; and Power Switch, on/off. Tube complement: Two 572B/T-160-L (in parallel). Power requirements: 120 VAC @ 16 A (max.), 240 VAC @ 8 A (max.). Cabinet size: 6 5/8" H x 14 7/8" W x 13 3/8" D.



Two 572B (or T-160-L) in parallel give years of top performance. Large fan provides maximum cooling.

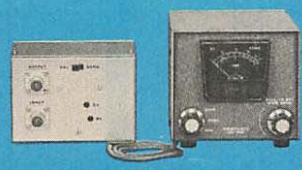
Rugged, well rated components are used throughout. Partitioned chassis gives added strength, isolates parts.

Heathkit accessories for your shack



Ham desk mike

High impedance dynamic mike recommended for SB-series gear. Ideal SSB response. Grip-to-talk switch w/lock. Wiring diagram & cables included.
HDP-21A, 4 lbs., mailable 29.95



Wattmeter/SWR Bridge

Remote detector for convenient location of meter (6' cable supplied). Measures RF output from 10-2000 watts; 1.8 to 3 MHz; ±10% accuracy; 50 ohm impedance; 5 1/4" H x 5 1/4" W x 6 1/2" D.
Kit HM-102, 4 lbs., mailable .. 29.95



Hybrid phone patch

Has individual receiver-to-line & line-to-receiver gain controls; VU meter; 30 dB isolation for positive VOX operation. Matches 3-16 ohm speakers & hi-Z or 600 ohm inputs; operates VOX or PTT. 2 5/8" H x 9 1/4" W x 3 3/8" D.
Kit HD-15, 3 lbs., mailable ... 24.95



"Cantenna" transmitter dummy load

Provides 50 ohm non-inductive load with SWR less than 1.5:1 for frequencies of 1.5-300 MHz. Coax fitting to transmitter line, & phone jack for relative power measurements. One gal. coolant oil capacity (oil not included) permits power up to 1 kw.
Kit HN-31, 3 lbs., mailable 10.95

No money down on any kit — up to 2 years to pay — see order blank for details.

HOW TO ORDER

1. BY MAIL—Complete the simple Heath order form, including the reverse side if you wish to use our Revolving Charge plan. Always use the same name whenever you order. Enclose check or money order to cover type of payment plan chosen. Include shipping charges only if item can be mailed Parcel Post or sent UPS (see rate information opposite). Do not include charges for REA or Motor Freight shipments. Fill out section 2 of order blank if you want order shipped to another address.

2. BY TELEPHONE—For kit or parts orders only... on Revolving Charge, COD, or commercial accounts call 616-983-7381 day, night, weekends or holidays for prompt order service and information on kit availability. For all other business... kit building assistance, product information, order checking, and if you'd like to place a COD order at the same time, call 616-983-3961 weekdays from 8 a.m. to 4:30 p.m. EST for proper routing.

3. VISIT OUR FACTORY SALES/SHOWROOM...located on Hilltop Rd. in S. Joseph, Mich. Open Mon.-Fri. 8:30 a.m. to 5 p.m. (Sat. 9 a.m. to 3 p.m.). See and hear Heathkit products in action... take your kit along... or arrange shipment to your home.

METHODS OF PAYMENT

1. CASH—Do not send currency or postage. Send personal check or money order only.

HOW TO FIGURE PARCEL POST & UPS CHARGES

Use the zone chart below and the first 3 numbers of your zip code to determine your zone. Then refer to the Parcel Post or UPS rate charts below for charges for each model per shipping weight given in price line. For example, if your Zip Code is 10036, use the first

2. C.O.D.—A 20% deposit is required on all COD orders by mail. Balance will be collected by carrier. Payment must be made in cash, money order or certified check. (They will not accept personal checks.) Parcel Post shipments cannot be made if balance is over \$200. No limit on UPS, Motor Freight or Express. Be sure to include "COD Fee" when figuring "Parcel Post" or "UPS" COD orders.

3. HEATH REVOLVING CHARGE PLAN—No money down. Up to 2 1/2 years to pay. Two convenient payment plans. We figure postage for you... add it on to your account. See order blank for details and "ADD-ON" purchases.

NON-MAILABLE ITEMS

REA & MOTOR FREIGHT—Shipments exceeding Parcel Post or UPS limitations will be sent REA or Motor Freight. Check with local carrier for charges and best delivery service in your area. Do not enclose money for REA or Motor Freight... shipping charges will be collected by the carrier. When necessary we reserve the right to change routing instructions.

PREMIUM ROUTINGS—Upon your request, we can ship via Air Parcel Post, Parcel Post Special Handling, or Special Delivery, Air Express, Bus or Air Freight, if service is available to your area. Contact your local office for rates and delivery information.

IF YOU MOVE... please send in your old address and your new address... including Zip Code.

IF YOU ARE RECEIVING DUPLICATE COPIES of Heathkit catalogs, please return the mailing labels of those copies you wish discontinued.

3 numbers (100) and check the zone chart for your zone, which is 5. Parcel Post charge for a kit weighing 10 pounds is therefore \$1.90. Add insurance and COD fees, if desired.

ZONE CHART

Zip Code Prefixes	Zone	Zip Code Prefixes	Zone	Zip Code Prefixes	Zone	Zip Code Prefixes	Zone	Zip Code Prefixes	Zone	Zip Code Prefixes	Zone
006-009	8	280-281	3	370-388	4	478	3	600-609	2	823-828	6
010-069	5	282-278	4	387	5	479-489	3	610-619	3	827	5
070-089	4	279	5	388	4	490-491	1	620-623	4	828-832	6
090-099	5	280-283	4	389-397	5	492	2	624-628	3	833	7
		284-285	5	400-406	3	493-495	1	629-668	4	834	6
100-108	5	286-283	4	407-409	4	496-499	3	669-679	5	835-838	7
109	4	284-285	5	410-412	3			680-687	4	840-847	6
110-119	4	296-297	4	413-422	3	500-516	4	688-693	5	850-864	7
120-123	5	298-299	5	423	3	520-524	4	700-722	5	865-884	6
124-126	5			424	3	525	4	723-727	4	890-898	7
127-128	4	300-303	4	424-426	3	528-528	3	728-768	5		
129	5	304	5	427-432	2	530-534	2	769	6	900-921	8
130-152	4	305-307	4	433-438	2	535-539	3	770-778	5	922-928	7
153	3	308-329	5	437-457	3	540	4	779-789	6	930-934	8
154-160	4	330-334	6	458	2	541-546	3	790-792	5	935	7
161	3	335-338	5	460-462	3	547-548	4	793-799	6	936-960	8
162-163	4	339	6	463-464	2	549	3			961	7
164-165	3	350-352	4	465-466	1	550-566	4	800-803	5	982-976	8
166-199	4	354	5	467-469	2	567	5	804-805	6	977-979	7
		355-359	4	470-472	3	570-572	4	806-807	5	980-987	8
200-232	4	360-361	5	473	2	573-588	5	808-816	6	988-994	7
233-237	5	362	4	474-475	3	590-597	6	820-822	5	995-999	8
238-259	4	363-369	5	476-477	4	598-599	7				

PARCEL POST RATES for MAILABLE ITEMS

Postal Regulations... limit parcel post shipments to 40 lbs. per package, all zones. EXCEPTION: Shipments up to 70 lbs. per package will still be accepted to RFD addresses, and to APO numbers.
APO and FPO Airlift Parcels... not over 30 lbs. and not over 60" length and girth combined can be sent "Airlift" for an additional \$1 fee; just figure regular surface rates, add \$1 for each kit 5 lbs. or over (but less than 30 lbs.) and mark "Airlift" on your order.

IMPORTANT

- Figure the postage charges for each model number separately using the indicated shipping weight for that model.
- Then, total the individual charges determined and remit the full amount for Parcel Post.
- Shipping weights listed for model numbers shipped in more than one carton have been adjusted to provide correct postage remittance based on Parcel Post chart below.

Ship. WT.	Zone 1 & 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
2 lbs.	\$0.65	\$0.70	\$0.75	\$0.80	\$0.90	\$1.00	\$1.05
3 lbs.	.75	.80	.85	.95	1.10	1.20	1.35
4 lbs.	.80	.85	.95	1.10	1.30	1.40	1.60
5 lbs.	.85	.90	1.05	1.20	1.45	1.65	1.90
6 lbs.	.95	1.00	1.15	1.35	1.60	1.85	2.10
7 lbs.	1.05	1.10	1.25	1.50	1.75	2.10	2.35
8 lbs.	1.10	1.15	1.35	1.60	1.90	2.30	2.60
9 lbs.	1.15	1.20	1.45	1.75	2.05	2.45	2.85
10 lbs.	1.20	1.30	1.55	1.90	2.20	2.65	3.10
11 lbs.	1.25	1.35	1.60	2.00	2.30	2.85	3.35
12 lbs.	1.30	1.45	1.70	2.10	2.45	3.05	3.55
13 lbs.	1.35	1.55	1.80	2.20	2.60	3.25	3.80
14 lbs.	1.40	1.60	1.90	2.35	2.75	3.45	4.00
15 lbs.	1.45	1.65	2.00	2.45	2.85	3.60	4.20
16 lbs.	1.55	1.75	2.05	2.55	2.95	3.80	4.40
17 lbs.	1.60	1.80	2.15	2.65	3.10	3.95	4.60
18 lbs.	1.65	1.90	2.20	2.75	3.20	4.15	4.80
19 lbs.	1.70	2.00	2.30	2.85	3.35	4.30	5.00
20 lbs.	1.75	2.05	2.40	2.95	3.50	4.50	5.20
21 lbs.	1.85	2.10	2.45	3.05	3.65	4.65	5.40
22 lbs.	1.90	2.15	2.55	3.15	3.75	4.85	5.60
23 lbs.	1.95	2.20	2.60	3.25	3.90	5.00	5.80
24 lbs.	2.00	2.25	2.65	3.35	4.05	5.15	6.00
25 lbs.	2.05	2.30	2.75	3.45	4.15	5.35	6.20
26 lbs.	2.10	2.35	2.85	3.55	4.30	5.50	6.40
27 lbs.	2.15	2.40	2.90	3.70	4.45	5.65	6.60
28 lbs.	2.20	2.45	2.95	3.80	4.60	5.80	6.80
29 lbs.	2.25	2.50	3.05	3.90	4.70	5.95	7.00
30 lbs.	2.30	2.55	3.10	4.00	4.85	6.10	7.20
31 lbs.	2.35	2.65	3.20	4.10	5.00	6.25	7.40
32 lbs.	2.40	2.70	3.30	4.20	5.15	6.45	7.60
33 lbs.	2.45	2.75	3.35	4.30	5.25	6.60	7.80
34 lbs.	2.50	2.80	3.40	4.40	5.40	6.75	8.00
35 lbs.	2.55	2.85	3.45	4.50	5.55	6.90	8.20
36 lbs.	2.60	2.90	3.55	4.60	5.65	7.10	8.40

C.O.D. Fees in Addition to Postage

Up to \$10.00	70 cents
\$10.01 to \$25.00	80 cents
\$25.01 to \$50.00	90 cents
\$50.01 to \$100.00	\$1.00
\$100.01 to \$200.00	\$1.10

Note: If C.O.D. shipment cannot be made in one package, we reserve the right to change routing. C.O.D. shipments cannot be made if balance is over \$200.00.

INSURED PARCEL POST (Add to Postage)

Liability:	Fee
\$0.01 to \$15	\$0.20
\$15.01 to \$50	.30
\$50.01 to \$100	.40
\$100.01 to \$150	.50
\$150.01 to \$200	.60

Liability for insured mail is limited to \$200.

Ship. WT.	Zone 1 & 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
37 lbs.	2.65	3.00	3.65	4.70	5.75	7.25	8.60
38 lbs.	2.70	3.05	3.70	4.80	5.90	7.45	8.80
39 lbs.	2.75	3.10	3.80	4.90	6.05	7.60	9.00
40 lbs.	2.80	3.15	3.85	5.00	6.15	7.75	9.20
41 lbs.	2.85	3.20	3.95	5.15	6.25	7.95	9.40
42 lbs.	2.90	3.25	4.00	5.25	6.40	8.10	9.60
43 lbs.	2.95	3.30	4.10	5.35	6.55	8.25	9.80
44 lbs.	3.00	3.35	4.15	5.45	6.65	8.40	10.00
45 lbs.	3.05	3.40	4.20	5.55	6.80	8.55	10.20
46 lbs.	3.10	3.50	4.30	5.65	6.90	8.70	10.40
47 lbs.	3.10	3.55	4.40	5.75	7.00	8.80	10.60
48 lbs.	3.15	3.60	4.45	5.85	7.15	9.05	10.80
49 lbs.	3.20	3.65	4.50	5.95	7.30	9.20	11.00
50 lbs.	3.25	3.70	4.60	6.05	7.40	9.35	11.15
51 lbs.	3.30	3.80	4.70	6.15	7.50	9.50	11.35
52 lbs.	3.35	3.85	4.75	6.25	7.65	9.65	11.55
53 lbs.	3.40	3.90	4.80	6.35	7.80	9.80	11.75
54 lbs.	3.40	3.95	4.90	6.45	7.90	9.95	11.90
55 lbs.	3.45	4.00	4.95	6.55	8.00	10.10	12.10
56 lbs.	3.50	4.10	5.05	6.60	8.10	10.25	12.25
57 lbs.	3.55	4.15	5.15	6.70	8.25	10.40	12.45
58 lbs.	3.60	4.20	5.20	6.80	8.40	10.55	12.60
59 lbs.	3.65	4.25	5.25	6.90	8.50	10.70	12.80
60 lbs.	3.65	4.30	5.35	7.00	8.60	10.85	12.95
61 lbs.	3.70	4.35	5.45	7.05	8.70	11.00	13.10
62 lbs.	3.70	4.40	5.50	7.15	8.85	11.15	13.30
63 lbs.	3.75	4.45	5.55	7.25	9.00	11.30	13.45
64 lbs.	3.80	4.50	5.60	7.35	9.10	11.45	13.65
65 lbs.	3.85	4.60	5.70	7.45	9.20	11.60	13.80
66 lbs.	3.90	4.65	5.80	7.50	9.30	11.75	13.95
67 lbs.	3.95	4.70	5.85	7.60	9.40	11.85	14.15
68 lbs.	3.95	4.75	5.90	7.70	9.55	12.00	14.30
69 lbs.	4.00	4.80	5.95	7.75	9.65	12.15	14.50
70 lbs.	4.05	4.85	6.05	7.85	9.75	12.25	14.65

Note: These parcel post rates are effective as of Nov. 14, 1970 and are subject to change without notice.

UNITED PARCEL SERVICE (UPS) RATES

NOTE: United Parcel Service is available from Heath to all states east of and immediately west of the Mississippi, plus North Dakota, South Dakota, Nebraska, Kansas, Oklahoma & Texas. See below for UPS Blue Label (Air) Service to the West Coast only. UPS rates include insurance for up to \$100 value. Remit 25% for each additional \$100 value or fraction thereof.

REGULATIONS: Maximum weight per package, 50 lbs.; and 100 lbs. per shipment.

IMPORTANT

- Figure UPS charges for each model number separately using the indicated shipping weight for that model.
- Then total the individual charges figured and remit the full amount.
- Shipping weights listed for model numbers shipped in more than one carton have been adjusted to provide correct remittance based on rate chart below.

C.O.D. FEES IN ADDITION TO REGULAR CHARGES For each C.O.D. delivery, 65 cents; for each address correction, 65 cents.

Weight Not to Exceed	RATES TO-						
	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
1 lb.	\$0.55	\$0.57	\$0.60	\$0.62	\$0.65	\$0.68	\$0.72
2 "	.60	.64	.69	.74	.80	.88	.94
3 "	.65	.71	.79	.86	.95	1.04	1.16
4 "	.70	.78	.88	.98	1.10	1.22	1.38
5 "	.75	.85	.98	1.10	1.25	1.40	1.60
6 "	.80	.92	1.07	1.22	1.40	1.55	1.82
7 "	.85	.99	1.17	1.34	1.55	1.76	2.04
8 "	.90	1.06	1.26	1.48	1.70	1.94	2.28
9 "	.95	1.13	1.38	1.58	1.85	2.12	2.48
10 "	1.00	1.20	1.45	1.70	2.00	2.30	2.70
11 "	1.05	1.27	1.55	1.82	2.15	2.48	2.92
12 "	1.10	1.34	1.64	1.94	2.30	2.66	3.12
13 "	1.15	1.41	1.74	2.06	2.45	2.84	3.32
14 "	1.20	1.48	1.83	2.18	2.60	3.02	3.52
15 "	1.25	1.55	1.93	2.30	2.75	3.20	3.72
16 "	1.30	1.62	2.02	2.42	2.90	3.38	3.92
17 "	1						

HEATH REVOLVING CHARGE PLAN

ABOUT HEATH'S REVOLVING CHARGE PLANS

The "Cash Price" of merchandise on Heath's Revolving Charge Plans includes the cash price as listed on the page describing the merchandise, plus applicable sales tax, shipping charges, and less any advertised allowances. Regular or extended terms are the two plans available for your use. To use the extended plan, the balance must be at least \$400. The amount of your monthly installment can be determined from the chart at the right. The periodic rate for the *finance charge is 1 1/2 %* per month and is equal to an *annual percentage rate of 18%* before deducting payments & credits or adding purchases made during the current billing period. No down payment is required on new orders but one may be remitted if desired.

REGULAR REVOLVING CHARGE

PAY MONTHLY	CHARGE UP TO
\$10	\$150
15	200
20	250
25	300
30	350
35	400
40	450
45	500
50	550

EXTENDED REVOLVING CHARGE

PAY MONTHLY	CHARGE UP TO
\$20	\$400
25	500
30	600
35	700
40	800
45	900
50	1,000
55	1,100
60	1,200

Add \$5 for every \$100, or a portion thereof over \$1,200.

HOW TO OPEN AN ACCOUNT

Just fill out the credit application, sign the Revolving Charge agreement, and mail to Heath with your order.

ADD-ON PURCHASES

List items you want on order blank, check the add-on box, and give your account number. Sign the Revolving Charge agreement, and send to us.

NOTICE TO BUYER:

- Do not sign the contract before you read it.
- The other side of this page is part of this contract.
- NO *FINANCE CHARGE* IF PAID IN FULL IN 30 DAYS FROM CYCLE BILLING CLOSING DATE AS SHOWN ON STATEMENT.

REVOLVING CHARGE AGREEMENT

TO: HEATH COMPANY, BENTON HARBOR, MICHIGAN 49022

I hereby purchase the merchandise listed on the reverse side at the time sale price which is the cash sale price including shipping charge and tax, if any, less down payment, if any, plus the *finance charge (annual percentage rate 18%)* which, in lieu of being added to this contract in total as of the date hereof will be added monthly at the *periodic rate of 1 1/2 % per month* on the previous months ending balance of my account before deducting payments & credits or adding purchases made during the current billing period. A minimum *finance charge* not exceeding 50¢ may be assessed on balances up to \$33. The highest level of my balance reflected by the payment chart will govern my monthly payment, beginning 30 days from the cycle closing date shown on the statement, until such time as the total unpaid balance of each purchase is fully paid (minimum \$10). If within 30 days from my billing date, I pay the full outstanding balance shown on my monthly statement, no *finance charge* on such balance, will be charged on any subsequent statement. I will not sell, transfer possession of, remove or encumber the property without your written consent: upon default on the terms of this agreement, you may declare my existing outstanding balance due and payable and you may repossess the property. If legal proceedings are commenced, I will be required to pay reasonable attorney's fees in such an amount as may be allowed by the court. My installments shall be applied as follows: In case of items purchased on different dates, the first purchase shall be deemed first paid for: In the case of items purchased on the same date, the lowest price shall be deemed first paid for. You are authorized to investigate my credit record and report to proper persons and bureaus my performance of this agreement.

Date _____

Sign Here _____

CREDIT APPLICATION

Check Revolving Charge Plan Desired

Regular Extended

Mr. _____
 Mrs. _____
 NAME Miss _____
 (Please Print) (First Name) (Middle Initial) (Last Name)

ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____ If Military Give Rank _____

Number of Dependents _____ How Long at Present Address _____ No. of Rooms _____ OWN RENT BOARD Monthly Rent or Mortgage Payments \$ _____

Former Address _____ City _____ State _____ How Long _____

Phone No. _____ AGE _____ MARRIED WIDOWED
 SINGLE DIVORCED Wife's First Name _____

Employer _____ Address _____ City _____ State _____

How Long _____ Occupation _____ Social Security No. _____ Military Serial No. (if serviceman) _____ EARNINGS \$ _____ Hr. Wkly.

Former Employer _____ How Long _____

Name of Wife's Employer _____ Address of Wife's Employer _____ WIFE'S WEEKLY INCOME \$ _____

Other Income — Give Details _____ TOTAL FAMILY INCOME \$ _____

Your Bank _____ Address _____ Type of Account _____

CREDIT REFERENCE: (Give 2 Merchants, Firms or Finance Companies with whom you do or have done business.)

First Credit Reference _____ Address _____ Present Balance \$ _____ Monthly Payment \$ _____

Second Credit Reference _____ Address _____ Present Balance \$ _____ Monthly Payment \$ _____

Nearest Relative _____ Address _____ Relationship _____
 (Do not list those with whom you are living) (If Military give permanent mailing address)



Base price information

Heath's prices conform with the U.S. Price Stabilization Program. Under this program, our prices may be increased only to reflect increased wage and material costs, adjusted to reflect increased productivity. We have submitted the required information to the United States Price Commission and received formal approval to increase prices on certain specified products. However, these price increases still do not reflect our entire increased costs. The price increases amount to an average of 1.5% over the entire line as calculated by the Commission Rules. Most prices did not change,

but some increases exceed the 1.5% average — such as the AR-1500 which is more costly due to circuit improvements over the AR-15. Our increases are well below the guidelines established by the Commission's regulations and only reflect what is necessary to maintain Heath's high standards for quality and performance. The following list reflects Heathkit prices in effect on Aug. 14, 1971 prior to the Wage/Price freeze. Base price information for any items not listed here may be obtained by writing directly to the Heath Company.

MODEL	BASE PRICE	MODEL	BASE PRICE	MODEL	BASE PRICE	MODEL	BASE PRICE	MODEL	BASE PRICE	MODEL	BASE PRICE		
AA-14	67.95	AS-163	34.95	EU-701-B	2,720.00	EUP-20	3.50	GDA-325-1	50	GTA-18-2	29.95	IP-28	47.50
AA-15	179.95	AS-163-2	66.00	EU-701-BL	2,765.00	EUP-23-E	39.95	GDP-99	17.95	GTA-18-3	6.95	IPW-17	110.00
AA-18	149.95	AS-173	44.95	EU-701-C	2,920.00	EUP-37	65.00	GDP-108	9.95	GTA-18-4	9.95	IPW-27	125.00
AA-29	149.95	AS-173-2	85.00	EU-701-CL	2,965.00	EUW-15	100.00	GDP-119	39.95	GP-119-1	19.95	IRA-18-M	149.95
AA-32	49.95	AS-183	54.95	EU-701-D	3,020.00	EUW-17	32.00	GDP-129	54.95	GP-101-2	19.95	IRA-18-1	9.95
AC-17	7.95	AS-183-2	105.00	EU-701-DL	3,065.00	EUW-18	30.00	GDP-149	49.95	GTA-101-3	22.95	IT-12	24.50
AD-17	119.95	ASA-102-1	149.95	EU-701-E	145.00	EUW-19-B	180.00	GDP-159	59.95	GU-1800-1	4.99	IT-17	69.95
AD-19	289.95	CI-1020	19.95	EU-701-11	210.00	EUW-24	88.00	GDP-202	11.95	GW-14-A	89.95	IT-28	24.95
AD-27	169.95	DX-60-B	79.95	EU-701-30	395.00	EUW-25	225.00	GDP-204	6.95	GWA-14-1	14.95	IT-27	6.95
AD-58-R	39.95	EC-1	225.00	EU-701-50	475.00	EUW-27	125.00	GDP-214	29.95	GWA-14-2	79.95	JK-18	24.95
AD-68-F	49.95	EF-1-E	11.95	EU-701-90	70.00	EUW-28	25.00	GDP-258	49.95	GWS-14-A	159.95	JK-17	21.95
AD-110	119.95	EF-1	10.95	EU-701-92	195.00	GD-18-A	99.95	GDP-315	6.95	HD-10	39.95	JK-27	14.95
AD-120	44.95	EF-1-6	49.95	EU-701-93	100.00	GD-18-B	99.95	GDP-317	5.45	HD-15	24.95	JK-37	29.95
AD-121	49.95	EF-3	14.95	EU-702-70	835.00	GD-19-M	224.95	GDP-327	5.45	HD-16	9.95	JK-1011	19.95
AD-126	39.95	EF-3-2	44.95	EU-703-B	3,145.00	GD-19-S	224.95	GDP-337	5.45	HD-20	14.95	JK-1022	24.95
AD-130	64.95	EK-1	24.95	EU-703-D	3,445.00	GD-19	199.95	GDP-663	5.89	HDP-21-A	29.95	JK-1033	29.95
AD-140	89.95	EK-2-A	21.50	EU-703-2	190.00	GD-28	59.95	GFP-83	12.95	HDP-32	18.95	MD-19-A	89.95
AD-2002	29.95	EK-2-B	21.50	EU-703-31	315.00	GD-29	379.95	GH-12-A	8.95	HDP-42	2.50	MDA-19-1	9.50
ADA-17-1	14.95	EK-3	19.95	EU-703-61	70.00	GD-48	69.95	GH-17-A	14.95	HDP-293	4.50	MDP-103	9.95
ADA-39-1	10.95	EPA-10-1	6.50	EU-703-62	140.00	GD-57	129.95	GH-25	19.95	HDP-21-A	29.95	MDP-106	29.95
ADA-39-2	5.95	EPA-10-2	5.00	EU-703-70	1,145.00	GD-69	19.95	GP-21	29.95	HDP-22	18.95	MDP-107	59.95
ADA-39-4	10.95	EU-13-A	185.00	EU-707-31	975.00	GD-77	429.95	GR-17	43.95	HM-15	14.95	MDP-108	49.95
ADA-47-1	6.50	EU-14-A	68.00	EU-800-CA	105.00	GD-87	129.95	GR-24	28.25	HM-102	29.95	MI-18-1	29.95
ADA-47-3	15.95	EU-20-B	225.00	EU-800-CC	24.00	GD-101	39.95	GR-28	24.95	HN-31	10.95	MI-18-2	32.95
ADA-47-4	6.50	EU-20-EB	225.00	EU-800-DB	19.00	GD-107	54.95	GR-36	69.95	HP-13-A	69.95	MI-18-3	29.95
ADA-49-1	14.95	EU-20-VE	320.00	EU-800-DC	14.00	GD-109	79.95	GR-38	32.95	HP-23-A	51.95	MI-19-1	79.95
ADA-49-4	12.95	EU-20-W	315.00	EU-800-DD	90.00	GD-110	39.95	GR-43-A	159.95	HR-10-B	79.95	MI-19-2	79.95
ADA-57-2	3.80	EU-20-2	17.00	EU-800-DE	40.00	GD-111	109.95	GR-48	39.95	HR-10-B	79.95	MI-25	44.95
ADA-100-1	19.95	EU-20-3	17.00	EU-800-DF	32.00	GD-113	29.95	GR-58	49.95	HRA-10-1	9.95	MI-29	89.95
ADA-100-2	3.80	EU-20-4	17.00	EU-800-E	35.00	GD-120	12.95	GR-58	49.95	HW-12-A	109.95	MI-101-1	139.95
ADA-110-1	19.95	EU-20-5	17.00	EU-800-JA	48.00	GD-122	29.95	GR-81	29.95	HW-16	99.95	MI-101-2	139.95
ADP-49	175.00	EU-20-9	17.00	EU-800-JB	20.00	GD-128	35.95	GR-88	49.95	HW-18-1	119.95	MI-102	24.95
ADP-79	99.50	EU-20-10	17.00	EU-800-JC	15.00	GD-130	9.95	GR-98	49.95	HW-22-A	109.95	MP-10	32.50
ADP-89	139.50	EU-20-23	34.00	EU-800-JD	29.00	GD-138	25.95	GR-100	259.95	HW-101	249.95	MP-14	119.95
ADP-92	23.92	EU-20-28	220.00	EU-800-JE	18.00	GD-158	27.95	GR-104-A	124.95	HWW-18-1	179.95	MWA-15-1	99.00
ADP-100	189.50	EU-20-31	110.00	EU-800-JF	18.00	GD-160	25.95	GR-104-B	124.95	IB-28	89.00	MWA-18-1	19.95
ADP-135	15.95	EU-28-A	25.00	EU-800-JG	31.00	GD-179-A	99.95	GR-151-B	19.95	IB-101	199.95	MWA-18-2	49.95
ADP-1002	59.00	EU-29-A	26.00	EU-800-JH	37.00	GD-179-B	109.95	GR-169	349.95	IB-102	99.95	MW-17	499.95
ADP-1218	139.50	EU-30-A	55.00	EU-800-JJ	26.00	GD-187	29.95	GR-227	299.95	ID-1	21.95	PD-48	99.95
AE-16	24.95	EU-40-A	100.00	EU-800-K	20.00	GD-188	9.95	GR-269	399.95	ID-29	29.95	PK-1	4.95
AE-18	19.95	EU-41-A	65.00	EU-800-KA	15.00	GD-198	10.95	GR-270	489.95	ID-101	39.95	PK-2	12.00
AE-19	19.95	EU-42-A	130.00	EU-800-KB	65.00	GD-206	19.95	GR-295-MX	429.95	ID-1041	6.95	PKW-3	7.00
AE-25	9.95	EU-44-A	70.00	EU-800-L	28.00	GD-208	7.95	GR-295	419.95	ID-100	395.00	PKW-4	4.95
AE-35	3.50	EU-45-A	100.00	EU-800-RA	39.00	GD-209-A	139.95	GR-370-MX	549.95	IG-18	67.50	PKW-101	19.95
AE-37	145.00	EU-50-CA	19.50	EU-800-RB	17.00	GD-209-B	149.95	GR-371-MX	539.95	IG-28	79.95	PKW-102	11.00
AE-47	155.00	EU-50-CC	5.00	EU-800-RC	20.00	GD-219	6.95	GR-581	579.95	IG-37	79.95	PM-2	12.95
AE-55	12.95	EU-50-GA	11.00	EU-800-RD	8.00	GD-228	7.95	GR-681-MX	459.95	IG-42	64.95	PM-17-A	89.95
AE-57	170.00	EU-50-HA	5.00	EU-801-A	499.00	GD-229	39.95	GR-681	449.95	IG-52-E	70.95	PM-18	89.95
AE-65	3.95	EU-50-HM	14.00	EU-801-C	388.00	GD-238	9.95	GRA-43-1	6.95	IG-54	69.95	PT-15	34.50
AE-101	189.95	EU-50-JA	39.50	EU-801-D	734.00	GD-239	49.95	GRA-70-6	64.95	IG-57-A	135.00	SB-102	380.00
AEA-37-2	80.00	EU-50-MA	22.50	EU-801-11	82.00	GD-248	89.95	GRA-72	2.95	IG-72	49.95	SB-200	220.00
AEA-47-2	80.00	EU-50-MB	13.00	EU-801-12	55.00	GD-258	4.95	GRA-88-1	7.95	IG-102	31.95	SB-220	349.95
AEA-57-1	90.00	EU-50-MC	12.00	EU-801-13	65.00	GD-308	10.95	GRA-100-3	24.95	IGW-18	99.50	SB-303	319.95
AEA-101-1	29.95	EU-50-MD	10.00	EU-801-14	37.00	GD-309-A	99.95	GRA-100-4	19.95	IGW-28	114.95	SB-310	259.00
AEA-101-2	19.95	EU-50-MF	16.00	EU-801-15	195.00	GD-318	114.95	GRA-104-1	42.95	IGW-57-A	199.00	SB-401	299.95
AJ-14	57.95	EU-50-PA	98.50	EU-801-16	175.00	GD-309-B	99.95	GRA-104-2	42.95	IM-72	74.95	SB-600	19.95
AJ-15	189.95	EU-51-A	145.00	EU-802-D	795.00	GD-318	7.95	GRA-104-3	42.95	IM-17	49.95	SB-610	89.95
AJ-29	169.95	EU-70-A	595.00	EU-805-A	1,250.00	GD-325-D	489.95	GRA-169-1	18.95	IM-18	29.95	SB-620	129.95
AK-8	3.95	EU-80-A	120.00	EU-805-B	940.00	GD-325-E	495.95	GRA-180-2	64.95	IM-25	85.00	SB-630	79.95
AR-14	119.95	EU-81-A	245.00	EU-900-CA	40.00	GD-328	11.95	GRA-180-3	24.50	IM-28	39.95	SBA-300-3	19.95
AR-15	349.95	EU-100-W	1,595.00	EU-900-CA	40.00	GD-396	4.50	GRA-180-4	19.95	IM-36	64.95	SBA-301-1	20.95
AR-17	72.95	EU-100-WE	1,635.00	EU-900-EA	105.00	GD-973-A	17.50	GRA-201-20	19.95	IM-38	41.95	SBA-301-2	21.95
AR-19	239.95	EU-100-X	1,900.00	EU-900-GA	145.00	GDA-18-1	49.95	GRA-202-20	119.95	IM-48	69.00	SBA-310-1	23.95
AR-23	299.95	EU-200-1	175.00	EU-900-GA	145.00	GDA-18-2	49.95	GRA-203-20	49.95	IM-58	65.00	SBA-310-2	39.95
AR-1500	349.95	EU-200-2	100.00	EU-900-NA	40.00	GDA-19-1	86.50	GRA-204-20	19.95	IM-102	229.95	SBA-310-3	9.95
ARA-1500-1	24.95	EU-200-3	25.00	EU-900-QA	150.00	GDA-19-2	49.95	GRA-227-1	49.95	IM-103	15.95	SBA-401-1	29.95
ARW-15	540.00	EU-200-8-1	425.00	EUA-14-1	9.00	GDA-19-3	9.95	GRA-227-2	79.95	IM-105	47.95	SD-29-A	65.00
AS-16	54.95	EU-201-B	395.00	EUA-19-2	230.00	GDA-19-4	19.95	GRA-227-3	39.95	IMW-18	54.95	SG-8-E	20.50
AS-18	34.95	EU-201-W	525.00	EUA-19-3	15.00	GDA-19-42	24.95	GRA-227-4	19.95	IMW-25	120.00	SM-101-A	79.00
AS-27	79.50	EU-201-W	515.00	EUA-19-4	190.00	GDA-20-3	54.95	GRA-295-6	49.95	IN-17	29.95	SM-104-A	500.00
AS-27-2	152.00	EU-205-B	675.00	EUA-19-6	210.00	GDA-20-3	54.95	GRA-301-23	79.95	IN-27	19.95	SM-105-A	350.00
AS-37-A	41.95	EU-205-1	45.00	EUA-20-1	9.00	GDA-20-4	24.95	GRA-303-23	114.95	IN-37	7.95	SM-666	132.50
AS-38	154.95	EU-205-11	420.00	EUA-20-12	50.00	GDA-47-1	86.50	GRA-304-23	129.95	IN-47	7.50	SW-717	59.95
AS-41-U	15.95	EU-301-V	460.00	EUA-20-16	26.00	GDA-48-1	1.50	GRA-401-18	59.95	IO-10-E	102.75	TA-16	119.95
AS-41-W	16.95	EU-301-W	450.00	EUA-20-27	10.50	GDA-57-1	54.95	GRA-401-25	79.95	IO-10	99.95	TA-17	175.00
AS-48	184.95	EU-301-X	450.00	EUA-20-27	23.00	GDA-57-2	34.95	GRA-402-18	27.50	IO-17	79.95	TA-28	17.95
AS-81-U	19.95	EU-301-Y	450.00	EUA-20-27	23.00	GDA-79-1	21.95	GRA-402-25	114.95	IO-20	109.95	TD-17	9.95
AS-81-W	21.95	EU-302-A	195.00	EUA-20-27	23.00	GDA-97-1	1.80	GRA-403-18	119.95	IO-101	124.95	TOA-101-1	160.00
AS-101	259.95	EU-401-B	495.00	EUA-20-27	23.00	GDA-97-2	2.00	GRA-403-25	119.95	IO-102	119.95	TOA-101-2	195.00
AS-102	239.95	EU-44											

New SM-110-series Frequency Counters — Count to 600 MHz

- Standard features on all models include separate 1 megohm and 50 ohm inputs... 7-segment, 7-digit LED display plus overrange... all solid-state IC design... convenient carrying handle/tilt stand.
- SM-110A provides 1 Hz to 200 MHz direct counting range, 1 MHz time base.
- SM-110B features 1 Hz to 200 MHz direct counting range, high stability TCXO, BCD output and remote programming.
- SM-110C features 1 Hz to 200 MHz direct counting range, pre-scaled 600 MHz range, high stability TCXO time base, BCD output and remote programming.

The Heath/Schlumberger SM-110-series is a new generation of precision frequency measurement instruments with expanded capabilities. All models share the following features: separate inputs... high and low impedance inputs for matching a wide range of signal sources. 7-segment LED arrays provide readout up to seven digits plus overrange. All models will resolve down to a tenth of a Hertz. Leading zero blanking is standard. Each model uses a 1 MHz crystal time base, differing only in stability. An external clock input on all models is useful for extremely high precision work or allows frequency-ratio measurements. A front panel push-button provides instant reset, and the first new displays is always correct... a convenience on longer time base settings. The following paragraphs and the chart summarize the differences in the three models available. A brochure giving detailed specifications, features and performance curves is available... just fill out the coupon on page 47.

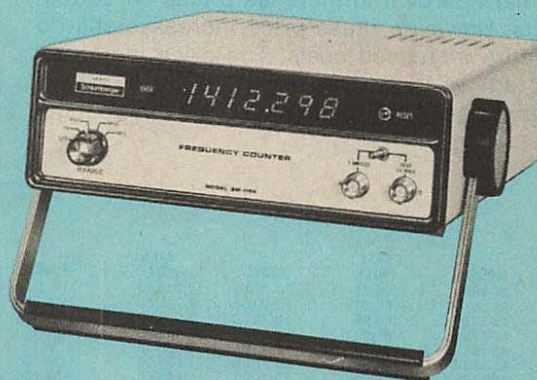
The SM-110A provides a frequency range to 200 MHz with high input sensitivity. The standard 1 MHz crystal time base is accurate and stable enough for most general design and bench applications. A front panel switch allows fast selection of time bases: 10 seconds (Hz), 1 second (kHz), and 0.1 and 0.01 seconds (MHz).

The SM-110B also features high input sensitivity and 200 MHz range, together with a very high stability TCXO time base allowing very precise measurements. The SM-110B also incorporates complete remote programming inputs and outputs. Inputs allow total external manual or computer control of Range, Input Select, Reset and Count Inhibit, using standard TTL-level logic. Outputs are 7 digits of BCD information, Overrange flag, Decimal Points, Print Command and 5 V reference and ground to drive all remote programming inputs. The internal 5 V eliminates the need for an external TTL-level supply when in the remote programming mode.



World's Most Remarkable Counter Values

The Heath/Schlumberger SM-105A features extended range of 10 Hz to 80 MHz... typically 1 Hz to 100 MHz... sufficient to cover most of today's measurement needs. Five digit LED readout with overrange and front panel kHz/MHz



The SM-110C is a high performance frequency counter with the features and capability to handle the most exacting measurements. It includes all the features of the A and B models above, including the high stability TCXO time base and remote programming capability. It also features a 600 MHz prescaler for the high frequency input for measurements into the UHF region. The prescaler can be switched in and out from the front panel.

Assembled SM-110A, 10 lbs., 200 MHz, standard time base, without remote programming capability \$495.00

Assembled SM-110B, 10 lbs., 200 MHz, high stability TCXO time base, remote programming included \$625.00

Assembled SM-110C, 10 lbs., 600 MHz, high stability TCXO time base, remote programming included \$795.00

CONDENSED SPECIFICATIONS

	SM-110A	SM-110B	SM-110C
Frequency Range	1 Hz — 200 MHz	1 Hz — 200 MHz	1 Hz — 600 MHz*
Input Impedance	All models: "A" input: 1 megohm/15 pf; "B" input: 50 ohms		
Input Sensitivity	All models: 10 mV @ 35 MHz.		15 mV @ 200 MHz 50 mV @ 600 MHz
Time Base	MHz Crystal	MHz TCXO	1 MHz TCXO
Stability	7.5 ppm/yr	1 ppm/yr	1 ppm/yr
Programming Capability	No	Yes	Yes
Readout	All models: 7 digits + overrange; LED arrays		
Ambient Temp. Operating Range	All models: 10 to 40 degrees C.		
Power Requirements	All models: 120/240 VAC, 50/60 Hz, 45 watts.		
Dimensions	All models: 2¾" H x 8½" W x 12¼" D.		

*Prescaled by 10.

switch allows eight digit measurements with just a flick of a switch... with resolution down to the last Hz. Input sensitivity is high: 100 mV maximum to 50 MHz... 250 mV maximum to over 80 MHz... 50 mV typical to 80 MHz at 25°C. 1 megohm input impedance. Time base stability for all but the most demanding applications: 1 part in 10⁶ per month and ±10 ppm from 0 to 40° C. Additional features include convenient gimbal mount that allows bench or under-shelf installation... switch-selection of 120 or 240 VAC operation... easy two-switch operation... all solid-state design.

Assembled SM-105A, 6 lbs. \$350.00

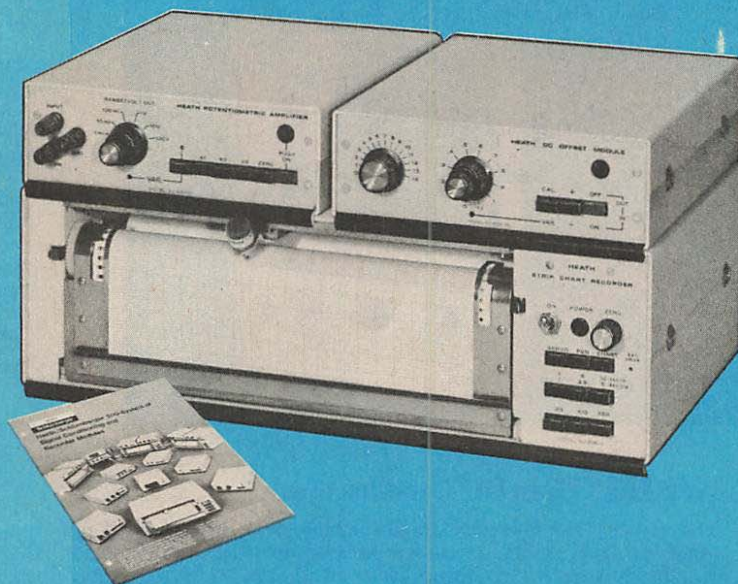
Assembled SM-104A, same as SM-105A described above but with high stability TCXO time base with stability of 1 part in 10⁶ per year and 1 ppm from 0 to 40° C. Also features five digits of TTL BCD frequency output plus overrange and print command, 6 lbs. \$450.00

Heath/Schlumberger Scientific Instruments

New "200-Series" Recorder and Signal Conditioning Modules

The new "200-Series" is a system of single-function instruments designed to be integrated into various measuring devices. Some of the more popular instruments that can be readily constructed from the modules are the multi-speed, multi-range strip chart recorder illustrated, a multi-speed expanded scale recording pH meter, a digital pH meter and a multiple channel recording thermometer. Modules available are the 23-speed recorder mainframe, a DC Offset module that provides up to 15.1 full scales of suppress, a 1 mV to 500 V Potentiometric Amplifier module, a pH/pIon Electrometer module, a 4½ digit Digitizer/Indicator module with BCD output, a Temperature module with four linear ranges from -5 to 100° C and 32 to 200° F, a Limit Detection module that provides visual and audible alarms and TTL and relay outputs, and a four-channel Multiplexer module.

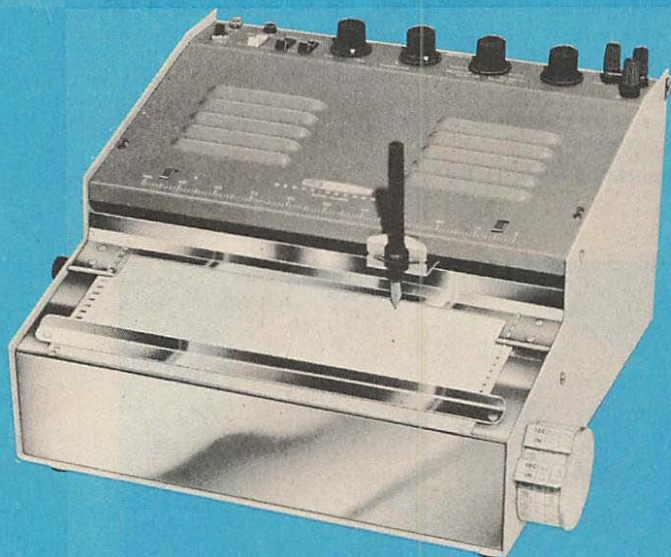
A brochure is available that details the new "200-Series" ... giving complete system and individual module specifications and descriptions. It's yours for the asking... just fill out the coupon on page 47.



General Purpose Multi-Speed, Multi-Range Recorder

Thousands in use in labs and universities around the world. The EU-20W provides a choice of 12 different chart speeds from 12 in/min to 0.5 in/hr. Chart speeds are extremely accurate... all speeds are digitally derived from the line frequency. Five factory-calibrated input sensitivity ranges are instantly selectable: 10, 25, 50, 100 and 250 mV full scale with true potentiometric input. Accuracy is better than 1% on all ranges. A Range Vernier control allows the sensitivity of each range to be increased by a factor of approximately 3. Three-terminal floating input permits operation without the chassis being common to the signal. A built-in Zener supply provides an internal reference and eliminates batteries. Full scale response is 1 second... 0.1 second per inch. Zero volts pen position is adjustable on all ranges over the entire 10" chart.

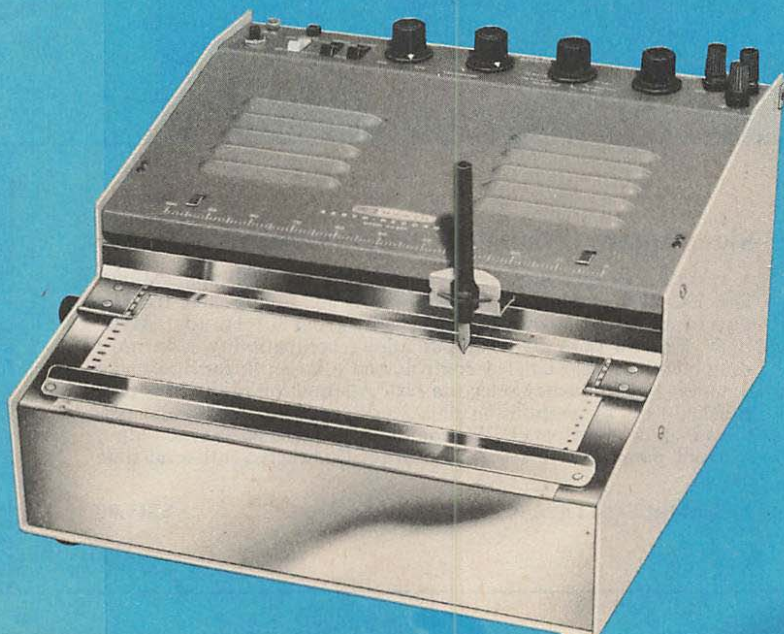
Assembled EU-20W, 26 lbs. \$330.00



Popular EU-20B Single Speed 10" Recorder

A single speed version of the EU-20W above... includes the same features that have made the "20-Series" recorders among the most-used. Five input sensitivity ranges of 10, 25, 50, 100 and 250 mV full scale, with all ranges providing true potentiometric input. The Range Vernier control provides a sensitivity increase of approximately three on all ranges. Three terminal floating input is standard. Pen response is fast and accurate... 0.1 second per inch... 1 second full scale. Accuracy is better than 1% on all ranges. The EU-20B is supplied with a 2 inches/minute motor... additional interchangeable chart drive motors are available and easily installed.

Assembled EU-20B, 23 lbs. \$234.00
 SU-20-2, 0.1 in/min motor, 1 lb. \$17.00
 SU-20-3, 0.2 in/min motor, 1 lb. \$17.00
 SU-20-4, 0.5 in/min motor, 1 lb. \$17.00
 SU-20-5, 1.0 in/min motor, 1 lb. \$17.00





Dual Trace 15 MHz Oscilloscope

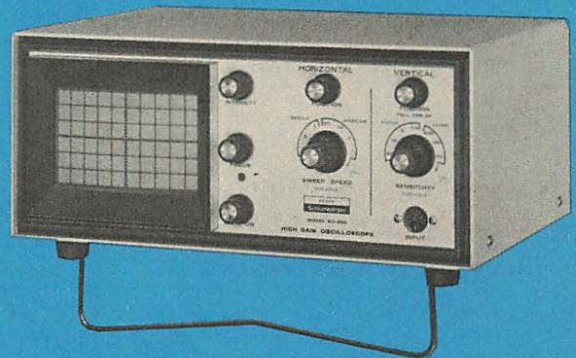
A high performance scope for all r&d and design work. High sensitivity: 50 mV/CM. Complete dual trace capability: Channel 1, Channel 2, Alternate, Chopped (at 100 kHz) and X-Y. Both input channels are precisely balanced to provide under 1° phase shift to more than 100 kHz. Triggering features include switch-selected AC or DC coupling, automatic triggering at the crossover (0) point, positive or negative slope triggering. Internal, External and Line trigger inputs are provided. Convenient sweep rates from 0.5 sec/cm to 0.2 usec/cm are easily selected with the 18-position time base switch. Continuous control between fixed sweep speeds is also provided. A x5 magnifier allows detailed trace viewing. Other features include DC-15 MHz bandwidth, 24 nsec rise time, standard camera mount and 8x10 rectangular CRT.

Assembled EU-70A, 35 lbs.\$595.00

New High Gain DC Oscilloscope

The new SO-29A is ideally suited for biological, physiological and other low level voltage or current measurements. Features include 7 calibrated sensitivity ranges from 50 uV/cm to 50 mV/cm... differential input... low input bias current of 10 pA... 2 megohm differential mode input Z... 100 megohm common mode input Z... 100 dB CMRR... automatic triggered timebase with 7 calibrated ranges from 3 sec/cm to 1 ms/cm... DC-3.5 kHz bandwidth - DC-30 kHz at the rear panel recorder output... regulated 9 V and unregulated 20 V transducer voltage outputs... all solid-state design.

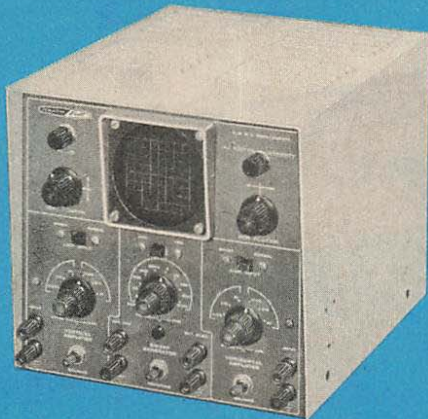
Assembled SO-29A, 17 lbs.\$495.00



3" General Purpose DC Oscilloscope

An excellent general purpose scope for lab or teaching. Features include wide DC to 400 kHz bandwidth... switch-selected AC or DC coupling... identical DC coupled vertical and horizontal amplifiers with less than 5° relative phase shift between channels permit X-Y display... recurrent 4-range sweep from 5 Hz to 50 kHz with external capacity binding posts and switch-selectable internal/external sync and sync polarity... vertical and horizontal deflection plate connections... Z-axis modulation capability... rugged design and long-term dependability.

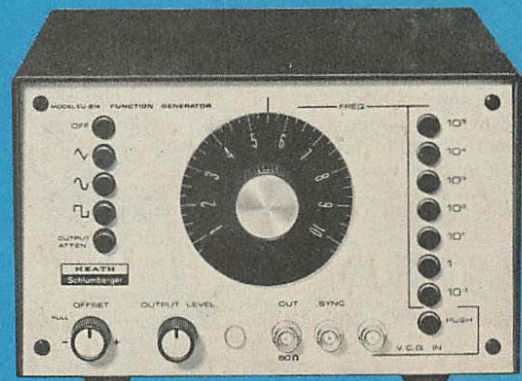
Assembled EUW-25, 18 lbs.\$230.00



Sine, Square, Triangle Function Generator

A versatile, precise signal source for design and lab applications. The EU-81A provides low distortion sine, square and triangle waveforms variable over seven decades from 0.1 Hz to 1 MHz. 10 V P-P, 50 ohm BNC output allows compatibility with most equipment. Clearly labeled controls and a large, linear dial make function and frequency selection fast. Attenuation of 40 dB is provided: 20 dB by pushbutton plus 20 dB variable. Additional features include front-panel TTL-compatible square wave sync output... front panel DC offset... built-in VCO/sweep... all solid-state design.

Assembled EU-81A, 8 lbs.\$245.00



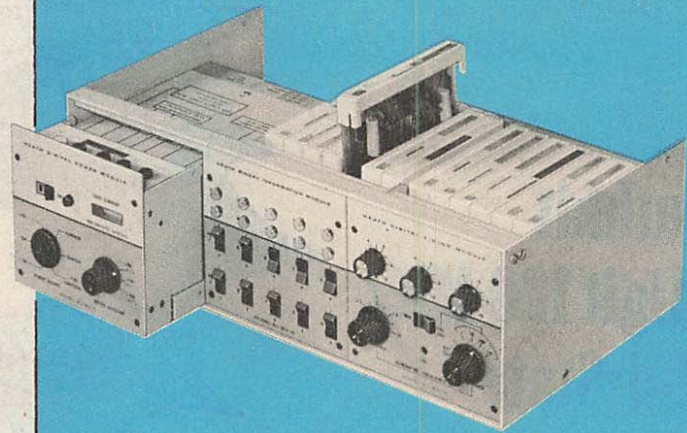
Scientific Instruments

Basic Analog-Digital Designer

The Basic ADD...an important addition to your design instrumentation. The 801A is a unique system that lets you breadboard virtually any analog or digital circuit, up to and including complete, functioning systems. The 801A is also ideal for teaching analog and digital concepts and circuitry and includes complete software... text and workbook. This exclusive Heath/Schlumberger concept is built around a series of over 30 plug-in circuit cards ranging in function from a simple and gate to a sophisticated A/D converter, cards can be patched together with ordinary hook-up wire or component leads... there is no soldering necessary.

The Basic ADD consists of a power supply module, a binary information module, a digital timing module and 13 plug-in circuit cards. Each module may be used independently or in combination with others in the system cabinet shown. Power connections for the cards are automatically made when the cards are plugged in.

An extendable system. The 801A will accept any Heath 800-, 900- or 50-series circuit card or accessory, greatly increasing its design possibilities. Accessories are available to hold additional cards, provide digital readout and allow permanent, plug-in patches for often-used circuits.



In addition to the cards and modules that come with the 801A, the system also includes the up-to-the-minute text "Digital Electronics For Scientists", by Drs. Malmstadt & Enke.

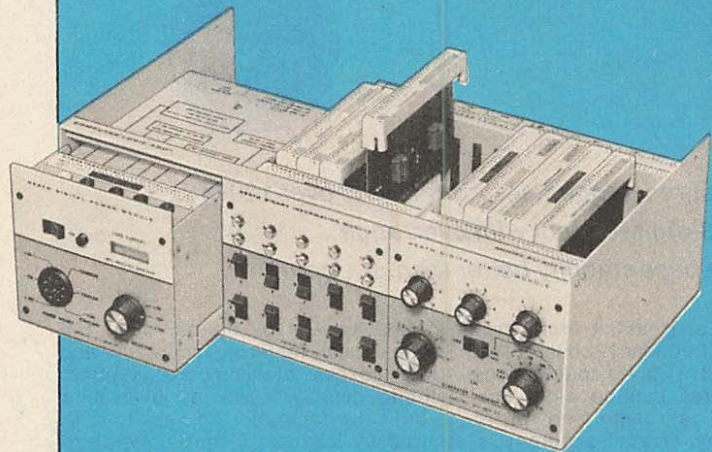
Assembled EU-801A, 28 lbs. \$530.00

Computer Logic Analog-Digital Designer

A "must" instrument for anyone using logic circuitry or small computers. The 801C is a complete self-teaching computer logic training system ideally suited to the needs of today's engineer. If you have access to a mini-computer or could be using one in the future to help in design or evaluation work, you need the 801C. It provides experiments and workbook/text material for an in-depth study of gate logic, flip-flops, counters and scalars, shift registers, counting measurements and binary computation.

Everything you need to start learning the logic of computers. Included is the famous "Digital Electronics For Scientists" text by Drs. Malmstadt & Enke, and a detailed, comprehensive workbook containing 50 experiments keyed to the text. The system includes power, binary information and timing modules, and 18 Nand gates, 4 and-or-invert gates and 8 J-K flip-flops on plug-in circuit cards. The text/workbook combination is designed to lead you a step at a time through basic logic functions and methods of manipulating data. The 801C can provide you with the knowledge you need to use a general purpose computer effectively in interfacing, instrumentation design, control circuitry development, etc.

Expandable. Like all ADD systems, the 801C can be quickly and inexpensively expanded to unlimited other



uses by adding other EU-50, -800 and -900 series cards, modules and accessories. Combinations of these can provide design capability for interfacing, digital instrumentation and analog/digital measurement and control systems.

Assembled EU-801C, 30 lbs. \$410.00

Heath/Schlumberger Scientific Instruments

Dept. 583-738
Benton Harbor, Michigan 49022

Please send the literature I have checked at right.

Name _____

Title _____

Company/Institution _____

Address _____

City _____ State _____ Zip _____

- D9 Complete Scientific Instrumentation catalog.
- D1 Ratio-Recording Spectrophotometers; pH brochures.
- D2 EU-101A Malmstadt-Enke Lab Station brochure.
- D3 EU-200 series; SM-104A, SM-105A, SM-114A 600 MHz Scaler, SM-110 series, SM-102A Programmable Timer; EU-81A brochures.
- D4 EU-801A brochure.
- D5 SO-29A brochure.

Heathkit 8-digit 120 MHz Solid-State Frequency Counter

349⁹⁵
Easy
Terms



*Measures frequencies from 1 Hz to over 120 MHz
Full 8-digit readout with overrange
Time base stability better than ± 1 ppm*

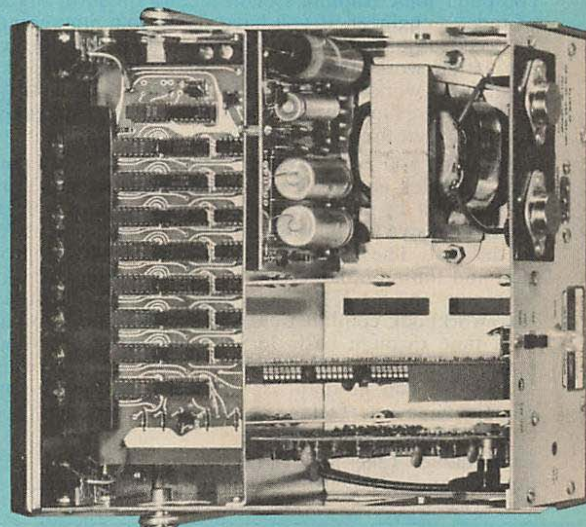
Another Heathkit first! The new Heathkit IB-1102 brings you a 120 MHz frequency counter with professional features, accuracy and stability rivaling counters costing far in excess of this modest kit price. Features include eight cold-cathode display tubes, an overrange lamp, gate lamp, and two range indicator lamps for an easy-to-read display. Overall accuracy is assured by the use of the temperature compensated "clock." The high-impedance (FET) input circuit presents minimum loading to the circuit under test. And an automatic triggering level feature offers simple "hands-off" operation.

The Heathkit IB-1102 features a sensitivity of 50 mV to 100 MHz and 125 mv. above. It will accept inputs up to 120V rms from 1 Hz to 150 Hz, 50V at 40MHz, and 3V at 120 MHz without damage to the instrument. The time base crystal is a temperature compensated TCXO offering ± 1 ppm stability from $+10^{\circ}$ to $+40^{\circ}$ C and an aging ratio of less than ± 1 ppm/yr.

The latest ECL (Emitter Coupled Logic) circuitry is employed. The full eight-digit cold-cathode readout lets you read frequencies with the best possible resolution (down to 1Hz) without bothering to switch the time base. MHz, kHz, overrange and gating conditions are indicated by illuminated legends on the front panel.

About 15 hours assembly time puts the IB-1102 together. All ICs are mounted on plug-in connectors, and three of the four fiberglass circuit boards plug into the chassis for ease of construction and service. The counter can be wired for either 120 or 240 VAC operation. And the detachable test cable and line cord, and convenient bail handle make the unit completely portable. The bail handle also serves as a convenient counter stand featuring three detent positions for achieving the most desirable viewing angle. For truly professional performance in a 120 MHz counter — at traditional Heathkit savings — order your IB-1102 today.

Kit IB-1102, 12 lbs., mailable **349.95**



Top view of the Heathkit IB-1102 shows clean, open chassis layout with counter board & display readout at left...the plug-in time base board with TCXO; input & first decade board; and power supply board are at right.

IB-1102 SPECIFICATIONS — FREQUENCY MEASUREMENTS — Range: 1 Hz to 120 MHz. Gate time: 1 msec or 1 sec. Accuracy: ± 1 count \pm time base stability. Readout: kHz or MHz with fixed decimal point. **SIGNAL INPUT —** Sensitivity: 45 mV rms to 80 MHz, 50 mV to 100 MHz, and 125 mV to 120 MHz. (Typical response of input amplifier.) Impedance: 1 megohm in parallel with 15 pF. Triggered level: Automatic. Overload: Diode protected input circuit. **TIME BASE —** Crystal Frequency: 4 MHz, TCXO (Temperature Compensated Crystal Oscillator). Stability: Aging rate: ± 1 ppm/year. Short term: Better than 0.5 ppm in 1 sec. Temperature: ± 1 ppm between 15° C to 50° C. Line voltage: 0.5 ppm with $\pm 10\%$ voltage change. Frequency trimming: Accuracy: ± 1 ppm. Range: ± 10 ppm. Sample rate: 500 msec. (Time between two openings of counting gate.) **External time base input:** Frequency: 1 MHz with stability $>10^{-7}$. Input impedance: 1000 Ω . Maximum input: 3V rms. **GENERAL —** Display: 8 digits plus overrange, gate, kHz, and MHz lamps. Operating temperature range: Operating 10° C to 40° C. Power requirements: 120/240 VAC, 50/60 Hz, 30 W. Connectors: Two BNC's. Input on front panel; external clock on rear panel. Cabinet dimensions: 8 $\frac{1}{2}$ " W x 3 $\frac{3}{8}$ " H x 9 $\frac{1}{4}$ " D.



100 MHz Counter for only

269⁹⁵
Easy Terms

Heathkit 5-digit 100 MHz Solid-State Frequency Counter

1 Hz to 100 MHz capability
Wide-range input without adjustment
No special instruments needed for calibration

Until now the "low cost counter" classification could be stretched no farther than instruments measuring up to 15 MHz. Instruments above that range were complex, costly and often more counter than you could ever use. We've changed all that with the Heathkit IB-1101, the frequency counter you've been waiting for. A truly low-cost unit in kit form, with 100 MHz capability and a list of features to rival many high-price counters. Compare for yourself.

The Heathkit IB-1101 has an exclusive Heath-designed input circuit that will accept input levels from less than 50 mV to 140 V RMS, depending on frequency, without damage to the instrument. The full five-digit readout can be expanded to eight-digit capability by a simple method using the overrange circuitry. To read the least significant Hz digit of a frequency greater than 100 kHz, you simply switch the range selector from the MHz position to kHz. To make accurate readout and operation even easier digits are positioned automatically with respect to decimal point, and MHz, kHz, overrange and gating conditions are shown as illuminated legends on the front panel. The one megohm input impedance and low input capacitance of the Heathkit IB-1101 minimize the possibility of circuit loading.

The IB-1101 is designed for years of trouble-free operation, easy assembly and self-service. The all solid-state circuitry and cold cathode readout tubes mean instant operation whenever the counter is turned on. Count storage circuitry provides a non-blinking or count-up readout, changing only if the count varies. The time-base crystal is custom designed for rigid stability, with accuracy better than ± 3 ppm from 17° to 32° C. The dual primary power transformer, three-wire line cord and a well regulated supply assure stable operation during long periods of operation.

You can build your IB-1101 in approximately 10 enjoyable hours. The 26 digital IC packages, and readout tubes plug into individual sockets. All other components, including shielded JFET, 10 silicon transistors, nine diodes and two zener diodes mount neatly on one double-sided fiberglass board. Only two initial adjustments are necessary after completion. The input sensitivity control has a built-in variable-level signal source for the first, and a standard AM radio can be used as the time-base oscillator adjustment standard. And the manual includes complete circuit description and diagrams plus troubleshooting information for quick, easy instrument servicing should your IB-1101 ever need it.

The Heathkit IB-1101 is housed in a lightweight, compact aluminum case with zinc-diecast front panel, tinted viewing window, BNC input connectors and tilt/stand handle. If you've always wanted a better counter, but could never quite justify the price, here's your chance—the Heathkit IB-1101.

Kit IB-1101, 8 lbs., mailable **269.95**

IB-1101 SPECIFICATIONS — Frequency range: 1 Hz to over 100 MHz. Accuracy: ± 1 digit \pm time base stability. Sensitivity: 50 mV rms, to 50 MHz. 100 mV rms, 50 MHz to 100 MHz. Gate time: 1 ms or 1 sec., with auto reset. Input impedance: 1 megohm, shunted by less than 15 pF. Maximum input voltage: 140 rms at 400Hz decreasing to 3 P rms @ 100 MHz. Maximum dc input 200 V. External standard input: 1 MHz, 2.5 V rms to 6.5 V rms, sine or square wave, approx. 2.5 k ohms, 70 pF. Time base (after 30 min. warmup): 1 MHz. Time base stability (after 30 min. warmup): Better than ± 3 PPM between 17° C and 32° C. Better than 1 PPM/month after 30 days operation. Better than ± 20 PPM between 0° C and 40° C. Front panel indications: 5 10-numeral cold-cathode tubes, 4 neon lamps for overrange, gate, MHz and kHz. Rear panel: Input sensitivity control, time base osc. adjust, BNC external standard input (1 MHz), TP level control, TP output terminal, removable 3-wire line cord. Front panel: Power off/on switch, range MHz/kHz switch, BNC input connector. Power requirements: 120/240 VAC, 50/60 Hz, 15 W. Dimensions: 3 3/8" H x 8 1/4" W x 9" D.



A) Heathkit 15 MHz Frequency Counter... 199.95

Cold-cathode readout tubes in computer-type circuitry give stable non-blinking five-digit readout. And the overrange indicator and Hz/kHz switch provide the capability of an eight-digit counter. A special low drift, 1 MHz crystal oscillator provides a highly stable time base. The 26 ICs, seven transistors, a MOS-FET and six diodes provide easy six-hour assembly.

Kit IB-101, 7 lbs., mailable **199.95**

IB-101 SPECIFICATIONS — Frequency range: 1 Hz to greater than 15 MHz. Accuracy: ± 1 count \pm time base stability. Gate times: 1 ms or 1 sec. with automatic reset. **INPUT CHARACTERISTICS** — Sensitivity: 1 Hz to 1 MHz, less than 100 mV rms. 1 MHz to 15 MHz, less than 250 mV rms. After 30 minutes warmup. Trigger level: Automatic. Impedance: 1 Megohm shunted by less than 20 pF. Maximum input: 200 V rms, DC — 1 kHz. Derate at 48 V per frequency decade. **TIME BASE** — Frequency: 1 MHz, crystal controlled. Aging rate: Less than 1 PPM/month after 30 days. Temperature: Less than ± 2 parts in $10^{-7}/^{\circ}\text{C}$. 20-35°C after 30 minutes warmup. $\pm 0.02\%$ from 0 to 40°C; Operating, 0-40°C. Cabinet dimensions: 3 1/8" H x 8 1/4" W x 9" D not including handle.



B) Heathkit 175 MHz Scaler... 99.95

Divides input frequencies from 2 MHz to 175 MHz with scaled output fed to any compatible counter with 1 megohm input. Front panel switch-selection of 10:1 or 100:1 scaling ratios; resolution down to 10 Hz, with a counter having one-second time base. With frequencies within the range of the counter being used, a 1:1 switch position gives straight-through counting without scaling.

Kit IB-102, 8 lbs., mailable **99.95**

IB-102 SPECIFICATIONS — Frequency range: 2 MHz-175 MHz. Resolution: Counter with 1 ms time base — divide by 10=10 kHz; divide by 100=100 kHz. Counter with 1 sec. time base — divide by 10=10 Hz; divide by 100=100 Hz. Meter: Green area indicates adequate signal level. **INPUT** — Sensitivity: 50 mV, 2 MHz-100 MHz. 125 mV, 100 MHz-175 MHz. Impedance: Divide by 1, same as frequency counter. Divide by 10 and 100, 50 ohms. Amplitude (maximum): 3 V rms. **OUTPUT** — Amplitude (minimum): 1 V across 1 megohm and 20 pF load. Rise time: 20 ns. Fall time: 10 ns. Offset from ground: Adjustable from zero to ± 500 millivolts. **GENERAL** — Power requirements: 120/240 VAC, 50/60 Hz, 5 W. Ambient temperature range: Storage, -55°C-80°C. Operation, 10°C-40°C. Dimensions: 3 3/8" H x 8 1/4" W x 9" D (not including handle).

Get professional features for less in a Heathkit Scope

Heathkit 10 MHz 5" Triggered Scope... 229.95

50 ns sweep rate — with magnification
AC-DC coupling — 50 mV sensitivity

Here's maximum flexibility in a general purpose scope at a price to fit your budget — comfortably. Features big 6x10 cm screen with lighted graticule for easy, accurate measurements. DC-10 MHz ± 3 dB response with less than 50 ns rise time on vertical channel. Horizontal expansion gives x2 magnification $\pm 5\%$ for a 50 ns/cm sweep rate. Triggered sweep, too, with selection of either normal or automatic modes. Other features are switch-controlled AC-DC coupling; provision for external triggering signals and horizontal deflection signal; front-mounted connectors for vertical inputs and 1V peak-to-peak signal for checking calibration; 120/240 VAC operation. Put this budget minder on your bench, now.

Kit IO-103, 37 lbs., mailable 229.95

IO-103 SPECIFICATIONS — VERTICAL CHANNEL — Input impedance: 1 megohm shunted by 30 pF. Sensitivity: 50 mV/centimeter. Frequency response: DC to 10 MHz ± 3 dB @ 3 cm deflection. DC to 8 MHz ± 3 dB @ 6 cm deflection. Rise time: Less than 50 ns. Attenuator: 9-position, 0.05 to 20 V/cm (1, 2, 5 sequence). **HORIZONTAL CHANNEL —** Input impedance: 100 k ohms. Sensitivity: 0.25 V/cm (uncalibrated). Frequency response: DC to 500 kHz ± 3 dB. **TIME BASE —** Sweep: 7 steps, 100 ms to 100 ns/cm. Horizontal expansion: x2 $\pm 5\%$. Trigger Options (switch selected): Auto/Normal; +/— (plus or minus); AC/DC; INT/EXT. Sensitivity: Internal, 1 cm display. External, 0.5 v peak-to-peak. **GENERAL — CRT:** 5DEP1F, green, medium persistence phosphor. Graticule: 6x10 cm, edge lighted. Power supplies: All solid-state rectifiers, all amplifier supplies regulated. Power requirements: 120/240 VAC, 50/60 Hz, 35 W. Overall dimensions: 12 $\frac{3}{4}$ " H x 9 $\frac{1}{4}$ " W x 16 $\frac{1}{4}$ " L. Dimensions include all protruding surfaces such as knobs, handle, feet, etc.

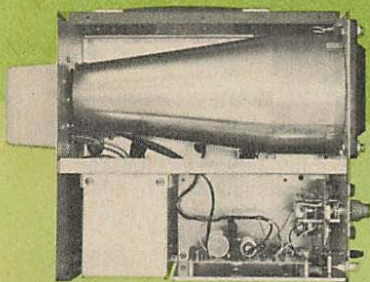
Heathkit DC-15 MHz Dual Trace Triggered Scope... 399.95

X-Y Mode — with 5° or less phase shift
8x10 CM rectangular flat-face CRT

Expand your analysis capability without stretching your budget. The IO-105 offers you triggered sweep, DC-15 MHz, X-Y mode, on an 8x10 cm flat-face CRT — all for a price as low as many single trace instruments. You can display separate signal in channel 1 or 2 mode, compare both signals in alternate or chopped modes, or both signals as a function of each other in X-Y. Both input channels precision balanced for 5° or less phase shift to over 50 kHz. Switch selected AC/DC coupling; automatic triggering; 18-position time base, 1, 2, 5 from 100 msec/cm to 0.2 us/cm; separate vernier control; 5x magnifier; DC-15 MHz bandwidth with 24 nsec rise time; flat-face CRT with mu-metal shield. Don't let this unusual scope value pass you by — order your IO-105 now.

Kit IO-105, 40 lbs., mailable 399.95

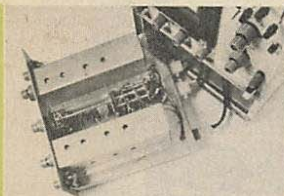
IO-105 SPECIFICATIONS — VERTICAL — Accuracy: $\pm 3\%$. Input impedance: 1 megohm shunted by 35 pF. Maximum input voltage: 600 VDC. Sensitivity: AC or DC, 0.05 V/cm. Frequency response: DC to 15 MHz, 3 dB with 4 cm deflection. Vertical windows: 2 minimum. Rise time: 24 ns. Overshoot: Less than 10%. Attenuator: 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 mV/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 $\pm \frac{1}{2}$ 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, $\frac{1}{2}$ cm; external, 100 mV minimum, 7 V max. **GENERAL —** Blanking in: TTL compatible (Logic 0-blank). Gate out: 3.5 V minimum. Input connections: Vertical, BNC; horizontal, binding post; external trigger, binding post on $\frac{3}{4}$ " 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 W. Warm-up time: CRT heating time, approx. 30 seconds; for full calibration, approx. 15 min. Overall dimensions: 12 $\frac{3}{4}$ " H x 10 $\frac{3}{4}$ " W x 15" D. Note: Specifications measured at 25° C with 120 VAC line voltage.



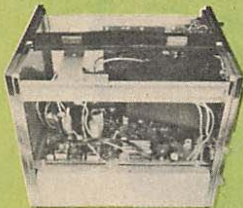
Easy-access cabinet has removable side panel—ideal for classroom demonstration.



Open layout and 5 printed circuit boards make assembly & service easy.



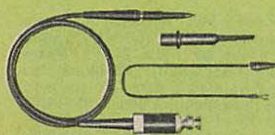
Vertical gain and mode controls and circuitry are mounted in drawer type sub-chassis for easy access should service be required.



The easy-access side panels open up the circuitry all around to make checks and adjustments simple. This feature makes the IO-105 great for classroom demonstration use, too.



High Frequency Compensated Scope Probe... 19.95



Ideal for use with IO-103 and IO-105 scopes. Features 10 megohm input impedance shunted by 11.5pF; compensation for matching to any 1 megohm scope input shunted by 15-47pF; DC-30 MHz bandwidth; x10 attenuation; 500 VAC & VDC voltage rating; BNC connector; combination spring-loaded outer hook connector and fine pointed inner tip probe; 3 $\frac{1}{2}$ ' long.

Assembled PKW-101, 1 lb., mailable... 19.95



Heathkit 5-inch Solid-State Oscilloscope...119.95

All solid-state circuitry—DC coupled vertical amplifier
Wide response—DC-5 MHz versatility

If you're looking for a truly outstanding general purpose scope at a sensible price, you need look no further than the IO-102. Wide band response of DC-5 MHz, fast 80 ns rise time, and a high 30 mV/cm input sensitivity head up an impressive list of performance features. Features like — switch selected AC-DC coupling; frequency compensated 3-position attenuator; switch selected grounding for zero reference line; FET high impedance input circuit to minimize loading; external sweep and sync inputs; built-in 1V p-p reference source; variable sweep in five ranges from 10 Hz to 500 kHz; five-inch flat-face CRT with standard camera mount bezel dimension; zener regulated power supplies; 120 or 240 VAC operation. Use it with the ID-101, below, and you have full two-channel capability. Either way, the IO-102 represents an outstanding scope value. Order yours, today.

Kit IO-102, 31 lbs., mailable **119.95**
Assembled IOW-102, 29 lbs., mailable **179.95**
Assembled PKW-101, 1 megohm scope probe, 1 lb., mailable .. **19.95**

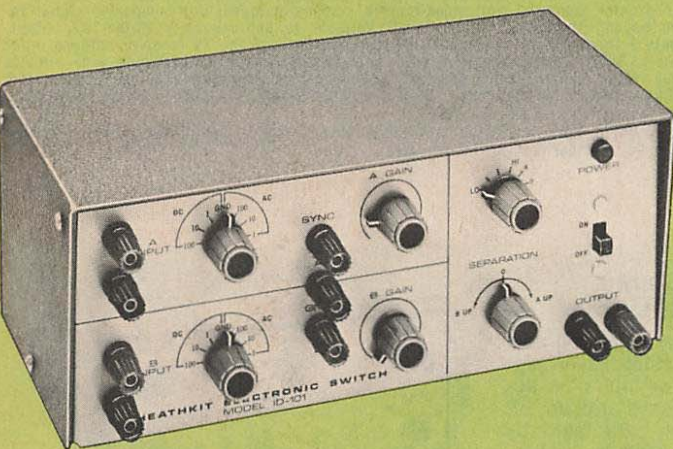
IO-102 SPECIFICATIONS — VERTICAL CHANNEL — Sensitivity: 30 mV/cm, uncalibrated. Frequency Response: DC — 5 MHz, ± 3 dB. Rise Time: 80 ns. Input Impedance: 1 megohm shunted by 35 pF. Attenuator: 3-position, frequency compensated; x1, x10, x100. **HORIZONTAL CHANNEL** — Sensitivity: 0.1 V/cm. Frequency Response: 1 MHz ± 3 dB. Input Impedance: 1 megohm shunted by 50 pF. Sweep Generator Type: Recurrent, automatic sync. Range: 10 Hz — 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: 110-130 or 220/260 VAC, 50/60 Hz, 35 W. Overall Dimensions: 12 $\frac{3}{4}$ " H x 9 $\frac{1}{4}$ " W x 16 $\frac{1}{4}$ " D, including knobs, handle, feet, etc.

Heathkit quality in a 3-inch scope for only...82.50

An outstanding dollar value, the IO-17 features wide bandwidth response, good sensitivity and stability for a broad range of general purpose applications. A favorite among TV service men for work in the shop and in the field. Schools find its blend of high performance and low cost ideal in tight equipment budget situations. And hobbyists of all kinds appreciate the IO-17's outstanding performance-per-dollar value — order yours today.

Kit IO-17, 16 lbs., mailable **82.50**

IO-17 SPECIFICATIONS — VERTICAL CHANNEL — Input Impedance: 1 megohm shunted by 25 pF; x50 attenuator position, 1 megohm shunted by 15 pF. Sensitivity: 30 mV P-P/div. (uncalibrated). Frequency response: 5 Hz — 5 MHz ± 3 dB. **HORIZONTAL CHANNEL** — Input impedance: 10 megohm shunted by 15 pF. Sensitivity: 300 mV P-P/div. Frequency response: 2 Hz — 300 kHz ± 3 dB. **HORIZONTAL SWEEP GENERATOR** — Sweep generator: Recurrent type. Frequency: 20 Hz — 200 kHz in four overlapping ranges. Retrace: Blanked by a pulse from blanking amplifier. Synchronization: Automatic type. Size: 9 $\frac{1}{2}$ " H x 5 $\frac{1}{2}$ " W x 14 $\frac{1}{2}$ " D.



ID-101 SPECIFICATIONS — Signal frequency response: DC-5 MHz $+1\frac{1}{2}$ dB, -3 dB. Signal gain: Greater than 10 times. Maximum input signal: 600 VDC or 600 VAC peak-to-peak. Input impedance: 1 megohm, 50 pF. Maximum signal output: 8 V peak-to-peak. Output loading: 1000 ohm minimum resistance. Hum and noise: (single channel only). Less than 40 mV peak-to-peak. Chopping rates: Approximately 100, 500, 1000 and 5000 Hz. Power requirements: 120/240 V, 50-60 Hz, 6 W. Dimensions: 4 $\frac{1}{4}$ " H x 10 $\frac{3}{8}$ " W x 5 $\frac{3}{8}$ " D.

Heathkit Electronic Switch...39.95

The Heathkit ID-101 Electronic Switch provides simultaneous visual display of two input signals on a single-beam oscilloscope by alternating from one input to the other at the internal square-wave generator frequency. A front-panel mode switch selects one of four frequencies offering the most favorable presentation on the scope — or a single A or B input trace. The ID-101 can be used with any general purpose scope and many specialized instruments. Has sync output on each channel permitting oscilloscope sweep to be locked to either input signal; DC coupling for even greater versatility, and DC-5 MHz $+1\frac{1}{2}$ — 3 dB frequency response, 10-times the bandwidth of other similarly priced units. Conventional binding posts permit fast hook-up, or the electronic switch can be left connected to scope at all times. Ideally suited for digital circuits; amplifier input and output for gain and distribution checks; simultaneous monitoring of both channels of a stereo amplifier.

Kit ID-101, 6 lbs., mailable **39.95**



Low capacitance scope probe kit. Ideal for use with IO-102. Provides direct or x10 attenuated operation; trimmer capacitor gives proper match to scope. Wiring options for 3.3 or 1 megohm. **Kit PK-1**, 1 lb., mailable **4.95**

Scope demodulator probe. For distortion checks & observation of RF & IF signal modulation. Functions as an AM detector. 30V rms, 500 VDC max. Ideal for IO-102. **Kit 337-C**, 1 lb., mailable **5.00**
Assembled 337-WC, 1 lb., mailable **6.50**

Kit-form Service Gear

Post-marker Sweep Generator

A scope, VTVM and the Heathkit IG-57A are all you need to align virtually any modern B & W or color TV receiver completely, quickly and accurately. Compact size, convenient controls add to instrument's versatility. Available in factory-assembled or easy-to-build kit form. Check the specs. Check the price. You'll see why the IG-57A is a top-value in TV service instrumentation.

Kit IG-57A, 15 lbs., mailable **139.95**

Assembled IGW-57A, 15 lbs., mailable **199.00**

IG-57A SPECIFICATIONS — Marker frequencies: 100 kHz. Marker frequencies, crystal-controlled: 3.08, 3.58, 4.08, and 4.50 MHz $\pm 0.1\%$. 10.7, 39.75, 41.25, 42.17, 42.50, 42.75, 45.00, 45.75, 47.25, 67.25 and 193.25 MHz $\pm 0.05\%$. Modulation frequency: 400 Hz. Input impedance: External Marker/Sweep, and Attenuator — 75 ohms. Trace in — 220 k ohms. Output impedance: Marker Output, Sweep Output, and Attenuator — 75 ohms. Scope Vert. — 1 k ohms. Bias voltage: Two individually adjustable supplies; Positive or negative polarity. Type of marker: Birdie. Controls: Bias controls; Marker/Trace — dual concentric; Sweep Width/Sweep Center — dual concentric; Marker Out — concentric with Sweep Range switch; and Phase. Switches: Rocker type — separate switch for each of the above listed frequencies; Blanking, On/Off; Trace Reverse; Modulation On/Off. Sweep frequency ranges and output voltage: LO Band — 2.5 to 5.5 MHz ± 1 dB at 0.5 volts RMS (min.) fundamentals, and 10.7 MHz on harmonics. IF Band — 38 to 49 MHz ± 1 dB, at 0.5 volts RMS (min.) fundamentals. RF band — 64 to 72 MHz ± 1 dB at 0.5 volts RMS (min.) fundamentals and 192 to 198 MHz on harmonics. Attenuator: Total of 70 dB of attenuation in seven steps — 1 dB, 3 dB, 6 dB, 10 dB, 10 dB, 20 dB and 20 dB. Power requirements: 120 V, 60 Hz AC at 4.5 watts.

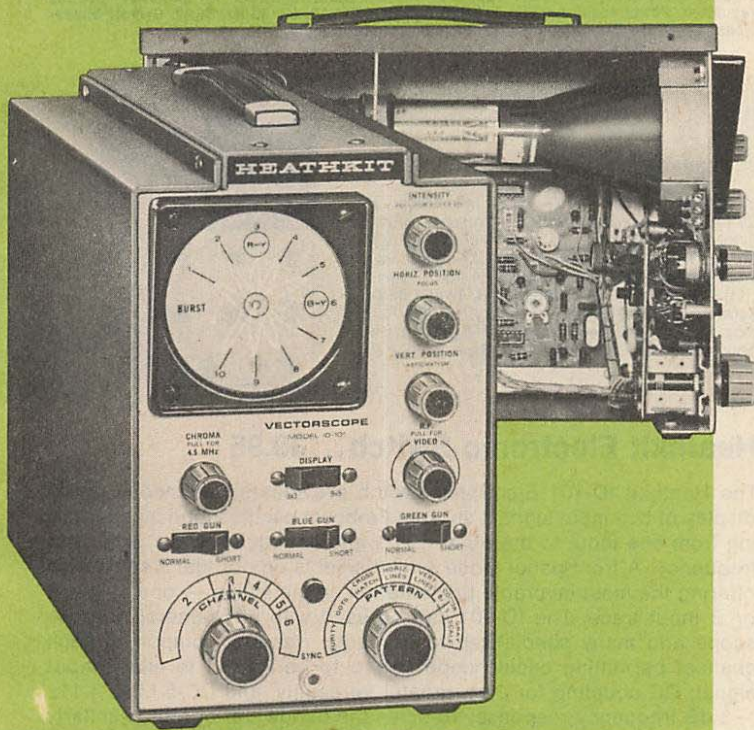
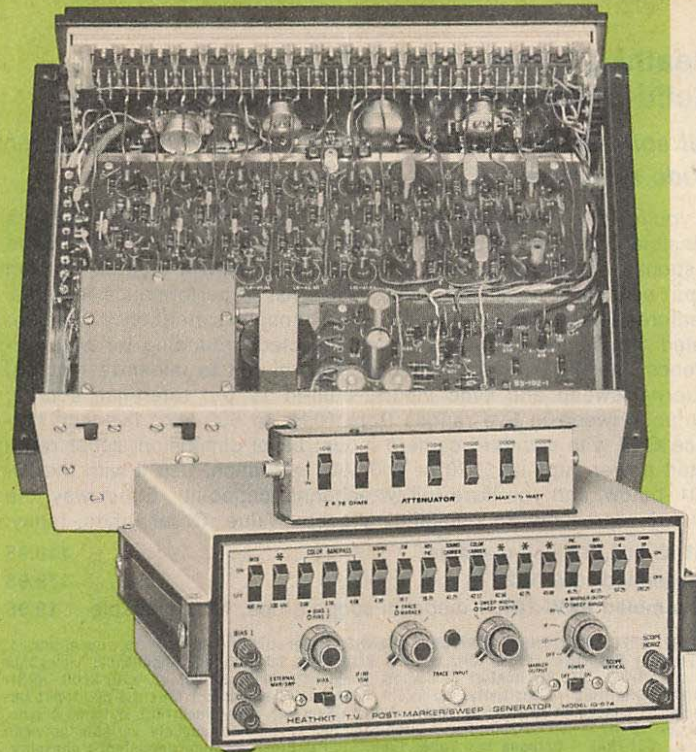
Vectorscope/Color Generator

Accurately performs all chroma signal adjustments. Vector pattern indicates the ten color bars generated, amplified and demodulated by color receiver circuitry; accurately represents chroma signal fed to CRT guns. Produces 12 patterns plus clear raster for purity adjustments. An outstanding test gear value.

Kit IO-101, 12 lbs., mailable **124.95**

IO-101 SPECIFICATIONS — PATTERNS — Purity: Produces a snow-free raster for purity adjustments. Dots*: 9x9 produces a display of 110 small dots. 3x3 produces a display of nine dots for convergence adjustments. Crosshatch*: 9x9 produces a display of 11 vertical and 10 horizontal lines. 3x3 produces a display of three vertical and three horizontal lines for convergence and linearity adjustments. Horizontal Lines*: 9x9 produces a display of 10 horizontal lines. 3x3 produces a display of three horizontal lines for vertical linearity and pin-cushion adjustments. Vertical Lines*: 9x9 produces 11 vertical lines. 3x3 produces a display of 3 vertical lines for horizontal linearity and convergence adjustments. Color Bars*: 9x9 produces a display of ten standard color bars. 3x3 produces a display of three standard color bars. A visual fingerprint (voltage pattern) of all ten color bars in the form of a petal pattern is displayed for color circuit servicing. Gray Scale: Provides a wide bar crosshatch pattern with six shades of brightness for color gun level adjustments. OUTPUT SIGNALS — Video: Greater than ± 1 volt peak-to-peak composite signal for composite signal injection beyond the video detector. RF: Variable to approximately 25,000 uV output, channels 2 through 6, for composite signal injection into the TV receiver antenna input terminals. Sync: Greater than 3.5 volts peak-to-peak signal for servicing sync circuits without video, or sets having separate video and sync demodulator phase adjustments. GENERAL — Power Requirements: 105-125 or 210-250 VAC, 50/60 Hz, 20 Watts. Cabinet Dimensions: 9 1/4" H x 6 3/4" W x 14 1/2" D.

*The number of dots, lines, and bars indicated for a 9x9 display is the number displayed if the receiver under test has no overscan.



Economy TV Sweep Generator

Provides all signal sources required for FM & TV alignment... TV front end channels 2-13. Controllable inductor sweep oscillator for stable, linear sweep, 3.6-220 MHz... 0-42 MHz max. sweep width. Built-in markers: 4.5 MHz crystal and multiplies... 19 to 60 MHz variable (57-180 MHz on harmonics). Fixed step & variable attenuators.

Kit IG-52, 14 lbs., mailable **69.95**

Export model available for 120/240 VAC, 50-60 Hz; write for prices.



FM Stereo Generator

Provides audio and composite stereo signals for multiplex adjustments and an RF carrier modulated by these signals for tuner and receiver adjustments.

Kit IG-37, 12 lbs., mailable **79.95**

IG-37 SPECIFICATIONS — RF signal frequency: 100 MHz adjustable by approx. ± 2 MHz. Pilot modulating frequency: 19 kHz ± 2 Hz. FM modulation: Left channel (stereo), right channel (stereo), Phase Test (left plus right channel in phase), Monophonic FM. Deviation: Adjustable to 75 kHz. Sweep rate: (used for RF and IF alignment) 60 Hz. Sweep width: (used for RF and IF alignment). Adjustable to 750 kHz. RF attenuator range: 60 dB in 20 dB steps. Crystal-controlled markers: 10.7, 90.95, 96.30, 101.65 & 107 MHz. Composite signal output: Left channel (stereo), Right channel (stereo). Phase test (left plus right channels in phase). Audio output: 400, 1000 & 5000 Hz; 19 kHz (± 2 Hz); 38 kHz & SCA (65 or 67 kHz). Distortion: (At 400, 1000, & 5000 Hz) Less than 5%. Power requirements: 120/240 VAC, 50/60 Hz, 35 W. Dimensions: 5 1/2" H x 13 1/2" W x 9" D.



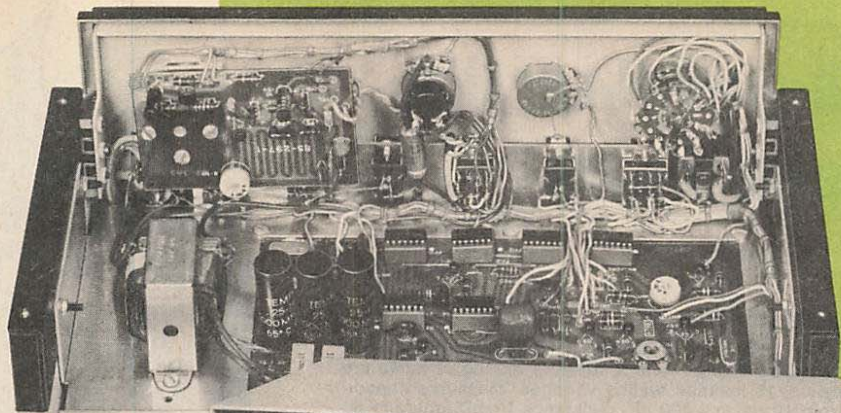
Fit for a Pro

Color Bar/Pattern Generator

The ideal signal source for all color & B&W TV servicing. Highly stable, extremely versatile, loaded with extra convenience features — all at a low kit price. Produces 12 patterns plus raster — dots, cross hatch, vertical & horizontal bars, color bars and shading bars in the familiar 9x9 display — plus exclusive Heath 3x3 display of all these patterns. A crystal controlled master oscillator and associated logic circuitry provide a rock-stable divider chain that eliminates instability and need for adjustment.

Kit IG-28, 8 lbs., mailable 79.95
 Assembled IGW-28, 10 lbs., mailable 114.95

IG-28 SPECIFICATIONS — Output signals: Video — Greater than ± 1 V peak-to-peak composite signal for composite signal injection behind the video detector. RF — Variable to 50,000 uV output, channels 2 through 6, for composite signal injection into the receiver antenna input terminals. Sync. — Greater than 3.5 V peak-to-peak signal for servicing sync circuits without video, or sets having separate video and sync demodulators. Control Grids (3) — Individual red, blue, and green control grid signals for viewing chroma signal demodulator phase adjustments. Power supply: Transformer operated, full-wave zener diode regulated. Input — 120/240 VAC, 50/60 Hz. Output — 3.6 VDC. 500 mA, zener diode regulated. Dimensions — overall: 5½" H x 13½" W x 8" D.



TV Vector Monitor

The Heathkit IO-1128, designed for use with the IG-28 Color Bar & Dot Generator or similar unit, displays "rainbow" (offset carrier) color bar patterns. Helps you perform fine tuning, static and dynamic convergence, purity, 3.58 oscillator, reactance coil, phase detector transformer, demodulator angle check, and chroma bandpass adjustments. Indicates all color bars generated, amplified and demodulated by the color TV — represents exactly the color signals being fed to CRT guns. Shows missing or weak colors at a glance.

Designed expressly for vector pattern display and color TV servicing. Not just a converted oscilloscope with unwanted "extras." Individual red, blue and green guns of grid-driven CRTs may be turned off by front panel switches for extra convenience in tri-gun purity and convergence adjustments. Rear panel grid-cathode switch keeps the vector pattern in the same relative position, regardless of how the CRT is driven. Four-conductor cable with insulation-piercing alligator clips allows easy attachment to receiver.

Other features are full 3-in. flat-faced cathode ray tube — a Heath exclusive. Controls for intensity, vertical and horizontal position, focus and astigmatism. 120/240 VAC, 50/60 Hz, low flux leakage power transformer to eliminate disruption of TV under test. Lightweight, compact case with carrying handle and self-contained line cord and cable retainers. Wiring harness design helps you build it in about 6 hours.

Kit IO-1128, 10 lbs., mailable 49.95

IO-1128 SPECIFICATIONS — Switches: Power on-off, red gun, blue gun, green gun on front panel. Chroma switch on rear panel. Controls: Intensity, horizontal position, vertical position, focus (screwdriver adjust), astigmatism (screwdriver adjust). Graticule with radial pattern: For use with all colorbar generators which produce vertical color bars (offset carrier). Cathode ray tube: 3RPIA, flat-faced CRT (green trace on white background). Power requirements: 120/240 VAC, 50/60 Hz, 10 W. Dimensions: 6½" H x 5¾" W x 12¼" D.



Solid-state Sine-Square Wave Generator

Output available from 1 Hz to 100 kHz using repeatable switch-selection. Sine & square wave output available simultaneously. Metered sine wave output. Less than 0.1% sine wave distortion. Less than 50 ns square wave rise time. Floating outputs. 8-position output attenuator for sine waves. 3-position output attenuator for square waves. 120V or 240V wiring options. Requires VOM, ACVTVM & scope for accurate alignment. 5½" H x 13¼" W x 7" D.

Kit IG-18, 12 lbs., mailable 69.95
 Assembled IGW-18, 10 lbs., mailable 99.50



General Purpose RF Generator

Covers 100 kHz to 200 MHz in 6 bands with 2% tuning accuracy. Large accurately calibrated dial scales. Factory wired and aligned coil and bandswitch assembly. Modulated or unmodulated RF output. 400 Hz signal modulation and 400 Hz audio output for audio tests. 9½" H x 6½" W x 5" D.

Kit IG-102, 7 lbs., mailable .. 32.95



Lab-grade Gear that Goes to the Job

A) Capacitor Checker

Gives complete analysis of all capacitor types on direct-reading scales. Has low bridge voltage for safe testing of miniature electrolytics, 16 leakage testing voltages. Measures capacitance from 10 pF to 1,000 uF, resistance from 5 ohms to 50 megohms. Comparator circuit measures L, C or R with external standard. Also has calibrated power factor control, "eye" tube null & leakage indicator. Requires VTVM for alignment. Transformer can be wired for 120/240 VAC. 9½" H x 6½" W x 5" D.

Kit IT-28, 7 lbs., mailable 39.95

B) Mutual-conductance Tube Tester

Indicates Gm to 24,000 micromhos, with versatile switching to accommodate virtually all tube types. Has ultra-sensitive grid current test, direct-reading ohmeter leakage test, built-in calibration circuit, built-in roll-type data chart, built-in adapter for compactron, nuvistor, novar and 10-pin miniature tubes. Requires 120 VAC, 60 Hz, 10-60 W. Leatherette covered carrying case measures 13½" H x 17¾" W x 8" D.

Kit TT-1A, 33 lbs., mailable 199.50

Updated Tube Chart Subscription Service for all Heathkit Tube Checkers, includes new roll chart plus two supplements per year for only \$5. Write: Heath Tube Data Service, P.O. Box 377, Hewlett, Long Island, New York 11557.

C) Low Cost Tube Checker

An excellent general purpose instrument for testing most tube types, including compactrons, nuvistors, novars and 10-pin miniatures. Has "Bad-?-Good" meter scale, built-in tube data chart, color coded wiring harness to simplify assembly. Requires AC VTVM for alignment, 120 VAC 50/60 Hz power. 8½" H x 13" W x 5½" D.

Kit IT-17, 12 lbs., mailable 72.50

D) Visual-Aural Signal Tracer

Ideal for checking transistor & tube-type AM receivers and audio gear since it applies no voltage to circuit. Traces RF, IF and audio signals, locates noisy or intermittent components. Has audio/RF probe with switch, doubles as test amp or speaker. Can be wired for 120/240 VAC, 50/60 Hz, 25 W. 7½" H x 4½" W x 4" D.

Kit IT-12, 6 lbs., mailable 25.95

E) Low Distortion Audio Generator

Produces near-perfect waveform with less than 0.1% distortion from 20-20,000 Hz. Switch selects frequencies from 10 Hz to 100 kHz, meter monitors output in volts and dB to within ±5% from 10 Hz to 100 kHz. 120/240 VAC, 50/60 Hz, 40 W. 6½" H x 9½" W x 5" D.

Kit IG-72, 8 lbs., mailable 49.95

Assembled IGW-72, 9 lbs., mailable 74.95

F) Audio Intermodulation Analyzer

Combines AC VTVM, wattmeter and IM analyzer in one. Has built-in high and low signal sources for IM tests, load resistors for 4, 8, 16 & 600 ohms. 120/240 VAC, 50/60 Hz, 20 W. Measures 8½" H x 13" W x 7" D.

Kit IM-48, 13 lbs., mailable 69.95

G) Precision RF Generator

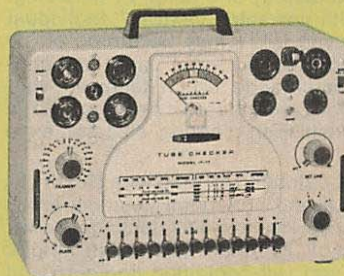
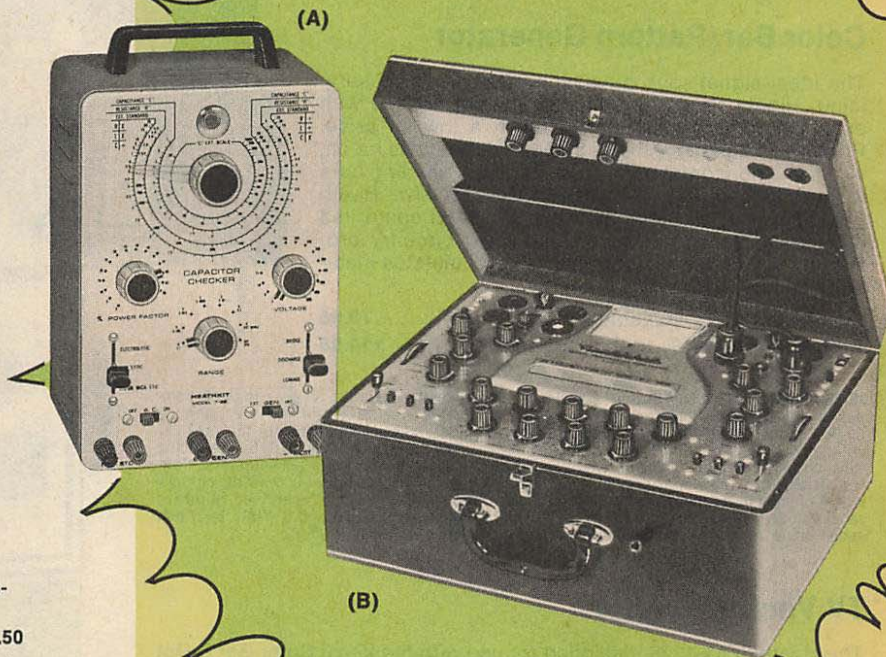
Adjustable to ±3% frequency calibration accuracy from 100 kHz to 30 MHz with RF output voltage adjustable from 100,000 uV in five attenuated steps, with 10:1 variable attenuation. Rf output can be modulated from 0-50% with 5% accuracy. 120/240 VAC, 50/60 Hz. 8½" H x 13" W x 7" D.

Kit IG-42, 15 lbs., mailable 69.95

H) Harmonic Distortion Meter

Measures harmonic distortion as low as 1% full-scale reading from 20-20,000 Hz. Measures noise down to -60 dBm. Meter calibrated in volts rms, % distortion and dB. Requires audio generator for alignment. 120/240 VAC, 50/60 Hz, 30 W. 8½" H x 13" W x 7" D.

Kit IM-58, 13 lbs., mailable 67.50



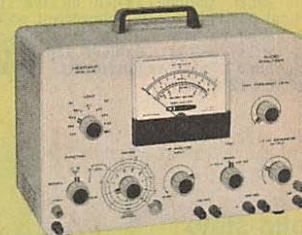
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(D)



(E)



(F)

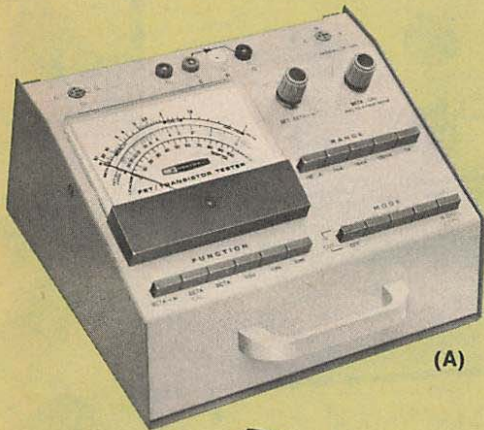
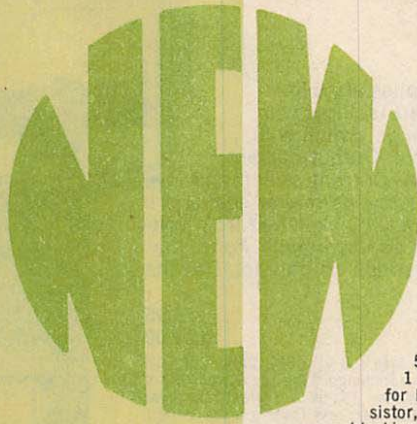


(G)



(H)

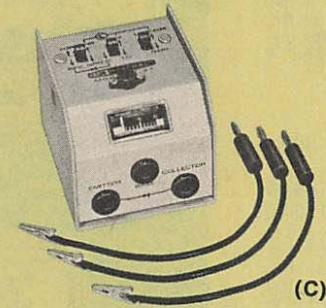
The Portable Checker that Tests FETs In-Circuit



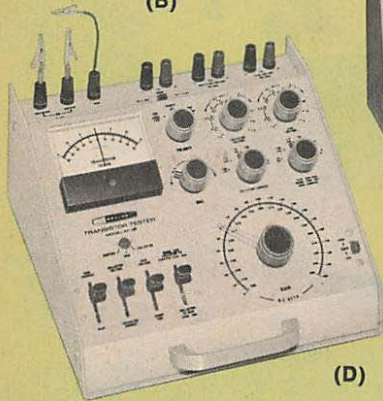
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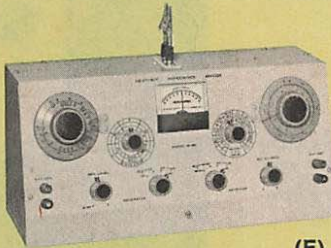
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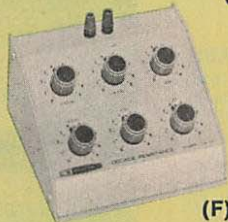
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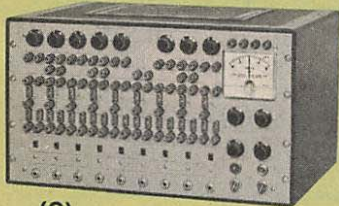
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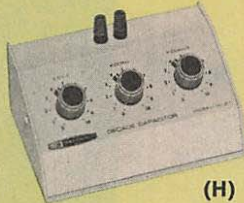
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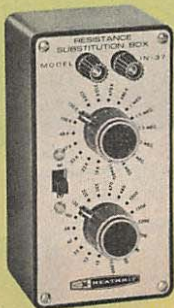
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(G)



(H)



(I)



(J)

A) New Heathkit FET Tester

The new Heathkit IT-121 checks transistors, diodes, FETs, SCRs, triacs, unijunction transistors in or out of circuit. Five current ranges measure leakage as low as 1 μ A and collector currents as high as 1 A. Gain (DC Beta), transconductance (GM), and leakage values read directly on large meter face. Has color-coded pushbutton range selection, battery testing circuit (batteries not included), handy 3' leads.

Kit IT-121, 6 lbs., mailable 49.95

IT-121 SPECIFICATIONS — DC Beta: 1 to 5000 in ranges of 1 to 50, 5 to 250, 10 to 500, 50 to 2500, 100 to 5000. Collector currents available: 1 mA, 5 mA, 10 mA, 100 mA, 500 mA, and 1 A. Gm: 0 to 50,000 umhos. Leakage measurements: Five ranges, 0 to 100 μ A, 0 to 1 mA, 0 to 10 mA, 0 to 100 mA, 0 to 1 A. Out-of-circuit accuracy: $\pm 5\%$ for DC beta and leakage. In-circuit accuracy: Indicates good or bad transistor, FET, diode, SCR or triac. Diode test: Tests for forward conduction and blocking. Unijunction transistor test: Measures V_{eb} , s , R_{bb} , and emitter current (out-of-circuit). Power requirements: Two 1 1/2 V cells (alkaline for best performance). Dimensions: 5" H x 9 7/8" W x 8 1/8" D.

B) In-Circuit Transistor Tester

Checks transistors in or out of circuit. Measures transistor DC Beta out of circuit, range 2-100, 20-1000. Measures leakage out of circuit, range 0-5000 μ A. Tests diodes in or out for opens and shorts and identifies unknown leads. Matches and identifies NPN and PNP transistors. Can't harm circuits. Not for use with high power or switching transistors. 4 1/2", 200 μ A meter. Battery powered circuit.

Kit IT-18, 4 lbs., mailable 25.95

IT-18 SPECIFICATIONS — D.C. Beta: x1 range — 2 to 100, x10 range — 20 to 1000. Out-of-circuit accuracy: $\pm 5\%$. In-circuit accuracy: Indicates good or bad (accuracy depends upon circuit being tested); I_{ceo} (out-of-circuit only) — 0-5000 μ A; I_{cbo} (out-of-circuit only) 0-5000 μ A diodes; forward or reverse current — 0-5000 μ A. Power: One standard "D" cell (not supplied). Dimensions: 4 1/2" H x 8 1/2" W x 7 1/8" D (including handle).

C) Transistor/diode Checker

Checks high & low power transistors, both NPN & PNP, for shorts, leakage, opens, and current gain. Checks forward and reverse current on diodes. Also serves as continuity checker. Uses two 1.5 V C cells (not supplied). 3 3/8" W x 3 3/4" D.

Kit IT-27, 2 lbs., mailable 6.95

D) Lab Transistor Checker

Checks transistors up to 15 amps and diodes up to 1.5 amps. Tests shorts, DC gain (Beta 0-200 & 200-400), leakage (I_{cbo} , I_{ceo}), Diode forward and reverse current. Seven 1.5 V "D" batteries (not included) provide power. 5 1/2" H x 10 3/4" W x 10 1/4" D.

Kit IM-36, 9 lbs., mailable 67.50

E) Impedance Bridge

Four separate bridge circuits measure resistance, capacitance, low & high Q inductance. Built-in generator and amplifier; battery-type vacuum tube circuitry for fast warmup. 1/2% resistors & silver-mica capacitors for higher accuracy. 120/240 VAC, 50/60 Hz operation. Requires headphones or scope for alignment. 8" H x 17" W x 6" D.

Kit IB-28, 11 lbs., mailable 89.95

F) Decade Resistance Box

Kit IN-17, 4 lbs., mailable 29.95

SPECIFICATIONS — Range: 1 ohm to 999,999 ohms in 1 ohm steps. Resistors: Precision 1/2% accuracy, 1 W. Minimum DC resistance: .25 ohms or less at terminals with all switches at zero. Dimensions: 5" H x 7 1/2" W x 6 5/8" D.

G) Heathkit Analog Computer

The Heathkit EC-1 Analog Computer vividly illustrates the electronic analogies to mathematical problems. Helps solve such complexities as fluid flow, damped harmonic motion, and flight of a projectile in a viscous medium. Has 9 DC operational amplifiers; built-in regulated power supply — three initial condition power supplies; five variable-coefficient potentiometers; built-in oscillator for re-cycling computer through problem. Switching allows amplifier balance without removing problem setup. Provides a fascinating experience for students. Simple assembly and operation. 120/240 VAC, 50/60 Hz, 100 w. 10 1/2" H x 19" W x 15" D.

Kit EC-1, 57 lbs., mailable 225.00

H) Decade Capacitance Box

Kit IN-27, 3 lbs., mailable 19.95

SPECIFICATIONS — Range: 100 μ F to 0.111 μ F increments of 100 μ F. Voltage rating: 350 VDC continuous; 500 VDC intermittent; 1000 VDC instantaneous test. Accuracy of incremental capacity: $\pm 1\%$. Stray capacitance: 10 to 15 μ F at terminals. Dimensions: 4" H x 7 1/8" W x 5" D.

I) Resistor Substitution Box

Provides switch selection of any one of 36 EIA standard 10% 1-watt resistors, from 15 ohms to 10 megohms. Hi/Lo switch. Case is 5 5/8" H x 3 1/8" W x 3" D.

Kit IN-37, 2 lbs., mailable 7.95

J) Capacitor Substitution Box

Select any of 18 EIA standard capacitors from 100 μ F to .22 μ F. All rated at 600 V except three lowest and two highest values, 500 & 400 V respectively. 5 5/8" H x 3 1/8" W x 3" D.

Kit IN-47, 2 lbs., mailable 7.50

A) Solid-state 0.5-50VDC Regulated Supply



(A)

Versatility and value are the reasons so many IP-27 supplies are used in shops, schools, and labs. Regulated DC voltages are selected in 5 volt increments on the 10 position Coarse Voltage Range switch with exact values made possible by the Fine Voltage control. Output current limiting is also selected in 4 fixed ranges by the Coarse Current switch and the Fine Current control is used for exact, vernier adjustments (meter scales are color matched to range switch markings). Panel meter may be switched from voltage to current. The relay is protected from short circuits and overloads. For higher outputs, several IP-27 supplies may be connected in series or parallel. Put the IP-27 to work for you now.

Kit IP-27, 16 lbs., mailable **79.95**
 Assembled IPW-27, 15 lbs., mailable **125.00**

IP-27 SPECIFICATIONS — Input: 120/240 VAC, 50/60 Hz; 135 W at full load (50 V, 1.5A). Output: 0.5-50 VDC; 1.5 amps max. DC. Load regulation: ± 15 mV, can be adjusted for no change. Line regulation: For a 10% change in line voltage, less than .05% change. Ripple & noise: Less than 250 μ V. Transient response: Less than 25 μ sec. Output impedance: Less than .075 ohms from DC to 10 kHz, less than .3 ohms 10 kHz & up. Overload protection: Current limiter & relay. Meter: 3 1/2", 1 mA, 50 ohm. Current ranges: 50 mA, 150 mA, 500 mA, 1.5 A. Voltage ranges: 5V, 15V, 50V. Front panel controls: On/Off Coarse voltage switch, Fine voltage adjust, Current range switch, Current limit adjust, Meter rocker switch, Reset Standby toggle switch. Output terminals: (3), plus (+), minus (-), chassis ground. Dimensions: 5 1/8" H x 13 1/4" W x 9" D.

B) Variable 0-400 VDC Regulated Supply

Hundreds of uses for experimenters, servicemen, physics and chemistry labs., engineers.

Kit IP-17, 21 lbs., mailable **69.95**
 Assembled IPW-17, 21 lbs., mailable **110.00**

IP-17 SPECIFICATIONS — Output: 0-400 V regulated DC at 0-100 mA continuous, 125 mA intermittent, 0 to -100 VDC at 1 mA variable bias voltage, 6.3 VAC at 4 amps., 12.6 V at 2 amps. (25 VA max. AC load), filament voltage. Regulation: Output variation less than 1% from no load to full load. Output variation less than 1% for a ± 10 V change at 117 VAC input. Ripple: Less than 10 millivolts RMS, ripple, jitter and noise. Output impedance: Less than 10 ohms, DC to 1 MHz. Meters: Voltmeter 0-400 V or 0-150 V; Milliammeter 0-150 mA. Power requirements: 120/240 VAC, 50/60 Hz, 150 W max. Dimensions: 5 1/8" H x 13 1/4" W x 11" D.



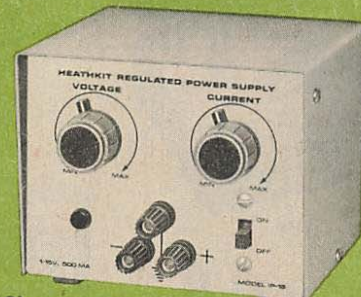
(B)

C) Solid-State 1-15 VDC Regulated Supply

Versatile solid-state applications.

Kit IP-18, 5 lbs., mailable **21.95**

IP-18 SPECIFICATIONS — Voltage output: 1-15 VDC, continuously adjustable. Load regulations: Less than 50 mV variation from no load to full load. Line regulation: Less than 50 mV change in output voltage for a 10% change in line voltage. Ripple and noise: Less than 5 mV. Current output: 500 mA maximum continuous load. Current limiting: Adjustable from 10 mA to over 500 mA. Transient response: 25 microseconds. Output impedance: .5 ohm or less to 100 kHz. Power requirements: 120/240 VAC, 50/60 Hz, 15 W at full load. Dimensions: 4 3/8" H x 5 1/2" W x 5 3/4" D. Programming: AC or DC, 5000 ohm input resistance.



(C)

D) Solid-State 1-30 VDC Regulated Supply

Ideal low-voltage source for transistor work.

Kit IP-28, 9 lbs., mailable **49.95**

IP-28 SPECIFICATIONS — Voltage output: 2 ranges: 1-10 and 1-30 VDC, continuously adjustable. Load regulation: Less than 50 mV variation from no load to full load (at front panel terminals) without remote sensing. Less than 20 mV variation from no load to full load at front or rear panel terminals when using remote sensing. Line regulation: Less than 25 mV variation in output voltage for 10% change in line voltage. Ripple & noise: Less than 5 mV. Current output: 1A maximum continuous load (0.75A max. continuous load below 5 V). Current limiting: 2 ranges; 10-100 mA & 10 mA-1A, continuously adjustable. Transient response: 25 μ s. Output impedance: 0.3 ohms or less to 100 kHz. Meter accuracy: 3% of full scale. Meter ranges: One switch determines voltage or current reading. 2 voltage ranges: 0-10 V, 0-30 V, 2 current ranges: 0-100 mA, 0-1A. External programming: AC or DC programming, 5000 ohm load on DC. Power requirements: 120/240 VAC, 50/60 Hz, 50 W, at full load. Dimensions: 6 1/2" H x 10 3/4" W x 4 3/8" D. overall.



(D)

E) 6 & 12 VDC Variable Battery Eliminator

Doubles as a battery charger.

Kit IP-12, 18 lbs., mailable **62.95**

Export model available for 115/230 VAC, 50-60 Hz. Write for prices.

IP-12 SPECIFICATIONS — Continuously variable output: 6 V range: unfiltered, 10 amp continuous, 15 amp maximum; filtered, 5 amp continuous, less than .3% ripple. 12 V range: unfiltered, 5 amp continuous, 7.5 amp maximum; filtered, 5 amp continuous, less than .3% ripple. Power requirements: 120 VAC 50/60 Hz at 200 W. Dimensions: 8 1/2" H x 13" W x 7" D.



(E)

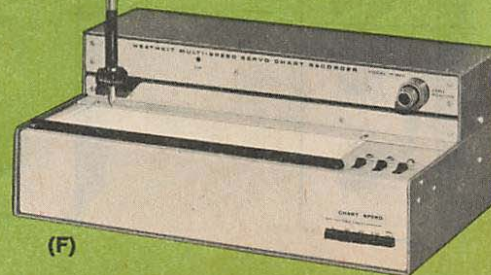
F) 12-speed chart recorder kit

Build it yourself and save. Measures and records any phenomena that varies with time that can be converted to proper DCV level. Has 12 different speeds, from 5 sec/in. to 200 min/in. Chart drive uses incoming line frequency as a standard — digital logic provides accuracy easily equal to expensive gear-train assemblies. Two input ranges permit accurate voltage measurements of 1 mV and 10 mV full scale. Includes light-operated modulator, temperature-stabilized reference voltage, coarse and fine zero position controls, universal pen holder.

Kit IR-18M, 14 lbs., mailable **149.95**

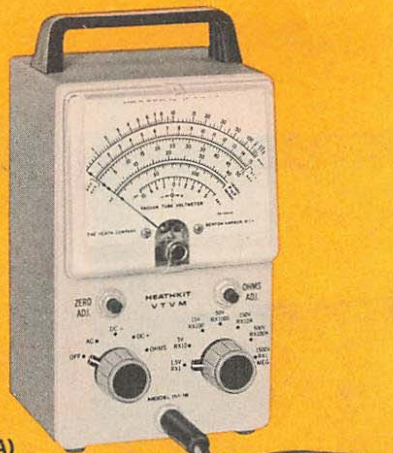
IRA-18-1, 3 rolls chart paper (140 ft./roll), 2 lbs., mailable **9.95**

IR-18M SPECIFICATIONS — Chart paper: Grid width, 10". Length, 140 ft. roll. Markings, 0-100 right to left. Chart speed: 12 speeds, pushbutton selected. 5, 10, 20, 50, 100, 200 sec/inch and 5, 10, 20, 50, 100, 200 min/inch. Chart span: Two fixed ranges; 1 mV and 10 mV full scale. Pen: Standard cartridge-type fountain pen. Balancing time: Approximately 0.1 sec/inch, 1 second full scale (10"). Input circuit: Self-balancing potentiometer. Input resistance: Essentially infinite at null. Line frequency rejection: (in put shorted.) 130 dB in common mode. Floating input: +100 VDC maximum with respect to ground. Overall error: Less than 1% of full scale. Maximum recommended source resistance: 100 k ohms. Reference source: Zener regulated supply. Power requirements: 120/240 VAC, 60 Hz, 14 W or 120/240 VAC, 50 Hz, 16 W. Fuse 3/8 amp slow-blow (120 VAC). Dimensions: 6" H x 15" W x 9 3/8" D.

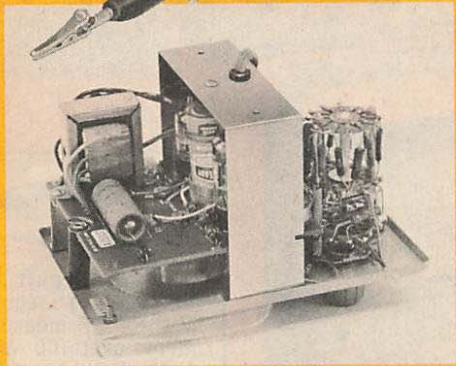


(F)

A) The Popular IM-18 VTVM Gives you More for Your Dollar



(A)



For decades, Heathkit VTVMs have been prized by owners for their convenient size, practical meter ranges, single test probe, and low cost. The IM-18 possesses all of these traditional Heathkit values, plus impressive features of its own: a single probe for all measurements—seven AC, seven DC, and seven Ohms ranges; precision $4\frac{1}{2}''$ 200 μ A meter; 1% precision divider network resistors; ± 1 dB 25 Hz to 1 MHz frequency response; rms & p-p AC voltage measurements; circuit board design for fast, easy assembly & exceptional stability; 120/240 VAC wiring options. Check the specs. You'll see why the IM-18 remains a favorite of thousands. Order yours, today.

Kit IM-18, 5 lbs., mailable **29.95**
Assembled IMW-18, 6 lbs., mailable **55.95**

IM-18 SPECIFICATIONS — Meter scales: DC & AC (rms): 0-1.5, 5, 15, 50, 150, 500, 1500 V full scale. AC peak-to-peak: 4.0, 14, 40, 140, 400, 1400, 4000. Resistance: 10 ohm center scale x1, x10, x100, x1000, x10k, x100k, x1 meg. Measures .1 ohm to 100 megohms. Meter: $4\frac{1}{2}''$ 200 μ A movement. Input resistance DC: 11 megohms (1 megohm in probe) on all ranges. Circuit: Balanced bridge (push-pull) using twin triode. Accuracy: DC $\pm 3\%$, AC $\pm 5\%$ of full scale. Frequency response: ± 1 dB, 25 Hz to 1 MHz (600 ohm source). Tubes: 12AU7, 6AL5. Battery requirements: 1.5 V, size "C" flashlight cell (not supplied). Power requirements: 120/240 VAC, 50/60 Hz, 10 W. Dimensions: $7\frac{3}{8}''$ H x $4\frac{1}{8}''$ W x $4\frac{1}{4}''$ D.

B) Service Bench VTVM

The IM-28 has the same performance specifications as the IM-18... 7 AC scales... 7 DC scales... 7 Ohms ranges... 1% precision resistors... extended frequency response to 1 MHz... but it also has features all its own to make it more useful for service and repair work. The separate 1.5 & 5 VAC scales make reading those small voltages easy, and the large 6" meter gives you readings at a glance. All calibration controls are adjustable from the front panel too... no need to remove the attractively styled cabinet. The handy gimbal mounting bracket saves valuable space on your bench and makes the IM-28 easy to read and use from any location. Choose the IM-28 either kit or assembled... either way you'll reap big savings over comparable units. Put this top performing VTVM on your bench soon.

Kit IM-28, 7 lbs., mailable **39.95**
Assembled IMW-28, 7 lbs., mailable **59.95**

IM-28 SPECIFICATIONS — DC VOLTMEETER — Ranges: 0-1.5, 5, 15, 50, 150, 500, 1500 V full scale; up to 30,000 V with accessory probe. Input Resistance: 11 megohm (1 megohm in probe) on all ranges; 1100 megohms with accessory probe. Circuit: Balanced bridge (push-pull) using twin triode. Accuracy: $\pm 3\%$ of full scale. AC VOLTMEETER — Ranges: 0-1.5, 5, 15, 50, 150, 500, 1500 rms scales (.353 of peak-to-peak). Frequency Response (5 V range): ± 1 dB 25 Hz to 1 MHz (600 ohm source, referred to 60 Hz). Circuit: Halfwave voltage doubler, using twin diode. Accuracy: $\pm 5\%$ of full scale. Input Resistance & Capacitance: 1 megohm shunted by 40 μ F measured at input terminals (200 μ F at probe tip). OHM-METER — Ranges: Scale with 10 ohm center X1, X10, X100, X1000, X10k, X100k, X1 meg. Measures .1 ohm to 1000 megohms with internal battery. Meter: 6" 200 μ A movement, polystyrene case. Probe: Combined AC-OHMS-DC switching probe, single jack input for probe and ground connections. Dividers: 1% precision type. Battery: $1\frac{1}{2}$ V, "C" cell. Power Requirements: 120/240 VAC, 50-60 Hz, 10 W. Dimensions: 5" H x $12\frac{1}{8}''$ W x $4\frac{3}{4}''$ D.

C) Hi-Z Volt-Ohm Meter

Designed for analysis of modern solid-state circuits... extra low current and voltage ranges enable the IM-25 to make all measurements required in both tube and transistor circuit work. And it does them with the low circuit loading, high impedance versatility of a VOM and the sensitivity of separate lab instruments.

Engineered for utility... for example, the "floating" input isolates circuit ground from the cabinet; the cabinet is grounded through the 3-wire line cord. Troublesome ground loops due to line coupling are easily eliminated by switching to battery power and disconnecting the line cord. Zero-drift when changing from battery to line operation is negligible due to double Zener-diode regulation. DC voltage measurements require only a shorted input check of meter zero for maximum specified accuracy. And the ten-turn thumbwheel gives precise zero settings. Change from DC volts to Ohms-mA-AC with just a flip of the finger-tip switch on the improved probe... separate range switches for volts-ohms-mA permit leaving range switches in most-used position, switching function with one simple operation!

Kit IM-25, 11 lbs., mailable **85.00**

IM-25 SPECIFICATIONS — DC VOLTMEETER — 9 Ranges: 0.15, .5, 1.5, 5, 15, 50, 150, 500, 1500 V full scale. Input resistance: 11 megohms on all ranges. Accuracy: $\pm 3\%$ of full scale. DC MILLIAMMETER — 11 Ranges: 0-.015, .05, .15, .5, 1.5, 5, 15, 50, 150, 500, 1500 mA full scale. Input resistance: 0.10 ohm (1500 mA) to 10 k ohm (.015 mA). Accuracy: $\pm 4\%$ of full scale. AC VOLTMEETER — 9 Ranges: 0-.15, .5, 5, 15, 50, 150, 500, 1500 V full scale. Input resistance: 10 megohm shunted by 175 pF (measured at probe tip). Accuracy: $\pm 5\%$ of full scale. Frequency response: ± 2 dB, 10 Hz to 100 kHz. AC MILLIAMMETER — 11 Ranges: 0-.015, .05, .15, .5, 5, 15, 50, 150, 500, 1500 mA full scale. Input resistance: 0.1 ohm (1500 mA) to 10 k ohm (.015 mA). Accuracy: $\pm 5\%$ of full scale. OHMMETER — 7 Ranges: 10 ohm center scale x1, x10, x100, x1k, x10k, x100k, x1 meg. Terminal voltage 70 mV (not sufficient to cause diode junction conduction). Probe: Combined AC-OHMS-DC switching probe. Meter: 6". 200 μ A 100° movement. Power supplies: Battery operation; "C" cells. Line operation; Transformer operated $\frac{1}{2}$ wave circuit, operable on either 120/240 VAC, 50/60 Hz. Dimensions: $5\frac{1}{2}''$ H x $13\frac{1}{2}''$ W x $6\frac{1}{4}''$ D.

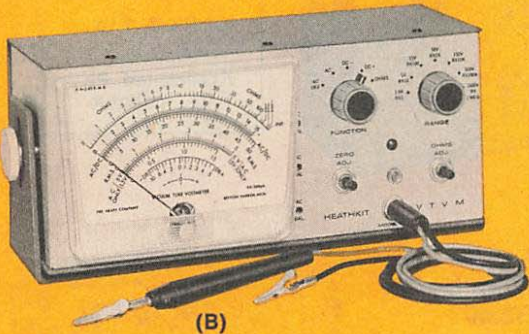
D) Laboratory AC VTVM

Extended accuracy in measuring low-level AC voltages. Calibrated scale for audio measurements; vu-type ballistic meter damping. Ideal for audio design and development, lab analysis, general servicing.

Kit IM-38, 5 lbs., mailable **41.95**
Assembled IMW-38, 6 lbs., mailable **59.95**

IM-38 SPECIFICATIONS — Frequency response: ± 1 dB 10 Hz to 500 kHz, ± 2 dB 10 Hz to 1 MHz, all ranges. Ranges: Ten ranges from 0.01 to 300 V rms full scale. Decibels: Total-range -52 to +58 dB, meter scale -12 to +2 dB (0 dB=1 mW in 600 ohms), ten switch selected ranges from -40 dB to +50 dB in 10 dB steps. Input impedance: 10 megohms shunted by 12 pF on ranges 10 to 300 V, scale, 10 megohms shunted by 22 pF on ranges .01 to 3 V. Accuracy: Within 5% of full scale. Power requirements: 120/240 VAC, 50/60 Hz, 10 W. Dimensions: $7\frac{3}{8}''$ H x $4\frac{1}{8}''$ W x $4\frac{1}{4}''$ D.

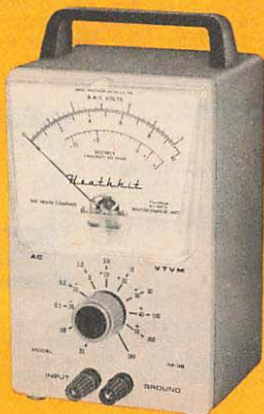
No money down on any kit — up to 2 years to pay — see order blank for details. 57



(B)



(C)



(D)

Better performance, tops in value... Heathkit meters

New Heathkit FET VOM... only 79.95

This is the tool you've been waiting for. A portable lab-grade FET VOM combining accuracy, versatility, convenience and ruggedness — in an easy-to-build dollar-saving kit! Our new IM-104 has low-drift 1% precision metal film and wirewound resistors for exceptional stability. Dual FET meter amplifier circuitry for 10 megohm input impedance and instant operation. And there are 53 ranges on four scales. Nine DCV ACV ranges from 0.1V to 1000V. Six current ranges cover 0.01mA to 1000mA, DC & AC. Seven resistance ranges from 1 ohm to 100 megohms, conventional or low voltage modes. Decibal ranges from -40 dB to +62 dB. DC null scale with better than 1 mV resolution. The 4½" ruggedized, taut-band meter is diode protected, built to take plenty of abuse. Built-in circuitry shows battery condition at the flip of the range selector. Two evenings puts this great portable VOM on your bench.

Kit IM-104, 4 lbs., mailable 79.95

Heathkit general purpose VOM... just 47.95

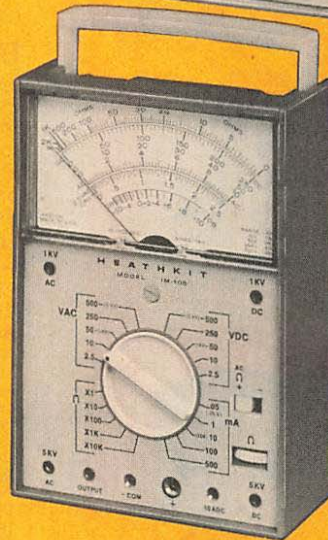
Fast becoming our most popular VOM, the IM-105 gives you a high-impact Lexan case and ruggedized taut-band meter with diode and fuse protected movement that will stand up through years of rough treatment. Order now...prove it to yourself!

Kit IM-105, 4 lbs., mailable 47.95

IM-105 SPECIFICATIONS — DC VOLTAGE RANGES — 0.25, 2.5, 10, 50, 250, 500, 1000 & 5000 V full scale. Accuracy: ±3% of full scale. Input resistance: 20,000 ohms/V. **AC VOLTAGE RANGES —** 2.5, 10, 50, 250, 500, 1000 & 5000 V full scale. Accuracy: ±4% of full scale. Input resistance: 5000 ohms/V. Input capacity: Less than 20 pF. Frequency response: 2.5, 10 & 50 V ranges: ±5%, 10 Hz to 100 kHz; 250, 500 V ranges ±5%, 10 Hz to 50 kHz. **DC CURRENT RANGES —** 0.05, 1.0, 10, 100, 500 mA & 10 A full scale. Accuracy: ±3% of full scale. Voltage drop: Approximately 0.25 V at full scale. **RESISTANCE RANGES —** x1 (20 center scale), x10, x100, x1k, x10k. Accuracy: ±3 degrees of arc. Source voltage: x1 through x1k ranges: 1.5 V. x10k range: 15 V. **DECIBEL RANGES:** (0 dB = 1 mW in 600 ohms); -10 to +50 dB. **GENERAL —** Voltage dividers: ±1% metal film resistors on most ranges. Meter: 4½", 50 uA, ruggedized, taut-band movement. Meter protection: Combined fuse and diode overload protection. Meter temperature coefficient: 15 to 35° C, ±0.1% (or 0.1 degree of arc) per degree C. Operating temperature range: 0-55° C. Batteries (not supplied): One 1.5 V "D" cell (NEDA #14); one 15 V (NEDA #208). Dimensions: 7" H x 5" W x 2¼" D. Test Leads: Supplied.



Field Effect Transistor circuitry provides 10 megohm input impedance and instant operation.



Etched Circuit RF Probe — 11 meg. input; for RF measurements over 100 MHz; 1000 VDC max. at tip; 90 V rms RF max.

Kit PK-3, 1 lb., mailable 5.00

Assembled PKW-3, 1 lb., mailable .. 7.00



Our most popular portable VOM... a low 22.50

The perfect buy for homeowners, hams, servicemen, hobbyists, modelers — everyone. All solid-state with FET input. Features include portable battery operation, zero and ohms adjust controls, accessory probe jack, DC polarity reversing switch, three built-in test leads, fast, easy 3-5 hour assembly. Check around before you buy — the IM-17 would be a real bargain at twice the price. Not recommended for use in RF fields.

Kit IM-17, 5 lbs., mailable 22.50

IM-17 SPECIFICATIONS — DC VOLTMETER — Four ranges: 0-1, 10, 100, 1000 V full scale. Input resistance: 11 meg. on all ranges. Accuracy: ±3% of full scale. **AC VOLTMETER —** Four ranges: 0-1, 10, 100, 1000 V full scale. Input resistance: 1 meg. on all ranges. Accuracy: ±5% of full scale. Frequency response: ±1 dB, 10 Hz to 1 MHz. **OHMMETER —** Four ranges: 0-1, 10, 100, 1000 V full scale. Input resistance: 1 meg. on all ranges. Amplifier circuit: 8.4 V mercury cell (NEDA #1611), batteries not supplied. **GENERAL —** Meter: 4½", 200 uA, 100° movement. Dimensions: 5¾" H x 9¾" W x 9" D.

Solid-state Volt-Ohm Meter... only 52.50

Wide range of scales; battery or line operation; easy assembly. All measurement functions (AC volts, DC- or DC+ volts) are selected by one switch. A single test probe eliminates tangled leads. Printed circuit board and cable assembly allow easy, neat construction. Not recommended for use in RF fields.

Kit IM-16, 10 lbs., mailable 52.50

IM-16 SPECIFICATIONS — DC VOLTMETER — 8 Ranges: 0.5, 1.5, 15, 50, 150, 500, 1500 V. Input resistance: 11 megohms on all ranges. Accuracy: ±3% of full scale. **AC VOLTMETER —** 8 Ranges: 0.5, 1.5, 5, 15, 50, 150, 500, 1500 V. Input resistance: 1 megohm. Accuracy: ±5% of full scale. **OHMMETER —** 7 Ranges: x1 (10 ohm center scale), x10, x100, x1k, x10k, x100k, x1 megohm. **INPUT —** Probe with shielded cable: AC-ohms/DC switch in probe. (Single plug for probe & common connections.) **POWER SUPPLIES —** Amplifier circuit: Power line, 120/240 VAC 50/60 Hz. Battery, 9 V NEDA 1602 or equivalent. Ohms circuit: Battery, 1.5 V (one "C" cell). Meter: 6", 100 uA (100° movement). Dimensions: 5¾" H x 16¾" W x 7¾" D.

Line Voltage Monitor... just 16.95

Gives constant check of AC line voltage. 2% accuracy when calibrated from source of known accuracy. 90-140 VAC range. Not recommended for use in RF fields.

Kit IM-103, 3 lbs., mailable 16.95

IM-103 SPECIFICATIONS — Voltage range: 90 VAC (rms) — 140 VAC (rms). Voltage accuracy (sine wave): ±2% when calibrated at 95 VAC, and 135 VAC, ±5% when calibrated with a known line voltage. Power requirements: 90-140 VAC, 50-60 Hz, 4.2 W. Dimensions: 5¾" H x 6¼" x 3" D.



Heathkit Digital VOM- Lab specs on a budget

Heathkit Digital Multimeter... only 229.95

The IM-102 accurately measures AC and DC voltages and currents, and resistance with no need to change probes or switch the meter for changes in DC polarity. The unit automatically displays a positive or negative DC voltage and current indicating the correct amplitude and polarity.

Five overlapping ranges measure voltage from 100 μ V to 1000 V on DC (either polarity); 5 ranges cover 100 μ V to 500 V on AC; 10 ranges measure 100 nanoamperes to 2 amperes on AC or DC, and 6 ranges of resistance measurement from .1 ohm to 20 megohms. Input impedance is exceptionally high — approximately 1000 megohms on 2 V range (10 megs on higher ranges), with overload protection built-in on all ranges. Decimal point is automatically placed with range selection and overrange is indicated with a front panel light.

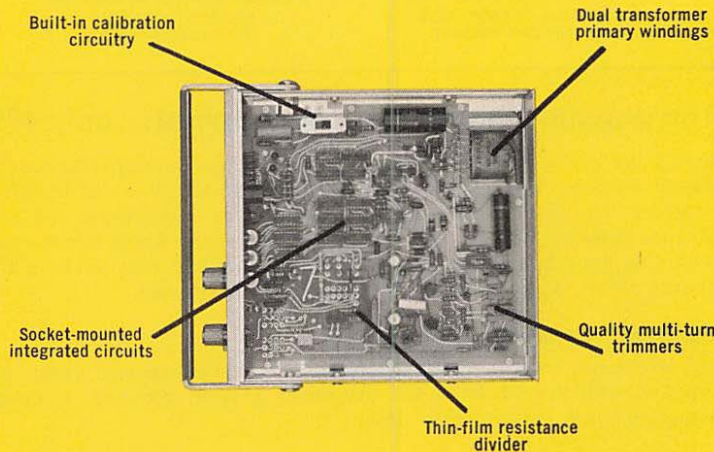
High quality precision components, 3½ digits and ease of calibration contribute to the IM-102's lab-grade accuracy. Analog to digital conversion is accomplished by a patented, dependable Dual Slope integrator, that does not depend upon a stable clock frequency for accuracy.

All this highly sophisticated circuitry is easier to assemble than ever. Printed boards, ICs and our more than 25 years' experience in producing the world's most lucid assembly manuals make Heathkit building the low cost, easy way to better instruments.

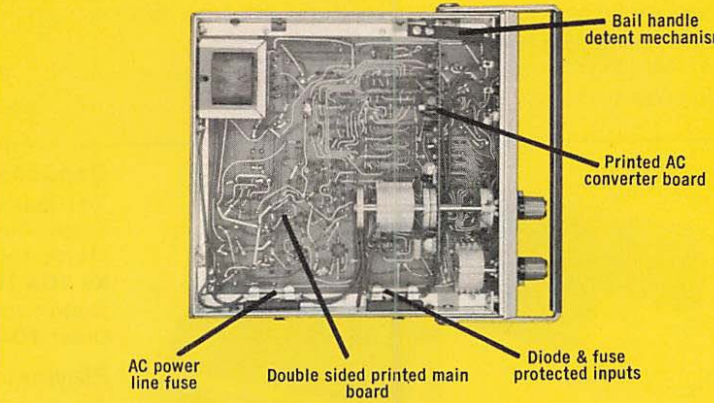
A Heath-designed and assembled precision DC calibrator is furnished with each IM-102. An internal circuit and a unique transfer method provides accurate AC voltage calibration.

Kit IM-102, 9 lbs., mailable 229.95

IM-102 SPECIFICATIONS — DC VOLTMETER — 5 ranges: 200 mV, 2V, 20V, 200V, 1000V. Input Impedance: Approx. 100 megohm on 200 mV, approx. 1000 megohm on 2V, 10 megohm on all other ranges. Accuracy: $\pm 0.2\%$ ± 1 digit with furnished DC calibrator, $\pm 0.1\%$ ± 1 digit with lab calibration. Overload protection: 350V on 200 mV and 2V, 1000V on other ranges. Overrange capability: 20% minimum (subject to overload protection limits). Resolution: 100 μ V. Full scale step response: 2 sec. to rated accuracy. Input bias current: 10nA maximum at reference conditions. Temperature influence: $\pm 0.005\%/^{\circ}\text{C}$, ± 1 digit $^{\circ}\text{C}$. Normal mode rejection: 35dB minimum @ 60 Hz. Common mode rejection: 80dB minimum with 1k unbalance @ 60 Hz. **OHMMETER** — 6 ranges: 200 ohm with 1mA test current, 2k with 100 μ A, 20k with 10 μ A, 200k with 1 μ A, 2M with 10nA, 20M with 10nA. Accuracy: With DC calibrator, $\pm 0.5\%$ ± 1 digit on 200, 2k, 20k, 200k ranges; $\pm 1.5\%$ ± 1 digit on 2M and 20M ranges. With lab calibration, $\pm 0.5\%$ ± 1 digit on 200 ohm range; $\pm 0.25\%$ ± 1 digit on 2k, 20k, 200k; $\pm 1\%$ ± 1 digit on 2M and 20M. Overload protection: 250 V RMS. Resolution: 0.1 ohm (200 ohm range). Full scale step response: 2 sec. on ohm and k ohm ranges, 10 sec. at 10 megohms to rated accuracy. Temperature influence: $\pm 0.05\%$ @ 0°C , ± 1 digit @ 0°C . Overrange capability: 20% minimum. **AC VOLTMETER** (Average responding, RMS calibrated) — 5 ranges: 200mV, 2V, 20V, 200V, 1000V. Input impedance: 1 megohm @ 150 pF. Overload protection: 250 V RMS on 200mV and 2V, 500 V on higher ranges. Accuracy: With DC calibrator, $\pm 0.75\%$ ± 1 digit for 40Hz-10kHz, $\pm 1\%$ ± 1 digit for 10kHz-20kHz on 200 mV and 2V ranges; $\pm 0.75\%$ ± 1 digit for 40Hz-5kHz, $\pm 1.5\%$ ± 1 digit for 5kHz-10kHz on 20V and 200V ranges; $\pm 1.5\%$ ± 1 digit for 40Hz-7.5kHz on 1000V range. **DC AMMETER** — 5 ranges: 200 μ A, 2mA, 20mA, 200mA, 2A. Voltage drop: 0.2 V (nominal). Accuracy: With DC calibrator, $\pm 0.5\%$ ± 1 digit for 2A, $\pm 0.3\%$ ± 1 digit on all other ranges. With lab calibration, $\pm 0.25\%$ ± 1 digit for 200 μ A; $\pm 0.2\%$ ± 1 digit for 2mA and 20mA; $\pm 0.3\%$ ± 1 digit for 200mA; $\pm 0.5\%$ ± 1 digit for 2A. Resolution: 100 nanoamperes (200 μ A range). Overload protection: 3 A, any range, by fuse and clamp diodes. **AC AMMETER** (40Hz-10kHz) — 5 ranges: 200 μ A, 2mA, 20mA, 200mA, 2A. Voltage drop: 0.2 V (nominal). Accuracy: With DC calibrator, $\pm 1.5\%$ ± 1 digit on 2A, $\pm 1\%$ on all other ranges. With lab calibration, $\pm 0.75\%$ ± 1 digit on 200 μ A, $\pm 0.7\%$ ± 1 digit on 2mA and 20mA; $\pm 0.8\%$ ± 1 digit on 200 mA; $\pm 1\%$ ± 1 digit on 2A. Resolution: 100 nanoamperes. Overload protection: 3A, any range, by fuse and clamp diodes. **GENERAL** — Display: Maximum count, 1999. Overage indication, automatic beyond 1999. Polarity indication, automatic "+" or "-". Reading rate, 5 per sec., nonblink (200 millisecond integration time). Numeric display by side-viewing neon glow tubes with integral decimal points. Power requirement: 120 or 240 VAC, 50Hz/60Hz, 8 W nominal. Operating temperature: 10°C - 40°C . Reference: 25°C . $\pm 1^{\circ}\text{C}$. Size: 3" H x 7" W x 7.9" D.



The all solid-state design of the IM-102 features cold cathode readout tubes and a memory circuit for stable non-blinking operation. Kit includes standard banana jack connectors complete with test leads.

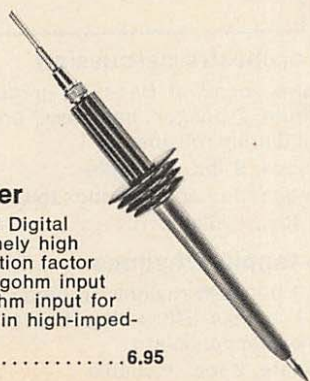


The IM-102 has a detachable three-wire line cord (no batteries needed), dual primary transformer, isolated floating ground and completely enclosed lightweight aluminum cabinet with die-cast front panel and tinted viewing window.

New high voltage probe for your IM-102 Multimeter

Ideal for use with the new IM-102 Digital Multimeter when measuring extremely high (up to 30,000 V) DC. Has multiplication factor of 100 on DC ranges of any 10 megohm input meter, provides useful 1000 megohm input for measuring voltages as low as 1 V in high-impedance circuits. Has 1% resistor.

Kit ID-1041, 1 lb., mailable 6.95



No money down on any kit — up to 2 years to pay — see order blank for details.

Heathkit music-makers for

The inimitable Heathkit/Thomas "Legato"...1,495

Designed exclusively by famous Thomas Organ craftsmen, the Legato puts a universe of sound at your fingertips — at hundreds of dollars in savings over comparable organs. Now your whole family can enjoy building and playing this remarkably versatile musical instrument.

Offers 15 manual voices, four pedal voices — any or all at the flip of a tab. Solo has diapason, bass clarinet, trumpet, tibia on 16-ft. stops; English horn, oboe, violin, and tibia on 8-ft. stops; tibia on 4 and 2 ft. Accompaniment has diapason, saxophone, French horn, oboe horn and cello on 8 ft. Pedal offers diapason 16 ft.; major flute, bass clarinet and string bass on 8 ft. You'll quickly learn a variety of voicing combinations — Spanish guitar, zither, bagpipes, calliope, etc. Musical moods from classical to hard rock, show tunes to religious music.

The separate solid-state amplifiers — one for the Leslie system, one for the main system deliver 200 watts of peak power. "Stereo" sound is possible with the two-speed Leslie plus the two 12-in. main speakers. You add voicing variety playing some voices through the Leslie, others through the main system. And the Leslie lets you create the liquid tremolo of the theater organ.

Other features include two 44-note overhanging keyboards; accompaniment manual range 8 ft. — F1 to C5; solo manual 16, 8, 4, and 2 ft. — F1 to C7; 25-note heel & toe pedalboard, range 16' and 8 ft. — C0 to C3; selective repeat percussion, selective attack percussion, keyboard & pedal sustain, variable vibrato, reverb. Stereo headphone jacks, luxurious walnut finish cabinet and bench. Kit includes 29.95-value Thomas Organ Course. Measures 47½" H x 47½" W x 25" D.

Kit TO-101, (less Bandbox & Playmate)

282 lbs., Express/Frt. **1,495.00**

TOA-101-4, 7", 33⅓ rpm demonstration record **ppd. 50¢**



Exclusive Color-Glo Keys
let you play instantly



All parts are genuine
Thomas components

The popular Heathkit/Thomas Spinet... only 499.95

Here's the perfect project to get the whole family participating...and musically involved for years to come. There's the family-fun of building the Heathkit/Thomas Spinet together. Non-technical instructions and uncomplicated drawings are so easy to understand that the whole family can lend a hand in the assembly. And when mom, dad and the kids join in to assemble the organ, it goes together in remarkably short order.

You'll start playing immediately

The exclusive Thomas Color-Glo Keys, and comprehensive organ course supplied with the kit, will have the family playing complete professional sounding songs almost immediately.

Ten rich organ voices

Enjoy the delightful voicing of trombone, flute, reed, oboe and cornet on solo; saxophone, violin, horn, viola and diapason on lower manual; vibrato and repeat percussion. Has two 37-note keyboards, 13-note heel and toe pedalboard, 75-W peak power solid-state amplifier...12-in. speaker system, oiled walnut cabinet and bench. Measures 41¼" H x 39¾" W x 21½" D.

Kit GD-325D (less Bandbox and Playmate),

172 lbs., Express/Frt. **499.95**

GDA-325-1, 7", 33⅓ rpm demonstration record **ppd. 50¢**



Bandbox for full orchestra percussion

Add the full orchestra sound of Bandbox percussion to any Heathkit/Thomas organ. Gives bass drum, 2 bongos, castanets, brush and crash cymbals, blocks, claves, snare drum and drum roll effects.

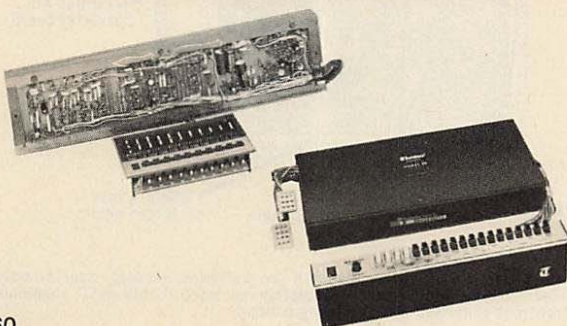
Kit TOA-101-1, Bandbox, 9 lbs., mailable **169.95**

Drawer and slides required to add Bandbox to GD-232, GD-325 & GD-983 models. Order **TOA-101-5**, 4 lbs., mailable **49.95**

Playmate for toe-tapping rhythms

Playmate kit adds 15 different rhythms to organ and Bandbox — three different waltzes, fox trot 2/4, boogie 6/8, swing, bossa nova, rock, watusi, samba, beguine, cha cha, rumba, tango, bolero.

Kit TOA-101-2, Playmate, 9 lbs., mailable **199.50**



all family fun

Heathkit Amp-Speaker Combo for 120 watts of super sound

- Built-in harmonic modifier — for that fuzzy sound*
- Dual inputs — for 3 separate channels*
- Foot-switch control — for tremolo and reverb*

The Heathkit TA-17 gives you 120 watts of EIA music power, 240 watts peak power. Drives any 4 to 16 ohm speaker combination capable of withstanding its awesome power. Professional performance features include built-in switchable harmonic modifier for that "fuzzy" sound. Special brightness switch. Tremolo variable in both rate and depth. Separate bass and treble boost. Dual spring-type variable reverb built-in. Dual foot-switch for hands-free on-off control of tremolo and reverb. Three separate channels with two inputs for each — guitar, bass guitar and combo organs, microphone/phonograph.

The matching TA-17-1 speaker system features two 12-in. woofers with 27-oz. magnets and fiberglass voice coils. Special horn driver delivers extra brilliance. Measures 25 $\frac{7}{8}$ " W x 14 $\frac{1}{2}$ " D x 38" H. Includes 20-ft. cable.

- Kit TA-17, amplifier only, 53 lbs., Express/Frt. **179.95**
- Kit TA-17-1, one speaker system, 116 lbs., Express/Frt. **129.95**

Heathkit 25-watt Guitar Amp for 2-channel portability

- One-piece amplifier-speaker cabinet*
- Two 12-inch speakers*
- Hands-free reverb and tremolo*

One-piece construction and convenient carrying handle make the Heathkit TA-16 the logical choice for the musician on the move. All solid-state design provides high reliability, long life. Delivers a solid 25 watts EIA music power, 60 watts peak. Has two dual-input channels — one for accompaniment, microphone, etc., the second for special effects. Lead and solo guitar has double spring variable reverb and tremolo with variable rate and depth. Two foot switches in die cast housing for hands-free control of reverb and tremolo. Line reversing switch minimizes line hum. Two special heavy-duty 12-in. speakers with ceramic magnets last and last. Sturdy $\frac{3}{4}$ -in. black vinyl covered wood cabinet measures 28" W x 9" D x 19 $\frac{3}{4}$ " H.

- Kit TA-16, 55 lbs., Express/Frt. **124.95**

Heathkit Electronic Metronome for better times

- Simple two-control operation*
- Portable, battery-powered*

A necessary accessory for student and teacher alike, the Heathkit Electronic Metronome combines ease of operation with rugged dependability. Has just two controls — front panel knob turns unit on and adjusts tempo from 40 to 210 beats per minute. Rear panel control adjusts volume. Chart on bottom of cherry-finished birch cabinet relates tempos in various time signatures to beats per minute. Easy one evening assembly. Requires two 9 V batteries (NEDA #1602) not supplied.

- Kit TD-17, 2 lbs., mailable **9.95**

Heathkit Distortion Booster for the "now" sound of music

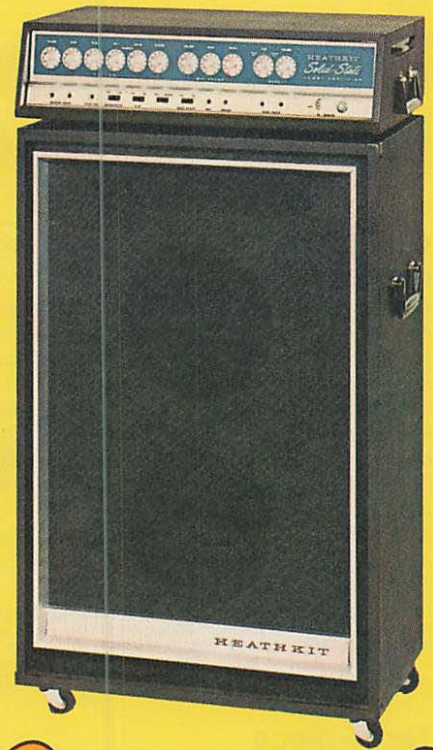
- Variable tone and distortion controls*
- Battery operated*

Add that unique effect to your sound. Just plug in between your guitar and amplifier. Housed in a convenient foot-switch — push the switch to add the distortion — push again to play it straight. Tone and distortion degree controls. Runs on 1.5 V AA penlite cell (not supplied).

- Kit TA-28, 4 lbs., mailable **17.95**

No money down on any kit — up to 2 years to pay — see order blank for details.

179⁹⁵

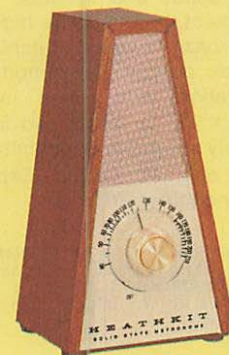


129⁹⁵



124⁹⁵

9⁹⁵



17⁹⁵



Put Your Components in a Preassembled Custom Cabinet

One-piece Mediterranean credenza... 195.00

One-piece 5½-ft. Mediterranean credenza, crafted in hickory veneers and solid oak trim, finished in oiled pecan. Adjustable shelf (A&B) for stereo receiver, cartridge or cassette deck, or separate tuner and amplifier. Below (C) is room for turntable and record storage. Ducted-port, reflex design speaker enclosures (D) have pre-cut 12-in. openings. Accessory drawers on ball bearing slides available. Not a kit. Shipped completely assembled and finished.

AE-101, credenza, 167 lbs., Express/Frt. **195.00**

AEA-101-1, changer drawer, 16 lbs., mailable **31.50**

AEA-101-2, cartridge, cassette drawer, 7 lbs., mailable **19.95**

CABINET OVERALL: 26⅞" H x 66" W x 19¼" D. **SHELF COMPARTMENT:** (A & B) overall, 35⅞" W x 17½" D (shelf 15" D); adjustable shelf height: 5½" 6½", 7½", 8½". **LOWER COMPARTMENT:** (C): 35⅞" W x 17½" D x 12¼" H min. (with shelf at 8½"). **SPEAKER CABINET VOLUME:** (D): 2.3 cu. ft. (12" cut out). **CHANGER BASE:** 5½" H x 18½" W x 14" D. **TAPE PLAYER BASE:** 14" W x 12½" D.

Three-piece Mediterranean Grouping... 365.00

Selected solids and veneers with a dramatic pecan finish. Bi-fold doors. Statuary bronze handles. Top raises to reveal changer compartment, doors open to components. Adjustable shelves. Matching ducted-port speaker cabinets accept 8-in. or 12-in. speakers (installation instructions included), measures 28¾" H x 17⅝" W x 18⅜" D. Order a pair for stereo. Not a kit. Shipped completely assembled and finished.

AE-57, equipment cabinet, 109 lbs., Express/Frt. **175.00**

AEA-57-1, speaker cabinet, 64 lbs., Express/Frt. (each) **95.00**

CABINET OVERALL: 28¾" H x 40" W x 19¾" D. **CHANGER COMPARTMENT:** 19" W x 16" D, mounting board is uncut and can be adjusted in height. **RECORD-TAPE RECORDER COMPARTMENT:** 15" H x 19" W x 16" D. **SHELF COMPARTMENT:** 23¾" H x 19" W x 16" D, with two adjustable shelves.

Three-Piece Contemporary Grouping... 298.00

Walnut finish on solids and veneers. Top lifts to expose changer compartment, bi-fold doors hide components. Decorative statuary bronze handles. Matching speaker cabinet. Ducted port reflex design accommodates 8-in. or 12-in. speakers (installation instructions included), measures 28⅞" H x 18" W x 19" D. Order two for stereo. Not a kit. Shipped completely assembled and finished.

AE-37, equipment cabinet, 108 lbs., Express/Frt. **150.00**

AEA-37-1, speaker cabinet, 70 lbs., Express/Frt. (each) **74.00**

CABINET OVERALL: 28⅞" H x 40" W x 19" D. **CHANGER COMPARTMENT:** 19" W x 16½" D, mounting board is uncut and can be adjusted in height. **RECORD-TAPE RECORDER COMPARTMENTS:** 15¾" H x 19" W x 16½" D. **SHELF COMPARTMENT:** 24¾" H x 19" W x 16½" D, with two adjustable shelves.

Three-Piece Early American Grouping... 325.00

Salem-Maple on solids and veneers, with louvered doors. Lift-top changer compartment, bi-fold front doors swing away to reveal components. Statuary bronze handles. Ducted port reflex installation for 8-in. or 12-in. speakers. Speaker cabinet measures 28⅞" H x 18" W x 19" D. Order two for stereo. Not a kit. Shipped completely assembled and finished.

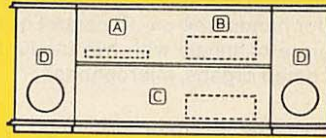
AE-47, equipment cabinet, 104 lbs., Express/Frt. **165.00**

AEA-47-2, speaker cabinet, 67 lbs., Express/Frt. (each) **80.00**

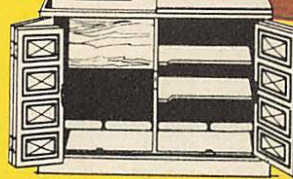
CABINET OVERALL: 28⅞" H x 40" W x 19" D. **CHANGER COMPARTMENTS:** 19" W x 16" D, mounting board is uncut and can be adjusted in height. **RECORD-TAPE RECORDER COMPARTMENT:** 15¾" H x 19" W x 16" D. **SHELF COMPARTMENT:** 24¾" H x 19" W x 16" D, with two adjustable shelves.



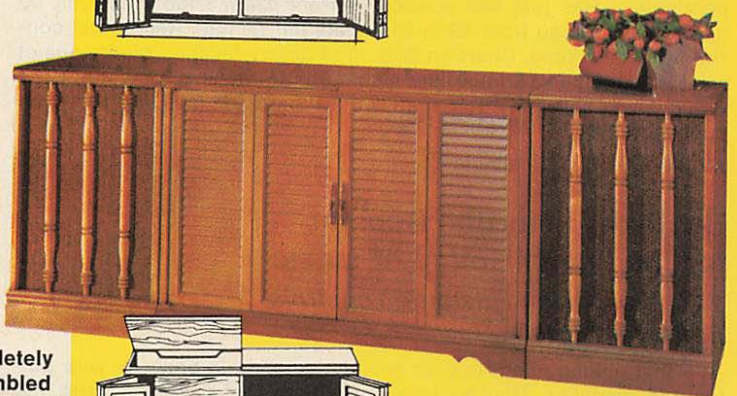
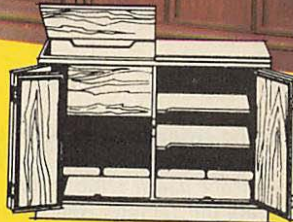
Completely Assembled and Finished



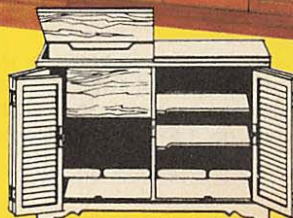
Completely Assembled and Finished



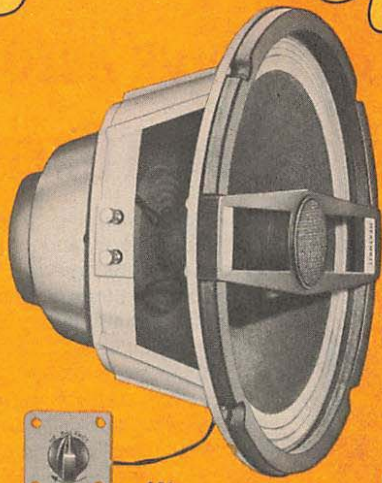
Completely Assembled and Finished



Completely Assembled and Finished



Heathkit Separate Speakers Put the Sound Where You Want It



(A)

A) Three-Way High Compliance Speaker... 79.50

Our finest separate speaker system, designed to bring out the best in top-quality stereo-hi-fi systems. Features 12" unitary speaker with woofer, compression mid-range and a horn-loaded compression super tweeter; 80-watts peak power capability; heavy die-cast frame; 600 and 4000 Hz crossovers; special mid & high frequency level control; 1-year guarantee. Cabinet recommendations included. Pick a pair for stereo.

Model AS-27, 15 lbs., mailable 79.50
Pair (AS-27-2), 39 lbs., mailable 152.00

AS-27 SPECIFICATIONS — Impedance: 8 ohms. Frequency response: 20-20,000 Hz. Cone resonance: 30 Hz. Magnet weights: 1 lb., 6.4 oz., 4.6 oz. Voice coil sizes: 1½" and 1".

B) Two-Way High Compliance Speaker... 54.95

12" high-compliance woofer with re-entrant horn tweeter. High frequency level control. 1-yr. guarantee.

Model AS-183, 15 lbs., mailable 54.95
Pair (AS-183-2), 39 lbs., mailable 105.00

AS-183 SPECIFICATIONS — Impedance: 8 ohms. Power rating: 30 watts. Frequency response: 20-15,000 Hz. Cone resonance: 25 Hz. Magnet weights: 1¾ lbs., 4.65 oz. Voice coil sizes: 1½" and 1".

C) Three-Way High Compliance Speaker... 44.95

12" high-compliance woofer with mid-range cone; special Heath-designed tweeter. 1¾-lb. ceramic magnet. High frequency level control. 1-yr. guarantee.

Model AS-173, 14 lbs., mailable 44.95
Pair (AS-173-2), 37 lbs., mailable 85.00

AS-173 SPECIFICATIONS — Impedance: 8 ohms. Power rating: 25 watts. Frequency response: 35-15,000 Hz. Cone resonance: 40 Hz. Voice coil sizes: 1½" and 1".

D) 12" Three-Way Coaxial Speaker... 34.95

Handles up to 20 W. True coaxial design with woofer, mid-range cone and special design horn tweeter. Electrical & mechanical crossovers. High frequency level control. 1-yr. guarantee.

Model AS-163, 12 lbs., mailable 34.95
Pair (AS-163-2), 32 lbs., mailable 66.00

AS-163 SPECIFICATIONS — Impedance: 8 ohms. Frequency response: 40-15,000 Hz. Cone resonance: 60 Hz. Magnet weights: 13 oz., 1 oz. Voice coil sizes: 1½" and 1".

E) 12" Two-way Coaxial Speaker... 24.95

Separate woofer & tweeter with capacitive crossover for up to 15 W. High frequency level control. 1-yr. guarantee.

Model AS-153, 10 lbs., mailable 24.95
Pair (AS-153-2), 28 lbs., mailable 46.00

AS-153 SPECIFICATIONS — Impedance: 8 ohms. Frequency response: 50-15,000 Hz. Cone resonance: 60 Hz. Magnet weights: 10 oz., 1.47 oz. Voice coil sizes: 1" and ¾".

F) 8" Two-way Coaxial Speaker... 19.95

50-14,000 Hz response from separate woofer & tweeter. Handles up to 12 W. Separate high frequency level control. 1-yr. guarantee.

Model AS-133, 6 lbs., mailable 19.95
Pair (AS-133-2), 18 lbs., mailable 38.00

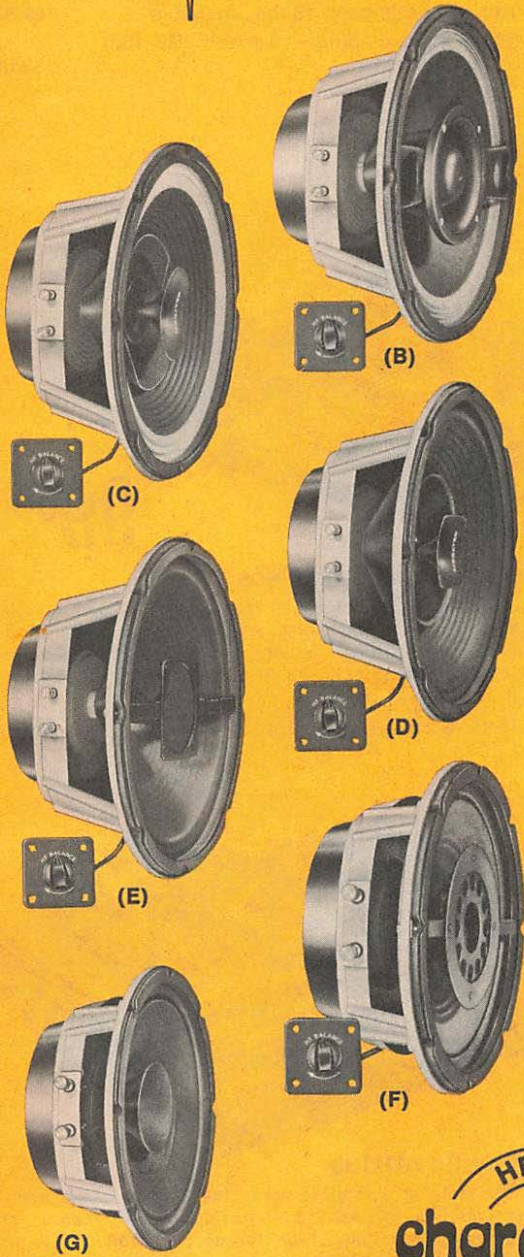
AS-133 SPECIFICATIONS — Impedance: 8 ohms. Cone resonance: 70 Hz. Magnet weights: 10 oz., 0.68 oz. Voice coil sizes: 1" and ¾".

G) 8" Dual Cone Speaker... 11.95

Only 3½" deep — ideal for in-wall mounting or where space is tight. 50-12,000 Hz response. Handles up to 12 watts. 1-yr. guarantee. Ideal for playroom or den system.

Model AS-123, 5 lbs., mailable 11.95
Pair (AS-123-2), 15 lbs., mailable 22.00

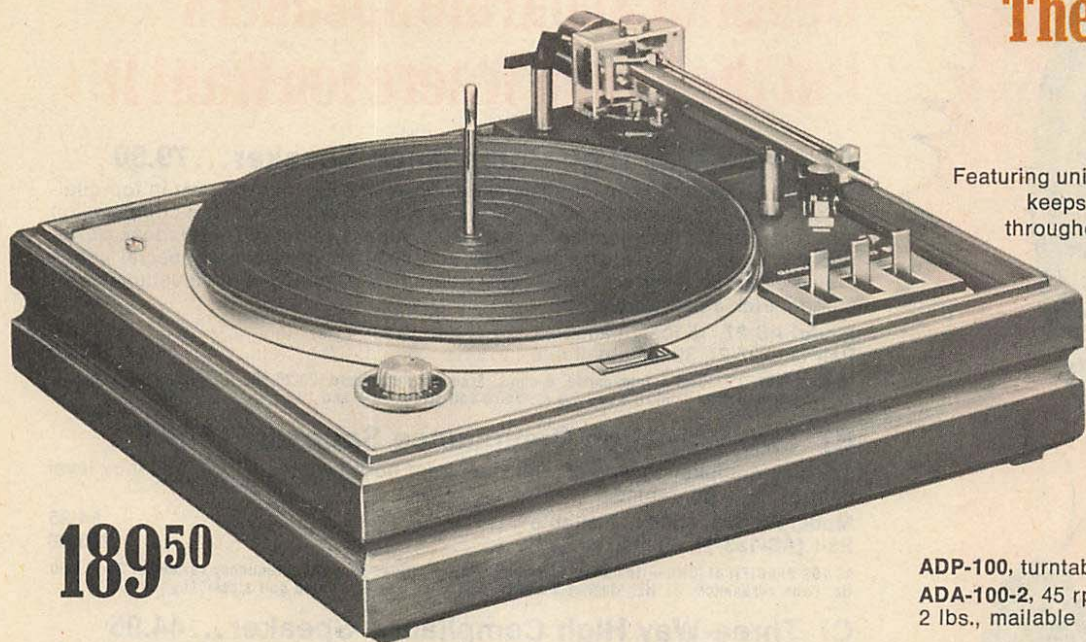
AS-123 SPECIFICATIONS — Impedance: 8 ohms. Cone resonance: 70 Hz. Magnet weight: 10 oz. Voice coil size: 1".



Headphone control unit.
Takes two sets of headphones. Dual concentric level control. 20' cable.
Kit AC-17, 3 lbs., mailable 8.50

No money down on any kit — up to 2 years to pay — see order blank for details.

The Unique Zero 100 from Garrard



189⁵⁰

Featuring unique tone arm with pivoting cartridge that keeps stylus perpendicularly tangent to groove throughout play for zero tracking error. Has 33 $\frac{1}{3}$ and 45 rpm settings, variable speed adjustment, illuminated stroboscope, sliding stylus weight, 15% vertical tracking adjustment, cartridge overhang adjustment, magnetic anti-skating control, interchangeable spindles for manual or automatic play, adapter available for 45 rpm discs. Cartridge option at right. Measures 15 $\frac{3}{4}$ " W x 14 $\frac{1}{8}$ " D x 4 $\frac{3}{8}$ " above motor board, 2 $\frac{5}{16}$ " below. Prod. of Gr. Britain.

ADP-100, turntable only, 18 lbs., mailable **189.50**
 ADA-100-2, 45 rpm spindle (Garrard LRS-100)
 2 lbs., mailable **3.80**

Accessories for your Garrard turntable

ADA-100-1, solid walnut base (Garrard WB-2), 6 lbs., mailable **19.95**
 ADA-47-3, Power-Matic base (Garrard W2P), 3 lbs., mailable **15.95**
 ADA-47-1, coordinated base, simulated leather/ebony
 (Garrard B2), 3 lbs., mailable **6.50**
 ADA-47-4, dust cover (Garrard D2), 4 lbs., mailable **6.50**

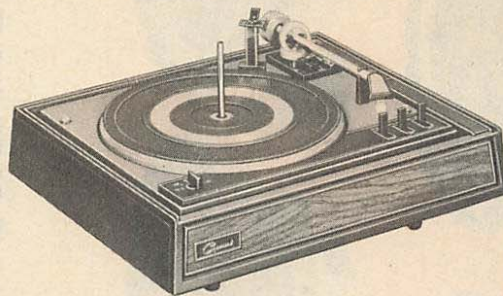


139⁵⁰

Garrard SL95B with 12" platter

Three-speed automatic or manual play with tracking as low as $\frac{1}{4}$ gram. Has low-mass aluminum tone arm in gimballed pivots, adjustable anti-skating, two-point record handling in automatic mode, viscous cueing, slide-in cartridge clip. Choose cartridge at right. Measures 15 $\frac{3}{4}$ " W x 14 $\frac{1}{8}$ " D x 4 $\frac{3}{8}$ " above motor board, 3" below. Prod. of Gr. Britain.

ADP-89, turntable only, 14 lbs., mailable **139.50**
 ADA-57-2, 45 rpm spindle (Garrard LRS25), 1 lb., mailable **3.80**



99⁵⁰

The SL72B, Garrard precision for less

Like all the great Garrards, has Synchro-Lab motor for precise turntable speed, three-speed automatic or manual play, stylus pressure gauge, anti-skate control, viscous cueing. Cartridge options shown at right. Measures 15 $\frac{3}{4}$ " H x 14 $\frac{1}{8}$ " W x 4 $\frac{3}{8}$ " above motor board, 3" below. Prod. of Gr. Britain.

ADP-79, turntable only, 13 lbs., mailable **99.50**
 ADA-57-2, 45 rpm spindle (Garrard LRS25), 1 lb., mailable **3.80**



89⁹⁵

Heath/BSR McDonald AD-140

Factory assembled & tested, has four-speed manual, semi-automatic or automatic modes; high torque synchronous motor; viscous damped cueing and pause control; low mass aluminum tone arm; dual range anti-skate control; vernier counter-balance adjustment. Automatic tone arm locks in "off" position. Stereo muting switch gives complete silence during change cycle. Complete with power base, dust cover, Shure M93E cartridge, 45 rpm adapter and all wiring. Measures 7 $\frac{1}{4}$ " H x 15 $\frac{1}{4}$ " W x 13 $\frac{3}{4}$ " D incl. dust cover & base.

Assembled AD-140, 14 lbs., mailable **89.95**



64⁹⁵

Heath/BSR McDonald AD-130

A high-performance turntable at a modest price, the AD-130 offers many of the same features found in the AD-140. It has four-speed manual or semi-automatic or automatic capability; high torque synchronous motor; viscous damped cueing/pause control; aluminum low-mass tone arm; dual range anti-skate control; micrometer stylus adjustment; slide-in cartridge holder; automatic locking tone arm. Includes base, dust cover, 45 rpm adapter, Shure M75 cartridge and cables. Measures 7 $\frac{1}{4}$ " H x 15 $\frac{1}{4}$ " W x 13 $\frac{3}{4}$ " D including base & dust cover. Prod. of Gr. Britain.

Assembled AD-130, 14 lbs., mailable **64.95**

Save 5% with Heath's stereo system discount plan. See p. 71.

NEW

199⁵⁰



Dual's Premier Performer the New 1229

United Audio replaces the immensely popular Dual 1219 with the exciting new Dual 1229. New features are a built-in illuminated strobe with adjustable viewing window so turntable speed can be checked from the most convenient angle. Tracking pressure dial calibrated from 0.1 gram through 1.5 grams. And you get all the other top-of-the-line Dual features too. Spindles for manual or automatic play of 78, 45 and 33 $\frac{1}{3}$ rpm discs; anti-skating calibrations for spherical and elliptical styli; silicone-damped cueing system; adjustable stylus overhang; full 12-in diameter 7-lb. platter; synchronous/continuous pole motor; 6% pitch adjustment. Select cartridge from list below. 8" H x 18 $\frac{1}{2}$ " W x 16" D. Prod. of W. Germany.

- ADP-1229, turntable only, 23 lbs., mailable **199.50**
- ADA-49-1, walnut base (Dual WB-19) 5 lbs., mailable ... **14.95**
- ADA-49-4, dust cover (Dual DC-9) 3 lbs., mailable **12.95**
- ADA-39-2, 45 rpm spindle (Dual AS-12) 1 lb., mailable ... **5.95**

Save up to 44.95 on cartridges ordered with Garrard and Dual turntables

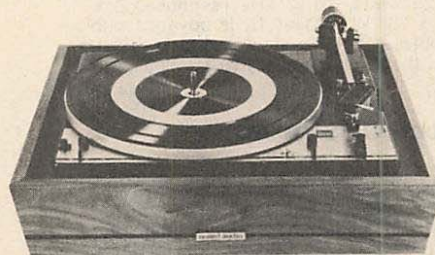


NEW Shure V-15 Type II (Improved). Perfect cartridge for the best turntables. Has new improved VN15E stylus for better trackability in bass & mid-range registers. Pay just \$30 when ordered with Garrard Zero 100 or Dual 1229 only.

Model AD-1502, 1 lb., mailable .. **67.50**

- Shure M91E, only \$5 with Garrard or Dual turntable order.
- Model AD-68F, 1 lb., mailable **49.95**
- Shure M93E, only 1¢ with Garrard or Dual turntable order.
- Model AD-58R, 1 lb., mailable **39.95**
- Empire 999SE/X, only \$5 with Garrard or Dual turntable order.
- Model AD-121, 1 lb., mailable **49.95**
- Empire 999E/X, only 1¢ with Garrard or Dual turntable order.
- Model AD-126, 1 lb., mailable **39.95**

MFG. SPECS:	FREQ. RESP.	OUT-PUT	SEPA-RATION	ELLIPT. STYLUS	TRACK-ING
Shure V-15 Type II	20-25,000 Hz	3.4 mV	25 dB	0.2 x 0.7	3/4 to 1 1/2 gr.
Shure M91E	20-20,000 Hz	5.0 mV	25 dB	0.2 x 0.7	3/4 to 1 1/2 gr.
Shure M93E	20-20,000 Hz	6.2 mV	25 dB	0.4 x 0.7	1 1/2 to 3 gr.
Empire 999SE/X	8-32,000 Hz	8.0 mV	35 dB	0.2 x 0.7	1/2 to 1 1/2 gr.
Empire 999E/X	10-30,000 Hz	8.0 mV	35 dB	0.3 x 0.7	3/4 to 2 gr.



109⁵⁰

Dual quality at a low price

Features 3-speed manual or automatic play; separate anti-skating calibrations for conical and elliptical styli; pitch control; damped cue-control; hi-torque constant-speed motor; 3 3/4 lb. laminated platter. Low-mass tubular tonearm tracks as low as one gram. Choose cartridge at left. Measures 13" W x 11" D. Product of West Germany.

- ADP-1215, turntable only, 15 lbs., mailable **109.50**
- ADA-39-1, walnut base (Dual WB-12) 5 lbs., mailable **10.95**
- ADA-1218-1, dust cover (Dual DC-4) 3 lbs., mailable **12.95**
- ADA-39-2, 45 rpm spindle (Dual AS-12) 1 lb., mailable **5.95**



44⁹⁵

Heath/BSR McDonald AD-120

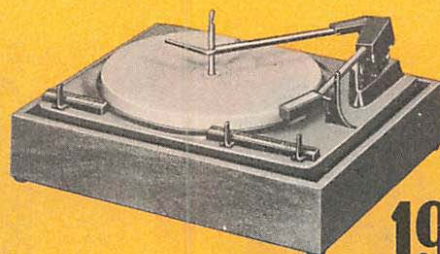
An excellent choice for rounding out any budget-minded component system. The AD-120 features four-speed play in manual, semi-automatic or automatic modes; four-pole induction motor; aluminum counterweighted tone arm; slide-in cartridge holder; cue/pause control; stylus force control and indicator. Includes base, dust cover, Shure M-75 magnetic diamond stylus cartridge, 45 rpm adapter, cables. Measures 7 1/4" H x 15 1/4" W x 13 3/8" D including base & dust cover.

Assembled AD-120, 14 lbs., mailable **44.95**

No money down on any kit - up to 2 years to pay - see order blank for details.



All Heath/BSR McDonald automatic turntables come with a plastic see-through cover that protects records and mechanism from dust.



19⁹⁵

Heath GD-187

Here's the perfect "starter" changer for your low-cost hi-fi and stereo systems. Comes fully assembled, ready to plug into your amplifier or receiver. Specifically designed for amps with ceramic cartridge inputs, it can also be converted to magnetic cartridge use with instructions supplied. Four-speed manual or automatic play. Ceramic cartridge has diamond stylus for LPs, sapphire for 78s. Comes wired for stereo, can be rewired for mono. 45 rpm adapter included. Measures 6 1/4" H x 14 3/8" W x 12 1/2" D.

Assembled GD-187, 12 lbs., mailable **19.95**

Heathkit Speaker Systems

A) Heathkit 2-Way Acoustic Suspension "Power Handler" System

Takes up to 100 watts in stride, with 10" acoustic suspension woofer, 3 1/2" cone/dome tweeter; 30 Hz-18 kHz response; less than 1% distortion above 50 Hz, 10W in; 8-ohm impedance; sealed infinite baffle enclosure filled with sound absorbing material; mechanical and capacitive crossover at 1 KHz; high frequency level control; 10W RMS min. power recommended. Factory assembled 1-pc. cabinet with removable grille measures 24" H x 13 1/2" W x 11 1/2" D. Buy 2... enjoy stereo the same night.

Kit AS-105U, unfinished, 47 lbs., Exp./Frt. **64.95**

Kit AS-105W, Walnut finish, 47 lbs., Exp./Frt. **69.95**

B) Heathkit Apartment-size Bookshelf Speaker

Ideal for apartment size 4-20W amplifiers. 4 1/2" high-compliance speaker with long throw voice coil in sealed acoustic suspension cabinet with fiberglass sound-damping material. 70 Hz - 16 kHz response. 8-ohm impedance. 1/2" particle board cabinet in rich walnut veneer, 12" H x 7" W x 6" D. Order a pair for stereo, build both in an evening.

Kit AS-106, 10 lbs., mailable **19.95**

C) Heathkit High Efficiency 2-Way System

This highly efficient speaker system has two specially designed speakers, 8-in. woofer with 10-oz. ceramic magnet and compression type exponential horn tweeter. Uses 1600 Hz crossover. Rated 8 ohms impedance, 25 watts, 70-12 kHz response. Pre-assembled cabinet (11 1/2" H x 23" W x 11 1/8" D) is covered with a rich looking satin walnut polyester that's stain and fade resistant. Buy two for stereo, build them both in one night.

Kit AS-37A, 37 lbs., mailable **44.95**

D) Heathkit 2-Way Acoustic Suspension Mini System

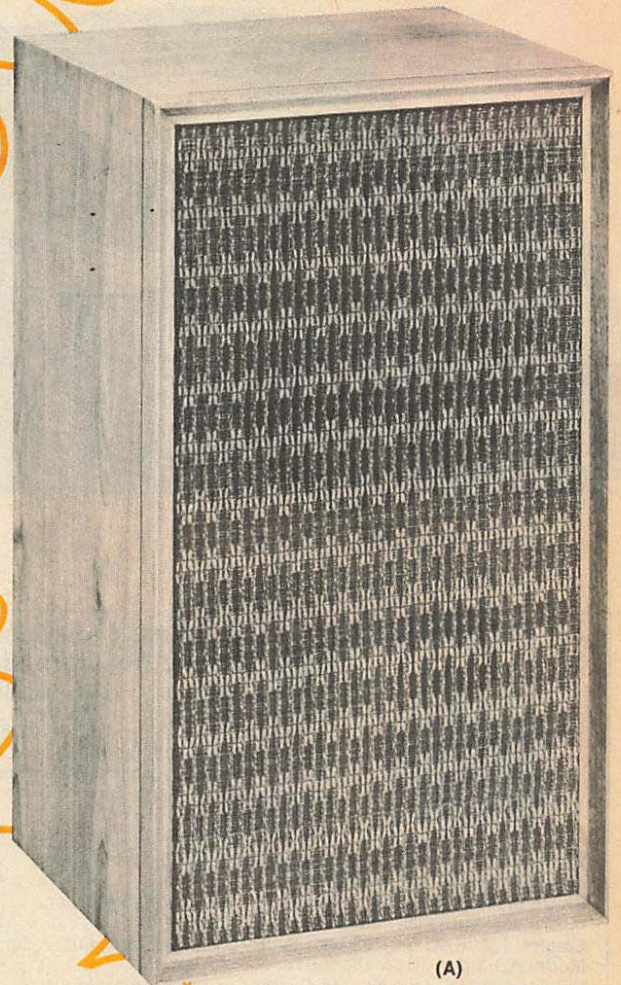
The 6-in. woofer delivers clean, crisp bass down to 55 Hz, while the 2 1/2-in. tweeter produces sparkling highs to 18 kHz. High frequency balance control lets you adjust the highs to suit your taste. Handles 25 watts program material, 50 watts peak. Has 8 ohm impedance, crossover frequency 3000 Hz. Walnut cabinet protected by clear vinyl covering. 8 1/4" H x 15 1/4" W x 6 1/2" D. Buy two, and build them in an evening.

Kit AS-18, 14 lbs., mailable **36.95**

E) Heathkit 2-Way Acoustic Suspension Compact

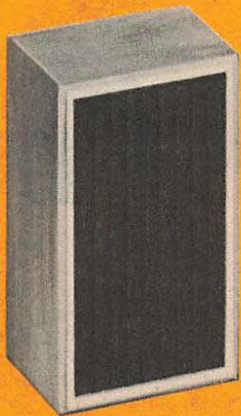
Mini-size with maxi-performance. The 8-in. acoustic suspension woofer with a 6.5-oz. magnet literally rides on air to give you rich, low-distortion bass to 60 Hz. The 3 1/2" tweeter with 4.8-oz. magnet reproduces crystal-clear highs to 18 kHz and has a level control for balance. Handles 25 watts of program material. Goes together in just a couple of hours. Both speakers are already cabinet mounted. You merely wire the 1500 Hz crossover network. You'll like the rich look of the handsome walnut cabinet. Order a pair for stereo. 10" H x 19" W x 8 1/4" D.

Kit AS-16, 22 lbs., mailable **56.95**



(A)

69⁹⁵



(B)

19⁹⁵



(C)

44⁹⁵



(D)

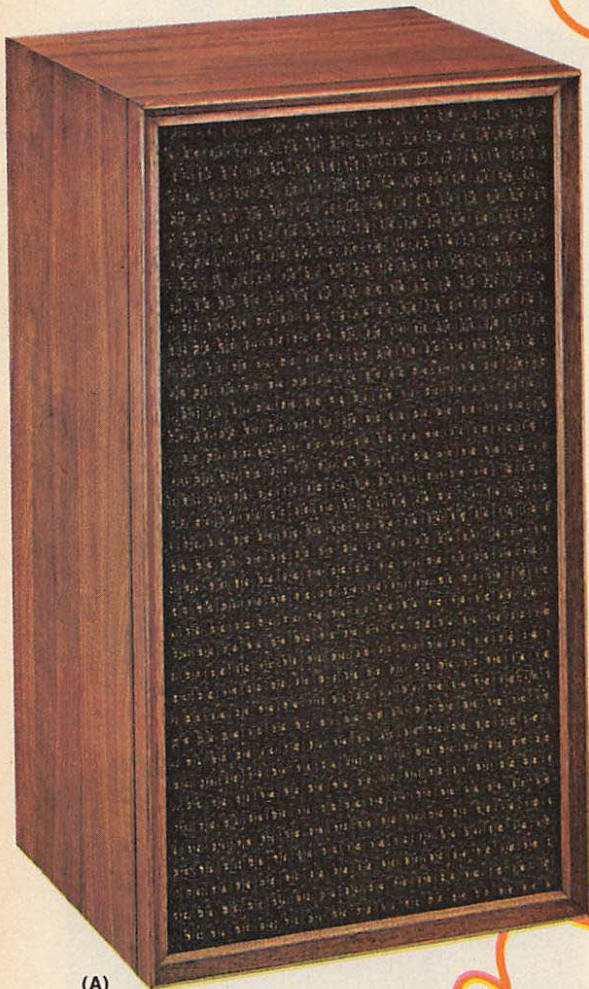
36⁹⁵



(E)

56⁹⁵

for room-filling, faithful sound



(A)

89⁹⁵

A) Heathkit 3-Way Acoustic Suspension System

A great new three-way acoustic suspension system that easily handles up to 100 watts music material, with response extending smoothly from below 30 Hz to beyond audibility. Has high compliance, low resonance 10-in. woofer in sealed cabinet filled with sound absorbing material; high compliance 4½-in. midrange in sealed and acoustically lined sub-enclosure; ring damped, closed back 3½-in. cone/dome tweeter. Offers extremely low distortion below 50 Hz, where many other systems rapidly begin to weaken. Features individual high and mid-frequency controls; assembled and pre-finished walnut veneer one-piece cabinet with removable front grille. Easy assembly in a single evening.

Kit AS-104, 50 lbs., Express/Frt. **89.95**

AS-104 SPECIFICATIONS — Speakers: 10" acoustic suspension woofer, 1-lb. Alnico V magnet; 4½" mid-range, 2.5-oz. Alnico V magnet; 3½" cone/dome tweeter, 1.3-oz. Alnico V magnet. **Frequency range:** 30-18,000 Hz. **Impedance:** 8 ohms. **Recommended minimum amplified power:** 10 W rms. **Enclosure:** Sealed infinite baffle. **Crossover:** RLC at 500 Hz and 4500 Hz. **Distortion:** Less than 1% above 50 Hz, 10 W in. **Dimensions:** 24" H x 13½" W x 11½" D.

B) Heathkit/JBL 2-Way System

Heath design know-how and JBL speakers combined in the classic bookshelf cabinet for a system that will do justice to your top of the line components. The 14-in. woofer uses an inert, self-damping cone suspension and massive 11½-lb. magnet for clear, full bass down to 40 Hz. JBL 2-in. direct radiator produces sharp, lifelike highs. Factory assembled and finished cabinet. System assembles in one or two hours. Just wire the high frequency level control and 2000 Hz crossover and mount the two speakers. All components mount conveniently from the front of the classic, one-piece pecan finish damped reflex tube-ported cabinet.

Kit AS-48, 68 lbs., mailable **189.95**

AS-48 SPECIFICATIONS — Speakers: 14" woofer, 4" voice coil, 11½-lb. magnet assembly; 2" piston-type direct radiator tweeter, 1.25-lb. magnet assembly. **Frequency range:** 40-20,000 Hz. **Crossover:** LC-type, 2000 Hz. **Power rating:** 50 W program material. **Impedance:** 8 ohms. **Control:** Three-position high frequency level control. **Cabinet:** Damped reflex, tube-ported. Oak veneer and furniture grade hardwoods, pecan finish. **Dimensions:** 14" H x 23½" W x 12" D.

C) Heathkit/JBL Medium-price System

Economically priced, but designed for remarkable performance with the most expensive components. Has 12-in. JBL woofer with large, 6¾-lb. magnet assembly for full bodied bass down to 45 Hz, and 2-in. direct radiator delivering natural sound up to 20,000 Hz. High frequency level control at rear of fine walnut finish cabinet lets you modify sound to your taste. Simple, one evening assembly. Cabinet, factory assembled and finished.

Kit AS-38, 49 lbs., mailable **159.95**

AS-38 SPECIFICATIONS — Speakers: 12" woofer, 6¾-lb. magnet assembly; 2" piston-type direct radiator tweeter, 1.25-lb. magnet assembly. **Frequency range:** 45 Hz to 20 kHz. **Crossover:** RLC type 2500 Hz. **Power rating:** 40 W program material. **Impedance:** 8 ohms. **Control:** High Frequency Level. **Cabinet:** Damped reflex, tube-ported. Walnut veneer and furniture grade hardwoods, oiled finish. **Dimensions:** 14" H x 23½" W x 11¾" D.



(B)

189⁹⁵



(C)

159⁹⁵

Our ultimate soundmakers

Heathkit/Altec-Lansing 2-way System

The AS-101 is a skillful blend of Altec-Lansing speaker experience and Heathkit engineering — a medium priced, high performance 8 ohm system designed to meet the demands of quality components such as the AR-1500, AA-15, AR-29 & AR-1302.

The AS-101 drives with as little as 10 watts, yet handles up to 50 watts program material. A bass reflex design incorporating a high compliance 15-in. woofer and sectoral horn, it reproduces from 35 to 22,000 Hz with uncompromising accuracy. Woofer has a 10½-lb. magnet assembly, 3-in. edge-wound copper ribbon voice coil and structurally reinforced cast aluminum frame. The sectoral horn with matching driver, an Altec-Lansing hallmark, uses a 13-oz. magnet, 1¾-in. voice coil and provides controlled dispersion for uniform mid & high frequency coverage.

A two-way crossover network, compatible with bi-amplification, delivers all frequencies below 800 Hz to the massive woofer, and all above to the horn driver. High frequency level control allows balancing horn and woofer output to your taste and room acoustics.

Mount the front panel & speakers in the attractive cabinet, wire the crossover network and it's all together! Beautiful factory-assembled Mediterranean cabinet with pecan veneers, hardwood trim, gold and black grille cloth measures 29½" H x 27¾" W x 19⅞" D.

Kit AS-101, 128 lbs., Express/Frt. 269.95



269⁹⁵

Heathkit/Bozak 3-way System

World-famous Bozak speakers in a luxurious Mediterranean floor cabinet. The AS-102 is an exceptionally great sounding 8-ohm system, suited for top-of-the-line and medium-power receivers and amplifiers. Twelve-in. woofer, 6-in. mid-range and two 2½-in. tweeters in an infinite baffle design provide clean, natural reproduction from 22 Hz to 20,000 Hz. The three-way crossover delivers frequencies below 800 Hz to the woofer, those from 800-2500 Hz to the mid-range and frequencies above 2500 Hz to the two tweeters. Both woofer & mid-range have 6½-lb. magnet assemblies and 1½-in. voice coils. Two 2½-in. tweeters, with 2-lb. magnet assemblies and ¾-in. voice coils, are mounted across the woofer cone, facing away from each other for better dispersion. Crossover is compatible with bi-amplification.

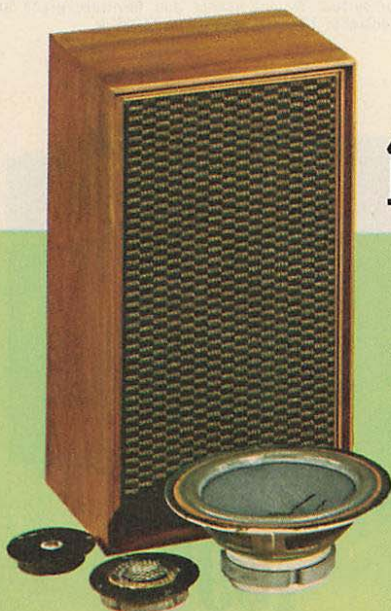
Fast, easy assembly. Takes only 2-4 hours. The handsome factory-assembled all-wood cabinet has beautiful pecan veneers and hardwood trim with gold and black patterned grille cloth. Measures 29½" H x 27¾" W x 19⅞" D.

Kit AS-102, 119 lbs., Express/Frt. 239.95

Kit ASA-102-1, Bozak speakers, crossover, baffle board, less cabinet. 37 lbs., mailable 149.95



239⁹⁵



189⁹⁵

Here's the Famous Acoustic Research AR-3a in Kit Form.

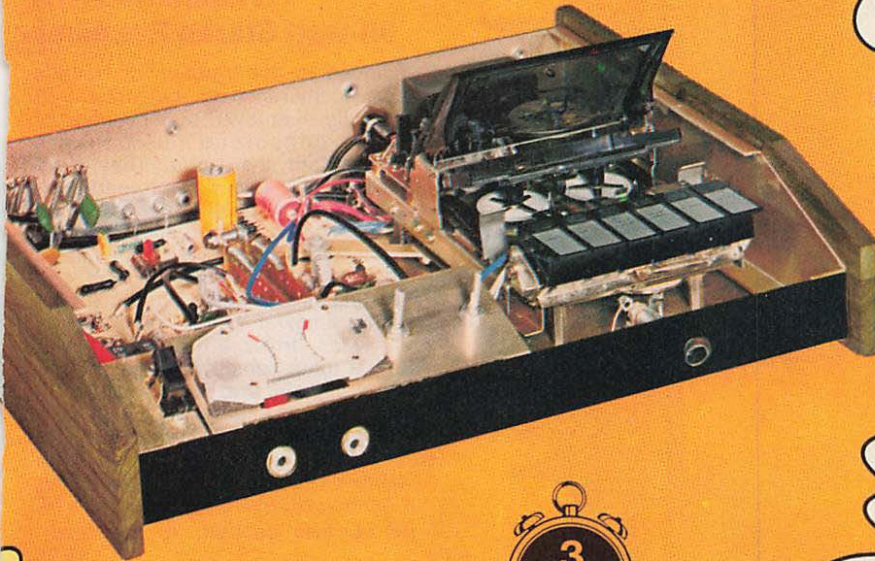
Incomparable fidelity on a bookshelf — Heathkit AS-103 has virtually flat response from 30 Hz to 20,000 Hz, assured by the highly praised AR speakers and acoustic suspension design. The 12" woofer provides crisp, clean bass down to 30 Hz with exceptionally low distortion. The special hemispherical dome midrange and tweeter, combined with a precisely-engineered crossover network, deliver the natural, transparent sound typical of all AR systems. Separate output level controls on the rear of the cabinet for both midrange and tweeter allow you to "custom tailor" the AS-103 sound to your acoustic environment. Luxurious oiled walnut cabinet provides a suitably rich enclosure for the extraordinary AS-103.

Kit AS-103, 66 lbs., Express/Frt. 189.95

AS-103 SPECIFICATIONS: Power Requirements: 25 watts (RMS) recommended minimum per channel. Impedance: 4 ohms nominal (2.75 ohms minimum at 1000 Hz). Frequency Range: 30 Hz to 20,000 Hz. Crossover Frequencies: 575 Hz and 5000 Hz. Speaker Complement: One 12" acoustic suspension low-frequency driver (woofer); 3.3 lb. magnet assembly. One 1½" hemispherical dome midfrequency driver; 1.75 lb. magnet assembly. One ¾" hemispherical dome high-frequency driver (tweeter); 10 oz. magnet assembly. Enclosure: Acoustic suspension type. Finish: Oiled walnut. Dimensions: 25" H x 14" W x 11¾" D.

Save 5% with Heath's stereo system discount plan. See p. 71.

Heathkit Cassette Deck— Reel Fidelity at Low Cost



129⁹⁵



Records, plays back, stereo, mono with reel-to-reel fidelity

The Heathkit AD-110 Cassette Recorder gives a finely matched stereo amplifier and speaker system something to work with! It provides a wide-range response and low noise level that easily matches or surpasses many open reel machines operating at 3 3/4 ips, and is more than sufficient to reproduce all the fidelity the best cassettes have to offer! What's more, the AD-110 is designed to accommodate the new chromium dioxide tapes that are making the cassette format increasingly popular with the most discerning audiophiles. With the AD-110 you can record and play back all monophonic and stereophonic cassettes.

Advanced solid-state circuit with adjustable bias

The AD-110 utilizes a DC motor with 2-transistor regulator for stable, precise tape speed and a minimum of "wow" and "flutter." An IC voltage regulator in the amplifier circuit and low-distortion push-pull oscillator for erase and record bias contribute to the unit's low hum and noise factor. No external equipment is needed to adjust record bias for the wider frequency spectrum of chromium dioxide tapes. A built-in reference allows initial setup and subsequent bias adjustments by use of the front panel meter.

All the versatility of reel-to-reel!

Six pushbuttons control all tape transport functions: Record, Rewind, Play, Fast Forward, Stop-Eject, and Pause. Separate level controls and meters let you tape any "high level" input from less than 100 mV to 10 Volts. Other operational features include an electronic motor shut-off when the tape has played through, a counter for locating specific selections, and a record interlock to prevent accidental erasing. The AD-110 is as easy to build as it is to operate. The transport mechanism is preassembled and aligned; amplifiers, bias oscillator, and the power supply all mount on one circuit board. And to get you into the cassette age even faster, a blank 60-minute cassette is included with your Heathkit AD-110. Order yours now!

Kit AD-110, 12 lbs., mailable 129.95

ADA-110-1, matched stereo microphones, 6 lbs., mailable 19.95

AD-110 SPECIFICATIONS — Frequency Response (record-play): ± 3 dB from 30 Hz to 12 kHz typical. Inputs: Aux. 70 mV to 10 V. Mike 0.2-6 mV. Hum and Noise: —45 dB. Bias and Erase Frequency: 110 kHz. Wow and Flutter: Less than 25% WRMS record and playback. Motor: Solid-state regulated DC. Speed: 1 7/8 in./s. Fast Forward-Rewind Time: Less than 120 sec. Tape: C-30, C-60, C-90 cassettes. Controls: Power switch, record level (left and right channel), record, rewind, stop-eject, play, fast forward, pause. Transistor Complement: 13 transistors and 1 IC. Output: Greater than 1/2 volt from low impedance amplifier stage. Finish: Black with walnut end panels. Dimensions (overall): 3 1/8" H x 13 5/8" L x 11" D. Power: 120-240 volts, 50-60 Hz, 7 watts.



Stereo Microphones

ADA-110-1; matched omni-directional dynamic microphones provide 60-12,000 Hz response, —77 dB output level, 500 ohm impedance. Attractive polypropylene storage case included.



Heathkit 8-track cartridge player... 59.95

Build yourself a top quality stereo cartridge player in one or two evenings. The all solid-state circuitry mounts on one small board and the Motorola tape transport comes preassembled and aligned. Features manual or automatic channel selection with lighted indicators. Kit includes cabinet and all connecting cables.

Kit GD-28, 10 lbs., mailable 59.95

GD-28 SPECIFICATIONS — Cartridge: 8-track stereo. Tape speed: 3 3/4"/second. Output (each channel): 300 mV at Standard Reference Level. Harmonic distortion: Less than 3%. Separation: Greater than 30 dB at 1 kHz. Frequency response: ± 6 dB, 50 Hz to 10 kHz. Wow & flutter: Less than 0.3%. Hum & noise: Better than —40 dB. Motor: 117 VAC synchronous. Power requirements: 120 VAC, 60 Hz, 45 W (momentary). Cabinet: Simulated walnut grained vinyl clad wood. Dimensions: 4 1/2" H x 10 3/8" W x 8 1/4" D.



40-Minute Stereo Cartridge included with your new GD-28. Features 16 instrumentals by world famous Capitol Records recording artists. A \$7.95 value!



No money down on any kit — up to 2 years to pay — see order blank for details.

"Best Buy" Stereo Receiver...

only 99⁹⁵



Quality parts and thoughtful design are evident as you easily assemble this extra value, fine performer.

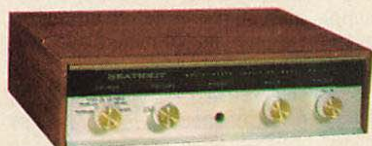


Heathkit AR-14 30-watt Stereo Receiver

Designed in the tradition of Heath's more costly receivers, but without all the frills — enjoyed by thousands of value-conscious music lovers throughout the world. They have found that this down-to-earth receiver goes together in a matter of a few hours with no special effort, yet performs at a level beyond its modest price. Audio experts and testing groups have agreed it presents unusual value. You'll find its 30 watts drives efficient speakers, its FM tuner sensitive to distant and stereo signals, and its controls complete and convenient. For a satisfying kit building experience and the pleasure of knowing you've got an extra measure of value and performance for your money, choose the Heathkit AR-14.

- Kit AR-14, less cabinet, 18 lbs., mailable **99.95**
- AE-55, walnut veneer cab., 7 lbs., mailable **12.95**
- AE-65, beige metal cabinet, 6 lbs., mailable **3.95**

AR-14 SPECIFICATIONS — AMPLIFIER — Continuous power output: 10 W each channel — 20 W total. Music power output (IHF): 15 W per channel. Speaker output impedance: 4 through 16 ohm. Tape output impedance: 3.5 K ohm. Damping factor: 50. Hum and noise: Phono —60 dB; Auxiliary: —63 dB. Frequency response: 12 to 60,000 Hz ± 1 dB; 6 to 100,000 Hz ± 3 dB. Power response: 15 to 50,000 Hz ± 1 dB; 7 to 90,000 Hz ± 3 dB. Input sensitivity: Phono: 4.5 mV; Auxiliary: 300 mV. Input impedance: Phono: 47 K ohm; Auxiliary: 180 K ohm. Channel separation: 45 dB or better. Total harmonic distortion (at rated output): 0.5% or less @ 1000 Hz; 1% or less @ 20 & 20,000 Hz. Intermodulation distortion (at rated output): Less than 1% (60 & 60,000 Hz, 4:1). Phono equalization: RIAA. FM: Tuning range: 88-108 MHz. Antenna: Balanced input for external 300 ohm antenna. Intermediate frequency: 10.7 MHz. Sensitivity (IHF): 5 μ V. Hum & noise (IHF): —50 dB. Audio frequency response (IHF): 0 to —3 dB from 20 to 15,000 Hz. Harmonic distortion (IHF): 1% or less. Image ratio (IHF): —45 dB. Capture ratio (IHF): 3 dB. AFC correction: 150 kHz per volt. AM suppression (IHF): —35 dB. IF Rejection (IHF): —80 dB. FM STEREO — Separation: 30 dB @ 1 kHz. GENERAL — Front panel: 6-position Source Switch; Mono-phono; Stereo Phono; Mono Auxiliary; Stereo Auxiliary; Mono FM; Stereo FM; Volume Control; Bass Control; Treble Control; Phone Jack. Rear panel: Fused AC Power Socket: switched and unswitched. Speaker Terminal Blocks: one left & one right. Left & right input sockets; phono & aux. Tape output sockets; left & right channel. Power requirement: 120/240 V, 50/60 Hz; 32 W idling; 65 W full output; (No load on AC power sockets). Dimensions: Overall: 3 $\frac{7}{8}$ " H x 15 $\frac{1}{4}$ " W x 12" D. Mounting position: Horizontal or Vertical, Cutout required 15" x 3 $\frac{1}{2}$ "; Depth required from front of mounting surface 11 $\frac{1}{2}$ ".



AA-14 30-Watt Stereo Amplifier
Same amplifier specs. as AR-14.
Kit AA-14, less cabinet, 11 lbs., mailable **59.95**
AE-25, walnut veneer cabinet, 5 lbs., mailable **9.95**
AE-35, beige metal cabinet, 4 lbs., mailable **3.95**



AJ-14 FM Stereo Tuner
Same tuner specs. as AR-14.
Kit AJ-14, less cabinet, 6 lbs., mailable **49.95**
AE-25, walnut veneer cabinet, 5 lbs., mailable **9.95**
AE-35, beige metal cabinet, 4 lbs., mailable **3.95**

Our stereo compacts put console-like sound in two fun-to-build kits

First there's the high-style AD-27A, with its neat sliding-door dust cover that hides away the works when not in use. The circuitry is from the popular Heathkit AR-14 FM stereo receiver for incomparable FM reception, a crystal clear 30 watts of music power. The turntable is the Heathkit/BSR McDonald AD-130. Measures 7 $\frac{7}{8}$ " H x 21 $\frac{1}{8}$ " W x 14 $\frac{1}{4}$ " D. Then there's the Heathkit AD-17A with Heathkit AA-14 stereo amplifier circuitry for 30 watts stereo music power, and the Heathkit/BSR McDonald AD-120 automatic turntable. It measures 7 $\frac{1}{2}$ " H x 21 $\frac{1}{8}$ " W x 14 $\frac{1}{8}$ " D. Both great Heath compacts are furnished in beautiful walnut. Order either with a pair of 8-ohm speakers and deduct 5% system discount.

- Kit AD-27A, 50 lbs., Express/Frt. **179.95**
- Kit AD-17A, 39 lbs., mailable **129.95**
- ADA-17-1, plastic cover for AD-17A, 5 lbs., mailable **15.95**

Heathkit Stereo on a budget

Heathkit AR-17 14-watt FM Stereo Receiver ... 72.95

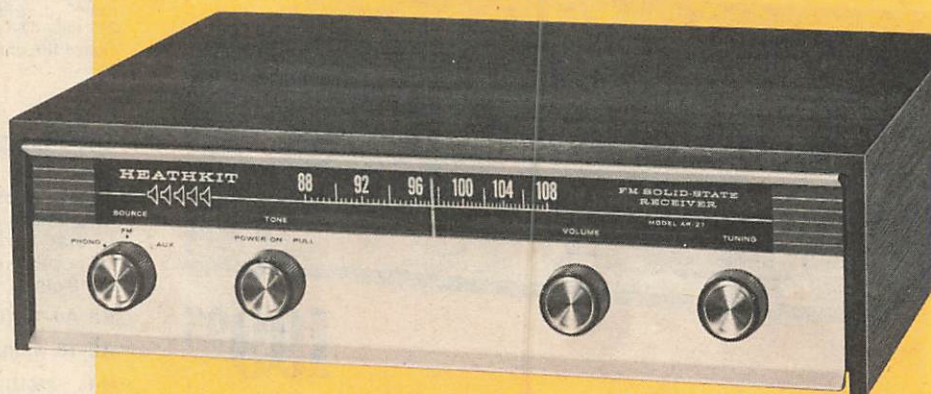
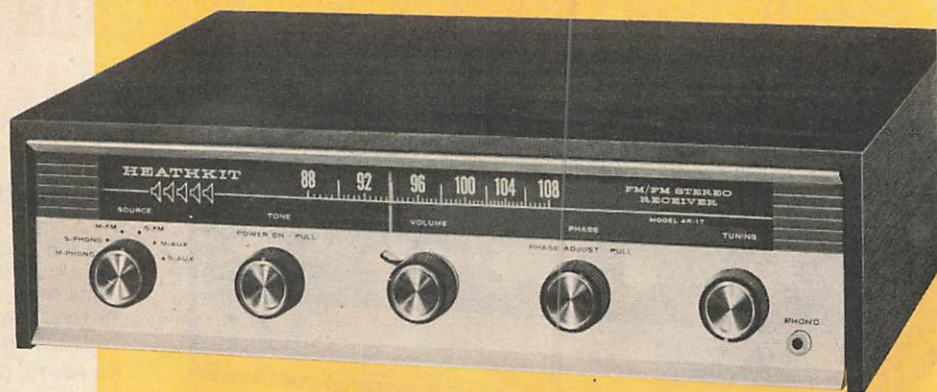
Shop and compare — you'll find the Heathkit AR-17 an unbeatable value. It offers a 28 transistor, seven-diode circuit that delivers 14 watts of music power with a response of 25 to 35,000 Hz ± 1 dB at full power with less than 1% distortion. Tuner sensitivity 5 uV. Only 12-in. wide and 3-in. high, it fits on a bookshelf, yet it has a full complement of controls. Six position selector for magnetic phono, tuner, auxiliary, stereo or mono. Has tandem tone controls, clutched volume control, stereo phase adjust for best separation, stereo indicator. Front panel headphone jack. Assembled FM front end, easy circuit board completion. Drives 4-16 ohm speakers. For 120/240 VAC. 3" H x 12" W x 10 $\frac{3}{8}$ " D.

Kit AR-17, less cabinet, 9 lbs., mailable 72.95
 AE-35 beige metal cabinet, 4 lbs., mailable 3.95
 AE-25 walnut veneer cabinet, 5 lbs., mailable . . 9.95

Heathkit AR-27 7-Watt FM-Mono Tuner ... 44.95

Here's high fidelity FM for no more than the cost of an ordinary table radio. The Heathkit AR-27 has a 13 transistor, six diode circuit that offers 7 watts of music power, 5 watts continuous power with a response of 25-60,000 Hz ± 1 dB with less than 1% harmonic distortion in the audible range. Drives efficient speakers of 4 to 16 ohms. Assembled FM front end has 5 uV sensitivity. Easy to use, has source selector of magnetic phono, tuner, or auxiliary; tone and volume controls; flywheel tuning; push-pull on-off switch. Easy circuit board construction completes in two evenings. (3" H x 12" W x 10 $\frac{3}{8}$ " D) 120/240 VAC, 50-60 Hz.

Kit AR-27, less cabinet, 8 lbs., mailable 44.95
 AE-35 beige metal cabinet, 4 lbs., mailable 3.95
 AE-25 walnut veneer cabinet, 5 lbs., mailable . . 9.95



Heathkit 4-watt Mono Amplifier ... 19.95

A remarkable value and ideal choice for adding background-music to office, den or playroom. Drives any 4-16 ohm high efficiency speaker with power to spare. Excellent frequency response and low distortion. Inputs for ceramic phono cartridges, mono AM or FM tuners or tape recorders. Front panel headphone jack. Brown & beige metal cabinet included. 120/240 VAC.

Kit AA-18, 4 lbs., mailable 19.95

AA-18 SPECIFICATIONS — Dynamic power output: 4 watts.* Continuous power output: 3.25 watts.* Harmonic distortion: Less than 1.5% from 40 Hz to 60 kHz at 4 watts output. Less than 0.7% from 20 Hz to 60 kHz at 1 watt output. Intermodulation distortion: Less than 4% with 4 watts output using 60 Hz and 6 kHz mixed 4:1. Power requirements: 120/240 VAC, 50/60 Hz, 5 watts maximum. Cabinet size: 2 $\frac{3}{8}$ " H x 7 $\frac{1}{8}$ " W x 5 $\frac{1}{8}$ " D.

No money down on any kit — up to 2 years to pay — see order blank for details.

Save an extra 5% by ordering a Stereo System

Here's How... (1) order a stereo amplifier and stereo program source (such as tuner, turntable, tape player) plus a pair of speaker systems; (2) a stereo receiver and a pair of speaker systems; (3) a stereo compact plus a pair of speaker systems. Order the complete system at the same time, and subtract 5% from the total price. System discount also applies to the new stereo four conversion systems. (This system discount does not apply to the Heathkit AD-19 "Component Credenza".) Other catalog audio items related to the basic system and ordered at the same time (such as turntables, tape players, cabinets, additional speakers or speaker systems, headphones, AC-17 headphone control, antenna) will also qualify for the 5% discount.

Separate Tuners & Amps for Total Flexibility



(A)

189⁹⁵

(A) AA-15 150 Watt Stereo Amplifier...

For the discriminating kitbuilder, pure power to drive any speakers, input controls for phono, tape, tuner, tape monitor, and auxiliary. 50 watts RMS, 75 watts IHF, per channel into 8 ohms. Main and remote speaker switches, 2 headphone jacks, tone-flat switch, loudness switch, tape monitor switch, positive circuit protection.

Kit AA-15, (less cabinet) 37 lbs., mailable 189.95

AE-18, walnut cabinet, 8 lbs., mailable 19.95

AA-15 SPECIFICATIONS — Music power (each channel): 8 ohms, 75 W*; 4 ohms, 50 W; 16 ohms, 45 W. Continuous power: 8 ohms, 50 W*; 4 ohms, 45 W; 16 ohms, 35 W. Power bandwidth for 0.5% THD: 6 Hz to 30 kHz*. Frequency response (1 W): ±1 dB, 8 to 40 kHz. Harmonic distortion: 0.5% at 50 W. Damping factor: 45. Input sensitivity: Phono 2.2 mV, Tape, Aux., and Tape Mon., 200 mV. Hum & noise: Phono, -60 dB; Tape & Aux., -65 dB. Channel separation: Phono, 45 dB; Tape & Aux., 55 dB. Tape output impedance: 120 ohms. Input impedance: Phono 51 k ohms, Aux., Tape & Tape Mon. 100 k ohms. Tape output: 0.17 volt output with 0.2 volt input. GENERAL: AC outlet sockets: 3 on rear panel — 1 switched (350 W max.), 2 unswitched (350 W max.). Power requirements: 120/240 VAC, 50-60 Hz, 240 W @ full output. Dimensions: 4¾" H x 16¾" W x 12½" D.

*Rated IHF (Institute of High Fidelity Standards).



(B)

199⁹⁵

(B) The Super Sensitive AJ-15 FM Tuner...

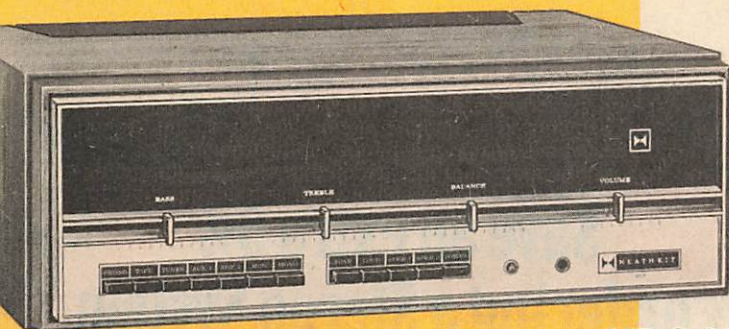
A joy to build, this all solid-state design uses circuit board/wiring harness construction methods with ICs equivalent to 8 conventional IF stages, FET FM front end for superior sensitivity, 2 crystal filters for optimum bandpass shape, 2 meters, and super-sophisticated controls.

Kit AJ-15 (less cabinet) 18 lbs., mailable 199.95

AE-18 walnut cabinet, 8 lbs., mailable 19.95

AJ-15 SPECIFICATIONS — **TUNER SECTION** — Tuning Range: 88-108 MHz. Frequency response: ±1 dB, 20-15 kHz. Sensitivity: 1.8 uV*. Selectivity: 70 dB*. Image rejection: 90 dB*. IF rejection: 90 dB*. Capture ratio: 1.5 dB*. AM suppression: 50 dB*. Harmonic distortion: 0.5% or less*. Intermodulation: 0.5% or less*. Hum & Noise: 65 dB*. Spurious rejection: 100 dB*. **STEREOPHONIC SECTION** — Channel separation: 40 dB or greater at midfrequencies; 30 dB at 50 Hz; 25 dB at 10 kHz; 20 dB at 15 kHz. Frequency response: ±1 dB 20-15 kHz. Harmonic distortion: 1% at 1000 Hz with 100% modulation. 19 kHz and 38 kHz suppression: 55 dB or greater. SCA suppression: 50 dB. **AUDIO SECTION** — Output voltage: Tape & fixed, 1.5 V rms nominal (with 100% modulation). Output impedance: Tape & fixed, Approx. 9000 ohms. Phone & variable: 100 ohms. GENERAL — AC outlet socket: Unswitched; 350 W max. Power requirements: 120/240 VAC, 50-60 Hz, 0.25 W. Dimensions: 4¾" H x 16¾" W x 12½" D.

*Rated IHF (Institute of High Fidelity Standards).



(C)

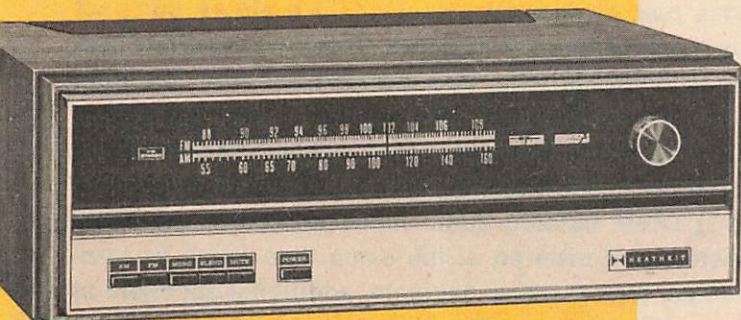
159⁹⁵

(C) AA-29 100 Watt Stereo Amplifier...

The same pace-setting performance specs found in the amplifier section of the AR-29, pg. 76, plus an additional "auxiliary" input and an extra "tuner" input. Its 35 watts RMS, 50 IHF, per channel into 8 ohms, is more than enough to drive even the most inefficient speaker systems. A massive, fully-regulated and filtered power supply, four conservatively heat sunked output transistors and superior IM and harmonic distortion specifications add up to sound fidelity you never expected to hear outside the theater. Level controls for all inputs.

Kit AA-29, (less cabinet) 27 lbs., mailable 159.95

AE-19 cabinet, 9 lbs., mailable 19.95



(D)

179⁹⁵

(D) AM/FM tuner from the popular AR-29...

Features the same outstanding performance specifications as the tuner section of the AR-29, pg. 76. Pre-assembled, factory-aligned FM tuner boasts 1.8 uV sensitivity. Computer-designed nine-pole L-C filter in the IF strip gives ideally shaped bandpass with greater than 70 dB selectivity, superior separation and eliminates IF alignment forever. "Blend" function attenuates any on-station FM hiss or high-frequency noise at the push of a button. "Mute" function attenuates between-station noise on FM without affecting sensitivity. Built-in AM rod antenna.

Kit AJ-29, (less cabinet) 19 lbs., mailable 179.95

AE-19 cabinet, 9 lbs., mailable 19.95

uper-sounding tuner
ed for the '70s
l priced
l modest... 89.95

includes cabinet

Heath has it. A compact high-performance, high-style AM/FM Tuner in simple-to-build kit form. With specs to rival many of so-called "premium" tuners now on the set — modular "bookcase" design for a component that looks as good as it sounds — a modest cost-of-labor-saving price. Match AJ-1214 with the AA-1214 Stereo Amplifier and you have a true separate component system will fit just beautifully anywhere. The top cover is in matte black vinyl, with distinctive walnut finished end panels.

front panel features Black-Magic back lighting, to black-out the face when the Tuner is not in use.

Heathkit "great sounding" features

AJ-1214 has single-knob flywheel tuning for AM and FM, push-on mode controls, stereo-broadcast light, adjustable AM antenna inputs for 75 or 300 ohm external FM antenna. And what's inside adds out even more. The solid-state circuitry utilizes 13 transistors, diodes and three integrated circuits. The preassembled and tuned FM tuning unit uses an RF field effect transistor to achieve a 1 V sensitivity with low cross modulation and minimal overload on strong signal stations.

FM IF includes two ICs and two ceramic filters for selectivity greater than 60 dB, superior amplifying/limiting characteristics, over-compactness and dependability. A phase-lock multiplex demodulator contributes to the 40 dB typical channel separation at less than 1% distortion.

Rewarding kit project for beginner or expert

Two printed circuit boards hold most of the components and fit into the cabinet with room to spare. This open layout makes initial check-out and the simple alignment steps easier than ever. If you've been in the market for a low cost tuner with high-price specs, it's here — the new Heathkit AJ-1214.

AJ-1214, 11 lbs. 89.95

AJ-1214 SPECIFICATIONS — AM Output: 0.6 V nominal. FM output: 1 V nominal. Power requirements: 120-240 VAC, 50/60 Hz, 10 W. Dimensions: Overall, 3⁷/₈" H x 12³/₄" W x 12¹/₂" D. All other specifications same as Tuner Section of AR-1214 Receiver, pg. 74.

The matching stereo amplifier produces 25 watts per channel for just... 89.95

includes cabinet

One of the best-looking and best performing bargains we've ever offered in an integrated stereo amplifier. And in less than three evenings you can have it together and working. The circuitry mounts on two printed boards, a single wiring harness takes care of most point-to-point connections. And the AA-1214 has "matchability" and "stackability" with the AJ-1214 tuner.

Provides all but the most inefficient speakers

The AA-1214 produces 15 watts RMS, 25 watts IHF, per channel into 8 ohms. That's sufficient to drive all but the most inefficient speaker systems with volume to spare. And there are inputs for phono, tape, tuner and auxiliary source. Plus a tape monitor jack that makes the AA-1214 an ideal low cost amp for 4-channel use. A headphone jack and level control for phono input round out the "top-of-the-line" extras on this sensational little amplifier.

Full control complement

Pushbuttons select program source, mono or stereo mode, and provide on-off control of speaker systems and power. Master controls actuate bass, treble, balance and volume. The new AA-1214 has all the power and performance most music lovers will ever want, and the "stackable" bookcase styling makes it as pleasing to the eye as it is to the ear. Don't wait.

Kit AA-1214, 13 lbs., mailable 89.95

AA-1214 SPECIFICATIONS — GENERAL — AC outlet sockets: 2, one switched, 1 unswitched, 150 W max. Power requirements: 120/240 VAC, 50/60 Hz, 100 W at full output with no load on accessory outlets. Dimensions: 3⁷/₈" H x 12³/₄" W x 12" D. See other specifications same as Amplifier Section of AR-1214, pg. 74.

NEW

Great Looking new "Stackable" Separates from the Exciting Heathkit AR-1214 Stereo Receiver



89⁹⁵



Two printed boards and wiring harness simplify kit building.



Two ceramic filters contribute to selectivity greater than 60 dB.



Black Magic back lighting hides dial when unit's off.



89⁹⁵



Inputs include full tape monitor facilities.



Components mount with room to spare on two circuit boards.



Labeled wiring harness makes point-to-point connections easy.

No money down on any kit — up to 2 years to pay — see order blank for details.



NEW



169⁹⁵

Bold New Concept in Stereo Receivers—Mini Size, Magnificent Performance, Modest Price

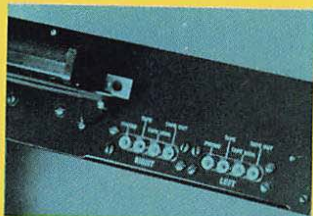
The Heathkit AR-1214 Stereo Receiver
50 Watts IHF Power, 25 Watts per Channel — 30 watts RMS, 15 watts per channel into 8 ohms
Sensational 2 μ V Sensitivity — selectivity greater than 60 dB

The Heathkit AR-1214 AM/FM Stereo Receiver comes on with great new look that's as practical as it is beautiful. The compact cabinetry with black vinyl top, walnut finished end panels and chrome controls accents a bookcase or a table-top, puts a sophisticated stereo entertainment center anywhere that's handy. And the quality is more than skin deep. The AR-1214 is a work of Heath audio excellence throughout. The amplifier section produces a clean 25 watts IHF, 15 watts RMS, per channel into 8 ohms. Two integrated circuits and two ceramic filters in the audio section give this receiver a selectivity greater than 60 dB and superior amplifying/limiting characteristics. The phase lock multiplex demodulator gives 40 dB typical channel separation at less than 0.5% distortion. The preassembled FM tuning unit provides 2 μ V sensitivity and a 2 dB capture ratio. The phono preamp section also uses integrated circuitry and has its own level controls so turntable volume can be set to coincide with tuner levels. All this in a money-saving kit project that's a pleasure from start to finish. Most circuitry mounts neatly on just three printed boards. The FM tuner is preassembled. Three evenings and just four simple alignment adjustments will have it all together. And the cabinetry is included in the low price.

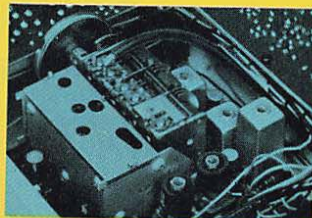
You'll be showing off your AR-1214 for years to come. Just look at these features: Traditional Heath Black Magic panel lighting to hide the dial face when the receiver is off; flywheel tuning; stereo indicator light; headphone jack; speaker on/off button; built-in AM antenna. And there are complete tape monitor facilities so you can hear recorded material as it is committed to tape, make use of the many add-on components that use these jacks, or combine your AR-1214 with the matching AA-1214 Amp for a great sounding 4-channel system at a nice price. The AR-1214 will easily drive all but the most inefficient speaker systems — with the kind of brilliant reproduction you expect from only the most expensive stereo components. Get the new Heathkit AR-1214. It'll brighten up your bookcase and put a big bold sound in your listening room. **Kit AR-1214, 16 lbs., available 169.95**

AR-1214 SPECIFICATIONS — FM SECTION (Monophonic) — Tuning range: 88 to 108 MHz. Intermediate frequency: 10.7 MHz. Frequency response: ± 1 dB from 20 to 15,000 Hz. Antenna: Balanced input for external 300 ohm antenna. 75 ohm antenna input may be used between either FM antenna terminal and ground. Sensitivity: 2 μ V.* Volume sensitivity: Below measurable level. Selectivity: 60 dB.* Image rejection: 50 dB.* IF rejection: 75 dB.* Capture ratio: 2 dB.* AM suppression: 50 dB.* Harmonic distortion: 0.5%.* Intermodulation distortion: 0.5%.* Hum and noise: 60 dB.* Spurious rejection: 70 dB. **FM SECTION (Stereo) — Channel separation: 40 dB typical, 35 dB minimum. Frequency response: ± 1 dB from 20 to 15,000 Hz. Harmonic distortion: 0.75% @ 1000 Hz with 100% modulation. 19 kHz and 38 kHz suppression: 6 dB or greater. SCA suppression: 55 dB typical. **AM SECTION — Tuning range: 535-1620 kHz. Intermediate frequency: 455 kHz. Sensitivity: Less than 100 μ V per meter.* Selectivity: Greater than 40 dB (alternate channel). AM antenna: Built-in rod type (adjustable). Image rejection: 75 dB @ 600 kHz, 65 dB @ 1400 kHz.* IF rejection: 60 dB.* Harmonic distortion: Less than 2%. Hum and noise: 35 dB.* **AMPLIFIER — Dynamic power output per channel (music power rating): 25 W (8 ohm load).* 30 W (4 ohm load), 14 W (16 ohm load). Continuous Power per channel: 15 W (8 ohm load), 20 W (4 ohm load), 10 W (16 ohm load). Power bandwidth for constant 0.5% total harmonic distortion: 5 Hz to 30 kHz. Frequency response (1 W level): ± 1 dB, 7 Hz to 100 kHz ± 3 dB, 5 Hz to 150 kHz. Harmonic distortion: Less than 0.5% from 20 kHz @ 15 W output. Less than 0.25% @ 1000 Hz with 1 W output. Intermodulation distortion: Less than 0.5% with 15 W output, using 60 and 6000 Hz mixed 4:1. Less than 0.2% @ 1 W output. Damping factor: Greater than 30. Input sensitivity: Phono: 2 mV (Overload 75 mV). Tape: 190 mV (Overload 2.5 V). Tape monitor: 190 mV. (Overload 2.5 V). Hum and noise: Phono (10 mV reference) -60 dB. Channel separation: 55 dB Phono & Tape. Output impedance: 4, 8 or 16 ohms. Tape output impedance: Approx. 50 ohms. Input impedance: Phono: 49 k ohm (RIAA equalized). Tape: 100 k ohm. Tape monitor: 100 k ohm. Tape output: 0.4 V with 0.2 V input. **GENERAL — AC outlet sockets: 2 (350 W max.), 1 switched, 1 unswitched. Power requirements: 120/240 VAC, 50-60 Hz. Dimensions: 3 $\frac{3}{8}$ " H x 17" W x 13" D.**********

*Rated IHF (Institute of High Fidelity) Standards **Record Industry of America



Rear panel has adjustable rod antenna, accessory jacks include Tape Monitor facilities.



Preassembled tuning unit mounts with room to spare on IF board.



Top, bottom and side panels are removable for total access to circuitry or for custom mounting.



Heath Black Magic panel lighting hides the AM/FM dial face when the receiver is turned off.

NEW



The Heathkit AR-1302 Stereo Receiver
newly designed solid-state FM IF circuitry —
no ICs, two ceramic filters result
in 60 dB selectivity or greater

A medium-price AM/FM Stereo receiver with all the power & station-pulling characteristics of components costing far more. And modular design makes the new AR-1302 a simple yet fascinating building experience. 57 transistors, 35 diodes and three integrated circuits mount on eight printed circuit boards, all of which plug into chassis connectors. Chassis-mounted parts are held to a minimum, a three-cable assembly make point-to-point wiring fast and trouble-free.

The new designed FM IF section uses two ICs and two ceramic filters to achieve truly outstanding sound reproduction. Sensitivity 1.9 μ V, selectivity 60 dB, capture ratio 1.8 dB, harmonic distortion 0.5% or less, IM distortion 0.25% or less, channel separation 40 dB at midfrequencies.

Here's push button selection of phono, tape, AM, FM mono or stereo sources. Push button selection of tone-flat contour, loudness control, muting of between station noise, blending of any station FM hiss, stereo speaker system 1 and system 2 (or use the extra connection for center channel sound — it can be switched from stereo to mono). One knob tunes AM and FM with all bearing inertia smoothness. Linear motion controls for volume, bass, treble, and balance. Individually adjustable controls for each input including tape monitor. Two tuning meters, center channel signal level.

Other features: direct coupled outputs; dissipation limiting circuitry; massive power supply; assembled and aligned FM tuner; built-in test circuitry (no other instruments needed); "black magic" panel lighting. For ample power and the AM-FM-FM Stereo sounds you like to hear — at a price you can afford to pay — order your Heathkit AR-1302 now.

Kit **AR-1302**, less cabinet, 30 lbs., mailable **239.95**
Kit **IE-19**, oiled pecan cabinet, 9 lbs., mailable **19.95**

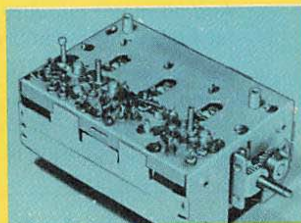
AR-1302 SPECIFICATIONS — FM SECTION (Monophonic) — Tuning range: 88 to 108 MHz. Antenna: Balanced input for external 300 ohm antenna. 75 ohm antenna input may be used between either FM antenna terminal and ground. Intermediate frequency: 10.7 MHz. Frequency response: ± 1 dB, 20 to 15,000 Hz. Sensitivity: 1.9 μ V. Volume sensitivity: Below measurable level. Selectivity: 60 dB.* Image rejection: 90 dB.* IF rejection: 90 dB.* Capture ratio: 1.8 dB.* AM suppression: 45 dB.* Harmonic distortion: 0.5% or less.* Intermodulation distortion: 0.25% or less.* Hum and noise: -60 dB.* Spurious rejection: -90 dB.* **FM SECTION (Stereophonic) —** Channel Separation: 40 dB @ midfrequencies (1000 Hz). 30 dB @ 50 Hz. 30 dB @ 10 kHz. 25 dB @ 15 kHz. Frequency response: ± 1 dB from 20 to 15,000 Hz. Harmonic distortion: 0.5% or less @ 1000 Hz with 100% modulation. 19 kHz and 38 kHz suppression: 50 dB or greater. SCA suppression: 50 dB. **AM SECTION —** Tuning range: 540 to 1620 kHz. Intermediate frequency: 455 kHz. Antenna: Rod type (adjustable). Sensitivity: 300 μ V/meter @ 1000 kHz using a radiating loop.* Selectivity: 25 dB @ 10 kHz. Image rejection: 60 dB @ 600 kHz. 60 dB @ 1400 kHz. IF rejection: 60 dB @ 1000 kHz. Harmonic distortion: Less than 2% with 5 mV input signal, 400 Hz, 90% modulation. Hum and noise: -40 dB.* **AMPLIFIER SECTION —** Dynamic music power (each channel): 30 W (8 ohm load),* 20 W (4 ohm load), 17 W (16 ohm load). Continuous power output (each channel): 20 W (8 ohm load), 20 W (4 ohm load), 15 W (16 ohm load). Power bandwidth for constant total harmonic distortion: Less than 5 Hz to greater than 30 kHz. Frequency response (1 W level): -1 dB, 6 Hz to 35 kHz -3 dB, less than 5 Hz to 60 kHz. Harmonic distortion: Less than 0.25% from 5 Hz to 20 kHz @ 20 W rms output. Less than 0.1% @ 1000 Hz @ 1 W output. Intermodulation distortion: Less than 0.25% with 20 W output, using 60 and 7,000 Hz mixed 4:1. Less than 0.1% @ 1 W output. Damping factor: Greater than 50 dB. Input sensitivity: Phono: 2.4 mV (155 mV overload). Tape, Aux and Tape Mon: 180 mV (greater than 10 V overload). Hum and noise: Phono (10 mV reference): -65 dB. Tape and Aux (200 mV reference): -75 dB. Volume control in minimum position: 90 dB below rated output. Channel separation: Phono: 50 dB or better. Tape and Aux: 55 dB or better. Output impedance (each channel): 4 ohm to 16 ohm. Tape output impedance: Approx. 50 ohm. Input impedance: Phono: 49 k ohm (RIAA** equalized). Aux, Tape and Tape Mon: 100 k ohm. Tape output: 1 V output with 0.2 V input. @ Aux or Tape input. AC outlet sockets: Two (350 W max.). One switched, one unswitched. Power requirements: 120/240 VAC, 50-60 Hz. Dimensions: 5 1/8" H x 16 3/4" W x 14 1/2" D.

*Rated IHF (Institute of High Fidelity) Standards **Record Industry of America

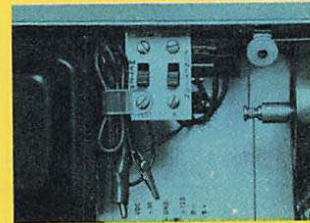


239⁹⁵
less cabinet

A 60 watt Receiver With
Performance Specifications
To Rival the Most Expensive



Preassembled FM tuner.



Built-in test circuitry.

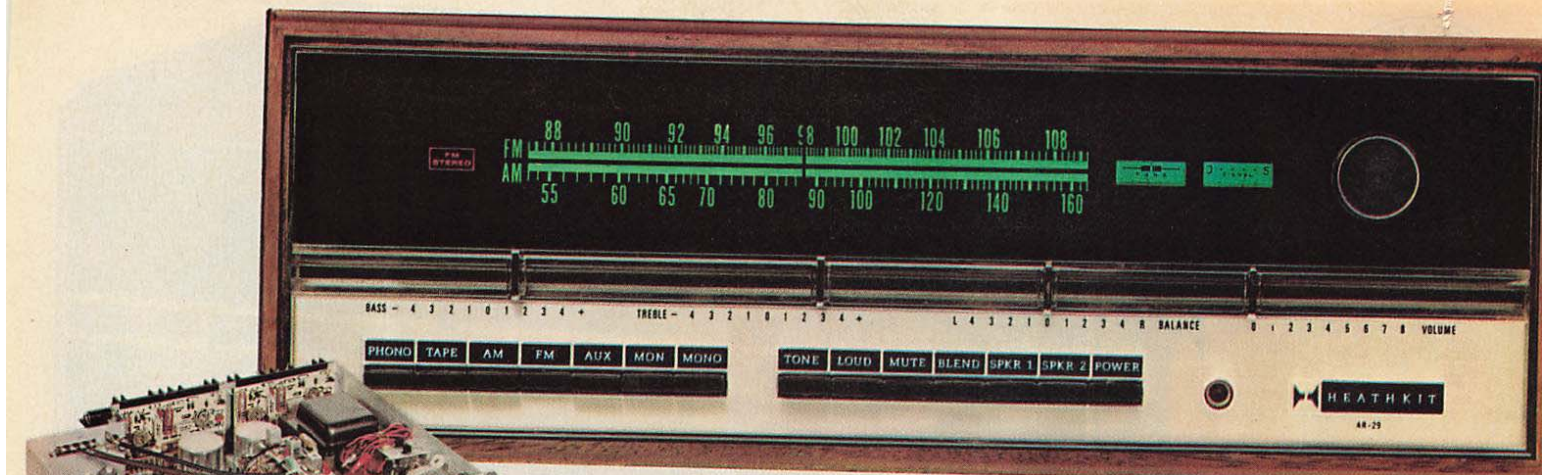


Preassembled FM IF board.



Black Magic panel lighting.

No money down on any kit — up to 2 years to pay — see order blank for details.



The 100-Watt Receiver That's in a Price Class by Itself 299⁹⁵

100 watts IHF — 50 watts per channel into 8 ohms (35 watts RMS)

Solid-state modular design — with preassembled & aligned FET tuner, computer designed LC Filter, four ICs, 10 plug-in circuit boards

The Heathkit AR-29 AM/FM stereo receiver is the value standard in the medium-power class. Spec for spec few FM receivers can match it — and those that do usually cost far more than the AR-29. Unquestionably the hours you invest in this kit pay off with fine stereo performance. And there's no mystery in assembling the sophisticated solid-state circuitry. Most components mount on eight circuit boards, seven of which plug in. Three cable assemblies with color-coded wires connect to six-pin connectors. The remaining chassis wiring and soldering is as simple as following the check-by-check instructions.

Delivers a full 2 x 35 watts RMS, 2 x 50 watts IHF music power — enough to drive the most inefficient speakers, producing an incredibly clean, lifelike sound. The all solid-state design utilizes 65 silicon transistors, 42 diodes and four IC's containing another 124 transistors and 40 diodes; an assembled, aligned FET tuning unit that's hypersensitive and free from overload; computer designed L-C filter that never needs alignment. And all major circuitry mounts on plug-in boards for fast, easy assembly.

It's packed with high-performance features including transformerless, direct coupled outputs with dissipation limiting circuitry for output protection; ball-bearing inertia flywheel tuning; mute

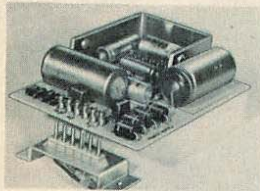
control and blend control on FM; SCA filter linear motion controls for volume, balance, bass and treble; individually adjustable level control for each channel of each input including tap monitor.

Kit AR-29 (less cabinet) 34 lbs.,
mailable **299.9**

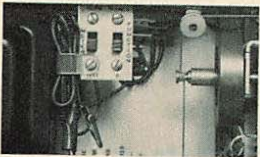
AE-19 oiled pecan cabinet, 9 lbs.,
mailable **19.9**

AR-29 SPECIFICATIONS—AMPLIFIER—Music power (Each Channel): 8 ohms, 50 W*; 4 ohms, 65 W; 16 ohms, 30 W. Continuous Power: 8 ohms, 35 W*; 4 ohms, 35 W; 16 ohms, 25 W. Power Bandwidth For 0.25%: T.H.D.: 5 Hz to 30 kHz*. Frequency Response (1 W): -1 dB, 7 Hz to 60 kHz. Harmonic Distortion: 0.25% from 20 Hz to 20 kHz at 35 W rms. 0.1% at 1000 Hz at 1 W. Intermodulation Distortion: 0.2% at 3 W, 60 and 6,000 Hz mixed 4:1. 0.1% at 1 W. Damping Factor 50. Input Sensitivity: Phono: 2.2 mV (Overload 155 mV). Tape Aux. & Tape Mon, 180 mV (Overload 10 V). Hum & Noise: Phono (10mV ref.), -65 dB. Tape & Aux. (0.25 V ref.), -75 dB. Channel Separation: Phono, 50 dB. Tape & Aux., 60 dB. Output Impedance (each channel): 4 to 16 ohms. Tape Output Impedance: 50 ohms. Input Impedance: Phono, 49 k ohm (RIAA Equalized). Aux., Tape & Mon, 100 k ohm. Tape Output: 1 with 0.2 V input, FM, 3.8 V with 100% modulation. **FM SECTION** — (Monophonic) — Tuning Range: 88 to 108 MHz. Antenna Balanced for external 300 ohm antenna. Unbalanced 75 ohm. Frequency Response: ±1 dB from 20 to 15,000 Hz. Sensitivity: 1.1 µV*. Selectivity: 70 dB*. Image Rejection: 90 dB*. Capture Ratio: 1.5 dB*. AM Suppression: 50 dB*. Harmonic Distortion 0.5%*. Intermodulation Distortion: 0.4%*. Hum & Noise: -60 dB*. Spurious Rejection: -90 dB. **FM SECTION** — (Stereophonic) — Channel Separation: 45 dB at mid-frequencies. Frequency Response: ±1 dB from 20 to 15,000 Hz. Harmonic Distortion: 0.5% at 1000 Hz with 100% modulation. 19 kHz and 38 kHz Suppression: 55 dB. SCA Suppression: 55 dB. **AM SECTION** — Tuning Range: 535 to 1620 kHz. AM Antenna: Adjustable rod. Connections for external ant. grd. Sensitivity: External antenna, 20 µV at 1000 kHz for 20 dB S+N/N. Selectivity: 40 dB at 20 kHz. Image Rejection: 60 dB at 600 kHz*. 45 dB at 1400 kHz*. IF Rejection: 50 dB*. Harmonic Distortion: 2%. Hum & Noise: -35 dB*. **GENERAL** — AC Outlet Sockets: One switched (350 W max.), one unswitched (350 W max.). Power Requirements: 120/240 VAC 50/60 Hz 240 watts at full output. Dimensions: Overall — 5 1/8" H x 16 3/4" W x 14 1/2" D.

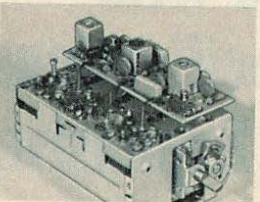
*Rated IHF (Institute Of High Fidelity) Standards



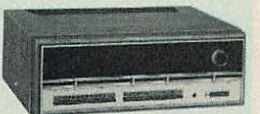
Plug-in fiberglass boards.



Built-in test circuitry.



Preassembled FM tuner.



Black Magic panel lighting.

Convert to 4-channel for just \$29.95

Add the Heathkit Stereo-4 decoder, extra stereo amplifier and speaker systems to your present rig and you're equipped for Stereo-4 matrixed 4-channel reproduction. As being broadcast by a number of FM stations and recorded on discs by several manufacturers, this method puts 4 channels into a conventional stereo multiplex signal or record. Unit installs between preamp and amplifier or via tape-monitor facilities. An extra set of tape input and output jacks is built into the decoder. Order with Heathkit amp and pair of speakers and apply 5% system discount.

Kit AD-2002, decoder, cables and demo record,

3 lbs., mailable **29.95**

ADA-2002-1, four-LP Stereo-4 record offer, Enoch Light plays hits of the 20's, 30's, and 40's, movie themes, "Permissive Polyphonics,"

4 lbs., mailable **19.95**

AD-2002 SPECIFICATIONS: Gain (control maximum): Unity. Maximum Input Signal: 2.5 V rms. Frequency Response: 10-100,000 Hz; +0, -5 dB. Signal to Noise Ratio, (referred to .25 V input): Greater than 70 dB, wideband. Total Harmonic Distortion, (at .25 V input): Less than .15%. Intermodulation Distortion, (at .25 V input): Less than .25%. Input Impedance: 50,000 ohms minimum. Output Impedance: 3,000 ohms. Controls: Master Gain/Power On-Off, Function Switch. Dimensions: 2 1/2" H., 5 3/4" W., 7" D. overall. Power Requirements: 120 VAC, 50-60 Hz; 3 W.





AR-1500, the 180-Watt Stereo Receiver for the Connoisseur 379⁹⁵

80 watts IHF — 90 watts per channel into 8 ohms (60 watts RMS)

Better Than 90 dB FM Selectivity — AM performance approaching FM quality

This is the receiver for the audiophile who demands the best there is. Yet this fine audio component can be built by anyone capable of assembling the simplest electronics kit. Julian Irsch of STEREO REVIEW put it this way:

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 to be operated in the clear — even the entire power-transistor and heat-sink assembly! The 245-page manual has extensive test charts that show all voltage and resistance measurements in key circuits as they should appear in the receiver's built-in test meter . . .

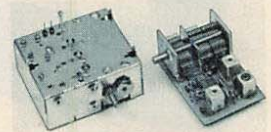
Conservatively rated, the AR-1500 puts out 60 watts RMS per channel, into 8 ohms (90 x 2 watts HF), with less than 0.2% intermod distortion, less than 0.25% harmonic distortion. The computer-designed five-pole LC filters and the improved 4-gang 6-tuned front end combine for an FM selectivity better than 90 dB, 1.8 uV sensitivity. And here are some things the specs won't show you. There are outputs for two separate speaker systems, two sets of headphones, bi-amplification, and oscilloscope monitoring of FM. Standard inputs — all with individual level controls. Electronically monitored overload circuitry. There are even two dual-gate MOSFETS, one J-FET and a 12-pole LC filter in the AM section for super sound there! The AR-1500 is simply the best receiver we have ever offered. And at the low kit-form price, it's an incredible value for the audiophile who demands excellence. Build it, listen to it, and you'll believe it.

Kit AR-1500, less cabinet, 53 lbs., available **379.95**
ARA-1500-1, walnut cabinet, 8 lbs., available **24.95**

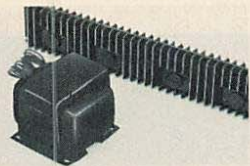
AR-1500 SPECIFICATIONS—TUNER—FM SECTION (Monophonic): Tuning Range: 88 to 108 MHz. Intermediate Frequency (IF): 10.7 MHz. Frequency Response: ± 1 dB, 20 to 15,000 Hz. Antenna: Balanced input for external 300 ohm antenna. 75 ohm antenna input may be used between either FM antenna terminal and ground. Sensitivity: 1.8 uV.* Volume Sensitivity: Below measurable level. Selectivity: 90 dB.* Image Rejection: 100 dB.* IF Rejection: 100 dB.* Capture Ratio: 1.5 dB.* AM Suppression: 50 dB.* Harmonic Distortion: 0.5% or less.* Intermodulation Distortion: 0.1% or less.* Hum and Noise: 60 dB.* Spurious Rejection: 100 dB.* **FM SECTION (Stereophonic):** Channel Separation: 40 dB or greater at midfrequencies; 35 dB at 50 kHz; 25 dB at 10 kHz; 20 dB at 15 kHz. Frequency response: ± 1 dB from 20 to 15,000 Hz. Harmonic Distortion: 0.5% at 1000 Hz with 100% modulation. 19 kHz and 38 kHz Suppression: 55 dB or greater. SCA Suppression: 55 dB. **AM SECTION:** Tuning Range: 535 to 1620 kHz. Intermediate Frequency (IF): 455 kHz. Sensitivity: 50 uV with external input; 300 uV per meter with radiated input. Selectivity: 20 dB at 10 kHz; 60 dB at 20 kHz. AM Antenna: Built-in rod type; connections for external antenna and ground on rear chassis apron. Image Rejection: 70 dB at 600 kHz; 50 dB at 1400 kHz. IF Rejection: 70 dB at 1000 kHz. Harmonic Distortion: Less than 2%.* Hum and Noise: 40 db.* **AMPLIFIER — Dynamic Power Output per Channel (Music Power Rating):** 90 watts (8 ohm load)*; 120 watts (4 ohm load); 50 watts (16 ohm load). **Continuous Power Output per Channel:** 60 watts (8 ohm load)*; 100 watts (4 ohm load); 40 watts (16 ohm load). **Power Bandwidth for Constant .25% Total Harmonic Distortion:** Less than 8 Hz to greater than 30 kHz.* **Frequency Response (1 watt level):** -1 dB, 7 Hz to 80 kHz; -3 dB, less than 5 Hz to 120 kHz. **Harmonic Distortion:** Less than 0.25% from 20 Hz to 20 kHz at 60 watts output; less than 0.1% at 1000 Hz with 1 watt output. **Intermodulation Distortion:** Less than 0.1% with 60 watts output, using 60 and 6,000 Hz mixed 4:1; less than 0.1% at 1 watt output. **Damping Factor:** Greater than 60. **Input Sensitivity:** Phono, 1.8 millivolts; Tape, 140 millivolts; Aux, 140 millivolts; Tape Mon, 140 millivolts. **Input Overload:** Phono, 145 millivolts; Tape, greater than 10 volts; Aux, greater than 10 volts; Tape Mon, greater than 10 volts. **Hum & Noise:** Phono (10 millivolt reference), -63 dB. Tape and Aux (0.25 volt reference), -75 dB. Volume control in minimum position. -90 dB referred to rated output. **Channel Separation:** Phono, 55 dB; Tape and Aux, 55 dB or greater. **Output Impedance (each channel):** 4 ohm through 16 ohms. **Tape Output Impedance:** Approximately 50 ohms. **Input Impedance:** Phono, 49 k ohm (RIAA** Equalized); Aux, Tape, and Tape Mon, 100 k ohms. **Tape Output:** Tape or Aux inputs, 1 volt output with 0.2 volt input. **GENERAL — Accessory AC Outlet Sockets:** Two. One switched and one unswitched (240 watts maximum). **Power Requirements:** 120 or 240 volts 50/60 Hz AC. 40 watts idling (zero output) and 356 watts at full output with no load on accessory outlets. **Dimensions:** Overall — 18 1/2" W x 5 1/8" H x 13 7/8" D.

*Rated IHF (Institute of High Fidelity) Standards.

**Rated RIAA (Recorded Industry Association of America).



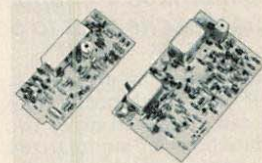
Completely new AM tuner circuit board. FM tuner is pre-assembled ready to install.



Massive 14 lb. transformer and output transistors with full-width heat sink.



Hinged circuit boards for FM IF, AM IF, Multiplex & Phono Preamp sections.



FM circuitry has two LC Filters, three ICS. AM has an LC Filter. Plug-in boards contribute to error-free assembly.

The ARW-1500 — hand-crafted for the lucky few

For those who have requested it, here's the factory wired AR-1500. A truly unique audio component and perhaps the finest AM/FM receiver you will ever be able to purchase. Each ARW-1500 is hand made and individually inspected and tested. Performance curves are plotted and pertinent specifications are measured, documented and signed by the Heath Company Quality Control Technician who performs the evaluation. This material, identified by receiver model number is shipped with each ARW-1500. Specs are identical to the kit version above and the price includes the beautiful walnut cabinet,

level control adjustment tool, two speaker plugs, speaker fuse blocks, and 16-page owners manual. Guaranteed for one year. Production quantity limited. Allow 60 to 90 days for delivery.

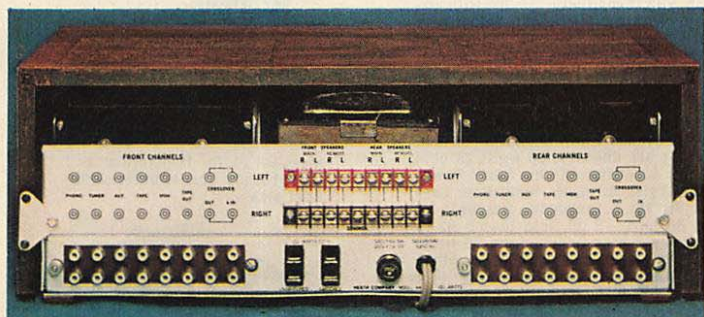
Model ARW-1500, receiver & walnut cabinet, 48 lbs., Exp./Frt. **649.95**



No money down on any kit — up to 2 years to pay — see order blank for details.



The 4-Channel Amplifier for Any Format



200 watts IHF (50 watts per channel) — with two complete sets of stereo controls

Built-in Matrixed-4 Decoder — reproduces today's matrixed 4-channel material, adds new 4-channel excitement to conventional stereo

This is a state-of-the-art component with performance specs to match some of the most costly integrated amplifiers on the market — enough raw power to drive two 4-channel systems. Yet every major circuit function is "modularized" for easy assembly by virtually anyone who can solder a connection.

Secondarily, this design gives you an on-the-spot maintenance capability usually found only in the most sophisticated commercial electronics. You assemble 10 boards (five plug into chassis pins), hook-up three cable harnesses and a minimum of point-to-point conductors, test and align as you go following simplified step-by-step instructions. When you're finished you can show off the most versatile amplifier we've ever offered.

Handles both matrixed and discrete 4-channel material*

The AA-2004 employs four conservatively rated amplifiers producing 140 watts (4 x 35) into 4 and 8 ohms; 100 watts (4 x 25) into 16 ohms.

Dynamic music power is a whopping 200 watts into 8 ohms. The special built-in 4-channel matrix circuitry decodes the matrixed 4-channel recordings already being sold, and matrixed 4-channel FM being broadcast by a number of stations across the country. The built-in decoder also enhances your present stereo material and stereo FM by reproducing the out-of-phase ambiance common to 2-channel programming. This "hidden presence" is fed to the rear two speakers resulting in an extremely realistic 4-channel effect. As discrete 4-channel material becomes more prevalent, your AA-2004 will handle it beautifully at a flip of the mode switch.

Maximum control flexibility

The individual amplifier sections are controlled in pairs, giving you two complete and independent stereo systems, if you desire. Duplicate control clusters provide front and rear bass, treble, balance and volume, as well as phono, tape, tuner, aux., tape monitor, filter and loudness. A master mode switch selects mono, stereo, matrixed 4-channel or discrete 4-channel. Pushbuttons activate speaker pairs in any combination of up to eight speakers — or, two complete 4-channel systems. Twenty input level controls — enough for up to five 4-channel program sources — can be adjusted beneath the chassis. And there are separate rear panel jacks to permit biamping, separate filters, equalizers, etc. Four 3-range VU meters monitor every channel.

Performance to match your most exotic system

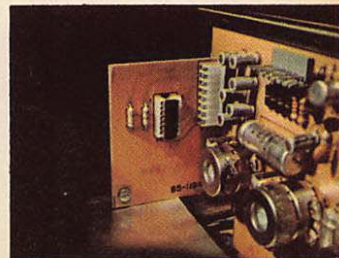
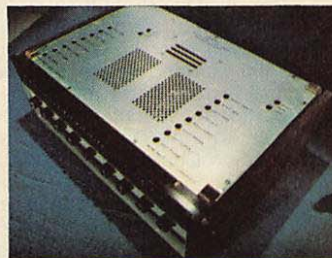
Compare the conservatively rated specs for yourself. Power bandwidth on all channels from less than 5 Hz to more than 45 kHz for 0.25% total harmonic distortion. IM distortion less than 0.2%. Damping factor greater than 100. Hum and noise — 65 dB for phono, — 75 dB for tape and auxiliary. A 50-volt DC regulator supplies power to all preamp stages. A 10-amp bridge rectifier supplies power to the four power amps.

- Kit AA-2004, 38 lbs., less cabinet, mailable **349.95**
- AAA-2004-1, pecan cabinet, 7 lbs., mailable **24.95**

AA-2004 SPECIFICATIONS — Dynamic power output per channel: 50 W (8 ohm load), 65 W (4 ohm), 30 W (16 ohm). Continuous power output per channel: 35 W (8 ohm load)**, 35 W (4 ohm), 25 W (16 ohm). Power bandwidth for constant 0.25% total harmonic distortion: Less than 5 Hz greater than 45 kHz.** Frequency response (1 W level): —1 dB, 7 Hz to 50 kHz, —3 dB, 4 Hz to 90 kHz. Harmonic distortion: Less than 0.25% from 20 Hz to 20 kHz @ 35 W output. Less than 0.1% @ 1000 Hz with 1 W output. Intermodulation distortion: Less than 0.2% with 35 W output, using 60 and 7,000 Hz mixed 4:1. Less than 0.1% @ 1 W output. Damping factor: Greater than 100. Input sensitivity: Phono: 2.2 mV. Tuner, Aux, Tape, Tape Mon: 180 mV. Input Overload: Phono: 155 mV. Tuner, Aux, Tape, Tape Mon: Greater than 10 V. Tape output: 1.4 V output with 0.2 V input. Hum and noise: Phono (10 mV reference): —65 dB. Tuner, Aux, Tape, Tape Mon. (0.25 V reference): —75 dB. Volume control in minimum position: —90 dB referred to rated output. Channel separation: Phono: 50 dB. Tuner, Aux, Tape, Tape Mon: 55 dB or better. Recommended speaker impedance (each channel): 4 through 16 ohm. Tape output impedance: Approx. 50 ohm. Input impedance: Phono: 49 k ohm (RIAA equalized). Tuner, Aux, Tape and Tape Mon: 100 k ohm. Dimensions: 6 1/2" H x 18 1/2" W x 13 3/4" D.

*Multiplex discs require suitable adapter.

**Rated IHF (Institute of High Fidelity) Standards.





The Tuner That's an FM Computer

Audio Magazine's Leonard Feldman — "There is so much that's new and unique in this model that it would take a small volume to fully do it justice..."

Stereo Review's Julian Hirsch — "...we know of nothing else on the market with comparable features..."

Mr. Feldman goes on to say:

"... Do not confuse this 'digital readout' tuner with some units which have recently appeared on the market and simply replace the tuning dial with numeric readout devices. The latter variety guarantees no more tuning accuracy than their 'dial pointer' counterparts. The Heath AJ-1510 is tuned exactly to 101.5 MHz when those readout tubes READ 101.5 — and not to 101.54 or 101.47!

"At the left are ten keyboard buttons, numbered '1' through '0', as well as a re-set button (punched when you wish to 'punch up' a new station frequency) and a button labeled BY-PASS (used to initiate the 'auto-sweep' action which causes the tuner to sweep downward in frequency, automatically locking in on every available signal in your area)

"... three more buttons, labeled A, B and C . . . are used to select three predetermined favorite stations . . . and there are additional buttons for SQUELCH DEFEAT and STEREO ONLY reception . . .

"... a tiny test switch button when depressed, lights up all the elements of the digital readout tubes to insure that they are operative. There is also a rotary control which determines the speed at which the AUTO-TUNE action takes place, a noise squelch adjustment control, and an AGC squelch control. A slide switch changes the meter function from signal strength indication to multi-path indication and a second, three-position slide switch selects automatic stereo, partial stereo blend (for reduced noise in weak-signal stereo reception situations with some sacrifice in overall stereo separation), and mono-mix. The right section behind the trap door contains three horizontal slots, labeled A, B and C. These slots correspond to the three PREPROGRAM selection buttons . . . upon inserting three plastic cards no larger than a standard credit card, the buttons can be used to tune in your favorite stations which you easily program onto the cards yourself . . .

"... The heart of the non-mechanical tuning aspect of this unit lies in the voltage-tuned FM front-end, which is of the varactor-tuned type and contains no moving variable capacitor. Instead, a suitable d.c. voltage applied to the varactor diodes determines their effective capacitance. The keyboard, pre-programmed cards, or automatic sweep tuning methods, all program a divider circuit. The divider circuit divides the tuner's local oscillator frequency and compares it to a crystal controlled reference frequency and the result of this comparison is the tuning voltage. Changing the divide ratio of the divider circuit changes the d.c. voltage applied to the tuner and a different station is tuned in. Simultaneously, a visual display of the station frequency is provided by the readout circuitry. Because of the crystal controlled reference frequency and the phase-lock-loop circuitry,



however, the accuracy of the frequency tuned in is no longer dependent upon the drift-free characteristics of the FM front-end but will be as accurate as the reference crystal frequency and, in the case of the AJ-1510, that means at least 0.005% accuracy! . . .

Mr. Hirsch comments further:

"There are no moving parts (the tuning is entirely electronic), and almost nothing resembling r.f. circuit components . . . The i.f. selectivity is provided by sealed multipole inductance-capacitance filters. Not only do they give outstanding alternate-channel selectivity (the kind most of us are concerned with), but it is also easy to separate adjacent-channel signals only 200 kHz apart . . .

"... our measured performance data on the AJ-1510 met or exceeded Heath's published specifications . . . The IHF sensitivity was 1.6 microvolts . . . The 89-dB image-rejection figure was very good, and we confirmed Heath's alternate-channel selectivity rating of 95 dB . . . The FM frequency response was well within ± 1 dB from 30 to 15,000 Hz. Stereo channel separation was exceptionally good — 40 dB at middle frequencies . . . suppression of 19 and 38 kHz components of stereo FM signals was the best we have yet encountered . . . tuning the AJ-1510, in any of its modes, is a unique experience. No matter how you go about it, the output is always a clean signal or nothing — not a hint of a thump, hiss, or squawk at any time . . .

"... for anyone who wants a tuner that is most certainly representative of the present state of the art, and which is not likely to be surpassed in any important respect for the foreseeable future, his search can stop at the AJ-1510."

Kit AJ-1510, Tuner less cabinet, 23 lbs., mailable **539.95**

AJA-1510-1, Pecan cabinet, 6 lbs., mailable **24.95**

AJ-1510 SPECIFICATIONS — MONOPHONIC — Exact tuning range: 88.1 to 107.9 MHz. Tuning: Digitally synthesized. Intermediate frequency: 10.7 MHz. Antenna: 75 or 300 ohm. Frequency response: Discriminator: 10-60,000 Hz, ± 0.5 dB. Audio: 20-15,000 Hz, ± 1 dB. Sensitivity: Less than 1.8 μ V. Selectivity (alternate channel):* Greater than 95 dB. Capture ratio:* Less than 1.5 dB. Harmonic distortion:* Less than 0.3%. Intermodulation distortion:* Less than 0.1%. Image rejection. Greater than 90 dB. IF rejection:* Greater than 95 dB. Spurious rejection:* Greater than 90 dB. Signal-to-noise* ratio (100% mod.): Greater than 65 dB. AM suppression:* Greater than 60 dB. Channel frequency accuracy: Better than .005%. **STEREOPHONIC** — Channel separation: 1,000 Hz, 40 dB; 80 Hz, 25 dB; 10 kHz, 25 dB; 15 kHz, 20 dB. Harmonic distortion* (100% mod.): 0.35%. Frequency response: (± 1 dB): 20 to 15,000 Hz, 19 kHz and 38 kHz suppression: Greater than 60 dB. SCA suppression: Greater than 60 dB. **AUDIO OUTPUT** — Audio output level: (fixed): 1.2 V rms nominal (with 100% mod.). Output impedance (fixed): Approx. 4,700 ohms. **GENERAL** — Power requirements: 120/240 VAC, 50/60 Hz, 50 W. AC outlet socket: Unswitched, 350 W Max. Dimensions: 6" H x 16 $\frac{3}{8}$ " W x 14 $\frac{3}{4}$ " D. Weight 23 lbs. (less cabinet)

*IHF

No money down on any kit — up to 2 years to pay — see order blank for details.

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