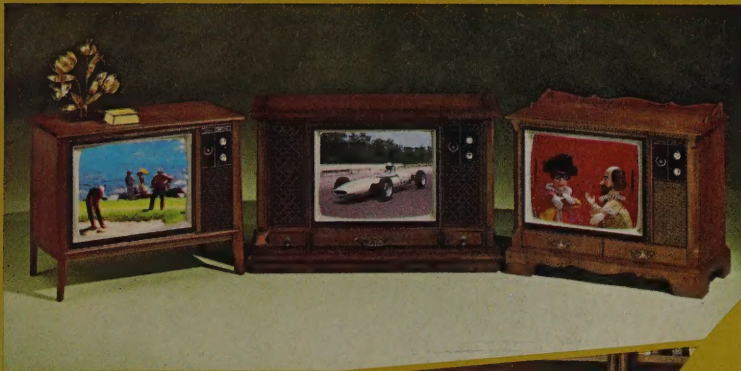


25th year

HEATHKIT



SPECIAL NOTICE

This annual catalog was printed prior to President Nixon's voluntary price freeze. This message has subsequently been overprinted on the cover.

In a spirit of cooperation, those few price increases reflected herein are postponed. In such cases you will be refunded the difference back to May 25, 1971 prices as shown in our last catalog. Price reductions announced in this catalog remain effective.



HEATH

Schlumberger

Benton Harbor, Mich. 49022
Factory mail order catalog 810/72





Welcome to our 25th Anniversary issue

Twenty-five years ago Heath Co. packaged an assortment of electronic components, along with a set of assembly instructions, and direct-mail marketed the first electronic Heathkit. The kit, a 5" oscilloscope at \$39.50, was an overnight success. More than that, it pioneered a new concept in marketing...the direct factory-to-consumer sale of electronic kits, with attendant dual savings passed on to the customer.

Upon that foundation was built the Heathkit world as it exists today. The intervening 25 years have seen the Heathkit line grow from that first simple oscilloscope kit to a vast selection of products ranging from color television sets, electronic organs, microwave ovens to trail bikes...and appealing to hobby and professional interests all the way from technicians, musicians, photographers, yachtsmen, fishermen, hams, treasure hunters...to the just plain have-fun-doing-it-yourself hobbyist.

The past quarter century has been marked annually by an array of new Heathkit products...appealing to an ever-widening spectrum of consumer interests. On the pages of this catalog you'll find a host of new kits designed to stir your own imagination and interest: a new stereo cassette tape deck and a Stereo-4 quadraphonic decoder for your home stereo hi-fi system; a new automotive timing light and a battery charger kit; colorful new AM/portable phono combo for the younger set; a new digital depth sounder for boaters; a new wireless intercom and an economy garage door opener...plus other exciting new additions to the Heathkit line.

For all that's new in each annual Heathkit catalog, one thing remains constant. That's our dedication to the principle that **anyone**, regardless of experience, can successfully build a quality-designed Heathkit product at home with minimum effort, maximum savings and enjoyment. This promise was true in 1947. And it's just as true today.

Backing up that promise are our complete tech correspondence and service departments...only a phone call or letter away should a question arise...plus a growing nationwide network of local Heathkit Electronic Centers offering complete demonstration, consultation, sales and service facilities for your convenience and assistance.

It's been a genuine pleasure serving you over these past two and a half decades. I hope you'll find equal pleasure in browsing through our 25th Anniversary catalog...and that you'll find kit building even more fun, exciting and rewarding during the next 25 years.

Sincerely,

D. W. Nurse
D. W. NURSE
President

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HEATHKIT ELECTRONIC CENTERS (Sales and Service)

CALIFORNIA

Anaheim, 92805
(Orange County Area)
330 E. Ball Road
Phone: 714-776-9420

El Cerrito, 94530
(Oakland Bay Area)
6000 Potrero Avenue
Phone: 415-236-8870

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

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

Redwood City, 94063
(San Francisco Peninsula)
2001 Middlefield Rd.
Phone: 415-365-8155

Woodland Hills, 91364
(San Fernando Valley)
22504 Ventura Blvd.
Phone: 213-883-0531

COLORADO

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

FLORIDA

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

GEORGIA

Atlanta, 30305
5285 Roswell Road
Phone: 404-252-4341

ILLINOIS

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

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

KANSAS

Mission, 66222
(Kansas City Area)
5960 Lamar Ave.

MARYLAND

Rockville, 20852
(Wash. D. C. Area)
5542 Nicholson Lane
Phone: 301-881-5420

MASSACHUSETTS

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

MICHIGAN

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

MINNESOTA

Hopkins, 55343
(Minneapolis Area)
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

Jericho, L.I., 11753
15 Jericho Turnpike
Phone: 516-334-8181

New York, 10036
35 W. 45th Street
Phone: 212-765-4590

OHIO

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

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

PENNSYLVANIA

Philadelphia, 19149
6318 Roosevelt Blvd.
Phone: 215-288-0180

Pittsburgh, 15235
3482 William Penn Hwy.
Phone: 412-824-3564

TEXAS

Dallas, 75201
2715 Ross Avenue
Phone: 214-826-4053

Houston, 77027
3705 Westheimer
Phone: 713-623-2090

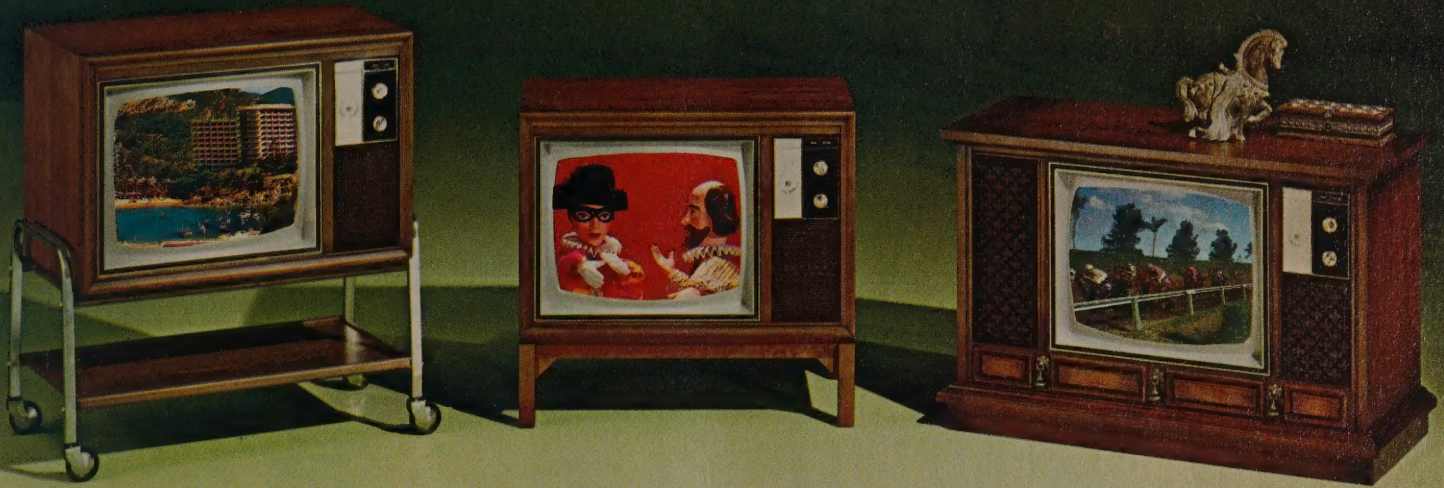
WASHINGTON

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

WISCONSIN

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

20" color tv



GR-270 . . . excellent choice for smaller rooms

Modular design. Ten glass epoxy circuit boards snap in or out in seconds . . . greatly simplifies assembly and service.

Solid-state design using over 100 devices and only two tubes (picture and high voltage rectifier) delivers visibly superior performance and reliability.

Premium quality 20" picture tube . . . industry's finest 227 sq. in. bonded face, etched glass tube . . . delivers crisp, bright, colorful pictures.

Automatic fine tuning standard . . . just push a button and the factory assembled and aligned AFT module locks in perfect picture and sound instantly, automatically.

VHF power tuning standard . . . convenient pushbutton scanning of all VHF channels and one preselected UHF channel.

Factory assembled and aligned 3-stage IF is completely shielded to eliminate external interference. Provides higher gain for improved overall picture quality.

Solid-state VHF tuner uses an MOS Field Effect Transistor to deliver greater sensitivity, lower noise and less cross-modulation . . . gives noticeably better color reception especially 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.

Money-saving Heathkit self-service for virtually complete owner servicing. Built-in dot generator, tilt-out convergence/secondary control panel, clearly labeled chassis controls and the comprehensive Heath manual combine to give easy, step-by-step self service. Volt-ohm meter supplied lets you troubleshoot and adjust the entire set.

Compare the GR-270 for features, performance, price. Then order your new "270".

Kit GR-270, all parts incl. chassis, picture tube, mask, VHF and UHF tuners, AFT and spkr., 116 lbs., Express/Frt. **489.95**

Cart & cabinet combo,

Assembled GRA-203-20 cabinet, 46 lbs., Express/Frt. **54.95**

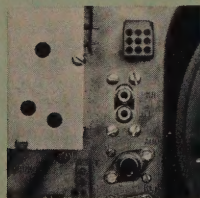
GRA-204-20 roll-around cart, 19 lbs., Express/Frt. **19.95**

GRS-203-5 cart & cabinet combo, 65 lbs., Express/Frt. **59.95**

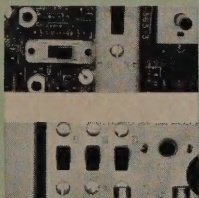
Assembled GRS-203-6, walnut finished, contemporary cabinet and base combo above center. Cabinet 20³/₄" H x 31¹/₈" W x 18⁵/₈" D, 59 lbs., Express/Frt. **59.95**

Assembled GRA-202-20 Mediterranean cabinet, finished in luxurious pecan, above 27³/₂" H x 41⁷/₈" W x 19¹/₈" D, 85 lbs., Express/Frt. **119.95**

GR-270 SPECIFICATIONS: Viewing Area: Approx. 227 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 Sub-carrier:** 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.



Hi-fi sound output



Exclusive self-service features



Convergence / secondary control panel tilts out from cabinet to provide instant access to controls for minor touch-up adjustments or periodic convergence. A Heath exclusive.

Low cost wireless remote control kit



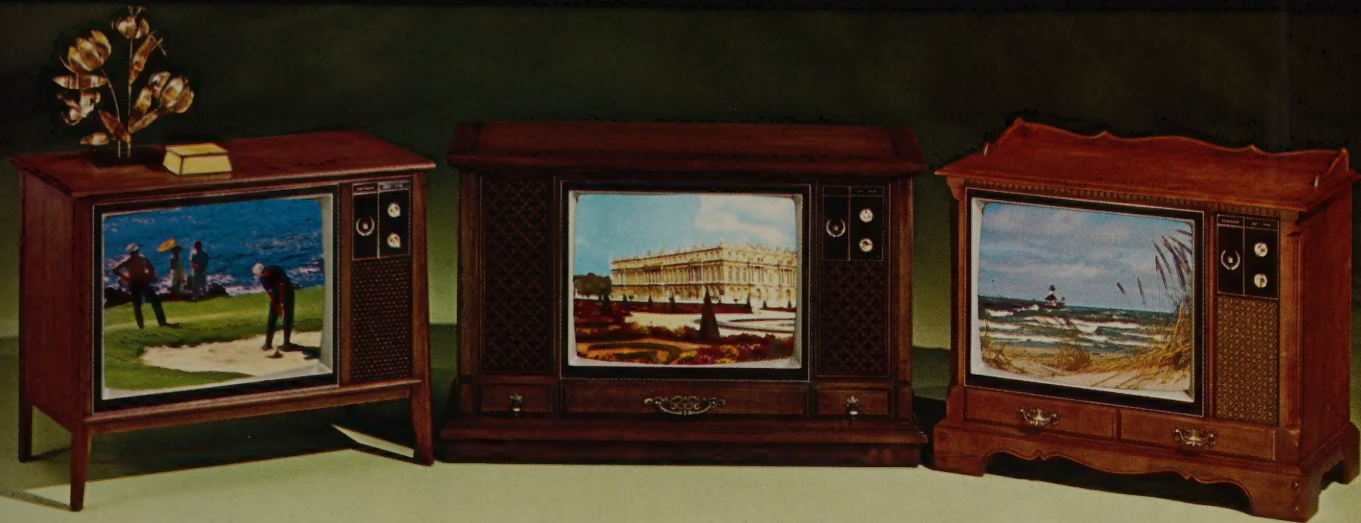
Add this easy-to-build wireless remote control to any Heathkit solid-state color TV . . . GR-270, GR-370 & GR-371MX models. Gives across-the-room control of on/off, volume level, channel selection, color and tint . . . all without moving from the comfort of your chair. Small hand-held transmitter runs from a single 9 volt battery. Receiver fits inside TV cabinet. Fast, easy assembly & installation in just a few hours with the famous Heathkit manual.

Kit GRA-70-6, 6 lbs., mailable **74.95**

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 a period of two years from date of original purchase. All picture tubes warranted for two full years.

25" color tv



Heathkit 25" ultra-rectangular solid-state color TV... largest picture in the industry... only 579.95 (less cabinet)

The world's most unique color TV... offers performance, convenience and self-service features you won't find in any other set at any price. Make the comparison yourself.

Heath MTX-5 ultra-rectangular matrix picture tube standard. All the brightness of a matrix tube plus a specially formulated etched face plate that stops unwanted glare and increases contrast... gives a sharper picture with truer, more natural colors. Square-corner design provides 315 sq. in. of viewing pleasure... the largest picture in the industry.

Exclusive solid-state design: 45 transistors, 55 diodes, 2 SCRs; 4 ICs containing another 46 transistors and 21 diodes... just two tubes: picture and high voltage rectifier... all combine to deliver performance & reliability unmatched by conventional tube sets.

Solid-state VHF tuner with MOSFET circuitry for greater sensitivity, lower noise & lower cross-modulation... delivers visibly superior color reception, especially under marginal conditions. Memory fine tuning is standard. Solid-state UHF tuner uses hot carrier diode design for increased sensitivity.

3-stage solid-state IF provides higher gain for better overall picture quality. Entire factory-aligned assembly is shielded to minimize external interference.

Automatic Fine Tuning — standard. The assembled & aligned AFT module tunes in perfect picture and sound automatically, instantly, with just a push of a button. Can be disabled for manual tuning if desired.

VHF power tuning — standard. Lets you scan thru all VHF and one selected UHF channel at the push of a button.

"Instant On" — standard. A push of the power switch brings instant sound, pictures in seconds. And the continuously heated picture tube filaments extend tube life.

Other features include adjustable tone control, adjustable noise limiting, hi-fi sound output, and a wide array of famous Heath self-service aids, including dot generator and tilt-out convergence panel and handy volt-ohm meter. And check the liberal warranty plan on p. 5 too.

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

Assembled GRA-401-25, contemporary walnut cabinet, left above. Constructed of hardwood solids & veneers with oil rubbed walnut finish. 30³/₃₂" H x 37¹/₈" W x 19⁷/₈" D, 62 lbs., Exp./Frt. **84.95**

Assembled GRA-404-25, Mediterranean cabinet, center above. Made of furniture grade hardwoods & solids, beautifully finished in pecan. 48¹/₄" W x 30³/₄" H x 22" D, 87 lbs., Exp./Frt. **139.95**

Assembled GRA-403-25, Early American cabinet, right above. Finished in classic Salem Maple; constructed of fine hardwoods & veneers. 30¹³/₃₂" H x 38¹/₂" W x 19³/₄" D, 75 lbs., Exp./Frt. **124.95**

GR-371MX SPECIFICATIONS: Viewing Area: 315 sq. in. All other specifications same as GR-370.

23" color tv

25th year



Heathkit 23" solid-state color TV... with a living-room size view... just 549.95 (less cabinet)

Solid-state chassis. Over 100 solid-state devices and 10 modular plug-in circuit boards simplify assembly and insure superior performance & reliability.

Solid-state VHF tuner... exclusive MOSFET design for greater sensitivity, lower noise, visibly better reception.

3-stage IF provides higher gain, better overall picture quality. Totally shielded.

AFT. Pushbutton fine tuning delivers perfect sound & pictures.

Pushbutton VHF power tuning... scans all VHF & one UHF channel.

Automatic degaussing keeps colors pure & clean by demagnetizing picture tube each time the set is turned on.

Automatic color control... keeps colors steady under varying conditions.

Adjustable noise limiting & gated AGC minimize pulse interference, maintain constant signal strength.

Adjustable video peaking selects degree of picture sharpness.

"Instant On." Continuously heated tube filaments give instant sound, picture in seconds, longer tube life.

Premium quality bonded face, etched glass picture tube... industry's

finest 23" diagonal tube. Gives crisper, brighter, more natural color. Matrix tube is a low-cost option.

Adjustable tone control... varies tone from rich bass to crisp highs thru built-in 6" x 9" speaker.

Hi-fi output permits playing TV audio thru your hi-fi amp.

Two VHF antenna inputs for connection of 75 or 300 ohm antennas.

Complete owner servicing. Exclusive dot generator & tilt-out convergence board for quick, accurate adjustment of dynamic convergence. Comprehensive instructions and volt-ohm meter supplied.

Liberal warranty plan... see page 5 for all details.

Kit GR-370, all parts incl. chassis, picture tube, mask, VHF & UHF tuners, AFT & spkr., 124 lbs., Express/Frt. **549.95**

Kit GR-370MX, GR-370 as above with Matrix picture tube, 124 lbs., Express/Frt. **559.95**

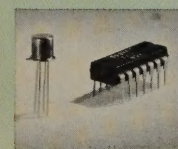
Assembled GRA-301-23, contemporary walnut cabinet, left above. Assembled of fine veneers & solids with oil rubbed walnut finish. 29⁷/₃₂" H x 35¹/₈" W x 19⁷/₈" D, 60 lbs., Express/Frt. **79.95**

Assembled GRA-303-23, Early American cabinet, center above. Assembled of hardwoods & veneers; finished in Salem Maple. 29²/₃₂" H x 37¹/₄" W x 19³/₄" D, 73 lbs., Express/Frt. **114.95**

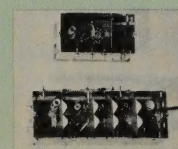
Assembled GRA-304-23, Mediterranean cabinet above. Assembled of furniture grade hardwoods, finished in flawless pecan. 30¹³/₃₂" H x 47" W x 21" D, 78 lbs., Express/Frt. **139.95**

GR-370 SPECIFICATIONS: Viewing Area: 295 sq. in. All other specifications same as GR-270 opposite.

compare these advanced design features...



solid-state reliability



3-stage IF & built-in AFT



7 separate power supplies



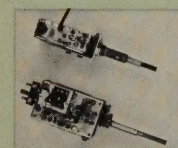
famous Heathkit manuals



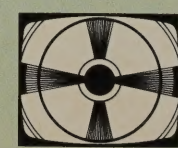
transistor & IC sockets; plug-in wiring harnesses



master control panel



solid-state tuners



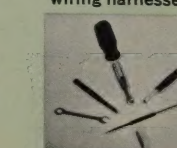
automatic vertical linearity



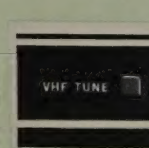
exclusive check-out meter



modular plug-in circuit boards

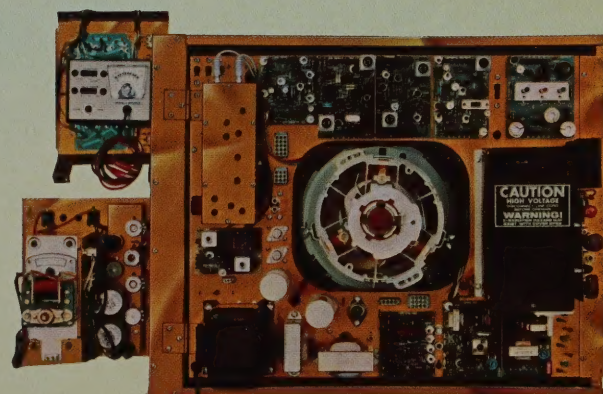


special tools supplied



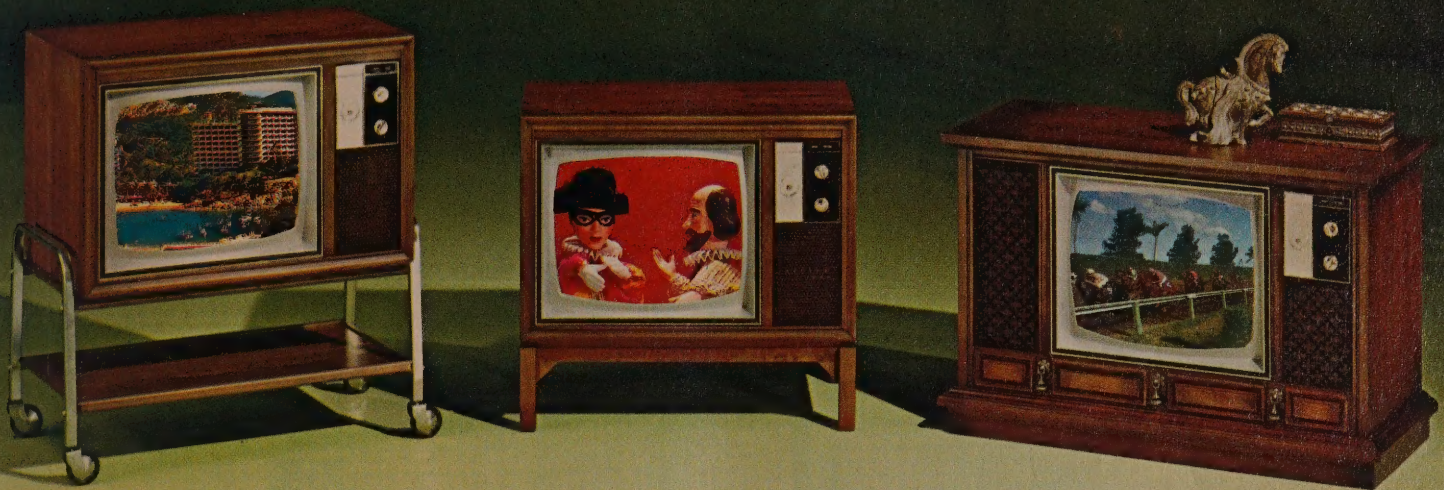
built-in power channel advance

inside Heathkit solid-state color TV



Rear view of chassis at right illustrates the clean, open layout of Heathkit color TV. Note the modular plug-in circuit boards along top and bottom. The master control panel is lower left, convergence/secondary control panel upper left and factory assembled high voltage power supply is lower right. The exclusive Heath check-out meter is upper left. Compare the advanced design features shown on the following pages.

20" color tv



GR-270 . . . excellent choice for smaller rooms

Modular design. Ten glass epoxy circuit boards snap in or out in seconds . . . greatly simplifies assembly and service.

Solid-state design using over 100 devices and only two tubes (picture and high voltage rectifier) delivers visibly superior performance and reliability.

Premium quality 20" picture tube . . . industry's finest 227 sq. in. bonded face, etched glass tube . . . delivers crisp, bright, colorful pictures.

Automatic fine tuning standard . . . just push a button and the factory assembled and aligned AFT module locks in perfect picture and sound instantly, automatically.

VHF power tuning standard . . . convenient pushbutton scanning of all VHF channels and one preselected UHF channel.

Factory assembled and aligned 3-stage IF is completely shielded to eliminate external interference. Provides higher gain for improved overall picture quality.

Solid-state VHF tuner uses a MOS Field Effect Transistor to deliver greater sensitivity, lower noise and less cross-modulation . . . gives noticeably better color reception especially 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.

Money-saving Heathkit self-service for virtually complete owner servicing. Built-in dot generator, tilt-out convergence/secondary control panel, clearly labeled chassis controls and the comprehensive Heath manual combine to give easy, step-by-step self service. Volt-ohm meter supplied lets you troubleshoot and adjust the entire set.

Compare the GR-270 for features, performance, price. Then order your new "270".

Kit GR-270, all parts incl. chassis, picture tube, mask, VHF and UHF tuners, AFT and spkr., 116 lbs., Express/Frt. **489.95**

Cart & cabinet combo,

Assembled GRA-203-20 cabinet, 46 lbs., Express/Frt. **54.95**

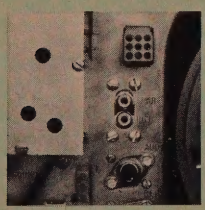
GRA-204-20 roll-around cart, 19 lbs., Express/Frt. **19.95**

GRS-203-5 cart & cabinet combo, 65 lbs., Express/Frt. **59.95**

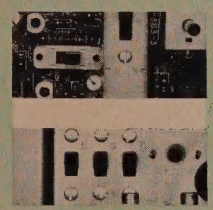
Assembled GRS-203-6, walnut finished, contemporary cabinet and base combo above center. Cabinet 20³/₃₂" H x 31¹/₈" W x 18⁵/₈" D, 59 lbs., Express/Frt. **59.95**

Assembled GRA-202-20 Mediterranean cabinet, finished in luxurious pecan, above 27³/₃₂" H x 41¹/₈" W x 19¹/₈" D, 85 lbs., Express/Frt. **119.95**

GR-270 SPECIFICATIONS: Viewing Area: Approx. 227 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 Sub-carrier: 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.



Hi-fi sound output



Exclusive self-service features



Convergence / secondary control panel tilts out from cabinet to provide instant access to controls for minor touch-up adjustments or periodic convergence. A Heath exclusive.

Low cost wireless remote control kit



Add this easy-to-build wireless remote control to any Heathkit solid-state color TV . . . GR-270, GR-370 & GR-371MX models. Gives across-the-room control of on/off, volume level, channel selection, color and tint . . . all without moving from the comfort of your chair. Small hand-held transmitter runs from a single 9 volt battery. Receiver fits inside TV cabinet. Fast, easy assembly & installation in just a few hours with the famous Heathkit manual.

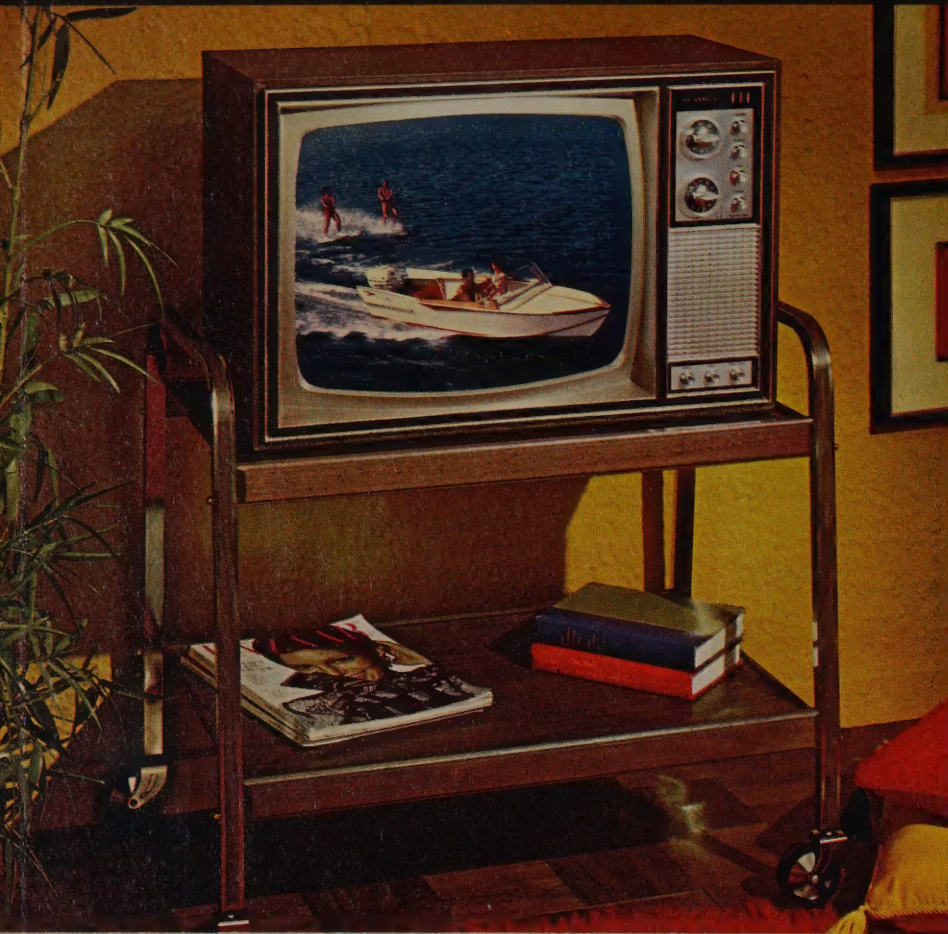
Kit GRA-70-6, 6 lbs., mailable **74.95**

New Expedited 48-Hour No-Charge Warranty Service Plan for Solid-State TV Modules!

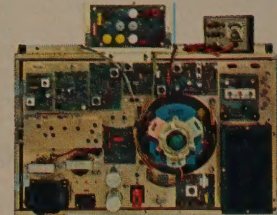
Special service facilities have been established at the factory and all Heathkit Electronic Centers to expedite service and return of Solid-State TV circuit modules within two working days. During the 90-day warranty period, TV modules will be serviced or replaced with no charge for labor or parts. After 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 a period of two years from date of original purchase. All picture tubes warranted for two full years.

18" & 14" color tv

25th year



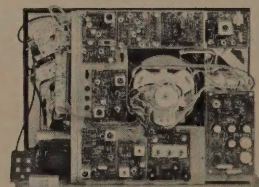
Striking Contemporary Cabinet, luxuriously finished in hand-rubbed oiled walnut. 18 $\frac{1}{4}$ " D x 28 $\frac{1}{4}$ " W x 29" H. Also accepts GR-180 and GR-481 color TVs. Assembled GRA-401-18, 41 lbs., Express/Frt.59.95



Compact, carefully-planned chassis. Note modular plug-in circuit boards along top. Factory assembled high voltage power supply is lower right; 3-stage IF assembly center left. Note husky, conservatively rated power supply components, lower left.



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



Compact, portable design. Careful planning of chassis layout is evident throughout the new GR-169... allows using more circuitry for better performance. Note modular plug-in circuit boards. Factory assembled high voltage unit is at right, VHF & UHF tuners and 3-stage IF on the left.

18" & 14" color tv

Space-saving 18" solid-state "Compact" color TV...399.95

A compact, "big-screen" color TV. The new GR-269 is small enough to fit practically any room size or decor... yet large enough to deliver an excellent, fully viewable picture in any living room or rec room.

Exclusive Heathkit solid-state design... carefully engineered over five years to exacting performance and reliability standards. Four state-of-the-art Integrated Circuits, 48 transistors, 47 diodes and just two tubes (picture and high voltage rectifier) combine to deliver superb performance.

Modular... for some excellent reasons. Most of the circuitry in the new "269" mounts on 9 plug-in circuit boards on the rear of the swing-out chassis. You get faster, easier assembly with less chance for error... higher reliability... and much easier service and adjustment. All ICs and transistors plug into sockets for easy removal... a Heath exclusive. And the liberal Heath warranty makes modular design an even better idea.

Automatic Fine Tuning — standard. The factory assembled & aligned AFT module gives you perfect picture and sound automatically, instantly... at just a push of the front panel button.

Solid-state VHF & UHF tuners — standard. 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 for easier assembly and peak performance.

Solid-state 3-stage IF — standard... assembled & aligned. Delivers higher gain for better performance. Completely shielded.

'Instant-On' — standard. Just a pull of the power switch gives instant sound, pictures in seconds.

Switch-controlled degaussing — standard... a pull of the front-panel switch permits degaussing the set anytime to insure pure, clean color pictures always.

Other features include complete clearly labeled secondary controls on the rear chassis to expedite periodic service and adjustments... hi-fi sound output... 75 & 300 ohm antenna inputs... exclusive Heath Magna-Shield that screens out magnetic fields. Plus the famous Heath built-in self-service aids that allow you to completely maintain and service your set, right down to the smallest part.

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

Assembled GRA-402-18 walnut-grained vinyl clad wood cabinet illustrated at left. 25" W x 16 1/2" H x 11" D. 33 lbs., Express/Frt. **27.50**

GRA-403-18 Roll-Around Cart at left with walnut finished wood and pale brass accents. 27" W x 15 1/2" D x 22" H. 23 lbs., Express/Frt. **19.95**

GR-269 SPECIFICATIONS: Picture Size: 180 sq. in. viewing area. Tube-type: Bonded face, 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 Subcarrier: 42.17 MHz. Sound 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 1/2" H x 24 3/4" W x 18" D.

Color Picture Tubes Warranted For 2 Full Years.

Simulated Color Pictures

Color portability with big-set performance...349.95

Unlike "bargain-priced" portables, the Heathkit GR-169 is designed around the same advanced solid-state circuitry and quality components found in the renowned GR-370... modified slightly to accommodate the 14" (diagonal) screen. It incorporates all the secondary controls found in the big sets: Color, Tint, Contrast, Horizontal & Vertical Hold, Height, AGC, Color Killer, Dots and Screen adjustments. And they're all up front for fast, precise tuning. Plus, there's front-panel switch-controlled degaussing. Solid-state design sets the GR-169 apart from ordinary portables. A total of 48 transistors, 45 diodes, 3 ICs and just 2 tubes (picture and high voltage rectifier) form the basic circuitry. What's more, the set features a high resolution circuit & adjustable noise limit-

ing; exclusive FET solid-state VHF tuner for greater sensitivity, lower noise, and cross modulation; solid-state 3-stage IF for increased gain, superior picture quality. Plug-in circuit boards, transistors and ICs permit fast, easy assembly. Kit includes handy volt-ohm meter, built-in dot generator and comprehensive manual so you can perform normal periodic adjustment and servicing. And the circuit board modules are covered by Heath's warranty, too. Order your GR-169... now!

Kit GR-169, 69 lbs., Express/Frt. **349.95**

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 — 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: 110-130 VAC 130 watts. Dimensions: 16" H x 20 1/2" W x 16" D.

HEATHKIT COLOR TV COMPARISON CHART

Model	Tube Size & Type	Viewing Area	Tube Face	Circuit Type	Modular Design	AFT	Adj. Video Peaking	Remote Available	Degaussing Type	Automatic Linearity	Picture Straightening	Separate Control Panel	Cabinet Optional	Hi-Fi Output	Self-Service	Price
GR-371MX	25v Matrix MTX-5	315 sq. in.	Etched Non-glare	Solid State	Yes	Yes	Yes	Yes	Auto	Yes	Top, Bottom, & Sides	Yes	Yes	Yes	Yes + Meter	\$579.95
GR-370MX	23v Matrix	295 sq. in.	"	Solid State	Yes	Yes	Yes	"	"	Yes	"	"	"	"	Yes + Meter	\$559.95
GR-370	23v Bright	295 sq. in.	"	Solid State	Yes	Yes	Yes	"	"	Yes	"	"	"	"	Yes + Meter	\$549.95
GR-681MX	23v Matrix	295 sq. in.	"	Tube	No	Yes	No	"	"	No	"	"	"	"	Yes	\$459.95
GR-681	23v Bright	295 sq. in.	"	Tube	No	Yes	No	"	"	No	"	"	"	"	Yes	\$449.95
GR-295MX	23v Matrix	295 sq. in.	"	Tube	No	No	No	"	"	No	"	"	"	"	Yes	\$429.95
GR-295	23v Bright	295 sq. in.	"	Tube	No	No	No	"	"	No	"	"	"	"	Yes	\$419.95
GR-270	20v Bright	227 sq. in.	"	Solid State	Yes	Yes	Yes	"	"	Yes	"	"	"	"	Yes + Meter	\$499.95
GR-581	20v Bright	227 sq. in.	"	Tube	No	Yes	No	"	"	No	T & B	No	"	"	Yes	\$339.95
GR-227	20v Bright	227 sq. in.	"	Tube	No	No	No	"	"	No	T & B	No	"	"	Yes	\$299.95
GR-269	18v Bright	180 sq. in.	Non-Etched	Solid State	Yes	Yes	No	No	Manual	Yes	T & B	No	"	"	Yes + Meter	\$399.95
GR-481	18v Bright	180 sq. in.	Etched Non-glare	Tube	No	Yes	No	Yes	Auto	No	T & B	No	"	"	Yes	\$279.95
GR-169	14v Bright	102 sq. in.	Non-Etched	Solid State	Yes	No	No	No	Manual	Yes	None	No	Incl.	No	Yes + Meter	\$349.95

Get the show on the road with the Heathkit GR-104A!

The GR-104A is ready to go when you are . . . to bedroom, kitchen, den, rec room, to the beach, boat, camper, motel or cabin. You can plug it into the wall for home viewing. You can take it with you fishing, camping or hunting with the optional rechargeable battery pack. Or you can even run it off your boat or car 12 V battery. Delivers crisp 12" (diagonal) black & white picture. And the picture comes on instantly . . . no waiting for set to warm up. Solid-state circuitry reduces heat, consumes less power, improves performance, cuts assembly time. Tunes all channels, 2 through 83. Features gated automatic gain control for rock-steady jitter-free pictures; VHF "memory" fine tuning, dual speed UHF tuning; dual circuit breaker protection; built-in antennas; preassembled and aligned tuners; one-year warranty on picture tube.

Kit GR-104A, 35 lbs., mailable **124.95**

Kit GRA-104-1, rechargeable battery pack & sun shield, 9 lbs., mailable **42.95**

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



Rechargeable Battery Pack Base Mount Plus Sun Shield. Combination rechargeable batteries and charging circuit for play-anywhere operation. Batteries automatically recharge when plugged into any 120 v. AC outlet, & GR-104 turned off. Sun shield hood fits over screen mask for best outdoor viewing.



TV accessories for the perfect picture!

(A) TV/FM 4-Room Distribution System

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' coaxial cable, connectors, crimping tool, 4 matching transformers/frequency splitters.

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

Reception Proven Coaxial 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**

(B) 75-300 Ohm Matching Transformer/Splitter

Matches one all-channel 75-ohm coax down-lead to separate 300 ohm VHF and UHF TV inputs. With hardware, instructions.

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

(C) Cornell-Dubilier AR-33 Antenna Rotator

Solid-state control operated by dial or set-and-forget pushbuttons. $\pm 1^\circ$ accuracy, heavy duty rotor, instructions included. (5-wire power cable not supplied.)

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

(D) High Quality Alliance Tenna-Rotor

Rotates 360° in either direction, instantly reversible, magnetic braking. Sealed against moisture, lubricated for life. (5-wire power cable not supplied.)

GDP-214, 11 lbs., mailable **29.95**

(E) Antenna Roof Mount Kit

Two 5' masts, mast base, 50 foot 300 ohm transmission line, 50 foot guy wire, all stand-offs, screw eyes, wire clamps.

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

(F) 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**

(G) Antenna Chimney Mount

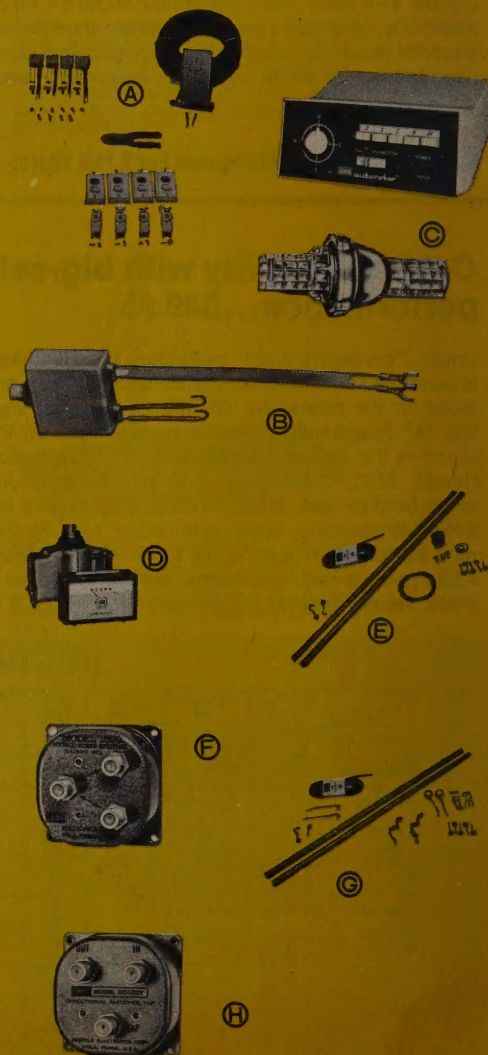
Two 5' masts, chimney mount, 50 foot 300 ohm transmission line, standoffs, two 10 foot steel straps, complete instructions.

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

(H) 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**



Royal reception for your Heathkit TV!

Ⓐ Deep Fringe VHF-UHF-FM Coaxial Antenna

GD-239, 20 lbs. (less mast & coaxial cable), Express/Frt. **54.95**

GD-239 SPECIFICATIONS — Elements: Active-12; Passive-43. **Front-To-Back Ratio:** 19. **Usable Distance:** (Mileage over flat terrain with best reception conditions) VHF — 180 mi.; UHF — 100 mi.; FM — 90 mi. Includes 300 to 75 ohm antenna-mounted matching balun & GD-298 75 to 300 ohm matching transformer/frequency splitter. **Length:** 178". **Width:** 102". **Turning Radius:** 107"

Ⓑ Deep Fringe VHF-FM Coaxial Antenna

GD-229, 20 lbs. (less mast & coaxial cable), Express/Frt. **49.95**

GD-229 SPECIFICATIONS — Elements: Active-10; Passive-21. **Front-To-Back Ratio:** 20. **Usable Distance:** (over flat terrain with best reception conditions) 200 mi.; FM — 90 mi. Includes 300 to 75 ohm antenna mounted matching balun. **Length:** 183". **Width:** 102". **Turning Radius:** 107"

Ⓒ Fringe, Near-Fringe VHF-UHF-FM Coaxial Antenna

GD-128, 15 lbs. (less mast & coaxial cable), Express/Frt. **35.95**

GD-128 SPECIFICATIONS — Elements: Active-10; Passive-23. **Front-To-Back Ratio:** 18. **Usable Distance:** (Mileage over flat terrain with best reception conditions) VHF — 150 mi.; UHF — 80 mi.; FM — 70 mi. Includes 300 to 75 ohm antenna-mounted matching balun & GD-298 75 to 300 ohm matching transformer/frequency splitter. **Length:** 120". **Width:** 102". **Turning Radius:** 80"

Ⓓ Fringe Area VHF-FM Coaxial Antenna

GD-219, 19 lbs. (less mast & coaxial cable), Express/Frt. **39.95**

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"

Ⓔ City-Suburban VHF-UHF-FM Coaxial Antenna

GD-138, 10 lbs. (less mast & coaxial cable), Express/Frt. **25.95**

GD-138 SPECIFICATIONS — Elements: Active-10; Passive-7. **Front-To-Back Ratio:** 17. **Usable Distance:** (Mileage over flat terrain with best reception conditions) VHF — 100 mi.; UHF — 60 mi.; FM — 50 mi. Includes 300 to 75 ohm antenna-mounted matching balun & GD-298 75 to 300 ohm matching transformer/frequency splitter. **Length:** 111". **Width:** 102". **Turning Radius:** 79"

Ⓕ City-Suburban VHF-FM Coaxial Antenna

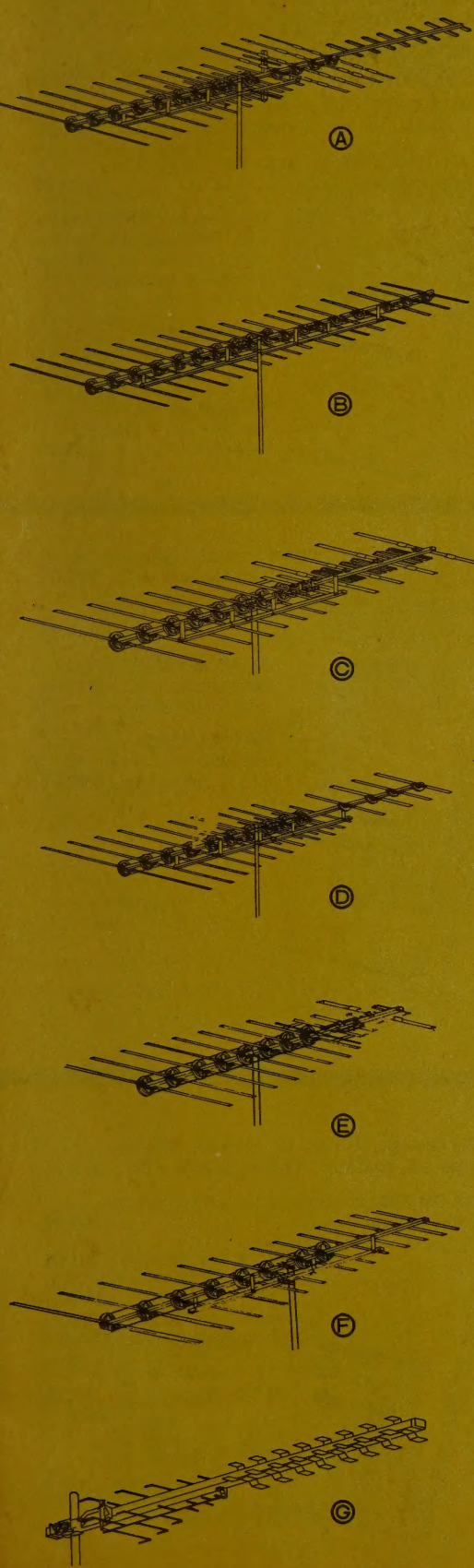
GD-158, 14 lbs. (less mast & coaxial cable), Express/Frt. **27.95**

GD-158 SPECIFICATIONS — Elements: Active-8; Passive-9. **Front-To-Back Ratio:** 19. **Usable Distance:** (over flat terrain with best reception conditions) 150 mi.; FM — 70 mi. Includes 300 to 75 ohm antenna-mounted matching balun. **Length:** 120". **Width:** 102". **Turning Radius:** 79"

Ⓖ City-Suburban UHF Coaxial Antenna

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"



Spaulding "Strato-towers" For Maximum Antenna Performance

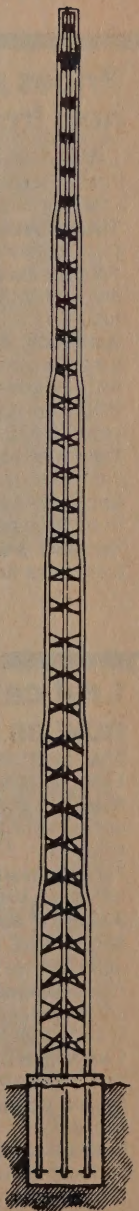
Complete tower packages in 24', 32', 40', & 48' . . . includes base stubs, rotor plates & all hardware. Self-supporting . . . no guys. "X" braces, beaded channel design with galvanized steel riveted construction for greater strength. All towers shipped freight collect from Frankfort, Indiana in nested 8' sections.

GDP-249, 73 lbs., 24', Exp./Frt. **49.95** plus shipping

GDP-259, 101 lbs., 32', Exp./Frt. **59.95** plus shipping

GDP-269, 139 lbs., 40', Exp./Frt. **79.95** plus shipping

GDP-279, 181 lbs., 48', Exp./Frt. **95.70** plus shipping



tube-type color tv TV

25th year

23" tube-type color TVs... now as low as 419.95 (less cabinet)

GR-681 is equipped with integrated circuit Automatic Fine Tuning for perfectly-tuned pictures and sound with just a push of a button. Also has VHF Power Tuning and a compact, lightweight cable-type remote control... lets you turn set on and off & change VHF channels from the comfort of your chair.

Industry's premium color picture tube standard... bonded face, etched glass with anti-glare safety glass. The new "brighter tube."

Optional HiLite Matrix Tube... available for the "681."

Automatic degaussing circuit... demagnetizes & "cleans" the picture everytime you turn the set on from a cold start, keeps colors pure.

Exclusive Heath Magna-Shield surrounds the entire picture tube to keep out stray magnetic fields that can ruin color purity.

3-stage video IF strip provides higher gain, more sensitivity.

Dynamic pincushion correction circuit keeps all four edges straight.

Two VHF antenna inputs accept 300 ohm twin lead or 75 ohm coax.

Hi-Fi sound output. Play TV audio thru your hi-fi or stereo.

Exclusive Heath self-service aids built-in. Dot Generator lets you do periodic dynamic convergence & purity adjustments.

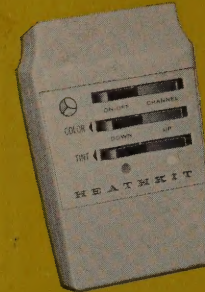
3-way installation... in a wall or bookcase; in a custom cabinet; or in one of the handsome factory-assembled, prefinished cabinets.

Kit GR-681, AFT model, chassis, tubes, mask, tuners & speaker, 133 lbs., Express/Frt. . . . **449.95**

Kit GR-681MX, as above with Matrix tube, 133 lbs. **459.95**

Kit GR-295, chassis, tubes, mask, tuners & speaker, 131 lbs., Express/Frt. **419.95**

Kit GR-295MX, as above with Matrix tube, Express/Frt. **429.95**



Add extra convenience with this wireless remote control for on/off, channel selection, volume, color & tint functions.

Kit GRA-295-6 for GR-295 & GR-25, 9 lbs., available. . . . **49.95**

Kit GRA-681-6 for GR-681, 7 lbs., available. **44.95**

Prices reduced on 20" tube-type color TVs... now from as little as 299.95 (less cabinet)

Lasting color TV enjoyment is yours... in the Heathkit 227 sq. in. color TV. Two models: The GR-581 features factory-assembled integrated circuit automatic fine tuning that lets you just push a button to get perfectly tuned pictures & sound.

The industry's premium tube... bonded-face, etched-glass color picture tube with anti-glare safety glass and improved phosphors for more light output, better contrast.

Factory assembled, aligned tuners... ready to install. VHF tuner has memory fine tuning and gold/niborium contacts for better electrical connections. UHF tuner has 2-speed tuning.

Automatic degaussing, built-in... "cleans" the picture tube every time set is turned on from a cold start. Keeps colors pure. Unique Heath Magna-Shield surrounds the entire picture tube to keep out stray magnetic fields.

Choice of antenna inputs. Two VHF antenna inputs permit using new, preferred 75 ohm coax, or 300 ohm twin lead.

Output to hi-fi system. Listen thru the built-in 4x6" speaker... or use hi-fi output to play sound thru your hi-fi amplifier.

Exclusive self-service. Built-in dot generator and full-color photos in manual allow you to perform purity & convergence adjustments required of all color TVs.

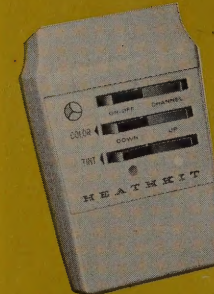
Versatile 3-way installation. In a wall or bookcase, a custom cabinet, or one of Heath's handsome factory-assembled cabinets.

Kit GR-581, AFT model, chassis, tubes, mask, tuners & speaker, 114 lbs., Express/Frt. . . . **339.95**

Kit GR-227, as above without AFT, 114 lbs., Express/Frt. **299.95**

Armchair control of channel selection, on/off, volume, color and tint.

Kit GRA-227-6 wireless remote control, 9 lbs., available . . . **49.95**



Last call on 18" tube-type color TVs... now as low as 259.95 (less cabinet)

The "481" includes factory-assembled integrated circuit automatic fine tuning that delivers perfectly tuned pictures and sound at the push of a button.

Premium color picture tube standard... the best available. Bonded-face, etched glass design with anti-glare safety glass and new phosphors delivers brighter, sharper color pictures.

Factory-assembled tuners... speed assembly, insure superior performance. Two-speed tuning on UHF tuner; memory fine tuning and gold/niborium contacts on VHF tuner.

3-stage IF assembly... factory-assembled & aligned, ready to install.

Gated AGC provides steady, jitter-free viewing. Automatic Chroma Control reduces color fading.

Heath Magna-Shield surrounds the entire picture tube to block out magnetic fields that ruin color purity. Built-in automatic degaussing "cleans" the picture tube each time set is turned on from a cold start... helps keep colors pure.

Two VHF antenna inputs... 300 ohm for standard twin-lead; 75 ohm permits use of coax without matching transformer.

High-fi sound output. Play TV sound thru your hi-fi system or use the built-in 4x6" speaker.

Built-in self-service capability. Dot generator & color pictures in manual let you do periodic convergence & purity adjustments. Manual includes detailed trouble-shooting section, too.

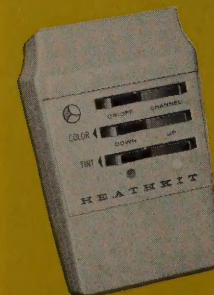
Installation versatility... in bookcase, wall, a favorite old B&W cabinet;... or one of the attractive Heath cabinets.

Kit GR-481, AFT model, chassis, tubes, mask, tuners & speaker, 102 lbs., Express/Frt. . . **279.95**

Kit GR-180, as above without AFT, 102 lbs., Express/Frt. **259.95**

Wireless Remote Control kit gives across-the-room control of on/off, volume, channel selection, color & tint. Easy installation.

Kit GRA-227-6, 9 lbs., available. . . . **49.95**



tube-type color tv TV

**Assembled
GRA-301-23,**

contemporary walnut cabinet. Constructed of fine veneers & solids with an oil-rubbed walnut finish;

29 $\frac{1}{32}$ " H x 35 $\frac{3}{16}$ " W x 19 $\frac{7}{8}$ " D., 60 lbs., Express/Frt. **79.95**



**Assembled
GRA-304-23,**

Mediterranean cabinet. Made from furniture grade hardwoods & luxurious veneers;

30 $\frac{1}{32}$ " H x 47" W x 17 $\frac{3}{4}$ " D., 78 lbs., Express/Frt. **139.95**



Assembled GRA-303-23, Early American cabinet at right. Factory assembled of hardwoods & veneers, finished in Salem Maple; 29 $\frac{2}{32}$ " H x 37 $\frac{1}{4}$ " W x 19 $\frac{3}{4}$ " D., 73 lbs., Express/Frt. **114.95**



Roll-around satin finish walnut grain cabinet. 20 $\frac{3}{32}$ " H x 31 $\frac{1}{16}$ " W x 18 $\frac{5}{8}$ " D., may be used with matching base below:

GRA-203-20, table model, 46 lbs., Express/Frt. **54.95**

GRA-204-20, cart, 19 lbs., Express/Frt. **19.95**

GRS-203-5, cart & cabinet, 65 lbs., Express/Frt. **64.95**

GRS-203-6, cabinet & base, 59 lbs., Express/Frt. **64.95**



Assembled GRA-227-1, oiled walnut contemporary cabinet. Measures 31 $\frac{3}{4}$ " W x 29 $\frac{5}{8}$ " H x 19 $\frac{1}{2}$ " D., 55 lbs., Express/Frt. **49.95**

Assembled GRA-227-2, luxurious Mediterranean cabinet at right finished in dark oak. 40" W x 19 $\frac{1}{2}$ " D x 29" H., 72 lbs., Express/Frt. **79.95**

Express/Frt. **79.95**



Prices Reduced!



Assembled GRA-401-18, striking contemporary cabinet, shown at right, finished in hand-rubbed oiled walnut. Measures 29" H x 28 $\frac{1}{4}$ " W x 18 $\frac{1}{4}$ " D., 41 lbs., Express/Frt. **59.95**



Custom install your Heath Color TV in a wall, bookcase or custom cabinet. Manual gives complete instructions.

Last Call!



150-watt stereo receiver

25th year



The most highly praised stereo receiver in the world — the Heathkit AR-15!

The standard for AM-FM-FM stereo reception and reproduction...the industry benchmark for value... 349.95 kit form, 540.00 wired!

150 watts of stereo perfection! All the power you'll ever need in a home stereo installation. And the AR-15 delivers it, when needed, without clipping and distortion. The 4 conservatively rated, individually heat-sinked and protected output transistors, powered by an extra large transformer and filter capacitor, put 150 watts (100 watts RMS) at your fingertips!

Unbelievable FM reception! Field Effect Transistor (FET) FM tuner has cascode 2-stage FET RF amplifier and FET mixer for high overload capability, outstanding cross modulation and image rejection; 4-gang variable capacitor and 6 tuned circuits. FM sensitivity is 1.8 μ V or better!

Extraordinary features, "out-of-sight" styling! Only the AR-15 gives you as much! Built-in circuit protection, provided by 4 current-limiting zener diodes, 2 thermal circuit breakers; automatic noise-operated FM squelch; stereo phase control; automatic stereo indicator; stereo-only switch; magnetic phono inputs with 98 dB dynamic range; 2 stereo headphone jacks; built-in volt-ohm metering; capacitor coupling to speaker terminals; loudness switch; built-in AM rod antenna. And the die-cast chrome plated front panel with anodized machined knobs features exclusive "Black Magic" lighting that lets the dial markings disappear when the AR-15's turned off. Order for wall or custom cabinet installation — or select optional AE-16 vented walnut cabinet.

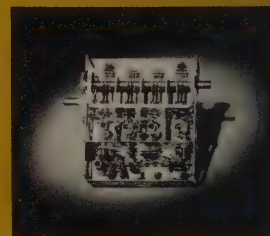
- Kit AR-15** (less cabinet) 25 lbs., mailable **349.95**
- Assembled ARW-15** (less cabinet) 35 lbs., mailable **540.00**
- AE-16**, walnut cabinet, 10 lbs., mailable **24.95**

AR-15 SPECIFICATIONS — AMPLIFIER — Music Power (Each Channel): 8 ohms, 75 watts*; 4 ohms, 50 watts; 16 ohms, 45 watts. **Continuous power:** 8 ohms, 50 watts*; 4 ohms, 45 watts; 16 ohms, 35 watts. **Power bandwidth for 0.5% THD:** 6 Hz to 30 kHz*. **Frequency response (1 watt):** ± 1 dB, 8 to 40 kHz. **Harmonic distortion:** 0.5% from 20 Hz to 20 kHz at 50 watts rms. **Intermodulation distortion:** 0.5% at 50 watts. **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. **FM SECTION — (Monophonic) — Tuning range:** 88 to 108 MHz. **Frequency response:** ± 1 dB 20 to 15,000 Hz. **Sensitivity:** 1.8 microvolts*. **Selectivity:** 70 dB*. **Image Rejection:** 90 dB*. **Capture ratio:** 1.5 dB*. **AM Suppression:** 50 dB*. **Harmonic distortion:** 0.5%*. **Intermodulation distortion:** 0.5%*. **Hum & noise:** -65 dB*. **Spurious rejection:** -100 dB*. **FM SECTION — (Stereo) — Channel separation:** 40 dB at mid-frequencies. **Harmonic distortion:** 1% at 1000 Hz with 100% modulation. **19 kHz and 38 kHz Suppression:** 55 dB. **SCA Suppression:** 50 dB. **AM SECTION — Tuning range:** 535 to 1620 kHz. **Sensitivity:** External antenna, 12 μ V at 1000 kHz for 10 dB S+N/N. **Selectivity:** 20 dB*. **Image rejection:** 60 dB at 600 kHz*. **Harmonic distortion:** 1.5%. **Hum & noise:** -45 dB*. **GENERAL — AC outlet sockets:** One switched (350 watts max.), two unswitched (350 watts max.). **Power requirements:** 105-125 or 210-250 volts, 50/60 Hz AC 240 watts at full output. **Dimensions:** Overall — 16 $\frac{1}{8}$ " W x 4 $\frac{3}{4}$ " H x 14 $\frac{1}{2}$ " D.

*Rated IHF (Institute Of High Fidelity) Standards



There's "Black Magic" in the AR-15 front panel. When the receiver is turned off, dial, scale and meter markings disappear into the rich midnight black face plate.



Pre-assembled Field Effect Transistor (FET) tuner gives high overload capability, excellent cross modulation, and image rejection.

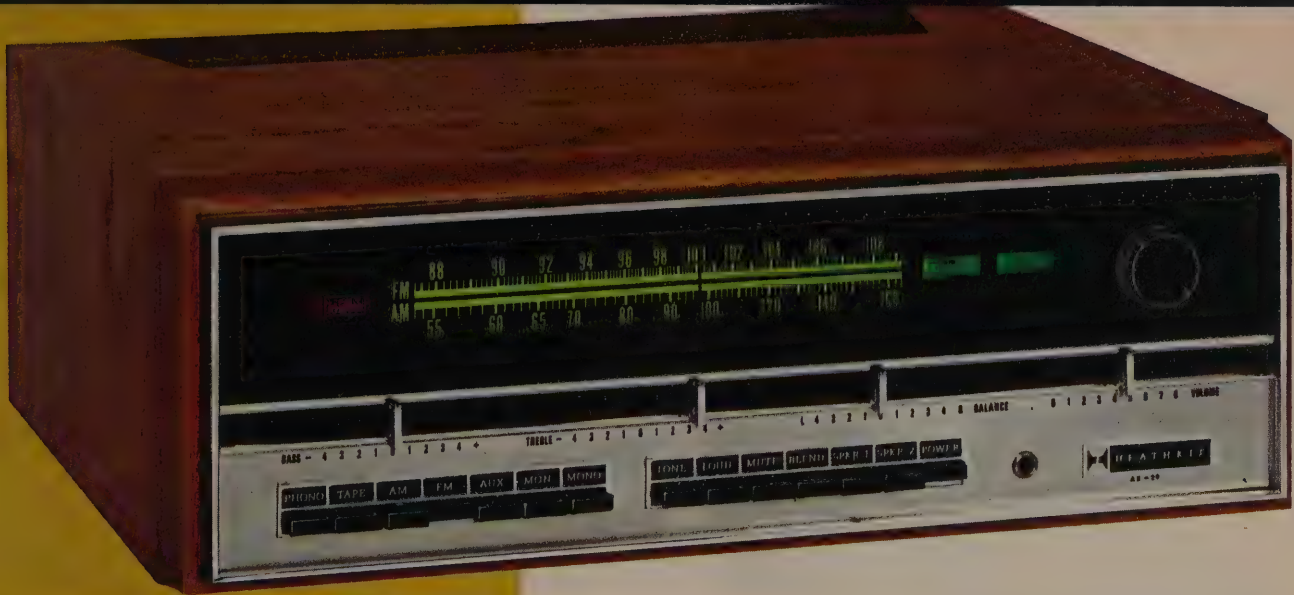


Crystal filters in IF amplifier provide adjacent channel selectivity not possible with conventional IF transformers.



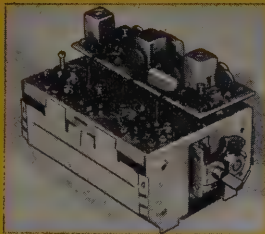
Power supply has 4 heat-sinked and protected output transistors providing 75 watts per channel music power, 50 watts continuous.

100-watt stereo receiver

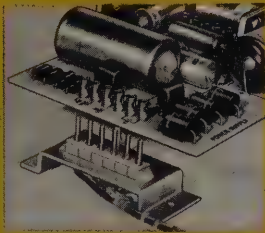


Unique "Black Magic" dual tinted acrylic panel design hides dial, scale and meter markings when the AR-29 is not in use.

Pre-assembled and aligned Field Effect FM tuner delivers high sensitivity, low cross modulation, no overloading.



Plug-in fiberglass circuit boards aid assembly, make servicing a snap!



Built-in test circuitry permits fast precise initial setup and servicing without external test equipment.



In the tradition of the famous "15" — the Heathkit AR-29 with 100 watts stereo output!

Modular, plug-in circuit boards make it easy to build the best medium-power stereo receiver money can buy . . . for a low 299.95

Designed with the same exacting attention given the AR-15, the Heathkit AR-29 is unquestionably the finest medium-power stereo receiver on the market! Delivers a full 100 watts of IHF music power, 70 watts continuous . . . 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 4 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.

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 controls for each channel of each input including tape monitor.

Kit AR-29 (less cabinet) 34 lbs., mailable **299.95**
AE-19 oiled pecan cabinet, 9 lbs., mailable **24.95**

AR-29 SPECIFICATIONS — AMPLIFIER — Music power (Each Channel): 8 ohms, 50 watts*; 4 ohms, 65 watts; 16 ohms, 30 watts. **Continuous Power:** 8 ohms, 35 watts*; 4 ohms, 35 watts; 16 ohms, 25 watts. **Power Bandwidth For 0.25% T.H.D.:** 5 Hz to 30 kHz*. **Frequency Response (1 watt):** -1 dB, 7 Hz to 60 kHz. **Harmonic Distortion:** 0.25% from 20 Hz to 20 kHz at 35 watts rms. 0.1% at 1000 Hz at 1 watt. **Intermodulation Distortion:** 0.2% at 35 watts, 60 and 6,000 Hz mixed 4:1. 0.1% at 1 watt. **Damping Factor:** 50. **Input Sensitivity:** Phono: 2.2 mV (Overload 155 mV). Tape, Aux. & Tape Mon, 180 mV (Overload 10 volts). **Hum & Noise:** Phono (10mV ref.), -65 dB. Tape & Aux. (0.25 volt 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 volt with 0.2 volt input. FM, 3.8 volt 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 20 to 15,000 Hz. **Sensitivity:** 1.8 Microvolts*. **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 — (Stereo) — 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 uV 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 watts max.), one unswitched (350 watts max.). **Power Requirements:** 105-125 or 210-250 volts 50/60 Hz AC 240 watts at full output. **Dimensions:** Overall — 16 3/4" W x 5 1/8" H x 14 1/2" D.

*Rated IHF (Institute Of High Fidelity) Standards

60-watt stereo receiver

25th year



Everything stands out . . . except the price!

Heathkit AR-19 AM-FM-FM Stereo Receiver... 239.95

- AM-FM-FM Stereo — 60 watts
- All solid-state circuitry
- Modular plug-in circuit boards
- Assembled FET 2 uV FM tuner
- 4-integrated circuit, assembled IF section
- Integrated circuit multiplex section

New value leader...Heathkit AR-19. Popular priced, but in the top class for performance. Most of the solid-state devices (57 transistors, 35 diodes, 5 integrated circuits) are modularized into plug-in circuit boards. They produce the power and fidelity you need for quality stereo performance . . . 60 watts of stereo music power . . . response of 6 to 35,000 Hz . . . distortion less than 0.25%. FM Tuner sensitivity is 2 uV. That's high performance at low cost.

Every facility, every control you'll ever need. 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 on-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 ball 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 and signal level.

Other features: direct coupled outputs; dissipation limiting circuitry; massive power supply; assembled and aligned FM tuner; assembled IF section; built-in test circuitry (no other instruments needed); "black magic" panel lighting.

Kit AR-19, less cabinet, 30 lbs., mailable **239.95**

AE-19, oiled pecan cabinet, 9 lbs., mailable **24.95**

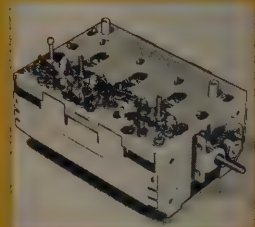
AR-19 SPECIFICATIONS — AMPLIFIER — Music Power (Each channel): 8 ohms, 30 watts*, 4 ohms, 20 watts; 16 ohms, 17 watts. **Continuous power:** 8 ohms, 20 watts*; 4 ohms, 20 watts; 16 ohms, 15 watts. **Power bandwidth for 0.25% T.H.D.:** 5 Hz to 30 kHz*. **Harmonic distortion:** 0.25% from 5 Hz to 20 kHz at 20 watt rms. **Intermodulation distortion:** 0.25% at 20 watts, 60 and 6,000 Hz mixed, 4:1. **Channel separation:** Phono, 50 dB, Tape & Aux., 55 dB. **Output impedance (each channel):** 4 to 16 ohms. **FM SECTION — (Monophonic) — Tuning range:** 88 to 108 MHz. **Antenna:** Balanced for external 300 ohm antenna. Unbalanced 75 ohm. **Frequency response:** ±1 dB, 20 to 15,000 Hz. **Sensitivity:** 2.0 microvolts*. **Capture ratio:** 2.5 dB*. **AM Suppression:** 50 dB*. **Spurious Rejection:** -90 dB*. **FM SECTION — (Stereophonic) — Channel Separation:** 35 dB at mid-frequencies. **Frequency Response:** ±1 dB from 20 to 15,000 Hz. **Harmonic distortion:** 1.5% at 1000 Hz with 100% modulation. **19 kHz and 38 kHz Suppression:** 50 dB. **AM SECTION — Tuning Range:** 535 to 1620 kHz. **Antenna:** Adjustable rod. **Sensitivity:** Rod Antenna, 130 uV/M at 1000 kHz for 10 dB S+N/N. **Selectivity:** 25 dB at 10 kHz. **Image rejection:** 60 dB at 600 kHz*, 60 dB at 1400 kHz*. **GENERAL — AC Outlet Sockets:** One switched, one unswitched (350 watts max. each). **Power requirements:** 105-125 or 210-250 volts 50/60 Hz AC. **Dimensions:** Overall — 16¾" W x 5¾" H x 14½" D.

*Rated IHF (Institute of High Fidelity) Standards



Black Magic Panel Lighting . . . the distinctive black & chrome face reveals no dial or scale markings when the AR-19 is not in use. Push the power switch & the dial and scale markings appear. The unique dual tinted acrylic panel design does it.

Field Effect Solid-State FM Tuner . . . factory assembled and aligned, gives high sensitivity, low distortion, low cross modulation and freedom from overloading.



Built-In Test Circuitry for fast, exact initial set-up and complete servicing facilities anytime without external test equipment.



Factory Assembled, Aligned FM IF Circuit Board for faster assembly, optimum performance and elimination of IF alignment.



budget size receivers



Fight inflation with these Heathkit top-performers!

Heathkit 30-watt Stereo Receiver... just 119.95

Factory assembled & aligned FM tuner delivers 5 μ V sensitivity for real station-pulling performance. Features front panel headphone jack, 6-position source selector for stereo or mono magnetic phono, auxiliary or FM; tandem bass & treble controls; concentric volume control; stereo phase control; stereo indicator. All solid-state design and circuit board construction for easy 20 hour assembly.

Kit AR-14, less cabinet, 18 lbs., mailable **119.95**

AE-55, walnut veneer cabinet, 7 lbs., mailable **12.95**

AE-65, beige metal cabinet, 6 lbs., mailable **3.95**

AR-14 PARTIAL SPECIFICATIONS: AMPLIFIER: Continuous Power Output: 10 watts per channel. Music Power Output (IHF): 15 watts per channel. Hum & Noise: Phono, -60 dB; Auxiliary, -63 dB. Frequency Response: 12 to 60,000 Hz \pm 1 dB; 6 to 100,000 Hz \pm 3 dB. Power Response: 15 to 50,000 Hz \pm 1 dB; 7 to 90,000 Hz \pm 3 dB. Total Harmonic Distortion: 0.5% or less @ 1 KHz. IM Distortion: Less than 1%. FM: Hum & Noise (IHF): -50 dB. Harmonic Distortion (IHF): 1% or less. Capture Ratio (IHF): 3 dB. FM STEREO: Separation: 30 dB @ 1 kHz. GENERAL: Power Requirements: 105-125 or 210-250 VAC, 50/60 Hz; 32 watts idling, 65 watts full output. No load on AC outlets. Dimensions: 15 $\frac{1}{4}$ " W x 3 $\frac{7}{8}$ " H x 12" D.

Heathkit 14-watt FM Stereo Receiver... only 74.95

Budget-priced FM stereo starts here. The all solid-state AR-17 provides 14 watts of music power... 10 watts rms... enough to drive almost any high efficiency speaker system. Frequency response is 25-35,000 Hz \pm 1 dB at full power with less than 1% distortion for truly remarkable reproduction. 5 μ V tuner sensitivity for extraordinary station-pulling power. Complete controls. Front panel headphone jack. Factory assembled & aligned FM tuner for easier assembly, better performance. Drives 4-16 ohm speakers. 110/220 VAC wiring options. Measures 12" W x 3" H x 10 $\frac{3}{8}$ " D.

Kit AR-17, less cabinet, 9 lbs., mailable **74.95**

AE-25, walnut veneer cabinet, 5 lbs., mailable **9.95**

AE-35, beige metal cabinet, 4 lbs., mailable **3.50**

Heathkit 7-watt Mono FM Receiver... just 44.95

Hi-fi FM for the cost of an ordinary table radio. The AR-27 delivers a husky 7 watts of IHF music power... 5 watts rms... sufficient to drive efficient 4-16 ohm speakers. Response is an excellent 25-60,000 Hz \pm 1 dB with less than 1% harmonic distortion for really surprising reproduction at this low price. Factory assembled & aligned FM tuner and the famous Heath step-by-step manual make assembly fast and fun. Measures just 3" H x 12" W x 10 $\frac{3}{8}$ " D. 110/220 VAC wiring options.

Kit AR-27, less cabinet, 8 lbs., mailable **44.95**

AE-25, walnut veneer cabinet, 5 lbs., mailable **9.95**

AE-35, beige metal cabinet, 4 lbs., mailable **3.50**

- 31 transistor, 10 diode circuit
- 15-50,000 Hz \pm 1 dB full power response
- 15 watts music power per channel
- 5 μ V tuner sensitivity



- all solid-state design ... 28 transistors, 7 diodes
- adjustable phase control for maximum separation
- complete source inputs



- solid-state 13 transistor, 6 diode circuit
- factory assembled & aligned FM tuner
- inputs for phono and auxiliary sources

AJ-15... stereo tuner section of the AR-15!

- FM/FM stereo tuning
- 70 dB selectivity
- Adjustable multiplex phase control
- Easy circuit board construction
- Three-way installation

The ultimate tuner for the aficionado who already owns an excellent amplifier. The Heathkit AJ-15 offers all solid-state design in circuit board-wiring harness construction. IC's are used wherever possible to further improve reliability, cut your assembly time. Exclusive Field Effect Transistors (FET) deliver high (1.8 uV) sensitivity and excellent cross modulation.

All the features of the famous AR-15! Crystal filters for optimum IF bandpass shape; 2 calibrated tuning meters (signal strength and tuning); automatic noise-operated FM squelch; stereo only switch; stereo indicator light; multiplex phase control; 2 stereo headphone jacks; external antenna connectors. Mounts in a wall, custom cabinet, or optional walnut cabinet.

- Kit AJ-15 (less cabinet) 18 lbs., mailable **199.95**
 AE-18 walnut cabinet, 8 lbs., mailable **24.95**

AJ-15 SPECIFICATIONS — FM monophonic and stereo specifications same as AR-15. **Output Voltage:** Tape and Fixed, 1.5 V rms nominal (100% modulation). Phone and Variable, 0 to 4 volts before clipping (100% modulation). **Output Impedance:** Tape and Fixed, approx. 9,000 ohms; Phone and Variable, 100 ohms. **AC Outlet Socket:** Unswitched, 350 watts max. **Power Requirements:** 105-125 or 210-250 volts 50/60 Hz AC 25 watts. **Dimensions:** Overall: 16⁷/₈" W x 4³/₄" H x 12¹/₂" D.

AA-15...150-watt amplifier section of the AR-15!

- 50 watts RMS output per channel
- Virtually flat frequency response
- Low harmonic & IM distortion
- Electronically filtered & regulated power supply

Stout heart of the finest stereo systems! There's no finer starting point for a new "separate" system, no better way to upgrade your existing components. The AA-15 is the stereo amplifier section from the world renowned AR-15 — with 150-watts of dynamic music power; individual input level controls; virtually flat response, ±1 dB from 8 Hz to 40 kHz at 1 watt; low harmonic & IM distortion, less than 0.5% at 50 watts continuous output.

Designed for years of peak performance! AA-15 features include recessed input and output jacks; tone-flat switch; stereo headphone jacks; positive circuit protection; loudness switch; tape monitor switch; 3-way installation in wall, custom or Heath cabinet.

- Kit AA-15 (less cabinet) 37 lbs., mailable **\$179.95**
 AE-18 walnut cabinet, 8 lbs., mailable **24.95**

AA-15 SPECIFICATIONS — Amplifier specifications, except size, are same as AR-15. **Dimensions:** 16⁷/₈" W x 4³/₄" H x 12¹/₂" D.



199⁹⁵



"Black Magic" panel lighting. When not in use, the AJ-15 remains beautifully unobtrusive — the gleaming midnight face unmarred by dial and scale markings. A touch of the power switch brings the finest in stereo FM listening and the panel lights up for quick identification of all controls. The "Black Magic" is in the unique tinted acrylic "dual-panel" design.

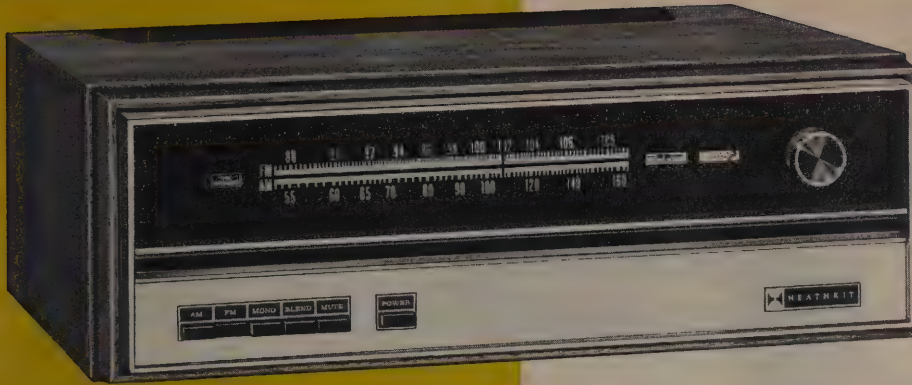


179⁹⁵



"Black Magic" Panel Lighting. Turn off the AA-15 and the dial scale and nomenclature disappear — all that shows is a gleaming midnight face, unmarred by dial and scale markings. Turn it on and dial and nomenclature appear in radiant, contrasting color, for quick identifications of all controls... thanks to the unique tinted acrylic "dual-panel" design.

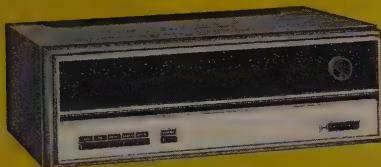
stereo separates



AJ-29... AM/FM stereo tuner from the AR-29!

- Same outstanding performance as AR-29 tuner section, pg. 13!
- 1.8 uV sensitivity!
- 70 dB selectivity!
- "Blend" & "Mute" functions!

179⁹⁵



"Black Magic" panel lighting.

Clean, sensitive FM-stereo reception. The pre-assembled, factory-aligned FM tuner boasts 1.8 uV sensitivity for whopping station-pulling power, using FET design for superior overload characteristics. A tiny integrated circuit performs four different functions in the multiplex section to assure outstanding stereo performance. Three IC's in the IF section provide superior AM rejection capability, hard limiting, temperature stability and greater reliability.

A new computer-designed nine-pole L-C filter in the IF strip gives ideally shaped band-pass with greater than 70 dB selectivity, superior separation and eliminates IF alignment forever.

A new "blend" function attenuates any on-station FM hiss or high-frequency noise at the push of a button . . . and a new "mute" function attenuates between-station noise on FM without affecting sensitivity.

AM that sounds like FM. Three FETs in the AM RF circuits provide superior sensitivity with large signal handling capability for truly remarkable AM reception. And the built-in AM rod antenna swivels to allow orientation for best reception.

Kit AJ-29, 19 lbs., mailable 179.95

AE-19 cabinet, 9 lbs., mailable 24.95



AA-29... 100-watt amplifier from the Heathkit AR-29!

- Same great specifications as the AR-29 amplifier section, pg. 13!
- 35 watts RMS per channel!
- Massive regulated & filtered power supply!

159⁹⁵

The same pace-setting performance specs found in the amplifier section of the AR-29, plus . . . an additional "auxiliary" input and an extra "tuner" input.

New performance standards for stereo amplifiers: The AA-29 marks another milestone in superior Heathkit amplifier design. Its 70-watts of continuous power is more than enough to drive even the most inefficient speaker systems. A massive, fully-regulated and filtered power supply, 4 conservatively heat sunked output transistors and the best IM and harmonic distortion specifications in the industry add up to sound fidelity you never expected to hear outside the theater.

Positive circuit protection: A dissipation-limiting circuit protects the outputs from damage, even with a short circuit condition.

Level controls for all inputs including tape_monitor allow adjustments so volume remains constant when switching sources.

Modular plug-in circuit boards make assembly faster, easier, more enjoyable, snap out in seconds for faster service. And built-in test circuitry, including test probes and meter, let you test the kit as you assemble it . . . makes future servicing a breeze, too.

Kit AA-29, 27 lbs., mailable 159.95

AE-19 cabinet, 9 lbs., mailable 24.95

The AJ-14 stereo tuner — from the popular AR-14 receiver

Modern, solid-state circuitry encompasses 14 transistors, 5 diodes. Three transistors in the tuning section, 4 in the 4-stage IF section provide a 5uV sensitivity, less than 1% distortion — comparable to far more expensive tuners. Filtered outputs allow beat-free stereo recording.

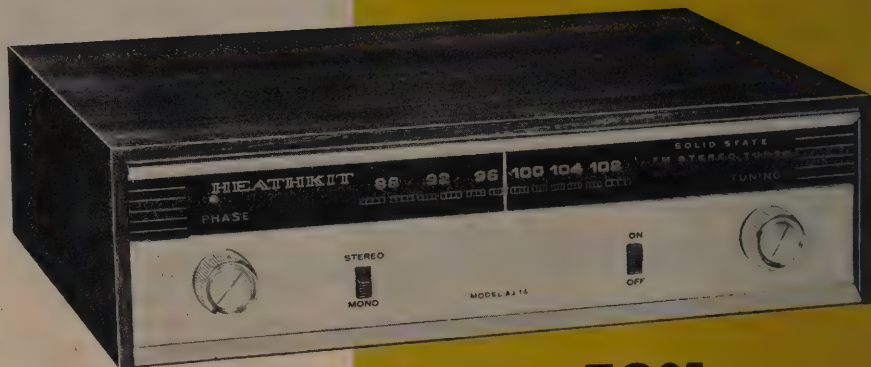
Only 4 controls for simple operation! Has on-off switch, flywheel tuning knob, mono-stereo switch, and stereo phase control for maximum separation. Features AFC for drift-free reception; stereo light; pre-aligned and assembled "front-end" tuner for fast, simple kit building. Installs in wall, custom cabinet or optional Heath cabinet.

Kit AJ-14, less cabinet, 6 lbs., mailable **59.95**

AE-25 walnut veneer cabinet, 5 lbs., mailable . . **9.95**

AE-35 beige metal cabinet, 4 lbs., mailable . . . **3.50**

AJ-14 SPECIFICATIONS: Same as tuner section of AR-14, p. 15.



59⁹⁵

Heathkit 30-watt stereo amp from the AR-14 receiver

Big value, big performance! The AA-14 offers all solid-state circuitry — 17 transistors and 6 diodes producing a 15 to 50,000 Hz ± 1 dB response at a full 15 watts of IHF music power per channel with less than 0.5% harmonic distortion. Plenty of power to drive any efficient 4 to 16 ohm speaker system.

Complete control complement! Six-position source control handles turntable, tuner or tape deck — stereo or mono. Clutched volume control gives independent adjustment of each channel. Full-range tandem controls allow bass and treble boost and cut. Also has edge-lighted dial, front-panel headphone jack, speaker-off switch.

Kit AA-14, less cabinet, 11 lbs., mailable **69.95**

AE-25 walnut veneer cabinet, 5 lbs., mailable . . **9.95**

AE-35 beige metal cabinet, 4 lbs., mailable . . . **3.50**

AA-14 SPECIFICATIONS: Same as amplifier section of AR-14.



69⁹⁵

Heathkit 4-watt mono amplifier . . . 19.95

A remarkable value . . . an 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: 105-125 or 210-250 volts, 50/60 Hz, 5 watts maximum. Cabinet size: 7 $\frac{1}{4}$ " W x 5 $\frac{1}{4}$ " D x 2 $\frac{5}{8}$ " H.

*Rated IHF (Institute of High Fidelity) Standards.



Heathkit 20-watt stereo amplifier . . . 49.95

Delivers a full 10 watts IHF music power per channel . . . drives any high efficiency 4-16 ohm speakers with ease. Low distortion and wide 30-30,000 Hz ± 1 dB response. Four stereo inputs: magnetic & ceramic cartridges, tuner and auxiliary. Dual tandem bass & treble controls; separate right & left channel volume controls. Metal cabinet in black, brown & beige included. 120/240 VAC wiring options.

Kit AA-32, 16 lbs., mailable **49.95**

AA-32 SPECIFICATIONS — output per channel: 8 watts (16 watts total) IHF Music Power Output. Frequency response: ± 1 dB from 30 Hz to 30,000 Hz at rated output. Harmonic distortion: (at rated output) 2% @ 30 Hz; 0.7% @ 1000 Hz, 2% @ 15,000 Hz. Intermodulation distortion: (at rated output) Less than 3% using 60 and 6000 Hz mixed 4:1. Power requirements: 105-125 or 210-250 VAC, 50-60 Hz. Dimensions: 13 $\frac{1}{2}$ " W x 4 $\frac{3}{4}$ " H x 9 $\frac{1}{4}$ " D.



4-channel stereo



The Heathkit Stereo-4 Decoder is connected into a stereo system between the preamp and amplifier or by using the amplifier or receiver's tape monitor facilities. An extra set of tape input and output jacks is provided on the Stereo-4 Decoder.

New Heathkit Stereo-4 Decoder takes your present stereo system into the 4th dimension!

The soundest approach yet to 4-channel listening! The Heathkit AD-2002 Stereo-4 Decoder is compatible with every stereo component you now own — yet it expands your system for reproduction of 4-channel matrixed signals now being encoded on 2-channel media. In addition, the AD-2002 enhances all of your current stereo records, tapes and FM/Stereo broadcasts with a simulated but extremely realistic 4-channel effect! There's no better way to introduce yourself to quadrasonic sound.

Decodes Stereo-4 FM now being broadcast! A growing number of FM stations across the country are now using Stereo-4 equipment to transmit 4 channels of information via conventional 2-channel methods. All you need to hear this dynamic presentation at home is the Heathkit Stereo-4 Decoder, an additional stereo amplifier and speaker systems for the 2 additional channels. Also, several record companies are already producing Stereo-4 discs that can be played on your existing stereo turntable with your present stereo cartridge.

Easy to use, install, build! The Heathkit AD-2002 adds 2 simple controls to your present system: A master gain knob adjusts the sound level for the entire 4-speaker installation. A 3-position mode switch provides "Source Decode 4" for processing 4-channel information or giving quadrasonic effect to conventional stereo; "Tape Decode 4" for playing tape through the decoder, and "Tape Monitor 2" to cut out the decoder for normal 2-channel operation. The AD-2002 can be connected between your separate stereo preamp and amplifier, or it can be used with integrated stereo amplifiers or receivers by using their tape monitor jacks (no internal wiring needed). An extra set of tape input and output jacks is provided on the decoder. The famous Heathkit manual shows you how to get your system into the 4th dimension in one evening. Order your Heathkit Stereo-4 Decoder today! Take advantage of one of the 3 great Stereo-4 Converter systems at left, (or make up your own) and save yourself 5%!

Kit AD-2002, Decoder plus six 4' audio cables and 33 $\frac{1}{3}$ RPM demonstration record, 5 lbs., mailable 29.95

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 $\frac{1}{2}$ " h., 5 $\frac{3}{8}$ " w., 7" d. overall. Power Requirements: 110-120 V, 50-60 Hz; 3 watts.

Save 5% on a Heathkit Stereo-4 Conversion System! Here's everything you need to convert your existing FM tuner, stereo amplifier (or FM/Stereo receiver) and speaker system to Stereo-4 reproduction. Choose one of the Stereo-4 systems below, or select any combination including Heathkit stereo amplifier, 2 speaker systems and Stereo-4 Decoder and deduct 5% from total price.

Kit AD-2002, Stereo-4 Decoder 29.95
Kit AA-32, stereo amplifier, (p. 18) 49.95
Kit AS-81W speaker system (pair), (p. 28) 43.90
 Total if purchased separately 123.80
 System price with 5% discount 117.61

Kit AD-2002, Stereo-4 Decoder 29.95
Kit AA-14, 30-watt amplifier, (p. 18) 69.95
Kit AS-37A, speaker system (pair), (p. 28) 89.90
 Total if purchased separately 189.80
 System price with 5% discount 180.31

Kit AD-2002, Stereo-4 Decoder 29.95
Kit AA-29, stereo amplifier, (p. 17) 159.95
Kit AS-10W, speaker system (pair), (p. 28) 129.90
 Total if purchased separately 319.80
 System price with 5% discount 303.81



Component performance with console styling

Heathkit AD-19 Component Credenza...only 289.95

- Uses famous AR-14 FM stereo receiver circuitry
- BSR McDonald 500A automatic turntable
- 30 watts music power integrated amplifier
- Fully finished Mediterranean Oak cabinet

Component performance with console beauty... you get it all in the Heathkit Component-Credenza. Engineered to produce the startling realism of fine stereo components, yet styled to take its proud place in your home as an elegant console.

Heathkit AR-14 circuitry... recognized by experts as a fine value. With an honest 15 watts music power per channel it will fill your home with clean, undistorted stereo. Its factory built FM stereo tuner pulls in stations you didn't know were there. Adjustable phase for best stereo; AFC ends drift; stereo light; flywheel tuning...easy to use.

BSR McDonald 500A automatic turntable... full featured...4 speeds...cue/pause control, adjustable anti-skate...complete with Shure diamond stylus magnetic cartridge...and it's all assembled.

Two full-range speaker systems... in tuned-port enclosures...each including a 10" high compliance woofer and 3 1/2" ring-damped tweeter for response from 60 to 16,000 Hz.

The cabinet... a work of art in Mediterranean styling of rich, dark oak veneer and solid oak trim accented by antiqued brass hardware. Get it all together forever with the Heathkit Component-Credenza.

Kit AD-19, 158 lbs., Express/Frt.289.95
Not eligible for 5% system discount

AD-19 SPECIFICATIONS — FM SECTION: Tuning Range: 88-108 MHz. Antenna input impedance: 300 ohm balanced input. Sensitivity: 5 microvolts*. Intermediate frequency (IF): 10.7 MHz. Hum and noise: -50 dB, 1 watt reference. Audio frequency response: Monophonic: 0 to -3 dB from 20 to 15,000 Hz. Harmonic distortion: 1% or less*. Image rejection: -45 dB*. Capture ratio: 4 dB*. AFC Correction: 150 kHz per volt. AM Suppression: -35 dB*. IF Rejection: -80 dB*. Separation: 27 dB at 1000 Hz. **AMPLIFIER SECTION:** Continuous power output: 10 watts per channel. Music power output: 15 watts per channel*. Tape output: .5 volt with a .3 volt signal at the AUX. input. Tape output impedance: 3500 ohm. Damping factor: 50 or higher. Hum and noise: Phono (10 millivolt reference), -60 dB without phono cartridge; -47 dB with phono cartridge connected. Auxiliary, -60 dB. Frequency response (1 watt): 50 Hz to 60 kHz ±1 dB; 35 Hz to 100 kHz ±3 dB. Power bandwidth: 12 Hz to 90 kHz. Input sensitivity: Phono, 4 1/2 millivolts; Auxiliary, 300 millivolts. Input impedance: Phono, 47 k ohm; Auxiliary 180 k ohm. Channel Separation: 45 dB or better at 1000 Hz. Total harmonic distortion (at full output): Less than 1% from 12 Hz to 60 kHz. Intermodulation distortion (at full output): Less than 1% (using 60 and 6000 Hz mixed 4:1). Phono equalization: RIAA (Recording Industry Association of America). Bass: 15 dB cut and 14 dB boost at 50 Hz. Treble: 13 dB cut and 15 dB boost at 20,000 Hz. **ENCLOSURE AND SPEAKERS:** Type: Two-way system in a ducted port enclosure. Speakers: Low frequency, 10" high-compliance with 8.5 oz. Alnico V magnet. High frequency, 3 1/2" cone-type with special damping ring, 1.32 oz. Alnico V magnet. Crossover frequency: 2000 Hz. Crossover type: Capacitive. Frequency response: 60 Hz to 16 kHz. **AUTOMATIC TURNTABLE:** Type: BSR McDonald. Turntable speed: 16 2/3, 33 1/3, 45 and 78 rpm. Record size: 7", 10" or 12". Wow: Less than .2%. Flutter: Less than .06%. **PHONO CARTRIDGE:** Type: Shure M71, magnetic. Stylus: 0006 spherical diamond. Tracking pressure: 1 1/2 - 3 grams. **GENERAL:** Power requirements: 105-125 or 210-250 VAC, 50-60 Hz, 32 watts idling, 65 watts full output. Plus 7.5 watts for automatic turntable motor. Dimensions: 49 1/2" W x 27" H x 20 1/2" D.

*Rated IHF (Institute of High Fidelity) Standards.



Lifting the spring loaded hinged top reveals the neat, convenient control layout...everything is easily in reach from a standing position. Note the handy record storage compartment in front.



Component-quality speaker systems. The AD-19 cabinet houses two completely independent, ported speaker systems for sound reproduction comparable to that of systems of individual components. The 10" woofer and 3 1/2" tweeter combine to give clean, life-like response.

stereo compacts



To keep those favorite records clean and free from dust, order the attractive protective cover. It's styled in smoke gray see-through plastic with walnut sides to match the AD-17.



Quality stereo sound at a budget-saving price...Heathkit "17" solid-state stereo compact...119.95

No ordinary compact......this famous Heathkit AA-14 stereo amplifier circuitry combined with a BSR McDonald 400 automatic turntable and Shure diamond stylus magnetic cartridge. Provides a full 30 watts music power to handle speakers like the AS-37A, AS-18 or AS-16 (page 28). Response from 12-60,000 Hz with less than 1% distortion. Inputs for tuner and tape recorder. 4-speed turntable handles 7, 10 & 12" records...boasts cue/pause control, anti-skate control, adjustable stylus pressure. For an extraordinary stereo compact at a very ordinary price order your AD-17 today.

Kit AD-17, 39 lbs., mailable **119.95**

ADA-17-1, smoked plastic cover, 5 lbs., mailable **14.95**

AD-17 SPECIFICATIONS — AMPLIFIER SECTION: Continuous power output: 10 watts per channel. Music power output: 15 watts per channel.* Tape output: 0.5 volt, with a 0.3 volt signal at the AUX input. Speaker output impedance: 4 thru 16 ohms. Tape output impedance: 3500 ohms. Damping factor: 50 or higher. Hum & noise: Phono: -47 dB. Auxiliary: -60 dB. Frequency response: (1 watt): 12 Hz to 60 kHz ± 1 dB, 6 Hz to 100 kHz ± 3 dB. Power bandwidth: 5 Hz to 90 kHz. Input impedance: Aux. 180 K ohms, tuner 180 K. Input sensitivity: Aux.—300 mv; tuner —300 mv. Channel Separation: 45 dB or better at 1000 Hz. Total Harmonic Distortion (at full output): Less than 1% using 60 & 6000 mixed 4:1. Phono Equalization: RIAA (Recording Industry Assoc. of America). Bass: 16 dB cut & 15 dB boost @ 20 Hz. Treble: 13 dB cut & 15 dB boost @ 20,000 Hz. Automatic Turntable: Type: BSR McDonald. Turntable Speed: 16 $\frac{2}{3}$, 33 $\frac{1}{3}$, 45 & 78 rpm. Record Size: 7", 10", or 12". Wow: Less than 0.2%. Flutter: Less than 0.06%. Cartridge Type: Shure Magnetic. Stylus: 0.7 mil diamond. Tracking Pressure: 3 to 5 grams. **GENERAL:** Power Requirements: 105-125 or 210-250 volts, 50/60 Hz, 32 watts idling, 65 watts full output. Plus 7.5 watts from automatic turntable motor. Dimensions: Overall 21 $\frac{3}{4}$ " W x 8 $\frac{1}{4}$ " H x 14 $\frac{1}{4}$ " D.

*Rated IHF (Institute of High Fidelity) Standards.

Designed to change your mind about stereo compact performance... Heath "27" solid-state FM component-compact...169.95

Big component-quality sound...compact size and price. We used the highly praised AR-14 solid-state stereo receiver circuitry, modified it physically to fit the handsome walnut cabinet and combined it with the famous BSR McDonald 500A automatic turntable. The result is a component stereo in the truest sense. A full 30 watts of music power, 12-16,000 Hz response, less than 1% distortion, and the capability of driving any efficient 4-16 ohm speaker system means solid, clean stereo sound. Outstanding tuner selectivity, 5 μ V sensitivity, 27 dB channel separation and smooth flywheel tuning add up to exciting FM stereo. The 4-speed BSR turntable comes complete with a Shure diamond stylus cartridge and provides a host of convenience features; cueing / pause control... anti-skate control... counterbalanced tone-arm... vernier stylus pressure adjustment. For a stereo system compact in price but not performance...order your AD-27 now. Order a pair of speaker systems at the same time and save 5% on the whole order.

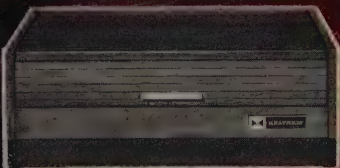
Kit AD-27, 50 lbs., mailable **169.95**

AD-27 SPECIFICATIONS—FM SECTION: Tuning range: 88-108 MHz. Antenna Input Impedance: 300 ohms, balanced input. Sensitivity: 5 μ V.* **AMPLIFIER SECTION:** Continuous Power Output: 10 watts per channel. Music Power Output: 15 watts per channel.* Tape Output: 0.5 volt, with a 0.3 volt signal at the AUX input. Tape Output Impedance: 3500 ohms. Frequency Response (1 watt): 12 Hz to 60 kHz ± 1 dB, 6 Hz to 100 kHz ± 3 dB. Power Bandwidth: 5 Hz to 90 kHz. Input Sensitivity: Aux. 300 millivolts. Channel Separation: 45 dB or better at 1000 Hz. **GENERAL:** Power requirements: 105-125 or 210-250 volts, 50/60 Hz. Dimensions: 21 $\frac{7}{8}$ " W x 7 $\frac{7}{8}$ " H x 14 $\frac{1}{4}$ " D.

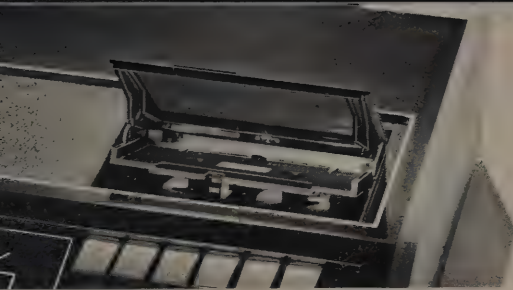
*Rated IHF (Institute of High Fidelity) Standards.



With its solid walnut sliding tambour door closed the AD-27 is a quietly impressive piece of furniture...and it will play with the door either open or closed.







Easy-loading pop-up cassette holder



Accurate counter for locating tape selections



Solid-state circuit board design



Preassembled & aligned transport speeds assembly

New from Heath — a kit-form cassette recorder that does justice to the finest stereo system — only 119.95

- Records and plays back stereo or mono
- Solid-state circuitry
- Adjustable bias permits using new chromium dioxide tape
- Separate level controls and meters
- Automatic shut-off
- Preassembled mechanism

The cassette comes of age! The new 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 3¾ 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, 10 lbs., mailable **119.95**

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: 1½ 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 ½ volt from low impedance amplifier stage. Finish: Black with walnut end panels. Dimensions (overall): 3¼" H x 13½" L x 11" D. Power: 120-240 volts, 50-60 Hz, 7 watts.

The Heathkit 8-track tape player with famous Motorola mechanism!

- Plays all 8-track stereo cartridges
- Solid-state circuitry
- Preassembled & adjusted mechanism
- Automatic or manual track selection
- Plays through your present stereo system

Simple Operation. The new Heathkit GD-28 is designed to play back pre-recorded 8-track stereo tape cartridges through your present music system. Just plug it into the "Tape", "Tuner" or "Auxiliary" inputs of your amplifier . . . insert the cartridge of your choice and listen. A metal tape splice switches the playhead from one track to the next automati-

cally. Or you can select the track you want to hear by just pushing the convenient slide switch . . . a pilot lamp indicates at a glance which track is playing.

Fast, Easy Assembly . . . the all solid-state 6-transistor, 2-diode pre-amplifier circuit goes together quickly on one small circuit board, and the tape player mechanism by Motorola® is preassembled and adjusted to make your kit building even easier. Total assembly time is about six hours. Comes complete with all necessary connecting cables, too. And the smart looking, walnut grained vinyl clad wood cabinet and gold front panel included with the kit blends with any decor. Add the sound of 8-track stereo tape cartridges to your home music system soon . . . with the new Heathkit GD-28.

Kit GD-28, 10 lbs., mailable **59.95**

GD-28 SPECIFICATIONS — Cartridge: 8-track stereo. Tape speed: 3¾" per 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: 105-125 VAC, 60 Hz, 45 watts (momentary). Cabinet: Simulated walnut grained vinyl clad wood. Dimensions: 10¾" W x 4¼" H x 8¼" D. Net weight: 6¾ lbs.

Critic's Choice — Garrard & Dual

A Exciting New Zero 100 from Garrard

Tone arm has pivoting cartridge housing that keeps stylus perpendicularly tangent to groove throughout play. Provides zero tracking error for distortionless reproduction, longer record life. 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 options below. Prod. of Gr. Britain. Measures 15 $\frac{1}{2}$ " W x 14 $\frac{1}{8}$ " D x 4 $\frac{3}{8}$ " above motor board, 2 $\frac{1}{8}$ " below.

ADP-100 , turntable only (Garrard Zero 100), 18 lbs., mailable	189.50
ADA-100-1 , solid walnut base shown, (Garrard WB-2), 6 lbs., mailable	19.95
ADA-100-2 , 45 RPM spindle (Garrard LRS-100), 2 lbs., mailable	3.80
ADA-47-3 , power-matic base (Garrard B2P), 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

B Garrard SL95B...139.50

Has Syncro-Lab motor for precise turntable speed; automatic or manual play for 78, 45 & 33 $\frac{1}{3}$ RPM; 12" aluminum turntable. You choose either 1 ϕ or \$5 cartridge below. 15 $\frac{1}{8}$ " 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 (Garrard SL95B), 14 lbs., mailable	139.50
ADA-100-1 , solid walnut base, (Garrard WB-2), 6 lbs., mailable	19.95
ADA-47-3 , power-matic base, (Garrard B2P), 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
ADA-57-2 , 45 RPM spindle (Garrard LRS25), 1 lb., mailable	3.80

C Garrard SL72B...99.50

Plays all three speeds, automatically or manually. Has Syncro-Lab motor, special cartridge options below. 15 $\frac{1}{8}$ " W x 14 $\frac{1}{8}$ " D x 4 $\frac{3}{8}$ " above motor board, 3" below. Prod. of Gr. Britain.

ADP-79 , turntable only (Garrard SL72B), 13 lbs., mailable	99.50
ADA-100-1 , solid walnut base, (Garrard WB-2), 6 lbs., mailable	19.95
ADA-47-3 , power-matic base (Garrard B2P), 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
ADA-57-2 , 45 RPM spindle (Garrard LRS25), 1 lb., mailable	3.80

D Dual 1219...\$175

Manual or automatic operation for 78, 45 & 33 $\frac{1}{3}$ RPM. Has gimbal tonearm suspension; separate anti-skating adjustment for spherical and elliptical cartridges; cue-control; damped tonearm descent; elastically damped counterbalance; adjustable stylus overhang for minimum tracking error; full 12" diameter balanced 7-lb. platter; synchronous/continuous pole motor for exact speed; 6% speed adjustment for precise pitch in all three speeds. Choose 1 ϕ or \$5 cartridge below. 18 $\frac{1}{2}$ " W x 16" D x 8" H. Prod. of W. Germany.

ADP-49 , turntable only (Dual 1219), 23 lbs., mailable	175.00
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

E New Dual 1218...139.50

Gives 3-speed manual or automatic play. Has separate anti-skating scales for conical and elliptical styli; tracking angle selector in cartridge housing, vernier counterbalance, cue control, pitch control, 4-lb. one-piece cast platter. Will track as low as 0.5 gram. Choose cartridge below. Measures 12 $\frac{3}{4}$ " W x 10 $\frac{3}{4}$ " D x 3 $\frac{3}{8}$ " above motor board, 2 $\frac{1}{8}$ " below. Prod. of W. Germany.

ADP-1218 , turntable only (Dual 1218), 15 lbs., mailable	139.50
ADA-39-1 , walnut base (Dual WB-12), 5 lbs., mailable	10.95
ADA-39-4 , dust cover (Dual DC-2), 3 lbs., mailable	10.95
ADA-39-2 , 45 RPM spindle (Dual AS-12), 1 lb., mailable	5.95

Special 1 ϕ and \$5 cartridge options for Garrard and Dual Turntables

Shure M91E only \$5 more with turntable order — see above.

Model AD-68F , 1 lb., mailable	49.95
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MANUFACTURER'S SPECIFICATIONS — Frequency response: 20-20,000 Hz. Output: 5.0 mV. Separation: 25 dB. Load impedance: 47 k ohms. Stylus: 0.2x0.7 elliptical. Tracking force: $\frac{3}{4}$ to 1 $\frac{1}{2}$ grams.

Shure M93E only 1 ϕ more with turntable order — see above.

Model AD-58R , 1 lb., mailable	39.95
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MANUFACTURER'S SPECIFICATIONS — Frequency response: 20-20,000 Hz. Output: 6.2 mV. Separation: 25 dB. Load impedance: 47 k ohms. Stylus: 0.4x0.7 elliptical. Tracking force: 1 $\frac{1}{2}$ to 3 grams.

Empire 999SE/X only \$5 more with turntable order — see above.

Model AD-121 , 1 lb., mailable	49.95
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MANUFACTURER'S SPECIFICATIONS — Frequency response: 8-32,000 Hz. Output: 8.0 mV. Separation: 35 dB. Load impedance: 47 k ohms. Stylus: 0.2x0.7 elliptical. Tracking force: $\frac{1}{2}$ to 1 $\frac{1}{2}$ grams.

Empire 999E/X only 1 ϕ more with turntable order — see above.

Model AD-126 , 1 lb., mailable	39.95
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MANUFACTURER'S SPECIFICATIONS — Frequency response: 10-30,000 Hz. Output: 8.0 mV. Separation: 35 dB. Load impedance: 47 k ohms. Stylus: 0.3x0.7 elliptical. Tracking force: $\frac{3}{4}$ to 2 grams.



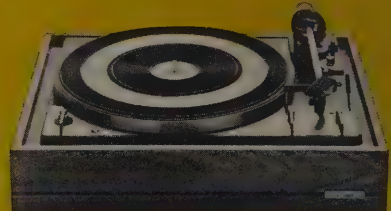
A



B



C



D



E





Moderately priced, fully complete changers!

Heath/BSR McDonald AD-140... 89.95

Factory assembled & tested, has 4-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. Prod. of Gr. Britain.

Assembled AD-140, 14 lbs., mailable **89.95**

AD-140 SPECIFICATIONS — Speeds: 78, 45, 33 $\frac{1}{3}$, 16 $\frac{2}{3}$ RPM. **Motor:** High torque, dynamically balanced synchronous type. **Cartridge:** Shure M93E magnetic, diamond elliptical stylus, 1 $\frac{1}{2}$ -3 grams stylus pressure. **Color:** Satin black with aluminum trim. **Cables furnished:** 6 foot UL approved line cord; two 4-foot twin shielded audio cables. **Power requirements:** 105-130 VAC, 60 Hz. **Dimensions:** 15 $\frac{1}{4}$ " W x 13 $\frac{3}{8}$ " D x 7 $\frac{1}{4}$ " H (including dust cover and base).



Heath/BSR McDonald AD-130... 64.95

A high-performance turntable and a nice price, the AD-130 offers many of the same features found in the AD-140, shown above. It has 4-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 and cables. Prod. of Gr. Britain.

Assembled AD-130, 14 lbs., mailable **64.95**

AD-130 SPECIFICATIONS: Speeds: 78, 45, 33 $\frac{1}{3}$, 16 $\frac{2}{3}$ RPM. **Motor:** High torque, dynamically balanced synchronous type. **Cartridge:** Shure M75 magnetic, diamond spherical stylus; 3-5 grams stylus pressure. **Color:** Satin black with aluminum trim. **Cables furnished:** 6-foot UL approved line cord; two 4-foot twin shielded audio cables. **Power requirements:** 105-130 VAC, 60 Hz. **Dimensions:** (including base and dust cover) 15 $\frac{1}{4}$ " W x 13 $\frac{3}{8}$ " D x 7 $\frac{1}{4}$ " H.



Heath/BSR McDonald AD-120... 44.95

An excellent unit for the budget minded, the AD-120 is also the perfect automatic turntable for that low cost system. It offers 4-speed play manual, semi-automatic or automatic; 4-pole induction motor, aluminum counter-weighted 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 adapter, cables. Prod. of Gr. Britain.

Assembled AD-120, 14 lbs., mailable **44.95**

AD-120 SPECIFICATIONS—Speeds: 78, 45, 33 $\frac{1}{3}$, 16 $\frac{2}{3}$ RPM. **Motor:** 4-pole dynamically balanced induction type. **Cartridge:** Shure M75 magnetic diamond spherical stylus; 3-5 grams stylus pressure. **Color:** Satin black with aluminum trim. **Cables furnished:** 6-foot UL approved line cord; two 4-foot twin shielded audio cables. **Power requirements:** 105-130 VAC, 60 Hz. **Dimensions:** (including base and dust cover) 15 $\frac{1}{4}$ " W x 13 $\frac{3}{8}$ " D x 7 $\frac{1}{4}$ " H.



Heath/GD-187... 29.95

An ideal "starter" changer for low-cost hi-fi and stereo systems, the GD-187 comes fully assembled, ready to plug into your amp or receiver. Specifically designed for amplifiers with ceramic cartridge inputs, the GD-187 includes complete instructions for conversion to magnetic cartridge units. Gives 4-speed, manual or automatic play. Ceramic cartridge has diamond stylus for LP's, sapphire for 78's. Comes wired for stereo, can be rewired for mono. Includes 45 adapter, measures 6 $\frac{1}{4}$ " H x 14 $\frac{3}{8}$ " W x 12 $\frac{1}{2}$ " D.

Assembled GD-187, 12 lbs., mailable **29.95**

GD-187 SPECIFICATIONS — Changer: Type, Maestro Model 52-93. **Speeds:** 16, 33 $\frac{1}{3}$, 45 and 78 rpm. **Record sizes:** 7", 10" and 12". **Cartridge:** Stereo ceramic. **Stylus:** 0.7 mil diamond for LP's, 3 mil sapphire for 78's. **Power requirements:** 105-125 V., 60 Hz AC, 10 watts.

Now...save \$20 on the Heath/Bozak AS-102 3-way floor system

A superb 8-ohm floor system for the serious stereo listener-not satisfied with anything less than the best. The AS-102 uses four famous Bozak speakers in a luxuriously finished Mediterranean cabinet. The 12" woofer with a 6½ pound magnet assembly features a light, rigid, variable-density felted paper cone with high compliance suspension to provide clean, crisp bass response down to 40 Hz without doubling or distortion. The 6" midrange driver features a 6½ pound magnet assembly and the patented Bozak rigid metal diaphragm for accurate reproduction of the all-important midrange frequencies. Two 2½" tweeters with 2 pound magnet assemblies offer velvet-smooth, natural response to 20,000 Hz. This system is highly damped and specifically recommended for owners of very high quality amplifiers such as the Heathkit AR-15, AR-29, AR-19, AA-15 and AA-29.

Easy assembly. Just wire the specially-designed 3-way crossover and mount the speakers in the attractive pecan-finished Mediterranean cabinet. Then relax and listen to superb stereo. Order your two new AS-102 systems now.

Kit AS-102 including factory assembled & finished cabinet, 112 lbs., Express/Frt., was **259.95** . . . now only (each) **239.95**

AS-102 SPECIFICATIONS—Power Capacity: 50 watts program material maximum; 20 watts minimum recommended. **Impedance:** 8 ohms nominal. **Frequency Response:** 40 Hz to 20,000 Hz. **Crossover Frequencies:** 800 Hz and 2500 Hz, 6 dB/octave attenuation. **Speakers:** One 12" woofer, 6½ lb. magnet assembly. One 6" midrange, 6½ lb. magnet assembly. Two 2½" tweeters, 2 lb. magnet assemblies. **Cabinet:** Type, infinite baffle. Finish, Mediterranean pecan. **Dimensions:** 29½" H x 27¾" W x 19¾" D.

Heathkit/Acoustic Research AS-103... the famous AR-3a in low cost kit form

The AS-103 is a combination of famous Acoustic Research, Inc. speaker technology and Heath kit know-how. The AS-103 uses the three AR-3a drivers in a sealed acoustic suspension enclosure to deliver clean, natural response and extremely low distortion.

Virtually flat response from 30 Hz to 20,000 Hz. The 12" woofer provides crisp, clean bass down to 30 Hz with low distortion. The special hemispherical dome midrange and tweeter, combined with a precisely-engineered crossover network, deliver natural, transparent sound. 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. Its compact size and contemporary lines and style allow use as a floor standing system or on a bookcase.

Easy assembly . . . wire and mount the crossover components, mount the three speakers from the front of the sealed, one-piece cabinet and snap on the attractive grille. You'll finish in just a few hours. For one of the finest speaker systems ever conceived — and substantial savings, order a pair of AS-103's now.

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.

Heathkit/JBL® AS-48 2-way bookshelf system

The Heathkit AS-48 is an extraordinary bookshelf system that will easily outperform anything in its price class by a wide margin, thanks to the custom-designed JBL speakers and famous Heathkit engineering. The special 14" woofer uses an inert, self-damping cone suspension and

a massive 11½ pound magnet assembly to produce remarkably clear, full bass down to 40 Hz. Clean, lifelike highs come from the 2" JBL direct radiator. The AS-48 will handle up to 50 watts of program material — your assurance of distortion-free listening at any level. And the three position high frequency level control lets you adjust the highs to your liking. Assembles easily in just an hour or two . . . just wire the high frequency level control and the 2000 Hz crossover and mount the two speakers. All components mount from the front of the classic, one-piece pecan finish damped reflex, tube-ported cabinet. For the finest in home stereo reproduction, choose two of these AS-48 systems now.

Kit AS-48, 68 lbs., Express/Frt. (each) **184.95**

AS-48 SPECIFICATIONS—Speakers: 14" woofer, 4" voice coil, 11½ lb. magnet assy.; 2" piston-type direct radiator tweeter, 1.25 lb. magnet assy. **Frequency range:** 40-20,000 Hz. **Crossover:** LC-type, 2000 Hz. **Power rating:** 50 watts 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.

Heathkit/JBL® AS-38 medium-priced high-efficiency bookshelf system

The Heathkit AS-38 is medium-priced, but its high efficiency and remarkable sound make it suitable for use with the finest stereo components. The 12" JBL woofer with its large 6¾ pound magnet assembly reproduces rich, full-bodied bass down to 45 Hz, and the 2" JBL direct radiator delivers clear, natural sound up to 20,000 Hz. The 40-watts of program material that it will handle, its high efficiency, and 8 ohm impedance make the AS-38 compatible with practically any amplifier. A high frequency level control on the back of the fine walnut finish cabinet lets you modify the sound to suit your taste too. Simple, one-evening assembly . . . just wire the 2500 Hz LC-type crossover and the level control and mount the two speakers. All components mount from the front of the one-piece cabinet to insure an air tight cabinet seal, and the grille is removable for added convenience. For excellent stereo reproduction at a reasonable cost, order two of these systems now.

Kit AS-38, 49 lbs., mailable (each) **154.95**

AS-38 SPECIFICATIONS—Speakers: 12" woofer, 6¾ lb. magnet assy.; 2" piston-type direct radiator tweeter, 1.25 lb. magnet assy. **Frequency Range:** 45 Hz to 20 kHz. **Crossover:** LC type 2500 Hz. **Power Rating:** 40 watts 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.

Heathkit/Altec-Lansing AS-101 2-way floor system

The AS-101 is a skillful blend of Altec-Lansing speaker experience and Heath engineering . . . designed to meet the demands of fine stereo equipment such as the AR-15, AR-29, AR-19, AA-15 & AA-29. The bass reflex design incorporates a high compliance 15" woofer, sectoral horn and two-way crossover network to faithfully reproduce the complete audio spectrum. The woofer uses a special edge-wound copper-ribbon voice coil, high compliance cone structure and heavy cast-aluminum frame to deliver bass response down to the limits of hearing. The sectoral horn and matching driver provide excellent dispersion characteristics of the mid and high frequencies, producing the very brilliant highs typical of horn systems. Features include a high frequency level control, enabling the user to balance the highs to room acoustics. Assembly is fast and easy . . . you'll finish in one evening. Just mount the front panel and speakers in the handsome Mediterranean pecan-finish cabinet, wire the crossover network and connect to your system. Cabinet measures 29½" H x 27¾" W x 19¾" D. For concert-hall realism in your living room, order your new AS-101 systems now.

Kit AS-101, including factory assembled & finished cabinet, 131 lbs., Express/Frt. **259.95**

AS-101 SPECIFICATIONS—Power Capacity: 50 watts program material maximum; 10 watt minimum recommended. **Impedance:** 8 ohms nominal. **Frequency Response:** 35 Hz to 22,000 Hz. **Crossover Frequency:** 800 Hz, 12 dB/octave. **Speakers:** One 15" woofer, 10½ lb. magnet assembly. One high frequency driver, 13 oz. Alnico V magnet with 800 Hz sectoral horn. **Cabinet:** Type, bass reflex. **Finish,** Mediterranean pecan. **Dimensions:** 29½" H x 27¾" W x 19¾" D.

speaker systems



The massive 14" woofer dominates the inside of the AS-48 cabinet when the attractive snap-off grille is removed. A special cone suspension makes it impervious to changes in humidity and temperature.

AS-103
189⁹⁵



AS-48
184⁹⁵

AS-38
154⁹⁵



AS-102
NOW ONLY 239⁹⁵

AS-101
259⁹⁵

Beauty of sight and sound...on a budget!

Ⓐ Heathkit AS-10 Acoustic Suspension Speaker System...59.95

The advantage of acoustic suspension with its low distortion and at a low price. Features a 10" acoustic suspension woofer with 1 lb. ceramic magnet and two 3½" cone type tweeters in dispersed array. Drives with as little as 10 watts but handles up to 40 watts. High frequency level control; L-C 2250 Hz crossover network. Response 30 to 15,000 Hz; impedance 16 ohms. Enclosure is sealed infinite baffle type, factory assembled of furniture grade ¾" plywood, available unfinished or walnut finish; measures 13½" H x 24" W x 11½" D; may be used horizontally or vertically. Build a stereo pair in one evening, just mount components and wire.

Kit AS-10U, unfinished, 52 lbs., Express/Frt. **59.95**
Kit AS-10W, walnut finish, 52 lbs., Express/Frt. **64.95**



Ⓐ

Ⓑ Heathkit AS-16 Compact 2-way Speaker System...54.95

A medium-cost acoustic suspension system. An 8" acoustic suspension woofer and a 3½" tweeter combine to deliver 45 to 20,000 Hz response with low distortion. Handles 25 watts of program material. High frequency level control allows balancing highs. Compact size — fits well on bookcases: 10" H x 19" W x 8¼" D. Easy assembly... speakers already mounted in the assembled walnut veneer cabinet... just wire the 1500 Hz crossover network. 8 ohms. Order two for stereo.

Kit AS-16, 22 lbs., mailable **54.95**

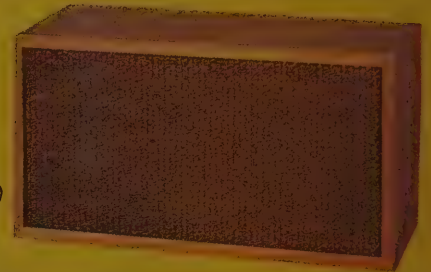


Ⓑ

Ⓒ Heathkit AS-18 Miniature Acoustic Suspension System...34.95

A surprising little performer, the AS-18 belies its small size of 8¼" H x 15¼" W x 6½" D. A 6" woofer delivers clean, crisp bass down to 60 Hz... 2½" tweeter produces sparkling highs to 20,000 Hz. High frequency balance control lets you adjust the highs to suit your taste. Handles 25 watts program material, 50 watts peak. 8 ohm impedance; crossover frequency 3000 Hz. Handsome walnut cabinet protected by clear vinyl covering. Put a pair of these remarkable little speakers in your system now.

Kit AS-18, 14 lbs., mailable **34.95**



Ⓒ

Ⓓ Heathkit AS-37A Two-Speaker System...44.95

Chosen by thousands for their homes, this famous speaker system has two special design speakers... 8" woofer with 10 oz. ceramic magnet and compression type exponential horn tweeter. Uses 1600 Hz crossover; has 8 ohms impedance. Performance: 50-12,000 Hz response, 25 watts power rating. Preassembled cabinet (11½" H x 23" W x 11½" D) covered with handsome satin walnut polyester plastic — stain, fade resistant. Buy two for stereo — build both in one evening.

Kit AS-37A, 37 lbs., mailable **44.95**



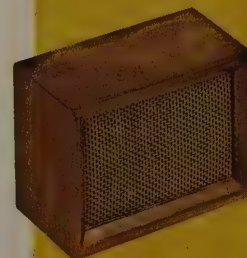
Ⓓ

Ⓔ Heathkit AS-81 2-way Miniature Speaker System...19.95

The answer to your space problem. Want good performance, low cost and small size too? AS-81 uses a 6" woofer and a 3" tweeter to deliver a remarkable 70-14,000 Hz frequency response. Capacitor crossover at 3000 Hz. Handles up to 6 watts. Choice of walnut or unfinished cabinets. Measures only 10¾" W x 6½" H x 6¾" D. Order two for stereo now.

Kit AS-81U, unfinished, 15 lbs., mailable **19.95**

Kit AS-81W, walnut, 15 lbs., mailable **21.95**



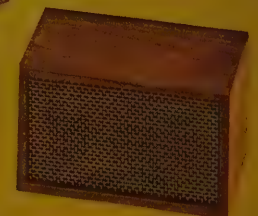
Ⓔ

Ⓕ Heathkit AS-41 Low Cost Speaker System...15.95

Our lowest cost speaker system. A special 6x9" extended range speaker provides wide 60-16,000 Hz response. Handles up to 12 watts of program material. Makes an ideal extension speaker, or for center-channel fill-in for your stereo system. Fast, enjoyable assembly. Choice of unfinished or walnut cabinets. 8 ohm impedance. 8" H x 11" W x 6½" D.

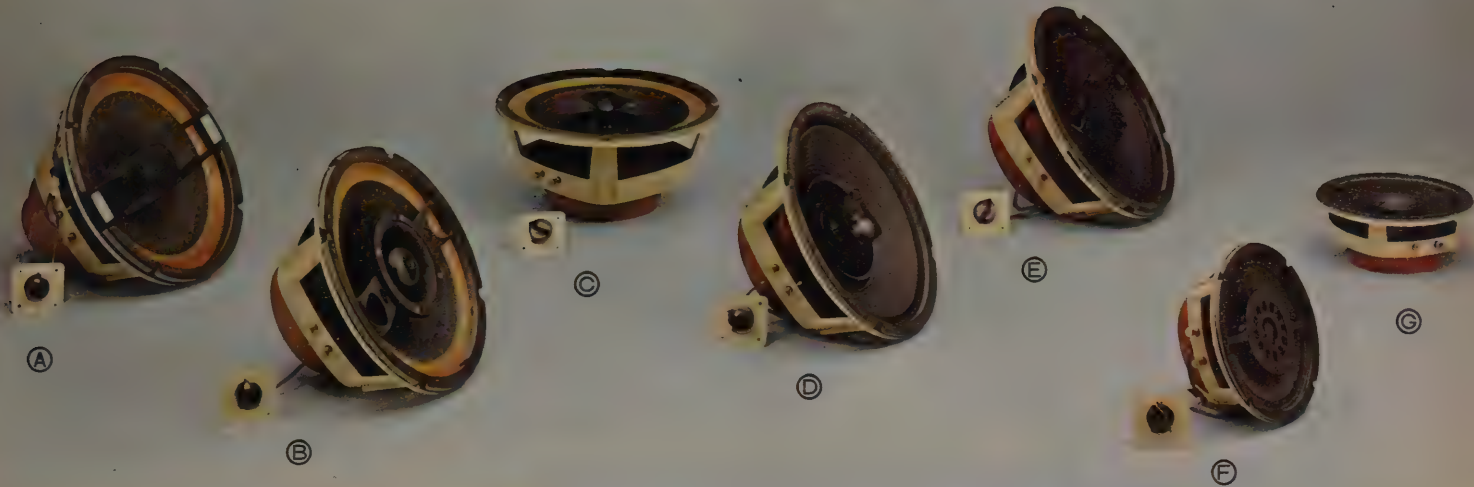
Kit AS-41U, unfinished, 9 lbs., mailable **15.95**

Kit AS-41W, walnut, 9 lbs., mailable **16.95**



Ⓕ

separate speakers



For custom-sound,
tailored to your taste!



(A) Telex ST-11 Stereo Headset
Model ADP-92, 2 lbs. **23.92**
ADP-92 SPECIFICATIONS—Driver element: Dynamic. Frequency response: 16 to 15,000 Hz. Impedance: 3 to 16 ohm sources. Distortion: At normal listening level less than 1%. Cord: 4-wire 12 ft. long with 3-circuit phono plug. Color: Tan & Brown.

(B) KOSS Pro-4AA Stereo Headset
Model ADP-1002, 2 lbs. **59.00**
ADP-1002 SPECIFICATIONS—Driver element: Dynamic. Frequency response: 10-20,000 Hz. Impedance: 4 to 16 ohm sources. Distortion: Negligible at normal listening levels. Cord: Coiled, 10', 4-wire, 3-circuit plug. Color: Gray-bronze cups, black cushions & band.

(C) Heathkit Stereo Headphone Control
Unit Kit AC-17, 3 lbs. **9.95**
AC-17 SPECIFICATIONS—Output: 2-three connector phone jacks. Controls: Dual concentric level control, speaker-headphone selector switch. Recommended headphone impedance: 4 ohm or more. Dimensions: 3" W x 4" D x 2 5/8" H including control knobs. Cable Length: 20 ft.

Heathkit Separate Hi-Fi Speakers

(A) 3-way high-compliance speaker
Features 12" unitary speaker with woofer, compression mid-range & horn-loaded compression tweeter. 80 watts peak power capability. 600 & 4000 Hz crossovers. Mid & high frequency level control. 1 year guarantee & cabinet recommendations included.
Model AS-27, 15 lbs., available. . . **79.50**
Pair (AS-27-2) 39 lbs., available. . **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: 1 1/2" and 1".

(B) 2-way high-compliance speaker
12" high-compliance, edge-damped woofer with re-entrant horn tweeter. 1 1/2 & 1" voice coils. High frequency level control. 1 year guarantee.
Model AS-183, 15 lbs., available. . . **54.95**
Pair (AS-183-2), 39 lbs., available. **105.00**

AS-183 SPECIFICATIONS—Impedance: 8 ohms. Power rating: 30 watts. Frequency response: 20-15,000 Hz. Cone resonance: 25 Hz. Magnet weights: 1 3/4 lbs., 4.65 oz. Voice coil sizes: 1 1/2" and 1".

(C) 3-way high-compliance speaker
12" high-compliance woofer with mid-range cone; special Heath-designed tweeter. 1 3/4 lb. ceramic magnet. High frequency level control. 1 year guarantee.
Model AS-173, 14 lbs., available. . . **44.95**
Pair (AS-173-2), 37 lbs., available. . **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: 1 1/2" and 1".

(D) 12" 3-way coaxial speaker
Wide range response at low cost. Handles up to 20 watts. True coaxial design with woofer, midrange cone and special design horn tweeter. Electrical & mechan-

ical crossovers. High frequency level control. 1 year guarantee.

Model AS-163, 12 lbs., available. . . **34.95**
Pair (AS-163-2), 32 lbs., available. . **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: 1 1/2" and 1".

(E) 12" 2-way coaxial speaker
Separate woofer & tweeter with capacitive crossover delivers 50-15,000 response, handles up to 15 watts. High frequency level control. 1 year guarantee.
Model AS-153, 10 lbs., available. . . **24.95**
Pair (AS-153-2), 28 lbs., available. . **46.00**

AS-153 SPECIFICATIONS—Impedance: 8 ohms. Cone resonance: 60 Hz. Magnet weights: 10 oz., 1.47 oz. Voice coil sizes: 1" and 3/4".

(F) 8" 2-way coaxial speaker
50-14,000 Hz response from separate woofer & tweeter. Handles up to 12 watts. Separate high frequency level control. 1 year guarantee.
Model AS-133, 6 lbs., available. . . **19.95**
Pair (AS-133-2), 18 lbs., available. . **38.00**

AS-133 SPECIFICATIONS—Impedance: 8 ohms. Cone resonance: 70 Hz. Magnet weights: 10 oz., 0.68 oz. Voice coil sizes: 1" and 3/4".

(G) 8" dual cone speaker
Only 3 1/2" deep...ideal for in-wall mounting or where space is tight. 50-12,000 Hz response. Handles up to 12 watts. 1 year guarantee. Ideal for playroom or den system.
Model AS-123, 5 lbs., available. . . **11.95**
Pair (AS-123-2), 15 lbs., available. . **22.00**

AS-123 SPECIFICATIONS—Impedance: 8 ohms. Cone resonance: 70 Hz. Magnet weight: 10 oz. Voice coil size: 1".



Ⓐ
189⁹⁵



Ⓑ
315⁰⁰



Ⓒ
285⁰⁰



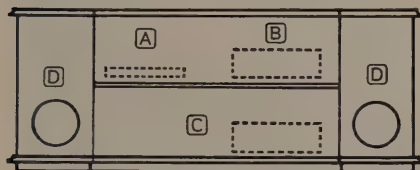
Ⓓ
350⁰⁰

Your stereo components deserve the best...fully crafted Heath cabinets

Mediterranean hideaway with a place for everything!

Ⓐ One-piece 5½' 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" openings (see pg. 29 for speakers). Accessory drawers on ball bearing slides available.

- AE-101**, credenza, 167 lbs., Express/Frt. **189.95**
AEA-101-1, changer drawer, 16 lbs., mailable **29.95**
AEA-101-2, cartridge, cassette drawer, 7 lbs., mailable **19.95**



CABINET OVERALL: 66" W x 19¼" D x 26⅞" H. **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:** 18½" W x 14" D x 5½" H. **TAPE PLAYER BASE:** 14" W x 12½" D.

Contemporary group with traditional craftsmanship, today's styling!

Ⓒ Smartly styled with rich walnut finish on fully crafted solids and veneers. Top lifts to expose changer compartment, bi-fold doors hide components. Decorative statuary bronze handles. Matching speaker cabinet has wood-grain molded resin louvres that can't chip, crack or warp. Ducted port reflex design accommodates 8" or 12" speakers (installation instructions included), measures 28⅞" H x 18" W x 19" D. Order two for stereo.

- AE-37**, equipment cabinet, 108 lbs., Express/Frt. **145.00**
AEA-37-1, speaker cabinet, 70 lbs., Express/Frt. **70.00**

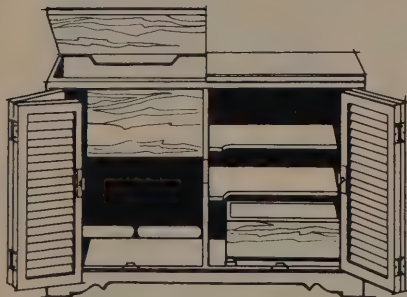


AE-37 EQUIPMENT CABINET ACCOMMODATIONS AND SIZES: Cabinet Overall: 40" W x 19" D x 28⅞" H. **Changer Compartment:** 19" W x 16½" D, mounting board is uncut and can be adjusted in height. **Record-Tape Recorder Compartment:** 19" W x 16½" D x 15¾" H. **Shelf Compartment:** Overall interior dimensions, 19" W x 16½" D x 24¾" H with two shelves adjustable 4, 5, 6, 10, 11, 12, 16, 17, or 18 inches from top.

Early American grouping to house your most modern electronics!

Ⓔ Traditional Salem-Maple finish on fine furniture solids and veneers, with louvered doors of molded resins. Lift-top changer compartment, bi-fold doors swing away to reveal components. Statuary bronze handles. Speaker cabinets display quality workmanship, with handsome wood spindle grille. Ducted port reflex installation for 8" or 12" speakers (see pg. 29). Speaker cabinet measures 28⅞" H x 18" W x 19" D. Order two for stereo.

- AE-47**, equipment cabinet, 104 lbs., Express/Frt. **155.00**
AEA-47-2, speaker cabinet, 67 lbs., Express/Frt. **80.00**

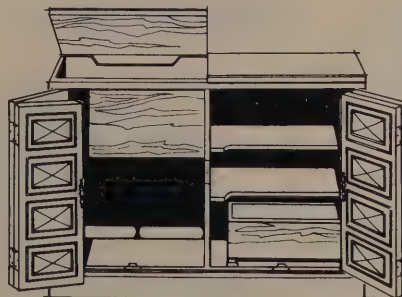


AE-47 EQUIPMENT CABINET ACCOMMODATIONS AND SIZES: Cabinet Overall: 40" W x 19" D x 28⅞" H. **Changer Compartment:** 19" W x 16" D x 28¾" H, mounting board is uncut and can be adjusted in height to accept all record changers, turntables, and tape recorders sold by Heath; lid has friction-loaded hinges. **Record-Tape Recorder Compartment:** 19" W x 16" D x 15¾" H. **Shelf Compartment:** Overall interior dimensions, 19" W x 16" D x 24¾" H with two shelves adjustable 4, 5, 6, 10, 11, 12, 16, 17 or 18 inches from the top of the cabinet. Accepts any Heathkit receiver, tuner or amplifier.

Mediterranean trio that lets you separate your sound!

Ⓕ Three-piece grouping in selected solids and veneers with a dramatic pecan finish. Bi-fold doors have sculptured resin panels that won't chip, warp or crack; statuary bronze handles. Top raises to reveal changer compartment, doors open to components. Adjustable shelves. Matching ducted-port speaker cabinets accept 8" or 12" speakers (installation instructions included), measures 28¾" H x 17⅝" W x 18¾" D. See pg. 29 for speaker selection. Order a pair for stereo.

- AE-57**, equipment cabinet, 109 lbs., Express/Frt. **170.00**
AEA-57-1, speaker cabinet, 68 lbs., Express/Frt. **90.00**



AE-57 EQUIPMENT CABINET ACCOMMODATIONS AND SIZES: Cabinet Overall: 40" W x 19¾" D x 28¾" H. **Changer Compartment:** 19" W x 16" D, mounting board is uncut and can be adjusted in height. **Record-Tape Recorder Compartment:** 19" W x 15" H x 16" D. **Shelf Compartment:** Overall interior dimensions: 19" W x 16" D x 23¾" H with two shelves adjustable 4, 5, 6, 10, 11, 12, 16, 17 or 18 inches from top.

Plan Your Own Custom Stereo System

This is a guide to the best equipment combinations—matched in performance and style. One of them will

satisfy your needs and fit into your budget. Order all components at the same time and save 5%.

HOW TO DESIGN A MUSIC SYSTEM: Start by choosing the receiver or the "tuner and amplifier set," then select one turntable among those suggested. All you have to do now is to decide which speaker sys-

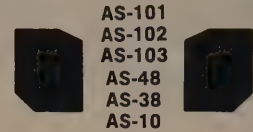
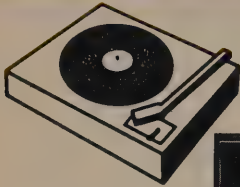
tems or separate speakers you require (order two identical for stereo) . . . and you've Custom Tailored your sound system. See bottom of page for discount information.

Choose Your Turntable

...Receiver or Tuner and Amplifier

... Speaker System

TOP OF THE LINE STEREO

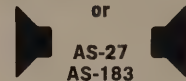
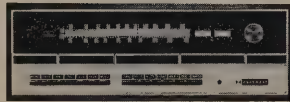


Speaker Systems

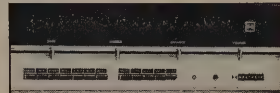
ADP-100
AD-140
ADP-49
ADP-89



or



Separate Speakers

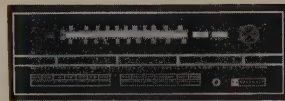


AA-29 Amplifier

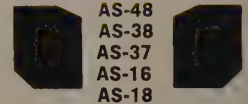
Separate Speakers must be provided with suitable acoustic enclosures. All interconnecting cables provided except speaker wire.

MEDIUM PRICED STEREO

AD-130
ADP-1218
ADP-79



AR-19 AM/FM/FM Stereo Receiver



Speaker Systems



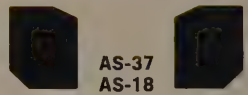
Separate Speakers

LOW COST STEREO

AD-120
GD-187



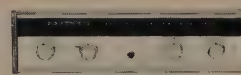
AR-14 FM Stereo Receiver



Speaker Systems



or



AA-14 Amplifier



Separate Speakers

or AR-17



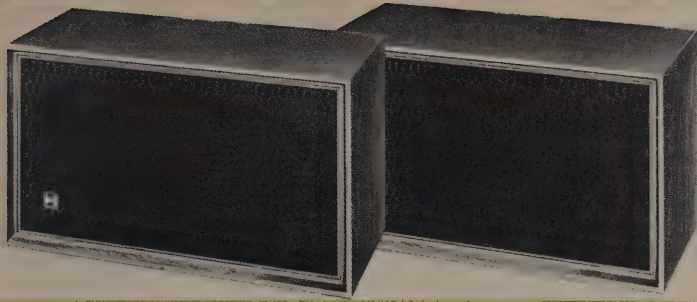
FM Stereo Receiver

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, GD-28 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 on page 19. (This system dis-

count does not apply to the Heathkit AD-19 "Component Creanza".) Other catalog audio items related to the basic system and ordered at the same time (such as turntables, GD-28 tape player, cabinets, additional speakers or speaker systems, headphones, AC-17 headphone control, antenna) will also qualify for the 5% discount.

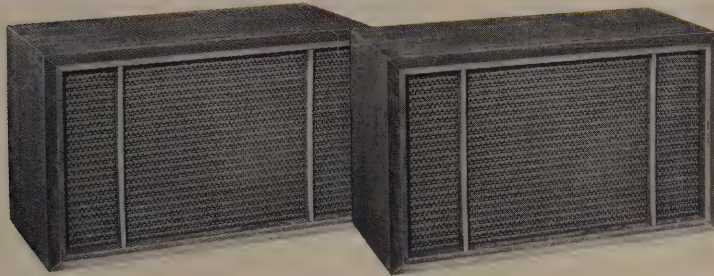
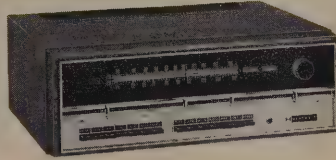
stereo system guide



Typical Heathkit stereo systems with built-in 5% savings:

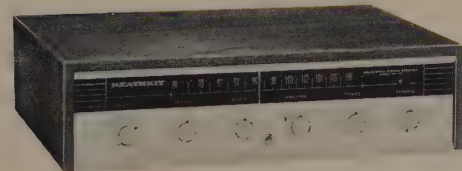
Save 42.76
on this deluxe stereo system!

- Kit AR-29**, stereo receiverreg. **299.95** pg. 13
- AE-19**, walnut cabinet for AR-29reg. **24.95**
- Garrard SL-95B** turntablereg. **139.50** pg. 24
- ADA-47-3**, power-matic basereg. **15.95**
- Empire 999SE/X** cartridge (separately 49.95),
with turntable **5.00**
- Kit AS-48** speaker system (pair)reg. **369.90** pg. 27
- Reg. Total **855.25**
- System price with 5% discount **812.49**



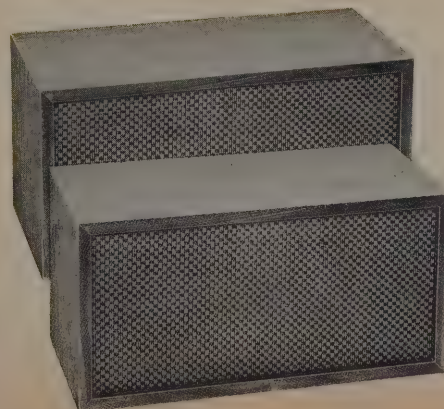
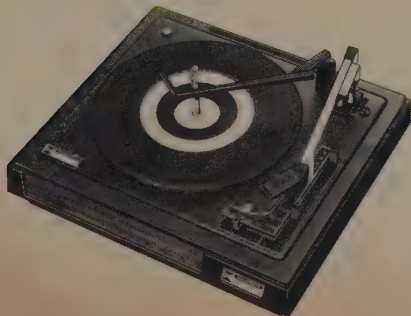
Save 33.23 on this superb stereo system!

- Kit AR-19** stereo receiverreg. **239.95** pg. 14
- AE-19** walnut cabinet for AR-19reg. **24.95**
- AD-140**, assembled turntable with
cartridge, 45 rpm adapter & dust cover .reg. **89.95** pg. 25
- Pair Kit AS-38** speakersreg. **309.90** pg. 27
- Regular Total **664.75**
- System price with 5% discount **631.52**



Save 13.38 on this budget-size system!

- Kit AR-14** stereo
receiver **119.95** pg. 15
- Assembled AE-55** walnut cabinet
for AR-14 **12.95** pg. 28
- Pair, Kit AS-37A** bookshelf
speaker systems .. **89.90** p. 26
- Assembled Heath/BSR AD-120**
Turntable system .. **44.95** pg. 25
- Reg. Total **267.75**
- System price with 5%
discount **254.37**



Custom-installing intercoms in your home is as easy as plugging them in... with the new Heathkit GD-113 Wireless Intercom

Install a station anyplace there's an outlet. With the new GD-113 solid-state wireless intercom system the wiring is already installed...your household electrical system serves as the transmission line. Just assemble the units you require and plug them in . . . that's all there is to it.

Easy to use. The GD-113 has three separate channels. In a 6-intercom system, you can carry on three separate conversations simultaneously. In a 3-station network one unit can talk with another without disturbing the third. Front panel pushbuttons make channel selection fast and easy. A push of the spring-loaded "Talk" button puts you in instant communication with the station of your choice, and for extended conversations there's a "Dictate" button. A front panel Volume control adjusts loudness and the internal automatic gain control regulates vol-

ume so that it stays nearly constant under varying signal conditions. An internal squelch adjustment suppresses noise in the receiver when no signal is present.

Maximum flexibility & convenience. Because there's no wiring to install, you can move your GD-113's around at will . . . monitor the nursery tonight . . . use it in the workshop tomorrow. Each GD-113 uses about the same amount of current as an electric clock, so you can leave them plugged in all the time. Assembly is fast and fun with the famous Heathkit manual . . . about 6 hours per unit. Put extra convenience and security in your home now . . . with the new Heathkit solid-state wireless intercom.

Kit GD-113, 5 lbs., mailable each **29.95**

Keep in touch anywhere in your home . . . with the new Heathkit solid-state home intercom system

- **Master, Indoor Remote & Outdoor Remote units**
- **Extreme installation versatility**
- **Easy assembly**

Know what's happening on the home front without leaving the kitchen or your favorite easy chair! With Heathkit Indoor-Outdoor intercom components you design and build your personal communication system just the way you want it. GD-110 Master Intercoms accept up to six channel inputs, so that you have a seven intercom system. You can identify front-door visitors, monitor the nursery, talk to the gang at the pool or patio, etc. Several Masters with their Remotes can be interconnected to form even larger networks.

Keep an ear on the kids! Masters can be wired to monitor any four of the six channels while individual Remote Units can be rendered "private" to shut out any monitoring. Master controls include chan-

nel selectors; "All Call", for paging, emergency alert, locating children; "Dictate" which holds open spring-loaded "Talk" button for extended conversation. Indoor Remote stations have "Talk" and "Dictate" modes. Both Master and Remote indoor units are finished in attractive mist green; fit on countertop, desk or table, or mount on wall.

Goes outdoors, too! The weatherproof outdoor Remote is activated by the Master station and has no external controls. Kit includes hardware and double-stick tape for easy installation.

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' cable for indoor units, 2 lbs., mailable **5.95**

GDA-110-4, 100' cable for outdoor units, 3 lbs., mailable **2.95**

Provide security and safety for your home and premises with the Heathkit home protection system

- **Alert your family to these common home emergencies:**
 - intrusion • freezing • power failure
 - smoke & fire • thawing • changing temperatures

(A) "Early warning" Receiver Alarm alerts you in time! For use with the Heathkit Fire Detector/Transmitter and Utility Transmitter. 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-87, 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 GDA-97-3 133°F. heat sensor switch. "Fail-safe" circuit.

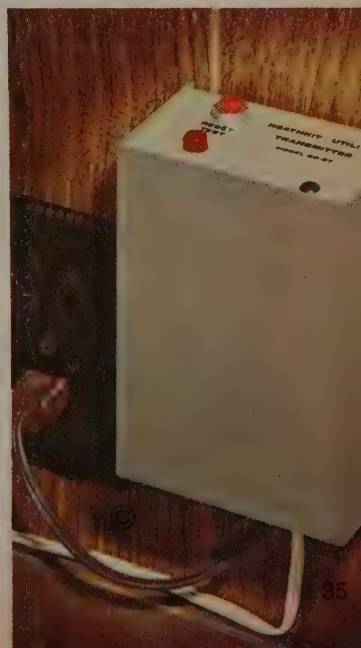
Kit GD-97, 3 lbs., mailable **34.95**

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

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

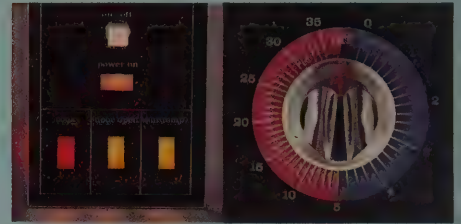
GDA-97-3, 1 lb., mailable **2.25**

home appliances





Huge oven cavity . . . measures 15½" W x 14" D x 7¾" H. One of the largest in the industry.



Accurate timer . . . precisely controls cooking time, turns oven off, rings bell when cycle is complete.



Handy roll-around cart . . . (optional) brings GD-29 microwave cooking convenience to porch or patio.



Now...the miracle of microwave cooking in easy-to-assemble kit form...379.95

- Cuts cooking time up to 70%
- Popular low-profile design . . . fits on kitchen counter with room to spare under cupboards
- Large oven cavity (15½" W x 14" D x 7¼" H)
- Exclusive double safety interlocks prevent accidental opening of door when oven is operating
- Operates on regular 120 VAC household current

Now, a full-featured microwave oven . . . in easy-to-build kit form, so you get deluxe features for less money. 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.

Cooks food quickly, coolly. Microwaves pass through glass, plastic, even paper utensils, so you can cook and serve on the same dishes. Oven and cookware remain cool! Splatters won't burn on. Everything cleans up with a damp cloth.

Cooks for less money. The Heathkit Oven uses standard household current, and since it cooks faster and more efficiently it uses less power than conventional ranges.

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 3 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.

Goes together easily. Using the incomparable Heathkit manual assembly is completed in just two or three evenings. Most of the work is mechanical, requiring only screw drivers, with very few solder connections. Order your GD-29 Microwave Oven, and start enjoying the cooking revolution of tomorrow . . . today!

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

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:** 7¼" H, including glass tray, 15½" W x 14" D. **Power requirements:** 110-120 VAC, 60 Hz, 15 amperes. **Outside dimensions:** 15½" H, 25½" W, 14¾" D (15¼" D including handle).

Take your kitchen to the patio!



Handy, roll-around cart broadens your cooking horizons to porch, patio . . . or wherever a 120 VAC grounded power outlet is available. Cart is constructed of hardwood solids with handsomely grained walnut finish; husky 5/8" x 1" tubing and sealed-in disc casters. A convenient lower shelf is provided for dishes, utensils, etc. Overall dimensions: 13½" H x 27" W x 15½" D.

GDA-29-1 Cart, 20 lbs.,
mailable **24.95**

Wake up to the better sound of a Heathkit table radio!

(A) Solid-state AM-FM clock radio. "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 & weather on AM with just a turn of a knob. Auxiliary clock-controlled 1200 watt socket on rear panel for perking coffee in the morning. Back-lighted clock dial for easy reading at night. Built-in AM & FM antennas. AGC on AM; AFC on FM. Fast, easy circuit board assembly. Compact powder blue cabinet measures just 5¾" H x 10" W x 4¾" 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 54.95

(B) Solid-state AM table radio . . . 7-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 3x5" speaker for clean, natural sound. Full wave transformer power supply eliminates annoying line hum. Styled in handsome gold & 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 5¼" H x 10" W x 4¾" D.

Kit GR-28, 5 lbs., mailable 26.95

(C) Solid-state AM clock radio 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 . . . 5¾" H x 10" W x 4¾" D.

Kit GR-38, 6 lbs., mailable 34.95

(D) Solid-state AM-FM table radio delivers the clear, refreshing sound of FM . . . news, weather & "pop" sound of AM. AFC on FM for drift-free tuning . . . AGC on AM keeps volume constant. Built-in AM & FM antennas for better reception. Backlighted clock dial for easy reading in the dark. Avocado green cabinet with matching grille cloth or design your own grille. 5¼" H x 10" W x 4¾" D.

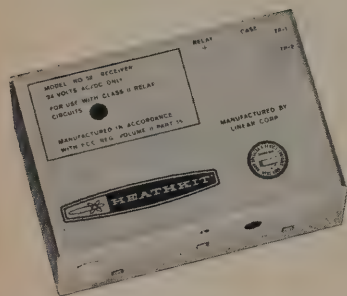
Kit GR-48, 5 lbs., mailable 44.95

(E) Deluxe solid-state FM-FM Stereo table radio . . . an inexpensive, fun project to put the pleasing sound of stereo FM in any room of the house. Automatic frequency control provides drift-free tuning. High 5 uV sensitivity delivers impressive station-pulling power. Automatic switching to stereo and stereo indicator light provided. Adjustable phase control for maximum stereo separation. Two 5¼" wide-range speakers and 2½ watts (EIA) of audio provide life-like stereo reproduction. Adjustable tone control allows you to vary the sound to suit your taste, from deep, rich bass to clean, natural highs. Assembled & aligned front end for better performance, easier assembly. Attractive walnut finish wood cabinet included blends easily with any decor. Measures just 19" W x 9¼" H x 6½" D. Easy 10 hour assembly.

Kit GR-36, 24 lbs., mailable 74.95



Assembled solid-state transmitter. 150' range. Battery powered. Hand held or clips on visor. Same unit as shown in deluxe system opposite.



Assembled solid-state UHF receiver
Install in minutes in your garage. Operates on 290 to 320 megahertz...requires no license. Selectable tone coding prevents interference with similar neighborhood units.

New Heathkit chain drive garage door opener — never before so many features for 99.95!

Sets a new precedent for economy openers! The new Heathkit GD-309 gives you a powerful 1/4-h.p. motor protected by circuit breaker; unbelievably quiet mechanism; solid-state control via a pocket size push-button transmitter and reliable in-garage receiver; a built-in light that goes on when the door goes up, goes out when it closes!

Automatic reversing, uncommon in an opener at this low price, provides maximum operating safety. Should the door meet an obstruction while closing, it immediately returns to the fully open position. And this system is adjustable for sensitivity. The door can also be reversed while in motion — travelling up or down — by simply pressing the transmitter button.

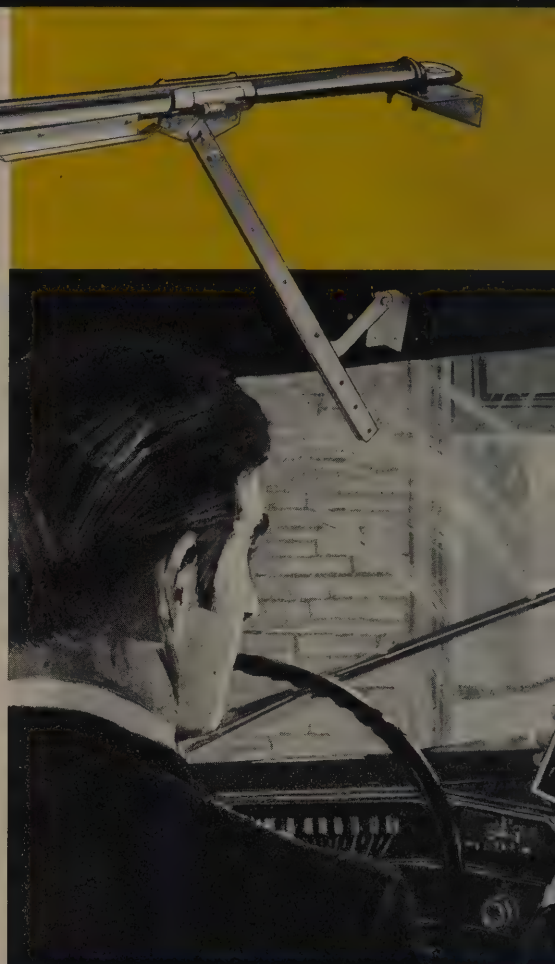
Closes and locks the door securely! Holds the door tightly shut for additional home security. Has a quick-release pin to disconnect mechanism from door in event of power failure.

Assembly's easier than ever! Build and install the mechanism, make simple final limit switch adjustments, and you're finished. Compact UHF transmitter, with handy overhead visor clip, and garage receiver are shipped ready to use. All metal parts are zinc plated for corrosion resistance, finished in green wrinkle enamel. Automate your garage door now, with a Heathkit GD-309!

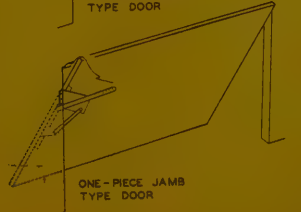
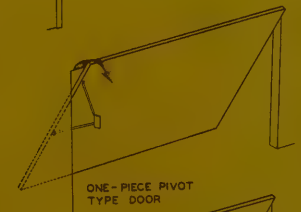
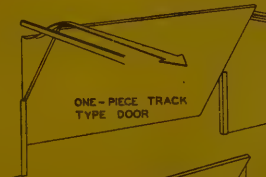
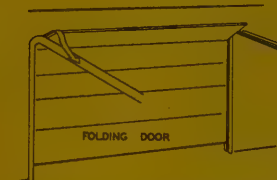
- Kit GD-309-A**, system with 1 transmitter, 43 lbs., Express/Frt. **99.95**
- Kit GD-309-B**, system with 2 transmitters, 43 lbs., Express/Frt. **114.95**
- Kit GDA-309-1**, mechanism only, 41 lbs., Express/Frt. **69.95**
- GDP-99**, transmitter, 1 lb., mailable **19.95**
- GDP-119**, 1 transmitter, 1 receiver, 2 lbs., mailable **39.95**
- GDP-129**, 2 transmitters, 1 receiver, 2 lbs., mailable **54.95**

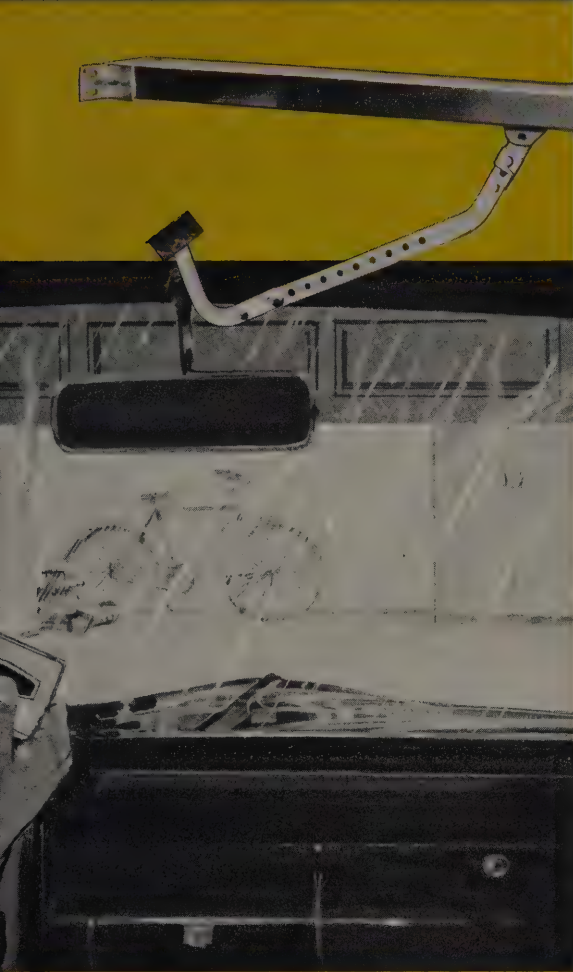
SPECIFICATIONS : Door Size and Type: Overhead residential garage doors up to 8' high. **Control:** Wall-mounted, doorbell-type pushbutton switch, or optional devices (transmitter-receiver, key switch, etc.). **Opening Force:** 100 lbs. **Closing Force:** Adjustable up to 100 lbs. **Maximum Door Opening or Closing Time:** Approximately 9 seconds (on 7' high door). **Safety:** Door travel reverses, 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:** 105-125 VAC, 60 Hz, 1/4 horsepower, capacitor-run, 1500 rpm. **Power Requirements:** 105-125 VAC, 60 Hz, 660 watts (excluding lamp). **Dimensions:** 123" long x 10" high x 8 1/2" wide.

TRANSMITTER SPECIFICATIONS: See page 39.

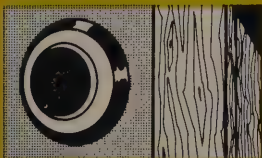


Heathkit openers fit all conventional garage doors





Features common to both Heathkit door openers

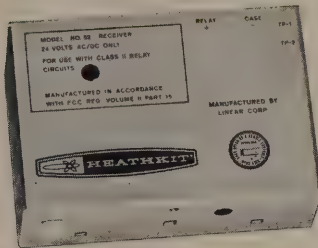


Manual Operating Switch can be installed in any location. Permits operation of door without radio transmitter.

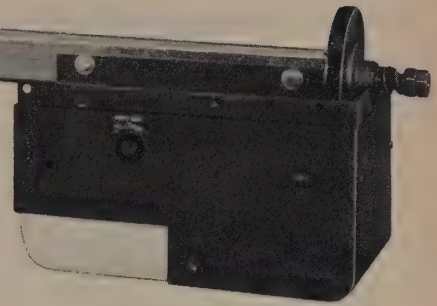


Automatic Garage Light. With GD-309 goes on and off with opening and closing of door. With GD-209 timer keeps light on for 1-3 minutes after door is closed.

Easy Installation. Assembly manual provides complete installation instructions — simplified step-by-step procedure.



Assembled solid-state UHF receiver
Adjustable tone coding prevents interference from neighboring units.



Assembled solid-state transmitter
Hand held or clips on visor. Operates door up to 150' away. Battery powered.

Heathkit screw-drive garage door opener — it's the strong, silent type . . . 139.95

Opens the door, lights the light right from your car! The compact push-button UHF transmitter that stays in your pocket or purse, or clipped to the overhead visor, is your personal electronic key. The Heathkit 209 system utilizes a dependable 8½' screw mechanism with ¼ h.p. electric motor. There's no chain to break or stretch, no sprockets to wear — and it never needs oiling. It opens and closes 7½' overhead track, jamb and pivot doors smoothly and quietly.

Installation versatility. The GD-209A hardware is designed to operate with the UHF transmitter and receiver included with kit on frequencies from 290 — 320 MHz at 5 MHz channel spacing, modulated with a tone of 12 — 23 kHz with 1 kHz channel spacing to prevent interference. However, the mechanism lends itself to optional methods of operation, such as the pushbutton (included with kit), or customer designed key actuated driveway switch.

Goes together in an evening! Assembly is fast and easy. All electronics are factory wired and aligned, ready to use. Point-to-point wires have attached push-on connectors, which attach to terminals. And the GD-209 installs overhead in a few hours! For the sake of convenience and added security, order yours today.

- 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. **109.95**
- Kit GDA-209-2**, adaptor for jamb & pivot doors, 3 lbs., mailable **7.95**
- GDP-99**, transmitter, 1 lb., mailable **19.95**
- 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. Operates all residential type 7½' high overhead doors, single or double type (also jamb and pivot types without tracks when GDA-209-2 adaptor is used). 117 VAC, ¼ HP, capacitor run, 1500 rpm motor, circuit breaker protected. **Control:** Transmitter-receiver, wall-mounted pushbutton switch, or custom switches (key type, etc.). **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 approximately 90 seconds after motor stops.

UHF TRANSMITTER SPECIFICATIONS: Powered by standard 9-volt transistor type battery (Eveready No. 216 or equivalent). **R. F. Frequencies:** 290 to 320 MHz modulated with 12 to 23 kHz. **Range:** Up to 150' from receiver (adjustable). **Size:** 3¾" x 2¼" x 1½". **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 modulated with 12 to 23 kHz. **Size:** 4½" x 3¼" x 1½". **Useful Temperature Range:** -50° F. to +140° F.

A fresh start every time with the New Heathkit Battery Charger!

Simply won't overcharge, no matter how, or how long, it's hooked up! Ideal for motorists, boaters, campers and farmers, the new Heathkit GP-21 Battery Charger is completely automatic, virtually foolproof! Just plug it into a conventional 105-130 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. The GP-21 automatically senses the condition of the battery and continuously adjusts to the needs of the cells.

A lifesaver for any 12-volt battery, the GP-21 will not start up unless it's correctly connected, ending ruined batteries because of reversed cables and "hot", sparking cables. Weighs less than 12 lbs. so you can take it with you. Features rust-proof aluminum chassis cabinet and stainless steel hardware. Assembles in a matter of hours. Order your GP-21 today!

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.



29⁹⁵

Tune an engine like a pro with the Heathkit ID-29 3-in-1 meter!

Designed for the "do-it-yourselfer"! The Heathkit ID-29 is 3 automotive test instruments in one. Measures dwell on all 4-cycle 3, 4, 6 or 8 cylinder engines (0-20 degrees depending on number of cylinders). Has 2 RPM scales — 0-1500 and 0-4500. Analyzes DC voltage from 0 to 15 volts. Operating the ID-29 is as simple as connecting 2 leads, with auto engine providing both signal and power. There's no need to reconnect probes to change from dwell to rpm measurement.

Versatile, portable, accurate! The ID-29 can be used on both 6 and 12 volt systems without changing leads, can be operated day to day on engine after engine without recalibration. Stable solid-state circuitry assures accuracy within 3%. And the Heathkit 3-in-1 Tune-Up Meter is completely portable, too, enclosed in a rugged unbreakable case that's unaffected by water, oil, gasoline and most acids.

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: 8½" W x 4¼" H x 7¼" D (including handle).



29⁹⁵

The Hanson basic tester set . . . 12.95

4 great accessories for the garage! 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" 3-color dial, calibrated 0-30 inches for vacuum and 0-7 lbs. for pressure; Model 1603 Engine Timing Light with molded plastic case, long leads and rubber covered connectors.

GFP-83, 4 lbs., mailable **12.95**





19⁹⁵

New Heathkit solid-state timing light... completely self-contained... 19.95

Bright new light for the amateur or pro! The Heathkit CI-1020 provides a high intensity flash that won't wash out even in direct sunlight! A special flash tube and solid-state circuitry get you out of the darkened garage forever. And a high impact plastic focusing lens inside the barrel concentrates the beam into a clearly defined spot for even more accurate ignition set up!

Completely self-contained! Just connect the CI-1020's 3 cables — 2 to the car's battery terminals, 1 to the number one spark plug. An adapter is included for cars with hard-to-get-at plugs. The slim-line housing is made of rugged, charcoal green high-impact plastic to resist oil, gas and corrosion — protect you from electrical shock. Other features include circuit protection against damage from reverse polarity and a built-in calibrator. Assembles in just 2 hours. Manual gives detailed operational instructions. Start saving on auto tune-ups now, and get out in the sunshine to boot. Order the new Heathkit CI-1020 Solid-State Timing Light.

Kit CI-1020, 2 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 (8 feet). High voltage cable with clip (6 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.



Diagnose ignition faults fast — with the Heathkit IO-20 analyzer!

Helps Keep Your Car Running Smoothly . . . identifies shorted spark plugs, bad points, defective wiring, worn distributor parts, incorrect dwell time, coil and condenser problems, plus many more engine defects. Use it in the shop with its own built-in power supply, or "on-the-road" with an external DC to AC inverter.

Select 4 Different Patterns Without Switching Leads. A special switching system provides instant selection of primary and secondary patterns in either parade or super-imposed displays without the bother of lead switching. Expand the views for detailed analysis . . . 10 to 1 horizontally or 2 to 1 vertically. The trigger circuit provides the steady "locked-in" pattern display you need for convenience.

Easy To Build . . . Rugged Metal Housing. Goes together quickly and easily . . . no special skills or knowledge needed. And you enjoy the "do-it-yourself" savings. Features a corrosion-resistant aluminum case with brushed aluminum front panel, and easy-to-clean enamel finish. Compact, too . . . measures 8" H x 9½" W x 16" D. Use on any internal combustion engine with a conventional, non-transistor ignition system. For fast, easy tune-up and ignition system troubleshooting, choose the IO-20.

Kit IO-20, 19 lbs., mailable 109.95

IO-20 SPECIFICATIONS — Rpm Range: 400-5000 rpm. Displays: Secondary, Primary, Parade, Super-imposed. Screen size: 4½" diameter. Dwell measurement: 4, 6 & 8 cylinder calibration on face plate. Pattern height: Secondary circuit, approx. 1"; Primary circuit, 6 volt system ¾", 12 volt system 1". Vertical expand ratio: 2 to 1. Horizontal expand ratio: 10 to 1. Cable length: 12' pick-up clamp, ground and secondary clip leads extend 2' beyond pick-up clamp. Power requirements: 105-125 V, 50/60 Hz AC, 30 watts.

The Heathkit solid-state tachometer

Can be used with any spark-type ignition system (1-6 cyl., 2 cycles; 2-8 cyl., 4 cycle). Two RPM ranges, 0-6000 & 0-9000. Temperature compensated for ±5% accuracy from 0° to 120°F. 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.

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 volt negative pulse, 20 μs rise time. Meter Range: 0-6000 r/min. or 0-9000 r/min. Engine Capability: 1 to 6 cylinders, 2 cycles; 2 to 8 cylinders, 4 cycles. Accuracy: ±3% at calibrating temperature (when calibrated at full scale), ±5% from 0 degrees F. to +120 degrees F. Power Requirements: 10.5 to 17.5 volts DC, 25 mA at 12 volts DC, 125 mA with lamp. Dimensions: Model MI-18-1. 3¾" overall face diameter. Mounts in 3¼" hole, 2¼" overall case depth. Model MI-18-2. 3¾" overall face diameter. 4¼" high, 3" overall case depth. Weight: MI-18-1: 14 oz. MI-18-2: 17 oz.



For families on the go...Heathkit Mobilink Cab-to-camper intercom...25.95

Help shorten long trips!

Fit out the camper or trailer rig with the Mobilink Intercom System and you have instant 2-way communication between the driver's area and your home on wheels. You keep track of everyone without taking your eyes off the highway. Mom's free for navigating while knowing the kids are secure in back. Mobilink is great for boats, too, or any application where 12-volt, 250 milliamp DC power is available.

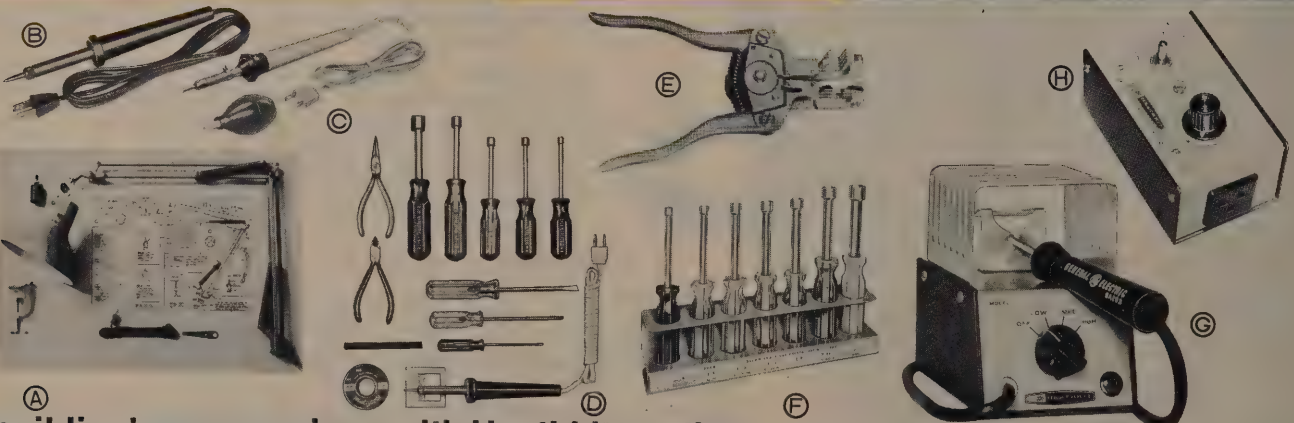
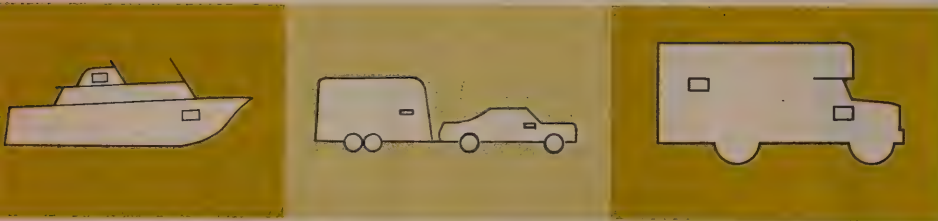
Simple Single-Control Operation! Three-position switch at the cab-mounted master selects "Standby", "Talk" and "Monitor" functions. In "Standby" mode, it is open to receive calls from the remote unit. To initiate a call, the driver turns and holds the knob in the spring-loaded "Talk" position. Turning the indicator to "Monitor" enables those in the cab to listen to the remote for baby-sitting purposes. The camper-mounted remote also provides "Standby" and "Talk" settings, as well as a "Radio" position which permits use of the intercom as a remote speaker connected directly to the cab radio.

Assembles and Installs in a Jiffy! The GD-160 Mobilink kit includes both intercoms, brackets for horizontal or vertical mounting, 15' connecting cable. An optional quick-disconnect plug permits unhitching camper or trailer without disturbing intercom wiring.

Kit GD-160, 5 lbs., mailable **25.95**

GDA-160-1, quick-disconnect 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, 3⁷/₈" H x 7³/₈" W x 3" D. Required Mounting Area: 4" H x 8³/₄" W x 3³/₄" D.



Kit building's even easier...with Heathkit quality tools!

A Z-Lyte extension lamp kit: 45" reach, 360° sweep, 360° sweep; vented shade, moveable base clamp. U.L. approved; bulb not included.

Kit GDP-202, 5 lbs. (mfrs. list 14.50), mailable **12.95**

B 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 **5.95**

C Heath solder/desolder set: solders, desolders and strips wire. Squeeze-bulb makes desoldering a snap; heated V-slot wire stripper provided.

Model GDP-108, 1 lb., mailable **11.95**

D Kit builders tool set: Combination wire stripper/diagonal side cutter midget long-nose pliers; three screwdrivers (3¹/₂", 1¹/₈", 3¹/₈"); Weller W-PS soldering iron; 5 nut drivers (3¹/₈", 1¹/₄", 5¹/₈", 3¹/₈", 1¹/₂"); nut starter; soldering aid; solder; and "Kit-Builder's Guide."

Model GH-25, 4 lbs., mailable **21.95**

E Speedex wire & cable stripper: no. 10, 12, 14, 16, and 22 wire. **Model GDP-663**, 2 lbs., (mfrs. list 9.95), mailable **5.89**

F Vaco hollow shaft nut driver set: Seven drivers, most common nut sizes, 3¹/₈", 1¹/₄", 5¹/₈", 1¹/₂", 3¹/₈", 1¹/₂" and 1¹/₂". Handles color-coded for easy identification.

Model GDP-204, 3 lbs., mailable **8.95**

G Heathkit soldering iron. Low, medium and high heat ranges. 6' cord. 117 VAC.

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

H 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, 3 lbs., mailable **17.50**



Communicate with home, car & office...Heathkit 5-watt CB transceiver...89.95

Solid-state circuitry delivers instant, reliable two-way communication from car to car, home to office. 23-channel capability with crystal-controlled reliability. The 14-transistor, 6-diode circuit provides instant operation, long life and minimum battery drain (a modest 0.75 amps in transmit mode, only 0.12 amps on receive). Husky 3-watts RF minimum output insures reliable communication over maximum range. Other features include: 0.5 uV sensitivity for solid copy; automatic noise limiter for minimizing ignition and motor noise; built-in speaker; ceramic PTT microphone; gimbal mount for easy, out-of-the-way installation in car, truck, or camper. Order two or more transceivers and take advantage of the Heath 5% system discount (also applies to accessories and crystals when ordered with two or more transceivers).

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**

GW-14A SPECIFICATIONS — RECEIVER SECTION: Intermediate frequency: 455 kHz. Sensitivity: 1/2 uV or less for a 10 dB signal plus noise to noise ratio. Selectivity: Adjacent channel attenuation is down 30 dB. Audio power output: 3 watts minimum. **TRANSMITTER SECTION**: Nominal power input to final RF amplifier: 5 watts. Frequency control: 3rd overtone quartz crystal as selected by the 23-position channel selector switch. Frequency control effectiveness: Operating frequency will be within .005% of nominal crystal frequency over an ambient temperature range of -20 to +130 degrees F. Modulation: High level AM limited to less than 100%. Output impedance: 50 ohms nominal. Output circuit: Twin "PI" matching network. Power output: 3 watts minimum to 50 ohm load. **GENERAL — Controls**: Squelch; off/on volume; channel selector. **Tuning meter**: For receiving, S-9 corresponds to approximately 100 uV signal input. For transmitting, the meter indicates the presence of power output and modulation peaks. **Power requirements**: Positive 12 volt system (13.5 volts); receiver current drain, standby - 120 mA; transmitter current drain - 750 mA. **Dimensions**: 2 7/8" H x 7" W x 11" D.



Performs with the best, at half the cost...Heathkit Siren/PA System

3-way versatility! Functions as an electronic siren . . . boasting full 55 watts, with adjustable pitch. If you need siren and PA is in use, just release the mike button and press manual button on panel for instant burst of siren, without resetting the functions switch. Functions as a PA system . . . with 20 watts of power for booming voice communication. Functions as a radio call alert . . . lets you hear calls away from your vehicle. Choice of speakers; either concealed or exposed horn. Concealed speaker requires 4 1/2" x 4 1/2" x 13" behind grille. Put the GD-18 system in your authorized emergency vehicle . . . and save!

Kit GD-18 Siren/PA Amplifier, 6 lbs., mailable **54.95**

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 **99.95**

GD-18B (GD-18 & concealed horn), 16 lbs., mailable **99.95**

GD-18 SPECIFICATIONS — Siren Output Power: 55 watts, normal intermittent duty. **PA or Radio Output Power**: 20 watts continuous. **Wail Frequency Range**: Approx. 550 Hz to 1300 Hz (pitch control at center). **Wail Sweep Rate**: Approx. 6 sec. per cycle. **Yelp Sweep Rate**: Approx. 1/3 sec. per cycle. **Radio Input Sensitivity**: 0.3 volts RMS min. for rated output. **Speaker Requirements**: 16 ohm, 75 watt (nominal) weather-proof, horn loaded driver. **Controls**: Gain (PA and Radio); manual siren button (in PA only); Function selector switch; provision for external remote manual siren switches; Siren pitch adjust; Radio input level adjust. **Power Requirements**: 12 to 15 VDC, pos. or neg. ground; 5.5 amp. max. **Idle Current**: 1.25 amp. or less. **Dimensions**: 7 5/8" D x 3 3/8" W x 2 3/4" H (less gimbal bracket). **Finish**: Gunmetal gray, wrinkle finish.

GDA-18-1 SPECIFICATIONS — Impedance: 16 ohms. **Frequency Range**: 275 to 8000 Hz. **Dispersion**: 100 degrees. **Power Rating**: 75 watts. **Dimensions**: 8 3/4" Dia. x 8 7/8" H x 8 3/4" L. **Material**: Bell & base, aluminum. **Finish**: Corrosion resistant baked gray enamel. **Mounting Base**: Sand cast aluminum.

GDA-18-2 SPECIFICATIONS — Impedance: 16 ohms. **Frequency Range**: 300 to 3000 Hz. **Power Rating**: 75 watts. **Material**: Sheet metal enclosure. **Finish**: Corrosion resistant baked gray enamel. **Dimensions**: 4 1/2" H x 4 1/2" D x 13" W.



HOW TO ORDER

- 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.
- 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 an order at the same time, call 616-983-3961 weekdays from 8 a.m. to 4:30 p.m. EST for proper routing.
- VISIT OUR FACTORY SALES/SHOWROOM**... located on Hilltop Rd. in St. 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

- 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 digits 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

- C.O.D.** — A 20% deposit is required on all C.O.D. orders received 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). C.O.D. shipments cannot be made if balance is over \$200.
- HEATH REVOLVING CHARGE PLAN** — No money down. Up to 2 full 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 carriers for 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.

PARCEL POST RATES for MAILABLE ITEMS

Postal Regulations... limit parcel post shipments to 40 lbs., all zones. EXCEPTION: Shipments up to 70 lbs. 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 so 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.

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	.....	\$.020
\$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.

ZONE CHART

Zip Code Prefixes	Zone	Zip Code Prefixes	Zone	Zip Code Prefixes	Zone	Zip Code Prefixes	Zone	Zip Code Prefixes	Zone
006-009	8	260-261	3	370-386	4	478	3	600-609	2
010-069	5	262-278	4	387	5	479-489	2	610-619	3
070-089	4	279	5	388	4	490-491	1	620-623	4
090-099	5	280-283	4	389-397	5	492	2	624-628	3
		284-285	5	400-406	3	493-496	3	629-668	6
100-108	5	286-293	4	407-409	3	496-499	3	669-679	5
109	4	294-295	5	410-412	3	500-516	4	680-687	4
110-119	5	296-297	4	413-422	4	516-524	3	688-693	5
120-123	4	298-299	5	423	3	525	4	700-722	5
124-126	5	300-303	4	424-426	4	526-528	3	723-727	4
127-128	4	304	5	427-432	3	530-534	2	728-768	5
129	5	305-307	4	433-436	2	535-539	3	770-778	5
130-152	4	308-329	5	437-457	3	540	4	778-789	6
153	3	330-334	6	458	2	541-546	3	790-792	4
154-160	4	335-338	5	460-462	3	547-548	4	793-799	6
161	3	339	6	463-464	2	549	3	800-803	5
162-163	4	350-352	4	465-466	1	550-566	4	804-805	5
164-165	3	353	5	467-469	2	567	5	806-807	5
166-199	4	355-359	4	470-472	3	570-572	4	808-816	6
		360-361	5	473	2	573-588	5	817-818	6
200-232	4	362	4	474-475	3	590-597	6	820-822	5
233-237	5	363-369	5	476-477	4	598-599	7		
238-259	4								

UNITED PARCEL SERVICE (UPS) RATES

Note: United Parcel Service is available from Heath to North Dakota and all states east of the Mississippi only. See below for UPS Blue Label (Air) Service to the West Coast only. UPS rates include insurance for up to \$200 value.

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.

2. Then total the individual charges so figured and remit the full amount.

3. 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	ANY FRACTION OF A POUND OVER THE WEIGHT SHOWN TAKES THE NEXT HIGHER RATE							
	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 8
1 lb.	\$0.55	\$0.57	\$0.60	\$0.62	\$0.65	\$0.68	\$0.72	
2 "	.60	.64	.69	.74	.80	.86	.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	1.58	1.82	
7 "	.85	.99	1.17	1.34	1.55	1.76	2.04	
8 "	.90	1.06	1.26	1.46	1.70	1.94	2.26	
9 "	.95	1.13	1.36	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	3.14	
13 "	1.15	1.41	1.74	2.06	2.45	2.84	3.36	
14 "	1.20	1.48	1.83	2.18	2.60	3.02	3.58	
15 "	1.25	1.55	1.93	2.30	2.75	3.20	3.80	
16 "	1.30	1.62	2.02	2.42	2.90	3.38	4.02	
17 "	1.35	1.69	2.12	2.54	3.05	3.56	4.24	
18 "	1.40	1.76	2.21	2.66	3.20	3.74	4.46	
19 "	1.45	1.83	2.31	2.78	3.35	3.92	4.68	
20 "	1.50	1.90	2.40	2.90	3.50	4.10	4.90	
21 "	1.55	1.97	2.50	3.02	3.65	4.28	5.12	
22 "	1.60	2.04	2.59	3.14	3.80	4.46	5.34	
23 "	1.65	2.11	2.69	3.26	3.95	4.64	5.56	
24 "	1.70	2.18	2.78	3.38	4.10	4.82	5.78	
25 "	1.75	2.25	2.88	3.50	4.25	5.00	6.00	

BLUE LABEL AIR SERVICE CHARGES

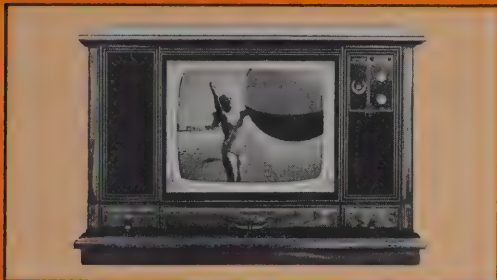
to California, Oregon, Washington only:

WEIGHT NOT TO EXCEED	TO WEST COAST	WEIGHT NOT TO EXCEED	TO WEST COAST	WEIGHT NOT TO EXCEED	TO WEST COAST	WEIGHT NOT TO EXCEED	TO WEST COAST
1 lb.	\$.82	11 lb.	\$4.02	21 lb.	\$7.22	31 lb.	\$10.42
2 "	1.14	12 "	4.34	22 "	7.54	32 "	10.74
3 "	1.48	13 "	4.66	23 "	7.86	33 "	11.06
4 "	1.78	14 "	4.98	24 "	8.18	34 "	11.38
5 "	2.10	15 "	5.30	25 "	8.50	35 "	11.70
6 "	2.42	16 "	5.62	26 "	8.82	36 "	12.02
7 "	2.74	17 "	5.94	27 "	9.14	37 "	12.34
8 "	3.06	18 "	6.26	28 "	9.46	38 "	12.66
9 "	3.38	19 "	6.58	29 "	9.78	39 "	12.98
10 "	3.70	20 "	6.90	30 "	10.10	40 "	13.30

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

Learn for the fun of it.

Enjoy building a solid-state Heathkit Color or Black & White TV — learn Servicing at the same time!



Included in your Master Course in Color TV Servicing:

Heathkit GR-371MX Color Receiver
For details on this receiver, please refer to page where this unit is pictured and described. Furniture cabinet not included. (Simulated TV reception)



Included in your Master Course in B & W TV and Radio Servicing:

Heathkit GR-104 Black & White Receiver
For details on this receiver, please refer to page where this unit is pictured and described. (Simulated TV reception)



Up to 32 training kits

With both of these NTS programs, in addition to the TV receiver, you will also build an AM-SW radio, a Solid-State radio, and test instruments you'll enjoy for a lifetime — the Heath VOM IM-17 and the NTS Electronic Tube Tester.

Approved for veterans

If you have been in service since 1955, or are still in service, check special box in the enrollment coupon.

Heathkit VOM IM-17.
For details, please refer to page where this unit is pictured and described.



In the Master Course in B & W TV and Radio Servicing, you will also build the NTS Signal Generator. These kits are developed by NTS especially for training purposes. They make learning TV-Radio a snap. And, they come to you without extra costs — you pay shipping charges only on the color picture tube.

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National Association of Trade & Technical Schools,
National Home Study Council.

NATIONAL TECHNICAL SCHOOLS

WORLD-WIDE TRAINING SINCE 1905

Dept. HKI, 4000 South Figueroa Street, Los Angeles, California 90037

SEE OTHER SIDE FOR MORE COURSE INFORMATION

NTS ENROLLMENT APPLICATION

Gentlemen: Please enroll me in the course checked. I will make my payments to National Technical Schools as indicated in Payment Plan which I have chosen. I understand I am entitled to complete instruction, all materials and services of this course, as I progress with my studies. I understand I will receive all privileges extended to me as a member of the NTS Student Body. I may advance as fast as my time will permit within the limit of my payment plan. I will be allowed up to 4 years to complete my course should I need that much time.

Enclose your down payment or full payment with your enrollment. Send remittance by money order or check payable to National Technical Schools, Dept. HKI, 4000 South Figueroa, Los Angeles 90037. Send currency registered mail only . . . for your protection.

This agreement is subject to regulations respecting Trade Schools in force in state or province in which the student lives. Students in Canada and foreign countries assume payment of custom duties and any difference in exchange rates.

CHECK COURSE AND PAYMENT PLAN, BELOW:

- MASTER COURSE IN COLOR TV SERVICING.
COMPLETE HEATHKIT GR-371MX COLOR SET AND OTHER EQUIPMENT DESCRIBED ABOVE WITH THIS COURSE.
PLAN A \$20.00 down \$25.00 per mo. Total: \$995.00
PLAN B \$20.00 down \$35.00 per mo. Total: \$977.00
PLAN C \$959.00 Cash (Save \$36.00)
- MASTER COURSE IN B&W TV AND RADIO SERVICING.
COMPLETE HEATHKIT GR-104 BLACK & WHITE SET AND OTHER EQUIPMENT DESCRIBED ABOVE WITH THIS COURSE.
PLAN A \$10.00 down \$10.00 per mo. Total: \$389.00
PLAN B \$25.00 down \$15.00 per mo. Total: \$374.00
PLAN C \$34.00 down \$25.00 per mo. Total: \$359.00
PLAN D \$345.00 Cash (Save \$44.00)
- COLOR TELEVISION SERVICING FOR ADVANCED TECHNICIANS.
COMPLETE HEATHKIT GR-371MX COLOR TV SET AND VOM IM-17 WITH THIS COURSE.
PLAN A \$45.00 down \$45.00 per mo. Total: \$940.00
PLAN B \$908.00 Cash (Save \$32.00)

FILL IN OTHER SIDE

BOTH MASTER COURSES INCLUDE ALL THIS:

• **MORE THAN 90 LESSONS**, covering TV-Radio servicing, Color and B&W principles, advanced color and B&W servicing, and Stereo Sound Systems.

• **PLUS UP TO 32 KIT MANUALS**, a Tube Manual, Electronics Dictionary, 7 Shop Manuals, Pix Display Trouble-Shooting Guide, 27 Job Sheets.

BOTH NTS MASTER COURSES are designed to give you all the background you'll ever need to install and maintain home entertainment equipment. You'll learn to service your own set. Save money on costly service calls, too. You get all this, plus training in stereo and stereo multiplex sound systems.

You need no electronics experience at all. Lessons are easy to understand and fully illustrated. First you'll be introduced to basic electronic principles — the fundamental scientific laws that apply to television, radio and electronics. Then, at your own pace, you'll learn not only the "how" of assembling your kits, but also the "why" — what makes them work. You'll develop a thorough understanding of home entertainment electronics.

All kits are carefully integrated with lesson materials so that you learn by doing. Your progress is checked by men who are both instructors and service technicians. They help you every step of the way, providing added assistance, if you need it.

YOU WILL LEARN basic principles about the theory of television, the principle of scanning, and how the television camera converts the televised scene into a picture signal. We introduce you to various sections of the TV receiver and point out the similarities and differences between TV and

radio receivers. Section by section, you learn to test each part of the entire TV receiver. You cover low voltage power supply, picture tube troubles and rejuvenation, installation and repair of television antennas.

In both courses, you receive specialized training in color television. You learn about light, color, color mixing, hues, brightness and saturation. You're introduced to the color camera — how it works. The color killer circuit and color balance adjustment are included, as well as adder and output circuits and chrominance channel. Color TV servicing lessons include a complete receiver analysis and alignment study. You receive a valuable service reference guide listing the symptoms, probable causes, and circuit locations of common troubles encountered in color television receivers.

Hi-fi, stereo, recorders, microphones, speakers and speaker enclosures are also covered in both courses — at no additional cost.

NTS, established in 1905, is one of the oldest and largest home study schools in the world. Well over 100,000 men have graduated to go on to careers as technical specialists in various fields.

Our **COLOR TV SERVICING FOR ADVANCED TECHNICIANS COURSE** is an advanced course for technicians who have had prior radio training and experience. Covers B&W and Color TV Servicing.

• **18 TRAINING KITS**

Build and keep the Heath GR-371MX & Heath VOM IM-17.

• **79 LESSONS AND KIT MANUALS**

CONSUMER CREDIT INFORMATION

To assist you in understanding the difference between the paid-in-full upon enrollment tuition fee and the time-payment tuition price, National Technical Schools has prepared this chart. This information is presented in accordance with guidelines established under federal law.

HOW TO USE THE CHART: After you have selected the course in which you wish to enroll, and have decided upon the payment plan you will follow, find your tuition cost under Column A. This is the total amount you will pay for the course you have chosen. The cash price, listed in Column B, is the total cost if you prefer to pay in full for the course at the time of your enrollment. By subtracting the down payment (Column C), for your selected course and

plan, from the cash price, the difference is the amount financed which is shown in Column D. The amount of the financing charge is listed in Column E. This finance charge, expressed as an annual percentage rate based upon the amount being financed, is shown in Column F. The total number of monthly payments to be made is listed in Columns G and H. All students have the right to pay in advance the unpaid balance of their tuition and obtain a partial refund of the time-payment charge, based on the actuarial method.

Upon receipt of your enrollment form and payment, we will send you a student I.D. card, and other important information which will assist you in your studies. You will also receive a copy of your enrollment form for your records.

COURSE TITLE	A Deferred Payment Price (Time Payment Tuition Price)	B Cash Price	C Less Cash Down Payment	D Amount Financed (Unpaid Balance of Cash Price)	E Finance Charge	F Annual Percentage Rate %	G Amount & Number of Monthly Payments	H Plus Final Payment
Master Course in Color TV Servicing	\$995	\$959	\$20	\$939	\$36	2¼%	39 @ \$25 ea.	\$—
	\$977	\$959	\$20	\$939	\$18	1¾%	27 @ \$35 ea.	\$12
Master Course in B&W TV and Radio Servicing	\$389	\$345	\$10	\$335	\$44	7¾%	37 @ \$10 ea.	\$ 9
	\$374	\$345	\$25	\$320	\$29	8½%	23 @ \$15 ea.	\$ 4
	\$359	\$345	\$34	\$311	\$14	7¾%	13 @ \$25 ea.	\$—
Color Television Servicing for Advanced Technicians	\$940	\$908	\$45	\$863	\$32	4¼%	19 @ \$45 ea.	\$40

NAME (Please Print)

NAME (Please write your name plainly)

ADDRESS

DATE

CITY & STATE

ZIP CODE

CHECK FOR VETERAN FORMS

ADDRESS ALL CORRESPONDENCE TO DEPT. HKI, NATIONAL TECHNICAL SCHOOLS, 4000 S. Figueroa Street, Los Angeles, Calif. 90037.

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Everyone interested in electronics will want the new Heathkit Catalog — it's the world's biggest kit catalog!

We'll be happy to send your friends their own personal catalogs.

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NAME _____

ADDRESS _____

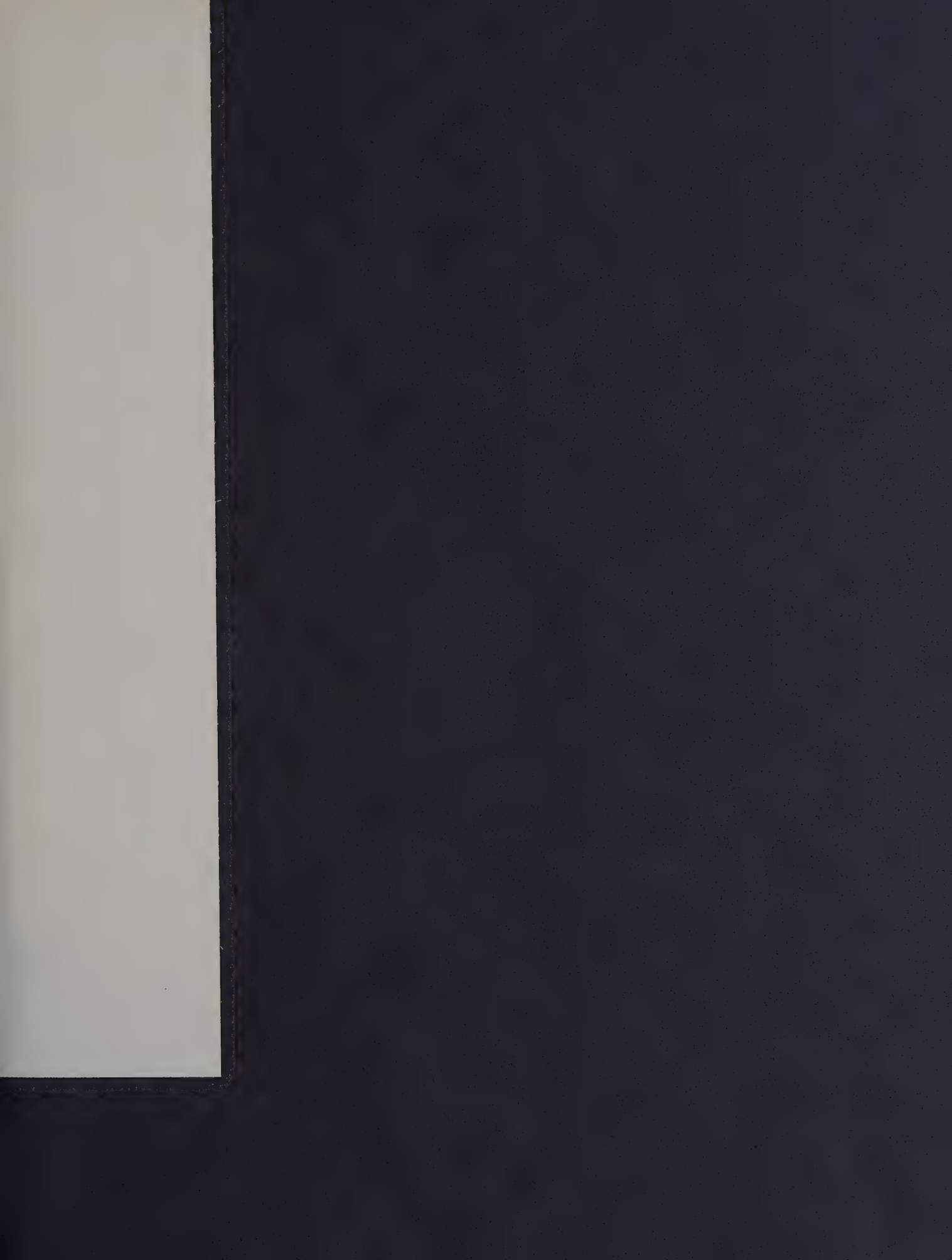
CITY & STATE _____ ZIP _____

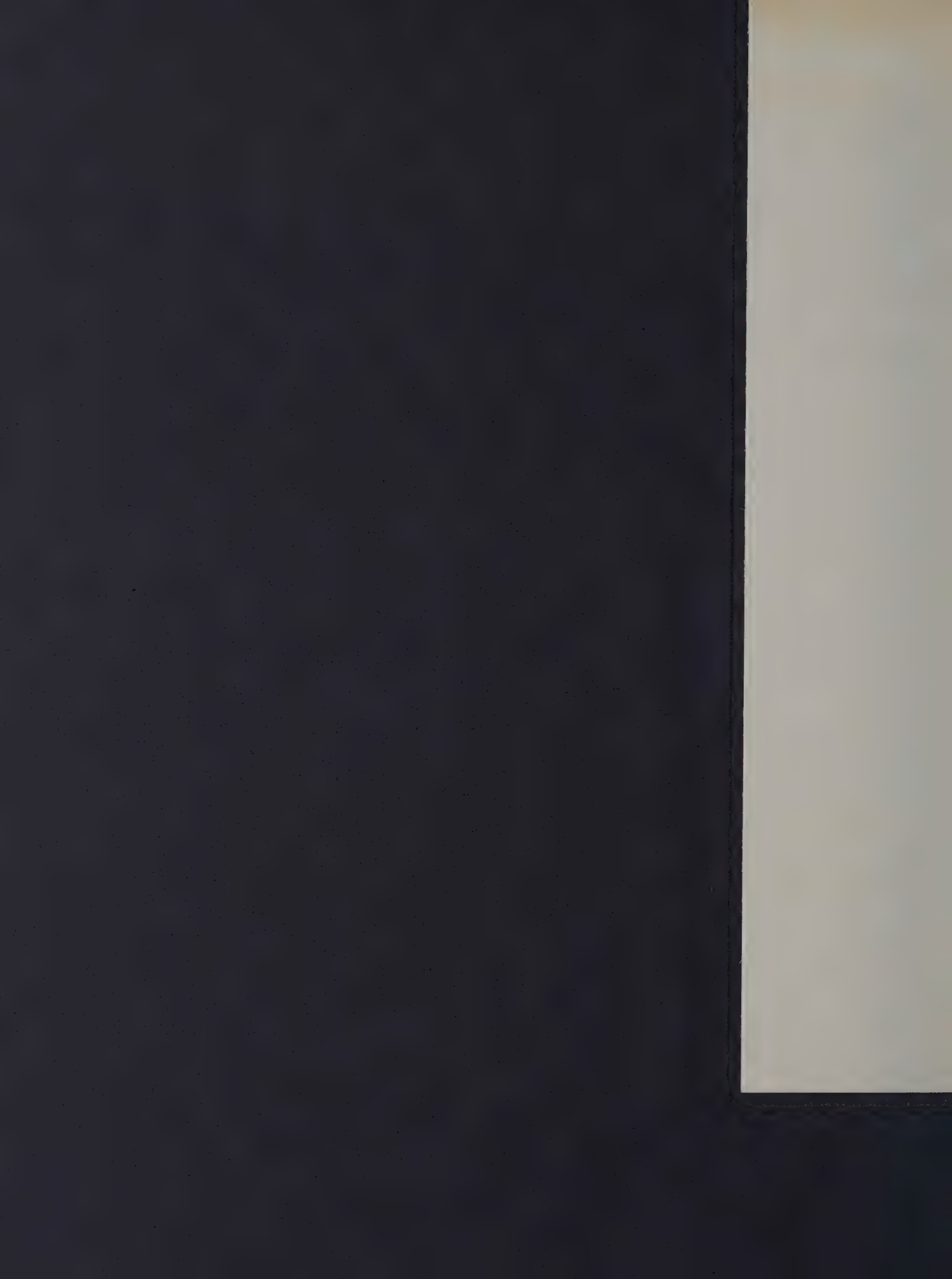
HEATH COMPANY

BENTON HARBOR,

MICHIGAN 49022

PLACE
STAMP
HERE





USE THESE HANDY ORDER FORMS FOR DIRECT-TO-YOU DELIVERY

HEATH COMPANY

a Schlumberger company

Benton Harbor, Michigan 49022

BUSINESS PHONE—616-983-3961 FAX—BENTON HARBOR, MICHIGAN TELEX 72-9421

ORDER FORM

1 Please Print or Write Plainly — Always Use the Same Name.

Name _____
 Street Address _____
 City _____
 State _____ Zip _____

2 Ship To Another Address?

Name _____
 Street Address _____
 City _____
 State _____ Zip _____

3 CHECK HOW YOU WANT ORDER SHIPPED
 Parcel Post UPS *Motor Freight *Express
 (100 lb. min. chg.)

Include P.P. Zone from Chart _____
 ON EXPRESS ORDERS if station is in different town than your post office address, show name of town where shipment should be sent.

4 TOWN STATE

PLEASE DO NOT WRITE IN THIS SPACE

5 IS THIS YOUR FIRST ORDER? YES NO
 If no, list year of last purchase date: _____

6 What new Heathkits would you like us to make? _____

7 If you have moved since your last order, please give FORMER ADDRESS here

Name _____
 Street Address _____
 City _____
 State _____ Zip _____

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	1	2	3	4	5	6	7	8	9				
P	U	EC	EPD	MC	MPD													2	3	4	5	6	7	8	9													

SHD.	B. O.	QUAN.	MODEL	KIT DESCRIPTION	WT.	PRICE EA.	TOTAL
ORDER REPLACEMENT PARTS ON SEPARATE FORM							

IMPORTANT

1. Please use separate sheet to order parts.
2. Please use a separate sheet for all correspondence, including conditions to this order, to assure prompt reply.
3. All prices quoted are net F.O.B. Benton Harbor, Michigan, and apply to the United States, F.P.O. and A.P.O. areas.
4. All prices and specifications subject to change without notice.
5. A.P.O. and F.P.O. orders must include sufficient postage... no C.O.D. shipments.
6. C.O.D. Orders must be accompanied by 20% deposit. Delivering carrier will require cash or certified check in payment of C.O.D. amount.
7. Parcel Post Orders must include postage for weight shown.
8. See reverse side for Revolving Charge details.
9. Motor Freight and Express Charges. Please do not remit. These charges will be collected by carrier at the time of delivery.

PLEASE DO NOT WRITE IN THIS SPACE

8 810/72

If merchandise ordered from previous catalog, please list Catalog No. _____

9 TYPE OF ORDER (CHECK ONE)

CASH Please use registered mail for currency.

C.O.D. 20% deposit required.

REVOLVING CHARGE See reverse side for details.

ADD ON

If previous credit customer, give current account number _____

10 TOTAL FOR MERCHANDISE. \$

Add Sales Tax on all deliveries in the State of Michigan.

Include charges for PARCEL POST, REA/Motor Freight do not remit.

Allowance if offered

CASH PRICE

Amount Due Previous Order. Inv. # _____

TOTAL AMOUNT.

LESS: 20% C.O.D. Deposit

LESS: Down Payment

UNPAID BALANCE (Total Amount less Down Payment or C.O.D. deposit)



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

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:

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

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.

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)

IMPORTANT: Please fill in completely. Omissions and errors cause delays. SIGN REVOLVING AGREEMENT ABOVE.

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)



Attention, Physical and Life Scientists:

Free

New 1971 Heath Scientific Instrumentation Catalog

Heath Scientific Instrumentation . . . the value standard in laboratories around the world. For almost a quarter of a century, Heath has been supplying educational institutions, laboratories and governments throughout the free world with high quality, sensibly priced instrumentation for a wide variety of needs and applications. The Heath approach — that of putting precision where it counts, omitting frills, and selling direct to the user — is exemplified by the breadth of product lines found in the new 1971 Scientific Instrumentation catalog. For additional information on all the Heath instrumentation, send the coupon now for your free copy of this new specialized catalog.

Heath Electronic Instrumentation . . . is continually setting new standards of value for the industry. This is again demonstrated by the latest additions to this growing line of precision equipment for lab and design work. A new Heath Function Generator provides precise square, sine and triangle waveforms, variable in 7 decades steps from 0.1 Hz to 1 MHz. The Heath 1 mV solid-state Strip Chart Recorder has 23 different speeds, 18 calibrated ranges and a full complement of inputs . . . this and many more features at a price that is truly a breakthrough. And the recently introduced Heath 80 MHz Frequency Counter gives stable, accurate counting from 10 Hz to more than 80 MHz. Its cost? Down in the 15-MHz range!

Heath/Malmstadt-Enke Modular Analog/Digital System . . . the system that is revolutionizing instrumentation in labs and classrooms around the world. Here, in a single, uniquely coordinated group of quality instrumentation, is a system that performs equally well in constructing high performance, research quality instrumentation, in performing hundreds of experiments in the teaching laboratory, in rapid testing of new digital ideas, or in interfacing to computers. The heart of the analog/digital system is a series of modular plug-in circuit cards . . . over 30 available with more being introduced regularly . . . that permit rapid, extremely flexible changes in direction impossible to achieve with conventional breadboarding techniques. Modular instrumentation allows investigation of any aspect of digital or analog circuitry and permits the custom-design of literally hundreds of ordinary and special-purpose digital instru-



mentation. The EU-801A gives sophisticated potential at remarkably low cost . . . the EU-801C is the unique Heath Computer Logic Training System that can be used for self-teaching, group learning or as a vehicle to further investigate methods of computer data handling and processing. A wide selection of auxiliary modules further extends the capability of this unique system.

Heath/Malmstadt-Enke Modular Spectroscopy Systems . . . a unique new instrumentation philosophy in the field of spectrophotometric measurement. This new concept is based on a versatile system of modular units, each with a specific function, which can be conveniently integrated into a variety of high-performance instruments. Configurations can be changed almost instantly, without realignment. Possibilities include single beam, atomic absorption, atomic emission, atomic fluorescence and double beam instruments. Each module has been designed with many features formerly available only in extremely expensive instruments . . . provision for automatic programming, wide choice of readout, design flexibility to accept special accessories, extend wavelength range and increase sensitivity. True to the Heath concept of providing more value for less cost, all of the instruments and modules in the "700" series provide research quality performance comparable to instruments costing several times more.

The Heath/Malmstadt-Enke Instrumentation Laboratory provides all the basic instruments, power supplies and components necessary for a university-level course in the electronics of instrumentation. Presently in use in hundreds of colleges, universities and research facilities in the physics, chemistry and bio-medical disciplines, not only for student and staff teaching purposes, but also as a highly flexible electronics-lab-adjunct to these laboratories. A new Expansion Package for the Basic Lab enables present lab owners to expand their capabilities into the areas of digital electronics and computer logic.

Plus . . . Heath instrumentation for chemistry, including the new EU-302A digital pH meter, servo chart recorders and much more. See the next three pages in the flyer for new products just being announced.

Send for your FREE 1971 Heath Scientific Instrumentation Catalog now . . . and discover that high quality can be truly compatible with low cost.

HEATH COMPANY, Dept. 570-16
Benton Harbor, Mich. 49022

Please send my free copy of the 1971 Heath
Scientific Instrumentation catalog.

Name _____

Address _____

City _____ State _____ Zip _____

Heath Scientific Instrumentation

New Heath 80 MHz Frequency Counters

Choice of time bases. For critical applications requiring extremely high stability and time base accuracy, choose the new SM-104A with built-in TCXO that provides a 1 MHz ± 0.1 Hz time base and ± 1 ppm/year stability. For uses not requiring this high stability, order the SM-105A, which uses a 1 MHz crystal accurate to ± 2 Hz, with overall time base accuracy of ± 10 ppm. Both counters share the following features:

80 MHz capability at 15 MHz price... delivers instant, accurate frequency measurement from 10 Hz to over 80 MHz, without prescaling. The time-base switch and over-range indicator allow you to make an 8-digit measurement in seconds...with resolution down to the last Hz \pm clock frequency.

High sensitivity. The new Heath Counters trigger up to 50 MHz with input levels as low as 100 mV...to 80 MHz with only 250 mV input. FET input completely eliminates input attenuators.

Superspeed Schottky TTL. The SM-104A/105A series marks one of the first commercial uses of the new Texas Instruments 74S Series superspeed Schottky TTL ICs...accounting for the extremely high speed and significant cost reduction.

LED readout used for all 5 digits and overrange indication...gives high visibility readout...eliminates costly 170 V power supply...provides an average half-life in excess of 1 million hours...and the flat, single-plane display offers wide-angle reading with minimum fatigue.

Other features include rugged aluminum chassis, handy gimbal mount and quick change from 120 to 240 VAC operation. For maximum counting capability at low cost order your SM-104A or SM-105A now.

Assembled SM-104A, 6 lbs., (less cables & connectors), mailable **500.00**

Assembled SM-105A, 6 lbs., (less cables & connectors), mailable **350.00**

SM-104A/SM-105A SPECIFICATIONS — Frequency range: 10 Hz to over 80 MHz. Sensitivity (after 5 minutes' warmup): 100 mV RMS, to 50 MHz; 250 mV RMS, 50 MHz to 80 MHz. Input Impedance: 1 megohm shunted by less than 15 pF. Maximum Input Voltage: 15 V RMS (max. DC input is ± 50 volts). Time Base: SM-104A: ± 1 MHz ± 0.1 Hz. 1 ppm maximum change from 0-40° C ambient. 0.25 sec stability $\pm 1 \times 10^{-9}$. 1-yr. stability, ± 1 ppm. SM-105A: 1 MHz ± 2 Hz; ± 10 ppm, 0° C ambient referenced to 25° C. Readout: Five 7-segment light-emitting-diode displays plus one light-emitting-diode for overrange indication. Power Requirements: 120 V, 50/60 Hz, 12 watts (may be rewired for 240 volts). Dimensions: $9\frac{3}{8}$ " D x $6\frac{3}{4}$ " W x $2\frac{1}{4}$ " H.



New Heath EU-81A Function Generator

An extremely versatile lab and design tool... dozens of applications: provide sweep and/or modulating signals...test servo system response...use as a VCO in PLL systems... provide frequency multiplication...test amplifier response, distortion & stability...use as a variable BFO...a tone generator...a repetition rate generator.

Provides precise square, sine and triangle waveforms variable in seven decade steps from 0.1 Hz to 1 MHz...50 ohm BNC output. Clearly labeled pushbuttons and a large, easy to read linear dial make function and frequency selection fast, simple.

Additional high performance features include variable front panel DC offset...variable 20 dB output level...pushbutton 20 dB attenuator...TTL compatible front panel sync output...external voltage control or sweep at no extra cost. Send for a free spec sheet on the new EU-81A now...and discover that high quality lab instrumentation is available at low cost.

Assembled EU-81A, 8 lbs. **245.00**

EU-81A SPECIFICATIONS — Output: All modes, 50 ohm source. 10 V P-P into 50 ohm load. 20 V P-P open circuit. Adjustable DC offset continuously variable to maximum signal amplitude. Frequency range: 0.1 Hz to 1 MHz in 7 decades; continuously adjustable with linear dial. Triangular waveform: 95% linearity to 100 kHz. Sine waveform: Harmonic distortion — 1%, 5 Hz to 100 kHz ($\frac{1}{2}$ % typical); less than 2% to 1 MHz. Square wave: 125 ns rise or fall time. Waveform symmetry: $\pm 2\%$ to 100 kHz. Frequency dial accuracy: $\pm 3\%$ of full scale. Frequency stability after 1 hour with external voltage control: 1 Hz to 1 MHz, $\pm 0.05\%$ for 10 minutes; $\pm 0.3\%$ for 24 hours. 0.1 Hz to 1 MHz, $\pm 0.25\%$ for 10 minutes. Vertical precision: Triangular amplifier — 0.2 dB to 1 MHz. Square amplifier — 0.2 dB to 1 MHz. Sine amplifier — 0.2 dB to 100 kHz, down 3 dB at 1 MHz. External frequency control: Sweep mode, ± 10 V maximum into 10 k ohms. Voltage control mode, 0 to 10 V into 100 k ohms. Operating temperature: 10 to 40 degrees C. Power consumption: 18 watts. Power requirements: 120/240 VAC, 50/60 Hz. Dimensions: $5\frac{1}{2}$ " H x $8\frac{7}{8}$ " W x $11\frac{1}{8}$ " D.

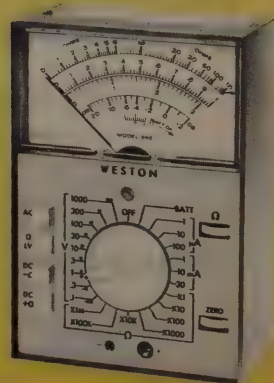


New Heath SM-666 Electronic Analog Multimeter

The SM-666 is a portable, self-contained multimeter for bench, laboratory and field use. Features low (85 mV) voltage ohms position & reversible ohms polarity...ideal for measuring forward & reverse diode junction resistance. Has dual FET buffered high gain integrated amplifier driving ruggedized taut band suspension, self-shielded core magnet microammeter; large 4" scale. Housed in shock resistant polycarbonate thermoplastic case to withstand rough handling with a minimum loss of accuracy and little damage. Overload protection is provided by internal circuitry and 2 amp fuse.

Assembled SM-666, 5 lbs., mailable **132.50**

SM-666 SPECIFICATIONS: DC VOLTAGE RANGES: 0.1, 0.3, 1, 3, 10, 30, 100, 300, 1000. Accuracy: $\pm 2\%$ of full scale. Input Resistance: 10 megohms. AC VOLTAGE RANGES: 0.1, 0.3, 1, 3, 10, 30, 100, 300, 1000. Accuracy: $\pm 3\%$ of full scale. Frequency response: 0.1-30 volt ranges: $\pm 3\%$, 50 Hz to 20 kHz; $\pm 5\%$, 20 Hz to 50 kHz. 100, 300 volt ranges: $\pm 3\%$ 50 Hz to 10 kHz, $\pm 5\%$ 10 kHz to 20 kHz. 1000 volt range: $\pm 3\%$ 50 Hz to 1 kHz, $\pm 5\%$ 1 kHz to 5 kHz. RESISTANCE RANGES: x1, x10, x100, x1000, x10k, x100k, x1 Meg. DC CURRENT RANGES: 1 uA, 10 uA, 100 uA, 1 mA, 10 mA, 30 mA. Accuracy: $\pm 3\%$ of full scale. Loss: 100 millivolts. AC CURRENT RANGES: 1 uA, 10 uA, 100 uA, 1 mA, 10 mA, 30 mA. Accuracy: 0.1 uA to 30 mA $\pm 4\%$ of full scale value. Loss: 100 millivolts. Frequency response: 1 uA, 10 uA ranges: $\pm 3\%$ 50 Hz to 5 kHz. 100 uA range: $\pm 3\%$ 50 Hz to 20 kHz. 1 mA to 30 mA ranges: $\pm 3\%$ 50 Hz to 50 kHz. DECIBEL RANGES: —40 to +62. GENERAL: Voltage Dividers; $\pm 1\%$ metal film resistors on most ranges. Batteries: Four 1.5V "AA" cells, one 1.5V "D" cell (not supplied). Dimensions: $7\frac{1}{8}$ " H x $5\frac{1}{8}$ " W x $2\frac{1}{4}$ " D. Test Leads: Supplied.





POTENTIOMETRIC AMPLIFIER MODULE

True potentiometric input on 1 to 500 mV ranges. 10 megohm input impedance on 1 to 500 volt ranges. Calibrated steps between decades for chart recorder output. Accuracy $\pm 0.1\%$ divider error plus offset (less than $\pm 5 \mu V$).

Assembled EU-200-01, 8 lbs., mailable 175.00



DC OFFSET MODULE

Designed to effectively expand the measuring range of the EU-200-01 module. Due to its high accuracy, it can also be used as a precision voltage source. Exclusive latch 'n' lock design. Rack-mountable.

Assembled EU-200-02, 7 lbs., mailable ... 100.00



Heath 1 mV solid-state chart recorder

Outstanding versatility and performance at modest cost . . . that's the new EU-205B Strip Chart Recorder System. Compare these performance features and specifications against cost . . . you'll see that the new Heath recorder delivers more for less.

Multi-speed. Pushbutton selection of any of 23 different speeds, from 30 inches per minute to 0.2 inches per hour. Digital drive stepper motor provides highly accurate chart drive with none of the drawbacks of conventional mechanical systems, and the chart drive may be easily synchronized with external events.

18 calibrated ranges of 1, 2, 5, 10, 20, 50, 100, 200, 500 mV; 1, 2, 5, 10, 20, 50, 100, 200, 500 volts full scale. Continuously variable from less than 1 mV to greater than 500 volts. True potentiometric input on 1 through 500 mV ranges. 10 megohm input Z on 1 through 500 volt ranges. 15.1 full scales of suppress on all ranges.

Fully programmable. Inputs include Chart Drive, Servo, Pen, Chart Control, Pen Motor. Outputs include Slidewire, TTL-compatible Chart Drive, Reference Supply Zero Control, Chart & Servo "On" and Null Signal. Functions are easily controlled by logic circuits or contact closures. Other features include removable 3-position writing table, easy conversion to metric chart paper for both Y and T axes, disposable pen and new latch 'n' lock design for modules. Send for your free brochure.

Assembled EU-205B, 1 mV-500V chart recorder system, including EU-205-11 recorder, EU-200-01 Potentiometric Amplifier Module and EU-200-02 DC Offset Module, 40 lbs., mailable 675.00

Assembled EU-205-11, recorder only, 21 lbs., mailable 420.00

EU-205B SYSTEM SPECIFICATIONS — MECHANICAL: Chart Width: 10 inches or optional 25 cm. Chart Speeds: 23 speeds from 30 in/min to 0.2 in/hr., selected by 6 pushbuttons. Writing Panel: 3 positions — vertical and 30 or 45 degrees from vertical. Pen Lift: Electric pushbutton; provision for automatic remote control. Recorder Pen: Disposable, fiber tipped. Mounting: Bench type with provision for rack mounting with optional hardware. **ELECTRICAL (inch calibration):** Writing Speed: 20 in/sec. Ranges: 1, 2, 5, 10, 20, 50, 100, 200, 500 mV; 1, 2, 5, 10, 20, 50, 100, 200, 500 V full scale (10¹⁰). Maximum Input Voltage: 70 V, 500 mV range and below; 700 V on 1 V range and above. Overall System Accuracy: $\pm 0.2\%$. Type of Input: Floating; potentiometric on ranges 500 mV and below; input divider on ranges 1 V and above. Input Impedance: Potentiometric input (infinite at balance). 500 k ohms off null on 500 mV range and below; 10 megohms, 1 volt range and above. Offset: 0-15.1 full scales of suppress on all ranges, + or - polarity, calibrated steps & continuously adjustable. Offset Accuracy: $\pm 0.1\%$. **ELECTRICAL (cm calibration):** Writing Speed: 50 cm/sec. Ranges: 1.25, 2.5, 6.25, 12.5, 25, 62.5, 125, 250, 625 mV; 1.25, 2.5, 6.25, 12.5, 25, 62.5, 125, 250, 625 V full scale (25 cm). Maximum Input Voltage: 70 V, 625 mV range and below; 700 V on 1.25 V range and above. Overall System Accuracy: $\pm 0.2\%$. Type of Input: Floating; potentiometric on ranges 625 mV and below; input divider on ranges 1.25 V and above. Input Impedance: Potentiometric input (infinite at balance). 500 k ohms off null on 625 mV range and below; 10 megohms, 1.25 volt range and above. Offset: 0-15.1 full scales of suppress on all ranges, + or - polarity, calibrated steps & continuously adjustable. Offset Accuracy: $\pm 0.1\%$. **ELECTRICAL (common to both inch and cm calibration):** Switched Variable Gain: Allows full scale calibration at values between calibrated ranges. Slidewire Linearity: 0.1%. Reference: Temperature compensated zener diode with 0.002%/C° temperature stability rating. Dead Zone: Less than 0.1% of full scale. Tracking Accuracy: Pen tracks with slidewire within 0.1%. Range Divider Error: $\pm 0.1\%$. Preamplifier Gain Error: $\pm 0.1\%$ plus $\pm 5 \mu V$ input offset. **GENERAL:** Power Requirements: 105-125 or 210-250 VAC, 50/60 Hz, 60 watts. Overall Dimensions: 8 $\frac{3}{8}$ " H x 17 $\frac{1}{2}$ " W x 13 $\frac{1}{8}$ " D with writing panel in 45° position.

Heath solid-state dual trace scope

Complete dual-trace capability. Separate signal display in Ch. 1 or Ch. 2 modes . . . direct comparison display in alternate & chopped modes . . . X-Y mode for display of signals as a function of each other. Precisely-balanced input channels for X-Y mode; less than 1% phase shift to over 100 kHz.

Versatile triggering. Switch-selected AC or DC coupling. Auto triggering at the crossover point at a flip of a switch. + or - slope triggering switch-selectable. Internal, External & Line trigger inputs also available.

18 position time base switch in 1, 2, 5 sequence provides sweep from 0.5 sec/cm to 0.2 usec/cm, continuously variable between settings. 5x magnifier for detailed trace viewing.

DC to 15 MHz bandwidth & 24 nsec rise time permit analysis of high frequency signals & transients. Full bandwidth from 20 V/cm to 50 mV/cm in 1, 2, 5 sequence.

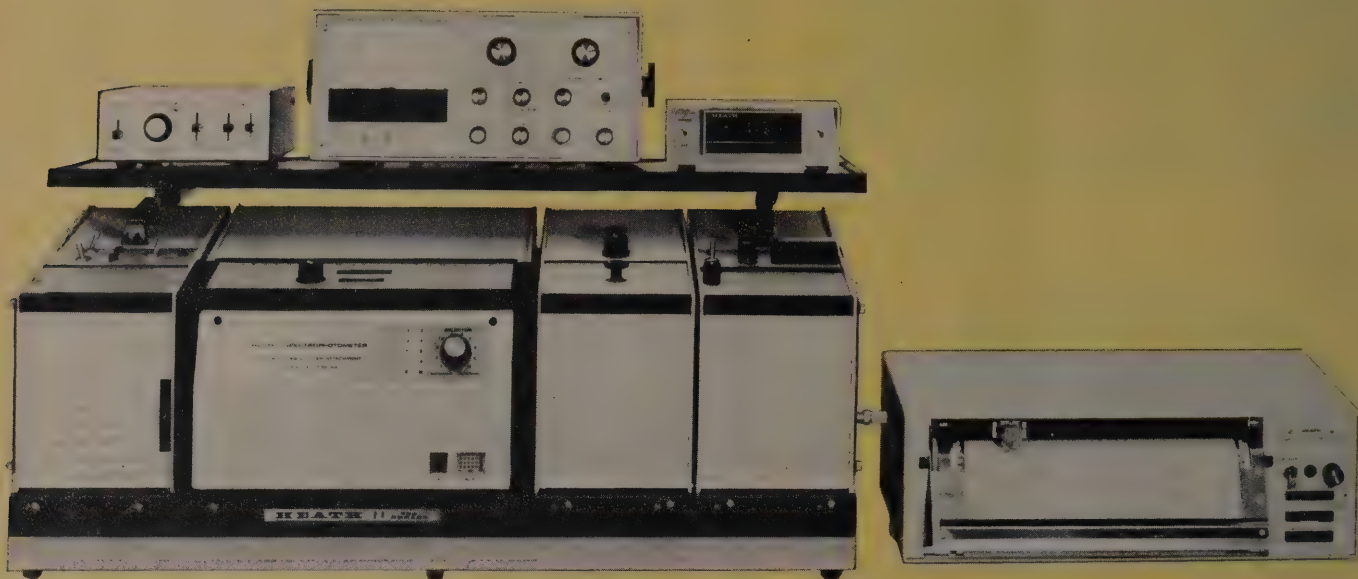
Additional features include sweep gate output . . . TTL-compatible external blanking input . . . standard camera mount bezel . . . 8x10 cm flatface CRT. Write for free spec sheet and compare this remarkable scope to the competition.

Assembled EU-70A, 35 lbs., Express/Frt. 595.00

EU-70A SPECIFICATIONS — HORIZONTAL CHANNEL: 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: 75 mv/cm (uncalibrated & not adjustable). 100 k ohm minimum input impedance, DC to 100 kHz. Independent Linearity: 2%. **VERTICAL CHANNEL:** Linearity: 3%. Input Impedance: 1 megohm shunted by 35 pF. Maximum Input Voltage: 600 VDC. Sensitivity: 0.05 volts/cm, AC or DC. Frequency Response: DC to 15 MHz, -3 dB with 4 cm deflection; DC to 10 MHz, -1 dB with 4 cm deflection. Vertical Windows: 2 min. Rise Time: 24 ns. Overshoot: Less than 10%. Attenuator: 9 positions in a 1, 2, 5 sequence. 0.05 volts/cm to 20 volts/cm, $\pm 3\%$. Variable gain (uncalibrated) through entire range. Vertical Display in Sweep Mode: Channel 1, Channel 2, Channel 1/2 alternately; or Channel 1 & Channel 2 chopped (100 kHz). X-Y MODE: Sensitivity: 0.05 volts/cm to 20 volts/cm, $\pm 3\%$. Frequency Response: -3 dB at 100 kHz. Phase Shift Between Channels: $\pm 1^\circ$ or less from DC to 100 kHz within graticule limits. **GENERAL:** Blanking in: TTL compatible (Logic 0 blank). Gate Out: 3.5 volts minimum. Input Connections: Vertical: coaxial, BNC. Horizontal: binding post. External trigger: binding post on $\frac{3}{4}$ " center with ground. CRT Accelerating Potential: 2200 VDC regulated. CRT Type: 8x10 cm, rectangular, flat-face. Retrace Suppression: DC-coupled unblanking of the CRT. Graticule: 8x10 cm grid, edge lighted. Power Requirements: 105-125 VAC or 210-250 VAC, 50/60 Hz, 60 watts. Warm-Up Time: CRT heating time approximately 30 seconds. For full calibration, approximately 15 minutes. **TRIGGERING:** Delay: 600 ns. Auto: Zero crossing $\pm \frac{1}{2}$ cm. Normal: Adjustable over 10 cm. AC: 3 dB at 30 Hz, $\pm \frac{1}{2}$ cm of zero crossing. Source: Channel 1, Channel 1/2 or Channel 1/2. Sensitivity: Internal, $\frac{1}{2}$ cm. External Sensitivity: 100 mV minimum. **DIMENSIONS:** 10 $\frac{1}{2}$ " W x 12 $\frac{1}{2}$ " H x 15" D. **NET WEIGHT:** 28 lbs.

Heath Spectrophotometers are designed to provide research-quality capability and state-of-the-art precision and reliability. They feature outstanding photometric accuracy, resolution and versatility. All Heath spectrophotometers are readily programmed from computers or other control devices, offering unequalled flexibility to the user. A wide variety of readout options and accessories is available to adapt the instrument chosen to the specific problem and its solution.

The instruments below represent just two of the Heath Spectrophotometers available. For complete information on the entire line, please write us for a brochure...at no obligation.

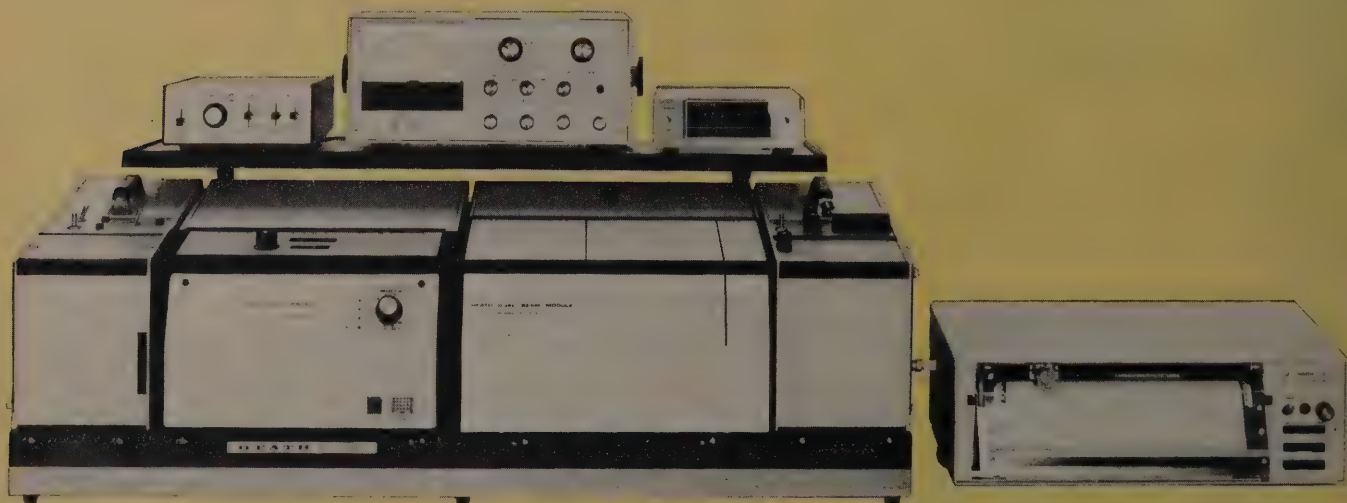


New Heath 721 Programmed Cell Ratio-Recording Spectrophotometer

The Heath EU-721 represents an entirely new concept in spectrophotometer design...the programmed and automated alternate positioning of reference and sample cells in a fixed light path. This unique system provides absorption spectra with base-line flatness unmatched by any other spectrophotometer. In fact, the only significant factor that can alter base-line straightness is the use of unmatched cells.

The programmed cell positioning principle and perfected electronic circuits (patents applied for) provide high-resolution spectra of A or %T vs. wavelength, with accuracy equivalent to the highest quality conventional single-beam instruments. In the recording mode, the 721 provides quantitative accuracy of $\pm 0.002\%$ absorbance units.

Investigate this unique new approach now...write for further information.



New Heath 707 Double-Beam Ratio-Recording Spectrophotometer

The Heath 707 Double-Beam Spectrophotometer attains the ratio-recording function in a somewhat more conventional manner than the 721 System described above.

In the 707, the double-beam function is achieved using a classical rotating mirror to pass the light beam alternately through fixed sample and reference cells. This double-beam-in-time arrangement, although

optically more complex, overcomes the difficulties inherent in a double-beam-in-space or beam-splitter arrangement (lower optical efficiency and the necessity of using two phototubes selectively matched for identical spectral response).

For additional information on the new Heath EU-707 Double-Beam System, send for a free brochure.

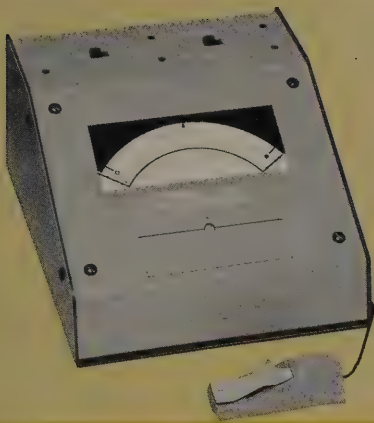
darkroom & education kits



Excellent color prints are yours with the Heath/Mitchell Colorval® II darkroom computer...89.95

In using the Colorval II, enlarger light passing through 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 (now 10-times brighter than before) is compared to the adjustable neutral reference light surrounding it. When area under study has been rendered neutral by adjusting the enlarger printing pack, you have analyzed your negative. Other improvements include: a new permanent universal scan filter...once assembled you never have to change it for analyzing a given film type; exclusive new visual color-integrating scrambler offers either spot-reading or integrating color negatives *visually*; precision exposure probe accurately measures minute light areas for shadows and highlights; new simplified testing system with high reflectance graycard; test negatives, and special filter mosaics, results in absolute identification of specific printing paper characteristics. Measures 7¼" W x 4½" H x 8½" D.

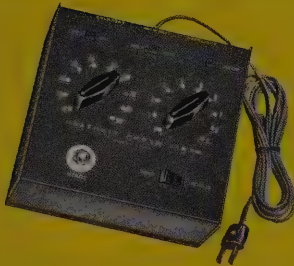
Kit PM-17A, includes Color Wheel & 35mm B/W test neg., 8 lbs., mailable **89.95**



The fast, low cost way to excellent black & white prints...Fotoval® II darkroom computer...69.95

Eliminates guesswork...constantly monitors darkroom variables. So simple to use even a novice can produce fine B&W enlargements the first time. Paper contrast grades and printing characteristics are initially tested and "memorized" by the computer. When printing, just use the built-in Exposure Probe to monitor negative contrast range...and read the correct paper grade (or filter) and exposure time directly from the illuminated scale. Now you're ready to make an excellent print...without guessing about paper grade or exposure...without paper-wasting test strips. A 35 mm test negative is included to allow in-depth testing of all paper grades. For fine B&W printing, put the Fotoval II in your darkroom now.

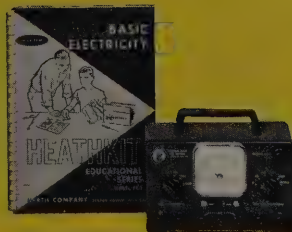
Kit PM-18, w/35mm test neg., 7 lbs., mailable **69.95**



Heathkit photo timer provides easy, accurate exposure control for just 34.50

Controls exposure time of all operations — contact or enlarging. Two switch-selected ranges offer exposure times of 1 to 99 seconds in one-second steps or 0.1 to 9.9 seconds in 0.1 second steps. Repeatable to 2%. Provides automatic control of both enlarger and safelight. A spring-return "stop" switch halts the exposure process immediately if you decide it is incorrect. All electronic...no clock drive devices to wear out. Put this highly useful, low cost darkroom accessory to work for you today.

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



Basic electricity kit/course

Learn electricity and electronic theory, do interesting experiments to demonstrate principles, and build a handy DC volt-ohm milliammeter.

Kit EK-1, 4 lbs., mailable **24.95**



Basic radio — 2 parts kit/course

Start with a simple crystal receiver...improve it to a regenerative tube-type receiver! Part II: learn advanced circuits, build 2-band superhet. Requires EK-1 meter or equivalent...EK-2A required for EK-2B completion.

EK-2A, part I, 7 lbs., mailable **21.50**

EK-2B, part II, 5 lbs., mailable **21.50**

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 **19.95**

Ⓐ New Sub-Miniature IC Servo...24.95

Weighs only 1 1/4 oz.! The new Heathkit Sub-Miniature Digital Proportional Servo weighs in at 1.25 oz., measures a mere 1 7/8" from mounting ear to mounting ear! An integrated circuit makes it possible to trim the fat, yet retain an amazing 3-lbs. thrust — the same provided by many larger servos. Performance features include 90° rotation in 0.6 second; 1% position accuracy; ceramic variable control feedback element; nylon gears and molded nylon case. Includes 4 rotary outputs and is compatible with all Heath RC Systems, and many others. Just 18 components install quickly and simply on the printed circuit board. Order the GDA-19-42 for your model car, boat or plane today!

Kit GDA-19-42, 1 lb., mailable **24.95**

GDA-19-42 SPECIFICATIONS — Input signal: Pulse, 1-2 msec. wide; 4 volts, P-P. Thrust: 3 lbs. at rotor. Rotary output travel: 90 degrees rotation. Temperature range: 0 degrees to +160 degrees F. Power requirements: Battery, 4.8 V CT; idle current, 15 mA maximum; 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 7/8" H x 2 3/32" W x 1 7/8" L (length includes mounting ears, height includes the outputs). Net Weight: 1.25 oz.

Ⓑ Heathkit Miniature Servo...24.95

Extremely compact, high-reliability design. The new Heath IC servo gives all the versatility and capability of any digital proportional servo...yet delivers it in 25% less space and 30% less weight. One tiny integrated circuit takes the place of 7 transistors and over ten resistors and capacitors. The IC, variable ceramic feedback element, glass epoxy circuit board and nylon gears & outer case provide rugged reliability. Linear and rotary outputs and versatile mounting make the GDA-19-41 a universal servo for cars, planes & boats. Fully compatible with any Heath R/C system and many other brands as well.

Kit GDA-19-41, 1 lb., mailable **24.95**

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 seconds. Linear output travel: 1/2" end to end. Rotary output travel: 90 degrees rotation. Temperature range: 0 to 160 degrees 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 arm; 1 rotary wheel; 2 linear racks. Position accuracy: 1.0%. Dimensions: 1 5/8" H x 7/8" W x 2 1/4" L long (length includes mounting ears; height includes outputs). Net weight: 1.75 oz.

Ⓒ GD-19 5-Channel Systems — with Sub-Miniature, Miniature or Standard Servos!

Get just the system you want! Order your GD-19 System with the new Sub-Miniature Servos for an incredibly light 12-oz. flying weight; with Heathkit Miniature Servos for 14 oz.; with standard servos for 16.6 oz. All systems consist of 4 servos; Heathkit Miniaturized Receiver with 3 ceramic IF Filters for increased selectivity without bothersome alignment, double-tuned front end, RF amplifier and dual AGC for interference-free reception, high impact nylon case; Slim Line Transmitter with 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; 2 flat-pack nickel-cadmium batteries. All GD-19 systems offer a choice of bands, exclusive Heath terminal blocks. Components assemble quickly and easily thanks to the famous Heathkit Manual!

System Kit GD-19S, with Sub-Miniature IC Servos, specify frequency desired, 11 lbs., mailable **224.95**

System Kit GD-19M, with Miniature Servos, specify frequency desired, 11 lbs., mailable **224.95**

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° to +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 volt nickel-cadmium battery. Rechargeable simultaneously with receiver battery at 35 to 40 mA from 120V. Dimensions: 6 3/8" H x 6 3/4" W x 2 1/4" D. Net weight: 2 3/4 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° to +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: 2 1/2" H x 2" W x 2 1/2" D. Net receiver weight: 2.3 oz.

GDA-19-3 SPECIFICATIONS — RECEIVER BATTERY — Type: Nickel-cadmium. Rechargeable. Voltage: +2.4 and +4.8 V outputs. Dimensions: 5/8" H x 2 3/8" W x 2 3/8" D. Net weight: 3.9 oz.

GDA-19-4 SPECIFICATIONS — SERVO — Thrust: 3 lbs., minimum. Transit Time for 5/8" Travel: 0.7 seconds. Linear Output Travel: 5/8" end-to-end 1/2" nominal. Rotary Output Travel: 0 to +100 degrees. Mechanical Output: 1 — rotary arm, 1 — rotary wheel, 2 — linear arms. Dimensions: 1 3/4" H x 1 1/4" W x 3 1/4" L. (length includes mounting ears; height includes arms). Net weight: 2.5 oz. 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.)

Ⓓ Low-Cost 3-Channel System...129.95

An unbelievable bargain! Ideal for R/C newcomers. Perfect for 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; 2 flat-pack batteries (GDA-19-3 for receiver); 2 standard servos (GDA-19-4). Kit includes all cables, connectors and charging cord, plus free soldering iron to make assembly even easier!

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 to +160 degrees F. Controls: Three channels; two with trim on front panel and one without trim on rear panel for easy hand operation. Power Supply: Internal 9.6 volt nickel-cadmium battery. Rechargeable simultaneously with receiver battery at 40 to 50 mA from 120 volt. Dimensions: 6 1/2" H x 6 3/8" W x 2 1/4" D.

GDA-57-2 SPECIFICATIONS — RECEIVER — RF Carrier Frequency: One frequency crystal controlled on 27 MHz, 53 MHz or 72 MHz. Operating Temperature: 0 degrees to +160 degrees F. Power Supply: Heath GDA-19-3 Battery Pack. Dimensions: 1 1/8" H x 1 3/8" W x 2 3/8" 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). Frequencies Available: Same as with GD-19 systems.

Ⓔ New Heathkit R/C Servo Simulator...19.95

A versatile, low cost accessory for any R/C'er. Provides two functions; replaces transmitter & 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 & glow plug batteries from 120 VAC line. Lamps indicate charging rate.

Kit GD-206, 2 lbs., mailable **19.95**

Kit GDA-19-3, receiver battery pack only; 1 lb., mailable **9.95**

Ⓕ Heathkit "Thumb® Tach"...19.95

Two RPM ranges: 0-5000, 0-25,000. Precision circuitry keeps tach accurate even with aging battery. Ideal for needle valve adjustments, selection of glow plugs, gears & props... permits peaking engine for RPM changes you can't hear.

Kit GD-69, 2 lbs., mailable **19.95**

Ⓖ Veco .19 Engine, ideal for "Spectre" car. Two air mixture adjustments for precise fuel metering and low-speed idle. Engine supplied assembled, with glow plug.

Assembled GDA-101-2, 1 lb., mailable **29.95**

GDA-101-2 SPECIFICATIONS — Bore: 0.634 in. Stroke: 0.633 in. Displacement: 0.199 cu. in. Compression ratio: 8:1. Power: 0.45 BHP @ 12,500 RPM. Net weight: 7 1/2 oz.

Ⓖ Heathkit "Spectre" R/C Car...39.95

The world's most popular R/C car! Kit includes snap-on high-impact body, chassis, coil-spring suspension (independent at front wheels), wheels and special formula rubber locking tires, fuel tank, oil-proof, dustproof R/C equipment case, 5.5:1 gears, axles (adjustable for caster and toe-in at front), servo linkages, all hardware, decals, Heathkit manual for easy assembly.

Kit GD-101, R/C car only, 11 lbs., mailable **39.95**

GD-101 SPECIFICATIONS — GENERAL — Chassis: 16 gauge chrome plated steel. Body: GT-Sports, 1/8 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".

R/C modeling



Accuracy, dependability ... at low cost!

New Heathkit portable general purpose VOM ... 47.95

An extremely rugged, highly accurate VOM ... designed to easily withstand the abusive treatment of field & bench service work ... accurate enough for engineering, design and R&D work ... low enough in cost so that even the most bargain-minded can afford it. That's the new Heathkit IM-105 ... and this is the inside story.

High impact Lexan® case...diode & fuse protected ruggedized taut-band meter movement can suffer physical and electrical mistreatment and bounce back for more. The taut-band movement is inherently low-friction, resulting in highly repeatable, highly linear measurements. A 95° wide viewing area provides high resolution. The fuse in-line with the input connector is removable from the front panel for extra convenience.

High accuracy ... delivers ±3% on all DC ranges ... ±4% on all AC ranges ... ±3% on all DC current ranges. 1% metal-film resistors on most ranges and thermistor compensation over a wide temperature range deliver accuracy unheard of at this low cost.

Ranges selected for maximum convenience & utility. A continuous rotation, 20 position switch gives instant selection of 8 DC volts ranges from 0.25 to 5000 V full scale ... 7 AC ranges from 2.5 to 5000 V full scale ... 6 DC current ranges from 0.05 mA to 10 amps full scale ... 5 resistance ranges from x1 to x10k with a center scale factor of 20. For audio voltage measurements, 5 dB ranges are provided from -10 to +50 dB. That's real capability!

Other professional features include DC polarity reversal switch, ohms zero adjustment by front thumbwheel, easy-to-build modular printed circuit board construction, self-storing handle and easy assembly. For the most versatile meter you can buy, order your new IM-105 now.

Kit IM-105, 4 lbs., mailable ... 47.95

IM-105 SPECIFICATIONS—DC VOLTAGE RANGES: 0.25, 2.5, 10, 50, 250, 500, 1000 & 5000 volts full scale. **Accuracy:** ±3% of full scale. **Input resistance:** 20,000 ohms per volt. **AC VOLTAGE RANGES:** 2.5, 10, 50, 250, 500, 1000 & 5000 volts full scale. **Accuracy:** ±4% of full scale. **Input resistance:** 5,000 ohms per volt. **Input capacity:** Less than 20 pF. **Frequency response:** 2.5, 10 & 50 volt ranges: ±5%, 10 Hz to 100 kHz; 250, 500 volt 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 volts 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 volts. x10K range: 15 volts. **DECIBEL RANGES:** (0 dB=1 milliwatt 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 degrees C, ±0.1% (or 0.1 degree of arc) per degree C. **Operating temperature range:** 0-55 degrees C. **Batteries (not supplied):** One 1.5 V "D" cell (NEDA #14); one 15V (NEDA #208). **Dimensions:** 5" W x 7" H x 2¼" D. **Test Leads:** Supplied.



IM-105 47⁹⁵

Heathkit portable IM-17 volt-ohm meter ... 21.95

The handiest piece of electronic equipment you can own. Perfect for homeowners, do-it-yourselfers, hobbyists, boaters, model builders, CB'ers, hams — just about everyone. And the IM-17 is even sophisticated enough for radio and TV servicing.

Does Hundreds Of Everyday Measurements At Lowest Cost. Features four ranges on AC and DC volts that measures from 1 to 1000 volts full scale ... four resistance ranges (10 ohms center scale x1, x100, x10K, x1M) that measure from 0.1 ohm to 1000 megohms. All ranges are multi-colored. As an added convenience, there's an extra jack to connect high voltage and RF probes to extend its basic capabilities.

Battery Powered To Work Anywhere ... runs on a "C" cell and an 8.4 V mercury cell (same as used in transistor radios). The IM-17 is housed in a tough, heavy duty, molded beige plastic case with a positive locking cover that stays closed under rough handling, yet opens with a flick of a finger to expose the tilted front panel and generous storage area. Also features zero and ohms-adjust controls, DC polarity reversing switch to eliminate lead switching, plus a continuous rotation 12-position function switch. Easy circuit board construction and the famous Heath manual combine to make assembly quick and enjoyable. Build the IM-17 in 3 or 4 hours ... use it for years to come.

Kit IM-17, 5 lbs., mailable ... 21.95

IM-17 SPECIFICATIONS—DC VOLTMETER: Four Ranges: 0-1, 10, 100, 1000 volts full scale. **Input resistance:** 11 meg. on all ranges. **Accuracy:** ±3% of full scale. **AC VOLTMETER:** Four Ranges: 0-1, 10, 100, 1000 volts 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: Rx1, x100, x10K, x1 meg. **POWER SUPPLIES:** Ohms circuit: 1.5 V "C" Cell. **Amplifier circuit:** 8.4 V mercury cell (NEDA #1611), batteries not supplied. **GENERAL:** Meter: 4½", 200 uA, 100° movement. **Dimensions:** 8½" W x 4½" H x 7¼" D.



IM-17 21⁹⁵

Put a Heathkit VTVM on your bench...and save!

Heathkit IM-18 VTVM . . . 29.95

- 7 AC, 7 DC, 7 Ohms ranges
- Large, easy-to-read 4 1/2" meter
- Measures RMS & P-P AC voltage
- Easy assembly
- 25 Hz-1 MHz response

Because of its size, features and cost, the Heathkit IM-11 was possibly the world's most popular VTVM. The IM-18 follows that tradition . . . one probe makes all measurements, with 7 AC, 7 DC and 7 Ohms ranges; easy to read scales; sensitive, high-quality meter; 1% precision resistors; extended frequency response; measures RMS and peak-to-peak; easy to assemble.

- Kit IM-18, 5 lbs., mailable 29.95
- Assembled IMW-18, 6 lbs., mailable 59.95

IM-18 SPECIFICATIONS—Meter scales: DC & AC (RMS): 0-1.5, 5, 15, 50, 150, 500, 1500 volts 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 1000 megohms. Meter: 4 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: $\pm 3\%$, 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 volt, size "C" flashlight cell (not supplied). Power requirements: 105-125 or 210-250 VAC, 50/60 Hz, 10 watts. Dimensions: 7 3/8" H x 4 1/4" W x 4 1/4" D.

Heathkit IM-28 "service bench" VTVM . . . 39.95 (59.95 wired)

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—Meter scales DC & AC (RMS): 0-1.5, 5, 15, 50, 150, 500, 1500 volts full scale (1.5 and 5 volt AC ranges read on separate scales). Ohm-meter: Scale with 10 ohm center x1, x10, x100, x1000, x10K, x100K, x1 meg. Measures 1 ohm to 1000 megohms with internal battery. Dividers: 1% precision type. Meter: 6" 200 μ A movement. DC input resistance: 11 megohms (1 megohm in probe) on all ranges. AC input impedance: 1 megohm shunted by 40 pF (measured at input terminals). 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: 1.5 volt size "C" flashlight cell (not supplied). Power requirements: 105-125 or 210-250 volts 50/60 Hz, AC 10 watts. Dimensions: 5" H x 12 1/4" W x 4 3/4" D.

Heathkit IM-38 AC VTVM . . . 41.95

A Compact Instrument For Audio Design And Development, Laboratory Analysis Or General Service Work . . . features the same practical size as the Heathkit IM-18 VTVM, plus precision components for extended accuracy in measuring low-level AC voltages. A precision voltage divider provides 10 ranges, 10 millivolts to 300 volts RMS full scale. Frequency response is 10 Hz to 500 kHz, ± 1 dB.

Optimum Circuit Design . . . utilizes the high input impedance characteristics of the cathode follower which reflects 10 megohms to circuits under test. Total meter amplifier includes two stages with filament voltages supplied from a transformer winding balanced to ground to keep AC noise to a minimum.

- Kit IM-38, 4 lbs., mailable 41.95
- Assembled IMW-38, 5 lbs., mailable 69.95

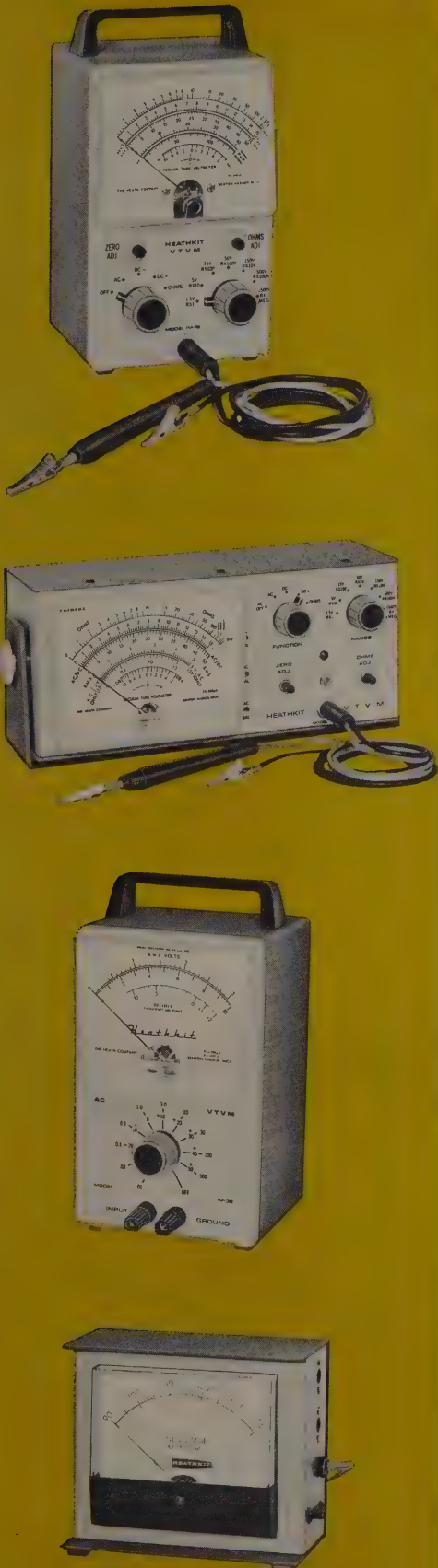
IM-38 SPECIFICATIONS—Frequency response: ± 1 dB 10 Hz to 500 kHz, ± 2 dB 10 Hz to 1 MHz, all ranges. Ranges: Ten ranges from 0.01 to 300 volts RMS full scale. Decibels: Total-range -52 to +58 dB, meter scale -12 to +2 dB (0 dB=1 mW in 600 ohms), ten switch selected ranges from -40 dB to +50 dB in 10 dB steps. Input impedance: 10 megohms shunted by 12 pF on ranges 10 to 300 volts, 10 megohms shunted by 22 pF on ranges .01 to 3 volts. Tube complement: (1) 6AW8, (1) 6EJ7/EF184. Accuracy: Within 5% of full scale. Power requirements: 105-125/210-250 VAC, 50-60 Hz, 10 watts. Dimensions: 7 3/8" H x 4 1/4" W x 4 1/4" D.

Heathkit IM-103 line voltage monitor . . . 17.95

The Ideal Accessory for labs, shops, hams & CBer's, hobbyists. Improper line voltage can cause poor operation of test equipment and circuits. With the new solid-state IM-103, you always know what your line voltage is. When calibrated from a source of known accuracy, the IM-103 has an accuracy of $\pm 2\%$. The large, expanded scale meter lets you know at a glance what your power line voltage is; . . . without having to use a separate AC voltmeter . . . without having to depend on utility company estimates. Add this highly useful accessory to your bench now.

- Kit IM-103, 3 lbs., mailable 17.95

IM-103 SPECIFICATIONS: Voltage Range: 90 VAC (rms) to 140 VAC (rms). Voltage Accuracy (Sine Wave): $\pm 2\%$ when calibrated at 95 VAC and 135 VAC from an accurate voltage source, $\pm 5\%$ when calibrated with a known line voltage. Power Requirements: 90 VAC (rms) to 140 VAC (rms), 50 to 60 Hz, 4.2 watts. Dimensions: 5 1/8" H x 6 1/4" W x 3" D.



Heathkit IM-16 solid-state volt-ohm meter

A highly versatile bench or field instrument. Runs on either standard line voltage or internal batteries. Easy portability with built-in carrying handles . . . rugged unitized construction. Compare the features . . . you'll see the IM-16 is a lot more meter for a lot less money.

8 DC voltage ranges available from 0.5 volts to 1500 volts full scale . . . 8 AC voltage ranges from 0.5 to 1500 volts full scale . . . 7 ohmmeter ranges x1, x10, x100, x1k, x10k, x100k and x1 megohm. 11 megohm input Z on all DC ranges minimizes circuit loading . . . 1 megohm on all AC ranges. Large 6" meter face is clearly, accurately marked to facilitate readings. Complete front panel switches allow instant selection of both function and range, with ohms and zero adjust controls at your fingertips.

Easy assembly. Circuit board & wiring harness construction speeds assembly, eliminates errors and means less weight. You'll be finished in just a few hours, and have a versatile, reliable, portable meter you can count on. (Not recommended for use in RF fields).

Kit IM-16, 10 lbs., mailable **54.95**

IM-16 SPECIFICATIONS—DC VOLTMEETER—8 Ranges: 0.5, 1.5, 5, 15, 50, 150, 500, 1500 volts. **Input resistance:** 11 megohms on all ranges. **Accuracy:** ±3% of full scale. **AC VOLTMEETER—8 Ranges:** 0.5, 1.5, 5, 15, 50, 150, 500, 1500 volts. **Input resistance:** 1 megohm. **Accuracy:** ±5% full scale. **OHMMETER—7 Ranges:** x1 (10 ohm center scale), x10, x100, x1k, x10k, x100k, x1 megohm. Terminal voltage 70mV (not sufficient to cause diode junction conduction). **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 V, 50/60 Hz. AC. Battery; 9 V NEDA 1602 or equivalent. **Ohms circuit:** Battery; 1.5 V (one "C" cell). **Meter:** 6", 100 uA (100° movement). **Dimensions:** 16 3/8" L x 7 3/4" D x 5 7/8" H.

Kit IM-16
54⁹⁵



Heathkit IM-25 solid-state high impedance VOM

Designed for analysis of modern solid-state circuits . . . extra low current and voltage ranges enables all measurements required in both tube & transistor circuit work. Combines the low circuit loading, high impedance input of a VTVM, the convenient versatility of a VOM and the sensitivity of separate lab instruments.

Engineered for utility . . . "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 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-ohm-mA permit leaving range switches in most-used position, switching function with one simple operation!

Set-and-forget ohms scale adjustment. With less than 70 mV applied to the circuit under test, the possibility of circuitry damage or erroneous readings is avoided.

Kit IM-25, 11 lbs., mailable **85.00**
Assembled IMW-25, 11 lbs., mailable **120.00**

IM-25 SPECIFICATIONS—DC VOLTMEETER—9 Ranges: 0-.15, .5, 1.5, 5, 15, 50, 150, 500, 1500 volts full scale. **Input resistance:** 11 megohms on all ranges. **Accuracy:** ±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 10k ohm (.015 mA). **Accuracy:** ±4% of full scale. **AC VOLTMEETER—9 Ranges:** 0-.15, .5, 1.5, 5, 15, 50, 150, 500, 1500 volts full scale. **Input resistance:** 10 megohms shunted by 150 pF (measured at probe tip). **Accuracy:** ±5% of full scale. **Frequency response:** ±2 dB, 10 Hz to 100 kHz. **AC MILLIAMMETER—11 Ranges:** 0-.015, .05, .15, .5, 1.5, 5, 15, 50, 150, 500, 1500 mA full scale. **Input Resistance:** 0.1 ohm (1500 mA) to 10 k ohm (.015 mA). **Accuracy:** ±5% of full scale. **OHMMETER—7 Ranges:** 10 ohm center scale x1, x10, x100, x1k, x10k, x100k, x1 meg. Terminal voltage 70mV (not sufficient to cause diode junction conduction). **Probe:** Combined AC-OHMS-DC switching probe. **Meter:** 6", 200 uA 100° movement. **Power Supplies:** Battery operation; "C" cells. Line operation; Transformer operated 1/2 wave circuit, operable on either 120 or 240 V AC, 50-60 Hz. **Dimensions:** 16 1/2" W x 5 7/8" H x 7 3/4" D.

Kit IM-25
85⁰⁰



Etched Circuit RF Probe

Use with any 11 megohm input voltmeter; enables RF measurements over 100 MHz; 1000 VDC maximum at probe tip; 90 volts RMS RF maximum.

Kit PK-3, 1 lb., mailable **5.00**
Assembled PKW-3, 1 lb., mailable **7.00**

30 KV DC Probe

For extremely high voltages; multiplier factor of 100 on DC ranges of 11 megohm input meters; 1100 megohm input for measuring voltage in hi-Z circuits.

Kit 336, 1 lb., mailable **6.95**
Assembled 336W, 1 lb., mailable **8.95**

Kit PK-3
5⁰⁰



Kit 336
6⁹⁵

199⁹⁵



99⁹⁵

175 MHz counting combination for less than \$300!

15 MHz frequency counter . . . 199.95!

A highly accurate, low cost counter for dozens of applications . . . engineering, R&D, radio & TV service. If you need accurate frequency measurement, you need the Heathkit IB-101.

Accurate counting from 1 Hz to over 15 MHz with 5-digit cold-cathode readout tubes. Computer-type integrated circuitry eliminates blinking readout . . . provides a rock-stable divider chain that never needs adjustment.

Overrange indicator and Hz/kHz switch give the IB-101's 5-digit readout the capability of an 8-digit counter. Set the range switch to kHz and read out to the nearest kHz. Push the switch to the Hz position and read down to the last Hz. Overrange & Hz/kHz indicators light up to give correct range and error-free measurement. You can make an 8-digit measurement to over 15 MHz in seconds.

Exclusive Heath-designed input circuit. A dual-gate, diode-protected MOSFET provides proper triggering over a wide range of input levels . . . without adjustment. Input Z is 1 megohm shunted by less than 20 pF to minimize loading. A special low drift, temperature compensated 1 MHz crystal oscillator provides a highly stable time base.

All solid-state circuitry . . . 26 ICs, 7 transistors, a MOSFET & 6 diodes provide easy 6-hour assembly, high reliability. All ICs and display tubes mount in sockets. Compare features, performance & price . . . the best value in counters is the Heath IB-101. Order yours today.

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 millisecond or 1 second 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 /degree C. 20 to 35 degrees C after 30 minutes warmup. $\pm .002\%$ from 0 to 40 degrees C. **GENERAL:** Readout: 5 digits plus overrange. Ambient temperature range: Storage, -55 to 80 degrees C; Operating, 0 to 40 degrees C. Power requirements: 105-125 or 210-250 VAC, 50/60 Hz, 8 watts. Cabinet dimensions: 8 $\frac{1}{4}$ " W x 3 $\frac{1}{8}$ " H x 9" D not including handle.

175 MHz frequency scaler . . . 99.95

Extend the range of virtually any frequency counter to 175 MHz. Imagine having fast, accurate, reliable measurement capability into the VHF region for less than \$100! In combination with your existing counter, that's what the new IB-102 delivers. Ideal for anyone doing HF & VHF work . . . 2-way radio repair, hams & CBer's, audio & receiver service, RF design & R&D.

The new IB-102 will divide input frequencies from 2 MHz to 175 MHz with the scaled output fed to any compatible frequency counter with a 1 megohm input. Front panel switch-selection of 10:1 or 100:1 scaling ratios . . . resolution down to 10 Hz, with a counter having a 1 second time base. For use with frequencies within the range of the counter being used, a 1:1 switch position provides straight-thru counting without scaling.

Exclusive Heath input circuit triggers at extremely low signal levels, increasing versatility greatly. At 100 MHz, for example, only 50 mV maximum is needed to trigger.

Easy operation. Once the division ratio is selected, just adjust the sensitivity control for a peak meter reading in the green portion of the scale, indicating an input level sufficient to obtain proper results. The Test Switch gives a quick, easy method of checking input level . . . just press it—if the frequency reading changes, the input level is too low or the sensitivity control is not adjusted properly.

Other features include all solid-state transistor/IC design, filtered & regulated power supplies, convenient carrying handle/tilt stand and easy 5-hour assembly. Add 175 MHz measurement capability to your bench now . . . order your new IB-102 scaler today.

Kit IB-102, 7 lbs., mailable 99.95

IB-102 SPECIFICATIONS — Frequency Range: 2 MHz to 175 MHz. **Resolution:** Counter with 1 millisecond time base — divide by 10=10 kHz; divide by 100=100 kHz. Counter with 1 second time — divide by 10=10 Hz; divide by 100=100 Hz. **Meter:** Green area indicates adequate signal level. **INPUT — Sensitivity:** 50 mV, 2 MHz to 100 MHz, 125 mV, 100 MHz to 175 MHz. **Impedance:** Divide by 1, same as frequency counter. Divide by 10 and 100, 50 ohms. **Amplitude (maximum):** 3 volts RMS. **OUTPUT — Amplitude (minimum):** 1 volt across 1 megohm and 20 pF load. **Rise Time:** 20 nanosecs. **Fall Time:** 10 nanosecs. **Offset from Ground:** Adjustable from zero to ± 500 millivolts. **GENERAL — Power Requirements:** 110-130 or 220-260 VAC, 50/60 Hz, 5 watts. **Ambient Temperature Range:** Storage, -55 degrees C to 80 degrees C. Operation, 10 degrees C to 40 degrees C. **Dimensions:** 8 $\frac{1}{4}$ " W x 3 $\frac{3}{8}$ " H x 9" D (not including handle).

Dependable, accurate performance...at big savings!

Heathkit IG-57A post marker/ sweep generator . . . 135.00 (199.00 wired)

Dependability-Proven . . . by major color TV manufacturers in their training clinics & service centers . . . by thousands of technicians and servicemen. Professionals can't afford to take a chance . . . so they bought the fastest, most accurate & economical instrument available. You can have these advantages too . . . with the new IG-57A. Here's why . . .

Now Complete Any Alignment Job Quickly & Successfully . . . a scope, a VTVM and the IG-57A are all you need to align virtually any B&W or color receiver on the market. You can check the overall receiver frequency response from the antenna terminals through the tuner, IF strip, video detector, to the color bandpass amplifier outputs. New circuitry provides sweep-modulated picture carriers . . . not only at 45.75 MHz for the tuner mixer input, but also 67.25 MHz for the antenna terminal input. The exclusive Heathkit external attenuator enables you to set bandwidth accurately in seconds . . . eliminates guessing important 6 dB amplitudes.

15 Crystal-Controlled Markers . . . 4 for color bandpass, 1 for FM IF, 8 for TV IF frequencies from 39.75 to 47.25 MHz . . . plus markers for channels 4 & 10 picture and sound carriers. Lets you accurately locate picture and sound carriers, 6 dB points and trap locations.

3 Sweep Oscillators . . . in stable Colpitts circuits produces 5 ranges using harmonics . . . for color bandpass, FM IF, Video IF bandpass, VHF channels 4 & 10.

Compact Size . . . Convenient Controls. The new IG-57A measures only 13 3/8" W x 5 1/2" H x 12" D . . . doesn't waste valuable bench space. The front panel controls are easy to read, easy to use . . . there are no gadgets, gimmicks or graphs to distract you. Put this new total capability Marker/Generator on your bench now . . . and discover what thousands of servicemen already know—that excellent alignment facilities don't have to be expensive. Order your Heathkit IG-57A today.

Kit IG-57A, 15 lbs., mailable **135.00**
Assembled IGW-57A, 15 lbs., mailable **199.00**

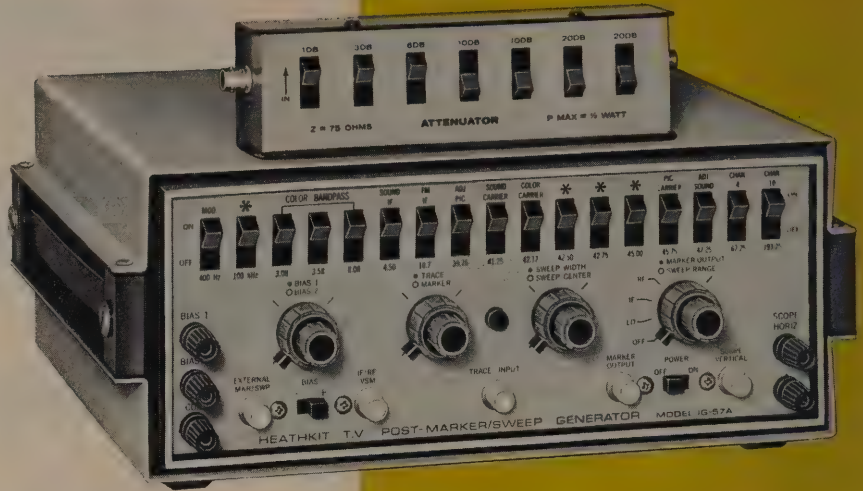
IG-57A SPECIFICATIONS — Marker frequencies: 100 kHz. Marker frequencies, crystal-controlled: 3.08, 3.58, 4.08, and 4.50 MHz $\pm 0.1\%$. 10.7, 39.75, 41.25, 42.17, 42.50, 42.75, 45.00, 45.75, 47.25, 67.25 and 193.25 MHz $\pm 0.005\%$. Modulation frequency: 400 Hz. Input impedance: External Marker/Sweep, 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 volts, 60 Hz AC at 4.5 watts.

Heathkit IG-37 FM stereo generator . . . 79.95

Fast easy alignment of FM equipment. Features audio or composite stereo signals for multiplex adjustments and an RF carrier modulated by these signals for tuner and receiver adjustments. Phase test for accurate adjustment of subcarrier transformers. Variable level crystal controlled 19 kHz pilot signal to check lock-in range of stereo receivers. Built-in sweep and marker signals for overall RF and IF alignment. Carrier signal adjustable to permit alignment on a clear portion of the band. Front panel controls select right or left channel signals or special phase test. Switch select frequencies, direct or modulated RF, of 400, 1000, 5000 Hz, 19 kHz, 38 kHz and one of two SCA frequencies (65 or 67 kHz).

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: 105-125, 210-230 volts AC, 50/60 Hz, 35 watts. Dimensions: 5 1/2" H x 9" D x 13 1/2" W.



Kit IG-57A
135⁰⁰



Kit IG-37
79⁹⁵

tv alignment instruments

Put these Heathkit cost-cutters to work for you... now!

Heathkit IO-101 solid-state vectorscope/ color generator... 124.95

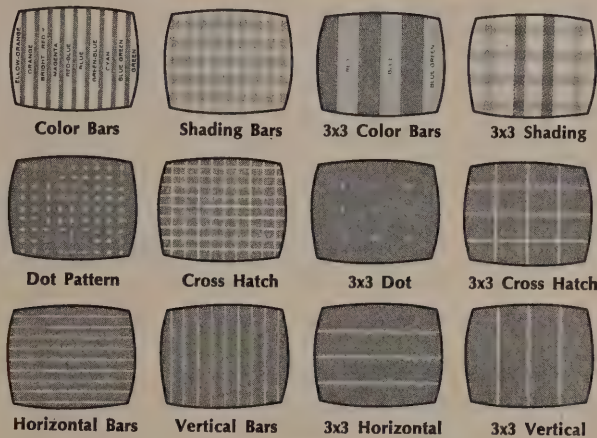
The vector pattern— shows missing or weak colors, proper adjustment of the burst transformer, reactance coil, oscillator coil and bandpass transformers. Color demodulation angle can also be checked.

Extra convenience for faster servicing. The Grid-Cathode switch enables all vector patterns to be displayed in the same relative position, regardless of how the color CRT is driven. Variable front panel tuning for channels 2 through 6. Plus and minus going video signals. Front panel sync output for sync, chroma and incircuit video problems. 4.5 MHz crystal controlled sound carrier. Shielded leads enable fast connection of RF signal. Front panel gun shorting switches and lead-piercing grid jacks.

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

IO-101 SPECIFICATIONS—PATTERNS—Purity: Produces a snow-free raster for purity adjustments. **Dots*:** 9 x 9 produces a display of 110 small dots. 3 x 3 produces a display of nine dots for convergence adjustments. **Crosshatch*:** 9 x 9 produces a display of 11 vertical and 10 horizontal lines. 3 x 3 produces a display of three vertical and three horizontal lines for convergence and linearity adjustments. **Horizontal Lines*:** 9 x 9 produces a display of 10 horizontal lines. 3 x 3 produces a display of three horizontal lines for vertical linearity and pin-cushion adjustments. **Vertical Lines*:** 9 x 9 produces 11 vertical lines. 3 x 3 produces a display of 3 vertical lines for horizontal linearity and convergence adjustments. **Color Bars*:** 9 x 9 produces a display of ten standard color bars. 3 x 3 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 μ V 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:** 6 $\frac{3}{4}$ " W x 9 $\frac{3}{4}$ " H x 14 $\frac{1}{2}$ " D. *The number of dots, lines, and bars indicated for a 9 x 9 display is the number displayed if the receiver under test has no overscan.

Switch select any of these 12 patterns plus clear raster



Heathkit IG-28 color bar/pattern generator... 79.95

(114.95 wired)

Time saving versatility and convenience. The IG-28 produces every reliable pattern needed plus some extras to enable you to do a better job... and everything is up front to make it easier to use. In addition to front panel channel tuning, just turn another front control for plus & minus going video signals. And for sync, in-circuit video, or chroma problems, use the front panel sync output. Two front panel AC outlets for other gear, TV, etc. Built-in gun shorting circuits and grid jacks too. Add any service-type scope with horizontal input for vectorscope display. Fast, enjoyable circuit board-wiring harness construction, or buy it factory built.

Kit IG-28, 8 lbs., mailable **79.95**

Assembled IGW-28, 10 lbs., mailable **114.95**

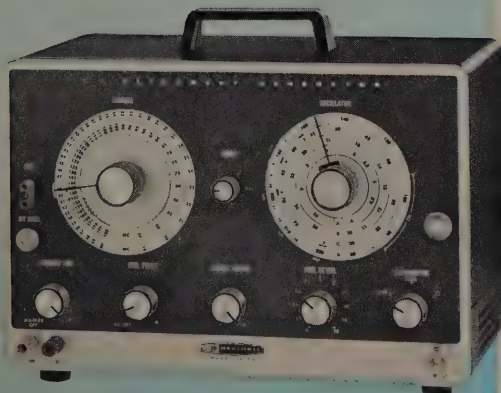
IG-28 SPECIFICATIONS—Output Signals: Video—Greater than ± 1 volt peak-to-peak composite signal for composite signal injection behind the video detector. **RF**—Variable to 50,000 μ V output, channels 2 through 6, for composite signal injection into the receiver antenna input terminals. **Sync**—Greater than 3.5 volts peak-to-peak signal for servicing sync circuits without video, or sets having separate video and sync 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 or 240 VAC, 50/60 Hz. **Output**—3.6 VDC. 500 mA, zener diode regulated. **Dimensions—Overall:** 13 $\frac{1}{2}$ " W x 5 $\frac{1}{2}$ " H x 8" D.

Heathkit IG-52 TV & FM alignment generator... 69.95

Provides all signal sources needed for alignment of FM & TV receivers... TV front-end channels 2-13. Sweep oscillator features a controllable inductor for stable, linear sweep from 3.6—220 MHz with 0-42 MHz maximum sweep width. Built-in marker oscillators... 4.5 MHz crystal and multiples thereof... 19 to 60 MHz variable (57 to 180 MHz on harmonics). Fixed-step and variable attenuators.

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

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



Versatile, low cost generators for design, service, R&D

Solid-state sine-square wave generator... 69.95

1 Hz to 100 kHz sine wave output at 5% accuracy, less than 0.1% distortion from 10 Hz to 20 kHz. Square wave output from 5 Hz to 100 kHz, less than 50 ns rise time. Both outputs floating and available simultaneously. Switch-selected internal/external load. 120/240 VAC, 50/60 Hz. 5½" H x 13¼" W x 7" D.

Kit IG-18, 12 lbs., mailable 69.95

Assembled IGW-18, 10 lbs., mailable 99.50

IG-18 PARTIAL SPECIFICATIONS — GENERAL: Frequency selection: 0-100 switch (steps of 10), 0-10 switch (steps of 1), 0-1 control (vernier) & multiplier switch (x1, 10, 100, 1000). **SINE WAVE OUTPUT:** Output voltage: 8 ranges, 0.003 to 10 volts RMS (full scale) with 10 K ohm or higher external load. 6 ranges, 0.003 to 1 volt (full scale) with 600 ohm internal or external load. **dB ranges:** -62 dB to +22 dB, -12 dB to +2 dB on meter and -50 dB to +20 dB on amplitude switch in 10 dB steps. +2 dB max. into 600 ohm load. (0 dB = 1 mw in 600 ohm). **Output variation:** ±1 dB 10 Hz to 100 kHz. **Output indication:** Two voltage and one dB scale on meter. **Output impedance:** 10 volt range, 0-1000 ohm; 3 volt range, 800-1000 ohm; 1 volt range and lower, 600 ohm. **Meter accuracy:** ±5% of full scale with proper load termination. **SQUARE WAVE OUTPUT:** Output voltage (peak-to-peak): .1, 1, 10 volt into 200 ohm load or higher. **Output impedance:** .1 V and 1 V ranges, 52 ohm; 10 V range, up to 220 ohm.



Precision laboratory RF generator... 64.95

Exact control for design or service. The IG-42 provides fundamental output from 100 kHz to 30 MHz in five bands, adjustable to ±3% accuracy. RF output is adjustable from 5 uV to 100,000 uV in attenuator steps of 1, 10, 100, 1000, & 10,000 and variable attenuation of 10:1 maximum. RF output can be modulated by the internal 400 Hz generator from 0 to 50% modulation level or by any external source from 60 to 10,000 Hz. Effective internal shielding assures that the metered output level is accurate and free from spurious radiation.

Kit IG-42, 15 lbs., mailable 64.95

IG-42 SPECIFICATIONS — RF output: Impedance, 50 ohms — voltage, 100,000 microvolts max. **Attenuator:** Coarse, 10:1 per step, 5 steps — Fine, 10:1 continuous, indicated on meter. **Amplitude modulation:** CW, internal 400 Hz or external audio frequencies. **Modulation depth:** 0 to 50% variable, indicated on meter. **Power requirements:** 115/230 VAC, 50-60 Hz. **Dimensions:** 13" W x 8½" H x 7" D.



Low distortion audio generator... 49.95

Less than 0.1% distortion from 20 to 20,000 Hz... better than ±5% accuracy of metered output level and switch-selected frequencies from 10 Hz to 100 kHz. The IG-72 is an excellent choice for R&D work or exacting service requirements where a low distortion sinusoidal signal is needed. Switch-selected frequency control saves time, eliminates critical hairline adjustments. First and second digits and multiplier are switch-selected. Output attenuation is switch-selected from -60 to +22 dB in 10 dB steps, continuously variable between ranges.

Kit IG-72, 8 lbs., mailable 49.95

Assembled IGW-72, 9 lbs., mailable 74.95

IG-72 SPECIFICATIONS — Frequency: 10 Hz to 100 kHz, switch selected, 2 significant figures and multiplier. **Output:** 6 ranges: 0 to .003, .01, .03, .1, .3, 1 volts RMS into external 600 ohm load or with internal load into Hi-Z; 2 ranges: 0 to 3, 10 volts RMS into a minimum of 10,000 ohms. -60 dB to +22 dB in 8 steps, -60 dBm to +2 dBm (0 dBm = 1 mw into 600 ohms). **Power requirements:** 105-125 volts AC, 50/60 Hz, 40 watts. **Dimensions:** 9½" W x 6½" H x 5" D.



General purpose RF generator... 33.95

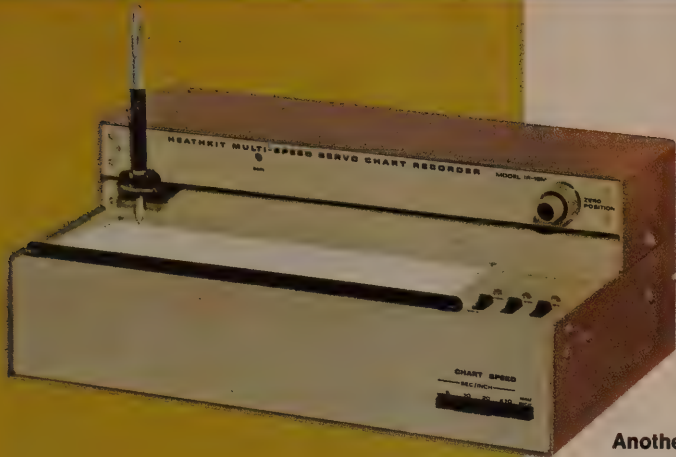
Provides 100 kHz to 200 MHz output in six bands, either 400 Hz modulated or unmodulated. 400 Hz audio is also available separately. Frequency accuracy is 2%. The 100,000 uV output is controlled by both fixed-step and variable attenuators.

Kit IG-102, 7 lbs., mailable 33.95

IG-102 SPECIFICATIONS — Frequency range: Band A, 100 kHz to 320 kHz; Band B, 310 kHz to 1.1 MHz; Band C, 1 MHz to 3.2 MHz; Band D, 3.1 MHz to 11 MHz; Band E, 10 MHz to 32 MHz; Band F, 32 MHz to 110 MHz. **Calibrated harmonics:** 100 MHz to 220 MHz. **Output:** Impedance, 50 ohms; Voltage, 100,000 uV. **Modulation:** Internal, 400 Hz, 30% depth; External, approx. 3 V across 50 K ohms for 30%. **Audio output:** Approx. 10 V open circuit. **Power requirements:** 105-230 VAC, 50/60 Hz, 15 watts. **Dimensions:** 6½" W x 9½" H x 5" D.



chart recorder



New Heathkit 12-speed solid-state Servo Chart Recorder... breaks the price barrier in precision recording instrumentation...149.95

- 12 push-button selected chart speeds
- 1 mV full scale
- All solid-state circuitry

Another Heathkit first in high quality, low cost measurement capability. A highly versatile, multi-function recorder for schools, colleges, businesses, industry, experimenters... anyone who needs to make accurate, permanent records of a wide variety of phenomena. Compare the IR-18M performance features and specifications against cost... there isn't another chart recorder available anywhere that can measure up in value.

Virtually unlimited applications. The Heathkit Servo Chart Recorder can be used to measure and permanently record practically any phenomena that varies with time. If the phenomena can be converted to the proper level of DC voltage through the use of suitable transducers, the IR-18M can record it. Only a few of the typical applications include the measurement of temperature, velocity, light intensity, revolutions, position and frequency.

Multi-speed capability. To measure a wide variety of phenomena, you need a number of different speeds... and the IR-18M provides 12. Fast pushbutton switch selection of all speeds from 5 seconds per inch to 200 minutes per inch gives the versatility you need for practically any measurement problem. Digital logic provides accuracy equal to more expensive, complex gear trains... chart drive uses the incoming line frequency as a standard to drive an accurate stepper motor.

Two input ranges permit accurate voltage measurements of 1 millivolt and 10 millivolts full scale. A handy jumper wire on the servo circuit board permits fast, easy change from one span to the other.

High input impedance minimizes circuit loading and possible error.

Three-terminal floating input... highly useful for monitoring signals when the recorder and source are at different potentials.

High accuracy of better than 99% full scale permits accurate measurement and accurate recording to critical tolerances. Repeatability is excellent. Full scale pen response time of 1 second compares with much higher priced recorders.

A unique light-operated modulator eliminates the problems inherent in using a mechanical chopper. The chopper operates at approximately 240 Hz to reduce the effects of 60 Hz line noise on the recorded signal.

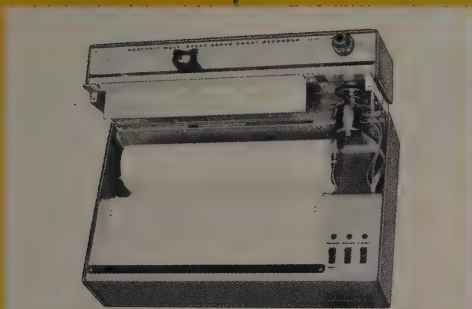
No internal reference battery. A zener-regulated, temperature stabilized internal reference voltage eliminates the need for an internal reference battery.

Precise pen positioning. Coarse and Fine Zero Position controls on the front panel allow fast, accurate pen positioning adjustments. A gain control is easily accessible through the front panel with a small screwdriver for quick gain adjustments.

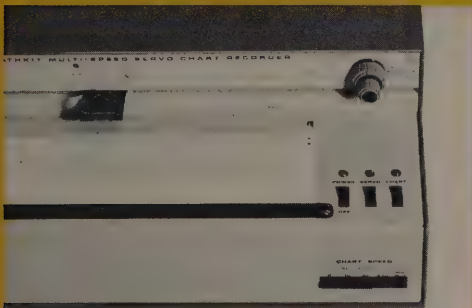
Other features include a versatile pen holder that accepts virtually any writing instrument... especially useful for making multi-colored plots. The IR-18M accepts standard 10" chart paper rolls, and the hinged top makes paper loading simple and fast. Put this low cost, high performance recorder to work for you now.

Kit IR-18M, 14 lbs., mailable **149.95**
IRA-18-1, 3 rolls chart paper (140 ft/roll), 6 lbs., mailable **9.95**

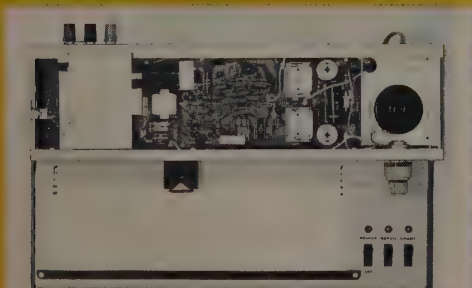
IR-18M SPECIFICATIONS — Chart paper: Grid width, 10". Length, 140-foot roll. Markings, 0-100 right to left. Chart speed: 12 speeds, pushbutton selected. 5, 10, 20, 50, 100, 200 sec/inch and 5, 10, 20, 50, 100, 200 min/inch. Chart span: Two fixed ranges; 1 mV and 10 mV full scale. Pen: Standard cartridge-type fountain pen. Balancing time: Approximately 0.1 seconds per inch, 1 second full scale (10"). Input circuit: Self-balancing potentiometer. Input resistance: Essentially infinite at null. Line frequency rejection: (input shorted.) 130 dB in common mode. Floating input: ± 100 VDC maximum with respect to ground. Overall error: Less than 1% full scale. Dead zone, less than 0.5% of full scale. Non-linearity, less than 0.5% of full scale. Maximum recommended source resistance: 100 k ohms. Reference source: Zener regulated supply. Power requirements: 120/240 VAC, 60 Hz, 14 watts or 120/240 VAC, 50 Hz, 16 watts. Fuse: 3/16 amp slow-blow (120 VAC). 1/10 amp slow-blow (240 VAC). Dimensions: 15" W x 6" H x 9 1/2" D. Net weight: 10 1/4 lbs.



Flip-top design gives easy access to paper storage area, for quick and simple roll replacement.



IR-18M controls are positioned up front for efficient operation. Individual indicator lights show power, servo and chart drive "on".



Solid-state design utilizes printed circuit board with plenty of room for everything — for easiest possible assembly.

Heath 5" solid-state 5 MHz scope...only 119.95

- All solid-state design for high reliability, better performance
 - DC coupled vertical amplifier
 - Wide response
- 5" flat-face CRT with standard camera mount bezel dimension
 - External sweep & sync inputs
 - Built-in 1 volt p-p reference source
 - Variable sweep, 10 Hz — 500 kHz

An excellent general purpose scope... ideally suited for lab and classroom use or demonstration... the perfect choice for general service and design work in audio, TV and receiver circuitry.

All solid-state design for extended life, higher reliability and superior overall performance.

Wide bandwidth. The wide band response, fast rise time and excellent sensitivity make the new IO-102 a truly high performance, low cost scope for a wide variety of applications. Vertical channel frequency response is a wide DC to 5 MHz, and switch-selected AC or DC coupling adds extra convenience and versatility. Frequency-compensated 3-position attenuator accommodates varying input levels. A separate switch position permits grounding the amplifier input to provide a zero reference line. An FET input circuit provides the high input impedance necessary to minimize circuit loading. Input sensitivity is a high 30 mV/cm; rise time is 80 nanoseconds.

Five position time base. The recurrent, automatic sync type sweep generator provides five sweep ranges, from 10 Hz to 500 kHz. A separate frequency vernier control permits selection of the desired sweep rate to give a stationary trace. And an external horizontal input allows the sweep signal to be applied by an external generator. The front panel internal-external switch and external sync connector provide a means for applying an external sync signal. A one volt peak-to-peak output provides a signal that can be used as a comparison to determine the value of an unknown voltage.

High visibility CRT trace. The type 5DEP1 CRT used in the IO-102 provides a brilliant, easily-read trace, even in areas such as classrooms with high ambient light levels. The highly visible trace, coupled with the large 5" CRT make the IO-102 ideal for classroom demonstration purposes. A 6x10 cm ruled graticule makes trace amplitude easy to determine. And to provide additional convenience and versatility, the CRT bezel may be replaced by a standard scope camera mount.

Solid-state regulated power supplies. Both horizontal and vertical amplifiers and sweep circuit are operated from zener-regulated power supplies, giving the IO-102 excellent display stability. The transformer-operated power supply can be wired for either 120 or 240 VAC operation, and is fused for protection.

Handsome, rugged construction and compact size make the IO-102 at home on any bench, in the lab, classroom or service shop. Styled in Heath beige and brown, the IO-102 measures only 16 1/4" deep... fits on any bench with room to spare. Removable side panels allow easy access to the circuitry for adjustment or demonstration... the IO-102 makes an excellent teaching tool for basic oscilloscope design.

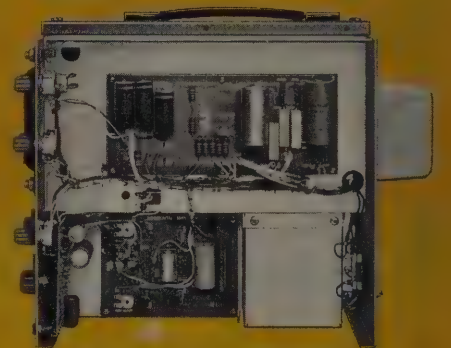
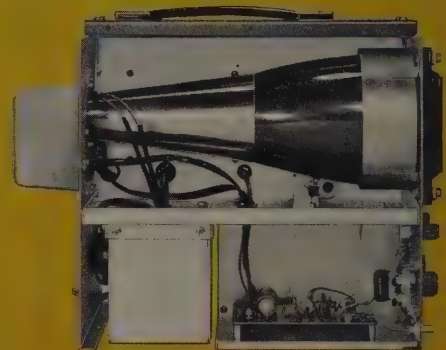
Kit IO-102, 29 lbs., mailable 119.95
 Assembled IOW-102, 31 lbs., mailable 179.95

IO-102 SPECIFICATIONS — VERTICAL CHANNEL — Sensitivity: 30 Mv/cm, uncalibrated. **Frequency response:** DC to 5 MHz, ± 3 dB. **Rise time:** 80 nanoseconds. **Input impedance:** 1 megohm shunted by 35 pF. **Attenuator:** 3-position, frequency compensated; x1, x10, x100. **HORIZONTAL CHANNEL — Sensitivity:** 0.1 V/cm. **Frequency response:** 1 MHz ± 3 dB. **Input impedance:** 1 megohm shunted by 50 pF. **Sweep generator-type:** Recurrent, automatic sync. **Range:** 10 Hz to 500 kHz in five switch-selected steps, continuously variable between steps. **GENERAL — Cathode ray tube:** Type: 5DEP1, green medium persistence phosphor. **Viewing area,** 6x10 cm. **Power supplies:** All solid-state rectifiers. All amplifier supplies regulated. **Power requirements:** 110-130 or 220-260 VAC, 50-60 Hz, 35 watts. **Overall dimensions:** 12 3/4" H x 9 1/4" W x 16 1/4" L, including knobs, handle, feet, etc.

Assembled Low-Capacitance Scope Probe

Minimizes signal loss due to circuit loading; x1 or x10 attenuation; DC to 25 MHz response, 600 volts DC maximum. Spring-loaded notched tip for hands-free operation. For 1 megohm input scopes.

Assembled PKW-2, 1 lb., mailable 12.00





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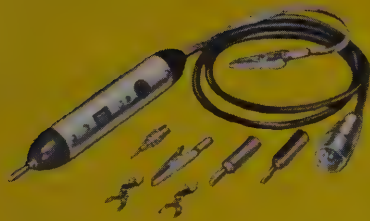
New ID-101 Electronic Switch for 2-channel monitoring with wider bandwidth, DC coupling...39.95!

Two-channel capability for single-channel scopes! The new 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 +1½ -3 dB frequency response, 10-times the bandwidth of other similarly priced units! Conventional binding posts permit fast hook-up, or the 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**

ID-101 SPECIFICATIONS: Signal Frequency Response: DC-5 MHz +1½ dB, -3 dB. Signal Gain: Greater than 10 times. Minimum Input Signal: 50 mV. Maximum Input Signal: 600 VDC or 60 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 watts. Dimensions: 10¾" W x 4¼" H x 5¾" D.



Low-Capacitance Scope Probe Kit

Provides direct or x10 attenuated operation; trimmer capacitor provides proper match to scope. Wiring options 3.3 megohm or 1 megohm.

Kit PK-1, 1 lb., mailable **4.95**

Scope demodulator probe kit...5.00

For distortion checks & observation of RF & IF signal modulation. Functions as an AM detector. 30 V rms, 500 VDC max.

Kit 337-C, 1 lb., mailable. **5.00**

Assembled 337W-C, 1 lb., mailable **6.50**



Lowest cost Heathkit 3" scope... 89.95

Provides 5 MHz bandwidth . . . useful for a number of applications in engineering, lab, service bench or home workshop. High 30 mV P-P sensitivity. Recurrent, 4-range sweep provides 20 Hz to 200 kHz rates. x50 attenuator on vertical channel gain control. 1 V P-P output for reference. Horizontal sweep from internal, 60 Hz line or external source. Wide range automatic sync for added convenience, easier operation. Fully shielded CRT reduces interference. Compact . . . only 9½" H x 5½" W x 14½" D . . . fits easily on any bench. Solid-state power supply; 120/240 VAC, 50/60 Hz wiring options. Easy circuit board-wiring harness assembly.

Kit IO-17, 16 lbs., mailable **89.95**

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 to 5 MHz ±3 dB. **HORIZONTAL CHANNEL:** Input impedance: 10 megohm shunted by 15 pF. Sensitivity: 300 mV P-P/div. Frequency response: 2 Hz to 300 kHz ±3 dB. **HORIZONTAL SWEEP GENERATOR:** Sweep generator: Recurrent type. Frequency: 20 Hz to 200 kHz in four overlapping ranges. Retrace: Blanked by a pulse from blanking amplifier. **Synchronization:** Automatic type.

Top quality at traditional Heathkit savings

Ⓐ Audio intermodulation analyzer... 69.95

3-in-1 instrument . . . AC VTVM, wattmeter, and intermodulation analyzer. Built-in high & low freq. signals & load resistors.

Kit IM-48, 9 lbs., mailable 69.95

IM-48 SPECIFICATIONS — Frequency response — AC VTVM: 10 Hz to 100 kHz ± 1 dB. Wattmeter: 10 Hz to 50 kHz ± 1 dB. I.M. Analyzer high pass filter: 2000 Hz to 12,000 Hz. I.M. Analyzer low pass filter: 10 Hz to 600 Hz. AC VTVM Range: .01, .03, .1, .3, 1, 3, 10, 30, 100, 300 volts RMS full scale. dBm: -40, -30, -20, -10, 0, +10, +20, +30, +40, +50. Reads from -65 to +52 dBm. Wattmeter: 0.15 mW, 1.5 mW, 15 mW, 150 mW, 1.5 W, 15 W, 150 W, full scale. Maximum continuous power 25 watts, intermittent power to 50 watts. I.M. Analyzer: 1%, 3%, 10%, 30%, 100% full scale. Input Impedance — AC VTVM: 1 megohm or 4, 8, 16 or 600 ohm switch selected. I.M. Analyzer: 1 megohm or 4, 8, 16 or 600 ohm switch selected. Wattmeter: 4, 8, 16, or 600 ohm internal load, 10,000 ohm across external load. Output Impedance: — low and high frequency output: 3000 ohm (600 ohm when shunted with 750 ohm resistor). Internal generator frequencies: Low frequency, 50/60 Hz (line frequency); high frequency, approximately 6 kHz. Accuracy — AC VTVM and wattmeter: Within 5% of full scale. I.M. Analyzer: Within 10% of full scale. Power requirements: 105-125 or 210-250 VAC, 50/60 Hz, 20 watts. Dimensions: 13" W x 8½" H x 7" D.

Ⓑ Harmonic distortion meter... 69.95

Measures distortion as low as 1% full scale with accuracy of +0.1% distortion; frequency range 20 to 20,000 Hz; meter scales of 1, 3, 10, 30, 100% (requires signal source such as IG-72 p. 60). VTVM scales of 1, 3, 10 and 30 V. Noise level measurements read out on separate dB meter scale down to -60 dBm. Operates on 120 or 240 VAC, 50-60 Hz. Lab quality. 13" W x 8½" H x 7" D.

Kit IM-58, 13 lbs., mailable 69.95

Ⓒ Impedance bridge... 89.95

Features four separate bridge circuits to measure resistance, capacitance, low Q and high Q inductance, easy operation and reading with the slanted control panel; built-in generator and amplifier, battery-type vacuum tube circuitry for fast warmup; ½% precision resistors and silver-mica capacitors for higher accuracy; operates on 120 V or 240 V, 50/60 Hz, requires headphones or scope for alignment. 17" W x 8" H x 6" D.

Kit IB-28, 11 lbs., mailable 89.95

Ⓓ Decade resistance box... 29.95

Kit IN-17, 4 lbs., mailable 29.95

IN-17 SPECIFICATIONS: Range: 1 ohm to 999,999 ohms in 1 ohm steps. Resistors: Precision ½% accuracy, 1 watt. Minimum DC resistance: .25 ohms or less at terminals with all switches set at zero. Dimensions: 7½" W x 5" H x 6½" D.

Ⓔ Decade capacitance box... 19.95

Kit IN-27, 3 lbs., mailable 19.95

IN-27 SPECIFICATIONS — Range: 100 pF to 0.111 μ F in increments of 100 pF. Voltage rating: 350 V. DC continuous; 500 V. DC intermittent; 1000 V. DC instantaneous test. Accuracy of incremental capacity: $\pm 1\%$. Stray capacitance: 10 to 15 pF at terminals. Dimensions: 7½" W x 4" H x 5" D.

Ⓕ Resistor substitution box... 8.95

Kit IN-37, 2 lbs., mailable 8.95

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 5½" L x 3½" W x 3" H.

Ⓖ Capacitor substitution box... 7.50

Kit IN-47, 2 lbs., mailable 7.50

Select any of 18 EIA standard capacitors from 100 pF to .22 μ F. All rated at 600 V except three lowest & two highest values, 500 & 400 V respectively. 6" L x 3" W x 3" H.

Ⓗ Low cost tube checker... 69.95

Tests most tube types encountered in daily service, including compactrons, novistors, novars, and miniatures. Lighted, multi-color meter. Built-in lighted tube data roll chart can't get lost. Coded wiring harness, point to point wiring. Test with AC VTVM.

Kit IT-17, 12 lbs., mailable 69.95

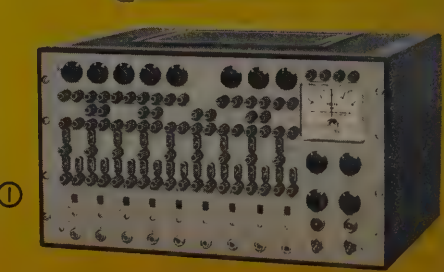
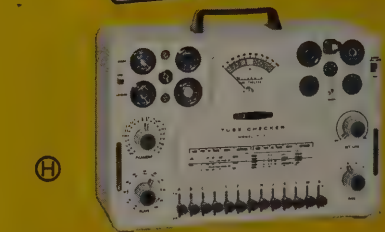
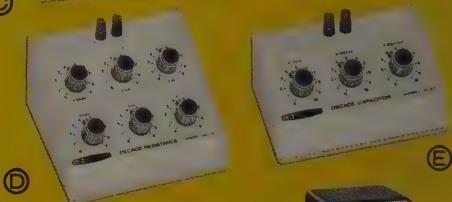
IT-17 SPECIFICATIONS — Tests: Emission, short, leakage, open element, filament continuity. Sockets: 4-pin, 5-pin, 6-pin, 7-pin, 7-pin combination and pilot light, 7-pin miniature, octal, loctal, 10-pin miniature, 9-pin novar, 9-pin miniature, 12-pin compactron, 5-pin novistor, 7-pin novistor. Meter: 1 mA BAD-? GOOD scale, illuminated. Line voltage adjustment: Step type. Roll chart mechanism: Constant tension, free-rolling, thumb-wheel operation, illuminated. Filament voltage: .63, 1.4, 2, 2.35, 2.5, 3.15, 4.2, 4.7, 5, 6.3, 7.5, 9.45, 12.6, 19.6, 25, 32, 50, 70, 110 V AC. Element test voltages: 30, 100, 250 V AC. Power requirements: 105-125 V AC, 50/60 Hz. Dimensions: 13" W x 8½" H x 5½" D.

Ⓛ Educational analog computer... 249.95

Illustrates electronic analogies to math problems as complex as fluid flow, damped harmonic motion, flight of a projectile in viscous medium. Switching allows amplifier balance without removing problem setup. Has 9 DC amp., 3 initial condition power supplies, 5 variable coefficient potentiometers, built-in oscillator for re-cycling.

Kit EC-1, 57 lbs., mailable 249.95

EC-1 SPECIFICATIONS — Amplifiers: Open loop gain approximately 1000. Output: -60 & +60 volts at 7 mA. Power supplies: ± 300 volts at 25 mA electronically regulated, variable from +250 to +350. Negative 150 volts at 40 mA. Repetitive operation: Multivibrator cycles to repeat solution; permits observation of effect of changing parameters on solution. Power requirements: 105-125 or 210-250 V., 50-60 Hz, 100 watts. Dimensions: 19" W x 10½" H x 15" D.



service equipment

Test gear for every job, every budget

Ⓝ Portable transistor/diode checker...6.95

Fills most servicing needs. Checks high and low power transistors, both NPN and PNP, for shorts, leakage, opens, and current gain. Checks forward and reverse current on diodes. Also can be used as continuity checker. Powered by two 1.5 V C cells (not supplied).

Kit IT-27, 2 lbs., mailable **6.95**

IT-27 SPECIFICATIONS — **Transistor test:** Leakage, short, open, and current gain. **Diode test:** Forward and reverse current. Also serves as a continuity checker. **Switches:** Forward-Reverse/PNP-NPN, Diode/Hi-Lo, Leakage-Gain. **Power supply:** Self-contained, two 1.5 volt size "C" flashlight cells (not supplied). **Dimensions:** 3 1/8" H x 3 1/8" W x 3 3/4" D.

Ⓞ In-Circuit transistor checker...24.95

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 uA. Tests diodes in or out of circuit for opens and shorts and identifies unknown diode leads. Matches and identifies NPN and PNP transistors. Can't harm devices or circuits. 4 1/2", 200 uA meter; battery powered circuit (less battery); 10-turn calibrate control; 3' test leads; rugged polypropylene case.

Kit IT-18, 4 lbs., mailable **24.95**

IT-18 SPECIFICATIONS — **D. C. Beta:** x1 range — 2 to 100, x10 range — 20 to 1000. **Out-of-circuit accuracy:** ±5%. **In-circuit accuracy:** Indicates good or bad (accuracy depends upon circuit being tested); **Icbo** (out-of-circuit only) — 0-5000 uA; **Icbo** (out-of-circuit only) 0-5000 uA; **diodes,** forward or reverse current — 0-5000 uA. **Power:** One standard "D" cell (not supplied). **Dimensions:** 9 3/8" W x 5 3/8" H x 9" D (overall).

Ⓟ Lab transistor checker...69.95

Provides complete DC analysis of PNP & NPN transistors. Checks transistors up to 15 amps and diodes up to 1.5 amps.

Kit IM-36, 9 lbs., mailable **69.95**

IM-36 SPECIFICATIONS — **Meter:** Current Ranges: 15 uA, 150 uA, 1.5 mA, 15 mA, 150 mA, 1.5 A, 15 A. **Voltage Ranges:** 1.5 V, 5 V, 15 V, 50 V, 150 V (100 K ohm/volt). **Power supply:** Internal, seven 1.5 volt size D batteries (not supplied) provide 1.5, 3, 4.5, 6, 7.5, 9 volts collector supply for gain or leakage and 1.5 volts for bias. **External,** 0-50 volts for gain, 0-150 volts for leakage and 0-5 volts for bias. **Bias control.** Permits any collector current from 10 uA to 15 amps for gain tests. **Gain control:** 3% wire-wound control has calibrated scales to give DC Beta directly when meter is at null. **Lever switch:** Four spring return levers will individually select the following tests: Base Current, Gain, Collector Voltage, Collector Current, Leak Voltage, Short Test, Icbo and Icco and diode currents. **Two voltage selector switches:** Gain and Leak Test Voltages can be individually present at different voltage levels. **Two current range switches:** Collector and Leak currents can be individually preset on different adjacent ranges. **Transistor and diode connections:** Universal transistor socket and binding posts. **External power supply connections:** Binding posts for Gain, Leak and Bias supplies. **Dimensions:** 5 1/2" H x 10 3/4" W x 10 1/4" D.

Ⓜ Mutual-conductance tube tester...199.95

Features ultra-sensitive grid current test; constant-current heater supplies; built-in calibration circuits; roll-type tube data chart and adapter for testing compactron, novistor, novar, and 10-pin miniature tube types.

Kit TT-1A, 33 lbs., mailable **199.95**

TT-1A SPECIFICATIONS — **Power requirements:** Voltage: 105-125, 60 Hz AC. **Watts:** 10-60. **Testing circuits:** GM: mutual conductance for amplifiers, 0-24,000 micromhos. **Emission:** rectifiers & diodes. **Leakage:** direct reading ohmmeter. **Grid current,** 1/4 microampere sensitivity. **Voltage regulators:** firing voltage and regulation tolerance. **Low power thyatrons:** grid characteristics, conduction capabilities. **Eye tubes:** control grid characteristics. **Line voltage adjustment:** Continuously variable. **Roll chart mechanism:** Constant tension illuminated. **Dimensions:** Cabinet (outside): 17 3/4" W x 13 1/2" H x 8" D. Panel & chassis: 17" W x 12 3/4" H x 5 1/2" D.

Ⓝ Visual-aural signal tracer...24.50

Traces RF, IF, and audio signals with switched RF/audio probe. Noise locator circuit spots noisy and intermittent parts in vacuum tube circuits. Built-in speaker for aural indication; "eye" tube for visual checks. Built-in high gain amp helps check cartridges, tuners, microphones and other "pick-ups." Includes probe and leads. Use on 120 VAC, 50-60 Hz.

Kit IT-12, 6 lbs., mailable **24.50**

IT-12 SPECIFICATIONS — **Power Supply:** Transformer operated. **Power requirements:** 105-125 V AC 50/60 Hz. 25 watts. **Tube complement:** 12AX7, 12CA5, 1629. **Speaker:** 3 1/2" PM. **Probe and test leads:** 4' input lead for RF and audio with switch on probe body, 2-3' panel test leads with alligator clips. **Dimensions:** 4 1/2" W x 7 1/2" H x 4" D.

Ⓞ Capacitor checker...39.95

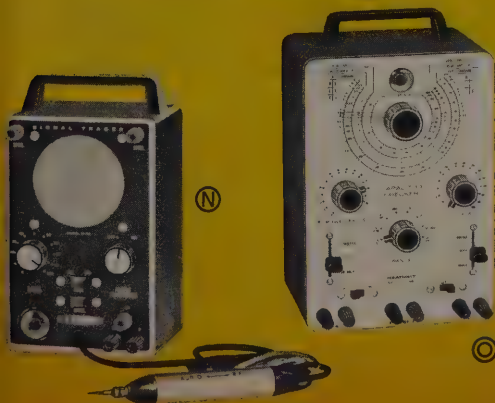
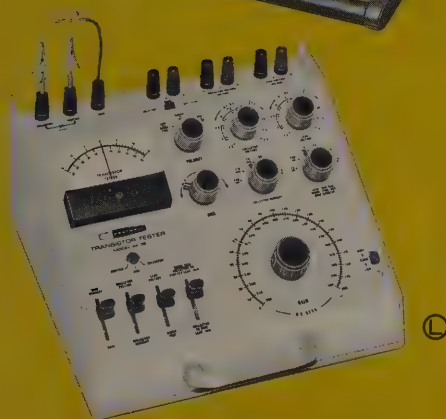
Complete analysis of capacitors and more. Direct reading scales, no calculations. Measures capacitance from 10 pF to 1,000 uF in 4 ranges. Tests leakage in 16 steps from 3 to 600 V. (low bridge voltage for safe tests of miniature electrolytics). Measures resistance from 5 ohms to 50 megohms in 3 ranges. Comparator circuit measures unknown L, C or R with external standard, max. ratio 25 to 1. Calibrated power factor control. "Eye" tube null & leakage indicator.

Kit IT-28, 7 lbs., mailable **39.95**

IT-28 SPECIFICATIONS — **Test Circuit:** AC bridge, powered through special bridge transformer by the 50/60 Hz supply or by an external audio generator with 10 volts output. **Upper frequency limit:** 10 kHz. **Capacitance:** 4 Ranges: 10 pF to .005 uF; .001 uF to .5 uF; .1 uF to 50 uF; 20 uF to 1000 uF. **Capacitor leakage:** DC test voltages from 3 to 600 volts in 16 steps. **Resistance:** 3 Ranges: 5 ohms to 5000 ohms; 500 ohms to 500 K ohms; 50 K ohms to 50 megohms. **Comparator circuit:** External standard R, L, or C; max. Ratio 25-1. **Power Supply:** Transformer-operated, half-wave rectifier. **Power requirements:** 105-125 V or 210-250 V AC, 50/60 Hz, 30 watts. **Dimensions:** 9 5/8" H x 6 5/8" W x 5" D.

NEW SUBSCRIPTION SERVICE FOR REPLACEMENT TUBE DATA ROLL CHARTS

Updated replacement roll charts for all Heathkit tube checkers can be purchased either singly or on a subscription basis which assures a new roll chart plus two supplements per year. Prices are \$3.50 per chart; \$5.00 for the new chart plus two supplements during the following year. Write to: Heath Tube Data Service, P.O. Box 377, Hewlett, Long Island, New York 11557.



High performance, budget-priced supplies for every lab or bench

Solid-state 1-15 VDC regulated supply . . . 21.95

Ideal for transistor work, has regulated, adjustable voltage with current limiting, programming; "floating" outputs for positive or negative grounding. (Requires VOM for adjustment.)

Kit IP-18, 5 lbs., mailable **21.95**

IP-18 SPECIFICATIONS—Voltage output: 1-15 VDC, continuously adjustable. Load regulation: 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: 105-125 or 210-250 VAC, 50/60 Hz, 15 watts at full load. Dimensions: 5½" W x 4¾" H x 5¾" D. Programming: AC or DC, 5000 ohm input resistance.

1-30 VDC solid-state regulated supply . . . 49.95

Delivers up to 30 VDC at 1 amp with less than 50 mV variation and less than 20 mV using Remote Sensing. Two continuously variable, switch-selected voltage ranges (1-10 VDC & 1-30 VDC).

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. Line regulation: Less than 20 mV variation from no load to full load at front or rear panel terminals when using remote sensing. Current limiting: Adjustable from 10 mA to over 500 mA. Transient response: 25 microseconds. Output impedance: 5 ohm 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: 105-125 or 210-250 VAC, 50/60 Hz, 50 watts, at full load. Dimensions: 10¾" W x 4¾" D x 6½" H overall.

Variable 0-400 VDC regulated supply . . . 69.95

Separate filament & high voltage transformer permit switching all high voltages off while changing test circuit. Separate meters for simultaneous observation—voltmeter can be switched to monitor bias. AC & DC outputs isolated from ground and each other (¾" spacing).

Kit IP-17, 21 lbs., mailable **69.95**

Assembled IPW-17, 19 lbs., mailable **110.00**

IP-17 SPECIFICATIONS—Output: 0-400 volts regulated DC at 0-100 mA cont., 125 mA intermittent, 0 to -100 volts DC at 1 mA variable bias voltage, 6.3 volts AC at 4 amps., 12.6 volts 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 V AC 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: 105-125 V or 210-250 V, 50/60 Hz, 150 watts max. Dimensions: 5½" H x 13¾" W x 11" D.

Solid-state 0.5-50 VDC regulated supply . . . 79.95

Provides regulated DC voltage, output current limiting. Panel meter switches from voltage to current. Relay protected from short circuits & overloads. For higher outputs, connect several IP-27 supplies in series or parallel.

Kit IP-27, 16 lbs., mailable **79.95**

Assembled IPW-27, 14 lbs., mailable **125.00**

IP-27 SPECIFICATIONS—Input: 105-125 volts or 210-250 volts, 50/60 Hz; 135 watts at full load (50 V, 1.5A). Output: 0.5-50 volts DC; 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 microvolts. Transient response: Less than 25 microseconds. Output impedance: Less than .075 ohms from DC to 10 kHz, less than .3 ohms 10 kHz & up. Overload protection: Current limiter & relay. Meter: 3½", 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: 5½" H x 13¾" W x 9" D.

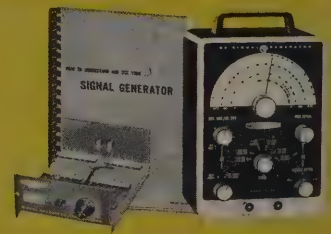
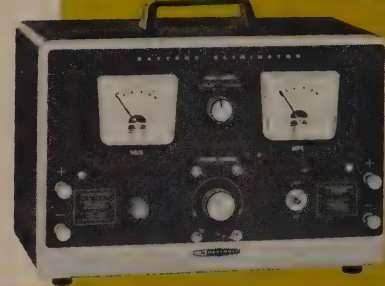
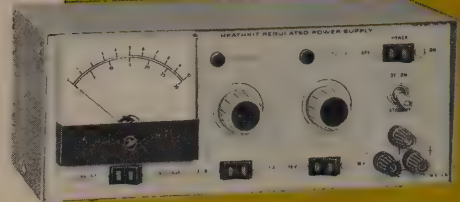
6 & 12 VDC variable battery eliminator . . . 59.95

Switches to 6 or 12 VDC. Has separate filtered & unfiltered outputs, low AC ripple, separate voltage & current meters.

Kit IP-12, 18 lbs., mailable **59.95**

Export model available for 115/230 VAC, 50-60 Hz; write for prices.

IP-12 SPECIFICATIONS—Continuously variable output: 6 volt range: unfiltered, 10 amp continuous, 15 amp maximum; filtered, 5 amp continuous, less than .3% ripple. 12 volt range: unfiltered, 5 amp continuous, 7.5 amp maximum; filtered, 5 amp continuous, less than .3% ripple. Power requirements: 105-125 volts 50/60 Hz AC at 200 watts. Dimensions: 13" W x 8½" H x 7" D.



How to understand & use your vacuum tube voltmeter

Learn theory, advantages & applications of the VTVM. Special power supply & text lets you learn-by-doing. For beginner or professional.

Kit EF-1, text and special 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 & 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 & parts, 4 lbs., mailable **11.95**

Manuals Only for EF-2, (single copy) **\$5.00**;

(10 or more) ea. **3.00**

How to understand & use your signal generator

Text covers theory, function, and use of RF and AF generators. Textbook a valuable reference.

Kit EF-3, text and special test chassis & 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**

the maxi-rig



SB-102 **389⁹⁵**



SB-220 **369⁹⁵**

Desk mike

High Z dynamic mike for SB-series gear. Grip-to-talk switch w/ lock. Wiring diagrams & cables incl.

HDP-21A, 4 lbs., mailable . . . **32.95**

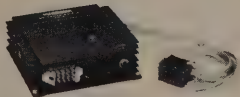
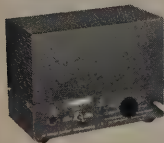


Fixed and mobile power supplies

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 $\pm 10\%$. 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 $\pm 10\%$, (Low tap) 275 VDC, no load, 250 VDC @ 100 mA, $\pm 10\%$. Less than .05% AC ripple @ 150 mA, continuous duty to 175 mA. Fixed bias: -130 VDC $\pm 10\%$, no load; -100 VDC @ 20 mA. Adjustable bias: -40 to -80 VDC @ 1 mA 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.



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 1/4" L x 2 3/8" D. All voltages referenced at 13 VDC.

The world-famous Heathkit SB-102/220 combo

Heathkit SB-102 80-10M Transceiver... \$389.95

Improved stability & dial linearity. An all solid-state LMO provides better stability & linearity . . . stabilizes in half the time, and tracks more accurately than any other rig on the market. **Improved receiver.** "102" delivers a (S+N)/N ratio of less than 0.35 uV for 10 dB . . . an increase that gives you solid copy longer. **Additional features:** front panel selection of built-in 2.1 kHz SSB or optional 400 Hz crystal filters; built-in CW side-tone; built-in VOX; full coverage of 10 meters; complete metering facilities.

Kit SB-102, 24 lbs., mailable **389.95**

Kit SB-600, 8 ohm desk speaker, matches SB-Series gear; provides mounting space for AC supply, 7 lbs., mailable **19.95**

SBA-301-2, optional 400 Hz CW crystal filter, 1 lb., mailable **21.95**

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 **17.95**

SB-102 PARTIAL SPECIFICATIONS — RECEIVER SECTION — SSB selectivity: 2.1 kHz min. at 6 dB down, 5 kHz max. at 60 dB down — 2:1 nominal shape factor — 6:60 dB. **CW selectivity:** (With optional CW filter) 400 Hz min. at 6 dB down, 2.0 kHz max. at 60 dB down. **Output impedance:** 8 ohm & high impedance. **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 PEP 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 to 75 ohms with less than 2:1 SWR. **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. **RF compression:** (TALC): 10 dB or greater at 0.1 mA final grid current. **GENERAL — Frequency stability:** Less than 100 Hz per hour after 10 minutes' warm-up. Less than 100 Hz for $\pm 10\%$ line voltage variations. **Modes of operation:** USB, LSB, CW. **Dial resetability:** Within 200 Hz, all bands. **Electrical dial accuracy:** Within 400 Hz after calibration at nearest 100 kHz point. **Dial mechanism backlash:** Less than 50 Hz. **Calibration:** 100 kHz crystal. **Size:** 14 7/8" W x 6 5/8" H x 13 3/8" D.

Heathkit SB-220 2kW linear . . . 369.95

A complete 2kW rig in a compact desk-top unit. A pair of Eimac 3-500Z's in grounded grid provides up to 2000 watts PEP SSB input . . . a full 1 kW input on both CW and RTTY. Broadband pretuned pi-input delivers maximum efficiency with low distortion over 80 thru 10 meters. Requires only 100 watts drive.

Solid-state power supply can be wired for either 120 or 240 VAC. Circuit-breaker protection. Zener diode regulated bias reduces idling current for cooler running, extended tube life.

Fast, easy tune-up . . . set band-switch, push CW-Tune/SSB rocker switch to CW-Tune position, adjust Tune & Load controls for max. 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 prevent overdriving . . . front panel switch-selected monitoring of grid current, relative power and high voltage; easy 20 hour assembly.

Stop stumbling barefoot thru the QRM. Get your SB-220 now.

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:** 14 7/8" W x 8 1/4" H x 14 1/2" D.



The famous Heathkit "DX Maxi-Rig"... "303," "401" & "200"

Heathkit SB-303... 319.95

- 27 transistors, 1 IC on 8 plug-in circuit boards
- Receives USB, LSB, AM, CW & RTTY, 80-10 meters
- 15 MHz reception

Advanced design. Dual Gate MOSFET front end provides greater dynamic range with low distortion . . . gives you the sensitivity you need to copy weak signals without danger of overloading on very strong ones. RF Attenuator adjusts for optimum signal handling capability.

All solid-state circuitry employing the latest in techniques and devices delivers instant warmup, 100 Hz stability in 10 minutes and superior tracking. The exclusive Heath solid-state LMO with 1 kHz dial readout is factory assembled and aligned.

Compare the performance features. The new "303" offers as standard the features and versatility required for today's operations, yet most other receivers offer only endless (and costly) options. The new "303" gives complete SSB/CW transceive compatibility with the famous "400" or "401". Three position AGC (off, fast & slow). New 25 kHz and 100 kHz crystal calibrator lets you spot the new subbands quickly, easily, without interpolation and error.

New construction techniques. Point-to-point wiring has been virtually eliminated with the use of wiring harnesses. All eight circuit boards plug-in . . . and the special extender boards supplied enable you to bring a board out of the compact chassis to check readings while the "303" is operating.

Compare the specs. What really counts in any receiver is solid all-around performance under varying conditions . . . and the "303" has the specs to deliver. Sensitivity . . . less than a *quarter of a microvolt for 10 dB S+N/N!* Selectivity . . . 2.1 kHz on SSB. Image Rejection: 60 dB or more. IF Rejection: 50 dB or more. Compare the "303" against the competition.

Kit SB-303, 21 lbs., mailable **319.95**

SBA-301-1, optional 3.75 kHz AM crystal filter, 1 lb., mailable . . . **22.95**

SBA-301-2, optional 400 Hz CW crystal filter, 1 lb., mailable **21.95**

Kit SB-600, 8 ohm speaker, 7 lbs., mailable **19.95**

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 per hour after 10 minutes warmup under normal ambient conditions. Less than 100 Hz drift for $\pm 10\%$ line voltage variation. Frequency Selection: Built-in Linear Master Oscillator. Modes of Operation: SSB, CW, AM, RTTY. Sensitivity: Less than 0.25 μ V for 10 dB S+N/N for SSB operation. Overall Gain: Less than 1.5 μ V 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 μ V equivalent signal input. Temperature Ranges: 10°C to 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 to 2450 Hz nominal at 6 dB. CW (with accessory filter) — 800 to 1200 Hz nominal at 6 dB. AM (with accessory filter) — 200 to 3500 Hz nominal at 6 dB. RTTY — 1840 to 3940 Hz nominal at 6 dB. Audio Output Impedance: Speaker — 8 ohm. Headphones — Low impedance. Audio Output Power: 4 watts at less than 10% distortion. Muting: Open external ground at Mute socket. Power Requirements: 120/240 VAC, 40 watts 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; VFO out; CW shift; four spare sockets; 3-wire line cord socket; accessory socket, VHF Converter, +15 VDC @ 25 mA, switched. RTTY Keyboard. Cabinet Dimensions: 12 $\frac{1}{4}$ " W x 6 $\frac{5}{8}$ " H x 13" D. Overall Dimensions (with knobs & feet installed): 12 $\frac{1}{4}$ " W x 7 $\frac{1}{8}$ " H x 14" D.

Heathkit SB-Series Communication Speaker

Fixed-station "speaker" facilities in handsome SB-series styling.

Complete your SB-Series station with this complementary communication speaker. The SB-600 provides 8 ohm impedance to match audio output of Heathkit SB-Series and HW-Series equipment. Audio response 300 to 3000 Hz for optimum reproduction. And for Heathkit Transceiver owners, it provides mounting enclosure for the "remote" HP-23A power supply. Cabinet size is identical to SB-610, SB-620, etc. . . . 10" W x 6 $\frac{1}{2}$ " H x 10 $\frac{1}{2}$ " D.

Kit SB-600, 7 lbs., mailable **19.95**

SB separates



Heathkit® SB-401 SSB Transmitter...299.95

Covers 80-10 meters; USB, LSB & CW. Single front panel switch selects transceiver or independent operation of "401" and 300-series receiver. Usable with any receiver when optional SBA-401-1 crystal group is installed. Built-in 120/240 VAC power supply.

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 watts CW, 180 watts P.E.P. SSB. Power output: 100 watts (80-15 meters), 80 watts (10 meters). Output impedance: 50 to 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 per 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). Electrical dial accuracy: Within 400 Hz after calibration at nearest 100 kHz point (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 watts STBY, 260 watts key down @ 120/240 V AC, 50/60 Hz. Dimensions: 14 $\frac{1}{8}$ " W x 6 $\frac{3}{8}$ " H x 13 $\frac{3}{8}$ " D.

Heathkit SB-200 1 kW amplifier... 220.00

Provides 1200 W PEP SSB input, 1000 W CW. Built-in solid-state power supply with circuit breaker protection. Metering for SWR, grid current, plate current, relative power, plate voltage. ALC output. Shielded, fan-cooled amplifier compartment. Pretuned cathode input circuit for maximum efficiency and low distortion.

Kit SB-200, 50 lbs., mailable **220.00**

SB-200 SPECIFICATIONS — Band coverage: 80, 40, 20, 15 & 10 meters. Maximum power input: 1200 watts P.E.P. SSB, 1000 watts CW. Driving power required: 100 watts. 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 watts P.E.P. Output impedance: 50 to 75 ohm unbalanced; variable pi-output circuit. SWR not to exceed 2:1. Input impedance: 52 ohm unbalanced; broad-band pretuned input circuit requires no tuning. Meter functions: 0-100 mA grid current, 0-1000 mA plate current, 0-1000 relative power, 1:1 to 3:1 SWR, 1500 to 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 volts AC @ 16 amperes (max.), 240 volts AC @ 8 amperes (max.). Cabinet size: 14 $\frac{1}{8}$ " W x 6 $\frac{3}{8}$ " H x 13 $\frac{3}{8}$ " D.

SB-620 "Scanalyzer" permits monitoring large segments of spectrum...makes it easy to spot openings. Narrow sweep widths of 10 & 50 kHz permit single signal analysis. Operates with virtually all receiver IF's.

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

SB-630 station console...actually 4 control/monitor units in one. Digital 24-hour clock reads hours, minutes, seconds. Built-in SWR bridge for proper matching. Phone patch; automatic, resettable 10-minute timer.

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

SB-610 signal monitor accurately displays transmitted AM, CW, RTTY & SSB signals 160 thru 6 meters, 15-1000 watts. Displays signal envelope, AF & RF trapezoid patterns; 2-tone test oscillator built-in.

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



Most popular low cost rig on the market!

The Heathkit HW-101 Transceiver...249.95

Sensitivity better than 0.35 uV for 10 dB S+N/N from refinements in the receiver. Image and IF rejection are better than 50 dB.

36-to-1 knob to dial ratio in a new ball bearing drive mechanism delivers 34 smooth revolutions per 500 kHz band segment. Couple this with new preselector circuitry and thermal stabilized FET VFO with 5 kHz readout and you get rock-solid drift-free tuning from 80 through 10 meters. And the built-in 100 kHz crystal calibrator and zero reset button provide accurate, stable calibration.

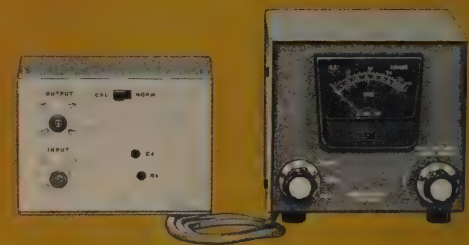
Front-panel, crystal filter selection. The optional SBA-301-2 crystal filter installs in minutes, giving the HW-101 the same remarkable two-way capability provided by its big brother, the Heathkit SB-102! CW filter offers razor sharp 400 Hz selectivity. Built-in SSB crystal filter delivers 2.1 kHz selectivity at 6 dB down.

Order your HW-101, today! Or send for a free specification sheet. Learn how Heath's taken its venerable HW-100 one step further!

- Kit HW-101, 21 lbs., mailable **249.95**
- 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 CW crystal filter, 1 lb., mailable **21.95**
- SBA-100-1, mobile mount, 6 lbs., mailable **17.95**
- Kit HS-24, mobile speaker, 4 lbs., mailable **8.95**

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 side-tone: 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: 14 3/8" W x 6 5/8" H x 13 3/8" D.

*Triple Action Level Control



Heathkit Wattmeter SWR Bridge...just 29.95

The most versatile shack accessory you can buy. With the HM-102, there's no doubt about proper operation or tune-up. Two switch-selected ranges allow measurement of RF output from 10-200 and 100-2000 W... built-in calibrator gives 10% accuracy from 80-10 M. Built-in SWR capability for proper tune-up, transmission line to antenna Z matching... ideal for antenna experimenters. Negligible loss for permanent insertion into 50 ohm line. Remote detector permits placement of meter in any convenient location. (6 ft. of cable supplied.)

Kit HM-102, 4 lbs., mailable **29.95**

HM-102 SPECIFICATIONS — Frequency range: 1.8 to 30 MHz. Wattmeter accuracy: ±10% of full-scale reading. Power capability: 10 to 2000 watts. Impedance: 50 ohms nominal. Connectors: UHF type S0-239. Dimensions: 5 1/4" W x 5 1/4" H x 6 1/2" D.

HW transceivers



SB gear that goes with you!

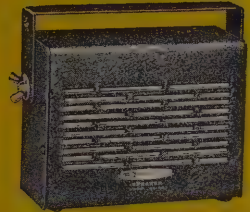
80, 40, & 20 meter "Single-Banders"...119.95

An economical base station, an unbeatable portable! Here's the SSB transceiver that made single-band operation so popular. Choose either 80, 40 or 20 meter version, providing 200 W P.E.P. input SSB. Use your "Single-Bander" in either fixed or mobile installation with the appropriate power supply (HP-23A or HP-13A).

Compact, highly functional design! Front panel has microphone input and gain control, as well as bias adjustment for fast changeover from fixed to mobile operation. Function switch position controls the optional HRA-10-1 crystal calibrator. Compatible 11-pin power plug accommodates HP-13A and HP-23A power supplies. Receiver has 10-tube super-heterodyne with μV sensitivity, 2.7 kHz selectivity, and a slow AVC action for optimum SSB reception. Transceiver circuitry provides stable, smooth tuning with temperature-compensated 1.5 through 1.8 MHz VFO. High quality crystal lattice filter produces identical tuning characteristics for both upper and lower sideband signals — for clean transmitted signals with the carrier and unwanted sideband at least 45 dB down. Kit assembles easily — 90% of the components mount on circuit board, pre-cut wiring harness handles the remainder. Order your Heathkit "Single-Bander", today!

- Kit HW-12A**, 80-meter, 15 lbs., mailable **119.95**
- Kit HW-22A**, 40-meter, 15 lbs., mailable **119.95**
- Kit HW-32A**, 20-meter, 15 lbs., mailable **119.95**
- GH-12A**, Push-to-talk and VOX microphone, 1 lb., mailable **9.95**
- 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**
- Kit HS-24**, Mobile speaker, 4 lbs., mailable **8.95**

SPECIFICATIONS — RF input: 200 watts PEP. Sideband generation: Crystal lattice band pass 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 amps., Xmtr. 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 $\frac{1}{2}$ " H x 12 $\frac{1}{4}$ " W x 10" D.



Mobile push-to-talk mike

A tough, high impedance ceramic microphone ideally suited for the rugged conditions often found in mobile work. Forest green color matches SB- and HW-series gear. Includes cable, less connector.

- GH-12A**, 1 lb., mailable **9.95**

Compact, rugged mobile speaker

A sturdy 8-ohm mobile speaker in a tough steel forest green cabinet that matches the rest of the HW- and SB-series line. Handy gimbal mount included. Fits almost anywhere ... measures just 6 $\frac{1}{2}$ " W x 4 $\frac{3}{4}$ " H x 2 $\frac{1}{2}$ " D.

- Kit HS-24**, 4 lbs., mailable **8.95**

The incomparable HW-16 CW rig...99.95

The most popular CW operation on the air ... and the reasons are clear. Provides ideal CW operation on the first 250 kHz of the 80, 40 & 15 M bands, with the true break-in capability. Adjustable input, 50-90 watts. Two front-panel sockets for crystals; optional HG-10B (p. 72) gives VFO transmit capability. Tunable receiver with crystal filter for razor sharp 500 Hz selectivity and hot sensitivity of less than 1 μV . Dual conversion RF amp. Built-in sidetone. Gridblock keying — ideal for use with HD-10 keyer (p. 73). Requires VTVM for alignment. Join the legions of HW-16 fans ... today!

- Kit HW-16**, 25 lbs., mailable **99.95**

HW-18 CAP SSB transceiver...119.95

Provides 200 W SSB input, 40 W with carrier for AM compatibility. 0.005% frequency tolerance. Two crystal-controlled channels. 2.1 kHz selectivity; 0.5 μV sensitivity; 50 ohm output. PTT mike, speaker & mobile mount included. Requires VTVM & dummy load for alignment. Uses HP-13A or HP-23A power supplies, p. 67.

- Kit HW-18-1**, w/crystals for two channels, specify from list below, 16 lbs., mailable. **119.95**

- Assembled HWW-18-1**, w/crystals for two channels. Specify from list below, 16 lbs., mailable. **179.95**

- CAP Crystals:** 4406.0, 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**



A winning combination for the beginning amateur!

Ⓐ The HR-10B receiver — 5-bands for a low 79.95

Ideal for the novice or beginning 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 lattice filter delivers sharp 3 kHz selectivity. 1 μ V sensitivity provides 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. Put yourself on the air with the best . . . for less. Order your HR-10B today.

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

Kit HRA-10-1, plug-in 100 kHz crystal calibrator, 1 lb., mailable **9.95**

HR-10B SPECIFICATIONS — Frequency coverage: 80 through 10 meters. If frequency: 1681 kHz. Sensitivity: 1 μ V for 10 dB signal-to-noise ratio. Image rejection: 40 dB or better. Selectivity: 3 kHz at 6 dB, 9 kHz at 40 dB. Input impedance: 50 to 75 ohm, coaxial. Audio output impedance: 8 or 500 ohm. Tube complement: 6BZ6, (2) 6EA8, 6BA6, 6BJ7, 6EB8, 6X4. Power requirements: 120/240 V. AC, 50/60 Hz, 50 watts. Dimensions: 13 $\frac{3}{4}$ " W x 11 $\frac{1}{2}$ " D x 6 $\frac{1}{2}$ " H.

Ⓑ The Heathkit DX-60B transmitter — phone & CW capability for 79.95

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. Get on the air with a rig that'll last you a lifetime . . . order your DX-60B now.

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 V. AC, 50/60 Hz, 225 watts. Dimensions: 13 $\frac{3}{4}$ " W x 11 $\frac{1}{2}$ " D x 6 $\frac{1}{2}$ " H.

Ⓒ The famous HG-10B — lets you work VFO on 80 thru 2 for 49.95

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.

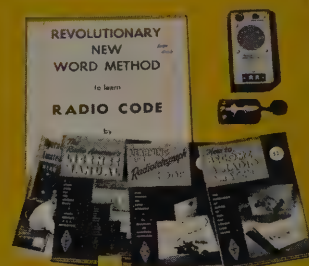
Kit HG-10B, 12 lbs., mailable **49.95**

HG-10B SPECIFICATIONS — Band coverage: 80 through 2 meters with output frequency in the 3.5 to 4 MHz, 7 to 7.425 MHz, and 8 to 9 MHz ranges. Load impedance: 50,000 ohms or more. Output voltage: 5 volts RMS, open circuit. Output connector: Phono-type socket. Power requirements: 108 volts DC at 25 ma & 6.3 VAC or DC at 0.75 ampere. Power available directly from the DX-60 series (thru "B" model) and HW-16. Dimensions: 9 $\frac{3}{8}$ " W x 6 $\frac{1}{2}$ " H x 9 $\frac{1}{8}$ " D.



Code practice oscillator. Unijunction transistor with separate controls for tone & volume. Built-in speaker; headphone jack. Blinker light for visual monitoring. Includes key, phone plug, cord. Uses 2-9V & 1 "C" batteries, not supplied.

Kit HD-16, 3 lbs., mailable **9.95**



Ham Starter Group. Give these to your youngsters—Group includes 4 ARRL handbooks, HD-16 code practice oscillator, 3 code-teaching records.

HDP-22, all above, 6 lbs., mailable **18.95**

HDP-32, records only, 3 lbs., mailable . . . **9.50**

HDP-42, books only, 2 lbs., mailable . . . **2.50**

Kit HD-16, osc. & key, 3 lbs., mailable . . . **9.95**



Amateur's Handbook. Favorite of thousands of hams & engineers for reliable, up-to-date info on radio communications & electronics. Covers theory, construction and operation of HF, UHF, FM and SSB equipment.

HDP-293, 3 lbs., mailable **4.50**

Valuable appointments for the ham's shack!

Ⓐ Solid-State Keyer

15-60 or 10-20 wpm. Solid-state switching. Right or left hand operation, adjustable paddle. Variable dot-space ratio. Adapts to semi-auto operation. Built-in sidetone & speaker. Built-in transformer supply isolates keyer; fused. Grid-block keying only for -105V @ 35 mA max.

Kit HD-10, 6 lbs., mailable **39.95**

Ⓑ Phone Patch

Has separate gain controls for receiver-to-line & line-to-transmitter audio. VU meters monitor audio level & null depth. 30 dB isolation between transmit & receive circuits. Matches 3-16 ohm speaker & hi-Z or 600 ohm inputs. PTT or VOX operation.

Kit HD-15, 3 lbs., mailable **24.95**

Ⓒ VHF "Lunch Box"

The fastest way to VHF. Crystal controlled 5-watt AM transmitter with tunable super-regen rcvr. with RF stage. 1 μ V sensitivity. Can operate on 143.28 Coast Guard Aux. freq. Ceramic mike included.

Kit HW-30, 2M, 9 lbs., mailable **49.95**

Ⓓ "Antenna"

A valuable shack addition. Provides 50 ohm non-inductive load with less than 1.5 SWR to 300 MHz. Coax fitting for transmitter; phono plug for rel. pwr. measurements. 1 gal. oil coolant capacity (oil not included) permits up to 1 kW power level.

Kit HN-31, 3 lbs., mailable **10.95**

Ⓔ Relative Power Meter

Frequency range 100 kHz to over 250 MHz. 0.3V rms sensitivity at antenna. Requires no power . . . operates from radiated signal. Magnetic base.

Kit PM-2, 2 lbs., mailable **12.95**

Ⓕ Crystal Calibrator

Provides a signal every 100 kHz thru 54 MHz. Ideal for alignment, dial calibration, etc. Trimmer permits zero-beat with WWV. Uses 9 V battery, not included.

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

Ⓖ Police, fire & weather receiver

Receives narrow and wide band FM—152-174 MHz—with 2.0 μ V sensitivity, excellent selectivity. Has 6 to 1 vernier tuning control, single channel crystal control. Adjustable squelch control quiets background noise. Features include solid-state design, battery operation for complete portability, carrying handle, built-in whip antenna, external antenna jack, rugged brown leatherette case, pre-assembled and aligned tuner to save building time.

Kit GR-88, 5 lbs., mailable **49.95**

Kit GRA-88-1, accessory AC power supply, 2 lbs., mailable **8.95**

Ⓖ Aircraft band receiver

Tunes aircraft band—108-136 MHz. Has all solid-state circuitry, complete portability, built-in whip antenna, brown leatherette case with handle/stand combination, 1.5 μ V sensitivity, sharp selectivity, vernier tuning, adjustable squelch control, single channel crystal control, external antenna jack, factory assembled and aligned tuner.

Kit GR-98, 5 lbs., mailable **49.95**

Kit GRA-88-1, accessory AC power supply, 2 lbs., mailable **8.95**

Ⓘ AC power supply for GR-88, GR-98

Fits inside case of either GR-88 or GR-98 portable monitors. Has line cord that plugs into 120 VAC household outlet. Saves the batteries for when you need them. Switch gives selection of "AC" or "BATT". Easily assembles in an evening.

Kit GRA-88-1, 2 lbs., mailable **8.95**



The world at your fingertips...

New Heathkit SW-717 solid-state 4-band SWL receiver...59.95

Continuous tuning from 550 kHz to 30 MHz in four bands . . . puts the entire world at your fingertips. Listen to exciting foreign broadcasts from around the globe . . . Europe, Asia, Central and Latin America. Check out the amateur radio operators in every country in the world as they enjoy their fascinating hobby. Listen in to ships at sea . . . hear informative weather reports. Easy slide-rule tuning and a log scale makes it simple to return to favorite spots on the dial. And when you're through roaming the world, turn the band selector switch and enjoy the informal sound of your own local AM stations.

Bandspread Tuning built-in . . . makes it easy to separate those closely spaced stations.

Tunes AM, CW at a flip of a switch! Has variable BFO for crystal-clear CW.

Extra convenience features . . . front panel headphone jack for private listening or connection of an external speaker. Has built-in speaker. Switchable Automatic Noise Limiting. Relative signal strength meter . . . built-in AM rod antenna plus connection for external SWL antenna.

Advanced solid-state design using the latest in techniques and devices assures top performance, easy assembly and long life. A dual gate MOSFET mixer stage provides greater signal handling capability and lower noise . . . ceramic IF filters give sharp selectivity and eliminate IF alignment forever . . . zener diode regulated oscillator power supply prevents pulling and drift. Assembly is fast and simple with the famous Heathkit manual . . . goes together in about 15 hours. For excellent shortwave listening at a modest price, order your new Heathkit SW-717 today.

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

Heathkit® 6-Band SWL Portable...129.95

A Highly Versatile General Coverage Receiver . . . for Shortwave Listeners who appreciate solid tuning . . . for hams who want a standby receiver they can depend on . . . for travelers and the "portable people" who want a radio that's ready to go when they are. The Heathkit GR-78 fills all these needs and many more — here's why.

190 kHz to 30 MHz Coverage In Six Switch-Selected Bands . . . hear intriguing foreign broadcasts, ships at sea, ham operators and your own local AM stations at the turn of a knob. The Bandspread Tuning makes it easy to separate closely spaced stations and it can be calibrated for either the shortwave broadcast or amateur bands. Select either AM or CW/SSB reception at a touch of the rocker-type switch. The switchable Automatic Noise Limiter cuts out annoying noise & static and makes your station easier to listen to, and to keep volume constant there's a switchable Automatic Volume Control. The SWL's

will like the built-in Relative Signal Strength meter and external antenna connection, and hams will appreciate the receive/standby switch, muting connection, headphone jack and built-in 500 kHz crystal calibrator. For the "portable people" there's 300 milliwatts of sound—enough for any beach party or rec room . . . and portable convenience—runs on its own rechargeable nickel-cadmium battery with built-in charger and has a built-in carrying handle and whip antenna. And the sharp Heath low profile styling in charcoal wrinkle finish has black, gray & chrome accents.

Advanced Solid-State Design And Easy Assembly. The GR-78 incorporates modern Field Effect Transistors to give it exceptional stability and sensitivity and contribute to its remarkable performance. Four ceramic IF filters deliver sharp selectivity and eliminate IF alignment forever. Four of the six circuit boards are the modular plug-in Switchboards® to speed the assembly and make maintenance easier.

Kit GR-78, 14 lbs., mailable **129.95**

Heathkit deluxe 9-band receiver...279.95

Our finest shortwave receiver . . . a communications-quality piece of gear for the serious SWL. Features 10 switch-selected bands; 49, 41, 31, 25, 19 & 16 meter shortwave . . . 11 meter CB . . . 80, 40 & 20 meter amateur. 5 kHz crystal filter supplied for excellent AM, CW & SSB reception.

Famous Heath SB-Series features . . . like true linear tuning with 1 kHz dial calibration from the assembled & aligned Linear Master Oscillator . . . rock-solid stability . . . built-in switch-selected automatic noise limiter . . . separate RF & AF gain controls . . . calibrated "S" meter

. . . separate diode (AM) & product (SSB/CW) detectors . . . built-in 100 kHz crystal calibrator . . . front panel headphone jack . . . easy 20 hour assembly with only a VTVM needed for alignment. For the finest shortwave listening money can buy, choose the superb SB-310.

Kit SB-310, less speaker, 24 lbs., mailable **279.95**

Kit SB-600, 8 oms, 6"x9" speaker & cab., 7 lbs., mailable **19.95**

SBA-301-2, deluxe CW filter, 1 lb., mailable **21.95**

SBA-310-1, SSB filter, 1 lb., mailable **23.95**

SBA-310-2, deluxe SSB filter, 1 lb., mailable **39.95**

SBA-310-3, 13 & 15M modification kit, 1 lb., mailable **9.95**

Our lowest priced shortwave receiver...29.95

Ideal for the beginning shortwave listener, the GR-81 features 4-band capability, from 140 kHz to 18 MHz. Bandspread tuning makes it easy to separate closely-spaced stations. Other features include external antenna connections; transformer-operated power supply; headphone jack; built-in speaker; green & beige metal cabinet.

GR-81 SPECIFICATIONS—Frequency coverage: 140 kHz to 18 MHz on four bands. **Tube complement:** 12AT7 Detector/1st Audio, 50GS Audio Output, 35W4 Rectifier. **Power requirements:** 105-125 V 50/60 Hz only, 30 watts. **Fused. Controls:** Main tuning (calibrated), Bandspread, Bandswitch, Regeneration, on/off volume, phone jack. **Dimensions:** 10" W x 7" H x 7" D.

Kit GR-81, 12 lbs., mailable **29.95**



shortwave receivers



SW-717 SPECIFICATIONS: Frequency Coverage: Band A—550 kHz to 1500 kHz. Band B—1.5 to 4 MHz. Band C—4 to 10 MHz. Band D—10 to 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; Bandsread 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 watts. Dimensions: 5 $\frac{3}{4}$ " H x 14 $\frac{1}{2}$ " W x 8" D.



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 to 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 mA 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 $\frac{1}{4}$ " H x 11 $\frac{1}{2}$ " W x 9" D.

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



SB-310 SPECIFICATIONS—Frequency range (Megahertz): 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; 26.9 to 27.4. Sensitivity: Less than 0.3 μ V for 10 dB signal-plus-noise to noise ratio for SSB operation. Selectivity: AM 5.0 kHz @ 6 dB down, 15 kHz max. @ 60 dB down (crystal filter supplied). CW, 400 Hz @ 6 dB down; 2.0 kHz max. @ 60 dB down (crystal filter available as an accessory). SSB, 2.1 kHz @ 6 dB down; 5.0 kHz max. @ 60 dB down (deluxe SSB crystal filter available as an accessory), or 2.1 kHz @ 6 dB down; 7.0 kHz max. @ 60 dB down (regular SSB crystal filter available as an accessory). Power requirements: 105-125 or 210-250 V AC, 50-60 Hz, 50 watts. Cabinet dimensions: 14 $\frac{7}{8}$ " W x 6 $\frac{5}{8}$ " H x 13 $\frac{3}{8}$ " D. External connections: Front panel: phones, antenna, mute 500 ohm audio output, speaker 8 ohm, hi-fi output, 1 spare socket, line cord socket. Tube complement: 10 tubes (13 functions). Diode complement: 8.

SWL accessories



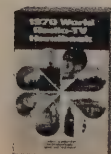
Long Wire Antenna. Includes a 75' long wire antenna with 30' of lead-in, all insulators & hardware.

GRA-72, 2 lbs., mailable2.95



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

GD-396, 1 lb., mailable4.50



SWL Guide. 1971 edition . . . lists worldwide SW, FM, TV stations, call signs, frequencies & addresses. 372 pages.

GDP-315, 2 lbs., mailable6.95

All together now — stereo phono plus AM radio wrapped in a “plum snakey” skin!

Generation gapper with big system sound! Introducing the new, delightfully wild Heathkit GD-111. The portable party-maker that 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, 33⅓, 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, 50 lbs., available. 109.95

GD-111 SPECIFICATIONS: AM TUNER: Tuning Range: 535-1620 kHz. **Intermediate Frequency (i-f):** 455 kHz. **Sensitivity:** Better than 75 microvolts per meter for 10 dB signal-to-noise ratio, or 200 microvolts per meter for 20 dB signal-to-noise ratio. Better than 300 microvolts per meter for rated output. **AMPLIFIER: Music Power:** 9 watts per channel.* **Continuous Power Output:** 4½ watts at 1.5% total harmonic distortion.** **Frequency Response:** ±3 dB from 20 Hz to 15 kHz. **Sensitivity:** 2 volts 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:** 105-125 volts, 60 Hz, 26 watts idling, 62 watts full output. **Dimensions (overall):** 14½” high x 24½” wide x 7½” deep.

*Rated EIA (Electronics Industries Association) standards.

**Rated IHF (Institute of High Fidelity) standards.

GD-109 stereo — a moving experience!

Component system sound 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 Model 55 4-speed changer, and two 4½” high-compliance speakers combine to reproduce a frequency range appreciably wider than is obtainable with other portables in the same size and price bracket.

Styled to move out with you! The GD-109 is as durable as it is good looking, with textured leather-like exterior that stands up to the rigors of travel. Changer folds down, speakers swing out and can be positioned up to 5’ away from cabinet for better stereo separation. Entire kit assembles in 5-7 hours.

Kit GD-109, 47 lbs., available. 84.95

GD-109 SPECIFICATIONS — CHANGER: Speeds: 16, 33⅓, 45 & 78 RPM. **Record Sizes:** 7”, 10” & 12”. **Stylus:** 0.7 mil diamond, 3 mil sapphire. **AMPLIFIER: Power output:** 18 watts, 9 watts per channel, EIA music power. **Frequency response:** ±3 dB, 30 Hz to 15 kHz. **Dimensions:** Overall, 14½” H x 7½” D x 24¾” W. **Power requirements:** 120 V, 60 Hz AC, 25 watts.

Budget-price stereo that picks up and goes!

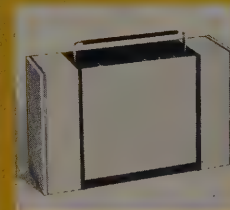
Features 4-speed changer for automatic or manual play, solid-state circuitry with ceramic cartridge and 4” x 6” speakers in “in-depth” cabinet for superior reproduction. Includes 45 rpm adapter spindle. Assembles in just 3-4 hours.

Kit GD-107, 38 lbs., available. 59.95

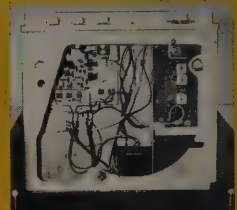
GD-107 SPECIFICATIONS — CHANGER: Speeds: 16, 33⅓, 45 and 78 RPM. **Record Sizes:** 7”, 10”, and 12”. **AMPLIFIER: Power output:** 3 watts, 1½ watts per channel EIA music power. **Frequency response:** ±5 dB 100 Hz to 10 kHz. **Speakers:** Two 4x6”, 25 ohm voice coils. **Dimensions:** 15” H x 8½” D x 25¾” W. **Power requirements:** 120 V, 50 Hz AC, 15 watts.



Speakers detach for stereo listening.



Changer tilts up for toting.



Easy-to-build 18-w amplifier.



portable radios

AM & FM to take along... Heathkit GR-17!

Heathkit AM-FM solid-state portable. Timely AM, easy-going FM — in a battery-powered portable that plugs-in too, with the optional 117 V. 60 Hz AC converter. Sensitive 12 transistor circuit; 4" x 6" speaker; prealigned AM-FM front end; 3 IF stages; tone control; built-in AM antenna; telescoping FM antenna; AFC on FM, AGC on AM; built-in phone jack & earphone; brown simulated leather case.

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 microvolts per meter for 20 dB signal-to-noise ratio. **FM SECTION: Tuning Range:** 88-108 MHz. **IF:** 10.7 MHz. **Sensitivity:** Better than 5 microvolts for 30 dB quieting. **Audio Output:** 350 mW. **Size:** 8³/₄" W x 6³/₄" H x 4" D.

The uncommon carrier... Heathkit portable AM!

Makes distant stations sound local... makes everything sound better. Goes where you go to keep you posted on the latest news, weather, ball scores... entertains with music. Its push-pull audio output stage puts out a husky 250 milliwatts for a clean, robust sound... even when battery voltage runs low. Its big 1/2" diameter ferrite rod antenna picks up stations miniatures can't get. Has a tuned RF stage with 3-gang tuning capacitor and double-tuned IF stage for extra sensitivity and selectivity.

Costs only 1/10th as much as miniatures to operate! Uses 6 long-lasting, inexpensive size "D" flashlight batteries (not included)... protected against corrosion by a plastic holder.

Makes a handsome companion with its black simulated leather case, chrome-finished frame and anodized aluminum grille. You'll find station tuning quick and easy... with two "thumb-touch" controls and a slide-rule dial. Easy to carry, too. Build in 4-6 hours.

Kit GR-24, 5 lbs. **29.95**

GR-24 SPECIFICATIONS — Tuning Range: 535-1620 kHz. **IF:** 455 kHz. **Sensitivity:** 50 uV/m for 10 dB signal-to-noise at 50 mW output. **Audio Output:** 250 mW. **Speaker:** 4" x 6" oval permanent magnet type. **Size:** 3³/₄" D x 8³/₄" W x 7" H.

A great kit to start with... GR-151B AM portable!

Ideal kit for first-time builders! The solid-state GR-151B has 6 transistor, 3 diode circuit for cool, instant operation; large 4" x 6" speaker for crystal clear tone; built-in ferrite rod antenna that picks up distant stations easily; smart, tan simulated leather case that stands up under rugged wear. Heathkit manual, supplementary theory of radio, and clearly marked circuit board give the novice a rewarding introduction to electronics.

Kit GR-151B, 4 lbs., mailable. **19.95**

10 travelling bands... Heathkit AM-FM-SW portable!

Listen in on the world... with the GR-43A. Ten bands let you hear AM, the clear bright music on FM or the fascinating sounds of an action-filled world on the shortwave bands. The all solid-state circuitry and built-in antennas for AM/Longwave and FM/Shortwave pull in stations from across the city or around the world with equal clarity. The 16-transistor, 6-diode circuit goes together easily on three circuit boards in about ten hours, and to make assembly even more enjoyable, there are 44 factory assembled & tuned circuits. Start tuning in on the world... with the handsome, portable GR-43A.

Kit GR-43A, 19 lbs., mailable. **159.95**

Model GRA-43-1, Converter/Charger for 117 v. 60 Hz AC, 1 lb. **6.95**

GR-43A SPECIFICATIONS — AM SECTION: Tuning Range: Longwave — 150-400 kHz. Broadcast — 550-1600 kHz. Shortwave — 2-4 MHz; 4-9 MHz; 31 M — 9.2-10.2 MHz; 25 M — 11.2-12.4 MHz. 19 M — 14.5-16.1 MHz; 16 M — 16.8-18.8 MHz; 13 M — 20.2-22.4 MHz. **Sensitivity:** At external antenna input for a 10 dB signal-plus-noise to noise ratio. Long Wave — 12 uv; Broadcast — 10 uv; 2-4 MHz — 5 uv; 4-9 MHz — 3 uv; 31 M — 3 uv; 25 M — 2 uv; 19 M — 2 uv; 16 M — 2 uv; 13 M — 2 uv. **Intermediate frequency (IF):** 455 kHz. **FM SECTION: Tuning range:** 88-108 MHz. **Sensitivity:** 1 1/2 uv for 20 dB of quieting; 2 uv for 30 dB of quieting; 3 uv for 40 dB of quieting. **Intermediate frequency (IF):** 10.7 MHz. **GENERAL: Audio output:** Normal: 500 mw; Battery Saver: 150 mw. **Speaker:** 4" x 6" oval; permanent magnet; 3.2 ohm voice coil. **Batteries:** 6 size D cells, 1 size C cell. (not supplied). **Dimensions:** 13 1/2" W x 5 1/8" D x 10 5/8" H including handle.



New, easy-to-read Heathkit Digital Depth Sounder!

- 3-digit illuminated numerals give instant, positive read out.
- Adjustable brightness for excellent visibility, even in direct sunlight.
- Measures to 200 feet in 2 automatically switched ranges.
- Shallow water warning light.
- Automatic noise rejection.
- Choice of thru-hull or transmount transducers.

End marginal readings! With the new Heathkit MI-101 Digital Depth Sounder, the captain knows the depth at a glance. Bright numerical display tubes and solid-state digital circuitry eliminate the need to interpret dials or meter scales. A dual-range scale has automatic switching to give depth from 1' to 19.9' in increments of .1'—from 20' to 199' in increments of 1'. A red warning light alerts you to shallow waters 10' or less.

One-control operation, rugged solid-state design! A single knob provides "on/off" control and light intensity adjustment for perfect visual display whether the unit's below deck or up on the bridge. Noise rejection is automatic. Gain control is automatic, too, for maximum sensitivity. The MI-101 utilizes 42 silicon transistors, 7 TTL integrated circuits, with a regulated power supply that maintains accuracy over a wide range of varying DC supply voltages. And, since there are no discs or motors, the MI-101 is completely silent in use.

Styled to set off any ship! Features a weatherproof, splashproof Cyclocac® case with blue and white finish accented by grey tinted plastic window that turns midnight black when the MI-101 is not in use. Order your Heathkit Digital Depth Sounder with permanent through-the-hull transducer or high speed transom mount. Kit assemblies in about 8 hours, includes 15' cable for through-hull installation, 25' for transom mount. Send for your MI-101 today, and ship out with the smartest sounder you can buy!

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

Kit MI-101-2, with transom transducer, 8 lbs., mailable **139.95**

MI-101-1 & 2 SPECIFICATIONS—Ranges: 1-19.9' and 20-199', automatically switched. **Sounding frequency:** 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 digits 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 6⅞" W x 8½" D (less gimbal hardware).

MI-19 Depth Sounder . . . just 79.95

Brings the bottom to the bridge. The Heathkit Depth Sounder shows depth down to 200 ft. Shows varying terrain and vegetation. Detects and gives separate read-out for underwater floating logs and similar obstacles. Even spots schools of fish!

Dependable solid-state circuitry gives the MI-19 maximum reliability with minimum power drain. There's an Adjustable Sensitivity Control that lets the skipper set the sounder for maximum signal strength without extraneous echoes. Heath's exclusive built-in Noise Rejection circuit permits installation of the transducer close to the engine without ignition interference. The MI-19 can be powered by ship's 12 VDC system or an external 12 VDC lantern battery.

Seaworthy design includes such features as the sun-shielded calibrated dial, corrosion-resistant metal cabinet, stainless steel hardware, waterproof transducer with marine brass fittings. You choose either thru-hull transducer for permanent large-boat installation, or high-speed transom-mount transducer for smaller craft. Either transducer adaptable to cofferdam installation.

Kit MI-19-1, with through-hull transducer, 6 lbs., mailable **79.95**

Kit MI-19-2, with transom transducer, 8 lbs., mailable **79.95**

MI-19-1 & -2 SPECIFICATIONS — Range: 0 to 200 feet on hard bottom. **Sounding Rate,** 1440 per minute or 24 per second. 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. **Transistor and diode complement:** 9 transistors, 5 diodes. **Power requirements:** 120 milliamperes at 12-14 VDC with one return pulse. **Dimensions:** 6⅞" W x 5⅝" H x 5¼" D.



High speed transom mount for installation on outboards and smaller craft.



Through-hull transducer is ideal for permanent depth sounder installation on larger boats.





Finders-keepers... with the Heathkit Fish Spotter... just 89.95

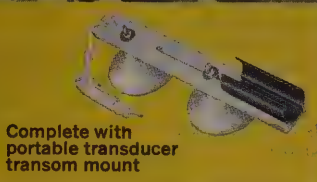
It's the best value in electronic fishing. No other fish spotter on the market offers so much at such a low price. The Heathkit MI-29 gives the discerning angler all the features he looks for in spotters costing twice as much. It is capable of detecting schools or individual fish, indicating underwater terrain type, reading depth to 200 ft. Designed for carefree operation under the most demanding conditions and it's housed in a weatherproof all-metal case.

"Stow-and-go" portability. Completely self-contained, the Heathkit Fish Spotter is powered by two 6-volt DC lantern batteries — available almost anywhere — and it utilizes solid-state circuitry for minimum drain. Cells last up to 80 hours in normal use. Portable transducer can be suspended over the side of the boat, or quickly installed on the hull with the suction-cup mount supplied.

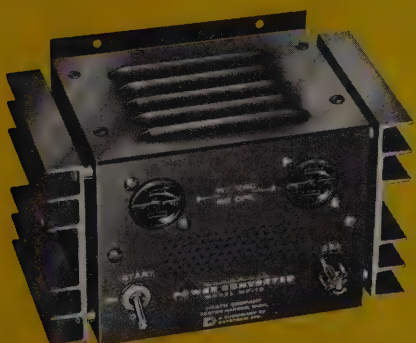
Features that help you find 'em fast! The MI-29 provides the exclusive Heath Noise Rejection circuit that lets you place the transducer near the engine without ignition interference; adjustable sensitivity control for achieving maximum signal while eliminating multiple echoes; sun-shielding case; glare-free dial, and weather resistant operation manual. In 8-10 hours you can have yours together in time for the next expedition.

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

MI-29 SPECIFICATIONS — Range: 0 to 200 feet on hard bottom. Sounding: Rate 1440 per minute or 24 per second. 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 water-tight housing. Controls: Sensitivity, with on-off switch. Noise Rejection level. Power requirements: 120 milliamperes at 12 VDC. Batteries: 2 required (not supplied). 6V Lantern type NEDA #908 or 916, Burgess F4M, Eveready #409 or 509, Ray-O-Vac #941. Dimensions: 6½" W x 7" H x 10½" D.



Complete with portable transducer transom mount



Enjoy shoreside convenience afloat! Budget priced Heathkit Power Inverter... 34.95

Converts 6 or 12 V battery power to square wave 117 VAC. Delivers up to 175 W continuous for small electric appliances. All transistor circuit, with two AC receptacles. Not recommended for tape recorders, record players or compressor-type refrigerators requiring high starting current or sine wave AC.

Kit MP-10, 8 lbs., mailable **34.95**

MP-10 SPECIFICATIONS—Power source: 6 or 12 volt storage battery. Power output: Nominal 117 volt, 60 Hz AC; 12 volt operation 175 watts continuous, 240 watts max.; 6 volt operation, 120 watts continuous and max. Input current for continuous ratings: 6 volt operation, 25 amperes; 12 volt operation, 16.5 amperes.



Heavy duty Heathkit Power Inverter... 119.95

Delivers up to 500 W intermittent, 400 W continuous. Adjustable AC output (square wave) is regulated at 60 Hz to operate high current, high wattage devices (operates anything within power rating except motor driven devices with high starting currents). 12-14.5 VDC operation.

Kit MP-14, 38 lbs., mailable **119.95**

MP-14 SPECIFICATIONS—Input voltage: 12 to 14.5 V. DC two wire isolated from ground. Specification voltage: 13.0 V. DC. Input current: 4 ampere, no load; 40 ampere at 400 watt load. Allowable ambient temperature: 0°F. to 125°F. Efficiency: 80% (approx.) Output voltage: Switch selected—120, 135, 150, 165 & 180 V. AC. Output power: 400 watts continuous up to 100°F.; 300 watts continuous up to 125°F.; 500 watts intermittent; 15 minutes "on"—15 minutes "off" at 100°F. max. Frequency: 60 Hz, adjustable. Frequency regulations: Load—1% no load to 400 watts; Input—2%, 12 to 14.5 V. DC; Temperature—3%, 0°F. to 125°F. Wave form: Square wave. Protective circuits: Input—50 ampere circuit breaker, DC polarity reversal diode. Size: 9½" W x 7¾" H x 6¾" D.

Put safety & fun first... at Heathkit savings!

5-function solid-state Foghorn-Hailer... 89.95

It's a foghorn, hailer, boathorn, listener, intercom! Powerful 55 W amplifier. Foghorn rate and duration controls. "Listen" and "Hail" separate gain controls. Optional remote speaker for ship's intercom. Has new coupling circuit for greater acoustical efficiency; increased immunity to feedback and ignition interference; low-profile deck horn speaker. Includes weather resistant horn, 20' speaker cable, gimbals mount. Marine white with blue trim.

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

Kit MDA-19-1, remote speaker, 2 lbs., mailable 10.95

MD-19A SPECIFICATIONS — Output Power: 55 watts peak. Boat Horn Frequency: Approximately 530 Hz. Foghorn frequency: Approximately 390 Hz. Foghorn rate: Approximately 2 to 90 seconds, variable. Foghorn duration: Approximately 2 to 20 seconds, 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 maximum. 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.

Visible & Audible Fuel Vapor Detector... 49.95

Meter shows "Safe-Dangerous-Explosive" conditions and the audio alarm sounds when gasoline fumes are present. Fully transistorized circuit has "Fail-safe" provision that triggers alarm when any component fails; built-in relay circuits for control of bilge blower or additional warning devices.

Kit MI-25, 3 lbs., mailable 49.95

MI-25 SPECIFICATIONS — Voltage: 12 V DC, +10%. Current: 1.0 amp nominal. Panel size: 2 1/4" H x 5 1/4" W. Depth: 5". Detector head size: 1 1/2" round x 2 1/2" long. Length of interconnecting cable supplied: 15'. Color: Marine white & black. Material: Aluminum. Temp. range: -30° C. to +50° C. Audio Alarm: 2500 Hz.

Value leader in VHF/FM communications!

Heath MWW-18 FCC Type-Accepted Radiotelephone... 499.95

Uses the latest solid-state design with tubes in transmitter output stage. Has 25 W output, maximum FCC allowable, with 1 W for in-harbor use. True 6-channel capability permits placing channels in high or low band in any combination, any sequence. Seventh channel: receive only for ESSA monitoring. Low 60 mA current drain in squelched receive makes it ideal for small boats. Plug-in control head and optional remote control accessory (15' cable and hardware) permit low cost custom installation. Stainless steel hardware, cadmium-plated chassis meets all EIA temperature-vibration standards. Factory assembled, MWW-18 includes crystals for channels 6 and 16, microphone, gimbals mount, speaker. Order with crystals of your choice.

Assembled MWW-18, with channels 6 & 16, 28 lbs., mailable 499.95

MWA-18-1, Remote Control Accessory Package, 4 lbs., mailable ... 19.95

MWA-18-2, handset accessory, 3 lbs., mailable 49.95

MDP-106, 4 1/2' 3 dB gain deck mt. antenna, 5 lbs., mailable 29.95

MDP-105, 4' 3 dB gain mast mt. antenna, 4 lbs., mailable 24.95

MDP-108, 9' fiberglass whip 6 dB gain antenna, 5 lbs., Express/Frt. . . 49.95

MDP-107, 14' deck mt. antenna 3 dB gain, 12 lbs., Express/Frt. . . . 59.95

Weather (WX) Channel Receive only, 1 lb., mailable 8.50

Extra Transmit & Receive Crystals, pair, specify channel,

Environmental Channel 15 Receive only, 1 lb., mailable 8.50

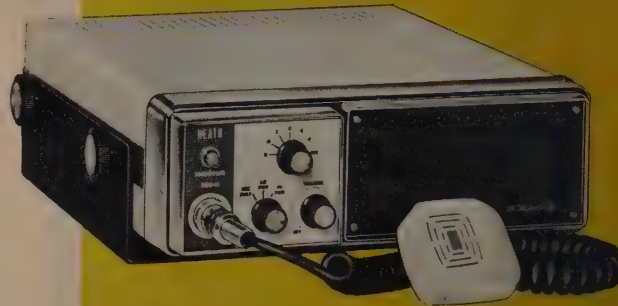
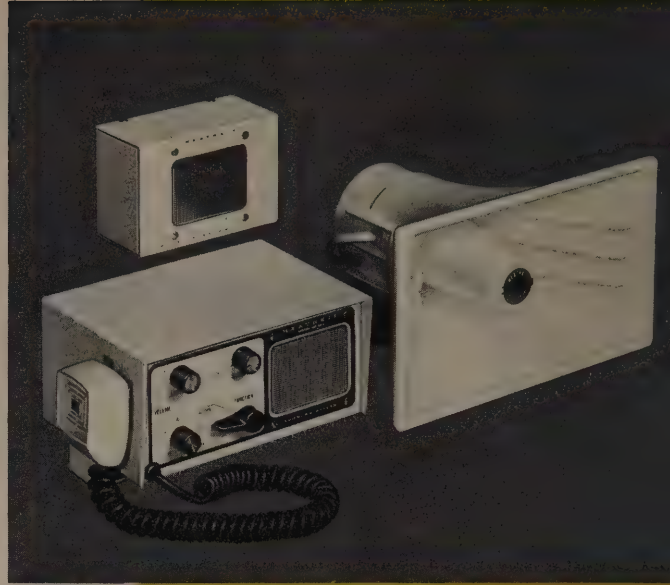
1 lb., mailable 17.00

Add \$17.00 per additional channel for factory installed crystals (this permits owner installation of the radiophone).

MWW-18 PARTIAL SPECIFICATIONS — TRANSMITTER — Emission: 16F3 (±5 kHz deviation FM). Frequency range: 156.275-157.425 MHz. Modulation: Phase modulation ±5 kHz deviation. Modulation limiting: Automatic. Frequency accuracy: ±0.001%. RECEIVER — Type: Single conversion, superheterodyne. Frequency range: Two bands with two front ends, 156.275-157.425 MHz and 161.600-162.550 MHz. IF Amplifier frequency: 10.7 MHz. Sensitivity: 0.35 uV or better for EIA usable sensitivity. Squelch: 0.2 uV or better for max. sensitivity. Selectivity: 15 kHz @ 6 dB, 28.8 kHz @ 60 dB. Audio output: 2 watts for less than 10% distortion. GENERAL — Size: 4 1/4" H x 13" W x 15" D. (Installed in mtg. brackets.) Weight: 22 1/2 lbs. Primary power: Voltage: 13.6 VDC nominal. Current: Transmit, high power, 10 amps. Antenna impedance: 50 ohms resistive.

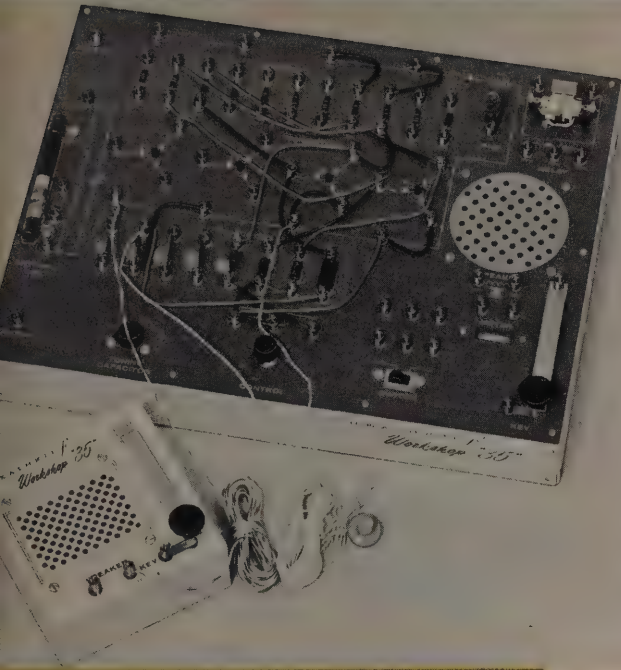
MWW-18 TUNE-UP & SERVICE

Call your local Heathkit Electronic Center, the Heath factory, or RCA Service Co. for the location nearest you.



MDP-105 MDP-106

MDP-107 MDP-108

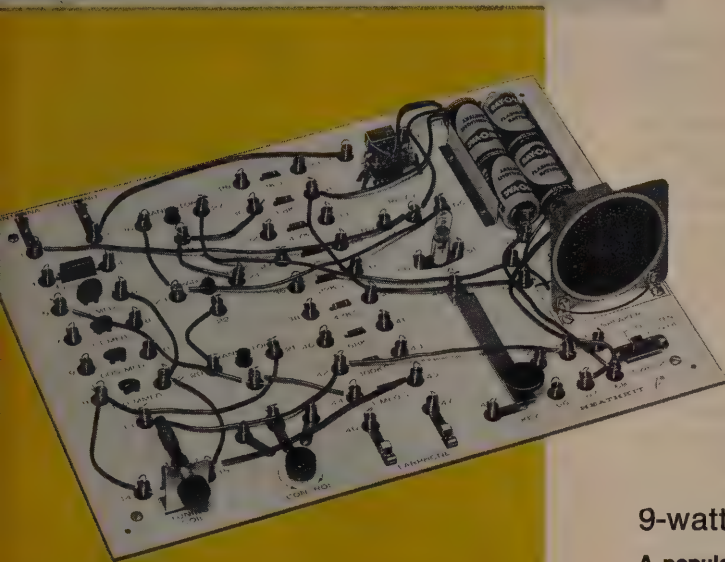


Fun-filled electronic workshop "35"

Explore The Exciting World Of Solid-State Electronics... with the new Heathkit Jr. JK-18. Connections are solderless spring-terminal type, and the circuits run on four inexpensive & safe "D" cells (not supplied). All construction projects begin with a simple explanation of what the circuit does and how it is used.

Thirty-Five Different Experiments... the new JK-18 builds all of these fascinating circuits: Code Flasher, Continuity Tester, Battery Tester, Diode Tester, Transistor Tester, Rain Alarm, Timing Relay, Listening Device, Public Address Amplifier, Intercom, Voice Relay, Earphone Code Oscillator, Loudspeaker Code Oscillator, Flasher, Experimental Multi-vibrator, Electronic Organ, Burglar Alarm, Metronome, Siren, Light Meter, Light Sensing Alarm, Target "Hit" Alarm, Light Dependent Flasher, Light Dependent Oscillator, Sound Level Meter, Two, Three & Four-Transistor Radios, Automatic (Light Dependent) Radio, Field Strength Indicator, Code Transmitter, Voice Transmitter, Capacity Relay, Wheatstone Bridge, Capacity Bridge. Help a youngster discover the world of electronics... order the JK-18 now.

Kit JK-18, 11 lbs., mailable. **24.95**



Exciting electronic workshop "19"

Takes The Mystery Out Of Electronics... makes electronics easy to understand. The JK-27 contains cartoon-illustrated principles of operation and simple, non-technical instructions.

Easy Assembly... spring-type connectors mount with a screw and nut... no soldering required... pre-cut and pre-stripped connecting wires snap in place and connectors can be used over for favorite projects. Safe, economical... operates on four C-size flashlight batteries (not included).

Build 19 Different Projects... code flasher, burglar alarm, public address system, 5 different transistor radios, electronic timer, TV silencer, electric eye, metronome, code transmitter, voice transmitter, electronic flasher, intercom, audio signal injector, capacity & voice operated relays. Makes an ideal gift for any youngster.

Kit JK-27, 4 lbs., mailable. **14.95**



9-watt guitar amplifier...29.95

A popular kit for the young musician! Delivers a full 9 watts of music power, 18 watts peak power through specially designed 8" speaker. Has variable rate and depth tremolo for a wide variety of effects, two inputs for solo guitars. All controls are front-panel mounted. Red cabinet with silver and black striped grille cloth and carrying handle measures 14" H x 13½" W x 5⅞" D. Assembles in 5 hours, runs on 120/240 VAC, 50-60 Hz.

Kit JK-37, 14 lbs., mailable. **29.95**

4-speed monophonic phonograph...21.95

Your youngster can build it in an evening with little or no help from you. Solid-state unit plays all four speeds of mono records in 7, 10 and 12" sizes. Comes complete with crystal cartridge with universal sapphire stylus. Has built-in 45 adapter, 4" speaker, locking tone arm, 2 simple controls. Cabinet covered in ivory and desert gold polyethylene. A perfect starter kit for the pre-teener.

Kit JK-17, 11 lbs., mailable. **21.95**



Raw power, mind-bending special effects that'll help you bring the house down!

Ⓐ The 120-Watt Heathkit Super Amp. . . . \$179.95

240-watts peak power into 2 TA-17-1 speaker systems or other 4 ohm load, 120 watts EIA music power — generates enough sound to set any audience free! Has built-in switchable Harmonic Modifier for the "fuzzy" sound; brightness switch for sharp brassy effect; tremolo variable for both rate and depth; separate bass and treble boost, dual spring-type variable reverb; dual foot switch for tremolo and reverb; 3 separate channels with 2 inputs for each; guitar, bass guitar and combo organs, microphone/phonograph. Optional matching speaker system has 2 12" woofers with 27-oz. magnets and fiberglass voice coils. Rugged compressed wood speaker enclosure has black vinyl covering with metal corners, extruded aluminum front frame, carrying handles and built-in casters; measures 38" H x 25 $\frac{7}{8}$ " W x 14 $\frac{1}{2}$ " D.

Kit TA-17, amplifier only, 53 lbs., Express/Frt. **179.95**

Kit TA-17-1, one speaker system, 116 lbs., Express/Frt. **129.95**

Ⓑ The 120-Watt Monster Bass Amp. . . . \$185

It delivers what you need . . . 120 watts EIA, 240 watts peak power of the tightest, crispest bass you've ever heard. Full range control too . . . Bass, Treble, Volume, Depth, Presence, Power, Line Reverse controls and two bass inputs are all front panel mounted for convenience. The extremely wide range tone shaping controls give a wide variety of musical effects, and the inputs will accept virtually any bass instrument . . . bass guitars, combo organs, even amplified brass & reeds. Two special design 12" speakers in the sealed sound chamber pack an incredible 6 $\frac{3}{4}$ lbs. of magnet assembly between them . . . and can handle every watt the amp can deliver. In just 15 hours you can create a monster . . . order your TA-38 now. Measures 41 $\frac{1}{8}$ " H x 24 $\frac{1}{2}$ " W x 14 $\frac{1}{2}$ " D.

Kit TA-38, 130 lbs., Express/Frt. **185.00**

Ⓒ Foot Switch Distortion Booster . . . 17.95

Add that unique effect to your sound . . . Just plug in between your guitar & amplifier. Housed in a convenient foot switch . . . push the switch to add the distortion . . . push again to play it straight. Tone & distortion degree controls. Runs on 1.5 V AA penlight cell (not supplied).

Kit TA-28, 4 lbs., mailable **17.95**

Ⓓ 25-Watt 2-Channel Guitar Amp. . . . 129.95

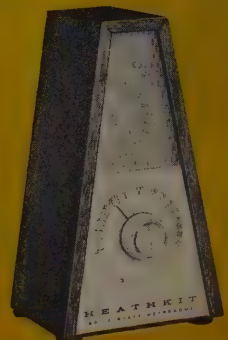
All solid-state design provides high reliability, long life. Delivers a solid 25 watts EIA music power, 60 watts peak. Two 2-input channels . . . one for accompaniment, microphone, etc. . . . second for special effects. Lead & solo guitar has double spring variable reverb & tremolo with variable rate & depth. Two foot switches in die cast housing for hands-free control of reverb & tremolo. Line reversing switch minimizes line hum. Two special heavy-duty 12" speakers with ceramic magnets last and last. Sturdy $\frac{3}{4}$ " black vinyl covered wood cabinet measures 28" W x 9" D x 19 $\frac{3}{4}$ " H.

Kit TA-16, 52 lbs., Express/Frt. **129.95**

Ⓔ Heathkit Electronic Metronome . . . 9.95

Just two controls . . . front panel knob turns unit on & 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**



Electronic organs



Professional music makers you make yourself!

An incredible bargain —
the Heathkit Legato . . . \$1495

Thomas-designed 25-pedal organ that you build yourself following the simple Heathkit manual — saving hundreds of dollars over comparable instruments! The Legato provides 15 manual voices, 4 pedal voices — any or all at the flip of a tab. SOLO: Diapason, Bass Clarinet, Trumpet, Tibia 16'; English Horn, Oboe, Violin, Tibia 8'; Tibia 4' & 2'. ACCOMPANIMENT: Diapason, Saxophone, French Horn, Oboe Horn, Cello 8'.

200-watts peak power, "stereo sound!" Separate solid-state amplifiers drive the 2-speed Leslie system and 2 12" main speakers. The Leslie lets you create the liquid tremolo beauty of the theater organ, or can be used as a separate channel for "stereo" effect. Exclusive Thomas Color-Glo keys and Organ course, included with each kit, have you playing in minutes.

Other features include two 44-note overhanging keyboards. Accompaniment manual range 8' — F1 to C5; solo manual 16', 8', 4', 2' — F1 to C7 25-note heel & toe pedalboard, range 16' & 8' — C0 to C3. Selective repeat percussion . . . selective attack percussion . . . keyboard & pedal sustain . . . variable vibrato . . . reverb . . . stereo headphone jack . . . plus luxurious walnut finish cabinet & bench included. Measures 47 1/8" H x 47 7/8" W x 25" D.

Order your Heathkit "Legato" now. There's no better investment in musical enjoyment for the whole family!

Kit TO-101, 285 lbs., Express/Frt. (less Bandbox & Playmate) . . . **1495.00**

TOA-101-3, Thomas Organ Course, 9 lbs., mailable **29.95**

TOA-101-4, 7", 33 1/3 rpm demonstration record **ppd. 50¢**

Play to the beat of 10 different drummers!

Bandbox accessory adds bass drum, 2 bongos, castanets, brush and crash cymbals, blocks, claves, snare drum and drum roll to any Heathkit/Thomas organ. Adjustable volume.

Kit TOA-101-1, 9 lbs., mailable **160.00**

Drawer and slides required to add Bandbox to GD-232, GD-325 & GD-983 models.

Order **TOA-101-5**, 4 lbs., mailable **49.95**

Then add 15 different rhythms!

The Heathkit Playmate gives you 3 different waltzes, fox trot 2/5, boogie 6/8, swing, bossa nova, rock, watusi, samba, beguine, cha-cha, rumba, tango, bolero. Requires Bandbox for operation.

Kit TOA-101-2, 6 lbs., mailable **195.00**

Low cost Heathkit/Thomas Spinnet . . . just 499.95!

Easy to play . . . just turn on the Color-Glo lights and match the colors on the keys and pedals with the colors on the music. And the comprehensive Thomas Organ course included will have you playing in minutes.

Ten organ voices. Select trombone, flute, reed, oboe, cornet for solo work . . . saxophone, violin, horn, viola & diapason on the lower manual . . . heighten them with vibrato, accentuate them with repeat percussion . . . all at the touch of a tab.

Additional professional features include two 37-note keyboards, 13-note heel & toe pedalboard . . . 75 watt peak power solid-state amplifier . . . 12" speaker system . . . impressive 41 1/4" H x 39 3/4" W x 21 1/2" D. Oiled walnut finish cabinet & bench included. Easy 50 hour assembly with the famous Heath instruction manual and the assembled & tuned tone generator. Order your new Heathkit spinnet organ now.

Kit GD-325D (less Bandbox & Playmate), 172 lbs., Express/Frt. **499.95**

Export model available for 115/230 VAC, 50/60 Hz; write for prices.

GDA-325-1, 7", 33 1/3 rpm demonstration record **ppd. 50¢**



The Heathkit Boonie-Bike paces the pack for value!

Designed for the roughest overland passage! The 116 lb. "Boonie-Bike" has a rigid tubular steel frame, 5 h.p. 4-cycle Briggs & Stratton engine, 6¾" ground clearance, welded steel skid pan and 3-quart fuel tank for a 60 mile range so you can traverse terrain that would bog down, if not ruin, other trail bikes.

The wildest wheel in trail bikes! The giant rear tire is the big secret behind the GT-18's fantastic performance. It's a whopping 18x8.50x8" for super traction in mud, sand, gravel, snow, tall weeds and underbrush. And both tires come premounted and inflated. The optional horn & lights accessory and recharging kits permit nighttime running.

Mount up and go! A flip of the shift lever in front of the large comfortable seat and you're on your way. Select low gear for hills and rough country, high for relatively flat terrain and speeds up to 30 mph. The big 5" Bendix drum-type rear brake is there when you need it for safe, sure stops. Get in on all the outdoor action—order your GT-18 "Boonie-Bike" today!

Kit GT-18, 142 lbs., Express/Frt. **179.95**

GT-18 PARTIAL SPECIFICATIONS: Clutch: Centrifugal. Crankcase oil capacity: 1¼ pt. Transmission: 2 speed. Speed range: Hi 0-30 mph; Lo 0-15 mph. Gear ratio: Lo Speed 15 to 1; Hi Speed 7.5 to 1. Load capacity: 400 lbs. Gas consumption: Approx. 2 hrs. per tank (approx. 60 miles). Approx. 80 mpg. Brake: Bendix 5" internal expanding. Front suspension: Spring-loaded front suspension. Front tire size: 5.30x4.50-6. Rear tire size: 18x8.50-8. Color: Blue & White. Dimensions: Length (overall): 59"; Width (at handlebars): 24½". Hgt. (at handlebars) 35½", (at seat): 25½". Wheel base: 42".



Add extra versatility with the optional horn & lights accessory kit.
Kit GTA-18-2, 9 lbs. (less battery), mailable **29.95**
Assembled GTA-18-3, Battery charger, 2 lbs., mailable **6.95**
GTA-18-4, spark arresting muffler, 3 lbs., mailable **9.95**

Unearth a bounty from the past with the GD-48 Metal Locator!

Professional metal detector at low cost. The Heathkit GD-48 performs accurate metal detecting functions comparable to detectors selling for three times the cost. Many locators use a beat frequency system requiring the user to notice a frequency change in the constant tone heard. The GD-48 produces no tone until a metal object enters the field of the search coils and upsets the balance between them. Then it signals the user with a tone either through the speaker or earphones.

A truly precision instrument. When the locator detects a buried metal object, the tone it emits gets louder as the object is approached. A built-in meter helps you estimate the size/depth ratio of the buried metal. You can set the GD-48 to work at a specific level . . . to comb the surface for small objects or to probe the depths for larger items. The instrument is so sensitive it will detect a metal object as small as a dime buried 6 inches.

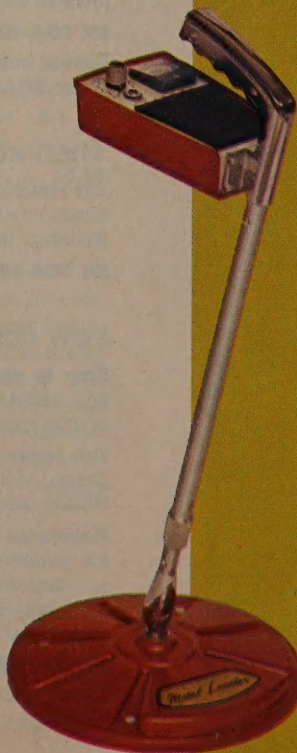
Rugged, reliable and comfortable to use. The all solid-state circuitry means light weight, reliable operation and minimum battery drain. Typical battery life is about 80 hours. The components and the angle of the handle are arranged to balance . . . make the locator easy to hold. Simple to assemble in just 6-8 hours.

Kit GD-48, Metal Locator, 6 lbs., mailable **74.95**

GDA-48-1, 9 volt battery, 1 lb., mailable **2.50**

GD-396, headphones, 2000 ohm (Superex), 1 lb., mailable **4.50**

GD-48 SPECIFICATIONS—Frequency: Search oscillator, 100 kHz; modulation, 650 Hz. Dimensions: Coil housing, 10½"; height (extended) 36"; height (collapsed), 26". Power source: 9 volt battery (NEDA #1602 or equivalent).



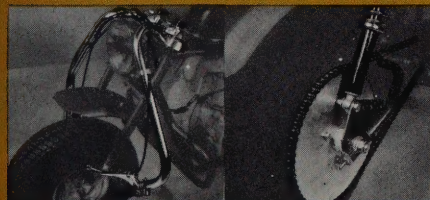
outdoor adventure kits



Extend usable riding hours with the optional head and tail light accessory kit.



When it snows the Hilltopper goes . . . with this rugged ski accessory kit.



Space-saver folding handlebars.

Motorcycle-type shocks & drive chain.



Full splash shield & crash bar protection.

Optional ski accessory in matching gold.



See America at its best on the great new Heathkit Hilltopper!

Big bike born to the back country! The Heathkit GT-101 Hilltopper is the off-the-roader that rides, handles and looks like a cycle. Designed from the ground up for superiority, the GT-101 combines a strong heavy duty frame, powerful drive train and sophisticated suspension to form a two-wheeler that eats up the most brutal trail, yet gets you there and back in comfort. And it's a portable trail bike at heart, with fold-down handlebars, fold-up footpegs so it'll stow in the camper, trailer or trunk. Finished in brilliant metallic gold with plenty of chrome, the Heathkit Hilltopper is a proud packhorse when standing still, a high-spirited thoroughbred on the move!

Gutsy 4-cycle power. The Tecumseh 5-h.p. engine gives you all the charging performance you need to traverse any terrain, and there's no need to pre-mix oil and gasoline. Built-in alternator powers optional running lights, and the spark arresting muffler (forestry service approved) takes the worry out of timberland traveling. And it's one of the quietest units on the market! Power is transmitted via a load-sensing automatic torque converter for no-shift going whether you're hauling game or cruising open country.

Takes on the toughest trails! The 13-gauge tubular steel frame with integral splash pan and crash bar takes all the bouncing and twisting the trail can hand out, yet helps insulate you from hidden logs or rocks in thick underbrush. The big-bike suspension — 16" telescoping front fork and adjustable rear shocks — not only smooths the way, but gives you a more tractable, easier handling machine. The huge 18x8.50x8 low-pressure flotation-type rear tire cuts a wide path, providing sure-gripping traction up the steepest grades, over rocks, sand and even snow. The oversized 5.30x4.50x6 front tire has rounded contours for quicker steering, better stability in the turns.

Leaves the others trailing behind! The Heathkit Hilltopper has the rider in mind. The controls are up front, on the handlebars . . . twist throttle, ignition-off switch, and front and rear brake handles. And there's the molded-plastic seal-vent gas tank, heavy gauge wrap-around fenders, optional running lights and, for snowgoing, an optional front-wheel ski. Get your Hilltopper all-season stormer, now!

- Kit GT-101**, 177 lbs., Express/Frt. **299.95**
- GTA-101-1**, ski accessory, 12 lbs., Express/Frt. **19.95**
- GTA-101-2**, running lights, 5 lbs., mailable **19.95**

GT-101 SPECIFICATIONS: Clutch: Centrifugal. Crankcase oil capacity: 19 ounces. Transmission: Automatic asymmetric torque converter. Speed range: Approx. 0 to 35 mph. Gear ratio: From 5.8 to 1, to 23 to 1. Load capacity: 400 lbs. Gas tank capacity: 4 2/3 quarts. Gas consumption: Approx. 3 hrs. per tank (approx. 80 mpg). Brake: 4 1/2" internal expanding front brakes; external contraction band-type jack-shaft mounted rear brake. Suspension: Front telescoping, spring-loaded forks; Rear-swing arm shock absorbers, mechanically damped. Front tire size: Low-pressure tubeless, 5.30x4.50-6. Rear tire size: Low-pressure tubeless, 18x8.50-8. Color: Bronze with white engine. Dimensions: Length (overall), 61"; with ski, 73". Width (at handlebars), 24". Hgt. (at handlebars), 39"; (at seat), 27 3/4". Wheel base: 44".

Heathkit Worldwide

UNITED STATES...

For your convenience Heath Company offers two methods of purchasing in the United States.

- **MAIL ORDER—FACTORY** . . . Direct factory purchase enables us to offer top quality at the lowest possible prices. All prices are Mail Order, Net F.O.B. Benton Harbor, Michigan and apply to United States and Possessions only. Prices herein effective August 10, 1971. All prices and specifications subject to change without notice.
- **RETAIL — HEATHKIT ELECTRONIC CENTERS** . . . Kit display, demonstration, personal assistance and immediate delivery are available through Heathkit Electronic Centers. The local selling price includes freight from factory (not included in direct mail prices) plus a small amount to cover expenses of the local store operation.

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Anaheim, 92805
(Orange County Area)
330 E. Ball Road
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El Cerrito, 94530
(Oakland Bay Area)
6000 Potrero Avenue
Phone: 415-236-8870

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

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

Redwood City, 94063
(San Francisco Peninsula)
2001 Middlefield Rd.
Phone: 415-365-8155

Woodland Hills, 91364
(San Fernando Valley)
22504 Ventura Blvd.
Phone: 213-883-0531

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Chicago, 60645
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Phone: 313-535-6480

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Phone: 612-938-6371

MISSOURI

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9296 Gravois Ave.
Phone: 314-638-5100

NEW JERSEY

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

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15 Jericho Turnpike
Phone: 516-334-8181

New York, 10036
35 W. 45th Street
Phone: 212-765-4590

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

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

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6318 Roosevelt Blvd.
Phone: 215-288-0180

Pittsburgh, 15235
3482 William Penn Hwy.
Phone: 412-824-3564

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2715 Ross Avenue
Phone: 214-826-4053

Houston, 77027
3705 Westheimer
Phone: 713-623-2090

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- Heath Company, 1480 Dundas Hwy. East, Mississauga, Ontario, Canada
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- Societe d' Instrumentation Schlumberger 57, rue de Paris, 92 Bagneux, France
- Heathkit-Geräte GmbH, Robert-Bosch-Strasse, 32-38, 6079 Sprendlingen, West Germany
- Schlumberger Svenska AB, Vesslevagen 2-4, Lidingsö 1, Sweden
- Schlumberger Messgeräte A.G., 8040 Zurich, Badenerstrasse 333, (Postfach 139), Switzerland
- Schlumberger Instrumentation S.A., 15, rue du Jeu de l'Arc, 1211 Geneve 6, (B.P. 189, Geneve-Eaux-Vives), Switzerland

For the names of authorized distributors elsewhere, contact:
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HEATH

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