

HEATHKIT®

JULY
1966

world's largest manufacturer of electronic kits

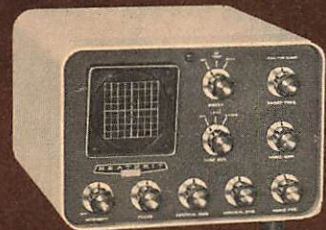
NEW THIS ISSUE . . .

THE WORLD'S MOST DELUXE TAPE RECORDER KIT

The new Heathkit/Magnecord 1020 at savings of over \$170 . . . 4-track stereo/mono . . . 3 motors . . . solenoid operation . . . easy to use . . . easy to assemble. If you enjoy fine equipment, add this tape engineering marvel to your stereo system. See details on page 15.



NEW THIS ISSUE . . . THE HEATHKIT SB-610
SIGNAL MONITOR—Engineered to perform with
Heath SB series amateur radio gear . . . and styled to
match perfectly. 160 to 6 meters . . . 15 watts to 1 KW
...handles any I.F. through 6 mc. See full details page 29.

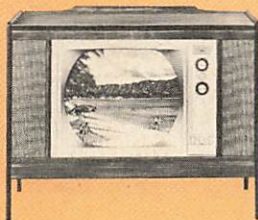


SPECIAL MONEY-SAVING OFFERS—ORDER NOW



SAVE \$30 ON THIS DE- LUXE SWL PORTABLE

Just in time for summer
enjoyment, this fine FM/
AM/SWL portable is now
available for a limited time
at \$30 off the regular price.
See page 6 for details.



SAVE UP TO \$48.50 ON 21" COLOR TV & CABI- NET COMBINATIONS

Now is the time to build
your Heathkit 21" Color
TV. With new lower cabinet
prices, it's a better buy than
ever. See page 3 for details.



LAST CHANCE TO BUY THIS DELUXE HEATHKIT ORGAN AT LESS THAN \$800

If you've been wanting this
fine musical instrument for
your family, you'll save by
ordering it before the price
increases Sept. 1. Use your
credit and order now.
See page 4 for details.

Heath Company • Benton Harbor, Michigan 49022

Plant Location: St. Joseph, Michigan • Catalog Supplement 800/64 • Copyright 1966, Heath Company

HEATHKIT®

NEW INTERNATIONAL TERMS FOR FREQUENCY UNITS TO BE USED SOON

Starting with the 1967 Heathkit Catalog, which will be mailed in August, the new IEEE (Institute of Electrical and Electronic Engineers) and international standard terms will be used in all Heath catalogs and flyers to describe units of frequency. The old and new terms and symbols are shown below.

NEW OLD

Hz (hertz) = cps (cycles per second)

kHz (kilohertz) = kc (kilocycles)

MHz (megahertz) = mc (megacycles)

LAST CALL!

The following items are being offered for the last time in this flyer. If you need a matching unit, or would like to complete a system, now is the time to buy.

Kit AS-22U & W, "Profile" 3-Way Speaker System See pg. 19

Kit AS-193U & W, low-cost 3-Way Speaker System See pg. 18

Last chance to buy the GD-983 organ at its present \$799 price See pg. 4

ORDERING A HEATHKIT MANUAL?

Most manuals cost just 50c ppd. Because of their large size, manuals for the SB-100, -110, -200, -300 and -400, AR-13A and AR-14 stereo receivers, both organs, all TV kits and the IO-14 oscilloscope cost \$2.00 ppd. Manuals for EK educational and EF applications series are \$5 ppd each.

IMPORTANT:

As new kits are introduced, some manuals may cost \$2.00 because of their size—please write for a quotation before ordering.

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ATTENTION BIOLOGISTS & PHYSIOLOGISTS!

A new factory assembled and calibrated version of the IO-14 adapts this highly versatile precision oscilloscope for biological use. The IOW-14S features a long persistence (P-7) phosphor for effective display and photography of EKG waveforms, etc. Factory calibration assures that the performance of the IOW-14A will fulfill your most rigorous demands. See page 22 for details.

PHONE ORDER ANYTIME DAY OR NIGHT

Days, call Area 616, 983-3961
Nights, call Area 616, 983-3921

Give all information, we will ship C.O.D. After 8 P.M. call Heath from anywhere in the continental U.S. (except Alaska) for \$1.

STOPPING BY FOR FACTORY SERVICE?

Our Service Department is open Monday thru Friday, 8 A.M. to 4:15 P.M. EST. If you can't make it during the week, you may leave it with our Sales Representative on Saturdays at our plant Kit Sales/Show Room, which is open 9 A.M. to 3:30 P.M. We suggest that a written description of the problem be attached to the unit—be sure to include date kit was purchased. Repaired equipment and replacement parts can also be picked up at the Kit Sales Room on Saturdays only if prior arrangements are made with the Service Department. Be sure that all arrangements are understood.

DO WE HAVE YOUR CORRECT NAME AND ADDRESS?

This flyer is our first mailing since changing our addressing method. If the address label on the back cover is incorrect, please cut it out and return it to us along with any corrections. Be sure to include your zip code. This will insure that you will receive future Heathkit literature directly. Thanks for your help.



Dear Friends:

As you know, we at Heath are devoted to the do-it-yourself idea.

Our kits offer three very real benefits . . . quality products, significant savings, and creative satisfaction. We also believe that these benefits are not restricted to Heathkits, but are present in nearly every do-it-yourself activity.

Since we have the ability to make simplified kits of very complex items, we believe that we can kit-ize many different things encountered in everyday living. They may not be primarily, or even necessarily electronic. For example, the first Heathkit was a real airplane.

You, as partners in this exciting hobby of kit building, probably have ideas of what you would like in the future.

Write and tell me what kit you would like us to produce, and don't hesitate because you think it may be "too far out", for that's the way Heath got started. We may not be able to acknowledge all letters, but we will give you a report on the suggestions in a future letter.

Sincerely,

D. W. Nurse, President

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HEATHKIT ELECTRONIC CENTERS (SALES AND SERVICE)

Chicago, Illinois 3462-66 W. Devon Ave. Phone: 583-3920	Los Angeles, California 2309 S. Flower Street Phone: RI-9-0261
Denver, Colorado 2901 Sheridan Blvd. Phone: 238-2348	San Diego, California 1300 Market Street Phone: 234-0293
Detroit, Michigan 18645 West 8 Mile Rd. Phone: 535-6480	Redondo Beach, California (Marine Specialists) 202 Harbor Drive Phone: 376-0908
Anaheim, California 330 E. Ball Road Phone: 776-9420	

AUTHORIZED SERVICE CENTERS (Service & Replacement Parts)

United Sound & Television Co. (two locations) 5036 Venice Blvd. Los Angeles, California	Park Armature Company 1218-30 Columbus Ave. Boston, Mass.
2010 W. Lincoln Ave. Anaheim, California	Electronic Servicer of N.Y. 65-37 Queens Blvd. Woodside, New York
Radio Electronics 374 Brannan Street San Francisco, California	
Southern Authorized Factory Service 62 N. W. 27th Ave. Miami, Florida	Scientific Radio-TV/Hi-Fi 4122 E. Madison St. Seattle, Washington

All Heathkit Electronic Centers and Authorized Service Centers are units of Daystrom Products Corporation

The Two Best Buys In Color TV!

Now Save Up To \$48.50 On A Deluxe 21" Color TV And Cabinet Combination

... A Better-Than-Ever Buy!

- Built-in Service Center to adjust & maintain set • 26-tube, 8-diode circuit
- Deluxe Standard-Kollsman VHF tuner with "memory" fine tuning • Transistor UHF tuner • High definition 70° 21" "rare-earth" color tube for brighter reds • Anti-glare bonded safety glass • 24,000 volt regulated picture power
- Automatic color control for top color quality • Gated automatic gain control for steady "flutter-free" pictures • Tuners, I.F. and high voltage assemblies factory-built & aligned ... just simple circuit boards to wire • Line Thermistor for longer tube life • Tubes alone list for over \$260 • Transformer operated
- Circuit breaker protection • Two hi-fi outputs plus tone control • One-piece metal chassis support for easy set-up & servicing • Mounts in wall, custom cabinet or either Heath cabinet • 1 year warranty on picture tube, 90 days on all other parts

See The Cleanest, Clearest Pictures In Color TV ... with the unique life-like sharpness and beauty of the Heathkit GR-53A. The *only* 21" color TV with a "built-in service center" for perfect picture adjustments. Simple-to-follow instructions and detailed color photos show you exactly what to look for and how to achieve it ... quickly, easily! You become the expert. Results? True-to-life color pictures day in and day out ... and the elimination of many servicing headaches.

From Parts To Picture In Just 25 Hours! And as easy to build as an audio amplifier ... you simply wire 3 circuit boards, mount the parts, connect a color-coded wiring harness, and adjust the picture ... all critical circuits are pre-assembled and aligned at the factory to insure peak performance.

But Don't Take Our Word For It! Ask any GR-53A owner like Mr. James Rusler of Huntington, Ind. He writes: "We have many friends to our house and always receive universal comment that our color is far better than anything they have seen. The satisfaction of assembling the set increases the enjoyment that much more, and I haven't had one bit of trouble in eight months. Your complete and comprehensive manual dealing with service assures me that if there is a need for adjustment that it can be done without the services of a service repairman."

Choice of 3-Way Installation! Another exclusive Heathkit feature! Mount in a wall, your own cabinet, or either of the Heath factory-assembled cabinets.



GR-53A **\$375⁰⁰**
(less cabinet)

GRA-53-7
Deluxe Cabinet
Now Only
\$59⁵⁰
(Was \$108.00)

Kit GR-53A, all parts including chassis, tubes, mask, UHF & VHF tuners, mounting kit and specially shielded, extended range 6" x 9" speaker. 125 lbs. . . \$38 dn., as low as \$22 mo. (REA Express or Motor Freight only) **\$375.00**
Assembled GRA-53-7, deluxe walnut cabinet (measures 44" W x 32³/₈" H x 26¹/₂" D) 82 lbs. . . no money dn., \$6 mo. (REA Express or Motor Freight only) **Was \$108.00, Now Only \$59.50**
Assembled GRA-53-6, economy walnut-finished hardboard cabinet (measures 37³/₄" w x 33¹/₄" H x 26¹/₄" D) 51 lbs. . . no money dn., \$5 mo. (REA Express or Motor Freight only) **Was \$46.50, Now Only \$39.50**

GR-53A SPECIFICATIONS—Picture size: 21" round, approx. 265 sq. in. Deflection: Magnetic 70°. Focus: Electro-static. Convergence: Magnetic. Antenna input impedance: 300 ohm balanced. Picture IF carrier frequency: 45.75 mc. Sound IF carrier frequency: 41.25 mc. Color sub-carrier: 42.17 mc. Sound IF frequency: 4.5 mc. Tuning range: VHF TV Channels 2-13; UHF 14-83. Sound cathode follower: Output impedance; 3K. Frequency response: ±1 db, 50-15,000 cps. Harmonic distortion: less than 1%. Output voltage: 2 V. Audio output: Output impedance: 8 ohms. Output power: 2 watts. Frequency response: ±2 db, 50-15,000 cps. Harmonic distortion: Less than 3%. Power requirements: 110 V to 130 V, 60 cycles AC, 300 watts. Wall mounting space required: 25" D x 25" H x 28" W.

Money-Saving Self-Servicing ... Choice of 3-Way Installation ... Plus A Host Of Other Deluxe Features Make This Set Your Best 25" Color TV Buy



GR-25
\$469⁹⁵
(less cabinet)

25" COLOR TV ON RESERVATION BASIS ONLY!

Demand continues to exceed our tube allocation. To reserve your GR-25 for future delivery, use separate order blank (center of flyer) mark "GR-25 Reservation Only", and return to us. We will promptly acknowledge your reservation and assign a priority number. We will contact you in advance of shipping date to confirm your reservation.

GR-25 SPECIFICATIONS—Picture size: 25", rectangular, approx. 295 sq. inches. Deflection: Magnetic 90°. Focus: Electrostatic. Convergence: Magnetic. Antenna input impedance: 300 ohm balanced, or 75 ohm unbalanced (VHF). Picture IF carrier frequency: 45.75 mc. Sound IF carrier frequency: 41.25 mc. Color subcarrier: 42.17 mc. Video IF bandpass: 3.58 mc. Sound IF frequency: 4.5 mc. Tuning range: VHF channels 2-13, UHF channels 14-82. Sound cathode follower: Output impedance; 3 K. Frequency response; ±1 db, 50-15,000 cps. Harmonic distortion, less than 1%. Output voltage; 2 v. Audio output: Output impedance, 8 ohms. Output power, 2 watts. Frequency response, ±2 db, 50-15,000 cps. Harmonic distortion, less than 3%. Power requirements: 110-130 v., 60 cycle AC, 330 watts. Wall mounting: 20" D x 21" H x 26" W inside. Control panel, assembly, 6¹/₂" W x 7¹/₂" H x 7" D.

• Hi-fi 90° rectangular 25" color tube with anti-glare safety glass and "rare earth" phosphor for better "reds," brighter pictures • 27-tube, 10-diode circuit • 25,000 volt regulated picture power • Automatic degaussing and mobile degaussing coil • Exclusive Heath "Magna-shield" covers entire tube for improved color purity • Built-in servicing facilities to adjust & maintain set • Extra B+ boost for improved picture definition • Dynamic pin-cushioning correction circuit eliminates picture edge distortion • Deluxe VHF turret tuner with "memory fine tuning" & long-life nickel silver contacts • 2-speed, transistor UHF tuner • Automatic color control circuit to reduce color fading • New 3-stage IF strip to reduce interference & improve reception • Gated automatic gain control for steady, flutter-free pictures • Circuit breaker protection • New vertical swing-out chassis for easier servicing & installation • 3-way installation ... wall, custom cabinet or Heath factory-assembled cabinet • Assembles in just 25 hours with all critical circuits prewired & tested • 1-year warranty on picture tube, 90 days on all other parts

An Expert Reviews The Heathkit GR-25 Color TV!

Hubert Luckett, Executive Editor of POPULAR SCIENCE, says in the May '66 Issue: "Building your own color TV from a kit is not as outrageously impractical as you might suppose. For those who tremble at the thought of tackling something so fantastically complicated, let me encourage you with a borrowed quote: 'The only thing you have to fear is fear itself.'"

"The second most impressive thing about the kit is in the instruction manual (the most impressive thing is the viewing quality of the color picture). If you can read and understand ordinary English, the manual is like having a master teacher at your elbow pointing out every step."

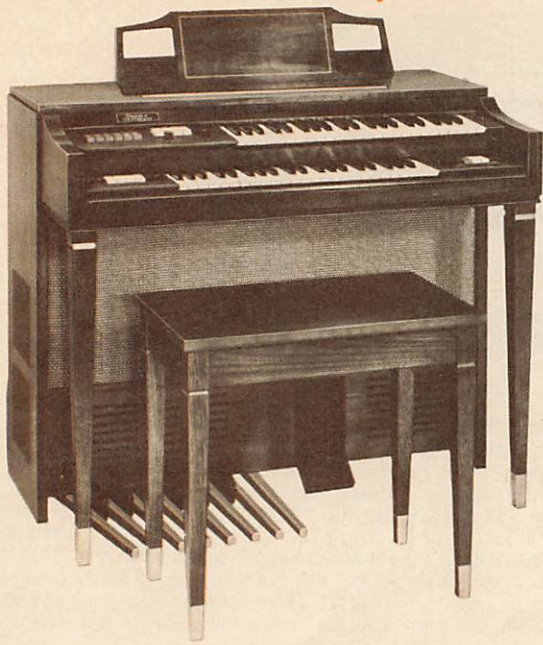
"—the circuitry, features and performance of the GR-25 match or exceed those of sets selling at twice the price. Some of the features, such as the built-in servicing aids, can't be bought in ready-made sets at any price."

"With the instructions supplied, your experience in assembling the kit, and the self-servicing features built-in, you'll be able to do most servicing yourself."

The Reasons For This Enthusiasm? A color TV set that combines the best features of all color TV circuit designs. And, in addition, we've incorporated built-in servicing facilities so you can converge, adjust and maintain the sharpest color pictures at all times. The GR-25 manual contains simple-to-follow instructions and detailed color photos that show you exactly what to look for, what to do and how to do it. You become the expert. Results? The best color pictures in the neighborhood ... and an end to TV service calls for simple color adjustments and minor repairs. Reserve yours now!

Kit GR-25, all parts including chassis, tubes, mask, UHF & VHF tuners, mounting kit and special extended-range 6" x 9" speaker, 131 lbs. . . (REA Express or Motor Freight only) \$47 dn., as low as \$29 mo. **\$469.95**
Assembled GRA-25-1, low-cost walnut cabinet (measures 19" D x 31" H x 34¹/₂" W) 56 lbs. . . no money dn., \$6 mo. (REA Express or Motor Freight only) **\$59.95**

Heathkit® / Thomas All-Transistor Organs

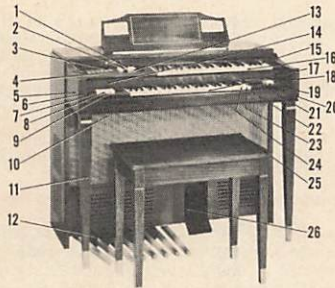


Last chance to buy at this low price! Price increases Sept. 1.

GD-983
\$799⁰⁰

(including bench)

1. Sustain Tab 2. Reverb 3. Swell Keyboard Voices 4. On-Off And Pedal Volume 5. Pedal Tab 6. Pedal Sustain Tab 7. Great Keyboard Voices 8. Vibrato Tab 9. Treble Accent Tab 10. Headphone Jack 11. Leslie Speaker 12. Pedalboard 13. Manual Balance 14. Pilot Light 15. Chimes 16. Swell Keyboard 17. Great Keyboard 18. Leslie Rotor Switch 19. Leslie-Main Speaker Tab 20. Stereo Chorus 21. Color-Tone Percussion Tabs 22. Percussion Repeat Rate 23. Percussion Delay Tabs 24. Repeat Percussion Tab 25. Main Speakers 26. Expression Pedal



Deluxe "Coronado" . . . Chimes, Rotating Leslie Speaker, And Full Professional Organ Features

- All genuine Thomas factory-fabricated parts • 17 organ voices • Two 44-note keyboards • 2-speed Leslie plus 2-unit main speaker system • 28 notes of chimes • 13-note pedalboard • Sustain on pedals & keyboards • Vibrato • Stereo chorus control for "stereo" effects • Treble accent • Color-tone attack & repeat percussion • Manual balance • Pedal volume control • Headset outlet • 5-year warranty on transistor tone generator boards . . . the heart of the organ • Assembled walnut cabinet and matching bench • Diode switching on upper keyboard . . . no annoying key "clicks"

Just Touch A Tab! And create any one of 17 rich organ voices . . . Saxophone 8', French Horn 8', Violin 8', English Horn 8', Oboe 8', Flute 8', Cello 8', Bass Clarinet 16', Trumpet 16', Bourdon 16', Flute D'amour 4', Quint 5 1/3', and Diapason 16' and 8'. And you will soon learn various combinations to produce additional voices like the hawaiian guitar, vibraharp, harpsichord, zither, calliope, bagpipes, etc. Plus many different musical moods . . . classical, popular, and religious. It's like having an orchestra at your fingertips.

As **HIGH FIDELITY Magazine** Put It: "This kit organ is no toy or halfway-to-heaven gadget. It is rather a full-fledged, deep-throated, authentic sounding organ that should interest the serious musician as well as the hobbyist and amateur."

Kit GD-983, Organ & matching walnut bench, 245 lbs. . . \$125 dn., as low as \$27 mo. (REA Express or Motor Freight only) . . . **\$799.00**

Self-Teacher Recorded Lessons . . . Save \$30!

Complete 48-lesson course on four 12" LP records, and music book with many old-time favorites. Use with GD-983 or new GD-325B organs.

GDA-232-2, recorded lessons, 5 lbs. . . Mfrs. list \$50. **\$19.95**

Like To Hear It Perform?

Send 50c for postage & handling, ask for 7", 33 1/3 rpm demonstration record no. GDA-983-2. You'll convince yourself!

Special Assembly & Adjustment Tools Included

Includes set of Nut Drivers, Phillips Screwdriver, coil alignment tool, keyboard alignment tool w/shaft handle, and nut starter for GD-983 & GD-325B assembly & adjustment.



The Magic Of COLOR-GLO Helps You Play Complete Songs On This Organ The First Time You Try It!

- Exclusive Thomas Color-Glo to start you playing instantly • All genuine Thomas factory-fabricated parts • 10 organ voices • Variable repeat percussion • Two 37-note keyboards • 50-watt EIA peak music power amplifier • 12" speaker • Vibrato • Manual balance control • 5-year warranty on transistorized tone generators . . . the heart of the organ • Assembled walnut cabinet with matching bench now included

Just Match Up The Colors And Letters . . . It's Easy! Switch on the Color-Glo key lights and you're ready to play. Each white key on the upper keyboard lights up with a letter for you to follow. Simply match the letters on the music with the letters on the keys, and you play the melody. For harmony, there are 3 red keys, 3 black keys, and 3 green keys on the lower keyboard. With your left hand, just press and hold the notes that match the background color in the Thomas Color-Glo music book that is included.

To Add The Rich Bass Notes, press and hold the pedal that's marked with the same color as the harmony notes, changing to different colors with your foot, as you change with your left hand. That's all there is to it. Touch the switch again, and the key lights disappear, leaving a beautiful spinet organ that will be the most admired piece of furniture in your living room. Your Color-Glo music teacher is your secret.

Ten Organ Voices In All . . . trombone, reed, flute, oboe, cornet, violin, saxophone, horn, viola, and diapason . . . all at the touch of a tab.

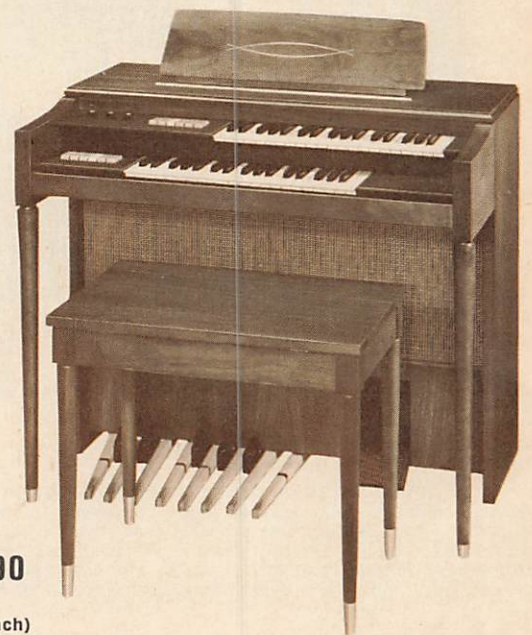
Matching Walnut Bench Now Included! Nothing to add, no extras to buy as with other organ kits . . . everything is included at one price. Handcrafted walnut cabinet measures 41 1/4" H x 39 3/4" W x 21 1/2" D. Kit assembly takes around 50 hours.

Kit GD-325B, organ & matching bench, 171 lbs. . . \$40 dn., as low as \$23 mo. (REA Express or motor freight only) . . . **\$394.90**
Export model available for 115-230 v. AC, 50-60 cps; write for prices.

GD-232 (A & B) And GD-325 Owners . . . LAST CALL On Matching Walnut Bench!

If you purchased an organ without a bench, now is the time to order one. This is the last time it will be offered.

GDA-232-1, walnut bench, 18 lbs. . . no money dn., \$5 mo. **\$24.95**



GD-325B
\$394⁹⁰

(including bench)

Keys Light Up To Show You Correct Notes & Chords. Thanks to exclusive Color-Glo, you and every member of your family can play melody, harmony and bass notes instantly. Just match up the colors with your left hand, the letters with your right hand . . . and you play complete songs . . . even if you've never played an organ before!



Home And Hobby Kits!



23" Black & White TV . . . Install In A Wall, Custom Or Heath Cabinet

• UHF & VHF for all-channel (2-83) reception • 16 tubes, 5 diodes give 30 tube performance • 20,000 volt picture power • High definition 23" 90° tube with anti-glare bonded safety glass • Spark-gap socket for picture tube protection • Deluxe Nuvistor VHF & transistor UHF tuners • Transformer power supply • Line circuit breaker, filament and B+ protection • Gated Automatic Gain Control & Noise Canceller for peak reception • Wide-band circuitry with 5 interference traps • DC restorer • Hi-Fi cathode follower output for hi-fi system • Hi-fi sound—power output for speaker • Finest parts—tubes alone list over \$135 • Easy circuit construction, wiring harness, and prebuilt tuner, IF strip and hi-voltage sections . . . finish in 12 hours.

Kit GR-22A, chassis & tubes, 77 lbs., Express or Motor Freight, no money dn., \$16 mo. . . . \$169.00

TV Wall & Cabinet Mask

Unfinished. Includes 3/4" mounting board. Cut & drilled. Required mounting space: 19"H x 17 3/4"D x 28 1/8"W.

GRA-22-5, TV wall mount, 13 lbs., Express or Motor Freight. . . . \$23.50

GR-62B, TV set with wall mount, 90 lbs., Express or Motor Freight, no money dn., \$18 mo. . . . Save \$7.50, \$185.00

Deluxe TV Cabinet

(Illust.) Assembled. Walnut finish matches Heath Hi-Fi cabinets, pg. 17. Includes mask, mounting board, 6"x9" speaker. Measures: 36" W x 32 3/8" H x 20 1/2" D.

GRA-22-1, Walnut TV cabinet, 65 lbs., Express or Motor Freight, no money dn., \$9 mo. . . . \$84.95

GR-52A, TV set & walnut cabinet, 142 lbs., Express or Motor Freight, no money dn., \$23 mo. . . . Save \$8.95, \$245.00

GR-22A SPECIFICATIONS—Picture size: 23" overall diagonal, approximately 282 sq. in. Deflection: Magnetic, 90°. Focus: Electrostatic. Antenna input impedance: 300 ohm balanced. Tuning range: VHF TV channels 2-13 & UHF Channels 14-83. Picture IF carrier frequency: 45.75 mc. Sound IF carrier frequency: 41.25 mc. Sound IF: 4.5 mc. Video response: to 3.2 mc. Power requirements: 105 V. to 125 V. 60 cycles AC, 210 watts.



GR-22A
\$169⁰⁰

(less cabinet, mask & speaker)



PM-14
\$89⁰⁰

Get The RIGHT EXPOSURE The FIRST Time With A Fotoval® Computer

• Accurately & scientifically indicates correct exposure times & photographic paper grades • Cuts darkroom time, reduces paper costs, speeds your enlarging • Quickly produces correctly exposed prints everytime • Gimbal mounting bracket allows installation in any position • Completely safe lighted to permit easy darkroom reading of meter indications • Simple to assemble and operate

Don't Waste Paper To Get A Perfect Print! The Heath/Mitchell Fotoval computer analyzes any B & W negative, and automatically indicates correct exposure times . . . and optimum paper contrast grade. Eliminates guesswork . . . you produce perfect enlargements every time . . . no more costly makeovers. Saves you time, paper, and money. Expose one night—process the next!

FREE Descriptive Brochure Available . . . just drop a note to our Customer Correspondence Dept. The Fotoval's easy operation makes every beginner a "professional printer". As easy to assemble as it is to use.

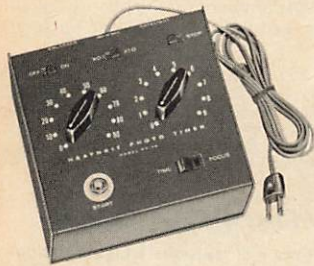
Kit PM-14, 8 lbs. . . no money dn., \$9 mo. . . . \$89.00

Control Exposures To 1/10th Of A Second With A Heathkit Photo Timer

• Controls exposure time of contact or enlarging printing • 2 switch-selected ranges . . . up to 99 seconds in 1 second steps, or 9.9 seconds in 0.1 second steps • Accurate resetting of any interval • Repeatability accurate within 2% • Enlarger and safelight AC outlets • All-electronic . . . no gears • Time-focus switch to turn enlarger on or off manually • Install on wall, place upright or face up on working surface • Styled to match Fotoval Computer • Easy to assemble and use

Kit PT-15, 4 lbs. . . no money dn., \$5 mo. . . . \$24.95

PT-15 SPECIFICATIONS—Timed cycle: x1.0 Range: 1 to 99 seconds in 1-second steps. x0.1 Range: 0.1 to 9.9 seconds in 0.1-second steps. AC outlets: Enlarger and safelight; each outlet provides 105-125 v. AC @ 350 watts maximum (3 amperes). Accuracy: Actual timed cycle will be within 5% of time selected. Repeatability: All timed cycles at one selected setting within 2% of each other. Switches: 0-90 seconds, in 10-second steps; 0-9 seconds in 1 second steps; start pushbutton; Time-Focus; Stop; Range, x1.0 & x0.1; On-Off. Controls: x1.0 calibration; x0.1 calibration; sensitivity. Regulation: Internal circuits regulated at 150 volts DC by an OA2 regulator tube. Power requirements: 105-125 v. AC, 50/60 cps, 6 watts. Dimensions: 6 1/4" W x 6 1/2" D x 3 1/4" H overall.



PT-15
24⁹⁵

A Heathkit Motor Speed Control

• Adjustable control dials desired motor speed • SCR with feedback circuit slows motor yet maintains high torque power • Use with tools, appliances with universal AC-DC motor rating up to 15 amps only. Not for AC induction motors.

Kit GD-973A, 3 lbs. . . . \$17.50

B "Little Dandy" Soldering Iron

• Perfectly balanced, lightweight, easy to handle • Reaches working temperature 2 minutes after plug-in, stays hot • 30-watt heating element • Iron-clad tip won't corrode, doesn't require frequent "tinning"

Model GDP-105, 1 lb. . . . \$5.40

C Deluxe Kit-Builders Tool Set

• Combination wire stripper & diagonal sidecutter • Midget longnose pliers; 3 screwdrivers (3/32", 1/8", 3/16") • "Little Dandy" soldering iron (above) • 5 nut drivers (3/16", 1/4", 5/16", 3/8", 1/2") • Nut starter, soldering aid, radio solder, and "Kit-Builders Guide" with soldering instructions

Model GH-25, 4 lbs. . . . \$16.95

D Heathkit 8-Range Soldering Iron

• Lightweight . . . ideal for Kit-building • 6 volt, 25 watt GE midget iron with non-corroding tip • Transformer operated power supply offers selection of 8 heat ranges for every soldering job • Protective metal cage

Kit GH-52, 5 lbs. . . . \$14.95

E Vaco Hollow Shaft Nut Driver Set

• 7 drivers—sizes: 3/16", 1/4", 5/16", 1/2", 3/8", 7/16", 1/2" • Hollow shafts for nut installation on switches, controls • Store in self-supporting metal rack • Tough, color-coded plastic handles

Model GDP-204, 3 lbs. . . . \$6.42

F Speedex Wire & Cable Stripper

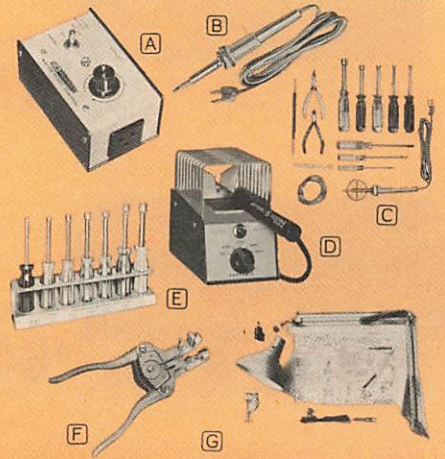
• Simple to use—insert wire into jaws, squeeze handle—insulation comes off just that fast • Graduated jaws accept No. 10, 12, 14, 16, 22 wire • Manufactured by General Cement

Model GDP-663, 2 lbs. . . Mfrs. list \$9.95. Only \$5.89

G Z-Lyte Extension Lamp Kit

• Assembled extension arm—just attach socket, shade & cord • 45" reach, 360° sweep • Vented shade • Movable • U.L. approved • Less incandescent bulb

Kit GDP-202, 5 lbs. . . Mfrs. list \$14.50. Only \$9.95



Special Summer Sale — Save \$30 On Deluxe SWL Portable

**Now You Can Save \$30 During This Special Limited Offer
Enjoy The Finest In Global Listening At Lowest Cost
With This Deluxe 10 Band AM/FM Shortwave Portable**

- 10 bands tune Longwave, Standard Broadcast, FM and 2 mc.-22.5 mc. Shortwave Bands • 16 transistors, 6 diodes and 44 factory assembled and pretuned circuits • Two separate AM & FM tuners and IF strips • Two built-in antennas • Battery saver switch cuts current drain up to 35% • Rotating tuning dial • Dial light • Four simple controls for tuning, volume, tone, AFC and band switching • 4" x 6" PM speaker • Earphone & built-in jack • Optional converter/charger available • Time zone map and "listener's guide"

Complete Listening Wherever You Go!... Keeps you abreast of the latest news and weather, and entertains with "pop" music on 550-1600 kc AM. Its 88-108 mc band offers the quiet beauty of FM, thanks to the same tuner and IF strip that are used in deluxe Heathkit FM hi-fi components. And for added drama and intrigue, 7 shortwave bands cover 2-22.5 mc to bring you thousands of foreign broadcasts, ships at sea, "ham" operators, Voice Of America, Radio Moscow, etc.

Deluxe Features Assure The Finest In Portable Listening. 16 transistors, 6 diodes and 44 factory-built and aligned RF circuits provide instant, heat-free operation and superior performance. And there are two built-in antennas... a ferrite rod for Longwave and AM, plus a telescopic whip for FM and shortwave... and connectors for external antennas. A Battery-Saver switch cuts battery drain up to 35% for indoor listening. Other controls include rotating selector dial; a dial light switch for nighttime use; AFC with on-off switch for drift-free FM; an 8½ revolution tuning knob; and a combination on-off switch and tone control. A 4" x 6" speaker provides "big-set" sound... also includes an earphone and built-in jack for private listening.

Handsome Designer Styling... jet black extruded aluminum front and back panels contrast beautifully with the chrome-plated, die-cast end pieces. Both hinged panels open and close easily thanks to special magnetic latches. The front panel can be removed to take less space when used at home. Includes FM Shortwave station guide and a world time zone map. Runs on 7 flashlight batteries (not included)... or on household 117 v. AC with optional converter/charger that "float charges" batteries while you enjoy good listening without battery drain. Assembles in 10 hours.

Kit GR-43, 19 lbs... no money dn., \$15 mo.....\$159.95

GR-43
Regularly
\$159.95
Special Sale Price
\$129.95



(Offer Good Only Until Aug. 31, 1966)

Model GRA-43-1, Converter/Charger for 117 v. AC, 1 lb.....\$6.95

GR-43 SPECIFICATIONS—AM SECTION: Tuning range: Long wave—150-400 kc; Broadcast—550-1600 kc; 2-4 MC—2-4 mc; 4-9 MC—4-9 mc; 31 M—9.2-10.2 mc; 25M—11.2-12.4 mc; 19 M—14.5-16.1 mc; 16 M—16.8-18.8 mc; 13 M—20.2-22.5 mc. **Sensitivity:** at External Antenna Input for a 10 db signal-plus-noise to noise ratio. Long Wave—12 uv; Broadcast—10 uv; 2-4 MC—5 uv; 4-9 MC—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 kc. **FM SECTION: Tuning range:** 88-108 mc. **Sensitivity:** 1½ 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 mc. **GENERAL: Audio output:** Normal: 500 mw; Battery Saver: 160 mv. **Speaker:** 4" x 6" oval; permanent magnet; 3.2 ohm voice coil impedance. **Batteries:** 6—size D cells; 1—size C cell. **Dimensions:** 13½" W x 5½" D x 10¾" H, including handle.



Enjoy The Good Companionship Of A "Mohican" Portable Shortwave Receiver At Its Lowest Cost

- Powerful 10-transistor, 6-diode circuit • Tunes 550 kc to 32 mc in five bands • Fixed-aligned ceramic IF "transfilters" for best selectivity • Completely self-contained for portability, yet can operate on 117 V. AC with XP-2 accessory below

Handsome, Compact, Ready To Go Anywhere! In addition to the features above, the GC-1A has Zener diode voltage regulation... smooth, easy flywheel tuning... built-in 4" x 6" speaker... panel tuning meter for precision tuning... 50" telescopic whip antenna... headphone jack for private listening... large, slide-rule dial for accurate station selection. Less batteries. Requires RF generator for final alignment.

Kit GC-1A, 18 lbs... no money dn., \$9 mo.....\$89.50

Kit XP-2, 117 v. AC plug-in power supply, 2 lbs.....\$9.95

GC-1A SPECIFICATIONS—IF Frequency: 455 kc. **Frequency coverage:** 550 kc to 32 mc in 5 bands with calibrated bandspread scales (oscillator tuning) for 80, 40, 20, 15 and 10 meter amateur bands and 11 meter citizens bands. **Selectivity:** 3 kc wide at 6 db down. **Sensitivity:** 10 uv broadcast band, 2 uv shortwave bands for 10 db signal-to-noise ratio. **Output:** 400 milliwatts max. **Battery life:** Up to 400 hours normal intermittent service using 8 standard size "C" cells. **Dimensions:** 6¾" H x 12" W x 10" D.

Journey To The Exciting World Of Shortwave Via This Low Cost 4-Band Receiver

- Covers 550 kc to 30 mc • 4-tube superhet circuit plus 2 silicon rectifiers • 5" speaker • Lighted slide-rule dial • Bandspread tuning • Signal strength indicator • BFO control • Built-in AM antenna • Headphone jack • Gray metal cabinet

Kit GR-64, 15 lbs... No money down, \$5 mo.....\$37.95

Export model available for 115/230 VAC, 50-60 cps; write for prices.

Shortwave Antenna Kit GRA-72, 2 lbs.....\$1.45

GR-64 SPECIFICATIONS—Frequency range: 550 kc to 30 mc in four bands. **Controls:** General coverage tuning, Bandspread tuning, Bandswitch, Noise Limiter—ON/OFF, Phone-Standby-CW switch, BFO control, Audio Gain, AC-ON/OFF, Headphone jack, Q-multiplier input. **Power requirements:** 105-125 V 50/60 cycles AC, 30 watts. **Dimensions:** 13½" W x 6" H x 9" D.

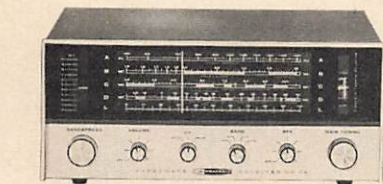
Deluxe 5-Band Shortwave Receiver... Compares To Units Costing \$150

- Covers 180 kc to 420 kc longwave, 550 kc to 1550 kc AM, and 2 mc to 30 mc shortwave • Tuned RF stage • Crystal filter • Separate detectors for SSB & CW • Switchable upper and lower sideband • Signal strength indicator • Bandspread tuning • 6 tube, 6 diode superhet circuit plus 2 silicon rectifiers • Code practice key monitor, and key jack • ANL, AVC, & antenna trimmer • 4" x 6" speaker • Built-in AM antenna • Headphones or external speaker jack • Transformer power supply • FREE Shortwave antenna • Gray metal cabinet

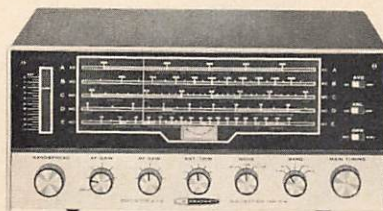
Kit GR-54, 25 lbs... no money dn., \$9 mo.....\$84.95

Export model available for 115/230 VAC, 50-60 cps; write for prices.

GR-54 SPECIFICATIONS—Frequency Coverage: Band A 180 kc to 420 kc; Band B 550 kc to 1550 kc; Band C 2 mc to 5 mc; Band D 5 mc to 12.5 mc; Band E 12.5 mc to 30 mc. **Sensitivity:** AM: Band A 1.6 uv; Band B 8 uv; Band C 1 uv; Band D 1.2 uv; Band E 6 uv. **SSB/CW:** Band A 0.7 uv; Band C 0.4 uv; Band D 0.5 uv; Band E 4 uv. **Signal Level for 10 db, signal plus noise to noise ratio. Selectivity:** Crystal filter; 3 kc minimum at -6 db; 7.5 kc maximum at -20 db. **Intermediate frequency:** 1682 kc. **Antenna Input impedance:** 50 ohms nominal—phone connector. **Power requirements:** 120 volts 50/60 cps AC, 45 watts. **Controls:** Bandspread, AF Gain/off-on switch; RF Gain; Ant. Trim; Mode switch; Band switch; Main tuning; AVC switch; ANL switch; OPR switch; Meter adjust. **Audio output impedance:** 8 ohms nominal. **Meter:** Indicates relative signal strength. **Speaker:** Built-in 4" x 6" permanent magnet. **Standard jack:** Accepts 8 ohm ext. speaker, or headphones (50 ohm to 10 K ohm). **Dimensions:** 14¾" W x 6-5/16" H x 10-15/16" D.



GR-64
\$37.95



GR-54
\$84.95

On-The-Go?...Take Along A Heathkit® Portable!



Tired Of Squeaky-Voiced Portables . . .

Then Build This Deluxe Heathkit GR-24!

- 6 silicon transistor, 2 diode circuit gives 8 transistor performance
- Uses standard "D" size flashlight batteries . . . only 1/10 the operating cost of typical pocket-size portables
- Large 4" x 6" permanent magnet oval speaker for "big-set" sound
- Easy-to-read slide-rule dial
- "Thumb-touch" controls
- Vernier tuning
- Tuned RF stage & double-tuned I.F. stage for greater sensitivity & selectivity
- Big 1/2" diameter built-in rod antenna for distant station reception
- Handsome black simulated leather case
- Fast, simple circuit board construction

GR-24
\$28²⁵

Makes An Entertaining Companion Wherever You Go! And its husky audio output stage puts out a healthy 250 milliwatts for a crisp, bold sound . . . the kind you can't get from miniatures . . . even when battery voltage finally runs low. Easily keeps you in earshot of the latest news, weather and ball scores. And its big 1/2" diameter ferrite rod antenna picks up stations miniatures can't get with pulling power that rivals hi-fi receivers. Easy to carry, too . . . with its compact shape, light weight and easy-grip handle.

Costs 1/10th As Much As Miniatures To Operate. Uses 6 long-lasting size "D" flashlight batteries (not included) . . . protected against corrosion by a plastic holder.

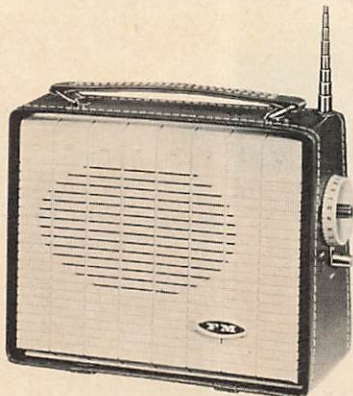
Smart Designer Styling . . . Assembles In 4-6 Hours! Boasts a handsome black simulated leather case with an anodized aluminum grille. And for quick station selection, there are two "thumb-touch" controls and an easy-to-read slide-rule dial.

Kit GR-24, 5 lbs. . . no money dn., \$5 mo. **\$28.25**

GR-24 SPECIFICATIONS—Tuning range: 535-1620 kc. IF frequency: 455 kHz. Sensitivity: 50 uv/m for 10 db signal-to-noise ratio at 50 mw output. Audio output: 250 mw @ 10% distortion. Speaker: 4" x 6" oval permanent magnet type. Battery: 9 v; 6 "D" flashlight cells. Current drain: No signal: 11 ma; 50 mw audio output: 41 ma. Dimensions: 3 3/4" D x 8 3/4" W x 7" H (overall).

Runs On 6 Inexpensive Size "D" Flashlight Batteries . . . only 1/10 the operating cost of pocket-size portables. Plastic battery holder protects against corrosion.

Wide, Open Chassis Layout . . . and simple circuit board construction assure fast, easy assembly. Takes around 4 to 6 hours.



GR-61
\$44⁹⁵



GR-151A
\$20⁶⁵



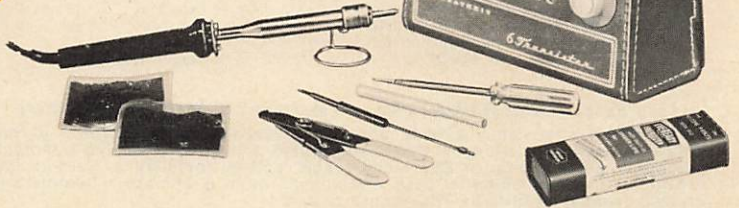
*Enjoy The Good Listening Of FM Wherever You Go . . .
With This Deluxe 10-Transistor Portable*

- 10 transistor, 2-diode circuit for instant operation, long trouble-free life
- Large 4" x 6" PM speaker for hi-fi sound
- Automatic Frequency Control for locked-in reception
- Treble-cut tone control assures crisp, clear tone
- Accurate vernier tuning
- 34" telescopic antenna—headphone jack
- Simple circuit board construction
- Smart tan simulated leather case with curved beige plastic grille

A Refreshing Idea In Portable Listening . . . the quiet, crystal-clear beauty of FM with its vast selection of classical and standard favorites. Hear it all with the rugged, designer-styled GR-61. Other features include 3 IF stages for full fidelity, push-pull output stage, headphone jack for private listening or connection to your hi-fi system, and external antenna terminals. Pre-assembled "front-end", prealigned IF transformers and simple circuit board construction assure easy 8-10 hour assembly. Operates on 6 "C" flashlight batteries (not included) . . . plastic battery holder protects against corrosion.

Kit GR-61, 6 lbs. . . no money dn., \$5 mo. **\$44.95**

GR-61 SPECIFICATIONS—Tuning Range: 88 mc to 108 mc. IF frequency: 10.7 mc. Audio Output: 250 milliwatts. Loudspeaker: 4" x 6" permanent magnet. Tone Control: Treble-cut. Battery: 9 volt, 6 "C" flashlight cells. Battery Life: 300 to 500 hours. Dimensions: 7 3/4" H x 10" L x 4" D. (overall). Styling: Sun-tan simulated leather case, curved beige plastic grille.



*6-Transistor AM Portable . . . Includes Everything You
Need To Build And Play It . . . Ideal For Beginner's Kit*

- 6-transistor, 3-diode circuit
- 4" x 6" speaker for "big-set" sound
- Built-in ferrite rod antenna for distant station pickup
- Pre-aligned coil and IF transformers assure peak performance
- Rugged simulated tan leather case
- Fast, simple circuit board construction

Assembles In 4 to 6 Hours! Includes solder, soldering iron, wire stripper and cutter, nut starter, alignment tool . . . even a 9 v. battery for many hours of good listening. Simple step-by-step instructions, large illustrations, and easy circuit board construction assure your success.

Kit GR-151A, radio, tool kit, battery, 5 lbs. **\$20.65**

Best Value in Citizen's Band Kits



Kit GW-14
\$89⁹⁵
 Assembled GWW-14
\$124⁹⁵

COMPLETE 23-CHANNEL CB CRYSTAL PACKAGE \$79.95!
 A regular \$135.70 value! Includes transmit & receive crystals for all CB channels for complete GW-14 operating capability . . . a total of 46 crystals. For maximum versatility, this package is your best dollar buy! GWA-14-2, 1 lb. no money dn., \$8 mo. \$79.95

All Channels Crystal Controlled To Assure Cleanest Signal And Unmatched Reliability . . . Heathkit® 23-Channel Solid-State 5-Watt CB Transceiver!

- 14 transistor, 6 diode circuitry • Provision for 23 crystal-controlled transmit & receive channels • Full 5 watt performance • Only 2 7/8" H x 7" W x 11" D . . . ideal for car, boat, any mobile installation • Front panel "S" meter • Adjustable squelch control • Automatic noise limiter • Built-in PM speaker • 1/2 uv sensitivity for 10 db signal plus noise to noise ratio • Circuit board construction • Gimbal mounting bracket • Attractive Turner Ceramic PTT Mike • Die-cast, chrome-plated front panel with rust-resistant aluminum charcoal gray cabinet

Transmit And Receive On All 23 Channels . . . with *crystal-controlled* reliability . . . when you own this Heathkit CB transceiver. Just flip to any desired channel on the illuminated channel selector, and you're set for instant 2-way communications. Its 14 transistor, 6 diode circuit runs cool with *no* component deterioration as with tube types. Draws only 0.75 amps when transmitting, 0.12 amps on receive.

Ideal For Cramped Quarters . . . only 2 7/8" H x 7" W x 11" D. . . snuggles up under the dash of your car, boat, jeep, truck, etc. Mounts in any position thanks to the gimbal mounting bracket.

A Healthy 5 Watts Input For Maximum Distance! A *minimum* of 3 watts RF output by means of a "twin pi" matching network which increases efficiency and minimizes harmonic radiation. Relay switching insures complete circuit isolation between transmitter and receiver sections . . . eliminates interaction problems. .

Now Operate On 3 Power Sources! By itself, the GW-14 operates mobile on any 12 v. neg. gnd. source. If your car has a 6 v. neg. gnd. battery system, you can choose the new GWA-14-4, 6 to 12 v. DC converter. And for 117 v. AC operation, the GWA-14-1 accessory power supply is available. GW-14 includes charcoal gray metal cabinet, ceramic PTT mike, DC power cables, and crystals for one channel (specify). Use must comply with part 95, FCC regulation.

Kit GW-14, 8 lbs., no money dn., \$9 mo. **\$89.95**
 Assembled GWW-14, 8 lbs., no money dn., \$12 mo. **\$124.95**
 Kit GWA-14-1, AC Power Supply, 5 lbs. **\$14.95**
 Kit GWA-14-4, 6 to 12 v. DC converter, 3 lbs. **\$14.95**

GW-14 SPECIFICATIONS—RECEIVER SECTION: General description: 6-transistor superheterodyne circuit with RF amplifier, squelch, noise limiter, 23-channel crystal controlled tuning with tuning and relative signal strength indicator. Intermediate frequency: 455 kc. 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 into 50 ohms 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.

Deluxe 5-Channel "Master Station"—Fixed or Mobile



GW-42
\$99⁹⁵

- 5 crystal-controlled transmit & receive channels • Built-in 4 tone selective call circuitry • All-channel receiver tuning • Tuning meter • Built-in 3-way power supply • Adjustable squelch • Switchable automatic noise limiter • Easy to build

Handsome Yet Rugged . . . It's Ready To Go Anywhere! Car, truck, barn, office, or home . . . for complete command of a 2-way CB radio setup. Includes PTT mike, AC & DC power cables, FCC license pack, and crystals for 1 channel (specify). Use must comply with Part 95 FCC regulations.

Kit GW-42, 23 lbs., no money dn., \$10 mo. **\$99.95**

GW-42 GENERAL DESCRIPTION—RECEIVER SECTION: 6 tube superheterodyne circuit with RF amplifier, squelch, noise limiter. Intermediate frequency: 455 kilocycles. Sensitivity: 1/2 micro-volt or less for a 10 db signal to noise ratio. Selectivity: 40 db attenuation of adjacent channel. **TRANSMITTER SECTION:** Nominal power input to final RF amplifier: 5 watts. Frequency control: 3rd overtone crystal as selected by 5-position switch. Modulation: AM plate modulation, automatically limited to less than 100%. **Output impedance:** 50-70 ohm. **ONE SQUELCH SECTION:** Frequency control: Resonant reed relay; with reeds used for generation of calling tone and frequency selection during monitoring. **Power requirements:** AC at 105-125 volts, 60 cycles, 70 watts; 6 VDC at 9 amps; 12 VDC at 5 amps. **Dimensions:** 5 7/8" H x 17 1/2" W x 10 1/2" D.



GW-22A
\$47⁹⁵

5 Channels—With Or Without Selective Call

- 5-crystal-controlled transmit & receive channels • Superhet receiver with RF stage • Built-in squelch & automatic noise limiter • Push-to-talk microphone • Easy to build

For The Ultimate In Versatility At Lowest Cost . . . all models include full channel capability, PTT mike, power cable, and crystals for 1 channel (specify). Use must comply with Part 95 FCC regulations.

Kit GW-22A (117 v. AC), 13 lbs. . . . No money down, \$ 5 mo. **\$47.95**
 Kit GW-22D (6 or 12 v. DC), 13 lbs. . . . No money down, \$5 mo. **\$49.95**
 Kit GW-32A with Selective Call (117 v. AC), 14 lbs.,
 No money down, \$7 mo. **\$69.95**
 Kit GW-32D with Selective Call (6 or 12 v. DC), 14 lbs.,
 No money down, \$8 mo. **\$74.95**

A Long-Range 1-Watt Walkie-Talkie . . . Includes \$20 Rechargeable Battery

- Efficient 10-transistor, 2-diode circuit for dependable, trouble-free performance • Up to 3-mile inter-unit communications • Crystal-controlled transmit & receive • Adjustable squelch control & automatic noise limiter • \$20 rechargeable battery included • Built-in 117 v. AC battery charger • Sturdy, rustproof all-metal case • Simple to build & operate • Complete with power cords, strap, crystals (specify channel) • FCC license required
- Kit GW-52A, 4 lbs. . . . no money dn., \$7 mo. **\$69.95**
 Kit GW-52-2, (pair), 8 lbs. . . . no money dn., \$12 mo. **\$129.95**

B 9-Transistor Walkie-Talkie . . . Hundreds Of Uses For Business, Farm, Leisure!

- Range up to one mile between units • Crystal-controlled transmitter & superheterodyne receiver • Built-in squelch & automatic noise limiter • No license required when operated according to FCC Reg. Part 15 • Includes earphone, strap, crystals (specify channel) • Less battery
- Kit GW-21A, 3 lbs. . . . no money down, \$5 mo. **\$39.95**
 Kit GW-21-2 (pair) 6 lbs. . . . no money down, \$8 mo. **\$74.95**
 GWA-30, Battery Set (2), 1 lb. **\$2.95**

C 4-Transistor Walkie-Talkie . . . Ideal For Boy Scouts, Campers . . . No License Required!

- Range 1/4 mile or more between units • Crystal-controlled transmitter—superregn. receiver • Fits in pocket or purse • No license required when operated according to FCC Reg. Part 15 • Includes crystal (specify channel) • Less battery
- Kit GW-31A, 2 lbs. **\$19.95**
 Kit GW-31-2 (pair), 4 lbs. . . . no money dn., \$5 mo. **\$35.00**
 GWA-30, Battery Set (2), 1 lb. **\$2.95**

Heathkit Walkie-Talkies . . . To Meet Every Need For The Home, Hobby Or Business



GW-52A
\$69⁹⁵
 (Pair \$129.95)

GW-31A
\$19⁹⁵
 (Pair \$35.00)

GW-21A
\$39⁹⁵
 (Pair \$74.95)

Marine Electronics



Deluxe 5-Channel 5-Watt "Ship Or Shore" CB Transceiver

• Front panel crystal socket—allows quick, convenient changing of one transmit crystal without removing cabinet • Spotting switch—generates a signal to tune receiver to exact frequency of changeable transmit channel • TVI filter—minimizes interference with TV sets • Calibrated "S" meter • 5 crystal-controlled transmit & receive channels • 3-way power supply—6 or 12 v. DC, 117 v. AC • Superhet receiver with RF stage for high performance • Styled in handsome Heathkit marine motif • Easy to build • Complements Heath marine radio-telephones as alternative means of communication in many boating areas

Kit MW-34, 18 lbs...no money dn., \$9 mo.\$84.95

Heath-Built 25-Watt 4-Channel Marine Radiotelephone For Onshore And River Cruising Craft

• Choose the complete MWW-13AS system for owner installation • Choose separate components for installation with technician checkout • 4 crystal-controlled transmit & receive channels • Covers 2-3 mc marine—receives AM broadcast band • 10-transistor, 5-diode, 3-tube circuit • Built-in heavy-duty transistor power supply • FCC type accepted • Factory assembled & tested, ready to install!

Practical Communications For Mariners On The Go! Crystals for 2182 & 2638 kc are included (distress & ship-to-shore channels). Specify additional channels (2 crystals per channel).

Assembled MWW-13AS, Complete system for do-it-yourself installation on outboard powered boats only, includes radiophone, antenna & instructions, 22 lbs., Express or Motor Freight. No money dn., \$18 mo.\$189.95

Assembled MWW-13A, Radiophone for technician installation on any boat, 17 lbs...No money down, \$16 mo.\$164.95

MDP-93, 13' Fiberglass Antenna, 5 lbs...(Motor Freight or Express only), no money dn., \$5 mo.\$34.95

MDP-103, Swivel lay-down base mount, 2 lbs.\$9.95

Extra transmit & receive crystals (specify) 1 lb.each \$2.95

Heath-Built 75-Watt, 6-Channel Radiophone—With Optional Remote Control

• 75-watt power input • 6 crystal-controlled transmit and receive channels (2-5 mc) • AM broadcast band tuning • 15-watt deck hailing capability • Transistorized receiver • Operates remotely with MWA-15-1 • Includes new "Local-Distance" switch • Enclosed relays for years of trouble-free operation • Separate transmitter tuning for each channel assures peak efficiency on every channel • Rustproof painted aluminum cabinet • Electronic components are varnish protected against corrosion & fungus • All exterior hardware is stainless steel • Assembled & Tested • FCC type accepted for "party-boat" use and D.O.T. approved

Assembled MWW-14A, 30 lbs...no money dn., \$26 mo.\$279.95

Extra transmit & receive crystals (2 xtals per channel...channels 2182 & 2638 kc are included), specify...crystalseach \$2.95

Assembled MWA-15-1 Radiophone remote control unit, 10 lbs., no money dn., \$10 mo. \$99.00

Assembled MWW-14AR 75-Watt Radiophone plus remote control (Assembled & ready to install), 41 lbs., \$38 dn., as low as \$23 mo.\$378.95

MDP-13 18' Radiophone antenna with laydown base & side mount. 12 lbs., (Motor Freight or Express only), no money dn., \$6 mo.\$59.95

Heath-Built 150-Watt 8-Channel Marine Radiotelephone With Optional Remote Control

SPECIAL COMBINATION OFFER ... SAVE \$89.24
Final Call—Offer Expires August 1, 1966

Includes MWW-15 Radiophone, MWA-15-1 Remote Unit, MDP-74 24' Antenna, Plus MDP-104 Deck Speaker. Order MWS-2. Express or Motor Freight.

\$525⁰⁰

• 150-watt power input • 8 crystal-controlled transmit and receive channels (2-5 mc) • AM broadcast band reception • 15-watt deck hailing capability • All solid state receiver circuitry • Operates remotely with MWA-15-1 • Includes new "Local-Distance" switch • Protected against corrosion and fungus • Completely assembled & tested • FCC type accepted for party boat use & D.O.T. approved

Assembled MWW-15, 31 lbs., \$43 dn., as low as \$25 mo.\$425.00

Extra transmit & receive crystals (2 xtals per channel... channels 2182 & 2638 kc are included), specify...crystalseach \$2.95

Assembled MWA-15-1 Radiophone remote control, 10 lbs., no money dn., \$10 mo.\$99.00

Assembled MWW-15R Radiophone plus remote control (Assembled & ready to install), 41 lbs.\$524.00

MDP-74 24' Radiophone antenna with laydown base & side mount. 14 lbs., (Motor freight or Express only), no money dn., \$7 mo.\$69.95

Heathkit "Mariner" 3-Band Radio Direction Finder

• Use your "Mariner" for easy, precise offshore navigating • Use it for entertainment listening on AM radio, or for monitoring the marine channels • Covers Beacon/Consolan, AM & Marine telephone bands • All-transistor circuitry for dependability, long life & low battery drain • Independent built-in battery power supply • Simple to build—complete with factory built & aligned "front-end" tuner and prewired component package

Kit MR-21A, 13 lbs...no money dn., \$11 mo.\$109.95

Heathkit MI-11A Depth Sounder

• Accurately readable—to 1 foot divisions with 5% accuracy • Reaches down to 200 feet on hard bottoms • Sensitive all-transistor circuit—instant operation, reliable performance • Self-contained or boat battery powered for added convenience • Simple, stable circuit board construction • External power connection and switch on rear panel for easy access

Kit MI-11A, 8 lbs...no money dn., \$7 mo.\$69.95

Model MIA-11, Accessory transducer mount, 2 lbs.\$8.95

NOTICE! Contact your Heathkit Electronic Center or Service Center for radiophone tune-up and installations. See Page 2.



MW-34
\$84⁹⁵



MWW-13AS
\$189⁹⁵



MWW-14A
\$279⁹⁵



MWW-15
\$425⁰⁰



MR-21A
\$109⁹⁵



MI-11A
\$69⁹⁵

Handy "Servants" For Home, Office or Car

GD-51A
\$22⁹⁵



Complete System
\$44⁸⁵

Portable "Wireless" Transistor Intercom

- No connecting wires between units . . . just plug into nearest AC or DC outlet • All-transistor circuit—built-in AC power supply • Choice of 2 operating frequencies • Add as many units as you wish anytime • 2-tone beige plastic cabinets • Variable squelch to quiet background noise

Just Plug It In, Push The Press-To-Talk Bar to talk, release to listen. PTT bar has a spring-return to "listen" and a "dictate" hold position for keeping tabs on baby, or for predominately one-way transmissions. Saves you valuable steps and time . . . eliminates annoying shouting. Use any number anywhere, as long as they operate on same 117 v. AC power line.

Kit GD-51A (one station), 5 lbs. \$22.95
Kit GD-51-2 (pair), 10 lbs. No money down, \$5 mo. \$45.90

GD-51A SPECIFICATIONS—Power requirements: 105-125 V. 50/60 cycle AC or DC. Standby power: 2.5 watts. Transmit frequency: 220 kc & 180 kc (switch selected). Size: 6 1/4" H x 8" W x 7 1/2" D.

For Added Household Security, Install This Indoor-Outdoor Intercom System!

- Master unit handles up to 5 stations • Ideal for home, offices • Weather-proof outdoor remote • Matching beige plastic cabinets

Outdoor Remote Lets You Identify Callers before opening your door—adds to your safety. Master unit has selective and all-call switches for private inter-unit communications or paging entire group. Any 2 remotes can communicate. Each remote has 50' of 3-conductor wire. Outdoor remote also has doorbell button.

Kit GD-121 Master Station, 6 lbs. No money down, \$5 mo. \$29.95
Kit GD-131 Indoor Remote, 4 lbs. \$8.95
Kit GD-141 Outdoor Remote, 2 lbs. \$5.95

SPECIFICATIONS—Power requirements: 117 v ac 50/60 cycles. 2.5 watts (idling), 3.5 watts (full output). Transistors: four 2N1274. Dimensions: 6 1/4" H x 8" W x 7 1/2" D (master), 5" H x 8" W x 6" D (indoor remote), 5 1/4" x 4 1/2" panel size (outdoor remote).

GR-121
\$28²⁵

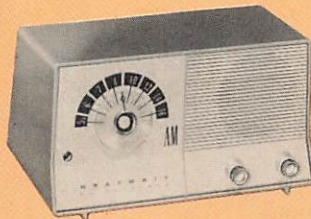


Versatile AM Clock Radio

Gently Wakes You With Music, automatically starts the coffee, entertains throughout the day. To insure "wake-up," alarm sounds after 10 minutes. Sleep switch, jack for pillow speaker, transformer operation, ivory & beige cabinet.

Kit GR-121, 8 lbs., no money dn., \$5 mo. . . \$28.25

GR-121 SPECIFICATIONS—Circuit: 5-tube superheterodyne. Frequency coverage: 535-1620 kc. IF frequency: 455 kc. Power supply: 115v., 60 cycle, AC only. Speaker: 3" PM. Controls: on/off volume, tuning, "Sleep Switch," "Radio Alarm." Dimensions: 5" H x 10" W x 5" D.



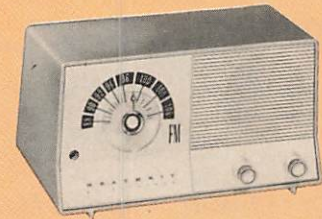
GR-10
\$16⁹⁵

Low Cost AM Table Radio

Features Superhet Circuit with automatic volume control; vernier tuning; built-in antenna plus terminals for external antenna; transformer operation; ivory & beige plastic cabinet.

Kit GR-10, 7 lbs. \$16.95

GR-10 SPECIFICATIONS—Frequency coverage: 535-1620 kc. IF frequency: 455 kc. Power requirements: 105-125 volts AC 50/60 cps. Speaker: 3" PM. Antenna: built-in ferrite rod. Dimensions: 5" H x 10" W x 5" D.



GR-11
\$23⁵⁰

Attractive FM Table Radio

Add Superb FM Listening To Any Room! Five tubes function as seven in its transformer-operated circuit. Line cord antenna; beige & ivory plastic cabinet. Assembles in 4-6 hours.

Kit GR-11, 7 lbs. \$23.50

GR-11 SPECIFICATIONS—Frequency coverage: 88-108 mc. IF frequency: 10.7 mc. Power requirements: 105-125 volts AC 50/60 cps. Speaker: 3" PM. Antenna: built-in line, provision for external antenna. Dimensions: 5" H x 10" W x 5" D.

Low Cost Auto Ignition Analyzer

Helps Keep Your Car Running Smoothly . . . shows shorted plugs, bad points, defective wiring, worn distributor parts, incorrect dwell time, etc. Manual shows what to look for, how to isolate trouble. Use on any internal combustion engine with conventional ignition. Aluminum cabinet . . . 8" H x 9 1/2" W x 16" D.

Kit IO-20, 17 lbs. no money dn., \$8 mo. \$89.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.

IO-20 SPECIFICATIONS—RPM Range: 400-5000 rpm. Displays: Secondary, Primary, Parade, Super-imposed. Screen size: 4 1/2" diameter. Dwell measurement: 4, 6 & 8 cylinder calibration on face plate. Pattern height: Secondary circuit, approx. 1". Primary circuit, 6 volt system 3/4", 12 volt system 1". Vertical expand ratio: 2 to 1. Horizontal expand ratio: 10 to 1. Cable length: 12' pick-up clamp, 2' ground, primary and secondary clips. Power requirements: 105-125 V, 50/60 cycles AC, 30 watts.

Timing Light Kit . . . Accessory To IO-20

- Easy to use—just plug into IO-20 Analyzer • Produces intense white light • Hard rubber case—10' connecting cable • Speed range 0-1250 flashes per minute (0-2500 rpm for 4-cycle engines) • Measures 6" H x 7 1/2" L x 2" W

Kit ID-11, 3 lbs. \$14.95



GFP-83
\$11⁹⁵

Gilbert-Davis Basic Tester Set

For Auto Engine Tune-Up And Repair! Includes Remote Starter Switch with push button and neoprene leads . . . Compression Tester that reads 0-300 lbs. on 2 1/2" dial—features short stem with 15° offset to reach back cylinders . . . Vacuum/Fuel Pump Tester with 2 1/2" 3-color dial—calibrated 0-30" for vacuum and 0-7 lbs. pressure . . . Engine Timing Light. Not a kit.

Model GFP-83, 4 lbs. \$11.95

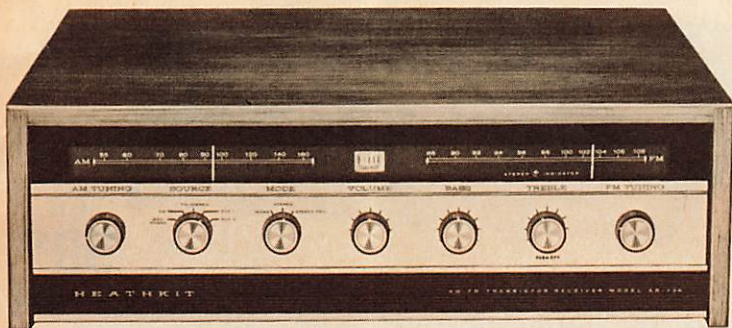


IO-20
\$89⁹⁵



ID-11
\$14⁹⁵

Solid-State Stereo Receivers!



AR-13A **\$184⁰⁰**

AR-13A SPECIFICATIONS—Recommended system mates: Speaker systems: AS-10 or AS-51, ppg. 18 & 19; separate speaker: AS-183, ppg. 30; all changers, ppg. 16 & 17. **Amplifier:** Power output per channel (Heath Rating) 20 watts/8 ohm load, 13.5 watts/16 ohm load, 9 watts/4 ohm load. (IHF Music Power Output): 33 watts/8 ohm load, 18 watts/16 ohm load, 12 watts/4 ohm load @ 0.7% THD, 1 kc. **Frequency response:** ±1 db from 15 cps to 30 kc @ rated output; ±3 db from 10 cps to 60 kc @ rated output. **Harmonic distortion (at rated output):** Less than 1% @ 20 cps; less than 0.3% @ 1 kc; less than 1% @ 20 kc. **Intermodulation distortion (at rated output):** Less than 1%, 60 & 6,000 cps signal mixed 4:1. **Hum & noise:** Mag. phono, 50 db below rated output; Aux. inputs, 65 db below rated output. **Channel separation:** 40 db @ 20 kc, 60 db @ 1 kc, 40 db @ 20 cps. **Input sensitivity:** (for 20 watts output per channel, 8 ohm load): Mag. phono, 6 mV; Aux. 1, .25 v; Aux. 2, .25 v. **Input impedance:** Mag. phono, 35 K ohm; Aux. 1, 100 K ohm; Aux. 2, 100 K ohm. **Outputs:** 4, 8, & 16 ohm and low impedance tape recorder outputs. **Controls:** 5-position Selector; 3-position Mode; Dual Tandem Volume; Bass & Treble Controls; Balance Control; Phase Switch; Input Level Controls (all inputs except Aux. 2); Push-Pull ON/OFF Switch. **FM: Tuning range:** 88 mc to 108 mc. **IF frequency:** 10.7 mc. **Frequency response:** ±3 db, 20 to 15,000 cps. **Capture ratio:** 3 db. **Antenna:** 300 ohm balanced (internal for local reception). **Quieting sensitivity:** 1½ uv for 20 db of quieting, 2 uv for 30 db of quieting. **Bandwidth:** 325 kc @ 6 db down with 1000 uv input. **Image rejection:** 35 db. **IF rejection:** 70 db. **AM suppression:** 35 db. **Harmonic distortion:** Less than 1%. **STEREO MULTIPLEX:** Bandpass: ±¼ db, 50 to 53,000 cps. **Channel separation:** [SCA Filter Off] 30 db, 50 to 2,000 cps. 25 db at 10 kc. **19 KC 38 KC Suppression:** 45 db down from rated output at 1 kc. **SCA Rejection:** 35 db down from rated output. **AM Tuning range:** 535 to 1620 kc. **IF frequency:** 455 kc. **Sensitivity:** 30 uv @ 600 kc; 9 uv @ 1000 kc. **Bandwidth:** 8 kc @ 6 db down. **Image rejection:** 40 db @ 600 kc. **IF rejection:** 55 db @ 1000 kc. **Harmonic distortion:** Less than 2% with 1000 uv input; 400 cps with 30% modulation. **Hum & noise:** 40 db. **Overall dimensions:** 17" L x 5½" H x 16" D. **Power requirements:** 105-125 volts, 50-60 cps AC, 30 watts idling, 110 watts max.

Heathkit 66-Watt AM/FM/FM Stereo Receiver . . . Handles Any Music Source, Any Speaker!

- 46 transistor, 17 diode circuit • Compact, yet houses two 33-watt power amplifiers . . . two preamplifiers . . . and wideband AM/FM/FM stereo tuner
- Built-in stereo demodulator . . . automatically switches to stereo • Stereo indicator light • Filtered outputs for direct stereo recording • Provides 66 watts IHF music power, 40 watts RMS from 15 to 30,000 cps • Luxurious walnut cabinet • Preassembled, prealigned "front-end" and AM-FM I.F. strip

Versatile Performer! There's wide-band AM, FM and FM stereo tuning for reception to delight the most critical ear. It has two preamps. And coupled with its two power amplifiers, the AR-13A provides 66 watts of IHF music power, 40 watts RMS at ±1 db from 15 to 30,000 cps. All this is housed inside one luxurious compact walnut cabinet . . . just marry it with two speakers for a complete stereo system.

Plenty Of Operating Conveniences, Too! A solid-state circuit automatically routes the signal through the stereo adapter when stereo is received. Then the automatic stereo indicator lights. The outputs are filtered for direct, "beat-free" stereo recording. There are dual-tandem controls for simultaneous adjustment of volume, bass and treble of both channels; a separate control for balancing both channels; and 3 stereo inputs—mag. phono and two auxiliaries. The AM tuner features a high gain RF stage and high Q rod antenna. The FM tuner has a built-in line cord antenna plus external antenna connectors.

But That's Not All. There's a local-distance switch for optimum reception in all signal areas; an FM squelch control; AFC for drift-free reception; plus flywheel tuning, tuning meter, and lighted AM & FM slide-rule dials for pin-pointing stations. The secondary controls are concealed under the hinged lower section of the gold anodized aluminum front panel to prevent accidental system setting changes. Both FM front-end and the AM-FM I.F. strip are preassembled and aligned to aid construction.

Kit AR-13A, 35 lbs. . . no money dn., \$18 mo. \$184.00
Export model available for 115/230 VAC, 50-60 cps; write for prices.
Important: The AR-13A is exempt from any Special System Discount



America's Best Transistor Stereo Value . . . Heathkit 30-Watt FM/FM Stereo Receiver . . . Only \$99.95!

- 31 transistor, 10 diode circuit • 30 watts IHF, 20 watts RMS from 15 to 50,000 cps at ±1 db • Wideband FM/FM stereo plus two preamplifiers and two power amplifiers • Front panel stereo headphone jack • Bookshelf size—37½" H x 15¼" W x 12" D • Custom install in a wall, your own cabinet, or either Heath cabinet

Just 20 Hours From Parts To Programs! And what sound! Natural and transparent as only transistors can make it. Runs cool and collected . . . with no heat to dissipate or tubes to deteriorate. The FM tuner easily pulls in stations far and near! . . . You'll like the way the flywheel dial glides effortlessly across the lighted band. For beat-free stereo taping the tuner outputs are filtered. And the output power drives all but the most inefficient speakers.

New Transformerless Output Circuit . . . each channel uses a complementary pair of PNP and NPN transistors. This design has proven superior, exhibiting lower phase shift and distortion, plus wider response. Other features include a headphone jack for private stereo listening; stereo indicator light; complete controls for full command of all functions; and choice of 3-way installation . . . wall, custom cabinet or either Heath factory-assembled walnut or beige metal cabinets. The attractive AR-14 anodized aluminum front panel goes great with any decor. Just add a pair of speakers and enjoy!

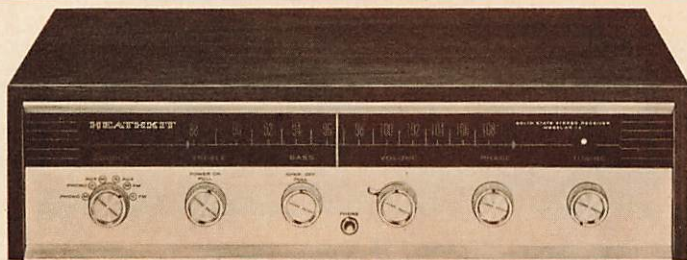
Kit AR-14, 18 lbs., less cab. for custom mtg. . . no money down, \$10 mo. \$99.95

Model AE-55, 6 lbs., walnut veneer cabinet. \$99.95

Model AE-65, 6 lbs., beige steel cabinet. \$39.95

Export model available for 115/230 VAC, 50-60 cps; write for prices.

Important: The AR-14 is exempt from any Special System Discount.



AR-14 **\$99⁹⁵**
(less cabinet)

AR-14 SPECIFICATIONS—Recommended system mates: All speakers & speaker systems, ppg. 18 & 19, except AS-2A and AS-2U; all changers and turntables, ppg. 16 & 17. **AMPLIFIER:** Continuous power output: 10 watts each channel—20 watts total. **Music power output (IHF):** 15 watts per channel. **Speaker output impedance:** 4 through 16 ohm. **Tape output impedance:** 3.5K ohm. **Damping factor:** 50. **Hum and noise:** Phono: —60 db; Auxiliary: —63 db. **Frequency response:** 12 to 60,000 cps ±1 db; 6 to 100,000 cps ±3 db. **Power response:** 15 to 50,000 cps ±1 db; 7 to 90,000 cps ±3 db. **Input sensitivity:** Phono: 4.5 mv; Auxiliary: 300 mv. **Input impedance:** Phono: 47K ohm; Auxiliary: 180K ohm. **Channel separation:** 45 db or better. **Total harmonic distortion (at rated output):** .5% or less @ 1000 cps, 1% or less at 20 & 20,000 cps. **Intermodulation distortion (at rated output):** Less than 1% (60 & 6,000 cps, 4:1). **Phono equalization:** RIAA. **Transistor complement:** (2) 2N3391* 1st preamp; (7) 2N2712* 2nd, 3rd preamp, 1st pre-driver, electronic filter; (2) 2N3416* 2nd pre-driver; (2) 2N3053* driver; (2) TA2577A output; (2) 2N2148* output. **Diode complement:** (2) IN3754* Reference diode; (4) F1* Bridge rectifier. **Front panel:** 6-position Source Switch: Mono-Phono; Stereo Phono; Mono Auxiliary; Stereo Auxiliary; Mono FM; Stereo FM; Volume Control; Bass Control; Treble Control; Phone Jack. **Rear panel:** Fuse AC Power Socket: Switched & Unswitched. **Speaker Terminal Blocks:** One Left & One Right Speaker. **Ground Terminals:** 1; Triple Phone Sockets. **Power requirement:** 105-125 volts 50/60 cps; 32 watts idling; 65 watts full output; (No load on AC power sockets). **Dimensions:** Overall 15¼" W x 37½" H x 12" D. **Mounting position:** Horizontal or Vertical; Cutout required 15" x 3½"; Depth required from front of mounting surface 11½". **FM: Tuning range:** 88-108 mc. **Antenna:** Balanced input for external 300 ohm antenna. **Intermediate frequency:** 10.7 mc. **Sensitivity (IHF):** 5 uv for less than 3% total noise, distortion hum —30 db. **Hum & noise (IHF):** —50 db. **Audio frequency response (IHF):** 0 to —3 db from 20 to 15,000 cps. **Harmonic distortion (IHF):** 1% or less. **Image ratio (IHF):** —45 db. **Capture ratio (IHF):** 3 db. **AFC correction:** 150 KC per volt. **AM suppression (IHF):** —35 db. **IF rejection (IHF):** —80 db. **FM STEREO: Separation:** 30 db @ 1 KC. **Transistor complement:** (1) T1 XM201* RF amp; (1) T1 XM203* osc.; (1) 2 SA240 mixer; (4) 2N2654 IF amp. & Limiter; (7) 2N2712 multiplex amp, 19 KC amp, emitter follower, 38 KC osc., switching detectors, stereo indicator amps.
*or equivalent.

Proof That Your Hi-Fi Dollars Buy More With



AJ-14
\$49⁹⁵
(less cabinet)



AA-14
\$59⁹⁵
(less cabinet)

The World's Best Value In Transistor FM/FM Stereo Tuners . . . And It's Easy To Build

- 14-transistor, 5 diode circuit for cool, instant operation, and the natural beauty of transistor sound • Stereo phase control to maximize stereo separation, minimize distortion • 4-stage IF section insures high sensitivity & selectivity • Filtered outputs for direct "beat-free" stereo recording • Automatic stereo indicator light • Prealigned, preassembled "front-end" tuner & one-circuit board for fast, simple assembly • Install any of 3 ways . . . wall, custom or either Heath cabinet

Kit AJ-14, 6 lbs. . . (less cabinet for custom mounting).
no money down, \$5 mo. \$49.95
Model AE-35, 4 lbs. . . beige metal cabinet. \$3.50
Model AE-25, 4 lbs. . . genuine walnut veneer cabinet. \$7.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.

AJ-14 SPECIFICATIONS (RATED IHF STANDARDS)—Tuning range: 88 to 108 mc. Antenna input impedance: 300 ohm, balanced input. Sensitivity (IHF): 5 microvolts. Intermediate frequency: 10.7 mc. Audio frequency response (IHF): -3 db to +0 db. (20 to 15,000 cps). Hum and noise (IHF): -50 db. Output impedance: 20 K ohm. Output voltage: 0.7 volt with a 1,000 microvolt input signal, 400 cps with 100% modulation. Harmonic distortion (IHF): 1% or less. Image ratio (IHF): -45 db. Capture ratio (IHF): 3 db. IF rejection (IHF): -80 db. AFC correction: 150 kc per volt. AM suppression (IHF): -40 db. Channel separation: 30 db or more at 1,000 cps. (Channel separation is measured using a 98 mc, 1,000 microvolt input stereo signal that is 100% modulated.) Dimensions: With Walnut Cabinet 12½" W x 3½" H x 9¾" D. Custom mounting dimensions: Horizontal or vertical; cutout required 11¼" x 2¾" depth required from front of mounting surface 9¾".

Matching 30-Watt Transistor Stereo Amplifier . . . 10-Hour Assembly, Costs Just \$59.95

- 17 transistors, 6 diodes • ± 1 db, 15 to 50,000 cps at 10 watts per channel continuous power (20 watts total) or 15 watts per channel IHF Music Power (30 watts total) • Concentric, clutched volume control • Tandem bass and treble controls • Edge-lighted control dial • Front panel stereo headphone jack

Kit AA-14, 11 lbs. . . less cabinet for custom mounting,
no money down, \$6 mo. \$59.95
Model AE-35, 4 lbs. . . beige metal cabinet. \$3.50
Model AE-25, 4 lbs. . . genuine walnut veneer cabinet. \$7.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.

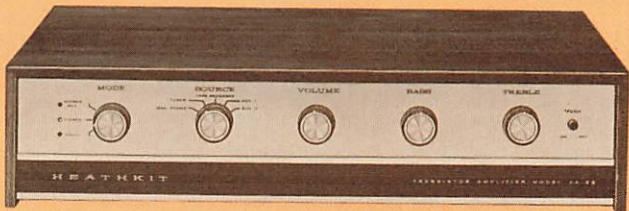
AA-14 SPECIFICATIONS—Recommended system mates: All speakers & speaker systems, ppg. 18 & 19 except AS-2A, AS-2U, AS-10U & AS-193, all changers & turntables, ppg. 16 & 17. Continuous power output: 10 watts each channel—20 watts total. Music power output (IHF): 15 watts per channel. Output impedance: 4 through 16 ohm. Damping factor: 50 or better. Hum and noise: Phono: -60 db; Tuner: -63 db; Auxiliary: -63 db. Frequency response: 15 to 50,000 cps ±1 db; 6 to 100,000 cps ±3 db. Power response: 15 to 50,000 cps ±1 db; 7 to 90,000 cps ±3 db. Input sensitivity: Phono: 4.5 mv; Tuner: 300 mv; Auxiliary: 300 mv. Input impedance: Phono: 47K ohm; Tuner: 180K ohm; Auxiliary: 180K ohm. Channel separation: 45 db or better. Total harmonic distortion (at Full Output): .5% or less @ 1000 cps, 1% or less @ 20 & 20,000 cps. Intermodulation distortion (at Rated Output): Less than 1% (60 and 6,000 cps, 4:1). Phono equalization: RIAA. Front panel: 6-Position Source Switch; Mono phono; Stereo phono; Mono tuner; Stereo tuner; Mono Auxiliary; Stereo Auxiliary; Volume Control; Bass Control; Treble Control; Phone Jack; Power Switch; Speaker Switch. Rear panel: Fuse, AC Power Socket; Switched & Unswitched; Speaker Terminal Block: One Left & One Right Speaker, Ground Terminal: 1. Triple Phono Input Sockets. Power requirements: 105-125 volts, 50/60 cps; 20 watts idling; 60 watts full output; (No load on AC power socket). Dimensions: With walnut cabinet 12½" W x 3½" H x 9¾" D. Custom mounting dimensions: Horizontal or vertical; cutout required 11¼" x 2¾"; depth required from front of mounting surface 10¾".



All-Transistor AM/FM/FM Stereo Tuner . . . Modern Styling And Sound . . . Old Fashioned Value

- 23-transistor, 8-diode circuitry • Built-in stereo demodulator • AFC for drift-free reception • Stereo indicator light • Filtered stereo outputs • Stereo phase control for maximum separation, minimum distortion • Luxurious walnut cabinet included • Matches AA-22 amplifier

AJ-33A
\$94⁵⁰



Matching Transistor Stereo Amplifier . . . 66 Watts Of Music Power

- 20-transistor, 10-diode circuit • Delivers a full 66 watts of IHF Music Power • Wide-range response ±1 db, 15 cps to 30 kc • Less than 1% distortion • 5 stereo inputs for any program source • Concealed secondary controls behind hinged lower front panel • Low-silhouette styling • Handsome preassembled walnut cabinet • Perfect match to Heathkit AJ-33A Tuner

AA-22
\$99⁹⁵

The Quiet, Crystal-Clear Beauty of FM . . . the "recording-session" realism of FM stereo . . . or the music, news and sports of AM . . . you'll find it all on the AJ-33A. Marry it with the matching AA-22 amplifier for the superb listening of "transistor stereo".

Kit AJ-33A, 16 lbs. . . no money down, \$10 mo. \$94.50

AJ-33A SPECIFICATIONS—FM SECTION: Tuning range: 88 to 108 mc. Intermediate frequency: 10.7 mc. Antenna: 300 ohm balanced or built-in line type. Output impedance (Emitter follower): Variable to 3000 ohms. Output voltage: 1.5 volts. Quieting sensitivity: 2 uv for 20 db; 3 uv for 30 db. Audio frequency response: 20-15,000 cycles ±3 db. Harmonic distortion: Less than 1%. Image rejection: 35 db. Capture ratio: 3 db. AM suppression: 35 db. Hum & noise: 50 db. MULTIPLEX SECTION: Converter bandpass: ±½ db 50 to 53,000 cps. Channel separation: 30 db from 50 to 2 kc and 25 db at 10 kc. AM SECTION: Tuning range: 535 to 1620 kc. Intermediate frequency: 455 kc. Usable sensitivity: 8 uv @ 1000 kc. Antenna: Built-in rod with provision for external straight wire. Output voltage: 0.25 V with 90% modulation. Image rejection: 40 db @ 600 kc. Harmonic distortion: Less than 2% (30% mod. @ 1 mv input). Hum & noise: 40 db. GENERAL SPECIFICATIONS: Tuning indicator: Meter. Controls: Tuning; Right Channel level; Left Channel level; FM squelch; Stereo converter—balance, separation and phase. Switches: Mode, AFC, Noise filter, SCA filter, local-distance. Transistors & diodes: 23 transistors, 8 diodes. Power supply: Transformer operated, full wave rectifier. Power requirements: 105-125 volts, 50/60 cycles, 7 watts. Dimensions: 15½" W x 3¾" H x 11½" D.

Kit AA-22, 22 lbs. . . no money down, \$10 mo. \$99.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.

AA-22 SPECIFICATIONS—Recommended system mates: Speaker system, AS-10 & AS-51, ppg. 18 & 19; all changers, ppg. 16 & 17; tuner, AJ-33A, above. Simultaneous power output per channel: (Heath Rating) 20 watts/8 ohm load, 13 watts/16 ohm load, 9 watts/4 ohm load. (IHF music power output) 33 watts/8 ohm load; 18 watts/16 ohm load, 16 watts/4 ohm load @ 0.7% THD, 1 kc. Power response: ±1 db from 15 cps to 30 kc @ rated output. ±3 db from 10 cps to 60 kc @ rated output. Harmonic distortion: (at rated output) less than 1% @ 20 cps, 0.3% at 1 kc, 1% @ 20 kc. Intermodulation distortion: (at rated output). Less than 1%, 60 and 6,000 cps signal mixed 4:1. Hum & noise: Mag phono, 50 db below rated output. Aux inputs 65 db below rated output. Channel separation: 40 db @ 20 cps, 60 db @ 1 kc; 40 db @ 20 kc. Input sensitivity: (for 20 watts output per channel, 8-ohm load), Mag phono, 6 mv; Tuner, 250 mv; Tape Recorder, 250 mv; Aux 1, 250 mv; Aux 2, 250 mv. Input impedance: Mag phono, 35 K ohm; Tuner, 100 K ohm; Tape Recorder, 100 K ohm; Aux 1, 100 ohm; Aux 2, 100 K ohm. Outputs: 4, 8 and 16 ohm and tape recorder outputs. Controls: 5-position selector switch, 3-position mode switch, dual tandem volume, bass and treble controls, phase switch, input level controls, push-on push-off switch. Semi-conductor complement: 20 transistors, 10 diodes. Power requirements: 105-125 volts, 50-60 cycles AC, 25 watts idling, no signal; 105 watts, full power output @ 120 volts with no load on AC receptacles. Power outlets: 2 AC receptacles, 1 switched, 1 unswitched. Dimensions: 15½" W x 3¾" H x 11¼" D (allow 1½" extra for rear projections).

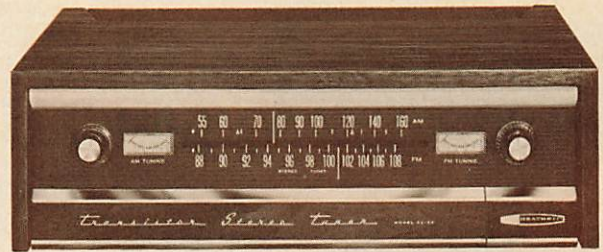
Heath Stereo Separates



3-Way Installation . . . AM, FM and FM Stereo . . . Deluxe Transistor Stereo Tuner

Kit AJ-43D, 15 lbs., less cabinet for custom mounting...
no money down, \$11 mo. \$109.00
Model AE-11, 8 lbs., Luxurious walnut wood cabinet. \$12.95
Model AE-15, 8 lbs., Tan vinyl-clad steel cabinet. \$6.95

AJ-43D SPECIFICATIONS—FM SECTION (Monaural Only): Tuning range: 88 to 108 mc. Intermediate frequency: 10.7 mc. Antenna: 300 ohms balanced, internal line antenna provided. Quieting sensitivity: (400 cps, 100% mod.) 1.5 uv for 20 db of quieting; 2 uv for 30 db of quieting; 3 uv for full quieting, 40 db. Image rejection: 35 db. IF rejection: 75 db. Capture ratio: 3 db. AM suppression: 35 db. Bandwidth (Complete Tuner): 325 kc at 6 db down, 1000 uv input. Detector bandwidth (Peak-to-Peak): 600 kc. Harmonic distortion: Less than 1% (IHF). Hum & noise: (Complete tuner) 55 db below full quieting (IHF). Output impedance: (Emitter Follower) Variable to 3000 ohms. Output voltage: 1 V. @ 1000 uv, 400 cps 100% mod. **FM STEREO CONVERTER SECTION:** Converter bandpass: 50 cps to 53,000 cps, ± ¼ db. Channel separation: 35 db @ 50 cps to 2,000 cps; 30 db @ 10,000 cps; 20 db @ 15,000 cps. 19 KC suppression: 50 db down. 38 KC suppression: 45 db down. SCA rejection: 30 db min. 64 kc to 70 kc. Hum & noise: 55 db down. Output voltage: 1 V. @ 100 uv input, 400 cps, 100% mod. Output impedance: (Emitter Follower) Variable to 3000 ohms each channel. **AM SECTION:** Tuning range: 535 to 1620 kc. Intermediate frequency (IF): 455 kc. Sensitivity: 600 kc, 7 uv for 10 db. S/N; 1000 kc, 4 uv for 10 db S/N; 1400 kc, 3 uv for 10 db S/N. Antenna: Built-in rod with provisions for external straight wire. Image rejection: 50 db at 600 kc; 70 db at 1400 kc. IF rejection: 55 db at 600 kc; 65 db at 1400 kc. 10 KC rejection: 40 db. Harmonic distortion: Less than 2%. Hum & noise: 30 db below 30% mod. Output impedance: (Normal) Variable to 3000 ohms; (Aux.) Variable to 4000 ohms. Output voltage: 1 volt nominal. Dimensions: 15½" W x 5¼" H x 14¼" D.



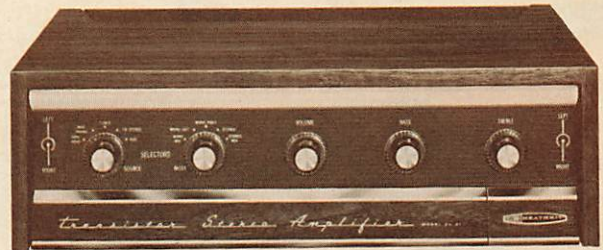
- 25-transistor, 9-diode circuit for pure, natural "transistor sound", heat-free operation • AM/FM/FM stereo tuning • Automatic stereo switching • Automatic stereo indicator light • Filtered outputs for direct, beat-free recording • Separate AM & FM tuning meters • Stereo phase control for maximum separation, minimum distortion • Automatic Gain Control for even, steady volume • Versatile installation . . . choose unit without a cabinet, or with either walnut wood cabinet or tan vinyl-clad steel cabinet

AJ-43D
\$109⁰⁰
(less cabinet)

Handles Any Source Or Speaker . . . Matching 100 Watt Transistor Stereo Amplifier

Kit AA-21D, 23 lbs., everything except a cabinet, no money down,
\$13 mo. \$137.00
Model AE-11, 8 lbs. . . walnut wood cabinet. \$12.95
Model AE-15, 8 lbs. . . tan vinyl-clad steel cabinet. \$6.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.

AA-21D SPECIFICATIONS—RECOMMENDED SYSTEM MATES: Speaker Systems: AS-2AU, AS-10, pg. 19. All changers & turntables, ppg. 16-17. Power output per channel: (Heath Rating) 35 watts/8 ohm load, 26 watts/16 ohm load, 18 watts/4 ohm load; (IHF music power output) 50 watts/8 ohm load, 34 watts/16 ohm load, 25 watts/4 ohm load @ 0.7% THD, 1 kc. Frequency response: ±1 db from 13 cps to 25 kc @ rated output; ±3 db from 8 cps to 40 kc @ rated output. Harmonic distortion (At rated output): Less than 1% @ 20 cps, 0.5% @ 1 KC, 2.0% @ 20 kc. Intermodulation distortion (at rated output): Less than 1%, 60 & 6,000 cps signal mixed 4:1. Hum & noise: Tapehead, 40 db below rated output; Mag. phono, 45 db below rated output; Aux. inputs, 60 db below rated output; Tape monitor, 70 db below rated output. Channel separation: 40 db min. @ 20 kc, 55 db min. @ 1 kc, 50 db min. @ 20 cps. Input sensitivity: (For 35 watts output per channel, 8 ohm load) Tapehead, 2 mv; Mag. phono, 3 mv; Tuner, 250 mv; FM Stereo, 250 mv; Aux., 250 mv; Tape Monitor, 0.6 V. Input impedance: Tapehead, 60 k ohm; Mag. phono, 30 k ohm; Tuner, 100 k ohm; FM Stereo, 100 k ohm; Aux., 100 k ohm; Tape monitor, 47 k ohm. Outputs: 4, 8 & 16 ohms and low impedance tape recorder outputs. Controls: 5-pos. Selector (dual concentric), 5-pos. Mode switch, dual-concentric Volume, Bass & Treble controls, Tape monitor sw., Loudness sw., Phase sw., Input level controls (all inputs except Tape Head & Tape Monitor inputs). Push-Push on/off switch. Semiconductor complement: 26 Transistors, 10 diodes. Power requirements: 105-125 volts, 50-60 cycles AC 35 watts idling, no signal; 200 watts, full power out, @ 120 volts with no load on AC receptacles. Power outlets: 2 AC receptacles, 1 switched, 1 unswitched. Dimensions: 15½" W x 5¼" H x 14" D.



- 26-transistor, 10-diode circuitry for smooth, uncompromising power response . . . 13 to 25,000 cps ±1 db at 35 watts rms per channel (50 watts IHF music power) • Concert hall realism, cool instant operation, complete freedom from microphonics • Encapsulated, epoxy-covered modules for fast, simple assembly • Versatile installation . . . choose unit without a cabinet, or with either a walnut wood or tan vinyl-clad steel cabinet . . . matches AJ-43D Tuner

AA-21D
\$137⁰⁰
(less cabinet)



AA-100
\$84⁹⁵

Best Buy . . . 60-Watt Tube-Type Amplifier . . . Full Command Of Any Stereo Function

- Hi-Fi rated at 50 watts (25 watts per channel) • 5 stereo inputs • Versatile controls • Mixed channel center speaker output • Separate monophonic phono input • Easy circuit board assembly • Matches the AJ-41 tuner in styling and performance

Delivers 50 Watts Continuous, 60 watts IHF music power from 30 to 15,000 cps at ± 1 db. 5 stereo inputs handle mag. phono, FM & AM tuners, tape head, and 2 auxiliary sources. Handsome tan vinyl clad steel cabinet.
Kit AA-100, 34 lbs., no money dn., \$9 mo. \$84.95
Export model available for 115/230 VAC, 50-60 cps; Write for prices.

AA-100 SPECIFICATIONS—Recommended System Mates: Speaker Systems, AS-10, AS-51, pg. 19; all changers & turntables, ppg. 16 & 17; Tuner, AJ-41 opposite. Channels: 2. Power output: 50 watts (25 w. per channel) Heath Hi-Fi Rating: 60 watts (30 w. per channel) IHF Music Power Output (0.7% THD, 1 kc). Power response: ±1 db from 30 cps to 15 kc at 25 watts output per channel. Harmonic distortion: Less than 0.5% at 25 watts, 1 kc. Less than 2% at 25 watts, 30-15,000 cps (each channel). Intermodulation distortion: Less than 1% at 25 watts, 60 and 6,000 cps signals mixed 4:1 (each channel). Hum and noise: Mag phono, 55 db below 25 watts output at 4:1 (each channel). Tape Head, 35 db below 25 watts output. Tuner and aux. inputs 70 db below 25 watts output. Channel separation: 42 db min. at 1 kc. Input sensitivity: For 25 watts output per channel; mono mag. phono, 1.5 mv; stereo mag. phono, 1.5 mv; tape head, 1 mv; tuner, 0.2v.; aux. 1 & 2, 0.2v. Outputs: 4, 8 and 16 ohms; cathode follower tape recorder outputs. Dimensions: 5" H x 15¼" W x 13½" D. (allow 1" for cables at read).



AJ-41
\$112⁵⁰

Matching AM/FM/FM Stereo Tuner . . . Complete Listening At Your Fingertips

- Built-in FM multiplex adapter • Broadband circuitry for full fidelity • Automatic FM Stereo indicator light • Adjustable Automatic Frequency Control for locked-in reception • Stereo phase control for maximum separation and lowest distortion • Adjustable FM squelch circuit for low noise between stations • Preassembled tuning unit, prealigned coils

Kit AJ-41, 26 lbs., no money dn., \$11 mo. \$112.50

AJ-41 SPECIFICATIONS—FM: Tuning range: 88 mc to 108 mc. I. F. frequency: 10.7 mc. Frequency response: ±2 db, 20 to 20,000 cps. Antenna: 300 ohm balanced (for internal or local reception). Output voltage: Nominal .5 volts (with 3 uv 30% modulation in). Quieting sensitivity: 2 uv for 20 db of quieting, 20 uv for full quieting (40 db). Maximum deviation sensitivity: 5 uv; (400 cycle, 100% modulation). Deviation sensitivity: 20 kc (1100 uv in). Harmonic distortion: Less than 1% (1100 uv 400 cycle 100% modulation). Image ratio: 40 db. AFC correction factor: 12 db. Amplitude modulation suppression: 25 db. Hum & Noise: 40 db below 30% modulation (20 uv in). **SPECIFICATIONS MULTIPLEX—Audio frequency response:** ±2 db, 50 to 15,000 cps. Sub-carrier bandpass: ±3 db 23,000 to 53,000 cps. Channel separation: 30 db. Hum & Noise: —55 db (relative to 1 volt rms output). Output impedance: Cathode follower, variable to 4,000 ohms (each channel). **SPECIFICATIONS AM—Sensitivity, narrow bandwidth position:** 1400 kc, 3 uv; 1000 kc, 4 uv; 600 kc, 8 uv [standard IRE dummy antenna, 1 volt RMS reference output]. Sensitivity change, narrow to broad position: —5 db. I.F. bandwidth, narrow: 14 kc, 6 db down. Broad: 20 kc, 6 db down. Image ratio: 1400 kc 50 db; 600 kc 75 db. Harmonic distortion: Less than 1%. Hum & noise: 35 db below 30% modulation (1000 kc unmodulated with 100 uv in). I. F. rejection ratio: 1400 kc 42 db; 600 kc 38 db. Power supply: Transformer operated, 117 v., 50-60 cycle, 100 watts. Dimensions: 5¼" H x 15½" W x 14¼" D.

Low-Cost "Tube-Type" Heathkit® Hi-Fi



A
AA-151
\$59⁹⁵



B
AJ-32
\$84⁹⁵



C
AA-32
\$39⁹⁵



D
AJ-13
\$47⁰⁰



E
AC-11A
\$23⁵⁰



F
AJ-63
\$37⁵⁰



G
AA-13
\$29⁹⁵



H
AA-23
\$42⁹⁵

A 32-Watt Stereo Amplifier . . . Matches AJ-12 & AJ-32 Tuners

• 32 watts IHF music power, 28 watts RMS at ± 1 db from 20 to 20,000 cps • Handles tuner, tape recorder, mag. & ceramic phonos • Patented Heath Ultra-Linear circuit • Tan vinyl-clad metal cab.
Kit AA-151, 30 lbs., no money dn., \$6 mo. \$59.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.

AA-151 SPECIFICATIONS—Recommended System Mates: Speaker Systems, AS-51, AS-10 pg. 18 & 19; all changers & turntables, pgs. 16 & 17; Tuner, AJ-32 below. **Channels:** 2. **Power output:** 28 watts (14 w. per channel) Heath Hi-Fi Rating: 32 watts (16 w. per channel) IHF Music Power Output (0.7% THD, 1 kc). **Power response:** ± 1 db from 20 cps to 20 kc at 14 watts output per channel. **Harmonic distortion:** Less than 2%, 30 cps to 15 kc at 14 watts output per channel. **Intermodulation distortion:** Less than 2% at 14 watts output per channel using 60 cps and 6 kc signal mixed 4:1. **Hum and noise:** Mag. phono input, 55 db below 14 watts; Tuner and crystal phono 65 db below 14 watts. **Channel separation:** Better than 45 db. **Input sensitivity:** For 14 watt output each channel (tone controls in "Flat" position); mag. phono, 0.004 volts at 1 kc; crystal phono, 0.2 volts; tuner and aux., 0.2 volts. **Outputs:** 4, 8 and 16 ohms. **Dimensions:** 15 $\frac{1}{4}$ " W x 5 $\frac{1}{4}$ " H x 11" D.

B AM/FM Stereo Tuner . . . Attractive In Styling & Price

• Built-in multiplex converter • FM Stereo indicator light • Variable AFC for drift-free reception • 2 bar-type "Eye" tuning indicators • Stereo Phase control • Filtered stereo outputs • Matches AA-151 amplifier
Kit AJ-32, AM-FM Stereo Tuner, 23 lbs. . . . no money dn., \$9 mo. \$84.95
Kit AJ-12, FM-FM Stereo Tuner, 19 lbs., no money dn., \$7 mo. \$65.95

AJ-32 SPECIFICATIONS—AM Section: Tuning range: 550 kc-1600 kc. Usable sensitivity (normal position): 1400 kc—10 microvolts (20 db of quieting); 1000 kc—15 microvolts (20 db of quieting); 600 kc—40 microvolts (20 db of quieting). **FM Section:** Tuning range: 88 mc-108 mc. Antenna: Balanced input for external 300 ohm antenna. Internal line antenna. **AM suppression:** —27 db. **Quieting sensitivity:** 20 db—2 $\frac{1}{2}$ microvolts; 30 db—3 $\frac{1}{2}$ microvolts; 48 db—30 microvolts (max. quieting). **FM Stereo Converter Section:** Audio frequency response: ± 2 db from 50 to 15,000 cps. **Subcarrier bandpass:** ± 3 db from 23,000 to 53,000 cps. **Channel separation:** 30 db or more at 1 kc; 25 db or more at 10 kc. **Output impedance** (cathode follower): Variable to 4000 ohm, each channel. **Size:** 5 $\frac{1}{4}$ " H x 15 $\frac{1}{4}$ " W x 11" D.

C Matching 20-Watt Stereo Amplifier . . . Easy To Build & Operate!

• Four stereo inputs . . . magnetic & ceramic cartridges, tuner & auxiliary • Full-range controls • Two push-pull output stages plus two 4-stage preamps
Kit AA-32, 16 lbs. . . . no money dn., \$5 mo. \$39.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.

AA-32 SPECIFICATIONS—Recommended System Mates: Speaker systems, AS-22, AS-81, pg. 18. All changers & turntables, pgs. 16 & 17. **Simultaneous power output per channel:** 8 watts (16 watts total); IHF Music Power Output per channel: 10 watts (20 watts total). **Frequency response:** ± 1 db from 30 cps to 30,000 cps at rated output. **Harmonic distortion:** (at rated output) 2% @ 30 cps, 0.7% @ 1000 cps, 2% @ 15,000 cps. **Intermodulation distortion:** (at rated output) Less than 3% using 60 and 6000 cps mixed 4:1. **Dimensions:** 13 $\frac{1}{2}$ " W x 4-11/16" H x 9 $\frac{1}{4}$ " D.

D Low Cost FM/FM Stereo Tuner . . . Simple Operation, Easy Listening

• Built-in FM stereo circuitry • FM stereo indicator light • Automatic Frequency Control • Pre-assembled, prealigned "front-end" & point-to-point wiring for fast, easy construction • New mocha brown, beige & black color styling . . . matches AA-32 Amplifier above • Filtered outputs for stereo tape recording
Kit AJ-13, 14 lbs. . . . no money dn., \$5 mo. \$47.00
Export model available for 115/230 VAC, 50-60 cps; write for prices.

AJ-13 SPECIFICATIONS—Tuning range: 88 to 108 mc. **Intermediate frequency:** 10.7 mc. **Quieting sensitivity:** 2 $\frac{1}{2}$ uv for 20 db of quieting; 3 $\frac{1}{2}$ uv for 30 db of quieting. **Audio frequency response:** Mono— ± 1 db from 20 to 20,000 cps. Stereo— ± 2 db from 50 to 15,000 cps. **Antenna:** Balanced input for external 300 ohm antenna. **Channel separation:** 25 db or more at 1000 cps. **Front panel controls:** Tuning; selector switch, power off-FM-stereo; AFC switch, off-on. **Dimensions:** Overall: 13 $\frac{1}{2}$ " W x 4-11/16" H x 9 $\frac{1}{2}$ " D.

E Add Stereo Realism With A Multiplex Adapter

• Use with any FM tuner having multiplex output • Compact 3 $\frac{1}{2}$ " H x 3 $\frac{5}{8}$ " W x 9 $\frac{3}{4}$ " D • Styled to match Heathkit tuners • Built-in power supply
Kit AC-11A, black, 4 lbs. \$23.50
Kit AC-11B, tan, 5 lbs. \$23.50

AC-11 SPECIFICATIONS—Audio frequency response: ± 2 db 50 to 15,000 cps. **Subcarrier Bandpass:** ± 4 db 23,000 to 53,000 cps. **Channel separation:** 30 db. **Hum and noise:** —55 db (relative to 1 volt rms output). **Input impedance:** 470 K ohms. **Output impedance:** 3000 ohms each channel (cathode follower). **Input:** MULTIPLEX (from tuner). **Input signal voltage:** 4 volt minimum (from multiplex output of FM tuner). **Outputs:** LEFT CHANNEL; RIGHT CHANNEL. **Switch and controls:** OFF-ON switch; CHANNEL SEPARATION control; LEFT CHANNEL LEVEL control; RIGHT CHANNEL LEVEL control. **Power requirements:** 117 volts AC 50/60 cps, 12 watts.

F Low Cost FM Tuner . . . Simple To Build, Converts To Stereo

• Broad-band circuitry, receives stereo with AC-11 Multiplex Converter (above) • Mocha brown & beige color styling with black trim • 5 tube circuit—9 tube function • Automatic Frequency Control for drift-free reception • Easy to build with factory assembled "front-end" tuner, prealigned IF transformers & encapsulated circuit module • Matches AA-13 & AA-23 Amplifiers
Kit AJ-63, 10 lbs., no money dn., \$5 mo. \$37.50
Export model available for 115/230 VAC, 50-60 cps; write for prices.

AJ-63 SPECIFICATIONS—Tuning range: 88 to 108 mc. **Quieting sensitivity:** 2.5 uv for 20 db of quieting; 3.5 uv for 30 db of quieting; 25 uv for maximum quieting (38 db). **IF frequency:** 10.7 mc. **Image ratio:** 40 db. **AFC correction factor:** 75 kc per volt. **AM suppression:** 25 db. **Frequency response:** ± 2 db, 20-20,000 cps. **Harmonic distortion:** Less than 1.5%, 1100 uv, 400 cycles 100% modulation. **Intermodulation distortion:** Less than 1%, 60 cycles and 6 kc, mixed 4:1; 1100 uv, 30% modulation. **Antenna:** 300 ohms unbalanced. **Output impedance:** 600 ohms (cathode follower). **Output voltage:** Nominal .5 volt (with 30% modulation, 20 uv signal). **Power requirements:** 105-125 volts, 50/60 cycles AC at 30 watts. **Overall dimensions:** 4-11/16" H x 13 $\frac{1}{8}$ " W x 7" D.

G 16-Watt Mono Amplifier . . . Ideal For Extra Music System

• New mocha brown & beige color styling with black trim • Patented Heath Ultra-Linear® circuit • Hi-Fi rated 14-watt output • 30 to 15,000 cps response ± 1 db at full rated output • Separate bass & treble controls • Three inputs for any program source • Matches AJ-53 & AJ-63 tuners
Kit AA-13, 17 lbs. . . . no money dn., \$5 mo. \$29.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.

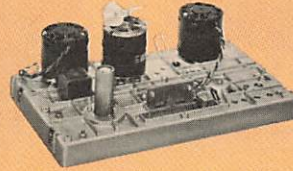
AA-13 SPECIFICATIONS—Recommended System Mates: Speaker System: AS-22, AS-51, pg. 18; all changers & turntables pgs. 16 & 17. **Power output:** 14 watts Heath Hi-Fi Rating: 16 watts IHF Music Power Output (2% THD, 1 kc). **Frequency response:** ± 1 db 30-15,000 cps, 14 watts output. **Harmonic distortion:** Less than 2%, 30 cps to 15 kc at 14 watts output. **Intermodulation distortion:** 2% or less at 14 watts output using 60 and 6000 cps signals, 4:1. **Hum & noise:** Mag. phono input, 50 db below 14 watts; Tuner and crystal phono, 60 db below 14 watts. **Input sensitivity:** For 14 watts output; mag phono, 0.004 v at 1 kc; crystal phono, 0.2 v; tuner 0.25 v with tone controls flat. **Output:** 4, 8 and 16 ohms. **Damping factor:** 10:1. **Controls:** 3-position function selector switch, bass and treble tone controls, volume control. **Power requirements:** 117 v, 50-60 cycles, 55 watts. **Dimensions:** 4 $\frac{1}{8}$ " H x 13 $\frac{1}{8}$ " W x 10 $\frac{1}{2}$ " D.

H 30-Watt Mono Amplifier . . . Compact Size, King-Size Performance

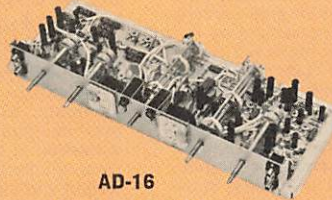
• Hi-Fi rated at 25 watts continuous power, 30 watts IHF music power rating • New mocha brown & beige color styling with black trim • Four front-panel selected inputs • ± 1 db from 30 to 15,000 cps power response • Separate bass & treble controls • Bookshelf size for limited space installations
Kit AA-23, 21 lbs. . . . no money dn., \$5 mo. \$42.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.

AA-23 SPECIFICATIONS—Recommended System Mates: Speaker Systems: AS-22, AS-51, pg. 18; all changers & turntables pgs. 16 & 17. **Power output:** 25 watts Heath hi-fi rating; 30 watts IHF music power rating (0.7% THD @ 1 kc). **Frequency response:** ± 1 db, 30 cps to 15 kc, at 25 watts output. **Harmonic distortion:** Less than 2%, 30 cps to 15 kc at 25 watts output, and less than 0.7% at 1 kc at 25 watts output. **Intermodulation distortion:** Less than 2% at 25 watts using 60 cps and 6000 cps signals 4:1. **Hum & noise:** Microphone, —60 db or better; Mag. Phono, —53 db or better; Xtal Phono, —55 db or better; Auxiliary, —60 db or better. **Input sensitivity:** For 25 watts output with tone controls flat; Microphone, 9 mv; Mag. phono, 5 mv (at 1 kc); Xtal Phono, 120 mv; Auxiliary, 200 mv. **Outputs:** 4, 8, and 16 ohms. **Damping factor:** 9. **Controls:** 4-position selector switch, volume control, bass control and treble control with on/off switch. **Power requirements:** 105-125 volts, 50-60 cps, 120-135 watts. **Power outlets:** 1 AC receptacle, unswitched. **Indicator:** Neon pilot light. **Dimensions:** 13 $\frac{1}{4}$ " W x 4 $\frac{1}{8}$ " H x 9 $\frac{1}{2}$ " D.

New! Heathkit® / Magnecord® 1020 4-Track Stereo Recorder



3 Separate Motors . . . a hysteresis synchronous capstan motor for constant speed, and two permanent split-capacitor types to drive the reels. Brakes, tape gate & pinch roller are solenoid-operated for positive action.



All Solid-State Circuitry . . 21 transistors, 4 diodes . . . your assurance of cool, instant operation, and long trouble-free life.

AD-16
\$399⁵⁰

(less base)
Available Early August

Versatile Performer . . . • 4-track stereo or mono record and playback • Sound-On-Sound record • Sound-With-Sound record • Echo

Save \$170 With This Heathkit Version Of The Professional Magnecord 4-TRACK Transistor Stereo Tape Recorder!

- 4-track stereo or mono record and playback at 7½ & 3¾ ips • Sound-on-sound, sound-with-sound and echo capabilities • 21-transistor, 4-diode circuit for cool, instant operation, long life • 3 separate motors . . . hysteresis synchronous capstan motor for constant speed, two split-capacitor type motors to drive supply and takeup reels • Automatically shuts itself off at end of reel • Two V.U. meters • Digital counter with push button zero reset • Stereo-microphone inputs and headphone outputs . . . front panel mounted for easy access • Operates in vertical or horizontal positions • Individual gain controls for each channel • Mount in wall, cabinet, tape drawer or placed on shelf with optional walnut base • All push-button controls for operational modes • Rigid, long-life die-cast parts • Requires amplifier and speakers for playback

Thanks to Heath, You Can Now Save \$170 on the new Magnecord 1020 4-Track Transistor Stereo Tape Recorder by building it yourself. And the only difference between this Heathkit version and the original is the \$170 you save (think of all the tape you can buy with that!).

All parts are made at the Magnecord factory . . . under a quality control system that meets the demanding requirements of the National Aeronautics & Space Administration (NASA).

Add to this Magnecord's years of pioneering and developing tape equipment for the broadcasting and recording industries, and you have a sophisticated recorder that will give you years of professional quality and reliability.

Professional Recording Facilities

With the 1020, you can record "live" from microphones, or from auxiliary sources like tuners, phonographs, TV's, etc., and playback . . . in 4-track stereo or mono at either 7½ or 3¾ ips. And you can make sound-on-sound, or sound-with-sound (mixing) recordings, or create interesting echo effects. Requires amplifier and speakers for playback.

Professional Tape Transport

The tape transport is powered by 3 separate motors. The hysteresis synchronous capstan motor has a dynamically balanced flywheel and a ball-bearing inertial stabilizer for constant, accurate speed. Two permanent split-capacitor torque motors drive the supply & takeup reels. With the convenient push-button controls, you can change operational modes instantly and gently with the touch of a button. Compliance arms insure correct tape tension at all times. Die-cast main plate, die-cast stabilizer flywheel, die-cast capstan shaft housing—all for long life, professional performance.

The military-type differential band brakes are solenoid operated for instant, gentle stops. And when the tape runs out an automatic switch shuts off all motors and retracts the tape pinch roller eliminating unnecessary motor wear and preventing deformation of rollers. The tape gate and pinch roller also are solenoid-operated for positive action.

3 Professional Tape Heads

Selectable ¼ track erase, record and play. Engineered and lapped to a precise hyperbolic curve for smooth low frequency response . . . made with a deep gap, deposited quartz for high frequency response and long life. Removable shields afford double protection against external magnetic fields. Protective, snap-mounted head covers provide easy access for cleaning and de-magnetizing. And for quick, accurate editing, there are center-line marks.

Other Professional Features

All parts mount on a thick, die-cast top plate that won't warp, reduces wear, provides rigid support and stable alignment. Two V.U. meters for visual monitoring of signal levels from either tape or source . . . allows quick comparison of source with recorded signal. Inputs for microphone and outputs for headphones are all front-panel mounted for easy access. Digital counter with push button zero reset. Low impedance emitter-follower outputs deliver 1 volt or more to amplifier inputs. Individual gain controls for each channel. And a 21-transistor, 4 diode circuit for cool, instant operation, long life.

Famous Heathkit Know-How Speeds Assembly

Simple step-by-step instructions, with generous use of giant pictorials, guide you every step of the way. You just wire two circuit boards and do the easy mechanical mounting for the transport components.

And to make construction even easier, the connecting wires and shielded cables are pre-cut, pre-stripped, and marked . . . even the connectors are installed where necessary; just plug them in! Total assembly time is around 25 hours.

Versatile Installation

Can be used horizontally or vertically. Mount in a wall, cabinet, tape drawer, or place on shelf with optional walnut base. Optional slides and walnut base combine as a tape drawer to permit sideways mounting in Heath AE-20W or AE-13S equipment cabinets with back-panel removed or cut out. Get today's best buy in a professional stereo tape recorder . . . order the Heathkit version of the Magnecord 1020 now!

Kit AD-16, Stereo Tape Recorder, 45 lbs., \$40 dn. as low as \$23 mo. \$399.50
ADA-16-1, walnut base, 8 lbs. \$19.95
ADA-16-2, adapter ring for cabinet or wall mounting, 2 lbs. \$4.75
ADA-16-3, slides, (use with walnut base for drawer mounting), 7 lbs. \$9.95
 (Base, ring & slides available late August)

AD-16 SPECIFICATIONS—Tape speeds: 7½ ips and 3¾ ips. **Speed accuracy:** ±1% at 7½ ips; ±2% at 3¾ ips **Wow and flutter:** 0.18% rms at 7½ ips; 0.25% at 3¾ ips **Tape size:** ¼" wide; 1.5, 1.0, 0.75 or 0.5 mil thick. **Reel size:** Standard N.A.B. 5", 7", 8", and 8¼" **Magnecord reel Rewind and Hi-Fwd time:** 1200 ft. in 120 seconds or less **Digital counter:** 3-digit counter with zero reset **Heads:** ¼ track erase, record and playback **Circuitry:** 21 transistors, 4 diodes **Frequency response:** ±3 db, 30 to 10,000 cps at 3.75 ips; ±2 db, 45 to 18,000 cps at 7.5 ips **Signal-to-noise ratio:** 48 db at 3.75 ips; 52 db at 7.5 ips **Inputs per channel:** Hi-Z microphone, auxiliary **Outputs:** Emitter follower, output level at 0 VU .9 V ± .2V at 400 cps **Power supplies:** Transformer-operated, full-wave rectifier, series regulated —17 volt DC supply. Half-wave rectifier solenoid power supply **Dimensions:** Overall, without base; 17¾" W. x 13¾" D. x 8¼" H. (minimum space required for cabinet mounting, 15¼" H. x 18¼" W. x 8¾" D.) **Power requirements:** 110-130 volts, AC, 60 cps, 140 watts

Choose A Stereo Cartridge For 1c



ADP-104 **\$84⁵¹**
(with 1c cartridge)

Garrard Type A70 Automatic Turntable

- Exclusive pusher platform offers automatic play without compromise . . . safest automatic record principle ever developed • Completely new dynamically balanced tone arm for improved tracking capability & resistance to external shock
- New adjustable stylus pressure & tracking force
- Full-sized, heavy-balanced cast "sandwich" turntable • New adjustable bias compensator
- New lightweight shell • New ultra-sensitive "frictionless" Delrin® trip assembly • Double-shielded 4-pole shaded motor • 4 speeds, automatic or manual

ADP-104, 23 lbs., turntable . . . no money dn., \$9 mo. \$84.50
 ADP-104, 24 lbs., turntable with choice of 1c offer cartridge below (specify by model no.) . . . no money dn., \$9 mo. . . . \$84.51
 ADA-61-1, 1 lb., Garrard LRS3 45 rpm spindle \$3.80
 ADA-63-3, 4 lbs., walnut base, 16-7/16" W x 13-11/16" D x 3" H. \$5.50
ADP-104 SPECIFICATIONS—Speeds: 16²/₃, 33¹/₃, 45 & 78 rpm. **Motor:** 4-pole shaded, double shielded. **Tracking:** Will track all cartridges, including high compliance models. **Color:** Iridescent charcoal gray and chrome. **Wiring:** Stereo, 4-pin/5-wire system w/separate ground connection for hum elimination. **Cables furnished:** Line cord and 2 audio. **Power requirements:** 100-130 volts, 60 cycles AC. **Dimensions:** Requires mounting space 16" W., 13¹/₄" D., 6" above and 2¹/₈" below top of motor board.



ADP-114 **\$59⁵¹**
(with 1c cartridge)

Garrard AT60 Automatic Turntable

- Tubular tone arm is counterweight-adjusted & dynamically balanced with a built-in stylus gauge
- Automatic intermix record operation • New automatic bias compensator tracks lightest & most compliant cartridges accurately and without distortion
- Heavy cast, oversize turntable . . . dynamically balanced and non-magnetic • Lightweight cut-away shell accepts all cartridges • 4 speeds, automatic or manual

ADP-114, 15 lbs., turntable . . . no money dn., \$6 mo. \$59.50
 ADP-114, 16 lbs., turntable and choice of any 1c offer cartridge below (specify by model no.) . . . no money dn., \$6 mo. \$59.51
 ADA-114-1, 1 lb. . . Garrard LRS10 45 rpm spindle \$3.80
 ADA-53W, 3 lbs. . . walnut finish base, 14⁵/₈" W x 12³/₄" D x 3" H. \$4.95
ADP-114 SPECIFICATIONS—Speeds: 16²/₃, 33¹/₃, 45 & 78 rpm. **Motor:** 4-pole shaded, double shielded. **Tracking:** Will track all cartridges, including high compliance models. **Color:** Special iridescent charcoal gray. **Wiring:** Stereo, 4-pin/5-wire system w/separate ground connection for hum elimination. **Cables furnished:** Line cord, 2 audio cables. **Power requirements:** 100-130 volts, 60 cycles AC. **Dimensions:** Requires mounting space 15³/₈" W x 13¹/₈" D x 4⁷/₈" below top of motor board.



ADP-124 **\$44⁵¹**
(with 1c cartridge)

Garrard Model 50 Automatic Turntable

- Counter weighted tone arm automatically tracks high quality cartridges . . . a first in popular-priced turntables • New oversize turntable and handsome mat cover for better record support • Compact . . . fits any cabinet or component installation • Plays all 4 speeds automatically or manually • Automatically mixes records of different sizes & same speed • DuPont Delrin® "frictionless" trip mechanism • Completely assembled

ADP-124, changer only, 13 lbs. . . no money dn., \$5 mo. \$44.50
 ADP-124, turntable with choice of 1c offer cartridge below (specify by model no.), 14 lbs. . . no money dn., \$5 mo. . . \$44.51
 ADA-114-1, 1 lb. Garrard LRS10 45 rpm spindle \$3.80
 ADA-53W, 3 lbs., Garrard matching walnut base, 14⁵/₈" W x 12³/₄" D x 3" H. \$4.95
ADP-124 SPECIFICATIONS—Speeds: 16²/₃, 33¹/₃, 45 & 78 rpm. **Motor:** 4-pole, hum shielded. **Tracking:** Tracks per cartridge specifications. **Color:** Gray and silver. **Wiring:** Stereo, Amplug plug. **Cables furnished:** Line cord and 2 audio. **Power requirements:** 110-130 volts, 60 cycles AC. **Dimensions:** 14¹/₄" W x 12¹/₂" D x 4⁷/₈" above and 2⁷/₈" below top of motor board.

Special 1c Offer Cartridges With Turntable Orders Specify By Model No.

Shure M44-7 15 "Dyonic"

AD-85B MANUFACTURER'S SPECIFICATIONS—Frequency response: 20 to 20,000 cps. **Output:** 11 mv per channel. **Separation:** More than 25 db at 1 kc. **Load impedance:** 47,000 ohms per channel. **Stylus:** .018 mm diamond. **Compliance:** 20.0 x 10⁻⁶ cm per dyne. **Tracking force:** 1¹/₂ to 3 grams. **Model AD-85B, 1 lb. \$19.95**

New! Sonotone 9TAFHC-SD "Ceramic"

AD-15K MANUFACTURER'S SPECIFICATIONS—Frequency response: 20 to 20,000 cps. **Output:** .20 volt. **Separation:** 30 db. **Load impedance:** 1 to 5 megohms. **Stylus:** 0.7 mil diamond, 3 mil sapphire. **Compliance:** 15 x 10⁻⁶ cm/dyne. **Tracking force:** 1.5-3 grams for professional arms; 3-4 grams for changers. **Model AD-15K, 1 lb. \$7.26**

New! Empire 888 "Magnetic"

AD-125G MANUFACTURER'S SPECIFICATIONS—Frequency response: 12-25,000 cps. **Output:** 8 mv/channel. **Separation:** 30 db. **Load impedance:** 47,000 ohms. **Stylus:** 0.7 mil diamond. **Compliance:** 10 x 10⁻⁶ cm/dyne. **Tracking Force:** 3/4-6 grams. **Tracking Angle:** 15°. **Model AD-125G, 1 lb. \$19.95**

Pickering V15/AT-2 "Magnetic"

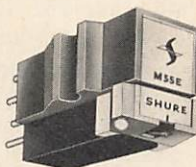
AD-105J MANUFACTURER'S SPECIFICATIONS—Frequency response: 20 to 20,000 cps. **Output:** 6.9 mv per cm/sec of recorded level. **Load resistance:** 47,000 ohms. **Stylus:** .7 mil diamond. **Tracking force:** 1 to 4 grams. **Vertical tracking angle:** 15°. **Model AD-105J, 1 lb. \$19.95**

New! Shure M55E 15° Stereo Dyonic Cartridge With Elliptical Stylus

Elliptical diamond stylus and new 15° vertical tracking provide near perfect freedom from distortion, resulting in unmatched purity of sound. Low mass. Scratchproof. Will track at forces of 3/4 to 1 1/2 grams. *Only \$10 when you order with a Garrard Lab 80, Type A70, or Dual 1009 and 1019 Turntable, if you do not choose a 1c cartridge above!*

Model AD-95R, 1 lb., no money dn., \$5 mo. . . . \$35.50

AD-95R MANUFACTURER'S SPECIFICATIONS—Frequency response: 20 to 20,000 cps. **Output:** 6.6 mv per channel @ 1 kc. **Separation:** Over 25 db @ 1 kc. **Load impedance:** 47,000 ohms per channel. **Stylus:** Elliptical 0.7 mil diamond. **Compliance:** 25.0 x 10⁻⁶ cm/dyne. **Tracking force:** 3/4 to 1 1/2 grams.



ADP-94 **\$99⁵¹**
(with 1c cartridge)

Garrard Lab 80 Stereo Automatic Transcription Turntable

- Dynamically balanced "Afrormosia wood" tone-arm with integral manual cueing device and adjustable tracking force • New adjustable bias compensator tracks the lightest & most compliant cartridges accurately & without distortion • New massive, non-magnetic 12" turntable with anti-static mat • New isolated motor suspension • Insures professional reproduction of 33¹/₃ & 45 rpm records • Anti-skate protection • Delrin® "frictionless" trip mechanism • Completely assembled

ADP-94, 25 lbs. . . turntable only . . . no money dn., \$10 mo. . . \$99.50
 ADP-94, 26 lbs. . . turntable with choice of any 1c offer cartridge opposite (specify by model no.) . . . no money dn., \$10 mo. . . \$99.51
 ADA-94-1, 1 lb., Garrard LRS9 45 rpm spindle \$3.80
 ADA-94W, 5 lbs., walnut finish base. . . 16¹/₂" W x 13³/₄" D x 4¹/₄" H. \$6.50

ADP-94 SPECIFICATIONS—Speeds: 33¹/₃ & 45 rpm. **Motor:** 4-pole shaded, completely isolated. **Tracking:** Tracks per cartridge specifications. **Color:** Special iridescent charcoal gray. **Wiring:** Stereo, 4-pin, 5-wire system with separate ground connection for hum elimination. **Cables furnished:** Line cord, 2 audio cables. **Power requirements:** 100-130 volts 60 cycles AC. **Required mounting space:** 17" W x 14¹/₄" D x 5¹/₂" above and 3¹/₂" below motor board.

HEATH COMPANY

Benton Harbor, Michigan 49022

ORDER FORM

PHONE • 616-983-3961

FAX—BENTON HARBOR, MICHIGAN

TWX—616-983-3897

1 PLEASE PRINT OR WRITE NAME AND ADDRESS PLAINLY

PLEASE DO NOT WRITE IN THIS SPACE

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

2 SHIP TO ANOTHER ADDRESS? Give directions here.

4 IF YOU HAVE MOVED SINCE YOUR LAST ORDER— write your old address here:

NAME _____

STREET ADDRESS _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

CITY _____ STATE _____ ZIP _____

3 CHECK HOW YOU WANT ORDER SHIPPED

Parcel Post *Motor Freight Express

(100 lb. min. chg.)

5 TO HELP US SERVE YOU BETTER, will you please answer the following questions?

What type of Heathkit interests you most? Hi Fi Instruments Amateur Radio Marine Other _____

ON EXPRESS ORDERS if station is in different town than your post office address, show name of town where shipment should be sent:

What new Heathkits would you like us to make? _____

7 TOWN _____ STATE _____

6 IS THIS YOUR FIRST ORDER? YES NO

SHD.	B. O.	QUAN.	MODEL	KIT DESCRIPTION	WT.	PRICE EA.	TOTAL

IMPORTANT. Please use a separate sheet for all correspondence, to assure a prompt reply to your letter.

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.

All prices and specifications subject to change without notice. Orders F.P.O. and A.P.O. must include sufficient postage.

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.

PARCEL POST ORDERS should include postage for weight shown. Transportation costs for all express or motor freight shipments will be collected at the time of delivery.

SEE REVERSE SIDE for time pay details on orders of \$25 or more.

***MOTOR FREIGHT CHARGES** will not be less than \$4.91, as you pay for 100 lbs. Since rates vary with localities, consult your local truck line.

8 TYPE OF ORDER (CHECK ONE)

CASH
Please use registered mail for currency.

C.O.D.
20% deposit required.

TIME PAY.
See reverse side for time pay details on orders of \$25 or more.

ADD ON
If previous time pay customer, give current account number _____

9 MERCHANDISE ORDERED

FROM CAT. NO. _____

10 A. Allowance if offered

B. TOTAL AMOUNT OF ORDER.

C. Add sales tax on all deliveries in the State of Michigan.

D. Amount for parcel post. Do not remit for express charges.

E. Amount due from previous order Inv. # _____

F. TOTAL AMOUNT

G. TIME PAY DOWN PAYMENT

H. 20% C.O.D. deposit

I. UNPAID BALANCE (total order less down payment or C.O.D. deposit)

PLEASE DO NOT WRITE IN THIS SPACE

800/64

Open Your Heath Account - Liberal Terms

NOTICE TO BUYER: Mail Order/Retail Installment Contract

Do not sign this contract before you read it. Under the law you have the following rights among others:

- A. To pay off in advance the full amount due.
- B. Under certain conditions to redeem the property, if repossessed for a default.

Time Payments are available to anyone in the U.S. or FPO and APO areas. Residents of Puerto Rico and other U. S. possessions, write for details!

LIBERAL TERMS! No money down on orders up to \$300 (Down payments reduce monthly payments and carrying charges). 10% down and up to 18 months to pay on orders over \$300. Write for details on order over \$500.

EASY PAYMENT CHART

Unpaid Balance	Carrying Charge	Up To 12 Monthly Payments*	Unpaid Balance	Carrying Charge	Up To 12 Monthly Payments*	*All monthly payments are for the amount shown; last payment is for the odd amount remaining due.
Up to \$20.00	\$ 2.00	\$ 5.00	\$250.01-260	\$26.00	\$24.00	
\$ 20.01-30	3.00	5.00	260.01-270	27.00	25.00	
30.01-40	4.00	5.00	270.01-280	28.00	26.00	
40.01-50	5.00	5.00	280.01-290	29.00	27.00	
50.01-60	6.00	6.00	290.01-300	30.00	28.00	
60.01-70	7.00	7.00	300.01-310	31.00	29.00	\$46.50 \$20.00
70.01-80	8.00	8.00	310.01-320	32.00	30.00	48.00 21.00
80.01-90	9.00	9.00	320.01-330	33.00	31.00	49.50 22.00
90.01-100	10.00	10.00	330.01-340	34.00	32.00	51.00 22.00
100.01-110	11.00	11.00	340.01-350	35.00	33.00	52.50 23.00
110.01-120	12.00	11.00	350.01-360	36.00	34.00	54.00 23.00
120.01-130	13.00	12.00	360.01-370	37.00	35.00	55.50 24.00
130.01-140	14.00	13.00	370.01-380	38.00	36.00	57.00 25.00
140.01-150	15.00	14.00	380.01-390	39.00	37.00	58.50 25.00
150.01-160	16.00	15.00	390.01-400	40.00	38.00	60.00 26.00
160.01-170	17.00	16.00	400.01-410	41.00	39.00	61.50 27.00
170.01-180	18.00	17.00	410.01-420	42.00	40.00	63.00 28.00
180.01-190	19.00	18.00	420.01-430	43.00	41.00	64.50 29.00
190.01-200	20.00	19.00	430.01-440	44.00	42.00	66.00 29.00
200.01-210	21.00	20.00	440.01-450	45.00	43.00	67.50 30.00
210.01-220	22.00	21.00	450.01-460	46.00	44.00	69.00 30.00
220.01-230	23.00	22.00	460.01-470	47.00	45.00	70.50 31.00
230.01-240	24.00	22.00	470.01-480	48.00	46.00	72.00 31.00
240.01-250	25.00	23.00	480.01-490	49.00	47.00	73.50 32.00
			490.01-500	50.00	48.00	75.00 32.00

HERE'S ALL YOU DO . . .

- 1 Fill out order blank in the catalog.
- 2 Sign your name in the Time Payment Agreement below.
- 3 Fill in the Credit Statement and the monthly payment (see chart).
- 4 Send the above to the Heath Company, Benton Harbor, Michigan . . . we'll take care of the details.

"ADD ON" Purchases—Once your credit is established and you have made at least three payments, you can "add-on" purchases of \$25.00 or more with no down payment. List the items you want on the reverse side, check (8) the "add on" box and give your account number. Be sure to sign the Time Payment Agreement and send to us with your original Payment Book.

Check if balance is over \$300 and 18 mos. desired

TIME PAYMENT AGREEMENT

NOTE: Time payment agreement cannot be accepted from persons under 21 years of age. If you are under 21, have this form filled out by a person of legal age, regularly employed or engaged in business. He can make the purchase for you, and will be responsible for payment.

TO: HEATH COMPANY BENTON HARBOR, MICHIGAN

Enclosed is a deposit of \$ _____ on the Easy Payment cost of the equipment on the reverse side. I will pay \$ _____ each month to you at the above address starting 30 days after shipment, until the total time payment price is paid.

Title to and right of possession of said equipment shall remain with you until all payments have been made. Upon default on any payment due on this contract, the full amount unpaid hereon, at your option, shall become immediately due and payable and you may either hold me liable for said amount or repossess the equipment. If you shall repossess, all payments made may be retained as rent for the use and depreciation of said equipment. The loss, injury or destruction of the equipment after I have received it shall not operate as payment or in any manner release me from any obligation hereunder.

If this order is not accepted, you shall refund the down payment with notice of non-acceptance. Acceptance shall be effected when the equipment designated on the reverse side hereof is shipped to me. I certify that all statements in the Credit Statement set forth below are true and complete and are made for the purpose of obtaining credit. This contract is to be governed by the laws of the State of Michigan.

Enter Date _____ Sign Here _____

CREDIT STATEMENT

(IMPORTANT: Please fill in completely. Omissions and errors cause delays.)

PRINT FULL NAME _____ Age _____ Military Serial No. _____
First Middle Last (if serviceman)

WIFE'S NAME _____ Names of Children and ages _____

Residence _____ City _____ State _____ How Long _____

Own or Buying Landlords Rent Live with Parents No. of Rooms _____ Paid Monthly \$ _____ Phone No. _____
 Name Mtg. Held By _____ Street _____ City _____ State _____

Previous Address _____ City _____ State _____ How Long _____

Previous Landlord _____ Address _____

Employed by _____ Street _____ City _____ State _____

Position _____ How Long _____ Dept. or Badge No. _____ Salary \$ _____

Previous Employer _____ Street _____ City _____ State _____ How Long _____

Wife's Employer _____ Street _____ City & State _____

Position _____ How Long _____ Dept. or Badge No. _____ Salary \$ _____

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)

Open Your Heath Account - Liberal Terms

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Mail Order/Retail Installment Contract

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B. Under certain conditions to redeem the property, if repossessed for a default.

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- 4 Send the above to the Heath Company, Benton Harbor, Michigan . . . we'll take care of the details.

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EASY PAYMENT CHART

Unpaid Balance	Carrying Charge	Up To 12 Monthly Payments*	Unpaid Balance	Carrying Charge	Up to 12 Monthly Payments*	*All monthly payments are for the amount shown; last payment is for the odd amount remaining due.
Up to \$20.00	\$ 2.00	\$ 5.00	\$250.01-260	\$26.00	\$24.00	
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30.01-40	4.00	5.00	270.01-280	28.00	26.00	
40.01-50	5.00	5.00	280.01-290	29.00	27.00	
50.01-60	6.00	6.00	290.01-300	30.00	28.00	
60.01-70	7.00	7.00	300.01-310	31.00	29.00	
70.01-80	8.00	8.00	310.01-320	32.00	30.00	
80.01-90	9.00	9.00	320.01-330	33.00	31.00	
90.01-100	10.00	10.00	330.01-340	34.00	32.00	
100.01-110	11.00	11.00	340.01-350	35.00	33.00	
110.01-120	12.00	11.00	350.01-360	36.00	34.00	
120.01-130	13.00	12.00	360.01-370	37.00	35.00	
130.01-140	14.00	13.00	370.01-380	38.00	36.00	
140.01-150	15.00	14.00	380.01-390	39.00	37.00	
150.01-160	16.00	15.00	390.01-400	40.00	38.00	
160.01-170	17.00	16.00	400.01-410	41.00	39.00	
170.01-180	18.00	17.00	410.01-420	42.00	40.00	
180.01-190	19.00	18.00	420.01-430	43.00	41.00	
190.01-200	20.00	19.00	430.01-440	44.00	42.00	
200.01-210	21.00	20.00	440.01-450	45.00	43.00	
210.01-220	22.00	21.00	450.01-460	46.00	44.00	
220.01-230	23.00	22.00	460.01-470	47.00	45.00	
230.01-240	24.00	22.00	470.01-480	48.00	46.00	
240.01-250	25.00	23.00	480.01-490	49.00	47.00	
			490.01-500	50.00	48.00	

Check if balance is over \$300 and 18 mos. desired

TIME PAYMENT AGREEMENT

NOTE: Time payment agreement cannot be accepted from persons under 21 years of age. If you are under 21, have this form filled out by a person of legal age, regularly employed or engaged in business. He can make the purchase for you, and will be responsible for payment.

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Enclosed is a deposit of \$_____ on the Easy Payment cost of the equipment on the reverse side. I will pay \$_____ each month to you at the above address starting 30 days after shipment, until the total time payment price is paid.

Title to and right of possession of said equipment shall remain with you until all payments have been made. Upon default on any payment due on this contract, the full amount unpaid hereon, at your option, shall become immediately due and payable and you may either hold me liable for said amount or repossess the equipment. If you shall repossess, all payments made may be retained as rent for the use and depreciation of said equipment. The loss, injury or destruction of the equipment after I have received it shall not operate as payment or in any manner release me from any obligation hereunder.

If this order is not accepted, you shall refund the down payment with notice of non-acceptance. Acceptance shall be effected when the equipment designated on the reverse side hereof is shipped to me. I certify that all statements in the Credit Statement set forth below are true and complete and are made for the purpose of obtaining credit. This contract is to be governed by the laws of the State of Michigan.

Enter Date _____ Sign Here _____

CREDIT STATEMENT

(IMPORTANT: Please fill in completely. Omissions and errors cause delays.)

PRINT FULL NAME _____ Age _____ Military Serial No. _____
 First Middle Last (if serviceman)

WIFE'S NAME _____ Names of Children and ages _____

Residence _____ City _____ State _____ How Long _____

Own or Buying Landlords If Owned Rent Live with Parents No. of Rooms _____ Paid Monthly \$ _____ Phone No. _____
 Name Mtg. Held By _____ Street _____ City _____ State _____

Previous Address _____ City _____ State _____ How Long _____
 Previous Landlord _____ Address _____

Employed by _____ Street _____ City _____ State _____
 Position _____ How Long _____ Dept. or Badge No. _____ Salary \$ _____
 Previous Employer _____ Street _____ City _____ State _____ How Long _____
 Wife's Employer _____ Street _____ City & State _____
 Position _____ How Long _____ Dept. or Badge No. _____ Salary \$ _____

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)

More With Any Turntable Order!



ADP-24
\$99⁵¹

(with 1c cartridge)



ADP-55
\$129⁵¹

(with 1c cartridge)

Dual 1009 Auto/Professional Turntable . . . Tracks Below 1/2 Gram, Yet Trips At Zero

- Automatic tone arm tracks below 1/2 gram, yet trips at zero • Permits almost 90° tilt without spilling a note • Anti-skate record protection • Less than 2/10 gram stylus force increase from first to last record • 7 1/2 lb. dynamically-balanced platter • 4 speeds, automatic or manual • Automatically shuts off amplifier after play • Can be started manually while record is rotating or at a standstill • Completely assembled

ADP-24, changer only, 21 lbs. . . no money dn., \$10 mo. \$99.50

ADP-24, changer & choice of any 1c offer cartridge, page 16 (specify model no.)

22 lbs. . . no money dn., \$10 mo. \$99.51

ADA-24W, oiled solid walnut base, 3 lbs. \$11.95

ADA-24-1, 45 rpm spindle, 1 lb. \$4.80

ADP-24 SPECIFICATIONS—Speeds: 16 2/3, 33 1/3, 45 and 78 rpm. **Turntable speed:** All 4 speeds accurate within 0.1% with one to ten records. **Motor type:** 4-pole induction, shock & vibration shielded. **Type of drive:** Friction. **Tracking force variations:** Less than 0.2 grams from 1st to 10th record. **Record capacity:** Up to 10 records. **Record sizes:** 7", 10", 12". **Control functions:** Manual Speed Selector; Manual Record Size Selector; Stop/Start Manual/Automatic switch. **Dimensions:** 10 3/4" x 12 3/4" x 6" clearance above, 3" below. **Power requirements:** 117 VAC, 60 cps.

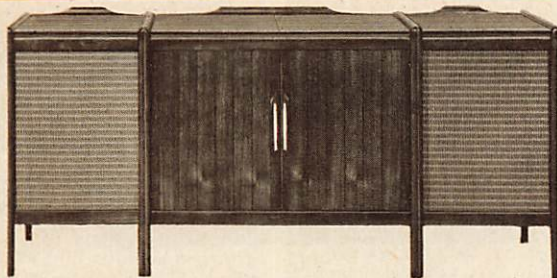
Dual 1019 Turntable . . . With 3 Exclusive Features

- Exclusive direct dial, continuously variable anti-skating compensation • Exclusive feather-touch cue-control for manual & automatic play • Exclusive single-play spindle that rotates with your records • Cartridge holder adjusts for optimum stylus overhang • Plus all the precision of the Dual 1009
- Model ADP-55, turntable only, 20 lbs. . . No money dn., \$12 mo. \$129.50
 Model ADP-55, turntable and choice of any 1c cartridge page 16 (specify by model no.) 21 lbs. . . No money dn., \$12 mo. \$129.51

ADA-24W, oiled solid walnut base, 3 lbs. \$11.95

ADA-24-1, 45 rpm spindle, 2 lbs. \$4.80

ADP-55 SPECIFICATIONS—Speeds: 16 2/3, 33 1/3, 45 and 78 rpm. Variable over 6% range. **Motor:** High torque continuous pole induction. **Tracking:** Less than 0.2 gram variation from 1st to 10th record. **Turntable:** 7 1/2 lb., dynamically balanced. **Color:** Black/Silver. **Cables furnished:** Line cord, 2 audio. **Power requirements:** 100-130 volts, 60 cycles. **Dimensions:** Required mounting space; 10 3/4" x 12 3/4" x 6" above and 3" below motor board.



Contemporary Stereo Cabinetry . . . Enhances Any Room

- Custom designed for Heathkit Stereo/Hi-Fi components . . . accommodates most makes • Beautifully finished in modern walnut • Factory assembled, ready to use • Speaker cabinet can be matched to any 12" or 15" speaker for best tone

Model AE-20W (walnut) equipment cabinet only, 81 lbs., Express or Motor Freight. No money dn., \$10 mo. \$99.50

Model AEA-12-4, uncut walnut recorder drawer (7" H x 16" W x 16 1/2" D, Wood 3/4" thick), 16 lbs. \$19.95

Matching Speaker Cabinet!

Use with 12" or 15" speakers. Also has 3 5/8" x 10 1/8" slot for optional horn tweeter. Measures 18 1/2" W x 19" D x 32 3/8" H.

Model AE-40W (walnut), 57 lbs., Express or Motor Freight. No money dn., \$5 mo. Each \$44.95

AE-20 EQUIPMENT ACCOMMODATIONS AND SIZES—Cabinet, overall: 36" W x 32 3/4" H x 19" D. **Changer compartment:** 17" W x 15 1/4" D, mounting board is uncut and can be adjusted in height to accept all record changers sold by Heath, lid has adjustable friction-loaded support. **Record-tape recorder compartment:** 14 1/2" H x 17" W x 17" D, for record storage; space is convertible with accessory sliding drawers to accommodate tape recorder. **Shelf compartment:** (2) each 17" W x 6" H x 17" D (inside shelf 14" deep); either shelf accepts any Heath Stereo or Mono tuner, Stereo or Mono preamplifier or stereo or mono combination amplifier. **Power amplifier compartment:** 8 3/4" H x 17" W x 15 1/4" D inside, accepts any Heathkit stereo or mono amplifier, except AR-13A.

Model AE-13S, equipment cabinet only, 76 lbs., Express or Motor Freight. No money dn., \$11 mo. \$115.00

Model AEA-13-1, uncut recorder drawer (7" H x 16" W x 16 1/2" D, wood 3/4" thick), 16 lbs. \$20.00

Matching Speaker Cabinet!

Use 12" or 15" speakers, has 3 3/8" x 10 3/8" slot for optional horn tweeter. Measures 18 1/4" W x 18 3/4" D x 28" H.

Model AE-23S, 55 lbs., Express or Motor Freight. No money dn., \$6 mo. Each \$55.00

AE-13S EQUIPMENT ACCOMMODATIONS AND SIZES—Cabinet, overall: 28" H x 36" W x 18 3/4" D. **Changer compartment:** 17" W x 16" D x 5 3/4" H. Mounting board is uncut and can be adjusted in height to accept all record changers sold by Heath, lid has adjustable friction-loaded support. **Record-tape recorder compartment:** 14 3/4" H x 17" W x 17 1/4" D for record storage; space is convertible with accessory sliding drawers to accommodate tape recorder. **Shelf compartments:** Top shelf, 6 3/4" H x 17" W x 15 7/8" D. Middle shelf, 6" H x 17" W x 15 7/8" D. Bottom shelf, 9" H x 17" W x 17" D. Shelves accept any Heath stereo or mono tuner, stereo or mono preamplifier, or stereo or mono combination amplifier, except AR-13A receiver.

FIND PARCEL POST ZONE ON MAP THEN REFER TO THIS RATE TABLE

Postal Regulations . . . limit parcel post shipments to 20 pounds to zones 3 to 8, and 40 pounds to zones 1 and 2. **EXCEPTION:** Shipments up to 70 pounds will still be accepted to RFD addresses, and to APO numbers.

Ship. Wt.	Zone								Ship. Wt.	Zone							
	1&2	3	4	5	6	7	8	1&2		3	4	5	6	7	8		
to 2 lbs.	\$.40	\$.42	\$.46	\$.52	\$.59	\$.66	\$.72	12 lbs.	.93	1.06	1.26	1.58	1.90	2.29	2.66		
3 lbs.	.46	.49	.55	.64	.73	.83	.93	13 lbs.	.98	1.12	1.33	1.69	2.02	2.44	2.83		
4 lbs.	.51	.55	.64	.75	.88	1.01	1.13	14 lbs.	1.03	1.18	1.41	1.79	2.14	2.60	3.01		
5 lbs.	.57	.62	.72	.87	1.02	1.18	1.34	15 lbs.	1.08	1.24	1.48	1.89	2.25	2.75	3.18		
6 lbs.	.62	.68	.80	.97	1.15	1.34	1.53	16 lbs.	1.13	1.30	1.56	1.99	2.37	2.90	3.36		
7 lbs.	.69	.75	.88	1.07	1.28	1.50	1.73	17 lbs.	1.18	1.36	1.64	2.09	2.49	3.06	3.53		
8 lbs.	.73	.81	.95	1.18	1.41	1.66	1.92	18 lbs.	1.23	1.42	1.71	2.20	2.61	3.21	3.71		
9 lbs.	.78	.87	1.03	1.28	1.53	1.82	2.12	19 lbs.	1.28	1.48	1.79	2.30	2.73	3.36	3.88		
10 lbs.	.83	.93	1.10	1.38	1.66	1.98	2.31	20 lbs.	1.32	1.54	1.86	2.40	2.85	3.51	4.06		
11 lbs.	.88	1.00	1.18	1.48	1.78	2.14	2.48										

IMPORTANT: Parcel post rate changes enacted April, 1964 are reflected in this table.

INCLUDE MONEY FOR POSTAGE with your orders as we must pay postage on parcel post packages before we can send your merchandise.



For Audiophiles With An Eye As Appreciative As Their Ear . . . Early American Stereo Center

- Beautifully finished in stunning salem-maple • Exclusively styled, a special Heathkit design • Custom-designed for Heathkit stereo components • Holds most hi-fi/stereo components • Factory assembled, ready to use

Model AE-13S, equipment cabinet only, 76 lbs., Express or Motor Freight. No money dn., \$11 mo. \$115.00

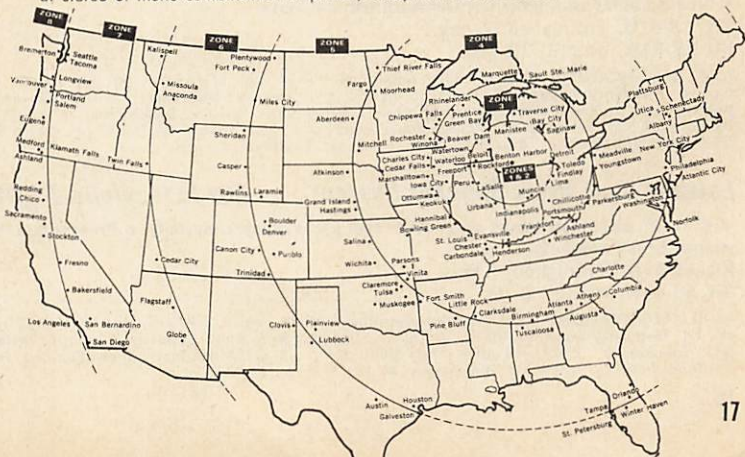
Model AEA-13-1, uncut recorder drawer (7" H x 16" W x 16 1/2" D, wood 3/4" thick), 16 lbs. \$20.00

Matching Speaker Cabinet!

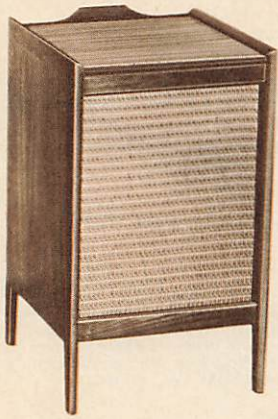
Use 12" or 15" speakers, has 3 3/8" x 10 3/8" slot for optional horn tweeter. Measures 18 1/4" W x 18 3/4" D x 28" H.

Model AE-23S, 55 lbs., Express or Motor Freight. No money dn., \$6 mo. Each \$55.00

AE-13S EQUIPMENT ACCOMMODATIONS AND SIZES—Cabinet, overall: 28" H x 36" W x 18 3/4" D. **Changer compartment:** 17" W x 16" D x 5 3/4" H. Mounting board is uncut and can be adjusted in height to accept all record changers sold by Heath, lid has adjustable friction-loaded support. **Record-tape recorder compartment:** 14 3/4" H x 17" W x 17 1/4" D for record storage; space is convertible with accessory sliding drawers to accommodate tape recorder. **Shelf compartments:** Top shelf, 6 3/4" H x 17" W x 15 7/8" D. Middle shelf, 6" H x 17" W x 15 7/8" D. Bottom shelf, 9" H x 17" W x 17" D. Shelves accept any Heath stereo or mono tuner, stereo or mono preamplifier, or stereo or mono combination amplifier, except AR-13A receiver.



Quality Heathkit® Speaker Systems...



AS-15
\$144⁹⁵



AS-21W
\$239⁹⁵



Deluxe 3-Way, 4-Speaker System . . . With Direct Radiators For Best Sound

- 12" high compliance, low resonance woofer • Two special design 2" direct radiator dome-type mid-range speakers • Special design 1" direct radiator dome-type ultra-high frequency tweeter • Response 40 to 20,000 cps • Big voice coils • Heavy ceramic ring magnets • 50-watt program material power capability • High frequency attenuator • Middle frequency attenuator • Preassembled walnut finish enclosure measures 18½" W x 19" D x 32¾" H • Tube vented, bass reflex design • Styled to match Heath contemporary equipment center

High Compliance Woofer . . . Direct Radiator Mid-Range & Tweeter Components. Both mid-range units have 6¼" frames with 4½", 1 lb. ceramic ring magnets. The ultra-high frequency tweeter has a 4¼" frame with a 2¼", 6 oz. ceramic ring magnet. Its 1" radiating surface is driven by a 1" voice coil. 12" high compliance woofer features a 1½" voice coil and 1 lb. 11 oz. ceramic ring magnet. Free air resonance is 25 cps. Also features 3-way crossover networks, LC and RC types. Crossover points: 1000 cps and 10,000 cps. Floor model cabinet.

Kit AS-15, 82 lbs., Express or Motor Freight, No money dn., \$14 mo. . . . \$144.95

AS-15 SPECIFICATIONS—Recommended amplifiers: AR-13A & AR-14, pg. 11; AA-14 & AA-22, pg. 12; AA-21D & AA-100, pg. 13; AA-13, AA-32, AA-23 & AA-151, pg. 14. **Frequency Response:** 40 to 20 kc. **Crossover Frequencies:** Low 1000 cps to high frequency 10 kc. **Power Rating:** 50 watts of program material. **Nominal Impedance:** 8 ohms. **Speakers:** (1) 12" Jensen high compliance, low resonance, low frequency; (2) 2" direct radiator dome-type mid-frequency; (1) 1" Jensen direct radiator dome-type ultra high frequency speaker. **Crossover Network: Three Channel:** Low frequency, low pass LC type; Mid-frequency, bandpass LC type; High frequency, high pass RC type filter. **Cabinet:** Walnut finished, tube vented type. **Dimensions:** Overall; 18" W x 19" D x 32¾" H.

Masterpiece of Performance, Styling & Quality . . . The Famous Heathkit "Legato Compact"

- Speakers cover 30-22,000 cps • 800 cps crossover network—completely assembled • Can be driven by as little as 3 watts, handles up to 30 watts • Preassembled walnut-finish cabinet, ready for simple speaker installation • Styling matches AE-20 hi-fi equipment cabinet

Designed For The Discerning. Known by audiophiles the world over for its acoustical excellence—recognized by engineers for achievement in sound technology. Features two Altec Lansing "high compliance" low-frequency speakers that cover the 30 to 800 cps range with a rich, full-bodied tone . . . a specially-designed Altec Lansing exponential horn and high frequency driver combination that recreates the 800 to 22,000 cps range with full fidelity and brilliance. The special 800 cps crossover network is factory assembled, ready for installation in the carefully crafted, acoustically correct cabinet.

Kit AS-21W, 142 lbs., Express or Motor Freight, no money dn., \$22 mo. . . . \$239.95

AS-21W SPECIFICATIONS—Recommended amplifiers: AR-13A & AR-14, pg. 11; AA-14 & AA-22, pg. 12; AA-21D & AA-100, pg. 13. **Frequency response:** 30 to 22,000 cps. **Impedance:** 16 ohms. **Capacity:** 30 watts. **Enclosure:** Modified Infinite baffle. **Speakers:** Low frequency, two Altec Lansing 12" high compliance woofers, 1½ lb. magnets; High frequency, one Altec Lansing 800 cycle exponential horn and driver, 53 lb. magnet. **Crossover:** 800 cycle constant K type, assembled. **Control:** high frequency shelving. **Dispersion:** 90° horizontal. **Cabinet:** Factory assembled furniture-grade ¾" plywood. **Dimensions:** 32" W x 19" D x 32½" H.

LAST CALL On This 2-Way 3-Speaker System

- 5¾" woofer and two 3" tweeters • Side mounted level control • Easy to assemble • Compact—ideal for wall, shelf or table • Preassembled unfinished or walnut finish cabinets

Last Time This Miniature Speaker Will Be Offered!

Kit AS-193U, unfinished, 12 lbs. . . . \$22.50
Kit AS-193W, walnut, 12 lbs. . . no money dn., \$5 mo. . . . \$24.95

AS-193 SPECIFICATIONS—Recommended amplifiers: AR-14, pg. 11; AA-14, pg. 12; AA-32, AA-151 & AA-13, pg. 14. **Impedance:** May be used with amplifier having 4, 8, or 16 ohm output. **Frequency range:** 65-14,000 cps. **Crossover frequency:** 4,000 cps. **Speaker power rating:** 6 watts. Higher rated amplifiers, adjusted for reasonable listening levels, may be used. Adequate room sound with 1 watt to speaker. **Nom. woofer size:** 5½" cone type. **Dimensions:** 12½" H x 15½" W x 2¾" D.

Miniature Hi-Fi 2-Speaker System . . . For Limited Spaces

- 6" high compliance, mass-loaded woofer • 3" closed back tweeter • Fast, easy assembly • Preassembled unfinished or walnut finish cabinets

Kit AS-81U, unfinished, 10 lbs. . . . \$17.50
Kit AS-81W, walnut, 10 lbs. . . . \$19.95

AS-81 SPECIFICATIONS—Recommended amplifiers: AR-14, pg. 11; AA-14, pg. 12; AA-32, AA-13 & AA-151, pg. 14. **Frequency response:** From 70 to 16,000 cps. **Crossover frequency:** 4000 cps. **Recommended amplifier power:** 6 watts. **Nominal impedance:** 8 ohms. **Cabinet:** Type: infinite. **Dimensions:** 10¾" W x 6½" H x 6¾" D; material, ½" veneer plywood. **Speakers:** Tweeter, 3" cone type, 8 ohms, .53 oz. Alnico 5 magnet; Woofer, 5½" cone type, 8 ohms, 10 oz. Syntox No. 6 magnet. **Crossover:** Capacitor type.

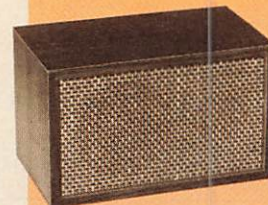
Lowest Cost Hi-Fi Speaker System . . . For Extensions To Other Rooms

- 6" x 9" extended range dual-cone speaker • Easy assembly • Preassembled unfinished or walnut finish cabinets

Kit AS-41U, unfinished, 8 lbs. . . . \$10.95
Kit AS-41W, walnut, 8 lbs. . . . \$12.95

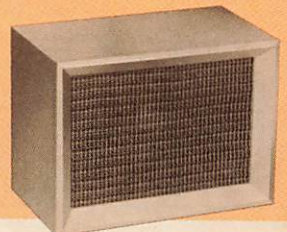
AS-41 SPECIFICATIONS—Recommended amplifiers: AR-14, pg. 11; AA-14, pg. 12; AA-32, AA-13 & AA-151, pg. 14. **Frequency response:** 70 to 14,000 cps. **Impedance:** 8 ohms. **Capacity:** 12 watts. **Enclosure:** Rear vented box. **Speaker:** 6" x 9" extended range dual cone, 6.8 oz. Alnico 5 magnet. **Cabinet:** Factory assembled, furniture-grade ½" plywood. **Dimensions:** 8" H x 11" W x 6½" D.

AS-193U
\$22⁵⁰



AS-81U
\$17⁵⁰

AS-41U
\$10⁹⁵



For Better Sound At Lower Cost!



A An Acoustic Suspension System You Can Afford

• 10" acoustic suspension woofer, two 3/2" cone-type tweeters • Takes only 10 watts to drive, yet handles up to 40 watts • Preassembled cabinets, use vertically or horizontally

Now You Can Own An Acoustic Suspension System Without Spending A Lot Of Money! Enjoy extended bass, smooth high frequency response, plus low distortion. Handles 10 to 40 watts program material. Complete acoustic suspension, cone literally "rides on air" instead of mechanical springs, thus reducing harmonic distortion.

Kit AS-10U, unfinished, 43 lbs. . . no money down, \$6 mo. \$59.95
 Kit AS-10W, walnut, 42 lbs. . . no money down, \$7 mo. \$64.95

AS-10 SPECIFICATIONS—Recommended amplifiers: AA-21D & AA-100, pg. 13; AA-22, pg. 12; AA-151, AA-13 & AA-23, pg. 14; AR-13A, pg. 11. Frequency response: 30 to 15,000 cps. Impedance: 16 ohms. Recommended amplifier power: 10 to 40 watts. Enclosure: Infinite baffle, sealed. Speakers: Woofer, 10" Acoustic Suspension, Synbox 6 ceramic magnet; Tweeter, two 3 1/2" cone units in dispersed array, 1.47 oz. Alnico 5 magnets. Crossover: L-C network, 2250 cps. Control: High frequency level. Dispersion: 90° horizontal. Cabinet: Factory assembled 3/4" furniture-grade plywood. Dimensions: 13 1/2" H x 24" W x 11 1/2" D.

B Enjoy Acoustic Suspension Performance With This Versatile Speaker System

• 10" acoustic suspension woofer manufactured by Acoustic Research Inc. • Two 5" cross-fired tweeters • Wide-range sound with compact speaker versatility • Easy to build with preassembled cabinet

Smooth Sound From A Compact Performer! Simply install speakers in the preassembled cabinet, connect the leads, sit back and thrill to distortion-free sound. Order 2 for stereo.

Kit AS-2U, unfinished, 45 lbs. . . no money down, \$7 mo. \$69.95

AS-2U SPECIFICATIONS—Recommended amplifiers: AA-21D & AA-100, pg. 13; AA-22, pg. 12; AA-23, pg. 14; AR-13A, pg. 11. Frequency response: 40 to 15,000 cps. Crossover frequency: 2,000 cps. Recommended amplifier power: 20 to 40 watts RMS. Nominal impedance: 8 ohms. Tweeter: Two 5" cone units, specially treated & equalized, in dispersed array, 2.15 oz. Alnico 5 magnet. Woofer: 10" Acoustic Suspension, 1.1 lb. Alnico 5 magnet. Resonant Frequency (mounted) 58 cps. Crossover: L-C network. Horizontal dispersion: 90°. Size: 24" W x 13 1/2" H x 11 1/2" D.

C Acoustic Research, Inc. Woofer . . . Super Tweeter For Extended Highs

• Built-in crossover networks • High frequency level controls • Genuine Acoustic Research Inc. 10" suspension woofer • Two 5" cross-fired tweeters, plus 1 3/8" dome-type super-tweeter • Preassembled cabinets

Wide 40-20,000 cps Performance! A specially designed super tweeter, dual mid-range and acoustic suspended woofer combine to reproduce clean, distortion-free sound. Separate level controls.

Kit AS-2AU, unfinished, white hardboard, 51 lbs. \$89.95
 no money dn., \$9 mo. \$96.50
 Kit AS-2AW, finished walnut, 51 lbs. no money dn., \$10 mo. \$96.50

AS-2A SPECIFICATIONS—Recommended amplifiers: AA-21D & AA-100, pg. 13; AA-22, pg. 12; AA-23, pg. 14; AR-13A, pg. 11. Frequency response: ±5 db, 40 to 20,000 cps. Impedance: 8 ohms. Recommended amplifier power: 20 watts minimum. Enclosure: Infinite baffle, sealed. Speakers: Woofer, 10" Acoustic Suspension, 1.1 lb. Alnico 5 magnet; Midrange, two 5" cone units, in dispersed array, 2.15 oz. Alnico 5 magnets; Super-tweeter, 1 3/8" dome-type construction. Crossover: L-C network, 2000 & 7500 cps. Controls: Individual levels for tweeter and mid-range speakers. Dispersion: 90° horizontal. Cabinet: Factory assembled 3/4" furniture-grade plywood. Dimensions: 13 1/2" H x 24" W x 11 3/8" D.

D LAST CALL For The "Profile" 3-Way Speaker System

• 3 specially-designed speakers—10", 6", 3 1/2" • 5" slim . . . ideal for floor, shelf, or wall installation • Factory assembled, tube-tuned bass reflex cabinet, available unfinished or walnut finish

Last Chance To Get A Matching Unit, or a pair for stereo! Slim and trim . . . installs anywhere. Use horizontally or vertically in a bookcase or shelf, suspend from a wall, or set on a floor. Hangers and felt feet included.

Kit AS-22U, unfinished, 34 lbs. . . no money dn., \$5 mo. \$49.95
 Kit AS-22W, walnut, 35 lbs. . . no money down, \$6 mo. \$54.95

AS-22 SPECIFICATIONS—Recommended amplifiers: AR-13A & AR-14, pg. 11; AA-22 & AA-14, pg. 12; AA-21D & AA-100, pg. 13; AA-151 & AA-23, pg. 14. Frequency response: 55 to 12,500 cps. Crossover frequency: 2250 cps. Recommended amplifier power: 10 to 25 watts. Nominal impedance: 8 ohms. Woofer: 10" special inverted design 1.1 lb. Alnico V magnet. Mid-range: 6" closed back, 2.15 oz. Alnico V magnet. Tweeter: 3 1/2" closed back, 2.15 oz. Alnico V magnet. Cabinet: Bass reflex, tube-tuned, factory assembled of 3/4" furniture-grade plywood. Dimensions: 19 1/2" W x 25 1/2" H x 5" D.

E Low Cost 2-Way Hi-Fi System

• Specially designed speakers—8" woofer and compression-type tweeter with flared exponential horn • Built-in crossover • Tweeter level control • Preassembled unfinished or walnut finish cabinets

Covers 50 to 12,000 cps at ±5 db. Just mount speakers and wire 1600 cps crossover network—everything else is prebuilt. Handles 3 to 25 watts. Special tweeter power level control. Use in horizontal or vertical positions.

Kit AS-51U, unfinished, 27 lbs. . . no money dn., \$5 mo. \$39.95
 Kit AS-51W, Walnut, 27 lbs. . . no money dn., \$5 mo. \$46.95

AS-51 SPECIFICATIONS—Recommended amplifiers: AR-14, pg. 11; AA-14 & AA-22, pg. 12; AA-21D & AA-100, pg. 13; AA-13, AA-23, AA-32 & AA-151, pg. 14. Frequency response: 50 to 12,000 cps. Crossover frequency: 1600 cps. Power rating: Program Material — 25 watts. Single Frequency — 15 watts. Nominal impedance: 16 ohms. Speakers: Low Frequency—8" Jensen (special design) 6.8 oz. Alnico 5; High Frequency—Jensen compression driver with exponential horn (special design), 4.7 oz. Alnico 5. L-PAD—level control for high frequency driver. Dimensions: 11 1/2" H x 23" W x 11 3/4" D.

Private Listening From The Comfort Of An Armchair

A Telex "Adjustatone" Stereo Headset

3 1/2" speakers. "Forward Sound" acoustic effect for "audience seat" listening. Adjust to normal "in-head" stereo by reversing headphones. Foam cushion muffs . . . easily adjustable. 8' cord with phono plug.

MODEL ADP-135, 2 lbs. \$15.95

ADP-135 SPECIFICATIONS—Driver Element: Dynamic. Sensitivity: 100 db/mv. Frequency Response: 10-15,000 cps. Impedance: Designed to operate from 3-16 ohm output sources. Distortion: At Normal Listening Levels, less than 1%. Cord Length: 8 ft. 4-wire with 3-circuit phono plug.

B Telex ST-11 Stereo Headset

Soft rubber muffs shut out unwanted noise . . . help develop excellent bass response, wide range. Stainless steel headband and yoke.

MODEL ADP-92, 2 lbs. \$23.92

ADP-92 SPECIFICATIONS—Driver element: Dynamic. Sensitivity: better than 95 db. Frequency response: 16 to 15,000 cps. Impedance: 8 ohms for use with 3 to 16 ohm sources. Power input: 15 milliwatts, 1 watt maximum. Cord: 4-wire 12 ft. long with 3-circuit phono plug. Color: Tan & Brown.

C Stereo Headphone Control Box

Simply switch from speaker to headphone listening without leaving your favorite chair! Connects to any amplifier regardless of power, & has standard jacks to accommodate any impedance 4-wire stereo headset! Allows separate control of 2 headsets, plus individual adjustment for each ear! Includes 20' of cable & assembles easily in 1 1/2 hours! Compact . . . 3" W x 6" D x 3 1/4" H . . . fits anywhere! Order yours now!

Kit AC-13, 3 lbs. \$9.95





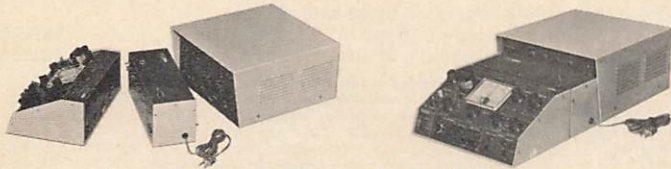
EUA-19-4
\$135⁰⁰

Available Late July

Factory-Assembled Modular Stabilizer For The EUW-19A Operational Amplifier

Improves The Stability Of The EUW-19A Operational Amplifier To Better Than ± 1 mv/day. When experimental work requires long period or exceedingly high stability (such as long runs in polarography at low concentrations), the EUA-19-4 Stabilizer Module may be operated as an intermittent stage between the EUW-19A Operational Amplifier and the modular control chassis (i.e. EUA-19-2). With the Stabilizer Module in operation, the open loop gain is increased by a factor of 1000, the frequency response is 0 to 100 kc (with unity gain), and the noise level (at unity gain) is 1 volt peak to peak.

EUA-19-4, 6 lbs. \$135.00



Heath EUW-19A Operational Amplifier with Stabilizer and Polarography Module

Electronics For

EUW-19A
\$135⁰⁰



Heath Malmstadt-Enke Operational Amplifier

- Four high-gain operational amplifiers plus booster amplifier • Standard 5-pin amplifier terminals accessible on front panel • Completely self-contained with built-in power supplies • Amplifier balance controls on front panel • Fully assembled and tested

Provides A Wide Range Of Facilities For Electrical Measurement And Control Functions . . . OA's (Operational Amplifiers) can be controlled for addition, subtraction, summation (with weighing), differentiation, integration, and for precision linear sweep, plus many other functions analogous to control processes. Heath Polarography Module in combination with EUW-19A OA provides a precision linear sweep voltage, comparison & correction of that voltage to a standard sweep, and readout of cell current (and control of many circuit parameters) for 3-electrode polarography. See chapter eight of the Malmstadt/Enke text, "Electronics for Scientists" for a full discussion of this subject of OA's.

EUW-19A, 22 lbs., Express or Motor Freight. \$135.00



EK-1
\$19⁹⁵

Basic Electricity Kit

Students & Beginners! . . . here's the perfect course in basic electricity for school or home study. This "learn-by-doing" kit-textbook combination concludes with a DC volt-ohm-milliammeter.

Kit EK-1, (less batteries), 4 lbs. \$19.95

Basic Radio Course—2 Parts

EK-2A
\$18⁷⁵



Part I begins with elementary theory—ends with the completion of a regenerative receiver. Part II continues through the completion of a 2-band superheterodyne receiver (Requires EK-1 VOM or equivalent.)

Basic Radio Part I (EK-2A), 7 lbs. \$18.75

Basic Radio Part II (EK-2B), 5 lbs. \$18.75

AK-8, Accessory cabinet for completed receiver, 3 lbs. \$3.95

Export model available for 115/230 VAC, 50-60 cps; write for prices.



EK-3
\$16⁹⁵

Basic Transistor Course

An Excellent Introduction For The Beginner . . . Refresher For The Technician . . . reveals the "How" and "Why" of transistors. Probes into the nature of matter. You learn-by-doing as you build a two-transistor radio, wireless broadcaster, audio amplifier, test oscillator, and finally a 2-station intercom.

Kit EK-3, Basic Transistors, 4 lbs. \$16.95



EF-1
"Text & Chassis"
\$8⁹⁵

EF-1-4
"Text, Chassis & Instrument"
\$39⁹⁵

"How To Understand & Use Your Vacuum Tube Voltmeter"

Covers theory, advantages & applications!
Kit EF-1, Text & special power supply (for VTVM owners), 3 lbs. \$8.95
Kit EF-1-3 (EF-1 & IM-11 VTVM, pg. 24), 8 lbs., no money dn., \$5 mo. \$32.50
Kit EF-1-4 (EF-1 & IM-13 VTVM, pg. 24), 10 lbs., no money dn., \$5 mo. \$39.95
Manuals only for EF-1 (single copy) . . . \$5.00 (10 or more) ea. \$3.00

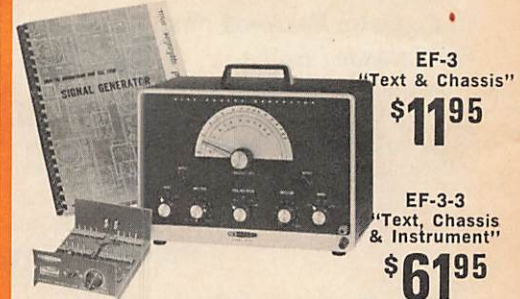


EF-2
"Text & Chassis"
\$9⁹⁵

EF-2-3
"Text, Chassis, & Instrument"
\$66⁹⁵

"How To Understand & Use Your Oscilloscope"

A Stimulating Course For The Beginner Or Professional! Includes 169-page text-reference.
Kit EF-2, Text, Chassis & parts, 4 lbs. . . \$9.95
Kit EF-2-3 (EF-2 & IO-21 Oscilloscope, pg. 26), 16 lbs., no money dn., \$7 mo. . \$66.95
Kit EF-2-4 (EF-2 & IO-12 Oscilloscope, pg. 26), 28 lbs., no money dn., \$9 mo. . \$87.95
Manuals only for EF-2 (single copy) . . . \$5.00 (10 or more) ea. \$3.00



EF-3
"Text & Chassis"
\$11⁹⁵

EF-3-3
"Text, Chassis & Instrument"
\$61⁹⁵

"How To Understand & Use Your Signal Generator"

Here's how to get the most from your signal generator!
Kit EF-3, Text, chassis & parts, 4 lbs. . \$11.95
Kit EF-3-2 (EF-3 & IG-102 RF Signal Generator, pg. 27), 10 lbs., no money dn., \$5 mo. . \$37.95
Kit EF-3-3 (EF-3 & IG-82 Sine-Square Audio Generator, pg. 27), 18 lbs. . . no money dn., \$7 mo. \$61.95
Manuals only for EF-3 (single copy) . . . \$5.00 (10 or more) ea. \$3.00

Research & Education

The broad range of versatility of Heath Malmstadt/Enke Instrumentation has been extended even beyond the scope of the basic laboratory station. Heath provides modular electronics to adapt these instruments for the highly accurate measurement of pH and for a complete research/analytical laboratory in polarography.

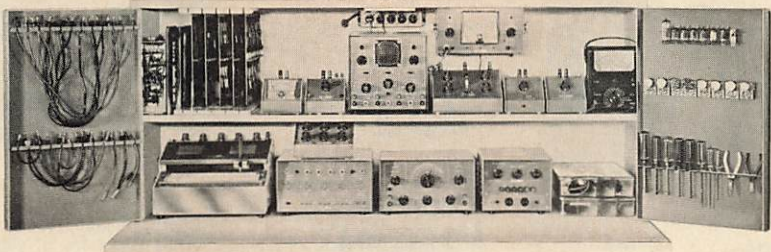
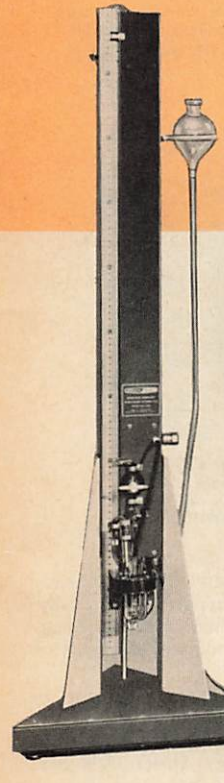


Write For Free Instrumentation Brochures

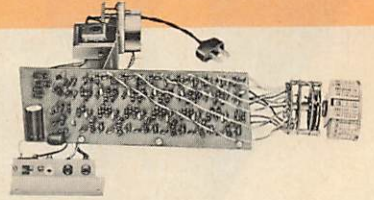
1. Fully describes Multi-Speed Chart Drive for Heath Servo-Chart Recorders and Recording pH Meters
2. Describes the Heath Malmstadt-Enke Instrumentation Laboratory, including the concept of instrumentation for both teaching and research. Gives full specs on the instruments.
3. Discusses polarography, gives specifications on the electronics for the Heath Polarography

System, and suggests additional techniques with which the system can be used.

4. Describes the Dropping Mercury Electrode Apparatus (D.M.E.) which completes the Heath Polarography Laboratory.
5. Gives full description and specifications for the Heath Malmstadt-Enke pH Recorder/Electrometer. Includes allied equipment & accessories.



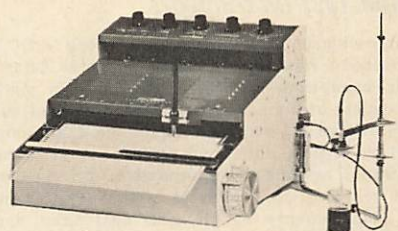
Heath Malmstadt-Enke Laboratory For Electronics, Education, And Research Instrumentation. **EU-100A . . . \$990.00**



Multi-Speed Chart Drive **EUA-20-26** for Heath Servo-Chart Recorder **EUW-20A**. Provides 21 chart speeds from 12 inches/min. to 1/2 inch/hour. **EUA-20-26, 5 lbs. \$89.00**



Heath Malmstadt-Enke Recording pH Meter/Electrometer With Multi-Speed Chart Drive. **EUW-301M . . \$369.00**
EUW-301, single-speed version (2"/min.) Express or Motor Frt. **\$280.00**



Complete Polarography Laboratory For 3-electrode, Controlled Potential Polarography. **EUW-402**, Express or Motor Frt. . . **\$599.00**



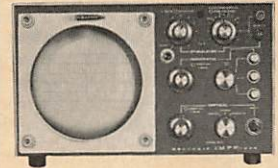
Send For Free Brochure! Describes instruments and components, plus a discussion on the "Berkeley Concept."

Heath Instruments & Components For Berkeley Lab Parts A & B

Each basic Heath laboratory station includes all of the instruments and components needed by a two-student lab group to perform all of the experiments of the Berkeley Course, Parts A & B.

- EP-100A**, Kit Instruments and Part A Components . . . **\$399** (with wired units . . . **\$559**).
- EP-100B**, Kit Instruments and Part B Components . . . **\$439** (with wired units . . . **\$599**).

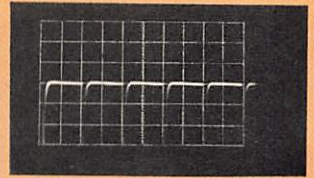
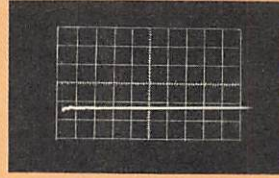
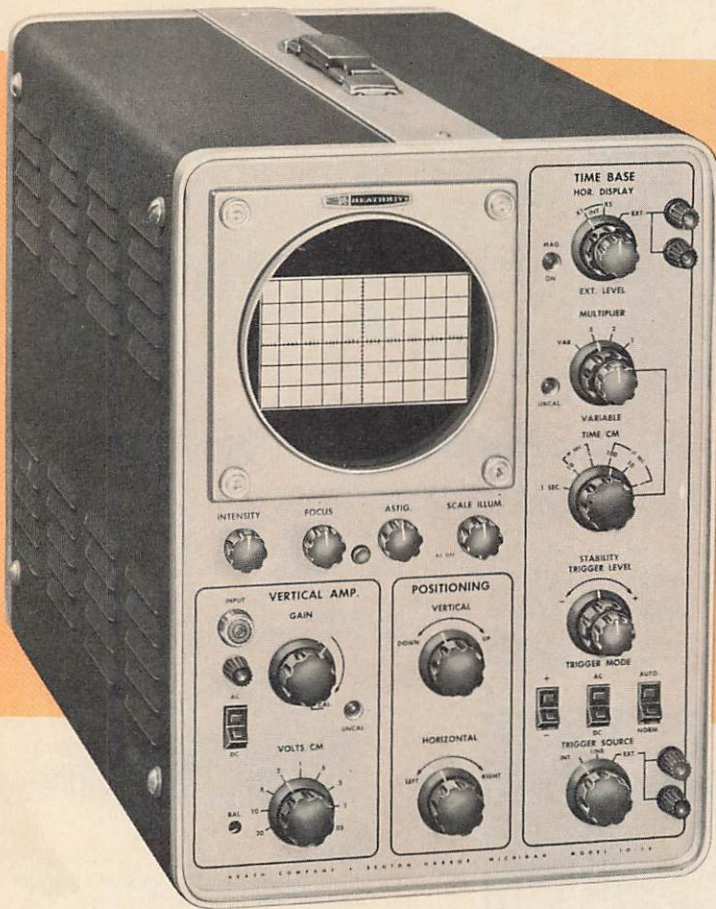
Heathkit IMPScope Displays Electrical Phenomena Of Heart, Muscles, & Nerves . . . Send for Free Brochure



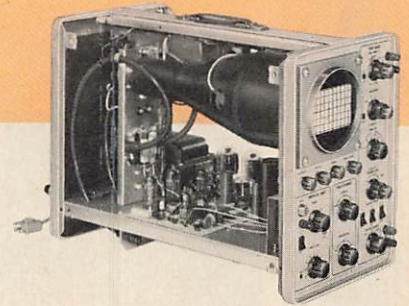
Kit EV-3 **\$175⁰⁰**
EVW-3 **\$265⁰⁰**
Wired

- Kit EV-3, 27 lbs. no money down, \$17 month. **\$175.00**
- Assembled EVW-3, 28 lbs. no money down, \$25 month. **\$265.00**
- Export model available for 115/230 VAC, 50-60 cps; write for prices.
- EVA-3-1**, Accessory Package: Includes nerve chamber, vector dolly, plethysmograph, frog electrodes & manual of instructions. 4 lbs. **\$35.00**
- EVW-3-1**, Factory Assembled Accessories, 3 lbs. . . **\$50.00**

Heath Research ... Creating Innovations



Here Actual Signal Waveforms Indicate Scope Quality. The waveform on the left (a 100 kc fast rise square wave) illustrates the capability of the IO-14 to clearly display fast-rise signals. Mode is "triggered" "AC". Time base is 0.2 microseconds per centimeter. The entire leading edge of this signal is available for analysis, since the vertical deflection occurs 0.25 microseconds after the sweep is initiated. The waveform on the right (precision 20 millisecond timing pulses) illustrates the linearity of the horizontal sweep . . . through the accurate 2 cm pulse intervals. Both waveforms are unretouched photographs of signals produced by Tequipment® Type C-1 scope calibrator. Scope sensitivity for both waveforms is 0.2 volts/cm.



New! Triggered-Sweep, Delay Line Scope— Heathkit® IO-14... A Professional DC Oscilloscope Sets A New Precedent For Performance And Value In Precision Test Instruments

- A high stability 5" DC oscilloscope with triggered sweep • DC to 8 mc bandwidth and 40 nanosecond rise time • Vertical signal delay through high linearity delay lines—capable of faithful reproduction of signal waveforms far beyond the bandwidth of the scope • Calibrated vertical attenuation
- Calibrated time base • Forced air cooling • Input for Z axis modulation
- Input for direct access to vertical deflection plates • Easy circuit board construction & wiring harness assembly • Components are packaged separately for each phase of construction • Easy to align • Fulfills many production and laboratory requirements at far less cost than comparable equipment—particularly scopes capable of fast-rise waveform analysis • No special order for export version required—wiring options enable 115/230 volt, 50-60 cycle operation

Here Is A Truly Sophisticated Instrument . . . designed with modern circuitry, engineered with high quality, precision-tolerance components, and capable of satisfying the most critical demands for performance. The IO-14 features precision delay-line circuitry to allow the horizontal sweep to trigger "ahead" of the incoming vertical signal. This allows the leading edge of the signal waveform to be accurately displayed after the sweep is initiated. What is more, the IO-14's delay line is capable of reproducing sharp rise time signals far beyond the high frequency limitations of the oscilloscope. This assures the utmost ability for critical analysis of signal waveform characteristics . . . right up to the limits of the published specifications.

Compare The Specifications . . . study the circuit diagram . . . you'll agree the Heathkit IO-14 does set a new precedent for performance and value.

The IO-14 Provides Features You Expect Only In High Priced Oscilloscopes. For example, a calibrated vertical attenuator, a 5X sweep magnifier, and a magnifier indicator lamp . . . external sweep input and external trigger input . . . and many others, including an accurately engraved graticule with variable intensity lighting for optimum results in 'scope photography.

Precision Small Parts Are Used Throughout. Switches are quality, ball-detent type. All major control potentiometers are precision, high-quality sealed components. All critical resistors are 1% precision. And circuit boards are low-loss fiber glass laminate.

Kit IO-14
\$299⁰⁰

Assembled IOW-14
\$399⁰⁰

Sharp, Bright Trace, enabling a brilliant display of signals at the fastest sweep rates, is assured by 4 kv accelerating potential.

Built For Continuous Use . . . Rugged Abuse. The IO-14's cabinet is heavy gauge aluminum. The chassis and components are well supported structurally. The CR tube is shielded against stray magnetic fields, and forced air ventilation allows the IO-14 to be operated continuously under the demands of industrial use. Here is a scope that's built to "take it."

For Physiological Or Biological Study . . . the IO-14 is available in assembled form with a long-persistence CRT (P7 phosphor). The low sweep rates, very low noise levels, and stable triggering circuitry make this an ideal oscilloscope for critical research in physiology. Order IOW-14S.

Circuit Boards & Wiring Harness Assembly . . . make building the IO-14 a real pleasure. Alignment requires an accurate voltmeter, an accurate, fast rise time square wave generator, and a sine wave signal source.

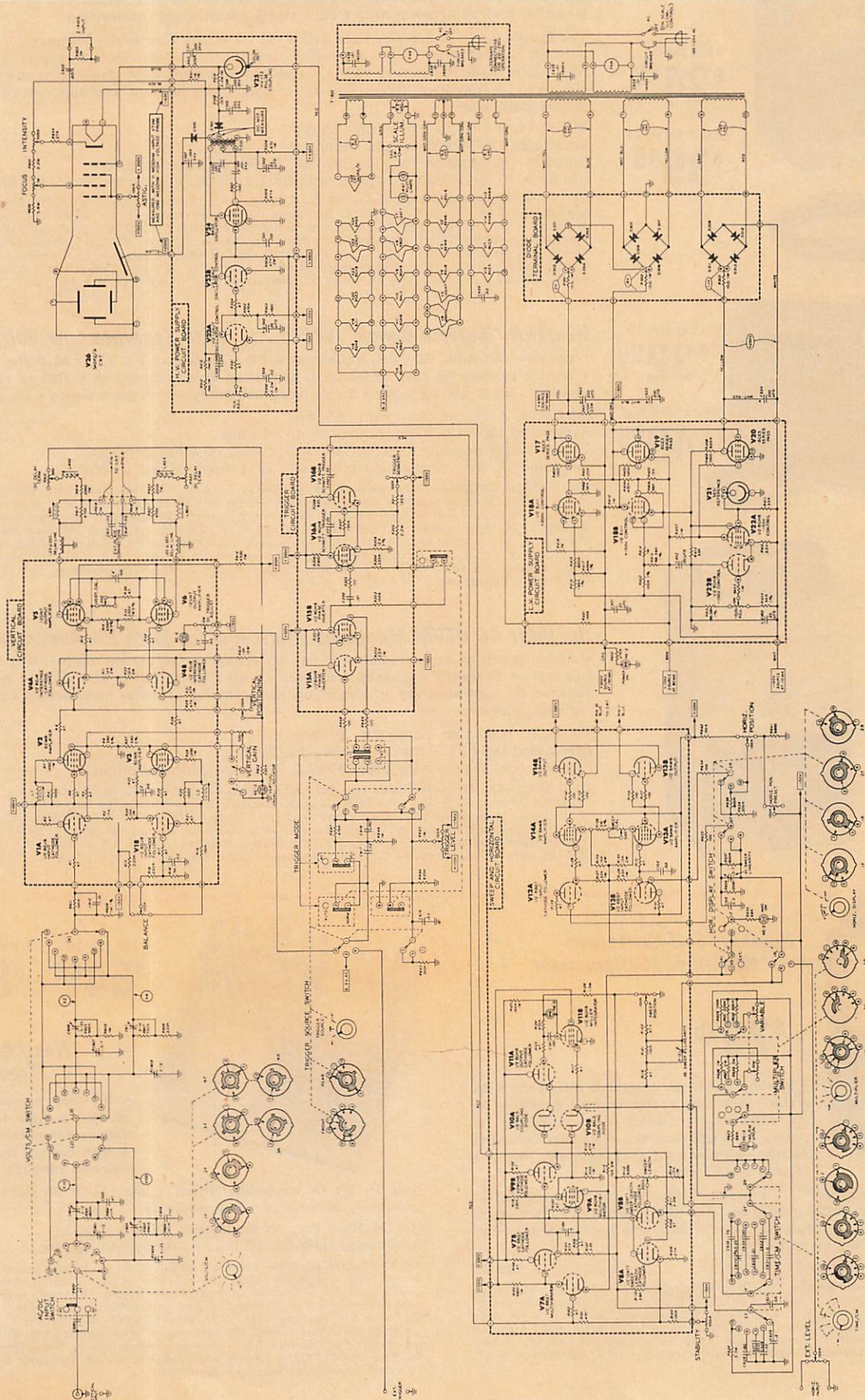
Order The IO-14 For The Ultimate Value In Oscilloscopes.

Kit IO-14, 53 lbs., Express or Motor Freight, no money dn., \$28 mo. **\$299.00**
Assembled IOW-14, 47 lbs., Express or Motor Freight, \$40 dn., as low as \$23 mo. **\$399.00**
Assembled IOW-14S, 47 lbs., Express or Motor Freight (with P7 phosphor) **\$410.00**

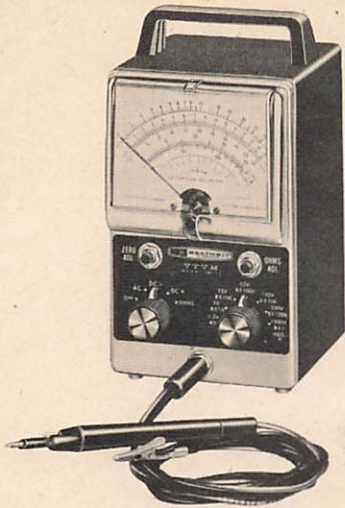
IO-14 SPECIFICATIONS—(Vertical) Sensitivity: 0.05 v/cm AC or DC. **Frequency response:** DC to 5 mc, —1 db or less; DC to 8 mc, —3 db or less. **Rise time:** 40 nsec [0.04 microseconds] or less. **Input impedance:** 1 megohm shunted by 15 uuf. **Signal delay:** 0.25 microsecond. **Attenuator:** 9-position, compensated, calibrated in 1, 2, 5 sequence from 0.05 v/cm. **Accuracy:** ±3% on each step with continuously variable control (uncalibrated) between each step. **Maximum input voltage:** 600 volts peak-to-peak; 120 volts provides full 6 cm pattern in least sensitive position. **(Horizontal) Time base:** Triggered with 18 calibrated rates in 1, 2, 5 sequence from 0.5 sec/cm to 1 microsecond/cm with ±3% accuracy or continuously variable control position (uncalibrated). **Sweep magnifier:** X5, so that fastest sweep rate becomes 0.2 microseconds/cm with magnifier on. (Overall time base accuracy ±5% when magnifier is on.) **Triggering capability:** Internal, external, or line signals may be switch selected. Switch selection of + or — slope. Variable control on slope level. Either AC or DC coupling. "Auto" position. **Triggering requirements:** Internal; ½ cm to 6 cm display. **External:** 0.5 volts to 120 volts peak-to-peak. **Horizontal input:** 1.0 v/cm sensitivity (uncalibrated) continuous gain control. **Bandwidth:** DC to 200 kc ±3 db. **General:** 5ADP31 or 5ADP2 Flat Face C.R.T. interchangeable with any 5AD or 5AB series tube for different phosphor characteristics. 4250 V. accelerating potential. 6 x 10 cm edge lighted graticule with 1 cm major divisions & 2 mm minor divisions. **Power supply:** All voltages electronically regulated over range of 105-125 VAC or 210-250 VAC 50/60 cycle input. Z Axis Input provided. DC coupled CRT unblanking for complete retrace suppression. **Power requirements:** 285 watts, 115 or 230 VAC 50-60 cps. **Cabinet dimensions:** 15" H x 10½" W x 22" D. includes clearance for handle and knobs. **Net weight:** 40 lbs.

In Electronics For Nearly Two Decades

If You Know Oscilloscope Design, Examine The Schematic
Of The Heathkit Professional Oscilloscope Model IO-14 . . .
Proof Of It's Sophistication And Extraordinary Value



Professional Test Instruments



Kit IM-11
\$24⁹⁵
Wired IMW-11
\$39⁹⁵

The Heathkit IM-11 . . . The World's Most Popular VTVM

- One probe makes all measurements • 7 AC, 7 DC, 7 Ohms ranges • Easy to read, sensitive 4 1/2" 200 ua meter • 1% precision resistors • Extended frequency response ±1 db 25 cps to 1 mc • Measures RMS and Peak-to-Peak • Easy, stable circuit board construction

The Heathkit IM-11 Set The Pace In VTVM's For The Electronics Industry . . . and it's held that pace for over 15 years! This was possible through Heath research and engineering . . . innovations which have made the modern IM-11 a highly accurate and dependable instrument for any phase of electronic measurement. Order your IM-11 today, and find out why hundreds of thousands are in use the world over.

Kit IM-11, 5 lbs., no money dn., \$5 mo. \$24.95
Assembled IMW-11, 5 lbs., no money dn., \$5 mo. \$39.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.
See page 20 for combination offer with EF-1 Applications Course. No money dn., \$5 mo. \$32.50

IM-11 SPECIFICATIONS—Meter scales: DC & AC (RMS): 0-1.5, 5, 15, 50, 150, 500, 1500 volts full scale. AC peak-to-peak: 4, 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 with internal battery. Meter: 4 1/2" 200 ua movement. Multipliers: 1% precision type. Input resistance DC: 11 megohms (1 megohm in probe) on all ranges. Circuit: Balanced bridge (push-pull) using twin triode. Accuracy: DC ±3%, AC ±5% of full scale. Frequency response: ±1 db 25 cps to 1 mc (600 ohm source). Tubes: 12AU7, 6AL5. Battery requirements: 1.5 volt, size "C" flashlight cell (not included). Power requirements: 105-125 volt 50/60 cycle AC, 10 watts. Dimensions: 7 7/8" H x 4 1/16" W x 4 3/8" D.



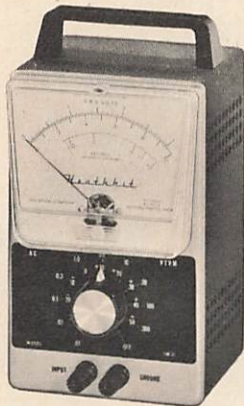
Kit IM-13
\$32⁹⁵
Wired IMW-13
\$49⁹⁵

Heathkit "Service Bench" VTVM . . . With Separate Low Volts AC Scales

- Measures AC volts, DC volts, Resistance & DB • Separate 1.5 & 5 volt AC scales for high accuracy • Gimbal bracket for easy under-shelf, bench top or wall mounting • Tilts to any angle for best viewing • Big 6" 200 ua meter • Single test probe for operating convenience • 1% precision resistors

Kit IM-13, 7 lbs., no money dn., \$5 mo. \$32.95
Assembled IMW-13, 7 lbs., no money dn., \$5 mo. \$49.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.
See page 20 for combination offer with EF-1 Applications Course.

IM-13 SPECIFICATIONS—Meter scales DC & AC (RMS): 0-1.5, 5, 15, 150, 500, 1500 volts full scale (1.5 and 5 volt AC ranges read on separate scales). Ohmmeter: 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 ua movement. DC Input resistance: 11 megohms (1 megohm in probe) on all ranges. AC Input impedance: 1 megohm shunted by 40 uuf (measured at input terminals). Circuit: Balanced bridge (push-pull) using twin triode. Accuracy: DC ±3%, AC ±5% of full scale. Frequency response: ±1 db 25 cps to 1 mc (600 ohm source). Tubes: 12AU7, 6AL5. Battery: 1.5 volt size "C" flashlight cell (not supplied). Power requirements: 105-125 volts 50/60 cycle AC 10 watts. Dimensions: 5" H x 12 1/16" W x 4 3/4" D.



Kit IM-21
\$33⁹⁵
Wired IMW-21
\$52⁹⁵

Heathkit AC VTVM Measures Low-Level AC With 5% Accuracy

- Allows precision measurements at low AC voltages • 10 voltage ranges—0.01 to 300 volts RMS full scale • Extended frequency response, ±1 db from 10 cps to 500 kc • 10 megohm input impedance for high accuracy • VU-type ballistic damping of meter movement • Calibrated DB scale for audio measurements

Kit IM-21, 5 lbs., no money dn., \$5 mo. \$33.95
Assembled IMW-21, 5 lbs., no money dn., \$6 mo. \$52.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.

IM-21 SPECIFICATIONS—Frequency response: ±1 db 10 cps to 500 kc, ±2 db 10 cps to 1 mc, all ranges. Ranges: Ten ranges from 0.01 to 300 volts RMS full scale. Decibels: ten switch selected ranges from -40 db to +50 db in 10 db steps. Input impedance: Total range -52 to +52 db, meter scale -12 to +2 db. (0 db = 1 mw in 600 ohms), 10 megohms shunted by 12 uuf on ranges 10 to 300 volts, 10 megohms shunted by 22 uuf on ranges .01 to 3 volts. Tube complement: (1) 6AW8, (1) 6EJ7/EF-184. Accuracy: Within 5% of full scale. Power requirements: 105-125 volts AC, 50/60 cycles, 10 watts. Dimensions: 7 7/8" H x 4 1/16" W x 4 3/8" D.



Heathkit Self-Contained Volt/Ohm/Milliammeter

MM-1
\$29⁹⁵

- Measures voltage, current & resistance • 35 meter ranges on 2-color scale • Sensitive 50 microampere 4 1/2" meter • 1% precision resistors for high accuracy • Polarity reversing switch — eliminates transferring test leads • Molded plastic case

Future Hams & Hobbyists! . . . choose the MM-1 for your first test instrument. You'll make no better investment. The MM-1 provides wide voltage, current, resistance, & db ranges to cover virtually any testing requirement. Test leads are included. Less batteries.

Kit MM-1, 5 lbs., no money dn., \$5 mo. \$29.95

MM-1 SPECIFICATIONS—Sensitivity: 20,000 ohms/volt DC, 5,000 ohms/volt AC. Range AC & DC volts: Full scale, 1.5, 5, 50, 150, 500, 1500, 5000. Direct current: 150 microamperes, 15, 150, 500 milliamperes, 15 amperes. Ohmmeter: 0.2 ohms to 20 megohms in three ranges. Decibels: -10 to +65 db. Resistors: 1% precision type. Accuracy: ±3% of full scale. Controls: Range switch, Output—AC—DC—reverse DC switch, Ohms adjust control. Batteries: 1 type "C" cell, 4 penlight cells. Dimensions: 7 1/2" x 5 1/2" x 4".



Kit IM-30
\$54⁸⁸
Wired IMW-30
\$84⁹⁵

Heathkit Laboratory Transistor Tester

- Provides complete DC analysis of PNP & NPN transistors • Provisions for checking high voltage & high current transistors through external supplies

Now In Kit Or Assembled Form . . . the IM-30 provides a complete DC laboratory analysis of semiconductor.

Kit IM-30, 9 lbs., no money dn., \$6 mo. \$54.88
Assembled IMW-30, 10 lbs., no money dn., \$9 mo. \$84.95

IM-30 SPECIFICATIONS—Checks: Transistors up to 15 amps and diodes up to 1.5 amps. Tests: Shorts, DC Gain (Beta 0-300) (Alpha 0-.9967), Leakage (Icbo, Iceo), Diode Forward & Reverse Current. Power supply: Internal, seven 1.5 volt size D batteries 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 potentiometer has calibrated scales to give DC Beta and DC Alpha directly when meter is at null. Transistor & diode connections: Universal transistor socket and binding posts.

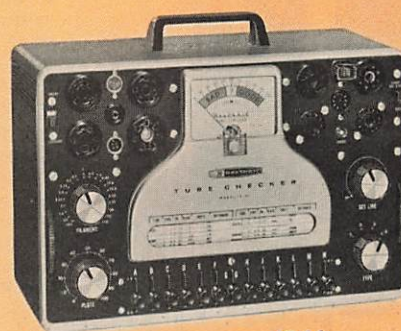
At Kit Builder's Savings



A
IT-12
\$19⁹⁵



B
IT-11
\$29⁹⁵



C
IT-21
\$44⁹⁵



D
IT-22
\$10⁹⁵



E
QM-1
\$54⁹⁵



F
IB-2A
\$69⁹⁵

A Heathkit Visual-Aural Signal Tracer

- Traces RF, IF, and audio signals • Quickly isolates defective stage in circuit under test • Locates noisy and intermittent components • Single, convenient audio-RF probe with switch • Tests transistor equipment safely • Signals are traced visually with an "electron eye" and audibly with amplifier speaker • Doubles as a test-bench utility amplifier or speaker

A Real Aid In Trouble-Shooting And Servicing . . . where time is money the IT-12 is a must!

Kit IT-12, 6 lbs., no money dn., \$5 mo. \$19.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.

B Heathkit Capacitor Checker

- Tests all capacitor types • Low bridge voltage for miniature electrolytics • 16 Leakage test voltages • Direct reading scales—no involved calculations • Measures 10 uuf to 1,000 mfd • Comparator circuit—measures "L", "C", or "R" with external standard • Calibrated power factor control • "Eye" tube null & leakage indicator

Kit IT-11, 7 lbs., no money dn., \$5 mo. \$29.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.

IT-11 SPECIFICATIONS—Test circuit: AC bridge, powered through special bridge transformer by an internal 60 cycle supply or by an external audio generator with 10 volts output. Upper frequency limit: 10 kc. **Capacitance, 4 ranges:** 10 uuf to .005 ufd; .001 ufd to .5 ufd; .1 ufd to 50 ufd; 20 ufd to 1000 ufd. **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 volts AC, 50/60 cycles, 30 watts. **Dimensions:** 9 1/2" high x 6 1/2" wide x 5" deep.

C Heathkit Tube Checker

- Tests standard types plus Compactrons, Nuvistors, Novars, and 10-pin miniatures • Multi-colored "bad?-good" meter scale • Lighted meter • Constant tension roll chart • Easy assembly

Kit IT-21, 12 lbs., no money dn., \$5 mo. \$44.95

IT-21 SPECIFICATIONS—Tests: Emission, short, leakage, open element, filament continuity. **Sockets:** 4-pin, 5-pin, 6-pin, 7-pin combination and pilot light, 7 & 9-pin miniature, octal, loctal, 10-pin miniature, 9-pin novar, 12-pin compactron, 5-pin nuvistor, 7-pin nuvistor. **Meters:** 1 ma, BAD?-GOOD scale, illuminated. **Line voltage adjustment:** Step type. **Roll chart mechanism:** Constant tension, illuminated. **Power requirements:** 105-125 VAC, 50/60 cps. **Dimensions:** 5 1/2" x 8 1/2" x 13".

D Heathkit Capaci-Tester . . . For "In-Circuit" Checkout

- Spots open, shorted or intermittent capacitors without removing them from the circuit • Fast & simple to use • Saves valuable time in trouble-shooting circuits • Locates hard-to-find intermittent components • Tests bypass, blocking, and coupling capacitors • Built-in self-testing feature • Small, compact size—easy to carry

Kit IT-22, 4 lbs. \$10.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.

E Heathkit Laboratory "Q" Meter

- Tests components at operating frequency—150 kc to 18 mc • Measures Q, L, and distributed capacity of coils • Large 4 1/2" 50 ua meter—easy-to-read dial scales • Special test coil furnished for calibration • Oscillator output metered for constant injection

Kit QM-1, 13 lbs. . . No money down, \$6 mo. \$54.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.

QM-1 SPECIFICATIONS—Frequency: 150 kc to 18 mc in four bands. **Inductance:** 1 microhenry to 10 millihenrys; Q; 250 full scale x1 or x2. **Capacitance:** Actual, 40 uuf to 450 uuf; Effective, 40 uuf to 400 uuf; Vernier ±3 uuf. **Tubes:** (1) 12AT7, (1) 6AL5, (1) 12AU7, (1) 6X5, (1) OD3/VR150. **Power requirements:** 105-125 volts, 50/60 cycles AC, 30 watts. **Dimensions:** 8" H x 17" W x 6" D.

F Heathkit Impedance Bridge Kit

- Includes four bridge circuits—Wheatstone bridge for resistance, Capacity Comparison bridge for capacitance, Maxwell bridge for low Q inductance, and a Hay bridge for high Q inductance • Built-in generator & detector amplifier • 1/2% precision resistors & silver mica capacitors

Kit IB-2A, 11 lbs. No money dn., \$7 mo. \$69.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.

IB-2A SPECIFICATIONS—Circuit: 4-arm impedance bridge. **DC Measurements:** Built-in power supply. Binding posts provided for external supply. **Meter:** 100-0-100 microampere meter. **AC Measurements:** Built-in 1000 cycle generator. Terminals on panel for external generator at other frequencies. **Detector:** Vacuum tube detector and amplifier, using built-in meter. Terminals provided for external detector. **Resistance:** 0.1 ohm to 10 megohm. **Capacitance:** 100 mmf to 100 mfd. **Inductance:** 0.1 mh to 100 h. **Dissipation factor:** (D) 0.002 to 1. **Storage factor:** (Q) 1 to 1000. **Accuracy:** 1/2% decade resistors used. **Tube complement:** (2) 1U4, (2) 1L4. **Power supply:** Transformer and selenium rectifier. **Power requirements:** 105-125 V. 50/60 cycles AC, 10 watts. **Dimensions:** 8" H x 17" W x 6" D.

Value Leadership... Through Superior

Heathkit Wide-Band 5" Oscilloscope

• Full 5 mc bandwidth for color TV servicing • Heath patented sweep circuit—10 cps to 500 kc • Push-pull vertical & horizontal output • Two circuit boards & wiring harness for fast, easy assembly • Available kit or wired

Thousands In Use Across The Nation. Service shops, university laboratories, and industries choose this scope. Switch positions for two pre-set sweep rates speed TV servicing. Special HV and sweep circuit outputs in IO-12S version provide signals for Berkeley Physics Laboratory experiments.

Kit IO-12, 24 lbs., no money dn., \$8 mo. \$79.95
 Assembled IO-12, 23 lbs., no money dn., \$13 mo. \$134.95
 Kit IO-12S (Special Berkeley Physics Version) \$79.95
 Assembled IO-12S (Special Berkeley Physics Version) \$134.95

Export model available for 115/230 VAC, 50-60 cps; write for prices.

Kit 337-C Scope Demodulator Probe Kit, 1 lb. \$3.50
 Assembled 337W-C Scope Demodulator Probe, 1 lb. \$4.50
 Kit PK-1 Low Capacitance Oscilloscope Probe Kit, 1 lb. \$4.95

IO-12 SPECIFICATIONS—Vertical Sensitivity: 0.025 volts RMS per inch at 1 kc. Frequency response (referred to 1 kc level): ± 1 db 8 cps to 2.5 mc; +1.5 to -5 db, 3 cps to 5 mc; response at 3.58 mc, -2.2 db. Rise time: 0.08 micro-seconds or less. Input impedance: (AT 1 KC) 2.7 megohms at X1, 3.3 megohms at X10 and X100. Horizontal sensitivity: 0.3 volts RMS per inch at 1 kc. Frequency response: ± 1 db 1 cps to 200 kc; ± 3 db 1 cps to 400 kc. Input impedance: 4.9 megohms at 1 kc. Sweep generator: Range—10 cps to 500 kc in five steps, variable, plus any 2 switch-selected preset sweep frequencies in this range. Synchronizing: automatic lock-in circuit using self-limiting synchronizing cathode follower. Power requirements: 105-125 volts 50/60 cycles AC at 80 watts; fused. Dimensions: 14 1/8" H x 8 3/4" W x 16" D.

Heathkit "General Purpose" 3" Oscilloscope

• Push-pull vertical & horizontal amplifiers • Wide range sweep—20 to 100,000 cps • Automatic sync • Retrace blanking • Clean open circuit layout for easy assembly

Fills Hundreds Of Daily Servicing Requirements! An excellent general purpose scope for the shop or classroom. Why tie up an expensive instrument when an IO-21 can do the job? ... compare the "specs"!

Kit IO-21, 12 lbs., no money dn., \$6 mo. \$58.95
 Export model available for 115/230 VAC, 50-60 cps; write for prices.
 See page 20 for combination offer with EF-2 Applications Course.

IO-21 SPECIFICATIONS—(Vertical and horizontal amplifiers identical): Frequency response: ± 2 db, 2 cps to 200 kc. Sensitivity: .25 volts RMS/inch P-P deflection at 1 kc. Input impedance: 10 megohms shunted by 20 uuf. (Direct connection to vertical CRT plates on rear panel). Sweep generator: Range, 20-100,000 cps. Automatic sync, retrace blanking. Tube complement: (1) 3RP1 (CR tube), (4) 12AU7 (deflection amplifiers), (1) 12AX7 (sweep generator), (1) 6X4 (LV rectifier), (1) 1V2 (HV rectifier). Controls: Gain controls, Horizontal & Vertical; Centering controls, Horizontal & Vertical; Frequency Vernier; Horizontal Input, Sweep Range switch. (Focus and Astigmatism controls mounted on chassis). Power requirements: 105-125 volts AC, 50-60 cycle, 40 watts. Dimensions: 9 1/2" H x 6 1/2" W x 10" D.

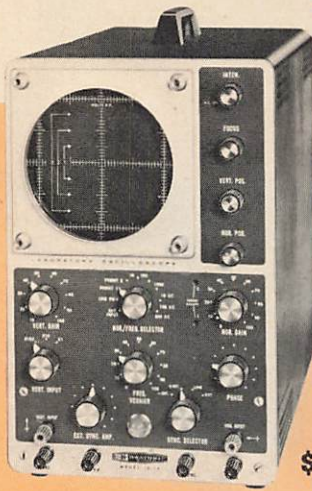
3" "Space-Saver" DC Oscilloscope . . . With Identical X & Y Amplifiers

• Identical DC or AC coupled vertical & horizontal amplifiers • DC to 200 kc bandwidth • Recurrent sweep generator, 5 cps to 50 kc in four ranges • Small, compact, easy to carry

An Excellent Scope For Medical & Industrial Work . . . where extremely low sweep rates and an x-y capability are needed. Includes binding posts for external capacitance for lower sweep rates than the 5 cps provided. Has magnetic shielding for CR tube.

Kit IO-10, 16 lbs., no money dn., \$10 mo. \$94.95
 Export model available for 115/230 VAC, 50-60 cps; write for prices.

IO-10 SPECIFICATIONS—(Vertical and horizontal channels identical): Bandwidth: DC to 200 kc (2 db point). Sensitivity: 0.1 V (peak-to-peak) per 1/4" (uncalibrated). Attenuator: 3-position, compensated type. Gain control: Continuously variable. Input impedance: 3.6 megohms shunted by 35 mmf. Coupling: Either AC or DC, switch-selected. Relative phase shift between channels: Less than 5°. Sweep generator (Recurrent type): Linear saw-tooth produced by multi-vibrator type generator covering 5 cps to 50 kc in four overlapping ranges. "External capacitance" binding post for lower sweep rates. Sync provision: Either internal or external, switch-selected. Power requirements: 105-125 V 50-60 cycle AC at 100 watts max. Dimensions: 7 3/4" H x 4 3/4" W x 11" D.



IO-12
\$79.95
IO-12
\$134.95



IO-21
\$58.95



IO-10
\$94.95

A Heathkit Low-Voltage Regulated Power Supply

• Switch selection of 6 or 12 volt power • Variable voltage control 0 to 7 & 0 to 14 VDC • Less than 0.3% ripple • Panel metered output voltage & current • Doubles as a convenient battery charger • Heavy-duty well-rated components

Kit IP-12, 18 lbs., no money dn., \$5 mo. \$47.50
 Export model available for 115/230 VAC, 50-60 cps; write for prices.

B Laboratory Power Supply . . . Both Voltage Regulation & Current Limiting

• A tremendous value in a DC supply • Perfect for R & D in electronics • Perfect too for the classroom—current limiter protects equipment • All-transistor solid-state circuitry • Relay protected against short circuit & overload • Four current ranges, 50 MA, 150 MA, 500 MA & 1.5 A. • Adjustable current limiter, 30 to 100% on each range • Series type voltage regulator, zener diode reference

Kit IP-20, 13 lbs., no money dn., \$8 mo. \$72.95
 Assembled IPW-20, 16 lbs., no money dn., \$11 mo. \$114.95

C Heathkit Variable-Voltage Regulated Power Supply

• Excellent for use in electronic circuit design, for supply voltages for the physics laboratory and for electrophoresis in chemistry • Furnishes B+, 0 to 400 volts regulated at 100 ma maximum; Bias, 0 to 100 volts negative at 1 ma maximum; and 6.3 VAC at 4 amps max • Separate HV & filament switching for safety • Separate panel meters for current & voltage • Output terminals isolated from ground for maximum safety • 1% regulation from no load to full load

Kit IP-32, 17 lbs., no money dn., \$6 mo. \$56.95
 Assembled IPW-32, 18 lbs., no money dn., \$9 mo. \$84.95



IP-12
\$47.50

Kit IP-20 \$72.95
 Wired IPW-20 \$114.95



Kit IP-32 \$56.95
 Wired IPW-32 \$84.95

Design, & Quality Components



A IG-112
\$99⁰⁰



B Kit IG-102
\$27⁹⁵
Wired IGW-102
\$54⁹⁵



E IG-42
\$56⁹⁵



C Kit IG-72
\$41⁹⁵
Wired IGW-72
\$64⁹⁵



D Kit IG-82
\$51⁹⁵



F IG-52
\$67⁹⁵

A Heathkit FM Stereo Generator

• Provides virtually all signals required for trouble-shooting & alignment of multiplex adapters, FM tuners & receivers • Switch selection of 400 cps, 1000 cps, 5000 cps, 19 kc, 38 kc & 65 kc or 67 kc SCA signals • Built-in marker oscillator for I.F. and dial tracking checks

Kit IG-112, 11 lbs., no money dn., \$10 mo. \$99.00
Export model available for 115/230 VAC, 50-60 cps; write for prices.

IG-112 SPECIFICATIONS—RF Signal output: Center frequency: 100 mc adjustable by approx. ± 2 mc. Pilot modulating frequency: 19 kc ± 2 cps. FM Modulation: Left channel (stereo), right channel (stereo), Phase test (left plus right channel in phase), Monophonic FM. Deviation: Adjustable to 75 kc. Sweep rate: (Use for RF and IF alignment) 60 cps. Sweep width: (Use for RF and IF alignment) Adjustable to 750 kc. RF Attenuator range: 60 db in 20 db steps. Crystal-controlled markers: 10.7, 90.95, 96.30, 101.65, & 107 mc. Composite signal output: Left channel (stereo); Right channel (stereo). Phase test (left plus right channels in phase). Audio output: 400, 1000, & 5000 cps; 19 kc (± 2 cps), 38 kc; & SCA (65 or 67 kc). Distortion: (At 400, 1000 & 5000 cps) Less than 5%. Front panel controls: 19 kc pilot level control, deviation/sweep width/composite level/audio level control, function switch, frequency switch & RF attenuator switches. Rear panel adjustments: Balance adjust, 38 kc sync, pilot level adjust, & SCA frequency switch. Chassis adjustments: Oscillator adjust, frequency adjust & modulation adjust. Power requirements: 105-125 volts AC, 50/60 cps, 35 watts. Dimensions: 10 $\frac{1}{4}$ " H x 8" D x 13" W.

B Heathkit General Purpose RF Signal Generator

• 100 kc to 220 mc tuning range in 6 bands • Large, accurately calibrated scales • Pre-wired, prealigned coil/bandswitch assembly—critical circuits are pre-tuned • Unmodulated or 400 cycle modulated RF output

2% Tuning Accuracy, Plus Wide Tuning Range . . . make the IG-102 one of the most widely chosen, widely imitated RF generators on the market. Berkeley Physics Laboratory version (IG-102S, page 21) has direct RF output jacks & 3% accuracy.

Kit IG-102, 6 lbs., no money dn., \$5 mo. \$27.95
Assembled IGW-102, 6 lbs., no money dn., \$6 mo. \$54.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.

IG-102 SPECIFICATIONS—Frequency range: Band A, 100 kc to 320 kc; Band B, 310 kc to 1.1 mc; Band C, 1 mc to 3.2 mc; Band D, 3.1 mc to 11 mc; Band E, 10 mc to 32 mc; Band F, 32 mc to 110 mc. Calibrated harmonics: 110 mc to 220 mc. Accuracy: 2%. Output: Impedance, 50 ohms; Voltage, 100,000 uv. Modulation: Internal, 400 cps, 30% depth; External, approx. 3 V across 50 k ohms for 30%. Audio output: Approx. 10 V open circuit. Power requirements: 105-125 V 50/60 cycles AC, 15 watts. Dimensions: 6 $\frac{1}{2}$ " W x 9 $\frac{1}{2}$ " H x 5" D.

C Switch-Selected Audio Generator

• Switch-selected output frequencies—10 cps to 100 kc • Less than 0.1 of 1% distortion—20 to 20,000 cps • Panel metered output is calibrated in volts & db • Output level and frequency accurate to within $\pm 5\%$

Kit IG-72, 8 lbs., no money dn., \$5 mo. \$41.95
Assembled IGW-72, 9 lbs., no money dn., \$7 mo. \$64.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.

IG-72 SPECIFICATIONS—Frequency: 10 cps to 100 kc, switch selected, 2 significant figures and multiplier. Output: 6 ranges 0 to .003, .01, .03, .1, .3, 1 volt 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). Distortion: less than .1%, 20 to 20,000 cps. Tubes: (1) 6AU6, (1) 6CL6, (1) 6X4. Power: 105-125 volts AC, 50/60 cycles, 40 watts. Dimensions: 9 $\frac{1}{2}$ " W x 6 $\frac{1}{2}$ " H x 5" D.

D General Purpose Sine-Square Audio Generator

• Features continuous tuning • Covers 20 cps to 1 mc in 5 bands . . . from bottom of audio band to half way through the broadcast band • Less than 0.25% sine wave distortion • Less than 0.15 microsecond square wave rise time • Sine and square wave output available simultaneously

Kit IG-82, 14 lbs., no money dn., \$6 mo. \$51.95
Assembled Model! EUW-27, 14 lbs., Express or Motor Frt. only, no money dn., \$10 mo. \$94.00
Export model available for 115/230 VAC, 50-60 cps; write for prices.

IG-82 SPECIFICATIONS—SINE WAVE: Frequency range: 20 cycles to 1 mc. Output volts (RMS): 0 to 10 volts, 0 to 1 volt; 0 to .1 volt, or 0 to .01 volt when working into a high impedance load. Source impedance: ($\pm 10\%$): 10 volt range, 0 to 3.5 k ohm; 1V, .1V and .01V range, 600 ohm. Distortion: Less than .25%, 20 to 20,000 cycles. Frequency response: ± 1.5 db 20 cycles to 1 megacycle. SQUARE WAVE: Frequency range: 20 cycles to 1 mc. Output volts: (P. to P.) $\pm 5\%$; 0 to 10 volt, 0 to 1 volt, 0 to .1 volt, into a high impedance load. Source impedance: ($\pm 10\%$): 10 volt range, 0 to 220 ohm; 1V and .1V ranges, 52 ohm. Rise time: less than .15 microsecond. GENERAL: Frequency accuracy: $\pm 5\%$. Power requirement: 105-125V AC, 50/60 cycles, 55 watts. Dimensions: 13" W x 8 $\frac{1}{2}$ " H x 7" D.

E Laboratory RF Generator . . . With Precision Output Attenuator

• Accurately metered output voltage and % modulation • Operates on fundamentals—100 kc to 30 mc in five bands • Double shielding of all oscillator circuits • Easy to build

Wide-Range Attenuated Output For Precision Low-Level RF Measurements . . . use the IG-42 for circuit evaluation, for stage gain measurements, and for RF alignment work.

Kit IG-42, 15 lbs., no money dn., \$6 mo. \$56.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.

IG-42 SPECIFICATIONS—Frequency ranges: Band A, 100 to 290 kc; Band B, 280 to 1000 kc; Band C, 0.95 to 3.1 mc; Band D, 2.9 to 9.5 mc; Band E, 9 to 31 mc. RF output: Impedance, 50 ohms—voltage, 100,000 microvolts max. Attenuator: 10:1 per step, 5 steps—Fine, 10:1 continuous, indicated on meter. Amplitude modulation: CW, internal 400 cycles or external audio frequencies. Modulation depth: 0 to 50% variable, indicated on meter. Power requirements: 105-125 V, 50/60 cycles. Dimensions: 13" W x 8 $\frac{1}{2}$ " H x 7" D.

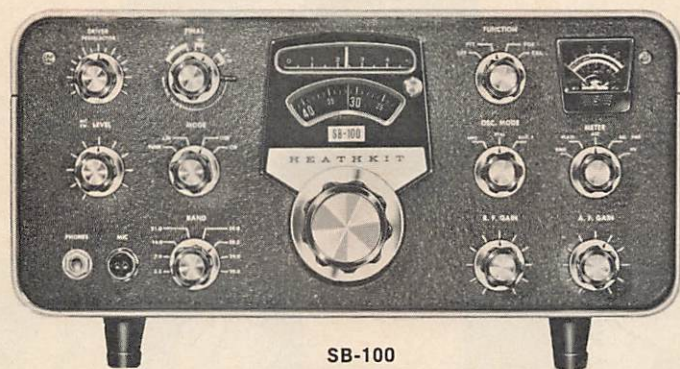
F TV Sweep Alignment Generator

• Stable all-electronic sweep circuit produces a wide range of sweeps with excellent linearity & stability • Complete FM & VHF TV coverage—3.6 to 220 mc • Built-in crystal & variable marker oscillators

Kit IG-52, 14 lbs., no money dn., \$7 mo. \$67.95
Export model available for 115/230 VAC, 50-60 cps; write for prices.

IG-52 SPECIFICATIONS—Output impedance: 50 ohms terminated at both ends of cable. Sweep deviation: Continuously variable from 0-4 mc lowest max. deviation to 0-42 mc highest max. deviation (depending on base frequency). Crystal marker: 4.5 mc and multiples thereof. Variable marker: 19 mc to 60 mc on fundamentals, 57 mc to 180 mc on harmonics. External marker terminals: Provided on panel. Attenuators: Step-switch controls sweep and marker oscillators together, plus variable controls for each output. Blanking: Converts return trace into zero reference line, phasing control also provided. Cables: 3 supplied, output, scope horizontal, scope vertical. Power requirements: 105-125 VAC, 60 cycles, 50 watts. Dimensions: 13" W x 8 $\frac{1}{2}$ " H x 7" D.

Unsurpassed Value And Performance



SB-100
\$360⁰⁰

PARTIAL SB-100 SPECIFICATIONS—Receiver section: **Sensitivity:** 1 microvolt or less for 15 db signal-plus-noise to noise ratio for SSB operation. **SSB selectivity:** 2.1 kc minimum at 6 db down, 5 kc maximum at 60 db down—2:1 nominal shape factor—6:60 db. **Power output:** 2 watts. **Spurious response:** Image and IF rejection better than 50 db. Internal spurious signals below equivalent antenna input of 1 microvolt. **Transmitter section:** **DC power input:** SSB: 180 watts P.E.P. continuous voice. CW: 170 watts—50% duty cycle. **RF power output:** 100 watts on 80 through 15 meters; 80 watts on 10 meters (50 ohm nonreactive load). **Output impedance:** 50 ohms to 75 ohms. **Oscillator feed-through or mixer products:** 55 db below rated output. **Harmonic radiation:** 35 db below rated output. **Carrier suppression:** 50 db down from single-tone output. **Unwanted sideband suppression:** 55 db down from single-tone output at 1000 cps reference. **Third order distortion:** 30 db down from two-tone output. **Noise level:** At least 40 db below single-tone carrier. **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 (megacycles). **Frequency stability:** Less than 100 cps per hour after 20 minutes warmup from normal ambient conditions. Less than 100 cps for $\pm 10\%$ line voltage variations. **Modes of operation:** Selectable upper or lower sideband (suppressed carrier) and CW. **Dial accuracy**—“Resetability”: Within 200 cps on all bands. **Electrical dial accuracy:** Within 400 cps after calibration at nearest 100 kc point. **Dial mechanism backlash:** Less than 50 cps. **Calibration:** 100 kc crystal. **Audio frequency response:** 350 to 2450 cps. **Power requirements:** 700 to 800 volts at 250 ma; 300 volts at 150 ma; —110 volts at 10 ma; 12 volts at 4.76 amps. **Cabinet dimensions:** 14 $\frac{1}{8}$ " W x 6 $\frac{1}{8}$ " H x 13 $\frac{3}{8}$ " D.

Heathkit SB-100 . . .

Engineering Unequaled In The Industry

- 180 watts input P.E.P. SSB—170 watts input CW on five bands, 80-10 meters • Switch selection of Upper or Lower sideband or CW • Built-in CW sidetone • Operates PTT or VOX • Transceiver tuning with Heath SB-Series LMO (Linear Master Oscillator; features 1KC dial calibration) or crystal-control transmit with VFO receive or crystal-control transceiver • Separate offset CW carrier crystal • Triple Action Level Control • Built-in 100 kc crystal calibrator • Quiet, enclosed relays • Fixed or mobile operation with appropriate power supply • Fast assembly with circuit boards and wiring harnesses • Simple alignment—requires only a VTVM or VOM, a dummy load and a broadcast receiver

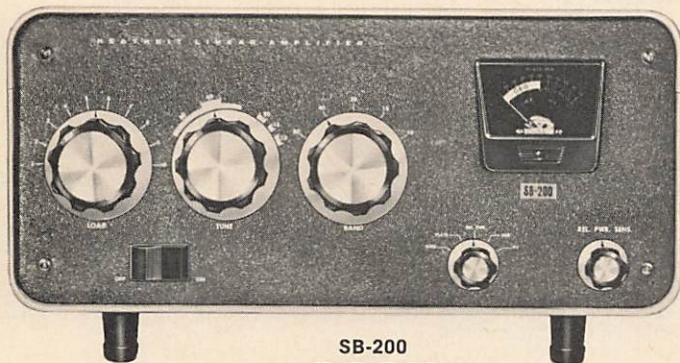
Kit SB-100, 23 lbs., \$36 dn., \$31 mo. \$360.00
SBA-100-1, Mobile Mounting Kit, 6 lbs. \$14.95
Kit HP-13, DC Power Supply, 7 lbs., no money dn., \$6 mo. \$59.95
Kit HP-23, AC Power Supply, 19 lbs., no money dn., \$5 mo. \$39.95
Kit SB-600, Speaker. \$17.95
Kit HS-24, Mobile Speaker, 4 lbs. \$7.00

SB-100 Engineering, Performance, & Value Surpasses Every Other Make Of SSB Transceiver . . . Regardless Of Price! A strong claim? . . . Sure! But we invite you to make the comparison. Compare the Heathkit SB-100 with any other make of SSB transceiver . . . discover the high-performance innovations you've read and heard about on the already famous Heath SB-Series equipment. Compare the SB-100 power supply costs and list of standard features, no "hidden" extra costs here!

Heathkit Switch-Board Technique Produces Better Than Factory Assembled Results! . . . virtually eliminates point-to-point wiring of tuning circuitry. The removable switch shaft makes the assembly of Switch-Boards easy . . . makes tuning coils readily accessible.

TALC (Triple Action Level Control) Sets New Standards For Automatic Level Control. Three separate circuits are combined in TALC to provide greater speech compression . . . allow for even more variation in speech level . . . and boost the performance of the SB-100 still higher.

Order The SB-100 For The Best Value In SSB Transceivers . . . Regardless! Make your comparison. Write to Heath for complete schematic with specs. You will agree that the SB-100 is the best investment you can make in amateur radio equipment. (Recommended for hams with previous electronic or kit building experience.)



SB-200
\$200⁰⁰

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.) or 240 volts AC @ 8 amperes (max.). **Cabinet size:** 14 $\frac{1}{8}$ " W x 6 $\frac{1}{8}$ " H x 13 $\frac{3}{8}$ " D. **Net weight:** 35 lbs.

Heathkit SB-200 Kilowatt Linear Amplifier

- A complete linear amplifier with built-in power supply • 1200 watts P.E.P. input SSB—1000 watts CW • 80 through 10 meter amateur band coverage • Panel meter switching provides readings of grid current, plate current, relative power output, SWR, and HV • Built-in antenna relay • Automatic level control (ALC) • Shielded, fan-cooled amplifier compartment • Pre-tuned cathode input circuit for maximum efficiency & low distortion • Circuit breaker power supply protection—no fuses • Designed for 120/240 VAC operation

Imagine Buying A Complete KW Linear Amplifier For Only \$200! Yet here it is . . . big, beautiful, and capable. One compact, desk-top unit, self-contained, 1200 watts P.E.P. input SSB, and 1000 watts CW with high efficiency, grounded-grid circuitry . . . all for just \$200. Mate it with the SB-300 & SB-400 or SB-100 for a complete desk-top amateur station.

Loaded With Features. Such as the pre-tuned cathode input circuit for maximum efficiency and low distortion . . . Automatic Level Control output for automatic exciter control . . . two heavy-duty 572B/T-160L final amplifier tubes, fan-cooled for maximum life . . . complete shielding for TVI protection and stability . . . separate pi-network output coils for 80-20 & 15-10 . . . conservatively rated solid-state power supply for long life and dependability . . . circuit breaker protection . . . built-in antenna relay for operating convenience (antenna is automatically switched to exciter when linear is turned off) . . . built-in panel meter that measures SWR, relative power, plate current, grid current, and high voltage . . . sturdy, but lightweight, one piece aluminum chassis that is partitioned for extra strength and isolation (the whole thing only weighs 35 lbs.).

Now Is The Time! If you've been yearning for a full gallon, put this one on your desk top. For here is high quality, high power SSB at the price you've been waiting for . . . six watts per dollar! Order your SB-200 today!

Kit SB-200, 41 lbs., no money dn., \$19 mo. \$200.00

In Amateur Radio Equipment



New! SB-610 Signal Monitor . . .

Displays Transmitted Or Received Signal Envelope

- Features new versatility—operates with transmitters 160 through 6 meters, 15 watts through 1 KW—operates with receiver IF's through 6 mc • Full capabilities with Heath SB-Series equipment • Displays envelope, AF & RF trapezoid patterns • Includes function switch position for RTTY • Full mu-metal shielded CR tube • Improved two-tone audio test oscillator with separate balance and output-level controls • Easier & faster assembly • Simple to connect • Shows the quality of signals you receive & transmit • Styling matches SB-Series

Only Heath Could Improve On The Most Widely Chosen Amateur Scope! Now a Signal Monitor matching the famous Heath SB series in both appearance and performance! The SB-610 provides an accurate analysis of your transmitted or received signals through actual oscillographic display of the signal waveforms. Positively identifies waveform distortion, such as over modulation, etc. The comprehensive assembly and operating manual shows you how to interpret the scope display. Various wiring options permit assembly of SB-610 for use with any one of the receiver IF's listed in the specifications below.

Kit SB-610, 14 lbs. . . no money dn., \$7. mo. \$69.95

SB-610 SPECIFICATIONS—Receiver IF's: Up to 455, 1600 to 1680, 2075, 2215, 2475, 3000, 3055, 3395, and 5000 to 6000 kc. **VERTICAL AMPLIFIER: Vertical Response (for 1 inch deflection):** Untuned: RTTY, 1 volt nominal; 20 kc—455 kc, less than 500 mv. Tuned: 455 kc, 70 mv. nominal; 1600-2500 kc, less than 200 mv; 3000—3400 kc, less than 500 mv.; 5000—6000 kc, less than 700 mv. **Input resistance:** 100 k ohm. **HORIZONTAL AMPLIFIER: Horizontal response:** ±3 db from 3 cps to 15 kc. **Sensitivity:** 800 mv per inch deflection. **Input resistance:** 1 megohm. **Sweep generator:** Recurrent type, sawtooth 15 to 200 cps (variable). **Tone oscillators:** Approximately 1500 & 1950 cps. with 100 mv (nominal) output. **GENERAL: Frequency coverage:** 160—6 meters. (50—75 ohm coaxial input) **Power limits:** 15 watts to 1 kilowatt (with special instructions for CB power levels). **Front panel controls:** Function Selector, Sweep Frequency, Tone Generator, Horizontal Gain, Horizontal Position, Vertical Position, Vertical Gain, Focus, Intensity/Off. **Rear control:** Xmtr. Atten. Attenuates 0 to 24 db at approximately 8 db per step. **Power supply:** Transformer operated, fused ½ amp. **Power requirements:** 120VAC 50/60 cps., 35 watts. **Dimensions:** 6" H x 10" W x 11 ¼" D (including knobs).



SB-610
\$69⁹⁵

Available Late July

Heathkit Solid-State Electronic Keyer

- Dependable solid-state circuitry • Speed range—15 to 60 words per min. Slow-speed option—10 to 20 wpm • Self-completing dashes • Solid-state switching—no relays to stick or chatter—no contact bounce to punch holes in characters • Built-in paddle—"feel" is adjustable to your fist during assembly • Adaptable to either right or left handed operators • Engineered to convert easily to semi-automatic operation if desired • Variable dot-space ratio • Hold switch for transmitter tuning • Built-in side-tone • Built-in transformer-operated power supply isolates the keyer from the power line • Fused for protection • For use only with transmitters employing grid-block keying circuits—105 volts @ 35 ma max.

Slow Speeds For The Novice . . . Red-Hot For The Experienced Brass Pounder . . . Built-In Side Tone For Off-The-Air Practice. That's the Heathkit HD-10! Transistorized switching means no relays to clatter . . . no contact bounce to punch holes in characters. And the HD-10 has plenty of natural weight to keep it well planted on your desk . . . even during the hottest contest hours. Kit HD-10, 6 lbs., no money down, \$5 mo. \$39.95

HD-10 SPECIFICATIONS—Keying: Speed range—15 to 60 wpm. Slow speed option—10 to 20 wpm. **Keying output:** Keyed line to chassis ground. **Voltage polarity:** Negative to ground only. **Maximum open circuit or spike voltage:** 105 volts. **Key-closed voltage:** 0.2 volts, max. **Key-closed current:** 35 milliamperes, max. **General: Audio:** Internal speaker or high impedance headphone jack. **Transistor complement:** (7) 2N407 PNP; (3) 2N2712 NPN; (1) 2N398A PNP. **Controls:** Off-Operate-Hold switch; Speed control; Dot-To-Space ratio control; Sidetone volume control. **Rear panel connections:** Keyed line; receiver audio; battery +45 volts; battery +22½ volts. External key options: hand key, dash arm, dash, dot. **Power requirements:** AC operation, 105-125 V. AC, 50-60 cps. Battery operation, 45 volts with 22½ V. tap; 14 milliamperes. **Dimensions:** 3¼" W x 4¼" H x 10½" D.



HD-10
\$39⁹⁵

Heathkit Solid-State Mobile Power Supply For SSB Rigs

Fixed-Station Power Supply For Heathkit SSB Transceivers



HP-13
\$59⁹⁵

- Especially designed for Heathkit mobile SSB transceivers • Primary and filament lines are circuit breaker protected • Switching circuits allow "remote control" of power supply for convenient & versatile mobile installation • Easy to assemble

Kit HP-13 DC Power Supply . . . 7 lbs., No money down, \$6 mo. . . . \$59.95

HP-13 SPECIFICATIONS—Input voltage: 12 to 14.5 volts DC max. (for negative ground only). **Input current:** 25 amperes maximum with full load. **High voltage output:** 800 volts DC, 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 volts DC, no load; 300 volts DC @ 150 ma, (low tap) 265 volts DC, no load; 250 volts DC @ 150 ma. AC ripple: Less than .05% @ 150 ma. Continuous duty cycle to 175 ma. **Adjustable bias voltage:** —40 to —130 volts DC @ 20 ma max. Duty cycle: Continuous. **Switching frequency:** 1500 cps (approx.). **Ambient temperature:** —10° to 122° F. **Dimensions:** 7¾" W x 7-5/16" L x 2¾" D. All voltages referenced at 13 VDC input.



HP-23
\$39⁹⁵

- Variable bias voltage permits ideal operating conditions for a wide variety of SSB equipment • Well-rated silicon diode rectifiers • Provisions for "remote" switching from transceiver panel • Can be installed inside SB-600 speaker enclosure

Kit HP-23 AC Power Supply. 19 lbs. No money down, \$5 mo. . . . \$39.95 Export model available for 115/230 VAC, 50-60 cps; write for prices.

HP-23 SPECIFICATIONS—Power requirements: 120 volts AC, 50-60 cycles, 350 watts maximum. **High voltage output:** 820 volts DC no load; 700 volts DC @ 250 ma. ±10%. AC ripple: Less than 1% @ 250 ma. Duty cycle: 150 ma continuous, to 300 ma @ 50%. **Low voltage output:** (High tap) 350 volts DC, no load; 300 volts DC @ 150 ma ±10%, (Low tap) 275 volts DC, no load; 250 volts DC @ 100 ma ±10%. Less than .05% AC ripple @ 150 ma, continuous duty to 175 ma. **Fixed bias:** —130 volts DC, ±10%, no load; —100 volts DC @ 20 ma. **Adjustable bias:** —40 to —80 volts DC @ 1 ma maximum. Less than .5% AC ripple. **Filament voltage:** 6.3 V AC @ 11 amps; 12.6 V AC @ 5.5 amps. **Dimensions:** 9" L x 4¼" W x 6¼" H.

World's Largest Selection Of



SB-110
\$320⁰⁰

Heathkit SB-110 6-Meter Transceiver

- Features the Heath SB-Series LMO (Linear Master Oscillator) for high stability, linear tuning, and 1 kc dial calibration • Full SSB-CW transceive operation on six meters • 180 watts input PEP SSB—150 watts CW • Switch select for Upper Sideband/Lower Sideband/CW operation • Separate offset CW carrier crystal for clear, pure, CW note • ALC & ANL • Built-in 100 kc calibrator & antenna switching • Covers 50-52 mc with crystals supplied—total coverage 49.5-54 mc • Crystal filter SSB generator • Fixed station or mobile operation with the Heathkit HP-23 or HP-13 power supplies and SBA-100-1 mobile mount

Get Unequalled Performance On 6 Meters With The Heathkit SB-110. Now you can work "six" with a truly high-performance rig! . . . get "Low Band" stability, plus PTT & VOX control, single knob tuning, switch selected modes for either crystal controlled transceiver or crystal controlled transmit with variable-tuning receiver, and operate CW or cross-mode . . . all with the compact, fixed-or-mobile SB-110.

Kit SB-110, 23 lbs. . . \$32 dn., \$27 mo. \$320.00
 Kit HP-13, DC Power Supply, 7 lbs. . . no money dn., \$6 mo. \$59.95
 Kit HP-23, AC Power Supply, 19 lbs. . . no money dn., \$5 mo. \$39.95
 Kit SBA-100-1, Mobile Mounting Kit, 6 lbs. \$14.95

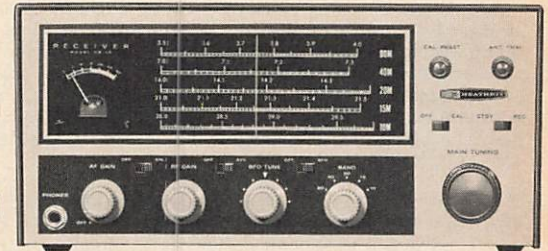
PARTIAL SB-110 SPECIFICATIONS—RECEIVER SECTION: Sensitivity: 0.1 uv for 10 db signal-plus-noise to noise ratio. Selectivity: 2.1 kc @ 6 db down, 5 kc max. @ 60 db down. Image rejection: 50 db or better. IF rejection: 50 db or better. Audio output power: 1 watt. AGC characteristics: Audio output level varies less than 12 db for 50 db change of input signal level (0.5 uv to 150 uv). **TRANSMITTER SECTION:** DC power input: SSB, 180 watts PEP; CW, 150 watts. RF power output: SSB, 100 watts PEP; CW, 90 watts (50 ohm non-reactive load). Output impedance: 50 ohm nominal with not more than 2:1 SWR. Carrier suppression: 55 db down from rated output. Unwanted sideband suppression: 55 db down from rated output @ 1000 cps & higher. Distortion products: 30 db down from rated PEP output. Hum & noise: 40 db or better below rated carrier. Keying characteristics: VOX operated from keyed tone using grid-block keying. **GENERAL:** Frequency coverage: 49.5 to 54.0 mc in 500 kc segments (50.0 to 52.0 mc with crystals supplied). Frequency selection: Built-in LMO or crystal control. Frequency stability: Less than 100 cps drift per hour after 20 minutes warmup under normal ambient conditions. Less than 100 cps drift for ± 10% supply voltage variations. Dial Accuracy: Electrical, within 400 cps on all band segments, after calibration at nearest 100 kc point. Visual, within 200 cps. Dial backlash: No more than 50 cps. Calibration: Every 100 kc. Power requirements: High voltage, +700 v. DC @ 250 ma with 1% max. ripple. Low voltage, +250 v. DC @ 100 ma with .05% max. ripple. Bias voltage, -115 v. DC @ 10 ma with .5% max. ripple. Filament voltage, 12.6 v. AC/DC @ 4.355 amps. Dimensions: 14 1/4" W x 6 1/2" H x 13 1/4" D.

Heathkit HR-10 Amateur Band Receiver

- Amateur band coverage only for maximum stability & accuracy • Tunes SSB, AM, & CW on 80-10 meter bands • Lattice-type crystal filter for high selectivity • 100 kc crystal calibrator plugs in inside receiver enclosure • Superheterodyne with RF stage for extra sensitivity • Prebuilt, prealigned tuning unit for fast, simple assembly

Kit HR-10, 20 lbs., no money dn., \$8 mo. \$75.00
 Kit HRA-10-1, Plug-in 100 kc crystal calibrator, 1 lb. \$8.95
 Kit HS-24, Speaker, 4 lbs. (See page 31 for details) \$7.00
 Export model available for 115/230 VAC, 50-60 cps; write for prices.

HR-10 SPECIFICATIONS—Frequency coverage: 80 through 10 meters. IF frequency: 1681 kc. Sensitivity: 1 uv for 10 db signal-to-noise ratio. Image rejection: 40 db or better. Selectivity: 3 kc at 6 db, 9 kc 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: 117 volts AC, 50/60 cycles, 50 watts. Dimensions: 13 3/4" W x 11 1/2" D x 6 1/2" H.



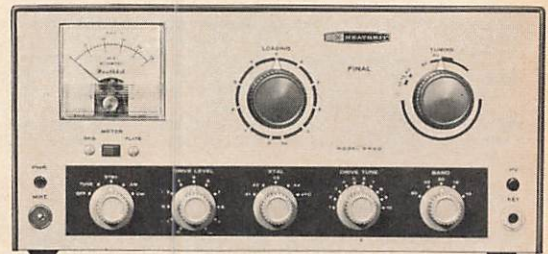
HR-10
\$75⁰⁰

Heathkit DX-60A Phone & CW Transmitter

- 90 watts phone or CW—80 through 10 meters • Neutralized 6146 final amplifier • Built-in low pass filter • Grid block keying—easy access to crystal sockets • May be run at reduced power for novice operation • Transmitter mate of the HR-10

Kit DX-60A, 24 lbs. . . (less crystals) . . . no money dn., \$8 mo. \$79.95
 Export model available for 115/230 VAC, 50-60 cps; write for prices.

DX-60A 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 external VFO control. Band coverage: 80 through 10 meters. Power Requirements: 105-125 V., 50-60 cps, 225 watts. Dimensions: 13 3/4" W x 11 1/2" D x 6 1/2" H.



DX-60A
\$79⁹⁵



HD-20
\$14⁹⁵

100 KC Crystal Calibrator

Ideal General Purpose 100 KC Crystal Calibrator . . . use it to pin-point dial settings on communications receivers and VFO's. HD-20 produces accurate signals every 100 kc from 100 kc to over 54 mc. Connects to equipment under test through universal binding post. Transistorized circuit has 100 kc crystal with frequency trimmer adjustment. Uses single 9-volt battery (not included) for self-contained power.

Kit HD-20, 1 lb. \$14.95



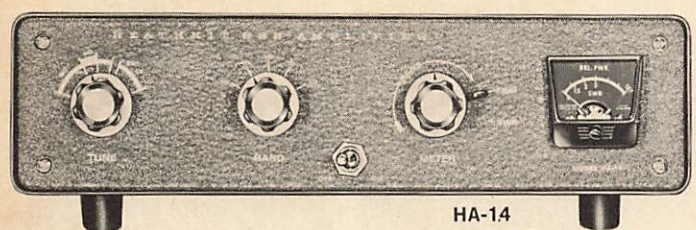
CO-1
\$7⁹⁵

Transistorized Code Practice Oscillator

Here's The Way To Practice Radio-Telegraph Code . . . assemble two CO-1's and practice with a friend—conversation in code improves both sending and receiving ability, and you can use your battery powered CO-1 anywhere. Authentic CW tone provides indoor practice—blinker light enables practice in reading Navy-type blinker communications at night. Switch selects speaker or light. Complete with standard telegraph key. Use 2 "C" cell batteries (not included).

Kit CO-1, 2 lbs. \$7.95

Amateur Radio Equipment



HA-14
\$99⁹⁵



Handsome? . . . You bet! Picture a "KW Kompact" on your desk.



Inside, a neat, clean layout . . . it makes assembly easy!



A kilowatt in a car? Stack your KW Kompact with your transceiver . . . in most cars there's room to spare.

Heathkit "KW Kompact" 1000 Watts P.E.P. Input

- 1000 watts P.E.P. • Tunes 80 through 10 meters • ALC output to exciter
- Built-in antenna change-over relay • Built-in SWR meter • Pretuned broad-band input circuit requires no tuning • Engineered with a pair of rugged tubes ideally suited to mobile operation (572-B's or T-160-L's) • Full provision for control of "remotely" located AC or DC power supply

Kit HA-14, 10 lbs. . . . No money down, \$10 mo. \$99.95
 Kit HP-14, DC Power Supply, 10 lbs., no money dn., \$9 mo. . . . \$89.95
 Kit HP-24, AC Power Supply, 22 lbs., no money dn., \$5 mo. . . . \$49.95

HA-14 SPECIFICATIONS—Band coverage: 80, 40, 20, 15, and 10 meters. Maximum power input: SSB, 1000 watts P.E.P. Driving power required: 100 watts P.E.P. Duty cycle: 50% SSB (voice modulation), 33% CW (AC power supply only). Third order distortion: —30 db or better at 1000 watts P.E.P. Output impedance: Fixed 52 ohms unbalanced. SWR not to exceed 2:1. Input impedance: 52 ohms unbalanced; broad-band pretuned input circuit. Meter functions: 0-6 relative power & 1:1 to 3:1 SWR. Front panel controls: Tuning, band switch, relative power sensitivity control, meter switch (FWD & SWR), power switch (off, on). Tube complement: Two 572-B (or two T160-L) in parallel. Power requirements: 2000 V. DC at 500 ma SSB peak, —110 V. DC at 60 ma, and 12.6 V. AC or DC at 4 amperes. Recommended for 12 v. neg. ground, alternator equipped cars only. Cabinet Size: 12³/₁₆" W x 3³/₁₆" H x 10" D.

Mobile & Fixed Power Supplies For "KW Kompact"

A Put A Kilowatt SSB In Your Car! The HP-14 provides all necessary power for your mobile KW Kompact. Duty cycle, 50% SSB. Features high dynamic regulation for solid SSB signals. Includes relay for remote control of supply & 12 v. filament power. Recommended only for 12 v. alternator equipped, negative ground cars.

Kit HP-14, 10 lbs., no money down, \$9 mo. \$89.95

B Here's All Necessary Power For A Fixed-Station KW Kompact. Includes full provisions for "remote control" of power supply from KW Kompact front panel. Duty cycle 50% SSB 33% CW. All cables included.

Kit HP-24, 22 lbs., no money dn., \$5 mo. \$49.95



HP-14
\$89⁹⁵



HP-24
\$49⁹⁵

Heathkit "Single Banders" . . . Choose 80, 40, or 20 Meter Models

- True transceivers for 80, 40, or 20 meter SSB operation • LSB on 80 & 40 meters, USB on 20 meters • 200 watts P.E.P. input—Two 6GE5 RF amplifiers • Excellent exciter for operation with the KW Kompact • Crystal filter type SSB generation • ALC, AVC, and S-meter • Built-in VOX & push-to-talk circuitry • Stable low frequency VFO • 2 kc dial divisions—6" bandsread—vernier tuning

Kit HW-12: 80-meter, 15 lbs. . . . No money down, \$11 mo. \$119.95
 Kit HW-22: 40-meter, 15 lbs. . . . No money down, \$11 mo. \$119.95
 Kit HW-32: 20-meter, 15 lbs. . . . No money down, \$11 mo. \$119.95
 GH-12, Push-to-talk and VOX microphone. . . 2 lbs. \$6.95
 Kit HRA-10-1, Plug-in 100 kc crystal calibrator. . . 1 lb. \$8.95
 Kit HP-13, DC Power Supply (Mobile) 7 lbs. . . . no money dn., \$6 mo. \$59.95
 Kit HP-23, AC Power Supply (Fixed station), 19 lbs. . . . no money dn., \$5 mo. \$39.95
 Kit HS-24, Mobile Speaker, 4 lbs. \$7.00



HW-12
\$119⁹⁵

Heathkit Mobile Speaker Kit

Here's The Perfect Speaker For Use With All Heathkit Mobile Installations! Gimbal mounting bracket with wing-nut fasteners enables easy mounting practically anywhere there's room for the 6⁷/₁₆" W x 4³/₁₆" H x 2¹/₂" D cabinet. The weather resistant 8 ohm, 4" x 6" oval speaker and rugged steel cabinet combination is especially designed for maximum communications intelligibility. Complete with mounting bracket.

Kit HS-24, 4 lbs. \$7.00



HS-24
\$7⁰⁰

Heathkit PM-2 RF Power Meter

Use This Handy Instrument For RF Check-Out Of Ham, Marine, Commercial, Or CB Transmitters. Perfect for the "quick check." Indicates transmitter output by sampling RF field near the transmitter antenna. Covers 100 kc to 250 mc. Sensitivity of 0.3 volts RF at antenna for full-scale reading. Strong magnet holds PM-2 to any ferrous surface. No power connections or battery required.

Kit PM-2, 2 lbs. \$12.95

PM-2
\$12⁹⁵



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Benton Harbor, Michigan 49022

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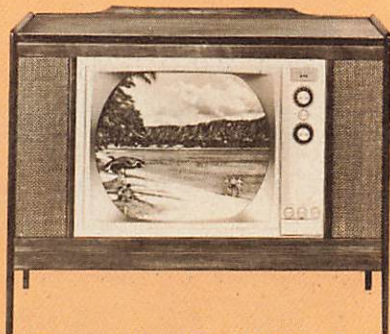
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SPECIAL OFFERS...THIS FLYER ONLY!



Save Up To \$48.50 On 21" Color TV & Cabinet Combination

With new lower cabinet prices, it's a better-than-ever buy! See pg. 3 for details.

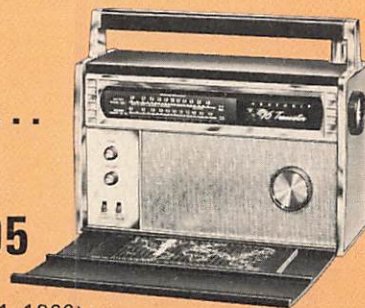
SUMMER SALE! Save \$30 On Deluxe Shortwave Portable ... Limited Time Only!

Regularly \$159.95

Now Only **\$129⁹⁵**

(Offer good only until August 31, 1966)

See pg. 6 for details



Last Call ...

on AS-22 "Profile" and AS-193 Speaker Systems. This is the last time these systems will be offered. See ppg. 18 and 19 for details.

Last Chance ...

to buy the deluxe Heathkit/Thomas "Coronado" Organ at the low \$799 price. See pg. 4 for details.

