

HEATHKIT®

ELECTRONIC KITS

- Over 250 Kits-
- Quality Design-
- Guaranteed-
- Easy To Build-
- Save Up To 50%

SAVE THIS COVER - VALUABLE CERTIFICATE ON BACK

FREE

\$5

INTRODUCTORY OFFER CERTIFICATE

SAVE UP TO \$5 ON YOUR
HEATHKIT ORDER



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HEATHKIT®

ELECTRONIC KITS

HEATH COMPANY, BENTON HARBOR, MICHIGAN / CATALOG SUPPLEMENT 80/34

Plant Location: St. Joseph, Michigan / A Subsidiary of Daystrom, Incorporated.

WORLD'S LARGEST MANUFACTURER OF ELECTRONIC KITS

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- Over 250 Kits-
- Quality Design-
- Guaranteed-
- Easy To Build-
- Save Up To 50%-





1. ADVANCED ENGINEERING

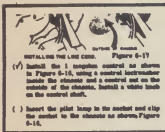


Ideas become easy-to-build kits through the skill of the world's most experienced kit specialists.

Every kit designed, every component specified is tested and inspected.



2. EASIEST TO BUILD



DOUBLE CHECK INSTRUCTIONS

... for each step as performed, each point that needs soldering.

ASSEMBLY TIPS

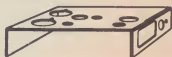
Heathkit Instructions show you what to do and how to do it!



FREE SOLDER IN EVERY HEATHKIT

... each kit has sufficient solder for you to complete it at no extra cost.

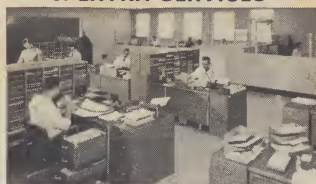
READY-TO-BUILD CHASSIS
Chassis are punched and drilled for easy building, professional results.



CIRCUIT CHARTS
Block diagrams explain operation without complicated technical talk.

OPERATION TIPS
How to adjust set for best performance, how to operate it properly, how to service it yourself!

3. EXTRA SERVICES



1. Fast, in-plant shipping services.
2. Free consulting service with expert technician-correspondents by mail.
3. Time-Payment service; no money down, up to 18 months to pay.

4. COMPLETE SATISFACTION



Incomparable Quality



Fun to Build and Use



Satisfying Hobby



Big Savings

5. KITS FOR EVERY INTEREST

Hobbyists choose Heathkits for their superior design, extra value, and guaranteed performance specifications.



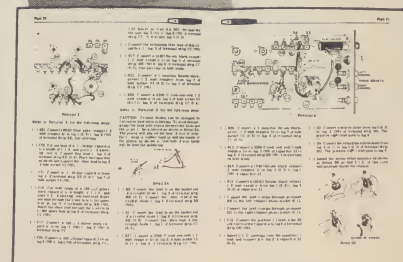
Educators choose Heathkits to foster greater interest in science, to make learning more fun, more interesting.



Engineers choose Heathkits for their dependability with economy, professional results at great savings.



Prove to Yourself That Heathkits Are Best ... Easiest To Build!



Examine the famous Heathkit instruction manuals ... before you buy! ... see the quality, design, and ease of assembly for yourself! Order the actual instruction manuals for your favorite Heathkits. Check the superiority of Heathkit design, clarity and simplicity of the instruction manuals, the completeness of direction which not only shows you what to do but how to do it! These are the manuals which have made Heathkits famous ... complete with parts description and illustration, soldering and construction tips, step-by-step instructions with their built-in "double check" system to eliminate errors, schematics and specifications, even operation and servicing notes. Most Heathkit manuals are available for the low cost of just 50c. Manuals for HX-10, HW-10, HW-20, and GD-232, because of their large size, cost \$2. (Manuals for the EK, EF, and EU series of educational kits are not available for separate sale). Order your favorite Heathkit manual by the model number of the kit it accompanies, state "manual only" on the order blank. Cost of the manual includes postage.

Any Heathkit Manual Except as Noted Above, 50c

Money Back Guarantee

Heath Company unconditionally guarantees that each Heathkit[®] product assembled in accordance with our easy-to-understand instruction manual must meet our published specifications for performance or your purchase price will be cheerfully refunded.

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Tools, TV Antennas, Towers, Marine Instruments, Telescopes, Cabinets, Transistor Portables and many more!	

See Your 1963 Heathkit Catalog For Complete Listings

HEATHKIT®

Welcome to the first in a new series of informational pages written to help you in choosing another Heathkit and enjoying it more. We will supply you with kit news from various company departments, notes from Heathkit builders, and, in general, try to keep you up-to-date on the fascinating hobby of Heathkits.

ATTENTION AMATEURS:

Al Robertson, K8BLL, the Heathkit Amateur Radio Product Manager, asks us to tell you that big things are coming in amateur radio SSB gear this year and next (see page 28 for just a sample), but don't write now because no other information is available at this time.

Al also pointed out that the modification of the HM-10A sensitivity control suggested in the Feb. '63 CQ Magazine product review is not recommended by the Heath Co. While it is true that the modification makes the control's action less critical, it also destroys the instrument's usefulness over the specified ambient temperature range.

Dar Evans, K8ADS, project engineer on the well-received HX-30 tells us that you can change to push-to-talk operation with the Function switch in Manual position by means of a few wiring changes...write Customer Correspondence for details.

HOW TO SHIP?

Here are some tips from our office manager, Matt Cutter, as to how to determine the best way to specify shipment of your Heathkit.

Parcel Post: good method for kits weighing from 1 to 20 lbs; beyond 150 miles the cost of 20 lbs. ranges from \$1.13 to \$3.96. Antennas and certain bulky items are too big to be mailed. REA Express: 21 lbs. costs \$3.50 up depending on location. We usually use REA for 21 to 60 lbs. Ask REA to check the rate to your area under tariff #33, as Heathkits

(electronic only) are classified as radio parts which have a lower rate than assembled equipment and other commodities. Motor Freight: check local rates to compare truck min. (usually 100 lbs.) with REA from 50 lbs. up. Truck rates begin at \$4.41 for most Heathkits. Air Parcel Post: rates range from \$4.04 to \$6.48 for 8 lbs. Air Express: less expensive than Air Freight up to 550 miles, generally. Check with REA and compare with other air methods. Air Freight: check local truck line for complete charges from Heath to your door. Air Freight is less expensive to New York at 90 lbs. or more and to California over 20 lbs. Rail Freight: used only when specified. Rates compare closely with motor freight. Check in your area. If you are in doubt when ordering your next Heathkit, leave that section blank on your order, and we'll do our best to use the most economical service.

PRODUCT SUGGESTIONS:

We get many suggestions from Heathkit builders as to what new products they would like to see us put into kit form. If you have some pet ideas on what would make a good kit, send them to Neal Turner, our Director of Product Planning. Your editor is fond of one of the more facetious suggestions that came in recently...a power megaphone for use in a car...makes whistling at girls much easier.

KUDOS FOR HEATHKITS:

We are very proud of the fact that we often get letters of praise from first-time kit builders which express their pleasure and surprise that their kits work the first time they plug them in. However, here is a letter that is a bit different since it comes from a man who is an experienced radio amateur operator, a man who preferred designing his own equipment...and then he bought a Heathkit

HX-10! "This is the first kit of any kind I have ever purchased. I can honestly say that I am delighted with the quality of materials used, the electrical design, and the extremely attractive appearance of the finished product. I am now "sold" on Heathkits. Your selling price is less than I can buy the parts, and the design of your cabinets results in a much more finished product than I can do in a home workshop." (signed) George F. Crable, Midland, Michigan.

FROM CUSTOMER CORRESPONDENCE:

Gerry Krepp, Manager of Customer Correspondence, has a couple of notes of interest on the IP-20 and on parts orders. (1) We have found that some IP-20 Regulated Power Supplies will oscillate (about 100 kc), giving several millivolts of undesirable output voltage. Correct this by placing a disc capacitor (50 or 500v. rating) across the 2700 ohm resistor R9; value will be between 47 and 1000 mmf, use the lowest value possible that will prevent oscillations. Purchase the necessary parts locally. (2) Early models of the IP-20 (those not having transistor X5) have experienced a heat dissipation problem with transistor X4. This can be cured by use of a modification kit available from Heath which consists mainly of another transistor (X5) and a heat sink to parallel transistor X4. Write to Customer Correspondence.

To help handle parts orders promptly, make your request in a letter. Include the part number, quantity, and description. If the part was missing or defective in a kit just purchased, include this information stating the model number and when it was purchased. Do not return the defective part unless we later advise you to do so. And, be sure to include your name and address in the letter!

NEW... Powerful 1-watt Heathkit Citizen's Band "WALKIE-TALKIE"

... biggest value anywhere in two-way communications ... just \$74.95 including \$20 rechargeable battery! Only \$139.95 a pair!

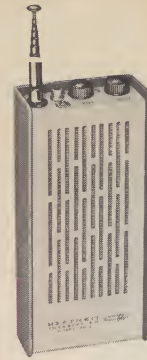
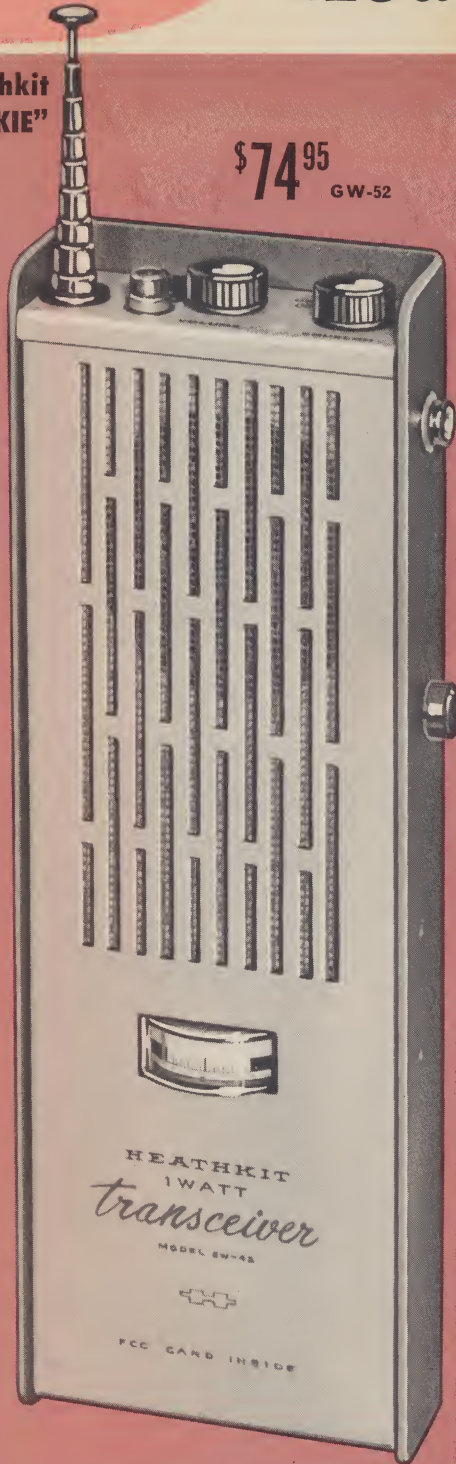
- Rugged, 10-transistor, 2-diode circuit
- Long-range transmitter—1-watt input to final
- Sensitive superhet receiver— $\frac{1}{2}$ UV for 10 DB S/N ratio
- Crystal controlled transmit & receive channels
- Built-in squelch & automatic noise limiter functions
- Powerful rechargeable nickel-cadmium battery
- Built-in battery condition meter
- Built-in battery charger—recharges from 117 VAC or 12 VDC source
- Lightweight, compact—easy to carry

The new Heathkit GW-52 is a "man-size" portable CB transceiver designed for rugged duty and reliable 2-way radio communications over extended distances. Its powerful transmitter with 1-watt input delivers a "solid" signal at ranges of three to five miles between units and more with external antenna. The receiver, with $\frac{1}{2}$ microvolt sensitivity, pulls-in weak signals with ease! Adjustable squelch silences the receiver during standby and an automatic noise limiter assures crisp, clear reception and maximum intelligibility of conversations. Kit includes a heavy-duty 10-cell rechargeable, nickel-cadmium battery with 500 milli-ampere-hour rating that will outlast conventional batteries many times over! Battery life is 1500 hours minimum (90% receive, 10% transmit duty cycle) and life expectancy is as high as 5000 hours (over two years of normal workday use) ... a tremendous savings in operating costs! Convenient too! ... no need to remove or replace batteries while charging. A transformer-type charger is built-in for 117 volts AC and a 6-foot cord with cigar lighter plug is provided for charging from a 12 volt car battery. The GW-52 may be used while charging on 117 V AC ... allowing constant, ready communications at all times. The many operational and convenience features designed into the GW-52 make it ideal for the serious CB operator, builder, contractor, sportsman, etc. Easy circuit-board construction. A leather shoulder strap and elastic hand strap are furnished for easy carrying on the job. Housed in rugged two-tone green aluminum case. Complete with crystals for one channel (specify), rechargeable nickel-cadmium battery, power cords, earphone, FCC license pack and instructions.

Kit GW-52 ... 4 lbs. ... no money down, \$8 mo. ... **\$74.95**
Kit GW-52-2 (pair) ... 8 lbs. ... no money down, \$13 mo. ... **\$139.95**

SPECIFICATIONS—Receiver: Single channel crystal controlled superheterodyne. **Sensitivity:** $\frac{1}{2}$ microvolt for 10 db signal-to-noise ratio. **Selectivity:** 7 kc at 6 db. **Audio power output:** 250 milliwatts. **Transmitter: Input power to final stage:** 1 watt nominal. **Transmitter frequency:** Crystal controlled (any one channel, 1 through 23). **Modulation:** High level AM limited to less than 100%. **Controls:** Off-On-Volume and Squelch. Push-to-talk switch on side of cabinet. **Battery:** 12.6 V, (500 mah rechargeable nickel cadmium; 12 hrs. use per charge). **Battery life:** 1500 hrs. min. 5000 hrs. likely in normal usage. **Charging source:** 117 VAC or 12 VDC. **Total receiver current drain, standby:** Approx. 12, milliamperes. **Total transmitter current drain:** Approx. 135 milliamperes. **Antenna:** 35" whip type, completely collapsible into cabinet, or external. **Crystals:** Subminiature, plug-in type, tolerance .005%. **Speaker-microphone:** 2 $\frac{1}{2}$ " round, permanent magnet type. **Earphone jack:** Miniature-type (earphone supplied). **Transistors and diodes:** 1-2N1726 RF amplifier; 1-2N1727 Converter; 2-T1364 IF amplifier; 3-2N1274 Audio amplifier; 1-R425 Transmitter Oscillator; 1-R424 RF driver; 1-2N2217 RF output; 1-Germanium Diode-Detector; 1-Silicon Diode—Squelch and noise limiter. **Meter:** Indicates battery condition. **Cabinet dimensions:** 10-15/16" H x 3 $\frac{3}{8}$ " W x 1-11/16" D.

\$74⁹⁵ GW-52



9-Transistor Superhet. "WALKIE TALKIE"

- No license required to operate
- Crystal controlled transmitter & receiver
- Superheterodyne receiver with RF stage
- Built-in squelch & automatic noise limiter
- 1 to 3 mile operating range

\$44⁹⁵ GW-21

Kit Form or Factory Assembled

Superb performance and portable convenience team-up in the Heathkit GW-21 to bring you dependable 2-way radio communications at less than half the cost of comparable units! Deluxe features include a sensitive superheterodyne receiver for long-range reception, adjustable squelch and automatic noise limiter for crisp, clear signals and a high efficiency transmitter for power-packed communications. Its dependable 9-transistor circuit operates up to 75 hours on a single 9-volt battery. Operating range is 1 to 3 miles between similar units ... up to 10 miles when used with Class "D" licensed CB units. Assembly is simple with printed-circuit board and easy-to-follow instructions furnished. Easy to operate, too, with on/off volume, squelch and push-to-talk switch controls. Kit is complete with crystals for one channel (specify). Less battery. Two-tone green color. Order a pair and save!

Kit GW-21 ... 2 lbs. ... no money down, \$5 mo. ... **\$44.95**
Kit GW-21-2 (pair) 4 lbs. ... no money down, \$9 mo. ... **\$84.95**
Assembled GWW-21-2 . 2 lbs. ... no money down, \$8 mo. ... **\$71.95**
Assembled GWW-21-2 (pair) 4 lbs. ... no money down, \$13 mo. ... **\$136.50**
GWA-30 Battery Set: (2) one for operation, one spare. 1 lb. ... **\$2.95**

SPECIFICATIONS — Receiver: Crystal-controlled superheterodyne. **Sensitivity:** 1 uv for 10 db s/n ratio. **Transmitter:** Crystal-controlled, any channel 2 to 23 in 11 meter citizens band, (unlicensed). **RF input power:** 100 milliwatt. **Battery:** 9 volt. **Antenna:** 35" whip. **Circuit:** 9 transistor, 2 diode. **Dimensions:** 7 $\frac{1}{2}$ " H x 3 $\frac{3}{8}$ " W x 1 $\frac{1}{8}$ " D.

Big Value 4-Transistor "WALKIE TALKIE" ...

Save 20% or more at these New Low Prices!

- No license, forms, tests or age limit
- Crystal controlled transmitter
- Superregenerative receiver • Small, compact, neatly styled

Kit Form or Factory Assembled

\$19⁹⁵ GW-31



Anyone can build and use this handsomely styled 2-way radio "Walkie Talkie"! Its small, compact size makes it easy to carry on trips, perfect for the sportsman, Boy Scout, farmer, and many more who have a need for dependable communications up to a mile or more. A single 9-volt battery lasts up to 75 hours. Kit includes all parts, instructions and crystal for one channel (specify). Less battery.

Kit GW-31 ... 2 lbs. ... **\$19.95**
Kit GW-31-2 (pair) 3 lbs. ... no money down, \$5 mo. ... **\$35.00**
Assembled GWW-31, 2 lbs. ... no money down, \$5 mo. ... **\$29.95**
Assembled GWW-31-2 (pair) ... no money down, \$6 mo. ... **\$55.00**
GWA-30: Battery Set: (2) one for operation, one spare, 1 lb. ... **\$2.95**

SPECIFICATIONS—Receiver: Super-regenerative detector. **Sensitivity:** Usable with signals as low as 4 uv at antenna. **Transmitter:** Crystal-controlled, any channel 2 to 23 (unlicensed) in 11 meter citizens band. **RF input power:** 90 milliwatt. **Battery:** 9-volt. **Antenna:** 36" whip. **Circuit:** 4 transistor. **Dimensions:** 5 $\frac{3}{8}$ " H x 3 $\frac{3}{8}$ " W x 1 $\frac{1}{2}$ " D.

Biggest CB Line!

For the finest performance & greatest value, choose this
Heathkit Deluxe "Master Station" CB TRANSCEIVER



GW-42 **\$119⁹⁵**

Kit Form or
Factory Assembled

- 5 Crystal-controlled transmit & receive channels • Built-in 3-way power supply • Built-in 4-tone selective call circuitry • All-channel tuning • Tuning meter • Adjustable squelch • Automatic noise limiter

Every imaginable feature has been incorporated in the advanced-design GW-42 to bring you the very finest in CB operating facilities. Operates anywhere with its built-in 3-way power supply! Ideal for either "mobile" or "fixed" installations . . . perfect as base station for GW-32 mobile transceivers. Crystal-controlled accuracy, 1/2 uv receiver sensitivity, push-to-talk microphone and many more features including built-in 4-tone selective call circuitry to permit individual call of up to four units operating on the same frequency. Beautifully styled in two-tone brown with anodized speaker grille, raised panel escutcheon, lighted channel selector, tuning meter and slide-rule dial, the GW-42 presents a rich, quality appearance that matches its performance. Easy to assemble, too, with three circuit boards and precut, cabled wiring harness. Kit is complete with AC & DC power cables, PTT microphone and crystals for one channel (specify). 22 lbs.

Kit GW-42, no money down, \$11 mo. **\$119.95**
Assembled GWW-42, no money down, \$18 mo. **\$189.95**

GENERAL DESCRIPTION—RECEIVER SECTION: 6 tube superheterodyne circuit with RF amplifier, squelch, noise limiter, variable or crystal receiver tuning, tuning meter and built-in tone squelch with four front panel selected tones. **Tuning range:** (Crystal) Up to 5 switch selected channels; (Variable) Tunes all 23 channels. **Intermediate frequency:** 455 kilocycles. **Sensitivity:** 1/2 microvolt or less for a 10 db signal to noise ratio. **Selectivity:** 40 db attenuation with adjacent channel 10 kc away. **TRANSMITTER SECTION:** Nominal power input to final RF amplifier: 5 watts. **Frequency control:** 3rd overtone quartz crystal as selected by the 5 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:** AM plate modulation, automatically limited to less than 100%. **Output impedance:** 50-70 ohm. **TONE SQUELCH SECTION:** **Frequency control:** Resonant reed relay; with reeds used for generation of calling tone and frequency selection during monitoring. **Controls:** Volume on/off; Receiver tuning; Channel Selector; Tone Selector; Call switch; Squelch on/off; Noise limiter on/off; Reset time control; Power selector. **Tube complement:** 6CB6, Receiver RF amplifier; 6U8, Triode receiver crystal oscillator; pentode mixer; 6C4, Variable oscillator; 6BJ6, 1st IF amplifier; 6BU6 2nd IF amplifier; 6BJ7, Detector diode, squelch diode, noise limiter diode; 6AN8, pentode first audio amplifier, triode microphone preamplifier; 6AQ5, Combination audio output/modulator; 6AU8, Triode transmitter oscillator, pentode driver, 6AQ5, RF-final amplifier, 6AN8, Voltage amplifier, cathode follower (tone squelch section) and 6C4, Relay control tube (tone squelch section). **Power requirements:** AC at 105-125 volts, 60 cycles, 70 watts; 6VDC at 9 amps; 12VDC at 5 amps. **Dimensions:** 5 1/2" H x 17 1/2" W x 10 3/4" D.



GW-11A **\$69⁹⁵**

Thousands use
the Heathkit
GW-11 CB TRANSCEIVER

Kit Form or
Factory Assembled

- 3 crystal-controlled transmit & receive channels • Crystal-controlled or variable receiver tuning • Automatic noise limiter • Adjustable squelch • Tuning Meter • PTT Microphone

CB favorite! Sensitive superhet. receiver; extra transmitter stage for increased output; improved PTT circuitry which eliminates costly, troublesome relays; low profile styling in beige & mocha; complete with microphone and crystals for one channel (specify). 12 lbs.

Kit GW-11A (120 v. ac) . . . no money down, \$7 mo. **\$69.95**
Assembled GWW-11A (120 v. ac) . . . \$10 mo. **\$99.95**
Kit GW-11D (6 or 12 v. dc) . . . no money down, \$7 mo. **\$69.95**
Assembled GWW-11D (6 or 12 v. dc) . . . \$11 mo. **\$104.95**

GENERAL DESCRIPTION—Receiver sensitivity: 1 uv signal at antenna input produces 10 db signal to noise ratio. **Transmitter section:** Power input to final RF amplifier; nominal 5 watts. **Power requirements:** 120 v. AC version, 35 watts; 6.5 v. DC version, 10 amps; 13 v. DC version, 6 amps. **Dimensions:** 4 1/2" H x 15" W x 5 3/4" D.



Special CB TRANSCEIVER
offers extra value & ideal
features for the serious
CB user

GW-22A **\$59⁹⁵**

Kit Form
or
Factory
Assembled

- 5 crystal-controlled transmit & receive channels • Built-in squelch and automatic noise limiter • Sensitive superhet. receiver with RF stage • Optional tone squelch selective-call circuitry

For industrial, commercial, and personal use, the Heathkit GW-22 and GW-32 Citizen's Band Transceivers offer high performance, versatile features, and extra value. Compare their price and quality features: 5-crystal controlled channels; superheterodyne receiver with RF stage; built-in squelch and noise limiter; improved push-to-talk circuitry; external connections for extra speaker; built-in selective-call-tone-squelch (optional) permits individual call of up to 4 different units on same channel (up to 92 stations when all channels are used) and also eliminates hearing unwanted CB conversations as well as stopping annoying speaker hiss during standby. Color-styled in two-tone brown with anodized trim. Kit includes push-to-talk microphone and power cable plus crystals for one channel (specify channel no.). Check these low prices and order your units today.

Kit GW-22A (117 v. AC) Less Selective-Call function, 11 lbs.
no money down, \$6 mo. **\$59.95**
Kit GW-22D (6 or 12v. dc.) Less Selective-Call function, 11 lbs.
no money down, \$7 mo. **\$64.95**
Kit GW-32A (117 v. ac.) With built-in Selective-Call, 12 lbs.
no money down, \$9 mo. **\$84.95**
Kit GW-32D (6 or 12 v. dc.) With built-in Selective-Call, 12 lbs.
no money down, \$9 mo. **\$89.95**

FACTORY WIRED AND TESTED

Assembled GWW-22A (117 v. ac.) Less Selective-Call function, 11 lbs., no money down, \$10 mo. **\$99.95**
Assembled GWW-22D (6 or 12v. dc.) Less Selective-Call function, 11 lbs. . . . no money down, \$11 mo. **\$104.95**
Assembled GWW-32A (117 v. ac.) With built-in Selective-Call, 12 lbs. . . . no money down, \$13 mo. **\$136.95**
Assembled GWW-32D (6 or 12 v. dc.) With built-in Selective-Call, 12 lbs. . . . no money down, \$14 mo. **\$141.95**

SPECIFICATIONS—RECEIVER SECTION: General description: 5-tube superheterodyne circuit with built-in squelch, noise limiter, RF amp., and switched 4-tone tone squelch functions. **Crystal controlled receiver tuning range:** Up to five of the 23 Citizen's band channels as determined by the particular crystals installed in the unit. **Intermediate frequency:** 455 kilocycles. **Sensitivity:** 1/2 microvolt for a 10 db signal-to-noise ratio. **Selectivity:** 7.5 kc at points 6 db down from peak response. **TRANSMITTER SECTION:** Nominal power input to final RF amplifier: 5 watts. **Frequency control:** 3rd overtone quartz crystal as selected by the 5-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:** AM plate modulation automatically limited to less than 100%. **Output impedance:** 50-70 ohms. **GENERAL: Tube complement:** 6CB6 receiver RF amplifier; 6U8 triode receiver crystal oscillator, pentode mixer; 6BJ6 IF amplifier; 6BJ7 detector diode, squelch diode, noise limiter diode; 6AN8 Pentode first audio amplifier, triode microphone preamplifier; 6AQ5 combination audio output modulator; 6AU8 triode transmitter oscillator, pentode driver; 5763 RF final amplifier; 6AN8 voltage amp cathode follower (tone section); 6C4 relay control tube (tone section). **Power requirements:** GW-32A—117 volts, 50/60 cps AC, 50 watts; GW-32D—6 volts DC, 8.0 amperes, 12 volts DC, 4.5 amperes. **Dimensions:** 9 1/2" D x 6 1/2" H x 9 1/2" W.



GW-12A
\$39⁹⁵

Low Cost, single channel CB
TRANSCEIVER . . . a best buy!

- One channel crystal controlled transmitter & receiver
- Sensitive superhet. circuit
- Built-in squelch & noise limiter
- Convenient PTT microphone

No frills, no gimmicks . . . just solid one-channel CB communications facilities in one low cost package. Ideal for mobile fleets where just one channel is desired (no missed calls or unnecessary usage). AC power supply is built-in and provision is made for plug-in accessory DC power supply. Color-styled in handsome two-tone brown. Easy to build kit includes push-to-talk microphone and crystals (specify channel number desired). Order these best-buy CB units now!

Kit GW-12A (AC only) 10 lbs. . . . no money down, \$5 mo. **\$39.95**
Assembled GWW-12A (AC only) 10 lbs., no money down, \$8 mo. **\$79.95**
Kit GW-12D (AC & DC) 12 lbs. . . . no money down, \$5 mo. **\$44.95**
Assembled GWW-12D (AC & DC) 12 lbs., no money down, \$9 mo. **\$84.95**
GWA-12-1: DC Power Supply, for GW-12A only. 3 lbs. **\$7.95**

GENERAL DESCRIPTION—Receiver sensitivity: 1 uv signal at antenna input produces 10 db signal to noise ratio. **Transmitter section:** power input to final RF amplifier; does not exceed 5 watts. **Power requirements:** 120 v. AC operation, 50 watts; 6 1/2v. DC, 8 amps; 13 v. DC, 4 amps. **Dimensions:** 5 1/2" H x 8 1/2" W x 8" D, 9" D, with GWA-12-1.

CITIZENS BAND

Choose Heathkit for the Greatest Performance and Value in Citizens Band Equipment...

Heathkit 4-Tone SELECTIVE-CALLING Kit



MW-33
\$89.95



GD-162
\$33.95

- Eliminates unwanted conversations
- Permits selective calling of CB units
- Operates with most CB transceivers
- Easy to assemble and install

Kit Form or
Factory Assembled

New Heathkit 2-way Citizen's Band TRANSCIVER . . . Especially designed to match Heathkit Marine Gear

- RF stage for long-distance reception • Efficient transmitter circuitry for extra range • 5 crystal-controlled transmit/receive channels • Variable receiver tuning of all channels • Crystal filter for greater selectivity • 3-way power supply—6 or 12 VDC or 117 VAC

Put this handsome new Citizen's Band Transceiver aboard your motor or sailing craft for convenience, versatility, and a smart appearance that matches your Heathkit marine electronic gear. The MW-33 features a 3-way power supply which permits operation from 6 or 12 volt batteries or from standard 117 volt AC household current to enable you to use it aboard your boat, in your car, and at home or office.

Compare these extra-performance features: 5 crystal-controlled transmitting and receiving channels plus variable receiver tuning afford maximum operating flexibility on today's active C-B channels; efficient transmitter circuitry delivers a solid signal output with a maximum allowable input of 5 watts for extra communications range; the receiver circuit employs an RF amplifier stage for greater sensitivity; adjustable receiver squelch and automatic noise limiter circuitry assure quiet, clear communications with a minimum of interference; the half-lattice crystal filter provides greater adjacent channel selectivity; a built-in low-pass filter reduces the possibility of television interference; the built-in tuning meter automatically switches from transmitter to receiver to show relative power output or received signal strength; improved push-to-talk all-electronic circuitry eliminates the need of a relay. Accessories included with the MW-33 at this big-value price include a push-to-talk microphone, AC & DC power cables, and crystals for one channel (specify).

Add this new Heathkit for better 2-way radio this summer.

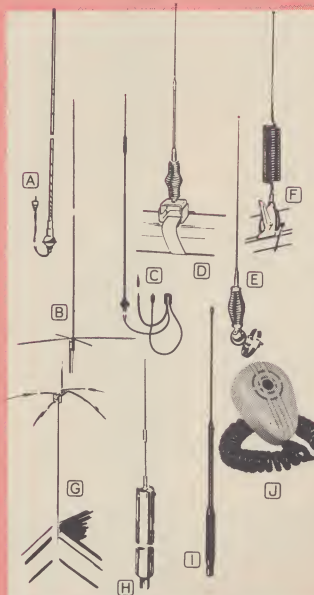
Kit MW-33, 18 lbs., no money down, \$9 mo. **\$89.95**

SPECIFICATIONS—RECEIVER SECTION: Sensitivity: 1/2 microvolt for 12 db S/N ratio, Selectivity: 3 db down @ 4 kc; 40 db down @ 6 kc. Intermediate frequency: 455 kc. **Tuning range:** Crystal, 5 channels; Variable, all 23 channels. **TRANSMITTER SECTION:** Nominal power input: 5 watts. **Transmit channels:** 5, crystal controlled. **Modulation:** High level AM limited to less than 100%. **Output impedance:** 50-70 ohm. **Tube complement:** 6BZ6, RF amplifier; 6U8, Triode crystal oscillator pentode mixer; 6U8, IF amplifier; 6AL5, Squelch, ANL; 6AN8, Pentode audio driver, triode mike amplifier; 6AQ5, Audio output & modulator; 6AU8, Transmitter oscillator & buffer; 5763, RF final; 6AT6, Receiver variable oscillator. **Power requirements:** 110 VAC @ 70 watts; 12 VDC @ 5 amps; 6 VDC @ 10 amps.

Add this versatile unit to each of your CB transceivers for complete selective calling capability on both transmit and receive functions. Four different tone signals permit individual call of up to four units on the same channel . . . 92 possible combinations. Once installed, the CB units in your system will remain silent until actuated by the proper tone signals to which they are tuned. 6 lbs.

Kit GD-162A (AC) no money dn., \$5 mo. **\$33.95**
Kit GD-162D (DC) no money dn., \$5 mo. **\$37.95**
Assembled GDW-162A (AC) no money dn., \$6 mo. **\$55.95**
Assembled GDW-162D (DC) no money dn., \$6 mo. **\$59.95**

SPECIFICATIONS—Power requirements: AC version; 15 watts. DC version; 6V—2 amps; 12V—1.25 amps. **Controls:** Input and output level controls permit use with a wide variety of transceiver designs. A "Reset Time" control permits variations in "Speaker on" time after a tone is received. **Dimensions:** 6 1/4" W x 4 1/4" H x 6 3/4" D.



Big-Value CB Accessories

- (A) GY-12, 48" fiberglass cowl mt. ant.; 2 lbs. **\$8.95**
- (B) GDP-673, Antenna Specialists M-81 model; 5-section end-fed 1/2 wave base station ant.; 10 lbs. **\$24.87**
- (C) GDP-683, Antenna Specialists M-103 model; 46" cowl mt. "dual" antenna serves AM radio and CB unit; 8 lbs. **\$14.94**
- (D) GY-31, 102"; 2-section; stainless steel; bumper mt. ant.; 6 lbs. **\$14.50**
- (E) GY-21, 102"; 2-section; stainless steel; ball mt. ant.; 4 lbs. **\$15.95**
- (F) CBU-1, 45 1/2" clip mt. utility ant.; 2 lbs. **\$9.95**
- (G) CBF-1, non-directional 1/4 wave ground plane ant.; 6 lbs. **\$17.95**
- (H) GY-11, 4-section 18' vertical coaxial ant.; 7 lbs. **\$21.95**
- (I) "Hustler" Antenna, p. 34, from **\$13.90**
- (J) GH-12, push-to-talk ceramic microphone; 1 lb. **\$6.95**

EXTRA TRANSMITTER & RECEIVER CRYSTALS
Specify Heathkit model used, channel no. desired (1-23 or new CAP freq.), whether for transmitter or receiver. Give 1st and 2nd choice of channel. For several units, specify each. 1 lb. ea. **\$2.95**

LOWEST COST! Mobile & Fixed Station System with Accessories . . .

Save \$11.85 . . . Only **\$99.95**



COMPLETE PACKAGE

\$99.95

Save \$11.85
Order #CBS-1, 30 lbs.

Four Crystals
Included, two for
each transceiver

Ground-Plane Fixed
Station Antenna
Included (Model
CBF-1) Reg. \$17.95

New Fiberglass Mobile
Antenna Included
(Model GY-12)
Reg. \$8.95

BIGGEST VALUE! 5 Channel Mobile & Fixed Station System with

Selective-Call . . . Save \$17.85 . . . Just **\$194.95**



Mobile Station
Kit GW-32D
Reg. \$89.95

"Fixed" Coaxial Antenna
Included (Model GY-11,
Reg. \$21.95)

COMPLETE CB PACKAGE

\$194.95

Save \$17.85
from reg. price
Order #CBS-2, 35 lbs.

15' Coax cable for Mobile Antenna
50' Coax cable for Fixed Antenna

Stainless Steel Mobile
Antenna included
(Model GY-21, Reg. \$15.95)

Enjoy Marine Safety and Economy with Heathkit Equipment Aboard

New Heathkit 25-Watt RADIOTELEPHONE . . . Your Best Buy in Marine Communications!

- Choose complete system for owner installation or separate unit • Covers 2-3 mc Marine and Standard Broadcast bands • Four marine channels • 10-transistor, 5-diode, 3-tube circuit • Built-in heavy duty transistor power supply • FCC type accepted • Ideal for outboard cruisers & runabouts • Factory assembled, ready to install



MWW-13
\$164⁹⁵



\$23⁹⁵

MDP-133
HAIL-R-HORN MEGAPHONE

Ideal for skippers, coaches, foremen. Specially designed frequency response gives clear voice projection over wide distances. Push-pull 2-transistor power amp. 8-watts peak. Handy trigger switch. Housed in hi-impact plastic case. Operates on 6 standard "C" flashlight batteries (not included). Not a kit . . . ready to use. 3 lbs.

MDP-133 **\$23.95**



The new Heathkit MWW-13 Radiotelephone is ideal for the communications requirements of outboard motor powered cruisers and runabouts. It features a 25-watt transmitter, dependable 8-transistor receiver, 4 crystal-controlled transmit & receive channels, built-in heavy-duty transistor power supply, circuit breaker protection, low battery drain . . . all factory assembled and tested! And to make it even easier, the complete system, MWW-13S, includes the radiotelephone, antenna, and connecting cables. All pretuned for installation using an outboard motor as the ground system . . . just connect a battery and use; no technician checkout required! 2182 & 2638 kc crystals and push-to-talk microphone supplied. Styled in white & black. For reliable communications plus broadcast entertainment, put the low cost MWW-13 aboard now!

- Assembled MWW-13**, 16 lbs., radiotelephone, microphone, bracket, ground wired, crystals for two channels (4): license pack, instructions (requires licensed technician checkout), no money dn., \$16 mo. **\$164.95**
- Assembled MWW-13S**, 19 lbs., complete pre-tuned system with antenna for owner installation on outboards only. Other installations require licensed technician checkout. No money dn., \$18 mo. **\$189.95**
- Extra transmitter and receiver crystals**: (specify additional frequencies desired when ordering units above) **each \$2.95**
- MDP-93**, matching antenna for MWW-13, 5 lbs., no money dn., \$5 mo. **\$34.95**
- MDP-103**, swivel lay-down bracket for MDP-93, 1 lb. **\$9.95**

SPECIFICATIONS—Frequency range: 2-3 mc. Broadcast: 550-1600 kc. Receiver sensitivity for 10 DB S/N ratio: Marine—3 microvolts. Broadcast—20 microvolts. Audio output: 3 watts to internal speaker. Transistor complement: (1) T1363 Mixer; (1) T1364 Oscillator; (2) T1364 I.F.'s; (1) 2N1274 First Audio; (3) R-265 Audio Driver and Power Converters; (2) 2N301 Audio Output and Modulator; (5) diodes, AVC overload, Squelch, Noise Limiter, and Detector. Transmitter RF input: 25 watts. RF output: 13 watts. Transmitter tube complement: (1) 6AK6 Oscillator; (2) 6AQ5 RF amp. Power requirements: 12 V DC, receiver only, .350 amps.; Standby 1.2 amps.; Transmit 5 amps.



\$15⁸⁸

MDP-113

ELECTRO-VOICE DECK SPEAKER

Weatherproof horn projector in unbreakable plastic housing with rugged "any angle" swivel mount. Ideal for use with Radiotelephone for deck monitoring of receiver or hailing purposes. 8 ohm PM speaker. Response is 400-13,000 cps for crisp, clear signals. 7½ watt power rating. Moulded-in beige color. 3 lbs.

MDP-113 . . . mfrs. list \$27.00 **NET \$15.88**

Deluxe 70-Watt RADIOTELEPHONE . . . extra power . . . extra range

- Powerful 70-watt tube-type transmitter • Dependable 8-transistor, 6-diode receiver • Covers 2-3 mc marine & 550-1600 kc standard broadcast bands • 5-crystal-controlled transmit & receive channels • Built-in heavy-duty vibrator power supply • Doubles as 8-watt deck-hailer or PA amplifier • FCC type accepted-approved for "party-boat" use • Complete, ready for installation by licensed technician



MWW-23
\$269⁹⁵



Mariners everywhere will find the new Heathkit MWW-23 a faithful servant in every sense of the word! . . . providing shipboard broadcast radio entertainment, latest weather reports, emergency distress communications or just general communications to "keep-in-touch"! Its many advanced design features with powerful 70-watt transmitter and sensitive 8-transistor receiver bring you crisp, clear communications over an extended range for extra safety on long cruises. Fresh, modern styling in white, gray & black with blue accents, complement marine decor for a very smart appearance. Simple controls with push-to-talk microphone afford the utmost in operating convenience. It can even be used as an 8-watt deck-hailer or PA amplifier on large craft. 2182 and 2638 kc crystals (ship-to-ship & distress channels) are furnished. Built-in heavy-duty vibrator power supply operates from 12v. DC source. FCC type accepted. Approved for "party boat" use.

- ASSEMBLED MWW-23**, 25 lbs., no money down, \$25 mo. **\$269.95**
- MDP-13**, 18' Fiberglass Antenna for above, 15 lbs. **\$59.95**

SPECIFICATIONS—Frequency range: 2-3 mc. Broadcast: 550-1600 kc. Receiver sensitivity: (providing 10 DB S/N ratio or better). Marine channels; 2 microvolts. Broadcast; 20 microvolts. Audio output: 3 watts to internal speaker, 8 watts to PA "deckcall!". Transistor complement: (1) T1363 Mixer; (1) T-1364 Oscillator; (2) T1364, I.F.'s; (1) 2N1274 1st Audio; (1) 2N301 Driver; (2) 2N1147 Audio Output and Modulator; (5) diodes, noise limiter, squelch, detector and AVC overload. Transmitter: RF input: 70 watts. RF output: 35 W. min. Transmitter tube complement: (1) 6BA8 Oscillator and Buffer; (1) 12DQ6A Final Amplifier. Power requirements: 12 volts DC. Receiver only: 0.9 amp.; Standby: 2.1 amp.; Transmit: 13 amps. Dimensions: 7" H x 10" W x 13" D.

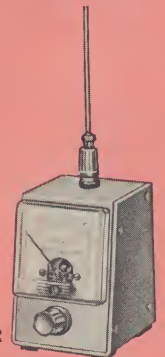
Save Up To \$30 ON THIS RADIOTELEPHONE ANTENNA!

High quality, two-section 18' fiberglass antenna that costs no more than you'd expect to pay for an ordinary 12' metal type. Bottom section is 10' long, 1½" diam., contains loading coil. Top section is 8' whip. Both sections of fiberglass; studs are chrome-plated brass. Swivel base with lay-down feature and side mount are high-impact plastic. Ideal for MWW-23. 15 lbs.

MDP-13, no money dn., \$6 mo. **\$59.95**

\$12⁹⁵

PM-2



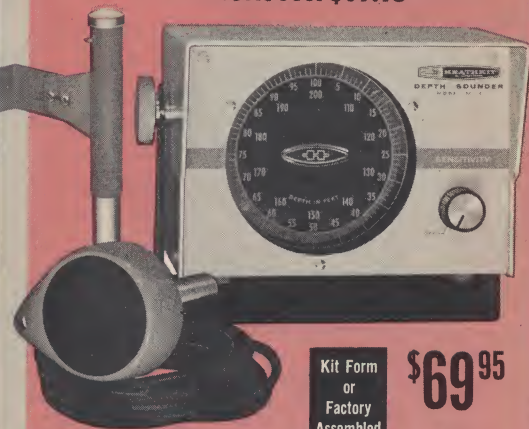
RF POWER METER

A handy accessory for boat owners with transmitting equipment aboard! Just place near transmitter antenna to sample RF radiation . . . shows relative power output on built-in meter. Sensitivity control allows use with any transmitter operating between 100 kc to 250 mc. A strong magnet in base holds it fast to any steel surface. 1 lb.

Kit PM-2 **\$12.95**

Heathkit Marine Electronic Gear, More Fun...Greater Safety...Lower Cost

Protect Your Boat with the Heathkit
TRANSISTOR DEPTH SOUNDER . . .
Shows Depth to 200 Feet . . .
Costs Just \$69.95



Kit Form
or
Factory
Assembled
\$69.95
MI-11

- 5-transistor circuit
- Operates on flashlight battery power
- Provision for external power supply
- Easy circuit board assembly

Insure your boating fun and safety with this accurate, low cost depth sounder. Build it in one or two evenings . . . use it to find fishing holes, submerged objects, and safe channels. Shows depth on large hooded dial calibrated in one foot divisions from 0 to 200. "Gimbal" type bracket allows easy installation and removal for safekeeping. Less batteries. 8 lbs.

Kit MI-11 . . . no money down . . .
\$7 mo. **\$69.95**
Assembled MIW-11, \$9 mo. **\$89.95**
MIA-11, Transom Transducer
Mount, 2 lbs. **\$8.95**

SPECIFICATIONS—Dial: 0-200 feet in one foot divisions. **Range:** 0-200 feet on hard bottoms, 0-100 feet on soft bottoms. **Frequency:** 200 kc. **Sounding rate:** 1440 soundings per minute, or 24 per second. **Accuracy:** Within 5% of actual depth. **Depth indication:** Neon lamp flashing at 0 feet and again at indicated depth. **Transducer:** Barium titanate ceramic element encased in a waterproof housing with solid brass fittings; attached 15 foot length of 2 conductor shielded cable. May be mounted permanently to the hull or temporarily with a transom mount. **Controls:** Combined ON/OFF-Sensitivity. **Power supply:** 13.5 volts from nine self-contained size C flashlight cells, or external 12 volt battery. Flashlight cells are contained in three leakproof plastic housings. **Battery drain:** 50 milliamperes. **Average battery life:** 50 hours intermittent operation, 25 hours continuous operation. **Dimensions:** 7 1/4" W x 5 1/4" H x 7 1/2" D.

Your Personal "Navigator" . . .
Always Ready . . . 3-BAND
ALL-TRANSISTOR RADIO
DIRECTION FINDER

- Covers beacon/consolan, broadcast, and marine telephone bands
- 10-transistor, 1-diode circuit
- Built-in battery power supply
- Factory built, aligned, and tested tuning unit for easy assembly



Kit Form
or
Factory
Assembled

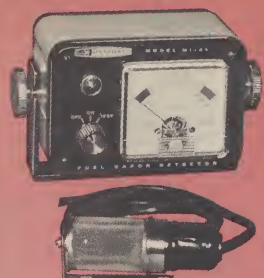
MR-11
\$109.95

Here's the unit that can tell you where you are . . . provide latest weather reports . . . and entertain the crew! The 3-band Heathkit RDF is always ready with its dependable flashlight battery power supply, big 6 1/2" compass rose, special "sense" antenna system to eliminate double nulls, built-in BFO for Consolan and CW signals, null and tuning meter, and lighted dial. Build it now, put it aboard, and cruise with peace of mind this season. Less batteries. 14 lbs.

Kit MR-21, no money down,
\$11 mo. **\$109.95**
Assembled MRW-21, \$14 mo. **\$149.95**

SPECIFICATIONS—Beacon band: 188 to 410 kc. **Broadcast band:** 535 to 1620 kc. **Marine band:** 1650 to 3450 kc. **Sensitivity for 6 db signal-to-noise ratio:** BC band, 40 uv/meter; Beacon band, 120 uv/meter; Marine band, 25 uv/meter. **Normal bearing accuracy:** ± 3°. **BFO:** 455 kc, switch-selected. **Speaker:** 4" x 6" weather proofed. **Power requirements:** 9 volts from 6 standard size "D" flashlight batteries. **Battery drain:** 35 ma @ 50 mw output level. **Battery life:** 500-1000 hours. **Dial light:** Spring-return switch operated. **Null and tuning indicator:** 0-1 ma meter. **Transistors:** (1) T1363, (2) 2N1108, (1) 2N1109, (1) 2N1110, (1) 2N1111, (1) R251, (2) R250, (1) 2N238, (1) diode. **Dimensions:** 9" x 9 1/2" x 6 1/2".

Guard Against Fire and Explosion
with the New Heathkit
FUEL VAPOR DETECTOR



THROUGH HEATH
NEW
RESEARCH

MI-41 **\$39.95**

- Detects combustible gas fumes
- "Safe-Dangerous-Explosive" meter scale
- Provision for external alarm
- Transistorized dependability—self-testing
- Superior performance at lower cost

What price safety? Almost any thinking powerboat owner would pay almost any price to know his craft and crew are safe from explosion and fire. Yet, here is a new Heathkit which provides that indispensable piece of information reliably and at low cost! The new Heathkit MI-41 Fuel Vapor Detector stands ready to tell you the fume condition of your motor compartment before you press that starter button. Its "Safe-Dangerous-Explosive" meter scale gives you visual indication . . . for audible warning, just connect an alarm device such as a buzzer or bell . . . or connect a motor compartment ventilation blower to automatically clear away any fumes. Completely reliable, the MI-41 features a dependable all-transistor circuit that is insensitive to drafts, temperature or voltage variations . . . and its self-testing feature assures you that the unit is operative. The sensing element cleans itself electrically for long life and dependability. Easy to assemble and install, it requires a 12v. DC power source, positive or negative ground. Add this invaluable accessory to your boat now. 4 lbs.

Kit MI-41, no money dn., \$5 mo. **\$39.95**

SPECIFICATIONS—Voltage: 12 V DC. **Current:** 1.0 amp. **Panel size:** 5" x 3-7/16". **Depth:** 3 3/8". **Detector head size:** 1 1/2" round x 2 1/2" long. **Length of interconnecting cable supplied:** 15'. **Audible alarm capability:** Yes. **Meter indicator:** Yes. **Color:** Marine White & Black. **Material:** Aluminum. **Temp. range:** -20° C to +80° C.

MARINE CHARGER/CONVERTER



- Heavy duty
- Filtered 6 or 12 v. output
- 3 charging rates
- Portable

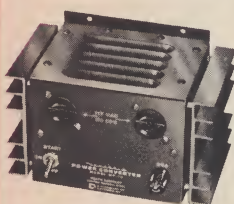
Kit Form
or
Factory
Assembled
\$44.95
MP-11

Simultaneously charge 6 or 12 v. batteries and operate DC gear (even transistorized radio equipment without hum)! Filtered, metered output; High, Medium, and Low rates. Fused. Insulated terminals. Silicon rectifiers. Mounting bracket included. White & black colors.

Kit MP-11, 25 lbs., no money dn.,
\$5 mo. **\$44.95**
Assembled MPW-11, no money
do.wn, \$6 mo. **\$59.95**

SPECIFICATIONS—Input: 117 V AC, 60 cycles. **Max-power requirements:** 440 watts. **Nominal charging rates:** (6 volt) Low, 2 amps; Medium, 5 amps; High, 10 amps; (12 volt) Low, 5 amps; Medium, 10 amps; High, 15 amps; Surge, 20 amps. **AC ripple:** Less than 1%. **Size:** 8 1/2" W x 6 1/4" H x 8 1/2" D.

MARINE POWER INVERTER



- Converts 6 or 12v. battery power to 117v. AC
- 175 watts cont., 240 watts max.
- All-transistor circuit

Kit Form
or
Factory
Assembled
\$29.95
MP-10

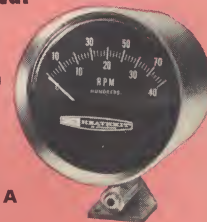
Plug-in power aboard your boat for lights and low-power appliances at lowest cost! Rugged power transistors cooled by efficient "heat sinks." Fuse protected. Two AC outlets and on-off switch. Build it in about two hours for years of power convenience.

Kit MP-10, 8 lbs., no money down,
\$5 mo. **\$29.95**
Assembled MPW-10, no money
down, \$5 mo. **\$39.95**

SPECIFICATIONS—Power source: 6 or 12 volt storage battery. **Power output:** nominal 117 volt, 60 cycle AC; 12 volt operation, 175 watts continuous, 240 watts max.; 6 volt operation, 120 watts continuous and max. **Input current for continuous ratings:** 6 volt operation, 25 amperes; 12 volt operation, 16.5 amperes. **Dimensions:** 7 1/2" x 5" x 5 1/2".

All-Transistor TACHOMETER for Boat or Car

- Improved circuitry for high accuracy
- Two ranges, switch selected
- Lighted dial



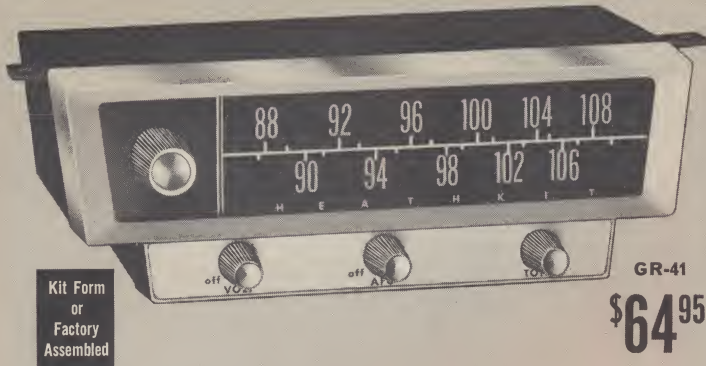
\$24.95
MI-31A

Ideal for use with all inboard or outboard marine and automobile engines (1-6 cylinder, 2 cycle or 1-16 cylinder, 4 cycle) that use standard coil and distributor ignition systems (also works with magneto systems when used with an external battery). Features switch selection of 0-4000 and 0-8000 rpm ranges, plus wiring option for modifying to 0-2000 & 0-4000 rpm. Uses 2 transistors plus Zener diode. Unaffected by normal voltage or temperature variations. Works on pos. or neg. gnd. Circuit board construction. Ball & socket mount. 3 lbs.

Kit MI-31A, no money dn., \$5 mo. **\$24.95**

Motoring is More Fun, More Economical with these Quality Heathkit Accessories

Enjoy Hi-Fi FM RADIO in Your Car
with This Heathkit and Save 50%



Kit Form
or
Factory
Assembled

GR-41
\$64⁹⁵

- 10 transistor circuit • 10 watt push-pull output • Automatic frequency control • Separate tuner & amplifier for installation versatility • Easy circuit board assembly plus preassembled FM tuning unit • For 12 v. negative ground systems only

SPECIFICATIONS—Tuning range: 88 to 108 mc. Quieting sensitivity: 1.5 uv for 20 db signal to noise quieting. I. F. frequency: 10.7 mc. I. F. rejection: 70 db. Image rejection: 30 db. Total bandwidth: 340 kc. (6 db down). Audio power response: ± 1 db (60-12,000 cps). Harmonic distortion: Less than 1% @ 1 kc; Less than 3% 60-12 kc. Power output: 10 watts RMS, 20 watts peak. Circuit: 10 transistors. RF amplifier, oscillator, mixer, 3 IF stages, 2 audio driver stages, push-pull output. Controls: Tuning; on/off, Volume; AFC defeat; Tone control. Dimensions: (RF unit) 2 $\frac{3}{4}$ " H x 7 $\frac{1}{2}$ " W x 4 $\frac{3}{4}$ " D, (power amplifier) 2 $\frac{1}{2}$ " H x 6 $\frac{1}{2}$ " W x 4 $\frac{3}{4}$ " D. Power requirements: 2 amperes @ 12 v. DC at full power output.

For extra listening fun while you drive this summer, add this Heathkit FM car radio. Featuring true high fidelity performance and the lowest cost in the history of FM car radios, the GR-41 is a remarkable value. The tuning section mounts under the dash and presents a handsome appearance in its jet black cabinet with chrome bezel and knobs plus lighted dial. The amplifier section can be mounted out of sight elsewhere and connected to the speaker in your car (or purchase the accessory speaker listed below which comes complete with handsome grille for rear deck mounting). The stable, cool-running 10-transistor circuit tunes the entire FM band (88-108 mc) with better than 1.25 microvolt sensitivity for a 20 db signal-to-noise ratio and all the features you need for fine performance. The RF amplifier provides extra sensitivity; separate oscillator and mixer for greater circuit efficiency; 3 IF stages for more amplification and greater AM noise-limiting action; 2 audio driver stages and push-pull output for greater power with lower distortion figures. Controls include Tuning, On/Off Volume, Automatic Frequency Control Defeat Switch, and Tone Control. Antenna coupling cable and speaker control switch are included for use with existing radio facilities if desired. Built-in circuit breaker protection eliminates fuses. All transformers and tuning unit are factory assembled and aligned. Begin this unique kit now for greater motoring enjoyment. 7 lbs.

- Kit GR-41 . . . no money down, \$7 mo. \$64.95
- Assembled GRW-41 . . . no money down, \$10 mo. \$94.95
- GRA-41-1: FM auto antenna with swivel mount, 15' cable. 2 lbs. . . . \$3.95
- GRA-41-2: 6" x 9" oval speaker & grille for rear deck mount. 2 lbs. . . . \$4.95
- GDP-192: RF NOISE SUPPRESSOR KIT: Easily installed on any engine where ignition interference is a problem. Complete instructions included. 1 lb. \$16.95

Save Time and Money with This Heathkit IGNITION ANALYZER

- Shows ignition system faults without removing parts
- Selects 4 patterns without lead changing
- "Expanded" views for detailed "closeups"
- Easy to use by professional mechanics and hobbyists

IO-21
\$89⁹⁵



Kit Form
or
Factory
Assembled

Greatest value and versatility. Shows shorted plugs, bad points, defective wiring, worn distributor parts, incorrect dwell time, coil and condenser problems, etc. on big 5" screen. Complete manuals show how to build and how to use easily and accurately.

- Kit IO-20, 14 lbs., no money down, \$9 mo. \$89.95
- Assembled IOW-20, 16 lbs., no money dn., \$16 mo. \$169.95

SPECIFICATIONS—RPM range: 400-5000 rpm. Displays: Secondary, Primary, Parade, Superimposed. Screen size: 4 $\frac{3}{4}$ " diameter. Dwell measurement: 4, 6 & 8 cylinder calibration on face plate. Pattern height: Secondary circuit, approx. 1"; Primary circuit, 6 volt system $\frac{3}{4}$ ", 12 volt system 1". Vertical expand ratio: 2 to 1. Horizontal expand ratio: 10 to 1. Cable length: 12' pickup clamp, 2' ground, primary and secondary clips. Power requirements: 105-125 V, 50/60 cycles AC, 30 watts. Dimensions: 8" H x 9 $\frac{1}{2}$ " W x 16" D.

Accessory IGNITION TIMING LIGHT

Kit Form or
Factory Assembled

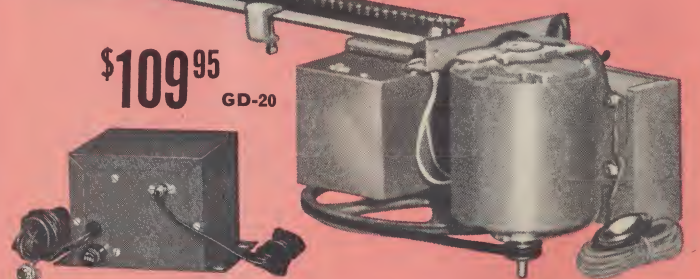


Plugs into IO-20 Ignition Analyzer; emits intense white light to show timing mark even in brightly lighted areas. Speed range: 0-1250 flashes per min. (0-2500 rpm for 4-cycle auto engines). Hard rubber pistol grip case with 10' cable. 6" H x 7 $\frac{1}{2}$ " L x 2" W.

- Kit ID-11, 2 lbs. \$14.95
- Assembled IDW-11, 2 lbs. \$19.95

Greater Driving Convenience at Lower Cost . . . Heathkit RADIO-CONTROLLED GARAGE DOOR OPENER

- Opens, closes & lights your garage automatically • Operates overhead track and most jamb & pivot doors up to 8' high • Fool-proof safety device disengages door when obstructed • Easy to build & install with complete instructions supplied



\$109⁹⁵
GD-20

Just press a button on the dashboard of your car and you've eliminated the inconvenience and hazards of opening your garage door manually. Complete package includes simple, rugged, opening mechanism, high power transmitter for your car, and special receiver. Receiver has selectable tone-coding for positive operation without interference from other units. Mechanism can be operated from car or house. Adjustable speed and force. Enhance your driving pleasure and the value of your property now with this Heathkit.

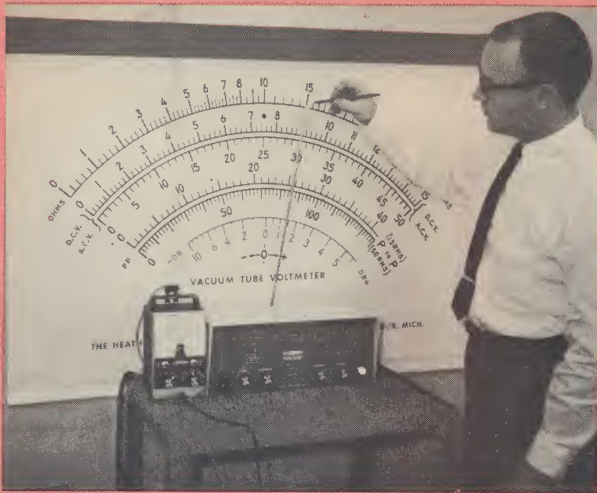
- Kit GD-20: Mechanism, Transmitter & Receiver. 67 lbs. . . . no money down, \$11 mo. \$109.95
- Kit GDA-20-1: Transmitter only. 4 lbs. no money down, \$5 mo. \$24.95
- Kit GDA-20-2: Receiver only. 3 lbs. \$16.95
- Kit GDA-20-3: Mechanism only. 58 lbs. no money down, \$7 mo. \$69.95

TRANSMITTER SPECIFICATIONS—6 or 12 volt DC operation, 5 watts max. (FCC requirements) to final. 3 modulation frequencies approx. 2KC, 2.9KC & 3.7KC. Fused, 4 $\frac{1}{2}$ " wide x 6" long x 4" high. 6AU8 & 12BH7, 27.255MC crystal controlled.

RECEIVER SPECIFICATIONS—117 V.A.C. 4 $\frac{1}{2}$ " wide x 6" long x 4" high: 6BH6 & 6AU6, 10 watts idle, 12 watts with signal. 27.255MC, 3 audio filter frequencies approx. 2KC, 2.9KC & 3.7KC adjustable to match Xmitter. Fused.

MECHANISM SPECIFICATIONS—126" length x 8 $\frac{3}{4}$ " high x 13" wide. 100 lbs. max. operating force. Operate doors up to 8' high. 117 V.A.C. $\frac{1}{4}$ H.P. motor. Fused.

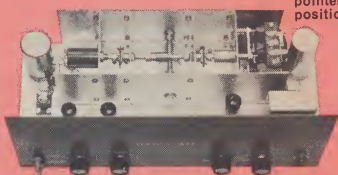
Teaching Aids



SIMPLE CONTROLS
Permit easy adjustment to meet specific test conditions. Panel screening clarifies mechanism operation.

SERVO-MECHANISM
Cover removes to expose operating mechanism in demonstration of mechanism function.

ADJUSTABLE POINTER Easily adjusts to meter scale in use to further clarify instruction. Bright fluorescent tip on pointer instantly shows position.



Heathkit Announces the First in a New Series of Educational Teaching Aids . . . The Classroom DEMONSTRATION METER/SERVO-MECHANISM EV-2

• An outstanding visual-aid for all levels of teaching • Demonstrates phenomena in electronics, chemistry, and physics • Servo-mechanism duplicates instrument readings on large chart meter • Seven foot long roll-up chart contains three separate meter scales • Operational manual describes popular experiments & demonstrations

Educators conducting classes in electronics, chemistry, physics and general science will find this unique new classroom meter an ideal teaching aid. Its big 36" x 44" meter scale is easily read from 30 feet or more . . . perfect for classroom group discussions, experimentation, and demonstrations. Extremely simple to use and operate, the EV-2 requires only connection of its input terminals to the meter movement terminals of most any VTVM, VOM or in-circuit meter used for measurement. The servo-mechanism then duplicates these readings on the large meter chart furnished. The roll-up chart housing can be hung on standard chalkboard map rails or permanently mounted on the wall. The chart is seven feet long and has three scales, one to match the Heathkit IM-11 and V-7A VTVM's, a 0-50 linear scale for use with any meter and a Zero-Null arc for zero-center readings. The servo-mechanism pointer is easily adjusted to any scale on the chart and may be removed for storage. Mechanism controls include a zero adjust control, 10-turn calibration control, damping control and Off-Standby-On function switch. A block diagram is screened on the front panel to help explain its operation and the cover is easily removed to demonstrate the servo-mechanism itself. A safe transformer power supply operates the unit and is supplied with a 3-wire grounded cord and adapter plug. The EV-2 is available under title III of the National Defense Education Act, Purchase Guide No. 2125.

Kit EV-2, 25 lbs. no money dn., \$10 mo. \$99.95

SPECIFICATIONS - Dimensions: Servo-Mechanism: 7 1/2" H x 15 1/2" W x 7 1/2" D. Chart Housing: 45" L x 3" H x 2" D. Chart: 7 ft. L x 44" W, roller type. Material: 2-color "Texoprint" plastic-impregnated. Input: 10-300 mv full scale (0-10 volts—0-100 volts with proper voltage dividers at input terminals not supplied). Error: Less than 3% of full scale at 200 mv, 5% of full scale at 10 mv. Reference system: Mercury cell. Reference Cell Life: 300 hours (approx.). Max. Source Resistance: 50K ohm. Power requirements: 105-125 V AC, 60 cycle, 50 watts. Fuse: 1 ampere slow-blow.



All-Purpose Equipment Cart
Here's plug-in power and portability for heavy or bulky objects, (instruments, aquariums, projectors, tools, etc.) for home, shop, or school use. Portable table rolls on big 4-inch casters which swivel on heavy-duty steel bearings. Can't mar floors, glides easily and quietly. Rear wheel toe brakes lock the table in position. Two built-in power outlets with 20-foot 3-conductor grounded cable and adapter for standard receptacles. Thick foam rubber pad on the top shelf. Size: 42" H x 24" W x 18" D. Space between bottom shelf and second shelf is 21", between second shelf and top, 12".
GFP-53, 24 lbs., NET \$34.95



COMPLETE STATION \$995 (less cab.)

VERSATILE APPLICATIONS



Researchers In All Sciences Using Electronic Instrumentation



College and University Classrooms and Laboratories

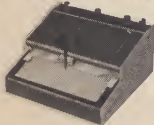


Industrial and Vocational Training Institutes

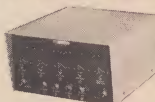


Research & Development Teams In Industry

Here Are a Few of the Unique Instruments Included



SERVO CHART RECORDER
Laboratory-type self-balancing potentiometer chart recorder driven by highly accurate servo-mechanism designed for demonstration and experimental purposes. Superb specifications at lowest cost.
EUV-20, 16 lbs. \$181.95



OPERATIONAL AMPLIFIER SYSTEM
Self-contained system comprising positive and negative 300 v. regulated supplies, 4 high gain amplifiers, and high-current booster amplifier. Many applications in measurement, computation, and control work.
EUV-19, 17 lbs. \$110.95



VOLTAGE REFERENCE SOURCE
Zener-stabilized voltage reference source of $\pm 1\%$ or 0.1 mv accuracy with output from 0.1 mv to 100 volts. Readout directly on three dials. Coarse and Fine controls. Use for calibration, measurement, or bias supply.
EUV-16, 5 lbs. \$61.95

The Malmstadt-Enke Instrumentation Laboratory . . . A Coordinated System of Instruments, Accessories, and Text for Research & Development or Educational Purposes

The complete Malmstadt-Enke Instrumentation Laboratory Station includes factory assembled Heathkit Test Equipment, new special-design instruments plus Experimental Kits featuring "solderless" terminals, plus the authoritative Malmstadt-Enke textbook "Electronics For Scientists"

Unique . . . versatile . . . great value . . . these are but a few of the adjectives which can be applied to the new Malmstadt-Enke Instrumentation Laboratory. Whether you're seeking a laboratory station for research and development . . . or are responsible for the teaching of science students . . . you can find no other system that provides as great a degree of capability with such low acquisition cost.

This coordinated system of special experimental kits and test instruments was engineered by the Heath Company in conjunction with Dr. Malmstadt of the University of Illinois and Dr. Enke of Princeton University who developed the system and authored the new text, "Electronics for Scientists."

The text is written especially for science students, chemists, physicists, engineers, medical researchers, biologists, and research workers who have little or no background in electronics, but need a working knowledge of circuits and instrumentation to aid in their daily activities.

The complete instrumentation laboratory includes four Universal Experimental Chassis with over 200 parts, a Universal Power Supply, Servo Chart Recorder, Operational Amplifier System, Voltage Reference Source, Transistorized Power Supply, Laboratory Meter, and seven factory assembled and tested Heathkit Instruments. When purchased with the complete station, the Heathkit Test Instruments cost even less than when purchased as individual kits . . . a great value which compares in performance with other stations costing as much as \$20,000!

The new bench-top cabinet illustrated will be available soon at extra cost to conveniently contain all equipment under lock and key, yet just opening the doors provides adequate working space with all parts conveniently stored and all instruments plugged in, ready to use.

The various components of the complete station are also available separately should you have special applications; write for a free six-page descriptive brochure.

Save Most with the Complete Malmstadt-Enke Station

EUP-11	Text, "Electronics For Scientists"	\$ 10.75
EUV-12	Assembled Heathkit Test Equipment as shown in photo above	456.95
EU-13	Universal Experimental Chassis & Parts	131.95
EU-14	Special Experimental Chassis & Parts	56.95
EUV-15	Assembled Universal Power Supply	69.95
EUV-16	Assembled Voltage Reference Source	61.95
EUV-17	Assembled Transistorized Power Supply	17.95
EUV-18	Assembled Lab. Meter with Shunts	20.95
EUV-19	Assembled Operational Amplifier System	110.95
EUV-20	Assembled Servo Chart Recorder	181.95
EU-100	Malmstadt-Enke Instrumentation Laboratory	\$1120.30
SPECIAL GROUP PRICE		\$995
(educational institutions qualify for additional group discount)		

Heathkit® Technical Applications Series



EF-3-3
\$61⁹⁵

"How To Understand and Use Your Signal Generator"

... A New Applications Course

- An experimental kit & textbook project
- Written in easy-to-understand everyday language
- Interesting experiments illustrate & support text
- Ideal for classroom or home study applications

The EF-3 Technical Applications course is the latest in this series which is designed to teach the proper use and understanding of signal generators in servicing and alignment. The informative text, written in plain everyday language, covers theory, function, and use of RF and Audio frequency generators in an easy to understand manner that is ideal for either home or classroom study. Interesting experiments are performed using the test chassis furnished to dramatically illustrate and clarify text material. Special "solderless" spring-clip connectors make circuit changes fast and simple, allow use of parts over and over again. The textbook alone contains a wealth of information that will be used for years to come!

- Kit EF-3, 2 lbs. \$11.95
- Kit EF-3-2, Includes EF-3 above and IG-102 Signal Generator p-36 8 lbs. \$37.95
- Kit EF-3-3, Includes EF-3 above and IG-82 Laboratory Generator p-38, 14 lbs. \$61.95

Subjects covered in the EF-3 include signal injection, impedance matching, gain measurement, freq. response, sine & square wave testing, distortion tests, determining resonant frequency of tuned circuits and many other special applications. Other types of generators, pulse, sweep, etc. are also covered.

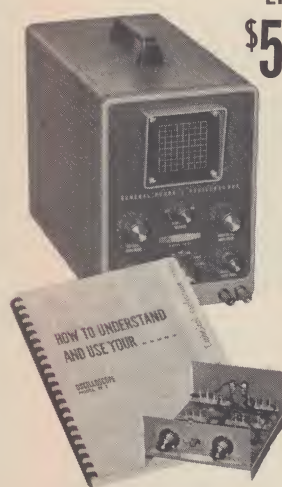


EF-1-4
\$39⁹⁵

"How To Understand and Use Your Vacuum Tube Voltmeter"

This combination kit and Textbook is designed to teach the theory, advantages and applications of the Vacuum Tube Voltmeter. A special power supply is included in the course to perform learn-by-doing experiments outlined in the text. Topics in the text are arranged for value to beginner and professional alike. An outstanding value for those who wish to get the most out of their VTVM. 3 lbs.

- Kit EF-1 (for VTVM owners) \$8.95
- Kit EF-1-4: Includes EF-1 above and IM-13 VTVM p. 35, 9 lbs. \$5 mo. \$39.95
- Kit EF-1-3: Includes EF-1 above and IM-11 VTVM p. 35, 6 lbs. \$5 mo. \$32.50



EF-2-3
\$57⁹⁵

"How To Understand and Use Your Oscilloscope"

An extremely valuable course for all oscilloscope owners! The EF-2 is designed to teach the theory and applications of the oscilloscope. Interesting experiments are performed with the special chassis and parts furnished to illustrate and clarify the text material. Special "solderless" spring-clip connectors allow fast and simple circuit changes. The large 150 page textbook remains an excellent reference source.

- Kit EF-2, 4 lbs. \$9.95
- Kit EF-2-3: Includes EF-2 above and IO-21 Oscilloscope, p-40, 17 lbs. \$57.95
- Kit EF-2-4: Includes EF-2 above and IO-12 Oscilloscope, p-40, 26 lbs. \$84.95

BUY IN COMBINATION AND SAVE

Basic Electricity Kit

EK-1
\$19⁹⁵

- Learn principles of voltage, current and resistance
- Designed by a science educator



A logical starting point for adult or student who wants to learn about electricity and electronics. This kit and textbook combines theory with interesting experiments to demonstrate principles . . . at the same time you build a handy volt-ohm-milliammeter of many uses! This course can open up a whole new world of interest to a youngster and start him off to a profitable career in this greatly expanding age of electronics.

Basic Electricity (Kit EK-1), . . . 4 lbs. \$19.95

2-Part Basic Radio Course

EK-2A
\$19⁹⁵

- Simplified theory
- Textbook/kit project



The student starts by building a simple crystal receiver and chapter by chapter improves upon it until a regenerative tube-type receiver is made. Basic Radio Part II extends knowledge to more advanced circuits and terminology, resulting in a 2-band superheterodyne receiver. Both parts of the course combine theory with actual construction and experimentation that greatly enhances learning. A valuable experience in the fascinating world of communications.

- Basic Radio Part I (Kit EK-2A), 7 lbs. \$19.95
- Basic Radio Part II (Kit EK-2B), 4 lbs. \$19.95
- Accessory Cabinet AK-8: For completed receiver, 3 lbs. \$3.95

Basic Transistors

EK-3
\$16⁹⁵

- Simplified text
- Interesting experiments
- You build a handy two-station intercom



An excellent introduction to the "how" and "why" of transistors and their associated circuitry. Interesting experiments illustrate and support the text without difficult mathematics. Information gained from this course will provide the necessary background for understanding basic transistor theory which will simplify servicing and trouble-shooting of transistorized circuitry and equipment.

Basic Transistors (EK-3) . . . 4 lbs. \$16.95

Low Cost Heathkit GR-81 Beginner's SHORTWAVE RADIO tunes the world

GR-81
\$24⁹⁵

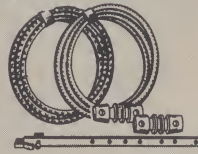


The Heathkit GR-81 was designed especially for the beginning shortwave fan. It's low in cost, easy to build, and has an unusually wide frequency coverage. The simple three-tube regenerative circuit goes together in about 6 hours and provides years of world-wide listening fun. It tunes the low frequency marine and aircraft stations, standard AM broadcast stations, international shortwave stations, and up through the 20 meter amateur band to provide reception of weather broadcasts, distress signals, music, news, and sports, government and foreign broadcasts, plus the fun of listening to amateur radio ops. Begin this fascinating hobby now with the GR-81.

Kit GR-81, 11 lbs., no money dn., \$5 mo. **\$24.95**

- Covers long wave and shortwave frequencies in four bands
- Sensitive regenerative circuit
- Built-in speaker plus headphone jack
- Transformer operated for safety

SPECIFICATIONS—Frequency coverage: 140 kc to 18 mc on four bands. Tube complement: 12AT7 Detector/1st Audio, 50C5 Audio Output, 35W4 Rectifier. Power requirements: 105-125 V 50/60 cycle AC only, 30 watts, Fused. Controls: Main Tuning (calibrated), Bandspread, Bandswitch, Regeneration, On/Off Volume, Phone Jack. Dimensions: 10" W x 7" H x 7" D.



SHORTWAVE ANTENNA KIT

Includes 75 foot long-wire antenna, 30 foot lead-in wire, porcelain insulators, and grounding hardware. Complete instructions for installation.

Kit GRA-72, 1 lb. **\$1.45**

All Transistor SHORTWAVE PORTABLE RADIO



- 10-transistor, 6-diode circuit
- 550 kc to 32 mc in five bands
- Battery powered

GC-1A
\$109⁹⁵

Kit Form
or
Factory
Assembled

Shortwave fans! Take your listening hobby with you wherever you go this summer with the Heathkit "Mohican!" Completely self-contained, deluxe in features, and outstanding in performance, this fine portable is ready to range the world whether you are at home or on the road. The advanced-design circuit uses "drift field" transistors for improved high frequency performance . . . ceramic IF "transfilters" for narrow, fixed band-pass that never needs alignment . . . Zener diode voltage regulation for stability . . . easy flywheel tuning . . . "S" meter . . . lighted dial . . . telescoping 50" whip antenna . . . oscillator tuned electrical bandspread . . . RF stage for extra sensitivity . . . complete controls. Two-tone green metal cabinet included. Less batteries. Requires RF generator for final alignment.

Kit GC-1A . . . 18 lbs., no money down, \$11 mo. **\$109.95**

Assembled GCW-1A . . . no money down, \$19 mo. **\$193.50**

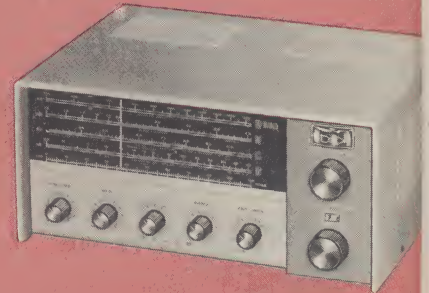
Kit XP-2 . . . 117 VAC plug-in power supply; 2 lbs. **\$9.95**

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 band. Selectivity: 3 kc wide at 6 db down. Sensitivity: 10 uv broadcast band, 2 uv short wave 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: 6 1/2" H x 12" W x 10" D.

Greater Value . . . Greater Shortwave Performance . . . Heathkit GR-91

- 4 tubes plus rectifier
- Covers 550 kc to 30 mc in four bands
- Built-in speaker & "S" meter
- Safe transformer operation

\$39⁹⁵
GR-91



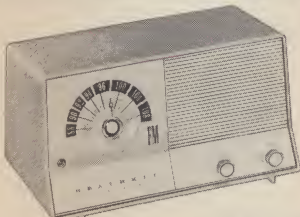
You are there when it happens when you listen with the Heathkit GR-91 Shortwave Radio! International overseas broadcasts of world events . . . amateur radio broadcasts from 160 to 10 meters . . . standard AM broadcasts of music, news, and sports . . . you take your pick when you tune the four bands of the GR-91, ranging the world of radio listening from 550 kc to 30 mc.

This sensitive receiver has these outstanding features at low cost! . . . lighted 7" slide-rule dial with four scales plus "logging" scale . . . lighted "S" meter for relative signal strength indication . . . electrical bandspread for station separation . . . BFO for code listening and SSB transmissions . . . built-in speaker . . . headphone jack . . . noise limiter . . . "velvet touch" 16 revolution tuning knob . . . antenna inputs for 300 ohm balanced or 75 ohm unbalanced antennas . . . 4-tube superhet circuit with transformer operated silicon rectifier power supply . . . all steel beige and aqua cabinet . . . easy circuit board assembly. Approximate alignment possible without RF signal generator.

Kit GR-91, 14 lbs., no money dn., \$5 mo. **\$39.95**

SPECIFICATIONS—Frequency coverage: 550 kc to 30 mc in four bands. Short wave, broadcast bands clearly marked on dial. Controls: General coverage tuning, Bandspread tuning, Antenna trimmer, Bandswitch, Noise Limiter—ON/OFF, Phone-Standby-CW switch, BFO control, Audio Gain, AC-ON/OFF, Headphone jack, Q-multiplier input jack. Power requirements: 105-125 V 50/60 cycles AC, 30 watts. Dimensions: 12 1/2" W x 5 1/2" H x 8 1/2" D.

Your Best Buy in FM Listening . . . Heathkit GR-11 FM TABLE RADIO at New Low Price



- Transformer operated safety
- Preassembled, prealigned tuning unit

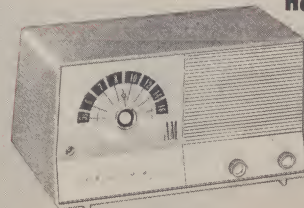
Just four hours of easy assembly brings you superb FM listening entertainment. 5 tube circuit has 7 tube function including RF stage. Tuned circuits are factory aligned. Beige plastic case. 6 lbs.

NEW SPECIAL-VALUE PRICE **\$24⁹⁵**

Kit GR-11, was \$27.50, now . . . **\$24.95**

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.

Easy to look at . . . Easy to build . . . Easy to buy . . . Heathkit AM TABLE RADIO



- Transformer operated safety
- 5 tube superheterodyne with 7 tube function

Highly styled in ivory & beige plastic. Top performer too with automatic vol. control and vernier tuning. Built-in ferrite rod antenna. 6 lbs.

NEW SPECIAL-VALUE PRICE **\$17⁹⁵**

Kit GR-10, was \$19.95, now . . . **\$17.95**

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.

Quality Listening At Low Cost

Now at this New Low Price, the High Performance Heathkit
All-Transistor PORTABLE FM RADIO is a Better Value Than Ever!

Just in time for you to add portable FM listening to your summertime fund-budget, the new lower price on the Heathkit GR-61 saves you an extra \$7! This easy-to-build unit delivers sensitive, clear, quiet FM reception indoors or out! It features a preassembled and aligned "front end," three IF amplifier-limiter stages for high gain and full quieting, automatic frequency control with defeat switch for best tuning and drift-free reception, push-pull output stage for big power, low distortion sound, plus a 4" x 6" oval speaker with heavy magnet for "big set" tone. Controls include vernier tuning, volume, and treble-cut tone controls. Dual input antenna system for built-in telescoping 34" antenna or external FM antenna. Headphone jack "cuts off" speaker for private listening or connection to hi-fi system. Circuit board construction and pre-aligned IF transformers. Suntan simulated leather case with beige grille. Less battery.

Kit GR-61, . . . 6 lbs., . . . no money down, \$5 mo. **NOW \$47.95**
GRA-131-1, Battery for above, 2 lbs. **\$1.10**

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. Recommended battery: 9 volt, Long-life, leakproof, NEDA #1612, Eveready #2356. 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.



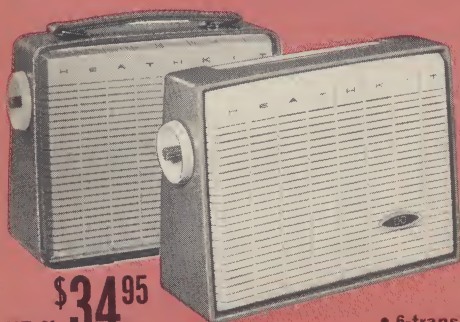
- 10-transistor, 4-diode circuit
- Sensitive! Tuned RF stage and 3 IF amplifier-limiters • 88-108 mc coverage • Vernier tuning • Automatic frequency control • Automatic gain control • Tone control • Push-pull output • Big 4" x 6" speaker • Telescoping Antenna

NEW LOW PRICE

SAVE \$7.00

\$47⁹⁵

Rugged . . . Full Size . . . Low Cost . . . All-Transistor
Heathkit XR-2 AM PORTABLES



XR-2P
\$29⁹⁵

XR-2L
\$34⁹⁵

- 6-transistor, 2-diode circuit
- Vernier tuning • Built-in antenna
- Big 4" x 6" speaker

Build that portable you've been wanting now for extra listening fun this summer. This full-size AM portable makes no compromises . . . it's ruggedly designed for long-lasting, dependable performance, solid in engineering concept for peak performance and easy construction, and handsomely styled for award-winning, praise-winning appearance. Its all-transistor circuit operates up to 1000 hours on 6 low cost "D" size batteries (not included). Features include vernier tuning for easy station selection, built-in antenna, push-pull output, and 4" x 6" speaker. Mocha plastic or suntan simulated leather cases.

Kit XR-2P, 5 lbs., plastic, no money dn., \$5 mo. **\$29.95**
Kit XR-2L, sim. leather, no money dn., \$5 mo. **\$34.95**

SPECIFICATIONS—Tuning range: 540-1620 kc. Sensitivity: 350 uv/m for 15 db signal-to-noise ratio at 50 mw output. Transistors: 6: 2N1108, 2N1110, 2N1111, R251, (2) R250. Diodes: 2. Size: 7 3/4" H x 10" L x 4" D.

Versatile, Easy-to-Build
AC CLOCK RADIO Kit

- Transformer operated safety
- Timer outlet for appliances
- Sleep switch—radio alarm
- pillow speaker output

Faithful servant, handy too! Wakes you to music, starts the coffee automatically, entertains all day long, lulls you to sleep. 5 tubes work like 7; clock/timer has sweep second hand; "sleep" switch adjustable to one hour; ivory & beige. 8 lbs.



\$29⁹⁵
GR-121

Kit GR-121, \$5 mo. **\$29.95**

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

Beginner's Heathkit . . . All-Transistor
PORTABLE AM RADIO
with FREE Tool Kit



GR-151
\$21⁹⁵

- 6-transistor, 2-diode circuit on easy-to-build circuit board • Big 4" x 6" PM speaker • Suntan simulated leather case • Compares with portables costing \$40 or more • Complete with battery & all the tools you need to build it

Let us help you prove to yourself that you can build a Heathkit. This handsome portable radio comes complete with everything you need to build it. Easy to follow instructions, clear pictorial diagrams, labeled circuit board, all parts, free soldering iron, solder, wire stripper, screwdriver, nut starter, and adjustment tool, plus 9-volt battery. The deluxe 6-transistor superheterodyne receiver has a built-in antenna for long distance reception, big speaker for good tonal quality, and special overload diode for distortion-free listening. This is the low-cost way to start your Heathkit building career . . . order yours today.

Kit GR-151, Radio & Tool Set, 5 lbs. **\$21.95**

Low Cost Cordless
AM TABLE RADIO Kit at New Low Price

- 6-transistor, 2-diode circuit
- Big 4" x 6" PM speaker
- Built-in rod antenna

Nothing to plug in, battery powers it anywhere at home, at work, even outdoors! Easy circuit board assembly. Ivory & green case. Less battery. 3 lbs.

\$17⁹⁵
NEW
SPECIAL-VALUE
PRICE



Kit GR-131, was \$19.95, now **\$17.95**
GRA-131-1, Battery, 2 lbs. **\$1.10**

SPECIFICATIONS—Tuning range: 535-1620 kc. Sensitivity: 300 uv/m for 20 db S/N ratio @ 50 mw output. Battery: (1) 9V long-life leakproof NEDA #1612, EVEREADY #2356. Battery life: 500-1,000 hours. Dimensions: 8" L x 6 3/4" H x 3" D.

Sight or Sound ..



GD-232
\$349⁹⁵
(less bench)

Value Sensation of the Music World . . .
The Thomas TRANSISTOR ORGAN by Heathkit!
High Quality . . . Low Cost . . . Easy to Build

- Two correctly positioned overhanging 37-note keyboards • Ten True Organ Voices • 13-note heel & toe bass pedals • Variable bass pedal volume control • Expression pedal • Keyboard balance control • Vibrato on-off switch • Vibrato intensity switch • 20-watt peak power amplifier & speaker • Transistorized tone generators • Beautiful hand-rubbed walnut cabinet included

Here is the electronic organ that has won praises from music lovers the world over! "Tonal quality that exceeds expectations" . . . "functions perfectly" . . . "far easier to build than I expected" . . . "presents a beautiful appearance." Whether you are a professional musician or, like most of us, just want to add the beauty of live organ music to your home, you'll add your enthusiastic raves to those who have already built this Heathkit version of the Thomas Model A transistor organ. And, of course, hand in hand with its obvious quality and fine performance is the inescapable fact that through your own do-it-yourself efforts, this organ costs far less than any other two-manual organ available. Assembly is easy . . . everything explained and pictured . . . even how to tune it . . . and all the parts are genuine Thomas factory fabricated. The handsome cabinet is factory assembled and finished, ready for installation of the various component modules as you complete them. Average assembly time, according to builders who have written us, is from 50 to 60 hours . . . and these are people who, for the most part, have no special skills or experience in kit assembly! Transistorized tone generators assure clear, undistorted sound, long life, and virtual elimination of service problems. Its many voices include Trombone, Reed, Flute, Oboe, Cornet, Violin, Saxophone, Horn, Viola, and Diapason for endless combinations of sound. Order your Heathkit organ now . . . you can build it . . . the family will love it . . . and you will realize significant savings!

Kit GD-232, Organ, 160 lbs., no money dn., \$23 mo. **\$349.95**
GDA-232-1, Matching walnut bench, 16 lbs., no money dn., \$5 mo. **\$24.95**

Self-Teacher Recorded Lessons—48 Easy Steps to Fun!

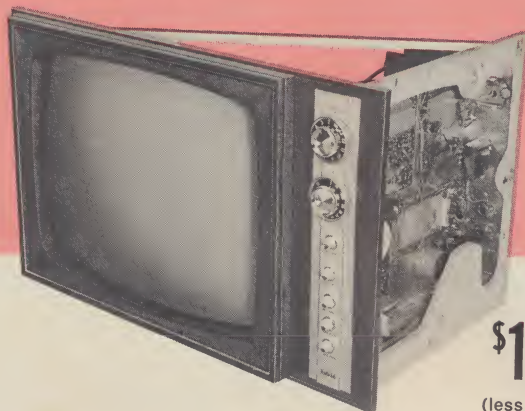
48 lesson course on four 12" LP records, with music book. Provides a firm basis of music knowledge, not just playing by number or color. 5 lbs.

GDA-232-2, Recorded Lessons, List \$50. **Only \$19.95**

Demonstration Record

Listen to the beautiful voices, tone, and expression of the Heathkit organ. Enclose 50c for handling and postage.
GDA-232-3, 7"-33 $\frac{1}{2}$ rpm disc.

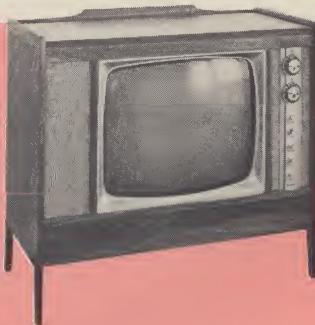
High Definition 23" Picture . . . High Fidelity Sound . . . Custom or Cabinet Installation . . . \$169.95!
It All Adds Up to Your Best Buy in Television . . . The Heathkit GR-22



GR-22
\$169⁹⁵
(less wall mask)

Compare these superior features: • 17 tube, 5 diode circuit with optional UHF gives 30 tube performance • High definition 23" tube with anti-glare bonded safety glass • Sparkgap socket for picture tube protection • Deluxe turret-type Standard-Kollsman Nuvistor tuner • 20,000 volt picture power • Transformer power supply • Prebuilt hi-voltage section • Four prebuilt subassemblies for quick completion with factory-built performance • Easy circuit board construction with 2 wiring harnesses • Line thermistor for long tube life • Circuit breaker and B+ protection • Gated AGC and Noise Canceller for peak reception anywhere • Cathode follower output for hi-fi system • Sound-power output for speaker attachment • Wide-band, high-gain, 3-stage prealigned IF strip with five interference traps • DC restorer • Front panel controls for channel selection, fine tuning, UHF, contrast, volume/on-off, brightness, vertical and horizontal hold, AGC, vertical height and linearity • Rear controls for sync/noise, focus and width • Finest parts • Tubes alone list at over \$135 • Build it in about 12 hours.

KIT GR-22, chassis & tubes, 70 lbs., no money dn., \$16 mo. **\$169.95**



Deluxe Heathkit TV Cabinets

Matches Heathkit hi-fi cabinets to make a complete home entertainment center. Ready for installation; includes tube mask, chassis board, and 6" x 9" hi-fi speaker. Size: 36" W x 32 $\frac{3}{8}$ " H x 20 $\frac{1}{2}$ " D.

- GRA-22-1, walnut cab., 60 lbs., \$9 mo. **\$89.95**
- GRA-22-4, unfin. cab., 60 lbs., \$8 mo. **\$79.95**
- GR-52, TV set & wal. cab., 130 lbs., \$23 mo., Save \$10 **\$249.90**
- GR-82, TV set & unfin. cab., 130 lbs., \$22 mo., Save \$10 **\$239.90**

SPECIFICATIONS—Picture size: 23" over-all diagonal, approximately 282 sq. in. **Deflection:** Magnetic, 90°. **Focus:** Electrostatic. **Antenna input impedance:** 300 ohm balanced. **Tuning range:** VHF TV Channels 2-13, (optional UHF Channels 14-82). **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. **Tube complement:** 6DS4 Nuvistor RF Amp; 6CG8A Osc. & converter; 6DZ4 (optional) UHF osc.; 6BZ6 1st IF; 6GM6 2nd IF; 6EW6 3rd IF; 6HF8 Video amp & sound IF; 6GX6 Sound detector & 1st audio; 6GW8 sound output & cathode follower; 6HS8 sync & AGC; 6EW7 vertical osc. & output; 6FQ7 horizontal osc.; 6GW6 horizontal output; 6CQ4 damper; 1B3/1G3 high volt. rect.; 5U4GB low volt. rect.; 23BWP4 picture tube. **Diodes:** (2) IN295 video detector & DC restorer; Dual selenium horizontal AFC; IN82A-UHF Mixer. **Sound cathode follower:** Output impedance—3k. Frequency response: ± 1 db 50-15,000 cps; Harmonic distortion: less than 1%. Output Voltage 2V. **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:** 105 V, to 125 V, 60 cycles AC, 210 watts. **Size required for mounting:** 19" H x 29 $\frac{1}{4}$ " W x 17" D.

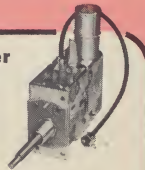
Custom TV Wall Mount Mask

Handsome white birch mask and $\frac{3}{4}$ " picture tube mounting board, ready for finishing. Cut and drilled. Size: 20 $\frac{3}{8}$ " H x 30 $\frac{3}{8}$ " W x 1-11/16" D.

- GRA-22-2, Wall mount, 13 lbs., \$5 mo. **\$25.95**
- GR-62, TV set & wall mount, 83 lbs., \$18 mo., Save \$6. **\$189.90**

Optional UHF Tuner

Continuous tuning Standard-Kollsman UHF tuner, covers channels 14-82. Mounts inside chassis.



- Assembled GRA-22-3, 3 lbs., \$5 mo. **\$27.95**

Save More With Heathkit®



GR-21 \$59⁹⁵

Low Cost FM STEREO SYSTEM . . . Only \$109.90

- Handsome walnut FM table radio & matching FM stereo converter
- 88-108 mc FM coverage
- Automatic frequency control
- Pre-assembled, pre-aligned tuning unit
- Extended-range 6" x 9" speakers
- Tone control
- "Magic-Eye" tuning indicator

Use this fine quality FM table radio separately for monophonic listening . . . or combine it with the matching FM stereo converter opposite . . . either way you get full range, high fidelity FM listening at low cost. Features include vernier action flywheel tuning, tuning "eye", lighted dial, AFC with on-off switch, built-in antenna plus external antenna terminals, switched AC socket for accessory power, tone and volume controls, multiplex output jack, transformer operated power supply, and 6" x 9" dual-cone speaker. Size: 15" L x 8" H x 6" D. 18 lbs.

Kit GR-21, no money dn., \$6 mo. \$59.95



\$49⁹⁵ GRA-21-1

Add this matching converter for exciting depth and direction of FM in stereo! Self-contained, it includes all the circuitry to provide fine FM stereo when used with the GR-21 radio opposite. Features include AC switch with mono-stereo mode selector, volume, tone, and separation controls. Four tube circuit is powered by built-in safe, transformer operated power supply. 6" x 9" dual-cone speaker and walnut cabinet match the FM table radio. For low cost stereo, order both today! 17 lbs.

Kit GRA-21-1, no money down, \$5 mo. \$49.95

Low Cost, Space-Saving Heathkit STEREO CONSOLE

Kit Form or Factory Assembled



GD-31 \$129⁹⁵

- Less than three feet long
- Less than \$150 even in factory assembled form
- Six speakers, two 12" woofers, two 8" midrange, and two 5" tweeters
- Stereo amplifier with 60-15,000 cps response
- 4-speed automatic stereo/mono record changer mounted under sliding cabinet top
- Sonotone cartridge with turnover diamond and sapphire styli
- Volume and separate bass & treble controls mounted on front panel
- Size: 31 3/4" L x 17 3/4" D x 26 3/8" H. • 78 lbs.

Kit GD-31, \$12 mo. \$129.95
 Assembled GDW-31, \$14 mo. \$149.95
 ADA-60-1, 45 rpm adapter spindle, 1 lb. \$2.95

TELEPHONE AMPLIFIER

- Permits hands-free telephone talks
- Ideal for executives, secretaries
- All transistor circuit— instant operation
- Works well with most modern handsets



GD-71 \$19⁹⁵

Convenient, saves time! Take dictation, or look for notes while carrying on a 2-way conversation! Self-contained battery lasts up to 2000 3-minute calls. Takes just a few hours to assemble. Works well with most modern handsets. Handsome ivory colored case measures 5 7/8" W x 9 1/4" D x 6" H. 3 lbs. Less battery.

Kit GD-71, 3 lbs. \$19.95
 GWA-30 Battery Set: (2) one operation, one spare, 1 lb. \$2.95

All-Transistor INTERCOM

with all-installation flexibility

- Beautifully styled beige plastic cabinets
- Weatherproofed outdoor remote
- Master takes up to 5 remote stations
- Efficient 1 watt output, 3.5 watt power drain



Complete Set \$44⁸⁵

Indoors, outdoors, this versatile intercom saves you time, steps, and money! Master unit has one-watt output and specially designed frequency response for crisp, clear communications; separate level controls for listen and talk functions; accepts up to five remote stations with "selective-call" of any one remote or "all-call" of all remotes for paging or announcements; built-in AC power supply. The indoor remotes have "listen-talk-monitor" switch. Outdoor remotes have doorbell button, weatherproof speaker, aluminum grille, and weather seal. Each remote has a 50' connecting cable. Easy to build.

Kit GD-121 Master Station . . . 5 lbs., no money down, \$5 mo. \$29.95
 Kit GD-131 Indoor Remote . . . 3 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 1/2" H x 8" W x 7 3/4" D (master), 5" H x 8" W x 6" D (indoor remote), 6 1/2" x 4 1/2" panel size (outdoor remote).

All-Master "Wireless" INTERCOM

- No connecting wires between units, just plug into nearest outlet . . . costs less than 3c a month to operate
- All-transistor circuit— built-in AC or DC power supply
- Add additional units at any time to expand system
- Handsome two-tone beige plastic cabinets



GD-51-2 \$45⁹⁰ (pair)

High operating economy, easy installation, and handsome modern styling is featured in this "All-Master" wireless intercom system. Perfect for home, office or factory! The power line fed by any one pole line transformer is used as the transmission medium for the low frequency AM RF signal . . . no connecting wires between units necessary . . . just plug the line cord into the nearest outlet and units are ready to operate! You can add additional units at any time to expand the system without changing or adding wiring. Other features include: a squelch circuit for full quieting on standby, overload diode to prevent distortion on high-level signals, and transmit & standby indicating lights. Press-to-talk bar switch has spring-return to listen position and a transmit "hold" position for dictating.

Kit GD-51-2 (pair) 8 lbs. . . . no money down, \$5 mo. \$45.90
 Kit GD-51 (one station) . . . 4 lbs. \$22.95

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 1/2" H x 8" W x 7 1/2" D.

Deluxe Heathkit

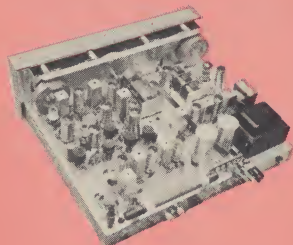
Deluxe AM/FM Stereo Tuner . . . Heathkit AJ-41



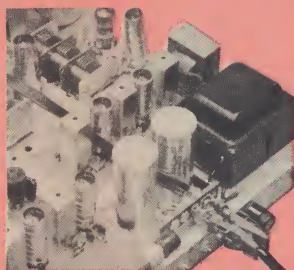
- Broad band design • Built-in stereo circuitry • Automatic stereo light • Adjustable AFC • Adjustable FM squelch • Stereo phase control • Two tuning meters • Filtered tape recorder outputs
- Easy to build

Kit Form
or
Factory
Assembled

\$119⁹⁵ AJ-41



**DELUXE CIRCUITRY WITH
CIRCUIT BOARD SIMPLICITY**



**READY FOR STEREO WITH
BUILT-IN MULTIPLEX ADAPTER**

Compare the price and features of this renowned Heathkit tuner . . . you'll find it to be the most remarkable value in stereo listening! Here is deluxe styling with luggage-tan vinyl-clad steel cabinet, polished anodized trim, refracted lighting of the handsome big dial . . . a perfect match for the Heathkit AA-100 opposite. Here are convenience features for easy operation, finer performance. Nothing external . . . the Heathkit AJ-41 includes its own built-in stereo adapter . . . just flip a switch to choose FM STEREO, FM MONOPHONIC, or AM listening. An automatic stereo indicator lights up when a stereo broadcast is present. The adjustable automatic frequency control permits you to add just the proper amount of correction you need for drift-free reception and easy tuning of any FM station. Adjustable FM squelch assures complete silence between stations during tuning. For maximum separation and minimum distortion during stereo broadcasts, a unique phasing control is provided. Easy to use, the AJ-41 has individual tuning meters for AM and FM, flywheel tuning action, and a lighted slide rule dial . . . for convenience, built-in antennas are provided plus terminals for external antenna connections. Easy to build, the "front end" of this superb tuner is factory assembled and aligned to assure you of professional performance from your own kit building efforts . . . and the three circuit boards make completion fast and simple. For better value, better performance, order your AJ-41 kit today!

Kit AJ-41, 27 lbs., no money down, \$11 mo. \$119.95

Assembled AJW-41, 27 lbs., no money down, \$18 mo. \$189.95

SPECIFICATIONS FM—Tuning range: 88 mc to 108 mc. **IF 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 and 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 and 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, 5 uv; 1000 kc, 6 uv; 600 kc, 10 uv. (standard IRE dummy antenna, .1 volt RMS reference output). **Sensitivity change, narrow to broad position:** —5 db. **IF 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 and noise:** 35 db below 30% modulation (1000 kc unmodulated with 100 uv in). **IF rejection ratio:** 1400 kc 42 db; 600 kc 38 db. **Power supply:** Transformer operated, 117v., 50-60 cycle, 100 watts. **Dimensions:** 5 3/4" H x 15 1/2" W x 14" D.

Deluxe Monophonic AM/FM Tuner . . . Finest Value in the Kit Industry



Kit Form
or
Factory
Assembled

\$99⁹⁵ AJ-30

- Output for FM stereo converter
- Superb 16 tube circuit
- Two tuning meters • Preassembled tuning section
- Easy circuit board construction

Beautifully styled . . . excellently engineered . . . the Heathkit AJ-30 is a fine value in quality listening pleasure. Its appearance complements any decor . . . luggage tan vinyl-clad steel cabinet with polished anodized trim and refracted lighting bar which illuminates the large tuning dial with a soft, glare-free glow. It's easy to use . . . flywheel tuning glides the pointer across the dial and individual tuning meters for both AM and FM permit precise frequency settings with ease and accuracy . . . a function switch selects AM or FM modes of operation . . . a fidelity switch chooses maximum fidelity or maximum selectivity to suit your listening need . . . switched Automatic Frequency Control assures drift-free reception and best tuning. Its broad-band circuit is compatible with FM stereo requirements too . . . just add the Heathkit AC-11 stereo converter (p. 20) to enjoy FM in stereo! Easy to build, easy to buy, order now!

Kit AJ-30, 25 lbs., no money dn., \$10 mo. \$99.95

Assembled AJW-30, 24 lbs., no money dn., \$15 mo. \$159.95

SPECIFICATIONS FM—Tuning range: 88 mc to 108 mc. **IF frequency:** 10.7 mc. **Antenna:** 300 ohm balanced (or internal for local reception). **Output:** low impedance cathode follower variable up to 4000 ohms. **Output voltage:** Nominal .5 volts (with 2 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 and noise:** 40 db below 30% modulation (20 uv in).

SPECIFICATIONS AM—Sensitivity, narrow bandwidth position: 1400 kc, 4.5 uv; 1000 kc, 5 uv; 600 kc, 5.5 uv (at antenna terminals through standard IRE dummy antenna, .1 volt RMS reference output). **Reference output .1 volt RMS:** 600 kc 5.5 uv. **Sensitivity change, narrow to broad position:** —5 db. **IF bandwidth, narrow:** 14 kc, 6 db down; **Broad:** 20 kc, 6 db down. **Image ratio:** 1400 kc 55 db; 600 kc 80 db. **Harmonic distortion:** Less than 1%. **Hum and noise:** 35 db below 30% modulation (1000 kc unmodulated with 100 uv in). **IF rejection ratio:** 1400 kc 42 db; 600 kc 38 db. **Power supply:** Transformer operated 50-60 cycle, 100 watts. **Tube complement:** (6) 6AU6, (3) 6BA6, (1) 6BS8, (1) 6AB4, (1) 12AT7, (1) 6AL5, (1) 6BE6, (2) 12AU7. **Dimensions:** 15 3/4" W x 5 1/2" H x 13 1/2" D.

Stereo Tuners & Amplifiers

All-Transistor Deluxe Heathkit AA-21 Stereo Combination Amplifier... 70 Watts for Just \$139.95!

- Superb dynamic range and transient response • Full power capability ± 1 db from 13 to 25,000 cps • 70 watts output Heath Rating, 100 watts IHFM Music Power Rating • World's most completely engineered stereo circuit—28 transistors, 10 diodes—lives up to its specifications • No microphonics • Cool, quick operation • Easy to build with encapsulated circuit modules plus circuit boards • Easy to operate—basic controls on front panel—secondary controls behind hinged lower front panel



Kit Form
or
Factory
Assembled

\$139.95 AA-21

MOST ADVANCED STEREO AMPLIFIER IN THE INDUSTRY!

Move up to an all-transistor stereo system with the Heathkit AA-21 . . . you'll find it's the last word in fine equipment and a remarkable value. Compare it with any other amplifier . . . tube or transistor . . . compare its features, performance, and price . . . and you'll choose the AA-21, the first all-transistor amplifier that lives up to its specifications!

Inherent in the performance of transistor equipment are these features: . . . freedom from microphonics . . . freedom from heating . . . economical operation, low power consumption! Added to these characteristics are the following unique features which result from the advanced-design of the AA-21 . . . full power, more power throughout and beyond the entire audio spectrum with a fidelity, cleanness and sharpness of attack that is startling to hear! Using the latest in RCA semi-conductor technology, the AA-21 has 28 transistors and 10 diodes. Eight germanium power output transistors are mounted on four protective, finned heat sinks . . . the power amplifier circuit boards contain four other transistors and six diodes . . . the driver stages use two germanium transistors . . . the pre-amplifier circuit boards contain ten transistors . . . the power supply uses four diodes and four electronic filter transistors. The circuit design features a transformerless output which eliminates a common source of frequency loss and phase problems. Multiple feedback loops help provide the remarkably flat response curve of the AA-21. Controls are ample: . . . on the front panel there is a five position dual concentric selector for any combination of inputs, a five-position "mode" selector, and dual concentric volume, bass, and treble controls for simultaneous adjustment of both channels. Behind the hinged lower front panel are: tape-monitor input switch, speaker phase reversal switch, loudness switch to convert the volume control to a loudness control, and all input level controls. The lower right hand panel is a touch-to-turn-on, touch-to-turn-off power switch. All inputs and outputs are located on the rear of the chassis. Easy to build with five circuit boards and six encapsulated component modules consisting of 70 resistors and capacitors, factory wired and sealed. Deluxe styled in tan vinyl-clad steel, this stereo amplifier is your best buy in stereo!

Kit AA-21, 28 lbs., no money dn., \$13 mo. **\$139.95**
Assembled AAW-21, no money dn., \$21 mo. **\$219.95**

SPECIFICATIONS—Power output per channel: (Heath rating), 35 watts/8 ohm load—26 watts/16 ohm load—18 watts/4 ohm load; (IHFM music power output), 50 watts/8 ohm load—34 watts/16 ohm load—25 watts/4 ohm load (@ 0.7% THD, 1 KC). **Power 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 and 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, .25 v; FM Stereo, .25 v; Aux., .25 v; Tape Monitor, .90 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:** 28 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:** 15 1/2" W x 5" H x 14" D.

Value Leader in Tube-Type Stereo Combination Amplifiers . . . Heathkit AA-100



Kit Form
or
Factory
Assembled

\$84.95 AA-100

- 50 hi-fi-rated watts (25 per channel) • 5 stereo inputs • Versatile controls • Mixed center channel speaker output • Separate mono phono input • Easy circuit board assembly • Deluxe styled to match AJ-41 tuner, opposite page

An instant hit with discriminating, value-appreciative music lovers everywhere when introduced two years ago, the AA-100 continues to set the sales pace in stereo combination amplifiers. Combining unusual versatility with low cost, the AA-100 has five pairs of inputs for stereo magnetic phono cartridge, AM and FM tuners or FM Stereo tuner, stereo tape recorder, and auxiliary inputs for other sources such as TV. A separate input is provided for a magnetic monophonic phono cartridge. Three different stereo speaker impedances are available as well as a mixed channel center speaker output for "center fill-in" for stereo or for monophonic sound to other rooms. Tape recorder outputs are of the cathode follower type for best response with long audio connecting cables. Controls include: preamplifier input level, power amplifier input level, hum null, "mode" selector, speaker phase reversal, balance and separation, ganged volume, separate concentric bass and treble controls. Deluxe styling. Incomparable value!

Kit AA-100, 35 lbs., no money down, \$9 mo. **\$84.95**
Assembled AAW-100, no money down, \$14 mo. **\$144.95**

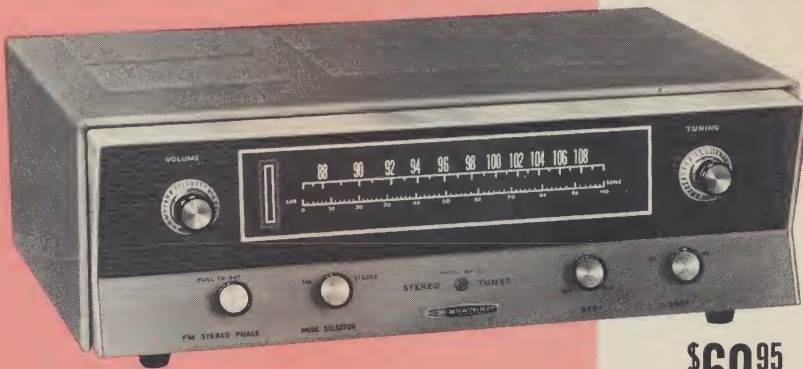
SPECIFICATIONS—Channels: 2. **Power output:** 50 watts (25 w. per channel) Heath Hi-Fi Rating; 60 watts (30 w. per channel) IHFM Music Power Output (0.7% THD, 1 kc). **Power response:** ± 1 db from 30 cps to 15 kc at 25 watts output per channel. **Harmonic distortion:** Less than 0.5% at 25 watts, 1 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 6 mv sensitivity. 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. **Input impedance:** Mag phono, 47 K ohms (may be changed); tape head, 470 K ohms; tuner & aux., 250 K ohms each. **Outputs:** 4, 8 and 16 ohms; cathode follower tape recorder outputs. **Damping factor:** 15. **Controls:** Function switch (4-position); selector switch (6-position); balance control (total range, 16 db); separation control; ganged level controls; dual-concentric bass & treble controls; phase and power switch. **Tube complement:** 2-6F86, 4-12AX7, 2-7199, 4-7591, 1-GZ34, 1-selenium bias rectifier. **Power requirements:** 117 volts, 50-60 cycles, 150 watts. **Power outlets:** 2 AC receptacles, 1 switched, 1 unswitched. **Dimensions:** 5 1/2" H. x 15 1/2" W. x 13 1/2" D. (allow 1" for cables at rear).

SAVE 5% ON HEATHKIT STEREO/HI-FI SYSTEMS—ORDER PROGRAM SOURCE, AMPLIFIER, & SPEAKER; DEDUCT 5% ON ORDER BLANK

STEREO/HI-FI

Matched Performance

Fine Performance, Fine Value . . .
the Heathkit AJ-12 FM/FM-STEREO TUNER



- Built-in FM stereo adapter
- FM stereo indicator light
- Stereo phase control for maximum separation
- Variable squelch • Adjustable AFC
- Filtered stereo tape recording output
- Easy circuit board assembly
- Perfect match for the AA-151 amplifier next page

\$69⁹⁵
AJ-12

Kit Form
or
Factory
Assembled

Choose FM Monophonic or FM Stereo broadcasts . . . the Heathkit AJ-12 tuner offers deluxe-feature performance at an economy price!

Completely engineered for stereo FM, this new Heathkit tuner has the broad-band circuitry necessary for good stereo reception and its built-in stereo adapter is an integral part of its design . . . no external accessories, no after-thought. A Stereo Indicator light signals the presence of a stereo broadcast as you tune across the FM band. An extra-value feature for fine performance is the Stereo Phase control which permits you to adjust for minimum distortion and maximum stereo separation. Adjustable automatic frequency control (AFC) assures that the FM station you tune in stays "locked in" to eliminate annoying drifting of the tuner . . . the adjustable feature permits you to use just the right amount of frequency correction to control drift. Variable FM squelch eliminates "between-station" noise as you tune across the band. Tuning is easy with its new bar type tuning "eye", edge-lighted dial, and heavy, die-cast flywheel tuning mechanism.

Filtered stereo outputs permit clean, natural tape recordings. Styling is tastefully accomplished in tan vinyl-clad steel with charcoal gray front panel and polished anodized aluminum trim.

It's easy to build with a factory built and aligned front-end and circuit board construction. Order this remarkable value now. 16 lbs.

Kit AJ-12, no money down, \$7 mo. **\$69.95**
Assembled AJW-12, no money down, \$11 mo. **\$119.95**

SPECIFICATIONS—FM Section: Tuning range: 88 mc-108 mc. Intermediate frequency: 10.7 mc. Antenna: Balanced input for external 300 ohm antenna. Internal line antenna. Output voltage: (30 microvolts at 30% Mod.) 0.35 volt. Image ratio: (30 microvolts, 30% Mod. at 98 mc): -45 db, Harmonic distortion: (25 microvolts, 100% Mod. at 98 mc): Less than 1%. IF Rejection: (98 mc): -65 db. FM Audio response: (20-20,000 cps): ±1 db. AFC Correction factor: (Full AFC): 100 kc per volt. AM Suppression: -30 db. Hum and noise: (25 microvolts, 30% Mod.): -48 db. Quietening sensitivity: 20 db-2½ microvolts; 30 db 3½ 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. Hum and noise: -55 db relative to 1 volt rms output. Output impedance (cathode follower): Variable to 15K, each channel. Outputs: Left Channel-Right Channel. Size: 5¼" H x 15¼" W x 10½" D.

For AM, FM, or FM-Stereo Listening . . .

Choose the Better Value Heathkit AJ-32 for just \$89.95



Kit Form or
Factory Assembled

\$89⁹⁵
AJ-32

- Built-in stereo circuit • Stereo indicator light • Variable squelch • Stereo control for maximum separation, minimum distortion • Variable AFC • Individual "bar" tuning indicators • Filtered outputs for stereo tape recording • Easy to build with circuit boards and factory aligned front-end • Perfect match for AA-151 amplifier opposite page

Regardless of what broadcasting mode is your listening preference, the Heathkit AJ-32 delivers fine performance with a host of extra-value features at an unusually low price. Compare it! Automatic signal light shows the presence of FM Stereo broadcasts. Phase control assures best stereo reception with minimum distortion, maximum separation. Automatic frequency control for driftless FM signals. Bar-type tuning indicators. Lighted dial. Flywheel tuning. AM fidelity switch for maximum or normal AM fidelity. Filtered outputs for tape recorder. Styled in the mid-line Heathkit motif of tan vinyl-clad steel cabinet, charcoal gray panel, and anodized trim. Easy to build, easy to use, easy to buy . . . order yours now. 21 lbs.

Kit AJ-32, no money down, \$9 mo. **\$89.95**
Assembled AJW-32, no money down, \$14 mo. **\$149.95**

SPECIFICATIONS—AM SECTION: Tuning range: 550 kc-1600 kc. Intermediate frequency: 455 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). IF bandwidth: Normal-6 db -7 kc; Maximum-6 db-12 kc. AM antenna: Built-in rod antenna with provisions for external antenna and ground. Output voltage (750 microvolts-30% mod.): .75 volt. Image rejection: 1400 kc-40 db; 1000 kc-50 db; 600 kc-60 db. Harmonic distortion: (750 microvolts-95% mod.): Less than 1%. Hum and noise: (5000 microvolts, 30% mod.): 30 db. IF rejection: 1400 kc-30 db; 600 kc-50 db. FM SECTION: Tuning range: 88 mc-108 mc. Intermediate frequency: 10.7 mc. Antenna: Balanced input for external 300 ohm antenna. Internal line antenna. Output voltage (30 microvolts-30% mod.): .3 volt. Image ratio (30 microvolts-30% mod. -98 mc): -45 db. Harmonic distortion (25 microvolts-100% mod. -98 mc): Less than 1%. IF rejection (98 mc): -65 db. FM audio response (20-20,000 cps): ±1 db. AFC correction factor (full AFC): 100 kc per volt. AM suppression: -27 db. Hum and noise (25 microvolts, 30% mod.): -48 db. Quietening sensitivity: 20 db-2½ microvolts; 30 db-3½ 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; 20 db or more at 10 kc. Hum and noise: -55 db relative to 1 volt rms output. Output impedance (cathode follower): Variable to 4000 ohm, each channel. Power supply: Transformer operated, 117v., 50-60 cycle, 70 watts. Outputs: Left Channel-Right Channel. Size: 5¼" H x 15¼" W x 11" D.

Bargain Monophonic AM-FM TUNER



\$69⁹⁵
AJ-11

Kit Form
or
Factory
Assembled

- Output for FM stereo adapter • Adjustable AFC • Two tuning "eyes" • Easy to build with pre-aligned front end

Save most on this Heathkit AJ-11 monophonic AM-FM tuner, predecessor of the AJ-32 above. Styling and specifications for AM and FM are similar to AJ-32. For FM Stereo, add the AC-11 adapter, p. 24.

Kit AJ-11, 21 lbs., no money dn., \$7 mo. **\$69.95**
Assembled AJW-11, 20 lbs., no money dn., \$12 mo. **\$129.95**

at Unmatched Savings



This 28-Watt STEREO COMBINATION AMPLIFIER at \$59.95 is one of the

most remarkable values in good listening!



AA-151
\$59⁹⁵

Kit Form or
Factory Assembled

Compare the Heathkit AA-151 on any point . . . features, performance, or price . . . you'll agree that it has all the attributes to make it the amplifier you should include in your stereo music plans.

Fine specifications are the result of careful engineering and the use of the Heath patented Ultra-Linear® output circuit. Its versatile controls include a 6-position function selector switch; a 4-position input selector switch to choose magnetic or crystal phono, tuner or auxiliary source such as tape or TV; dual concentric volume controls to permit individual or simultaneous adjustment of the two channels; separate ganged bass and treble tone controls which adjust both channels simultaneously; speaker phase reversal switch; and a filament balance control to effectively cancel hum. Two accessory AC outlets on the

- Two hi-fi-rated 14-watt channels . . . stereo preamps, and power amps.
- Use it for stereo or monophonic program sources
- 4 Stereo inputs • Complete controls
- Patented Heath Ultra-Linear® output circuit
- Easy-to-build conventional wiring
- Perfect match for Heathkit AJ-12 FM Stereo Tuner or the AJ-32 AM-FM Stereo Tuner

back (one switched, one unswitched) are handy for tuner, phono or other accessory power. Styling is in tan vinyl-clad steel with charcoal gray front panel and polished, anodized trim . . . a perfect match for the AJ-12 or AJ-32 tuners opposite.

Construction is easy with conventional wiring techniques. 29 lbs.

Kit AA-151, no money down, \$6 mo. **\$59.95**
Assembled AAW-151, no money down, \$11 mo. **\$119.95**

SPECIFICATIONS—Channels: 2. **Power output:** 28 watts (14 w. per channel) Heath Hi-Fi Rating; 32 watts (16 w. per channel) IHFM 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. **Damping factor:** 10:1. **Controls:** Dual clutched volume, ganged bass; ganged treble; 4-position source selector; 6-position mode selector; speaker phasing switch. **Tube complement:** 2-6EU7, 2-6AU6, 2-6AN8, 4-EL84/6BQ5, 1-GZ34/5AR4. **Power requirements:** 117 volts, 50-60 cycles, 130 watts. **Power outlets:** 2 AC receptacles, 1 switched, 1 unswitched. **Dimensions:** 15½" W. x 5¼" H. x 11" D.

DELUXE STEREO PREAMPLIFIER



AA-11

\$84⁹⁵

Kit AA-11, 20 lbs., no money down, \$9 mo. **\$84.95**

SPECIFICATIONS—Inputs: 5 stereo each channel and 3 monophonic. **Outputs:** One low impedance to power amplifier and one low impedance to tape recorder in each channel plus a "derived center channel" monophonic output. **Frequency response:** ±0.5 db, 20 to 20,000 cps. **Harmonic distortion:** Max. .05% @ 2.5 volts output. **Intermodulation distortion:** Max. .09% @ 2.5 volts output. **Hum and noise:** Relative to 2.5 V rms output; 6 mv input at Mag. phono input, 60 db or better. **Channel separation:** 1 kc, 36 db or better. **Rumble filter:** 3 db down at 42 cycles, 12 db attenuation per octave. **Scratch filter:** 3 db down at 6 kc, 20 db attenuation per octave. **Baxandall tone controls:** 12 db boost, 16 db cut at 20 cps; 12 db boost, 20 db cut at 20,000 cps. **Controls:** Separate Bass & Treble, each channel; Volume-Loudness, Blend, Balance, Rumble Filter, Scratch Filter, Volume-Loudness Switch, Stereo Mono switch, 9 push-button Source Selector switch, Phase-Reversal switch, and Channel Reversal switch. **Tube complement:** (3) 12AX7, (2) 12AT7. **Power requirements:** 117 V AC, 50-60 cycles. **Dimensions:** 5½" H x 11¼" D x 15¼" W.

- Push-button selected inputs • Basic controls on front panel • Secondary controls behind hinged lower front panel • Self-powered • Controlled center channel • Matches AJ-41 Tuner, p. 16

Low Cost STEREO PREAMPLIFIER



AA-141A

\$34⁹⁵

Kit AA-141A, 10 lbs., no money down, \$5 mo. **\$34.95**

SPECIFICATIONS—channels: 2. **Inputs (each channel):** Mag Phono, Xtal Phono, Aux 1, Aux 2. **Outputs (each channel):** Power amplifier, tape recorder. **Frequency response:** (with the volume control at maximum and the Bass and Treble controls set approximately to the mid position): ± 1 db from 20 to 20,000 cps. **Harmonic distortion:** (at 2.5 volts rms output, using AUX 1 or 2 input): .1% or less. **Intermodulation distortion:** (at 2.5 volts equivalent rms output using AUX 1 or 2 inputs): .1% or less. **Channel separation:** 45 db or better 20 to 20,000 cps. **Hum and noise (below 2.5 volts RMS):** Mag Phono, 55 db (or better); Xtal Phono, 65 db (or better); Aux 1 and 2, 65 db (or better). **Tube complement:** 6-6EU7 tubes. **Controls and switches:** Source Selector Switch, Bass controls, Treble controls, Volume controls, Mode selector switch (left amp, right amp, mono left source, mono right source, stereo norm, stereo rev), Power (off-on), Filament balance (left channel and right channel). **AC receptacles:** 1-switched, 117 V AC, 375 watts maximum. 1-unswitched, 117 V AC, 375 watts maximum. **Power supply:** Transformer-operated, using two selenium rectifiers in a voltage doubler arrangement. **Power requirements:** 117 volts, 50-60 cps AC, 19.7 watts. **Dimensions:** 15½" W x 5¼" H x 7-13/16" D. (overall).

Ultra-Linear® 80-watt STEREO POWER AMPLIFIER



AA-121

\$79⁹⁵

Kit AA-121, 39 lbs., no money down, \$8 mo. **\$79.95**

SPECIFICATIONS—Channels: 2. **Power output:** 80 watts (40 w. per channel) Heath Hi-Fi Rating; 98 watts (49 w. per channel) IHFM Music Power Output (0.7% THD, 1 kc). **Power response:** ± 0.5 db, 20-20,000 cps, at 40 watts output per channel. **Harmonic distortion:** 1.5% or less, 20-20,000 cps, at 40 watts output per channel. **Intermodulation distortion:** 0.5% or less at 40 watts output per channel, 60 and 6,000 cps mixed 4:1. **Hum and noise:** 85 db below 40 watts output. **Channel separation:** 70 db or better at 1 kc. **Input sensitivity:** 0.95 volts rms for 40 watts output per channel. **Outputs:** 4, 8, 16, and 32 ohms per channel; center speaker terminals can be used with 4, 8 or 16 ohm speakers. **Damping factor:** 16:1, 8 and 16 ohm taps; 12.5:1, 4 ohm tap. **Controls:** A Channel; bias balance, bias voltage, level. B Channel; bias balance, bias voltage, level, Function selector; phase and power switches. **Tube complement:** 2-6AN8; 4-EL34, 4 silicon diode rectifiers, 1 selenium bias rectifier. **Power requirements:** 117v, 50-60 cycles, 180-320 watts. **Power outlets:** 2 AC outlets; 1 switched, 1 unswitched. **Color and finish:** metallic bronze, expanded metal dust cover; black chassis with ivory lower front panel. **Dimensions:** 7¼" H x 15" W x 11" D.

- Two 14-watt hi-fi-rated channels • Two gain controls • Speaker phase switch • Supplies pre-amp. power • Circuit board assembly

Ultra-Linear® 28-watt STEREO POWER AMPLIFIER



AA-111

\$44⁹⁵

Kit AA-111, 21 lbs., no money dn., \$5 mo. **\$44.95**

SPECIFICATIONS—Channels: 2. **Power output:** 28 watts (14 w. per channel) Heath Hi-Fi Rating; 32 watts (16 w. per channel) IHFM Music Power Output (0.7% THD, 1 kc). **Power response:** ± 1 db from 30 cps to 15 kc at 14 watts output per channel. **Harmonic distortion:** 2% or less at 14 watts, 30 cps to 15 kc. **Intermodulation distortion:** 2% or less 60 and 6,000 cps signals mixed 4:1 at 14 watts output per channel. **Hum and noise:** 76 db below 14 watts output. **Channel separation:** 65 db. **Input sensitivity:** 0.74 v for 14 watts output per channel. **Input impedance:** 500 K ohm pot. **Outputs:** 4, 8 and 16 ohm. **Damping factor:** 5.25:1, 4 ohm tap; 10.2:1, 8 ohm tap; 11.5:1, 16 ohm tap. **Controls:** Left and right channel gain; AC switch; phase switch. **Tube complement:** 2-7199; 4-EL84/6BQ5 1-GZ34/5AR4. **Power requirements:** 117 v, 50-60 cycles, 115 watts. **Power outlets:** 2 octal sockets for preamp power; supply 300 v at 10 ma, 6.3 volts at 1.1 amps at each socket. **Dimensions:** 6" H x 8½" D x 13" W.

SAVE 5% ON HEATHKIT STEREO/HI-FI SYSTEMS—ORDER PROGRAM SOURCE, AMPLIFIER, & SPEAKER; DEDUCT 5% ON ORDER BLANK

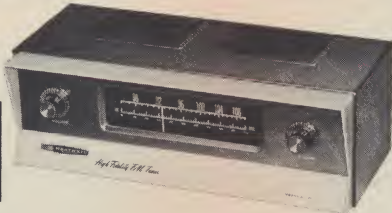
Budget Savers

Good quality, high fidelity monophonic FM TUNER... Heathkit AJ-31

\$39⁹⁵

AJ-31

Kit Form or Factory Assembled



- Broad-band circuitry for good stereo reception with the AC-11 Converter below • 5-tube circuit with 9-tube function • Automatic frequency control with switch • Large slide-rule dial • Flywheel tuning • Cathode follower output • Easy to build with assembled, prealigned "front end" • Charcoal gray and ivory

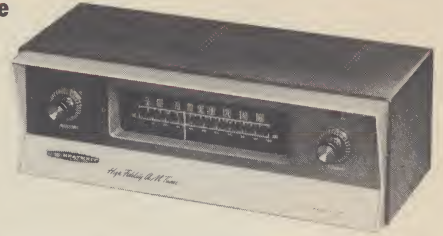
Kit AJ-31, 10 lbs., no money dn., \$5 mo. \$39.95
Assembled AJW-31, no money dn., \$7 mo. \$69.75

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 (45 db). IF frequency: 10.7 mc. Image ratio: 45 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 cycle AC at 25 watts. Overall dimensions: 4-15/16" H x 13 1/2" W x 6" D.

Good quality, high fidelity AM TUNER

at a New Low Price

NEW SPECIAL-VALUE PRICE
\$27⁹⁵



- Super-sensitive superhet circuit with extra, tuned RF stage • Fidelity switch chooses normal or maximum band width • Built-in transformer operated power supply with silicon rectifier for safety and long life • 10 kc whistle filter • Voltage doubler detector for lowest distortion • Useable with power amps., preamps., or headphones • Charcoal gray and ivory

Kit AJ-21, 10 lbs., no money dn., \$5 mo. \$27.95
New Special-Value Price

SPECIFICATIONS—Tuning range: 550 kc to 1600 kc. Intermediate frequency: 455 kc. Sensitivity (for 20 db quieting IHFM standards): 1000 kc-Buv. IF bandwidth (6db down): NORMAL-7 kc; MAXIMUM-18 kc. Harmonic distortion: (750 uv 95% mod.); Less than 1%. Hum and noise: (500 uv-30% mod.); 40 db. IF rejection: 1000 kc-69 db. Power supply: Transformer operated (fuse). Power requirements: 117 V AC, 50/60 cycles at 19 watts. Dimensions: Overall, 4-15/16" H x 13 1/2" W x 6" D.

NEW SPECIAL-VALUE PRICE
\$24⁹⁵



Add Stereo Capability to your monophonic FM Tuner at New Low Cost

Kit Form or Factory Assembled

- Use with AJ-31 tuner above or any good FM tuner • Self-powered circuit • Separation control for maximum separation and minimum distortion • Compact case in choice of colors to match Heathkit FM tuners • Easy to build • Complete with three 4' cables • 4 lbs.

Kit AC-11A, black, \$5 mo. New Special-Value Price, \$24.95
Kit AC-11B, tan, \$5 mo. New Special-Value Price, \$24.95
Assembled ACW-11A, black, \$5 mo. Special \$39.95
Assembled ACW-11B, tan, \$5 mo. Special \$39.95

SPECIFICATIONS—Audio frequency response: ±2 db 50 to 15,000 cps. Subcarrier band-pass: ±4 db 23,000 to 53,000 cps. Channel separation: 30 db. Hum and noise: —56 db (relative to 1 volt rms output). Input impedance: 470 K ohms. Output impedance: 3000 ohms each channel (cathode follower output). 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. Tube-diode complement: 1-12AU7 Amplifier—Cathode Follower; 1-12AU7 Amplifier-Oscillator; 1-12AU7 Cathode Follower Output; 2-Silicon Diode Rectifiers; 2-Crystal Diode Detectors. Power requirements: 117 volts AC, 50/60 cps, 12 watts. Size: 3 3/4" H x 3 3/4" W x 10 1/2" D.

Good quality, low cost stereo COMBINATION AMPLIFIER

... Heathkit AA-201



\$31⁹⁵

AA-201

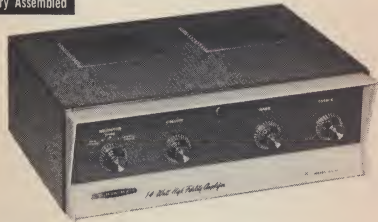
- Two stereo inputs, phono and tuner or tape recorder • Separate bass and treble controls • Clutched, concentric volume controls • 7-position selector switch • Black & ivory color styling • Ideal for den or second system

Kit AA-201, 12 lbs., no money down, \$5 mo. \$31.95

SPECIFICATIONS—Channels: 2. Power output: 6 watts (3 w. per channel) Heath Utility Rating. Power response: ±1 db, 50-20,000 cps at 3 watts output per channel. Harmonic distortion: Less than 3%, 60-20,000 cps at 3 watts output per channel. Intermodulation distortion: Less than 3% at 3 watts output 80 and 6,000 cps signals, 4:1. Hum and noise: 65 db below 3 watts output. Input sensitivity: 150 mv for 3 watts output each channel, crystal phono and tuner. Outputs: 4, 8 and 16 ohms. Controls: Dual clutched volume, ganged treble, ganged bass, 7-position selector switch, speaker phasing switch, on-off switch. Tube complement: 2-EL84, 2-7199, 1-EZ81. Power requirements: 117 v, 50-60 cycles, 75 watts. Color and finish: Black enamel with ivory front panel. Dimensions: 12 1/2" W x 3 1/4" H x 6 1/4" D.

14-watt monophonic COMBINATION AMPLIFIER at New Special-Value Price

Kit Form or Factory Assembled



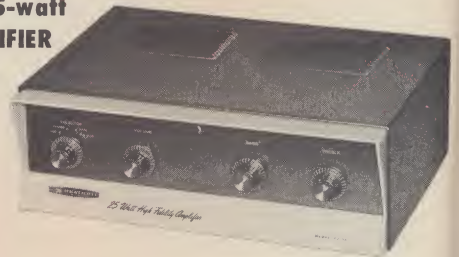
NEW SPECIAL-VALUE PRICE
\$29⁹⁵

- 14 hi-fi-rated watts • 3 inputs for tuner or phonos • Patented Heath ULTRA-LINEAR® output • Separate bass & treble tone controls • Charcoal gray & ivory color styling

Kit AA-161, 17 lbs., \$5 mo. New Special-Value Price, \$29.95
Assembled AAW-161, \$6 mo. New Special-Value Price, \$54.95

SPECIFICATIONS—Power output: 14 watts Heath Hi-Fi Rating; 16 watts IHFM music Power Output (2% THD, 1 kc). Power 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 6,000 cps signals, 4:1. Hum and noise: mag. phono input 55 db below 14 watts; tuner and crystal phono, 65 db below 14 watts. Input sensitivity: For 14 watts output: mag. phono, 0.004 v at 1 kc; crystal phono, 0.2 v; tuner 0.25v, with tone controls flat. Outputs: 4, 8 and 16 ohms. Damping factor: 10:1. Controls: 3-position function selector switch, bass and treble tone controls, volume control. Tube complement: 1-6EU7, 1-6AU6, 1-6AN8, 2-EL84/6BO5, 1-EZ81 / 6CA4. Power requirements: 117 v, 50-60 cycles, 55 watts. Color and finish: Charcoal gray steel cabinet and upper front panel with ivory colored bezel and lower front panel. Dimensions: 5" H x 13 1/2" W x 10 1/2" D.

Your Best Buy in quality monophonic amplifiers ... The Heathkit 25-watt COMBINATION AMPLIFIER



\$42⁹⁵

AA-181

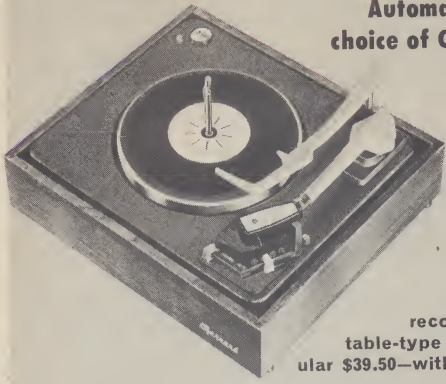
- 25 hi-fi-rated watts • 4 inputs for phonos, microphone & auxiliary sources • Separate bass & treble tone controls • Easy to build circuit • Charcoal gray & ivory color styling

Kit AA-181, 20 lbs., no money down, \$5 mo. \$42.95

SPECIFICATIONS—Power output: 25 watts Heath hi-fi rating; 30 watts IHFM music power rating (0.7% THD @ 1 KC). Power response: ±1 db, 30 cps to 15 kc, at 25 watts output. Harmonic distortion: Less than 2% at 30 cps-15 kc and less than 0.7% at 1 KC at 25 watts output. Intermodulation distortion: Less than 2% at 25 watts using 60 cps and 6,000 cps signals 4:1. Hum and noise: Microphone-60 db or better; Mag. Phono-55 db or better; Xtal Phono-60 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. Tube complement: 2-6EU7; 1-12AU7; 2-7591; 1-5AR4; 1-Selenium bias rectifier. Power requirements: 117 volts 50-60 cycles, 120-135 watts. Power outlets: 1 AC receptacle, unswitched. Indicator: Neon pilot light. Color & finish: Charcoal grey with ivory bezel and lower front panel. Dimensions: 13 1/2" W x 4-15/16" H x 9 1/2" D.

Turntables for Every Budget

Compact, Low Cost 1963 Garrard "Autoslim/P" Automatic CHANGER with choice of Cartridge for \$39.51



ADP-53 **\$39⁵¹**

(less base)

- 4 speeds, automatic or manual • Intermix all size records of same speed • Turntable-type arm with plug-in head • Regular \$39.50—with cartridge for just 1c more

New styling, new features, new low cost. Compact . . . just 6½" in height with base (7½" with base and legs). New cast aluminum tone arm with plug-in head has extra-sensitive stylus pressure control. New control panel has separate positions for automatic or manual playing. Separate spindles for automatic or manual use. 4-pole shaded "induction surge" motor with dynamically balanced rotor for constant speed without hum or vibration. Plug-in installation. Your choice of cartridges on page 22 for just one cent more! 9 lbs.

- ADP-53 (not a kit) with A, B, C, D, or E cartridge . . . no money down, \$5 mo. . . . **\$39.51**
 ADA-53-1, Garrard 45 rpm spindle, 1 lb. . . . **\$3.80**
BASES, 14½" W x 12-11/16" D x 3½" H.
 ADA-53U, Garrard B10U unfinished base, 4 lbs. . . . **\$4.45**
 ADA-53W, Garrard B10W walnut base, 4 lbs. . . . **\$4.95**

SPECIFICATIONS—Speeds: 16½, 33½, 45, and 78 rpm. **Motor**: 4-pole shaded, hum shielded. **Tracking**: will track per cartridge specifications. **Color**: gray and silver. **Wiring**: stereo, 4-pin/5-wire w/separate ground connection for hum elimination. **Cables furnished**: line cord and audio. **Power requirements**: 100-130 volts, 60 cycles AC. **Dimensions**: 14½" W x 12½" D x 4¾" above and 2¾" below top of motor board.

Assemble your own Fairchild TURNTABLE and save with this Exclusive Heathkit Price



ADP-21
\$124⁹⁵

- 33½ & 45 rpm • Balanced tone arm • Heavy turntable • Walnut base • Fairchild SM-2 stereo cartridge included

Save on your Fairchild turntable with this semi-kit at the low Heathkit price of just \$124.95. Easy to build . . . the tone arm and base are complete, just assemble the turntable. Fine performance is assured by these famous Fairchild features . . . push-pull speed selector; speed adjustment of ±1½%; solid cast aluminum turntable; rifle-drilled bearing well; Fairchild 500 arm with "anti-skate" and dynamic balancing; moving magnet Fairchild SM-2 cartridge with .007 diamond stylus is completely compatible for stereo or mono; shock-mounted walnut top plate; matching walnut base. 27 lbs.

Kit ADP-21, no money down, \$12 mo. . . . **\$124.95**

SPECIFICATIONS—Impedance: 200 ohms per channel. Inductance: 500 mh per channel. Dynamic mass: 2 milligrams. Track force: 2.5 grams. Compliance: 5 x 10⁻⁴ cm/dyne. Response: 20-15,000 cps (±2 db). Separation: 20 db (±2 db) from 20-15,000 cps. Recommended load: 47K ohms per channel. Output: 5 mv at 3.8 cm/sec. Wow: .08% peak to peak. Flutter: immeasurable. Rumble (vertical and lateral): —56 db below 7 cm/sec at 500 cps. Dimensions: 17½" W x 15" D. 3½" below mtg. board.

New 1963 Garrard Type A Automatic TURNTABLE . . . with your Choice of Cartridge for just 1 cent more than regular price!



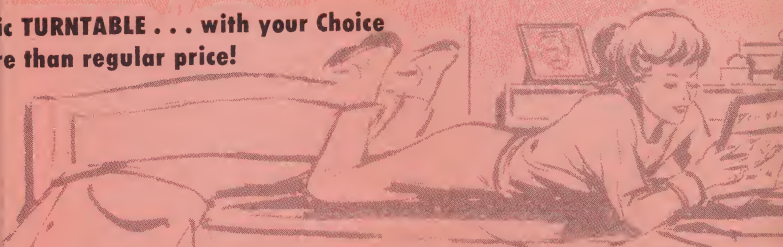
ADP-63 **\$79⁵¹**

(less base)

Get the best for less. The 1963 Garrard Type A automatic turntable combines the proven performance of its 4-pole motor and pusher record platform with new features for the finest in record playing facilities! The new tone arm is built with the same precision, balance, freedom from friction, and low resonance expected in tone arms separately sold, regardless of price! Perfect dynamic balance is achieved by the adjustable counterweight. The built-in pressure gauge is more accurate than separate gauges. Tracking and tripping occurs at the lightest weight specified for any cartridge, even professional models. And now you can get your choice of any one of the cartridges shown on page 22 for just 1 cent more . . . or the new Shure "Gard-A-Matic" especially made for use with the Type A turntable for just \$5 more. Order your Garrard today! 19 lbs.

- ADP-63 with A, B, C, D, or E cartridge: specify; no money dn., \$8 mo. . . . **\$79.51**
 ADP-63F with AD-693F Shure M-99A cartridge, no money dn., \$9 mo. . . . **\$84.50**
 ADA-61-1, Garrard 45 rpm spindle, 1 lb. . . . **\$3.80**
BASES, 16½" W x 13½" D x 3¾" H.
 ADA-63-2, Garrard B8U unfinished base, 4 lbs. . . . **\$4.45**
 ADA-63-3, Garrard B8W walnut base, 4 lbs. . . . **\$4.95**

SPECIFICATIONS—Speeds: 16½, 33½, 45 and 78 rpm. **Motor**: 4 pole shaded, hum shielded. **Tracking**: will track with "professional" model cartridges. **Turntable weight**: 8 lbs., non-ferrous metal. **Color**: gray, charcoal 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, 13½" D, 6" above and 2¾" below top of motor board.



- A true, dynamically-balanced tone arm • Built-in stylus pressure gauge • Plays warped or eccentric records even with table tilted • Full-size, heavily weighted turntable • 4-pole shaded motor—special design • Exclusive pusher platform for automatic play • Fully wired for stereo • New plug-in installation • Completely assembled, just install the cartridge • 4-speeds, automatic or manual • Choose any cartridge on page 22 for 1c more or new Shure Dynetic "Gard-A-Matic" for only \$5 more • Regular price \$79.50

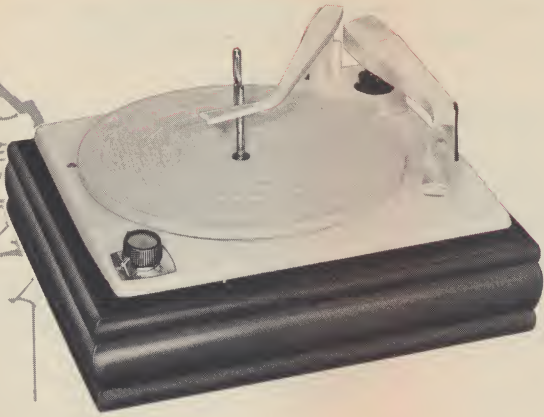


Shure M-99/A Dynetic "Gard-A-Matic" STEREO CARTRIDGE for use with Garrard Type A Only

Floating cartridge retracts if arm is dropped, pressure exceeds 3 grams, or arm is dragged across grooves. Plastic bumper prevents damaging contact . . . saves records and cartridge! Just plug into Garrard Type A Changer arm. **Manufacturer's Specifications**: Frequency response: 20-20,000 cps. Output: .006v. Separation: more than 22.5 db at 1kc. Load impedance: 47,000 ohms. Stylus: .7 mil diamond. Compliance: 20 x 10⁻⁶ cm/dyne. Tracking force: 1.5-3 grams.

Model AD-693F, NET. . . . **\$24.75**

SAVE 5% ON HEATHKIT STEREO/HI-FI SYSTEMS—ORDER PROGRAM SOURCE, AMPLIFIER, & SPEAKER; DEDUCT 5% ON ORDER BLANK



AD-102 **\$56⁴⁵**
(less base)

Deluxe Heathkit STEREO/MONO RECORD CHANGER KITS with Better Cartridges and Lower Prices!

• 4 speeds, automatic or manual • New 11" turntable • Record protecting "turntable pause" and "anti-skate" • Quick-change cartridge holder • Your choice of cartridge at no extra cost

Here's your chance to add the finest in record handling facilities to your stereo/hi-fi system at greater savings than ever! These deluxe featured Heathkit changers now include a finer selection of cartridges included at no extra cost! Compare these performance assuring points: the new 11" turntable provides better record support . . . "turntable pause" ends scraping and sliding records during the change cycle . . . "anti-skate" eliminates damaged lead-in grooves . . . pin-point tone arm bearings offer maximum compliance and optimum tracking for better performance and less record wear . . . vernier adjustment for stylus pressure . . . intermixing of all size records of one speed . . . two channel muting switch assures absolute quiet during the change cycle . . . an RC filter network eliminates annoying "pops" and "clicks" during switching . . . the 4-pole hum-shielded motor offers steady, quiet power . . . the quick-change cartridge holder accepts 2, 3, or 4 terminal cartridges . . . white finish with brushed gold trim and oyster-white turntable pad. Order this fine changer now for greater music enjoyment at lower cost . . . choose your cartridge from those shown below. 12 lbs.

Kit AD-102 with C cartridge, no money dn., \$6 mo. **\$56.45**
Kit AD-102 with A, B, D, or E cartridge, no money dn., \$6 mo. **\$59.45**
ADA-60-1, 45 rpm spindle, 1 lb. **\$2.95**

SPECIFICATIONS—Speeds: 16, 33½, 45 and 78 rpm. **Flutter and wow:** 0.18% rms or less. **Turntable speed:** Accurate within ±2%. **Change cycle:** Completed in 9 seconds. **Motor type:** 4-pole, hum shielded. **Type of drive:** Friction. **Tracking force:** 2 grams reliably initiates change cycle. **Record capacity:** Maximum of 10 records. **Control functions:** On-off switch; Manual reject; Manual Speed Selector. **Power requirements:** 105-130 volts, 60 cycles AC. **Dimensions:** 13½" W x 12" D x 5½" above and 3" below mounting board.

Budget Saving Music Source . . .
the Heathkit 92-Series AUTOMATIC
STEREO/MONO RECORD CHANGER KITS



AD-92
\$46⁹⁰
(less base)

• 4 speeds, automatic or manual • 11" turntable • "Anti-skate" protection • Plug-in cartridge holder • Your choice of cartridge at no extra cost

For deluxe features with an economy-conscious price, choose the Heathkit AD-92 stereo/mono automatic record changer. It has an 11" turntable for better support of 12" records . . . "anti-skate" feature to eliminate damaged lead-in grooves . . . the plug-in cartridge head gives easy access for inspection or replacement . . . a simple wiring change converts it from stereo to mono cartridges . . . a filter eliminates switching noises . . . the 4-pole hum-shielded motor is dependable and quiet . . . the mechanism shuts off automatically at the end of the last record . . . color styling is in brown and beige to complement any decor. Save most with this changer kit . . . and choose your cartridge from the fine units below at no extra cost. 10 lbs.

Kit AD-92 with C cartridge, no money dn., \$5 mo. **\$46.90**
Kit AD-92 with A, B, D, or E cartridges, no money dn., \$5 mo. **\$49.90**
ADA-80-1, 45 rpm spindle, 1 lb. **\$2.95**

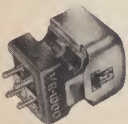
SPECIFICATIONS—Speeds: 16, 33½, 45 and 78 rpm. **Flutter & wow:** .2% rms or less. **Turntable speed:** Accurate within ±2%. **Change cycle:** Varies with turntable speed, completed in 8 seconds at 33½ rpm. **Motor type:** 4-pole hum shielded. **Type of drive:** Friction. **Tracking force variation:** Less than 0.9 grams from first to last record. **Record capacity:** 10-12", 12-10". **Control functions:** on-off switch with "pop filter"; manual reject; manual speed selector. **Power requirements:** 105-130 volts, 60 cycles AC. **Dimensions:** 13½" W x 11½" D x 5-11/16" above and 2¾" below mounting board.

CHANGER BASES FOR AD-92 & AD-102 MODELS

Handsome, massive styling; in rich walnut finish or unfinished for custom installations; pre-cut for Heathkit changers; size: 14¾" W x 13½" D x 3¾" H.

Assembled ADA-50W (walnut) 4 lbs. **\$5.95**
Assembled ADA-50U (unfinished) 4 lbs. **\$4.95**

CHOOSE ONE OF THESE FINE STEREO CARTRIDGES AT NO EXTRA COST



A. GE VR-1000-7
Manufacturer's Specifications: Frequency response: 20-20,000 cps, ±3 db. Output: 0.010v. Separation: 20 db. Load impedance: 47,000 ohms. Stylus: .7 mil diamond. Compliance: 4.5 x 10⁻⁶ cm/dyne, lateral; 4 x 10⁻⁶ cm/dyne, vertical. Tracking force: 3-7 grams.
Model AD-112A.1 lb. **\$9.95**



B. SHURE M3D
Manufacturer's Specifications: Frequency response: 20-15,000 cps, ±3 db. Output: .005v. Separation: over 20 db @ 1 kc. Load impedance: 47,000 ohms. Stylus: .7 mil diamond. Compliance: 4 x 10⁻⁶ cm/dyne in all directions. Tracking force: 3-6 grams.
Model AD-663B.1 lb. **\$15.95**



C. SONOTONE 9TA-SD
Manufacturer's Specifications: Frequency response: 20-17,000 cps. Output: .35v. Separation: 29 db @ 1 kc. Load impedance: 1-5 megohms. Stylus: .7 mil diamond & 3 mil sapphire. Compliance: 5.3 x 10⁻⁶ cm/dyne in all directions. Tracking force: 2-4 grams.
Model AD-132C.1 lb. **\$5.22**



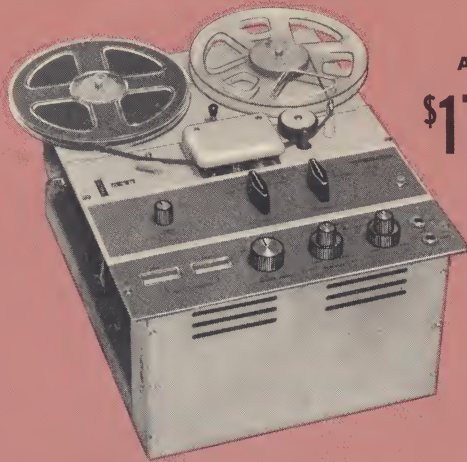
D. PICKERING U38AT
Manufacturer's Specifications: Frequency response: 20-20,000 cps. Output: .002v. Separation: 35 db. Load impedance: 47,000-100,000 ohms. Stylus: .7 mil diamond. Tracking force: 2-5 grams.
Model AD-673D.1 lb. **\$16.95**



E. EMPIRE 880
Manufacturer's Specifications: Frequency response: ±2 db 8-20,000 cps. Output: .007v. per channel. Separation: 30 db average, 1 kc. Load impedance: 47,000 ohms. Stylus: .7 mil diamond. Compliance: 10 x 10⁻⁶ cm/dyne. Tracking force: 2 grams recommended.
Model AD-683E.1 lb. **\$14.95**

Recorders Give You More for Less

**For Professional Performance at Lowest Cost . . .
Build this Heathkit STEREO TAPE RECORDER . . .
It's Easy and Saves Hundreds of Dollars!**



AD-22
\$179⁹⁵

- Records and plays 4-track stereo or mono tapes • Finest specifications • Two inputs per channel with mixing controls • Two VU-type level meters • 7½ & 3¼ ips speeds • Easy circuit board construction • Fine quality die-cast front plate • FREE head alignment tape

Choose the finest, save the most with these recorders! Records and plays 4-track stereo tapes, records and plays 4 individual monophonic tracks, plays standard half-track monophonic tapes. Mechanically simple and rugged die-cast construction for long life and dependable performance. Same mechanism is used on both models. The AD-22 recording model uses two identical channels with a combination record-playback head, erase head, and dual preamplifiers with NAB equalization. Records from high impedance microphones, AM and FM tuners, phono, TV, etc. Plays back through external power amplifiers and speakers. Level controls can be adjusted separately or simultaneously. Other features: VU-type meters, record interlock button, hum-null, meter adjustment, bias adjustment. The AD-12 model is for playback use only through tape head inputs (no electronics).

Kit AD-22, mechanism and electronics for record and playback, 23 lbs. . . . no money down; \$17 mo. **\$179.95**

SPECIFICATIONS—Record-play head: Type, 4-track stereo; Gap width, .00017"; Impedance, High, 3340 ohms. **Erase head:** 4-track stereo. **Tape speeds:** 7½ ips and 3¼ ips as selected by speed selector. **Wow and flutter:** .2% at 7½ ips, .3% at 3¼ ips. **Signal-to-noise ratio:** 45 db or better at normal recording level. **Harmonic distortion (record-play):** 1% or less at normal recording level, with 400 cps signal, in accordance with NAB specifications. (National Association of Broadcasters). **Frequency response:** ±3 db, 40 to 15,000 cps at 7½ ips, ±3 db, 40 to 10,000 cps at 3¼ ips. **Playback equalization:** NAB. **Inputs (each channel):** Microphone, phone jack termination, 1 megohm; Line, phono socket termination 250 k ohm. **Input sensitivity (for normal recording level):** 5 millivolts for Microphone, 160 millivolts for Line. **Output (each channel):** 600 ohm cathode follower output for each channel, with phono socket termination. **Output level (each channel):** 1 volt or better (at normal recording level). **Bias erase frequency:** 75 kc with push-pull oscillator for symmetrical wave-form. Bias is adjustable for optimum performance. **Record level indicator (each channel):** VU type meter. **Motor:** Shaded 4-pole induction type. **Fast forward time:** Less than 100 seconds for 1200 foot reel. **Rewind time:** Less than 100 seconds for 1200 foot reel. **Reel size:** 7" or smaller. **Digital counter:** Zero reset with 3 digits. **Controls and switches:** Power switch (off-on); Rewind—forward control (rewind—neutral—forward); Function control (neutral-play-record); Push to record interlock button; record mode switch (left-right-stereo); playback level control, one for each channel, clutched type; record level control, left and right channel controls for microphone and line inputs, clutched type; meter calibrate control, one for each record level meter; Hum-Null, one for each channel; Bias-Adjust, one for each channel. **Tube and diode complement:** (6) 6EU7 tube, amplifier, (1) 12AU7 tube, bias oscillator, (2) Silicon diodes, power supply rectifiers, (4) Crystal diodes. **Power requirements:** 105-125 volts, 60 cps, 65 watts nominal. **Power supply:** Transformer operated, half-wave voltage doubler. **Color combination:** Beige deck and copper-tone control panel. **Dimensions:** Overall; 12" W x 15" D x 8" H, Mounting cutout required: 11½" W x 14½" D, 7" required below deck and 1½" required above mounting surface.

Kit AD-12, mechanism only (no electronics) for playback of pre-recorded 4-track stereo or mono tapes through tape head input such as in the Heathkit AA-21, AA-100 or AA-11; easily convertible to a recorder later by adding electronics. 16 lbs. . . . no money down, \$12 mo. **\$124.95**

SPECIFICATIONS—Tape head: Type: 4-track. **Playback response:** ±3 db, 40 to 15,000 cps at 7½ ips; ±3 db, 40 to 10,000 cps at 3¼ ips (with proper NAB equalization network). **Playback output:** 2.5 millivolts ±3 db. **Gap width:** .00017". **Impedance:** High impedance, 3340 ohms. **Wow and flutter:** .2% or less at 7½ ips, .3% or less at 3¼ ips. **Tape speeds:** 7½ ips and 3¼ ips. **Motor:** Shaded 4-pole induction type. **Fast forward time:** Less than 100 sec for 1200 foot reel. **Rewind time:** Less than 100 sec for 1200 foot reel. **Reel size:** 7" or smaller. **Digital counter:** Zero reset with 3 digits. **Power requirements:** 55 watts, 117 volts 60 cps AC. **Color combination:** Beige deck and copper-tone control panel. **Dimensions:** Overall; 12" W x 12" D x 8" H, 6¾" required below mounting surface; 1½" required above mounting surface.

ADA-22-1, tan carrying case for AD-12 or AD-22, 9 lbs. **\$37.50**

**Add Portable Stereo Tape Recording to
Your Summer Fun . . . Build This New
Low Cost Heathkit 4-TRACK RECORDER!**



AD-72
\$198⁰⁰

- Includes all amplifiers and speakers needed • Records and plays 4-track stereo & mono tapes • 7½ & 3¼ ips speeds • Microphone & line inputs • Clutched, concentric level and tone controls • Bar-type level indicators • Factory assembled portable case with lift-top lid and swing-out detachable speaker wings • FREE head alignment tape

Wherever you are this summer . . . and every season for years to come . . . you'll find this new versatile Heathkit portable stereo tape recorder adds more enjoyment to your leisure time activities. Completely self-contained, you can use it as an independent recorder . . . all you need are microphones and power source. Or you can use it to drive your stereo/hi-fi system or separate speakers. The mechanism is the same as used in the AD-12 and AD-22 opposite. Inside it is all new with stereo preamplifiers and power amplifiers for recording and playback purposes . . . plus two speaker systems. Inputs accept microphones, AM and FM tuners, amplifiers, TV, etc. Outputs drive the built-in speakers or you may plug in stereo headphones, external speakers, or your stereo/hi-fi system. Controls include: "Record-Mode" switch for making 4-track stereo tapes or 4 individual monophonic tracks; concentric clutched level and tone controls to permit separate or simultaneous adjustment of channels; fast forward and rewind; record and play; record interlock to guard pre-recorded tapes; digital counter for accurate cueing; and two electronic bar-type level indicators. On back of panel are controls for adjusting hum-null, bias, and level indicator range. Each speaker wing includes a 5" woofer and 3" cone-type tweeter in removable swing-out cabinets with cables long enough for 8 feet of separation. Cabinet is of ¾" plywood with textured, pyroxylin-coated fabric in tan and ivory to match mechanism colors. For complete stereo enjoyment this summer, order your portable Heathkit recorder now!

Kit AD-72, 43 lbs., no money down, \$19 mo. **\$198.00**

SPECIFICATIONS—Record-play head: 4-track stereo. **Erase head:** 4-track stereo. **Function control:** Neutral-play-record (push to record interlock button). **Wow & flutter:** .2% at 7½ ips, .3% at 3¼ ips. **Rewind-forward control:** rewind-neutral-forward. **Fast forward time:** Less than 100 sec, for 1200 foot reel. **Rewind time:** Less than 100 sec, for 1200 foot reel. **Reel size:** 7 inch or smaller. **Digital counter:** Zero set with 3 digits. **Tape speeds:** 7½ & 3¼ ips. **Motor:** Shaded 4-pole induction type. **Power response:** 7½ ips, 50 cps-15,000 cps ±3 db at 2 watts. 3¼ ips, 50 cps-10,000 cps ±3 db at 2 watts. **Harmonic distortion:** Less than 2% at full output. **Output:** Speakers (2 watts) or line. **Monitor:** Jack for stereo headphone (low impedance). **Inputs:** Line (500K Ω) or Microphones (1 megohm). **Input sensitivity:** Microphone—1 millivolt, Line-100 millivolts for normal record level. **Record level indicator:** Electronic eyobar (one per channel). **Record mode:** Left, Right or Stereo. **Level control:** Record or Play, one for each channel, clutched type. **Tone control:** Play only, one for each channel, clutched type. **Secondary controls:** Hum null, one per channel; Record Bias adjust, one per channel; Audio record level calibration, one per channel. **Tube and diode complements:** (2) 6EU7, dual triode pre-amplifier; (2) ECL86/GCW8, triode-preamplifier, power pentode; 12AU7, bias oscillator; (2) silicon diodes (power supply rectifier); (2) crystal diodes. **Speakers:** 2 detachable wings, one woofer, one tweeter and one crossover each. Full range response. **Power supply:** Transformer operated, full wave doubler. **Power requirements:** 105-125 volts, 60 cps, 85 watts nominal. **Color combinations:** Beige deck & copper-tone control panels. Luggage tan and Ivory case. **Dimensions:** Overall 19½" wide x 15½" deep x 9½" high (including speaker wings).

SAVE 5% ON HEATHKIT STEREO/HI-FI SYSTEMS—ORDER PROGRAM SOURCE, AMPLIFIER, & SPEAKER; DEDUCT 5% ON ORDER BLANK

Best Buy Separate Speakers

SAVE UP TO
50%
ON HEATH-
RECOMMENDED
SPEAKERS



A Heath 8" Dual Cone

Lowest cost! Whizzer cone plus woofer, one voice coil. Specs: 8 watts, 8 ohms, 60-15,000 cps, resonance 75 cps.

Model US-4, 2 lbs. \$5.95

B Oxford 8" x 12" "Hidden Magnet" Dual-Cone Speakers

Ceramic Magnet is mounted between basket and cone for shallow depth with conventional design that permits dual cones; has solderless binding posts, baked enamel wrinkle gray finish.

Model ASP-93, 8" speaker, 10 watts, 8 ohms, 55-18,000 cps, resonance 70-80 cps, 1" v.c., 6 oz. magnet, 2 1/4" depth; 3 lbs. \$5.95

Model ASP-103, 12" speaker, 15 watts, 8 ohms, 40-14,000 cps, resonance 65-75 cps, 1 1/4" v.c., 12 oz. magnet, 3 1/2" depth, 5 lbs. \$9.95

C Heath 12" Dual-Cone

Big value! Whizzer cone plus low frequency cone with one voice coil. Specs: 14 watts, 8 ohms, 50-12,000 cps, resonance 55-65 cps.

Model US-2, 5 lbs. \$11.95

D E-V MC-8 8" Dual-Cone

Just 3-3/16" deep, die-cast frame, ceramic magnet, two cones, one voice coil. Specs: 12 watts program, 8 ohms, 50-13,000 cps, resonance 65-85 cps.

Model ASP-83, 5 lbs. \$14.70

E Jensen K-80A 8" Coaxial

Electrically and acoustically independent woofer and cone-type tweeter. Specs: 12 watts, 16 ohms, 50-14,000 cps, resonance 65 cps ±10, 1/2 lb. magnet, built-in crossover.

Model ASP-33, 5 lbs. \$17.75

F Heath 12" Coaxial

True co-ax with separate woofer and tweeter with built-in crossover. Specs: 15 watts, 16 ohms, 50-15,000 cps, resonance 65-75 cps.

Model US-3, 6 lbs. \$19.95

G Jensen DX-120 12" Dual-Cone

Two cones driven by one voice coil, mechanical crossover at 4,000 cps. Specs: 20 watts, 16 ohms, 40-13,000 cps, resonance 60 cps ±10, 1 lb. magnet.

Model ASP-43, 8 lbs., no money dn., \$5 mo. \$27.50

H Altec 755C 8" Speaker

Compact! Only 2 1/4" deep. Wide 90° angle of distribution. Works well with 1 1/2 cubic ft. enclosure. Specs: 15 watts, 8 ohms, 40-13,000 cps, resonance 45 cps.

Model AS-20, 5 lbs., \$5 mo. \$29.95

I Electro-Voice LT-12 12" 3-Way

3-in-1! H-F driver, 12" woofer, and mid-range cone. Built-in crossover network, 3-position brilliance switch, rigid die-cast frame. Specs: 20 watts, 8 ohms, 40-18,000 cps, resonance 55 cps.

Model ASP-12, 9 lbs., \$5 mo. \$31.36

J Electro-Voice SP-12B 12" Dual-Cone

Popular! Uses whizzer cone plus high compliance woofer driven by 2" voice coil. Mech. crossover, 4500 cps. Uses ceramic magnet. Specs: 20 watts, 16 ohms, 40-13,000 cps, resonance 40-50 cps.

Model AS-30, 14 lbs., \$5 mo. \$36.75

K Electro-Voice SP-15B 15" Dual-Cone

Move up to a big one! Uses principle of whizzer and high compliance woofer from one 2" voice coil. Mech. crossover, 3500 cps. Uses ceramic magnet. Specs: 15-20 watts, 16 ohms, 30-13,000 cps, resonance 38 cps.

Model ASP-71, 16 lbs., \$5 mo. \$45.08

L Jensen H-222 12" Coaxial

Highly popular. Uses independent tweeter with compression driver, built-in 2000 cps crossover network and 6-cell exponential horn. Includes ST-946 high freq. level control. Specs: 25 watts, 16 ohms, 30-15,000 cps, resonance 60 cps.

Model ASP-61, 12 lbs., \$7 mo. \$62.50

M Jensen H-223F 12" 2-Way

Quality! Two separate speakers; "Flexair" woofer and concentric reentrant compression driver tweeter. L-C crossover at 2000 cps. Wired-in tweeter balance control. Specs: 30 watts, 16 ohms, 20-15,000 cps, resonance 25 cps.

Model AS-40, 14 lbs., \$8 mo. \$72.50

N Altec 605A 15" Duplex

Standard of excellence! Two independent speakers in one frame. Woofer has 3" edge-wound copper voice coil; tweeter has 1 3/4" alum. voice coil and exponential horn. Uses 1600 cps crossover network with adjustable HF shelving control. Specs: 35 watts, 16 ohms, 20-22,000 cps, resonance 25 cps.

Model AS-70, 36 lbs., \$16 mo. \$168.00

O Special Speaker Component Set . . . for Custom Installations

Ideal for do-it-yourself wall installations! Set includes a special design 8" high compliance Woofer by Jensen for superb bass response; 3 1/2" Tweeter and R-C crossover network. Overall response is ±5 db, 30-16,000 cps. Complete with wiring instructions and plans for building alternate speaker enclosure. 6 lbs.

AS-42 Speaker Set. \$17.50

Stereo Headphones For Private Listening

A Jensen HS-1L Stereo Headset

Professional! Special design, matched moving coil units with fluid damping. Lightweight nylon cases. Contoured cushions. Stainless steel yokes. 2 lbs.

Model ADP-82. \$22.50

SPECIFICATIONS—Drivers: High-compliance, curvilinear, moisture resistant diaphragm. Aluminum voice coil, sintered magnetic circuit with efficient Alnico magnet. **Frequency range:** 20-15,000 cycles. **Power requirements:** Comfortable listening with 1/10 milliwatt. **Impedance:** 8-ohms each channel (may be connected to 4, 8 or 16 ohm amplifier outputs). **Sensitivity:** 95 db sound pressure level for 1 milliwatt input. **Connectors:** Spade terminals. **Cord:** 4-wire cable, 8 ft. long.

B Telex ST-11 Stereo Headset

Special design for wide-range reproduction and improved bass. Lightweight. Comfortable foam rubber muff with deep cavity design. Stainless steel headband and yokes. 2 lbs.

Model ADP-92. \$23.92

SPECIFICATIONS—Driver element: Dynamic. **Sensitivity:** better than 95 db. **Frequency response:** 16-15,000 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 spade terminals. **Color:** Tan and brown.

C Roanwell Stereo Headset

Identical driver units being used in space flights. Special moving coil drivers. Soft cushions for perfect seal. 4-wire design eliminates phasing problems. 2 lbs.

Model ADP-102, no money down, \$5 mo. \$37.50

SPECIFICATIONS—Drivers: Moving coil, dynamic. **Sensitivity:** 105 db @ 1000 cps (ref. 0 db = .002 dynes per sq. centimeter with input of 1 milliwatt). **Frequency response:** 30-18,000 cycles. **Distortion:** Less than 3% with 100 milliwatt input. **Impedance:** 16 ohms. **Connectors:** Spade terminals. **Cord:** 4-wire cable, 12 ft. long.

Open your Heath account with no money down!

LIBERAL TERMS! Time payments are available to anyone in the U.S. or FPO and APO areas. No money down on orders of \$25 to \$600; over \$600 write for details. Up to 18 months to pay on orders over \$300; write for details. Here's all you do . . .

- 1 Fill out the order blank.
- 2 Sign your name in the TP agreement below, fill in the credit statement and the monthly payment. (See Chart) If you wish to send down payment, show this amount also.
- 3 Send the above to 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 the "add on" box at the top and give your account number in (4). Be sure to sign the Time Payment Agreement, and send to us with your original Payment Book.

EASY PAYMENT CHART					
Unpaid Balance	Carrying Charge	Up To 12 Monthly Payments*	Unpaid Balance	Carrying Charge	Up To 12 Monthly Payments*
Up to \$20.00	\$ 2	\$ 5	160.01-170	\$ 17	\$ 16
\$ 20.01-30	3	5	170.01-180	18	17
30.01-40	4	5	180.01-190	19	18
40.01-50	5	5	190.01-200	20	19
50.01-60	6	6	200.01-210	21	20
60.01-70	7	7	210.01-220	22	21
70.01-80	8	8	220.01-230	23	22
80.01-90	9	9	230.01-240	24	22
90.01-100	10	10	240.01-250	25	23
100.01-110	11	11	250.01-260	26	24
110.01-120	12	11	260.01-270	27	25
120.01-130	13	12	270.01-280	28	26
130.01-140	14	13	280.01-290	29	27
140.01-150	15	14	290.01-300	30	28
150.01-160	16	15	†Over \$300.00 write for details		

*All monthly payments are for amount shown except for last payment which is for the odd amount remaining due.

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 \$_____ (Deposit optional) 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 _____ First _____ Middle _____ Last _____ Age _____ Soc. Security No. _____

WIFE'S NAME _____ Names of Children and ages _____ Military Serial No. (if serviceman) _____

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 _____ (If self-employed—Type of Business)

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)

80/34

HEATH COMPANY

A Subsidiary of Daystrom, Inc.
BENTON HARBOR, MICHIGAN
 TWX—616-983-3897
 WUX—BENTON HARBOR, MICHIGAN
 PHONE • YUKON 3-3961

- CASH
Please use registered mail for currency.
- C. O. D.
20% deposit required
- TIME PAY.
- ADD ON

ORDER BLANK

1 PLEASE PRINT OR WRITE NAME AND ADDRESS PLAINLY

PLEASE DO NOT WRITE IN THIS SPACE

2 SHIP TO ANOTHER ADDRESS? Give directions here.

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

STREET ADDRESS _____
 CITY _____ STATE _____

3 CHECK HOW YOU WANT ORDER SHIPPED

Parcel Post
 *Motor Freight
 Express

6 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? _____

TOWN _____ STATE _____

4 IS THIS YOUR FIRST ORDER? _____ IF PREVIOUS TIME PAY CUSTOMER, GIVE CURRENT ACCOUNT NUMBER _____

SHIPPED	B. ORD'D.	QUANT.	MODEL	KIT DESCRIPTION	WT.	PRICE EACH	TOTAL
CE FOR PLEASE DO NOT WRITE IN THIS COLUMN ARE ONLY ITEMS IN THIS COLUMN ARE TEMPORARILY OUT OF STOCK. THEY WILL FOLLOW SHORTLY, UNLESS CANCELLED.							

7 MERCHANDISE ORDERED FROM CAT. NO. _____

DATE SHIPPED	8 Total amount of order.	
	AMOUNT	Addsales tax on all deliveries in the State of Michigan.
	SHPG. CHG.	Amount for parcel post. Do not remit for express charges.
	TOTAL	Amount due Heath from previous order.
	YOU REMITTED	TOTAL AMOUNT
	BAL. DUE	<input type="checkbox"/> DOWN PAYMENT (optional) <input type="checkbox"/> Ship Bal. C.O.D. 20% deposit required
	REFUND	UNPAID BAL. (total order less down payment)

IMPORTANT. Please use a separate sheet for all correspondence, to speed your order and 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 from F.P.O.'s and A.P.O.'s must include sufficient postage.
 All C.O.D. orders must be accompanied by 20% deposit.
PARCEL POST ORDERS should include postage for weight shown.
TIME PAYMENT ORDERS except A.P.O.'s and F.P.O.'s will be shipped express or motor freight.
 Transportation costs for all express or motor freight shipments will be collected at the time of delivery.
SEE REVERSE SIDE for time payment details on orders of \$25 or more.
CASH ORDERS. This is the only invoice you will receive, please save for your records.
***MOTOR FREIGHT CHARGES** will not be less than \$4.41, as you pay for 100 lbs. Since rates vary with localities, consult your local truck line.

PLEASE DO NOT WRITE IN THIS SPACE

INVOICE

13

80/34

HEATH COMPANY
A Subsidiary of Daystrom, Inc.
BENTON HARBOR, MICHIGAN
 TWX—616-983-3897
 WUX—BENTON HARBOR, MICHIGAN
 PHONE • YUKON 3-3961

- CASH
Please use registered mail for currency.
- C. O. D.
20% deposit required
- TIME PAY.
- ADD ON

ORDER BLANK

1 PLEASE PRINT OR WRITE NAME AND ADDRESS PLAINLY

PLEASE DO NOT WRITE IN THIS SPACE

2 SHIP TO ANOTHER ADDRESS? Give directions here.

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

STREET ADDRESS _____

CITY _____ STATE _____

3 CHECK HOW YOU WANT ORDER SHIPPED

Parcel Post *Motor Freight Express

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

TOWN _____ STATE _____

6 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 _____

What new Heathkits would you like us to make? _____

4 IS THIS YOUR FIRST ORDER? _____ IF PREVIOUS TIME PAY CUSTOMER, GIVE CURRENT ACCOUNT NUMBER _____

SHIPPED	B. ORD'D.	QUANT.	MODEL	KIT DESCRIPTION	WT.	PRICE EACH	TOTAL		
PLEASE DO NOT WRITE IN THIS COLUMN ARE ONLY ITEMS IN THIS COLUMN ARE	ITEMS LISTED IN THIS COLUMN ARE TEMPORARILY OUT OF STOCK. THEY WILL FOLLOW SHORTLY, UNLESS CANCELLED.								

7 MERCHANDISE ORDERED FROM CAT. NO. _____

IMPORTANT. Please use a separate sheet for all correspondence, to speed your order and 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 from F.P.O.'s and A.P.O.'s must include sufficient postage.
 All C.O.D. orders must be accompanied by 20% deposit.
PARCEL POST ORDERS should include postage for weight shown.
TIME PAYMENT ORDERS except A.P.O.'s and F.P.O.'s will be shipped express or motor freight.
 Transportation costs for all express or motor freight shipments will be collected at the time of delivery.
SEE REVERSE SIDE for time payment details on orders of \$25 or more.
CASH ORDERS. This is the only invoice you will receive, please save for your records.
***MOTOR FREIGHT CHARGES** will not be less than \$4.41, as you pay for 100 lbs. Since rates vary with localities, consult your local truck line.

DATE SHIPPED		8 Total amount of order.
AMOUNT		Amount for parcel post. Do not remit for express charges.
SHPG. CHG.		Amount due Heath from previous order.
TOTAL		TOTAL AMOUNT
YOU REMITTED		<input type="checkbox"/> DOWN PAYMENT (optional) <input type="checkbox"/> Ship Bal. C.O.D. 20% deposit required
BAL. DUE		UNPAID BAL. (total order less down payment)
REFUND		

PLEASE DO NOT WRITE IN THIS SPACE

INVOICE

**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 1 & 2		Zone 3		Zone 4		Zone 5		Zone 6		Zone 7		Zone 8	
	Local	1 & 2	Local	3	Local	4	Local	5	Local	6	Local	7	Local	8
to 2 lbs.	\$.24	\$.33	\$.35	\$.39	\$.45	\$.51	\$.58	\$.64	\$.71	\$.77	\$.83	\$.89	\$.95	\$ 1.01
3 lbs.	.26	.38	.41	.47	.55	.64	.74	.83	.92	1.01	1.10	1.19	1.28	1.37
4 lbs.	.28	.43	.47	.55	.65	.77	.90	1.02	1.14	1.26	1.38	1.50	1.62	1.74
5 lbs.	.30	.48	.53	.63	.75	.90	1.06	1.21	1.36	1.51	1.66	1.81	1.96	2.11
6 lbs.	.32	.53	.59	.70	.85	1.03	1.23	1.40	1.57	1.74	1.91	2.08	2.25	2.42
7 lbs.	.34	.58	.65	.77	.95	1.16	1.39	1.59	1.80	1.99	2.19	2.38	2.57	2.76
8 lbs.	.36	.63	.71	.84	1.05	1.29	1.54	1.78	2.01	2.24	2.47	2.70	2.93	3.16
9 lbs.	.38	.68	.77	.91	1.15	1.42	1.70	1.97	2.24	2.51	2.78	3.05	3.32	3.59
10 lbs.	.40	.73	.83	.98	1.25	1.55	1.85	2.16	2.46	2.76	3.06	3.36	3.66	3.96

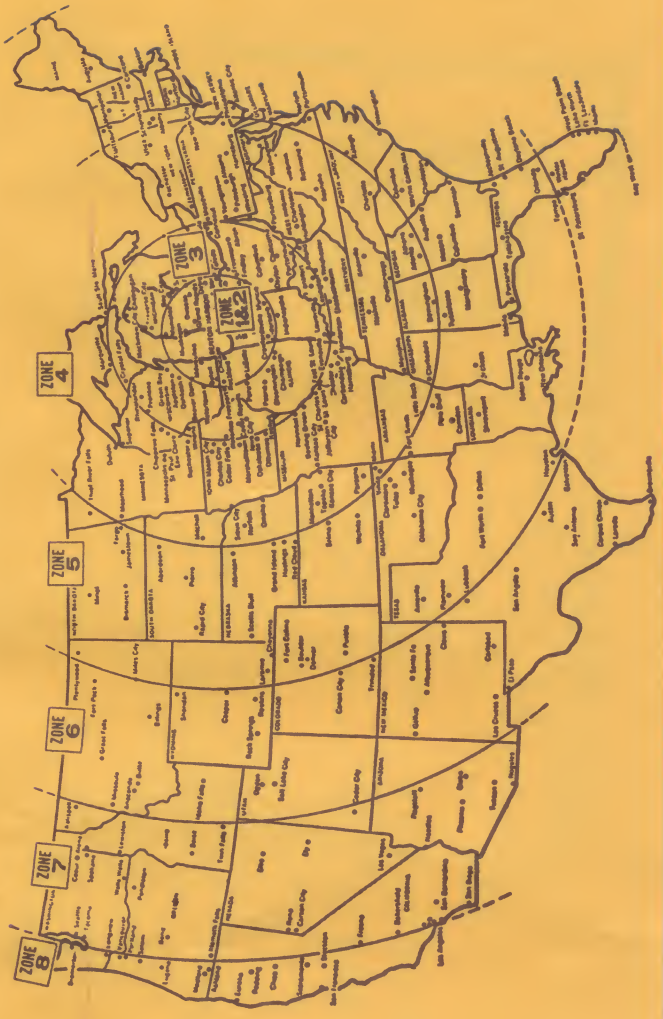
IMPORTANT: Any parcel post rate changes enacted since February, 1960 are not reflected in this table. If such changes have taken place, check with your Postmaster, and send enough postage to cover new rate.

HOW TO SEND MONEY SAFELY

It is best to remit by money order, bank draft, cashier's check, Western Union Telegraph money order, or your own personal check. Avoid sending coin or currency if possible, but if you must remit cash, wrap carefully and secure it to your order. Then send by registered mail if you want protection from loss in the mails.

INCLUDE MONEY FOR POSTAGE

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





Hi-Fi Furniture



FOR
BETTER
DECOR

Deluxe Stereo/Hi-Fi Cabinetry

These elegant cabinets were custom-designed for your new Heathkits. Choose from hand-rubbed walnut, mahogany, or unfinished hardwood. They are factory-built, ready to use.

A Double Door Equipment Cabinet

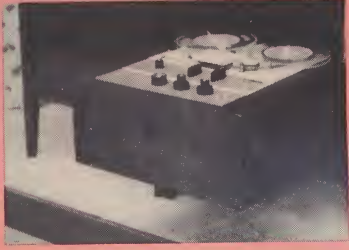
EQUIPMENT ACCOMMODATIONS AND SIZES—Cabinet, overall: 36" W x 32 $\frac{3}{4}$ " H x 19" D. **Changer compartment:** 17" W x 15 $\frac{1}{2}$ " D, mounting board is uncut and can be adjusted in height to accept AD-82, AD-92, AD-102, or ADP-63 record equipment (but not ADP-21), and also AD-12 and AD-22 tape equipment; lid has adjustable friction-loaded support. **Record-tape recorder compartment:** 14 $\frac{1}{2}$ " H x 17" W x 17" D, for record storage; space is convertible with accessory sliding drawers below to accommodate Heath AD-12 and AD-22 tape recorders or AD-92 and AD-102 record changers. **Shelf compartments:** (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 pre-amplifier or stereo or mono combination amplifier. **Power amplifier compartment:** 8 $\frac{3}{4}$ " H x 17" W x 15 $\frac{1}{2}$ " D, inside; accepts Heath AA-111 or AA-121 for stereo or any Heath monophonic amplifier, 85 lbs.

- Model AE-20U, unfinished, \$8 mo.....\$79.95
- Model AE-20W, walnut, \$10 mo.....\$99.50
- Model AE-20M, mahog., \$10 mo.....\$99.50

B 12"-15" Speaker Cabinets

Perfect match for AE-20 center cabinet. Accepts either 12" or 15" speakers (page 28) plus optional 3 $\frac{3}{8}$ " x 10 $\frac{3}{16}$ " slot for tweeters. Tube vented design. Size: 18 $\frac{1}{2}$ " W x 19" D x 32 $\frac{3}{8}$ " H. Ready for speaker installation. 50 lbs.

- Model AE-40U, unfinished, \$5 mo.....\$37.95
- Model AE-40W, walnut, \$5 mo.....\$44.95
- Model AE-40M, mahogany, \$5 mo.....\$44.95



Matching Record Changer & Tape Recorder Drawers From \$16.95

These newly-designed drawers will fit either the AE-20 center cabinet or the new AE-12 "apartment-size" cabinet. Changer drawers are pre-cut for Heathkit changers AD-102 & AD-92; tape recorder drawers are uncut, but will accept Heathkit AD-12 & AD-22 decks.

- Model AEA-12-1, unfin. changer drawer, precut, 11 lbs.....\$16.95
- Model AEA-12-2, walnut changer drawer, precut, 11 lbs.....\$17.95
- Model AEA-12-3, unfin., uncut recorder drawer, 16 lbs.....\$18.95
- Model AEA-12-4, walnut, uncut recorder drawer, 15 lbs.....\$19.95

C Space-Saving, Money-Saving Equipment Center

Custom-made for Heathkits. Single Door; two shelves (6 $\frac{1}{8}$ " H x 17 $\frac{1}{8}$ " W x 16 $\frac{3}{4}$ " D) hold any Heathkit stereo or mono tuner and any stereo or mono combination amplifier.

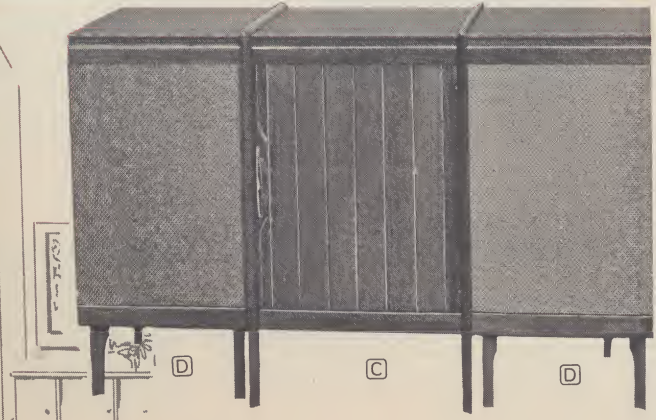
Bottom compartment accepts changer or recorder drawers shown below (9 $\frac{1}{2}$ " H x 17 $\frac{1}{8}$ " W x 17 $\frac{1}{4}$ " D) to contain AD-102 or AD-92 Changers (page 21) or AD-12 or AD-22 tape decks (page 22). Smart, compact, excellent value! 50 lbs.

- Model AE-12U, unfinished, \$6 mo.....\$58.50
- Model AE-12W, walnut, \$7 mo.....\$68.50

D Low Cost 8"-12" Speaker Cabinets

Complement AE-20 or AE-12 center cabinets. Accepts either 8" or 12" speakers (page 28) plus optional 3 $\frac{3}{8}$ " x 10 $\frac{3}{16}$ " slot for horn tweeters. Tube vented design. Size: 15" W x 19" D x 32 $\frac{3}{8}$ " H. Ready for speaker installation. 44 lbs.

- Model AE-30U, unfinished, \$5 mo.....\$31.95
- Model AE-30W, walnut, \$5 mo.....\$38.95
- Model AE-30M, mahog., \$5 mo.....\$38.95

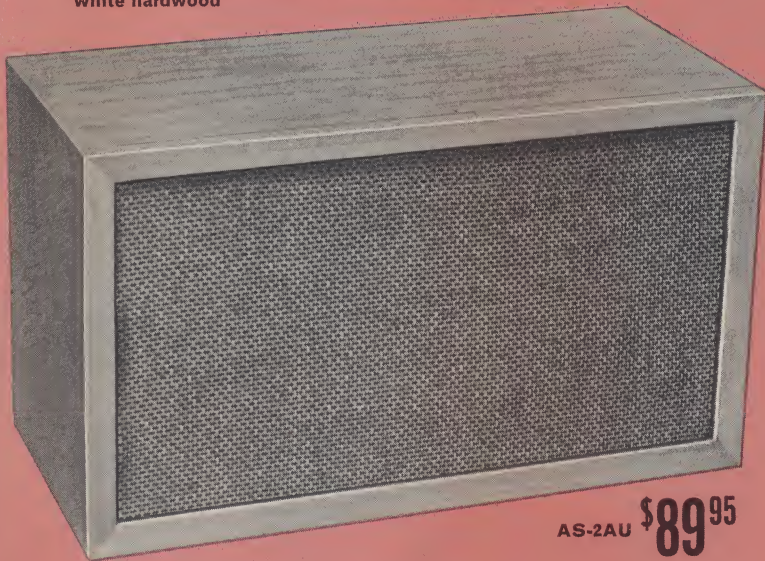


SAVE 5% ON HEATHKIT STEREO/HI-FI SYSTEMS—ORDER PROGRAM SOURCE, AMPLIFIER, & SPEAKER; DEDUCT 5% ON ORDER BLANK

Save Up To 50% With Speaker

Here's the Famous ACOUSTIC RESEARCH AR-2A SPEAKER SYSTEM in Exclusive, Money-Saving Heathkit Form!

- All speakers are genuine AR-2A units (Super tweeter for extended high frequency response) (Two special 5" cross-fired mid-range speakers) (10" acoustic suspension bass woofer)
- Built-in crossover networks—high frequency level controls
- Preassembled cabinets available in finished walnut or unfinished white hardwood



AS-2AU \$89⁹⁵

Something new has been added! . . . the famed Acoustic Research speaker system now includes a specially designed super tweeter . . . to extend its already remarkable performance to a full 40 to 20,000 cps response. Heathkit, sole kit licensee of Acoustic Research, Incorporated, now proudly brings you this outstanding speaker system in money-saving kit form.

The Acoustic Research speaker system has long been accepted as one of the most praiseworthy speaker systems in the world for high fidelity sound reproduction. The Acoustic Suspension principle employs a freely suspended bass woofer, which uses the "cushion" of air inside an air-tight cabinet as a "spring". In conventional loudspeakers the moving cone is mounted on mechanical suspensions which act as springs to return the cone to its original position. The imperfect quality of these springs is the greatest single source of speaker distortion. By using the sealed-in air of the cabinet as a spring, near-perfect characteristics are obtained which result in clean, clear bass response with remarkably low harmonic distortion.

Assembly is simple, you need only mount the speakers in the preassembled cabinet, wire the simple crossover networks and fill the cabinet with the fiberglass furnished. Tweeter and mid-range speakers are individually controlled by separate level controls on the back panel. Enjoy the advantages of acoustic suspension sound in your stereo/hi-fi system. Order yours today! 40 lbs.

Kit AS-2AW (finished walnut) . . . no money down, \$10 mo. **\$99.95**
Kit AS-2AU (unfinished white hardwood) . . . \$9 mo. **\$89.95**

SPECIFICATIONS—Frequency response: ±5 db, 40 to 20,000 cps. Impedance: 8 ohms. Recommended amplifier power: 20 watt minimum. Enclosure: Infinite baffle, sealed. Speakers: Woofer, 10" Acoustic Suspension, 1.1 lb. Alnico 5 magnet; Mid-range, 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 1/2" D.

USE HEATH'S EASY TIME PAY!

No money down . . . up to 18 months to pay! Order the kits you need now . . . it's easy and convenient. See order blank for complete details.

HEATH-RECOMMENDED FACTORY-ASSEMBLED SPEAKER SYSTEMS

Acoustic Suspension Speaker Systems



AR-3—12" woofer with 3 1/4 lb. magnet; 2" mid-range dome speaker with 3 1/4 lb. magnet; and 1 3/8" dome tweeter. Crossovers @ 1 kc and 7.5 kc; level controls; ±2 db, 38-20,000 cps; needs 25 watts power; 4 ohms; 14 x 25 x 11 3/8"; 60 lbs. ASP-23-OW, oiled walnut. . . . **\$225.00**

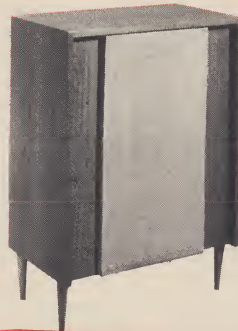
(Also available in mahogany or natural birch at \$216.00, in walnut, cherry, korina or teak at \$225.00, and in unfinished pine at \$203.00)

AR-2A—10" woofer, two 5" mid-range speakers, 1 3/8" super tweeter; crossovers @ 2 kc and 7.5 kc; level controls; 30-20,000 cps; needs 20 watts power; 8 ohms; 13 1/2 x 24 x 11 1/2" D; 38 lbs.

ASP-13-OW, oiled walnut. **\$128.00**

(Also available in mahogany or natural birch at \$122.00, in walnut, cherry, korina or teak at \$128.00, and in unfinished pine at \$109.00)

HARTLEY Magnetic Suspension Speaker System



Hit of the New York High Fidelity Show, the award winning Model 220MS magnetic suspension 10" speaker with Tri-Polymer cone and cast alum. frame; 16-20,000 cps; 5 3/4 lb. magnet; 8 ohms; mounted in Holton "A" cabinet of oiled walnut, acoustically treated, fully enclosed; size 34" H x 24" W x 13" D.

ASP-73, 85 lbs., no money dn., \$23 mo. **\$245.00**

JENSEN TR-9 "Slim-Shelf" System



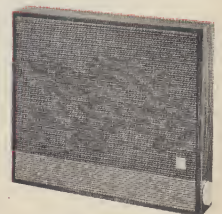
3-way, 3-speaker system; 10" woofer, 8" mid-range, E-10 dome ultra tweeter; 30 cps to beyond audibility; crossovers @ 600 and 4,000 cps; level control for high frequencies; 25 watt rating; 8 ohms; in oiled walnut cabinet 13 1/2" H x 23 3/4" W x 5 3/8" D.

ASP-63, 28 lbs., no money dn., \$9 mo. **\$89.50**

JENSEN X-20 "Slim-Compact" System

2-way, 3-speaker system; special shallow 5 3/4" woofer and two tweeters; 65-14,000 cps; crossover 4 kc; vol. control on side; 6-watt rating; 8 ohms; in oiled walnut cabinet 12 7/8" H x 15 3/8" W x 2 3/8" D; ideal for wall or shelf mounting, desk or table.

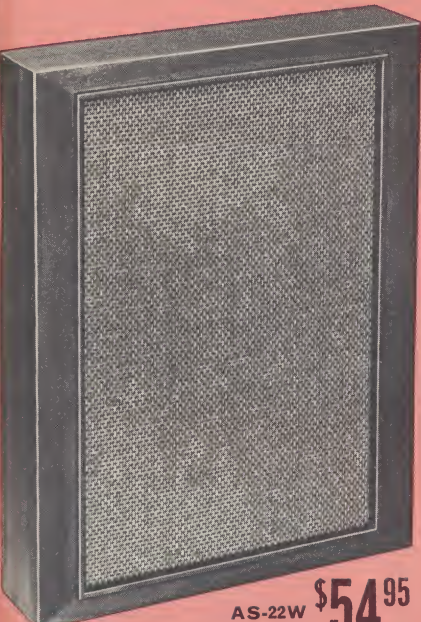
ASP-53, 11 lbs., no money dn., \$5 mo. **\$39.95**



Systems by Heathkit®



Here's the **SPEAKER SYSTEM** that Fits any Installation . . .
The Versatile
Heathkit "Profile"



AS-22W \$54.95

- Only 5 inches deep
- Installs on wall, shelf or floor
- 3-speaker system—tube-tuned bass reflex

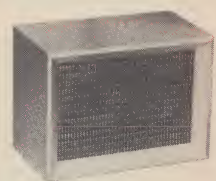
For installation versatility in every decor, choose the new Heathkit "Profile" . . . a slim, trim 3-way speaker system that is just 5 inches deep to fit anywhere. Stand it on the floor, set it vertically on a table or bookshelf, or hang it like a picture on the wall!

The AS-22 is the best sounding flat speaker available anywhere. A special inverted-type 10" woofer offers excellent low frequency reproduction up to the 2250 cycle crossover point. Mid-range and high frequencies are reproduced by the 6" and 3 1/2" cone-type, closed-back speakers designed to prevent woofer back-pressure from causing distortion at mid-range and high frequencies.

The factory assembled cabinet is ready for speaker mounting; includes wall hangers and felt feet for mounting on any side; available in walnut or unfinished white wood ready for finishing. 34 lbs.

- Kit AS-22U, unfinished . . . no money down, \$5 mo. **\$49.95**
- KIT AS-22W, walnut . . . no money down, \$6 mo. **\$54.95**

SPECIFICATIONS—Frequency response: ±5 db, 55 to 12,500 cps. Impedance: 8 ohms. Recommended amplifier power: 10 to 25 watts. Enclosure: Tube tuned bass reflex. Speakers: Woofer, 10" inverted design, 1.1 lb. Alnico 5 magnet; Mid-range, 6" closed back, 2.15 oz. Alnico 5 magnet; Tweeter, 3 1/2" closed back, 2.15 oz. Alnico 5 magnet. Crossover: Capacitive, 2250 cps. Cabinet: Factory assembled furniture-grade solid wood and 3/4" thick veneer plywood. Dimensions: 19 1/2" W x 25" H x 5" D.



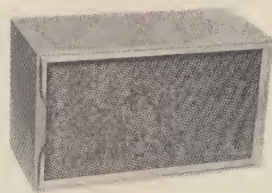
Lowest Cost Wide Range Speaker System

- 6" x 9" extended range dual-cone speaker
- Factory assembled walnut or unfinished cabinets
- 70-16,000 cps response

Use this low-cost speaker system in a variety of ways . . . as an economy speaker for an extra music system . . . as an extension speaker . . . or as a center fill-in speaker for a stereo system. It has surprising response and good power handling capability. Easy to build, just install the speaker in the assembled cabinet and connect the two leads. 8 lbs.

- Kit AS-41U, unfinished **\$10.95**
- Kit AS-41W, walnut finish **\$12.95**

SPECIFICATIONS—Frequency response: 70 to 16,000 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 1/2" plywood. Dimensions: 8" H x 11" W x 6 1/2" D.



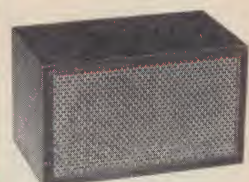
Lowest Cost Acoustic Suspension Speaker System

- 10" acoustic suspension woofer
- Two 3 1/2" tweeters
- Factory assembled cabinets in three finishes

Easy to drive, easy to buy, this Heathkit AS-10 is a remarkable value in acoustic suspension speaker systems! Designed under exclusive kit license from Acoustic Research, Inc., it offers all the distortion-reducing properties this type system provides. Easy to build. 40 lbs.

- Kit AS-10U, unfinished, \$6 mo. **\$59.95**
- Kit AS-10W, walnut, \$7 mo. **\$64.95**
- Kit AS-10M, mahogany, \$7 mo. **\$64.95**

SPECIFICATIONS—Frequency response: ±5 db, 30 to 15,000 cps. Impedance: 16 ohms. Recommended amplifier power: 10 to 40 watts. Enclosure: Infinite baffle, sealed. Speakers: Woofer, 10" Acoustic Suspension, 1.0 lb. Alnico 5 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.



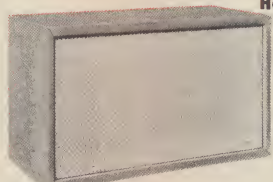
World's Smallest Two-Speaker System

- Special woofer
- 3" tweeter
- Factory assembled cabinet in walnut, mahogany, or unfinished

Engineered for wide-range response from a very small enclosure, this miniature system uses a high-compliance woofer with mass-loaded cone carefully matched to the cabinet for unusual bass response, plus a 3" closed-back tweeter. Easy to build with assembled cabinet. 8 lbs.

- Kit AS-81U, unfinished **\$17.50**
- Kit AS-81W, walnut **\$19.95**
- Kit AS-81M, mahogany **\$19.95**

SPECIFICATIONS—Frequency response: ±5 db, 70 to 14,000 cps. Impedance: 8 ohms. Capacity: 6 watts. Enclosure: Infinite baffle. Speakers: Woofer, 5 1/2" mass-loaded cone, 10 oz. Syntox 6 magnet; Tweeter, 3" cone-type, .53 oz. Alnico 5 magnet. Crossover: Capacitive, 4000 cps. Cabinet: Factory assembled, furniture-grade 1/2" plywood. Dimensions: 6 1/2" H x 10 1/2" W x 6-3/16" D.



Heathkit's Version of the Famous AR-2

- 10" acoustic suspension woofer
- Two 5" tweeters
- Factory assembled cabinets

Add the advantages of acoustic suspension sound to your music system with this low cost version of the famous AR-2, manufactured under exclusive kit license from Acoustic Research, Inc. Extended bass response and extremely low harmonic distortion. Easy to build. 44 lbs.

- Kit AS-2U, unfinished, \$8 mo. **\$72.95**
- Kit AS-2M, mahogany fruitwood finish, \$8 mo. **\$79.95**

SPECIFICATIONS—Frequency response: ±5 db, 40 to 15,000 cps. Impedance: 8 ohms. Recommended amplifier power: 20 to 40 watts. Enclosure: Infinite baffle, sealed. Speakers: Woofer, 10" Acoustic Suspension, 1.1 lb. Alnico 5 magnet; Tweeter, two 5" cone units in dispersed array, 2.15 oz. Alnico 5 magnets. Crossover: L-C network, 2,000 cps. Control: High frequency level. Dispersion: 90° horizontal. Cabinet: Factory assembled 3/4" furniture-grade plywood. Dimensions: 24" W x 13 1/2" H x 11 1/2" D.



Heathkit Best-Seller Speaker System

- 8" woofer
- Compression-type horn tweeter
- Factory assembled cabinets

Thousands have purchased this fine speaker system . . . check its specifications and price and you'll see why! Rotatable tweeter mounting board provides proper dispersion angle; exceptionally smooth, clean response. 27 lbs.

- Kit AS-51U, unfinished, \$5 mo. **\$39.95**
- Kit AS-51W, walnut, \$5 mo. **\$46.95**
- Kit AS-51M, mahogany, \$5 mo. **\$46.95**

SPECIFICATIONS—Frequency response: ±5 db, 50 to 12,000 cps. Impedance: 16 ohms. Capacity: 25 watts. Enclosure: Ducted port bass reflex. Speakers: Low frequency, 8" Jensen 6.8 oz. Alnico 5 magnet; High frequency, Jensen compression driver with exponential horn 4.7 oz. Alnico 5 magnet. Crossover: Capacitive, 1600 cps. Control: High frequency level. Cabinet: Factory assembled, furniture-grade 1/2" plywood. Dimensions: 11 1/2" H x 23" W x 11 1/2" D.



World-Famous Heathkit "Legato" Speaker System

- Two high compliance Altec Lansing 12" woofers
- Special-design Altec Lansing exponential horn and high frequency driver
- Exceptionally smooth response from 30-22,000 cps
- Highly efficient, drives with as little as 3 watts
- Components available separately or with handsome cabinet

styled to match Heathkit cabinets shown on page 25
• Unmatched sound, quality, and value

- Kit AS-21W, walnut, 132 lbs., no money dn., \$22 mo. **\$239.95**
- AS-31, everything except cabinet, 53 lbs., \$18 mo. **\$184.95**

SPECIFICATIONS—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, 1 1/2 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 3/4" plywood. Dimensions: 32 1/4" H x 32" W x 19" D.

Enjoy the Latest in High Performance Mobile



HW-12 **\$119⁹⁵**

Here is the latest addition to the fine line of Heathkit amateur radio equipment . . . the brand new Heathkit 80 meter Single-Sideband Transceiver! In answer to the many requests received from hams across the nation, the new Heathkit HW-12 now offers more features . . . better performance . . . at less cost than any other unit of its type! . . . a typical ham value for which Heathkit is famous!

Here in a single, neatly styled unit are provided complete transmitting and receiving facilities suitable for either "mobile" or "fixed" station operation. The only other accessories required for immediate "on-the-air" operation are the Heathkit HP-13 DC or HP-23 AC power supply, a PTT microphone such as the Heathkit GH-12 below and an antenna.

Features include a deluxe fourteen tube heterodyne circuit, 200 watts peak envelope power input to the final amplifier, a highly stable low frequency VFO, crystal-lattice filter for SSB generation, automatic level control for greater talk power, built-in PTT and VOX circuits and provision for operation with a linear amplifier. Provision is also made for a plug-in 100 kc crystal calibrator for accurate band-edge marking at 100 kc points.

Assembly of the HW-12 is easy with over 90% of the components mounted on a heavy-duty circuit board. A pre-cut, cabled wiring harness and easy-to-follow instructions further simplify assembly. The rugged one-piece steel chassis is welded and braced for rigidity and stability. Gimbal mounting bracket included. Average construction time is 15 hours. 15 lbs.

- Kit HW-12 . . . no money down, \$11 mo. **\$119.95**
- GH-12, Push-to-talk microphone, 1 lb. **\$6.95**
- Kit HRA-10-1, Plug-in 100 kc crystal calibrator, 1 lb. **\$8.95**



NEW HEATHKIT SSB POWER SUPPLIES



HP-23

\$39⁹⁵

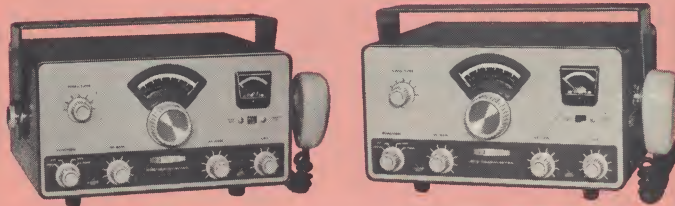
Specially designed for SSB operation with emphasis on maximum dynamic regulation. May be used with most other popular SSB transceivers, having similar power requirements. Dependable solid-state circuitry is used throughout with long-life silicon rectifiers in both units and rugged power transistors in the HP-13 "mobile" supply. Both units provide output at: (HV) 800 VDC @ up to 300 ma, SSB duty cycle; (LV) 325 or 240 VDC @ 150 ma (selected by transformer tap), continuous duty to 175 ma; (Bias) -130 VDC and adjustable -40 to -80 VDC. The HP-23 AC supply also furnishes filament voltages of 12.6 VAC @ 5 amps or 6.3 VAC @ 10 amps. Extensive filtering assures low AC ripple content. Input voltage requirements are 12-14 VDC for HP-13 DC "mobile" supply and 120 VAC, 50-60 cycle for HP-23 AC supply.

- Kit HP-13, DC "Mobile Supply", available August, Price To Be Announced
- Kit HP-23, AC Power Supply, available June, no money dn., \$5 mo. **\$39.95**

New! Heathkit 80 Meter SSB TRANSCEIVER . . . First in a Great New Series of Ham Gear!

- True transceiver operation, one sideband operation
- 200 watts (P.E.P. input)—2-6GE5 rf amplifiers
- Easy assembly with heavy-duty circuit board & wiring harness
- Crystal filter type SSB generation
- Automatic level control for greater talk power
- Built-in VOX & push-to-talk circuitry
- Low frequency VFO (1.5-1.7 mc) for maximum stability
- 2 KC dial calibration—6" bandspread—Vernier tuning
- Welded and braced one-piece steel chassis & cabinet
- Lightweight—only 12 lbs. net

SPECIFICATIONS—RF Input: 200 watts PEP. Sideband generation: Crystal lattice bandpass filter method. Stability: 100 cps overall after warm-up. Carrier & Unwanted Sideband Suppression: 45 db. Frequency Coverage: HW-12, 3.8—4.0 mc; HW-22, 7.2—7.3 mc; HW-32, 14.2—14.35 mc. Receiver Sensitivity: 1 uv for 15 db S+N/N ratio. Receiver Selectivity: 2.7 kc @ 6 db, 6.0 kc @ 50 db. Output: 50 ohm fixed (unbalanced). Operation: HW-12 & HW-22, LSB; HW-32, USB. Audio Output: 1 watt @ 8 ohms. Mike Input: Hi-Z. Panel Controls: Frequency, final tune, function (OFF-PTT-VOX-TUNE), RF gain, AF gain, (pull for crystal calibrator), VOX gain, meter. Front panel screw-driver adjust for S-meter and VOX delay. Rear Panel Controls: Mike gain, tune level, final bias. Tube Complement: Fourteen tube heterodyne circuit; (3) 6EA8's mic. amp., VOX relay amp., IF amp., RF amp., Recvr. mixer; (5) 6AU6's, VFO, VOX amp., IF amps., Xmtr. mixer; (1) 6BE6, VFO isolator (HW-12), Het. osc. and mixer (HW-22 & HW-32); (1) 12BY7, Driver; (1) 12AU7, Xtal osc., product det.; (1) 6EB5, Audio amp. and output; (2) 6GE5 RF output. Power requirements: 800 VDC @ 250 MA peak, 250 VDC @ 100 MA, -125 VDC @ 5 MA, 12 VAC or VDC @ 3.75 amperes. **Chassis Dimensions:** 6 1/2" H x 12" W x 9 1/2" D.



READY SOON 40 & 20 METER MODELS

The new Heathkit HW-22 40-meter and HW-32 20-meter SSB Transceivers will be available soon. Features are identical to the HW-12 80-meter model above. The 40-meter model will feature Lower-sideband operation and the 20-meter model Upper-sideband operation. Watch for future announcements!

STILL AVAILABLE! HEATHKIT HP-10 & HP-20 POWER SUPPLIES

\$29⁹⁵
HP-20



\$44⁹⁵
HP-10



For use with all Heathkit Mobile gear. May be used with HW-Transceivers above at slightly reduced power (150 watts P.E.P. input).
Kit HP-20 . . . no money down, \$5 mo 13 lbs., **\$29.95**

SPECIFICATIONS—Power requirements: 117 volts AC, 50/60 cycles, 200 watts. Total DC continuous power output: 120 watts (600 volts @ 200 ma or 600 volts @ 150 ma & 300 volts @ 100 ma; bias of -130 volts @ 30 ma also provided). Filament power: 6.3 volts @ 8 amperes or 12.6 volts @ 4 amperes. Regulation: Approximately 10% (50% load to 100% load, from high voltage tap). Overall dimensions: 9" L x 4 1/2" W x 6" H.

Kit HP-10, DC Power Supply . . . no money down, \$5 mo. 10 lbs. **\$44.95**

SPECIFICATIONS—Input voltage: 11 to 15 V DC (12.6 nominal). Input current: 2 to 13 amps (as a function of output load). Total power output: 120 watts continuous, 150 watts normal intermittent operation. Power available: 600 VDC @ 200 ma or 600 VDC @ 150 ma & 300 VDC @ 100 ma, and bias of -125 VDC @ 30 ma. Efficiency: Approximately 75%. Maximum ambient operating temperature: 120 degrees F, at 120 watts continuous, 150 degrees F, at 120 watt intermittent operation (50% duty cycle). Dimensions: 8" W x 7 1/2" H x 6 1/2" D.

Operations with Versatile Heath Mobile Gear

For the VHF Amateur . . . Feature-Packed 6 & 2 Meter TRANSCEIVERS

- Everything you need . . . transmitter, receiver & power supply . . . all in a single, compact unit
- Built-in 3-way power supply for 117 V AC, 6 or 12 V DC
- 10-watt RF output to antenna—6360 final amplifier
- Tracked VFO and exciter stages for single knob tuning
- Built-in low pass filter—push-to-talk microphone



HW-10 **\$199⁹⁵**

SPECIFICATIONS—RECEIVER SECTION—Frequency coverage: HW-20; 143.8 to 148.2 mc. HW-10; 49.8 to 54.0 mc. **IF frequencies:** Double conversion—First IF, 22 to 26 mc (tunable); Second IF, 2 mc. **Noise figure:** HW-20; 8.5 db or less, HW-10; 6 db or less. **Sensitivity:** .5 microvolts of input signal will provide an output signal better than 10 db over the noise level. **Squelch sensitivity:** Less than 1 microvolt. **Selectivity:** 15 kc at 6 db down. **Image rejection:** Better than 70 db. **IF rejection:** 50 db. **Input impedance:** 50 to 72 ohm, unbalanced. **Audio power output:** 3 watts (receiver operation); 15 watts (public address operation). **Headphone jack:** Low impedance, accepts PL-55 type plug (standard 2-conductor 1/8" sleeve). **External speaker socket:** 8 ohm impedance, accepts RCA type phono plug. **TRANSMITTER SECTION—Frequency coverage:** HW-20; 143.8 to 148.2 mc (crystal or VFO control). HW-10; 49.8 to 54.0 mc (crystal or VFO control). **Modulation:** .01 volts mini-

Transmit & receive VHF facilities at low, low cost! Extremely versatile, the Heathkit 6-meter "Shawnee" or 2-meter "Pawnee" feature a built-in 3-way power supply to permit use on either 117 volts AC household current or 6 or 12 volt DC battery in mobile installations. Quick-disconnect plugs & cables furnished, allow change from "mobile" to "fixed" station operation in just seconds! . . . permitting use anywhere! Transmitters feature a built-in temperature stabilized VFO and switch selection of four crystal positions for net, novice, CAP and MARS operation. A large, illuminated slide-rule dial for both receiver and VFO, a "spotting" switch, push-to-talk microphone, panel "S" meter and versatile controls featured provide the utmost in operating convenience. Sturdy construction with wrap-around steel case, extensive shielding of transmitter, receiver and power supply assure top-notch performance. Mounting bracket included. Recommended for the more experienced ham. Average construction time is 60 hours. 34 lbs.

Kit HW-10 (6 meter transceiver) . . . no money down, \$19 mo. . . **\$199.95**
Kit HW-20 (2 meter transceiver) . . . no money down, \$19 mo. . . **\$199.95**

um at 1000 cps = 100%. **RF power output:** 8 watts nominal AM, 10 watts nominal CW, 50 ohm non-reactive load. **Distortion:** 10% or less, with 100% modulation at 1000 cps. **Output impedance:** 50 to 72 ohm, unbalanced. **Low pass filter:** HW-20; 152 mc cutoff frequency. HW-10; 54 mc cutoff frequency. **Key jack:** Accepts PL-55 type plug (standard 2-conductor 1/8" sleeve). **Crystal sockets:** Accepts FT-243 type holders, pin diameter .093", pin spacing .466". **Microphone:** High impedance ceramic element push-to-talk type with coil cord. **Crystals:** (Not furnished) HW-20; 8 mc fundamental range (8,000 to 8,222 mc for 2 meter band), HW-10; 8 mc fundamental range (8,333 to 9,000 mc for 6 meter band). **GENERAL—Power requirements:** Input voltage; 6.3V DC, 12.6V DC, 117V AC. Transmit—14.5 amps, 7.5 amps, 120 watts. Receive—8.5 amps, 4.5 amps, 60 watts. **Cabinet dimensions:** 6" H x 10" D x 12" W.

Heathkit HR-20 SSB MOBILE RECEIVER . . . fine performance at low cost



HR-20 **\$134⁵⁰**

- Tunes SSB, AM & CW signals—80 through 10 meters
- Better than 1 uv sensitivity on all bands
- Crystal bandpass filter for sharp selectivity
- Crystal-controlled BFO for selectable sideband reception

Everything you could ask for in a mobile receiver and more! A tuned RF stage, crystal bandpass filter, extensive temperature compensation and voltage regulation of all oscillators are featured to assure the high sensitivity, selectivity and stability so vital in achieving "top" mobile communications! Amateur bands 80 through 10 meters are separately calibrated in five bands to assure proper tracking and precise frequency settings. Also featured is a product detector for SSB & CW reception, and a diode detector for AM. Sturdily constructed for rugged mobile use. Rear panel provision for 8 ohm speaker and anti-trip circuit in transmitter. Operates with Heathkit power supplies shown on opposite page. 19 lbs.

Kit HR-20 . . . no money down, \$13 mo. . . **\$134.50**

SPECIFICATIONS—Frequency range: 80 thru 10 meters in 5 bands, 3.5 to 4.0; 7.0 to 7.3; 14.0 to 14.35; 21.0 to 21.5; 28.0 to 29.7 MC. **Intermediate frequency filter:** Center frequency, 3.0 MC; Bandwidth at -6 db, 3.0 KC; Bandwidth at -40 db, 10.0 KC Max.; Hermetically sealed. **Panel controls:** Sideband Select; R.F. gain; A.F. gain—Off-On; Noise Limiter; AVC select; main tuning; band switch; antenna trimmer; SSB, CW-AM switch. **Signal-to-noise ratio:** 10 db at 1 microvolt or less. **Tube complement:** 6BZ6—R.F. amp.; 6EA8—Mixer-Oscillator; 6BZ6—1st I.F. amp.; 6EA8—2nd I.F. amp. (1/2); 6EA8—S meter amp (1/2); 6BE6—Product detector—BFO; 6BJ7—AM detector-noise limiter—AVC; 6BE8—1st Audio-Audio output; OA2—Voltage Regulator. **Output impedance:** 500 ohms and 8 ohms. **Power requirements:** 6.3 or 12.6 volts 4 amps AC or DC, 300 volts DC at 120 MA. **Cabinet Size:** 6 1/4" H x 12 1/2" W x 9 1/2" D.

Heathkit Auto and Marine RF NOISE SUPPRESSION COMPONENT SET

Hams, fleet owners, CB operators and boat owners can easily install this kit to reduce low voltage electrical system noise (regulator hash, generator whine, and ignition coil interference). Will not suppress spark plug noise. 5 special thru-pass capacitors rated at 60 amps., 275° F. No special brackets required. Not required or recommended for alternator systems. 1 lb.

Model GDP-192 . . . **\$16.95**



Heathkit HX-20 SSB MOBILE TRANSMITTER . . . 90-Watts Mobile!

HX-20 **\$199⁹⁵**

- Complete bandswitching of 80 through 10 meter bands
- Hermetically sealed crystal bandpass filter
- Crystal controlled dual conversion heterodyne circuitry
- Automatic level control for greater talk power

For a big "plus" in mobile performance equip with the Heathkit HX-20, style and performance mate to the HR-20 Mobile Receiver. This complete SSB suppressed-carrier transmitter has automatic voice-operated transmit/receive switching (VOX) for full operating convenience, a full 90-watts input to the final for SSB communications with plenty of "punch" and balanced modulator circuitry for long-term suppression stability that stays put! A built-in temperature-stable VFO for rock-steady frequency settings and many more high performance features offered in the HX-20 make it the best buy in mobile gear anywhere! Operates with Heathkit power supplies on opposite page. 22 lbs.

Kit HX-20 . . . no money down, \$19 mo. . . **\$199.95**
GH-12 . . . Push-to-talk microphone. 1 lb. . . **\$6.95**

SPECIFICATIONS—Types of emission: SSB (Upper or lower) and CW. **Power input:** 90 watts PEP, SSB and CW. **Output impedance:** 50 to 75 ohms with not more than approx. 2:1 SWR. **Frequency range:** (MC): 3.5 to 4; 7.0 to 7.5; 14.0 to 14.5; 21.0 to 21.5; 28.0 to 29.5. **Frequency stability:** Overall frequency within 100 cps after warmup. **Carrier suppression:** 50 DB below peak output. **Unwanted sideband suppression:** 55 DB below peak output. **Keying characteristics:** Grid block keying throughout. **Audio input:** High impedance microphone. **Power requirements:** 6.3 or 12.6 volts 4 amps.; -125 volts 20 milliamps; 300 volts 100 milliamps; 600 volts 130 milliamps (uses Heath HP-20 or HP-10 power supplies). **Cabinet size:** 12 1/2" W x 6 1/2" H x 9 1/2" D.



GH-12 **\$6⁹⁵**

Mobile Accessories

Mobile Base Mount Kit

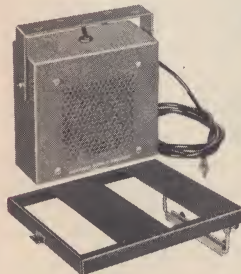
A handy base for the HR-20 & HX-20 above. Holds transmitter and receiver conveniently at driver's side. Fully adjustable.

Kit AK-6 . . . 4 lbs. . . **\$4.95**

Mobile Speaker Kit

Matches Heathkit HR-20 receiver above. Housed in rugged steel case with mounting bracket. 5" PM speaker, 8 ohm impedance.

Kit AK-7 . . . 3 lbs. . . **\$5.95**



Heathkit® Amateur Gear Tops the List

Heathkit HX-30 6-Meter SSB TRANSMITTER



HX-30 \$189⁹⁵

- Operates SSB Upper/Lower Sideband, AM & CW
- Employs heterodyne system to output frequency
- 10 watts P.E.P. • 50-54 mc in four 1 mc segments
- Built-in VFO or crystal control, VOX and anti-trip circuitry
- Specially designed for fast, easy assembly

Compare the features, compare the price, and you'll choose the new HX-30 for single sideband on six! Completely self-contained, this versatile unit is capable of three types of transmission . . . SSB, AM and CW. And it is a complete station, combining all the features you need to go on the air, for less than the cost of a transmitter-converter . . . just plug it into 117 VAC, connect the microphone and antenna and you're in operation! Features include a built-in VFO (with adjustable temperature compensation) that permits any 1 mc coverage of six meters with appropriate heterodyne crystal. Two switch-selected crystal positions are provided for net and MARS use. VOX and anti-trip circuitry is used for telephone type of operation. Push-to-talk circuitry is also provided. SSB generation is by the phasing method. An audio filter in the speech circuits offers improved sideband suppression and extra signal "punch". Build it now . . . it's easy with four circuit boards and three cabled wiring harnesses.

Kit HX-30, 50 lbs., no money down, \$18 mo. \$189.95

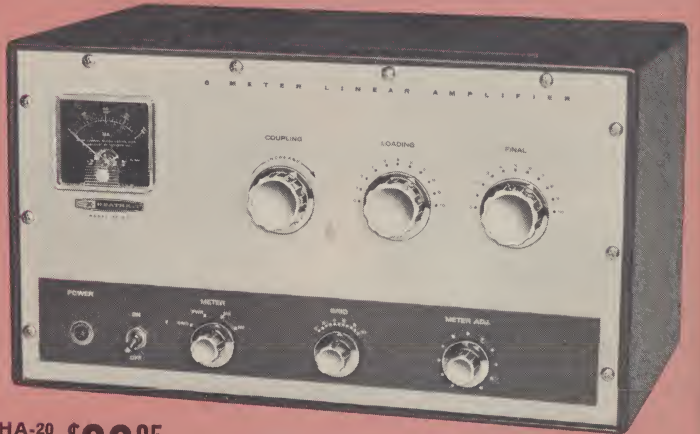
SPECIFICATIONS—Frequency coverage: 50 to 54 mc in four 1 mc segments, (heterodyne crystal for 50 to 51 mc supplied) (coverage can be extended to 49.8 mc by changing second heterodyne crystal). **Emission:** SSB upper/lower, AM & CW. **DC power input:** 20 watts peak. **RF power output:** 10 watts P.E.P. SSB, 10 watts, CW, 2.5 watts AM. **Carrier suppression:** 50 db or better. **Sideband suppression (unwanted):** 40 db or more. **Circuitry:** Phasing method used to generate SSB signal, heterodyned to desired output frequency. **Output impedance:** 50 to 75 ohm, unbalanced. **Audio frequency response:** 300-3,000 cps. **Keying:** Grid block keying with key click filter. **Tuning knob ratio:** Approx. 45 kc per turn. **Power requirements:** 117 volts AC, 50/60 cps, 77 watts standby, 95 watts SSB & CW, 90 watts AM. **Dimensions:** 16 $\frac{1}{2}$ " W x 10 $\frac{1}{4}$ " H x 10" D.

Heathkit HA-20 6-Meter LINEAR AMPLIFIER

- 125 watts P.E.P. input SSB, 75 watts DC input AM
- Neutralized push-pull 6146 final amplifiers
- Forced-air cooling of final amplifiers
- Complete shielding of RF circuitry to minimize TVI
- Metered grid & plate current, plate voltage, relative power

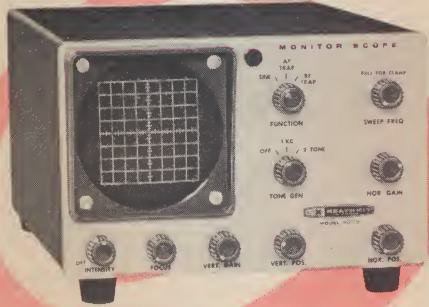
For extra signal power on six meters add the new Heathkit HA-20 linear amplifier, style and performance mate to the HX-30 at left. This efficient VHF linear requires just 2.5 to 10 watts P.E.P. driving power for a full 70 watts P.E.P. output to the antenna! Its tuned grid input permits a variety of driving power levels and the tuned, link-coupled output easily matches any 50 to 75 ohm coaxial transmission line. Complete RF shielding of the final amplifier compartment in the HA-20 minimizes the possibility of TVI and gives high circuit stability. The push-pull 6146 final amplifier tubes are fan-cooled for longer life and are neutralized by the stub-method for added stability. Features long-life silicon rectifiers in the power supply for cool, efficient operation. Panel meter shows final grid & plate current, plate voltage and relative power output for easy tuning. Easy to build!

Kit HA-20, 39 lbs., no money down, \$10 mo. \$99.95



HA-20 \$99⁹⁵

SPECIFICATIONS—Driving power required: 2.5 to 10 watts P.E.P. **Power input:** 125 watts P.E.P. SSB, 75 watts D.C. AM. **Power output:** 70 watts P.E.P. SSB. **Output impedance:** 50 to 75 ohm (unbalanced). **Output coupling:** Link. **Input impedance:** Approx. 50 ohm. **Input coupling:** Link (tuned grid). **Panel metering:** Grid current, plate current, plate voltage & relative power output. **Frequency coverage:** 49.8 to 54 mc. **Tube complement:** (2) 6146, (1) 0A2. **Cooling:** Forced-air (self-contained fan). **Power requirements:** 90 watts standby, 200 watts max. @ 117 volts AC 50/60 cycles. **Dimensions:** 10 $\frac{1}{2}$ " H x 16 $\frac{1}{2}$ " W x 10" D.



HO-10 \$59⁹⁵



Heathkit MONITOR SCOPE . . . allows visual observation of signal quality

- Specially designed for amateur radio use
- Displays envelope, AF & RF trapezoid patterns on 3RP1 cathode ray tube
- 6-tube, 4-diode circuit includes two-tone test oscillator

Here's the perfect answer for modulation monitoring of transmitted and received signals. Standard coaxial connectors are provided for simple connection to antenna system feed line. Features automatic switching between received and transmitted envelope pattern. Handles power outputs from 5 watts to 1 KW. 11 lbs.

Kit HO-10 . . . no money down,
\$6 mo. Only \$59.95

SPECIFICATIONS—Vertical response: ± 3 db from 10 cps to 500 kc. **Sensitivity:** 500 mv per inch deflection. **Input resistance:** 50 k ohm. **Horizontal response:** ± 3 db from 3 cps to 30 kc. **Sensitivity:** 800 mv per inch deflection. **Input resistance:** 1 megohm. **Sweep generator:** Recurrent type: 15 to 200 cps (variable). **Tone oscillators:** Approximately 1000 cps and 1700 cps. **Output voltage:** 15 mv (nominal). **GENERAL: Frequency coverage:** 160 through 6 meters (60-75 ohm coaxial input). **Power limits:** 5 watts to 1 kilowatt output. **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 6 db per step. **Power supply:** Transformer operated, fused $\frac{1}{2}$ amp. **Power requirements:** 105-125 VAC, 50/60 cps, 35 watts. **Dimensions:** 5 $\frac{1}{2}$ " H x 7 $\frac{1}{4}$ " W x 10 $\frac{1}{2}$ " D.

in Quality & Performance at Low Cost!

Heathkit HX-10 80-10 Meter SSB TRANSMITTER . . .

More than a Thousand now span
the Amateur Airwaves!

- Unmatched in performance and value at this low price
- Operates SSB (upper or lower sideband), CW, AM & FSK
- 180 watts P.E.P.—SSB & CW—on 80 through 10 meters
- Multi-section, hermetically sealed crystal band-pass filter
- Dual conversion, crystal controlled heterodyne oscillator
- Preheated, temperature compensated VFO for high stability

More than a thousand Hams can now attest to the outstanding performance and value of the Heathkit "Marauder" SSB transmitter! Compare it with any! . . . you'll find the tremendous array of features and lowest-of-all price make it the best buy in SSB! All mode operation . . . high power output for use as a transmitter or as a driver for the Heathkit HA-10 KW linear . . . extra-margin, top quality parts . . . heavy-duty, partitioned 16 gauge steel chassis and cabinet all add up to a lifetime of dependable performance. Deluxe 21-tube, 8-diode circuit (2-6146's in the final) . . . with all power supplies built-in . . . all crystals furnished for 80 through 10 meters! All controls are located "out front" for easy operation. A special 165-to-1 worm gear tuning assembly provides smooth anti-backlash tuning with approx. 10 kc per turn. For real "action" on the amateur bands equip your station with the Heathkit "Marauder"! Recommended for the more experienced kit builder.

Kit HX-10, 92 lbs., no money down, as low as \$22 mo. **\$334.95**



\$334.95

HX-10

SPECIFICATIONS—Emission: SSB (upper or lower sideband), CW, AM and FSK. **Power input:** 180 watts PEP—SSB and CW, 75 watts AM. **Output impedance:** 50 to 75 ohms with not more than approx. 2:1 SWR. **Frequency range (MC):** 3.5 to 4.1; 6.9 to 7.5; 13.9 to 14.5; 20.9 to 21.5; 27.9 to 28.5; 28.5 to 29.1; 29.1 to 29.7. **Frequency stability:** Within 100 cps, after warm-up. **Carrier suppression:** 50 db below peak output. **Unwanted sideband suppression:** 55 db below peak output. **Keying characteristics:** Break-in CW provided by operating VOX from a keyed tone using grid-block keying. **Audio input:** High impedance microphone or phone patch. **Audio frequency response:** 400 to 3000 cps at ± 3 db. **Power requirements:** OFF—4 watts; STANDBY—200 watts; KEY DOWN—400 watts at 117 volts, 50/60 cycles AC. **Cabinet size:** 19" W x 11 1/2" H x 16" D.

Heathkit SB-10 SSB ADAPTER Kit

SB-10

\$93.50



Produces USB, LSB or DSB signals with or without carrier insertion on 80 through 10 meters. Requires less than 3-watts of RF at the fundamental frequency desired. Has built-in VOX with anti-trip circuit, sealed audio phase-shift network. Designed as a plug-in adapter for Heathkit TX-1 (right), or similar transmitters. Single-knob bandswitching. 12 lbs.

Kit SB-10 . . . no money down, \$10 mo. . . **\$93.50**



TX-1

\$252.50

A Ham Favorite . . . Heathkit "Apache" TRANSMITTER

- 150 watts phone, 180 watts CW & SSB • Covers 80 through 10 meters • Provision for SSB adapter
- Adjustable low-level speech clipping • Time sequence keying • "Spotting" push button
- 113 lbs.

Kit TX-1 . . . no money down, \$24 mo. . . **\$252.50**



RX-1

\$299.95

Deluxe Heathkit "Mohawk" Amateur RECEIVER

- Amateur band coverage only for max. stability & accuracy • 1 uv input for 10 db signal to noise ratio • Factory assembled and aligned coil band-switch tuning unit • Built-in 100 kc crystal calibrator • 69 lbs.

Kit RX-1 . . . no money down, \$28 mo. . . **\$299.95**

Globe-Circling SSB Power at Lowest Cost . . .

Heathkit HA-10 KILOWATT LINEAR



HA-10

\$229.95

- Operates SSB, AM and CW on 80 through 10 meters

Give your station a "voice of authority" with this completely self-contained desk-top KW Linear Amplifier! Big in power, big in value, the "Warrior" is ready to deliver a solid kilowatt for dependable DX communications even under the most difficult conditions. Priced at less than half that of comparable units the HA-10 has four paralleled 811A's, forced-air fan-cooled; built-in amplifier and power supplies for HV, filament and bias; stable, grounded-grid circuitry for up to 70% efficiency; exclusive internal RF shielding; neutralized final; monitor scope output and many more! May be driven by any 50-100 watt transmitter . . . no matching or swamping networks required.

Kit HA-10, 101 lbs., no money down, \$22 mo. **\$229.95**

SPECIFICATIONS—Maximum power input: SSB-1000 watts P.E.P., CW-1000 watts, AM-400 watts (500 watts using controlled carrier modulation), RTTY-650 watts. **Output circuit:** Variable pi-network (50 to 75 ohms). **Driving power required:** 50 to 75 watts—depending on frequency. **Input circuit:** Broad banded—requires no tuning. **Input impedance:** approximately 70 ohms; provides effective match for exciters having 50 ohm output Z. **Band coverage:** 80, 40, 20, 15, 10 meters. **Panel metering:** Switch-selected, grid current, plate current, high voltage and relative power output for ease of loading. **Tube complement:** 4-811A, 2-866A. **Dimensions:** 19 1/2" W x 11 1/2" H x 16" D.

Special SSB HAM MIKE

An excellent value! Specially modified to our specifications for SSB communications. Response is limited from 300 to 3,000 cps voice frequencies, for crisp, clear communications. Rugged die-cast zinc case and stand, chrome plated. Grip-to-talk switch with lock position. Hi-Z dynamic. 3 lbs.

HDP-21 . . . no money down, \$5 mo. . . **\$29.40**



HDP-21

\$29.40

Heathkit® Novice Ham Values!



Beginner's HAM BAND RECEIVER . . .

**A Sensational Buy
at this New Special-Value Price!**

- Covers 80 through 10 meter amateur bands • Tunes SSB, AM & CW signals • Prebuilt, aligned tuning assembly • Lattice-type crystal filter for high selectivity • RF stage for extra sensitivity • 7-tube superheterodyne circuit • Style mate to the DX-60 Phone & CW Transmitter

An ideal novice receiver! Easy to build with preassembled, aligned tuning unit and precut, cabled wiring harness! Versatile controls, large 6" lighted slide-rule dial, built-in "S" meter for easy tuning, built-in BFO for SSB & CW reception and a host of other high performance features provide reception that will delight any amateur radio fan! Amateur band coverage only, assures maximum accuracy and stability. Provision for plug-in 100 kc crystal calibrator. 8 ohm speaker jack and accessory socket on rear panel.

Kit HR-10 . . . 20 lbs. . . . no money down, \$8 mo. . . . now only **\$79.95**
Kit HRA-10-1, Plug-in 100 kc crystal calibrator, 1 lb. **\$8.95**

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: 13½" W x 11¼" D x 6½" H.



DX-60 PHONE & CW TRANSMITTER . . . With a New Special-Value Price!

- 90 watts Phone or CW on 80 through 10 meters • May be run at reduced power for novice operation • Neutralized 6146 final amplifier • Built-in low pass filter • Grid block keying • Easy access to crystal sockets • Style mate to HR-10 Receiver

No other transmitter in this price and power class offers the novice so much in quality, performance and dependability! Clean, rugged construction . . . quality components . . . easy to follow instructions and a precut, cabled wiring harness makes assembly a simple task and assures years of trouble-free performance. Controlled carrier modulator and power supply are built-in. Single knob bandswitching and pi-network (coaxial) output provide complete operating convenience, and the panel meter monitors final grid or plate current for easy tuning. Less crystals.

Kit DX-60, 25 lbs. . . . no money down, \$8 mo. . . . now only **\$79.95**

SPECIFICATIONS—Power input: 90 watts peak, carrier controlled phone or CW. Output impedance: 50-72 ohm (coaxial). Output coupling: Pi-network. Operation: CW or AM phone-crystal or VFO control. Band coverage: 80 through 10 meters. Power requirements: 105-125 V 50/60. Dimensions: 13½" W x 11¼" D x 6½" H.

Low Cost 50 watt CW TRANSMITTER for novice or general class amateur



HX-11
\$43.50

- 50-watt plate power input
- Built-in low pass filter
- Neutralized final amplifier
- Single-knob bandswitching

An outstanding transmitter for CW work! Efficient circuitry covers 80 through 10 meters. Husky power supply, switched antenna relay power, pi-network output coupling and panel meter for easy tuning also featured. Easy access to crystal socket. 18 lbs.

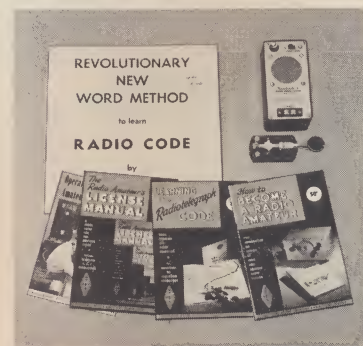
Kit HX-11 . . . no money down, \$5 mo. **\$43.50**

SPECIFICATIONS—RF power input: 50 watts CW. Output impedance: 50-600 ohm (non-reactive). Output coupling: Pi network. Operation: Crystal—external VFO. Low pass filter cutoff frequency: 34 MC. Band coverage: 80, 40, 20, 15, 10 meters. Tube complement: 5U4GB rectifier, 6CL6 oscillator, 6DQ6A final amplifier. Power requirements: 117 volts AC, 60 cycles, 150 watts. Dimensions: 13" W x 8½" H x 7" D.

A Special New Course for the Beginning Radio Amateur Everything you Need to learn to obtain an Amateur Radio License at a Money-Saving Special Price

- 4 ARRL Handbooks, "Gateway To Amateur Radio" • Set of three special code records • Code practice oscillator with key

Anyone wishing to become an FCC licensed radio amateur will find the materials and components of this specially selected group an outstanding introduction to amateur radio. The course consists of four American Radio Relay League (ARRL) handbooks: How to Become a Radio Amateur; Learning the Radio-Telegraph Code; Radio Amateur's License Manual; and Operating an Amateur Radio Station. Also included is a set of three special records using the revolutionary new "word method" of teaching code, and a Heathkit



HDP-22
\$15.95

- CO-1 Code Practice Oscillator with authentic telegraph key to enhance the learning process.
- HDP-22 Amateur Radio Starter Group . . . 7 lbs. . . . Save \$3.00 **\$15.95**
- HDP-32 Code Records . . . 2 lbs. . . . **\$9.50**
- HDP-42 ARRL Books (4) . . . 1 lb. . . . **\$1.50**
- CO-1 Oscillator plus Key . . . 2 lbs. . . . **\$7.95**

Ham Accessories Every Amateur Needs

"Q" MULTIPLIER increases your receiver selectivity

May be used with AC-DC or transformer operated receivers having an I.F. frequency between 450 and 460 kc. Provides an effective "Q" of 4,000 for peaking or rejecting a signal on AM, CW or SSB. Produces a sharply peaked I.F. curve for CW reception, broad peaked I.F. for phone operation or a deep rejection notch to eliminate a closely interfering heterodyne. Both peak or notch positions are tuneable to any point in the receiver's I.F. bandpass. 3 lbs.



\$14⁹⁵
HD-11

Kit HD-11..... **\$14.95**



Hybrid PHONE PATCH Kit

- Convenient one-switch operation
- Allows VOX or Manual operation

\$29⁹⁵
HD-19

Transfer of audio signals between telephone lines and two-way radio communications equipment is easily and efficiently accomplished with this easy-to-install hybrid phone patch. Operates with nearly all transmitters and receivers, including transmitters employing automatic voice control (VOX). A standard VU meter accurately monitors output to any 600 ohm telephone line to prevent crosstalk. Controls include a single on/off function switch and separate transmit/receive gain controls. Special hybrid transformer provides a minimum of 30 db isolation. Use with 3-16 ohm speaker, Hi-Z mike. 3 lbs.

Kit HD-19 . . . no money down, \$5 mo. **\$29.95**



Know your Frequency with this 100 kc CRYSTAL CALIBRATOR

- 100 kc to over 54 mc at 100 kc intervals
- Transistorized circuit
- Battery powered

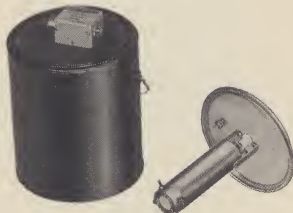
\$14⁹⁵
HD-20

Ideal for checking dial calibration of communications receivers and transmitter VFO's! Produces highly accurate signals from 100 kc to at least 54 mc in 100 kc intervals. Operation requires only connection to the antenna terminals of the receiver and switching the unit "on". The circuit is transistorized for long life and dependable performance. A single 9-volt battery furnishes all power required. The 100 kc crystal included has 0.005% tolerance. 1 lb.

Kit HD-20..... **\$14.95**

"Cantenna" TRANSMITTER DUMMY LOAD . . . Ideal for servicing, testing!

With the Heathkit "Cantenna" you can forget about TVI, FCC violations, QRM, etc., while servicing or testing Amateur or Commercial transmitting equipment. Handles powers up to 1 kilowatt I.C.A.S. with less than 1.5 V.S.W.R. up to 300 megacycles. A coax input connector is provided for transmitter and phono jack for DC output to VOM or VTVM for relative power measurement. Features a special oil-cooled temperature-stable resistive element. Impedance is 50 ohms. Oil capacity is one gallon (not included). 3 lbs.



\$9⁹⁵
HN-31

Kit HN-31..... **\$9.95**



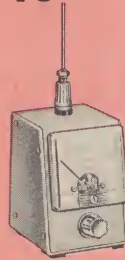
\$16⁸⁸
GP-11

Mobile Vibrator POWER SUPPLY

- Converts AC equipment to DC operation
- Heavy-duty silicon diode rectifiers
- Use on either 6 or 12 volt systems

Kit GP-11, 5 lbs. **\$16.88**

SPECIFICATIONS—Power requirements: 6 volt version, 6.3 VDC @ 6.5 amperes; 12 volt version, 12.6 VDC @ 3 amperes for rated output. Power output: 250 VDC @ 100 ma, ICAS. Power rectifier: Two silicon diodes in voltage doubler circuit. Vibrator: Mallory type 1610 or equivalent. Vibrator frequency: Approximately 115 cps. Overall dimensions: 4 3/4" H x 6 1/2" W x 4 3/4" D.



\$12⁹⁵
PM-2

RF POWER METER . . . Monitors signal

- Operates with any transmitter
- Requires no external power
- Range, 100 kc to 250 mc

Shows relative power output of transmitter by sampling RF radiation near antenna. Small, compact size allows use anywhere. A strong magnet in the base of the PM-2 holds it fast to any steel surface, car dashboard, transmitter case, etc. 1 lb.

Kit PM-2..... **\$12.95**



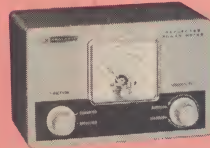
\$34⁹⁵
HG-10

VARIABLE FREQUENCY OSCILLATOR

- Tunes 80 through 2 meters
- Plugs into DX-60 for general class operation
- Tremendous savings over cost of crystals

Rugged, reliable and loaded with features for top-notch performance! Rigid steel chassis for mechanical strength, cathode follower output for isolation, and regulated plate voltage for stability. Ideal for use with Heathkit DX-60 and most other transmitters requiring drive of 5 volts RMS or less. 11 lbs.

Kit HG-10 . . . no money dn., \$5 mo. **\$34.95**



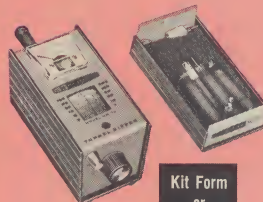
\$15⁹⁵
HM-11

REFLECTED POWER METER

- Indicates forward or reflected power and SWR
- Covers amateur bands 160 through 6 meters
- Handles power of up to 1 kilowatt

An extremely useful amateur accessory! Shows matching of antenna's transmission system by measuring forward and reflected power. Panel meter shows SWR (standing wave ratio) from 1:1 to 3:1, and percentage readings. 2 lbs.

Kit HM-11..... **\$15.95**



\$34⁹⁵
HM-10A

Kit Form or Factory Assembled

Heathkit "TUNNEL DIPPER"

- Tunnel diode oscillator—no tubes
- 6 color-matched coils & dial scales
- Many uses in amateur radio work

Functions as a signal generator or a very sensitive tuned RF detector. Ideal for checking resonant frequencies of tuned circuits, identifying parasites, tuning traps or filters and many more! Self-contained and battery powered for portability. Less battery. 3 lbs.

Kit HM-10A . . . no money down, \$5 mo. **\$34.95**
Assembled HMW-10A . . . \$5 mo. **\$49.95**



\$44⁹⁵
HW-29A

Low Cost 6 & 2 Meter TRANSCIEVERS

- Ideal for local net or emergency operations
- Built-in AC power supply—easy to build

Thousands sold and in use attest to their popularity and proven performance on the VHF amateur bands. Both models feature crystal-controlled transmitters and tunable super-regenerative receivers with RF stage. Operate "fixed" with built-in AC power supply or "mobile" using Heathkit GP-11 vibrator power supply. AC & DC power cables, microphone, instructions included. Less crystal. 8 lbs.

Kit HW-29A (6 meter) . . . \$5 mo. **\$44.95**
Kit HW-30 (2 meter) . . . \$5 mo. **\$44.95**

New-Tronics "Hustler" Mobile Antennas for 6-10-15-20-40-75 Amateur and 11-meter Citizen's Band

Select only one mast and the special resonator for the band you operate. Use any length of 52 ohm cable. Fold-over 54" heat treated 1/2" aluminum mast permits easy change of resonators. Mast has 1/4-24 base stud to fit standard mobile mounts. SWR less than 2:1. Power rating 75 watts AM, 250 watts PEP SSB.

- HDP-33 54" rear deck or fender mount mast (MO-1) 2 lbs. \$7.95
- HDP-43 54" bumper mount mast (MO-2) 2 lbs. \$7.95
- HDP-53 10 meter resonator (RM-10) 1 lb. \$5.95
- HDP-63 15 meter resonator (RM-15) 1 lb. \$6.95
- HDP-73 20 meter resonator (RM-20) 1 lb. \$7.95
- HDP-83 40 meter resonator (RM-40) 1 lb. \$9.95
- HDP-93 75 meter resonator (RM-75) 1 lb. \$11.95
- HDP-103 11 meter Citizen's Band resonator 1 lb. \$5.95

- HDP-113, 6-Meter Antenna, 1 lb. \$8.64
- Tuneable, low SWR, four-section telescoping, loading coil. Heavy-duty brass tubing, triple chrome plated. Opens to 60", collapses to 27" Has 1/4-24 male thread stud.

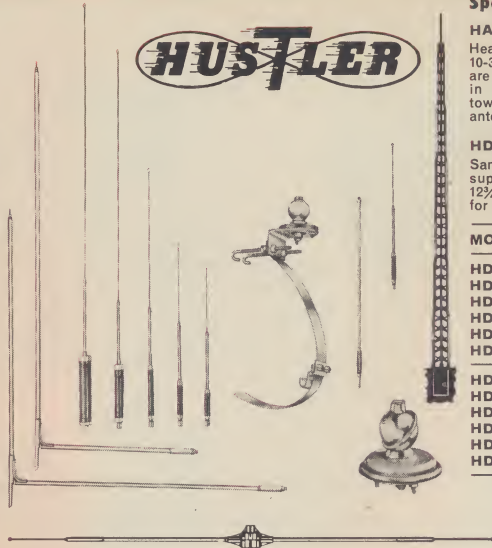
- HDP-133, Ball Mount Model NTS-2, 2 lbs. \$8.97
- Stainless steel ball for cowl or fender; adjustable 180°.

- HDP-143, Bumper Mount Model BM-1, 2 lbs. \$6.95
- Flat alloy steel strap, heavy cadmium plated. Chrome plated 1/2" die cast ZAMAK ball with 1/4-24 thread.

New-Tronics "Cliff-Dweller" Rotatable Dipole for 40 & 75 Meters

First remotely tuned dipole for limited space; yoke has motors and gears for adjustment of end sections from transmitter location. Low vswr; no traps, baluns or matching, feeds with 52 ohm cable. Rated 1 kw. Self-supporting, ready for 1 1/2" pipe. Waterproof.

- HDP-393, 22 lbs., no money dn., \$12 mo. Net \$129.50



Spaulding "Strato-Tower"

HAX HAM SERIES TOWERS

Heavy galvanized steel, all riveted construction. 48 ft. tower measures 10-3/16" across one side of triangle at top, 25" at the bottom. Sections are 8 ft. long. Available with choice of (HAX) base stubs for mounting in concrete or with screw anchor base (HAX-B) for free-standing towers. All towers include rotor mounting plate and top plate. Less antenna mast. Shipped F.O.B. Frankfort, Indiana by truck. No C.O.D.

HDX "HEAVY-DUTY" SERIES TOWERS

Same as above except of extra-heavy galvanized steel construction to support the largest and heaviest of beam antenna. 48' tower measures 12 1/2" across one side of triangle at top, 28" at bottom. Order HDX series for mounting in concrete or HDX-B for screw anchor base.

MODEL NO.	TYPE	HT.	SEC.	LBS.	NET
HDP-323	HAX-32	32'	4	115	\$ 58.20
HDP-333	HAX-40	40'	5	160	\$ 79.91
HDP-343	HAX-48	48'	6	220	\$110.24
HDP-323-B	HAX-32B	32'	4	184	\$ 76.70
HDP-333-B	HAX-40B	40'	5	229	\$ 98.91
HDP-343-B	HAX-48B	48'	6	367	\$135.61
HDP-353	HDX-32	32'	4	143	\$ 76.75
HDP-363	HDX-40	40'	5	206	\$107.10
HDP-373	HDX-48	48'	6	280	\$142.21
HDP-353-B	HDX-32B	32'	4	212	\$ 99.25
HDP-363-B	HDX-40B	40'	5	361	\$137.80
HDP-373-B	HDX-48B	48'	6	430	\$172.91

MOSLEY TA-32 3-BAND BEAM ANTENNA

Ideal for limited space and light support installations. Broadband design provides peak efficiency on each band - 10, 15 or 20 meters. Forward gain, 5.5 db; front-to-back, 20 db; SWR, 1.1/1 or better. Maximum element length, 28 feet; Boom, 7 feet. Turning radius, 14.5 feet. 32 lbs.

- HDP-263, no money dn., \$7 mo. \$69.50

MOSLEY TA-33 3-BAND ANTENNA

For 10, 15 and 20 meters. 8 db forward gain, 25 db or better front-to-back. SWR 1.1/1 or less. Trap gives all-weather resonance stability. Full KW rating on AM. 1 1/2" x 14' boom needs no brace. Mounting plate fits mast to 1 1/2" OD. Max. element length 28'. Turning radius 15 1/2'. RG-8/U coax recommended. 54 lbs.

- HDP-193, no money dn., \$10 mo. \$97.75

HY-GAIN TH-4 "THUNDERBIRD" 3-BAND ANTENNA

For maximum performance on 10, 15 and 20 meters. 4-element, 2" OD boom, 1 1/2" telescoping to 3/4" elements, aluminum. Full size elements and full size boom spacing of 16 ft. Longest element is 32 ft. Interlaced 4th element allows high gain and F/B ratio. 42 lbs.

- HDP-273, no money dn., \$11 mo. \$117.50

HY-GAIN DB-62 6 & 2 DUOBANDER ANTENNA

Uni-directional gain antenna designed for optimum performance in the 50-54 mc and 144-148 mc ham bands. Extremely light weight, can be mounted on standard TV towers and rotors. Boom length, 10 1/2", longest element 9'. 8 db gain on 6 meters; 15 db gain on 2 meters. SWR at resonance, below 1.5/1. 7 lbs.

- HDP-313, no money dn., \$7 mo. \$32.95



1. DRAKE TV-1000-LP LOW-PASS FILTER
Four pi-sections for sharp cutoff between 6 meters and channel 2. Will not detune antenna feed systems with low SWR. Matches 52 ohm line. Rates at 1000 watts input, 200 watts on 6 meters. 2 lbs.

- HDP-13, no money dn., \$7 mo. \$16.95

2. DRAKE TV-100-LP LOW-PASS FILTER
Same as above except lower power rating. Rated at 100 watts input, 20 watts on 6 meters. Less coax connector. 2 lbs.

- HDP-233, no money dn., \$7 mo. \$5.95

3. DRAKE TV-300-HP HIGH-PASS FILTER
For all TV receivers. Protects against IF interference as well as interference from amateur transmitters operating on any frequency from 6 to 160 meters. High attenuation, low insertion loss. 1 lb.

- HDP-243, no money dn., \$7 mo. \$3.97



"TIME MASTER" 10-MINUTE TIMER
Automatically sounds bell every ten minutes to remind the amateur operator to give his station call. Adjustable. Operates on 110-120 volt 60 cycle AC. Measures just 4 1/4" x 2 1/2" x 2 1/4". 2 lbs.

- HDP-183, no money dn., \$7 mo. Only \$8.85



COAXIAL ACCESSORIES

1. B & W 5-POSITION COAXIAL SWITCH 550-A—Permits instant selection of up to five antennas, transmitters, receivers, etc., on 52 or 75 ohm lines. Handles up to 1 KW amplitude modulated power. —45 db crosstalk between outlets at 30 mc. UHF-type connectors. 2 lbs.

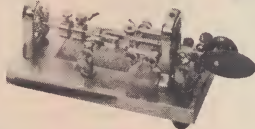
- HDP-253, no money dn., \$7 mo. \$8.25

2. DOW-KEY DK60-G2C COAXIAL RELAY — DPDT auxiliary contacts. Unconditionally guaranteed. Less than 1.15:1 VSWR from 0 to 500 mc. Low loss pure silver contacts. Low crosstalk, patented "isolation" connector. Handles up to 1 KW of transmitted power, operates on 110 volt AC, 60 cps. 1 lb.

- HDP-223, no money dn., \$7 mo. \$15.65

3. CUSH CRAFT "BLITZ BUG" COAXIAL LIGHTNING ARRESTER—Protects equipment against lightning damage and cable punctures due to high SWR. Spark gap principle provides constant drain off—eliminates heavy static charge build-up. No insertion loss to 500 mc. Standard PL-259 plug, DKCP connector. 2 1/2" long. 1 lb.

- HDP-383, no money dn., \$7 mo. \$3.95



"VIBROPLEX "ORIGINAL" KEY

Super-speed control mainspring adjusts from slowest to highest speeds without changing weights. Chrome-plated mechanism, heavy cast-iron base with non-slip rubber feet. Grey finish. 4 lbs.

- HDP-163, no money dn., \$7 mo. \$22.45

AMATEUR LOG BOOKS

Five special log pads and attractive vinyl cover. Measures just 8 1/2" x 5 1/2" closed. Space is provided for each station contacted and for info such as handle, QTH, reports, rig and comments, traffic and schedule summaries. A very popular item.

- No. 597-110 . . . Five log books & cover . . . 2 lbs. \$2.95
- No. 597-111 . . . Five replacement log pads . . . 2 lbs. \$1.95



CDR ANTENNA ROTOR MODEL "HAM-M"

Supports 1000 lbs. of dead weight. Positive brake locks rotor in position against any wind. Withstands 3500 inch-pounds of torque. Double-stage switch permits instant direction reading without moving rotor. Meter is calibrated in degrees for high accuracy readings. Heavy-duty power transformer, separate transformer for direction indicator. Designed for 8-wire cable. 26 lbs.

- HDP-23, no money dn., \$11 mo. \$117.11



RADIO AMATEUR'S HANDBOOK

Paperbound 1963 edition. Covers all phases of theory, construction and operating practices. Includes "plain-talk" info on basic electronic, HF, VHF and UHF equipment. The Ham's bible. 1 lb.

- HDP-293, no money dn., \$7 mo. \$3.50



PENNWOOD 100-24H-1/2 TYTMETER

Numeral type 24 hour station clock. Self-starting, U.L. approved. Dome-shaped, full-vision window glows in the dark. Ideal for amateur and commercial stations or short wave listeners. Walnut plastic case. Measures 4" H x 7 1/2" W x 4" D. 3 lbs.

- HDP-173, no money dn., \$7 mo. \$14.85

PORTABLE GENERATOR

1 KW continuous rating, 115V, 60 cycle output. Ideal for field day and emergency use. See description on page 45.



TURNER 254C MICROPHONE

Ideal for Amateur, Citizen's band or commercial applications. High impedance ceramic, touch bar on-off switch and lever-lock. Die-cast. 7 ft. cable. Response is 80 to 7,000 cps. 3 lbs.

- HDP-213, no money dn., \$7 mo. \$23.50 mfrs. list. NET \$13.95



HY-GAIN "HY-LITE" STATION SIGN

Every radio amateur needs this "On-the-Air" sign lights up when your station is in operation to minimize annoying interruptions, etc. Oval shaped sign measures 4" x 8". Easily installed on wall or shelf. Operates from antenna or transmitter relay automatically. Includes cord, plug and light bulb. For 110 volts AC. 1 lb.

- HDP-283, no money dn., \$7 mo. \$8.95

Outstanding Values in Test Meters!



Heathkit IM-11 VTVM

Kit Form
or
Factory
Assembled

IM-11

\$24⁹⁵

- 7 AC, 7 DC, 7 Ohms ranges
- 4½" 200 ua meter
- 1% precision resistors
- Single AC/Ohms/DC probe

The world's largest selling VTVM! At only \$24.95 the Heathkit IM-11 is the world's biggest value in a quality meter and a superb investment that will serve you faithfully for years to come! Measures AC volts (RMS), AC volts (peak-to-peak), DC volts, Resistance and DB. Easy circuit board assembly. Test leads included. Less battery. 5 lbs.

Kit IM-11 . . . no money down, \$5 mo. **\$24.95**
Assembled IMW-11 . . . no money down, \$5 mo. **\$46.75**
See p. 11 for comb. offer with EF-1 Applications Kit. **\$32.50**

SPECIFICATIONS—Meter scales: **DC & AC (RMS)**: 0-1.5, 5, 15, 50, 150, 500, 1500 volts full scale. **AC peak-to-peak**: 0.4, 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**: 4½" 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 requirement**: 1.5 volt, size "C" flashlight cell. **Power requirements**: 105-125 volt 50/60 cycle AC, 10 watts. **Dimensions**: 7¾" H x 4-11/16" W x 4¼" D.

For precision AC measurements . . . Heathkit Laboratory AC VTVM

- 10 voltage ranges—0.01 to 300 volts RMS full scale
- ±1 db, 10 cps to 500 kc frequency response
- 10 megohm input impedance for high accuracy
- Calibrated db scale for audio tests

Kit Form
or
Factory
Assembled

IM-21

\$33⁹⁵



With the Heathkit IM-21, AC voltages as low as one millivolt to as high as 300 volts RMS can be measured with desirable accuracy! An excellent meter for audio design and development work, laboratory use, or general service work. Features include VU-type ballistic damping of meter movement, high input impedance, wide frequency response, high sensitivity, and excellent stability for a variety of applications. 5 lbs.

Kit IM-21 . . . no money down, \$5 mo. **\$33.95**
Assembled IMW-21 . . . no money down, \$7 mo. **\$60.25**

SPECIFICATIONS—Frequency response: ±1 db 10 cps to 500 kc, ±2 db 10 cps to 1 mc, all ranges. **Ranges**: VOLTS—Ten ranges from 0.01 to 300 volts RMS full scale. **Decibels**: Total-range -52 to +52 db, meter scale -12 to +2 db (0 db=1 mw in 600 ohms), ten switch selected ranges from -40 db to +50 db in 10 db steps. **Input impedance**: 10 megohms shunted by 12 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**: 7¾" H x 4-11/16" W x 4¼" D.



Heathkit 20,000 Ohms/Volt VOM . . . High accuracy with portability!

- Sensitive 50 microampere meter
- 1% precision resistors
- Portable, use it anywhere!
- 35 meter ranges on 2-color scale

Kit MM-1, 5 lbs., \$5 mo. **Only \$29.95**

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. **Controls**: Range switch, Output —AC-DC Reverse DC switch, Ohms adjust control. **Batteries**: 1 type "C" cell, 4 penlight cells. **Dimensions**: 7¼" x 5¼" x 4".

MM-1 **\$29⁹⁵**

New Heathkit "Service Bench" VTVM . . . New Styling . . . New Features . . . New Operating Convenience!



IM-13
\$32⁹⁵

- NEW gimbal bracket permits bench, shelf, or wall mounting
- Meter tilts to any desired angle for best viewing
- NEW vernier action zero and ohms adjust controls
- Large easy-to-read 6" 200 ua meter
- 11 megohm DC input for low circuit loading
- NEW single AC/Ohms/DC test probe with switch

This new Heathkit "Service Bench" VTVM has won praise from all who have seen and used it! Its high quality design combines with functional low-profile styling to make it an ideal service bench meter. A gimbal mounting bracket is furnished for under shelf, bench top, or wall mounting—wherever it will be most convenient to the operator. Two thumbwheel nuts on the sides of the case allow tilting the meter to any desired angle for best reading of the meter scales, or elimination of light reflections. All controls are conveniently located at one side of the meter movement permitting unobstructed viewing while making range changes. Calibration controls also are easily accessible from the front panel . . . no need to remove the case during initial calibration, or future adjustments!

Retaining all the desirable features of the preceding model, the new IM-13 incorporates the same proven circuit design, large, easy-to-read 6" meter movement, multi-colored meter scales and high contrast panel screening which shows at a glance the scale and range in use. New features include new vernier-action Zero and Ohms adjust controls for smooth, positive zero settings and a new single AC-Ohms-DC test probe for extra operating convenience . . . all for the same low price of the preceding model!

Broad frequency response, precision 1% voltage divider resistors, high 11-megohm input to minimize circuit loading, db calibrations in 10 db steps, separate 1.5 and 5 volt AC scales for accurate low-level AC measurements and many more high performance features offered in this outstanding instrument, put it at the top of the "most wanted" list!

Easy-to-follow instructions and clean, open circuit layout assure fast, easy assembly. Test leads included. Less battery. 5 lbs.

Kit IM-13 . . . no money down, \$5 mo. **\$32.95**
See page 11 for comb. offer with EF-1 Applications kit. **\$39.95**

SPECIFICATIONS—Meter Scales **DC & AC (RMS)**: 0-1.5, 5, 15, 50, 150, 500, 1500 volts full scale (1.5 and 5 volt AC ranges read on separate scales). **Ohmmeter**: Scale with 10 ohm center x1, x10, x100, x1000, x10K, x100K, x1 meg. Measures 1 ohm to 1000 megohms with internal battery. **Multipliers**: 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. **Power requirements**: 105-125 volts 50/60 cycle AC 10 watts. **Dimensions**: 5" H x 12¾" W x 4¼" D.

VTVM PROBE ACCESSORIES

RF PROBE KIT—Extends RF measurement capabilities of Heathkit VTVM's to 250 mc. 1 lb.

Kit 309-C **\$3.50**, Assembled 309W-C **\$4.50**

30,000 VDC PROBE KIT—Provides a multiplication factor of 100 on the DC ranges of any 11 megohm VTVM. 1 lb.

Kit 336 **\$4.50**, Assembled 336W **\$5.50**

Conservatively Rated Instruments

AUDIO GENERATOR Kit . . . gives switch-selected frequencies



IG-72
\$41⁹⁵

- Less than .1% distortion—20 to 20,000 cps • Switch-selected frequencies—10 cps to 100 kc • Output and frequency accurate to within $\pm 5\%$

Superbly engineered throughout! An excellent audio test instrument. Provides switch-selected frequencies from 10 cps to 100 kc with near-perfect sine wave output! Accuracy is well within $\pm 5\%$ and distortion is less than .1 of 1% between 20 and 20,000 cps. Generator output is indicated on a large $4\frac{1}{2}$ " 200 ua meter calibrated in volts and db. The output attenuator operates in steps of 10 db and is calibrated in 8 full-scale meter ranges. A slide switch allows selection of external or built-in 600 ohm load. 8 lbs.

Kit IG-72 . . . no money down, \$5 mo. . . . **\$41.95**

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 volts RMS into external 600 ohm load or with internal load into Hi-Z. 2 ranges 0 to 3, 10 volts RMS into a minimum of 10,000 ohms, -60 db to +22 db in 8 steps -60 dbm to +2 dbm (0 dbm = 1 mw into 600 ohms). **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.

Deluxe CAPACITOR CHECKER . . .

tests all capacitor types

- Safely tests miniature electrolytics
- 16 leakage testing voltages
- Direct reading scales — no involved calculations



IT-11
\$29⁹⁵

Read capacitor value directly on calibrated scales, test for leakage, shorts, and power factor or measure resistance from 5 ohms to 50 megohms with this handy capacitor checker. The specially designed low-voltage bridge circuit permits safe testing of miniature electrolytics used in transistorized equipment. A "must" on any test bench! 7 lbs.

Kit IT-11 . . . no money down, \$5 mo. . . . **\$29.95**

SPECIFICATIONS—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:** $9\frac{1}{2}$ " H x $6\frac{1}{2}$ " W x 5" D.

RF SIGNAL GENERATOR Kit . . . covers 100 kc to 220 mc in six bands



IG-102
\$27⁹⁵

- Large accurately calibrated dial scales • Pre-wired, prealigned coil/bandswitch assembly • Modulated or unmodulated RF output • 400 cps signal for audio tests

Unmatched in value! The Heathkit IG-102 provides wide range RF signals for most testing requirements . . . a valuable addition to any test bench. Carefully designed circuitry achieves sine wave output with outstanding accuracy (2%) on all bands. Three large, easy to read dial scales permit precise frequency settings across the entire range. Extended frequency coverage is provided in six bands . . . 100 kc to 110 mc on fundamentals . . . 110 mc to 220 mc on calibrated harmonics. Modulated or unmodulated RF output up to 100,000 microvolts is available, controlled by both fixed-step and variable output attenuators. The 400 cps internal modulation signal with up to 10 volt output may also be used separately for audio tests. 6 lbs.

Kit IG-102 . . . no money down, \$5 mo. . . . **\$27.95**

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. **Tube complement:** (1) 12AT7, (1) 6AN8. **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.

"In-Circuit" CAPACI-TESTER

. . . a real time saver!



IT-22
\$10⁹⁵

- Detects open, shorted, and intermittent capacitors without removal from circuit
- Electron beam "Eye" tube indicator
- Checks all paper, molded, mica and ceramic types

With this handy kit you can test capacitors right in the circuit . . . without disconnecting leads . . . saving both time and labor in servicing! The IT-22 detects open capacitors from 50 mmf up, not shunted by an excessively low resistance value and indicates shorted capacitors up to 20 mfd shunted by not less than 10 ohms. Intermittents are noted by a flickering of the "eye" tube indicator. 4 lbs.

Kit IT-22 **\$10.95**

3-DECADE CONDENSER KIT



IN-21
\$17⁹⁵

Provides precision capacitor values in 100 mmf steps from 100 mmfd to 0.111 mfd. Ideal for substitution use in tuned circuits, bridge circuits and filter networks. Precision 1% silver mica capacitors are rated at 350 volts DC, continuous; 500 volts DC intermittent; and 1000 volts DC test. Low-loss ceramic wafer switches. 3 lbs.

Kit IN-21 **\$17.95**

6-DECADE RESISTANCE KIT



IN-11
\$24⁹⁵

Ideal for lab use! Provides any resistance value from 1 ohm to 999,999 ohms in one ohm steps . . . all at $\frac{1}{2}$ of 1% accuracy. Rated at 1 watt. Valuable for use as a multiplier, shunt, substitution resistor or as an arm for AC and DC bridges. Switches have make-before-break contacts for smooth control action without opening or shorting circuit. 3 lbs.

Kit IN-11 . . . \$5 mo. . . . **\$24.95**

CONDENSER SUBSTITUTION KIT



IN-22
\$5⁵⁰

Contains 18 silver-mica and plastic-molded tubular capacitors in standard E.I.A. values from .0001 to .22 mfd. All are rated at 600 volts except the two largest which are rated at 400 volts. An 18 position switch allows individual selection of any value. Test leads included. 1 lb.

Kit IN-22 **\$5.50**

RESISTANCE SUBSTITUTION KIT



IN-12
\$5⁹⁵

Provides convenient switch-selection of any one of 36 E.I.A. standard 10% 1-watt resistors, ranging in value from 15 ohms to 10 megohms. A slide switch selects high or low resistance ranges. Housed in an attractive black bakelite case. Many uses in servicing! 1 lb.

Kit IN-12 **\$5.95**

-For Your Every Testing Requirement

Transistorized REGULATED POWER SUPPLY . . . Ultra-Smooth DC Output!



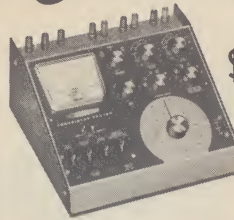
IP-20
\$72.95

- Delivers 0 to 50 V DC at up to 1.5 amperes
- Four current ranges—50 ma, 150 ma, 500 ma & 1.5 a
- Adjustable current limiter—30 to 110% of each current range

Best buy for industrial, laboratory & service applications! Less than 150 microvolts AC ripple! Adjustable current limiter control automatically limits current on any range to protect both meter and circuit under test. Features series-type voltage regulator and Zener-diode for voltage reference. Finned "heat-sinks" protect the heavy-duty power transistors for long faithful service. 14 lbs.

Kit IP-20 . . . no money down, \$8 mo. **\$72.95**

SPECIFICATIONS—Input: 105-125 volts 60 cps; 125 watts at full load (50V, 1.5A). **Output:** 0.5-50 volts DC; 1.5 amps max DC. **Load regulations:** ±15 millivolts, can be adjusted for no change. **Line regulation:** (105 to 125 VAC); Less than .005% change. **Ripple & noise:** Less than 150 microvolts. **Transient response:** Less than 25 microseconds. **Output impedance:** Less than .01 ohm DC to 10 kc; Less than .5 ohms 10 kc & up. **Overload protection:** current limiter & relay. **Meter:** 3½", 1 ma, 50 ohm. **Current ranges:** 50 ma, 150 ma, 500 ma, 1.5 amp. **Voltage ranges:** 5V, 15V, 50V. **Front panel controls:** On/Off, Coarse voltage switch, Fine voltage adjust., Current range switch, Current limit adjust., Meter slide switch, DC regulation, Reset Standby toggle switch. **Output terminals:** (3), plus (+), minus (-), chassis ground. **Dimensions:** 9½" H x 6½" W x 11" D.



IM-30
\$54.88

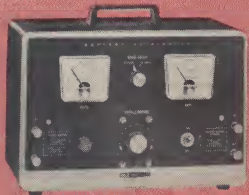
Laboratory TRANSISTOR TESTER

- Complete DC analysis of PNP, NPN transistors
- DC gain (beta, alpha) read direct on calibrated scales

Kit IM-30 . . . 7 lbs., Less batteries, \$6 mo. **\$54.88**

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 and Reverse Current. **Meter:** Current ranges: 15 ua, 150 ua, 1.5 ma, 15 ma, 150 ma, 1.5 A; Voltage Ranges: 1.5V, 5V, 15V, 50V, 150V (100K ohm/volt). **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 5 volts max. for bias. **Bias control:** Permits any collector current from 0 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. **Lever switch:** Four spring return levers will individually select the following tests: Base Current, Gain, Collector Voltage, Collector Current, Leak Voltage, Short Test, Icbo and Iceo or diode currents. **Two voltage selector switches:** Gain and Leak Test Voltages can be individually preset at different voltage levels. **Two current range switches:** Collector and leak currents can be individually preset on different ranges. **Transistor and diode connections:** Universal transistor socket and binding posts. **External power supply connections:** Binding Posts for Gain, Leak and Bias supplies.

Low-Ripple BATTERY ELIMINATOR



IP-12
\$47.50

- Ideal for servicing transistor & auto radios • Provides 6 or 12 volt DC power • Less than .3% AC ripple • Doubles as a battery charger

Provides instant selection of 6 or 12 volt DC power for servicing all types of transistor & auto radios. Output voltage and current are continuously monitored on the two panel meters. Output voltage is variable on both ranges from 0-8 volts or 0-16 volts and a special highly-filtered output holds AC ripple to less than .3% for smooth DC required in transistor work. 19 lbs.

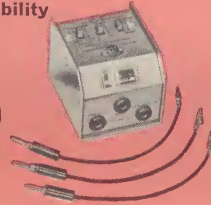
Kit IP-12 . . . no money down, \$5 mo. **\$47.50**

SPECIFICATIONS—Continuously variable output: 6 volt range; unfiltered, 10 amp continuous, 15 amp maximum, filtered, 5 amp continuous less than .3% ripple. 12 volt range; unfiltered, 5 amp continuous, 7.5 amp maximum; filtered, 5 amp continuous, less than .3% ripple. **Power requirements:** 105-125 volts 50/60 cycles AC at 200 watts. **Dimensions:** 13" W x 8½" H x 7" D.

Low Cost TRANSISTOR/DIODE CHECKER

- Tests regular & power transistors • Shows forward & reverse current of diodes
- Battery powered for portability

IT-10
\$6.95



A handy service aid! Tests transistors for short, leakage, open element and current gain. Versatile switching to accommodate PNP or NPN type transistors; eliminates transferring test leads for diode testing. Test leads provided for transistors which do not fit tester socket. Less batteries. 1 lb.

Kit IT-10 **\$6.95**

SPECIFICATIONS—Transistor test: leakage, short, open and current gain. **Diode test:** forward and reverse current. Also serves as a continuity checker. **Switches:** Forward-Reverse/PNP-NPN, Diode/HI-LO, Leakage-Gain. **Power supply:** self-contained, two 1.5 volt size "C" flashlight cells. **Dimensions:** 3½" H x 3¼" W x 3¼" D.

ISOLATION TRANSFORMER

- Controls AC line voltage to test requirements
- Power rated for color TV work
- Linear expanded-scale meter
- Variable 90 to 130 volts AC

IP-22
\$54.95



A fine instrument to help "solve" those tough service problems! It controls AC line voltage to exact test requirements, isolates interference radiating devices, protects against AC/DC set shock hazard, induces breakdown of intermittent or weak components and much more! Output is varied in .75 volt steps from 90 to 130 volts AC by two heavy-duty 8-position switches. Two AC receptacles accept standard or 3-prong plugs. 21 lbs.

Kit IP-22 . . . no money down, \$6 mo. **\$54.95**

SPECIFICATIONS—Input: 105-125 volts 50/60 cycles. **Output:** Variable from 90-130 volts in steps of approximately .75 volt by means of transformer secondary tap switching. **Meter:** 90-140 volt scale, ±1 volt accuracy. Switch selection of Input or output voltage indication. **Power rating:** 300 watts continuous, 500 watts intermittent. **Fuse:** 8 ampere. **Dimensions:** 6½" W x 9½" H x 5" D.

Visual-Aural SIGNAL TRACER



IT-12
\$19.95

- Traces RF, IF and audio signals
- Locates noisy & intermittent components
- Doubles as utility amplifier & test speaker

Quickly isolate defective stages in receivers or amplifiers by tracing RF, IF or Audio signals! The IT-12 also serves as a handy utility amplifier for testing tuners, record changers, microphones, etc. Audio and RF inputs are selected by a switch on the probe body. 5 lbs.

Kit IT-12 **\$19.95**



IP-32
\$56.95

Laboratory Variable-Voltage REGULATED POWER SUPPLY

- Furnished B+, bias and filament voltages
- DC output variable from 0 to 400 volts
- Panel meters monitor output voltage & current

Experimenters and engineers rate this instrument as one of the most valuable in any lab! Ideal for all types of circuit design and development work. Rugged well-rated components are used throughout for long life and dependable service. 16 lbs.

Kit IP-32 . . . no money down, \$6 mo. **\$56.95**

SPECIFICATIONS—Output: 0-400 volts regulated DC at 0-100 ma cont., 125 ma intermittent, 0 to -100 volts DC at 1 ma variable bias voltage, 6.3 volts AC at 4 amps, filament voltage. **Regulation:** Output variation less than 1% from no load to full load; Output variation less than ±0.5 volt for a ±10 v. change at 117 v. AC input. **Ripple:** less than 10 millivolts RMS, ripple, jitter and noise. **Output impedance:** less than 10 ohms, DC to 1 mc. **Meters:** Voltmeter 0-400 V or 0-150 V.; Milliammeter 0-150 ma. **Dimensions:** 13" W x 8½" H x 7" D.

Heathkit HANDY LAB . . .

ideal for the hobbyist!

- Six functions in one instrument
- Simple one-switch operation
- Battery operated for portability

IM-20
\$14.95



Here in one handy instrument is provided an RF & AF source, DC voltmeter, AC indicator light, continuity checker and resistor & capacitor substitution boxes, a tremendous value! 2 lbs.

Kit IM-20 Less batteries **\$14.95**

SPECIFICATIONS—DC voltmeter: Four ranges, 0-15, 50, 150, 500 volts full scale. **Resistance substitution:** 100, 1000, 10k, 100k, and 1 megohm, 1 watt 5% tolerance. **Condensers:** .001, .005, .02, .1, and 8 ufd (electrolytic) at 400 volts. **AC Indicator:** NE-51 neon lamp. **Continuity indicator:** #49 lamp. **Signal generator:** RF SECTION, preset adjustment from 450 kc to 700 kc, approximately 2 millivolts output. **AUDIO SECTION,** Approx. 1000 cps, 50 millivolts output. **Batteries:** Two 1.5 volt penlight cells. **Dimensions:** 6" H x 3½" W x 2½" D.

Professional Quality Test

TV Alignment GENERATOR Kit . . . Versatile, Easy to Operate, Reliable!

- Stable All-Electronic Sweep Circuit
- Complete FM & TV coverage—3.6 to 220 mc
- Built-in crystal and variable marker oscillators

\$54⁹⁵
IG-52



A superb instrument for fast, easy alignment of FM and VHF TV sets! The heart of the unit is a trouble-free controllable inductor which varies frequency by magnetic means, not mechanical, to produce wide range sweeps with excellent linearity and stability. Both fixed and variable output attenuators give smooth control of signal output to allow alignment of high gain stages without danger of overloading. Built-in crystal and variable markers, retrace blanking and phasing control are also featured. All the essential facilities you need for accurate alignment work in a handsomely styled instrument. Widely accepted in TV circles everywhere! 4.5 mc crystal included. 14 lbs.

Kit IG-52 . . . no money down, \$6 mo. **\$54.95**

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 bass frequency). **Marker crystal:** 4.5 mc and multiples thereof. **Variable:** 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 8½" H x 7" D.

Color Bar & Dot GENERATOR Kit . . . Your Best Buy in a Color TV Instrument!

- 10 Vertical color bars—New shading bar pattern
- Choice of six different patterns for color or B & W picture adjustments
- Crystal-controlled accuracy & stability

\$64⁹⁵
IG-62

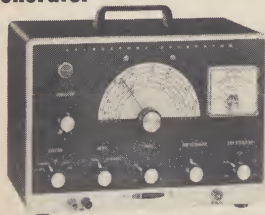


Unmatched in the industry for performance, quality and value at this low Heathkit price! Beautifully designed throughout for accuracy and superior stability. The IG-62 features crystal-controlled internal sync pulses to lock the patterns firmly on the screen, no jitter or crawl . . . no sync leads required! One simple connection to the antenna terminals of the TV set is all that is required. Choose any of six different patterns for convergence, color and linearity adjustments. Color bars, produced by the off-set carrier method, allow AFC, phase and matrix alignment of color sets. Adjustable video output permits checks of color hue and sync at different signal levels. Kit includes crystals, test leads and manual with servicing "tips". 12 lbs.

Kit IG-62 . . . no money down, \$7 mo. **\$64.95**

SPECIFICATIONS—RF output frequency range: TV channels 2 through 6. **Output voltage:** Variable from 100 to 100,000 microvolts. **Sound carrier:** Crystal controlled, unmodulated, 4.5 mc away from picture carrier; off-on switch provided. **Video output:** Positive or negative output variable from 0-10 volts peak-to-peak open circuit. **Modulation:** White dot pattern, cross hatch pattern, horizontal bars, vertical bars, 10 vertical color bars, shading bar pattern. **Tube complement:** 6-12AT7, 4-12AU7, 1-6BQ7, 1-6CS6, 1-OB2. **Power requirements:** 117 VAC, 50/60 cycles, 70 watts. **Dimensions:** 13" W x 8½" H x 7" D.

Laboratory RF Signal Generator



\$56⁹⁵
IG-42

- 100 kc to 30 mc frequency coverage in five bands
- Metered output voltage & percent modulation
- Double shielded oscillator circuits

Professional quality throughout for precision alignment work! Extensive shielding and line filtering minimizes spurious RF radiation, assures clean output on fundamental signals. Large, easy-to-read dial scale, metered output and many more extras for high accuracy. 15 lbs.

Kit IG-42 . . . no money dn., \$6 mo. . . **\$56.95**

SPECIFICATIONS—IG-42 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. **Tube complement:** 6AF4, 6AV5, 12AU7, OB2. **Power requirements:** 105-125 V. 50/60 cycles. **Dimensions:** 13" W x 8½" H x 7" D.

Sine-Square Wave Generator



\$51⁹⁵
IG-82

- Covers 20 cps to 1 mc in five bands
- Less than .25% sine wave distortion
- Less than .15 microsecond square wave rise time

Use both sine and square wave output separately or simultaneously as desired, without affecting either waveform. Separate output terminals and controls allow use in a wide variety of testing applications. Ideal for audio, hi-fi and TV work. Superbly designed throughout! 12 lbs.

Kit IG-82 . . . no money dn., \$6 mo. . . **\$51.95**

SPECIFICATIONS—SINE WAVE: Frequency range: 20 cycles to 1 mc. **Output volts (RMS):** 0 to 10 volts; 0 to 1 volt, or 0 to .01 volt when working into a high impedance load. **Source impedance:** (±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.) ±5%; 0 to 10 volt, 0 to 1 volt, 0 to .1volt, into a high impedance load. **Source impedance:** (±10%): 10volt range, 0 to 220 ohm; 1V and .1V ranges, 52 ohm. **Rise time:** less than .15 microsecond. **General:** Frequency accuracy: ±5%. **Power requirements:** 105-125V AC, 50/60 cycles, 55 watts. **Dimensions:** 13" W x 8½" H x 7" D.

Harmonic Distortion Meter



\$54⁹⁵
IM-12

- Lab quality at low cost
- Measures distortion from 20 to 20,000 cps
- Meter calibrated in volts rms, % dist. & db

Noise & distortion in audio amplifiers can be read directly on calibrated scales with the Heathkit IM-12. High input impedance, precision components and high quality Wien Bridge design assure excellent sensitivity and high accuracy. 11 lbs.

Kit IM-12 . . . no money dn., \$6 mo. . . **\$54.95**

SPECIFICATIONS—Frequency: 20 cps to 20,000 cps in three ranges. **Distortion:** 1, 3, 10, 30, 100% full scale. **Voltmeter:** 1, 3, 10, 30 volts full scale. **Input resistance:** 300 k ohm. **Minimum input voltage for distortion measurements:** 0.3 volts. **Output voltage for monitoring:** 2.5 volts at full scale meter reading. **Accuracy:** Voltmeter, ±5%; Distortion, ±5% of full scale, ±0.1%. **Tube complement:** OA2, 6X4, 5879, 12AT7, 12AX7, 12BY7. **Power requirements:** 105-125 V. 50/60 cycles AC, 30 watts. **Dimensions:** 13" W x 8½" H x 7" D.

Audio Analyzer



\$56⁹⁵
IM-22

- Built-in AC VTVM, Wattmeter and IM analyzer
- Unique switching system for simplified operation

Everything you need for complete IM analysis of audio equipment in a single, easy-to-use instrument. All basic functions require only the two sets of test leads furnished. 12 lbs.

Kit IM-22 . . . no money dn., \$6 mo. . . **\$56.95**

SPECIFICATIONS—Frequency response—AC VTVM: 10 cycles to 100 kc ±1 db. **Wattmeter:** 10 cycles to 50 kc ±1 db. **I.M. analyzer high pass filter:** 2000 cps to 12,000 cps. **I.M. analyzer low pass filter:** 10 cps to 600 cps. **Range AC VTVM:** .01, .03, .1, .3, 1, 3, 10, 30, 100, 300 volts RMS full scale. **DBM:** -40, -30, -20, -10, 0, +10, +20, +30, +40, +50. Reads from -65 to +52 dbm. **Wattmeter:** 0.15 mw, 1.5 mw, 15 mw, 150 mw, 1.5 w, 15 w, 150 w, full scale. Maximum continuous power 25 watts. Intermittent power to 50 watts. **I. M. analyzer:** 1%, 3%, 10%, 30%, 100% full scale. **Input impedance—AC VTVM:** 1 megohm or 4, 8, 16 or 600 ohm switch selected. **I. M. analyzer:** 1 megohm or 4, 8, 16 or 600 ohm switch selected. **Wattmeter:** 4, 8, 16 or 600 ohm internal load, 10,000 ohm across external load. **Output impedance—Low and high frequency output:** 3000 ohm (600 ohm when shunted with 750 ohm resistor). **Internal generator frequencies—Low frequency:** 60 cycles. **High frequency:** Approximately 6 kc. **Accuracy—AC VTVM and Wattmeter:** Within 5% of full scale. **I.M. Analyzer:** Within 10% of full scale. **Power requirements:** 105-125 volts 50/60 cycles 20 watts. **Dimensions:** 13" W x 8½" H x 7" D.

Instruments at Tremendous Savings

Test Tubes at Low Cost with this Heathkit TUBE CHECKER



\$44⁹⁵

IT-21

• Handsome styling • Multi-colored "Bad-?-Good" meter scale • Color-coded wiring harness for easy assembly • New compactron, nuvistor, novar & 10-pin miniature tube testing facilities

Tests all tube types encountered in everyday radio & TV servicing! Tests include: quality on the basis of total emission, shorts, leakage, open element, and filament continuity. Tube quality is read direct on the multi-color meter scale and a neon bulb indicates leakage or shorts between elements and filament continuity. Flexible overall operation is made possible by the use of multiple filament voltages, adjustable cathode current, variable meter sensitivity and individual tube element switching. These features permit adding new tube types as they are developed to eliminate fear of obsolescence. Chart and meter are illuminated. 11 lbs.

Kit IT-21 . . . no money down, \$5 mo. **\$44.95**

SPECIFICATIONS—Tests: Emission, short, leakage, open element, filament continuity. **Sockets:** 4-pin, 5-pin, 6-pin, 7-pin large and pilot light, 7-pin miniature, octal, loctal, 10-pin miniature, 9-pin novar, 12-pin compactron, 5-pin nuvistor, 7-pin nuvistor. **Meter:** 1 ma, BAD-?-GOOD scale, illuminated. **Line voltage adjustment:** Step type. **Roll chart mechanism:** Constant tension, free-rolling, thumbwheel operation, illuminated. **Filament voltage:** .63, 1.4, 2, 2.35, 2.5, 3.15, 4.2, 4.7, 5, 6.3, 7.5, 9.45, 12.6, 19.6, 25, 32, 50, 70, 110 V AC. **Element test voltages:** 30, 100, 250 V AC. **Power requirements:** 105-125 V AC, 50/60 cycles. **Dimensions:** 5½" x 8½" x 13".

TUBE DATA SUBSCRIPTION SERVICE

A valuable service for all Heathkit tube checker owners! Provides test data on new tube types as they become available. Subscription includes quarterly supplements and a new roll chart incorporating all previous supplement information at the end of the year. Free subscriptions, which expire at the end of the current year, are entered for new tube checker purchasers. Subscription rates are \$2.50 per year for TT-1A tester and \$1.50 per year on IT-21 and TC series type testers.

Professional Quality at Low Cost . . . Heathkit Mutual-Conductance TUBE TESTER

\$149⁹⁵

TT-1A



• Indicates Gm to 24,000 micromhos • Ultra-sensitive grid current test • Direct reading ohmmeter leakage test • Built-in switch operated calibration circuit • Built-in adapter for testing new compactron, nuvistor, novar and 10-pin miniature tube types • Constant current heater supplies

No finer tube tester in kit form anywhere! The TT-1A will provide complete and thorough tests of practically all tube types "on" or "away" from the test bench. Mutual conductance values (Gm) are read on an illuminated meter scale from 0 to 3,000 micromhos and multipliers permit reading values to 24,000 micromhos. Individual tube element switches allow checking any tube type regardless of base-pin connections . . . protect against obsolescence! 33 lbs.

Kit TT-1A . . . no money down, \$14 mo. **\$149.95**

Adapter Kit TTA-1-1: Converts earlier model TT-1 to TT-1A. Includes new cabinet & adapter for testing compactron, nuvistor, novar & 10-pin miniatures. 13 lbs. **\$19.95**

SPECIFICATIONS—Power Requirements—Voltage: 105-125, 60 cycle AC. **Watts:** 10-60 (dependent upon tube under test). **Plate supply:** (SILICON RECTIFIERS). **DC volts:** 26, 90, 135, 225 + variable 80 to 200 (Separate DC supply for space charge grids). **AC volts:** 20, 45, 177. **Bias supply:** (SILICON RECTIFIER). **Low range:** 0 to negative 5 volts DC. **High range:** 0 to negative 20 volts DC. **Signal voltages:** 2, 1, .5, .25 volts AC 5000 cycles. **Filament supply voltage:** .65, 1.1, 1.5, 2, 2.5, 3.3, 5, 6.3, 7.5, 10, 13, 20, 27.5, 35, 47, 70 and 115. **Currents:** 300, 450, 600 ma. (Note: Filament voltage is reduced 10% during life test). **Testing circuits Gm:** (Mutual conductance-amplifiers) 0-24,000 micromhos. **Emission:** Rectifiers and diodes. **Leakage:** Direct reading ohmmeter. **Grid current:** ¼ micro-ampere sensitivity. **Voltage regulators:** Firing voltage and regulation tolerance. **Low power thyratrons:** Grid characteristics, conduction capabilities. **Eye tubes:** Control grid characteristics. **Meter AC:** 1000 ohms/volt (1 volt full scale). DC: 89 ma full scale. **Scales Gm:** 0-3000 micromhos; VR test volts: 0-200 volts. Leakage: 0-10 megohms. Diodes O.K. Rectifiers O.K. Line check arrow at mid-scale. **Tube complement:** (1) 3A4 oscillator, (1) 12AV6 meter control. **Calibration circuit:** Built-in switch operated. **Socket accommodations:** 4-pin, 5-pin, 6-pin, 7-pin combination and pilot light, 5 & 7-pin nuvistor, 7-pin miniature, 7-pin sub-miniature, 8-pin sub-miniature, octal, loctal, 9-pin miniature, 9-pin, Novar, 10-pin miniature, 12-pin Compactron. **Line voltage adjustment:** Continuously variable. **Roll chart mechanism:** Constant tension, free rolling, thumbwheel operated, illuminated. **Dimensions:** Cabinet (outside): 17½" W x 13½" H x 8½" D. **Panel and chassis:** 17" W x 12½" H x 5½" D.

Heathkit "Q" METER . . . Lab Facilities for Precision Tests



\$54⁹⁵

QM-1

• Tests components at operating frequencies—150 kc to 18 mc
• Measures "Q", "L", and distributed capacitance of coils
• Large 4½" 50 ua meter—easy to read dial scales

Accommodates a wide range of inductance, capacitance and "Q" to cover practically all values encountered in RF circuits. A tremendous aid to service technicians, experimenters, lab technicians! Large 4½" 50 ua meter reads "Q" values direct. Easy to use and operate. 12 lbs.

Kit QM-1 . . . no money down, \$6 mo. **\$54.95**

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 mmf to 450 mmf; Effective, 40 mmf to 400 mmf; Vernier ± 3 mmf. **Power requirements:** 105-125 volts, 50/60 cycles AC, 30 watts. **Dimensions:** 8" H x 17" W x 6" D.

Heathkit IMPEDANCE BRIDGE Kit . . . Precision Measurements at Low Cost!



\$69⁹⁵

IB-2A

• Four popular bridges in one handy instrument • ¼% Precision resistors, silver mica capacitors • Slanted control panel for easy reading

Employs Wheatstone, Capacitance Comparison, Maxwell and Hay bridge circuits for rapid and accurate measurement of resistance, capacitance, inductance, dissipation factors of capacitors and storage factors of inductors. Ideal for service technicians, radio amateurs, home experimenters. 11 lbs.

Kit IB-2A . . . no money down, \$7 mo. **\$69.95**

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 factor:** 100 mmf to 100 mfd. **Inductance:** 0.1 mh to 100 h. **Dissipation factor:** (D): 0.002 to 1. **Storage factor:** (Q) 0.1 to 1000. **Accuracy:** ¼% 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.

Heathkit FM ALIGNMENT GENERATOR . . . Simplifies Servicing of FM Tuners & Receivers!



\$34⁹⁵

FMO-1

• Switch selection of 90, 100 & 107 mc signals
• Variable 10.7 mc sweep, 200 kc to over 1 mc
• 100 kc bandwidth markers to check bandpass

Unique circuitry in this compact, easy to use instrument provides all the essential generator facilities for fast, easy alignment of FM tuners and receivers. A built-in 10 mc crystal-controlled oscillator assures accurate initial calibration of the instrument. Test leads included. 4 lbs.

Kit FMO-1 . . . no money down, \$5 mo. **\$34.95**

SPECIFICATIONS—Output frequencies for RF alignment: 90, 100 and 107 mc, switch-selected. **Modulation:** 400 cycle incidental FM. **For IF and detector alignment:** 10.7 mc sweep. **Sweep width:** 200 kc to over 1 mc. **Markers:** 10.7 mc (crystal); 100 kc sub-markers. **Modulation:** 400 cycle AM. **For other applications:** 10.0 mc (crystal) and harmonics; 100 kc and 400 cycle audio. **Tube complement:** (2) 6U8. **Power supply:** Transformer, selenium rectifier. **Power requirements:** 105-125 V, 50/60 cycle, 12 watts. **Cabinet size:** 7¾" H x 4¾" W x 4¾" D.



Oscilloscopes for Every Testing Need

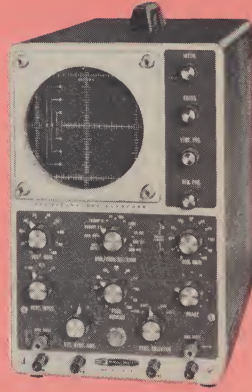
Heathkit "Extra-Duty" Wide Band 5" OSCILLOSCOPE

- Professional styling & features at low cost
- Full 5 mc bandwidth for color TV servicing
- Heath patented sweep circuit — 10 cps to 500 kc
- Push-pull vertical & horizontal amplifiers

The IO-12 oscilloscope is one of the most versatile service instruments you can own! With it you can *visually* trace signals, locate defective stages, check for waveform distortion, make stage gain measurements and a myriad of other tests in electronic circuitry . . . swiftly and efficiently! An outstanding array of features combined with the Heath patented sweep circuit make the IO-12 ideal for many specialized as well as general circuit investigations. Features include push-pull output amplifiers, positive trace position controls, peak-to-peak calibration reference voltage, 3-step frequency compensated vertical input attenuator, automatic sync circuit, Z-axis input, 5U1 CR tube and professional styling. 2 circuit boards and a wiring harness provided for fast, easy assembly. 24 lbs.

Kit IO-12 . . . no money down, \$8 mo. **\$76.95**

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 microseconds or less. **Input impedance:** (AT 1 KC) 2.7 megohms at X1; 3.3 megohms at X10 and X100. **(Horizontal Channel) 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:** 14¼" H x 8¾" W x 16" D.



IO-12 **\$76.95**

OSCILLOSCOPE TEST PROBE ACCESSORIES . . . EXTEND YOUR SCOPES USES



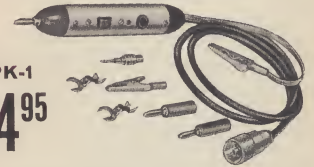
337-C
\$3.50

Scope Demodulator PROBE Kit

This easy to assemble demodulator probe kit gives added versatility to oscilloscope applications by permitting visual observation of the modulation envelope waveform of RF and IF signals. Useful in both radio and TV servicing in checking for distortion and presence or absence of modulation. Functions as AM detector to pass only modulation of signal and not signal itself. Voltage limits are 30 volts RMS and 500 volts DC. 1 lb.

Kit 337-C **\$3.50**

Low-Capacitance Oscilloscope PROBE Kit



PK-1
\$4.95

An essential aid for high frequency work, the PK-1 minimizes loss of gain, circuit loading or distortion due to over-loading of scope input. A switch is provided on the probe to allow direct or X10 attenuated operation. An adjustable trimmer capacitor permits adjustment to match scope input requirements. Kit includes an assortment of connectors to allow use with most oscilloscope terminals. 1 lb.

Kit PK-1 **\$4.95**

General Purpose 3" OSCILLOSCOPE

- Push-pull vertical & horizontal amplifiers • Wide range sweep—20 to 100,000 cps • Automatic sync—retrace blanking • Compact, lightweight, versatile!

Fills hundreds of daily requirements in servicing! Ideal for home workshop, ham shack, or as an extra scope for all-around use. Exceptionally clean, open circuit layout makes assembly easy, trouble-free . . . perfect for students or beginners just getting started in electronics. Check these fine features; identical vertical and horizontal amplifiers; automatic sync; retrace blanking; 3 RP1 CR tube with special alloy neck shield to minimize trace distortion; focus and astigmatism controls for sharp, fine traces; and provision for internal or external sweep. Internal sweep is from 20 to 100,000 cps in four switch-selected ranges. You won't find a finer scope at this price anywhere! 11 lbs.

Kit IO-21 . . . no money down, \$5 mo. **\$49.95**

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. **Sweep generator:** Range-20-100,000 cps. Automatic sync, retrace blanking. **Power requirements:** 105-125 volts AC, 50-60 cycle, 40 watts. **Dimensions:** 9¾" H x 6½" W x 10" D.



IO-21 **\$49.95**

IO-22
ELECTRONIC SWITCH Kit **\$23.95**



Allows simultaneous observation of two separate signals on a scope, such as input and output of amplifiers for comparison or stage gain measurements, etc. Separate gain controls are provided for each channel and a position control lets you separate or superimpose signals as desired. Frequency response is ±1 db, from 0 to 100 kc. Operates with signal levels as low as 0.1 volt. Measures 9½" W x 6½" H x 5" D. Many uses in service and design work! 6 lbs.

Kit IO-22 **\$23.95**

"Spacesaver" 3" DC OSCILLOSCOPE

- Identical DC or AC coupled vertical and horizontal amplifiers
- DC to 200 kc bandwidth—less than 5° phase shift
- Small, compact, easy to carry from job to job

Specially designed for use in DC applications where low sweep rates are desired. Vertical and horizontal amplifiers may be either AC or DC coupled to cover a wide range of applications in industrial, medical and general service fields. The recurrent sweep generator covers 5 cps to 50 kc in four overlapping ranges. Lower sweep rates may be obtained by connecting a capacitor across the external binding posts provided. Also featured is switch selection of internal or external sync, 3RP1 CR tube, special alloy CR tube shield to minimize trace distortion, astigmatism control for sharp trace and regulated power supply. 16 lbs.

Kit IO-10 . . . no money down, \$8 mo. **\$79.95**

SPECIFICATIONS—(Vertical and horizontal channels identical): Bandwidth: DC to 200 kc (2 db point). **Sensitivity:** 0.1 V (peak-to-peak) per X" (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 multivibrator type generator covering 5 cps to 50 kc in four overlapping ranges. "External capacity" 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:** 7¾" H x 4¾" W x 11" D.



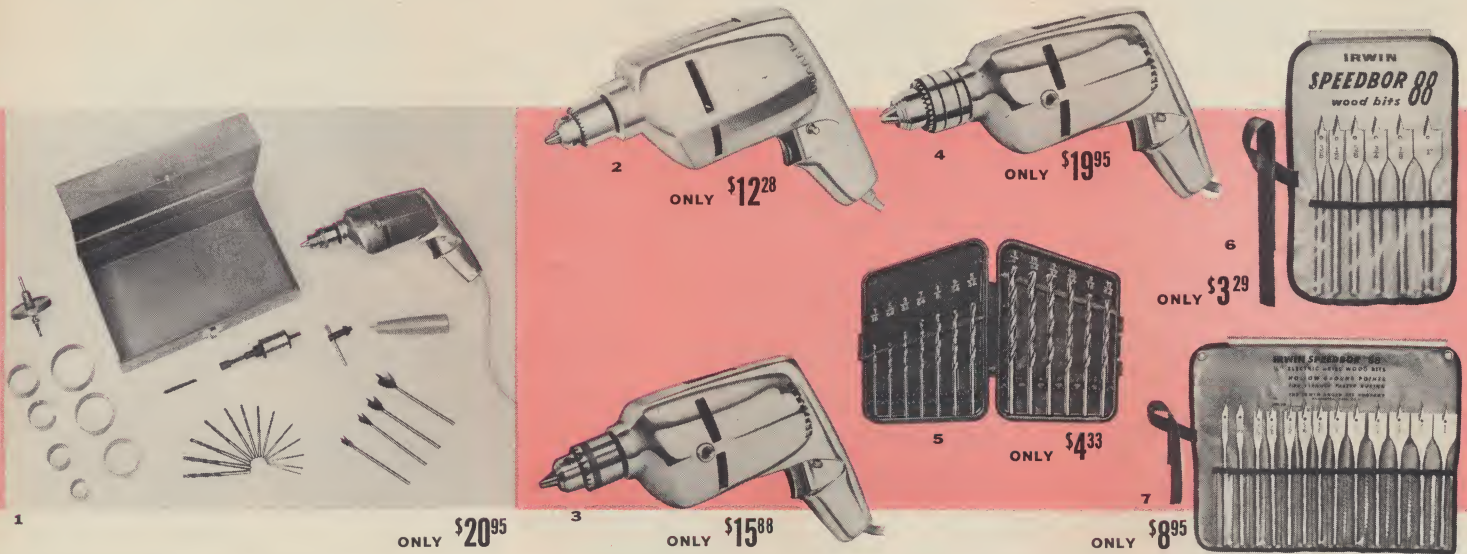
IO-10
\$79.95

Best Value Workshop Tools

Choose the Hobby Items You've Been Wanting and Save

Heathkit is proud to offer this "big-value" selection of hobbyist accessories. Chosen from hundreds of items, all are guaranteed and may be purchased on Heath's liberal no-money-down time payment plan.

INDUSTRIALLY RATED POWER DRILLS



1 NEW SHOPMATE "SUPER" DRILL KIT, \$27.95 list ONLY \$20.95

Here's real value! A super 29 piece drill kit, not to be compared with ordinary sets. Includes the new ShopMate $\frac{3}{8}$ " drill (model 1838 described opposite) plus all these handy accessories: 7-in-1 Hole Saw Set (sizes: 1", 1 $\frac{1}{4}$ ", 1 $\frac{1}{2}$ ", 1 $\frac{3}{4}$ ", 2", 2 $\frac{1}{4}$ ", 2 $\frac{1}{2}$ ") cuts wood, wall board and plastic; Power Screwdriver Attachment with Phillips-Head detachable bit; 13-piece Alloy Tool Steel Twist Drill Set (sizes: 1/16" to 1/2" graduated by 64ths), precision ground, hardened and tempered; 4-Piece Power Bit Set (sizes: 3/8", 1/2", 3/4", 1"). All in a gray hammerloid finish box with clasp and handle... all for just \$5.07 more than cost of drill alone! 10 lbs.
GDP-283, Mfrs. list \$27.95. **NET \$20.95**

2 NEW SHOPMATE 1825 $\frac{1}{4}$ " DRILL, ONLY \$12.28

Almost $\frac{1}{4}$ horsepower of turning force; powerful 3.2 amp. motor has balanced armature; no-load speed of 2300 rpm, full-load 1400 rpm; multi-ball thrust and self-lubricating bronze bearings; drills to $\frac{1}{4}$ " in steel, $\frac{1}{2}$ " in wood. 3-jaw geared chuck with key; lock-type trigger switch; 6', 3-wire cord & plug. U.L. listed as industrial tool. 9 $\frac{1}{2}$ " long, 5 lbs.
GDP-251, Mfrs. list \$16.95. **NET \$12.28**

3 NEW SHOPMATE MODEL 1838 $\frac{3}{8}$ " DRILL, ONLY \$15.88

Nearly $\frac{1}{4}$ horsepower of turning force; powerful 3.4 amp. motor has balanced armature; no-load speed 1000 rpm, full-load 600 rpm; multi-ball thrust and self-lubricating bronze bearings; drills up to $\frac{3}{8}$ " steel, $\frac{1}{2}$ " wood. 3-jaw geared chuck with key; lock-type trigger; auxiliary handle; 6', 3-wire cord & plug. U.L. listed as industrial tool. 10" long, 6 lbs.
GDP-261, Mfrs. list \$21.95. **NET \$15.88**

4 NEW SHOPMATE 1850 $\frac{1}{2}$ " DRILL, ONLY \$19.95

One-third horsepower! U.L. listed as industrial tool. This compact, heavy-duty drill has a 3.6 amp. motor; balanced armature; multi-ball thrust and self-lubricating bronze bearings; no-load 500 rpm, full-load 370 rpm; drills $\frac{1}{2}$ " hole in steel 1" in hardwood. 3-jaw geared chuck with key, lock-type trigger; aux. handle; 6', 3-wire cord & plug, 7 lbs.
GDP-293, Mfrs. list \$26.95. **NET \$19.95**

5 HANSON HIGH SPEED DRILL SET, ONLY \$4.33

Contains 13 high speed drills from 1/16" through 1/4" by 64ths. Packed in

attractive, light-weight, unbreakable polyethylene case. Every drill instantly accessible and held firmly in place. Smooth, rounded edges with hinge and clasp. Serves as drill stand or wall rack.
GDP-693, 1 lb., Mfrs. list \$6.75. **NET \$4.33**

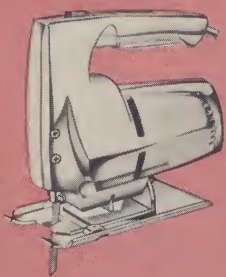
6 IRWIN SPEEDBOR 88 WOOD BITS SET #886, ONLY \$3.29

Spade-type, one-piece forged of high analysis tool steel, heat treated. Hollow-ground points, precision ground $\frac{1}{4}$ " shanks fit electric drills with conventional chucks. Size marked on heads; tip hole for hanging; 3/8", 1/2", 3/4", 1", and 1 $\frac{1}{2}$ ".
GDP-873, 1 lb., in plastic roll, Mfrs. list \$4.50. **NET \$3.29**
GDP-883, 1 lb., in metal wall rack, list \$4.50. **NET \$3.29**

7 IRWIN SPEEDBOR 88 WOOD BITS SET #8813-R, ONLY \$8.95

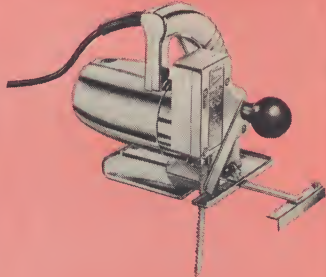
Same high quality bits, but larger set. Includes 13 bits, one each in sizes 3/8", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", 3/4", 13/16", 7/8", 15/16", and 1" in red plastic roll.
GDP-863, 2 lbs., Mfrs. list \$9.75. **NET \$8.95**

INDUSTRIALLY RATED POWER SAWS FOR EVERY PURPOSE



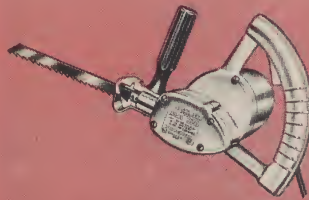
NEW SHOPMATE 1810 SABRE SAW— ONLY \$17.85

New Quick-Stroke Sabre Saw cuts $\frac{1}{2}$ " mild steel, 1" non-ferrous metals, up to 4 x 4 hardwood, or intricate scroll work. Quick-Return Cycle Reciprocator with 1" stroke for 30% faster action... 2300 strokes per min. Makes its own starting hole, cuts to 45° bevel on either side. Rugged 1/3 hp., 3 amp., fan cooled motor with built-in blower to keep saw line free of dust. Balanced armature with Life-Weld wiring. Roller bearing and oil-retaining bronze spherical bearings. Precision gear, hardened steel shafts. Die-cast aluminum housing with handle. Includes blade-guide insert for splinter-free cutting of plywood, lock-screw bevel adjustment, calibrated cutting guide, 6', 3-wire cord, and 3 blades. U.L. listed as industrial tool. 8 $\frac{1}{2}$ " L x 7 $\frac{1}{2}$ " H x 3-11/16" W. 7 lbs.
GDP-303, Mfrs. list \$24.95. **NET \$17.95**



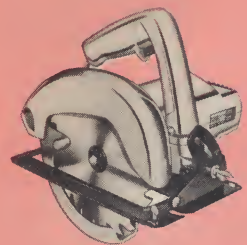
WEN "ALL SAW" MODEL 909, ONLY \$32.95

All purpose saw, cuts all metals to $\frac{1}{2}$ ", pipe and thin-wall to 2", wood up to 6", styrofoam, foam rubber, paper, cardboard, rubber, leather, Masonite, Bakelite, tiles, Formica, wallboard, Plexiglas, plaster board, asbestos. Cuts curves, circles, and patterns. Conventional saw grip with auxiliary grip knob. Blade is in line of sight. Air stream clears dust from cut. Finger control trigger switch. Powerful $\frac{1}{2}$ hp. motor. 3-wire 8' cord with adapter. Weight: 6 $\frac{1}{2}$ lbs. Heavy duty hardened gears; heavy-duty roller and Oilite bearings. Motor: 110v., 6 amp. AC-DC. Strokes per minute: 3400. Stroke length: 1". Length: 8". Width: 7". Height: 7 $\frac{1}{2}$ ". Comes complete with 7 blades, rip guide, circle cutter, and 45° tilting base plate.
GDP-813, 9 lbs., Mfrs. list \$44.95, no money dn., \$5 mo. **NET \$32.95**



WEN "ZIPP SAW" MODEL 920, ONLY \$32.95

Versatility unmatched. Cuts anything, anywhere, flush to floor or wall! The flexibility of a keyhole saw with the power of a cross cut saw. No need to finish with handsaw. Cuts wood up to 6", pipe and thin wall to 2". Cuts scrollwork and patterns in Masonite, Bakelite, wood, metals, tiles, Formica, wallboard, Plexiglas, plaster board, asbestos, vertically or horizontally. 3200 one-inch strokes per min. Finger control trigger switch. Conventional saw grip plus auxiliary grip handle. Wt. 5 $\frac{1}{2}$ lbs. Heavy duty hardened gears; heavy duty roller and Oilite bearings. 1/3 H.P. motor, 115 VAC, 4 $\frac{1}{2}$ amp.; 3 wire 8' cord with adapter, 9" L x 7 $\frac{1}{2}$ " W x 7" H. Complete with 7 blades.
GDP-823, 7 lbs., Mfrs. list \$44.95, no money dn., \$5 mo. **NET \$32.95**



NEW SHOPMATE MODEL 1870 7" POWER SAW, ONLY \$29.88

Job-tested. Exclusive Over-Load clutch guards against motor burn-out. New Visa-Port enables you to see the blade while cutting; built-in blower keeps saw-line clear of dust. Sawdust Ejection-Chute directs dust away from operator. Fast cutting action with powerful $\frac{1}{2}$ hp. 12 amp fan cooled motor (no-load, 5500 rpm; full-load, 3200 rpm). Balanced armature, Life-Weld wiring and precision bearings and gears. Inspection cover removes for cleaning or brush changing. Blade guard has retracting lever for "pocket cuts". Adjustable depth of cut and bevel, to 2 $\frac{1}{2}$ " @ 90°, 1 $\frac{1}{2}$ " @ 45°. Blade dia. 7" with $\frac{3}{8}$ " round arbor hole. 6', 3-wire cord & plug. 11 $\frac{1}{2}$ " L x 8 $\frac{3}{4}$ " W x 7 $\frac{1}{4}$ " H. 17 lbs.
GDP-323, Mfrs. list \$39.95, no money dn., \$5 mo. **NET \$29.88**

Save Most With Heathkit®

INDUSTRIALLY RATED SANDERS AND PLANERS

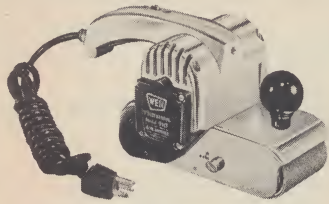


ONLY \$17.95

NEW SHOPMATE MODEL 1800 SANDER, ONLY \$17.95

This new oscillating sander offers true flush sanding . . . works where others can't, such as on ceilings and floor corners. Ideal for finishing, polishing, sanding, and rubbing of metals, plastics, compositions, and woods. The 3/16" orbital action gives a smooth finish without scoring the surface. Fast! . . . 4500 oscillations per minute by the powerful 1/3 hp., 3 amp. motor. Has direct gear reduction drive, no belts or pulleys. The roller and spherical bronze bearings have protective dust shields. Two quick-change lever clamps keep tension on the sandpaper for long life. Aluminum die-cast housing with mirror finish in the Hex-O-Bal design for easy handling. Concave, slide switch, 6', 3-wire cord. 9 3/4" L x 7 3/4" H x 3 3/4" W. 7 lbs.

GDP-833, Mfrs. List \$24.95 NET \$17.95

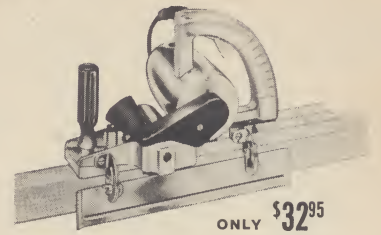


ONLY \$32.95

WEN 3" BELT SANDER MODEL 910, ONLY \$32.95

Does tough sanding jobs easily, quickly. Remove paint, finish rough and worn floors, smooth out walls, do rough and finish work on furniture, boats, lawn furniture, framing, table tops, automobiles. Features polished die-cast aluminum housing with balanced weight design; contour grip handle with slide switch; auxiliary grip knob; 1/3 hp. motor (110V. AC-DC, 4 1/4 amp.) with 3-wire 6' cord and plug; sealed, permanently lubricated gear train; oversize needle and Oilite bearings; single control tracking adjustment; unique tension design-change belts in seconds; belt speed: 850 S.F.P.M. 5 1/2" H x 5 1/2" W x 10 1/2" L. Complete with 3 belts, 120, 80, and 60 grit. Net Wt. 7 lbs.

GDP-833, 9 lbs., Mfrs. list \$44.95 NET \$32.95



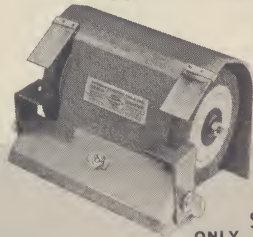
ONLY \$32.95

WEN ELECTRIC HAND PLANE MODEL 930, ONLY \$32.95

Planes board edges up to 2 1/4" thick, dresses flat surfaces of hard and soft lumber, bevels at any angle up to 45°. Not an attachment, but a fully integrated tool for precision work. Features polished aluminum housing with air stream chip ejector; cutting width 2 1/4"; depth adjustable to 1/16"; shoe length: 16"; 6 ampere 120V. AC-DC 1/2 hp. motor with welded burn-out proof armature and 3-wire 8' cord; air cooled cog belt drive; heavy duty Oilite bearings; conventional "saw" grip with trigger switch and auxiliary grip handle; full 2" diam. cutter assembly; twin cutters—each separately adjustable; cutter speed 14,500 rpm.; cutters replaceable at little cost; 16" L x 7 1/2" H x 7 1/4" W; net wt. 7 1/2 lbs. Complete with cutters.

GDP-843, 9 lbs., Mfrs. list \$44.95 NET \$32.95

ADD THESE CONVENIENT ACCESSORY TOOLS TO YOUR WORKSHOP

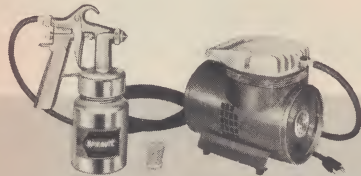


ONLY \$18.95

NEW SHOPMATE MODEL 450 UTILITY BENCH GRINDER—ONLY \$18.95

Sharpen, shape, or remove rust and foreign matter from metal ceramic, composition, etc. with this sturdy, powerful grinder. Suitable for shop or home, it has a powerful single phase, 115 volt motor that is enclosed to seal out all dust and particles. Equipped with bronze type bearings; "on-off" toggle switch; adjustable tool rests; eye shields; two balanced vitrified wheels of 36 and 60 grit. Wheel size: 4 1/2" dia., 1/2" wide, 1/2" round arbor. No load speed 3500 rpm. Wheel clearance: 6 1/2".

GDP-623, 10 lbs., Mfrs. list \$27.95 NET \$18.95

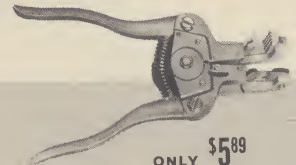


ONLY \$29.95

"SPRAYIT" MODEL 600 PAINT SPRAYER, ONLY \$29.95

Integrally powered diaphragm compressor unit combines advantages of low pressure spraying with perfect uniformity. Quiet, precision made, with oilless ball bearings; paint strainer; removable air filter; nylon-neoprene compressor diaphragm guaranteed for 1,000 hrs. or 3 years; adjustable all-aluminum spray gun with 1 pint paint cup; one year warranty. Sprays oil, paint, lacquer, stain, varnish, liquid wax, insecticides, weed killers, fertilizers, disinfectants. 8" x 8" x 5" aluminum body; 115v. 60 cycle shaded pole motor, 6' cord, 8' air hose.

GDP-73, 14 lbs., Mfrs. list \$39.95 NET \$29.95



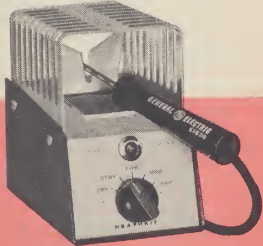
ONLY \$5.89

SPEEDEX WIRE AND CABLE STRIPPER MODEL 766-1, ONLY \$5.89

Here is a precision tool every workshop should have in its tool rack. Ideal for hobbyists, home craftsmen, mechanics, electricians, and radio servicemen as well as kit builders. No special skill is required to operate it, just insert the wire into its jaws and squeeze the handle . . . the insulation is off in a flash! This heavy-duty mechanism has graduated jaws to accept number 10, 12, 14, 16 and 22 wire. Manufactured by General Cement for rugged service with dependability.

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

PROPER TOOLS MAKE KIT BUILDING EASY



HEATHKIT SOLDERING IRON KIT

Includes 6 volt, 25 watt General Electric midget-type industrial soldering iron with iron-clad tip. Power supply is transformer operated; has 4 switch-selected heat ranges plus "off" position; can be connected for high or low line voltage to effectively give you selection of 8 heat ranges. While in holding clip, iron is shielded by "cage".

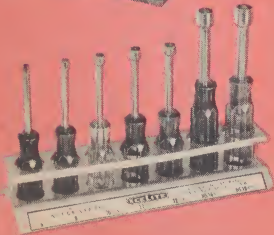
Kit GH-52, 5 lbs. \$14.95



WELLER 8200K DUAL-HEAT SOLDERING GUN

Save time and get professional soldering results in your kit building with this Weller Soldering Gun. Switches instantly from "high" (140 watts) to "low" (100 watts) with Trigger-matic control. Pre-focused spotlight illuminates work. Entire kit includes soldering gun, soldering aid, wire cleaning brush, and packet of Kester radio solder. 3 lbs.

Model 490-26 \$5.83



XCELITE #137 NUTDRIVER SET

For Heathkit building or "fix-it-yourself" jobs around the house. Seven color-coded nutdrivers in a handy self-supporting rack. Tough plastic handles. Polished alloy steel shanks. Contains the following sizes: 3/16", 1/4", 5/16", 11/32", 3/8", 1/2", and 9/16". Shanks are drilled 1 1/4" deep to allow tightening over long screws. The two largest have hollow shafts for nut installation on controls, switches, etc. 2 lbs.

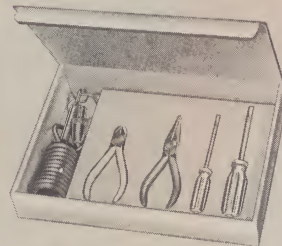
Model 490-27 \$6.42



WELLER D-550-PK HEAVY DUTY SOLDERING KIT

Professional kit with heavy duty, dual heat 240/325 watt Weller gun. Instant heat, trigger on-off control, twin spotlights, soldering tip, smoothing tip, cutting tip, tip-changing wrench, all-purpose solder, and instruction booklet. Complete with handsome plastic utility case handy for storage of iron and accessories.

GDP-923, 5 lbs., Mfrs. list \$12.95, NET \$9.55



HEATHKIT BASIC TOOL SET

Provides all the basic tools required to build practically any Heathkit. Kit contains longnose pliers, diagonal sidecutters, two screwdrivers and a 30-watt soldering iron. Pliers and sidecutters are equipped with vinyl insulated handles. All tools are top quality case-hardened steel for rugged duty and long life. Also handy for many repair jobs around the home. 2 lbs.

Model TK-1 \$9.95



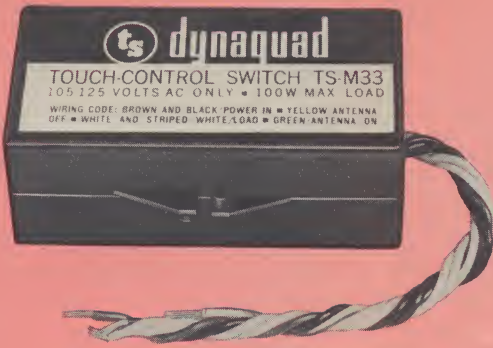
HEATHKIT DELUXE TOOL SET

Here is a fine assortment of quality tools that will make your Heathkit building or any fix-it task easy—and fun! Includes: a combination wire stripper & diagonal sidecutter, midget longnose pliers, three screwdrivers, Weller 8200K dual-heat soldering gun, soldering instruction booklet, solder joint brush, radio solder, 5 nut drivers, nut starter and soldering aid. 6 lbs.

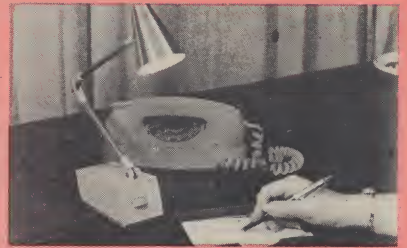
Model GH-10 \$19.95

Home & Hobby Accessories

UNIQUE LAMPS FOR EVERY LIGHTING PURPOSE

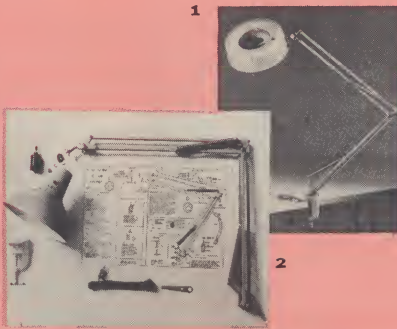


TUNG-SOL TOUCH-CONTROL LAMP KIT, ONLY \$18.95
 Touch—It's on, touch—It's off! This lamp responds to the touch of a finger. Easy to assemble; includes a beautifully styled lamp of polished walnut and brass finish and the amazing Dynaquad electronic switch. Silent; operates from any 110v. AC outlet. Kit contains all parts (except shade and bulb) and Instructions.
GDP-893, 4 lbs., Mfrs. list \$19.95, Net. . . . \$18.95



TENSOR PRINCESS DECORATOR LAMP, MODEL 7100, ONLY \$12.95—Unique miniature lamp with adjustable arm. Ideal for use on piano, organ, desk, etc. Provides soft, confined light area from 12v., 40 beam candlepower bulb; 110v. AC transformer is built into molded beige plastic base with slide switch. Gold finished metal shade and arms. Collapses to 2", extends to 18". Shade is 3" L, 2 1/2" diam.
GDP-913, 2 lbs. \$12.95

TUNG-SOL "DYNAQUAD" TOUCH-CONTROL SWITCH, ONLY \$13.95
 Here's a unique new device that has a wealth of applications for home and industrial use . . . wherever touch-to-turn-on action can be used. The switch is operated by the normal capacity of an object or a person's body . . . capacity is coupled into the circuit by means of antennas which are connected to metal touch points. Absolutely no shock hazard. Employing a new solid-state device, the "Dynaquad," this PNP germanium alloy transistor acts as an electronic switch that remains off until turned on and stays on until turned off. It has two modes of operation: single pole double-throw, where touching one antenna will turn it on and touching the other will turn it off; or single pole single-throw, where a single antenna is touched for momentary on and goes off when touch is discontinued. Long antennas permit operation from remote locations. Works directly from 105-125 VAC and can handle up to 100 watts. Self-contained in plastic case, 3" x 1 1/2" x 1 1/2", six leads: two for power, two for load, two for antennas. Useful for home lighting, appliances, burglar alarms, sorting, counting, control, advertising displays, sick room alarms, key-hole lights, etc.
GDP-903, 1 lb., Mfrs. list \$14.50, Net. \$13.95



Z-LYTE MODEL 400 EXTENSION LAMP-MAGNIFIER—ONLY \$24.38—SAVE 25%—Gray finished extension combination lamp and magnifier for well-lighted close work. Sightsaver for model hobbyists, the lens has 2-power magnification! Light where you need it, the lens is surrounded by a fluorescent "ring" (bulb not included). Precision 45° arms as above. U.L. approved.
GDP-43, 8 lbs., \$32.50 mfrs. list, Net. \$24.38

Z-LYTE MODEL 210 INCANDESCENT EXTENSION LAMP IN KIT FORM—ONLY \$9.95—Lowest cost ever! Easiest to build ever! Biggest savings ever! Cut your extension lamp costs in half with this unique lamp kit. It's really a semi-kit, just attach the socket, shade and cord, the precision spring-balanced extension arm is completely assembled when you receive it. Takes about one-half hour for anyone to finish. Has 45° reach, 360° sweep, vented shade, clamps to desk or table, U.L. approved. Less bulb.
GDP-202, 6 lbs., \$14.50 mfrs. list, Net. \$9.95

ELECTROTONE ALL-PURPOSE BATTERY CHARGERS

Big Savings—U.L. Approved—Guaranteed 1 Year



- 1 ELECTROTONE C-20-M CHARGER, \$18.95 LIST, ONLY \$9.58** • Ammeter monitor • Circuit-breaker • 2 to 3 Amp. current. Ideal for overnight charging, this compact charger is capable of delivering 3 amps. Uses full-wave high density selenium rectifiers. Has a selector switch for 6 and 12 volt batteries. An ammeter continuously monitors the rate of charge. An automatic-reset circuit breaker provides complete protection of both charger and battery. The "Super-grip" copper-plated clips for direct battery terminal charging will handle 50 amps. The instrument case is lowered for cool operation and has a black anodized handle for easy carrying. Model GDP-112, 4 lbs., \$18.95 List, Net Only \$9.58
- 2 ELECTROTONE C-60 CHARGER, \$29.75 LIST, ONLY \$14.73** • Professional ammeter • Circuit-breaker • 6 to 8 Amp. current. This heavy duty battery charger will deliver up to 8 amps. Uses full-wave, high density selenium rectifiers. A slide-type switch selects either 6 or 12 volt output. The ammeter continuously monitors the rate of charge. The automatic-reset circuit breaker provides protection for both charger and battery. "Super-grip" copper-plated 50 amp. clips permit direct battery terminal charging. The wrinkle-finish cabinet is perforated for cool operation and has a black anodized handle for carrying purposes. Model GDP-122 . . . 7 lbs., \$29.75 list, Net Only \$14.73
- 3 ELECTROTONE C-100 CHARGER, \$56.95 LIST, ONLY \$28.68** • Three charge rates • Voltmeter and ammeter • "Off" switch • Charges through cigarette lighter socket • Pilot lights. Here is the battery charger that will fulfill every charging need regardless of battery condition, weather or periods of inactivity. The charge-selector chooses three charging rates . . . "slow" to maintain a fresh battery over long periods of inactivity . . . "medium" for a normal charge to prevent sluggish performance . . . "fast" for the battery that must get going fast (recharges a dead battery in three hours; provides enough charge to start engine in ten minutes). Delivers up to 10 amps. Professional ammeter monitors rate of charge. Voltmeter checks dynamic condition of battery, shows if battery is 6 or 12 volts, and indicates the cut-off setting of the generator. Easy to use, just plug it into the cigarette lighter socket to charge the battery; or use the copper-plated 50 amp clips directly on the battery terminals. 3-way toggle switch selects 6 volt, 12 volt or "off" positions with amber and red pilot light indicators. Selenium Rectifiers. Circuit breaker protection. Lowered cabinet with satin chrome handle.
Model GDP-132 . . . 8 lbs., \$56.95 list, no money down, \$5 mo. Net Only \$28.68

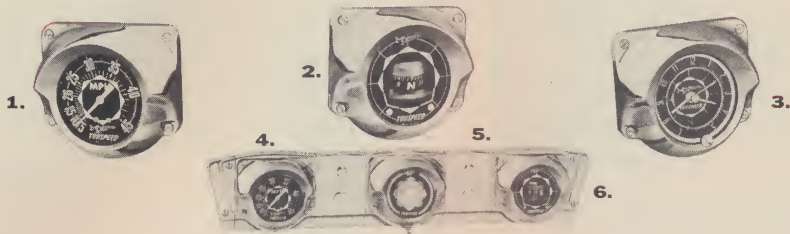
SAVE TIME & MONEY WITH CORDOMATIC RETRACTABLE OUTLET REELS & LAMPS



- 1 CORDOMATIC (510D) PORTABLE OUTLET REEL** • Reel provides neat storage of cord when not in use • 15' retractable cord • Locks and retracts automatically • 10 amp rating. Here's a happy solution to your electrical outlet shortage problem. Just plug in cord and carry the 3-way outlet to work area. Provides 3 outlets to operate several appliances, tools or other electrical equipment from the same cord. Cord rewinds after use to eliminate dangling, hazardous extension cords. Ideal for use indoors or outdoors. Quality built for long life. U/L approved.
GDP-32, 3 lbs., mfrs. list \$8.95 . . . Net. \$6.72
- 2 CORDOMATIC (500) HANDY-LITE REEL** • Portable light and electric power • 20' retractable cord • Reel locks . . . retracts automatically • Wall or ceiling mount • Handy electric outlet in handle • Underwriters approved • 7 amp rating. Handy drop cord and light provide light and power where and when you want it. Eliminates inconvenience and hazards of tangled cords. 20' cord pulls out to any length, locks and retracts automatically after using. Reel mounts on wall or ceiling . . . requires no junction box, plugs into nearest outlet. Handy outlet in light handle provides power for portable electric tools, etc. Ruggedly built for lifetime use! For home, workshop, basement, garage, attic, garden or patio. GDP-22, 5 lbs., Mfrs. list \$8.95 . . . Net. \$6.72
- 3 CORDOMATIC (500LA) MULTIPLE-OUTLET REEL** • Heavy-duty reel mechanism • Mounts on wall or ceiling • 3-way outlet • Universal swivel mount • U/L approved • 7 amp rating. Handy 20' extension cord stores neatly out-of-the-way when not in use . . . pulls out to provide power for appliances, tools, etc. wherever desired. Gravity mechanism locks cord in position . . . rewinds it automatically out-of-sight. Ideal for use in home or shop. Heavy gauge steel construction for rugged use. 3-way outlet permits operating several appliances from same cord.
GDP-42, 4 lbs., Mfrs. list \$7.95 . . . Net. \$5.99

Money Saving Marine & Camping Gear

"Truspeed" Marine Instruments Put Custom Styling Aboard Your Boat at Big Savings



Add the Smart, Distinctive "Truspeed" Look
Save up to 30%!

- Modern visor styling • Durable outdoor chrome plating • Crowned plexiglas crystals • Die-cast bezels • Precision movements • Everything included • Easy to install • Will mount individually or with sectional panels for integrated custom appearance



UPSON/RUGBY LANTERN—waterproof, shockproof, rustproof, unbreakable. Guaranteed. Plastic lens with adjustable sealing ring for diver's use. Uses 6v. battery, Eveready #509 or equiv., not included.
MDP-61, 3 lbs. \$10.50



KIDDIE KOMPACT FIRE EXTINGUISHER MODEL 2 1/2 DCK—combines dry chemical agent with pressurization. Handle with finger control. Capacity 2 1/2 lbs. UL rating 4-B-C. Approved U. S. Coast Guard and I.C.C.
MDP-12, 5 lbs., \$10.99 MDP-22 refill, \$3.95



SPORTSMAN'S TELESCOPE—BAUSCH & LOMB IOX—\$9.95
Ideal for hunting, target spotting, boating, or bird watching. Compact—10" long, wt. 9 oz. 6 element color corrected glass lens system. Wide field: 15' at 100 yds. Easy focusing. Weather sealed. Max. resolution for 10 power scope. 1 lb. GFP-43, mfrs. list \$10.93. **NET \$9.95**

MARINERS

DENS

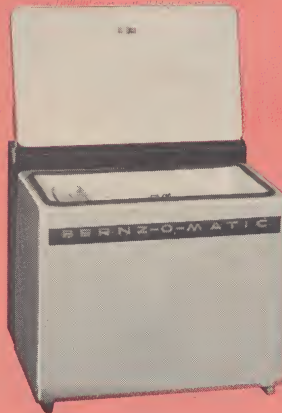
PATIOS

CONCESSIONS

TRAILERS

CAMPERS

OFFICES



TAKE A REFRIGERATOR WHEREVER YOU GO—ONLY \$49.95. SAVE \$15. Enjoy the luxury of cold beverages and safely stored foods no matter where you are. Fishing, boating, hunting, camping or picnicking . . . trailer, motel, hotel, or cabana . . . dens, recreation rooms, or patios . . . hospitals, labs . . . permanent and field offices. Completely silent, this maintenance-free unit has no moving parts; it uses a self-contained absorption type cooling system, hermetically sealed; maintains a temperature 50° below the outside ambient temp. The high impact molded plastic case has modern foam insulation; weighs just 18 lbs.; measures just 14 3/4" L x 12 1/4" W x 13 1/4" H. Holds 15 lbs. of your favorite food or beverage. Power requirements: 12 v. battery @ 3.7 amps (equivalent to auto parking lights) or 110 v. AC. Comes complete with 2 cords, one 12' to plug into auto cigarette lighter, and one 6' for 110 v. AC outlet. U.L. approved. Warranted for 3 years!
MDP-23, 21 lbs., \$64.95 mfrs. list, no money down, \$5 mo. **NET \$49.95**

EXTRA-CAPACITY REFRIGERATOR—ONLY \$94.70. SAVE \$15
1.1 cubic feet, three times the capacity of the model opposite, yet it is not much larger. . . . measures just 21" wide, 17 1/2" deep, and 18 1/2" high! Same fine construction of molded plastic with 2" foam insulation and enameled metal parts. Same principle of operation used in this larger system. . . . absorption method using ammonia in a sealed system. Thermostatically controlled. Makes its own ice cubes. Power requirements: 12 v. battery @ 7 amps, or 110v. AC. Comes complete with 2 cords (one 12' to plug into cigarette lighter) and one for 110v. AC outlet. U.L. approved. 3 year warranty.
MDP-143, 55 lbs., no money dn., \$10 mo. **\$94.70**

PROPANE GAS LANTERN—ONLY \$11.95. SAVE \$5
For outdoor living with indoor lighting. Dual beam from built-in reflector: 300° frontal light, 360° base light. Adjustable from soft glow to bright beam. Stormproof, stays lit even in heavy winds. Safe, no dangerous liquid fuel, uses safe, disposable propane gas cylinder (Included). Fuel lasts from 10 to 14 hours of intermittent use. Steel body with Pyrex globe; size 11" H x 5 1/2" W; no generators or other working parts to clog or replace. Warranted for 1 yr.
GFP-23, 8 lbs., mfrs. list \$16.95. **NET \$11.95**



PROPANE RADIANT HEATER—ONLY \$21.95, SAVE \$8
Safe, portable heating indoors or outdoors for fishing, hunting, camping, beach, patio, trailers, emergency use. Lights instantly . . . strike a match, turn a valve, and you have radiant heat. Use upright or tilted, the heater is safe for it uses no dangerous liquid fuel that can spill. Sturdy, shock-resistant steel body with protective steel grill; measures 9" wide, 13" high, 5 1/2" deep. Burning time is approximately 12 hrs. per cylinder (unit comes complete with fuel cylinder). Put this handy, efficient heater in your gear for greater comfort anywhere.
GFP-33, 11 lbs., mfrs. list \$29.95 **NET \$21.95**



PROPANE TORCH KIT—ONLY \$6.95, SAVE \$3
The tool of a 101 uses! From cellar to roof, you'll find this torch kit the handiest for any job . . . sweating copper tubing, paint removing, soldering, tile setting, lighting charcoal fires, etc. Included in this kit is a pencil burner unit, utility burner head, soldering tip, flame spreader, flint spark-lighter, fuel cylinder, and a free handsome all-metal, all-purpose carrying case. Add this unique torch kit to your workshop accessories at this low price.
GFP-13, 6 lbs., mfrs. list \$9.95 **NET \$6.95**

Save On TV Antennas - Boosters - Rotors

SPAULDING "STRATO-TOWER" TV TOWERS

Towers are shipped by truck FOB Frankfort, Indiana. No COD orders accepted—send remittance with order. Indicate shipping address (no Post Office Box Numbers if possible). Shipping charges collected on delivery.



1. XCB SERIES, CYLINDER BASE TOWERS—no concrete required, sets into cylinder base—assemble on ground or build up vertically. Self-supporting, high strength, no guys or supports. No welds to rust, all riveted, 100% galvanized steel—beaded channel leg. Low wind resistance at top plus easy rotator installation. Each unit includes cylinder base with self-aligning hinge feet, 8' mast, a number of factory-assembled 8' tower sections, and all hardware.

2. EP ECONOMY SERIES TOWERS—zinc-plated steel—mount on ground with house bracket or on roof with guy wires and roof mount accessory. Each unit includes proper number of 8' tower sections, ground base plate, 8' mast, mast kit assembly, and drive-in base stakes. No guys needed to 16' above house bracket. Accessory house bracket and roof mounting base available.

3. RM SERIES ROOF MOUNT TOWERS—easily adjusted to any roof—self-supporting—galvanized beaded channel leg steel. Easily installed, the three hinged feet fit any roof surface; antenna and tower can be erected after assembly. No guy wires needed when feet are securely anchored to roof. Units include 4' or 8' tower sections with or without 8' mast plus mast kit assembly; allow antenna heights of 10' or 14' above roof. Shipped knocked-down. Complete with instructions and mast clamp.

Order No.	Mftrs. Type	Ant. Ht.	Tower Sec.	Wt.	Net Ea.
GDP-773-2	X28CB	23'	2	89	\$36.63
GDP-773-3	X36CB	31'	3	120	55.78
GDP-773-4	X44CB	39'	4	155	67.76
GDP-773-5	X52CB	47'	5	200	77.59
GDP-773-6	X60CB	55'	6	272	90.33

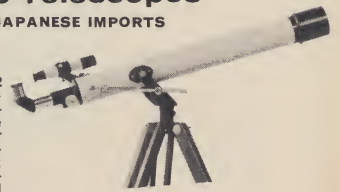
Order No.	Mftrs. Type	Ant. Ht.	Tower Sec.	Wt.	Net Ea.
GDP-783-1	EP-1	14'	1	25	\$15.78
GDP-783-2	EP-2	22'	2	41	23.22
GDP-783-3	EP-3	30'	3	56	29.22
GDP-783-4	EP-4	38'	4	72	36.52
GDP-783-5	EP-5	46'	5	88	43.83
GDP-783-A	EPR-1	Unlv. roof base	2		2.88
GDP-783-B	EPH-1	Adj. house bracket	5		3.67

GDP-793-1 4' roof mt. tower and mast kit assembly, 16 lbs. Net \$6.30
 GDP-793-2, 4' roof mt. tower, 8' mast, and mast kit assembly, 23 lbs. Net \$8.40
 GDP-803-1, 8' roof mt. tower and mast kit assembly, 28 lbs. Net \$11.85
 GDP-803-2, 8' roof mt. tower, 8' mast, and mast kit assembly, 35 lbs. Net \$13.95

Save Up To 60% On Tasco Telescopes

FINEST OF JAPANESE IMPORTS

175-POWER TELESCOPE MODEL 9TE-2 "STARBRITE"—Only \$39.95, Save \$10—Precision built, perfect for the beginner astronomer. Hard coated optics; 60MM objective lens; 2 eye lenses (H6MM, H12.5MM); star diagonal prism; 1.5X terrestrial eye lens accessory; adjustable finder-scope with cross hairs; sun filter; rack & pinion focusing; micro altitude adjustment; all metal alum. tube, metal accessory tray; sturdy hardwood tripod, instructions and attractive gift box.



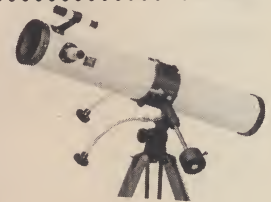
GDP-253, 13 lbs., \$49.95 Mftrs. list, no money dn., \$5 mo. NET \$39.95



266-POWER TELESCOPE MODEL 12TE-2 "SOLARAMA"—Only \$54.95, Save \$35—Fine for student or professional. Coated optics; 60MM objective; 2 eye lenses (H6MM, H12.5MM); 2X Barlow lens; erecting prism; diagonal prism; adjustable 5 x 24 finderscope with crosshairs; sun filter; quick focus feature; rack and pinion fine focusing; micro altitude adjustment; micro azimuth adjustment; aluminum tube; adjustable tripod; accessory lens tray; instructions; wood carrying case; gift box.

GDP-263, 21 lbs., \$89.95 Mftrs. list, no money dn., \$6 mo. NET \$54.95

300-POWER REFLECTING TELESCOPE MODEL 11-TEA "LUNAGROSSO"—Only \$79.95, Save \$50. Features 900-MM focal length 4 1/2" parabolic mirror, two TASCOS quartz mirrors, 45X and 150X eyepieces, 5X finderscope, sun and moon filters, 2X Barlow lens which doubles eyepiece powers, heavy duty tripod with equatorial mount and flexible controls for easy adjustment and tracking, and metal dust cover. GDP-273, 28 lbs., \$129.95 Mftrs. list, no money down, \$8 mo. NET \$79.95



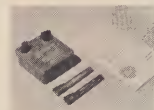
HOUSEHOLD EMERGENCY GEAR

ZEUS PORTABLE KILOWATT ELECTRIC GENERATOR, MODEL ASP-1000, Only \$149.95 For standby power, on-the-job power, emergencies, amateur radio field days, camping, the Zeus provides electricity anywhere, anytime. Trouble-free generator uses permanent magnet alternator no brushes, no armature windings, no belts, no slip rings, or commutators; reduces radio noise to minimum. Just one moving part, the permanent magnet alternator. Output 1000 watts, 115 v., 60 cycles, 8.7 amps., single phase, 2 wire. Outlet three prong plug. Powered by single cylinder Briggs & Stratton Model 80502 2.5 H.P., 4 cycle gasoline engine (2 3/8" bore, 1 3/4" stroke, 7.75 cu. in., 3600 rpm) with recoil starter. Oil capacity 1 1/2 pints; fuel capacity 1 quart (uses 1 quart per kilowatt hour). Air vane type governor automatically regulates voltage and frequency of generator output. Air cleaner has oil-foam "no-spill" feature with washable polyurethane element. Muffler is low tone silencer for 33% less noise. Size: 15" H x 13 1/4" W x 13" D. Wt. 63 lbs. Put this handy generator in your home for fun and complete safety. GDP-933, 65 lbs., Mftrs. list \$197.50. NET \$149.95

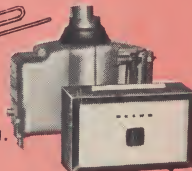
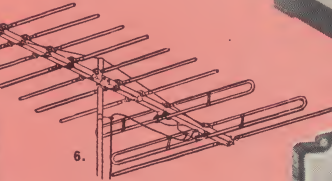
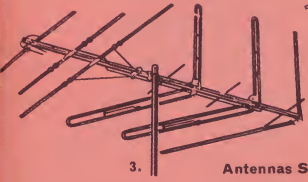
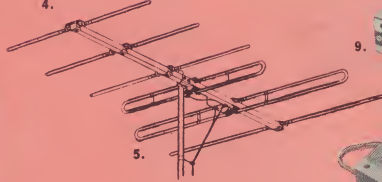
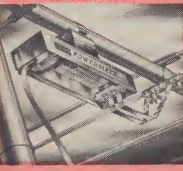


FAMILY RADIATION COUNTER

Bendix Measurement Set—Simple, rugged, direct-reading, pocket-size, factory assembled. Rate meter (0-120 R/hr., 0/12 R/hr.); Dosimeter measures total (0-600 roentgens); Charger to re-set instruments.



GDP-341 Complete Set: . . . 3 lbs. . . no money down, \$5 mo. \$24.95
 GDA-341-1 Dosimeter only . . . 1 lb. \$11.25
 GDA-341-2 Rate meter only . . . 1 lb. \$11.25



1. TACO T-BIRD "ELECTRA" MODEL G990-8 ELECTRONIC TV ANTENNA—The world's most powerful electronically-amplified antenna. Gets pictures and sound where others fail! Will receive stations hundreds of miles distant. Best for color, best for black and white, best for multi-set systems. Has antenna-mounted transistorized booster that multiplies the signal. And you can connect your TV set and your FM tuner! Complete, 8 elements and booster, ready to install. Gold anodized and irradiated. 15 lbs. GDP-223, \$107.20 Mftrs. list, no money dn., \$7 mo. NET \$62.98

2. JERROLD ANTENNA PREAMPLIFIER APM-101—high gain with low noise transistor circuitry for best TV and FM reception. Works with any TV or FM antenna; preamplifier mounts on antenna, mast, window or wall; power supply mounts on or near receiver. Shielded; weatherproof; dual outputs for use with two sets; up to 18 db gain; Impedance 300 ohms; preamp. 2 1/2 x 6 1/2 x 3 3/4"; power supply 4 1/2 x 3 1/2 x 1 1/2"; 110v, 60 cycle, AC. GDP-773, 2 lbs., no money dn., \$5 mo. NET \$26.63

3. TACO T-BIRD MODEL G707-6 TV ANTENNA—Excellent for black & white and color TV; 6 elements; sensitivity controlled to 1 db across channels; gold anodized; "cradle-look" brackets; irradiated aluminum; T-match system; fiberglass and butyrate Insulators; guaranteed 1 year. GDP-213, 9 lbs., \$46.15 Mftrs. list, no money dn., \$5 mo. NET \$25.84

4. TACO 4-BAY MODEL 3044 TV BOW-TIE UHF ANTENNA—Popular open vee type with pivot mount for rigid locking to existing mast; heavy mesh screen reflector of galvanized 12 gauge steel with 1" x 1 1/2" squares for max. stability and long life. GDP-233, 4 lbs., \$8.75 Mftrs. list. NET \$5.14

5. FINCO FM-4G BROAD BAND FM ANTENNA—Twin-drive element with T-match stubs; extra wide-space elements; max. gain across entire FM band; 6 elements; heavy duty square aluminum boom (7"-9"). "Lock-lite, no tilt" wall reinforced aluminum with "Corodoze" gold corrosive-resistant finish. ADP-103, 7 lbs., \$27.75 Mftrs. list. NET \$16.30

6. FINCO FM-5 ELEMENT FM ANTENNA—Same features and construction as above except has 10' boom to accommodate larger number of elements. ADP-113, 9 lbs., \$36.35 Mftrs. list. NET \$21.35

7. NEW BLONDER-TONGUE BTU-2T UHF TV CONVERTER—With RF amp for up to 8 db gain; dual speed selector covers ch. 14-83; output on ch. 5 or 6; easy to install at TV set; requires UHF antenna. GDP-713, 4 lbs., Mftrs. list \$44.95. NET \$29.65

8. NEW BLONDER-TONGUE BTC-99S UHF CONVERTER—3 section tuner for class A signal areas; tunes ch. 14-83; output on ch. 5 or 6. GDP-703, 3 lbs., Mftrs. list \$27.95. NET \$19.35

9. BLONDER-TONGUE TV / FM SIGNAL BOOSTER (B-33)—A combination antenna signal booster and home distribution system that makes any antenna more powerful by amplifying the signal and distributing it to up to 3 TV and/or FM sets. For one set, the B-33 doubles the antenna signal (6 to 8 db gain); for 3 sets, each gets as much signal as is picked up by the antenna. Input and output: 300 ohms. Size: 6 1/2" x 3 3/4" x 2 1/2". GDP-321-A, 2 lbs., Mftrs. list \$19.95. NET \$13.33

10. PERFORMANCE-PROVEN TRANSISTORIZED BLONDER-TONGUE FM / TV BOOSTER (IT-4)—Dependable, trouble-free signal booster. Accepts up to four FM and TV sets simultaneously. 300 ohm input & output. Easy to install. 1 3/4" x 2 1/4" x 4". 1 lb. GDP-331. ONLY \$19.40

11. ALLIANCE T-20 ANTENNA ROTOR ONLY \$23.45, SAVE \$16.50—America's favorite rotor, attractively styled, and value packed. "Tenna-Teller" pointer on control unit automatically follows antenna direction as it is being rotated. No buttons to push, no dials to adjust, just a touch of the control bar aims your antenna in any direction. Instantly reversible motor rotates clockwise or counter-clockwise; magnetic brake eliminates coasting. Positive mechanical stop at end of rotation; speed 1 rpm; factory lubricated for life; stainless steel bearing insert; moisture sealed; input: 115v., 60 cycles, AC. GFP-73, 12 lbs., Mftrs. list \$39.95. NET \$23.45

Extra Value Stereo/Hi-Fi Accessories

BULK TAPE ERASER—ONLY \$22.15

Robins ME-99 tape eraser for the finest recordings. Engineered to professional standards; assures distortion-free tape; reduces noise level 3 to 6 db below capability of erase heads; fast way to erase entire tape; saves wear on recorder; effective on tapes up to 1/2" wide; accepts 10 1/2" reels. Size 3 3/4" x 5 1/4" x 6 3/4". 110-120v. 50-60 cycles.
Model ADP-93, wt. 9 lbs.,
 \$33 list.....**NET \$22.15**



ALTEC LANSING DYNAMIC MICROPHONE

Rugged, omnidirectional, moving coil, high-impedance mike for fine quality tape recordings (Ideal for use with A D - 22 and AD-72). Complete with base, slip-on stand adapter, 15' cable, plug, and tan finish to match Heathkit recorders. Response: 50-18,000 cps. 5 lbs.
ADP-72, no money dn., \$5 mo..... \$49.95



ROBINS RECORD CARE KIT #ESK-3 Only \$3.38



Includes stylus pressure gauge, microscope, table level, cleaning cloth, stylus brush, record brush, tone arm lift.
ADP-623, 1 lb., Mfrs. list \$5, NET. \$3.38

AUDIOPHILE RECORDING MIXERS

SWITCHCRAFT 4-CHANNEL TRANSISTOR STEREO-MONO MIXER MODEL 306TR, ONLY \$22.05.



Four input, high impedance mixer with built-in battery powered all-transistor amplifiers in each of two stereo channels. Switch permits use for either stereo or monophonic mixing; in stereo position, two inputs can be used in each channel; in monophonic position; four inputs can be used and the outputs are common. Amplifiers overcome usual loss encountered in resistance type mixers and actually provide a 6 db gain. Permit use of microphones up to 30 feet from recorder or amplifier. Low noise level, low distortion response, 20-20,000 cps. Accepts signals up to 1.5 volts from microphones, tuners, phonos, etc. On-off switch to shut off amplifiers when not in use to lengthen battery life. Input jacks accept standard 2-conductor phone plugs; output jacks accept standard 2-conductor phono plugs; jacks are located on back of unit, no interference with volume controls. Modern styling in tan finish with brown knobs with gold inserts. Rubber feet prevent scratching finished surfaces. Mixer is supplied with 9 volt battery.
ADP-643, 2 lbs. Mfrs. list \$37.50.....NET \$22.05

NEW SOUNDRAFT "GOLDEN TONE" RECORDING TAPE—3 Reels for \$8.75 Save 38%



10% better dynamic range; low modulation noise; free of drop-outs; no squeal problems; outperforms others; 1200', 1 1/2 mil acetate, splice-free. Available in three only. \$4.70 list each.
ADP 313, 3 lbs., 3 for..... \$8.75

HEATHKIT CRYSTAL MICROPHONE—ONLY \$9.95



Low cost way to fine recordings. Ideal for use with the new AD-72 recorder. Extended response, 30-10,000 cps. Complete with mike stand adapter, lavalier neckband, and desk stand holder plus 8' cable and phone plug. Order two for stereo recordings; will fit in case below.
MODEL AK-1, 1 lb..... \$9.95

SWITCHCRAFT 4-CHANNEL RESISTANCE TYPE STEREO-MONO MIXER MODEL 306, ONLY \$13.23.



Similar to model 306TR except without the transistor amplifiers, for use where a minimum loss is not objectionable. No power is required. Has same inputs and features for stereo-mono use.
ADP-633, 2 lbs., Mfrs. list \$22.50.....NET \$13.23

NEW STEREO-4 TAPE SPLICER—ONLY \$6.95



Robins Deluxe "Gibson Girl" Stereo-4 tape splicer #TS-8D splices 4-track stereo tapes without sacrificing program material on outside tracks. Cuts diagonally; trims "Gibson Girl" waist on sides of splice; see-thru windows; tape guide on sides of splice; blade centering adjustment.
MODEL ADP-73, wt. 1 lb. List \$11.50 NET \$6.95

NEW TAPE HEAD DEMAGNETIZER—ONLY \$5.75



Robins model HD-6 demagnetizer removes magnetization of tape heads to reduce noise level, harmonic distortion, and to improve signal to noise ratio. AC electromagnet with extended pole piece for easy access to heads; case 1 1/2" dia.; 110 v., 60 cycles only.
MODEL ADP-63, wt., 1 lb. list \$11.50 NET \$5.75

NEW FERRODYNAMICS "BRAND 5" RECORDING TAPE—3 Reels only \$5, Save 20%



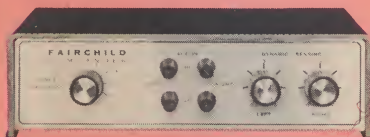
New dry lubricant; new harder formulation; increased output; improved frequency response; 1200', 1 1/2 mil acetate, splice-free. Available in three only. \$2.10 list each.
ADP-123, 3 lbs., 3 for..... \$5.00

TAPE & RECORD CARRYING CASE FROM \$2.95



Perfect accessories for your listening pleasure. Convenient, low cost. Sturdy, Handsome, Protective.
ADP-33, For 7" tape boxes, microphones, or 45 rpm records. Wood case covered in brown and checkered beige plastic. Clear plastic handle, brass plated hardware. 8 3/4" H x 8 1/2" W x 7" D overall. 5 lbs..... \$2.95
ADP-43, For 12" records. Features as above. Size: 13 1/2" W x 13 1/2" H x 4 1/2" D overall. 7 lbs..... \$3.95

FAIRCHILD "COMPANDER" FOR GREATER DYNAMIC RANGE AND REALISM



Kit Form or Factory Assembled

This unique device offers you "expansion" or "compression" for greatest versatility. Expand stereo or mono music for greater realism and range . . . automatically increases loudness of program which was compressed during recording . . . does not alter frequency response. Compress to record programs or play background music without overloading or distortion. Completely adjustable; gain range 6 db or more; action indicators show effect. Size 8 3/16" W x 5" D x 2 5/16" H. 6 lbs.
Kit ADP-613, no money down, \$6 mo..... \$59.95
Assembled ADP-603, \$8 mo..... \$75.00



PANASONIC RQ-114 TRANSISTOR PORTABLE TAPE RECORDER, ONLY \$99.95. All transistor; records half-track monophonic at 3 3/4" & 1 1/2" ips; controls include volume, tone, rewind, stop, playback, record, fast forward, and digital tape counter; provision for external 8 ohm monitor; capacity 7" reel; built-in 2-input amplifier with 6" x 4" speaker; recording meter; monitor, while recording, with speaker or earphone. Beige and ivory plastic case measures 7 1/2" x 13 1/2" x 12". Comes complete with microphone, patch cord and empty 5" reel. 110-125V., 60 cycles, 50 watts. **GDP-193, 9 lbs., Mfrs. list \$129.95, no money down, \$10 mo.....NET \$99.95**



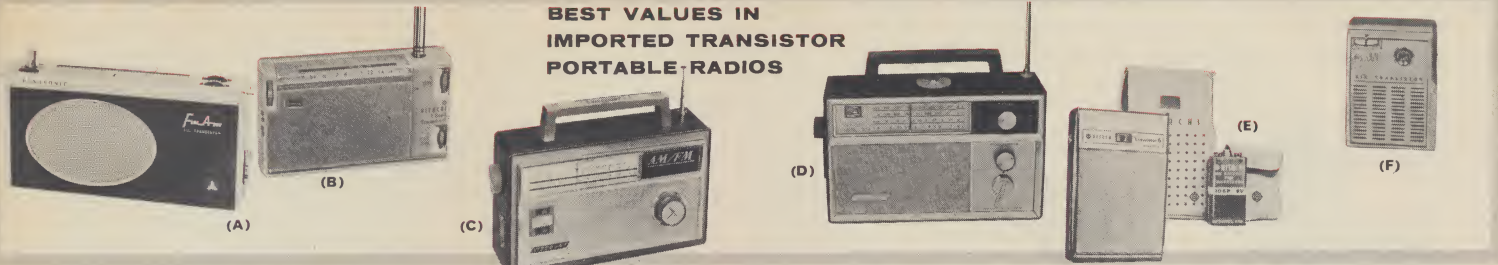
PANASONIC RQ-700 HIGH FIDELITY TAPE RECORDER, ONLY \$114.95. Records half-track monophonic at 3 3/4" & 7 1/2" ips; controls include volume, tone, rewind, stop, playback, record, fast forward, and digital tape counter; provision for external 8 ohm monitor; capacity 7" reel; built-in 2-input amplifier with 6" x 4" speaker; recording meter; monitor, while recording, with speaker or earphone. Beige and ivory plastic case measures 7 1/2" x 13 1/2" x 12". Comes complete with microphone, patch cord and empty 5" reel. 110-125V., 60 cycles, 50 watts. **GDP-943, 31 lbs., Mfrs. list \$139.95.....NET \$114.95**



TRANSCORDER TR-300 PORTABLE TAPE RECORDER, ONLY \$39.95

At home, at work, at play, this handsome little tape recorder is ready to serve you. Put one in the office and one in your car for dictation purposes . . . take one along for conference reporting . . . use one at school in many teaching situations . . . students can use them for practicing . . . families can use them for more fun at get-togethers. All-transistor circuit is battery powered; separate batteries are used for the tape motors. Simple mechanism uses no capstan and consequently does not have constant speed from start to finish of reel; tapes should be recorded and played back on the same or another identical machine for best results. Speed may be adjusted by control knob. Tape handling functions are controlled by single knob. Has volume Control, Level Meter, Magnetic Microphone with Remote Control switch, and Fast-Forward switch. Records half-track monophonic on standard 3" reel with a response of 300-4,500 cps. Output power of 150 milliwatts to a built-in 2 1/2" PM speaker. Handsome two-tone plastic case with built-in handle measures 8" W x 7 1/2" D x 2 1/2" H; weighs just 3 lbs. with microphone and batteries (included).
GFP-63, 4 lbs., no money dn., \$5 mo..... \$39.95

Low Cost Radios & Phonographs



BEST VALUES IN IMPORTED TRANSISTOR PORTABLE RADIOS

(A) PANASONIC FM/AM TRANSISTOR PORTABLE MODEL T-81, ONLY \$49.95—8-transistor, 4-diode circuit tunes FM and AM bands. Telescoping FM antenna and rod antenna for AM; 4" x 2 1/2" speaker; tone sw.; local-distant sw.; tuner output jack; external AM antenna jack; earphone jack; external power jack; with 4 "AA" cells & earphone. Size: 7 1/4" x 3 3/4" x 2"; black & silver finish. GRP-93, 4 lbs. Mfrs. list \$59.95. **Net \$49.95**

(B) HITACHI MARINE/AM TRANSISTOR PORTABLE MODEL WH-829MB, ONLY \$34.95—8-transistor, 2-diode, 1-thermistor circuit tunes AM 535-1605kc and Marine 1.6-4.5 mc; telescoping antenna and rod antenna plus external antenna jack; 3 1/2" x 2 1/2" speaker; fine tuning control; tone control sw.; earphone jack; complete with 3 batteries, leather case, strap, and earphone. Size: 6 1/2" x 3-9/16" x 1-7/16"; nautical two-tone case. GRP-73, 4 lbs., Mfrs. list \$59.95. **Net \$34.95**

(C) VISCOUNT FM/AM TRANSISTOR PORTABLE MODEL 1130 ONLY \$49.95—11-transistor, 6-diode circuit tunes entire AM and FM bands; built-in AM and two FM telescopic antennas; AFC with sw.; tone sw.; 3 1/2" speaker; 2 earphone jacks; complete with earphone and 4 "C" cells. Size: 6 1/4" x 10" x 2 1/2"; black cowhide case with aluminum and chrome trim. GRP-33, 4 lbs. **Net \$49.95**

(D) VISCOUNT 4-BAND TRANSISTOR PORTABLE MODEL 840, ONLY \$59.50—8-transistor, 3-diode circuit tunes AM 540-1600 kc, Shortwave 4-12 mc, Marine 1.6-4.5 mc and low frequency navigation 150-300 kc. Has 2 built-in rod antennas, and 1 telescopic antenna; earphone jack; tone control; fine tuning; battery and tuning meter; rotatable compass rose; 3 1/2" speaker; black leather case 6 1/4" x 10" x 2 1/2", with earphone and 4 "C" cells. GRP-83, 4 lbs. **Net \$59.50**

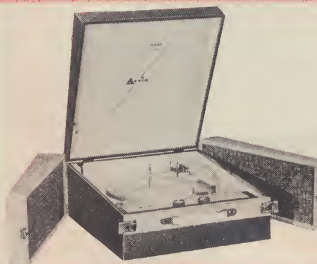
(E) HITACHI AM TRANSISTOR PORTABLE MODEL TH-650, ONLY \$12.88—6-transistor, 1-diode, 1-thermistor circuit tunes the entire AM standard broadcast band; has 2" PM speaker, magnifier tuning dial for easy station selection; built-in rod antenna; earphone jack for private listening; comes complete with earphone, one 9 volt battery, and two leather carrying cases. Shirt-pocket size: 3 1/2" x 2 1/2" x 1 1/2". Black high impact cabinet GRP-63, 2 lbs., Mfrs. list \$19.95. **Net \$12.88**

(F) VISCOUNT AM TRANSISTOR PORTABLE MODEL 632, ONLY \$14.95—6-transistor, 1-diode circuit tunes AM standard broadcast band. Uses new high efficiency transformerless output circuit; 2" PM speaker; powered by two inexpensive penlite cells. Black and gold high impact cabinet is shirt-pocket size: 3-5/16" H x 2 1/2" W x 1 1/2" D. Comes complete in presentation box with earphone, black leather carrying case, and two batteries. GRP-23, 1 lb. **Net \$14.95**

FAMOUS ARVIN PORTABLE PHONOS—READY TO PLAY FOR SUMMER FUN



ARVIN MODEL 82P15 PORTABLE 4-SPEED PHONOGRAPH—ONLY \$16.96—Lowest priced, quality-performing phono. Plays 16, 33-1/3, 45, and 78 rpm records. Front-mounted 5" speaker and control knob (on-off/volume). Dual sapphire stylus in turnover cartridge, 45 rpm pop-up spindle. Printed circuit board electronics. Durable, scuff-resistant pyroxylin wood case in surf turquoise and white. AC operated. Size: 12" wide, 9 1/2" deep, 5 1/2" high. Weighs just 8 lbs. for easy carrying. Not a kit. GDP-743, 8 lbs. Mfrs. list \$19.95. **only \$16.96**



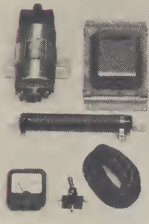
ARVIN MODEL 83P68 PORTABLE STEREO 4-SPEED AUTOMATIC PHONOGRAPH—ONLY \$50.96—The realism of stereo for the price of an ordinary phonograph! Two 4-inch speakers mounted in snap-lock doors may be removed and placed up to 20 feet apart for maximum stereo effect. Automatic 4-speed VM changer has 9" space-saver turntable with rubber mat. Separate volume controls for each channel. New slim-line cabinet is covered in stylish brown & tan pyroxylin. AC operated. Size: 7" H x 21" W x 17" D. Not a kit. GFP-93, 27 lbs. Mfrs. list \$59.95 no money down, \$6 mo. **\$50.96**

For Greater Driving Pleasure This Summer—Add These Auto Accessories

Put New "Life" Into Your Car With This New

Heathkit Transistor Ignition System Kit

- Voltage protected transistors • Adjustable for optimum current



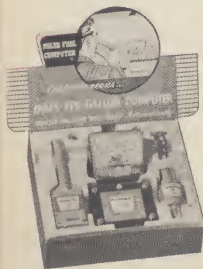
Those interested in the all-American hobby of tinkering with a car will find this new transistor ignition kit a fascinating experiment. Designed for 12 volt negative-ground ignition systems, this replaces your present coil with a new special Mallory coil and a transistor circuit to produce a much "hotter" spark. Leading automotive magazine editors claim the results are astonishing . . . better mileage, smoother idling and acceleration, easier starting, and longer life for the engine and ignition system parts. Kit is complete with all necessary parts; easy to build, simple to adjust (meter and adjustable ballast resistor included for optimum current setting), easy to install. For the complete story see the August '61 issue of Science & Mechanics magazine. 4 lbs.

Kit GD-212, no money down, \$5 mo. **\$34.95**

Drive For Better Mileage With This

New Electronic Miles-Per-Gallon Meter

- Instantly shows how many mpg. your car is delivering
- Computes mpg. 1000 times each mile • Learn how smooth acceleration helps • Find most economical speed



Drive to suit the condition of your car, terrain, temperature, weather, etc. You'll find the Fuel Computer pays for itself as you learn the economies of smooth acceleration, best cruising speed, best brand of gas & oil, etc. Lighted indicator mounts on dash or steering column, reads like a speedometer in miles per gallon. Fuel transmitter installs between carburetor & fuel pump; miles transmitter inserts between speedometer & cable; coordinator mounts under dash. Advise make and model of car. 2 lbs.

Model GDP-222, no money down, \$6 mo. **\$59.50**

Specifications: Two 2N1546 transistors; two 56v., 1w. Zener diodes; adjustable 1 ohm, 100 watt ballast resistor; Mallory F-12T coil; current meter. Power requirements: 12 volt negative ground system only. Finish: bright zinc. Dimensions: chassis 1 3/4" H x 3 3/4" W x 5 13/16" L.

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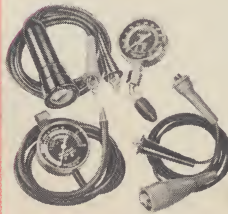
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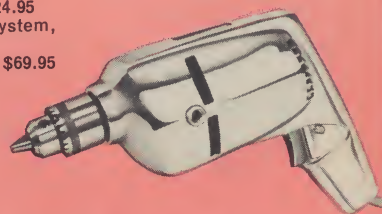
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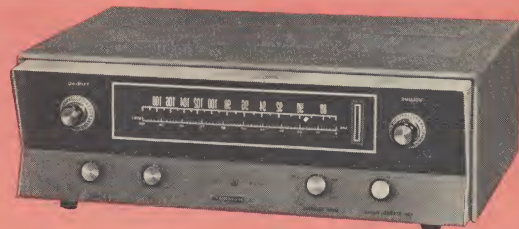
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