As Christmas once again rolls around, we at the Heath Company are reminded of the wonderful support you our customers have given us.

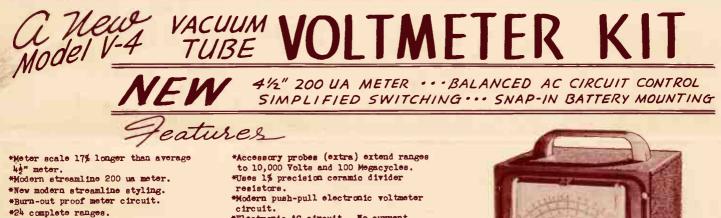
It is our hope that all of you have the most pleasant of Christmases. Heathkit owners now total nearly 80,000. This is the result of many of you telling your friends of Heathkit quality -- we hope you will continue

The Heath Company will in turn continue to improve Heathkits at every opportunity.

An example is the new VTVM announced below. It would have been impossible to sell this kit for \$24.50 even one year ago. The

list price of a 200 microampere an meter alone is over \$18.00. The volume of Heathkit VTVM's, however, has allowed us to contract for practically a manufacturer's entire output and obtain this beautiful quality meter with finest Alnico \mathbf{Y} Magnet at a price allowing its use. The new AC balancing circuit allows one zero set for both AC and DC ranges adding to the instrument's convenience. We show how this feature can be added to present instruments in this Flyer.

Christmas Deliveries: Every effort will be made to ship all Christmas orders, however, the steel strike may reduce deliveries. In any case of doubt, a Heathkit Gift Certificate will be mailed to prevent disappointment.



*Isolated probe for dynamic testing. *Most beautiful VTVM in America.

*Electronic AC circuit. No current

drawing rectifiers. *Shatterproof plastic meter face.

The new Heathkit Model V-4 Vacuum Tube Voltmeter has dozens of improvements. The new modern streamlined 200 microampere meter uses Alnico Y Magnet for fast accurate readings. The streamlined case is molded of shatterproof plastic. The scales are long--17% longer than average 42" meters and nearly twice as long as previous Heathkits.

The new electronic AC voltmeter circuit incorporates an entirely new balance control which allows a complete elimination of contact potential. This removes meter shift with various ranges, giving accurate readings on all ranges, and compensates for variations in tube elements. This feature is exclusive in Heathkits.

New simplified switching reduces by nearly one-half the number of connections made to the switches, giving easier, quicker assembly. New snap-in battery mounting for chammeter battery mounts on chassis for quick, easy replacement and simpler Assembly.

The Heathkit VTVM with true electronic AC voltmeter and push-pull DC voltmeter circuit gives positive automatic meter protection on all functions.

The Heathkit is the only VTVM Kit giving all the ranges. Check them: DC and AC full scale linear ranges of 0-3V., 0-10V., 0-50V., 0-100V., 0-300V., 0-1,000V., and can be extended to 0-3,000V., and 0-10,000V. DC with accessory probe at slight extra cost.

Electronic ohumeter has six ranges measuring resistance accurately from one tenth of an ohm to one billion ohma.

Meter pointer can be offset from zero for FM and TV alignment.

The DC probe is isolated for dynamic measurements of receiver voltages without disturbing receiver operation. Constant 11 megohm input resistance allows use of standard accessories.

Has db scale for making gain -- noise level and other measurements on audio amplifiers.

A few hours work gives you the finest quality YTVM available--universities use them for atomic research--you will find it the handlest tool you'll ever own. Order now and enjoy it this entire winter season. Model V-4. Shipping Wt. 8 lbs.





World Radio History

Thousands the PUSH-PULL EXTENDED RANGE-5" KIT OSCILLOSCOPE FEATURES

*The first truly television oscilloscope. *Extended sweep range 15 cycles to *Tremendous sensitivity .06 Volt RMS 70,000 cycles. per inch deflection. *New television type multivibrator

*Push-pull vertical and horizontal amplifiers.

*Useful frequency range to 22 Mega - cycles.

70,000 cycles. *New television type multivibrator sweep generator. *New magnetic alloy shield included. *Still the amazing price of \$39.50.

The new 1950 Fuch-Full 5" Oscilloscope has features that evem impossible in a \$39.50 oscilloscope. Think of it--push-pull vertical and horizontal amplifiers with tremendous sensitivity only six one hundredths of a volt required for full inch of deflection. The weak impulses of television can be boosted to full size on the five inch screen. Traces you couldn't see before. Amazing frequency range, clear useful response at 2½ Megacycles, made possible by improved push-pull amplifiers. Only Heathkit Oscilloscopes have the frequency range required for television. New type multivibrator sweep ganerator with more than twice the frequency range, 15 cycles to 70,000 cycles, will actually synchronize with 250,000 cycle signal. Dual positioning controls will move trace over any section of the screen for observation of any part. New magnetic alloy CR tube shield protects the instrument from the outside fields. All the same high quality parts, cased electrostatically shielded power transformer, aluminum cabinet, all tubes and parts. New instruction manual now has complete step-by-step pictorials for easiest assembly. Model 0-5 Shipping Wt. 25 lbs. Order now for this winter's use. Express shippent cally.

CONVERSION FOR OTHER MODEL HEATHKIT OSCILLOSCOPES

A conversion for all 0-3 and 0-4 scopes is available changing them to the new push-pull amplifiers (does not change the sweep generator). Complete kit includes new chassis, tubes and all parts. For a small investment, add the latest improvements to your present oscilloscope (except CR Tube Shield). Shipping Wt. 6 lbs. Order 0-5 Conversion Kit No. 315. Specify 0-3 or 0-h

> REAR CHASSIS VIEW





An electronic switch used with any oscilloscope provides two separately controllable traces on the screen. Each trace is controlled independently and the position of the traces may be varied. The input and output traces of an amplifier may be observed one above the other or one directly over the other illustrating perfectly any change occurring in the amplifier. Distortica, phase shift and other defects show up instantly, 110 Volt 60 cycle transformer operated. Uses five tubes (1 6X5, 2 6SN7's, 2 6SN7's). Has individual gain controls, positioning control and coarse and fineswitching rate controls. The cabinet and panel match all other Heathkits. Every part supplied including detailed instructions for assembly and use. Model S-1. Shipping Vt. 11 bs.

BOTTOM CHASSIS VIEW





a California Customer writes Better than

> SYLVANIA "How To Service Radios With An Oscilloscope" \$1.00 Order from Sylvania Electric Products, Inc., Advertising Dept. HC, Emporium, Pa.

HICKOK "How To Use The CR Oscilloscope In Servicing Radio and TV" \$1.00 Hickok Electrical Instrument Co., 10514 Dupont Ave., Cleveland 8, Ohio.

RUITER (Du Mont Labs) "Modern Oscilloscopes and Their Uses" \$6.00 Murray Hill Books, 232 Madison Ave., New York 16, N. Y.

World Radio History

If your time is valuablesave it with a Heathkit SIGNAL TRACER and TEST SPEAKER KIT

The popular Heathkit Signal Tracer has now been combined with a universal test speaker at no increase in price. The same high quality tracer follows signal from antenna to speaker--locates intermittents--defective parts quicker--saves valuable service time--gives greater income per service hour. Works equally well on broadcast--FM or TV receivers. The test speaker has assortment of switching ranges to match push-pull or single output impedance. Also test microphones, pickups--FA systems--comes complete--cabinet--lloV. 60 cycle power transformer--tubes, test probe, all parts and detailed instructions for assembly and use. Model T-2 Shipping Wt. 8 lbs.

Heathkit PROBE KITS

No. 309 R.F. Probe Kit uses IN34 crystal to measure R.F. voltages with Heathkit VTVM. Will measure accurately to 100 Mc. and give good indication to 250 Mc. Reads on regular DC scales. Shipping Wt. 1 lb.

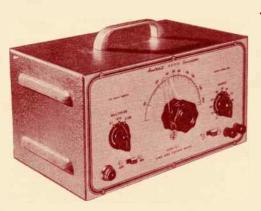
\$650





No. 310 Converts any Heathkit (or other 11 meg input) VTVM into a kilovoltmeter. Highly insulated 1% accuracy multipliers. Reads 3,000V. on 300V. scale and 10,000V. on 1,000V. scale -- a necessity for television. Shipping Wt. 1 lb.

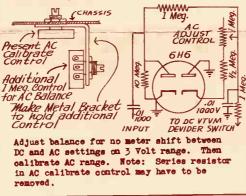
Only \$450





ADD NEW V-4 VTVM Balanced AC Circuit to Model V-1 & V-2 Heathkits

By the construction of a simple bracket and the addition of several parts, this valuable feature can be added to existing Heathkit VTVM's. It gives one zero setting for all functions and practically eliminates meter shift through the various ranges.

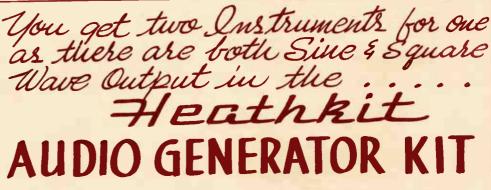


TIPS and COMMENTS

Meissner Manufacturing Company have published a postwar version of their valuable "How To Build" radio manual. It is full of useful information for builders including new postwar data. The price is \$1.00 and it is available from all radio supply houses such as Allied or Concord in Chicago.

O-5 SCOPE OWNERS

0-5 Scope Owners--Two small modifications are recommended in the 0-5's shipped to date. One, the grid return resistor 018 in the second vertical and horizontal amplifier tube originally of 470,000 ohms should be changed to 3.5 magchms. The 470,000 ½ watt resistor 018 at the ground and of the negative voltage divider should be changed to one or two watt. Gradual failure of this resistor causes the focus control position to change and may result in failure to focus.



Experimenters and servicemen working with a square wave for the first time invariably wonder why it was not introduced before. The characteristics of an amplifier can be determined in seconds compared to several hours of tedious plotting using older methods. Stage by stage, amplifier testing is as easy as signal tracing. The low distortion (less than $|s\rangle$) and linear output (\pm one db) make this Heathrit equal or superior to factory built equipment selling for three or four times its price. The circuit is the popular RC tuning circuit using a four gang variable condenser. Three ranges 20-200, 200-2,000, 2,000-20,000 cycles are provided by selector switch. Either sine or square waves instantly available at slide switch. All components are of highest quality, cased 110V. 60 cycle power transformer. Mallory F.P. filter condensers, five tubes, calibrated two color panel, grey crackle aluminum cabinet. The detailed instructions make assembly an interesting and instructive few hours. Model G-2 Shipping Wt. 12 lbs.

New 1950 Vernier Tuning Heathkit SIGNAL **GENERATOR KIT** features >

*New 5 to 1 ratio vernier tuning for ease and accuracy. *New external modulation switch -use it for fidelity testing. *New precision coils for greater output.

*Cathode follower output for greater stability.

*400 cycle audio available for audio testing.

*Most modern type R.F. oscillator. *Covers 150 Kc. to 34 Mc. on fundamentals and calibrated strong harmonics to 102 Mc.

The most popular signal generator kit has been vastly improved -- the experience of thousands combined to give you the best. Check the features in this fine generator and consider the low price of \$19.50. A best buy for any shop, yet inexpensive enough for hobbyists. Everyone can have an accurate controlled source of R.F. signal voltage.

The new features double the value -- think of being able to make fidelity checks on receivers by inserting a variable audio signal. Internal 400 cycle saw-tooth audio oscillator modulates R.F. signal and is available externally for audio testing. The new 5 to 1 ratio vernier drive gives hairline tuning for maximum accuracy in scale settings. The coils are already precision wound and calibrated. Uses turnet type coil and switch assembly for ease of construction. The generator is 110V. 60 cycle transformer operated and comes complete in every detail--cabinet--tubes--coils--beautiful two color calibrated panel and all small parts -- new step-by-step pictorial diagrams and complete instruction manual make assembly a cinch even for novices. Why try to get along without a signal generator when you can have the best for less than a twenty dollar bill. Better order it now. Model G-5. Shipping Wt. 7 lbs.

CONVERSION KIT FOR G-1 GENERATORS

Conversion Kit for G-1 Generators for vernier tuning and external modulation includes new high band coil for greater output. Gives all the features of new G-5 listed above. Order G-5 Conversion Kit No. 316. Shipping Wt. 2 lbs.....

New Heathkit Broadcast and 3 Band Two new Receives Whits at prices you can afford SUPERHETERODYNE RECEIVER KITS All with-

BROADCAST MODEL BRI 550 to 1600 Kc.

1.17

Two new Heathkit Superheterodynes featuring the best of design and material. Beautiful six inch slide rule dials--110V. 60 cy. AC power transformer operated -- metal cased filters -- quality output transformers, dual iron core metal can IF trans formers -- two gang tuning condenser. The chassis is provided with phono-radio switch--110V. outlet for changer motor and phono pickup jack. Each kit is complete with all parts and detailed instruc-tion booklet. Prictorial diagrams and step-by-step instructions make assembly quick and easy.

3 BAND MODEL AR-1 550 Kc. to 20 Mc.



Ideal AC operated superheterodyne receiver for home use or replacement in console cabinet. Comes complete with attractive metal panel for cabinet mounting. Modern circuit uses 12K8 converter, 128E7 input IF stage, 1208 detector stage and first audio 12A6 beam power output stage, 5Y3 rectifier. Excellent sensitivity for distant reception with selectivity which effectively separates adjacent stations.

The husky 110V. cased power transformer is conservatively rated for long life.

The illuminated six inch slide rule dial is accurately calibrated for DX reception. Enjoy the pleasure of assembling your own fine home receiver. Has tone, volume, tuning and phono-redio controls. Chassis size $2h^m \propto 7^m \propto 122^m$. Comes complete with all parts in-cluding quality output transformer to 3.4 ohm voice coil, tubes, instruction manual, etc. (less speaker). Shipping Wt. 10 lbs. No. BR-1 Receiver \$19.50.

No. 335 Communications Type Table Model Metal Cabinet......\$4.50 No. 320 High Quality 5" FM Speaker for above.............\$2.75

Enjoy the thrill of world wide short wave reception with this fine new AC operated Heathkit 3 band superheterodyne--amazing sensitivity 15 microvolt or better on all bands. Continuous coverage 550-Kc. to over 20 Mc. Easy to build with complete step-by-step instructions and pictorial diagram. Attractive accurately cali-brated six inch slide rule dial for easy tuning. Six tubes with one dual purpose tube gives seven tube performance. Beam power out-put tube gives over 3 watte output.

Separately assembled coil turret with band switch eliminates difficult construction. Conservatively rated 110V. power transformer supplies full operating voltages to all tubes for maximum reception. Has band switch tuning, volume, tone and phono-radio controls. Chaseis size $2\frac{1}{4}$ " x 7" x $12\frac{1}{2}$ "-supplied complete-punched chassis -- tubes -- controle -- transformers (quality output to 3.4 ohm voice coil)--all small parts--hardware and instructions (less speaker). Shipping Wt. 10 lbs. No. AR-1 Receiver \$23.50.

No. 335 Communications Type Table Model Metal Cabinet.....\$4.50 No. 320 High Quality 5" PM Speaker for above......\$2.75





Heathkits Receive National Recognition Sept. Issue Radio Television News" features Four Heathkits in Full Color on Cover ... Additional proof of the quality and high regard for Heathkits was shown in their selection as a color cover feature of the leading radio publication of the world, RADIO AND TELEVISION NEWS. The picture shows the modern GE service shop of Patton Bros. using the Heathkit TV Alignment Generator and Oscilloscope to align a GE TV receiver. Also in use are a Potton Heathkit WTVM and Battery Eliminator. Brothers A feature article of the same issue covered the design and use of the Heathkit TV Alignment Generator. Heathkit ALL-WAVE 8 Channel TELEVISION TUNER (Cabinet) RADIO KIT Farnsworth TV Tuner adjusts to any 8 channels. Rotary switch type with fine EXTRA An ideal way to learn radio. This kit tuning control. Uses 6BA6RF 6AG5 mixer, 6J6 oscillator tubes (not supplied). is complete ready to assemble with tubes and all other parts. Operates from 110V. Wiring diagram included. Have fun this winter experimenting with television. AC. Simple, clear detailed instructions make this a good radio training course. This well built tuner uses ceramic Covers regular broadcasts and short wave sockets--best of ceramic condenser and has individual elug tuned coils for each band. Quantity limited. Order now. bands. Plug-in coils. Regenerative circuit. Cperates loud speaker. Model K-2 Shipping Wt. 4 lbs. No. 318. Shipping Wt. 3 lbs. HS30 Headphones, per set..... \$1.00 Shipping Wt. 1 lb. No. 303 22" Permanent Magnet Loud-Mahogany Cabinet..... \$2.95 Shipping Wt. 2 lbs. The HEATH COMPANY Sec. 34.66, P.L.&R. U.S. POSTAGE BENTON HARBOR, MICHIGAN 1¢ Paid Benton Harbor, Mich. Unnouncing a new Model V-4 VTVM... Permit No. 273 Mew Onterest

RETURN POSTAGE Guaranteed

World Radio History