Several new Heathkits are announced in this Flyer which is the first since March. A new Variable Power Supply Kit, a Resistance Decade Kit of laboratory precision and a new Television Sweep Generator are announced. The Power Supply and Decade have been requested by a number of leading schools. (One school

The Power Supply and Decade have been requested by a number of leading schools. (One school official ordered ten of them several months ago after seeing the first model.)

Schools are the largest users of Heathkits and this is to everyone's advantage--the schools buy in quantities and help us to keep prices down--further, schools demand the best in quality to withstand the hard usage of students and this means better equipment for everyone.

The new Television Generator is the natural result of the progress television is making. From the experience of making thousands of sweep generators (including equipment for several manufacturers), this new TV sweep generator was designed. There are dozens of new features and improvements and the assembly time has been reduced by at least one-third. Better check the features if you need one.

SIX RANGES FOR EACH FUNCTION 3 VOLTS - 10V. - 30V. - 100V. - 300V. - 1000V. Complete COVERAGE 24 RANGES IN ALL

OTHER KIT HEATHKIT Pull SCALE RANGE OF 3 VOLTS MEANS ONE VOLT COVERS 331/3 % OF SCALE INSTEAD OF ONLY 20% ON 5 VOLT TYPES... Hearly TWICE

The new Heathkit Model V-4A Vacuum Tube Voltmeter has dozens of improvements. A new modern streamlined 200 microampere meter has Alnico V magnet for fast, accurate readings. The new electronic AC voltmeter circuit incorporates an entirely new balance control which eliminates contact potential and provides greater accuracy. New simplified switches for quicker assembly. New anap-in

battery mounting is on the chassis for easy replacement.

SCALE LENGTH . . . . .

The Heathkit VTVM is the only kit giving all the ranges. Check them--DC and AC full scale linear ranges of 0-3V, 0-10V, 0-30V, 0-100V, 0-300V, 0-1000V and can be extended to 0-3000V and 0-10,000V DC with accessory probe at slight extra cost. Electronic olmmeter has six ranges measuring resistance accurately from .1 ohm to one billion ohms. Meter pointer can be offset to zero center for FM alignment.

The DC probe is isolated for dynamic measurements. Has db scale for making gain and other audio measurements.

The new instruction manual features pictorial diagrams and step-by-step instructions for easy assembly. The Heathkit VTVM is complete with every part--110 Volt transformer operated with test leads, tubes, light aluminum cabinet for portability, giant  $\frac{42}{2}$ " 200 microamp meter and complete instruction manual. Order now and enjoy it this entire season. Model V-4A. Shipping Wt. 7 lbs.



Properly designed out of plastic with large insulator rings for maximum protection. Can be used with any standard ll megohm VTVM complete with PL55 type plug.

No. 336 High Voltage Probe Kit. Shipping Wt.2 lbs.

DELIVERIES START IN AUGUST.

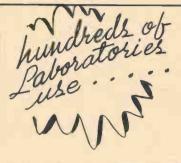


**World Radio History** 



gives twice scale length

> No. 309 R. F. Probe Kit uses 1N3<sup>4</sup> 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.



\*Measures inductance 10 microhenries to 100 henries. Measures resistance .01 ohms to 10 megohms. \*Measures capacitance .00001 MFD to 100 MFD \*Measures "Q" and power factor.

Measures inductance from 10 microhenries to 100 henries, capacitance from .00001 MFD to 100 MFD. Resistance from .01 ohms to 10 megohms. Dissipation factor from .001 to 1. "Q" from 1 to 1,000. Ideal for schools, laboratories, service shops, serious experimenters. An impedance bridge for everyone--the most useful instrument of all, which heretofore has been out of the price range of serious experimenters and service shops. Now at the lowest price possible. All highest quality parts. General Radio main calibrated control. General Radio

The essential

Quistrument ob

Service work

6 to 1 MICROMETER TYPE

VERNIER DRIVE FOR

HAIRLINE ACCURACY

CATHODE FOLLOWER

OUTPUT FOR STABILITY

Mamp

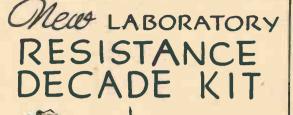
1,000 cycle hummer. Mallory ceramic switches with 60 degree indexing -- 200 microamp type binding posts with standard 3/4" centers. Beautiful birch cabinet. Directly calibrated "Q" and dissipation factor scales. Ready calibrated capacity and inductance standards of Silver Mica, accurate to  $\frac{1}{2}$  of 1% and with dissipation factors. Bis than 30 parts in one million. Provisions on panel for external generator and detector. Measure all your unknowns the way laboratories do -- with a bridge for accuracy and speed.

Heathkit

BRIDGE standard

IMPEDANCE

Internal 6 Volt battery for resistance and hummer operations. Circuit utilizes Wheat-stone, Hay and Maxwell circuits for different measurements. Supplied complete with every quality part--all calibrations completed and instruction manual for assembly and use. Deliveries are limited. Model IB-1. Shipping Wt. 15 lbs.



Jeatures

Heathkit R.F.

SIGNAL GENERATOR KIT

\*1% Accuracy \*Birch Cabinet \*Ceramic Switches \*Covers 1 ohm to 99,999 onms.

The new Heathkit Resistance Decade is a handy tool for laboratory, school and service shop. Ideal for test setups, calibrating instruments, bridge measurements, selecting multipliers, etc.

Uses the finest Centralab ceramic switches, ½% ceramic decade resistors and heavy birch cabinet matching other laboratory equipment. The range is 1 ohm to 99,999 ohms in one ohm steps.

Finest quality throughout to withstand school usage -heavy aluminum panel--laboratory type binding posts--the fine decades are extremely simple to assemble-complete kit. Model RD-1. Shipping Wt 4 lbs.

> STABLE OSCILLATOR COVERS 150 KC +0 34 MC WITH FUND.

AMENTALS ... and HAS STRONG

A Guality GENERATOR FOR LESS THAN

A\$2000 BILL

CALIBRATED HARMONICS

TO OVER 100 MC ...

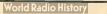
400 CYCLE AUDIO MOD

ULATION-PROVISION FOR

EXTERNAL MODULATION

The most popular signal generator 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 variable and signal. Internal to cycle saw tooth units Sectifies which security for additional and is available externally for audio testing. The new 6 to 1 ratio vernier drive gives hairline tuning for maximum accuracy in scale settings. The coils are already precision wound and calibrated. Uses turret type coil and switch as-sembly 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-bystep 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.



\*The first truly television oscilloscope. \*Tremendous sensitivity .06 Volt RMS per inch deflection. \*Push-pull vertical and horizontal amplifiers. \*Useful frequency range to  $2\frac{1}{2}$  Megacycles. \*Extended sweep range 15 cycles to 70,000 cycles. \*New television type multivibrator sweep generator.

ALLOY C.R. SHIELD

hly Heathkit PUSH.PULL

PUSH PULL

PENTODE AMPLIFIERS

Complete MAGNETIC

all these

ratures

\*New magnetic alloy shield included. \*Still the amazing price of \$39.50.

COPE KIT

LIGHT WEIGHT

Houest AMPLIFIER

PER INCH DEFLECTION

GAIN .06 VOLTS RMS

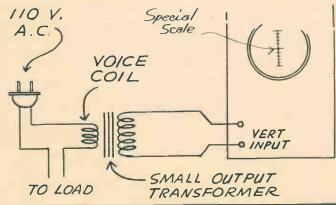
ELECTROSTATICALLY SHIELDED POWER TRANSFORME

ALUMINUM CABINET

The new 1950 Push-Pull 5" Oscilloscope has features that seem 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 22 Megacycles, made possible by improved push-pull amplifiers. Only Heathkit Oscilloscopes have the frequency range required for television. New type multivibrator sweep generator 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. Express shipment only.

# Use SCOPE as WATTMETER

The simple setup shown below allows any oscilloscope to be used as an AC wattmeter. If a special scale is calibrated and the gain control setting noted, it can be reconnected quickly and has many uses. The scale can be calibrated with a three-way floor lamp marking the point for 100 - 200 - 300 watts. Use gain control position allowing highest range desired to be full size trace. Transformers will give somewhat different trace than pure resistance load.



### ELECTRONIC SWITCH SQUARE WAVE GEN. KIT

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 in-put and output traces of an amplifier may be observed one above the



m

with

ncrease your

Scope usefulness

mm

enthkit

other or one directly over the other illustrating perfectly any change occurring in the amplifier. Distortion, phase shift and other defects show up instantly, 110 Volt 60 cycle transformer operated. Uses five tubes (1 6X5, 2 6SN7's, 2 6SJ7's). Has individual gain controls, positioning control and coarse and fine switching rate controls. The cabinet and panel match all other Heathkits. Every part supplied including detailed instructions for assembly and use. Model S-1. Shipping Wt. 11 lbs.









\*New simplified calibration and assembly. \*Blanking circuit gives reference baseline to trace. \*New 2 band built-in marker covers 19 to 75 Mc. \*New dual spider sweep motor for long life.

The new Heathkit TV Alignment Generator incorporates the new developments required for modern TV servicing. An absorption marker circuit covering all possible IF bands and even several of the RF bands. The new blanking circuit provides a base reference line which is invaluable in establishing proper traces. The new sweep motor incorporates dual spiders in the speaker frame assuring better alignment and long life. The mounting of the speaker sweep motor has been simplified for easy alignment.

The variable master oscillator covers 140 to 230 Mc. thus giving

\*New variable oscillator gives high output on high band. \*New standby switch keeps instrument ready for instant use. \*New 6 to 1 slow speed drives on both master oscillator and marker tuners.

FOR BETTER ALIGNMENT

VARIABLE OSCILLATOR

GIVES HIGH OUTPUT

FUNDAMENTALS ON IGH TV BAND ...

high output fundamentals where they are most needed. Low band coverage 2 Mc. to 90 Mc.

A new step attenuator provides excellent control of output. Planetary 6 to 1 drives on both oscillator and marker provides smooth easy control settings.

A standby position is provided making the instrument always instantly available.

Horizontal sweep voltage with phasing control is provided. No other sweep generator under \$100.00 provides all these features--comes complete with instruction manual. Model TS-2. Shipping Wt. 16 lbs.

Why quess about Condensers THE NEW Heathkit CONDENSER CHECKER K



FEATURES \*Power factor scale. \*Measures resistance. "Measures leakage. \*Checks paper-mica-electrolytics.

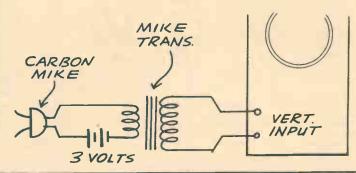
\*Bridge type circuit. \*Magic eye indicator. #110V. transformer operated. #All scales on panel.

Checks all types of condensers over a range of .00001 MFD to 1,000 MFD. All on readable scales that are read direct from the panel. NO CHARTS OR MULTIPLIERS NECESSARY. A condenser checker anyone can read. A leakage test and polarizing voltage for 20 to 500 Volts pro-Measures power factor of electrolytics between 0% and 50% vided. 110V. 60 cycle transformer operated complete with rectifier and magic eye tube, cabinet, calibrated panel, test leads and all other parts. Clear detailed instructions for assembly and use. Model C-2. Shipping Wt. 7 lbs.

Observing VOICE OR MUSIC withOSCILLOSCOPE

Using a carbon microphone, voice or music can be observed and in the case of steady notes the frequencies can be identified.

By calibrating the screen, it can also be used as a loudness or applause indicator.



The Heath Flyer is mailed free to every Heathkit purchaser for a period of 16 months. Suggestions for Flyer articles are welcomed. If you have an interesting application for Heathkits, please send it in.



The finest amplifier kit we have ever offered -- check the features. This inexpensive amplifier compares favorably with instruments costing five times as much. Nothing has been spared to provide the best reproduction -- an ideal amplifier for the new Heathkit FM Tuner listed below.

Dual tone controls for control of both treble and bass. Bass control is of the boost type for maximum listening pleasure. Optional preamplifier stage for use with G. E. reluctance pickup or microphone. Uses inverse feedback to give excel-lent response over entire range. Tube lineup: 65J7 preamplifier stage, 6J5 phase splitter stage, two 6L6's in push-pull and 5Y3 rectifier. (6SC7 as optional compensation stage.)

Uses highest quality Chicago Transformer Corporation cased output transformer with taps of 3.2, 8, 15, 60 and 500 ohms to match any speaker combination. Power transformer is conservatively rated for continuous operation in sound systems. Tone control gives maximum bass boost of 6 db at 70 cycles. Amplifier has maximum gain of 75 db. Response within 3 db 20 to 20,000 cycles. Shipping Wt.17 lbs. Complete with all parts, tubes and instruction manual. Model A-5.

Heathkit RECEIVER KITS for AM and FM TWO High Quality Heathkit TRUE FM FROM Heathkit

The Heathkit FM Tuner Model FM-2 was designed for best possible tonal reproduction. The circuit incorporates the most desirable FM features -- true FM-ready wound and adjusted coils -- 3 stages of 10.7 Mc. I.F. (including limiter).

FM TUNER KIT

Tube lineup: 7E5 oscillator, 6SH7 mixer, two 6SH7 I.F. stages, 6SH7 limiter, two 7C4 diodes as discriminator, 6X5 rectifier.

The instrument is transformer operated making it safe for connection to any type receiver or amplifier. The R.F. coils are ready wound -- mounted on the tuning condenser and the condenser is adjusted -- no R.F. coils to wind or adjust.

A calibrated six inch slide rule dial has vernier drive for easy tuning. The finest parts are providedceramic mounted tuning condenser--dual iron core I.F. coils--cased power transformer and all ceramic bypass condensers. The kit is complete with all tubes, punched and formed chassis, transformers, condensers and complete instruction manual. Shipping Wt. 10 lbs. Model FM-2.

Model BR-1 Broadcast Model Kit covers 550 to 1600 Kc. Shipping Wt. 10 lbs.

Model AR-1 3 Band Receiver Kit covers 550 Kc. to over 20 Mc. continuous. Extremely high sensitivity. Ship-ping Wt. 10 lbs.

husky cased power transformer and all other parts. Has tone and volume controls. Instruction manual

has pictorial for easy assembly. Six watt output with response flat  $\pm \ l_2^{\pm}$  db from 50 to 15,000

cycles. A quality amplifier kit at new low price. Better build one. Model A-4. Shipping Wt. 7 lbs.

SPEAKER \$695

Nº 304

RECEIVER KITS



R

Two new Heathkits. Ideal for schools, replacement of worn out receivers, amateurs and custom installations.

Both are transformer operated quality units. The best of materials are used throughout -- six inch calibrated slide rule dial -- quality power and output transformers -dual iron core shielded I.F. coils -- metal filter condensers and all other parts. The chassis has phono input jack -- 110 Volt outlet for phono motor and there is a phono-radio switch on panel. A large metal panel simplifying installation in used console cabinets is included. Comes complete with tubes and instruction manual incorporating pictorials and step-by-step instructions (less speaker and cabinet). The three band model has simple coil turret which is assembled separately for ease of construction



yeathkit TUBE CHECKER KIT DYNAMIC GEAR DRIVEN ROLLER

RUGGED COUNTER TYPE BIRCH CABINET Test your tubes the modern way -- dynamically -- the simplest, yet fastest and surest method -- your Heathkit has a switch for each tube element and measures that element -- no chance for open or shorted elements slipping by, all the ad-

vantages of the mutual conductance type without the slow cumbersome time consuming setups. Your Heathkit Tube Checker has all the features -- beautiful 3 color BAD-GOOD meter -- complete selection of voltages -- roller chart listing hundreds of tubes including the new 9 pin miniatures -- finest quality Centralab lever switches for each element-high grade birch counter type cabinet--continuously variable line adjust control--every feature you need to sell tubes properly. The most modern type tube checker with complete protection against obsolescence. The best of parts--rugged oversize 110V. 60 cycle power transformer--finest of Mallory and Centralab switches and controls, complete set of sockets for all type tubes with blank spare for future types. Fast action brass gear driven roller chart quickly locates the settings for any type tube. Simplified switching cuts necessary testing time to minimum and saves valuable service time. Short and open element check. Simple method allows instant setup of new tube types without waiting for factory data. No matter what the arrangements of tube elements, the Heathkit flexible switching arrangement easily handles it. Order your Heathkit Tube Checker Kit today. See for yourself that Heath again saves you two-thirds and yet retains all the quality-this tube checker will pay for itself in a few weeks--better assemble it now. Complete with instructions--pictorial diagrams-all parts--cabinet--ready to wire up and operate. Model TC-1. Shipping Wt. 12 lbs.

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Fastest METHOD

OF TESTING TUBES SAVES

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	Heathkit Battery Eliminator	Kit-Model BE-2					
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