

HEATH

FLYER

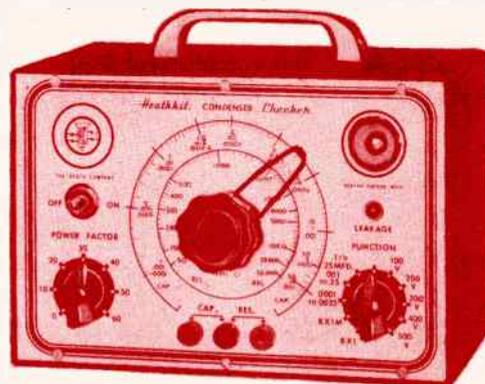
This is the first FLYER since the March issue. Another of the new Heathkits is announced this month--the Heathkit Condenser Checker. We are truly proud of this instrument. The characteristics of a condenser can be determined without tables, charts or any calculations. All ranges are on

the panel and read directly. Our customers continue to write praising the quality, completeness and ease of construction of all Heathkits and this new Condenser Checker is no exception. The kit has a lot of quality and beauty packed into a \$19.50 package. It should appeal not only to those of us who enjoy building our own but all organizations needing a condenser checker due to the ease of operation.

Heathkit CONDENSER CHECKER KIT

At last, a Condenser Checker anyone can read. All scales are calibrated on the panel and read directly--no calculations or multiplying to do. Measures capacity from .00001 MFD to 1000 MFD. Power factor 0 to 50%. Resistance 50 ohms to 5 megohms and leakage with test voltages of 20 to 500 Volts. The circuit is a conventional bridge type using magic eye tube as null indicator. The unit is transformer operated from 110 V 60 cy AC. Everything is supplied--grey crackle cabinet, two color calibrated panel, two tubes, power transformer, matched standards, test leads and detailed instructions and blueprints. The size is only 9" x 6" x 4 3/4" with a weight of less than 5 pounds.

Bridge control is a wire wound potentiometer made by Centralab and is one of the smoothest wire wound controls ever used. A condenser and resistor checker is about the handiest instrument around a shop. Complete your equipment with this kit. Shipping weight approximately 7 pounds.



\$19.50

ARB COMMUNICATION RECEIVER

\$29.50

This is the last offering of these beautiful RCA Navy type communication receivers.

Everyone who owns one swears it to be the best receiver ever offered in surplus. Covers 195 Ko. to 9.1 Mc. continuous. These brand new sets are supplied complete with tubes, remote tuning head (there is, however, a calibrated dial on front of set), remote control box, 24 Volt dynamotor, 24 Volt remote band change motor and two plugs for connecting remote control box and circuit diagram. Circuit is a 6 tube superheterodyne, has broad or sharp I.F., BFO, etc. Covers the broadcast and coast guard bands making it ideal for small boats. Our quantity is very limited and this is the last of the new units. Order early. Shipping Weight 30 lbs.



Using HEATHKIT SCOPE AS TROUBLE SHOOTER

An oscilloscope is one of the most versatile of instruments and makes an excellent visual trouble shooting instrument. It is ideal for locating intermittents as it can be watched while doing other work. Using a prod connected to the vertical input and the scope's 60 cycle test voltage into the horizontal input, hum can be located and identified and filters quickly checked. 60 cycle hum will be indicated by an oval or circle while 120 or power supply hum (resulting from full wave rectifier) is indicated by a figure eight. Checking a power supply from rectifier tube through filters should indicate smaller figure eight pattern at each step. Placing the internal sweep on the horizontal input, the same step may be used to follow an audio frequency through the amplifier portion locating distortion or lack of gain at any stage. Using a prod with a 1N34 crystal diode in it will enable the following of modulated R.F. signals through the R.F. and I.F. portions of a receiver (where signal levels are sufficiently high to indicate). Or the scope input may be connected to the output of a signal tracer for visual signal tracing.

Another important use of the scope is to develop amplifier gain charts. Using the grid screen on the scope tube and a variable source of audio a graph can be made to show the amplifier characteristics.

The scope trace is set at any convenient frequency (often 1000 cycles) and the audio oscillator varied over the range desired.

A reading of the gain or loss (on the grid screen) is taken every 100 cycles below 1000 cycles and each 1000 cycles above 1000. These readings transferred to a graph give the complete picture.

SQUARE WAVE TESTING OF AMPLIFIERS

A square wave is formed by clipping the top and bottom of sine waves. A square wave will contain 20 or more harmonics of the original sine wave allowing the observation in one wave of a range of frequencies covered by the large number of harmonics.

If the unit under test is not linear through the range of these harmonics or if phase shift occurs, a distortion of the square wave will appear. A square wave of 100 cycles will indicate the reproduction of an amplifier through 10,000 cycles. Therefore, one square wave check is equal to hours of measurements with a sine wave over the operating range of an amplifier.

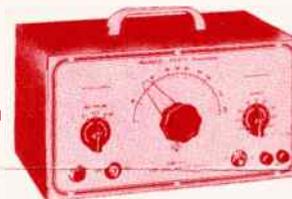
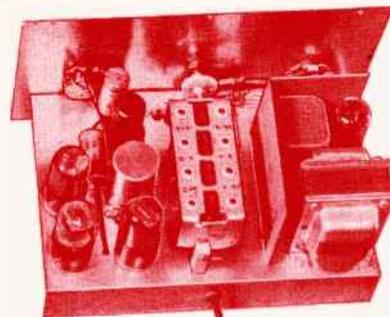
To interpret a square wave, the tops are indicative of the frequencies below the fundamental being used, while the sides of the square wave indicate the frequencies higher than the fundamental, thus with the square wave under observation the various components of an amplifier may be varied to obtain maximum fidelity in a very short time.

Heathkit SINE AND SQUARE WAVE SIGNAL GENERATOR KIT

This audio generator multiplies the usefulness of the Heathkit Oscilloscope many times and brings within a reasonable price range a laboratory type piece of equipment.

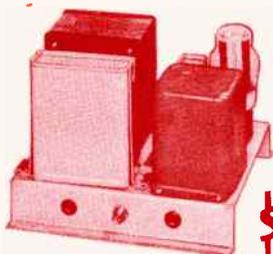
For the first time, an inexpensive source of square waves is available to the service shop and experimenter.

The circuit is a highly stable RC type covering 20 to 20,000 cycles in three decade ranges. Less than 1% distortion. Output linear within plus or minus one decibel. Supplied complete, cabinet, all metal parts punched, formed and cadmium plated, 110V 60 cycle power transformer, 1% calibrating resistors, 5 tubes, all small parts and detailed blueprints and instructions. Shipping Weight 13 lbs.



Nothing ELSE TO BUY \$34.50

A New TRANSMITTER POWER SUPPLY KIT



Supplies 600Volts-200MA & 6-12 or 24 Volts at 4 Amperes

\$14.50

A great many of our customers have requested a rugged power supply with a wide range of filaments--here it is! This extremely versatile unit supplies 600 Volts filtered DC at 200 MA and has 6.3V C.T. at 4 Amps. 6.3V at 4 Amps and 12.6V at 4 Amps. These can be combined to supply 3-6-9-12 or 24 Volts at 4 Amps. Comes complete with 110V 60 cycle power transformer, 5U4 tube, oil filled filters, filter choke and punched chassis. Shipping Weight .28 lbs.

BALLENTINE 6 VOLT DYNAMOTOR



Unquestionably the most popular dynamotor being sold supplies a full 500 Volts at 160 MA from either a 6 or 12 Volt source.

\$5.95

Ideal for mobile or taxicab power supply. This is the dynamotor only from the PE103A power supply. Size 5 1/2" diameter x 11 1/4" long, weight 23 3/4 lbs. Shipping Weight 29 lbs.

Heathkit Beginners Radio Kit



\$8.75

An ideal boy's gift. Complete 3 tube transformer operated from 110V 60 cycle AC. Covers broadcast and short waves to 6000 Kc. Complete less speaker or phones. Shipping Wt. 3 lbs.

Headphones (extra).....\$1.00
2 1/2" PM Loud Speaker (extra)..... 1.95

TIPS and COMMENTS

Deliveries have been improved. Most kits are now shipped within one week from order.

Replies to letters: Our sales correspondent left our employ in March, and as a result we have been handicapped in answering correspondence--your patience is appreciated.

Suggestions for the FLYER are welcomed. A number of interesting articles are scheduled for the next FLYER.

Save your FLYERS. Many customers have secured a regular school loose leaf notebook which the Heath FLYER fits. By punching holes in the margin, the FLYERS are always available for reference.

Parts in Heathkits: Only new standard brand parts are used and all parts are supplied. There are no extras to buy. Heathkits are the sterling of radio kits.

Heathkit VTVM KIT



The Heathkit VTVM is rapidly becoming one of the most popular vacuum tube voltmeters used today. Nearly every large college and university is using them in electronics courses. A number of the oldest radio technical schools use them as part of their training courses. Anyone doing radio work or experimenting can profit by using a VTVM.

There is practically no loading of any circuit under test, no false reading due to meter resistance. The Heathkit is an electronic voltmeter on both AC and DC the input resistance on the 3 Volt DC range being 11 megohms. Full scale ranges on both AC and DC are 3-30-100-300-1000 Volts.

The ohmmeter measures resistance in a range of one tenth ohm to one billion ohms with internal 3 Volt battery.

A decibel scale allows measurement of amplifier gain directly in db. The circuit is highly stable balanced bridge circuit using twin triode. The instrument is 110V 60 cycle transformer operated. Supplied complete with test prods, tubes, 1% calibrating resistors, and new extremely clear instructions using actual photographs and simplified pictorial layout. Shipping Weight 8 lbs.



Nothing ELSE TO BUY

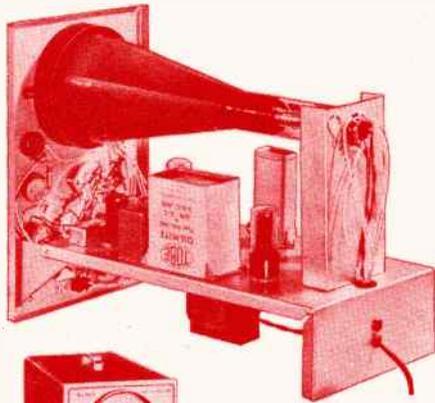
\$24.50

3000 VOLT TEST PROD for HEATHKIT VTVM

Many and more servicemen are being called upon to service television sets. A simple prod will extend the range of the Heathkit VTVM to handle this. A long (6") high voltage insulated test prod should be obtained together with a length of shielded test lead wire and additional PL55 phone plug.

The prod is assembled similar to the regular prod except that 7 (seven) 3.3 megohm 1/2 watt resistors are used in series inside the prod. This allows the 1000 Volt range of the VTVM to read 3000 Volts on the 0-30 Volt scale. Use a rubber grommet over lower end of prod to prevent fingers slipping over the end.

Heathkit 5" OSCILLOSCOPE KIT



\$39.50
Nothing ELSE TO BUY

The best buy in test equipment today. All new parts by the best of manufacturers. Every part supplied including 5BFL and 5 other tubes. 110V 60 cycle power transformer supplies over 1100 Volts for 5BFL and 350V for amplifiers and sweep generator. Vertical and horizontal amplifiers using 6SN7 tubes and a sweep generator covering 15 to 30,000 cycles using an 88^a gas triode. Oil filled condensers for long life. Grey crackle cabinet, size 8 1/2" x 13" high x 17" deep. Beautiful 2 color panel. Order now and discover an entire new world of visual electronics. An oscilloscope provides almost endless sources of experimentation in radio, electronics, medicine and scientific research. Order one now while surplus tubes make this extremely low price possible. Detailed instructions and photographic layout diagrams make assembly easy. Shipping Weight 33 lbs. Express only.

MODULATION CHECKING with Heathkit OSCILLOSCOPE

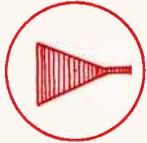
One of the most common methods of checking modulation of amateur transmitters is with the trapezoidal patterns. Couple some of the transmitter output to the vertical input with a pick up loop near the tank coil. Couple some of the modulation voltage to the horizontal input. By whistling into the microphone or providing a variable signal the patterns shown below will be obtained.



100%
MODULATION



LESS THAN
100%

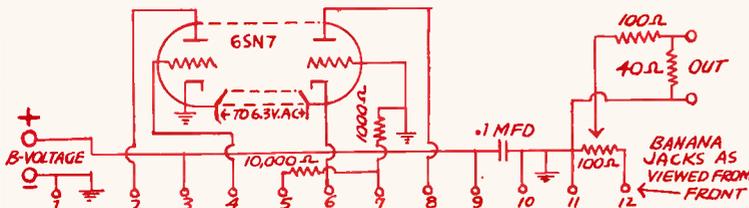


OVER
100%

A SIGNAL GENERATOR FROM BC 375 TUNING UNIT

A customer in Dayton, Ohio has devised an excellent signal generator using a BC 375 tuning unit Type TU26. As this unit is a master oscillator tuner from 150 Watt transmitter a high degree of accuracy is obtained and the 200 to 500 Kc. frequency covers most popular I.F. frequencies while harmonics give adequate coverage of broadcast band. A similar application to the Type TU10B would give a signal generator for FM in the 10 to 12.5 megacycle range. The most interesting feature is that all connections are made to the jack strip and the tuning unit does not need to be opened up.

A twin triode is used and the unit may be located in a small box on top of the unit or may be located inside as desired. A 6SN7 is recommended.



Either the BC 375 Tuning Unit Type TU26B or TU10B is available new at \$2.49 each. Shipping Weight 20 lbs.

Clearance OF WAR SURPLUS ITEMS

BC 375 TRANSMITTER

This is the last chance to obtain a 150 Watt General Electric Transmitter. The price of \$5.95 is as low as we will ever go-- (the junk man offers \$5.80).

These units are slightly damaged and a few parts broken. They were, however, sold to us by the government as new. Less tubes and tuning units.

\$5.95

Shipping Weight 8 1/2 lbs.

BC 223 TRANSMITTER

The last lot of this popular crystal controlled military transmitters. Thousands have been used in fishing and pleasure boats. These units are used, less tubes and tuning units. Shipping Weight 5 1/2 lbs.

\$4.95

Better order one as a spare.

U.S.-AAF ASTROGRAPH

The beautiful plywood cases to these instruments measuring 13 3/4" x 10 1/2" x 9" have been used by thousands as carrying cases for speed graphics, movie projectors, portable radio cases, etc. The astrograph itself converts into an excellent contact printer.

\$3.95

Shipping Weight 19 lbs.

ORDER BLANK

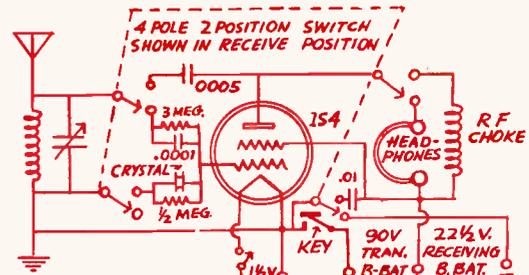
To Heath Company From _____ Ship via _____ Parcel Post
Beaton Harbor, Michigan _____ Express
_____ Freight
_____ Best Way

(Please Print)

Quantity	Item	Price	Quantity	Item	Price
_____	Heathkit Condenser Checker	_____	_____	Heathkit Signal Tracer	_____
_____	RCA Model ARB Receiver	_____	_____	Photoflash Transformer	_____
_____	Heathkit Audio Gen. Kit	_____	_____	Photoflash Vibrator	_____
_____	New Transmitter Power Supply	_____	_____	Photoflash Condenser	_____
_____	Ballentine Dynamotor (6V)	_____	_____	Photoflash Relay	_____
_____	Heathkit VTVM	_____	_____	Photoflash Rectifier	_____
_____	Heathkit Oscilloscope Kit	_____	_____	Heathkit Beginner's Radio	_____
_____	BC 375 Transmitter	_____	_____	_____	_____
_____	BC 223 Transmitter	_____	_____	_____	_____
_____	BC 746 Tuning Unit	_____	_____	_____	_____
_____	BC 375 Tuning Unit-Type _____	_____	_____	_____	_____
_____	Heathkit Signal Generator	_____	_____	_____	_____

TRANSCIEVER FROM BC746 TUNING UNIT

This circuit was submitted by a customer in Kansas, Utah and is an adaption of our earlier circuits. We have experimented with several types of modulation for voice use but none were successful without an additional tube. This is shown for c.w. or key use only.



The BC 746 Tuning Unit complete with crystals is available at.....\$1.00

Or complete with all parts for transmitter including tube, RF choke and instructions.....\$3.95

Transmitting Key..... 1.00

Set of Batteries 45V B and 1 1/2V A..... 3.25

Enclosed find check money order for _____

Please ship C.O.D. Postage enclosed for _____ pounds.

Heathkit SIGNAL TRACER KIT



Reduces service time and greatly increases profits of any service shop. Uses crystal diode to follow signal from antenna to speaker. Locates faults immediately. Internal amplifier available for speaker testing and internal speaker available for amplifier testing. Connection for VTVM on panel allows visual tracing and gain measurements. Also tests phonograph pickups, microphones, PA systems, etc. Frequency range to 200 Mc. Complete ready to assemble. 110V 60 cycle transformer operated. Supplied with 3 tubes, diode probe, 2 color panel, all other parts. Easy to assemble, detailed blueprints and instructions.

\$19.50

Nothing ELSE TO BUY

Heathkit SIGNAL GENERATOR KIT

This is rapidly becoming one of our most popular kits. There is no need to be without a source of calibrated RF even if radio is only a hobby. For only \$19.50 you can have a transformer operated signal generator supplying fundamentals from 150 Kc. to over 30 megacycles with strong harmonics to over 100 megacycles covering the new FM and television bands. Available either as pure RF or modulated by 400 cycle note.

As with all Heathkits, this is complete with grey crackle cabinet, two color panel, 110V 60 cycle power transformer, tubes, all other parts and complete blueprints and instructions. Size of case 9" x 6" x 4 3/4". Shipping Weight 8 lbs.



\$19.50

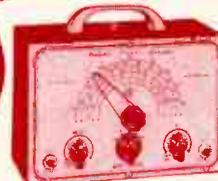


Photo FLASH TRIGGERING CIRCUIT

There are two common ways of triggering the multiple flash tubes. The simplest for use with tubes such as Anglo 5804X and 54R4X uses a relay actuated by the flash light cells in a regular flash gun mounting.

The other uses flash tubes which have a third element, a grid which triggers or flashes the tube. The Anglo 54R9D and Sylvania tubes are of this type.

They require trigger tube such as the Sylvania OA5 and an ignition transformer similar to that used in model airplanes.

The relay type is recommended for home constructors and is shown below. The relay for this is listed in column at right.

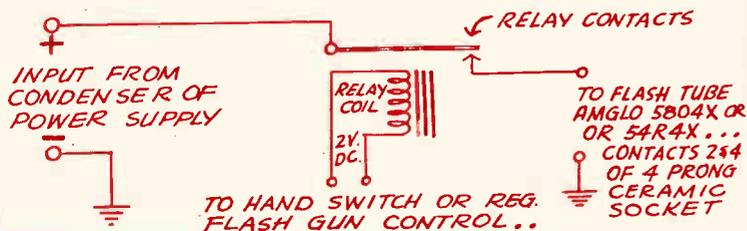


Photo FLASH PARTS

The Heath Company will shortly offer a photoflash unit in kit form. There has been so much interest, however, that the parts available at present are being offered now. A construction diagram is supplied with all parts.

- No. F15 Power transformer a dual purpose unit operates from 110V 60 cycle AC for indoor use; and 3 Volt dry cells for portable use supplies 1750 Volts AC at 5 MA.....\$4.60
- No. F13 Vibrator unit operates from 3 Volt dry cells for use with above transformer.....\$2.50
- No. F14 Socket for above vibrator.....\$.25
- No. F11 20 MFD 2500 Volt storage condenser. Energy storage rating 50-60 Watt seconds. (Two may be used in parallel for higher rating.).....\$11.90
- No. F12 2 Volt relay SPST with special heavy duty contacts to handle flash voltage.....\$3.50
- No. F16 Selenium rectifier 5 MA rating for use with above transformer.....\$8.50
- No. F10 5 megohm 2 watt resistor.....\$.30
- No. F17 4 prong ceramic socket for Anglo tube.....\$.50

The Anglo tubes can be obtained direct from the Anglo Corporation, 4234 Lincoln Ave., Chicago 18, Ill. The 5804X is recommended and priced at \$14.00 plus 25% excise tax and is rated at 50 to 100 Watt seconds input. The peak lumen rating is 40 million.

The HEATH COMPANY

BENTON HARBOR, MICH.

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Benton Harbor, Mich.
Permit No. 273

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