

AL. THOMPSON



Heathkit
**SPECIFICATIONS
and SCHEMATICS**



NOTE: ALL HEATHKIT EQUIPMENT IS DESIGNED TO BE USED WITH A 115V AC POWER SUPPLY.

HEATH COMPANY . . . BENTON HARBOR, MICH.

HEATHKIT SPECIFICATIONS AND SCHEMATICS is intended to provide reference information and to answer your questions pertinent to Heathkit design.

The Heath Company has always freely offered schematics and technical information in the sincere belief that the material is interesting and will prove helpful to many.

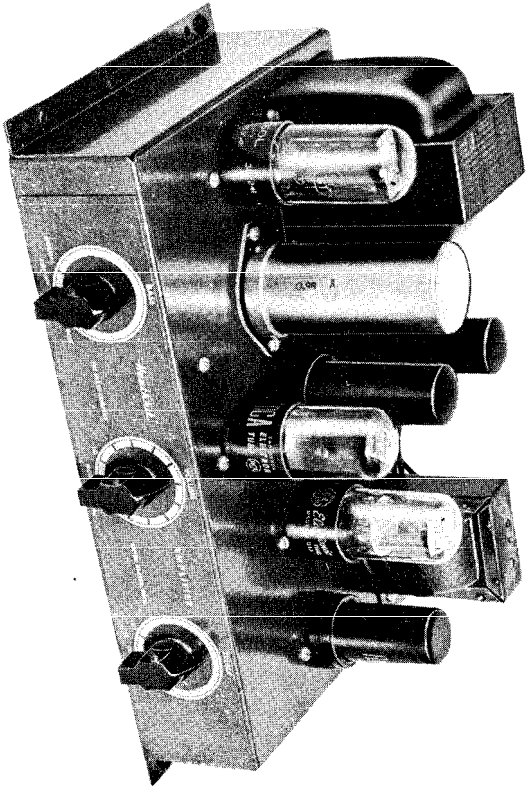
Heathkit pioneering in the electronic instrument kit field has resulted in the availability of a wide selection of useful well-designed, low cost electronic kit form equipment. Heathkits fulfill a major need in electronics and have been directly responsible for further stimulating interest particularly among electronics enthusiasts whose activity might be discouraged because of high equipment cost.

The combination of careful engineering, complete and detailed instruction manuals, use of highest quality components and exacting machine work in forming and punching of panels and chassis all combine to produce accurate, dependable test equipment which is a pleasure to construct and truly professional in appearance.

The advantages of constructing kit form test equipment are numerous. The builder saves the major portion of the cost of factory built equipment and becomes better acquainted with the circuitry and operation of the unit thereby gaining that important knowledge that will help him use the instrument far more intelligently over a wider range of applications. Should maintenance or repair ever be needed, the knowledge gained in construction will permit the kit builder to easily put the unit back into proper operating condition without delay.

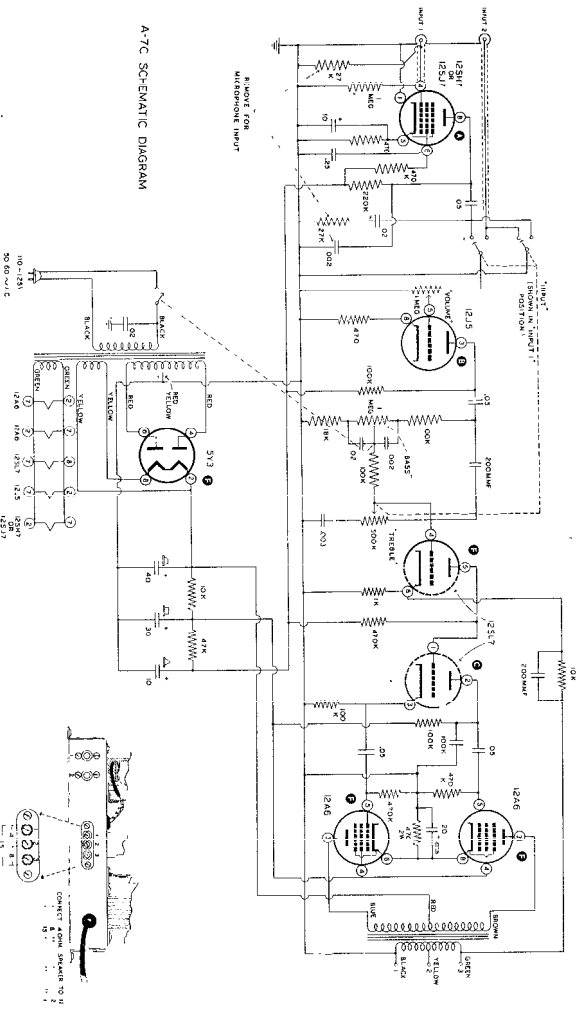
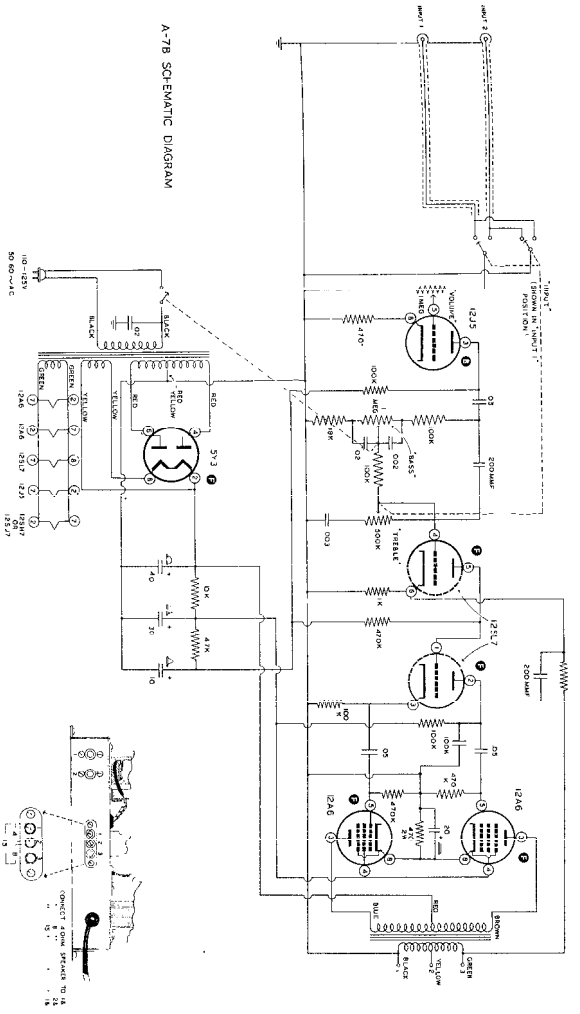
It always has been and it always shall be our sincere desire to produce the best possible kit form test equipment at the lowest possible cost. Furthermore, we are anxious to help the Heathkit user in any way and at all times for we want every Heathkit owner to receive the many years of excellent operation for which his kit was engineered.

HEATHKIT MODEL A-7B and A-7C AUDIO AMPLIFIERS

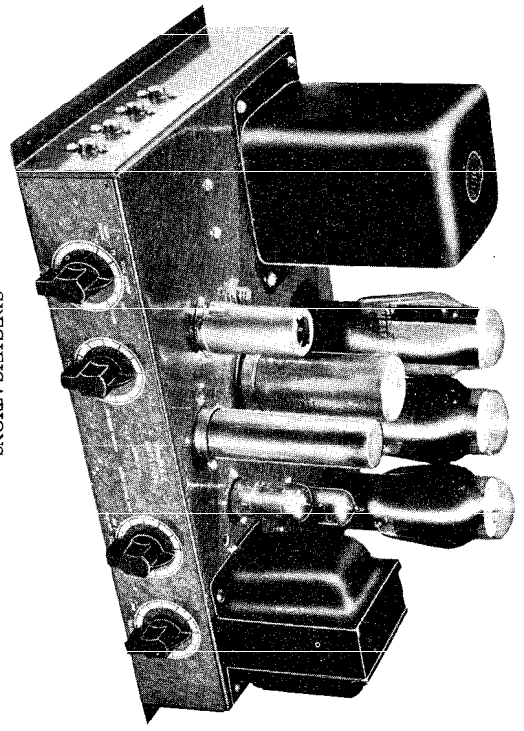


SPECIFICATIONS

Frequency Response.....	±1.5 db 20 to 20,000 cps
Power Output.....	6 watts
Tube Complement.....	1 - 12S17 First Amplifier 1 - 12SL7 Second Amplifier and Phase Splitter 2 - 12A6 Beam Power Output 1 - 5Y3 Rectifier 1 - 12SH7 or 12SJ7 Preamplifier (A-7C only)
Output Impedance.....	4, 8, or 15 ohms
Input Voltage.....	110-125 volts AC 50/60 cycles
Physical Specifications.....	11 1/2" wide, 5 1/4" high, 6 1/2" deep
Shipping Weight.....	10 lbs.

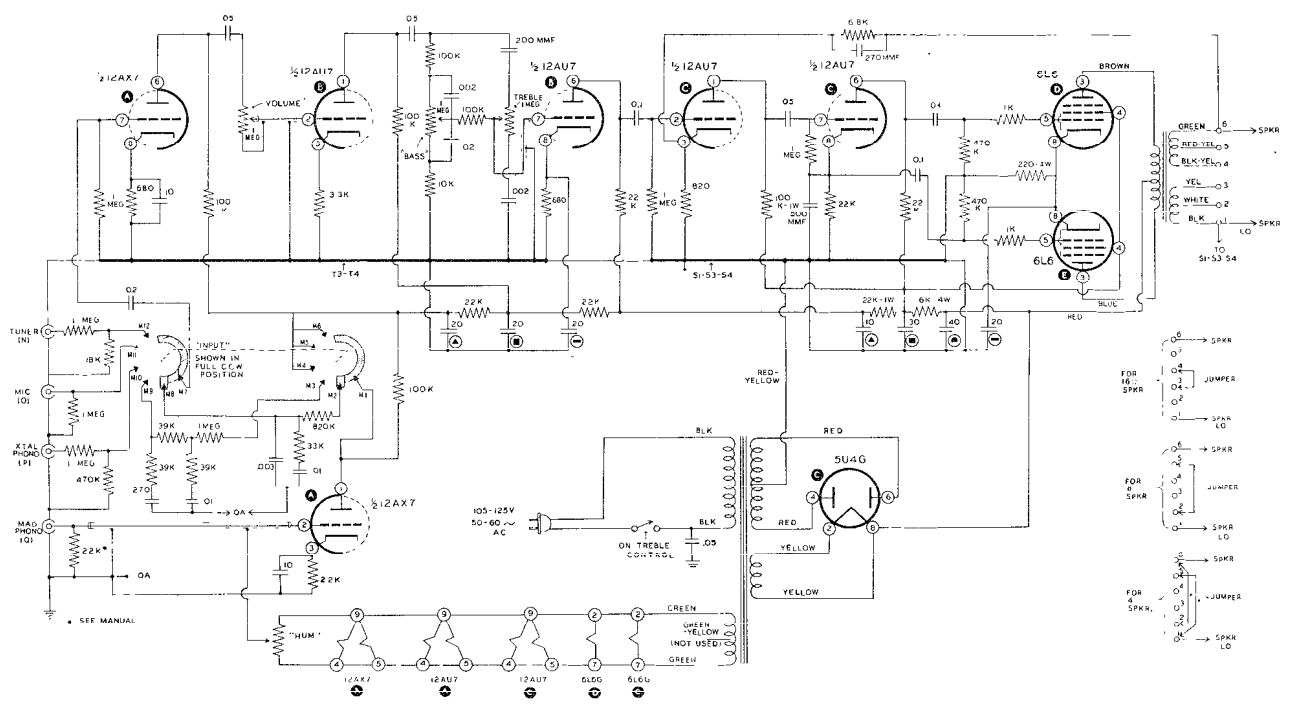


HEATHKIT AUDIO AMPLIFIER MODEL A-9A

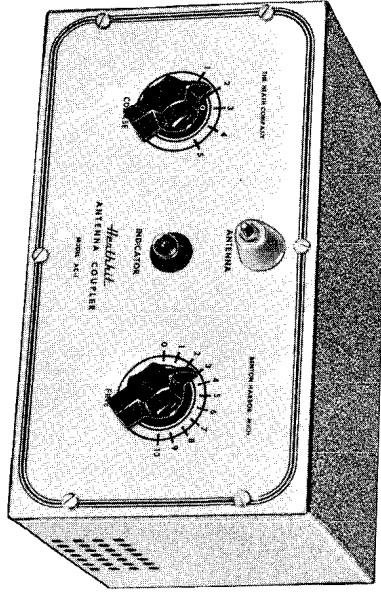


SPECIFICATIONS

Frequency Response.....	±1 db 20 to 20,000 cps
Power Output.....	20 watts
Total Harmonic Distortion.....	1% (at 3 db below rated output)
Input Requirements (for 15 watts output)	
Magnetic Phono Input.....	0.007 volts
Microphone Input.....	0.01 volts
Crystal Phono Input.....	0.08 volts
Tuner Input.....	0.6 volts
Tone Controls	
Bass (at 30 cps).....	15 db boost, 15 db cut
Treble (at 15 kc).....	15 db boost, 20 db cut
Power Requirements.....	100 watts, 105-125 volts 50/60 cycle AC
Tube Complement.....	12AX7 magnetic phono preamplifier and input amplifier
	12AU7 voltage amplifier and tone control amplifier
	12AU7 voltage amplifier and phase splitter
	Two 6L6G push-pull pentode power amplifiers
	5U4G Rectifier
Dimensions.....	13 1/4" x 8 1/2" x 6 5/8" high
Shipping Weight.....	17 lbs.

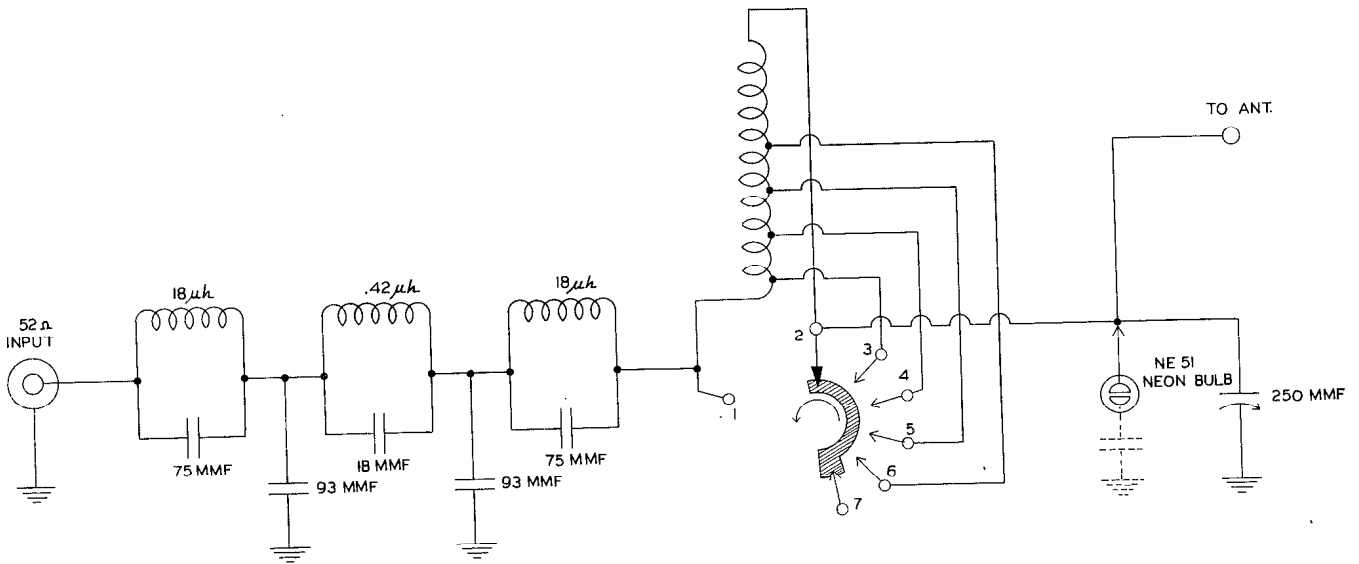


HEATHKIT ANTENNA COUPLER MODEL AC-1



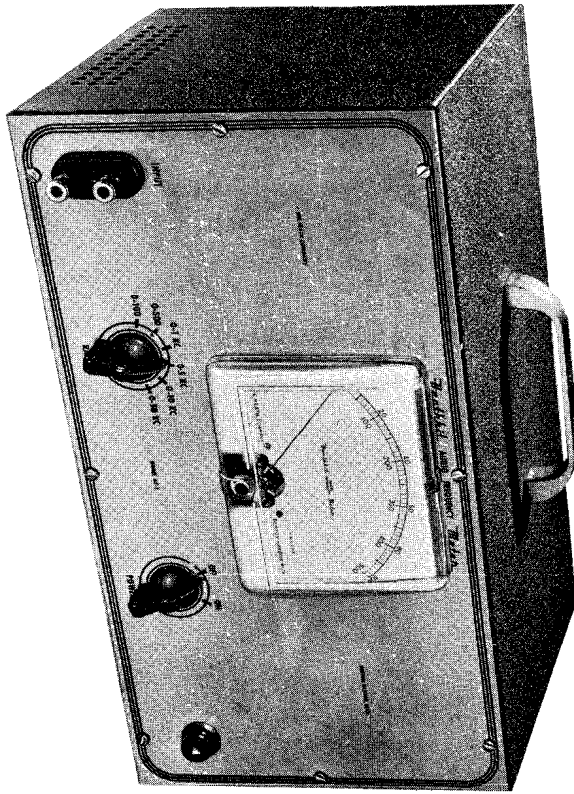
SPECIFICATIONS

Maximum R.F. Power Input.....	75 watt
Input Connection.....	52 ohm coaxial cable
Output Connection.....	Single-ended
Low Pass Filter Cut-off Frequency.....	36 megacycles
Dimensions.....	7 1/8" x 4 3/8" x 4 7/8"
Net Weight.....	2 lbs.
Shipping Weight.....	3 lbs.



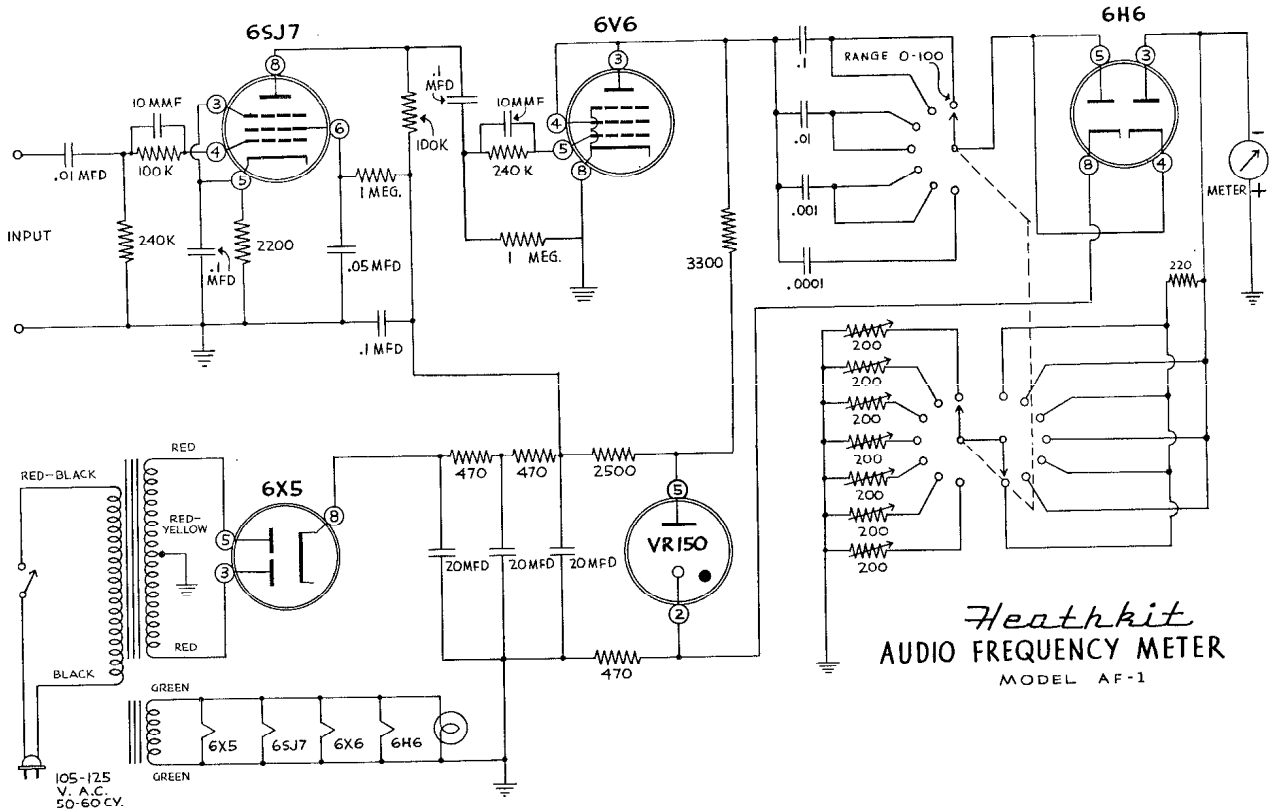
SCHMATIC ANTENNA COUPLER

HEATHKIT AUDIO FREQUENCY METER MODEL AF-1

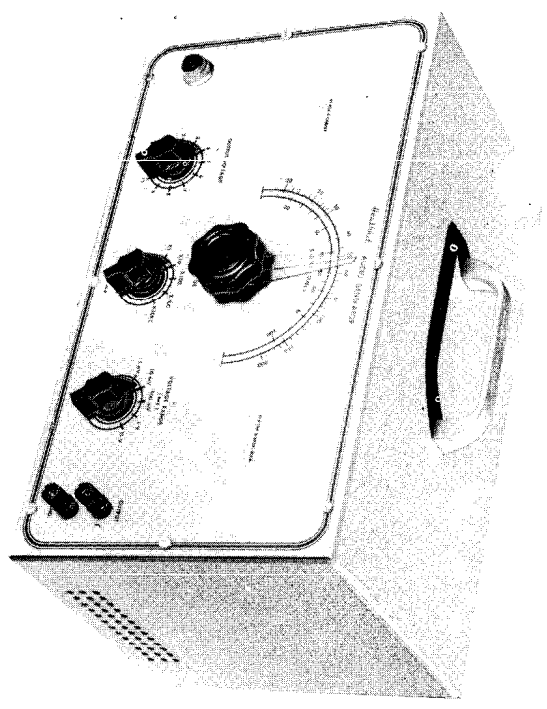


TECHNICAL SPECIFICATIONS

- Power Requirements: 105-125 V AC 50-60 cycles, 35 Watts
- Tube Complement: 1 - 6V6 I - 6H6 I - 6X5
1 - 6SJ7 I - VR150
- Ranges: 0-100, 0-300, 0-1KC, 0-3KC, 0-10KC, 0-30KC, 0-100KC.
- Input: Impedance 250,000 Ohms at 1,000 CPS
Voltage 2-300 Volts RMS
- Physical Specifications: 12½" long x 7" high x 7½" deep, Shipping Wt. 12 lbs.

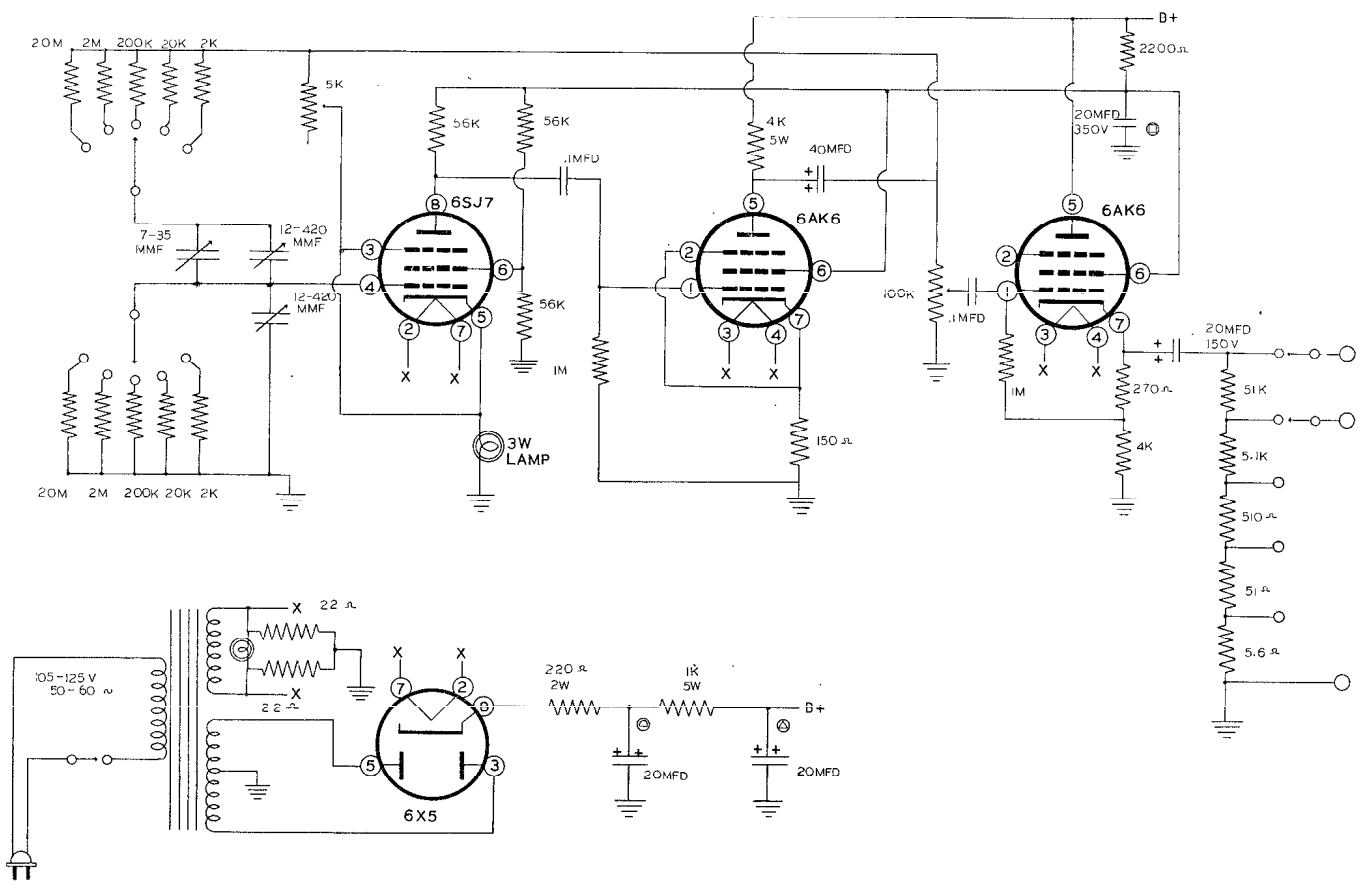


HEATHKIT AUDIO GENERATOR MODEL AG-8

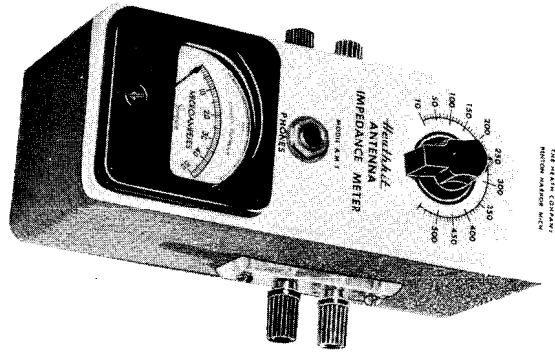


SPECIFICATIONS

- Frequency range 20 cps to 1 mc in five ranges
- Output voltage 10 volts (no load) plus or minus 1 db 20 cps to 400 kc; down 3 db at 600 kc; down 8 db at 1 mc.
- Generator impedance 600 ohms
- Distortion less than 0.4%, 100 cps through audible range
- Power requirements 30 watts, 105-125 volts 50-60 cycles AC
- Dimensions 7½" high, 13¼" wide, 7½" deep
- Shipping weight 15 lbs.

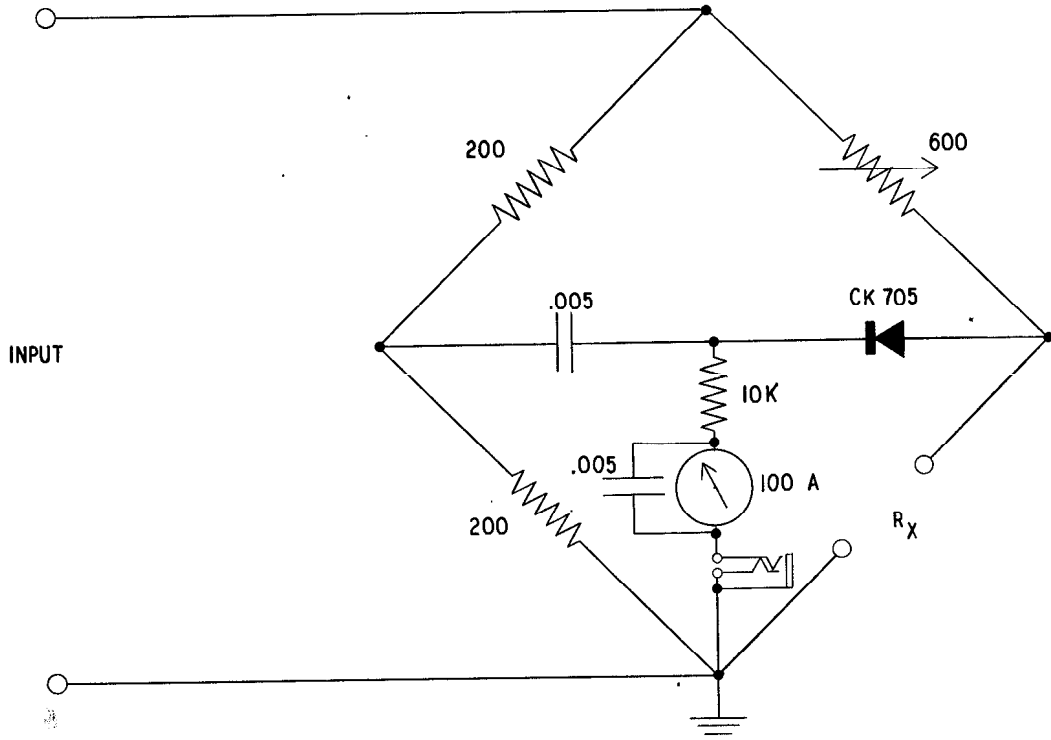


HEATHKIT ANTENNA IMPEDANCE METER MODEL AM-1



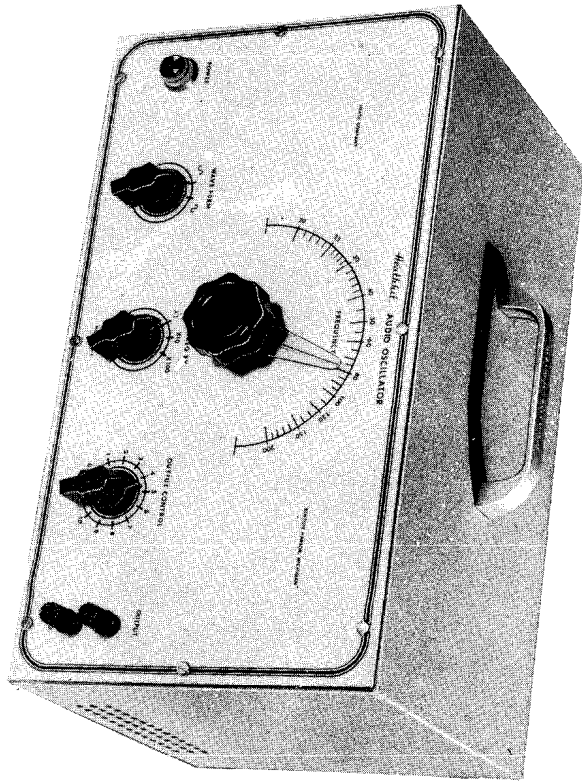
SPECIFICATIONS

Frequency Range.....	0-150 megacycles
Impedance Range.....	0-600 ohms
Null Indicator.....	100 μ ampere meter
Dimensions.....	2 1/2" x 3" x 7"
Net Weight.....	1 lb.
Shipping Weight.....	3 lbs.



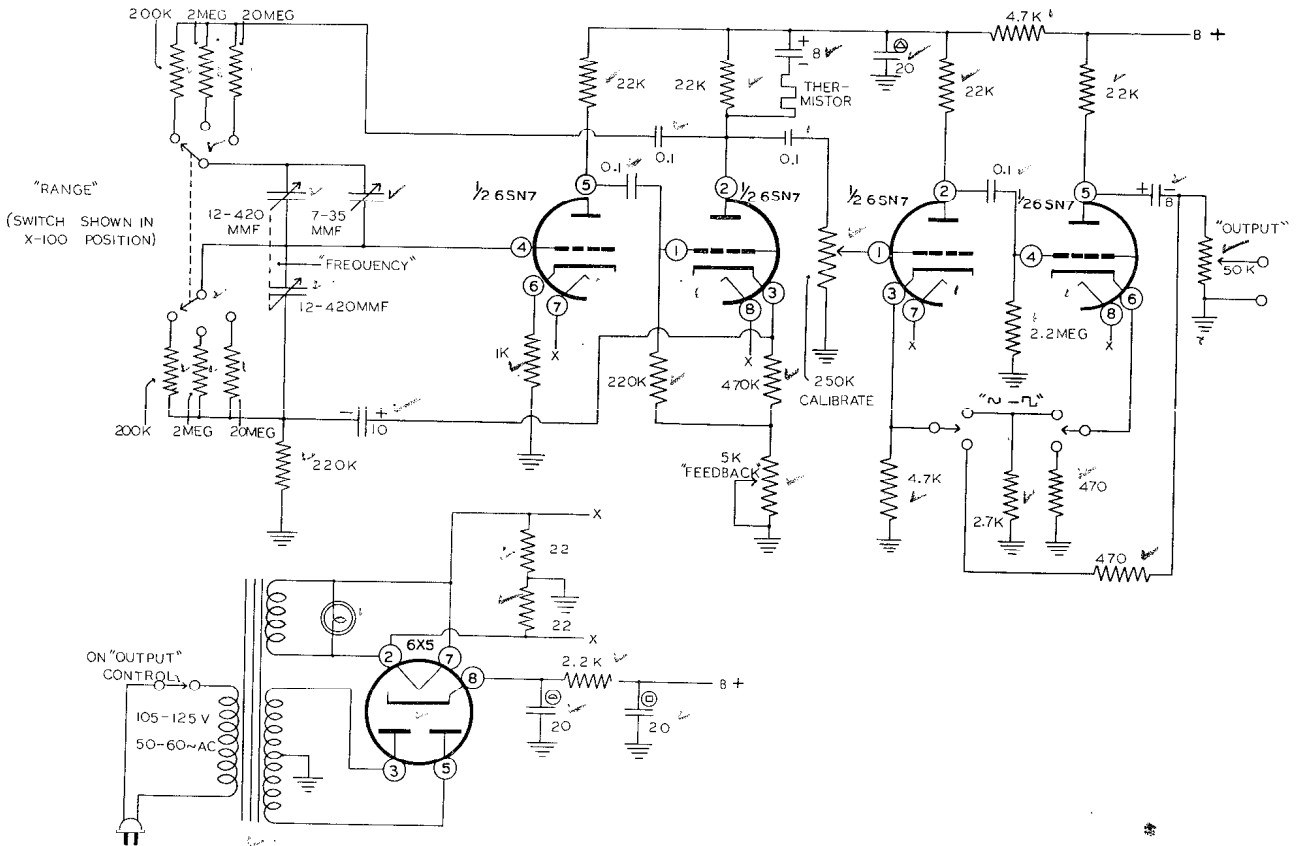
ANTENNA IMPEDANCE METER SCHEMATIC

HEATHKIT MODEL AO-1 AUDIO OSCILLATOR

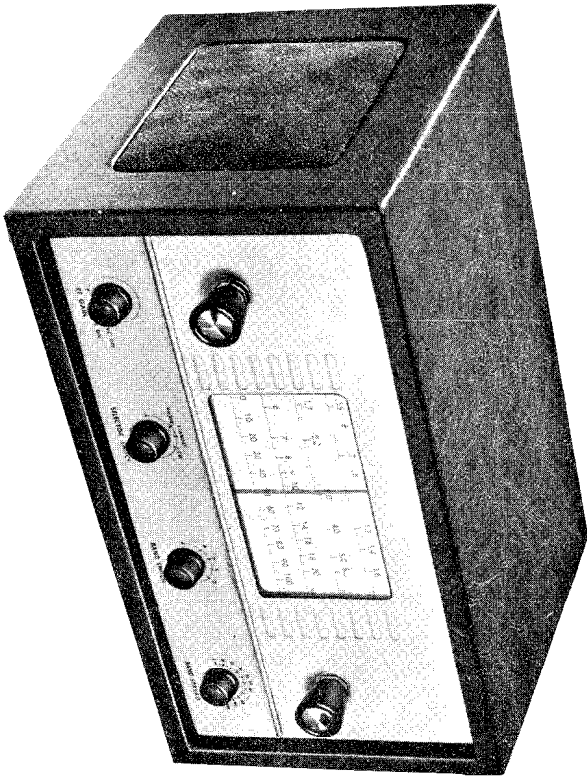


SPECIFICATIONS

- Frequency Range 20 to 20,000 cps, in three ranges
- Output Voltage (Sine Wave) 10 volts, no load, plus or minus 1 db.
- (Square Wave) 10 volts, rise time 2 microseconds, (10-90%)
- Generator Impedance 600 ohms
- Distortion Less than 0.6%, 100 cps through audible range
- Power Requirements 30 watts, 105-125 volts, 50-60 cycles AC
- Dimensions 7½" high, 13¼" wide, 7½" deep.
- Shipping Weight 14 lbs.



HEATHKIT MODEL AR-2 COMMUNICATIONS RECEIVER

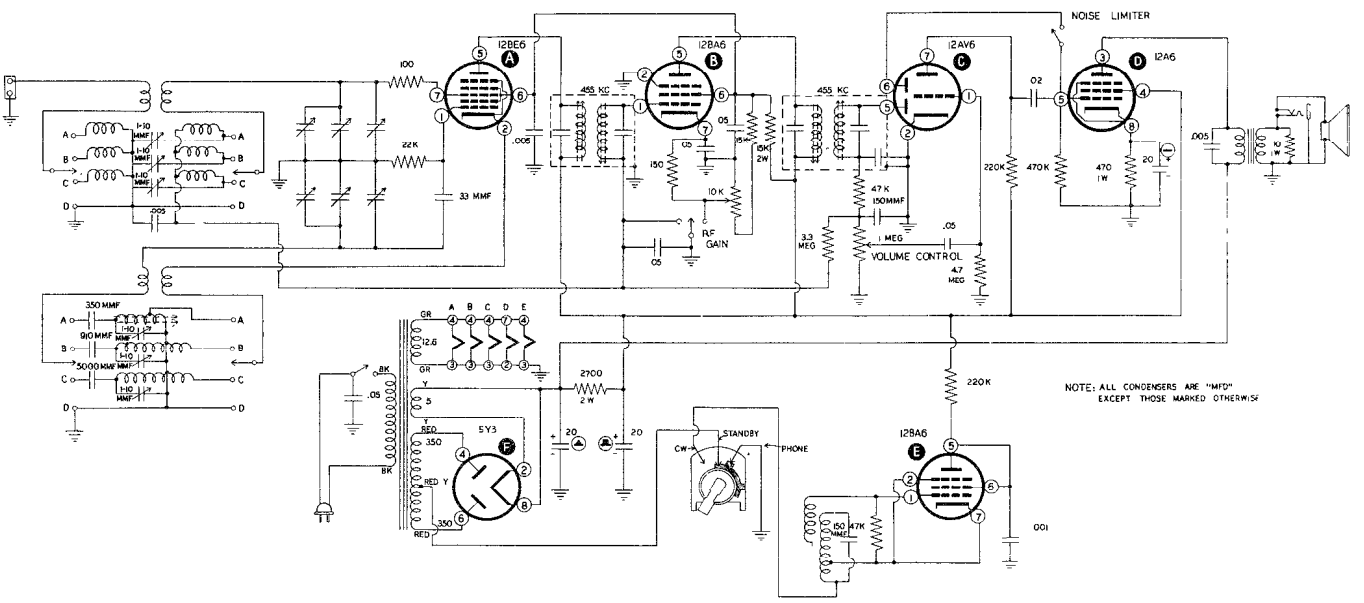


SPECIFICATIONS

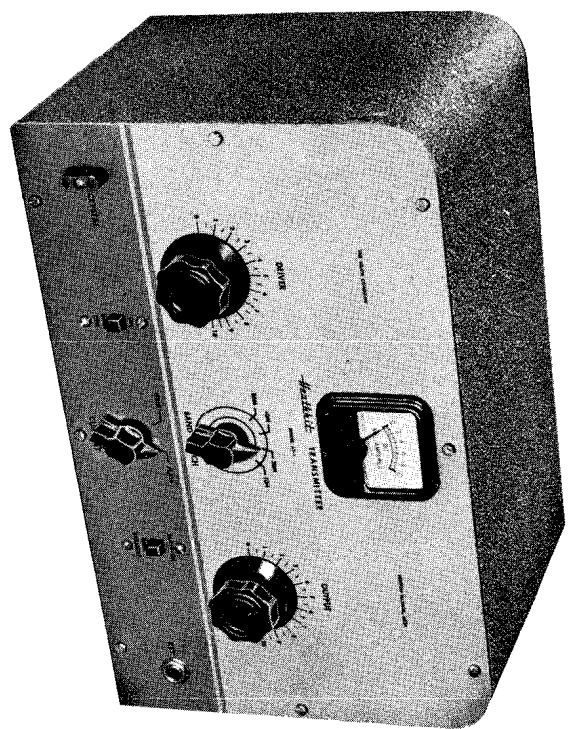
- Frequency Range..... 550 kc to 35 mc on four bands
- Tube Complement.....
 - 1 - 12BE6 Oscillator and Mixer
 - 1 - 12BA6 IF Amplifier
 - 1 - 12AV6 Second Detector and First Audio Amplifier
 - 1 - 12A6 Beam Power Output
 - 1 - 12BA6 BFO Tube
 - 1 - 5Y3 Full Wave Rectifier
- Power Requirements..... 105-125 volts AC 50/60 cycles 45 watts
- Dimensions..... 11 1/2" wide x 5 3/4" high x 6 3/4" deep
- Shipping Weight..... 12 lbs.

FEATURES

- Noise Limiter
- RF Gain Control
- Ham Band Identifications
- Band Spread Tuning
- Phone - Standby - CW
- Headphone Jack

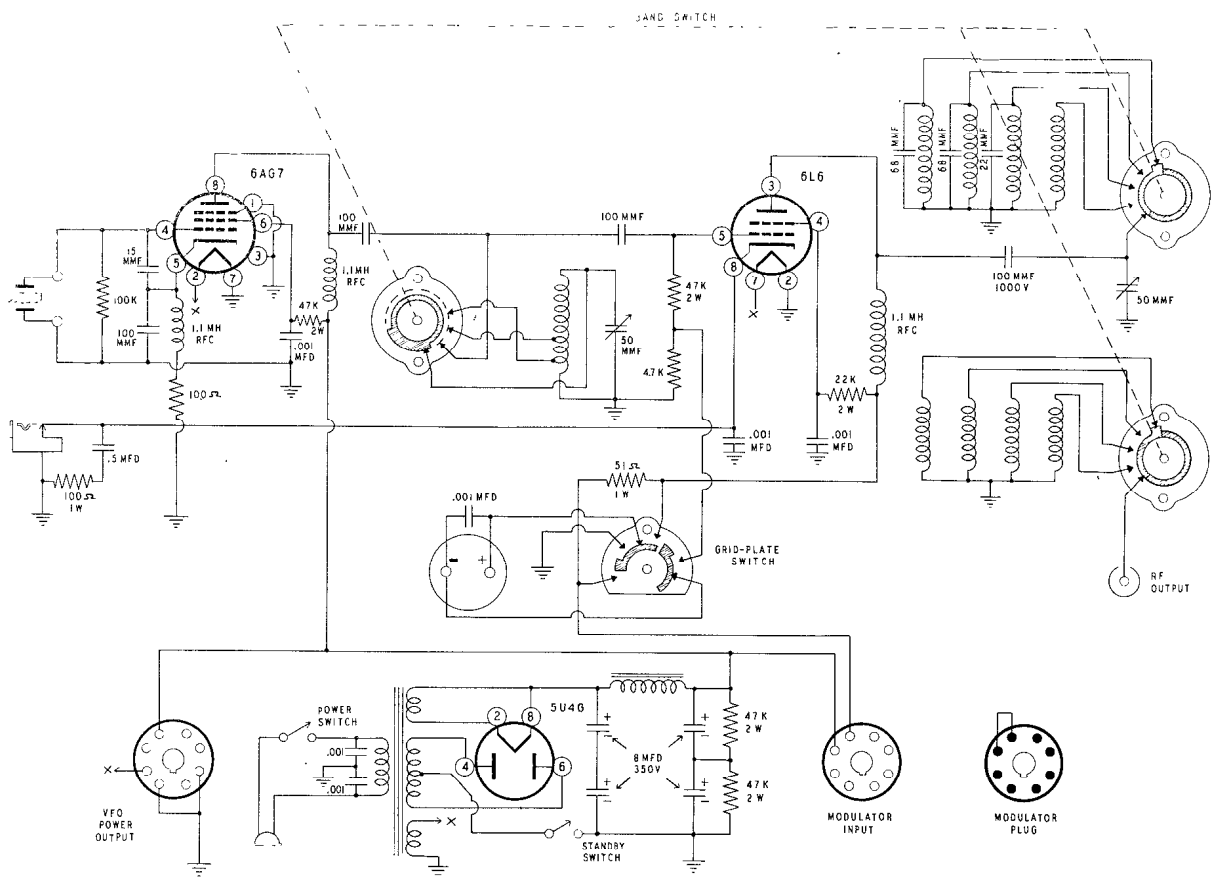


HEATHKIT AMATEUR TRANSMITTER MODEL AT-1



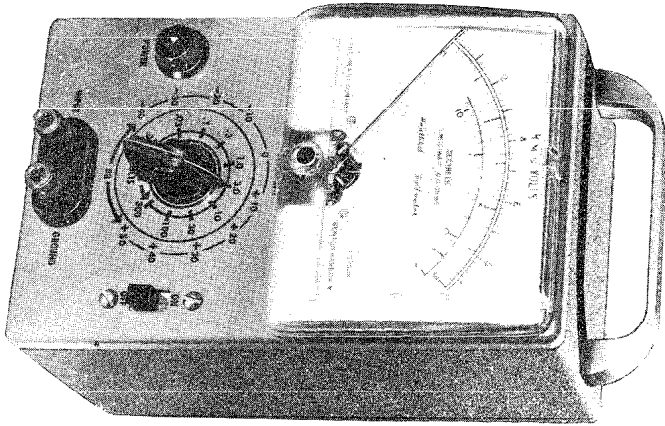
SPECIFICATIONS

RF Amplifier Power Input.....	25-30 Watts
Output Connection.....	52 Ohm Coaxial Cable
Oscillator Operation.....	Crystal, can be operated by a VFO
Amplifier Operation.....	CW, can be modulated for phone
Band Coverage.....	80, 40, 20, 15, 11, 10 Meters
Tube Complement	
504G.....	Rectifier
6AG7.....	Oscillator - Multiplier
6L6.....	Amplifier - Doubler
Power Requirements.....	105-125 50/60 Cycle, 100 Watts
Cabinet Size.....	8 1/8" high x 13 1/8" wide x 7" deep
Net Weight.....	13 lbs.



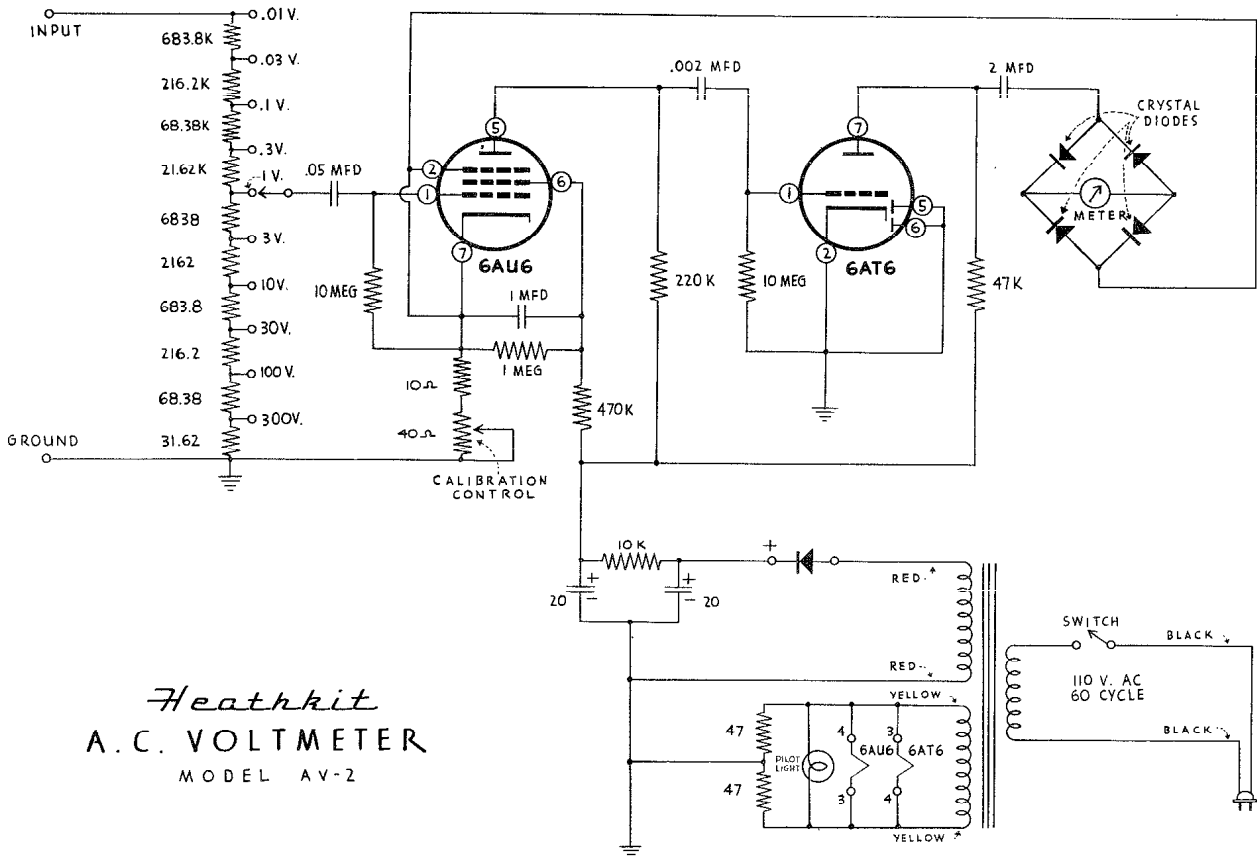
HEATHKIT AMATEUR TRANSMITTER
MODEL AT-1

HEATHKIT MODEL AV-2 A. C. VOLTMETER



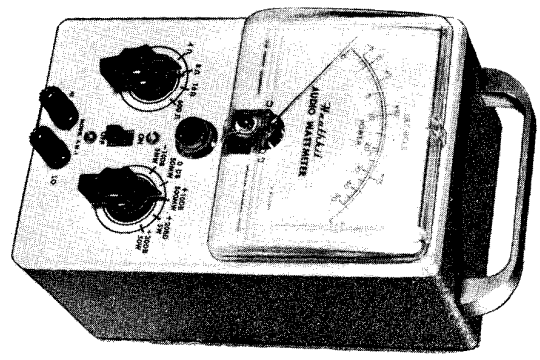
Technical Specifications

- Power Requirement:** 105-125V AC, 50-60 cycles, 10 Watts
- Tube Complement:** 1 - 6AU6 1 - 6AT6
- Input Impedance:** 1 Megohm at 1 KC
- Ranges:** .01, .03, 1, .3, 1, 3, 10, 30, 100, 300 V RMS
- Decibels:** Total range -52 to +52 db, scale -12 to +2 db. (1 MW - 600 ohm) ten switch selected ranges from -40 to +50 db.
- Physical Specifications:** 7-3/8" high x 4-11/16" wide x 4-1/8" deep
- Net Weight** 3 1/2 lbs.
- Shipping Weight** 5 lbs.



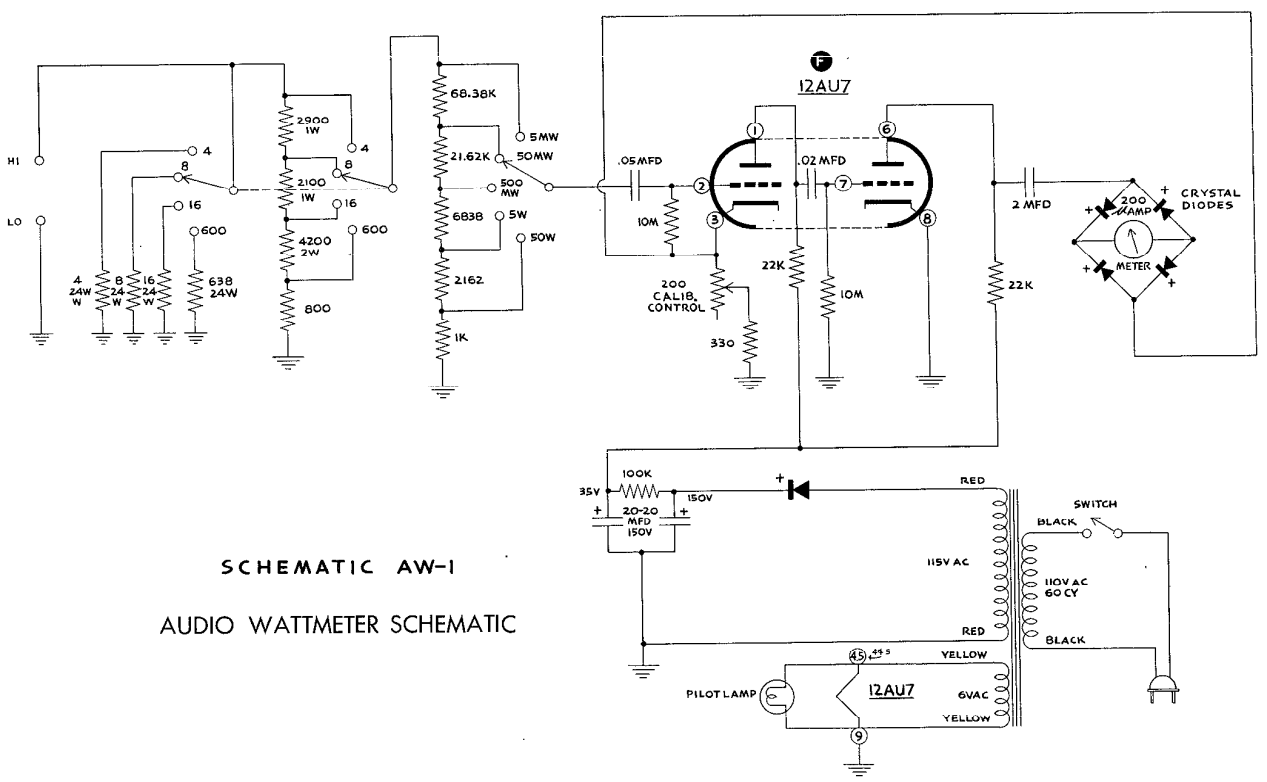
Heathkit
A.C. VOLTMETER
MODEL AV-2

HEATHKIT AUDIO WATTMETER MODEL AW-1



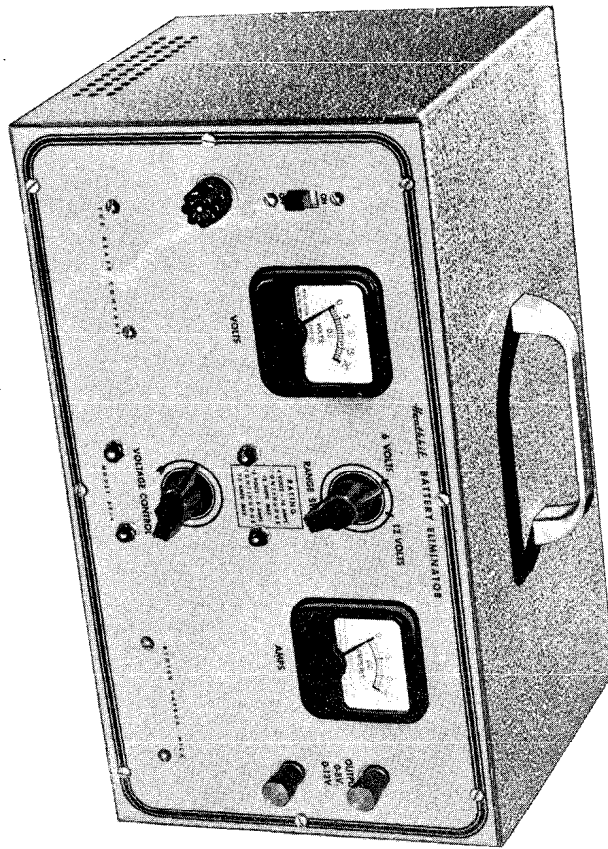
SPECIFICATIONS

- Frequency Response..... ±1 db, 10 cycles to 250 kc
- Wattage Range..... 0-5 milliwatts, 50 milliwatts, 500 milliwatts, 5 watts, 50 watts full scale.
- DB Ranges..... Total range, -15 db to +48 db, scale -5 to +18 db (1 mw - 600 Ω). Five switch selected ranges from -10 db to +30 db.
- Load Resistors..... 4 Ω, 8Ω, 16 Ω and 600 Ω non-inductive, switch selected.
- Audio Input Power Ratings..... Upto 25 watts maximum continuous duty, 50 watts maximum intermittent. Duty cycle 50 watts is 3 minutes. Ventilated cabinet allows efficient cooling.
- Multipliers..... Precision type
- Meter..... 4 1/2" streamlined case with 200 microampere movement.
- Meter Rectifier..... Crystal diode bridge for wide range frequency response.
- Tube..... 12AU7 - voltage amplifier and current amplifier for meter.
- Power Supply..... Power transformer and selenium rectifier
- Power Requirements..... 105-125 volt AC, 50/60 cycle, 6 watts
- Dimensions..... 7 3/8" high x 4 11/16" wide x 4 1/8" deep
- Net Weight..... 5 lbs.
- Shipping Weight..... 6 lbs.



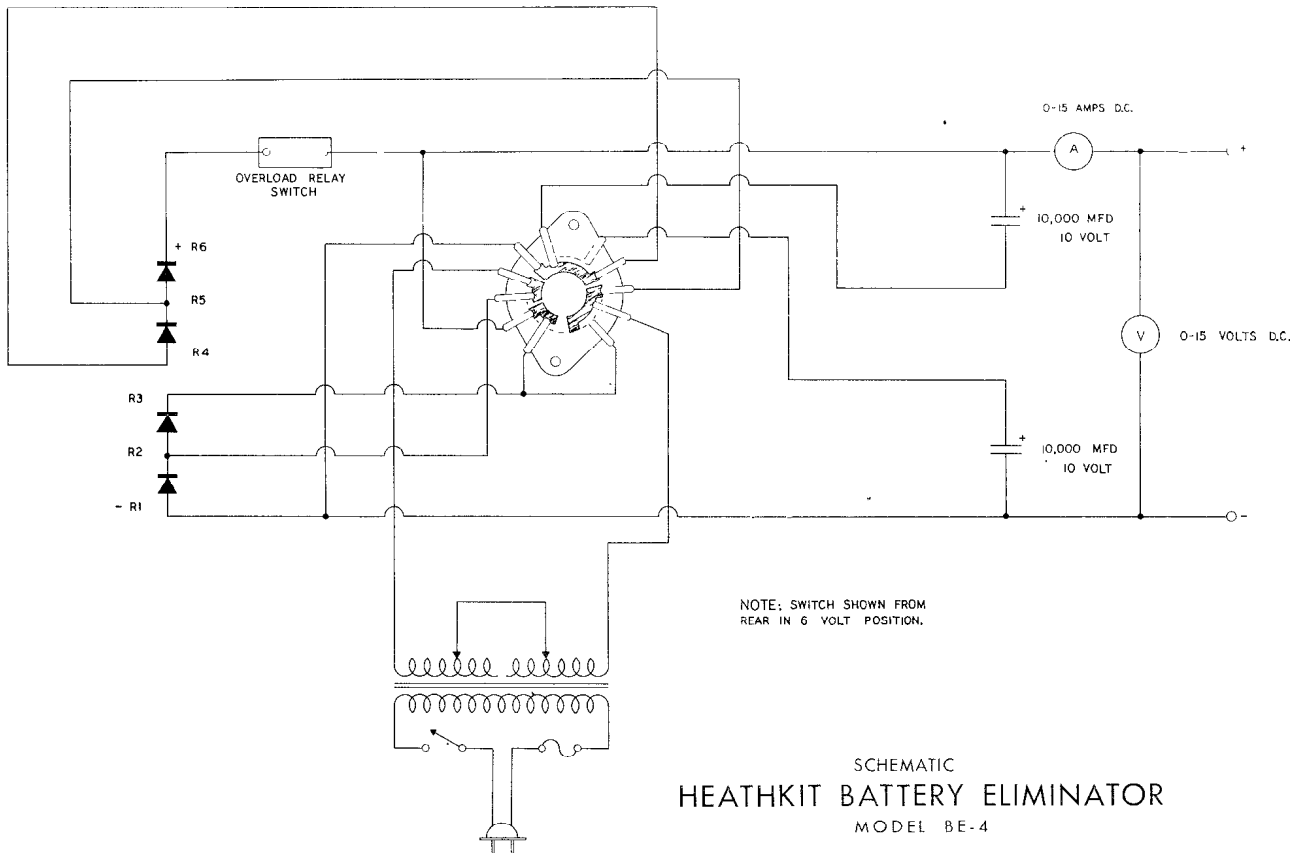
SCHMATIC AW-1
AUDIO WATTMETER SCHEMATIC

HEATHKIT BATTERY ELIMINATOR MODEL BE-4

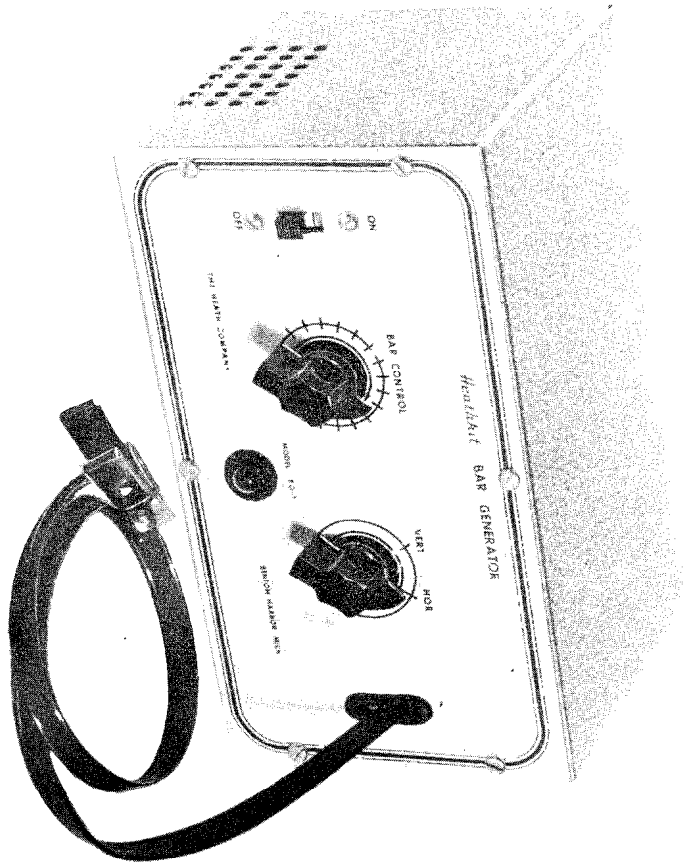


SPECIFICATIONS

Continuously variable voltage output	
0-8 volts DC.....	10 amperes continuously
	15 amperes maximum intermittent
0-13 volts DC.....	5 amperes continuously
	7.5 amperes maximum intermittent
Power Requirements.....	105-125 V., 50-60 cycles AC at 175 watts
Dimensions.....	13 1/4" wide x 7 1/2" deep x 7 1/4" high
Approximate shipping weight.....	22 lbs.

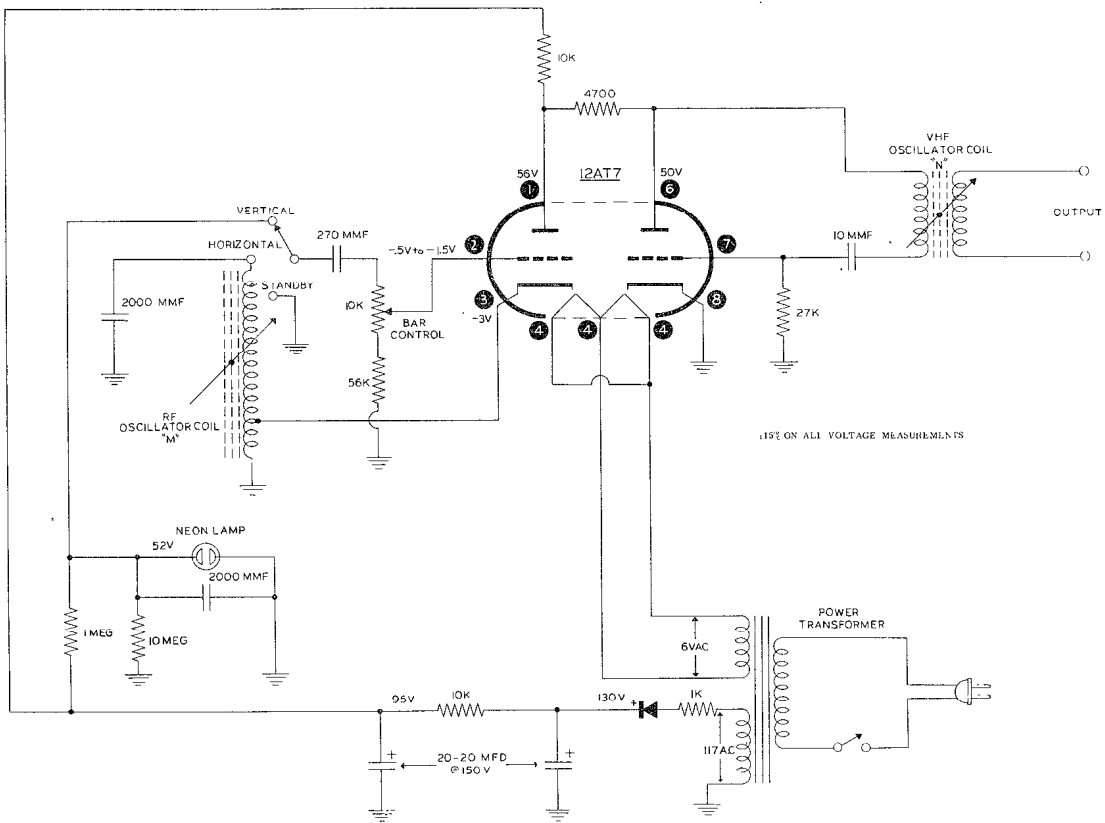


HEATHKIT BAR GENERATOR MODEL BG-1



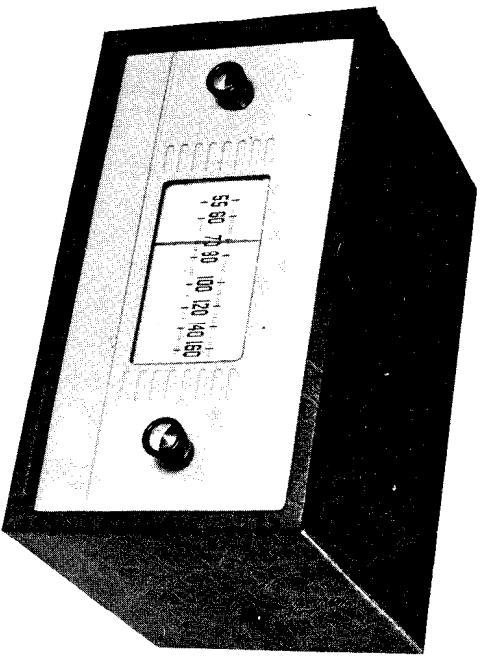
SPECIFICATIONS

Carrier Frequency.....	60 to 80 megacycles
Modulating Frequencies	
Radio Frequency (Horizontal Linearity).....	113 to 172 KC
Low Frequency (Vertical Linearity).....	480 cps. (Approx.)
Output Voltage.....	100,000 microvolts
Tube.....	12AT7
Power Supply.....	Transformer operated half-wave selenium rectifier
Power Requirements.....	105-125 volts, 50-60 cycles AC
Dimensions.....	8 1/8" wide, 4 3/8" high, 4 7/8" deep
Shipping Weight.....	6 lbs.



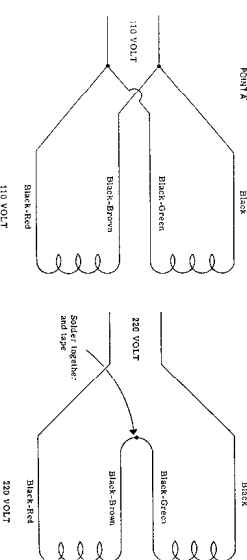
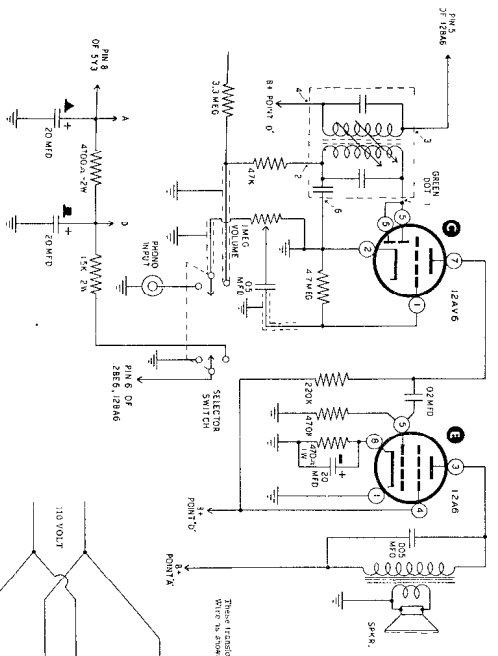
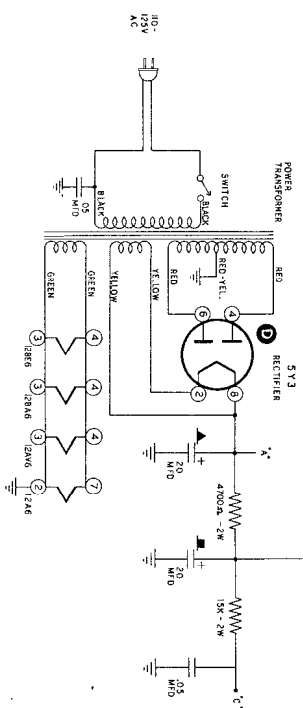
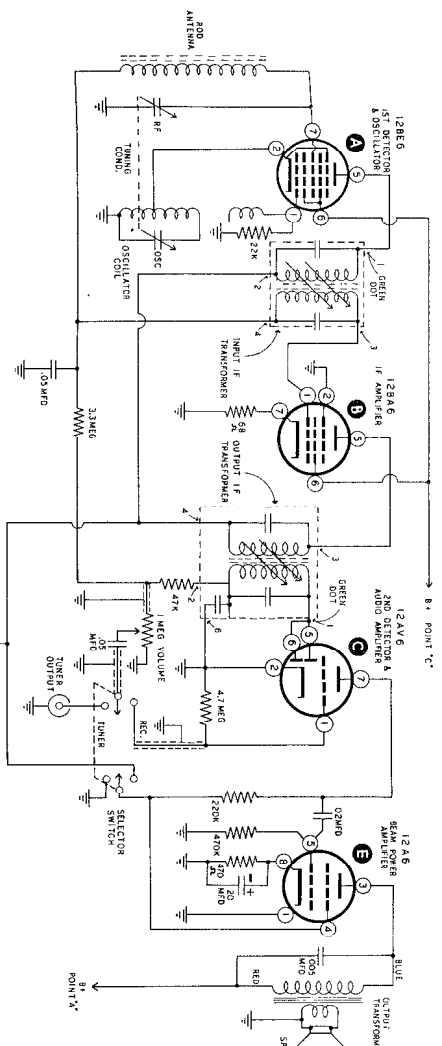
HEATHKIT BAR GENERATOR

HEATHKIT BROADCAST BAND RECEIVER MODEL BR-2

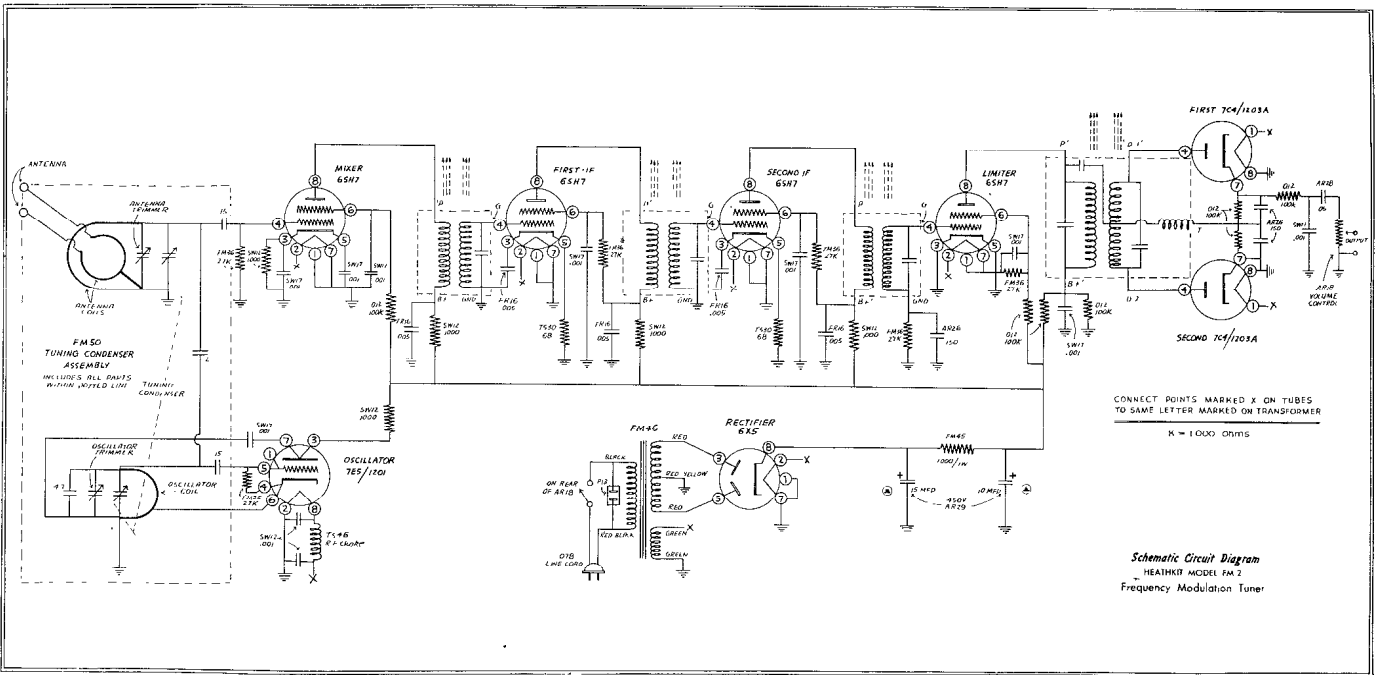


SPECIFICATIONS

- Radio
 - Tuning Range..... 550 kc to 1620 kc
 - I. F. Frequency..... 455 kc
 - Antenna..... Built-in High Sensitivity Rod Type
 - Speaker (included)..... 5 1/2" PM 4 ohm Voice Coil
 - Tuner Operation..... High impedance to any amplifier input with resistance of 100,000 ohms or more. 110 V outlet provided for amplifier, phono player, etc.
- Phonograph
 - Input..... 1 megohm high impedance for optimum performance with any good quality crystal or ceramic phono pickup.
- Tube Complement.....
 - 1 - 5Y3 Rectifier
 - 1 - 12A6 Beam Power Amplifier
 - 1 - 12AV6 Detector, A.V.C. and Audio Amplifier
 - 1 - 12BA6 I. F. Amplifier
 - 1 - 12BE6 Pentagrid Converter
- Power Requirements..... 105-125 V 50-60 cycles AC 40 watts
- Dimensions..... 11 1/2" wide, 5 3/4" high, 6 3/4" deep

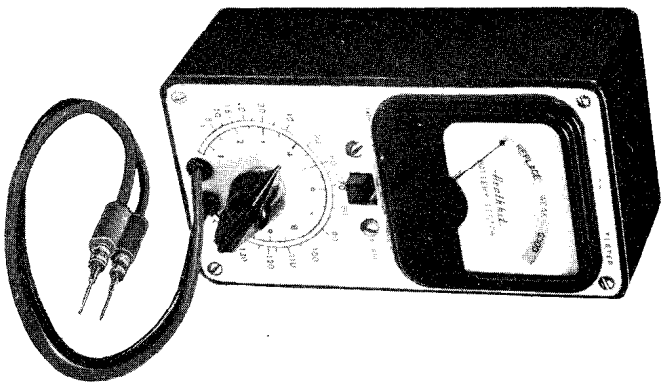


WINDING OF EXPERT TYPE
110/220 VOLT POWER
TRANSFORMERS
These transformers have a dual primary for use on either 115 volts or 220 volts.
Wire as shown.



Test Ranges
 Load Current
 Meter Indications
 Size
 Shipping Weight

HEATHKIT MODEL BT-1 BATTERY TESTER

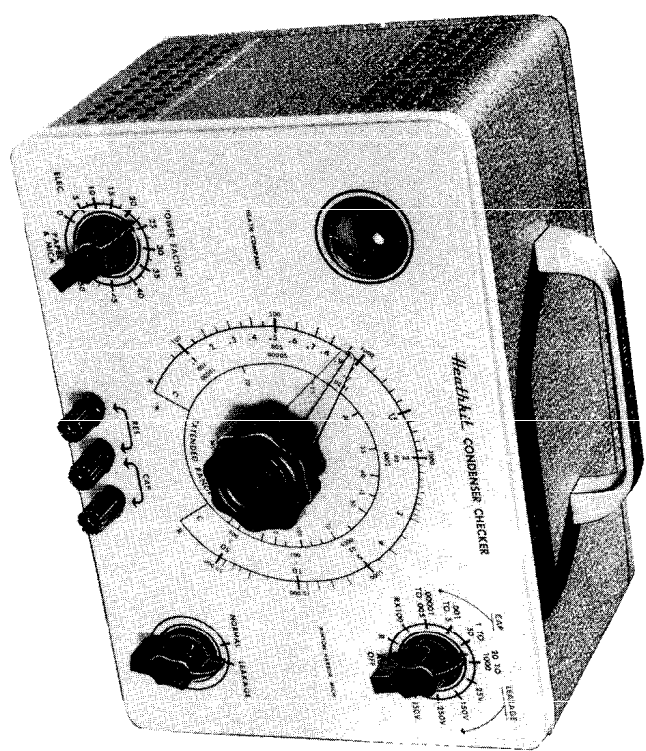


SPECIFICATIONS

HEATHKIT BATTERY TESTER MODEL BT-1

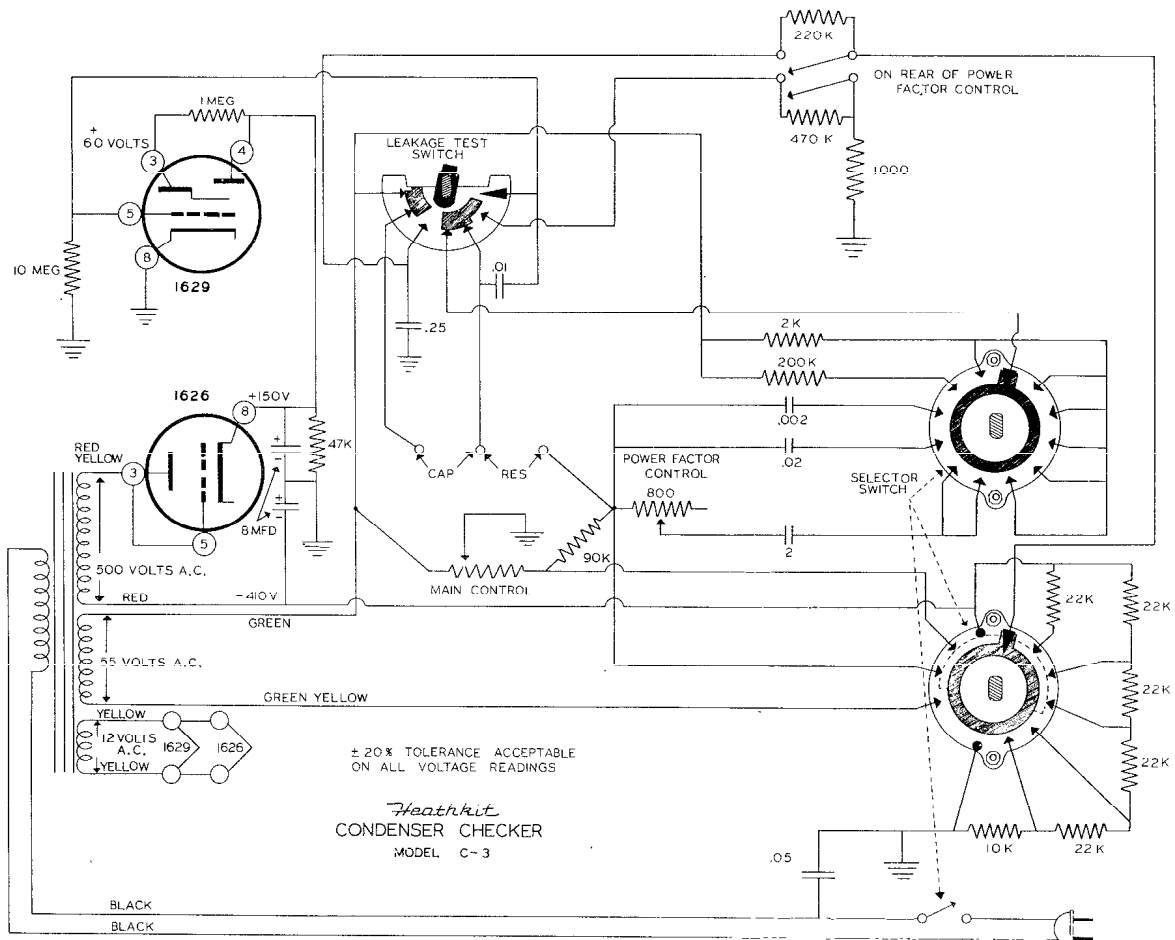
0 to 15 volts
 0 to 180 volts
 "A-Batt" Range 100 MA.
 "B-Batt" Range 10 MA.
 GOOD - WEAK - REPLACE
 Length 5 7/8", Width 3", Height 2 3/4"
 3 Pounds

HEATHKIT CONDENSER CHECKER MODEL C-3

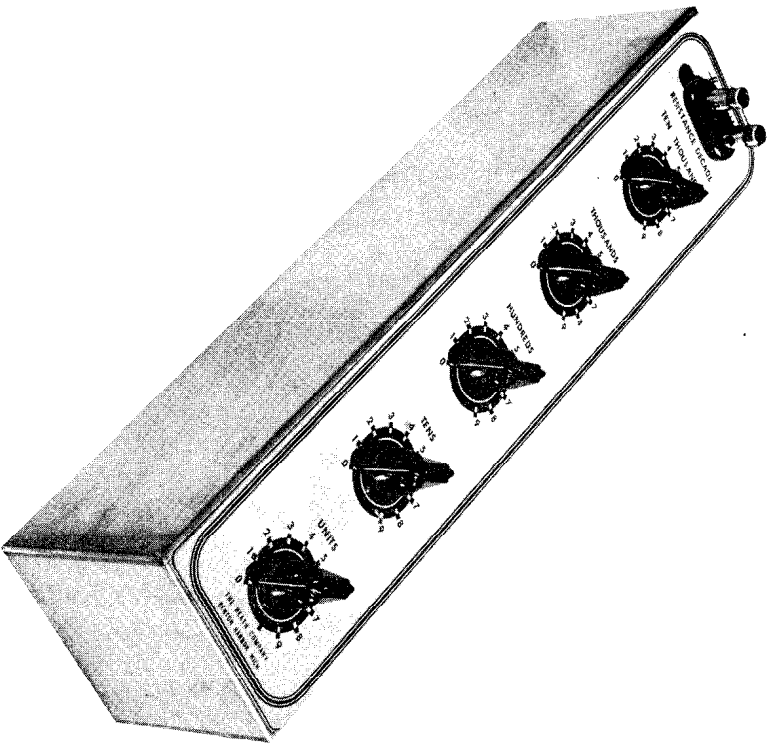


SPECIFICATIONS

- Power Requirements:** 110-125 volts, 50-60 cycles a-c
Cabinet Size: 9½" wide x 6½" high x 5" deep
Kit Shipping Weight: 7 pounds
Power Supply: Power transformer—half wave rectifier
Capacity: 4 Ranges: .0001 mfd - .005 mfd
 .01 mfd - .5 mfd
 .1 mfd - 50 mfd
 20 mfd - 1000 mfd
D-C Leakage Test
Polarizing Voltages: 5 Ranges: 25 volts d-c
 150 volts d-c
 250 volts d-c
 350 volts d-c
 450 volts d-c
Resistance Ranges: 2 Ranges: 10,000 ohms to 50,000 ohms
Circuit: A-c powered bridge for both capacitive and resistive measurements. Maximum opening of electron beam indicator tenets bridge balance.



HEATHKIT MODEL DR-1 DECADE RESISTANCE KIT



SPECIFICATIONS

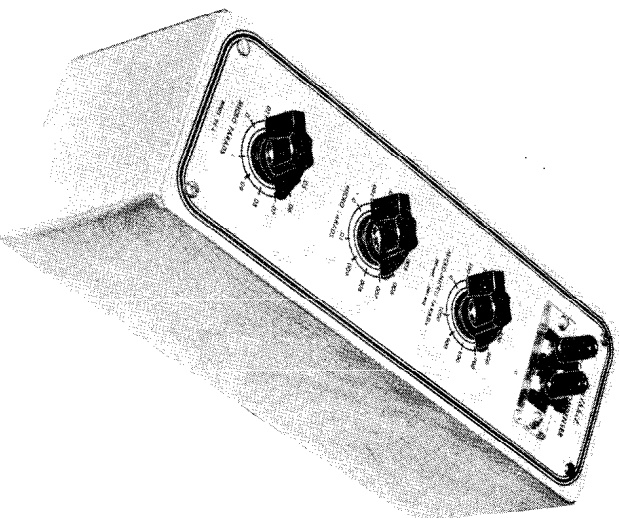
Range..... 1 Ω to 99,999 Ω in one ohm steps

Components..... Resistors: Precision - 1/2% accuracy
Switches: Ceramic

Maximum Current..... Units-----500 MA
Tens-----150 MA
Hundreds-----50 MA
Thousands-----15 MA
Ten Thousands-----5 MA

Dimensions..... 14 1/2" x 3 3/8" x 3 3/8" Birch Cabinet

HEATHKIT MODEL DC-1 DECADE CONDENSER



SPECIFICATIONS

Range..... 100 mmf. to 0.111 mfd. in increments of 100 mmf.

Voltage Rating..... 350 volts DC, continuous; 500 volts DC, intermittent, 1000 volts DC test.

Dielectric..... Silver mica

Accuracy of Incremental Capacity..... Plus or minus 1%

Zero capacitance..... 15 to 20 mmf. with all switches set at zero

Dimensions..... 3 3/4" wide, 4 3/4" high, 10 5/8" deep

Shipping Weight..... 4 lbs.