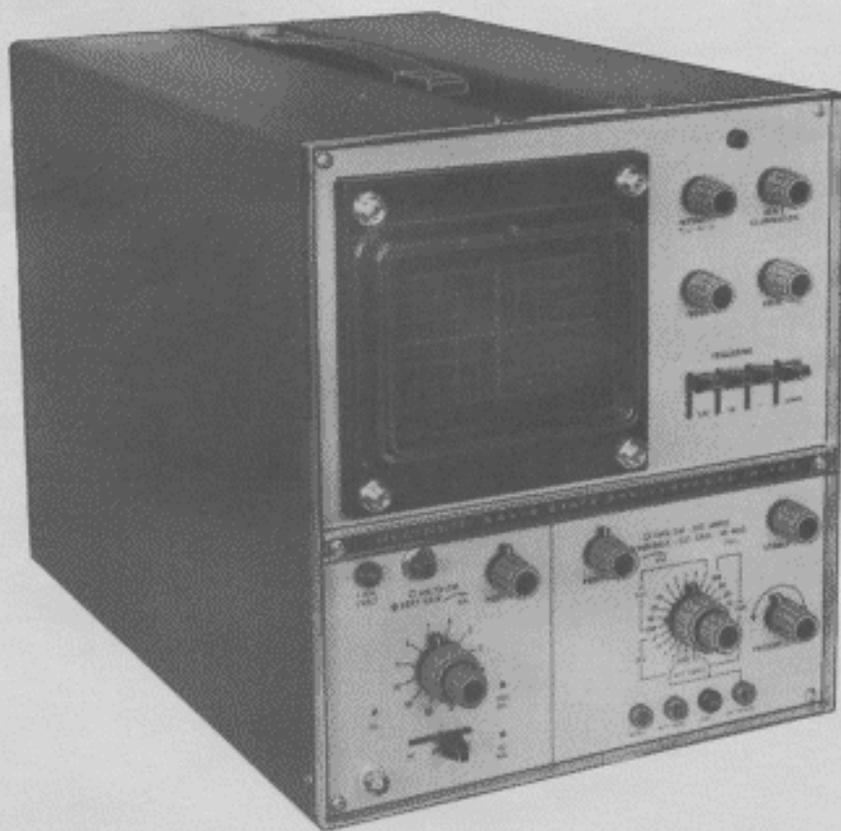


SPECIFICATIONS
MODEL IO-104

15 MHz
TRIGGERED-SWEEP
OSCILLOSCOPE



HEATHKIT

Schlumberger

HEATH COMPANY, BENTON HARBOR, MICHIGAN 49022

PRICES AND SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

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596-1490

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SPECIFICATIONS

VERTICAL

Input Impedance	1 M Ω shunted by 40 pF.
Maximum Input Voltage	600 volts DC.
Sensitivity	10 millivolts/cm.
Frequency Response	DC to 15 MHz, ± 3 dB with 4 cm deflection.
Rise Time	24 ns.
Attenuator	12 positions in a 1, 2, 5 sequence. .01 volt/cm to 50 volts/cm $\pm 3\%$.

HORIZONTAL

Input Impedance	≈ 1 M Ω
Sensitivity	Less than .5 volt/cm.
Frequency Response	DC to 1 MHz, ± 3 dB.
Attenuator	2 position, X1 and X10.

TIME BASE

Sweep	22 steps in a 1, 2, 5 sequence, 2 μ s/cm to .2 μ s/cm, $\pm 5\%$.
Horizontal Expansion	X5 $\pm 5\%$.
Trigger Modes (switch selected)	AUTO/NORMAL + or - AC/DC INT/EXT

TRIGGER SENSITIVITY

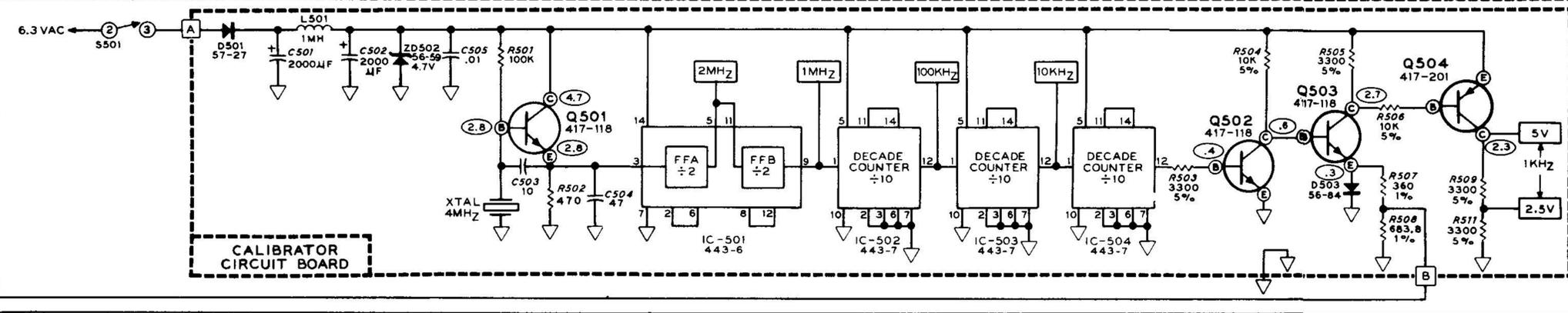
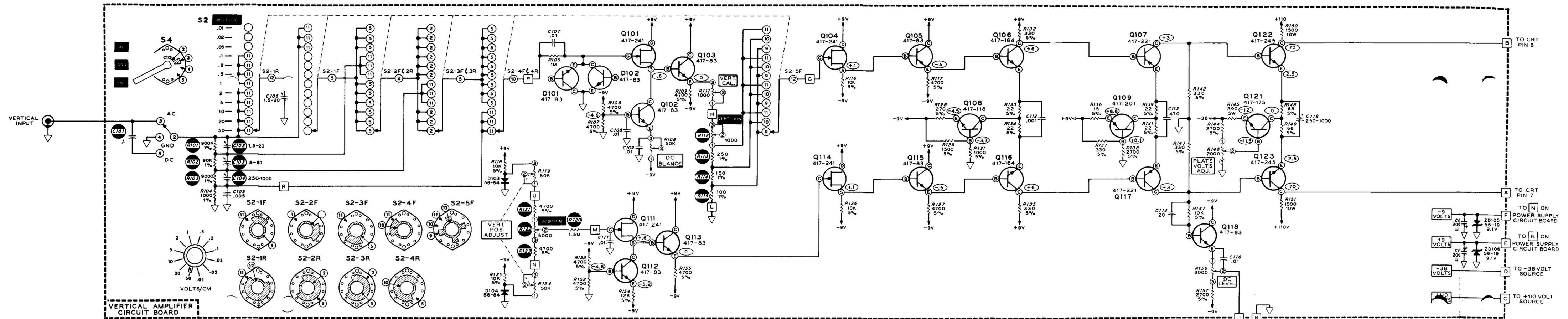
Internal	1 cm display.
External5 volt peak-to-peak.

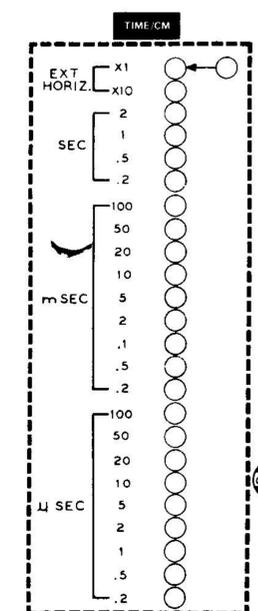
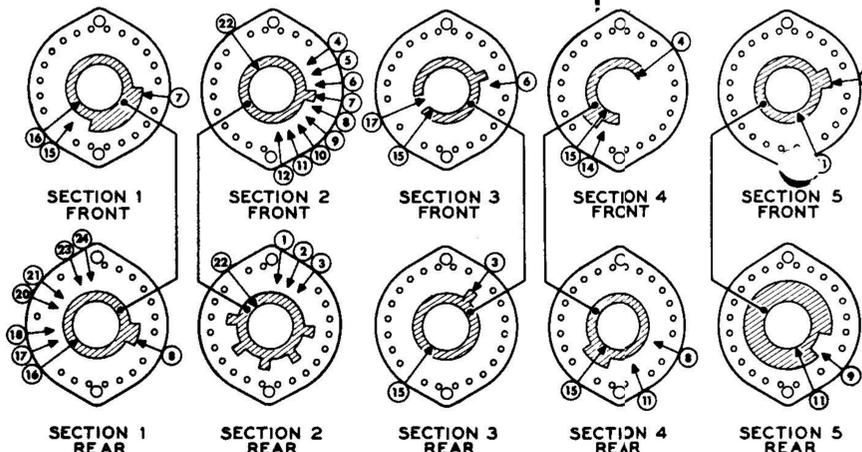
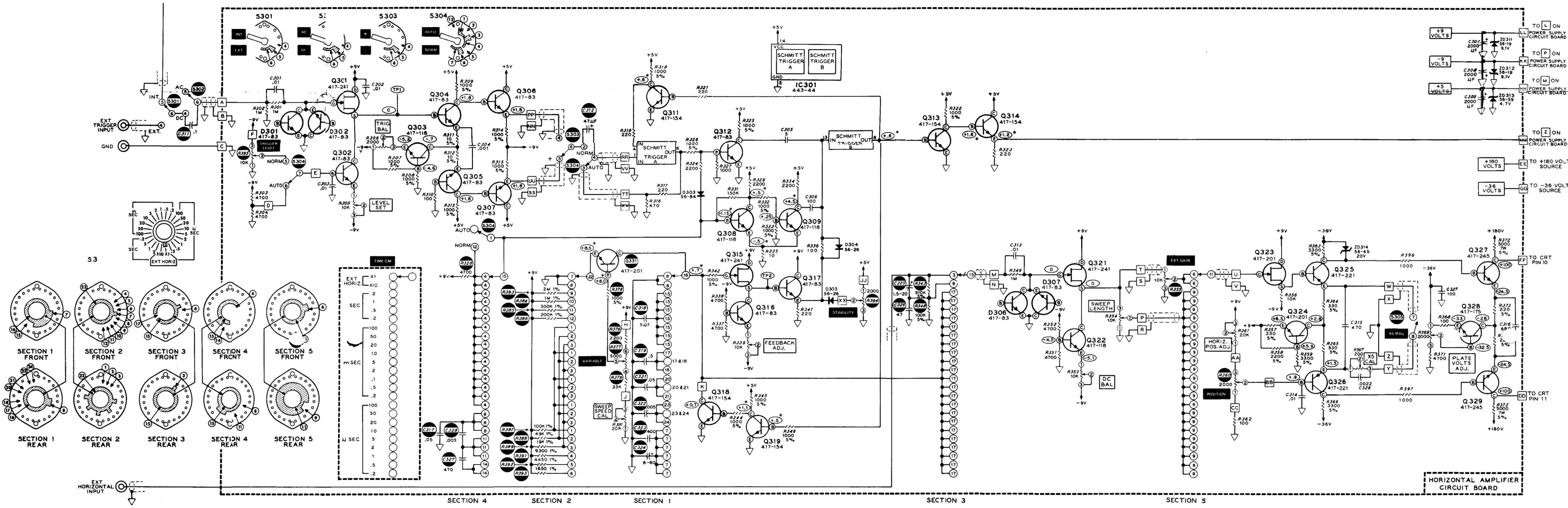
CALIBRATOR

Signal Source	4 MHz oscillator, crystal controlled $\pm 0.01\%$.
Outputs (TTL square wave, peak-to-peak)	
Front panel	1 kHz, .4 volt $\pm 5\%$.
Internal	1 kHz, 2.5 volts (approximately). 1 kHz, 5 volts (approximately). 10 kHz, 3 volts (approximately). 100 kHz, 3 volts (approximately). 1 MHz, 3 volts (approximately). 2 MHz, 3 volts (approximately).

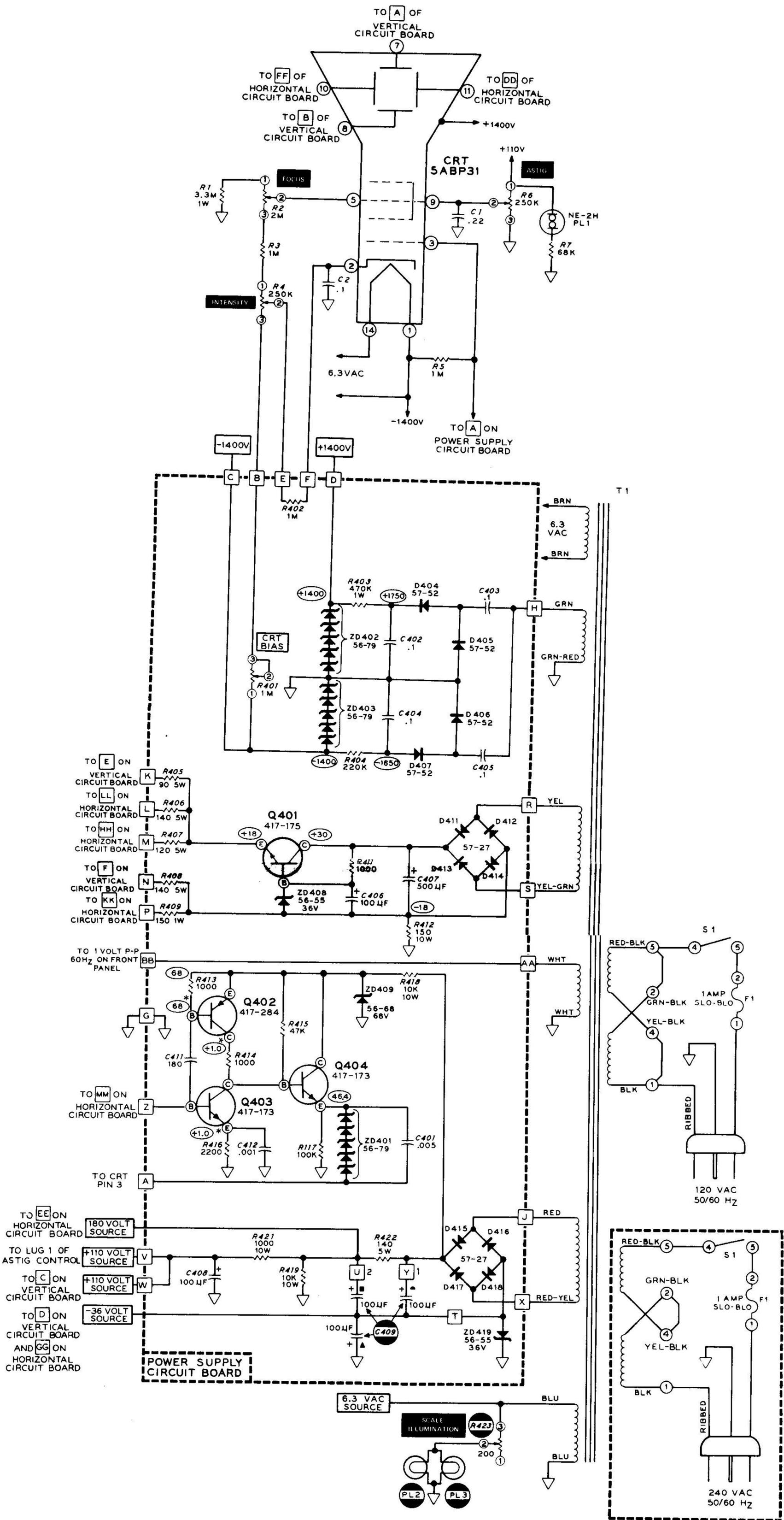
GENERAL

Input Connections	
Vertical	Coaxial, BNC.
Horizontal	Banana jack.
Trigger	Banana jack.
CRT Accelerating Potential	2800 volts DC, regulated.
CRT Type	5ABP31, 6X10 cm viewing area; green, medium persistence phosphor.
Retrace Suppression	DC-coupled unblanking of the CRT.
Graticule	Engraved, 6X10 cm, edge lighted.
Power Requirements	110 to 130 VAC or 220 to 260 VAC, 50/60 Hz, 45 watts.
NOTE: Specifications measured at 25°C with 120 VAC line voltage.	
Overall Dimensions	12-3/8" high x 10-3/4" wide x 20" long. (These dimensions include all protruding surfaces; knobs, handle, feet, etc.)
Net Weight	32 lbs.





HORIZONTAL AMPLIFIER CIRCUIT BOARD

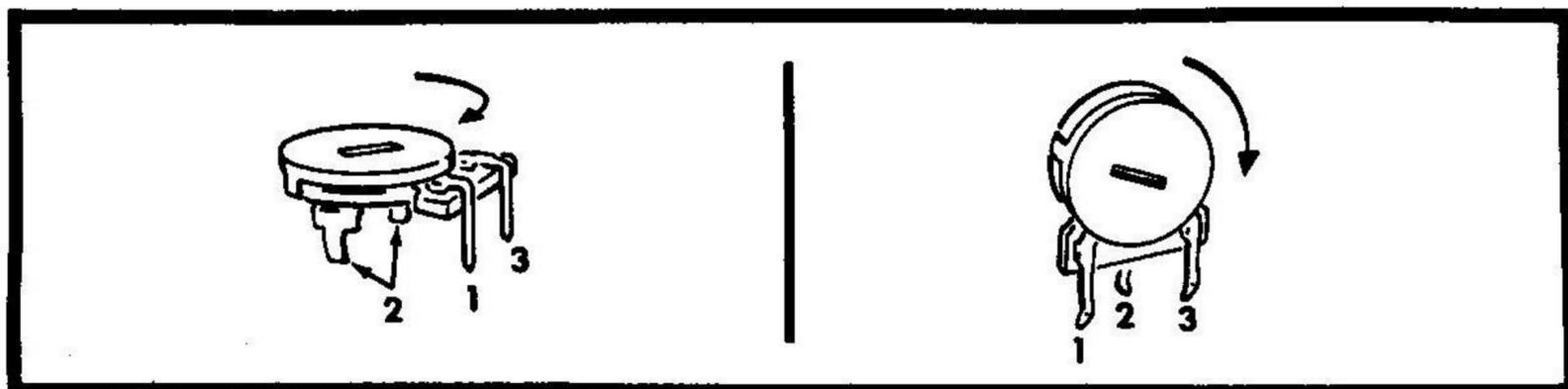


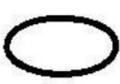
SCHEMATIC OF THE HEATHKIT[®]

15 MHz TRIGGERED-SWEEP OSCILLOSCOPE MODEL 10-104

NOTES:

1. REFER TO THE CHASSIS PHOTOGRAPHS AND CIRCUIT BOARD X-RAY VIEWS FOR THE PHYSICAL LOCATION OF PARTS.
2. ALL RESISTORS ARE 1/2 WATT 10% UNLESS OTHERWISE SPECIFIED.
3. ALL CAPACITOR VALUES LARGER THAN 1.0 ARE IN pF UNLESS OTHERWISE SPECIFIED. CAPACITOR VALUES LESS THAN 1.0 ARE IN μ F.
4. THE ARROW INDICATES CLOCKWISE ROTATION OF A CONTROL OR SWITCH, AS VIEWED FROM THE KNOB END OR AS SHOWN FOR CIRCUIT BOARD CONTROLS. THE FOLLOWING CIRCUIT BOARD CONTROL LUG NUMBERS CORRESPOND TO THOSE SHOWN ON THE SCHEMATIC AND X-RAY VIEWS.



5. ALL VOLTAGES MEASURED WITH AN 11 MEGOHM INPUT VTVM FROM THE POINT INDICATED TO GROUND.
6.  INDICATES A DC VOLTAGE MEASURED FROM THE POINT INDICATED TO GROUND WITH THE TIME/CM SWITCH AT THE EXT HORIZ X 1 POSITION, THE CALIBRATOR SWITCH ON (PRESSED IN), AND BOTH THE VERTICAL AND THE HORIZONTAL AMPLIFIERS BALANCED (DOT CENTERED).
7. * INDICATES A SWEEP CIRCUIT VOLTAGE TAKEN WITH THE TIME/CM SWITCH IN THE 1 mSEC POSITION AND THE STABILITY CONTROL AT THE CENTER OF ITS ROTATION.
8.  INDICATES A LETTERED WIRE CONNECTION TO A CIRCUIT BOARD.
9.  INDICATES CIRCUIT GROUND.
10.  INDICATES A POWER SUPPLY CONNECTION.
11.  INDICATES A PART MOUNTED ON THE CHASSIS ALTHOUGH ITS LOCATION IN THE SCHEMATIC SUGGESTS ANOTHER LOCATION.
12. COMPONENTS ARE NUMBERED IN THE FOLLOWING GROUPS:

0-99	PARTS IN THE CRT CIRCUIT.
100-199	PARTS IN THE VERTICAL AMPLIFIER CIRCUIT.
300-399	PARTS IN THE HORIZONTAL AMPLIFIER CIRCUIT.
400-499	PARTS IN THE POWER SUPPLY CIRCUIT.
500-599	PARTS IN THE CALIBRATOR CIRCUIT.