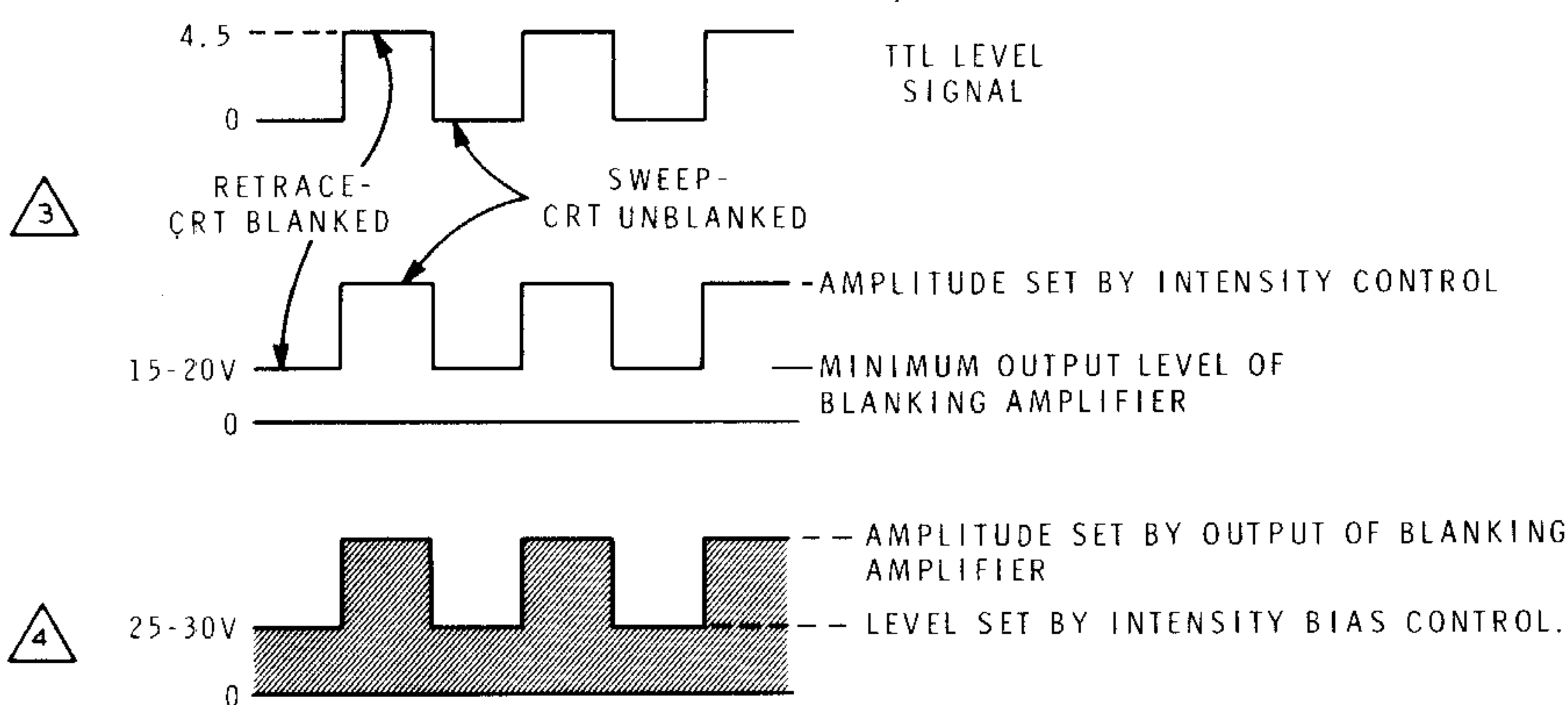


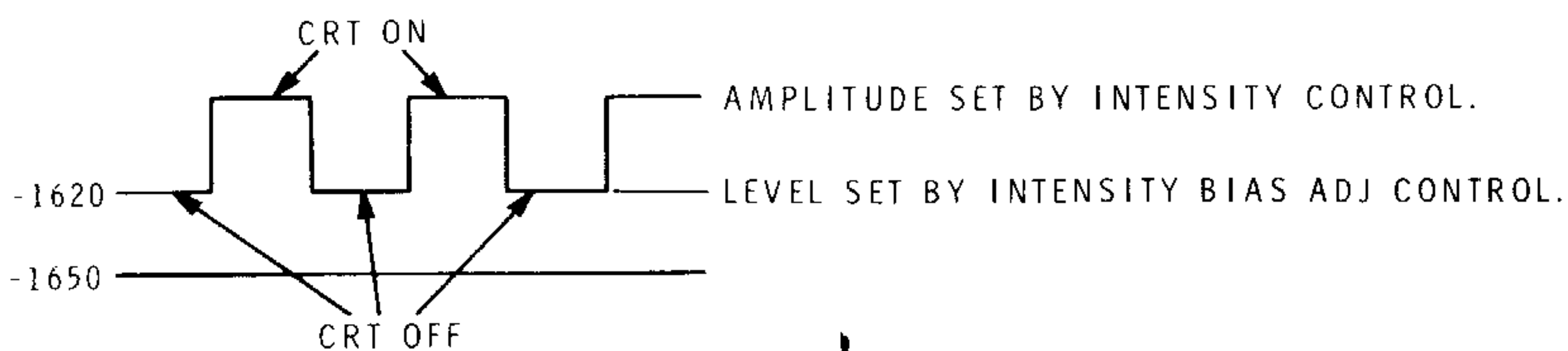
① IN CHOP MODE, INPUT IS  4.5 AT 200KHZ RATE.

② IN NORMAL OPERATION, A PULSE BLANKS THE CRT AFTER EACH SWEEP.

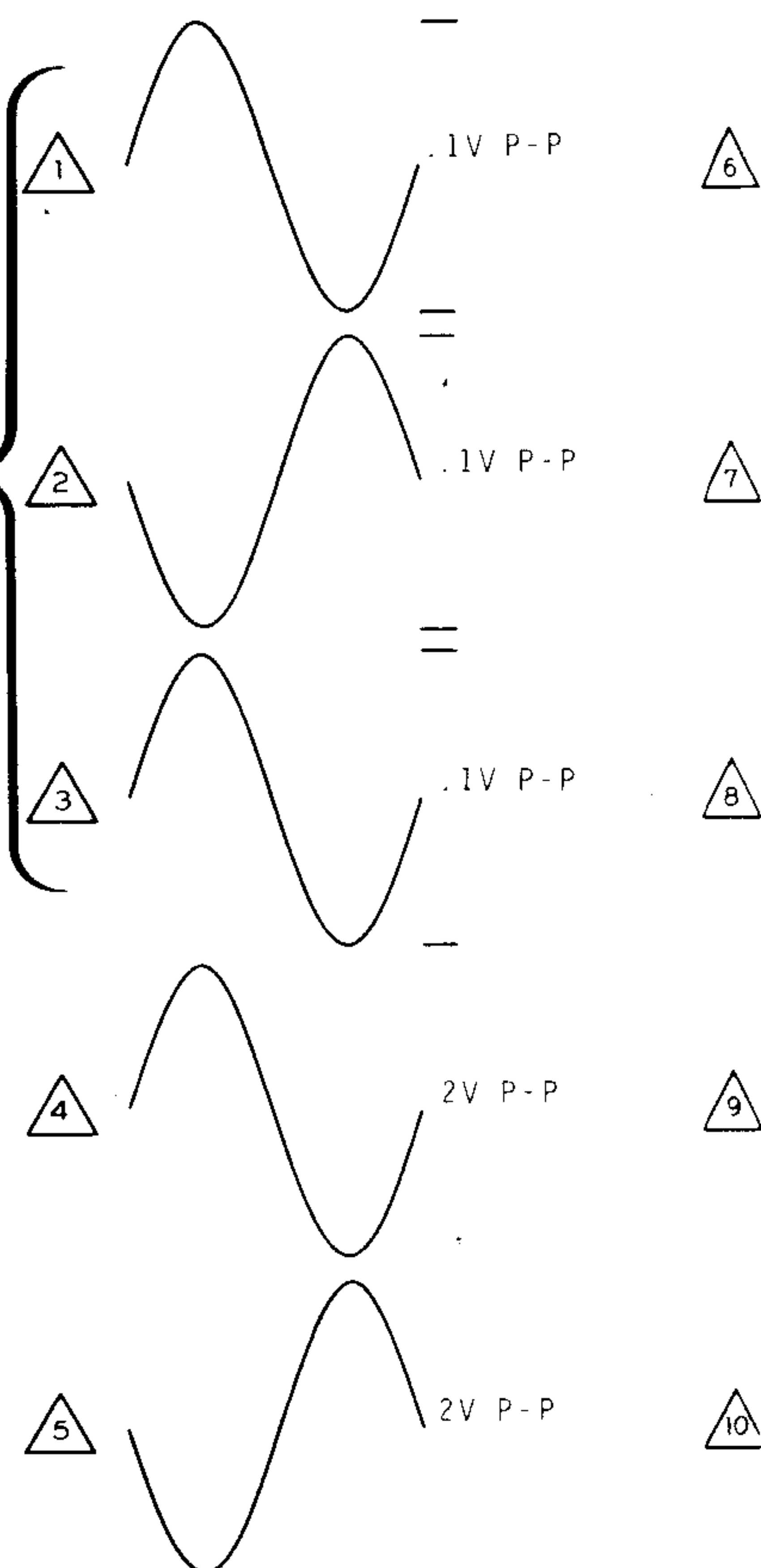


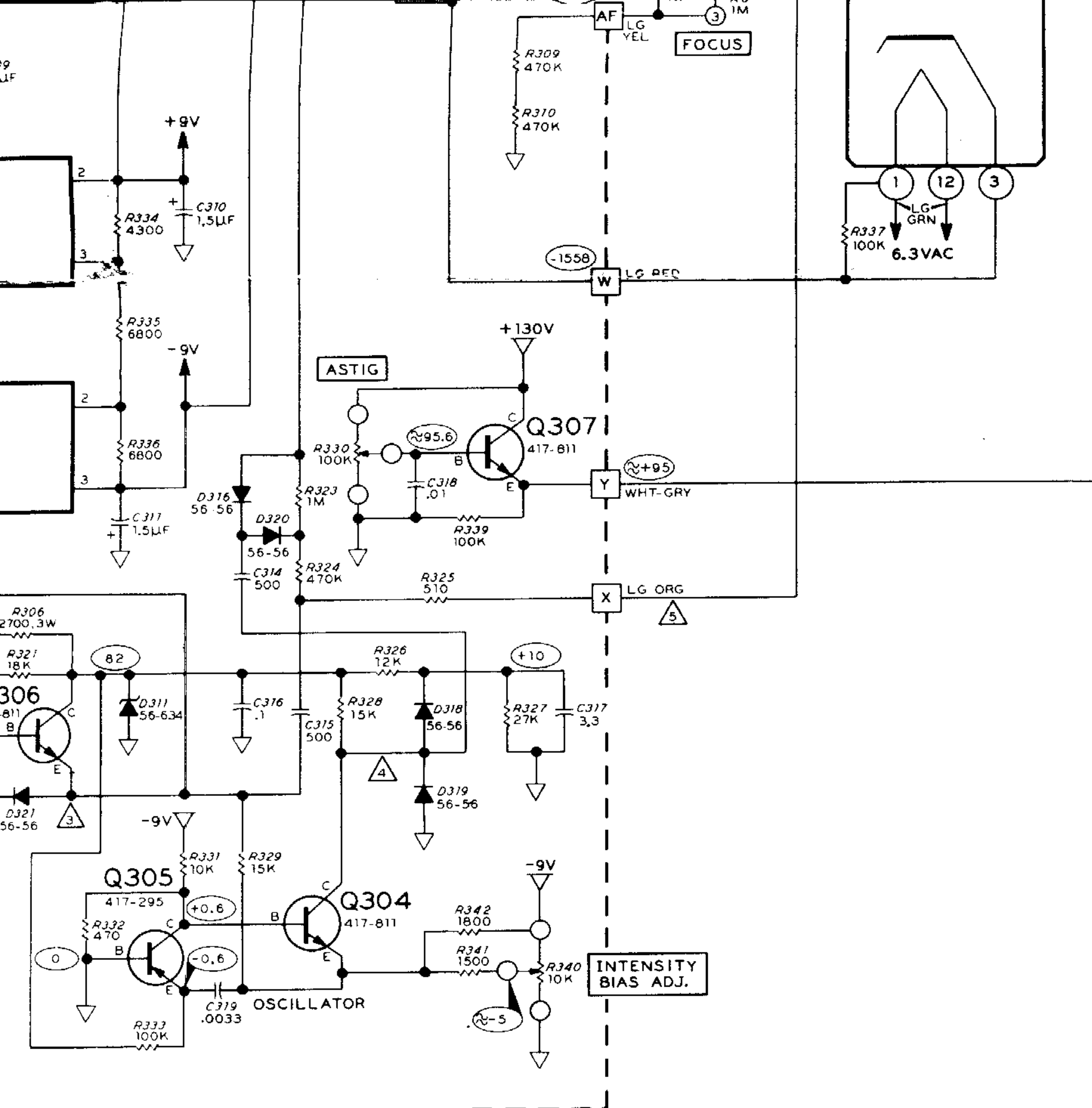
⑤ CAUTION: DO NOT MEASURE UNLESS YOU HAVE TAKEN PRECAUTIONS TO PROTECT THE INPUT OF THE MEASURING INSTRUMENT FOR -1650 VDC.

THE COMPOSITE SIGNAL AS SEEN BY THE CRT.



—Y₁-Y₂-EXT-LINE SWITCH TO EXT.
—GENERATOR SET TO .1V PP AND CONNECTED TO EXT INPUT.



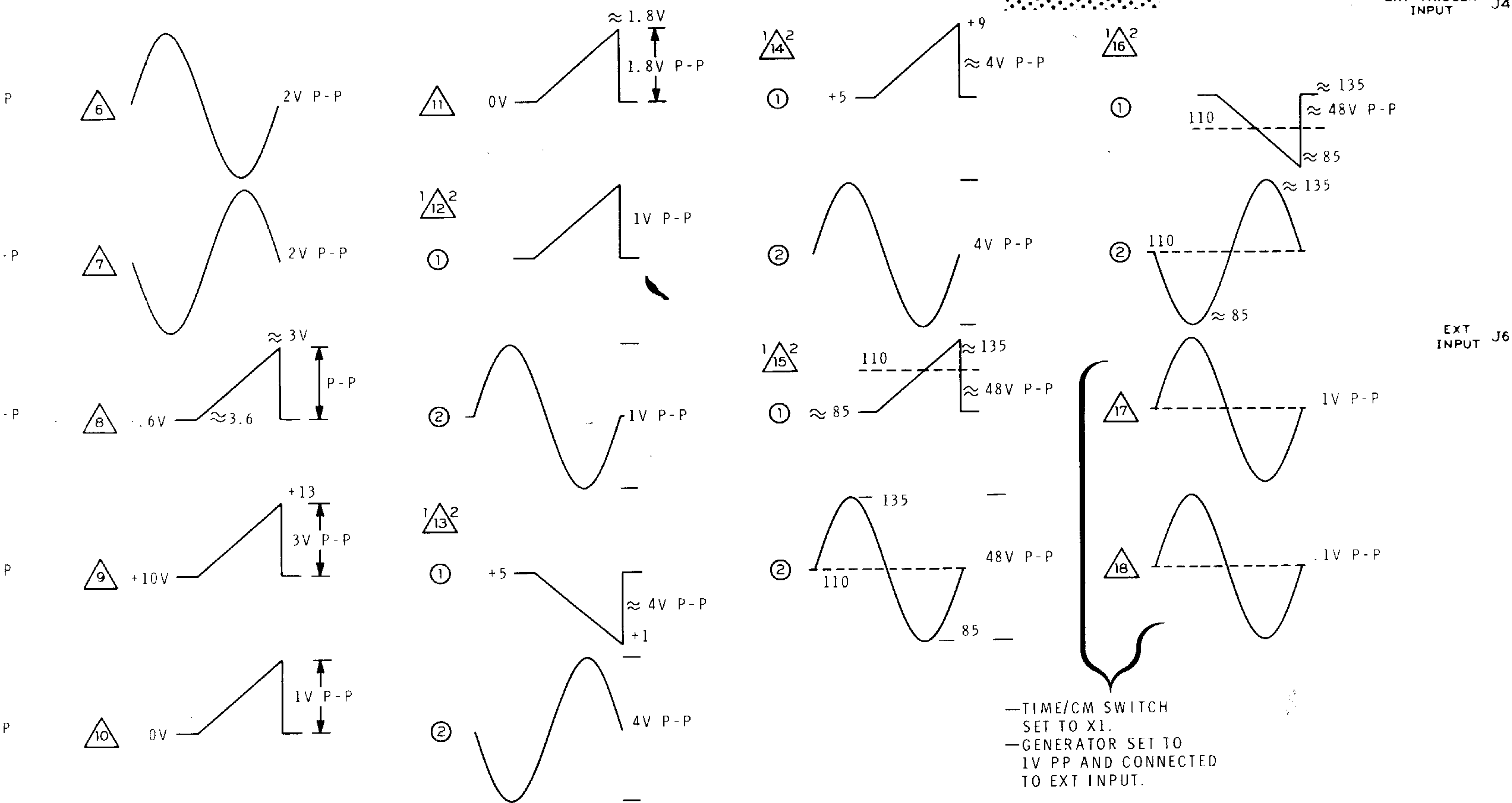


TO **H** ON
VERTICAL C.B.

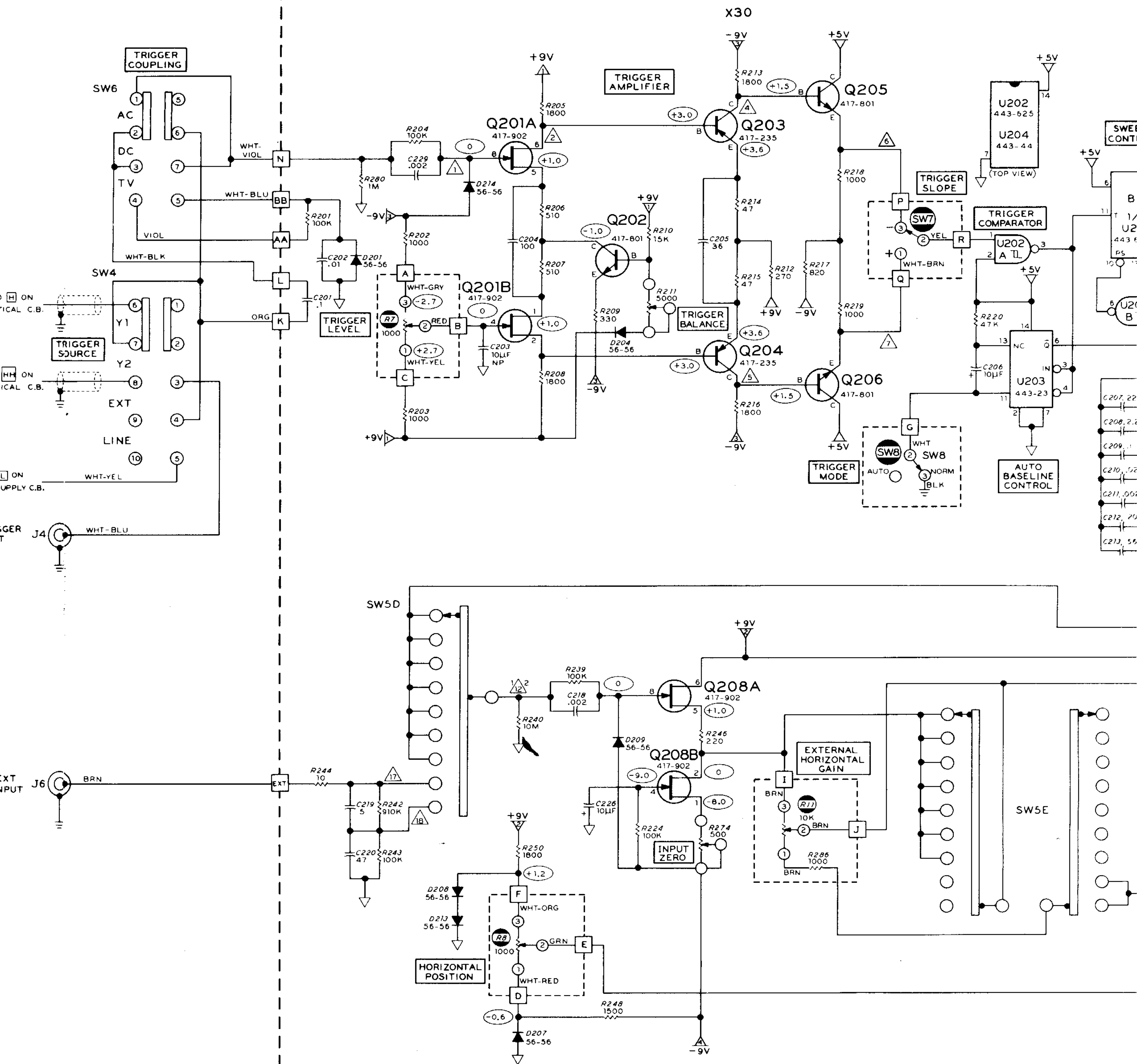
TO **H** ON
VERTICAL C.B.

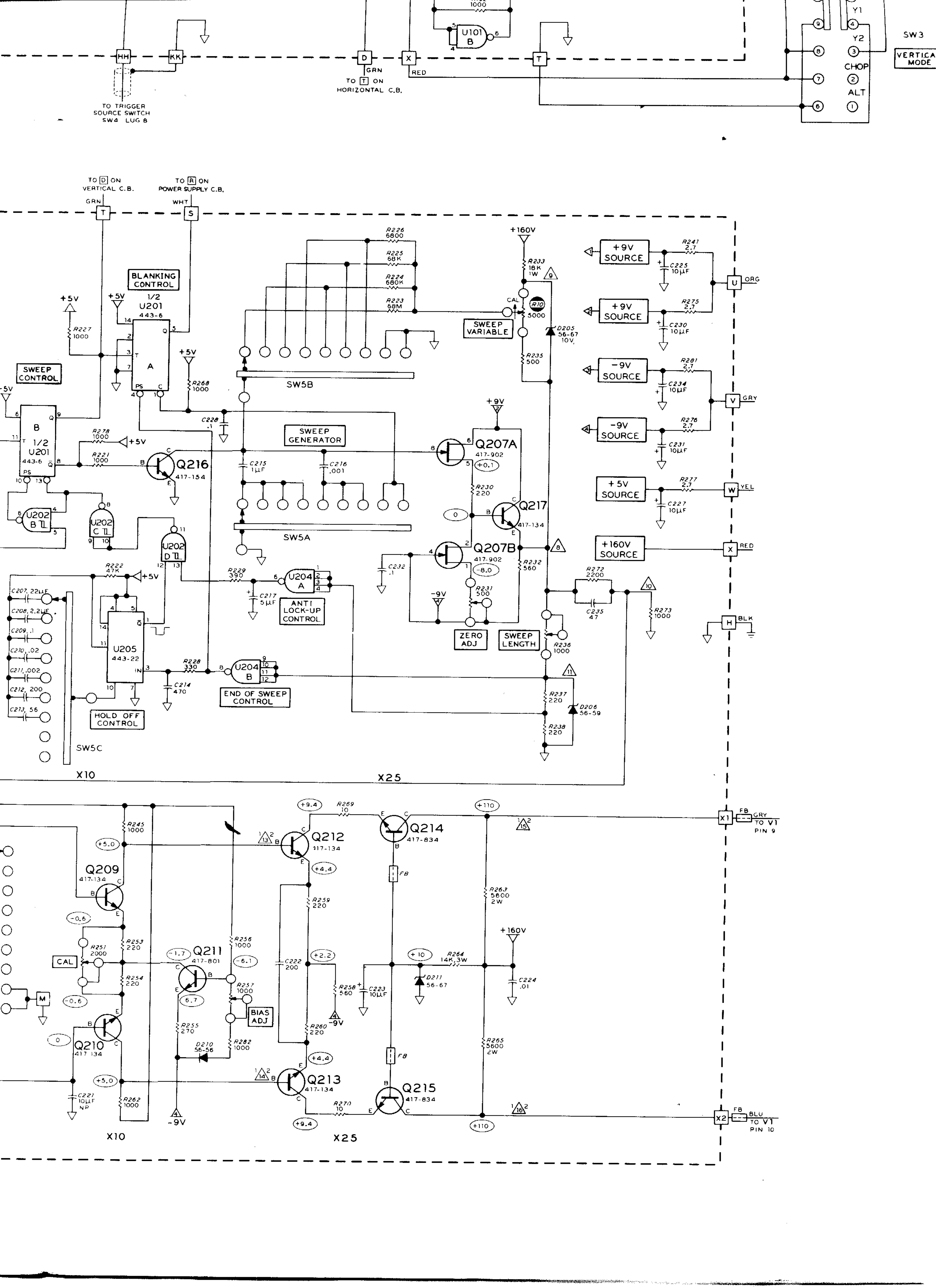
TO **L** ON
POWER SUPPLY C.B.

EXT TRIGGER
INPUT J4



HORIZONTAL CIRCUIT BOARD





SEMICONDUCTOR IDENTIFICATION CHARTS

This section is divided into two parts: "Component Number Index" and "Part Number Index." The Component Number Index provides a cross-reference between Circuit Component Numbers and their respective Heath Part Numbers. The component numbers

are listed in numerical order. The Part Number Index provides a lead configuration detail (basing diagram) for each semiconductor part number. The Heath Part Numbers in this section are also listed in numerical order.

COMPONENT NUMBER INDEX

This index shows the Heath Part Number for each semiconductor in the IO-4205 Oscilloscope.

DIODES

CIRCUIT COMPONENT NUMBER	HEATH PART NUMBER
D101A, B-D106A,B	56-56
D107	56-67
D108A, B; D109A,B	56-56
D111A,B; D112A,B	56-56
D113-D116	56-89
D201	56-56
D204	56-56
D205	56-67
D206	56-59
D207-D210	56-56
D211	56-67

CIRCUIT COMPONENT NUMBER	HEATH PART NUMBER
D213,D214	56-56
D301, D302	57-52
D303, D310	57-27
D311	56-634
D312	56-56
D313	56-89
D314	56-26
D315, D316	56-56
D317	56-634
D318, D321	56-56



TRANSISTORS

CIRCUIT COMPONENT NUMBER	HEATH PART NUMBER
Q101A,B; Q102A,B	471-902
Q103A,B	417-801
Q104A,B; Q105A,B	417-260
Q106A,B; Q109A,B	417-235
Q111A,B; Q112A,B	417-293
Q113, Q114	417-237
Q115, Q116	417-834
Q117, Q118	417-801
Q201	417-902
Q202	417-801
Q203, Q204	417-235
Q205, Q206	417-801
Q207, Q208	417-902
Q209, Q210	417-134
Q211	417-801
Q212, Q213	417-134
Q214, Q215	417-834
Q216	417-154
Q217	417-134
Q301, Q302	417-237
Q303, Q304	417-811
Q305	417-295
Q306, Q307	417-811

INTEGRATED CIRCUITS

CIRCUIT COMPONENT NUMBER	HEATH PART NUMBER
U101	443-1
U102	443-4
U201	443-6
U202	443-625
U203	443-23
U204	443-44
U205	443-22
U301, U302	442-617
U303	442-618

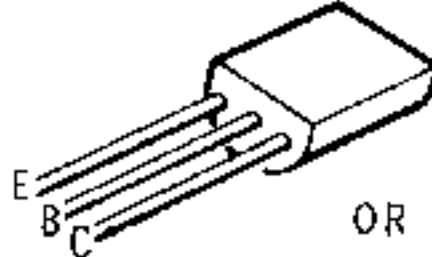
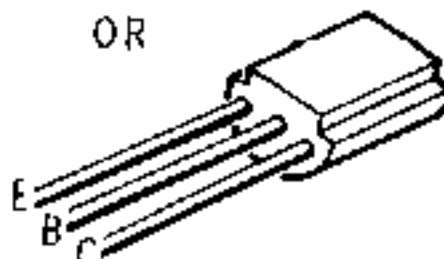
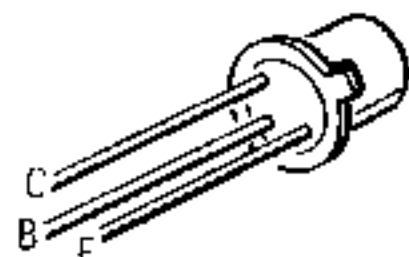
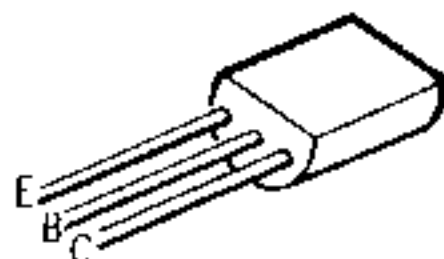
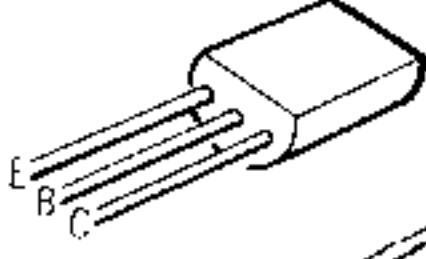

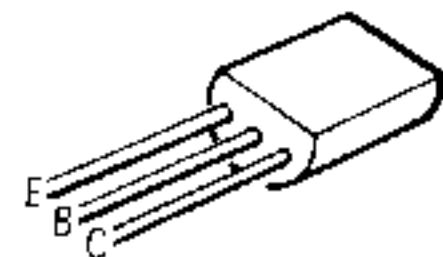
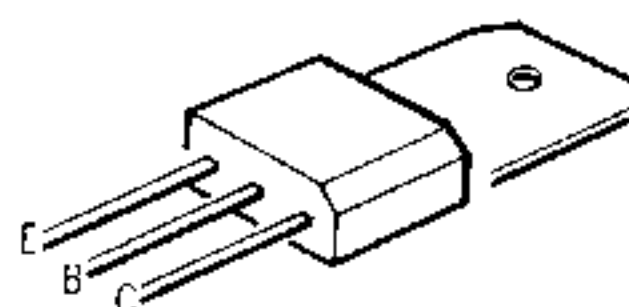
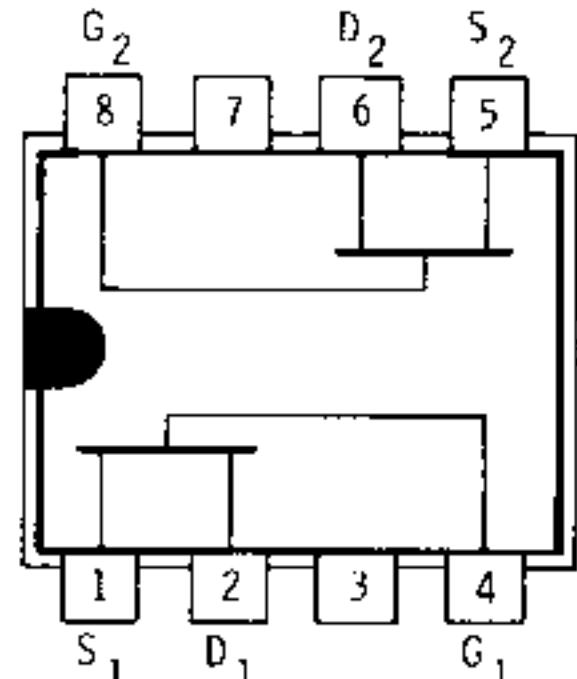
PART NUMBER INDEX

This index shows a lead configuration detail (basing diagram) for each semiconductor part number.

DIODES

HEATH PART NUMBER	MAY BE REPLACED WITH	IDENTIFICATION
56-26	1N191	
56-56	1N4149	
56-59	1N750A	
56-67	VR10A	
50-89	GD510	
56-634	2EZ82D5	
57-27	1N2071	
57-52	DO-7	

TRANSISTORS

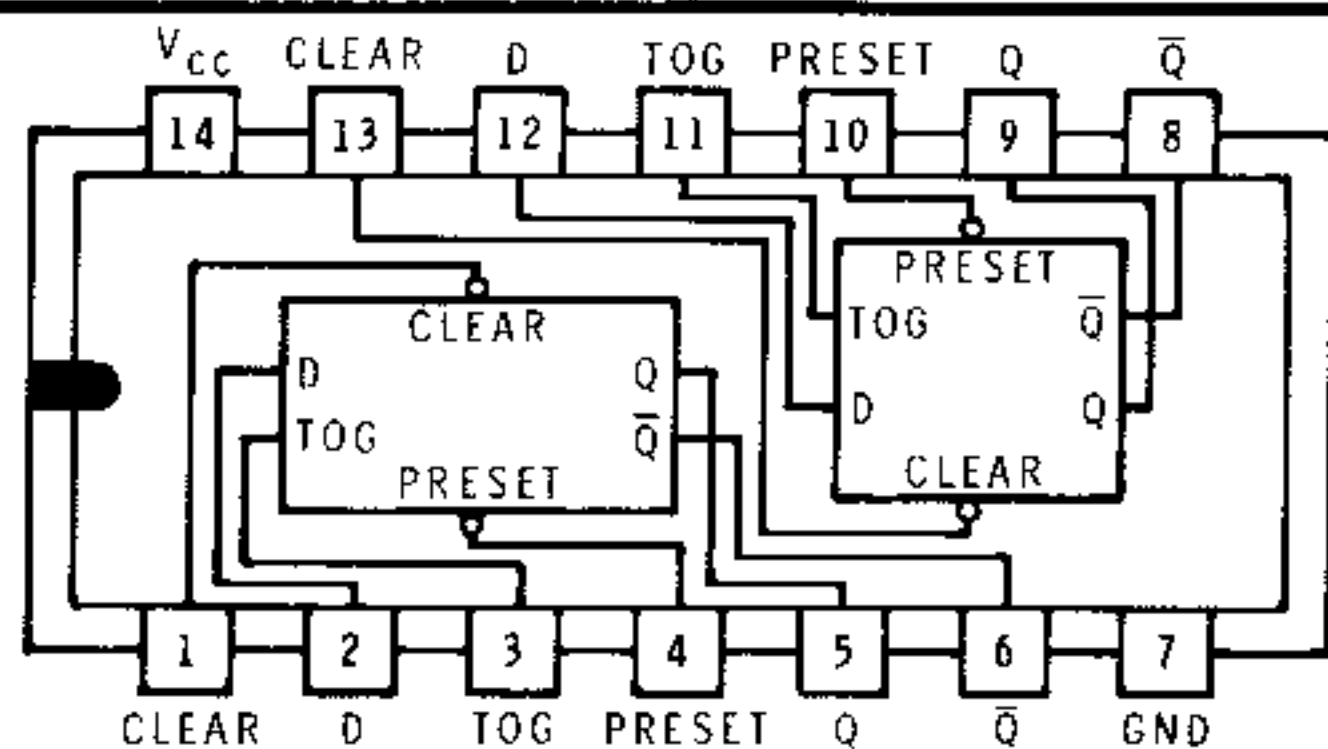
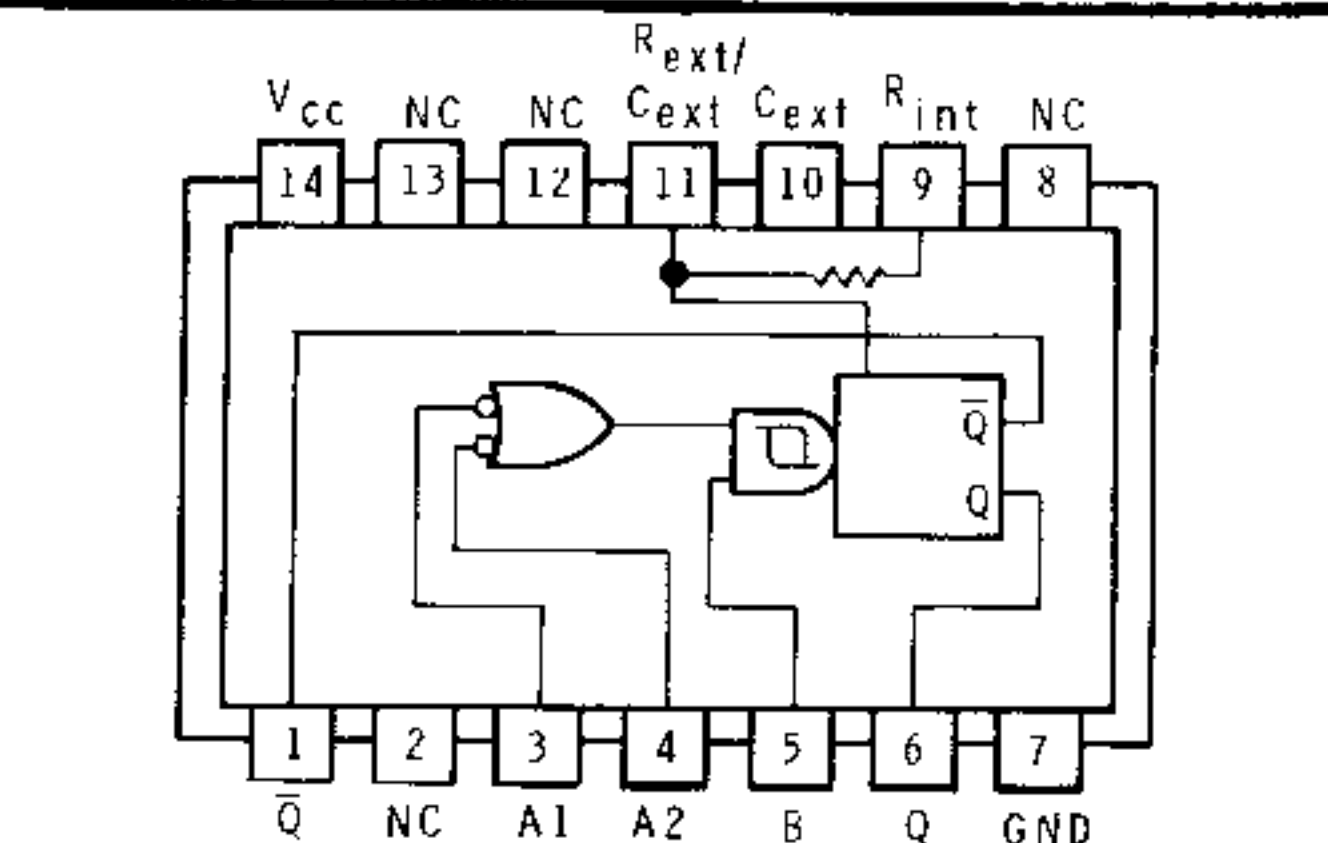
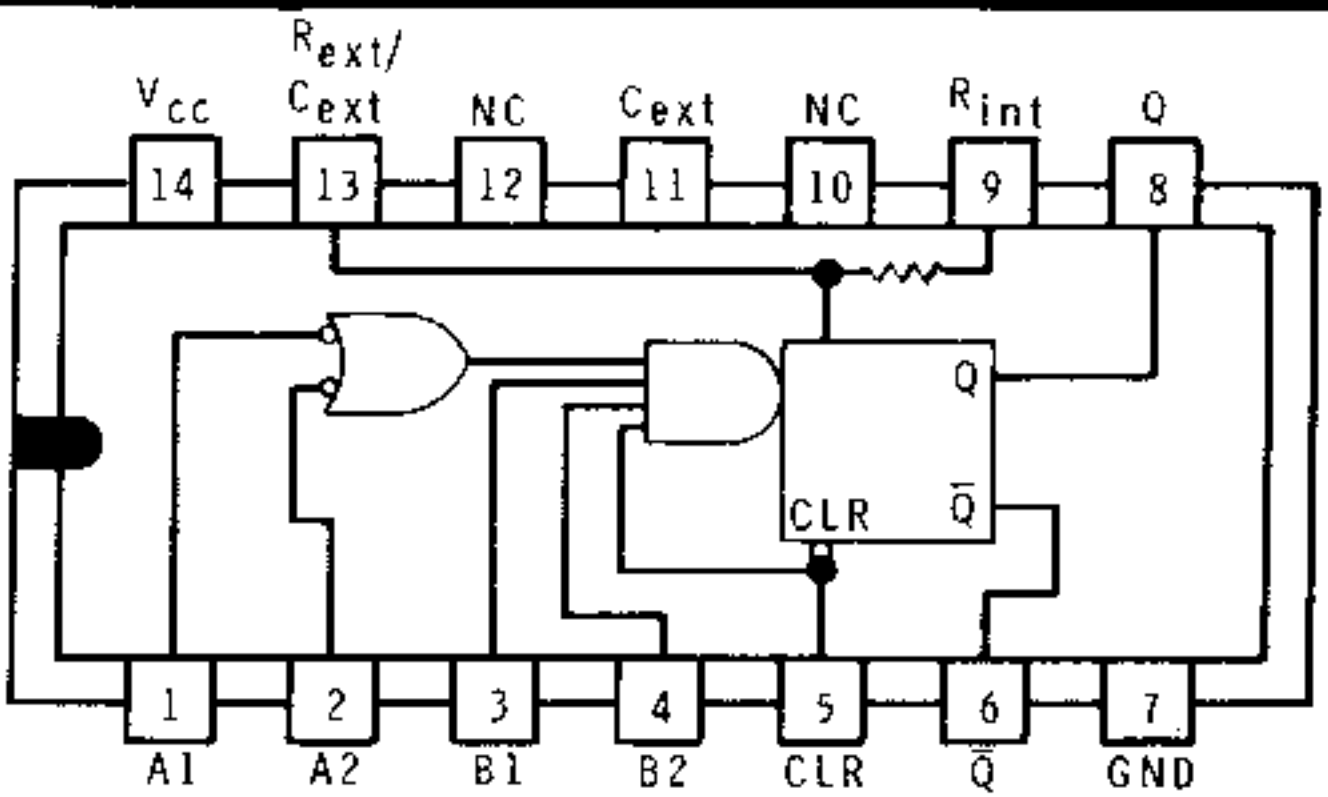
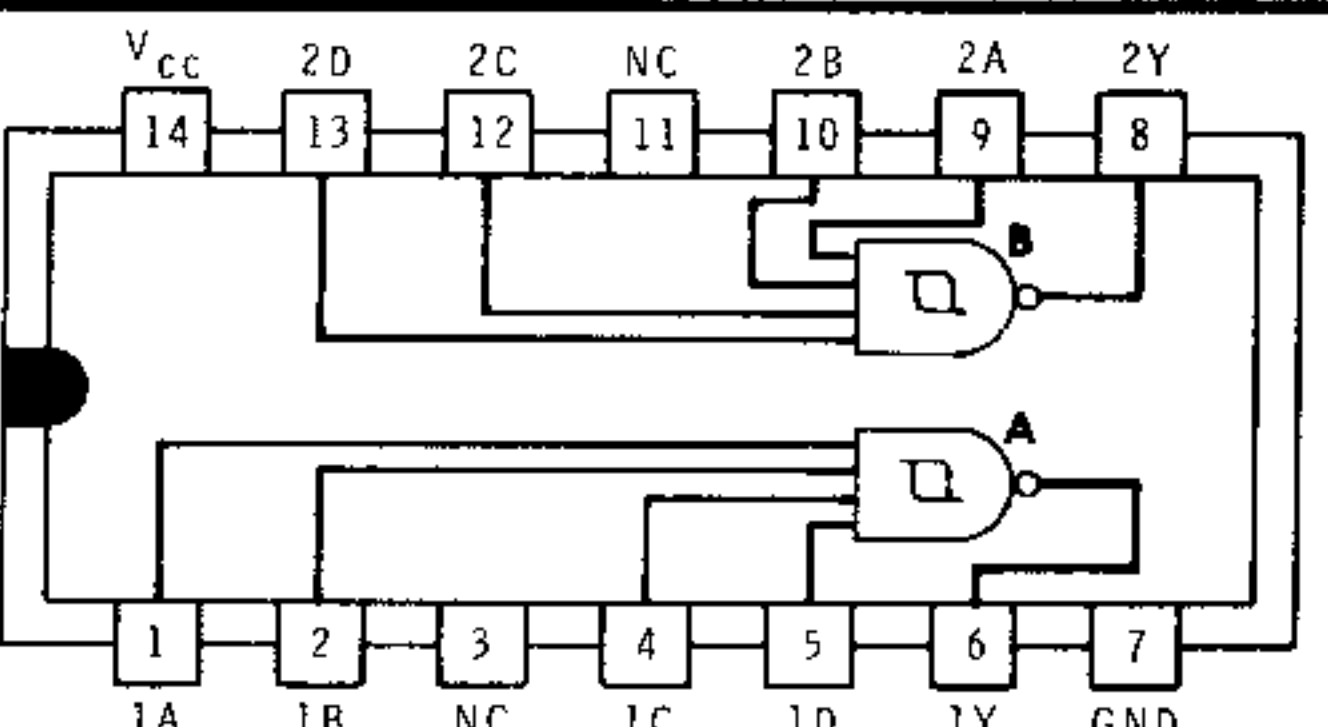
HEATH PART NUMBER	MAY BE REPLACED WITH	IDENTIFICATION
417-134	MPS6520	 OR 
417-154	2N2369	
417-235 417-237	2N4121 SE6020	
417-260	2N4258A	 OR 
417-293 417-295 417-801 417-811	2N5770 MPSL51 MPSA20 MPSL01	
417-834	MPSU10	
417-902	NPD5566N	



INTEGRATED CIRCUITS

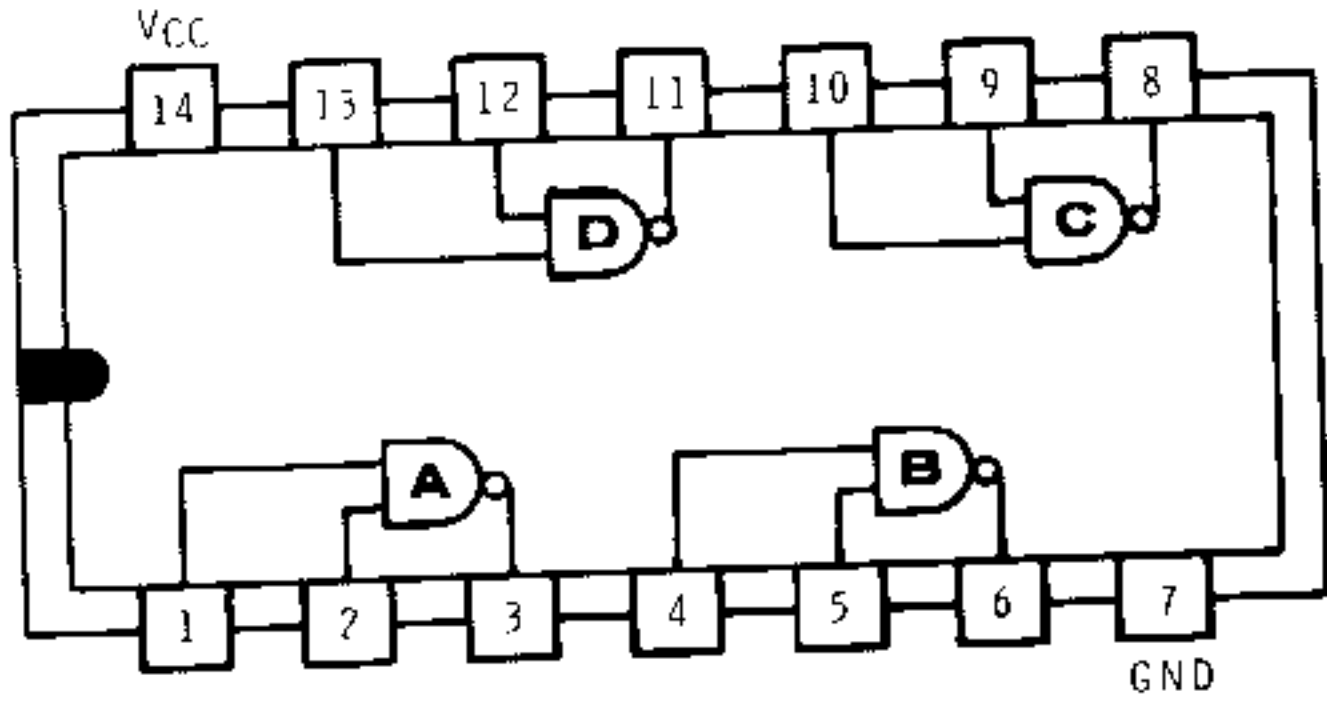
HEATH PART NUMBER	MAY BE REPLACED WITH	BASING DIAGRAM (TOP VIEW)
442-617	μ A78MGT2	
442-618	μ A79MGT2	
443-1	SN7400N	
443-4	SN7472N	

Integrated Circuits (Cont'd).

HEATH PART NUMBER	MAY BE REPLACED WITH	BASING DIAGRAM (TOB VIEW)
443-6	SN7474N	
443-22	SN74121N	
443-23	SN74122N	
443-44	SN7413N	









Integrated Circuits (Cont'd.)

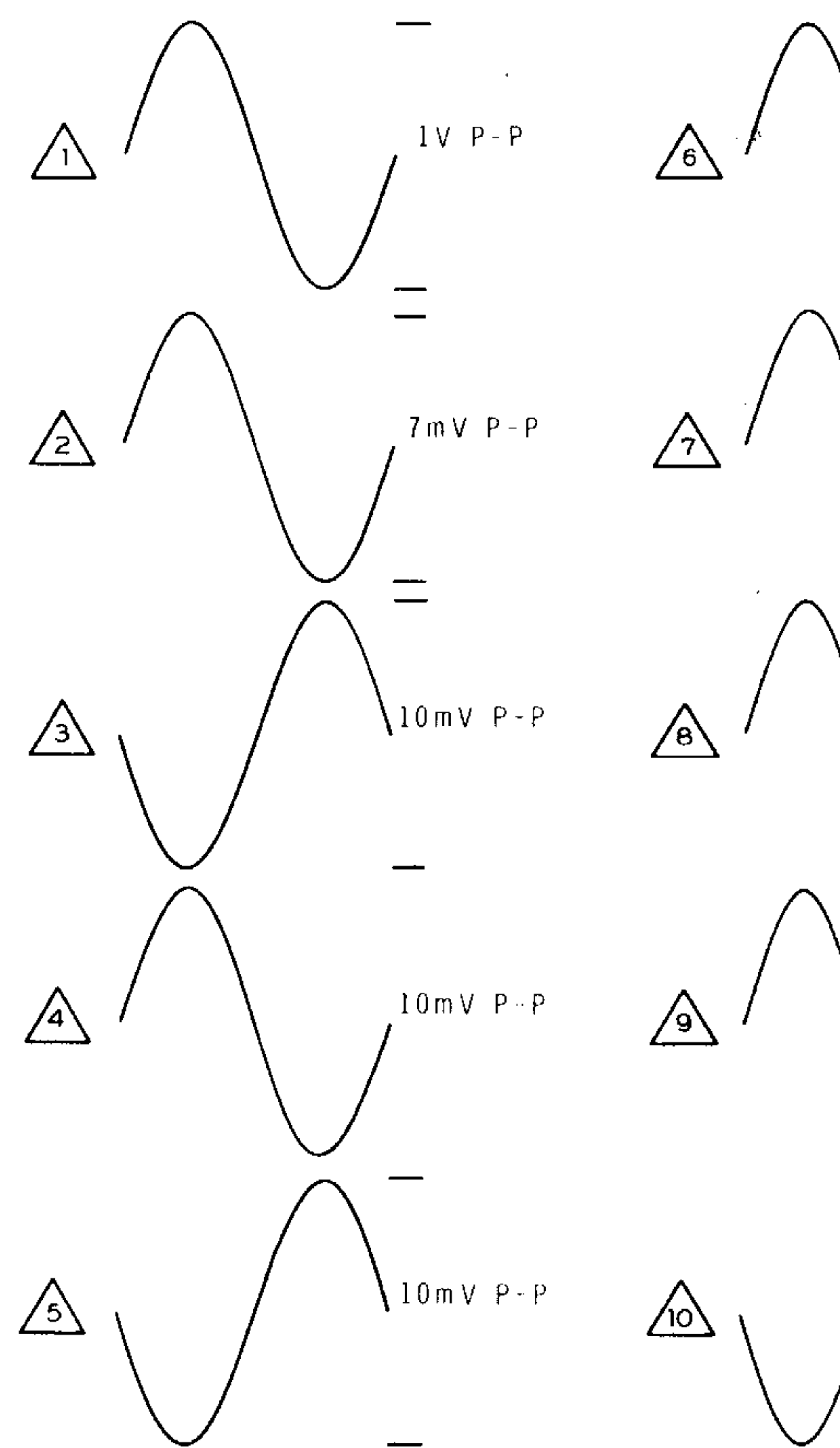
HEATH PART NUMBER	MAY BE REPLACED WITH	BASING DIAGRAM (TOP VIEW)
443-625	SN74132N	 <p>The basing diagram for the SN74132N (top view) shows a 14-pin package. Pin 14 is labeled VCC and pin 7 is labeled GND. The package is divided into two halves by a vertical line. The top half contains pins 14, 13, 12, 11, 10, 9, and 8. The bottom half contains pins 1, 2, 3, 4, 5, 6, and 7. Internal logic gates are represented by circles with letters: Gate A is connected to pins 1, 2, and 3; Gate B is connected to pins 4, 5, and 6; Gate C is connected to pins 8, 9, and 10; Gate D is connected to pins 11, 12, and 13. A thick black line connects pin 14 to pin 7, representing the power supply connection.</p>

SCHEMATIC OF THE HEATHKIT® MODEL IO-4205 DUAL TRACE OSCILLOSCOPE

NOTES:

1. REFER TO THE CIRCUIT BOARD X-RAY VIEWS FOR THE PHYSICAL LOCATION OF PARTS.
2. ALL RESISTORS ARE 1/2-WATT, 5% UNLESS MARKED OTHERWISE.
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.  THIS SYMBOL WITH A LETTER IN IT INDICATES A WIRE CONNECTION TO A CIRCUIT BOARD.
5.  THIS SYMBOL INDICATES CIRCUIT BOARD GROUND (COMMON FOIL) ON A CIRCUIT BOARD.
6.  THIS SYMBOL INDICATES CHASSIS GROUND.
7.  THIS SYMBOL DENOTES A WAVEFORM DISPLAY AT THE INDICATED POINT.
8.  THIS SYMBOL INDICATES A PART MOUNTED ON THE CHASSIS, ALTHOUGH ITS LOCATION ON THE SCHEMATIC SUGGESTS ANOTHER LOCATION.
9. CIRCUIT COMPONENT NUMBERS ARE IN THE FOLLOWING GROUPS:
 - 1 - 99 PARTS ON THE CHASSIS.
 - 101 - 199 PARTS ON THE VERTICAL AMPLIFIER CIRCUIT BOARD.
 - 201 - 299 PARTS ON THE HORIZONTAL AMPLIFIER CIRCUIT BOARD.
 - 301 - 399 PARTS ON THE POWER SUPPLY CIRCUIT BOARD.
10.  THIS SYMBOL INDICATES A DC VOLTAGE MEASURED FROM THE POINT INDICATED TO GROUND WITH THE VERTICAL AMPLIFIERS BALANCED, THE TIME/CM SWITCH IN THE EXT POSITION, AND THE HORIZONTAL POSITION CONTROL CENTERED.

—AC-GND-DC SWI
—VOLTS/CM SWIT
—Y₁-Y₂-CHOP-ALT
—GENERATOR SET
CONNECTED TO Y

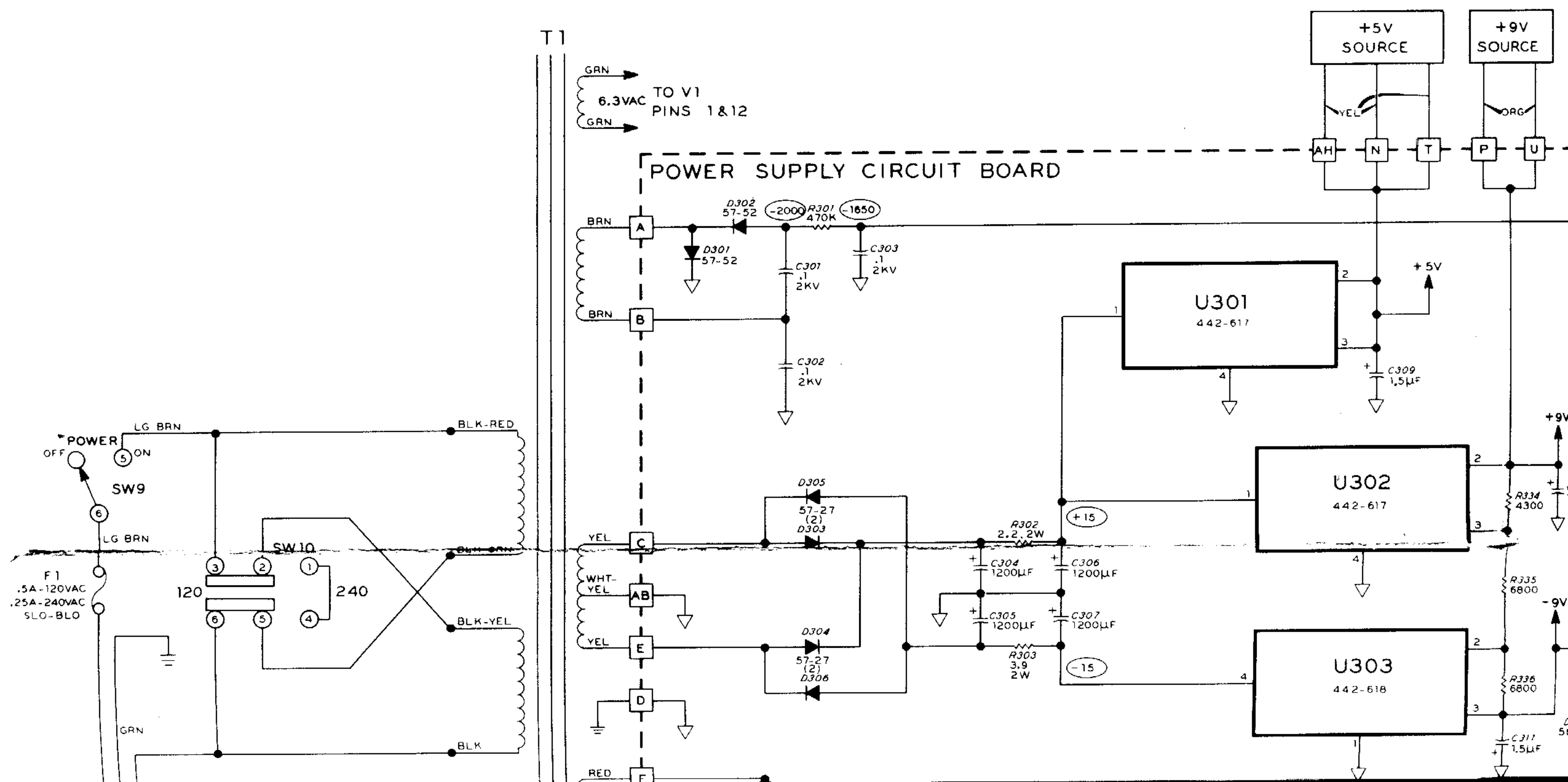


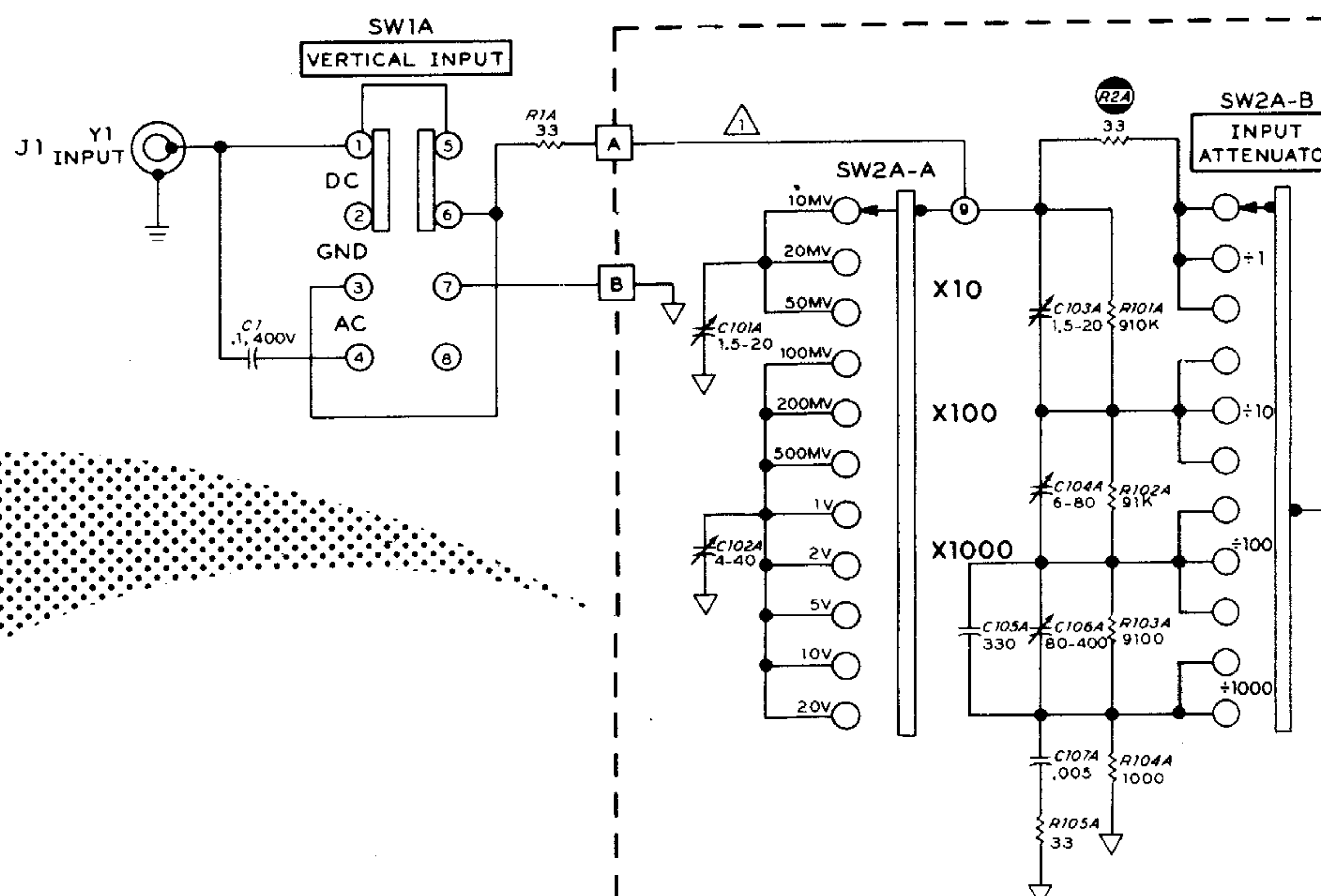
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The schematic diagram illustrates the input section of a 100-MHz oscilloscope. It features a Y2 input connected to a transformer (SW1B) with terminals 1 through 6. The transformer's primary is connected to the Y2 input and ground. The secondary has terminals 1 through 4. The signal path continues through a switch (SW2B-A) and an input attenuator (SW2B-B). The input attenuator has settings for X1, X10, X100, and X1000, with corresponding output ranges from 10mV to 20V. The diagram includes various components like resistors (R1B, R101B, R102B, R103B, R104B, R105B), capacitors (C101B, C102B, C103B, C104B, C105B, C106B, C107B), and a variable capacitor (C107B). The input attenuator has settings for X1, X10, X100, and X1000, with corresponding output ranges from 10mV to 20V.

