





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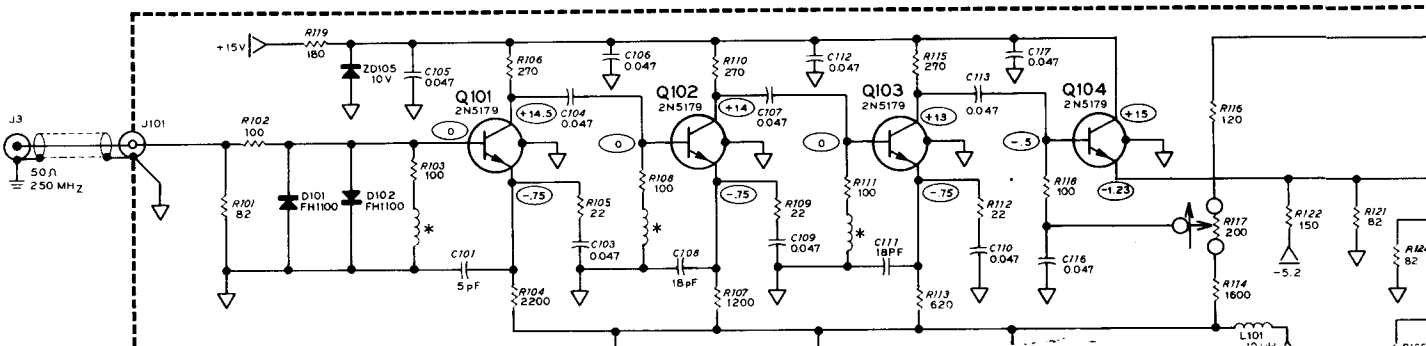
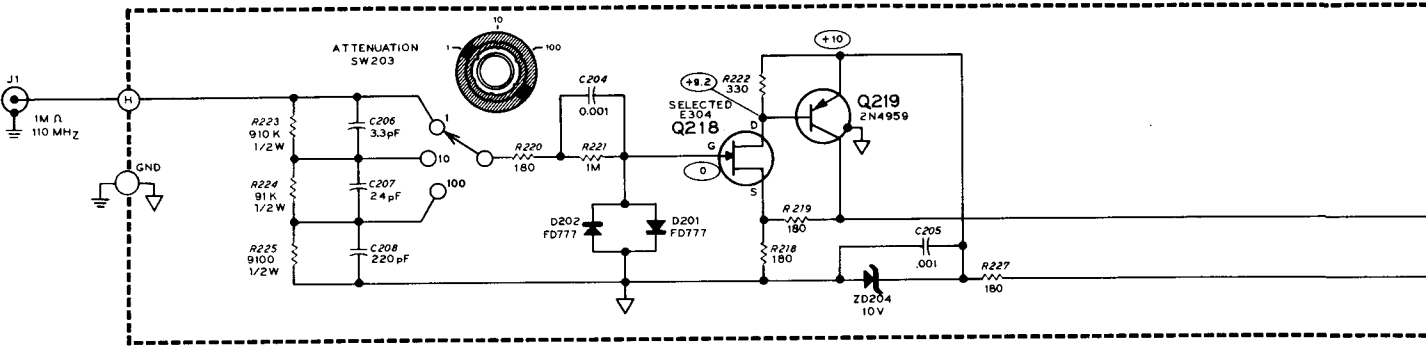
MODEL IM
FREQUENC

Part of 595-1917/595-1918

NOTES:

1. COMPONENTS ARE NUMBERED IN THE FOLLOWING GROUPS:
 1- 99 MOUNTED ON CHASSIS.
 101-199 MOUNTED ON INPUT CIRCUIT BOARD.
 201-299 MOUNTED ON DISPLAY CIRCUIT BOARD.
 301-399 MOUNTED ON MAIN CIRCUIT BOARD.
2.  THIS SYMBOL INDICATES A CIRCUIT BOARD
3.  THIS SYMBOL INDICATES CHASSIS GROUND.
4.  THIS SYMBOL WITH A LETTER INDICATES A C
BOARD WIRE CONNECTION. THIS SYMBOL W
NUMBER INDICATES A CIRCUIT BOARD-TO-C
BOARD "F-PIN" CONNECTION.
5.  THIS SYMBOL INDICATES A DC VOLTAGE MEA
MENT TAKEN WITH A HIGH-IMPEDANCE INPUT
METER FROM THE POINT INDICATED TO CIRCU
GROUND.

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SCHEMATIC OF THE HEATHKIT®

MODEL IM-4120 / SM-4120

FREQUENCY/PERIOD METER

SHOWING GROUPS:




BOARD.
IT BOARD.
BOARD.

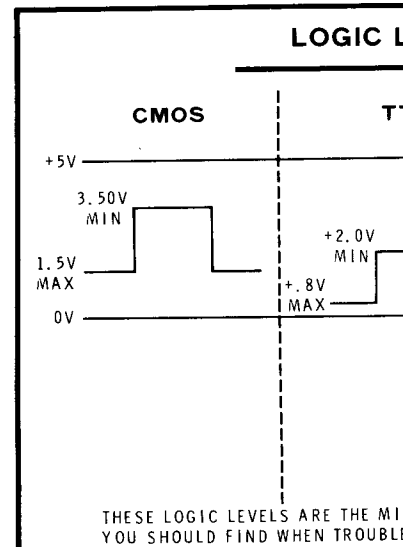
CIRCUIT BOARD GROUND.

SSIS GROUND.

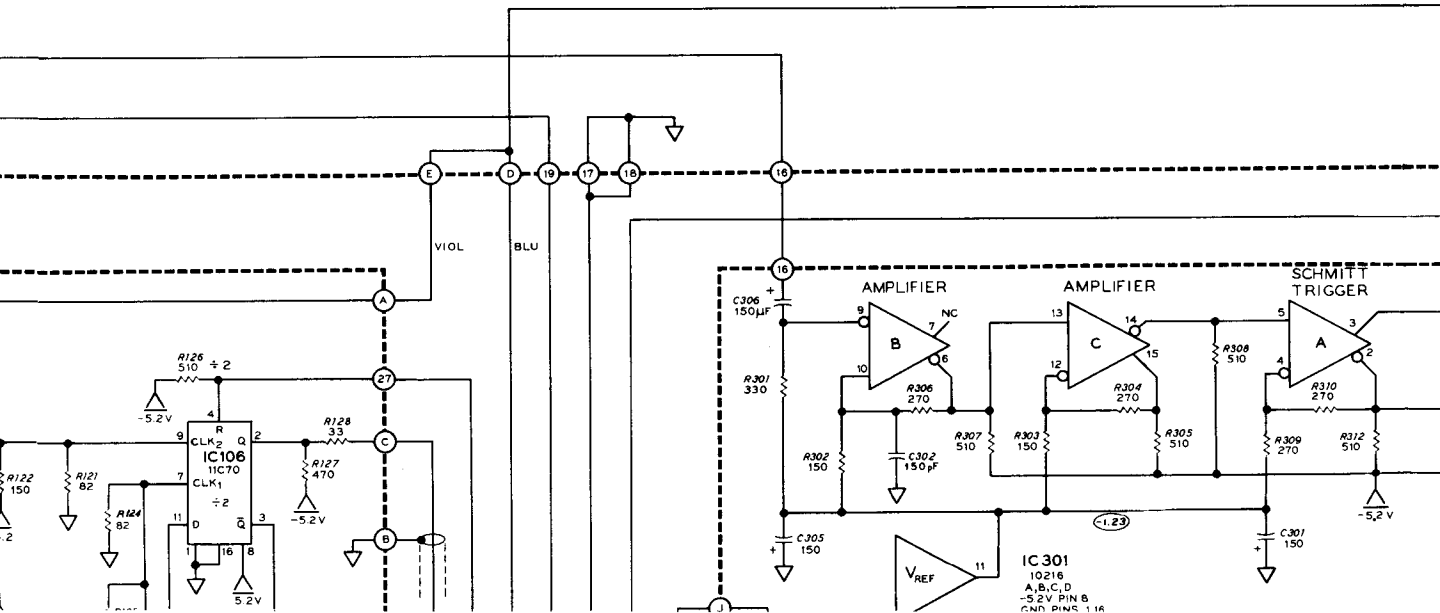
INDICATES A CIRCUIT
THIS SYMBOL WITH A
IT BOARD-TO-CIRCUIT

C VOLTAGE MEASURE-
PEDANCE INPUT VOLT-
CATED TO CIRCUIT

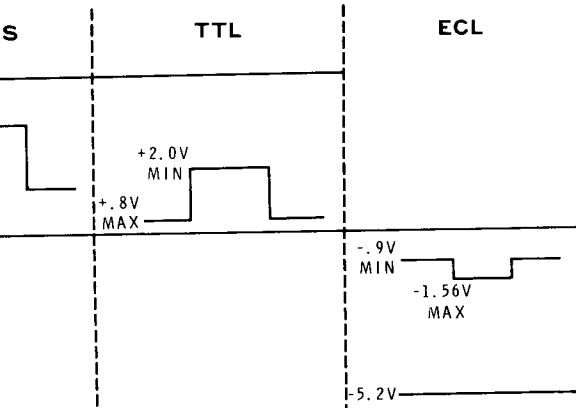
6.  THIS SYMBOL INDICATES A CONNECTION TO A VOLTAGE SOURCE.
7.  THIS SYMBOL INDICATES A TEST POINT.
8.  ARROW INDICATES CLOCKWISE ROTATION.
9. ALL RESISTORS ARE 1/4-WATT, 5% UNLESS MARKED OTHERWISE. RESISTOR VALUES ARE IN OHMS (K=1,000, M=1,000,000).
10. ALL CAPACITORS ARE IN μF (MICROFARADS) UNLESS MARKED OTHERWISE.
11. PARTS IN SHADED AREAS ARE CRITICAL FOR CONTINUED SAFETY. REPLACE THEM ONLY WITH PARTS OF THE SAME RATING OR WITH THE PROPER HEATH PARTS.
12. IC PINS NOT SHOWN, ARE NOT CONNECTED IN THE CIRCUITS.



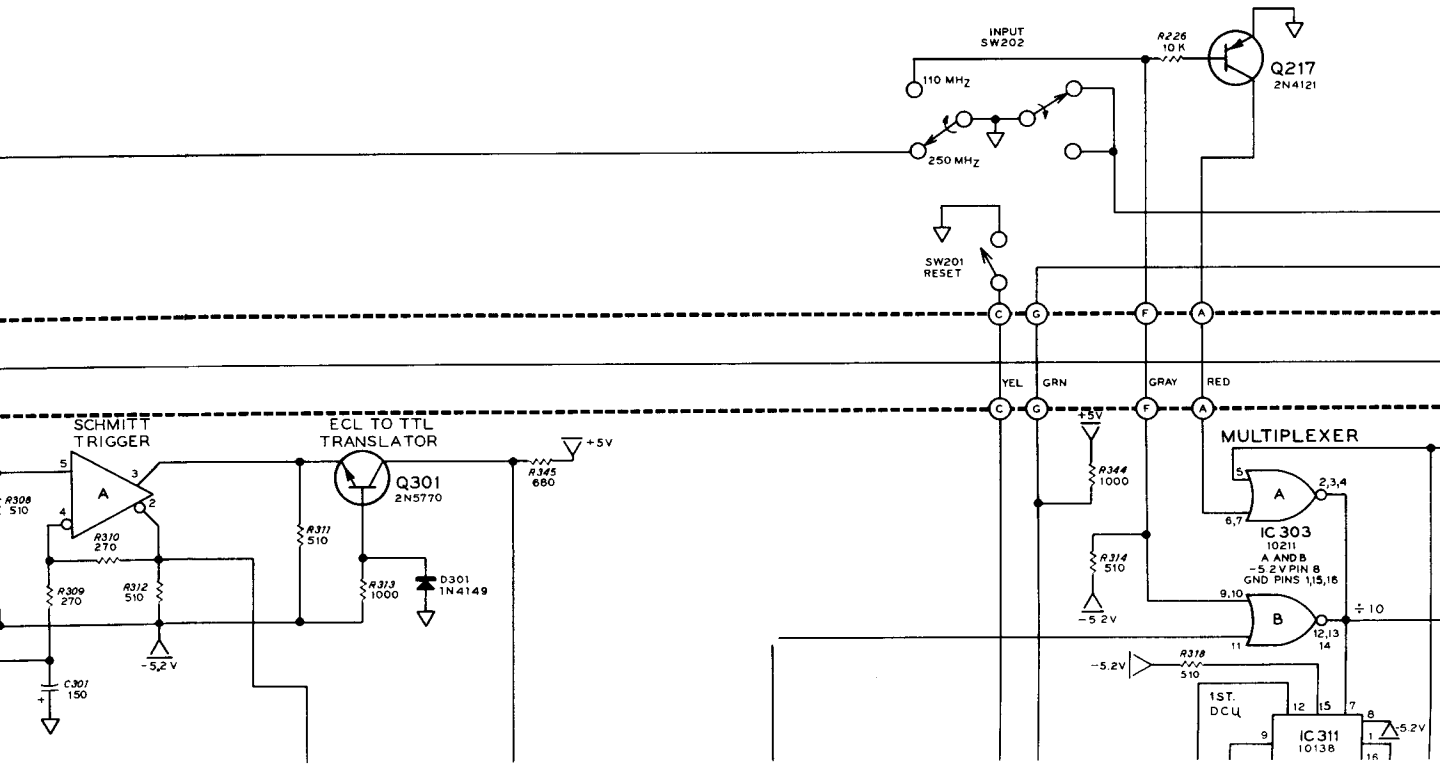
DISPLAY CIRCUIT BOARD

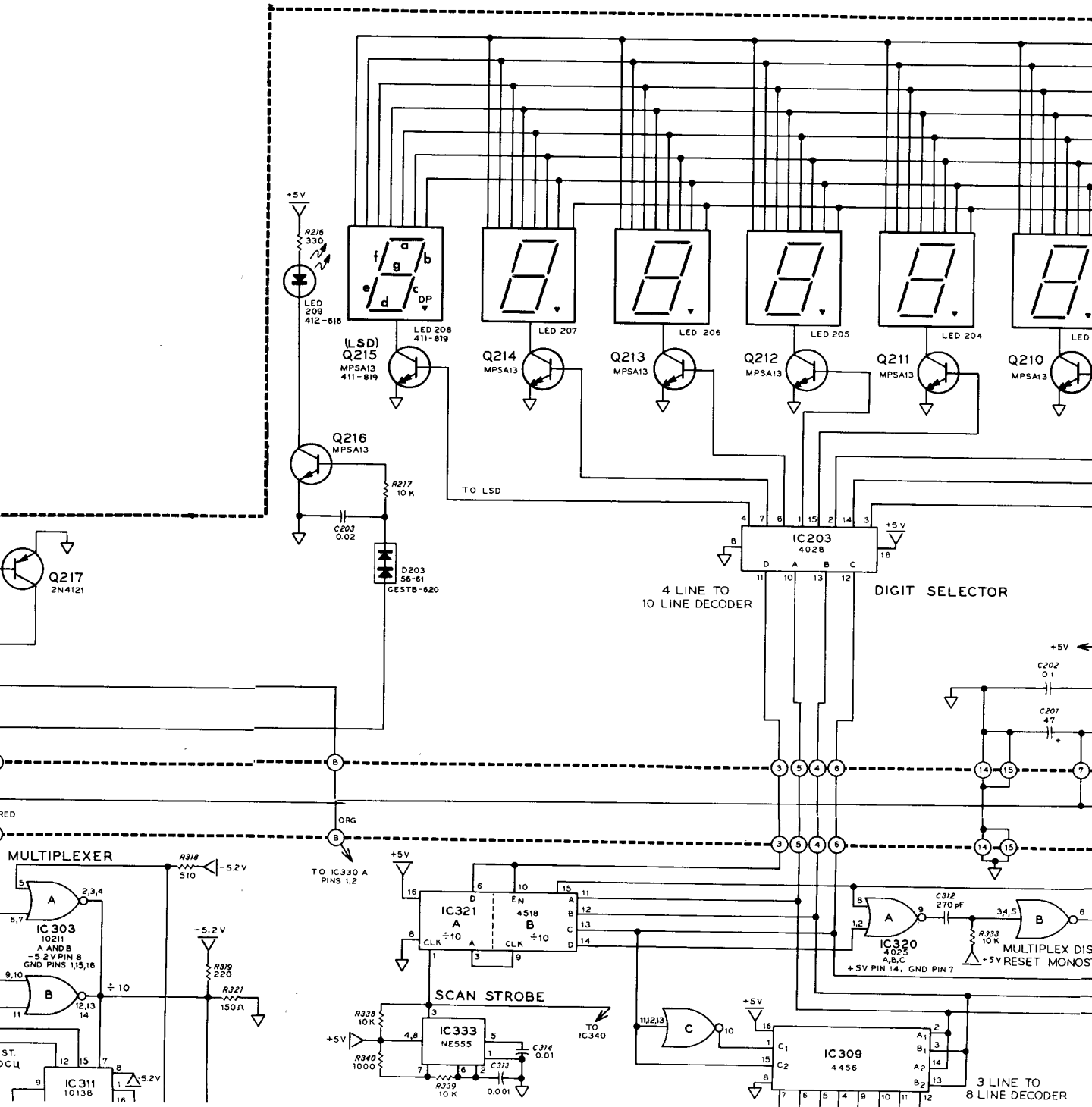


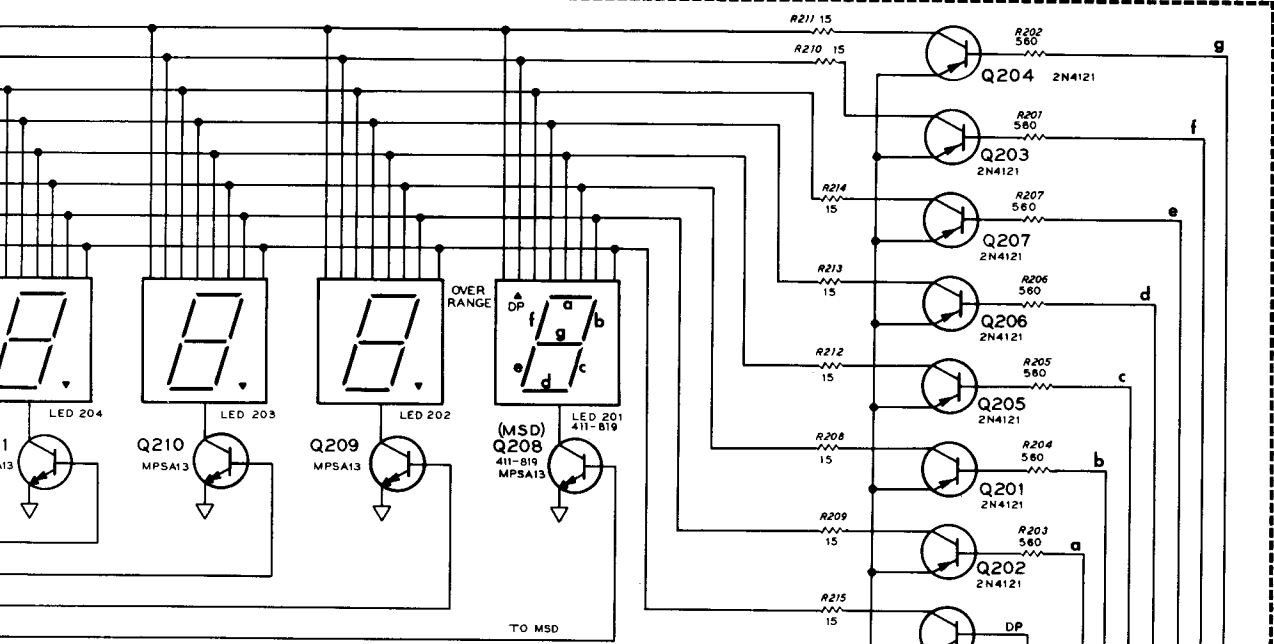
LOGIC LEVELS



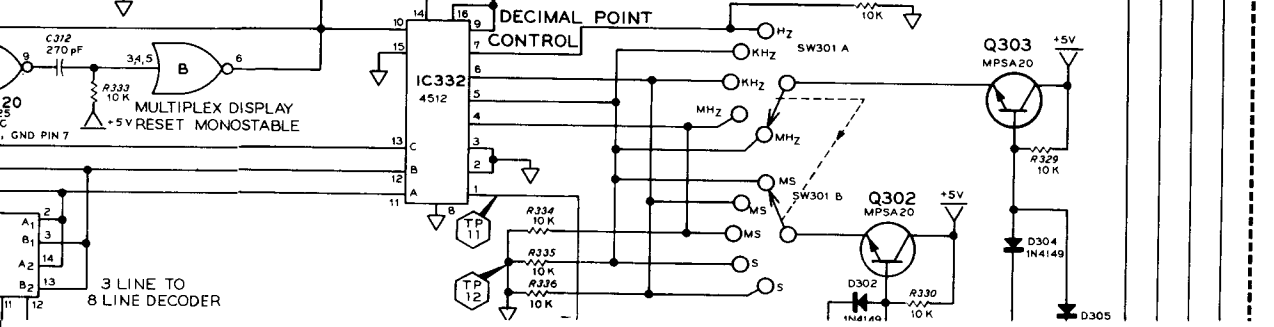
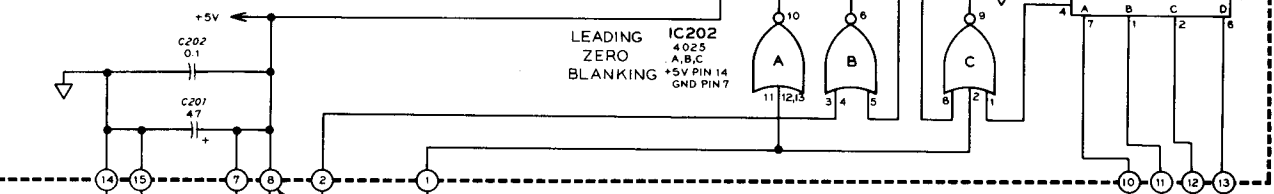
LOGIC LEVELS ARE THE MINIMUM AND MAXIMUM LEVELS YOU SHOULD FIND WHEN TROUBLESHOOTING THE CIRCUITRY.







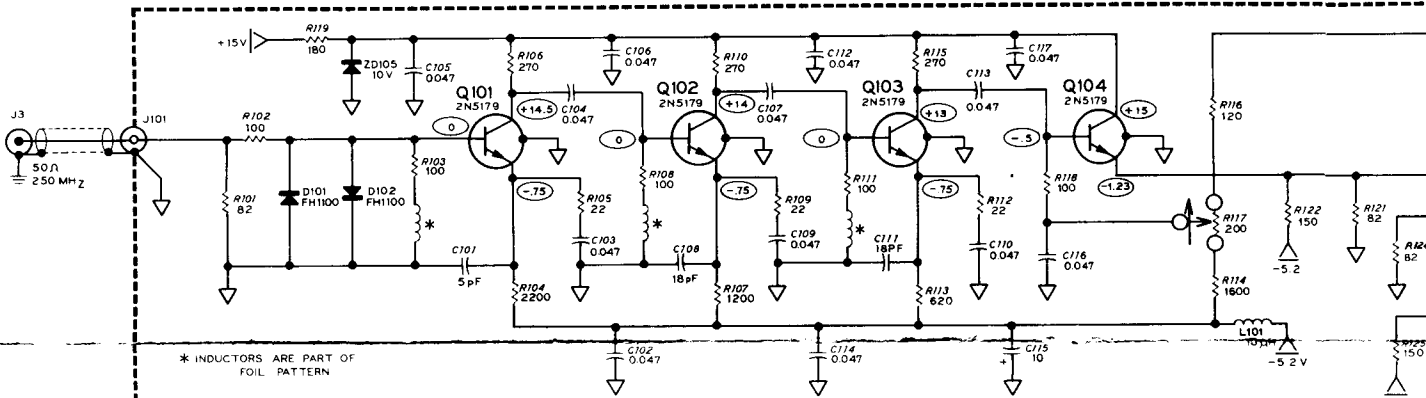
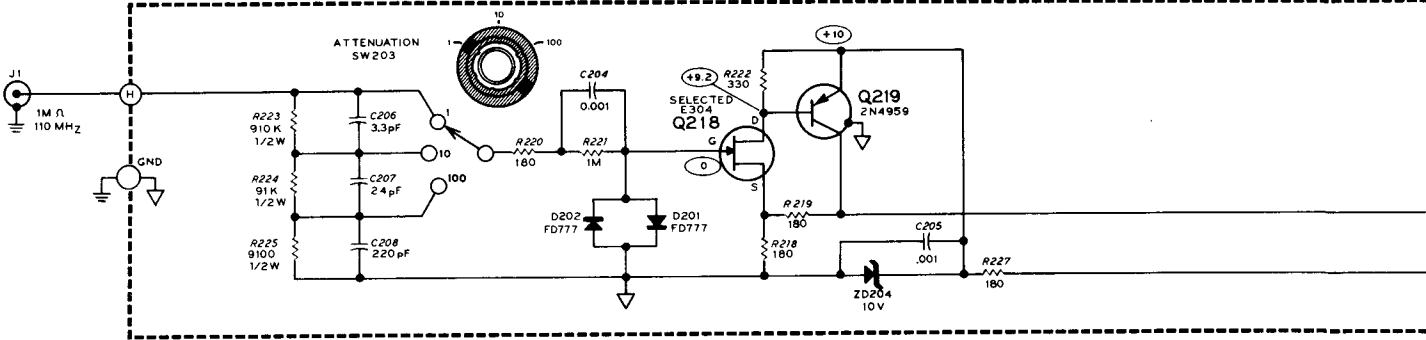
IT SELECTOR



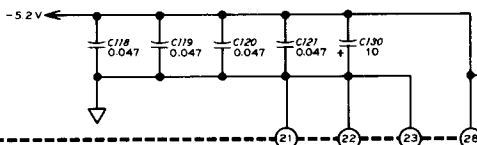
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UREMENT TAKEN WITH A HIGH-IMPEDANCE INPUT
METER FROM THE POINT INDICATED TO CIRCUIT
GROUND.



INPUT CIRCUIT BOARD



RESISTOR PERIOD MEASUREMENT

LOW GROUPS:




BOARD.
IT BOARD.
BOARD.

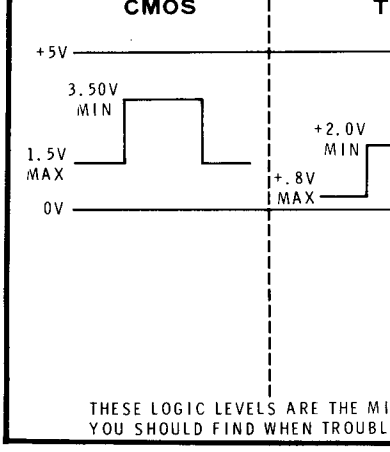
CIRCUIT BOARD GROUND.

ASSIS GROUND.

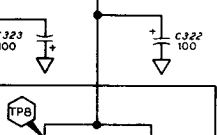
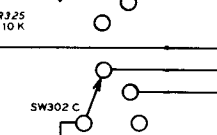
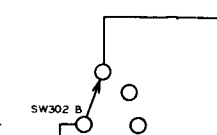
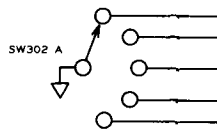
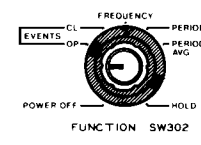
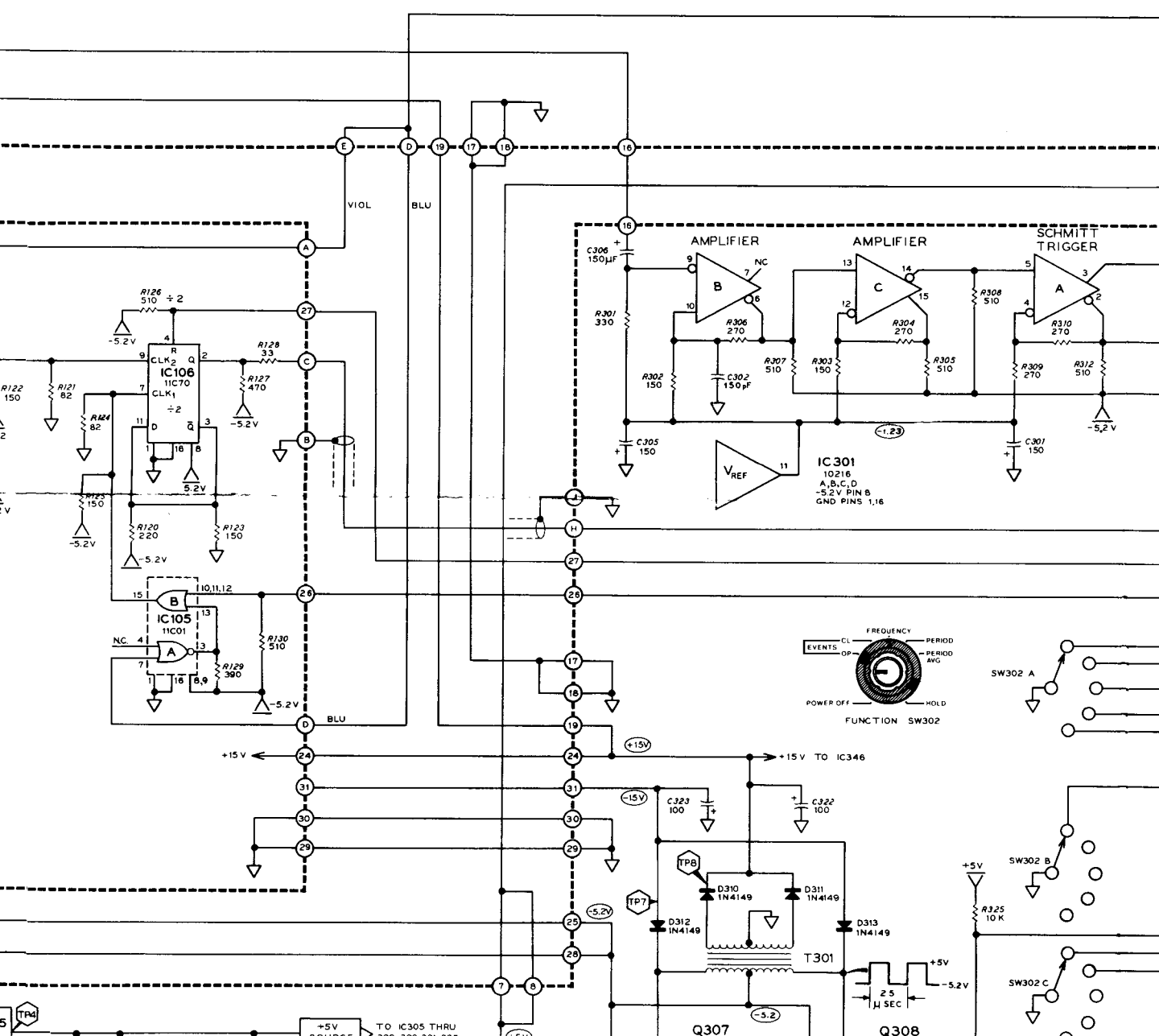
INDICATES A CIRCUIT
THIS SYMBOL WITH A
IT BOARD-TO-CIRCUIT

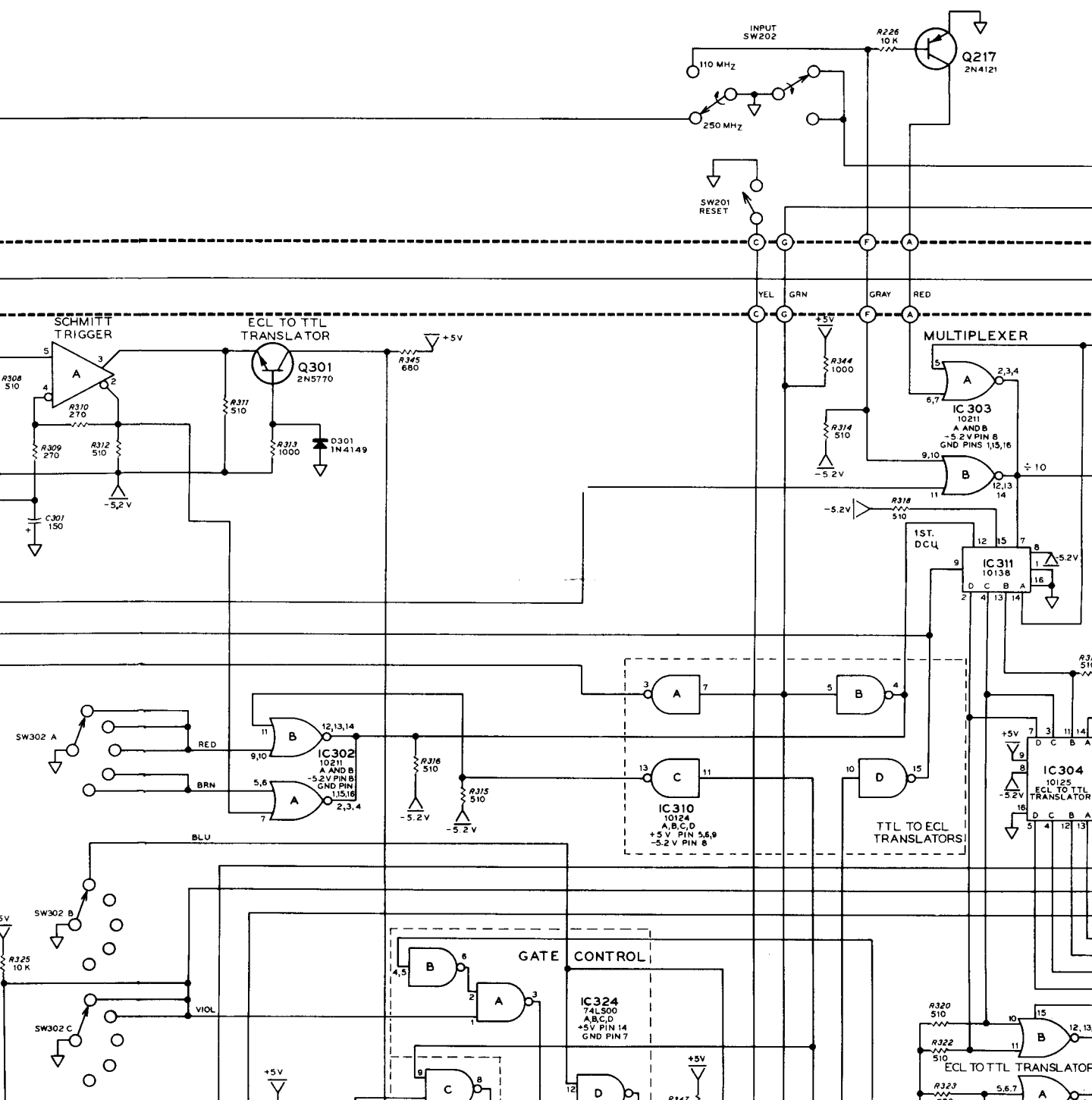
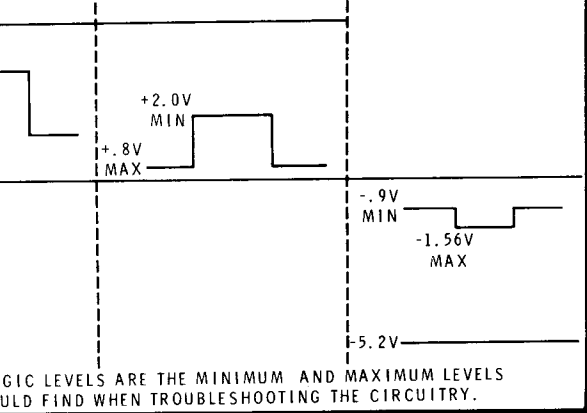
C VOLTAGE MEASURE-
PEDANCE INPUT VOLT-
CATED TO CIRCUIT

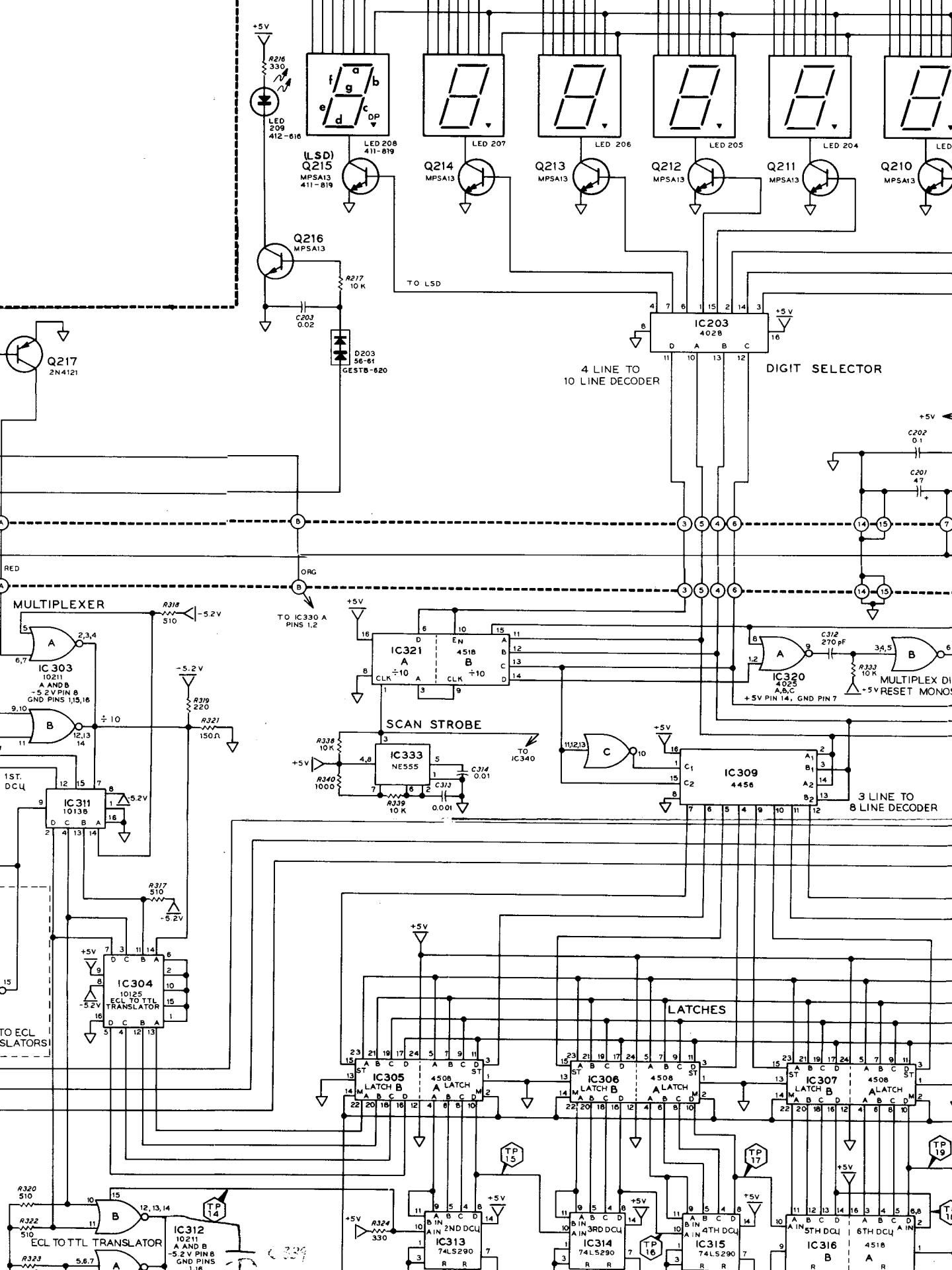
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DISPLAY CIRCUIT BOARD







+5V
R216
330
LED 209
412-816

(LSD)
Q215
MPSA13
411-819

LED 208
411-819

Q214
MPSA13

Q213
MPSA13

Q212
MPSA13

Q211
MPSA13

Q210
MPSA13

Q216
MPSA13

R217
10K

D203
56-81
GESTB-820

TO LSD

C203
0.02

IC203
4028
4 LINE TO
10 LINE DECODER

DIGIT SELECTOR

+5V

C202
0.1

C201
47

Q217
2N4121

RED

MULTIPLEXER

R318
510
-5.2V

TO IC330 A
PINS 1,2

IC321
4518
÷10
SCAN STROBE

IC333
NE555

TO IC340

IC320
4025
MULTIPLEX DI
A,B,C
+5V PIN 14, GND PIN 7

C312
270PF

R333
10K

IC309
4456
3 LINE TO
8 LINE DECODER

1ST. DCU

IC303
10211
A AND B
-5.2V PIN 8
GND PINS 1,15,16

IC311
10138
÷10

IC304
10125
ECL TO TTL
TRANSLATOR

IC310
10138
÷10

R317
510
-5.2V

TO ECL
SLATORS

IC305
4508
LATCH B
A LATCH

IC306
4508
LATCH B
A LATCH

IC307
4508
LATCH B
A LATCH

IC312
10211
A AND B
-5.2V PIN 8
GND PINS

IC313
74LS290

IC314
74LS290

IC315
74LS290

IC316
74LS290

R320
510

R322
510

R323
5.8.7

C329

TP 14

TP 15

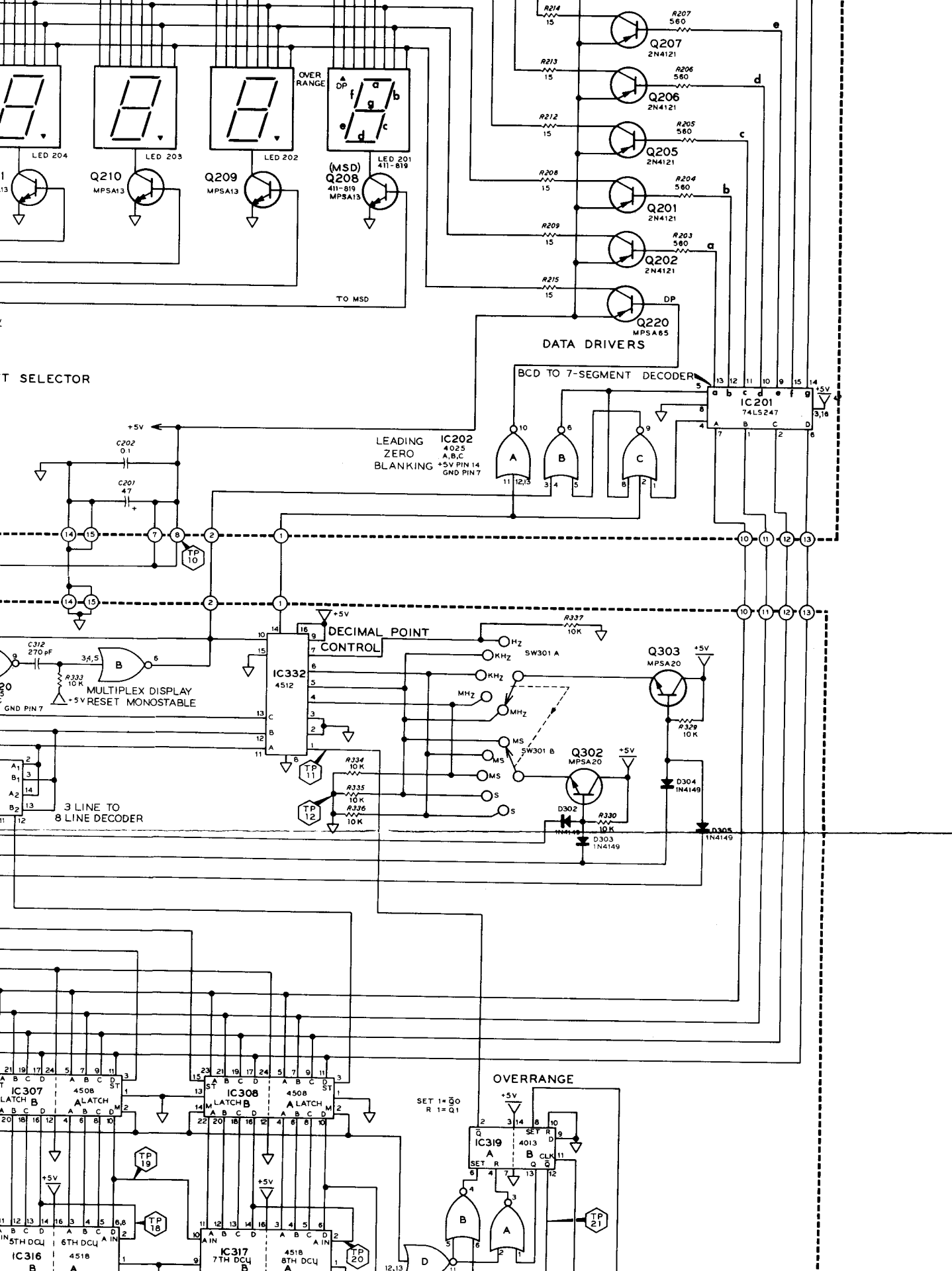
TP 16

TP 17

TP 18

TP 19

TP 20



* INDUCTORS ARE PART OF FOIL PATTERN

0.047

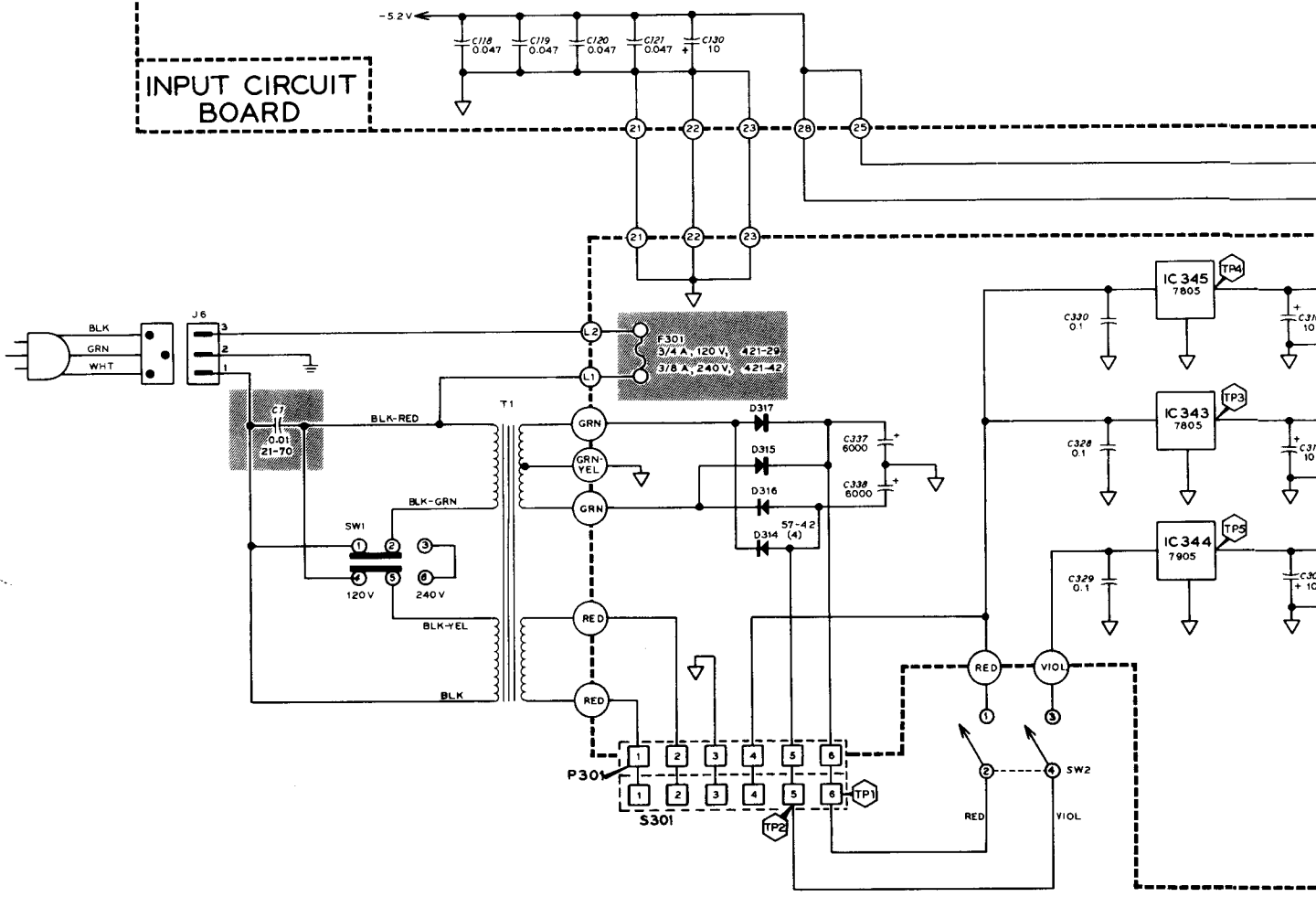
0.047

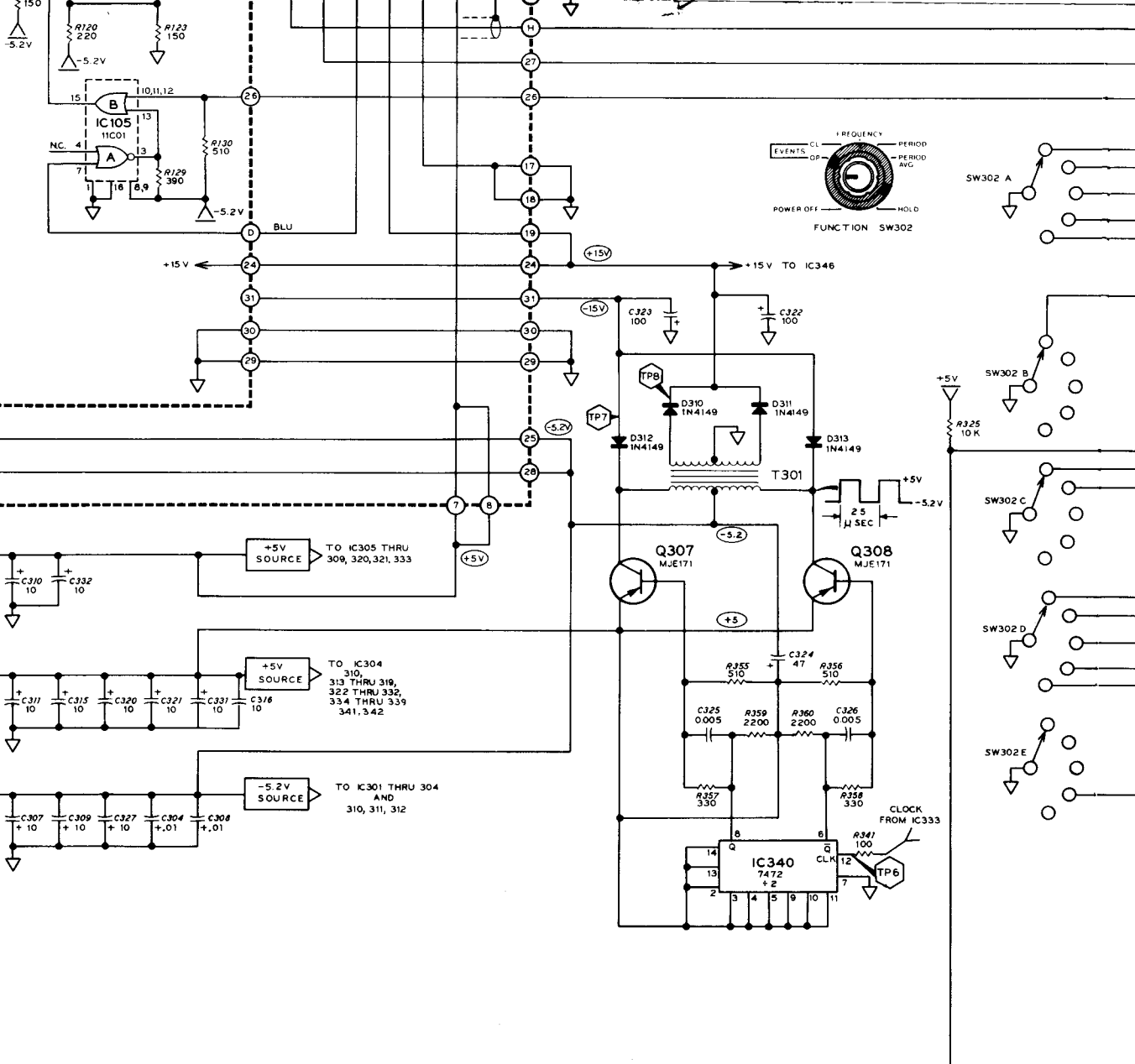
10

-5.2 V

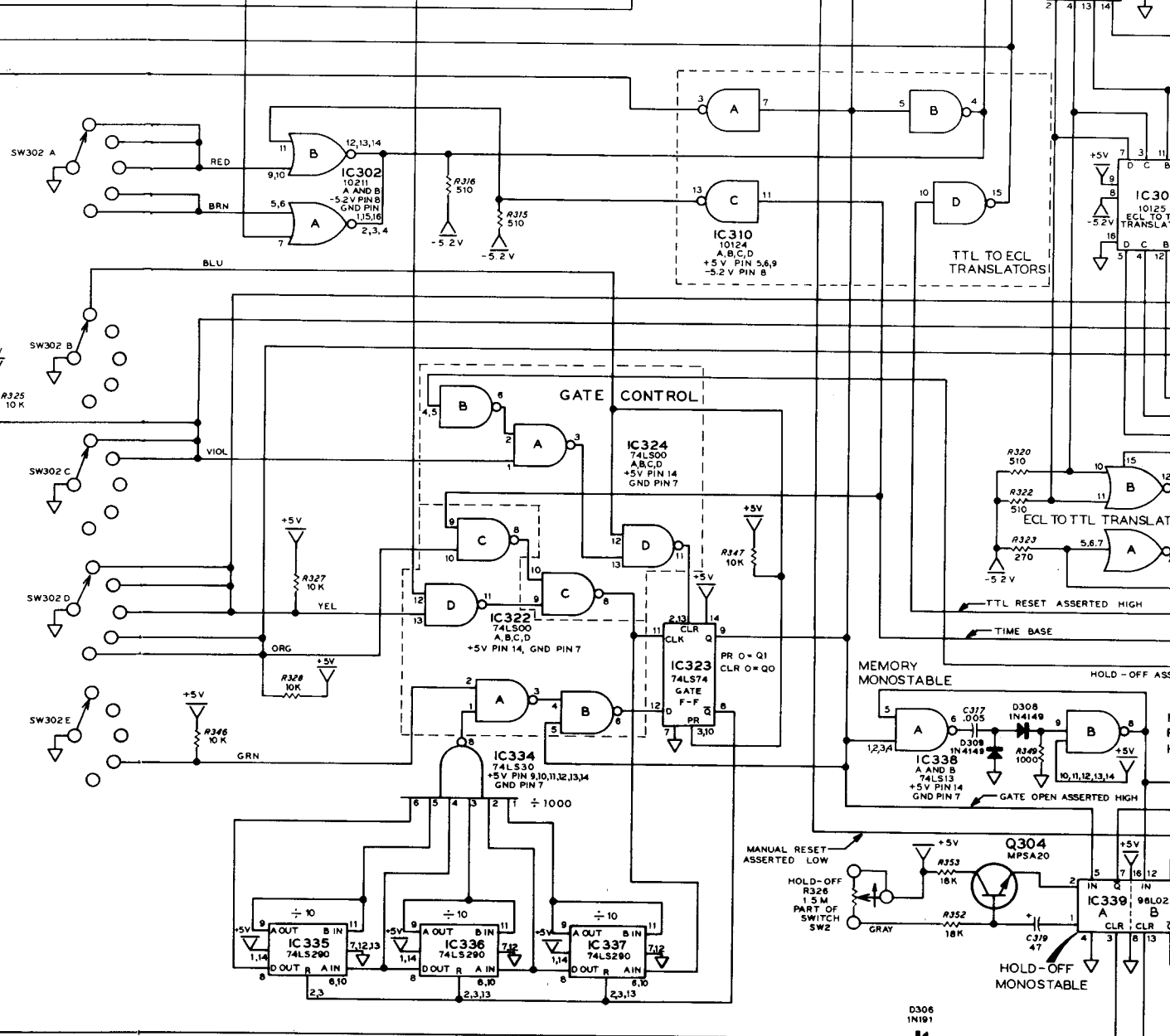
15V
-5.2 V

INPUT CIRCUIT BOARD





MAIN CIRCUIT BOARD



D306
1N191

