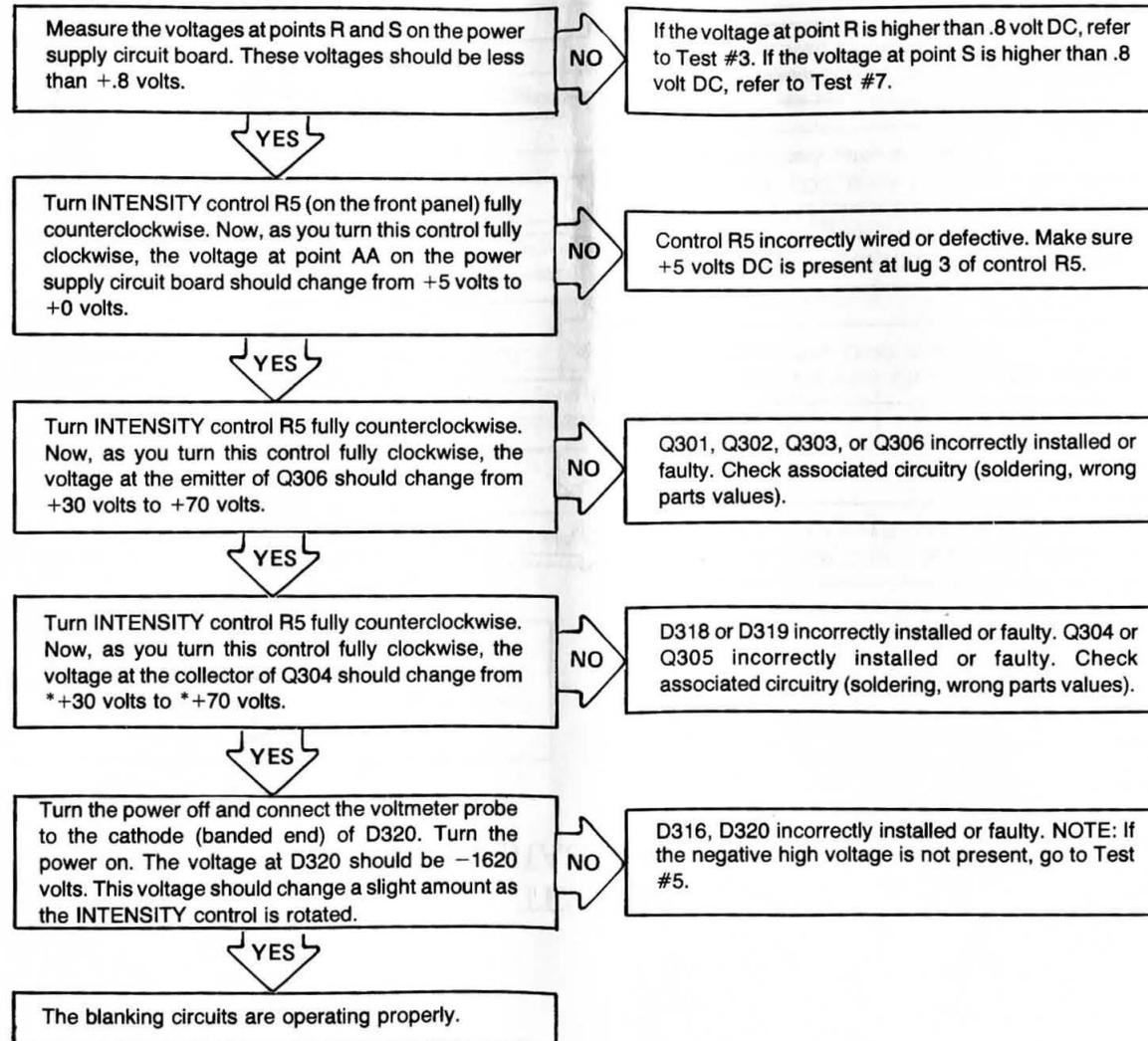


TEST #4 BLANKING CIRCUIT

WARNING: You will be making voltage measurements in the high voltage area of the Oscilloscope. Be very careful not to contact this high voltage. See Page 26 of this Booklet.



*These voltage readings depend on the setting of the INTENSITY BIAS control and can vary 40 volts.

TEST #5

CRT BIAS CIRCUITS

CAUTION

When you make any of the following tests, first turn the Oscilloscope off. Then connect the voltmeter to the circuit and turn the Oscilloscope back on again.

Check the voltage at the junction of C301 and R301. It should read -2000 VDC.

NO

Check D301, D302, C301, C302, and T1. Check the voltage between A and B. It should be 360 VAC.

YES

Check the voltage at the junction of C303 and R301. It should read -1650 VDC.

NO

Check C303 and R301. Check for open or shorted foils. Check D316, D320, and D314.

YES

Check the voltage at AE. It should read -1350 VDC.

NO

If it is lower than -1350 VDC, check D317 and C320. Also check divider string R17, R6, R309, and R310 for open and bad connections. If the voltage is higher than -1350 VDC, check for shorts in the divider string, and check wires and foils.

YES

Check the voltage at point W. It should read -1568 VDC.

NO

Check for solder bridges and incorrect wiring to the CRT socket. Also check C320.

YES

Check the voltage at point Y. It should read $+95$ VDC. (Adjust it if necessary.)

NO

Check Q307 and associated circuitry.

YES

CRT bias circuits are all operating properly.

TEST #6 TRIGGER CIRCUITS

Alternately measure the voltage at the emitter (E) of Q205 and Q206 while you adjust TRIG LEVEL control R7 (on the front panel) for identical voltages (about +.7 volt). NOTE: Each voltage should change from a positive value, go through zero, and then go to a negative value as you adjust R7 through its range.

NO

Turn the power off and short the base of Q203 to the base of Q204. Turn the Oscilloscope on.

The emitter voltages of Q205 and Q206 are the same.

NO

Q203, Q204, Q205, or Q206 incorrectly installed or faulty. Check associated circuitry (soldering, incorrect parts values).

YES

Q201 faulty. Check associated circuitry (soldering, incorrect parts values).

Turn the power off and remove the short connected between Q203 and Q204. Turn the Oscilloscope on.

YES

Measure the voltage at pin 3 of U202 as you adjust TRIG LEVEL control R7 through its range. As you adjust the control through its center of rotation, the voltage should change from a logic low ($< +.8$ volt) to a logic high ($> +2.4$ volts).

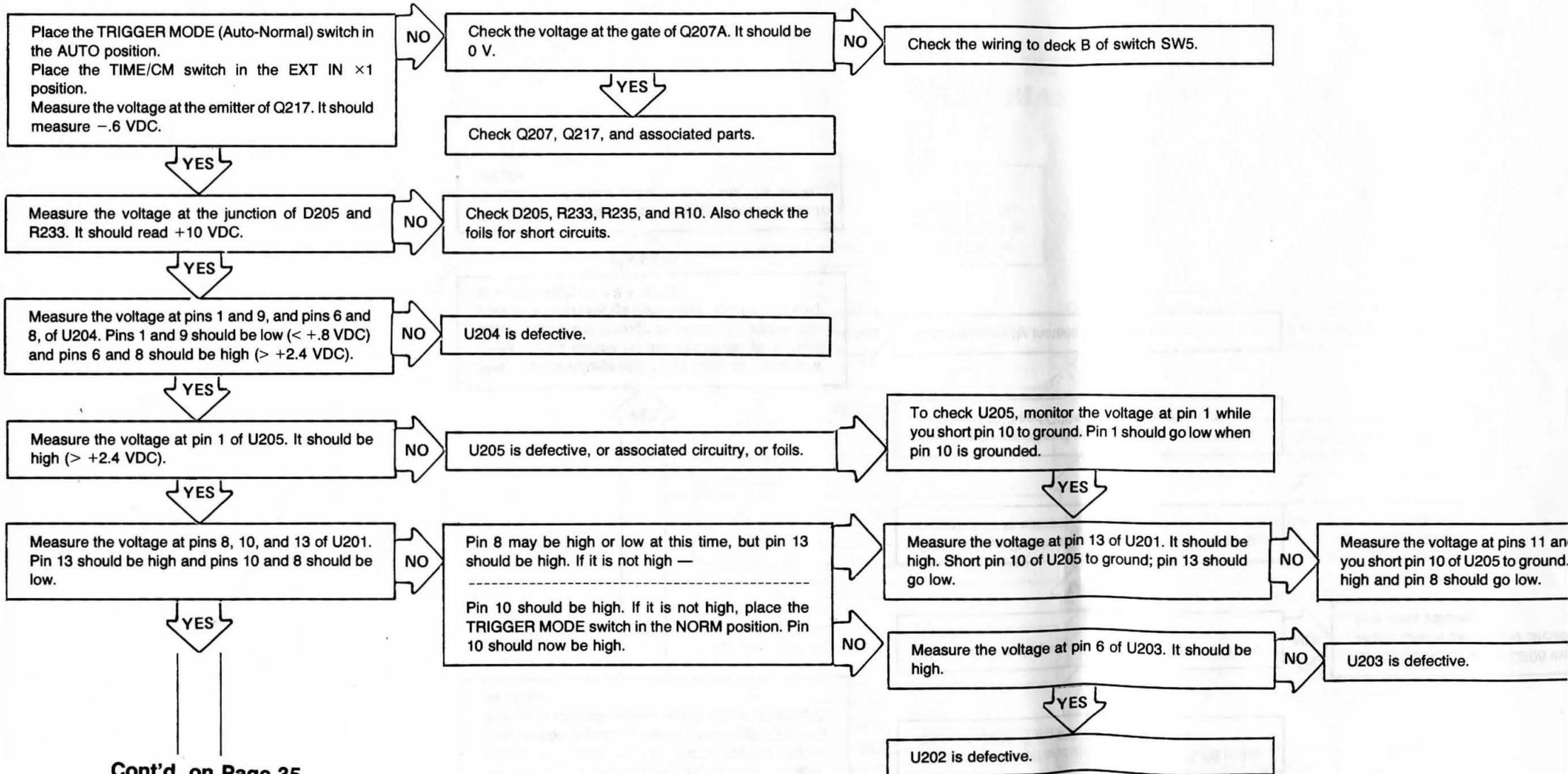
NO

U202 incorrectly installed or faulty.

YES

The trigger circuits are operating properly. Proceed to Test #7 if there is still a problem with the sweep circuits.

TEST #7 SWEEP CIRCUITS



TEST #7 SWEEP CIRCUITS

... at the gate of Q207A. It should be

NO

Check the wiring to deck B of switch SW5.

YES

... 217, and associated parts.

... 33, R235, and R10. Also check the
... circuits.

...

... or associated circuitry, or foils.

To check U205, monitor the voltage at pin 1 while
you short pin 10 to ground. Pin 1 should go low when
pin 10 is grounded.

YES

... high or low at this time, but pin 13
... if it is not high —

Measure the voltage at pin 13 of U201. It should be
high. Short pin 10 of U205 to ground; pin 13 should
go low.

NO

Measure the voltage at pins 11 and 8 of U202 while
you short pin 10 of U205 to ground. Pin 11 should go
high and pin 8 should go low.

NO

U202 is defective.

... be high. If it is not high, place the
... E switch in the NORM position. Pin
... be high.

NO

Measure the voltage at pin 6 of U203. It should be
high.

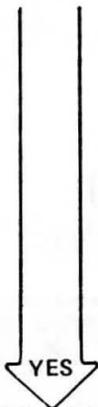
NO

U203 is defective.

YES

U202 is defective.

TEST #7
SWEEP CIRCUITS (Cont'd.)
(P.35)



Measure the voltage at pin 3 of U202 and rotate the TRIG LEVEL control back and forth through its center of rotation. Pin 3 should change state.



Trigger amplifier or U202 is defective. Also check wiring.



Measure the voltage at pin 5 of U201. It should be low.



U201 defective, or wiring or foils open between pin 1 and deck A of the TIME/CM switch.



Measure the voltage at pin 8 of U201. It should be low.



U201 is defective.



Check Q216 and associated foils.

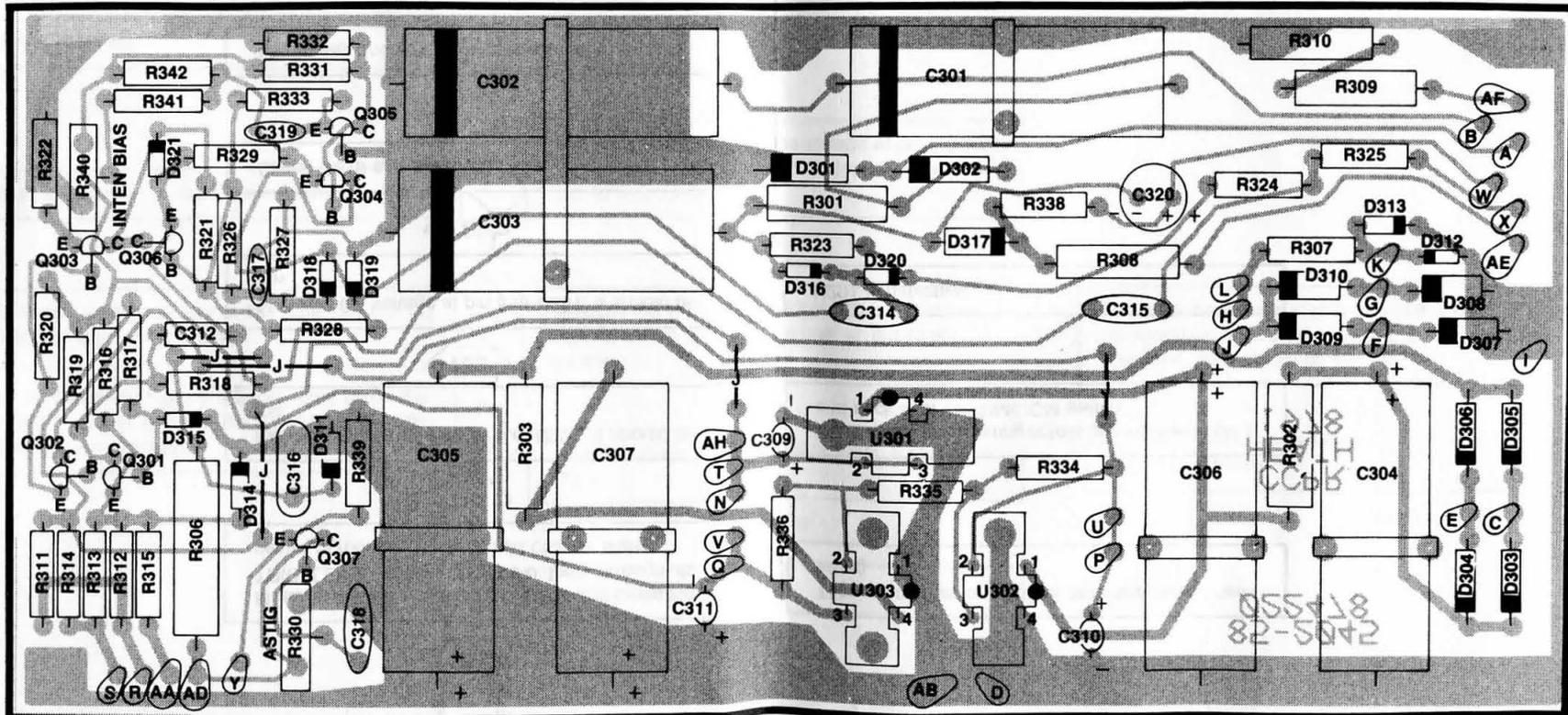


The sweep and control circuits are OK.

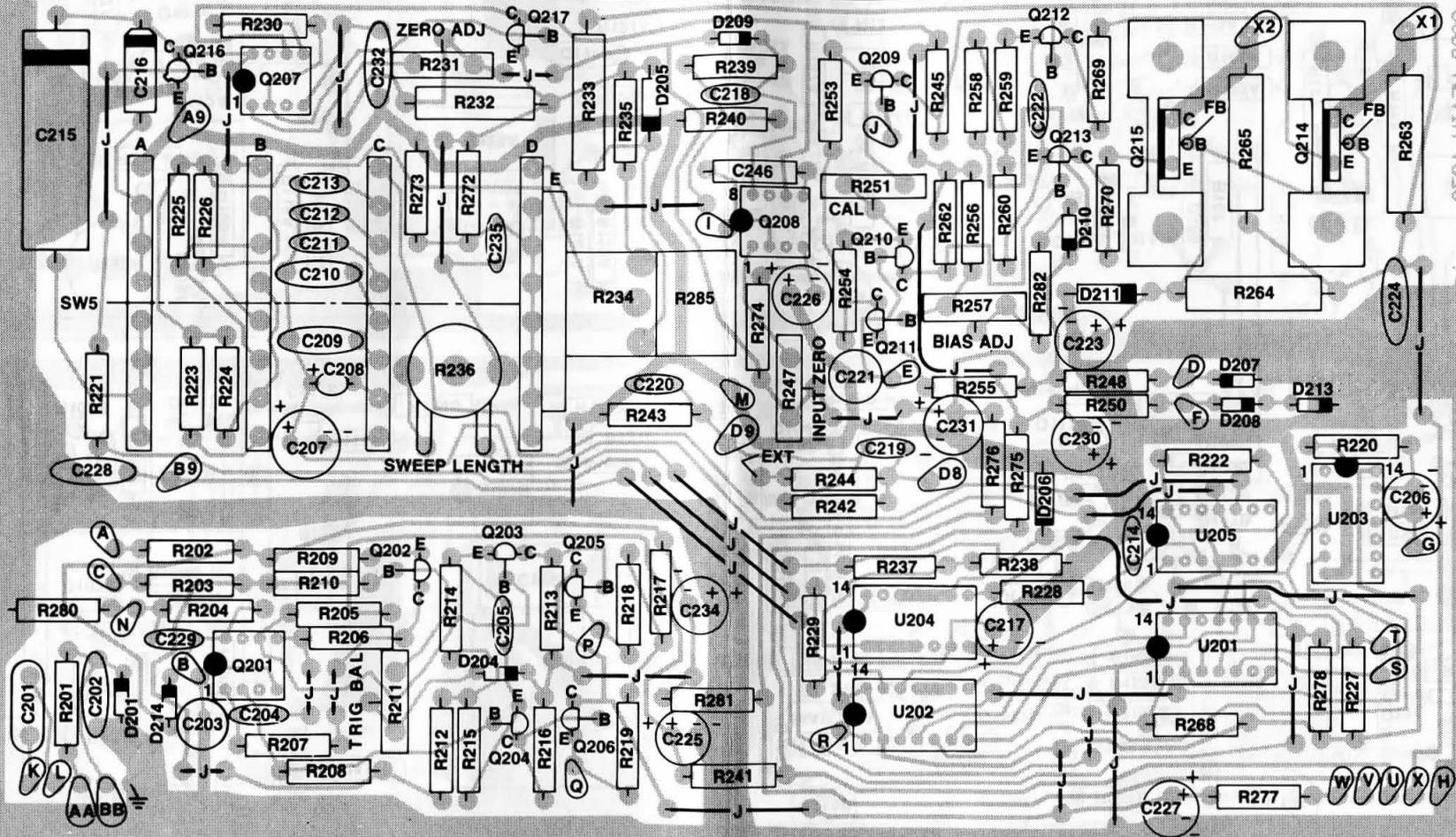
CIRCUIT BOARD X-RAY VIEWS

NOTE: To find the PART NUMBER of a component for the purpose of ordering a replacement part:

- A. Find the circuit component number (R5, C3, etc.) on the "X-Ray View."
- B. Locate this same number in the "Circuit Component Number" column of the "Parts List."
- C. Adjacent to the circuit component number, you will find the PART NUMBER and DESCRIPTION which must be supplied when you order a replacement part.

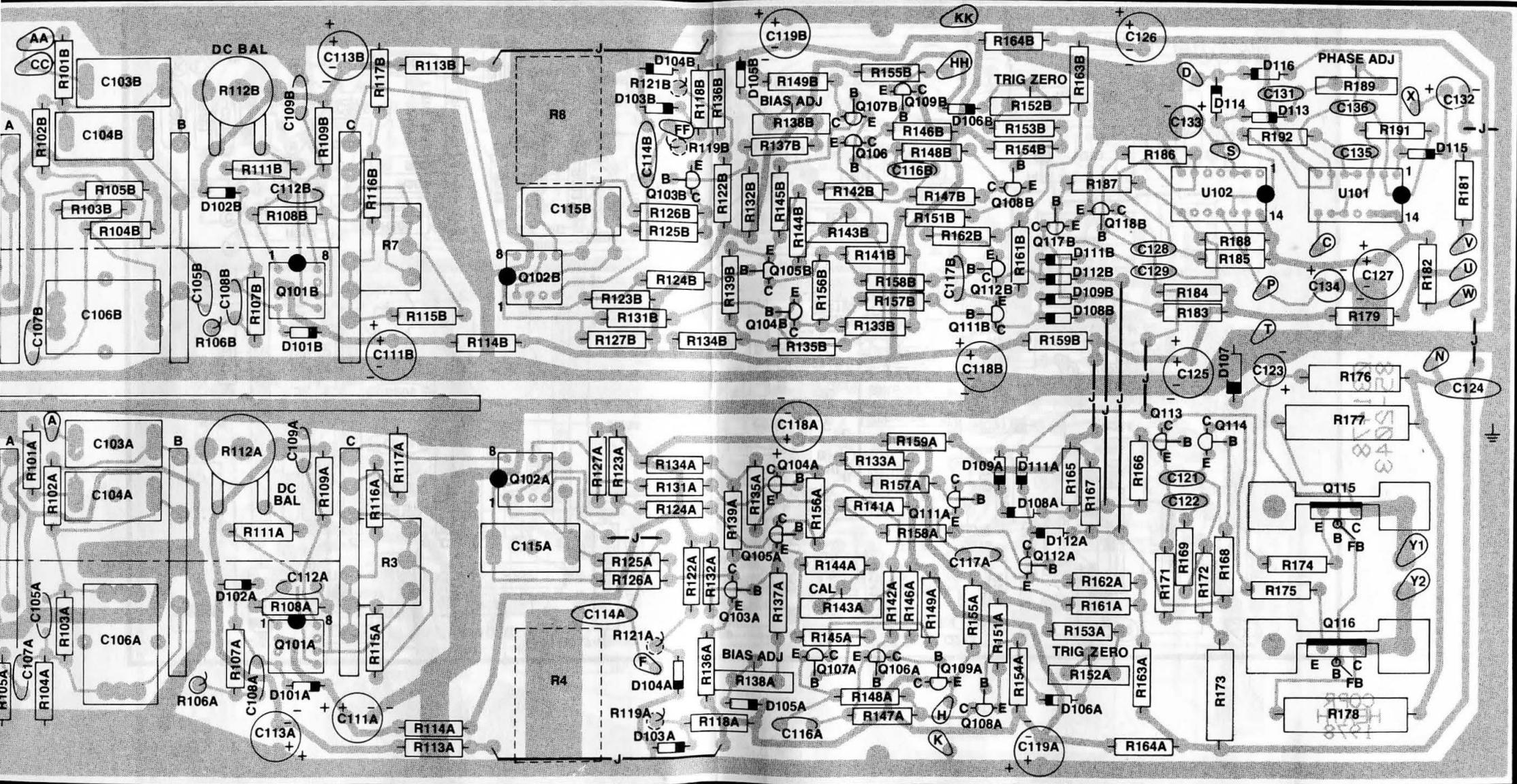


POWER SUPPLY CIRCUIT BOARD
(Viewed from Component side.)



015018
 4408-2
 82
 8201 HIGH 1A38

HORIZONTAL CIRCUIT BOARD
 (Viewed from component side.)



VERTICAL CIRCUIT BOARD
(Viewed from component side.)