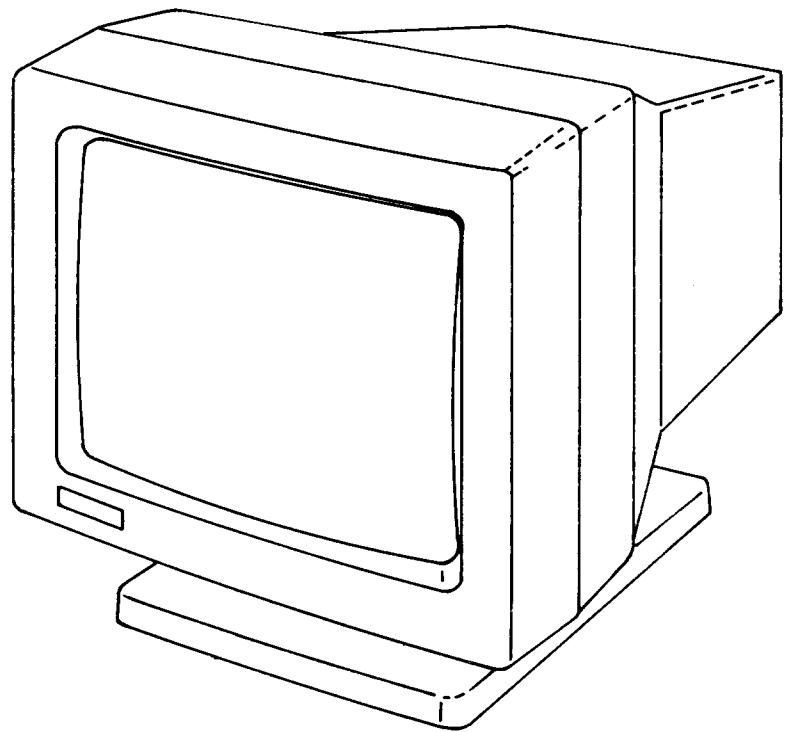


SERVICE MANUAL

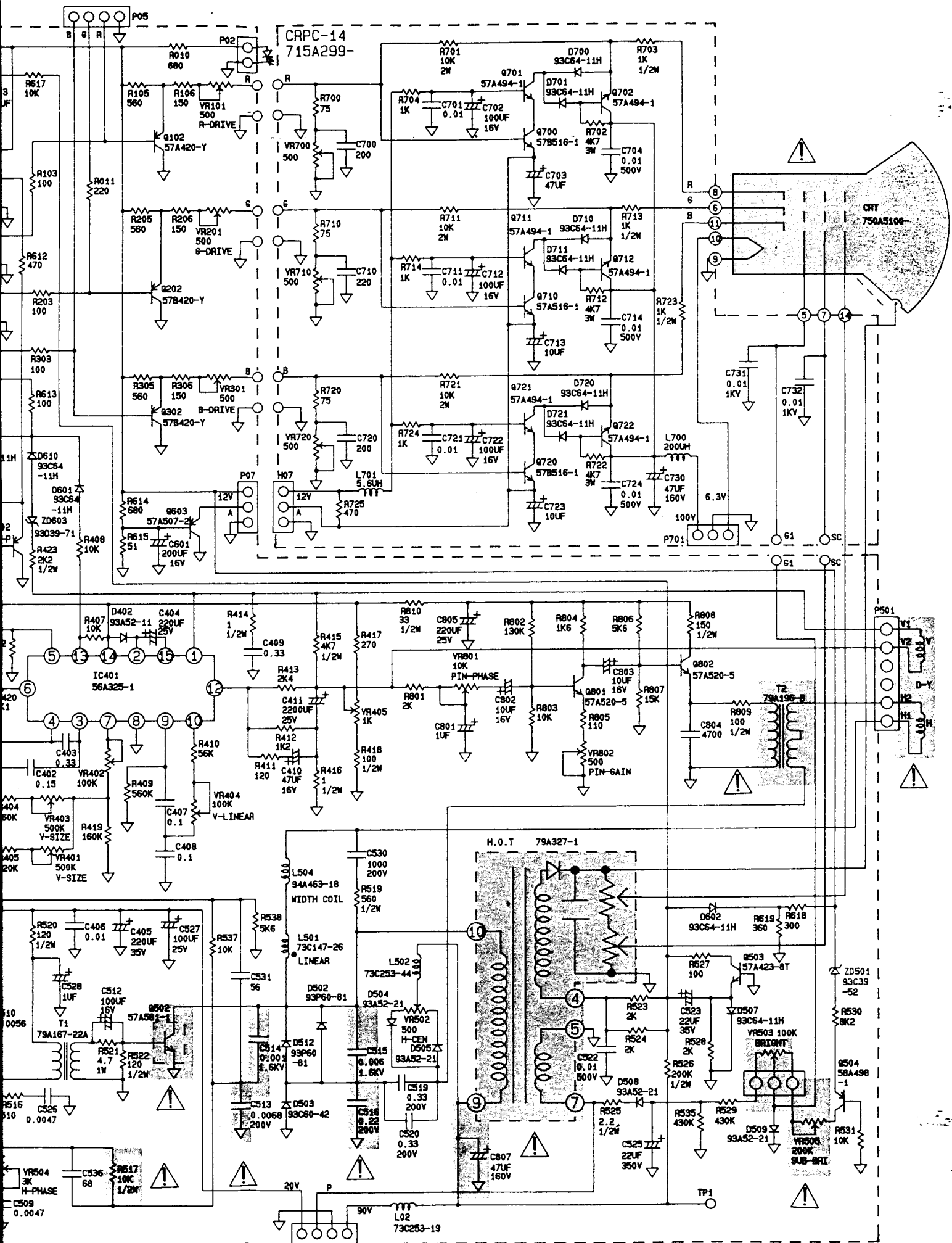
CM-313

COLOR VIDEO MONITOR



M600

AOC



4. ADJUSTMENT

4-1 ADJUSTMENT CONDITIONS AND PRECAUTIONS

1. Approximately 30 minutes should be allowed for warm up before proceeding.
2. Adjustments should be undertaken only on those necessary elements since most of them have been carefully preset at the factory.

4-2 MAIN ADJUSTMENTS

NO.	FUNCTION	LOCATION	DESIGNATION
1.	B+ ADJ	PCB-POWER	VR901
2.	R.G.B. DRIVE	PCB-MAIN	VR101, 201, 301
3.	VERT. SIZE FOR ALL MODE	PCB-MAIN	VR402
4.	VERT. SIZE FOR MODE 2	PCB-MAIN	VR403
5.	VERT. SIZE FOR MODE 1	PCB-MAIN	VR401
6.	VERT. HOLD	PCB-MAIN	VR411
7.	VERT. LINEAR	PCB-MAIN	VR404
8.	VERT. CENTER	PCB-MAIN	VR405
9.	HOR. PINCUSHION GAIN	PCB-MAIN	VR802
10.	HOR. PINCUSHION PHASE	PCB-MAIN	VR801
11.	HOR. HOLD	PCB-MAIN	VR501
12.	HOR. PHASE	PCB-MAIN	VR504
13.	HOR. CENTER	PCB-MAIN	VR502
14.	HOR. WIDTH	PCB-MAIN	L501
15.	SUB-BRIGHTNESS	PCB-MAIN	VR505
16.	R.G.B. CUT-OFF	CRT-BOARD	VR700, 710, 720,
17.	BRIGHTNESS	PCB-MAIN	VR508
18.	CONTRAST	PCB-MAIN	VR601

4-3 ADJUSTMENT METHOD

1. Switching regulator unit

- (a) Connect a DC voltage meter between TP1 and ground, then adjust VR901 to be 85Vdc.

Note: Do not operate Switching regulator unit without any load.

2. Sub-Brightness: VR505

Measure CRT socket pin #5, adjust VR505 to be -32Vdc.

3. Hor. hold: VR-501

- (a) Connect TP2 to ground.
- (b) Adjust VR501 until the bars (moving bars) are vertical and not slanting to left or right.
- (c) Disconnect TP2 from ground, then VR501 is adjusted properly.

4. Hor. center: VR502

Adjust VR502 until the raster is just located at center of the panel.
(If raster is too dim, Adjust the screen VR of FLY-back transformer until raster can be seen)

5. Hor. phase: VR504

Adjust VR504 until the display picture is located at the center of raster.

6. Hor. width: L501

Adjust horizontal width coil L501 so that the size of picture is 240mm

7. Vertical linear: VR404

(a) Select a cross-hatch pattern.

(b) Adjust VR404 so that vertical linearity is optimum.

8. Vertical size: VR401, 402, 403

Vertical has three modes. (mode 1, 2, 3,)

(a) At First, use mode 3, signal that has vertical frequency 60Hz adjust VR402 so that vertical vertical size is 180mm.

(b) Change to mode 2, adjust VR403 so that vertical size is 180mm

(c) Change to mode 1, adjust VR401 so that vertical size is 180mm.

9. Pincushion adjustment:

(a) Using crosshatch pattern, adjust VR801 for symmetry between up-down side.

(b) Adjust VR802 for straight vertical lines on both sides.

10. Vertical Center: VR405

Adjust VR405 to center the picture vertically.

11. Vertical Hold: VR401

Using any pattern generator that has vertical frequency 50Hz and apply to this monitor. If a display quivers upward or downward, turn VR401 on the main PCB to stabilize it.

12. White balance:

A. Initial set up.

(a) Disable the video input signal.

(b) VR101, 201, 301, 700, 710, 720, set to middle position.

(c) Warm up more than 15 minutes.

B. Bias adjustment.

- (a) Adjust G2 potentiometer, check which color is first to appear, then turn cut-off VR of that color (VR700, 710, 720,) to minimum, Again, turn G2 to more light Another color appears. use this cut-off VR for base.
- (b) Using a Oscilloscope, adjust the base cut-off VR, so that the black level is 85Vdc.
- (c) Adjust another two cut-off VR until a faint neutral white raster is produced.

C. Gain adjustment

- (a) Enable all three channels (R. G. B.) to give a cross-hatch pattern on the screen.
- (b) Using a oscilloscope, adjust the base drive VR (the same channel as B-(a)), so that the amplitude is 50Vp-p.
- (c) Change the pattern to paper white video, turn contrast control to minimum, adjust the luminance is 4 ft/l (fostlambert).
- (d) Using a TV color analyzer, adjust the other two cut-off VR (except the base cut-off VR) for a white video corresponding to a color temperature of 9300° K
- (e) Turn contrast control so that the luminance is 20 ft/l, adjust the other two drive VR for the same color temperature.
- (f) A few reiterations may be required to set the color temperature the same at 4 ft/L and 20 ft/L luminance level.
- (g) Turn G2 control for raster to just appear (1 ft/l).

13. Focus adjustment

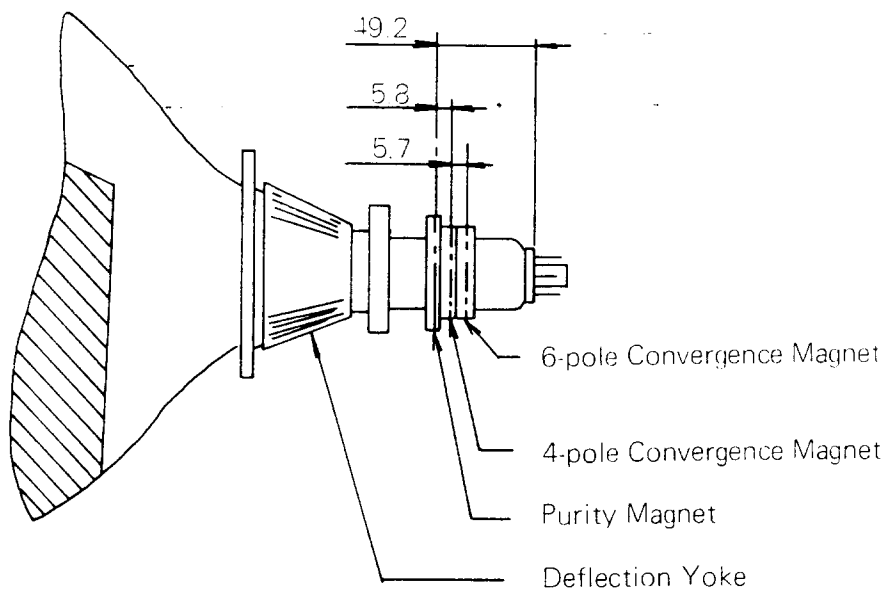
Turn the contrast control to maximum and set the brightness control to a suitable position, adjust the focus control to the optimum position.

14. Purity adjustment

- (a) Be sure that the display is not being exposed to any external magnetic fields.
- (b) Ensure that the spacing between the Purity, Convergence Magnet, (PCM), assembly and the CRT stem is 29mm \pm 1mm. (See below diagram)
- (c) Produce a complete, red pattern on the display. Adjust the Purity magnet rings on the PCM assembly to obtain a complete field of the color red. This is done by moving the two tabs in such a manner that they advance in an opposite direction but at the same time to obtain the same angle between the two tabs, which should be approximately 180°.
- (d) Check the complete blue and complete green patterns to observe their respective color purity. Make minor adjustments if needed.

RELATIVE PLACEMENT OF TYPICAL COMPONENTS

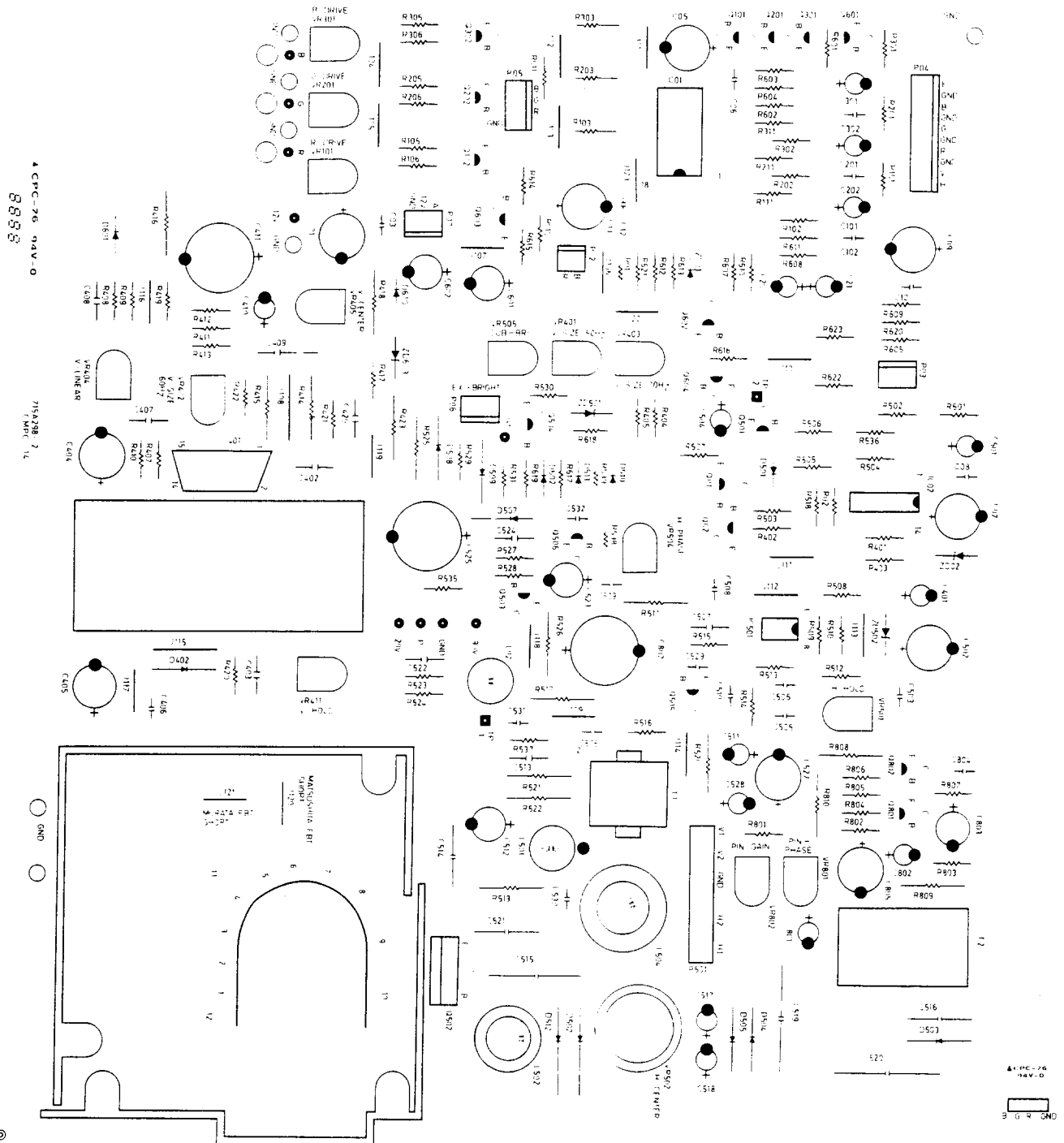
Dimensions in mm



15. Convergence adjustment

- Produce a magenta crosshatch on the display.
- Adjust the focus for the best overall focus on the display.
Also adjust the brightness to the desired condition.
- Vertical red and blue lines are converged by varying the angle between the two tabs of the 4-pole magnets on the PCM assembly. (See above diagrams)
- Horizontal red and blue lines are converged by varying the two tabs together, keeping the angle between them constant.
- Produce a white crosshatch pattern on the display.
- Vertical green and magenta lines are converged by varying the angle between the two tabs of the 6-pole magnets.
- Horizontal green and magenta lines are converged by varying the two tabs together, keeping the angle between them constant.

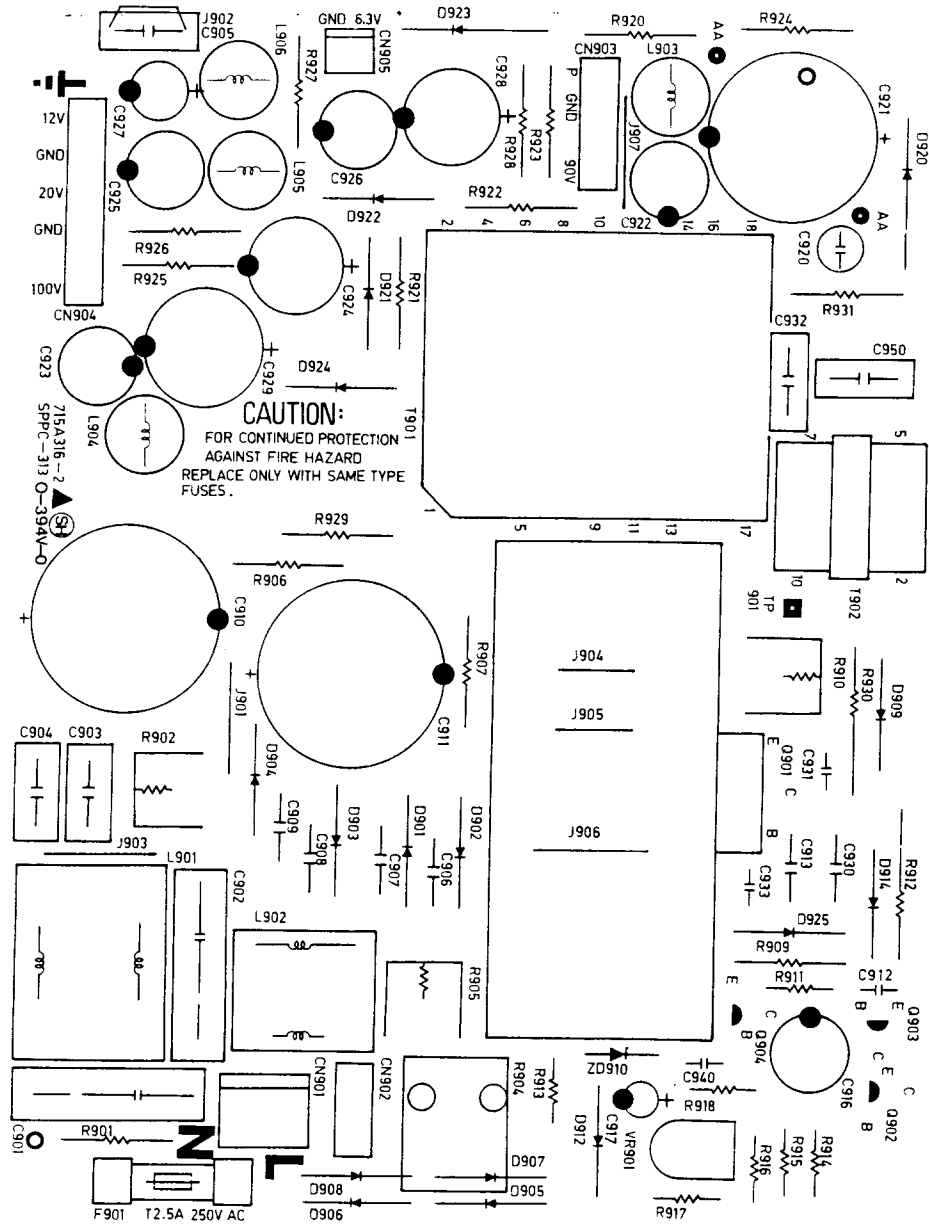
5-1 MAIN PCB COMPONENT SIDE



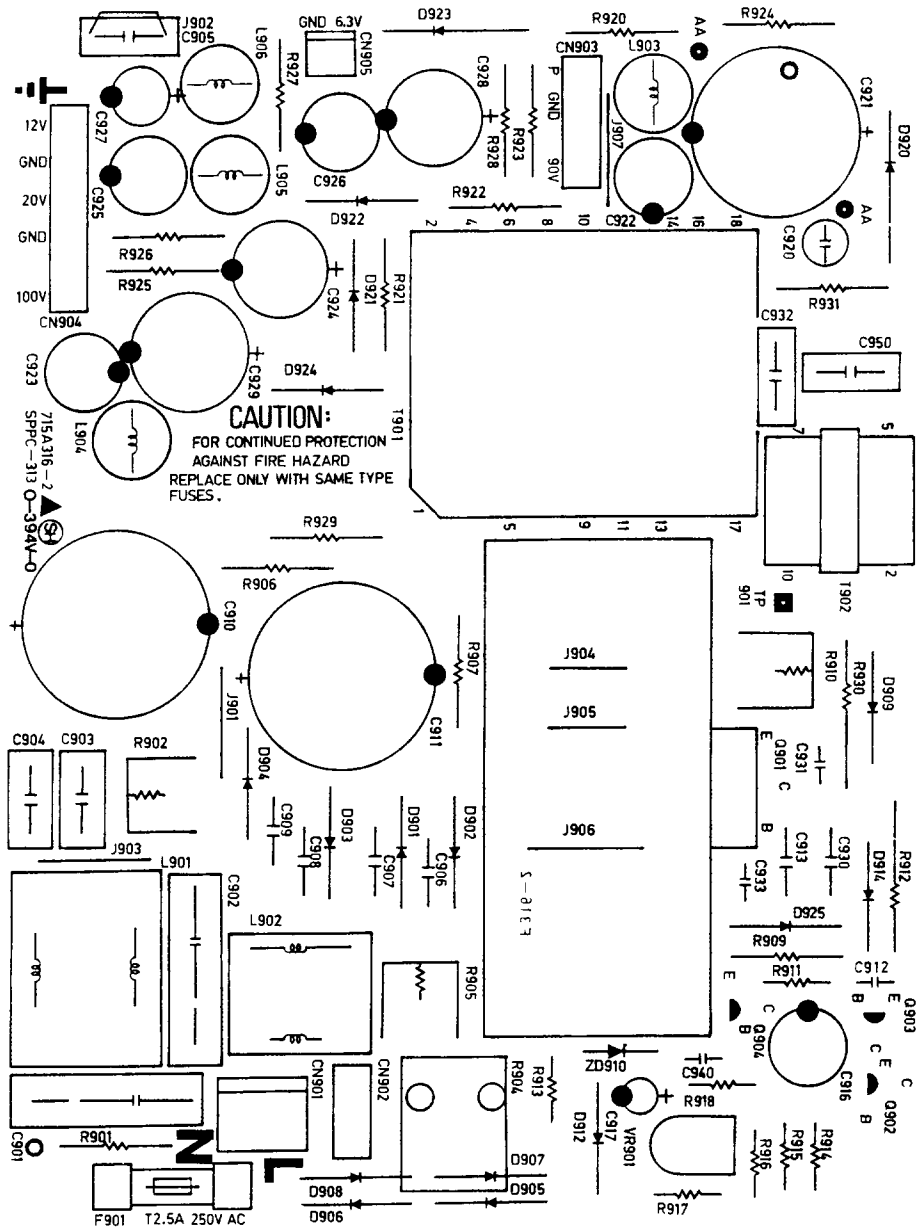
100

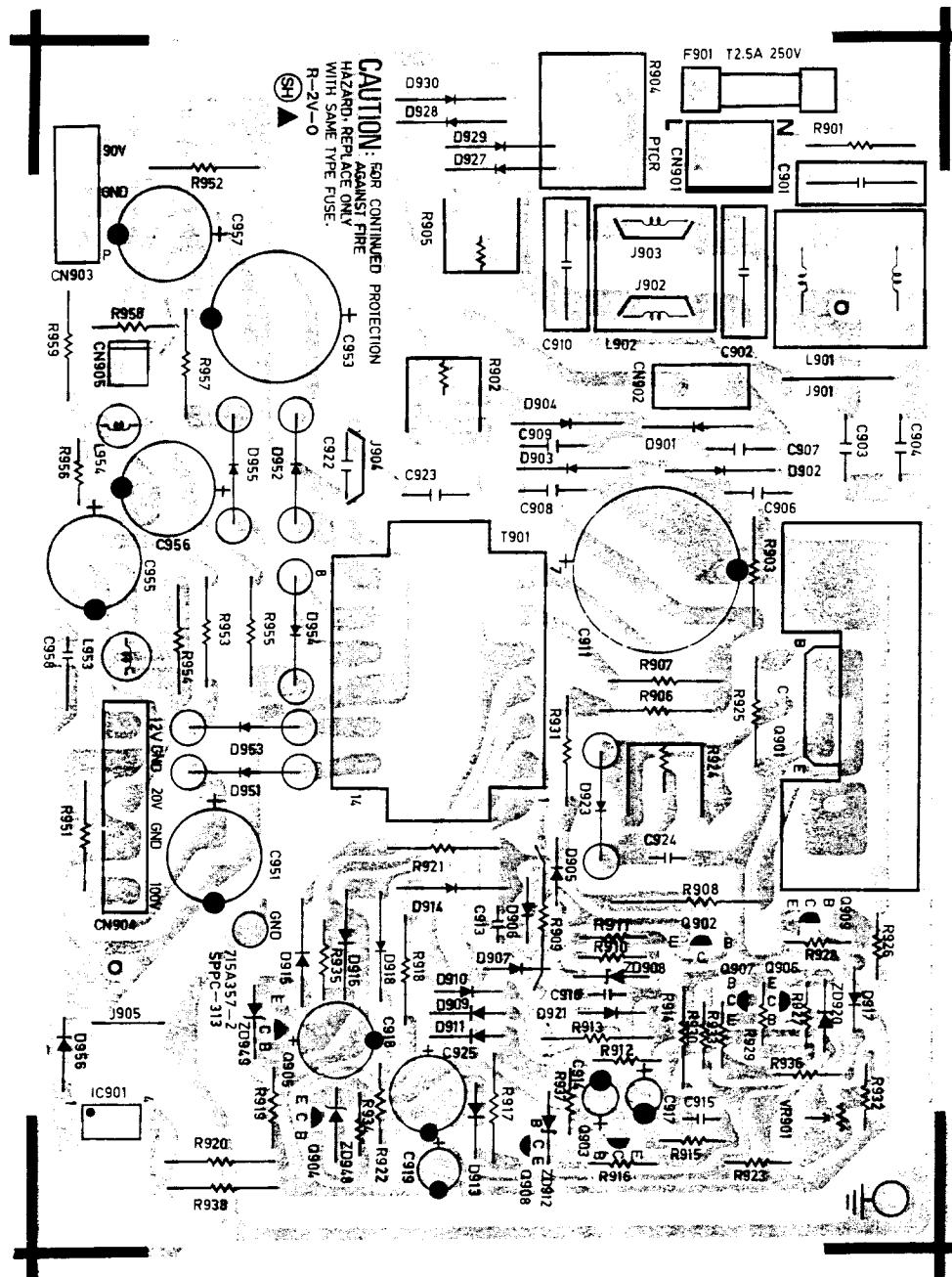


5-3 SMPS COMPONENT SIDE



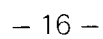
5-4 SMPS LAYOUT



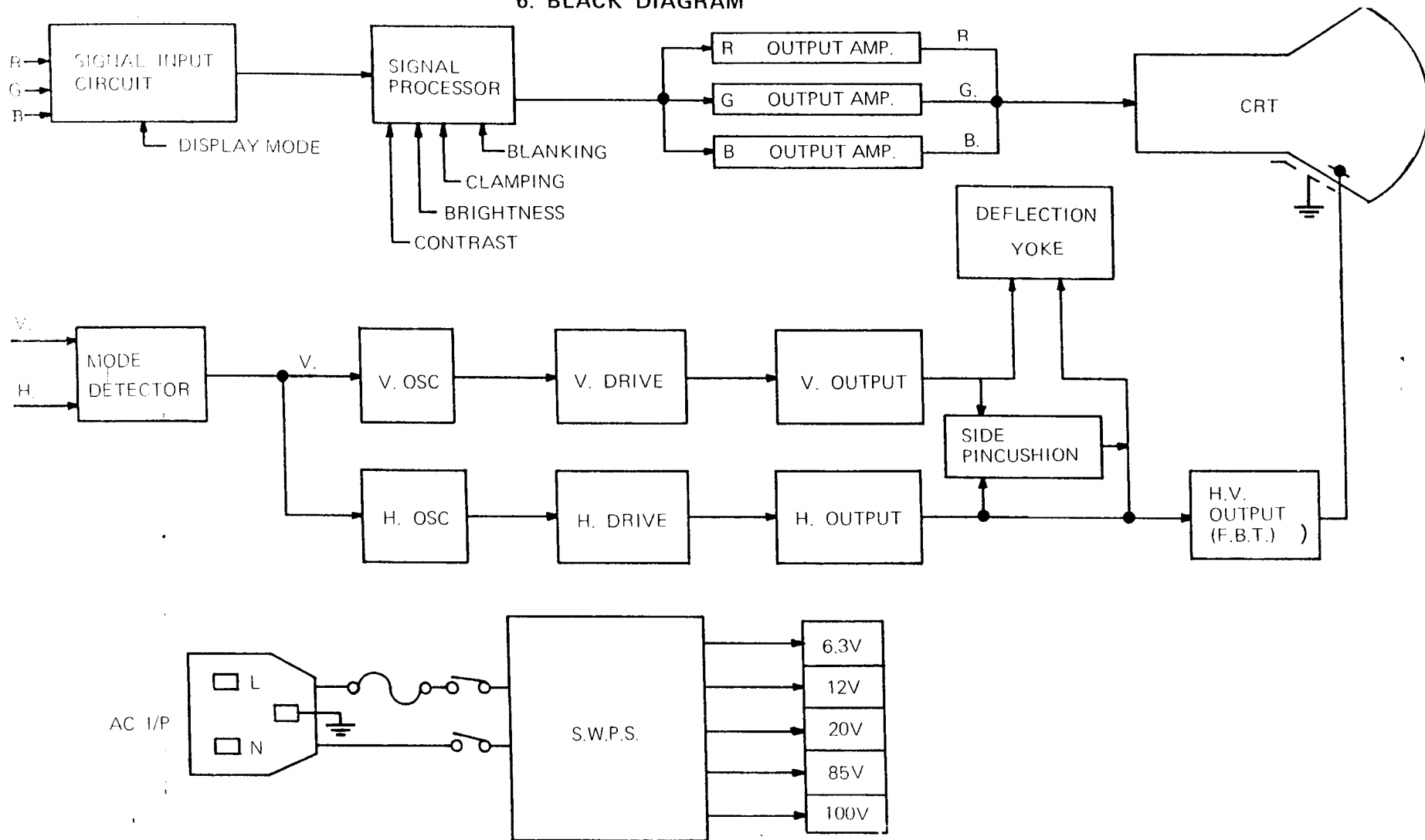


715A299-1
CRPC-14

R-2V-0-A



6. BLOCK DIAGRAM

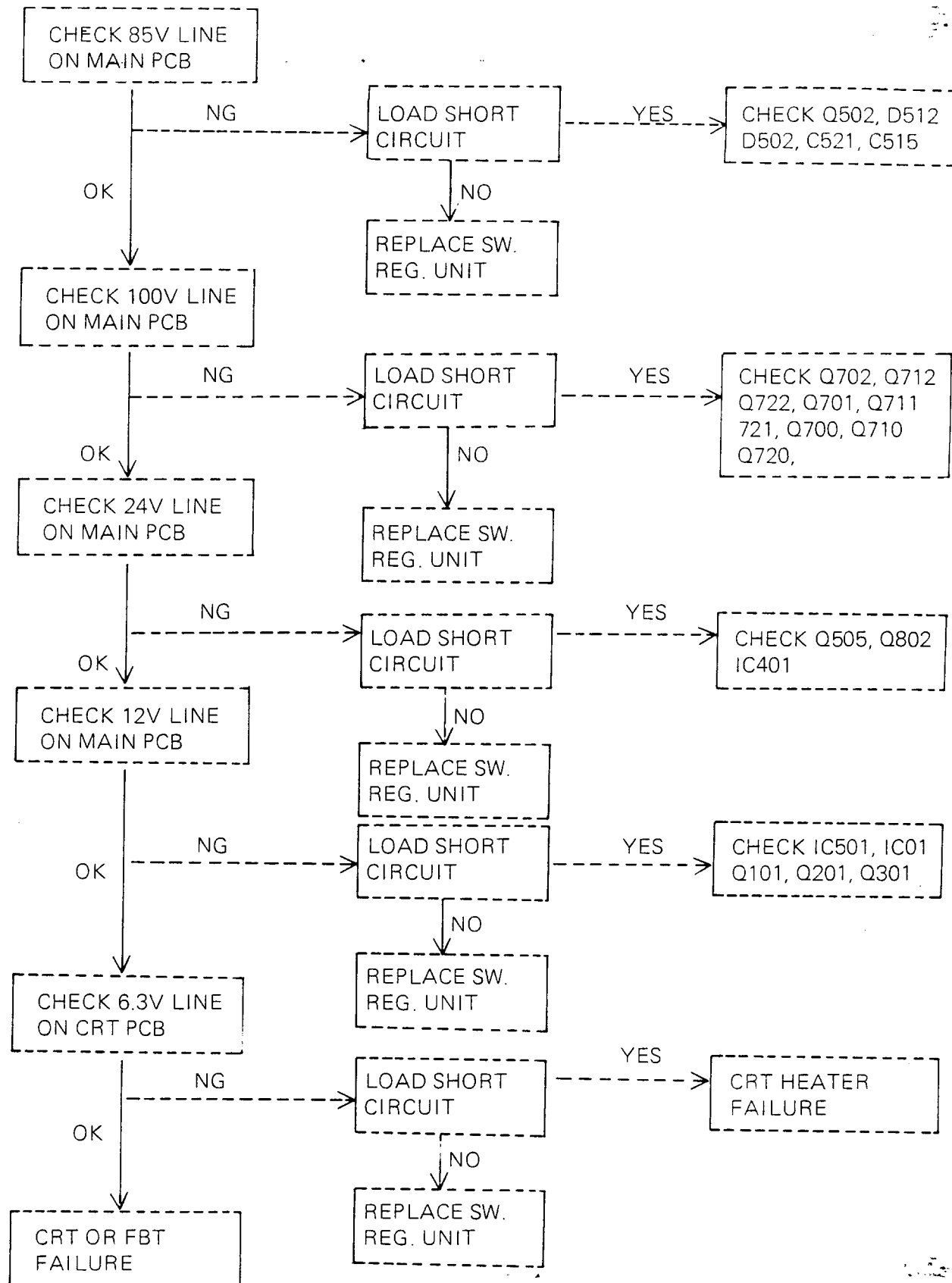


CM-313

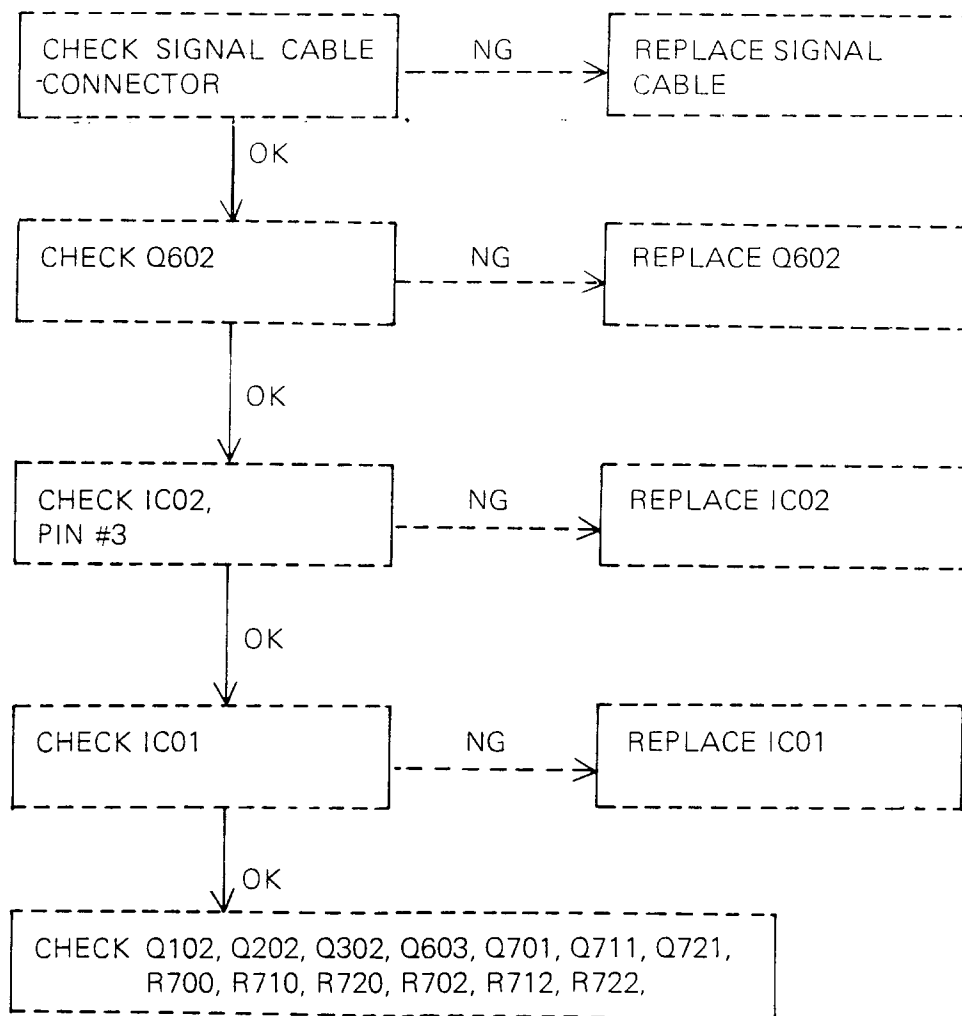
BLOCK DIAGRAM

7. TROUBLE – SHOOTING

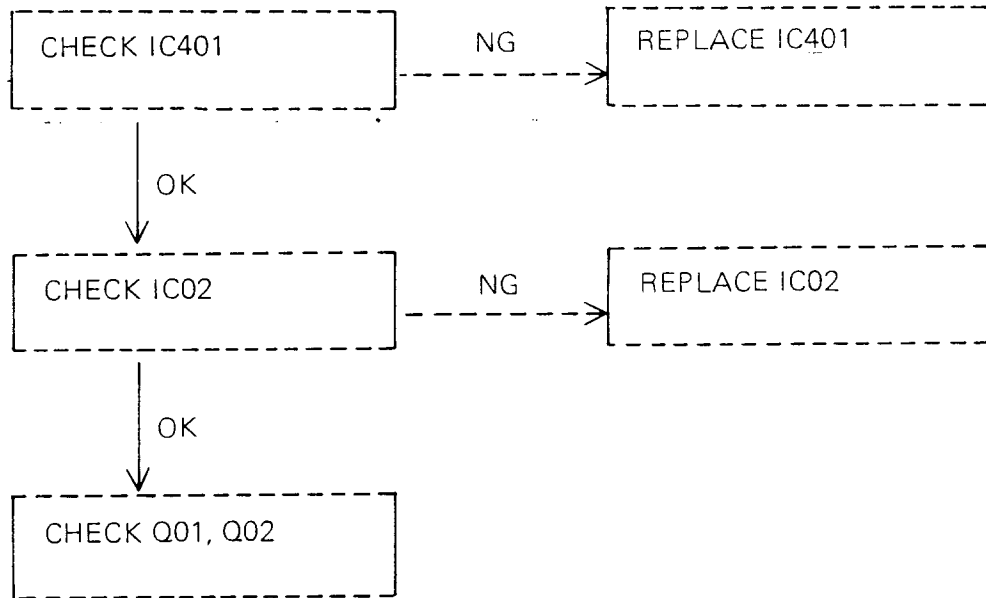
7-1 NO RASTER



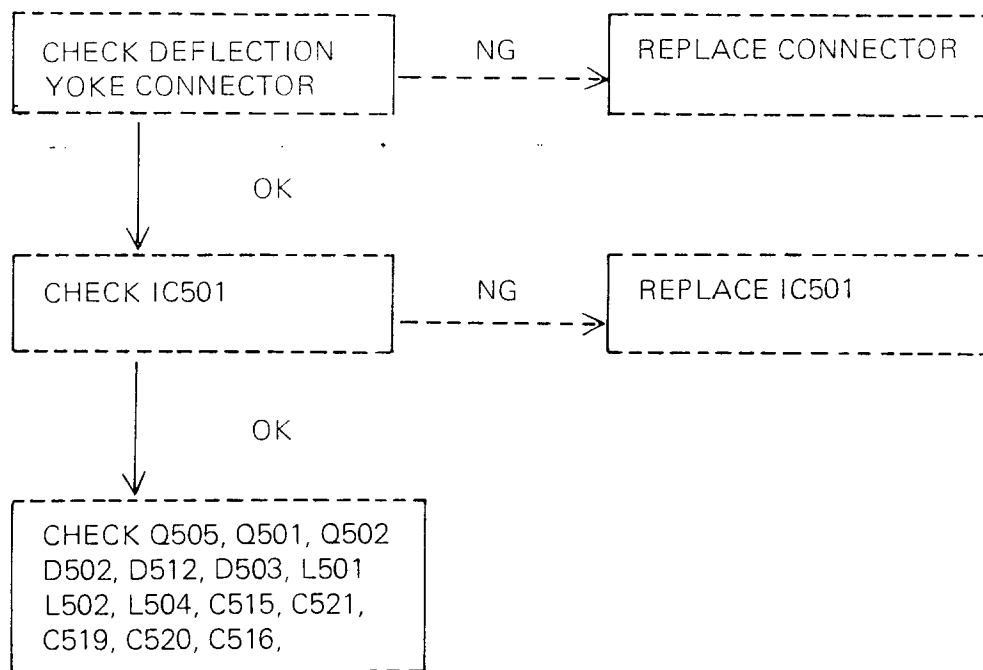
7-2 PICTURE OR SOME COLOR MISSING



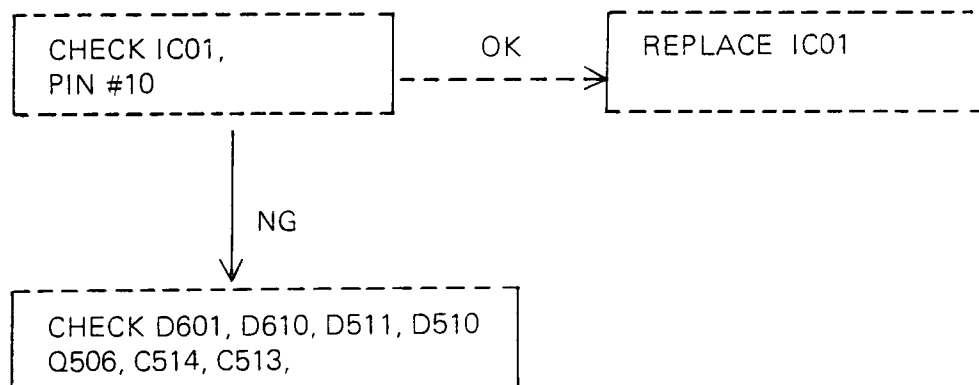
7-3 NO VERT. SCAN (ONE HOR. LINE RASTER)



7-4 NO HOR. SCAN (ONE VERT. LINE RASTER)

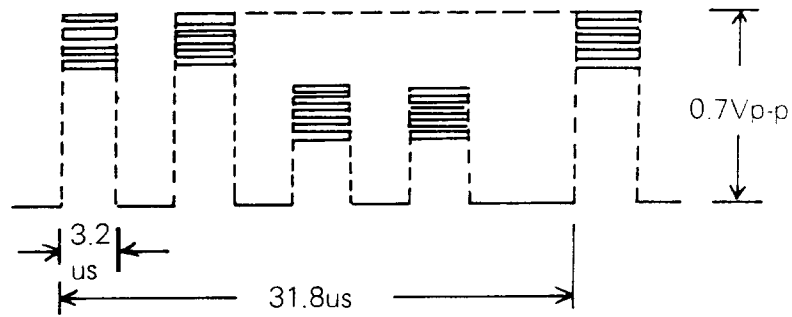


7-5 VERT RETRACE LINE DISPLAY IN SCREEN

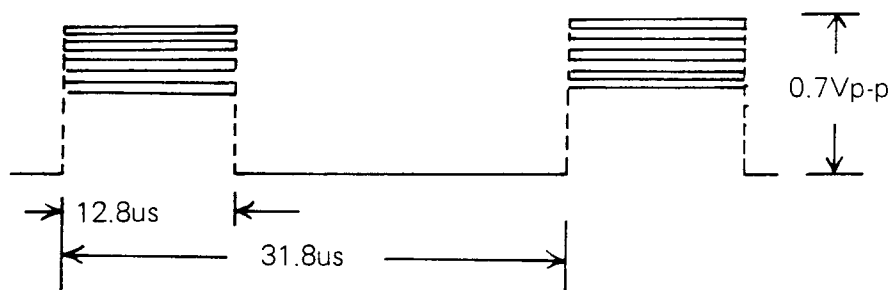


8 WAVEFORM & VOLTAGE
CONDITION : CHROMA - 1000 PATTERN 11
COLOR BAR BRIT & CONT' MAX.

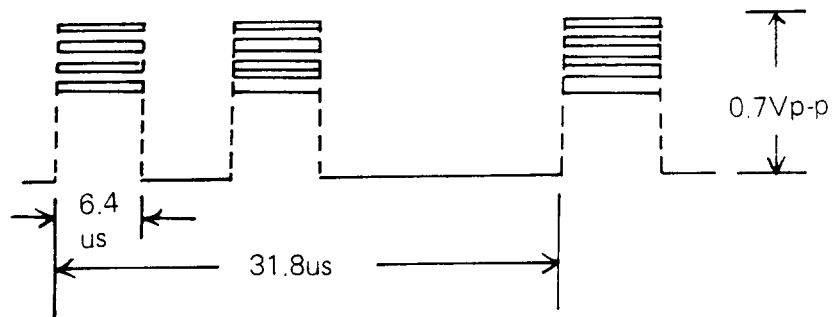
8 - 1 WAVEFORM



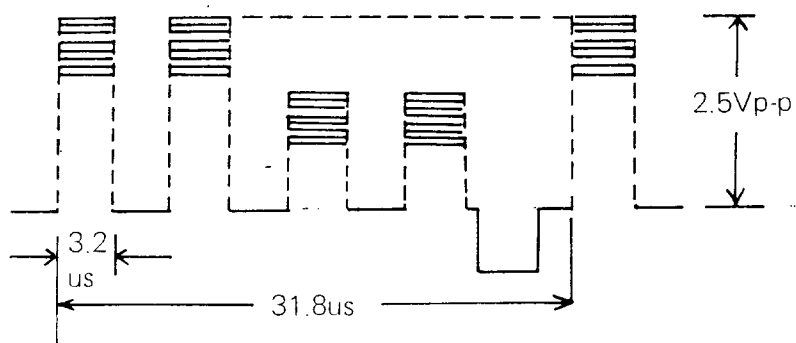
IC01 PIN 8 (FIG. 1)



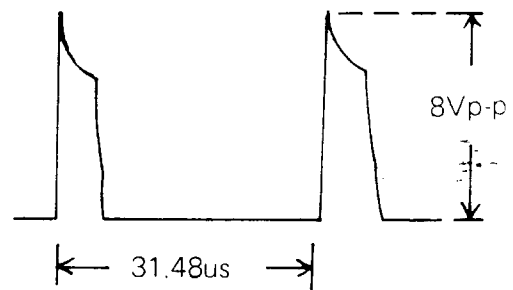
IC01 PIN 6 (FIG. 2)



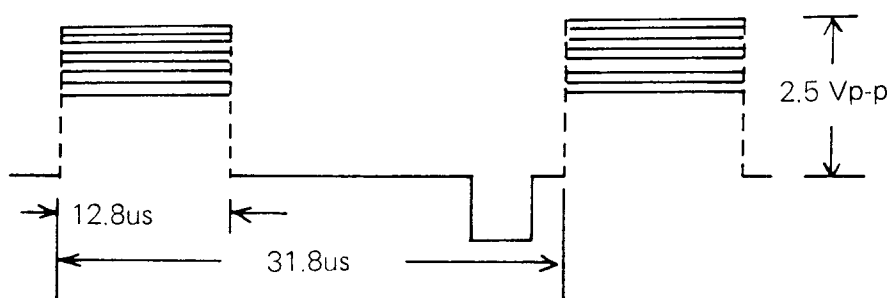
IC01 PIN 4 (FIG. 3)



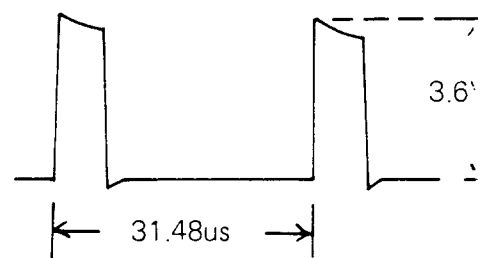
IC01 PIN 11 (FIG. 4)



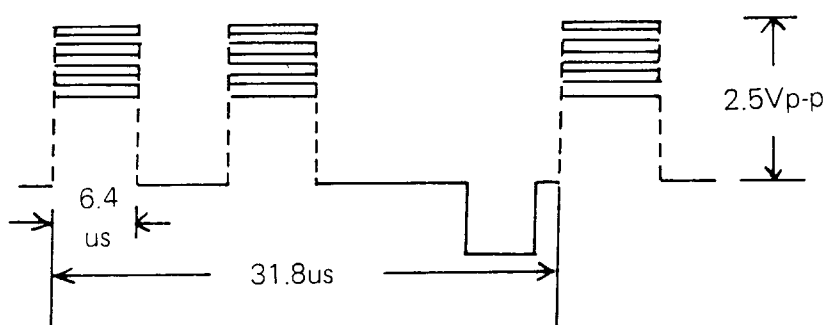
IC01 PIN 10



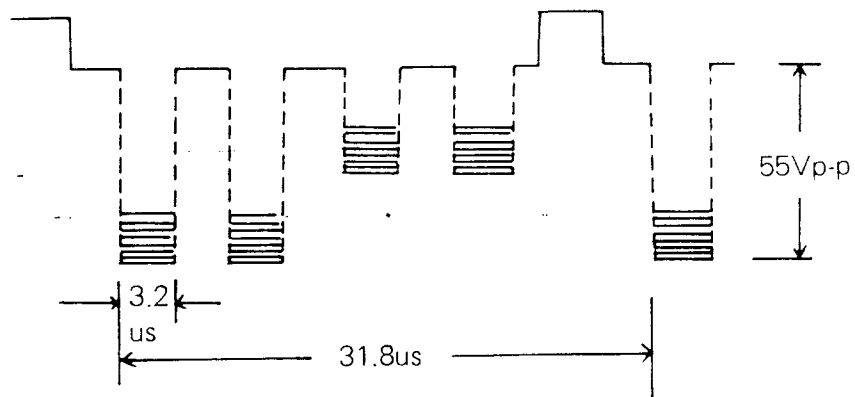
IC01 PIN 13 (FIG. 5)



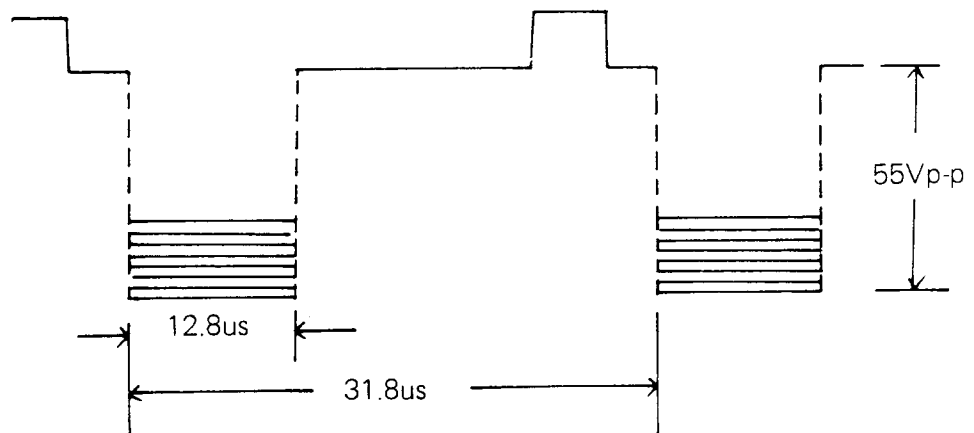
IC01 PIN 17



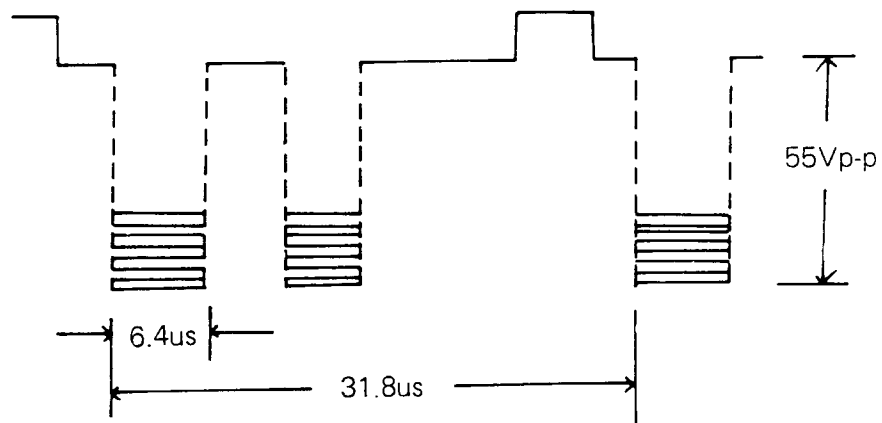
IC01 PIN 15 (FIG. 6)



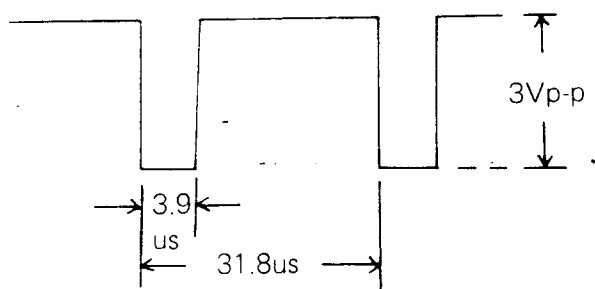
Q721 COLLECTOR (FIG. 7)



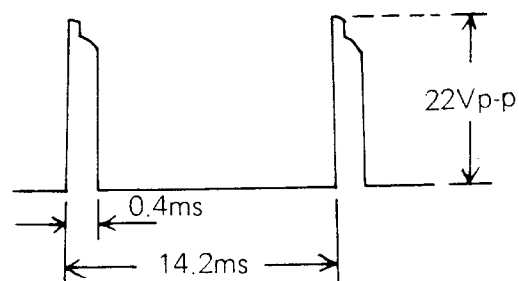
Q711 COLLECTOR (FIG. 8)



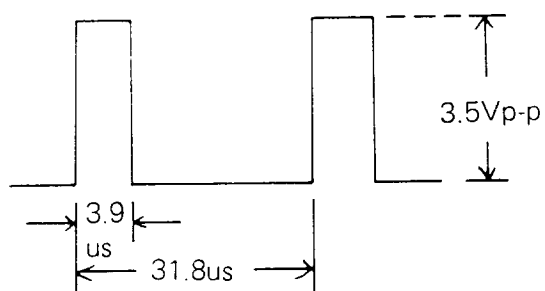
Q701 COLLECTOR (FIG. 9)



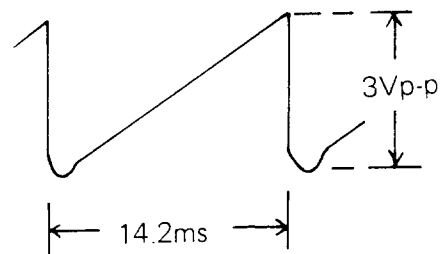
IC02 PIN 1 (FIG. 10)



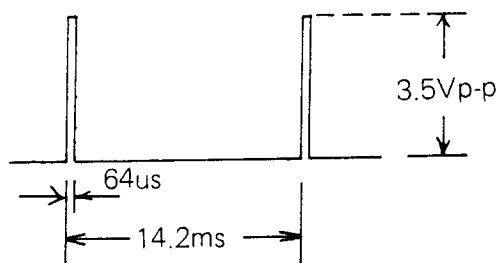
IC401 PIN 2 (FIG. 14)



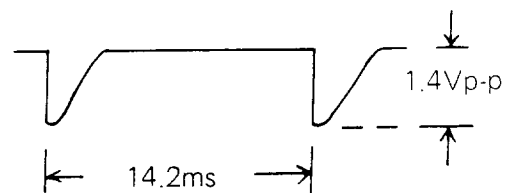
IC02 PIN 3 (FIG. 11)



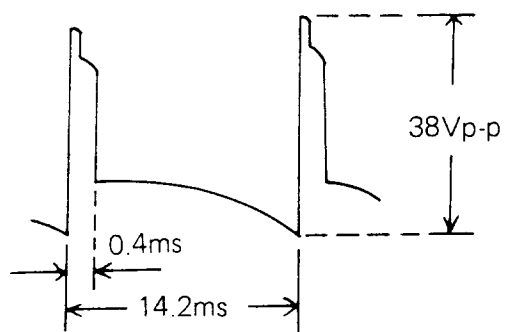
IC401 PIN 3 (FIG. 15)



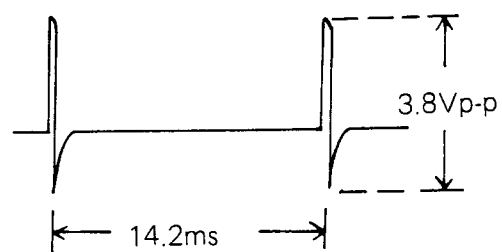
IC02 PIN 11, 13 (FIG. 12)



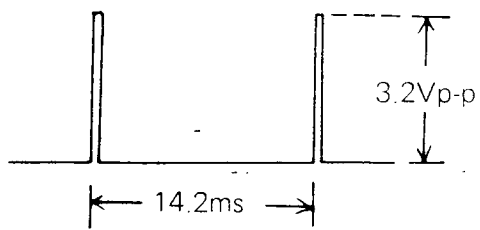
IC401 PIN 4 (FIG. 16)



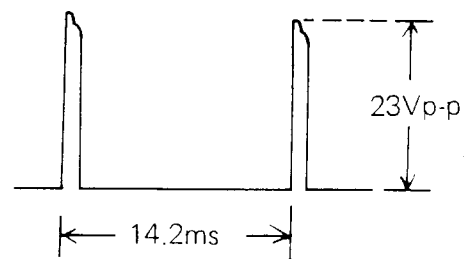
IC401 PIN 1 (FIG. 13)



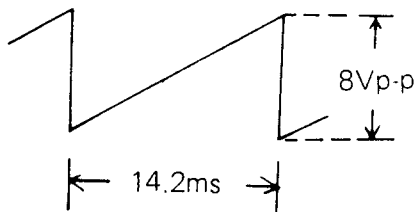
IC401 PIN 5 (FIG. 17)



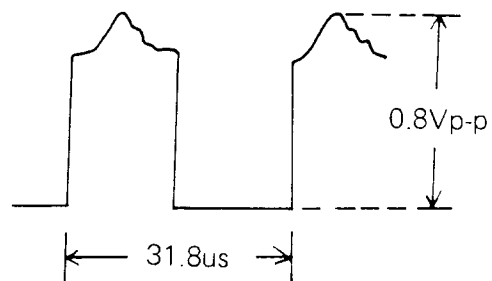
IC401 PIN 6 (FIG. 18)



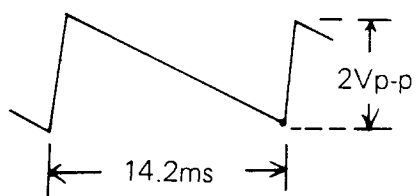
IC401 PIN 15 (FIG. 22)



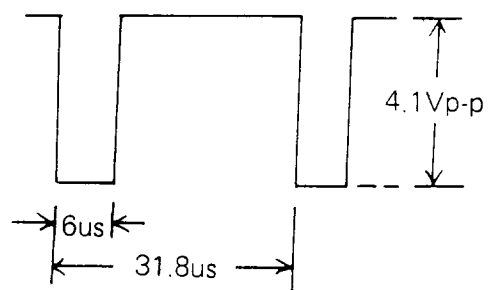
IC401 PIN 9, 10 (FIG. 19)



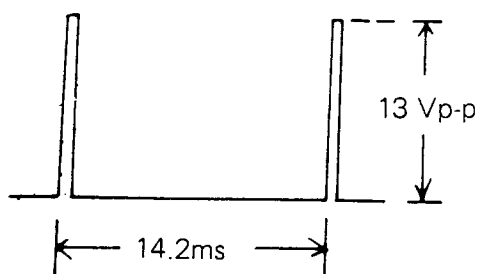
IC501 PIN 1 (FIG. 23)



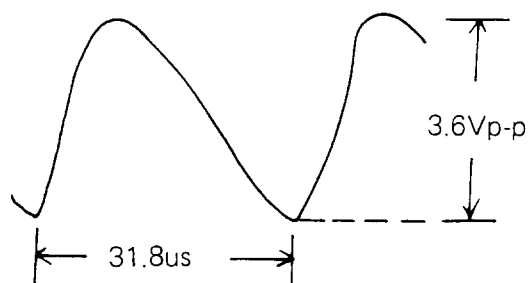
IC401 PIN 12 (FIG. 20)



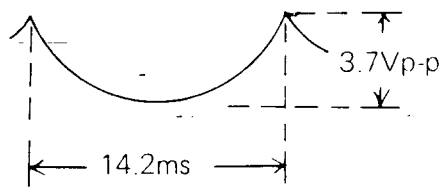
IC501 PIN 3 (FIG. 24)



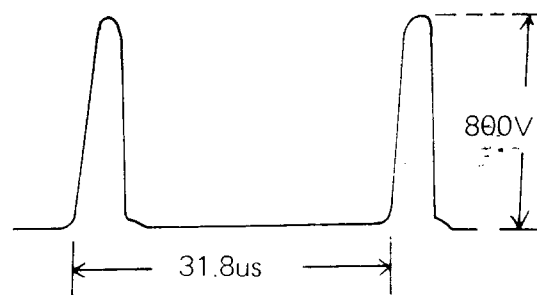
IC 401 PIN 13 (FIG. 21)



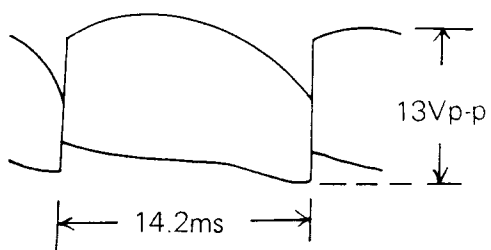
IC501 PIN 4 (FIG. 25)



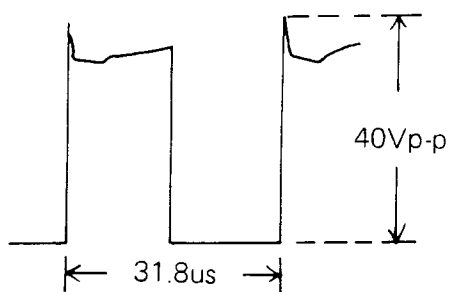
Q801 COLLECTOR (FIG. 26)



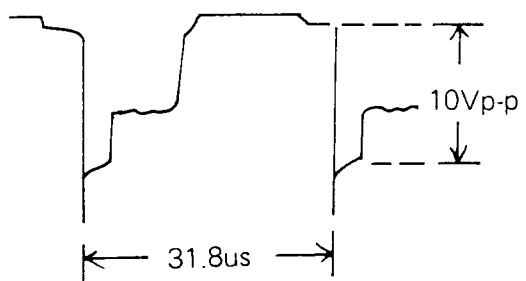
Q502 COLLECTOR (FIG. 30)



Q802 COLLECTOR (FIG. 27)



Q505 COLLECTOR (FIG. 28)



Q502 BASE (FIG. 29)

8 – 2 DC VOLTAGE

1. IC01

PIN # 1 : 12V
2 : 4.3V
3 : 6V
4 : 2.3V
5 : 0V
6 : 2.3V
7 : 0V
8 : 2.3V
9 : 0V
10 : 1.96V
11 : 1.4V
12 : 0V
13 : 1.5V
14 : 0V
15 : 1.5V
16 : 0V
17 : 1.25V
18 : 12V

2. IC02

PIN # 1 : 3.6V
2 : 3.6V
3 : 0.6V
4 : 5.1V
5 : 3.67V
6 : 0.2V
7 : 0V
8 : 3.6V
9 : 5.1V
10 : 0.28V
11 : 0.15V
12 : 0.28V
13 : 0V
14 : 5.1V

3. IC501

PIN # 1 : 0.5V

2 : 0V

3 : 2.7V

4 : 2.3V

5 : 5.4V

6 : 9.4V

7 : 4.2V

8 : 3.8V

4. IC401

PIN # 1 : 11.5V

2 : 20V

3 : 2.6V

4 : 0.4V

5 : 0V

6 : 0V

7 : 6.6V

8 : 0V

9 : 5.5V

10 : 6.0V

11 : 4.3V

12 : 4.0V

13 : 0.3V

14 : 20V

15 : 0.8V

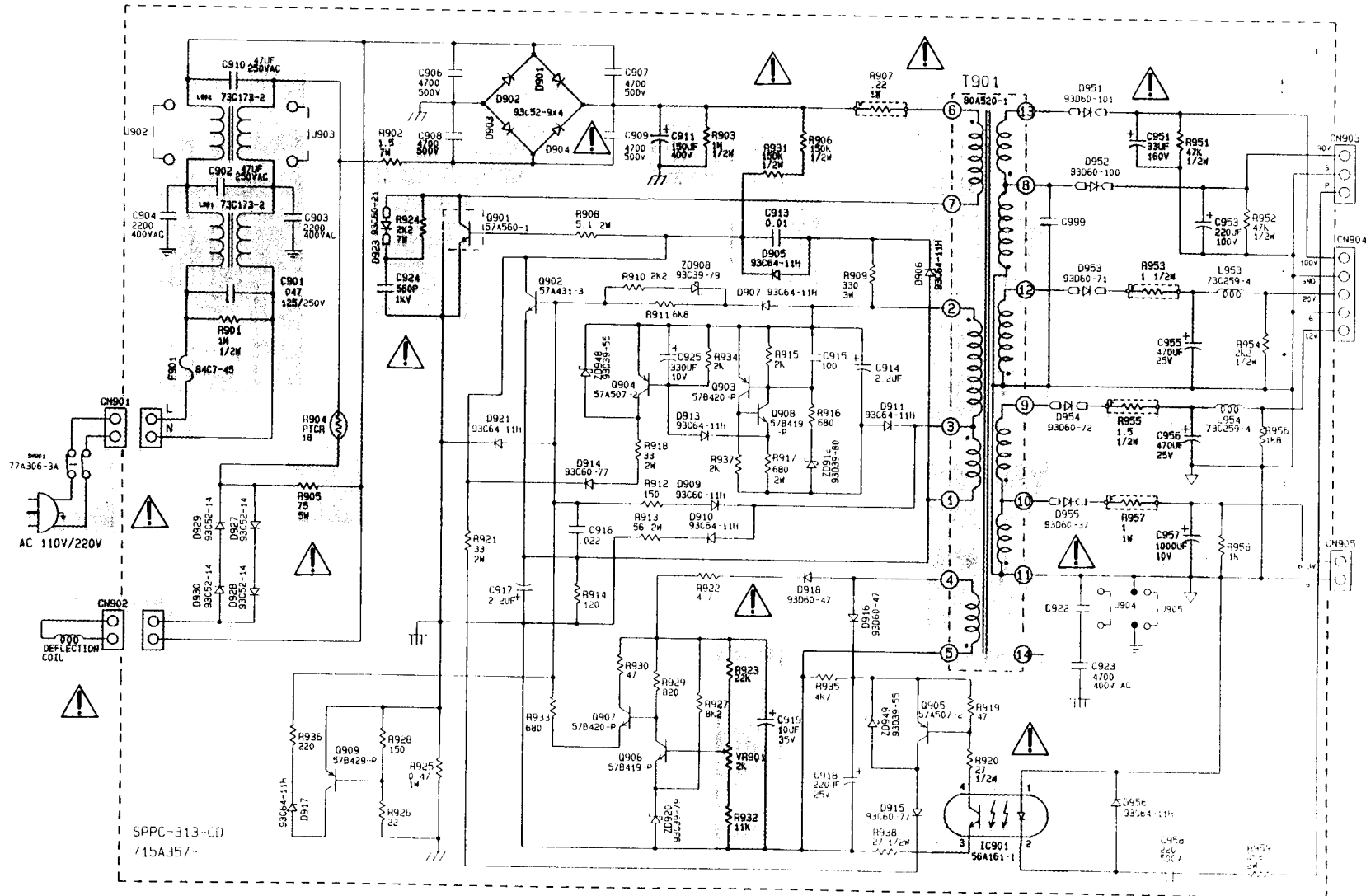
5. TRANSISTOR

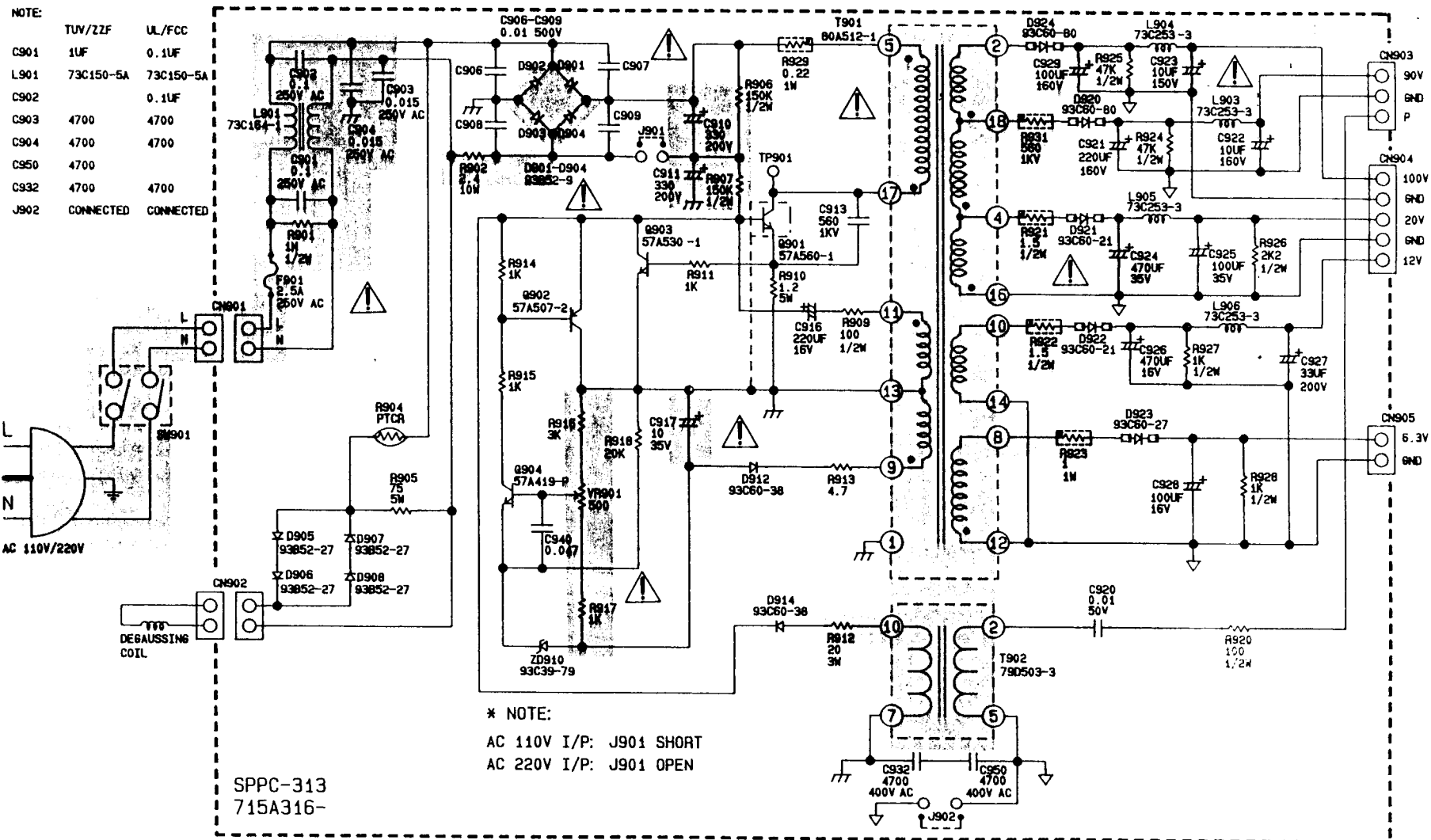
Q601 :	E : 0V B : 0V C : 0V	Q602 :	E : 1.28V B : 0.6V C : 0V
Q506 :	E : 1.1V B : 1.3V C : 0V	Q603 :	E : 1.5V B : 0.88V C : 0V
Q801 :	E : 0.7V B : 1.3V C : 16V	Q802 :	E : 15.1V B : 14.5V C : 4.5V
Q505 :	E : 18.4V B : 0.46V C : 0V	Q503 :	E : 0V B : 0V C : 7.0V
Q504 :	E : 2.7V B : 2.1V C : 2.7V	Q501 :	E : 0.3V B : 0.4V C : 4.8V
Q701 :	E : 11.5V B : 12V C : 70V	Q702 :	E : 69.3V B : 70V C : 97V
Q711 :	E : 11.5V B : 12V C : 70V	Q712 :	E : 69.3V B : 70V C : 97V
Q721 :	E : 11.5V B : 12V C : 70V	Q722 :	E : 69.3V B : 70V C : 97V
Q102 :	E : 2.1V B : 1.4V C : 0V	Q700 :	E : 1.5V B : 2.2V C : 11.5V
Q202 :	E : 2.1V B : 1.4V C : 0V	Q710 :	E : 1.5V B : 2.2V C : 11.5V
Q302 :	E : 2.1V B : 1.4V C : 0V	Q720 :	E : 1.5V B : 2.2V C : 11.5V
Q101 :	E : 2.3V B : 0V C : 5.1V	Q201 :	E : 2.3V B : 0V C : 5.1V
Q301 :	E : 2.3V B : 0V C : 5.1V	Q201 :	E : 2.3V B : 0V C : 5.1V

D508 anode : - 230V

ZD01 cathode : 5.1V

ZD502 cathode : 9.4V





SWITCHING POWER DIAGRAM