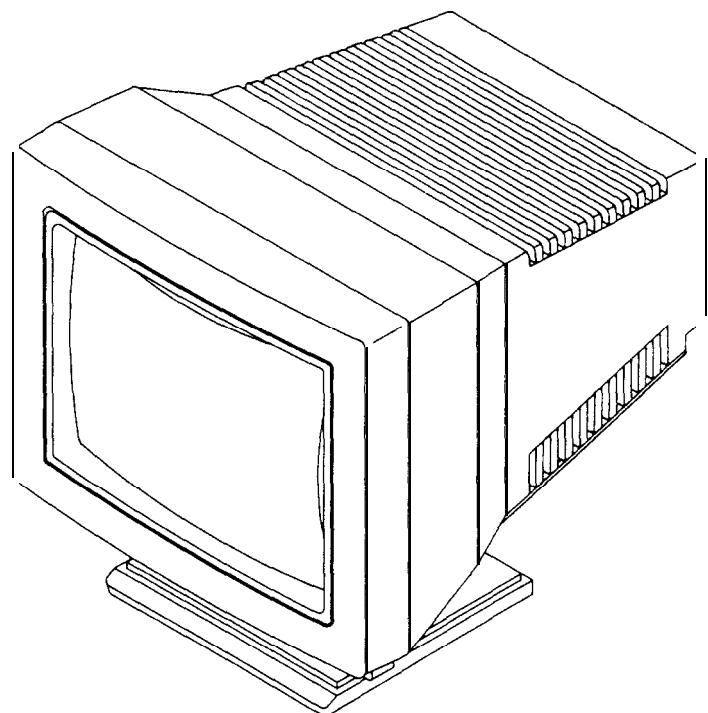


SERVICE MANUAL

**CM-336
CM-337**

COLOR VIDEO MONITOR

M618



AOC

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1. SPECIFICATIONS FOR CM-336/337 COLOR MONITOR

1. CRT:
14" (13V) Deflection, 29mm Neck, 0.28mm Dot Pitch, Non-Glare Screen
2. Display Color:
Unlimited Colors
3. External Controls:
Power On/Off, Contrast, Brightness, H-Center, H-Size, V-Center, V-Size
4. Input Video Signal

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	RGB Analog	RGB Analog	RGB Analog	RGB Analog	RGB Analog	RGB Analog
Horiz. Sync.	TTL Level Positive	TTL Level Negative	TTL Level Negative	TTL Level Negative	TTL Level Positive	TTL Level Negative
Vert Sync.	TTL Level Negative	TTL Level Positive	TTL Level Negative	TTL Level Negative	TTL Level Positive	TTL Level Negative
5. Resolution						
Horizontal:	720(H)	720(H)	640(H)	800(H)	1024(H)	1024(H)
Vertical:	350(H)	400(H)	480(H)	600(H)	768(H)	768(H)
6. Display Size (H-size & V-size set to center position)						
Horizontal:	247 ± 3mm	247 ± 3mm	247 ± 3mm	245 ± 3mm	250 ± 3mm	247 ± 3mm
Vertical:	187 ± 3mm	187 ± 3mm	187 ± 3mm	190 ± 3mm	187 ± 3mm	187 ± 3mm
7. Display Time						
Horizontal :	25.42μS	25.42μS	25.42μS	22.22μS	22.80μS	15.75μS
Vertical:	11.17mS	12.76mS	15.25mS	17.06mS	10.80mS	15.88mS
8. Scanning Frequencies						
Horizontal:	29.5KHz ~ 50KHz (CM-3361)					
	29.5KHz ~ 60KHz (CM-3371)					
Vertical:	45Hz ~ 90Hz					
9. Misconvergence						
Center:	0.3mm Max.					
Corner:	0.5mm Max.					
10. Video Bandwidth:	65MHz (-3dB)					
11. Power Source:	Switching Mode Power Supply					
	AC 90 ~ 264V, 50/60Hz Universal					
12. Operating Temperature:	5" to 40°C Ambient					
13. Humidity:	20% to 85% Relative, Non-Condensing					
14. Weight:	12.3Kgs (Net), 14.3Kgs (Gross)					
15. Dimensions Monitor:	356(W) x 349(H) x 385(D) mm					
Carton:	455(W) x 450(H) x 460(D) mm					
16. External Connection:	15 Pin D-type Connector					

2. PRECAUTIONS AND NOTICES

2-1 SAFETY PRECAUTIONS

1. Observe all caution and safety related notes located inside the display cabinet.
2. Operation of the display with the cover removed, may cause a serious, shock hazard from the display power supply. Work on the display should not be attempted by anyone who is not thoroughly familiar with precautions necessary when working on high voltage equipment,
3. Do not install, remove or handle the picture tube in any manner unless shatter-proof goggles are worn. People who are not so equipped should be kept away while handling picture tube. Keep picture tube away from the body while handling.
4. The picture tube is constructed to limit X-RAY radiation to 0.5 mR/HR. For continued protection, use the designated replacement tube only, and adjust the voltages so that the designated maximum rating at the anode will not be exceeded.
5. Before returning a serviced display to the customer, a thorough safety test must be performed to verify that the display is safe to operate without danger or shock. Always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as screwheads. Test method for current leakage is described as follow.
 - (a) Plug the AC line cord directly into rated AC outlet (do not use a line isolation transformer during this check).
 - (b) Use an AC voltmeter having 5000 ohms per volt or with more sensitivity in the following manner: Connect a 1500 ohms 10 Watt resistor, paralleled by a 0.1 5mfd, AC type capacitor between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts simultaneously. Measure the AC voltage across the combination of 1500 ohms resistor and 0.15mfd capacitor.
 - (c) Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part.
 - (d) Voltage measured must not exceed 0.5 volts RMS. This corresponds to 0.35 milliamp AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.

2-2 PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety visual inspections and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Before replacing any of these components read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-RAY radiation or other hazards.

2-3 SERVICE NOTES

1. When replacing parts or circuit boards, clamp the lead wires around terminals before soldering.
2. When replacing a high wattage resistor (more than 1/2W of metal oxide film resistor) in circuit board, keep the resistor about 10mm(1/2 in) away from circuit board.
3. Keep wires away from high voltage or high temperature components.
4. Keep wires in their original position so as to reduce interference.

2-4 HIGH VOLTAGE WARNING

Operation of monitor outside of cabinet or with back removed may cause a serious shock hazard. Work on this model should only be performed by those who are thoroughly familiar with precautions necessary when working on high voltage equipment.

Exercise care when servicing this chassis with power applied. Many B plus and high voltage terminals are exposed which, if carelessly contacted, can cause serious shock or result in damage to the chassis. Maintain interconnecting ground lead connections between chassis and picture tube dag when operating chassis.

Certain HV failures can increase X-ray radiation. Monitor should not be operated with HV levels exceeding the specified rating for the chassis type. The maximum operating HV specified for the chassis used in this monitor is

25 KV ± 1KV

with a line voltage of 120V AC. Higher voltage may also increase possibility of failure in HV supply.

It is important to maintain specified values of all components in the horizontal and high voltage circuits and anywhere else in the monitor that could cause a rise in high voltage or operating supply voltages. No changes should be made to the original design of the monitor. Components shown in the shaded areas on the schematic should be replaced with exact factory replacement parts. The use of unauthorized substitute parts may create a shock, fire or other hazard.

To determine the presence of high voltage, use an accurate, high impedance, HV meter connected between second anode lead and CRT dag grounding device. When servicing the High Voltage System, remove static charge from it by connecting a 10K ohm resistor in series with an insulated wire (such as a test probe) between picture tube dag and 2nd anode lead. (AC line cord disconnected from AC power outlet).

The picture tube used in this monitor employs integral implosion protection. Replace with tube of the same type number for continued safety. Do not lift picture tube by the neck. Handle the picture tube only after discharging the high voltage completely.

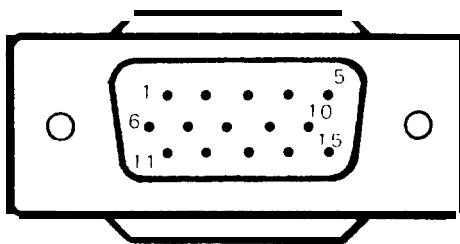
H.V. Protector.

The high voltage adjustment control 2 (VR902) is permanently sealed at factory. Do not attempt to readjust.

3. OPERATING INSTRUCTIONS

This procedure gives you instructions for installing and using the CM-336/337 color display

1. Position the display on the desired operation and plug the power cord into a convenient AC outlet. Three-wire power cord must be shielded and is provided as a safety precaution as it connects the chassis and cabinet to the electrical conduit ground.. If the AC outlet in your location does not have provisions for the grounded type plug, the installer should attach the proper adapter to ensure a safe ground potential.
2. Connect the 15-pin color display shielded signal cable to your signal system device and lock both screws on the connector to ensure firm grounding. The connector information is as follow:



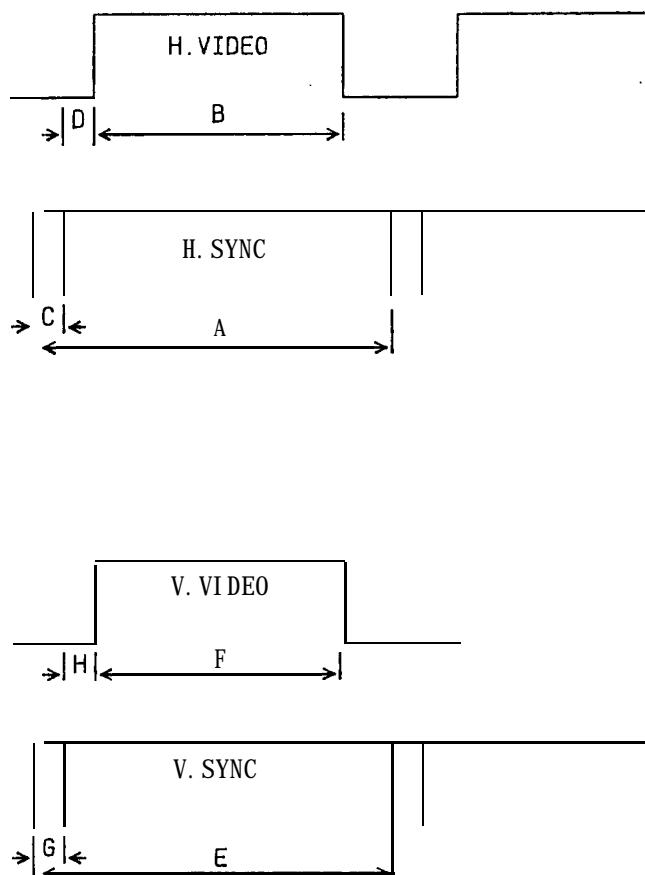
15 – Pin Color Display
Signal Cable

PIN NO	DESCRIPTION	PIN NO.	DESCRIPTION
1	RED	9	N. O.
2	GREEN	10	GND
3	BLUE	11	SYNC. GND
4	N. O.	12	N. O.
5	TEST	13	HORIZ. SYNC
6	RED SHIELD GND	14	VERT. SYNC
7	GREEN SHIELD GND	15	N. O.
8	BLUE SHIELD GND		

3. Apply power to the display by turning the power switch to the "ON" position and allow about thirty seconds for display tube warmup. The Power-On indicator lights when the display is on.
4. With proper signals feed to the display, a pattern or data should appear on the screen, adjust the brightness and contrast to the most pleasing display.
5. If your CM-336/337 color display requires service, it must be returned with the power cord.

4. TIMING DIAGRAM & TABLE

4-1 TIMING DIAGRAM



A = HORIZONTAL SYNC. PERIOD.

B = HORIZONTAL ACTIVE TIME.

C = HORIZONTAL SYNC. WIDTH.

D = HORIZONTAL BACK PORCH.

E = VERTICAL SYNC. PERIOD.

F = VERTICAL ACTIVE TIME.

G = VERTICAL SYNC. WIDTH.

H = VERTICAL BACK PORCH.

4-2 TIMING TABLE

MODE	TIMING	A (US)	B (US)	C (US)	D (US)	E (MS)	F (MS)	G (MS)	H (MS)	H. SYNC. POLARITY	V. SYNC. POLARITY	HORI. FREQUENCY
1	VGA 350	31.916	25.420	3.813	1.765	14.330	11.171	0.064	1.915	POSITIVE	NEGATIVE	31.470KHz
2	VGA 400	31.916	25.420	3.813	1.765	14.330	12.766	0.064	1.117	NEGATIVE	POSITIVE	31.470Khz
3	VGA 480	31.776	25.421	3.813	1.748	16.682	15.252	0.064	1.049	NEGATIVE	NEGATIVE	31.470Khz
4	800x600	28.444	22.222	2.000	3.444	17.778	17.066	0.057	1.626	NEGATIVE	NEGATIVE	35.156Khz
5	8514A INTERLACE	28.146	22.802	3.919	1.158	11.498	10.808	0.113	3.563	POSITIVE	POSITIVE	35.528Khz
6	8514 NON- INTERLACE	20.667	15.753	2.092	2.461	16.666	15.880	0.124	3.600	NEGATIVE	NEGATIVE	48.363Khz
7	VESA 1024X768	17.707	13.653	1.813	1.920	14.272	13.599	0.106	3.513	NEGATIVE	NEGATIVE	56.476Khz

5. ADJUSTMENT

5-1 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.

5-2 MAIN CONTROLS

NO.	FUNCTION	LOCATION	DESIGNATION
1.	B ⁺ 115V ADJ.	PCB - MAIN	VR901
2.	HOR. WIDTH PRESET	PCB - MAIN	VR902
3.	B ⁺ 16V ADJ.	PCB - MAIN	VR851
4.	F/V ADJ.	PCB - MAIN	VR852
5.	VERT. SUB-HEIGHT	PCB - MAIN	VR602
6.	VERT. LINEAR	PCB - MAIN	VR601
7.	VERT. CENTER PRESET	PCB - MAIN	VR606
8.	VERT. BLANKING PULSE WIDTH	PCB - MAIN	VR603
9.	HOR. PINCUSHION GAIN	PCB - MAIN	VR608
10.	HOR. PINCUSHION PHASE	PCB - MAIN	VR607
11.	HOR. HOLD FOR MODE 5	PCB - MAIN	VR855
12.	HOR. HOLD FOR MODE 6	PCB - MAIN	VR802
13.	HOR. PHASE PRESET FOR MODE 3	PCB - MAIN	VR854
14.	HOR. PHASE PRESET FOR MODE 6	PCB - MAIN	VR801
15.	RASTER CENTER	PCB - MAIN	VR805
16.	SUB-BRIGHTNESS	PCB - MAIN	VR804
17.	FAIL SAFE ADJ.	PCB - MAIN	VR803
18.	R.G.B. BIAS	PCB - VIDEO	VR703, 704, 705
19.	R.G.B. GAIN	PCB - VIDEO	VR710, 720, 730
20.	CONTRAST CONTROL	VR ASS'Y	VR701
21.	BRIGHTNESS CONTROL	VR ASS'Y	VR858
22.	HOR. CENTER CONTROL	VR ASS'Y	VR857
23.	HOR. SIZE CONTROL	VR ASS'Y	VR856
24.	VERT CENTER CONTROL	VR ASS'Y	VR605
25.	VERT SIZE CONTROL	VR ASS'Y	VR604

5-3 ADJUSTING THE FRONT CONTROLS

1. POWER SWITCH
Used to turn power ON or OFF, when the power is ON, the power indicator is lit.
2. CONTRAST CONTROL
Adjusts the display to the contrast preferred by the user.
3. BRIGHTNESS CONTROL
Used to adjust the picture brightness of the screen.
4. H-CENTER CONTROL
Adjustment for proper horizontal position of the display.
5. H-SIZE CONTROL
Adjustment for the proper horizontal size of the display.

6. V-CENTER CONTROL
Adjustment for proper vertical position of the display.

7. V-SIZE CONTROL
Adjustment for proper vertical size of the display.

5-4 ALIGNMENT PROCEDURE

Adjustment conditions and precautions:

1. Power supply voltage: AC 90 ~ 264V, 50/60 Hz.

2. Warm up time.

The display must be on for at least 20 minutes before starting alignments. This is especially critical in color temperature and white balance adjustments.

3. Signals (see p.3, detail specifications & timing).

Video: Analog 0.7 Vpp, 75Ω , positive

video: 0.7 Vpp

synchronizing: TTL level negative/positive.

1. Main Adjustments

Settings of the Controls (Receive Mode 3 Signal)

CONTRAST (VR701) : Max

BRIGHTNESS (VR858): Center click position

H-CENTER (VR857) : Center click position

H-SIZE (VR856) : Center click position

V-CENTER (VR605) : Center click position

V-SIZE (VR604) : Center click position

2. Switching Regulator Unit (Receive Mode 3 Signal (31K)).

(1) Video B⁺ (TP901 – GND Voltage)

Adjust VR901 to be 105 VDC (or 115 VDC) — see Note 1.

(2) Variable B⁺ (TP902 – GND Voltage)

Adjust VR902 to be 65.5 VDC (Rough Adjustment)

(3) 16V B⁺ (TP851 – GND Voltage)

Adjust VR851 to be 16 VDC

(4) F/V (TP852 – GND Voltage)

Adjust VR852 to be 8.35 VDC

(5) G1 B⁺ SUB-BRIGHTNESS (CRT PIN 5 – GND Voltage) Make Sure that the BRIGHTNESS is centered.

Adjust VR804 to be 1. -27VDC (or -20VDC) FOR PHILIPS CRT. See Note 2.

2. -32VDC (or -25VDC) FOR TOSHIBA & HITACHI CRT. See Note 2.

(6) Fail Safe (TP802 – GND Voltage)

Adjust VR803 to be 8.0 VDC

NOTE: After performing this adjustment, parallel a 10k ohm $\frac{1}{4}W$ resistor with TP805 and TP806. The fail safe circuit shall be operated and power off immediately.

- Note: 1. T901, 80A527-2-C DATE CODE 9135 (BEFORE) } Adjust VR901 to be 105 VDC
T901, 80A527-2-L DATE CODE 9130 (BEFORE) }
T901, 80A527-2-C DATE CODE 9135 (AFTER & INCLUDE) } Adjust VR901 to be 115 VDC
T901, 80A527-2-L DATE CODE 9130 (AFTER & INCLUDE) }
2. T901, 80A527-2-C DATE CODE 9135 (BEFORE) } Adjust VR804 to be: a. - 27VDC FOR PHILIPS CRT
T901, 80A527-2-L DATE CODE 9130 (BEFORE) } b. - 32VDC FOR TOSHIBA & HITACHI CRT
T901, 80A527-2-C DATE CODE 9135 (AFTER & INCLUDE) } Adjust VR804 to be: a. - 20VDC FOR PHILIPS CRT
T901, 80A527-2-L DATE CODE 9130 (AFTER & INCLUDE) } b. - 25VDC TOSHIBA & HITACHI CRT

3. Adjustment of Horizontal Hold, Raster Centering, Horizontal Width, Horizontal Phase and Side Pin cushion.

(1) H-HOLD

- a. Create a short circuit between TP801 (or C801) and GND.
- b. During reception of mode 6 signal (48K), adjust VR802 till the image are vertical and not slanting to left or right.
- c. During reception of mode 5 signal (35K), adjust VR855 till the image are vertical and not slanting to left or right.

(2) RASTER CENTERING

Adjust the screen VR and BRIGHTNESS VR so that the back raster are faintly illuminated, then adjust VR805 to be centered on the CRT screen.

(3) H-WIDTH (Receive Mode 6 signal (48K)).

- a. Make sure that the H-SIZE (VR856) is centered.
- b. Use VR902 to adjust the horizontal size to 247 mm.

(4) H-PHASE (Centering adjustment of raster)

- a. Make sure that the H-CENTER (VR857) is centered.
- b. During reception of mode 3 signal (31K), use VR854 to adjust the image to center of raster.
- c. During reception of mode 6 signal (48K), use VR801 to adjust the image to center of raster.

(5) SIDE PINCUSHION (Receive Mode 6 signal (48K), crosshatch pattern)

Use VR607 so that the symmetry SIDE PINCUSHION is obtained, than adjust VR608 for straight vertical lines on both sides.

4. Adjustment of Vertical Linearity, Vertical Centering, Vertical Blanking and Vertical Height.

(1) VERTICAL LINEARITY (Receive mode 3 signal (31K) crosshatch pattern)

Adjust VR601 so that the top and bottom linearity is equal.

(2) VERTICAL CENTERING (Receive mode 3 signal (31K) crosshatch pattern).

- a. Make sure that the V-CENTER (VR605) is centered.
- b. Adjust VR606 to center of the picture vertically.

(3) VERTICAL BLANKING (Receive mode 3 signal (31K) crosshatch pattern)

- a. To connect the oscilloscope to TP 601.
- b. Adjust VR603 until the blanking pulse width is equal to $460 \mu\text{s}$.

(4) VERTICAL HEIGHT (Receive mode 6 signal (48K) crosshatch pattern)

- a. Make sure that the V-SIZE (VR604) is centered.
- b. Use VR602 to adjust the vertical size to 187 mm.

5. Adjustment White Balance

(1) Initial set up

- a. Disable the video input signal
- b. H-CENTER (VR857), H-SIZE (VR856), V-SIZE (VR604), VR710, VR720, and VR730 set to middle position.
- c. BRIGHTNESS (VR858) and CONTRAST (VR701) set to max.
- d. VR703, and VR704 set fully to the left.
- e. VR705 set fully to the right — For the 715A485-1/2 VIDEO P.C.B.
VR705 set fully to the left — For the 715A485-3 VIDEO P.C.B.
- f. Set shall be warm up more than 15 minutes.

(2) Cutoff Adjustment

- a. Turn the screen control (G_2) clockwise gradually and check which color is appear first.
- b. Use this color as the reference color for the cutoff adjustment. (Normally used green Cathode CRT PIN 6, VR703).
- c. Connect the Cathode (CRT PIN 6, 8 or 11) of the reference color, use a DC voltage meter.
- d. Turn cutoff VR (VR703, 704 or 705) of that reference color to be 83VDC (or 89VDC) — See Note 1.
- e. Use a color analyzer (MINOLTA TV-2130), adjust the other two cutoff VR'S (except the reference cutoff VR) for a white raster corresponding to a color temperature of 9300°K (See Note 2), readjustment the screen (G_2) so that the luminance is 1.8 F/L (Foot-Lambert).

Note 1. T901, 105V: Adjust the cutoff VR SO that reference color to be 83VDC.

T901, 115V: Adjust the cutoff VR SO that reference color to be 89VDC.

Note 2. Color Temperature 9300°K Center $x = 0.281 \pm 15$

$y = 0.311 \pm 15$

$Y = 1.8$ (Luminance Value)

(3) Gain Adjustment

- a. Receive the color bar pattern of mode 3 signal.
- b. Use an oscilloscope, connect the CRT PIN 6 to GND, adjust the VR720 so that the video amplitude is 42 Vpp.

- c. Change the pattern to flat white field, turn BRIGHTNESS (VR858) to minimum.
 - d. Use a color analyzer (MINOLTA TV-2130), adjust CONTRAST (VR701) so that the luminance is 4 ± 0.2 F/L (Foot-Lambert).
 - e. Adjust the other two gain VR's (VR710, 730) for a white video corresponding to a color temperature of 9300°K.
 - f. After adjustment, confirm luminance and color temperature value of (2) e and (3) d, e, perform readjustment if necessary.
6. Focus Adjustment

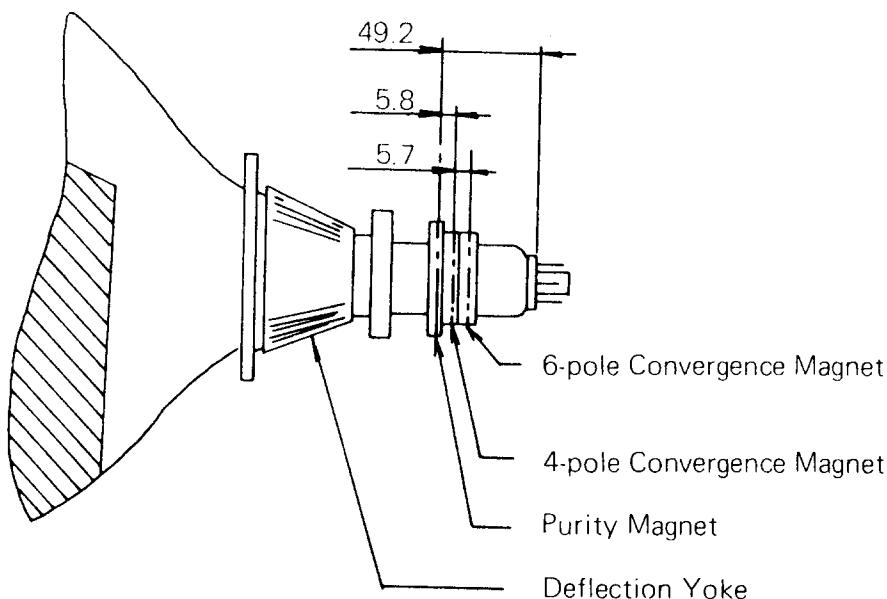
Turn the contrast control to maximum and set the brightness control to a suitable position, adjust the focus control to the optimum position.

7. 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

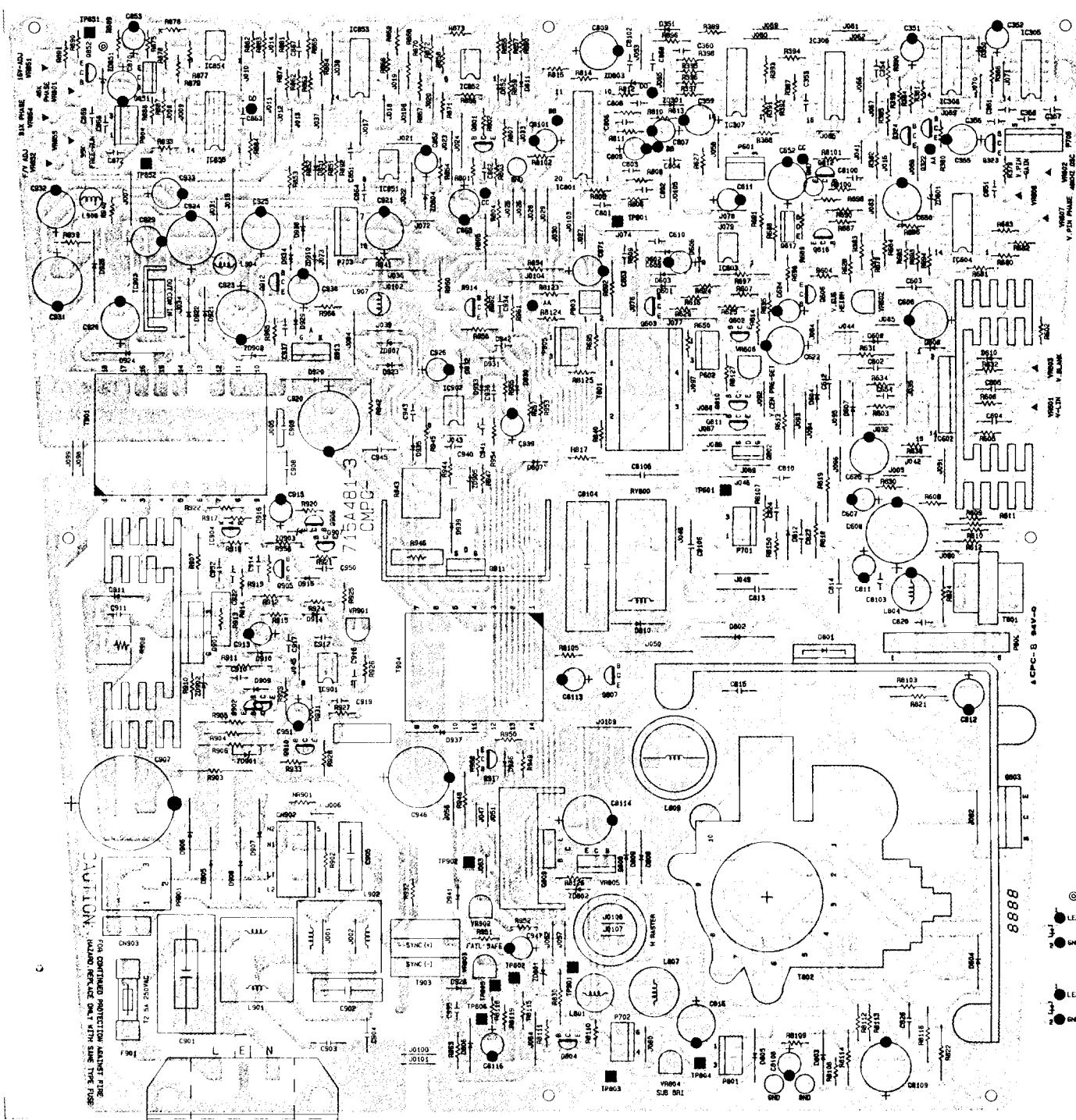
Dimensions in mm



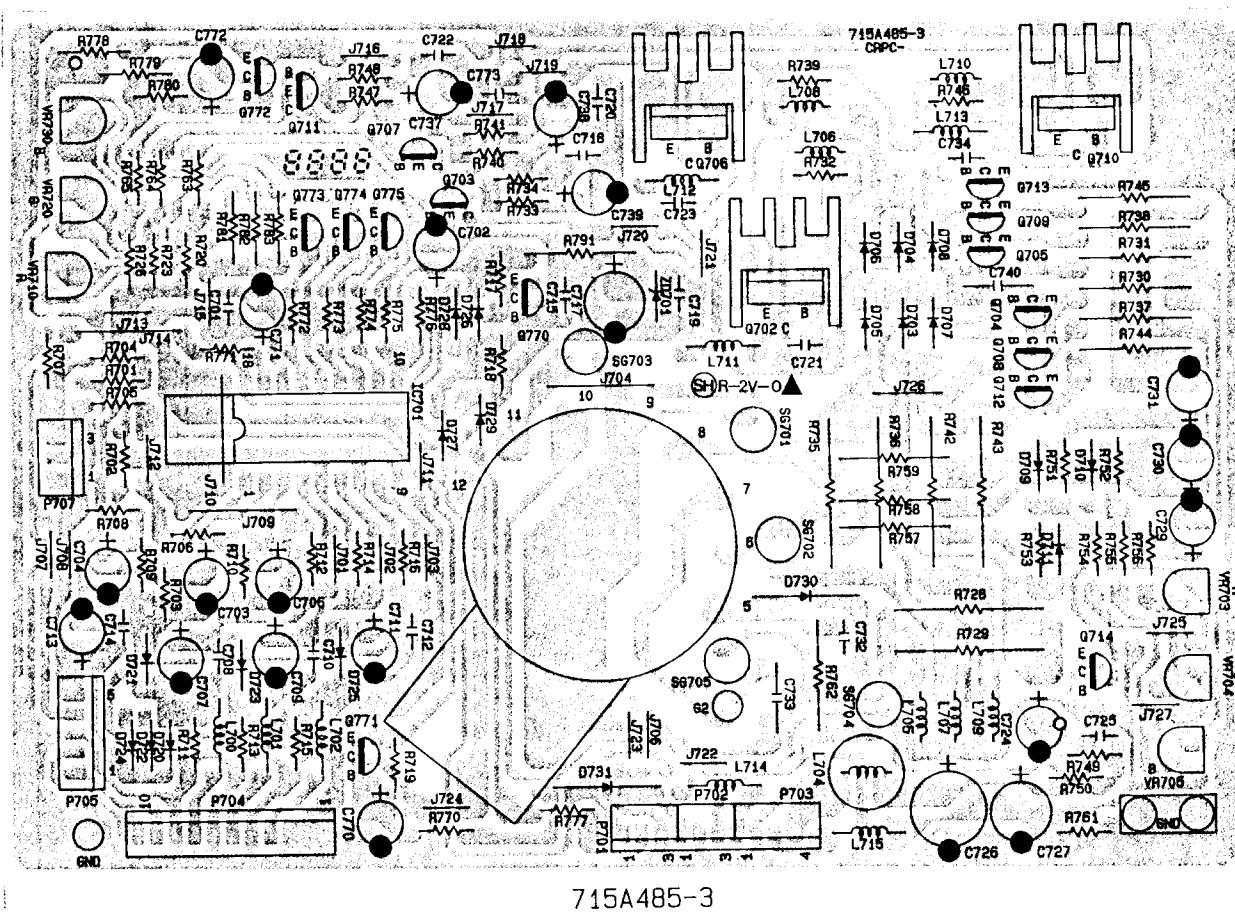
8. Convergence Adjustment

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

NOTE: After above all procedure, receive mode 7 signal (57K), the image is normal not slant. (for CM-337 models only).

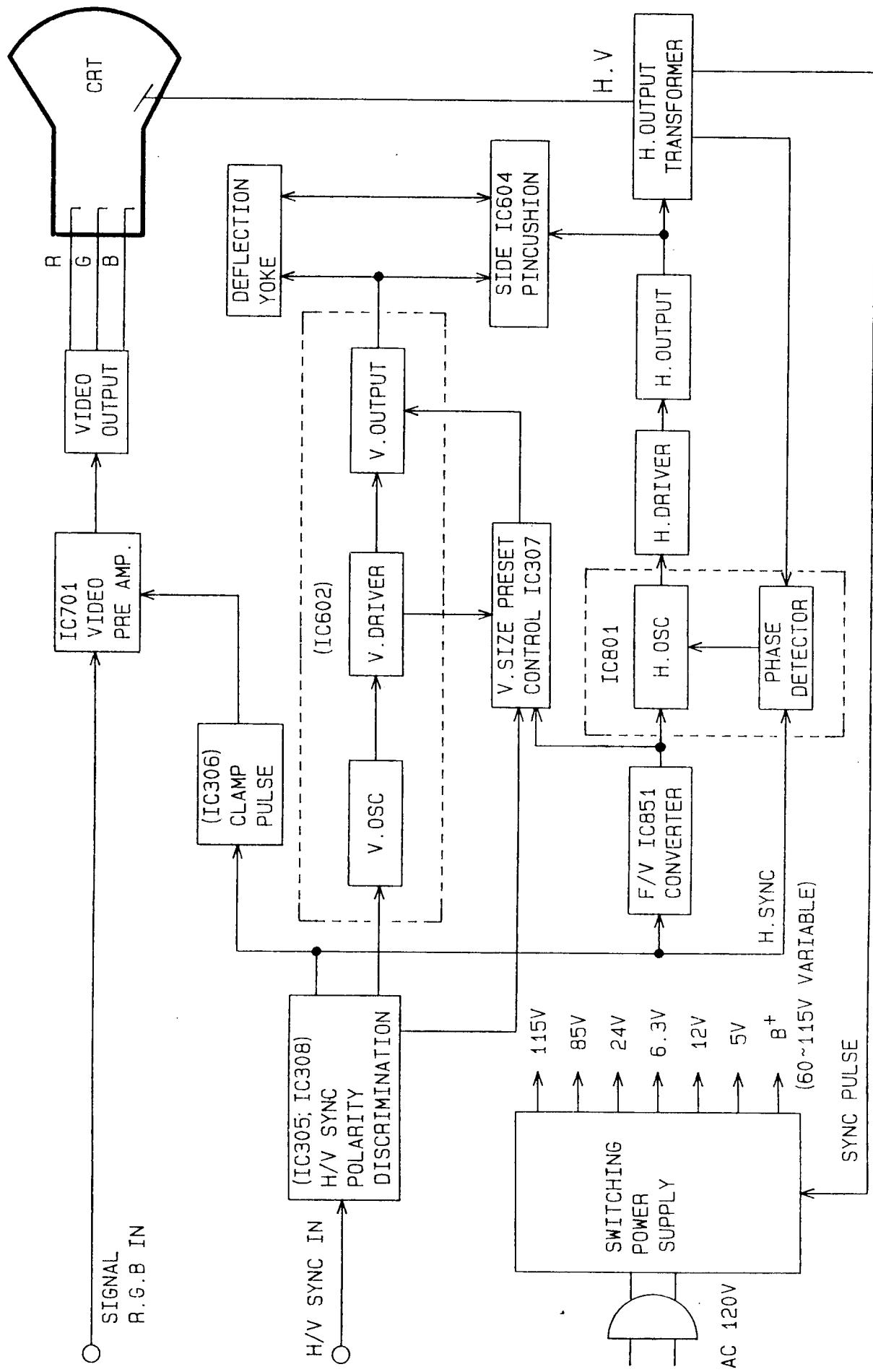


6-1 MAIN PCB LAYOUT

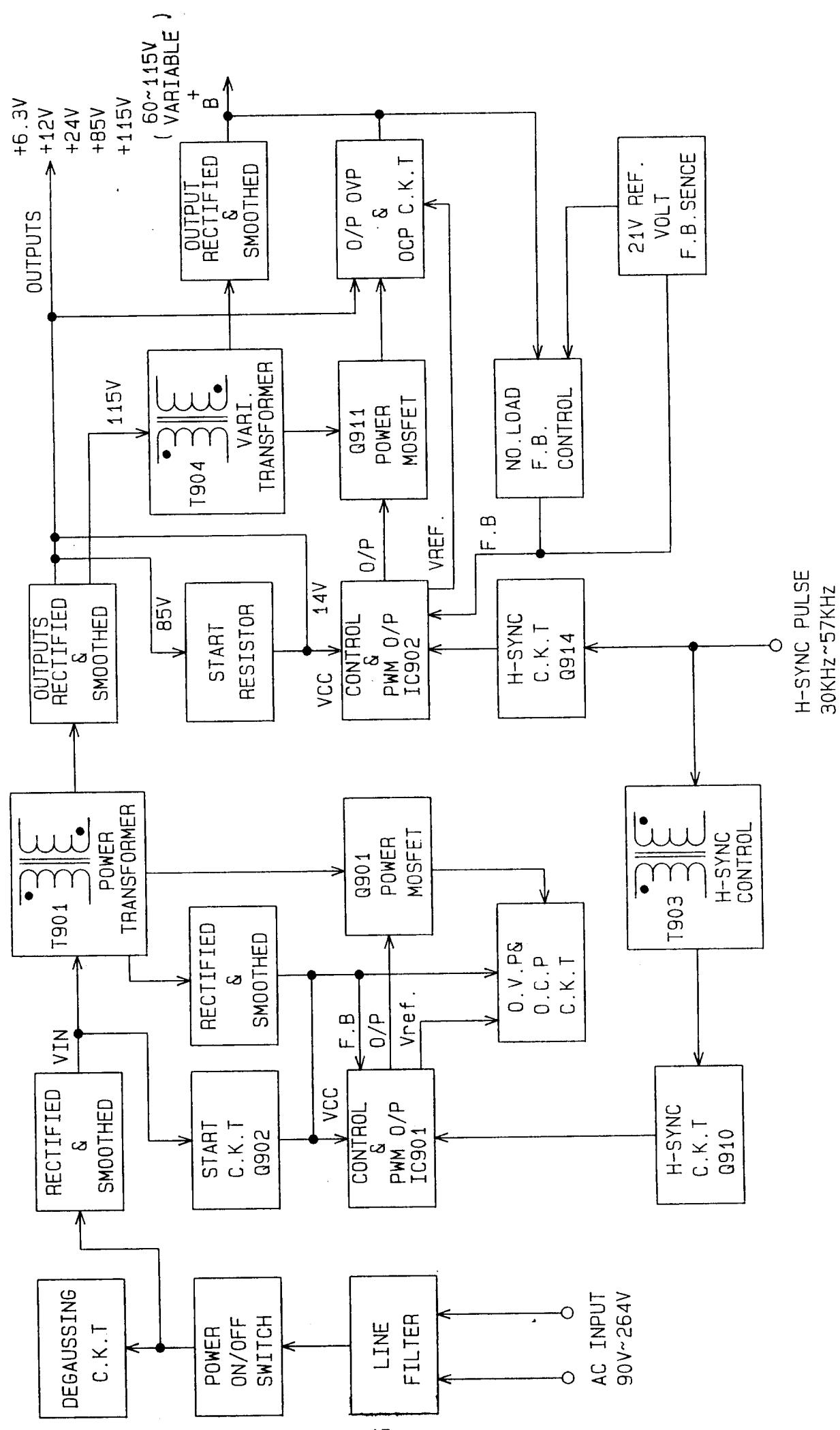


6-2 VIDEO PCB LAYOUT

CM-336/337 BLOCK DIAGRAM (VIDEO VERT & Hori) ORI)

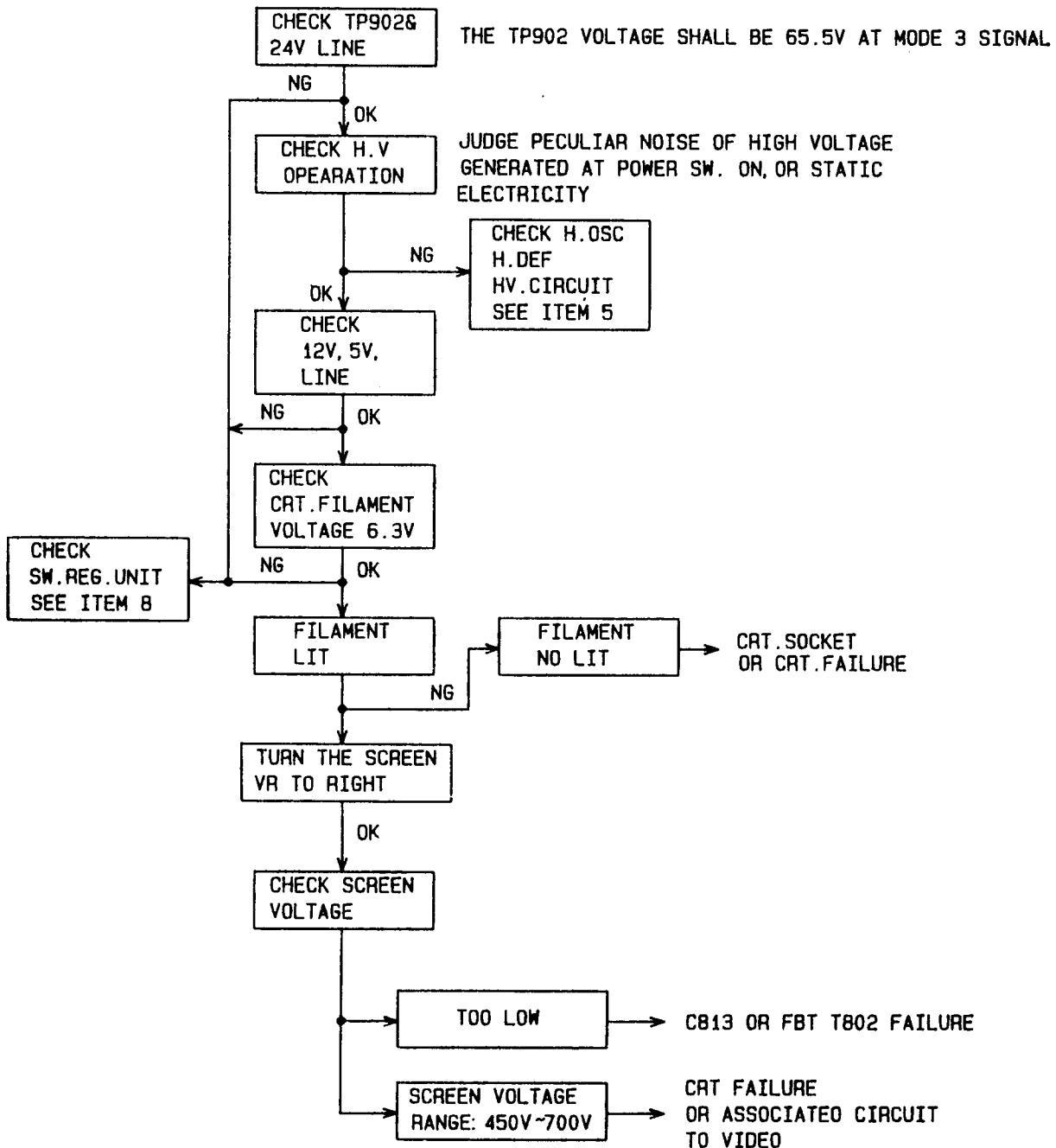


CM-336/337 BLOCK DIAGRAM (SMPS)

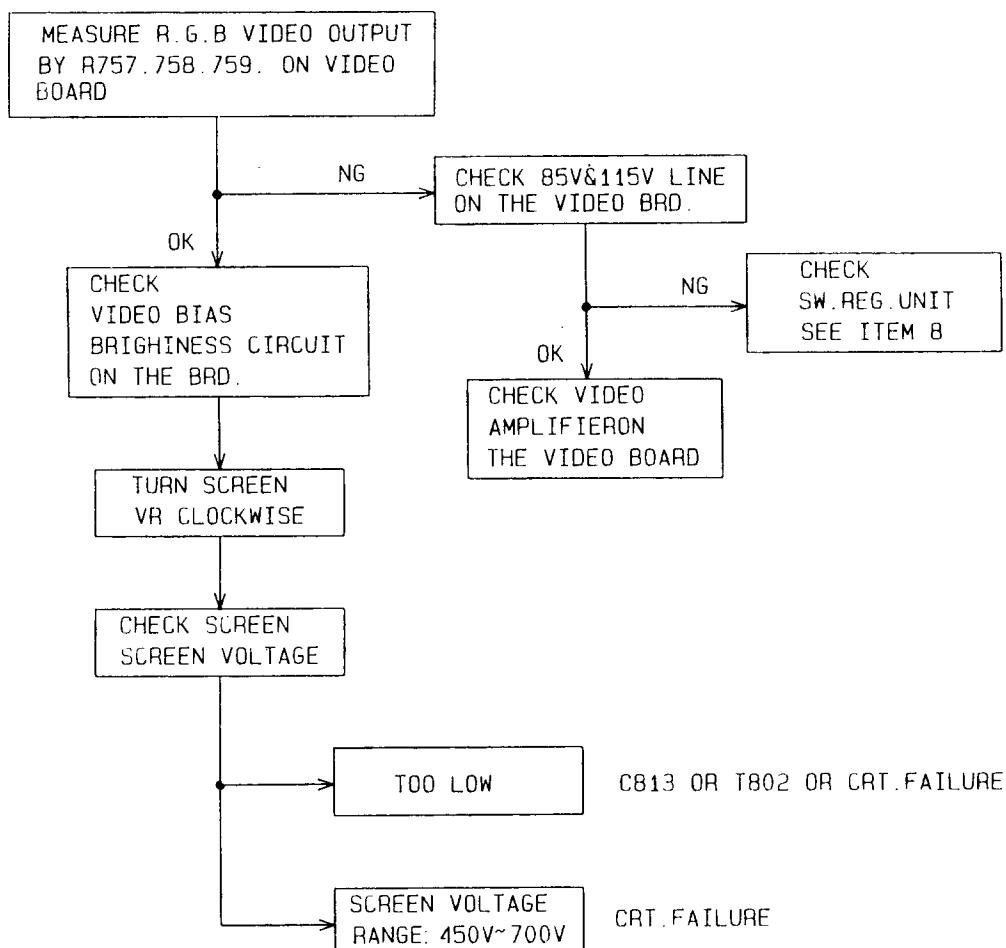


8. TROUBLE SHOOTING

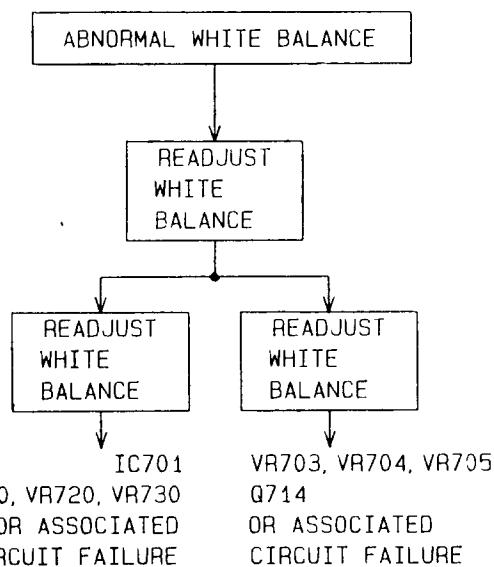
8-1 NO RASTER TROUBLE SHOOTING



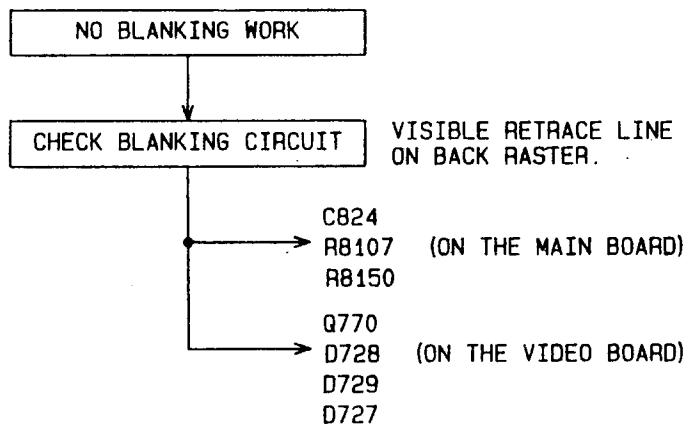
8-2 ABNORMAL VIDEO ON CRT SCREEN



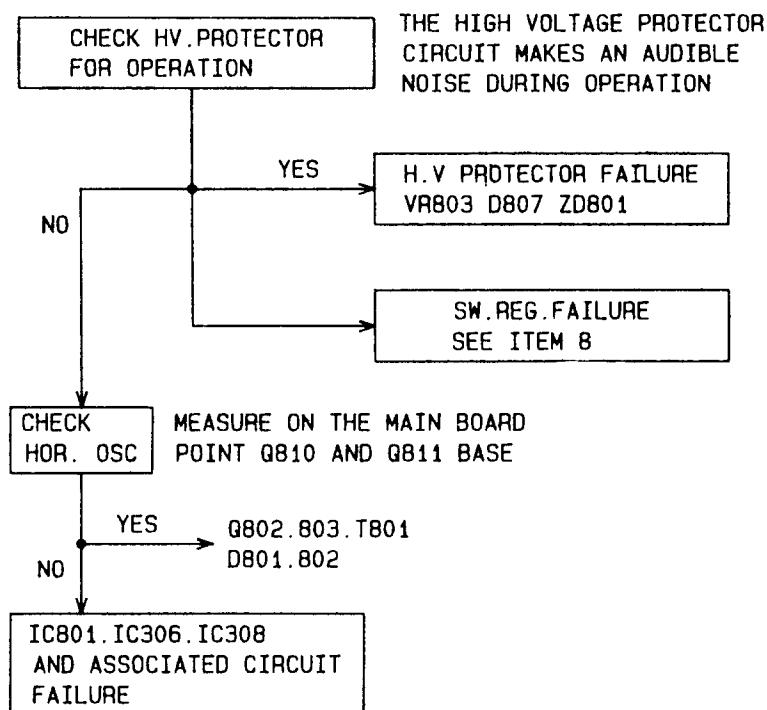
8-3 ABNORMAL WHITE BALANCE



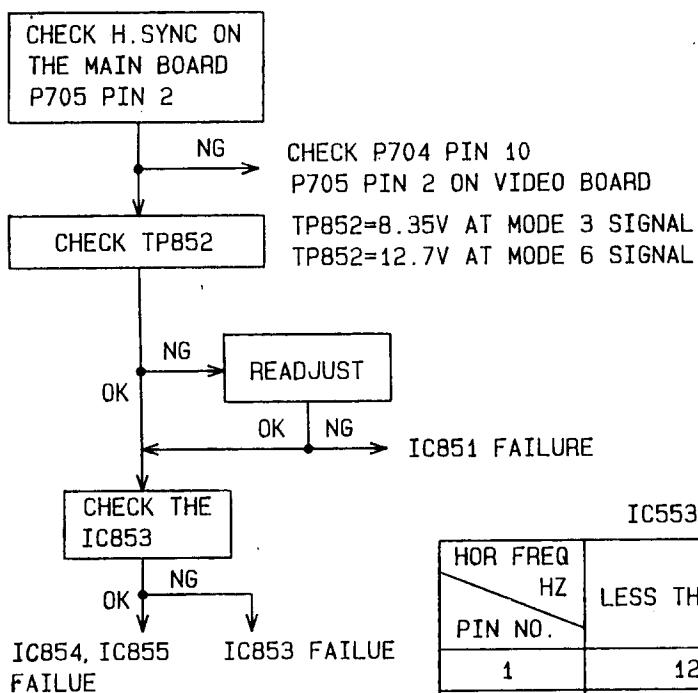
8-4 NO BLANKING WORK



8-5 H. OSC/DEF/HV CIRCUIT FAULT



8-6 F/V CONVERTER AND ASSOCIATED CIRCUIT

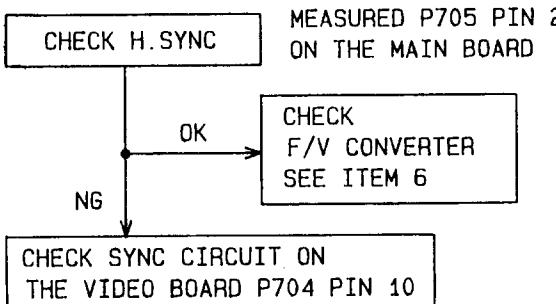


IC553

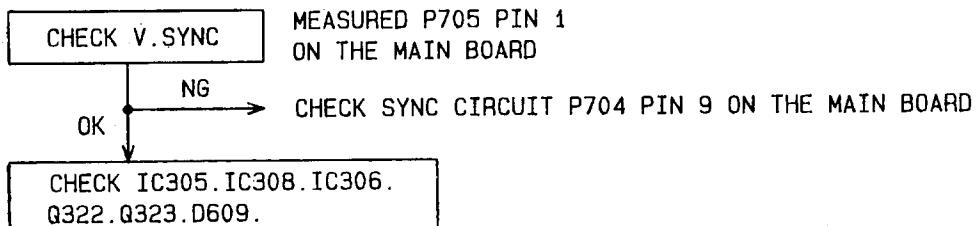
HOR FREQ HZ PIN NO.	LESS THAN 40K	MORE THAN 40K	LESS THAN 33K	MORE THAN 33K
1	12V	0		
2			0	16V
13			0	16V
14	16V	0		

8-7 UNSTABLE SYNCHRONIZATION

HORIZONTAL



VERTICAL



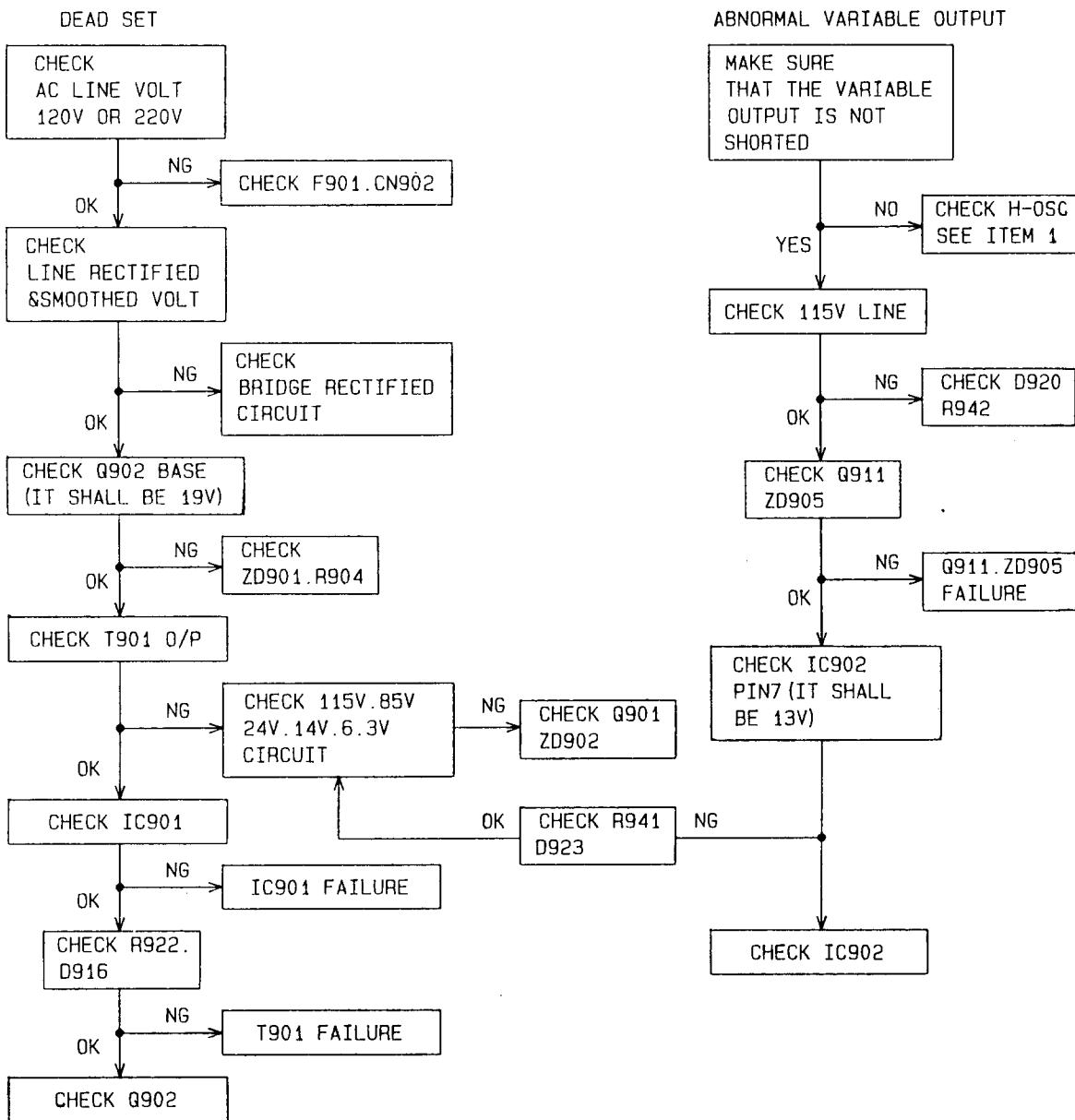
8-8 POWER SUPPLY TROUBLE SHOOTING CHART

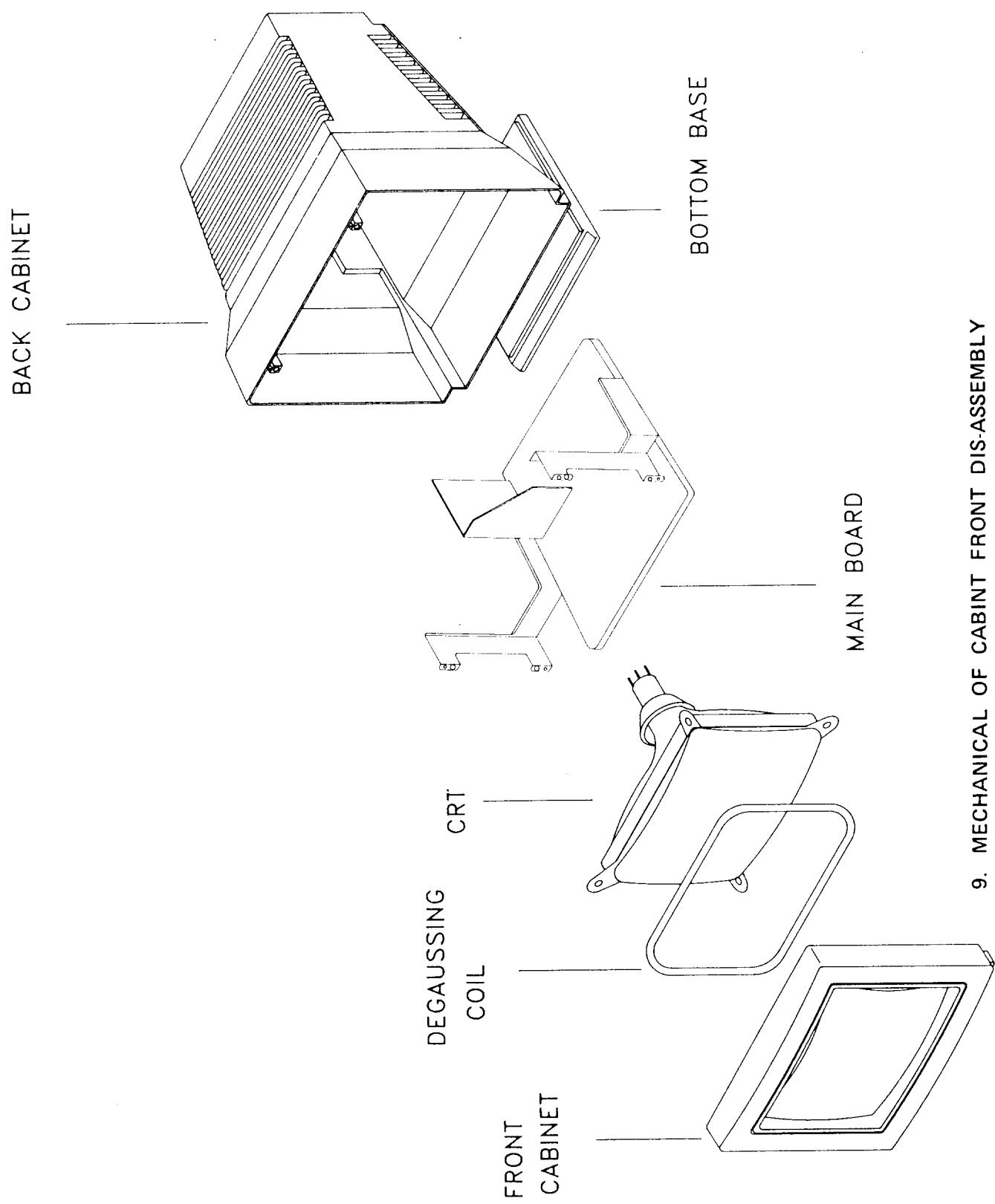
BEFORE CHECK SW. REG. PLEASE REFER TO THE POWER SUPPLY BLOCK DIAGRAM

POWER SUPPLY OUTPUT: (A) VARIABLE OUTPUT: 55V ~ 130V

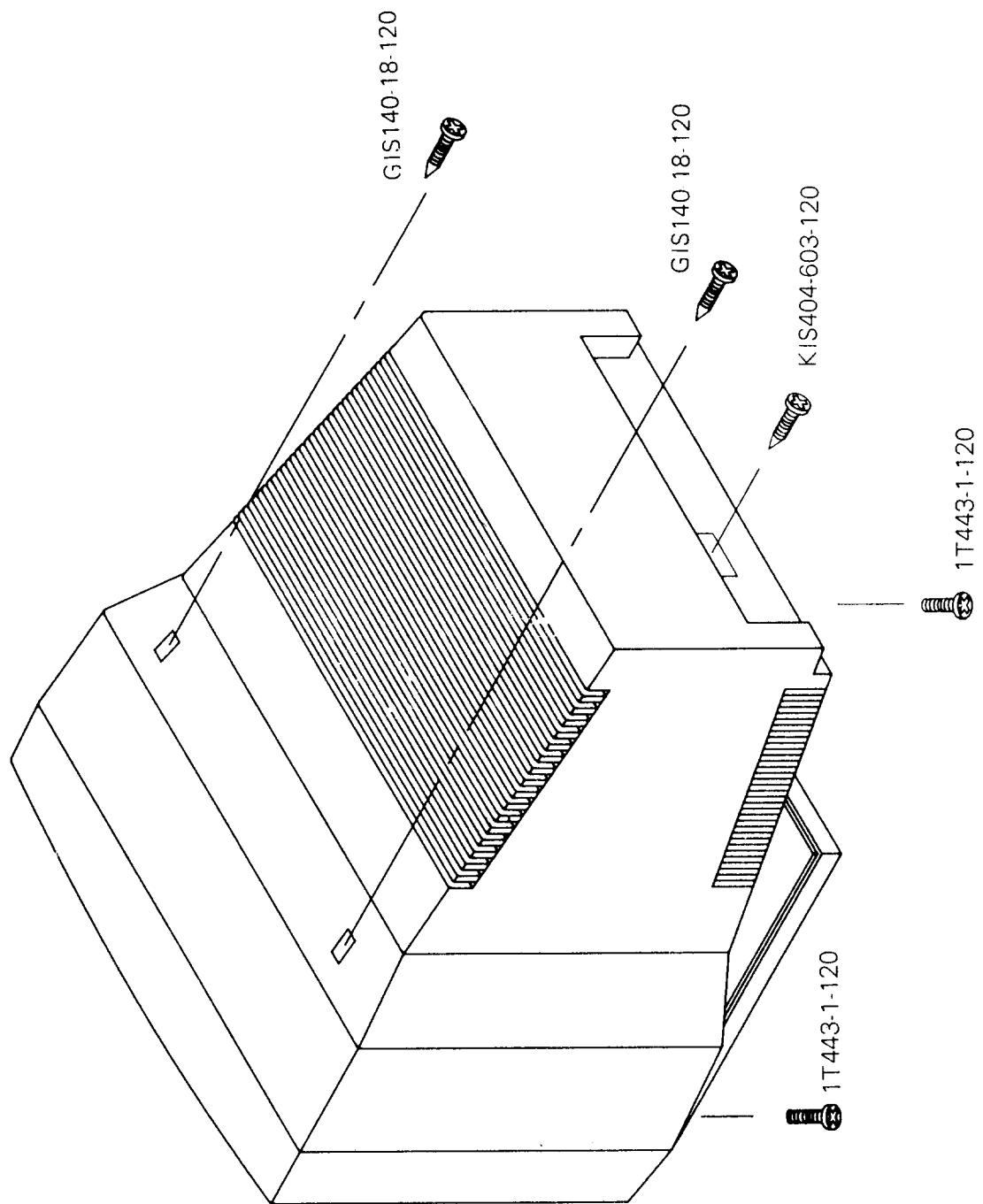
(DEPENDING UPON H. SYNC FREQUENCY)

(B) CONSTANT OUTPUT: 5V, 6.3V, 12V, 24V, 85V, 115V

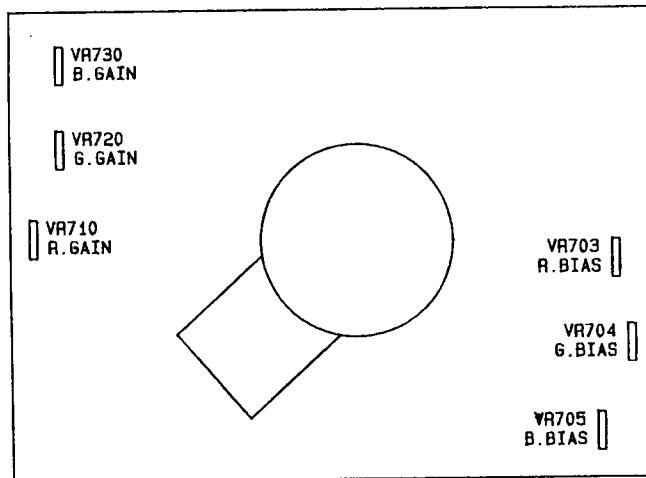
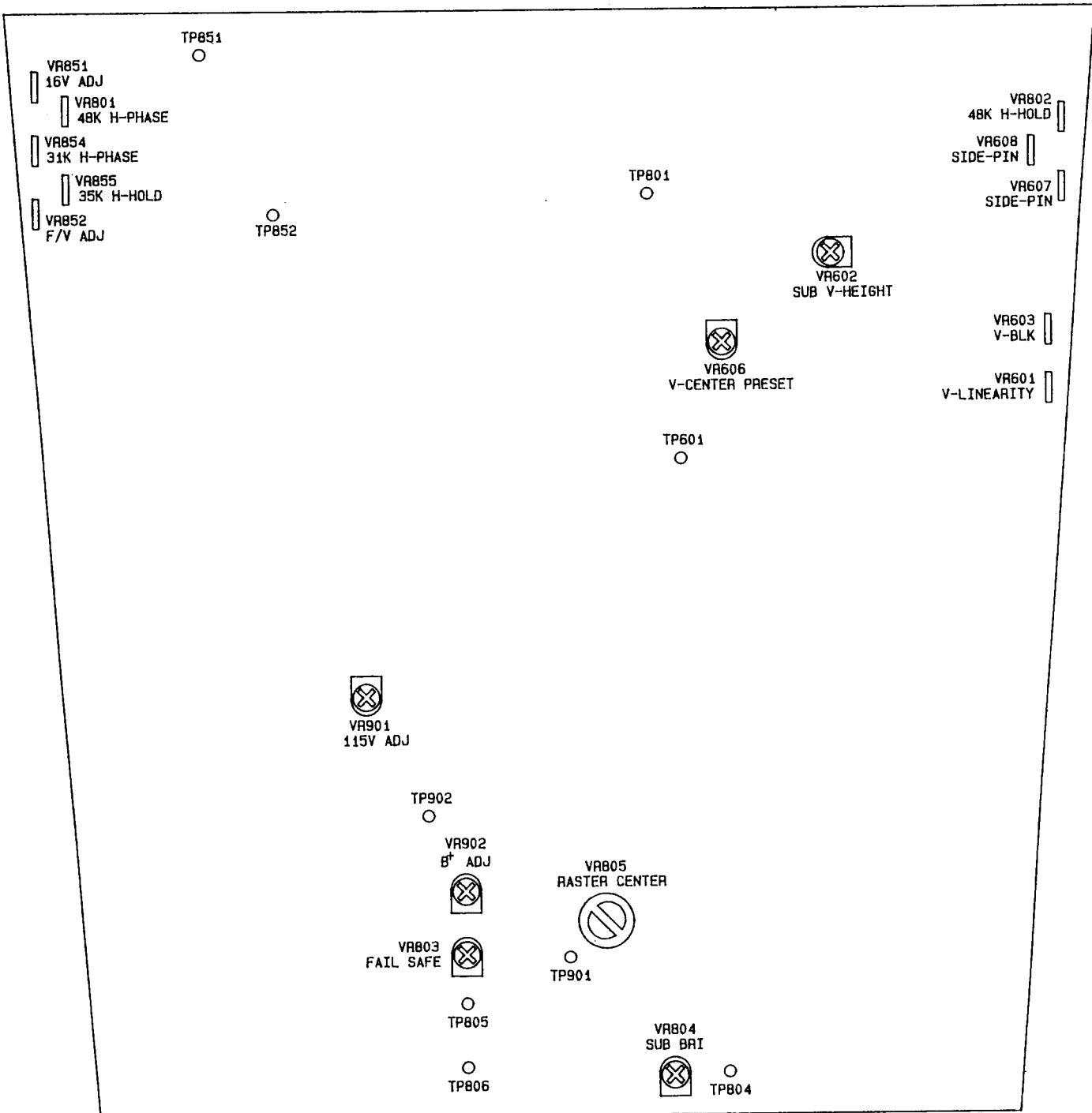




9. MECHANICAL OF CABINET FRONT DIS-ASSEMBLY



9-1 MECHANICAL DIS-ASSEMBLY



10. LOCATION OF ADJUSTMENT VR. (VARIABLE RESISTOR) OF P.C.B.

APPL.	CR336-AI	SPECIFICATION
J091	95S 90- 23- A	TIN COATED
J092	95S 90- 23- A	TIN COATED
J093	95S 90- 23- A	TIN COATED
J094	95S 90- 23- A	TIN COATED
J095	95S 90- 23- A	TIN COATED
J096	95S 90- 23- A	TIN COATED
J097	95S 90- 23- A	TIN COATED
J098	95S 90- 23- A'	TIN COATED
J099	95S 90- 23- A	TIN COATED
J100	95S 90- 23- A	TIN COATED
J101	95S 90- 23- A	TIN COATED
J102	95S 90- 23- A	TIN COATED
J103	95S 90- 23- A	TIN COATED
J105	95S 90- 23- A	TIN COATED
J106	95S 90- 23- A	TIN COATED
R379	61A602-102-52T	1K OHM 5% 1/6W
R380	61A602-103-52T	10K OHM 5% 1/6W
R381	61A602-333-52T	33K OHM 5% 1/6W
R382	61S172-102-52T	1K OHM 5% 1/4W
R383	61S172-560-52T	56 OHM 5% 1/4W
R384	61A602-103-52T	10K OHM 5% 1/6W
R385	61S172-102-52T	1K OHM 5% 1/4W
R386	61S172-101-52T	100 OHM 5% 1/4W
R387	61S601-432-52T	4.3K OHM + - 2% 1/6W
R388	61S601-333-52T	33K OHM + - 2% 1/6W
R389	61A602-103-52T	10K OHM 5% 1/6W
R390	61S601-472-52T	4.7K OHM + - 2% 1/6W
R391	61S601-473-52T	47K OHM + - 2% 1/6W
R392	61S601-473-52T	47K OHM + - 2% 1/6W
R393	61S601-473-52T	47K OHM + - 2% 1/6W
R394	61S601-473-52T	47K OHM + - 2% 1/6W
R395	61A602-753-52T	75K OHM + - 5% 1/6W
R396	61A602-563-52T	56K OHM + - 5% 1/6W
R397	61A602-753-52T	75K OHM + - 5% 1/6W
R398	61S601-474-52T	470K OHM 2% 1/6W
R399	61S172-221-52T	220 OHM 5% 1/4W
R602	61A602-822-52T	8.2K OHM + - 5% 1/6W
R603	61A602-103-52T	10K OHM 5% 1/6W
R604	61A602-563-52T	56K OHM + - 5% 1/6W
R605	61A602-564-52T	560K OHM + - 5% 1/6W
R606	61A602-333-52T	33K OHM 5% 1/6W
R607	61A602-104-52T	100K OHM 5% 1/6W
R608	61A602-121-52T	120 OHM 5% 1/6W
R609	61S602-122-52T	1.2K OHM + 5% 1/6W
R610	61A602-242-52T	2.4K OHM + - 5% 1/6W
R612	61S175-431-52T	430 OHM + - 5% 1/2W
R614	61S172-220-52T	22 OHM 5% 1/4W
R615	61A602-333-52T	33K OHM 5% 1/6W
R624	61A602-103-52T	10K OHM 5% 1/6W
R625	61A602-563-52T	56K OHM + - 5% 1/6W
R627	61A602-563-52T	56K OHM + - 5% 1/6W
R628	61A602-123-52T	12K OHM 5% 1/6W
R629	61A602-103-52T	10K OHM 5% 1/6W
R630	61A602-333-52T	33K OHM 5% 1/6W
R631	61S175-229-52T	2.2 OHM 5% 1/2W
R632	61A602-302-52T	3K OHM 5% 1/6W
R634	61A602-472-52T	4.7K OHM 5% 1/6W
R635	61A602-104-52T	100K OHM 5% 1/6W
R638	61A602-103-52T	10K OHM 5% 1/6W
R650	61A602-103-52T	10K OHM 5% 1/6W
R679	61A602-103-52T	10K OHM 5% 1/6W
R680	61A602-103-52T	10K OHM 5% 1/6W
R682	61A602-753-52T	75K OHM + - 5% 1/6W
R683	61A602-154-52T	150K OHM 5% 1/6W
R684	61S172-105-52T	1MEG OHM 5% 1/4W
R685	61A602-303-52T	30K OHM 5% 1/6W
R686	61A602-333-52T	33K OHM 5% 1/6W
R687	61A602-363-52T	36K OHM 5% 1/6W
R688	61S175-330-52T	33OHM + - 5% 1/2W
R689	61S172-102-52T	1K OHM 5% 1/4W
R690	61S172-511-52T	510 OHM 5% 1/4W
R691	61S175-151-52T	150 OHM 5% 1/2W
R692	61S175-101-52T	100 OHM + - 5% 1/2W
R693	95S 90- 23- A	TIN COATED
R694	95S 90- 23- A	TIN COATED
R695	61S172-272-52T	2.7K OHM 5% 1/4W
R696	61A602-822-52T	8.2K OHM + - 5% 1/6W

APPL.

R893
R895
R896
R902
R910
R911
R912
R914
R915
R917
R918
R919
R920
R921
R922
R924
R925
R926
R927
R928
R931
R932
R933
R939
R940
R941
R944
R945
R947
R948
R949
R950
R951
R952
R953
R954
R956
R957
R960
R962
R963
R968
ZD301
ZD601
ZD801
ZD802
ZD803
ZD804
ZD851
ZD902
ZD905



CR336-AI

61A 602-563-52T
61A 175-241-52T
61S 172-200-52T
61A175L-474-52T
61A 602-203-52T
61S 175-470-52T
61S 172-621-52T
61A 602-102-52T
61A 602-202-52T
61A 602-512-52T
61A 602-102-52T
61A 602-102-52T
61A 602-102-52T
95S 90- 23- A
61S 200-479-52T
61A 602-183-52T
61A 602-242-52T
61A 602-474-52T
61A 602-103 52T
61S 172-220-52T
61S 172-101-52T
61A 602-103-52T
61A 602-333-52T
61S 172-200-52T
61A 602-102-52T
61S 200-473-52T
61A 602-203-52T
61S 175-470-52T
61A 602-102-52T
61S 175-134-52T
61A 602-392-52T
61A 602-223-52T
61A 602-183-52T
61A 602-202-52T
61A 602-151-52T
61A 602-105-52T
61S 172-220-52T
61A 602-103-52T
61S 172-101-52T
61A 602-472-52T
61S 172-100-52T
61A 602-333-52T
93D 39- 52-52T
93D 39-124-52T
93C 39- 91-52T
93D 39- 67-52T
93D 39- 43-52T
93D 39-124-52T
93C 39- 91-52T
93D 39-102-52T
93D 39-102-52T

SPECIFICATION

56K OHM + - 5% 1/6W
240 OHM + - 5% 1/2W
20 OHM 5% 1/4W
470K OHM 5% 1/2W
20K OHM 5% 1/6W
47 OHM 5% 1/2W
620 OHM 5% 1/4W
1K OHM 5% 1/6W
2K OHM 5% 1/6W
5.1K OHM 5% 1/6W
1K OHM 5% 1/6W
1K OHM 5% 1/6W
1K OHM 5% 1/6W
TIN COATED
4.7 OHM + - 1% 1/4W
18K OHM + - 5% 1/6W
2.4K OHM + - 5% 1/6W
470K OHM 5% 1/6W
10K OHM 5% 1/6W
22 OHM 5% 1/4W
100 OHM 5% 1/4W
10K OHM 5% 1/6W
33K OHM 5% 1/6W
20 OHM 5% 1/4W
1K OHM 5% 1/6W
47K OHM + - 1% 1/4W
20K OHM 5% 1/6W
47 OHM 5% 1/2W
1K OHM 5% 1/6W
130K OHM + - 5% 1/2W
3.9K OHM 5% 1/6W
22K OHM 5% 1/6W
18K OHM + - 5% 1/6W
2K OHM 5% 1/6W
150 OHM + - 5% 1/6W
1M OHM 5% 1/6W
22 OHM 5% 1/4W
10K OHM 5% 1/6W
100 OHM 5% 1/4W
4.7K OHM 5% 1/6W
10 OHM + - 5% 1/4W
33K OHM 5% 1/6W
DIODE
ZD 18-2/HITACHI
7.78-8.19V DIODE
ZENER DIODE
DIODE
ZD 18-2/HITACHI
7.78-8.19V DIODE
ZD HZ20-1 TAPING
ZD HZ20-1 TAPING

APPL.

C351
C352
C355
C356
C357
C358
C359
C607
C609
C610
C611
C622
C651
C653
C654
C801
C802
C803
C804
C809
C810
C8100



CM336-AIT

67A 301-479- 7T
67A 301-100- 7T
67A 301-101- 3T
65S 450-103-33T
65A 444-121-13T
65A 444-121-13T
67A 301-101- 3T
67A 301-470- 4T
67A 301-100- 7T
65S 450-103-33T
67A 301-109- 7T
67A 301-101- 6T
65S 444-102-13T
64A 177- 13-58T
65S 450-103-33T
65S 444-101-13T
65S 442-271-13T
65S 442-271-13T
64A 177- 8-58T
67A 301-221- 3T
64A 177- 13-58T
65S 444-101-13T

SPECIFICATION

4.7UF + - 20% 50V
10UF + - 20% 50V
100UF + - 20% 16V
.01UF + 80-20% Z5U50V
120PF K 50V
120PF K 50V
100UF + - 20% 16V
47UF + - 20% 25V
10UF + - 20% 50V
.01UF + 80-20% Z5U50V
1UF + - 20% 50V
100UF + - 20% 35V
1000PF K Z5P 50V
0.01UF J 50V
.01UF + 80 - 20% Z5U50V
100PF K Z5P 50V
270PF J 50V NPO
270PF J 50V NPO
.0039UF + - 5% 50V
220UF + - 20% 16V
0.01UF J 50V
100PF K Z5P 50V

APPL.	CR336-AI	SPECIFICATION
C8101	67A 301-470- 3T	47UF + - 20% 16V
C8102	64A 177- 3-58T	.0015UF + - 5% 50V
C8113	67A 301-109- 7T	1UF + - 20% 50V
C812	67A 301-101- 3T	100UF + - 20% 16V
C851	64A 177- 3-58T	.0015UF + - 5% 50V
C862	65S 444-101-13T	100PF K Z5P 50V
C865	67A 301-101- 3T	100UF + - 20% 16V
C866	65S 442-331-13T	330PF J NPO 50V
C867	65S 444-102-13T	1000PF K Z5P 50V
C868	65S 450-103-33T	.01UF + 80-20% Z5U50V
C869	65S 442-271-13T	270PF J 50V NPO
C870	67A 301-101- 4T	100UF + - 20% 25V
C872	65S 442-151-13T	150PF J NPO 50V
C910	64A 177- 13-58T	0.01UF J 50V
C912	64A 177- 5-58T	0.0022UF J 50V
C913	67A 305-330- 4T	33UF + - 20% 25V
C914	64A 177- 1-58T	0.001UF J 50V
C915	67A 305-101- 4T	100UF + - 20% 25V
C918	64A 177- 5-58T	0.0022UF J 50V
C919	64A 177- 11-58T	.0068UF + - 5% 50V
C922	65S 444-101-13T	100PF K Z5P 50V
C929	67A 305-101- 4T	100UF + - 20% 25V
C933	67A 305-101- 4T	100UF + - 20% 25V
C934	64A 177- 1-58T	0.001UF J 50V
C936	65S 444-561-13T	560PF K Z5P 50V
C940	64A 177- 5-58T	0.0022UF J 50V
C941	64A 177- 9-58T	0.0047UF 50V
C942	64A 177- 11-58T	.0068UF + - 5% 50V
C943	64A 177- 13-58T	0.01UF J 50V
C950	64A 177- 13-58T	0.01UF J 50V
Q322	57A 419- P- T	TRAN 2SC945P TAPING
Q323	57A 419- P- T	TRAN 2SC945P TAPING
Q324	57A 419- P- T	TRAN 2SC945P TAPING
Q602	57A 549- 1- T	TRAN.2SC2001
Q603	57A 507- L- T	TRAN.2SA952L
Q606	57A 419- Q- T	TRAN 2SC945Q TAPING
Q616	57A 419- P- T	TRAN 2SC945P TAPING
Q801	57A 419- Q- T	TRAN 2SC945Q TAPING
Q807	57A 423- 8T- T	TRAN 2SC2482 TAPING
Q810	57A 419- P- T	TRAN 2SC945P TAPING
Q811	57A 420- P- T	TRAN 2SA733P TAPING
Q812	57A 419- P- T	TRAN 2SC945P TAPING
Q852	57A 419- Q- T	TRAN 2SC945Q TAPING
Q905	57A 420- P- T	TRAN 2SA733P TAPING
Q906	57A 420- P- T	TRAN 2SA733P TAPING
Q907	57A 419- P- T	TRAN 2SC945P TAPING
Q910	57A 419- P- T	TRAN 2SC945P TAPING
Q914	57A 419- P- T	TRAN 2SC945P TAPING
Q917	57A 420- P- T	TRAN 2SA733P TAPING

PARTS LIST OF IC602/IC903 ASS'Y

APPL.	705A 336-M56-602	705A 336-M56-903	SPECIFICATION
	90T 279- 2-		HEAT SINK
	N1S 330- 6-128	90T 284- 1-	HEAT SINK
IC602	56A 325- 3-	N1S 330- 6-128	SCREW
IC903		56A 133- 12-	15PIN I.C. TDA1675A 3 PIN 12V REGULATOR

PARTS LIST OF Q809/Q901/Q911 ASS'Y

APPL.	705A 336-M57-809	705A 336-M57-901	705A 336-M57-911	SPECIFICATION
		5B 39- 9- 32T3028- 2-	5B 39- 9- 32T3028- 2- 90T 233- 3-	NYLON MICA INSULATOR HEAT SINK
	90T 287- 1-	90T 279- 3-		HEAT SINK HEAT SINK

APPL.	705A 336-M57-809	705A 336-M57-901	705A 336-M57-911	SPECIFICATION
Q809		N1S 330- 10-128 57A 429- 16-	M2S 430- 2.4-128 N1S 330- 10-128 57A 666- 1-	M2S 430- 2.4-128 N1S 330- 10-128 M3 M3X10 TRANSISTOR MOSFET HV82/ST
Q901				MOSFET IRF730/HARRIS
Q911				POWER MOS FET IRF730
Q911				

PARTS LIST OF D801/Q803 ASS'Y

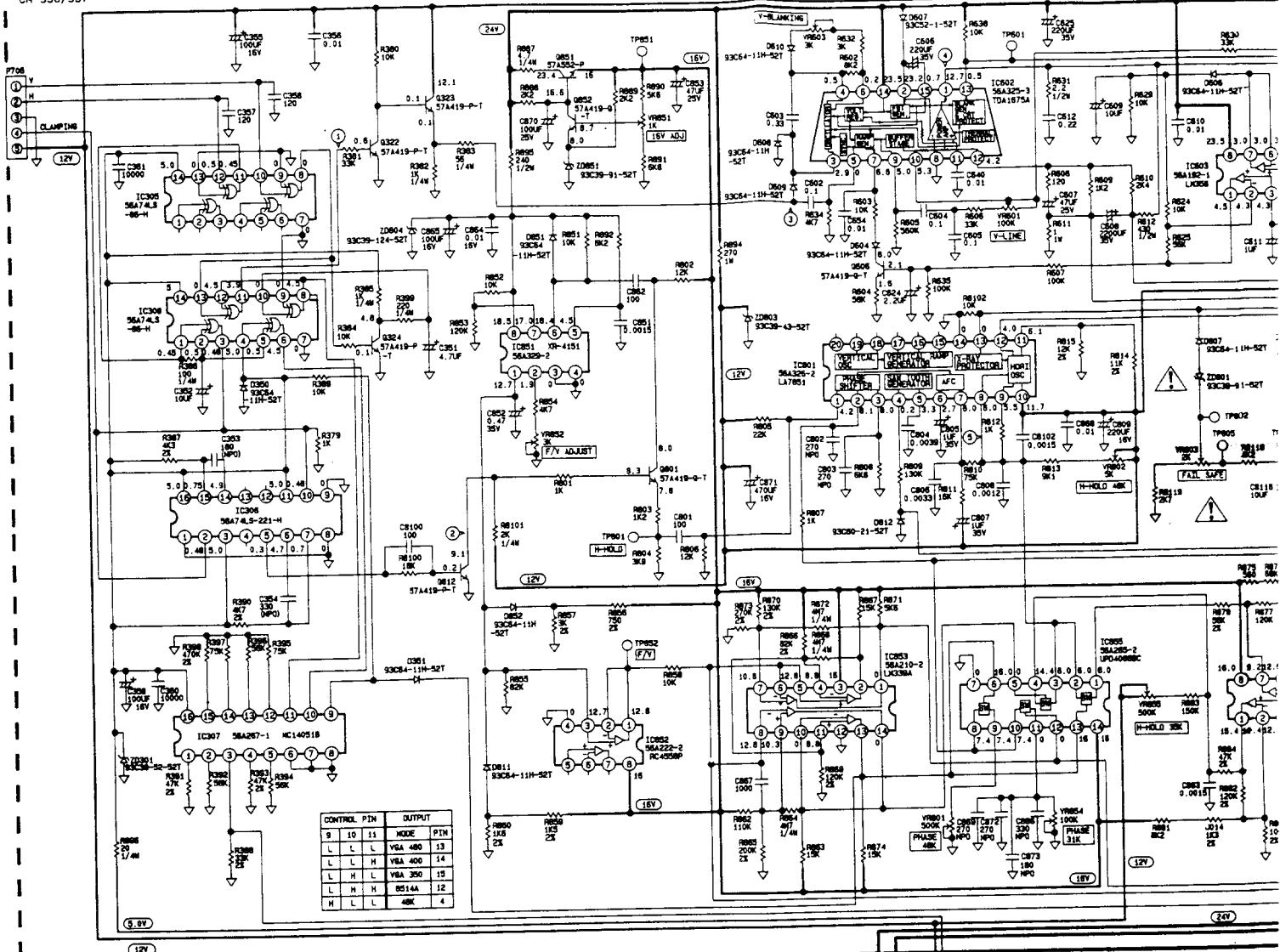
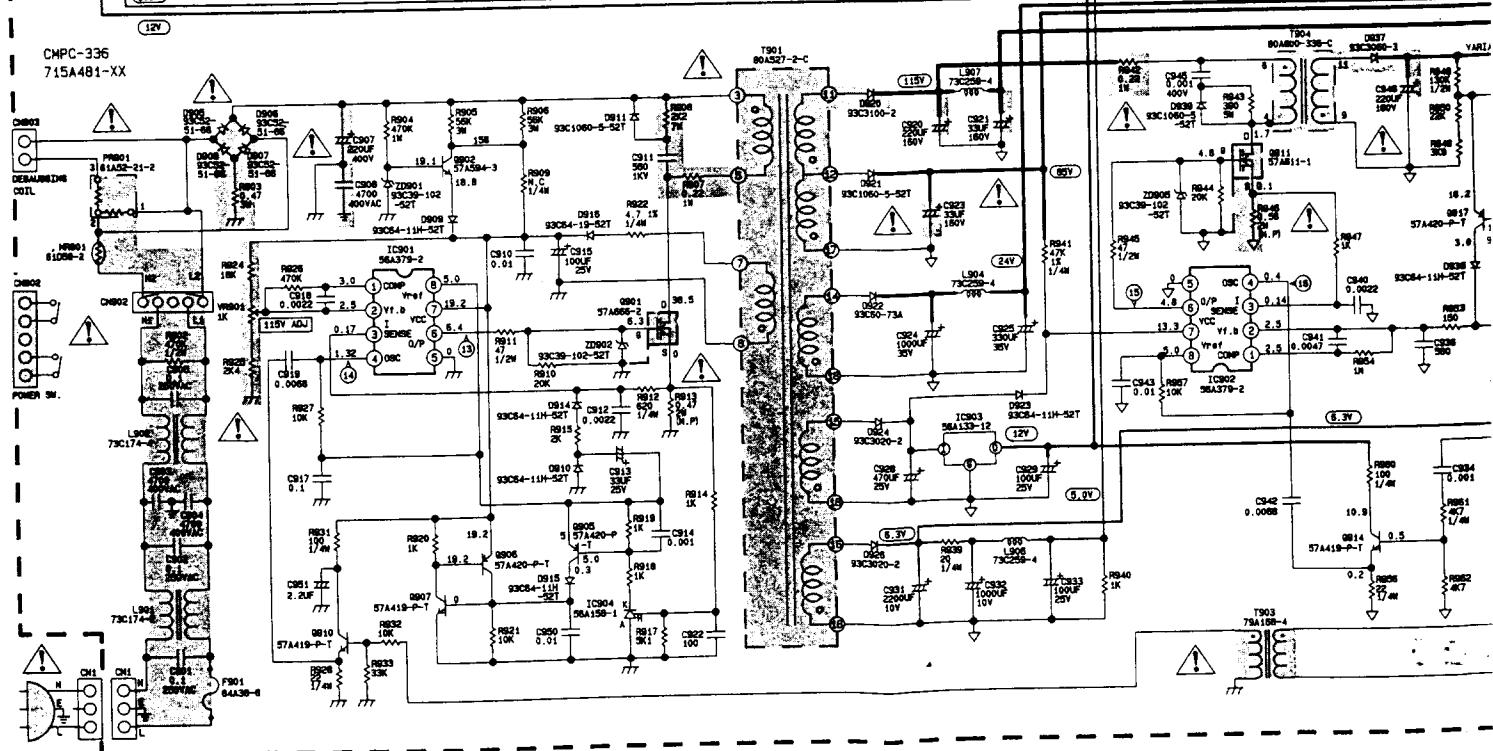
APPL.	705A 336-M93-801	SPECIFICATION
D801	5B 39- 8- 32T3028- 5- 32T3028- 8- 90T 289- 3- M2S 430- 2.4-128 N1S 330- 10-128 N1S 330- 12-128 N1S 330- 14-128 93D 220- 3- 93D 330- 2- 57A 596- 1-	WASHER MICA MICA HEAT SINK M3 M3X10 M3X12 M3X14 6A/1500V DTV32-1500 F.R.D. 1300/3A G3DR HORIZ.TR 25C3688
D801		
Q803		

PARTS LIST OF AC SOCKET ASS'Y

APPL.	705 336-M95-048	SPECIFICATION
	87A 501- 5- 87A 501- 6- 95A207T- 354-048 96B 29- 6 130	RECEPTACLES RECEPTACLES UL1015#18/YEL STRAND 96A29-6 0.5"

DIFFERENT PARTS LIST OF CM-336 & CM-337

APPL.	CM-336	CM-337	SPECIFICATION
R856	61S 601-751-52T		75 OHM + - 2% 1/6W
R856		61S 601-392-52T	3K9 OHM + - 2% 1/6W
R857	61S 601-302-52T		3K OHM + - 2% 1/6W
R857		61S 601-473-52T	47K OHM + - 2% 1/6W
R810	61S 602-753-52T		75K OHM + - 5% 1/6W
R810		61S 602-513-52T	51K OHM + - 5% 1/6W
	750A 5600- 5-		14" N.G. 0.28MM CDT
	750A 5620- 5-	750A 5620- 5-	14" N.G. 0.28MM CDT
	750A 5630- 5-	750A 5630- 5-	14" N.G. 0.28MM CDT

CMPC-336
715A481-XX

NOTE:

I.FOR CRT 750A5620-5 (TOSHIBA)

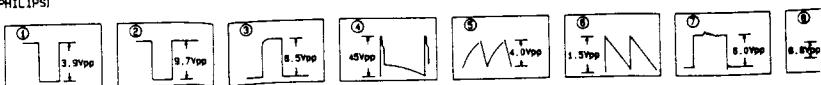
II.FOR CRT 750A5600-5 (HITACHI)

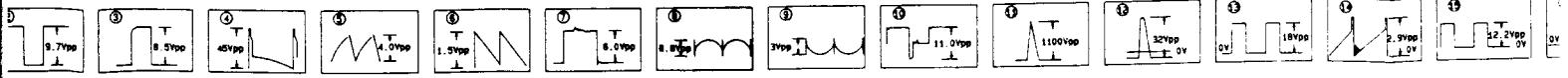
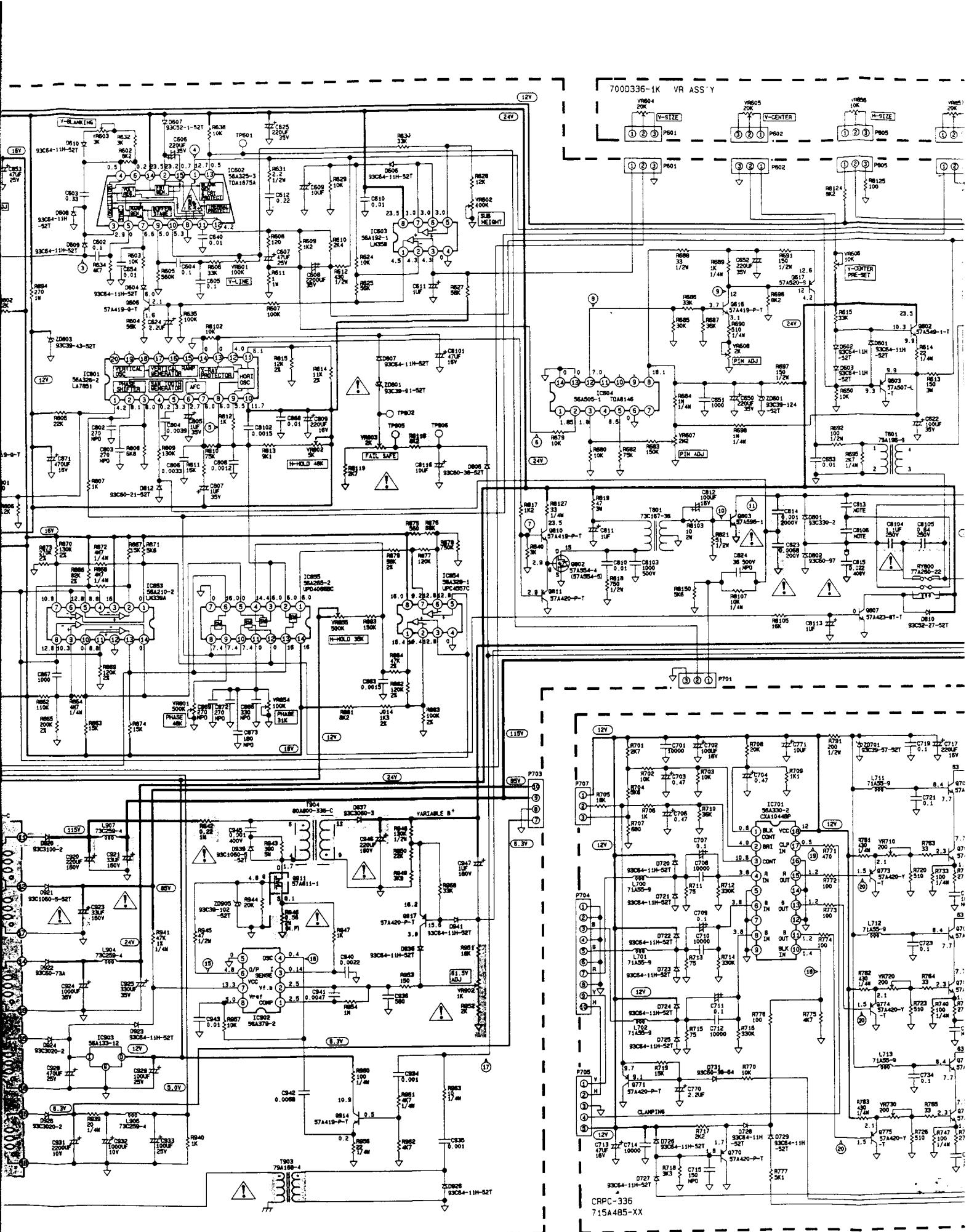
III.FOR CRT 750A5630-5 (PHILIPS)

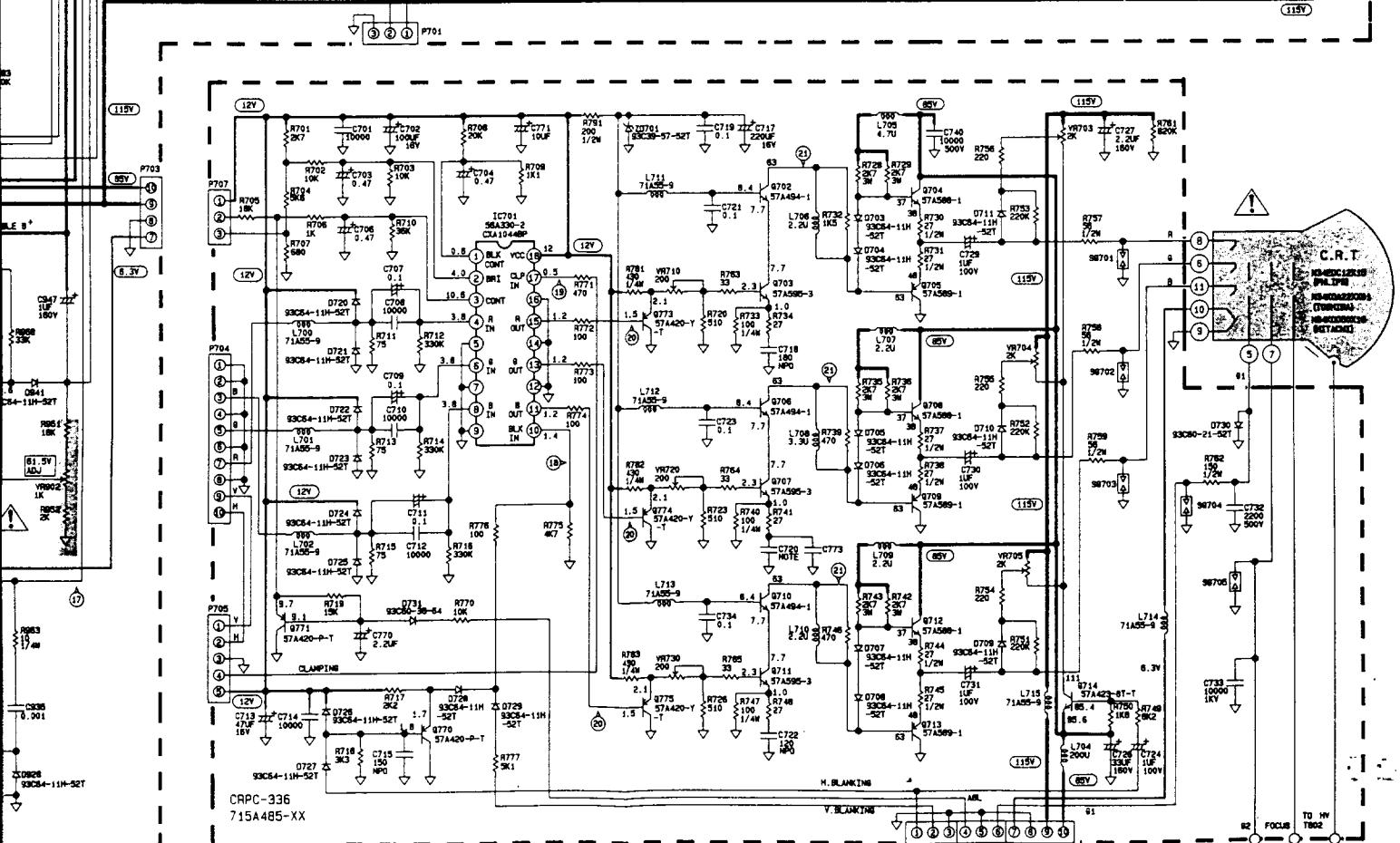
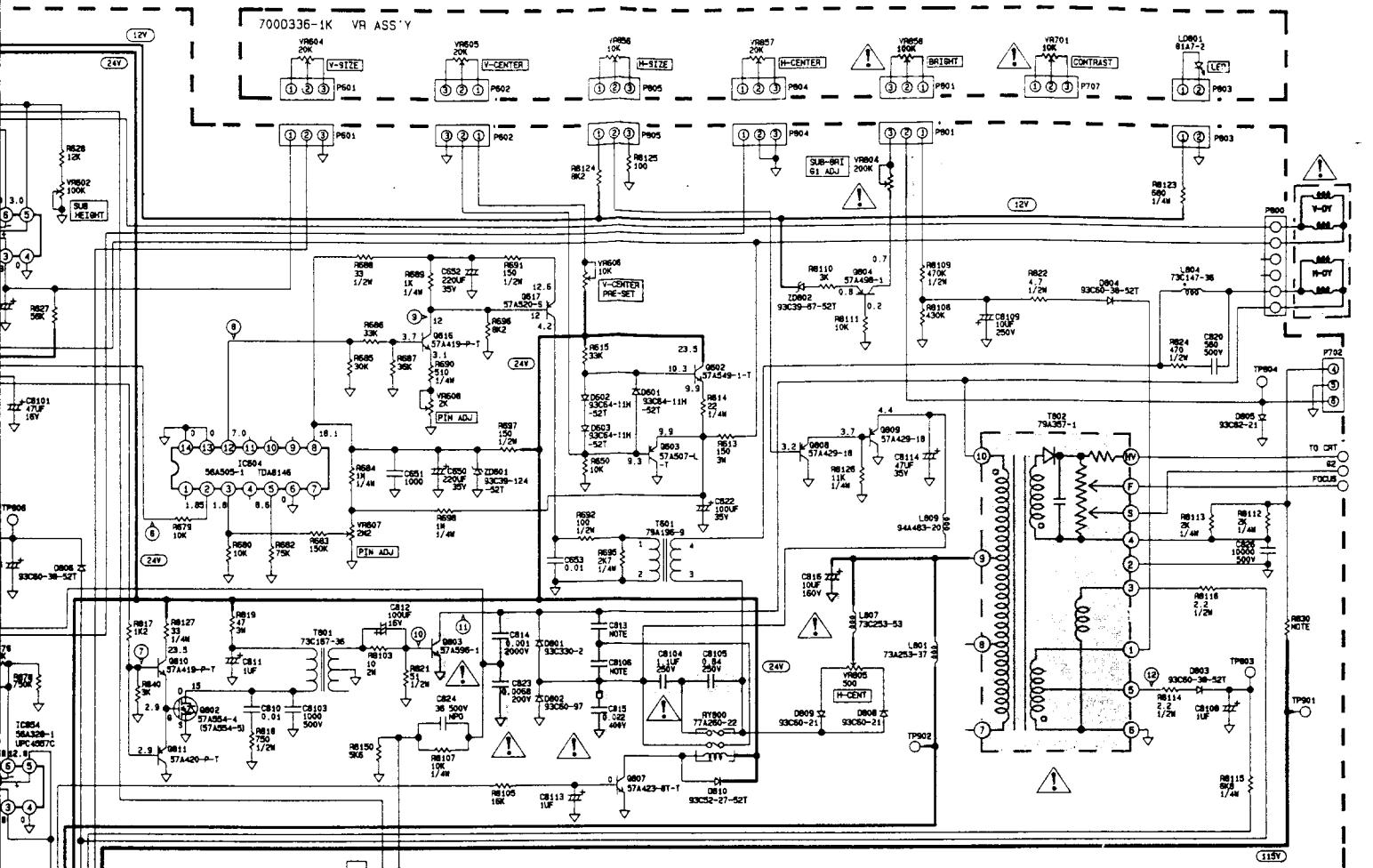
1. C813 3900P 2KV	1. C813 4300P 2KV
2. C8106 0.027UF 400V	2. C8106 0.033UF 400V
3. R830 270K 1/2W	3. R830 220K 1/2W
4. C720 150P 50V	4. C720 180P 50V

1. C813 4300P 2KV	1. C813 4300P 2KV
2. C8106 0.033UF 400V	2. C8106 0.033UF 400V
3. R830 220K 1/2W	3. R830 200K 1/2W
4. C720 180P 50V	4. C720 180P 50V

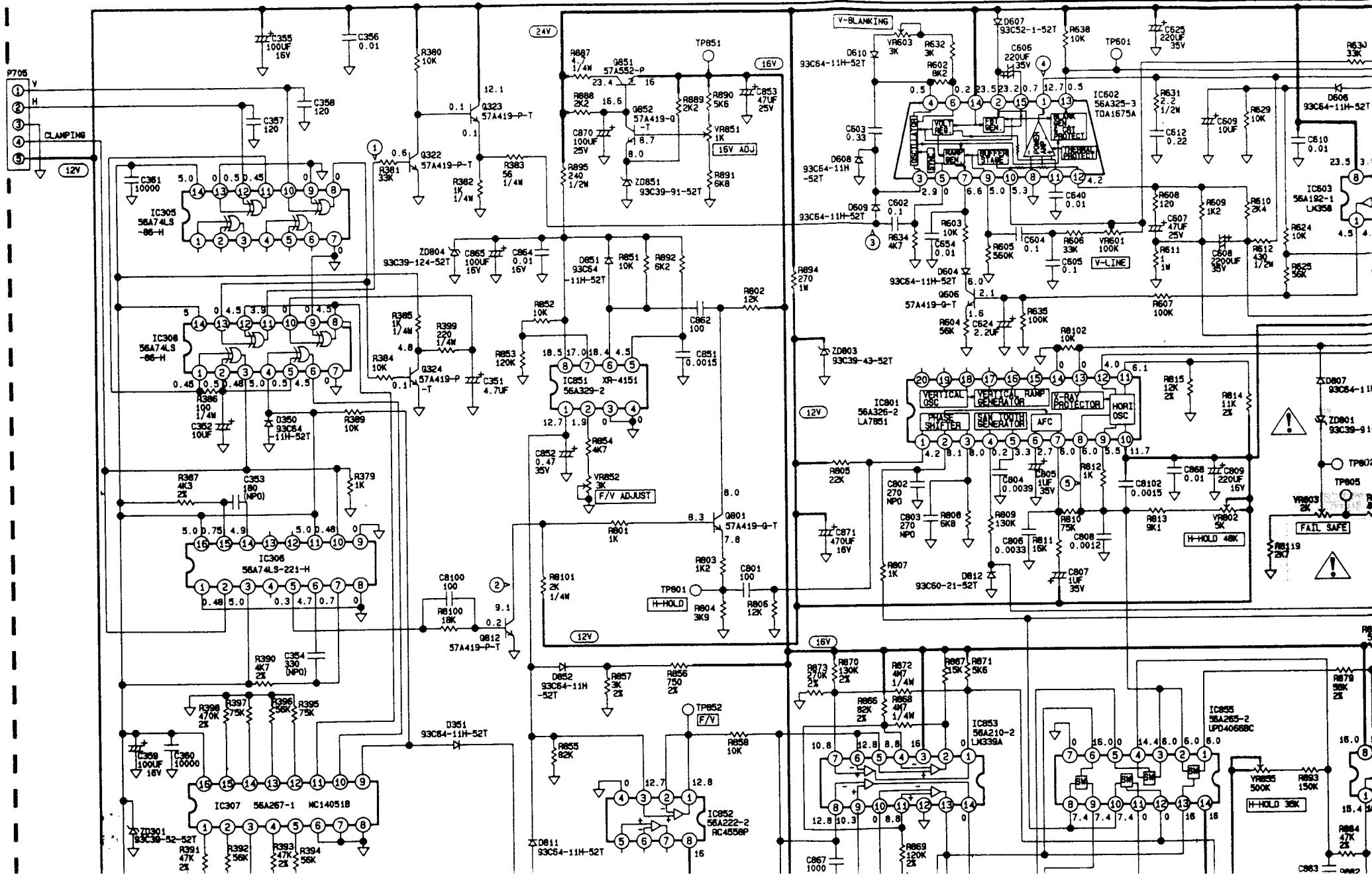
1. C813 4300P 2KV	1. C813 4300P 2KV
2. C8106 0.033UF 400V	2. C8106 0.033UF 400V
3. R830 200K 1/2W	3. R830 180K 1/2W
4. C720 180P 50V	4. C720 180P 50V

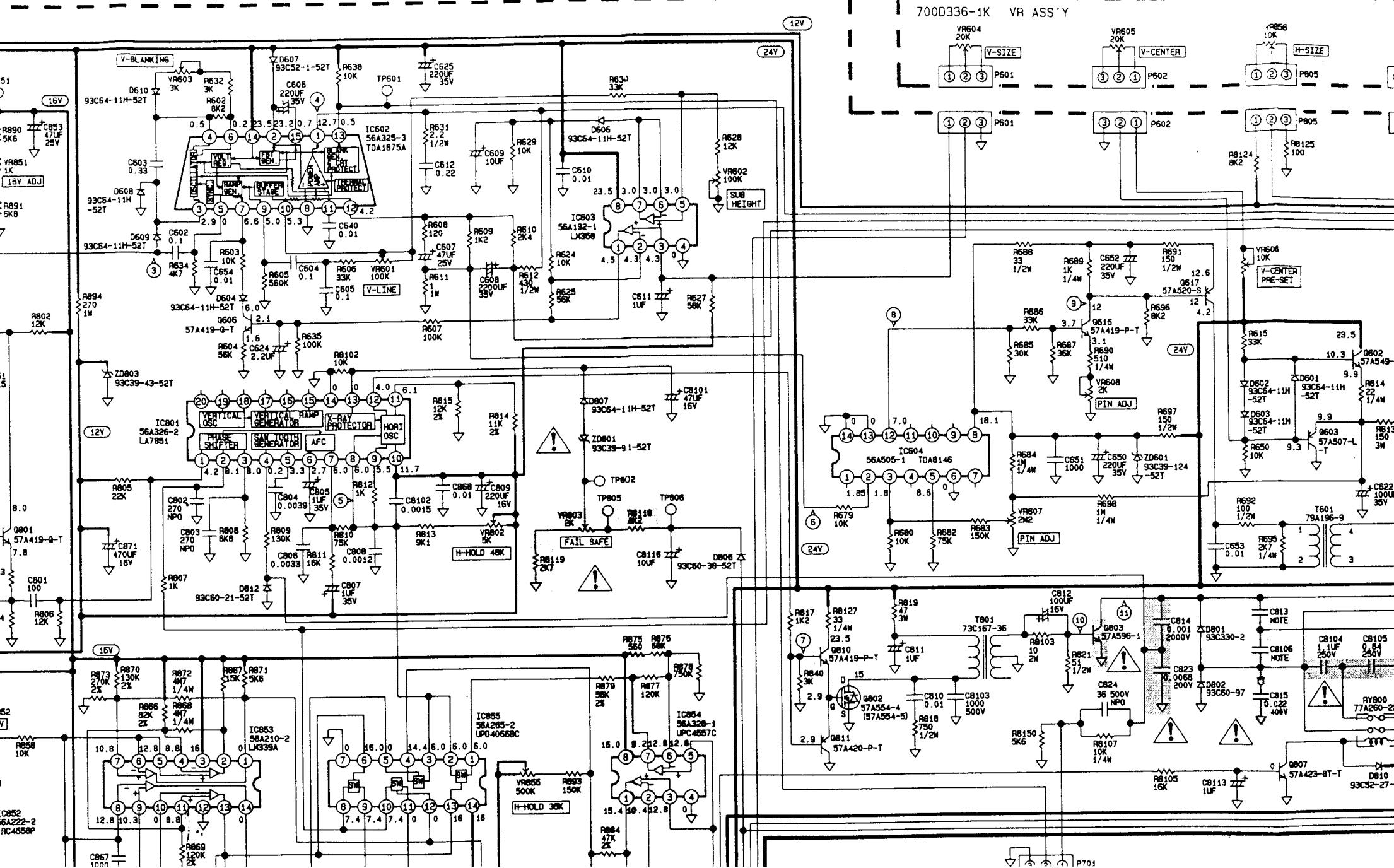


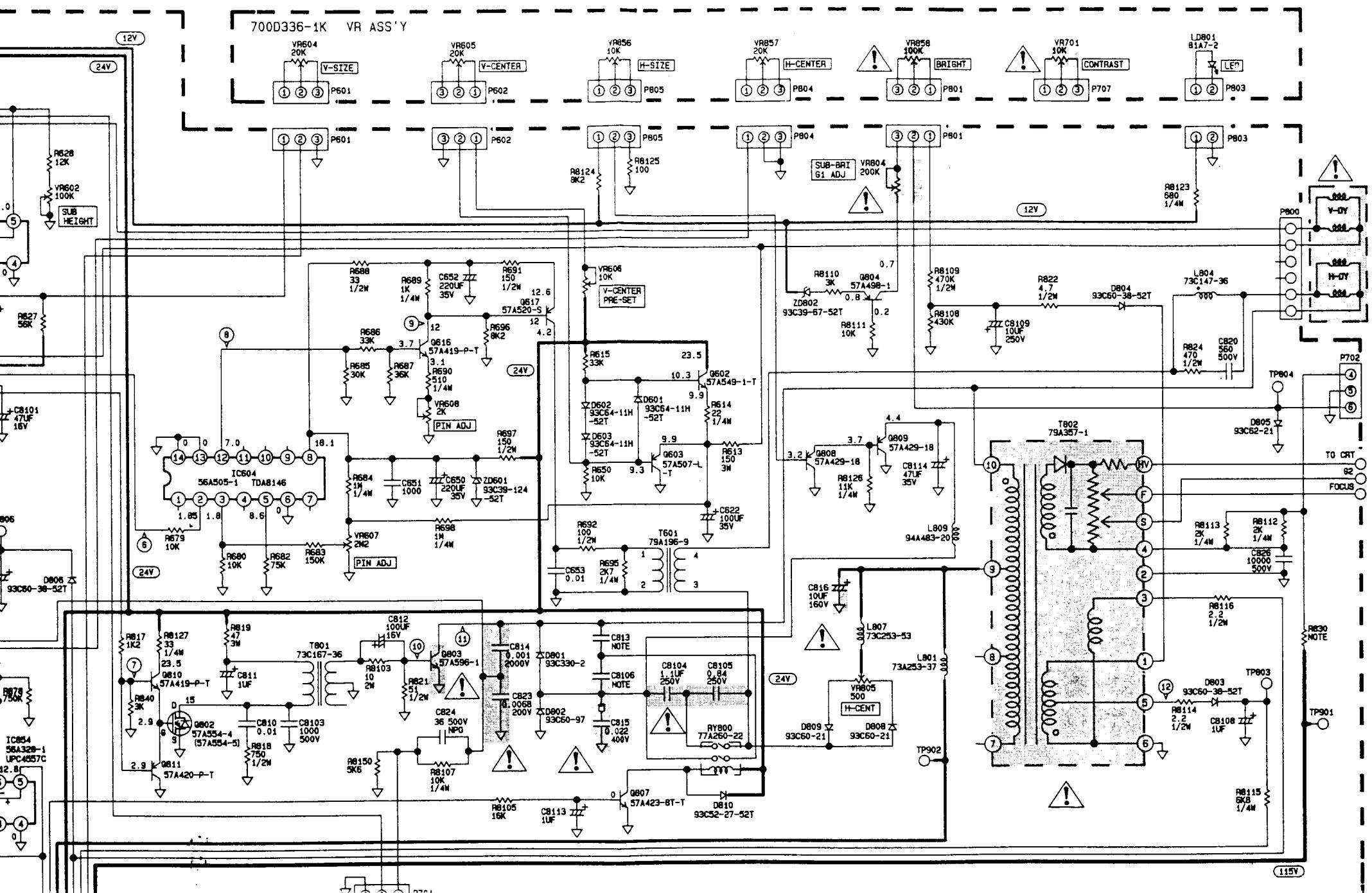


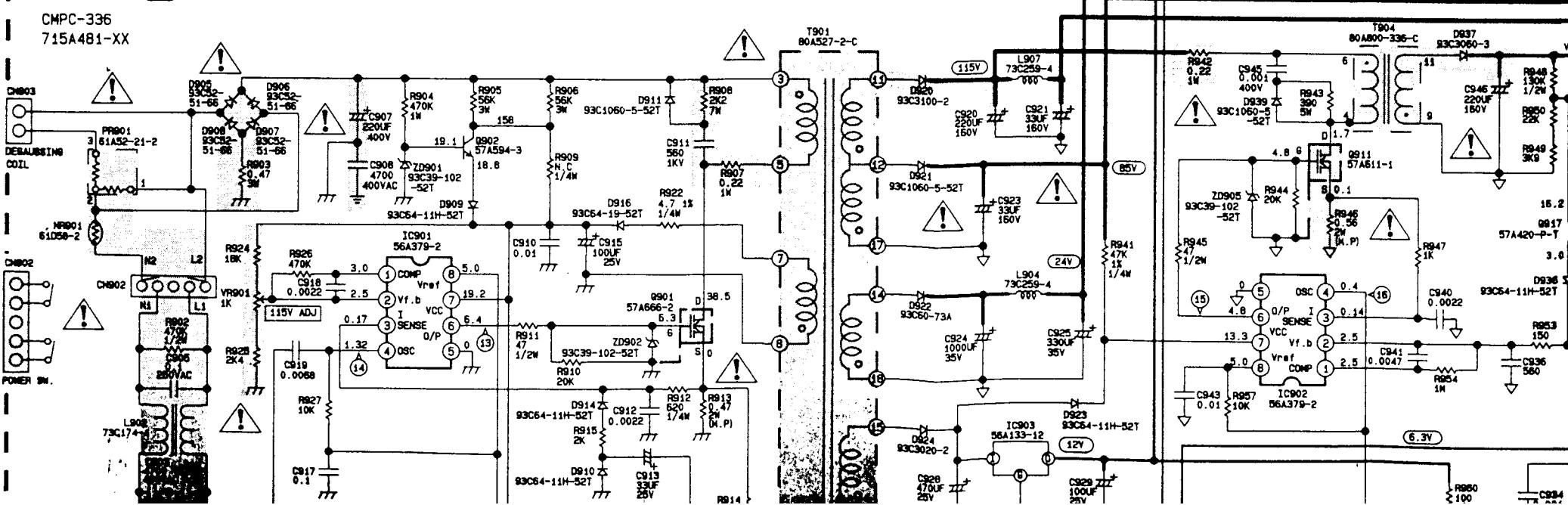
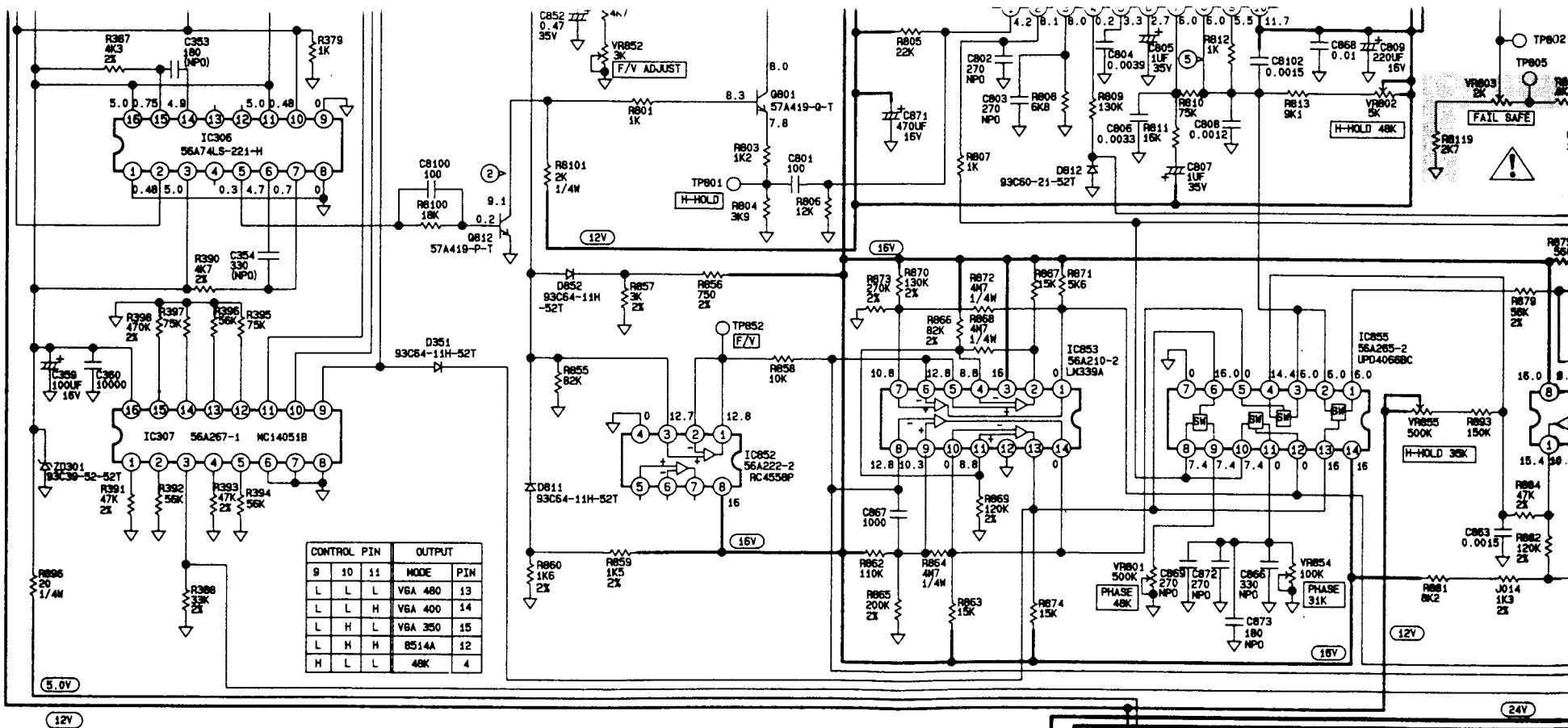


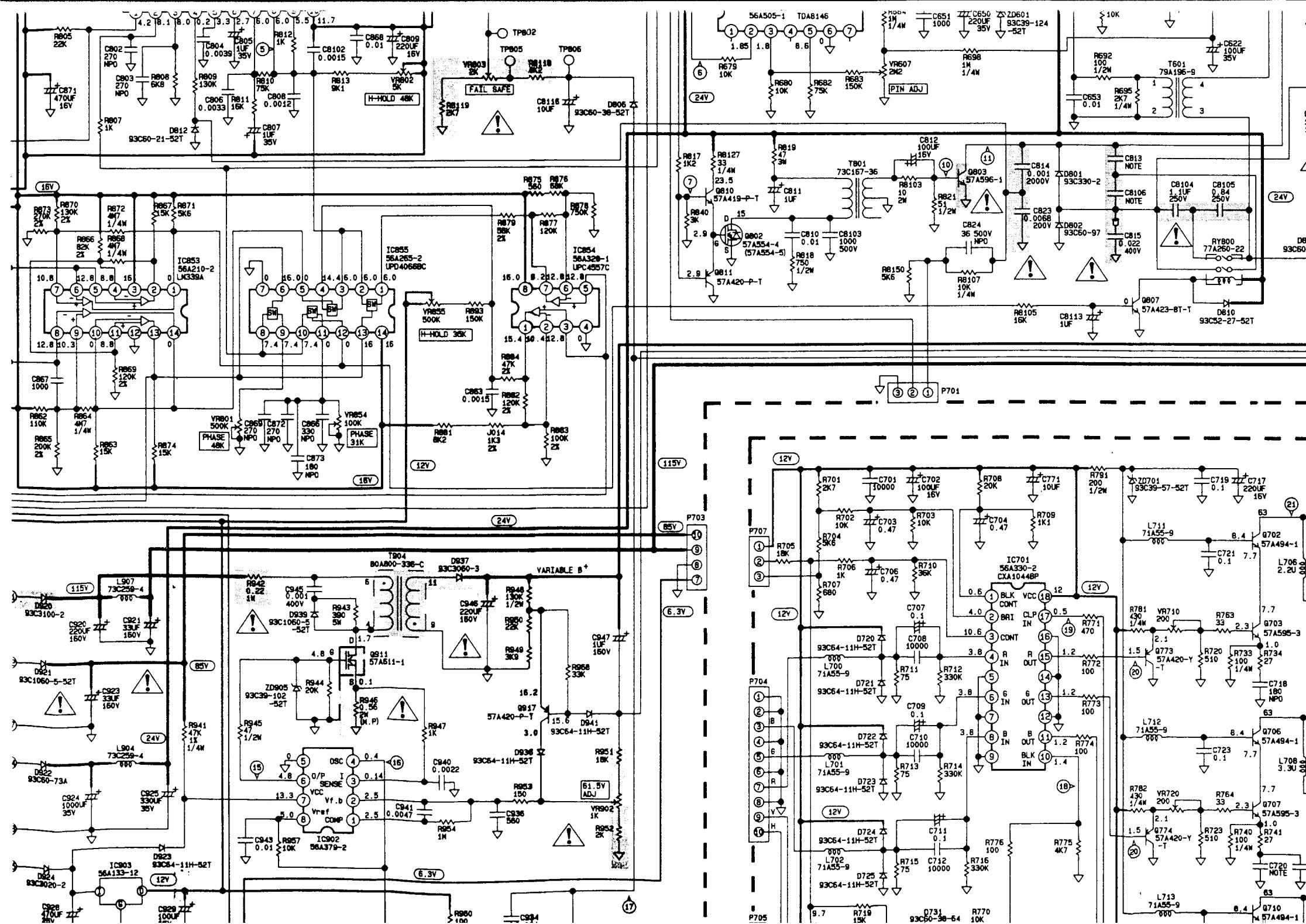
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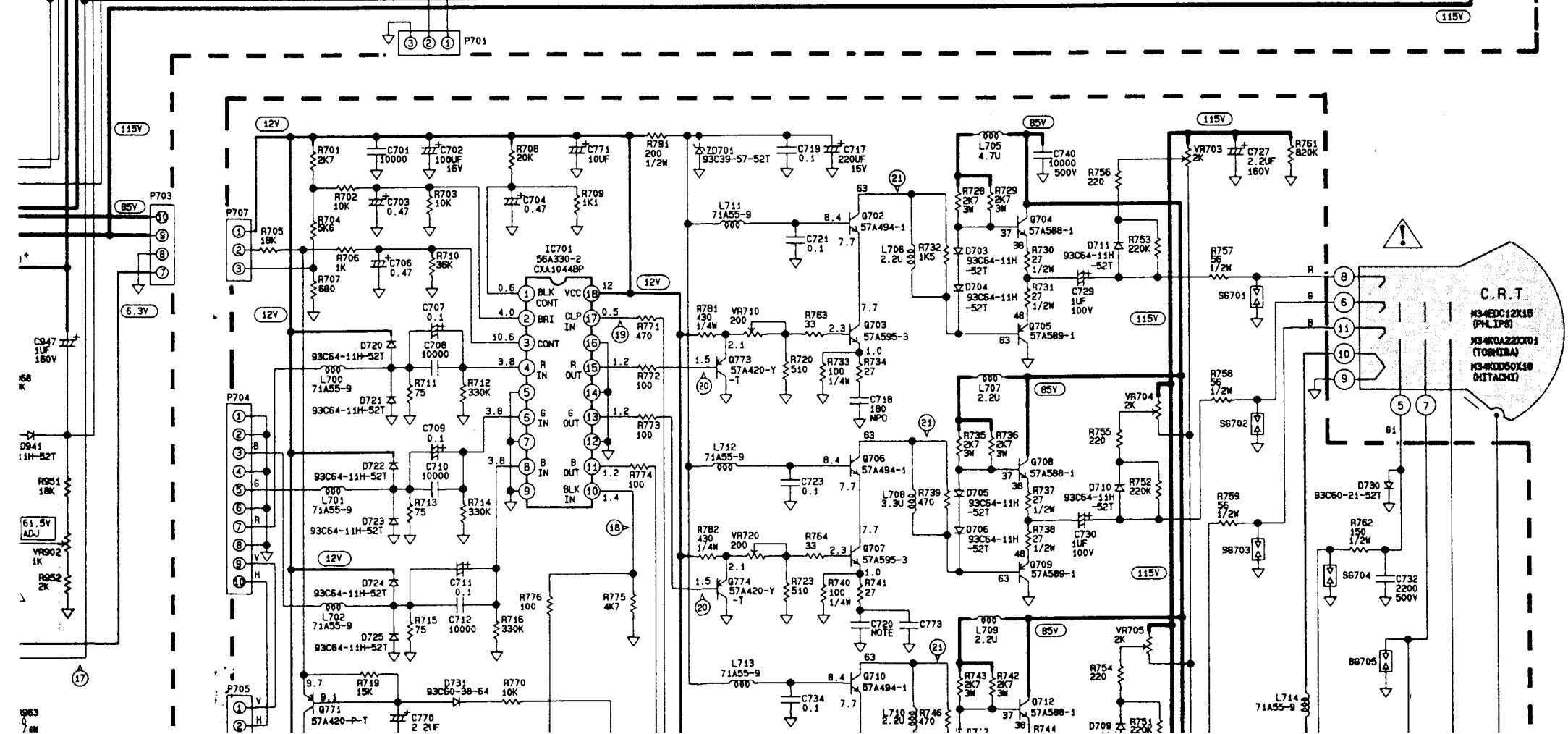
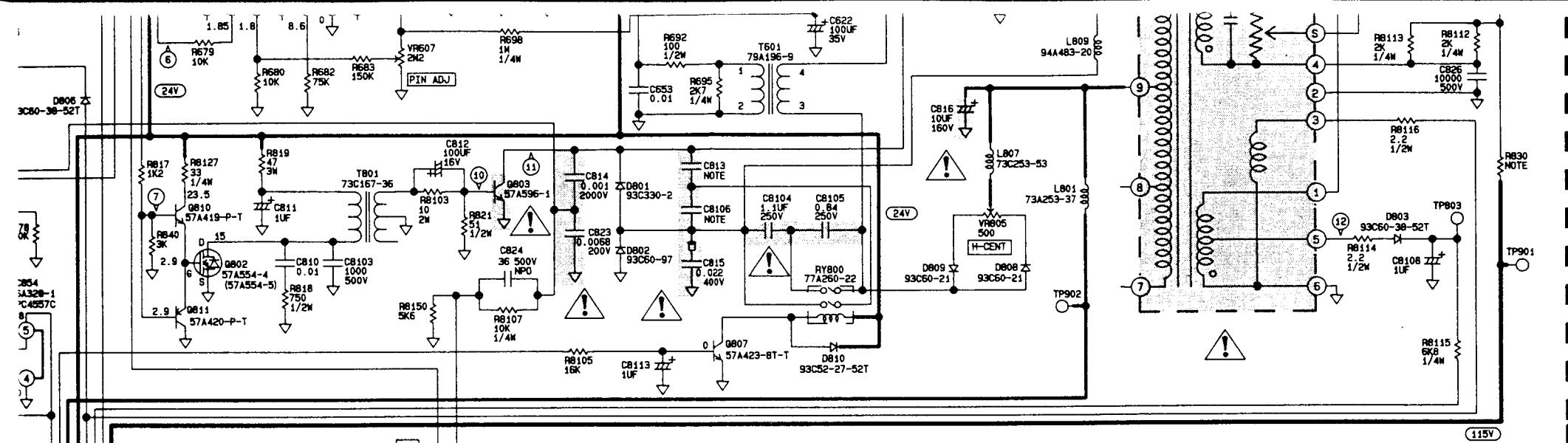


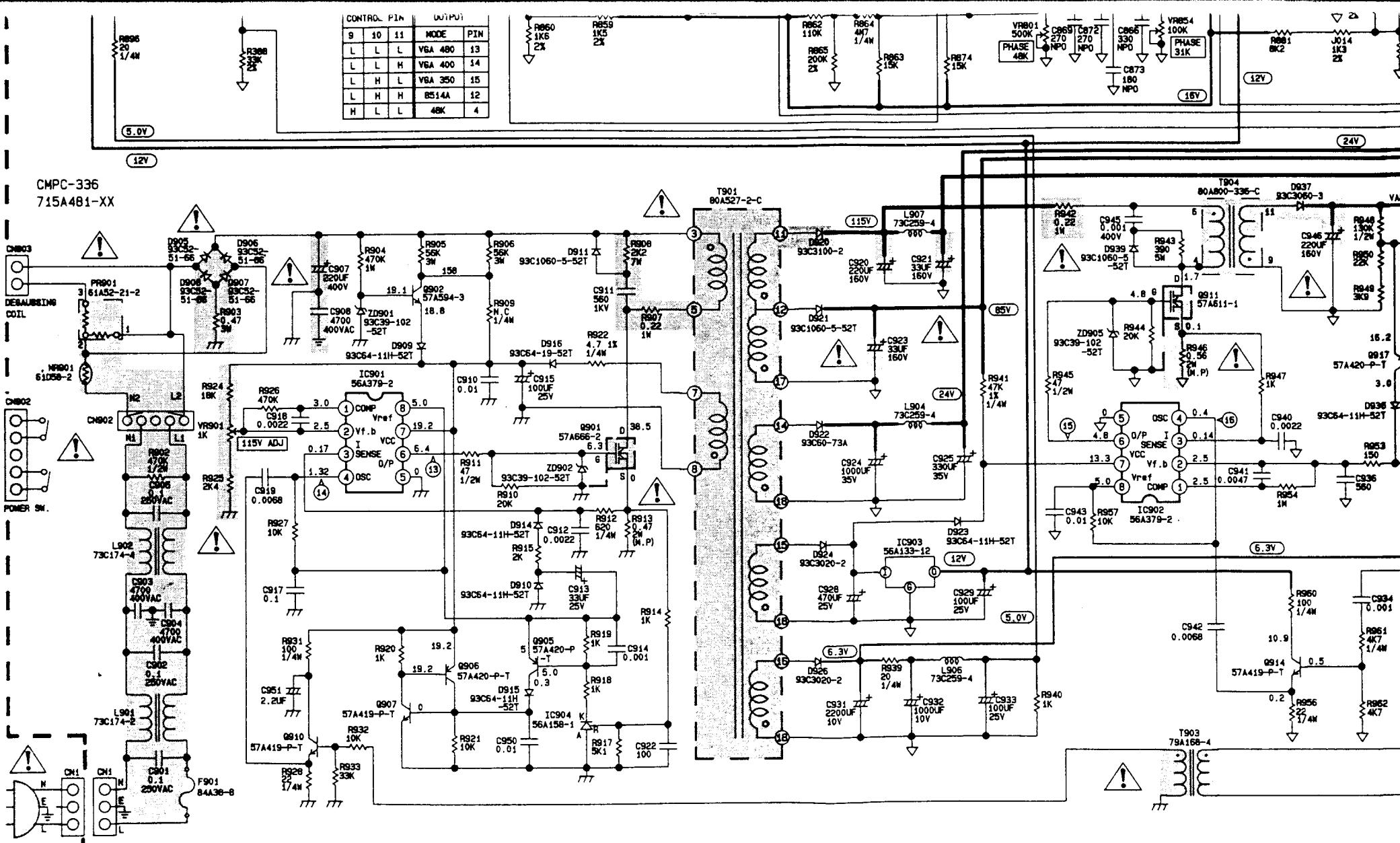












NOTE:

I.FOR CRT 750A5620-5 (TOSHIBA)

- 1.C813 3900P 2KV
- 2.C8106 0.027UF 400V
- 3.R830 270K 1/2W
- 4.C720 150P 50V

II.FOR CRT 750A5600-5 (HITACHI)

- 1.C813 4300P 2KV
- 2.C8106 0.033UF 400V
- 3.R830 220K 1/2W
- 4.C720 150P 50V

III.FOR CRT 750A5630-5 (PHILIPS)

- 1.C813 4300P 2KV
- 2.C8106 0.033UF 400V
- 3.R830 300K 1/2W
- 4.C720 180P 50V



