

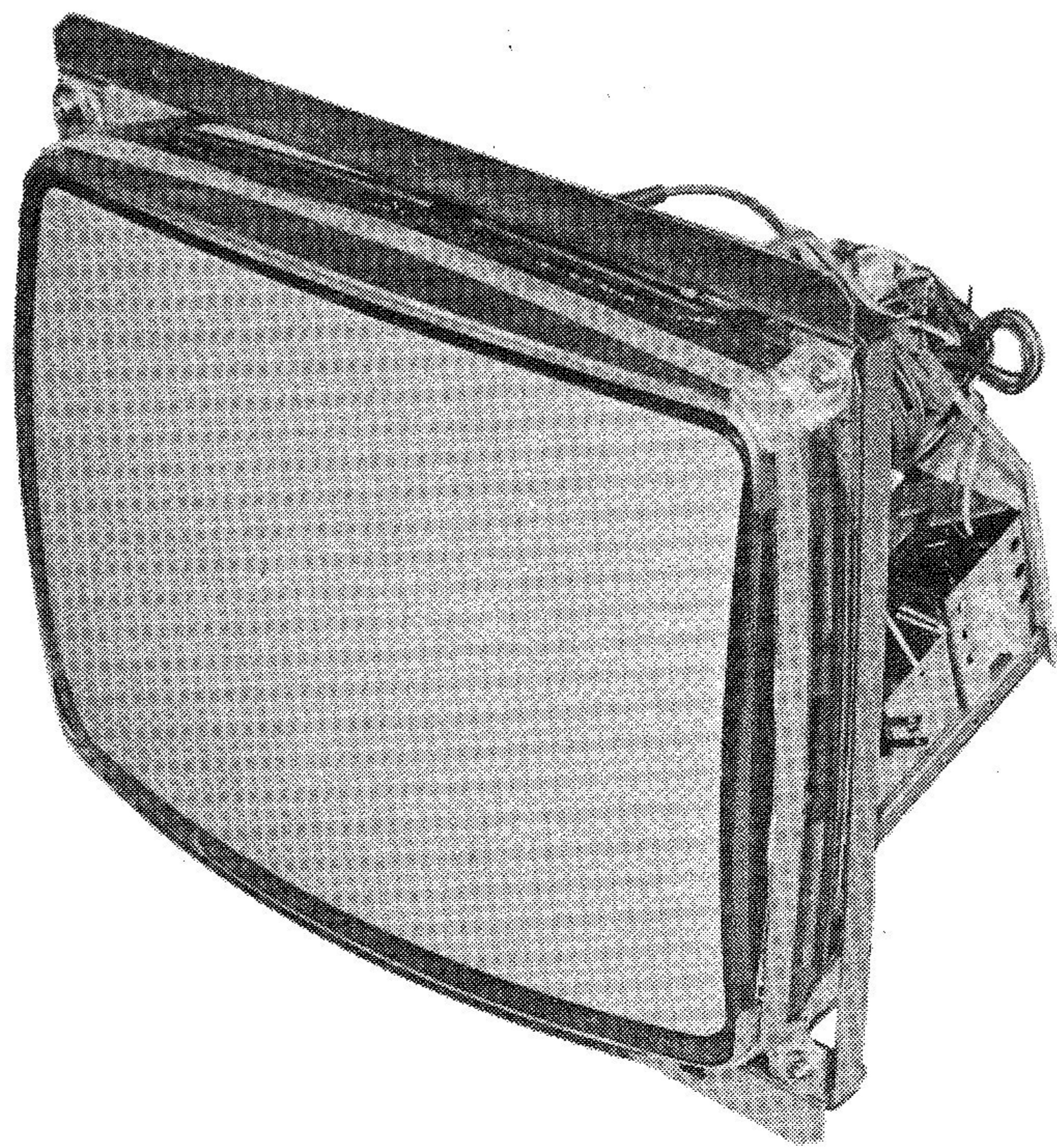
**SEGA<sup>®</sup>**

3RD PRINTING

# DISPLAY MANUAL

20" COLOR MC-2000-S

200-0039



**SEGA ENTERPRISES LTD.**

## SEGA CUSTOMER SERVICE OFFICES

- Sega Enterprises Ltd.,  
P.O. Box 63,  
Tokyo Airport Post Office,  
Tokyo 149, Japan,  
Tel : 03—742—3171 Tlx : J22357,  
Cable : SEGASTAR
  
- Gremlin Industries, Inc.,  
8401 Aero Drive,  
San Diego, California 92123,  
U.S.A.  
Tel : (714)277—8700  
Tlx : 9103351621
  
- Sega Enterprises, Inc.,  
2029 Century Park East,  
Los Angeles, California 90067  
Tel : (213)557—1700  
Tlx : 688433 SEGASTAR LSA
  
- Sega Europe Limited,  
15 Old Bond Street,  
Mayfair, London W1X 3DB  
England  
Tel : 01—409 1286  
Tlx : 25512 SEGAUK G

## NOTE

- This chapter provides you with the necessary information for ordering replacement parts for your 20" Color Monitor.
- When ordering parts from your distributor, give the part number, part name, applicable figure number of this manual (420 - 5028) and serial number of your game.
- This will help to avoid confusion and mistakes in your order.
- We hope the results will be less downtime and more profit from your game.

SEGA 製品番号 (Sega part No. of Monitor)

200-0039 Color Display Assy, 20 Type, 100v  
(NA MC-2000-S)

## TABLE OF CONTENTS

<ul style="list-style-type: none"> <li>1. SPECIFICATIONS ..... 4 ~ 6           <ul style="list-style-type: none"> <li>1.1 Power Input</li> <li>1.2 Frequency</li> <li>1.3 Power Consumption</li> <li>1.4 Monitor Input Signals</li> <li>1.5 Temperature and Humidity</li> <li>1.6 Type of CRT</li> <li>1.7 Indication Method</li> </ul> </li> <li>2. OVERVIEW OF MONITOR ..... 7</li> <li>3. OUTLINE OF ASSY PCB UNITS ..... 8</li> <li>4. BLOCK DIAGRAM ..... 9</li> <li>5. SYSTEM DIAGRAM ..... 11</li> <li>6. CAUTION ..... 13 ~ 15           <ul style="list-style-type: none"> <li>6.1 Shock</li> <li>6.2 High Voltage</li> <li>6.3 Adjusting Knobs</li> <li>6.4 High-Temperature Parts</li> <li>6.5 Handling of Malfunctions</li> <li>6.6 Magnetism</li> <li>6.7 Static Electricity</li> <li>6.8 Wire Binding</li> </ul> </li> <li>7. SCREEN VOLTAGE ..... 17           <ul style="list-style-type: none"> <li>7.1 Instrument</li> <li>7.2 Connection Diagram</li> <li>7.3 Adjustment Method</li> <li>7.4 Specification</li> <li>7.5 Adjustment Conditions</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>8. CONTROL ADJUSTMENT ..... 19 ~ 21           <ul style="list-style-type: none"> <li>8.1 Adjustment Conditions</li> <li>8.2 RV401 (Vertical hold control)</li> <li>8.3 RV501 (Horizontal hold control)</li> <li>8.4 RV402 (Vertical centering control)</li> <li>8.5 RV502 (Horizontal centering control)</li> <li>8.6 RV403 (Vertical size control)</li> <li>8.7 FOCUS</li> <li>8.8 L504 (Horizontal size control)</li> </ul> </li> <li>9. ITC ADJUSTMENT ..... 23 ~ 27           <ul style="list-style-type: none"> <li>9.1 Adjustment Conditions</li> <li>9.2 Purity Adjustment</li> <li>9.3 Static Convergence Adjustment</li> <li>9.4 Dynamic Convergence Adjustment</li> </ul> </li> <li>10. VIDEO BIAS ADJUSTMENT ..... 29           <ul style="list-style-type: none"> <li>10.1 Jig and Instrument</li> <li>10.2 Connection Diagram</li> <li>10.3 Adjustment Method</li> <li>10.4 Adjustment Conditions</li> </ul> </li> <li>11. WHITE BALANCE ADJUSTMENT ... 31           <ul style="list-style-type: none"> <li>11.1 Jig and Instrument</li> <li>11.2 Connection Diagram</li> <li>11.3 Adjustment Method</li> </ul> </li> <li>12. ASSY PCB MAIN PARTS LOCATION ..... 32</li> <li>13. ASSY PCB CRT PARTS LOCATION ..... 33</li> <li>14. PARTS LIST OF MONITOR ..... 34 ~ 42           <ul style="list-style-type: none"> <li>14.1 PCB Main Board</li> <li>14.2 PCB CRT Board</li> </ul> </li> <li>15. SCHEMATIC DIAGRAM ..... 43</li> </ul>
---	--

## 1. SPECIFICATIONS

1.1 Power Input : AC100V  $\pm$  10%

1.2 Frequency : 50/60 Hz

1.3 Power Consumption : 60W

(If you service this color monitor on a test bench, you must isolate the monitor from AC line voltage! An isolation transformer is mandatory for your own safety. This monitor does not contain an isolation transformer on its chassis. It is mounted instead on the game power supply. It may appear like a regular power transformer, but is really also an isolation transformer.)

### 1.4 Monitor Input Signals

#### o Vertical Synchronization Signal

Frequency : 50 Hz  $\sim$  60 Hz

Pulse Length : 190 $\mu$ S (=3TH)  $\sim$  500 $\mu$ S (=8TH)

#### o Horizontal Synchronization Signal

Frequency : 15.75 KHz

Pulse Length : 3 $\mu$ S  $\sim$  7 $\mu$ S

#### o Blue Video Signal

#### o Green Video Signal

#### o Red Video Signal

+Polarity	White Level	Less than 5 VDC
	Black Level	More than 0 VDC
2.5Vp-p $\sim$ 5Vp-p		
-Polarity	White Level	More than 0 VDC
	Black Level	Less than 5 VDC
3Vp-p $\sim$ 5Vp-p		

#### o 6-Pin connector for video signals:

Pin 1 = Vertical Synchronization,

Pin 2 = Horizontal Synchronization, Pin 3 = GND,

Pin 4 = Blue Video, Pin 5 = Green Video,

Pin 6 = Red Video

### 1.5 Temperature and Humidity

o Environmental Temp. : 0°C  $\sim$  40°C

o Environmental Humidity : 70% Max.

1.6 Type of CRT

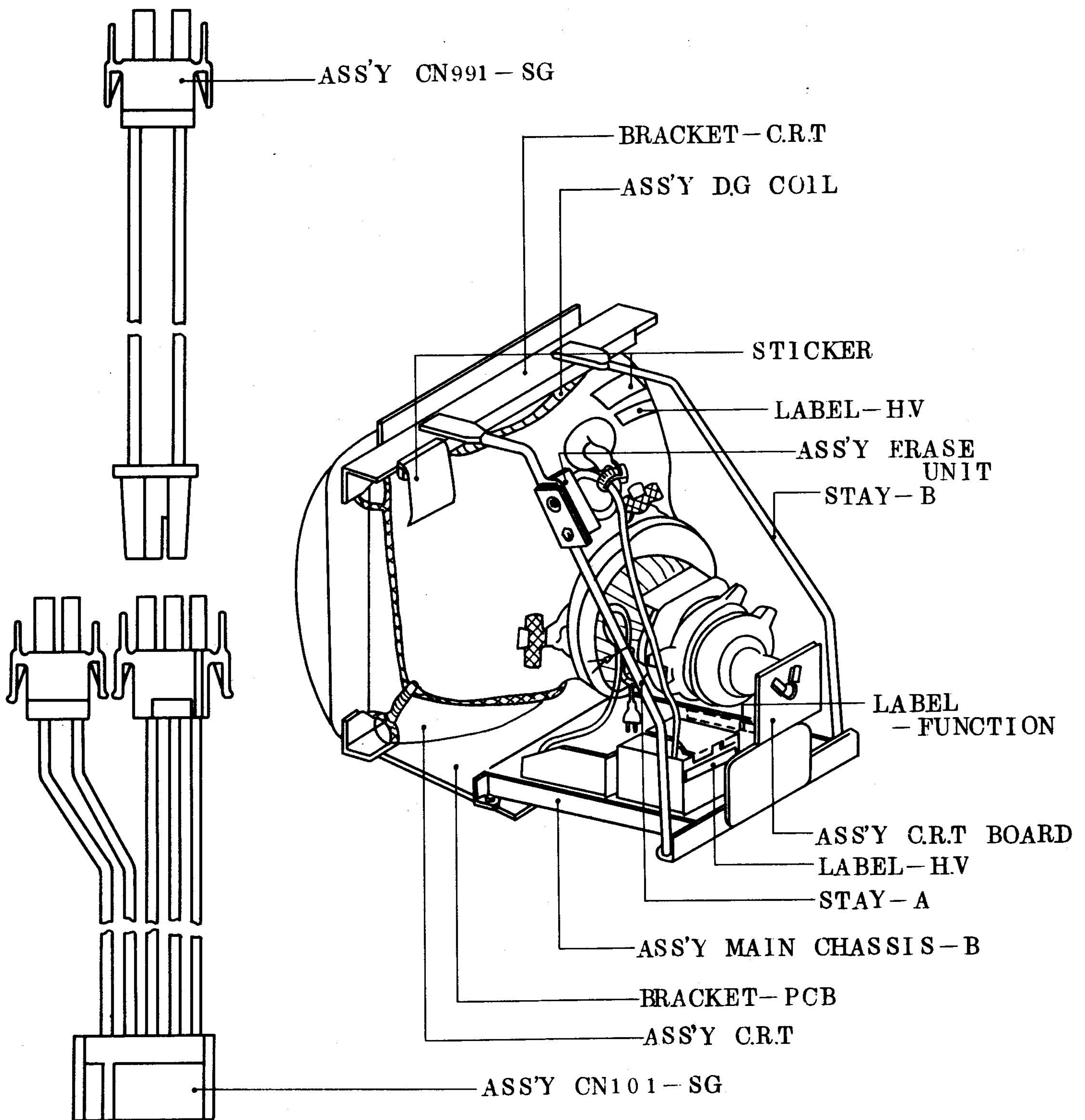
20" 90° color

510UKB22 or 510NJB22

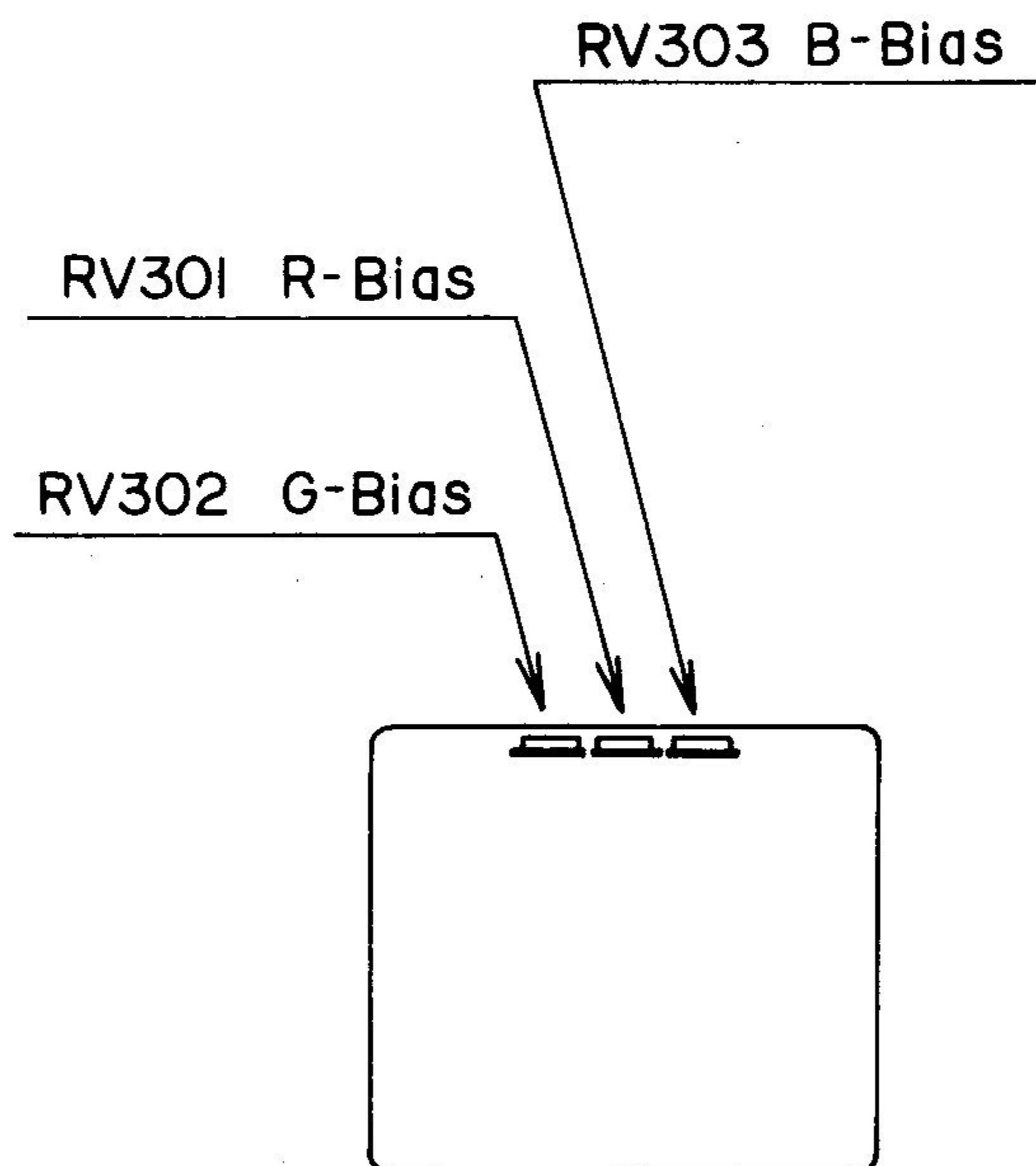
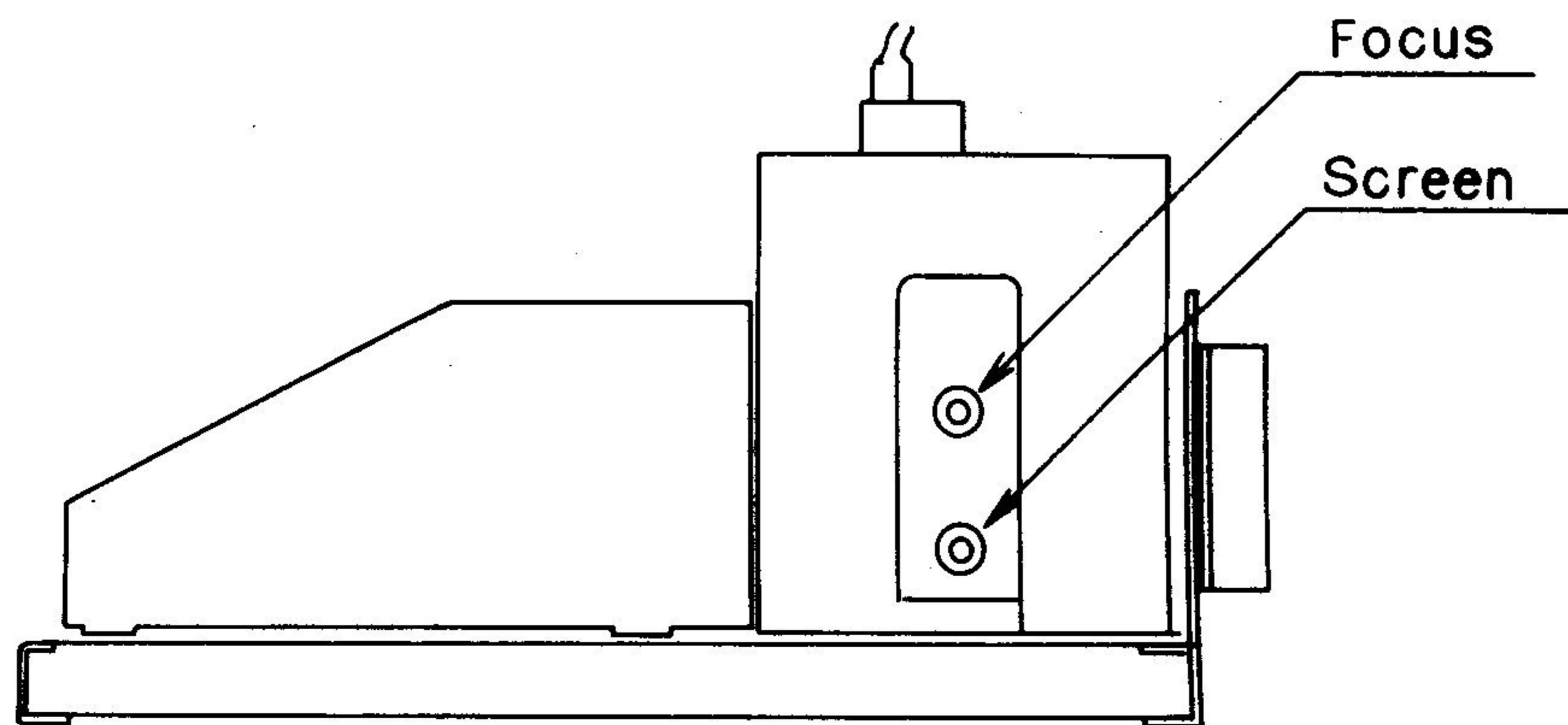
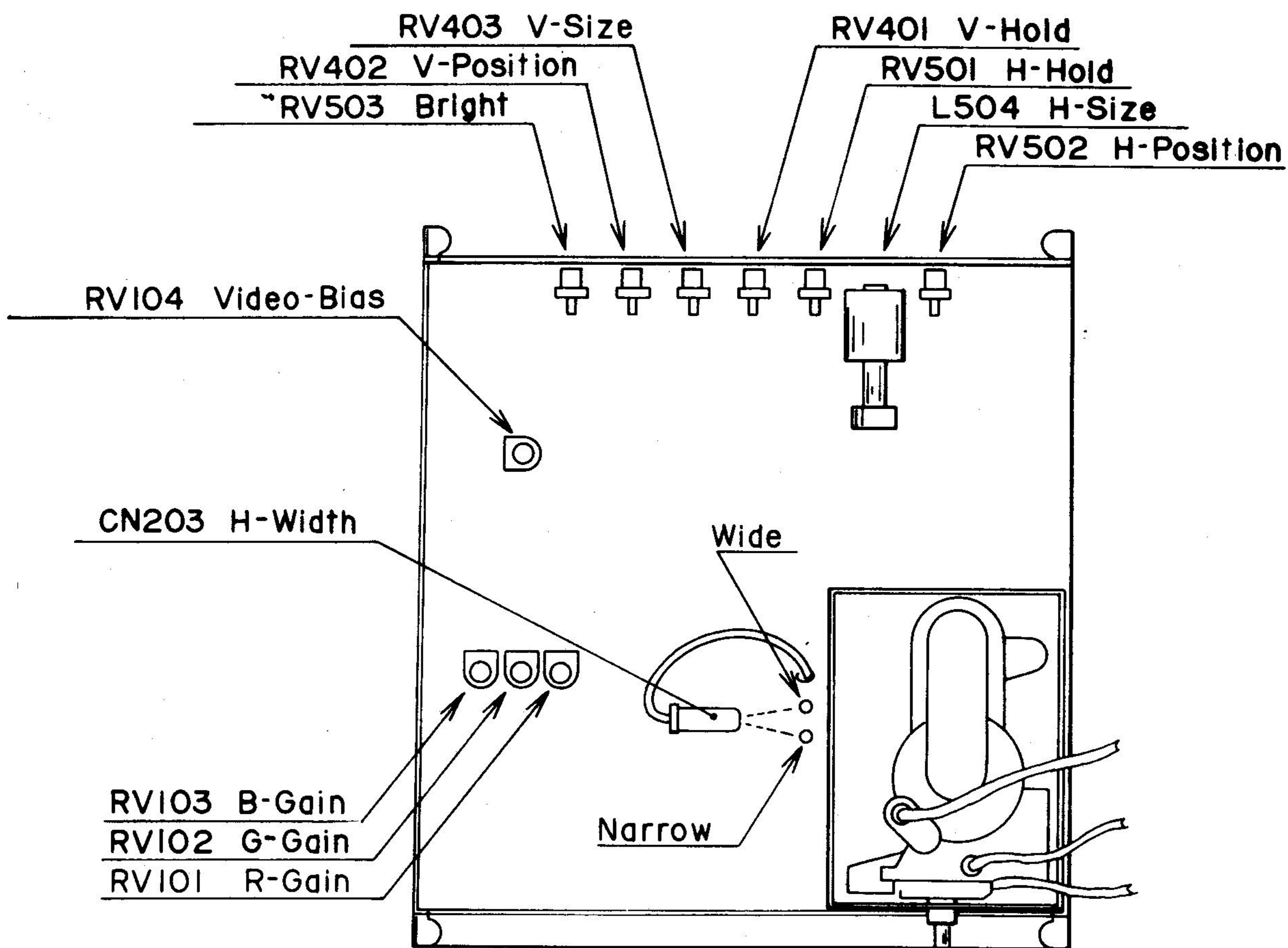
1.7 Indication Method

TV Scanning Method

## 2. OVERVIEW OF MONITOR



### 3. Outline of Assy PCB Units

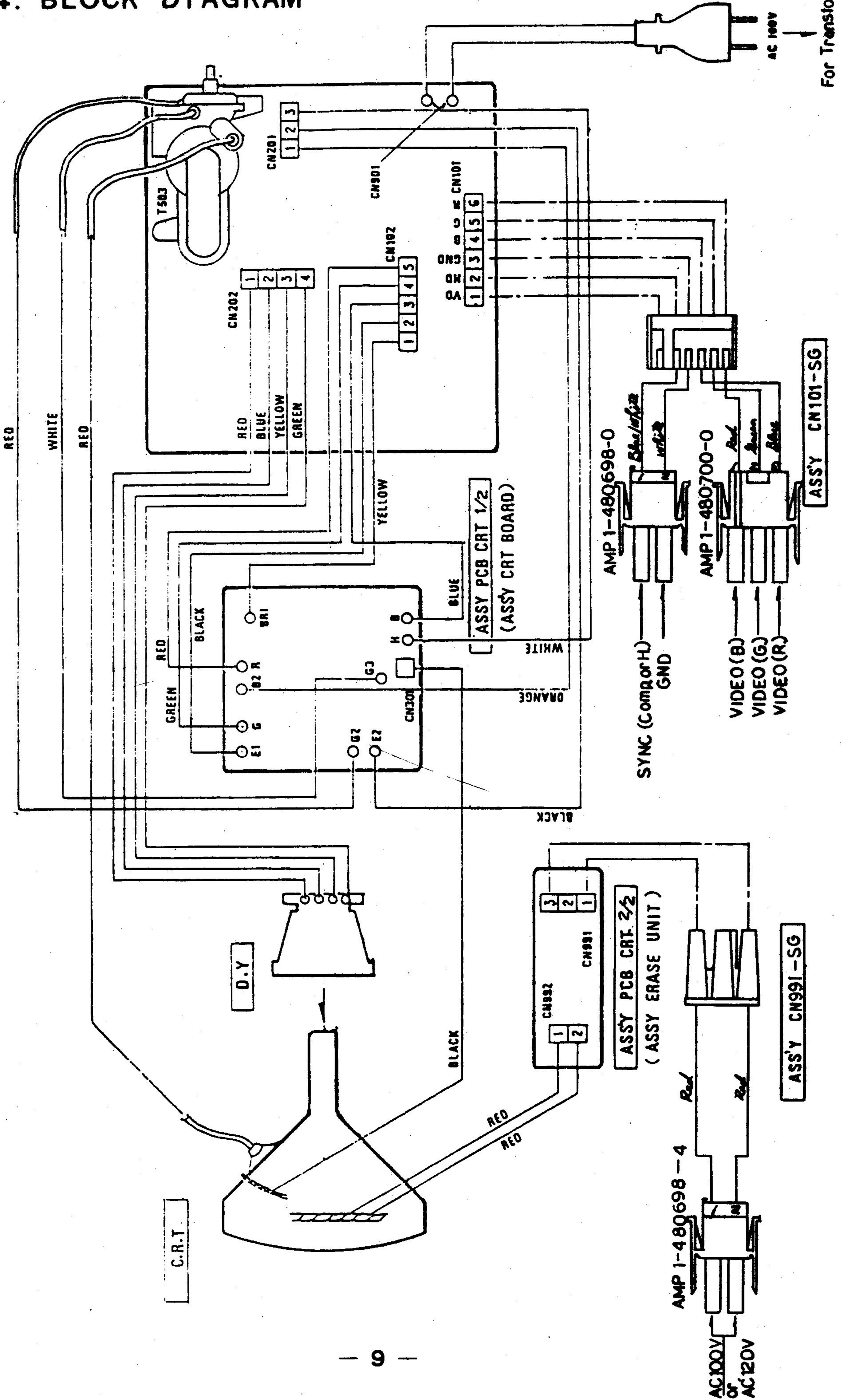




# 4. BLOCK DIAGRAM

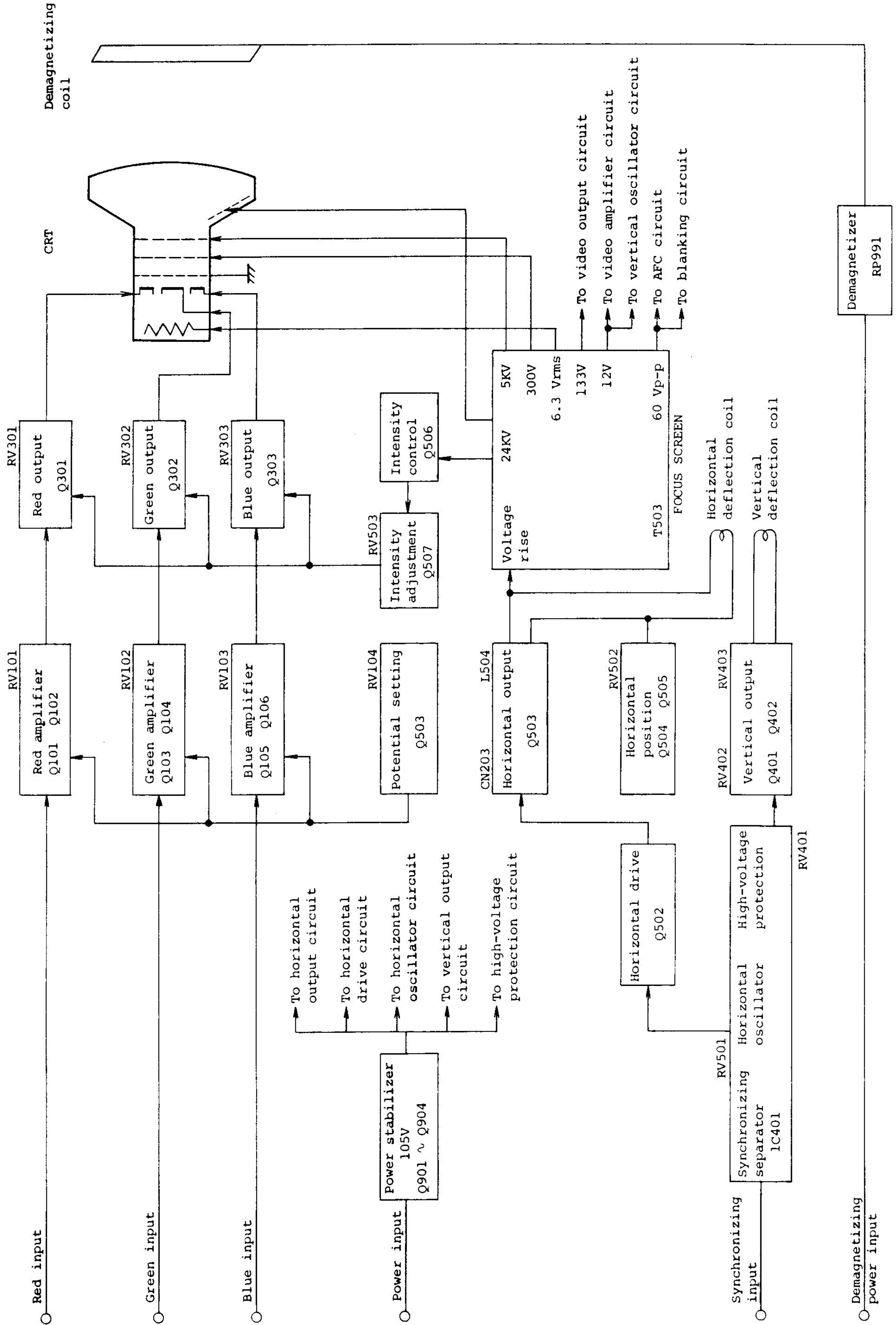
ASS'Y PCB MAIN

(ASS'Y MAIN CHASSIS-B)



For Transformer

# 5. SYSTEM DIAGRAM



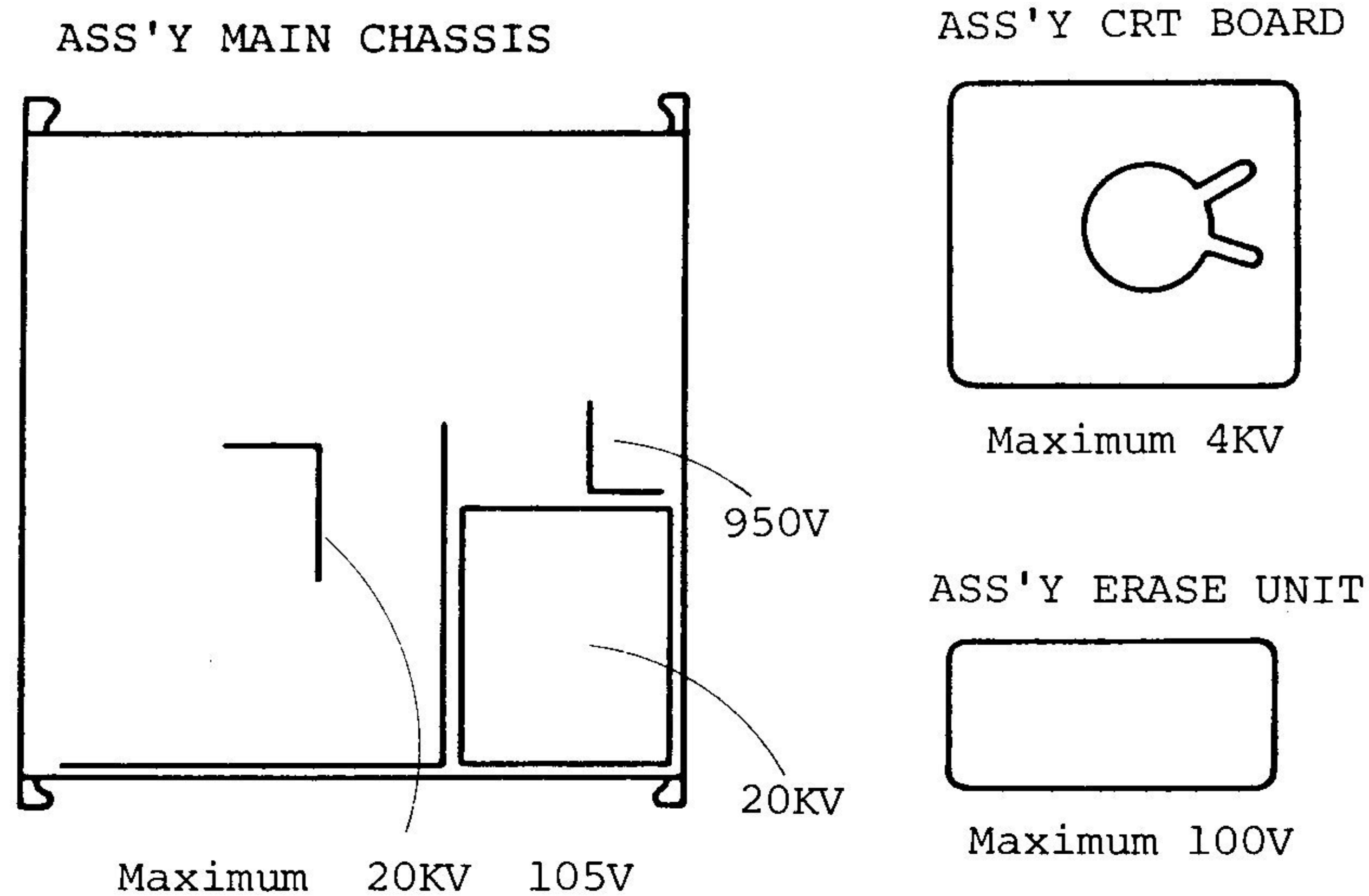
## 6. CAUTION

### 6.1 Shock

Be careful, not to cause shocks when carrying the monitor because they may cause a defect. The packing for transportation tolerates a drop from a height of 500 mm; if dropped through a greater distance, the monitor may be damaged.

### 6.2 High Voltage

Inside the color monitor, a high voltage of over 20 KV is generated at some places. Be careful not to touch these parts. When you must make contact with these parts, first disconnect the plug from the receptacle.

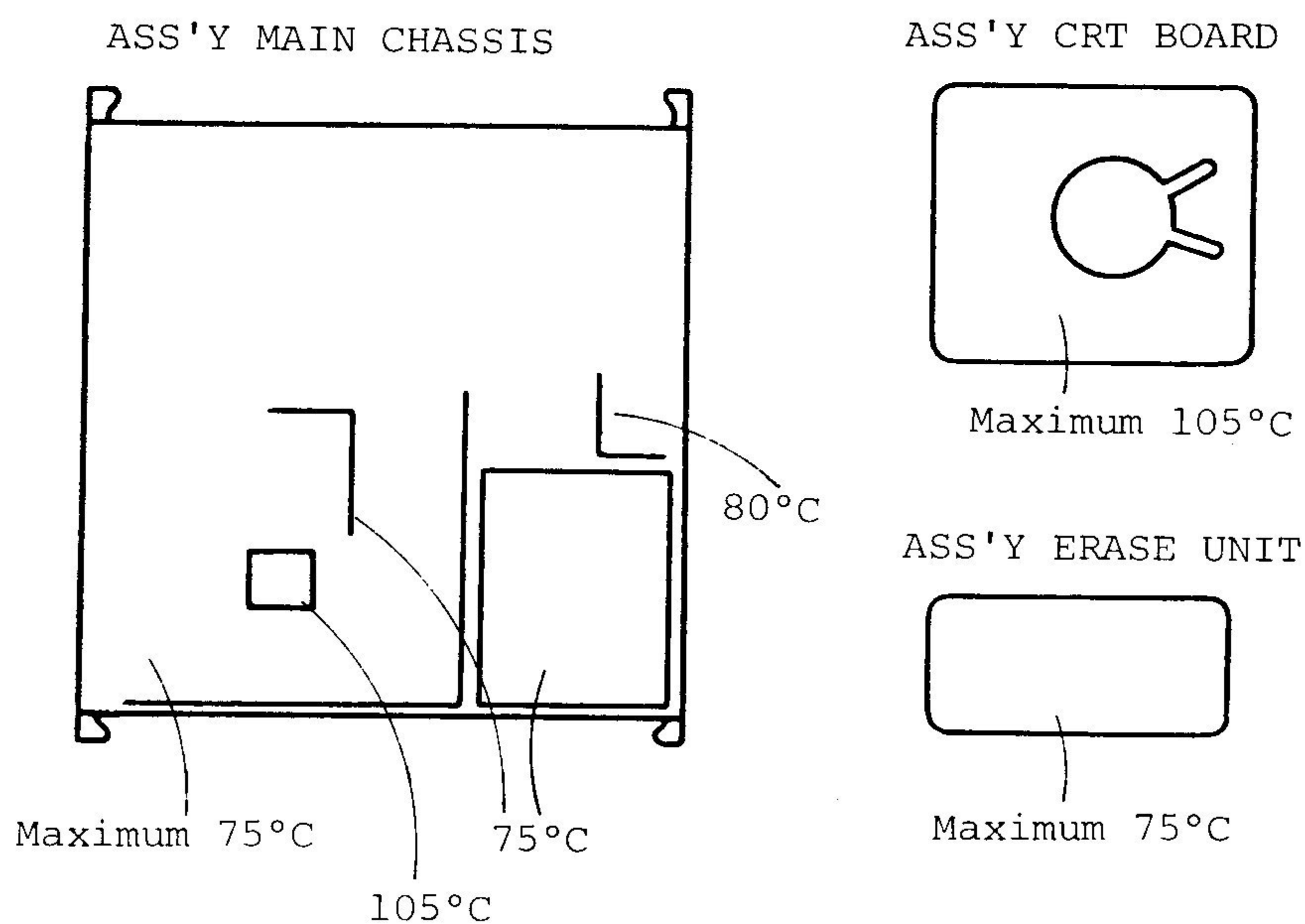


### 6.3 Adjusting Knobs

The adjusting knobs should not be manipulated by laymen; adjustment must be done by an expert only. Over a long period, the setting may need adjustment again. For the details of adjustment, refer to the Adjustment Guide.

#### 6.4 High-Temperature Parts

Be careful not to leave stray bits of solder or paper inside the color monitor; they may cause malfunction, electrocution, or fire. Take special precautions to prevent tampering by customers.



#### 6.5 Handling of Malfunctions

When an abnormal noise, smoke, or odor occurs, turn off the power switch, and at the same time disconnect the plug from the receptacle. If the monitor is used in such a condition, it may cause unexpected trouble.

#### 6.6 Magnetism

Magnetism causes color disturbance; Keep the monitor away from magnets and speakers which will cause undesired coloring of the screen or distortion, but no serious trouble.

#### 6.7 Static Electricity

When you touch the surface of the CRT, you may feed a slight charge of static electricity, which is harmless to humans.

#### 6.8 Wire Binding

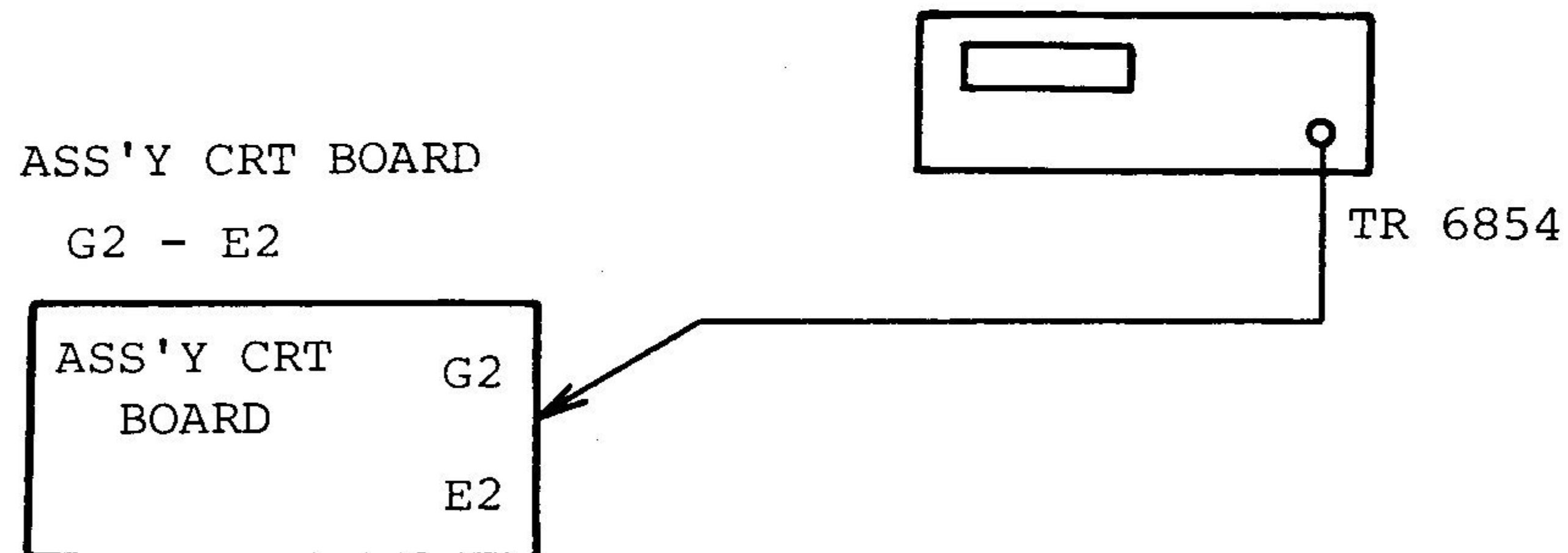
The wires (2) from the flyback transformer (T503) to the CRT board must be bound separate from other wires because of the high voltage they carry.

## 7. SCREEN VOLTAGE

### 7.1 Instrument

Digital voltmeter: YHP TR 6854

### 7.2 Connection Diagram



### 7.3 Adjustment Method

- o Connect the digital voltmeter between G2 and E2 on the assembly CRT board, and adjust the screen control to obtain 210V.

### 7.4 Specification

- o  $210V \pm 10V$

### 7.5 Adjustment Conditions

- o Power voltage : Rated voltage  $\pm 2\%$
- o RV503 : Maximum (Fully turn clockwise)

(When a separate Adjustment Guide is provided, it has priority over this.)

## 8. CONTROL ADJUSTMENT

### 8.1 Adjustment Conditions

- o Power voltage : Rated Voltage  $\pm$  2%
- o RV101 ~ 3, RV301 ~ 3 : Center approximately (white raster)
- o RV503 : 1K = 600  $\mu$ A

### 8.2 RV401

- o Vertical hold control
- o Turn in both directions and set at the mid point of rise (approximate center of the lock-in range of synchronization)
- o Step-out should not occur at power on/off.

### 8.3 RV501

- o Horizontal hold control
- o Turn in both directions and set at the mid point of rise (approximate center of lock-in range of synchronization)
- o Step-out should not occur at power on/off.

### 8.4 RV402

- o Vertical centering control
- o Turn in both directions and set the video information size to the center of the CRT screen.  
(When a separate Adjustment Guide is provided, it has priority over this.)

### 8.5 RV502

- o Horizontal centering control
- o Turn in both directions and set the video information size to the center of CRT screen.  
(When a separate Adjustment Guide is provided, it has priority over this.)

## 8.6 RV403

- o Vertical size control

- o Set scan to 104% (overscan 4%).

(When a separate Adjustment Guide is provided, it has priority over this.)

## 8.7 Focus

- o Focusing control

- o Adjust to the optional state.

## 8.8 L504

- o Horizontal size control coil

- o Scan 104% (overscan 4%)

(When a separate Adjustment Guide is provided, it has priority over this.)

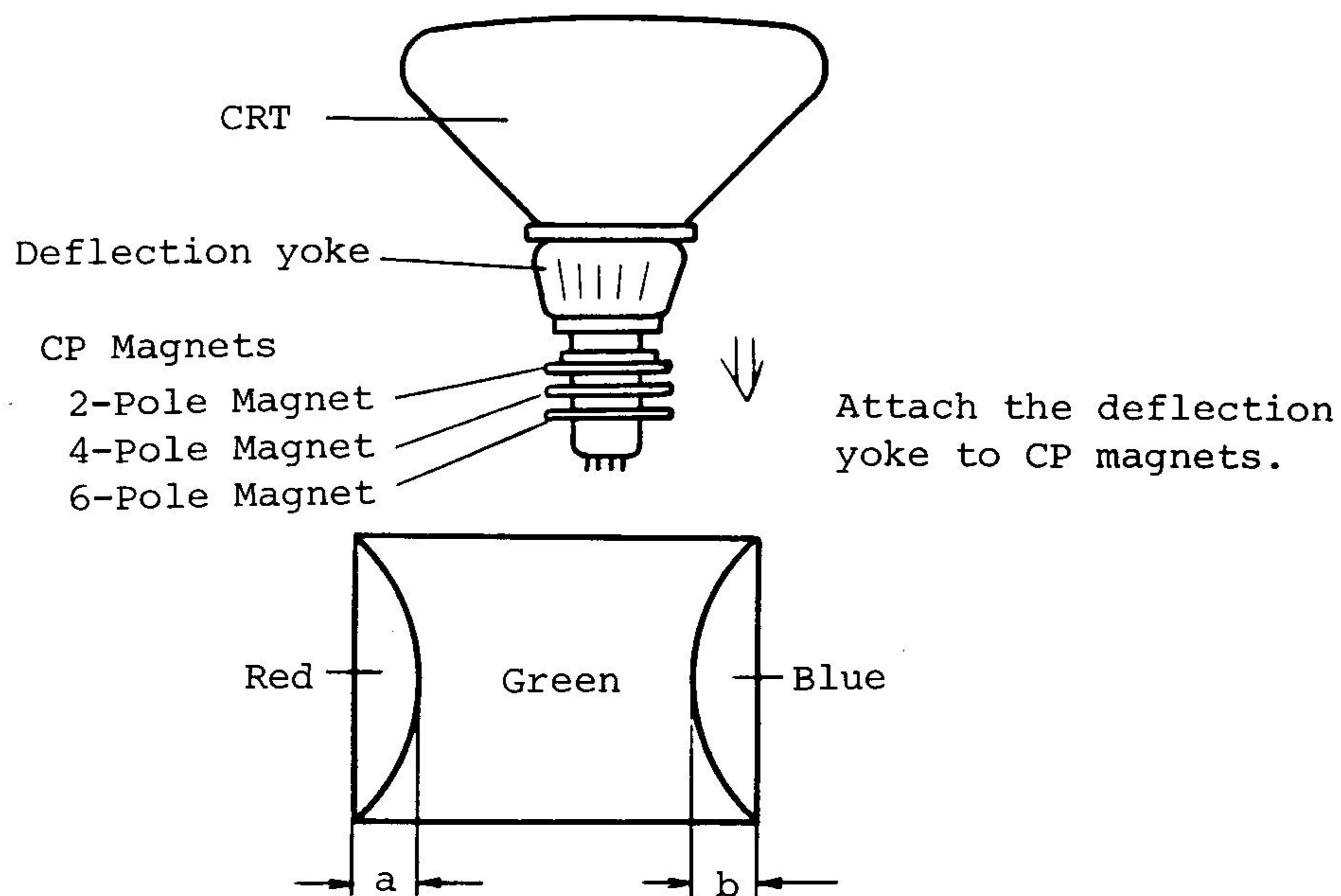
## 9. ITC ADJUSTMENT

### 9.1 Adjustment Conditions

- o Power voltage : Rated voltage  $\pm 2\%$
- o RV503 : Center
- o RV101 ~ 3 : Center
- o Other controls : Adjusted
- o Demagnetize the CRT brackets, shadow mask, and other metal parts with the demagnetizing coil (HOZAN HC-21).

### 9.2 Purity Adjustment

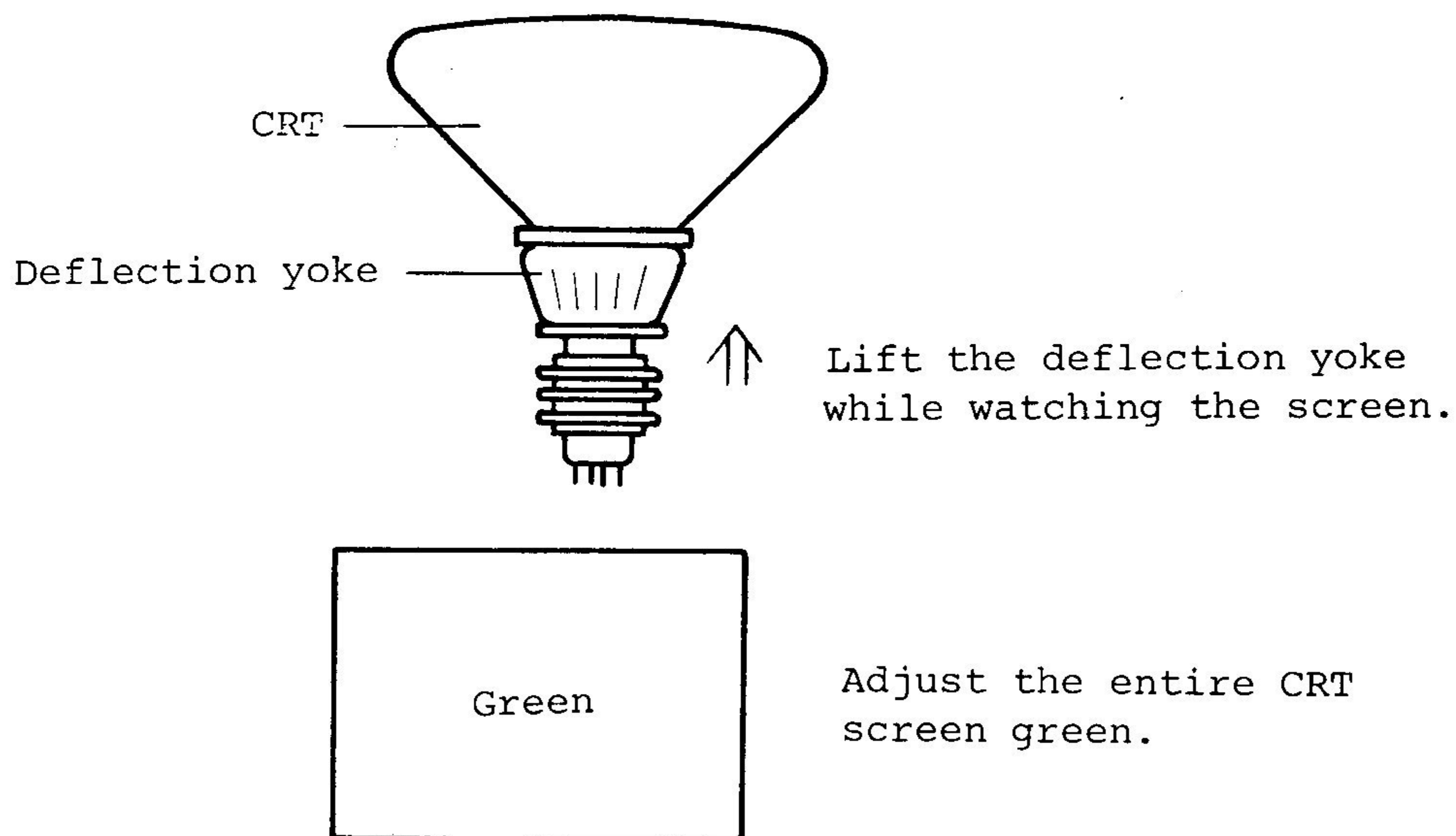
- o Attach the deflection yoke to the CP magnet and adjust RV301 to minimum (fully rotate counterclockwise)  
RV302 to maximum (fully rotate clockwise)  
RV303 to minimum (fully rotate counterclockwise)  
to obtain a green screen.



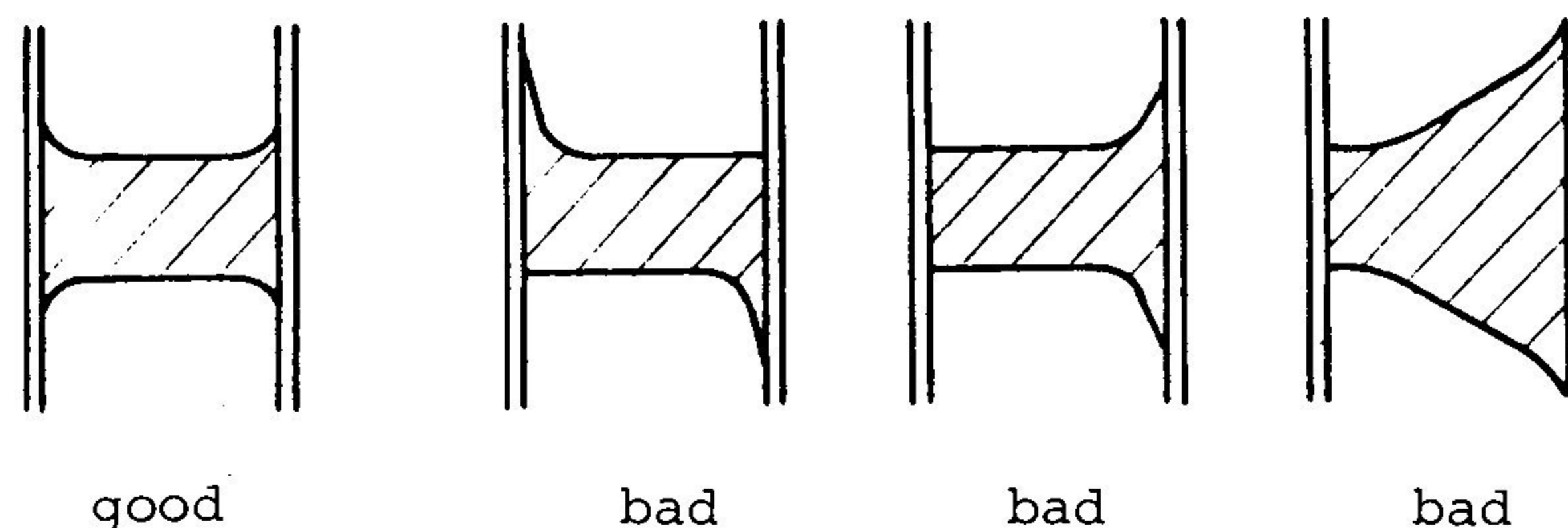
- o Adjust the 2-pole magnet to obtain the same intensity of red and blue ( $a=b$ ).



- o Gradually lift the deflection yoke until the color shading at the four corners of the screen disappears, then temporarily fix it.



- o Obtain the optimum beam landing state by observing through a microscope.

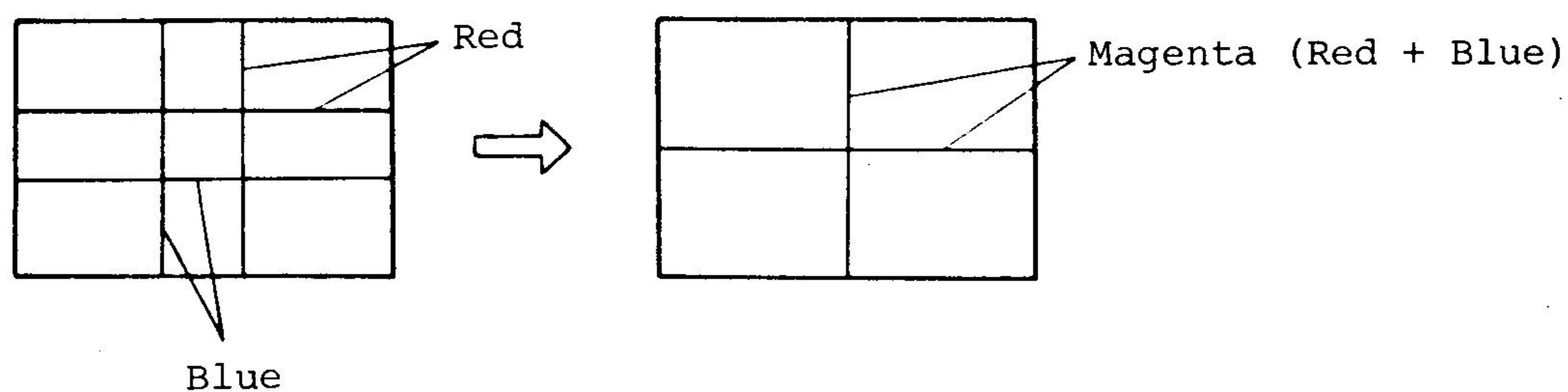


- o Check that the above conditions are satisfied, and then fix in that Condition.

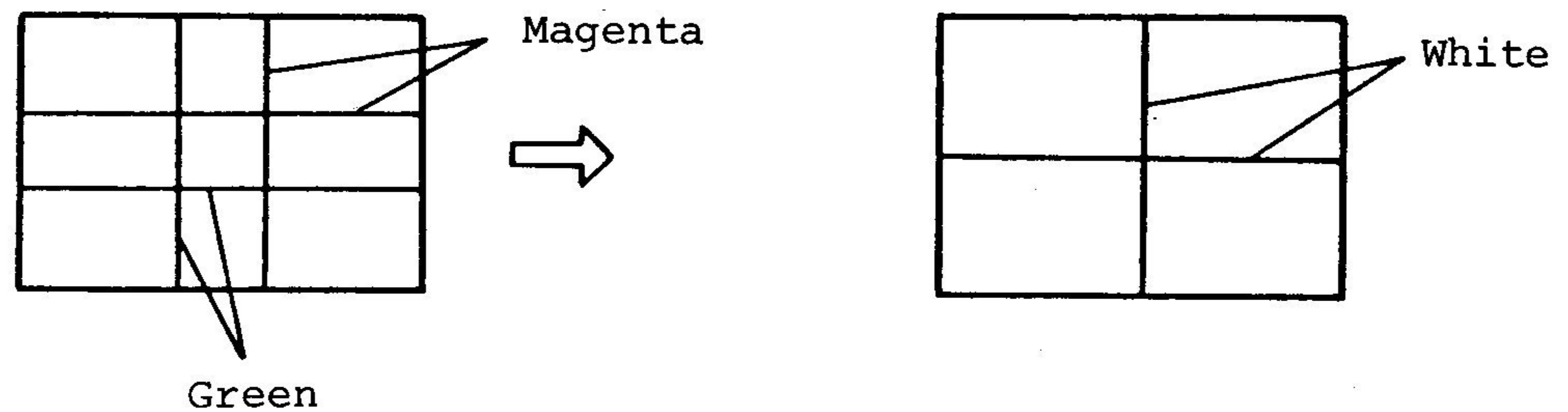
### 9.3 Static Convergence Adjustment

- o Select the crosshatch pattern
- o Obtain a magenta screen by the following setting:

RV301: Maximum (fully turn clockwise)  
 RV302: Minimum (fully turn counterclockwise)  
 RV303: Maximum (fully turn clockwise)



- o Adjust the 4-pole magnet to match the red and blue levels.
- o Turn RV302 to maximum (fully turn clockwise) to emit green.



- o Adjust the 6-pole magnet to match the green and magenta (red + blue) levels.

#### 9.4 Dynamic Convergence Adjustment

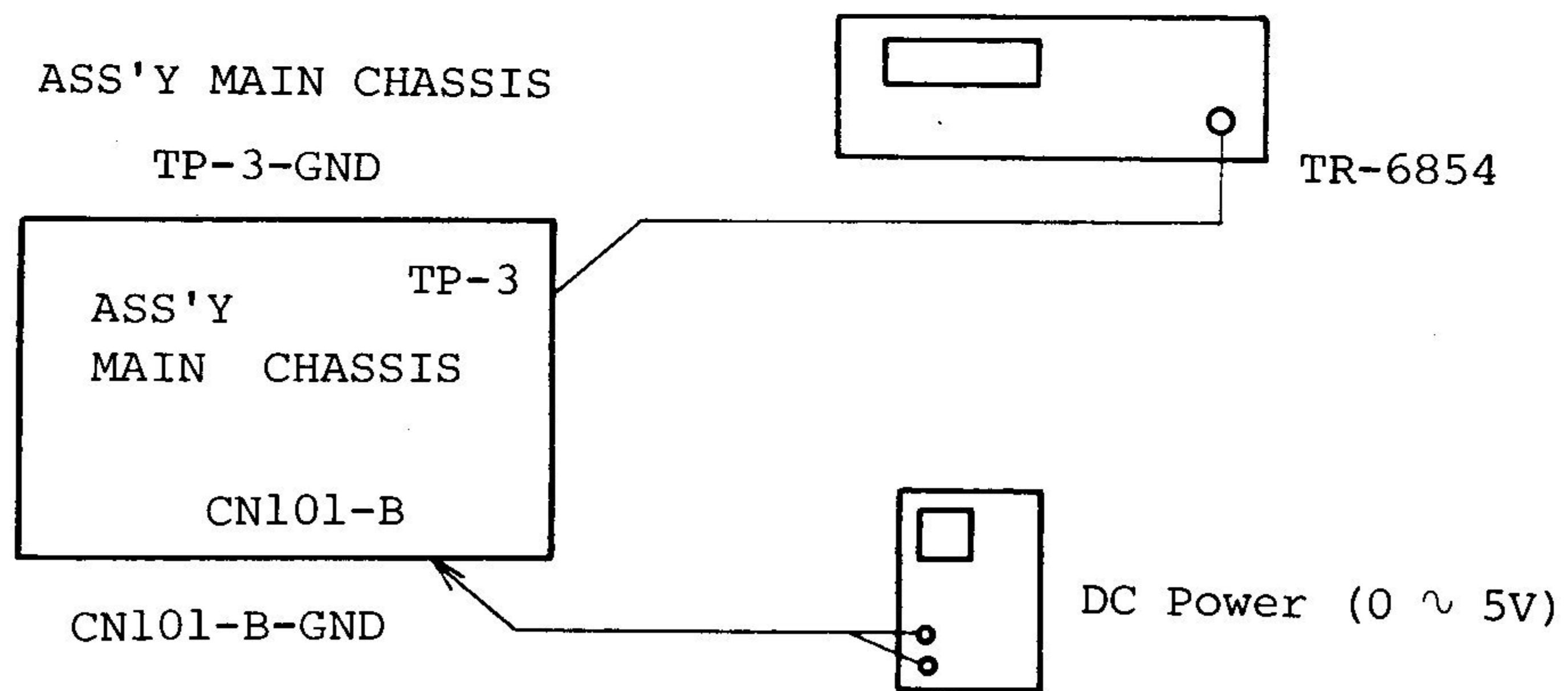
- o Check that the static convergence is adjusted.
- o Oscillate and adjust the deflection yoke so the cross hatches at the four corners of the CRT cross.
- o Fix the deflection yoke with three wedges.
- o Fix the wedges with silicon adhesives, dual-sided adhesive tape, and glass-cloth tape.

## 10. VIDEO BIAS ADJUSTMENT

### 10.1 Jig and Instrument

- o Digital voltmeter : YHP TR 6854
- o DC power : Output 0 - 5V

### 10.2 Connection Diagram



### 10.3 Adjustment Method

With RV103 and RV104, adjust the voltage at TP3 to 6V when a black-level signal is input, and 10V when a white-level signal is input.

### 10.4 Adjustment Conditions

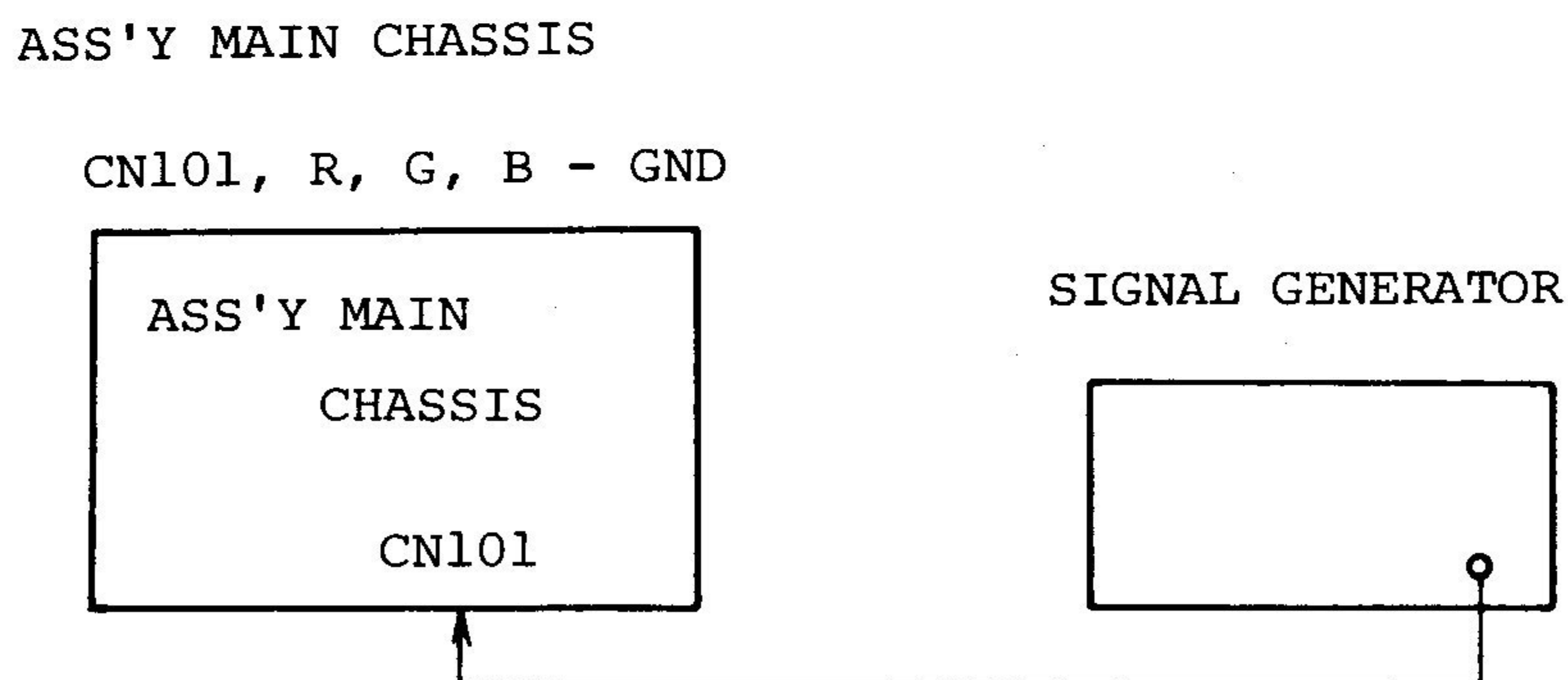
- o Power voltage : Rated voltage  $\pm$  2%
- o RV503 : Center setting

## 11. WHITE BALANCE ADJUSTMENT

### 11.1 Jig and Instrument

- o Use the staircase signal with the same white or black level as the signal used.

### 11.2 Connection Diagram

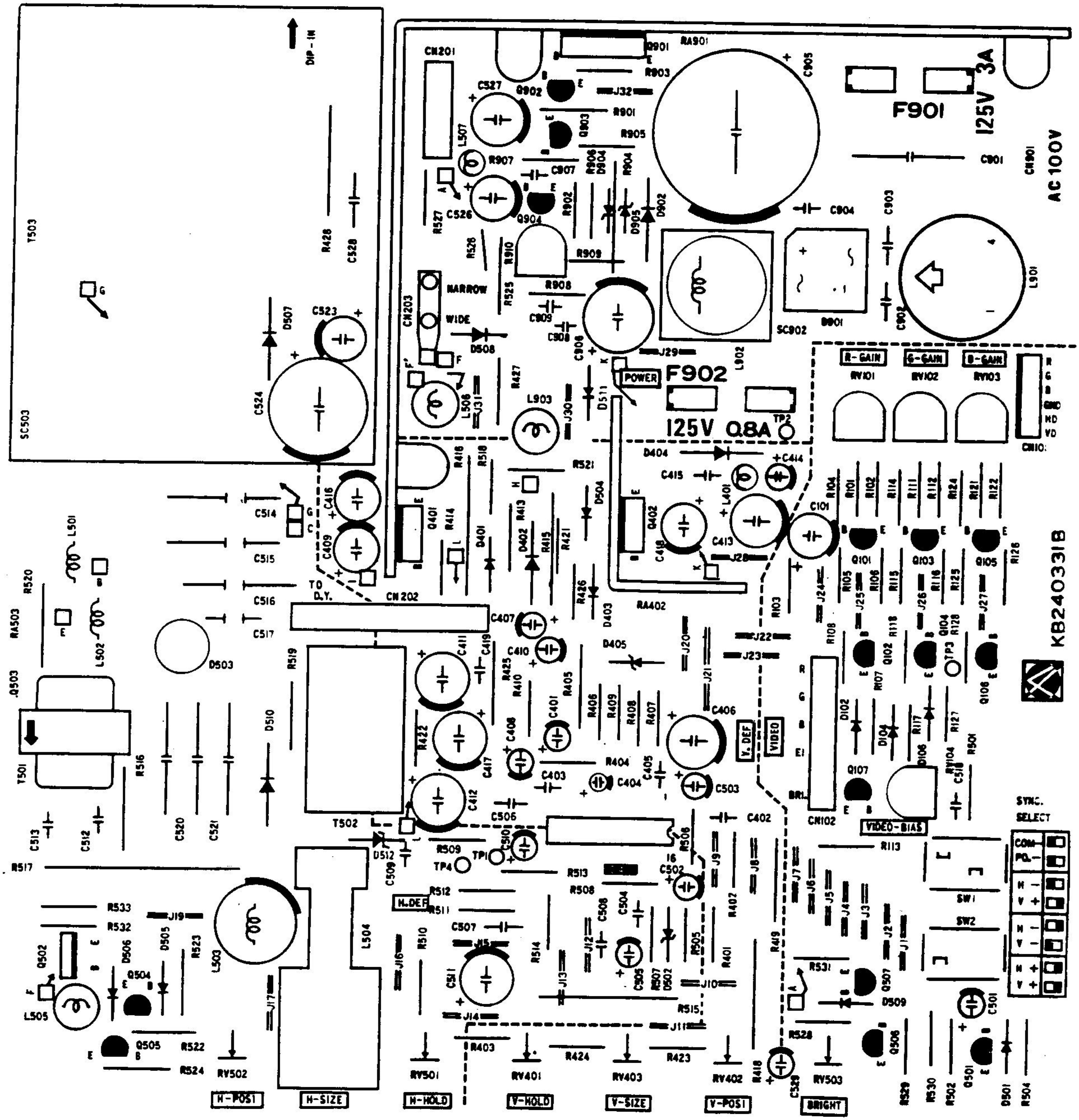


### 11.3 Adjustment Method

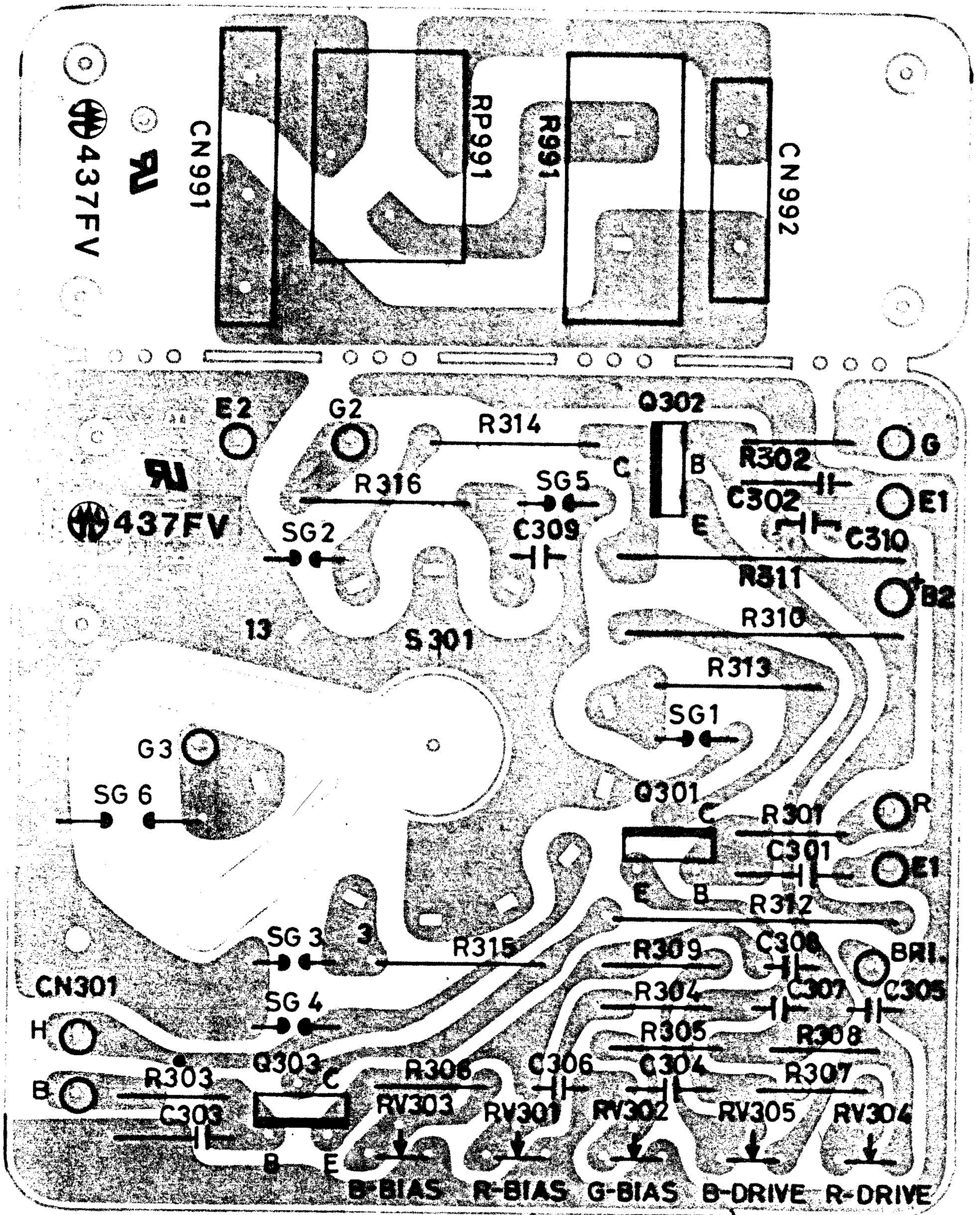
- o Turn RV101, 102, 301 and 302 to minimum (fully counterclockwise).
- o Adjust the white or black level of the blue signal by turning RV503 and RV303.
- o Adjust RV503 to the state just before the black level of signal B prevails.
- o Adjust the white and black levels of the red and green signals to obtain white balance of those levels by manipulating RV101 and RV301, and RV102 and RV302.
- o Adjust the white level by turning RV503.

(When a separate Adjustment Guide is provided, it has priority over this.)

# 12. ASS'Y PCB MAIN PARTS LOCATION



# 13. ASSY PCB CRT PARTS LOCATION



## 14. PARTS LIST OF MONITOR

### 14.1 Ass'y PCB Main Parts List

Symbol	Description			Part No.
	Assy PCB-MAIN			KB240331-B
R101	R-CARBON	NAS 1/4	680Ω-J	
R102	R-CARBON	NAS 1/4	680Ω-J	
R103	R-CARBON	NAS 1/4	2.2KΩ-J	
R104	R-CARBON	NAS 1/4	390Ω-J	
R105	R-CARBON	NAS 1/4	2.2KΩ-J	
R106	R-CARBON	NAS 1/4	390Ω-J	
R107	R-CARBON	NAS 1/4	1KΩ-J	
R108	R-CARBON	NAS 1/4	100Ω-J	
R111	R-CARBON	NAS 1/4	680Ω-J	
R112	R-CARBON	NAS 1/4	680Ω-J	
R113	R-CARBON	NAS 1/4	15KΩ-J	
R114	R-CARBON	NAS 1/4	390Ω-J	
R115	R-CARBON	NAS 1/4	2.2KΩ-J	
R116	R-CARBON	NAS 1/4	390Ω-J	
R117	R-CARBON	NAS 1/4	1KΩ-J	
R118	R-CARBON	NAS 1/4	100Ω-J	
R121	R-CARBON	NAS 1/4	680Ω-J	
R122	R-CARBON	NAS 1/4	680Ω-J	
R124	R-CARBON	NAS 1/4	390Ω-J	
R125	R-CARBON	NAS 1/4	2.2KΩ-J	
R126	R-CARBON	NAS 1/4	390Ω-J	
R127	R-CARBON	NAS 1/4	1KΩ-J	
R128	R-CARBON	NAS 1/4	100Ω-J	
R401	R-CARBON	NAS 1/4	10KΩ-J	
R402	R-CARBON	NAS 1/4	8.2KΩ-J	
R403	R-CARBON	NAS 1/4	3.3KΩ-J	
R404	R-CARBON	NAS 1/4	8.2KΩ-J	
R405	R-CARBON	NAS 1/2	270Ω-J	
R406	R-CARBON	NAS 1/4	10KΩ-J	
R407	R-CARBON	NAS 1/4	680Ω-J	

Symbol		Description		Part No.
R408	R-CARBON	NAS 1/4	1.8K $\Omega$ -J	
R409	R-CARBON	NAS 1/4	8.2K $\Omega$ -J	
R410	R-CARBON	NAS 1/4	10K $\Omega$ -J	
R413	R-FUSABLE	FMR 1/4W	100 $\Omega$ -J	
R414	R-CARBON	NAS 1/4	2.2K $\Omega$ -J	
R415	R-METAL	RS1B	10K $\Omega$ -J	
R416	R-FUSABLE	FMR 1/4C	22 $\Omega$ -J	
R417	R-CEMENT	RGBIOH (V)	220 $\Omega$ -K	
R418	R-METAL	RS1B	4.7K $\Omega$ -J	
R419	R-CARBON	NAS 1/2	2.2K $\Omega$ -J	
R421	R-CARBON	NAS 1/4	68K $\Omega$ -J	
R422	R-CARBON	NAS 1/4	6.8 $\Omega$ -J	
R423	R-CARBON	NAS 1/4	470 $\Omega$ -J	
R424	R-FUSABLE	FMR 1/4W	5.6 $\Omega$ -J	
R425	R-CARBON	NAS 1/2	390 $\Omega$ -J	
R426	R-CARBON	NAS 1/4	6.8K $\Omega$ -J	
R427	R-FUSABLE	FMR 1/2W	1.2 $\Omega$ -J	
R428	R-FUSABLE	FMR 2W	1.2 $\Omega$ -J	
R501	R-CARBON	NAS 1/4	330 $\Omega$ -J	
R502	R-CARBON	NAS 1/4	10K $\Omega$ -J	
R504	R-CARBON	NAS 1/4	10K $\Omega$ -J	
R505	R-CARBON	NAS 1/4	27K $\Omega$ -J	
R506	R-CARBON	NAS 1/4	390K $\Omega$ -J	
R507	R-CARBON	NAS 1/4	18K $\Omega$ -J	
R508	R-CARBON	NAS 1/4	68K $\Omega$ -J	
R509	R-CARBON	NAS 1/4	6.8K $\Omega$ -J	
R510	R-CARBON	NAS 1/4	10K $\Omega$ -J	
R511	R-CARBON	NAS 1/4	1.2K $\Omega$ -J	
R512	R-CARBON	NAS 1/4	470 $\Omega$ -J	
R513	R-METAL	RNL 1/4	3.3K $\Omega$ -J	
R514	R-METAL	RNL 1/4	560K $\Omega$ -J	



Symbol	Description			Part No.
R515	R-METAL	RS2B	6.8K $\Omega$ -J	
R516	R-CARBON	NAS 1/2	8.2K $\Omega$ -J	
R517	R-METAL	RS3B	3.3K $\Omega$ -J	
R518	R-CARBON	NAS 1/4	8.2K $\Omega$ -J	
R519	R-CARBON	NAS 1/2	4.7K $\Omega$ -J	
R520	R-CARBON	NAS 1/2	33 $\Omega$ -J	
R521	R-CARBON	NAS 1/4	10K $\Omega$ -J	
R522	R-FUSABLE	FMR 1/4W	330 $\Omega$ -J	
R523	R-FUSABLE	FMR 1/4W	330 $\Omega$ -J	
R524	R-FUSABLE	FMR 1/4W	330 $\Omega$ -J	
R525	R-FUSABLE	FMR 1/2W	4.7 $\Omega$ -J	
R526	R-CARBON	NAS 1/4	100 $\Omega$ -J	
R527	R-CARBON	NAS 1/4	22K $\Omega$ -J	
R528	R-CARBON	NAS 1/4	22K $\Omega$ -J	
R529	R-CARBON	NAS 1/4	390 $\Omega$ -J	
R530	R-CARBON	NAS 1/4	4.7K $\Omega$ -J	
R531	R-CARBON	NAS 1/4	470 $\Omega$ -J	
R532	R-CARBON	NAS 1/4	680 $\Omega$ -J	
R533	R-CARBON	NAS 1/4	47 $\Omega$ -J	
R901	R-FUSABLE	FMR 1/4W	330 $\Omega$ -J	
R902	R-CARBON	NAS 1/4	47K $\Omega$ -J	
R903	R-FUSABLE	FMR 1/4W	68 $\Omega$ -J	
R904	R-METAL	RS1B	15K $\Omega$ -J	
R905	R-CARBON	NAS 1/4	1M $\Omega$ -J	
R906	R-CARBON	NAS 1/4	15K $\Omega$ -J	
R907	R-CARBON	NAS 1/4	68K $\Omega$ -J	
R908	R-CARBON	NAS 1/4	68K $\Omega$ -J	
R909	R-CARBON	NAS 1/4	4.7K $\Omega$ -J	
RV101	R-VARIABLE	V8K4-1	5K $\Omega$	
RV102	R-VARIABLE	V8K4-1	5K $\Omega$	
RV103	R-VARIABLE	V8K4-1	5K $\Omega$	
RV104	R-VARIABLE	V8K4-1	5K $\Omega$	

Symbol		Description	Part No.
RV401	R-VARIABLE	RVA0911H320-7-502M	
RV402	R-VARIABLE	RVG0911H320-7-303M	
RV403	R-VARIABLE	RVA0911H320-7-501M	
RV501	R-VARIABLE	RVA0911H320-7-302M	
RV502	R-VARIABLE	RVG0911H320-7-303M	
RV503	R-VARIABLE	RVG0911H320-7-303M	
R910	R-SEMIFIXED	V8K4-1                    3K $\Omega$	
C101	C-ELECTRO.	SM 16VB-100 (M)	
C401	C-ELECTRO.	SM 50VB-1 (M)	
C402	C-POLYESTER	DEP50V                    333 K	
C403	C-POLYESTER	DEP50V                    333 K	
C404	C-TANTAL	SCF1 16V 2.2 $\mu$ F-K	
C405	C-CERAMIC	DD104-63B 561K 50V	
C406	C-ELECTRO.	SM 16VB-470 (M)	
C407	C-ELECTRO.	SM 25VB-10 (M)	
C408	C-TANTAL	SCF1 25V 10 $\mu$ F-K	
C409	C-ELECTRO.	SM 100VB-10 (M)	
C410	C-ELECTRO.	SM 50VB-1 (M)	
C411	C-ELECTRO.	SM 35VB-220 (M)	
C412	C-ELECTRO.	SM 6.3VB-470 (M)	
C413	C-ELECTRO.	SM 16VB-470 (M)	
C414	C-ELECTRO.	SM 25VB-10 (M)	
C415	C-CERAMIC	DD09-63B 222K500V	
C416	C-ELECTRO.	SM 100VB-10 (M)	
C417	C-ELECTRO.	SM 35VB-220 (M)	
C418	C-ELECTRO.	SM 160VB-2.2 (M)	
C419	C-CERAMIC	DD09-63B 222K500V	
C501	C-ELECTRO.	SM 25VB-10 (M)	
C502	C-ELECTRO.	SM 25VB-10 (M)	
C503	C-ELECTRO.	SM 50VB-1 (M)	
C504	C-CERAMIC	DD105-63B 222K50V	

Symbol	Description		Part No.	
C505	C-ELECTRO.	SM 50VB-1 (M)		
C506	C-POLYESTER.	DEP50V	473K	
C507	C-POLYESTER.	DEP50V	473K	
C508	C-POLYPRO.	DTW100V	562-G	
C510	C-ELECTRO.	SM 50VB-1 (M)		
C511	C-ELECTRO.	SM 16VB-220 (M)		
C512	C-CERAMIC	DD05-63B	561K500V	
C513	C-CERAMIC	DD12-63B	472K500V	
C514	C-CERAMIC	DE1510R	222K	
		DKB 1.6KV	222J	
C515	C-CERAMIC	DE1510R	222K	
		DKB 1.6KV	222J	
C516	C-CERAMIC	DE1410R	182K	
		DKV 1.6KV	182J	
C517	C-CERAMIC	DE1110R	821K	
C518	C-CERAMIC	DD104-63B	821K 50V	
C520	C-PORIPRO.	DTW 200VDC	0.47 $\mu$ F (M)	
C523	C-ELECTRO.	SM 50VB-47 (M)		
C524	C-ELECTRO.	SM 160VB-47 (M)		
C526	C-ELECTRO.	SM 160VB-1 (M)		
C527	C-ELECTRO.	SM 160VB-1 (M)		
C528	C-PORIPRO.	DTW 630VDC	0.01 $\mu$ F (M)	
C529	C-ELECTRO.	SM 25VB-10 (M)		
C901	C-POLYPRO.	(UL) LHX 125VAC	0.1 $\mu$ F	
C902	C-CERAMIC	MV DE0807E	222Z AC250V	
C903	C-CERAMIC	MV DE0807E	222Z AC250V	
C904	C-CERAMIC	DD09-63B	222K500V	
C905	C-ELECTRO.	NM 180NVS	680 (M)	
C906	C-ELECTRO.	SM 160VB-22 (M)		
C907	C-CERAMIC	DD05-63B	221K500V	
C908	C-CERAMIC	DD05-63B	561K500V	
C909	C-CERAMIC	DD05-63B	561K500V	
L401	L-CHOKE	FL7H	101K	
L501	L-CHOKE		0.47 $\mu$ H	2F16125AA
L502	L-CHOKE		0.47 $\mu$ H	2F16125AA

Symbol		Description	Part No.
L503	L-LINEAR	LH13P04A (WLH-28A)	4F16076AA
L504	L-SIZE		4F16077AA
L505	L-CHOKE	FL9H 332J	
L506	L-CHOKE	(300 $\mu$ H)	4F16078AA
L507	L-CHOKE	FL5H 561K	
L901	L-CHOKE	FKOB 160MH24 1.5mH	
L902	L-CHOKE	460 $\mu$ H	4F16079AA
L903	L-CHOKE	300 $\mu$ H	4F16078AA
T501	T-H•DRIVE	P33611301	2F13113AA
T502	T-PIN•CORR		4F13053AB
T503	T-FBT	MSH1FAC02	
D102	D-ZENER	HZ12-B or C, MZ314-A or B RD13E	
D104	D-ZENER	HZ12-B or C, MZ314-A or B	
D106	D-ZENER	HZ12-B or C, MZ314-A or B	
D401	DIODE	1S2076, 1S1588, 1S953, 1S2473	
D402	DIODE	RM1Z, 1S1886, SIB12-02	
D403	DIODE	1S2076A, 1S1553, 1S955, 1S2471	
D404	DIODE	RU2, 1S1834, ERC24-06	
D405	DIODE	HZ24, MZ324, RD24E, EQA01-24	
D501	DIODE	1S2076, 1S1588, 1S953, 1S2473	
D502	D-ZENER	HZ7-B, MZ307-B, RD6.8E-B3, RD7.5E-B1, EQA01-07S	
D504	DIODE	1S2076, 1S1588, 1S953, 1S2473	
D505	DIODE	1S2067A, 1S1553, 1S955, 1S2471	
D506	DIODE	1S2076A, 1S1553, 1S955, 1S2471	
D507	DIODE	RU2, 1S1834, ERC24-06	
D508	DIODE	RH1, S5295G, ERB28-04	
D509	DIODE	1S2076, 1S1588, 1S953, 1S2473	
D510	DIODE	RH1, S5295G, ERB28-04	

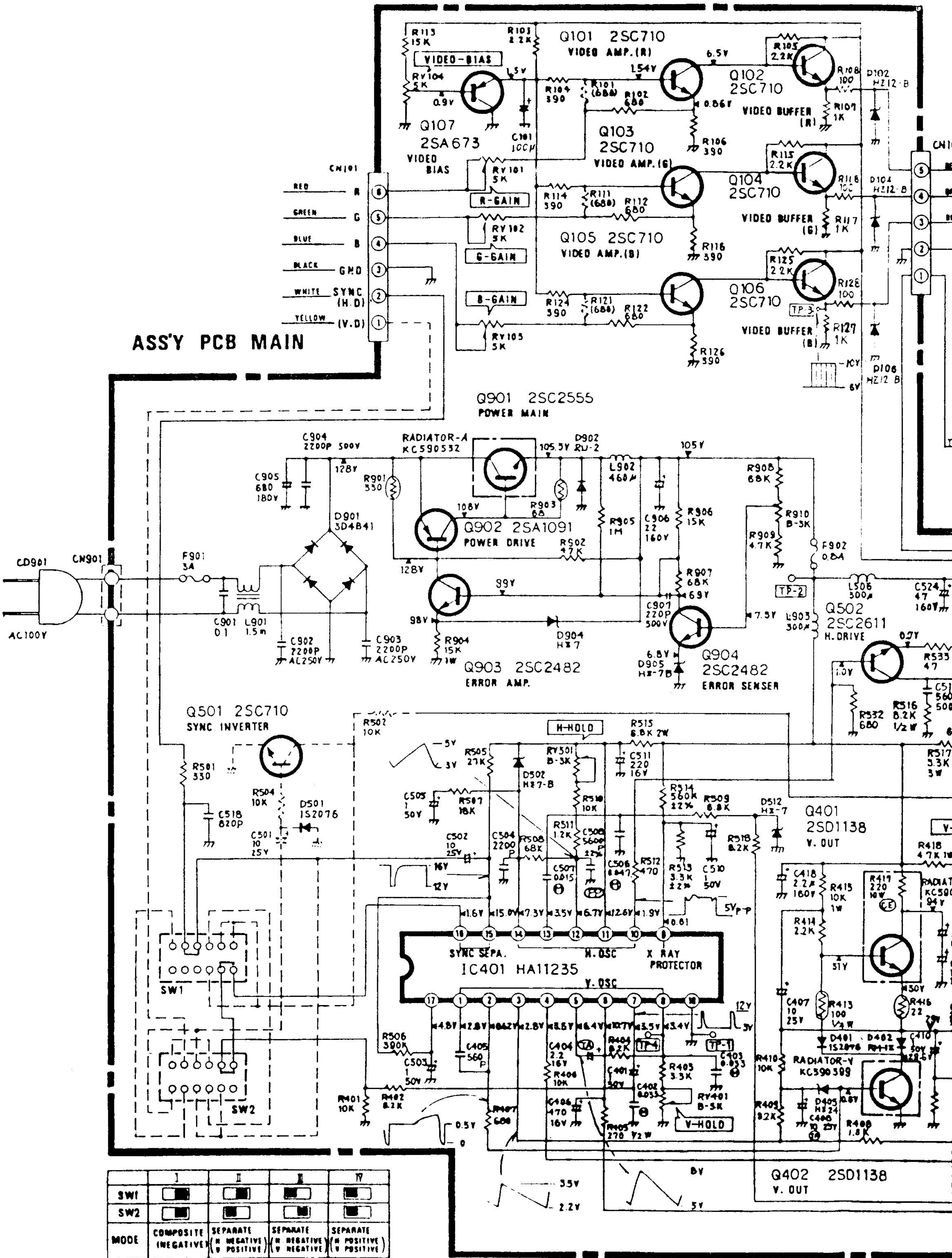
Symbol		Description	Part No.
D511	DIODE	1S2076, 1S1588, 1S953, 1S2473	
D512	DIODE	HZ-7, MZ307, RD6.8E, EQA01-07S	
D901	D-BRIDGE	3D4B41, RB402	
D902	DIODE	RU2, 1S1834, ERC24-06	
D904	D-ZENER	HZ7, MZ307, RD6.8E, EQA01-07S	
D905	D-ZENER	HZ7-B, MZ307-B, RD6.8E-B3 RD7.5E-B1, EQA01-07S	
Q101	TRANSISTOR	2SC458, 2SC710, 2SC945, 2SC1740, 2SC1815, 2SC2410, 2SC2724	
Q102	TRANSISTOR	2SC458, 2SC710, 2SC945, 2SC1740, 2SC1815, 2SC2410, 2SC2724	
Q103	TRANSISTOR	2SC458, 2SC710, 2SC945, 2SC1740, 2SC1815, 2SC2410, 2SC2724	
Q104	TRANSISTOR	2SC458, 2SC710, 2SC945, 2SC1740, 2SC1815, 2SC2410, 2SC2724	
Q105	TRANSISTOR	2SC458, 2SC710, 2SC945, 2SC1740, 2SC1815, 2SC2410, 2SC2724	
Q106	TRANSISTOR	2SC458, 2SC710, 2SC945, 2SC1740, 2SC1815, 2SC2410; 2SC2724	
Q107	TRANSISTOR	2SA673, 2SA695, 2SA933, 2SA950, 2SA952, 2SA1015	
SW1	SWITCH	SSA042	
SW2	SWITCH	SSA042	

Symbol	Description	Part No.
Q401	TRANSISTOR 2SD1138 2SC2073	
Q402	TRANSISTOR	
Q501	TRANSISTOR 2SC458, 2SC710, 2SC945, 2SC1740, 2SC1815, 2SC2410, 2SC2724	
Q502	TRANSISTOR 2SC1749, 2SC2456, 2SC2611, 2SC2688	
Q503	TRANSISTOR 2SD900B 2SD870	
Q504	TRANSISTOR 2SD763, 2SD974, 2SC2383	
Q505	TRANSISTOR 2SD763, 2SD974, 2SC2383	
Q506	TRANSISTOR 2SA673, 2SA695, 2SA933, 2SA950, 2SA952, 2SA1015	
Q507	TRANSISTOR 2SA673, 2SA695, 2SA933, 2SA950, 2SA952, 2SA1015	
Q901	TRANSISTOR 2SC2555	
Q902	TRANSISTOR 2SA1091	
Q903	TRANSISTOR 2SC2383, 2SC2482, 2SC2610	
Q904	TRANSISTOR 2SC2383, 2SC2482, 2SC2610	
IC401	IC HA11235	
F901	FUSE (UL) TSC (B) 3A 5 $\phi$ x 20 mm	
CF901	FUSE-CLIP 27228	OF55006A1
F902	FUSE (UL) TSC (B) 0.8A 5 $\phi$ x 20 mm	
CF901	FUSE-CLIP 27228	
	ASS'Y TR. (V-OUT)	KD920768
	ASS'Y TR. (H-OUT)	KD920870
	ASS'Y RADIATOR-A	KC920672

14.2 Ass'Y PCB C.R.T. (KB240326-B)

Symbol		Description	Part No.
R301	R-CARBON	NAS 1/4	100Ω-J
R302	R-CARBON	NAS 1/4	100Ω-J
R303	R-CARBON	NAS 1/4	100Ω-J
R304	R-CARBON	NAS 1/4	1.2KΩ-J
R305	R-CARBON	NAS 1/4	1.2KΩ-J
R306	R-CARBON	NAS 1/4	1.2KΩ-J
R307	R-CARBON	NAS 1/4	330Ω-J
R308	R-CARBON	NAS 1/4	330Ω-J
R309	R-CARBON	NAS 1/4	330Ω-J
R310	R-METAL	RS2B	8.2KΩ-J
R311	R-METAL	RS2B	8.2KΩ-J
R312	R-METAL	RS2B	8.2KΩ-J
R313	R-SOLID	RC 1/2	2.2KΩ-J
R314	R-SOLID	RC 1/2	2.2KΩ-J
R315	R-SOLID	RC 1/2	2.2KΩ-J
R316	R-SOLID	RC 1/2	1MΩ-J
RV301	R-VARIABLE	RVA0911H-306-1B	5KΩ
RV302	R-VARIABLE	RVA0911H-306-2B	5KΩ
RV303	R-VARIABLE	RVA0911H-306-3B	5KΩ
RV304	R-VARIABLE	RVA0911H-306-7B	220Ω
RV305	R-VARIABLE	RVA0911H-306-7B	220Ω
C304	C-CERAMIC	DD104-63B 271K50V	
C305	C-CERAMIC	DD104-63B 271K50V	
C306	C-CERAMIC	DD104-63B 271K50V	
C309	C-CERAMIC	DE0705-B 102K1KV	
Q301	TRANSISTOR	2SC2611, 2SC2456, 2SC2688, 2SC1749	
Q302	TRANSISTOR	2SC2611, 2SC2456, 2SC2688, 2SC1749	
Q303	TRANSISTOR	2SC2611, 2SC2456, 2SC2688, 2SC1749	
S301	SOCKET-CRT	1398 ŌSHIMA	
R991	R-CEMENT	RGB5PH	100Ω-K
RP991	POSISTOR	PTH451B02BG080N140	

ASS'Y PCB MAIN

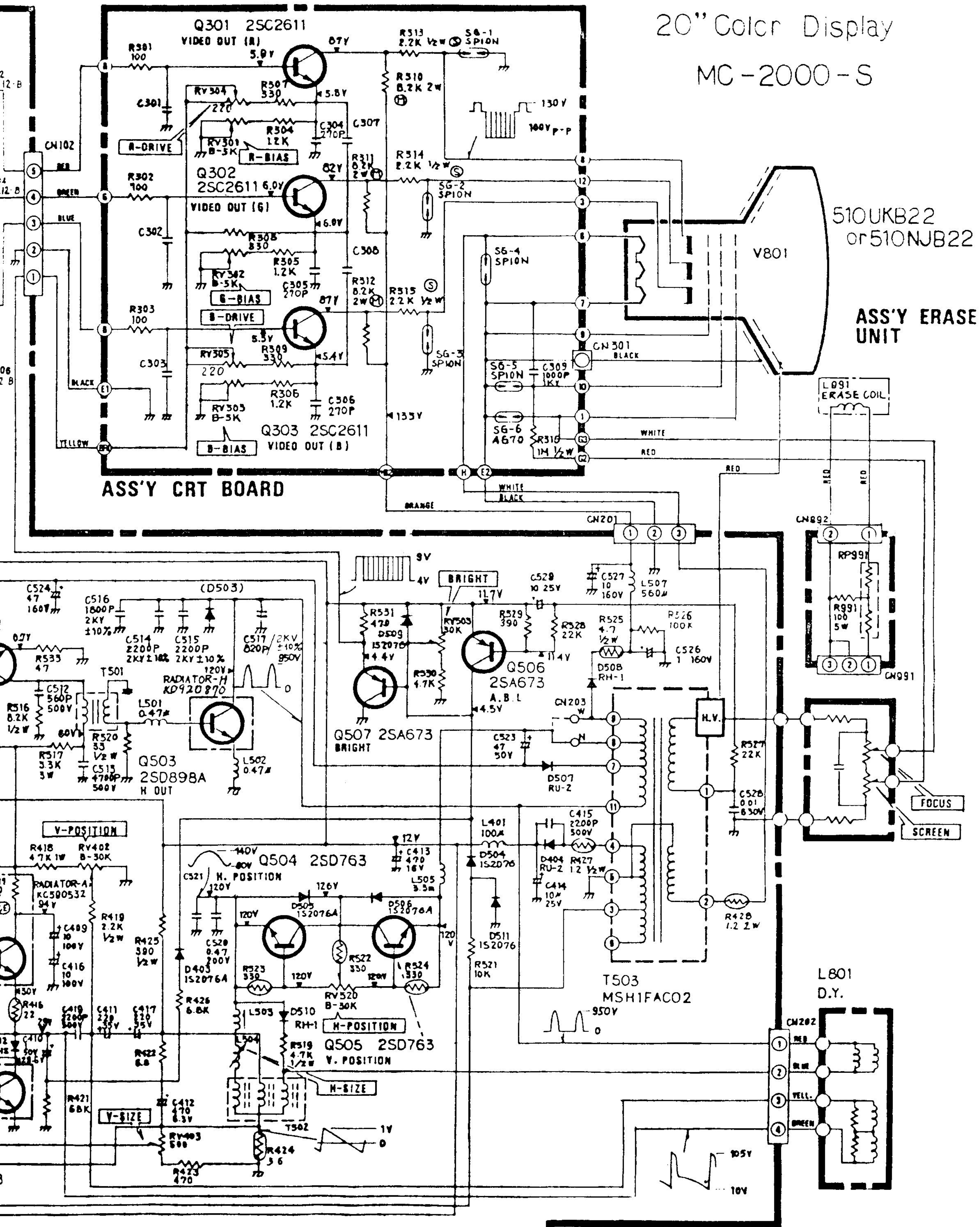


	I	II	III	IV
SW1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SW2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MODE	COMPOSITE (NEGATIVE)	SEPARATE (H NEGATIVE / V POSITIVE)	SEPARATE (H NEGATIVE / V NEGATIVE)	SEPARATE (H POSITIVE / V POSITIVE)



20" Color Display

MC-2000-S



15. SCHEMATIC DIAGRAM