

## General Information

## W1 Chassis

## Matrix

## Item

Safety Precautions - See Note

## Service Adjustments

## ITC Adjustment

ITC adjustments should be performed in the following sequence after replacing either the CRT, Deflection Yoke or Convergence and Purity Magnet Assembly.

When not replacing parts, perform the necessary adjustment only.

## Installation

1: Put the Deflection Yoke on the neck of the CRT, fully forward against the cone.

2: Put the Convergence and Purity Magnet

Assembly on the neck of the CRT so that the distance between the 6-Pole Magnet and the base of the tube is as indicated in fig. 1 and then tighten the screw lightly.

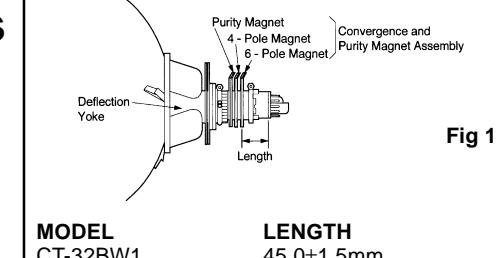


Fig 1.

**MODEL** CT-32BW1      **LENGTH** 45.0±1.5mm

## Preliminary Adjustment

- 1: Position the receiver with the CRT facing East or West.
- 2: Degauss not only front and rear of the CRT but also the CRT holder, the chassis and front and sides of the cabinet. Don't allow the Degaussing Coil near the Deflection Yoke.

(Insufficient degaussing causes magnetisation, giving an unfavourable effect on colour purity adjustment).

- 3: Run the picture tube for more than thirty minutes with a white raster signal applied giving normal beam current flow.
- 4: Make sure that all electrical adjustments have been performed.

## 1. Purity

## Adjustment purpose:

Ensure the R, G and B beams land on their respective phosphors.

**Symptom when incorrectly adjusted:**  
Colour patches appear, poor white uniformity.

**Input signal:**  
VIDEO signal (yellow raster).

**Input terminal:**  
VIDEO IN terminal.

- 1: Supply a VIDEO signal (yellow raster).
- 2: With the Deflection Yoke positioned fully foreword, adjust the Purity Magnet so that the yellow bar is at the centre of the screen with normal vertical centring.
- 3: Slide the Deflection Yoke slowly backwards to produce a uniform yellow raster.
- 4: Tighten the Deflection Yoke in position.
- 5: Supply a VIDEO signal for the red raster, green raster and blue raster respectively to confirm no contamination is observed in each colour. Adjust again steps 1 to 4 if observed.

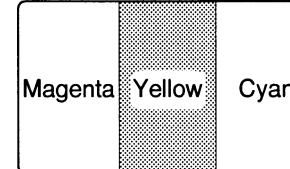


Fig 2.

## 2. Screen Corner Beam Landing Correction

## Adjustment purpose:

Correct divergence in the corners of the screen.

**Symptom when incorrectly adjusted:**  
Poor corner white uniformity or low light output.

**Input signal:**  
VIDEO signal (white raster).

**Input terminal:**  
VIDEO IN terminal.

The adjustments described below are for correction of poor corner beam landing which is normally seen as low light output from the effected corner. A microscope is used to judge the beam landing condition and divergence direction.

- 1: Supply a VIDEO signal (white raster).
- 2: Using a microscope check the beam landing in the four corners, where beam landing divergence is found correction should be made with the application of Gum Magnets to the funnel of the CRT. Up to 3 Gum Magnets, Part Number: 461D033O20, can be placed in one position if necessary to correct the divergence.

## Magnet Adjustment Procedure

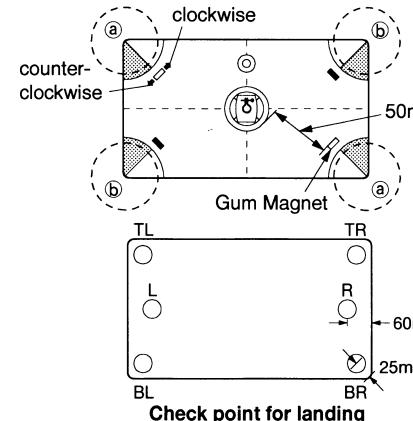
The examples given here are for correction of inward beam landing divergence, reverse the Gum Magnet for correction of outwards divergence.

- 1: If beam landing divergence is to be corrected in areas (a) shown in the figure, place the Gum Magnet on the funnel of the CRT, on axis with the corner, with the white side of the magnet facing outwards.

- 2: If beam landing divergence is to be corrected in areas (b) shown in the figure, then the Gum Magnet is placed on the funnel of the CRT with the white side facing the CRT.

**Note:** The Gum Magnets will distort the raster shape and disturb corner convergence. To minimise the effect on raster shape and corner convergence do not place the Gum Magnets closer than 50mm to the bobbin of the Deflection Yoke.

- 3: If correction is required in the shaded area, move the Gum Magnet counter-clockwise until the best position is found. If correction is required in the unshaded areas, move the Gum Magnet in a clockwise direction until the best position is found.



Check point	Best landing	Outward divergence	Inward divergence
R.TL.BR	[Shaded]	[Unshaded]	[Unshaded]
L.TL.BL	[Shaded]	[Unshaded]	[Unshaded]

Fig 3.

- 4: After correction, degauss not only front and rear of CRT but also the CRT holder, the chassis and front and sides of the cabinet and visually check that the corners of the picture do not appear dim or discoloured. If further correction is required, finely adjust the position of the Gum Magnet for that corner.

- 5: Once good beam landing is achieved in all four corners, place a piece of glass tape over the Gum Magnets to ensure that they remain bonded in place.

## 3. Static Convergence

**Adjustment purpose:**  
Correct any colour misconvergence that occurs in the centre of the screen.

**Symptom when incorrectly adjusted:**  
Colour edging of objects in the main picture area.

**Input signal:** VIDEO signal (crosshatch).

**Input terminal:** VIDEO IN terminal.

- 1: Supply a VIDEO signal (crosshatch).
- 2: Adjust the angle between the tabs of the 4-Pole Magnet and the angular position to converge the "B" and "R" beams on the screen.

- 3: Adjust the angle between the tabs of the 6-Pole Magnet and the "B" and "R" beans to the "G" beam at the centre of the screen.

- 4: Make sure that purity in each colour "R", "G" and "B" is maintained. If necessary repeat item 1(Purity), item 2 (Screen Corner Beam Landing Correction) and item 3 (Static Convergence).

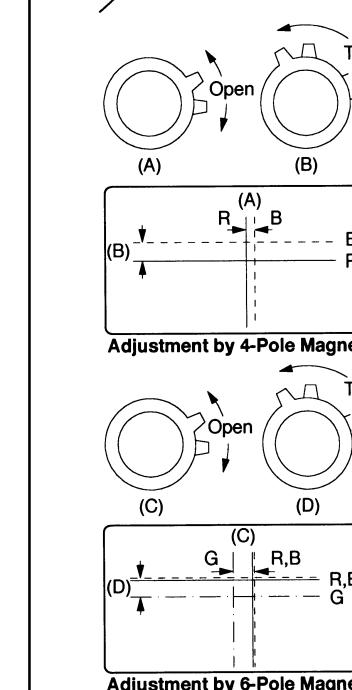
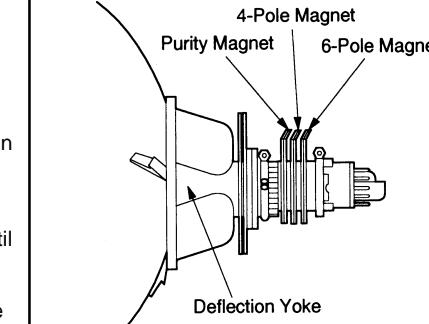


Fig 4.

**Note:** With both 4-Pole and 6-Pole Magnets, converge the vertical line opening the tabs and the horizontal line by turning the tabs.

## 4. Yh Correct

**Adjustment purpose:**  
Correct the colour divergence of R,G and B vertical lines at the top and bottom of the picture.

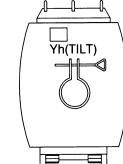
**Symptom when incorrectly adjusted:**  
Colour edging of vertical lines at the top and bottom of the picture.

**Input signal:** VIDEO signal (crosshatch).

**Input terminal:** VIDEO IN terminal.

Before adjusting, be sure to tighten the Deflection Yoke in position.

- 1: Supply a VIDEO signal (crosshatch).
- 2: When the Red (R) and Blue (B) beams do not converge on the upper and lower portions of the Y axis, adjust the Th (TILT volume on the Deflection Yoke until the beams converge. By turning the volume clockwise, Red (R) beam shifts left and Blue (B) beam shifts right on the upper portion of the screen. The beam shifts in the opposite direction on the lower portion.



Type of Misconvergence	Adjusting Potentiometers
B R	
R B	

Fig. 5

## 5. Xv Correct

**Adjustment purpose:**  
Correct colour divergence of R, G and B horizontal lines at the sides of the picture.

**Symptom when incorrectly adjusted:**  
Colour edging around horizontal lines at the sides of the picture.

**Input signal:** VIDEO signal (crosshatch).

**Input terminal:** VIDEO IN terminal.

Before adjusting, be sure to tighten the Deflection Yoke in position.

- 1: Supply a VIDEO signal (crosshatch).
- 2: When beam lines do not converge at left and right portion of the screen, adjust vertical cross (Xv) with the horizontal Differential Coil as shown in Fig. 6.

Type of Misconvergence	Adjusting Potentiometers
B R	
R B	

Fig. 6

## 6. Convergence of Screen Corner

**Adjustment purpose:**  
Correct convergence at the corner of the picture.

**Symptom when incorrectly adjusted:**  
Colour edging in the corners.

**Input signal:** VIDEO signal (crosshatch).

**Input terminal:** VIDEO IN terminal.

- 1: Supply a VIDEO signal (crosshatch).
- 2: If convergence is poor at corners, insert the Ferrite Sheet (at the magnetic side) into the gap between the CRT and the Deflection Yoke. Magnet mounting position is respectively corresponding with each corner as shown below (part no. 479D002O10).
- 3: Peel the separator on the cohesive part to stick the Ferrite Sheet so that the PQH and PQV components are minimised.

## Service Adjustments Cont'd.

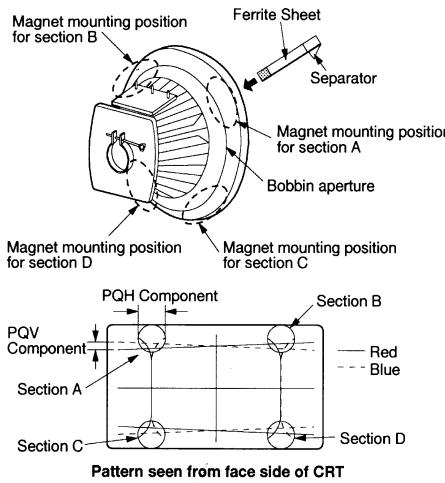


Fig. 7

### 7. Wedges Position

**Adjustment purpose:**  
Fix the Deflection Yoke to the funnel of the CRT.

**Symptom when incorrectly adjusted:**  
Poor peripheral convergence and beam landing.

**Input signal:** -  
**Input terminal:** -

- 1: Insert three wedges at approx. right angles vertically and horizontally allowing no movement of the Yoke.
- 2: After the position of the wedges has been determined, gently turn up the end of the wedge and strip the tape from the rear of the end to expose the adhesive material, then adhere to the funnel of the CRT.
- 3: Apply Silicone adhesive (part no. 859D106O20) between the Wedges and the Funnel of the CRT.
- 4: Bond the Yoke to the Wedges using contact cement.

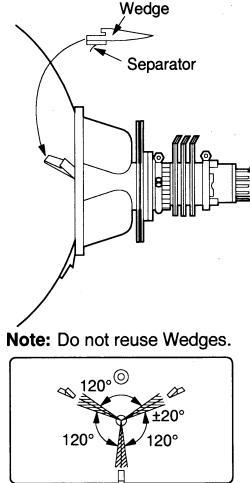


Fig. 8

### Service Adjustment Mode

On this model the following setting items may only be performed using the remote hand unit:

Item 1(RF AGC - Item 9 (Horizontal Position). Item 11 (CRT Cut Off, White and Black Level) ~ 13 (Colour Output). Item 16 (PIP).

To perform these adjustments, use the following procedure to activate the service adjustment mode.

#### 1. Activating the Service Adjustment Mode

- 1: Press the MENU button on a remote hand unit (the MAIN MENU display will appear).
- 2: Press the buttons "2", "3", "5" and "7" in that order, (the screen will change to the service adjustment mode). If not changed repeat steps 1 and 2 again within four seconds.

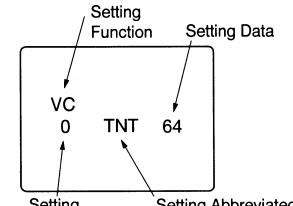


Fig. 9 (a)

#### 2. Selecting of Setting Functions and Setting Items

To select a setting item in the service adjustment mode, select first the setting function, that includes the specific setting item to be selected, next select the setting item. Refer to the following pages for the listing of setting functions and setting items.

- 1: Press the "\*" button on a remote hand unit to select a setting function. Each time the button is pressed the setting function changes in the following sequence:

**Note:** "\*" designates the button used to select a setting function hereafter. (Refer to the right figure of a remote hand unit).

-->VC -->V DRIVE-->PIP-->JUST-->OPTION-->

- 2: Press the "2" or "8" button to select a specific setting item. If "2" button is pressed, the setting item number increases. If "8" button is pressed, the setting item number decreases.

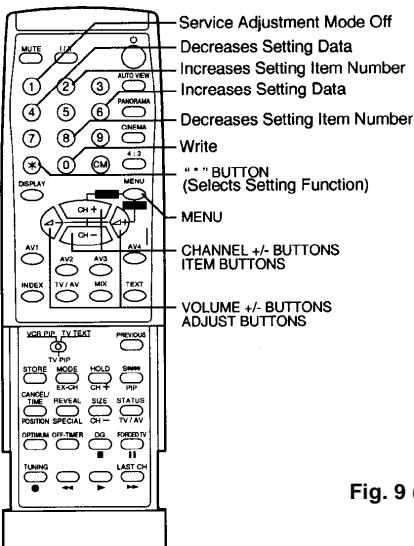


Fig. 9 (b)

#### 3. Changing Data

After selecting a setting item, use the "4" or "6" button to change setting data. If "4" button is pressed, the setting data decreases. If "6" button is pressed, the setting data increases.

#### 4. Saving of Setting Data

Press the "0" to save the setting data in memory. The display of characters goes red for approx. three seconds in this step.

**Note:** If the service adjustment mode is

terminated without pressing the "0" changes in setting data are not saved.

#### 5. Terminating the Service Adjustment Mode

Press the "1" button on the remote hand unit to terminate the service adjustment mode.

**Note:** The service adjustment mode can also be terminated by turning the power off.

#### 1. RF AGC (VIF Circuit)

**Adjustment purpose:**  
The best receiving condition of RF signal.

**Symptom when incorrectly adjusted:**  
Poor S/N ratio or cross modulation.

**Input signal:** RF signal (programme).  
**Input terminal:** RF IN terminal.

- 1: Supply an RF signal (programme).
- 2: Press the MENU button on a remote hand unit.
- 3: Turn on AFT.
- 4: Set the MAIN MENU to "SET UP 1".
- 5: Select the SIGNAL BOOSTER "ON".
- 6: Press the TUNING button.
- 7: Select the system "BG".
- 8: Turn on AFT.
- 9: Press the TUNING button and cancel the tuning mode. Press the MENU button.
- 10: Press the buttons "2", "3", "5" and "7" in that order, (the screen will change to the service adjustment mode).
- 11: Select the setting function "IF" ("\*" button).
- 12: Select the setting item "1 RF0" (main picture) and "3 RF1" (sub picture), ("2" or "8" button).
- 13: Adjust the setting data so that the picture and sound have no beat, noise and inter-modulation distortion.
- 14: Write the setting data into memory ("0" button).
- 15: Terminate the service adjustment mode, ("1" button).

#### 2. L-SYSTEM Video Output (VIF Circuit)

**Adjustment purpose:**  
To set the level of video detection output (CCIR-L SYSTEM) correctly.

**Symptom when incorrectly adjusted:**  
Too bright or too dark picture, or disturbed picture (if not set correctly).

**Measuring instrument:** Oscilloscope.

**Test point:**  
TP 12A (pin (13) of connector CA).  
TP 12B (pin (15) of connector CA).

**Measurement range:** DIV 50mV, TIM 10ms.

**Input signal:** RF signal (L-SYSTEM).  
**Input terminal:** RF IN terminal.

Make this adjustment only in the areas an L-SYSTEM signal is received. In areas not receiving the L-SYSTEM signal, confirm that the setting data in List of Setting Item "IF" is set to the final data.

This adjustment must follow item (RF AGC).

- 1: Supply an RF signal (L-SYSTEM signal 95% MOD) to main and sub pictures.
- 2: Connect the oscilloscope to TP12A (pin (13) of connector CA) and TP12B (pin (15) of connector CA).
- 3: Press the MENU button on the remote hand unit.
- 4: Press the buttons "2", "3", "5" and "7" in that order, (the screen will change to the service adjustment mode).
- 5: Select the setting function "IF".

(" \* "button).

- 6: Select the setting item "0 LV0" (main picture) and "2 LV1" (sub picture). ("2" or "8" button).

- 7: Adjust the setting data so that the amplitude of waveform is  $2.0 \pm 0.3 \text{Vp-p}$ , ("4" or "6" button).

- 8: Write the setting data into memory, ("0" button).

- 9: Terminate the service adjustment mode, ("1" button). See Fig 10.

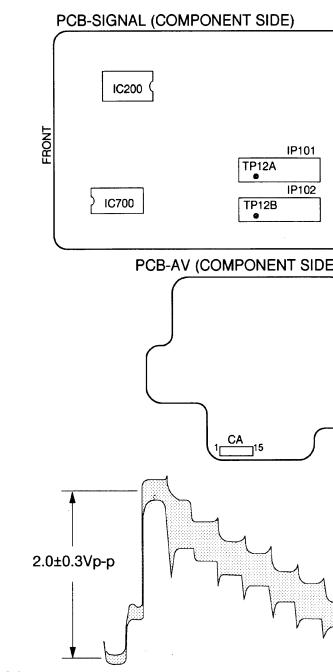


Fig 10

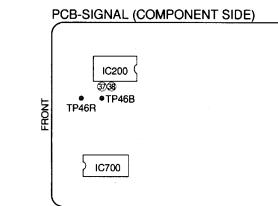


Fig. 11

#### 4. Tint (Chroma Circuit)

**Adjustment Purpose:**  
Setting the colour to its best result when receiving a SECAM signal.

**Symptom when incorrectly adjusted:**  
Incorrect colour in sub picture when receiving a SECAM signal.

**Measuring instrument:** Oscilloscope

**Test Point:** CH-1: TP46B, CH-2: TP46R

**Measurement range:**  
DIV 10mV  
TIM X-Y mode

**Input signal:** VIDEO signal (SECAM colour bar)  
**Input terminal:** VIDEO IN terminal

- 1: Supply a VIDEO signal (SECAM colour bar)

- 2: Set the oscilloscope to X-Y mode.

- 3: Observe the waveform at TP46B (pin 38 of IC200) and TP46R (pin 37 of IC200). (CH-1 to TP46B)

- 4: Press the MENU button on a remote hand unit.

- 5: Press the MENU buttons "2", "3", "5" and "7" in that order. (The screen will change to the service adjustment mode.)

- 6: Select the setting function "VC".

- 7: Select the setting item "0 TNT".

- 8: Adjust the setting data so that the red point in the vector waveform is at 108m degrees. ("4" or "6" button)

- 9: Write the setting data into memory. ("0" button)

- 10: Terminate the service adjustment mode. ("1" button) See fig 12.

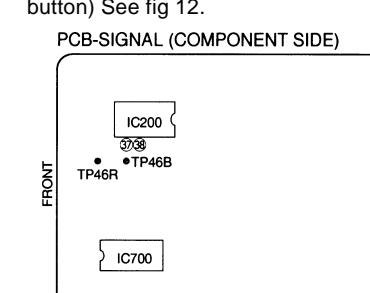
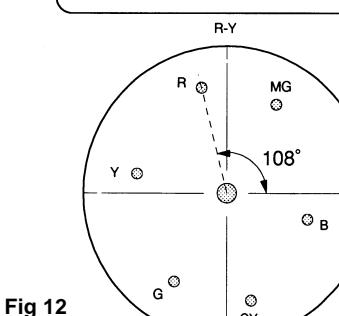


Fig 12



#### 5. Horizontal Width, Vertical Linearity and Height (Deflection Circuit)

**Adjustment purpose:**  
Horizontal and vertical balance of picture.

**Symptom when incorrectly adjusted:**  
Horizontally or vertically compressed or expanded picture.

**Input signal:** VIDEO signal (monoscope).  
**Input terminal:** VIDEO IN terminal.

This adjustment item should be performed for each of the 7 picture sizes shown in the table below.

- 1: Supply a VIDEO signal (monoscope).
- 2: Press the MENU button on a remote hand unit.
- 3: Press the buttons "2", "3", "5" and "7" in that order, (the screen will change to the service adjustment mode).
- 4: Select the setting function "V-DRIVE", (" \* " button).
- 5: Set the setting data of the setting item "9 HCM" and "4 VCM" to the data shown in the list below, ("4" or "6" and "2" or "8" button).

MODE	9 HCM	4 VCM
CT-32BW1	10	10

- 6: Select the setting item "1 VLR", ("2" or "8" button).
- 7: Adjust the setting data for symmetry of vertical linearity, ("4" or "6" button).
- 8: Adjust the sum of markers of the setting items "5 HWD" (horizontal width) and "0 VHT" (vertical height) to the data shown in the list below, ("4" or "6" button).

Picture Size	5 HWD (horizontal)	0 VHT (vertical)
16:9	5.8	5.8
14:9	4.0	3.5
	(a=35+/-5mm)	
4:3	4.0	3.8
	(a=65+/-5mm)	
PANORAMA 1	5.5	6.0
PANORAMA 2	5.5	6.0
CINEMA	6.0	the centre of small circle upper:
CAPTION	6.0	the centre of small circle middle: bottom: 3.0

- 9: Write the setting data into memory, ("0" button).
- 10: Terminate the service adjustment mode, ("1" button).

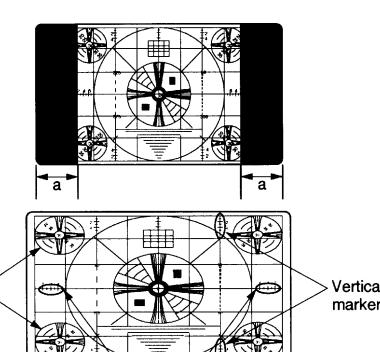


Fig. 13

#### 6. Side PCC

**Adjustment purpose:**  
Minimise side pincushion distortion.

**Symptom when incorrectly adjusted:**  
Horizontal distortion in the picture.

## Service Adjustments Cont'd.

**Input signal:** VIDEO signal (crosshatch).  
**Input terminal:** VIDEO IN terminal.

This adjustment item should be performed for each of the 7 picture sizes shown in the table below.  
 This adjustment must follow item 5 (Horizontal Width, Vertical Linearity and Height).

- Supply a VIDEO signal (Crosshatch).
- Press the MENU button on a remote hand unit.
- Press the buttons "2", "3", "5" and "7" in that order, (the screen will change to the service adjustment mode).
- Select the setting function "V-DRIVE", ("\*\*" button).
- Select the setting item "6 PAM" ("2" or "8" button).
- Note the second vertical lines from both right and left sides. Adjust the setting data so that the second line is almost straight, ("4" or "6" button).
- Select the setting item "8 PPH", ("2" or "8" button).
- Note the second line from both right and left of crosshatch. Adjust the setting data so that the distortion is symmetrical at the top and bottom of vertical lines, ("4" or "6" button).
- Alternately repeat steps 5 to 8 to minimise side raster distortion.
- Write the setting data into memory, ("0" button).
- Terminate the service adjustment mode, ("1" button).

**Note:** If the side raster is significantly distorted in the middle, set the setting data of items "7 PCN" and "6 PAM" for minimum distortion.

Picture Size
16:9
14:9
4:3
PANORAMA 1
PANORAMA 2
CINEMA
CAPTION

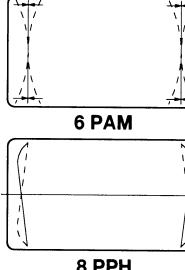


Fig 14

8 PPH

### 7. Vertical S Correction (Deflection circuit)

**Adjustment purpose:**  
 Set the vertical compression/expansion at the top and bottom.

**Symptom when incorrectly adjusted:**  
 Vertically compressed or expanded at the top and bottom of the picture.

**Input signal:** VIDEO signal (crosshatch).

**Input terminal:** VIDEO IN terminal.

This adjustment item should be performed for each of the 7 picture sizes shown in the table.

- Supply a VIDEO signal, (crosshatch).
- Press the MENU button on a remote control.
- Press the buttons "2", "3", "5" and "7" in that order, (the screen will change to the service adjustment mode).

adjustment mode).

- Select the setting function "V-DRIVE", ("\*\*" button).
- Select the setting item "2 VSC" and "10 VSS" ("2" or "8" button).
- Set the adjustment data so that the ratio of the height of the squares on the top (A) and the bottom (C) of the pattern to those on the middle (B) is adjusted to that specified in the table below, ("4" or "6" button).
- Write the setting data into memory, ("0" button).
- Terminate the service adjustment mode, ("1" button).

#### Picture Size      Ratio (A:B:C)

16:9	1:1:1
14:9	1:1:1
4:3	1:1:1
PANORAMA 1	1:1:1
PANORAMA 2	0.8:1:0.8
CINEMA	1:1:1
CAPTION	1:1:1

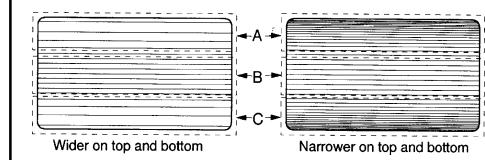


Fig 15

### 8. Vertical Centre Position (Deflection circuit)

**Adjustment purpose:**  
 To set the vertical position of the picture.

**Symptom when incorrectly adjusted:**  
 The picture will be too high or too low on the screen.

**Input signal:** VIDEO signal (monoscope).  
**Input terminal:** VIDEO IN terminal.

This adjustment item should be performed for each of the 7 picture sizes shown in the table below.

- Supply a VIDEO signal, (monoscope).
- Press the MENU button on a remote control.
- Press the buttons "2", "3", "5" and "7" in that order, (the screen will change to the service adjustment mode).
- Select the setting function "V-DRIVE", ("\*\*" button).
- Select the setting item "11 VPO", ("2" or "8" button).
- Adjust the setting data so the upper and lower markers are the same, ("4" or "6" button).

**Note:** confirm the data of "3 VFS" is "4".

- Write the setting data into memory, ("0" button).
- Terminate service adjustment mode, ("1" button).

#### Picture Size

16:9
14:9
4:3
PANORAMA 1
PANORAMA 2
CINEMA
CAPTION

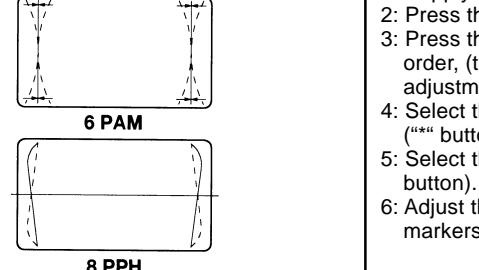


Fig 14

8 PPH

### 7. Vertical S Correction (Deflection circuit)

**Adjustment purpose:**  
 Set the vertical compression/expansion at the top and bottom.

**Symptom when incorrectly adjusted:**  
 Vertically compressed or expanded at the top and bottom of the picture.

**Input signal:** VIDEO signal (crosshatch).

**Input terminal:** VIDEO IN terminal.

This adjustment item should be performed for each of the 7 picture sizes shown in the table.

- Supply a VIDEO signal, (crosshatch).
- Press the MENU button on a remote control.
- Press the buttons "2", "3", "5" and "7" in that order, (the screen will change to the service adjustment mode).

### 9. Horizontal Position (Deflection circuit)

**Adjustment purpose:**  
 Horizontal position of picture on screen.

**Symptom when incorrectly adjusted:**  
 Picture shifted from the left or right.

**Input signal:** VIDEO signal (monoscope).  
**Input terminal:** VIDEO IN terminal.

- Supply a VIDEO signal, (monoscope).
- Press the MENU button on a remote control.
- Press the buttons "2", "3", "5" and "7" in that order, (the screen will change to the service adjustment mode).
- Select the setting function "VC" and set the setting items shown in the table to the setting data value.
- Set the data of item "4 MUT" to "3" ("6" button). The screen will change to display a single horizontal line.
- Set the SCREEN-1 VR on Flyback Transformer (T532) to the point where a red, green or blue line just becomes visible.
- Select the data of item "4 MUT" to "0" ("4" button).
- Refer to adjustment items "5 COR", "6 COG" and "7 COB", adjust the data of the items for the two colours not visible in the step 6. Adjust the data so that the horizontal line is white ("4" or "6" button).
- Supply a VIDEO signal (G card).
- Set the data item "1 COL" to "0" ("4" button).
- Write the setting data into memory ("0" button).
- Terminate the service adjustment mode ("1" button).



Fig 17

### 10. Horizontal Blanking (Deflection circuit)

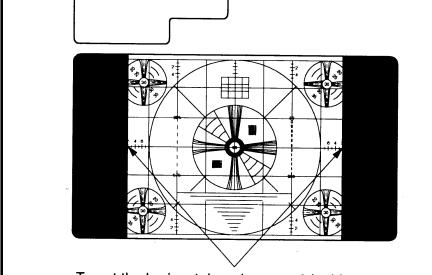
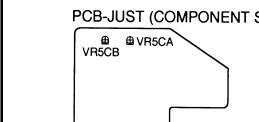
**Adjustment purpose:**  
 To set the horizontal size of 4:3 picture on screen.

**Symptom when incorrectly adjusted:**  
 Picture shifted to the left or right.

**Input signal:** VIDEO signal (monoscope).  
**Input terminal:** VIDEO IN terminal.

This adjustment must follow item 9 (Horizontal Position).

- Supply a VIDEO signal, (monoscope).
- Select the picture size "4:3".
- Adjust VR5CA so that the reading of the left marker is "2".
- Adjust VR5CB so that the reading of the right marker is "2".



### 11. CRT Bias, Cut Off, White and Black Level (VIDEO circuit)

**Adjustment purpose:**  
 Setting the cut off level of the three electron beams.

**Symptom when incorrectly adjusted:**  
 Monochrome has a colour tint.

**Input terminal:** VIDEO IN terminal.

1: Set the no signal condition in AV mode.

2: Press the MENU button on a remote control unit.

3: Press the buttons "2", "3", "5" and "7" in that order, (the screen will change to the service adjustment mode).

4: Select the setting function "VC" and set the setting items shown in the table to the setting data value.

5: Set the data of item "4 MUT" to "3" ("6" button). The screen will change to display a single horizontal line.

6: Set the SCREEN-1 VR on Flyback Transformer (T532) to the point where a red, green or blue line just becomes visible.

7: Select the data of item "4 MUT" to "0" ("4" button).

8: Refer to adjustment items "5 COR", "6 COG" and "7 COB", adjust the data of the items for the two colours not visible in the step 6. Adjust the data so that the horizontal line is white ("4" or "6" button).

9: Supply a VIDEO signal (G card).

10: Set the data item "1 COL" to "0" ("4" button).

11: Write the setting data into memory ("0" button).

12: Terminate the service adjustment mode ("1" button).

13: Adjust the setting data so that the difference in tone is just visible between the blue area and the black area ("4" or "6" button).

14: Write the setting data into memory ("0" button).

15: Terminate the service adjustment mode ("1" button).

and (4) of connector TX, (plus lead to pin (4) of connector TX).

9: Select the setting data "3 CNT" ("2" or "8" button).

10: Adjust the setting data so that the beam current is  $1200 \pm 70\mu A$  ("2" or "6" button).

11: Write the setting data into memory ("0" button).

12: Terminate the service adjustment mode ("1" button).

#### PCB-DEFL/POWER (COMPONENT SIDE)

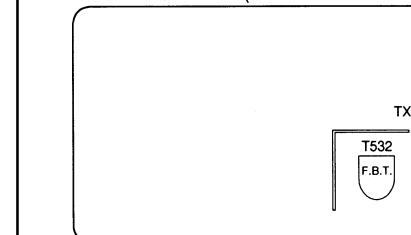


Fig 20

### 13. Colour Output (Video circuit)

**Adjustment purpose:**  
 Colour output of video signal.

**Symptom when incorrectly adjusted:**  
 The colour level will be too high or too low.

**Measuring Instrument:** Oscilloscope.

**Test point:** Pin (2) of connector GB.

**Measurement range:**  
 DIV 2V.  
 TIM 10ms.

**Input signal:** VIDEO signal (colour bar).  
**Input terminal:** VIDEO IN terminal.

This adjustment must follow item Contrast.

1: Supply a video signal (colour bar).

2: Observe the waveform at pin (2) of connector GB, (use the pin (3) of connector GB for GND).

3: Press the MENU button on a remote hand unit.

4: Press the buttons "2", "3", "5", and "7" in that order, (the screen will change to the service adjustment mode).

5: Select the setting function "VC".

6: Select the setting item "1 COL" ("2" or "8" button).

7: Adjust the setting data of item "1 COL" so that the waveform as shown below ("4" or "6" button).

8: Write the setting data into memory ("0" button).

9: Terminate the service adjustment mode ("1" button).

#### PCB-VMCRT (SOLDER SIDE)

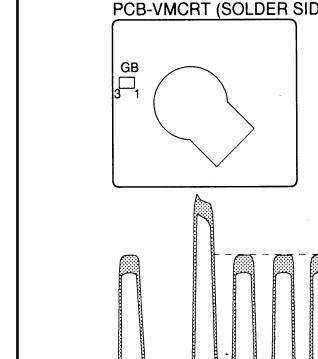


Fig 21

### 14. Focus (CRT circuit)

**Adjustment purpose:** Sharpness of picture.

**Symptom when incorrectly adjusted:**  
 Poor sharpness of picture.

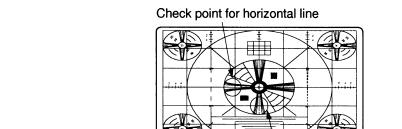
**Input signal:** VIDEO signal (monoscope).  
**Input terminal:** VIDEO IN terminal.

1: Supply a VIDEO signal (monoscope).

2: Observe the vertical lines and adjust SCREEN-2 VR (FOCUS-2) on the Flyback Transformer (T532).

3: Observe the horizontal lines and adjust FOCUS-1 VR on the Flyback Transformer (T532).

4: Repeat steps 2 and 3, two or more times until no further improvement is seen.



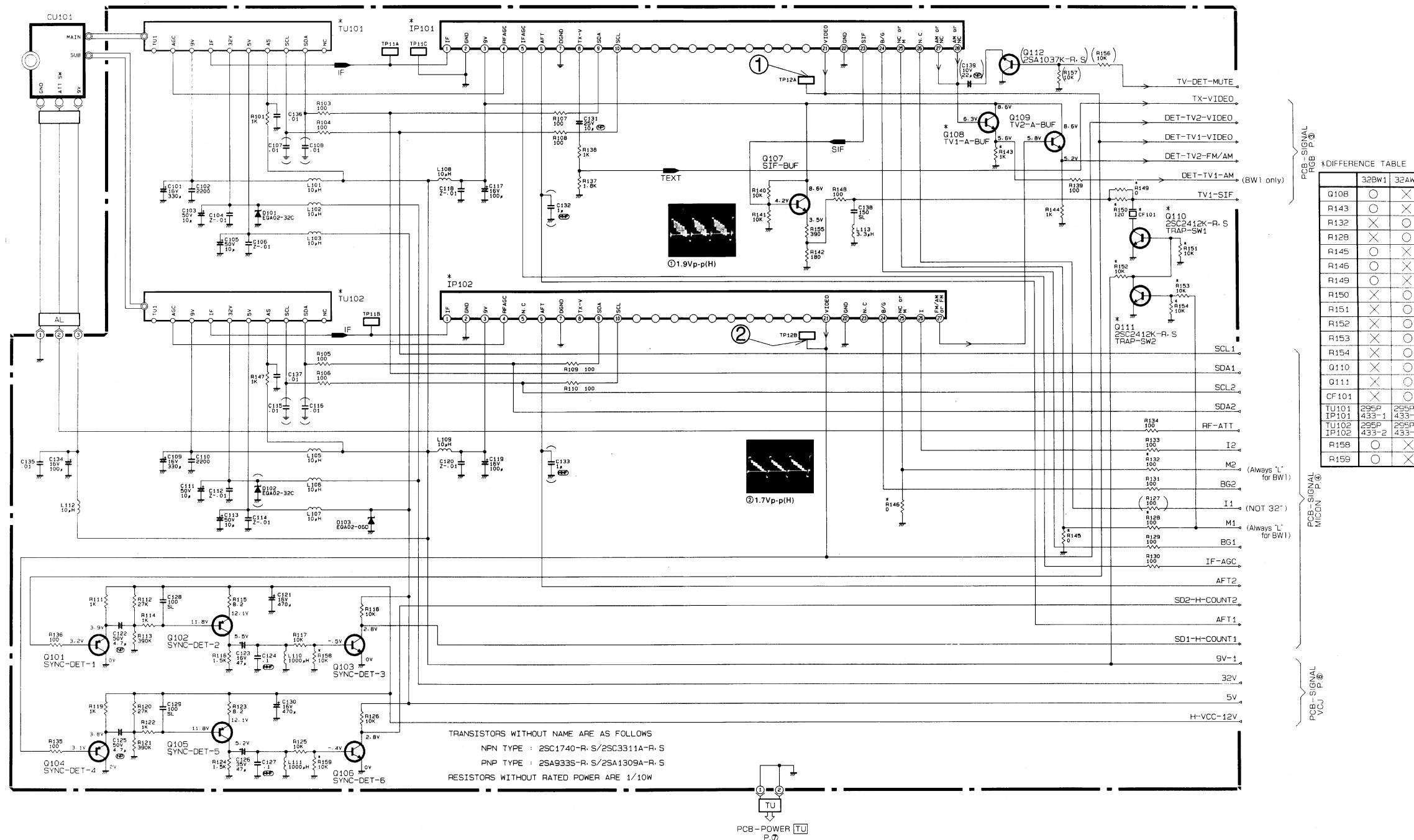
### 15. Sensor Level (AI circuit)

**Adjustment purpose:**  
 Set the operating conditions for the AI light sensor.

**Symptoms when incorrectly adjusted:</**



## Signal HF Diagram



Adjustments / Cont'd / Cont'd (1) / Cont'd (2) / Safety Parts / Remote Control / Sync Diag / Signal HF Diag / Replacing EEPROM (IC702) / Audio Amp

AV Diag / Control Diag / DBF Diag / DCF Diag / LED Diag / Delection Diag / JUST Diag / MICON (OSD) / MICON / MSP DSP Diag / PIP Diag / Power 1 Diag / Power 2 Diag

Signal RGB / Signal VCJ / Text Diagram / List of Setting Items / Phone Diagram / Wide Diagram / VMCRT Diagram / WAC Diagram / Y/C SW Diagram

## Replacing EEPROM (IC702)

The EEPROM (IC702) stores the setting data specified in the List of Setting Items. When the EEPROM is replaced, all the setting data is initialised. After the replacement, store the data in the List of Setting Items.

The data with () is reference data. Correct the data according to the adjustment items specified in "Note" for optimum adjustment.

## List of Setting Items

Function Display	VC	IC200, IC201			
Setting Item No.	Setting Abbreviated Name	Setting Item Name	Setting Range	Setting Data	Note
0	tnt	Tint Control (NTSC)	0~127	(64)	Item 4 (Tint)
1	col	Colour Control	0~127	(62)	Item 13 (Colour Output)
2	bri	Brightness Control	0~255	128	
3	cnt	Contrast Control	0~127	(67)	Item 12 (Contrast)
4	mut	Mute Mode	0~3	0	
5	cor	R-Cut Off Adjustment	0~1023	(230)	Item 11 (CRT Bias Cut Off White & Black Level)
6	COG	G-Cut Off Adjustment	0~1023	(230)	Item 11 (CRT Bias Cut Off White & Black Level)
7	COB	B-Cut Off Adjustment	0~1023	(230)	Item 11 (CRT Bias Cut Off White & Black Level)
8	DRR	R-Drive Adjustment	0~255	134	
9	DRB	B-Drive Adjustment	0~255	96	
10	DLR	R-Drive (Low) Shift Value	-128 ~+127	+8	
11	DLB	B-Drive (Low) Shift Value	-128 ~+127	-12	
12	DHR	R-Drive (High) Shift Value	-128 ~+127	-12	
13	DHB	B-Drive (High) Shift Value	-128 ~+127	+8	
14	SRY	SECAM Black level R-Y	0~15	8	
15	Sby	SECAM Black Level R-Y	0~15	8	
16	Pna	PN Amplitude	0~1	0	
17	SCA	SECAM Amplitude	0~3	0	
18	bel	BELL Filter	0~7	4	
19	Wpl	WPL	0~1	1	
20	apc	Aperture Control	0~1	0	
21	png	P/N GP	0~1	0	
22	vmd	Vertical Mode	0~3	1	
23	shp	Sharpness	0~63	32	
24	sgp	S GP	0~1	0	
25	sid	S ID	0~1	0	
26	src	Search	0~1	0	
27	afc	AFC	0~1	0	
28	ttl	Tint Lower Limit	0~63	0	
29	ttu	Tint Upper Limit	65~127	127	
30	cld	Colour Lower Limit	0~63	0	
31	clu	Colour Upper Limit	65~127	85	
32	brl	Brightness Lower Limit	0~127	110	
33	bru	Brightness Upper Limit	129~255	160	
34	cnl	Unicolour Lower Limit	0~63	35	
35	cnu	Unicolour Upper Limit	65~127	75	

Function Display	V-Drive (4:3)	IC501, IC201			
Setting Item No.	Setting Abbreviated Name	Setting Item Name	Setting Range	Setting Data	Note
0	VHT	Vertical Amplitude Adjustment	0~127	(77)	Item 5 (Horizontal Width, Vertical Linearity & Height)
1	VLR	Vertical Linearity Correction	0~31	(25)	Item 5 (Horizontal Width, Vertical Linearity & Height)
2	VSC	Vertical S Correction	0~31	(0)	Item 7 (Vertical S Correction)
3	VSF	Vertical Position 1 Adjustment	0~7	4	
4	VCM	Vertical EHT	0~63	10	
5	HWD	Horizontal Amplitude Adjustment	0~63	(17)	Item 5 (Horizontal Width, Vertical Linearity & Height)
6	PAM	E-W Parabola (PCC-AMP) Correction	0~63	(17)	Item 6 (Side PCC)
7	PCN	PCC Corner Correction	0~15	10	
8	PPH	(PCC Phase)Keystone Distortion Correct	0~63	(30)	Item 6 (Side PCC)
9	HCM	Horizontal EHT	0~15	(0)	Item 6 (Side PCC)
10	VSS	Vertical Integral Correction	0~15	(15)	Item 7 (Vertical Correction)
11	VP0	Vertical Position 2 Adjustment	0~255	(115)	Item 8 (Vertical Centre Position)
12	V60	Vertical Position 60Hz Correction	-128 ~+127	+10	

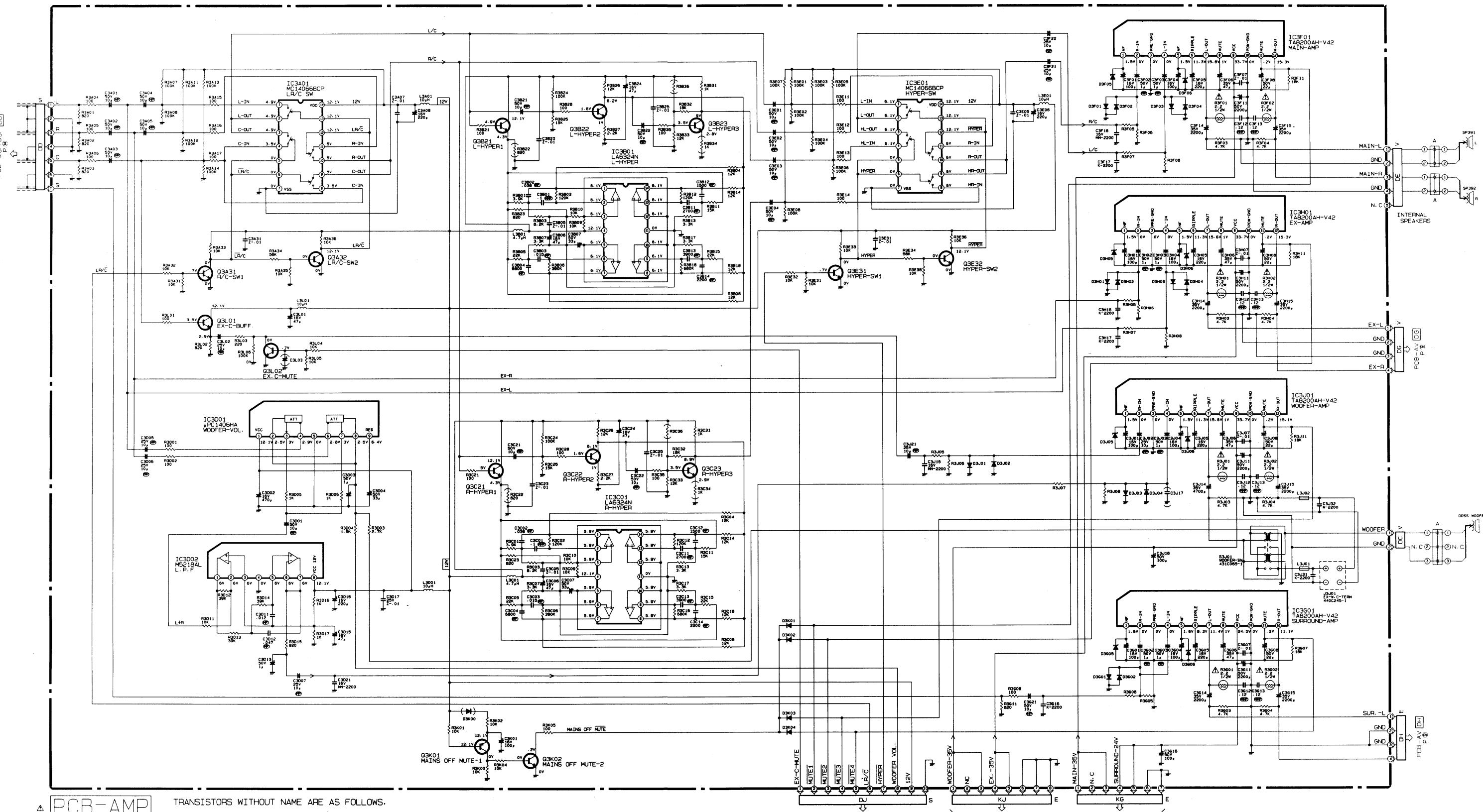
Function Display	V-Drive (Panorama 1)	IC501, IC201			
Setting Item No.	Setting Abbreviated Name	Setting Item Name	Setting Range	Setting Data	Note
0	VHT	Vertical Amplitude Adjustment	0~127	(80)	Item 5 (Horizontal Width, Vertical Linearity & Height)
1	VLR	Vertical Linearity Correction	0~31	(26)	Item 5 (Horizontal Width, Vertical Linearity & Height)
2	VSC	Vertical S Correction	0~31	(0)	Item 7 (Vertical S Correction)
3	VSF	Vertical Position 1 Adjustment	0~7	4	
4	VCM	Vertical EHT	0~63	10	
5	HWD	Horizontal Amplitude Adjustment	0~63	(44)	Item 5 (Horizontal Width, Vertical Linearity & Height)
6	PAM	E-W Parabola (PCC-AMP)Correction	0~63	(10)	Item 6 (Side PCC)
7	PCN	PCC Corner Correction	0~15	0	
8	PPH	(PCC Phase)Keystone Distortion Correct	0~63	(27)	Item 6 (Side PCC)
9	HCM	Horizontal EHT	0~15	(10)	Item 6 (Side PCC)
10	VSS	Vertical Integral Correction	0~15	(15)	Item 7 (Vertical Correction)
11	VP0	Vertical Position 2 Adjustment	0~255	(119)	Item 8 (Vertical Centre Position)
12	V60	Vertical Position 60Hz Correction	-128 ~+127	+10	

Function Display	V-Drive (Panorama 2)	IC501, IC200			
Setting Item No.	Setting Abbreviated Name	Setting Item Name	Setting Range	Setting Data	Note
0	VHT	Vertical Amplitude Adjustment	0~127	(92)	Item 5 (Horizontal Width, Vertical Linearity & Height)
1	VLR	Vertical Linearity Correction	0~31	(26)	Item 5 (Horizontal Width, Vertical Linearity & Height)
2	VSC	Vertical S Correction	0~31	(10)	Item 7 (Vertical S Correction)
3	VSF	Vertical Position 1 Adjustment	0~7	4	
4	VCM	Vertical EHT	0~63	10	
5	HWD	Horizontal Amplitude Adjustment	0~63	(35)	Item 5 (Horizontal Width, Vertical Linearity & Height)
6	PAM	E-W Parabola (PCC-AMP) Correction	0~63	(12)	Item 6 (Side PCC)
7	PCN	PCC Corner Correction	0~15	3	
8	PPH	(PCC Phase)Keystone Distortion Correct.	0~63	(32)	Item 6 (Side PCC)
9	HCM	Horizontal EHT	0~15	(10)	Item 6 (Side PCC)
10	VSS	Vertical Integral Correction	0~15	(8)	Item 7 (Vertical Correction)
11	VP0	Vertical Position 2 Adjustment	0~255	(120)	Item 8 (Vertical Centre Position)
12	V60	Vertical Position 60Hz Correction	-128 ~+127	+10	

Function Display	V-Drive (Cinema)	IC501, IC200			
Setting Item No.	Setting Abbreviated Name	Setting Item Name	Setting Range	Setting Data	Note
0	VHT	Vertical Amplitude Adjustment	0~127	(110)	Item 5 (Horizontal Width, Vertical Linearity & Height)
1	VLR	Vertical Linearity Correction	0~31	(28)	Item 5 (Horizontal Width, Vertical Linearity & Height)
2	VSC	Vertical S Correction	0~31	(0)	Item 7 (Vertical S Correction)
3	VSF	Vertical Position 1 Adjustment	0~7	4	
4	VCM	Vertical EHT	0~63	10	
5	HWD	Horizontal Amplitude Adjustment	0~63	(36)	Item 5 (Horizontal Width, Vertical Linearity & Height)
6	PAM	E-W Parabola (PCC-AMP) Correction	0~63	(17)	Item 6 (Side PCC)
7	PCN	PCC Corner Correction	0~15	0	
8	PPH	(PCC Phase)Keystone Distortion Correct	0~63	(34)	Item 6 (Side PCC)
9	HCM	Horizontal EHT	0~15	(10)	Item 6 (Side PCC)
10	VSS	Vertical Integral Correction	0~15	(15)	Item 7 (Vertical Correction)
11	VP0	Vertical Position 2 Adjustment	0~255	(109)	Item 8 (Vertical Centre Position)
12	V60	Vertical Position 60Hz Correction	-128 ~+127	+10	

Function Display	V-Drive (Caption)	IC501, IC200			
Setting Item No.	Setting Abbreviated Name	Setting Item Name	Setting Range	Setting Data	Note
0	VHT	Vertical Amplitude Adjustment	0~127	(112)	Item 5 (Horizontal Width, Vertical Linearity & Height)
1	VLR	Vertical Linearity Correction	0~31	(17)	Item 5 (Horizontal Width, Vertical Linearity & Height)
2	VSC	Vertical S Correction	0~31	(15)	Item 7 (Vertical S Correction)
3	VSF	Vertical Position 1 Adjustment	0~7	4	
4	VCM	Vertical EHT	0~63	10	
5	HWD	Horizontal Amplitude Adjustment	0~63	(36)	Item 5 (Horizontal Width, Vertical Linearity & Height)
6	PAM	E-W Parabola (PCC-AMP) Correction	0~63	(18)	Item 6 (Side PCC)
7	PCN	PCC Corner Correction	0~15	7	
8	PPH				

## Audio Amp Diagram

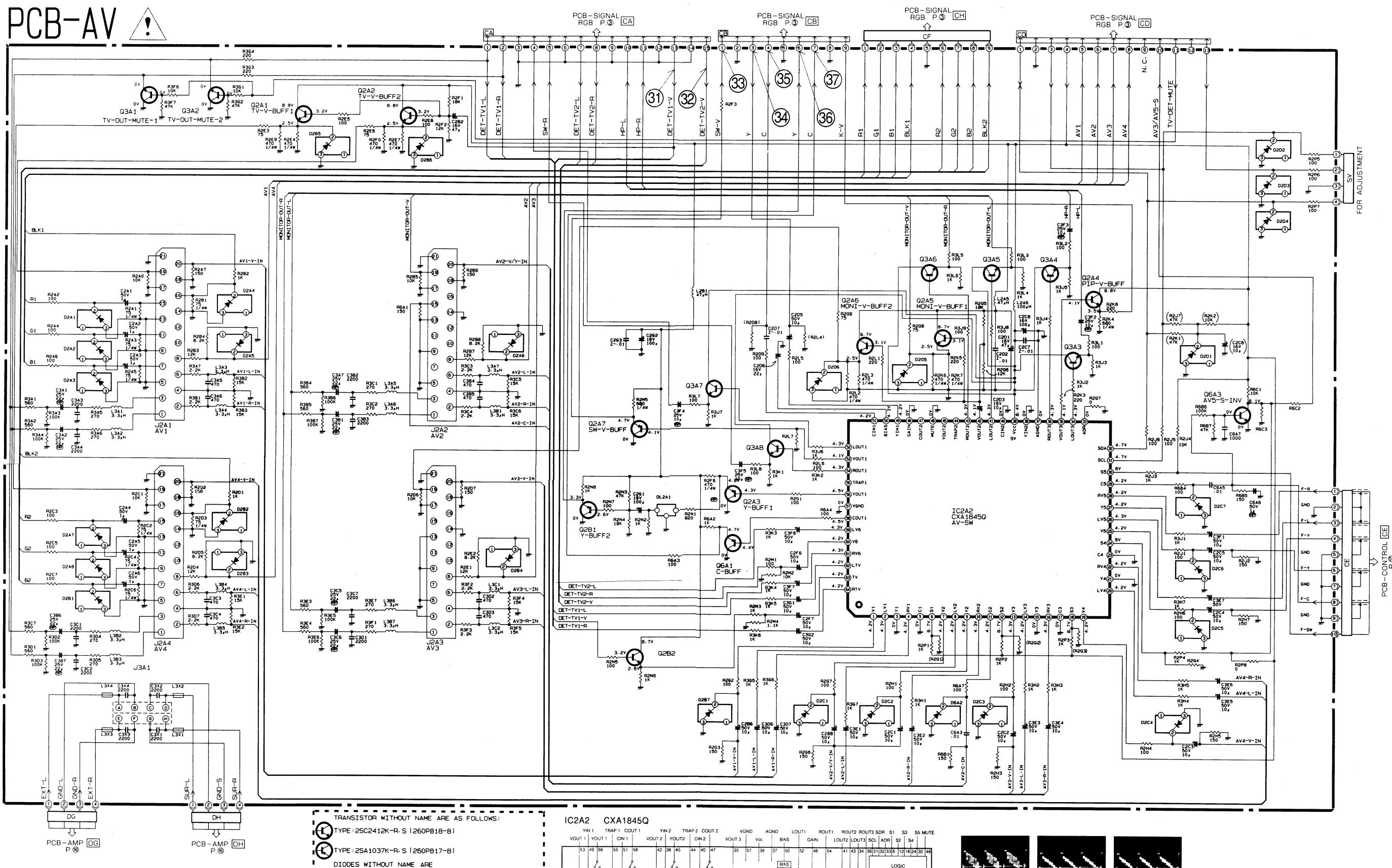
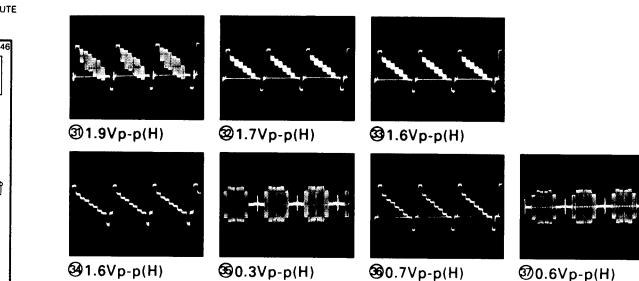
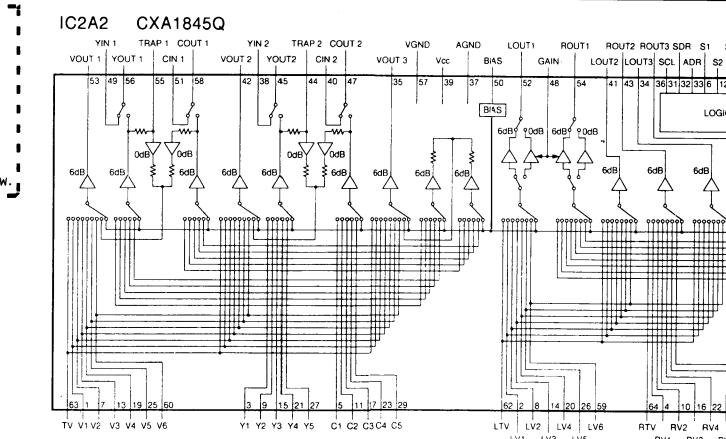


Adjustments / Cont'd / Cont'd (1) / Cont'd (2) / Safety Parts / Remote Control / Sync Diag / Signal HF Diag / Replacing EEPROM (IC702) / Audio Amp

AV Diag / Control Diag / DBF Diag / DCF Diag / LED Diag / Deletion Diag / JUST Diag / MICON (OSD) / MICON / MSP DSP Diag / PIP Diag / Power 1 Diag / Power 2 Diag

Signal RGB / Signal VCJ / Text Diagram / List of Setting Items / Phone Diagram / Wide Diagram / VMCRT Diagram / WAC Diagram / Y/C SW Diagram

PCB-AV !

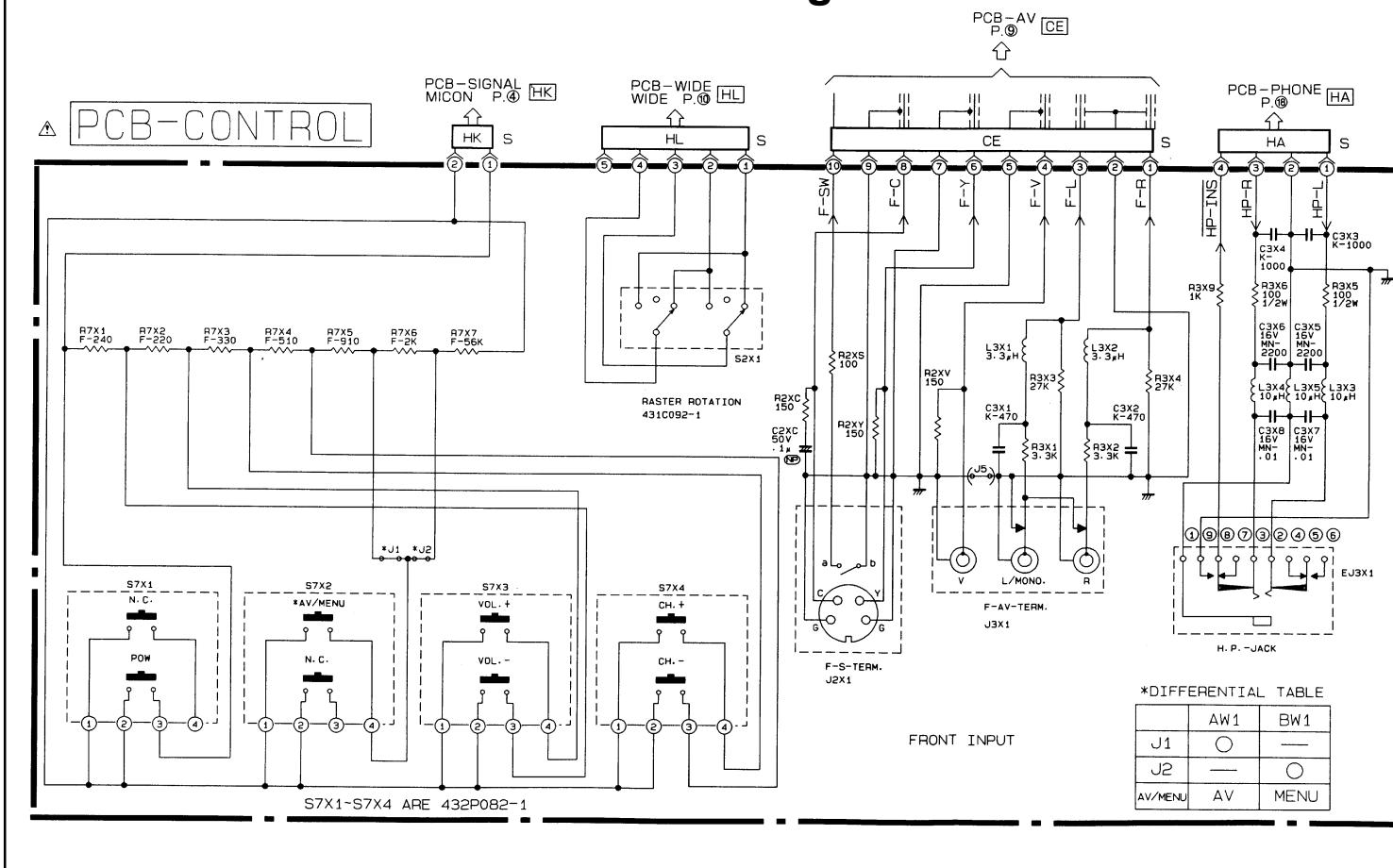
**AV Diagram**

Adjustments / Cont'd / Cont'd (1) / Cont'd (2) / Safety Parts / Remote Control / Sync Diag / Signal HF Diag / Replacing EEPROM (IC702) / Audio Amp

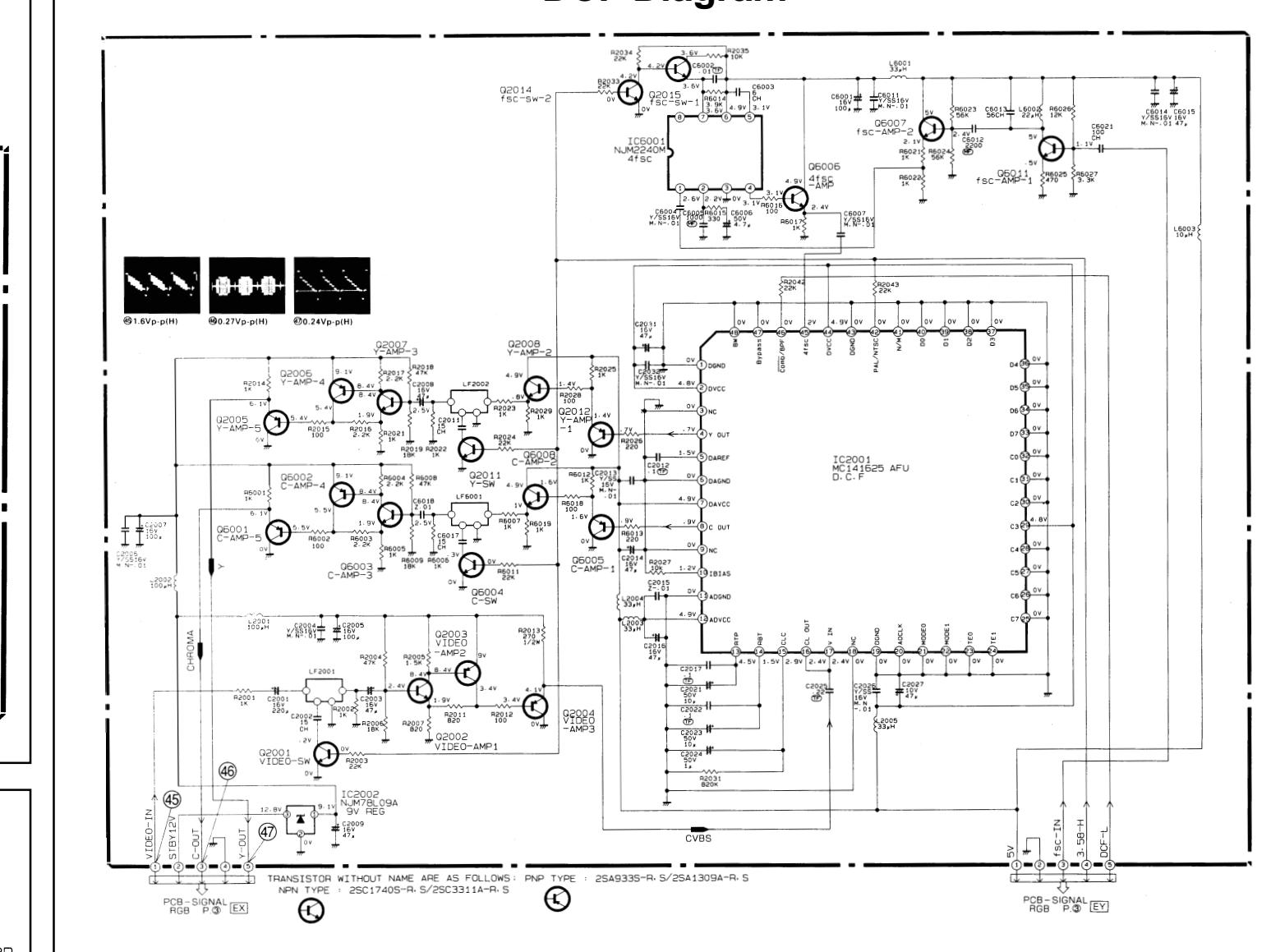
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Signal RGB / Signal VCJ / Text Diagram / List of Setting Items / Phone Diagram / Wide Diagram / VMCRT Diagram / WAC Diagram / Y/C SW Diagram

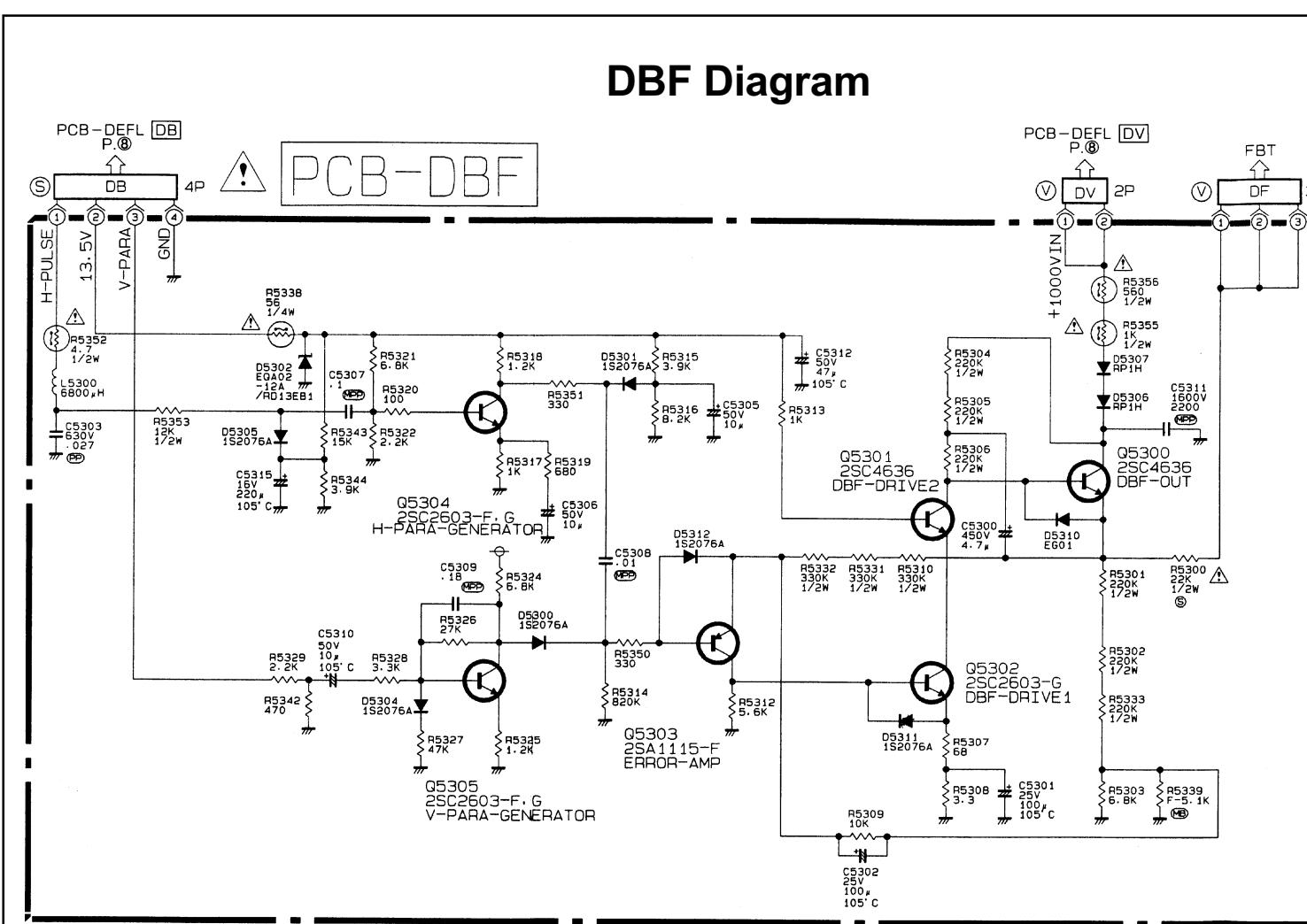
## Control Diagram



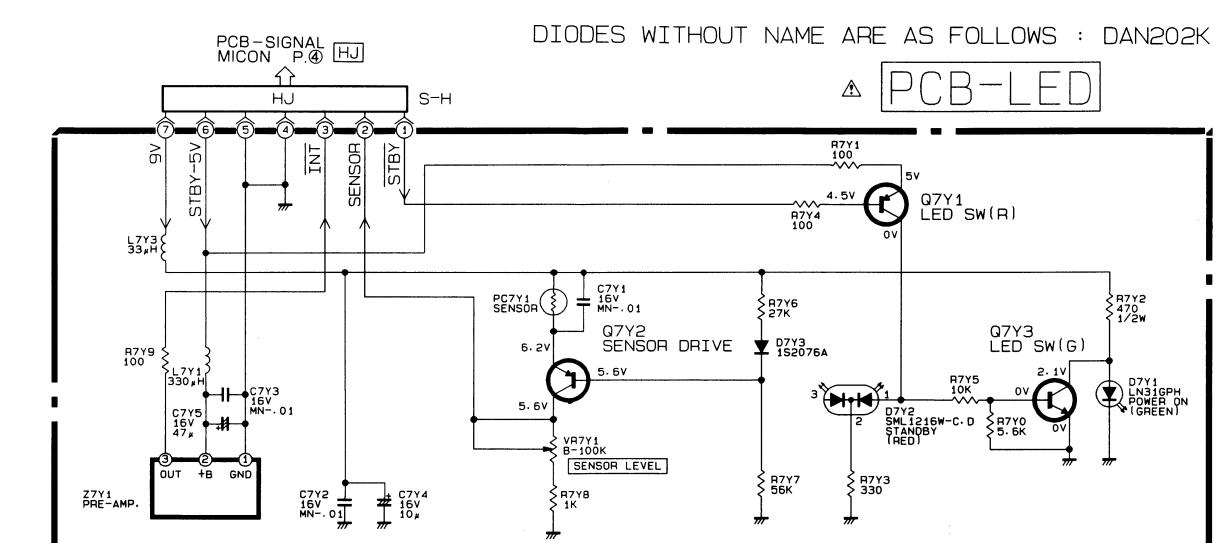
## DCF Diagram



## DBF Diagram



## LED Diagram

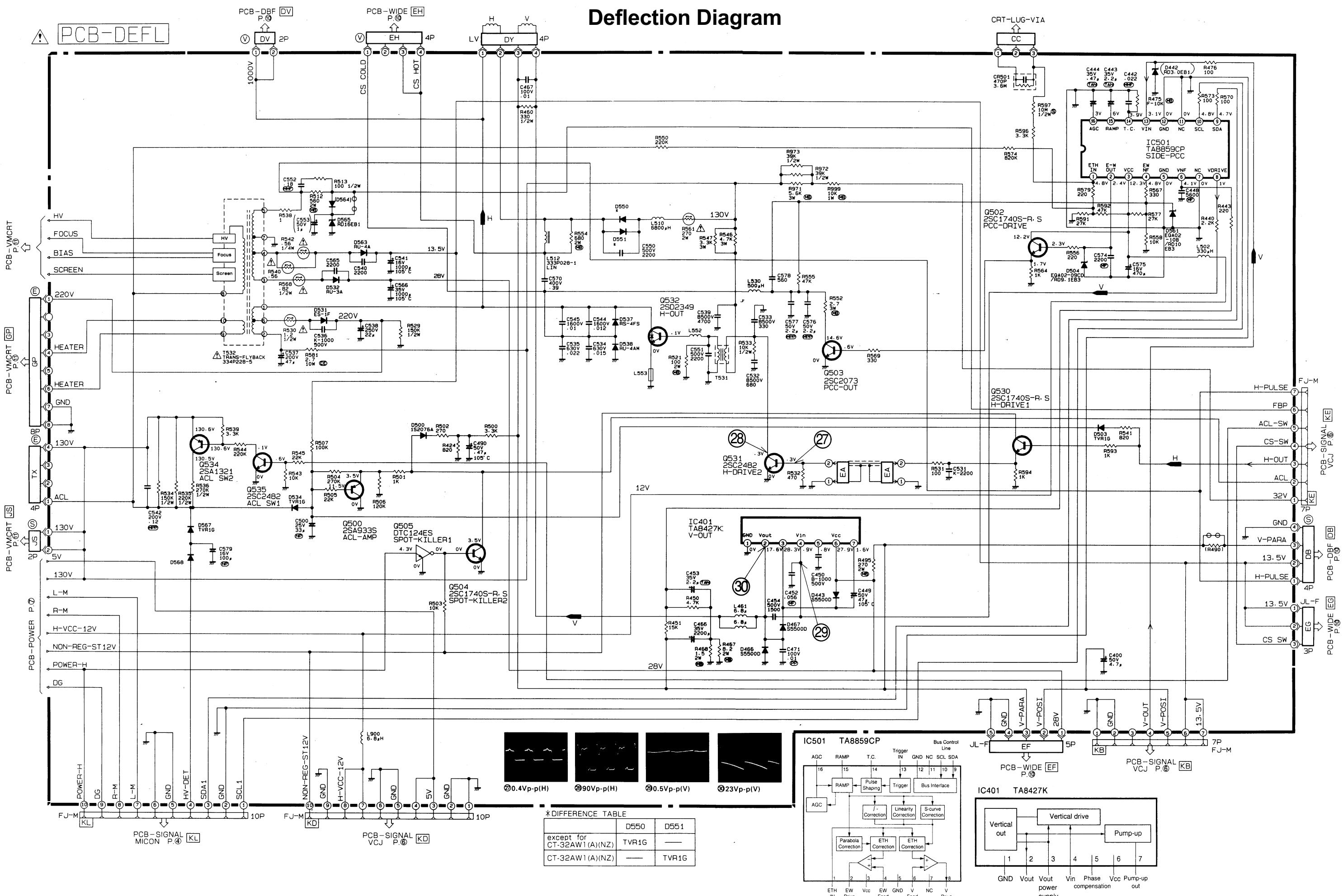


Adjustments / Cont'd / Cont'd (1) / Cont'd (2) / Safety Parts / Remote Control / Sync Diag / Signal HF Diag / Replacing EEPROM (IC702) / Audio Amp

AV Diag / Control Diag / DBF Diag / DCF Diag / LED Diag / Deletion Diag / JUST Diag / MICON (OSD) / MICON / MSP DSP Diag / PIP Diag / Power 1 Diag / Power 2 Diag

Signal RGB / Signal VCJ / Text Diagram / List of Setting Items / Phone Diagram / Wide Diagram / VMCRT Diagram / WAC Diagram / Y/C SW Diagram

## Deflection Diagram

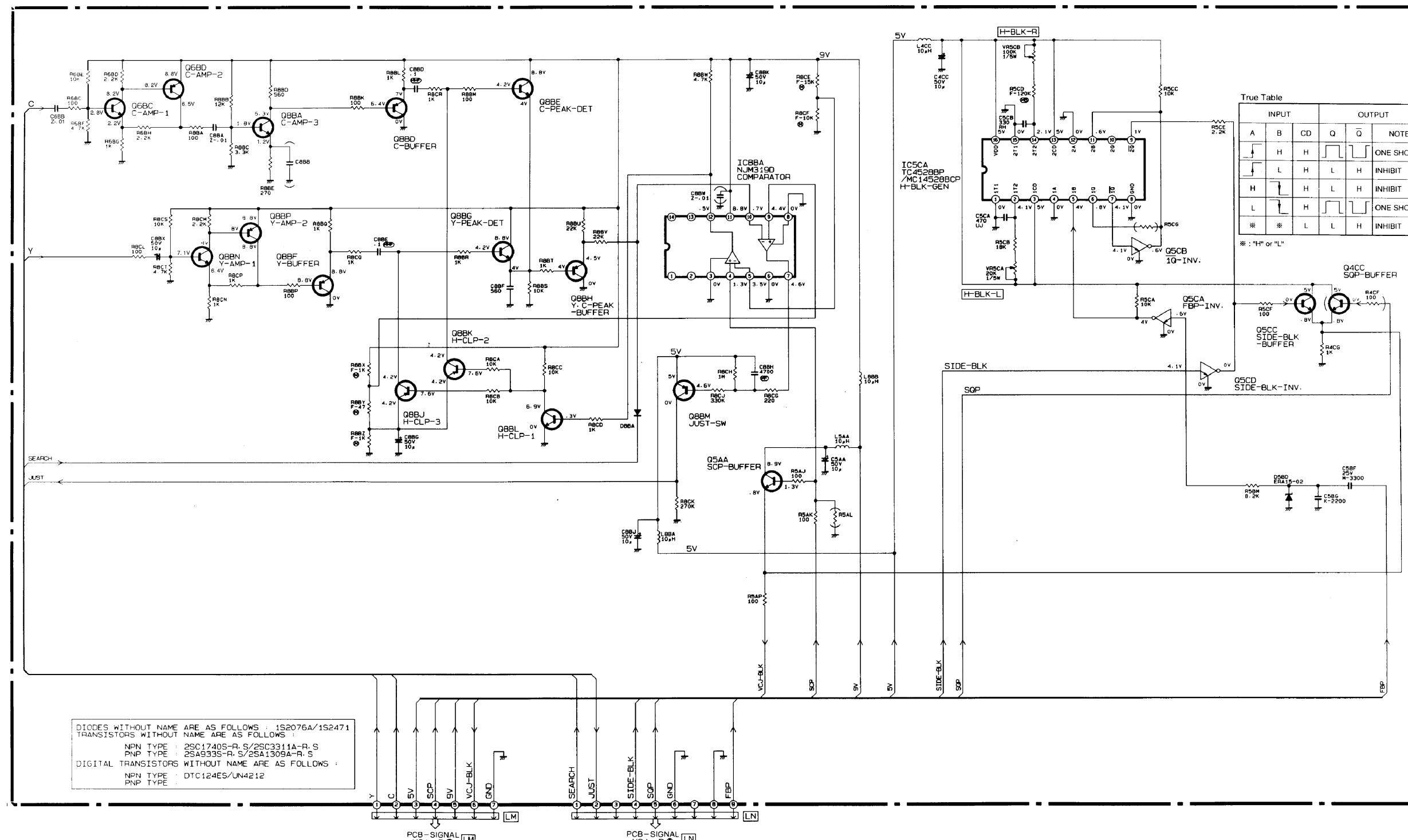


Adjustments / Cont'd / Cont'd (1) / Cont'd (2) / Safety Parts / Remote Control / Sync Diag / Signal HF Diag / Replacing EEPROM (IC702) / Audio Amp

AV Diag / Control Diag / DBF Diag / DCF Diag / LED Diag / Deletion Diag / JUST Diag / MICON (OSD) / MICON / MSP DSP Diag / PIP Diag / Power 1 Diag / Power 2 Diag

Signal RGB / Signal VCJ / Text Diagram / List of Setting Items / Phone Diagram / Wide Diagram / VMCRT Diagram / WAC Diagram / Y/C SW Diagram

## JUST Diagram

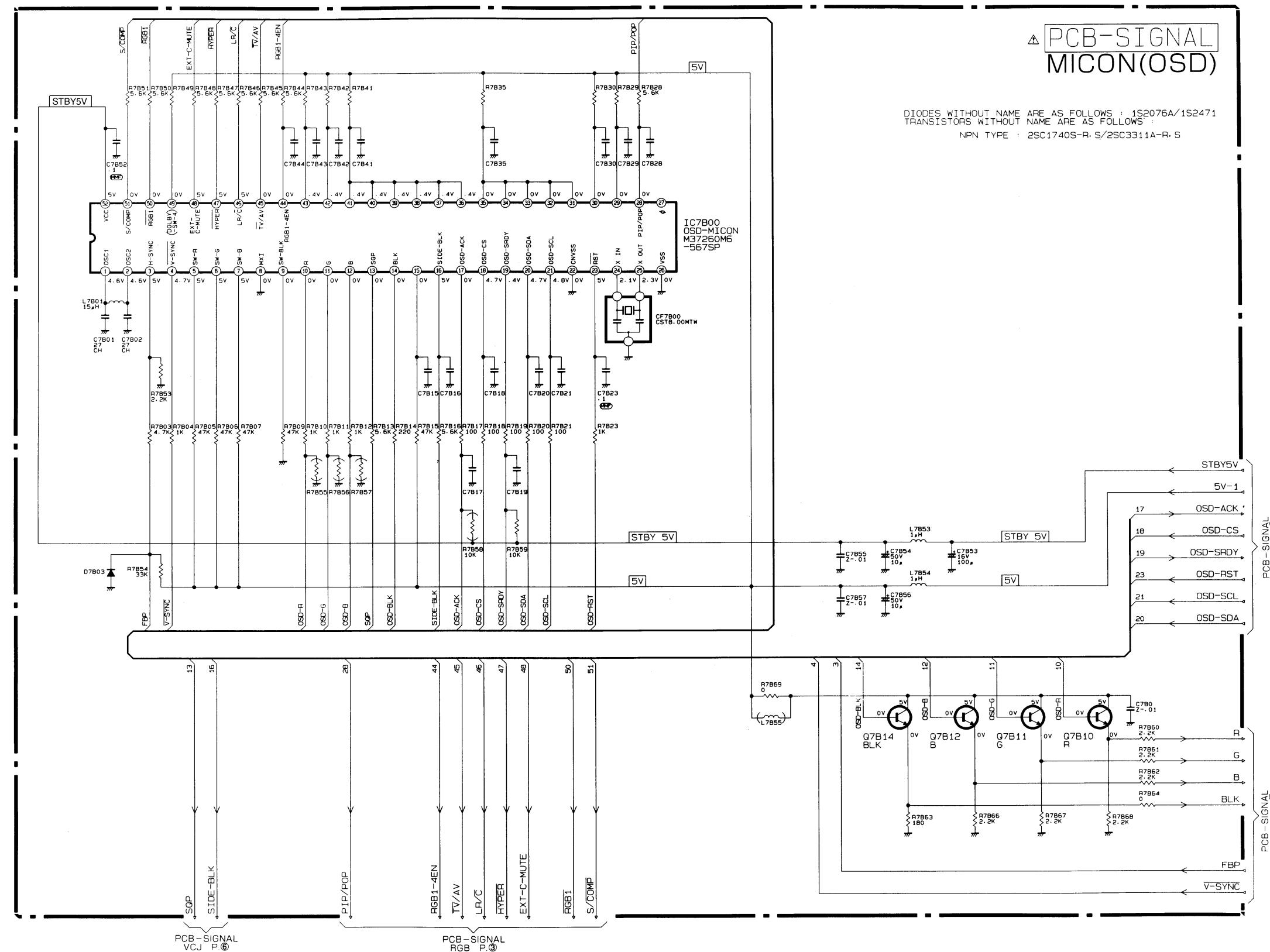


Adjustments / Cont'd / Cont'd (1) / Cont'd (2) / Safety Parts / Remote Control / Sync Diag / Signal HF Diag / Replacing EEPROM (IC702) / Audio Amp

AV Diag / Control Diag / DBF Diag / DCF Diag / LED Diag / Deletion Diag / JUST Diag / MICON (OSD) / MICON / MSP DSP Diag / PIP Diag / Power 1 Diag / Power 2 Diag

Signal RGB / Signal VCJ / Text Diagram / List of Setting Items / Phone Diagram / Wide Diagram / VMCRT Diagram / WAC Diagram / Y/C SW Diagram

# MICON (OSD) Diagram

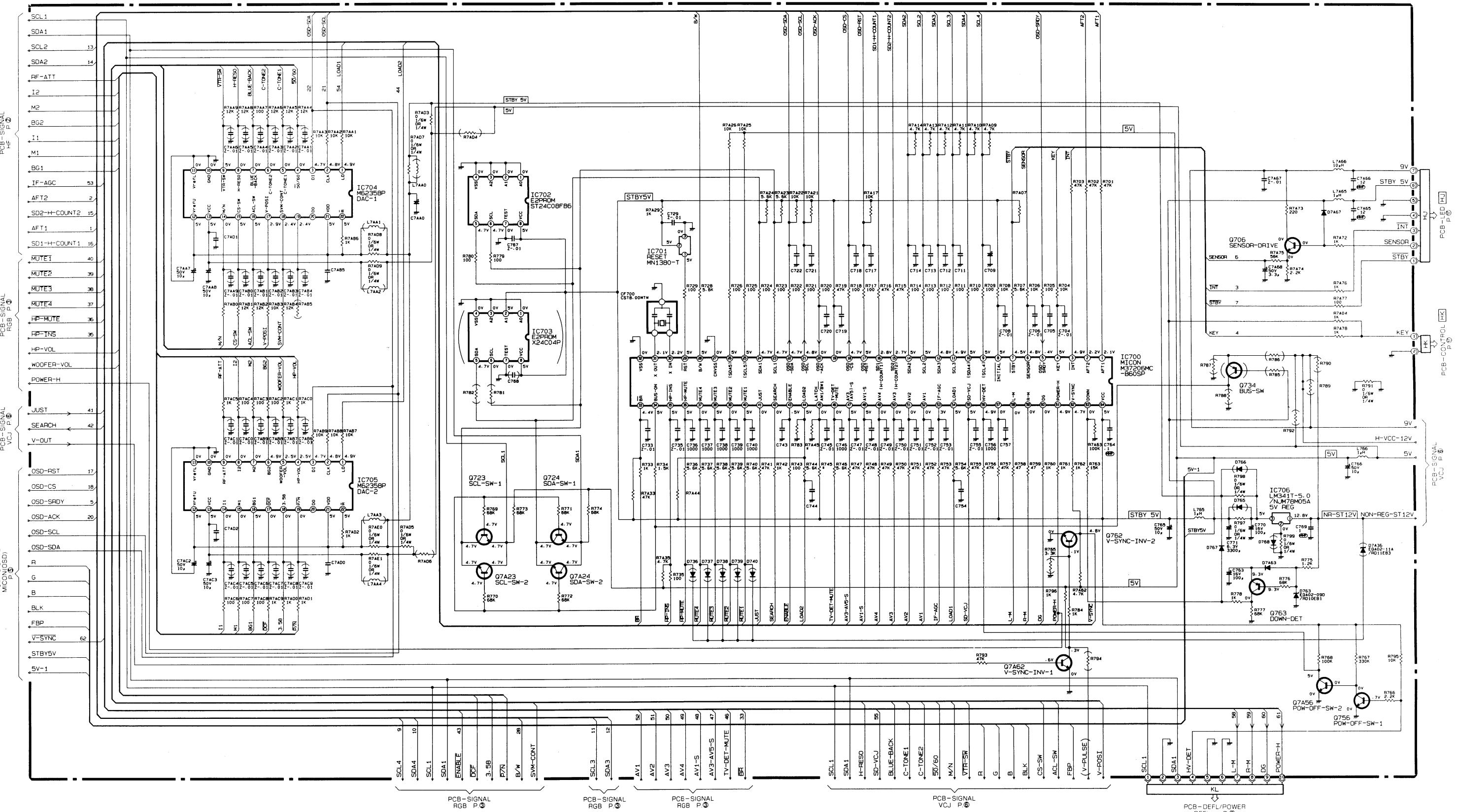


**Adjustments / Cont'd / Cont'd (1) / Cont'd (2) / Safety Parts / Remote Control / Sync Diag / Signal HF Diag / Replacing EEPROM (IC702) / Audio Amp**

[AV Diag](#) / [Control Diag](#) / [DBF Diag](#) / [DCF Diag](#) / [LED Diag](#) / [Delection Diag](#) / [JUST Diag](#) / [MICON \(OSD\)](#) / [MICON](#) / [MSP DSP Diag](#) / [PIP Diag](#) / [Power 1 Diag](#) / [Power 2 Diag](#)

[Signal RGB](#) / [Signal VCJ](#) / [Text Diagram](#) / [List of Setting Items](#) / [Phone Diagram](#) / [Wide Diagram](#) / [VMCRT Diagram](#) / [WAC Diagram](#) / [Y/C SW Diagram](#)

MICON Diagram

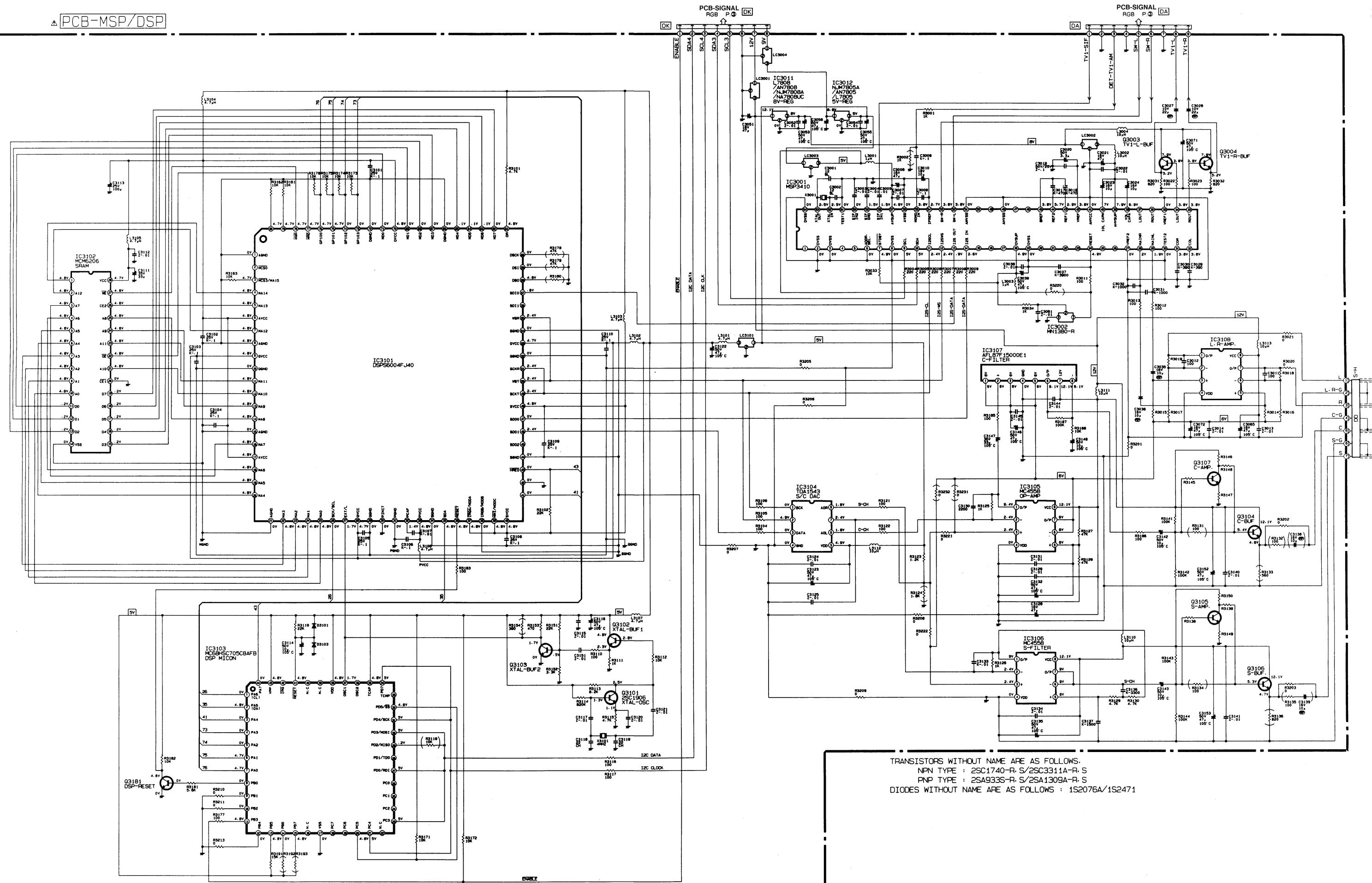


[Adjustments / Cont'd / Cont'd \(1\) / Cont'd \(2\) / Safety Parts](#) / [Remote Control](#) / [Sync Diag](#) / [Signal HF Diag](#) / [Replacing EEPROM \(IC702\)](#) / [Audio Amp](#)

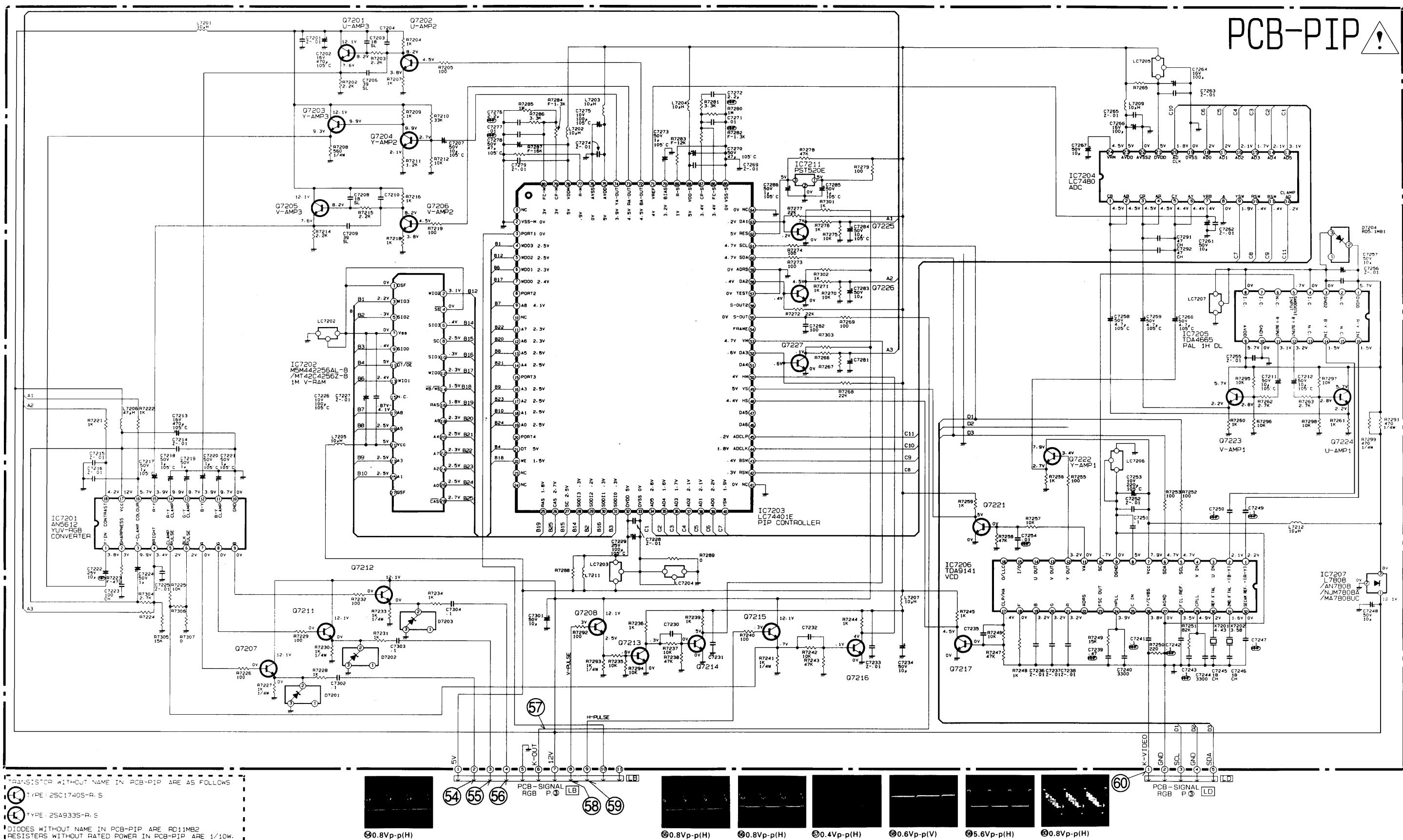
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[Signal RGB](#) / [Signal VCJ](#) / [Text Diagram](#) / [List of Setting Items](#) / [Phone Diagram](#) / [Wide Diagram](#) / [VMCRT Diagram](#) / [WAC Diagram](#) / [Y/C SW Diagram](#)

## MSP DSP Diagram



## PIP Diagram

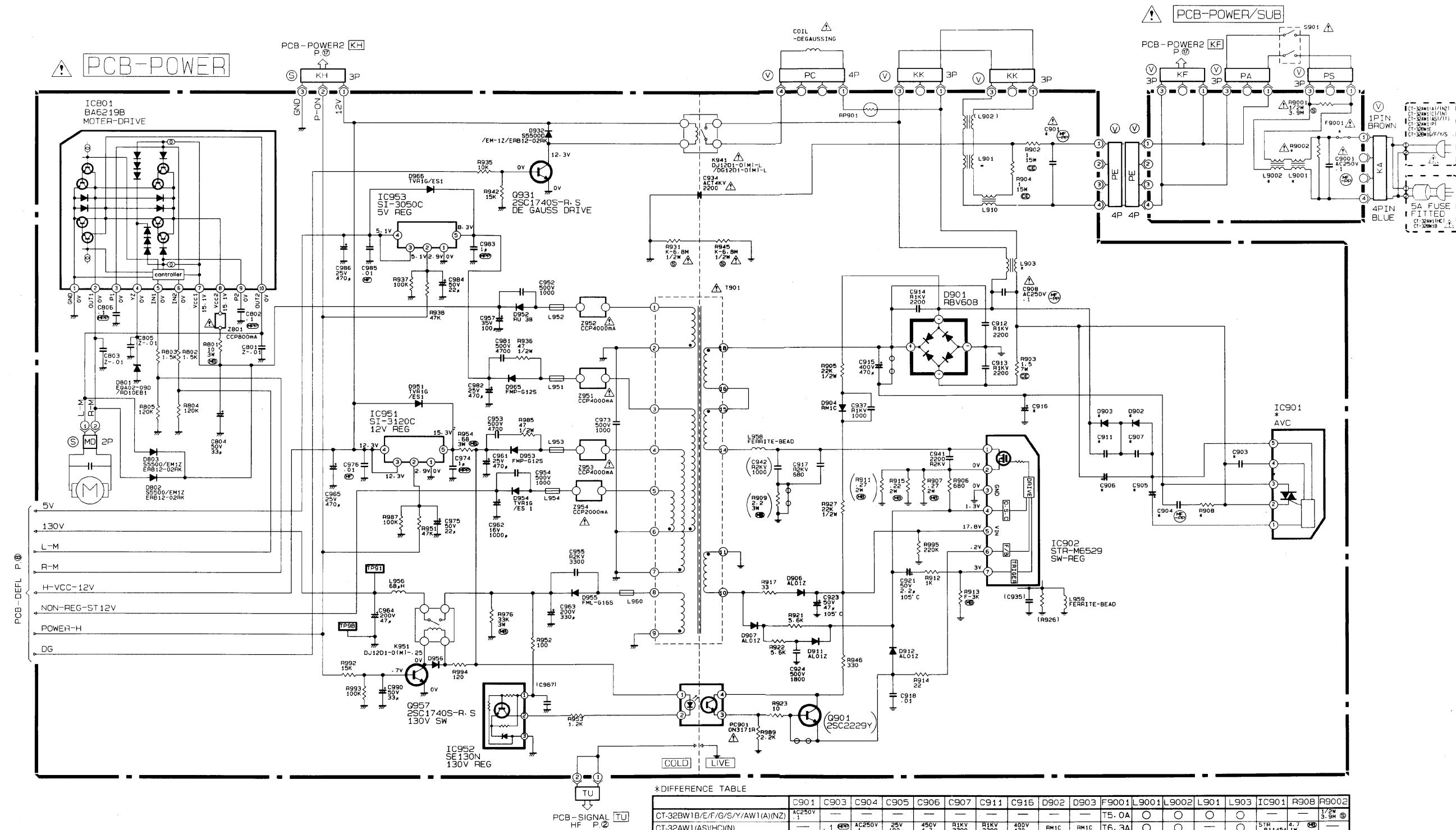


Adjustments / Cont'd / Cont'd (1) / Cont'd (2) / Safety Parts / Remote Control / Sync Diag / Signal HF Diag / Replacing EEPROM (IC702) / Audio Amp

AV Diag / Control Diag / DBF Diag / DCF Diag / LED Diag / Deletion Diag / JUST Diag / MICON (OSD) / MICON / MSP DSP Diag / PIP Diag / Power 1 Diag / Power 2 Diag

Signal RGB / Signal VCJ / Text Diagram / List of Setting Items / Phone Diagram / Wide Diagram / VMCR Diagram / WAC Diagram / Y/C SW Diagram

## Power Diagram

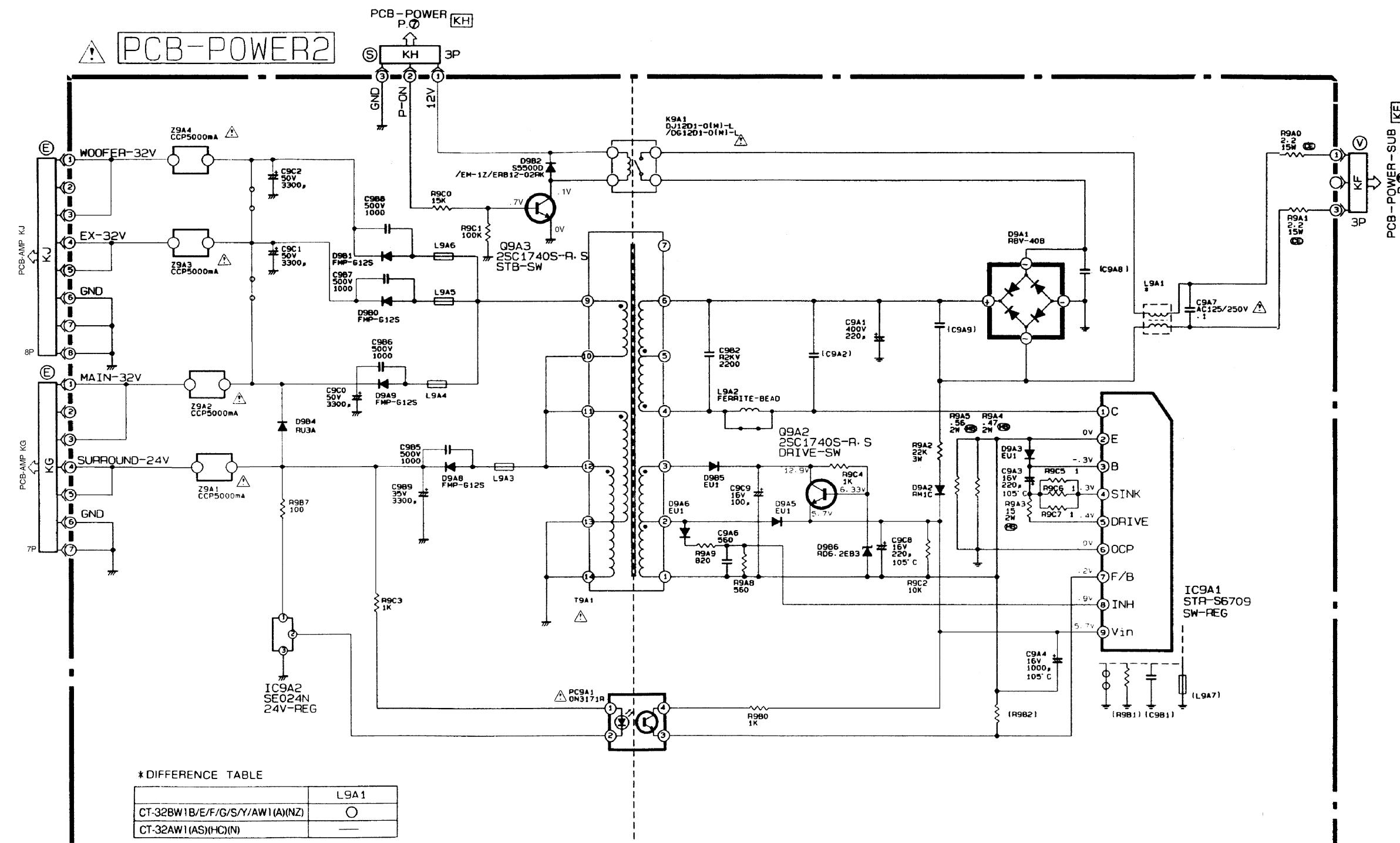


Adjustments / Cont'd / Cont'd (1) / Cont'd (2) / Safety Parts / Remote Control / Sync Diag / Signal HF Diag / Replacing EEPROM (IC702) / Audio Amp

AV Diag / Control Diag / DBF Diag / DCF Diag / LED Diag / Deletion Diag / JUST Diag / MICON (OSD) / MICON / MSP DSP Diag / PIP Diag / Power 1 Diag / Power 2 Diag

Signal RGB / Signal VCJ / Text Diagram / List of Setting Items / Phone Diagram / Wide Diagram / VMCRT Diagram / WAC Diagram / Y/C SW Diagram

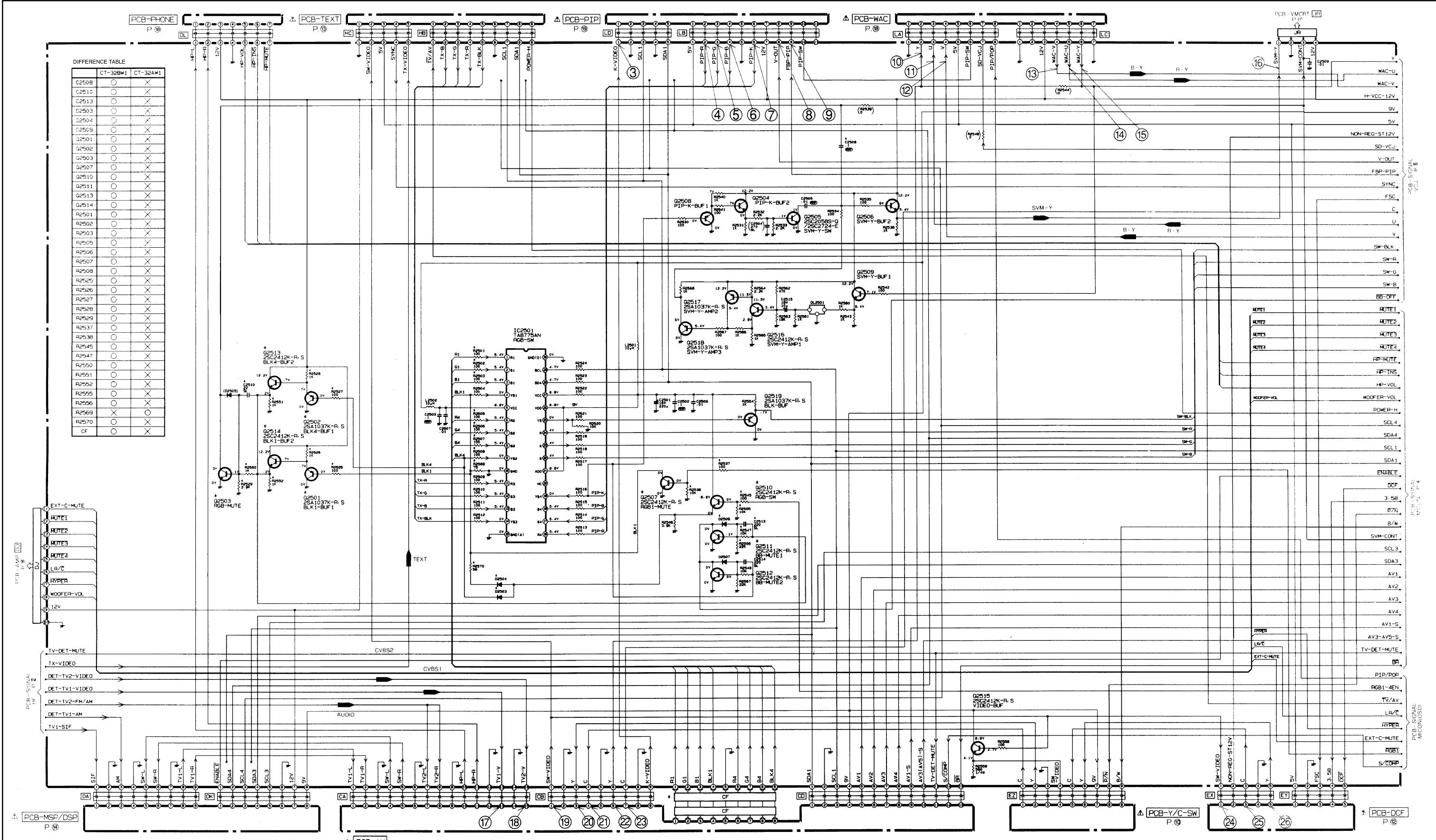
## Power 2 Diagram



Adjustments / Cont'd / Cont'd (1) / Cont'd (2) / Safety Parts / Remote Control / Sync Diag / Signal HF Diag / Replacing EEPROM (IC702) / Audio Amp

AV Diag / Control Diag / DBF Diag / DCF Diag / LED Diag / Deletion Diag / JUST Diag / MICON (OSD) / MICON / MSP DSP Diag / PIP Diag / Power 1 Diag / Power 2 Diag

Signal RGB / Signal VCJ / Text Diagram / List of Setting Items / Phone Diagram / Wide Diagram / VMCRT Diagram / WAC Diagram / Y/C SW Diagram



TRANSISTORS WITHOUT NAME ARE AS FOLLOWS.

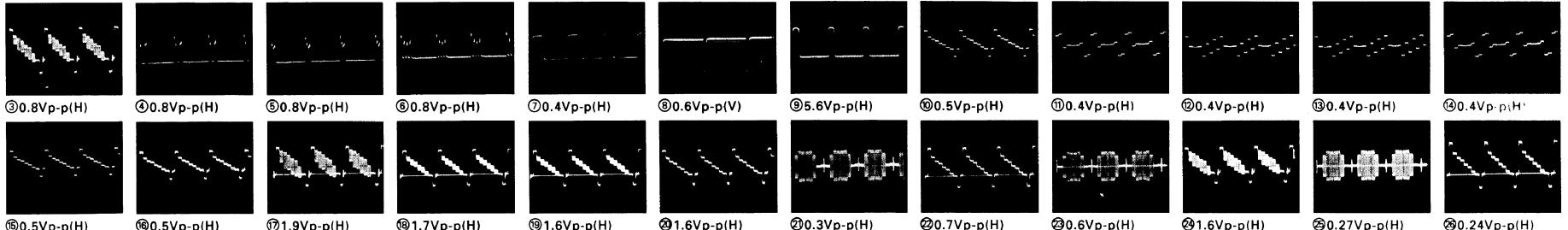
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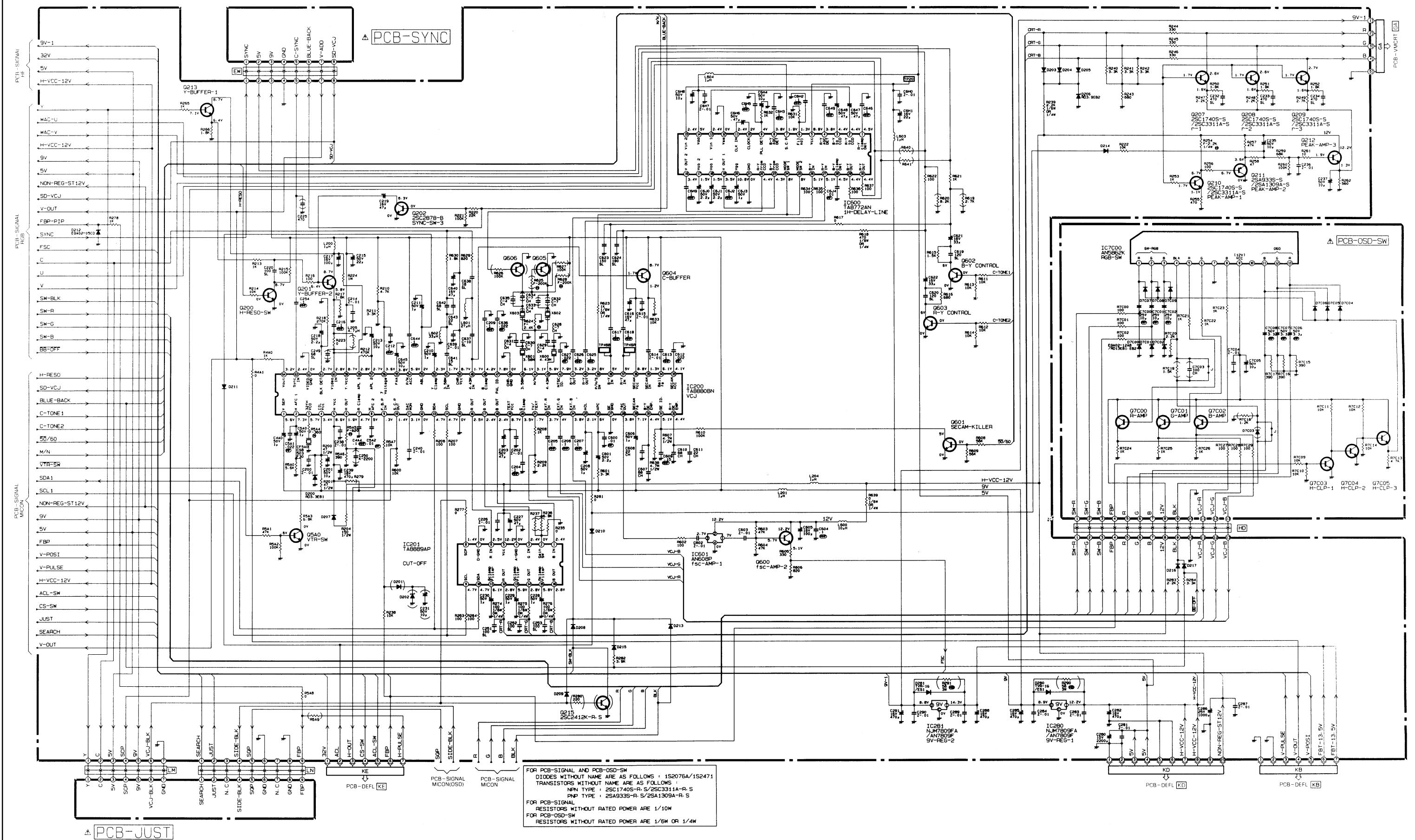
DIODES WITHOUT NAME ARE AS FOLLOWS : 1S2076A/1S2471

RESISTORS WITHOUT RATED POWER ARE 1/10W

## Signal RGB Diagram


[Adjustments / Cont'd / Cont'd \(1\) / Cont'd \(2\) / Safety Parts / Remote Control / Sync Diag / Signal HF Diag / Replacing EEPROM \(IC702\) / Audio Amp](#)
[AV Diag / Control Diag / DBF Diag / DCF Diag / LED Diag / Deletion Diag / JUST Diag / MICON \(OSD\) / MICON / MSP DSP Diag / PIP Diag / Power 1 Diag / Power 2 Diag](#)
[Signal RGB / Signal VCJ / Text Diagram / List of Setting Items / Phone Diagram / Wide Diagram / VMCRT Diagram / WAC Diagram / Y/C SW Diagram](#)

## Signal VCJ Diagram

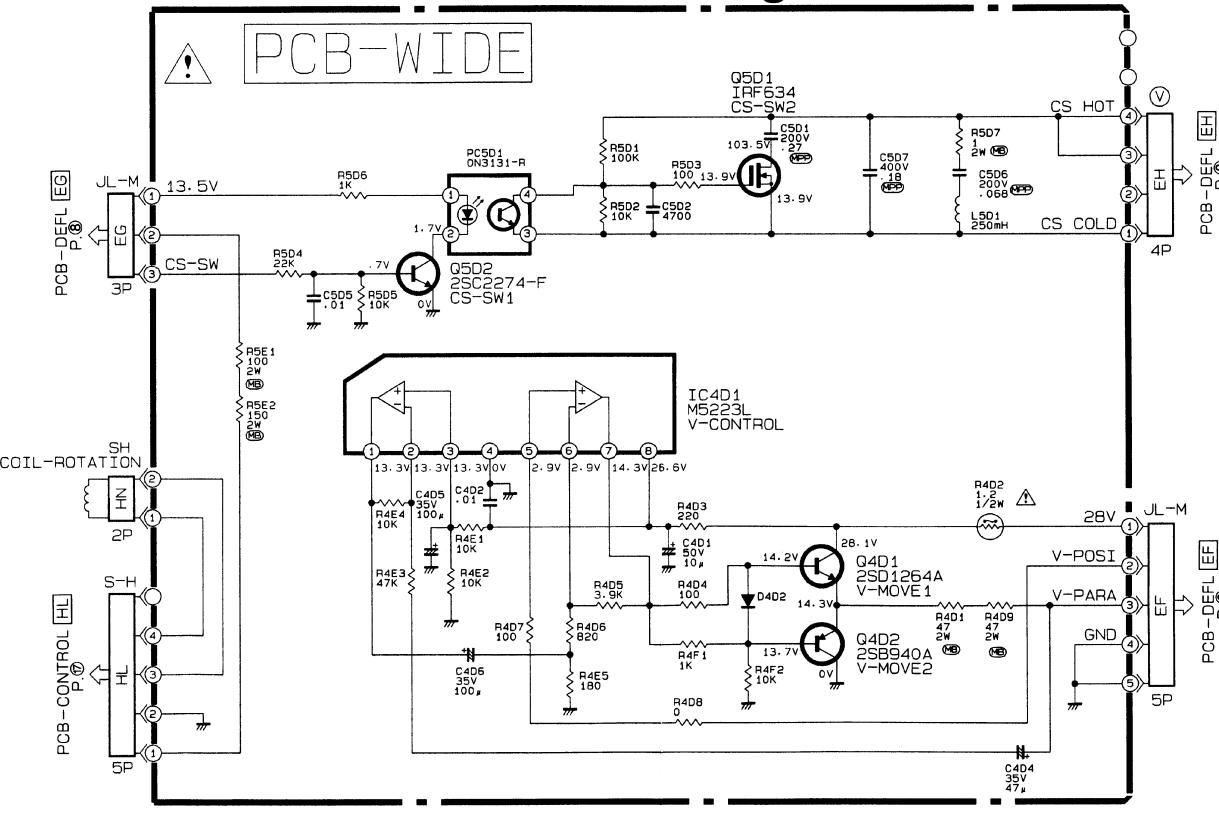


[Adjustments / Cont'd](#) / [Cont'd \(1\)](#) / [Cont'd \(2\)](#) / [Safety Parts](#) / [Remote Control](#) / [Sync Diag](#) / [Signal HF Diag](#) / [Replacing EEPROM \(IC702\)](#) / [Audio Amp](#)

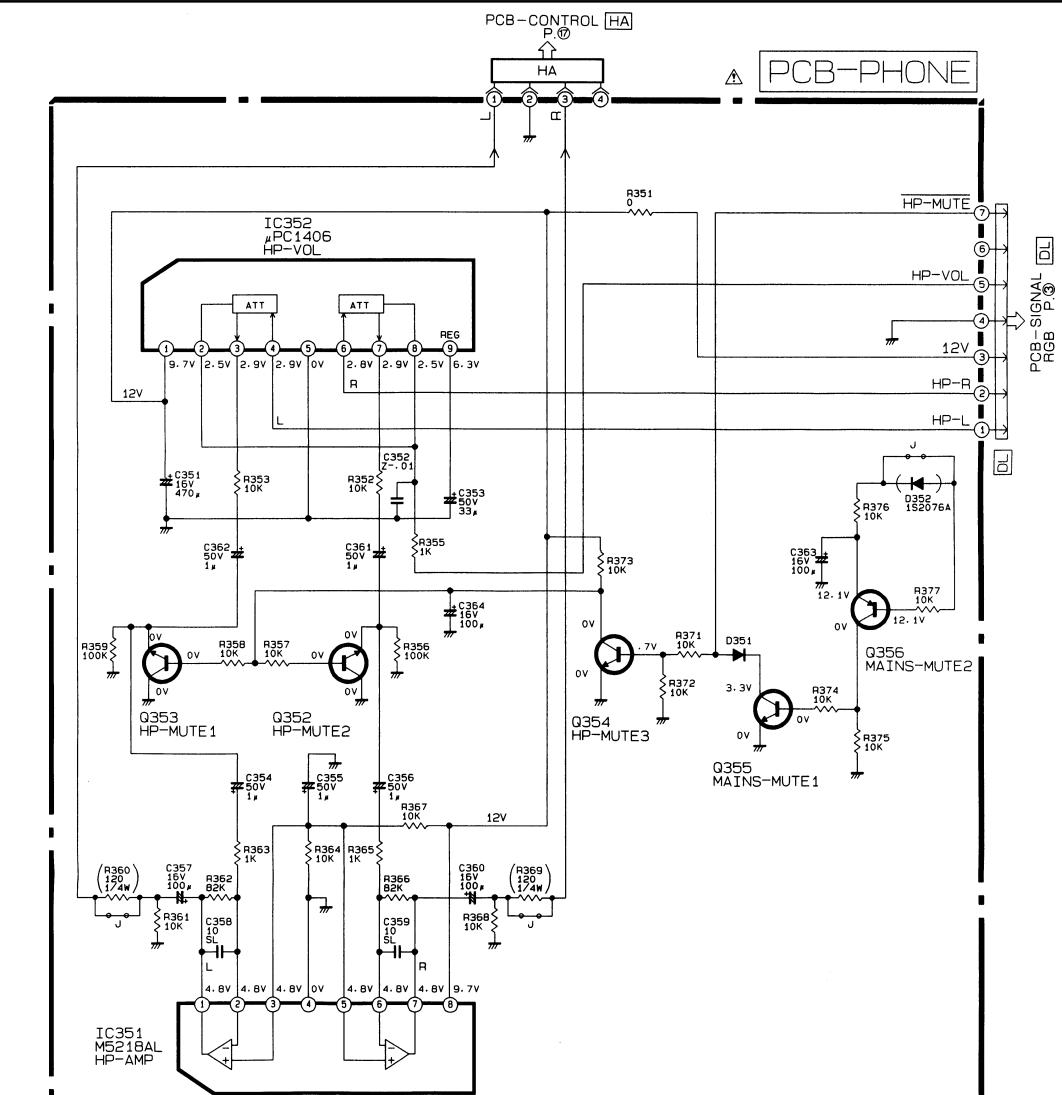
[AV Diag](#) / [Control Diag](#) / [DBF Diag](#) / [DCF Diag](#) / [LED Diag](#) / [Delection Diag](#) / [JUST Diag](#) / [MICON \(OSD\)](#) / [MICON](#) / [MSP DSP Diag](#) / [PIP Diag](#) / [Power 1 Diag](#) / [Power 2 Diag](#)

[Signal RGB](#) / [Signal VCJ](#) / [Text Diagram](#) / [List of Setting Items](#) / [Phone Diagram](#) / [Wide Diagram](#) / [VMCRT Diagram](#) / [WAC Diagram](#) / [Y/C SW Diagram](#)

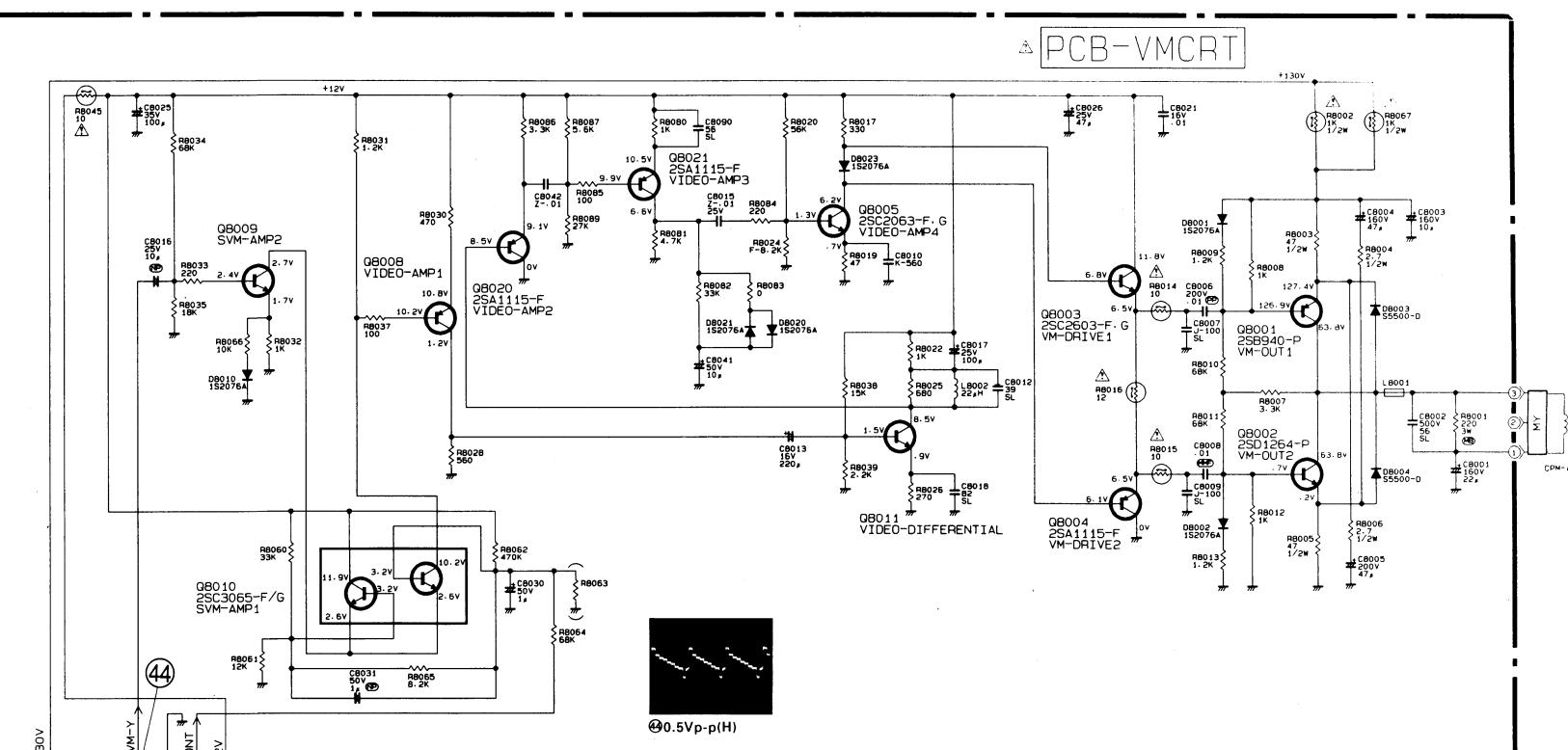
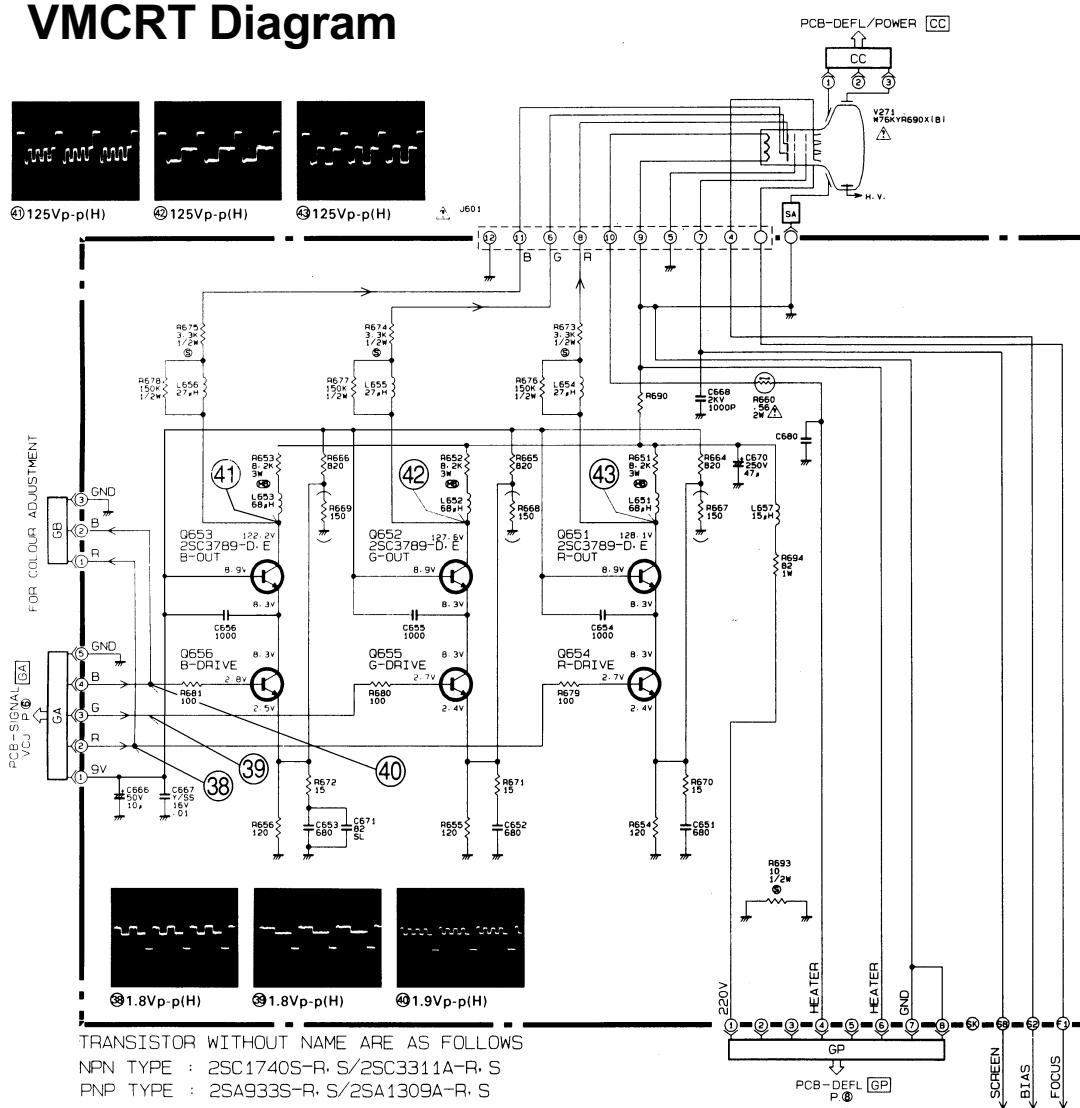
## Wide Diagram



## Phone Diagram



## VMCRT Diagram



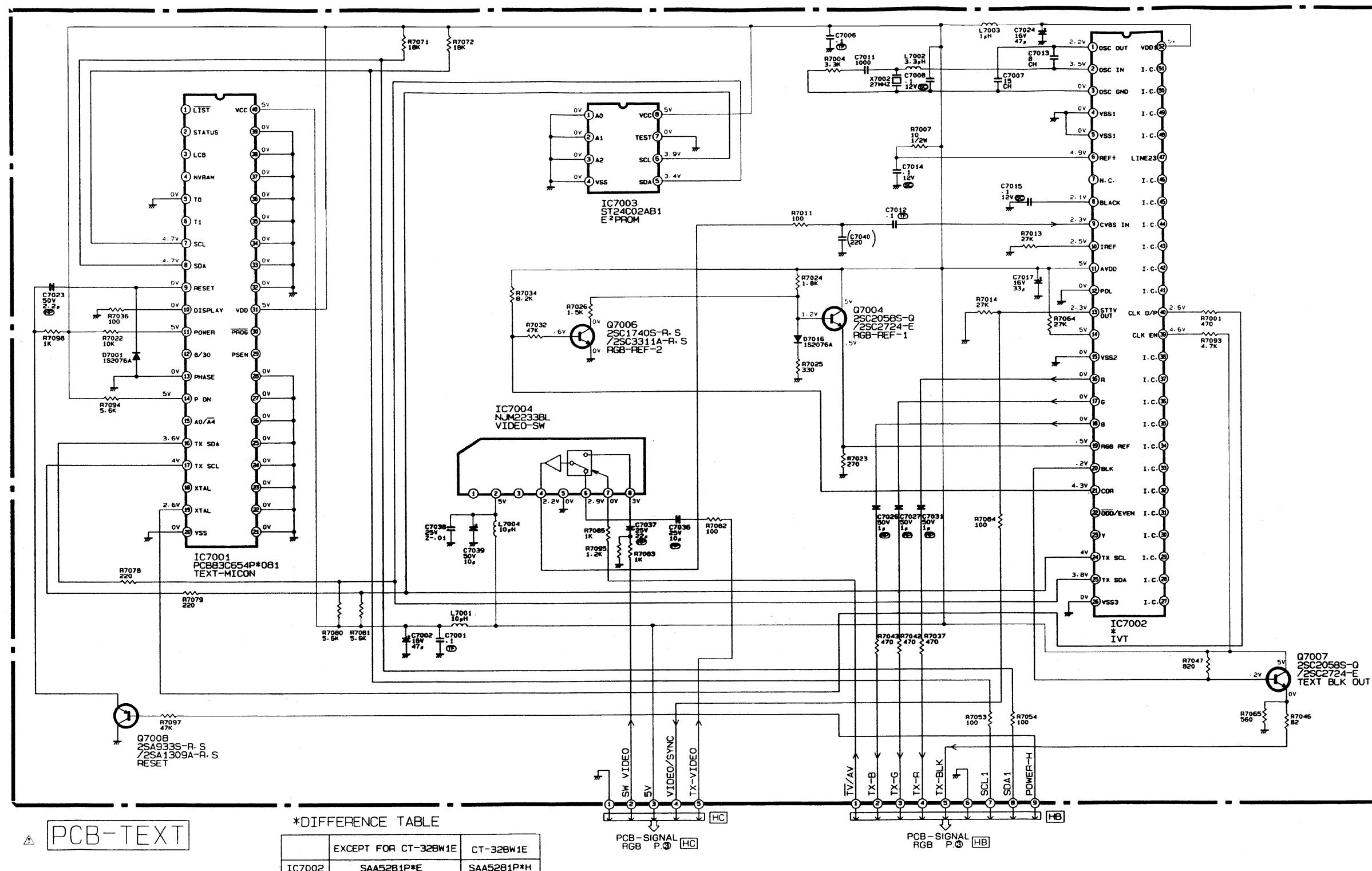
TRANSISTOR WITHOUT NAME ARE AS FOLLOWS  
NPN TYPE : 2SC1740S-R, S/2SC3311A-R, S  
PNP TYPE : 2SA933S-R, S/2SA1309A-R, S

Adjustments / Cont'd / Cont'd (1) / Cont'd (2) / Safety Parts / Remote Control / Sync Diag / Signal HF Diag / Replacing EEPROM (IC702) / Audio Amp

AV Diag / Control Diag / DBF Diag / DCF Diag / LED Diag / Deletion Diag / JUST Diag / MICON (OSD) / MICON / MSP DSP Diag / PIP Diag / Power 1 Diag / Power 2 Diag

Signal RGB / Signal VCJ / Text Diagram / List of Setting Items / Phone Diagram / Wide Diagram / VMCRT Diagram / WAC Diagram / Y/C SW Diagram

## Text Diagram

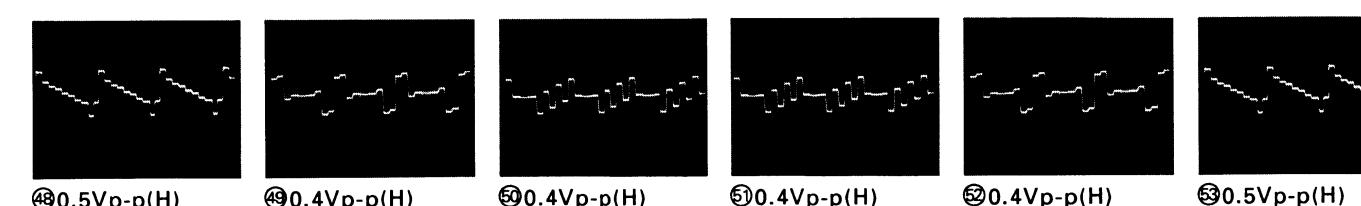
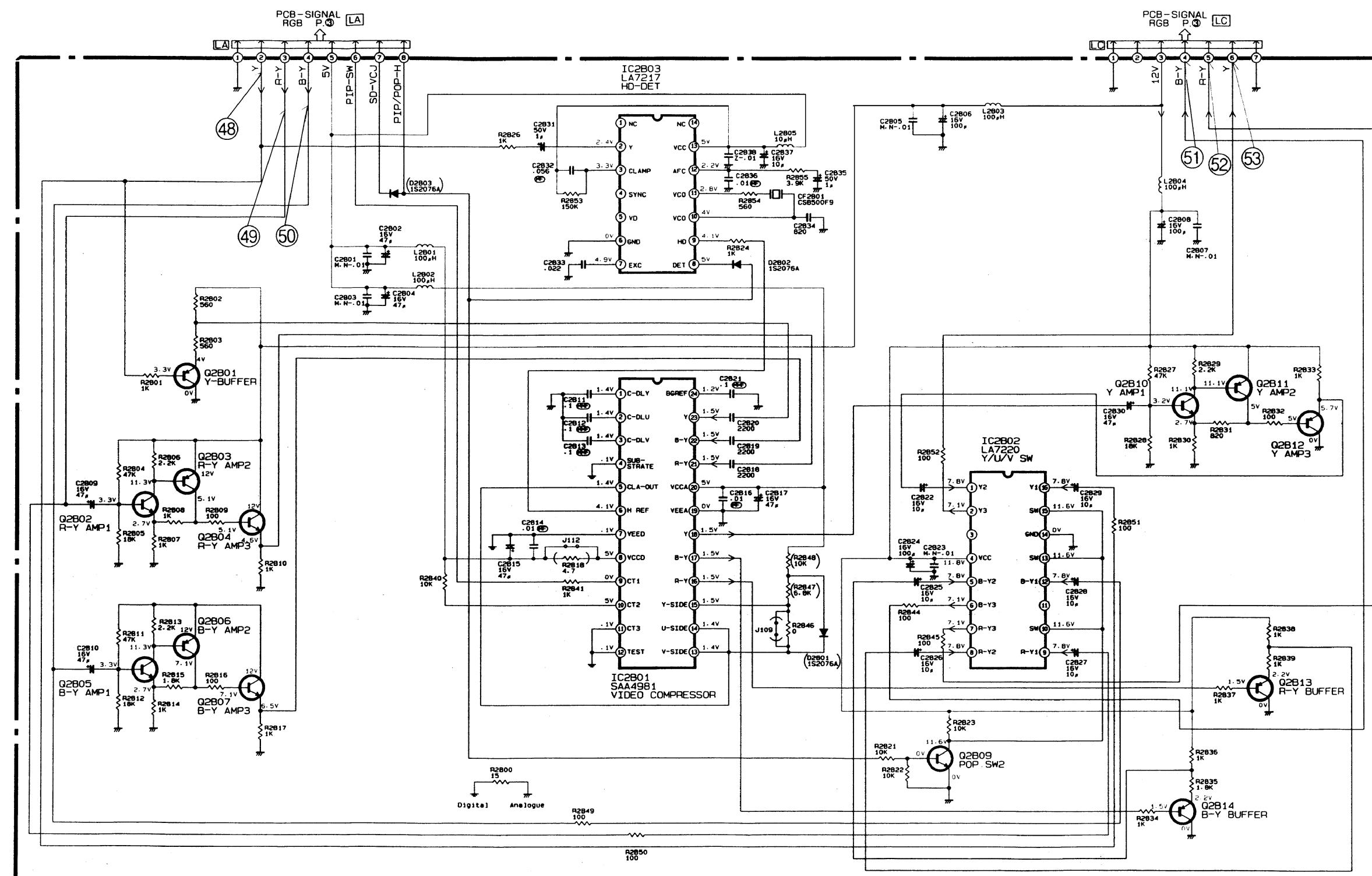


Adjustments / Cont'd / Cont'd (1) / Cont'd (2) / Safety Parts / Remote Control / Sync Diag / Signal HF Diag / Replacing EEPROM (IC702) / Audio Amp

AV Diag / Control Diag / DBF Diag / DCF Diag / LED Diag / Delection Diag / JUST Diag / MICON (OSD) / MICON / MSP DSP Diag / PIP Diag / Power 1 Diag / Power 2 Diag

Signal RGB / Signal VCJ / Text Diagram / List of Setting Items / Phone Diagram / Wide Diagram / VMCRT Diagram / WAC Diagram / Y/C SW Diagram

## WAC Diagram

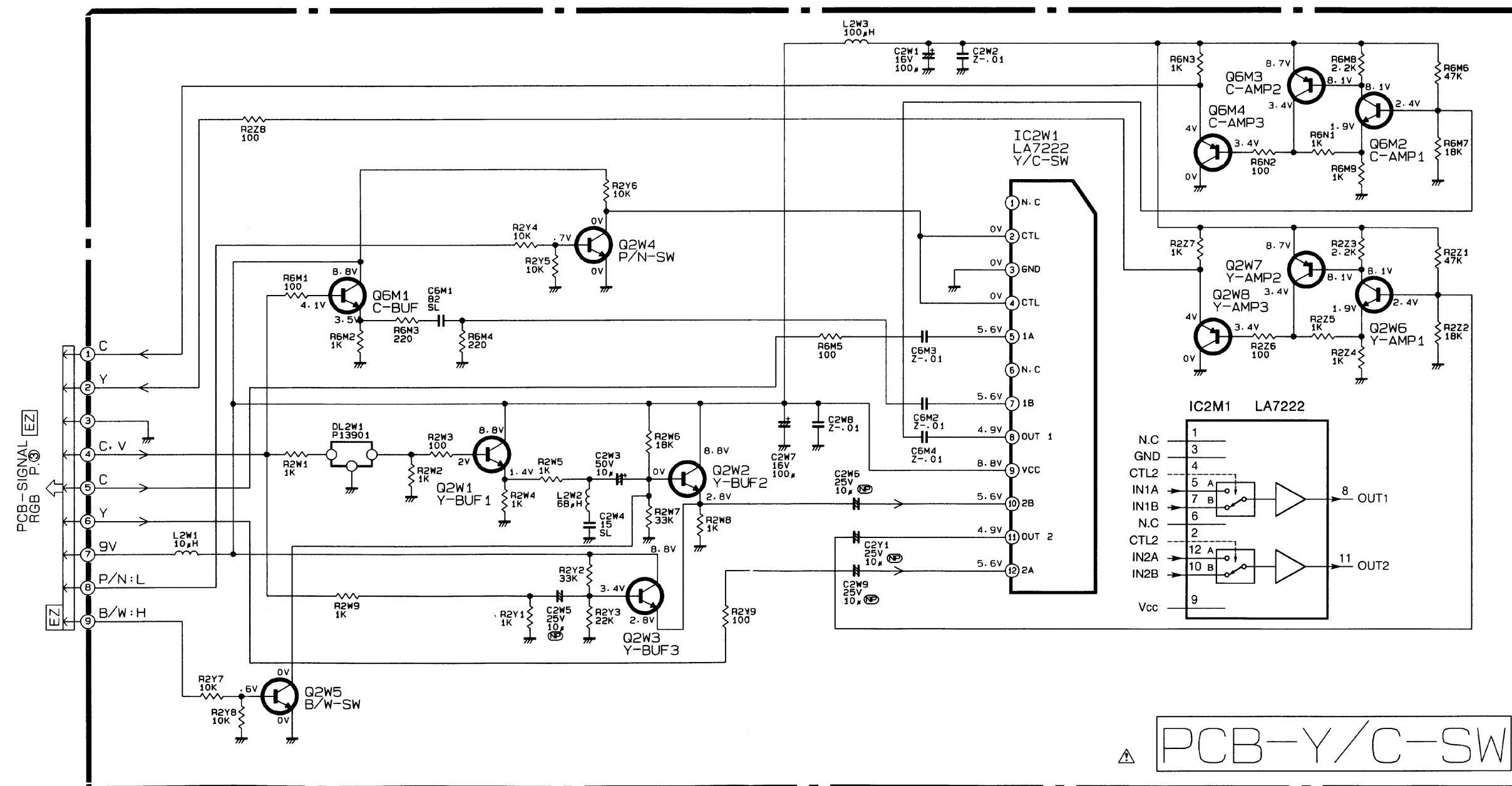


Adjustments / Cont'd / Cont'd (1) / Cont'd (2) / Safety Parts / Remote Control / Sync Diag / Signal HF Diag / Replacing EEPROM (IC702) / Audio Amp

AV Diag / Control Diag / DBF Diag / DCF Diag / LED Diag / Deletion Diag / JUST Diag / MICON (OSD) / MICON / MSP DSP Diag / PIP Diag / Power 1 Diag / Power 2 Diag

Signal RGB / Signal VCJ / Text Diagram / List of Setting Items / Phone Diagram / Wide Diagram / VMCRT Diagram / WAC Diagram / Y/C SW Diagram

## Y/C SW Diagram



Adjustments / Cont'd / Cont'd (1) / Cont'd (2) / Safety Parts / Remote Control / Sync Diag / Signal HF Diag / Replacing EEPROM (IC702) / Audio Amp

AV Diag / Control Diag / DBF Diag / DCF Diag / LED Diag / Deletion Diag / JUST Diag / MICON (OSD) / MICON / MSP DSP Diag / PIP Diag / Power 1 Diag / Power 2 Diag

Signal RGB / Signal VCJ / Text Diagram / List of Setting Items / Phone Diagram / Wide Diagram / VMCRT Diagram / WAC Diagram / Y/C SW Diagram