

MITSUBISHI CT-32BW 1B

General Information

W1 Chassis

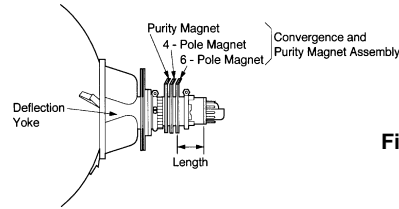
Matrix

Item	See Model	Book
Safety Precautions (See Notes).....	CT-14MS1	4

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.



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.

Recommended Safety Parts

Item	Part No.	Description
T532	409B128O10	Degaussing Coil
T901	334D100O04	Flyback (334P228O50 & CAP)
T9A1	350P589O20	Power
R9001	350P673O10	Power 350P67301
R9002	109D021O80	Solid 1/2W 3.9M OHM-K
R3F01, R3F02, R3G01, R3G02, R3H01, R3H02, R3J01, R3J02	109D021O80	Solid 1/2W 3.9 OHM-K
R8002	103P398O40	Fuse Metal 2W 0.56 OHM -K/J
R8014	103P392O50	Fuse 1/2W 1K OHM-J
R8015	103P370O10	Fuse 1/4W 10 OHM-J
R8016	103P370O10	Fuse 10W OHM-J
R8045	103P370O20	Fuse 1/4W 12 OHM -J
R8067	103P370O10	Fuse 1/4W 10 OHM -J
R931, R945	103P392O50	Fuse 1K OHM-J
C901, C908	109D021O20	Composition W 6.8 OHM-K
C934	189P153O40	C-M-P-AC AC250V 0.1uF-M
C9A7, C9001	189P094O40	C-CERAMIC-AC ACT 4K E2200pF-M
S901	189P153O40	C-M-P-AC AC250V 0.1uF-M
F9001	432C074O60	Push switch 2-1
J601	283D047O80	Fuse T5A
K941, K9A1	449C123O20	Socket CRT
PC901, PC9A1	287P049O30	Relay Power DJ12D-0(M)-L
Z801	268P069O10	Photo Coupler ON3171R
Z951, Z952, Z953	299P200O70	Protector Fuse CCP800
Z954	299P201O70	Protector Fuse CCP4000
Z9A1, Z9A2, Z9A3, Z9A4	299P201O20	Protector Fuse CCP2000
	299P201O80	Protector Fuse CCP5000
	930B717O01	AMP PCB ASSY
	930C956O01	AV PCB ASSY
	920D625O01	Control PCB ASSY
	930C955O01	DBF PCB ASSY
	930C667O09	DCF PCB ASSY
	920D629O01	DEFL PCB ASSY
	930C947O10	JUST PCB ASSY
	920D626O01	LED PCB ASSY
	930C952O01	MSP/DSP PCB ASSY
	920D627O01	Phone PCB ASSY
	930C957O01	PIP PCB ASSY
	930C954O01	Power-2 PCB ASSY
	930C986O01	Power-SUB PCB ASSY
	930B713O01	Signal PCB ASSY
	920D659O01	Y/C-SW PCB ASSY
	920D661O01	OSD-SW PCB ASSY
	920D662O01	SYNC PCB ASSY
	930C948O01	Text PCB ASSY
	930C950O01	VMCRT PCB ASSY
	930C949O01	WAC PCB ASSY
	930C953O01	Wide PCB ASSY
	246C162O10	AC Power Cord
	700C215O20	Back Cover
	290P056O10	Remote Hand Unit

(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.

Purity
Adjustment purpose:
Insure the R, G and B beams land on their respective phosphorus.

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.

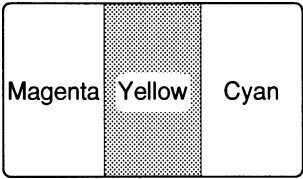


Fig 2.
2. Screen Corner Beam Landing Correction
Adjustment purpose:
Correct divergence in the corners of the screen.

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.

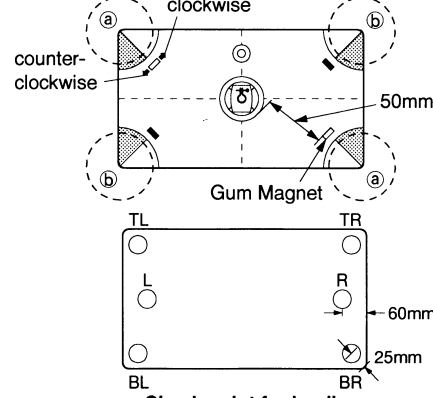
- 1: Supply a VIDEO signal (white raster).
- 2: Using a microscope check the beam landing in the four corners, where beam landing divergence is found correction should be made with the application of Gum Magnets to the funnel of the CRT. Up to 3 Gum Magnets, Part Number: 461D033O20, can be placed in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

- 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" beams 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).

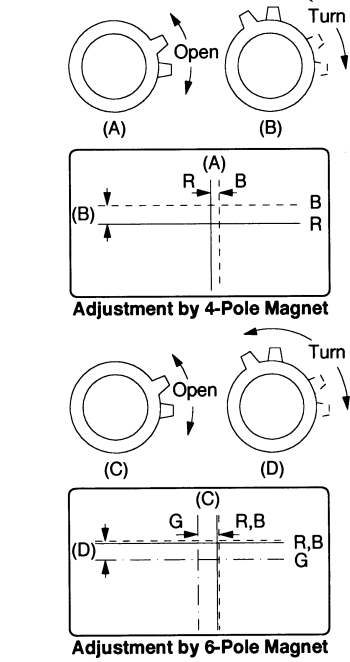
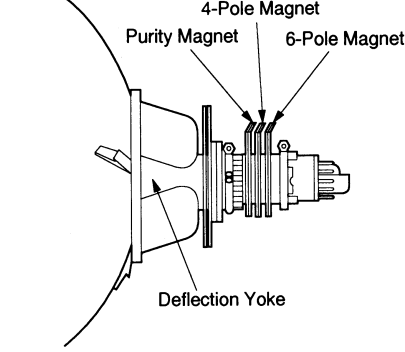


Fig. 4
Note: With both 4-Pole and 6-Pole Magnets, converge the vertical line opening the tabs and the horizontal line by turning the tabs.

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.

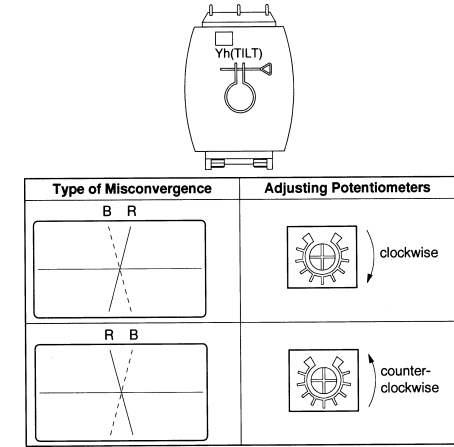


Fig. 5
5. Xv Correct
Adjustment purpose:
Correct colour divergence of R, G and B horizontal lines at the sides of the picture.

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.

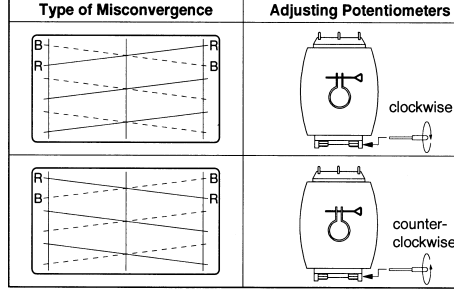


Fig. 6
6. Convergence of Screen Corner
Adjustment purpose:
Correct convergence at the corner of the picture.

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.

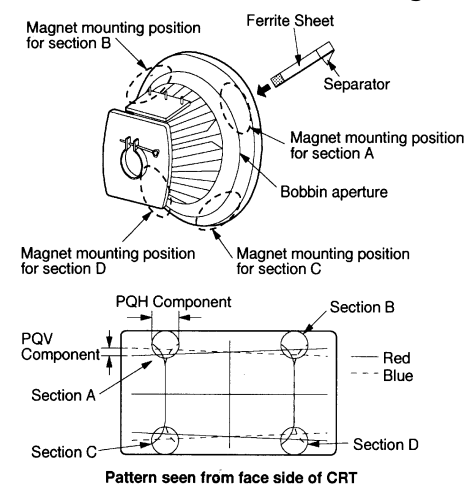


Fig. 7

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.

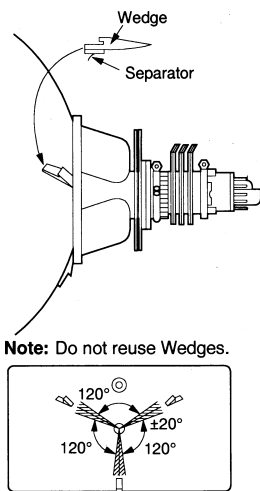


Fig. 8

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.

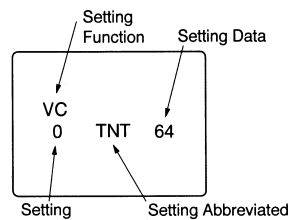


Fig. 9 (a)

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-->IF-->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.

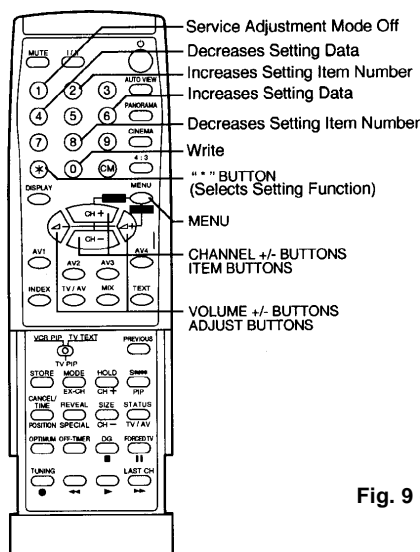


Fig. 9 (b)

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.
Set the MAIN MENU to "SET UP 1".
Select the SIGNAL BOOSTER "ON".
Press the TUNING button.
Select the system "BG".
Turn on AFT.
Press the TUNING button and cancel the tuning mode. Press the MuNu button.
- 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 "1 RF0" (main picture) and "3 RF1" (sub picture), ("2" or "8" button).
- 7: Adjust the setting data so that the picture and sound have no beat, noise and inter-modulation distortion.
- 8: Write the setting data into memory ("0" button).
- 9: 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",

- 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 $2.0 \pm 0.3V_{p-p}$, ("4" or "6" button).
- 8: Write the setting data into memory, ("0" button).
- 9: Terminate the service adjustment mode, ("1" button). See Fig 10.

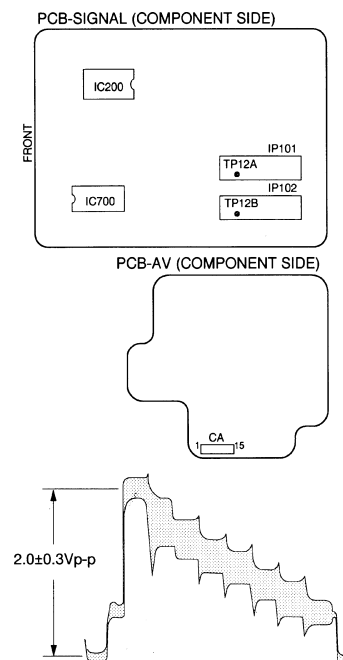


Fig 10

SECAM Demodulator (Chroma Circuit)

Adjustment purpose:

Setting the colour to give best results when receiving an NTSC 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 (NTSC colour bar).

Input terminal: VIDEO IN terminal.

- 1: Supply a VIDEO signal (NTSC 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 108 degrees, ("4" or "6" button).
- 9: Write the setting data into memory, ("0" button).
- 10: Terminate the service adjustment mode, ("1" button).

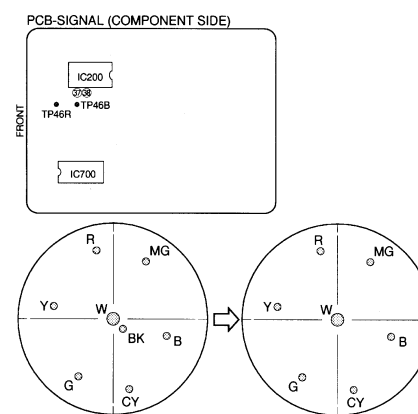


Fig. 11

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.

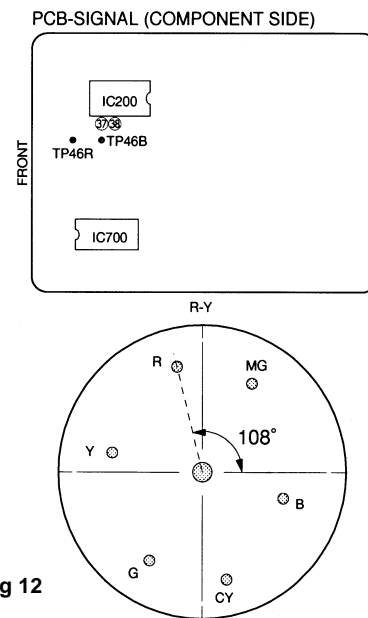


Fig 12

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 bottom: 3.0

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

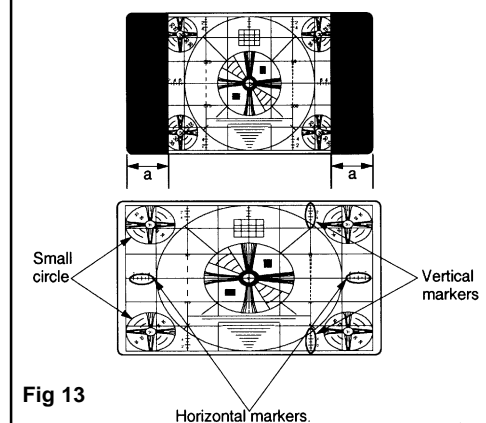


Fig 13

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).

- 1: Supply a VIDEO signal (Crosshatch).
- 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: Select the setting item "6 PAM" ("2" or "8" button).
- 6: 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).
- 7: Select the setting item "8 PPH", ("2" or "8" button).
- 8: 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).
- 9: Alternately repeat steps 5 to 8 to minimise side raster distortion.
- 10: Write the setting data into memory, ("0" button).
- 11: 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

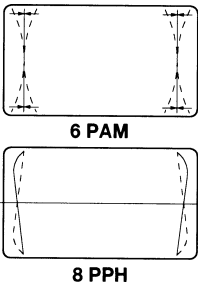


Fig 14

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.

- 1: Supply a VIDEO signal, (crosshatch).
- 2: Press the MENU button on a remote control.
- 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: Select the setting item "2 VSC" and "10 VSS" ("2" or "8" button).
- 6: 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).
- 7: Write the setting data into memory, ("0" button).
- 8: 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

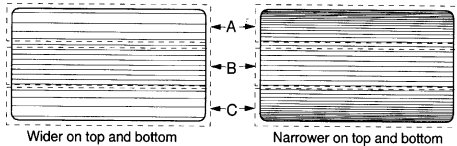


Fig 15

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.

- 1: Supply a VIDEO signal, (monoscope).
- 2: Press the MENU button on a remote control.
- 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: Select the setting item "11 VP0", ("2" or "8" button).
- 6: 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".

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

Picture Size
16:9
14:9
4:3

PANORAMA 1
PANORAMA 2
CINEMA
CAPTION

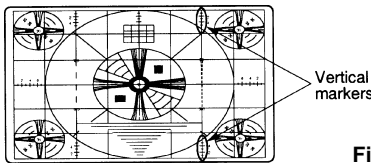


Fig 16

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.

- 1: Supply a VIDEO signal, (monoscope).
- 2: Press the MENU button on a remote control.
- 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 60", ("4:3" button).
- 5: Select the setting item "0 HPH" ("2" or "8" button).
- 6: Adjust the setting data so the left and right markers are the same, ("4" or "6" button).
- 7: Write the setting data into memory, ("0" button).
- 8: Terminate the service adjustment mode, ("1" button).

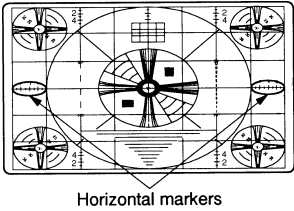


Fig 17

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).

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

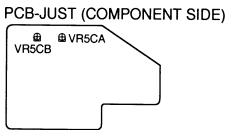
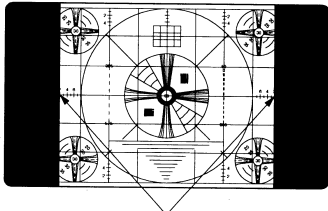


Fig 18



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: Select the setting item "2 BRI" ("2" or "8" button).
- 12: 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).
- 13: Write the setting data into memory ("0" button).
- 14: Terminate the service adjustment mode ("1" button).

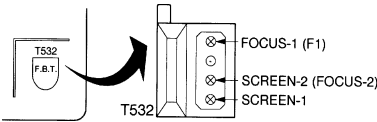


Fig 19

No.	Setting Item	Setting Data
2	BRT	128
3	CNT	67
5	COR	230
6	COG	230
7	COB	230
8	DRR	134
9	DRB	96

12. Contrast (Video circuit)

Adjustment purpose:
The best value for beam current

Symptom when incorrectly adjusted:
The picture will be too bright or too dark.

Measuring instrument: DC milliammeter.

- Test point:**
- + lead: pin (4) of connector TX.
- lead: pin (1) of connector TX.

Measurement range: 3mA

Input signal: VIDEO signal (G card).
Input terminal: VIDEO IN terminal.

This adjustment must follow item CRT Bias Cut Off, White and Black Level.
Preheat the set for two minutes or more.

- 1: Supply a VIDEO signal (G card).
- 2: Select the picture size to "16:9".
- 3: Press the MENU button on a remote hand set.
- 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: Set the setting data of item "1 COL" to "0" ("4" or "6" button).
- 8: Observe the beam current values at pins (1)

- 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 ± 70µA ("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)

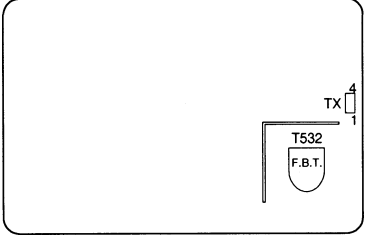


Fig 20

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)

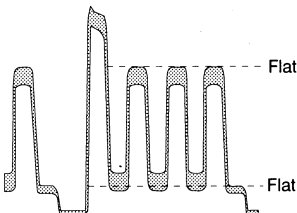
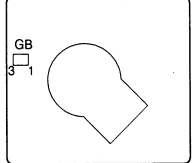


Fig 21

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.

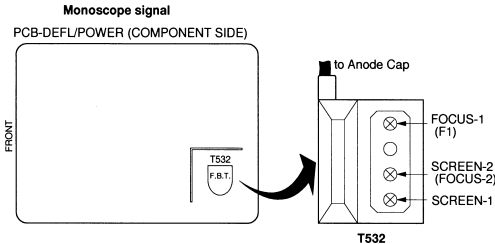
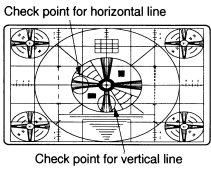


Fig 22

15. Sensor Level (AI circuit)

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

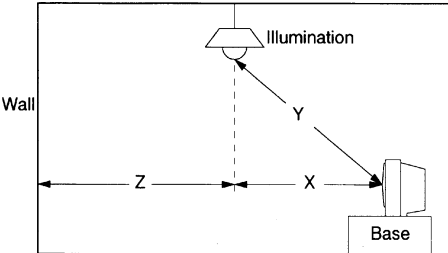
Symptoms when incorrectly adjusted:
Too dark a picture in a bright room or too bright a picture in a dark room, when AI is selected.

Measuring instrument: DC Voltmeter.

- Test point:**
- +lead: pin (27) of IC700.
- lead: pin (6) of IC700.

When replacing PC7Y1 or VR7Y1 perform this adjustment.

- 1: Shut the shutter or curtain in the room and intercept the outside light.
- 2: Turn off the light except the ceiling light. If there are plural ceiling lights in the room, turn on the light located at the centre of the room only.
- 3: Place the set as shown in fig. 23. At this time ensure the source of light is not hidden by the set's side.



- 4: Measure X, Y and Z shown in fig. 23 at the adjustment room. Calculate the amount of brightness at the front of the set (L) by the following method:

Service Adjustments Cont'd.

L1 = 11A.X.W/Y³
L2 = A.B.W/Z²
L = L1 + L²

Note: find the coefficient A or B refer to Table 1 and 2. "W" is wattage for the source of light.

Table 1 Value of A

Illumination	Value of A
Fluorescent lamp (straight tube, loop tube)	1
Incandescent lamp	0.15
Fluorescent internal lamp	0.5

Table 2 Value of B

Wall Colour	Value of B
Deep black	0
Too dark	0.4
Middle	0.8
Too bright	1.2
Pure white	1.6

- 5: If the value of L found at step 4 is not within 50 ≥ L ≥ 150, move the set towards the illumination or weaken the source of light so that the value of L is within 50 ≥ L ≥ 150.
- 6: Find the output voltage with the value of L, refer to Table 3. When the fraction of L is less than 4, the fraction round off or the fraction is over 5, it rounds up.

Table 3 Correspondence to illumination and output voltage (V)

L	V
50	1.2
60	1.5
70	1.8
80	2.1
90	2.4
100	2.7
110	3.0
120	3.3
130	3.6
140	3.9
150	4.2

- 7: Observe the voltage at the plus side of pin (6) of IC700 (use the minus side of pin (27) of IC700 for ground).
- 8: Turn on power source of the set.
- 9: Adjust VR7Y1 so that the value displayed on digital voltmeter equals the output voltage ±0.3V found at step 6.

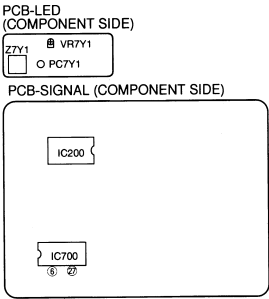


Fig. 24

Calculation example of brightness (L)

For example, when performing this adjustment in the room shown in Fig 25, the method to find the value of L is as follows.

L1 = 11•A•X•W / Y³ = 11•1•1.5•40 / 23³ = 660 / 12167 = 82.5

L2 = A•B•W / Z² = 1•0.8•40 / 22² = 32 / 484 = 8

L = L1 + L2 = 82.5 + 8 = 90.5

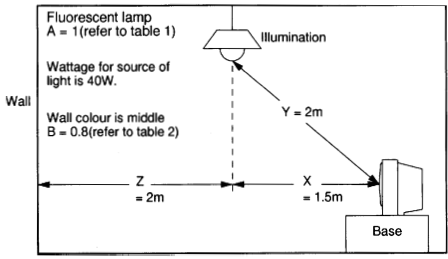


Fig. 25

16. PIP (PIP circuit)

Adjustment purpose: Set the brightness and colour level between main and sub pictures. Set sub picture on the POP mode.

Symptom when incorrectly adjusted: Different brightness or colour level between main and sub pictures. Shifted sub or main picture overflowing the frame.

Measuring instrument: Oscilloscope.

Test point: Pin (4) of connector GA.

Measurement range: DIV 20mV.

TIM 10ms.

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

This adjustment must follow the setting functions of "VC" and "V-DRIVE".

- 1: Supply a VIDEO signal (EBU colour bar) for main and sub pictures.
- 2: Observe the waveform at pin (4) of connector GA.
- 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 "PIP" (" * " button).
- 6: Select the setting item "1 CNT" ("2" or "8" button).
- 7: Adjust the setting data so that the levels of A and B are the same ("4" or "6" button).
- 8: Select the setting item "2 COL" ("2" or "8" button).
- 9: Adjust the setting data so that the levels of C and D are the same ("4" or "6" button).

Note: the adjustment of step 9, observe the main picture to AV input with no signal for easier adjustment.

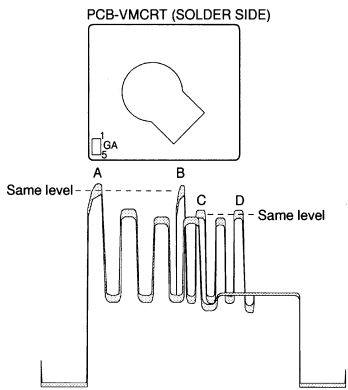
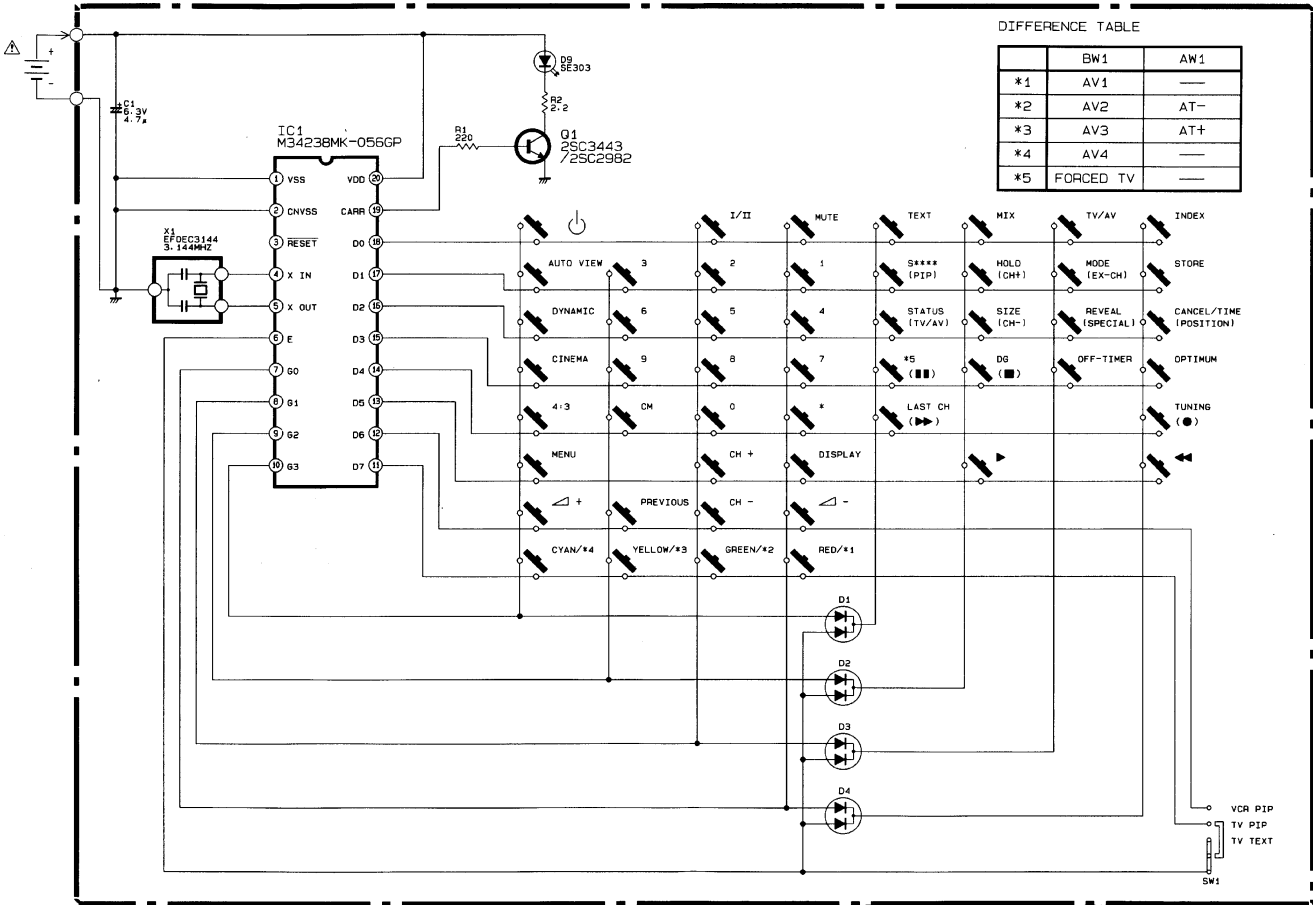
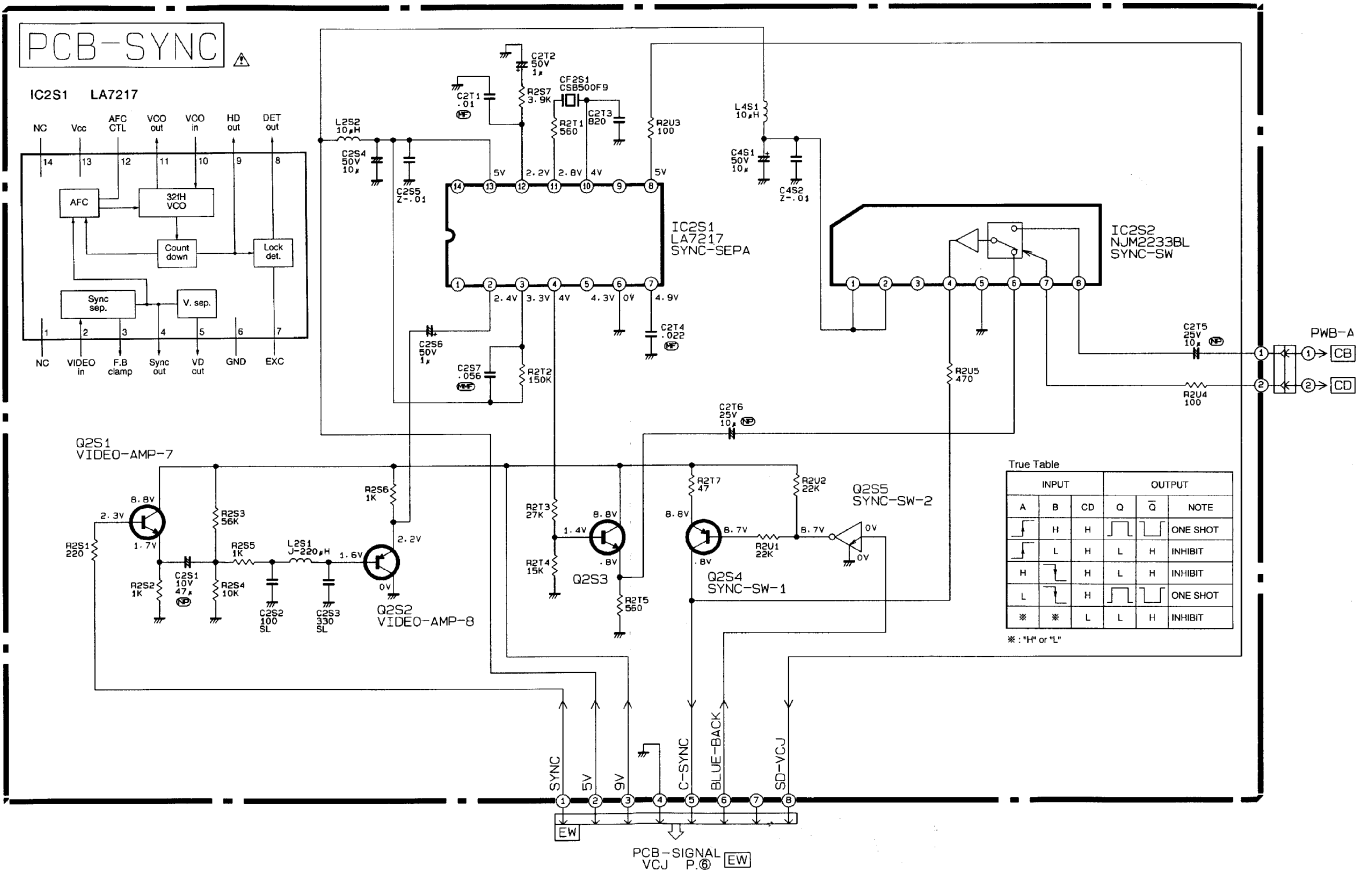


Fig. 26

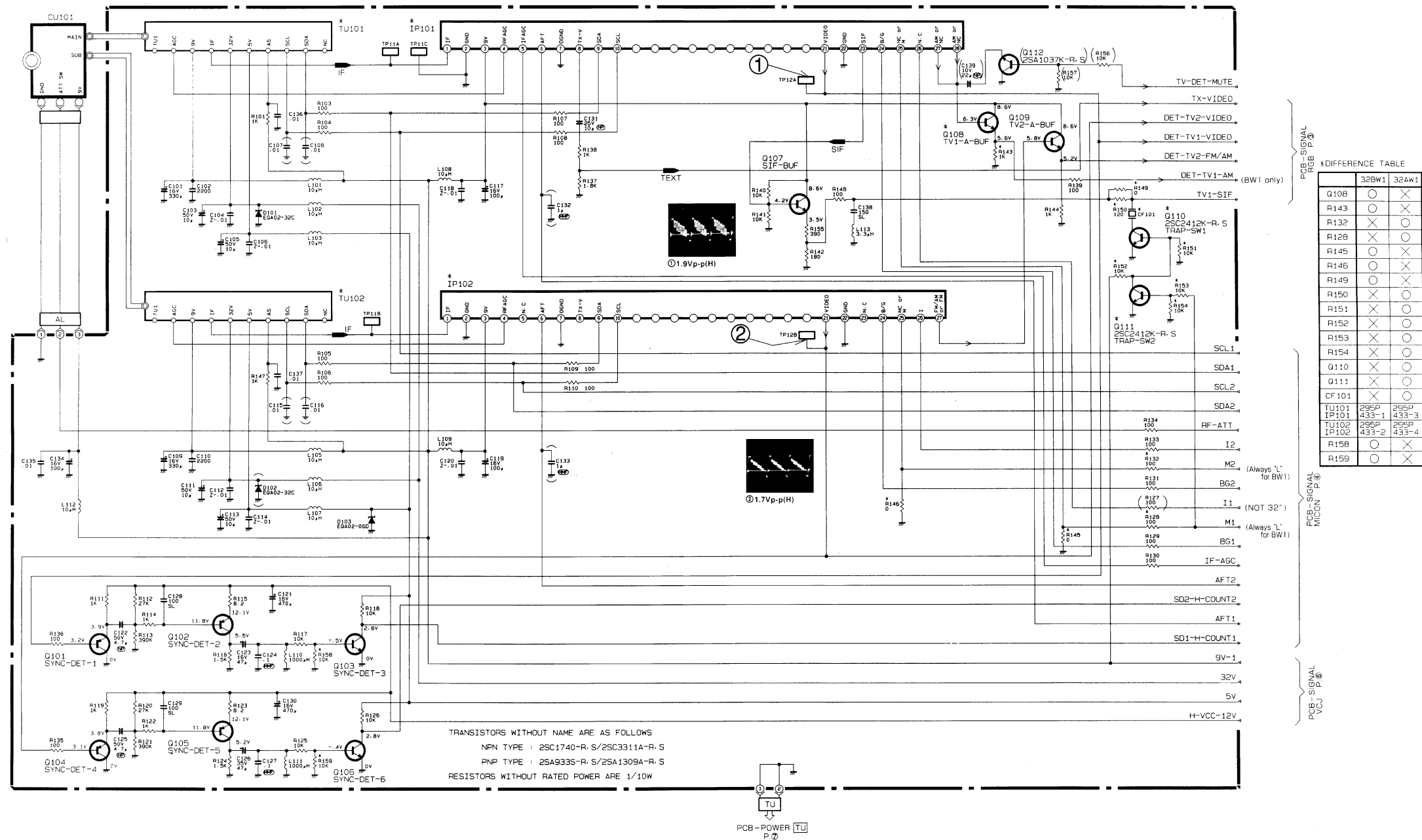
Remote Control Diagram



Sync Diagram



Signal HF Diagram



MITSUBISHI CT-32BW 1B

6

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	cil	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	(PCC Phase)Keystone Distortion Correct	0~63	(33)	Item 6 (Side PCC)		
9	HCM	Horizontal EHT	0~15	(10)	Item 6 (Side PCC)		
10	VSS	Vertical Integral Correction	0~15	(0)	Item 7 (Vertical Correction)		
11	VP0	Vertical Position 2 Adjustment	0~255	(142)	Item 8 (Vertical Centre Position)		
12	V60	Vertical Position 60Hz Correction	-128 ~+127	+15			

Function Display		V-Drive (16:9)				IC501, IC200	
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	(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	(36)	Item 5 (Horizontal Width, Vertical Linearity & Height)		
6	PAM	E-W Parabola (PCC-AMP) Correction	0~63	(11)	Item 6 (Side PCC)		
7	PCN	PCC Corner Correction	0~15	10			
8	PPH	(PCC Phase)Keystone Distortion Correct.	0~63	(21)	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	(117)	Item 8 (Vertical Centre Position)		
12	V60	Vertical Position 60Hz Correction	-128 ~+127	+10			

Function Display		V-Drive (14:9)				IC501, IC200	
Setting Item No.	Setting Abbreviated Name	Setting Item Name	Setting Range	Setting Data	Note		
0	VHT	Vertical Amplitude Adjustment	0~127	(74)	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	(32)	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	10			
8	PPH	(PCC Phase)Keystone Distortion Correct.	0~63	(34)	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	(123)	Item 8 (Vertical Centre Position)		
12	V60	Vertical Position 60Hz Correction	-128 ~+127	+10			

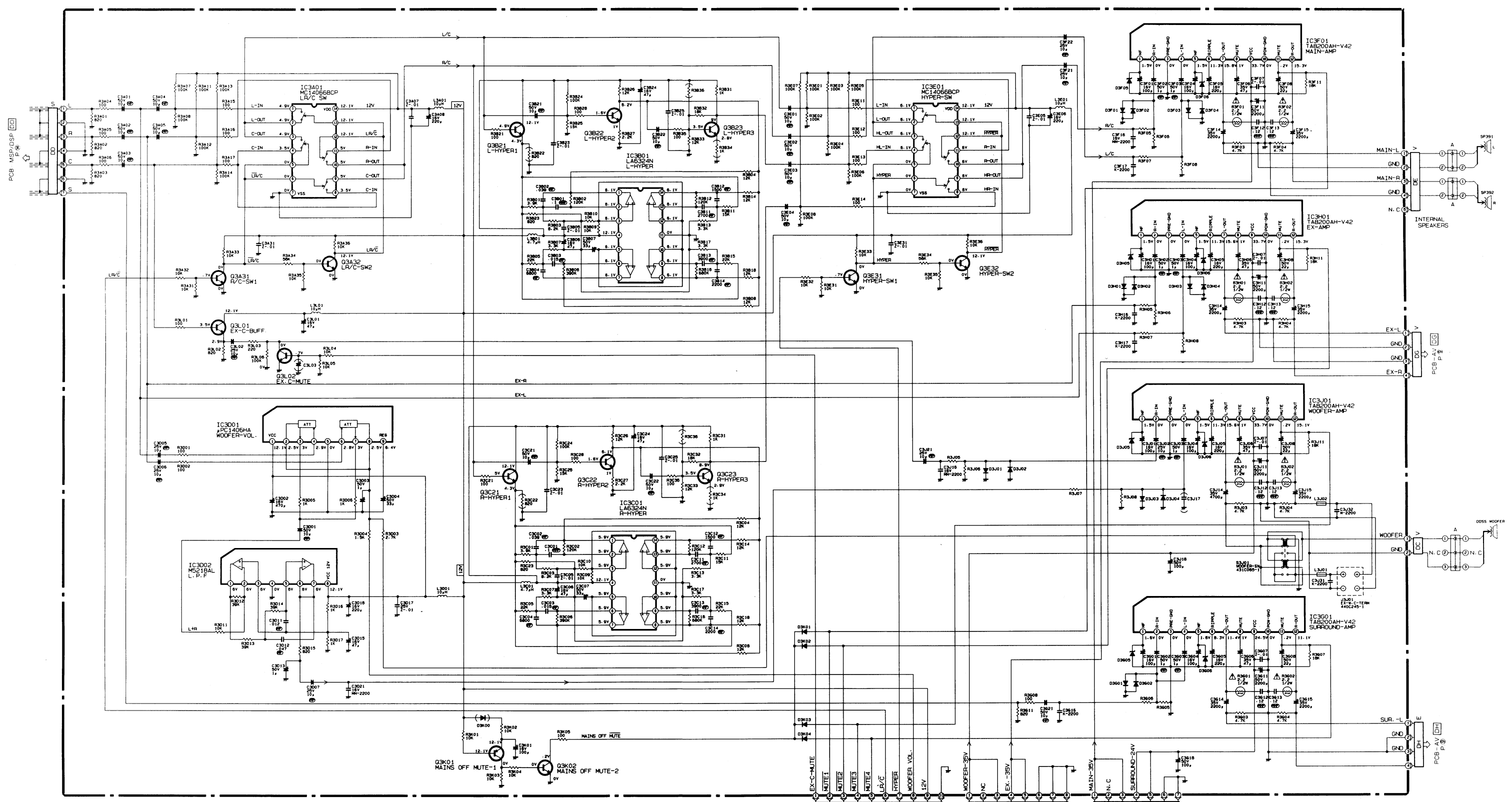
Function Display		V-Drive (HPH/60)				IC501, IC200	
Setting Item No.	Setting Abbreviated Name	Setting Item Name	Setting Range	Setting Data	Note		
0	HPH	Horizontal Phase (B/W)	0~31	(16)	Item 9 (Horizontal Position)		
1	VHT	Vertical Amplitude Adjustment	-64~+63	+3			
2	VLR	Vertical Linearity Correction	-16~+15	-4			
3	VSC	Vertical S Correction	-4~+3	0			
4	VSF	Vertical Position	-8~+7	0			
5	VCM	Vertical EHT	-32~+3	10			
6	HWD	Horizontal Amplitude	-32~+3	10			
7	PAM	E-W Parabola (PCC-AMP)	-32~+3	10			
8	PCN	PCC Corner	-8~+7	0			
9	PPH	(PCC Phase) Keystone Distortion Correct.	-32~+3	10			
10	HCM	Horizontal EHT	-8~+7	0			
11	VSS	Vertical Integral	-8~+7	0			
12	HPA	Horizontal Phase (PAL, NTSC)	-16~+15	-8			
13	HNT	Horizontal Phase (60Hz)	-16~+15	+2			
14	HSE	Horizontal Phase (SECAM)	-16~+15	-3			
15	HRG	Horizontal Phase (RGB)	-16~+15	+9			
16	HTX	Horizontal Phase (TEXT)	-16~+15	-2			
17	HP0	Horizontal Phase (PIP)	-16~+15	-6			
18	HP1	Horizontal Phase (POP)	-16~+15	+3			
19	HPS	Horizontal Phase (S)	-16~+15	+6			
20	VPH	Vertical Phase	0~7	0			

Function Display		PIP				IC501, IC200	
Setting Item No.	Setting Abbreviated Name	Setting Item Name	Setting Range	Setting Data	Note		
0	BRI	External Control D/A	0~255	2551CNT	External Control D/A0~255(55)Item 16 (PIP)		
2	COL	External Control D/A	0~255	(210)	Item 16 (PIP)		
3	V-P	Vertical Position (B side)	0~255	13			
4	H-P	Horizontal Position (B side)	160~191	177			
51	VP1	VP1 50/60 Vertical Correction Data (POP)	-127~127	-5			
52	VP2	VP2 60/50 Vertical Correction Data (POP)	-127~127	0			
53	VP3	VP3 50/60 Vertical Correction Data (POP)	-127~127	+5			
54	HP1	HP1 50/60 Horizontal Correct. Data (POP)	-127~127	+1			
5	HP2	HP2 60/50 Horizontal Correct. Data (POP)	-127~127	+35			
6	HP3	HP3 50/60 Horizontal Correct. Data (POP)	-127~127	+3			

Function Display		IF				IC501, IC200	
Setting Item No.	Setting Abbreviated Name	Setting Item Name	Setting Range	Setting Data	Note		
0	LV0	L-Video	0~63	(40)	Item 2 (L-System Video Output)		
1	RF0	RF-AGC	0~63	(45)	Item 1 (RF-AGC)		
2	LV1	L-Video 1	0~63	(40)	Item 2 (L-System Video Output)		
3	RF1	RF-AGC	0~63	(45)	Item 1 (RF-AGC)		

Function Display		JUST			IC501, IC200	
Setting Item No.	Setting Abbreviated Name	Setting Item Name	Setting Range	Setting Data	Note	
0	SU50	Pulse Top Side Start Point (50Hz)	1~26	8		
1	TU5	CINEMA Top Side Boundary (50Hz)	1~52	11		
2	EU5	Pulse Top Side End Point (50Hz)	27~52	27		
3	SL5	Pulse Bottom Side Start Point (50Hz)	53~78	64		
4	TL5	CINEMA Bottom Side Boundary (50Hz)	53~104	92		
5	EL5	Pulse Bottom Side End Point (50Hz)	79~104	95		
6	CP5	Picture Centre (50Hz)	27~78	51		
7	SU6	Pulse Upper Side Start Point (60Hz)	1~22	7		
8	TU6	CINEMA Upper Side Boundary (60Hz)	1~44	9		
9	EU6	Pulse Upper Side End Point (60Hz)	23~44	23		
10	SL6	Pulse Bottom Side Start Point (60hz)	45~66	54		
11	TL6	CINEMA Bottom Side Boundary (60Hz)	45~48	78		
12	EL6	Pulse Bottom Side End Point (60Hz)	67~88	80		
13	CP6	Picture Centre (60Hz)	23~66	44		
14	43N	JUST 4:3	0~15	1		
15	CNN	JUST CINEMA	0~15	5		

Audio Amp Diagram



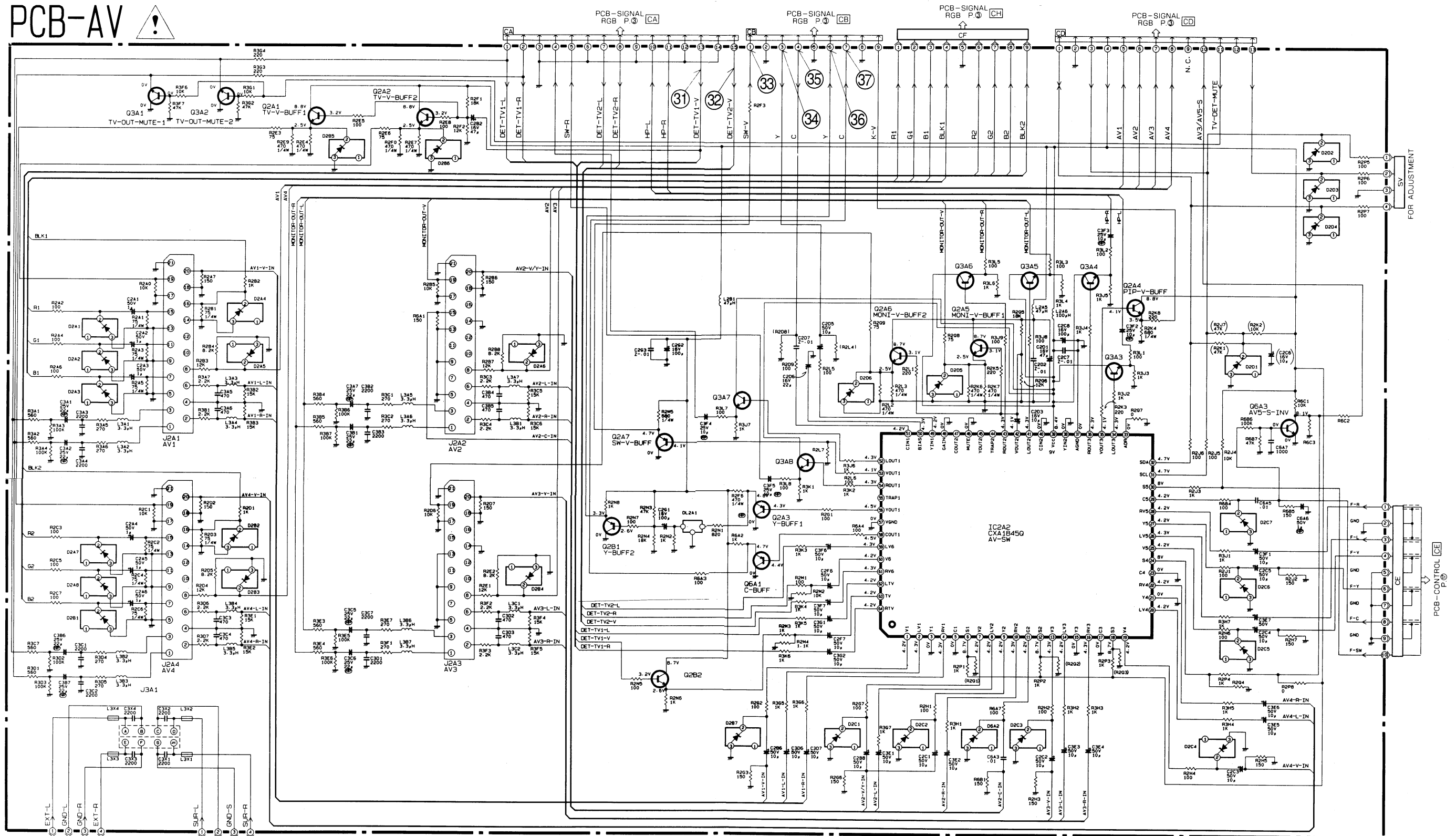
PCB-AMP

TRANSISTORS WITHOUT NAME ARE AS FOLLOWS.
NPN TYPE : 2SC1740-R, S/2SC3311A-R, S
PNP TYPE : 2SA933-R, S/2SA1309A-R, S
DIODES WITHOUT NAME ARE AS FOLLOWS.
: 1S2076A/1S2471
: EGA02-06C, D

PCB-SIGNAL
RGB P

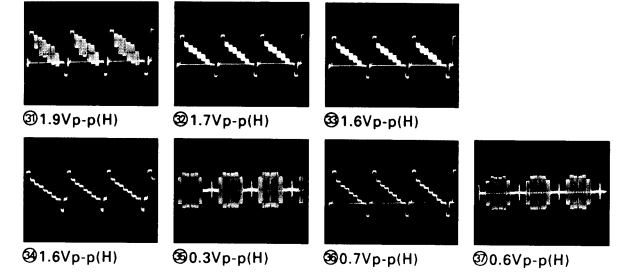
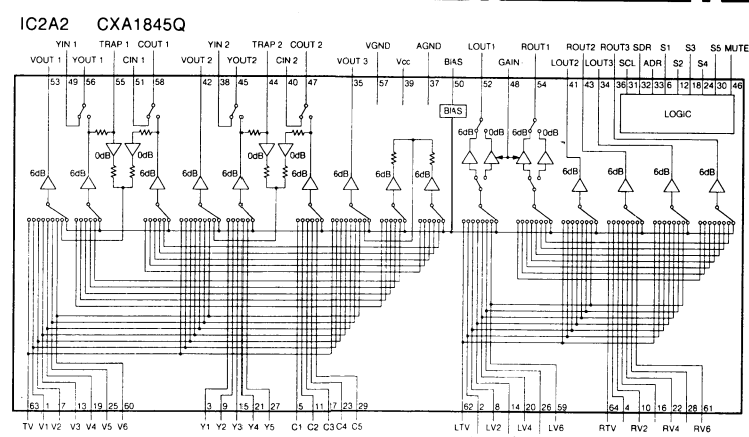
PCB-POWER2
P

PCB-AV

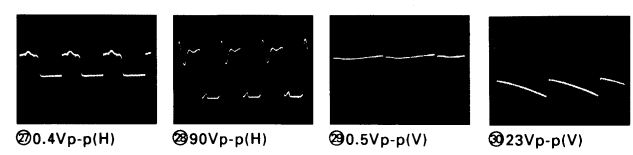
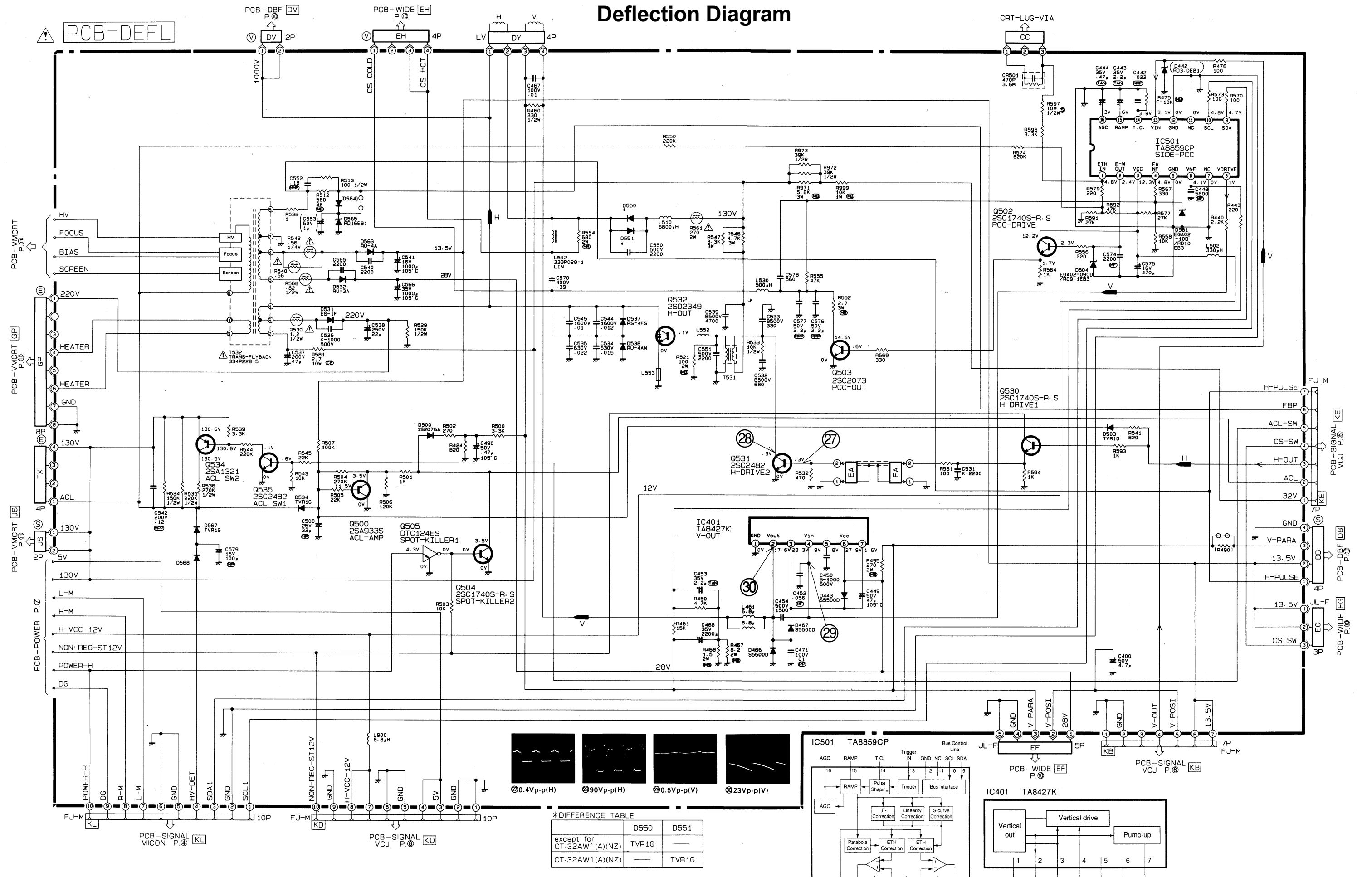


AV Diagram

TRANSISTOR WITHOUT NAME ARE AS FOLLOWS:
 TYPE: 2SC2412K-R-S (260P818-B)
 TYPE: 2SA1037K-R-S (260P817-B)
 DIODES WITHOUT NAME ARE
 HSM2836 (264P821-1)
 ZENER DIODE WITHOUT NAME ARE RD9.1MB2 (264P816-7)
 RESISTORS WITHOUT RATED POWER IN PCB-AV(E) ARE 1/10W.

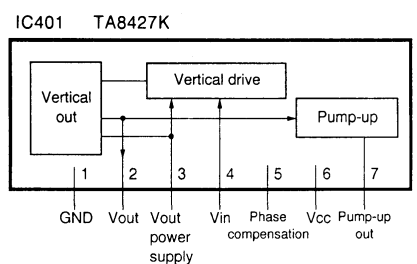
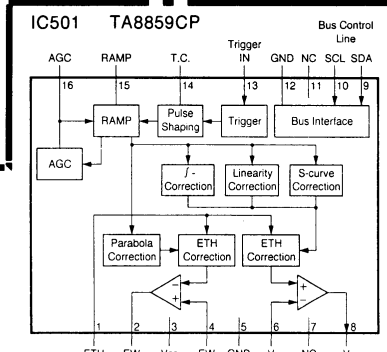


Deflection Diagram

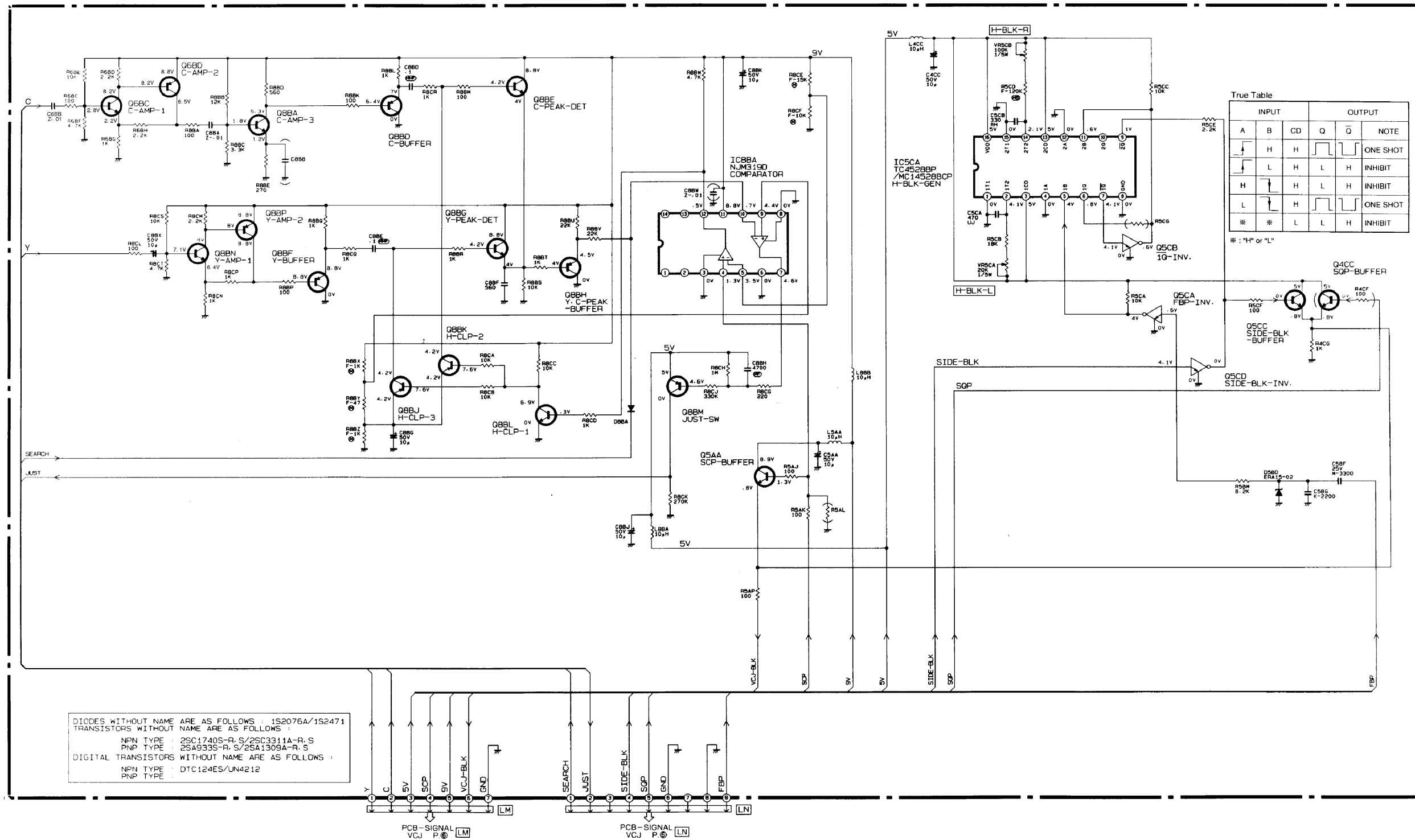


*DIFFERENCE TABLE

	D550	D551
except for CT-32AW1(A)(NZ)	TVR1G	—
CT-32AW1(A)(NZ)	—	TVR1G

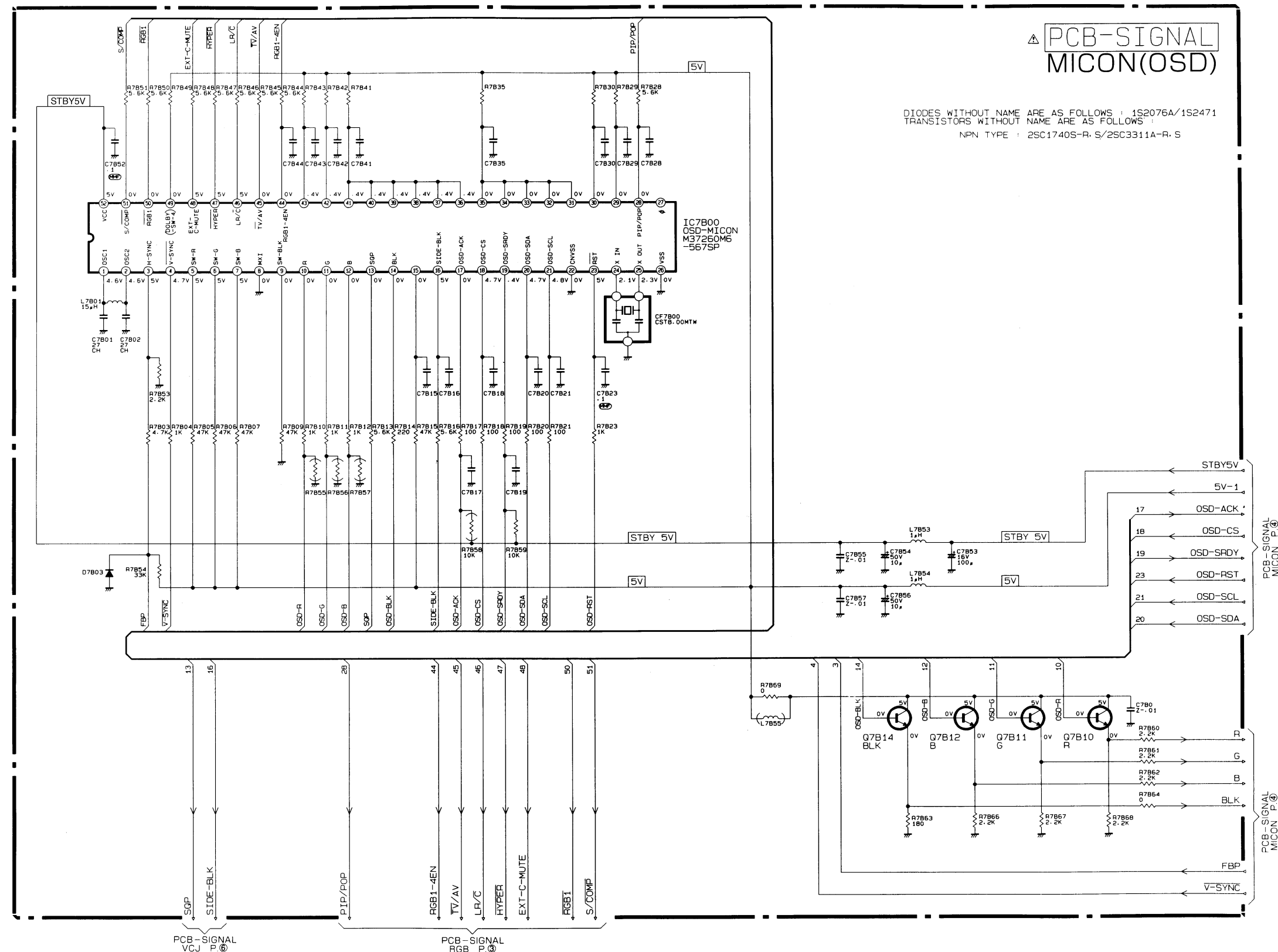


JUST Diagram

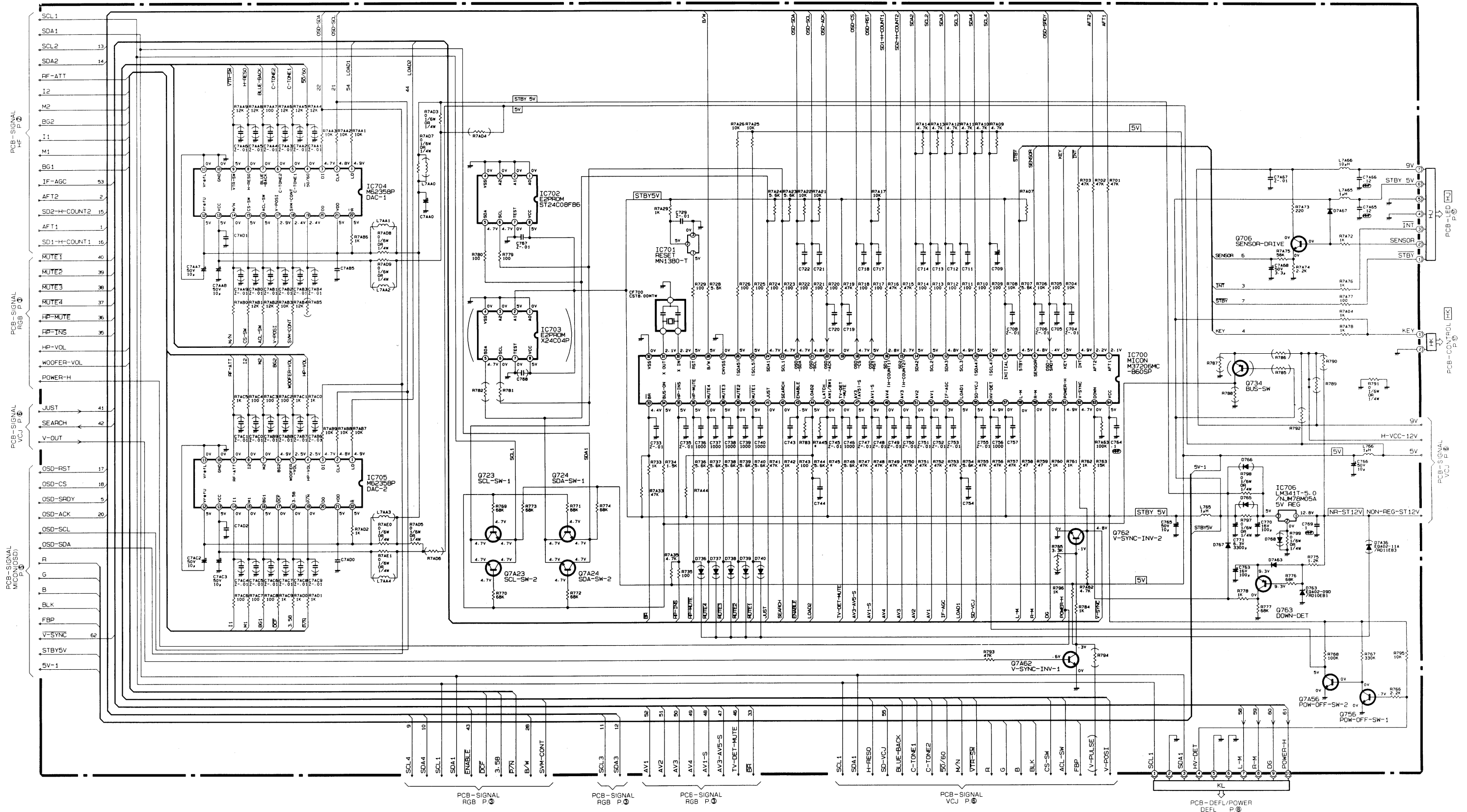


⚠ PCB-SIGNAL
MICON(OSD)

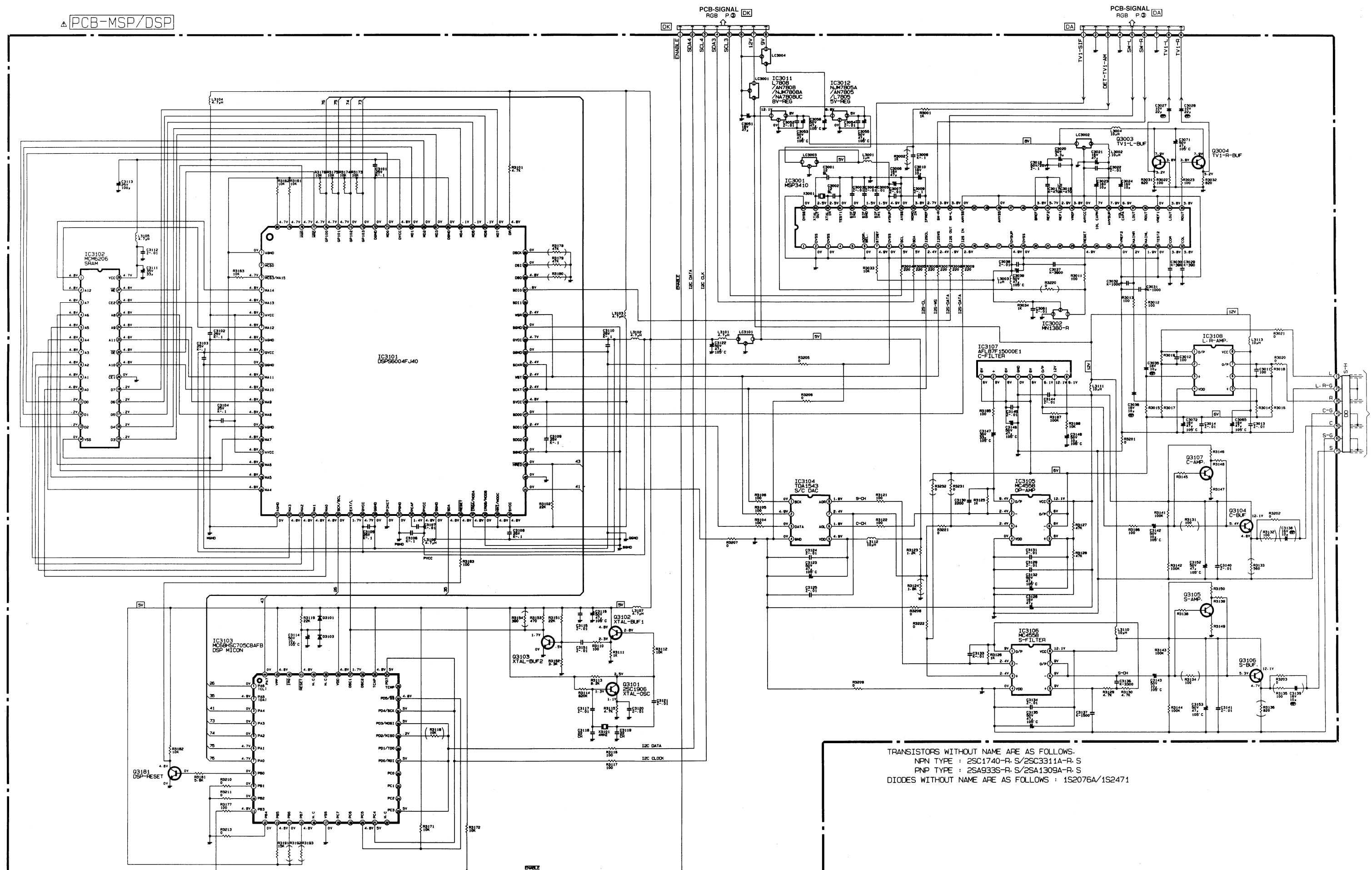
NPN TYPE : 2SC1740S-R, S/2SC3311A-R, S



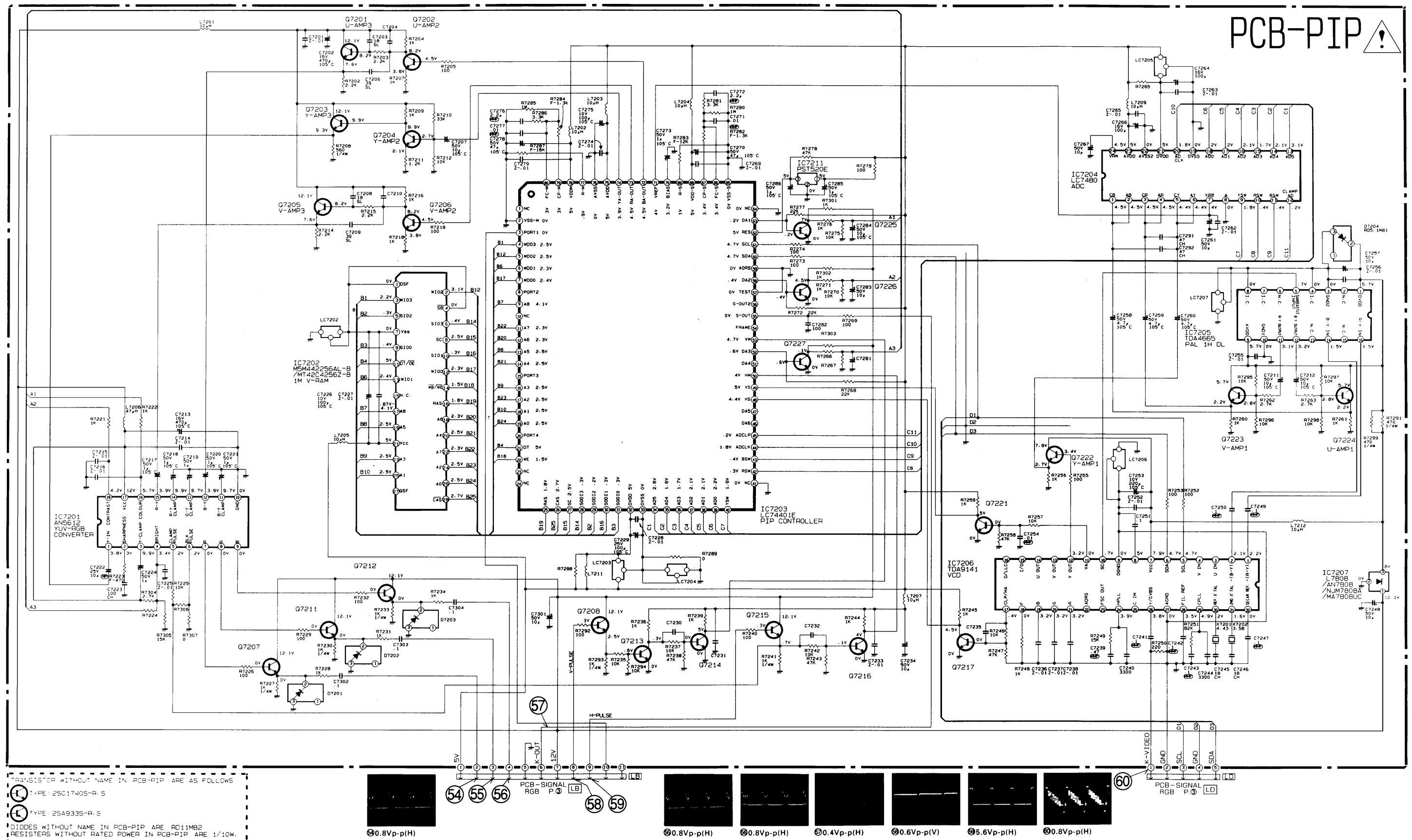
MICON Diagram



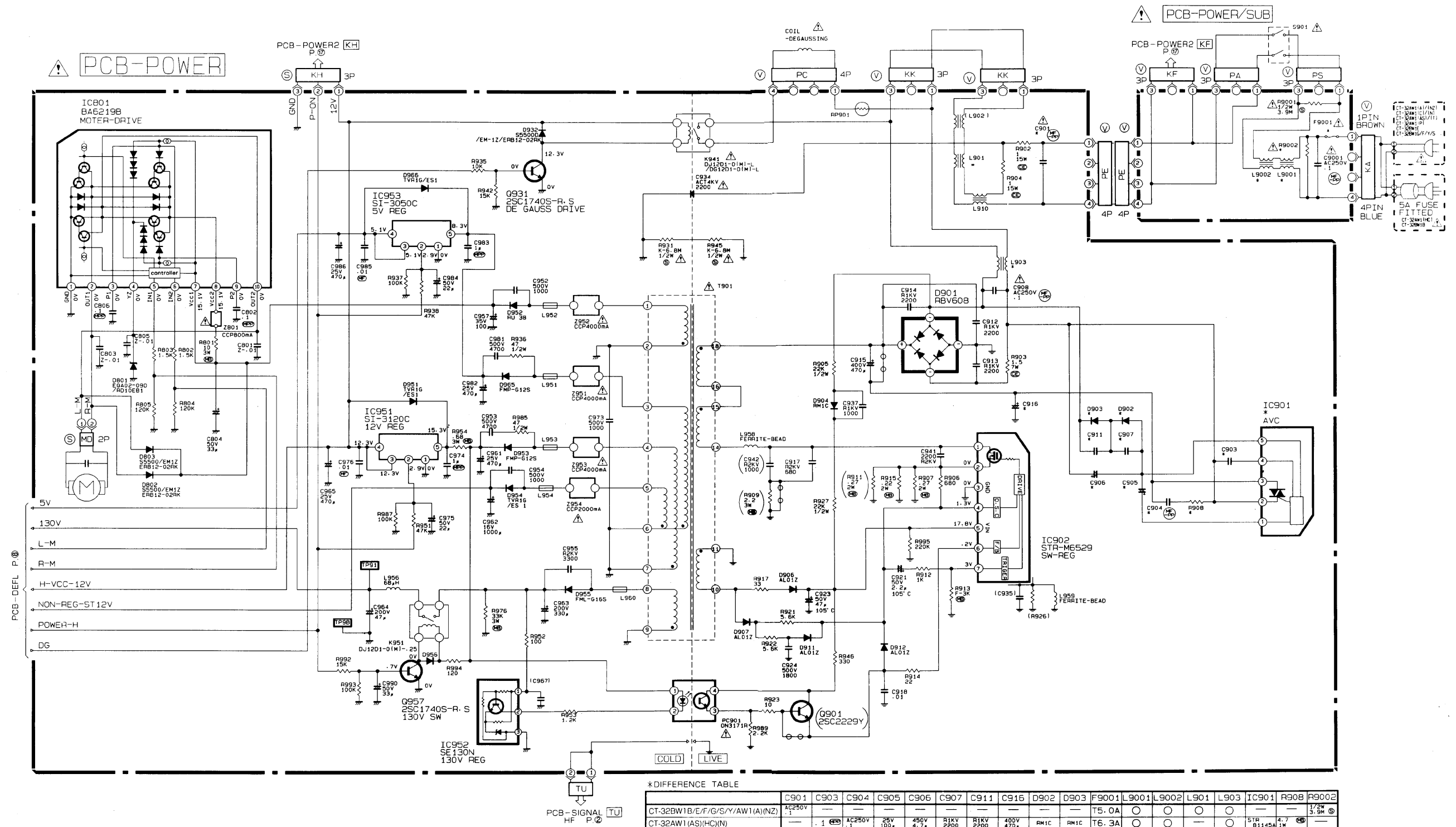
MSP DSP Diagram



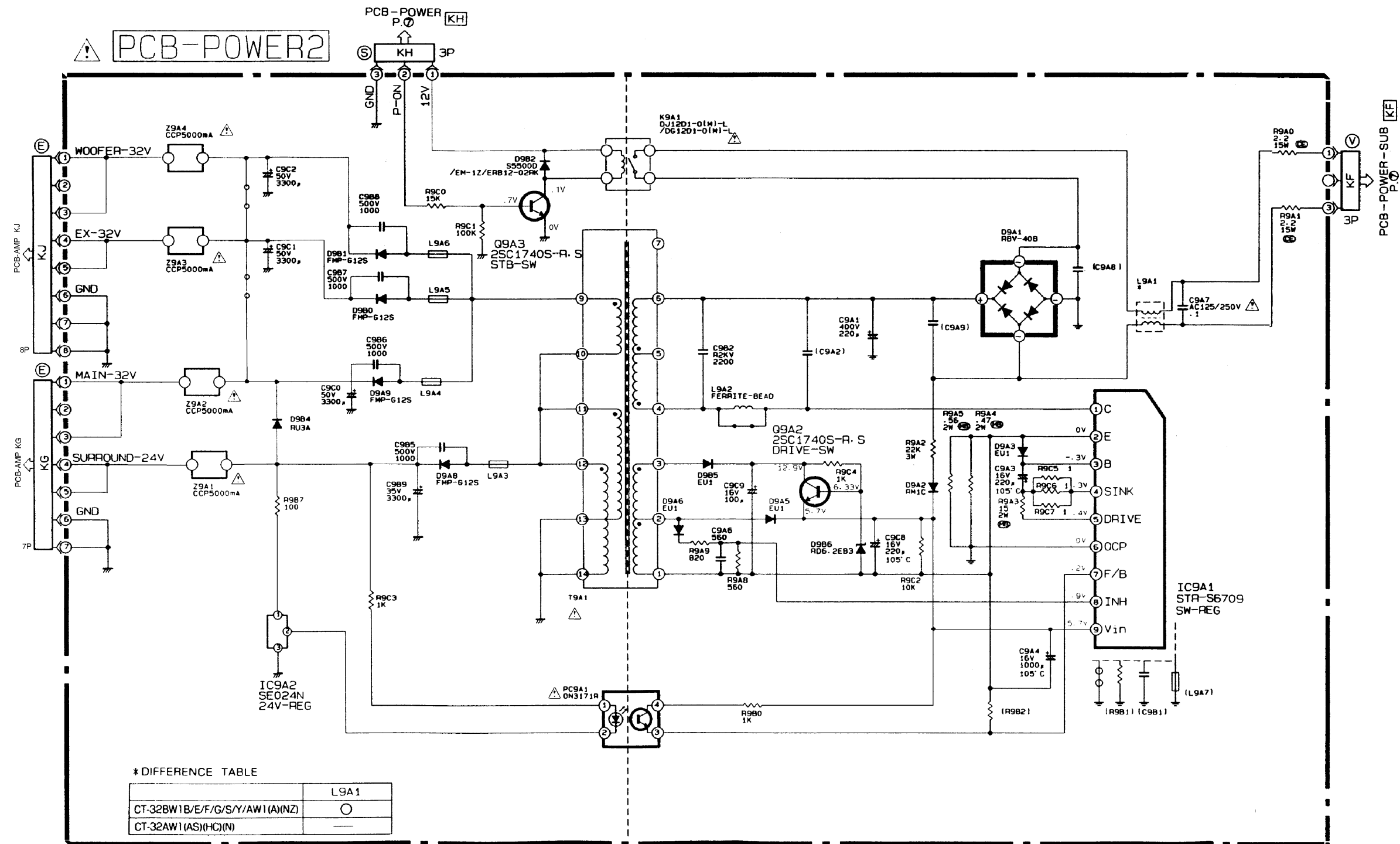
PIP Diagram

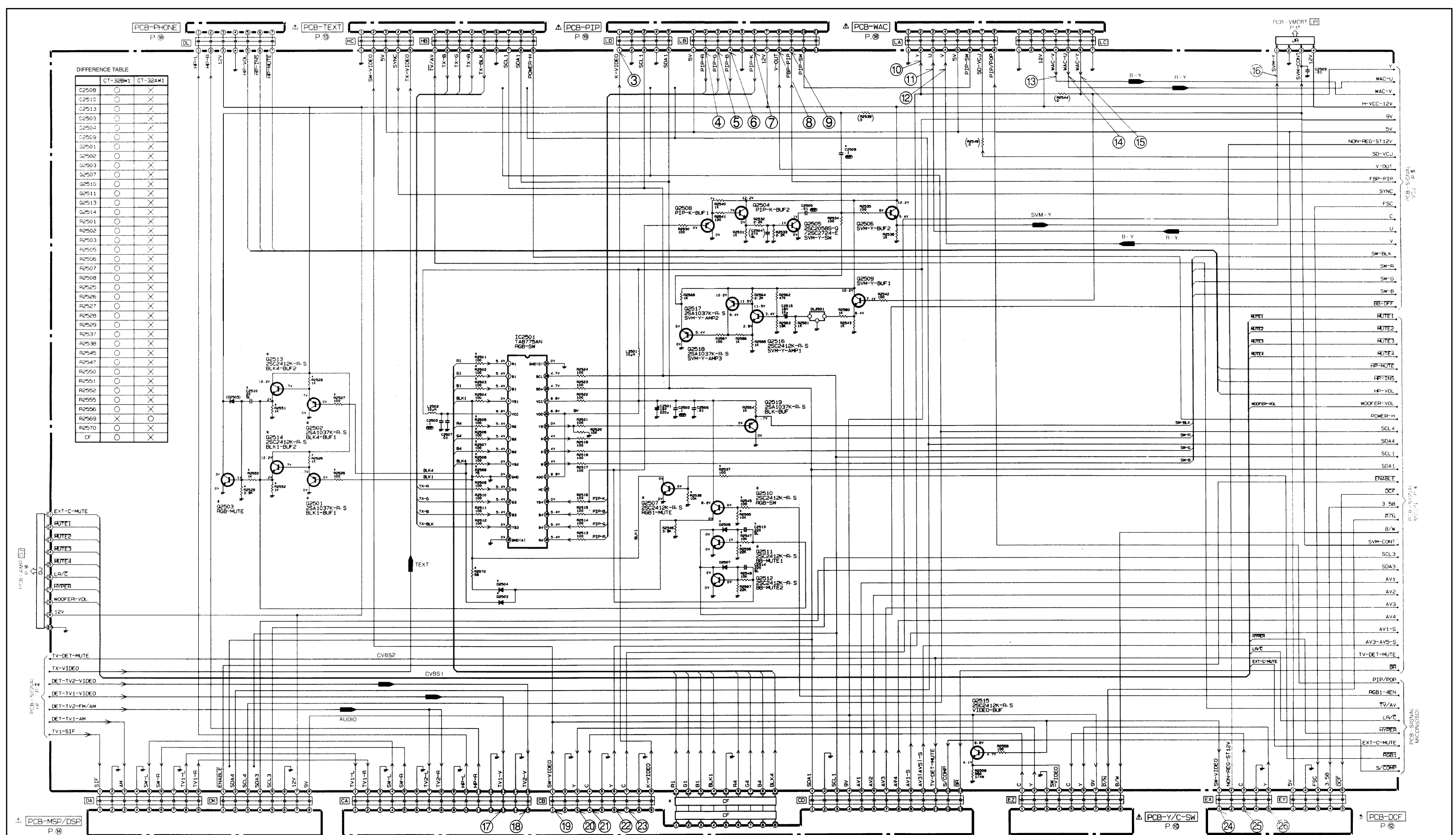


Power Diagram



Power 2 Diagram





TRANSISTORS WITHOUT NAME ARE AS FOLLOWS.

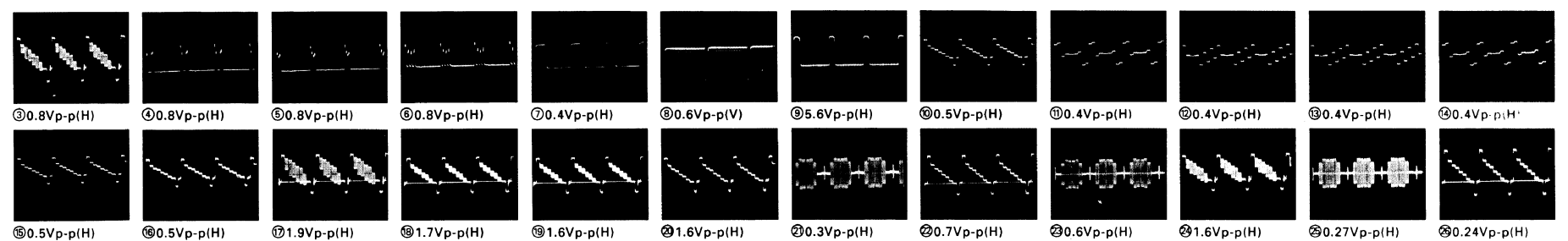
NPN TYPE : 2SC1740-R, S/2SC3311A-R, S

PNP TYPE : 2SA933S-R, S/2SA1309A-R, S

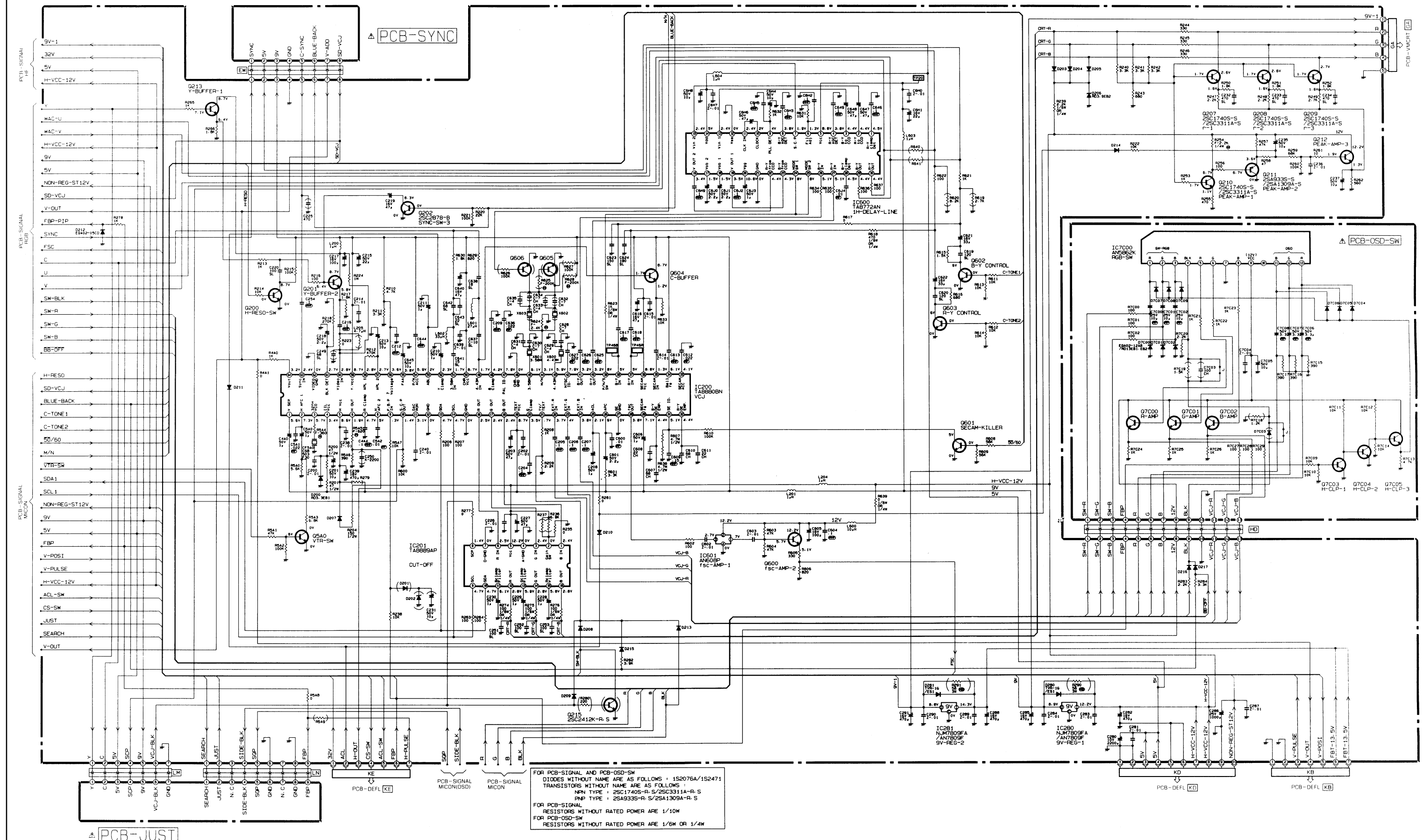
DIODES WITHOUT NAME ARE AS FOLLOWS : 1S2076A/1S2471

RESISTORS WITHOUT RATED POWER ARE 1/10W

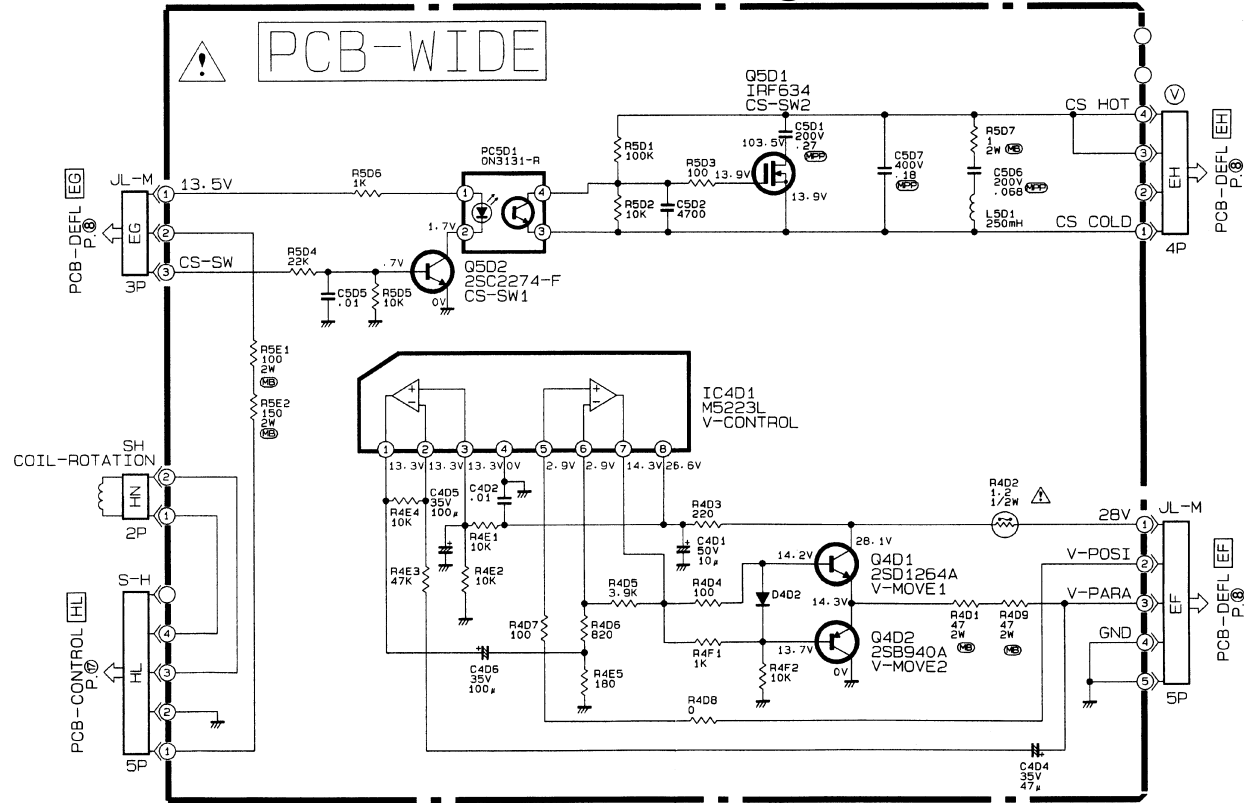
Signal RGB Diagram



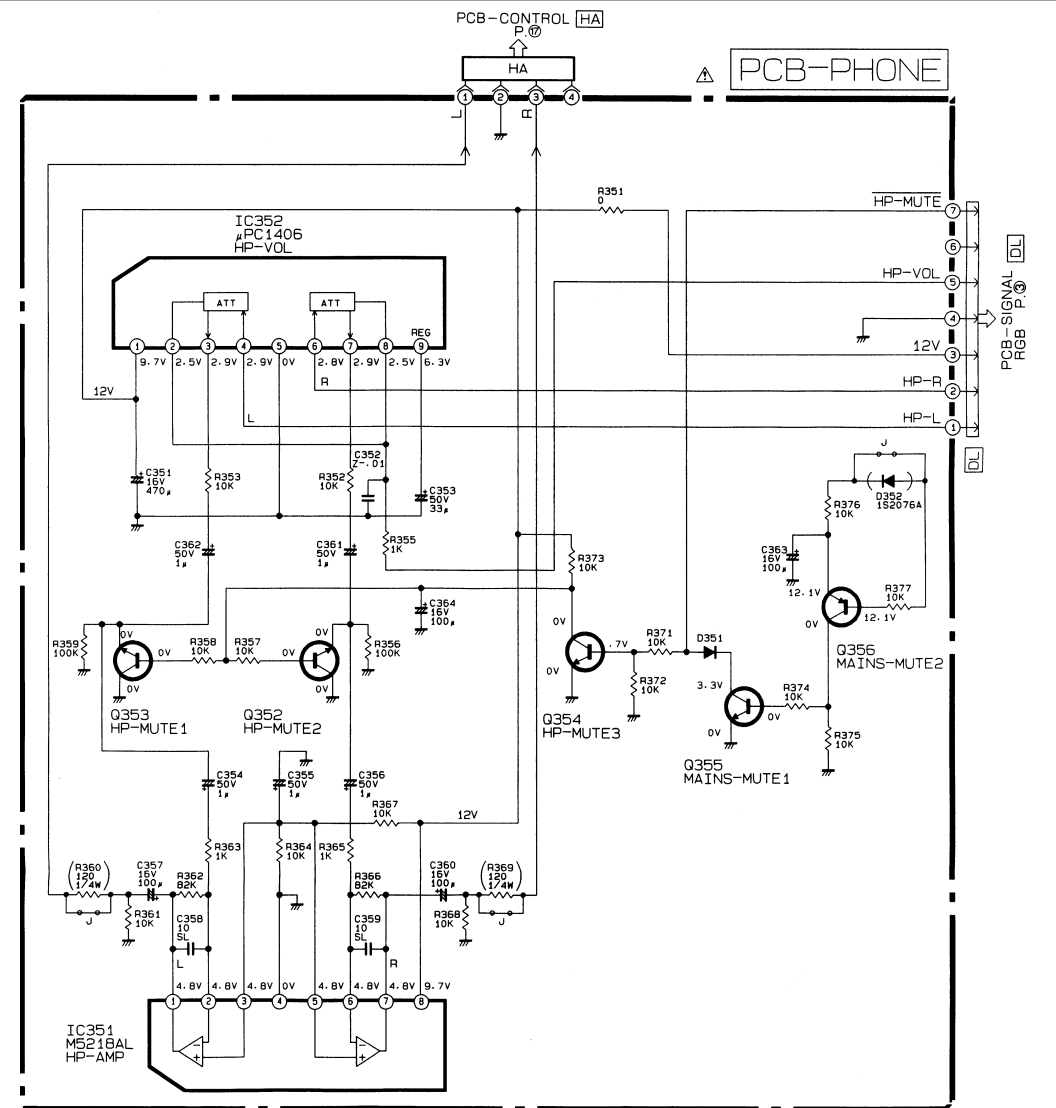
Signal VCJ Diagram



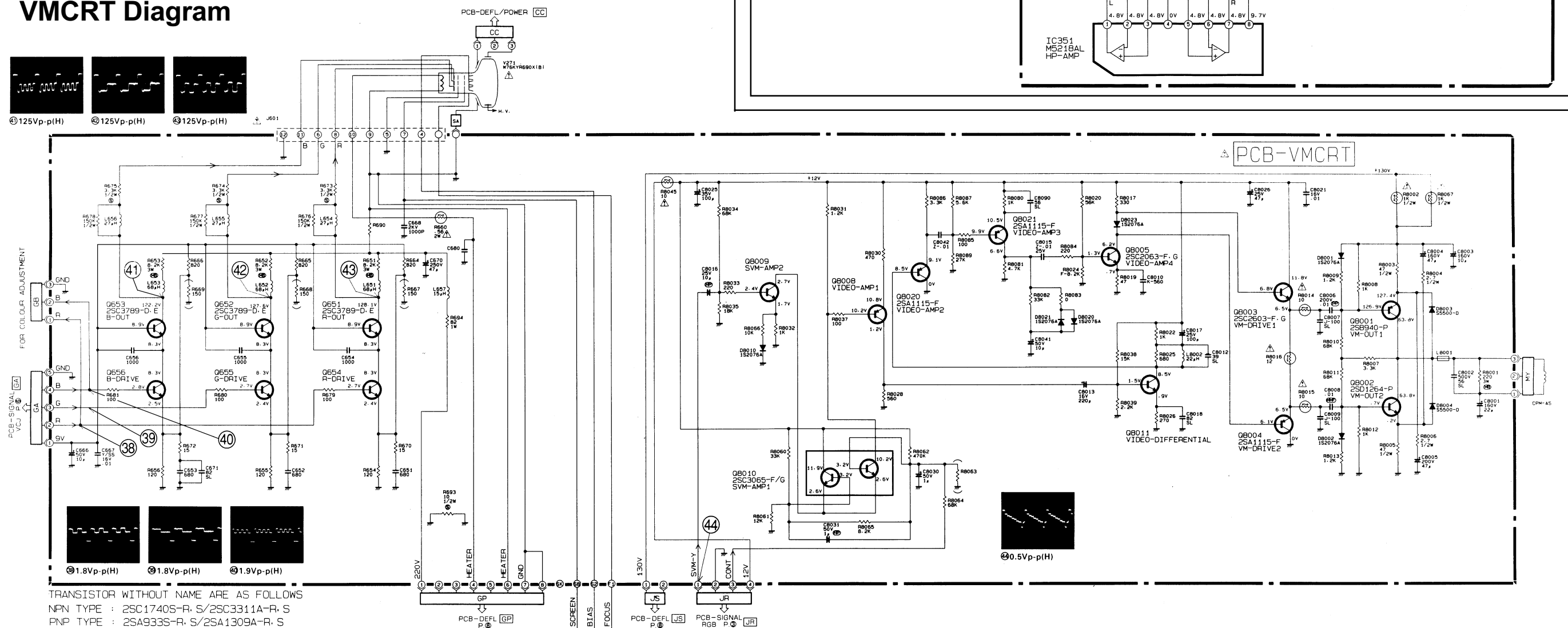
Wide Diagram



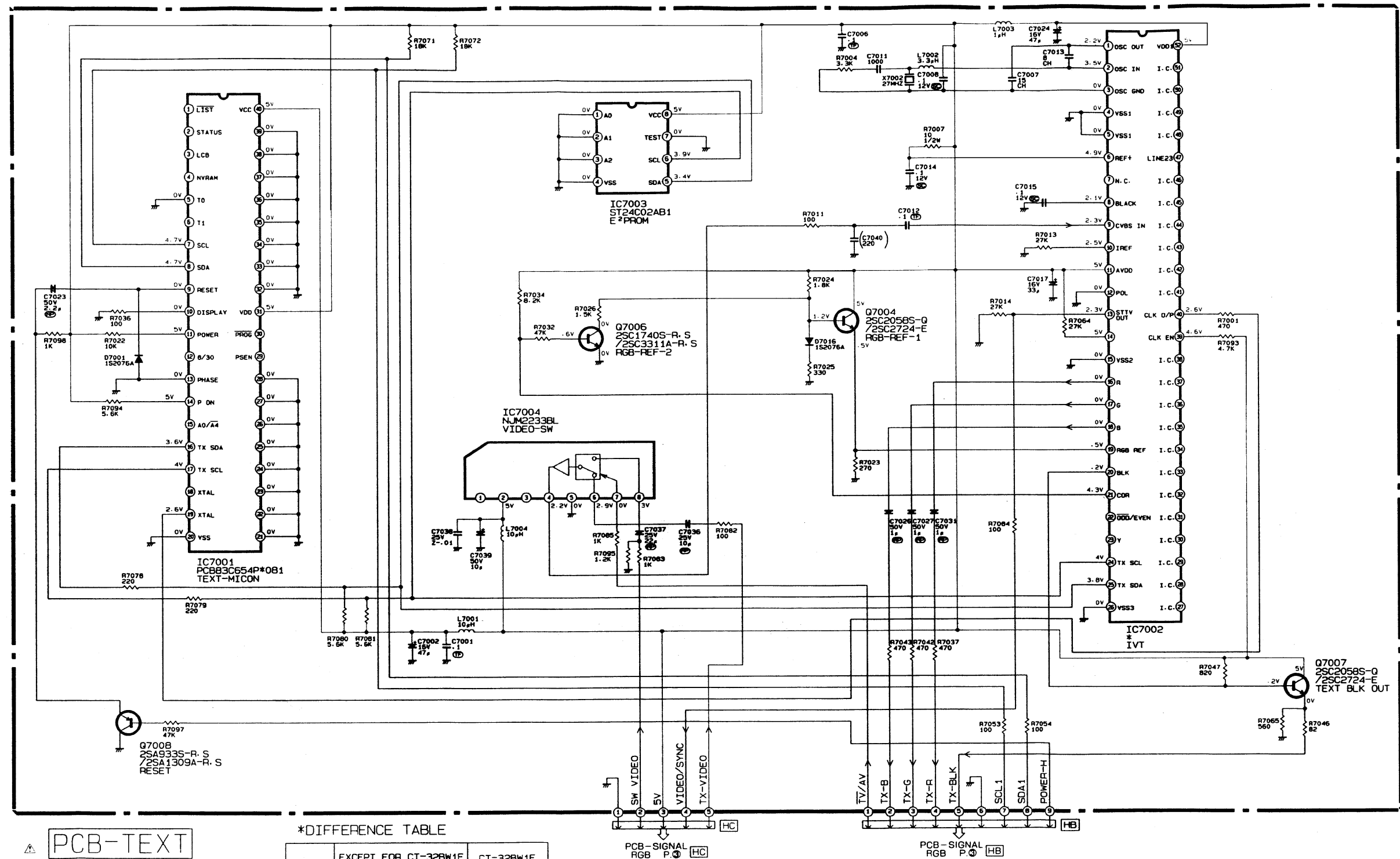
Phone Diagram



VMCRT Diagram

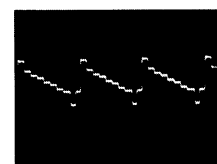
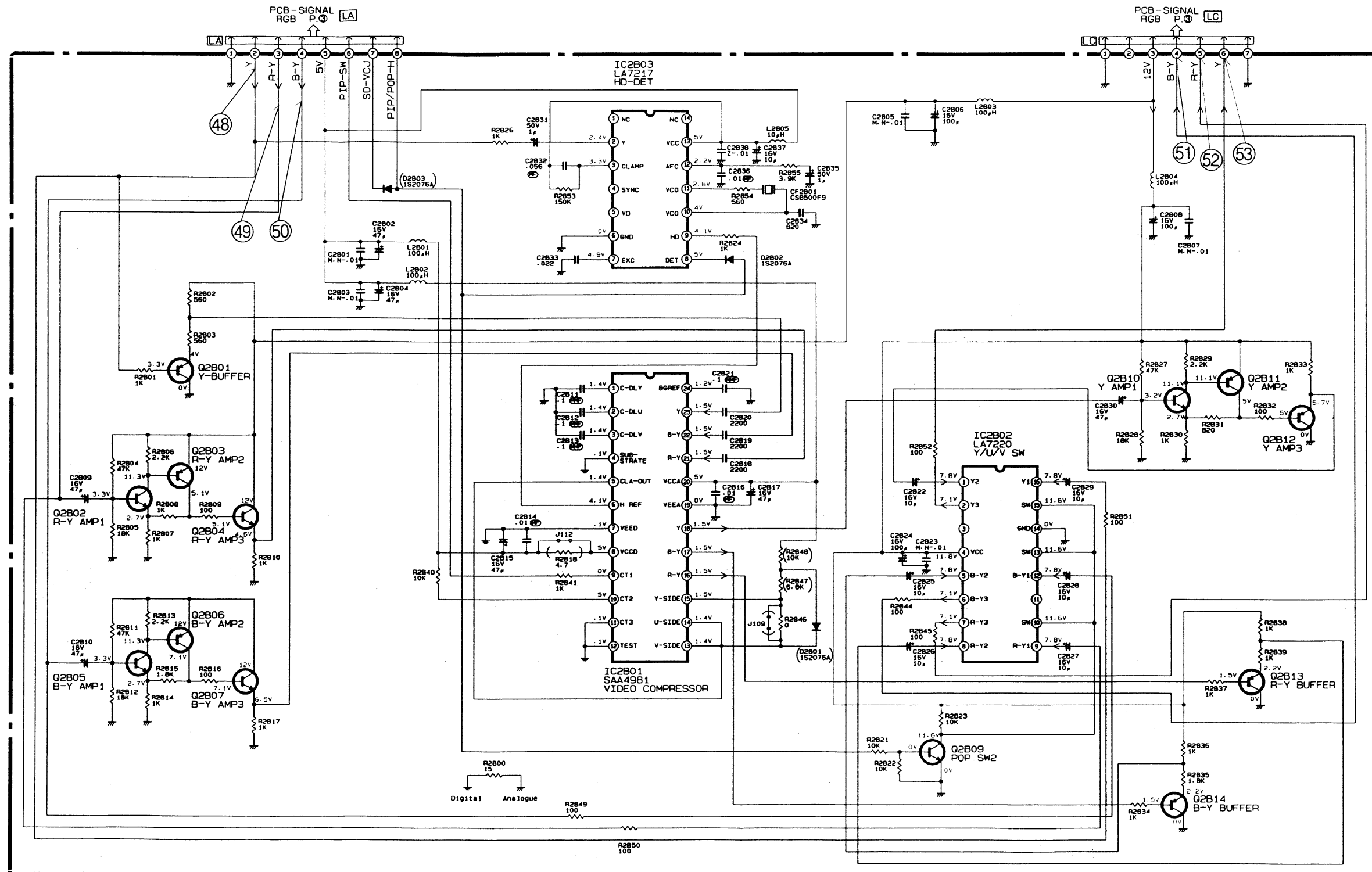


Text Diagram

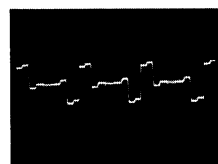


*DIFFERENCE TABLE		
	EXCEPT FOR CT-32BW1E	CT-32BW1E
IC7002	SAA5281P*E	SAA5281P*H

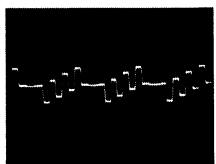
WAC Diagram



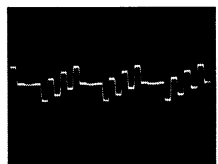
④0.5Vp-p(H)



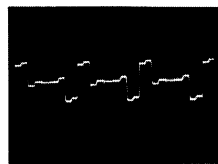
④0.4Vp-p(H)



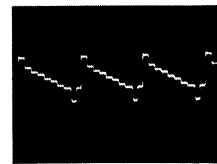
⑤0.4Vp-p(H)



⑤0.4Vp-p(H)



⑥0.4Vp-p(H)



⑥0.5Vp-p(H)

Y/C SW Diagram

