

# TOSHIBA

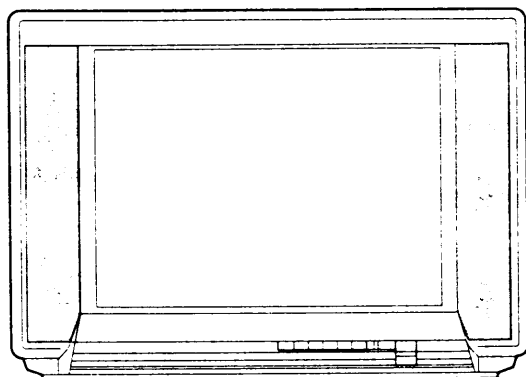
FILE NO. 040-9616

## SERVICE MANUAL

# COLOUR TELEVISION

S6ES Chassis


# ***2560XHE***

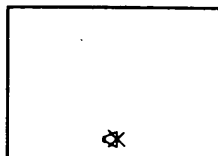



## SERVICE MODE

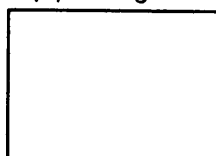
OPTIONAL SERVICE FUNCTION


### 1. ENTERING TO SERVICE MODE

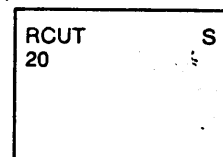
1) Press  button once on Remote Control.



2) Press  button again to keep pressing.



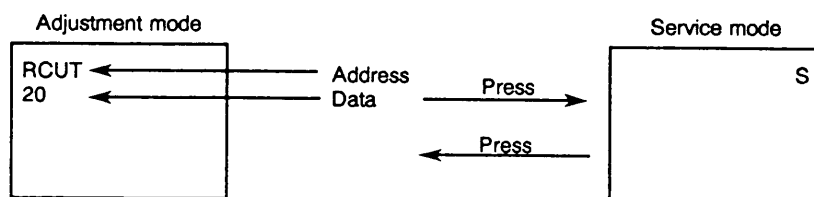
3) Keep pressing the  button, press MENU button on TV set.





(Service mode display)

### 2. DISPLAYING THE ADJUSTMENT MENU



Press MENU button on TV.



### 3. SELECTING THE ADJUSTING ITEMS

Every pressing of CHANNEL  button changes the adjustment items in the following order. ( button for reverse order.)

### 4. ADJUSTING THE DATA

Pressing of VOLUME  or  button will change the value of data in the range from 00 to FF. The variable range depends on the adjusting item.

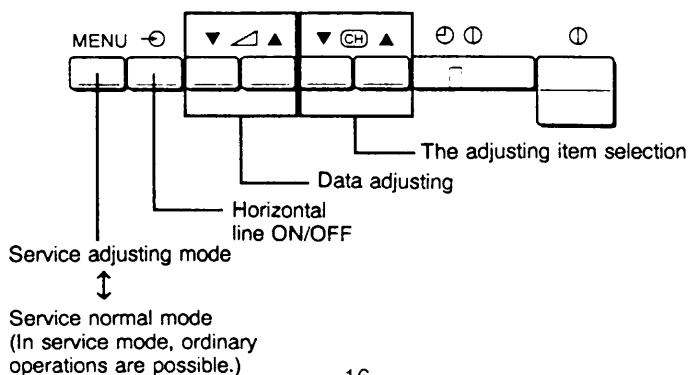
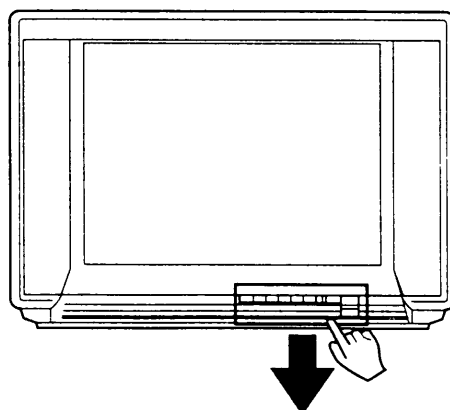
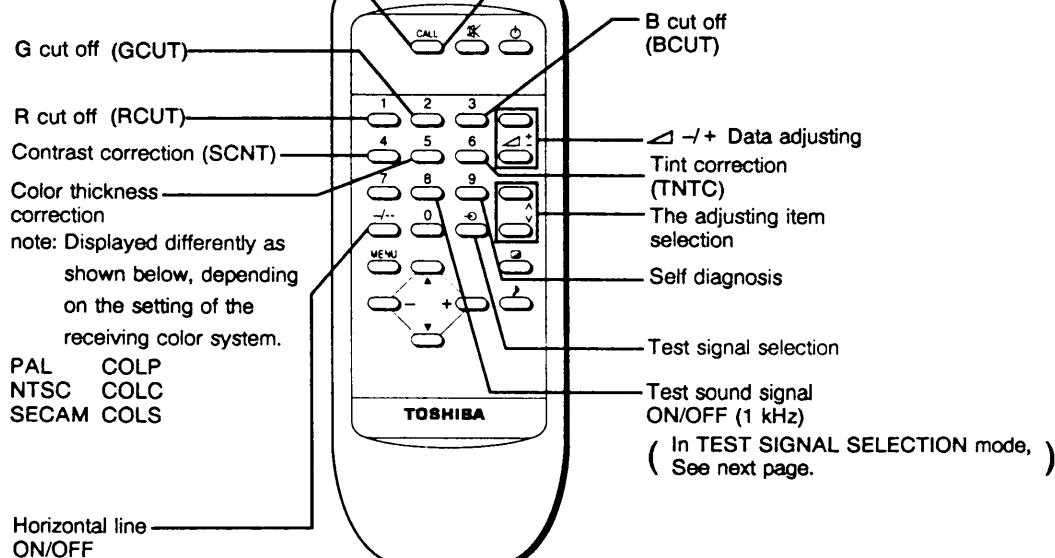
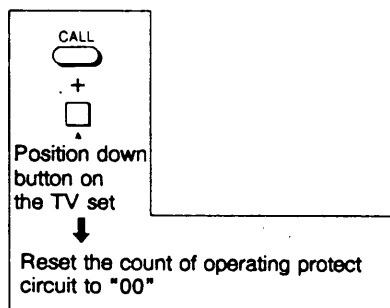
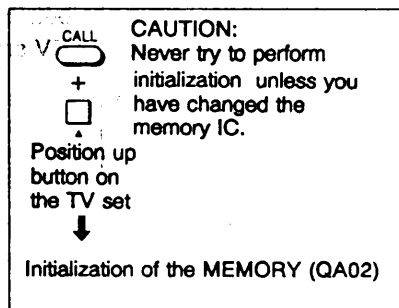
### 5. EXIT FROM SERVICE MODE

Press POWER button to turn off the TV once.

## OTHER SERVICE FUNCTION

The following key entry during display of adjustment menu provides special functions.

MAG



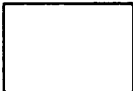

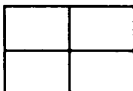
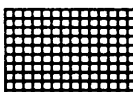
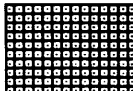

## TEST SIGNAL SELECTION

Every pressing of  button changes the test patterns on screen as described below in service mode.




Signal off → NTSC signals (14 patterns)

↑ PAL signals (14 patterns) ↓

- About inside signal: The inside signal is output at video input terminal from QA01, and is not output with the pin inserted into terminal. (Single color signal can be output.)

Signals	Picture	Using method
<ul style="list-style-type: none"> <li>• Red single color</li> <li>• Green single color</li> <li>• Blue single color</li> <li>• Black single color</li> <li>• White single color</li> </ul>		Purity and White uniformity of CRT Red single color. . . . Stopping G and B output of Q501 Green single color. . . . Stopping R and B output of Q501 Blue single color. . . . Stopping R and G output of Q501 Black single color. . . . Making black signal of approx. 1Vp-p in QA01 White single color. . . . Making white signal of approx. 1Vp-p in QA01
<ul style="list-style-type: none"> <li>• W/B adjustment</li> </ul>		White balance adjustment White part. . . . White balance adjustment/check in light area Black part. . . . White balance adjustment/check in dark area ※ Making approx. 1Vp-p signal in QA01.
<ul style="list-style-type: none"> <li>• Black cross-bar</li> <li>• White cross-bar</li> </ul>		Picture position (horizontal, vertical and slant) in CRT adjustment ※ Making approx. 1Vp-p signal in QA01.
<ul style="list-style-type: none"> <li>• Black cross-hatch</li> <li>• White cross-hatch</li> </ul>		Convergence and vertical amplitude adjustment ※ Making approx. 1Vp-p signal in QA01.
<ul style="list-style-type: none"> <li>• Black cross-dot</li> <li>• White cross-dot</li> </ul>		Convergence adjustment ※ Making approx. 1Vp-p signal in QA01.
<ul style="list-style-type: none"> <li>• H signal (Left, right, white)</li> <li>• H signal (Left, right, black)</li> </ul>		For checking (of purity drift) of white uniformity of CRT H signal (Left, right, white). . . . Check in light area H signal (Left, right, black). . . . Check in dark area The adjustment will be the best, if the time when unevenness of color in light area occurs, is a little longer than that in dark area. ※ Making approx. 1Vp-p signal in QA01.

ITEM	ADJUSTMENT PROCEDURE
<b>INITIALIZATION OF QA02 (MEMORY)</b>	<p>After replacing QA02, the following initialization is required.</p> <ol style="list-style-type: none"> <li>1. Call up the adjustment mode display following the steps 1 and 2 on page 16.</li> <li>2. Press the CALL and CHANNEL ▲ buttons on the Remote Control simultaneously. The initialization of QA02 has been completed.</li> <li>3. Check the picture carefully. If necessary, adjust any adjustment item. Perform "AUTOMATIC SEARCH MEMORY" on page 7.</li> </ol>
<b>SUB-BRIGHTNESS (BRTC)</b>  Note: Constrict the picture height until the vertical retrace line appears adjusting the address HIT (HEIGHT).	<ol style="list-style-type: none"> <li>1. Set CONTRAST to "00", and BRIGHTNESS to "50" by adjusting user controls.</li> <li>2. Set the TV in service mode to get white cross-bar of inside pattern.</li> <li>3. Select BRTC (brightness correction), and adjust the ◀ - / + button to reduce the value so that white portion of inside pattern slightly light.</li> <li>4. Adjust ◀ - / + button to increase the data value of BRTC, and set it just before the difference between the belt of vertical retrace and the border of black portion of inside pattern is visible. After that, return vertical height and contrast.</li> </ol> <div data-bbox="1038 667 1369 927" data-label="Image"> </div>
<b>HORIZONTAL POSITION ADJUSTMENT (HPOS)</b>  <b>VERTICAL POSITION ADJUSTMENT (VPOS)</b>	<ol style="list-style-type: none"> <li>1. Set the TV in service mode, and get black or white cross-bar signal with VIDEO button on remote hand unit.</li> <li>2. Select either HPOS (Horizontal picture phase) or VPOS (Vertical picture phase) with CHANNEL ▲, ▼ buttons, and adjust horizontal or vertical picture position in the center of screen with VOLUME ◀ - / + buttons.</li> </ol> <div data-bbox="991 1061 1401 1361" data-label="Image"> </div>
<b>VERTICAL AMPLITUDE ADJUSTMENT (HIT)</b>	<ol style="list-style-type: none"> <li>1. Set the TV in service mode, and get black or white cross-hatch signal with VIDEO button on remote hand unit.</li> <li>2. Select HIT (Vertical amplitude) with CHANNEL ▲, ▼ buttons, and adjust vertical amplitude with VOLUME ◀ - / + buttons so that vertical amplitude lacks a little.</li> <li>3. Adjust vertical amplitude with VOLUME ◀ - / + buttons so that the first bar on cross-hatch signal touches edge of screen.</li> </ol> <div data-bbox="991 1429 1433 1733" data-label="Image"> </div>


ITEM	ADJUSTMENT PROCEDURE
<b>WHITE BALANCE ADJUSTMENT</b>  • CUTOFF ADJUSTMENT (RCUT) (GCUT) (BCUT)  • DRIVE ADJUSTMENT (GDRV) (BDRV)	<ol style="list-style-type: none"> <li>Set Contrast to 40, and brightness to +20 by picture control.</li> <li>Set the TV in service mode, and get the inside W/B adjusting signal with VIDEO button.</li> <li>Select RCUT, GCUT and BCUT with CHANNEL ▲, ▼ buttons, to set individual values to 32, and to set GDRV and BDRV to 20 with VOLUME ▲ - / + buttons.</li> <li>Press  button on the remote control and rotate Screen VR to get one slight horizontal line on screen. Note: Every pressing of  button provides Horizontal line picture and Normal picture alternately.</li> <li>Press  button to release horizontal line picture, and select the two other colors which did not light in the above step with CHANNEL ▲, ▼ buttons. Then tap VOLUME ▲ - / + buttons so that three colors slightly light in the same level.</li> </ol> <p>※ To correct white balance in light area, select GDRV and BDRV with CHANNEL ▲, ▼ buttons to adjust.</p> <p>※ To correct white balance in dark area, perform fine adjustment of RCUT, GCUT and BCUT.</p> <div style="border: 1px solid black; padding: 10px; margin-top: 20px;"> <div style="border: 1px solid black; width: 150px; height: 40px; margin: 0 auto; text-align: center; padding: 5px;">Light area check (to show white)</div> <div style="text-align: center; margin-top: 100px;">Dark area check (to show black)</div> </div>

## SELF DIAGNOSTIC FUNCTION

- Press "9" button on Remote Control during display of adjustment menu.  
The diagnosis will begin to check if interface among IC's are executed properly.
- During diagnosis, the following displays are shown.

	(SELF CHECK)
①	2390XXXX
②	POWER : 00
③	BUS LINE : OK
④	BUS CONT : OK
⑤	BLOCK : UV V1 QV01

- Part number of microcomputer (QA01)
- Operation number of protecting circuit ----"00" is normal.  
When indication is other than "00", overcurrent apt to flow, and circuit parts may possibly be damaged.
- BUS LINE CHECK ----"OK" is normal.  
"SDA1-GND" means that SDA line is shorted to ground.  
"SCL1-GND" means that SCL line is shorted to ground.  
"SCL1-SDA1" means that SDA line is shorted to SCL line.
- BUS CONT ----"OK" is normal.  
When indication shows "QOOO NG", the device with the number may possibly be damaged.

- BLOCK  
UV : TV reception mode  
V1 : VIDEO input mode (  )

Indicated color of mode now selected : Green and Red  
Indicated color of other modes : White

Green : Normal  
Red : The microcomputer operates to provide judgement of no video signal. The red color is still indicated though the signal is input, failure may exist in input signal line including QV01.  
QV01 : In case of indication green ---Normal  
In case of indication red with input signal----  
Failure may exist in output line including QV01.

# MULTI BUS E2PROM ADDRESS, ADJUSTING ADDRESS TABLE

Adjusting method	Micom adjusting number	QA02 memory ADDR	Name of item	Value of initializing QA02 (Hexa-decimal)	Adjustments
F ↓ S ↓ F ↓ S ↓ F ↓ S ↓ S	30	06D	RCUT	20	R CUTOFF
	31	06E	GCUT	20	G CUTOFF
	32	06F	BCUT	20	B CUTOFF
	33	070	GDRV	80	G DRIVE
	34	071	BDRV	80	B DRIVE
	35	072	CNTX	FF	SUB CONTRAST MAX
	36	073	BRTC	80	SUB BRIGHT CEN
	37	074	COLC	80	SUB COLOR CEN NTSC
	38	075	TNTC	40	SUB TINT CEN
	39	076	COLP	00	SUB COLOR CEN PAL
	3A	077	COLS	00	SUB COLOR CEN SECAM
	3B	078	SCNT	0A	Y-SUB CONTRAST
	80	0A4	HPOS	07	50Hz HORIZONTAL POSITION
	81	0A5	VPOS	03	50Hz VERTICAL POSITION
	82	0A6	HIT	40	50Hz HORIZONTAL WIDTH
	90	0AB	VLIN	0A	50Hz V-LINEARITY
	91	0AC	VSC	0A	50Hz V-S CORRECTION
	92	0AD	VPS	0B	50Hz V-SHIFT
	93	0AE	VCP	04	50Hz V-COMPENSATION
	94	0AF	WID	28	50Hz PICTURE WIDTH
	95	0B0	PARA	1F	50Hz E-W PARABOLA
	F0	0BF	BELL	01	BELL FILTER
	F6	0C5	SBY	08	SECAM B-Y
	F7	0C6	SRY	08	SECAM R-Y
	96	0B1	CNR	04	50Hz E-W CORNER
	97	0B2	TRAP	10	50Hz TRAPEZIUM
	98	0B3	HCP	02	50Hz H-COMPENSATION
	99	0B4	VFC	0F	50Hz V-F CORRECTION

S ... semi-fixed data area which is fixed by model. (Do not adjust in field service.)

F ... This item may require adjustments by models after initialization, when QA02 is replaced.

# ELECTRICAL ADJUSTMENT

## 1. SUB CONTRAST

(Measuring point) Q501 #14 R-OUT  
(Adjusting signal) Sub Bright (NTSC) signal  
(Adjusting method)

### 1. BUS data of Q501

RCUT	(Q501 SUB ADDR:0C)	→ Initial value	(20H)
Y <sub>γ</sub>	(Q501 SUB ADDR:08/D7)	→ OFF	(0)
WPL	(Q501 SUB ADDR:08/D6)	→ OFF	(1)
PACL	(Q501 SUB ADDR:08/D5)	→ OFF	(0)
COLOR	(Q501 SUB ADDR:02/D7-D0)	→ MIN	(00H)

- Set user control to the standard 1
- Change to adjust SCNT data (Q501 SUB ADDR:05/D4~D0).  
※ It makes the point which doesn't have a change and it adjust with screen VR.
- After adjustment, return the data which are set in steps 1, 2 above, to original data.

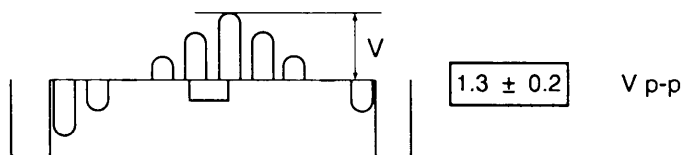
SPEC  $2.5 \pm 0.2$  V p-p

## 2. SUB COLOR APL (THIS ADJUSTMENT AFTER SUB COLOR NTSC)

(Measuring point) Q501 #12 B-OUT  
(Adjusting signal) Sub Bright (PAL) signal  
(Adjusting method)

- Set BUS data of Q501 to the same value as that of SUB TINT adjustment.
- Set user control to the standard 1.
- Change COLP data (COLC Difference data) to adjust the 6th peak ampl of rainbow color bar.

Adjust the amplitude of color bar.  
(P-P value of the upper half)



- After adjustment return the data set in steps 1 and 2 above, to the original data.



### 3. SUB COLOR SECAM (THIS ADJUSTMENT AFTER SUB COLOR NTSC)

(Measuring point) Q501 #12 B-OUT

(Adjusting signal) SECAM color bar signal

(Adjusting method)

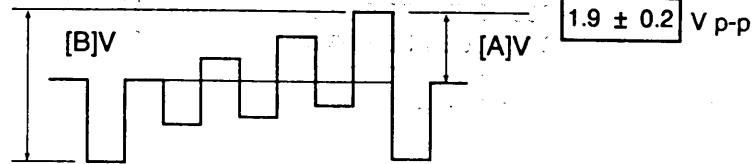
1. Set BUS data of Q501 to the same value as that of SUB TINT adjustment.
2. Set user control to the standard 1
3. Change COLS data (COLC Difference data) to adjust the 6th peak amplitude of SECAM color bar.

(F-C)

(G)

(G)

Adjust the amplitude of color bar.



4. After adjustment, return the data set in steps 1, 2 above, to the original data.

#### 4. SUB TINT

(Measuring point) Q501 #12 B-OUT

(Adjusting signal) Sub Bright (NTSC) signal

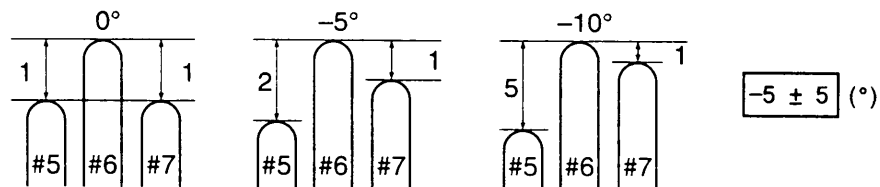
(Adjusting method)

##### 1. BUS data of Q501

BDRV	(Q501 SUB ADDR:0A)	→ Initial value	(80H)
BCUT	(Q501 SUB ADDR:0E)	→ Initial value	(20H)
COLOR LIMITER	(Q501 SUB ADDR:0F/D2)	→ OFF	(0)
MUTE	(Q501 SUB ADDR:1B/D7~D6)	→ Y mute	(10)
P/N CD ATT	(Q501 SUB ADDR:12/D5~D4)	→ 0dB	(01)
S-field	(Q501 SUB ADDR:1F/D7)	→ OFF	(0)
SCD ATT	(Q501 SUB ADDR:1F/D6)	→ 0dB	(0)
P-ACL	(Q501 SUB ADDR:18/D5)	→ OFF	(0)

##### 2. Set user control to the standard 1

- Change to adjust TINTC data (Q501 SUB ADDR:03/D6D0) so that difference between 6th peak and 5th and 7th peaks of rainbow color bar becomes 2:1.



- After adjustment, return the data which are set in steps 1, 2 above, to original data.

#### 5. SUB COLOR NTSC

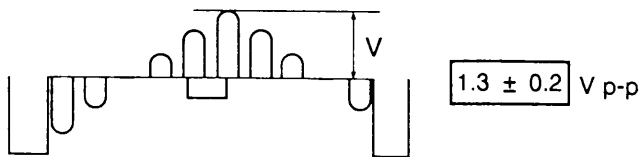
(Measuring point) Q501 #12 B-OUT

(Adjusting signal) Sub Bright (NTSC) signal

(Adjusting method)

- Set BUS data of Q501 to the same value as that of Sub TINT adjustment.
- Set user control setting to the standard 1
- Change COLC data (Q501 SUB ADDR:02/D7~D0) to adjust the 6th peak amplitude of rainbow color bar.

Adjust the amplitude of color bar.  
(P-P value of the upper half)



- After adjustment, return the data set in steps 1 and 2 above, to the original.

## 6. SUB BRIGHT

(Adjusting signal) Sub Bright (PAL or NTSC) signal  
(Adjusting method)

1. Set user control setting to the standard 1.
2. Change BRTC data (Q501 SUB ADDR:01/D7D0) to set black collapse numbers by eye check.

SPEC  $4 \pm 1.5$  V p-p

## 7. WHITE BALANCE ADJUSTMENT

(Adjusting method)

1. Set user control setting to the standard 1.
2. BUS data of Q501
 

GDRV	(Q501 SUB ADDR:09)	→ Initial value	(80H)
BDRV	(Q501 SUB ADDR:0A)	→ Initial value	(80H)
RCUT	(Q501 SUB ADDR:0C)	→ Initial value	(20H)
GCUT	(Q501 SUB ADDR:0D)	→ Initial value	(20H)
BCUT	(Q501 SUB ADDR:0E)	→ Initial value	(20H)
3. Set the mode to the one horizontal line mode
 

MUTE	(Q501 SUB ADDR:1B/D7~D6)	→ H. Line	(11)
BRIGHT	(Q501 SUB ADDR:01)	→ Initial value	(80H)
4. Change SCREEN VR to set it so that one of lines R, G and B will light slightly.
5. Change CUTOFF data to adjust so that each one of R, G and B will light slightly (for about white).
6. Release the H. Line mode.
7. Change B/G drive data and R/G/B CUTOFF data to adjust white balance in bright area and dark area.

## 8. SECAM BELL FILTER ADJUSTMENT

(Measuring point) Q501 #36 B-Y OUT

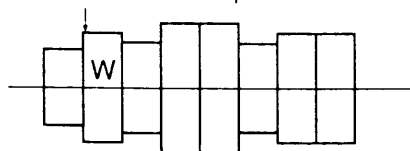
(Adjusting signal) Color bar (SECAM) signal

(Adjusting method)

1. Connect resistor 1k ohm between color limiter terminal (Q501 #26) and 5V.
2. Connect resistor 100 ohm between Q501 #35 and 5V.
3. Set COLOR control data to "04H".
4. Set MICOM YS output to "H", and set Q501 to DIGITAL RGB mode.
5. Change BELL data (Q501 SUB ADDR:ifD1D0) to set it so that SECAM signal at #36 pin of Q501 (B-Y OUT) can be flat.
6. After adjustment, remove resistor 1k ohm between color limiter terminal (Q501 #26) and 5V, and remove resistor 100 ohm between Q501 #35 and 5V, to return COLOUR control data to original.

SPEC  $100 \pm 10$  %

Make flat the white part.



## 9. SECAM OFFSET ADJUSTMENT

(Measuring point) Q501 #35 R-Y OUT

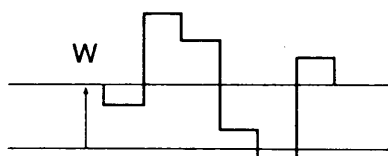
#36 B-Y OUT

(Adjusting signal) Color bar (SECAM) signal

(Adjusting method)

1. Change SRY data (Q501 SUB ADDR:11/D7~D4) to coincide level of black and white part in color differential signal (R-Y) to the level of H. BLK part.

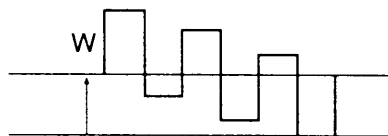
Match the level of black and white signal part in color differential signal to that of H.BLK.  
(center of noise signal)



SPEC B-Y/R-Y  $0 \pm 10$  mV p-p

2. Change SBY data (Q501 SUB ADDR:11/D3~D0) to coincide level of black and white part in color differential signal (B-Y) to the level of H. BLK part.

Match the level of black and white signal part in color differential signal to that of H.BLK.  
(center of noise signal)



SPEC B-Y/R-Y  $0 \pm 10$  mV p-p

## 10. CHROMA TRAP ADJUSTMENT → NO ADJUSTMENT

## 11. H. CENT ADJUSTMENT

(Point) Receiving adjustment

(Adjusting signal) WG PHILIPS pattern

Do not use France SECAM pattern.

(Adjusting method) CONT = Maximum BRIGHT = Center COLOR = Center

Vary SUB Address [HPOS] to adjust picture center to screen center. (Set D-C to minimum by CRT adjusting magnetic field.)

## 12. V. HEIGHT ADJUSTMENT

(Point) Receiving adjustment

(Adjusting signal) WG PHILIPS pattern

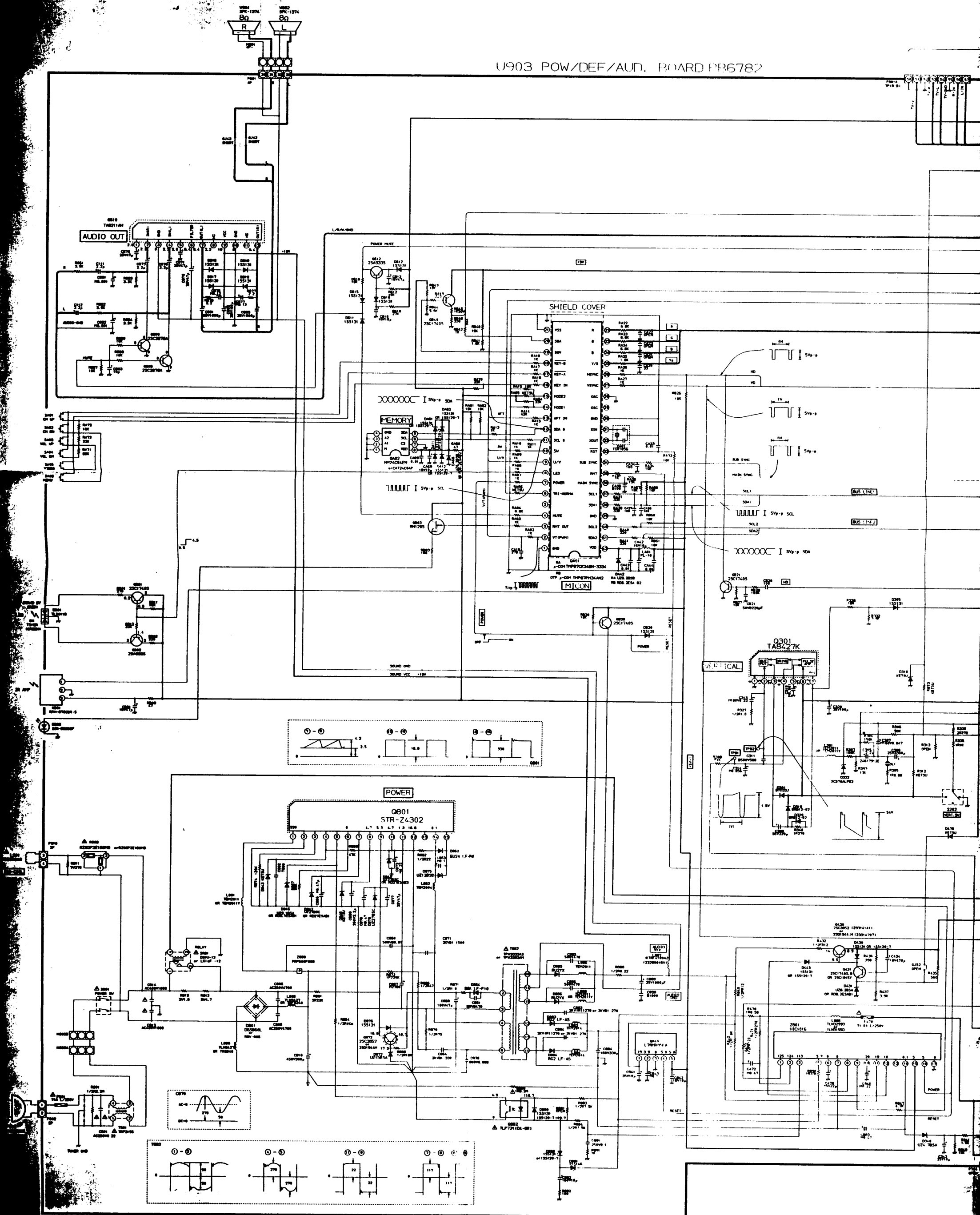
Do not use France SECAM pattern.

(Adjusting method) CONT = Maximum BRIGHT = Center COLOR = Center

Vary SUB Address [VPOS] to adjust center of Philips pattern to screen center.

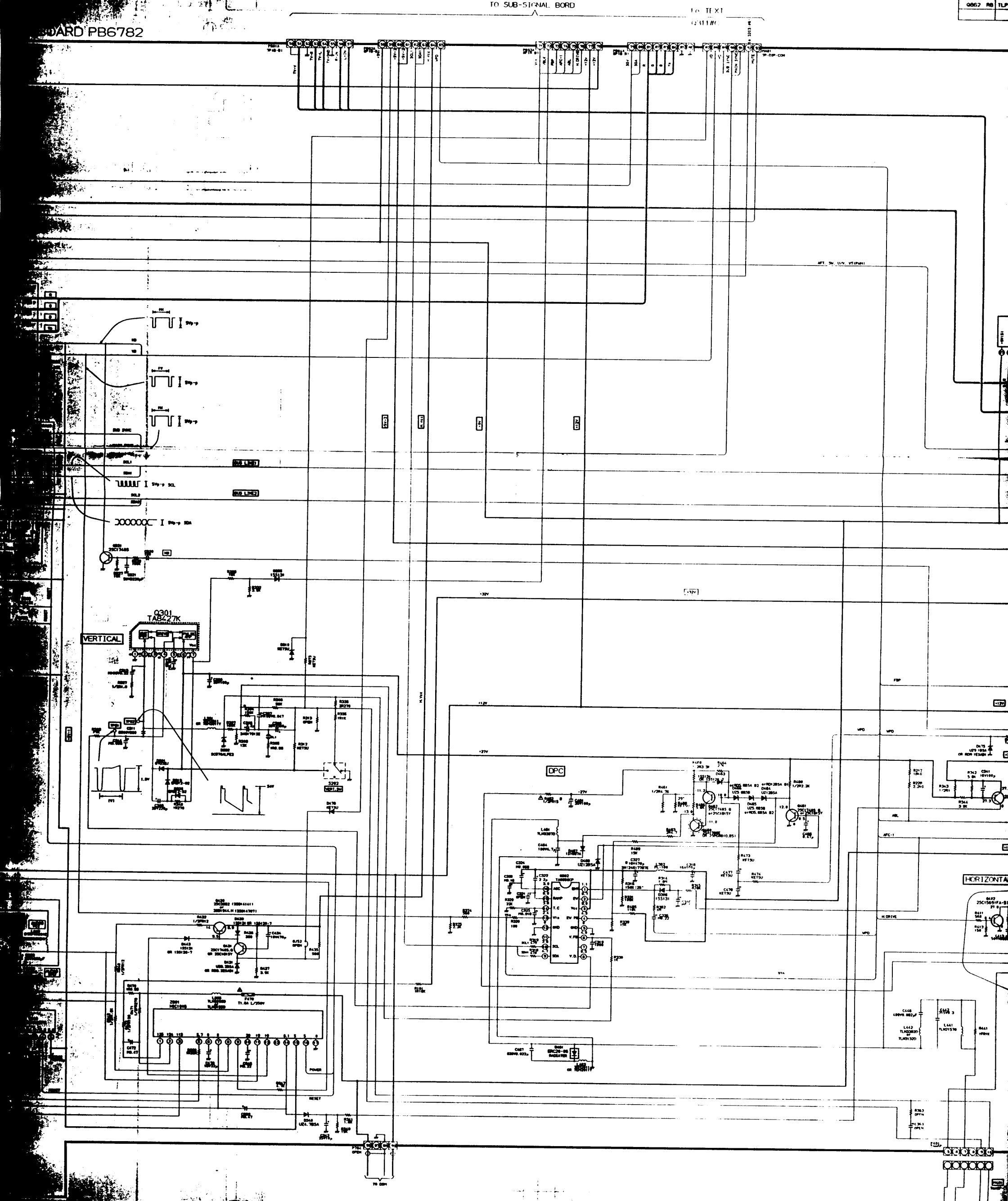
Adjust SUB Address [HIT] so that top and bottom flags of Philips pattern can just be hidden.

## U903 POW/DEF/AUD. BOARD PR6782



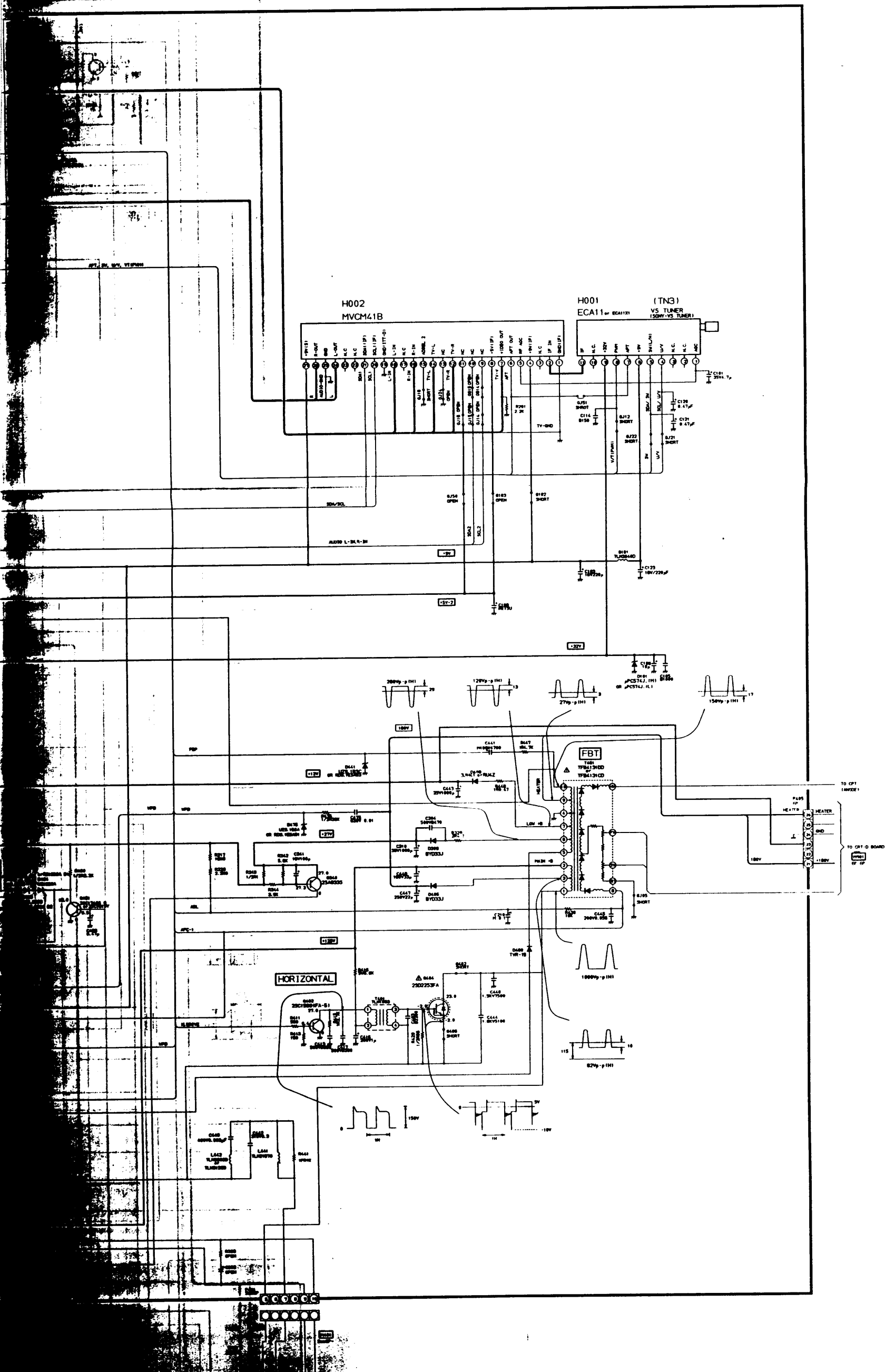
10 TEXT  
02311#C

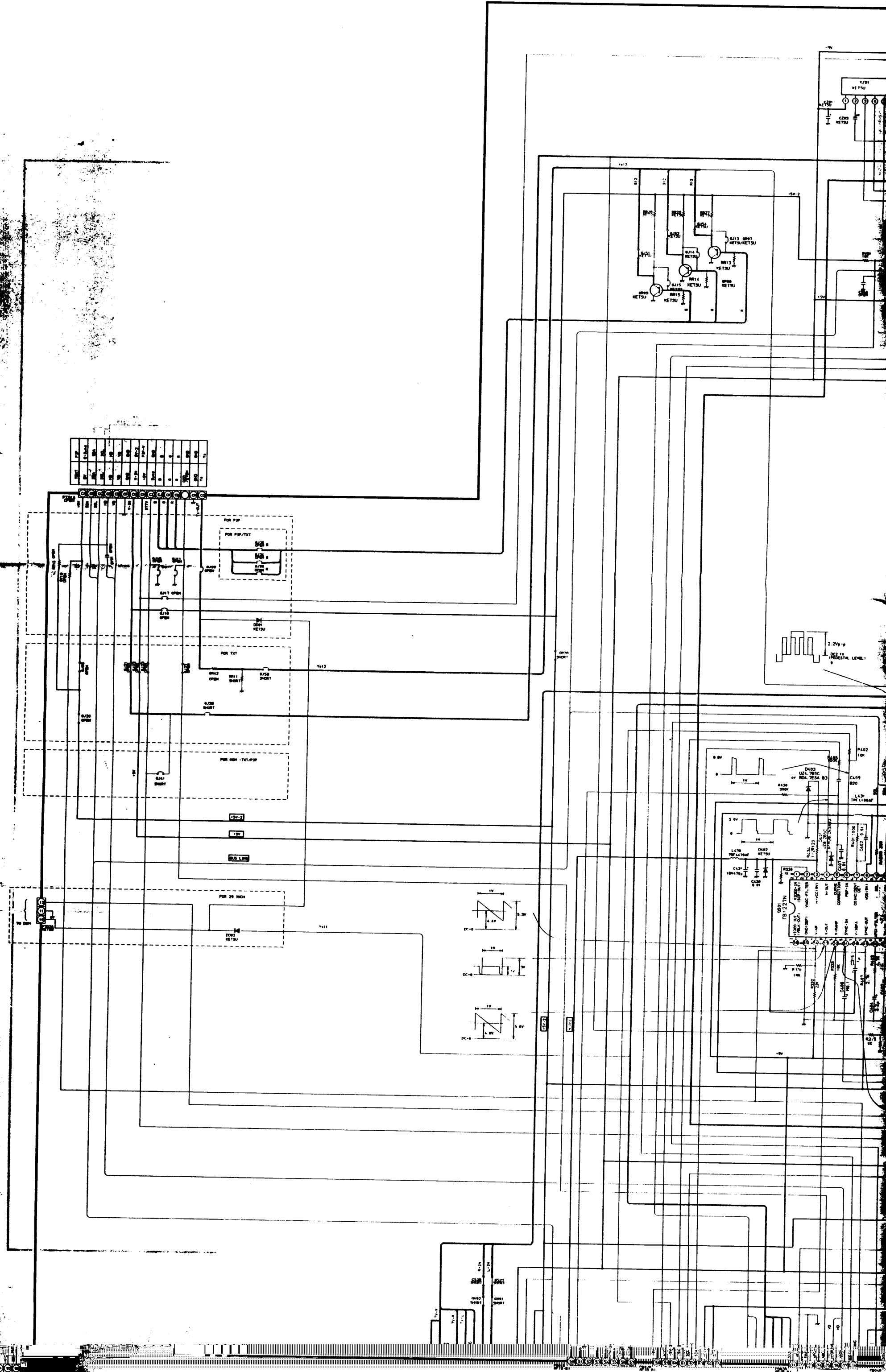
BOARD PB6782



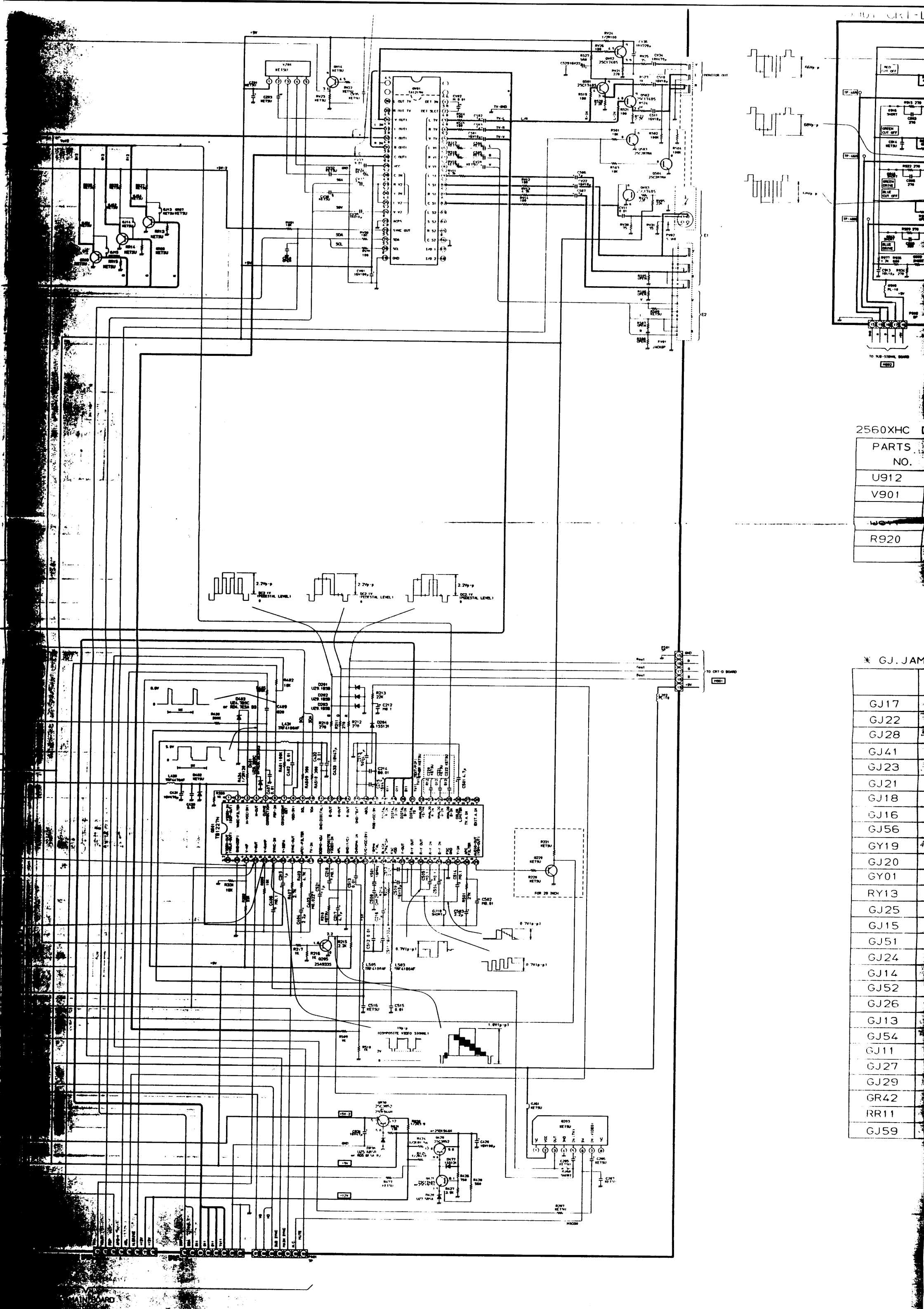
256034C DIFFERENCE LIST

PARTS NO.	RATING	REMARK (SN. I)	PARTS NO.	RATING	REMARK (SN. I)
U913	P86870	23535964	R303	RD14G2C273JH	24366273Y
C305	CE04CH1H1R0K	24617915E	R304	RD14G2C274JH	24366274Y
C440 RA	CF9213P702H	24082581B	R305	RS14B3AR56J	24322568L
C440 RB	CF9213P702H	24082608B	R306	RD14G2C823JH	24366823Y
C446	C092120433J	24829433B	R336	RD14G2C394JH	24366394Y
H002	MVCM41C	23148256	RA14	RS14B30206J	24383206S
U441	COLTLN21440	23233947	RA15	RD14G2C433JH	24366433Y
U442 RA	COLTLN33840	23248122	RA65	RD14G2C103JH	24366103Y
U442 RB	COLTLN3063	23221894			
Q862 RA	TLP6211GR-F2	23904427			
Q862 RB	TLP721F1D4GR1	23904429			









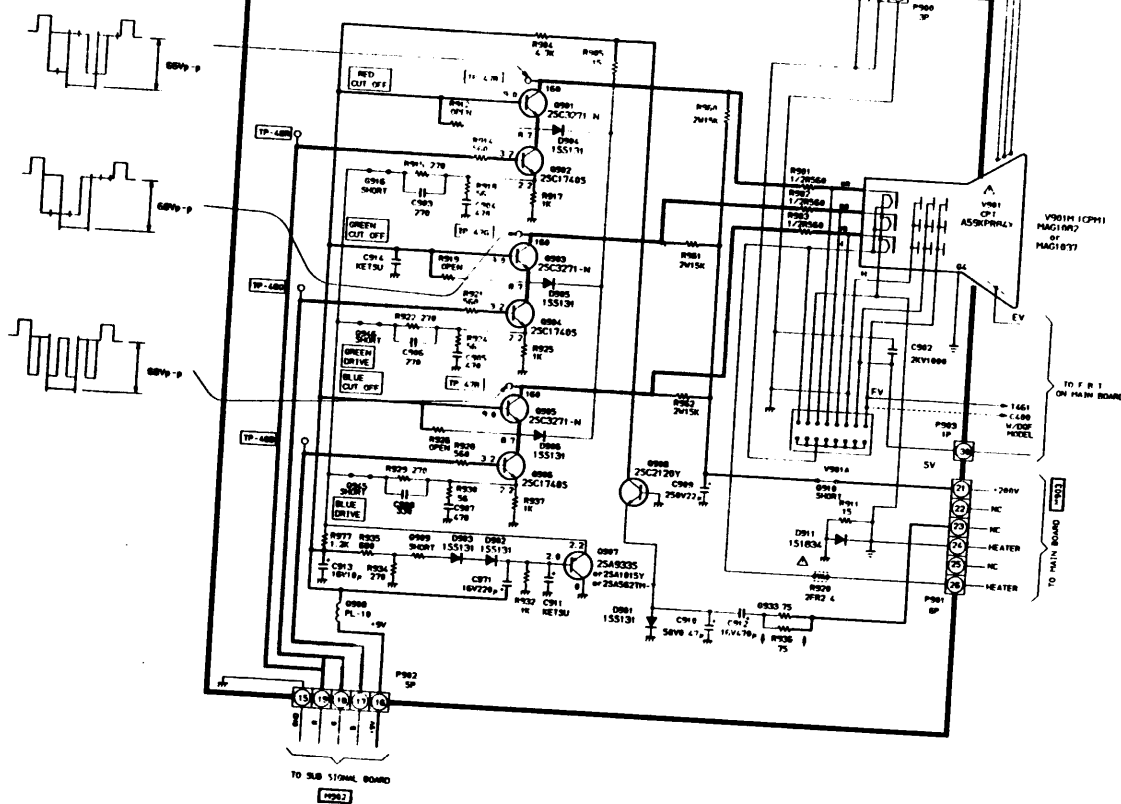
2560XHC

PARTS NO.
U912
V901
R920

\* GJ, JAM

GJ17
GJ22
GJ28
GJ41
GJ23
GJ21
GJ18
GJ16
GJ56
GY19
GJ20
GY01
RY13
GJ25
GJ15
GJ51
GJ24
GJ14
GJ52
GJ26
GJ13
GJ54
GJ11
GJ27
GJ29
GR42
RR11
GJ59

# U901 CPT D BOARD PB6780



## 2560XHC DIFFERENCE LIST

PARTS NO.	RATING	REMARK (SN.)
U912	PB6780	23535963
V901	A59KTB96X	23312646
U911	PB7004	23535971
R920	1FR5.1Ω	24000880L

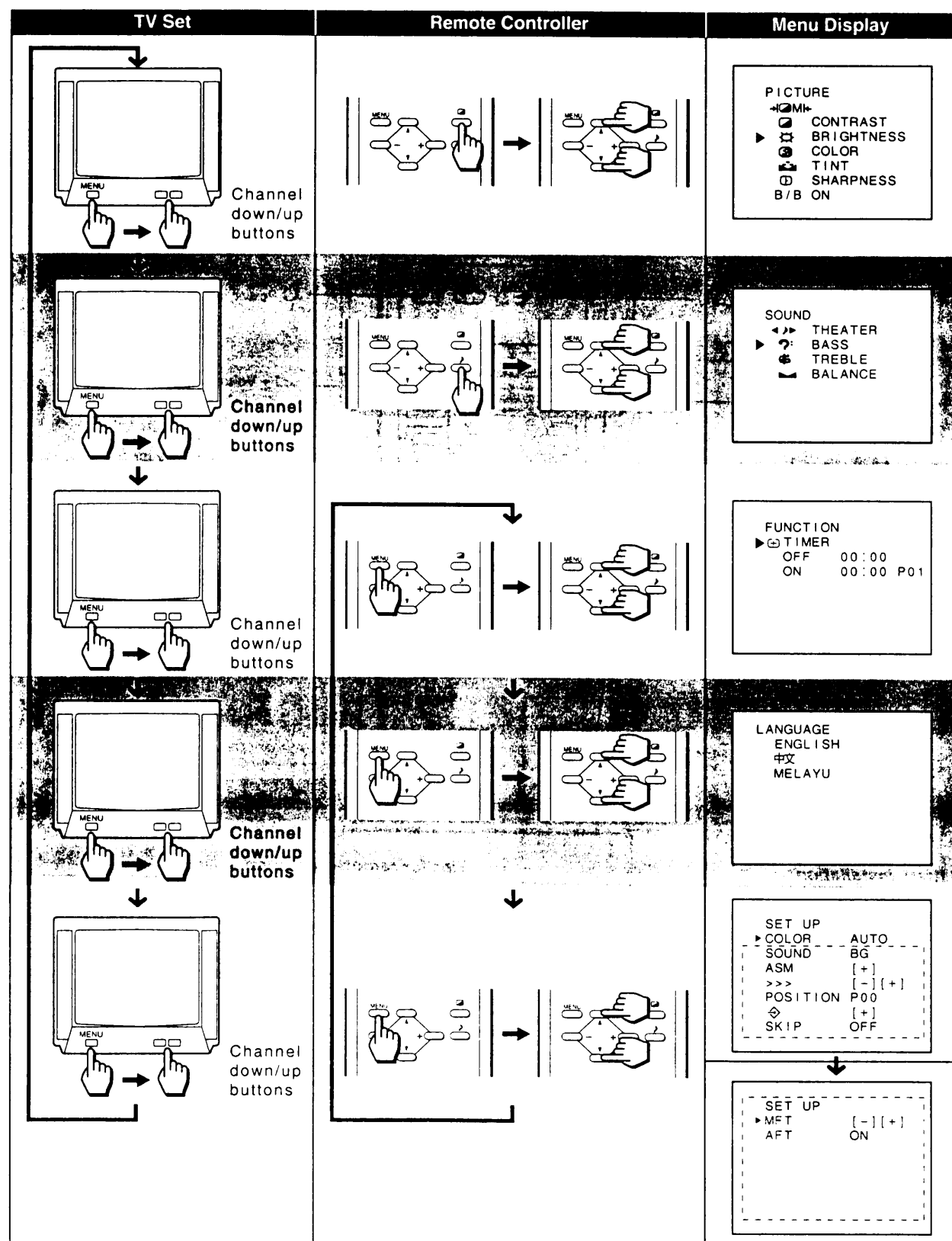
## \* GJ JAMPER DIFFERENCE

	W/TEXT	W/PIP	OTHER
GJ17	OPEN	SHORT	OPEN
GJ22	SHORT	OPEN	OPEN
GJ28	SHORT	OPEN	OPEN
GJ41	OPEN	OPEN	SHORT
GJ23	SHORT	OPEN	SHORT
GJ21	SHORT	OPEN	OPEN
GJ18	OPEN	SHORT	OPEN
GJ16	OPEN	SHORT	OPEN
GJ56	SHORT	OPEN	OPEN
GY19	OPEN	SHORT (R)	OPEN
GJ20	SHORT	SHORT	OPEN
GY01	SHORT	330pF	OPEN
RY13	OPEN	10K	OPEN
GJ25	SHORT	SHORT	OPEN
GJ15	SHORT	SHORT	OPEN
GJ51	SHORT	SHORT	OPEN
GJ24	SHORT	SHORT	OPEN
GJ14	SHORT	SHORT	OPEN
GJ52	SHORT	SHORT	OPEN
GJ26	SHORT	SHORT	OPEN
GJ13	SHORT	SHORT	OPEN
GJ54	SHORT	SHORT	OPEN
GJ11	OPEN	SHORT	OPEN
GJ27	SHORT	OPEN	OPEN
GJ29	SHORT	SHORT	OPEN
GR42	SHORT	SHORT	OPEN
RR11	OPEN	OPEN	SHORT
GJ53	SHORT	SHORT	SHORT

## GETTING STARTED

# Menu Function

- Before watching the TV, please familiarize yourself the method to use the menu function of this TV set.
- The owner's manual shows the explanation for operations mainly using the Remote Controller. But you can perform the operations using the buttons on the TV set as well.
- This TV can show the OSD (On-Screen-Display).

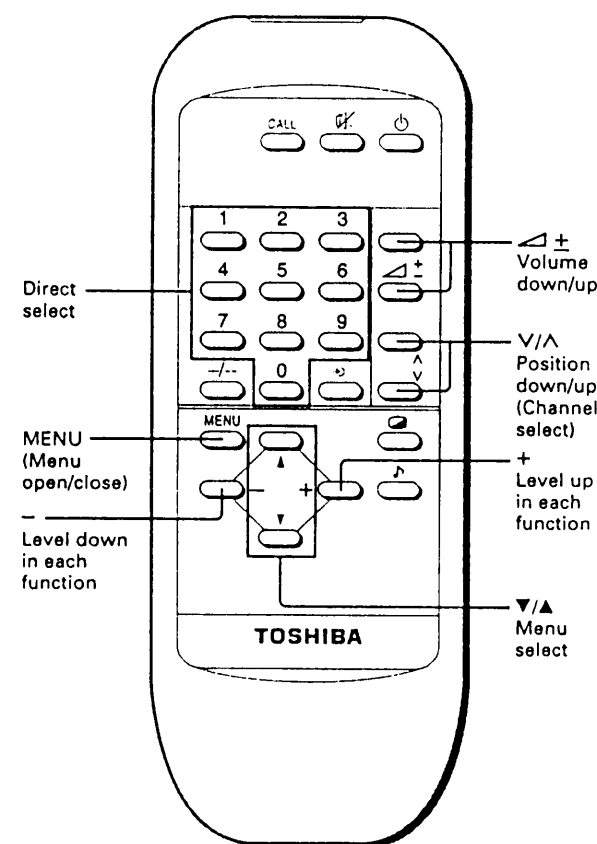


## GETTING STARTED

# Tuning in

- First, use the ASM (Automatic Search Memory) function to preset all active channels in your area automatically.
- Then, arrange the preset channels with the SEARCH (>>>), SKIP, MFT (Manual Fine Tuning) and AFT (Auto Fine Tuning) functions so that you can tune into only desired channels.
- This section shows how to tune in channels using mainly the Remote Controller. You can also perform the system select, ASM, SEARCH (>>>), SKIP, MFT and AFT operations using the buttons on the TV set.

### To preset channels (ASM)



### ASM (Automatic Search Memory)

- 1 Select the head of the position number to start the ASM with the position down (V)/up (^) buttons or the digit/direct select buttons.
- 2 Press the MENU button repeatedly to call up the SET UP menu on the screen.
- 3 Confirm that "COLOR" is set to "AUTO" and "SOUND" is set to proper system. If not, press the V/^ buttons to move the cursor (▶) to "COLOR" or "SOUND" and press the -/+ buttons to select each proper system.
- 4 Press the V/^ buttons to move the cursor (▶) to "ASM".
- 5 Press the "+" button to start the ASM. All active channels will be preset automatically. When presetting is complete, the initial position number will reappear.

### After presetting

Check the preset channels by pressing the position down (V)/up (^) buttons.

- If the picture or sound of a certain channel is not good, fine-tune the channel using the MFT function.
- If the colour of a certain channel is abnormal, automatic colour system selection (AUTO) may malfunction, or sound system selection is wrong. In such a case, select another colour and/or sound system.

- Use the SEARCH function if desired channels cannot be preset with the ASM or if you would like to preset the desired channels to specific programme numbers one by one.
- The adjustments below are not necessary under normal conditions. However, in areas of inferior broadcast conditions where adjustment is necessary for a better picture, adjust the tuning with the MFT (Manual Fine Tuning). The AFT OFF status automatically keeps the condition adjusted with the MFT function.
- The AFT (Auto Fine Tuning) function automatically corrects slight fluctuations when receiving signals.
- When using Manual Search to preset the channel, the AFT will automatically turn ON and SKIP to OFF.

### To preset channels (Manual search, AFT, MFT)

#### Manual search (>>>)

- Select a position number with the position down (V)/up (A) or digit/direct select buttons.
- Press the MENU button repeatedly to call up the SET UP menu on the screen.
- Press the V/A buttons to move the cursor (P) to ">>>".
- Press the -/+ buttons to start searching. The - button searches for lower-numbered channels; the + button for higher-numbered channels. Repeat this process until you can get the desired channel.
- When the desired programme is shown, press the V/A buttons to move the cursor (P) to "P".
- Press the + button to memorize the channel at the current position.
- When you desire to store another channel at another position, move the cursor (P) to "POSITION" with the V/A buttons and select a desired position with the -/+ buttons. Then, press the V/A buttons to move the cursor (P) to ">>>" and repeat the steps 4 to 7. Or, repeat the steps 1 to 7 after the display disappears.

#### MFT (Manual Fine Tuning)

- Select the programme number you want to fine-tune with the position down (V)/up (A) buttons or digit/direct select buttons.
- Press the MENU button repeatedly to call up the SET UP menu on the screen.
- Press the V/A buttons to move the cursor (P) to "MFT".
- Press the -/+ buttons until the best possible picture and sound are obtained.

**Note**  
When operating the MFT function, the AFT status is automatically set to OFF.

#### AFT (Auto Fine Tuning)

- Select the programme number you want to fine-tune with the position down (V)/up (A) buttons or digit/direct select buttons.
- Press the MENU button repeatedly to call up the SET UP menu on the screen.
- Press the V/A buttons to move the cursor (P) to "AFT". Press the -/+ buttons to select the "ON" indication.

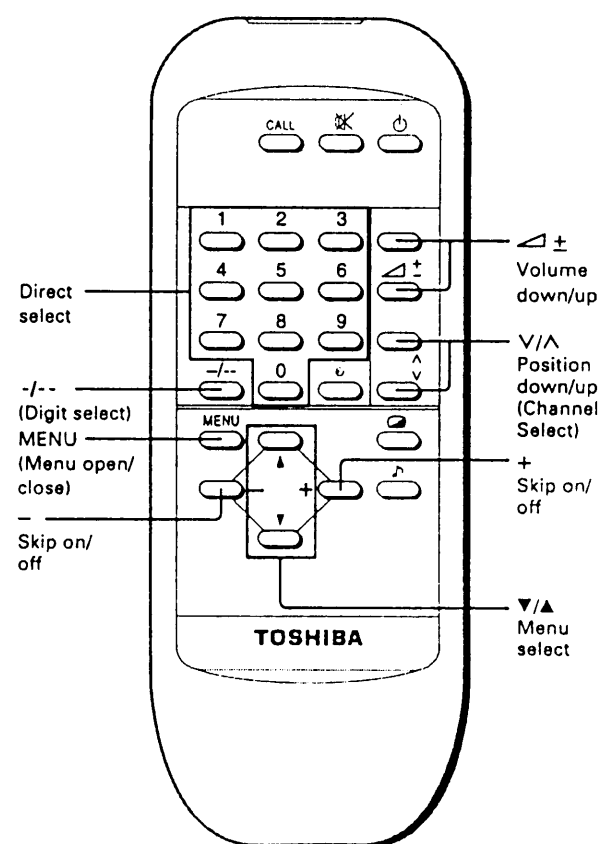
**Note**  
When the position is set to AFT OFF status, the "■" mark appears to the left of the position number.  
When the channel is set to AFT ON status, the position number is displayed without the "■" mark.

### GETTING STARTED

## Tuning in (continued)

### To skip unnecessary position numbers

After presetting the channels, you may skip unnecessary position numbers so that only the channels you want to watch are selected.



### To skip a position number

- Select the position number to be skipped with the position down (V)/up (A) buttons or digit/direct select buttons.
- Press the MENU button repeatedly to call up the SET UP menu on the screen.
- Press the V/A buttons to move the cursor (P) to "SKIP".
- Press the -/+ buttons to select "SKIP ON".
- Press the MENU button to turn off the SET UP menu display. Select the position number to be skipped with the direct select buttons. The \* mark appears to the left of the position number. The position number will then be skipped when you select the position with the position down (V)/up (A) buttons.

### To restore a skipped position number

- Select the position number you want to restore with the direct select (and/or digit select) buttons.
- Press the MENU button to call up the SET UP menu display and press the V/A buttons to move the cursor (P) to "SKIP".
- Press the -/+ buttons to select "SKIP OFF".