General Information

Chassis: C5SS

Matrix

Item	See Model	Book
Adjustments (Not Service mode)	2152 DB	5

X-RAY RADIATION PRECAUTION

1. The E.H.T. must be checked every time the receiver is serviced to ensure that the C.R.T. does not emit X-ray radiation as result of excessive E.H.T. voltage. The nominal E.H.T. for this receiver is 31.5 kV at zero beam current (minimum brightness) operating at 240V a.c. The maximum E.H.T. voltage permissible in any operating circumstances must not exceed 32.0 kV. When checking the E.H.T., use the 'High Voltage Check' procedure, using an accurate E.H.T. voltmeter.
2. The only source of X-RAY radiation in this receiver is the C.R.T. To prevent X-ray radiation, the replacement C.R.T. must be identical to the original fitted as specified in the Parts List.
3. Some components used in this receiver have safety related characteristics preventing the C.R.T. from emitting X-ray radiation. For continued safety, replacement component should only be made after referring the Product Safety Notice below.

SAFETY PRECAUTION

1. This receiver has a nominal working E.H.T. voltage of 28.5 kV. Extreme caution should be exercised when working on the receiver with the back removed. Do not attempt to service this receiver if you are not conversant with the precautions and procedures for working on high voltage equipment. When handling or working on the C.R.T., always discharge the anode to the receiver chassis before removing the anode cap The C.R.T., if broken, will violently expel glass fragments. Use shatter proof goggles and take extreme care while handling. Do not hold the C.R.T. by the neck as this is a very dangerous practice.
2. It is essential that to maintain the safety of the customer all cable forms be replaced exactly as supplied from factory.
3. A small part of the chassis used in this receiver is, when operating, at approximately half mains potential at all times. It is therefore essential in the interest of safety that when serving or connecting any test equipment the receiver should be supplied via a suitable isolating transformer of adequate rating.
4. Replace blown fuses within the receiver with the fuse specified in the parts list.
5. When replacing wires or components to terminals or tags, wind the leads around the terminal before soldering. When replacing safety components identified by the international hazard symbols on the circuit diagram and parts list, it must be a Toshiba approved type and must be mounted as the original.
6. Keep wires away from high temperature components.

PRODUCT SAFETY NOTICE

Many electrical and mechanical components in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the X-ray radiation protection afforded by them cannot necessarily be obtained by using replacements rated at higher voltages or wattage, etc. Components which have these special safety characteristics in this manual and its supplements are identified by the international hazard symbols on the schematic diagram and parts list. Before replacing any of these components read the parts list in this manual carefully. Substitute replacement components which do not have the same safety characteristics as specified in the parts list may create X-ray radiation.

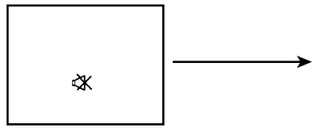
Recommended Safety Parts

Item	Part No.	Description
A401	23426393	Back Cover
C440	24082482	PF, 7000pF, ±3%, 1500V
C441	24082669	PF, 0.33µF, 250V
C442	24082672	PF, 0.43µF, 250V
C444	24082519	PF, 6200pF, ±3%, 1800V
C463	24212222	CD, 2200pF, ±10%
C801	24082374	PE, 0.22µF, AC250V
C805	24092281	CD, 4700pF, ±20%, AC250V
C806	24092281	CD, 4700pF, ±20%, AC250V
R801	24009954	Metal-Glazed Resistor, 2.2M ohm, 1/2W
R808	24019340	PTC Thermistor, 18 ohm, 290V
R810	24007489	Cement, 3 ohm, 20W
R811	24568271	Cement, 270 ohm, 7W
R824	24569689	Cement, 6.8 ohm, 10W
R841	24531120	FR, 12 ohm, 1/2W
R899	24005007	Metal-Glazed Resistor, 8.2M ohm, 1W
L462	----------	DY, Supplied with V901
L901	23200276	Coil, Degaussing, TSB-2330BR
T401	23224336	Transformer, Horiz. Drive, TLN1083
T461	23236447	Transformer, Flyback, TFB4115AR
T801	23211891	Line Filter, TRF3164
T803	23217301	Transformer, Converter, TPW3336AR
Q404	A6872801	Transistor, 2SD2253(FA)
Q801	23905084	IC, STR-S6709
Q826	A8643106	Photo Coupler, TLP621(GR)
D801	23316795	Diode, D6SB60L,F05
F470	23144873	Fuse, 1.0A
F801	23144898	Fuse, 3.15A
P801	23372012	Power Cord
V901A	23902891	Socket, CRT, 10P
V901	23312645	Picture Tube, A66EAK252X21

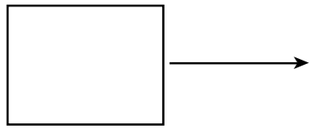
Service Mode General Instructions

1. ENTERING TO SERVICE MODE

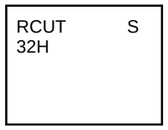
1) Press 🔇 button once on Remote Control.



2) Press 🔇 button again to keep pressing.



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



(Service mode dIsplay)

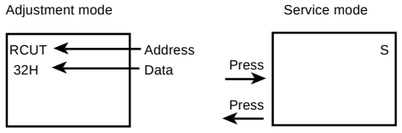
2. SELECTING THE ADJUSTING ITEMS
Every pressing of CHANNEL ▲ button changes the adjustment items in the following order.
(▼ button for reverse order.)

3. 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.

4. NORMAL OPERATION ON THE SERVICE MODE

Press MENU button on TV.

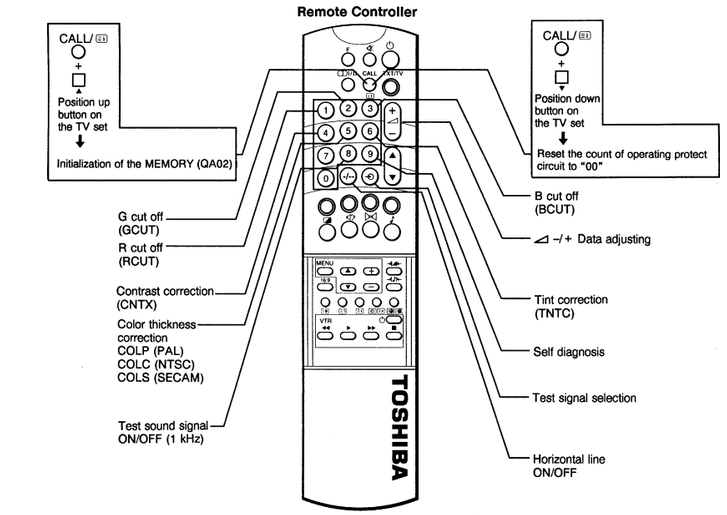


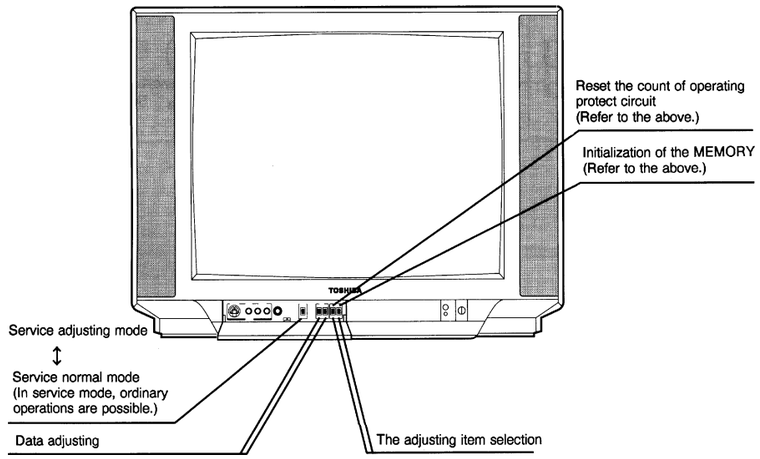
5. EXIT FROM SERVICE MODE

Press POWER button on the remote control to turn off the TV once.

OTHER SERVICE FUNCTION

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





TEST SIGNAL SELECTION

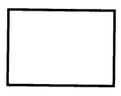
Every pressing of ⊕ button changes the test patterns on screen as described below in SERVICE MODE.

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
Red single colour
Green single colour
Blue single colour
Black single colour
White single colour

Picture



Using method
Purity and White uniformity of CRT
Red single colour.
Stopping G and B output of Q501
Green single colour.
Stopping R and B output of Q501
Blue single colour.
Stopping R and G output of Q501
Black single colour.
Making black signal of approx. 1Vp-p in QA01
White single colour.
Making white signal of approx. 1Vp-p in QA01

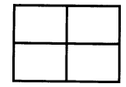
Signals
W/B adjustment

Picture

Using method
White balance adjustment
White .
White balance adjustment/check in light area
Black part.
White balance adjustment/check in dark area.
Making. approx. 1Vp-p signal in QA01.

Signals
Black cross-bar
White cross-bar

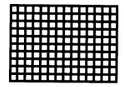
Picture



Using method
Picture position (horizontal, vertical and slant) in CRT adjustment.
Making approx. 1 Vp-p signal in QA01.

Signals
Black cross-hatch
White cross-hatch

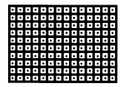
Picture



Using method
Convergence and vertical amplitude adjustment
Making approx. 1 Vp-p signal in QA01.

Signals
Black cross-dot
White cross-dot

Picture



Using method
Convergence adjustment
Making approx. 1Vp-p signal in QA01.

Signals
H signal (Left, right, white)
H signal (Left, right, black)

Picture

Using method
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.

Service Mode Cont'd

ITEM:
Initialisation of QA02 (Memory)

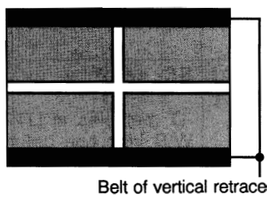
ADJUSTMENT PROCEDURE:
After replacing QA02, the following initialisation is required.
1. Call up the adjustment mode display following the steps 1 and 2.
2. Press the CALL button on the Remote Control and CHANNEL ▲ buttons on the TV set simultaneously. The initialisation of QA02 has been completed.
3. Check the picture carefully. If necessary, adjust any adjustment item.

Perform "AUTOMATIC SEARCH MEMORY"

ITEM: SUB-BRIGHTNESS (Address: BRTC)

Note: Constrict the picture height until the vertical retrace line appears adjusting the address HIT (HEIGHT).

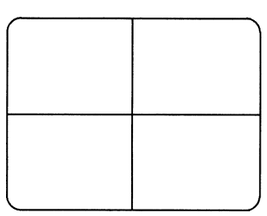
ADJUSTMENT PROCEDURE:
1. Set CONTRAST to "00,, and BRIGHTNESS to "50" by adjusting user controls.
2. Set the TV in service mode to get white cross-bar of inside pattern.
3. Select BRTC (brightness correction), and adjust the ◿ - / + button to reduce the value so that white portion of inside pattern slightly light.
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.



ITEMS:
HORIZONTAL POSITION ADJUSTMENT (HPOS)

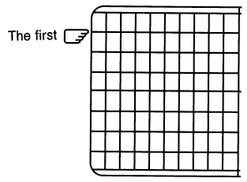
VERTICAL POSITION ADJUSTMENT (VPOS)

ADJUSTMENT PROCEDURE:
1. Set the TV in service mode, and get black or white cross-bar signal with VIDEO button on remote hand unit.
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.



ITEM:
VERTICAL AMPLITUDE ADJUSTMENT (HIT)

ADJUSTMENT PROCEDURE:
1. Set the TV in service mode, and get black or white cross-hatch signal with VIDEO button on remote hand unit.
2. Select HIT (Vertical amplitude) with CHANNEL ▲, ▼ buttons, and adjust vertical amplitude with VOLUME ◿ - / + buttons so that vertical amplitude lacks a little.
3. Adjust vertical amplitude with VOLUME ◿ - / + buttons so that the first bar on cross-hatch signal touches edge of screen.



WHITE BALANCE ADJUSTMENT

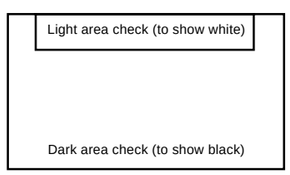
CUTOFF ADJUSTMENT
(RCUT)
(GCUT)
(BCUT)

DRIVE ADJUSTMENT
(GDRV)
(BDRV)

1. Set Contrast to 40, and brightness to +20 by picture control.
2. Set the TV in service mode, and get the inside W/B adjusting signal with VIDEO button.
3. 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.
4. 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.
5. 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.

To correct white balance in light area, select GDRV and BDRV with CHANNEL ▲,▼ buttons to adjust.

To correct white balance in dark area, perform fine adjustment of RCUT, GCUT and BCUT.



SELF DIAGNOSTIC FUNCTION
1) 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.
2) 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 V2 QV01

1) Part number of microcomputer (QA01)
2) Operation number of protecting circuit ----"00" is normal. When indication is other than "00", overcurrent apts to flow, and circuit parts may possibly be damaged.
3) 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.
4) BUS CONT----"OK" is normal.
   When indication shows "Q OOO NG", the device with the number may possibly be damaged.
5) BLOCK
UV : TV reception mode
V1: VIDEO 1 input mode (⊕1)
V2 :VIDEO 2 input mode (⊕2)

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.

Item	Name	Setting(User control)	Input signal	Measurement point	Adjustment procedure	Adjustment standard
[COLP]	SUB COLOUR PAL	Contrast: MAX Bright: CENTER Color: CENTER	Sub-bright signal (PAL)	IC501 #55 (TP501)	1. Select slave address OCH [COLP]. 2. When [COLP] is selected, Y-signal is muted and only color signals are outputted. 3. Adjust amplitude of the upper half of the colour bar output.	1.35V(p-p) ± 0.2V(p-p)
[RCUT] [GCUT] [BCUT] Screen VR	R cut-off G cut-off B cut-off Screen	RCUT 40 Hexa-decimal GCUT 40 Hexa-decimal BCUT 40 Hexa-decimal GDRV 40 Hexa-decimal Select horizontal line mode by pressing -/- - button on the remote control in service mode.		Screen adjustment	1. Set the controls as shown in the left column. 2. Gradually increase the screen VR (T461) until one of R, G or BDRV B line begins to brighten slightly. 3. Determine the position of the screen VR here. 4. Adjust RCUT, GCUT and BCUT, brighten other lines until they begin to light slightly. (Adjust DATA so that the line becomes almost white.) 5. Press -/-- button on the remote control to escape from the horizontal line mode.	
[RCUT] [GCUT] [BCUT] [GDRV] [BDRV]	R cut-off G cut-off B cut-off C drive B drive (White balance)	Contrast: MAX Bright : CENTER Color : CENTER	White, etc.	Screen adjustment	1. This adjustment must be done after adjustment of the above-mentioned cut-off and screen VR's have been completed. 2. Adjust cut-off and drive DATA alternately. 3. Use a checker to adjust brightness by changing modulation factor.	HIGH LIGHT; (103cd/m²) 7195K -0.005uv [BDRV] DARK; (17cd/m²) 7695K ± 0uv

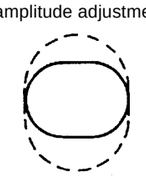
Model name: C5SS (2857DB/3357DB)

Adjustment parts or Bus control item	Input point/ Output point	Adjustment signal	Adjustment conditions and procedures
Horizontal amplitude adjustment (WID) Pin distortion compensation amount adjustment (PARA) Keystone distortion compensation amount adjustment (HOP)	Visual check of picture (Bus control)	WG Philips pattern Do not use the Philips pattern of FRANCESECAM.	1. Conditions: After V. HEIGHT, VERT POSITION and H. CENT have been adjusted, set the controllers as follows: Contrast: MAX Brightness: Center Color: Center 2. Adjustment procedure a. Adjust the horizontal amplitude by the sub address WID. Adjust so that the left and right white flags of Philips pattern disappear at the very limits. b. Make the left and right vertical bars straight by the sub address PARA. c. Compensate the key distortion by the sub address HOP. d. Again, adjust the sub address WID.

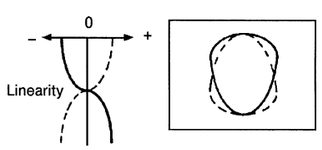
Sub Data Additional Description

Symbol	Description
HPOS	H screen position correction

Symbol	Description
HIT	V amplitude adjustment.

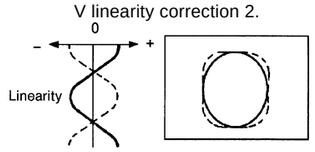


Symbol	Description
LIN	V linearity correction 1.



Linearity balance between top and bottom screen.

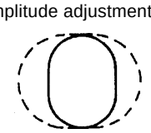
Symbol	Description
VSC	V linearity correction 2.



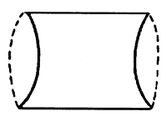
Linearity balance between top/ bottom and center.

Symbol	Description
VPOS VPS	V picture position adjustment

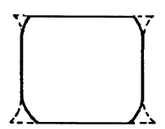
Symbol	Description
VCP	Setting of amount of V amplitude correction against variation of screen brightness.
WID	H amplitude adjustment.



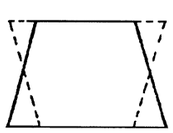
Symbol	Description
PARA	H pin-cushion distortion correction.



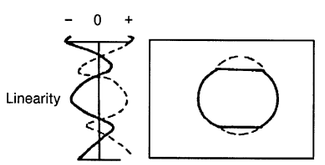
Symbol	Description
CNR	H pin-cushion distortion correction at four corners.



Symbol	Description
TRAP	Pedestal distortion correction.



Symbol	Description
HCP	Setting of amount of H amplitude correction against variation of screen brightness.
VFC	V linearity correction. Linearity balance at 1/4, 3/4 areas from top.



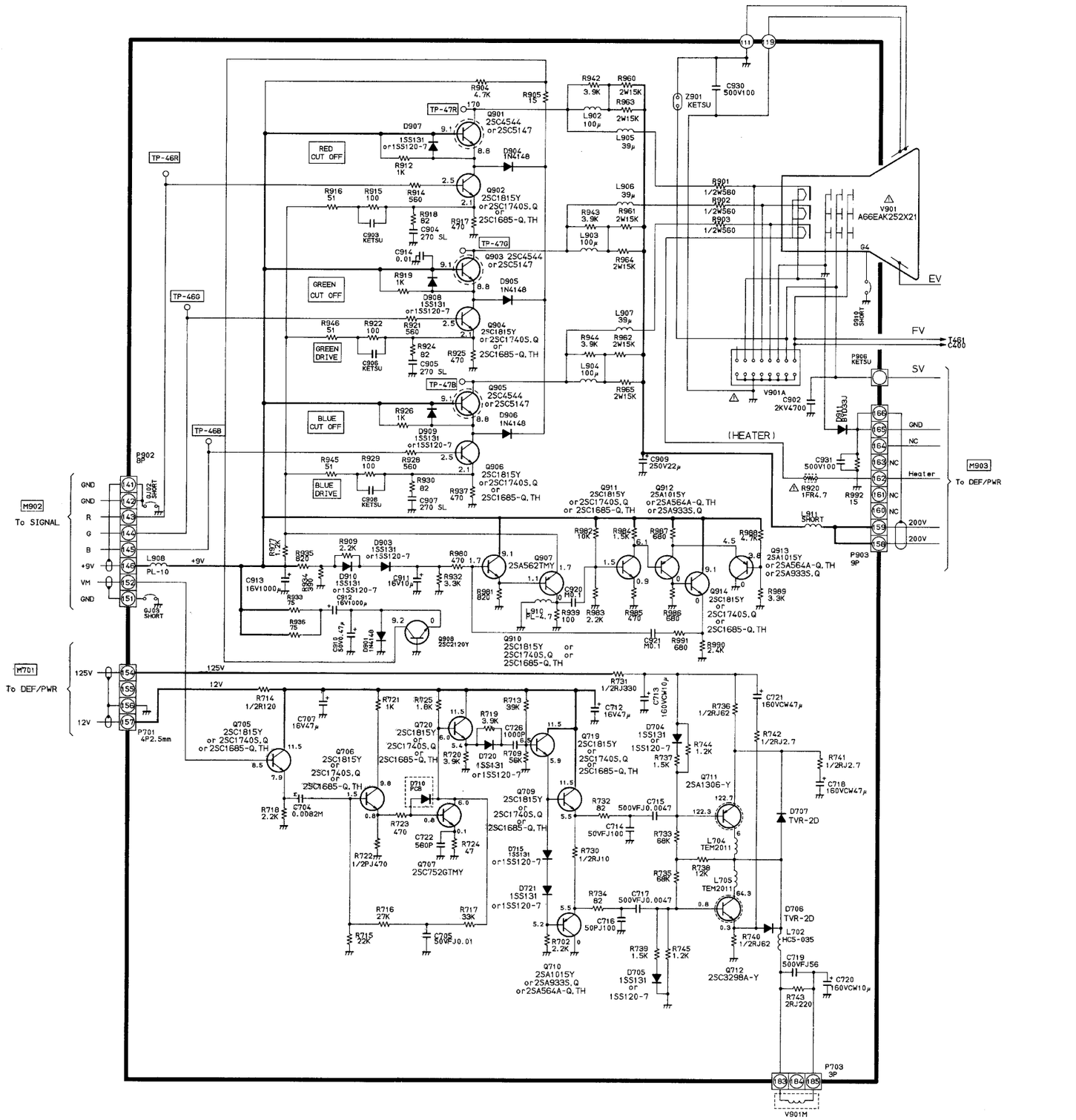
Service Mode Cont'd

MULTI BUS E2PROM ADDRESS, ADJUSTING ADDRESS TABLE

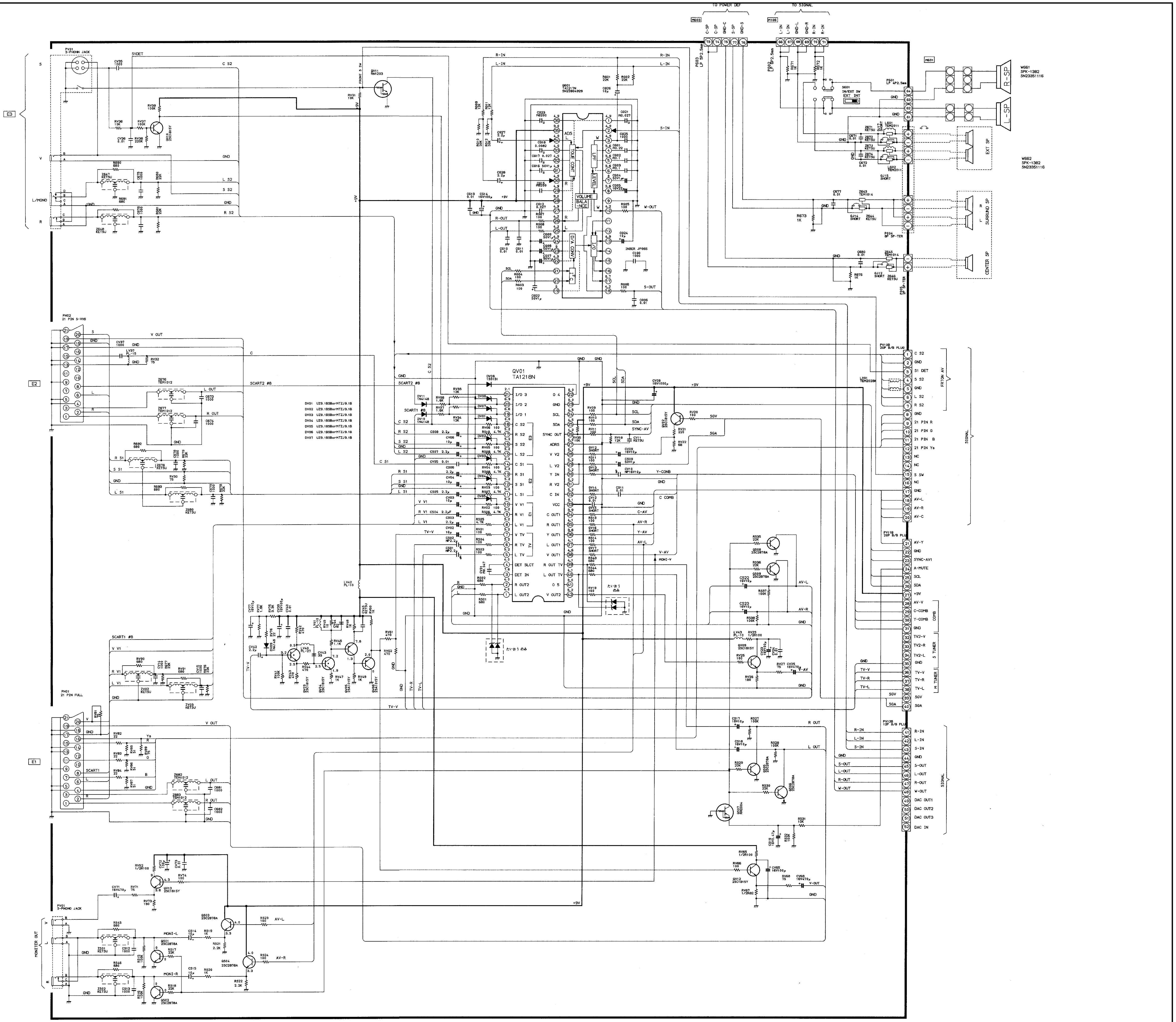
Adjusting method	0A02 memory address	Name of item	Value of Initializing QA02 (Hexa-decimal)	Adjustments
F	03H	RCUT	40H	R OUTOFF (B/W)
	04H	GCUT	40H	G OUTOFF (B/W)
	O5H	BCUT	40H	B OUTOFF (B,W)
	06H	GDRV	40H	G DRIVE
↓	07H	BDRV	40H	B DRIVE
S	08H	CNTX	7FH	SUB CONTRAST MAX (4:3 MODE)
F	09H	BRTC	7FH	SUB BRIGHT CEN
	0AH	COLC	50H	SUB COLOR CEN NTSC
	BH	TNTC	40H	SUB TINT CEN
	0CH	COLP	50H	SUB COLOR CEN PAL
↓	0DH	COLS	50H	SUB COLOR CEN SECAM
S	0EH	SCOL	8FH	SUB COLOR
	0FH	SCNT	7FH	SUB CONTRAST
	25H	VOLS	00H	VOL SCART
	26H	FVOL	00H	FM VOL PRE SCALE
	27H	NVOL	00H	NICAM VOL PRE SCALE
	28H	NICL	00H	NICAM THRESHOLD LEVEL
	29H	NICH	00H	NICAM THRESHOLD LEVEL
	2AH	IDL	00H	IGR THRESHOLD LEVEL
	2BH	IDH	00H	IGR THRESHOLD LEVEL
	20H	EVOL	00H	EXT PRE. VOLUME
	2DH	EMX	FCH	NICAM ON LEVEL
	2EH	EMN	64H	NICAM OFF LEVEL
	2FH	FMA	00H	FM ATTENUATOR LEVEL
↓	30H	STS	00H	STEREO SEPARATION
F	31H	HPOS	15H	50Hz H-POSITION
	32H	VPOS	04H	V-POSITION
	33H	HIT	3EH	HEIGHT
	37H	VLIN	11H	V-LINEARITY
	38H	VSC	0FH	V-S CORRECTION
↓	39H	VPS	0EH	V-SHIFT
F	3AH	VCP	06H	V-COMPENSATION
F	3BH	WID	0FH	PICTURE WIDTH
S	30H	PARA	2AH	E-W PARABOLA
↓	3DH	CNR	0GH	E-W CORNER
	3EH	TRAP	1FH	TRAPEZIUM
	3FH	HCP	02H	H-COMPENSATION
	40H	VFC	0EH	V-F CORRECTION
	C9H	BELL	00H	SECAM BELL FILTER
	CAH	SRY	08H	SECAM R-Y
↓	CBH	SBY	08H	SECAM B-Y

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

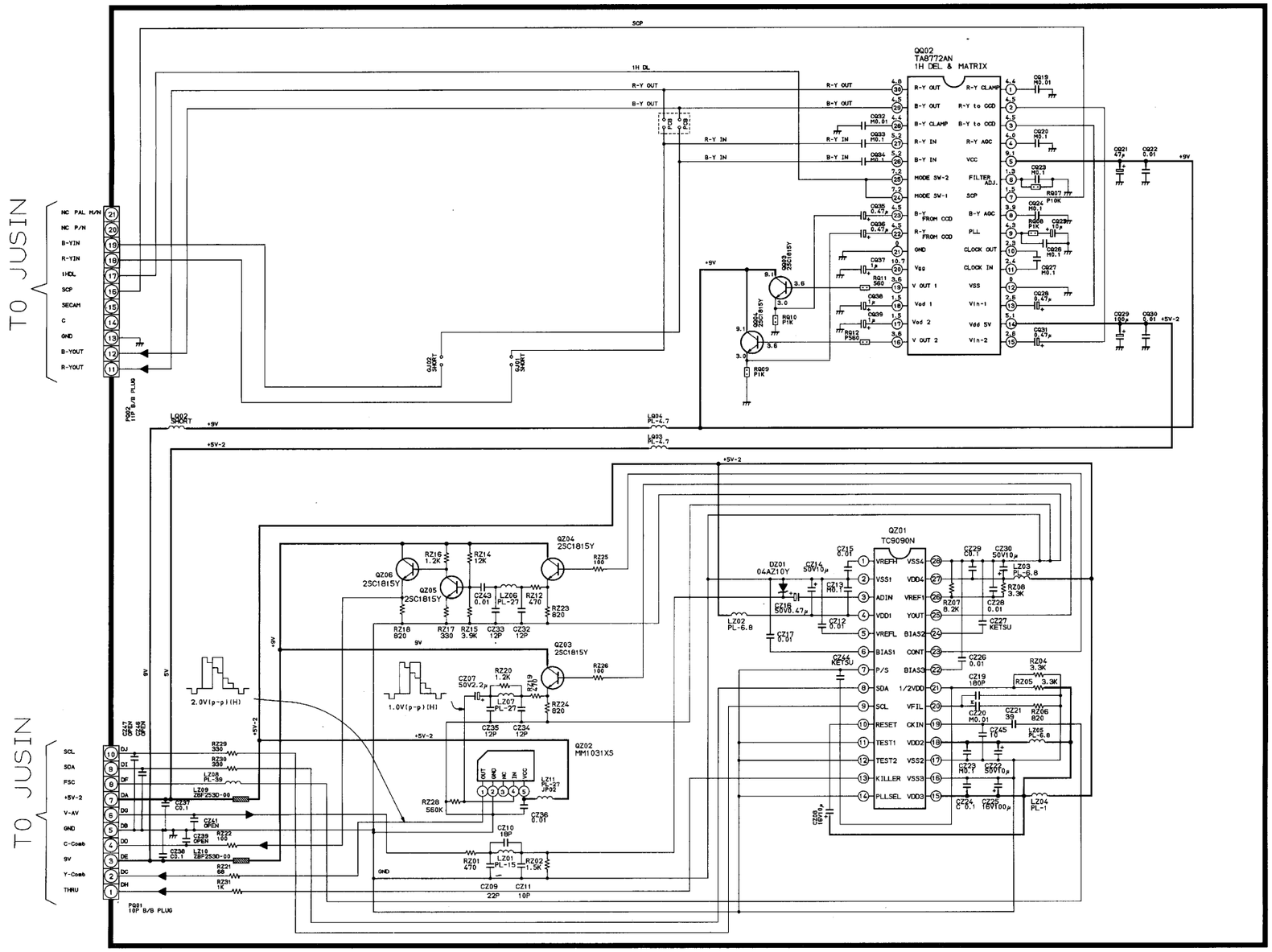
CRT PCB Diagram



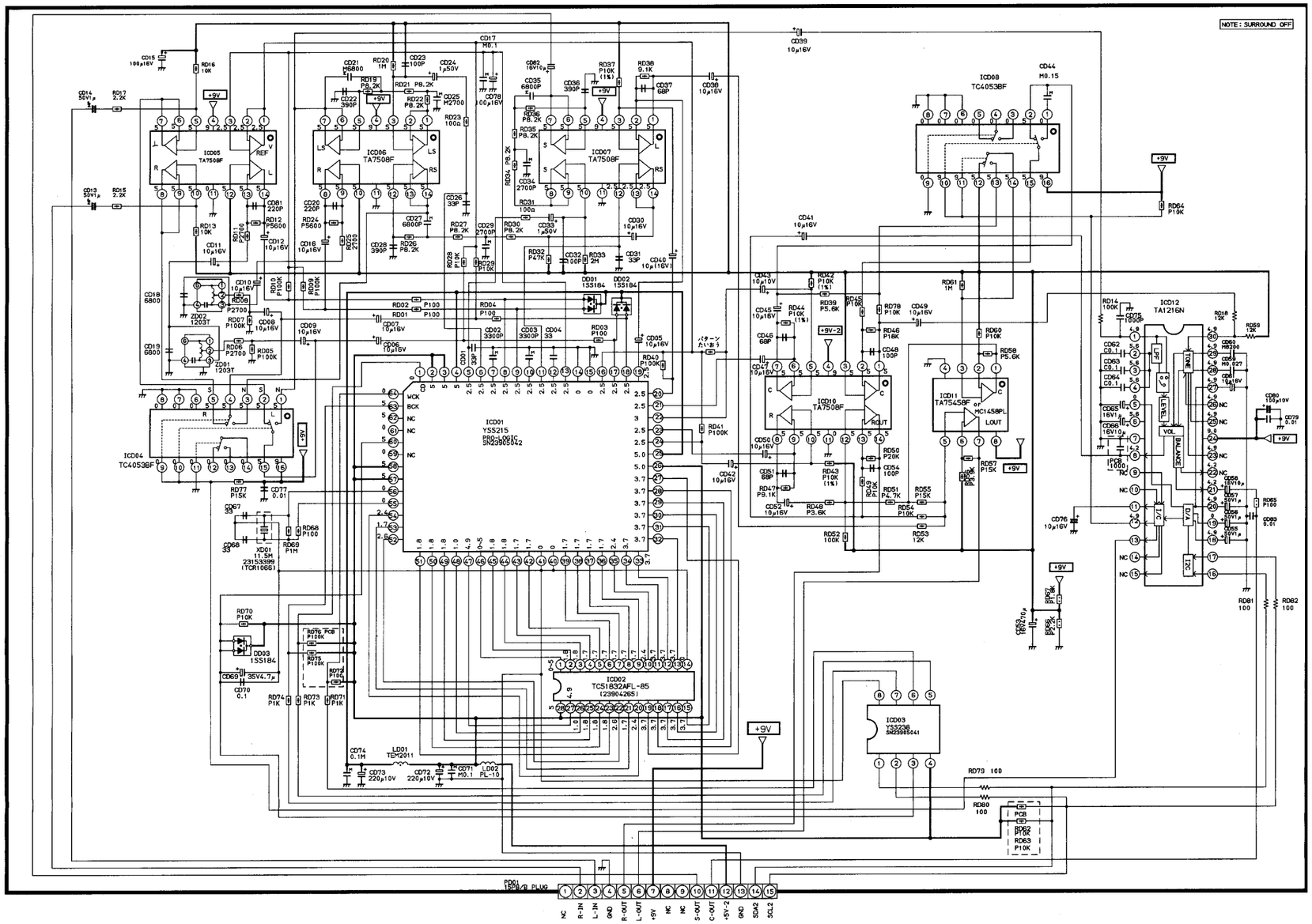
AV PCB Diagram



Comb & Delay PCB Diagram

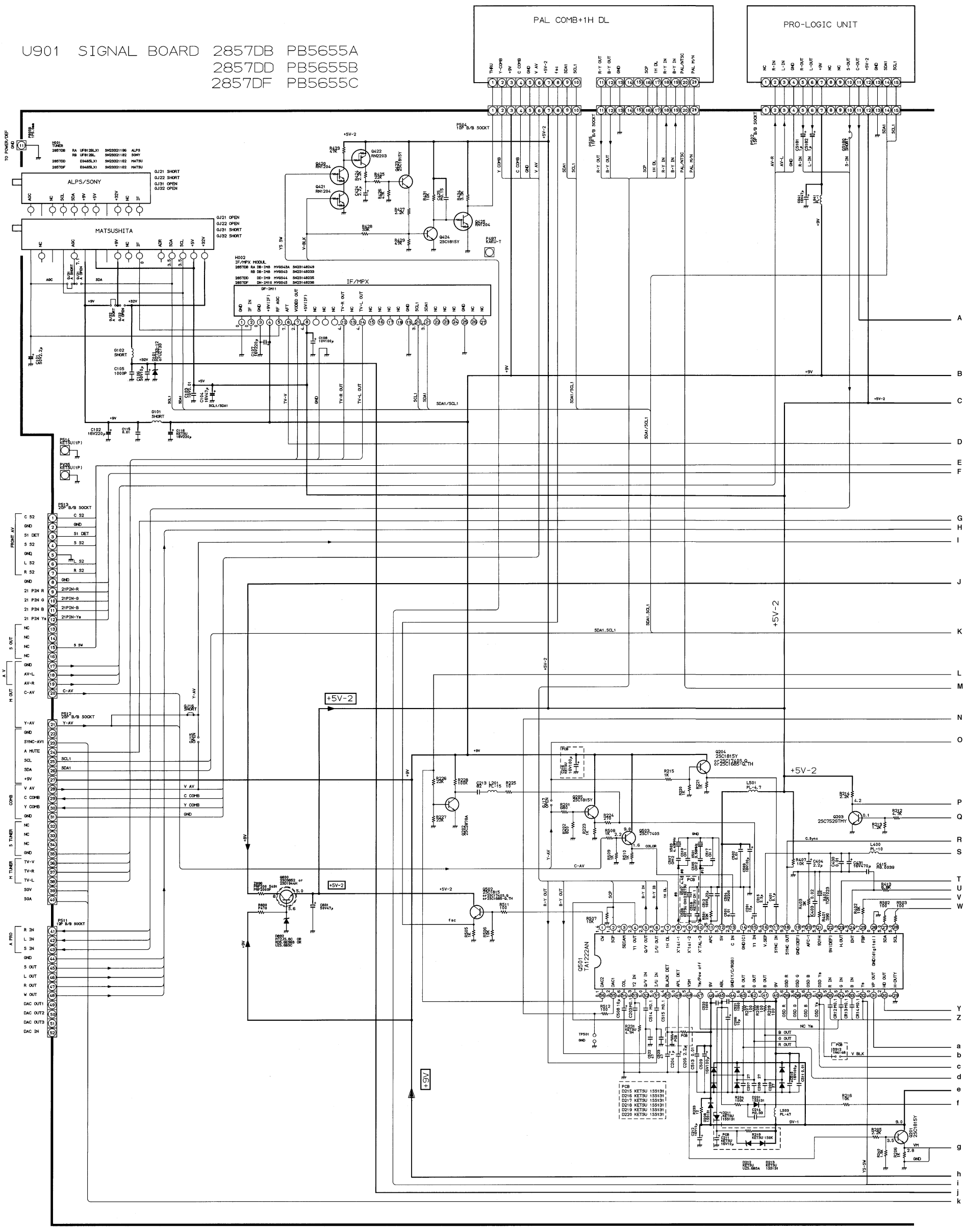


Pro Logic Diagram

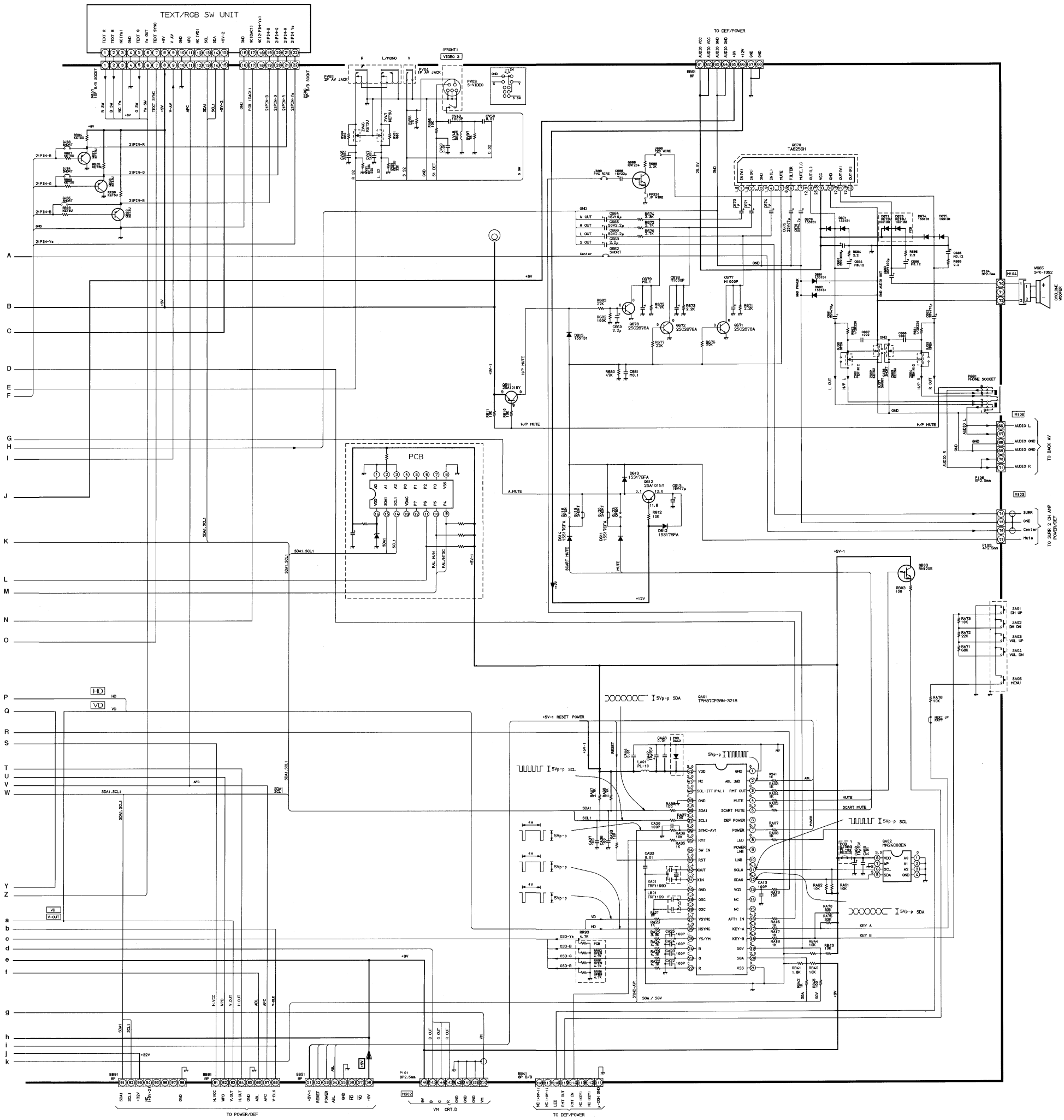


Signal Processing Diagram

U901 SIGNAL BOARD 2857DB PB5655A
2857DD PB5655B
2857DF PB5655C



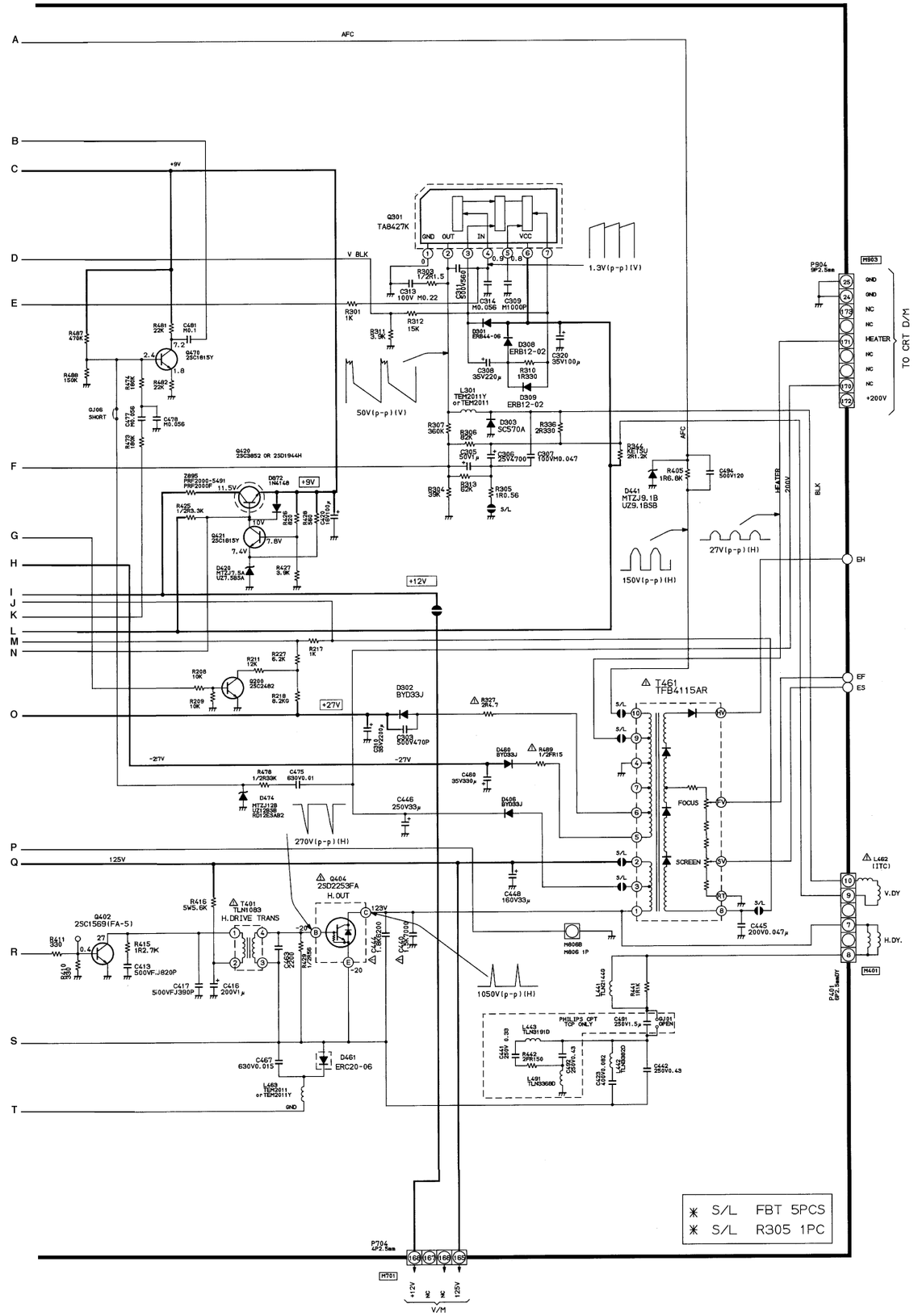
Signal Processing Diagram Cont'd



Power & Deflection Diagram

Continued at 2

Power & Deflection Diagram Cont'd



Text PCB Diagram

U907 TEXT/RGB SW BOARD 2857DB PB5662X
2857DD PB5662X
2857DF PB5662X