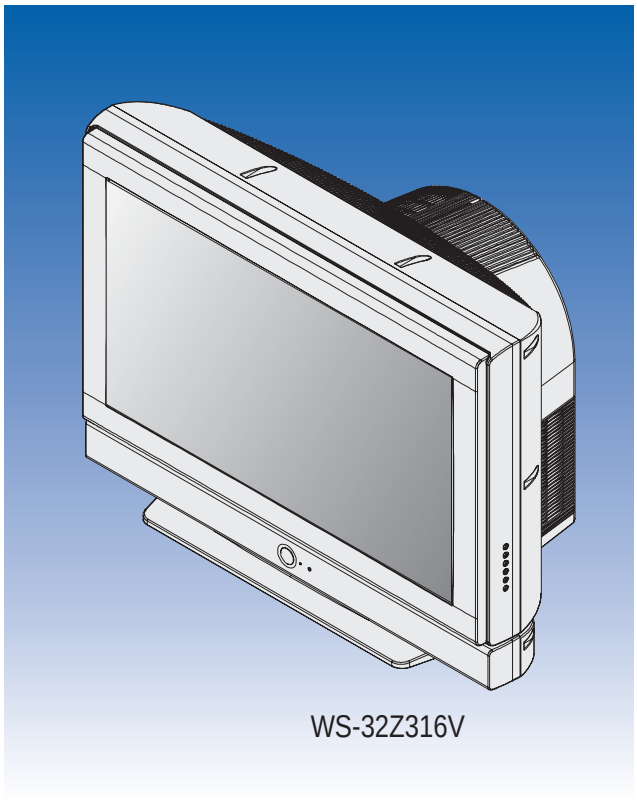
SAMSUNG

COLOR TELEVISION RECEIVER

Chassis : S62B(P) SHINE
Model : WS32Z316VBXXEC

SERVICE Manual

COLOR TELEVISION RECEIVER



WS-32Z316V

FEATURES

- Slimfit (Low Depth) CRT
- DNIe Lite Adopted
- 480P/576P/1080i
- Full 100Hz

ELECTRONICS

Printed in Korea
AA82-02771A

Table of Contents

1. Precaution

To avoid possible damages or electric shocks or exposure to radiation, follow the instructions below with regard to safety, installation, service and ESD.

1-1 Safety Precautions

1. Make sure all protective devices are properly installed including non-metallic handles and compartment covers when installing or re-installing the chassis or chassis assemblies.

2. Make sure that no gaps exist between the cabinets for children to insert their fingers in to prevent children from receiving electric shocks. Gaps mentioned above include ventilation holes of a too great magnitude between the vaccum tube and the cabinet mask, and the improper installation of the rear cabinet.

   Errors may occur when the resistance is below 1.0 MΩ or over 5.2 MΩ.
   In these cases, make sure that the device is repaired before sending it back to the customer.

3. Check for Electricity Leakage (Figure 1-1)
   Warning: Do not use an insulated transformer for checking the leakage. Use only those current leakage testers or mirroring systems that comply with ANSIC 101.1 and the Underwriter Laboratory's specifications (UL1410, 59.7).

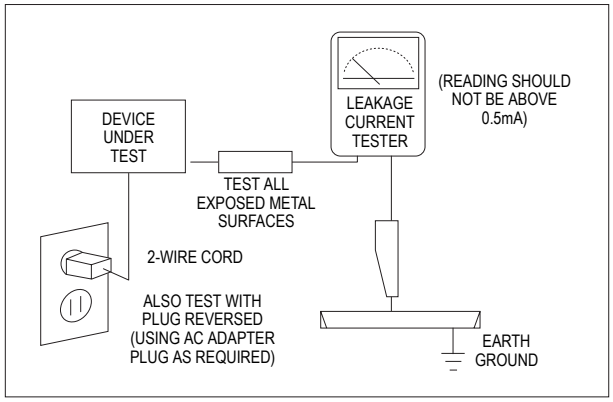


Fig. 1-1 AC Leakage Test

4. A high voltage is maintained within the specified limits using safety parts, calibration and tolerances. When voltage exceeds the specified limits, check each special part.

5. Warning for Engineering Changes:
   Never make any changes or additions to the circuit design or the internal part for this product.
   Ex: Do not add any audio or video accessory connectors. This might cause physical damage. Furthermore, any changes or additions to the original design/engineering will invalidate the warranty.

6. Warning - Hot Chassis:
   Some TV chassis are directly connected to one end of the AC power cord for electrical reasons.
   Without insulated transformers, the product can only be repaired safely when the chassis is connected to the earthed end of the AC power source.

   To make sure the AC power cord is properly connected, follow the instructions below. Use the voltmeter to measure the voltage between the chassis and the earthed ground. If the measurement is over 1.0V, unplug the AC power cord and change the polarity before re-inserting it. Measure the voltage between the chassis and the ground again.

7. Some TV chassis are shipped with an additional secondary grounding system. The secondary system is adjacent to the AC power line. These two grounding systems are separated in the circuit using an unbreakable/unchangeable insulation material.

8. When any parts, material or wiring appear overheated or damaged, replace them with new regular ones immediately. When any damage or overheating is detected, correct this immediately and make a regular check of possible errors.

9. Check for the original shape of the lead, especially that of the antenna wiring, any sharp edges, the AC power and the high voltage power. Carefully check if the wiring is too tight, incorrectly placed or loose. Never change the space between the part and the printed circuit board. Check the AC power cord for possible damages. Keep the part or the lead away from any heat-emitting materials.

10. Safety Indication:
    Some electrical circuits or device related materials require special attention to their safety features, which cannot be viewed by the naked eye. If an original part is replaced with another irregular one, the safety or protective features will be lost even if the new one has a higher voltage or more watts.

    Critical safety parts should be bracketed with (⚠ ⚠). Use only regular parts for replacements (in particular, flame resistance and dielectric strength specifications). Irregular parts or materials may cause electric shock or fire.

1-2 Servicing Precautions

Warning 1: First carefully read the "Safety Instruction" in this service manual.
When there is a conflict between the service and the safety instructions, follow the safety instruction at all times.

Warning 2: Any electrolytic capacitor with the wrong polarity will explode.

1. The service instructions are printed on the cabinet, and should be followed by any service personnel.

2. Make sure to unplug the AC power cord from the power source before starting any repairs.
   (a) Remove or re-install parts or assemblies.
   (b) Disconnect the electric plug or connector, if any.
   (c) Connect the test part in parallel with the electrolytic capacitor.

3. Some parts are placed at a higher position than the printed board. Insulated tubes or tapes are used for this purpose. The internal wiring is clamped using buckles to avoid contact with heat emitting parts. These parts are installed back to their original position.

4. After the repair, make sure to check if the screws, parts or cables are properly installed. Make sure no damage is caused to the repaired part and its surroundings.

5. Check for insulation between the blade of the AC plug and that of any conductive materials (i.e. the metal panel, input terminal, earphone jack, etc).

6. Insulation Check Process: Unplug the power cord from the AC source and turn the switch on. Connect the insulating resistance meter (500v) to the AC plug blade.

   The insulating resistance between the blade of the AC plug and that of the conductive material should be more than 1 MΩ.

7. Any B+ interlock should not be damaged.
   If the metal heat sink is not properly installed, no connection to the AC power should be made.

8. Make sure the grounding lead of the tester is connected to the chassis ground before connecting to the positive lead. The ground lead of the tester should be removed last.

9. Beware of risks of any current leakage coming into contact with the high-capacity capacitor.

10. The sharp edges of the metal material may cause physical damage, so ensure wearing protective gloves during the repair.

1-3 Static Electricity Precautions

1. Some semi-conductive ("solid state") devices are vulnerable to static electricity. These devices are known as ESD. ESD includes the integrated circuit and the field effect transistor. To avoid any materials damage from electrostatic shock, follow the instructions described below.

2. Remove any static electricity from your body by connecting the earth ground before handling any semi-conductive parts or ass'ys. Alternatively, wear a dischargeable wrist-belt.
   (Make sure to remove any static electricity before connecting the power source - this is a safety instruction for avoiding electric shock)

3. Remove the ESD ass'y and place it on a conductive surface such as aluminum foil to prevent accumulating static electricity.

4. Do not use any Freon-based chemicals.
   Such chemicals will generate static electricity that causes damage to the ESD.

5. Use only grounded-tip irons for soldering purposes.

6. Use only anti-static solder removal devices.
   Most solder removal devices do not support an anti-static feature. A solder removal device without an anti-static feature can store enough static electricity to cause damage to the ESD.

7. Do not remove the ESD from the protective box until the replacement is ready. Most ESD replacements are covered with lead, which will cause a short to the entire unit due to the conductive foam, aluminum foil or other conductive materials.

8. Remove the protective material from the ESD replacement lead immediately after connecting it to the chassis or circuit ass'y.

9. Take extreme caution in handling any uncovered ESD replacements. Actions such as brushing clothes or lifting your leg from the carpet floor can generate enough static electricity to damage the ESD.

CAUTION

These servicing instructions are for use by qualified service personnel only.
To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

1-4 Installation Precautions

1. For safety reasons, more than two people are required for carrying the product.

2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.

3. Do not place the product in areas with poor ventilation such as a bookshelf or closet. The increased internal temperature may cause fire.

4. Bend the external antenna cable when connecting it to the product. This is a measure to protect it from being exposed to moisture. Otherwise, it may cause a fire or electric shock.

5. Make sure to turn the power off and unplug the power cord from the outlet before repositioning the product. Also check the antenna cable or the external connectors if they are fully unplugged. Damage to the cord may cause fire or electric shock.

6. Keep the antenna far away from any high-voltage cables and install it firmly. Contact with the high-voltage cable or the antenna falling over may cause fire or electric shock.

7. Check the basics of the screen test.
   - Image position/size, Tilt adjustment

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2. Product Specification

2-1 Product Features

Block	Specfication	EU	East asia/CIS	Remark
CRT	- Slimmer than existing CRTs Existing: 495mm → Slimfit : 365mm	Vixlim CRT	Vixlim CRT	
RF Part	- Same as for the Predator(S61A) Model	TMQZ2-402A, PAL-CW TMQZ2-408A, PAL-CW	TMQZ2-401A, PAL-CS TMQZ2-410A, PAL-CS	
Power	- Input Voltage : AC230V (Europe) - Stand-By : Less than 3W	STR-X6750F	STR-X6750F	
Video	- DNIe Lite - PAL/SECAM/NT4.43 - 4H Comb Filter - Interlace 100Hz - 480i, 576i, 480p, 576p, 1080i/50Hz	SDP41 MST9883CR VSP9407-C4 CXA2165Q	SDP41 MST9883CR VSP9407-C4 CXA2165Q	
Audio	- Output : 10W x 2 - Function : Nicam, Virtual Dolby	MSP3411G, TDA7297	MSP3411G, TDA7297	
Cabinet	- New Front and Back Cabinets - 184mm of saved space compared to the existing model A20: 580mm → Z30: 396mm	Z30 (Core) Design Applied FPTV Looking Design Black Bezel 2Tone Color Design	Z30 (Core) Design Applied FPTV Looking Design Black Bezel 2Tone Color Design	

■ Core Parts Functions

- VSP9407 : RF-CVBS, EXT-CVBS, FRONT Y,C,SCART1 R G B, PIP-CVBS Input and Video Signal Processing.
- CXA2151 : 1080i /50Hz Identy
- BA7657F : Component (Y, Pb, Pr) 1, 2 Switching
- MST9883A : 480i, 576i, 480p, 576p, 1080i/50Hz
- SPD41(DNIe Lite) : Provides a near natural color visual quality through noise reduction and a visual quality enhancement algorithm.
- MSP3411G : Provides SiF, analog audio and digital audio signal input and decoding functions.
- CXA2165Q : H-out, VD-P, VD-N, RGB out, Video and Deflection Signal Processing.
- SDA5550M : ⅡC-Comunication, Master Control Micom
- M27W201 : ROM MICOM

2-2 Key Features

Model	WS32Z308PAXXEU (Europe)	WS32Z30HEAXSAP (Southeast Asia)	WS32Z30HEAXBWT (CIS)
Voltage	AC230V	100~240V	160~300V
Frequency of Operation	50/60 Hz	50/60 Hz	50/60 Hz
Dimensions(mm)	934X399X568	934X399X568	934X399X568
Weight	54.5Kg	54.5Kg	54.5Kg

■ H/W Configuration
- Slimfit (Low Depth) CRT adopted
- DNIe adopted: Provides a high visual quality.
- 480i, 576i, 480p, 576p, 1080i/50Hz
- Multi System
- Interlace 100Hz
- Multi PIP

■ S/W Configuration
- 200 Page TTX(EAST, ASIA, CIS), 10page TTX(EAST ASIA, CIS)
- Multi System PAL/SECAM/NTSC4.43/NTSC3.58
- ATS, Auto wide, CM Label, Pre channel, On/off timer
- New LTI OSD

■ Picture
- Enhance : DNIe-Lite(6X) (Digital Natural Image Engine)
- System : PAL/SECAM/NTSC4.43/NTSC3.58
- Interlace 100Hz (Progressive, Natural, Digital)
- Black Level expantion, CTI, VM, LTI
- AKB(Auto kinetic Bias)
- Still picture, Digital Noise reduction
- Comb Filter : 4H Comb filter (option)
- Panorama : Wide Model

■ Sound
- Sound System : Virtual Dolby Digital, Nicam Stereo
- Output : 10W+10W
- AVL, Melody, Auto Stereo, Auto Mute, Equalizer

■ Feature
- Component Interface(480i, 576i, 480p, 576p, 1080i/50Hz Y/Pb/Pr)
- Picture Size : 16:9/Panorama/Zoom1/Zoom2/4:3
- Auto Program
- Sleep Timer : 180 Min.
- Clock
- Zoom, Previous channel, White Screen, Color Tone
- Multi PIP

■ In/Out Terminals
- Side : 1 CVBS Input, 1 S-VHS Input
- Rear
  - ∗EU, CIS : 42p SCART Input/Output (SCART1 RGB Input)
    Componnent1 input : 480i/576i/480p/576p/1080i(50Hz)
    Audio Output
  - *EAST-ASIA : 9p RCA Input/Output (AV OUT, AV IN1, AV IN2)
    Componnent1 input : 480i/ 576i/ 480p/ 576p/ 1080i(50Hz)
    Componnent2 input : 480i/ 576i/ 480p/ 576p/ 1080i(50Hz)

■ Remocon
- Universal : TM76 (DNIe TOGGLE KEY)

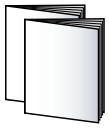
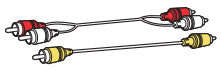
■ Power Supply
- AC230 50Hz/60Hz (Europe)
- AC100-240V 50Hz/60Hz (East Asia)
- AC160-300 50Hz/60Hz (CIS)

■ Power Comsumption
- Standy-by : 3W
- Max Power : 200W / 230W

2-3 Specifications Analysis

Model		WS32A108PGX	WS32A208PYX	WS32Z308PAX (Europe)	WS32Z30HEAX (EAST-ASIA/CIS)
Chassis		K55A	S61A	S62A	S62A
Design					
Basic	Product Type	FLAT CRT	FLAT CRT	FLAT CRT	FLAT CRT
	Digital Display			1080i(50Hz)/576p/480p	1080i(50Hz)/576p/480p
	Screen Size	32	32	32	32
	Aspect Ratio	16:09	16:09	16:09	16:09
Visual Quality	Progressive Scan	○	○	○	○
	Digital Comb Filter	4H-COMB	4H-COMB	4H-LINE	4H-LINE
	Screen Pitch	0.68(HI FINE)	0.68(HI FINE)	0.73(HI FINE)	0.73(HI FINE)
	Digital Noise Reduction	○	○	○	○
	Auto Kinetic Bias (AKB)	○	○	○	○
	Visual Quality Enhancement	DNIe	DNIe	DNIe Lite	DNIe Lite
	3:2 Pull Down Support	○	○	○	○
Audio	Bass/Treble/Balance	×	×	×	×
	Equalizer	5 Band	5 Band	5 Band	5 Band
	Automatic Volume Level (AVL)	○	○	○	○
	Surround	Virtual-Dolby	Virtual-Dolby	Virtual-Dolby	Virtual-Dolby
	Speaker System	SEMI-TINT	SEMI-TINT	Direct	Direct
	Speaker Output	15W +15W	15W +15W	10W +10W	10W +10W
Function	Dual Screen function	○	○	○	○
	Double Screen	○	○	○	○
	TTX	200Page	200Page	200Page	10Page
	Still Picture	○	○	○	○
	Auto Jack Recognition	×	×	×	×
Ports	Antenna In	Rear:1	Rear:1	Rear:1	Rear:1
	External In	Rear:3, Side:1	Rear:3, Side:1	Rear:3, Side:1	Rear:3, Side:1/ Rear:4, Side:1
	S-Video	Rear:1, Side:1	Rear:1, Side:1	Rear:1, Side:1	Rear:1, Side:1
	Digital Signal In (Y/Pb/Pr)	Rear:2	Rear:2	Rear:2	Rear:2
	PC	×	×	×	×
	DVI	×	×	×	×
	HDMI	×	×	×	×
	Digital Audio Out	○	○	○	○
	Video Out/Audio Out	Rear:1	Rear:1	Rear:1	Rear:1

2-4 Accessories

Accessories		Item	Item code	Remark
Supplied Accessories		Remote Control AAA Alkaline Battery (2)	AA59-00357C 4301-000121	Samsung Service center
		Owner's Instructions Safety Guide Manual	AA68-03554A AA68-03242B	
		Warranty Card Registration Card	BN68-00514B AA68-003575A	
Accessories that can be purchased additionally		Video Cable / Audio Cable	-	Internal shopping mall
		Antenna Cable	-	
		Component Cable	-	

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3. Alignment & Adjustment

3-1 Service Instruction

1. General Adjustment :
   In general, a color TV can provide ideal visual quality by adjusting the basic settings such as the vertical size, horizontal size, focus, etc.
   Display a black and white picture on the screen to check if the picture is clearly displayed.
   If there are some 'spotted' points on the screen when displaying a black and white picture, degauss the screen using the degauss coil. If the spotted points remain, re-adjust the purity and the convergence. This completes the basic performance examination.

   ⚠ Notice.
   - ■ These adjustments and the check list are only applied to S62A chassis-applied models.
   - ■ Only use 230V for the measurement set. It is recommended using an insulation transformer when supplying power to the set so as to prevent shock to the set or to yourself.
   - ■ These adjustment specifications have been created on the basis of the domestic S62A chassis-applied remote control model. Some of the contents may be changed subject to the sales location and the product specifications.

2. When replacing the System Board :
   Since the software is loaded to the flash memory of the system board, check the version of the software after replacing the board.
   To check the version of the software, Enter service mode press the key on the remote control according to the following seguenu.(in stand-by status) Info→Menu→Mute→Power→ON
   The software information will then be displayed below the OS D menu.
   The notation of the software information : For example, T_OZPEU_1000 refers to
   "OZ BASIC MODEL Europe. ver.1000".
   Since the settings including the Channel information, Deflection, etc. are saved to the nvRAM, reconfigure these settings when replacing the System Board.

3. When replacing the Deflection Board :
   Tilt adjustment, focus adjustment, screen voltage setting and W/B adjustment are all required.

4. When replacing the Power Board : No adjustments required.

5. When replacing the CRT Ass'y : No adjustments required.

6. When replacing the front panel master power switch : No adjustments required.

7. When replacing the Side AV : No adjustments required.

8. When replacing the control switch : No adjustments required.

3-2 How to Access Service Mode

1. To enter Service Mode, press the keys on the remote control according to the following sequence. (in Stand-by status)

   Info → Menu → Mute → Power On

   ※ When failing to enter Service Mode, repeat the procedure above.

2. The initial screen of Service Mode.

```
Service/ T-OZPEU-XXXX
Deflection
480i/576p Defle off
1080i Defle off
Video Adjust 1
Video Adjust 2
Video Adjust 3
Video Adjust 4
Video Adjust 5
Video Adjust 6
VGA Video Adjust
DTV Video Adjust
Video Adjust DNIe
DNIe Enhencement
YC Delay
EEPROM
Option (XX XX XX)
ROM Checksum (0000)
Reset / XX-XX-XX
```

3. Functions of the Keys within Service Mode

MENU	Show all menus
▲ / ▼	Move the cursor to select an item.
◀ / ▶	Adjust the selected configuration value

3-3 Factory Data

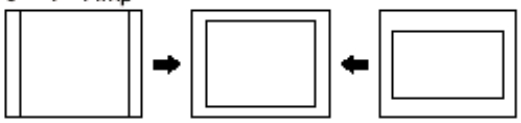
1. Deflection(PAL)

No	Item	Range	WS32Z308P (EU)	WS32Z30HE (EAST-ASIA)	WS32Z30HE (CIS)	Remark
0	V Amp	0~63	42	42	42	Adjust
1	V Shift	0~63	23	23	23	Adjust
2	H EW	0~63	45	45	45	Adjust
3	H Shift	0~63	37	37	37	Adjust
4	V Linearity	0~15	6	6	6	FIX
5	Upper Linearity	0~15	4	4	4	FIX
6	Lower Linearity	0~15	0	0	0	FIX
7	V SC	0~15	6	6	6	FIX
8	H Parabola	0~63	47	47	47	Adjust
9	Upper Corner	0~63	33	33	33	Adjust
10	Lower Corner	0~63	39	39	39	Adjust
11	H Trapezium	0~63	22	22	22	Adjust
12	Bow	0~63	34	34	34	Adjust
13	Angle	0~63	28	28	28	Adjust
14	V Position	0~63	35	35	35	FIX
15	CXA 2151 Sub01	0~255	68	68	68	FIX
16	CXA 2151 Sub01	0~255	1	1	1	FIX
17	UP-UCG (Up Corner Semi Control)	0~3	0	0	0	FIX
18	LO-UCG (Low Corner Semi Control)	0~3	0	0	0	FIX
19	UP-UCP (Up Corner posiotion Control)	0~3	0	0	0	FIX
20	LO-UCP (Low Corner posiotion Control)	0~3	0	0	0	FIX

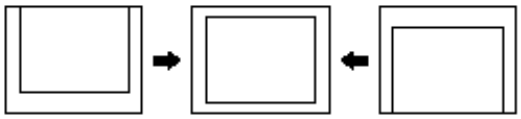
2. Deflection(NTSC)

No	Item	Range	WS32Z308P (EU)	WS32Z30HE (EAST-ASIA)	WS32Z30HE (CIS)	Remark
0	V Amp	0~63	-1	-1	-1	Adjust
1	V Shift	0~63	-2	-2	-2	Adjust
2	H EW	0~63	5	5	5	Adjust
3	H Shift	0~63	8	8	8	Adjust
4	V Linearity	0~15	-2	-2	-2	Adjust
5	Upper Linearity	0~15	-4	-4	-4	FIX
6	Lower Linearity	0~15	1	1	1	FIX
7	V SC	0~15	0	0	0	FIX
8	H Parabola	0~63	2	2	2	Adjust
9	Upper Corner	0~63	2	2	2	Adjust
10	Lower Corner	0~63	-1	-1	-1	Adjust
11	H Trapezium	0~63	2	2	2	Adjust
12	Bow	0~63	2	2	2	Adjust
13	Angle	0~63	2	2	2	Adjust
14	V Position	0~63	0	0	0	FIX
15	CXA 2151 Sub01	0~255	68	68	68	FIX
16	CXA 2151 Sub01	0~255	1	1	1	FIX
17	UP-UCG (Up Corner Semi Control)	0~3	0	0	0	FIX
18	LO-UCG (Low Corner Semi Control)	0~3	0	0	0	FIX
19	UP-UCP (Up Corner posiotion Control)	0~3	0	0	0	FIX
20	LO-UCP (Low Corner posiotion Control)	0~3	0	0	0	FIX

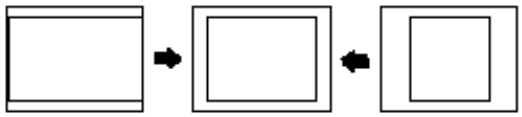
0 V - Amp



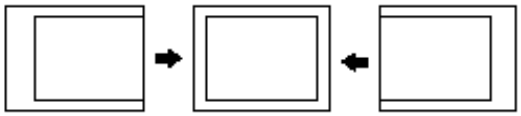
1 V-Shift



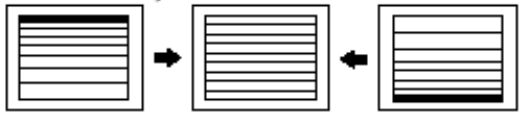
2 H-EW



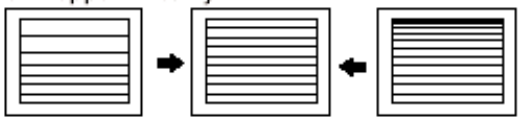
3 H-Shift



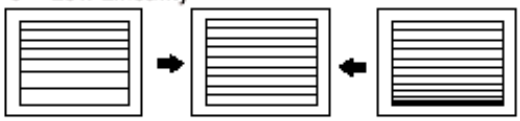
4 V-Linearity



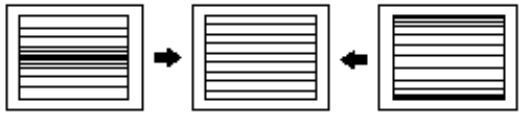
5 Upper Linearity



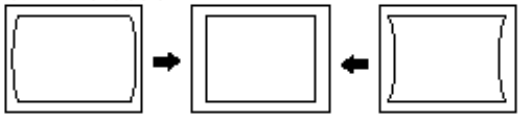
6 Low Linearity



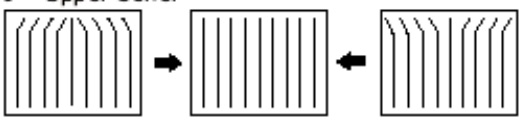
7 V SC



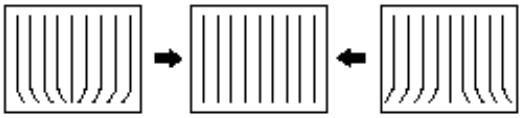
8 H-Parabola



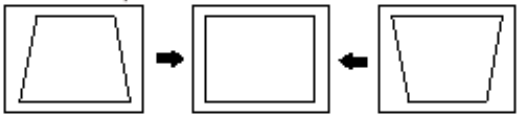
9 Upper Coner



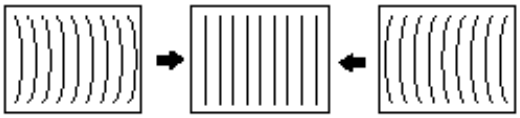
10 Low Coner



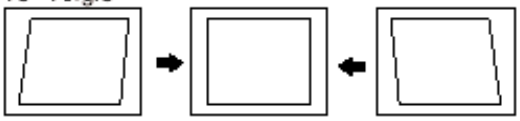
11 H- Trapezuim



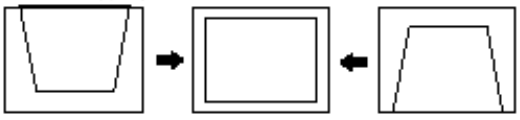
12 Bow



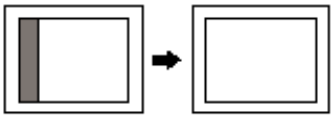
13 Angle



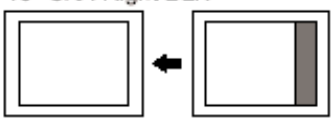
14 V Position



15 CXA Left BLK



16 CXA Right BLK



3. 480P DEFLECTION OFFSET

No	Item	Range	WS32Z308P (EU)	WS32Z30HE (EAST-ASIA)	WS32Z30HE (CIS)	Remark
0	V Amp	0~63	-3	-3	-3	Adjust
1	V Shift	0~63	-1	-1	-1	Adjust
2	H EW	0~63	2	2	2	Adjust
3	H Shift	0~63	-2	-2	-2	Adjust
4	V Linearity	0~15	-2	-2	-2	Adjust
5	Upper Linearity	0~15	-3	-3	-3	FIX
6	Lower Linearity	0~15	0	0	0	FIX
7	V SC	0~15	0	0	0	FIX
8	H Parabola	0~63	-1	-1	-1	Adjust
9	Upper Corner	0~63	2	2	2	Adjust
10	Lower Corner	0~63	-2	-2	-2	Adjust
11	H Trapezium	0~63	9	9	9	Adjust
12	Bow	0~63	0	0	0	Adjust
13	Angle	0~63	0	0	0	Adjust
14	V Position	0~63	0	0	0	FIX
15	CXA 2151 Sub01	0~255	232	232	232	FIX
16	CXA 2151 Sub01	0~255	97	97	97	FIX
17	UP-UCG (Up Corner Semi Control)	0~3	0	0	0	FIX
18	LO-UCG (Low Corner Semi Control)	0~3	0	0	0	FIX
19	UP-UCP (Up Corner posiotion Control)	0~3	0	0	0	FIX
20	LO-UCP (Low Corner posiotion Control)	0~3	0	0	0	FIX

4. 576P DEFLECTION OFFSET

No	Item	Range	WS32Z308P (EU)	WS32Z30HE (EAST-ASIA)	WS32Z30HE (CIS)	Remark
0	V Amp	0~63	1	1	1	Adjust
1	V Shift	0~63	-3	-3	-3	Adjust
2	H EW	0~63	-1	-1	-1	Adjust
3	H Shift	0~63	-1	-1	-1	Adjust
4	V Linearity	0~15	2	2	2	Adjust
5	Upper Linearity	0~15	-1	-1	-1	FIX
6	Lower Linearity	0~15	-1	-1	-1	FIX
7	V SC	0~15	0	0	0	FIX
8	H Parabola	0~63	-3	-3	-3	Adjust
9	Upper Corner	0~63	0	0	0	Adjust
10	Lower Corner	0~63	-1	-1	-1	Adjust
11	H Trapezium	0~63	5	5	5	Adjust
12	Bow	0~63	2	2	2	Adjust
13	Angle	0~63	2	2	2	Adjust
14	V Position	0~63	0	0	0	FIX
15	CXA 2151 Sub01	0~255	232	232	232	FIX
16	CXA 2151 Sub01	0~255	97	97	97	FIX
17	UP-UCG (Up Corner Semi Control)	0~3	0	0	0	FIX
18	LO-UCG (Low Corner Semi Control)	0~3	0	0	0	FIX
19	UP-UCP (Up Corner posiotion Control)	0~3	0	0	0	FIX
20	LO-UCP (Low Corner posiotion Control)	0~3	0	0	0	FIX

5. 1080I DEFLECTION OFFECT

No	Item	Range	WS32Z308P (EU)	WS32Z30HE (EAST-ASIA)	WS32Z30HE (CIS)	Remark
0	V Amp	0~63	8	8	8	Adjust
1	V Shift	0~63	-2	-2	-2	Adjust
2	H EW	0~63	-35	-35	-35	Adjust
3	H Shift	0~63	3	3	3	Adjust
4	V Linearity	0~15	0	0	0	Adjust
5	Upper Linearity	0~15	0	0	0	FIX
6	Lower Linearity	0~15	0	0	0	FIX
7	V SC	0~15	-3	-3	-3	FIX
8	H Parabola	0~63	-20	-20	-20	Adjust
9	Upper Corner	0~63	2	2	2	Adjust
10	Lower Corner	0~63	-2	-2	-2	Adjust
11	H Trapezium	0~63	5	5	5	Adjust
12	Bow	0~63	-2	-2	-2	Adjust
13	Angle	0~63	1	1	1	Adjust
14	V Position	0~63	0	0	0	FIX
15	CXA 2151 Sub01	0~255	196	196	196	FIX
16	CXA 2151 Sub01	0~255	97	97	97	FIX
17	UP-UCG (Up Corner Semi Control)	0~3	0	0	0	FIX
18	LO-UCG (Low Corner Semi Control)	0~3	0	0	0	FIX
19	UP-UCP (Up Corner posiotion Control)	0~3	0	0	0	FIX
20	LO-UCP (Low Corner posiotion Control)	0~3	0	0	0	FIX

6. VIDEO ADJUST 1

No	Item	Range	WS32Z308P (EU)	WS32Z30HE (EAST-ASIA)	WS32Z30HE (CIS)	Remark
0	R CutOff	0~63	35	35	35	Adjust
1	G CutOff	0~63	32	32	32	FIX
2	B CutOff	0~63	33	33	33	Adjust
3	Color On/Off	0~01	1	1	1	FIX
4	CR OffSet	0~63	28	28	28	Adjust
5	CB OffSet	0~63	28	28	28	Adjust
6	R Drive	0~63	37	37	37	Adjust
7	G Drive	0~63	38	38	38	FIX
8	B Drive	0~63	32	32	32	Adjust
9	Sub Bright	0~63	21	21	21	Adjust
10	Sub Contrast	0~15	9	9	9	Adjust
11	Sub secam color		16	16	16	
12	Sub Color	0~23	5	5	5	FIX
13	Sub Tint	0~63	29	29	29	FIX
14	CTI Level	0~03	1	1	1	FIX
15	COL Axis	0~03	1	1	1	FIX
16	LTI mode	0~03	1	1	1	FIX
17	LTI Level	0~03	3	3	3	FIX

7. Video Adjust 2

No	Item	Range	WS32Z308P (EU)	WS32Z30HE (EAST-ASIA)	WS32Z30HE (CIS)	Remark
0	ABL Mode	0~03	3	3	3	FIX
1	Gamma	0~03	2	2	2	FIX
2	DPIC Level	0~03	3	3	3	FIX
3	DC Trans	0~03	1	1	1	FIX
4	ABL TH	0~15	14	14	14	FIX
5	VM Level	0~03	1	1	1	FIX
6	VM Coring	0~03	0	0	0	FIX
7	VM f0	0~03	0	0	0	FIX
8	VM Limit	0~03	0	0	0	FIX
9	VM Delay	0~03	3	3	3	FIX
10	SHP CD	0~03	1	1	1	FIX
11	SHP f0	0~01	1	1	1	FIX
12	SHP f1 & P/O	0~15	11	11	11	FIX
13	AKB Time	0~31	16	16	16	FIX
14	V-Peaking	0~31	21	21	21	FIX

8. Video Adjust 3

No	Item	Range	WS32Z308P (EU)	WS32Z30HE (EAST-ASIA)	WS32Z30HE (CIS)	Remark
0	H_EHT comp	0~15	3	3	3	FIX
1	V_EHT comp	0~15	5	5	5	FIX
2	PIN EHT comp	0~07	5	5	5	FIX
3	AFC EHT comp	0~07	0	0	0	FIX
4	Sync Phase	0~1	0	0	0	FIX
5	NR Value	0~09	6	6	6	FIX
6	Sync Phase (480)	0~1	0	0	0	FIX
7	Sync Phase (576P)	0~1	0	0	0	FIX
8	Sync Phase (1080)	0~1	0	0	0	FIX
9	Sync Phase (VGA)	0~1	0	0	0	FIX
10	RF_DNIe R_active HP HI	0~15	0	0	0	FIX
11	RF_DNIe R_active HP LO	0~255	214	214	214	FIX
12	RF_DNIe H_Sync out P HI	0~15	11	11	11	FIX
13	RF_DNIe H_Sync out P LO	0~255	190	190	190	FIX
14	RF_DNIe_HSYNC_OUT_W HI	0~15	0	0	0	FIX
15	RF_DNIe_HSYNC_OUT_W HI	0~255	5	5	5	FIX

9. Video Adjust 4

No	Item	Range	WS32Z308P (EU)	WS32Z30HE (EAST-ASIA)	WS32Z30HE (CIS)	Remark
0	VSU	0~15	4	4	4	FIX
1	Melody Volume	0~15	7	7	7	FIX
2	TTX Bright	0~07	0	0	0	FIX
3	TTX Contrast	0~07	3	3	3	FIX
4	OSD Level	0~1	13	13	13	FIX
5	Band Pass 9407	0~09	0	0	0	FIX
6	High Pass 9407	0~1	42	42	42	FIX
7	Band Pass 9407(AV)	0~1	0	0	0	FIX
8	High Pass 9407(AV)	0~1	42	42	42	FIX
9	Band Pass 9407(DVD)	0~1	0	0	0	FIX
10	High Pass 9407(DVD)	0~15	42	42	42	FIX
11	Peak DeNoise_TH	0~255	1	1	1	FIX

10. VIDEO ADJUST 5(color tone setting)

No	Item	Range	WS32Z308P (EU)	WS32Z30HE (EAST-ASIA)	WS32Z30HE (CIS)	Remark
0	R drive offset Warm2	-20~+20	3	3	3	FIX
1	B drive offset Warm2	-20~+20	-9	-9	-9	FIX
2	R cutoff offset Warm2	-20~+20	6	6	6	FIX
3	B cutoff offset Warm2	-20~+20	-11	-11	-11	FIX
4	R drive offset Warm1	-20~+20	2	2	2	FIX
5	B drive offset Warm1	-20~+20	-2	-2	-2	FIX
6	R cutoff offset Warm1	-20~+20	3	3	3	FIX
7	B cutoff offset Warm1	-20~+20	-2	-2	-2	FIX
8	R drive offset Normal	-20~+20	0	0	0	FIX
9	B drive offset Normal	-20~+20	0	0	0	FIX
10	R cutoff offset Normal	-20~+20	0	0	0	FIX
11	B cutoff offset Normal	-20~+20	0	0	0	FIX
12	R drive offset Cool 1	-20~+20	0	0	0	FIX
13	B drive offset Cool 1	-20~+20	4	4	4	FIX
14	R cutoff offset Cool 1	-20~+20	2	2	2	FIX
15	B cutoff offset Cool 1	-20~+20	6	6	6	FIX
16	R drive offset Cool 2	-20~+20	-2	-2	-2	FIX
17	B drive offset Cool 2	-20~+20	6	6	6	FIX
18	R cutoff offset Cool 2	-20~+20	0	0	0	FIX
19	B cutoff offset Cool 2	-20~+20	9	9	9	FIX

11. VIDEO ADJUST 6(DTV W/B offset)

No	Item	Range	WS32Z308P (EU)	WS32Z30HE (EAST-ASIA)	WS32Z30HE (CIS)	Remark
0	R drive offset 1080i	-30~+30	0	0	0	FIX
1	G drive offset 1080i	-30~+30	0	0	0	FIX
2	R cutoff offset 1080i	-30~+30	3	3	3	FIX
3	G cutoff offset 1080i	-30~+30	0	0	0	FIX
4	R drive offset 480P	-30~+30	-1	-1	-1	FIX
5	G drive offset 480P	-30~+30	-1	-1	-1	FIX
6	R cutoff offset 480P	-30~+30	5	5	5	FIX
7	G cutoff offset 480P	-30~+30	6	6	6	FIX
8	R drive offset 576P	-30~+30	-1	-1	-1	FIX
9	G drive offset 576P	-30~+30	0	0	0	FIX
10	R cutoff offset 576P	-30~+30	5	5	5	FIX
11	G cutoff offset 576P	-30~+30	4	4	4	FIX
12	R drive offset 480i	-30~+30	1	1	1	FIX
13	G drive offset 480i	-30~+30	0	0	0	FIX
14	R cutoff offset 480i	-30~+30	5	5	5	FIX
15	G cutoff offset 480i	-30~+30	7	7	7	FIX
16	R drive offset 576i	-30~+30	1	1	1	FIX
17	G drive offset 576i	-30~+30	0	0	0	FIX
18	R cutoff offset 576i	-30~+30	5	5	5	FIX
19	G cutoff offset 576i	-30~+30	6	6	6	FIX

12. DTV ADJUST(480P)

No	Item	Range	WS32Z308P (EU)	WS32Z30HE (EAST-ASIA)	WS32Z30HE (CIS)	Remark
0	Sub Bright	0~63	21	21	21	FIX
1	Sub Contrast	0~15	4	4	4	FIX
2	Sub Color	0~23	15	15	15	FIX
3	Sub Tint (Hue)	0~63	29	29	29	FIX
4	Color AXIS	0~03	1	1	1	FIX
5	LTI mode	0~03	1	1	1	FIX
6	VM-Level	0~03	2	2	2	FIX
7	VM-Coring	0~03	0	0	0	FIX
8	VM-f0	0~03	0	0	0	FIX
9	VM-Limit	0~03	0	0	0	FIX
10	VM-Delay	0~03	3	3	3	FIX
11	SHP CD	0~03	1	1	1	FIX
12	SHP f0	0~01	1	1	1	FIX
13	SHP f1& p10	0~15	11	11	11	FIX
14	LTI level	0~03	3	3	3	FIX

13. DTV ADJUST(576P)

No	Item	Range	WS32Z308P (EU)	WS32Z30HE (EAST-ASIA)	WS32Z30HE (CIS)	Remark
0	Sub Bright	0~63	21	21	21	FIX
1	Sub Contrast	0~15	4	4	4	FIX
2	Sub Color	0~23	15	15	15	FIX
3	Sub Tint (Hue)	0~63	29	29	29	FIX
4	Color AXIS	0~03	1	1	1	FIX
5	LTI mode	0~03	1	1	1	FIX
6	VM-Level	0~03	2	2	2	FIX
7	VM-Coring	0~03	0	0	0	FIX
8	VM-f0	0~03	0	0	0	FIX
9	VM-Limit	0~03	0	0	0	FIX
10	VM-Delay	0~03	3	3	3	FIX
11	SHP CD	0~03	1	1	1	FIX
12	SHP f0	0~01	1	1	1	FIX
13	SHP f1& p10	0~15	11	11	11	FIX
14	LTI level	0~03	3	3	3	FIX

14. DTV ADJUST(1080i)

No	Item	Range	WS32Z308P (EU)	WS32Z30HE (EAST-ASIA)	WS32Z30HE (CIS)	Remark
0	Sub Bright	0~63	19	19	19	FIX
1	Sub Contrast	0~15	5	5	5	FIX
2	Sub Color	0~23	15	15	15	FIX
3	Sub Tint (Hue)	0~63	29	29	29	FIX
4	Color AXIS	0~03	1	1	1	FIX
5	LTI mode	0~03	1	1	1	FIX
6	VM-Level	0~03	2	2	2	FIX
7	VM-Coring	0~03	0	0	0	FIX
8	VM-f0	0~03	0	0	0	FIX
9	VM-Limit	0~03	0	0	0	FIX
10	VM-Delay	0~03	3	3	3	FIX
11	SHP CD	0~03	1	1	1	FIX
12	SHP f0	0~01	1	1	1	FIX
13	SHP f1& p10	0~15	11	11	11	FIX
14	LTI level	0~03	3	3	3	FIX
15	H_EHT comp_1080i		2	2	2	FIX
16	V_EHT comp_1080i		4	4	4	FIX
17	PIN EHT comp_1080i		5	5	5	FIX
18	ABL TH_1080i		14	14	14	FIX

15. Video Adjustment DNIe

No	Item	Range	WS32Z308P (EU)	WS32Z30HE (EAST-ASIA)	WS32Z30HE (CIS)	Remark
0	AD9883 R Gain	0~255	140	140	140	FIX
1	AD9883 G Gain	0~255	140	140	140	FIX
2	AD9883 B Gain	0~255	140	140	140	FIX
3	AD9883 R Offset	0~127	128	128	128	Adjust
4	AD9883 G Offset	0~127	128	128	128	FIX
5	AD9883 B Offset	0~127	128	128	128	Adjust
6	AD9883_Nomal_REG05	0~255	32	32	32	FIX
7	AD9883_Nomal_REG06	0~255	20	20	20	FIX
8	AD9883_1080i_REG05	0~255	44	44	44	FIX
9	AD9883_1080i_REG06	0~255	32	32	32	FIX
10	AD9883_480p_50_REG05	0~255	32	32	32	FIX
11	AD9883_480p_50_REG06	0~255	62	62	62	FIX
12	AD9883_576p_50_REG05	0~255	32	32	32	FIX
13	AD9883_576p_60_REG06	0~255	52	52	52	FIX
14	AD9883_VGA_REG05	0~255				FIX
15	AD9883_VGA_REG06	0~255				FIX

16. DNIe Lite Enhancement Adjust

No	Item	Range	WS32Z308P (EU)	WS32Z30HE (EAST-ASIA)	WS32Z30HE (CIS)	Remark
0	Alpha L	0 ~ 255	80	80	80	FIX
1	Alpha U	0 ~ 255	80	80	80	FIX
2	CE_Cut off	0 ~ 255	32	32	32	FIX
3	CE_Upper	0 ~ 255	196	196	196	FIX
4	CE_Gain Max L	0 ~ 255	90	90	90	FIX
5	CE_Gain Max U	0 ~ 255	90	90	90	FIX
6	Gain 1X	0 ~ 63	16	16	16	FIX
7	Gain 1Y	0 ~ 63	16	16	16	FIX
8	Gain 2X	0 ~ 63	2	2	2	FIX
9	Gain 2Y	0 ~ 63	1	1	1	FIX
10	Gain 3X	0 ~ 63	2	2	2	FIX
11	Coring_On	1 ~ 1	1	1	1	FIX
12	Coring_th1	0 ~ 7	3	3	3	FIX
13	Coring_th2	0 ~ 7	4	4	4	FIX
14	Coring_th3	0 ~ 7	4	4	4	FIX
15	SD3_K	1 ~ 255	8	8	8	FIX
16	Skin_X	0 ~ 63	23	23	23	FIX
17	Skin_Y	0 ~ 63	28	28	28	FIX
18	CTE	1 ~ 255	50	50	50	FIX

17. YC Delay

No	Item	Range	WS32Z308P (EU)	WS32Z30HE (EAST-ASIA)	WS32Z30HE (CIS)	Remark
0	P.YC(AV) Delay	-16~15	1	1	1	FIX
1	S.YC(AV) Delay	-16~15	-5	-5	-5	FIX
2	N.YC(AV) Delay	-16~15	2	-3	-3	FIX
3	P.BG.YC Delay	-16~15	2	0	0	FIX
4	P.DK.YC Delay	-16~15	2	0	0	FIX
5	P.I.YC Delay	-16~15	0	2	2	FIX
6	P.L.YC Delay	-16~15	1	0	0	FIX
7	S.BG.YC Delay	-16~15	-4	0	0	FIX
8	S.DK.YC Delay	-16~15	-6	-1	-1	FIX
9	S.I.YC Delay	-16~15	-9	-8	-8	FIX
10	S.L.YC Delay	-16~15	-6	-9	-9	FIX
11	N.M.YC Delay	-16~15	7	7	7	FIX
12	P.60.YC Delay	-16~15	0	-5	-5	FIX
13	N.443.YC Delay	-16~15	0	0	0	FIX

18. EEPROM

No	Item	Range	WS32Z308P (EU)	WS32Z30HE (EAST-ASIA)	WS32Z30HE (CIS)	Remark
0	System		1	1	1	FIX
1	VGA System		3	3	3	FIX
2	System_480		2	2	2	FIX
3	System_1080		2	2	2	FIX
4	Dynamic Contrast		100	100	100	FIX
5	Dynamic Brightness		50	50	50	FIX
6	Dynamic Shapness		50	50	50	FIX
7	Dynamic Color		50	50	50	FIX
8	Dynamic Tint		50	50	50	FIX
9	Dynamic Color Tone		2	2	2	FIX
10	Standard Contrast		50	50	50	FIX
11	Standard Brightness		50	50	50	FIX
12	Standard Shapness		50	50	50	FIX
13	Standard Color		45	45	45	FIX
14	Standard Tint		50	50	50	FIX
15	Standard Color Tone		2	2	2	FIX
16	Movie Contrast		45	45	45	FIX
17	Movie Brightness		50	50	50	FIX
18	Movie Shapness		40	40	40	FIX
19	Movie Color		40	40	40	FIX
20	Movie Tint		50	50	50	FIX
21	Movie Color Tone		0	0	0	FIX
22	Left _Blank		30	30	30	FIX
23	Right_Blank		10	10	10	FIX
24	Left Blanking (VGA)		-	-	-	FIX
25	Right Blanking (VGA)		-	-	-	FIX
26	Left Blanking (480)		26	26	26	FIX
27	Right Blanking (480)		22	22	22	FIX
28	Left Blanking (1080)		44	44	44	FIX
29	Right Blanking (1080)		25	25	25	FIX
30	Brightness (RGB)		0	0	0	FIX
31	Conrast (RGB)		124	124	124	FIX
32	U Saturation (RGB)		117	117	117	FIX
33	V Saturation RGB)		240	240	240	FIX
34	Brightness (DVD)		12	12	12	FIX
35	Conrast (DVD)		132	132	132	FIX
36	U Saturation (DVD)		25	25	25	FIX
37	V Saturation (DVD)		32	32	32	FIX
38	9407 Y Gain		93	93	93	FIX
39	9407 U Gain		82	82	82	FIX
40	Luminance Delay		8	8	8	FIX
41	9407 V Gain		81	81	81	FIX
42	CrCb_Gain_480p,576p		119	119	119	FIX
43	CrCb_Gain_1080i		119	119	119	FIX
44	480i sub_bright		29	29	29	FIX
45	480i sub_contrast		6	6	6	FIX

No	Item	Range	WS32Z308P (EU)	WS32Z30HE (EAST-ASIA)	WS32Z30HE (CIS)	Remark
46	576i sub_bright		29	29	29	FIX
47	576i sub_contrast		6	6	6	FIX
48	Start Value of Lum LUT (Main) - NR_ON		255	255	255	FIX
49	Noise Reduction (Main) - NR_ON		95	95	95	FIX
50	Start Value of Lum LUT (Main) - NR_Off		255	255	255	FIX
51	Noise Reduction (Main) - NR_Off		255	255	255	FIX
52	Start Value of Lum LUT (PIP) - NR_ON		255	255	255	FIX
53	Noise Reduction (PIP) - NR_ON		102	102	102	FIX
54	Start Value of Lum LUT (PIP) - NR_Off		255	255	255	FIX
55	Noise Reduction (PIP) - NR_Off		255	255	255	FIX
56	GMD Hysteresis		28	28	28	FIX
57	SECAM Color Sensitivity (Main)		28	28	28	FIX
58	FMD Thre		28	28	28	FIX
59	SECAM Color Sensitivity (PIP)		28	28	28	FIX
60	S - ABL		0	0	0	FIX
61	P - ABL		48	48	48	FIX
62	Clamping duration(PIP)		113	113	113	FIX
63	TTX V-Position		35	35	35	FIX
64	TTX H-Position		181	181	181	FIX
65	4:3 Normal Parabola		0	0	0	FIX
66	50_Trap		4	4	4	FIX
67	60_Trap		4	4	4	FIX
68	WISE_LINK NR(ON)		-	-	-	FIX
69	WISE_LINK NR(ON)		-	-	-	FIX
70	LNA PLUS STEP2		54	54	54	FIX
71	LNA PLUS STEP3		54	54	54	FIX
72	LNA PLUS STEP4		47	47	47	FIX
73	LNA PLUS STEP5		15	15	15	FIX
74	LNA PLUS STEP6		15	15	15	FIX
79	Clamping duration(main)		120	120	120	FIX
170	HV looping counter		250	250	250	FIX
171	HV Range Min		40	40	40	FIX
172	HV Range Max		150	150	150	FIX
						FIX
246	H-PLL(AV)		28	28	28	FIX
248	RF color sens		208	208	208	FIX
249	AV color sens		217	217	217	FIX
250	SDV (PROGRESSIVE MODE)		75	75	75	FIX
251	SDH (PROGRESSIVE MODE)		181	181	181	FIX
253	LPF adjustment(MST9883)		96	96	96	FIX

19. OPTION (Europe)

No	Option Byte1	Alterable Change mode	Initial value	Europe	
0	CRT	Wide / 4:3	4;3	Wide	4:3,WIDE
1	PIP	On / Off	On	On	On/Off
2	LNA	On / Off	On	On	On : 2T PIP All Model Off: 1TUNER / No PIP
3	Sound	Vertual Dolby/Nicam	V/D	Virtual Dolby	V-DOLBY/A2-NICAM
4	Auto FM	On / Off	On	On	On : FM Auto change (All model) Off : MODE on(Currently nothing)
5	Carrier mute	On / Off	On	On	On:Europe/CIS Off: Thailand.,india etc. Southeast Asia.
6	Speaker	Dome Spk/Non Dome Spk	Dome Spk	Direct type	
7	TTX Group	Table	Osd Language	Osd Language	TTX Language Group
8	TTX LIST	On / Off	Off	OFF	ON : Australia, Newzealand OFF : Other Area
9	DTV	On / Off	Off	ON	
10	SEARCH_LNA	On / Off	On	On	On : 2T PIP LNA All Model Off: 1TUNER / No PIP
11	DNIe option	On / Off	On	On	

OPTION (CIS)

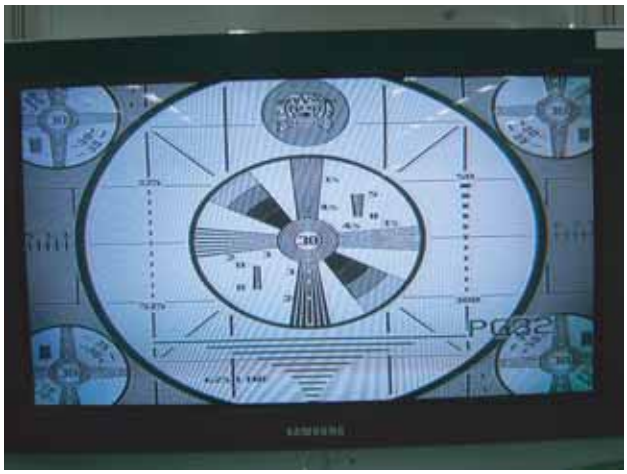
No	Option Byte1	Alterable Change mode	CIS	Southeast Asia	
0	CRT	Wide / 4:3	Wide	Wide	4:3,WIDE
1	PIP	CIS / Arab / Persia / East Asia / China	CIS	East Asia	On/Off
2	LNA	ENGLISH / CIS	CIS	ENGLISH	On : 2T PIP All Model Off: 1TUNER / No PIP
3	Sound	Vertual Dolby/Nicam	Virtual Dolby	Virtual Dolby	V-DOLBY/A2-NICAM
4	Auto FM	On / Off	On	On	On : FM Auto change (All model) Off : MODE on(Currently nothing)
5	Carrier mute	Scart / RCA	Scart	RCA	On:Europe/CIS Off: Thailand.,india etc. Southeast Asia.
6	Speaker	Dome Spk/Non Dome Spk	Non Dom	Non Dom	
7	TTX Group	Table ÂüÁ¶	Russian	Osd Language	TTX Language Group
8	TTX LIST	On / Off	Off	Off	ON : Australia, Newzealand OFF : Other Area
9	DTV	On / Off	On	On	
10	SEARCH_LNA	On / Off	On	On	On : 2T PIP LNA All Model Off: 1TUNER / No PIP
11	DNIe option	On / Off	Off	Off	

3-4 Service Adjustment

3-4-1 Adjusting the Picture Size

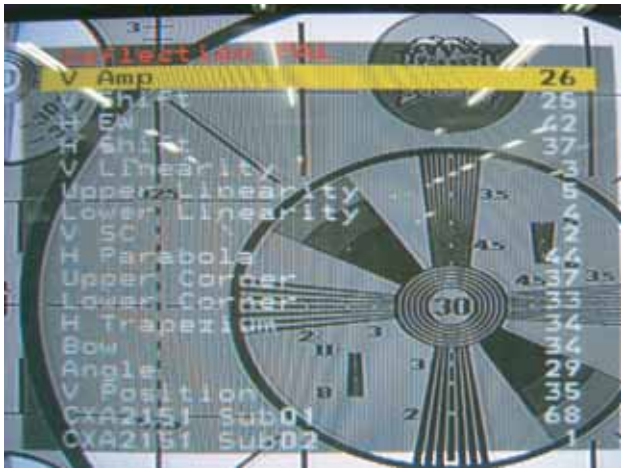
■ Since the S62A chassis has the deflection settings data within the Factory Data, the picture size has to be adjusted when replacing the System Board or the Deflection Board, according to the following procedures.

① Display the Lion pattern.

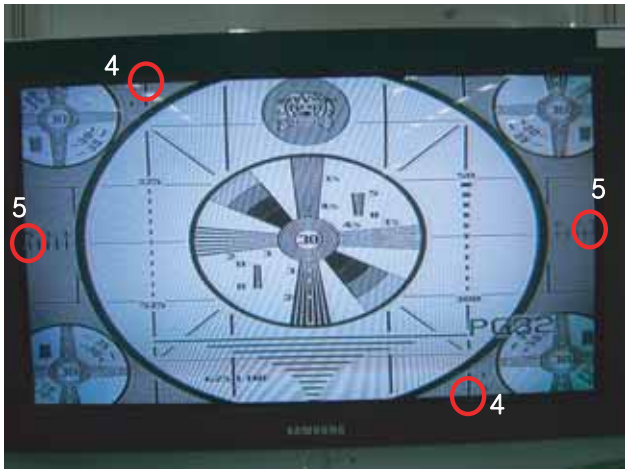


② Press "Info → Menu → Mute → Power On" using the remote control and enter Factory Mode.

③ Enter Deflection Mode.

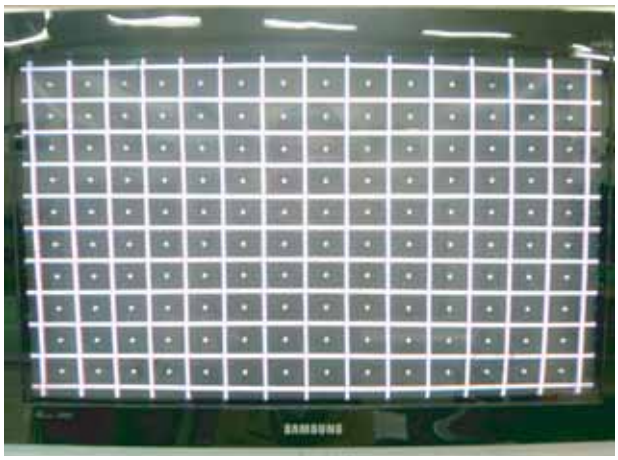


④ Adjust the V-AMP, V-SHIFT, H-AMP and H-SHIFT items so that the width becomes 5 and the height becomes 4.



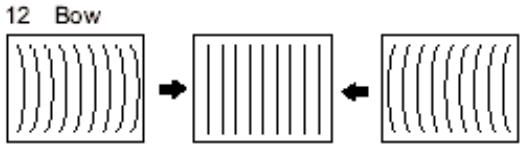
3-4-2 Adjusting the Picture Straight Lines

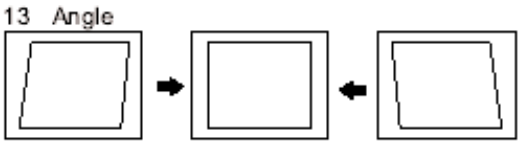
① Display the Cross Hatch pattern.



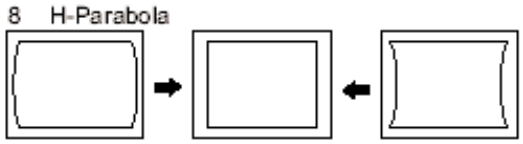
② Adjust settings other than V-AMP, V-SHIFT, H-AMP and H-SHIFT so that straight lines are displayed without curves.

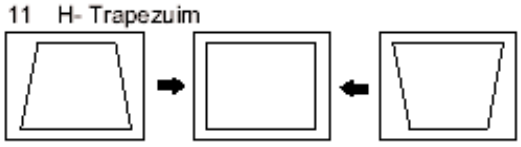
③ Adjust BOW and the Angle settings so that the center line becomes a straight line.



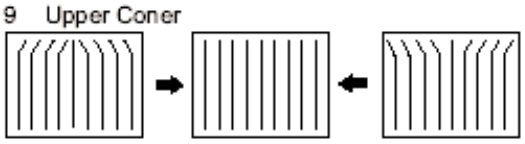


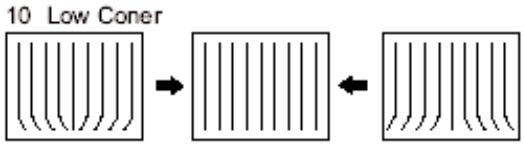
④ Adjust the H-Parabola and H-Trapezium settings so that the left and right lines become straight.



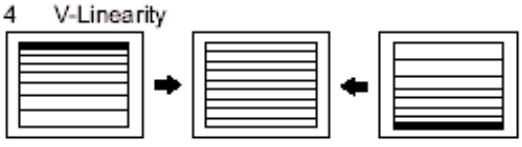


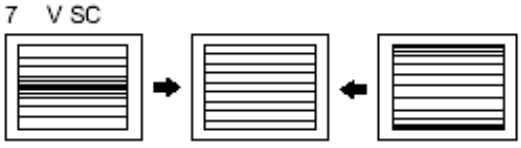
⑤ Adjust the Upper Corner and the Low Corner settings so that the end of the lines become straight.





⑥ Adjust the V-Linearity and V-SC settings so that the intervals of the horizontal lines become uniform.



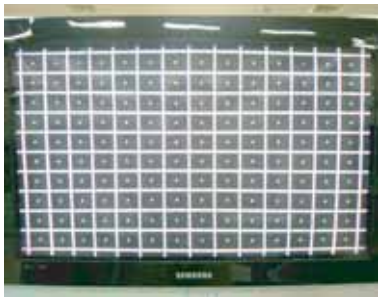


⑦ When the adjustments are complete, display the Lion pattern and check that the picture size has not been changed. If there is no change, finish the adjustments.

3-5 Replacements & Calibration

3-5-1 Adjusting the Focus

■ Since the S62A chassis has a built-in dynamic focus circuit, take care when adjusting the focus. When the CRT PCB, FBT or CRT has been replaced, the focus has to be adjusted according to the following procedures.

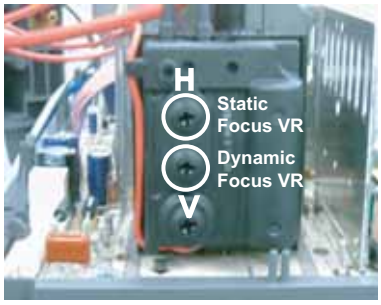


1. Display the CROSS Hatch pattern.

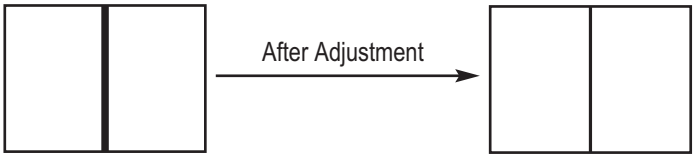
2. Set the Screen Adjustment to "View as Standard".

3. Turn the Static Focus VR clockwise to the maximum position.
   (End of clockwise direction)

4. Turn the Dynamic Focus VR counter clockwise to the maximum position.
   (End of counter clockwise direction)



5. Slowly turn the Static Focus VR counter clockwise so that the center vertical line is the most clearly displayed.



6. Slowly turn the Dynamic Focus VR clockwise so that the 2nd line is the most clearly displayed.

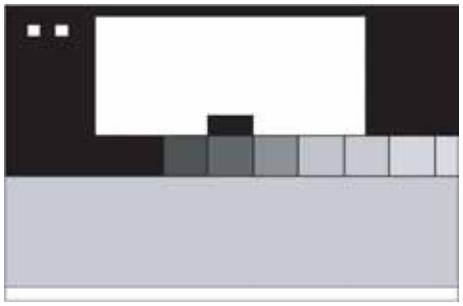
7. Check the entire screen focus and repeat steps 3 to 6, if necessary.

3-5-2 Adjusting the Screen Voltage

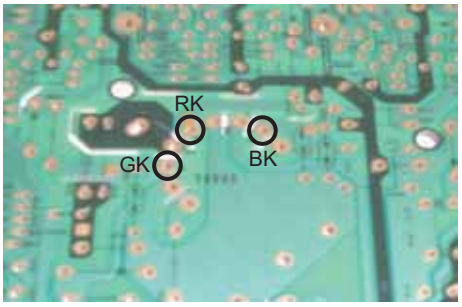
1. Select "Info → Menu → Mute → Power On" to enter Service Mode.

2. Initialize all settings to the values appropriate to the corresponding model.

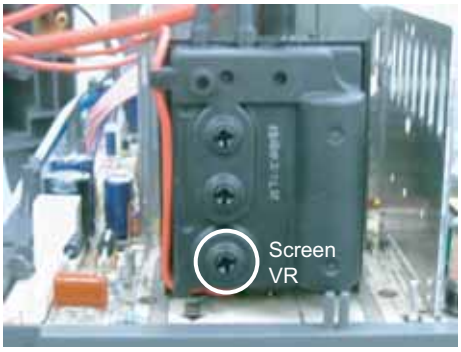
3. Display the Toshiba pattern.

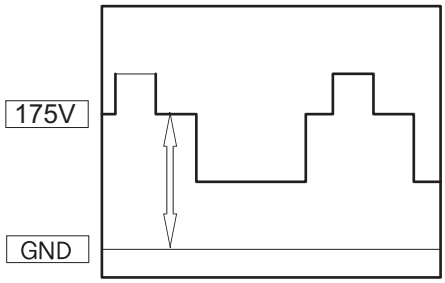


4. Using an Oscilloscope, measure the size of RK, BK and GK to the Pedestal Level.



5. Adjust the Screen VR of FEB so that the highest point of the Pedestal Level is 175V.





Adjust Method the Screen Voltage
for Toshiba Pattern by Oscilloscope

※ Screen Voltage Measurement Data

No	Item	Data	Required Adjustment
1	Screen Voltage	The Highest Voltage among RK, GK and BK 175Vp-p-3V	Screen Voltage

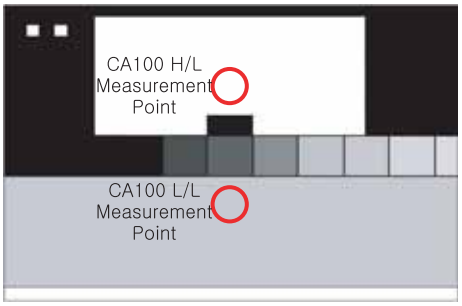
3-5-3 Adjusting the White Balance

1. Initialize all settings to the values appropriate to the corresponding model.

2. Select "Info → Menu → Mute → Power On" to enter Service Mode.

3. Initialize all settings to the values appropriate to the corresponding model.

4. Display the Toshiba pattern and adjust the White Balance using CA100 with the coordinates of the corresponding model.



[CA100]

5. Enter Video Adjust1 of Service Mode. Adjust Low/Light.
   - Adjust Sub Bright to set Y.
   - Adjust B Cutoff to set y.
   - Adjust R Cutoff to set x.

6. Enter Video Adjust1 of Service Mode. Adjust High/Light.
   - Adjust Sub Contrast to set Y.
   - Adjust B Drive to set y.
   - Adjust R Drive to set x.

7. Check Low/Light and readjust it if its value has been changed.

8. If you have readjusted Low/Light, readjust High/Light until the two values are identical to the coordinates of the corresponding model.

※ White Balance Standard Data

No	Item	Data	Required Adjustment
1	White Balance	x:282± 3 / y:302± 3 / 40± 3 x:282± 5 / y:302± 5 / 1.6± 0.2	White Balance (Europe)

3-5-4 Check List for the Screen Voltage and White Balance Adjustment

1. The Screen Voltage and White Balance are connected each other, and both of them have to be configured to the correct values.

2. Adjust the White Balance after the Screen Voltage was adjusted, and check if the Screen Voltage is normal after adjusting the White Balance.

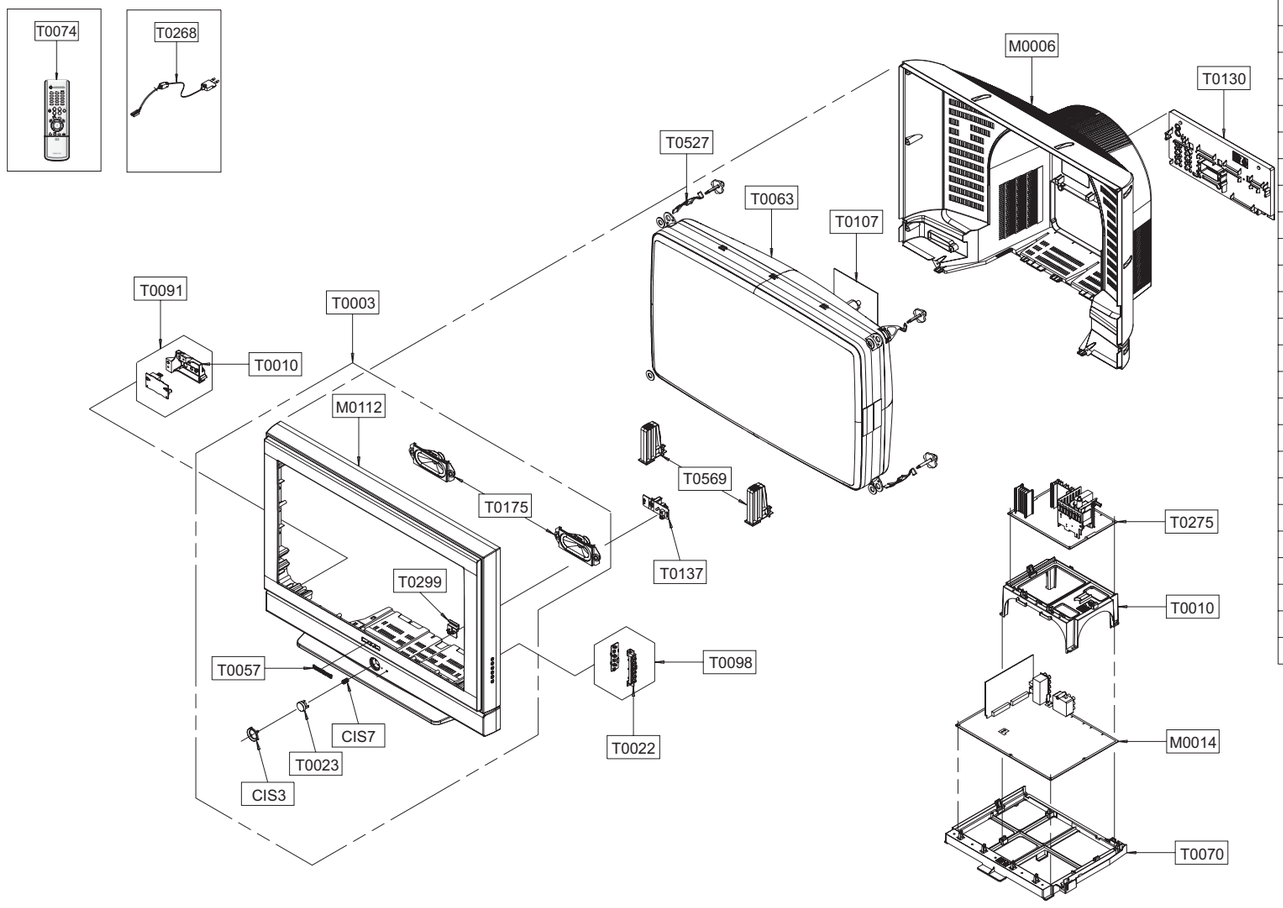
3. If the White Balance is readjusted, check the Screen Voltage again.

4. When the adjustment is finished, check the following checklist.
   - If there is a spot on the screen when turning the TV set off/on, adjust the Screen Voltage again.
   - If there is a ghost line on the screen, adjust the Screen Voltage again.

4. Exploded View & Part List

4-1 WS32Z316VBXXEC

Yon can search for the updated part code through ITSELF web site.
URL:http://itself.sec.samsung.co.kr



Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
CIS3	BP64-00331B	DECORATION-POWER	PJTV,ABS,HB,GR503,SVM30	1	S.N.A	
CIS7	AA61-60003J	SPRING ETC-CS	-,SUS304,-,-,OD6,N7,OD6,-,	1	S.N.A	
M0006	AA63-01057A	COVER-REAR	32Z31,HIPS,T3.0,FV2,BLK,SAMEX	1	S,A	
M0014	AA94-15276A	ASSY PCB MAIN	WS32Z30,S62B	1	S,A	
M0112	AA63-01090A	COVER-FRONT	32Z31,SEH,HIPS,T3.0,HB,GR503	1	S.N.A	
T0003	AA96-03151C	ASSY COVER P-FRONT	32Z31,SEH,HIPS HB,GR5	1	S,A	
T0010	AA61-01415A	HOLDER-AV	32Z31,HIPS,BLK,V0	1	S.N.A	
T0010	AA61-01425A	HOLDER-SUB PCB	32Z30,HIPS V0,T2.0,G4309,	1	S.N.A	
T0022	AA64-04241A	KNOB CONTROL	32Z31,ABS,HB,G3676,SVM-3012	1	S.N.A	
T0023	BP64-00326K	KNOB POWER	32Z31,ABS,HB,BLK,SVM3012 CIS	1	S.N.A	
T0057	AA64-01062B	BADGE-BRAND	ALL,AL,T1.5,10.6,L65,BLK.SIL	1	S,A	
T0063	AA03-00438A	CRT COLOR	W76QFV891X002(P),+380,0.258,15	1	S,A	
T0070	AA61-01424A	HOLDER-CHASSIS	32Z30,HIPS V0,T2.0,G4309,	1	S.N.A	
T0074	AA59-00370B	REMOCON	SAMSUNG,TM79,175*44*23,SAMSUNG S	1	S,A	
T0091	AA94-15178C	ASSY PCB MISC-A/V SIDE	32Z31,S62B,SHINE	1	S.N.A	
T0098	AA94-15114D	ASSY PCB MISC-CONTROL	CT-32Z32HD,CORE,K6	1	S,A	
T0107	AA94-15502A	ASSY PCB MISC-PCB CRT	32",S62B,SHINE	1	S,A	
T0130	AA96-03297A	ASSY COVER P-TERMINAL BOARD	32Z30,CIS,HI	1	S.N.A	
T0137	AA94-15179A	ASSY PCB MISC-LED	,OZ,S62A	1	S,A	
T0175	AA96-03164A	ASSY SPEAKER P	8OHM,6*13CM,Z31,10W,SPK+W	1	S,A	
T0268	AA39-10003B	CBF-POWER CORD	-,KJP-140,KLCE-2F,2.4m,HO	1	S,A	
T0275	AA94-15375A	ASSY PCB MISC-DEFLECTION	WS32Z30,S62B	1	S,A	
T0299	AA64-04191A	WINDOW-RMC LED	32Z30,PC CLEAR	1	S.N.A	
T0527	AA65-30017A	CLAMPER CORE-D,COIL	-,NYLON-66,V0,-,NTR,	5	S.N.A	
T0569	AA61-00098A	SUPPORT-CRT	,HIPS V0,GRAY	2	S.N.A	

6. Troubleshooting

6-1 Checkpoints by Error Mode

■ Power LED: Check that the LED works when turning the Master Switch ON/OFF

■ LED Indicators: See table 6-3-1 Basic Troubleshooting: LED Diagnosis on the Front Panel.

■ In case of a power failure or abnormal screen, check the following items.
1) Check that the power cord is correctly connected to a 220V wall outlet.
2)Check that the Master Switch has been pressed.
3) Check that the transmitter is turned on.
4) Check that transmitter device selection is set to TV.
5) Check that the signal cable is properly connected.
6) Check that channel setting has been set.

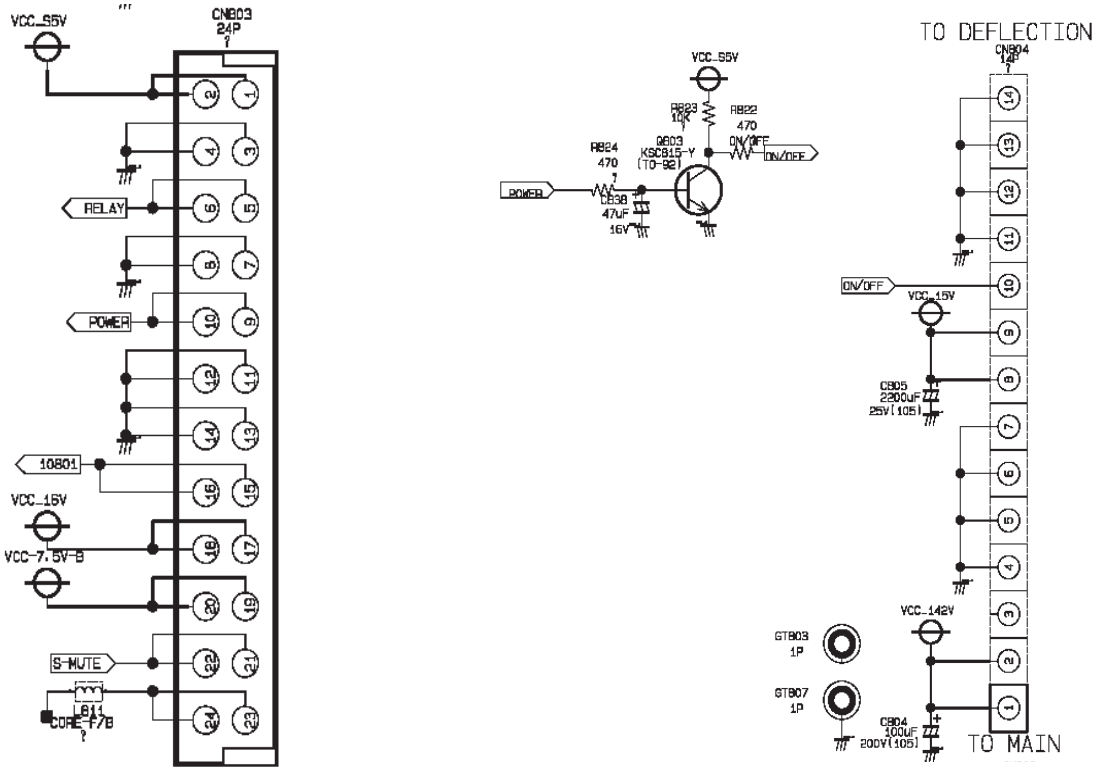
6-1-1 Basic Approaches for Troubleshooting

■ Troubleshooting Mechanism :

- The System Board has the last output terminal, DNIe (SPD41), which shows the internal Test pattern.
- The Power Board supplies power to the Deflection/Ayatem Board.
- The System Board receives all signal inputs, the signal-processed signal is sent to CRT Ass'y.
  Deflection and focus are controlled by the Deflection Board.

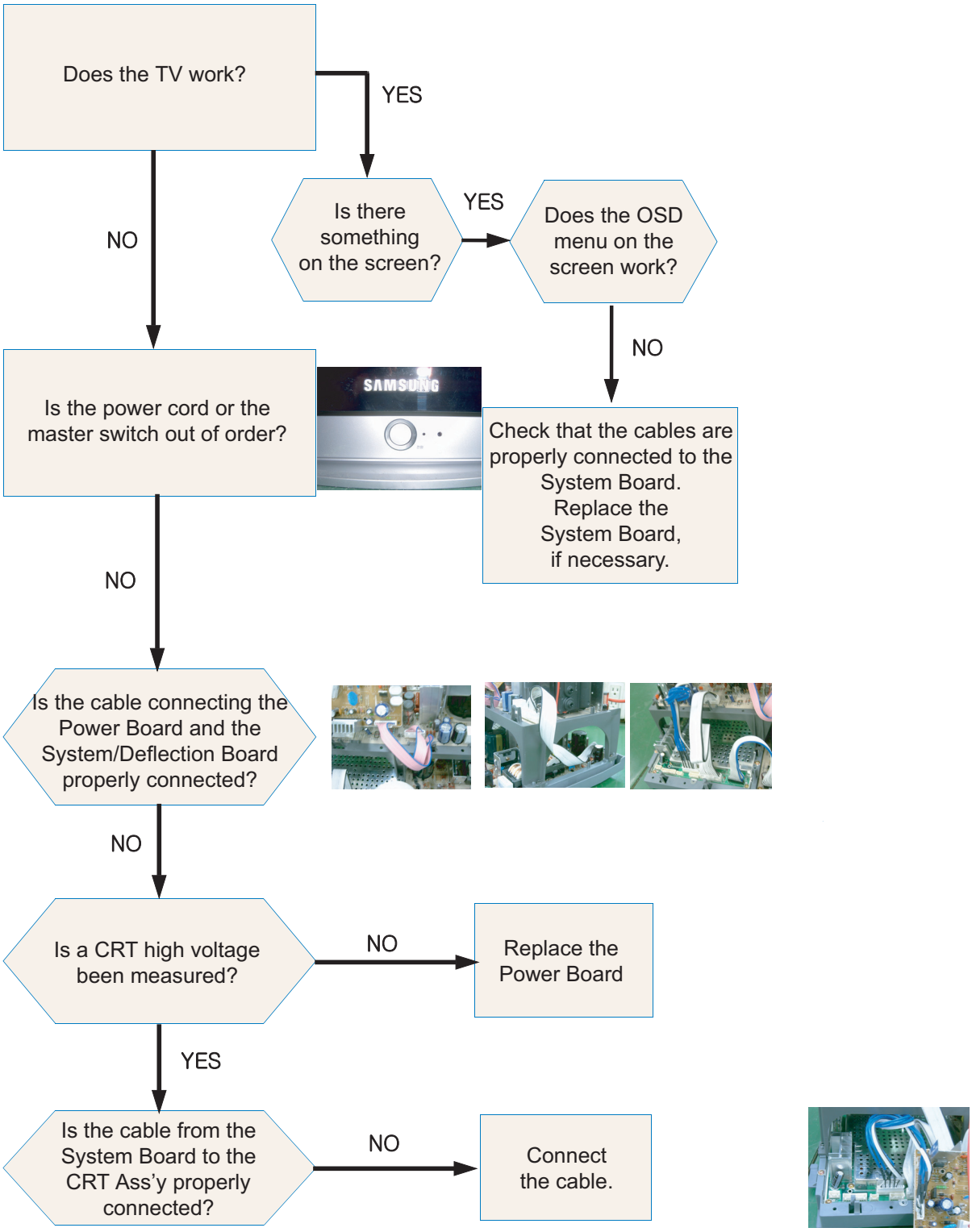
■ Troubleshooting by Modules

1) Enter Service Mode
   (In SET STANDBY status, if you press "Info", "Menu", "Mute" and " Power" in sequence on the remote control, the screen is turned on and the Service Mode screen appears.)
2) Check if the System Board is out of order.
   Press OPTION → TEST PATTERN → Right direction key:
   The COLOR BAR, BLACK pattern and WHITE pattern are displayed on the screen.
   If the pattern is not displayed or is displayed abnormally, the DNIe IC (SPD41) or the System Board is out of order.
3) Check if the Power Board, which supplies power to the System Board and the Deflection Board, is out of order.
   If you cannot turn the screen on by pressing the POWER ON/OFF button or the screen repeatedly turns on and off when pressing the POWER ON/Off button, check if the Power Board is out of order. (Refer to the circuit diagram)



4) Check if the Deflection Board is out of order.
   When the screen is not properly displayed and the left or right side of the picture is shrunk, or the top or bottom of the screen is expanded or shrunk, check if the Deflection Board is out of order.

6-1-2 Flow Chart for Malfunction



6-2 Trouble-shooting with New Features

6-2-1 Installation & Connection

Problem	Solution
The power does not turn on.	Check if the power cord is properly connected.
Air broadcasting does not work.	Check if the antenna is properly installed.
Cable broadcasting does not work.	Subscribe to a local cable broadcasting firm and get support.
Satellite broadcasting does not work.	Install a satellite antenna (Parabola) and connect it to the TV.

6-2-2 Menu & Remote Control

Problem	Solution
The remote control does not work.	■ Press the Select Device button to select the TV or external device. ■ Replace the battery of the remote control with a new one. ■ Insert the battery making sure the polarity (+,-) is correct. ■ Check if the angle or the distance is sufficient, or if there is any interference between the product and the remote control. ■ Make sure the user has pressed the correct button. ■ To avoid direct sunlight to the receiving panel of the TV, remove any indoor lighting or change the location of the TV. ■ Check if the power switch at the back left of the TV is turned on.
Cannot change the channel with the remote control.	■ Press the Select Device button to select the TV. ■ Change the channel using the remote control of the cable or satellite receiver.
Cannot select an A/V channel.	Press the TV/AV button and check if the AV item is grayed out. When the AV item is grayed out, you cannot select an A/V channel. Check if the connector is properly connected.
Cannot select a menu.	Check if the menu is grayed out. If a menu is grayed out, it cannot be selected.

6-2-3 Screen

Problem	Solution
The screen is black and there is no sound.	■ Check if the power cord is properly connected. ■ Turn on the power. ■ Select an AV channel that corresponds to the external device.
Only the screen is blank/it is dark or too bright.	Adjust the screen brightness.
The screen is blue/the external channel is not displayed.	■ Check if the connector is properly installed. ■ Select an AV channel that corresponds to the external device.
The screen overlaps (double/triple).	■ Check if the antenna is properly installed. ■ Adjust the position, angle or direction of the antenna.
The screen is snowy or unclear. The picture quality gets worse when it is windy	■ Check if the antenna has been bent or moved by the wind. ■ Check the antenna for its lifetime. (Normally 3 - 5 years, 1-2 years near the coast)
Dotted or semi-dotted lines are displayed on the screen.	Install the antenna as far away from the road as possible.
The screen is black and white.	■ Adjust the color density. ■ Check if the connector is properly installed.
The colors of the screen are odd/strange.	Adjust the color tones.
Unusual lines appear on the screen.	Keep the antenna away from the power cord or connectors if possible.
Unusual lines appear on the screen when watching or recording to video.	Keep the video player as far away from the TV as possible.

6-2-4 Sound

Problem	Solution
There is no sound.	■ Increase the volume. ■ Press the Mute button.
The sound is very low.	■ Increase the volume. ■ Set the auto volume control to ON.
There is a lot of noise.	Keep the antenna away from the power cord or connectors if possible.
The selected language does not appear.	Press the Multiplex button to select the TV.

6-2-5 Channel

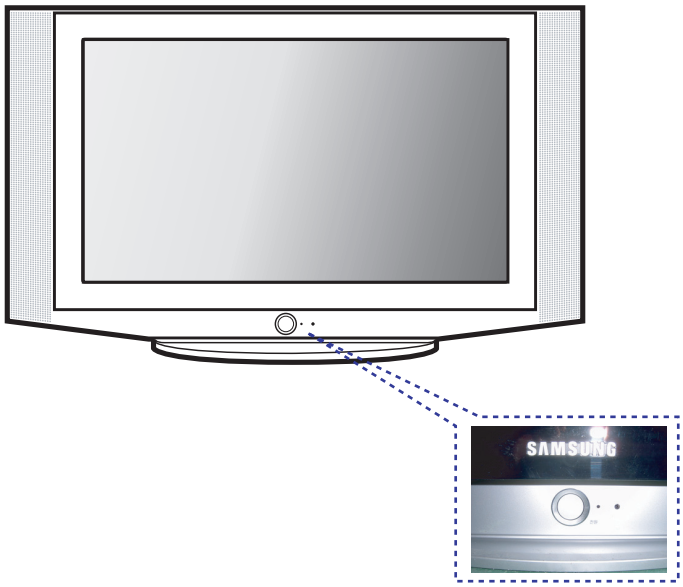
Problem	Solution
There are no channels available.	■ Check if the antenna is properly installed. ■ Press the Auto Channel button to store channels. ■ Contact your local broadcasting service station.
Some channels are not available.	■ Adjust the position, angle or direction of the antenna. ■ Activate the Reception Sensitivity Boost feature. ■ Contact your local broadcasting service station. ■ Use the number keys to select a specific channel and press Store/Clear to memorize it.
Only the UHF (14-69) channels are not available.	Check if the antenna is able to receive UHF signals.

6-2-6 Others

Problem	Solution
The TV makes a noise as if something is dropping inside.	This noise may occur when the plastic material inside the TV expands or contracts according to the seasonal temperature or humidity. This is like the noise from a furniture/cabinet/sink unit, and there is no need for concern.

6-3 Troubleshooting Procedures by Error Modes

6-3-1 Basic Troubleshooting: Diagnosis of LED on the Front Panel



● : Light is On
◑ : Light is Blinking
○ : Light is Off

Power	Description
○	This happens when the Master Switch is not pressed or the power cord is disconnected.
●	This happens when the power cord is connected and the power switch is pressed. If you cannot set the power switch on by pressing it, check the power switch Ass'y.
○→◑→●	If you press the power switch of the transmitter or the channel key on the remote control when in St-BY status, the screen will be turned on. If the LED blinks and the screen is not displayed, check the connection between the Power and the System Board.

6-3-2 Troubleshooting by the Checksum

■ Diagnosis of trouble by the checksum is neither reliable nor convenient.
You can only use the checksume of the current direct-view TV to determine whether the software is corrupted or not.
The Checksum value is determined according to the version of the software loaded on the set.
Therefore, you can determine whether the software has been properly downloaded, if you know the correct checksum for that version of the software.

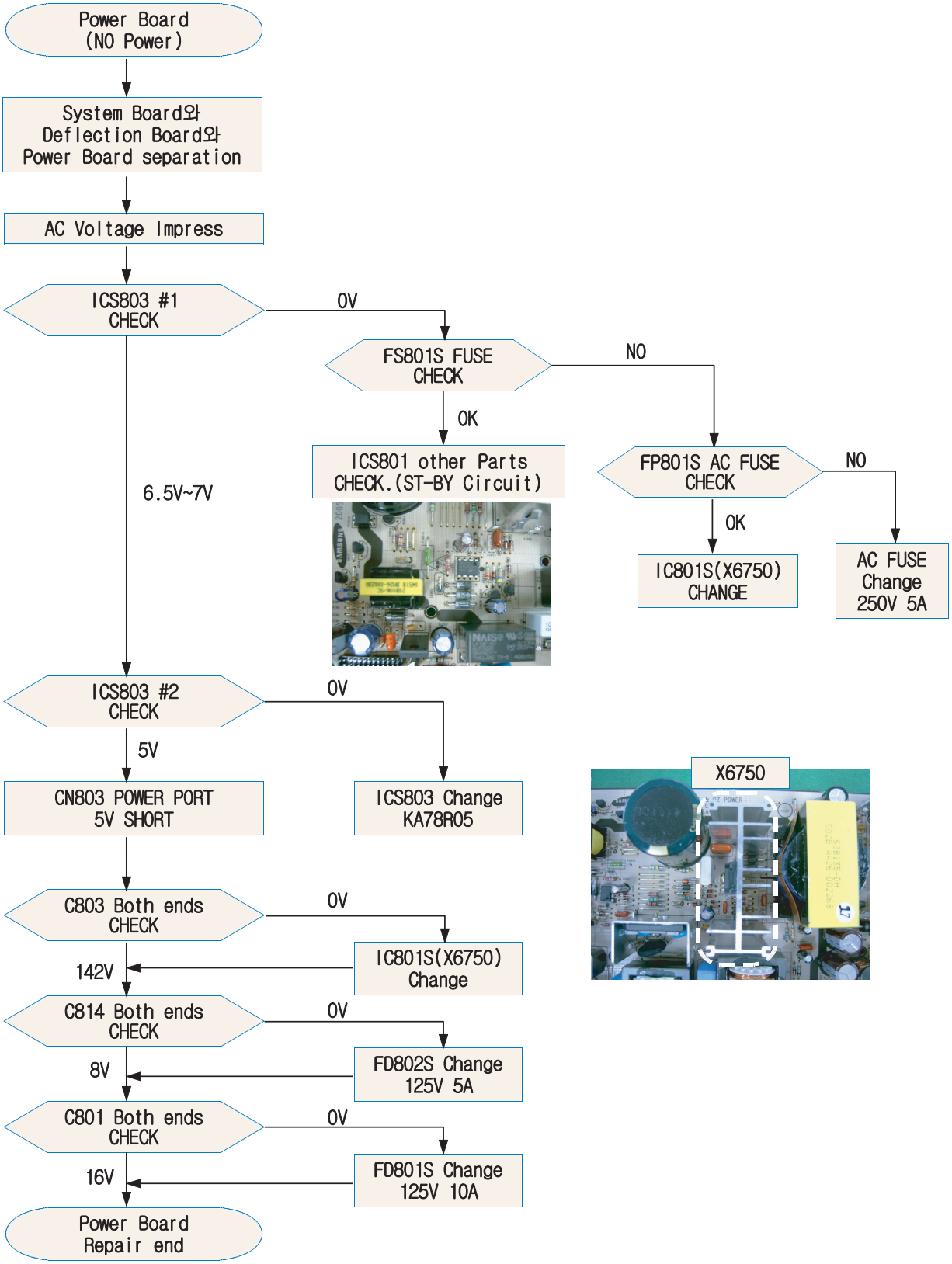
You can check the checksum according in the following order.
Factory Mode → Checksum → Right Button → Calculate Checksum → Output Checksum (e.g. 0xab2b)

■ Checksum Examples
T_COREOAKR1_1010 : checksum = 0xab2b
T_COREOAKR1_1014 : checksum = 0x4faa

6-4 Troubleshooting Procedures by ASS'Y

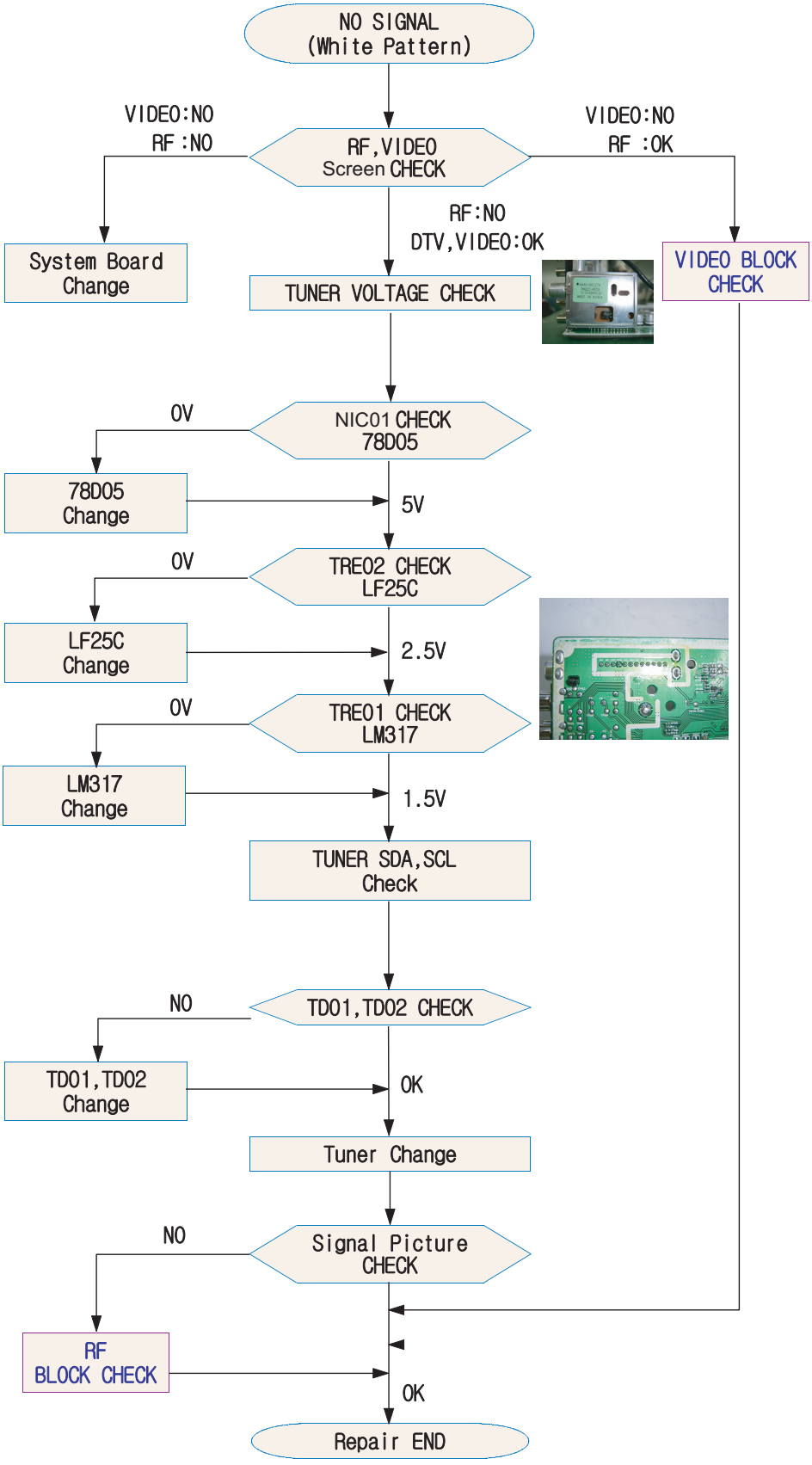
6-4-1 NO Power

1. Power Board Check

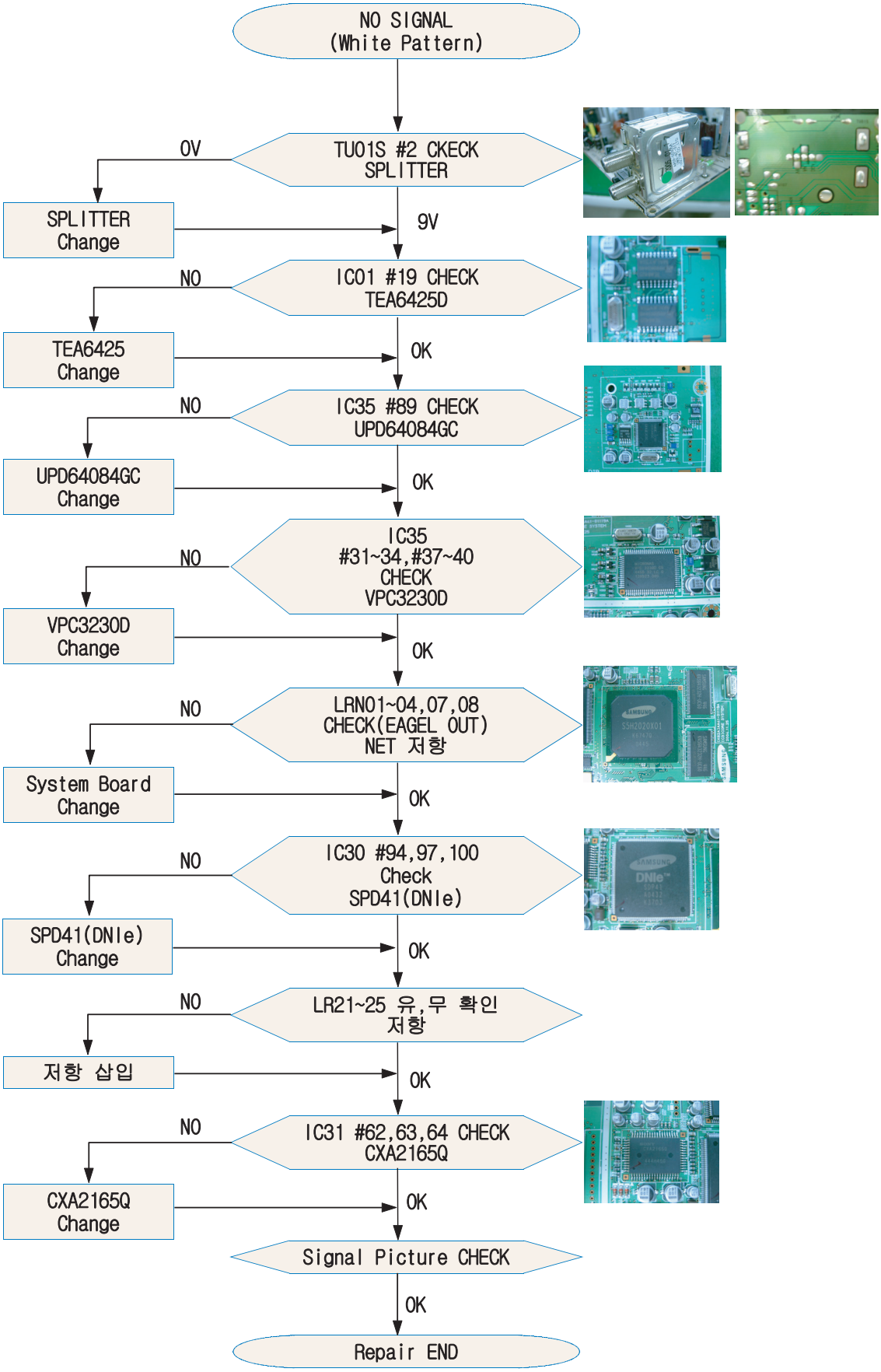


6-4-2 NO Signal

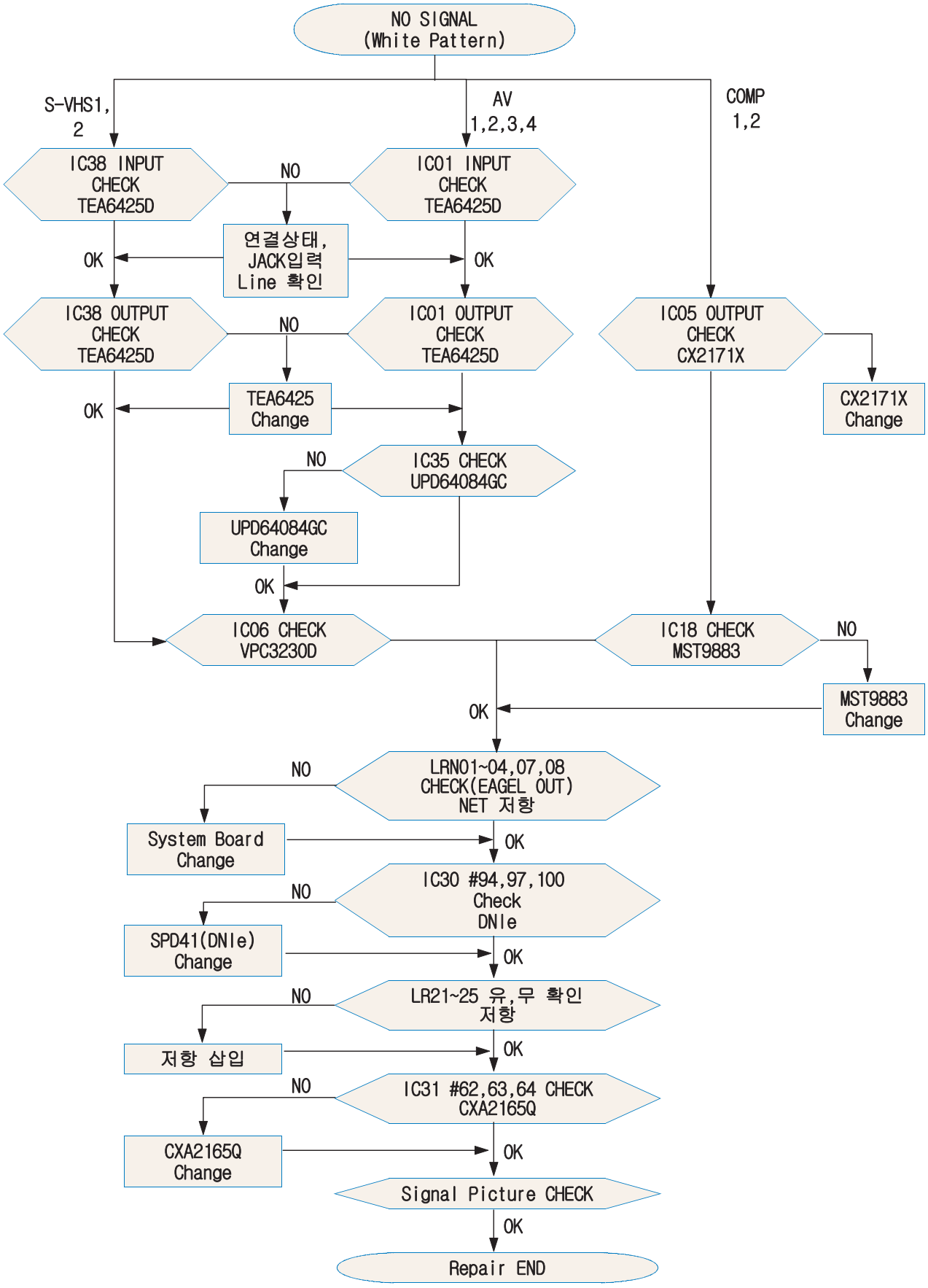
1. When the Power Board is normal



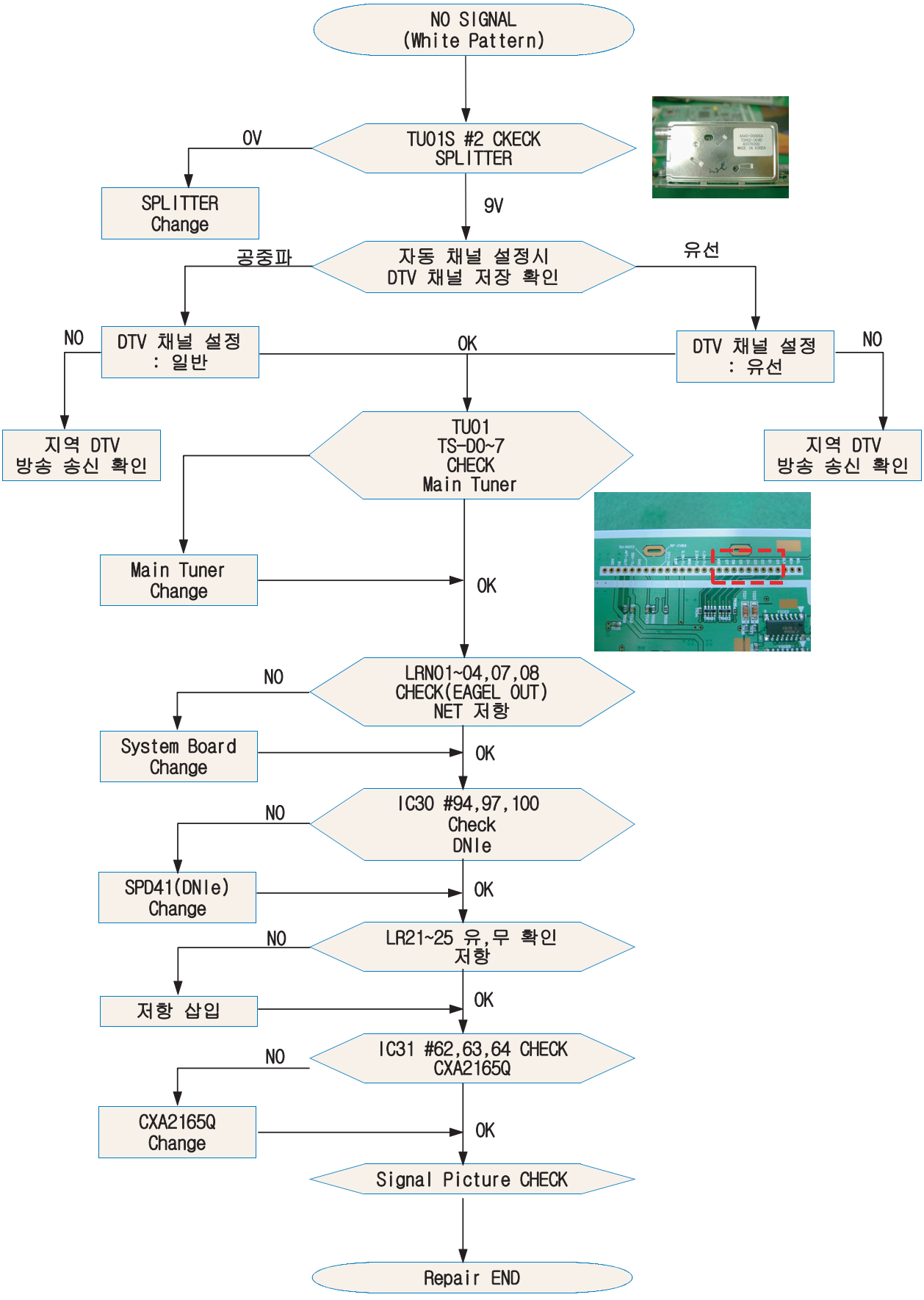
2. When there is no RF signal output (RF Block Check)



3. When there is no Video signal output (Video Block Check)

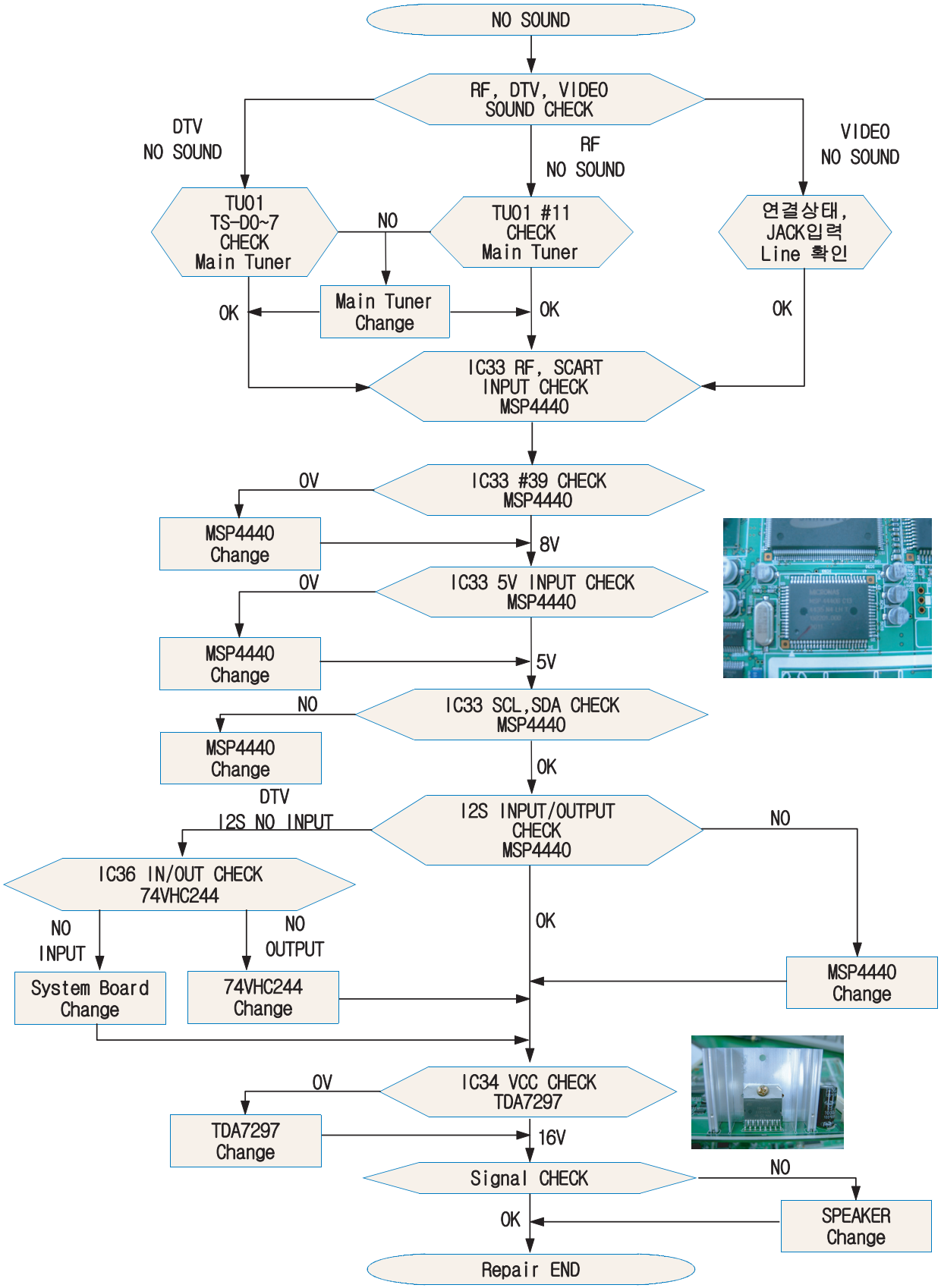


4. When there is no DTV signal output (DTV Block Check)



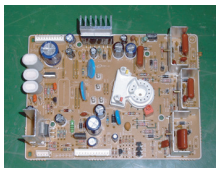
6-4-3 No Sound

1. When the Power Board is normal



6-4-4 No Raster

1. When the Power Board is normal

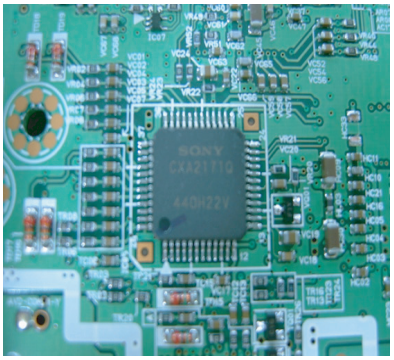


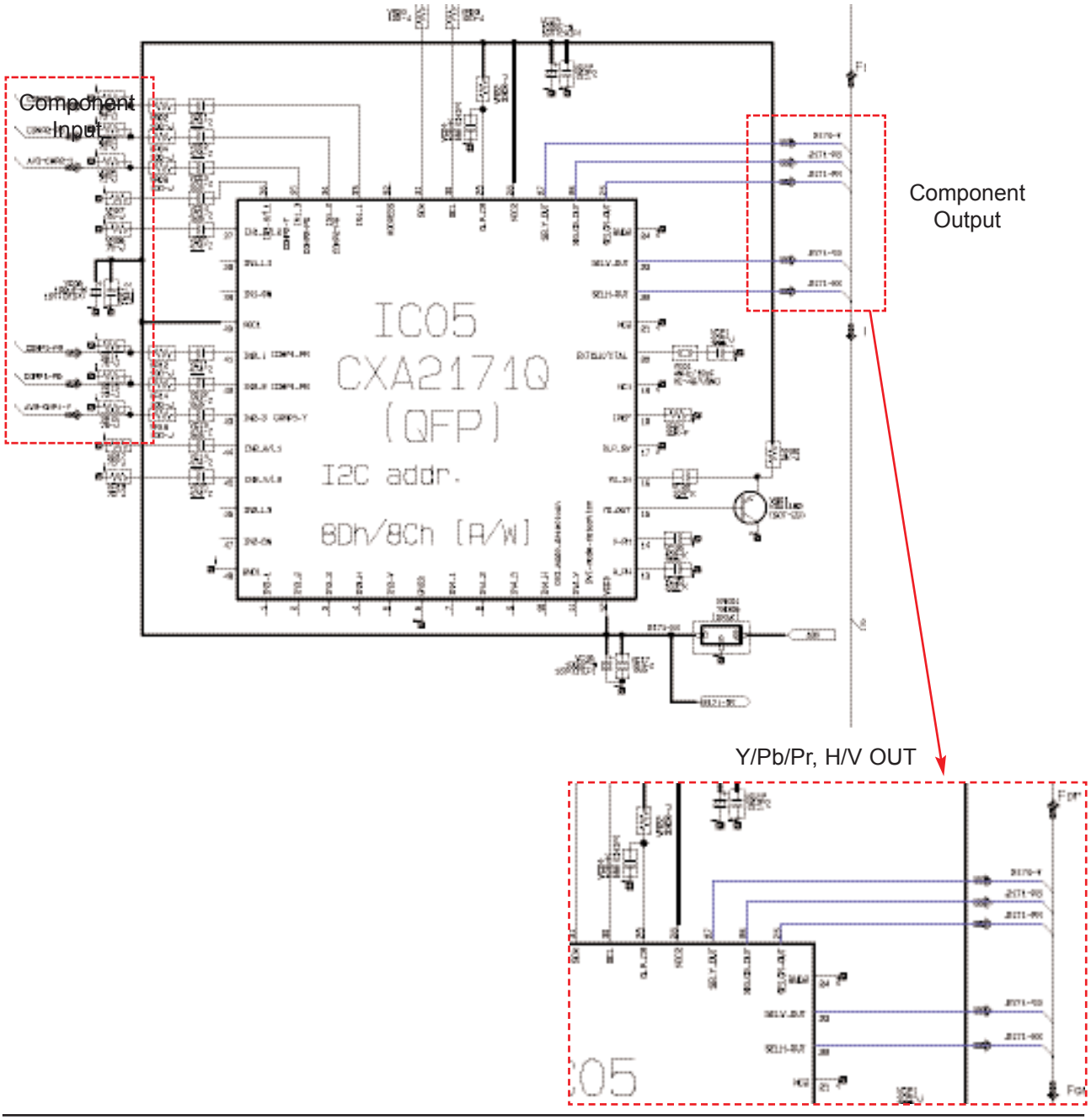
6-5 Troubleshooting by Blocks

6-5-1 Troubleshooting System Boards

1. CXA2171Q (Component Switching) Diagnosis
- Component 1 and 2 input operation (Y: 0.7Vp-p)
- IC distinguishes between the SD/HD (31Khz, 33Khz) signal formats.
- Market defect cases: The screen is pushed to the right side or the picture is divided into two on the screen.

  - Power supply: 5V
  - Check for input defects: Y/Pb/Pr signal
  - Check for output defects: Y/Pb/Pr, H/V signal

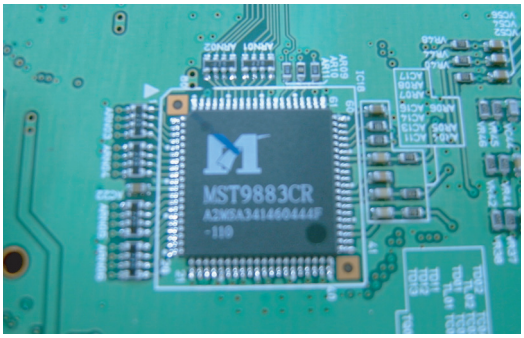


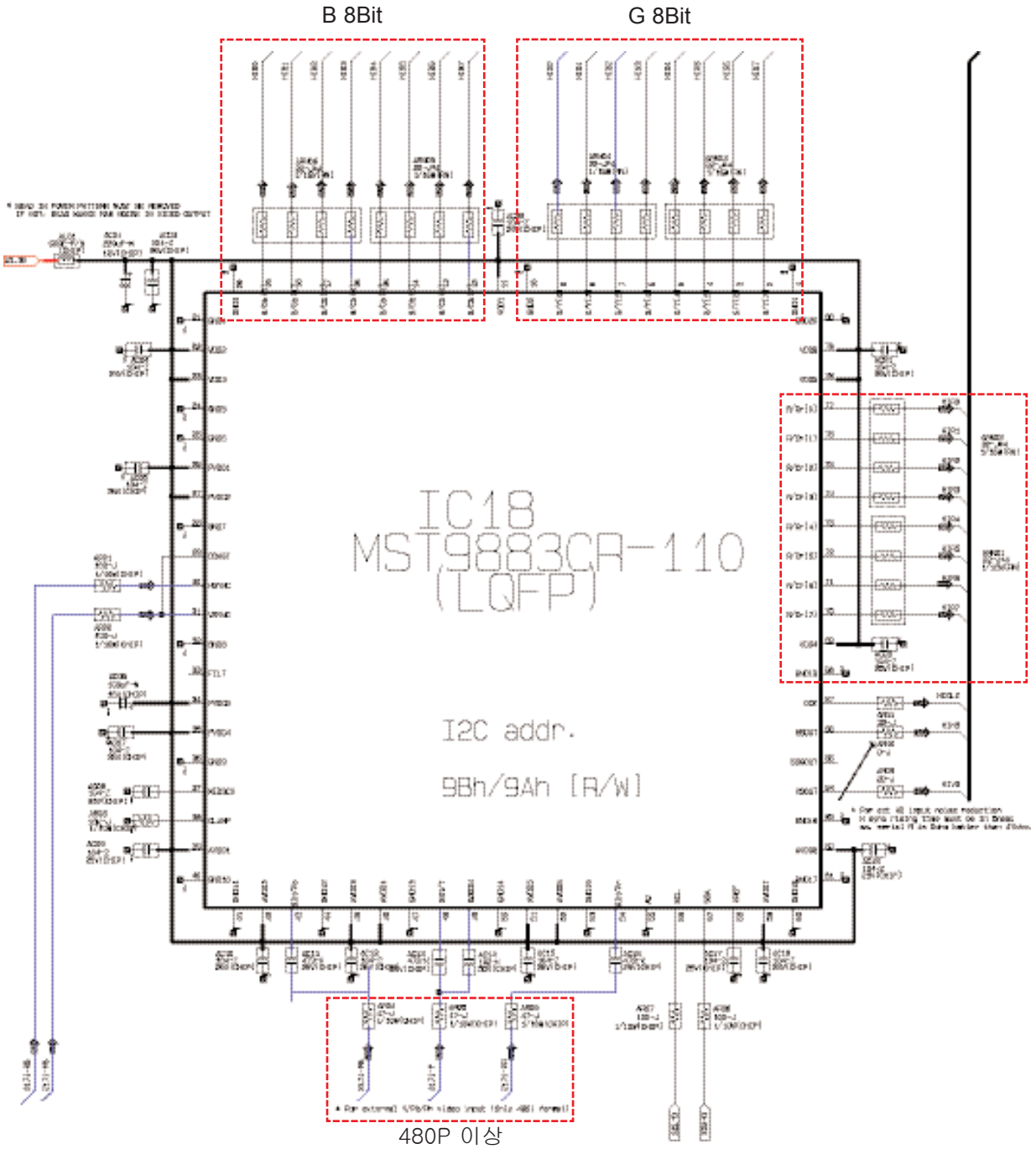


2. MST9883 Diagnosis

This receives the Component signal, which is equal to or higher than 480P, detects Sync and decodes the signal.
If the signal color is out of order or noise appears in the Color Bar pattern, check the R/G/B Digital output cable.

- Power supply : 3.3V
- Check for input defects : 480P, 720P, 1080i Y/Pb/Pr signal
- Check for output defects : R/G/B 24BIT H/V/Clock

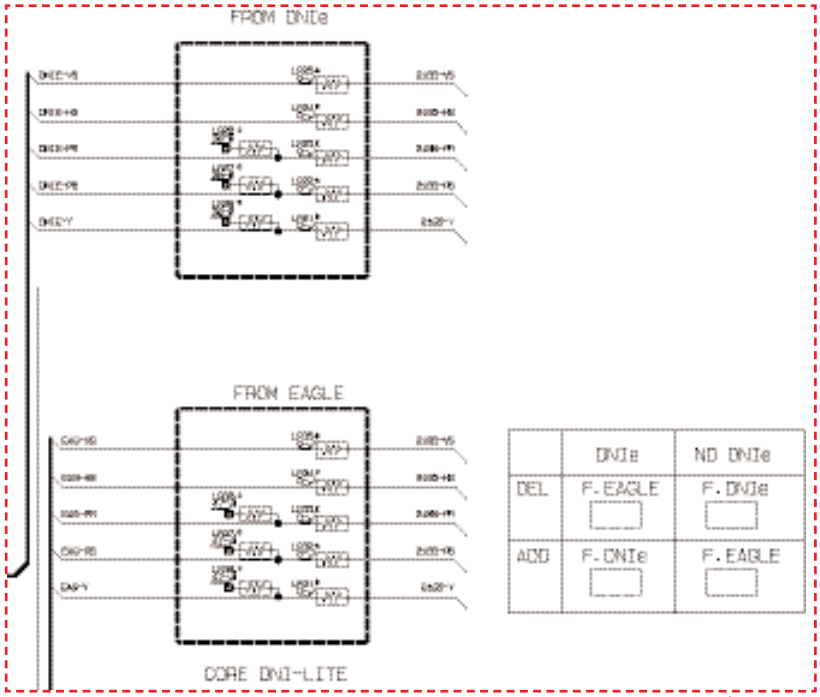


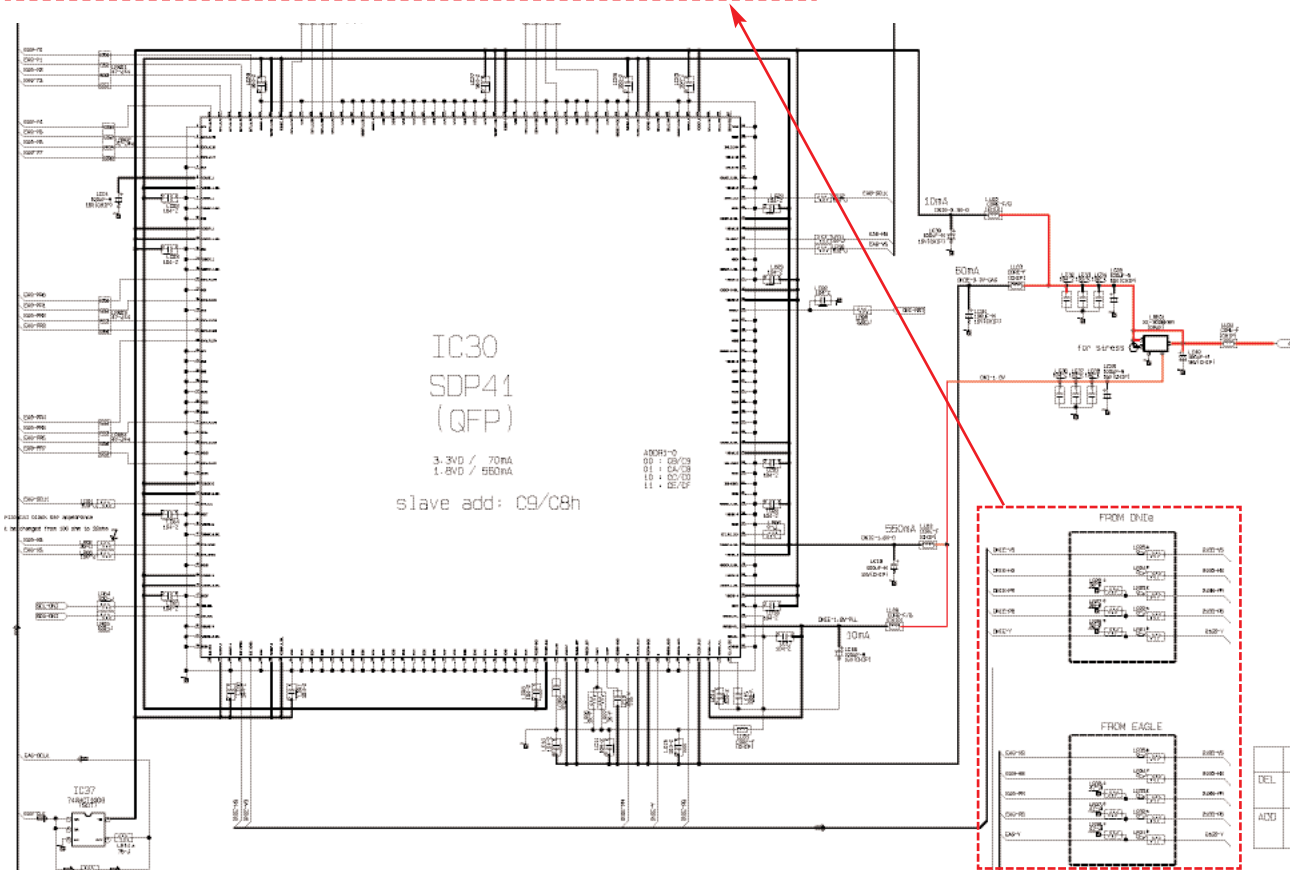


3. DNIe (SPD41) Diagnosis

This removes noise from the signal processed by the EAGLE IC for better visual quality. It provides a clearer and near natural color picture. Defects in DNIe are rare.

- Power supply : 1.8V, 3.3V
- Check for input defects : R/G/B 24BIT H/V/Clock
- Check for output defects : Y/Pb/Pr H/V

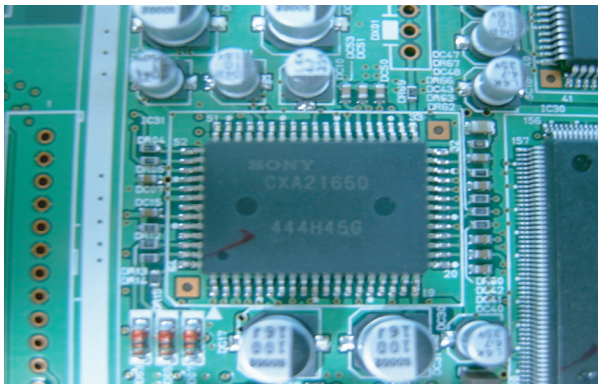


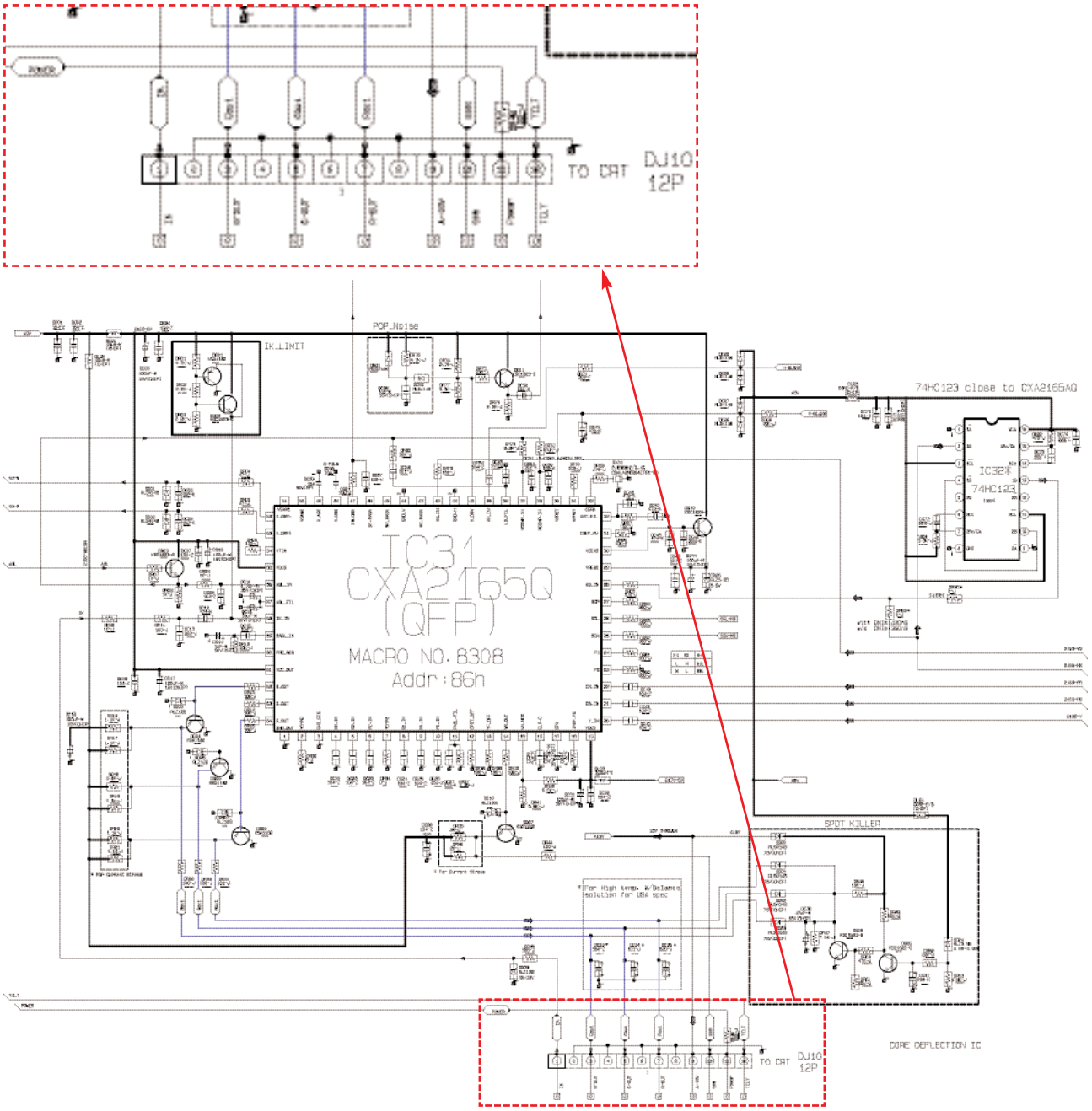


4. CXA2165 Diagnosis

This receives the Y/Pb/Pr input from DNIe and outputs to R/G/B. It also outputs V/H Drive and E/W, and controls the operation of ABL.EHT. If V-Drive output fails, check for an IC defect.

- Power supply : 5V, 15V
- Check for input defects : Y/Pb/Pr H/V
- Check for output defects : R/G/B, ABL, EW, V/H-DRIVE

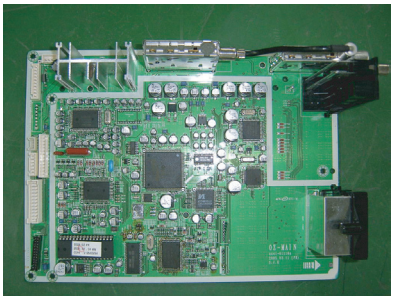


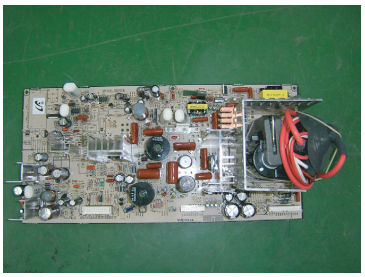


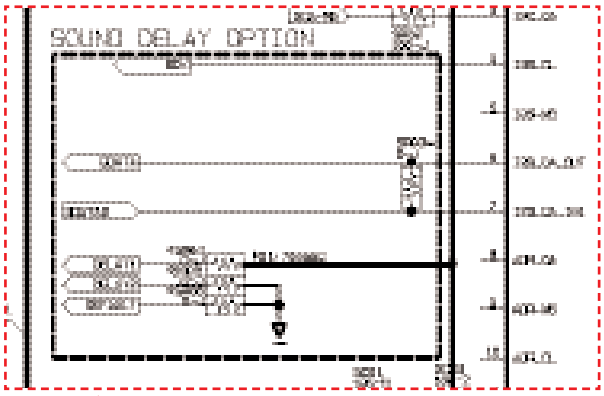
5. MSP4440 (Audio Processor) Diagnosis

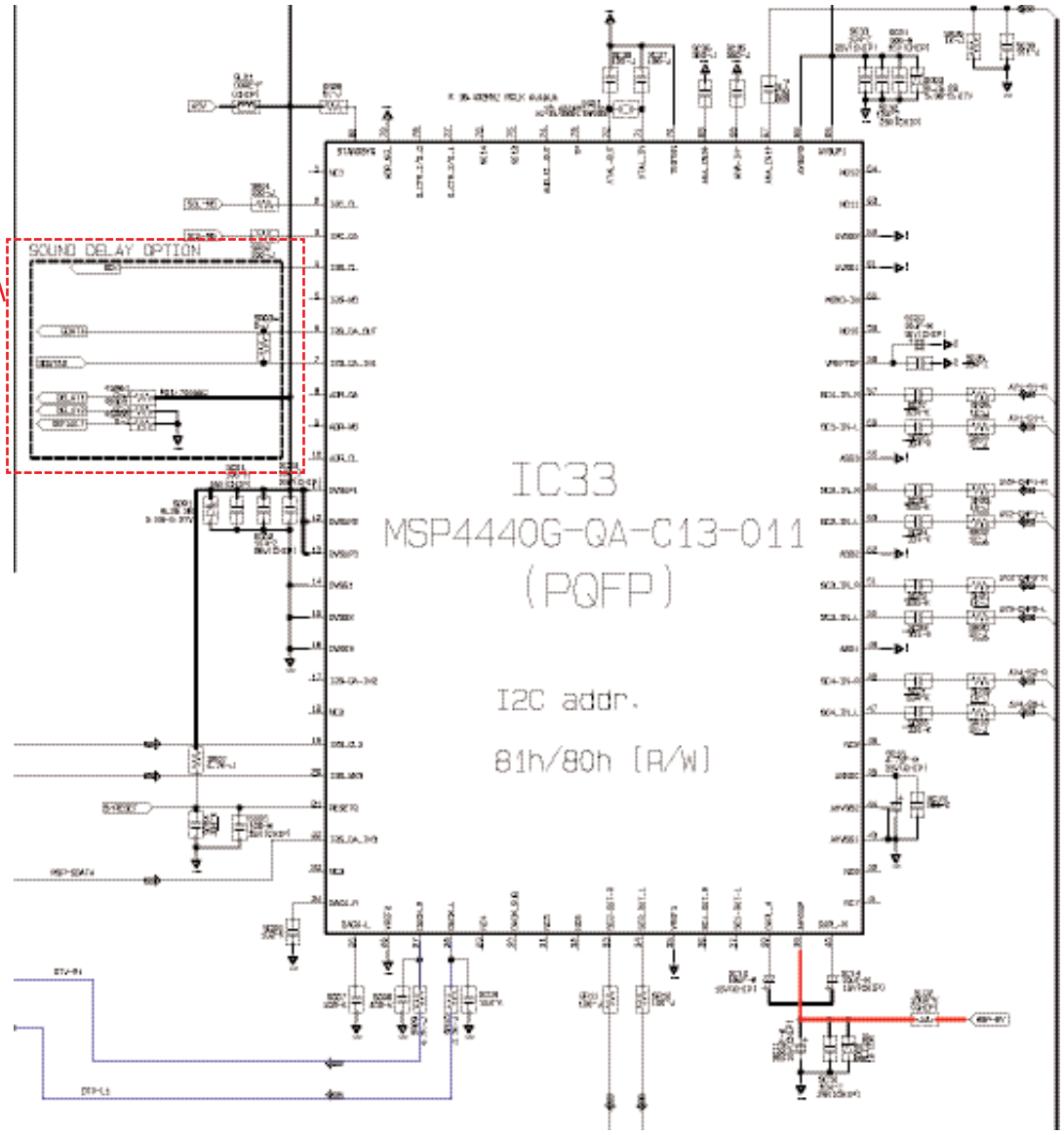
This receives the SiF signal from the Tuner, and the external input signal 1/2/3/4, and performs signal processing for the signals. It can input and output the I2S signal for the Audio Delay.

- Power supply : 5V, 8V
- Check for input defects : SiF, Scart 1/2/3/4
- Check for output defects : Lt/Rt, Monitor Out





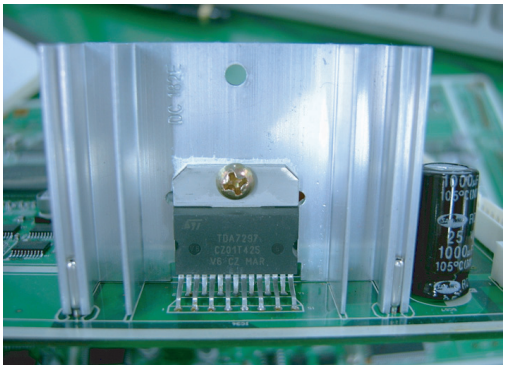


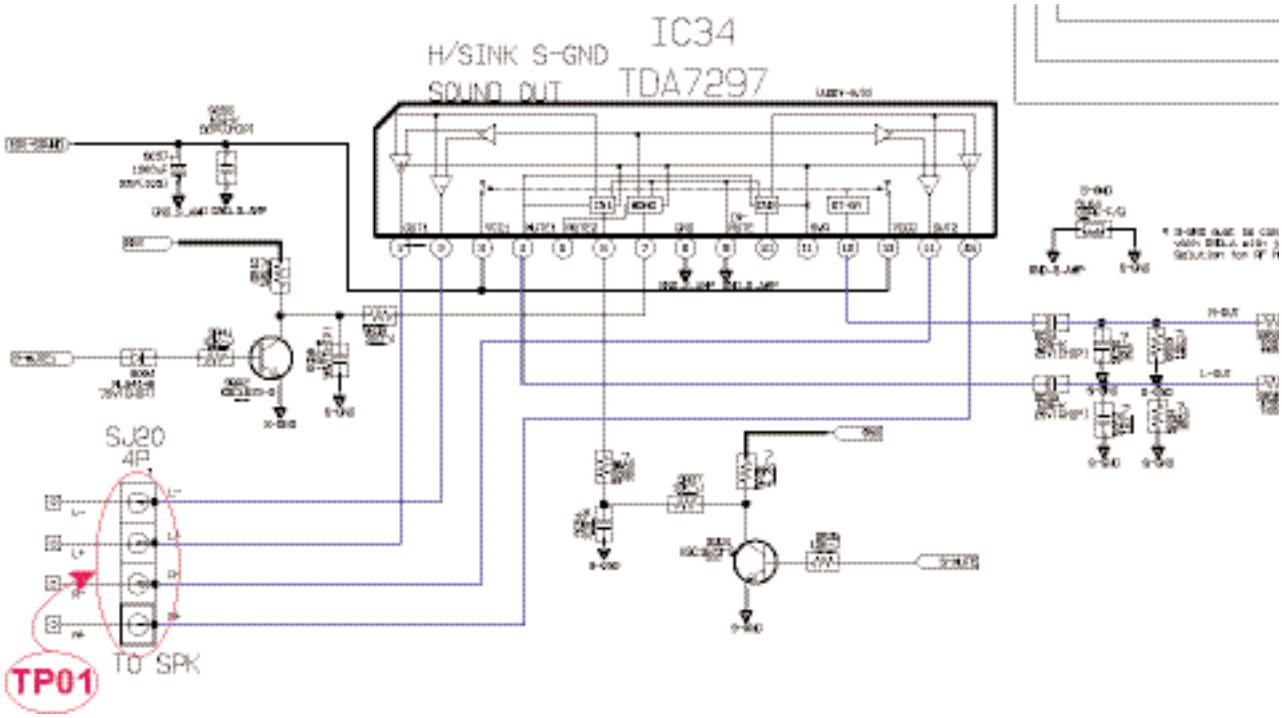


6. TDA7297 (Audio Processor) Diagnosis

This receives the signal from the Audio Processor (MSP4440) and outputs the signal in 10W + 10W sound.

- Power supply : 16V
- Check for input defects : Lt/Rt
- Check for output defects : L+, L-, R+,R-





6-5-2 Troubleshooting Deflection Board

■ Countermeasures by Deflection Types

1. The screen is blank and only the relay repeats close and open when turning the power on.
   ▶ This happens when the vertical voltage or vertical signal is not supplied, and because the Micom operates for 5 to 10 seconds and then turns the power off by force as it cannot detect the vertical signal..

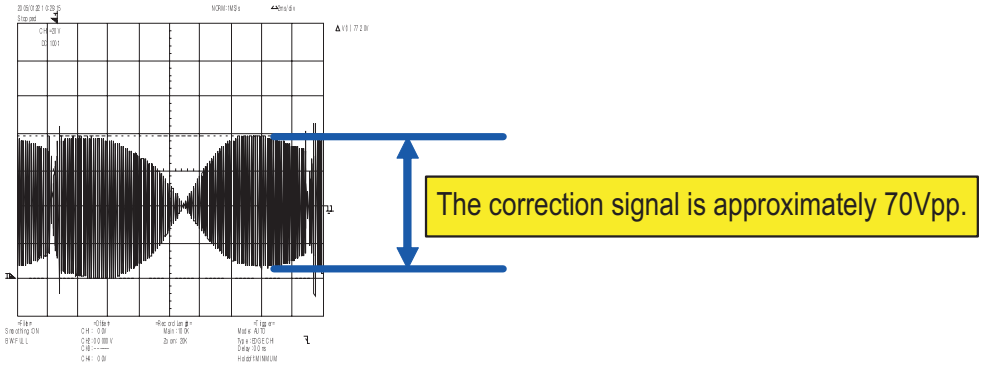
2. CHECK POINT
   - Check that the vertical output voltage is measured in the FBT terminal.
     → VCC (+) : 19.5V ~ 20V
     VCC (-) : Higher than 16.5V
     ▶ If you cannot measure the output voltage, check that the collector voltage of the horizontal TR is 1360V.
     If the voltage is measured, the problem is a defect in the FBT unit.
     (When you don't have an oscilloscope, and you can hear the high-voltage sound, you can determine that the horizontal TR is normal.)
   - Is the vertical input waveform output from the CXA2165 Chroma IC?
     ..... Input waveform: Approximately
     ▶ If the signal is not measured, check the CXA2165 VCC power voltage ====> 9V

3. Check that 15V is the proper output from the SMPS TRANS?

■ Countermeasures against problems

1. The drooping of the top and bottom of the screen is too severe.
   ▶ This may happen when the N/S correction circuit is out of order.

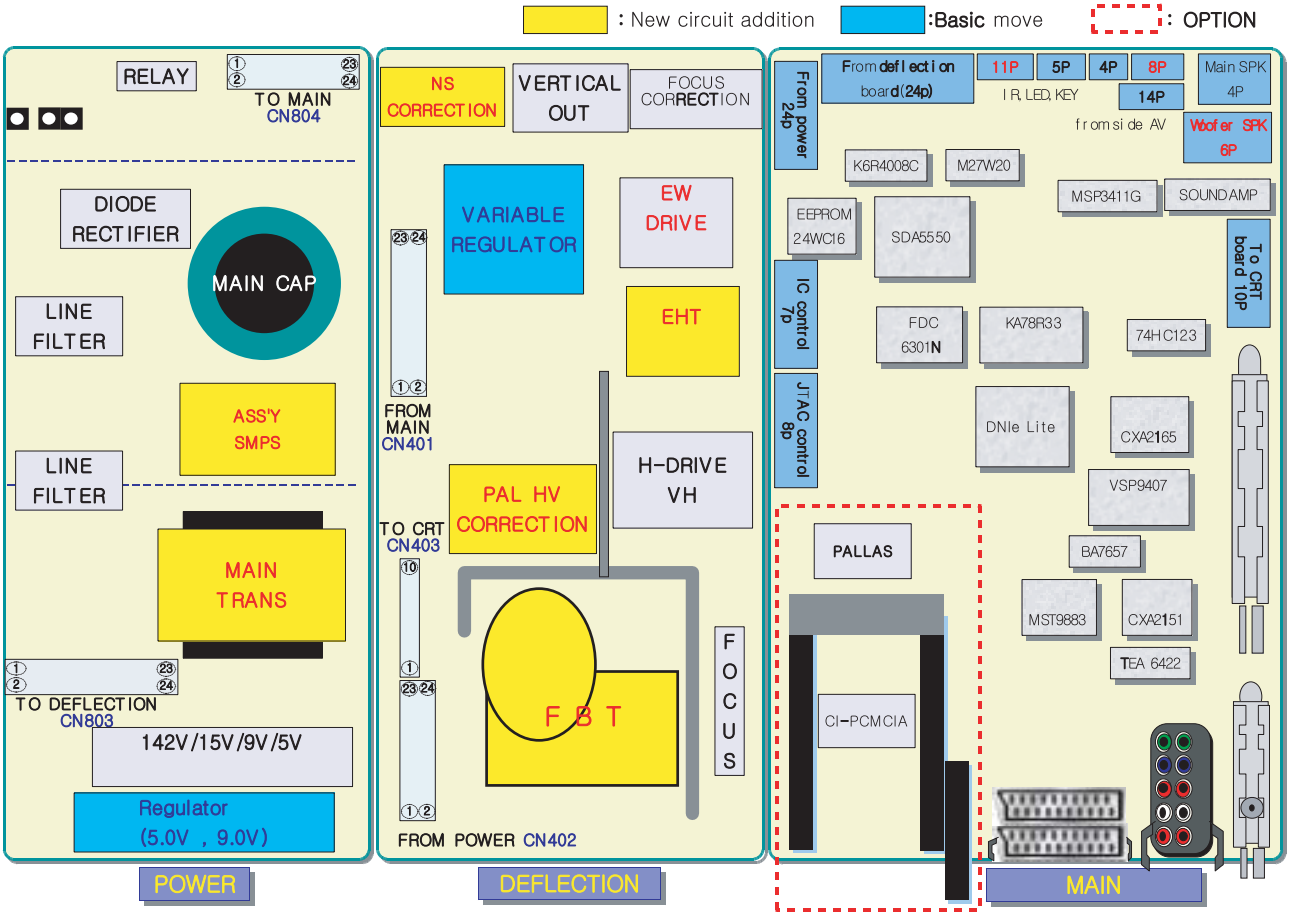
2. CHECK POINT
   → Measure the terminal V2 of the Vertical DY and check that the N/S correction signal is properly supplied.
   → 70Vpp.
   ▶ If the correction signal is not measured, check that the Lead of L304 (N/S TRANS) is disconnected. If L304 is normal, check the soldering status of C305 and C439.

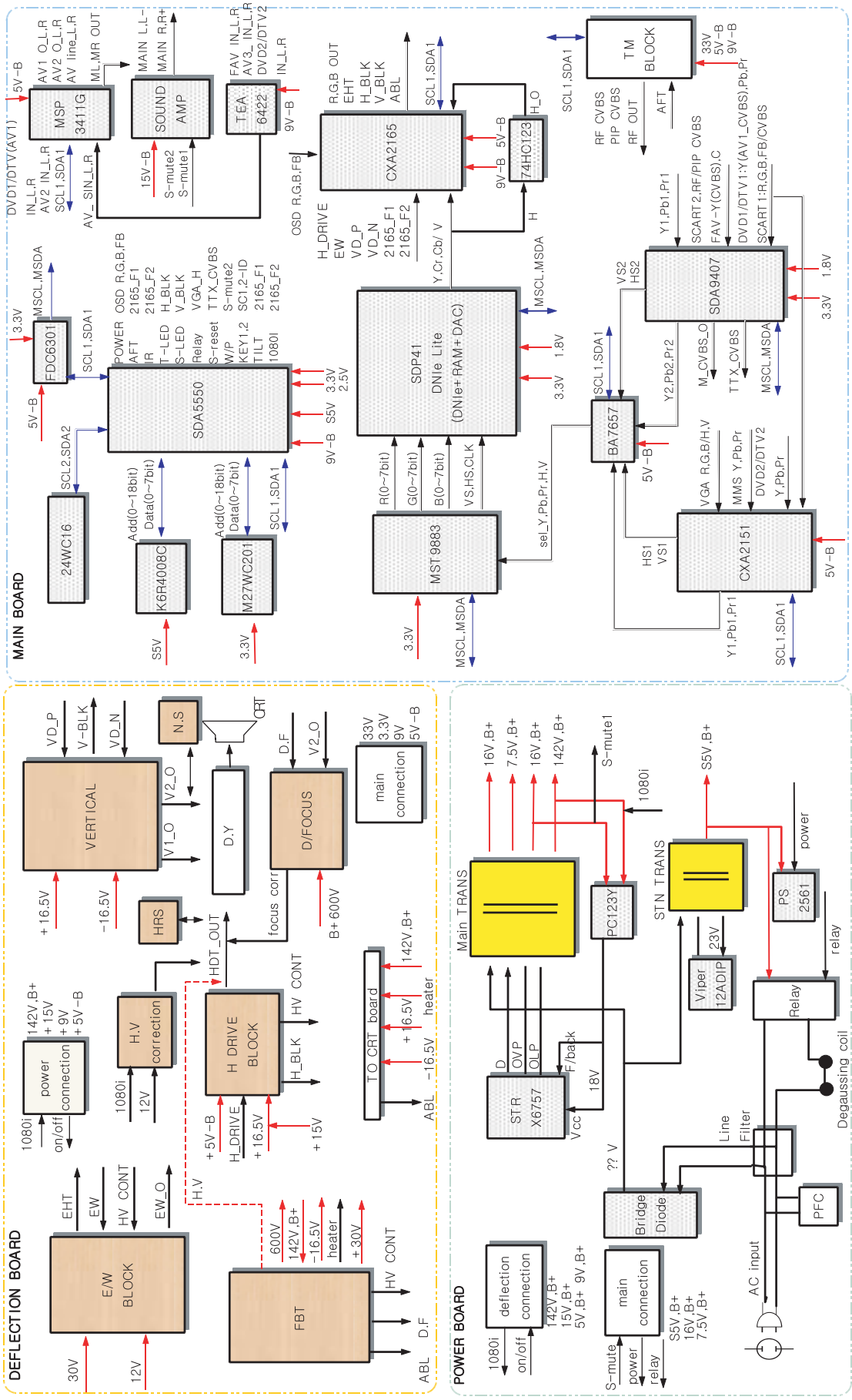


MEMO

7. Block Diagram

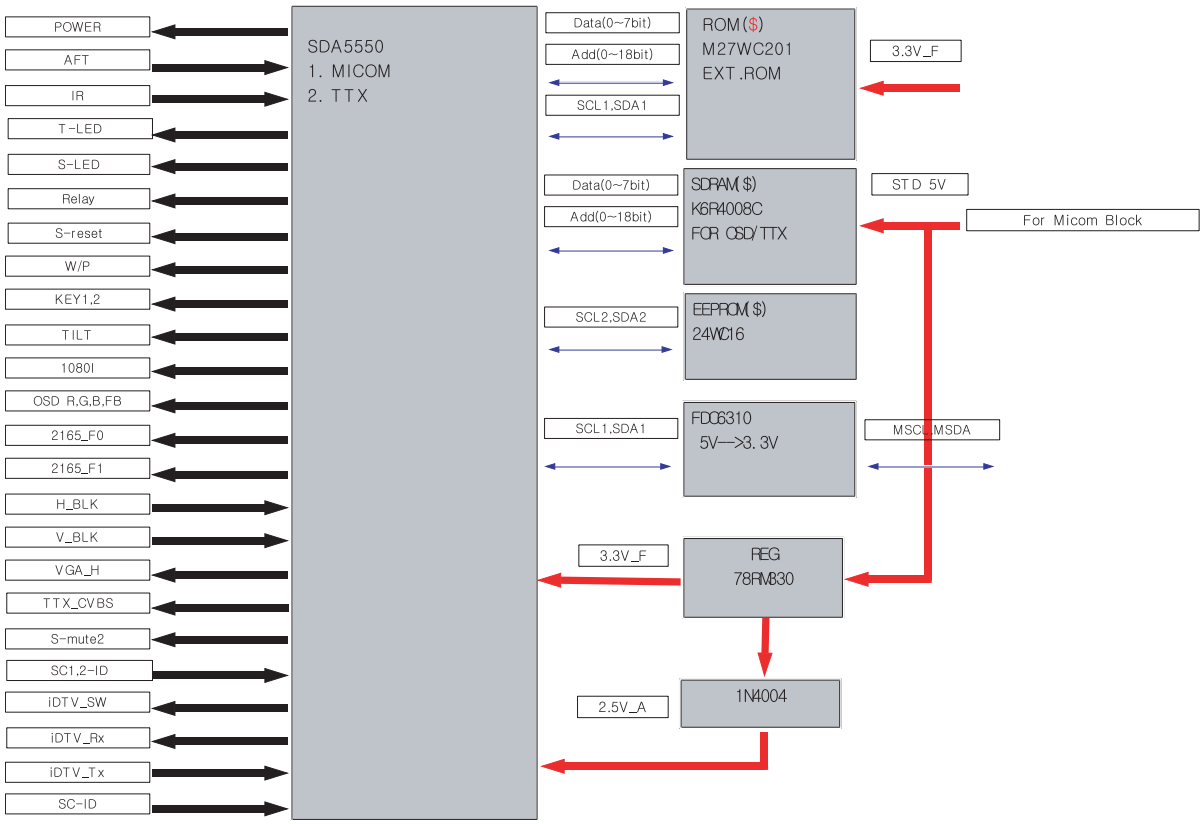
7-1 Overall Block Diagram



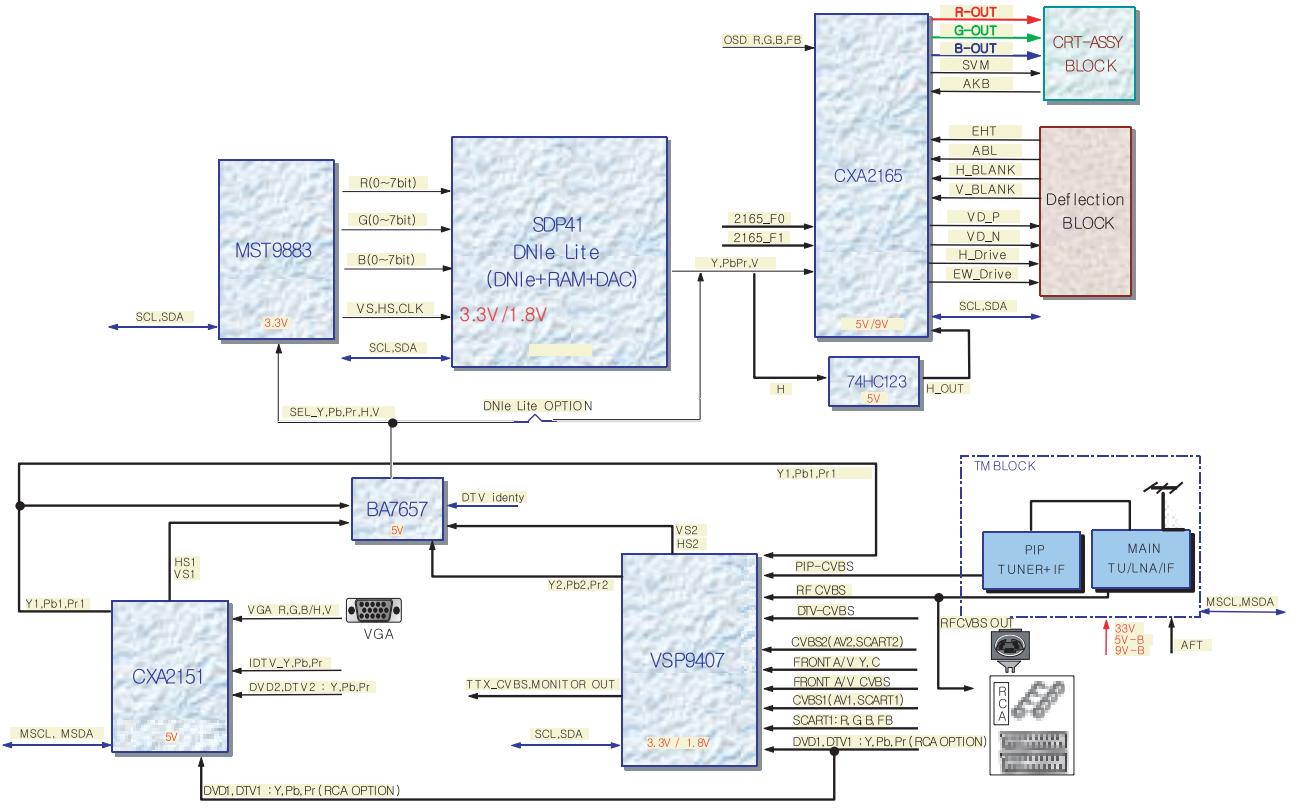

MAIN BOARD
DEFLECTION BOARD
POWER BOARD
SDA5550
SDP41
DNIe Lite
(DNIe+RAM+DAC)
MST9883
SDA9407
CXA2165
CXA2151
BA7657
TM BLOCK
MSP 3411G
SOUND AMP
TEA 6422
74HC123
FDC6301
24WC16
K6R4008C
M27WC201
VERTICAL
D.Y
D/FOCUS
H DRIVE BLOCK
H.V correction
HRS
E/W BLOCK
FBT
power connection
main connection
T.O CRT board
Main TRANS
STN TRANS
PC123Y
STR X6757
Viper 12ADIP
PS 2561
Relay
Bridge Diode
PFC
Line Filter
deflection connection
AC input
Degaussing coil

7-2 Partial Block Diagram

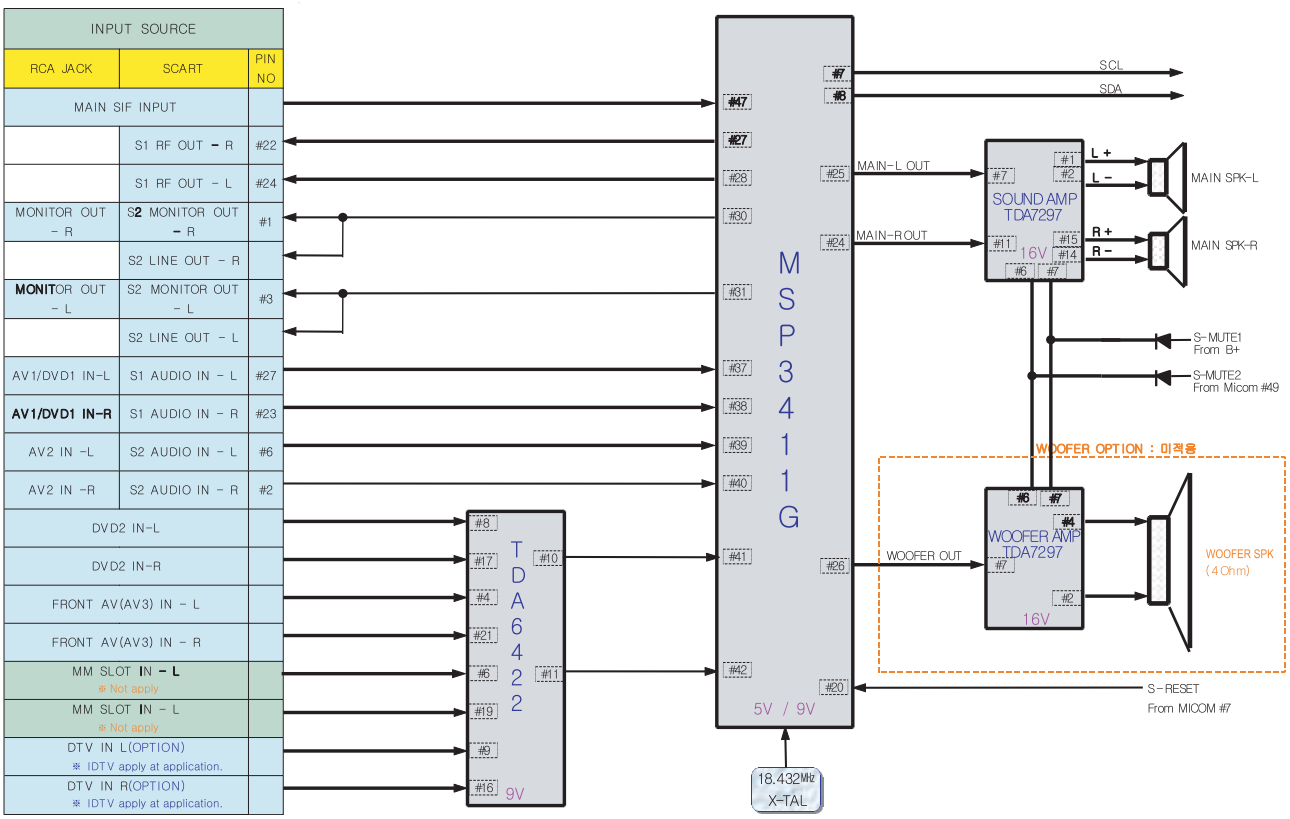
7-2-1 Micom Block Diagram



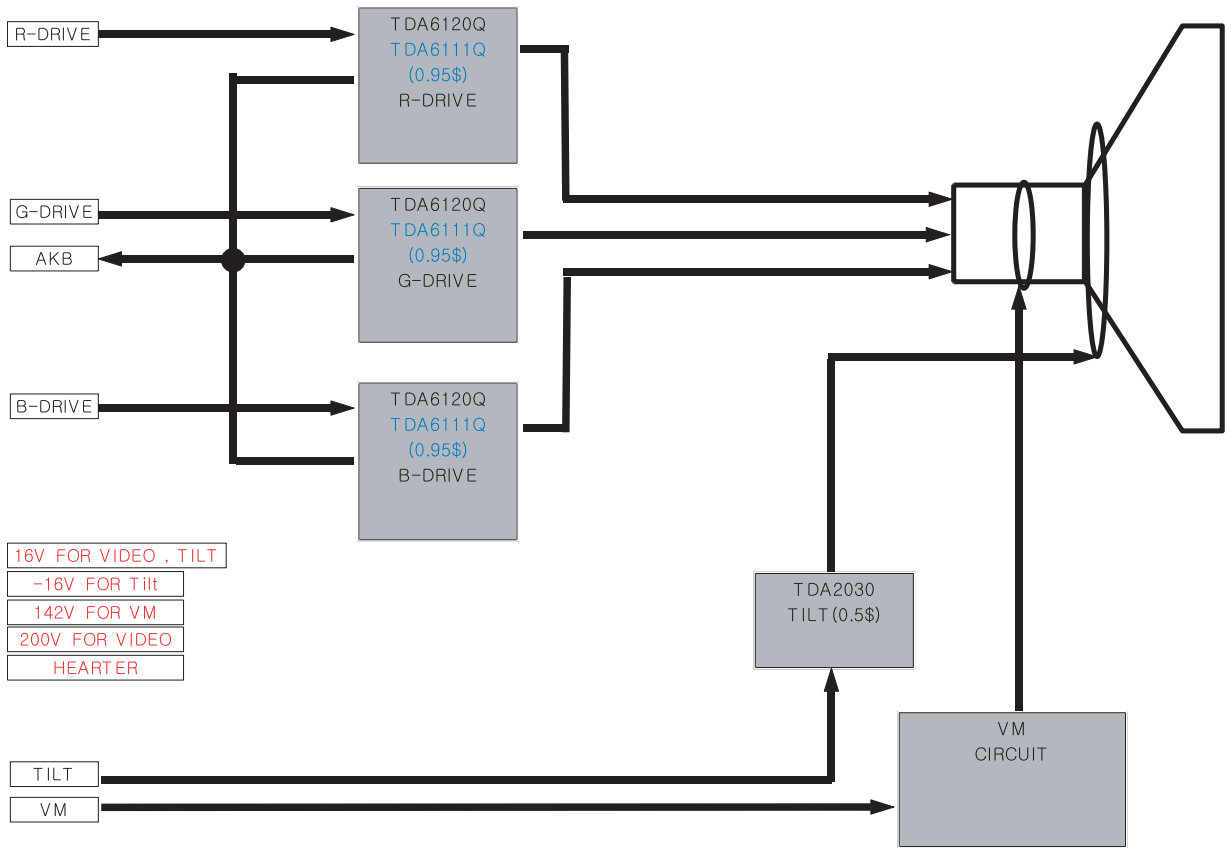
7-2-2 Video Block Diagram



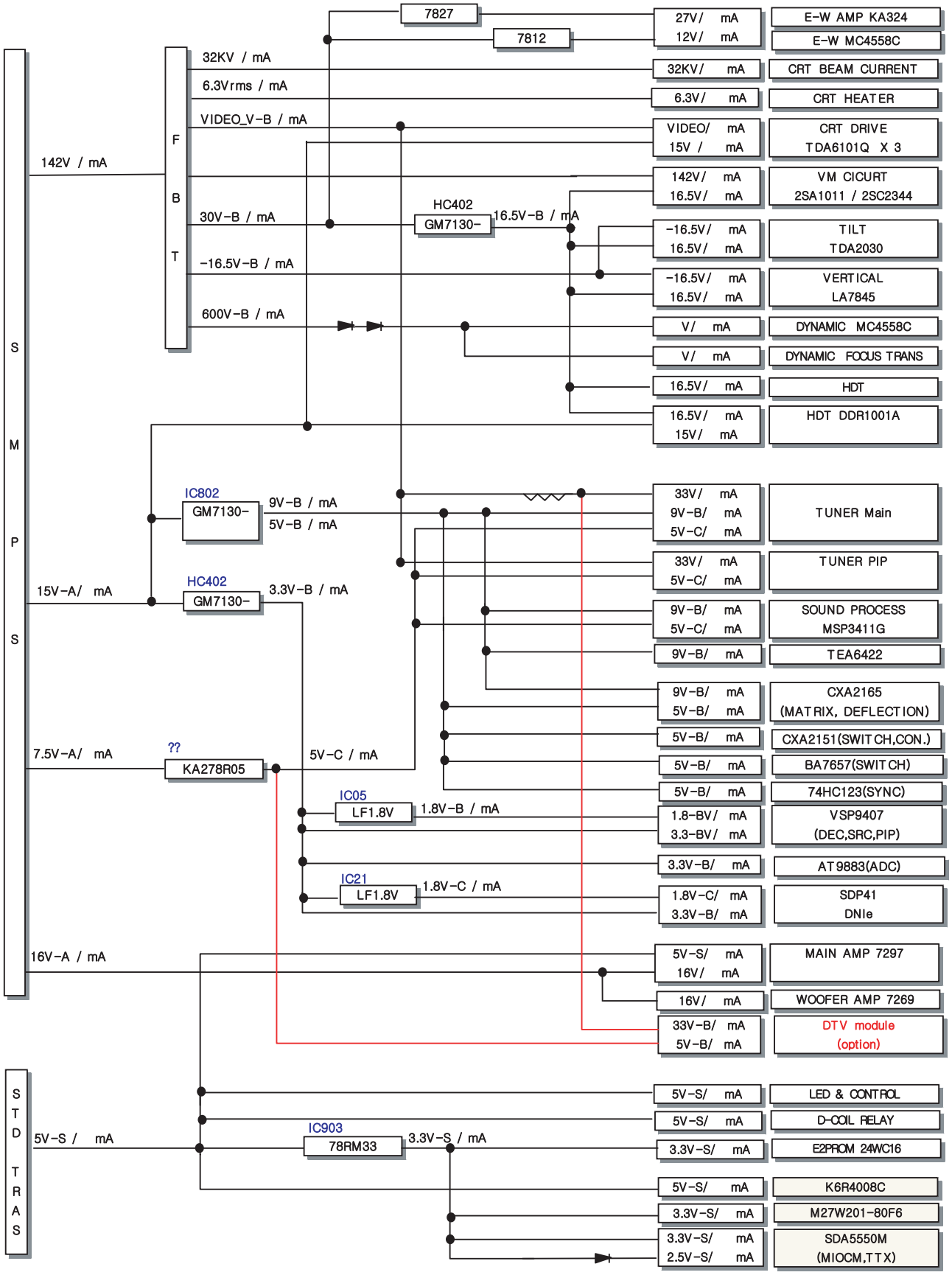
7-2-3 Sound Block Diagram



7-2-3 CRT Diagram



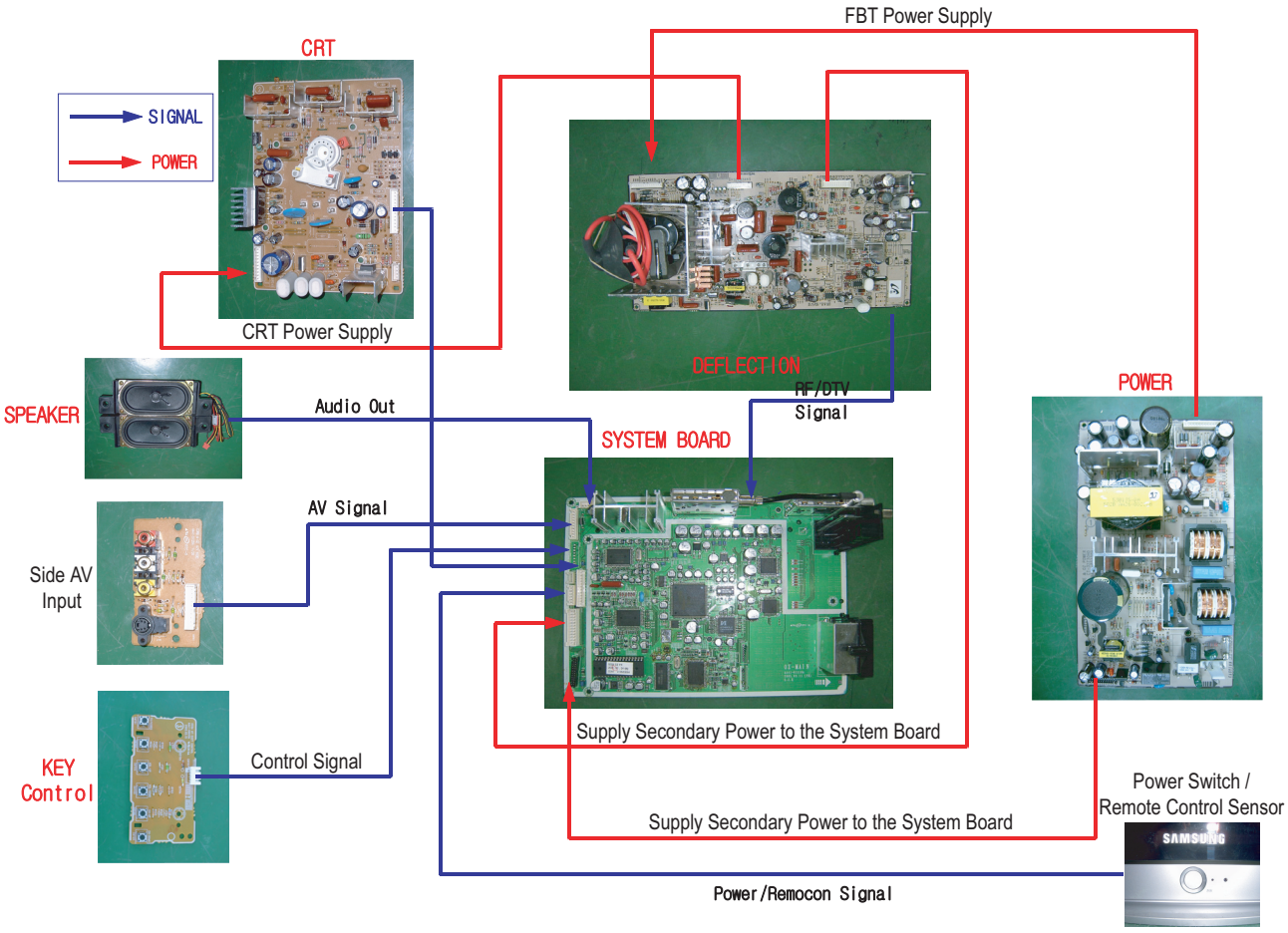
7-3 Power current block diagram



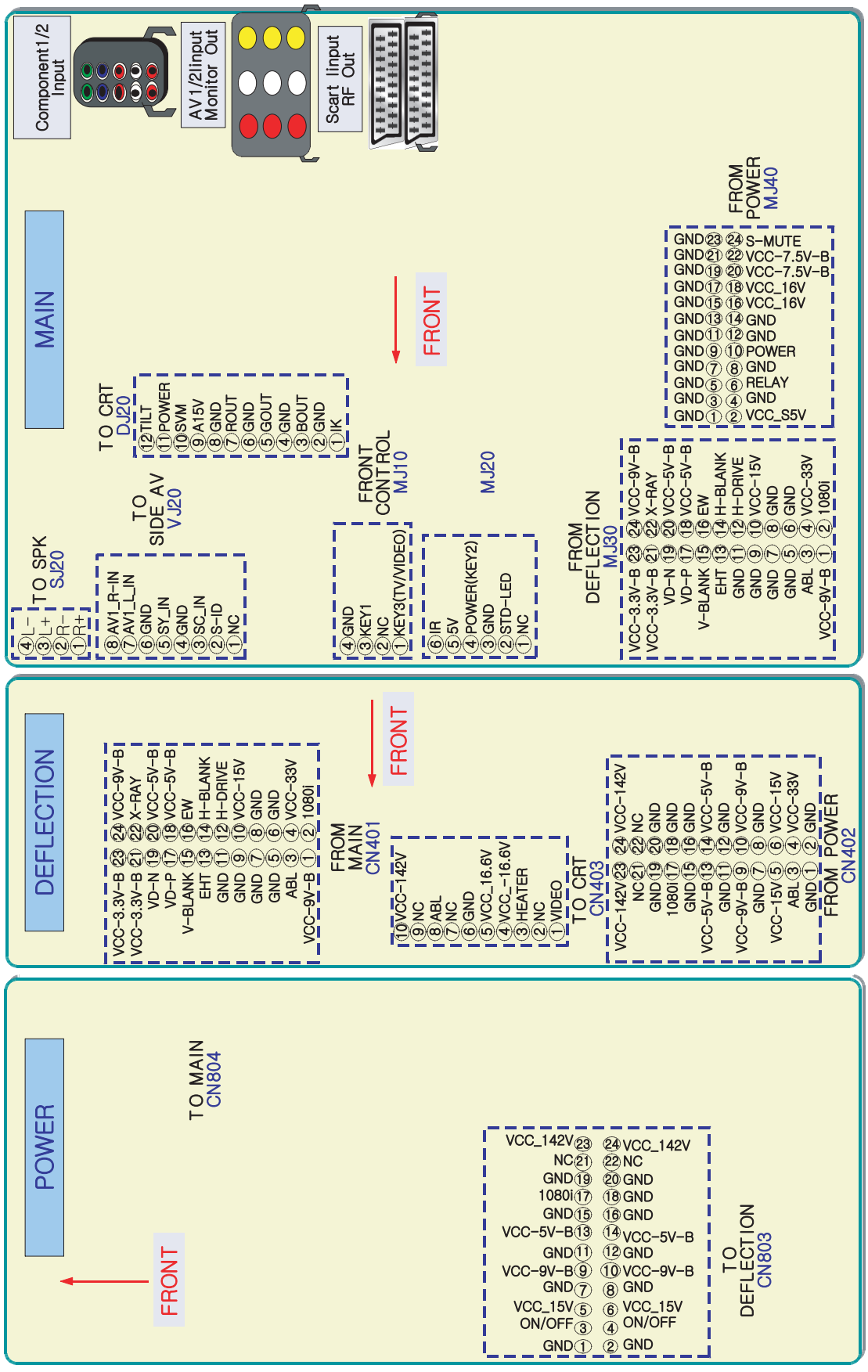
MEMO

8. Wiring Diagram

8-1 Overall Wiring



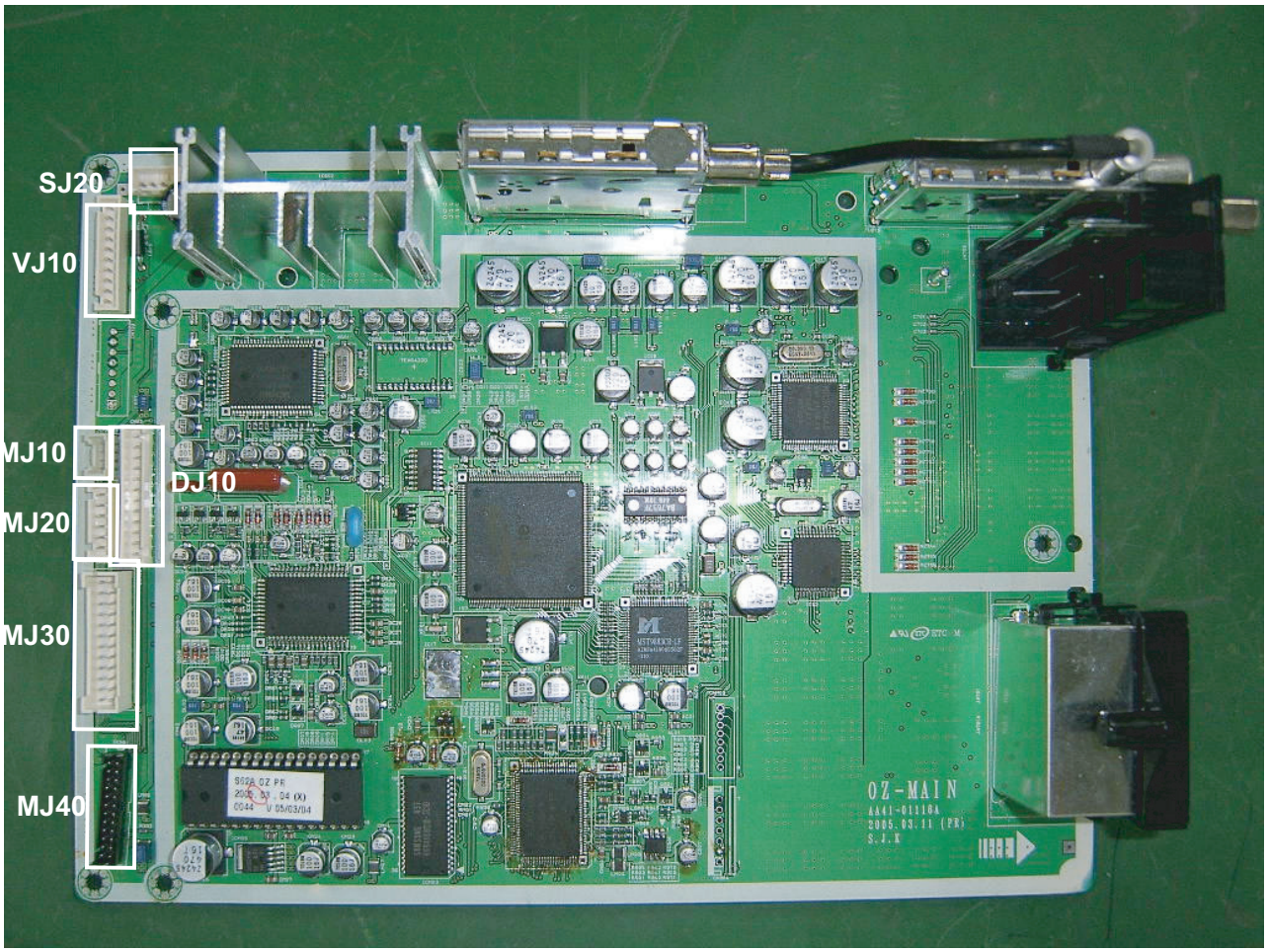
8-2 Pin Connection



9. PCB Diagram

9-1 System Board

9-1-1 Assy System Board



■ The System Board that Controls Various Signals for Video Signal Processing and Product Operations

9-1-2 Names & Roles of Key Parts

* MJ30 : This is a 28 pin port connected to the Deflection Board and receives 33V, 15V, 9V, 5V and 3.3V power, and sends CRT control signals.
* MJ40 : This is a 24 pin port connected to the Power Board and is supplied with ST-BY, 16V and 7.5V powers by the Power Board. It receives the S-Mute signal to prevent a Sound Pop-Noise, which is generated when turning the Master Power off, and sends signals for Relay, Power and 1080i to the Power Board.
* DJ10 : This is a 12 pin port connected to the CRT Ass'y, and outputs final R/G/B signals to the CRT Ass'y. In addition, it outputs the Tilt, VM, and Power signals for the CRT Drive.
* MJ20 : This is a 6 pin port connected to the Master Ass'y, and receives Master Power On/Off, and IR signals.
* MJ10 : This is a 4 pin port connected to the Control Ass'y, and receives TV/Video, Menu, Ch Up/Down and Vol -/+ signals.
* VJ10 : This is a 10 pin port connected to the Side AV, and receives S-Video2 and AV4 external inputs.
* SJ20 : This is a 4 pin port connected to the Speaker, and sends the signal from the AMP to the speakers.

9-1-3 System Board Connector Pin

MJ30
Connected to the Deflection Board

Pin Name	PIN No.		Pin Name
VCC-9V-B	1	2	1080i
ABL	3	4	VCC-33V
GND	5	6	GND
GND	7	8	GND
VCC-15V	9	10	VCC-15V
GND	11	12	H-DRIVE
GND	13	14	H-BLANK
V-BLANK	15	16	EW
VD-P	17	18	VCC-5V-B
VD-N	19	20	VCC-5V-B
VCC-3.3V-B	21	22	X-RAY
VCC-3.3V-B	23	24	8B
LNA-SW	25	26	RX
AGC-SW	27	28	TX

MJ40
Connected to the Power Board

Pin Name	PIN No.		Pin Name
VCC_S5V	1	2	VCC_S5V
GND	3	4	GND
RELAY	5	6	RELAY
GND	7	8	GND
POWER	9	10	POWER
GND	11	12	GND
GND	13	14	GND
1080i	15	16	1080i
VCC_16V	17	18	VCC_16V
VCC-7.5V-B	19	20	VCC-7.5V-B
S-MUTE	21	22	S-MUTE
GND_S_AMP	23	24	GND_S_AMP

DJ10
Connected to the CRT Ass'y

PIN No.	Pin Name
1	IK
2	GND
3	B-OUT
4	GND
5	G-OUT
6	GND
7	R-OUT
8	GND
9	15V
10	VM
11	POWER
12	TILT

VJ10
Connected to the Side AV Port

PIN No.	Pin Name
1	S-Y2
2	GND
3	S-C2
4	GND
5	AV
6	GND
7	AV4-L
8	GND
9	AV4-R
10	GND

SJ20
Connected to the Side AV Port

PIN No.	Pin Name
1	R+
2	R-
3	L+
4	L-

MJ20
Connected to the Master Ass'y

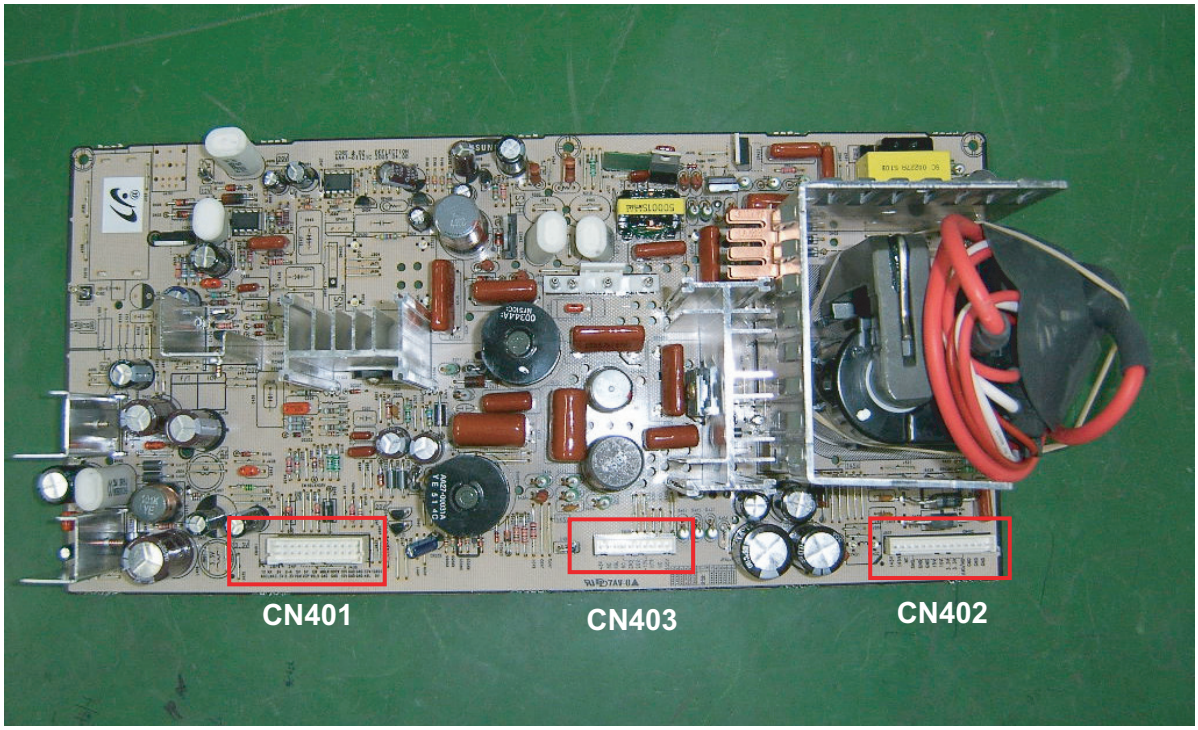
PIN No.	Pin Name
1	NC
2	STD-LED
3	GND
4	KEY2
5	5V
6	IR

MJ10
Connected to the Control Ass'y

PIN No.	Pin Name
1	KEY3
2	A10
3	KEY1
4	GND

9-2 Deflection Board

9-2-1 Assy Deflection Board



■ This controls the path of the electron beams from the CRT electron guns using the deflection coil.

9-2-2 Names & Roles of Key Parts

* CN401 : This is a 28 pin port connected to the System Board, and supplies 33V, 15V, 9V, 5V and 3.3V power to the System Board.
* CN402 : This is a 14 pin port connected to the Power Board, is supplied with 145V and 15V power by the Power Board and receives the power ON/OFF signal.
* CN403 : This is a 10 pin port connected to the CRT Ass'y, and supplies power for the CRT and R/G/B signal amplifying AMP.
* CN301 : This is a 4 pin port connected to the DY, and supplies voltage for CRT R/G/B.
* GT101 : This is a ground port to prevent high voltage due to lightning, and is connected to the Power Board.

9-2-3 Deflection Board Connector Pin

CN401
Connected to the System Board

Pin Name	PIN No.		Pin Name
VCC-9V-B	1	2	1080i
ABL	3	4	VCC-33V
GND	5	6	GND
GND	7	8	GND
VCC-15V	9	10	VCC-15V
GND	11	12	H-DRIVE
GND	13	14	H-BLANK
V-BLANK	15	16	EW
VD-P	17	18	VCC-5V-B
VD-N	19	20	VCC-5V-B
VCC-3.3V-B	21	22	X-RAY
VCC-3.3V-B	23	24	8B
LNA-SW	25	26	RX
AGC-SW	27	28	TX

CN402
Connected to the Power Board

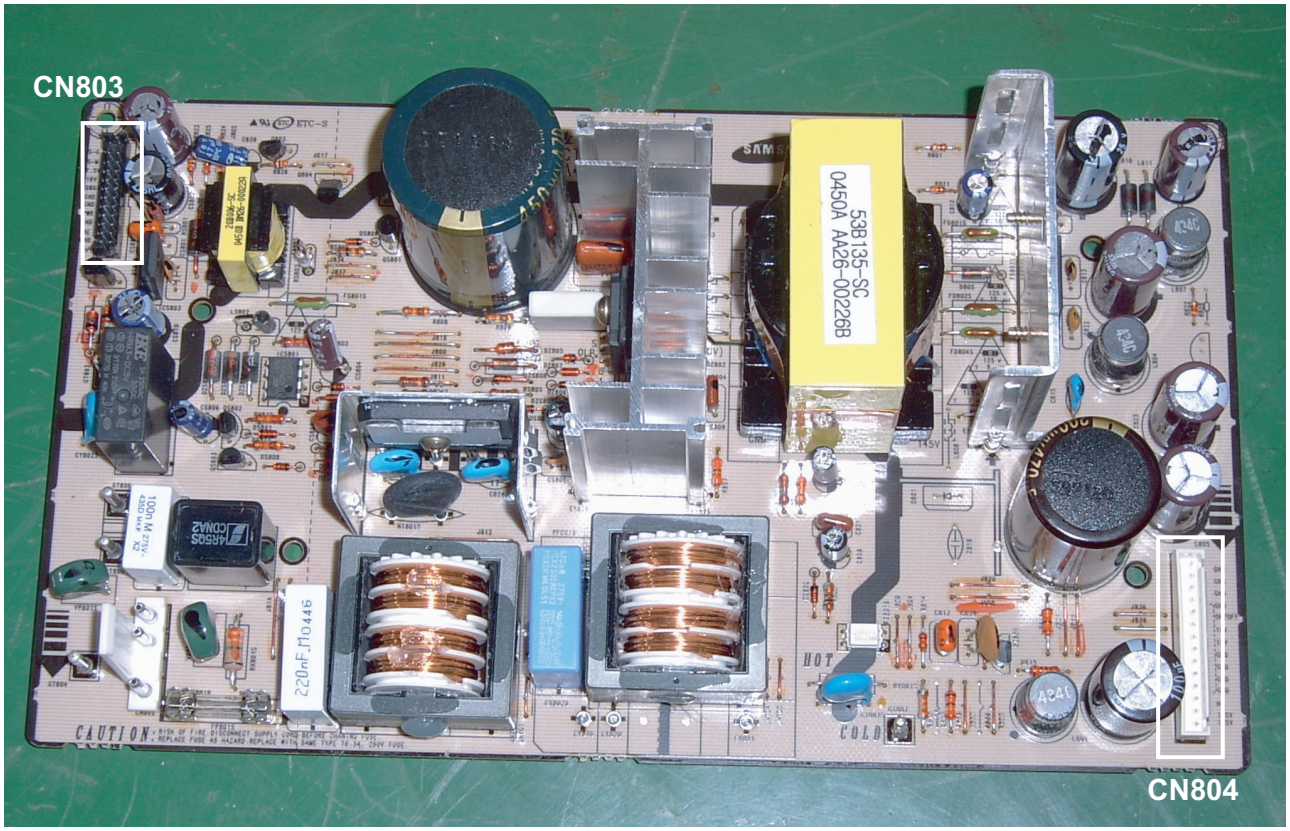
PIN No.	Pin NAME
1	VCC_142V
2	VCC_142V
3	NC
4	GND
5	GND
6	GND
7	GND
8	VCC_15V
9	VCC_15V
10	ON/OFF
11	GND
12	GND
13	GND
14	GND

CN403
Connected to the CRT Ass'y

PIN No.	Pin NAME
1	VCC-200V
2	NC
3	HEATER
4	VCC_-16.5V
5	VCC_20V
6	GND
7	NC
8	ABL
9	NC
10	VCC_142V

9-3 Power Board

9-3-1 Assy Power Board



■ The Assy Power Board supplies DC power. This supplies power to the System and the Deflection Board.

9-3-2 Names & Roles of Key Parts

* CN804 : This is a 14 pin port connected to the Deflection Board, and supplies 142V and 15V voltage and the power on and off signals to the Deflection Board.
* CN803 : This is a 24 pin port connected to the System Board, and supplies ST-BY 5V, 15V and 7.5V voltage and the S-Mute signal, to prevent a Sound Pop-Noise which is generated when turning the master power OFF, to the System Board. It receives the Relay, Power and 1080i signals from the System Board.
* GT807 : This is a port for countermeasures against compulsory discharges and is connected to the CRT Board.
* GT804 : This is a ground port to prevent high voltage due to lightning and is connected to the Deflection Board.
* CN802 : This is a 3 pin port connected to the AC power cable. It is connected to the power cable socket.
* GT805, GT806 : This is a port connected to the D-Coil surrounding the CRT.

9-3-3 Power Board Connector Pin

CN803
Supplies power to the System Board

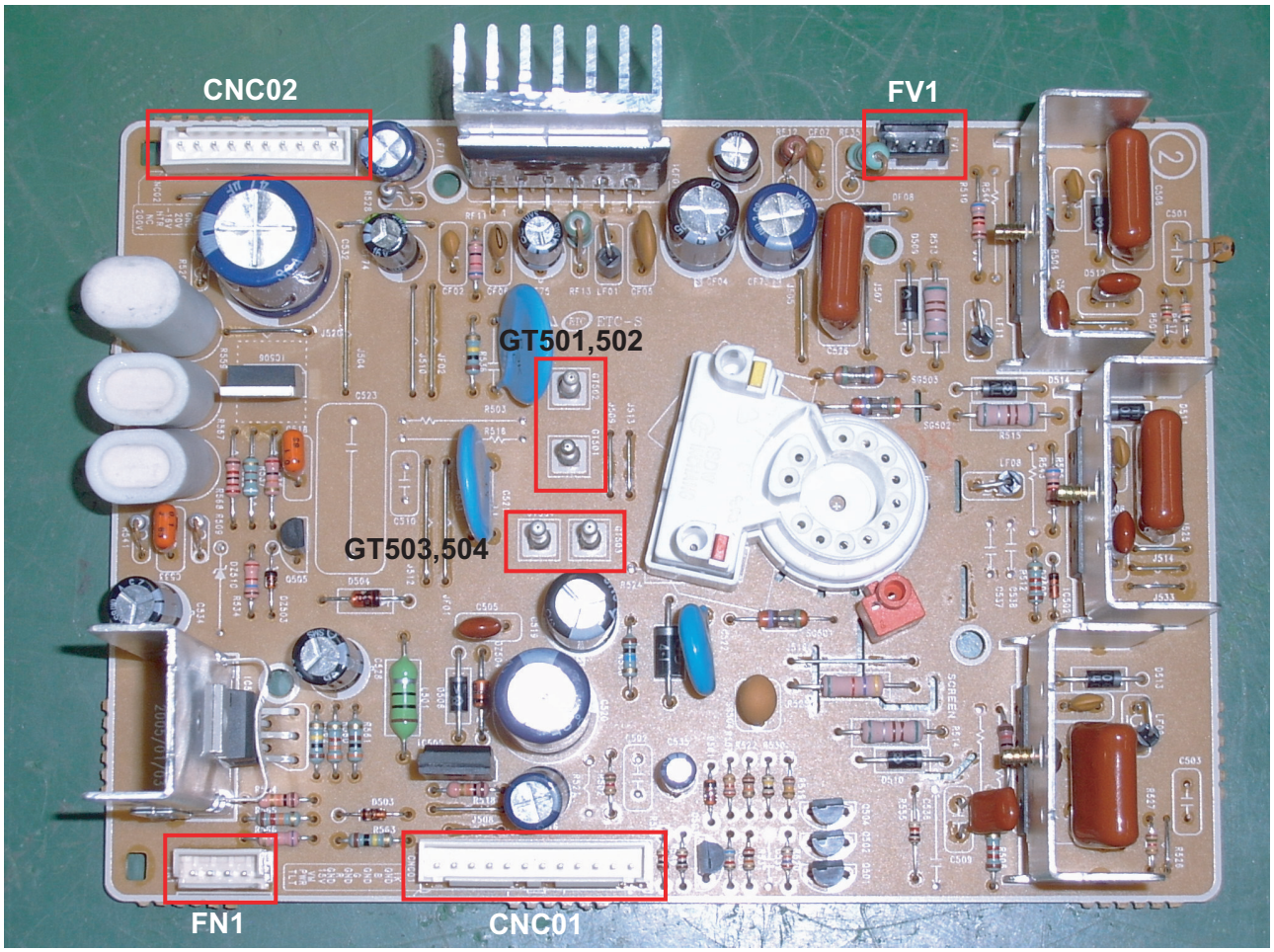
Pin Name	PIN No.		Pin Name
VCC_S5V	1	2	VCC_S5V
GND	3	4	GND
RELAY	5	6	RELAY
GND	7	8	GND
POWER	9	10	POWER
GND	11	12	GND
GND	13	14	GND
1080i	15	16	1080i
VCC_16V	17	18	VCC_16V
VCC-7.5V-B	19	20	VCC-7.5V-B
S-MUTE	21	22	S-MUTE
GND_S_AMP	23	24	GND_S_AMP

CN804
Supplies power to the Deflection Board

PIN No.	Pin NAME
1	VCC_142V
2	VCC_142V
3	NC
4	GND
5	GND
6	GND
7	GND
8	VCC_15V
9	VCC_15V
10	ON/OFF
11	GND
12	GND
13	GND
14	GND

9-4 CRT Board

9-4-1 Assy CRT Board



■ CRT Drive
This supplies the final R/G/B signal from the System Board and the CRT deflection signal to the CRT.

9-4-2 Names & Roles of Key Parts

* GT503 or GT504 : This is a port for countermeasures against compulsory discharges and is connected to the Power Board.
* GT501, GT502 : This is a port connected to the TBC-Wire and plays the role of CRT ground.
* CNC01 : This is a port to receive the R/G/B output signals from the System Board.
* CNC02 : This is a port that receives power for the CRT and AMP from the Deflection Board.
* FV1 : A port to connect the VM signal to the DY Ass'y.
* FN1 : A port to connect signals to the Tilt Coil and is required for the screen slant adjustment.

9-4-3 CRT Board Connector Pin

CNC01
Connects the R/G/B signal from the System Board

PIN No.	Pin NAME
1	IK
2	GND
3	B
4	GND
5	G
6	GND
7	R
8	GND
9	15V
10	VM
11	PWR
12	TLT

CNC02
Connects the power from the Deflection Board

PIN No.	Pin NAME
1	VCC-200V
2	NC
3	HEATER
4	VCC_-16.5V
5	VCC_20V
6	GND
7	NC
8	ABL
9	NC
10	VCC_142V

FV1
Connects the VM signal to the DY Ass'y

PIN No.	Pin NAME
1	VM
2	NC
3	VM

FN1
Connects the signal to the Tilt Coil

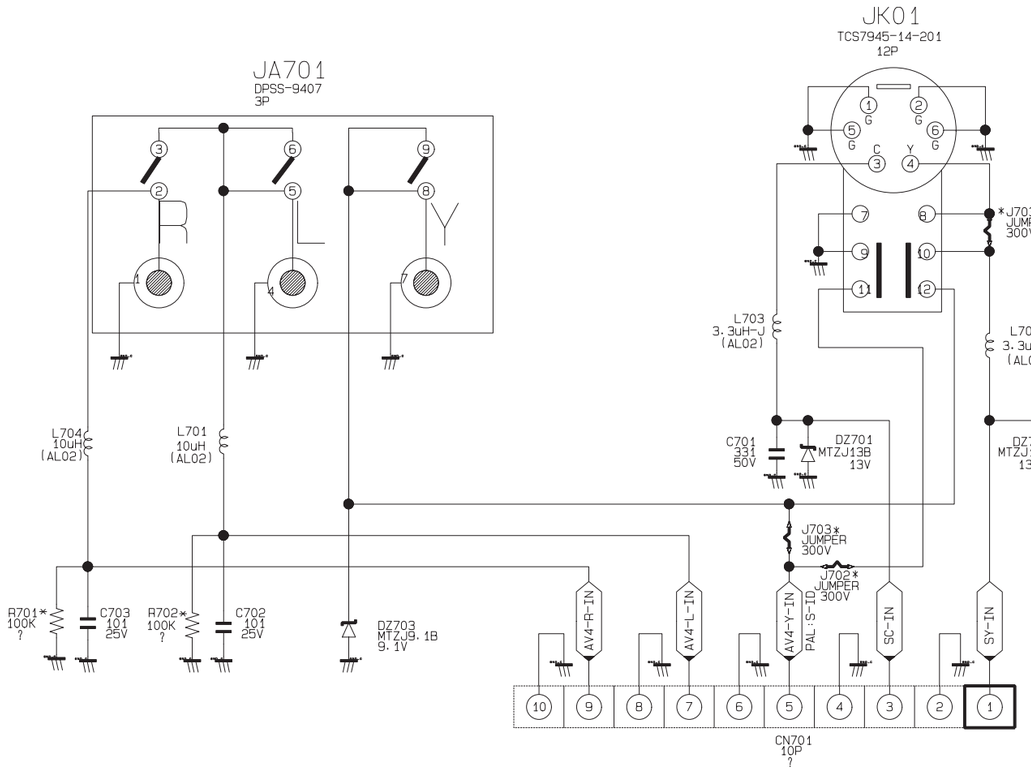
PIN No.	Pin NAME
1	GND
2	GND
3	TILT
4	TILT

MEMO

10. Schematic Diagram

10-1 AV

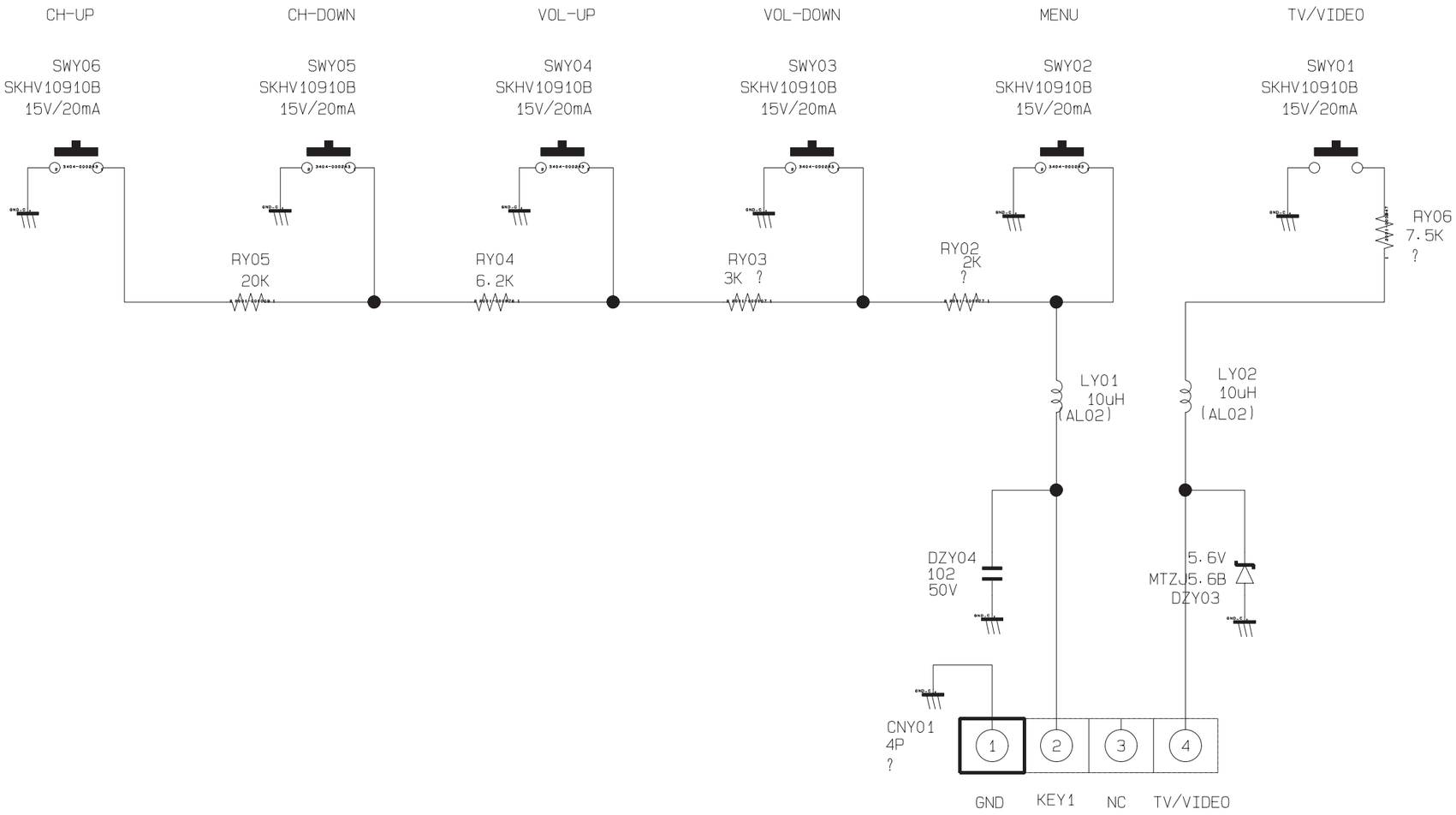
This Document can not be used without Samsung's authorization.



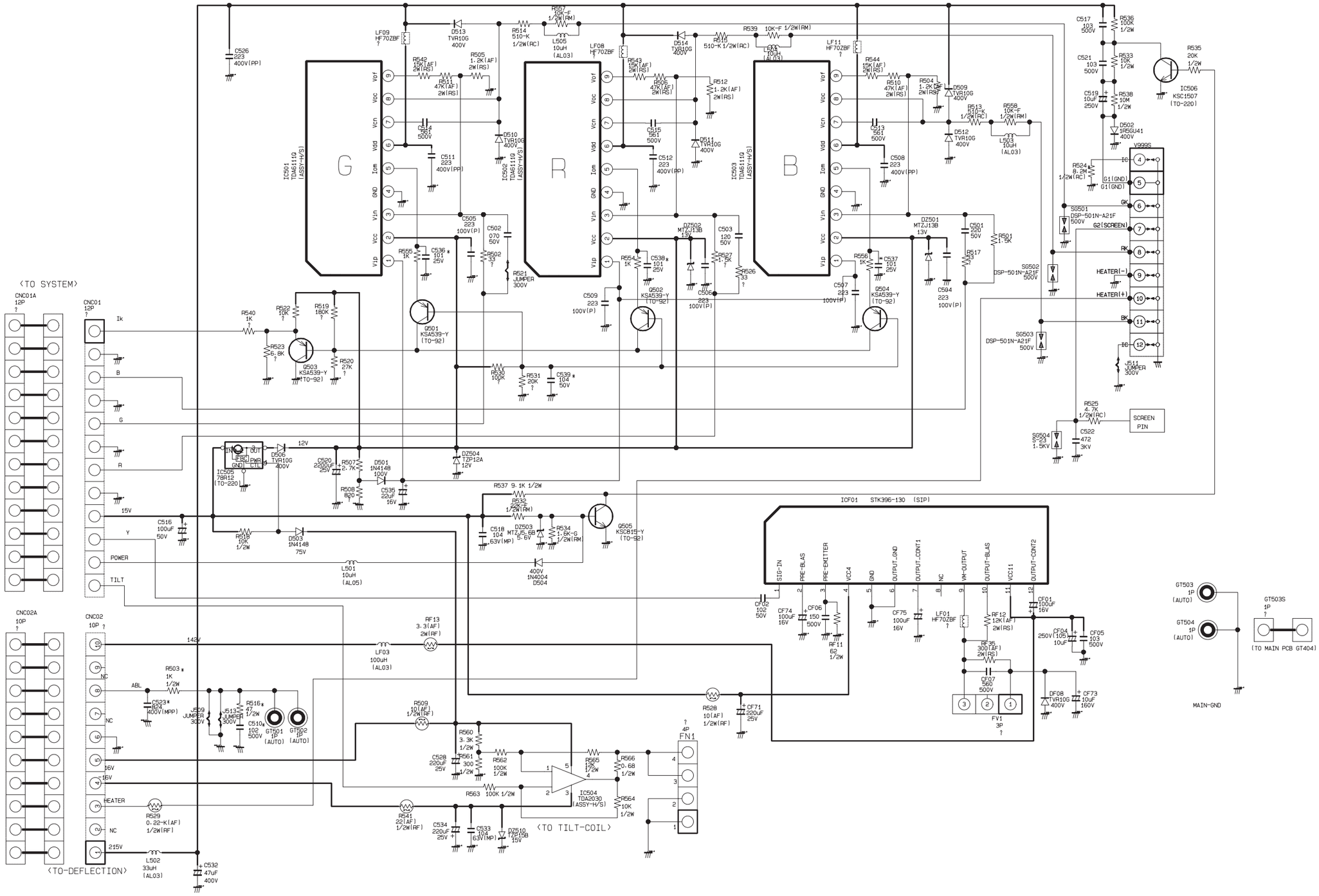
OPTION

LOC	NT	PAL
J701	DELETE	JUMPER
J702	DELETE	JUMPER
J703	JUMPER	DELETE
R701	DELETE	1/8W 100K
R702	DELETE	1/8W 100K

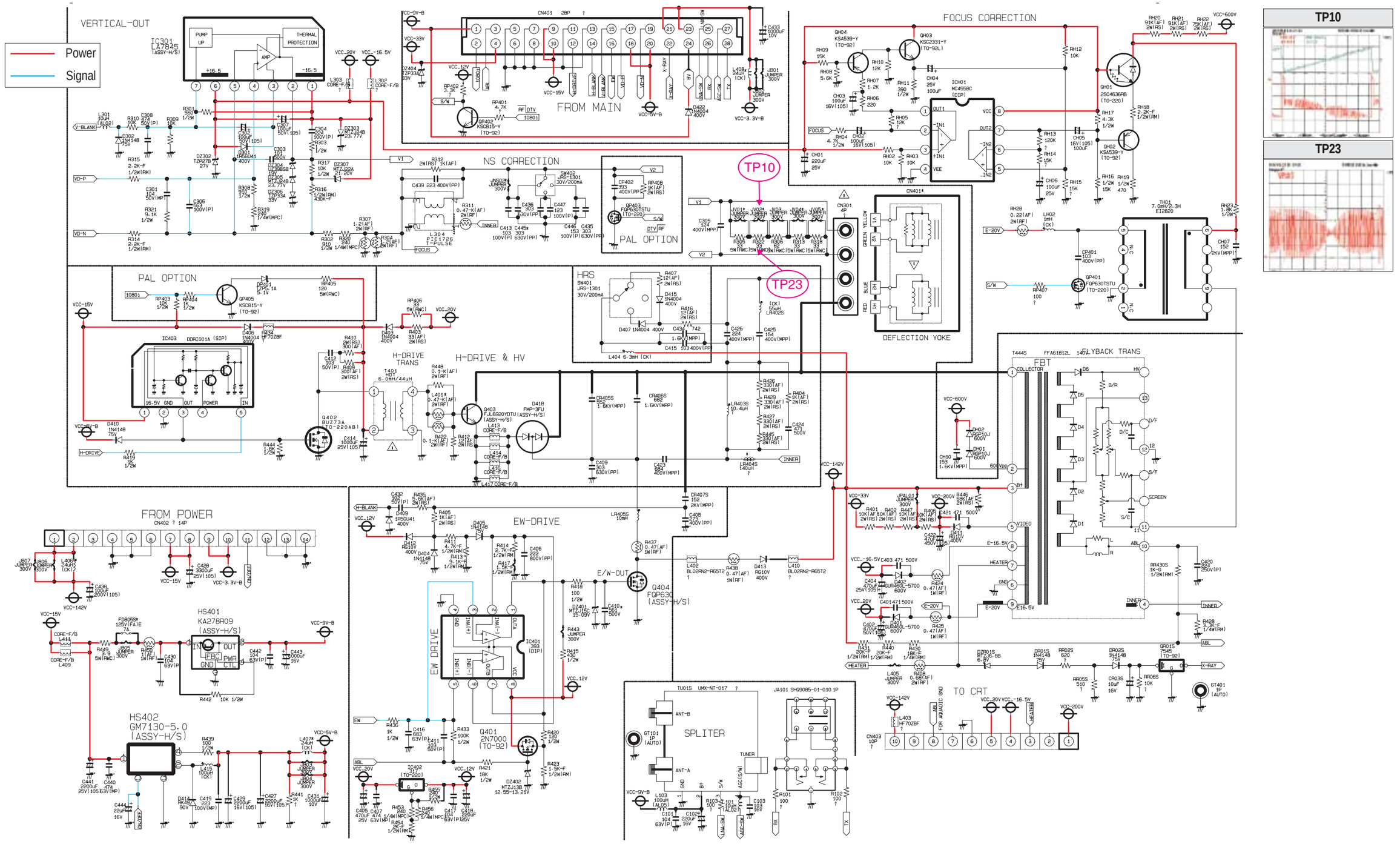
10-2 CONTROL



10-3 CRT

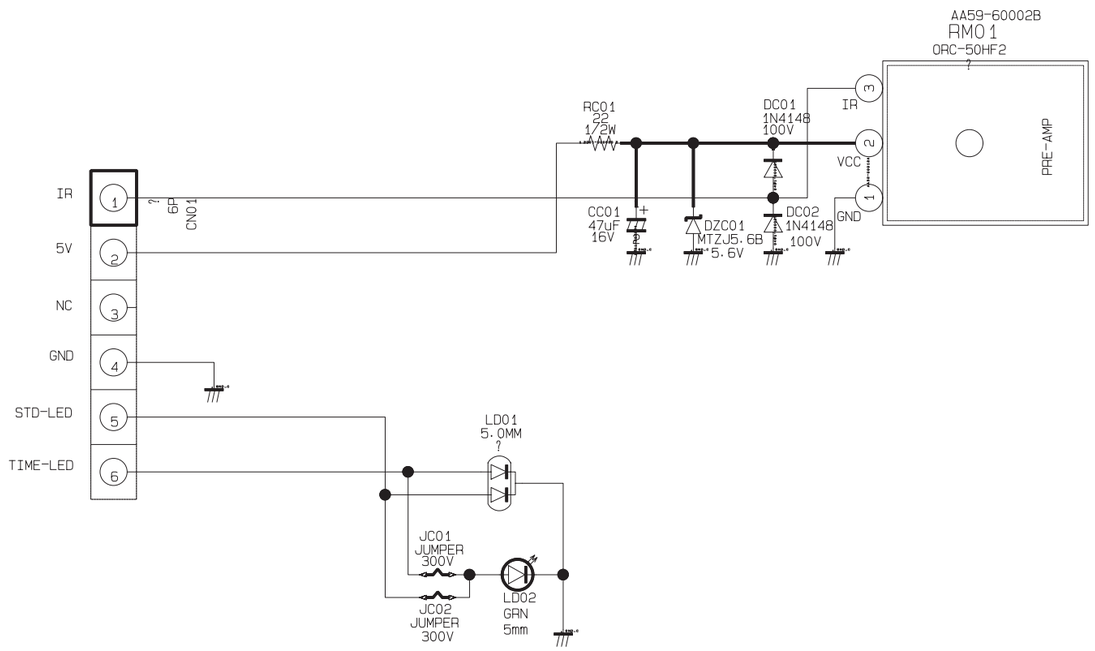


10-4 DEFLECTION



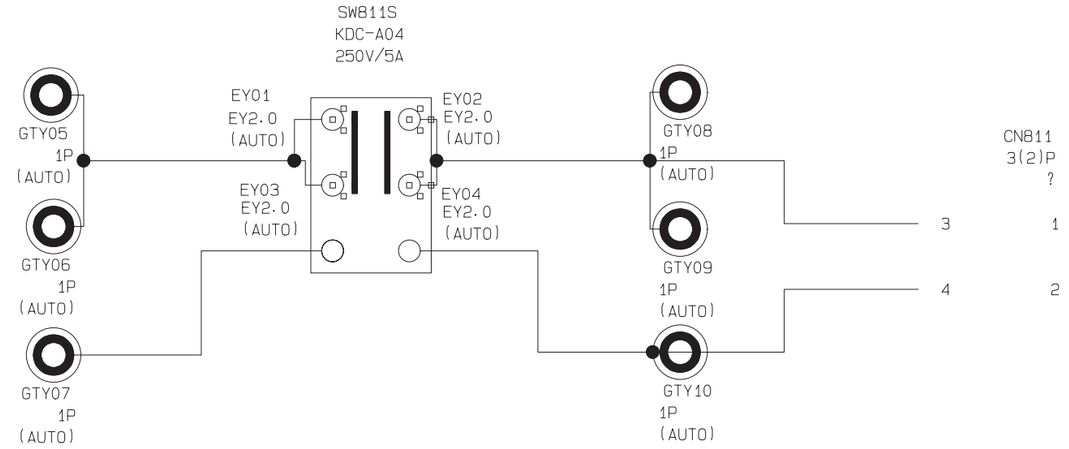
10-5 LED Module

This Document can not be used without Samsung's authorization.



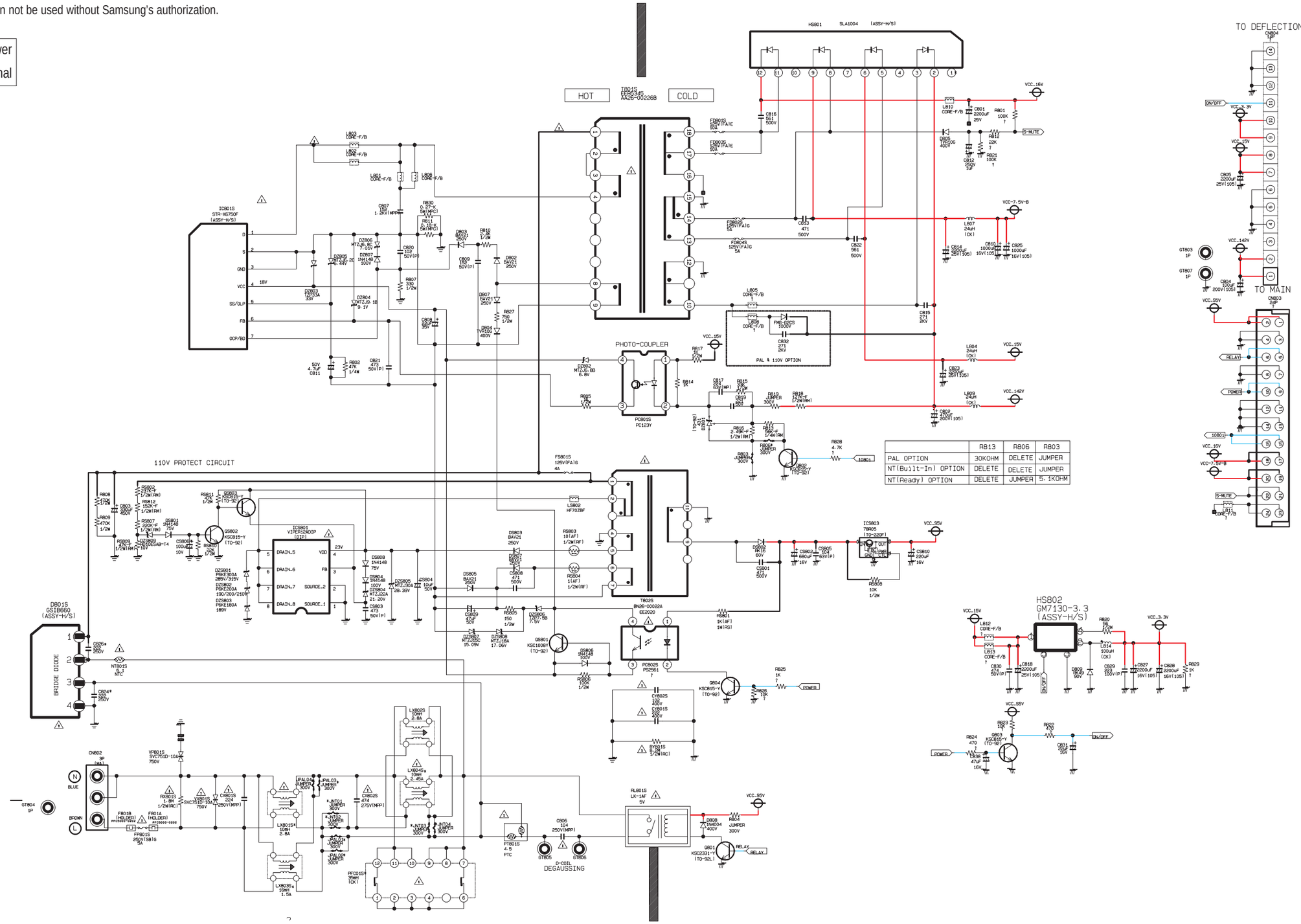
10-6 Master S/W

This Document can not be used without Samsung's authorization.



10-7 POWER

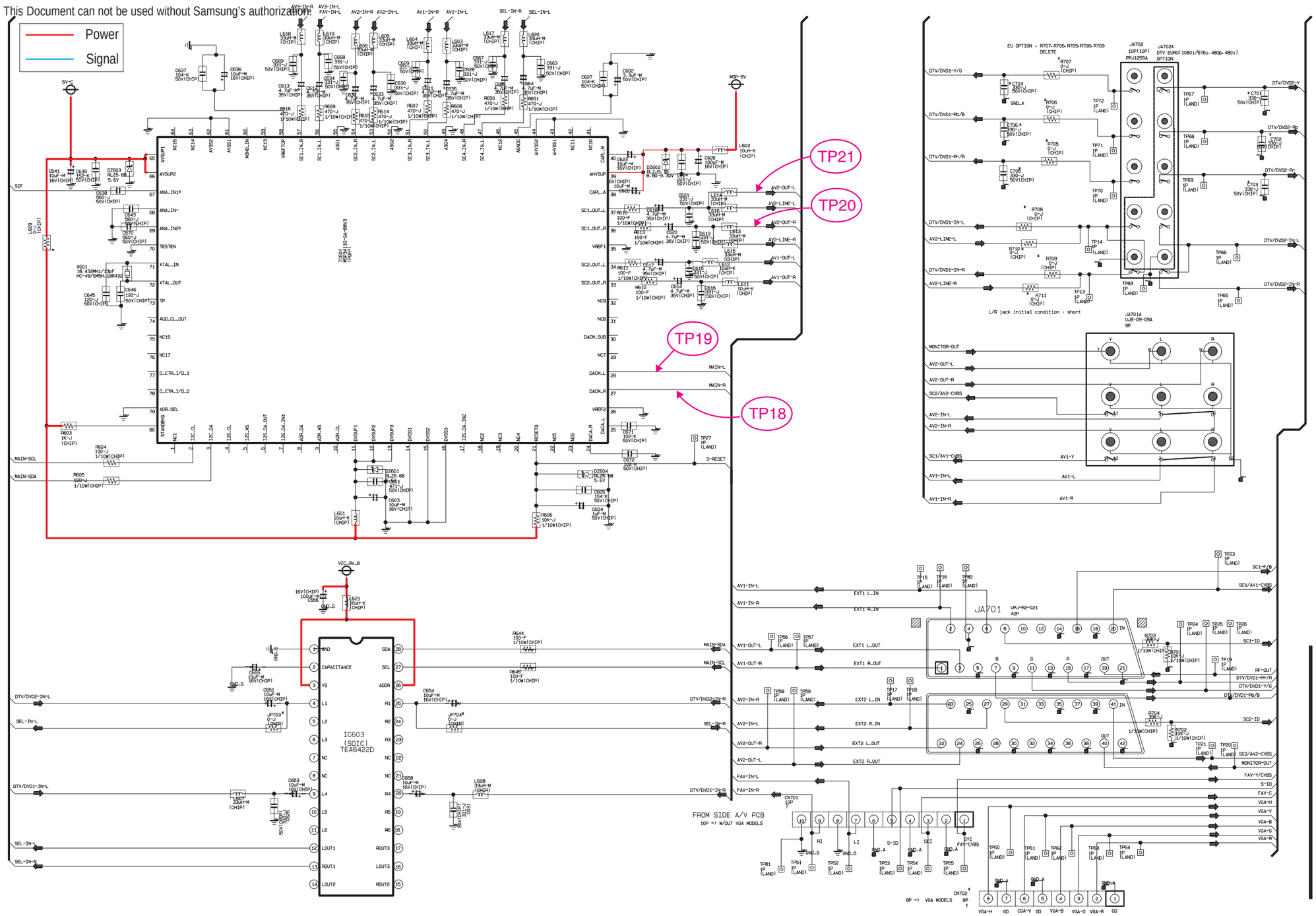
Power
Signal



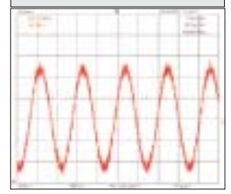
	R813	R806	R803
PAL OPTION	30KOHM	DELETE	JUMPER
NT(Built-In) OPTION	DELETE	DELETE	JUMPER
NT(Ready) OPTION	DELETE	JUMPER	5.1KOHM

10-8 System Board

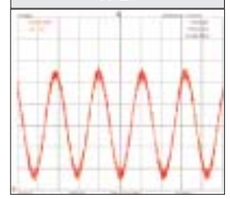
10-8-1 System Board 1



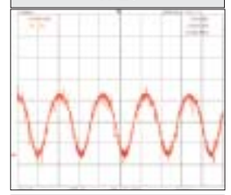
TP18



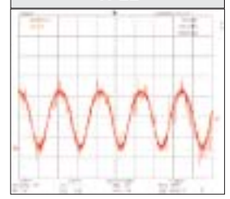
TP19



TP20

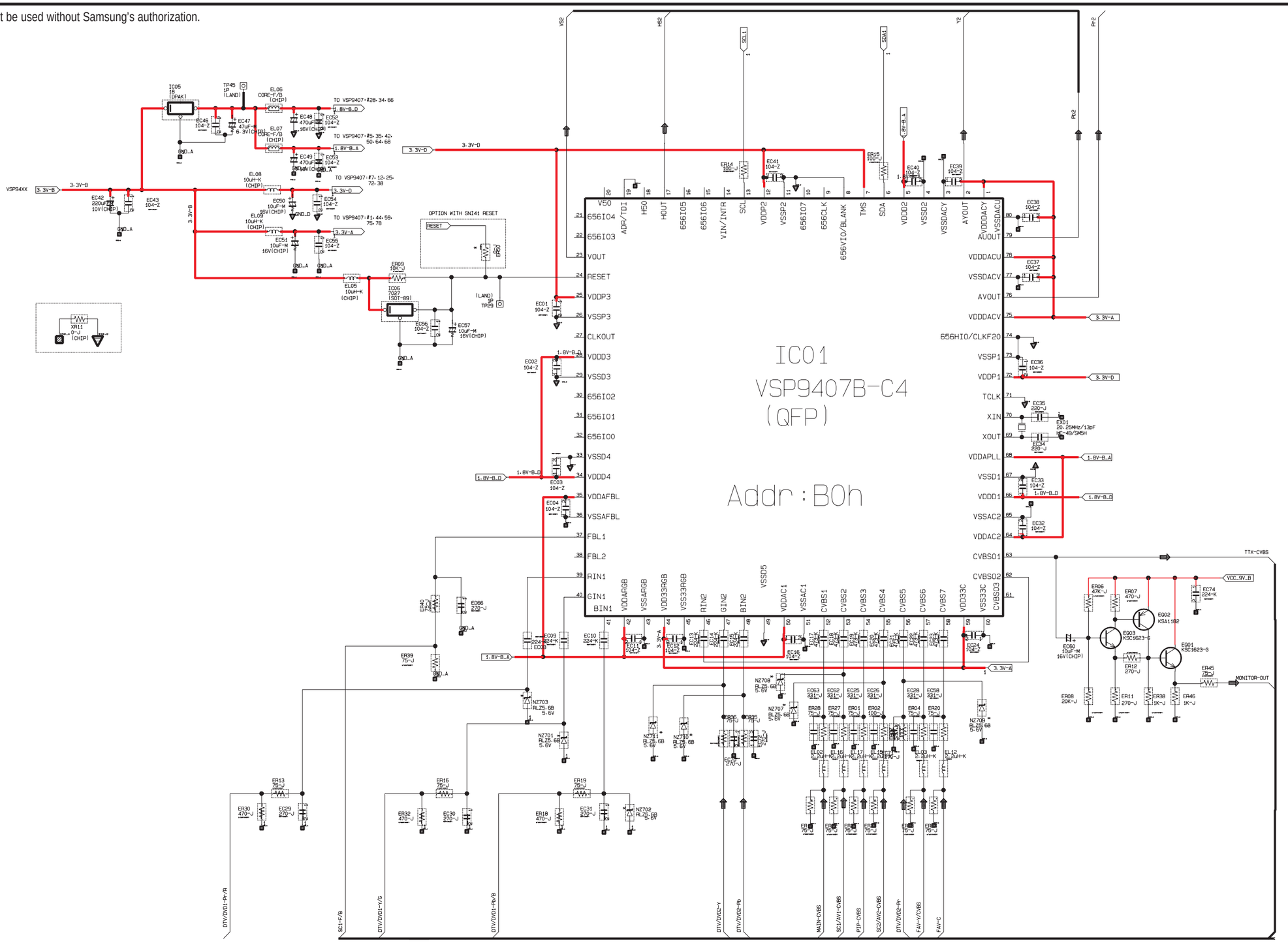


TP21



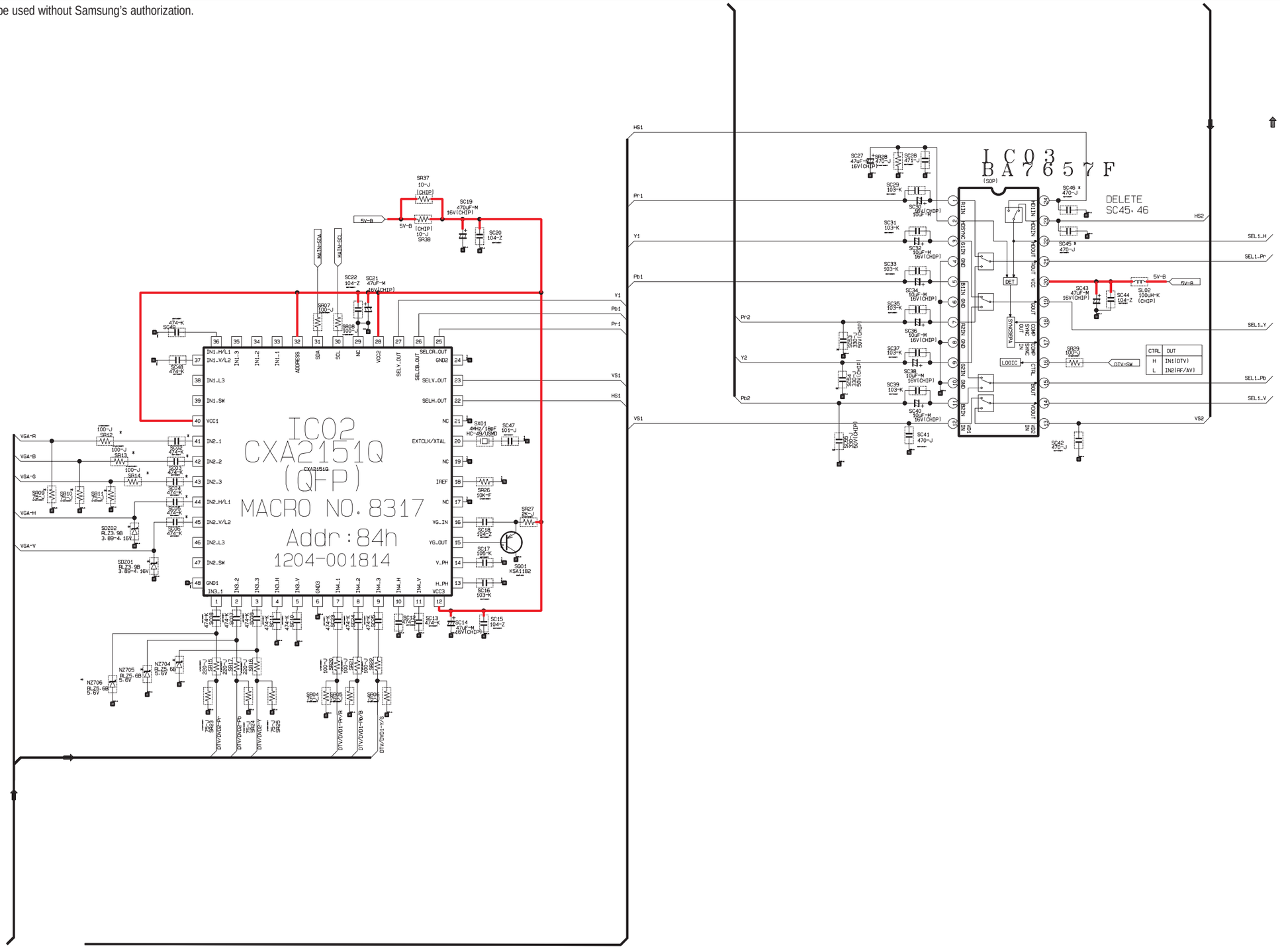
10-8-2 System Board 2

Power
Signal



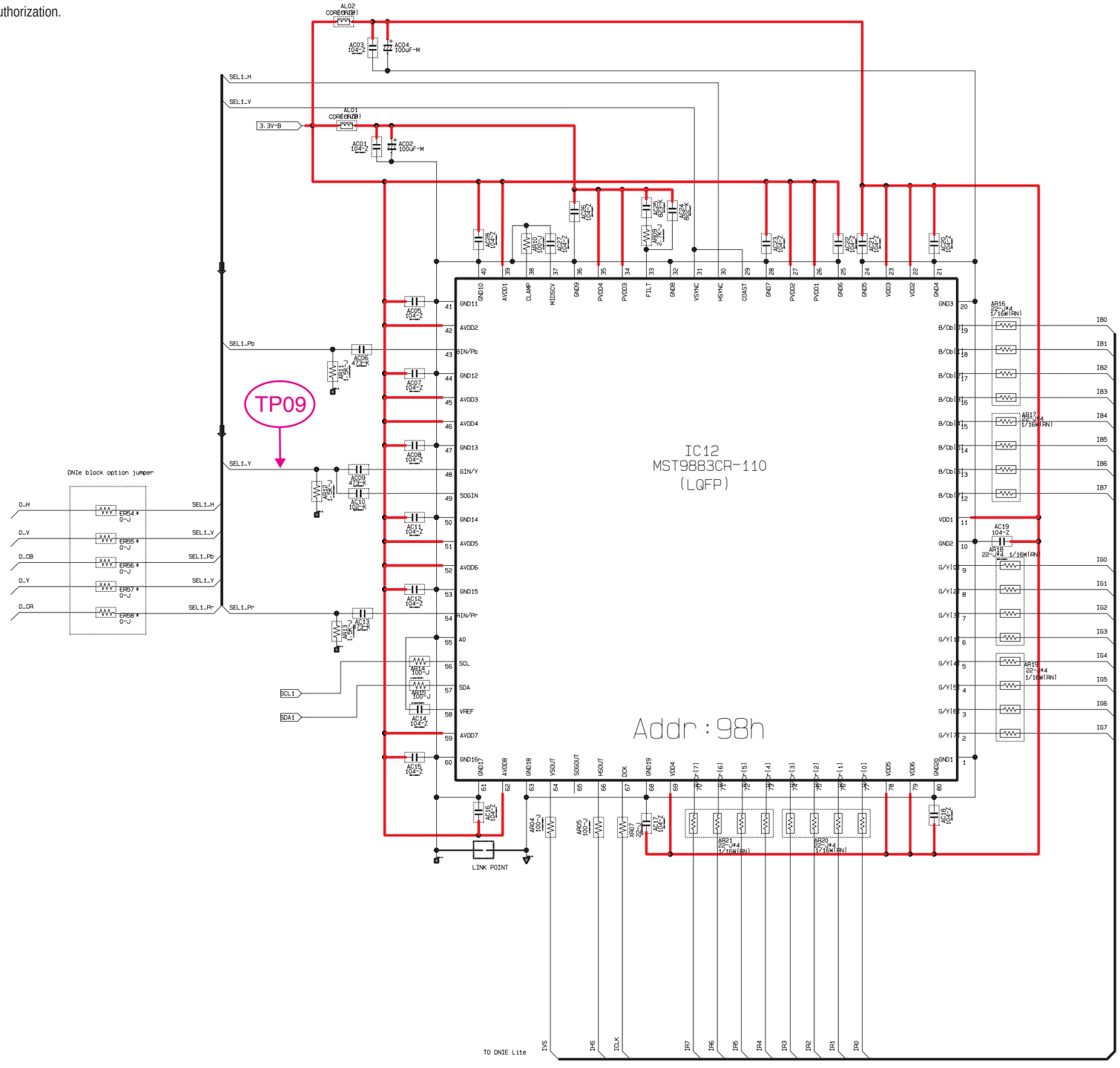
10-8-3 System Board 3

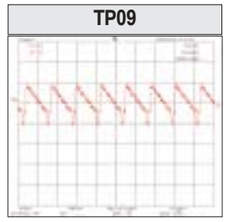
Power
Signal



10-8-4 System Board 4

Power
Signal





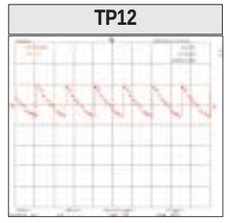
10-8-5 System Board 5

Power
Signal

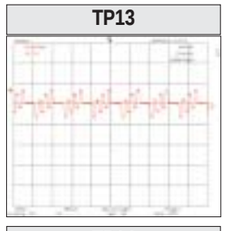
IC16
SDP41
(QFP)

TP14
TP12
TP13

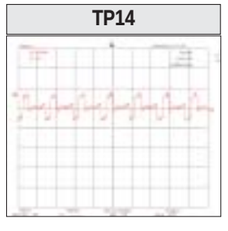
TP12



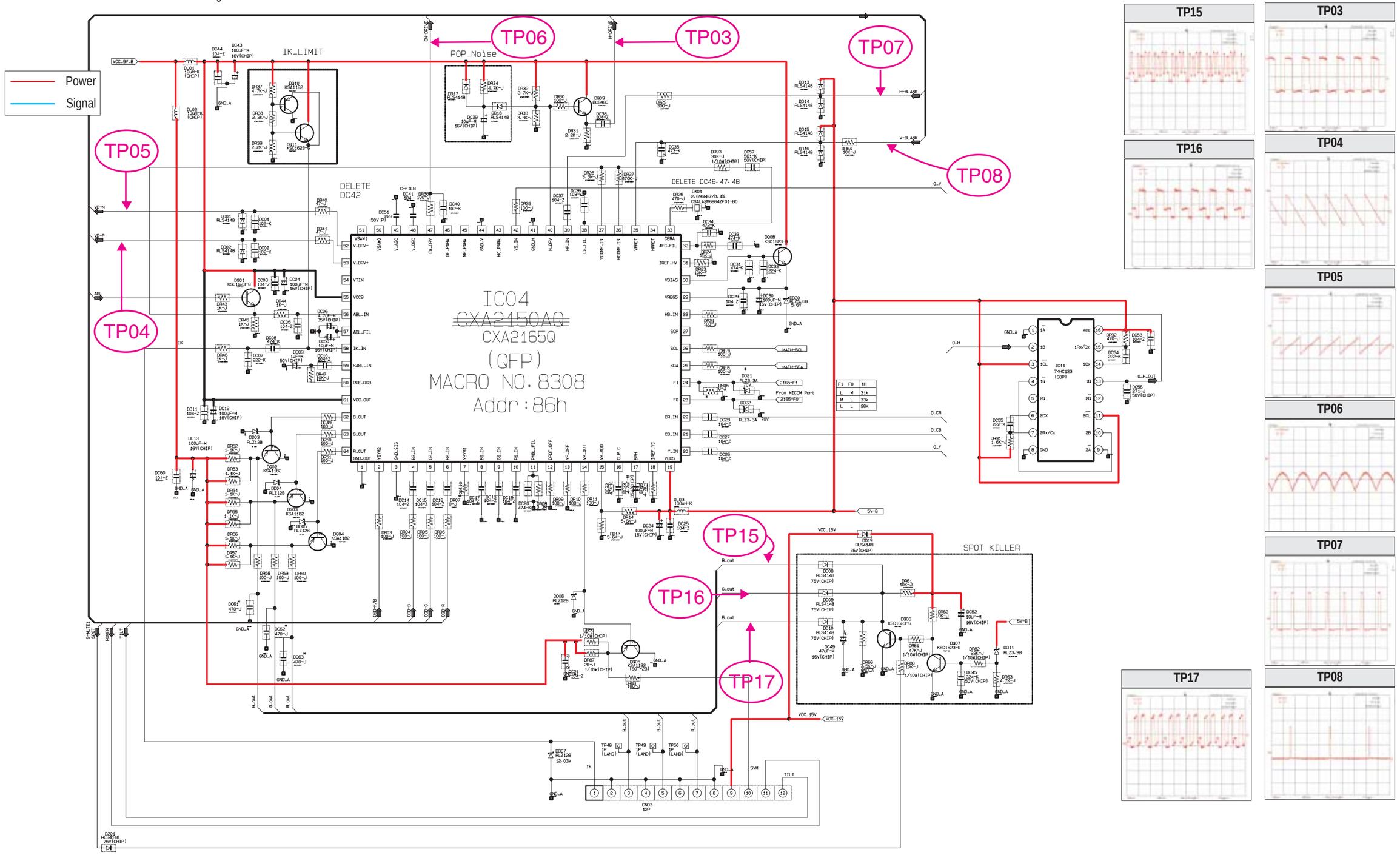
TP13



TP14

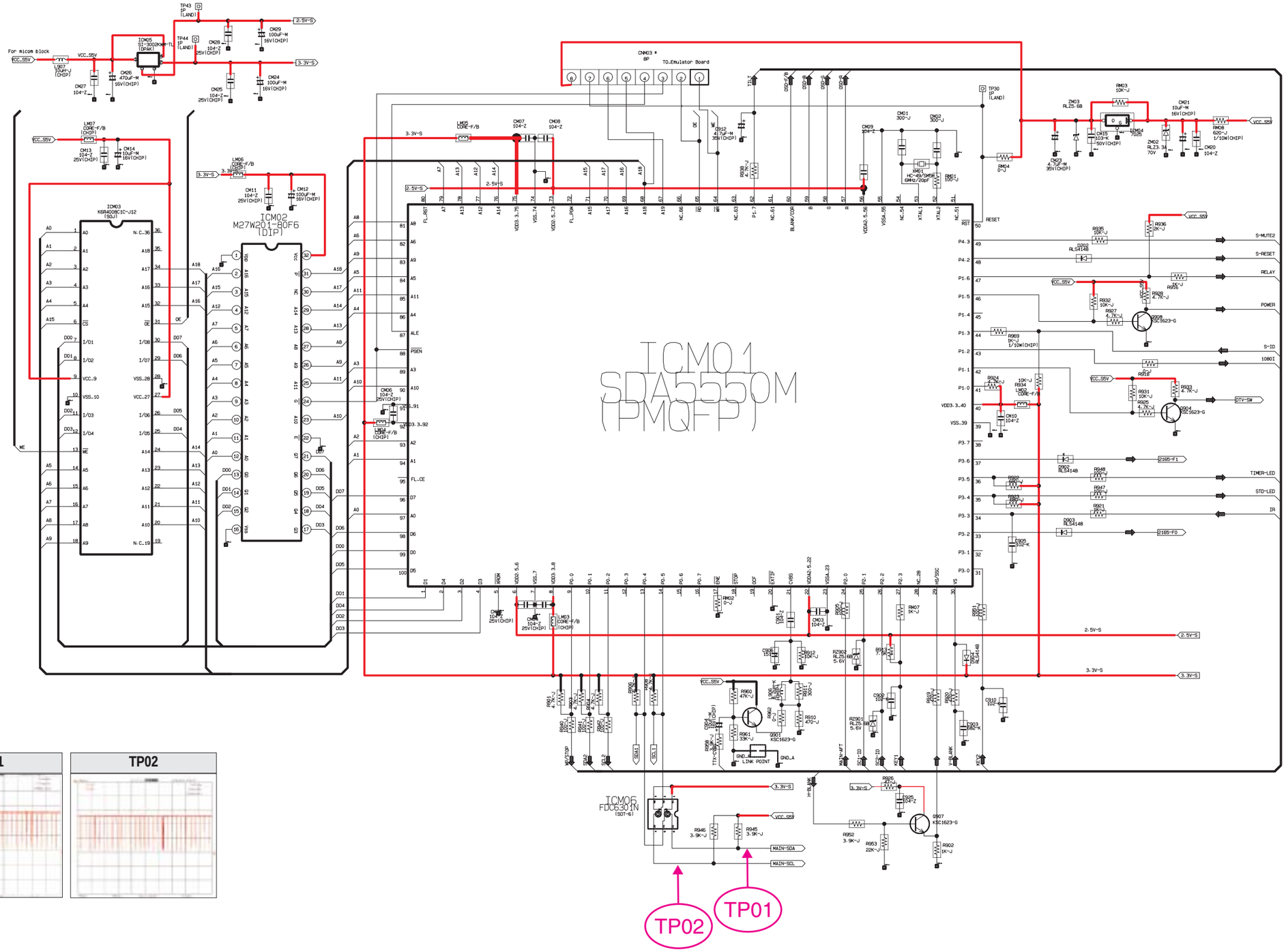


10-8-6 System Board 6

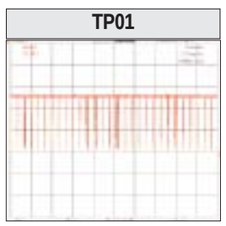


10-8-7 System Board 7

Power
Signal

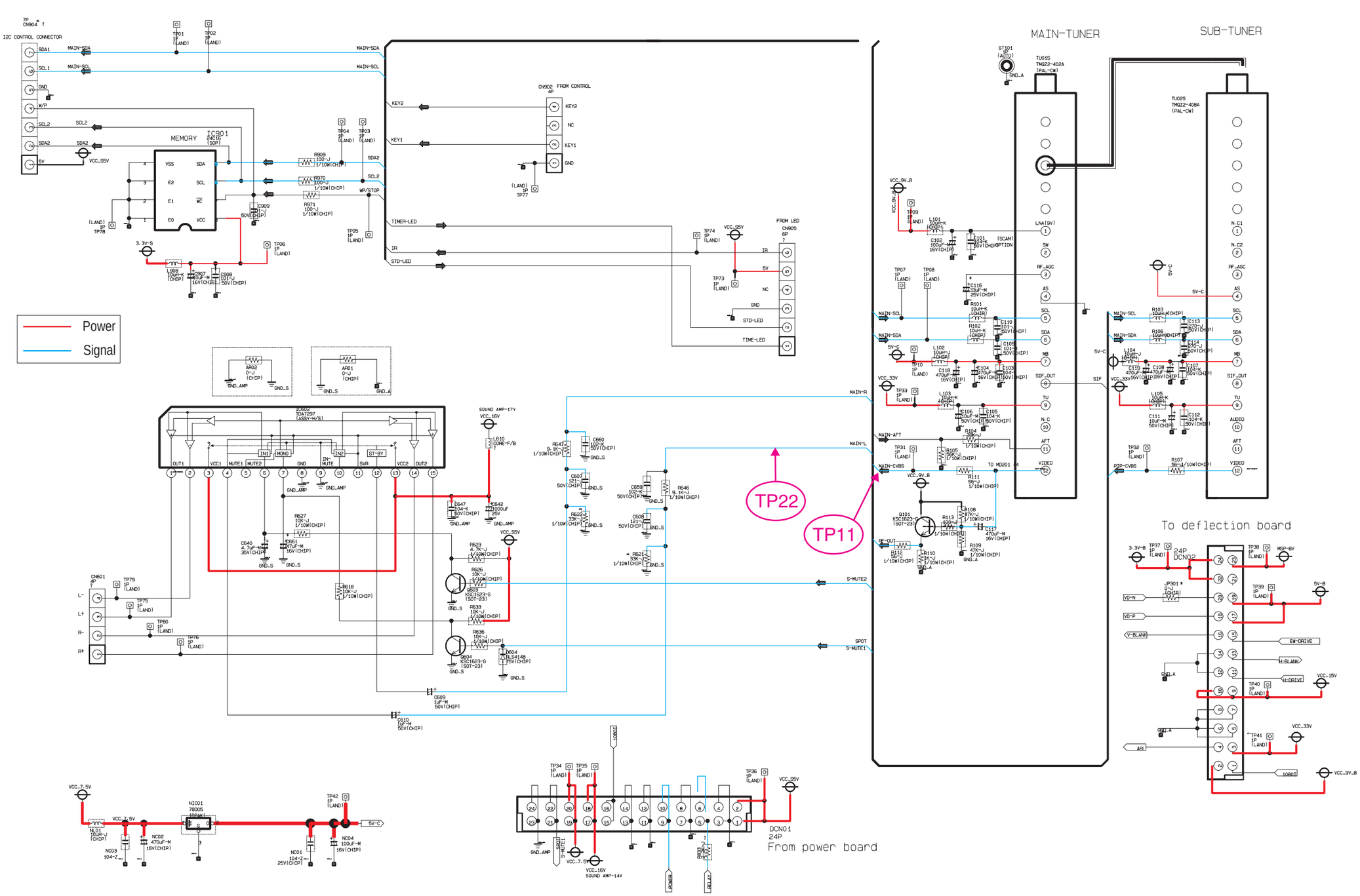


TP01

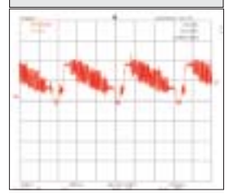


TP02

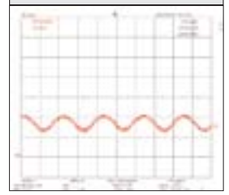
10-8-8 System Board 8



TP11



TP22



11. Operation Instruction & Installation

11-1 Product Features and Functions

11-1-1 Control Buttons

You can control your TV's basic features, including the on-screen menu.
To use the more advanced features, you must use the remote control.

① TV/VIDEO
Press to change between viewing TV programs and signals from other components.

② MENU
Press to see an on-screen menu of your TV's features.

③ + VOL -
Press to increase or decrease the volume.
Also used to select items on the on-screen menu.

④ ∧ CH ∨
Press to change channels. Also press to move between items on the on-screen menu.

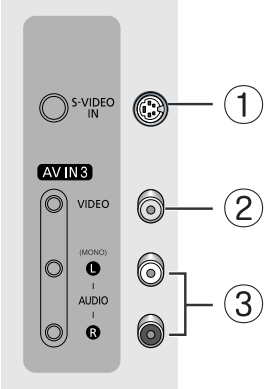
⑤ Remote Control Sensor
Aim the remote control towards this spot on the TV.

⑥ Stand-By Indicator
Lights up when you turn the power off.
- Power Off ; Red
- Power On ; Off
- Timer On ; Green

⑦ POWER
Press to turn the TV on and off.

11-1-2 Side Panel Jacks

You can use the side panel jacks to connect an A/V component that is used only occasionally, such as a camcorder or video game.



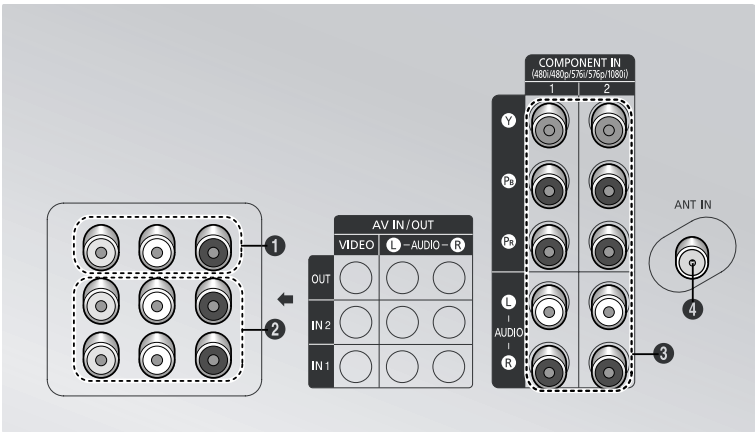
① **S-VIDEO INPUT**
Connect a S-video signal from a camcorder or video game.

② **VIDEO INPUT**
Used to connect a video signal from a camcorder or video game.

③ **AUDIO INPUT**
Connect the audio signals from a camcorder or video game.

11-1-3 Connection Jacks (Rear)

Use the rear panel jacks to connect an A/V component that will be connected continuously, such as a VCR or a DVD player. Because there are three sets of input jacks, you can connect three different A/V components (i.e., a VCR and a DVD, 2 VCRs, etc.)



① **MONITOR OUT (VIDEO / L-AUDIO-R)**
Outputs for external devices.

② **AV-1 INPUT (VCR) -VIDEO/AUDIO(L/R)**
AV-2 INPUT(VCR) -VIDEO/AUDIO(L/R)
Inputs for external devices, such as VCR, DVD, video game device, or video disc players.

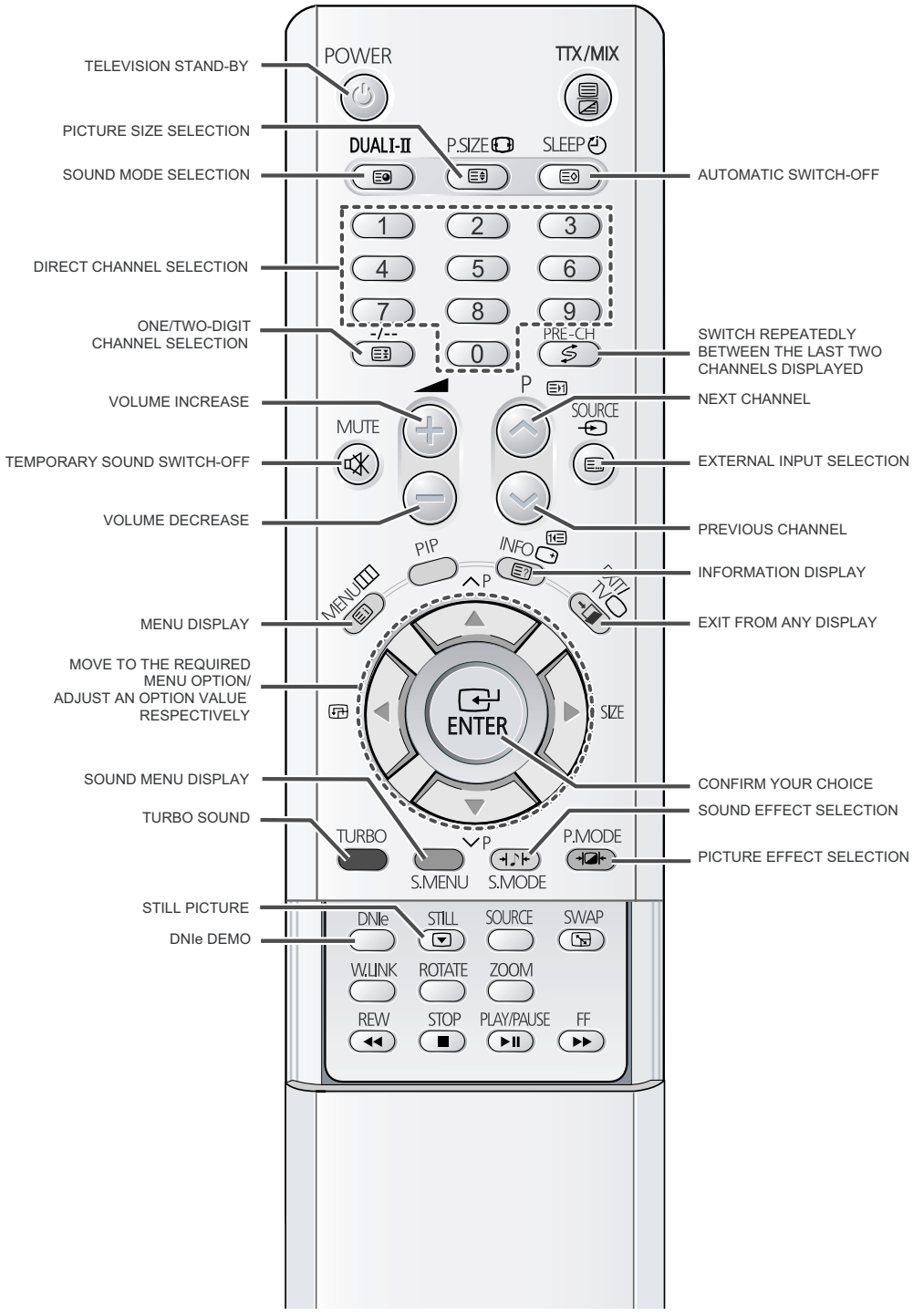
③ **COMPONENT 1 INPUT (DVD)/**
COMPONENT 2 INPUT (DVD)
VIDEO (**Y**/**P_B**/**P_R**) and AUDIO (**L**/**R**) inputs for Component.

➢ Available format for Component inputs ; 480i, 480p, 576i, 576p, 1080i - 50Hz

④ **VHF/UHF (75Ω)**
75Ω Coaxial connector for Aerial/Cable Network.

11-1-4 Remote Control

You can use the remote control up to about 23 feet from the TV. When using the remote, always point it directly at the TV. You can also use your remote control to operate your VCR, DVD, Cable box, and Samsung Set-top Boxes.



MEMO

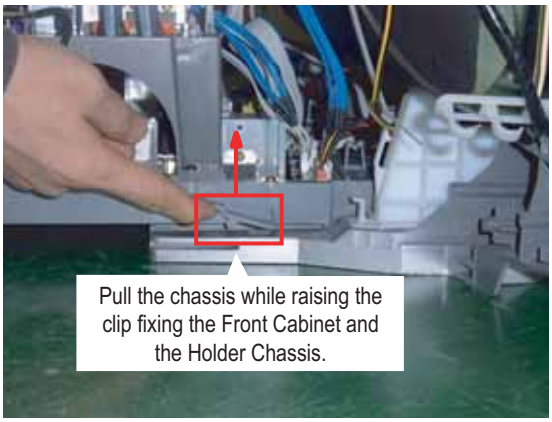
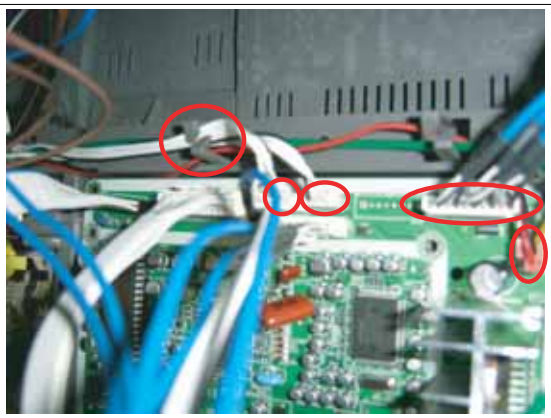
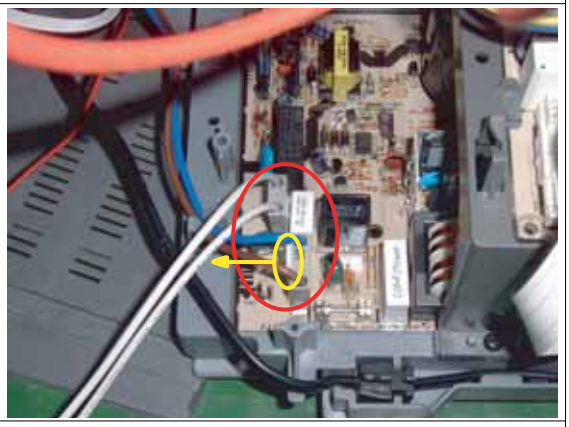
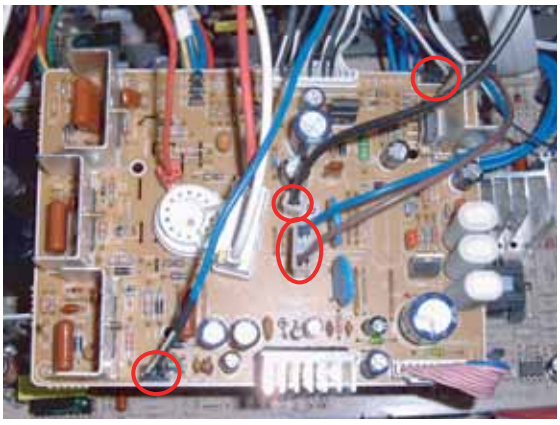
12. Disassembly & Reassembly

12-1 Overhaul Disassembly & Reassembly

12-1-1 Disassembling the Cabinet

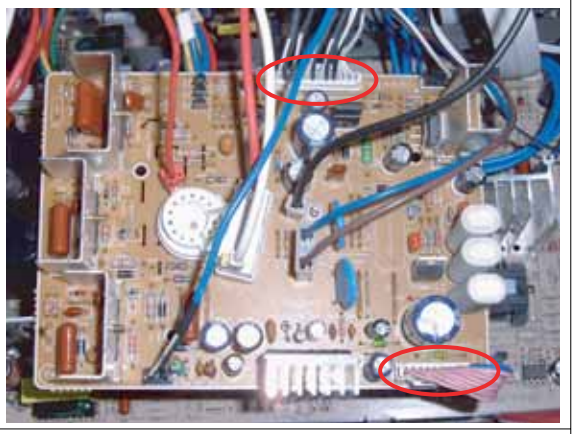
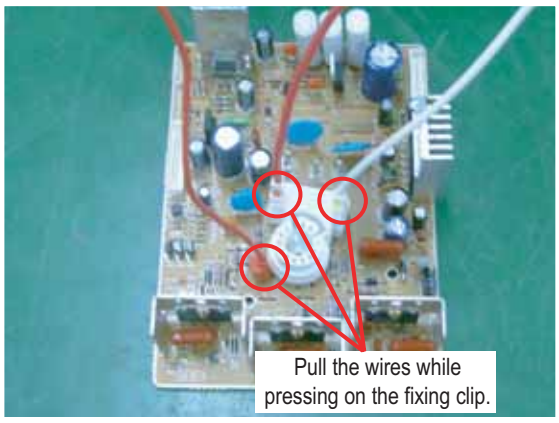
Part Name	Description	Description Photo
Back Cover	① Remove the 12 screws fixing the Back Cover. : RH, +, B, M4, L15, ZPC(BLK), SWRCH18A 6003-001026 ② Tap the upper part of the Back Cover 2 or 3 times and pull the Back Cover to separate it from the unit. ⚠Notice: Disassemble the product after disconnecting the power cord and discharge the unit to prevent an electric shock and damage to the product due to static electricity.	
Terminal Board	① Remove the 4 screws fixing the Terminal Board and the Jacks. : RH, +, B, M4, L15, ZPC(BLK), SWRCH18A 6003-001026 ② Lift the fixing holder up at ◯ and pull the Terminal Board to separate it from the unit.	

12-1-2 Disassembling the CRT and Chassis

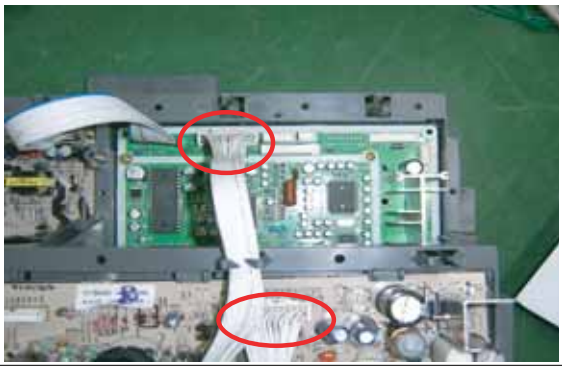
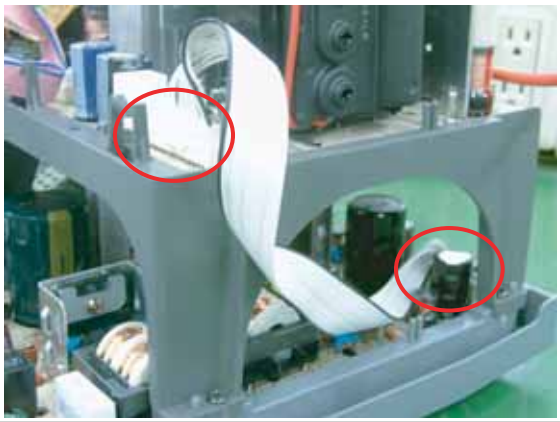
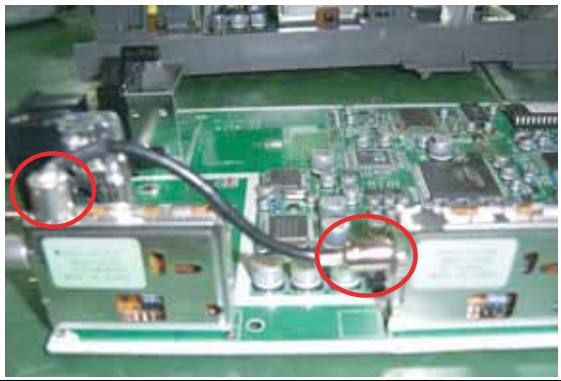
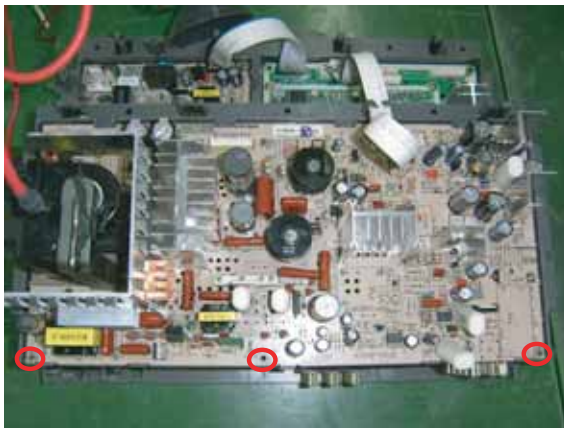
Part Name	Description	Description Photo
Chassis Holder	① Separate the Ass'y Holder chassis from the Front Cabinet. ② Pull the Chassis Holder lifting the fixing clip up. ⚠Notice: Pulling the Chassis Holder by force may damage the clip or the connector. Pull the Chassis Holder just until the clip comes off the hole.	
	① Separate the Speakers, the Side AV Wire, the Side Control, and the Remote Control Sensor Cable from the Front Cabinet and the System Board. ② Separate the wire from the Wire fixing holder at ◯. ⚠Notice: Since there is a clip to connect the Connector Header in the Wire Connector, pulling it by force may damage the clip or the connector. Press the clip down completely and pull the connector.	
	① Separate the D-Coil and power cable from the Front Cabinet and Power Board. ② To separate the power cord, slide the fixing clip and lift the cable up.	
	① Separate the CRT Ass'y from the CRT ② Separate the TBC wire, GND, VM and Tilt cables from the CRT Ass'y sequentially.	

Part Name	Description	Description Photo
Chassis Holder	① Separate the cables connecting the FBT and the CRT. ⚠Notice: Since there may be a remaining high-voltage current within the CRT, take care not to touch the CRT hole with metal or a part of yourself when separating the cables.	

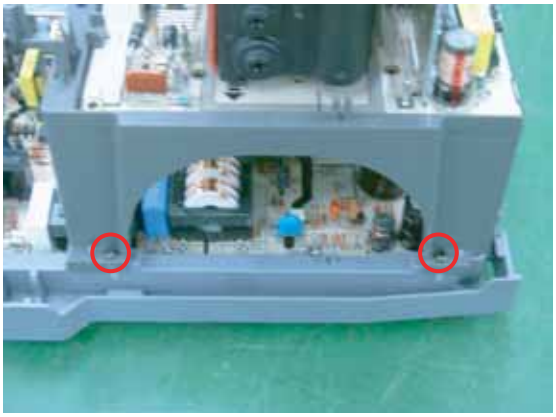
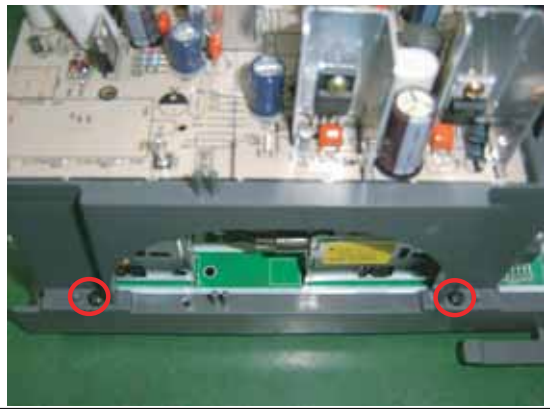
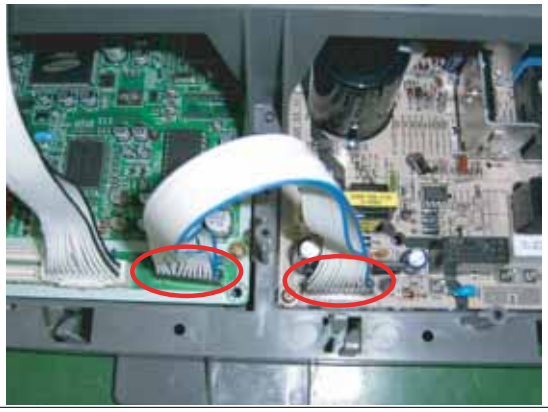
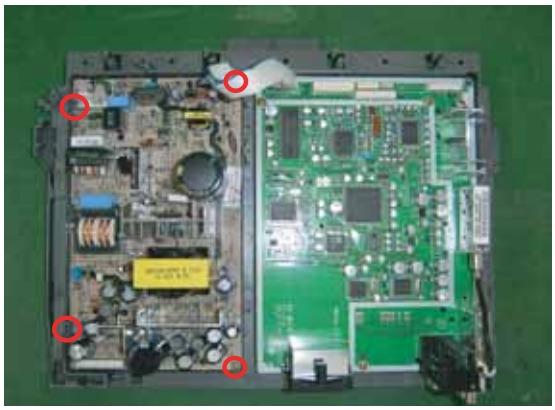
12-1-3 Disassembling the CRT Ass'y

Part Name	Description	Description Photo
CRT Ass'y	① Separate the cables from the Deflection/System Board and CRT Ass'y.	
	① Separate the wires from the FBT of the Deflection Board and the CRT Ass'y. ② To separate the thick red and white wires, pull the wires while pressing the push-type clip at the connector. ③ To separate the thin red wire, insert a pin in the small hold next to the hole and pull the wire. ⚠Notice: Take care when separating the wires because pulling the wires by force may damage the socket. In addition, separate the wires on a flat and clean surface so as to prevent scratching of the material and the PCB.	

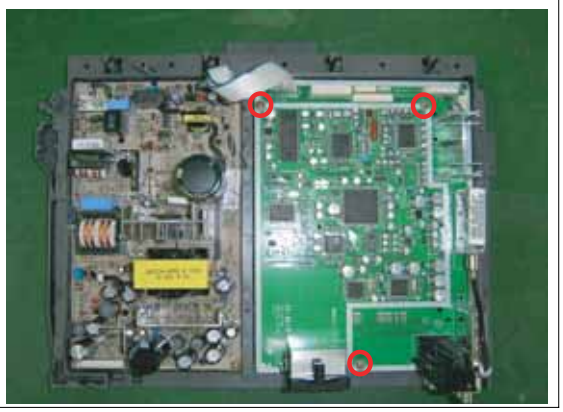
12-1-4 Disassembling the Deflection Board

Part Name	Description	Description Photo
Deflection Board	① Separate the 28 pin cable from the System Board.	
	① Separate the 14 pin cable from the Power Board.	
	① Separate the cable from the Splitter and the Tuner. ② First separate the cable from the Splitter using a tool such as nippers. ⚠Notice: Since pulling the wire by force may damage the coating of the wire, separate the wire holding the metal part with the tool.	
	① Remove the 3 screws fixing the Deflection Ass'y. : PWH, +, B, M3, L10, ZPC(YEL), SWRCH18A 6003-001023	

12-1-5 Disassembling the Power Board

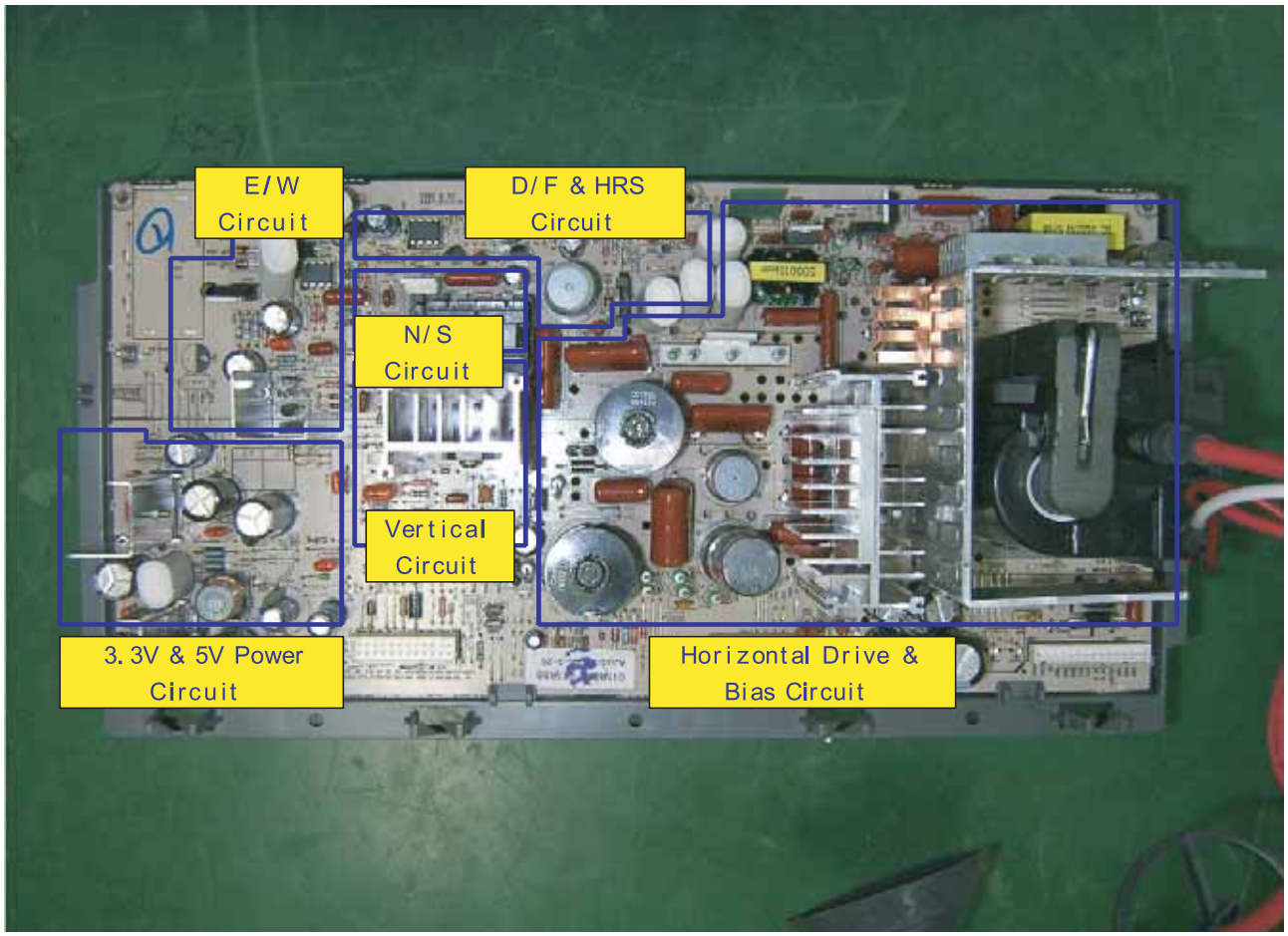
Part Name	Description	Description Photo
Power Board	① Remove the 4 screws to separate the holder fixing the Deflection Board Holder. : RH, +, B, M4, L15, ZPC(BLK), SWRCH18A 6003-001026 ② Separate the holder.	 
	① Separate the cable from the System Board.	
	① Remove the 2 screws fixing the Power Board : PWH, +, B, M3, L10, ZPC(YEL), SWRCH18A 6003-001023 ② Since there is a holder fixing the Power Board, lift the part where screws have been installed and slide the board to separate it. ⚠Notice: Lifting the Power Board by force may damage the fixing holder and the PCB, therefore separate the board with care.	

12-1-6 Disassembling the System Board

Part Name	Description	Description Photo
	① Remove the 3 screws from the Bottom Shield Case. : PWH, +, B, M3, L10, ZPC(YEL), SWRCH18A 6003-001023 ② Since the Optical Jack (◯) protrudes out of the case, lift the AMP side up, slide forward and separate the board.	

13. Circuit Description

13-1 Overall Block Description



※ Bias Circuit structure of S62A is the same as the existing S61A circuit

■ Circuit Constitution.

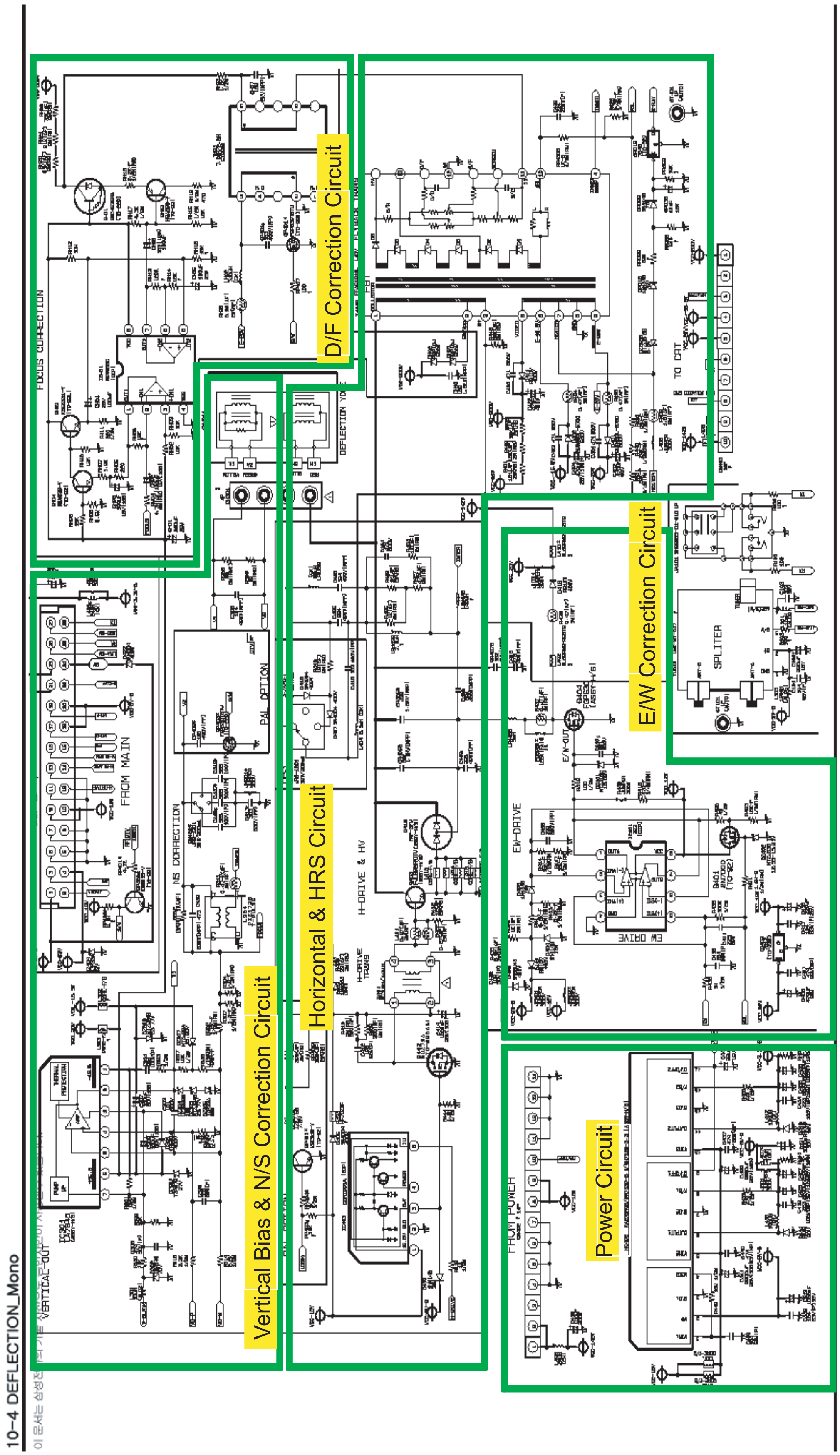
1. Horizontal Bias Part
   - Controls the high voltage generation and horizontal bias.. FBT, HDT, CT condenser etc.

2. Vertical Bias & N/S (North / South) Correction Circuit
   - While mostly controlling the vertical bias, also corrects the picture lowering of top and bottom. ..LA7845, N/S TRANS, etc.

3. HRS (Horizontal Raster Shift) Correction Circuit
   - A correction circuit of Linearity distortion on the left and right side of a picture which is caused by awry electron beam from an electron gun.. Correction S/W and surrounding circuits.

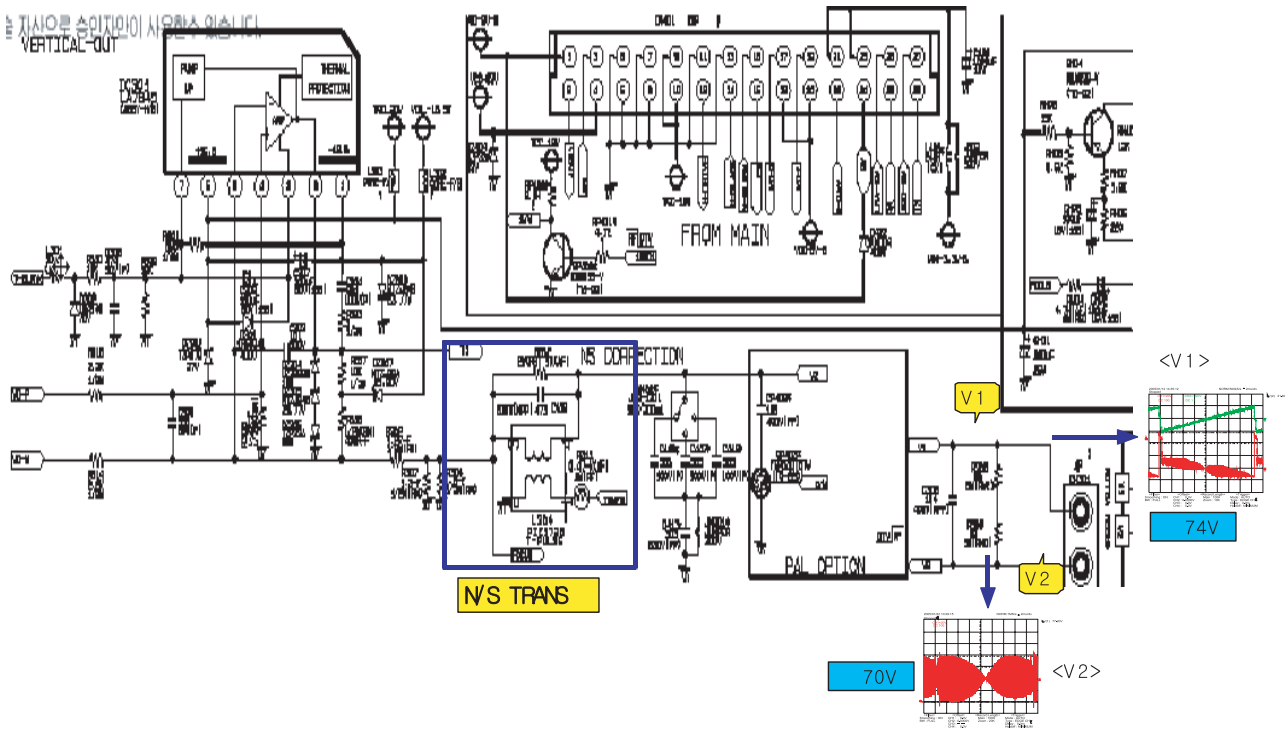
4. D/F (Dynamic Focus) Correction Circuit.
   - Improved Focus feature circuit due to the widened angle of a picture¡¦..D/F Trans, Vertical/Horizontal circuit

5. E/W (East / West) Correction Circuit.
   - A circuit for correcting the spool shape which appears on the left and right part of a picture. This is caused by the difference between the distances from the center of a picture to each corner. KA393, FQP630 etc. (Adopt PWM circuit)


10-4 DEFLECTION_Mono
D/F Correction Circuit
Vertical Bias & N/S Correction Circuit
Horizontal & HRS Circuit
E/W Correction Circuit
Power Circuit

13-2 Partial Block Description

13-2-1 Vertical & N/S Correction Circuit



ⓐ Understanding of N/S Circuit and Operation Principle.

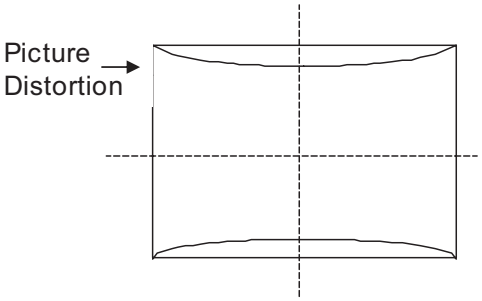
▶ What is a N/S correction circuit?

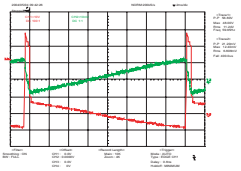
- If the bias angle of a picture widens, the distance from the center of a picture to each corner becomes farther as it moves to periphery. This causes the picture being distorted (Picture Lowering) vertically in a shape of a spool because of the strong bias at four corners which are the farthest from the center.
  Correction effect to the amount of a correction signal can be made by crossing Parabolic current of a vertical period over the vertical bias current and applying it.

▶ N/S Circuit Constitution and Operation Principle.

- Consists of L304, C305, C439, R312. Symmetrize the up and down amplitude using the saturable reactor of L304 and adjust N/S Gain by controlling the capacity value of C305 and C439
  If the correction vector is excessive, one can slightly reduce the resistance of R312

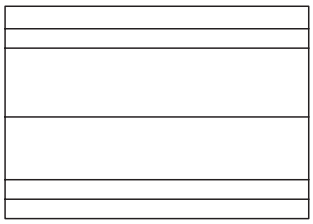
ⓑ Comparison before and after of N/S signal correction

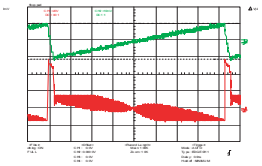




< Normal Vertical Signal >

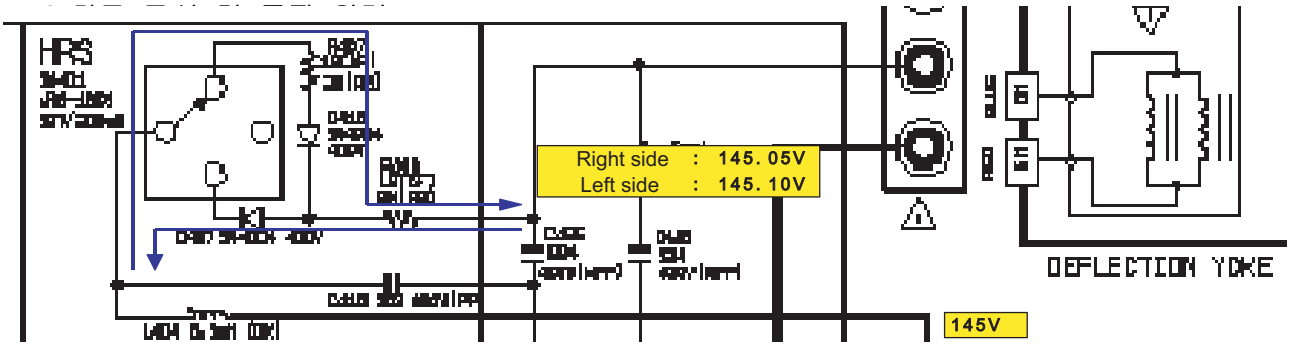
After correction





< Vertical Wave form after correction >

13-2-2 HRS Correction



ⓐ Understanding and Constitution of HRS Correction

▶ What is HRS (Horizontal Raster Shift) circuit?

- When electron BEAM emanates from CRT, it must form the image evenly on the center of a screen. However, the left-right linearity can be awry due to the micro-distortion of horizontal angle while producing CRT. HRS is a compensatory circuit which crosses DC voltage over CS condenser on horizontal output board to correct the distortion.

ⓑ HRS Circuit Operation and Picture Movement

▶ Operational Principle.

- HRS circuit consists of R407, D415, D407, SW401, C415, L404. If switch SW401 (Service S/W) to the direction of R407, it raises the C426 CS condenser voltage through D415 and the picture moves to right. If switch SW401 to the direction of D417, the picture moves to left.

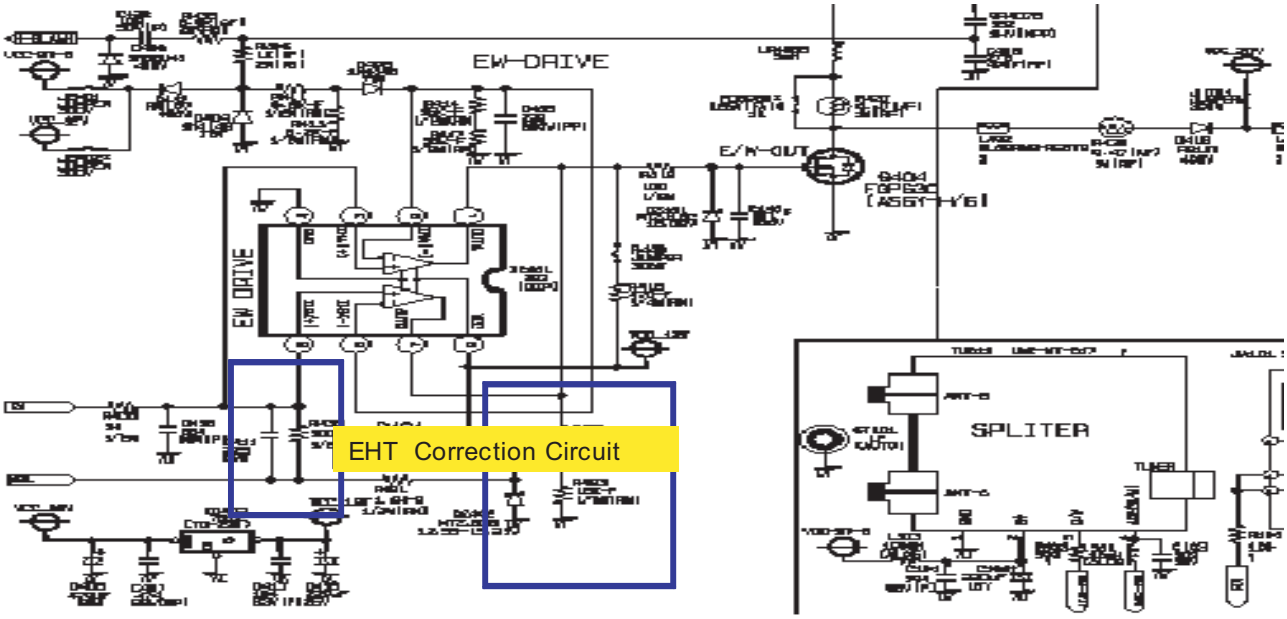
C415 is functioning as a condenser which stops generating current. It can control the left-right movement since the rechargeable voltage varies as the condenser capacity value varies.
That is, the larger the C415 capacity value becomes, the bigger the left-right movement will be.

▶ Picture Movement during 0HRS Connection

* Direction of SW407 Switch .... Center : Not corrected.
.... D415 : moves to the right of a picture
.... D417 : moves to the left of a picture

Condition	Total Length of a Picture Moved (m/m)					
	Left		Center		Right	
	To Left	To Right	To Left	To Right	To Left	To Right
After	5.5	6.5	1.5	2	6.5	6

13-2-3 E/W Circuit Block



ⓐ Understanding of E/W Circuit

▶ What is an E/W (East / West) Correction Circuit?

- If the bias angle of a picture widens, the distance from the center of a picture to each corner becomes farther as it moves to periphery. This causes the picture being distorted (Picture Lowering) horizontally in a shape of a spool because of the strong bias at four corners where are the farthest from the center. E/W is a circuit which corrects the spool-shape on the left and right part by crossing Parabollic wave form over the horizontal output board and controls the current which flows through terminal no.47. Parabollic wave comes out from terminal no.47 of CXA2165 CHROMA IC(IC31)
  It also controls the horizontal-related factors of Factory data such as picture size, size change and Parabola gain change. It has an essential role of minimizing the picture swaying (High Voltage Regulation)

ⓑ E/W Circuit Constitution and Operation

▶ E/W Circuit Constitution and Operation Principles.

- E/W circuit consists of KA393(comparator), FQP630(output TR), and other parts. This uses a method in which PWM controls the circuit using a comparator. The advantage of this PWM Control method is that POWER Loss hardly occurs and generates little heat when using low H/S.
  Input E/W signal to terminal no 3,5 of IC401(KA393) and carrier wave to terminal no 2,6. Carrier wave can be made by reducing the horizontal collector voltage and integrating the wave form using D405,R414 and C406.
  Then the carrier wave is compared with E/W signal in IC401 and outputs PWM(Pulse Width Modulation) wave form. Bias current shall be controlled using Q404.
  Picture swaying occurs as the picture brightness varies. To correct this, control the high voltage regulation using Q401(1N7000), R433 and C411 That is, Q401 is a circuit for correcting Static Regulation and used to prevent the picture size changing as the picture brightness varies.
  It detects the ABL voltage and inputs to Q401 Gate through R423 resistance. Then the ABL voltage change is sent to IC401(KA393) output and controls the DC of Q404(FQP630) Gate terminal, to keep the picture size from changing.

▶ E/W Circuit Constitution and Operation Principle.

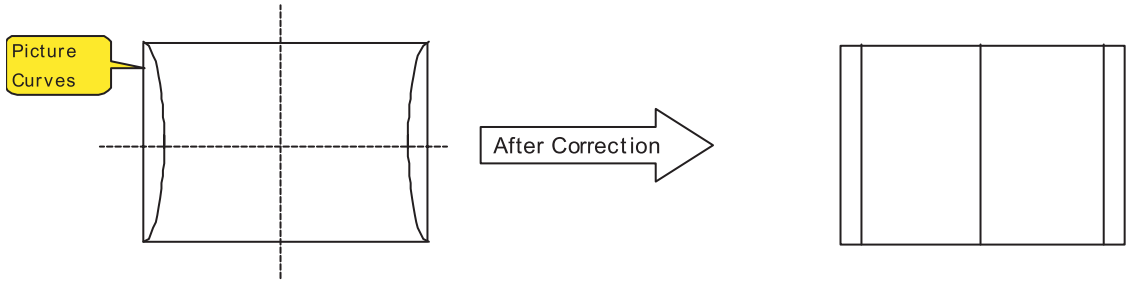
Also, E/W circuit functions as a compensatory circuit against the picture shaking by reversely compensating the picture swaying. This is possible by inputting ABL voltage to E/W using R433 as the picture brightness varies.

There are H,V, PIN-COMP as well in Factory data and these correct the high voltage regulation. If the H-COMP capacity value increases, correction vector increases too and this causes a strong picture swaying. On the other hand, if the H-COMP

capacity value decreases, correction vector decreases causing extensive picture size change. V-COMP, likewise, controls the vertical correction vector and operates in the same mechanism as H-COMP.

PIN-COMP is a function which corrects the movement of four corners of a picture. If the capacity value is excessive, a picture curves outwards when the picture is bright. COMP capacity value, therefore, should be varied +/- 1step from the factory-adjusted condition, since a gain widely varies dependant on the SET distribution.

▶ Before and After of E/W Circuit Correction



13-3 IC Line up

■ System Board

Items	Descriptions	Remarks
Video Switch	TEA6425, SGS-TOMSON	
3D-COMB	UPD64084, NEC	3 Dimension Y/C Separation LSI
Analog Decoder	VPC3230D, MICRONAS	
MPEG Decoder	S5H2020X01, SAMSUNG	
CPU	S3C2800X, SAMSUNG	
MICOM	SDA5525C, Micronas	Micro Controller
DNIe Lite	SPD41, SAMSUNG	
Component Decoder	MST9883A, MST	
HDMI Receiver	Sil9993, Silicon Image	Digital Reciver for HDMI with HDCP
Component Switch	CXA2171Q, SONY	Component S/W, H/V Sync S/W
Tuner	TDU2-004B, ALFS	
SOUND AMP	TDA7297, SGS-TOMSON	
Deflection Processor	CX2165, SONY	
DRAM	K4S643232, SAMSUNG	
SDRAM	K4S281632F, SAMSUNG	
FLRASH	28F640, IBM	
IC-LINE RANSCEIVER	SP3232EC, Sipex	
EEPROM	24256	
IC COMS LOGIC	74HC123, Philips	
Multi-Regulator	SI-3006KWM	3.3V, 1.8V Multi Regulator
Multi-Regulator	SI-3003KWM	3.3V, 1.8V Multi Regulator
Multi-Regulator	SI-3002KWM	3.3V, 2.5V Multi Regulator
Regulator	GM66102 50G440, GAMMA	5V Regulator
Regulator	GM66102 25G338, GAMMA	2.5V Regulator
Regulator	45AY	1.2V Regulator

■ Power Board

Items	Descriptions	Remarks
BRIDGE DIODE	GSIB660	
STAND-BY	VIPer12A	
정류 Diode	SLA1004L	
Trans Switching	53B135-DH	
Trans Switching-ST BY	EE2020	
STR	STR-X6759(미주)	
STR	STR-X6750(국판)	

■ Deflection Board

Items	Descriptions	Remarks
Module - RF Splitter	UMX-NT-017	
FET	FQP630	
EW Driver	KA393	
Vertical DEF.	LA7845	
Horizontal DEF.	FJ6920, FMP3FU	
Vertical Focus	MC4558C	
H-Driver	DDRI001A	

■ CRT Board

Items	Descriptions	Remarks
DRIVE IC	TDA6111Q	
IC HYBRID	STK396-130	
AMP	TDA2030	

MEMO

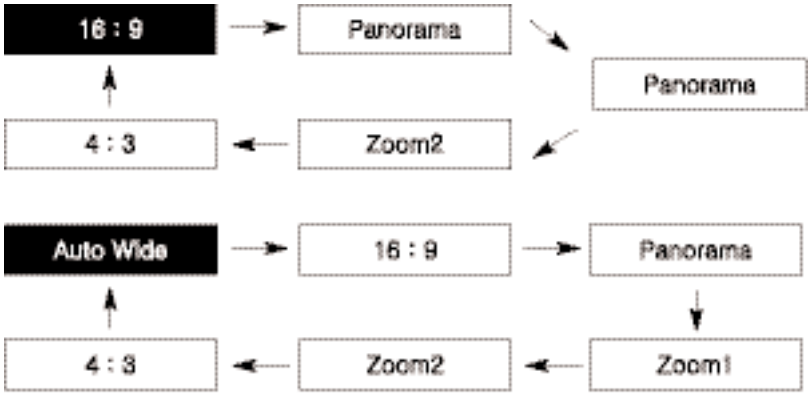
14. Reference Information

14-1 Other issues related to other products

■ SD/HD broadcasts and the TV's display capability are related

1. A digital broadcast should be transmitted in wide screen (an aspect ratio of 16:9) HD. If the broadcasting station converts a conventional program created in normal screen (aspect ratio of 4:3) into a digital signal and broadcasts the signal, the left and right of the picture will not be displayed.
   This symptom also appears in other manufacturer's TV's. The three appliance companies are trying to resolve the problem through the Ministry of Information and Communication.
   * When watching an SD (normal) broadcast through a Digital (Wide) TV (480P normal broadcast)
   * When watching an SD (normal) broadcast through a Digital Ready (Wide) TV (Using a set-top-box)
   * When watching an analog (normal) broadcast through a wide TV
     (When watching a broadcast after changing the aspect ratio of the TV from 16:9 (wide screen) to 4:3)
2. When watching a DVD title or video tape in wide screen (21:9) through a wide (16:9) TV, watching video from a computer or game console by selecting the aspect ratio to 4:3, or watching video from a DVD, VCR, computer or game console through a wide TV by selecting the aspect ratio to normal (4:3) or wide (21:9), the left and right, or top and bottom of the picture will not be displayed.
   This symptom appears in other manufacturer's TV's. The three appliance companies are trying to resolve the problem through the Ministry of Information and Communication.

■ Changing the Order of the Picture Size for 16:9 Display Devices



■ (

■ Restrictions

1. When you want to change the picture size in PIP 'ON', you must turn the PIP off before changing the size.
   However, you can change the main picture size even in PIP ON for products with no restrictions.
2. When the picture size is not Normal (4:3 for 4:3 display devices, 16:9 for 16:9 display devices) and you turn PIP on, the picture size is changed to Normal.
   However, you can turn PIP on without changing the picture size for products with no restrictions.
3. In the OSD notation for the picture size, 16:9 is represented as "Wide" instead of "16:9" for devices other than with 16:9 dis plays.
   Ex: For LCD 15:9 devices, "Wide" is displayed on the OSD instead of "16:9".
4. The picture size can be changed even in the blue screen.
   However, the picture size should be controlled by the product specifications if the change is impossible due to hardware restrictions.

14-2 Technical Terms

Digital Broadcast
Digital Broadcast is a television broadcasting signal digitized and transmitted according to the United States' terrestrial digital broadcast standard, or ATSC.

Mono
A type of audio interface that transmits audio signals through a single channel.
Through a mono interface, it is hard to experience stereophonic sound and sound is played only by one speaker.

Reception Sensitivity Amplification
A signal amplification technique that amplifies weak broadcasting signals by applying satellite technology to provide a better visual quality even for users in regions where only weak broadcasting signals are available.

Stereo
A type of audio interface that transmits audio signals through 2 channels.
Stereo transmits audio signals for the right and left channels so that you can experience stereophonic sound, and the sound is played with 2 speakers.

Analog Broadcast
Analog Broadcast is a television broadcasting signal transmitted according to the NTSC standard.

ANTENNA IN Port
A port to connect the TV aerial using a coaxial cable. It is generally used to watch public broadcast programs.

English Caption
A function that shows English caption or text information included in the broadcasting signal or video tape. You can use this function to study English by watching AFKN or CC marked video tapes.

Video/Audio Ports
You may experience poor visual and audio quality when watching a video tape on channel 3 or 4 through the antenna cable. You can experience better visual and audio quality connecting the TV and VCR through the Video/Audio ports. The video port is distinguished by the color yellow, and the audio ports are distinguished by the white (left) and red colors (right).

External Input
External Input is connecting video devices such as a VCR, camcorder, DTV receiver, DVD, etc. as a video source.

Satellite Broadcast
Satellite Broadcast transmits programs via satellite so that the broadcast is viable in all areas at a high visual and sound quality. It provides approximately 100 channels including public broadcast channels. To view satellite broadcast, you have to install an additional receiver.

Wired Broadcast
Satellite Broadcast refers to movie, entertainment and educational programs transmitted by the broadcasting station in a hotel or school.

Audio Multimix
Audio Multimix provides 2 languages for audio when broadcasting a foreign movie, drama, news, etc. You can select and listen to one of the supported languages or you can select and listen to both languages simultaneously.

Component Port (Green, Blue, Red)
The Component Port separately transmits the luminance signal and provides the best quality of all video connection types.

Cable Broadcast
Cable Broadcast transmits programs via cable instead of radio wave. To view a cable broadcast, you need to subscribe to your local cable broadcast service provider and install an additional receiver.

Tuner
A device that enables selecting a specific frequency for a channel on a TV or radio.

Anynet
Anynet is an AV network system that enables the easy-to-use AV interface for users by controlling connected AV devices through the Anynet menu when AV devices of Samsung Electronics are connected.

DVD (Digital Versatile Disc)
DVD is a large capacity media that can save multimedia content such as video, game, audio applications, etc. using MPEG-2 video compression technology on a CD-sized disc.

S-VIDEO IN Port
This is called super video. S-Video is a type of video signal which has the video luminance and color signals separated in order to provide a better visual quality.

VHF/UHF
VHF refers to TV channels 2 to 13, and UHF refers to TV channels 14 to 69.