

SAMSUNG

COLOR TELEVISION RECEIVER

Chassis :	K15B	
Model:	CN331EBZX/DIS	CN501EBZX/DIS
	CN331EBZX/XAP	CN501EBZX/XAP
	CN3339BZX/XAP	CN5039BZX/XAP
		CN5085BZX/DRI

SERVICE Manual

COLOR TELEVISION RECEIVER



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1. Precautions

Follow these safety, servicing and ESD precautions to prevent damage and protect against potential hazards such as electrical shock and X-rays.

1-1 Safety Precautions

1. Be sure that all of the built-in protective devices are replaced. Restore any missing protective shields.
2. When reinstalling the chassis and its assemblies, be sure to restore all protective devices, including: nonmetallic control knobs and compartment covers.
3. Make sure that there are no cabinet openings through which people—particularly children—might insert fingers and contact dangerous voltages. Such openings include the spacing between the picture tube and the cabinet mask, excessively wide cabinet ventilation slots, and improperly fitted back covers.

If the measured resistance is less than 1.0 megohm or greater than 5.2 megohms, an abnormality exists that must be corrected before the unit is returned to the customer.

4. Leakage Current Hot Check (Figure 1-1): Warning: Do not use an isolation transformer during this test. Use a leakage-current tester or a metering system that complies with American National Standards Institute (ANIS C101.1, Leakage Current for Appliances), and Underwriters Laboratories (UL Publication UL1410, 59.7).
5. With the unit completely reassembled, plug the AC line cord directly into the power outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known earth ground (metal water pipe, conduit, etc.) and all exposed metal parts, including: antennas, handle brackets, metal cabinets, screwheads and control shafts. The current measured should not exceed 0.5 milliamp. Reverse the power-plug prongs in the AC outlet and repeat the test.

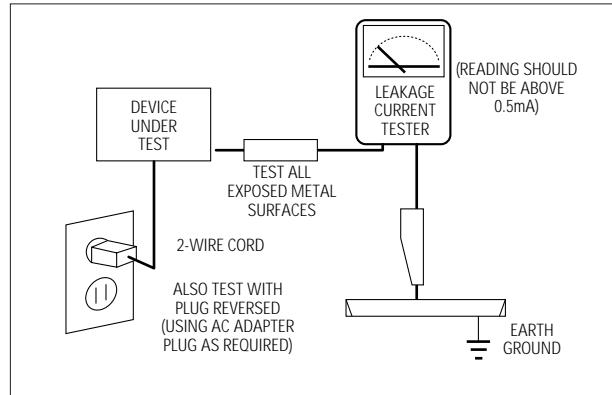


Fig. 1-1 AC Leakage Test

6. Antenna Cold Check: With the unit's AC plug disconnected from the AC source, connect an electrical jumper across the two AC prongs. Connect one lead of the ohmmeter to an AC prong. Connect the other lead to the coaxial connector.
7. X-ray Limits: The picture tube is especially designed to prohibit X-ray emissions. To ensure continued X-ray protection, replace the picture tube only with one that is the same type as the original. Carefully reinstall the picture tube shields and mounting hardware; these also provide X-ray protection.
8. High Voltage Limits: High voltage must be measured each time servicing is done on the B+, horizontal deflection or high voltage circuits. Correct operation of the X-ray protection circuits must be reconfirmed whenever they are serviced. (X-ray protection circuits also may be called "horizontal disable" or "hold-down".) Heed the high voltage limits. These include the X-ray Protection Specifications Label, and the Product Safety and X-ray Warning Note on the service data schematic.

1-1 Safety Precautions (Continued)

9. High voltage is maintained within specified limits by close-tolerance, safety-related components and adjustments. If the high voltage exceeds the specified limits, check each of the special components.
 10. Design Alteration Warning:
Never alter or add to the mechanical or electrical design of this unit. Example: Do not add auxiliary audio or video connectors. Such alterations might create a safety hazard. Also, any design changes or additions will void the manufacturer's warranty.
 11. Hot Chassis Warning:
Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord. If an isolation transformer is not used, these units may be safely serviced only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC source.

To confirm that the AC power plug is inserted correctly, do the following: Using an AC voltmeter, measure the voltage between the chassis and a known earth ground. If the reading is greater than 1.0V, remove the AC power plug, reverse its polarity and reinsert. Re-measure the voltage between the chassis and ground.
 12. Some TV chassis are designed to operate with 85 volts AC between chassis and ground, regardless of the AC plug polarity. These units can be safely serviced only if an isolation transformer inserted between the receiver and the power source.
 13. Some TV chassis have a secondary ground system in addition to the main chassis ground. This secondary ground system is not isolated from the AC power line. The two ground systems are electrically separated by insulating material that must not be defeated or altered.
 14. Components, parts and wiring that appear to have overheated or that are otherwise damaged should be replaced with parts that meet the original specifications. Always determine the cause of damage or overheating, and correct any potential hazards.
 15. Observe the original lead dress, especially near the following areas: Antenna wiring, sharp edges, and especially the AC and high voltage power supplies. Always inspect for pinched, out-of-place, or frayed wiring. Do not change the spacing between components and the printed circuit board. Check the AC power cord for damage. Make sure that leads and components do not touch thermally hot parts.
 16. Picture Tube Implosion Warning:
The picture tube in this receiver employs "integral implosion" protection. To ensure continued implosion protection, make sure that the replacement picture tube is the same as the original.
 17. Do not remove, install or handle the picture tube without first putting on shatterproof goggles equipped with side shields. Never handle the picture tube by its neck. Some "in-line" picture tubes are equipped with a permanently attached deflection yoke; do not try to remove such "permanently attached" yokes from the picture tube.
 18. Product Safety Notice:
Some electrical and mechanical parts have special safety-related characteristics which might not be obvious from visual inspection. These safety features and the protection they give might be lost if the replacement component differs from the original—even if the replacement is rated for higher voltage, wattage, etc.
- Components that are critical for safety are indicated in the circuit diagram by shading, () or ()
- Use replacement components that have the same ratings, especially for flame resistance and dielectric strength specifications. A replacement part that does not have the same safety characteristics as the original might create shock, fire or other hazards.

1-2 Servicing Precautions

Warning1: First read the "Safety Precautions" section of this manual. If some unforeseen circumstance creates a conflict between the servicing and safety precautions, always follow the safety precautions.

Warning2: An electrolytic capacitor installed with the wrong polarity might explode.

1. Servicing precautions are printed on the cabinet. Follow them.
2. Always unplug the unit's AC power cord from the AC power source before attempting to: (a) Remove or reinstall any component or assembly, (b) Disconnect an electrical plug or connector, (c) Connect a test component in parallel with an electrolytic capacitor.
3. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.
4. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the portion around the serviced part has not been damaged.
5. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).
6. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500V) to the blades of the AC plug.

The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.
7. Never defeat any of the B+ voltage interlocks. Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.
8. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument's ground lead last.

1-3 Precautions for Electrostatically Sensitive Devices (ESDs)

1. Some semiconductor (“solid state”) devices are easily damaged by static electricity. Such components are called Electrostatically Sensitive Devices (ESDs); examples include integrated circuits and some field-effect transistors. The following techniques will reduce the occurrence of component damage caused by static electricity.
2. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. (Be sure to remove it prior to applying power—this is an electric shock precaution.)
3. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of electrostatic charge.
4. Do not use freon-propelled chemicals. These can generate electrical charges that damage ESDs.
5. Use only a grounded-tip soldering iron when soldering or unsoldering ESDs.
6. Use only an anti-static solder removal device. Many solder removal devices are not rated as “anti-static”; these can accumulate sufficient electrical charge to damage ESDs.
7. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.
8. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.
9. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting a foot from a carpeted floor can generate enough static electricity to damage an ESD.

2. Specifications and IC Data

2-1 Specifications

Television System	14"/20" NTSC Color TV Signal
Power Consumption	14" : 57 Watts Nominal, 20" : 70 Watts Nominal
Picture Tube	14" : A34KQV42X 20" : A48KRD82X (H)
Power Requirements	AC 100 ~ 240V, 50/60Hz
Operating System	Remocon System (SSM - 174PT)
Tuning Ranges	VHF CH : 2 ~ 13 UHF CH : 14 ~ 69 CABLE CH : 1, 14-125
Antenna Input Impedance	75 ohm Unbalanced for VHF/UHF
Intermediate Frequency	Picture 45.75 MHz, Sound 41.25 MHz Color Sub Carrier 42.17 MHz
Speaker Impedance	Single : 8 ohm 2.5W Dual : 8 ohm 2.5W x 2.5W

2-2 IC Line Up

Table 2-1 IC Line-Up

Loc. No	Specification	Description	Remark
IC201	TDA8841 SI	NTSC, PAL M/N	Philips
IC301	TDA8356	VERTICAL OUTPUT	
IC501	TDA6107Q	RGB DRIVE AMP	
IC601	LA4425	SOUND-AMP (2.5W x 1CH)	
IC602	LA4425	SOUND-AMP (2.5W x 1CH)	
IC801	KA3S0680RF	POWER IC (STR)	
IC802	KA7630	CUSTOM REGULATOR (5V, 8V)	
IC901	SSM-174PT	μ -com (OSD Language : English, Spanish, Portuguese)	
IC902	24C02/KS24C040	EEPROM	
PC802	TCET1108 / LTV817B	PHOTO COUPLER	

2-3 Semiconductor Base Diagrams

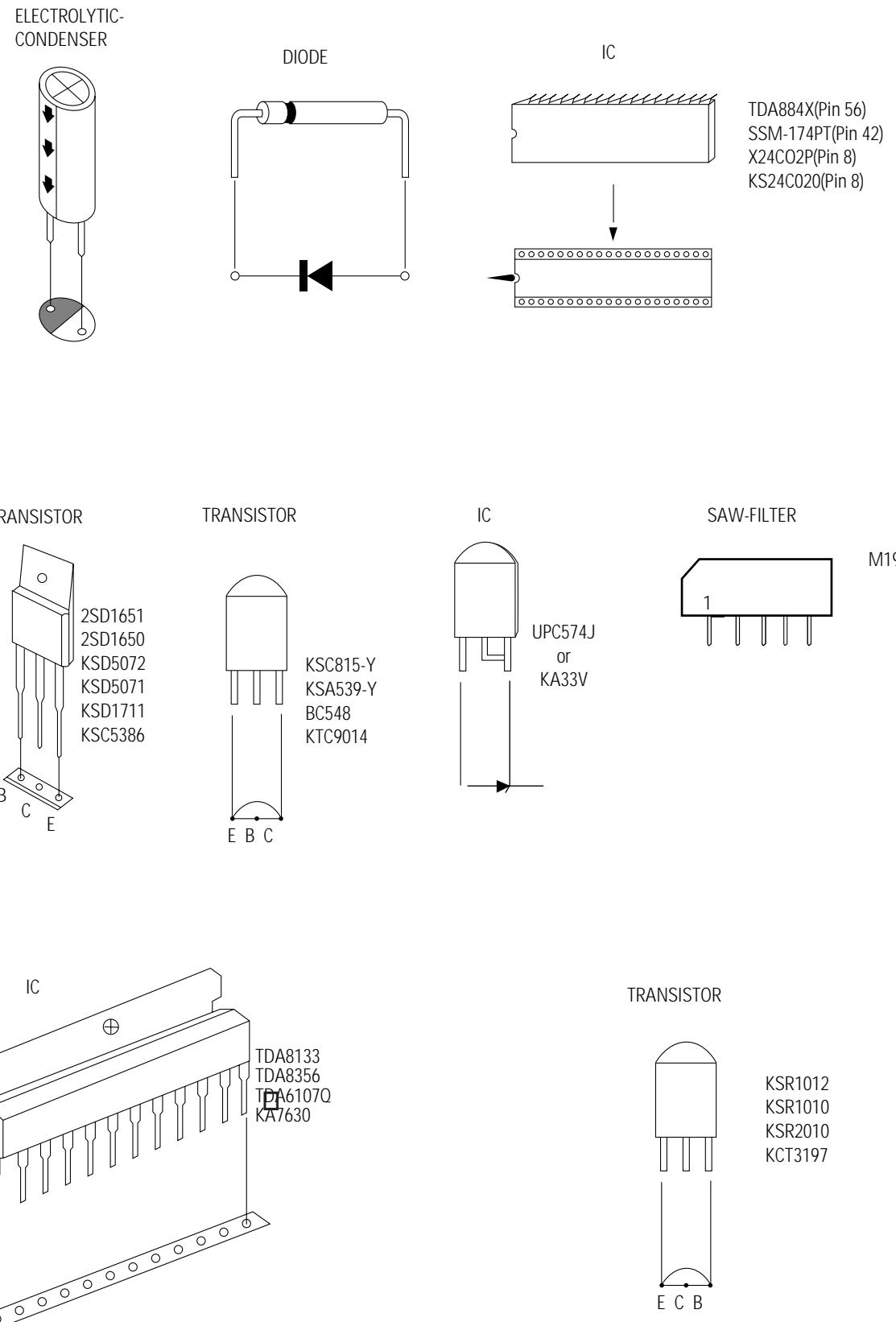
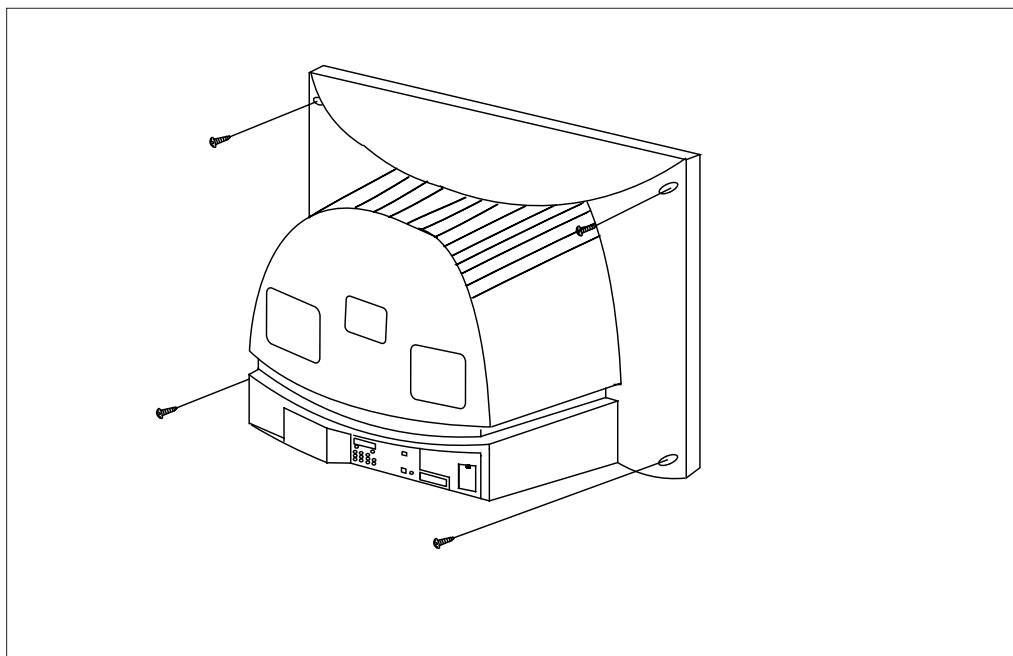


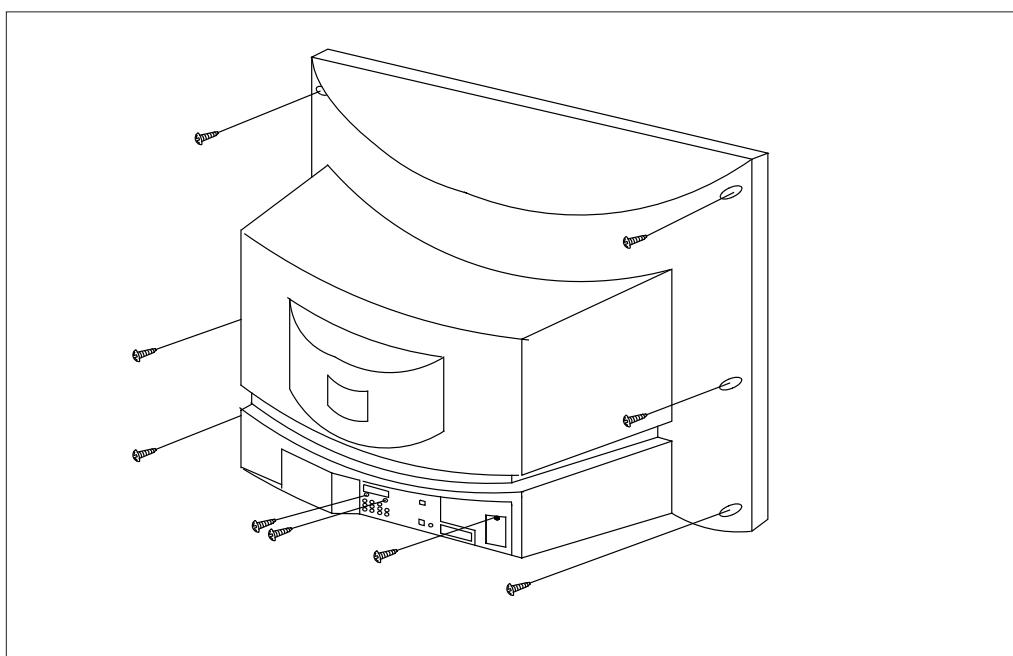
Fig. 2-1 Semiconductor Base Diagrams

3. Disassembly and Reassembly

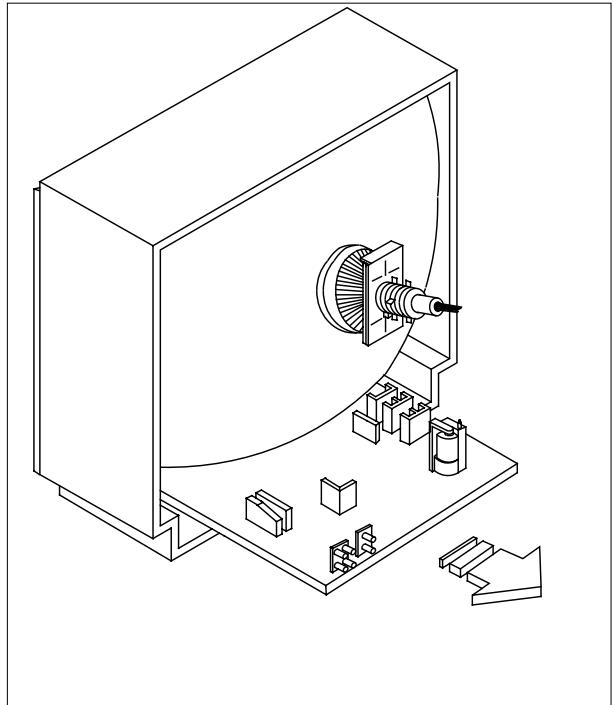
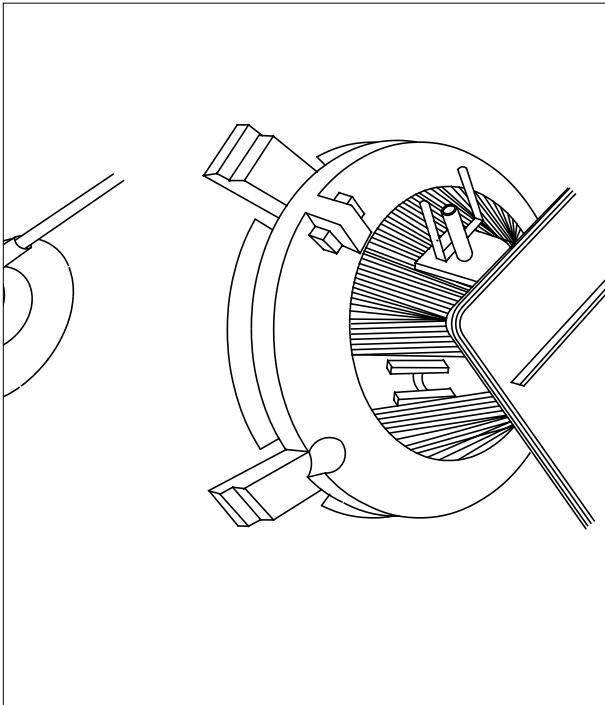
3-1 Back Cover Removal



1. After removing the screws, press the tension rib and pull the cabinet backwards.
2. To reassemble, press the tension rib (see diagram).



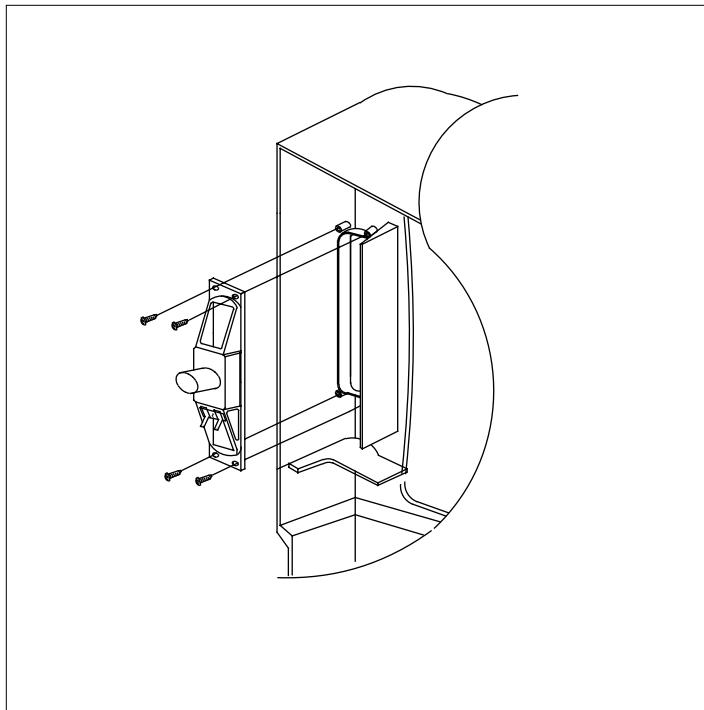
3-2 Main Board Removal



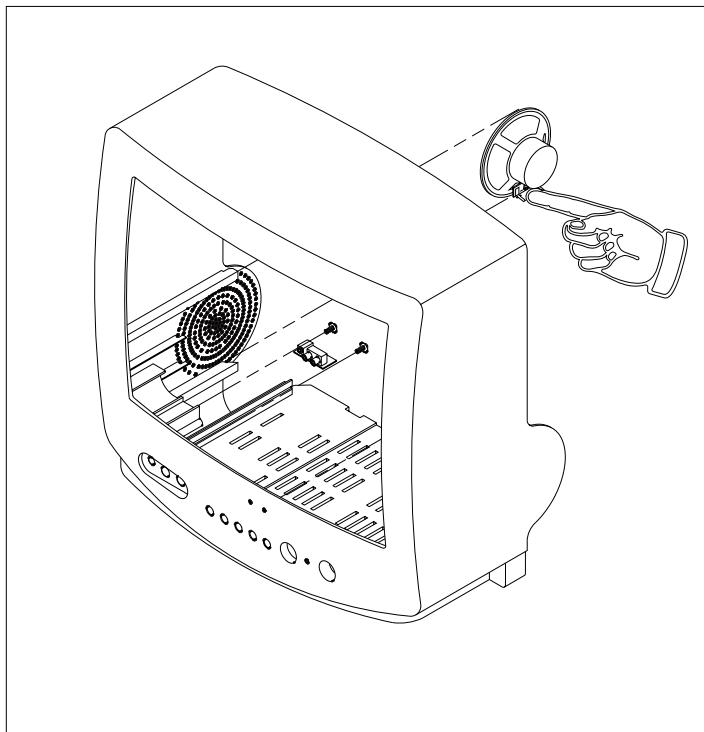
1. Separate the socket board from the CRT neck.
2. Remove the Anode Cap from the CRT.
3. Remove the main board by pulling it with both hands.

Warning: The FBT is charged with high voltage.
Before removing the Anode Cap, discharge the voltage
through one of the heat sinks on the main board.

3-3 Speaker Removal

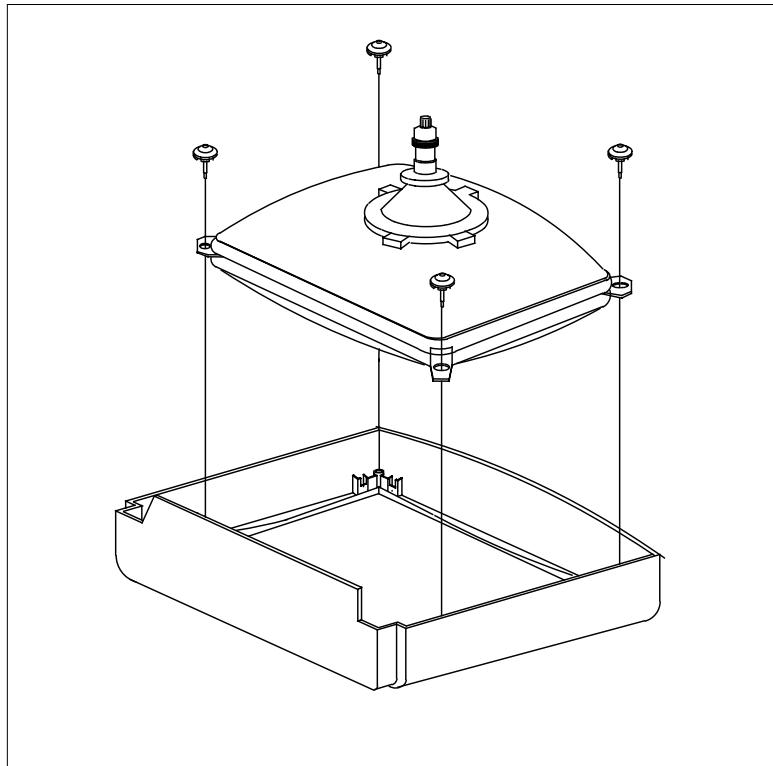


1. Remove the speaker by pressing the tension rib.



1. Remove the screws.
2. Remove the speaker by pressing the tension rib.

3-4 CRT Removal



1. Spread a soft mat on the floor. Place the TV set face down.
2. Remove the 4 nuts mounting the CRT to the front cabinet. Lift the CRT.
3. Caution: Because of the high vacuum and large surface area of the picture tube, be careful while handling it: (1) Always lift the picture tube by grasping it firmly around the faceplate, (2) Never lift the tube by its neck. (3) Do not scratch the picture tube or apply excessive pressure. Fractures of the glass may cause an implosion.

4. Alignment and Adjustments

4-1 Preadjustment

4-1-1 Factory Mode

1. Do not attempt these adjustments in the Video Mode.
2. The Factory Mode adjustments are necessary when either the EEPROM (IC902) or the CRT is replaced.
3. Do not tamper with the "Adjustment" screen of the Factory Mode menu. This screen is intended only for factory use.

4-1-2 When EEPROM (IC902) Is Replaced

1. When IC902 is replaced all adjustment data revert to initial values. It is necessary to re-program this data.
2. After IC902 is replaced, warm up the TV for 10 seconds.

4-1-3 When CRT Is Replaced

1. Make the following adjustments AFTER setting up after setting up purity and convergence :

White Balance
Sub-Brightness
Vertical Center
Vertical Size
Horizontal Center

4-2 Factory/Service Mode

4-2-1 Procedure for the "Adjustment" Mode

1. This mode uses the standard remote control. The Service Mode is activated by entering the following remote-control sequence :
 - (1) DISPLAY→FACTORY.
 - (2) STAND-BY→MUTE→1→8→2 →POWER ON.
2. The "SERVICE (FACTORY)" message will be displayed. The Service Mode has four components: Adjustment, Option Bytes and Reset.
3. Access the Adjustment Mode by pressing the "VOLUME" keys (Up or Down). The adjustment parameters are listed in the accompanying table, and selected by pressing the CHANNEL keys (▲ ,▼).

4. Selection sequences for the PAL N system:

DOWN or UP key:

AGC>VCO>SBT>SCT>RG>GG>BG>SC>
PCR>PSL>PVS>PVA>PHS>△HS>CDL

Selection sequences for the NTSC, PAL M system:

DOWN or UP key:
AGC>VCO>SBT>SCT>RG>GG>BG>SC>STT>
NCR>NSL>NVS>NVA>NHS>CDL

5. The VOLUME keys increase or decrease the adjustment values (stored in the non-volatile memory) when Adjustment Mode is cancelled.
6. Cancel the Adjustment Mode by re-pressing the "FACTORY" or "Power OFF" keys.

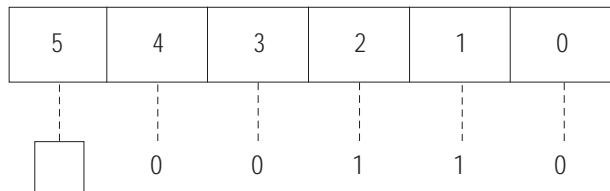
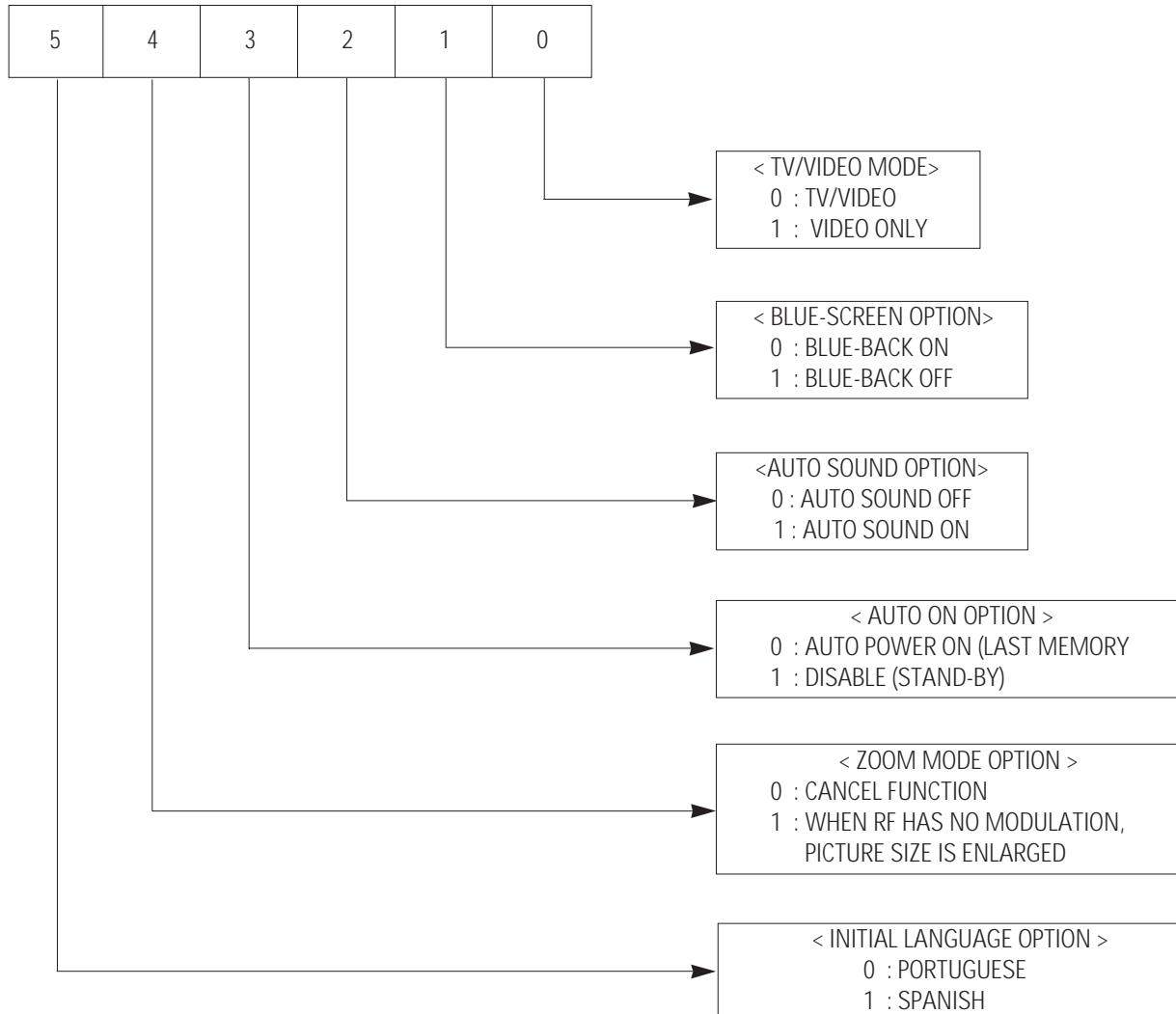
4-2-2 Main Adjustment Parameter

Table 4-1 Main Adjustment Parameter (SSM-174PT, TDA8841)

FUNCTION	OSD ABBREVIATION	RANGE	INITIAL DATA	REMARK
AUTO GAIN CONTROL	AGC	0 ~ 63 STEP	05	FIX
VOLTAGE CONTROL OSCILLATOR	VCO	0 ~ 128 STEP	48	FIX
SUB BRIGHT	SBT	0 ~ 23 STEP	9	
SUB CONTRAST	SCT	0 ~ 23 STEP	8	
RED DRIVE GAIN	RG	0 ~ 63 STEP	25	
GREEN DRIVE GAIN	GG	0 ~ 63 STEP	25	
BLUE DRIVE GAIN	BG	0 ~ 63 STEP	25	
PAL SUB COLOR	PCR	0 ~ 23 STEP	10	FIX
S-CORRECTION	SC	0 ~ 63 STEP	10	
PAL VERTICAL SLOPE	PSL	0 ~ 63 STEP	34	
PAL VERTICAL SHIFT	PVS	0 ~ 63 STEP	32	
PAL VERTICAL AMPLITUDE	PVA	0 ~ 63 STEP	28	
PAL HORIZONTAL SHIFT	PHS	0 ~ 63 STEP	42	
Δ HORIZONTAL SHIFT	Δ HS	0 ~ 7 STEP	5	
SUB TINT	STT	1 ~ 23 STEP	10	
NTSC SUB COLOR	NCR	0 ~ 23 STEP	14	FIX
NTSC VERTICAL SLOPE	NSL	0 ~ 63 STEP	34	
NTSC VERTICAL SHIFT	NVS	0 ~ 63 STEP	32	
NTSC VERTICAL AMPLITUDE	NVA	0 ~ 63 STEP	28	
NTSC HORIZONTAL SHIFT	NHS	0 ~ 63 STEP	47	

NOTE : Once a system (of PAL N/NTSCM, PALM System) is adjusted, another system is automatically adjusted. (NHS=PHS + Δ HS)

4-2-3 Option Table



:Basic Option Byte
(Note : No. 5 is a Local Option)

4-3 Other Adjustments

4-3-1 General

1. Usually, a color TV needs only slight touch-up adjustment upon installation. Check the basic characteristics such as height, horizontal and vertical sync and focus.
2. The picture should have good black and white details. There should be no objectionable color shading; if color shading is present, perform the purity and convergence adjustments described below.
3. Use the specified test equipment or its equivalent.
4. Correct impedance matching is essential.
5. Avoid overload. Excessive signal from a sweep generator might overload the front-end of the TV. When inserting signal markers, do not allow the marker generator to distort test results.
6. Connect the TV only to an AC power source with voltage and frequency as specified on the backcover nameplate.
7. Do not attempt to connect or disconnect any wires while the TV is turned on. Make sure that the power cord is disconnected before replacing any parts.
8. To protect against shock hazard, use an isolation transformer.

4-3-2 Automatic Degaussing

A degaussing coil is mounted around the picture tube, so that external degaussing after moving the TV should be unnecessary. But the receiver must be properly degaussed upon installation.

The degaussing coil operates for about 1 second after the power is switched ON. If the set has been moved or turned in a different direction, disconnect its AC power for at least 30 minutes.

If the chassis or parts of the cabinet become magnetized, poor color purity will result. If this happens, use an external degaussing coil. Slowly move the degaussing coil around the faceplate of the picture tube and the sides and front of the receiver. Slowly withdraw the coil to a distance of about 6 feet before removing power.

4-3-3 High Voltage Check

CAUTION: There is no high voltage adjustment on this chassis. The B+ power supply must be set to +125 volts (Full color bar input and normal picture level).

1. Connect a digital voltmeter to the second anode of the picture tube.
2. Turn on the TV. Set the Brightness and Contrast controls to minimum (zero beam current).
3. The high voltage should not exceed 27.5KV.
4. Adjust the Brightness and contrast controls to both extremes. Ensure that the high voltage does not exceed 27.5KV under any conditions.

4-3-4 FOCUS Adjustment

1. Input a black and white signal.
2. Adjust the tuning control for the clearest picture.
3. Adjust the FOCUS control for well defined scanning lines in the center area of the screen.

4-3-5 Cathode Voltage Adjustment (Screen Adjustment)

1. Connect CRT socket pin GK to an oscilloscope probe.
2. Input a gray scale pattern. (Use a pattern generator, PM5518)
3. Use the P mode key (on the remote control) for the STANDARD picture.
4. Adjust the Screen VR (on the FBT) so that the voltage on the oscilloscope becomes $130 \pm 2.5V$ (See Fig. 4-1).

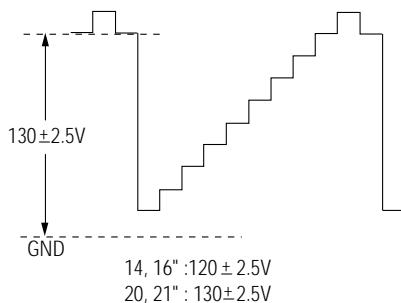


Fig. 4-1

4-3-6 Purity Adjustment

1. Warm up the receiver for at least 20 minutes.
2. Plug in the CRT deflection yoke and tighten the clamp screw.
3. Plug the convergence yoke into the CRT and set in as shown in Fig. 4-2.
4. Input a black and white signal.
5. Fully demagnetize the receiver by applying an external degaussing coil.
6. Turn the CONTRAST and BRIGHTNESS controls to maximum.
7. Loosen the clamp screw holding the yoke. Slide the yoke backward or forward to provide vertical green belt. (Fig. 4-3).
8. Tighten the convergence yoke.
9. Slowly move the deflection yoke forward, and adjust for the best overall green screen.
10. Temporarily tighten the deflection yoke.
11. Produce blue and red rasters by adjusting the low-light controls. Check for good purity in each field.
12. Tighten the deflection yoke.

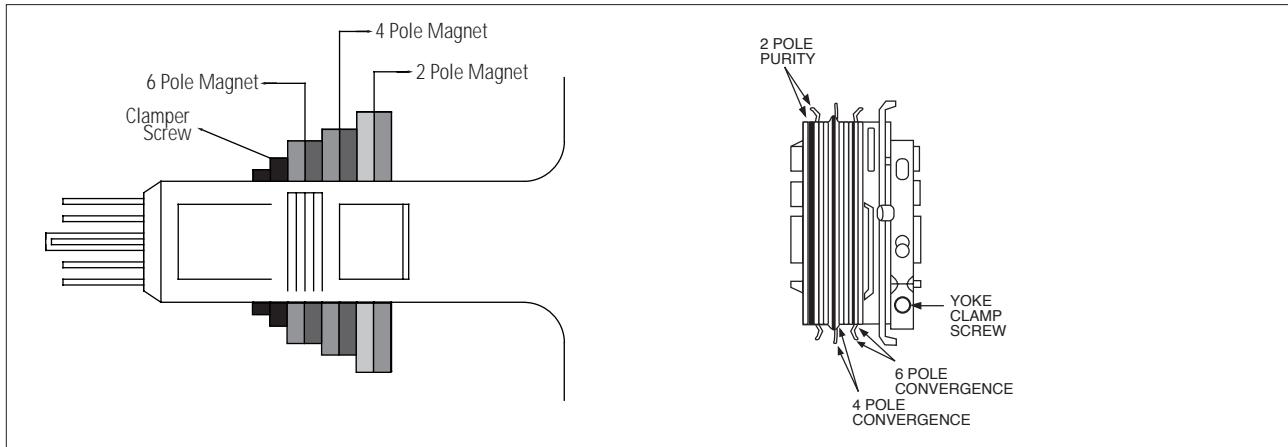


Fig. 4-2 Convergence Magnet Assembly

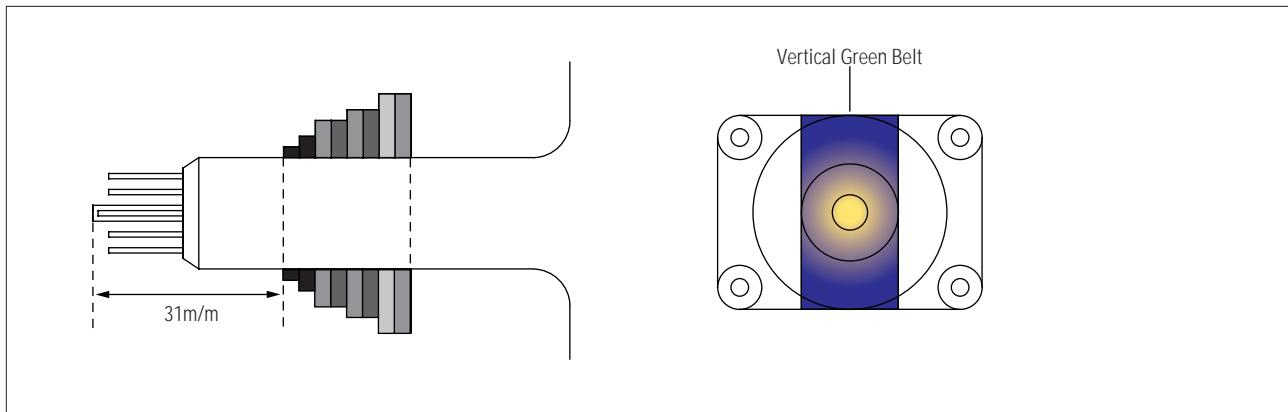


Fig. 4-3 Center Convergence Adjustment

4-3-7 White Balance Adjustment

(a) Set up

1. Warm up the TV for at least 30 minutes in the Aging Mode (OSD White). This mode is displayed by entering the following sequence:

DISPLAY → FACTORY → FACTORY

2. Input a Toshiba pattern.

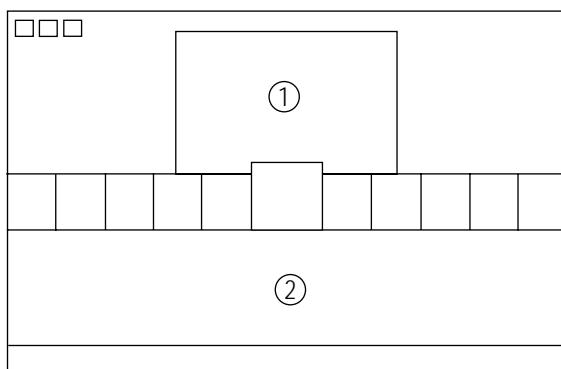


Fig. 4-4

(b) Low-Light Adjustment

1. Set SBT to 1.3 ± 0.2 fL in the Factory Service Mode with using CA100. See Fig. 4-4 ②.
2. Adjust RG,BG so that the levels are suitable to each local area.

(c) High-Light Adjustment

1. Set SCT to 55 FL (20''), 65 FL(14'') in the Factory Service Mode with using CA100. See Fig. 4-4 ①.

4-3-8 Center Convergence Adjustment

1. Warm up the receiver for at least 20 minutes.
2. Adjust the two tabs of the 4 pole magnets to change the angle between them. Superimpose the red and blue vertical lines in the center area of the screen.
3. Adjust the Brightness and Contrast controls for a well defined picture.
4. Adjust the two-tab pairs of the 4 pole magnets, and change the angle between them. Superimpose the red and the blue vertical lines in the center area of the screen.
5. Turn the both tabs at the same time, keeping the angle constant, and superimpose the red and blue horizontal line in the center of the screen.
6. Adjust the two-tab pairs of the 6-pole magnets to superimpose the red and blue line onto the green. (Changing the angle affects the vertical lines, and rotating both magnets affects the horizontal lines.)
7. Repeat adjustments 2~6, if necessary.
8. Since the 4-pole magnets and 6-pole magnets interact, the dot movement is complex (Fig. 4-5).



Fig. 4-5 Center Convergence Adjustment

4-3-9 VCO Adjustment

Set the vco data to 48 (Factory Mode).

4-3-10 RF AGC Adjustment

Set the AGC data to 5.0 (Factory Mode).

3. Adjust with PHS/NHS (Horizontal Shift) so that the lion-head pattern and CRT centers are aligned.

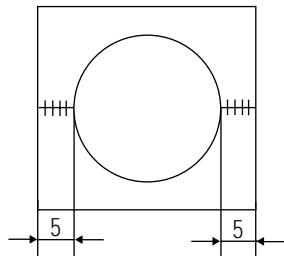


Fig. 4-9

4-3-11 Sub-Color Adjustment

Set SCR data to 10 (Factory Mode).

4-3-12 Geometry Adjustment

SC →PSL (NSL)→PVS (NVS)→ PVA (NVA)
→PHS (NHS)

1. Input a lion head pattern.
2. Adjust "PVA (NVA)", "PSL (VSL)" so that the top and bottom margins of the screen are 4.0. If the top and bottom values are different, adjust "PVA (NVA)", "PSL (NSL)", "PVS (NVS)" so that the sum of the two values is 8.0.

3. Adjust with PHS/NHS (Horizontal Shift) so that the lion-head pattern and CRT centers are aligned.
4. Adjust PHS/NHS (using the width coil) so that the left and right margins of the picture are 5.

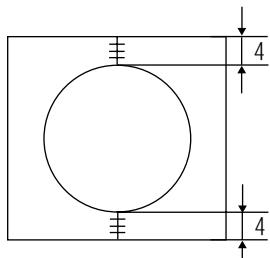


Fig. 4-7

4-2-3 Test Pattern (Aging Mode)

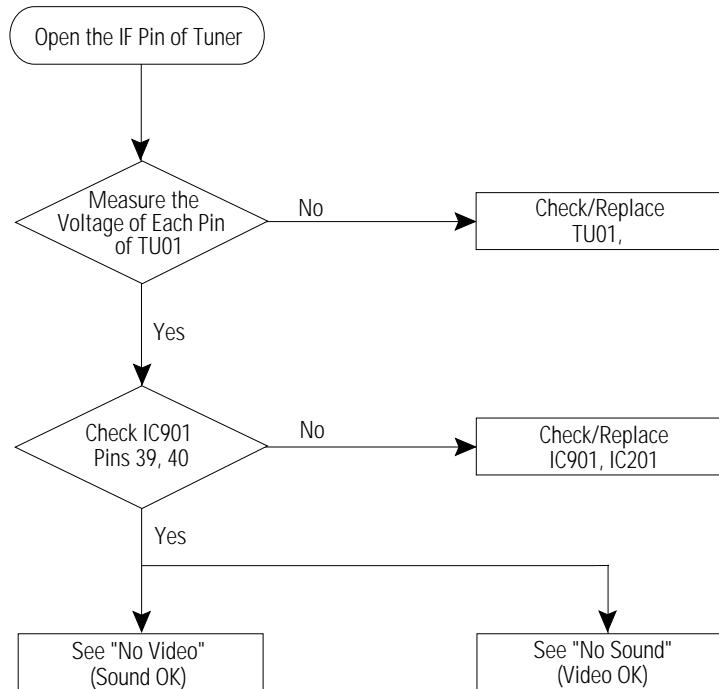
1. This mode can be used during servicing, or for confirming that the convergence and purity adjustments are correct.
2. Access the Test Pattern parameters by pressing a CHANNEL keys (\blacktriangle , \blacktriangledown) while the Service Mode is on. The cursor will move to the test pattern. Press the VOLUME keys. On-screen display:
 - WHITE
 - AGING
3. AGING Mode (Reference Only)

This pattern is used for pre-heating the CRT during manufacturing
—it is accessed in the factory by twice pressing the “SLEEP → FACTORY→FACTORY” key, then white pattern will be displayed.

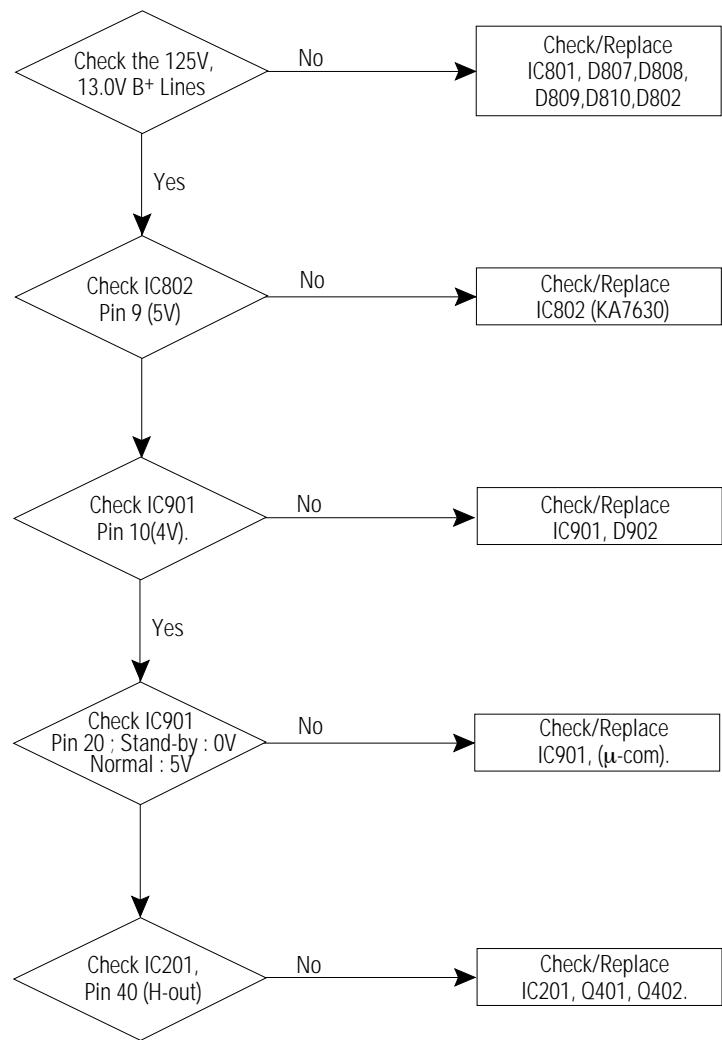
Even if the TV power is cut off, the Aging Mode is not cancelled, The aging mode is cancelled by repressing the “FACTORY” key or pressing the local “CH UP/DOWN” keys.

5. Troubleshooting

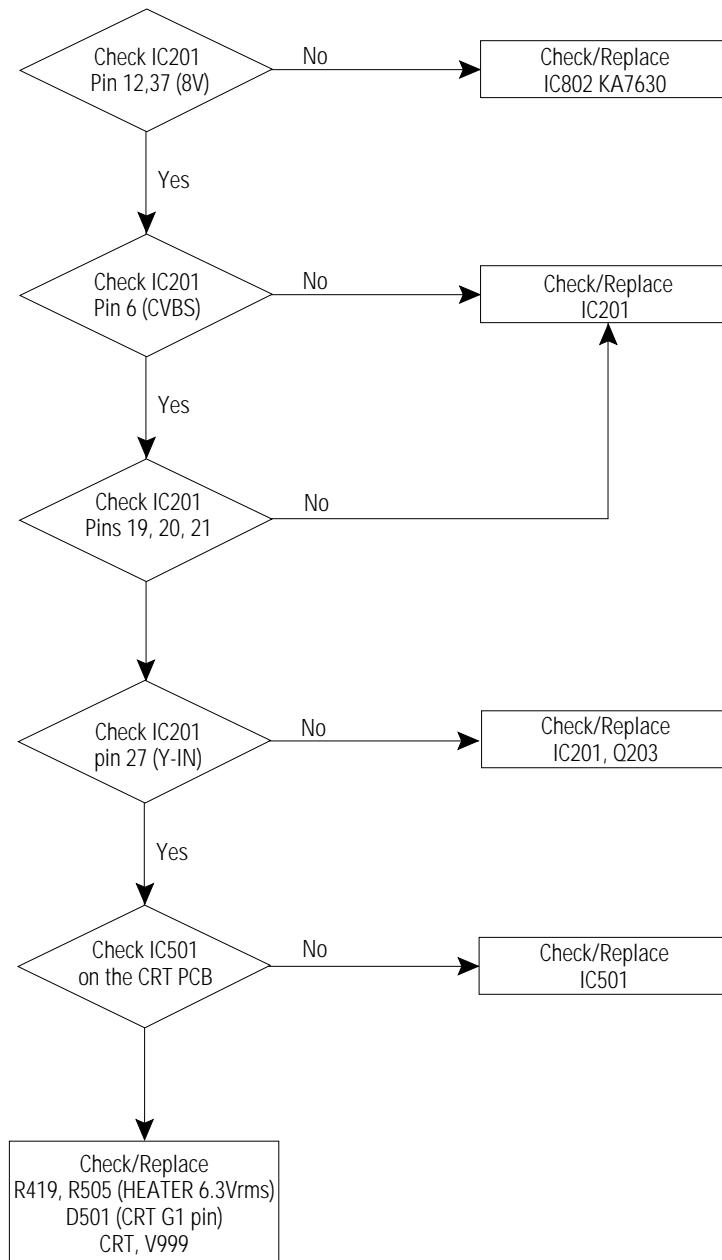
5-1 No Video (Raster On, No Sound)



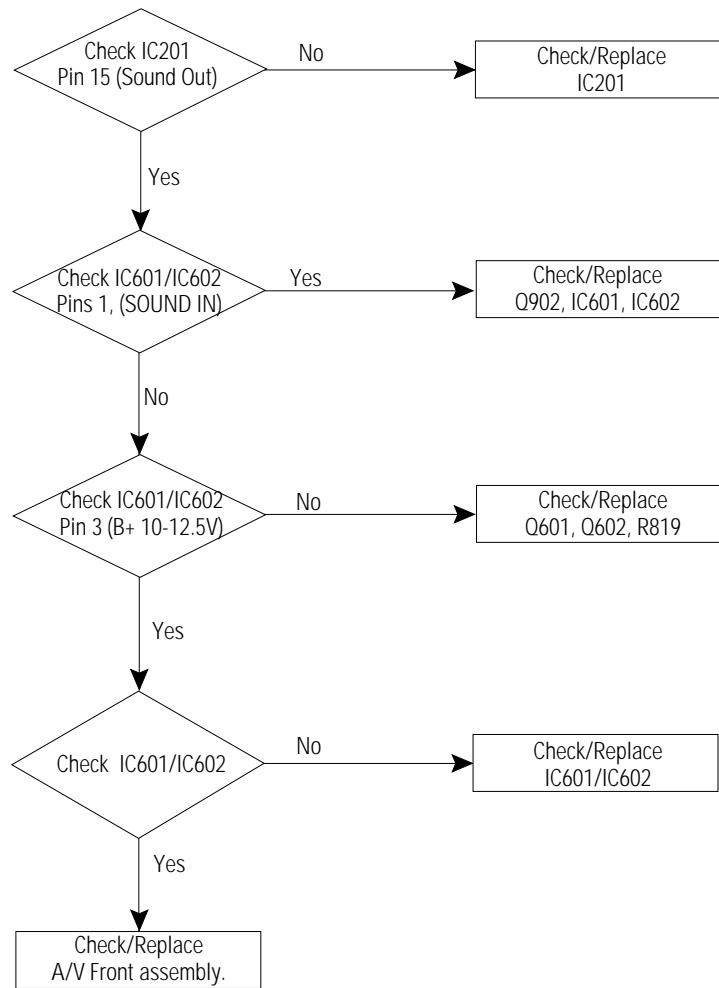
5-2 No Power



5-3 No Video (Sound OK)

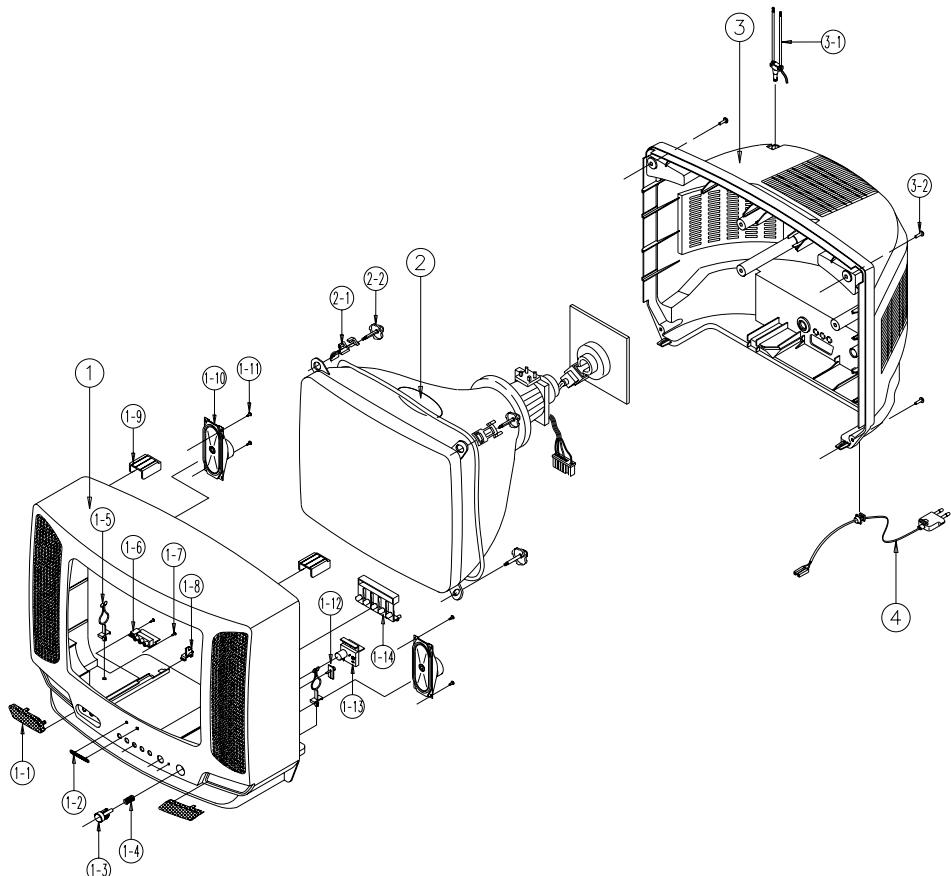


5-4 No Sound (Video OK)

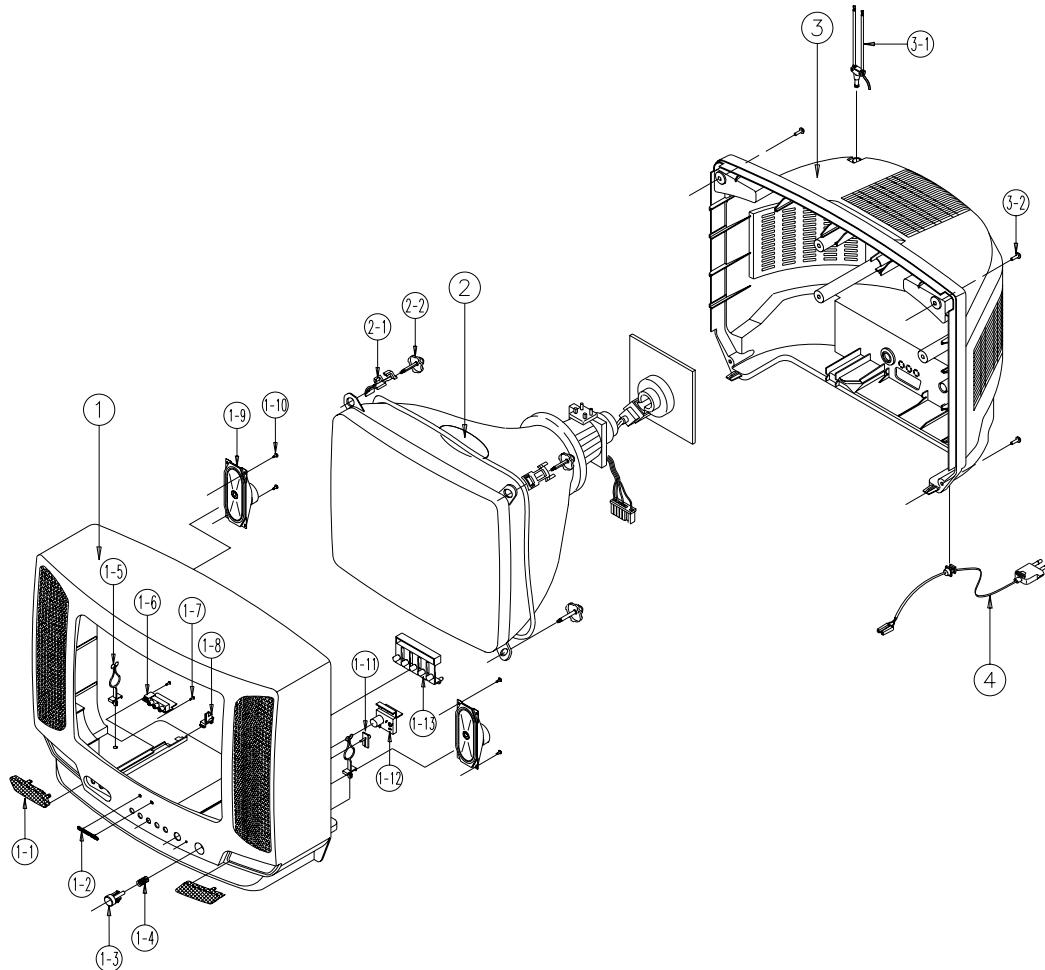


6. Exploded Views & Parts List

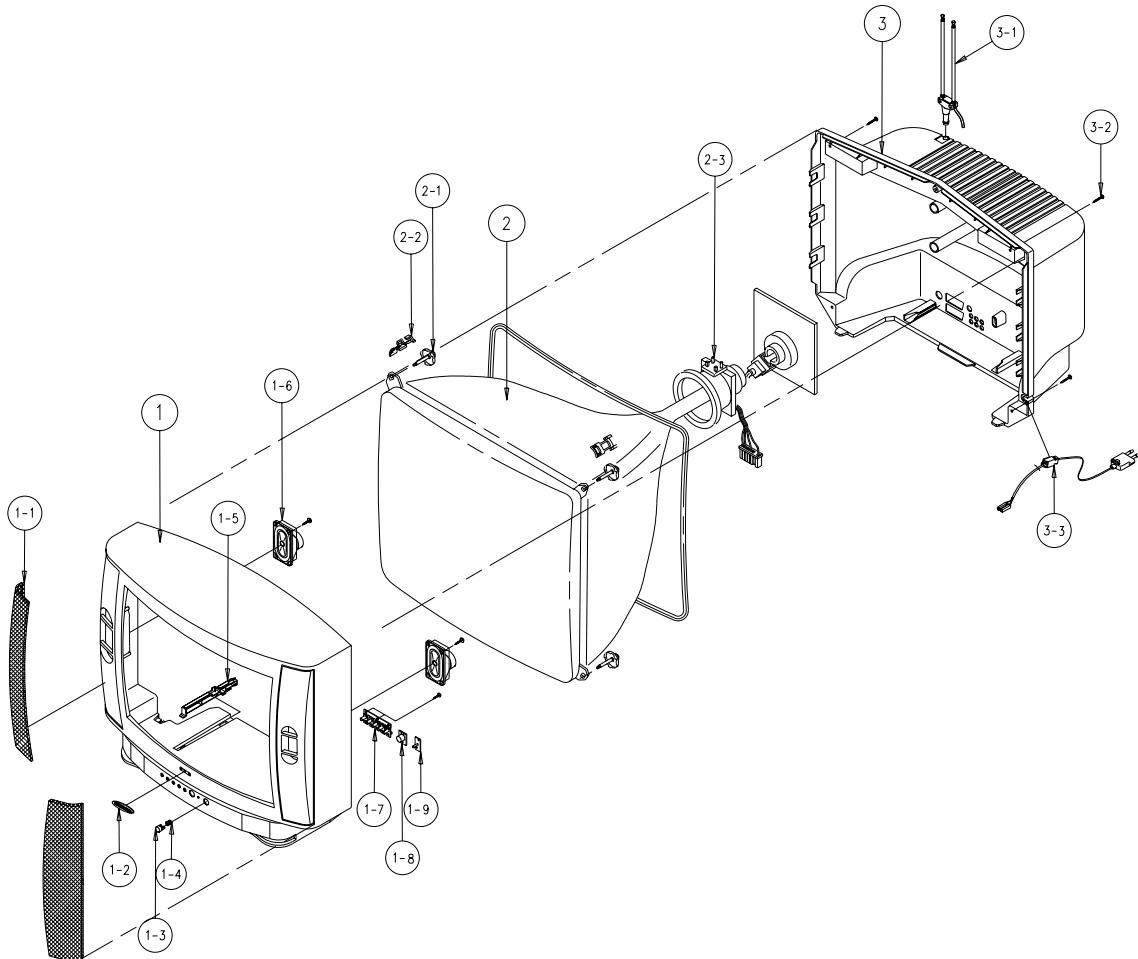
6-1 CN331EBZX/DIS, CN331EBZX/XAP



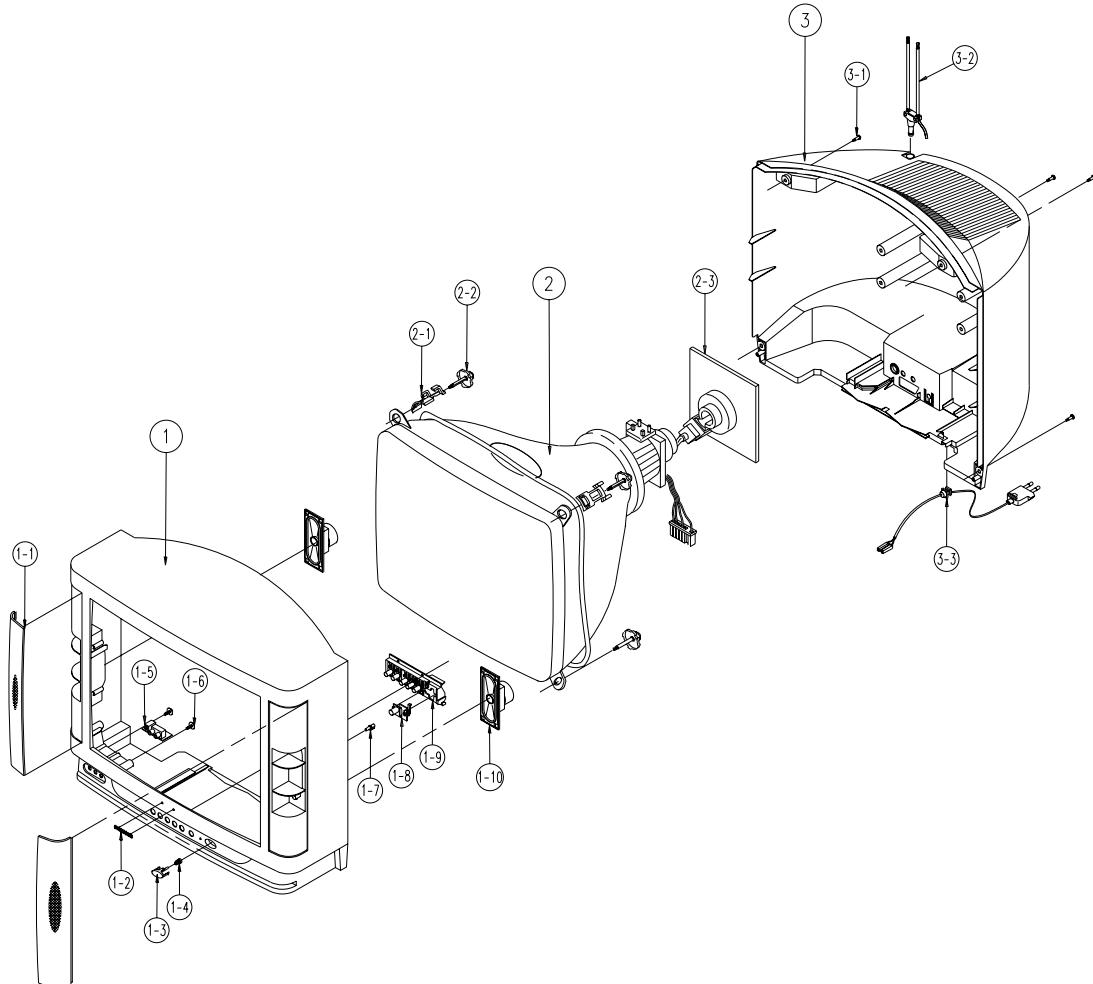
No	Code No	Description	Specification	Q'ty	Remark
1	AA64-30981W	CABINET-FRONT	-CN331EBZ,BK708P SGB,HIPS,HB,	1	DISMAC
	AA64-30981X	CABINET-FRONT	-CN331EBZ,BK708P PGHB,HIPS,HB	1	SEPA
1-1	AA63-50311A	GRILLE-WOOFER,L	-331E,PA110 3R,SECC,T0.5,-,-	1	
	AA63-50306A	GRILLE-WOOFER,R	-331E,PA110 3R,SECC,T0.5,-,-	1	
1-2	AA64-70009G	BADGE-BRAND	AL,SS R800 22,GOLD,L40,-,-,-	1	
1-3	AA64-10638A	KNOB-POWER,T	-331E,TACT,ABS,HB,BLK	1	
1-4	AA61-60005S	SPRING-CS	-,SUS304,0.6,OD10,H12.5,N4,-,-	1	
1-5	AA65-30105A	CLAMP-WIRE	NYLON 66,V2,NTR,15MM,ALL MODE	1	
1-6	AA95-90030M	ASSY-PCB,A/V FRONT	-,CT-2139H,KCT15A,NTS	1	
1-7	AA60-10002A	SCREW-TAPPING	RH,+,M4,L12,ZPC(YEL),-,OD1	2	
1-8	AA61-40113A	STOPPER-PCB	501H,HIPS,NTR,HB,-,-	1	
1-9	AA61-40015A	BOSS-CABINET	-,HIPS,HB,NTR,-,-	2	
1-10	3001-001034	SPEAKER	6W,8ohm,90dB,140Hz	2	
1-11	6002-000514	SCREW-TAPPING	RH,+,2,M4,L15,ZPC(BLK),SWRCH18	4	
1-12	AA64-40408A	INDICATOR-LED	-,501E,-,ACRYL,HB,CLR,-	1	
1-13	AA64-40407A	WINDOW-REMOCON	-,501E,-,PC,-,-,VIOLET	1	
1-14	AA64-10637A	KNOB-CONTROL	-,501E,-,ABS,HB,BLK	1	
2	AA03-10003J	CRT-COLOR	-,A34KQV42X(B),0MG,14,90DEG,5	1	
2-1	AA65-30107A	CLAMP-D.COIL	NYLON 66,V2,NTR,-,20~22 INC	4	
2-2	AA60-10050R	SCREW-ASSY	WC,HH,+,M5,L31.5,SWRCH18A,ZPC	4	
3	AA64-30983B	CABINET-BACK	-,331E,-,HIPS,HB,BLK,-,-	1	
3-1	AA42-10001V	ANT-ROD	-,3S,620mm,BRN,UL/CSA	1	
3-2	6002-000514	SCREW-TAPPING	RH,+,2,M4,L15,ZPC(BLK),SWR	4	
4	AA39-10006X	POWER-CORD	-,KKP419C,KLCE-2F,2.286MT,3P,	1	

6-2 CN501EBZX/DIS, CN501EBZX/XAP

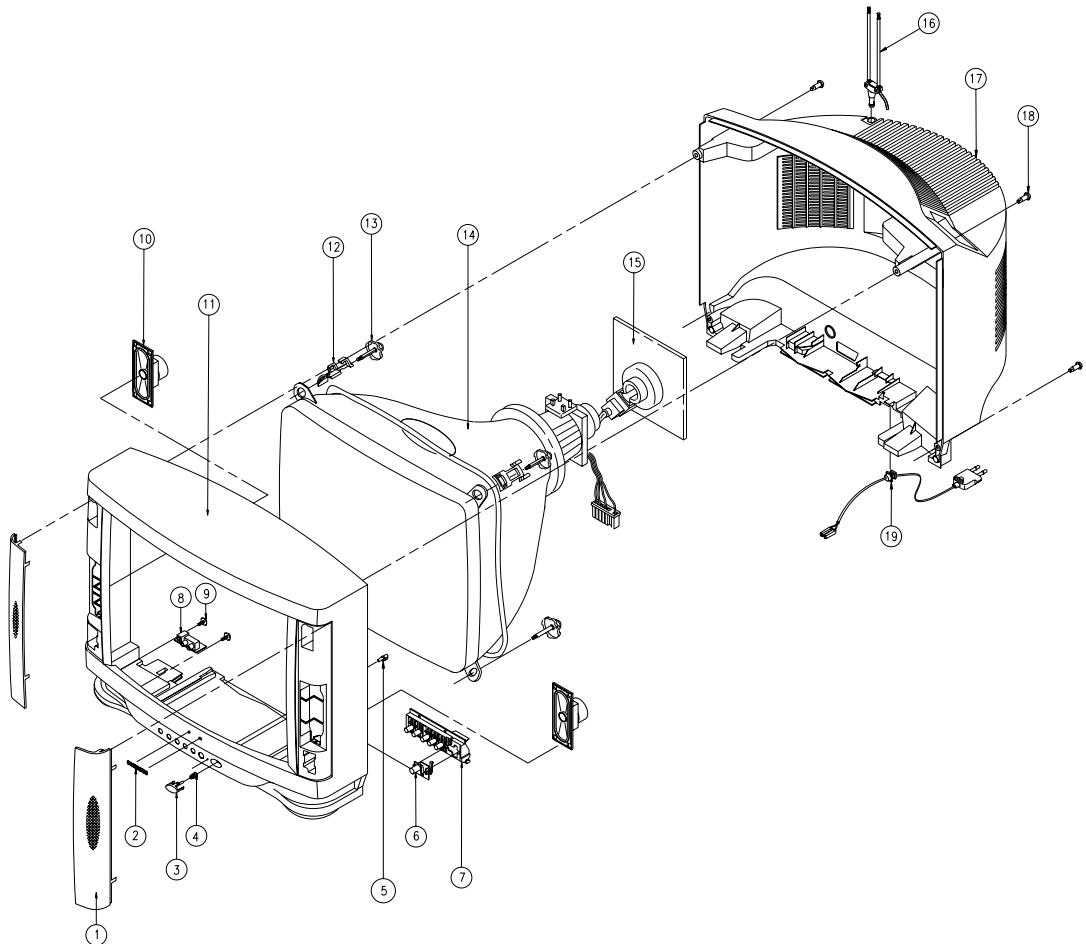
No	Code No	Description	Specification	Q'ty	Remark
1	AA64-31295H	CABINET-FRONT	-CN501EBZ,BK708P PGHB,HIP	1	CN501EBZX/XAP
	AA64-31295J	CABINET-FRONT	-,CN501EBZ,BK708P SGHB,HIPS,HB	1	CN501EBZX/DIS
1-1	AA63-50310A	GRILLE-WOOFER,L	-,501E,PA110 3R,SECC,T0,	1	
	AA63-50305A	GRILLE-WOOFER,R	-,501E,PA110 3R,SECC,T0,	1	
1-2	AA64-70010D	BADGE-BRAND	AL,SS R2000 25,GOLD,L50,-,-,	1	
1-3	AA64-10635A	KNOB-POWER,T	-,501E,TACT,ABS,HB,BLK	1	
1-4	AA61-60003J	SPRING-CS	-,SUS304,0.5,OD6,H12,N7,-,-	1	
1-5	AA65-30105A	CLAMP-WIRE	NYLON 66,V2,NTR,15MM,ALL MODE	1	
1-6	AA95-90030M	ASSY-PCB,A/V FRONT	-,CT-2139H,KCT15A,NTS	1	
1-7	AA60-10002A	SCREW-TAPPING	RH,+,M4,L12,ZPC(YEL),-,OD1	2	
1-8	AA61-40053A	STOPPER-PCB	ALL MODEL,HIPS HB,WHT,HB,-,-	1	
1-9	3001-001034	SPEAKER	6W,8ohm,90dB,140Hz	2	
1-10	6002-000514	SCREW-TAPPING	RH,+,2,M4,L15,ZPC(BLK),SWR	8	
1-11	AA64-40408A	INDICATOR-LED	-,501E,-,ACRYL,HB,CLR,-	1	
1-12	AA64-40407A	WINDOW-REMOCOM	-,501E,-,PC,-,-,VIOLET	1	
1-13	AA64-10637A	KNOB-CONTROL	-,501E,-,ABS,HB,BLK	1	
2	AA03-10030L	CRT-COLOR	-,A48KRD82X(HB),0mG,20,90deg,	1	
2-1	AA65-30107A	CLAMP-D,COIL	NYLON 66,V2,NTR,-,20~22 INC	4	
2-2	AA60-10050R	SCREW-ASSY	WC,HH,+,M5,L31.5,SWRCH18A,ZPC	4	
3	AA64-30979B	CABINET-BACK	-,501E,-,HIPS,HB,BLK,-,-	1	
3-1	AA42-10001V	ANT-ROD	-,3S,620mm,BRN,UL/CSA	1	
3-2	6002-000514	SCREW-TAPPING	RH,+,2,M4,L15,ZPC(BLK),SWR	4	
4	AA39-10006X	POWER-CORD	-,KKP419C,KLCE-2F,2.286MT,3P,	1	

6-3 CN3339BZX/XAP

No	Code No	Description	Specification	Q'ty	Remark
1	AA64-31141T	CABINET-FRONT	-CN-3339BZ,BK-708P PGB TVI,HI	1	
1-1	AA63-50103B	GRILLE-WOOFER	-,3339,PA110 PI0.8,SECC,T0.5,-	2	
1-2	AA64-70009D	BADGE-BRAND	AL,SS R2000 22,GOLD,L40,-,-,-	1	
1-3	AA64-10147B	KNOB-POWER,T	-,3339,SILK,ABS,HB,BLK	1	
1-4	AA61-60003J	SPRING-CS	-,SUS304,0.5,OD6,H12,N7,-,-,-	1	
1-5	AA61-40007A	STOPPER-PCB	5038.5368,ABS HB,NTR,-,-,-	1	
1-6	3001-000191	SPEAKER	3W,8ohm,90dB,180Hz	2	
1-7	AA64-10609A	KNOB-CONTROL	-,33.3839,-,ABS,HB,BLK	1	
1-8	AA64-40056A	WINDOW-REMOCON	-,3339,-,PC,-,VIOLET,-	1	
1-9	AA64-40168A	INDICATOR-LED	-,3339,-,ACRYL,-,-,-	1	
2	AA03-10003J	CRT-COLOR	-,A34KQV42X(B),0MG,14,90DEG,5	1	
2-1	AA60-10050R	SCREW-ASSY	WC,HH,+,M5,L31.5,SWRCH18A,ZPC	4	
2-2	AA65-30106A	CLAMP-D,COIL	NYLON 66,V2,NTR,-,14 INCH,-	2	
2-3	3704-001089	SOCKET-CRT	7P,22.5PI,12PI,SN,-	1	
3	AA64-30391A	CABINET-BACK	-,3339,-,HIPS,HB,BLK,-,-	1	
3-1	AA42-10001V	ANT-ROD	-,3S,620mm,BRN,UL/CSA	1	
3-2	6002-000514	SCREW-TAPPING	RH,+,2,M4,L15,ZPC(BLK),SWR	4	
3-3	AA39-10006X	POWER-CORD	-,KKP419C,KLCE-2F,2.286MT,3P,	1	

6-4 CN5039BZX/XAP

No	Code No	Description	Specification	Q'ty	Remark
1	AA64-31261M	CABINET-FRONT	-CN-5039BZ,BK-708P PGB TV	1	
1-1	AA63-50011B	GRILLE-WOOFER	-5039,PA110,SECC,T0.5,-,-	2	
1-2	AA64-70010D	BADGE-BRAND	AL,SS R2000 25,GOLD,L50,-,-	1	
1-3	AA64-10143B	KNOB-POWER,T	-5039,SILK,ABS,HB,BLK	1	
1-4	AA61-60003J	SPRING-CS	-SUS304,0.5,OD6,H12,N7,-,-,-	1	
1-5	AA95-90030M	ASSY-PCB,A/V FRONT	-,CT-2139H,KCT15A,NTS	1	
1-6	AA60-10002A	SCREW-TAPPING	RH,+,M4,L12,ZPC(YEL),-,OD1	2	
1-7	AA64-40167A	INDICATOR-LED	-,5039,-,ACRYL,-,-,-	1	
1-8	AA64-40055A	WINDOW-REMOCON	-,5039,NO-SILK,PC,-,-,-	1	
1-9	AA64-10048A	KNOB-CONTROL	-,5039,-,ABS,HB,BLK	1	
1-10	3001-000191	SPEAKER	3W,8ohm,90dB,180Hz	2	
2	AA03-10030L	CRT-COLOR	-,A48KRD82X(HB),0mG,20,90deg,	1	
2-1	AA60-10050R	SCREW-ASSY	WC,HH,+,M5,L31.5,SWRCH18A,ZPC	4	
2-2	AA65-30107A	CLAMP-D,COIL	NYLON 66 V2,NTR,-,20~22 INC	4	
2-3	3704-001090	SOCKET-CRT	9P,15.24PI,26.5PI,SN,-	1	
3	AA64-30389A	CABINET-BACK	-,5039,-,HIPS,V0,BLK,-,-	1	
3-1	6002-000514	SCREW-TAPPING	RH,+,2,M4,L15,ZPC(BLK),SWR	4	
3-2	AA42-10001V	ANT-ROD	-,3S,620mm,BRN,UL/CSA	1	
3-3	AA39-10006X	POWER-CORD	-,KKP419C,KLCE-2F,2.286MT,3P,	1	

6-5 CN5085BZX/DRI

No	Code No	Description	Specification	Q'ty	Remark
1	AA64-31143U	CABINET-FRONT	-,CN5085BZ,BK708P SGHB,HIP	1	
2	AA64-70010D	BADGE-BRAND	AL,SS R2000 25,GOLD,L50,-,-,	1	
3	AA64-10183B	KNOB-POWER,M	-,33.5085,SILK,ABS,HB,BLK	1	
4	AA61-60003T	SPRING-CS	-,SUS304,0.5,OD7,H13.5,N5,-,-,	1	
5	AA64-40181A	INDICATOR-LED	-,33.50.5385,-,ACRYL,-,-,-	1	
6	AA64-40036A	WINDOW-REMOCON	-,5085,-,PC,-,-,-	1	
7	AA64-10007A	KNOB-CONTROL	-,5085,-,ABS,HB,BLK	1	
8	AA95-90030M	ASSY-PCB,A/V FRONT	-,CT-2139H,KCT15A,NTS	1	
9	AA60-10002A	SCREW-TAPPING	RH,+,M4,L12,ZPC(YEL),-,OD1	2	
10	3001-000191	SPEAKER	3W,8ohm,90dB,180Hz	2	
11	AA64-31143U	CABINET-FRONT	-,CN5085BZ,BK708P SGHB,HIP	1	
12	AA65-30107A	CLAMP-D,COIL	NYLON 66,V2,NTR,-,20~22 INC	4	
13	AA60-10050R	SCREW-ASSY	WC,HH,+,M5,L31.5,SWRCH18A,ZPC	4	
14	AA03-10030L	CRT-COLOR	-,A48KRD82X(HB),0mG,20,90deg,	1	
15	3704-001090	SOCKET-CRT	9P,15.24PI,26.5PI,SN,-	1	
16	AA42-10001V	ANT-ROD	-,3S,620mm,BRN,UL/CSA	1	
17	AA64-30713A	CABINET-BACK	-,5085,-,HIPS,HB,BLK,-,-	1	
18	6002-000514	SCREW-TAPPING	RH,+,2,M4,L15,ZPC(BLK),SWR	4	
19	AA39-10006X	POWER-CORD	-,KKP419C,KLCE-2F,2.286MT,3P,	1	

MEMO

Loc. No.	Code No.	Description ; Specification	Remark	Loc. No.	Code No.	Description ; Specification	Remark
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ASSY-CABINET

* AA91-10350E ASSY-C/FRTN:;,CN501EBZ,(SPK)BK708P PGHB SEPA
 * AA91-10350F ASSY-C/FRTN:;,CN501EBZ,(SPK) BK708P SGHB,H DISMAC
 AA64-70010DBADGE-BRND:AL,SS R2000 25,GOLD,L50,-,-,
 AA64-30979B CABINET-BACK:;,501E,-,HIPS,HB,BLK,-,-
 AA64-31295HCABINET-FRTN:;,CN501EBZ,BK708P PGHB,HIP SEPA
 AA64-31295J CABINET-FRTN:;,CN501EBZ,BK708P SGHB,HIPS DISMAC
 AA65-30008A CLAMP-CORD-PE,HB,BLK,-,-,-
 AA65-30107A CLAMP-D,COIL-NYLON 66,V2,NTR,-,20-22 INC
 AA65-30105A CLAMP-WIRE-NYLON 66,V2,NTR,15MM,ALL MODE
 AA63-50310AGRILLE-WOOFER,L:;,501E,PA110 3R,SECC,T0.
 AA63-50305AGRILLE-WOOFER,R:;,501E,PA110 3R,SECC,T0.
 AA64-40408A INDICATOR-LED:;,501E,-,ACRYL,HB,CLR,-
 AA64-60161Q INLAY-AV-V-MODEL,NTSC TVI EG,PS,T0,3,BL
 AA64-10637AKNOB-CONTROL:;,501E,-,ABS,HB,BLK
 AA64-10635AKNOB-POWER,T:;,501E,TACT,ABS,HB,BLK
 CRT+CF AA60-10050R SCREW-ASSY,W/C,HH,+,M5,L31.5,SWRCH18A,ZPC
 CB+CF 6002-000514 SCREW-TAPPING:RH,+,2,M4,L15,ZPC(BLK),SWR
 CB+RCA 6002-000514 SCREW-TAPPING:RH,+,2,M4,L15,ZPC(BLK),SWR
 KC+CF 6002-000514 SCREW-TAPPING:RH,+,2,M4,L15,ZPC(BLK),SWR
 SPK+CF 6002-000514 SCREW-TAPPING:RH,+,2,M4,L15,ZPC(BLK),SWR
 WIN+CF 6002-000514 SCREW-TAPPING:RH,+,2,M4,L15,ZPC(BLK),SWR
 PA+CF AA60-10002A SCREW-TAPPING:RH,+,M4,L12,ZPC(YEL),-,OD1
 KNOPOW AA61-60003J SPRING-CS: -,SUS304,0.5,OD6,H12,N7,-,-
 AA61-40053A STOPPER-PCB: ALL MODEL,HIPS HB,WHT,HB,-,-
 AA64-40407A WINDOW-REMOCON:;,501E,-,PC,-,-,VIOLET

ASSY-SPEAKER

* AA96-10143A ASSY-SPEAKER:;,8ohm,6W,001034,20505M,R70
 3001-001034 SPEAKER:6W,8ohm,90dB,140Hz
 AA39-20505M LEAD CONNECTOR-ASSY:;,YSH025-04,REC,4P,3

7-4 CN3339BZX/XAP (CN5039BZX/XAP AND CN3339BZX/XAP Dissimilar Parts)

Loc. No.	Code No.	Description ; Specification	Remark	Loc. No.	Code No.	Description ; Specification	Remark
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ASSY-PCB,MAIN

* AA94-10151MASSY-PCB,MAIN(OPT):CN3339BZX/XAP,K15B,BRAZIL,-
 C402 2301-001219 C-FILM,MPE-PPF;3.9nF,5%,1.6KV,TP,29x8.5x15,20
 C404 2306-000179 C-FILM,MPPF;300nF,5%,250V,TP,20x18.5x10.5,
 C413 2401-002268 C-AL:2.2uF,20%,250V,LZ,TP,8X11.5
 CN501 AA39-20109A LEAD-CONNECTOR,ASSY:;,YBNH025-08,S,8P,400,1007#26
 △ CN802 AA27-20003U COIL-DEGAUSSING:;,14,16.4ohm,75T,890mm,D
 L401 AA27-30003R COIL-LINERITY:;,220uH,YL10x10,0.35mm,23x13mm
 NT0586 AA68-50067A LABEL-RATING:T/P 90(G),T0,2,-,-,-,ALL
 R301 2004-000500 R-METAL:2.7Kohm,1%,1/8W,AA,TP,1.8x3.2mm
 R302 2003-002010 R-METAL OXIDE(S):680ohm,5%,1W,AF,TP,3.7x10mm
 R404 2001-001410 R-CARBON(S):43ohm,5%,1/2W,AA,TP,2.4x6.4mm
 R501M 2002-001008 R-COMPOSITION:1.8Kohm,5%,1/2W,AA,TP,3.7x9mm
 R502M 2002-001008 R-COMPOSITION:1.8Kohm,5%,1/2W,AA,TP,3.7x9mm
 R505 2008-001015 R-FUSIBLE(S):1.5ohm,5%,2W,AF,TP,3.9x10mm
 △ T444 AA26-30005S TRANS-FLYBACK:;,FSV-14A004(S),14,125V
 v999 3704-001089 SOCKET-CRT:7P,22.5PI,12PI,SN,-

ASSY-CRT

* AA94-50013WASSY-CRT:A34KQV42X(B),0MG,14,BARE,CN33
 △ AA03-10003J CRT-COLOR:;,A34KQV42X(B),0MG,14,90DEG,
 AA27-50004X DEFLECTION-YOKE:;,DSE-1422FL(G),14/A34KQV42X,
 AA27-60001L MAGNET-CONVERGENCE:;,NY-225,22.5mm

ASSY-CABINET

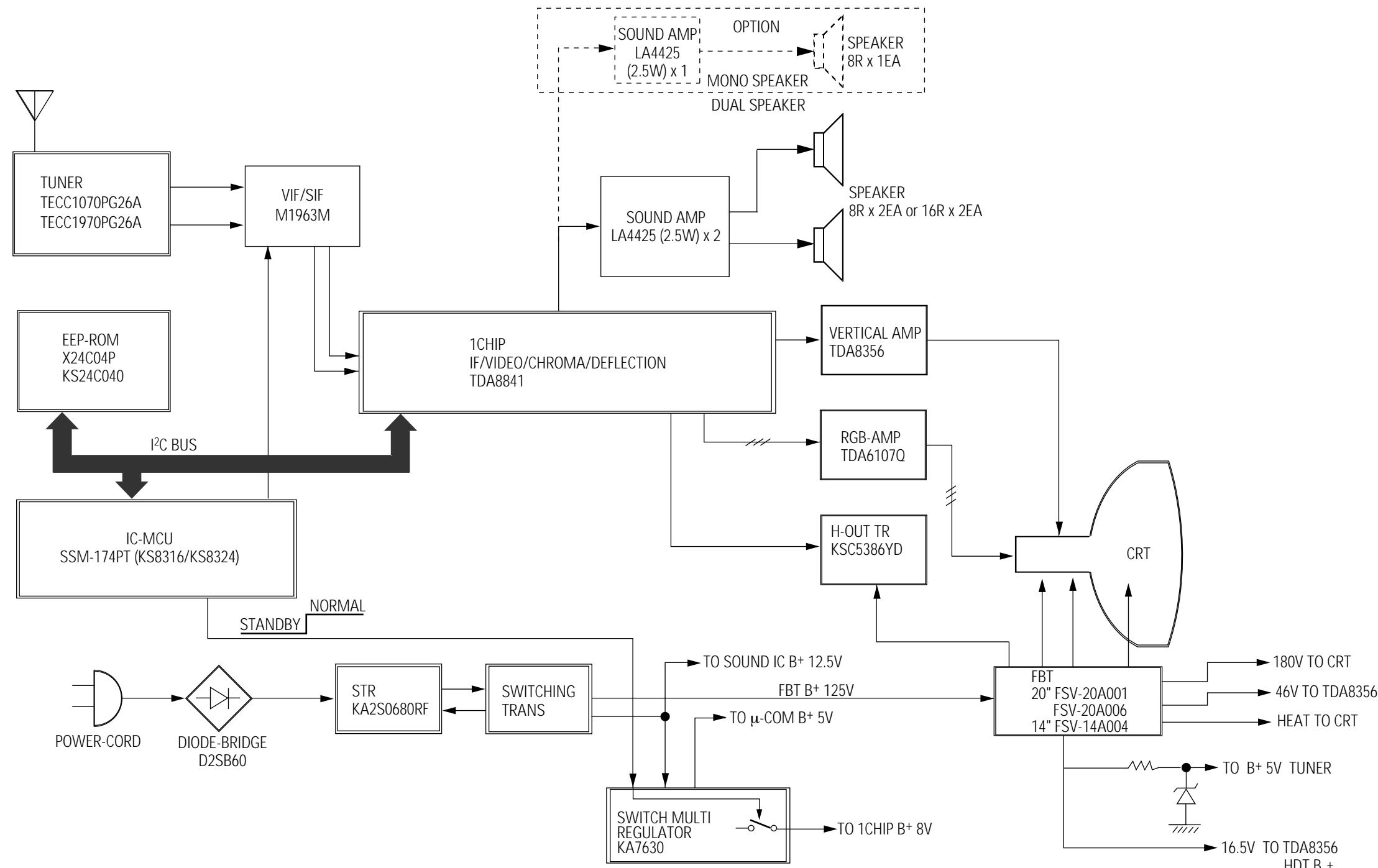
* AA91-10299W ASSY-CABINET,FRONT:;,CN-3339BZ,BK-708P PGB TVI,HB
 AA64-70009DBADGE-BRND:AL,SS R2000 22,GOLD,L40,-,-,-
 AA64-30391ACABINET-BACK:;,3339,-,HIPS,HB,BLK,-,-
 AA64-31141T CABINET-FRTN:;,CN-3339BZ,BK-708P PGB TVI,HI
 AA65-30106A CLAMP-D,COIL-NYLON 66,V2,NTR,-,14 INCH,-
 AA65-50103B GRILLE-WOOFER:;,3339,PA110 PI0.8,SECC,T0.5,-
 AA64-40168A INDICATOR-LED:;,3339,-,ACRYL,-,-,-
 AA64-10609AKNOB-CONTROL:;,33,3839,-,ABS,HB,BLK
 AA64-10147B KNOB-POWER,T:;,3339,SILK,ABS,HB,BLK
 6002-000512 SCREW-TAPPING:RH,+,2,M4,L12,ZPC(BLK),SWRCH18
 AA61-60003J SPRING-CS: -,SUS304,0.5,OD6,H12,N7,-,-
 AA61-40007A STOPPER-PCB:5038.5368,ABS HB,NTR,-,-,-
 AA64-40056A WINDOW-REMOCON:;,3339,-,PC,-,-,VIOLET,-

ASSY-SPEAKER

* AA96-10136A ASSY-SPEAKER:;,8ohm,3W,000191,AA3920505N,L3
 AA39-20505N LEAD CONNECTOR-ASSY:;,YSH025-04,REC,4P,350,550mm,

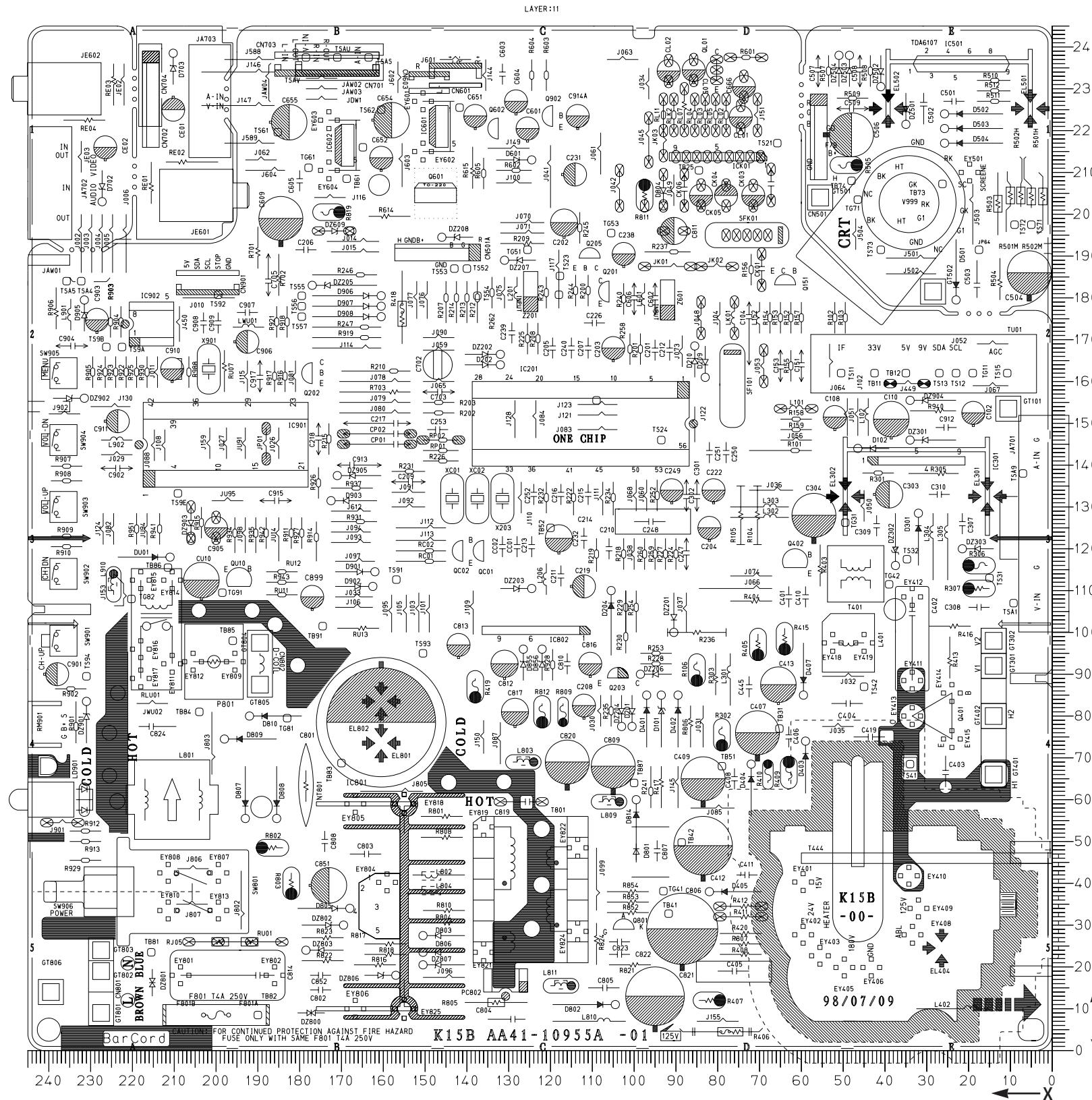
8. Block Diagram

8-1 K15B



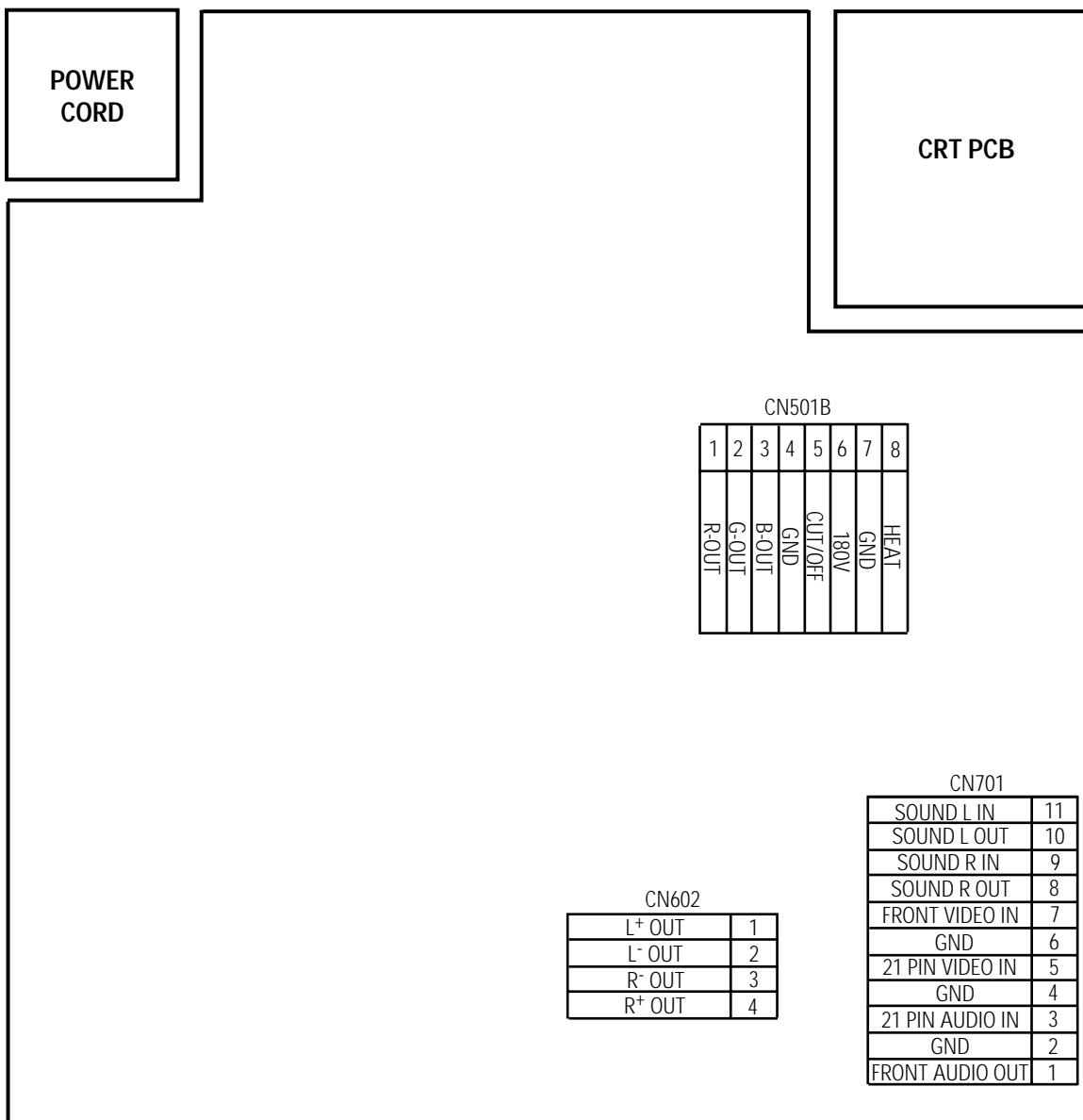
10. PCB Layout

10-1 PCB Main



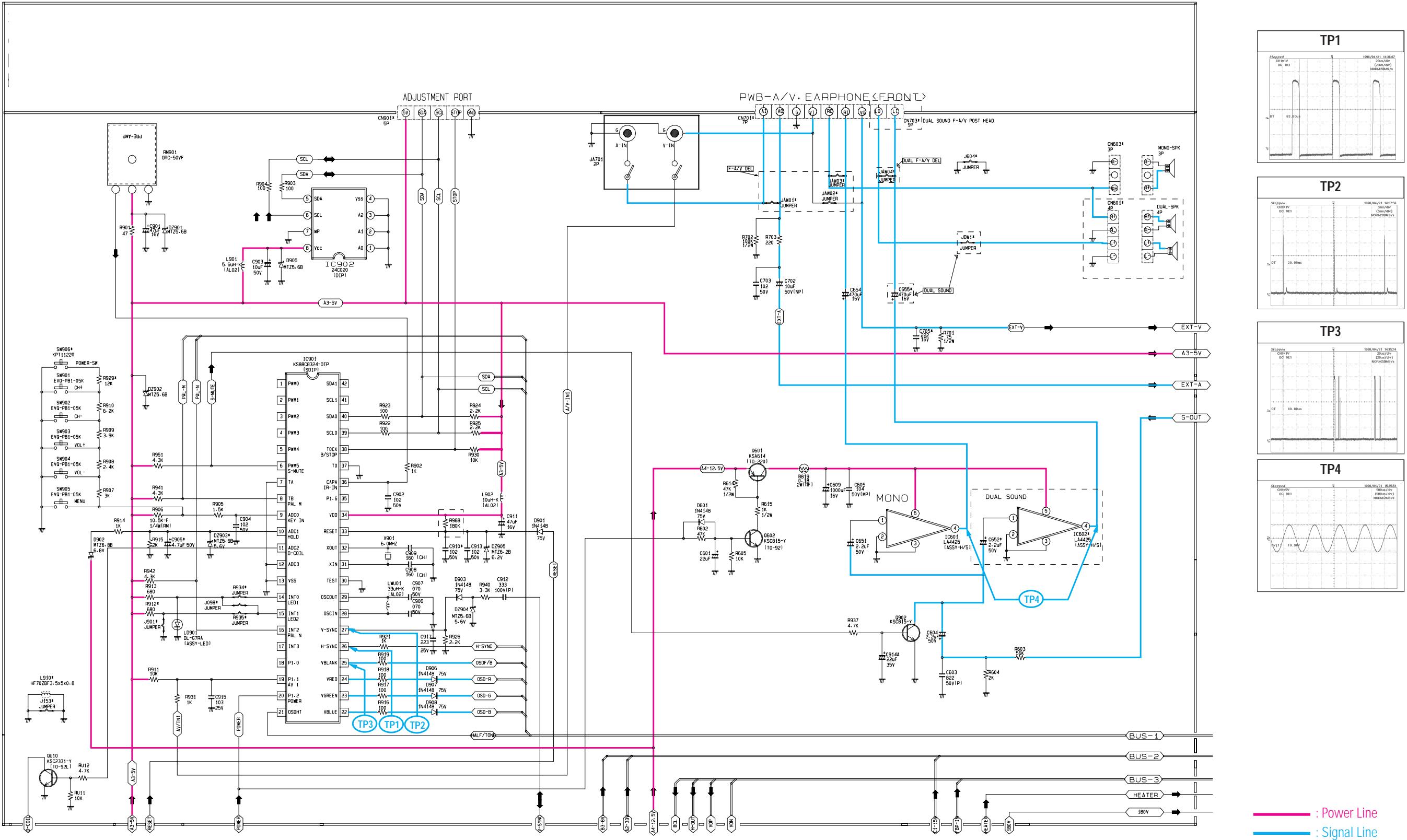
Loc. No.	X	Y	Loc. No.	X	Y
DIODE					
D101	93	85	DZ502	41	230
D102	46	144	DZ503	48	238
D201	100	77	DZ504	51	238
D202	132	164	DZ609	168	196
D204	105	110	DZ800	173	9
D209	83	161	DZ801	215	20
D210	85	168	DZ802	169	30
D301	32	128	DZ803	178	24
D401	97	85	DZ806	157	18
D402	89	85	DZ807	150	20
D403	59	74	DZ901	231	83
D404	72	68	DZ902	231	156
D405	82	38	DZ903	206	122
D407	59	85	DZ904	34	155
D501	23	179	DZ905	171	137
IC					
D502	25	224	IC201	88	141
D503	25	220	IC301	49	132
D504	25	217	IC501	39	225
D601	124	213	IC601	146	225
D702	227	203	IC602	168	220
D703	210	238	IC801	155	10
D801	99	50	IC802	112	100
D802	104	11	IC901	215	153
D803	150	27	IC902	219	178
D804	93	202	ICK01	69	213
D805	168	34			
TRANSISTOR					
Q151	61	183	Q201	106	184
Q202	177	164	Q203	101	89
D814	99	60	Q205	108	189
D815	126	96	Q206	122	96
D856	122	114	Q401	24	85
D901	162	111	Q402	59	117
D902	162	111	Q601	145	205
D903	172	131	Q602	132	223
D905	231	179	Q801	100	29
D906	160	180	QC01	136	122
D907	160	178	QC02	141	122
DU01	211	118	QL01	80	237
DZ201	90	100	QU10	192	112
DZ202	132	166			
DZ203	124	110			
DZ204	103	77			
DZ205	177	183			
DZ206	98	90			
DZ207	131	189			
DZ208	146	194			
DZ301	34	146			
DZ302	37	116			
DZ303	21	120			
DZ501	35	221			

10. Wiring Diagram

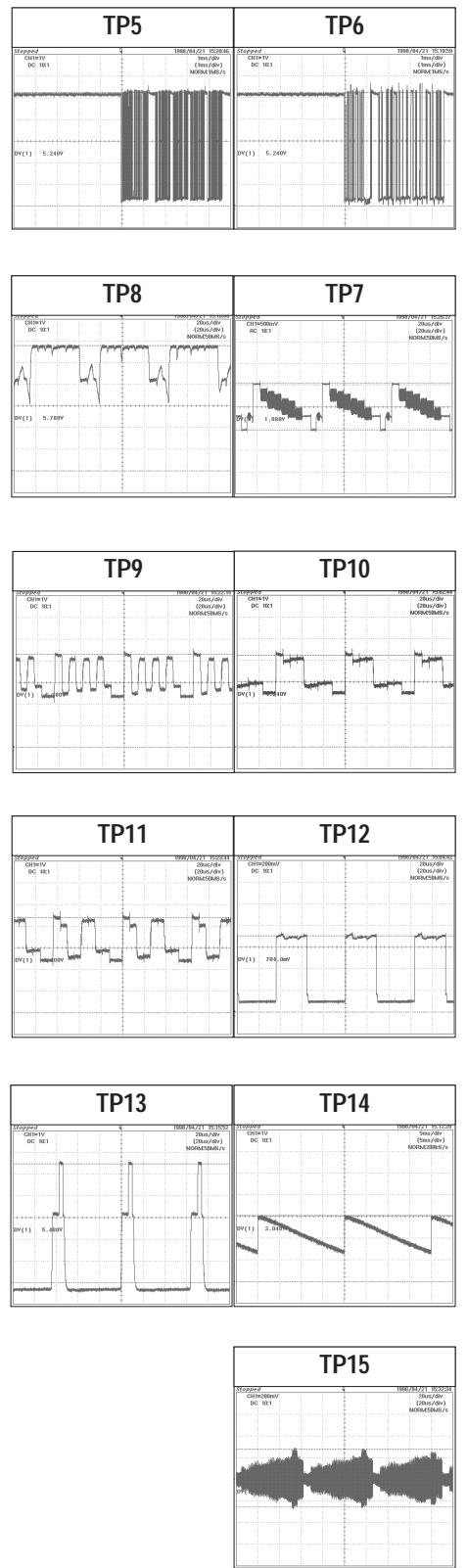
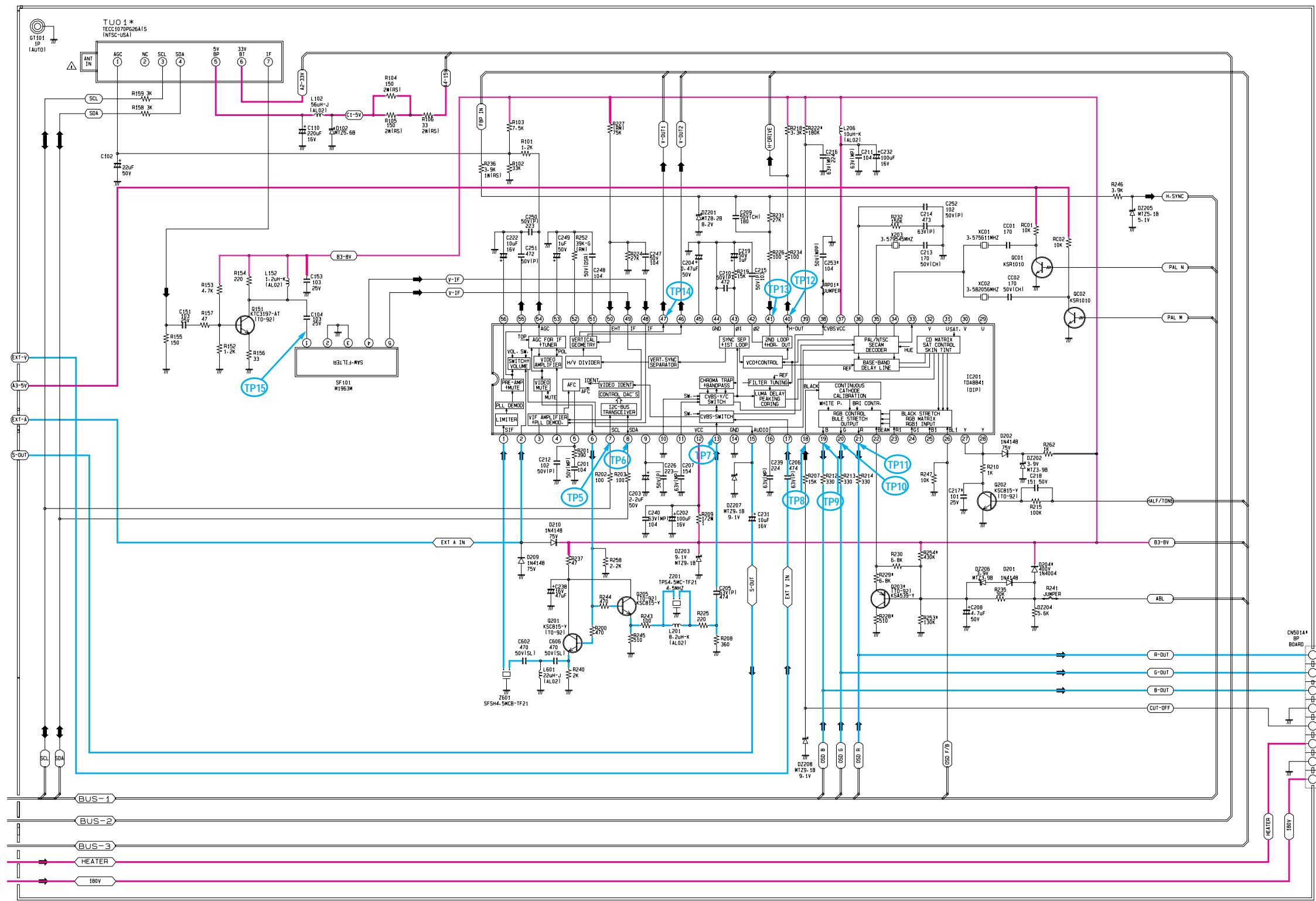


11. Schematic Diagrams

11-1 MAIN 1/4

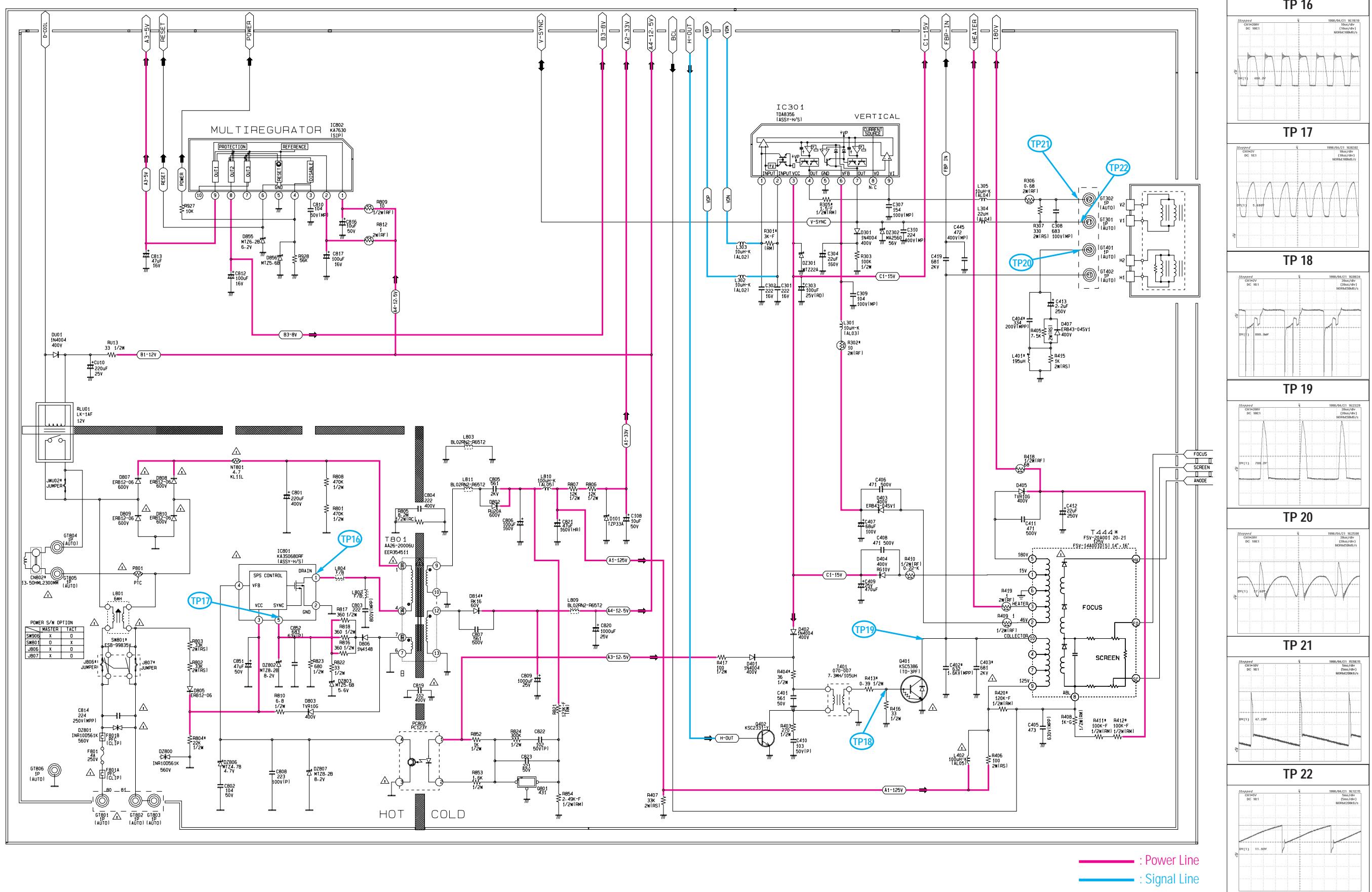


11-2 MAIN 2/4



: Power Line
: Signal Line

11-3 MAIN 3/4



11-4 MAIN 4/4

