



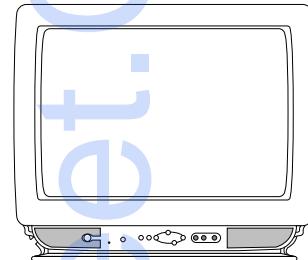
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COLOR TV SERVICE MANUAL



P/NO : 3828VD0104T

Jan.,2002
Printed in Korea



CHASSIS : MC-019A

MODEL : CF-14/20/21D70K CF-14D10K
CF-20F60K CF-21F30K
CF-20/21S31KE/KEX
CF/CT-14/20/21K50KE/53KE

CAUTION

BEFORE SERVICING THE CHASSIS,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.

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SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by Δ in the Schematic Diagram and Replacement Parts List.

It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards.

Do not modify the original design without permission of manufacturer.

General Guidance

An **Isolation Transformer** should always be used during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks.

It will also protect the receiver and its components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it with the specified.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1W), keep the resistor 10mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Due to high vacuum and large surface area of picture tube, extreme care should be used in **handling the Picture Tube**. Do not lift the Picture tube by its Neck.

X-RAY Radiation

Warning:

The source of X-RAY RADIATION in this TV receiver is the High Voltage Section and the Picture Tube.

For continued X-RAY RADIATION protection, the replacement tube must be the same type tube as specified in the Replacement Parts List.

To determine the presence of high voltage, use an accurate high impedance HV meter.

Adjust brightness, color, contrast controls to minimum.

Measure the high voltage.

The meter reading should indicate

23.5 ; 1.5KV: 14-19 inch, 26 ; 1.5KV: 19-21 inch,
29.0 ; 1.5KV: 25-29 inch, 30.0 ; 1.5KV: 32 inch

If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.

Before returning the receiver to the customer,

always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

Leakage Current Cold Check(Antenna Cold Check)

With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.

If the exposed metallic part has a return path to the chassis, the measured resistance should be between $1M\Omega$ and $5.2M\Omega$.

When the exposed metal has no return path to the chassis the reading must be infinite.

An other abnormality exists that must be corrected before the receiver is returned to the customer.

Leakage Current Hot Check (See below Figure)

Plug the AC cord directly into the AC outlet.

Do not use a line Isolation Transformer during this check.

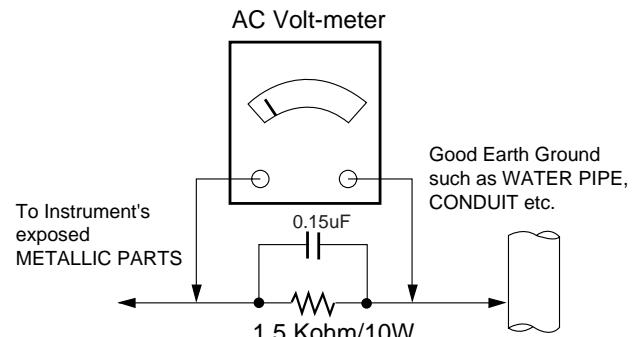
Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.

Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.

Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which is corresponds to 0.5mA.

In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



SERVICING PRECAUTIONS

CAUTION: Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the **SAFETY PRECAUTIONS** on page 3 of this publication.

NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before;
 - a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
 - b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
 - c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.
- CAUTION:** A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
- d. Discharging the picture tube anode.
2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe. Do not test high voltage by "drawing an arc".
3. Discharge the picture tube anode only by (a) first connecting one end of an insulated clip lead to the degaussing or kine aquadag grounding system shield at the point where the picture tube socket ground lead is connected, and then (b) touch the other end of the insulated clip lead to the picture tube anode button, using an insulating handle to avoid personal contact with high voltage.
4. Do not spray chemicals on or near this receiver or any of its assemblies.
5. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable nonabrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength)

CAUTION: This is a flammable mixture.

Unless specified otherwise in this service manual, lubrication of contacts is not required.

6. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
7. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
8. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.

Always remove the test receiver ground lead last.

9. *Use with this receiver only the test fixtures specified in this service manual.*

CAUTION: Do not connect the test fixture ground strap to any heatsink in this receiver.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called *Electrostatically Sensitive (ES) Devices*. Examples of typical ES devices are integrated circuits and some field-effect

transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range of 500 °F to 600 °F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a small wirebristle (0.5 inch, or 1.25cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
 - a. Allow the soldering iron tip to reach normal temperature. (500 °F to 600 °F)
 - b. Heat the component lead until the solder melts.
 - c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.
- CAUTION:** Work quickly to avoid overheating the circuit board printed foil.
6. Use the following soldering technique
 - a. Allow the soldering iron tip to reach a normal temperature (500 °F to 600 °F)
 - b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.

- c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.

CAUTION: Work quickly to avoid overheating the circuit board printed foil.

- d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

IC Remove/Replacement

Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

Removal

1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

Replacement

1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas).

"Small-Signal" Discrete Transistor Removal/Replacement

1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into a "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the "U" with long nose pliers to insure metal to metal contact then solder each connection.

Power Output, Transistor Device Removal/Replacement

1. Heat and remove all solder from around the transistor leads.
2. Remove the heatsink mounting screw (if so equipped).
3. Carefully remove the transistor from the heat sink of the circuit board.
4. Insert new transistor in the circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heatsink.

Diode Removal/Replacement

1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicular to the circuit board.
3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect (on the circuit board copper side) the solder joints of the two "original" leads. If they are not shiny, reheat them and if necessary, apply additional solder.

Fuse and Conventional Resistor Removal/Replacement

1. Clip each fuse or resistor lead at top of the circuit board hollow stake.
 2. Securely crimp the leads of replacement component around notch at stake top.
 3. Solder the connections.
- CAUTION:** Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

Circuit Board Foil Repair

Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board causing the foil to separate from or "lift-off" the board. The following guidelines and procedures should be followed whenever this condition is encountered.

At IC Connections

To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections).

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
2. Carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

At Other Connections

Use the following technique to repair the defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

1. Remove the defective copper pattern with a sharp knife. Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
 2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
 3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side. Carefully crimp and solder the connections.
- CAUTION:** Be sure the insulated jumper wire is dressed so it does not touch components or sharp edges.

SPECIFICATIONS

Note : Specification and others are subject to change without notice for improvement.

- **Video input system:**

PAL-B/G, D/K, I/I
SECAM-B/G, D/K,L/L'
NTSC M
NTSC 4.43

SOUND IF : 33.4MHz (B/G)
32.9MHz (I/I)
32.4MHz (D/K)
34.4MHz (M)

- **Intermediate Frequency (Unit : MHz)**

VISION IF : 38.9MHz
COLOR IF : 34.47MHz(4.43)
35.32MHz(3.58) : NTSC-M
(VIF-4.25000MHz) : SECAM
(VIF-4.40625MHz)

● **Power requirement :** 110~240V, 50/60Hz

● **Power consumption :** 95

● **STAND-BY :** 3W

- **Tuning range**

Band	For TV				For CATV
	B/G	D/K	I/I	NTSC	
VHF-Low	Ch2-4	Ch1-5		Ch2-13	S1-S3', S1
VHF-High	Ch5-12	Ch6-12	Ch4-13		S2-S10, S11-S20
Hyper					S21-S41
UHF	Ch21-69			Ch14-69	

- **Tuning system :**

FVS
100 Programme memory
200 Programme memory(W/O TXT)

● **Feature :** Auto programme/Manual programme

CSM (Color Status Memory)

Auto Sleep

Turbo Picture & Sound

Programme Editing

PSM (Picture Status Memory)

Teletext (TOP/FLOF/LIST)

ACMS

Auto Volume Level

Game

SSM(Sound Status Memory)

Favorite Program

- **Antenna input impedance :** VHF/UHF 75 ohm, unbalanced

- **OSD (On Screen Display) :** EASY-MENU

- **Voice coil impedance :** 8 ohm

- **Sound output :** 7W_{1/2}(MAX)
Dual/Stereo : A2/NICAM(Option)

- **External connection :** Head Phone Jack

A/V in : 2

PERI Connector(Full Scart) : 1

DVD in

- **External In/Output**

Audio-In:0.5Vrms±3dB, over 10Kohm

Audio-Out:0.5Vrms±3dB, below 1Kohm

Video-In/Out:1Vp-p±3dB, 75ohm

DVD In Y: 1Vp-p±3dB

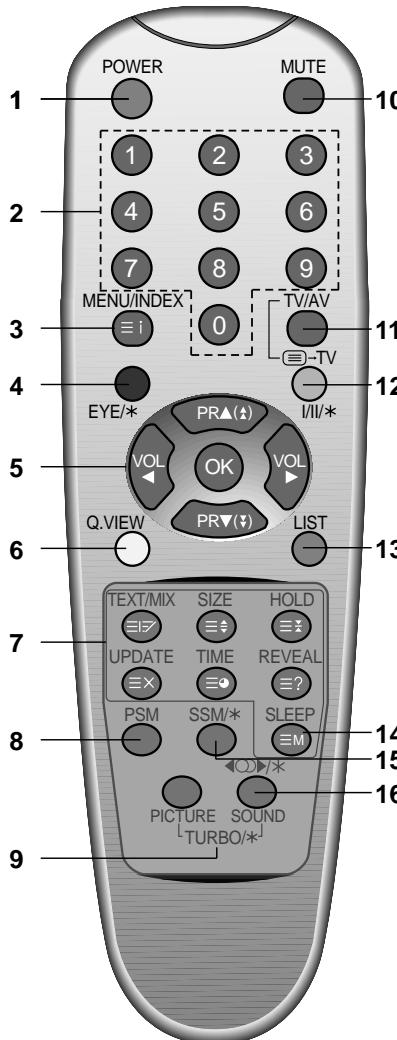
Pb,Pr: 0.7Vp-p±3dB

DESCRIPTIONS OF CONTROLS

All the functions can be controlled with the remote control handset. Some functions can also be adjusted with the buttons on the front panel of the set.

Remote control handset

Before you use the remote control handset, please install the batteries. See the next page.



1. **POWER**
switches the set on from standby or off to standby.
2. **NUMBER BUTTONS**
switches the set on from standby or directly select a number.
3. **MENU (or INDEX)**
selects a menu.
selects an index page in the teletext mode (only TELETEXT models).
4. **EYE/* (option)**
switches the eye function on or off.
5. **▲ (▲) / ▼ (▼) (Programme Up/Down)**
selects a programme or a menu item.
switches the set on from standby.
scans programmes automatically.
◀ / ▶ (Volume Up/Down)
adjusts the volume.
OK
adjusts menu settings.
OK
accepts your selection or displays the current mode.
6. **Q.VIEW**
returns to the previously viewed programme.
7. **TELETEXT BUTTONS (option)**
These buttons are used for teletext.
For further details, see the 'Teletext' section.
8. **PSM (Picture Status Memory)**
recalls your preferred picture setting.
9. **TURBO PICTURE / SOUND BUTTON (option)**
selects Turbo picture and sound.

(With TELETEXT)

10. MUTE

switches the sound on or off.

11. TV/AV

selects TV or AV mode.

clears the menu from the screen.

switches the set on from standby.

12. I/II/* (option)

selects the language during dual language broadcast. (option)

selects the sound output.

13. LIST

displays the programme table.

14. SLEEP

sets the sleep timer.

15. SSM/* (option) (Sound Status Memory)

recalls your preferred sound setting.

16. SURROUND (↔/*) (option)

selects surround sound.

COLOURED BUTTONS : These buttons are used for teletext (only TELETEXT models) or programme edit.

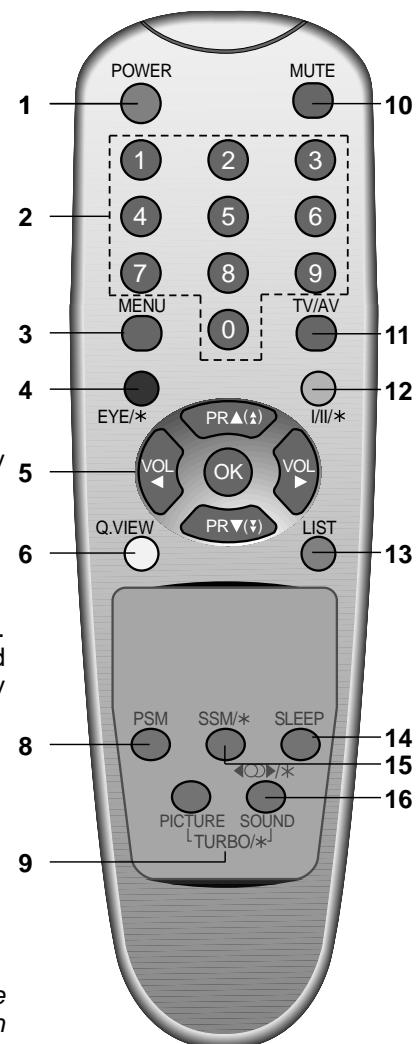
Battery installation

The remote control handset is powered by two AAA type batteries.

To load the batteries, turn the remote control handset over and open the battery compartment. Install two batteries as indicated by the polarity symbols (+ and -) marked inside the compartment.



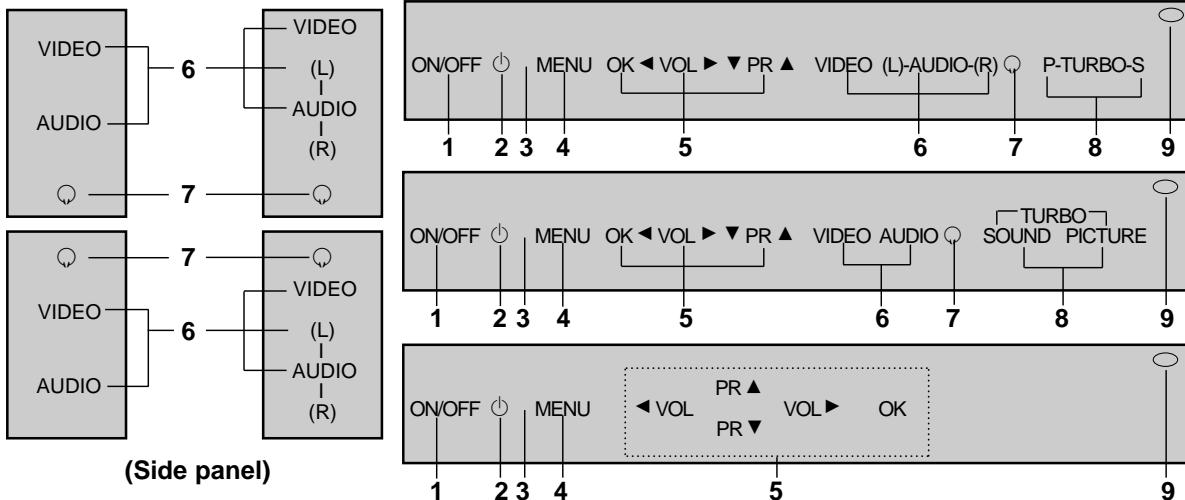
Note : To avoid damage from possible battery leakage, remove the batteries if you do not plan to use the remote control handset for an extended period of time.



(Without TELETEXT)

Front panel

Shown is a simplified representation of front or side panel.
Here shown may be somewhat different from your set.



- 1. MAIN POWER (ON/OFF)**
switches the set on or off.
- 2. POWER/STANDBY INDICATOR**
illuminates brightly when the set is in standby mode.
dims when the set is switched on.
blinks when signal is input from the remote control.
- 3. REMOTE CONTROL SENSOR**
- 4. MENU**
selects a menu.
- 5. OK**
accepts your selection or displays the current mode.
◀ / ▶ (Volume Up/Down)
adjusts the volume.
adjusts menu settings.
▲ / ▼ (Programme Up/Down)
selects a programme or a menu item.
switches the set on from standby.
- 6. AUDIO/VIDEO IN SOCKETS (AV) (option)**
Connect the audio/video out sockets of external equipment to these sockets.
Note :If both the input jacks on the front/side panel and back panel have been connected to external equipments simultaneously, only the input jacks on the front/side panel can be received.
- 7. HEADPHONE SOCKET (option)**
Connect the headphone plug to this socket.
- 8. TURBO SOUND/PICTURE (option)**
switches Turbo sound or Turbo picture on or off.
- 9. EYE (option)**
adjusts picture according to the surrounding conditions.

DISASSEMBLY INSTRUCTIONS

Important note

This set is disconnected from the power supply through the converter transformer. An isolating transformer is necessary for service operations on the primary side of the converter transformer.

Back Cabinet Removal

Remove the screws residing on the back cabinet and carefully separate the back cabinet from the front cabinet. (Fig. 2-1).

CPT Removal

1. Pull out the CPT board from the CPT neck.
2. Place the front cabinet on soft material not to mar the front surface or damage control knobs.
3. Remove 5 screws securing the picture tube mounting brackets to the front cabinet.
4. Carefully separate CPT from the front cabinet.

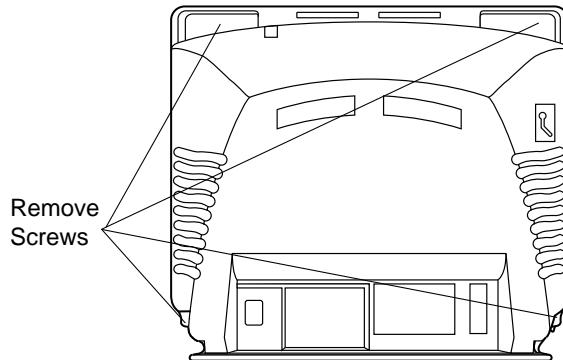


Fig. 2-1

Chassis Assy Removal

Grasp both sides of Frame and pull it backward smoothly.

PICTURE TUBE HANDLING CAUTION

Due to high vacuum and large surface area of picture tube, great care must be exercised when handling picture tube. Always lift picture tube by grasping it firmly around faceplate. NEVER LIFT TUBE BY ITS NECK! The picture tube must not be scratched or subjected to excessive pressure as fracture of glass may result in an implosion of considerable violence which can cause personal injury or property damage.

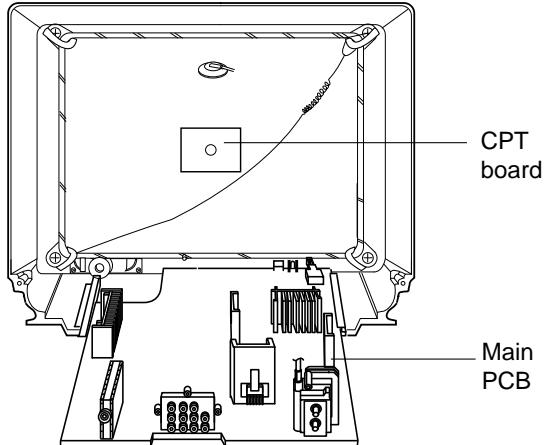


Fig. 2-2

ADJUSTMENT

● Safety Precautions

1. It is safe to adjust after using insulating transformer between the power supply line and chassis input to prevent the risk of electric shock and protect the instrument.
2. Never disconnect leads while the TV receiver is on.
3. Don't short any portion of circuits while power is on.
4. The adjustment must be done by the correct appliances. But this is changeable in view of productivity.
5. Unless otherwise noted, set the line voltage to 110~240Vac ±10%, 50/60Hz.
6. The adjustment of TV should be performed after warming up for 20 minutes.

● Test Equipment required

1. Multimeter (volt meter)
2. Oscilloscope
3. 10:1 PROBE
4. Color Analyzer

● CDL Data Adjustment(LINE SVC-0)

- 1) Press the SVC button to get into the SVC-0 Mode.
- 2) Press the Channel UP/DOWN button to select CDL12.
- 3) Press the Volume UP/DOWN button until the CDL data is the same as the Table below.

	21" FCD	14,16" CPT	15" CPT	20,21" CPT
CDL Data	12	8	10	12
Remark	FLAT		FLAT	

4) Press the OK(■) button to memorize the data.

● OPTION Data Adjustment(OPTION-1,OPTION-2)

- 1) Press OK buttons on both TV set and Remote Controller at the same time to get into SVC mode.
- 2) Press the Yellow button several times to find OPTION-1 or OPTION-2.
- 3) Input the correspond OPTION data referring to Table below with the numeric buttons.
- 4) Press the OK(■) button to memorize the data.

Table 1. OPTION 1 Function

Option	Code	Function	Remark
C MUTE	0	ACTIVE	
	1	NOT ACTIVE	
DVD	0	W/O DVD	
	1	DVD(REAR JACK)	
2 IN 1	0	W/O 2 IN 1TUNER	
	1	WITH 2 IN 1TUNER	
TOP	0	FLOF TXT	
	1	TOP TXT	
SCART	0	PHONO JACK	
	1	SCART JACK	

Option	Code	Function	Remark
TBS	0	W/O TBS	
	1	WITH TBS	
EYE	0	W/O EYE	
	1	WITH EYE	
4 KEY	0	W/O 4 KEY	
	1	WITH 4 KEY	
MONO	0		
	1	FORCED MONO	

Table 2. OPTION 2 Function

Option	Code	Function	Remark
BCF	0	Auto Abnormal ON	
	1	Not Used	
GAME	0	W/O GAME PACK	
	1	WITH GAME PACK	
200 PRO	0	100 PRO	
	1	200 PRO	
CHA + AU	0	Except China,Australia	
	1	China,Australia	
DUAL	0	W/O DUAL	
	1	WITH DUAL	
ACMS	0	Australia	
	1	Except Australia	
T-SCH	0	W/O TURBO SEARCH	
	1	WITH TURBO SEARCH	
T-P/S	0	W/O TURBO P/S	
	1	WITH TURBO P/S	
CURVE	0	NORMAL VOLUME CURVE	
	1	M-A,India VOLUME CURVE	

Table 3. OPTION 3 Function

Option	Code	Function	Remark
RESER VED	0	***	
	1	***	
HOTEL	0	W/O HOTEL	
	1	W/HOTEL	
SYSTEM	0	BG/L	
	1	BG/I/DK	
	2	BG/I/DK/M	
	3	BG/I/DK DUAL	
	4	BG//DK/M DUAL	
	5	2nd IF BG	
	6	2nd IF I	
	7	2nd IF DK	

Option	Code	Function	Remark
OSD-L (EU)	0	ENG. ONLY	English
	1	EU-7EA	English,Deutsch,Francais,Italiano,Espanol
	2	EU ALL	English,Nederlands,Svenska,Dansk,Suomi,Por tugues,Romaneste,Polski,Cesky,Pyccnn
	3	EU EAST	English,Romaneste,Polski,Cesky,Pyccnn,Magyar
OSD-L (M-ASIA)	0	ENG. ONLY	English
	1	ARABIC	English,Arab,,Urdu,French
	2	PARSI	English,Parsi,Urdu,French
	3	ARAB,FARSI,URDE	English,French,Arab,Urdu,Parsi
OSD-L (E-ASIA)	0	ENG.ONLY	English
	1	ASIA-ALL	English,Malay,Vietnam,Indonesian,Thai
OSD-L (CH+HI)	0	ENG.ONLY	English
	1	E+CHINA	English,Chinese
	2	E+HINDI	English,Hindi
TXT-L (EU)	0	W-EU	
	1	E-EU	
	2	CYRILLIC	
	3	UKRAINIAN	
TXT-L (E-ASIA)	0	WEST-EU	
TXT-L (ARAB)	0	WEST-EU	
	1	ARABIC	
TXT-L (FARSI)	0	WEST-EU	
	1	FARSI	

● AGC Adjustment (SERVICE 1)

Test Point : AGC TP (C101)
 Adjust : Remote Controller

- 1) Connect RF signal ($70\text{dB}\pm0.2\text{dB}$) and turn on the TV.
 i Standard adjustment Channel
 - EU 05 Ch. ($f_{rf} = 175.25\text{MHz}$)
- 2) Press the OK buttons on TV set and Remote Controller at the same time to get into SVC-0 mode.
- 3) Press the Channel UP/DOWN button on the Remote Controller several times to find AGC??.
- 4) Press the Volume UP/DOWN button until the AGC Voltage is the same as the Table below.
- 5) Press the OK(**■**) button to memorize the data.

Tuner P/N	6700VPF009G	6700VPF016A
Marker	LG Innotek(W/S TUNER)	DAEWOO(W/S TUNER)
AGC Voltage	$2.7\pm 0.05\text{V}$	$2.7\pm 0.05\text{V}$

Tuner P/N	6700VPF009S	
Marker	LG Innotek(TBS TUNER)	
AGC Voltage	$2.5\pm 0.05\text{V}$	

● FOCUS Adjustment

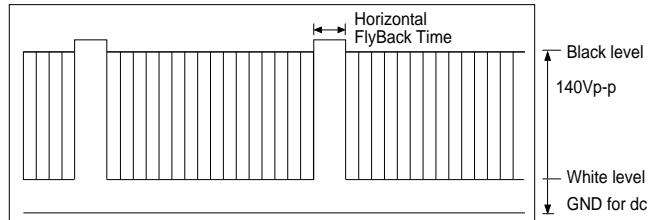
Test Point : RK (Red Cathode of CPT Board)
 Adjust : Screen Volume of FBT

- 1) Tune the TV set to receive a PAL 05CH.
- 2) Adjust the Focus Volume of FBT for best focus.

● Screen Voltage Adjustment

Test Point : Observing Display
 Adjust : Focus Volume of FBT

- 1) Connect the probe of oscilloscope to the RK (Red Cathode) of CPT Board.
- 2) Set the oscilloscope to 50V/div and 20Us/div and after putting GND line upon the lowest grid line of the scope by pressing GND button,enter into DC mode.
- 3) Tune the TV set to receive a PAL-B/G 05CH.
- 4) Adjust Screen Volume of FBT so that the waveform is the same as below figure (DC $140\pm3\text{V}$).



14"	OTHERS
DC $130\text{V}\pm3\text{V}$	DC $140\text{V}\pm3\text{V}$

● White Balance Adjustment.(LINE SVC-0)

NOTE : This adjustment should be performed after screen voltage adjustment.

- 1) Tune the TV set to receive an 100% white pattern.
- 2) Press OK(**■**) buttons on TV set and remote controller at the same time to get into SVC mode.
- 3) Press Yellow button on remote controller. (Standard mode)
- 4) Press Channel UP/DOWN button for desirous function adjustment.
- 5) Adjust VOL+ or VOL-button in each status of "RG--"/"BG--" for $X=272\pm8$, $Y=288\pm8$ with color analyzer.(Europe Model: $X=288\pm8$, $Y=295\pm X=272\pm8$, 11,000K)

Status	Initial Data	Remark
RG	31	
GG	31	
BG	31	
BLO-R	31	
BLO-G	31	

- 7) Press the OK(**■**) button to memorize the data.

● Deflection Data Adjustment (Line SVC-1)

NOTE: To enter SVC mode, press "OK" buttons on both TV set and the Remote control at the same time.

1. Preparation for Deflection Adjustment

- 1) At SVC mode, press the Yellow colored button.
And then, deflection data adjustment OSD (SVC1 mode) will be displayed.
- 2) Tune the TV set to receive a PAL 05 CH and set the ARC mode is standard.

2. Deflection Initial Setup Data

Status	Default	21" FLAT S/S	21" FLAT LG
VL	31	31	31
VA	31	31	31
VS	31	31	31
HS	31	31	31
SC	25	25	25

3. Deflection Adjustment Procedure

VL (Vertical Linearity)

Adjust so that the boundary line between upper and lower half is in accord with geometric horizontal center of the CPT.

VA (Vertical Amplitude)

Adjust so that the circle of a digital circle pattern may be located within the effective screen of the CPT.

SC (Vertical "S" Correction)

Adjust so that all distance between each horizontal lines are to be the same.

VS (Vertical Shift)

Adjust so that the horizontal center line of a digital circle pattern is in accord with geometric horizontal center of the CPT.

HS (Horizontal Shift)

Adjust so that the vertical center line of a digital circle pattern is in accord with geometric vertical center of the CPT.

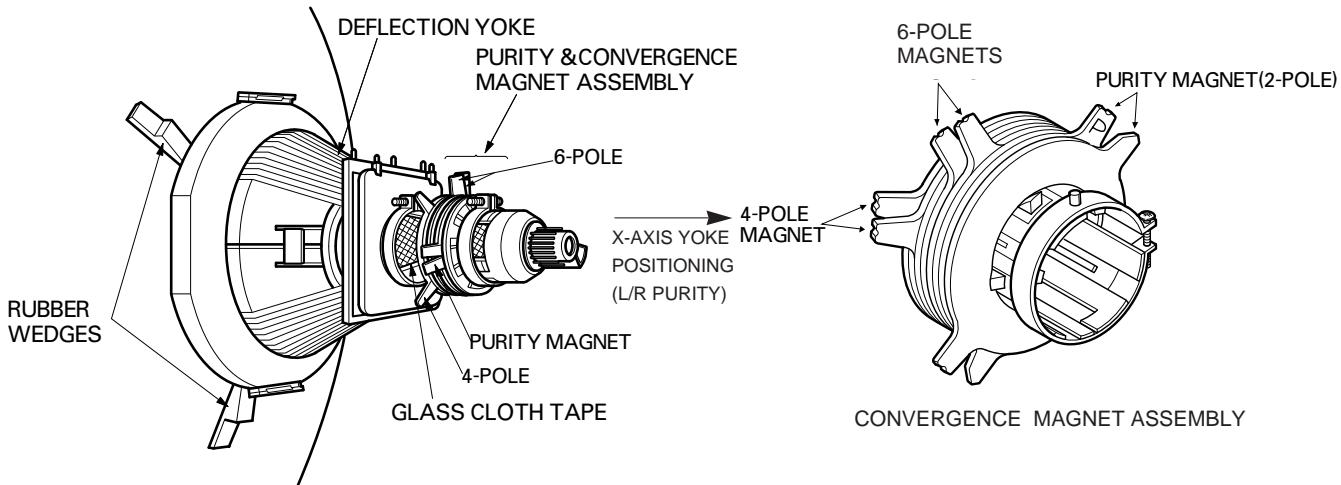
Press the OK(■) button to memorize the data.

PURITY & CONVERGENCE ADJUSTMENT

Caution:

Convergence and Purity have been factory aligned. Do not attempt to tamper with these alignments. However, the effects of adjacent receiver components, or replacement of picture tube or deflection yoke may require the need to readjust purity any convergence.

5. Reconnect the internal degaussing coil.
6. Position the beam bender locking rings at the 9 o'clock position and the other three pairs of tabs (2,4 and 6 pole magnets) at the 12 o'clock position.



i Purity Adjustment

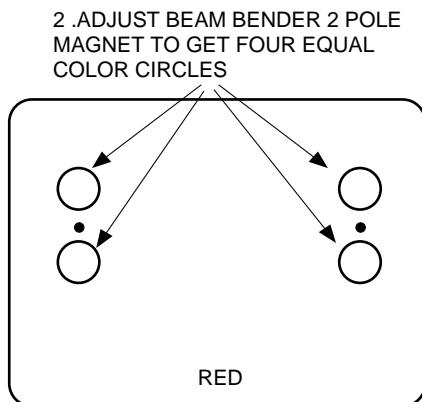
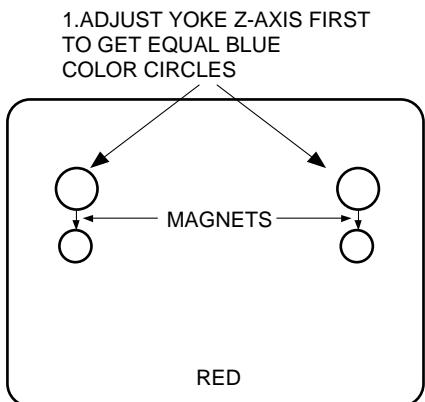
This procedure DOES NOT apply to bonded yoke and picture tube assemblies.

The instrument should be at room temperature (60 degrees F or above) for six (6) hours and be operating at low beam current (dark background) for approximately 20 to 30 minutes before performing purity adjustments.

CAUTION: Do not remove any trim magnets that may be attached to the bell of the picture tube.

1. Remove the AC power and disconnect the internal degaussing coil.
2. Remove the yoke from the neck of the picture tube.
3. If the yoke has the tape version beam bender, remove it and replace it with a adjustable type beam bender (follow the instructions provided with the new beam bender)
4. Replace the yoke on the picture tube neck, temporarily remove the three (3) rubber wedges from the bell of the picture tube and then slide the yoke completely forward.

7. Perform the following steps, in the order given, to prepare the receiver for the purity adjustment procedure.
 - a. Face the receiver in the "magnetic north" direction.
 - b. Externally degauss the receiver screen with the television power turned off.
 - c. Turn the television on for approximately 10 seconds to perform internal degaussing and then turn the TV off.
 - d. Unplug the internal degaussing coil. This allows the thermistor to cool down while you are performing the purity adjustment. DO NOT MOVE THE RECEIVER FROM ITS "MAGNETIC NORTH" POSITION.
 - e. Turn the receiver on and obtain a red raster by increasing the red bias control (CW) and decreasing the bias controls for the remaining two colors (CCW).
 - f. Attach two round magnets on the picture tube screen at 3 o'clock and 9 o'clock positions, approximately one (1) inch from the edge of the mask (use double-sided tape).



8. Referring to above, perform the following two steps:
 - a. Adjust the yoke Z-axis to obtain equal blue circles.
 - b. Adjust the appropriate beam bender tabs to obtain correct purity (four equal circles).
9. After correct purity is set, tighten the yoke clamp screw and remove the two screen magnets.
10. Remove the AC power and rotate the receiver 180 degrees (facing "magnetic south").
11. Reconnect the internal degaussing coil.
12. Turn the receiver on for 10 seconds (make sure the receiver came on) to perform internal degaussing, and then turn the receiver off.
13. Unplug the internal degaussing coil.
14. Turn on the receiver and check the purity by holding one (1) round magnet at the 3 o'clock and a second round magnet at 9 o'clock position. If purity is not satisfactory, repeat steps 8 through 14.
15. Turn off the receiver and reconnect the internal degaussing coil.

i Convergence Adjustment

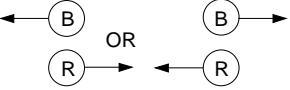
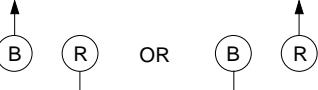
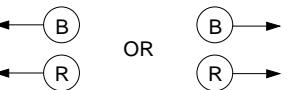
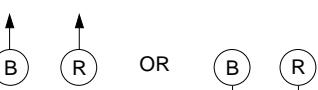
Caution: This procedure DOES NOT apply to bonded yoke and picture tube assemblies.
Do not use screen magnets during this adjustment procedure. Use of screen magnets will cause an incorrect display.

1. Remove AC power and disconnect the internal degaussing coil.
2. Apply AC Power and set the brightness to the Picture Reset condition. Set the Color control to minimum.
3. Make a horizontal line.
4. Adjust the Red, Green and Blue Bias controls to get a dim white line.
5. Restore the screen by removing the horizontal line.

6. Reconnect the internal degaussing coil and apply AC power.
7. Turn the receiver on for 10 seconds to perform internal degaussing and then turn the receiver off again.
8. Unplug the internal degaussing-coil.
9. Turn on the receiver, connect a signal generator to the VHF antenna terminal and apply a crosshatch signal.

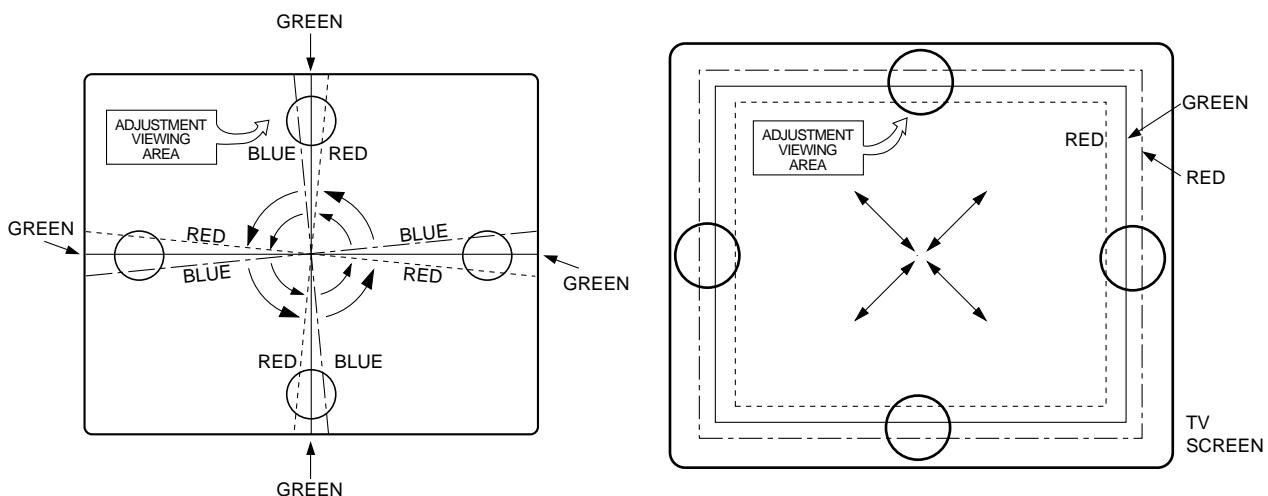
Caution: During the convergence adjustment procedure, be very careful not to disturb the purity adjustment tabs are accidentally move, purity should be confirmed before proceeding with the convergence adjustments.

- Note:** Make sure the focus is set correctly on this instrument before proceeding with the following adjustment.
10. Converge the red and blue vertical lines to the green vertical line at the center of the screen by performing the following steps (below TABLE).
 - a. Carefully rotate both tabs of the 4-pole ring magnet simultaneously in opposite directions from the 12 o'clock position to converge the red and blue vertical lines.
 - b. Carefully rotate both tabs of the 6-pole ring magnet simultaneously in opposite directions form the 12 o'clock position to converge the red and blue (now purple) vertical lines with the green vertical line.
 11. Converge the red and blue horizontal with the green line at the center of the screen by performing the following steps. (below TABLE)
 - a. Carefully rotate both tabs of the 4-pole ring magnet simultaneously in the same direction (keep the spacing between the two tabs the same) to converge the red and blue horizontal lines.
 - b. Carefully rotate both tabs of the 6-pole ring magnet simultaneously in same direction (keep the spacing between the two tabs the same) to converge the red and blue (now purple) horizontal lines with the green horizontal line.
 - c. Secure the tabs previously adjusted by locking them in place with the locking tabs on the beam bender.

RING PAIRS	ROTATION DIRECTION OF BOTH TABS	MOVEMENT OF RED AND BLUE BEAMS
4 POLE	OPPOSITE	
	SAME	
6 POLE	OPPOSITE	
	SAME	

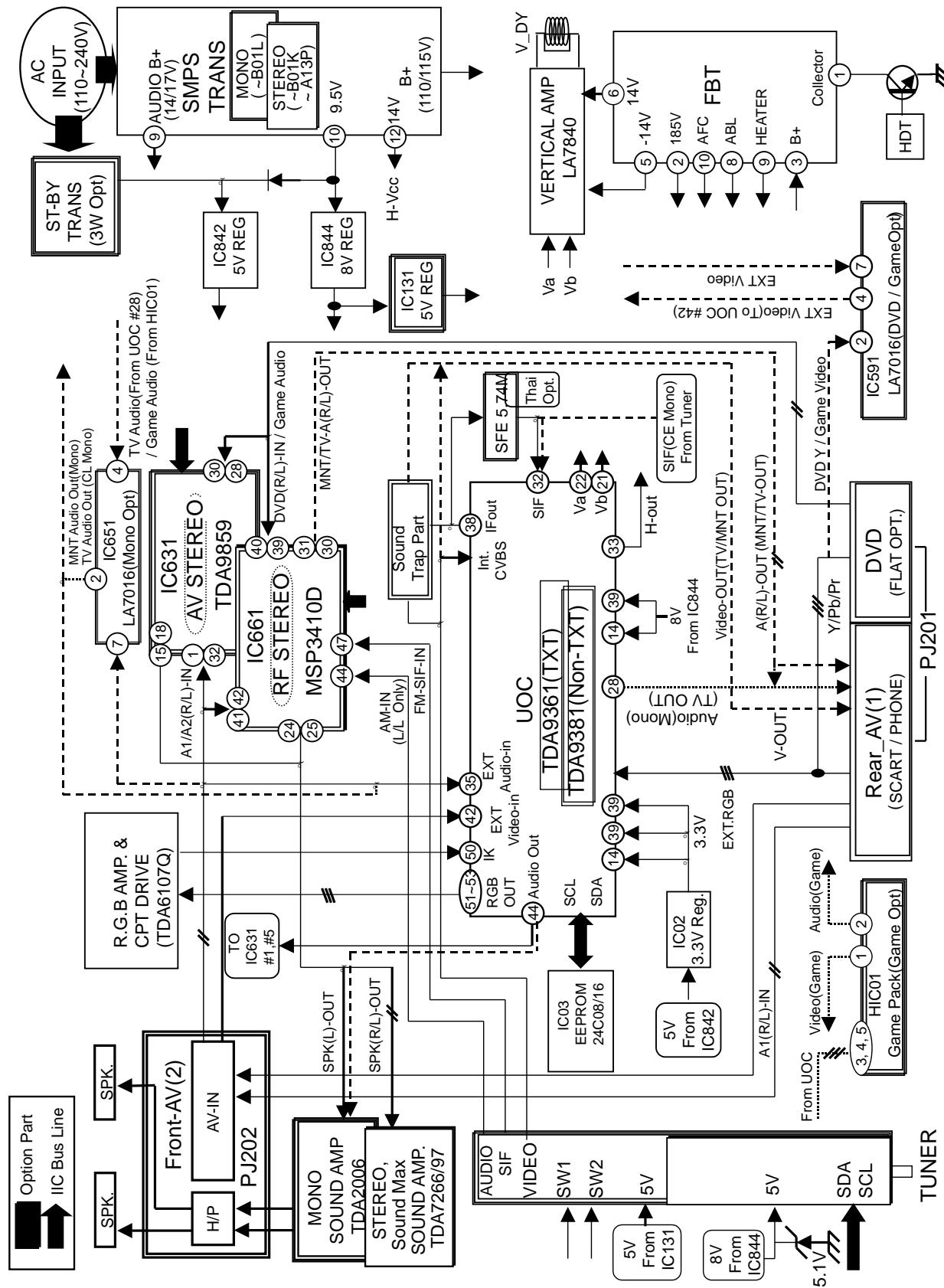
UP/DOWN ROCKING OF THE YOKE
CAUSES OPPOSITE ROTATION OF RED
AND BLUE RASTERS

LEFT/RIGHT ROCKING OF THE YOKE
CAUSES OPPOSITE SIZE CHANGE OF THE
RED AND BLUE RASTERS

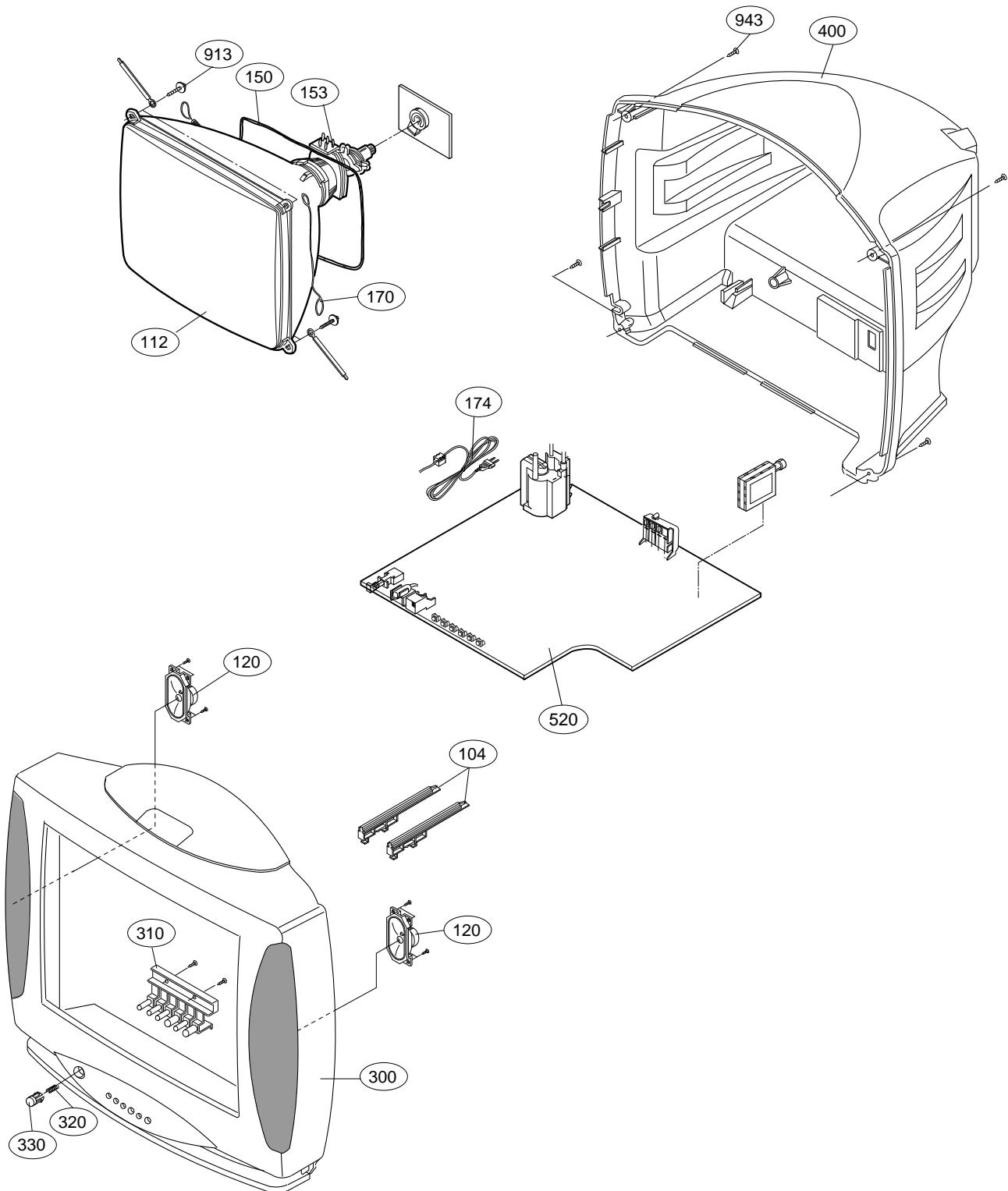


12. While watching the 6 o'clock positions on the screen, rock the front of the yoke in a vertical (up/down) direction to converge the red and blue vertical lines. (Fig upper left)
13. Temporarily place a rubber wedge at the 12 o'clock position to hold the vertical position of the yoke.
14. Check the 3 o'clock and 9 o'clock areas to confirm that the red and blue horizontal lines are converged. If the lines are not converged, slightly offset the vertical tilt of the yoke (move the rubber wedge if necessary) to equally balance the convergence error of the horizontal lines at 3 o'clock and 9 o'clock and the vertical lines at 6 o'clock and 12 o'clock.
15. Place a 1.5 inch piece of glass tape over the rubber foot at the rear of the 12 o'clock wedge.
16. While watching the 6 o'clock and 12 o'clock areas of the screen, rock the front of the yoke in the horizontal (left to right) motion to converge the red and blue horizontal lines. (Fig. upper right)
17. Temporarily place a rubber wedge at the 5 o'clock and 7 o'clock positions to hold the horizontal position of the yoke.
18. Check the 3 o'clock and 9 o'clock areas to confirm that the red and blue vertical lines are converged. If the lines are not converged, slightly offset the horizontal tilt of the yoke (move the temporary rubber wedges if necessary) to equally balance the convergence error of the horizontal lines at 6 o'clock and 12 o'clock and the vertical lines at 3 o'clock and 9 o'clock.
19. Using a round magnet confirm purity at the center, right and left sides and corners. See Purity Adjustment Procedure.
20. Reconfirm convergence and apply a 1.5 inch piece of glass tape over the rubber foot at the rear of the 5 o'clock and the 7 o'clock wedges.

BLOCK DIAGRAM



EXPLODED VIEW : 14/20/21D70K

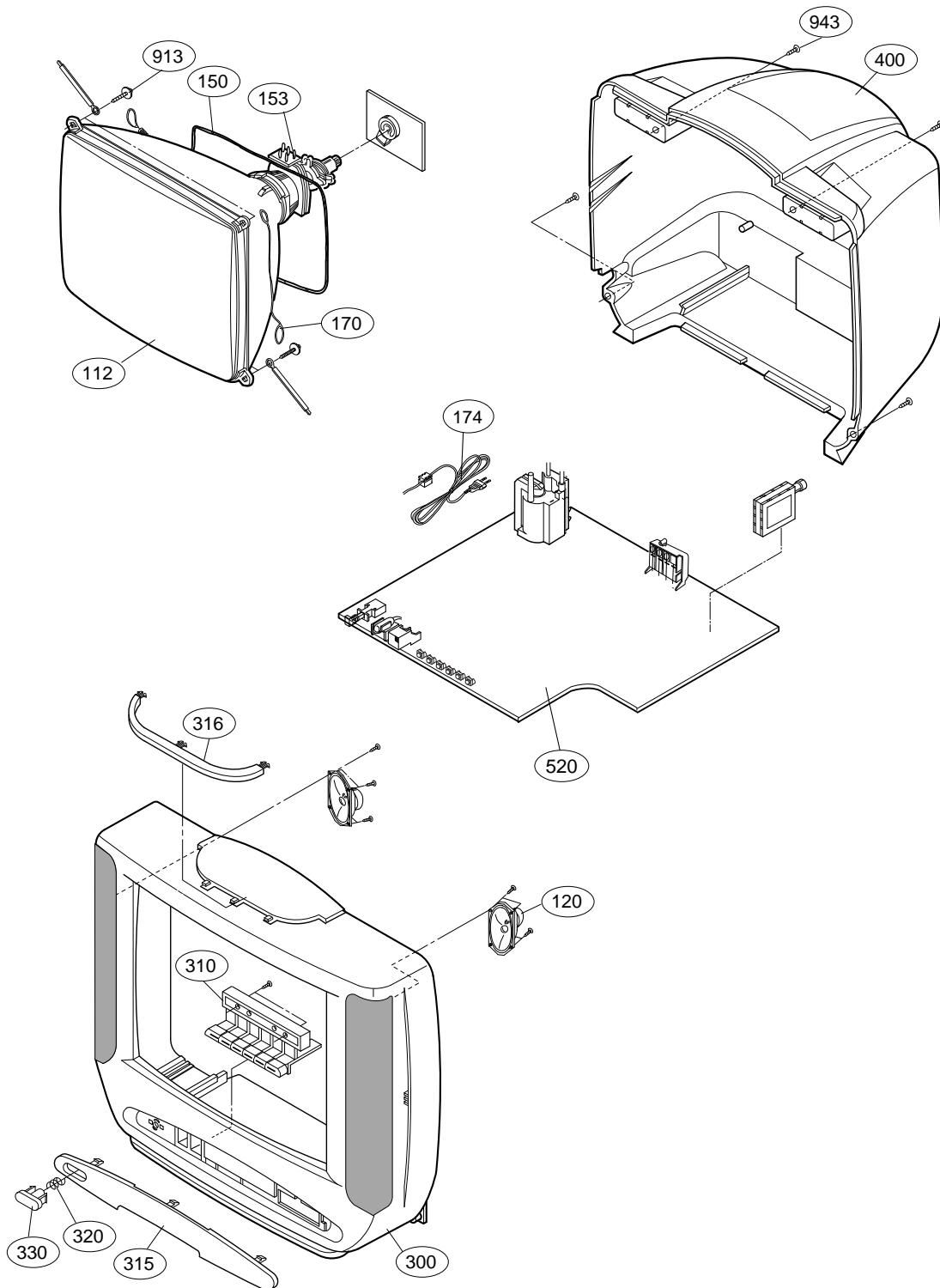


EXPLODED VIEW PARTS LIST

The components identified by mark Δ is critical for safety.
Replace only with part number specified.

LOCA. NO	PART NO			DESCRIPTIONS
	14"	20"	21"	
104	-	343-B52A	343-B52A	SUPPORTER,PCB
Δ 112	2055-00744N	2426GCA40CP	2426VSD0019	CPT SET
120	6400VA0001B	6400VA0021B	6400VA0021B	SPEAKER,GENERAL
Δ 150	150-D02W	150-D02Y	150-D02X	COIL,DEGAUSSING
Δ 153	153-113V	6150Z-1014A	153-110F	DY
Δ 170	170-A01E	170-A01D	170-A01D	CPT EARTH
Δ 174	6410VEH001C	6410VEH001B	6410VEH001C	POWER CORD
300	3091V00231D	3091V00232A	300-D33W	CABINET ASSY
310	5020V00002A	441-714A	5020V00002A	BUTTON,CONTROL
320	320-070G	320-062E	320-070G	SPRING,COIL
330	5020V00001A	441-715A	5020V00001A	BUTTON,POWER
400	3809V00014M	303-M33P	303-M33P	BACK COVER ASSY,PHONE (LOCA)
520	6871VMMA42X	6871VMMA42V	6871VMMA42W	PWB ASSY,MAIN
913	332-057A	332-057B	332-057B	SCREW ASSY,HEXAGON HEAD
943	1PTF0403116	1PTF0403116	1PTF0403116	SCREW,TAP TITE(P) D4.0 L16.

EXPLODED VIEW : 14D10K

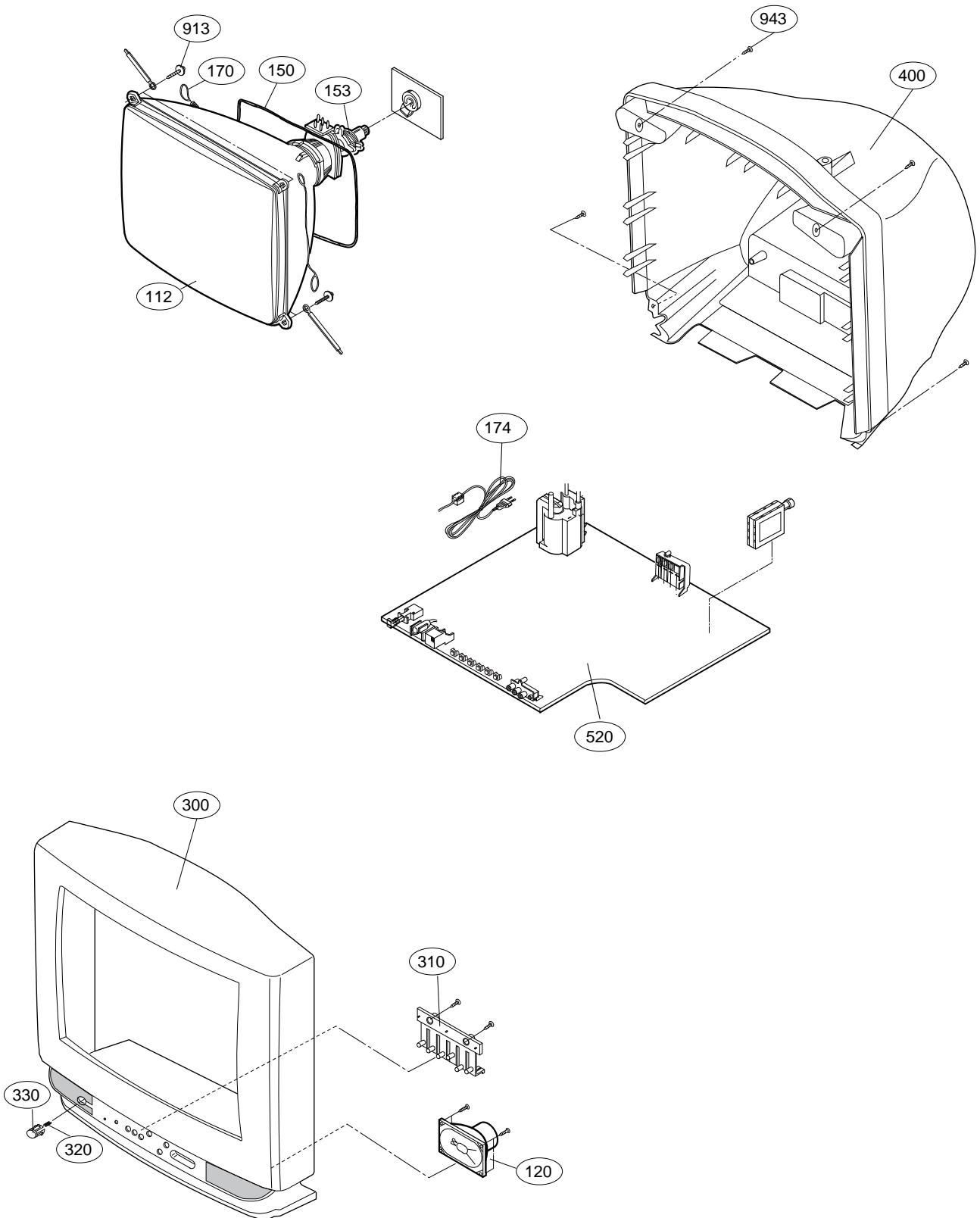


The components identified by mark Δ is critical for safety.
Replace only with part number specified.

EXPLODED VIEW PARTS LIST

LOCA. NO	PART NO	DESCRIPTIONS
Δ 112	2055-00744N	CPT SET A34KPU02XX 00T7ND
	2055-00744K	CPT SET A34KPU02XX 00L7ND
120	6400VA0001B	SPEAKER,GENERAL 16 OHM 2.5/5W 84DB
Δ 150	150-D02W	COIL,DEGAUSSING CU 14" 42TURN 5.7 OHM
Δ 153	153-113V	DY,DCAD2-14SNAB
Δ 170	170-A01E	CPT EARTH
Δ 174	6410VEH001C	POWER CORD
300	3091V00056W	CABINET ASSY
310	441-419A	BUTTON,CONTROL
315	316-445P	WINDOW,DISPLAY
316	316-446A	WINDOW,FILTER TOP
320	320-070G	SPRING,COIL
330	441-420A	BUTTON,POWER
400	303-J13S	BACK COVER ASSY
520	6871VMMA42S	PWB ASSY,MAIN
	6871VMMA30N	PWB ASSY,MAIN
913	332-057B	SCREW ASSY,HEXAGON HEAD
943	1PTF0403116	SCREW,TAP TITE(P) D4.0 L16.0

EXPLODED VIEW : 20F60K

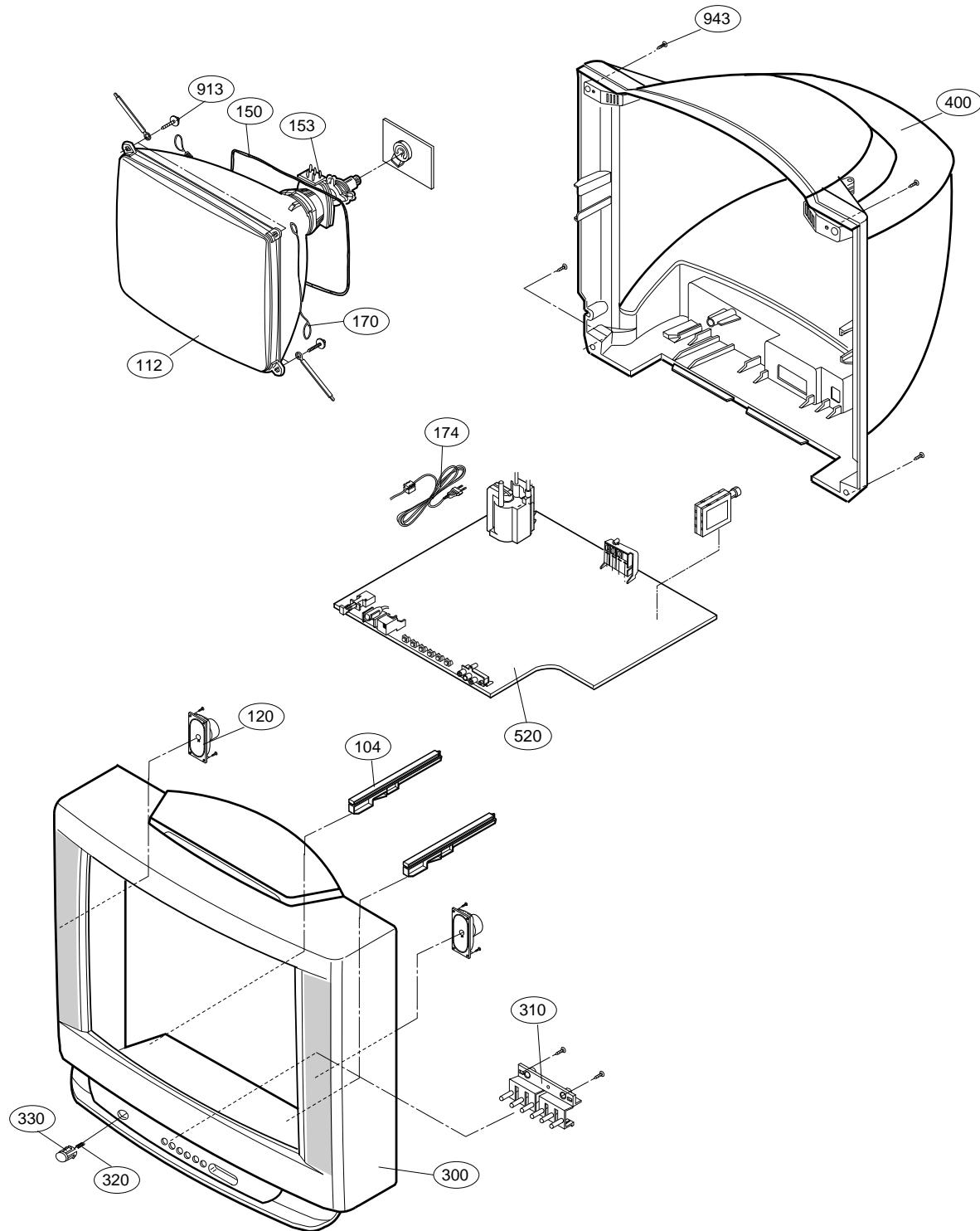


The components identified by mark Δ is critical for safety.
Replace only with part number specified.

EXPLODED VIEW PARTS LIST

LOCA. NO	PART NO	DESCRIPTIONS
104	343-B52A	SUPPORTER,PCB
Δ 112	2426VDC0008	CPT SET 2055-01221H A48QAD220X 03T7ND
120	6400VA0019D	SPEAKER,FULLRANGE H905/020801B 8OHM 7/1
Δ 150	150-D02Y	COIL,DEGAUSSING CU 20" 60TURN 15 OHM
Δ 170	170-A01D	LEAD SET,CPT EARTH
Δ 174	6410VEH001B	POWER CORD
300	3091V00336H	CABINET ASSEMBLY
310	5020V00175A	BUTTON
320	320-062H	SPRING,COIL
330	5020V00174A	BUTTON
400	3809V00172M	BACK COVER ASSY PHONE
520	6871VMMA39E	PWB ASSY,MAIN
913	332-057B	SCREW ASSY,HEXAGON HEAD
943	1PTF0403116	SCREW,TAP TITE(P)D4.0 L16.0

EXPLODED VIEW : 14/20/21K50KE/53KE

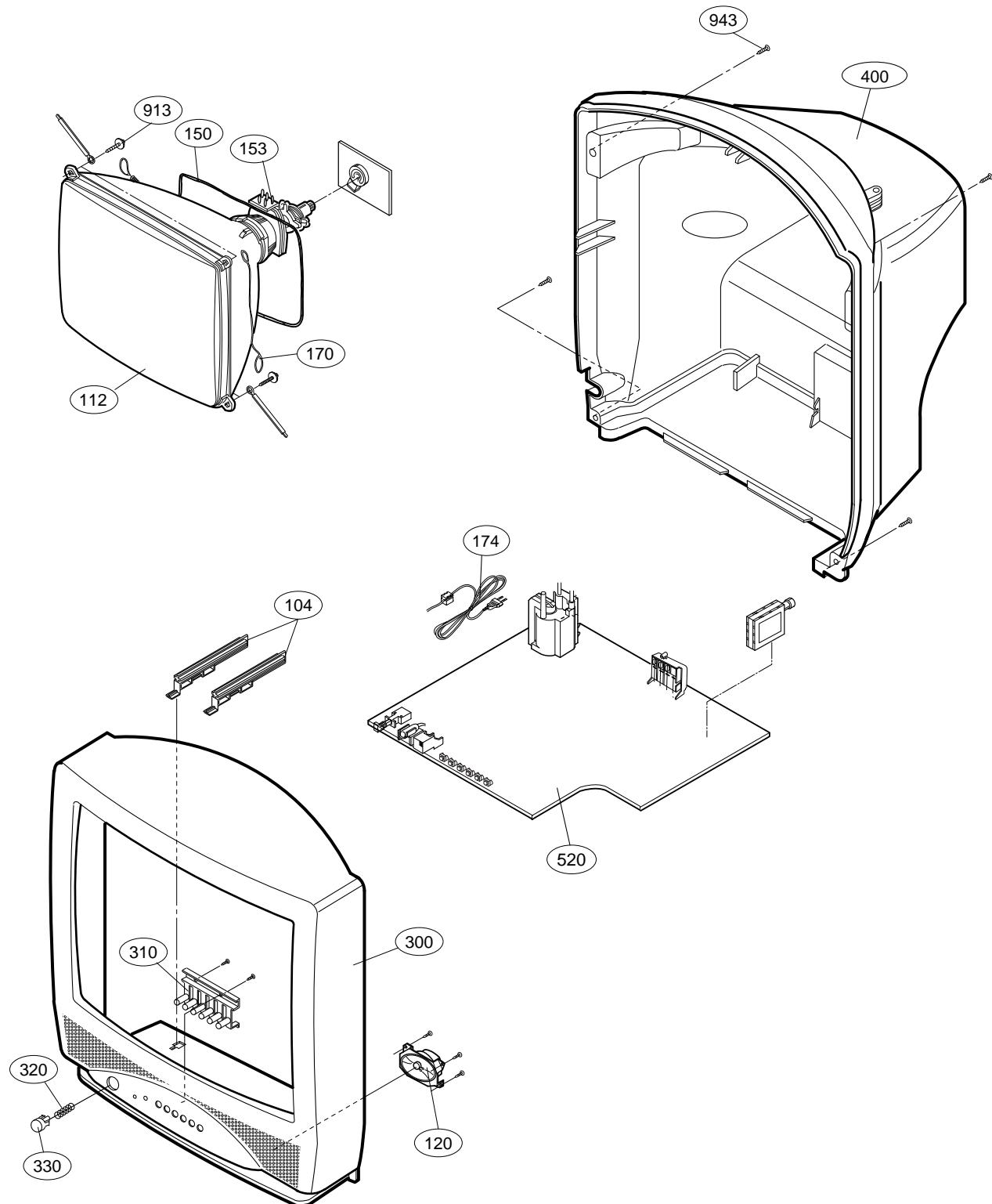


The components identified by mark Δ is critical for safety.
Replace only with part number specified.

EXPLODED VIEW PARTS LIST

LOCA. NO	PART NO			DESCRIPTIONS
	14"	20"	21"	
104	343-B52A	343-B52A	343-B52A	SUPPORTER,PCB
Δ 112	2055-00744N	2426GCA40CP	2426VSD0019	CPT SET
	2055-00744M	2055-01221M	2055-00673T	CPT SET *CASA
120	6400VA0019D	120-C77G	120-C77G	SPEAKER
Δ 150	150-D02W	150-D02Y	150-D02X	COIL,DEGAUSSING
	150-D02B	150-D02M	150-D02N	COIL,DEGAUSSING *CASA
Δ 153	153-113V	6150Z-1014A	153-110F	DY
	153-113V	153-276A	6150Z-1024A	DY *CASA
Δ 170	170-A01A	170-A01D	170-A01D	LEAD SET,CPT EARTH
Δ 174	6410VEH001B	6410VEH001B	6410VEH001B	POWER CORD
300	3091V00266L	3091V00378C	3091V00375D	CABINET ASSEMBLY
	3091V00266P	3091V00378K	3091V00375L	CABINET ASSEMBLY *CASA
310	5020V00189B	5020V00158A	5020V00158A	BUTTON,CONTROL
320	320-062H	320-062E	320-062E	SPRING,KNOB
330	5020V00188B	5020V00161A	5020V00157C	BUTTON,POWER
400	3809V00091M	3809V00069F	3809V00069F	BACK COVER ASSEMBLY
	3809V00091R	3809V00069X	3809V00069X	BACK COVER ASSEMBLY *CASA
520	-	6871VMMA35R	6871VMMA35Q	PWB ASSY,MAIN CF-K53KE
	6871VMM766U	6871VMM766T	6871VMM766S	PWB ASSY,MAIN CT-K53KE
	6871VMMA41P	6871VMMA41S	-	PWB ASSY,MAIN -K50KE
700	0IGL120104A	0IGL120104A	0IGL120104A	IC,CDS SENSOR MODULE(P1201-04)
913	332-057A	332-057B	332-057B	SCREW ASSY,HEXAGON HEAD
943	1PTF0403116	1PTF0403116	1PTF0403116	SCREW,TAP TITE(P)D4.0 L16.0

EXPLODED VIEW : 21F30K

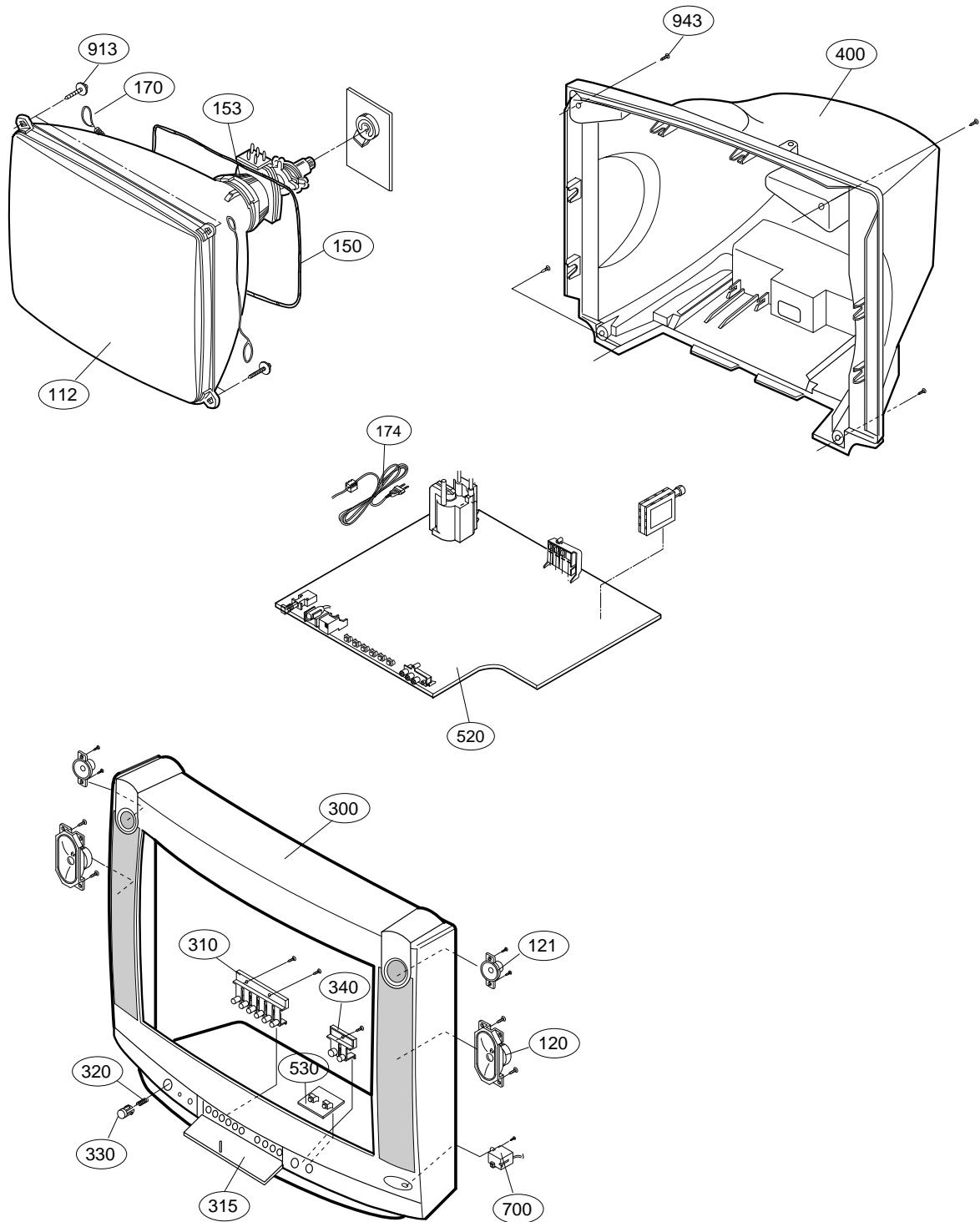


The components identified by mark Δ is critical for safety.
Replace only with part number specified.

EXPLODED VIEW PARTS LIST

LOCA. NO	PART NO	DESCRIPTIONS
104	343-B52A	SUPPORTER,PCB
Δ 112	2426VSD0019	CPT SET A51QAE320X000TIB
120	6400VA0019D	SPEAKER,FULLRANGE H905/020801B 8OHM
Δ 150	150-D02X	COIL,DEGAUSSING CU 21" 60TURN 12 OHM
Δ 153	153-110F	DY,DCAN1-21FSAA
Δ 170	170-A01D	LEAD SET,CPT EARTH
Δ 174	6410VEH001B	POWER CORD
300	3106V00037F	CABINET UNIT
310	5020V00108A	BUTTON,CONTROL
320	320-075B	SPRING,KNOB
330	5020V00107A	BUTTON
520	6871VMMA41R	PWB ASSY,MAIN
913	332-057B	SCREW ASSY,HEXAGON HEAD
943	1PTF0403116	SCREW,TAP TITE(P) D4.0 L16.0

EXPLODED VIEW : 14/20/21S31KEX



EXPLODED VIEW PARTS LIST

The components identified by mark Δ is critical for safety.
Replace only with part number specified.

LOCA. NO	PART NO			DESCRIPTIONS
	14"	20"	21"	
Δ 112	2055-00744N	2426GCA40CP	2426VSD0019	CPT SET
120	6400VA0020D	120-C77G	120-C77G	SPEAKER,FULLRANGE
121	-	6400VG0002A	6400VG0002A	SPEAKER,TWEETER
Δ 150	150-D02B	150-D02Y	150-D02N	COIL,DEGAUSSING
Δ 153	153-113V	6150Z-1014A	153-110F	DY
Δ 170	170-A01E	170-A01D	170-A01D	LEAD SET,CPT EARTH
Δ 174	6410VEH004A	6410VEH001B	6410VEH001B	POWER CORD
300	3091V00295E	3091V00165L	3091V00166J	CABINET ASSY
310	5020V00456A	5020V00305A	5020V00305A	BUTTON 6KEY
315	-	3581V00020A	3581V00021A	DOOR ASSY,CONTROL
320	320-062E	320-062H	320-070S	SPRING,COIL
330	5020V00455A	5020V00304A	5020V00306A	BUTTON
340	-	5020V00307A	5020V00308A	BUTTON,TURBO 2KEY
400	3809V00217C	3809V00122B	3809V00122B	BACK COVER ASSEMBLY,CKD,PHONE
	-	3809V00122E	-	BACK COVER ASSEMBLY,CKD,SCART
520	6871VMM814X	6871VMMA41W	6871VMMA41T	PWB ASSY,MAIN
	-	6871VMMA31K	-	PWB ASSY,MAIN W/TXT
530	-	6871VSM996C	6871VSM996B	PWB ASSY,S/W 019A TURBO P/S
700	-	0IGL120104A	0IGL120104A	IC,CDS SENSOR MODULE(P1201-04)
913	332-057A	332-057B	332-057B	SCREW ASSY,HEXAGON HEAD
943	1PTF0403116	1PTF0403116	1PTF0403116	SCREW,TAP TITE(P)D4.0 L16.0

The components identified by mark Δ are critical for safety.
Replace only with part number specified.

REPLACEMENT PARTS LIST

LOCA. NO	PART NO	DESCRIPTION	LOCA. NO	PART NO	DESCRIPTION			
IC								
IC01	0ICTMPH005A	IC,TDA9381PS/N2/3,L8011-24A PHILI	D901	0DR210009AC	DIODE,RECTIFIER BAV21 TP			
"	0ICTMPH004A	IC,TDA9381PS/N2/3,L801	D902	0DR210009AC	DIODE,RECTIFIER BAV21 TP			
"	0ICTMPH002A	IC,TDA9361PS/N2/4,LG801 W/TXT	D903	0DR210009AC	DIODE,RECTIFIER BAV21 TP			
"	0ICTMPH007A	IC,TDA9381PS/N2/3 PHILIPS	D904	0DR140049AC	DIODE,RECTIFIER 1N4004A T			
IC02	OISG111733B	IC,LD1117V33C 3SIP ST REGULATOR	Δ DB801	0DD260000BB	DIODE,RECTIFIER BRIDGE D2SBA60(STK)			
IC03	OIAL241600B	IC,AT24C16-10PC 8D EEPROM 16K	LD01	4930V00183B	HOLDER LED MODULE ASSY . 4PIN			
IC301	OISA784070A	IC,LA7840 7S VERTICAL	ZD01	0DZ910009BD	DIODE,ZENER GDZJ9.1B TP GRANDE DO34 0.5W			
IC601	OISA701600A	IC,LA7016 8S ANALOG S/W	"	0DZ910009AJ	DIODE,ZENER GDZJ9.1B			
IC602	OISG729700A	IC,TDA7297 15P,SIP BK 2CH 15W DUA	ZD101	0DZ510009AK	DIODE,ZENER GDZJ5.1B TP GRANDE DO34 0.5W			
IC603	OIFA754207A	IC,KA75420ZTA(KA7542ZTA) 3P,TO-92	ZD441	0DZ620009AK	DIODE,ZENER GDZJ6.2B TP GRANDE DO34 0.5W			
IC621	OISG200600A	IC,TDA2006 5Z	ZD442	0DZ820009BF	DIODE,ZENER GDZJ8.2B TP GRANDE DO34 0.5W			
IC631	OIMCRPH010A	IC,TDA9859 32P	ZD443	0DZ330009DG	DIODE,ZENER GDZJ33B TP GRANDE DO34 0.5W			
Δ IC801	OIL1817000G	IC,LTV817M-VB 4P,DIP BK PHOTO COU	ZD501	0DZ820009BF	DIODE,ZENER GDZJ8.2B TP GRANDE DO34 0.5W			
Δ IC802	OIL1817000G	IC,LTV817M-VB 4P,DIP BK PHOTO COU	ZD601	0DZ910009BD	DIODE,ZENER GDZJ9.1B TP GRANDE DO34 0.5W			
Δ IC803	OISK665413C	IC,STR-F6654R(LF1352) 5 SIP BK ST	ZD901	0DZ750009BE	DIODE,ZENER GDZJ7.5B TP GRANDE DO34 0.5W			
Δ IC804	OISK110000A	IC,SE110N(LF12) 3P 110V ERROR AMP	TRANSISTOR					
IC842	OIMCRUK002A	IC,S78DL05 AUK 3P,TO92 TP 5V-REGU	Q01	0TR198009BA	TR,2SA1980Y TP AUK --			
"	OISS780500J	IC,KA78L05AZ	Q102	0TR319709AB	TR,KTC3197,TP(KTC388A),KEC			
IC844	OIMCRKE001A	IC,KIA78R08PI KEC 4PIN,TO220IS-4	Q103	0TR102009AB	TR,KRC102M			
IC901	OIPH610700A	IC,TDA6107Q SIP9 BK VIDEO OUT AMP	Q211	0TR198009BA	TR,2SA1980Y TP AUK --			
DIODE			Q212	0TR534309AA	TR,2SC5343Y TP AUK --			
D101	0DS141489AB	DIODE,SWITCHING 1N4148 TP	Q213	0TR534309AA	TR,2SC5343Y TP AUK --			
"	0DD414809ED	DIODE,1N4148	Q214	0TR534309AA	TR,2SC5343Y TP AUK --			
D102	0DSVH00019A	DIODE,SWITCHING BA282	Q215	0TR534309AA	TR,2SC5343Y TP AUK --			
D301	0DR140059AC	DIODE,RECTIFIER 1N4005GP	Q216	0TR534309AA	TR,2SC5343Y TP AUK --			
"	0DD400509AA	DIODE,RECTIFIER 1N4005	Q301	0TR198009BA	TR,2SA1980Y TP AUK --			
D401	0DR150009EA	DIODE,RECTIFIER RGP15J TP	Q402	0TR570200AA	TR,KSD5702 BK SAMSUNG TO3PF H-OUT			
"	0DD150009CA	DIODE,RECTIFIER RGP15J	Q442	0TR233109AA	TR,KSC2331-Y TP SAMSUNG TO-92L			
D441	0DR060009AA	DIODE,RECTIFIER TVR06J TP	Q551	0TR198009BA	TR,2SA1980Y TP AUK --			
"	0DR060009AC	DIODE,RECTIFIER TVR06J	Q552	0TR198009BA	TR,2SA1980Y TP AUK --			
D442	0DR060009AA	DIODE,RECTIFIER TVR06J TP	Q553	0TR198009BA	TR,2SA1980Y TP AUK --			
"	0DR060009AC	DIODE,RECTIFIER TVR06J	Q554	0TR534309AA	TR,2SC5343Y TP AUK --			
D443	0DR060009AA	DIODE,RECTIFIER TVR06J TP	Q555	0TR534309AA	TR,2SC5343Y TP AUK --			
"	0DR060009AC	DIODE,RECTIFIER TVR06J	Q571	0TR198009BA	TR,2SA1980Y TP AUK --			
D501	0DS141489AB	DIODE,SWITCHING 1N4148 TP	Q621	0TR534309AA	TR,2SC5343Y TP AUK --			
"	0DD414809ED	DIODE,1N4148	Q651	0TR534309AA	TR,2SC5343Y TP AUK --			
D571	0DS141489AB	DIODE,SWITCHING 1N4148 TP	Q801	0TR102009AB	TR,KRC102M,TP(KRC1202),KEC			
"	0DD414809ED	DIODE,1N4148	Q802	0TR102009AB	TR,KRC102M,TP(KRC1202),KEC			
D802	0DR100009FA	DIODE,RECTIFIER EU1DGR TP	Q806	0TR102009AB	TR,KRC102M,TP(KRC1202),KEC			
"	0DD100009AM	DIODE,RECTIFIER EU1DZV	CAPACITOR					
D803	0DS141489AB	DIODE,SWITCHING 1N4148 TP	C01	0CN1020K519	1000P 50V K B TA52			
"	0DD414809ED	DIODE,1N4148	C02	0CN1030F679	10000P 16V M Y TA52			
D804	0DD360009AA	DIODE,BYW36(2A/600V)	C03	0CE107DD618	100UF STD 10V M FL TP5			
D805	0DD200009AH	DIODE,RECTIFIER RU2AMV(1)	C04	0CC2200K415	22P 50V NPO TS			
"	0DR200009DA	DIODE,RU2JGF	C05	0CC2200K415	22P 50V J NPO TS			
D806	0DR100009FA	DIODE,RECTIFIER EU1DGR TP	C07	0CE107DD618	100UF STD 10V M FL TP5			
"	0DD100009AM	DIODE,RECTIFIER EU1DZV	C21	0CE107DD618	100UF STD 10V M FL TP5			
D807	0DD300009AC	DIODE,RECTIFIER RU3AMV(1)	C51	0CN1030F679	10000P 16V M Y TA52			
D808	0DR060009AA	DIODE,RECTIFIER TVR06J TP	C101	0CN1030F679	10000P 16V M Y TA52			
"	0DD060009AC	DIODE,RECTIFIER TVR06J	C102	0CE106DF618	10UF STD 16V M FL TP5			
D814	0DD420000BB	DIODE,D4L20U SH	C107	0CE107DD618	100UF STD 10V M FL TP5			
D815	0DD420000BB	DIODE,D4L20U SH	C109	0CE476DK618	47UF STD 50V M FL TP5			
D816	0DR060009AA	DIODE,RECTIFIER TVR06J TP	C110	0CN1030F679	10000P 16V M Y TA52			
D824	0DD420000BB	DIODE,D4L20U SH						

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LOCA. NO	PART NO	DESCRIPTION	LOCA. NO	PART NO	DESCRIPTION
C111	OCN1030F679	10000P 16V M Y TA52	C532	OCE225DK618	2.2UF STD 50V 20% FL TP 5
C112	OCN1030F679	10000P 16V M Y TA52	C534	OCN1030F679	10000P 16V M Y TA52
C113	OCN1020K519	1000P 50V K B TA52	C538	181-007H	MPE ECQ-V1H474JL3(TR), 50V 0.4
C201	OCE227DD618	220UF STD 10V M FL TP5	C540	OCN2230H949	22000P 25V Z
C208	OCE226DF618	22UF STD 16V M FL TP5	C541	OCN2230H949	22000P 25V Z
C209	OCE226DF618	22UF STD 16V M FL TP5	C542	OCN2230H949	22000P 25V Z
C210	OCN1030F679	10000P 16V M Y TA52	C548	OCN8210K519	820P 50V K B TA52
C221	OCE475DK618	4.7UF STD 50V 20%	"	OCN3310K519	330P 50V K B TA52
C222	OCE475DK618	4.7UF STD 50V 20%	C549	OCQ4721N509	0.0047U 100V K POLY TP
C223	OCE475DK618	4.7UF STD 50V 20%	"	OCQ1221N419	0.0012U 100V J POLY TP
C253	OCN2230H949	22000P 25V Z	C551	OCX4700K409	47P 50V J SL TA52
C255	OCN2230H949	22000P 25V Z	C561	OCE107DD618	100UF STD 10V M FL TP5
C258	OCN1030F679	10000P 16V M Y TA52	C573	OCE476DF618	47UF STD 16V M FL TP5
C259	OCN1030F679	10000P 16V M Y TA52	C574	OCQ1021N509	0.001U 100V K POLY TP
C260	OCE226DF618	22UF STD 16V M FL TP5	C593	OCE475DK618	4.7UF STD 50V 20
C301	OCQ1041N509	0.1U 100V K POLY TP	C594	OCQ1041N509	0.1U 100V K POLY TP
C302	OCQ3931N509	0.0390UF 100V K PE TP	C601	OCE226DF618	22UF STD 16V M FL TP5
C303	OCK1810W515	180P 500V K B TS	C602	181-007F	MPE ECQ-V1H224JL3(TR), 50V 0.2
C304	OCE107DJ618	100UF STD 35V M FL TP5	C603	OCQ6821N509	0.0068U 100V K POLY TP
C307	OCQ6821N509	0.0068U 100V K POLY TP	"	OCQ4721N509	0.0047U 100V K POLY TP
C401	181-013C	MPP 200V 0.39UF J	C605	OCQ4721N509	0.0047U 100V K POLY TP
"(21")	181-013P	MPP 400V 0.33UF J	C606	181-007F	ECQ-V1H224JL3
C402	OCE475DP618	4.7UF STD 160V 20% FL TP 5	C607	OCN1030F679	10000P 16V M Y TA52
C403	181-015G	MPP 1600V 0.0077UF H	C612	OCE477DH618	470UF STD 25V M FL TP5
"(14")	181-015D	MPP 1600V 0.0062UF H	"	OCE477DJ618	470UF STD 35V M FL TP5
"(21")	181-015E	MPP 1600V 0.0068UF H	C621	OCQ6821N509	0.0068U 100V K
C404	OCK8210W515	820P 500V K B TS	C622	OCE225DK618	2.2UF STD 50V 20% FL TP 5
C405	181-091W	470PF 2KV 10	C623	OCE106DH618	10UF STD 25V M
"(21")	181-091U	220PF 2KV 10	C624	OCE477DJ618	470UF STD 35V M FL TP5
C441	OCQ1531N509	0.015U 100V K POLY TP	C625	OCQ1041N509	0.1U 100V K POLY TP
C443	OCE477DH618	470UF STD 25V M FL TP5	C626	OCE226DK618	22UF STD 50V M
C444	OCE475DR618	4.7UF STD 250V 20% FL TP 5	C631	181-007H	ECQ-V1H474JL3
C446	OCE477DH618	470UF STD 25V M FL TP5	C632	181-007H	ECQ-V1H474JL3
C447	OCQ3321N509	0.0033U 100V K POLY TP	C633	OCE107DD618	100UF STD 10V M FL TP5
C449	181-009V	PP 200V 0.047UF K	C634	OCN1030F679	10000P 16V M Y TA52
C452	OCE106DK618	10UF STD 50V M FL TP5	C635	OCE476DF618	47UF STD 16V M FL TP5
C501	181-007F	MPE ECQ-V1H224JL3(TR), 50V 0.2	"	OCE106DF618	10UF STD 16V M FL TP5
C502	OCN1030F679	10000P 16V M Y TA52	C636	OCQ6821N509	0.0068U 100V K
C503	OCE107DD618	100UF STD 10V M FL TP5	C637	181-007D	ECQ-V1H154JL3
C504	OCE225DK618	2.2UF STD 50V 20% FL TP 5	C638	OCQ5621N509	0.0056U 100V K
C505	OCQ2221N509	0.0022U 100V K POLY TP	C639	OCQ5621N509	0.0056U 100V K
C506	OCE105DK618	1UF STD 50V M FL TP5	C640	181-007D	ECQ-V1H154JL3
C507	OCQ2221N509	0.0022U 100V K POLY TP	C641	OCQ6821N509	0.0068U 100V K
C508	OCE476DF618	47UF STD 16V M	C642	OCQ5621N509	0.0056U 100V K
C509	OCE106DF618	10UF STD 16V M FL TP5	C643	181-007H	ECQ-V1H474JL3
C511	OCE105DK618	1UF STD 50V M FL TP5	C644	OCQ4731N509	0.047U 100V K
C512	OCN1020K519	1000P 50V K B TA52	C645	181-007H	ECQ-V1H474JL3
C513	OCN1020K519	1000P 50V K B TA52	C646	181-007H	ECQ-V1H474JL3
C514	OCQ1041N455	0.1000UF 100V J PP NI FM7.5	C653	OCE475DK618	4.7UF STD 50V 20% FL TP 5
C515	OCQ2231N509	0.022U 100V K POLY TP	C655	OCE475DK618	4.7UF STD 50V 20% FL TP 5
C516	OCQ3321N509	0.0033U 100V K POLY TP	C801	OCE107BJ618	100UF KME 35V M FL TP5
C517	OCE106DF618	10UF STD 16V M FL TP5	C802	181-091U	R 220PF 2KV 10%, -10% R/TP TP7.
C524	OCN1030F679	10000P 16V M Y TA52	"(14")	OCK10102515	100PF 2KV K
C529	OCE225CK636	2.2UF SHL,SD 50V 20% FM5 BP(D)	C803	OCK4710W515	470PF 500V K B TR
C530	OCQ1041N509	0.1U 100V K POLY TP	C804	OCQ1041N509	0.1U 100V K POLY TP

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\triangle C806	181-001V	CE 450V 220UF M LUG(85)
C807	0CK10201515	1000P 1KV K B TS
C808	0CK10201515	1000P 1KV K B TS
\triangle C809	181-506J	0F D 250V K M/PE NI R
"	0CQZVVK002C	AC 275V 0.22UF K
\triangle C811	181-120K	2200PF 4KV M E FMTW LEAD 4.5
\triangle C812	0CE108DJ618	1000UF STD 35V M FL TP5
"	0CE477DJ618	470UF STD 35V M FL TP5
C813	0CK4710W515	470PF 500V K B TR
C815	0CK4710W515	470PF 500V K B TR
C816	OCN1030F679	10000P 16V M Y TA52
C817	0CK4710W515	470PF 500V K B TR
C818	0CE107BH618	1000UF KME 25V M FL TP5
C819	181-091Y	R 680PF 2KV 10%,-10% R/TP TP7.
"(14")	181-091W	R 470PF 2KV 10%,-10% R/TP TP7.
C820	0CE227DP650	220UF STD 160V M FM7.5 BULK
C821	181-120N	1000PF 4KV M E FMTW LEAD4.5
C823	0CK4710K515	470PF 50V K B TR
C825	181-091P	SL 270PF 1KV 10%,-10% R/TP TP5
C828	0CE107DF618	100UF STD 16V M FL TP5
C829	0CF1021047A	1000PF D 800V 5% TP 7.5 M/PP N
C830	0CE475DK618	4.7UF STD 50V 20% FL TP5
C831	0CE108BF618	1000UF KME 16V M FL TP5
C832	181-091P	SL 270PF 1KV 10%,-10% R/TP TP5
\triangle C834	0CE476CP618	47UF SHL,SD 160V 20% FL TP 5
C835	0CE107DF618	100UF STD 16V M
C841	0CE477DD618	470UF STD 10V M FL TP5
C901	0CE475DR618	4.7UF STD 250V 20% FL TP 5
C902	0CQ1044R539	0.1UF TE 250V K M/PE NI TP5
C903	0CK12202510	1200P 2KV K B S
C904	0CE475DR618	4.7UF STD 250V 20% FL TP 5
C905	0CN5610K519	560P 50V K B TA52
R655	OCN1030F679	10000P 16V M Y TA52

FUSE

\triangle F801	OFT4001B53C	FUSE,TIME LAG 4000MA 250 V 5.2X20
\triangle F812	131-096N	FUSE,FAST BLOE 4000MA 125 V 2.5X7.6
\triangle FR803	131-096N	FUSE,FAST BLOE 4000MA 125 V 2.5X7.6

COIL & TRANSFORMER

J57	OLA0102K119	INDUCTOR,10UH K
L04	OLA1000K119	INDUCTOR,100UH K
L05	OLA0102K119	INDUCTOR,10UH K
L102	OLA0680K119	INDUCTOR,0.68UH K
L210	OLA0102K119	INDUCTOR,10UH K
L402	150-L02C	COIL,LINEARITY 170UH
"(14")	150-L01W	COIL,LINEARITY 57UH
L501	OLA0102K119	INDUCTOR,10UH K
L502	OLA0102K119	INDUCTOR,10UH K
L503	OLA0102K119	INDUCTOR,10UH K
L506	OLA0102K119	INDUCTOR,10UH K
L551	OLA0681K119	INDUCTOR,6.8UH K
L552	OLA0561K119	INDUCTOR,5.6UH K
L611	OLA0102K049	INDUCTOR,10UH 10% TP 5.0X14
L801	150-C02F	COIL,CHOKE 82UH R1217

LOCA. NO	PART NO	DESCRIPTION
R443	OLA0101K119	INDUCTOR,1.0UH K
R545	OLA0681K119	INDUCTOR,6.8UH K
R546	OLA0681K119	INDUCTOR,6.8UH K
R547	OLA0681K119	INDUCTOR,6.8UH K
\triangle T401	6174Z-6040C	FBT FTMPNG1 -6040C
\triangle T402	6170VC0003C	TRANSFORMER,H-DRIVER DRUM 10*12
\triangle T802	151-A13P	TRANSFORMER,SMPS EC4215 265UH
"	6170VMCB01L	TRANSFORMER,SMPS EER3940 500UH
CONNECTOR		
P01A	366-921B	CONNECTOR,2.5MM 3P GIL-G LG CABLE .
P301	366-043K	CONNECTOR,PLUG(4P)
P601	366-921B	CONNECTOR,2.5MM 3P GIL-G LG CABLE .
P602	366-921C	CONNECTOR,2.5MM 4P GIL-G LG CABLE .
P802	366-043B	CONNECTOR ASSY,PLUG(2P)
P902	387-603E	CONNECTOR ASSY,9PIN (IL-J)
P903	366-009D	CONNECTOR,2.36PAI 1P
RESISTOR		
C546	ORD1103F609	110K OHM 1/6 W 5.00% TA52
"(21")	ORD1503F609	150K OHM 1/6 W 5.00% TA52
D813	ORS0272H609	27 OHM 1/2W 5
"	ORS0392H609	39 OHM 1/2W 5
\triangle FR441	0RF0470J607	0.47 OHM 1 W 5.00% TA62
\triangle FR442	0RF0101K607	1 OHM 2 W 5.00% TA62
"(14")	0RF0121J607	1.2 OHM 1 W 5.00% TA62
"(21")	0RF0121K607	1.2 OHM 2 W 5.00% TA62
\triangle FR443	0RF0470J607	0.47 OHM 1 W 5.00% TA62
\triangle FR802	0RF0470H609	0.47 OHM 1/2 W 5.00% TA52
\triangle FR803	0RF0470K607	0.47 OHM 2 W 5.00% TA52
FR901	0RF0101J607	1 OHM 1 W 5.00% TA52
J30	0RD2200F609	220 OHM 1/6 W 5.00% TA52
J33	0RD2200F609	220 OHM 1/6 W 5.00% TA52
J39	0RD2200F609	220 OHM 1/6 W 5.00% TA52
J114	0RD1801F609	1.8K OHM 1/6 W 5.00% TA52
J149	0RD1001F609	1K OHM 1/6 W 5.00% TA52
J154	0RD1101F609	1.1K OHM 1/6 W 5.00% TA52
L01	0RD1500F609	150 OHM 1/6 W 5.00% TA52
L10	0RD0102F609	10 OHM 1/6 W 5.00% TA52
L631	0RD2200F609	220 OHM 1/6 W 5.00% TA52
R01	0RD1002F609	10K OHM 1/6 W 5.00% TA52
R03	0RD1000F609	100 OHM 1/6 W 5.00% TA52
R04	0RD3301F609	3.3K OHM 1/6 W 5.00% TA52
R05	0RD3301F609	3.3K OHM 1/6 W 5.00% TA52
R06	0RD4701F609	4.7K OHM 1/6 W 5.00% TA52
R07	0RD4701F609	4.7K OHM 1/6 W 5.00% TA52
R09	0RD1000F609	100 OHM 1/6 W 5.00% TA52
R10	0RD1000F609	100 OHM 1/6 W 5.00% TA52
R11	0RD1001F609	1K OHM 1/6 W 5.00% TA52
R12	0RD1001F609	1K OHM 1/6 W 5.00% TA52
R15	0RD1001F609	1K OHM 1/6 W 5.00% TA52
R16	0RD4701F609	4.7K OHM 1/6 W 5.00% TA52
R17	0RD1000F609	100 OHM 1/6 W 5.00% TA52
R19	0RD1000F609	100 OHM 1/6 W 5.00% TA52
R21	0RD2201F609	2.2K OHM 1/6 W 5.00% TA52

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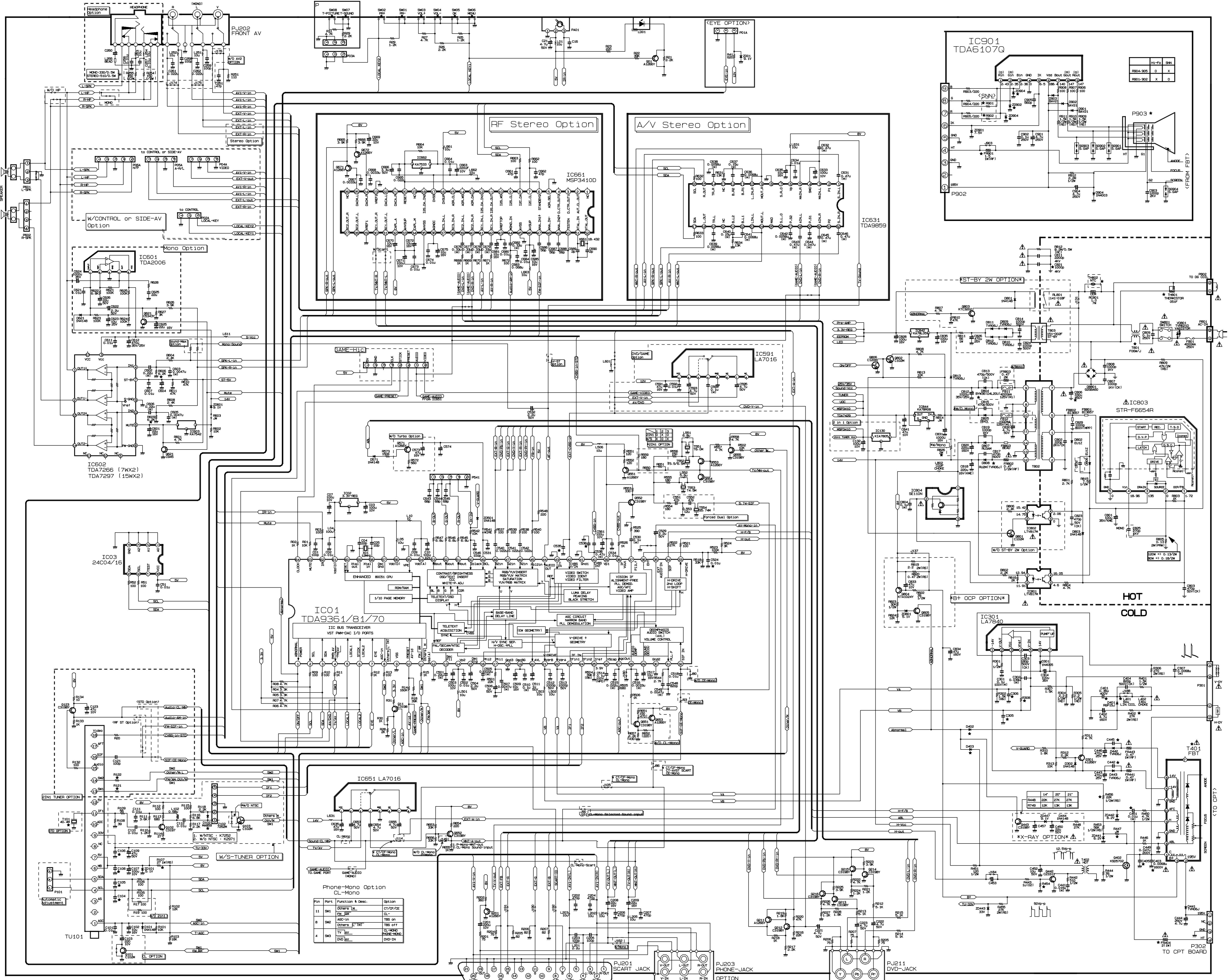
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R22	ORD3902F609	39K OHM 1/6 W 5.00% TA52	R301	ORD0101F609	1 OHM 1/6 W 5.00% TA52
R23	ORD2200F609	220 OHM 1/6 W 5.00% TA52	R302	ORN1201F409	1.2K OHM 1/6 W 1.00% TA52
R25	ORD1201F609	1.2K OHM 1/6 W 5.00% TA52	"(14")	ORN1501F409	1.5K OHM 1/6 W 1.00% TA52
R26	ORD2201F609	2.2K OHM 1/6 W 5.00% TA52	R304	ORD0221H609	2.2 OHM 1/2 W 5.00% TA52
R27	ORD4701F609	4.7K OHM 1/6 W 5.00% TA52	R305	ORD0271H609	2.7 OHM 1/2 W 5.00% TA52
R29	ORD1201F609	1.2K OHM 1/6 W 5.00% TA52	"	ORD0221H609	2.2 OHM 1/2 W 5.00% TA52
R30	ORD4701F609	4.7K OHM 1/6 W 5.00% TA52	R306	ORS2200K607	220 OHM 2 W 5.00% TA62
R31	ORD2201F609	2.2K OHM 1/6 W 5.00% TA52	"	ORS2700K607	270 OHM 2 W 5.00% TA62
R41	ORD6200F609	620 OHM 1/6 W 5.00% TA52	"(14")	ORS2700K607	270 OHM 2 W 5.00% TA62
R51	ORD1000F609	100 OHM 1/6 W 5.00% TA52	"(21")	ORS2700K607	270 OHM 2 W 5.00% TA62
R52	ORD1000F609	100 OHM 1/6 W 5.00% TA52	R307	ORD1201F609	1.2K OHM 1/6 W 5.00% TA52
R101	ORD1002F609	10K OHM 1/6 W 5.00% TA52	"(21")	ORD1501F609	1.5K OHM 1/6 W 5.00% TA52
R102	ORD1202F609	12K OHM 1/6 W 5.00% TA52	R310	ORD1801F609	1.8K OHM 1/6 W 5.00% TA52
R103	ORD1802F609	18K OHM 1/6 W 5.00% TA52	R311	ORD4701H609	4.7K OHM 1/2 W 5.00% TA52
R107	ORS0272J607	27 OHM 1 W 5.00% TA62	R312	ORD2201F609	2.2K OHM 1/6 W 5.00% TA52
R108	ORD0392F609	39 OHM 1/6 W 5.00% TA52	R313	ORD1002F609	10K OHM 1/6 W 5.00% TA52
R109	ORD0562F609	56 OHM 1/6 W 5.00% TA52	R401	ORD1501H609	1.5K OHM 1/2 W 5.00% TA52
R110	ORD1201F609	1.2K OHM 1/6 W 5.00% TA52	R402	ORS2702K607	27K OHM 2 W 5.00% TA62
R111	ORD3601F609	3.6K OHM 1/6 W 5.00% TA52	R442	ORD5100H609	510 OHM 1/2 W 5.00% TA52
R112	ORD1000F609	100 OHM 1/6 W 5.00% TA52	R444	ORD0392H609	39 OHM 1/2 W 5.00% TA52
R113	ORD6800F609	680 OHM 1/6 W 5.00% TA52	R446	ORD1001F609	1K OHM 1/6 W 5.00% TA52
R114	ORD0272F609	27 OHM 1/6W 5	R447	ORD3001F609	3K OHM 1/6 W 5.00% TA52
R115	ORD1000F609	100 OHM 1/6 W 5.00% TA52	"(14")	ORD3601F609	3.6K OHM 1/6 W 5.00% TA52
R116	ORD6801F609	6.8K OHM 1/6 W 5.00% TA52	"(21")	ORD2401F609	2.4K OHM 1/6 W 5.00% TA52
R117	ORD2201F609	2.2K OHM 1/6 W 5.00% TA52	R450	ORD4701H609	4.7K OHM 1/2 W 5.00% TA52
R118	ORD2201F609	2.2K OHM 1/6 W 5.00% TA52	R451	ORD1200H609	120 OHM 1/2 W 5.00% TA52
R123	ORD0272F609	27 OHM 1/6 W 5.00% TA52	"(14")	ORD1500H609	150 OHM 1/2 W 5.00% TA52
R124	ORD1203F609	120K OHM 1/6 W 5.00% TA52	R453	ORS3302H609	33K OHM 1/2 W 5.00% TA52
R201	ORD3303F609	330K OHM 1/6 W 5.00% TA52	"(14")	ORS5102H609	51K OHM 1/2 W 5.00% TA52
R205	ORD0752F609	75 OHM 1/6W 5	"(21")	ORS4702H609	47K OHM 1/2 W 5.00% TA52
R206	ORD0752F609	75 OHM 1/6W 5	R455	ORS2702K607	27K OHM 2 W 5.00% TA62
R207	ORD0752F609	75 OHM 1/6W 5	R456	ORS5102H609	51K OHM 1/2 W 5.00% TA52
R208	ORD1001F609	1K OHM 1/6 W 5.00% TA52	"(14")	ORS3302H609	33K OHM 1/2 W 5.00% TA52
R212	ORD5101F609	5.1K OHM 1/6 W 5.00% TA52	"(21")	ORS2702H609	27K OHM 1/2 W 5.00% TA52
R213	ORD5101F609	5.1K OHM 1/6 W 5.00% TA52	R501	ORD2202F609	22K OHM 1/6 W 5.00% TA52
R214	ORD5101F609	5.1K OHM 1/6 W 5.00% TA52	R502	ORD1002F609	10K OHM 1/6 W 5.00% TA52
R215	ORD5101F609	5.1K OHM 1/6 W 5.00% TA52	R503	ORD2202F609	220 OHM 1/6 W 5.00% TA52
R216	ORD2202F609	22K OHM 1/6 W 5.00% TA52	R504	ORN3902F409	39K OHM 1/6 W 1.00% TA52
R217	ORD2201F609	2.2K OHM 1/6 W 5.00% TA52	R505	ORD6800F609	680 OHM 1/6 W 5.00% TA52
R218	ORD1001F609	1K OHM 1/6 W 5.00% TA52	R506	ORD1001F609	1K OHM 1/6 W 5.00% TA52
R219	ORD1801F609	1.8K OHM 1/6 W 5.00% TA52	R518	ORD3302F609	33K OHM 1/6 W 5.00% TA52
R220	ORD4702F609	47K OHM 1/6 W 5.00% TA52	R521	ORD1000F609	100 OHM 1/6 W 5.00% TA52
R221	ORD1201F609	1.2K OHM 1/6 W 5.00% TA52	R522	ORD2702F609	27K OHM 1/6 W 5.00% TA52
R222	ORD4701F609	4.7K OHM 1/6 W 5.00% TA52	R523	ORD1003F609	100K OHM 1/6 W 5.00% TA52
R223	ORD3901F609	3.9K OHM 1/6 W 5.00% TA52	R524	ORD3001F609	3K OHM 1/6 W 5.00% TA52
R224	ORD1201F609	1.2K OHM 1/6 W 5.00% TA52	R525	ORD3900F609	390 OHM 1/6 W 5.00% TA52
R225	ORD3901F609	3.9K OHM 1/6 W 5.00% TA52	R526	ORD1001F609	1K OHM 1/6 W 5.00% TA52
R226	ORD4701F609	4.7K OHM 1/6 W 5.00% TA52	"	ORD2001F609	2K OHM 1/6 W 5.00% TA52
R227	ORD1201F609	1.2K OHM 1/6 W 5.00% TA52	R537	ORD1000F609	100 OHM 1/6 W 5.00% TA52
R228	ORD1801F609	1.8K OHM 1/6 W 5.00% TA52	R538	ORD1000F609	100 OHM 1/6 W 5.00% TA52
R251	ORD1300F609	130 OHM 1/6 W 5.00% TA52	R539	ORD1000F609	100 OHM 1/6 W 5.00% TA52
R254	ORD2200H609	220 OHM 1/2 W 5.00% TA52	R542	ORD1002F609	10K OHM 1/6 W 5.00% TA52
"	ORD2700H609	270 OHM 1/2 W 5.00% TA52	R544	ORD2701F609	2.7K OHM 1/6 W 5.00% TA52
R255	ORD2200H609	220 OHM 1/2 W 5.00% TA52	"	ORD3901F609	3.9K OHM 1/6 W 5.00% TA52
"	ORD2700H609	270 OHM 1/2 W 5.00% TA52	R551	ORD1200F609	120 OHM 1/6 W 5.00% TA52

The components identified by mark \triangle are critical for safety.
Replace only with part number specified.

LOCA. NO	PART NO	DESCRIPTION	LOCA. NO	PART NO	DESCRIPTION
R552	ORD1200F609	120 OHM 1/6 W 5.00% TA52	R908	ORD1000F609	100 OHM 1/6 W 5.00% TA52
R553	ORD3300F609	330 OHM 1/6 W 5.00% TA52	R909	0RS1501H609	1.5K OHM 1/2 W 5.00% TA52
R554	ORD4701F609	4.7K OHM 1/6 W 5.00% TA52	R910	0RS1501H609	1.5K OHM 1/2 W 5.00% TA52
R555	ORD1800F609	180 OHM 1/6 W 5.00% TA52	R911	0RS1501H609	1.5K OHM 1/2 W 5.00% TA52
R556	ORD1500F609	150 OHM 1/6 W 5.00% TA52	R912	ORD2204H609	2.2M OHM 1/2 W 5.00% TA52
R557	ORD4701F609	4.7K OHM 1/6 W 5.00% TA52	RC801	180-822N	RWR 7W 1.0 OHM J PD
R558	ORD4701F609	4.7K OHM 1/6 W 5.00% TA52	SWITCH		
R572	ORD5600F609	560 OHM 1/6 W 5.00% TA52	SW01	140-315A	SWITCH,TACT SKHV17910B 12V
R573	ORD2403F609	240K OHM 1/6 W 5.00% TA52	SW02	140-315A	SWITCH,TACT SKHV17910B 12V
R601	ORD4701F609	4.7K OHM 1/6 W 5.00% TA52	SW03	140-315A	SWITCH,TACT SKHV17910B 12V
R602	ORD1002F609	10K OHM 1/6 W 5.00% TA52	SW04	140-315A	SWITCH,TACT SKHV17910B 12V
R604	ORD6801F609	6.8K OHM 1/6 W 5.00% TA52	SW05	140-315A	SWITCH,TACT SKHV17910B 12V
"	ORD3301F609	3.3K OHM 1/6 W 5.00% TA52	SW06	140-315A	SWITCH,TACT SKHV17910B 12V
R606	ORD2201F609	2.2K OHM 1/6 W 5.00% TA52	SW07	140-315A	SWITCH,TACT SKHV17910B 12V
"	ORD7501F609	7.5K OHM 1/6 W 5.00% TA52	SW08	140-315A	SWITCH,TACT SKHV17910B 12V
R608	ORD2401F609	2.4K OHM 1/6 W 5.00% TA52	\triangle SW801	6600VM2002A	SWITCH,PUSH SDKEA3 IEC 250V 8A HORIZO
R609	ORD7501F609	7.5K OHM 1/6 W 5.00% TA52	FILTER & CRYSTAL		
R610	ORD4702F609	47K OHM 1/6 W 5.00% TA52	FB801	125-022R	FILTER,EMC BI3857 FEELUX 5.7X3.6MM
R611	ORD4702F609	47K OHM 1/6 W 5.00% TA52	FB802	125-022R	FILTER,EMC BI3857 FEELUX 5.7X3.6MM
R621	ORD9102F609	91K OHM 1/6 W 5.00% TA52	FB803	125-022R	FILTER,EMC BI3857 FEELUX 5.7X3.6MM
R622	ORD6801F609	6.8K OHM 1/6 W 5.00% TA52	L611	125-022R	FILTER,EMC BI3857 FEELUX 5.7X3.6MM
R623	ORD1003F609	100K OHM 1/6 W 5.00% TA52	T551	6200VST001E	FILTER,BAND PASS XT6.0MB 6.0MHZ
R624	ORD1003F609	100K OHM 1/6 W 5.00% TA52	T552	6200VST001H	FILTER,BAND PASS XT565MB 5.5/6.5MHZ
R625	ORD1003F609	100K OHM 1/6 W 5.00% TA52	T801	150-F06J	FILTER,EMC SQE2930 18MH
R626	ORD5101F609	5.1K OHM 1/6 W 5.00% TA52	"	150-F06W	FILTER,EMC SQE2930 36MH
R627	ORD3301F609	3.3K OHM 1/6 W 5.00% TA52	X01	156-A02B	RESONATOR,CRYSTAL HC49U 12.000MHZ 30P
R628	ORD0331H609	3.3 OHM 1/2 W 5.00% TA52	Z102	6200VQS001L	FILTER,SAW OFWK2971M 39.90MHZ INT
R631	ORD1302F609	130K OHM 1/2 W 5.00% TA52	"	6200VQS004A	FILTER,SAW OFWK7252M EPCOS 38.9
R632	ORD1000F609	100 OHM 1/6 W 5.00% TA52	Z551	6200VCT001B	FILTER,BAND PASS LT5.5MH 5.5MHZ
R633	ORD1000F609	100 OHM 1/6 W 5.00% TA52	"	166-B02C	FILTER,SFSRH5M50CF00-A0
R634	ORD1302F609	13K OHM 1/6 W 5.00% TA52	ACCESSORIES		
R651	ORD1500F609	150 OHM 1/6 W 5.00% TA52	A1	3828VA0270A	MANUAL,OWNERS NEU/CONVEN LG EN 061D/G
R657	ORD2201F609	2.2K OHM 1/6 W 5.00% TA52	A2	6710V00061G	REMOTE CONTROLLER
R801	ORD2701F609	2.7K OHM 1/6 W 5.00% TA52	A3	132-210H	ANTENNA,ROD,W/ADAPTER L=650 PAL
R802	ORD2201F609	2.2K OHM 1/6 W 5.00% TA52	MISCELLANEOUS		
R803	ORD1001F609	1K OHM 1/6 W 5.00% TA52	PA01	6726VV0006H	REMOTE CONTROLLER RECEIVER 38KHZ
R804	ORD4701F609	4.7K OHM 1/6 W 5.00% TA52	PJ201	6612VJH004F	JACK,RCA PJ6056F AV 4P MONO 2
R805	180-A01P	0.13 OHM 2 W 5% TA62 RWR	"	6612VJH004H	JACK,RCA PJ6056A AV 6P
"	180-A01M	0.22 OHM 2 W 5% TA62 RWR	PJ202	6613V00006C	JACK ASSY,PJ6062C 2P<YL(SW)WH(SW)>+
R806	ORD2401F609	2.4K OHM 1/6 W 5.00% TA52	"	6613V00006E	JACK ASSY,PJ6062E
R808	ORD4701F609	4.7K OHM 1/6 W 5.00% TA52	\triangle SK901	6620VBC003A	SOCKET,CPT PCS030A 8PIN 14/360
R809	0RS4702K607	47K OHM 2 W 5.00% TA62	"	6620VBA003A	SOCKET,CPT PCS031A 7PIN
\triangle R812	ORK8204H609	8.2M OHM 1/2 W 5.00% TA52	\triangle TH801	163-054F	THERMISTOR,PTC J502P84D140M290Q
"	ORKZVTA001C	8.2M OHM 1/2 W 5.00% TA52	TU101	6700VPF009V	TUNER,TAFL-G579D LG MULTI FS W/S 38.
R813	ORD1002F609	10K OHM 1/6 W 5.00% TA52	"	6700VPF009S	TUNER,TAEL-G672D
R814	ORD0221H609	2.2 OHM 1/2 W 5.00% TA52	VD801	164-003G	VARISTOR,TVR621D14A THINKING 620V 10%
R815	ORD0751H609	7.5 OHM 1/2 W 5.00% TA52			
R816	ORD2001F609	2K OHM 1/6 W 5.00% TA52			
R901	ORD2200F609	220 OHM 1/6 W 5.00% TA52			
R902	ORD2200F609	220 OHM 1/6 W 5.00% TA52			
R903	ORD2200F609	220 OHM 1/6 W 5.00% TA52			
R904	ORD2200F609	220 OHM 1/6 W 5.00% TA52			
R905	ORD2200F609	220 OHM 1/6 W 5.00% TA52			
R906	ORD1000F609	100 OHM 1/6 W 5.00% TA52			
R907	ORD1000F609	100 OHM 1/6 W 5.00% TA52			

Schematic Diagram of MC-019A -



NOTICE

Since this is basic circuit
the value of components and
partial connection are subje
changed for improvement with

Value of resistor, capacitor and inductor

ages read with VTVM from point chassis ground.
e voltage is $230\pm-20\%$ volts.
al pattern is colour-bar.
chematic shown is
esetative only.
waveforms are taken using a
e band oscilloscope and a low
acity probe.
x FINE TUNING, AGC, CONTRAST,
IGHTNESS and COLOUR controls for
picture. make sure that
OUR and BRIGHTNESS are in mid-
nt and CONTRAST is in 75%.
orms are taken using a
ard colour signal.

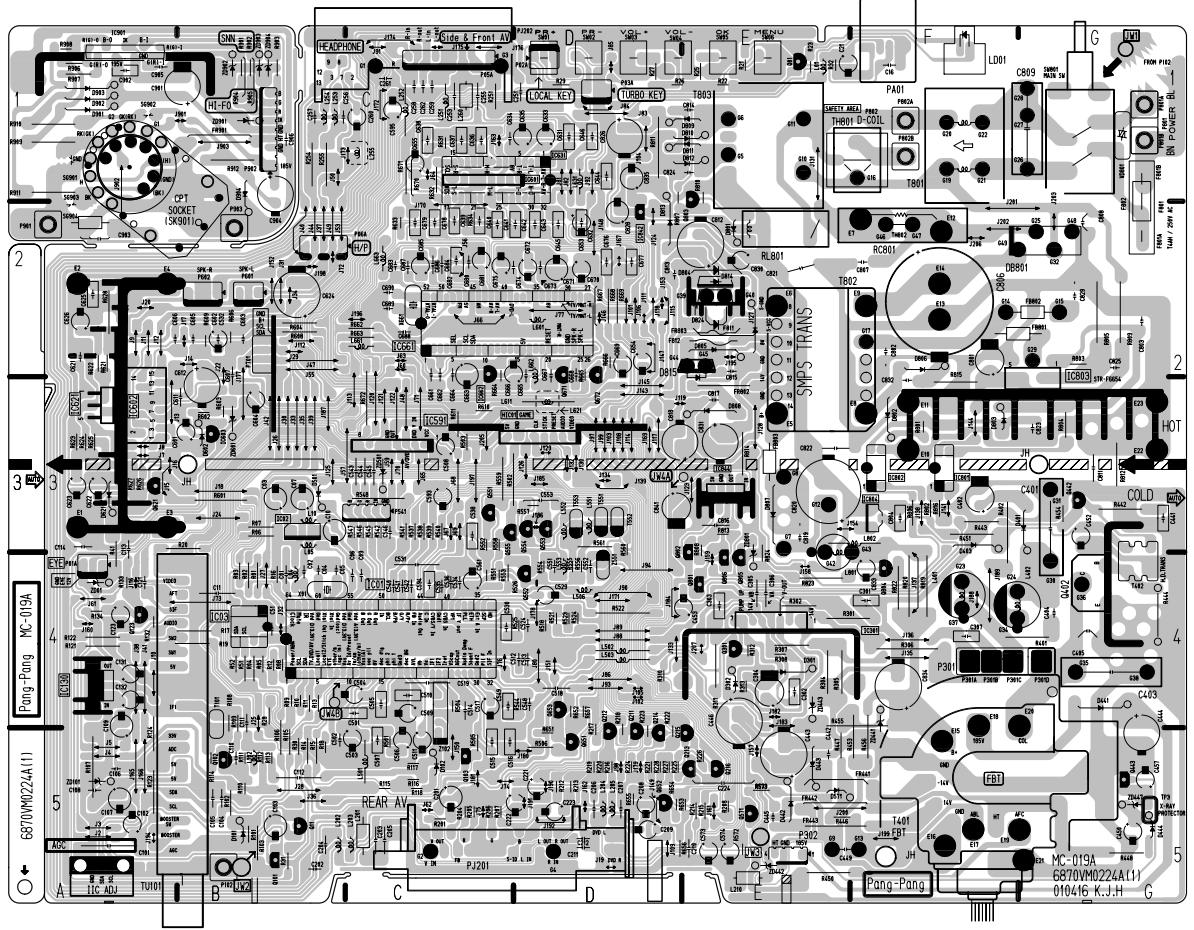
<SYSTEM OPTION>

2 AV STEREO

3 MONO

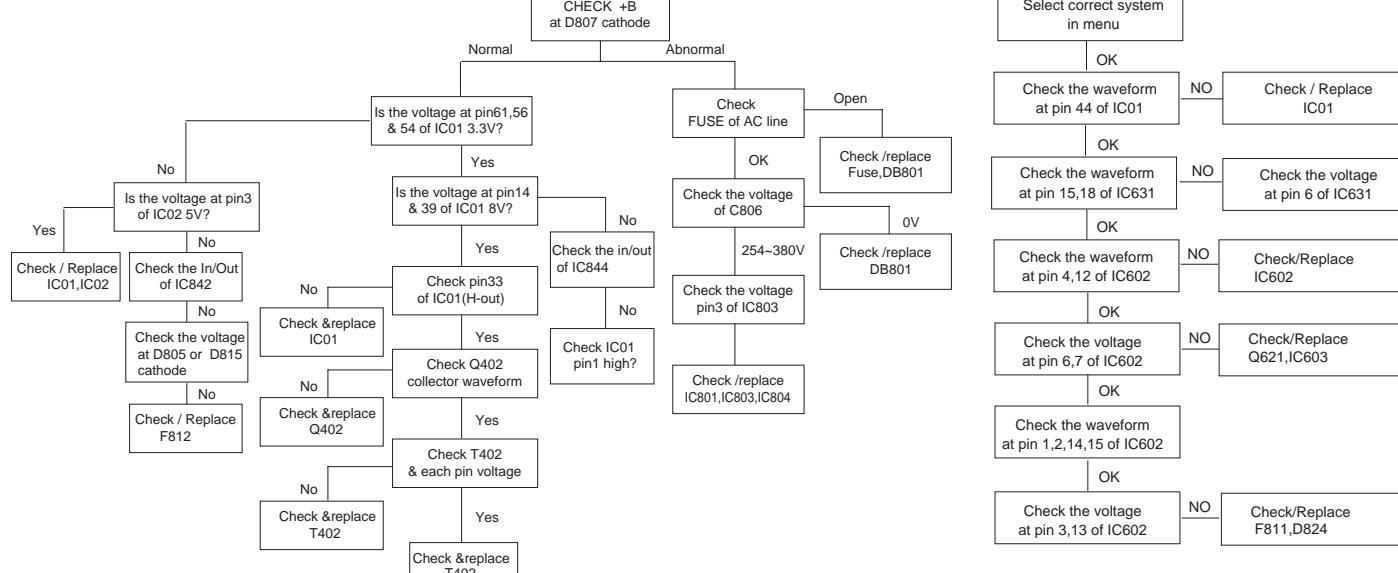
PRINTED CIRCUIT BOARD

MAIN & CPT



TROUBLESHOOTING

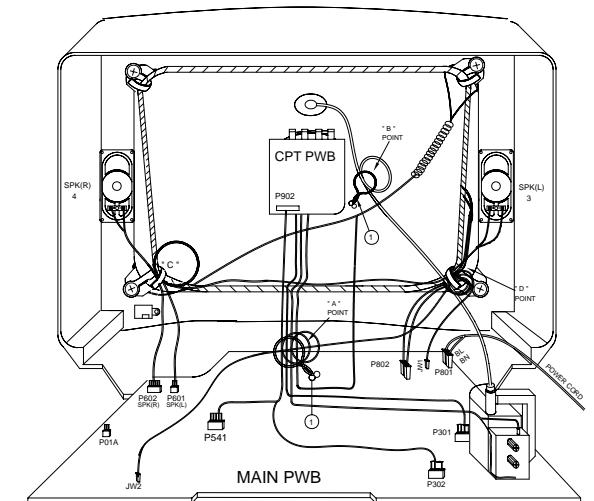
NO RASTER



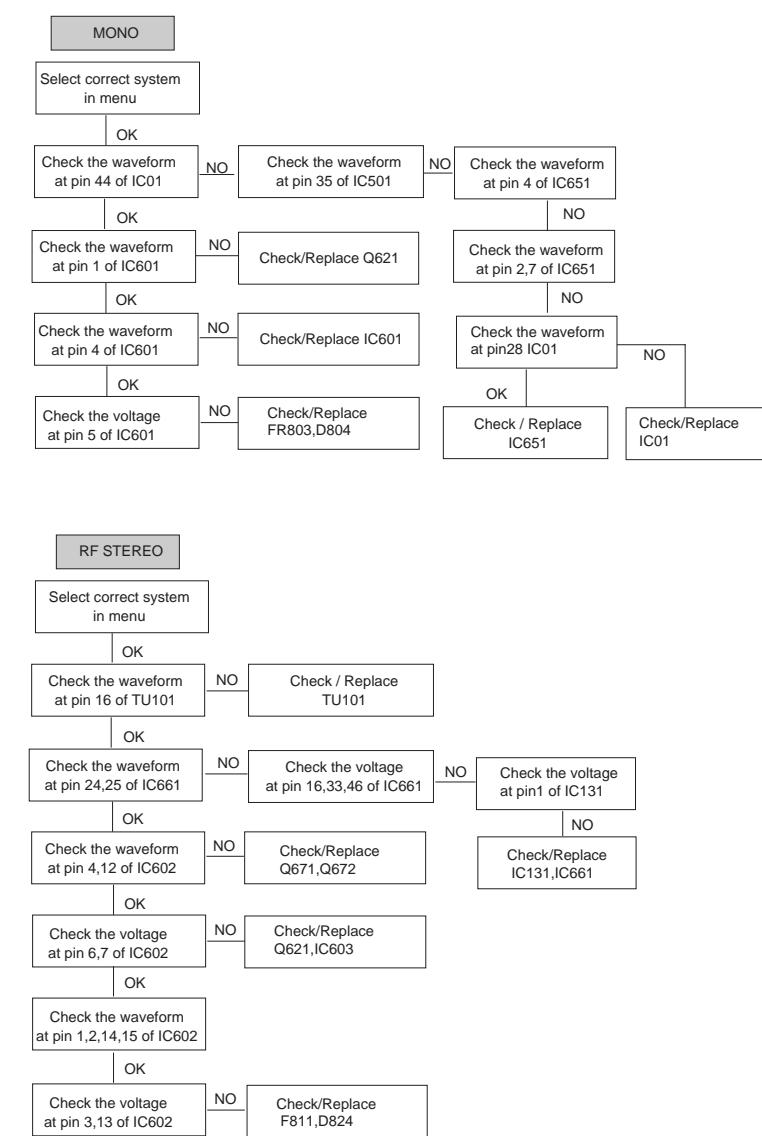
— COMPONENT LOCATION GUIDE —

C01...C4	B4	C403...G4	C507...B3	C811...E3	G3	F811...E2	L801...E4	R05...B4	B4	B218...D5	R554...D5	R820...F4
C02...C4	B4	C404...G4	C511...B3	C812...E2	F801A...G2	B802...E3	R06...B3	C819...D5	B4	R555...D5	R822...F4	
C03...C4	B3	C405...G4	C512...B3	C813...E2	D802...B1	G1	L01...F1	R07...B3	B4	B220...D5	R556...D5	R823...E4
C04...C4	B4	C441...G4	C521...A2	C814...D1	F801...F2	P102...B5	R08...B4	C821...D5	B4	R557...D5	R824...E4	
C05...C4	B4	C442...E5	C522...A3	C815...E3	E802...F2	P302...B5	E5	R09...B4	B4	B222...D5	R558...C4	R901...B1
C06...C4	B4	C443...E5	C523...A3	C816...E3	F803...E3	P541...C3	R10...B4	B4	B223...D5	R559...C3	R902...B1	
C07...C3	B3	C444...G5	C524...B2	C817...E3	F8441...E5	P601...B4	B21...B4	B224...D5	R560...D5	R903...B1	R904...B1	
C09...C4	B4	C445...E5	C525...A2	C818...D3	F8442...E5	P602...B2	R12...B4	B225...D5	R561...D5	R904...B1	R905...B1	
C10...C3	B3	C446...E5	C526...B2	A819...E4	F8443...E5	P701...B4	B12...B4	B226...E5	R572...D5	R905...B1	R906...B1	
C11...C4	B4	C449...F5	C531...D1	C820...E3	F8802...E3	P901...A2	R14...B5	B227...D5	R573...E5	R907...A1	R908...A1	
C16...C1	F1	C450...G5	C532...D2	C821...E2	F8803...E2	P902...B2	R15...B5	B228...D5	R601...B2	R907...A1	R908...A1	
C21...E1	C452...G3	C533...D1	C822...E3	F8801...B1	P903...B2	R16...B4	B229...D5	R602...B3	R908...A1	R909...A1		
C51...B4	C453...E4	C534...C1	C823...G3	HIC01...D3	P904...B1	R17...B4	B230...D5	R603...B2	R909...A1	R910...A1		
C101...A5	A5	C457...G5	C535...D1	C824...D1	I01...B4	P204...D1	R18...B5	B235...D5	R604...B2	R910...A1	R911...A1	
C102...A5	A5	C501...C4	C536...C1	C825...G3	I03...B4	P304...D1	R19...B4	B236...D5	R605...B1	R912...B1	R913...B1	
C103...B5	B5	C502...B5	C537...C1	C826...D1	I03...B4	P504...C1	R20...A4	B237...D5	R606...B2	R914...B1	R915...B1	
C104...B5	B5	C503...C4	C538...C1	C828...D2	I03...A4	P06A...B2	R21...E1	B238...D5	R607...B2	R916...B1	R917...B1	
C105...B5	B5	C504...C4	C539...G2	C829...G2	I301...E4	P301A...F4	R22...E1	E305...B1	R608...B2	R918...B1	R919...B1	
C106...A5	A5	C505...C4	C540...C4	C830...E2	I591...C3	P301B...F4	R23...E1	E306...B1	R609...B2	R920...A1	R921...A1	
C107...A5	A5	C506...C5	C541...C4	C831...E3	I601...D1	P301C...F4	R25...E1	E307...B1	R610...B2	R922...A1	R923...A1	
C108...A5	A5	C507...C5	C542...D2	C832...F3	I602...A3	P301D...G4	R26...D1	E308...B1	R611...B2	R924...A2	R925...A2	
C109...A4	A4	C508...C4	C543...D4	C833...F4	I603...B3	P801A...G1	R27...D1	E310...B1	R612...B2	R926...A2	R927...A2	
C110...B5	B5	C509...C4	C544...D4	C834...F4	I602...A3	P801B...G1	R28...B5	E311...E4	R613...B2	R928...W1	R929...W1	
C111...B5	B5	C510...C4	C545...D4	C835...D1	I631...D1	P802A...B2	R29...D1	E312...E4	R625...B5	R930...W1	R931...W1	
C112...B5	B5	C511...C5	C546...D4	C841...D3	I661...C2	P802B...F1	R30...B5	E313...E4	R626...A3	R932...W1	R933...W1	
C113...A4	A4	C512...D4	C563...A1	C901...B1	I662...C2	P801A...F1	R31...B5	E314...B1	R627...A3	R934...W1	R935...W1	
C114...A4	A4	C513...D4	C564...D3	C902...A1	I801...F3	P201...C5	R32...E1	E315...B1	R628...A2	R936...W1	R937...W1	
C121...A4	A4	C514...C4	C565...C1	C903...A2	I802...F3	P202...C5	R34...E1	E402...F4	R629...A2	R938...W1	R939...W1	
C123...A4	A4	C515...C5	C566...C1	C904...B2	I803...G2	Q01...E1	R35...B1	E443...F3	R632...A2	R940...W1	R941...W1	
C131...A4	A4	C516...C5	C567...C2	C905...A1	I804...F3	Q11...B5	R36...B4	E444...G4	R633...A2	R942...W1	R943...W1	
C132...A4	A4	C517...C4	C568...C3	C906...B1	I804...B2	Q12...D4	R37...B5	E445...F5	R634...C4	R944...W1	R945...W1	
C201...C5	C5	C518...D4	C569...C4	C101...B3	I805...B5	Q13...B5	R38...B5	E446...F5	R635...C4	R946...W1	R947...W1	
C202...B5	B5	C519...C4	C565...D3	D102...C5	I805...C5	Q901...A1	R39...C5	E448...G5	R636...D4	R948...W1	R949...W1	
C203...C5	C5	C524...D4	C566...D4	D301...E4	I806...L1	E123...A1	R40...B5	E450...B5	R637...E3	R950...W1	R951...W1	
C204...B5	B5	C529...D4	C567...D3	D302...E4	I807...L4	B4...B4	R41...D4	E451...F3	R638...D4	R952...W1	R953...W1	
C205...C5	C5	C530...C4	C568...D4	D401...G4	I808...L5	B5...B3	R42...D4	E453...F3	R639...D5	R954...W1	R955...W1	
C206...D5	D5	C531...C4	C569...D3	D403...F4	I809...L10	B3...B3	R43...E5	E454...G3	R640...D5	R956...W1	R957...W1	
C207...D5	D5	C532...B2	C670...G2	D441...G4	I809...L102	B5...B5	R44...D4	E455...F5	R641...D5	R958...W1	R959...W1	
C208...D5	D5	C534...C4	C671...D1	D442...E5	I809...L201	C5...B5	R45...E4	E456...F5	R642...B2	R960...B1	R961...B1	
C209...D5	D5	C535...C4	C672...D2	D443...E5	I809...L205	C5...B5	R46...E4	E457...F5	R643...B2	R962...B1	R963...B1	
C210...E5	E5	C536...C4	C673...D3	D444...E5	I809...L205	C5...B5	R47...E4	E458...F5	R644...B2	R964...B1	R965...B1	
C211...D5	D5	C538...C3	C674...D2	D501...B3	I809...L204	D5...B4	R48...E4	E459...F5	R645...B2	R966...B1	R967...B1	
C212...D5	D5	C540...C4	C675...C5	D571...F5	I809...L205	D5...D5	R49...E4	E460...F3	R646...B2	R968...B1	R969...B1	
C221...D5	D5	C541...C4	C676...D2	D602...B3	I809...L210	E5...B4	R50...E4	E461...F3	R647...B2	R970...B1	R971...B1	
C222...D5	D5	C542...C4	C677...D2	D621...A3	I809...L251	C51...C5	R51...E4	E462...F3	R648...B2	Z102...C5	Z103...C5	
C223...D5	D5	C543...C4	C678...C2	D801...E2	I809...L251	C52...C5	R52...E4	E463...F3	R649...B2	Z551...D4	Z552...D4	
C224...E5	E5	C544...C3	C679...C2	D802...F3	I809...L533	B1...B1	R53...E4	E464...F3	R650...B2	Z700...E1	Z701...E1	
C251...D1	D1	C545...C3	C680...B2	D803...F3	I809...L534	B1...B1	R54...E4	E465...F3	R651...C5	Z702...F2	Z703...F2	
C253...C1	C1	C546...C3	C681...C1	D804...E2	I809...L535	C55...C5	R55...E4	E466...F3	R652...B2	Z704...F2	Z705...F2	
C255...C1	C1	C548...D4	C682...D2	D805...E2	I809...L536	C56...C5	R56...E4	E467...F3	R653...B2	Z706...F2	Z707...F2	
C256...B1	B1	C549...C4	C683...C2	D806...F2	I809...L541	F4...B1	R57...E4	E468...F3	R654...B2	Z708...F2	Z709...F2	
C257...B1	B1	C551...D4	C684...D2	D807...E4	I809...L542	L4...F4	R58...E4	E469...F3	R655...B2	Z710...F2	Z711...F2	
C258...C1	C1	C552...D4	C685...C2	D808...E3	I809...L541	C59...C5	R59...E4	E470...F3	R656...B2	Z712...F2	Z713...F2	
C259...C1	C1	C553...D3	C686...D1	D809...L1	L500...D4	R60...E4	R60...E4	E471...F3	R657...B2	Z714...F2	Z715...F2	
C260...C1	C1	C561...C4	C687...C2	D810...F1	I810...L543	D61...C5	R61...D4	E472...F3	R658...B2	Z716...F2	Z717...F2	
C261...C1	C1	C573...E5	C688...B2	D811...L1	L506...D4	R62...E4	R62...E4	E473...F3	R659...B2	Z718...F2	Z719...F2	
C262...C1	C1	C574...E5	C689...C2	D812...E1	I811...L541	D63...C5	R63...D4	E474...F3	R660...B2	Z720...F2	Z721...F2	
C301...F4	F4	C593...C3	C690...D2	D813...D2	I812...L542	D64...C5	R64...D4	E475...F3	R661...B2	Z722...F2	Z723...F2	
C302...E4	E4	C594...C4	C691...C2	D814...E2	I812...L543	D65...C5	R65...D4	E476...F3	R662...B2	Z724...F2	Z725...F2	
C303...E4	E4	C595...C4	C692...D2	D815...E1	I812...L543	D66...C5	R66...D4	E477...F3	R663...B2	Z726...F2	Z727...F2	
C304...E4	E4	C601...B3	C693...G2	D816...D2	I812...L543	D67...C5	R67...D4	E478...F3	R664...B2	Z728...F2	Z729...F2	
C305...E4	E4	C602...B2	C694...D2	D817...E1	I812...L543	D68...C5	R68...D4	E479...F3	R665...B2	Z730...F2	Z731...F2	
C307...F4	F4	C604...B3	C697...F2	D818...E2	I812...L543	D69...C5	R69...D4	E480...F3	R666...B2	Z732...F2	Z733...F2	
C401...G4	G4	C605...B2	C698...F2	D819...E2	I812...L543	D70...C5	R70...D4	E481...F3	R667...B2	Z734...F2	Z735...F2	
C402...F4	F4	C606...B2	C699...G1	D811...F1	I811...L543	D71...C5	R71...D4	E482...F3	R668...B2	Z736...F2	Z737...F2	

WIRING DIAGRAM



SOUND / PICTURE OK



SVC. SHEET : 3854VA0083A-S