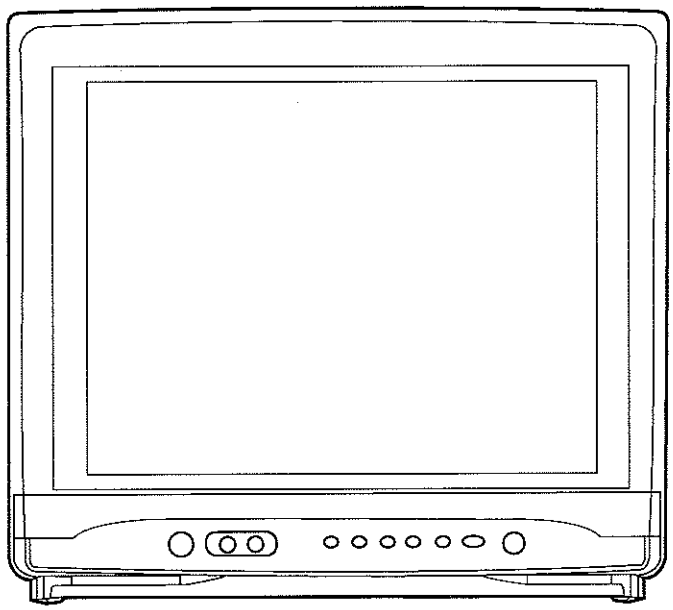
SYLVANIA

SERVICE MANUAL

13" COLOR TELEVISION

SST413



IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all Funai Equipment. The service procedures recommended by Funai and described in this service manual are effective methods of performing service operations. Some of these service special tools should be used when and as recommended.

It is important to note that this service manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Funai could not possibly know, evaluate and advice the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Funai has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Funai must first use all precautions thoroughly so that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

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SPECIFICATIONS (6413CTA)

< TUNER>

ANT. Input ---------- 75ohm Unbal., F type
Reference Level ---------- 20Vp-p (CRT Green Cathode)
Test Input Signal ---------- 400Hz 30% modulation

Description	Condition	Unit	Nominal	Limit
1. Intermediate Freq.	Picture Sound	MHz MHz	45.75 41.25	— —
2. Peak Picture Sens	VHF CATV UHF	dBμV dBμV dBμV	15 15 15	30 30 40
3. AFT Pull In Range (10mV input)	—	MHz	±2.0	±0.7

< DEFLECTION>

Description	Condition	Unit	Nominal	Limit
1. Deflection Freq.	Horizontal Vertical	KHz Hz	15.734 60	— —
2. Linearity	Horizontal Vertical	% %	— —	±15 ±10
3. Over Scan	—	%	10	—
4. High Voltage	—	KV	23	—

< VIDEO & CHROMA>

Description	Condition	Unit	Nominal	Limit
1. Misconvergence	Center Side Corner	mm mm mm	— — —	0.3 1.2 1.5
2. Brightness	APL 100%	Ft-L	60	40
3. Color Temperature	—	°K	9200°K	—
4. Resolution	Horizontal Vertical	Line Line	250 300	— —

<AUDIO>

All items are measured across 8Ω load at speaker output terminal.

Description	Condition	Unit	Nominal	Limit
1. Audio Output Power	10% THD	W	1	0.8
2. Audio Distortion (w/LPF)	500mW	%	2	7
3. Audio Freq. Response	-3dB	Hz	100~11K	—

Note:

Nominal specifications represent the design specifications. All units should be able to approximate these. Some will exceed and some may drop slightly below these specifications. Limit specifications represent the absolute worst condition that still might be considered acceptable. In no case should a unit fail to meet limit specifications.

IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, our products are strictly inspected for recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Safety Precautions for TV Circuit

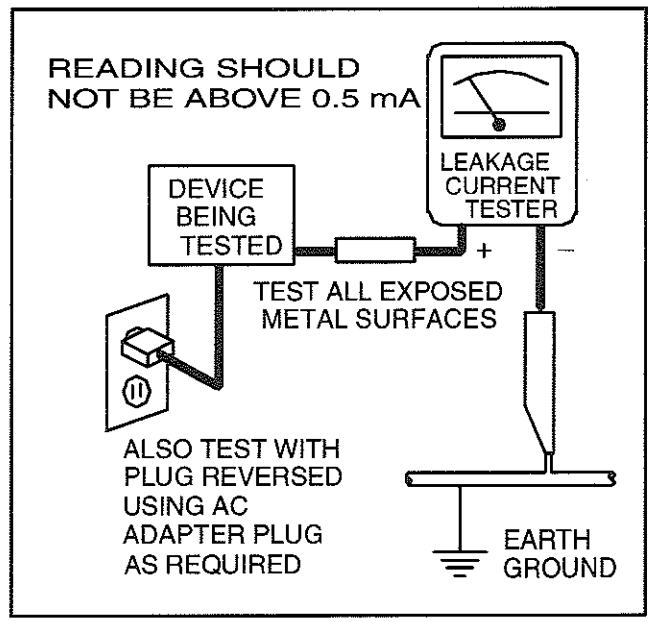
1. **Before returning an instrument to the customer,** always make a safety check of the entire instrument, including, but not limited to, the following items:

a. Be sure that no built-in protective devices are defective and have been defeated during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damage.**

b. Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, (1) spacing between the picture tube and the cabinet mask, (2) excessively wide cabinet ventilation slots, and (3) an improperly fitted and/or incorrectly secured cabinet back cover.

c. Antenna Cold Check - With the instrument AC plug removed from any AC source, connect an electrical jumper across the two AC plug prongs. Place the instrument AC switch in the on position. Connect one lead of an ohmmeter to the AC plug prongs tied together and touch the other ohmmeter lead in turn to each tuner antenna input exposed terminal screw and, if applicable, to the coaxial connector. If the measured resistance is less than 1.0 megohm or greater than 5.2 megohm, an abnormality exists that must be corrected before the instrument is returned to the customer. Repeat this test with the instrument AC switch in the off position.

d. Leakage Current Hot Check - With the instrument completely reassembled, plug the AC line cord directly into a 120V AC outlet. (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 (ANSI) C101.1 Leakage Current for Appliances and Underwriters Laboratories (UL) 1410, (50.7). With the instrument AC switch first in the on position and then in the off position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal cabinet, screw heads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milli-ampere. Reverse the instrument power cord plug in the outlet and repeat the test.



ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER OR BEFORE CONNECTING THE ANTENNA OR ACCESSORIES.

e. X-Radiation and High Voltage Limits - Because the picture tube is the primary potential source of X-radiation in solid-state TV receivers, it is specially constructed to prohibit X-radiation emissions. For continued X-radiation protection, the replacement picture tube must be the same type as the original. Also, because the picture tube shields and mounting hardware perform an X-radiation protection function, they must be correctly in place. High voltage must be measured each time servicing

is performed that involves B+, horizontal deflection or high voltage. Correct operation of the X-radiation protection circuits also must be reconfirmed each time they are serviced. (X-radiation protection circuits also may be called "horizontal disable" or "hold down.") Read and apply the high voltage limits and, if the chassis is so equipped, the X-radiation protection circuit specifications given on instrument labels and in the Product Safety & X-Radiation Warning note on the service data chassis schematic. High voltage is maintained within specified limits by close tolerance safety-related components/adjustments in the high-voltage circuit. If high voltage exceeds specified limits, check each component specified on the chassis schematic and take corrective action.

2. Read and comply with all caution and safety-related notes on or inside the receiver cabinet, on the receiver chassis, or on the picture tube.

3. **Design Alteration Warning -** Do not alter or add to the mechanical or electrical design of this TV receiver. Design alterations and additions, including, but not limited to circuit modifications and the addition of items such as auxiliary audio and/or video output connections, might alter the safety characteristics of this receiver and create a hazard to the user. Any design alterations or additions will void the manufacturer's warranty and may make you, the servicer, responsible for personal injury or property damage resulting therefrom.

4. **Picture Tube Implosion Protection Warning** - The picture tube in this receiver employs integral implosion protection. For continued implosion protection, replace the picture tube only with one of the same type number. Do not remove, install, or otherwise handle the picture tube in any manner without first putting on shatterproof goggles equipped with side shields. People not so equipped must be kept safely away while picture tubes are handled. Keep the picture tube away from your body. Do not handle the picture tube by its neck. Some "in-line" picture tubes are equipped with a permanently attached deflection yoke; because of potential hazard, do not try to remove such "permanently attached" yokes from the picture tube.

5. **Hot Chassis Warning -**

a. Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord and may be safety-serviced without an isolation transformer only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC power source. To confirm that the AC power plug is inserted correctly, with an AC voltmeter, measure between the chassis and a known earth ground. If a voltage reading in excess of 1.0V is obtained, remove and reinsert the AC power plug in the opposite polarity and again measure the voltage potential between the chassis and a known earth ground.

b. Some TV receiver chassis normally have 85V AC(RMS) between chassis and earth ground regardless of the AC plug polarity. This chassis can be safety-serviced only with an isolation transformer inserted in the power line between the receiver and the AC power source, for both personnel and test equipment protection.

c. Some TV receiver 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 insulation material that must not be defeated or altered.

6. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: a. near sharp edges, b. near thermally hot parts-be sure that leads and components do not touch thermally hot parts, c. the AC supply, d. high voltage, and e. antenna wiring. Always inspect in all areas for pinched, out of place, or frayed wiring. Check AC power cord for damage.

7. Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.

8. **Product Safety Notice -** Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc.. Parts that have special safety characteristics are identified by a (⚠) on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The product's safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are strictly inspected to confirm they comply with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Precautions during Servicing

A. Parts identified by the (⚠) symbol are critical for safety.

Replace only with part number specified.

B. In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.

Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

C. Use specified internal wiring. Note especially:

1) Wires covered with PVC tubing

2) Double insulated wires

3) High voltage leads

D. Use specified insulating materials for hazardous live parts. Note especially:

1) Insulation Tape

2) PVC tubing

3) Spacers

4) Insulators for transistors.

E. When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

F. Observe that the wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

G. Check that replaced wires do not contact sharp edged or pointed parts.

H. When a power cord has been replaced, check that 5~6 kg of force in any direction will not loosen it.

I. Also check areas surrounding repaired locations.

J. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

K. Crimp type wire connector

The power transformer uses crimp type connectors which connect the power cord and the primary side of the transformer. When replacing the transformer, follow these steps carefully and precisely to prevent shock hazards.

Replacement procedure

1) Remove the old connector by cutting the wires at a point close to the connector.

Important: Do not re-use a connector (discard it).

2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

4) Use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

L. When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC supply outlet.

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1 : Ratings for selected area

AC Line Voltage	Region	Clearance Distance (d) (d')
110 to 130 V	USA or CANADA	≥ 3.2 mm (0.126 inches)

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

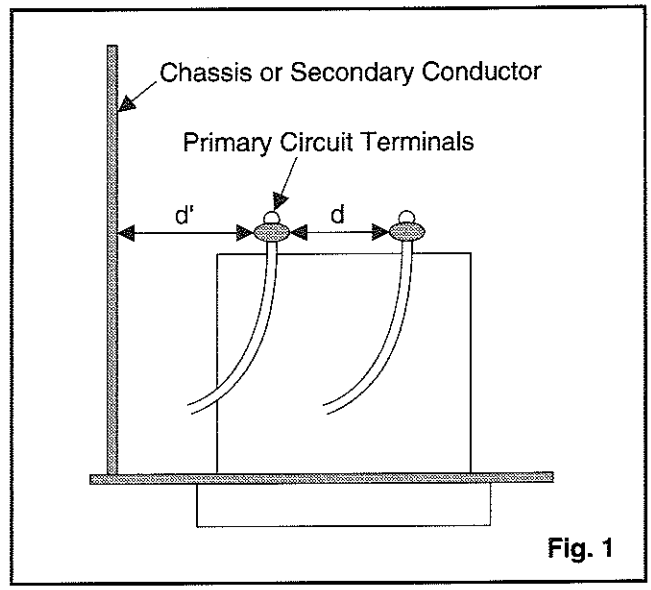


Fig. 1

2. Leakage Current Test

Confirm the specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) is lower than or equal to the specified value in the table below.

Measuring Method : (Power ON)

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See Fig. 2 and following table.

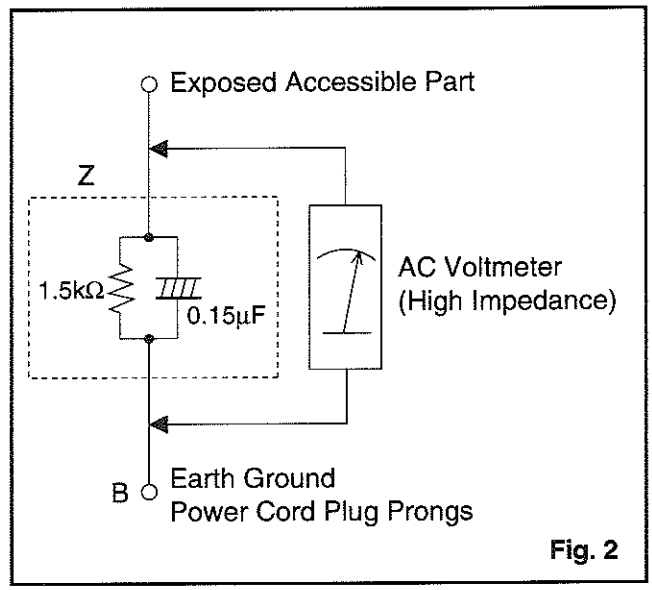


Fig. 2

Table 2 : Leakage current ratings for selected areas

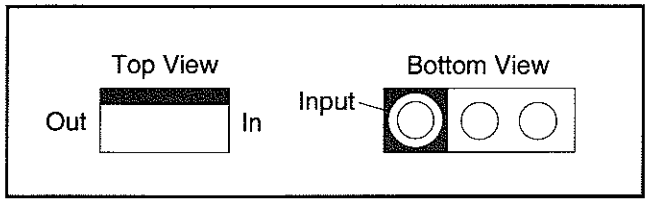
AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (B) to:
110 to 130 V	USA	0.15μF CAP. & 1.5kΩ RES. connected in parallel	i≤0.5mA rms	Exposed accessible parts

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

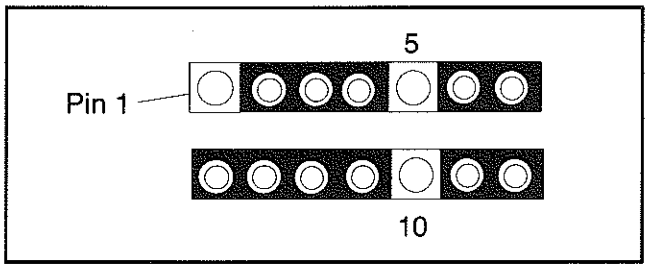
STANDARD NOTES FOR SERVICING

Circuit Board Indications

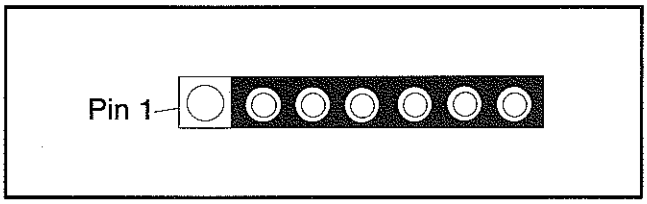
a. The output pin of the 3 pin Regulator ICs is indicated as shown.



b. For other ICs, pin 1 and every fifth pin are indicated as shown.



c. The 1st pin of every male connector is indicated as shown.



How to Remove / Install Flat Pack-IC

1. Removal

With Hot-Air Flat Pack-IC Desoldering Machine:

(1) Prepare the hot-air flat pack-IC desoldering machine, then apply hot air to the Flat Pack-IC (about 5 to 6 seconds). (Fig. S-1-1)

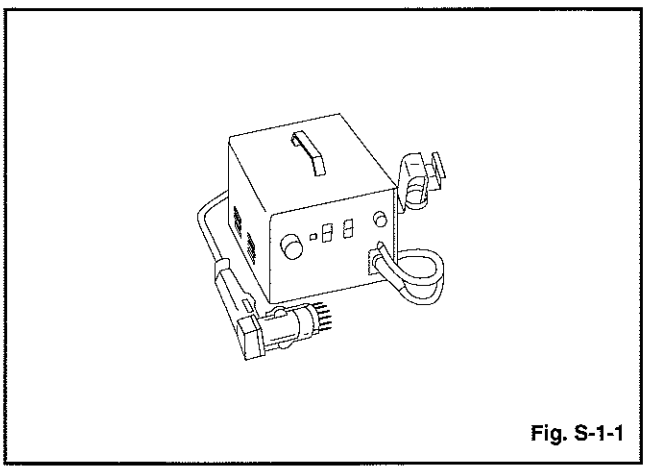


Fig. S-1-1

(2) Remove the flat pack-IC with tweezers while applying the hot air.

(3) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(4) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Caution:

1. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape around the flat pack-IC to protect other parts from damage. (Fig. S-1-2)
2. The flat pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or the solder lands under the IC when removing it.

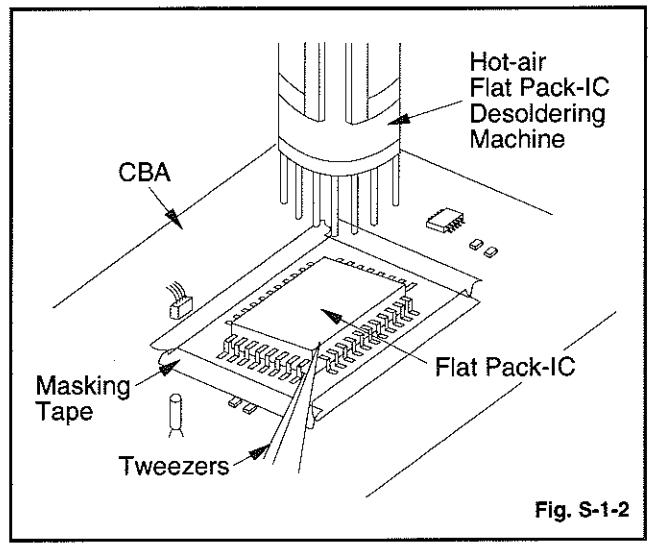


Fig. S-1-2

With Soldering Iron:

(1) Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

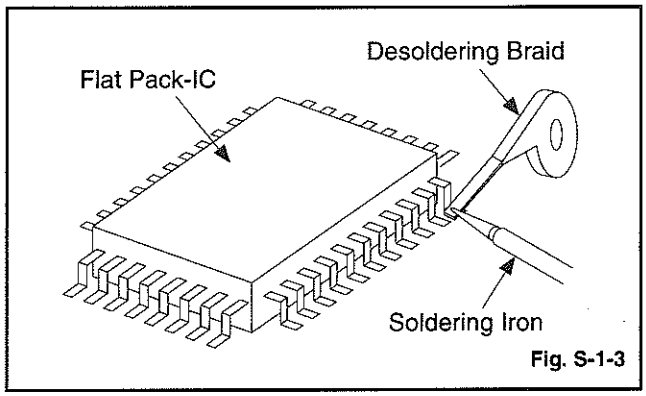


Fig. S-1-3

(2) Lift each lead of the flat pack-IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air desoldering machine. (Fig. S-1-4)

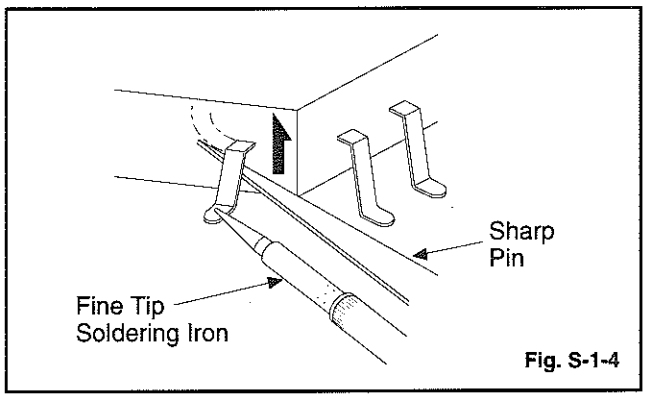


Fig. S-1-4

(3) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(4) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

With Iron Wire:

(1) Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

(2) Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.

(3) While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig. S-1-5.

(4) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(5) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Note:

When using a soldering iron, care must be taken to ensure that the flat pack-IC is not being held by glue. When the flat pack-IC is removed from the CBA, handle it gently because it may be damaged if force is applied.

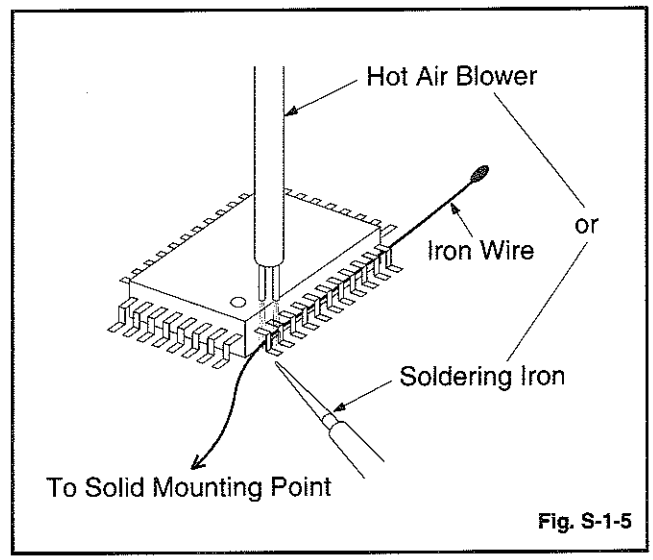


Fig. S-1-5

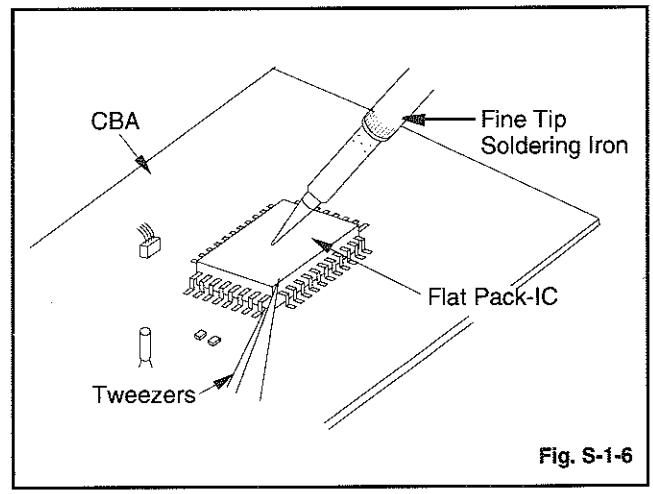


Fig. S-1-6

2. Installation

(1) Using desoldering braid, remove the solder from the foil of each pin of the flat pack-IC on the CBA so you can install a replacement flat pack-IC more easily.

(2) The " ● " mark on the flat pack-IC indicates pin 1. (See Fig. S-1-7.) Be sure this mark matches the 1 on the PCB when positioning for installation. Then pre- solder the four corners of the flat pack-IC. (See Fig. S-1-8.)

(3) Solder all pins of the flat pack-IC. Be sure that none of the pins have solder bridges.

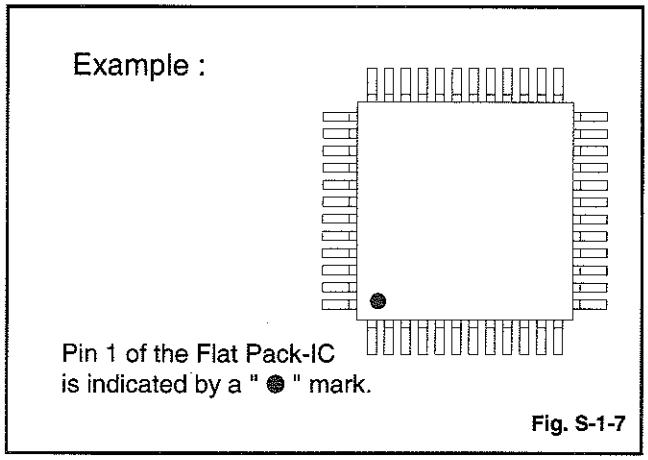


Fig. S-1-7

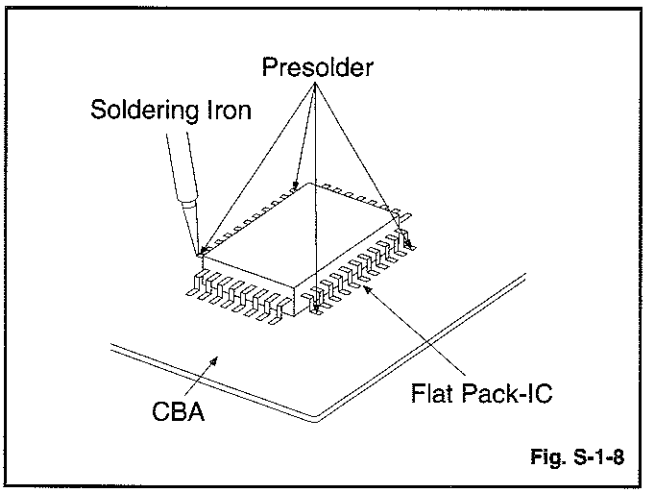


Fig. S-1-8

Instructions for Handling Semiconductors

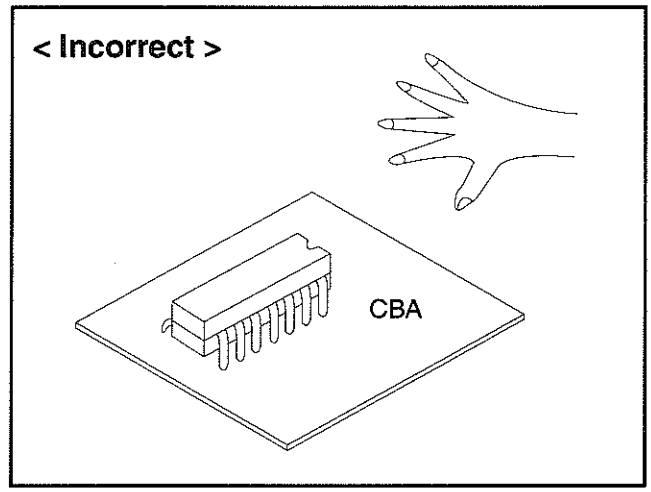
Electrostatic breakdown of the semiconductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

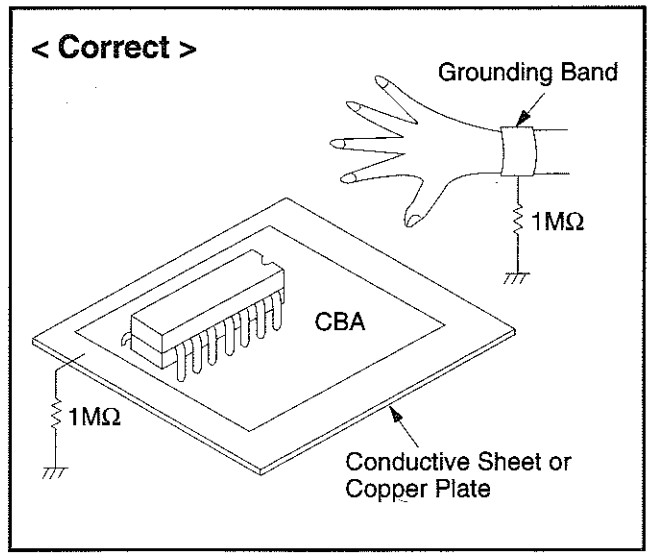
1. Ground for Human Body

Be sure to wear a grounding band (1MΩ) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1MΩ) on the workbench or other surface, where the semiconductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semiconductors with your clothing.





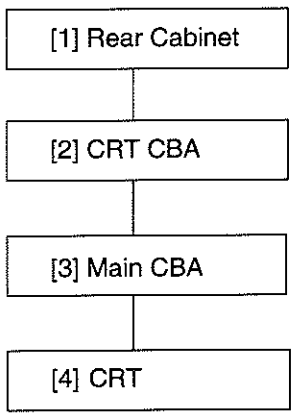
CABINET DISASSEMBLY INSTRUCTIONS

1. Disassembly Flowchart

This flowchart indicates the disassembly steps for the cabinet parts, and the CBA in order to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route and dress the cables as they were.

Caution !

When removing the CRT, be sure to discharge the Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.



2. Disassembly Method

Step/ Loc. No.	Part	Removal		
		Fig. No.	Remove/*unlock/ release/unplug/ unclamp/desolder	Note
[1]	Rear Cabinet	1,2	6(S-1)	1
[2]	CRT CBA	4,5	CN501	2
[3]	Main CBA	3,5	CN571	3
[4]	CRT	4	4(S-2), Anode Cap	4
↓	↓	↓	↓	↓
①	②	③	④	⑤

Note :

①. Order of steps in procedure. When reassembling, follow the steps in reverse order.
These numbers are also used as the Identification (location) No. of parts in figures.

②. Parts to be removed or installed.

③. Fig. No. showing procedure of part location

④. Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.

S=Screw, P=Spring, L=Locking Tab, CN=Connector, *=Unhook, Unlock, Release, Unplug, or Desolder

2(S-2) = two Screws (S-2)

⑤. Refer to the following "Reference Notes in the Table."

Reference Notes in the Table

1. Removal of the Rear Cabinet. Remove screws 6(S-1) then slide the Rear Cabinet backward.
2. Removal of the CRT CBA. Disconnect CN501 then pull the CRT CBA backward.
3. Removal of the Main CBA. Disconnect CN571 on the Main CBA then slide the Main CBA backward.

Caution !

Discharge the Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.

4. Removal of the CRT. Remove screws 4(S-2) and Anode Cap. then slide the CRT backward.

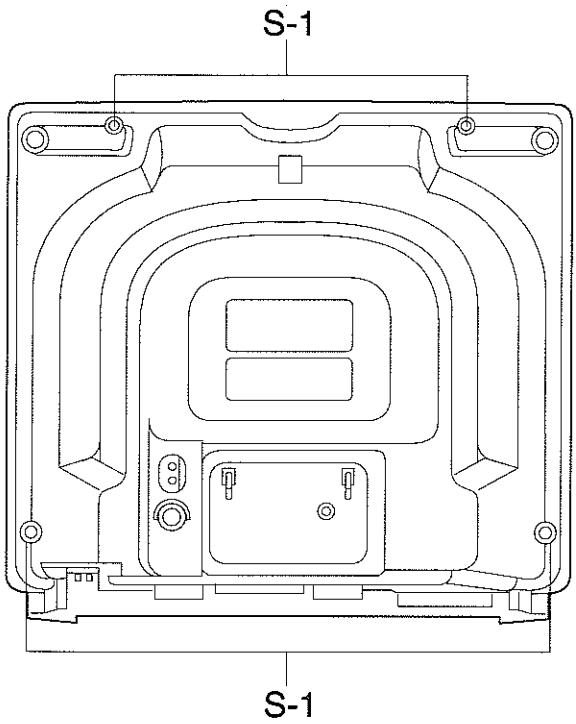


Fig. 1

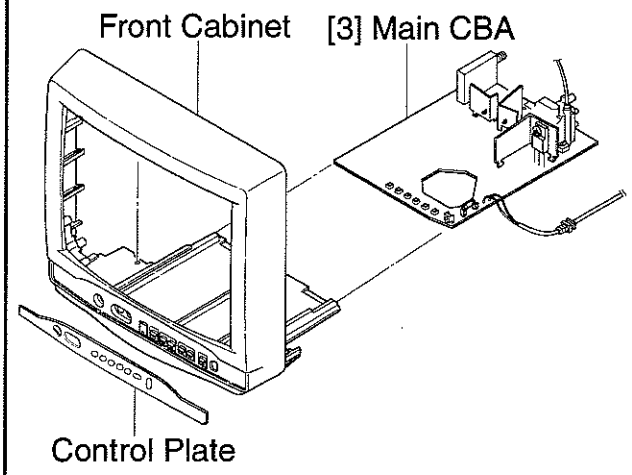


Fig. 3

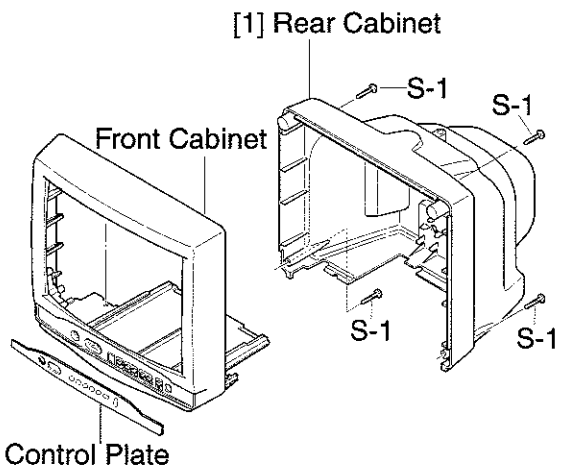


Fig. 2

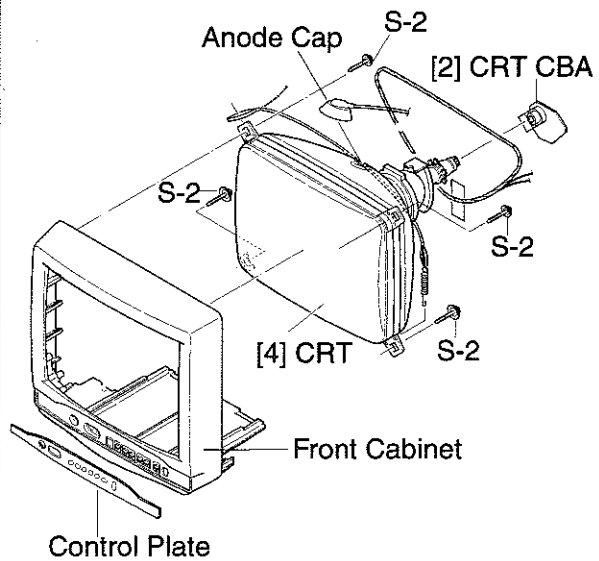


Fig. 4

TV Cable Wiring Diagram

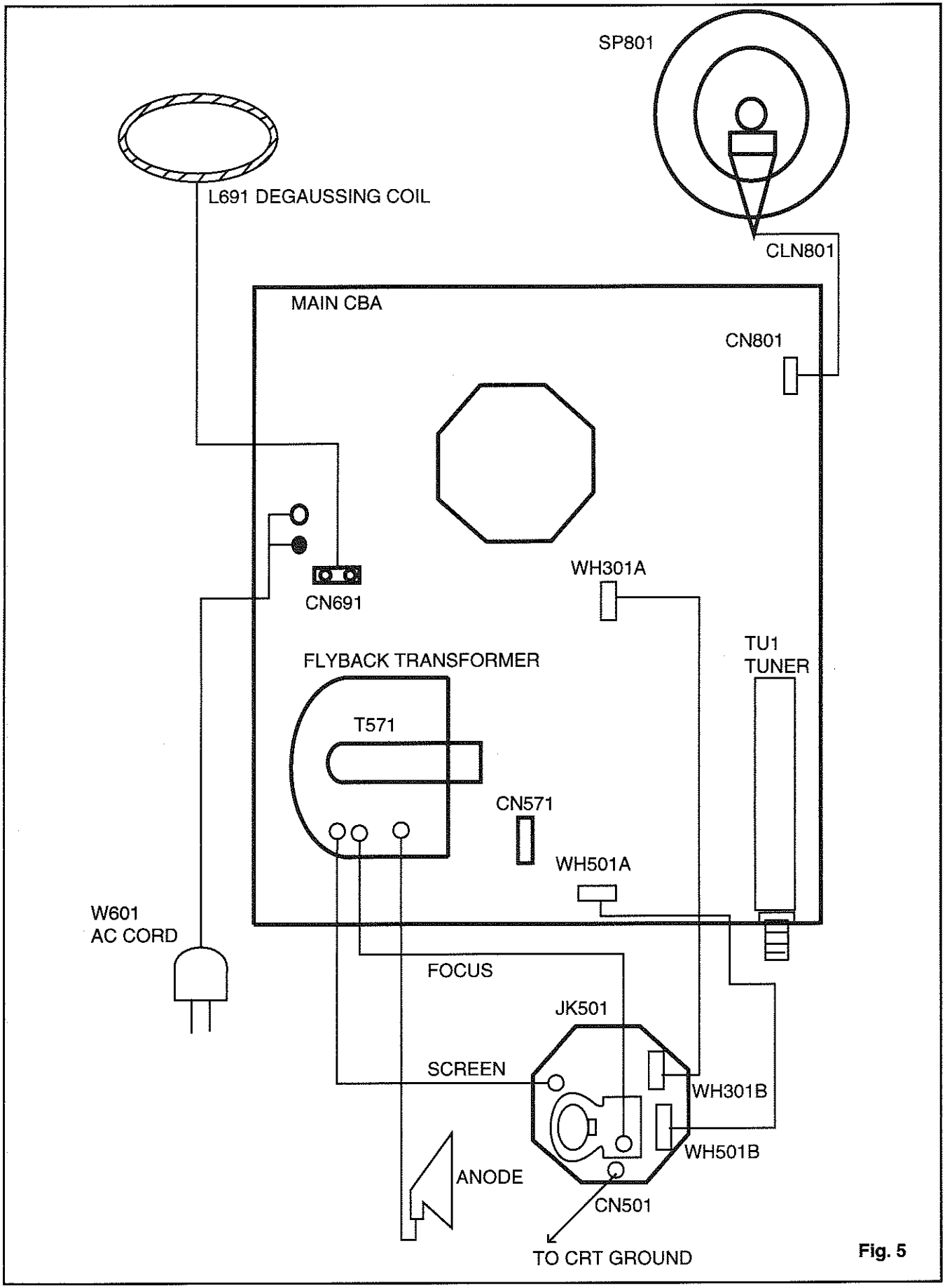


Fig. 5

ELECTRICAL ADJUSTMENT INSTRUCTIONS

General Note:
"CBA" is abbreviation for " Circuit Board Assembly".

NOTE:

Electrical adjustments are required after replacing circuit components and certain mechanical parts.

It is important to perform these adjustments only after all repairs and replacements have been completed.

Also, do not attempt these adjustments unless the proper equipment is available.

Test Equipment Required

1. NTSC Pattern Generator (Color Bar W/White Window, Red Color, Dot Pattern, Gray Scale, Monoscope, Multi-Burst)
2. DC Voltmeter
3. Oscilloscope: Dual-trace with 10:1 probe,
   V-Range: 0.001~50V/Div,
   F-Range: DC~AC-60MHz
4. Plastic Tip Driver
5. Remote control unit: Part No. N0105UD
6. DC power supply 13.2V/5A

How to make Service remote control unit:

1. Prepare normal remote control unit. (Part No. N0105UD) Remove 3 Screws from the back lid. (Fig. 1-1)
2. Add J1 (Jumper Wire) to the remote control CBA. (Fig. 1-2)

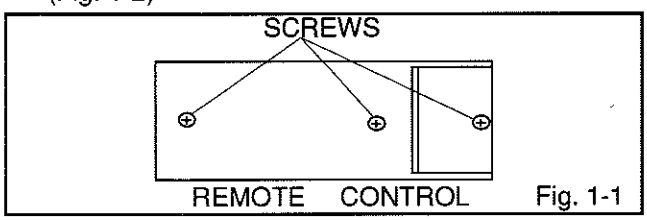


Fig. 1-1

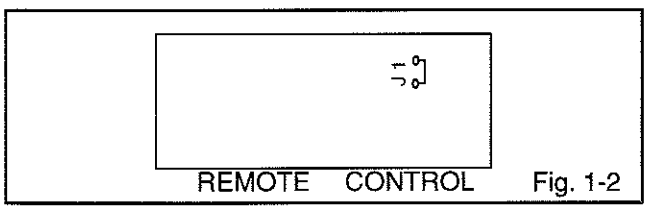


Fig. 1-2

How to set up the service mode:

Service mode:

1. Use the service remote control unit.
2. Turn the power on. (Use main power on the TV unit.)
3. Press " SLEEP " button on the service remote control unit. (Version of micro computer will display on the CRT. (Ex: 174-0.10, 175-0.17 or 189-0.19)

1. DC 105V Adjustment

Purpose: To obtain correct operation.

Symptom of Misadjustment: The picture is dark and the unit does not operate correctly.

Test Point	Adj. Point	Mode	Input
J305 (+105V) J300 (GND)	VR661	---	---
Tape	**M. EQ.**	**Spec.**	
---	DC Voltmeter	+105±0.5V DC.	

Note: J300, J305(GND), VR661 --- Main CBA

1. Connect DC Volt Meter to J305 and J300(GND).
2. Adjust VR661 so that the voltage of J305 becomes +105±0.5V DC.

2. Black Strech Control Adjustment

Purpose: To show the fine black color.

Symptom of Misadjustment: Black color will not appear correctly.

Note: Use Service remote control unit.

1. Enter the Service mode. (See page 5-1)
2. Press " 6 " button on the Service remote control unit.
3. Press " CH ▲ / ▼ " buttons on the Service remote control unit so that display will change " OFF ", " 1 ", " 2 " and " 3 ". Then choose " OFF ".

If the version of micro computer is 175-0.17 or 189-0.19 perform following steps as an additional adjustment.

1. Enter the Service mode. (See page 5-1)
2. Press " 6 " button on the Service remote control unit.
3. Press " CH ▲ / ▼ " buttons on the Service remote control unit so that display will change " B-S*1", " B-S*2 ". Select " B-S*2 " and choose " 0 ".
4. Turn the power off and on again.
   (Main power button on the TV unit.)

3-1. Setting for OSD D/A, V-TINT, 9V and STEREO data Values

If the version of micro computer is " 174-0.10 " perform the following steps below.

General

1. Enter the Service mode. (See page 5-1)
2. Press " VOL ▲ " button on the Service remote control unit. Display changes " OSD D/A ", " C/D ", " V-TINT ", " VCO ", " 9V " and " STEREO " cyclically when " VOL ▲ " button is pressed.

OSD D/A

1. Press " VOL ▲ " button on the Service remote control unit. Then select OSD D/A display.
2. Press " CH ▲ / ▼ " buttons on the Service remote control unit. Then choose OSD D/A=ANA.

V-TINT

1. Press " VOL ▲ " button on the Service remote control unit. Then select V-TINT display.
2. Press " CH ▲ / ▼ " buttons on the Service remote control so that the value of V-TINT becomes 61.

9V

1. Press " VOL ▲ " button on the Service remote control unit. Then select 9V display.
2. Press " CH ▲ / ▼ " buttons on the Service remote control unit. Then choose 9V=OFF.

STEREO

1. Press " VOL ▲ " button on the Service remote control unit. Then select STEREO display.
2. Press " CH ▲ / ▼ " buttons on the Service remote control unit. Then choose STEREO=OFF.

Note: There is no need to adjust **C/D** and **VCO** data values at this moment.

3-2. Setting for OSD D/A, AFC 2, 9V and STEREO data Values

If the version of micro computer is " 175-0.17 or 189-0.19 " perform the following steps.

General

1. Enter the Service mode. (See page 5-1)
2. Press " VOL ▲ " button on the Service remote control unit. Display changes " OSD D/A ", " C/D ", " AFC 2 ", " VCO ", " 9V " and " STEREO " cyclically when " VOL ▲ " button is pressed.

OSD D/A

1. Press " VOL ▲ " button on the Service remote control unit. Then select OSD D/A display.
2. Press " CH ▲ / ▼ " buttons on the Service remote control unit. Then choose OSD D/A=ANA.

AFC 2

1. Press " VOL ▲ " button on the Service remote control unit. Then select AFC 2 display.
2. Press " CH ▲ / ▼ " buttons on the Service remote control. Then choose AFC 2 = " NOR ".

9V

1. Press " VOL ▲ " button on the Service remote control unit. Then select 9V display.
2. Press " CH ▲ / ▼ " buttons on the Service remote control unit. Then choose 9V=OFF.

STEREO

1. Press " VOL ▲ " button on the Service remote control unit. Then select STEREO display.
2. Press " CH ▲ / ▼ " buttons on the Service remote control unit. Then choose STEREO=OFF.

Note: There is no need to adjust **C/D** and **VCO** data values at this moment.

3-3. Setting for CONTRAST, COLOR and TINT data Values

General

1. Enter the Service mode. (See page 5 -1)
2. Press " MENU " button on the Service remote control unit. Display changes " BRIGHT ", " CONTRAST ", " COLOR " and " TINT " cyclically when " MENU " button is pressed.

CONTRAST (CNT)

1. Press " MENU " button on the Service remote control unit. Then select " CONTRAST " (CNT) display.
2. Press " CH ▲ / ▼ " buttons on the Service remote control unit so that the value of " CONTRAST " (CNT) becomes 92.

COLOR (CLR)

1. Press " MENU " button on the Service remote control unit. Then select " COLOR " (CLR) display.
2. Press " CH ▲ / ▼ " buttons on the Service remote control unit so that the value of " COLOR " (CLR) becomes 58.

TINT (TNT)

1. Press " MENU " button on the Service remote control unit. Then select " TINT " (TNT) display.
2. Press " CH ▲ / ▼ " buttons on the Service remote control unit so that the value of " TINT " (TNT) becomes 61.

The following 2 adjustments are only required if the version of micro computer is 175-0.17.

V-TINT (V-TNT)

1. Press " MENU " button on the Service remote control unit. Then select " V-TINT " (V-TNT) display.

2. Press " CH ▲ / ▼ " buttons on the Service remote control unit so that the value of " V-TINT " (V-TNT) becomes 61.

SHARP (SHARP)

1. Press " MENU " button on the Service remote control unit. Then select " SHARP " (SHARP) display.
2. Press " CH ▲ / ▼ " buttons on the Service remote control unit and select " SHARP OFF ".

Note: There is no need to adjust **BRIGHT**data value at this moment.

4. H f_O Adjustment

Purpose: To get correct horizontal frequency.

Symptom of Misadjustment: If H f_O adjustment is in correct, sqew distortion will appear on the screen.

Test Point	Adj. Point	Mode	Input
J303	CH ▲ / ▼ button ["H-ADJ"] MODE		----
Tape	**M. EQ.**	**Spec.**	
----	Frequency Counter	15.734 kHz±300Hz	

Note: J303 --- Main CBA

Use Service remote control unit.

1. Connect Frequency Counter to J303 and ground.
2. Set the unit to the VIDEO mode which is located before CH2 and no input is necessary. Enter the Service mode. (See Page 5-1)
3. Operate the unit for at least 20 minutes.
4. Press " 2 " button on the Service remote control unit and select H-ADJ Mode. (By pressing " 2 " button the display will change from TV AGC to H-ADJ)
5. Press " CH ▲ / ▼ " button on the Service remote control unit so that the display will change " 0 " ~ " 7 ". At this moment, Choose the display from " 0 " ~ " 7 " when the Frequency Counter shows 15.734kHz±300Hz or closer.
6. Turn the power off and on again. (Main Power button on the TV unit.)

5. VCO Adjustment

Purpose: To operate VCO correctly.

Symptom of Misadjustment: VCO does not work correctly and/or synchronization is faulty.

Test Point	Adj. Point	Mode	Input
---	---		No signal
Tape	**M. EQ.**	**Spec.**	
---	---	Green display	

Note: Use service remote control unit.

1. Disconnect the RF input and set the unit to Channel 4.
2. Enter the Service mode. (See Page 5-1)
3. Press " 3 " button on the Service remote control unit. The Auto VCO adjustment is started.
4. If the display color is changed from red to green, this adjustment is done.
5. Turn the Power off and on again. (Main power button on the TV unit.)

6. AGC Adjustment

Purpose: Set AGC (Auto Gain Control) Level.

Symptom of Misadjustment: AGC does not synchronize correctly when RF input level is too weak and picture distortion may occur if it is too strong.

Test Point	Adj. Point	Mode	Input
J302	CH ▲ / ▼ buttons	RF	Color Bar 67.25MHz 60dBμV
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator DC Volt Meter	+2.3±0.1VDC or +2.5±0.1VDC by Tuner Type.	

Note: J302 --- Main CBA

Use Service remote control unit.

1. Enter the Service mode. (See Page 5-1) Then press number " 2 " button on the Service remote control unit.
2. Receive the Color Bar signal for channel 4 (67.25MHz). (RF Input Level: 60dBμV)
3. If the tuner type number is TEDH9X203A, press the " CH ▲ / ▼ " buttons so that the voltage of J302 becomes +2.3±0.1V DC.
4. If the tuner type number is B8055AR, press the " CH ▲ / ▼ " buttons so that the voltage of J302 becomes +2.5±0.1V DC.
5. Turn the Power off and on again. (Main power button on the TV unit.)

7. Black Level Adjustment

Purpose: Set Sub-bright Level

Symptom of Misadjustment: If Sub-brightness is incorrect, Proper brightness can not be obtained by adjusting the Bright ness Control.

Note: J502, J501 (GND) --- CRT CBA

1. Enter the Service mode. (See page 5-1).
2. Press " MENU " button on the Service remote control unit and select " BRT " mode. (Display changes " BRT ", " CNT ", " CLR " and " TNT " cyclically when MENU button is pressed).
3. Press " CH ▲ / ▼ " buttons on the Service remote control unit so that the value of " BRT " becomes 128.
4. Turn the power off and on again. (Main power button on the TV unit.)

8. C-Trap Adjustment

Purpose: To get minimum leakage of the color signal carrier.

Symptom of Misadjustment: If C- Trap Adjustment is incorrect, stripes will appears on the screen.

Test Point	Adj. Point	Mode	Input
J502 (Blue) J501 (GND)	CH ▲ / ▼ buttons	RF	Color Bar
Tape	**M. EQ.**	**Spec.**	
----	Oscilloscope	----	

Note: J502, J501 --- CRT CBA

Use Service remote control unit.

1. Connect Oscilloscope to J502 and J501 (GND) .
2. Enter the Service mode. (See Page 5-1) Receive color bar signal from RF Input.
3. Press " 0 " button on the Service remote control unit and select C-TRP Mode.
4. Press " CH ▲ / ▼ " buttons on the Service remote control unit so that the display will change " 0 ", " 1 ", " 2 " and " 3 ". Choose display " 0 ", " 1 ", " 2 " or " 3 " when B-Out (3.58MHz) value becomes minimum on the oscilloscope reading.
5. Turn the power off and on again. (Main power button on the TV unit.)

9. V. Size Adjustment

Purpose: To obtain correct vertical width of screen image.

Symptom of Misadjustment: If V. Size is incorrect, vertical size of image on the screen may not be properly displayed.

Test Point	Adj. Point	Mode	Input
---	Screen Control CH ▲ / ▼ buttons [V-S] Mode	RF	Monoscope
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	90±5%	

Note: Use service remote control unit.

1. Operate the unit for at least 20 minutes.
2. Enter the Service mode. (See page 5-1)
3. Receive the Monoscope Pattern.
4. Press " 9 " button on the Service remote control unit and select " V-S " mode. (Display changes " V-S " and " V-P " cyclically when " 9 " button is pressed).
5. Press " CH ▲ / ▼ " buttons on the Service remote control unit so that the monoscope pattern becomes 90±5% of display size and the circle is round.
6. Turn the power off and on again. (Main power button on the TV unit.)

10. V. Position Adjustment

Purpose: To obtain correct vertical height of screen image.

Symptom of misadjustment: If V. Position is incorrect, vertical height of image on the screen may not be properly displayed.

Test Point	Adj. Point	Mode	Input
---	Screen Control CH ▲ / ▼ buttons [V-P] Mode	RF	Monoscope
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	90±5%	

Note: Use Service remote control unit

1. Operate the unit for at least 20 minutes.
2. Enter the Service Mode. (See page 5-1)
3. Receive the Monoscope Pattern.
4. Press " 9 " button on the Service remote control unit and select " V-P " mode. (Display change " V-S " and " V-P " cyclically when " 9 " button is pressed).
5. Press " CH ▲ / ▼ " buttons on the Service remote control unit so that the top and bottom of the monoscope pattern become equal to each other.
6. Turn the Power off and on again. (Main power button on the TV unit.)

11. H. Position Adjustment

Purpose: To obtain correct horizontal position of screen image.

Symptom of Misadjustment: If H. Position is incorrect, horizontal position of image on the screen may not be properly displayed.

Test Point	Adj. Point	Mode	Input
---	Screen Control CH ▲ / ▼ buttons [H-P] Mode	RF	Monoscope
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	90±5%	

Note: Use Service remote control unit

1. Operate the unit for at least 20 minutes.
2. Enter the Service mode. (See page 5-1)
3. Receive the Monoscope Pattern.
4. Press " 8 " button on the remote control unit and select " H-P " mode.
5. Press " CH ▲ / ▼ " buttons on the Service remote control unit so that the monoscope pattern becomes 90±5% of display size and the circle is round.
6. Turn the power off and on again. (Main power button on the TV unit.)

12. Cut-off Adjustment

Purpose: To adjust the beam current of R, G, B, and screen voltage.

Symptom of Misadjustment: White color may be reddish, greenish or bluish.

Test Point	Adj. Point	Mode	Input
---	Screen-Control CH ▲ / ▼ buttons	RF	Black Raster
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	See Reference Notes below.	

Figure

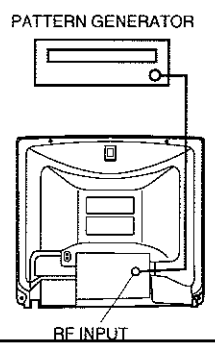


Fig. 2

Note: Screen Control FBT --- Main CBA

F.B.T= Fly Back Transformer

Use Service remote control unit

1. Degauss the CRT and allow CRT to operate for 20 minutes before starting the alignment.
2. Input the Black Raster Signal from RF Input.
3. Enter the Service mode. (See page 5-1)
4. Press " VOL ▲ " button on the Service remote control unit and select " C/D " mode. (Display changes " OSD D/A ", " C/D ", " V-TINT ", "VCO ", " 9V " and " STEREO " cyclically when " VOL ▲ " button is pressed.) then press " 1 ". The display will momentarily show " CUT OFF R " (R= Red). Now there should be a horizontal line across the center of the picture tube. If needed gradually turn the screen control on the flyback, clockwise until the horizontal line appears. Adjust the Red Cut off by pressing the " CH ▲ / ▼ " buttons. Proceed to Step 5 when the Red Cut off adjustment is done.
5. Press the " 2 "button. The display will momentarily show " CUT OFF G " (G=Green). Adjust the Green Cut off by pressing the " CH ▲ / ▼ " buttons. Proceed to step 6 when the Green Cut off adjustment is done.
6. Press the " 3 " button. The display will momentarily show " CUT OFF B " (B=Blue). Adjust the Blue cut off by pressing the " CH ▲ / ▼ " buttons. When done with steps 4, 5 and 6 the horizontal line should be pure white. If not, then attempt the Cut off adjustment again.

13. White Balance Adjustment

Purpose: To mix red, green and blue beams correctly for pure white.

Symptom of Misadjustment: White becomes bluish or reddish.

Test Point	Adj. Point	Mode	Input
Screen	CH ▲ / ▼ buttons	RF	White Raster (APL 100%)
Tape	**M. EQ.**	**Spec.**	
	Pattern Generator, Color analyzer	See below	

Figure

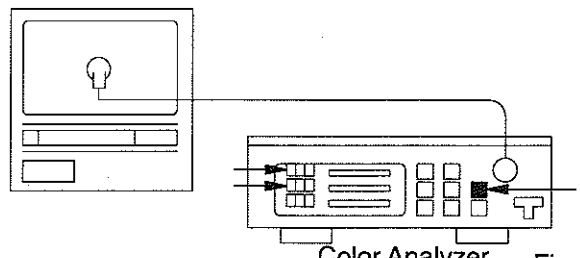


Fig. 3

Note: Use Service remote control unit

1. Operate the unit more than 20 minutes.

2. Face the unit to east. Degauss the CRT using Degaussing Coil.
3. Input the White Raster (APL 100%).
4. Set the color analyzer to the CHROMA mode and after zero point calibration, bring the optical receptor to the center on the tube surface (CRT).
5. Enter the Service mode . Press " VOL ▲ " button on the Service remote control unit and select " C/D " mode. (Display changes " OSD D/A ", " C/D ", " V-TINT ", "VCO ", " 9V " and " STEREO " cyclically when " VOL ▲ " button is pressed.) then Press No. 8 button on the Service remote control Unit.
6. Press No. 4 button on the service remote control unit for Red adjustment. Press No. 5 button on the Service remote control unit for Blue adjustment.
7. In each color mode, Press " CH ▲ / ▼ " button to adjust the values of color.
8. Adjusting Red and Blue color so that the tempreture becomes 9200°K (x : 286 / y : 294) ±3%.
9. At this time, Re-check that Horizontal line is white. If not, Re-adjust Cut-off Adjustment until the Horizontal Line becomes pure white.
10. Turn off and on again to return to normal mode. Receive APL 100% white signal and Check Chroma temperature become 9200°K (x : 286 / y : 294) ±3%.

Note: Confirm that Cut Off Adj. is correct after this adjustment, and attempt Cut Off Adj. if needed.

14. Sub-Brightness Adjustment

Purpose: To get proper brightness.

Symptom of Misadjustment: If Sub-Brightness is incorrect, proper brightness cannot be obtained by adjusting the Brightness Control.

Test Point	Adj. Point	Mode	Input
---	CH ▲ / ▼ buttons	RF	IQW
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	See below	
Figure			

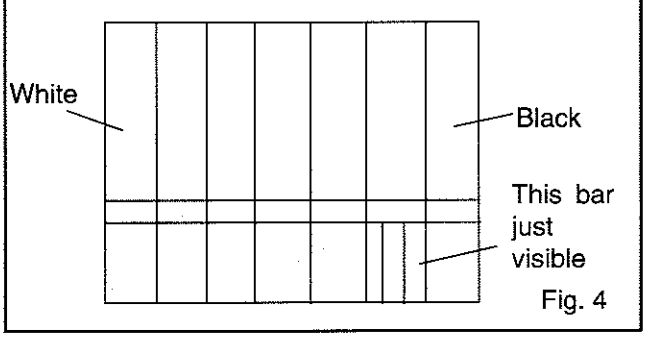


Fig. 4

Note: IQW Setup level --- 7.5 IRE
Use Service remote control unit

1. Enter the Service mode. (See page 5-1) Then input IQW signal from RF Input.
2. Press " MENU " button on the Service remote control unit and Select " BRT " mode. (Display changes " BRT ", " CNT ", " CLR ", and " TNT " cyclically when MENU button is pressed). Press " CH ▲ / ▼ " buttons so that the bar is just visible (See above figure).
3. Turn the power off and on again. (Main power button on the TV unit.)

15. Focus Adjustment

Purpose: Set the optimum Focus.

Symptom of Misadjustment: If Focus Adjustment is incorrect, blurred images are shown on the display.

Test Point	Adj. Point	Mode	Input
---	Focus Control	---	Monoscope
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	See below.	

Note: Focus VR (FBT) — Main CBA FBT = Fly Back Transformer

1. Operate the unit more than 30 minutes
2. Face the unit to the East and degauss the CRT using a Degaussing Coil.
3. Input the Monoscope Pattern.
4. Adjust the Focus Control on the FBT to obtain a clear picture.

The following 2 adjustments normally are not attempted in the field. They should be done only when replacing the CRT then adjust as a preparation.

16. Purity Adjustment

Purpose: To obtain pure color.

Symptom of Misadjustment: If Color Purity Adjustment is incorrect, large areas of color may not be properly displayed.

Test Point	Adj. Point	Mode	Input
---	Deflection Yoke Purity Magnet	---	Red Color
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	See below.	
Figure			

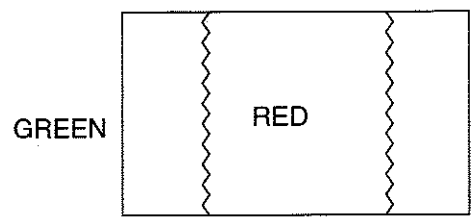


Fig. 5

1. Set the unit facing east.
2. Operate the unit for over 30 minutes before adjusting.
3. Fully degauss the unit using an external degaussing coil.
4. Loosen the screw on the Deflection Yoke Clamper and pull the Deflection Yoke back away from the screen. (See Fig. 6)
5. Loosen the Ring Lock and adjust the Purity Magnets so that a red field is obtained at the center of the screen. Tighten Ring Lock. (See Fig. 5,6)
6. Slowly push the Deflection Yoke toward bell of CRT and set it where a uniform red field is obtained.
7. Tighten the clamp screw on the Deflection Yoke.

17. Convergence Adjustment

Purpose: To obtain proper convergence of red, green and blue beams.

Symptom of Misadjustment: If Convergence Adjustment is incorrect, the edge of white letters may have color edges.

Test Point	Adj. Point	Mode	Input
---	C.P. Magnet (RB), C.P. Magnet (RB-G), Deflection Yoke	---	Dot Pattern or Crosshatch
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	See below.	

Figures

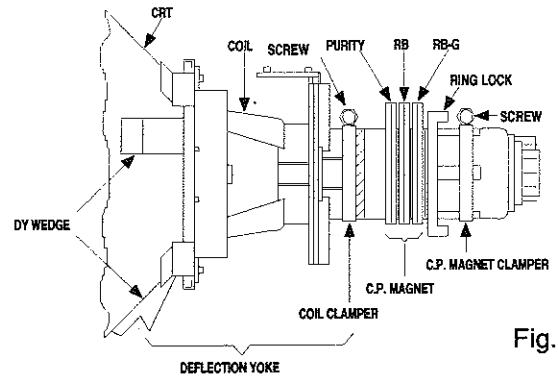


Fig. 6

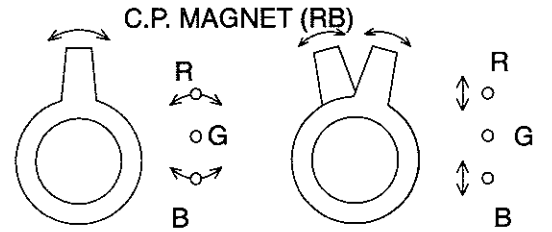


Fig. 7

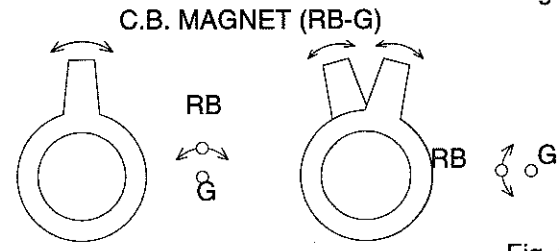
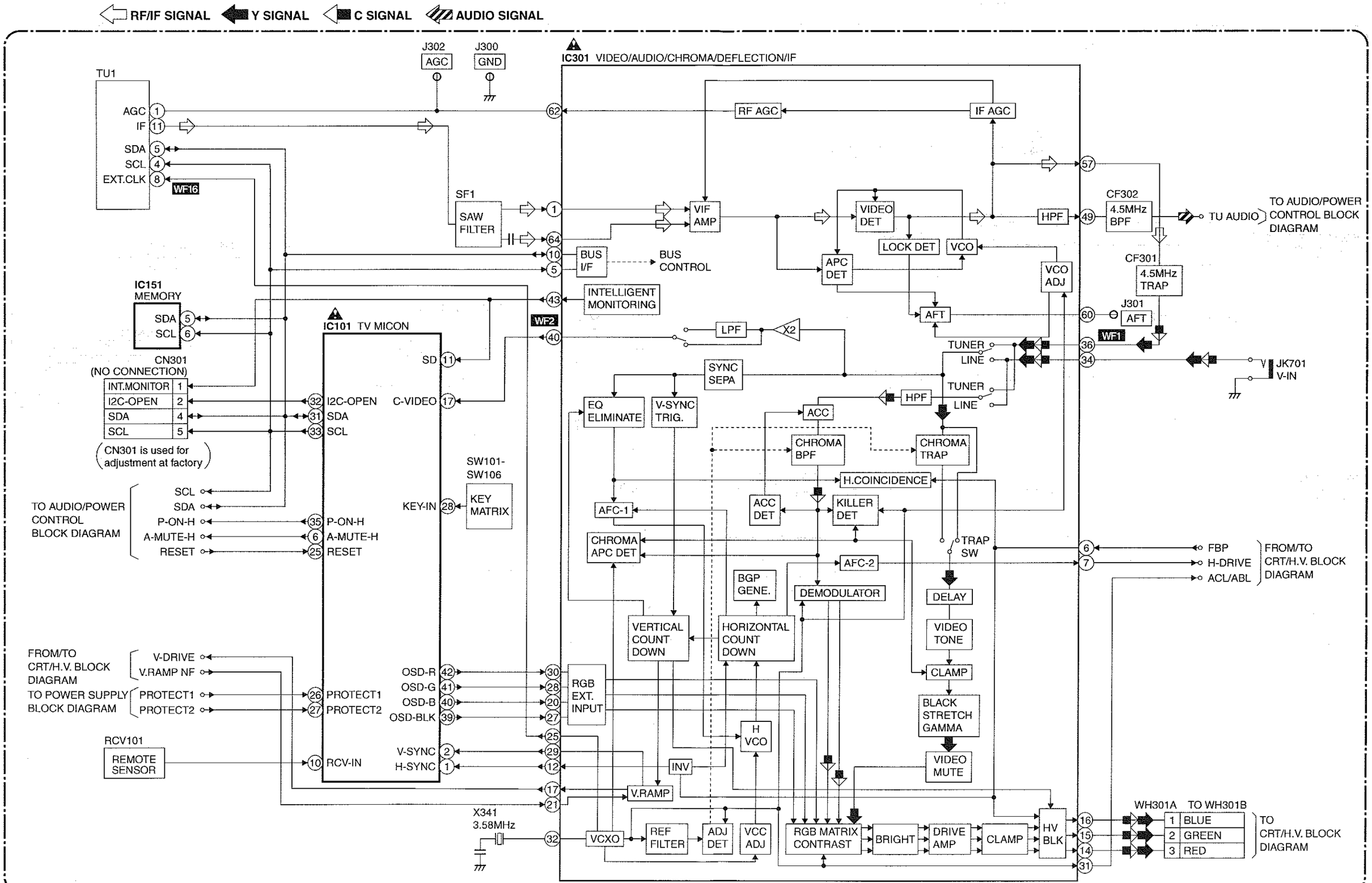


Fig. 8

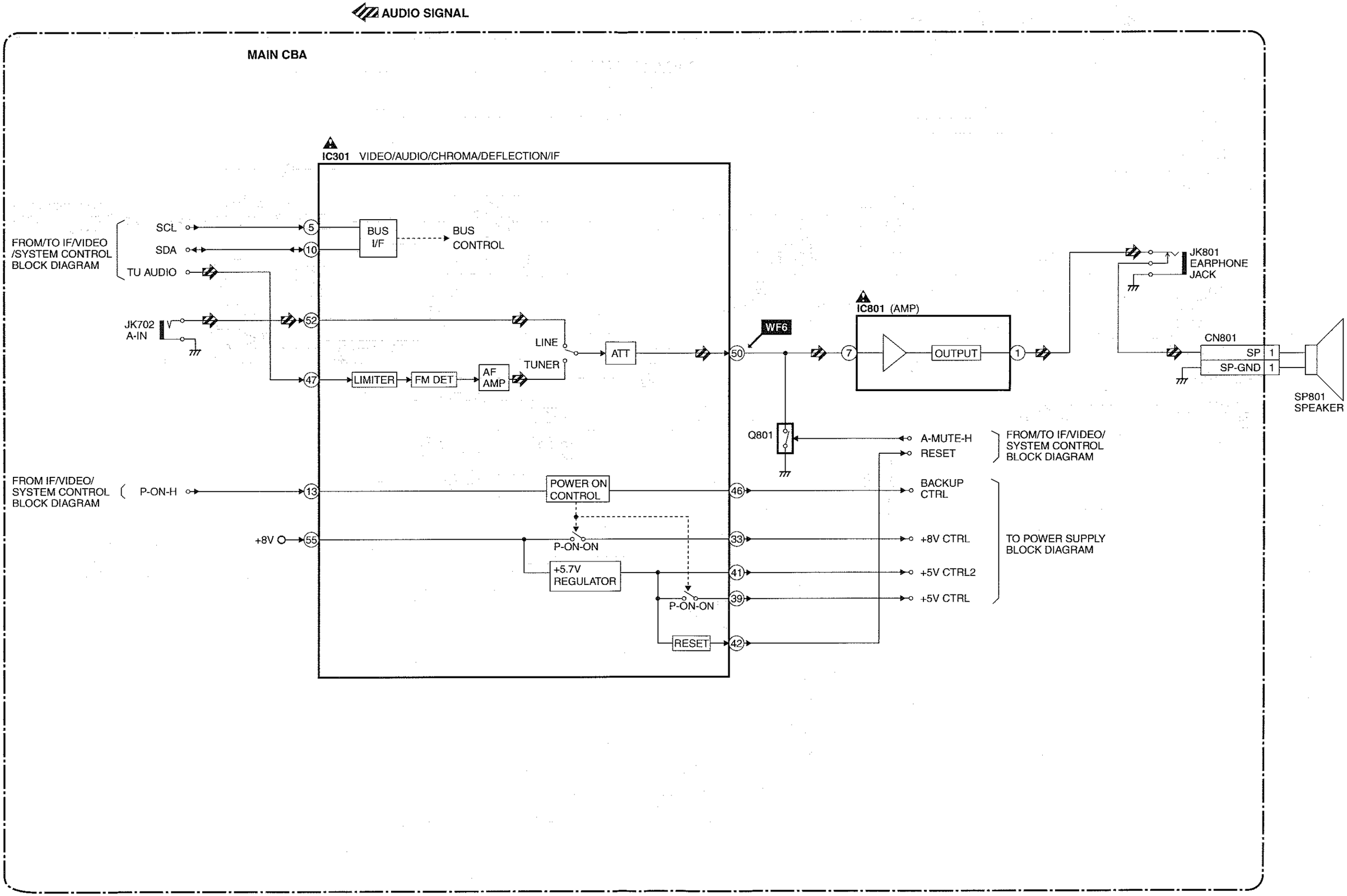
1. Loosen the Ring Lock and align red with blue dots or Crosshatch at the center of the screen by rotating (RB) C.P. Magnets. (See Fig. 7)
2. Align red / blue with green dots at the center of the screen by rotating (RB-G) C.P. Magnet. (See Fig. 8)
3. Fix the C.P. Magnets by tightening the Ring Lock.
4. Remove the DY Wedges and slightly tilt the Deflection Yoke horizontally and vertically to obtain the best overall convergence.
5. Fix the Deflection Yoke by carefully inserting the DY Wedges between CRT and Deflection Yoke.

BLOCK DIAGRAMS

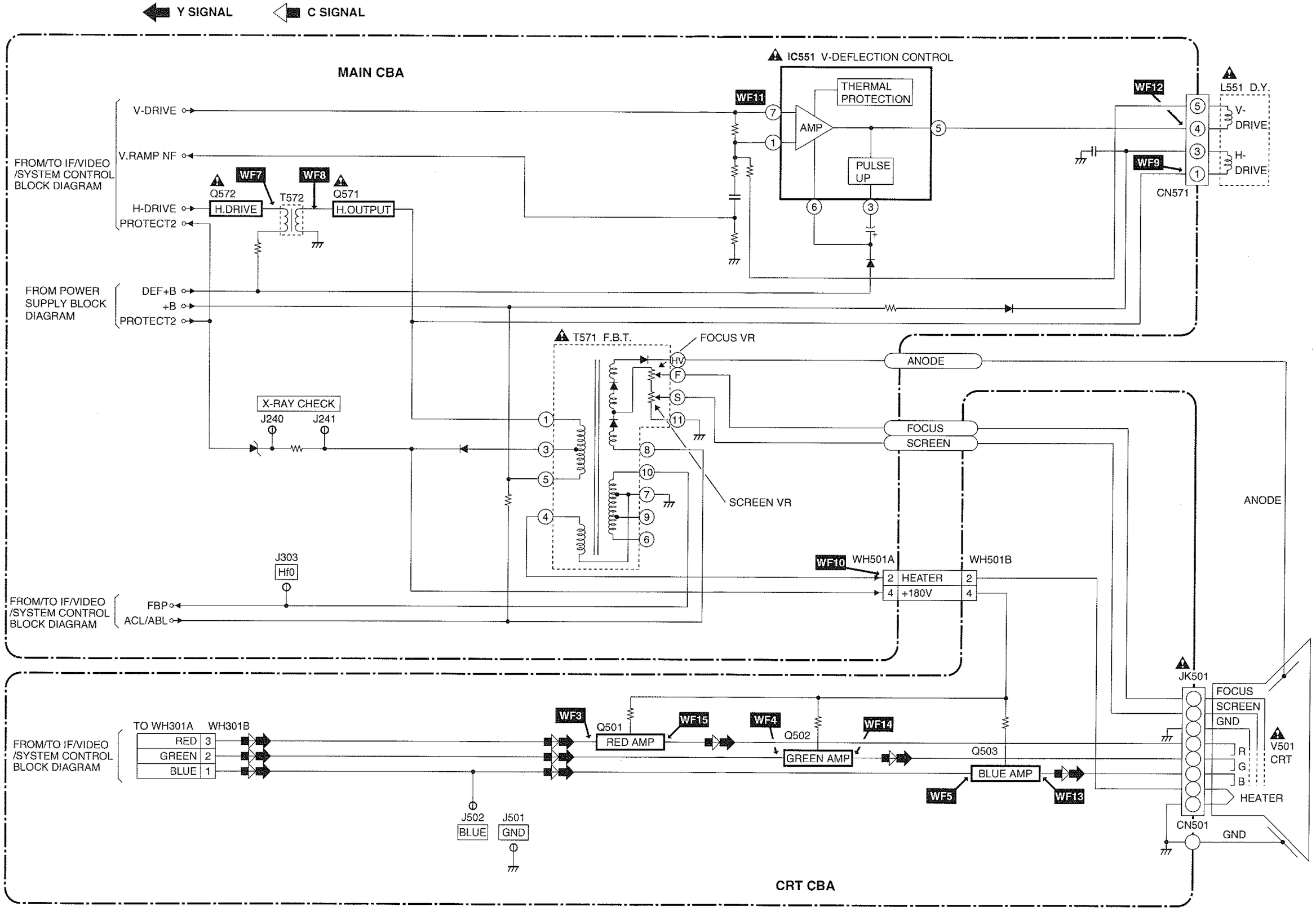
IF/Video/System Control Block Diagram



Audio/Power Control Block Diagram



CRT/H.V. Block Diagram



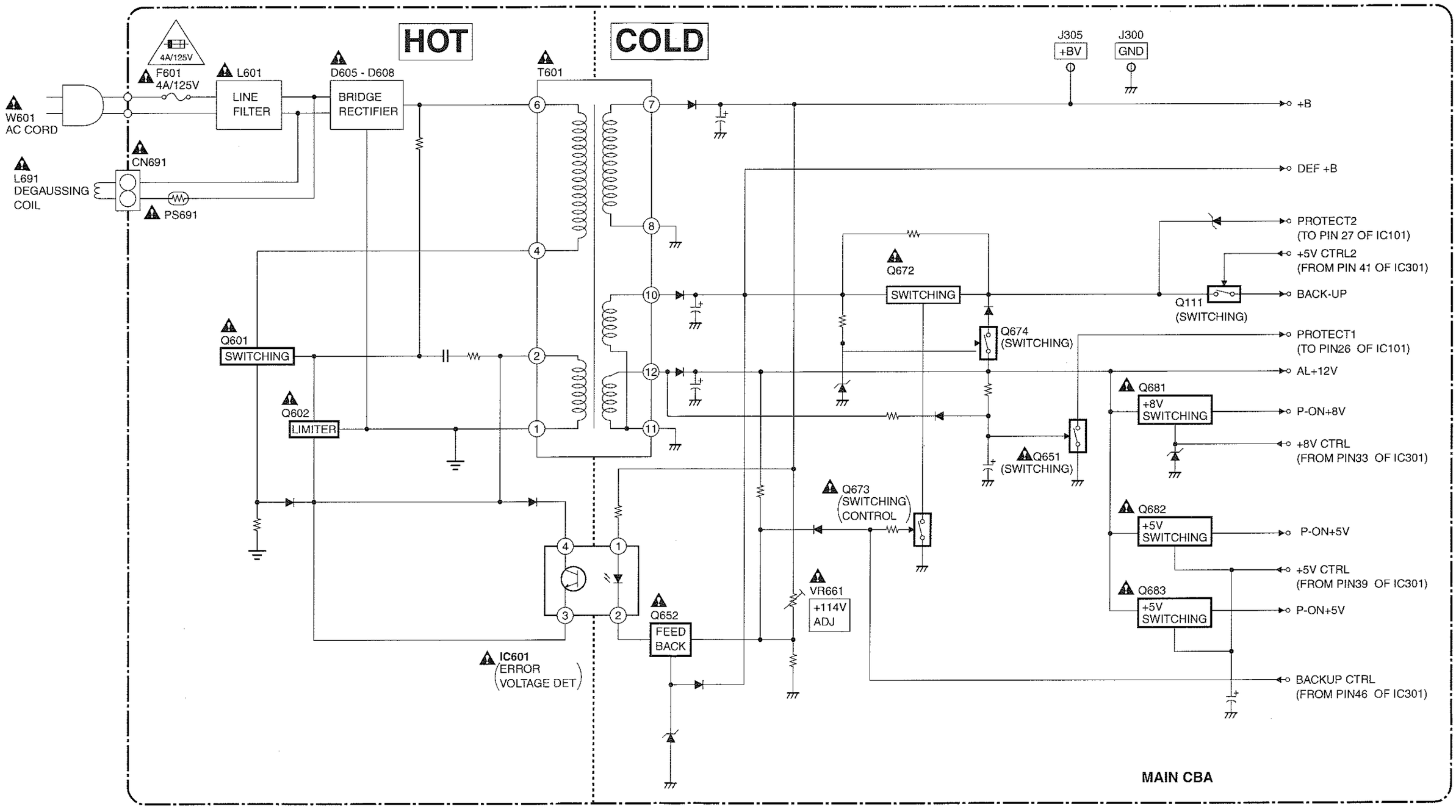
Power Supply Block Diagram

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F601) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

4A/125V

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

NOTE :
The voltage for paris in hot circuit is measured using hot GND as a common terminal.



SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Standard Notes

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark " ⚠ " inthe schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

Note:

1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly

   different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms ($K=10^3$, $M=10^6$).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in μF ($P=10^{-6}\mu F$).
5. All voltages are DC voltages unless otherwise specifi

Note of Capacitors:

ML --- Mylar Cap. PP --- Metalized Film Cap. SC --- Semiconductor Cap. L --- Low Leakage type

Temperature Characteristics of Capacitors are noted with the following:

B --- ±10% CH --- 0±60ppm/°C SL --- +350~-1000ppm/°C

Tolerance of Capacitors are noted with the following:

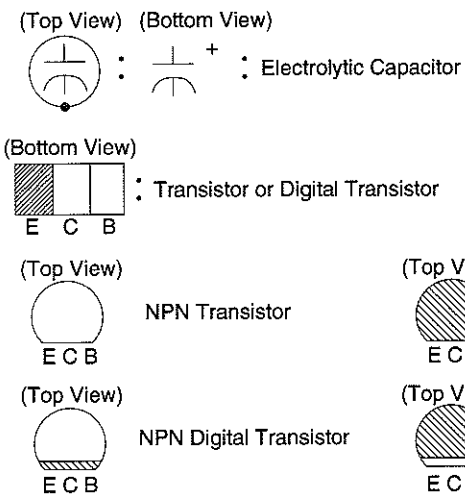
Z --- +80~-20%

Note of Resistors:

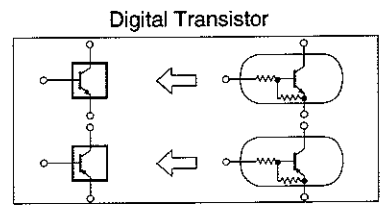
CEM --- Cement Res. MTL --- Metal Res. F --- Fuse Res.

Capacitors and transistors are represented by thefollowing symbols.

CBA Symbols



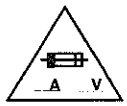
Schematic Diagram Symbols



LILIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE

SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

1. **CAUTION:** FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.



RISK OF FIRE-REPLACE FUSE AS MARKED.

2. **CAUTION:**

Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F001) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

3. **Note:**

(1) Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.

(2) To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

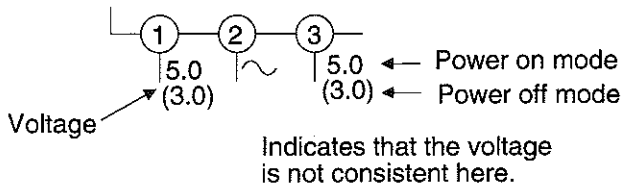
4. Wire Connectors

(1) Prefix symbol "CN" means "connector" (can disconnect and reconnect).

(2) Prefix symbol "CL" means "wire-solder holes of the PCB" (wire is soldered directly).

5. Note: Mark "•" is a leadless (chip) component.

6. Voltage indications on the schematics are as shown below:
Plug the TV power cord into a standard AC outlet.



Unit: Volts

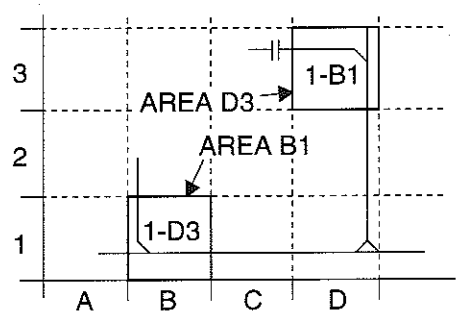
7. How to read converged lines

1-D3
- Distinction Area
- Line Number (1 to 3 digits)

Examples:

1. "1-D3" means that line number "1" goes to area "D3".

2. "1-B1" means that line number "1" goes to area "B1".



8. Test Point Information

: Indicates a test point with a jumper wire across a hole in the PCB.

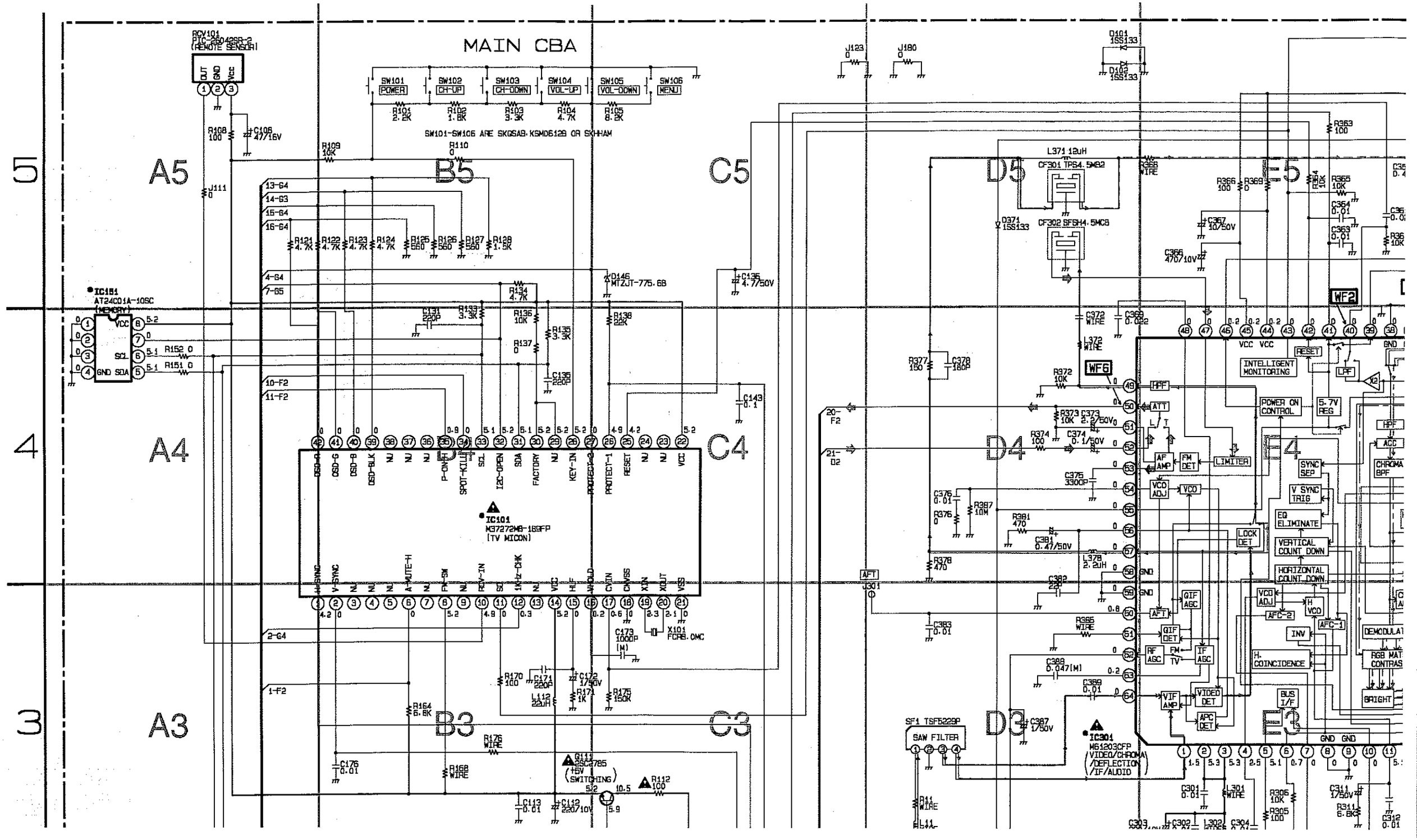
: Used to indicate a test point with a component lead on foil side.

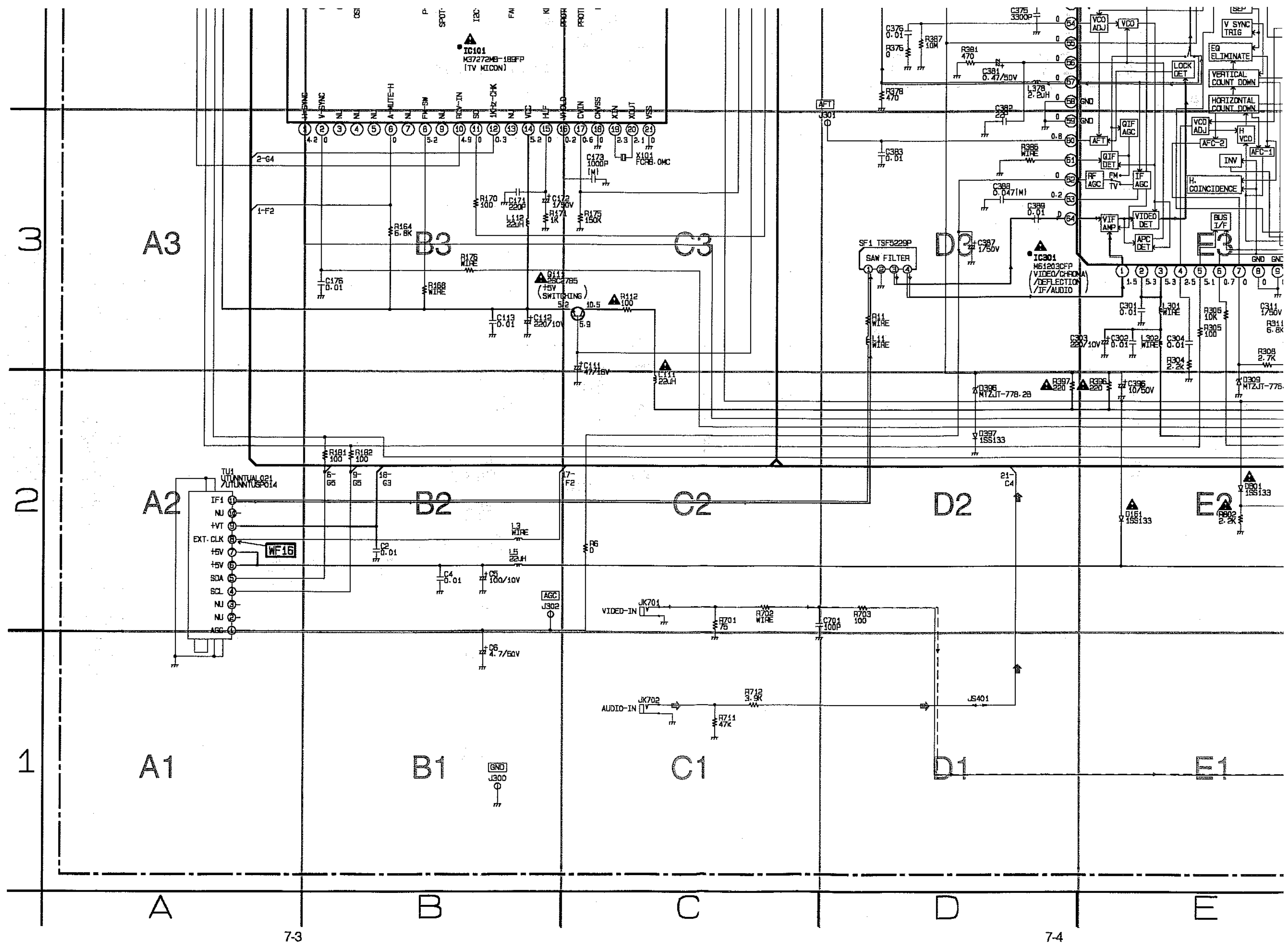
: Used to indicate a test point with no test pin.

: Used to indicate a test point with a test pin.

Main 1/2 Schematic Diagram

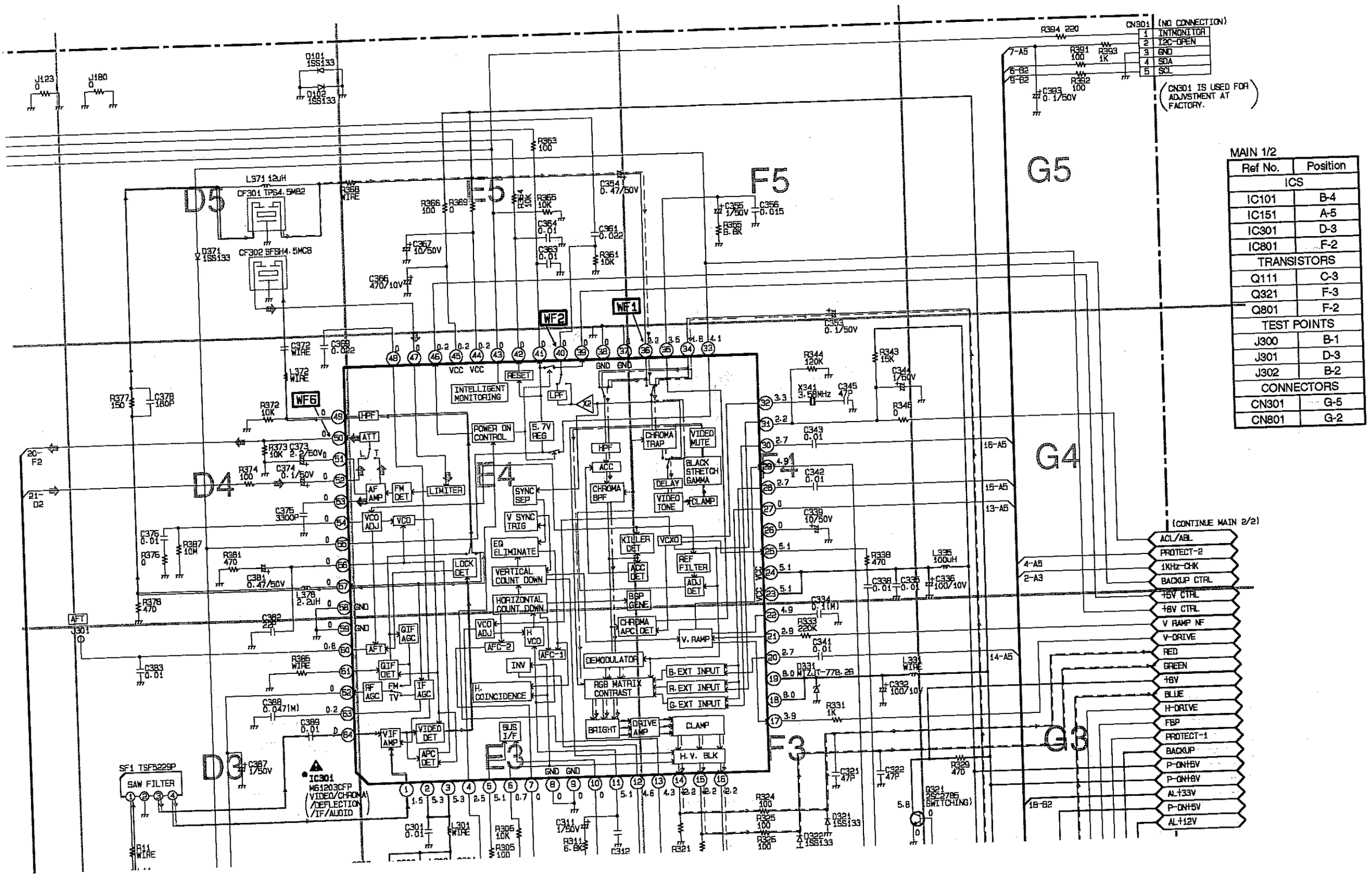
IF SIGNAL
Luminance + Chromina
Luminance
Chrominance





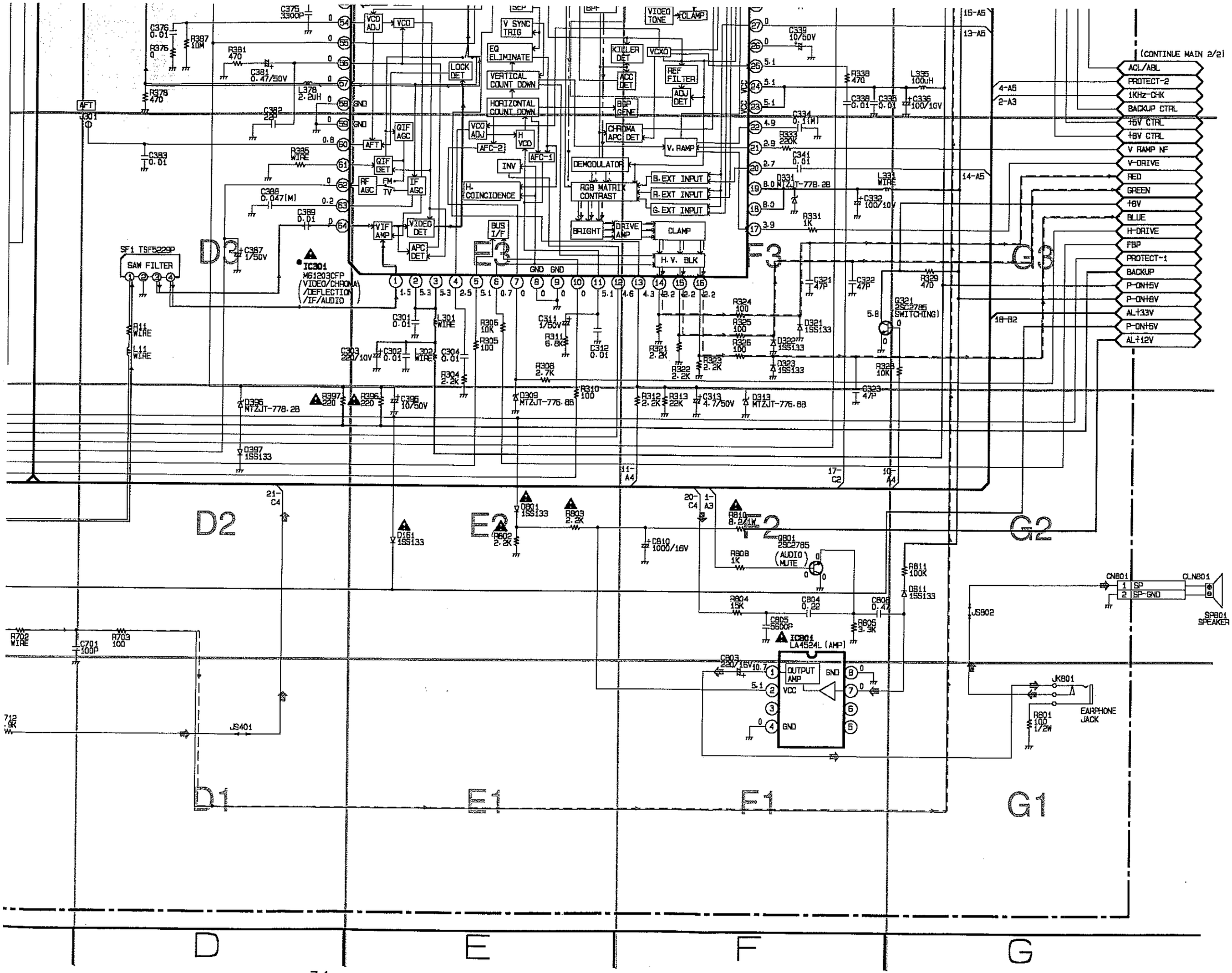
IC101
M37272M8-189FP
(TV MICON)
IC301
M61203CFP
VIDEO/CHROMA
/DEFLECTION
/IF/AUDIO
TU1
UTUNNTUAL021
/UTUNNTUSP014
SF1 TSF5229P
SAW FILTER
Q111
2SC2785
(+5V
SWITCHING)
VIDEO-IN
AUDIO-IN
JK701
JK702
JS401
WF16
AGC
J302
GND
J300
AFT
J301
IF1
NU
+VT
EXT. CLK
+5V
SDA
SCL
H-SYNC
V-SYNC
A-MUTE-H
FM-SW
RCV-IN
1KHz-CHK
VCC
HLF
VHOLD
CVIN
CNVSS
XIN
XOUT
VSS
X101
FCR8.0MC
VCO ADJ
VCO
V SYNC TRIG
EQ ELIMINATE
LOCK DET
VERTICAL COUNT DOWN
HORIZONTAL COUNT DOWN
QIF AGC
AFT
AFC-2
H VCO
AFC-1
QIF DET
INV
RF AGC
FM
TV
IF AGC
H. COINCIDENCE
VIF AMP
VIDEO DET
APC DET
BUS I/F
A1
A2
A3
B1
B2
B3
C1
C2
C3
D1
D2
D3
E1
E2
E3
1
2
3
A
B
C
D
E
7-3
7-4

IF SIGNAL
Luminance + Chrominance
Luminance
Chrominance
Audio



MAIN 1/2

Ref No.	Position
ICS	
IC101	B-4
IC151	A-5
IC301	D-3
IC801	F-2
TRANSISTORS	
Q111	C-3
Q321	F-3
Q801	F-2
TEST POINTS	
J300	B-1
J301	D-3
J302	B-2
CONNECTORS	
CN301	G-5
CN801	G-2


(CONTINUE MAIN 2/2)
ACL/ABL
PROTECT-2
1KHz-CHK
BACKUP CTRL
+5V CTRL
+8V CTRL
V RAMP NF
V-DRIVE
RED
GREEN
+8V
BLUE
H-DRIVE
FBP
PROTECT-1
BACKUP
P-ON+5V
P-ON+8V
AL+33V
P-ON+5V
AL+12V
IC301
M61203CFP
(VIDEO/CHROMA
/DEFLECTION
/IF/AUDIO
SF1 TSF5229P
SAW FILTER
VCO ADJ
VCO
LOCK DET
V SYNC TRIG
EQ ELIMINATE
VERTICAL COUNT DOWN
HORIZONTAL COUNT DOWN
H VCO
AFC-1
AFC-2
INV
H. COINCIDENCE
KILLER DET
ACC DET
VCXO
REF FILTER
ADJ DET
BGP GENE
CHROMA APC DET
DEMODULATOR
RGB MATRIX CONTRAST
BRIGHT
DRIVE AMP
CLAMP
H. V. BLK
V. RAMP
B. EXT INPUT
R. EXT INPUT
G. EXT INPUT
VIDEO TONE
CLAMP
BUS I/F
AFT
QIF AGC
QIF DET
RF AGC
IF AGC
FM IF
VIF AMP
VIDEO DET
APC DET
GND GND
D331 MTZJT-778.2B
D396 MTZJT-778.2B
D309 MTZJT-776.8B
D313 MTZJT-776.8B
D321 1SS133
D322 1SS133
D323 1SS133
D397 1SS133
D161 1SS133
D801 1SS133
D811 1SS133
Q321 2SC2785 (SWITCHING)
Q801 2SC2785 (AUDIO MUTE)
IC801 LA4524L (AMP)
OUTPUT AMP
VCC
GND
CN801
CLN801
SP
SP-GND
SPB01 SPEAKER
JK801
EARPHONE JACK
JS401
JS802
D3
E3
F3
G3
D2
E2
F2
G2
D1
E1
F1
G1
D
E
F
G

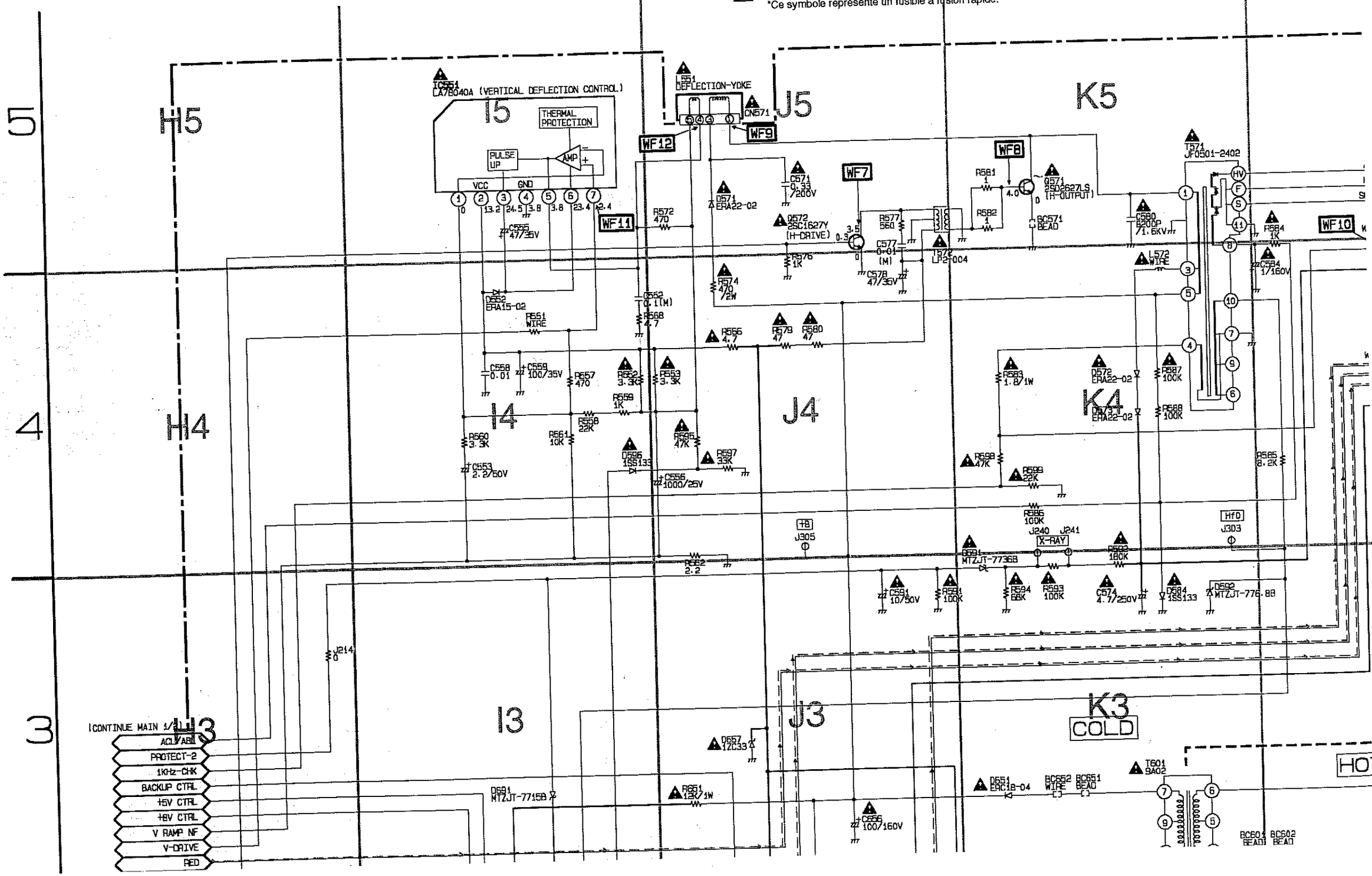
Main 2/2 & CRT Schematic Diagram

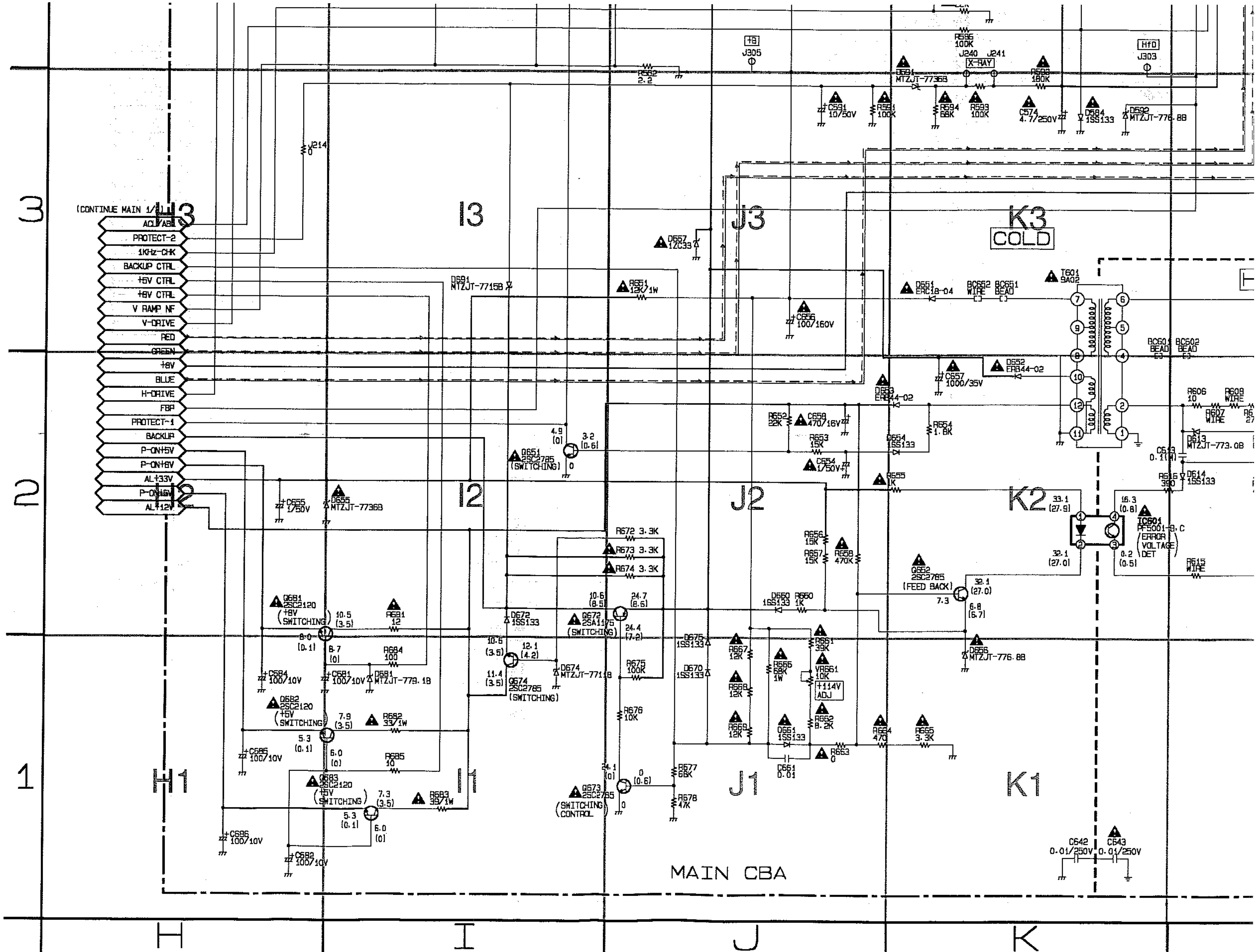
CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F601) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

4A/125V

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES
D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

BECAUSE A HOT CHASSIS GRC
SUPPLY CIRCUIT, AN ISOLATIO
ALSO, IN ORDER TO HAVE THE
SLOWLY, WHEN TROUBLESHOO
CIRCUIT, A VARIABLE ISOLATIC



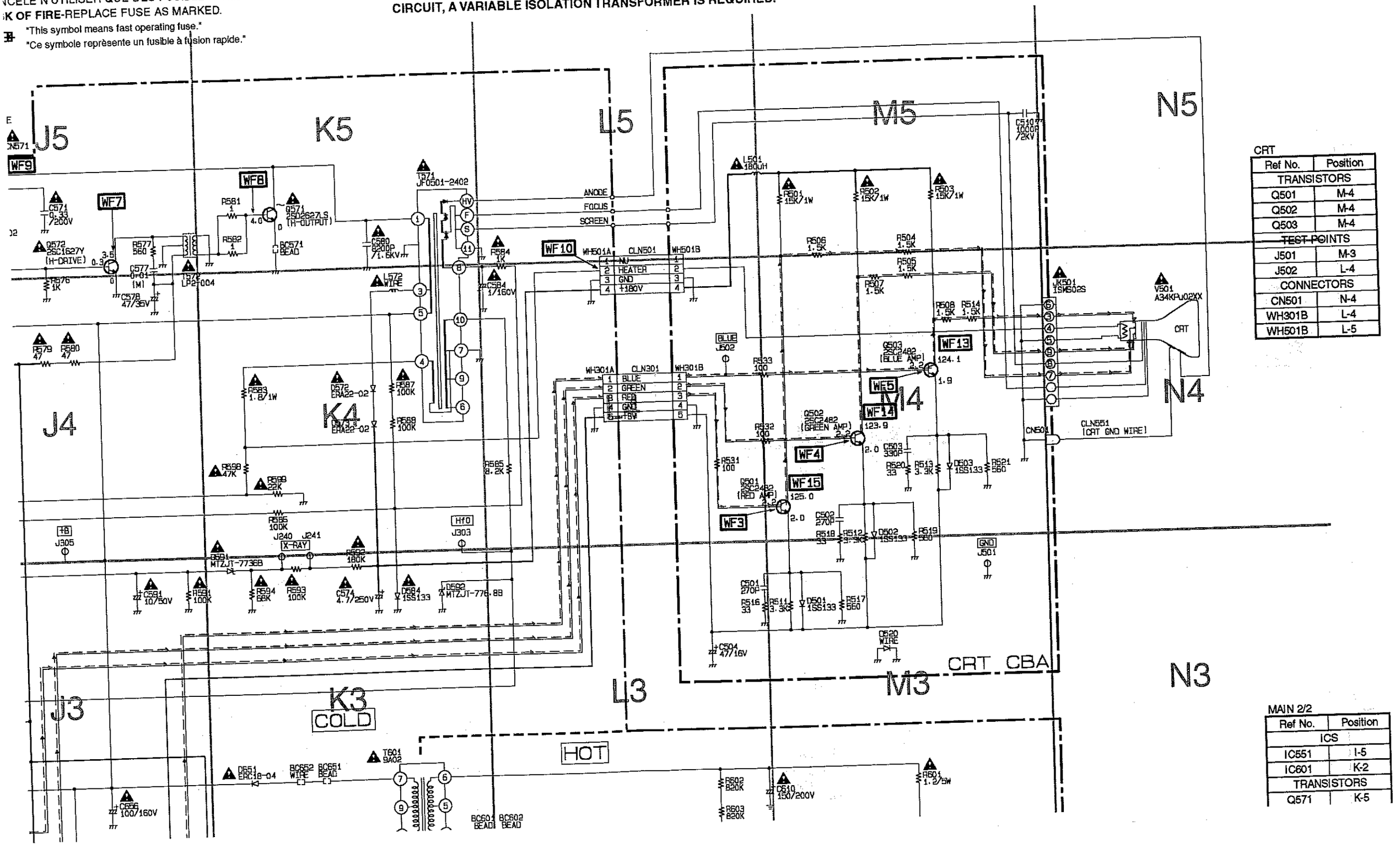

MAIN CBA
COLD
(CONTINUE MAIN 1/2)
ACL/ABL
PROTECT-2
1KHz-CHK
BACKUP CTRL
+5V CTRL
+8V CTRL
V RAMP NF
V-DRIVE
RED
GREEN
+8V
BLUE
H-DRIVE
FBP
PROTECT-1
BACKUP
P-ON+5V
P-ON+8V
AL+33V
P-ON+5V
AL+12V
IC601 PF5001-B,C (ERROR VOLTAGE DET)
T601 8A02
Q652 2SC2785 (FEED BACK)
Q651 2SC2785 (SWITCHING)
Q672 2SA1175 (SWITCHING)
Q673 2SC2785 (SWITCHING CONTROL)
Q674 2SC2785 (SWITCHING)
Q681 2SC2120 (+8V SWITCHING)
Q682 2SC2120 (+5V SWITCHING)
Q683 2SC2120 (+5V SWITCHING)
VR651 10K
+114V ADJ
X-RAY
J240
J241
J303
J305
H1
H2
H3
I2
I3
J1
J2
J3
K1
K2
K3

UTION
R CONTINUED PROTECTION AGAINST FIRE HAZARD,
PLACE ONLY WITH THE SAME TYPE FUSE.
'ENTION : POUR UNE PROTECTION CONTINUE LES RISQES
NCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
K OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT, AN ISOLATION TRANSFORMER MUST BE USED. ALSO, IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY, WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT, A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.

NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

- - - - - - - - Luminance + Chrominance

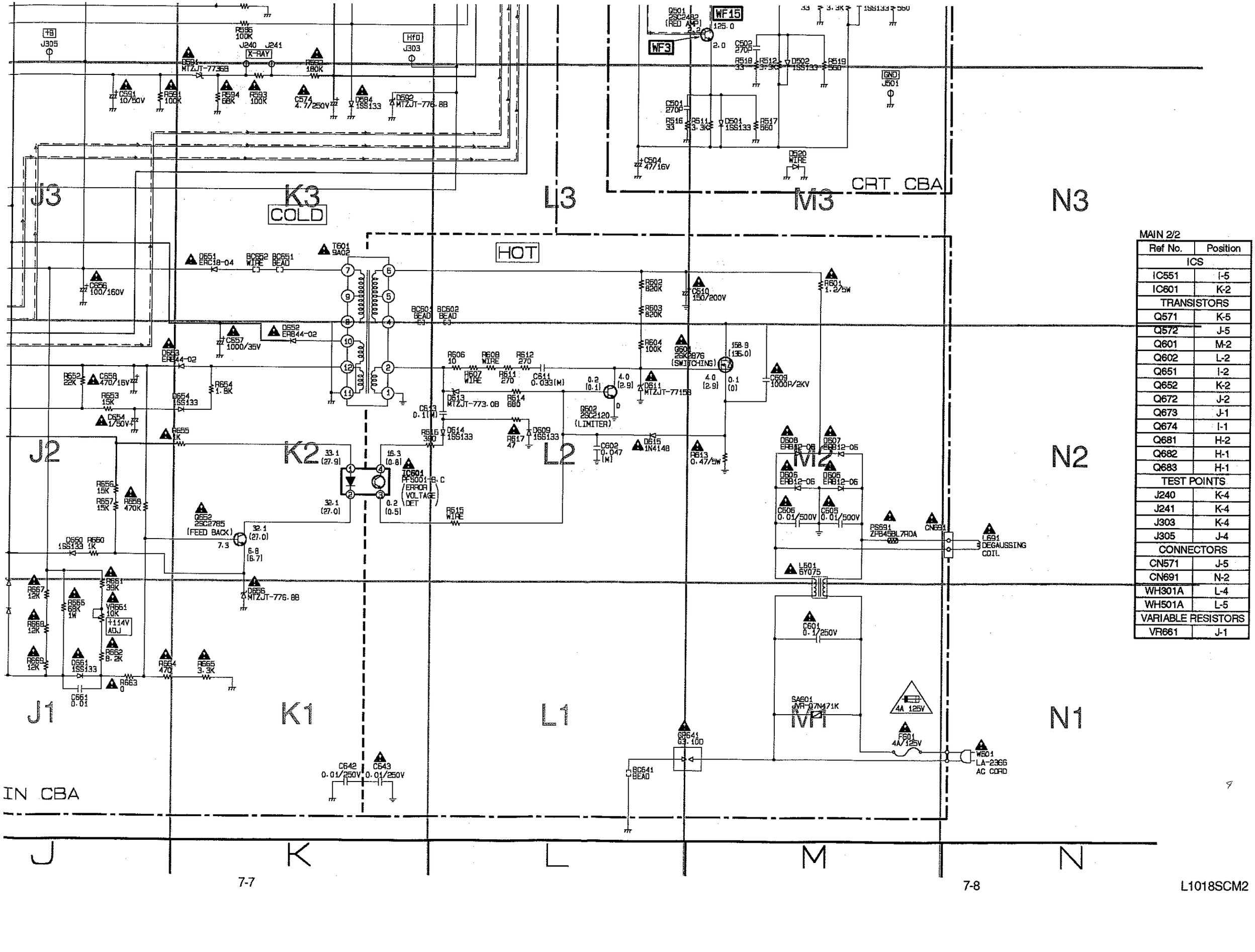


CRT

Ref No.	Position
TRANSISTORS	
Q501	M-4
Q502	M-4
Q503	M-4
~~TEST POINTS~~	
J501	M-3
J502	L-4
CONNECTORS	
CN501	N-4
WH301B	L-4
WH501B	L-5

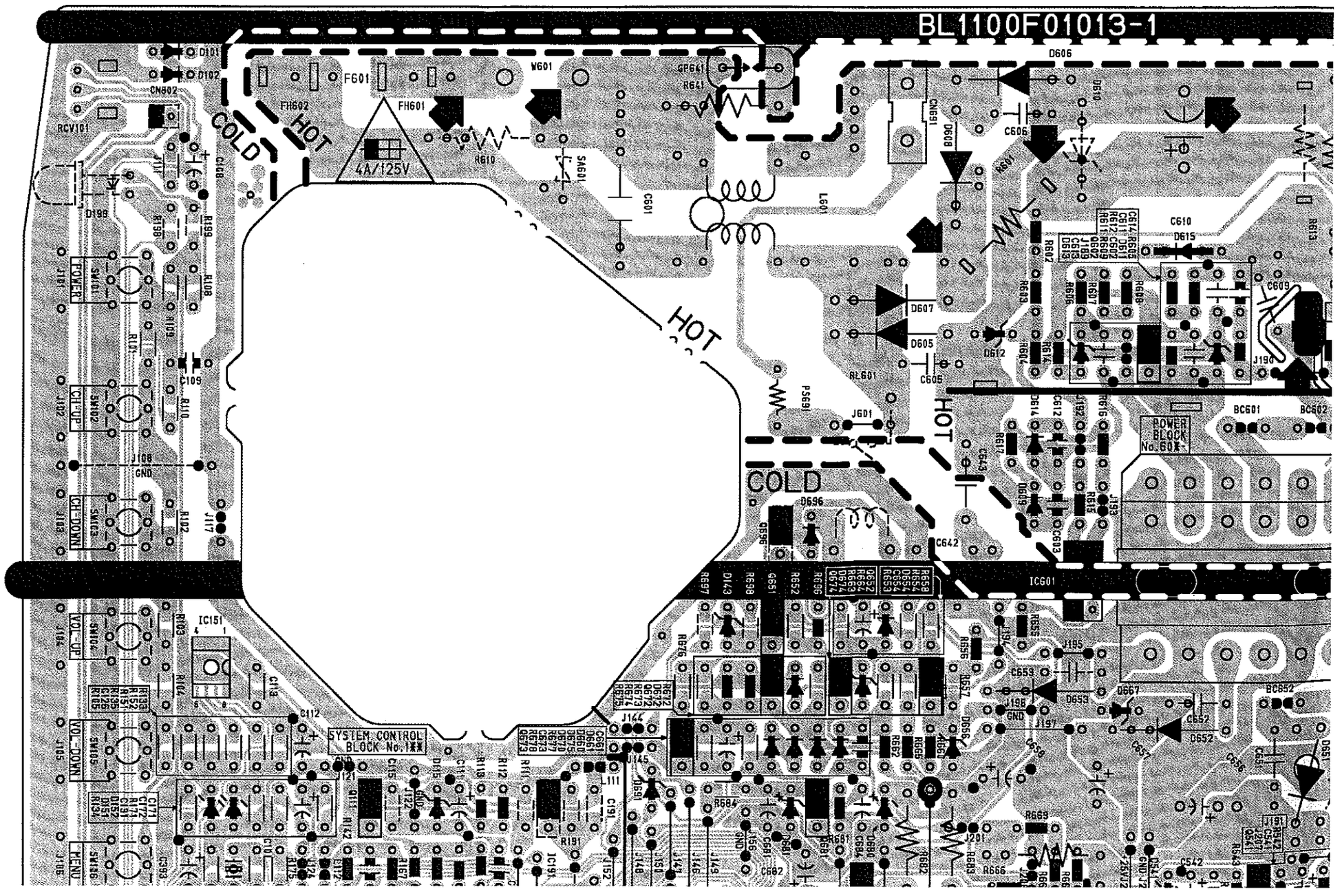
MAIN 2/2

Ref No.	Position
ICS	
IC551	I-5
IC601	K-2
TRANSISTORS	
Q571	K-5



MAIN 2/2

Ref No.	Position
ICS	
IC551	I-5
IC601	K-2
TRANSISTORS	
Q571	K-5
Q572	J-5
Q601	M-2
Q602	L-2
Q651	I-2
Q652	K-2
Q672	J-2
Q673	J-1
Q674	I-1
Q681	H-2
Q682	H-1
Q683	H-1
TEST POINTS	
J240	K-4
J241	K-4
J303	K-4
J305	J-4
CONNECTORS	
CN571	J-5
CN691	N-2
WH301A	L-4
WH501A	L-5
VARIABLE RESISTORS	
VR661	J-1



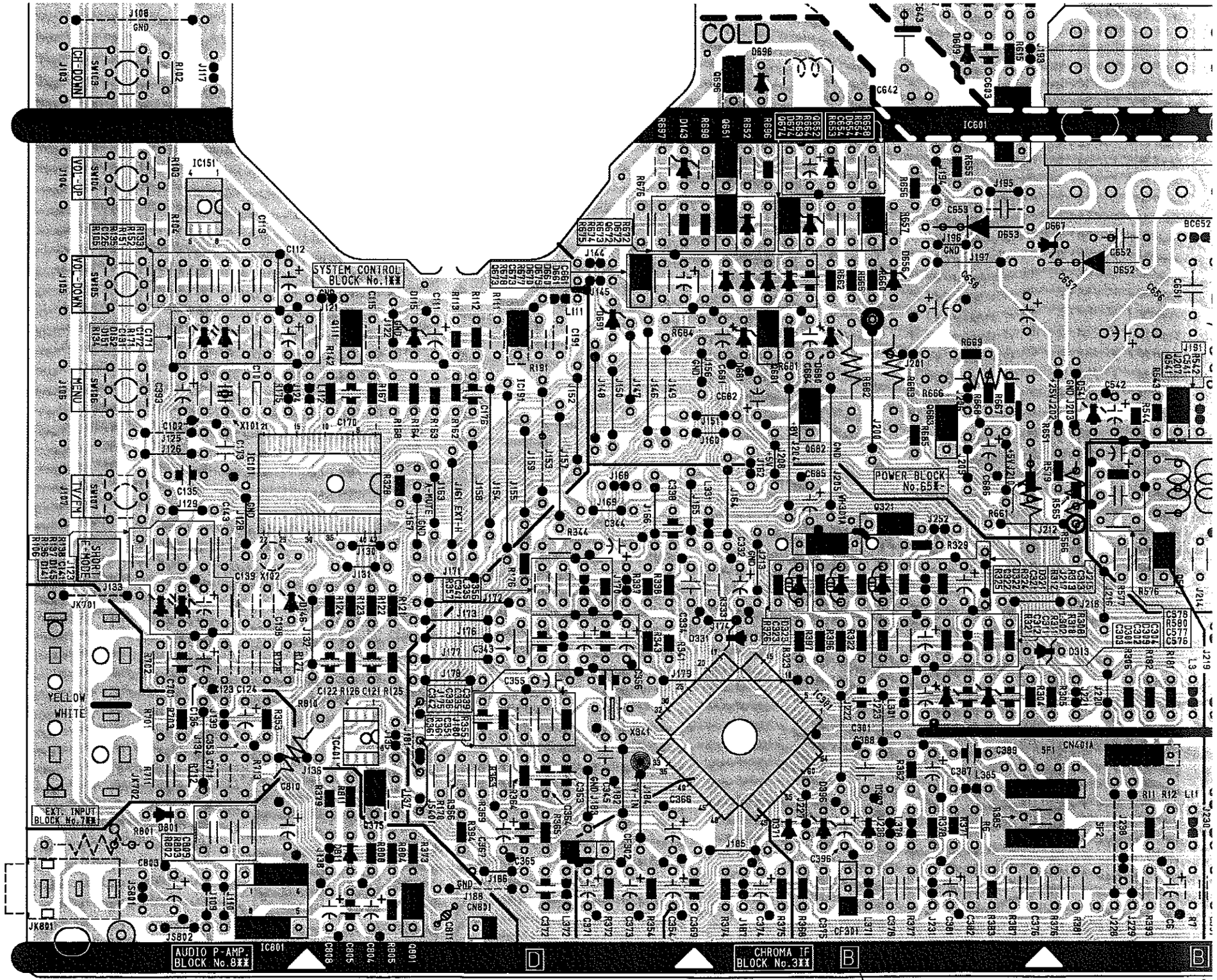
Main CBA Bottom View

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F601) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

4A/125V

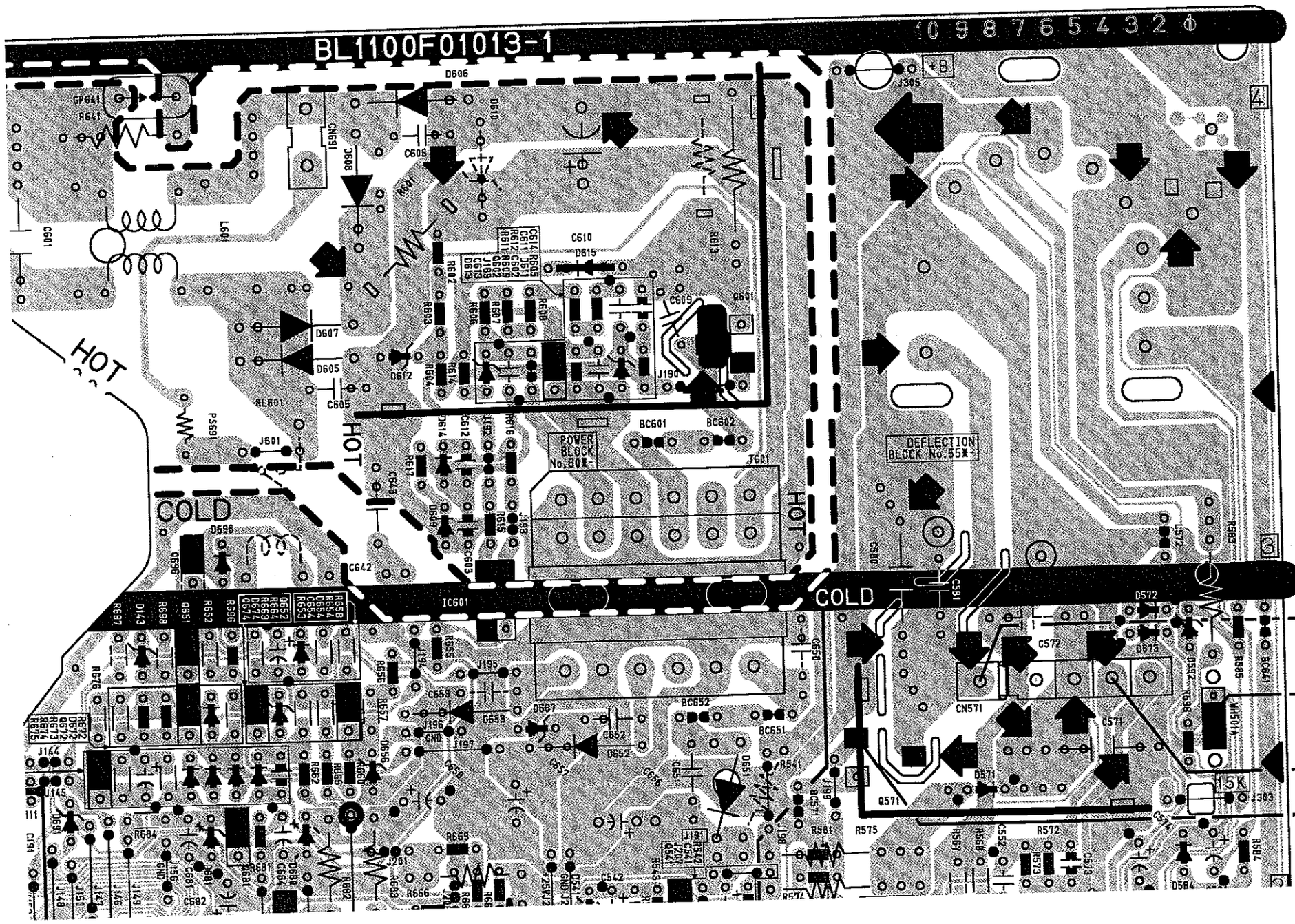
CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES
D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

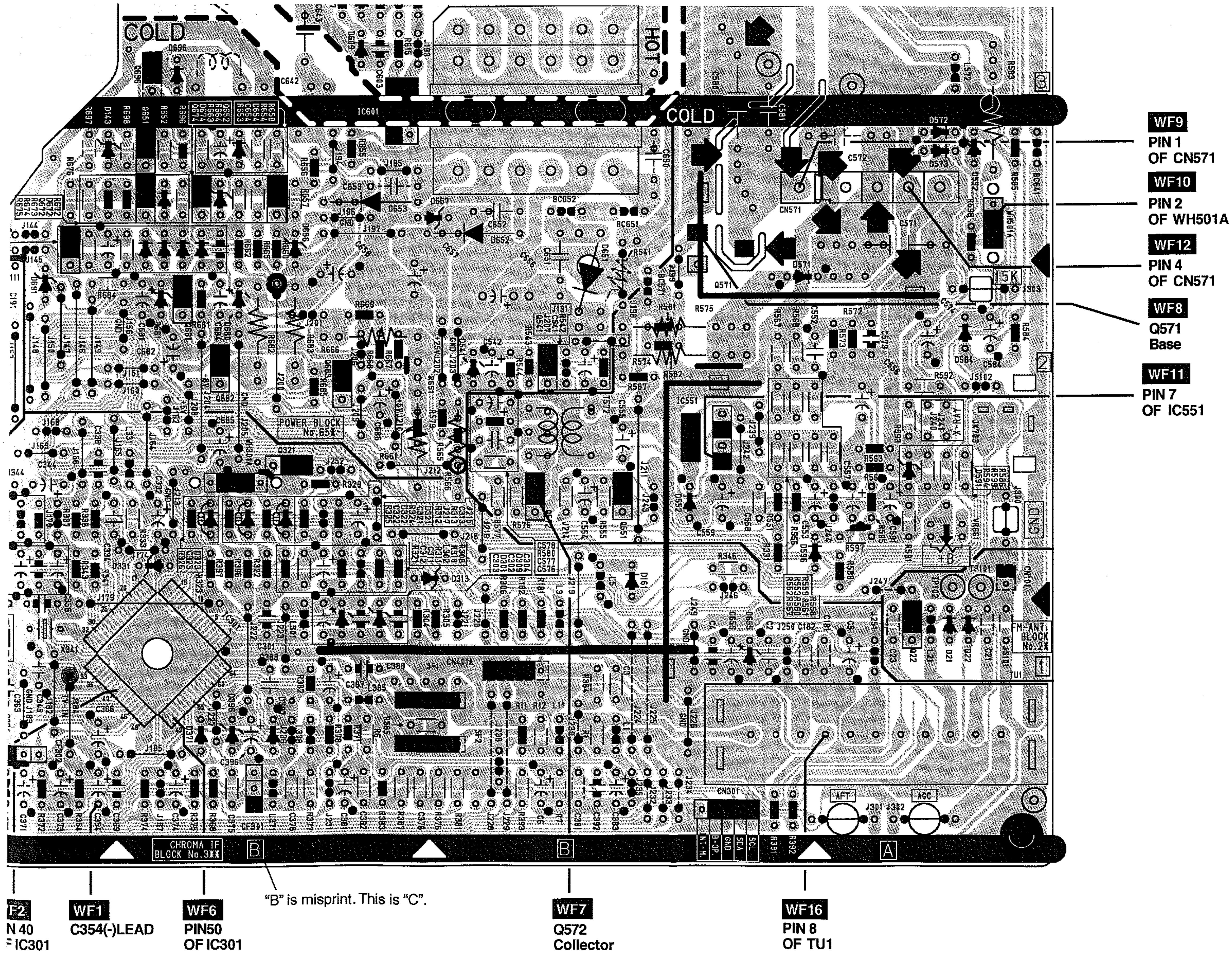
BECA
SUPP
ALSO
SLOW
CIRC


COLD
SYSTEM CONTROL BLOCK No.1**
POWER BLOCK No.65*
AUDIO P-AMP. BLOCK No.8**
CHROMA IF BLOCK No.3**
EXT. INPUT BLOCK No.7**
CH-DOWN
VOL-UP
VOL-DOWN
MENU
TV/FM
SHORT E-MODE
YELLOW
WHITE
D
B
"B" is misprint. This is "C".
WF2
PIN 40
OF IC301
WF1
C354(-)LEAD
WF6
PIN50
OF IC301

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES
D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT, AN ISOLATION TRANSFORMER MUST BE USED. ALSO, IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY, WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT, A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.




WF9
PIN 1
OF CN571
WF10
PIN 2
OF WH501A
WF12
PIN 4
OF CN571
WF8
Q571
Base
WF11
PIN 7
OF IC551
F2
N 40
F IC301
WF1
C354(-)LEAD
WF6
PIN50
OF IC301
"B" is misprint. This is "C".
WF7
Q572
Collector
WF16
PIN 8
OF TU1

Main CBA Top View

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F601) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
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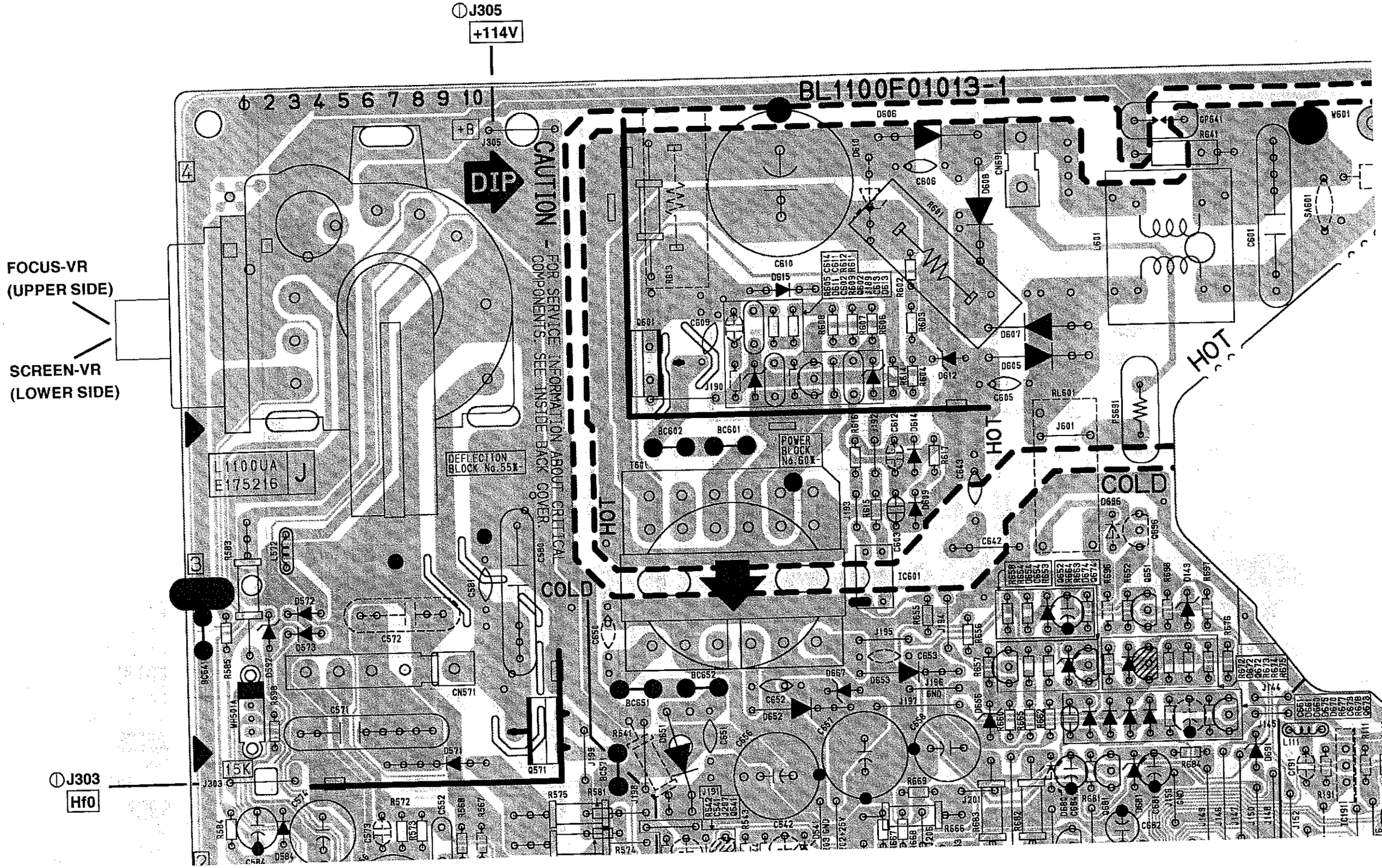
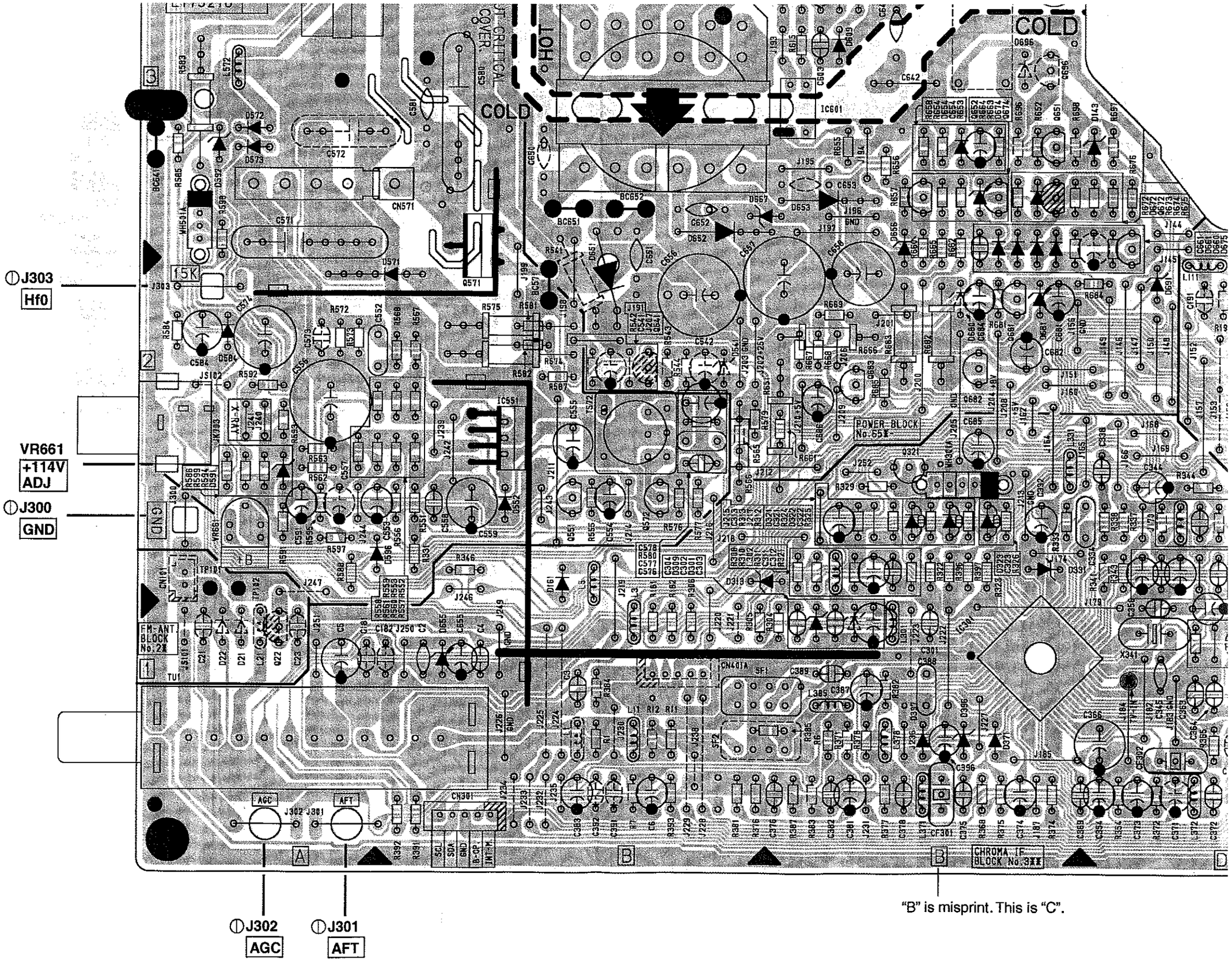
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

BECAUSE
SUPPLY (
ALSO, IN
SLOWLY,
CIRCUIT,




J303
Hf0
VR661
+114V
ADJ
J300
GND
J302
AGC
J301
AFT
HOT
COLD
COLD
POWER BLOCK
No.65
FM-ANT
BLOCK
No.2
CHROMA IF
BLOCK No.3
"B" is misprint. This is "C".

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES
D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
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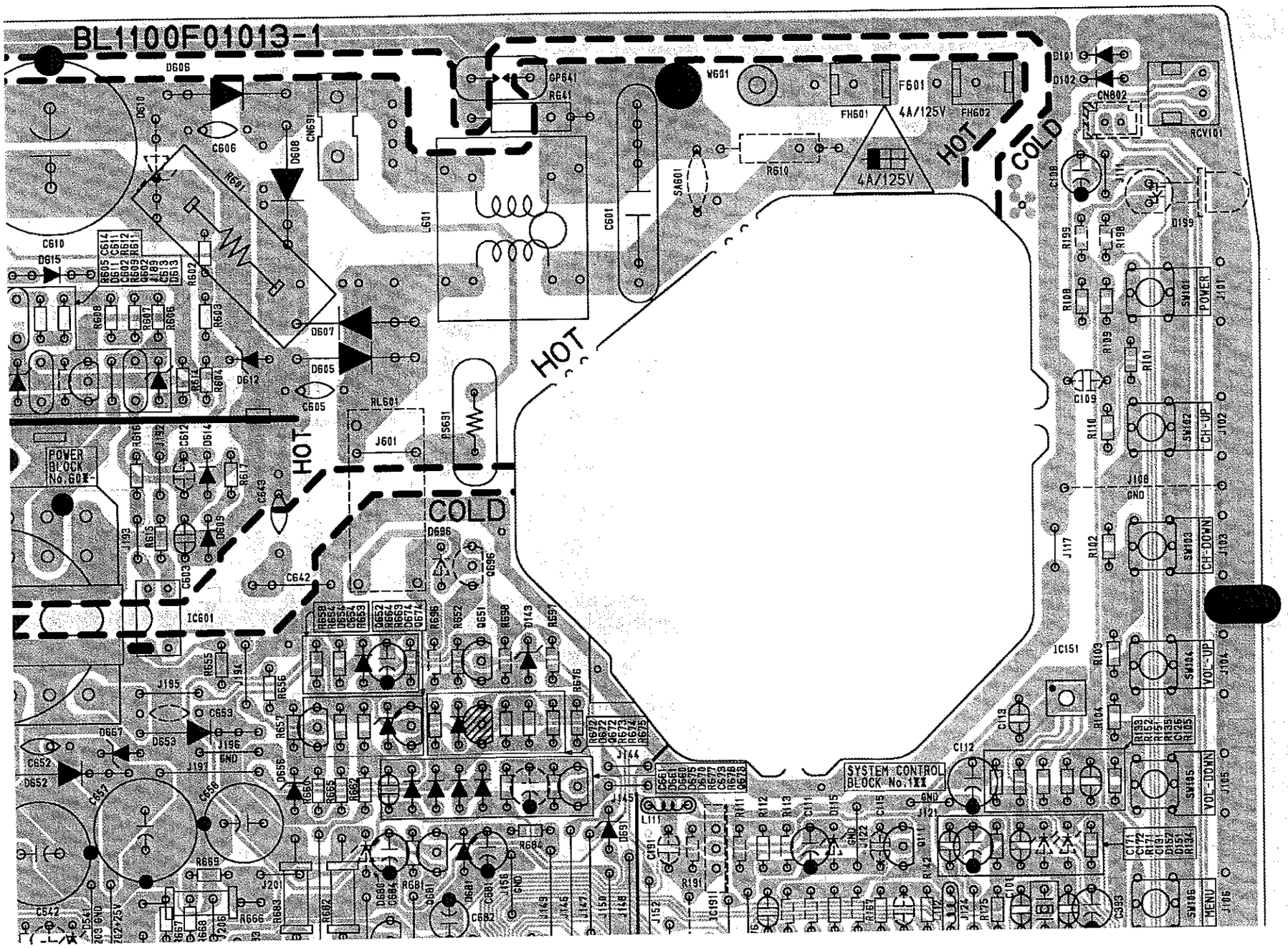
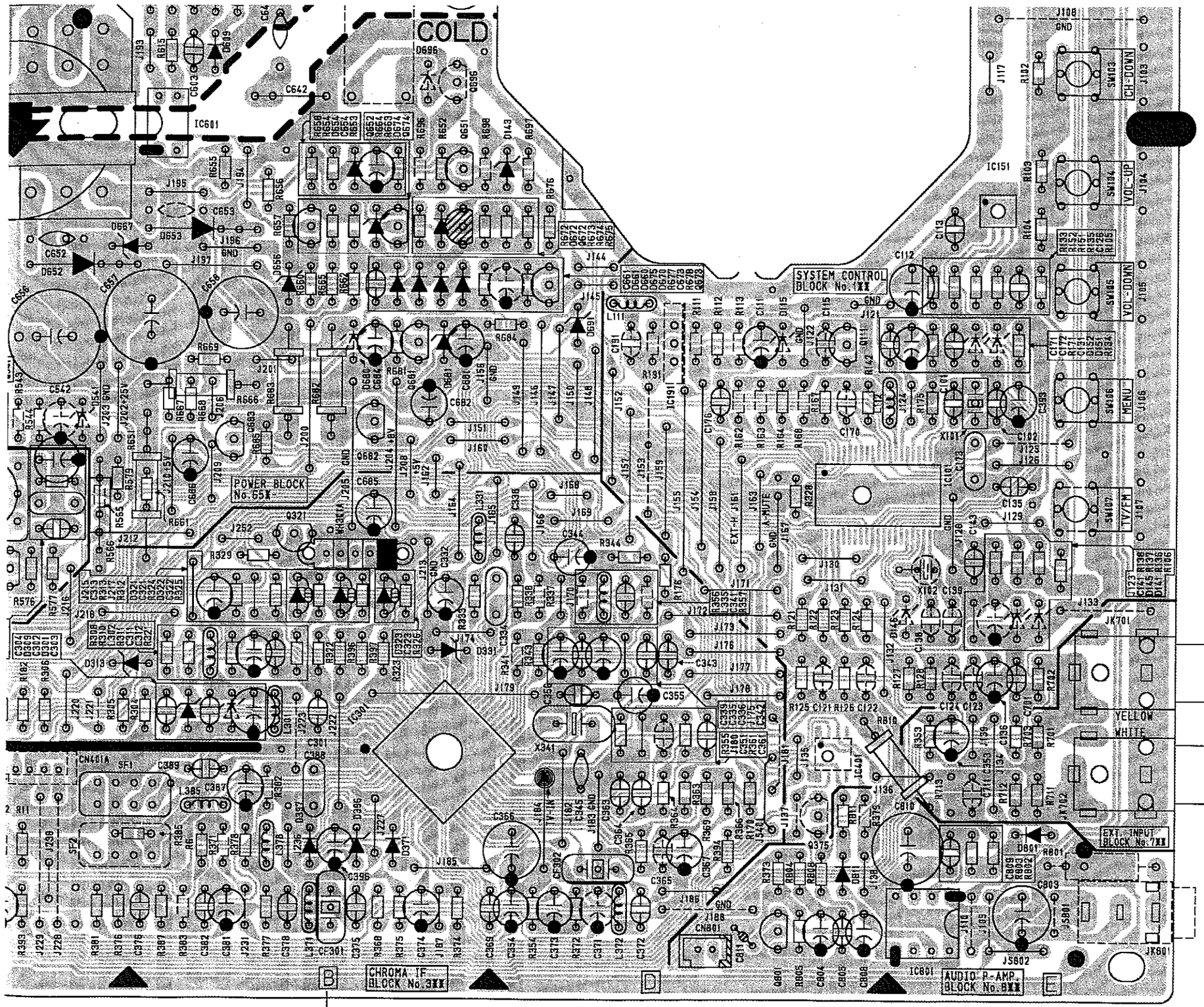


MAIN CBA

Ref No.	Position
ICS	
IC101	E-2
IC151	E-3
IC301	C-1
IC551	B-2
IC601	C-3
IC801	E-1
TRANSISTORS	
Q111	D-2
Q321	C-2
Q551	B-2
Q571	B-2
Q572	B-2
Q601	B-4
Q602	C-4
Q651	C-3
Q652	C-3
Q672	D-3
Q673	D-2
Q674	D-2
Q681	C-2
Q682	C-2
Q683	C-2
Q801	D-1
TEST POINTS	
J240	A-2
J241	A-2
J300	A-2
J301	A-1
J302	A-1
J303	A-2
J305	B-4
CONNECTORS	
CN301	B-1
CN571	A-3
CN691	C-4



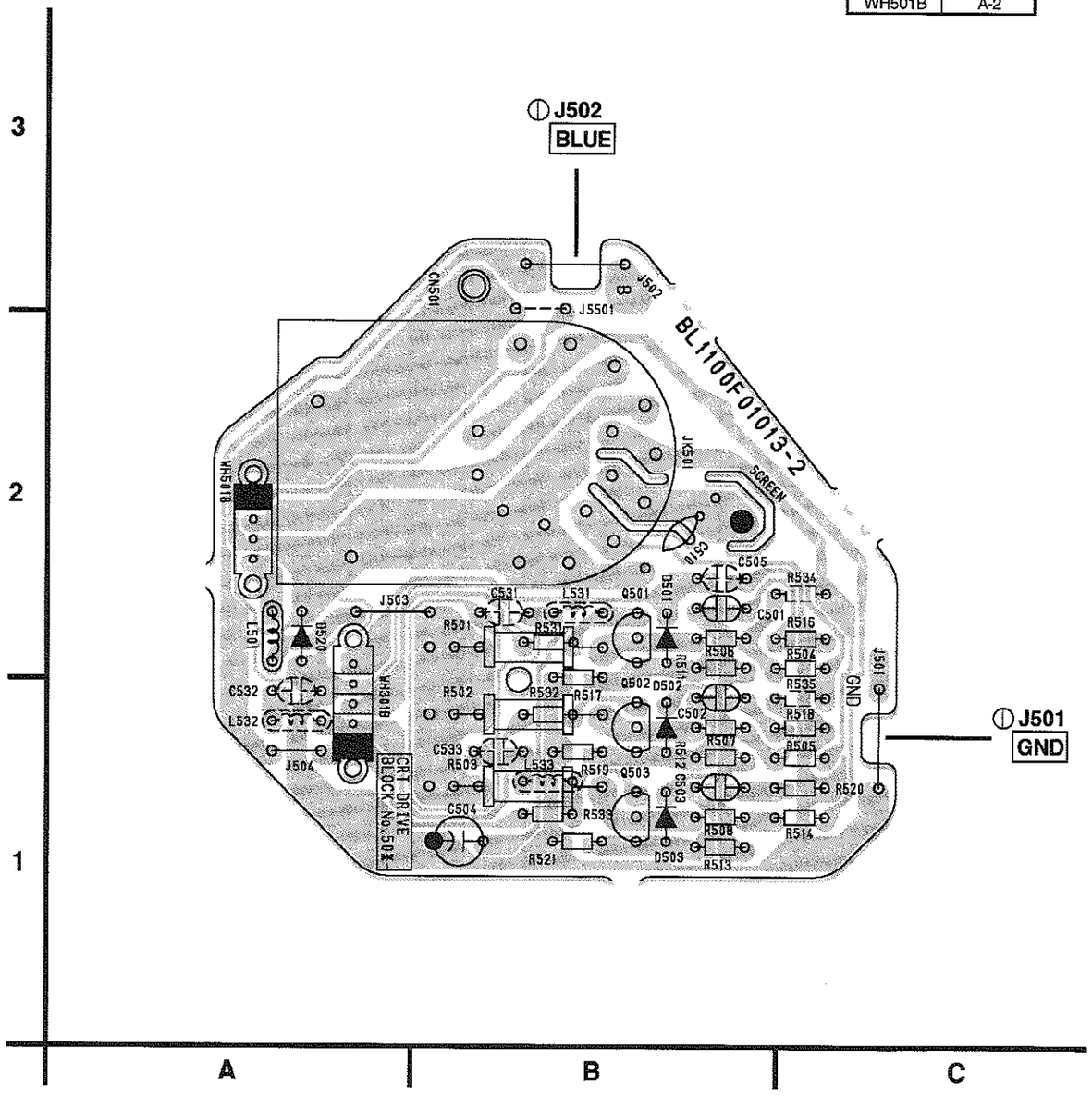
"B" is misprint. This is "C".

Q572	B-2
Q601	B-4
Q602	C-4
Q651	C-3
Q652	C-3
Q672	D-3
Q673	D-2
Q674	D-2
Q681	C-2
Q682	C-2
Q683	C-2
Q801	D-1
TEST POINTS	
J240	A-2
J241	A-2
J300	A-2
J301	A-1
J302	A-1
J303	A-2
J305	B-4
CONNECTORS	
CN301	B-1
CN571	A-3
CN691	C-4
CN801	D-1
WH301A	C-2
WH501A	A-3
VARIABLE RESISTORS	
VR661	A-2

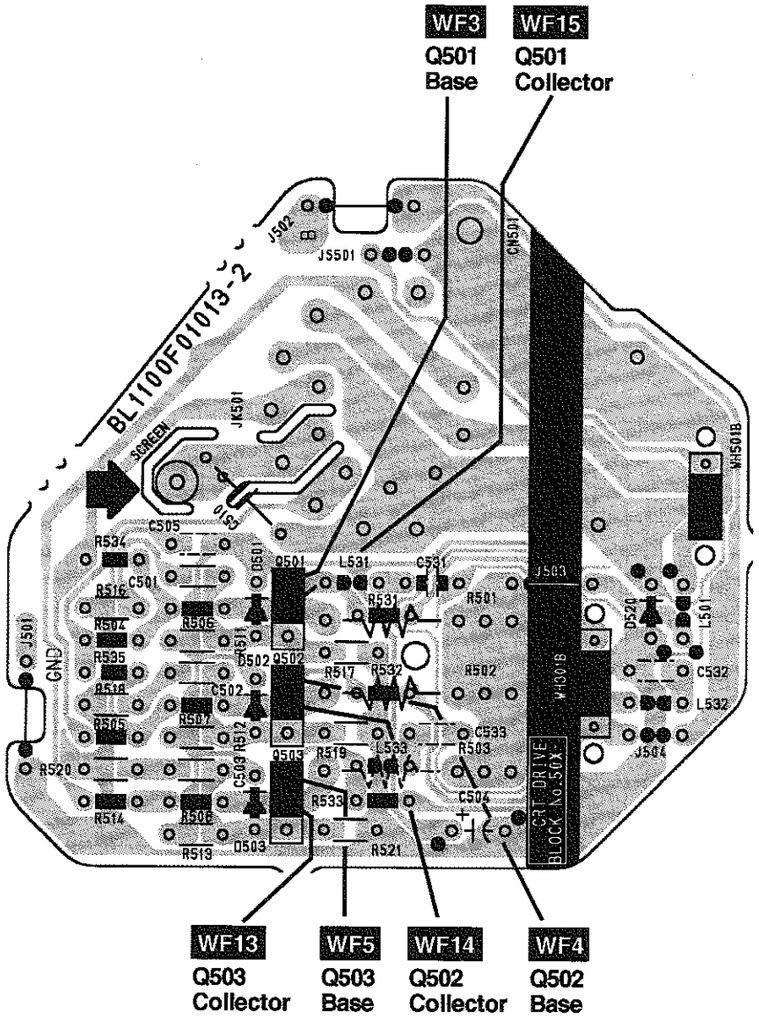
CRT CBA Top View

CRT CBA

Ref No.	Position
TRANSISTORS	
Q501	B-2
Q502	B-1
Q503	B-1
TEST POINTS	
J501	C-2
J502	B-3
CONNECTORS	
CN501	B-3
WH301B	A-1
WH501B	A-2



CRT CBA Bottom View



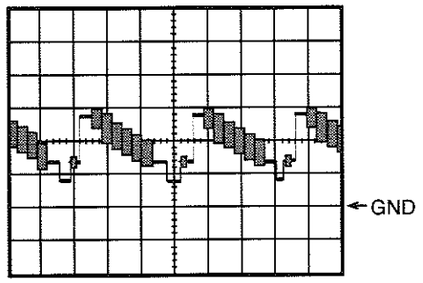
WAVEFORMS

WF1 ~ WF16 = Waveforms to be observed at Waveform check points. (Shown in Schematic Diagram.)

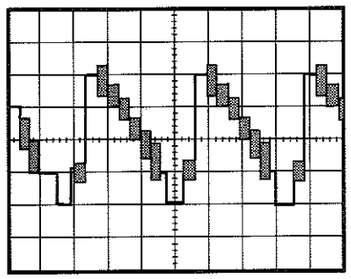
Input: NTSC Color Bar Signal (with 1kHz Audio Signal)

INITIAL POSITION: Unplug unit from AC outlet for at least 5 minutes. reconnect to AC outlet and then turn power on.

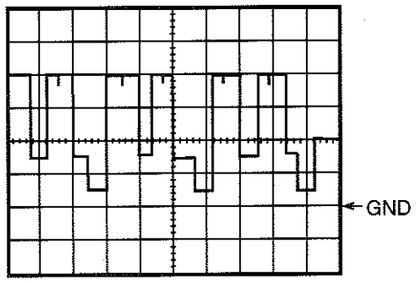
(Brightness---Center Color---Center Tint --- Center Contrast---Approx 70%)



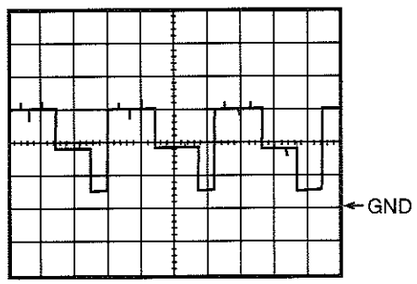
WF1 1DIV: 0.5V 20µsec
C 354 Minus Lead



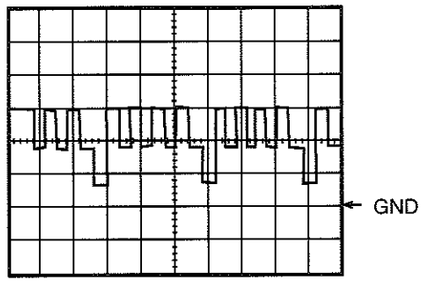
WF2 1DIV: 0.5V 20µsec
IC 301 Pin 40



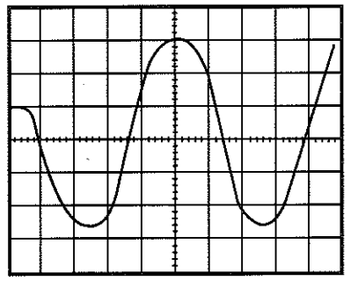
WF3 1DIV: 2V 20µsec
Q501 Base



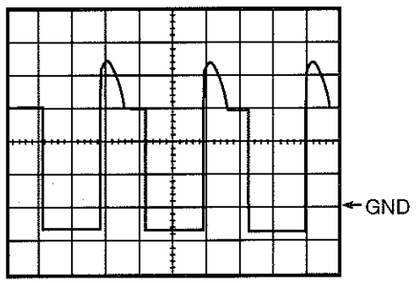
WF4 1DIV: 2V 20µsec
Q 502 Base



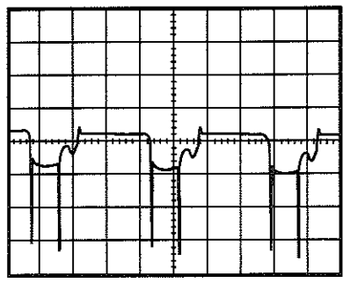
WF5 1DIV: 2V 20µsec
Q 503 Base



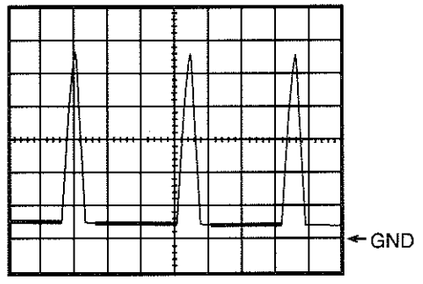
WF6 1DIV: 0.2V 20msec
IC 301 Pin 50



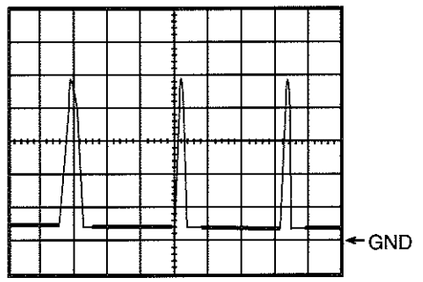
WF7 1DIV: 10V 20µsec
Q 572 Collector



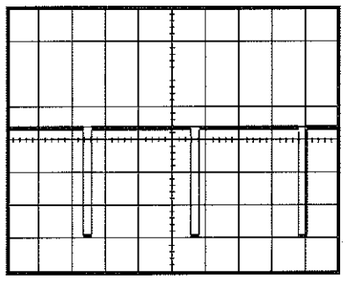
WF8 1DIV: 5V 20µsec
Q 571 Base



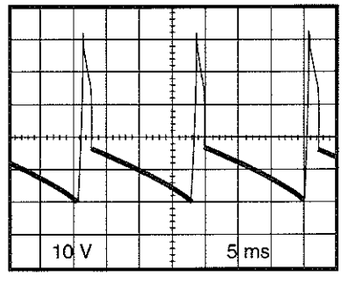
WF9 1DIV: 200V 20µsec
CN 571 Pin 1



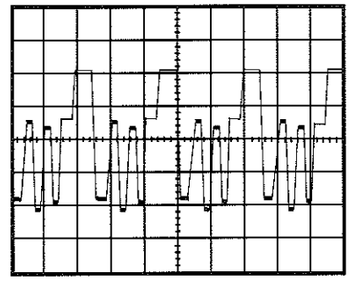
WF10 1DIV: 5V 20µsec
WH501A Pin 2



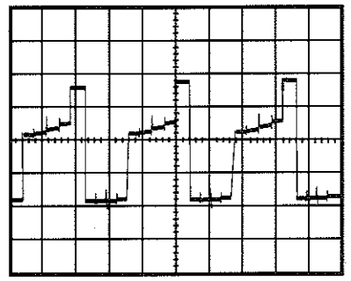
WF11 1DIV: 2V 5msec
IC 551 Pin 7



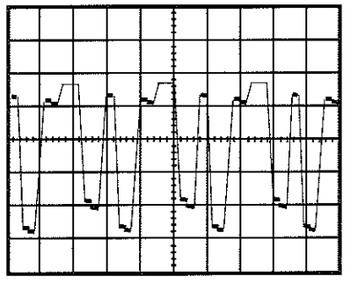
WF12 1DIV: 10V 5msec
CN 571 Pin 4



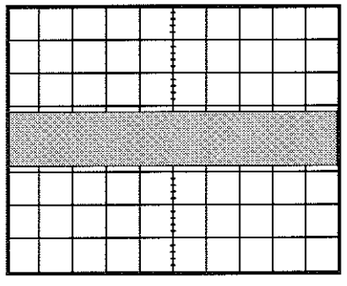
WF13 1DIV: 20V 20µsec
Q503 Collector



WF14 1DIV: 20V 20µsec
Q 502 Collector



WF15 1DIV: 20V 20µsec
Q 501 Collector



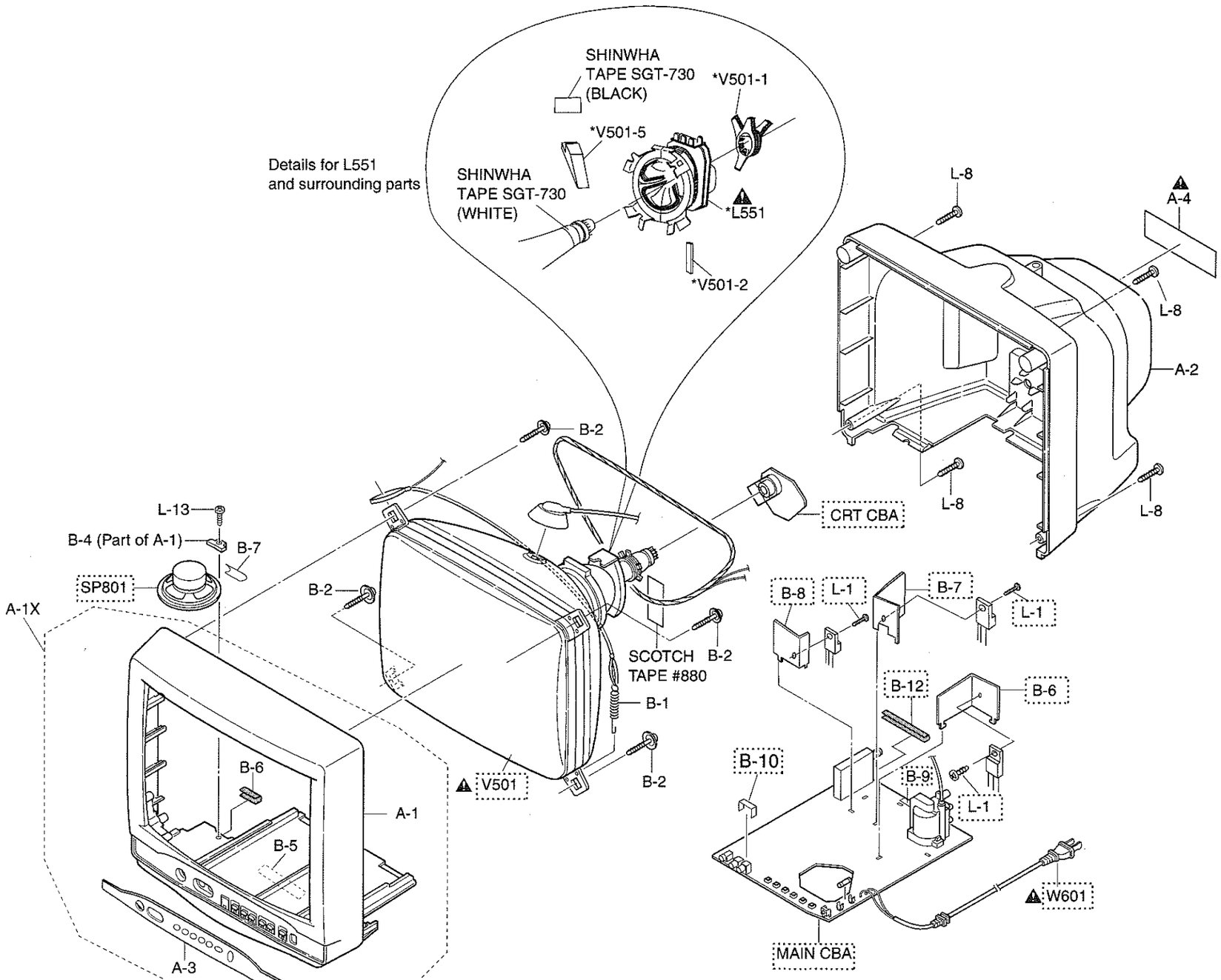
WF16 1DIV: 0.2V 20µsec
TU 1 Pin 8

EXPLODED VIEWS

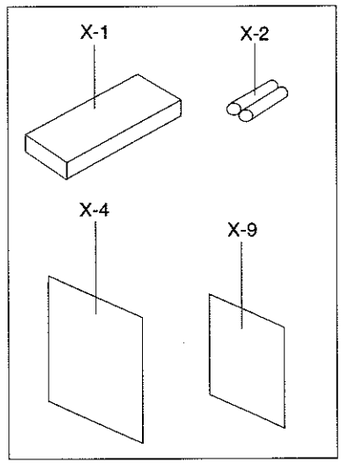
Cabinet

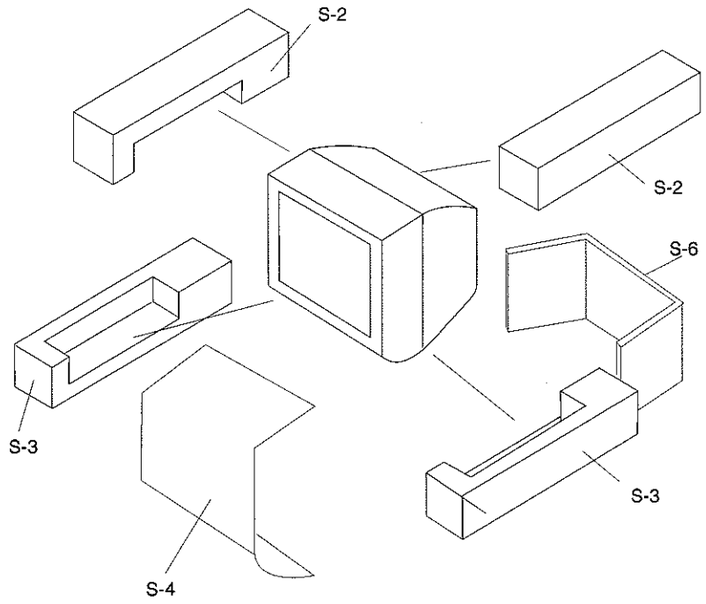
[ ] See Electrical Parts List for parts with mark.

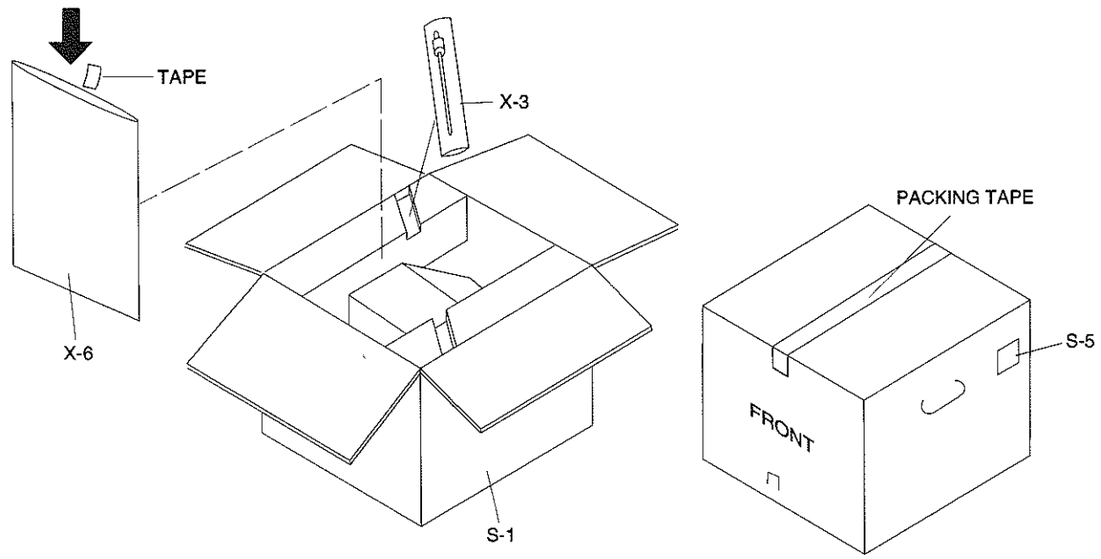
Some Ref. Number are not in sequence.



Packing







MECHANICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

Ref. No.	Description	Part No.
A-1X	FRONT CABINET ASSEMBLY	0EM201204
A-1	FRONT CABINET	0EM100962
A-3	CONTROL PLATE	0EM301277
A-2	REAR CABINET	0EM000346
A-4 ⚠	RATING LABEL	0EM405850
B-1	TENSION SPRING B0080B0:EM40808	26WH006
B-2	CRT MOUNTING SCREW	0EM403023
B-13	CLOTH(15X10XT0.5)	0EM405038
L-8	SCREW P-TIGHT 4X18 BIND HEAD +	GBMP4180
L-13	SCREW P-TIGHT 3X12 BIND HEAD+	GBMP3120
CLN551	CRT GND WIRE	WX1L7720-001
CLN801	WIRE ASSEMBLY	WX1L9200-001
L691	DEGAUSSING COIL F-017 or	LLBH00ZTM017
	DEGAUSSING COIL or	LLBH00ZTZ017
	DEGAUSSING COIL AVDG013 or	LLBH00ZWR017
	DEGAUSSING COIL	LLBH00ZTM022
SP801	SPEAKER S08J59B or	DSD0808XQ001
	SPEAKER S08J72A1 or	DSD0808XQ002
	PACKING	
S-1	CARTON	0EM405852
S-2	STYRFOAM TOP	0EM000349
S-3	STYRFOAM BOTTOM	0EM000350
S-4	SET SHEET :800X1500	0EM402369
S-5	SERIAL NO. LABEL	0EM405851
S-6	HOLD PAD	0EM405042
X-1	REMOTE CONTROL UNIT 130/ERC001/N0108UD	N0108UD
X-2	DRY BATTERY R6P UM3 or	XB0M451GH001
	DRY BATTERY(SUNRISE) R6SSE/2S or	XB0M451MS002
	DRY BATTERY R6P/2S or	XB0M451T0001
	DRY BATTERYor	XB0M451HU002
	DRY BATTERY	XB0M451HU003
X-3	ROD ANTENNA L7720UA:NTSC W/COO or	0EMN00691
	ROD ANTENNA	0EMN01599
X-4 ⚠	OWNER'S MANUAL(E)/(S)	0EMN01673
X-6	POLYETHYLENE BAG F8626B5	Z325350
X-9	RETURN STOP SHEET	0VM408870A
	CRT PARTS	
V501-1	C.P.MAGNET JH225-FN-00	XM04000BV003
V501-2	RUBBER MAGNET 20X10X1.2	XM05000BV001
V501-5	WEDGE FT-00110W or	XV10000T4001
	WEDGE DB25SR	XV10000D9001

Note:
1. V501 (CRT) HAS COUPLE OF SUBSTITUTIONAL PARTS AND EACH PARTS ALSO HAS MATCHING COMBINATION WITH L551.
2. l551 (DEFLECTION YOKE) HAS MATCHING COMBINATION WITH V501. PLEASE SEE TABLE 1 FOR DETAILS AND COMBINATION.

V501 ⚠	CRT(BARE+DY) A34AGT13X09 K or	TCRT190CP021
	CRT A34AGT13X or	TCRT190CP036
	CRT A34JLL90X(W) or	TCRT190QS015
	CRT A34KQW42X or	TCRT190SM013
	CRT A34KPU02XX or	TCRT190GS016
	CRT A34LEX10X or	TCRT190SAM01
	CRT A34LRQ90X(VW)	TCRT190P7003
L551	DEFLECTION YOKE	See Table 1

Table 1 (V501 and L551 Combination)

V 501 CRT Type No.	V 501: CRT Part No.	L 551: Deflectio Yoke Part No.
A34AGT13X09 K	TCRT190CP021	V501, L551, V501-1, V501-2 and V501-5 are included
A34AGT13X	TCRT190CP036	LLBY00ZMS011 LLBY00ZSY005
A34JLL90X(W)	TCRT190QS015	LLBY00ZMS005
A34KQW42X	TCRT190SM013	LLBY00ZMS006 or LLBY00ZSY002or LLBY00ZSM004
A34KPU02XX	TCRT190GS016	LLBY00ZSY002or LLBY00ZMS003
A34LEX10X	TCRT190SAM01	LLBY00ZMS014
A34LRQ90X(VW)	TCRT190P700	LLBY00ZMS004 LLBY00ZSY003

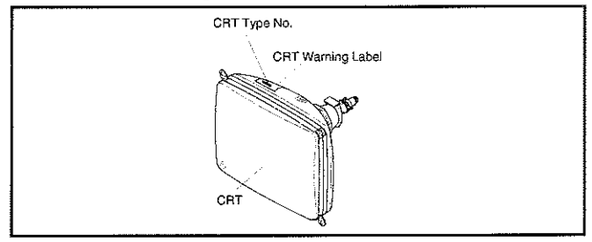
Note: Purity and Convergence Adjustments must be performed following CRT replacement. Refer to Electrical Adjustment Instructions.

Note:

Please confirm CRT Type No. on the CRT Warning Label which is located on the CRT. Then See the Table 1 for V501 and L551 combination chart.

Please refer this CRT, Deflection Yoke combination chart for parts order.

CRT Warning Label Location



Pin No.	Signal Name	Function
22	V RAMP	Filter for V Ramp
23	VC-VCC1	VC VCC 1
24	VC-VCC2	VC VCC 2
25	FSC-OUT	Freq. Sub carrier Output
26	SPOT-KILLER	Spot-Killer
27	FAST BLK	Fast Blanking Input
28	G-IN	OSD Green Input
29	V PULSE OUT	V-Pulse Output
30	R-IN	OSD Red Input
31	ACL/ABL	ACL/ABL
32	X-TAL 3.58	Chroma Osc
33	8.7V OUT	8.7V Output
34	EXT-IN	External Input
35	CHROMA APC FILTER	Filter for CHROMA APC
36	TV-IN	TV Input
37	VC GND 1	VC GND 1
38	VC GND 2	VC GND 2
39	VC GND 3	VC GND 3
40	Y-SW OUT	Y-SW Output
41	5.7V OUT	5.7V Output
42	Reset	MCU Reset Output
43	INTERI GENT MONITOR	Interigent Monitor Out
44	Hi Vcc 1	Hi Vcc 1
45	Hi Vcc 2	Hi Vcc 2
46	SW. REG. CONT.	Switching Reg. Control Output
47	SIF LIMITER-IN	SIF Limitter Input
48	IF AGC FILTER 2	Filter for IF AGC
49	QIF OUT	QIF Output
50	AUDIO OUT	Audio Output
51	AUDIO BYPASS	Filter for Audio Bypass

Pin No.	Signal Name	Function
52	EXT AUDIO IN	External Audio In
53	FM DETECT OUT	RF Output
54	VIF VCO-FB	VIF VCO-FB
55	REG. Vcc IN	REG. Vcc Input
56	VIDEO APC FILTER	Filter for Video APC
57	VIDEO OUT	Video Out
58	IF GND 1	GND 1
59	IF GND 2	GND 2
60	AFT OUT	AFT Out
61	QIF IN	QIF Input
62	RF AGC OUT	RF AGC Out
63	IF AGC FILTER 1	Filter for IF AGC
64	IF IN 1	IF Input 1

IC PIN FUNCTIONS

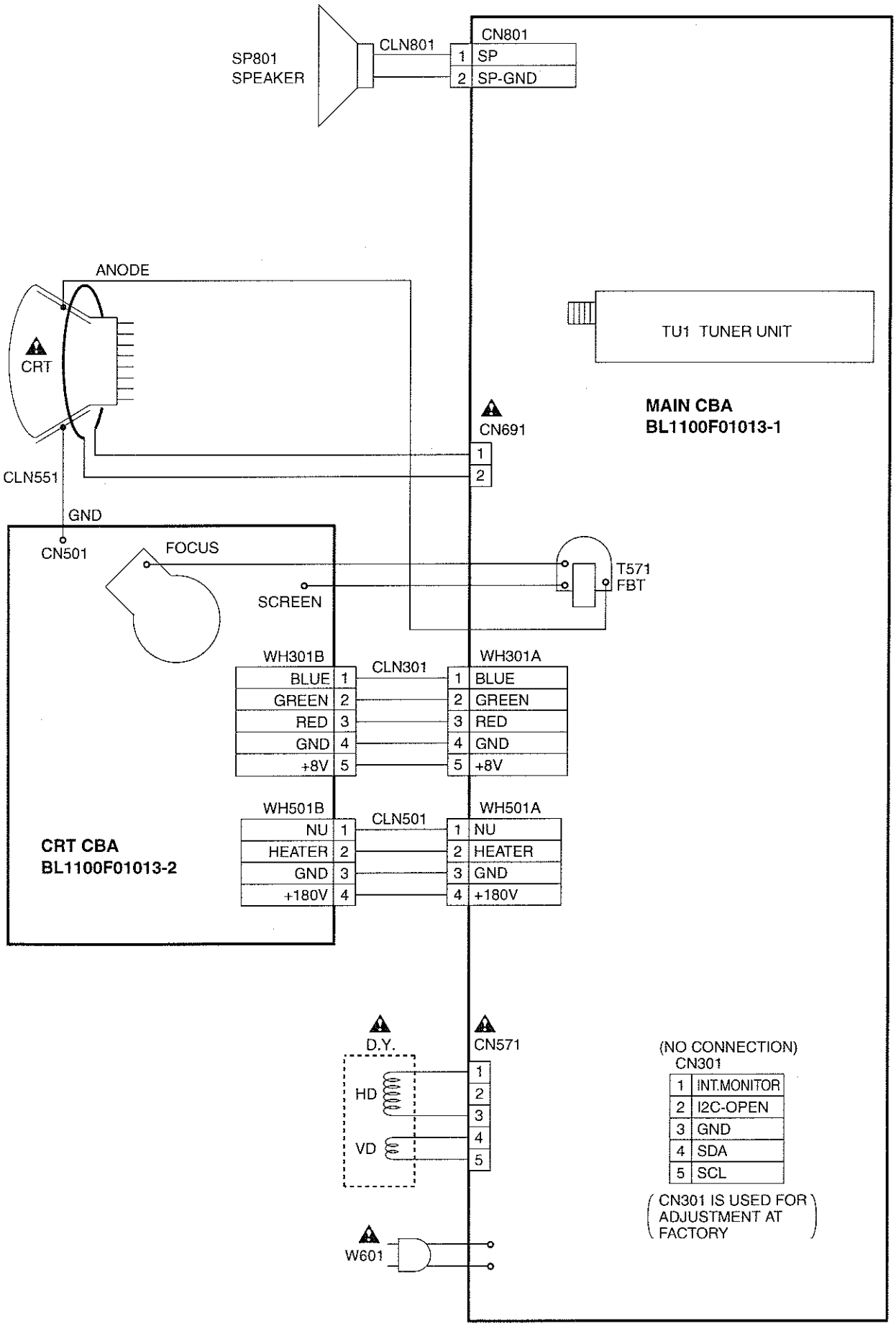
IC101 (TV Micro Computer)

Pin No.	Signal Name	Function
1	H SYNC	Input For Horizontal Synchronize Signal
2	V SYNC	Input For Vertical Synchronize Signal
3		Not Used
4	EXT-H	Ext-H
5		Not Used
6	A-MUTE	Audio Mute
7		Not Used
8		Not Used
9		Not Used
10	RCV-IN	Input For Remote Control
11	SD	Detection SD signal
12	1kHz-CHK	Power Supply Protection
13	P-ON-L	Output for P-ON-L
14	VCC	+5V
15	HLF	Filter for CCD
16	VHOLD	VHOLD
17	CVIN	Input for Video Signal
18	CV Vss	GND
19	XIN	Input for Oscillator
20	XOUT	Output for Oscillator
21	VSS	GND
22	VCC	+5V
23		Not Used
24		Not Used
25	RESET	RESET
26	PROTECT-1	Power Supply Protection
27	PROTECT-2	Power Supply Protection
28	KEY IN	Key Input (Main)
29		Not Used
30	FACTORY	Factort Key Input
31	SDA	I2C-BUS Controller Interface (Data)
32	I2C-OPEN	White Balance Adjustment Judgement
33	SCL	I2C-BUS Controller Interface (Clock)
34	SPOT-KILL	Spot Countermeasure
35	P-ON-H	Output for P-ON-H
36		Not Used
37		Not Used
38		Not Used
39	OSD-BLK	Picture Shut Down Output
40	OSD-B	Blue Output
41	OSD-G	Green Output
42	OSD-R	Red Output

IC301 (IF/Video/Chrominance/Defletion)

Pin No.	Signal Name	Function
1	IF IN 2	IF INput 2
2	IF-VCC1	IF-VCC 1
3	IF-VCC2	IF VCC 2
4	H. VCO-FB	H. VCO-FB
5	SCL	SCL
6	FBP- IN	FBP Input
7	H-OUT	H-Output
8	DEF GND 1	DEF GND 1
9	DEF GND 2	DEF GND 2
10	SDA	SDA
11	AFC FILTER 1	AFC Filter 1
12	INV. FBP-OUT	INV. FBP-OUT
13	P-ON-CTRL	Power on Control Output
14	R-OUT	R Output
15	G-OUT	G Output
16	B-OUT	B Output
17	V-OUT	Vertical Out
18	VCC 1	Start up VCC 1
19	VCC 2	Start up VCC 2
20	B-IN	OSD Blue Input
21	V-RAMP NF	V Ramp NF

WIRING DIAGRAM



ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTE: Parts that not assigned part numbers (----------) are not available.

Tolerance of Capacitors and Resistors are noted with the following symbols.

C.....±0.25%	D.....±0.5%	F.....±1%
G.....±2%	J.....±5%	K.....±10%
M.....±20%	N.....±30%	Z.....+80/-20%

Main (MMA) CBA

Ref. No.	Description	Part No.
	Main (MMA-285) CBA	0ESA03398
	Consists of the following	
	CAPACITORS	
C 2	CERAMIC CAP.(AX) F N 0.01µF/50V or	CA1J103TU014
	CERAMIC CAP. F Z 0.01µF/50V	CCD1JZS0F103
C 3	CERAMIC CAP.(AX) SL J 56pF/50V or	CCA1JJTSL560
	CHIP CERAMIC CAP. SL J 56pF/50V	CHE1JJBSL560
C 4	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 5	ELECTROLYTIC CAP. 220µF/10V M	CE1AMASTL221
C 6	ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASTL4R7
C 108	ELECTROLYTIC CAP. 47µF/16V M	CE1CMASTL470
C 111	ELECTROLYTIC CAP. 47µF/16V M	CE1CMASTL470
C 112	ELECTROLYTIC CAP. 220µF/10V M	CE1AMASTL221
C 113	CERAMIC CAP.(AX) F Z 0.01µF/25V or	CDA1EZT0F103
	CHIP CERAMIC CAP. F Z 0.01µF/50V	CHE1JZB0F103
C 131	CERAMIC CAP.(AX) B K 220pF/50V or	CCA1JKT0B221
	CHIP CERAMIC CAP. SL 220pF/50V	CHE1JKBSL221
C 135	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 136	ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASTL4R7
C 143	CERAMIC CAP.(AX) F Z 0.1µF/50V or	CCA1JZT0F104
	CHIP CERAMIC CAP. F Z 0.1µF/50V	CHE1JZB0F104
C 171	CERAMIC CAP.(AX) B K 220pF/50V or	CCA1JKT0B221
	CHIP CERAMIC CAP. SL 220pF/50V	CHE1JKBSL221
C 172	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL010
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASTL1R0
C 173	*MYLAR CAP. 0.001µF/50V J TV or	CMB1JJS00102
	MYLAR CAP. 0.001µF/50V K or	2250102S
	FILM CAP.(P) 0.001µF/50V J or	CA1J102MS029
	FILM CAP.(P) 0.001µF/50V J	CMA1JJS00102
C 176	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 301	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 302	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 303	ELECTROLYTIC CAP. 220µF/10V M	CE1AMASTL221
C 304	CERAMIC CAP.(AX) Y M 0.01µF/16V	CDA1CMT0Y103
C 311	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL010
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASTL1R0
C 312	CERAMIC CAP.(AX) Y M 0.01µF/16V	CDA1CMT0Y103
C 313	ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASTL4R7
C 321	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C 322	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C 323	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C 332	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASTL101
C 334	STACKED FILM CAP. 1.0µF/50 J	CMA1JJS00105
C 335	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 336	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASTL101
C 338	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 339	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASTL100
C 341	CERAMIC CAP.(AX) F Z 0.01µF/25V or	CDA1EZT0F103
	CHIP CERAMIC CAP. F Z 0.01µF/50V	CHE1JZB0F103
C 342	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 343	CERAMIC CAP.(AX) F Z 0.01µF/25V or	CDA1EZT0F103
	CHIP CERAMIC CAP. F Z 0.01µF/50V	CHE1JZB0F103
C 344	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL010
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASTL1R0
C 345	CERAMIC CAP. CH J 47pF/50V	CCD1JJSCH470
C 353	ELECTROLYTIC CAP. 0.1µF/50V M or	CE1JMASTL0R1
	ELECTROLYTIC CAP. 0.1µF/50V M	CE1JMASTLR10
C 354	ELECTROLYTIC CAP. 0.47µF/50V M	CE1JMASTLR47
C 355	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL010
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASTL1R0
C 356	CERAMIC CAP.(AX) B N 0.015µF/50V	CA1J153TU011
C 361	CERAMIC CAP.(AX) B N 0.022µF/50V	CA1J223TU011
C 363	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 364	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 366	ELECTROLYTIC CAP. 470µF/10V M	CE1AMASTL471
C 367	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASTL100
C 369	CERAMIC CAP.(AX) B N 0.022µF/50V	CA1J223TU011
C 372	PCB JUMPER D0.6-P5.0	JW5.0T
C 373	ELECTROLYTIC CAP. 2.2µF/50V M LL H7 or	CE1JMASHL2R2
	ELECTROLYTIC CAP. 2.2µF/50V M LL H7	CA1J2R2SP018
C 374	ELECTROLYTIC CAP. 0.1µF/50V M or	CE1JMASTL0R1
	ELECTROLYTIC CAP. 0.1µF/50V M	CE1JMASTLR10
C 375	CERAMIC CAP.(AX) X K 3300pF/16V or	CDA1CKT0X332
	CHIP CERAMIC CAP. B K 3300pF/50V	CHE1JKB0B332
C 376	CERAMIC CAP.(AX) Y M 0.01µF/16V	CDA1CMT0Y103
C 378	CERAMIC CAP.(AX) B K 180pF/50V or	CCA1JKT0B181
	CHIP CERAMIC CAP. SL 180pF/50V	CHE1JKBSL181
C 381	ELECTROLYTIC CAP. 0.47µF/50V M	CE1JMASTLR47
C 382	CERAMIC CAP.(AX) SL J 22pF/50V or	CCA1JJTSL220
	CHIP CERAMIC CAP. SL J 22pF/50V	CHE1JJBSL220
C 383	ELECTROLYTIC CAP. 0.22µF/50V M	CE1JMASTLR22
C 387	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL010
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASTL1R0
C 388	FILM CAP.(P) 0.047µF/50V J TV or	CMB1JJS00473
	MYLAR CAP. 0.047µF/50V K or	2250473S
	FILM CAP.(P) 0.047µF/50V J or	CA1J473MS029
	FILM CAP.(P) 0.047µF/50V J	CMA1JJS00473
C 389	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 393	ELECTROLYTIC CAP. 0.1µF/50V M or	CE1JMASTL0R1
	ELECTROLYTIC CAP. 0.1µF/50V M	CE1JMASTLR10
C 396	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASTL100
C 552	FILM CAP.(P) 0.1µF/50V J TV or	CMB1JJS00104
	MYLAR CAP. 0.1µF/50V K or	2250104S
	FILM CAP.(P) 0.1µF/50V J or	CA1J104MS029
	FILM CAP.(P) 0.1µF/50V J	CMA1JJS00104
C 553	ELECTROLYTIC CAP. 2.2µF/50V M LL H7 or	CE1JMASHL2R2
	ELECTROLYTIC CAP. 2.2µF/50V M LL H7	CA1J2R2SP018
C 555	ELECTROLYTIC CAP. 47µF/35V M	CE1GMASTL470
C 556	ELECTROLYTIC CAP. 1000µF/35V M	CE1GMZNTL102

Ref. No.	Description	Part No.
C 558	CERAMIC CAP.(AX) F Z 0.01µF/25V or	CDA1EZT0F103
	CHIP CERAMIC CAP. F Z 0.01µF/50V	CHE1JZB0F103
C 559	ELECTROLYTIC CAP. 100µF/35V M	CE1GMASTL101
C 571 ⚠	METALLIZED FILM CAP. 0.33µF/200V J or	CT2D334F7001
	PP CAP. 0.33µF/200V J	CT2E334MS040
C 574 ⚠	ELECTROLYTIC CAP. 4.7µF/250V M	CE2EMASTL4R7
C 577	FILM CAP.(P) 0.01µF/50V J TV or	CMB1JJS00103
	MYLAR CAP. 0.01µF/50V K or	2250103S
	FILM CAP.(P) 0.01µF/50V J or	CA1J103MS029
	FILM CAP.(P) 0.01µF/50V J	CMA1JJS00103
C 578	ELECTROLYTIC CAP. 47µF/35V M	CE1GMASTL470
C 580 ⚠	PP CAP. 0.0082µF/1.6KV J	CT3C822MS039
C 584 ⚠	ELECTROLYTIC CAP. 1µF/160V M	CE2CMASTL1R0
C 591 ⚠	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASTL100
C 601 ⚠	FILM CAP.(MP) 0.1µF/250V M or	CT2E104DC009
	METALLIZED FILM CAP. 0.1µF/250V	CT2E104MS037
C 602	FILM CAP.(P) 0.047µF/50V J TV or	CMB1JJS00473
	MYLAR CAP. 0.047µF/50V K or	2250473S
	FILM CAP.(P) 0.047µF/50V J or	CA1J473MS029
	FILM CAP.(P) 0.047µF/50V J	CMA1JJS00473
C 605 ⚠	CERAMIC CAP. 0.01µF/AC250V or	CCD2EZA0F103
	CERAMIC CAP. F Z 0.01µF/500V	CCD2JZD0F103
C 606 ⚠	CERAMIC CAP. 0.01µF/AC250V or	CCD2EZA0F103
	CERAMIC CAP. F Z 0.01µF/500V	CCD2JZD0F103
C 609 ⚠	CERAMIC CAP. B K 1000pF/2kV or	CA3D102MR030
	CERAMIC CAP. BK 0.001µF/2kV or	CCD3DKP0B102
	CERAMIC CAP. B K 1000pF/2kV	CCD3DKD0B102
C 610 ⚠	ELECTROLYTIC CAPACITOR 150µF/200V or	CA2D151S6012
	ALMINIUM ELECTROLYTIC CAP150µF/200V	CA2D151NC088
C 611	FILM CAP.(P) 0.033µF/50V J TV or	CMB1JJS00333
	MYLAR CAP. 0.033µF/50V K or	2250333S
	FILM CAP.(P) 0.033µF/50V J or	CA1J333MS029
	FILM CAP.(P) 0.033µF/50V J	CMA1JJS00333
C 613	FILM CAP.(P) 0.1µF/50V J TV or	CMB1JJS00104
	MYLAR CAP. 0.1µF/50V K or	2250104S
	FILM CAP.(P) 0.1µF/50V J or	CA1J104MS029
	FILM CAP.(P) 0.1µF/50V J	CMA1JJS00104
C 642	PCB JUMPER D0.6-P10.0	JW10.0T
C 643 ⚠	SAFETY CAP. 4700pF/125V MX	CCF2BMA0F472
C 652	CERAMIC CAP. B K 470pF/1KV or	CCD3AKD0B471
	CERAMIC CAP. B K 470pF/1KV	CCD3AKP0B471
C 654 ⚠	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL010
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASTL1R0
C 655	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL010
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASTL1R0
C 656 ⚠	ELECTROLYTIC CAP. 100µF/160V M	CE2CMZPTL101
C 657 ⚠	ELECTROLYTIC CAP. 1000µF/35V M	CE1GMZNTL102
C 658 ⚠	ELECTROLYTIC CAP. 470µF/16V M	CE1CMASTL471
C 661	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 681	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASTL101
C 682	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASTL101
C 684	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASTL101
C 685	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASTL101
C 686	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASTL101
C 701	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C 803	ELECTROLYTIC CAP. 220µF/16V M	CE1CMASTL221
C 804	CERAMIC CAP.(AX) F N 0.22µF/50V	CA1J224TU014
C 805	CERAMIC CAP.(AX) X K 5600pF/16V	CDA1CKT0X562
C 808	CERAMIC CAP.(AX) F N 0.47µF/50V	CA1J474TU014
C 809	CERAMIC CAP.(AX) F Z 0.01µF/25V or	CDA1EZT0F103
	CHIP CERAMIC CAP. F Z 0.01µF/50V	CHE1JZB0F103
C 810	ELECTROLYTIC CAP. 1000µF/16V M(VR/HC)	CE1CMZNTL102
	CONNECTORS	
CN 301	CONNECTOR BASE 5P TUC-P05P-B1	J3TUA05TG001
CN 501	PIN CONNECTOR 005P-5100	JTEA001TG001
CN 571	CONNECTOR BASE 5P W-P3005-02 or	1730812

Ref. No.	Description	Part No.
	CONNECTOR BASE 5P RTB-1.5-5P or	J3RTC05JG001
	CONNECTOR BASE 5P TV-50P-05-V2	J3TVC05TG002
CN 691	CONNECTOR BASE 2P RTB-1.5-2P or	J3RTC02JG001
	CONNECTOR BASE 2P TV-50P-02-V2	J3TVC02TG002
CN 801	STRAIGHT PIN HEADER 2P 173981-2 or	1770258
	STRAIGHT CONNECTOR BASE	J383C02UG002
	DIODES	
D 101	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 102	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 146	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D 161 ⚠	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 309	ZENER DIODE MTZJT-776.8B	QDTB0MTZJ6R8
D 313	ZENER DIODE MTZJT-776.8B	QDTB0MTZJ6R8
D 321	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 322	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 323	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 331	ZENER DIODE MTZJT-778.2B	QDTB0MTZJ8R2
D 371	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 396	ZENER DIODE MTZJT-778.2B	QDTB0MTZJ8R2
D 397	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 552	RECTIFIER DIODE ERA15-02	AERA1502****
D 571 ⚠	RECTIFIER DIODE 10ELS2 or	QDQZ0010ELS2
	RECTIFIER DIODE ERA22-02	QDPZ0ERA2202
D 572 ⚠	RECTIFIER DIODE 10ELS2 or	QDQZ0010ELS2
	RECTIFIER DIODE ERA22-02	QDPZ0ERA2202
D 573	RECTIFIER DIODE 10ELS2 or	QDQZ0010ELS2
	RECTIFIER DIODE ERA22-02	QDPZ0ERA2202
D 584 ⚠	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 591 ⚠	ZENER DIODE MTZJT-7736B	QDTB00MTZJ36
D 592	ZENER DIODE MTZJT-776.8B	QDTB0MTZJ6R8
D 596 ⚠	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 605 ⚠	RECTIFIER DIODE ERB12-06	QDQZ0ERB1206
D 606 ⚠	RECTIFIER DIODE ERB12-06	QDQZ0ERB1206
D 607 ⚠	RECTIFIER DIODE ERB12-06	QDQZ0ERB1206
D 608 ⚠	RECTIFIER DIODE ERB12-06	QDQZ0ERB1206
D 609	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 611 ⚠	ZENER DIODE MTZJT-7715B	QDTB00MTZJ15
D 613	ZENER DIODE MTZJT-773.0B	QDTB0MTZJ3R0
D 614	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 615 ⚠	SWITCHING DIODE 1N4148 T-77	QDTZ001N4148
D 651	FAST RECOVERY DIODE ERC25-06 or	QDQZ0ERC2506
	RECOVERY DIODE ERC18-04	QDZZ0ERC1804

Ref. No.	Description	Part No.
D 652 ⚠	FAST RECOVERY DIODE ERB44-02	QDPZ0ERB4402
D 653 ⚠	FAST RECOVERY DIODE ERB44-02	QDPZ0ERB4402
D 654	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 655 ⚠	ZENER DIODE MTZJT-7736B	QDTB00MTZJ36
D 656 ⚠	ZENER DIODE MTZJT-776.8B	QDTB0MTZJ6R8
D 660	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 661 ⚠	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 667 ⚠	DIODE 1ZC33	QDQZ0001ZC33
D 670	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 672	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 674	ZENER DIODE MTZJT-7711B	QDTB00MTZJ11
D 675	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 681	ZENER DIODE MTZJT-779.1B	QDTB0MTZJ9R1
D 691	ZENER DIODE MTZJT-7715B	QDTB00MTZJ15
D 801 ⚠	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 811	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
	ICS	
IC 101 ⚠	IC M37272M8-189FP	QSMAC0SMB002
IC 151	IC:MEMORY BR24C01AF-W or	QSMBA0SRM002
	IC:MEMORY BR24C01AF or	QSMMA0SRM002
	IC:MEMORY BR24C01AF-W or	QSMBA0SRM002
	IC:MEMORY BR24C01AF or	QSMMA0SRM002
	IC(EEPROM) M24C01-MN6 or	NSMMA0SSS027
	IC:MEMORY AT24C01A-10SC	NSMMA0SAZ011
IC 301 ⚠	IC:CHROMA/IF 1 CHIP M61203CFP	QSBBC0RMB001
IC 551 ⚠	VERTICAL OUTPUT IC LA78040A	QSBBA0SSY003
IC 601 ⚠	PHOTO COUPLER PF5001-B,C	QPE300PF5001
IC 801 ⚠	AUDIO AMP LA4524L	QSBLA0SSY087
	COILS	
L 3	INDUCTOR 18µH-K-26T or	LLAXKDTKA180
	INDUCTOR 18µH-J-26T	LLAXJATTU180
L 5	INDUCTOR 22µH-K or	LLARKDQKA220
	INDUCTOR 22µH-K-5FT	LLARKBSTU220
L 11	PCB JUMPER D0.6-P5.0	JW5.0T
L 111 ⚠	INDUCTOR 22µH-K or	LLARKDQKA220
	INDUCTOR 22µH-K-5FT	LLARKBSTU220
L 112	INDUCTOR 22µH-K-26T or	LLAXKDTKA220
	INDUCTOR 22µH-J-26T	LLAXJATTU220
L 301	PCB JUMPER D0.6-P5.0	JW5.0T
L 302	PCB JUMPER D0.6-P5.0	JW5.0T
L 331	PCB JUMPER D0.6-P5.0	JW5.0T
L 335	INDUCTOR 100µH-K-5FT or	LLARKDSKA101
	INDUCTOR 100µH-J-5FT	LLARJCSTU101
L 371	INDUCTOR 12µH-K-26T or	LLAXKDTKA120
	INDUCTOR 12µH-J-26T	LLAXJATTU120
L 372	PCB JUMPER D0.6-P5.0	JW5.0T
L 378	INDUCTOR 2.2µH-K-26T or	LLAXKDTKA2R2
	INDUCTOR 2.2µH-J-26T	LLAXJATTU2R2
L 572 ⚠	PCB JUMPER D0.6-P5.0	JW5.0T
L 601 ⚠	LINE FILTER LF005 or	LLBG00ZLH001
	LINE FILTER 5.0MH 6Y075 or	LLBG00ZKT004
	LINE FILTER TLF12UA302W1R0	LLBG00ZTU025
	TRANSISTORS	
Q 111 ⚠	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
	TRANSISTOR 2SC1815-GR(TPE2) or	QQS102SC1815
	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F)	QQSF02SC2785
Q 321	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F)	QQSF02SC2785
Q 571 ⚠	TRANSISTOR 2SD2627LS-FEC-YB11	QQZZ02SD2627
Q 572 ⚠	TRANSISTOR 2SC1627Y-TPE2	QQSY02SC1627
Q 601 ⚠	MOS FET 2SK2876-54MR	QFZZ02SK2876
Q 602	TRANSISTOR 2SC2120-Y-TPE2 or	QQSY02SC2120
	TRANSISTOR 2SC2120-O-TPE2	QQS002SC2120
Q 651 ⚠	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
	TRANSISTOR 2SC1815-GR(TPE2) or	QQS102SC1815
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F)	QQSF02SC2785
Q 652 ⚠	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
	TRANSISTOR 2SC1815-GR(TPE2) or	QQS102SC1815
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F)	QQSF02SC2785
Q 672 ⚠	TRANSISTOR KTA1266(GR) or	NQS40KTA1266
	TRANSISTOR 2SA1318(T)-AANP or	2SA1318TZ
	TRANSISTOR 2SA1318(U)-AANP or	2SA1318UZ
	TRANSISTOR 2SA1015-GR(TPE2) or	QQS102SA1015
	TRANSISTOR 2SA1015-GR(TPE2) or	QQS102SA1015
	TRANSISTOR KTA1267(GR) or	NQS10KTA1267
	TRANSISTOR 2SA1175(F)	QQSF02SA1175
Q 673 ⚠	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
	TRANSISTOR 2SC1815-GR(TPE2) or	QQS102SC1815
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F)	QQSF02SC2785
Q 674	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ

Ref. No.	Description	Part No.
	TRANSISTOR 2SC1815-GR(TPE2) or	QQS102SC1815
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F)	QQSF02SC2785
Q 681 ⚠	TRANSISTOR 2SC2120-Y-TPE2 or	QQSY02SC2120
	TRANSISTOR 2SC2120-O-TPE2	QQS002SC2120
Q 682 ⚠	TRANSISTOR 2SC2120-Y-TPE2 or	QQSY02SC2120
	TRANSISTOR 2SC2120-O-TPE2	QQS002SC2120
Q 683 ⚠	TRANSISTOR 2SC2120-Y-TPE2 or	QQSY02SC2120
	TRANSISTOR 2SC2120-O-TPE2	QQS002SC2120
Q 801	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
	TRANSISTOR 2SC1815-GR(TPE2) or	QQS102SC1815
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F)	QQSF02SC2785
	RESISTORS	
J 111	PCB JUMPER D0.6-P5.0 or	JW5.0T
	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/8W 0 Ω	RRX8JB6Z0000
	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/8W 0 Ω	RRX8JB6Z0000
J 151	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/8W 0 Ω	RRX8JB6Z0000
	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/8W 0 Ω	RRX8JB6Z0000
R 6	PCB JUMPER D0.6-P5.0 or	JW5.0T
	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/8W 0 Ω	RRX8JB6Z0000
R 11	PCB JUMPER D0.6-P5.0	JW5.0T
R 101	CARBON RES. 1/6W J 2.2k Ω or	RCX6JATZ0222
	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 102	CARBON RES. 1/4W J 1.8k Ω or	RCX4JATZ0182
	CARBON RES. 1/6W J 1.8k Ω or	RCX6JATZ0182
	CHIP RES. 1/10W J 1.8k Ω or	RRXAJB6Z0182
	CHIP RES. 1/8W J 1.8k Ω	RRX8JB6Z0182
R 103	CARBON RES. 1/4W J 3.3k Ω or	RCX4JATZ0332
	CARBON RES. 1/6W J 3.3k Ω or	RCX6JATZ0332
	CHIP RES. 1/10W J 3.3k Ω or	RRXAJB6Z0332
	CHIP RES. 1/8W J 3.3k Ω	RRX8JB6Z0332
R 104	CARBON RES. 1/4W J 4.7k Ω or	RCX4JATZ0472
	CARBON RES. 1/6W J 4.7k Ω or	RCX6JATZ0472
	CHIP RES. 1/10W J 4.7k Ω or	RRXAJB6Z0472
	CHIP RES. 1/8W J 4.7k Ω	RRX8JB6Z0472
R 105	CARBON RES. 1/4W J 8.2k Ω or	RCX4JATZ0822
	CARBON RES. 1/6W J 8.2k Ω or	RCX6JATZ0822
	CHIP RES. 1/10W J 8.2k Ω or	RRXAJB6Z0822
	CHIP RES. 1/8W J 8.2k Ω	RRX8JB6Z0822
R 108	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CHIP RES. 1/10W J 100 Ω or	RRXAJB6Z0101
	CHIP RES. 1/8W J 100 Ω	RRX8JB6Z0101
R 109	CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
	CHIP RES. 1/8W J 10k Ω	RRX8JB6Z0103
R 110	PCB JUMPER D0.6-P5.0 or	JW5.0T
	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/8W 0 Ω	RRX8JB6Z0000
R 112 ⚠	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 121	CARBON RES. 1/6W J 4.7k Ω or	RCX6JATZ0472
	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472

Ref. No.	Description	Part No.
R 122	CARBON RES. 1/6W J 4.7k Ω or	RCX6JATZ0472
	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 123	CARBON RES. 1/6W J 4.7k Ω or	RCX6JATZ0472
	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 124	CARBON RES. 1/6W J 4.7k Ω or	RCX6JATZ0472
	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 125	CARBON RES. 1/6W J 560 Ω or	RCX6JATZ0561
	CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R 126	CARBON RES. 1/6W J 560 Ω or	RCX6JATZ0561
	CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R 127	CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
	CARBON RES. 1/6W J 560 Ω or	RCX6JATZ0561
	CHIP RES. 1/10W J 560 Ω or	RRXAJB6Z0561
	CHIP RES. 1/8W J 560 Ω	RRX8JB6Z0561
R 128	CARBON RES. 1/4W J 1.5k Ω or	RCX4JATZ0152
	CARBON RES. 1/6W J 1.5k Ω or	RCX6JATZ0152
	CHIP RES. 1/10W J 1.5k Ω or	RRXAJB6Z0152
	CHIP RES. 1/8W J 1.5k Ω	RRX8JB6Z0152
R 133	CARBON RES. 1/4W J 3.3k Ω or	RCX4JATZ0332
	CARBON RES. 1/6W J 3.3k Ω or	RCX6JATZ0332
	CHIP RES. 1/10W J 3.3k Ω or	RRXAJB6Z0332
	CHIP RES. 1/8W J 3.3k Ω	RRX8JB6Z0332
R 134	CARBON RES. 1/4W J 4.7k Ω or	RCX4JATZ0472
	CARBON RES. 1/6W J 4.7k Ω or	RCX6JATZ0472
	CHIP RES. 1/10W J 4.7k Ω or	RRXAJB6Z0472
	CHIP RES. 1/8W J 4.7k Ω	RRX8JB6Z0472
R 135	CARBON RES. 1/4W J 3.3k Ω or	RCX4JATZ0332
	CARBON RES. 1/6W J 3.3k Ω or	RCX6JATZ0332
	CHIP RES. 1/10W J 3.3k Ω or	RRXAJB6Z0332
	CHIP RES. 1/8W J 3.3k Ω	RRX8JB6Z0332
R 136	CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
	CHIP RES. 1/8W J 10k Ω	RRX8JB6Z0103
R 137	PCB JUMPER D0.6-P5.0 or	JW5.0T
	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/8W 0 Ω	RRX8JB6Z0000
R 138	CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k Ω or	RCX6JATZ0223
	CHIP RES. 1/10W J 22k Ω or	RRXAJB6Z0223
	CHIP RES. 1/8W J 22k Ω	RRX8JB6Z0223
R 151	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CHIP RES. 1/10W J 100 Ω or	RRXAJB6Z0101
	CHIP RES. 1/8W J 100 Ω	RRX8JB6Z0101
R 152	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CHIP RES. 1/10W J 100 Ω or	RRXAJB6Z0101
	CHIP RES. 1/8W J 100 Ω	RRX8JB6Z0101
R 164	CARBON RES. 1/6W J 6.8k Ω or	RCX6JATZ0682
	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R 168	CARBON RES. 1/6W J 22k Ω or	RCX6JATZ0223
	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 170	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CHIP RES. 1/10W J 100 Ω or	RRXAJB6Z0101
	CHIP RES. 1/8W J 100 Ω	RRX8JB6Z0101
R 171	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
	CHIP RES. 1/8W J 1k Ω	RRX8JB6Z0102
R 175	CARBON RES. 1/4W J 150k Ω or	RCX4JATZ0154
	CARBON RES. 1/6W J 150k Ω or	RCX6JATZ0154
	CHIP RES. 1/10W J 150k Ω or	RRXAJB6Z0154
	CHIP RES. 1/8W J 150k Ω	RRX8JB6Z0154
R 176	PCB JUMPER D0.6-P5.0	JW5.0T

Ref. No.	Description	Part No.
R 181	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 182	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 304	CARBON RES. 1/6W J 2.2k Ω or	RCX6JATZ0222
	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 305	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 306	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 308	CARBON RES. 1/6W J 2.7k Ω or	RCX6JATZ0272
	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R 310	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 311	CARBON RES. 1/6W J 6.8k Ω or	RCX6JATZ0682
	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R 312	CARBON RES. 1/6W J 2.2k Ω or	RCX6JATZ0222
	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 313	CARBON RES. 1/6W J 22k Ω or	RCX6JATZ0223
	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 321	CARBON RES. 1/6W J 2.2k Ω or	RCX6JATZ0222
	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 322	CARBON RES. 1/6W J 2.2k Ω or	RCX6JATZ0222
	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 323	CARBON RES. 1/6W J 2.2k Ω or	RCX6JATZ0222
	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 324	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 325	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 326	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 328	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 329	CARBON RES. 1/6W J 470 Ω or	RCX6JATZ0471
	CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R 331	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 333	CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k Ω or	RCX6JATZ0223
	CHIP RES. 1/10W J 22k Ω or	RRXAJB6Z0223
	CHIP RES. 1/8W J 22k Ω	RRX8JB6Z0223
R 338	CARBON RES. 1/6W J 470 Ω or	RCX6JATZ0471
	CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R 343	CARBON RES. 1/6W J 15k Ω or	RCX6JATZ0153
	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R 344	CARBON RES. 1/4W J 120k Ω or	RCX4JATZ0124
	CARBON RES. 1/6W J 120k Ω or	RCX6JATZ0124
	CHIP RES. 1/10W J 120k Ω or	RRXAJB6Z0124
	CHIP RES. 1/8W J 120k Ω	RRX8JB6Z0124
R 346	PCB JUMPER D0.6-P5.0 or	JW5.0T
	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/8W 0 Ω	RRX8JB6Z0000
R 355	CARBON RES. 1/6W J 6.8k Ω or	RCX6JATZ0682
	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R 361	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 363	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CHIP RES. 1/10W J 100 Ω or	RRXAJB6Z0101
	CHIP RES. 1/8W J 100 Ω	RRX8JB6Z0101
R 364	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 365	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 366	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101

Ref. No.	Description	Part No.
	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CHIP RES. 1/10W J 100 Ω or	RRXAJB6Z0101
	CHIP RES. 1/8W J 100 Ω	RRX8JB6Z0101
R 368	PCB JUMPER D0.6-P5.0	JW5.0T
R 369	PCB JUMPER D0.6-P5.0 or	JW5.0T
	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/8W 0 Ω	RRX8JB6Z0000
R 372	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 373	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 374	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 376	PCB JUMPER D0.6-P5.0 or	JW5.0T
	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/8W 0 Ω	RRX8JB6Z0000
R 377	CARBON RES. 1/4W J 150 Ω or	RCX4JATZ0151
	CARBON RES. 1/6W J 150 Ω or	RCX6JATZ0151
	CHIP RES. 1/10W J 150 Ω or	RRXAJB6Z0151
	CHIP RES. 1/8W J 150 Ω	RRX8JB6Z0151
R 378	CARBON RES. 1/6W J 470 Ω or	RCX6JATZ0471
	CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R 381	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω or	RCX6JATZ0471
	CHIP RES. 1/10W J 470 Ω or	RRXAJB6Z0471
	CHIP RES. 1/8W J 470 Ω	RRX8JB6Z0471
R 385	PCB JUMPER D0.6-P5.0	JW5.0T
R 387	CARBON RES. 1/4W J 10M Ω	RCX4JATZ0106
R 391	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 392	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 393	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
	CHIP RES. 1/8W J 1k Ω	RRX8JB6Z0102
R 394	CARBON RES. 1/6W J 220 Ω or	RCX6JATZ0221
	CARBON RES. 1/4W J 220 Ω	RCX4JATZ0221
R 396 ⚠	CARBON RES. 1/6W J 220 Ω or	RCX6JATZ0221
	CARBON RES. 1/4W J 220 Ω	RCX4JATZ0221
R 397 ⚠	CARBON RES. 1/6W J 220 Ω or	RCX6JATZ0221
	CARBON RES. 1/4W J 220 Ω	RCX4JATZ0221
R 551	PCB JUMPER D0.6-P5.0	JW5.0T
R 552 ⚠	CARBON RES. 1/4W J 3.3k Ω or	RCX4JATZ0332
	CARBON RES. 1/6W J 3.3k Ω or	RCX6JATZ0332
	CHIP RES. 1/10W J 3.3k Ω or	RRXAJB6Z0332
	CHIP RES. 1/8W J 3.3k Ω	RRX8JB6Z0332
R 553 ⚠	CARBON RES. 1/4W J 3.3k Ω or	RCX4JATZ0332
	CARBON RES. 1/6W J 3.3k Ω or	RCX6JATZ0332
	CHIP RES. 1/10W J 3.3k Ω or	RRXAJB6Z0332
	CHIP RES. 1/8W J 3.3k Ω	RRX8JB6Z0332
R 557	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω or	RCX6JATZ0471
	CHIP RES. 1/10W J 470 Ω or	RRXAJB6Z0471
	CHIP RES. 1/8W J 470 Ω	RRX8JB6Z0471
R 558	CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k Ω or	RCX6JATZ0223
	CHIP RES. 1/10W J 22k Ω or	RRXAJB6Z0223
	CHIP RES. 1/8W J 22k Ω	RRX8JB6Z0223
R 559	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
	CHIP RES. 1/8W J 1k Ω	RRX8JB6Z0102
R 560	CARBON RES. 1/4W J 3.3k Ω or	RCX4JATZ0332
	CARBON RES. 1/6W J 3.3k Ω or	RCX6JATZ0332
	CHIP RES. 1/10W J 3.3k Ω or	RRXAJB6Z0332

Ref. No.	Description	Part No.
	CHIP RES. 1/8W J 3.3k Ω	RRX8JB6Z0332
R 561	CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
	CHIP RES. 1/8W J 10k Ω	RRX8JB6Z0103
R 562	CARBON RES. 1/4W J 2.2 Ω	RCX4JATZ02R2
R 566 ⚠	FUSE RES. 1/4W J 4.7 Ω or	RFX44R7UB002
	FUSE RES. 1/4W J 4.7 Ω or	RFX44R7UB002
	FUSE RES. 1/4W J 4.7 Ω or	RFX44R7KA007
	FUSE RES. 1/4W J 4.7 Ω	RFX44R7HH001
R 568	CARBON RES. 1/4W J 4.7 Ω or	RCX4JATZ04R7
	CARBON RES. 1/6W J 4.7 Ω or	RCX6JATZ04R7
	CHIP RES. 1/10W J 4.7 Ω or	RRXAJB6Z04R7
	CHIP RES. 1/8W J 4.7 Ω	RRX8JB6Z04R7
R 572	CARBON RES. 1/6W J 470 Ω or	RCX6JATZ0471
	CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R 574 ⚠	METAL RESISTOR 2W J 470 Ω or	RN02471UB001
	METAL RESISTOR 2W J 470 Ω or	RN02471UB001
	METAL RESISTOR 2W J 470 Ω or	RN02471ZU001
	FIXED METAL OXIDE FILM RES. 2W J 470 Ω	RN02471KE007
R 576	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
	CHIP RES. 1/8W J 1k Ω	RRX8JB6Z0102
R 577	CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
	CARBON RES. 1/6W J 560 Ω or	RCX6JATZ0561
	CHIP RES. 1/10W J 560 Ω or	RRXAJB6Z0561
	CHIP RES. 1/8W J 560 Ω	RRX8JB6Z0561
R 579 ⚠	CARBON RES. 1/6W J 47 Ω or	RCX6JATZ0470
	CARBON RES. 1/4W J 47 Ω	RCX4JATZ0470
R 580 ⚠	CARBON RES. 1/6W J 47 Ω or	RCX6JATZ0470
	CARBON RES. 1/4W J 47 Ω	RCX4JATZ0470
R 581	CARBON RES. 1/4W J 1 Ω	RCX4JATZ01R0
R 582	CARBON RES. 1/4W J 1 Ω	RCX4JATZ01R0
R 583 ⚠	METAL RESISTOR 1W J 1.8 Ω or	RN011R8UB001
	FIXED METAL OXIDE FILM RES. 1W J 1.8 Ω or	RN011R8DP003
	METAL RESISTOR 1W J 1.8 Ω or	RN011R8UB001
	FIXED METAL OXIDE FILM RES. 1W J 1.8 Ω or	RN011R8DP003
	METAL RESISTOR 1W J 1.8 Ω or	RN011R8ZU001
	FIXED METAL OXIDE FILM RES. 1W J 1.8 Ω	RN011R8KE009
R 584 ⚠	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 585	CARBON RES. 1/6W J 8.2k Ω or	RCX6JATZ0822
	CARBON RES. 1/4W J 8.2k Ω	RCX4JATZ0822
R 586	CARBON RES. 1/4W J 100k Ω or	RCX4JATZ0104
	CARBON RES. 1/6W J 100k Ω or	RCX6JATZ0104
	CHIP RES. 1/10W J 100k Ω or	RRXAJB6Z0104
	CHIP RES. 1/8W J 100k Ω	RRX8JB6Z0104
R 587 ⚠	CARBON RES. 1/6W J 100k Ω or	RCX6JATZ0104
	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R 588	CARBON RES. 1/6W J 100k Ω or	RCX6JATZ0104
	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R 591 ⚠	CARBON RES. 1/4W J 100k Ω or	RCX4JATZ0104
	CARBON RES. 1/6W J 100k Ω or	RCX6JATZ0104
	CHIP RES. 1/10W J 100k Ω or	RRXAJB6Z0104
	CHIP RES. 1/8W J 100k Ω	RRX8JB6Z0104
R 592 ⚠	CARBON RES. 1/4W J 180k Ω or	RCX4JATZ0184
	CARBON RES. 1/6W J 180k Ω or	RCX6JATZ0184
	CHIP RES. 1/10W J 180k Ω or	RRXAJB6Z0184
	CHIP RES. 1/8W J 180k Ω	RRX8JB6Z0184
R 593 ⚠	CARBON RES. 1/4W J 100k Ω or	RCX4JATZ0104
	CARBON RES. 1/6W J 100k Ω or	RCX6JATZ0104
	CHIP RES. 1/10W J 100k Ω or	RRXAJB6Z0104
	CHIP RES. 1/8W J 100k Ω	RRX8JB6Z0104
R 594 ⚠	CARBON RES. 1/4W J 68k Ω or	RCX4JATZ0683
	CARBON RES. 1/6W J 68k Ω or	RCX6JATZ0683

Ref. No.	Description	Part No.
	CHIP RES. 1/10W J 68k Ω or	RRXAJB6Z0683
	CHIP RES. 1/8W J 68k Ω	RRX8JB6Z0683
R 595 ⚠	CARBON RES. 1/6W J 47k Ω or	RCX6JATZ0473
	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R 597 ⚠	CARBON RES. 1/4W J 33k Ω or	RCX4JATZ0333
	CARBON RES. 1/6W J 33k Ω or	RCX6JATZ0333
	CHIP RES. 1/10W J 33k Ω or	RRXAJB6Z0333
	CHIP RES. 1/8W J 33k Ω	RRX8JB6Z0333
R 598 ⚠	CARBON RES. 1/6W J 47k Ω or	RCX6JATZ0473
	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R 599 ⚠	CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k Ω or	RCX6JATZ0223
	CHIP RES. 1/10W J 22k Ω or	RRXAJB6Z0223
	CHIP RES. 1/8W J 22k Ω	RRX8JB6Z0223
R 601 ⚠	CEMENT RESISTOR SQZ05S1R2J or	RW051R2Y4001
	CEMENT RESISTOR SQZ05S1R2J or	RW051R2Y4001
	CEMENT RESISTOR 5W K 1.2 Ω or	RW051R2PG001
	CEMENT RES. 5W K 1.2 Ω	RW051R2DP005
R 602	CARBON RES. 1/6W J 820k Ω or	RCX6JATZ0824
	CARBON RES. 1/4W J 820k Ω	RCX4JATZ0824
R 603	CARBON RES. 1/6W J 820k Ω or	RCX6JATZ0824
	CARBON RES. 1/4W J 820k Ω	RCX4JATZ0824
R 604	CARBON RES. 1/6W J 100k Ω or	RCX6JATZ0104
	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R 606	CARBON RES. 1/6W J 10 Ω or	RCX6JATZ0100
	CARBON RES. 1/4W J 10 Ω	RCX4JATZ0100
R 607	PCB JUMPER D0.6-P5.0	JW5.0T
R 608	PCB JUMPER D0.6-P5.0	JW5.0T
R 611	CARBON RES. 1/6W J 270 Ω or	RCX6JATZ0271
	CARBON RES. 1/4W J 270 Ω	RCX4JATZ0271
R 612	CARBON RES. 1/6W J 270 Ω or	RCX6JATZ0271
	CARBON RES. 1/4W J 270 Ω	RCX4JATZ0271
R 613 ⚠	CEMENT RESISTOR 5W J 0.47 Ω or	RW05R47PG001
	CEMENT RES. 5W K 0.47 Ω	RW05R47DP005
R 614	CARBON RES. 1/6W J 680 Ω or	RCX6JATZ0681
	CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R 615	PCB JUMPER D0.6-P5.0	JW5.0T
R 616	CARBON RES. 1/6W J 390 Ω or	RCX6JATZ0391
	CARBON RES. 1/4W J 390 Ω	RCX4JATZ0391
R 617 ⚠	CARBON RES. 1/6W J 47 Ω or	RCX6JATZ0470
	CARBON RES. 1/4W J 47 Ω	RCX4JATZ0470
R 641 ⚠	ANTI-SURGE RESISTOR 1/2W J 3.3M Ω or	RMX2335KA011
	CARBON RES. 1/2W J 3.3M Ω	RCX2335A4001
R 651 ⚠	METAL RESISTOR 1W J 12k Ω or	RN01123UB001
	FIXED METAL OXIDE FILM RES. 1W J 12k Ω or	RN01123DP003
	METAL RESISTOR 1W J 12k Ω or	RN01123UB001
	FIXED METAL OXIDE FILM RES. 1W J 12k Ω or	RN01123DP003
	METAL RESISTOR 1W J 12k Ω or	RN01123ZU001
	FIXED METAL OXIDE FILM RES. 1W J 12k Ω	RN01123KE007
R 652	CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k Ω or	RCX6JATZ0223
	CHIP RES. 1/10W J 22k Ω or	RRXAJB6Z0223
	CHIP RES. 1/8W J 22k Ω	RRX8JB6Z0223
R 653	CARBON RES. 1/4W J 15k Ω or	RCX4JATZ0153
	CARBON RES. 1/6W J 15k Ω or	RCX6JATZ0153
	CHIP RES. 1/10W J 15k Ω or	RRXAJB6Z0153
	CHIP RES. 1/8W J 15k Ω	RRX8JB6Z0153
R 654	CARBON RES. 1/4W J 1.8k Ω or	RCX4JATZ0182
	CARBON RES. 1/6W J 1.8k Ω or	RCX6JATZ0182
	CHIP RES. 1/10W J 1.8k Ω or	RRXAJB6Z0182
	CHIP RES. 1/8W J 1.8k Ω	RRX8JB6Z0182
R 655 ⚠	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 656	CARBON RES. 1/6W J 15k Ω or	RCX6JATZ0153
	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R 657	CARBON RES. 1/4W J 15k Ω or	RCX4JATZ0153

Ref. No.	Description	Part No.
	CARBON RES. 1/6W J 15k Ω or	RCX6JATZ0153
	CHIP RES. 1/10W J 15k Ω or	RRXAJB6Z0153
	CHIP RES. 1/8W J 15k Ω	RRX8JB6Z0153
R 658 ⚠	CARBON RES. 1/4W J 470k Ω or	RCX4JATZ0474
	CARBON RES. 1/6W J 470k Ω or	RCX6JATZ0474
	CHIP RES. 1/10W J 470k Ω or	RRXAJB6Z0474
	CHIP RES. 1/8W J 470k Ω	RRX8JB6Z0474
R 660	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 661 ⚠	CARBON RES. 1/6W J 39k Ω or	RCX6JATZ0393
	CARBON RES. 1/4W J 39k Ω	RCX4JATZ0393
R 662 ⚠	CARBON RES. 1/6W J 8.2k Ω or	RCX6JATZ0822
	CARBON RES. 1/4W J 8.2k Ω	RCX4JATZ0822
R 663 ⚠	PCB JUMPER D0.6-P5.0 or	JW5.0T
	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/8W 0 Ω	RRX8JB6Z0000
R 664 ⚠	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω or	RCX6JATZ0471
	CHIP RES. 1/10W J 470 Ω or	RRXAJB6Z0471
	CHIP RES. 1/8W J 470 Ω	RRX8JB6Z0471
R 665 ⚠	CARBON RES. 1/6W J 3.3k Ω or	RCX6JATZ0332
	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R 666 ⚠	FIXED METAL OXIDE FILM RES. 1W J 68k Ω or	RN01683ZU001
	FIXED METAL OXIDE FILM RES. 1W J 68k Ω or	RN01683ZU001
	FIXED METAL OXIDE FILM RES. 1W J 68k Ω or	RN01683DP003
	FIXED METAL OXIDE FILM RES. 1W J 68k Ω	RN01683KE009
R 667 ⚠	CARBON RES. 1/6W J 12k Ω or	RCX6JATZ0123
	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R 668 ⚠	CARBON RES. 1/6W J 12k Ω or	RCX6JATZ0123
	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R 669 ⚠	CARBON RES. 1/6W J 12k Ω or	RCX6JATZ0123
	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R 672	CARBON RES. 1/4W J 3.3k Ω or	RCX4JATZ0332
	CARBON RES. 1/6W J 3.3k Ω or	RCX6JATZ0332
	CHIP RES. 1/10W J 3.3k Ω or	RRXAJB6Z0332
	CHIP RES. 1/8W J 3.3k Ω	RRX8JB6Z0332
R 673 ⚠	CARBON RES. 1/6W J 3.3k Ω or	RCX6JATZ0332
	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R 674 ⚠	CARBON RES. 1/6W J 3.3k Ω or	RCX6JATZ0332
	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R 675	CARBON RES. 1/4W J 100k Ω or	RCX4JATZ0104
	CARBON RES. 1/6W J 100k Ω or	RCX6JATZ0104
	CHIP RES. 1/10W J 100k Ω or	RRXAJB6Z0104
	CHIP RES. 1/8W J 100k Ω	RRX8JB6Z0104
R 676	CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
	CHIP RES. 1/8W J 10k Ω	RRX8JB6Z0103
R 677	CARBON RES. 1/4W J 68k Ω or	RCX4JATZ0683
	CARBON RES. 1/6W J 68k Ω or	RCX6JATZ0683
	CHIP RES. 1/10W J 68k Ω or	RRXAJB6Z0683
	CHIP RES. 1/8W J 68k Ω	RRX8JB6Z0683
R 678	CARBON RES. 1/4W J 47k Ω or	RCX4JATZ0473
	CARBON RES. 1/6W J 47k Ω or	RCX6JATZ0473
	CHIP RES. 1/10W J 47k Ω or	RRXAJB6Z0473
	CHIP RES. 1/8W J 47k Ω	RRX8JB6Z0473
R 681 ⚠	CARBON RES. 1/6W J 12 Ω or	RCX6JATZ0120
	CARBON RES. 1/4W J 12 Ω	RCX4JATZ0120
R 682 ⚠	METAL RES. 1W J 33 Ω or	RN01330UB001
	FIXED METAL OXIDE FILM RES. 1W J 33 Ω or	RN01330DP003
	METAL RES. 1W J 33 Ω or	RN01330UB001
	FIXED METAL OXIDE FILM RES. 1W J 33 Ω or	RN01330DP003
	METAL RESISTOR 1W J 33 Ω or	RN01330ZU001
	FIXED METAL OXIDE FILM RES. 1W J 33 Ω	RN01330KE007
R 683 ⚠	FIXED METAL OXIDE FILM RES. 1W J 39 Ω or	RN01390UB001
	FIXED METAL OXIDE FILM RES. 1W J 39 Ω or	RN01390DP003
	FIXED METAL OXIDE FILM RES. 1W J 39 Ω or	RN01390UB001
	FIXED METAL OXIDE FILM RES. 1W J 39 Ω or	RN01390DP003
	METAL RESISTOR 1W J 39 Ω or	RN01390ZU001
	FIXED METAL OXIDE FILM RES. 1W J 39 Ω	RN01390KE007
R 684	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 685	CARBON RES. 1/6W J 10 Ω or	RCX6JATZ0100
	CARBON RES. 1/4W J 10 Ω	RCX4JATZ0100
R 701	CARBON RES. 1/6W J 75 Ω or	RCX6JATZ0750
	CARBON RES. 1/4W J 75 Ω	RCX4JATZ0750
R 702	PCB JUMPER D0.6-P5.0	JW5.0T
R 703	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 711	CARBON RES. 1/6W J 47k Ω or	RCX6JATZ0473
	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R 712	CARBON RES. 1/6W J 3.9k Ω or	RCX6JATZ0392
	CARBON RES. 1/4W J 3.9k Ω	RCX4JATZ0392
R 801	CARBON RES. 1/2W J 100 Ω or	RCX2JZPZ0101
	CARBON RES. 1/2W J 100 Ω or	RCX2JZPZ0101
	CARBON RES. 1/2W J 100 Ω or	RCX2101KA013
	CARBON RES. 1/2W J 100 Ω	RCX2JZQZ0101
R 802 ⚠	CARBON RES. 1/6W J 2.2k Ω or	RCX6JATZ0222
	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 803 ⚠	CARBON RES. 1/6W J 2.2k Ω or	RCX6JATZ0222
	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 804	CARBON RES. 1/6W J 15k Ω or	RCX6JATZ0153
	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R 805	CARBON RES. 1/6W J 3.3k Ω or	RCX6JATZ0332
	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R 808	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 810 ⚠	METAL RESISTOR 1W J 8.2 Ω or	RN018R2UB001
	FIXED METAL OXIDE FILM RES. 1W J 8.2 Ω or	RN018R2DP003
	METAL RESISTOR 1W J 8.2 Ω or	RN018R2UB001
	FIXED METAL OXIDE FILM RES. 1W J 8.2 Ω or	RN018R2DP003
	METAL RESISTOR 1W J 8.2 Ω or	RN018R2ZU001
	FIXED METAL OXIDE FILM RES. 1W J 8.2 Ω	RN018R2KE009
R 811	CARBON RES. 1/6W J 100k Ω or	RCX6JATZ0104
	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
	SWITCHES	
SW 101	TACT SWITCH SKHHAM or	SST0101AL029
	TACT SWITCH SKHHAM or	SST0101AL029
	PUSH SWITCH KSM0612B or	SST0101HH003
	TACT SWITCH SKQSAB	SST0101AL038
SW 102	TACT SWITCH SKHHAM or	SST0101AL029
	TACT SWITCH SKHHAM or	SST0101AL029
	PUSH SWITCH KSM0612B or	SST0101HH003
	TACT SWITCH SKQSAB	SST0101AL038
SW 103	TACT SWITCH SKHHAM or	SST0101AL029
	TACT SWITCH SKHHAM or	SST0101AL029
	PUSH SWITCH KSM0612B or	SST0101HH003
	TACT SWITCH SKQSAB	SST0101AL038
SW 104	TACT SWITCH SKHHAM or	SST0101AL029
	TACT SWITCH SKHHAM or	SST0101AL029
	PUSH SWITCH KSM0612B or	SST0101HH003
	TACT SWITCH SKQSAB	SST0101AL038
SW 105	TACT SWITCH SKHHAM or	SST0101AL029
	TACT SWITCH SKHHAM or	SST0101AL029
	PUSH SWITCH KSM0612B or	SST0101HH003
	TACT SWITCH SKQSAB	SST0101AL038
SW 106	TACT SWITCH SKHHAM or	SST0101AL029
	TACT SWITCH SKHHAM or	SST0101AL029
	PUSH SWITCH KSM0612B or	SST0101HH003
	TACT SWITCH SKQSAB	SST0101AL038
	TRANSFORMERS	
T 571 ⚠	FLYBACK TRANS BSC25-2080S or	LTF00CPS2018

Ref. No.	Description	Part No.
	FLYBACK TRANSFORMER JF0501-2402	LTF00CPXB014
T 572 ⚠	HORIZONTAL DRIVE TRANS LP2-004	LTH00CPA5004
T 601 ⚠	SWITCHING TRANS SA-90806 or	LTT00CPSA070
	SWITCHING TRANS 9A02	LTT00CPKT041
	VARIABLE RESISTOR	
VR 661	CARBON P.O.T. 10k Ω B(H) or	VRCB103HH009
	CARBON P.O.T. 10k Ω B	VRCB103KA011
	CRYSTAL OSCILLATORS	
X 101	CERAMIC RESONATOR ZTT 8.00MHz or	FY0805PLN001
	CERAMIC RESONATOR FCR8.0MC or	FY0805PTE001
	CERAMIC RESONATOR ZTT 8.00MHz or	FY0805PLN001
	CERAMIC RESONATOR FCR8.0MC or	FY0805PTE001
	CERAMIC RESONATOR CSTS0800MG03 or	FYL805PMR001
	CERAMIC RESONATOR KBR-8.0MKC	FY0805PKC002
X 341	CRYSTAL OSCILLATOR 3.579545 MHz	FXD355LLN003
	MISCELLANEOUS	
B- 6	HEAT SINK(PDZ)	0EM405394
B- 7	HEAT SINK(PEA)	0EM405395
B- 8	HEAT SINK(PEB)	0EM405396
B- 9 ⚠	CHASSIS NO.LABEL	0EM405435
B- 10	JACK HOLDER	0EM404325
B- 12	CLOTH(65) L7735TR:65X10X0.5T	0EM402149
BC 571	BEAD INDUCTORS FBA04HA600VB-00	LLBF00STU026
BC 601	BEAD INDUCTORS B16RHWW3.5X10X1.3 or	LLBF00ZXM002
	BEAD INDUCTORS 1-03-BAR-510X	LLBF00ZF8001
BC 602	BEAD INDUCTORS B16RHWW3.5X10X1.3 or	LLBF00ZXM002
	BEAD INDUCTORS 1-03-BAR-510X	LLBF00ZF8001
BC 641	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC 651	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC 652	PCB JUMPER D0.6-P5.0	JW5.0T
CF 301	CERAMIC FILTER TPS 4.5MB2	1810897
CF 302	CERAMIC FILTER SFSH4.5MCB	FBB455PMR001
CLN301	WIRE ASSEMBLY WX1L9700-104	WX1L9700-104
F 601 ⚠	FUSE 4A/125V 237 TYPE	PAGJ20CAG402
FH 601	HOLDER FUSE CNT41-0014 or	1790424
	HOLDER FUSE CNT41-0014 or	1790424
	FUSE HOLDER FH-V-03078 or	XH01Z00DK001
	FUSE HOLDER MSF-015	XH01Z00LY001
FH 602	HOLDER FUSE CNT41-0014 or	1790424
	HOLDER FUSE CNT41-0014 or	1790424
	FUSE HOLDER FH-V-03078 or	XH01Z00DK001
	FUSE HOLDER MSF-015	XH01Z00LY001
GP 641 ⚠	GAP. WSG-R-3.10 or	FAZ000LW1002
	GAP. G3.10D	FAZ000LD6004
JK 701	RCA JACK 1P AV-8.4-9Y	JXRL010RP010
JK 702	RCA JACK 1P AV-8.4-9W	JXRL010RP011
JK 801	EARPHONE JACK HSJ1403-01-010 or	JYSL030HD002
	EARPHONE JACK LGY6501-0600 or	JYSL030SR001
	EARPHONE JACK HSJ1403-01-010 or	JYSL030HD002
	EARPHONE JACK LGY6501-0600 or	JYSL030SR001
	EARPHONE JACK MSJ-035-12APC or	JYSL030LY001
	EARPHONE JACK HTJ-035-1ZEBTZ	JYSL030GE001
JS 401	PCB JUMPER D0.6-P10.0	JW10.0T
JS 802	PCB JUMPER D0.6-P7.5	JW7.5T
L- 1	B-TITE SCREW 3X8 BIND + CHROME	GBMB3080
PCB- 1	MAIN PCB '	BL1100F01013
PS 691 ⚠	POSISTER ZPB45BL7R0A	QNZZ45BL7R0A
RCV101	REMOCON RECEIVE UNIT PIC-26042SR-2	USESJRSKK032
SF 1	SAW FILTER TSF5229P	FBB456PSY008
TU 1	TUNER UNIT TEDH9X203A or	UTUNNTUAL021
	TUNER UNIT B8055AR	UTUNNTUSP014
W 601 ⚠	AC CORD WAC0172AS006 or	WAC0172AS006
	AC CORD LA-2366	WAC0172LW006

CRT CBA

Ref. No.	Description	Part No.
	CRT CBA	----------
	Consists of the following	
	CAPACITORS	
C 501	CERAMIC CAP.(AX) B K 270pF/50V or	CCA1JKT0B271
	CHIP CERAMIC CAP. SL 270pF/50V	CHE1JKBSL271
C 502	CERAMIC CAP.(AX) B K 270pF/50V or	CCA1JKT0B271
	CHIP CERAMIC CAP. SL 270pF/50V	CHE1JKBSL271
C 503	CERAMIC CAP.(AX) B K 330pF/50V or	CCA1JKT0B331
	CHIP CERAMIC CAP. SL 330pF/50V	CHE1JKBSL331
C 504	ELECTROLYTIC CAP. 47μF/16V M	CE1CMASTL470
C 510	CERAMIC CAP. B K 1000pF/2kV or	CA3D102MR030
	CERAMIC CAP. B K 1000pF/2kV or	CA3D102MR030
	CERAMIC CAP. BK 0.001μF/2kV or	CCD3DKP0B102
	CERAMIC CAP. B K 1000pF/2kV	CCD3DKD0B102
	DIODES	
D 501	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 502	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 503	DIODE 1SS176TPA7 or	1SS176T
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 520	PCB JUMPER D0.6-P5.0	JW5.0T
	COIL	
L 501 ⚠	INDUCTOR 180μH-K-5FT or	LLARKDSKA181
	INDUCTOR 180μH-J-5FT	LLARJCSTU181
	TRANSISTORS	
Q 501	TRANSISTOR 2SC3468(D)-AE or	QQSD02SC3468
	TRANSISTOR 2SC2271(D)-AEMP or	2SC2271DZ
	TRANSISTOR 2SC2271(E)-AE or	QQSE02SC2271
	TRANSISTOR 2SC3468(E)-AE or	QQSE02SC3468
	TRANSISTOR 2SC2482 TPE6	QQSZ02SC2482
Q 502	TRANSISTOR 2SC3468(D)-AE or	QQSD02SC3468
	TRANSISTOR 2SC2271(D)-AEMP or	2SC2271DZ
	TRANSISTOR 2SC2271(E)-AE or	QQSE02SC2271
	TRANSISTOR 2SC3468(E)-AE or	QQSE02SC3468
	TRANSISTOR 2SC2482 TPE6	QQSZ02SC2482
Q 503	TRANSISTOR 2SC3468(D)-AE or	QQSD02SC3468
	TRANSISTOR 2SC2271(D)-AEMP or	2SC2271DZ
	TRANSISTOR 2SC2271(E)-AE or	QQSE02SC2271
	TRANSISTOR 2SC3468(E)-AE or	QQSE02SC3468
	TRANSISTOR 2SC2482 TPE6	QQSZ02SC2482
	RESISTORS	
R 501 ⚠	METAL RESISTOR 1W J 15k Ω or	RN01153UB001
	FIXED METAL OXIDE FILM RES. 1W J 15k Ω or	RN01153DP003
	METAL RESISTOR 1W J 15k Ω or	RN01153ZU001
	FIXED METAL OXIDE FILM RES. 1W J 15k Ω	RN01153KE007
R 502 ⚠	METAL RESISTOR 1W J 15k Ω or	RN01153UB001
	FIXED METAL OXIDE FILM RES. 1W J 15k Ω or	RN01153DP003
	METAL RESISTOR 1W J 15k Ω or	RN01153ZU001
	FIXED METAL OXIDE FILM RES. 1W J 15k Ω	RN01153KE007
R 503 ⚠	METAL RESISTOR 1W J 15k Ω or	RN01153UB001
	FIXED METAL OXIDE FILM RES. 1W J 15k Ω or	RN01153DP003
	METAL RESISTOR 1W J 15k Ω or	RN01153ZU001
	FIXED METAL OXIDE FILM RES. 1W J 15k Ω	RN01153KE007
R 504	CARBON RES. 1/6W J 1.5k Ω or	RCX6JATZ0152
	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 505	CARBON RES. 1/6W J 1.5k Ω or	RCX6JATZ0152
	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 506	CARBON RES. 1/6W J 1.5k Ω or	RCX6JATZ0152
	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 507	CARBON RES. 1/6W J 1.5k Ω or	RCX6JATZ0152
	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152

Ref. No.	Description	Part No.
R 508	CARBON RES. 1/6W J 1.5k Ω or	RCX6JATZ0152
	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 511	CARBON RES. 1/4W J 3.3k Ω or	RCX4JATZ0332
	CARBON RES. 1/6W J 3.3k Ω or	RCX6JATZ0332
	CHIP RES. 1/10W J 3.3k Ω or	RRXAJB6Z0332
	CHIP RES. 1/8W J 3.3k Ω	RRX8JB6Z0332
R 512	CARBON RES. 1/4W J 3.3k Ω or	RCX4JATZ0332
	CARBON RES. 1/6W J 3.3k Ω or	RCX6JATZ0332
	CHIP RES. 1/10W J 3.3k Ω or	RRXAJB6Z0332
	CHIP RES. 1/8W J 3.3k Ω	RRX8JB6Z0332
R 513	CARBON RES. 1/4W J 3.3k Ω or	RCX4JATZ0332
	CARBON RES. 1/6W J 3.3k Ω or	RCX6JATZ0332
	CHIP RES. 1/10W J 3.3k Ω or	RRXAJB6Z0332
	CHIP RES. 1/8W J 3.3k Ω	RRX8JB6Z0332
R 514	CARBON RES. 1/6W J 1.5k Ω or	RCX6JATZ0152
	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 516	CARBON RES. 1/4W J 33 Ω or	RCX4JATZ0330
	CARBON RES. 1/6W J 33 Ω or	RCX6JATZ0330
	CHIP RES. 1/10W J 33 Ω or	RRXAJB6Z0330
	CHIP RES. 1/8W J 33 Ω	RRX8JB6Z0330
R 517	CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
	CARBON RES. 1/6W J 560 Ω or	RCX6JATZ0561
	CHIP RES. 1/10W J 560 Ω or	RRXAJB6Z0561
	CHIP RES. 1/8W J 560 Ω	RRX8JB6Z0561
R 518	CARBON RES. 1/4W J 33 Ω or	RCX4JATZ0330
	CARBON RES. 1/6W J 33 Ω or	RCX6JATZ0330
	CHIP RES. 1/10W J 33 Ω or	RRXAJB6Z0330
	CHIP RES. 1/8W J 33 Ω	RRX8JB6Z0330
R 519	CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
	CARBON RES. 1/6W J 560 Ω or	RCX6JATZ0561
	CHIP RES. 1/10W J 560 Ω or	RRXAJB6Z0561
	CHIP RES. 1/8W J 560 Ω	RRX8JB6Z0561
R 520	CARBON RES. 1/4W J 33 Ω or	RCX4JATZ0330
	CARBON RES. 1/6W J 33 Ω or	RCX6JATZ0330
	CHIP RES. 1/10W J 33 Ω or	RRXAJB6Z0330
	CHIP RES. 1/8W J 33 Ω	RRX8JB6Z0330
R 521	CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
	CARBON RES. 1/6W J 560 Ω or	RCX6JATZ0561
	CHIP RES. 1/10W J 560 Ω or	RRXAJB6Z0561
	CHIP RES. 1/8W J 560 Ω	RRX8JB6Z0561
R 531	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 532	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 533	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
	MISCELLANEOUS	
CLN501	PARALLEL WIRE L=250 4P	WX1L1000-101
JK 501 ⚠	CRT SOCKET ISMS02S	JSCC220PK003

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