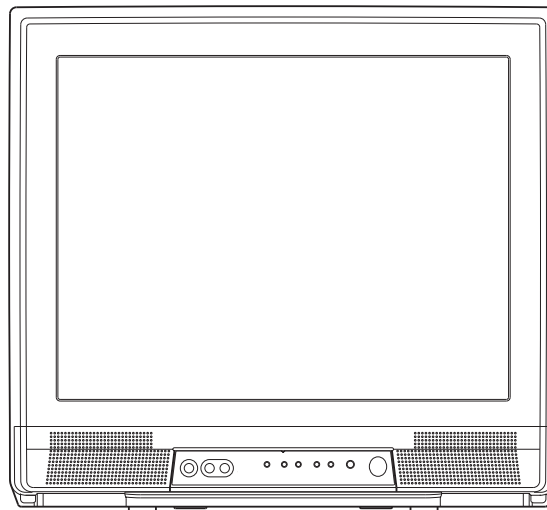


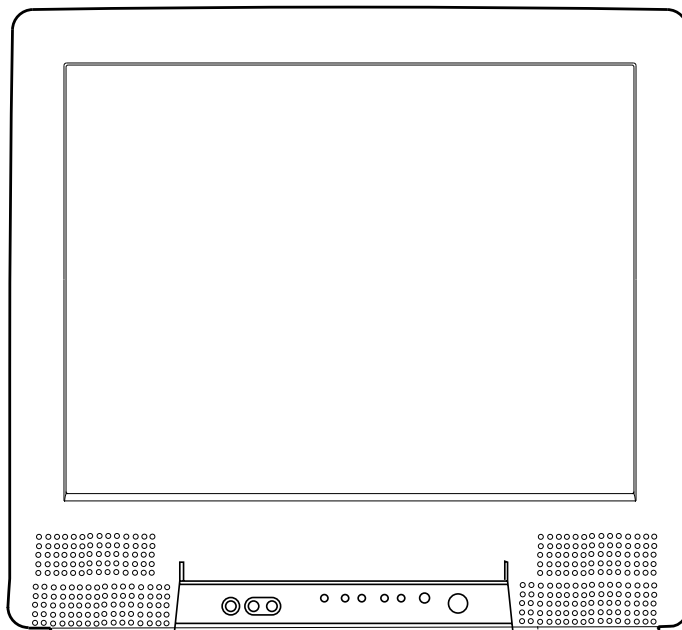
# **DURABRAND**

# **SERVICE MANUAL**

## **20" COLOR TELEVISION DCF2003**



## **27" COLOR TELEVISION DCF2703**



# 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 advise 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

## <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	MHz	45.75	-
	Sound	MHz	41.25	-
2. Peak Picture Sens	VHF	dB $\mu$ v	15	30
	CATV	dB $\mu$ v	15	30
	UHF	dB $\mu$ v	15	40
3. AFT Pull In Range (10mV input)	-	MHz	$\pm 2.2$	$\pm 0.7$

## <DEFLECTION>

Description	Condition	Unit	Nominal	Limit
1. Deflection Freq.	Horizontal	KHz	15.734	-
	Vertical	Hz	60	-
2. Linearity	Horizontal	%	-	$\pm 15$
	Vertical	%	-	$\pm 10$
3. Over Scan	-	%	10	-
4. High Voltage	-	KV	26 [ DCF2003 ]	-
			29 [ DCF2703 ]	-

## <VIDEO & CHROMA>

Description	Condition	Unit	Nominal	Limit
1. Misconvergence	Center	mm	-	0.4
	Side	mm	-	1.5
	Corner	mm	-	2.1
2. Brightness	APL 100%	Ft-L	40 [ DCF2003 ]	25 [ DCF2003 ]
			25 [ DCF2703 ]	10 [ DCF2703 ]
3. Color Temperature	-	$^{\circ}$ K	9200 $^{\circ}$ K	-
4. Resolution	Horizontal	Line	250	-
	Vertical	Line	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 [ DCF2003 ]	0.8 [ DCF2003 ]
	10% THD	W	3 [ DCF2703 ]	2.4 [ DCF2703 ]
2. Audio Distortion (w/LPF)	500mW	%	2	7
3. Audio Freq. Response	-3dB	Hz	100~11K [ DCF2003 ]	-
			70~11K [ DCF2703 ]	

**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

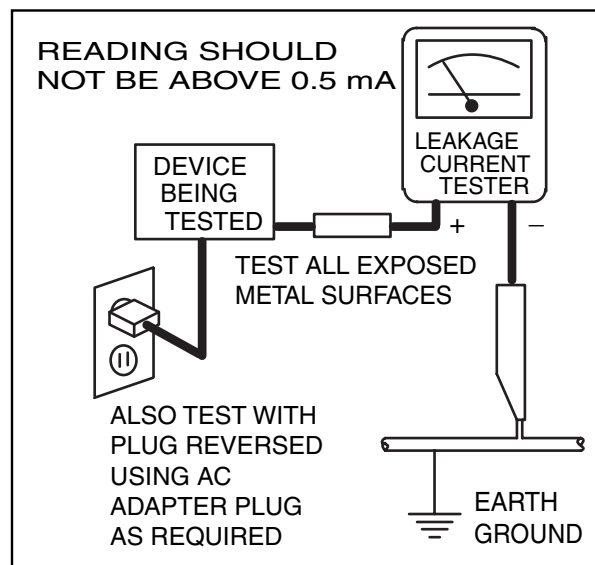
Prior to shipment from the factory, our products are strictly inspected for recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

## 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 leak-

age 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 servic-

ing 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 maybe 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	$\geq 3.2$ mm (0.126 inches)

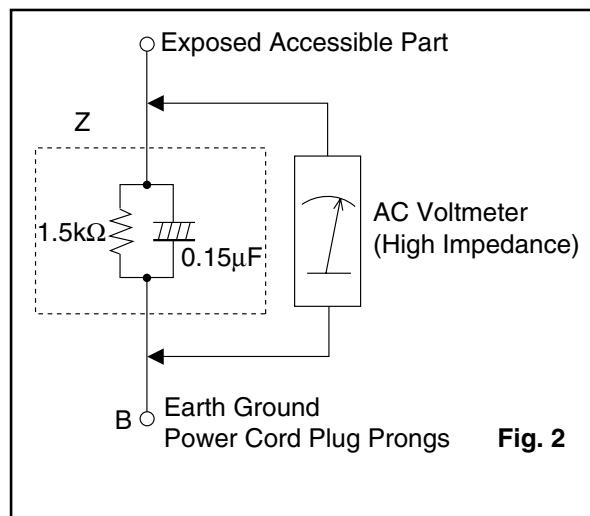
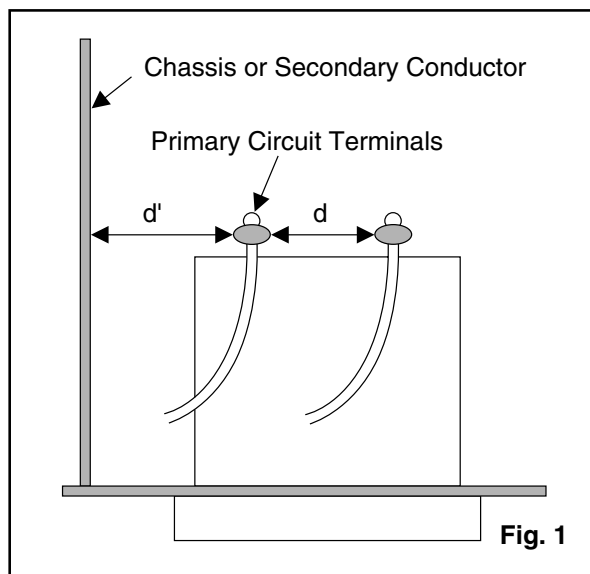
**Note:** This table is unofficial and for reference only. Be sure to confirm the precise values.

### 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.



**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	$0.15\mu F$ CAP. & $1.5k\Omega$ RES. connected in parallel	$i \leq 0.5$ mA rms	Exposed accessible parts

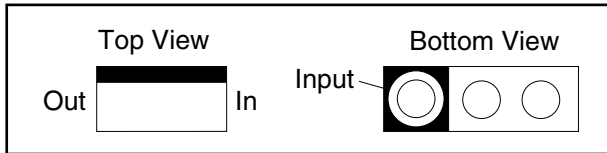
**Note:** This table is unofficial and for reference only. Be sure to confirm the precise values.



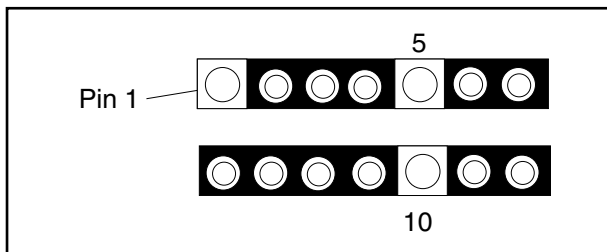
# STANDARD NOTES FOR SERVICING

## Circuit Board Indications

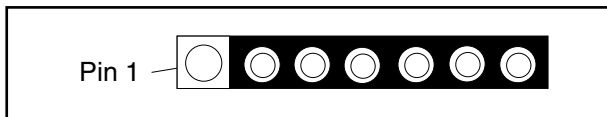
- a. The output pin of the 3 pin Regulator ICs is indicated as shown.



- 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)

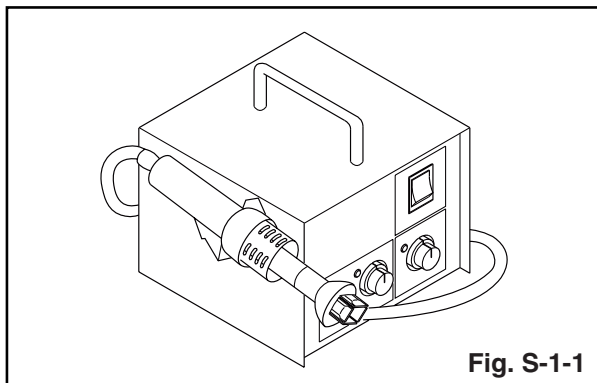


Fig. S-1-1

- (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:

- 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)
- 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.

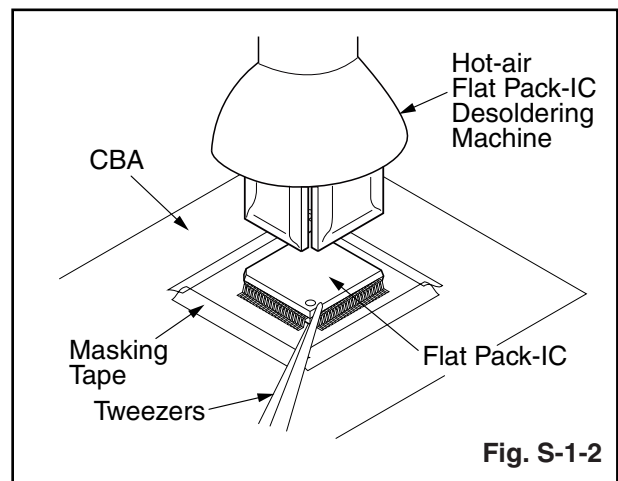
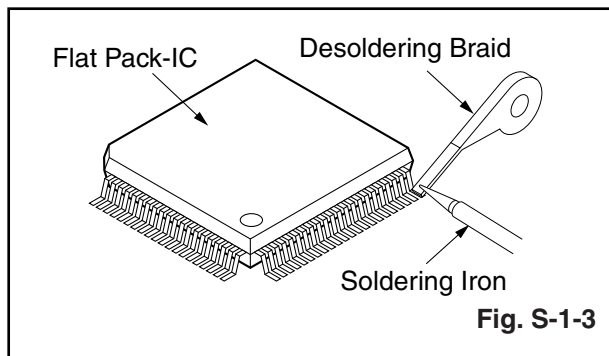


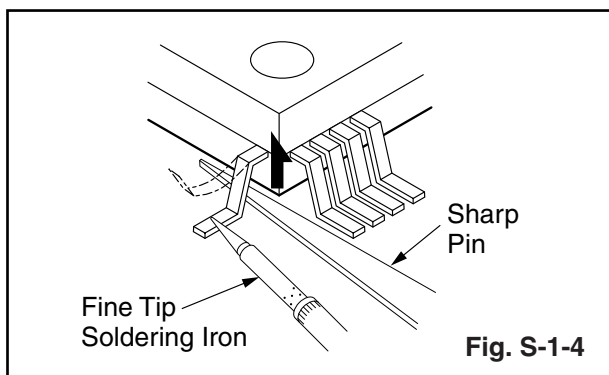
Fig. S-1-2

### 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)



- (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)



- (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:

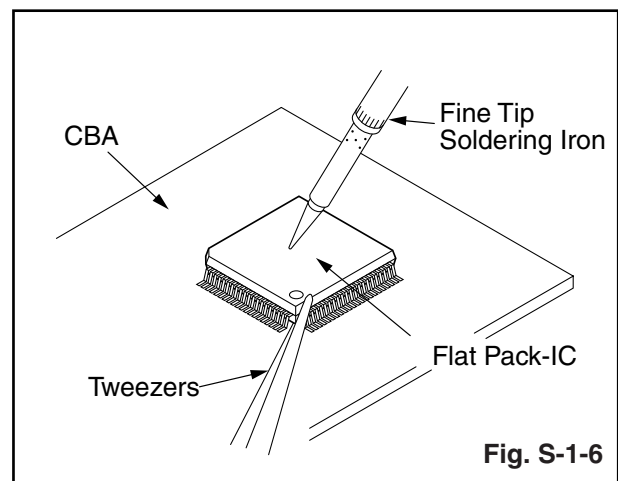
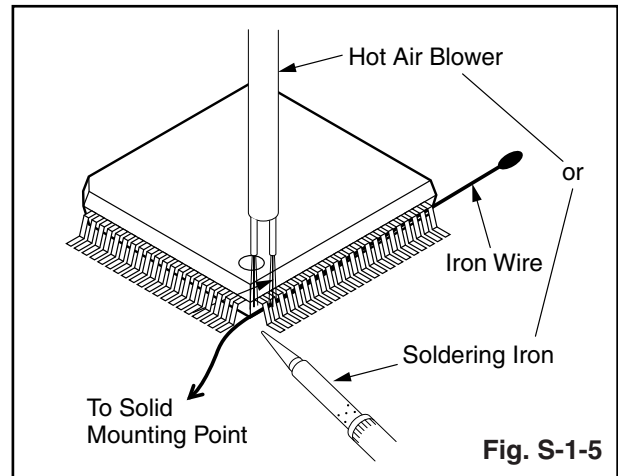
- (1) Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)
- (2) Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
- (3) While heating 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)

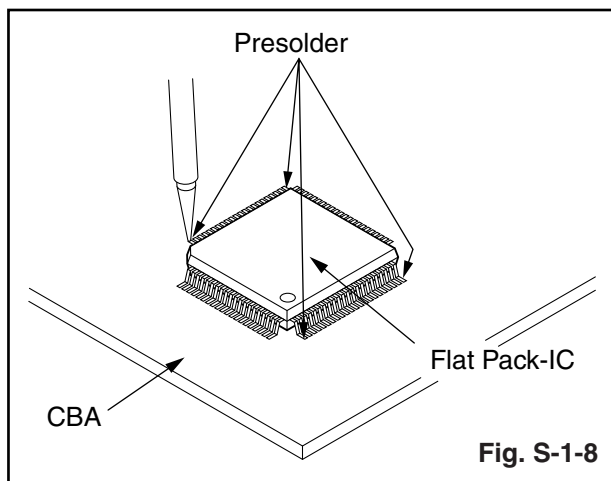
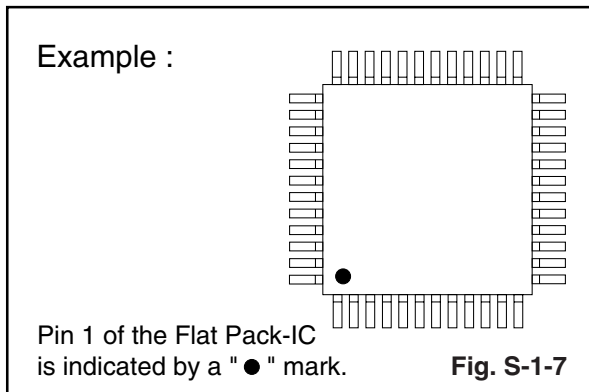
### Note:

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.



## 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.



## Instructions for Handling Semiconductors

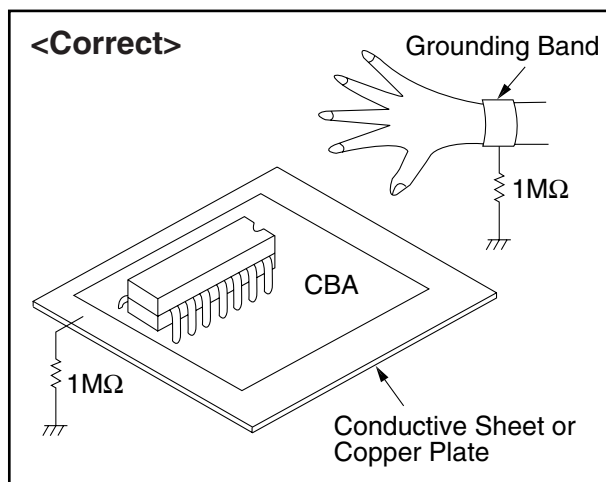
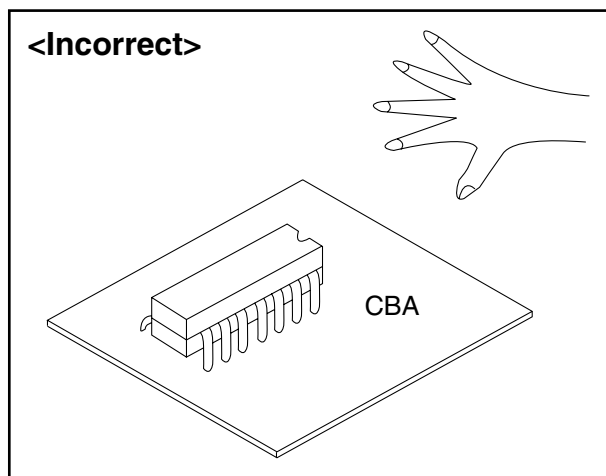
Electrostatic breakdown of the semiconductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

### 1. Ground for Human Body

Be sure to wear a grounding band ( $1\text{M}\Omega$ ) 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 ( $1\text{M}\Omega$ ) 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

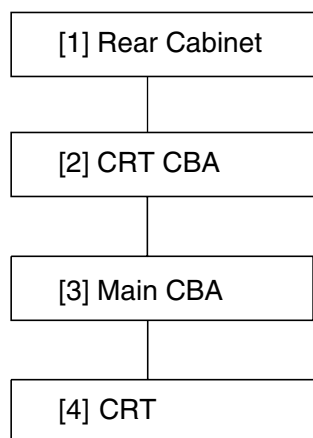
## [ DCF2003 ]

### 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	7(S-1), (S-2), 1(S-4)	1
[2]	CRT CBA	4,5	CN501	2
[3]	Main CBA	3,5	CN571	3
[4]	CRT	4	4(S-3), CN691	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."

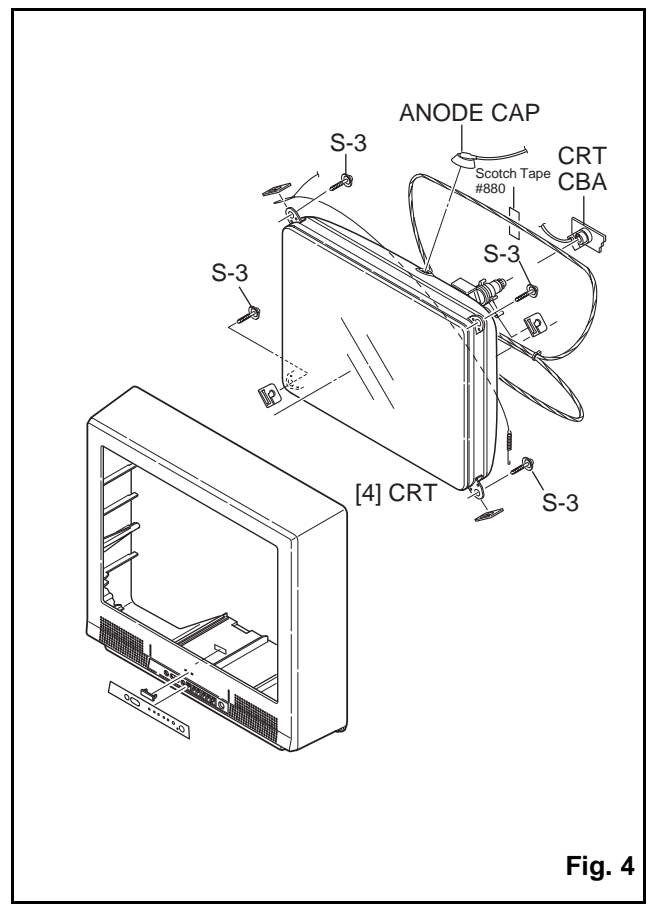
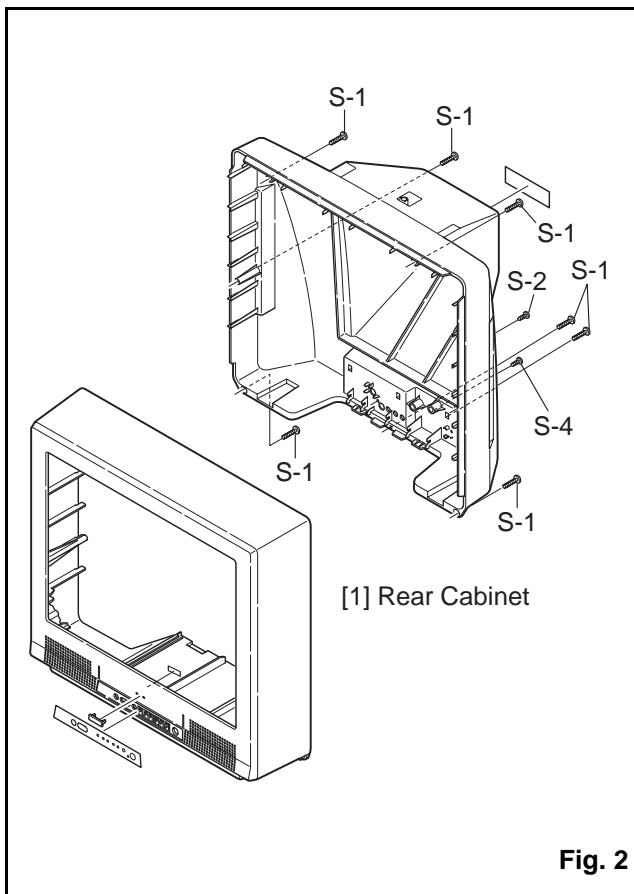
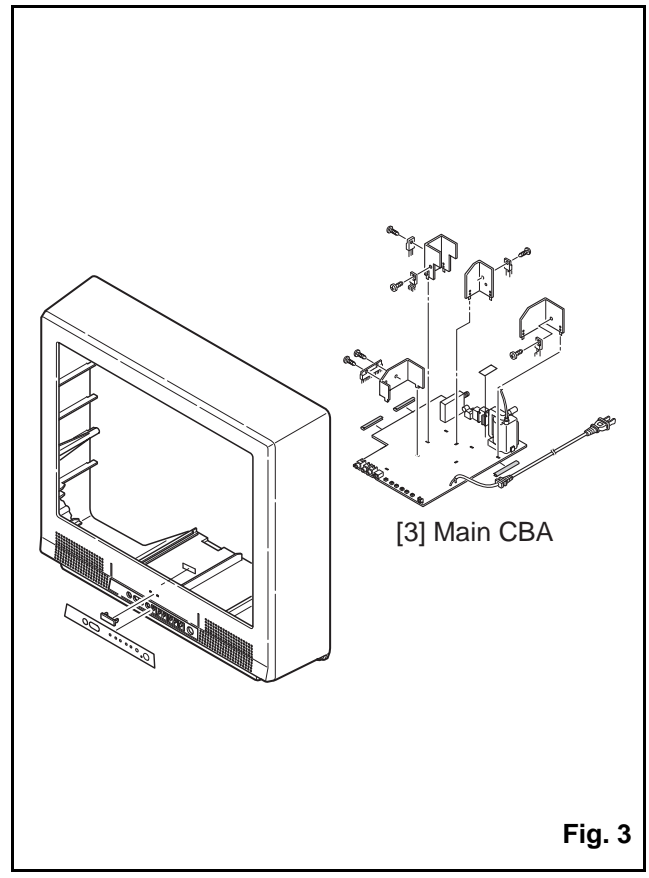
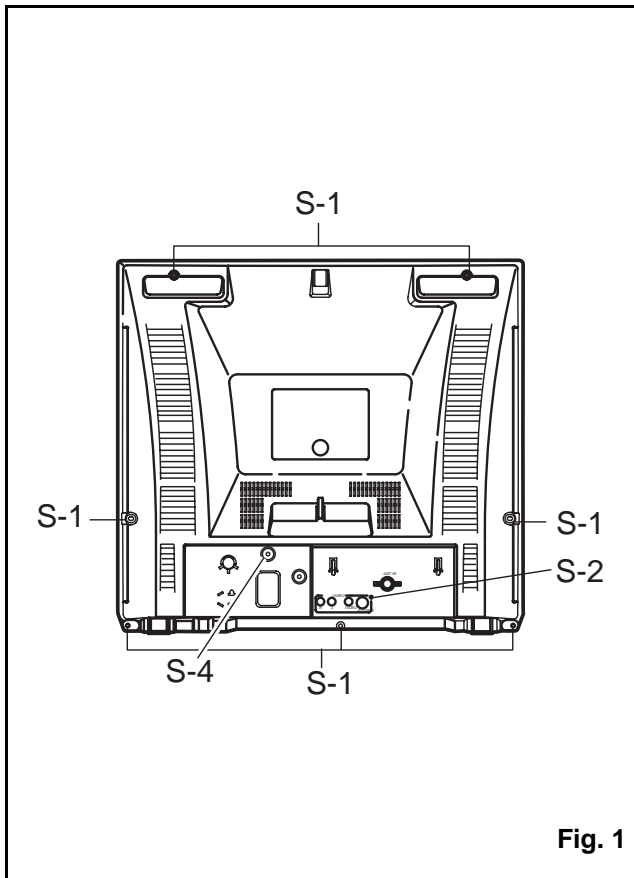
#### Reference Notes in the Table

1. Removal of the Rear Cabinet. Remove screws 7(S-1), (S-2) and 1(S-4) 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-3) and Anode Cap. then slide the CRT backward.



# TV Cable Wiring Diagram

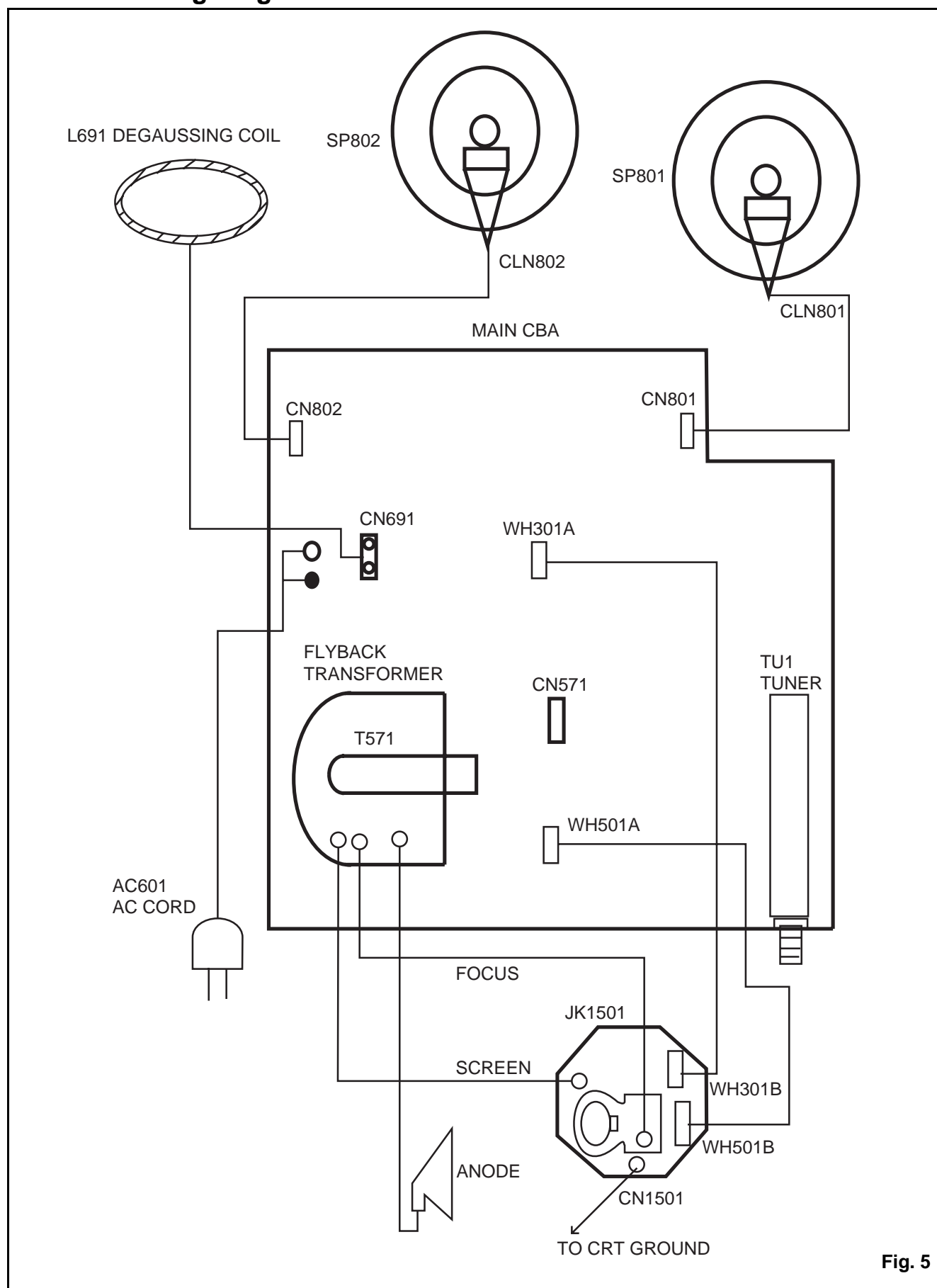


Fig. 5

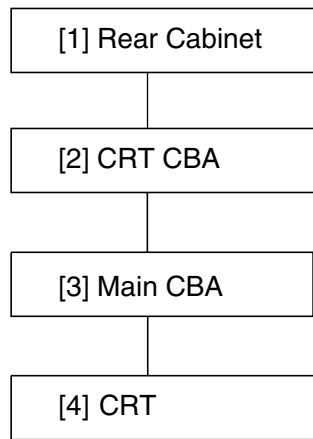
# [ DCF2703 ]

## 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.



### 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."

## 2. Disassembly Method

Step/ Loc. No.	Part	Removal		
		Fig. No	Remove/*unlock/ release/unplug/ unclamp/desolder	Note
[1]	Rear Cabinet	6,7	7(S-1), 3(S-2), 1(S-3)	1
[2]	CRT CBA	9,10	CN501	2
[3]	Main CBA	8,10	CN571	3
[4]	CRT	9	4(S-4), CN691	4

↓      ↓      ↓      ↓      ↓  
 (1)    (2)    (3)    (4)    (5)

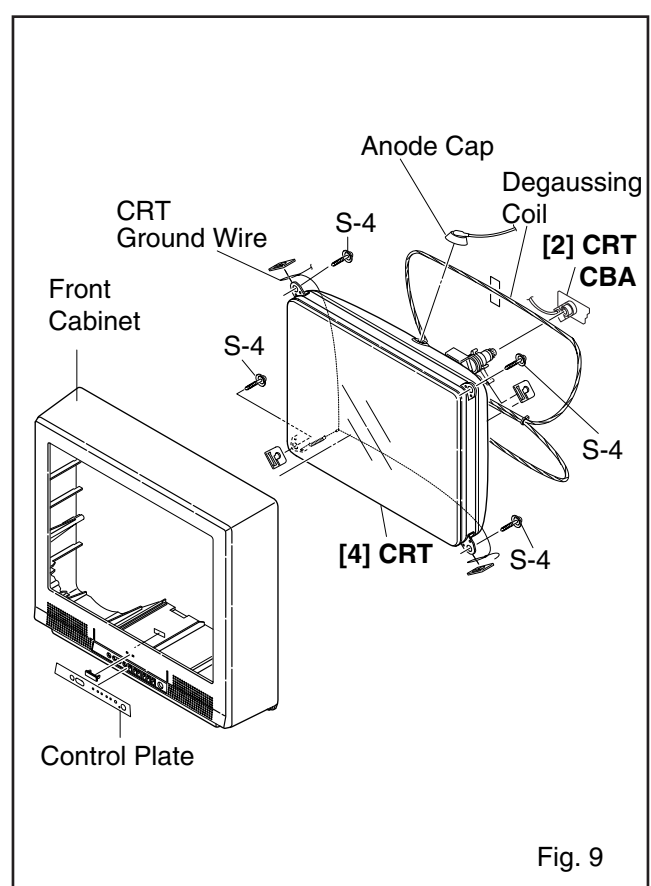
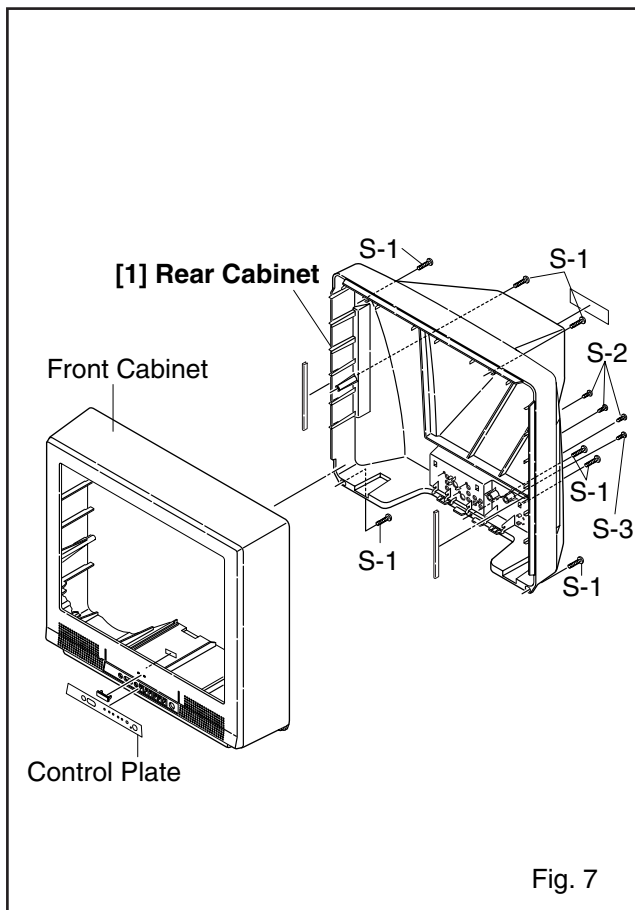
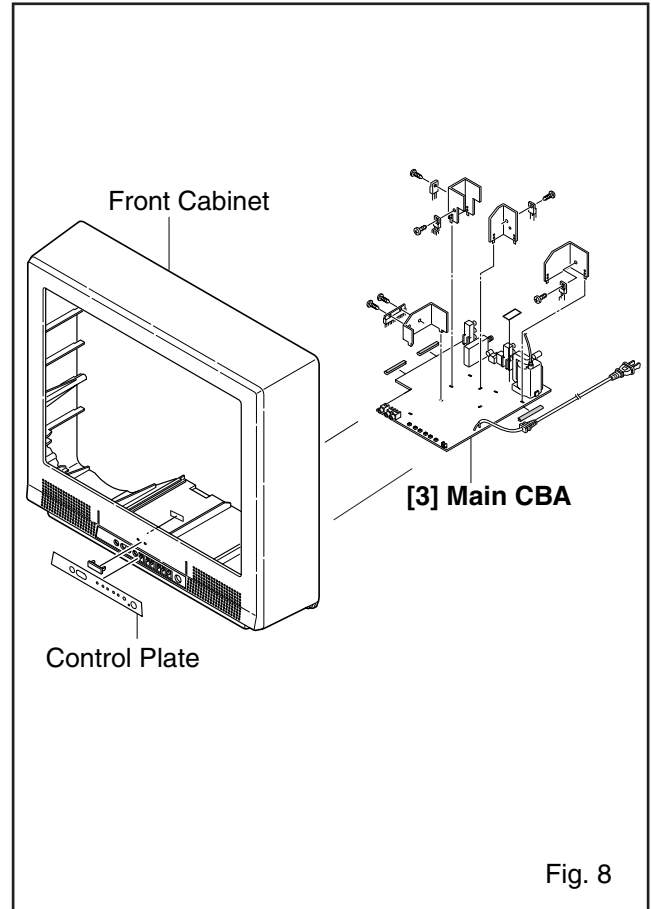
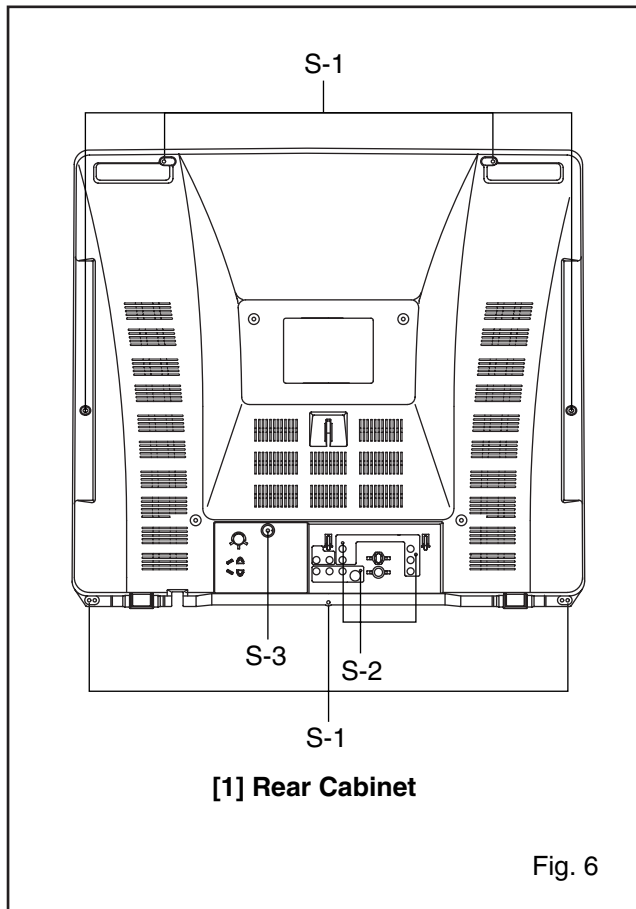
### Reference Notes in the Table

1. Removal of the Rear Cabinet. Remove screws 7(S-1), 3(S-2) and 1(S-3) 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-4) and Anode Cap. then slide the CRT backward.





# TV Cable Wiring Diagram

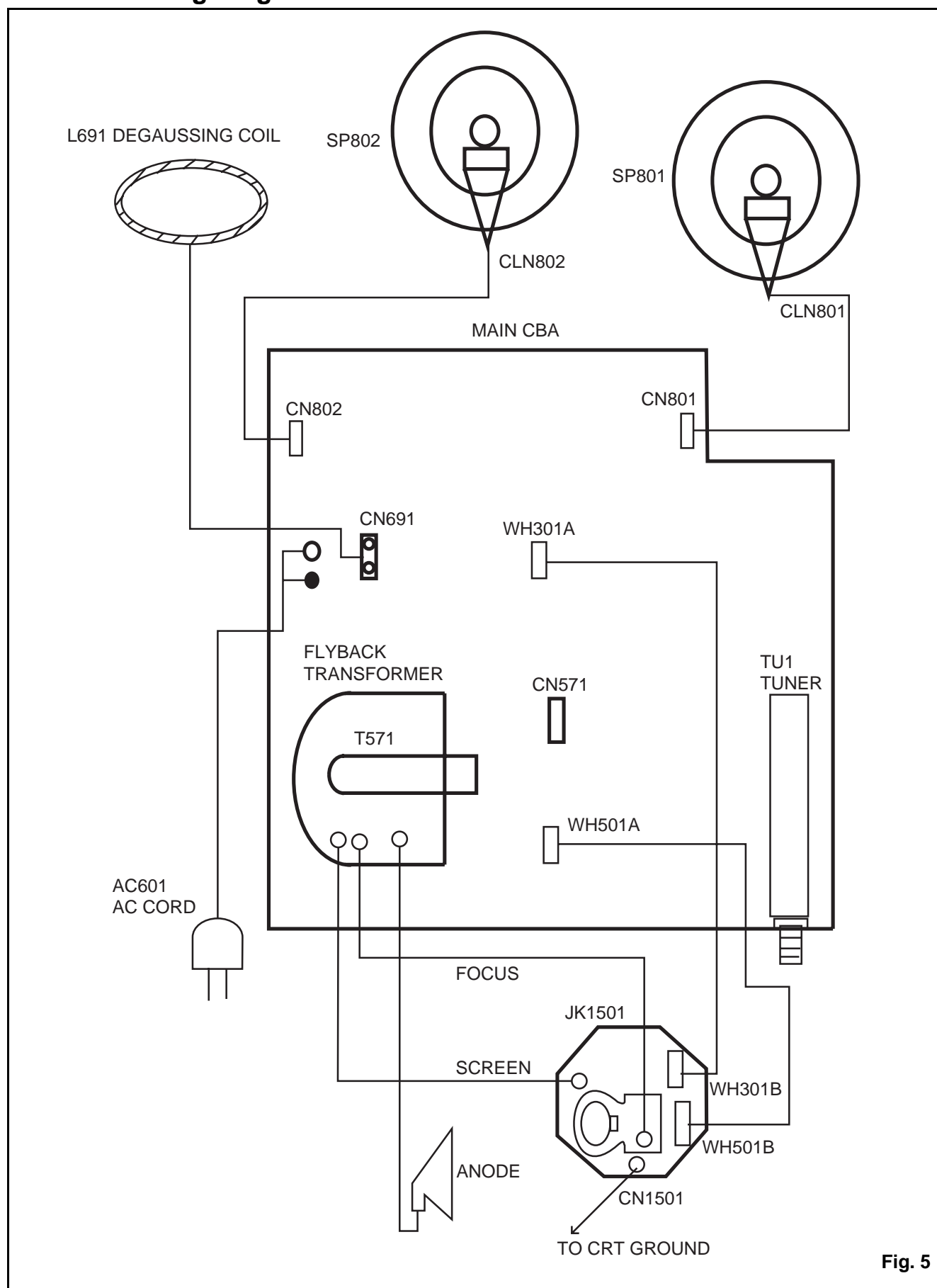


Fig. 5

# ELECTRICAL ADJUSTMENT INSTRUCTIONS

## [ DCF2003 ]

### 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. N0121UD or N0134UD
6. DC power supply 13.2V/5A

## How to make Service remote control unit:

1. Prepare normal remote control unit. (Part No. N0138UD or N0139UD) Remove 3 Screws from the back lid. (Fig. 1-1)
2. Added J1 (Jumper Wire) to the remote control CBA. (Fig. 1-2)

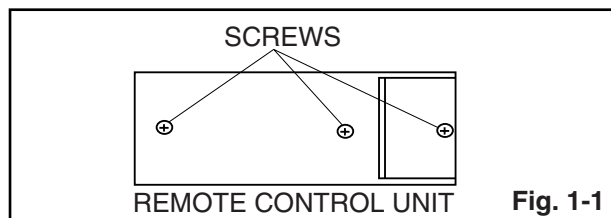


Fig. 1-1

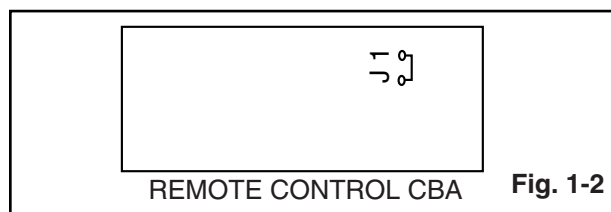


Fig. 1-2

## 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: 054-0.05)
4. Check the display on the lower left is "2901" and if it is not "2901," set it at "2901" according to "2. Initial Setting."

## 1. +B 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
TP601(+B) TP300(GND)	VR661	---	---
Tape	M. EQ.	Spec.	
---	DC Voltmeter	+112±0.5V DC.	

**Note:** TP601, TP300(GND), VR661 --- Main CBA

1. Connect DC Volt Meter to TP601 and TP300(GND).
2. Adjust VR661 so that the voltage of TP601 becomes +112±0.5V DC.

## 2. Initial Setting

### General

1. Enter the Service mode. (See page 5-1)
2. Press "VOL ▼" button on the service remote control unit. Display changes "C/D," "7F," "LANGUAGE," "ACCESS CODE," "SOUND TYPE," "VIDEO TONE," "FM MODE," "V-OUT," "VIDEO," "AV MEMO," "STABLE SOUND," "FILTER," "300," and "YUV MEMORY" cyclically when "VOL ▼" button is pressed.
3. To set the following each data value, press "CH ▲ / ▼" buttons on the service remote control unit.

**7F --- Set to "FF."**

**LANGUAGE --- Set to "FRA."**

**ACCESS CODE --- Set to "OFF."**

**SOUND TYPE --- Set to "MTS."**

**VIDEO TONE --- Set to "ON."**

**FM-MODE --- Set to "OFF."**

**V-OUT --- Set to "OFF."**

**VIDEO --- Set to "V1/V2."**

**AV MEMO --- Set to "OFF."**

**STABLE SOUND --- Set to "OFF."**

**FILTER --- Set to "OFF."**

**Adjusting the monitoring time --- Set to "500."**

**YUV MEMORY --- Set to "OFF."**

## 3. Setting for BRIGHT, CONTRAST, COLOR, TINT, and SHARPNESS data Values

### General

1. Enter the Service mode. (See page 5-1)
2. Press "MENU" button on the service remote control unit. Display changes "BRT," "CNT," "CLR," "S-CLR," "TNT," "V-TNT," "S-TNT," "SHARP," and "S-SRP" cyclically when "MENU" button is pressed.

### 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 "CONTRAS" (CNT) becomes 84.

### 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 56.

### S-CLR

1. Press "MENU" button on the service remote control unit. Then select "S-COLOR" (S-CLR) display.
2. Press "CH ▲/▼" buttons on the service remote control unit so that the value of "S-COLOR" (S-CLR) becomes 56.

### 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 62.

### 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 62.

### S-TNT

1. Press "MENU" button on the service remote control unit. Then select "S-TINT" (S-TNT) display.
2. Press "CH ▲/▼" buttons on the service remote control unit so that the value of "S-TINT" (S-TNT) becomes 59.

### SHARP

1. Press "MENU" button on the service remote control unit. Then select "SHARPNESS" (SHARP) display.
2. Press "CH ▲/▼" buttons on the service remote control unit and select "47."

### S-SRP

1. Press "MENU" button on the service remote control unit. Then select "S-SHARPNESS" (S-SRP) display.
2. Press "CH ▲/▼" buttons on the service remote control unit and select "47."

## 4. Black Stretch Control Adjustment

**Purpose:** To show the fine black color.

**Symptom of Misadjustment:** Black color will not appear correctly.

**Note:** Use service remote control unit.

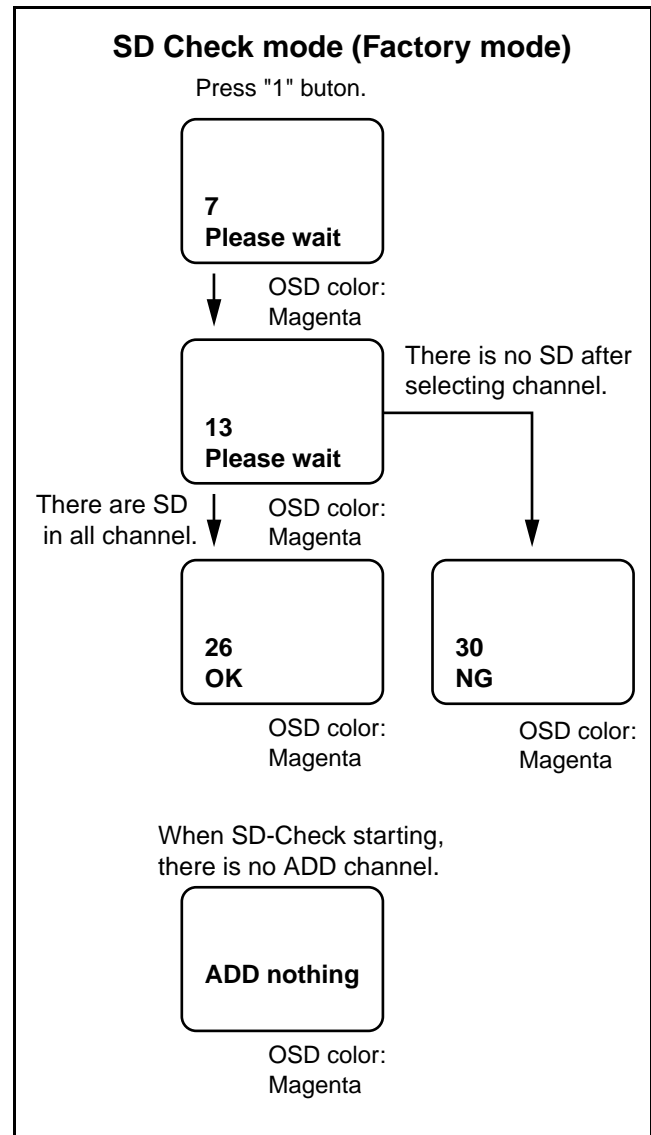
1. Enter the Service mode. (See page 5-1)
2. Press "6" button on the service remote control unit. "B-S" is indicated.
3. Press "CH ▲ / ▼" buttons on the service remote control unit so that display will change "OFF," "0," and "1." Then choose "B-S OFF."
4. Press "6" button on the service remote control unit. "B-S2" is indicated.
5. Press "CH ▲ / ▼" buttons on the service remote control unit so that display will change "0" and "1." Then choose "B-S2 0."
6. Turn the power off and on again, using the main power button on the TV unit.

## 5. Purity Check

1. Enter the Service mode. (See page 5-1)
2. Press "7" button on the remote control unit. Each time pressing 7" button on the remote control unit, display changes Red mode, Green mode, Blue mode, and White mode cyclically.
3. Select White mode.
4. Turn the power off and on again. (Main power button on the TV unit.)

## 6. SD Check Mode

1. Enter the Service mode. (See page 5-1)
2. Press "1" button on the remote control unit. The unit enter the SD-Check mode.
3. The unit starts selecting the added channel from first channel according to the memorized CH ADD/DELL data and CATV/TV data in RAM.



## 7. 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
---	CH ▲ / ▼ buttons	RF	Mono-scope
Tape	M. EQ.	Spec.	
---	Monoscope	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. "H-P" is indicated.
5. Press "CH ▲/▼" buttons on the service remote control unit so that the monoscope pattern will be 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.)

## 8. 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
---	CH ▲ / ▼ buttons	RF	Mono-scope
Tape	M. EQ.	Spec.	
---	Monoscope	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 will be 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.)

## 9. V. Position Adjustment

**Purpose:** To obtain correct vertical width 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
---	CH ▲ / ▼ buttons	RF	Mono-scope
Tape	M. EQ.	Spec.	
---	Monoscope	See below.	

**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 will be equal of each other.
6. Turn the power off and on again. (Main power button on the TV unit.)

## 10. Software Reset

To reset software, press "5" button on the remote control unit for at least 5 seconds after pressing "CH RETURN" button on the remote control unit.

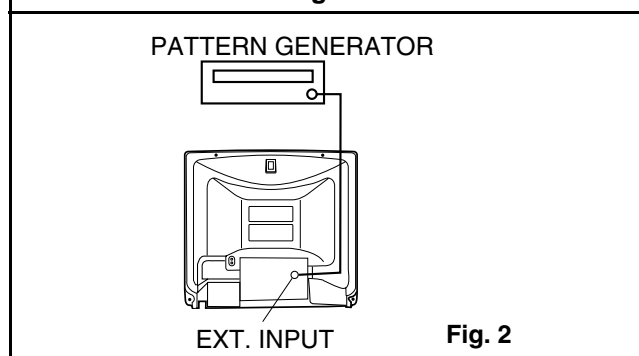
## 11. Cut-off Adjustment

**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 "C/D," "7F," "LANGUAGE," "ACCESS CODE," "SOUND TYPE," "VIDEO TONE," "FM MODE," "V-OUT," "VIDEO," "AV MEMO," "STABLE SOUND," "FILTER," "500," and "YUV MEMORY" 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 fly-back, 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.

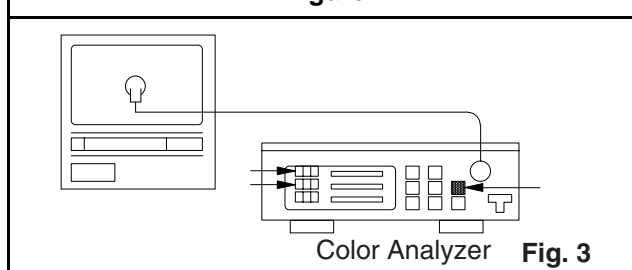
## 12. White Balance Adjustment

**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 De-gaussing 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 "C/D," "7F," "LANGUAGE," "ACCESS CODE," "SOUND TYPE," "VIDEO TONE," "FM MODE," "V-OUT," "VIDEO," "AV MEMO," "STABLE SOUND," "FILTER," "500," and "YUV MEMORY" 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 temperature becomes 9200K (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 temperatures become 9200K (x: 286 / y: 294)±3%.

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

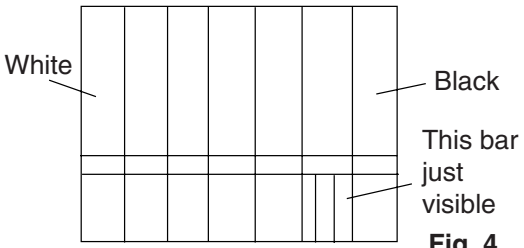
### 13. Sub-Brightness Adjustment

**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**



White

Black

This bar just visible

**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," "S-CLR," "TNT," "V-TNT," "S-TNT," "SHARP," and "S-SRP" 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.)

### 14. 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 Degaussing Coil.
3. Input the Monoscope Pattern.

4. Adjust the Focus Control on the FBT to obtain clear picture.

**The following adjustments normally are not attempted in the field. Only when replacing the CRT then adjust as a preparation.**

### 15. 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			
<div><div>GREEN</div><div><div></div><div>RED</div><div></div></div><div>BLUE</div></div>			

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.

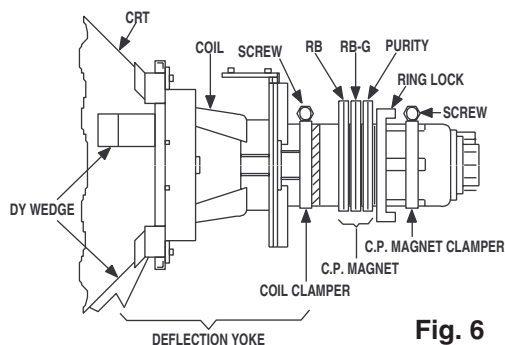
## 16. Convergence Adjustment

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

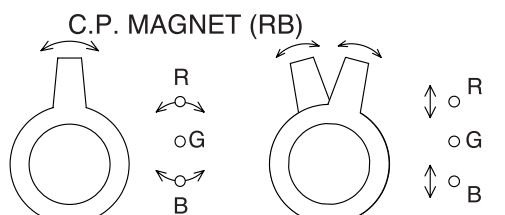
**Symptom of Misadjustment:** If Convergence Adjustment is incorrect, the edge of white letters may have color edges.

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.	

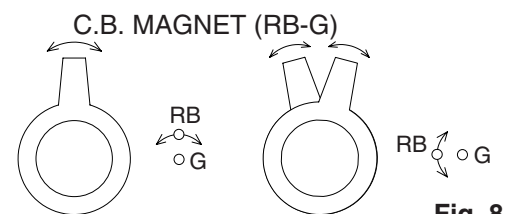
### Figures



**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. Paintlock the C.P. Magnets after adjustment.
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.



## [ DCF2703 ]

### 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. N0121UD or N0134UD
6. DC power supply 13.2V/5A

## How to make Service remote control unit:

1. Prepare normal remote control unit. (Part No. N0138UD or N0139UD) Remove 3 Screws from the back lid. (Fig. 1-1)
2. Added J1 (Jumper Wire) to the remote control CBA. (Fig. 1-2)

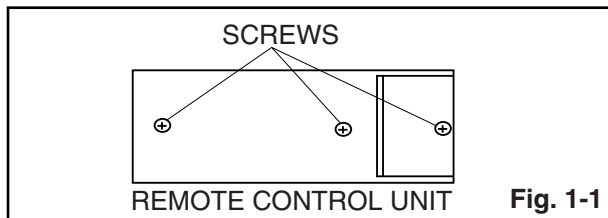


Fig. 1-1

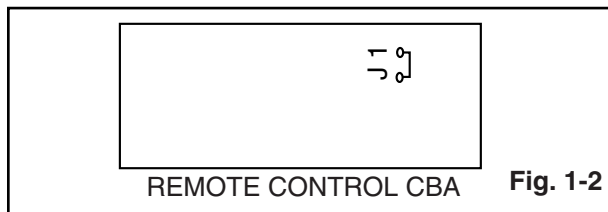


Fig. 1-2

## 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: 054-0.05)
4. Check the display on the lower left is " 2912 " and if it is not " 2912 ," set it at " 2912 " according to "2. Initial Setting."

## 1. +B 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
TP601(+B) TP300(GND)	VR661	---	---
Tape	M. EQ.	Spec.	
---	DC Voltmeter	+138±0.5V DC.	

**Note:** TP601, TP300(GND), VR661 --- Main CBA

1. Connect DC Volt Meter to TP601 and TP300(GND).
2. Adjust VR661 so that the voltage of TP601 becomes +138±0.5V DC.

## 2. Initial Setting

### General

1. Enter the Service mode. (See page 5-8)
2. Press "VOL ▼" button on the service remote control unit. Display changes "C/D," "7F," "LANGUAGE," "ACCESS CODE," "SOUND TYPE," "VIDEO TONE," "FM MODE," "V-OUT," "VIDEO," "AV MEMO," "STABLE SOUND," "FILTER," "300," and "YUV MEMORY" cyclically when "VOL ▼" button is pressed.
3. To set the following each data value, press "CH ▲ / ▼" buttons on the service remote control unit.

**7F --- Set to "FF."**

**LANGUAGE --- Set to "FRA."**

**ACCESS CODE --- Set to "OFF."**

**SOUND TYPE --- Set to "MTS."**

**VIDEO TONE --- Set to "ON."**

**FM-MODE --- Set to "OFF."**

**V-OUT --- Set to "OFF."**

**VIDEO --- Set to "V1/V2/YUV."**

**AV MEMO --- Set to "OFF."**

**STABLE SOUND --- Set to "OFF."**

**FILTER --- Set to "ON."**

**Adjusting the monitoring time --- Set to "500."**

**YUV MEMORY --- Set to "OFF."**

## 3. Setting for BRIGHT, CONTRAST, COLOR, TINT, and SHARPNESS data Values

### General

1. Enter the Service mode. (See page 5-8)
2. Press "MENU" button on the service remote control unit. Display changes "BRT," "CNT," "CLR," "S-CLR," "C-CLR," "TNT," "V-TNT," "S-TNT," "C-TNT," "SHARP," "S-SRP," and "C-SRP" cyclically when "MENU" button is pressed.

### 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 "CONTRAS" (CNT) becomes 84.

### 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 56.

### S-CLR

1. Press "MENU" button on the service remote control unit. Then select "S-COLOR" (S-CLR) display.
2. Press "CH ▲/▼" buttons on the service remote control unit so that the value of "S-COLOR" (S-CLR) becomes 56.

### C-CLR

1. Press "MENU" button on the service remote control unit. Then select "COMPONENT COLOR" (C-CLR) display.
2. Press "CH ▲/▼" buttons on the service remote control unit so that the value of "COMPONENT COLOR" (C-CLR) becomes 56.

### 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 62.

### 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 62.

#### **S-TNT**

1. Press "MENU" button on the service remote control unit. Then select "S-TINT" (S-TNT) display.
2. Press "CH ▲/▼" buttons on the service remote control unit so that the value of "S-TINT" (S-TNT) becomes 59.

#### **C-TNT**

1. Press "MENU" button on the service remote control unit. Then select "COMPONENT TINT" (C-TNT) display.
2. Press "CH ▲/▼" buttons on the service remote control unit so that the value of "COMPONENT TINT" (C-TNT) becomes 58.

#### **SHARP**

1. Press "MENU" button on the service remote control unit. Then select "SHARPNESS" (SHARP) display.
2. Press "CH ▲/▼" buttons on the service remote control unit and select "47."

#### **S-SRP**

1. Press "MENU" button on the service remote control unit. Then select "S-SHARPNESS" (S-SRP) display.
2. Press "CH ▲/▼" buttons on the service remote control unit and select "47."

#### **C-SRP**

1. Press "MENU" button on the service remote control unit. Then select "COMPONENT SHARPNESS" (C-SRP) display.
2. Press "CH ▲/▼" buttons on the service remote control unit and select "47."

**Note:** **BRIGHT** data value does not need to be adjusted at this moment.

## **4. Black Stretch Control Adjustment**

**Purpose:** To show the fine black color.

**Symptom of Misadjustment:** Black color will not appear correctly.

**Note:** Use service remote control unit.

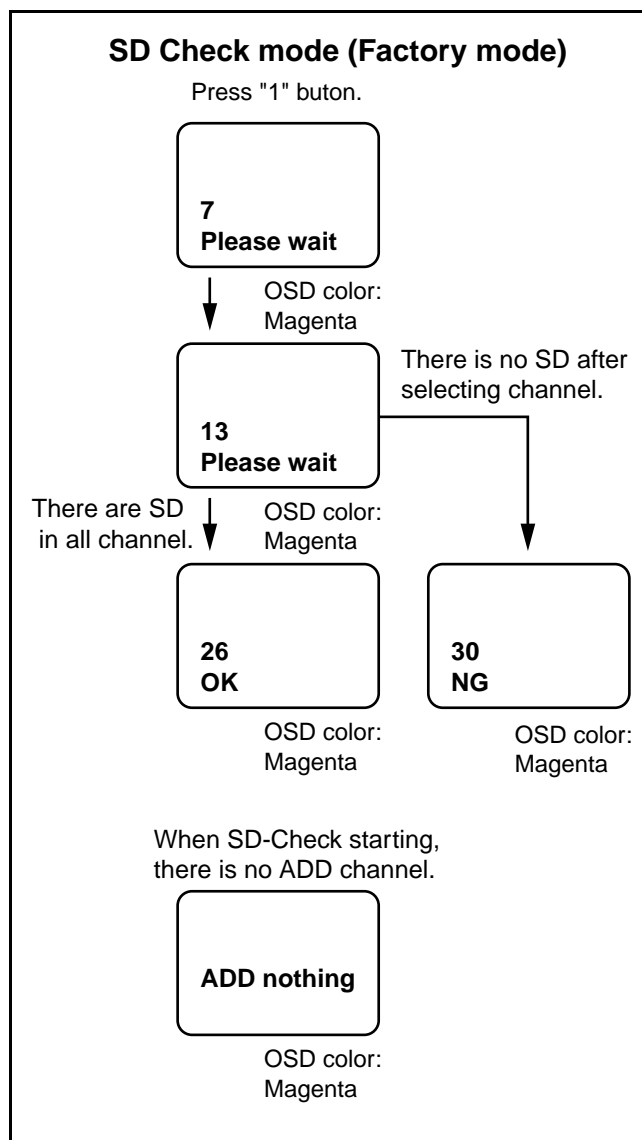
1. Enter the Service mode. (See page 5-8)
2. Press "6" button on the service remote control unit. "B-S" is indicated.
3. Press "CH ▲ / ▼" buttons on the service remote control unit so that display will change "OFF," "0," and "1." Then choose "B-S OFF."
4. Press "6" button on the service remote control unit. "B-S2" is indicated.
5. Press "CH ▲ / ▼" buttons on the service remote control unit so that display will change "0" and "1." Then choose "B-S2 0."
6. Turn the power off and on again, using the main power button on the TV unit.

## **5. Purity Check**

1. Enter the Service mode. (See page 5-8)
2. Press "7" button on the remote control unit. Each time pressing 7" button on the remote control unit, display changes Red mode, Green mode, Blue mode, and White mode cyclically.
3. Select White mode.
4. Turn the power off and on again. (Main power button on the TV unit.)

## **6. SD Check Mode**

1. Enter the Service mode. (See page 5-8)
2. Press "1" button on the remote control unit. The unit enter the SD-Check mode.
3. The unit starts selecting the added channel from first channel according to the memorized CH ADD/DELL data and CATV/TV data in RAM.



## 7. 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
---	CH ▲ / ▼ buttons	RF	Monoscope
Tape	M. EQ.	Spec.	
---	Monoscope	90±5%	

**Note:** Use service remote control unit

1. Operate the unit for at least 20 minutes.
2. Enter the Service mode. (See page 5-8)
3. Receive the monoscope pattern.
4. Press "8" button on the remote control unit. "H-P" is indicated.
5. Press "CH ▲/▼" buttons on the service remote control unit so that the monoscope pattern will be 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.)

## 8. 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
---	CH ▲ / ▼ buttons	RF	Monoscope
Tape	M. EQ.	Spec.	
---	Monoscope	90±5%	

**Note:** Use service remote control unit.

1. Operate the unit for at least 20 minutes.
2. Enter the Service mode. (See page 5-8)
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 will be 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.)

## 9. V. Position Adjustment

**Purpose:** To obtain correct vertical width 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
---	CH ▲ / ▼ buttons	RF	Mono- scope
Tape	M. EQ.	Spec.	
---	Monoscope	See below.	

**Note:** Use service remote control unit

1. Operate the unit for at least 20 minutes.
2. Enter the Service Mode. (See page 5-8)
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 will be equal of each other.
6. Turn the power off and on again. (Main power button on the TV unit.)

## 10. U-Pedestal Adjustment

1. In VIDEO mode of V1, V2, or YUV, press "3" button on the service remote control unit and select "U-PED" mode. (Display changes "U-PED" and "V-PED" cyclically when "3" button is pressed).
2. Switch the VIDEO mode to YUV. (Refer to "2. Initial Setting.")
3. To select one appropriate value in "0" to "15," press "CH ▲ / ▼" buttons on the remote control unit.
4. Switch the VIDEO mode to previous mode.
5. Turn the power off and on again. (Main power button on the TV unit.)

## 11. V-Pedestal Adjustment

1. In VIDEO mode of V1, V2, or YUV, press "3" button on the service remote control unit and select "V-PED" mode. (Display changes "U-PED" and "V-PED" cyclically when "3" button is pressed).
2. Switch the VIDEO mode to YUV. (Refer to "2. Initial Setting.")
3. To select one appropriate value in "0" to "15," press "CH ▲ / ▼" buttons on the remote control unit.
4. Switch the input mode to previous mode.
5. Turn the power off and on again. (Main power button on the TV unit.)

## 12. Software Reset

To reset software, press "5" button on the remote control unit for at least 5 seconds after pressing "CH RETURN" button on the remote control unit.

## 13. H. Size Adjustment

**Purpose:** To obtain correct horizontal size of screen image.

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

Test Point	Adj. Point	Mode	Input
---	VR562	RF	Monoscope
Tape	M. EQ.	Spec.	
---	Monoscope	90±5%	

**Note:** Use service remote control unit

1. Operate the unit for at least 20 minutes.
2. Receive the Monoscope Pattern.
3. Adjust VR562 so that the monoscope pattern will be 90±5% of display size and circle is round.
4. Turn the Power off and on again. (Main power button on the TV unit.)

## 14. PIN Cushion Adjustment

**Purpose:** To obtain correct straight vertical line of screen image.

**Symptom of Misadjustment:** If H.Pin cushion is incorrect, vertical line of image on the screen may not be properly displayed.

Test Point	Adj. Point	Mode	Input
---	VR561	RF	Cross hatch
Tape	M. EQ.	Spec.	
---	Cross hatch		

**Note:** Use service remote control unit

1. Operate the unit for at least 20 minutes.
2. Receive the Cross hatch Pattern.
3. Adjust VR561 so that the cross hatch pattern will be straight line of display.
4. Turn the Power off and on again. (Main power button on the TV unit.)

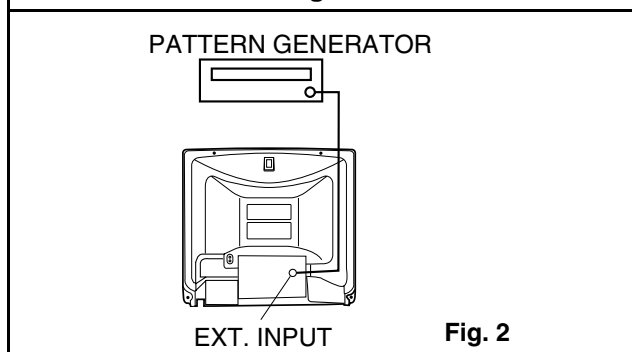
## 15. Cut-off Adjustment

**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 5-8)
4. Press "VOL ▼" button on the service remote control unit and select "C/D" mode. (Display changes "C/D," "7F," "LANGUAGE," "ACCESS CODE," "SOUND TYPE," "VIDEO TONE," "FM MODE," "V-OUT," "VIDEO," "AV MEMO," "STABLE SOUND," "FILTER," "500," and "YUV MEMORY" 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 fly-back, 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.

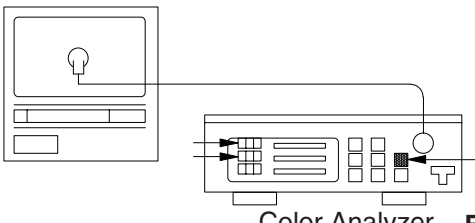
## 16. White Balance Adjustment

**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%)
<b>Tape</b>	<b>M. EQ.</b>	<b>Spec.</b>	
---	Pattern Generator, Color analyzer	See below	

**Figure**



Color Analyzer

**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 "C/D," "7F," "LANGUAGE," "ACCESS CODE," "SOUND TYPE," "VIDEO TONE," "FM MODE," "V-OUT," "VIDEO," "AV MEMO," "STABLE SOUND," "FILTER," "500," and "YUV MEMORY" 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 temperature becomes 9200K (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 temperatures become 9200K (x: 286 / y: 294)±3%.

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

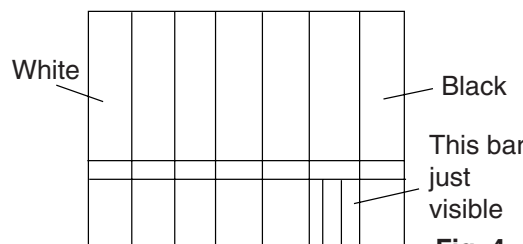
## 17. Sub-Brightness Adjustment

**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**



White

Black

This bar just visible

**Fig. 4**

**Note:** IQW Setup level --- 7.5 IRE

Use service remote control unit

1. Enter the Service mode. (See page 5-8) 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," "S-CLR," "C-CLR," "TNT," "V-TNT," "S-TNT," "C-TNT," "SHARP," "S-SRP," and "C-SRP" 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.)

## 18. 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
<b>Tape</b>	<b>M. EQ.</b>	<b>Spec.</b>	
---	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 Degaussing Coil.
3. Input the Monoscope Pattern.
4. Adjust the Focus Control on the FBT to obtain clear picture.

The following adjustments normally are not attempted in the field. Only when replacing the CRT then adjust as a preparation.

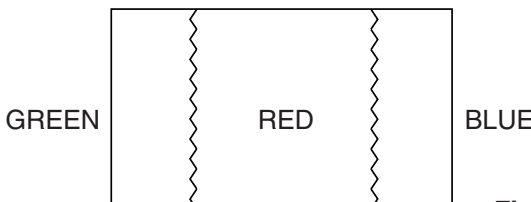
## 19. Purity Adjustment

**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**



GREEN RED BLUE

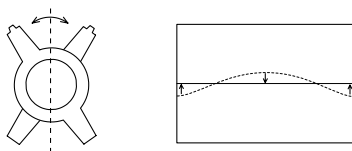
**Fig. 5**

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.

## 20. VRS Adjustment

1. Connect Oscilloscope and get the cross hatch pattern.
2. Adjust the two magnets for VRS adjustment like the below figure so that the cross hatch pattern becomes flat.



## 21. 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

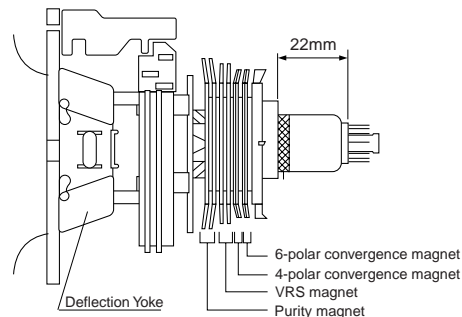


Fig. 6

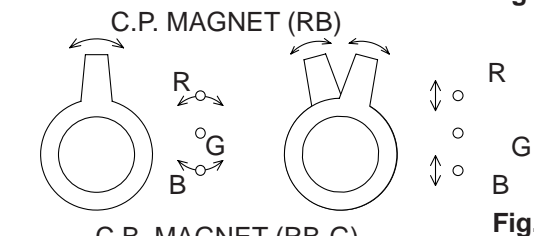


Fig. 7

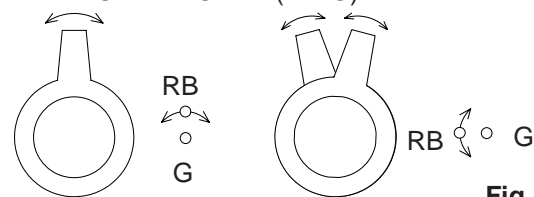


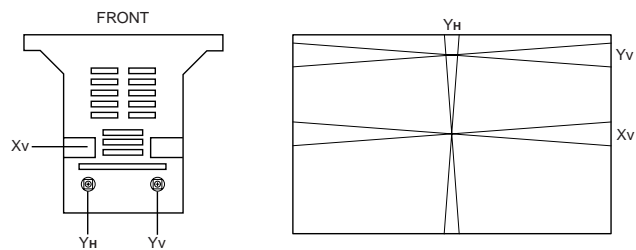
Fig. 8

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. Paintlock the C.P. Magnets after adjustment.
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.



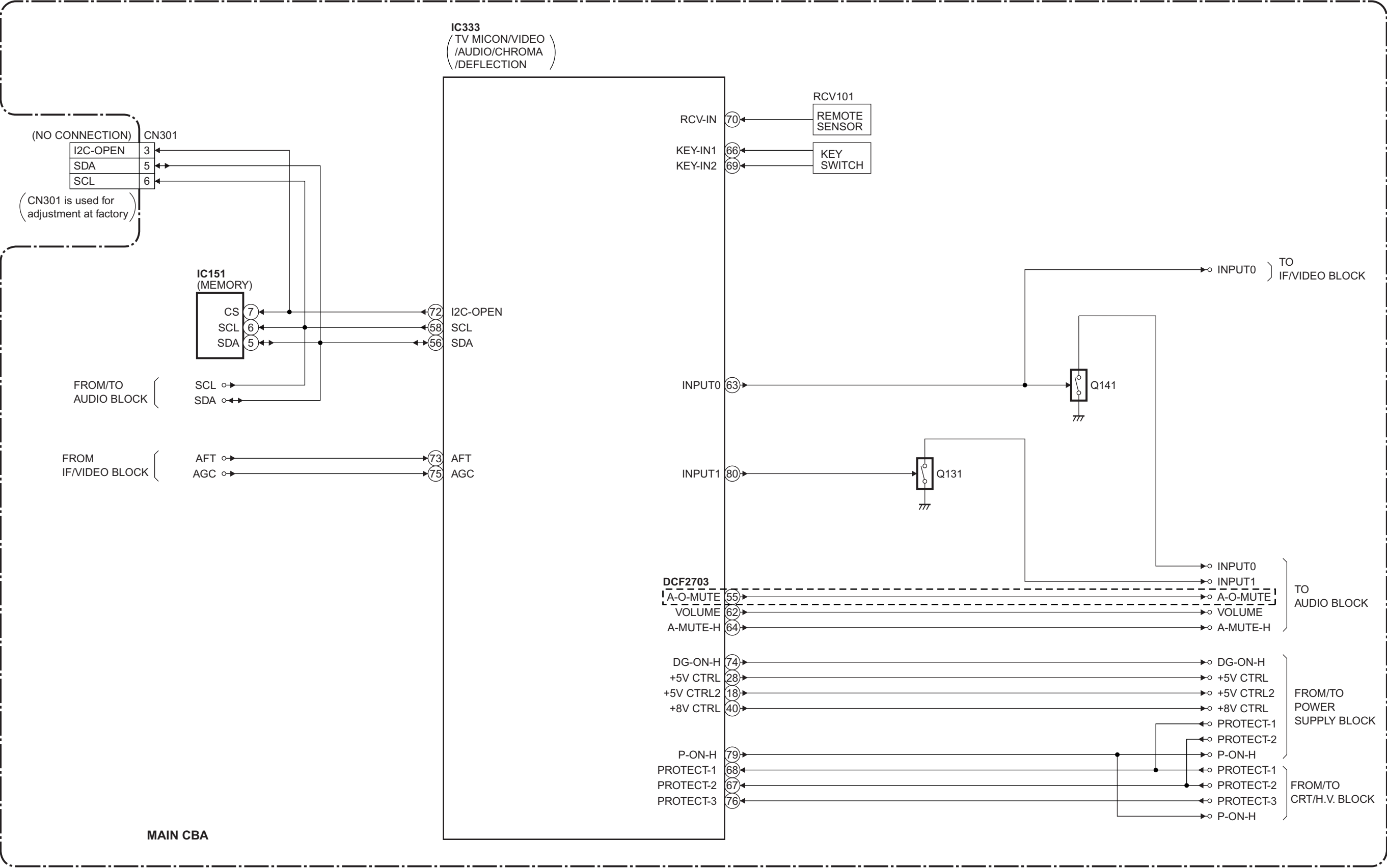
## 22. Yh, Yv, Xv Adjustment

1. Adjust the volume of Deflection Yoke(Yh, Yv, Xv) to get good convergence.

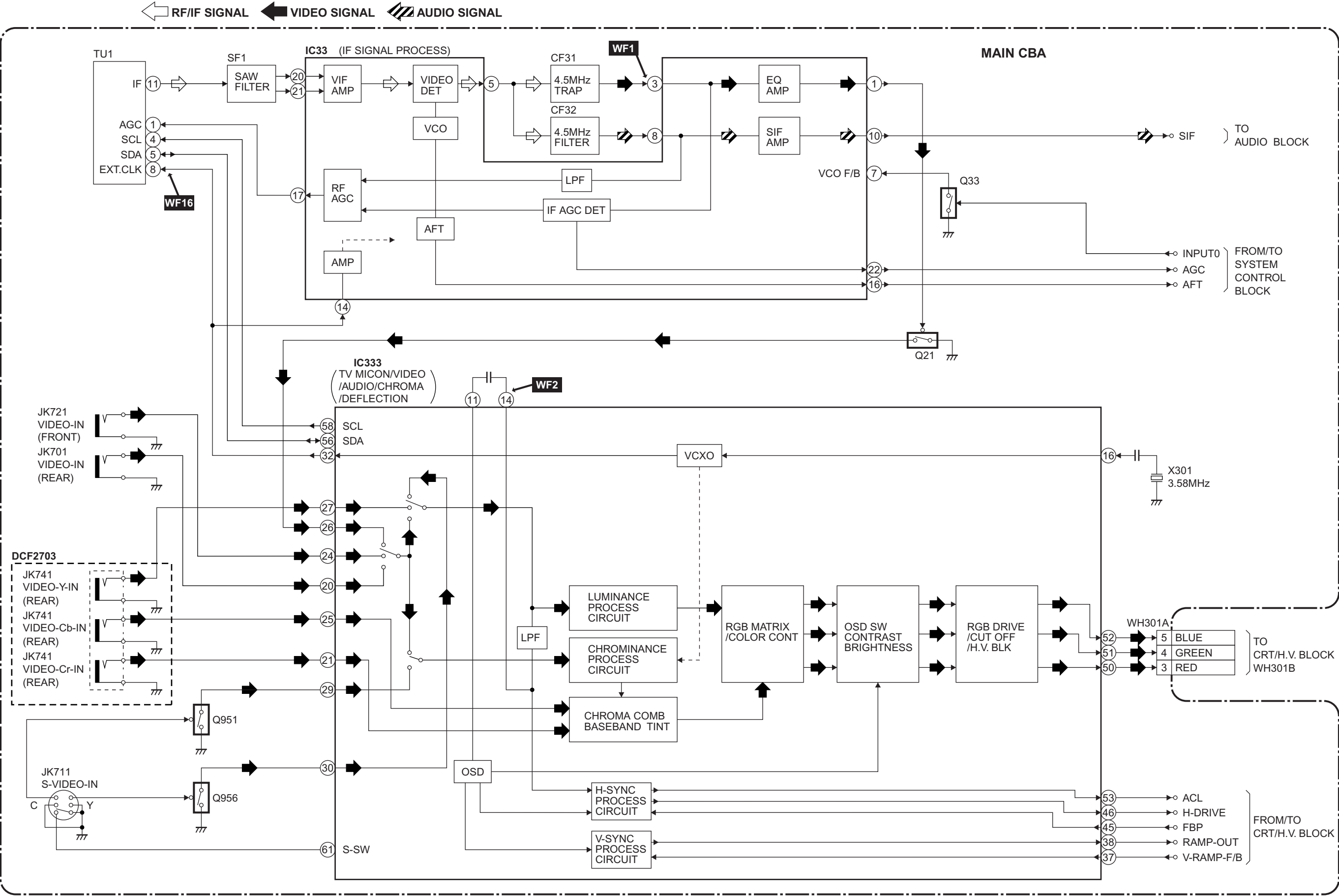


BLOCK DIAGRAMS

System Control Block Diagram

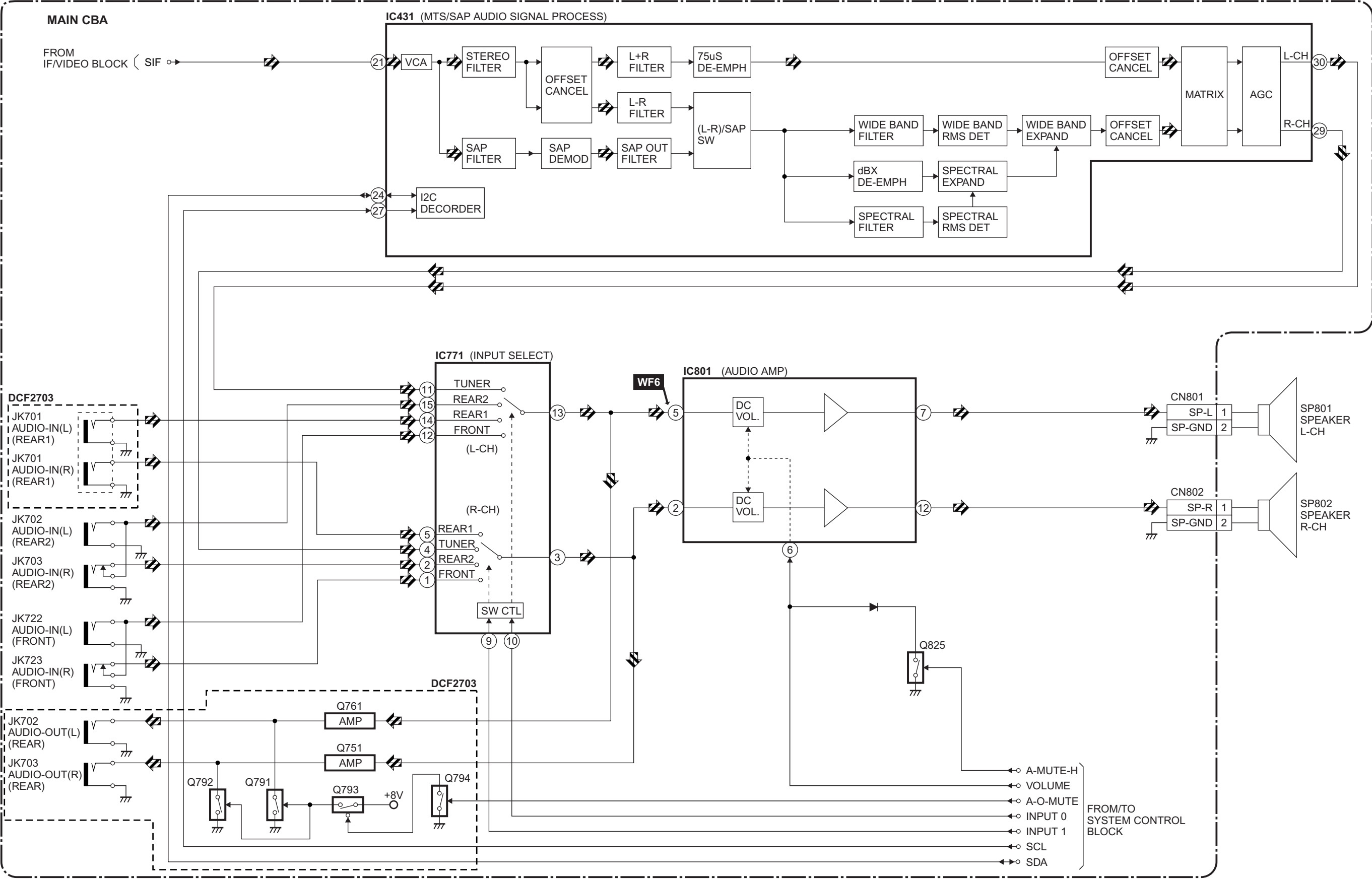


IF/Video Block Diagram

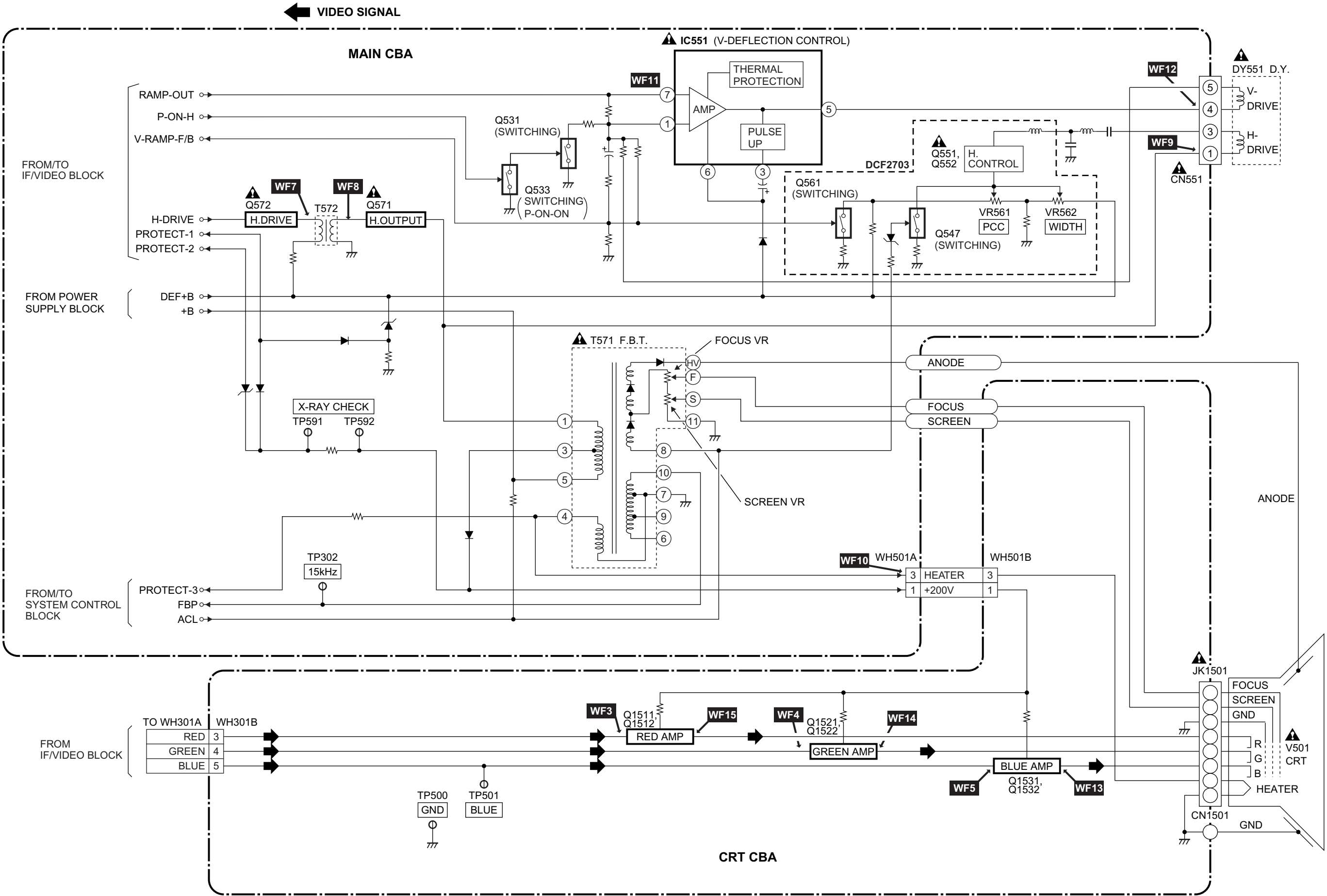


Audio Block Diagram

 AUDIO SIGNAL



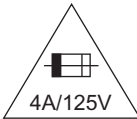
CRT/H.V. Block Diagram



# Power Supply Block Diagram

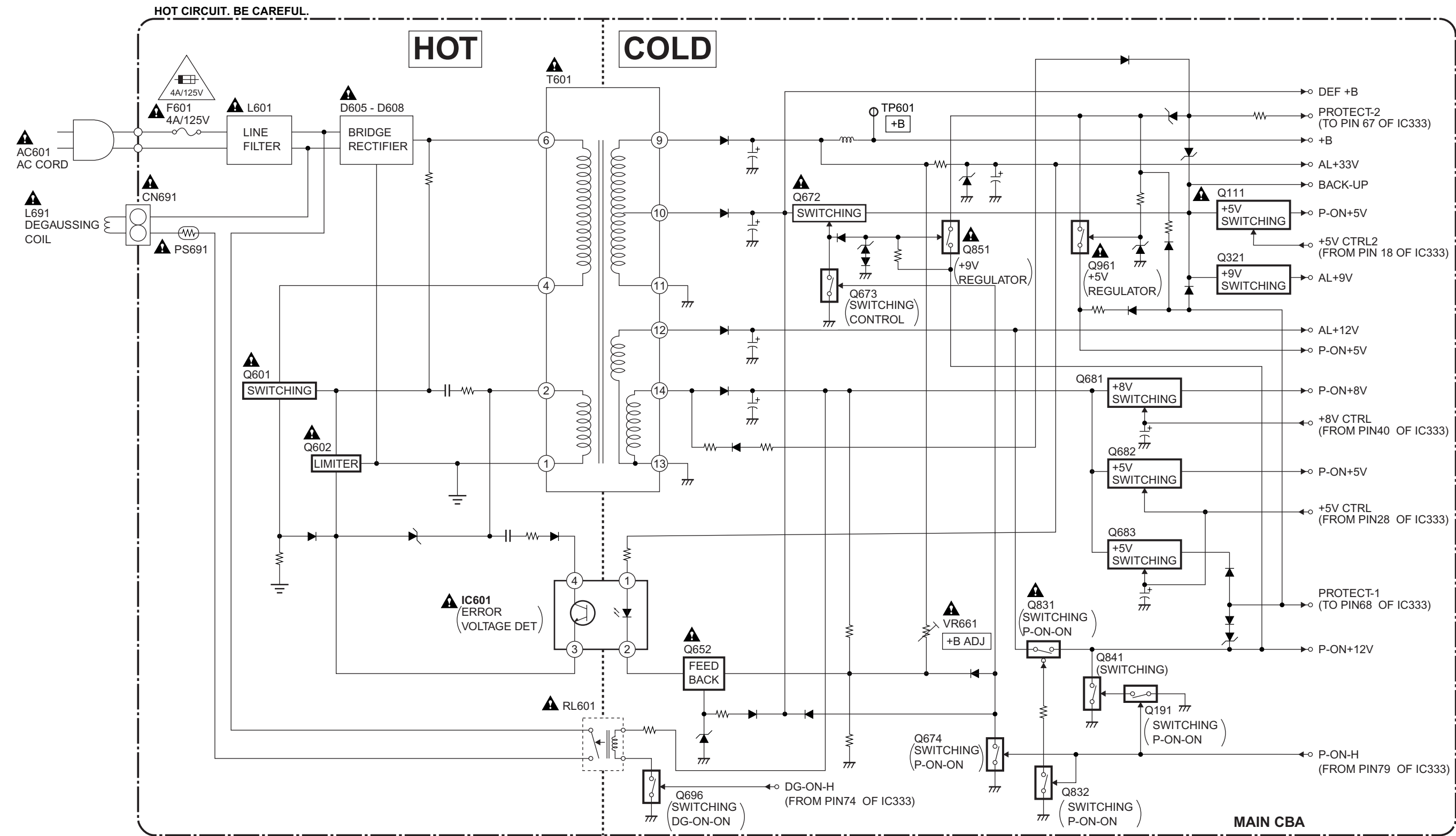
**CAUTION !**

Fixed voltage ( or Auto voltage selectable ) 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 RISK OF FIRE,  
REPLACE ONLY WITH SAME TYPE 4 A, 125V FUSE.  
**ATTENTION:** UTILISER UN FUSIBLE DE RECHANGE DE MÊME TYPE DE 4A, 125V.

**NOTE :**  
The voltage for parts 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 "▲" in the 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  $\mu F$  ( $P=10^{-6}\mu F$ ).
5. All voltages are DC voltages unless otherwise specified.

### Note of Capacitors:

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

### Temperature Characteristics of Capacitors are noted with the following:

B ---  $\pm 10\%$  CH ---  $0 \pm 60 \text{ ppm}/^\circ\text{C}$  CSL ---  $+350 \sim -1000 \text{ ppm}/^\circ\text{C}$

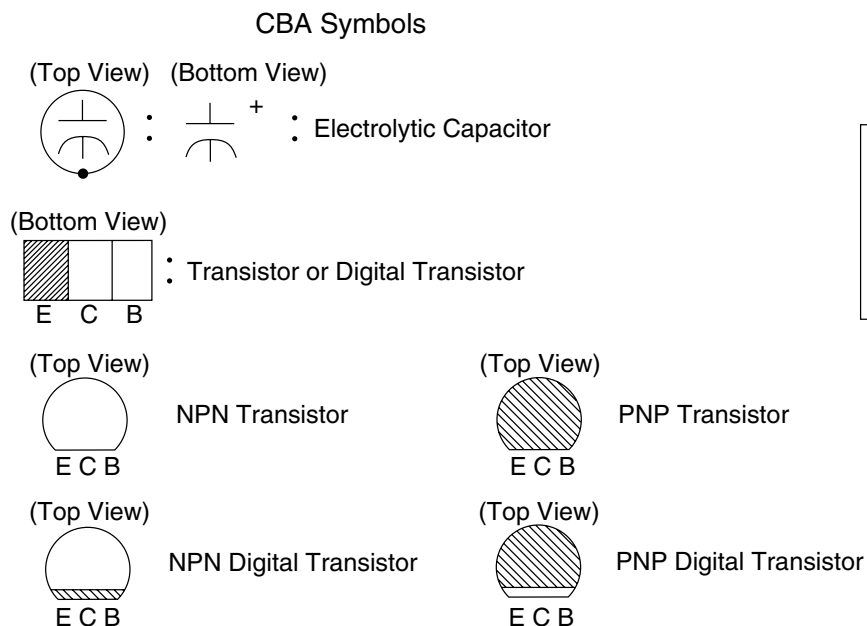
### Tolerance of Capacitors are noted with the following:

Z ---  $+80 \sim -20\%$

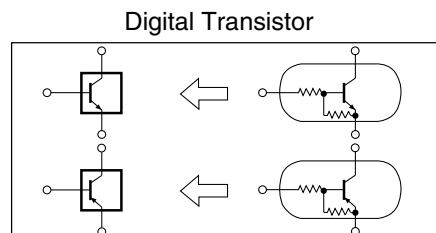
### Note of Resistors:

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

Capacitors and transistors are represented by the following symbols.



### Schematic Diagram Symbols



## LIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

1. **CAUTION:** FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE\_A,\_V FUSE.

**ATTENTION:** UTILISER UN FUSIBLE DE RECHANGE DE MÊME TYPE DE\_A,\_V.

### 2. CAUTION:

Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.

If Main Fuse (F601) 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.

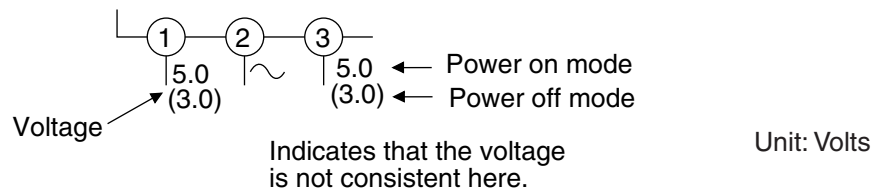
### 4. Wire Connectors

- (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).

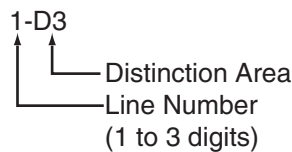
5. **Note:** Mark "●" is a leadless (chip) component.

### 6. Voltage indications on the schematics are as shown below:

Plug the TV power cord into a standard AC outlet.:

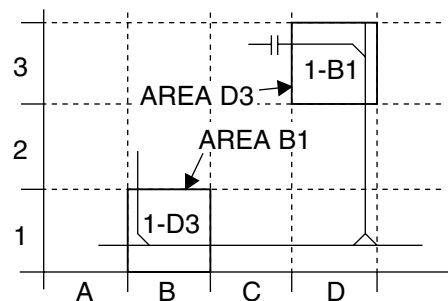


### 7. How to read converged lines



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.

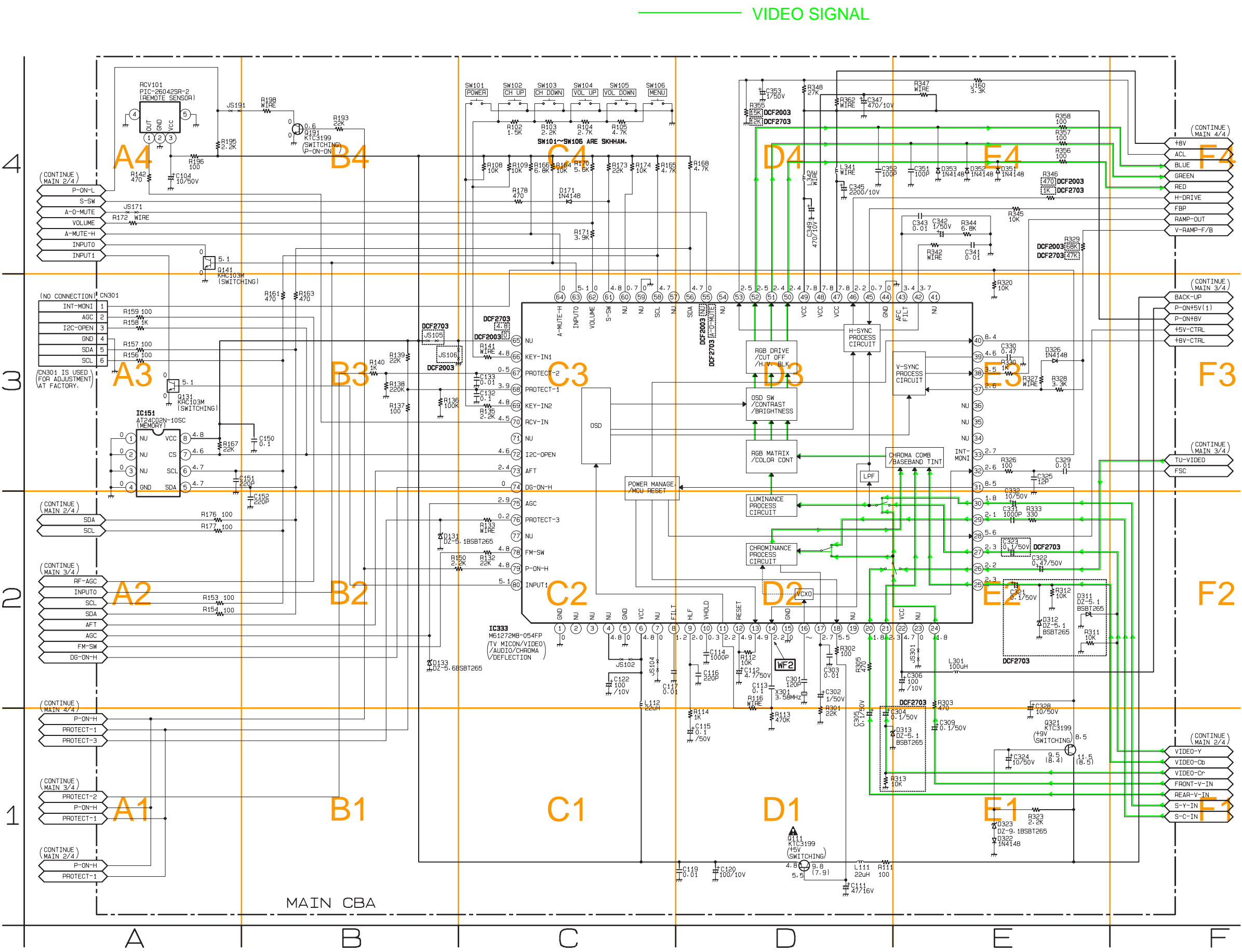
□→ : Used to indicate a test point with a component lead on foil side.

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

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



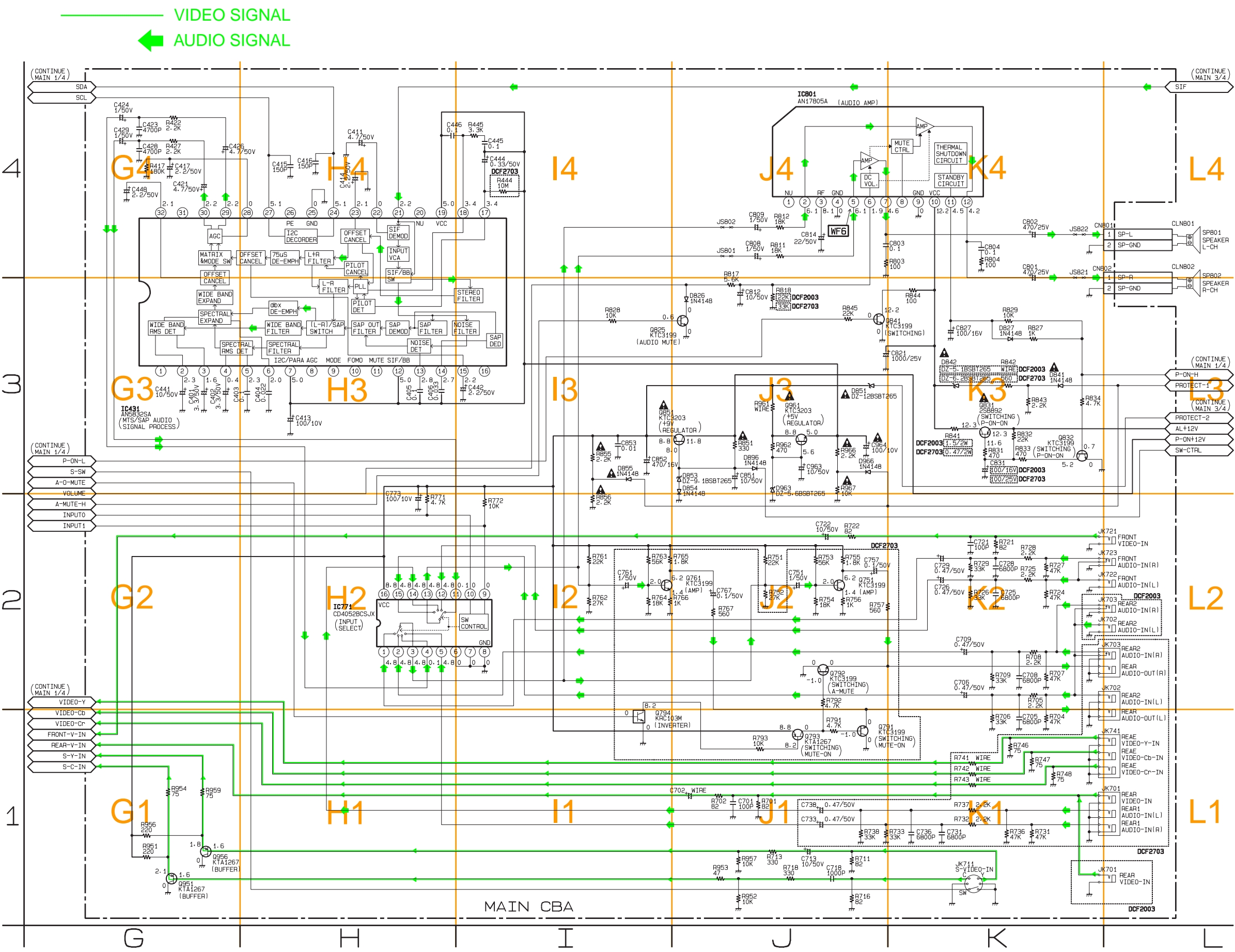
Main 1/4 Schematic Diagram



MAIN 1/4

Ref No.	Position
ICS	
IC151	A-3
IC333	C-2
TRANSISTORS	
Q111	D-1
Q131	A-3
Q141	A-4
Q191	B-4
Q321	E-1
CONNECTOR	
CN301	A-3

Main 2/4 Schematic Diagram



MAIN 2/4

Ref No.	Position
ICS	
IC431	G-3
IC771	H-2
IC801	J-4
TRANSISTORS	
Q751	J-2
Q761	J-2
Q791	J-1
Q792	J-2
Q793	J-1
Q794	I-1
Q825	J-3
Q831	K-3
Q832	K-3
Q841	K-3
Q851	J-3
Q951	G-1
Q956	G-1
Q961	J-3
CONNECTORS	
CN801	L-4
CN802	L-4

Main 3/4 Schematic Diagram

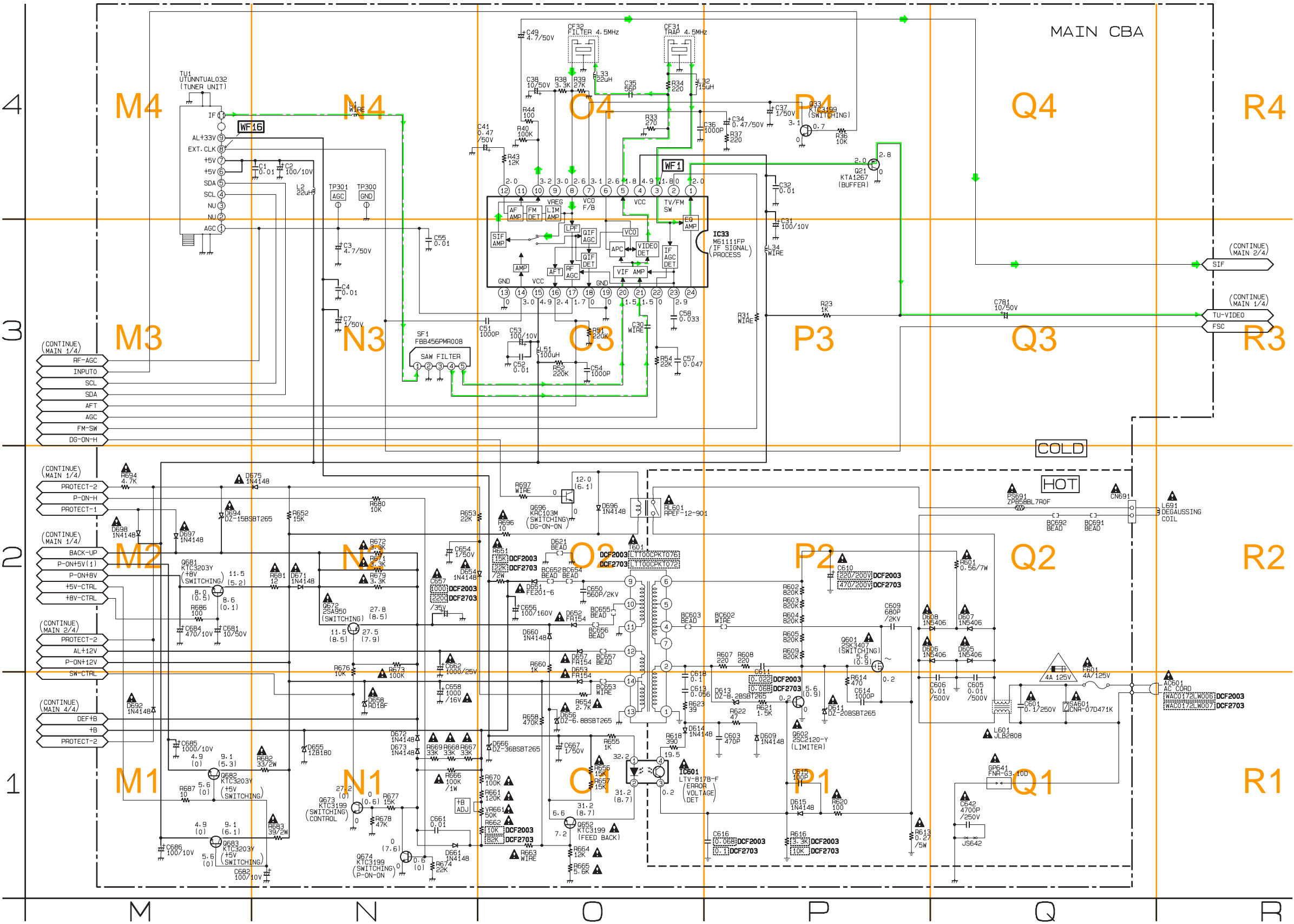
- IF SIGNAL
- VIDEO SIGNAL
- AUDIO SIGNAL

CAUTION !  
Fixed voltage ( or Auto voltage selectable ) 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.

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



CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE 4A, 125V FUSE.  
ATTENTION: UTILISER UN FUSIBLE DE RECHANGE DE MÊME TYPE DE 4A, 125V.



MAIN 3/4	
Ref No.	Position
ICS	
IC33	P-3
IC601	O-1
TRANSISTORS	
Q21	P-4
Q33	P-4
Q601	P-2
Q602	P-1
Q652	O-1
Q672	N-2
Q673	N-1
Q674	N-1
Q681	M-2
Q682	M-1
Q683	M-1
Q696	O-2
CONNECTOR	
CN691	Q-2
TEST POINTS	
TP300	N-4
TP301	N-4
VARIABLE RESISTOR	
VR661	O-1

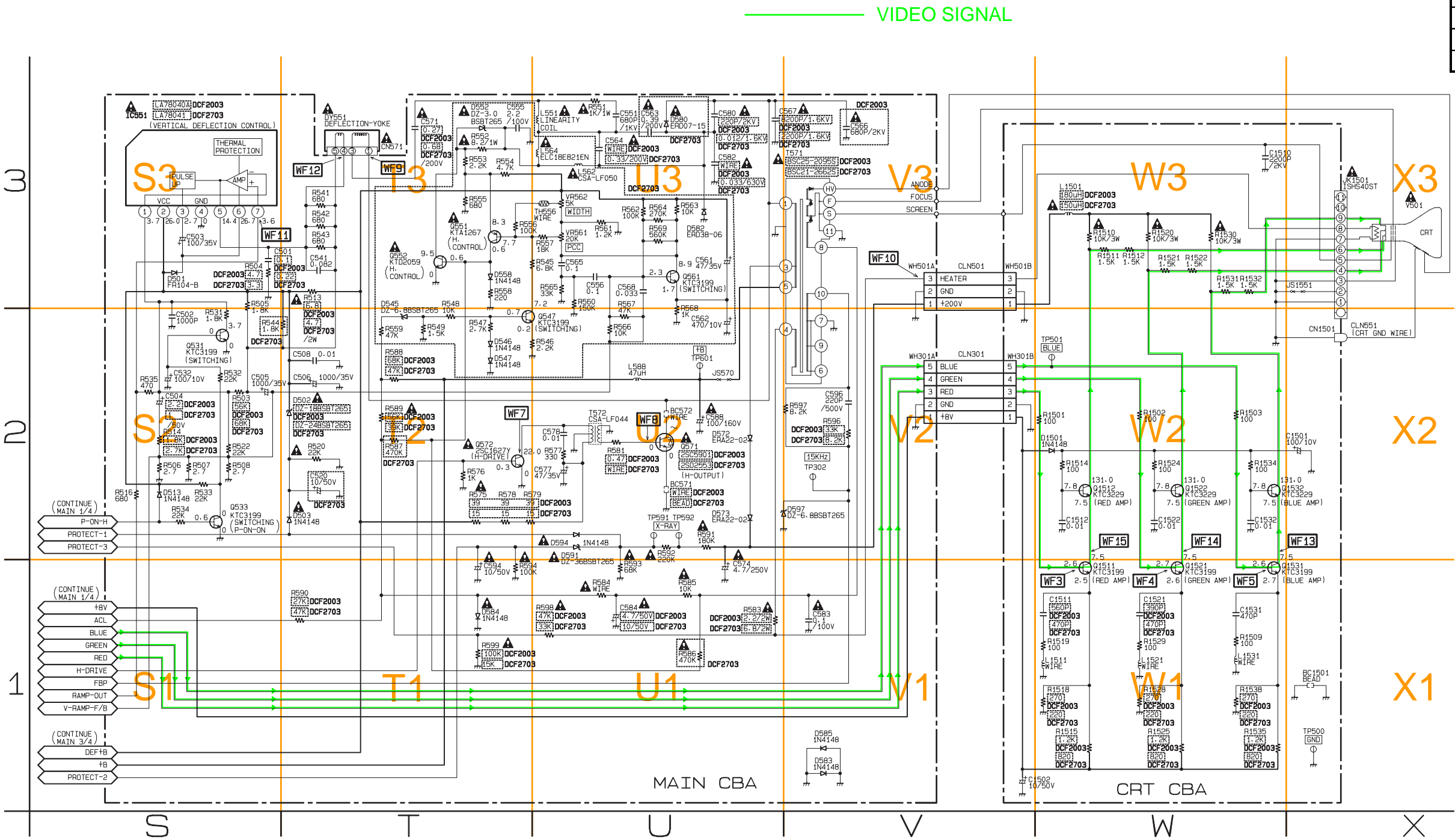
Main 4/4 & CRT Schematic Diagram

MAIN 4/4

Ref No.	Position	Ref No.	Position	Ref No.	Position
IC		TRANSISTORS		TEST POINTS	
IC551	S-3	Q571	U-2	TP591	U-2
TRANSISTORS		Q572	T-2	TP592	U-2
Q531	S-2	CONNECTORS		TP601	U-2
Q533	S-2	CN571	T-3	VARIABLE RESISTORS	
Q547	U-2	WH301A	V-2	VR561	U-3
Q551	T-3	WH501A	V-3	VR562	U-3
Q552	T-3	TEST POINTS			
Q561	U-3	TP302	V-2		

CRT

Ref No.	Position
TRANSISTORS	
Q1511	W-1
Q1512	W-2
Q1521	W-1
Q1522	W-2
Q1531	W-1
Q1532	W-2
CONNECTORS	
CN1501	X-2
WH301B	V-2
WH501B	V-3
TEST POINTS	
TP500	X-1
TP501	W-2





Main CBA Top View

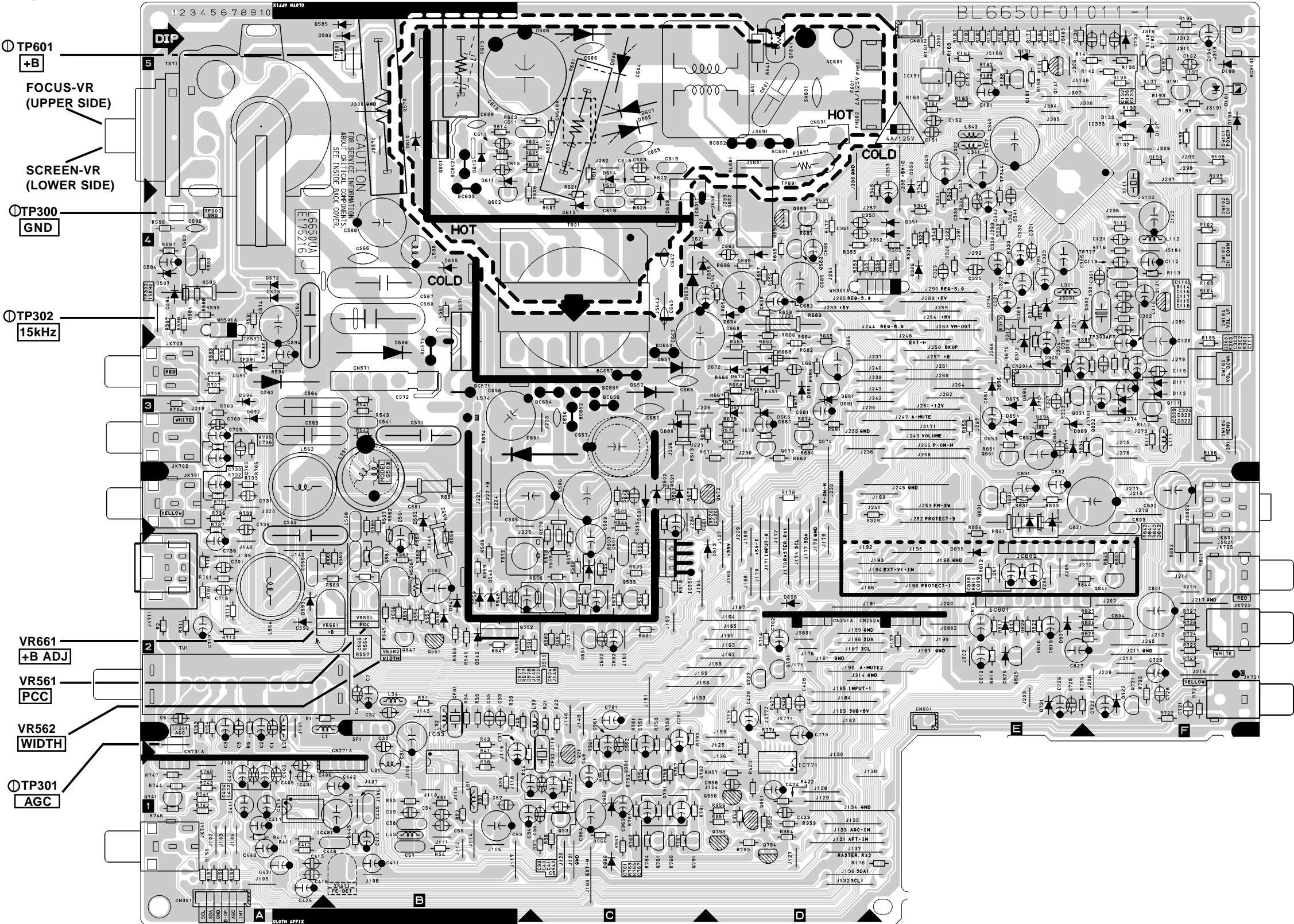
**CAUTION !**  
Fixed voltage ( or Auto voltage selectable ) power supply circuit is used in this unit.  
If Main Fuse (F601) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.  
Otherwise it may cause some components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

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

**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.**



**CAUTION:** FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE 4A, 125V FUSE.  
**ATTENTION:** UTILISER UN FUSIBLE DE RECHANGE DE MÊME TYPE DE 4A, 125V.



MAIN CBA			
Ref No.	Position	Ref No.	Position
ICS		TRANSISTORS	
IC33	B-2	Q751	C-1
IC151	E-5	Q761	C-1
IC333	F-5	Q791	C-1
IC431	A-1	Q792	C-1
IC551	C-2	Q793	D-1
IC601	C-4	Q794	D-1
IC771	D-1	Q825	E-2
IC801	E-2	Q831	E-3
TRANSISTORS		Q832	F-3
Q21	C-1	Q841	F-2
Q33	C-1	Q851	E-3
Q111	F-3	Q951	D-1
Q131	F-4	Q956	D-1
Q141	E-5	Q961	C-1
Q191	F-5	CONNECTORS	
Q321	E-3	CN301	A-1
Q531	C-2	CN571	B-3
Q533	C-2	CN691	D-5
Q547	B-2	CN801	E-2
Q551	B-2	CN802	E-5
Q552	B-2	WH301A	D-4
Q561	B-2	WH501A	A-4
Q571	B-4	TEST POINTS	
Q572	C-2	TP300	A-4
Q601	B-5	TP301	A-2
Q602	B-4	TP302	A-4
Q652	D-4	TP591	A-3
Q672	D-3	TP592	A-3
Q673	D-3	TP601	B-5
Q674	D-3	VARIABLE RESISTORS	
Q681	D-3	VR561	B-2
Q682	D-4	VR562	B-2
Q683	D-4	VR661	B-2
Q696	D-4		

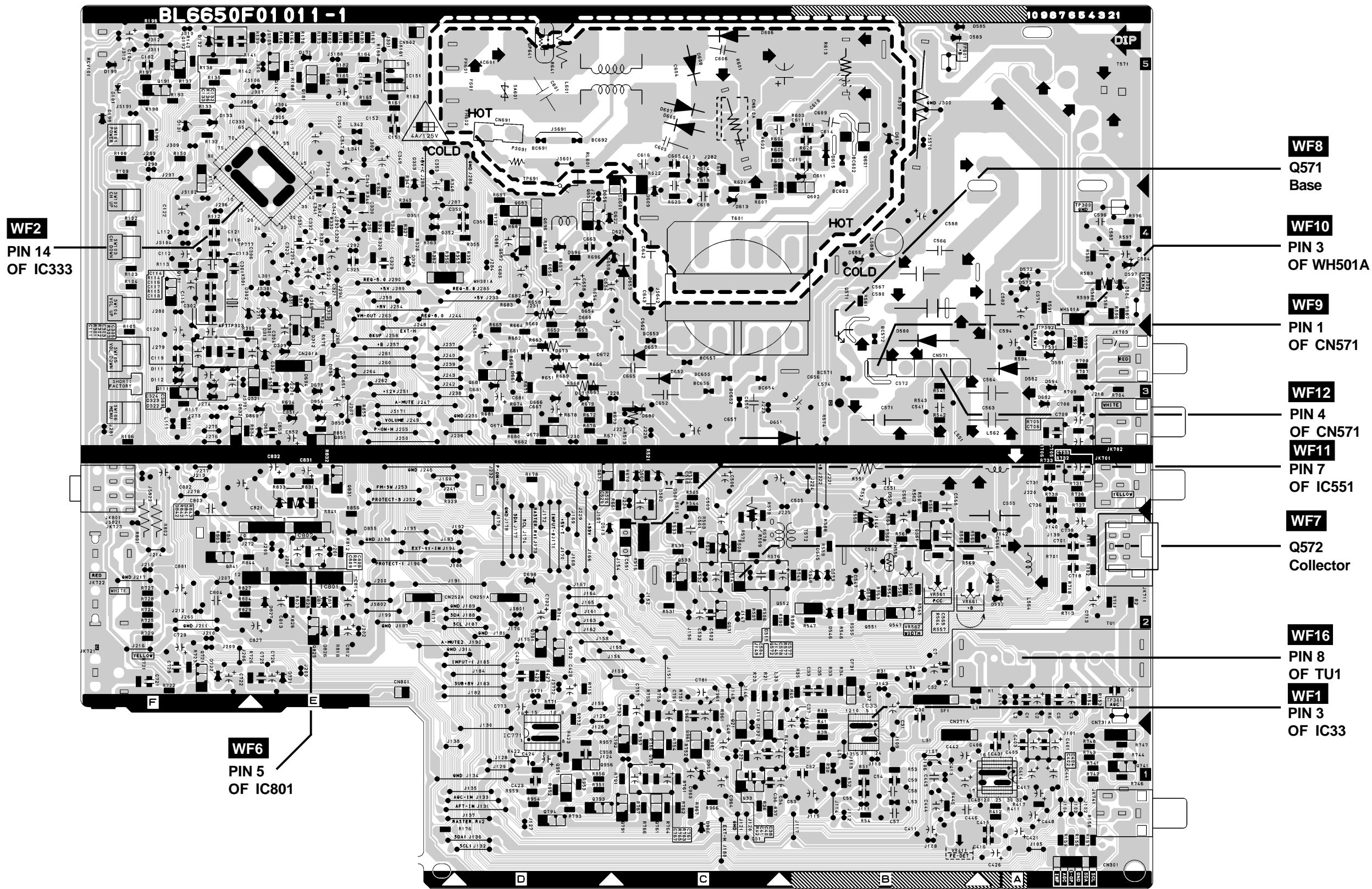
Main CBA Bottom View

**CAUTION !**  
Fixed voltage ( or Auto voltage selectable ) 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.



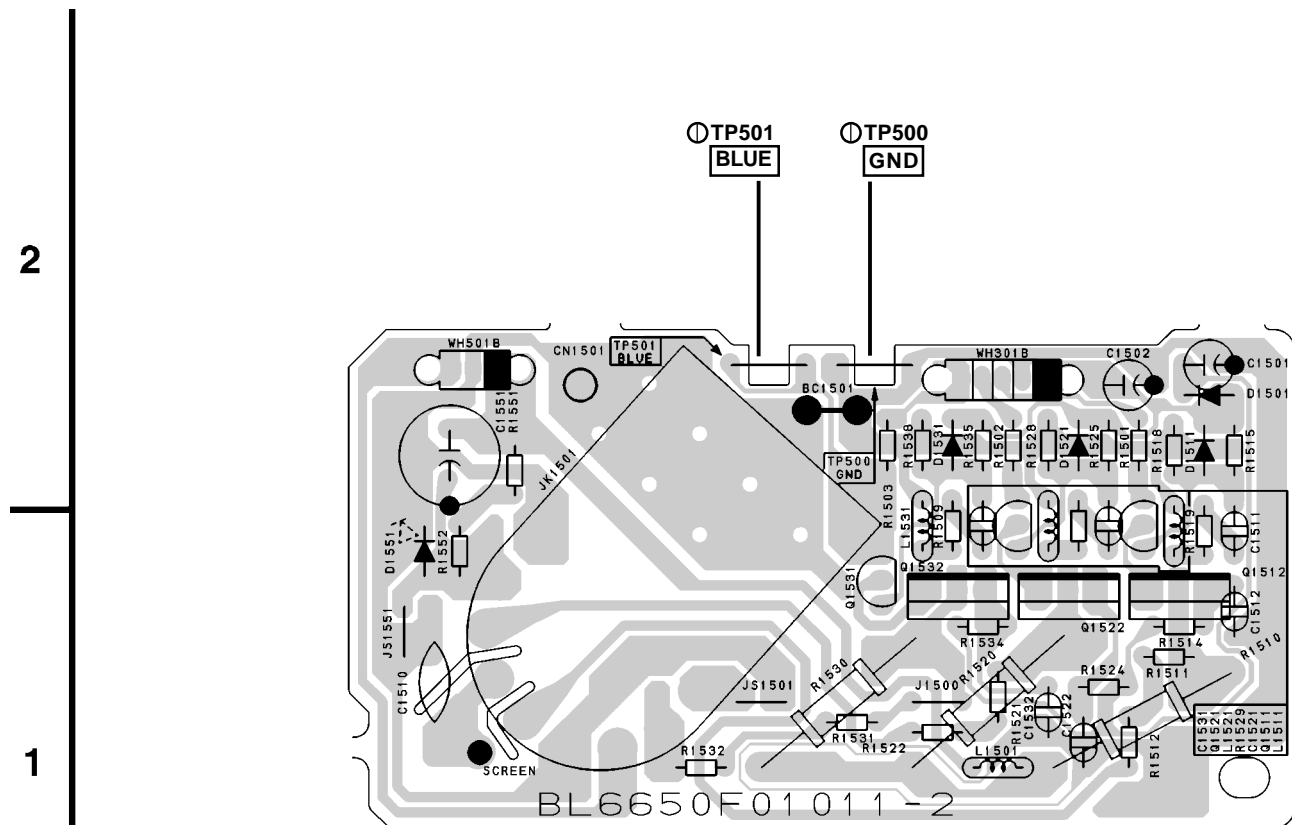
**CAUTION:** FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE 4A, 125V FUSE.  
**ATTENTION:** UTILISER UN FUSIBLE DE RECHANGE DE MÊME TYPE DE 4A, 125V.  
**NOTE :**  
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

**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.**



### CRT CBA Top View

Ref No.	Position
TRANSISTORS	
Q1511	C-1
Q1512	C-1
Q1521	C-1
Q1522	C-1
Q1531	B-1
Q1532	B-1
CONNECTORS	
CN1501	A-2
WH301B	B-2
WH501B	A-2
TEST POINTS	
TP500	B-2
TP501	B-2

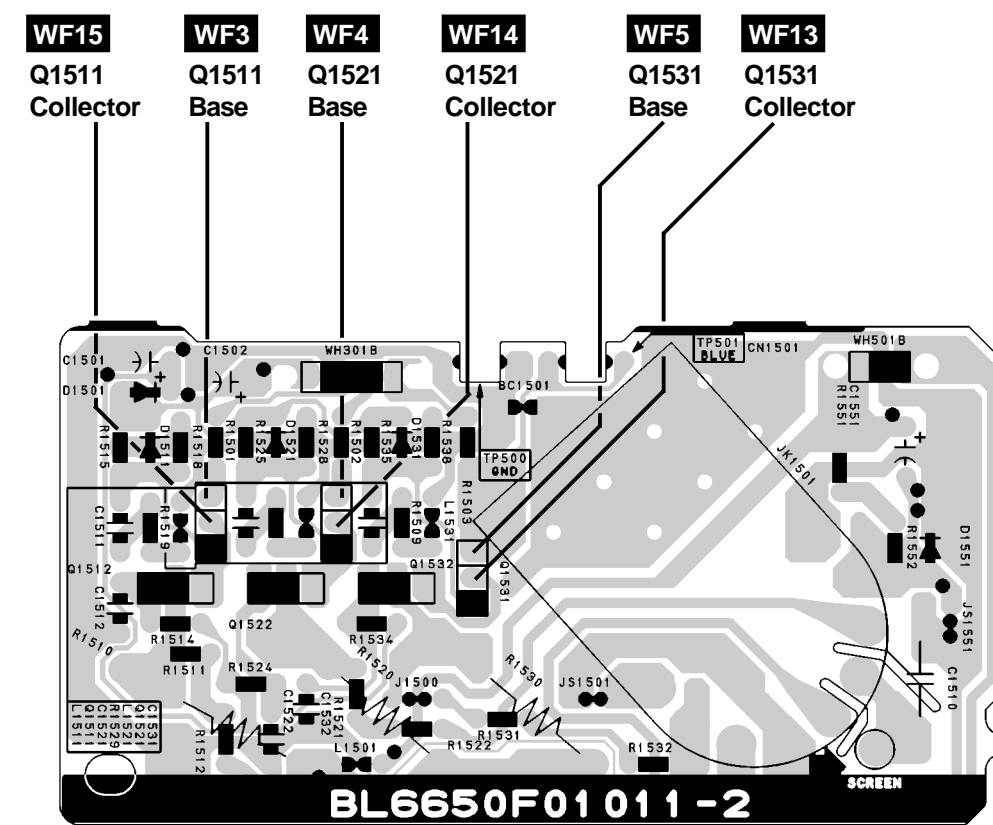


**A**

**B**

**C**

### CRT CBA Bottom View



**C**

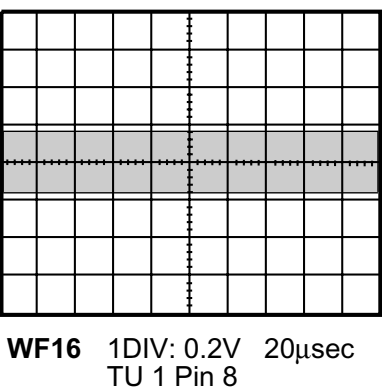
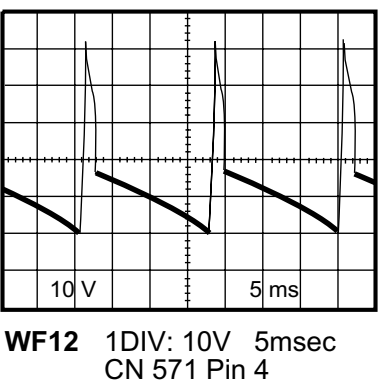
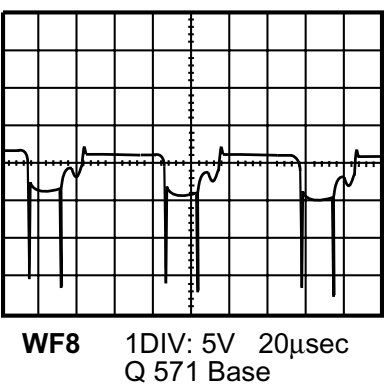
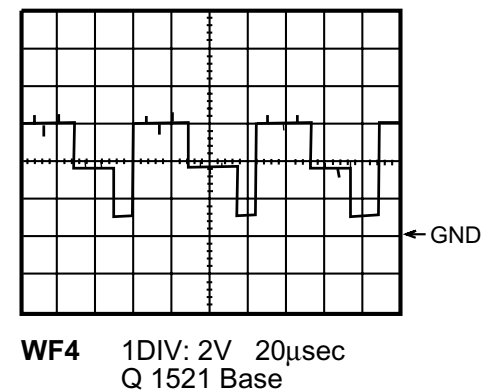
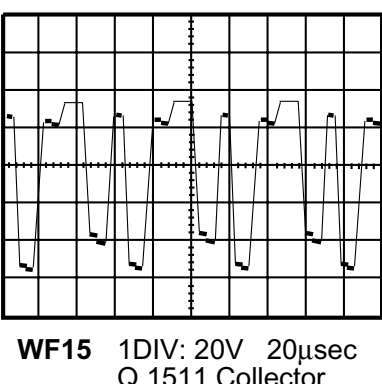
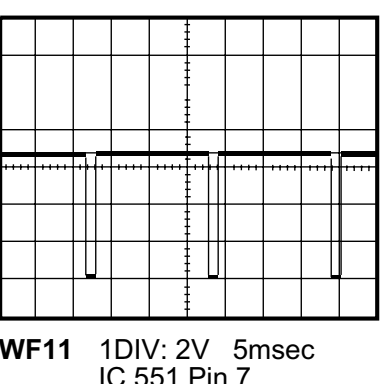
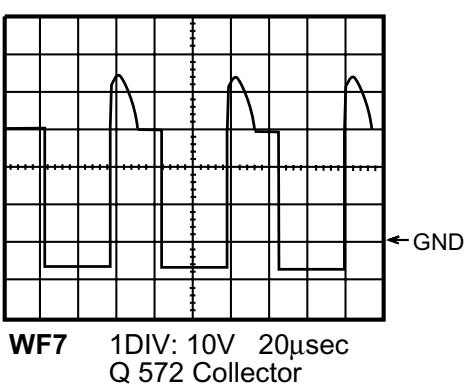
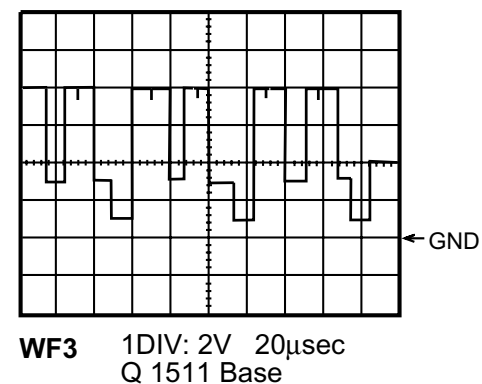
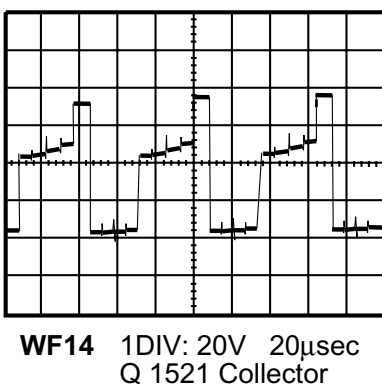
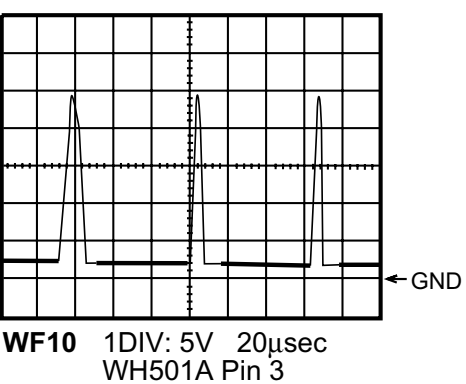
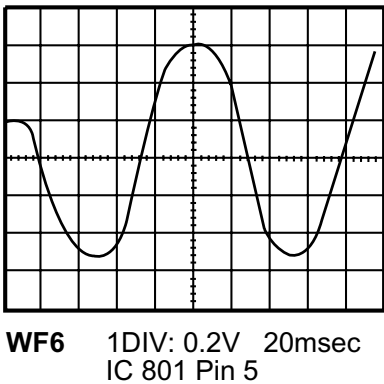
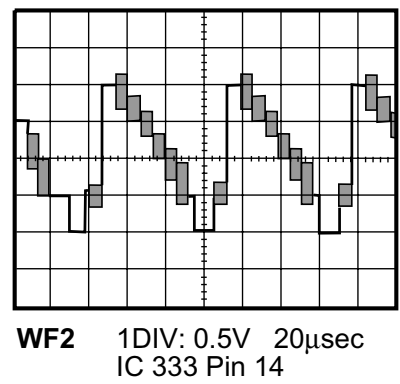
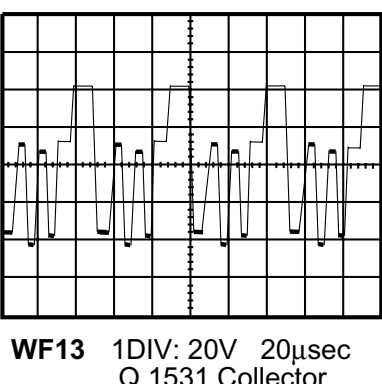
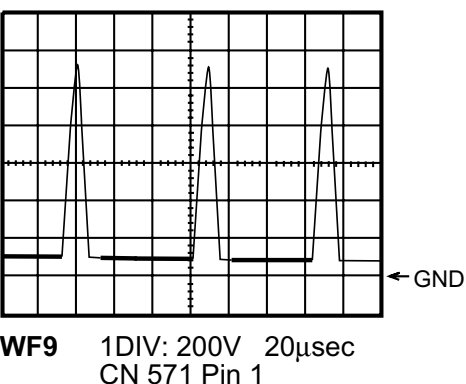
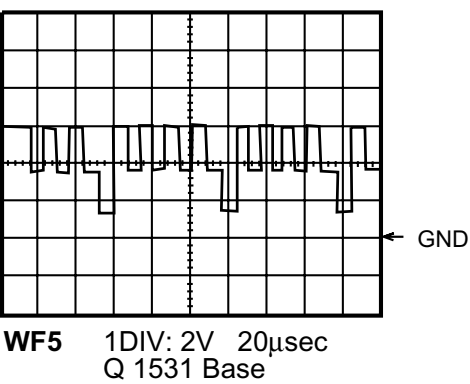
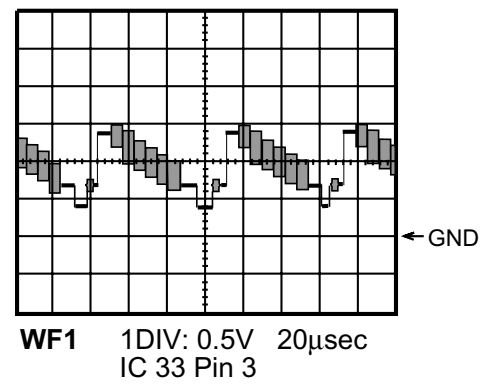
**B**

**A**

WAVEFORMS

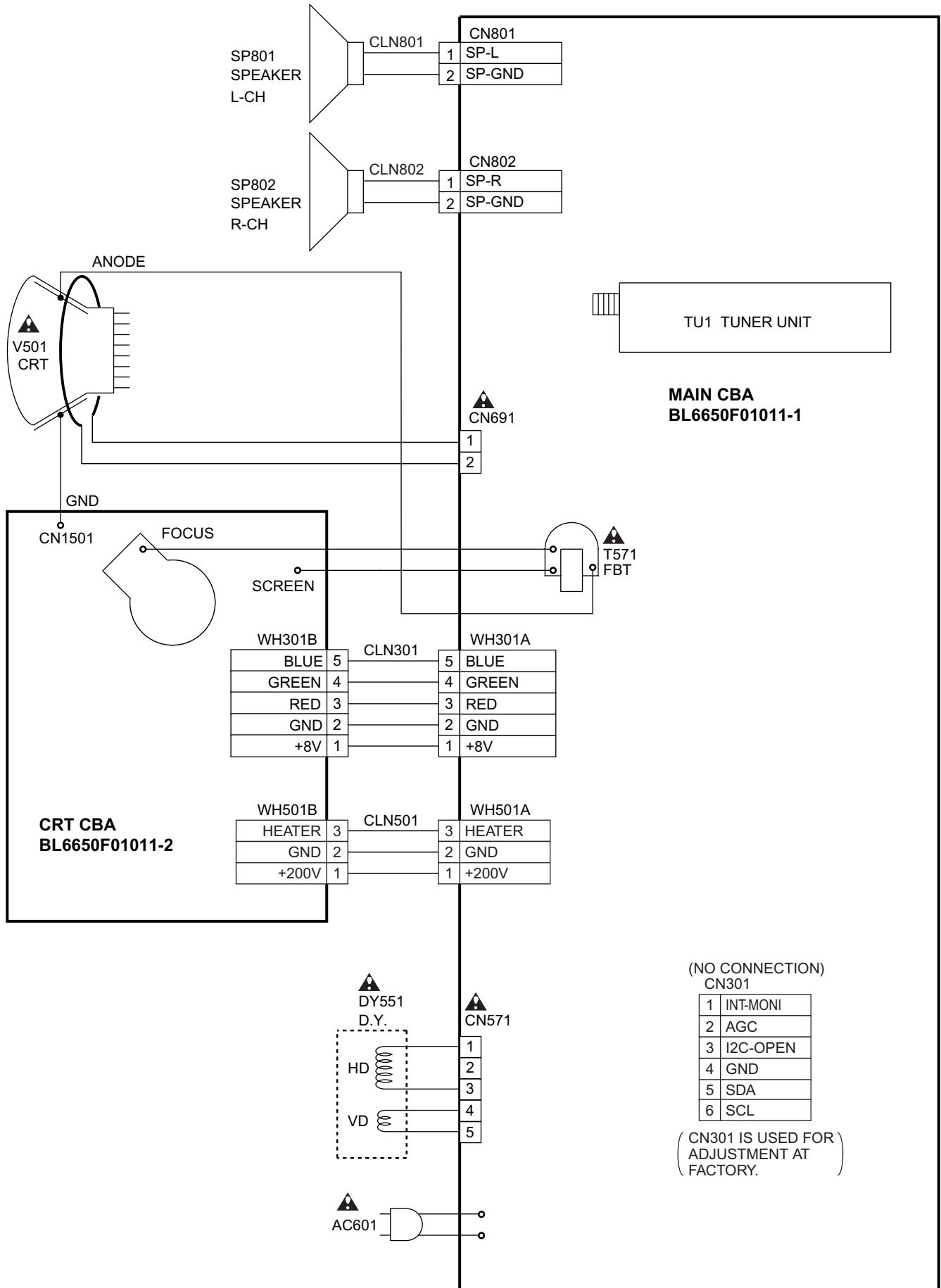
WF1 ~ WF16 = Waveforms to be observed at Waveform check points. (Shown in Schematic Diagram.)

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%)





# WIRING DIAGRAM



# IC PIN FUNCTIONS

## IC333 (TV Micro Computer)

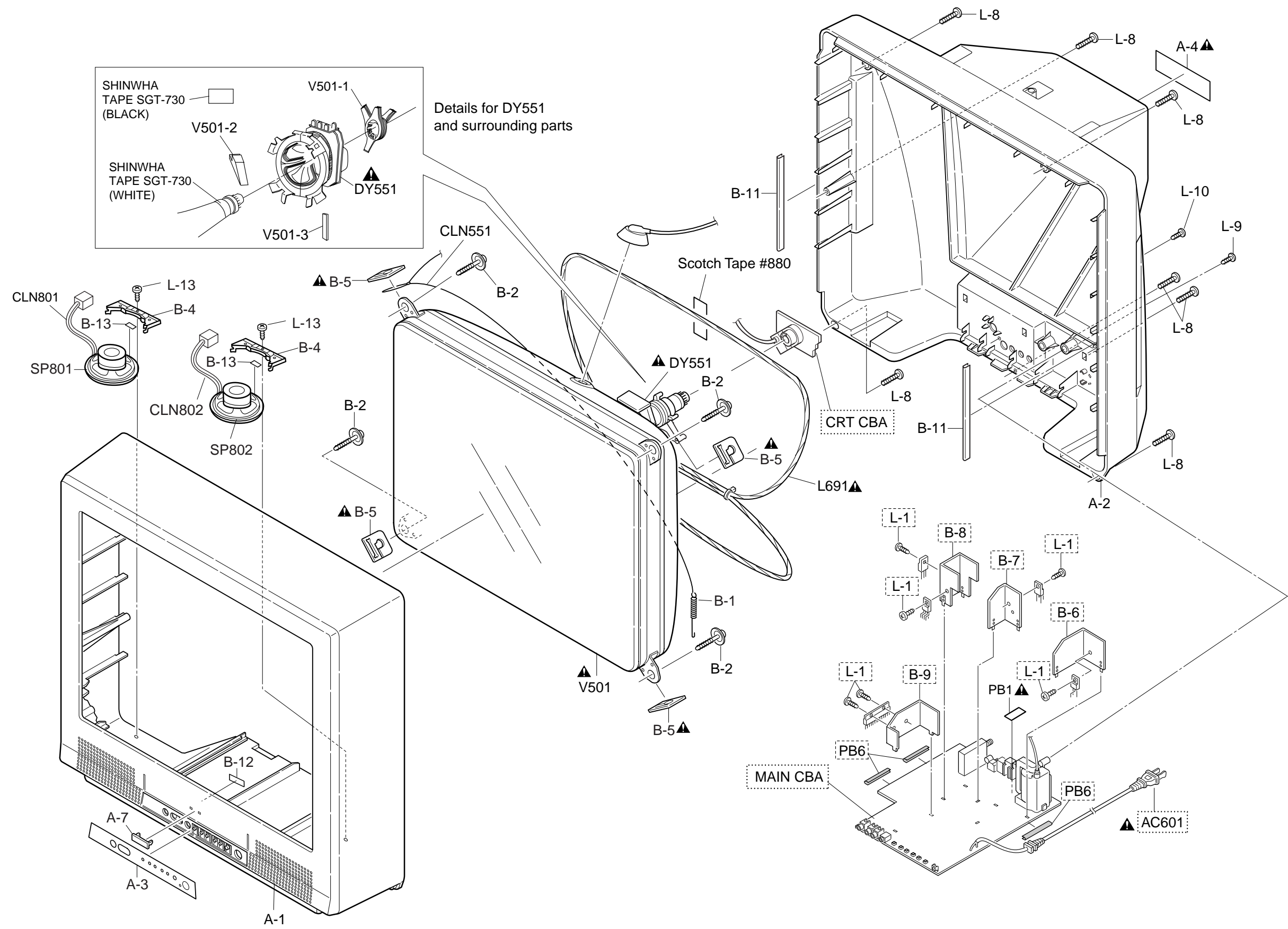
Pin No.	Signal Name	Function
1	GND	GND
2	N.U.	Not Used
3	N.U.	Not Used
4	N.U.	Not Used
5	GND	GND
6	VCC	AL+5V
7	N.U.	Not Used
8	FILT	FILT
9	HLF	Filter for CCD
10	VHOLD	VHOLD
11	CVIN	Input for Video Signal
12	RESET	RESET
13	MCU RESET OUT	RESET Signal Output
14	Y-SW OUT	Composite Signal Output
15	GND	GND
16	3.58 X'TAL	3.58MHz Crystal
17	C-APC	CHROMINANCE APC
18	MCU 5.7REG OUT	Micro controller Control Voltage Output
19	N.U.	Not Used
20	CVBS IN 3	Composite Signal Input 3
21	N.U.	Not Used
22	VCC	VCC
23	N.U.	(GND)
24	CVBS IN2	Composite Signal Input 2
25	N.U.	Not Used
26	CVBS IN1	Composite Signal Input 1
27	N.U.	Not Used
28	5.7V REG OUT	5.7V Output
29	C(Y/C) IN	Chrominance Signal Input
30	Y(Y/C) IN	Luminance Signal Input
31	V REG VCC	DC 8.7V Input
32	FSC OUT	Clock Output 3.58MHz
33	MONITOR OUT	Monitor Out
34	N.U.	Not Used

Pin No.	Signal Name	Function
35	N.U.	Not Used
36	N.U.	Not Used
37	V RAMP F/B	V Ramp Feed Back
38	V RAMP OUT	Vertical Output
39	V RAMP CAP	V Ramp OSC Capacitor
40	8.7 VREG OUT	DC 8.7V Output
41	N.U.	Not Used
42	H VCO F/B	H Vco Feed Back
43	AFC FILT	Horizontal AFC Filter
44	GND	GND
45	FBP IN	Flyback Pulse Input
46	H-OUT	H Pulse Output
47	VCC	Vcc
48	VCC	Vcc
49	VCC	Vcc
50	R OUT	Red Output
51	G OUT	Green Output
52	B OUT	Blue Output
53	ACL	IB-Input
54	N.U.	Not Used
55	A-O-MUTE	Mute Signal of Audio Output
56	SDA	I2C-BUS Controller Interface (Data)
57	N.U.	Not Used
58	SCL	I2C-BUS Controller Interface (Clock)
59	N.U.	(GND)
60	N.U.	Not Used
61	S-SW	Detecting S-VIDEO Jack Connection
62	VOLUME	Volume
63	INPUTO	Input Select 0
64	A-MUTE-H	Audio Mute
65	N.U.	Not Used
66	KEY-IN 1	Key Input 1 (Main)
67	PROTECT-2	Power Supply Protection
68	PROTECT-1	Power Supply Protection
69	KEY-IN 2	Key Input 2 (Main)

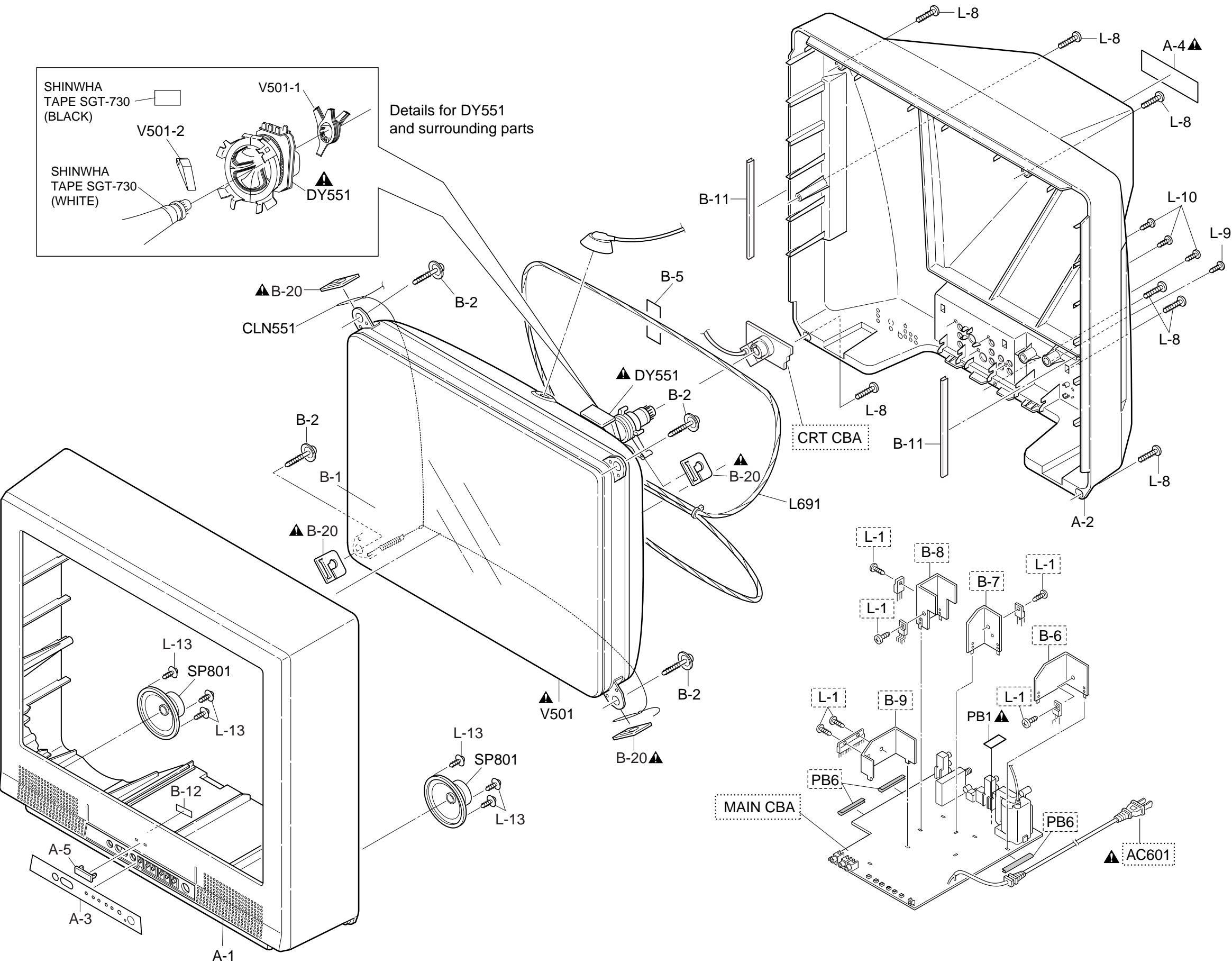
<b>Pin No.</b>	<b>Signal Name</b>	<b>Function</b>
70	RCV-IN	Input For Remote Control
71	N.U.	Not Used
72	I2C OPEN	White Balance Adjustment Judgement
73	AFT	AFT Voltage Input
74	DG-ON-H	Degaussing Coil Control
75	AGC	AGC Voltage Input
76	PROTECT 3	Power Supply Protection
77	N.U.	Not Used
78	FM-SW	Switching IF IC VCO
79	P-ON-H	Output for P-ON-H
80	INPUT 1	Input Select 1

EXPLODED VIEWS

Cabinet [ DCF2003 ]

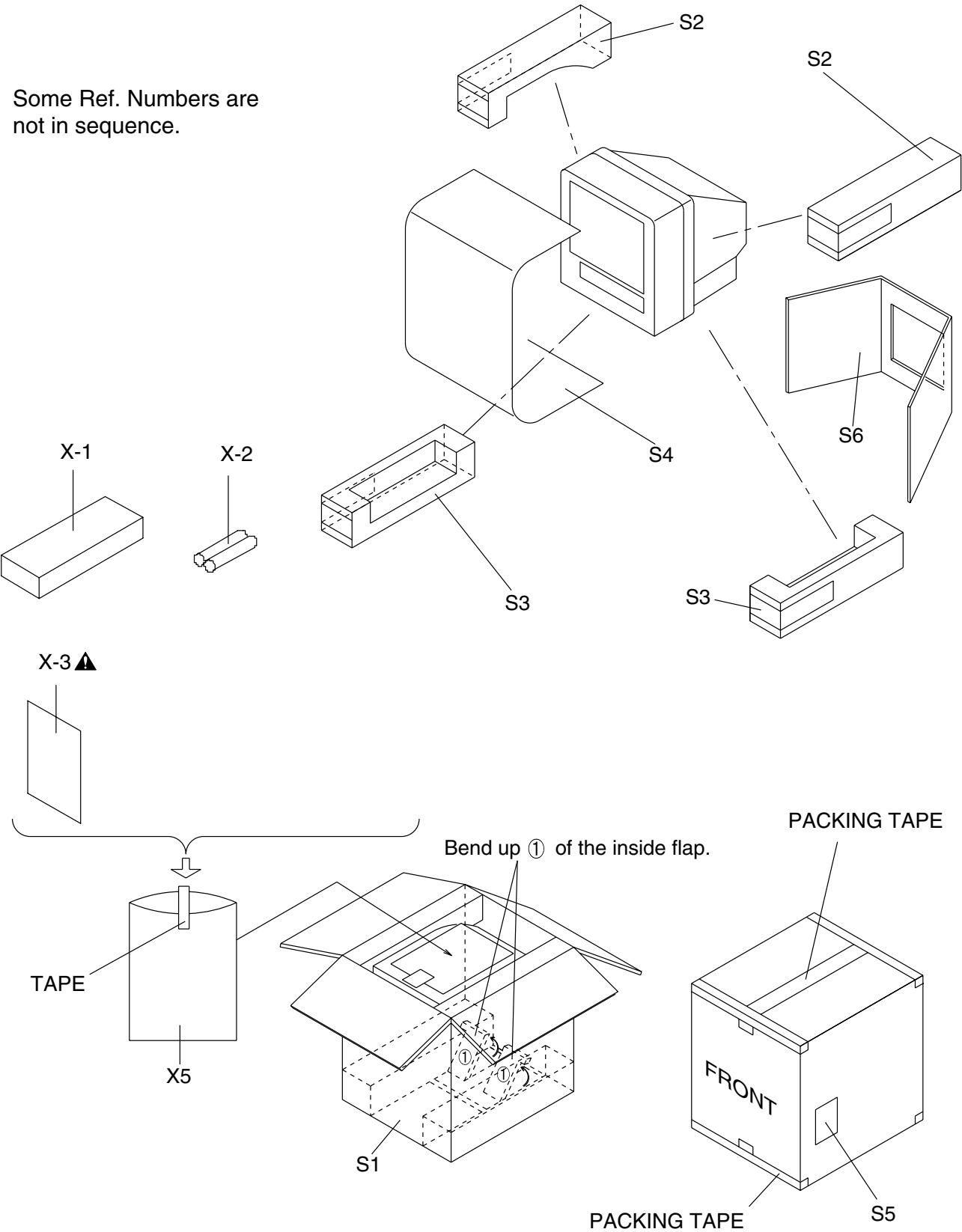


Cabinet [ DCF2703 ]

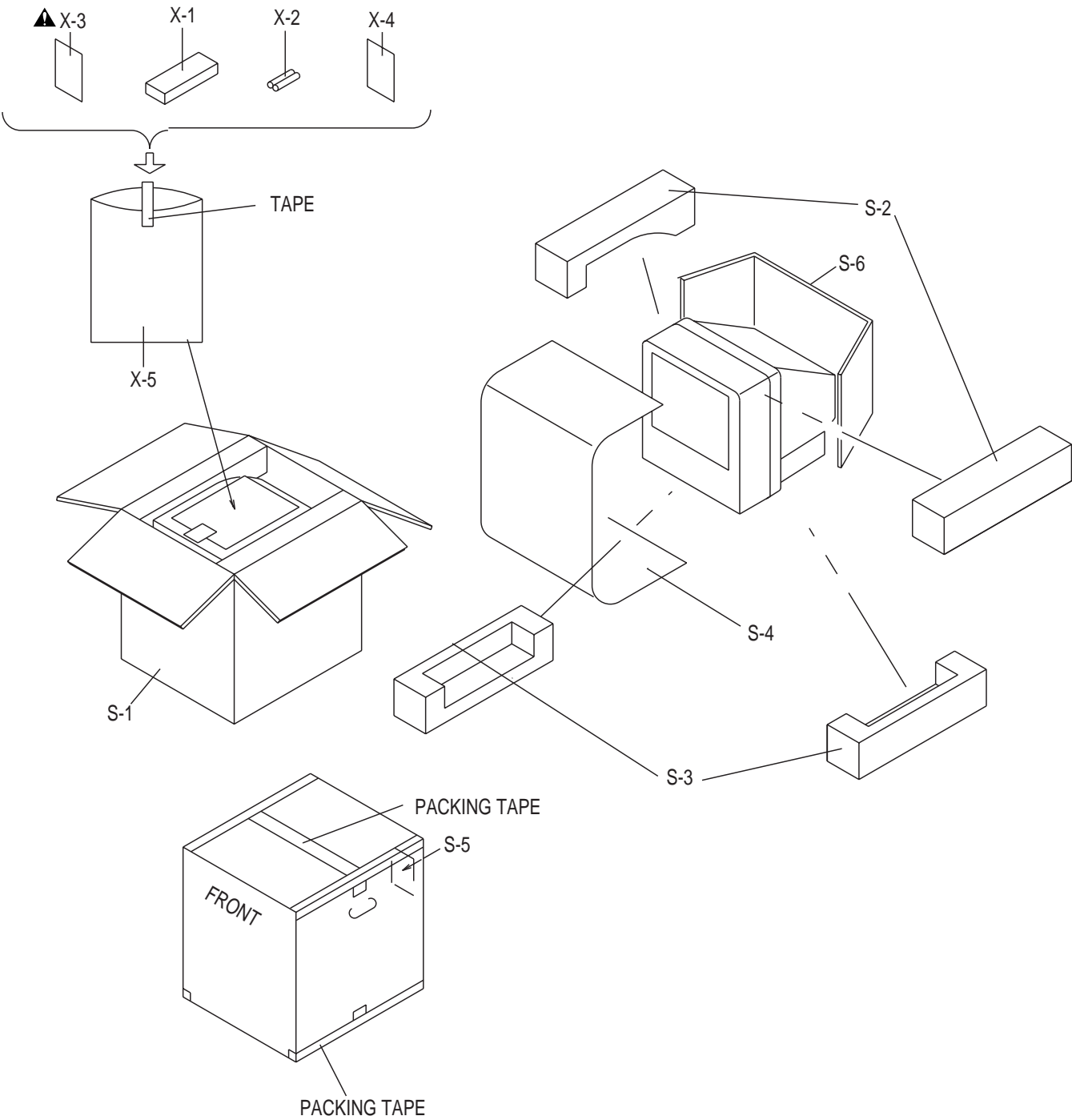


Packing [ DCF2003 ]

Some Ref. Numbers are not in sequence.



Packing [ DCF2703 ]



# 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.

## NOTE:

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

## Comparison Chart of Models and Marks

Model	Mark
DCF2003	A
DCF2703	B

## DCF2003

Ref. No.	Description	Part No.
A-1	FRONT CABINET L6525CR	0EM201755
A-2	REAR CABINET L6505UF	0EM101313
A-3	CONTROL PLATE L6525CR	0EM301918
A-4▲	RATING LABEL L6525CR	-----
A-5	SERIAL NO. LABEL L6525CR	-----
A-7	BRAND BADGE TD006CGDURABRAND	0EM301865
B-1	TENSION SPRING B0080B0:EM40808	26WH006
B-2	SCREW L1500UA	0EM406142
B-4	SPEAKER HOLDER L1440JL	0EM301478
B-5▲	DEGAUSS HOLDER L9800UA	0EM404845
B-6▲	CRITICAL PARTS WARNING LABEL B8007C3:EM41210	-----
B-11	CLOTH L9800UA:95X15XT0.5	0EM405041
B-12	CLOTH L1440JL:15X55XT1.0	0EM406793
B-13	CLOTH(B) L5201U0:15X10X1.0T	0EM400076
CLN551	CRT GND WIRE CRT GND	WX1L7820-003
CLN801	WIRE ASSEMBLY SPEAKER WIRE(220MM)	WX1L7950-001
CLN802	WIRE ASSEMBLY SPEAKER WIRE(180MM)	WX1L1131-001
L-8	SCREW, P-TIGHT 4X18 BIND HEAD +	GBMP4180
L-9	SCREW TAPPING M4X14	DBU14140
L-10	SCREW, P-TIGHT 3X12 BIND HEAD+ BLK	GBKP3120
L-13	SCREW, P-TIGHT 3X12 BIND HEAD+	GBMP3120
L691▲	DEGAUSSING COIL F-044	LLBH00ZTM044
PB1▲	CHASSIS NO. LABEL L6500UA	-----
SP801	SPEAKER S08F02B or	DSD0808XQ010
	SPEAKER J-F097-C5	DSD0808DCP01
SP802	SPEAKER S08F02B or	DSD0808XQ010
	SPEAKER J-F097-C5	DSD0808DCP01
<b>PACKING</b>		
S-1▲	CARTON L6525CR	0EM408339
S-2	STYROFOAM TOP ASSEMBLY L1440JL	0EM406514A
S-3	STYROFOAM BOTTOM ASSEMBLY L1440JL	0EM406515A
S-4	SET SHEET B7500UA:1000X1700	0EM402178
S-6	HOLD PAD L1440JL	0EM406682
S-7	LABEL, EAS(H3761UD) MAKER NO.ZLLFNSLE1	0VM410203
<b>ACCESSORIES</b>		
X-1	REMOTE CONTROL NE122UD	NE122UD
X-2	DRY BATTERY R6P UM3 or	XB0M451GH001
	DRY BATTERY R6P/2S or	XB0M451T0001

Ref. No.	Description	Part No.
	DRY BATTERY(SUNRISE) R6SSE/2S or	XB0M451MS002
	DRY BATTERY R6P(AR)2PX or	XB0M451HU002
	DRY BATTERY R6P(AR)2P X ICI	XB0M451HU003
X-3▲	OWNER'S MANUAL(E) L6525CR:ENGLISH	0EMN02213
X-4	RETURN STOP SHEET L6101UB	0EM407077
X-5	POLYETHYLENE BAG 250X380XT0.03	Z325380
<b>Note:</b> 1. V501 (CRT) HAS COUPLE OF SUBSTITUTIONAL PARTS AND EACH PARTS ALSO HAS MATCHING COMBINATION WITH DY551. PLEASE SEE TABLE 1 FOR DETAILS OF MATCHING COMBINATION. 2. DY551 (DEFLECTION YOKE) HAS MATCHING COMBINATION WITH V501. PLEASE SEE TABLE 1 FOR DETAILS OF MATCHING COMBINATION.		
<b>CRT TYPE A</b>		
DY551▲	DEFLECTION YOKE 6150Z-1223B or	LLBY00ZGS005
▲	DEFLECTION YOKE KDY3NWC90X	LLBY00ZMS028
V501▲	CRT A51QDJ279X(PI)	TCRT190GS039
V501-1	C.P.MAGNET JH8210-SD	XM04000BV008
V501-2	WEDGE FT-00110W or	XV10000T4001
	WEDGE DB25SR	XV10000D9001
V501-3	RUBBER MAGNET 20X10X1.2	XM05000BV001
<b>CRT TYPE B</b>		
DY551▲	DEFLECTION YOKE CDY-N2102F or	LLBY00ZQS017
▲	DEFLECTION YOKE CDY-MT2103A	LLBY00Z0X001
V501▲	CRT A51QDX992X(H)	TCRT190SM030
V501-1	C.P.MAGNET JH8210-SD	XM04000BV008
V501-2	WEDGE FT-00110W or	XV10000T4001
	WEDGE DB25SR	XV10000D9001
V501-3	RUBBER MAGNET 20X10X1.2	XM05000BV001

## DCF2703

Ref. No.	Description	Part No.
A-1	FRONT CABINET L6616UG	0EM101324
A-2	REAR CABINET L6616UG	0EM101302
A-3	CONTROL PLATE L6625CR	0EM301909
A-4▲	RATING LABEL L6625CR	-----
A-5	BRAND BADGE TD006CGDURABRAND	0EM301865
B-1	TENSION SPRING B0080B0:EM40808	26WH006
B-2	SCREW L1500UA	0EM406142
B-7▲	CRITICAL PARTS WARNING LABEL B8007C3:EM41210	-----
B-11	CLOTH 190X15XT0.5	TS7623
B-12	CLOTH 110X15XT2.0	0EM406734
B-13	CLOTH L1440JL:15X55XT1.0	0EM406793
B-20▲	DEGAUSS HOLDER L1520UA	0EM406700
CLN551	CRT GND WIRE CRT GND WIRE	WX1L6615-001
L-8	SCREW, P-TIGHT 4X18 BIND HEAD +	GBMP4180
L-9	SCREW TAPPING M4X14	DBU14140
L-10	SCREW, P-TIGHT 3X10 BIND HEAD+	GBKP3100
L-13	SCREW, ASSEMBLED 12:M3X12	0EM406746
L691	DEGAUSSING COIL F-043	LLBH00ZTM043
PB1▲	CHASSIS NO. LABEL L6616UG	-----
SP801	SPEAKER S08F38-B	DSD0808XQ015
SP802	SPEAKER S08F38-A	DSD0808XQ014
<b>PACKING</b>		
S-1	CARTON L6625CR	0EM408323
S-2	STYROFOAM TOP ASSEMBLY L1520UA	0EM406512
S-3	STYROFOAM BOTTOM ASSEMBLY L1520UA	0EM406513
S-4	SET SHEET PCEC:003502019816	0EM403887



Ref. No.	Description	Part No.
S-5	SERIAL NO. LABEL L6625CR	-----
S-6	HOLD PAD L1520UA	0EM406681
S-7	LABEL, EAS(H3761UD) MAKER NO.ZLLFNSLE1	-----
<b>ACCESSORIES</b>		
X-1	REMOTE CONTROL NE122UD	NE122UD
X-2	DRY BATTERY R6P UM3 or	XB0M451GH001
	DRY BATTERY R6P/2S or	XB0M451T0001
	DRY BATTERY(SUNRISE) R6SSE/2S or	XB0M451MS002
	DRY BATTERY R6P(AR)2PX or	XB0M451HU002
	DRY BATTERY R6P(AR)2P X ICI	XB0M451HU003
X-3▲	OWNER'S MANUAL L6625CR	0EMN02207
X-5	POLYETHYLENE BAG 250X380XT0.03	Z325380
<b>Note:</b> 1. V501 (CRT) HAS COUPLE OF SUBSTITUTIONAL PARTS AND EACH PARTS ALSO HAS MATCHING COMBINATION WITH DY551. PLEASE SEE TABLE 1 FOR DETAILS OF MATCHING COMBINATION. 2. DY551 (DEFLECTION YOKE) HAS MATCHING COMBINATION WITH V501. PLEASE SEE TABLE 1 FOR DETAILS OF MATCHING COMBINATION.		
<b>CRT TYPE A</b>		
V501▲	CRT A68QDL280X051(C)	TCRT190QS028
V501-1	PCM JH88DTA	XM04000BV010
V501-2	WEDGE FT-00110W or	XV10000T4001
	WEDGE DB25SR	XV10000D9001
<b>CRT TYPE B</b>		
DY551▲	DEFLECTION YOKE KDY4UHD47X	LLBY00ZMS023
V501▲	CRT M68LQK125X	TCRT190MS013
V501-2	WEDGE FT-00110W or	XV10000T4001
	WEDGE DB25SR	XV10000D9001
<b>CRT TYPE C</b>		
DY551▲	DEFLECTION YOKE SCD-29119	LLBY00ZQS011
V501▲	CRT A68QCP893X	TCRT190SM026
V501-1	PCM JH88DTA	XM04000BV010
V501-2	WEDGE FT-00110W or	XV10000T4001
	WEDGE DB25SR	XV10000D9001
<b>CRT TYPE D</b>		
DY551▲	DEFLECTION YOKE 6150Z-1247V	LLBY00ZGS009
V501▲	CRT A68QCU759X	TCRT190GS044
V501-1	PCM JH88DTA	XM04000BV010
V501-2	WEDGE FT-00110W or	XV10000T4001
	WEDGE DB25SR	XV10000D9001

**Table 1 (V501 and DY551 Combination)**

**Note 1:** Purity and Convergence Adjustments must be performed following CRT replacement. Refer to Electrical Adjustment Instructions.

**Note 2:** Please confirm CRT Type No. on the CRT Warning Label which is located on the CRT. Then See the Table 1 for V501 and DY551 combination chart. Please refer this CRT, Deflection Yoke combination chart for parts order.

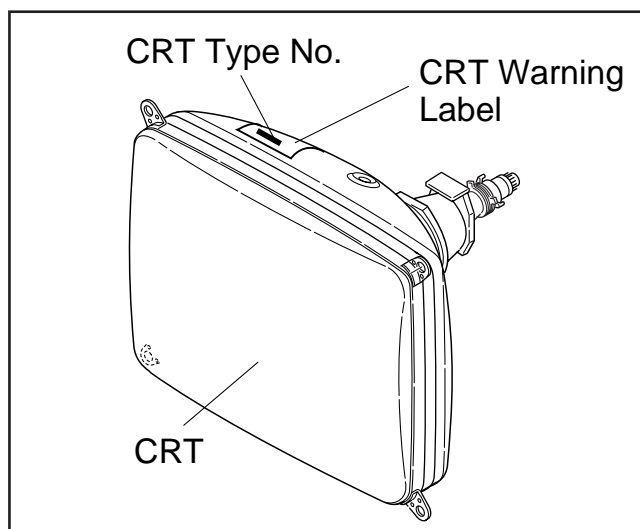
## DCF2003

V501: CRT Type No.	V501: CRT Part No.	DY551: Deflection Yoke Part No.
A51QDJ279X(PI)	TCRT190GS039	LLBY00ZGS005
		LLBY00ZMS028
A51QDX992X(H)	TCRT190SM030	LLBY00ZQS017
		LLBY00Z0X001


## DCF2703

V501: CRT Type No.	V501: CRT Part No.	DY551: Deflection Yoke Part No.
A68QDL280X051(C)	TCRT190QS028	-----
M68LQK125X	TCRT190MS013	LLBY00ZMS023
A68QCP893X	TCRT190SM026	LLBY00ZQS011
A68QCU759X	TCRT190GS044	LLBY00ZGS009

## CRT Warning Label Location



# 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.

## NOTES:

- Parts that are 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%

## Comparison Chart of Models and Marks

Model	Mark
DCF2003	A
DCF2703	B

## MMA CBA

Ref. No.	Description	Part No.
	MMA-415 CBA	0ESA05500
	MMA-414 CBA	0ESA05480
	Consists of the following	
	MAIN CBA	-----
	CRT CBA	-----

## MAIN CBA

Ref. No.	Mark	Description	Part No.
		MAIN CBA Consists of the following	-----
<b>CAPACITORS</b>			
C1		CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C2		ELECTROLYTIC CAP. 100µF/10V M or	CE1AMASTL101
		ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C3		ELECTROLYTIC CAP. 4.7µF/50V M or	CE1JMASTL4R7
		ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASDL4R7
C4		CERAMIC CAP.(AX) F Z 0.01µF/50V	CA1J103TU014
C7		ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL1R0
		ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL010
		ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C30		PCB JUMPER D0.6-P5.0	JW5.0T
C31		ELECTROLYTIC CAP. 100µF/10V M or	CE1AMASTL101
		ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C32		CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C34		ELECTROLYTIC CAP. 0.47µF/50V M or	CE1JMASTLR47
		ELECTROLYTIC CAP. 0.47µF/50V M	CE1JMASDLR47
C35		CERAMIC CAP.(AX) CH J 56pF/50V	CA1J560TU008

Ref. No.	Mark	Description	Part No.
C36		CERAMIC CAP.(AX) B K 1000pF/50V	CCA1JKT0B102
C37		ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL1R0
		ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL010
		ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C38		ELECTROLYTIC CAP. 10µF/50V M or	CE1JMASTL100
		ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C41		ELECTROLYTIC CAP. 0.47µF/50V M or	CE1JMASTLR47
		ELECTROLYTIC CAP. 0.47µF/50V M	CE1JMASDLR47
C49		ELECTROLYTIC CAP. 4.7µF/50V M or	CE1JMASTL4R7
		ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASDL4R7
C51		CERAMIC CAP.(AX) B K 1000pF/50V	CCA1JKT0B102
C52		CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C53		ELECTROLYTIC CAP. 100µF/10V M or	CE1AMASTL101
		ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C54		CERAMIC CAP.(AX) B K 1000pF/50V	CCA1JKT0B102
C55		CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C57		FILM CAP.(P) 0.047µF/50V J or	CMA1JJS00473
		FILM CAP.(P) 0.047µF/50V J or	CA1J473MS029
		FILM CAP.(P) 0.047µF/50V J TV or	CMB1JJS00473
		MYLAR CAP. 0.047µF/50V K	2250473S
C58		FILM CAP.(P) 0.033µF/50V J or	CMA1JJS00333
		FILM CAP.(P) 0.033µF/50V J or	CA1J333MS029
		FILM CAP.(P) 0.033µF/50V J TV	CMB1JJS00333
C104		ELECTROLYTIC CAP. 10µF/50V M or	CE1JMASTL100
		ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C111		ELECTROLYTIC CAP. 47µF/16V M or	CE1CMASTL470
		ELECTROLYTIC CAP. 47µF/16V M	CE1CMASDL470
C112		ELECTROLYTIC CAP. 4.7µF/50V M or	CE1JMASTL4R7
		ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASDL4R7
C113		CERAMIC CAP. F Z 0.1µF/25V	CDA1EZT0F104
C114		FILM CAP.(P) 0.001µF/50V J or	CMA1JJS00102
		FILM CAP.(P) 0.001µF/50V J or	CA1J102MS029
		FILM CAP.(P) 0.001µF/50V J TV or	CMB1JJS00102
		MYLAR CAP. 0.001µF/50V K	2250102S
C115		ELECTROLYTIC CAP. 0.1µF/50V M or	CE1JMASTLR10
		ELECTROLYTIC CAP. 0.1µF/50V M	CE1JMASDLR10
C116		CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C117		CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKT0Y103
C119		CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C120		ELECTROLYTIC CAP. 100µF/10V M or	CE1AMASTL101
		ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C122		ELECTROLYTIC CAP. 100µF/10V M or	CE1AMASTL101
		ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C132		CERAMIC CAP. F Z 0.1µF/25V	CDA1EZT0F104
C133		CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C150		CERAMIC CAP. F Z 0.1µF/25V	CDA1EZT0F104
C151		CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C152		CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C301		CERAMIC CAP.(AX) CH J 120pF/50V	CA1J121TU008
C302		ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL1R0
		ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL010
		ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C303		CERAMIC CAP.(AX) B K 0.01µF/50V	CA1J103TU011
C304	B	ELECTROLYTIC CAP. 0.1µF/50V M or	CE1JMASTLR10
	B	ELECTROLYTIC CAP. 0.1µF/50V M	CE1JMASDLR10

Ref. No.	Mark	Description	Part No.
C305		ELECTROLYTIC CAP. 0.1μF/50V M or	CE1JMASTLR10
		ELECTROLYTIC CAP. 0.1μF/50V M	CE1JMASDLR10
C306		ELECTROLYTIC CAP. 100μF/10V M or	CE1AMASTL101
		ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C309		ELECTROLYTIC CAP. 0.1μF/50V M or	CE1JMASTLR10
		ELECTROLYTIC CAP. 0.1μF/50V M	CE1JMASDLR10
C321	B	ELECTROLYTIC CAP. 0.1μF/50V M or	CE1JMASTLR10
	B	ELECTROLYTIC CAP. 0.1μF/50V M	CE1JMASDLR10
C322		ELECTROLYTIC CAP. 0.47μF/50V M or	CE1JMASTLR47
		ELECTROLYTIC CAP. 0.47μF/50V M	CE1JMASDLR47
C323	B	ELECTROLYTIC CAP. 0.1μF/50V M or	CE1JMASTLR10
	B	ELECTROLYTIC CAP. 0.1μF/50V M	CE1JMASDLR10
C324		ELECTROLYTIC CAP. 10μF/50V M or	CE1JMASTL100
		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C325		CERAMIC CAP.(AX) SL J 12pF/50V	CCA1JUTSL120
C328		ELECTROLYTIC CAP. 10μF/50V M or	CE1JMASTL100
		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C329		CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C330		STACKED FILM CAP. 0.47μF/50V J	CMA1JJS00474
C331		CERAMIC CAP.(AX) B K 1000pF/50V	CCA1JKT0B102
C332		ELECTROLYTIC CAP. 10μF/50V M or	CE1JMASTL100
		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C341		CERAMIC CAP.(AX) B K 0.01μF/50V	CA1J103TU011
C342		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL1R0
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL010
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C343		CERAMIC CAP.(AX) B K 0.01μF/50V	CA1J103TU011
C345		ELECTROLYTIC CAP. 2200μF/10V M or	CE1AMZNTL222
		ELECTROLYTIC CAP. 2200μF/10V M	CE1AMZNDL222
C347		ELECTROLYTIC CAP. 470μF/10V M or	CE1AMASTL471
		ELECTROLYTIC CAP. 470μF/10V M	CE1AMASDL471
C349		ELECTROLYTIC CAP. 470μF/10V M or	CE1AMASTL471
		ELECTROLYTIC CAP. 470μF/10V M	CE1AMASDL471
C351		CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C352		CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C353		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL1R0
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL010
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C401		ELECTROLYTIC CAP. 3.3μF/50V M or	CE1JMASTL3R3
		ELECTROLYTIC CAP. 3.3μF/50V M	CE1JMASDL3R3
C402		ELECTROLYTIC CAP. 3.3μF/50V M or	CE1JMASTL3R3
		ELECTROLYTIC CAP. 3.3μF/50V M	CE1JMASDL3R3
C403		CERAMIC CAP.(AX) F Z 0.1μF/50V or	CA1J104TU014
		CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C404		CERAMIC CAP.(AX) B K 0.022μF/50V	CA1J223TU011
C405		CERAMIC CAP. F Z 0.1μF/25V	CDA1EZT0F104
C406		CERAMIC CAP.(AX) B K 0.033μF/50V	CA1J333TU011
C411		ELECTROLYTIC CAP. 4.7μF/50V M or	CE1JMASTL4R7
		ELECTROLYTIC CAP. 4.7μF/50V M	CE1JMASDL4R7
C413		ELECTROLYTIC CAP. 100μF/10V M or	CE1AMASTL101
		ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C414		ELECTROLYTIC CAP. 2.2μF/50V M or	CE1JMASTL2R2
		ELECTROLYTIC CAP. 2.2μF/50V M	CE1JMASDL2R2
C415		CERAMIC CAP.(AX) B K 150pF/50V	CCA1JKT0B151
C416		CERAMIC CAP.(AX) B K 150pF/50V	CCA1JKT0B151
C417		ELECTROLYTIC CAP. 2.2μF/50V M or	CE1JMASTL2R2
		ELECTROLYTIC CAP. 2.2μF/50V M	CE1JMASDL2R2
C421		ELECTROLYTIC CAP. 4.7μF/50V M or	CE1JMASTL4R7
		ELECTROLYTIC CAP. 4.7μF/50V M	CE1JMASDL4R7

Ref. No.	Mark	Description	Part No.
C423		CERAMIC CAP.(AX) X K 4700pF/16V	CDA1CKT0X472
C424		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL1R0
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL010
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C426		ELECTROLYTIC CAP. 4.7μF/50V M or	CE1JMASTL4R7
		ELECTROLYTIC CAP. 4.7μF/50V M	CE1JMASDL4R7
C428		CERAMIC CAP.(AX) X K 4700pF/16V	CDA1CKT0X472
C429		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL1R0
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL010
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C441		ELECTROLYTIC CAP. 10μF/50V M or	CE1JMASTL100
		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C442		ELECTROLYTIC CAP. 2.2μF/50V M or	CE1JMASTL2R2
		ELECTROLYTIC CAP. 2.2μF/50V M	CE1JMASDL2R2
C444		ELECTROLYTIC CAP. 0.33μF/50V M or	CE1JMASTLR33
		ELECTROLYTIC CAP. 0.33μF/50V M	CE1JMASDLR33
C445		FILM CAP.(P) 0.1μF/50V J or	CMA1JJS00104
		FILM CAP.(P) 0.1μF/50V J or	CA1J104MS029
		FILM CAP.(P) 0.1μF/50V J TV or	CMB1JJS00104
		MYLAR CAP. 0.1μF/50V K	2250104S
C446		FILM CAP.(P) 0.1μF/50V J or	CMA1JJS00104
		FILM CAP.(P) 0.1μF/50V J or	CA1J104MS029
		FILM CAP.(P) 0.1μF/50V J TV or	CMB1JJS00104
		MYLAR CAP. 0.1μF/50V K	2250104S
C448		ELECTROLYTIC CAP. 2.2μF/50V M or	CE1JMASTL2R2
		ELECTROLYTIC CAP. 2.2μF/50V M	CE1JMASDL2R2
C501	A	FILM CAP.(P) 0.1μF/50V J or	CMA1JJS00104
	A	FILM CAP.(P) 0.1μF/50V J or	CA1J104MS029
	A	FILM CAP.(P) 0.1μF/50V J TV or	CMB1JJS00104
	A	MYLAR CAP. 0.1μF/50V K	2250104S
C501	B	FILM CAP. 0.22μF/50V J or	122Z313S
	B	TF CAP. 0.22μF/50V J	CT1J224MS045
C502		CERAMIC CAP.(AX) B K 1000pF/50V	CCA1JKT0B102
C503		ELECTROLYTIC CAP. 100μF/35V M or	CE1GMASTL101
		ELECTROLYTIC CAP. 100μF/35V M	CE1GMASDL101
C504	A	ELECTROLYTIC CAP. 2.2μF/50V M LL or	CE1JMASLL2R2
	A	ELECTROLYTIC CAP. 2.2μF/50V LL	CE1JMASLH2R2
C504	B	ELECTROLYTIC CAP. 1μF/50V M LL or	CE1JMASLL1R0
	B	ELECTROLYTIC CAP. 1μF/50V LL	CE1JMASLH1R0
C505		ELECTROLYTIC CAP. 1000μF/35V M or	CE1GMZNTL102
		ELECTROLYTIC CAP. 1000μF/35V M or	CE1GMZNDL102
		ELECTROLYTIC CAP. 1000μF/35V M	CE1GMZADL102
C506		ELECTROLYTIC CAP. 1000μF/35V M or	CE1GMZNTL102
		ELECTROLYTIC CAP. 1000μF/35V M or	CE1GMZNDL102
		ELECTROLYTIC CAP. 1000μF/35V M	CE1GMZADL102
C508		CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C520	B	ELECTROLYTIC CAP. 10μF/50V M or	CE1JMASTL100
	B	ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C532		ELECTROLYTIC CAP. 100μF/10V M or	CE1AMASTL101
		ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C541	A	FILM CAP.(P) 0.082μF/50V J or	CMA1JJS00823
	A	FILM CAP.(P) 0.082μF/50V J or	CA1J823MS029
	A	FILM CAP.(P) 0.082μF/50V J TV	CMB1JJS00823
C541	B	FILM CAP.(P) 0.082μF/50V J or	CMA1JJS00823
	B	FILM CAP.(P) 0.082μF/50V J	CA1J823MS029
C551		CERAMIC CAP. B K 680pF/1KV or	CCD3AKD0B681
		CERAMIC CAP. B K 680pF/1KV or	CCD3AKP0B681
		CERAMIC CAP. B K 680pF/1KV	CA3A681MR028

Ref. No.	Mark	Description	Part No.
C555	B	METALIZED PLYESTER CAP. 2.2μF/100V J	CT2A225MS065
C556	B	FILM CAP.(P) 0.1μF/50V J or	CMA1JJS00104
	B	FILM CAP.(P) 0.1μF/50V J or	CA1J104MS029
	B	FILM CAP.(P) 0.1μF/50V J TV or	CMB1JJS00104
	B	MYLAR CAP. 0.1μF/50V K	2250104S
C561	B	ELECTROLYTIC CAP. 47μF/35V M or	CE1GMASSTL470
	B	ELECTROLYTIC CAP. 47μF/35V M	CE1GMASDL470
C562	B	ELECTROLYTIC CAP. 470μF/10V M or	CE1AMASSTL471
	B	ELECTROLYTIC CAP. 470μF/10V M	CE1AMASDL471
C563▲	B	P.P.CAP 0.39μF/200 J or	CA2D394VC012
▲	B	PP CAP. 0.39μF/250V J	CT2E394MS041
C564▲	A	PCB JUMPER D0.6-P7.5	JW7.5T
C564▲	B	P.P. CAP 0.33μF/200V J or	CA2D334VC012
▲	B	PP CAP. 0.33μF/250V J	CT2E334MS041
C565	B	FILM CAP.(P) 0.1μF/50V J or	CMA1JJS00104
	B	FILM CAP.(P) 0.1μF/50V J or	CA1J104MS029
	B	FILM CAP.(P) 0.1μF/50V J TV or	CMB1JJS00104
	B	MYLAR CAP. 0.1μF/50V K	2250104S
C566▲	A	CERAMIC CAP. LB 680pF/2K or	CA3D681KG004
▲	A	CERAMIC CAP. BN 680pF/2KV or	CCD3DKA0B681
▲	A	CERAMIC CAP. 680pF/2KV or	CA3D681PAN04
▲	A	CERAMIC CAP. RB 680pF/2KV	CA3D681TE006
C567▲	A	P.P. CAP 0.0082μF/1.6K J or	CA3C822VC011
▲	A	PP CAP. 0.0082μF/1.6KV J or	CT3C822MS039
▲	A	METALLIZED FILM CAP. 0.0082μF/1.6KV J	CT3C822F7004
C567▲	B	PP CAP. 0.0022μF/1.6KV J or	CA3C222VC010
▲	B	PP CAP. 0.0022μF/1.6KV J or	CT3C222MS039
▲	B	METALLIZED FILM CAP. 0.0022μF/1.6KV J	CT3C222F7004
C568	B	FILM CAP.(P) 0.033μF/50V J or	CMA1JJS00333
	B	FILM CAP.(P) 0.033μF/50V J or	CA1J333MS029
	B	FILM CAP.(P) 0.033μF/50V J TV	CMB1JJS00333
C571▲	A	P.P.CAP 0.27μF/200 J or	CA2D274VC012
▲	A	PP CAP. 0.27μF/250V J or	CT2E274MS041
▲	A	METALLIZED FILM CAP. 0.27μF/200V J	CT2D274F7003
C571▲	B	P.P. CAP 0.68μF/200V J	CA2D684VC012
C574▲		ELECTROLYTIC CAP. 4.7μF/250V M or	CE2EMASSTL4R7
▲		ELECTROLYTIC CAP. 4.7μF/250V M	CE2EMASDL4R7
C577		ELECTROLYTIC CAP. 47μF/35V M or	CE1GMASSTL470
		ELECTROLYTIC CAP. 47μF/35V M	CE1GMASDL470
C578		FILM CAP.(P) 0.01μF/50V J or	CMA1JJS00103
		FILM CAP.(P) 0.01μF/50V J or	CA1J103MS029
		FILM CAP.(P) 0.01μF/50V J TV or	CMB1JJS00103
		MYLAR CAP. 0.01μF/50V K	2250103S
C580▲	A	CERAMIC CAP. LB 220pF/2KV or	CA3D221KG004
▲	A	CERAMIC CAP. BN J 220pF/2KV or	CCD3DKA0B221
▲	A	CERAMIC CAP. 220pF/2KV or	CA3D221PAN04
▲	A	CERAMIC CAP. RB 220pF/2KV	CA3D221TE006
C580▲	B	PP CAP. 0.012μF/1.6KV J or	CA3C123VC010
▲	B	PP CAP. 0.012μF/1.6KV J or	CT3C123MS039
▲	B	METALLIZED FILM CAP. 0.0012μF/1.6KV J	CT3C123F7004
C582▲	A	PCB JUMPER D0.6-P10.0	JW10.0T
C582▲	B	P.P. CAPACITOR 0.033μF/630V J or	CBP2KJD00333
▲	B	P.P. CAPACITOR 0.033μF/630V J or	CT2K333KF011
▲	B	P.P. CAPACITOR 0.033μF/630V J	CBP2KKD00333
C583▲	A	FILM CAP.(P) 0.1μF/100V J or	CMA2AJJS00104
▲	A	FILM CAP.(P) 0.1μF/100V J TV	CMB2AJJS00104
C583▲	B	FILM CAP.(P) 0.1μF/100V J or	CMA2AJJS00104
▲	B	FILM CAP.(P) 0.1μF/100V J TV	CMB2AJJS00104

Ref. No.	Mark	Description	Part No.
C584▲	A	ELECTROLYTIC CAP. 4.7μF/50V M or	CE1JMASTL4R7
▲	A	ELECTROLYTIC CAP. 4.7μF/50V M	CE1JMASDL4R7
C584▲	B	ELECTROLYTIC CAP. 10μF/50V M or	CE1JMASTL100
▲	B	ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C588▲		ELECTROLYTIC CAP. 100μF/160V M W/F or	CE2CMZNTL101
▲		ELECTROLYTIC CAP. 100μF/160V M	CE2CMZPDL101
C594▲		ELECTROLYTIC CAP. 10μF/50V M or	CE1JMASTL100
▲		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C596		CERAMIC CAP. B K 220pF/500V	CCD2JKS0B221
C601▲		FILM CAP.(MP) 0.1μF/250V K or	CT2E104DC011
▲		METALLIZED FILM CAP. 0.1μF/250V or	CT2E104MS037
▲		METALLIZED FILM CAP. 0.1μF/275V K or	CT2E104HJE06
▲		METALLIZED FILM CAP. 0.1μF/275V K	CT2E104HJE06
C603		CERAMIC CAP.(AX) B K 470pF/50V	CCA1JKT0B471
C605	A	CERAMIC CAP. F Z 0.01μF/500V or	CCD2JZP0F103
	A	CERAMIC CAP. 0.01μF/AC250V	CCD2EZA0F103
C605	B	CERAMIC CAP. F Z 0.01μF/500V or	CCD2JZP0F103
	B	CERAMIC CAP. 0.01μF/AC250V	CCD2EZA0F103
C606	A	CERAMIC CAP. F Z 0.01μF/500V or	CCD2JZP0F103
	A	CERAMIC CAP. 0.01μF/AC250V	CCD2EZA0F103
C606	B	CERAMIC CAP. F Z 0.01μF/500V or	CCD2JZP0F103
	B	CERAMIC CAP. 0.01μF/AC250V	CCD2EZA0F103
C609		CERAMIC CAP. B K 680pF/2KV or	CCD3DKD0B681
		CERAMIC CAP. B K 680pF/2KV	CCD3DKP0B681
C610▲	A	ELECTROLYTIC CAP. 220μF/200V M or	CE2DMZNTL221
▲	A	ELECTROLYTIC CAP. 220μF/200V M	CE2DMZNDL221
C610▲	B	ELECTROLYTIC CAP. 470μF/200V M or	CE2DMZNTL471
▲	B	ELECTROLYTIC CAP. 470μF/200V M or	CE2DMZNDL471
▲	B	ELECTROLYTIC CAP. 470μF/200V	CA2D471NC013
C611	A	FILM CAP.(P) 0.022μF/50V J or	CMA1JJS00223
	A	FILM CAP.(P) 0.022μF/50V J or	CA1J223MS029
	A	FILM CAP.(P) 0.022μF/50V J TV or	CMB1JJS00223
	A	MYLAR CAP. 0.022μF/50V K	2250223S
C611	B	FILM CAP.(P) 0.068μF/50V J or	CMA1JJS00683
	B	FILM CAP.(P) 0.068μF/50V J or	CA1J683MS029
	B	FILM CAP.(P) 0.068μF/50V J TV or	CMB1JJS00683
	B	MYLAR CAP. 0.068μF/50V K	2250683S
C613		FILM CAP.(P) 0.056μF/50V J or	CMA1JJS00563
		FILM CAP.(P) 0.056μF/50V J or	CA1J563MS029
		FILM CAP.(P) 0.056μF/50V J TV or	CMB1JJS00563
		MYLAR CAP. 0.056μF/50V KT	2250563S
C614		CERAMIC CAP.(AX) B K 1000pF/50V	CCA1JKT0B102
C615		CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C616	A	FILM CAP.(P) 0.068μF/50V J or	CMA1JJS00683
	A	FILM CAP.(P) 0.068μF/50V J or	CA1J683MS029
	A	FILM CAP.(P) 0.068μF/50V J TV	CMB1JJS00683
C616	B	FILM CAP.(P) 0.1μF/50V J or	CMA1JJS00104
	B	FILM CAP.(P) 0.1μF/50V J or	CA1J104MS029
	B	FILM CAP.(P) 0.1μF/50V J TV or	CMB1JJS00104
	B	MYLAR CAP. 0.1μF/50V K	2250104S
C618		FILM CAP.(P) 0.1μF/50V J or	CMA1JJS00104
		FILM CAP.(P) 0.1μF/50V J or	CA1J104MS029
		FILM CAP.(P) 0.1μF/50V J TV or	CMB1JJS00104
		MYLAR CAP. 0.1μF/50V K	2250104S
C642▲		SAFETY CAP. 4700pF/250V or	CCG2EMA0F472
▲		SAFETY CAP. E M 4700pF/250V KH or	CCG2EMP0E472
▲		CERAMIC CAP. 0.0047UF F CS	CCG2HMN0F472
C650		CERAMIC CAP. LB 560pF/2KV or	CA3D561KG004
		CERAMIC CAP. BN 560pF/2KV or	CCD3DKA0B561
		CERAMIC CAP. 560pF/2KV or	CA3D561PAN04

Ref. No.	Mark	Description	Part No.
		CERAMIC CAP. RB 560pF/2KV	CA3D561TE006
C654		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL1R0
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL010
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C656		ELECTROLYTIC CAP. 100μF/160V M W/F or	CE2CMZNTL101
		ELECTROLYTIC CAP. 100μF/160V M	CE2CMZPDL101
C657▲	A	ELECTROLYTIC CAP. 1000μF/35V M or	CE1GMZNTL102
▲	A	ELECTROLYTIC CAP. 1000μF/35V M or	CE1GMZNDL102
▲	A	ELECTROLYTIC CAP. 1000μF/35V M	CE1GMZADL102
C657▲	B	ELECTROLYTIC CAP. 2200μF/35V M or	CE1GMZNTL222
▲	B	ELECTROLYTIC CAP. 2200μF/35V M	CE1GMZNDL222
C658▲		ELECTROLYTIC CAP. 1000μF/16V M (VR/HC) or	CE1CMZNTL102
▲		ELECTROLYTIC CAP. 1000μF/16V M or	CE1CMZNDL102
▲		ELECTROLYTIC CAP. 1000μF/16V M	CE1CMZADL102
C661		CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C662▲		ELECTROLYTIC CAP. 1000μF/25V M or	CE1EMZNTL102
▲		ELECTROLYTIC CAP. 1000μF/25V M	CE1EMZPDL102
C667		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL1R0
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL010
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C681		ELECTROLYTIC CAP. 10μF/50V M or	CE1JMASTL100
		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C682		ELECTROLYTIC CAP. 100μF/10V M or	CE1AMASTL101
		ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C684		ELECTROLYTIC CAP. 470μF/10V M or	CE1AMASTL471
		ELECTROLYTIC CAP. 470μF/10V M	CE1AMASDL471
C685		ELECTROLYTIC CAP. 1000μF/10V M or	CE1AMASTL102
		ELECTROLYTIC CAP. 1000μF/10V M	CE1AMASDL102
C686		ELECTROLYTIC CAP. 100μF/10V M or	CE1AMASTL101
		ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C701		CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKTOB101
C702		PCB JUMPER D0.6-P5.0	JW5.0T
C705		CERAMIC CAP.(AX) X K 6800pF/16V	CDA1CKT0X682
C706		ELECTROLYTIC CAP. 0.47μF/50V M or	CE1JMASTLR47
		ELECTROLYTIC CAP. 0.47μF/50V M	CE1JMASDLR47
C708		CERAMIC CAP.(AX) X K 6800pF/16V	CDA1CKT0X682
C709		ELECTROLYTIC CAP. 0.47μF/50V M or	CE1JMASTLR47
		ELECTROLYTIC CAP. 0.47μF/50V M	CE1JMASDLR47
C713		ELECTROLYTIC CAP. 10μF/50V M or	CE1JMASTL100
		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C718		CERAMIC CAP.(AX) B K 1000pF/50V	CCA1JKTOB102
C721		CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKTOB101
C722		ELECTROLYTIC CAP. 10μF/50V M or	CE1JMASTL100
		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C725		CERAMIC CAP.(AX) X K 6800pF/16V	CDA1CKT0X682
C726		ELECTROLYTIC CAP. 0.47μF/50V M or	CE1JMASTLR47
		ELECTROLYTIC CAP. 0.47μF/50V M	CE1JMASDLR47
C728		CERAMIC CAP.(AX) X K 6800pF/16V	CDA1CKT0X682
C729		ELECTROLYTIC CAP. 0.47μF/50V M or	CE1JMASTLR47
		ELECTROLYTIC CAP. 0.47μF/50V M	CE1JMASDLR47
C731	B	CERAMIC CAP.(AX) X K 6800pF/16V	CDA1CKT0X682
C733	B	ELECTROLYTIC CAP. 0.47μF/50V M or	CE1JMASTLR47
	B	ELECTROLYTIC CAP. 0.47μF/50V M	CE1JMASDLR47
C736	B	CERAMIC CAP.(AX) X K 6800pF/16V	CDA1CKT0X682
C738	B	ELECTROLYTIC CAP. 0.47μF/50V M or	CE1JMASTLR47
	B	ELECTROLYTIC CAP. 0.47μF/50V M	CE1JMASDLR47
C751	B	ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL1R0

Ref. No.	Mark	Description	Part No.
	B	ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL010
	B	ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
	B	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C757	B	ELECTROLYTIC CAP. 0.1μF/50V M or	CE1JMASTLR10
	B	ELECTROLYTIC CAP. 0.1μF/50V M	CE1JMASDLR10
C761	B	ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL1R0
	B	ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL010
	B	ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
	B	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C767	B	ELECTROLYTIC CAP. 0.1μF/50V M or	CE1JMASTLR10
	B	ELECTROLYTIC CAP. 0.1μF/50V M	CE1JMASDLR10
C773		ELECTROLYTIC CAP. 100μF/10V M or	CE1AMASTL101
		ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C781		ELECTROLYTIC CAP. 10μF/50V M or	CE1JMASTL100
		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C801		ELECTROLYTIC CAP. 470μF/25V M or	CE1EMASTL471
		ELECTROLYTIC CAP. 470μF/25V M	CE1EMASDL471
C802		ELECTROLYTIC CAP. 470μF/25V M or	CE1EMASTL471
		ELECTROLYTIC CAP. 470μF/25V M	CE1EMASDL471
C803		FILM CAP.(P) 0.1μF/50V J or	CMA1JJS00104
		FILM CAP.(P) 0.1μF/50V J or	CA1J104MS029
		FILM CAP.(P) 0.1μF/50V J TV or	CMB1JJS00104
		MYLAR CAP. 0.1μF/50V K	2250104S
C804		FILM CAP.(P) 0.1μF/50V J or	CMA1JJS00104
		FILM CAP.(P) 0.1μF/50V J or	CA1J104MS029
		FILM CAP.(P) 0.1μF/50V J TV or	CMB1JJS00104
		MYLAR CAP. 0.1μF/50V K	2250104S
C808		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL1R0
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL010
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C809		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL1R0
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL010
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C812		ELECTROLYTIC CAP. 10μF/50V M or	CE1JMASTL100
		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C814		ELECTROLYTIC CAP. 22μF/50V M or	CE1JMASTL220
		ELECTROLYTIC CAP. 22μF/50V M	CE1JMASDL220
C821		ELECTROLYTIC CAP. 1000μF/25V M or	CE1EMZNTL102
		ELECTROLYTIC CAP. 1000μF/25V M	CE1EMZPDL102
C827		ELECTROLYTIC CAP. 100μF/16V M or	CE1CMASTL101
		ELECTROLYTIC CAP. 100μF/16V M	CE1CMASDL101
C831	A	ELECTROLYTIC CAP. 100μF/16V M or	CE1CMASTL101
	A	ELECTROLYTIC CAP. 100μF/16V M	CE1CMASDL101
C831	B	ELECTROLYTIC CAP. 100μF/25V M or	CE1EMASTL101
	B	ELECTROLYTIC CAP. 100μF/25V M	CE1EMASDL101
C851		ELECTROLYTIC CAP. 10μF/50V M or	CE1JMASTL100
		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C852		ELECTROLYTIC CAP. 470μF/16V M or	CE1CMASTL471
		ELECTROLYTIC CAP. 470μF/16V M	CE1CMASDL471
C853		CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C963		ELECTROLYTIC CAP. 10μF/50V M or	CE1JMASTL100
		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C964▲		ELECTROLYTIC CAP. 100μF/10V M or	CE1AMASTL101
▲		ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
<b>CONNECTORS</b>			
CN301		CONNECTOR BASE, 6P TUC-P06P-B1	J3TUA06TG001
CN571▲		CONNECTOR BASE, 5P TV-50P-05-V3 or	J3TVC05TG002
▲		CONNECTOR BASE, 5P RTB-1.5-5P or	J3RTC05JG001

Ref. No.	Mark	Description	Part No.
▲		CONNECTOR BASE, 5P W-P3005-02	1730812
CN691▲		CONNECTOR BASE, 2P TV-50P-02-V3 or	J3TVC02TG002
▲		CONNECTOR BASE, 2P RTB-1.5-2P	J3RTC02JG001
CN801		STRAIGHT CONNECTOR BASE 00 8283 0212 00 000 or	J383C02UG002
		STRAIGHT PIN HEADER, 2P 173981-2	1770258
CN802		STRAIGHT CONNECTOR BASE 00 8283 0212 00 000 or	J383C02UG002
		STRAIGHT PIN HEADER, 2P 173981-2	1770258
<b>DIODES</b>			
D131		ZENER DIODE MTZJT-775.1B or	QDTB0MTZJ5R1
		ZENER DIODE DZ-5.1BSBT265	NDTB0DZ5R1BS
D133		ZENER DIODE MTZJT-775.6B or	QDTB0MTZJ5R6
		ZENER DIODE DZ-5.6BSBT265	NDTB0DZ5R6BS
D171		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		DIODE 1SS176TPA7	1SS176T
D311	B	ZENER DIODE MTZJT-775.1B or	QDTB0MTZJ5R1
	B	ZENER DIODE DZ-5.1BSBT265	NDTB0DZ5R1BS
D312	B	ZENER DIODE MTZJT-775.1B or	QDTB0MTZJ5R1
	B	ZENER DIODE DZ-5.1BSBT265	NDTB0DZ5R1BS
D313	B	ZENER DIODE MTZJT-775.1B or	QDTB0MTZJ5R1
	B	ZENER DIODE DZ-5.1BSBT265	NDTB0DZ5R1BS
D322		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		DIODE 1SS176TPA7	1SS176T
D323		ZENER DIODE MTZJT-779.1B or	QDTB0MTZJ9R1
		ZENER DIODE DZ-9.1BSBT265	NDTB0DZ9R1BS
D326		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		DIODE 1SS176TPA7	1SS176T
D351		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		DIODE 1SS176TPA7	1SS176T
D352		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		DIODE 1SS176TPA7	1SS176T
D353		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		DIODE 1SS176TPA7	1SS176T
D501		DIODE FR104-B or	NDLZ000FR104
		RECTIFIER DIODE ERA22-02 or	QDPZ0ERA2202
		RECTIFIER DIODE 10ELS2	QDQZ0010ELS2
D502▲	A	ZENER DIODE MTZJT-7718B or	QDTB00MTZJ18
▲	A	ZENER DIODE DZ-18BSBT265	NDTB00DZ18BS
D502▲	B	ZENER DIODE MTZJT-7724B or	QDTB00MTZJ24
▲	B	ZENER DIODE DZ-24BSBT265	NDTB00DZ24BS
D503▲		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
▲		SWITCHING DIODE 1N4148 or	NDTZ001N4148
▲		DIODE 1SS176TPA7	1SS176T
D513		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		DIODE 1SS176TPA7	1SS176T
D545	B	ZENER DIODE MTZJT-776.8B or	QDTB0MTZJ6R8
	B	ZENER DIODE DZ-6.8BSBT265	NDTB0DZ6R8BS
D546	B	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	B	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	B	DIODE 1SS176TPA7	1SS176T
D547	B	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	B	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	B	DIODE 1SS176TPA7	1SS176T

Ref. No.	Mark	Description	Part No.
D552▲	B	ZENER DIODE MTZJT-773.0B or	QDTB0MTZJ3R0
▲	B	ZENER DIODE DZ-3.0BSBT265	NDTB0DZ3R0BS
D558	B	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	B	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	B	DIODE 1SS176TPA7	1SS176T
D572		RECTIFIER DIODE ERA22-02 or	QDPZ0ERA2202
		RECTIFIER DIODE 10ELS2	QDQZ0010ELS2
D573		RECTIFIER DIODE ERA22-02 or	QDPZ0ERA2202
		RECTIFIER DIODE 10ELS2	QDQZ0010ELS2
D580▲	B	DIODE ERD07-15	QDLZ0ERD0715
D582	B	FAST RECOVERY DIODE ERD38-06	QDQZ0ERD3806
D583		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		DIODE 1SS176TPA7	1SS176T
D584▲		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
▲		SWITCHING DIODE 1N4148 or	NDTZ001N4148
▲		DIODE 1SS176TPA7	1SS176T
D585		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		DIODE 1SS176TPA7	1SS176T
D591▲		ZENER DIODE MTZJT-7736B or	QDTB00MTZJ36
▲		ZENER DIODE DZ-36BSBT265	NDTB00DZ36BS
D594▲		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
▲		SWITCHING DIODE 1N4148 or	NDTZ001N4148
▲		DIODE 1SS176TPA7	1SS176T
D597		ZENER DIODE MTZJT-776.8B or	QDTB0MTZJ6R8
		ZENER DIODE DZ-6.8BSBT265	NDTB0DZ6R8BS
D605▲		DIODE 1N5406	NDLZ001N5406
D606▲		DIODE 1N5406	NDLZ001N5406
D607▲		DIODE 1N5406	NDLZ001N5406
D608▲		DIODE 1N5406	NDLZ001N5406
D609		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		DIODE 1SS176TPA7	1SS176T
D611▲		ZENER DIODE MTZJT-7720B or	QDTB00MTZJ20
▲		ZENER DIODE DZ-20BSBT265	NDTB00DZ20BS
D613		ZENER DIODE MTZJT-778.2B or	QDTB0MTZJ8R2
		ZENER DIODE DZ-8.2BSBT265	NDTB0DZ8R2BS
D614		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		DIODE 1SS176TPA7	1SS176T
D615		SWITCHING DIODE 1N4148 T-77	QDTZ001N4148
D621		BEAD INDUCTORS FBA04HA600VB-00	LLBF00STU026
D651▲		FAST RECOVERY DIODE 30DF6 or	QDWZ00030DF6
▲		DIODE ERD29-06J or	QD4Z0ERD2906
▲		FAST RECOVERY DIODE FE201-6	QDLZ00FE2016
D652▲		DIODE FR154 or	NDLZ000FR154
▲		FAST RECOVERY DIODE ERB44-02	QDPZ0ERB4402
D653▲		DIODE FR154 or	NDLZ000FR154
▲		FAST RECOVERY DIODE ERB44-02	QDPZ0ERB4402
D654▲		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
▲		SWITCHING DIODE 1N4148 or	NDTZ001N4148
▲		DIODE 1SS176TPA7	1SS176T
D655		ZENER DIODE 1ZB180	QDQZ001ZB180
D656▲		ZENER DIODE MTZJT-776.8B or	QDTB0MTZJ6R8
▲		ZENER DIODE DZ-6.8BSBT265	NDTB0DZ6R8BS
D657▲		DIODE FR154 or	NDLZ000FR154
▲		FAST RECOVERY DIODE ERB44-02	QDPZ0ERB4402
D658▲		DIODE 1ZC18 or	QDQZ0001ZC18
▲		ZENER DIODE RD18F	QDQZ000RD18F
D660		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133

Ref. No.	Mark	Description	Part No.
		SWITCHING DIODE 1N4148 or	NDT001N4148
		DIODE 1SS176TPA7	1SS176T
D661		SWITCHING DIODE 1SS133(T-77) or	QDT001SS133
		SWITCHING DIODE 1N4148 or	NDT001N4148
		DIODE 1SS176TPA7	1SS176T
D666		ZENER DIODE MTZJT-7736B or	QDTB00MTZJ36
		ZENER DIODE DZ-36BSBT265	NDTB00DZ36BS
D671▲		SWITCHING DIODE 1SS133(T-77) or	QDT001SS133
▲		SWITCHING DIODE 1N4148 or	NDT001N4148
▲		DIODE 1SS176TPA7	1SS176T
D672		SWITCHING DIODE 1SS133(T-77) or	QDT001SS133
		SWITCHING DIODE 1N4148 or	NDT001N4148
		DIODE 1SS176TPA7	1SS176T
D673		SWITCHING DIODE 1SS133(T-77) or	QDT001SS133
		SWITCHING DIODE 1N4148 or	NDT001N4148
		DIODE 1SS176TPA7	1SS176T
D675▲		SWITCHING DIODE 1SS133(T-77) or	QDT001SS133
▲		SWITCHING DIODE 1N4148 or	NDT001N4148
▲		DIODE 1SS176TPA7	1SS176T
D692▲		SWITCHING DIODE 1SS133(T-77) or	QDT001SS133
▲		SWITCHING DIODE 1N4148 or	NDT001N4148
▲		DIODE 1SS176TPA7	1SS176T
D694▲		ZENER DIODE MTZJT-7715B or	QDTB00MTZJ15
▲		ZENER DIODE DZ-15BSBT265	NDTB00DZ15BS
D696		SWITCHING DIODE 1SS133(T-77) or	QDT001SS133
		SWITCHING DIODE 1N4148 or	NDT001N4148
		DIODE 1SS176TPA7	1SS176T
D697▲		SWITCHING DIODE 1SS133(T-77) or	QDT001SS133
▲		SWITCHING DIODE 1N4148 or	NDT001N4148
▲		DIODE 1SS176TPA7	1SS176T
D698▲		SWITCHING DIODE 1SS133(T-77) or	QDT001SS133
▲		SWITCHING DIODE 1N4148 or	NDT001N4148
▲		DIODE 1SS176TPA7	1SS176T
D826		SWITCHING DIODE 1SS133(T-77) or	QDT001SS133
		SWITCHING DIODE 1N4148 or	NDT001N4148
		DIODE 1SS176TPA7	1SS176T
D827		SWITCHING DIODE 1SS133(T-77) or	QDT001SS133
		SWITCHING DIODE 1N4148 or	NDT001N4148
		DIODE 1SS176TPA7	1SS176T
D841▲		SWITCHING DIODE 1SS133(T-77) or	QDT001SS133
▲		SWITCHING DIODE 1N4148 or	NDT001N4148
▲		DIODE 1SS176TPA7	1SS176T
D842▲	A	ZENER DIODE MTZJT-775.1B or	QDTB00MTZJ5R1
▲	A	ZENER DIODE DZ-5.1BSBT265	NDTB00DZ5R1BS
D842▲	B	ZENER DIODE MTZJT-776.2B or	QDTB00MTZJ6R2
▲	B	ZENER DIODE DZ-6.2BSBT265	NDTB00DZ6R2BS
D851▲		ZENER DIODE MTZJT-7712B or	QDTB00MTZJ12
▲		ZENER DIODE DZ-12BSBT265	NDTB00DZ12BS
D853		ZENER DIODE MTZJT-779.1B or	QDTB00MTZJ9R1
		ZENER DIODE DZ-9.1BSBT265	NDTB00DZ9R1BS
D854		SWITCHING DIODE 1SS133(T-77) or	QDT001SS133
		SWITCHING DIODE 1N4148 or	NDT001N4148
		DIODE 1SS176TPA7	1SS176T
D855▲		SWITCHING DIODE 1SS133(T-77) or	QDT001SS133
▲		SWITCHING DIODE 1N4148 or	NDT001N4148
▲		DIODE 1SS176TPA7	1SS176T
D896		SWITCHING DIODE 1SS133(T-77) or	QDT001SS133
		SWITCHING DIODE 1N4148 or	NDT001N4148
		DIODE 1SS176TPA7	1SS176T
D963		ZENER DIODE MTZJT-775.6B or	QDTB00MTZJ5R6
		ZENER DIODE DZ-5.6BSBT265	NDTB00DZ5R6BS

Ref. No.	Mark	Description	Part No.
D966		SWITCHING DIODE 1SS133(T-77) or	QDT001SS133
		SWITCHING DIODE 1N4148 or	NDT001N4148
		DIODE 1SS176TPA7	1SS176T
<b>ICS</b>			
IC33		IC:VIF/SIF DETECTOR M61111FP	QSZBA0SMB010
IC151		IC:MEMORY AT24C02N-10SC or	NSMMA0SAZ012
		IC(EEPROM) M24C02-MN6 or	NSMMA0SSS028
		IC:MEMORY BR24C02F-VV or	QSMBA0SRM003
		IC:MEMORY BR24C02F or	QSMMA0SRM003
		IC:MEMORY S524C20D21 or	NSZBA0SSM028
		IC(EEP-ROM) M24C02-WMN6 or	NSZAA0SSS004
		IC:EEPROM CAT24WC02J	NSZBA0SBG001
IC333		IC M61272M8-054FP	QSZAA0RMB130
IC431		IC:MTS DECORDER AN5832SA	QSZBA0TMS003
IC551▲	A	VERTICAL OUTPUT IC LA78040A or	QSBBA0SSY003
▲	A	VERTICAL OUTPUT IC AN5522	QSZBA0SMS002
IC551▲	B	IC:VERTICAL OUTPUT LA78041	QSZBA0SSY006
IC601▲		PHOTOCOUPLER LTV-817B-F or	NPEB0LTV817F
▲		PHOTOCOUPLER LTV-817C-F	NPEC0LTV817F
IC771		IC:SWITCHING TC4052BF(EL) or	QSZBA0TSS096
		IC:SWITCHING CD4052BCSJX	NSZBA0TF3079
IC801		AUDIO POWER IC AN17805A	QSZBA0SMS007
<b>COILS</b>			
L1		PCB JUMPER D0.6-P5.0	JW5.0T
L2		INDUCTOR 22μH-K-5FT or	LLARKBSTU220
		INDUCTOR 22μH-K	LLARKDQKA220
L32		INDUCTOR 15μH-J-26T or	LLAXJATTU150
		INDUCTOR 15μH-K-26T	LLAXKDTKA150
L33		INDUCTOR 22μH-J-26T or	LLAXJATTU220
		INDUCTOR 22μH-K-26T	LLAXKDTKA220
L34		PCB JUMPER D0.6-P5.0	JW5.0T
L51		INDUCTOR 100μH-J-5FT or	LLARJCSU101
		INDUCTOR 100μH-K	LLARKDQKA101
L111		INDUCTOR 22μH-K-5FT or	LLARKBSTU220
		INDUCTOR 22μH-K	LLARKDQKA220
L112		INDUCTOR 22μH-K-5FT or	LLARKBSTU220
		INDUCTOR 22μH-K	LLARKDQKA220
L301		INDUCTOR 100μH-J-5FT or	LLARJCSU101
		INDUCTOR 100μH-K	LLARKDQKA101
L341		PCB JUMPER D0.6-P5.0	JW5.0T
L342		PCB JUMPER D0.6-P5.0	JW5.0T
L551▲		LINEARITY COIL ELH5L6136N	LLBD00PMS008
L562▲	B	CHOKE COIL ELC18B821LK or	LLC821KMS001
▲	B	CHOKE COIL CSA-LF050	LLBD00ZSA002
L564▲	B	CHOKE COIL ELC18E821EN	LLBD00ZMS042
L588		CHOKE COIL 47μH-K or	LLBD00PKV007
		POT COIL 47μH K	LLBD**DMM001
L601▲		LINE FILTER MS036 or	LLBG00ZY2009
▲		LINE FILTER JLB2808 or	LLBG00ZXB004
▲		LINE FILTER CSA-LF032	LLBG00ZSA007
<b>TRANSISTORS</b>			
Q21		TRANSISTOR 2SA1175(F) or	QQSF02SA1175
		TRANSISTOR KTA1267(GR) or	NQS10KTA1267
		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA1318(T)-AANP or	2SA1318TZ
		TRANSISTOR 2SA1318(U)-AANP or	2SA1318UZ
		TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q33		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785

Ref. No.	Mark	Description	Part No.
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
		TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q111▲		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
▲		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
▲		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
▲		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
▲		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
▲		TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
▲		TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
▲		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q131		RES. BUILT-IN TRANSISTOR BA1F4M-T or	QQSZ00BA1F4M
		RES. BUILT-IN TRANSISTOR KRC103M	NQSZ0KRC103M
Q141		RES. BUILT-IN TRANSISTOR BA1F4M-T or	QQSZ00BA1F4M
		RES. BUILT-IN TRANSISTOR KRC103M	NQSZ0KRC103M
Q191		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
		TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q321		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
		TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q531		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
		TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q533		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
		TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q547	B	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	B	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	B	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	B	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	B	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	B	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	B	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
	B	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q551▲	B	TRANSISTOR 2SA1175(F) or	QQSF02SA1175
▲	B	TRANSISTOR KTA1267(GR) or	NQS10KTA1267

Ref. No.	Mark	Description	Part No.
▲	B	TRANSISTOR KTA1266(GR) or	NQS40KTA1266
▲	B	TRANSISTOR 2SA1318(T)-AANP or	2SA1318TZ
▲	B	TRANSISTOR 2SA1318(U)-AANP or	2SA1318UZ
▲	B	TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q552▲	B	TRANSISTOR KTD2059(O) or	NQ400KTD2059
▲	B	TRANSISTOR KTD2059(Y) or	NQ4Y0KTD2059
▲	B	TRANSISTOR 2SD1666S	QQES02SD1666
Q561	B	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	B	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	B	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	B	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	B	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	B	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	B	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
	B	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q571▲	A	TRANSISTOR 2SD2634 or	QQZZ02SD2634
▲	A	TRANSISTOR 2SC5901	QQWZ02SC5901
Q571▲	B	TRANSISTOR 2SD2553 or	QQWZ02SD2553
▲	B	TRANSISTOR 2SC5902	QQWZ02SC5902
Q572▲		TRANSISTOR 2SC1627Y-TPE2	QQSY02SC1627
Q601▲		FET 2SK3407	QFFZ02SK3407
Q602▲		TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120
▲		TRANSISTOR 2SC2120-Y(TPE2)	QQSY02SC2120
Q652▲		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
▲		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
▲		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
▲		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
▲		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
▲		TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
▲		TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
▲		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q672▲		TRANSISTOR 2SA950(O) or	Q2SA9500TPE2
▲		TRANSISTOR 2SA950(Y)	Q2SA950YTPE2
Q673		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
		TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q674		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
		TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q681		TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120
		TRANSISTOR 2SC2120-Y(TPE2) or	QQSY02SC2120
		TRANSISTOR KTC3203(Y)	NQSY0KTC3203
Q682		TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120
		TRANSISTOR 2SC2120-Y(TPE2) or	QQSY02SC2120
		TRANSISTOR KTC3203(Y)	NQSY0KTC3203
Q683		TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120
		TRANSISTOR 2SC2120-Y(TPE2) or	QQSY02SC2120
		TRANSISTOR KTC3203(Y)	NQSY0KTC3203
Q696		RES. BUILT-IN TRANSISTOR BA1F4M-T or	QQSZ00BA1F4M
		RES. BUILT-IN TRANSISTOR KRC103M	NQSZ0KRC103M



Ref. No.	Mark	Description	Part No.
Q751	B	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	B	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	B	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	B	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	B	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	B	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	B	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
	B	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q761	B	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	B	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	B	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	B	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	B	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	B	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	B	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
	B	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q791	B	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	B	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	B	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	B	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	B	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	B	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	B	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
	B	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q792	B	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	B	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	B	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	B	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	B	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	B	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	B	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
	B	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q793	B	TRANSISTOR 2SA1175(F) or	QQSF02SA1175
	B	TRANSISTOR KTA1267(GR) or	NQS10KTA1267
	B	TRANSISTOR KTA1266(GR) or	NQS40KTA1266
	B	TRANSISTOR 2SA1318(T)-AANP or	2SA1318TZ
	B	TRANSISTOR 2SA1318(U)-AANP or	2SA1318UZ
	B	TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q794	B	RES. BUILT-IN TRANSISTOR BA1F4M-T or	QQSZ00BA1F4M
	B	RES. BUILT-IN TRANSISTOR KRC103M	NQSZ0KRC103M
Q825		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
		TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q831▲		TRANSISTOR 2SB892(S) or	QQSS002SB892
▲		TRANSISTOR 2SB892(T)	QQST002SB892
Q832		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
		TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q841		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785

Ref. No.	Mark	Description	Part No.
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
		TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q851▲		TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120
▲		TRANSISTOR 2SC2120-Y(TPE2) or	QQSY02SC2120
▲		TRANSISTOR KTC3203(Y)	NQSY0KTC3203
Q951		TRANSISTOR 2SA1175(F) or	QQSF02SA1175
		TRANSISTOR KTA1267(GR) or	NQS10KTA1267
		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA1318(T)-AANP or	2SA1318TZ
		TRANSISTOR 2SA1318(U)-AANP or	2SA1318UZ
		TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q956		TRANSISTOR 2SA1175(F) or	QQSF02SA1175
		TRANSISTOR KTA1267(GR) or	NQS10KTA1267
		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA1318(T)-AANP or	2SA1318TZ
		TRANSISTOR 2SA1318(U)-AANP or	2SA1318UZ
		TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q961▲		TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120
▲		TRANSISTOR 2SC2120-Y(TPE2) or	QQSY02SC2120
▲		TRANSISTOR KTC3203(Y)	NQSY0KTC3203
<b>RESISTORS</b>			
R23		CARBON RES. 1/4W J 1k $\Omega$	RCX4JATZ0102
R31		PCB JUMPER D0.6-P5.0	JW5.0T
R33		CARBON RES. 1/4W J 270 $\Omega$	RCX4JATZ0271
R34		CARBON RES. 1/4W J 220 $\Omega$	RCX4JATZ0221
R36		CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R37		CARBON RES. 1/4W J 220 $\Omega$	RCX4JATZ0221
R38		CARBON RES. 1/4W J 3.3k $\Omega$	RCX4JATZ0332
R39		CARBON RES. 1/4W J 27k $\Omega$	RCX4JATZ0273
R40		CARBON RES. 1/4W J 100k $\Omega$	RCX4JATZ0104
R43		CARBON RES. 1/4W J 12k $\Omega$	RCX4JATZ0123
R44		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R51		CARBON RES. 1/4W J 220k $\Omega$	RCX4JATZ0224
R52		CARBON RES. 1/4W J 220k $\Omega$	RCX4JATZ0224
R54		CARBON RES. 1/4W J 22k $\Omega$	RCX4JATZ0223
R102		CARBON RES. 1/4W J 1.5k $\Omega$	RCX4JATZ0152
R103		CARBON RES. 1/4W J 2.2k $\Omega$	RCX4JATZ0222
R104		CARBON RES. 1/4W J 2.7k $\Omega$	RCX4JATZ0272
R105		CARBON RES. 1/4W J 4.7k $\Omega$	RCX4JATZ0472
R108		CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R109		CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R111		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R112		CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R113		CARBON RES. 1/4W J 470k $\Omega$	RCX4JATZ0474
R114		CARBON RES. 1/4W J 1k $\Omega$	RCX4JATZ0102
R116		PCB JUMPER D0.6-P5.0	JW5.0T
R132		CARBON RES. 1/4W J 22k $\Omega$	RCX4JATZ0223
R133		PCB JUMPER D0.6-P5.0	JW5.0T
R135		CARBON RES. 1/4W J 2.2k $\Omega$	RCX4JATZ0222
R136		CARBON RES. 1/4W J 100k $\Omega$	RCX4JATZ0104
R137		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R138		CARBON RES. 1/4W J 220k $\Omega$	RCX4JATZ0224
R139		CARBON RES. 1/4W J 22k $\Omega$	RCX4JATZ0223
R140		CARBON RES. 1/4W J 1k $\Omega$	RCX4JATZ0102
R141		PCB JUMPER D0.6-P5.0	JW5.0T
R142		CARBON RES. 1/4W J 470 $\Omega$	RCX4JATZ0471

Ref. No.	Mark	Description	Part No.
R150		CARBON RES. 1/4W J 2.2k $\Omega$	RCX4JATZ0222
R153		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R154		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R156		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R157		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R158		CARBON RES. 1/4W J 1k $\Omega$	RCX4JATZ0102
R159		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R161		CARBON RES. 1/4W J 470 $\Omega$	RCX4JATZ0471
R163		CARBON RES. 1/4W J 470 $\Omega$	RCX4JATZ0471
R164		CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R165		CARBON RES. 1/4W J 4.7k $\Omega$	RCX4JATZ0472
R166		CARBON RES. 1/4W J 6.8k $\Omega$	RCX4JATZ0682
R167		CARBON RES. 1/4W J 22k $\Omega$	RCX4JATZ0223
R168		CARBON RES. 1/4W J 4.7k $\Omega$	RCX4JATZ0472
R170		CARBON RES. 1/4W J 5.6k $\Omega$	RCX4JATZ0562
R171		CARBON RES. 1/4W J 3.9k $\Omega$	RCX4JATZ0392
R172		PCB JUMPER D0.6-P5.0	JW5.0T
R173		CARBON RES. 1/4W J 22k $\Omega$	RCX4JATZ0223
R174		CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R176		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R177		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R178		CARBON RES. 1/4W J 470 $\Omega$	RCX4JATZ0471
R193		CARBON RES. 1/4W J 22k $\Omega$	RCX4JATZ0223
R195		CARBON RES. 1/4W J 2.2k $\Omega$	RCX4JATZ0222
R196		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R198		PCB JUMPER D0.6-P5.0	JW5.0T
R301		CARBON RES. 1/4W J 22k $\Omega$	RCX4JATZ0223
R302		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R303		CARBON RES. 1/4W J 470 $\Omega$	RCX4JATZ0471
R305		CARBON RES. 1/4W J 470 $\Omega$	RCX4JATZ0471
R311	B	CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R312	B	CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R313	B	CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R320		CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R323		CARBON RES. 1/4W J 2.2k $\Omega$	RCX4JATZ0222
R326		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R327		PCB JUMPER D0.6-P5.0	JW5.0T
R328		CARBON RES. 1/4W J 3.3k $\Omega$	RCX4JATZ0332
R329	A	CARBON RES. 1/4W J 68k $\Omega$	RCX4JATZ0683
R329	B	CARBON RES. 1/4W J 47k $\Omega$	RCX4JATZ0473
R330		CARBON RES. 1/4W J 1k $\Omega$	RCX4JATZ0102
R333		CARBON RES. 1/4W J 330 $\Omega$	RCX4JATZ0331
R342		PCB JUMPER D0.6-P5.0	JW5.0T
R344		CARBON RES. 1/4W J 6.8k $\Omega$	RCX4JATZ0682
R345		CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R346	A	CARBON RES. 1/4W J 470 $\Omega$	RCX4JATZ0471
R346	B	CARBON RES. 1/4W J 1k $\Omega$	RCX4JATZ0102
R347		PCB JUMPER D0.6-P5.0	JW5.0T
R348		CARBON RES. 1/4W J 27k $\Omega$	RCX4JATZ0273
R355	A	CARBON RES. 1/4W J 15k $\Omega$	RCX4JATZ0153
R355	B	CARBON RES. 1/4W J 12k $\Omega$	RCX4JATZ0123
R356		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R357		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R358		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R362		PCB JUMPER D0.6-P5.0	JW5.0T
R417		CARBON RES. 1/4W J 180k $\Omega$	RCX4JATZ0184
R422		CARBON RES. 1/4W J 2.2k $\Omega$	RCX4JATZ0222
R427		CARBON RES. 1/4W J 2.2k $\Omega$	RCX4JATZ0222
R444	B	CARBON RES. 1/4W J 10M $\Omega$	RCX4JATZ0106
R445		CARBON RES. 1/4W J 3.3k $\Omega$	RCX4JATZ0332
R503	A	CARBON RES. 1/4W J 56k $\Omega$	RCX4JATZ0563

Ref. No.	Mark	Description	Part No.
R503	B	CARBON RES. 1/4W J 68k $\Omega$	RCX4JATZ0683
R504	A	CARBON RES. 1/4W J 4.7 $\Omega$	RCX4JATZ0472
R504	B	CARBON RES. 1/4W J 3.3 $\Omega$	RCX4JATZ0332
R505		CARBON RES. 1/4W J 1.8k $\Omega$	RCX4JATZ0182
R506		CARBON RES. 1/4W J 2.7 $\Omega$	RCX4JATZ0272
R507		CARBON RES. 1/4W J 2.7 $\Omega$	RCX4JATZ0272
R508		CARBON RES. 1/4W J 2.7 $\Omega$	RCX4JATZ0272
R513▲	A	METAL OXIDE FILM RES. 2W J 6.8 $\Omega$ or	RN026R8ZU001
▲	A	METAL OXIDE FILM RES. 2W J 6.8 $\Omega$	RN026R8DP004
R513▲	B	METAL OXIDE FILM RES. 2W J 4.7 $\Omega$ or	RN024R7ZU001
▲	B	METAL OXIDE FILM RES. 2W J 4.7 $\Omega$	RN024R7DP004
R514	A	CARBON RES. 1/4W J 1.8k $\Omega$	RCX4JATZ0182
R514	B	CARBON RES. 1/4W J 2.7k $\Omega$	RCX4JATZ0272
R516		CARBON RES. 1/4W J 680 $\Omega$	RCX4JATZ0681
R520▲		CARBON RES. 1/4W J 22k $\Omega$	RCX4JATZ0223
R522		CARBON RES. 1/4W J 22k $\Omega$	RCX4JATZ0223
R531		CARBON RES. 1/4W J 1.8k $\Omega$	RCX4JATZ0182
R532		CARBON RES. 1/4W J 22k $\Omega$	RCX4JATZ0223
R533		CARBON RES. 1/4W J 22k $\Omega$	RCX4JATZ0223
R534		CARBON RES. 1/4W J 22k $\Omega$	RCX4JATZ0223
R535		CARBON RES. 1/4W J 470 $\Omega$	RCX4JATZ0471
R541		CARBON RES. 1/4W J 680 $\Omega$	RCX4JATZ0681
R542		CARBON RES. 1/4W J 680 $\Omega$	RCX4JATZ0681
R543		CARBON RES. 1/4W J 680 $\Omega$	RCX4JATZ0681
R544	B	CARBON RES. 1/4W J 1.8k $\Omega$	RCX4JATZ0182
R545	B	CARBON RES. 1/4W J 6.8k $\Omega$	RCX4JATZ0682
R546	B	CARBON RES. 1/4W J 2.2k $\Omega$	RCX4JATZ0222
R547	B	CARBON RES. 1/4W J 2.7k $\Omega$	RCX4JATZ0272
R548	B	CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R549	B	CARBON RES. 1/4W J 1.5k $\Omega$	RCX4JATZ0152
R551▲		METAL OXIDE FILM RES. 1W J 1k $\Omega$ or	RN01102ZU001
▲		METAL OXIDE FILM RES. 1W J 1k $\Omega$	RN01102DP003
R552▲	B	METAL OXIDE FILM RES. 1W J 8.2 $\Omega$ or	RN018R2ZU001
▲	B	METAL OXIDE FILM RES. 1W J 8.2 $\Omega$	RN018R2DP003
R553	B	CARBON RES. 1/4W J 2.2k $\Omega$	RCX4JATZ0222
R554	B	CARBON RES. 1/4W J 4.7k $\Omega$	RCX4JATZ0472
R555	B	CARBON RES. 1/4W J 680 $\Omega$	RCX4JATZ0681
R556	B	CARBON RES. 1/4W J 100k $\Omega$	RCX4JATZ0104
R557	B	CARBON RES. 1/4W J 18k $\Omega$	RCX4JATZ0183
R558	B	CARBON RES. 1/4W J 220 $\Omega$	RCX4JATZ0221
R559	B	CARBON RES. 1/4W J 47k $\Omega$	RCX4JATZ0473
R560	B	CARBON RES. 1/4W J 150k $\Omega$	RCX4JATZ0154
R561	B	CARBON RES. 1/4W J 1.2k $\Omega$	RCX4JATZ0122
R562	B	CARBON RES. 1/4W J 100k $\Omega$	RCX4JATZ0104
R563	B	CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R564	B	CARBON RES. 1/4W J 270k $\Omega$	RCX4JATZ0274
R565	B	CARBON RES. 1/4W J 33k $\Omega$	RCX4JATZ0333
R566	B	CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R567	B	CARBON RES. 1/4W J 47k $\Omega$	RCX4JATZ0473
R568	B	CARBON RES. 1/4W J 1k $\Omega$	RCX4JATZ0102
R569	B	CARBON RES. 1/4W J 560k $\Omega$	RCX4JATZ0564
R575▲	A	CARBON RES. 1/4W J 39 $\Omega$	RCX4JATZ0390
R575▲	B	CARBON RES. 1/4W J 15 $\Omega$	RCX4JATZ0150
R576		CARBON RES. 1/4W J 1k $\Omega$	RCX4JATZ0102
R577		CARBON RES. 1/4W J 330 $\Omega$	RCX4JATZ0331
R578	A	CARBON RES. 1/4W J 39 $\Omega$	RCX4JATZ0390
R578	B	CARBON RES. 1/4W J 15 $\Omega$	RCX4JATZ0150
R579	A	CARBON RES. 1/4W J 39 $\Omega$	RCX4JATZ0390
R579	B	CARBON RES. 1/4W J 15 $\Omega$	RCX4JATZ0150
R581	A	CARBON RES. 1/4W J 0.47 $\Omega$	RCX4JATZ0R47
R581	B	PCB JUMPER D0.6-P5.0	JW5.0T

Ref. No.	Mark	Description	Part No.
R583▲	A	METAL OXIDE FILM RES. 2W J 2.2 Ω or	RN022R2ZU001
▲	A	METAL OXIDE FILM RES. 2W J 2.2 Ω	RN022R2DP004
R583▲	B	METAL OXIDE FILM RES. 2W J 6.8 Ω or	RN026R8ZU001
▲	B	METAL OXIDE FILM RES. 2W J 6.8 Ω	RN026R8DP004
R584▲		PCB JUMPER D0.6-P5.0	JW5.0T
R585▲		CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R586▲	B	CARBON RES. 1/4W J 470k Ω	RCX4JATZ0474
R587	B	CARBON RES. 1/4W J 470k Ω	RCX4JATZ0474
R588	A	CARBON RES. 1/4W J 68k Ω	RCX4JATZ0683
R588	B	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R589▲	A	CARBON RES. 1/4W J 56k Ω	RCX4JATZ0563
R589▲	B	CARBON RES. 1/4W J 39k Ω	RCX4JATZ0393
R590	A	CARBON RES. 1/4W J 27k Ω	RCX4JATZ0273
R590	B	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R591▲		CARBON RES. 1/4W J 180k Ω	RCX4JATZ0184
R592▲		CARBON RES. 1/4W J 220k Ω	RCX4JATZ0224
R593▲		CARBON RES. 1/4W J 68k Ω	RCX4JATZ0683
R594▲		CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R596	A	CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R596	B	CARBON RES. 1/4W J 8.2k Ω	RCX4JATZ0822
R597		CARBON RES. 1/4W J 8.2k Ω	RCX4JATZ0822
R598▲	A	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R598▲	B	CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R599▲	A	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R599▲	B	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R601▲		CEMENT RES. 7W K 0.56 Ω or	RW07R56DP007
▲		CEMENT RESISTOR 7W K 0.56 Ω H=10MM or	RW07R56PG001
▲		CEMENT RESISTOR 7W K 0.50 Ω	RW07R50PAK07
R602		CARBON RES. 1/4W J 820k Ω	RCX4JATZ0824
R603		CARBON RES. 1/4W J 820k Ω	RCX4JATZ0824
R604		CARBON RES. 1/4W J 820k Ω	RCX4JATZ0824
R605		CARBON RES. 1/4W J 820k Ω	RCX4JATZ0824
R607		CARBON RES. 1/4W J 220 Ω	RCX4JATZ0221
R608		CARBON RES. 1/4W J 220 Ω	RCX4JATZ0221
R609		CARBON RES. 1/4W J 820k Ω	RCX4JATZ0824
R613▲		CEMENT RES. 5W K 0.27 Ω or	RW05R27DP005
▲		CEMENT RESISTOR 5W K 0.27 Ω	RW05R27PG001
R614		CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R616	A	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R616	B	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R618		CARBON RES. 1/4W J 390 Ω	RCX4JATZ0391
R620▲		CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R621		CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R622		CARBON RES. 1/4W J 47 Ω	RCX4JATZ0470
R623		CARBON RES. 1/4W J 39 Ω	RCX4JATZ0390
R651▲	A	METAL OXIDE FILM RES. 2W J 15k Ω or	RN02153ZU001
▲	A	METAL OXIDE FILM RES. 2W J 15k Ω	RN02153DP004
R651▲	B	METAL OXIDE FILM RES. 2W J 22k Ω or	RN02223ZU001
▲	B	METAL OXIDE FILM RES. 2W J 22k Ω	RN02223DP004
R652		CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R653		CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R654▲		CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R655▲		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R656▲		CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R657		CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R658		CARBON RES. 1/4W J 470k Ω	RCX4JATZ0474
R660		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R661▲		CARBON RES. 1/4W J 120k Ω	RCX4JATZ0124
R662▲	A	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R662▲	B	CARBON RES. 1/4W J 82k Ω	RCX4JATZ0823

Ref. No.	Mark	Description	Part No.
R663▲		PCB JUMPER D0.6-P5.0	JW5.0T
R664▲		CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R665▲		CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R666▲		METAL OXIDE FILM RES. 1W J 100k Ω or	RN01104ZU001
▲		METAL OXIDE FILM RES. 1W J 100k Ω	RN01104DP003
R667▲		CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R668▲		CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R669▲		CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R670▲		CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R671▲		CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R672▲		CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R673▲		CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R674		CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R676		CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R677		CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R678		CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R679▲		CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R680		CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R681▲	A	CARBON RES. 1/4W J 12 Ω	RCX4JATZ0120
R681▲	B	CARBON RES. 1/4W J 12 Ω	RCX4JATZ0120
R682▲		METAL OXIDE FILM RES. 2W J 33 Ω or	RN02330ZU001
▲		METAL OXIDE FILM RES. 2W J 33 Ω	RN02330DP004
R683▲		METAL RESISTOR 2W J 39 Ω or	RN02390ZU001
▲		METAL OXIDE FILM RES. 2W J 39 Ω	RN02390DP004
R686		CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R687		CARBON RES. 1/4W J 10 Ω	RCX4JATZ0100
R694▲		CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R696▲		CARBON RES. 1/4W J 10 Ω	RCX4JATZ0100
R697		PCB JUMPER D0.6-P5.0	JW5.0T
R701		CARBON RES. 1/4W J 82 Ω	RCX4JATZ0820
R702		CARBON RES. 1/4W J 82 Ω	RCX4JATZ0820
R704		CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R705		CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R706		CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R707		CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R708		CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R709		CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R711		CARBON RES. 1/4W J 82 Ω	RCX4JATZ0820
R713		CARBON RES. 1/4W J 330 Ω	RCX4JATZ0331
R716		CARBON RES. 1/4W J 82 Ω	RCX4JATZ0820
R718		CARBON RES. 1/4W J 330 Ω	RCX4JATZ0331
R721		CARBON RES. 1/4W J 82 Ω	RCX4JATZ0820
R722		CARBON RES. 1/4W J 82 Ω	RCX4JATZ0820
R724		CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R725		CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R726		CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R727		CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R728		CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R729		CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R731	B	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R732	B	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R733	B	CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R736	B	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R737	B	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R738	B	CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R741	B	PCB JUMPER D0.6-P5.0	JW5.0T
R742	B	PCB JUMPER D0.6-P5.0	JW5.0T
R743	B	PCB JUMPER D0.6-P5.0	JW5.0T
R746	B	CARBON RES. 1/4W J 75 Ω	RCX4JATZ0750
R747	B	CARBON RES. 1/4W J 75 Ω	RCX4JATZ0750
R748	B	CARBON RES. 1/4W J 75 Ω	RCX4JATZ0750

Ref. No.	Mark	Description	Part No.
R751		CARBON RES. 1/4W J 22k $\Omega$	RCX4JATZ0223
R752		CARBON RES. 1/4W J 27k $\Omega$	RCX4JATZ0273
R753	B	CARBON RES. 1/4W J 56k $\Omega$	RCX4JATZ0563
R754	B	CARBON RES. 1/4W J 18k $\Omega$	RCX4JATZ0183
R755	B	CARBON RES. 1/4W J 1.8k $\Omega$	RCX4JATZ0182
R756	B	CARBON RES. 1/4W J 1k $\Omega$	RCX4JATZ0102
R757	B	CARBON RES. 1/4W J 560 $\Omega$	RCX4JATZ0561
R761		CARBON RES. 1/4W J 22k $\Omega$	RCX4JATZ0223
R762		CARBON RES. 1/4W J 27k $\Omega$	RCX4JATZ0273
R763	B	CARBON RES. 1/4W J 56k $\Omega$	RCX4JATZ0563
R764	B	CARBON RES. 1/4W J 18k $\Omega$	RCX4JATZ0183
R765	B	CARBON RES. 1/4W J 1.8k $\Omega$	RCX4JATZ0182
R766	B	CARBON RES. 1/4W J 1k $\Omega$	RCX4JATZ0102
R767	B	CARBON RES. 1/4W J 560 $\Omega$	RCX4JATZ0561
R771		CARBON RES. 1/4W J 4.7k $\Omega$	RCX4JATZ0472
R772		CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R791	B	CARBON RES. 1/4W J 4.7k $\Omega$	RCX4JATZ0472
R792	B	CARBON RES. 1/4W J 4.7k $\Omega$	RCX4JATZ0472
R793	B	CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R803		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R804		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R811		CARBON RES. 1/4W J 18k $\Omega$	RCX4JATZ0183
R812		CARBON RES. 1/4W J 18k $\Omega$	RCX4JATZ0183
R817		CARBON RES. 1/4W J 5.6k $\Omega$	RCX4JATZ0562
R818	A	CARBON RES. 1/4W J 22k $\Omega$	RCX4JATZ0223
R818	B	CARBON RES. 1/4W J 33k $\Omega$	RCX4JATZ0333
R827		CARBON RES. 1/4W J 1k $\Omega$	RCX4JATZ0102
R828		CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R829		CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R831		CARBON RES. 1/4W J 470 $\Omega$	RCX4JATZ0471
R832		CARBON RES. 1/4W J 22k $\Omega$	RCX4JATZ0223
R833		CARBON RES. 1/4W J 470 $\Omega$	RCX4JATZ0471
R834		CARBON RES. 1/4W J 4.7k $\Omega$	RCX4JATZ0472
R841	A	METAL OXIDE FILM RES. 2W J 1.5 $\Omega$ or	RN021R5ZU001
	A	METAL OXIDE FILM RES. 2W J 1.5 $\Omega$	RN021R5DP004
R841	B	METAL OXIDE FILM RES. 2W J 0.47 $\Omega$ or	RN02R47ZU001
	B	METAL OXIDE FILM RES. 2W J 0.47 $\Omega$	RN02R47DP004
R842	A	PCB JUMPER D0.6-P5.0	JW5.0T
R842	B	CARBON RES. 1/4W J 560 $\Omega$	RCX4JATZ0561
R843		CARBON RES. 1/4W J 2.2k $\Omega$	RCX4JATZ0222
R844		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R845		CARBON RES. 1/4W J 22k $\Omega$	RCX4JATZ0223
R851▲		CARBON RES. 1/4W J 330 $\Omega$	RCX4JATZ0331
R855▲		CARBON RES. 1/4W J 2.2k $\Omega$	RCX4JATZ0222
R856▲		CARBON RES. 1/4W J 2.2k $\Omega$	RCX4JATZ0222
R951		CARBON RES. 1/4W J 220 $\Omega$	RCX4JATZ0221
R952		CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R953		CARBON RES. 1/4W J 47 $\Omega$	RCX4JATZ0470
R954		CARBON RES. 1/4W J 75 $\Omega$	RCX4JATZ0750
R956		CARBON RES. 1/4W J 220 $\Omega$	RCX4JATZ0221
R957		CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
R959		CARBON RES. 1/4W J 75 $\Omega$	RCX4JATZ0750
R961		PCB JUMPER D0.6-P5.0	JW5.0T
R962		CARBON RES. 1/4W J 470 $\Omega$	RCX4JATZ0471
R966▲		CARBON RES. 1/4W J 2.2k $\Omega$	RCX4JATZ0222
R967▲		CARBON RES. 1/4W J 10k $\Omega$	RCX4JATZ0103
<b>SWITCHES</b>			
SW101		TACT SWITCH SKQSAB or	SST0101AL038
		TACT SWITCH KSM0612B or	SST0101HH003
		TACT SWITCH SKHHAM	SST0101AL029

Ref. No.	Mark	Description	Part No.
SW102		TACT SWITCH SKQSAB or	SST0101AL038
		TACT SWITCH KSM0612B or	SST0101HH003
		TACT SWITCH SKHHAM	SST0101AL029
SW103		TACT SWITCH SKQSAB or	SST0101AL038
		TACT SWITCH KSM0612B or	SST0101HH003
		TACT SWITCH SKHHAM	SST0101AL029
SW104		TACT SWITCH SKQSAB or	SST0101AL038
		TACT SWITCH KSM0612B or	SST0101HH003
		TACT SWITCH SKHHAM	SST0101AL029
SW105		TACT SWITCH SKQSAB or	SST0101AL038
		TACT SWITCH KSM0612B or	SST0101HH003
		TACT SWITCH SKHHAM	SST0101AL029
SW106		TACT SWITCH SKQSAB or	SST0101AL038
		TACT SWITCH KSM0612B or	SST0101HH003
		TACT SWITCH SKHHAM	SST0101AL029
<b>MISCELLANEOUS</b>			
AC601▲	A	AC CORD LA-2366	WAC0172LW006
AC601▲	B	AC CORD LA-2413	WAC0172LW007
B-9		HEAT SINK(PGO) L6250UA	0EM407159
B-8	A	HEAT SINK(PFS)ASSEMBLY L1440JZ	0EM406657
B-8	B	HEAT SINK(PGN)ASSEMBLY L6250UA	0EM407158
B-7	A	HEAT SINK(PFR)ASSEMBLY L1440JZ	0EM406656
B-7	B	HEAT SINK(PFN)ASSEMBLY L1520UZ	0EM406353
B-6	A	HEAT SINK(PFT)ASSEMBLY L1440JZ	0EM406658
B-6	B	HEAT SINK(PGM)ASSEMBLY L6250UA	0EM407156
BC571	A	PCB JUMPER D0.6-P5.0	JW5.0T
BC571	B	BEAD INDUCTORS FBA04HA600VB-00	LLBF00STU026
BC572		PCB JUMPER D0.6-P5.0	JW5.0T
BC602		PCB JUMPER D0.6-P5.0	JW5.0T
BC603		BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC652		BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC653		PCB JUMPER D0.6-P5.0	JW5.0T
BC654		BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC655		BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC656		BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC657		BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC691		BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC692		BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
CF31		CERAMIC TRAP 4.5MHz or	FBE455PMR003
		CERAMIC TRAP 4.5MHz	FBE455PMS001
CF32		CERAMIC FILTER SFSRA4M50CF00-B0 or	FBF455PMR004
		CERAMIC FILTER 4.5MHz	FBF455PMS001
CLN1		LEAD WIRE UL1007 AWG22 BLACK 140MM	WX3001A2FF14
CLN2	B	WIRE 100/BLA/AWG26#1007	WX3001A6FF10
CLN3	B	WIRE UL1007 AWG26 BLACK 170MM	WX3001A6FF17
CLN301	A	WIRE ASSEMBLY WX1L6505-102	WX1L6505-102
CLN301	B	WIRE ASSEMBLY WX1L1520-103	WX1L1520-103
CLN501		WIRE ASSEMBLY WX1L1520-101	WX1L1520-101
L-1		SCREW, B-TIGHT M3X8 BIND HEAD+	GBMB3080
F601▲		FUSE 4A/125V 237 TYPE or	PAGJ20CAG402
▲		FUSE TDS4A125VU/C or	PAGD20CW3402
▲		FUSE STC4A125V U/CT or	PAGE20CW3402
▲		FUSE 4.00A/125V	PAGG20CNG402
FH601		FUSE HOLDER MSF-015 or	XH01Z00LY001
		FUSE HOLDER FH-V-03078 or	XH01Z00DK001
		HOLDER, FUSE CNT41-0014	1790424
FH602		FUSE HOLDER MSF-015 or	XH01Z00LY001
		FUSE HOLDER FH-V-03078 or	XH01Z00DK001
		HOLDER, FUSE CNT41-0014	1790424

Ref. No.	Mark	Description	Part No.
GP641▲		GAP. FNR-G3.10D	FAZ000LD6005
J160		CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
JK701	A	RCA JACK(YELLOW) MSP-281V4-B	JXRL010LY003
JK701	B	RCA JACK 3P(SW) JPJ4321-01-234	JYRL030HD011
JK702	A	RCA JACK(WHITE) MSP-281V1-B	JXRL010LY005
JK702	B	RCA JACK 2P MSP-282V13 PBSN	JXRL020LY045
JK703	A	RCA JACK(RED) MSP-281V3-A	JYRL010LY002
JK703	B	RCA JACK 2P(SW) MSP-292V07 PBSN	JYRL020LY011
JK711		Y/C JACK 1P(SW) MDC-070V1-A	JYEL040LY002
JK721		RCA JACK(YELLOW) MTJ-032-06B-20 or	JXRL010LY050
		RCA JACK 1P AV-8.4-9Y	JXRL010RP010
JK722		RCA JACK(WHITE) MTJ-032-06B-22 or	JXRL010LY052
		RCA JACK 1P AV-8.4-9W	JXRL010RP011
JK723		RCA JACK(RED) MTJ-032-06A-21 or	JYRL010LY014
		RCA JACK 1P(RED)WITH SW ITCH AV1-09S-2	JYRL010RP008
JK741	B	RCA JACK 3P(GBR) MSP-213VS5	JXRL030LY028
JS102		PCB JUMPER D0.6-P5.0	JW5.0T
JS104		PCB JUMPER D0.6-P5.0	JW5.0T
JS105	B	PCB JUMPER D0.6-P5.0	JW5.0T
JS106	A	PCB JUMPER D0.6-P5.0	JW5.0T
JS171		PCB JUMPER D0.6-P15.0	JW15.0T
JS191		PCB JUMPER D0.6-P5.0	JW5.0T
JS301		PCB JUMPER D0.6-P5.0	JW5.0T
JS570		PCB JUMPER D0.6-P5.0	JW5.0T
JS642		PCB JUMPER D0.6-P10.0	JW10.0T
JS801		PCB JUMPER D0.6-P5.0	JW5.0T
JS802		PCB JUMPER D0.6-P10.0	JW10.0T
JS821		PCB JUMPER D0.6-P5.0	JW5.0T
JS822		PCB JUMPER D0.6-P5.0	JW5.0T
JW101		PCB JUMPER D0.6-P7.5	JW7.5T
PB6		CLOTH(65) L7735TR:65X10X0.5T	0EM402149
PS691▲		THERMISTOR ZPB58BL7R0F	QNQZ58BL7R0F
RCV101		REMOCON RECEIVE UNIT MIM-93M8DKL or	USESJRSUNT02
		REMOCON RECEIVE UNIT PIC-37042SR or	USESJRSKK034
		REMOCON RECEIVE UNIT PIC-26042SR-2	USESJRSKK032
RL601▲		POWER RELAY SDT-S-112LMR or	MRNDC12QN014
▲		POWER RELAY RPEF-12-901 or	MRNDC12KB002
▲		RELAY DG12D1-O(M)-II or	MRNDC12DEC02
▲		RELAY ALKS321	MRNDC12MS013
SA601▲		SURGE ABSORBER AVR-S07D471KAAS or	QVQZ0AVRS07D
▲		SURGE ABSORBER JVR-07N471K or	NVQZVR07N471
▲		SURGE ABSORBER CNR-10D471K or	NVQZR10D471K
▲		SURGE ABSORBER CNR-07D471K or	NVQZR07D471K
▲		SURGE ABSORBER PVR-07D471KB	NVQZ07D471KB
SF1		SAW FILTER SAFGM45M7VHHZC0B03	FBF456PMR008
T571▲	A	FLYBACK TRANS BSC25-2095S	LTF00CPS2030
T571▲	B	FLYBACK TRANS BSC21-2662S	LTF00CPS2036
T572		HORIZONTAL DRAIVE TRANS Y2004 or	LTH00CPY2004
		HORIZONTAL DRAIVE TRANS CSA-LF044	LTH00CPSA002
T601▲	A	SWICHING TRANS KD-L1120VPF	LTT00CPKT076
T601▲	B	SWICHING TRANS KD-01714	LTT00CPKT072
TH556	B	PCB JUMPER D0.6-P5.0	JW5.0T
TP300		PCB JUMPER D0.6-P10.0	JW10.0T
TP301		PCB JUMPER D0.6-P7.5	JW7.5T
TP302		PCB JUMPER D0.6-P7.5	JW7.5T
TP500		PCB JUMPER D0.6-P7.5	JW7.5T
TP501		PCB JUMPER D0.6-P7.5	JW7.5T

Ref. No.	Mark	Description	Part No.
TP591		PCB JUMPER D0.6-P5.0	JW5.0T
TP592		PCB JUMPER D0.6-P5.0	JW5.0T
TP601		PCB JUMPER D0.6-P7.5	JW7.5T
TU1		TUNER UNIT TEQH9-001A	UTUNNTUAL032
VR561	B	CARBON P.O.T. 20k Ω B or	VRCB203KA011
	B	CARBON P.O.T. 20k Ω B	VRCB203HH014
VR562	B	CARBON P.O.T. 5k Ω B or	VRCB502KA011
	B	CARBON P.O.T. 5k Ω B	VRCB502HH014
VR661▲		CARBON P.O.T. 50k Ω B or	VRCB503KA011
▲		CARBON P.O.T. 50k Ω B	VRCB503HH014
X301		X'TAL 3.579545 MHz	FXD355LLN003

## CRT CBA

Ref. No.	Mark	Description	Part No.
		CRT CBA Consists of the following	-----
<b>CAPACITORS</b>			
C1501		ELECTROLYTIC CAP. 100μF/10V M or	CE1AMASTL101
		ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C1502		ELECTROLYTIC CAP. 10μF/50V M or	CE1JMASTL100
		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C1510		CERAMIC CAP. B K 2200pF/2KV or	CCD3DKD0B222
		CERAMIC CAP. B K 2200pF/2KV or	CCD3DKP0B222
		CERAMIC CAP. B K 2200pF/2KV	CA3D222MR030
C1511	A	CERAMIC CAP.(AX) B K 560pF/50V	CCA1JKT0B561
C1511	B	CERAMIC CAP.(AX) B K 470pF/50V	CCA1JKT0B471
C1512		CERAMIC CAP.(AX) B K 0.01μF/50V	CA1J103TU011
C1521	A	CERAMIC CAP.(AX) B K 390pF/50V	CCA1JKT0B391
C1521	B	CERAMIC CAP.(AX) B K 470pF/50V	CCA1JKT0B471
C1522		CERAMIC CAP.(AX) B K 0.01μF/50V	CA1J103TU011
C1531		CERAMIC CAP.(AX) B K 470pF/50V	CCA1JKT0B471
C1532		CERAMIC CAP.(AX) B K 0.01μF/50V	CA1J103TU011
<b>CONNECTOR</b>			
CN1501		PIN CONNECTOR 005P-5100	JTEA001TG001
<b>DIODES</b>			
D1501		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		DIODE 1SS176TPA7	1SS176T
<b>COILS</b>			
L1501▲	A	INDUCTOR 180μH-J-5FT or	LLARJCSTU181
▲	A	INDUCTOR 180μH-K-5FT	LLARKDSKA181
L1501▲	B	INDUCTOR 150μH-J-5FT or	LLARJCSTU151
▲	B	INDUCTOR 150μH-K	LLARKDQKA151
L1511		PCB JUMPER D0.6-P5.0	JW5.0T
L1521		PCB JUMPER D0.6-P5.0	JW5.0T
L1531		PCB JUMPER D0.6-P5.0	JW5.0T
<b>TRANSISTORS</b>			
Q1511		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
		TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q1512		TRANSISTOR 2SC5360 or	QQ9Z02SC5360
		TRANSISTOR 2SC4544 or	QQ9Z02SC4544
		TRANSISTOR KTC3229	NQ5Z0KTC3229
Q1521		TRANSISTOR 2SC2785(F) or	QQSF02SC2785

Ref. No.	Mark	Description	Part No.
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
		TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q1522		TRANSISTOR 2SC5360 or	QQ9Z02SC5360
		TRANSISTOR 2SC4544 or	QQ9Z02SC4544
		TRANSISTOR KTC3229	NQ5Z0KTC3229
Q1531		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
		TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q1532		TRANSISTOR 2SC5360 or	QQ9Z02SC5360
		TRANSISTOR 2SC4544 or	QQ9Z02SC4544
		TRANSISTOR KTC3229	NQ5Z0KTC3229
<b>RESISTORS</b>			
R1501		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R1502		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R1503		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R1509		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R1510▲		METAL RESISTOR 3W J 10k $\Omega$ or	RN03103ZU001
▲		FIXED METAL OXIDE FILM RES. 3W J 10k $\Omega$	RN03103DP005
R1511		CARBON RES. 1/4W J 1.5k $\Omega$	RCX4JATZ0152
R1512		CARBON RES. 1/4W J 1.5k $\Omega$	RCX4JATZ0152
R1514		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R1515	A	CARBON RES. 1/4W J 1.2k $\Omega$	RCX4JATZ0122
R1515	B	CARBON RES. 1/4W J 820 $\Omega$	RCX4JATZ0821
R1518	A	CARBON RES. 1/4W J 270 $\Omega$	RCX4JATZ0271
R1518	B	CARBON RES. 1/4W J 220 $\Omega$	RCX4JATZ0221
R1519		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R1520▲		METAL RESISTOR 3W J 10k $\Omega$ or	RN03103ZU001
▲		FIXED METAL OXIDE FILM RES. 3W J 10k $\Omega$	RN03103DP005
R1521		CARBON RES. 1/4W J 1.5k $\Omega$	RCX4JATZ0152
R1522		CARBON RES. 1/4W J 1.5k $\Omega$	RCX4JATZ0152
R1524		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R1525	A	CARBON RES. 1/4W J 1.2k $\Omega$	RCX4JATZ0122
R1525	B	CARBON RES. 1/4W J 820 $\Omega$	RCX4JATZ0821
R1528	A	CARBON RES. 1/4W J 270 $\Omega$	RCX4JATZ0271
R1528	B	CARBON RES. 1/4W J 220 $\Omega$	RCX4JATZ0221
R1529		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R1530▲		METAL RESISTOR 3W J 10k $\Omega$ or	RN03103ZU001
▲		FIXED METAL OXIDE FILM RES. 3W J 10k $\Omega$	RN03103DP005
R1531		CARBON RES. 1/4W J 1.5k $\Omega$	RCX4JATZ0152
R1532		CARBON RES. 1/4W J 1.5k $\Omega$	RCX4JATZ0152
R1534		CARBON RES. 1/4W J 100 $\Omega$	RCX4JATZ0101
R1535	A	CARBON RES. 1/4W J 1.2k $\Omega$	RCX4JATZ0122
R1535	B	CARBON RES. 1/4W J 820 $\Omega$	RCX4JATZ0821
R1538	A	CARBON RES. 1/4W J 270 $\Omega$	RCX4JATZ0271
R1538	B	CARBON RES. 1/4W J 220 $\Omega$	RCX4JATZ0221
<b>MISCELLANEOUS</b>			
BC1501		BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
JK1501▲		CRT SOCKET ISHS40ST or	JSCC290PK006

Ref. No.	Mark	Description	Part No.
▲		CRT SOCKET HPS0521-012212	JSCC290HD012
JS1551		PCB JUMPER D0.6-P5.0	JW5.0T

