

# PHILIPS

## 32" LCD TV chassis PL16.00

# Service Manual

### Contents

#### TYPE A

FW32C06FM      SANYO      (Serial No.: ME1)

#### TYPE B


32PFL3901/F8      PHILIPS      (Serial No.: XA1)

This service manual contains information of different types of models.  
Make sure to refer to the section describing your model.

© 2016 Funai Electric Co., Ltd.

All rights reserved. No part of this manual may be reproduced, copied, transmitted, disseminated, transcribed, downloaded or stored in any storage medium, in any form or for any purpose without the express prior written consent of Funai. Furthermore, any unauthorized commercial distribution of this manual or any revision hereto is strictly prohibited.

Information in this document is subject to change without notice. Funai reserves the right to change the content herein without the obligation to notify any person or organization of such changes.

**FUNAI** with the  design is a registered trademark of Funai Electric Co., Ltd and may not be used in any way without the express written consent of Funai. All other trademarks used herein remain the exclusive property of their respective owners. Nothing contained in this manual should be construed as granting, by implication or otherwise, any license or right to use any of the trademarks displayed herein. Misuse of any trademarks or any other content in this manual is strictly prohibited. Funai shall aggressively enforce its intellectual property rights to the fullest extent of the law.

## **IMPORTANT SAFETY NOTICE**

**Proper service and repair is important to the safe, reliable operation of all P&F Equipment. The service procedures recommended by P&F 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. P&F could not possibly know, evaluate and advice the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, P&F has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by P&F 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.**

<p><b>The LCD panel is manufactured to provide many years of useful life. Occasionally a few non active pixels may appear as a tiny spec of color. This is not to be considered a defect in the LCD screen.</b></p>
---

# TABLE OF CONTENTS

Specifications [TYPE A] .....	1-1
[TYPE B] .....	1-2
Important Safety Precautions .....	2-1
Standard Notes for Servicing .....	3-1
Cabinet Disassembly Instructions .....	4-1
Electrical Adjustment Instructions .....	5-1
How to Initialize the LCD TV .....	6-1
Firmware Renewal Mode .....	7-1
Troubleshooting .....	8-1
Block Diagrams .....	9-1
Schematic Diagrams / CBA and Test Points .....	10-1
Wiring Diagram .....	11-1
Exploded Views .....	12-1
Parts List .....	13-1
Revision History .....	14-1

# SPECIFICATIONS

## [TYPE A]

### < TUNER / NTSC >

Description	Condition	Unit	Nominal	Limit
1. AFT Pull-In Range	---	MHz	±2.3	±2.1
2. Synchronizing Sens.	TV.ch.4	dBμV	18	20
	CA.ch.31	dBμV	18	20
	CA.ch.87	dBμV	18	23

### < TUNER / ATSC >

Description	Condition	Unit	Nominal	Limit
1. Received Freq. Range (-28dBm)	---	kHz	---	±100
2. ATSC Dynamic Range (min / max)	ch.4	dBm	---	-76/0
	ch.10	dBm	---	-76/0
	ch.41	dBm	---	-76/+4

### < LCD PANEL >

Description	Condition	Unit	Nominal	Limit
1. Native Pixel Resolution	Horizontal	pixels	1366	---
	Vertical	pixels	768	---
2. Brightness (w / filter)	---	cd/m <sup>2</sup>	165	---
3. Viewing Angle	Horizontal	°	-89 to 89	---
	Vertical	°	-89 to 89	---

### < VIDEO >

Description	Condition	Unit	Nominal	Limit
1. Over Scan	Horizontal	%	5	5±5
	Vertical	%	5	5±5
2. Color Temperature	---	°K	12000	---
	x		0.272	±3%
	y		0.278	±3%
	<Measurement condition>			
	Input signal: HDMI1 Raster (40/70IRE) 1080i@60 Measurement point: Screen center Measuring instrument: Made of KONICA MINOLTA Luminance meter CA-310 Aging time: 60min. (Retail MODE / 100IRE Raster HDMI 1080i@60) MODE setting of TV: Shipment setting / Retail MODE Ambient temperature: 25°C ±5°C			
3. Resolution (composite video)	Horizontal	line	400	---
	Vertical	line	350	---

### < AUDIO >

All items are measured across 8 Ω load at speaker output terminal with L.P.F.

Description	Condition	Unit	Nominal	Limit
1. Audio MAX Output (ATSC 0dBfs)	Lch/Rch	W	8.0/8.0	7.0/7.0
2. Audio Distortion (NTSC)	500mW: Lch/Rch	%	0.5/0.5	2.0/2.0

## [TYPE B]

### < TUNER / NTSC >

Description	Condition	Unit	Nominal	Limit
1. AFT Pull-In Range	---	MHz	±2.3	±2.1
2. Synchronizing Sens.	TV.ch.4	dBμV	18	20
	CA.ch.31	dBμV	18	20
	CA.ch.87	dBμV	18	23

### < TUNER / ATSC >

Description	Condition	Unit	Nominal	Limit
1. Received Freq. Range (-28dBm)	---	kHz	---	±100
2. ATSC Dynamic Range (min / max)	ch.4	dBm	---	-76/0
	ch.10	dBm	---	-76/0
	ch.41	dBm	---	-76/+4

### < LCD PANEL >

Description	Condition	Unit	Nominal	Limit
1. Native Pixel Resolution	Horizontal	pixels	1920	---
	Vertical	pixels	1080	---
2. Brightness (w / filter)	panel	cd/m <sup>2</sup>	250	---
3. Viewing Angle	Horizontal	°	-88 to 88	---
	Vertical	°	-88 to 88	---

### < VIDEO >

Description	Condition	Unit	Nominal	Limit
1. Over Scan	Horizontal	%	5	5±5
	Vertical	%	5	5±5
2. Color Temperature	---	°K	12000	---
	x		0.272	±3%
	y		0.278	±3%
	<Measurement condition>			
	Input signal: HDMI1 Raster (40/80IRE) 1080i@60 Measurement point: Screen center Measuring instrument: Made of KONICA MINOLTA Luminance meter CA-310 Aging time: 60min. (Retail MODE / 100IRE Raster HDMI 1080i@60) MODE setting of TV: Shipment setting / Retail MODE Ambient temperature: 25°C ±5°C			
3. Resolution (composite video)	Horizontal	line	400	---
	Vertical	line	350	---

### < AUDIO >

All items are measured across 8 Ω load at speaker output terminal with L.P.F.

Description	Condition	Unit	Nominal	Limit
1. Audio MAX Output (ATSC 0dBfs)	Lch/Rch	W	8.0/8.0	
2. Audio Distortion (NTSC)	500mW: Lch/Rch	%	0.5/0.5	3.0/3.0

# 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.

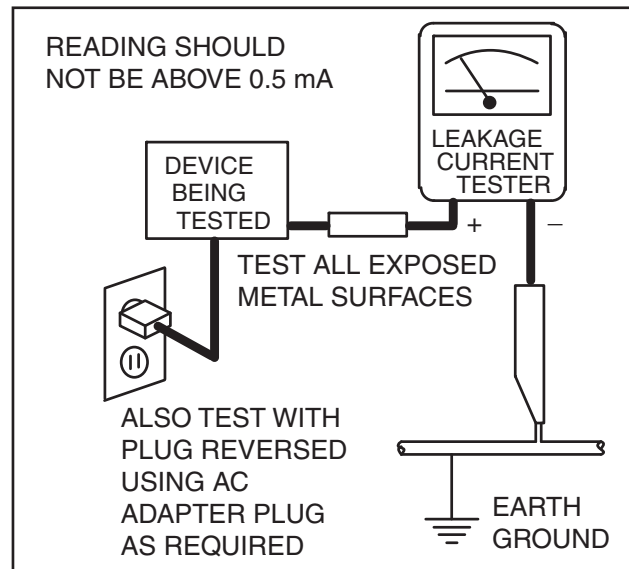
## Safety Precautions for LCD TV Circuit

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 Liquid Crystal Panel 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 120 V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI) C101.1 Leakage Current for Appliances and Underwriters Laboratories (UL) 1410, (50.7). With the instrument AC switch first in the on position and then in the off position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal cabinet, screw heads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milli-ampere. Reverse the instrument power cord plug in the outlet and repeat the test.



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

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

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. **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 1.0 V 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.
5. 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.
6. 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.
7. **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 (heat sinks, 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 11~13 lb (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.** When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC supply outlet.
- L.** When installing parts or assembling the cabinet parts, be sure to use the proper screws and tighten certainly.



## 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.

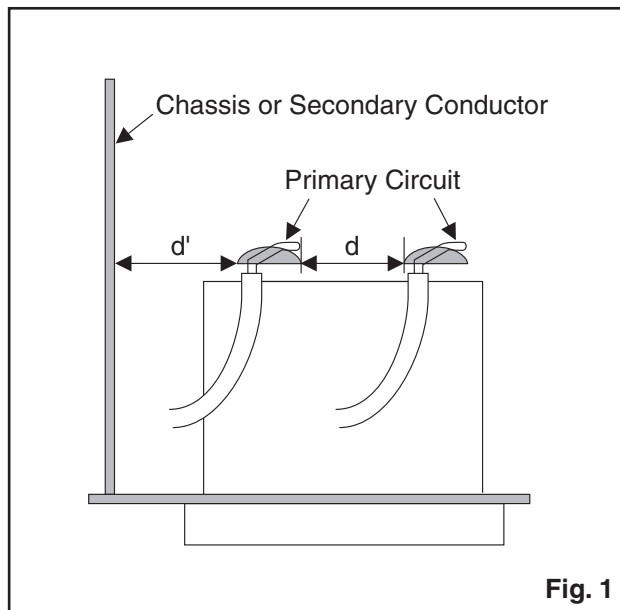
### 1. Clearance Distance

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	U.S.A. 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.



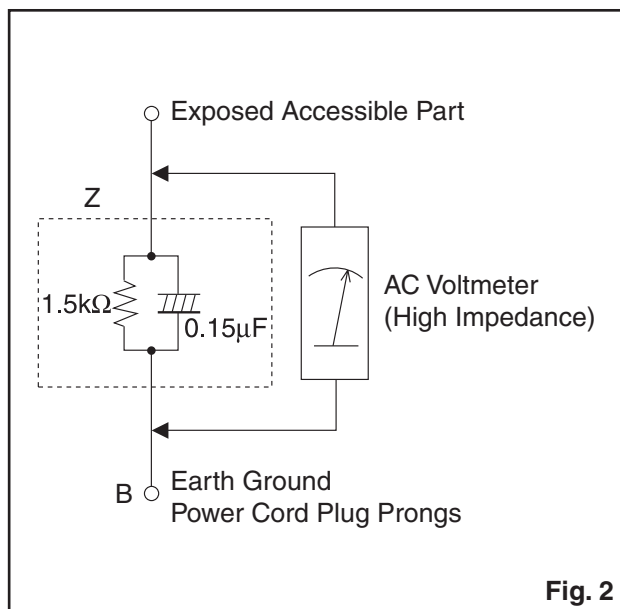
**Fig. 1**

### 2. Leakage Current Test

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

#### Measuring Method: (Power ON)

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



**Fig. 2**

**Table 2: Leakage current ratings for selected areas**

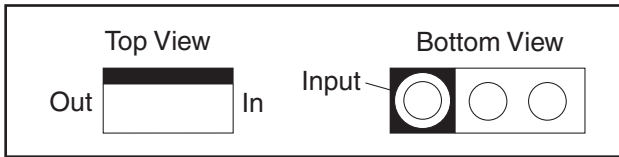
AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (B) to:
110 to 130 V	U.S.A. or Canada	0.15 $\mu$ F CAP. & 1.5 k $\Omega$ RES. Connected in parallel	$i \leq 0.5$ mA rms	Exposed accessible parts

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

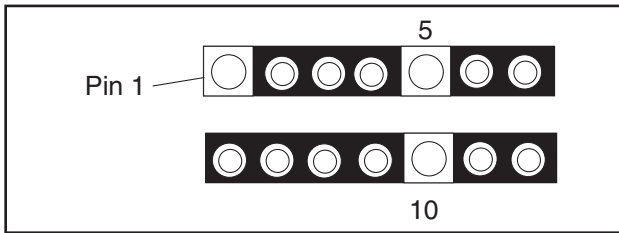
# STANDARD NOTES FOR SERVICING

## Circuit Board Indications

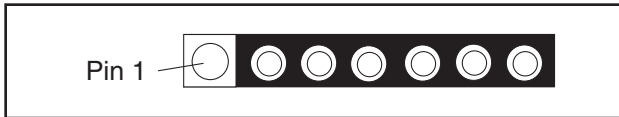
1. The output pin of the 3 pin Regulator ICs is indicated as shown.



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

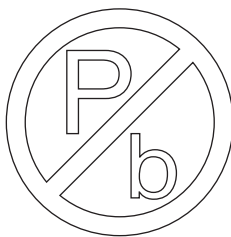


3. The 1st pin of every male connector is indicated as shown.



## Pb (Lead) Free Solder

**Pb free mark will be found on PCBs which use Pb free solder. (Refer to figure.) For PCBs with Pb free mark, be sure to use Pb free solder. For PCBs without Pb free mark, use standard solder.**



Pb free mark

## How to Remove / Install Flat Pack-IC

### 1. Removal

**With Hot-Air Flat Pack-IC Desoldering Machine:**

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

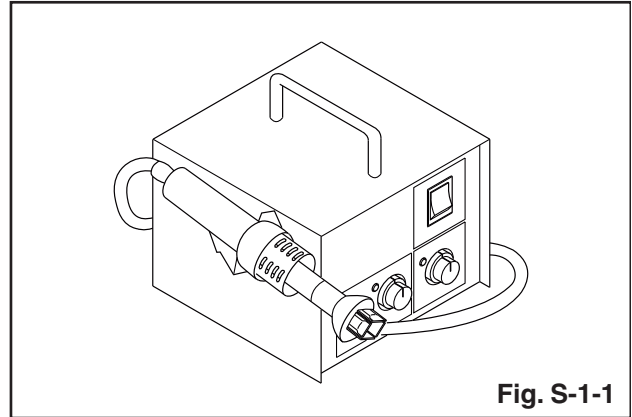


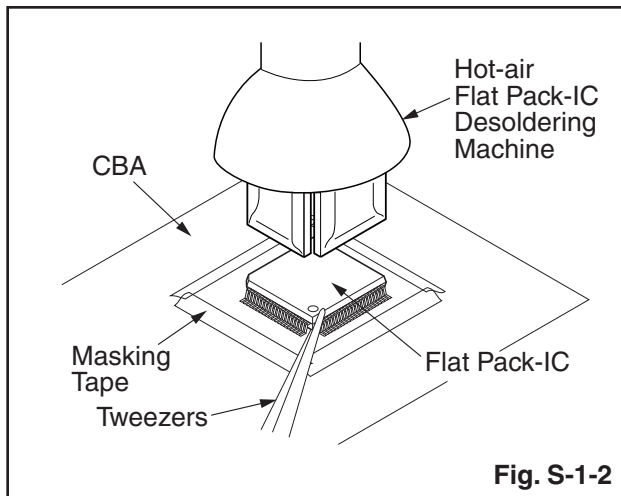
Fig. S-1-1

2. Remove the flat pack-IC with tweezers while applying the hot air.
3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

### CAUTION:

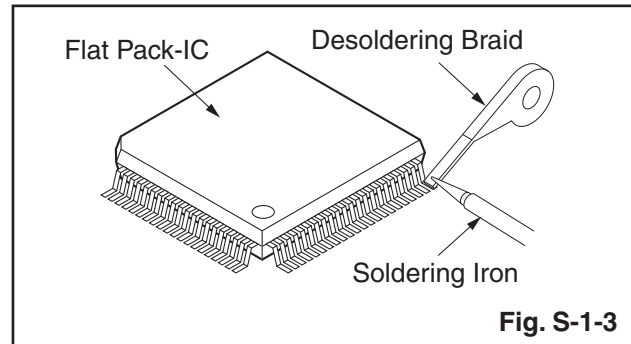
1. The Flat Pack-IC shape may differ by models. Use an appropriate hot-air flat pack-IC desoldering machine, whose shape matches that of the Flat Pack-IC.
2. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape around the flat pack-IC to protect other parts from damage. (Fig. S-1-2)

3. 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.

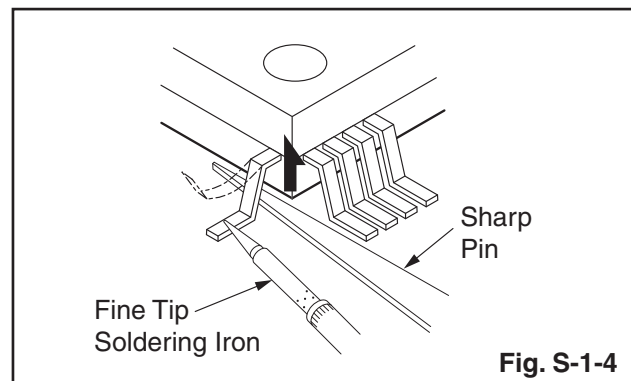


#### With Soldering Iron:

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)

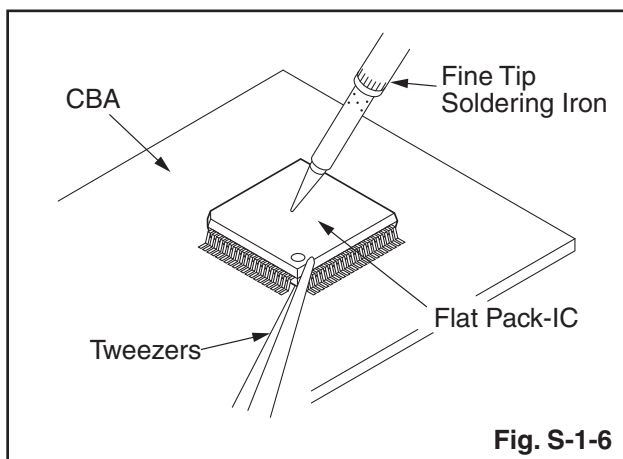
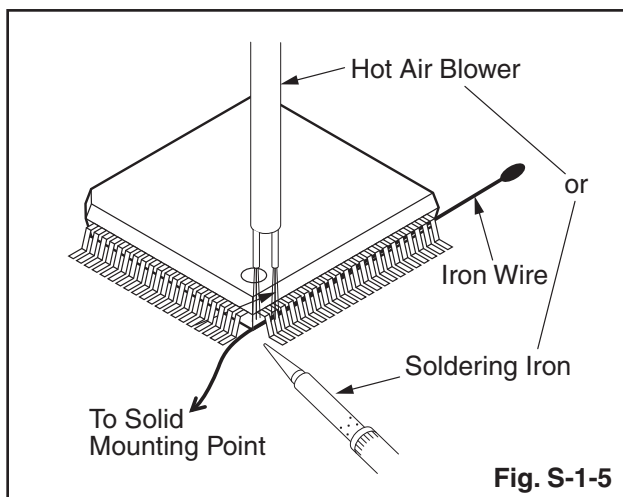


3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

### With Iron Wire:

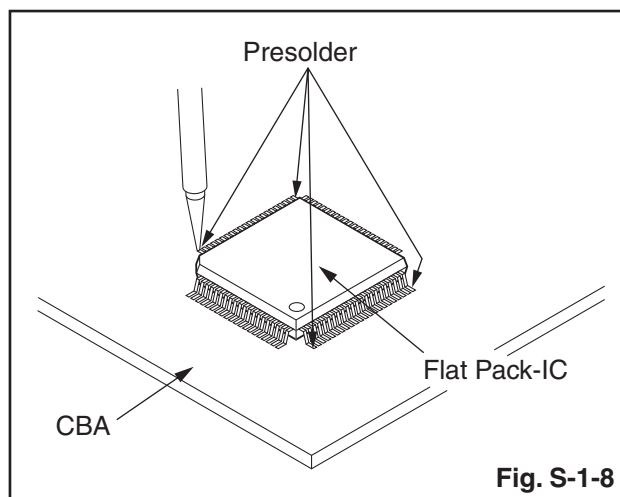
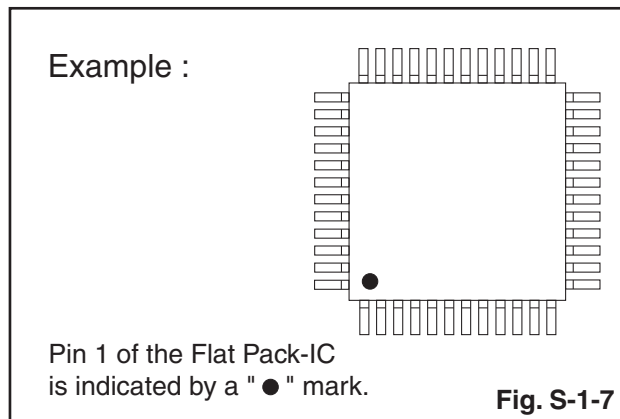
1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)
2. Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
3. While heating the pins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

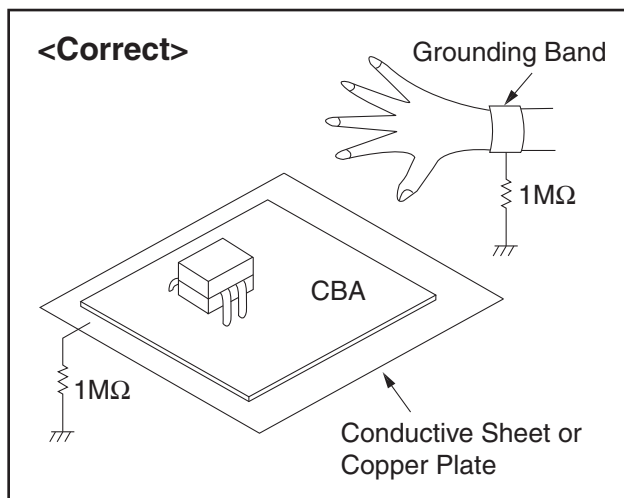
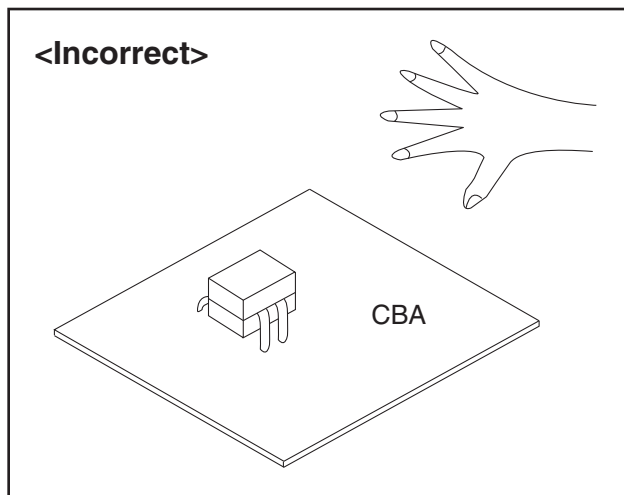
Electrostatic breakdown of the semi-conductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

## 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 semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors with your clothing.



# CABINET DISASSEMBLY INSTRUCTIONS

## Screw Torque Specification

Ref. No.	Part Number	Part Name	Tightening Torque
L4	GBHP3080	SCREW BIND BLACK_NI +P-TITE M3X8.0	5.2±0.9lb-in
L23	GBJS3060	SCREW BIND 3CHROM +S-TITE M3X6.0	
L27	GBHS3080	SCREW BIND BLACK_NI +S-TITE M3X8.0	
L58	1EM420633A	ASSEMBLED SCREW M3X10	
SSK1 <sup>*2</sup>	1ESA34004	STAND SCREW KIT A31M0UT(SCREW BIND BLACK_NI +P-TITE M4X14.0)	(approx. 8.7±0.9lb-in) *
L17 <sup>*3</sup>	GBHP4140	SCREW BIND BLACK_NI +P-TITE M4X14.0)	(approx. 8.7±0.9lb-in) *

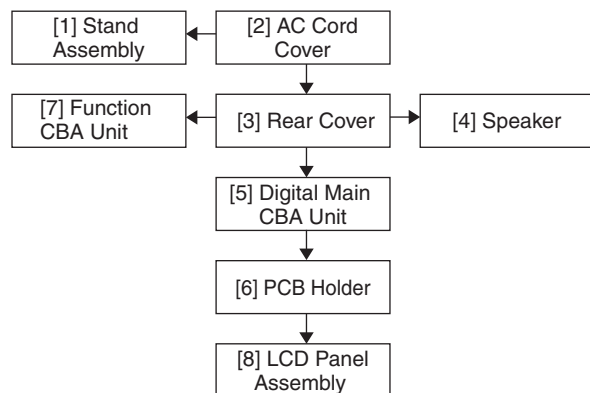
**\*:For reference**

**\*2: TYPE A**

**\*3: TYPE B**

## 1. Disassembly Flowchart

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



## 2. Disassembly Method

Step/ Loc. No.	Part	Fig. No.	Removal	Note
[1]	Stand Assembly	D1	3(S-1)	---
[2]	AC Cord Cover	D1	2(S-2), (L-1)	---
[3]	Rear Cover	D2 D4	6(S-3), 5(S-4), 2(L-2), CN601, CN3801	---

Step/ Loc. No.	Part	Fig. No.	Removal	Note
[4]	Speaker	D2	2(S-5), Hook	---
[5]	Digital Main CBA Unit	D3 D4	5(S-6), CN1001, CN3501, CN3901	---
[6]	PCB Holder	D3	3(S-7)	---
[7]	Function CBA Unit	D3 D4	Hook	1
[8]	LCD Panel Assembly	D3	-----	---
(1)	(2)	(3)	(4)	(5)

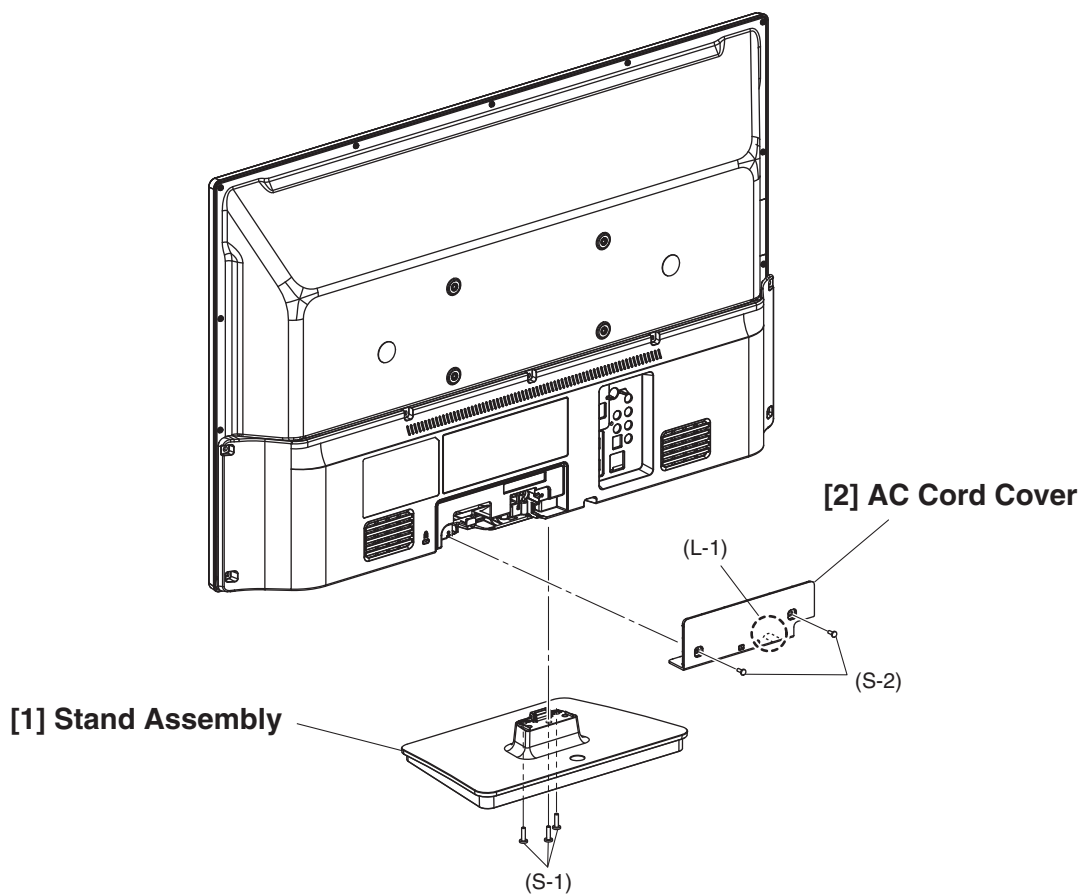
### Note:

- (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 parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.  
P = Spring, L = Locking Tab, S = Screw,  
H = Hex Screw, CN = Connector  
e.g. 2(S-2) = two Screws of (S-2),  
2(L-2) = two Locking Tabs of (L-2)
- (5) Refer to the following "Reference Notes in the Table."

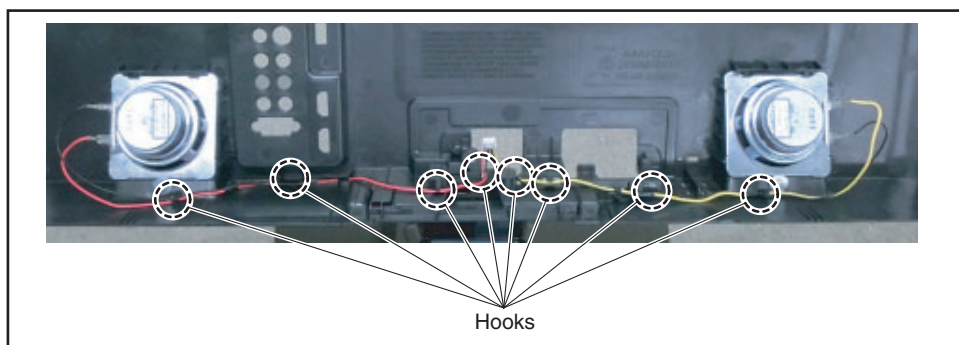
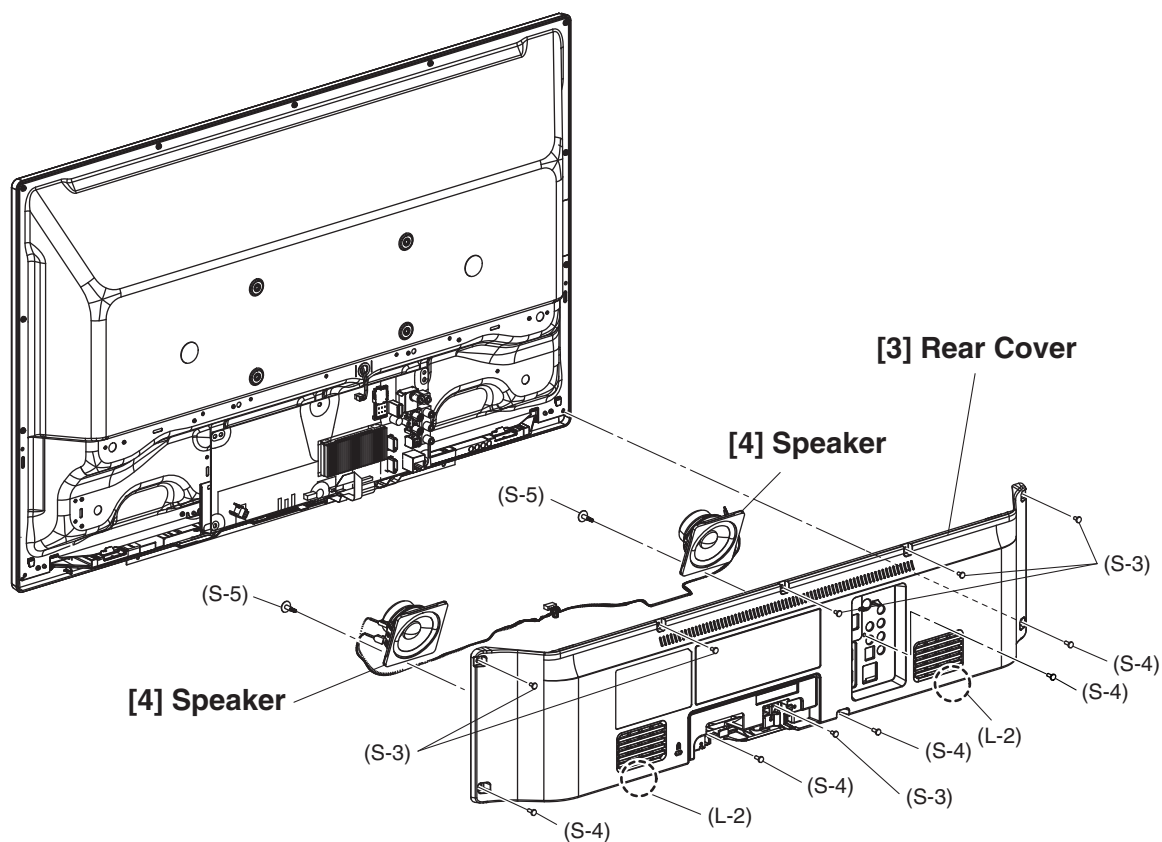
## Important precautions concerning the LCD Panel Assembly:

### 1. When you disassemble/re-assemble the Function CBA Unit.

- Be careful not to break the hooks. If you pull with too much force, the hooks may be damaged.
- Be careful not to scratch the display panel when assembling.
- The Function CBA Unit is fixed in place by the hook. Make sure this hook is not damaged. Make sure the Function CBA Unit are securely in place when re-assembling.
- Make sure the tact switches operate normally after replacing the Function CBA Unit

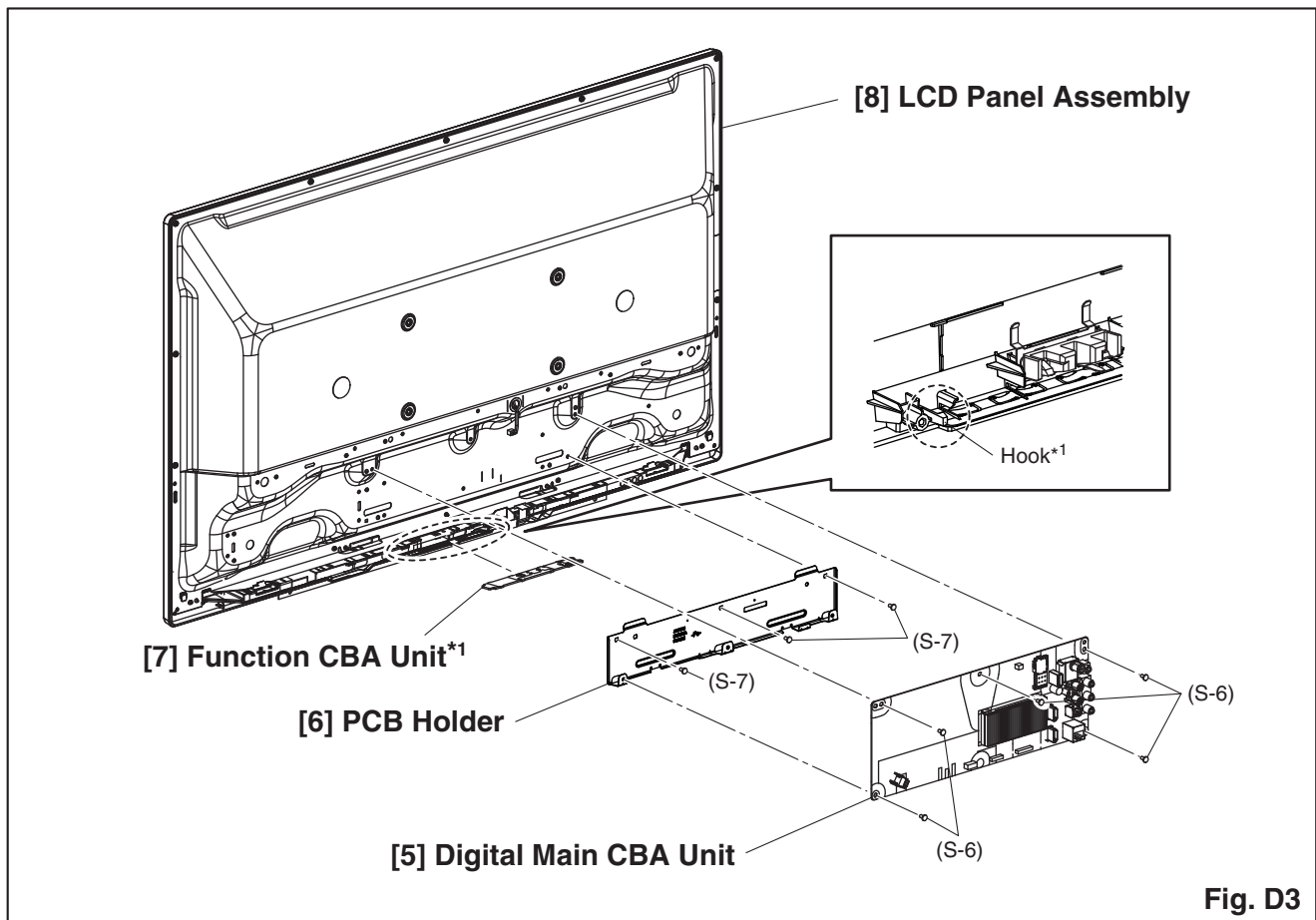


**Fig. D1**



**Fig. D2**

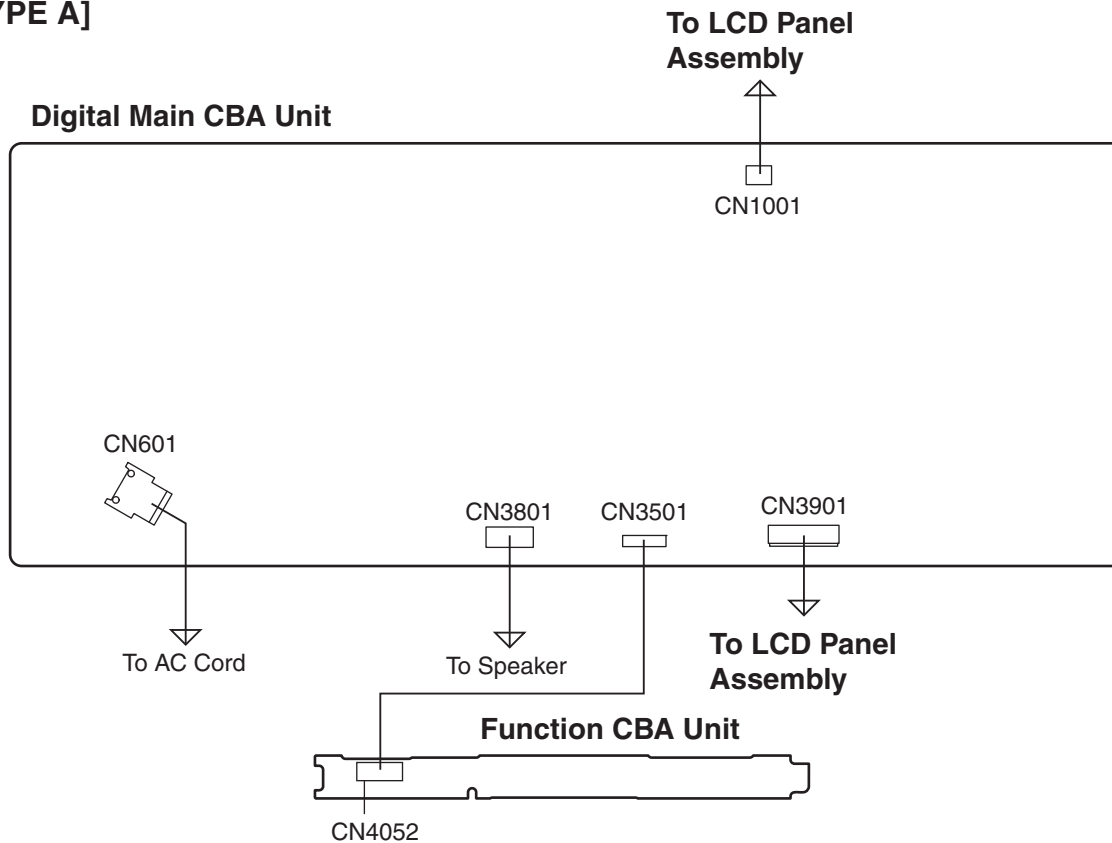




\*<sup>1</sup>: Make sure to read all the precautions on page 4-1 when you disassemble/re-assemble the Function CBA Unit.

## TV Cable Wiring Diagram

### [TYPE A]



### [TYPE B]

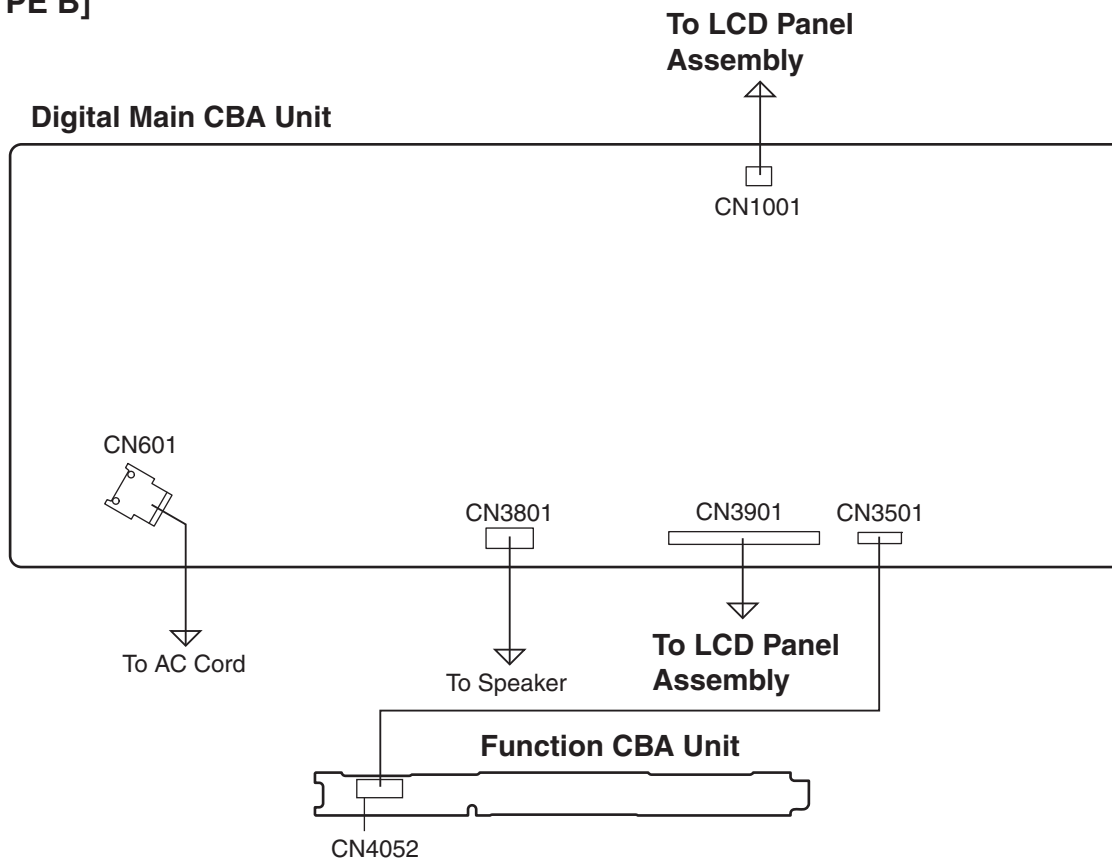


Fig. D4

# ELECTRICAL ADJUSTMENT INSTRUCTIONS

**General Note: “CBA” is abbreviation for “Circuit Board Assembly.”**

**Note:** Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

## Test Equipment Required

1. Remote control unit
2. Color Analyzer,  
CA-310 (KONICA MINOLTA Luminance meter) or  
measuring instrument as good as CA-310.

## How to set up the service mode:

### [TYPE A]

#### Service mode:

1. Turn the power on.
2. Press [0], [4], [2], [5], [7], [4] and [INFO] buttons on the remote control unit in this order. The following screen appears.

"\*" differs depending on the models.

```
[current]
File code:      ***_***_***_*
Total checksum: Push "0" key      White Balance
Panel-Option code: **_***_***_***_***
                  ***_***_***_***

          Press "POWER" key to exit.

          MAC address: **.**.**.**.**.
          ESN:          *****

Flicker:      *****
Tuner:        *****
HDMI UART:    OFF
Touch Sensor Ver: ----- / -.-.-
EDID:         Push "0" key

Total Watch Time: *****
User Watch Time  *****
System Time:     **.**.
Lightsensor:     **
```

### [TYPE B]

#### Service mode:

1. Turn the power on.
2. Press [0], [6], [2], [5], [9], [6] and [INFO] buttons on the remote control unit in this order. The following screen appears.

"\*" differs depending on the models.

```
[current]
File code:      ***_***_***_*
Total checksum: Push "0" key      White Balance
Panel-Option code: **_***_***_***_***
                  ***_***_***_***

          Press "POWER" key to exit.

          MAC address: **.**.**.**.**.
          ESN:          *****

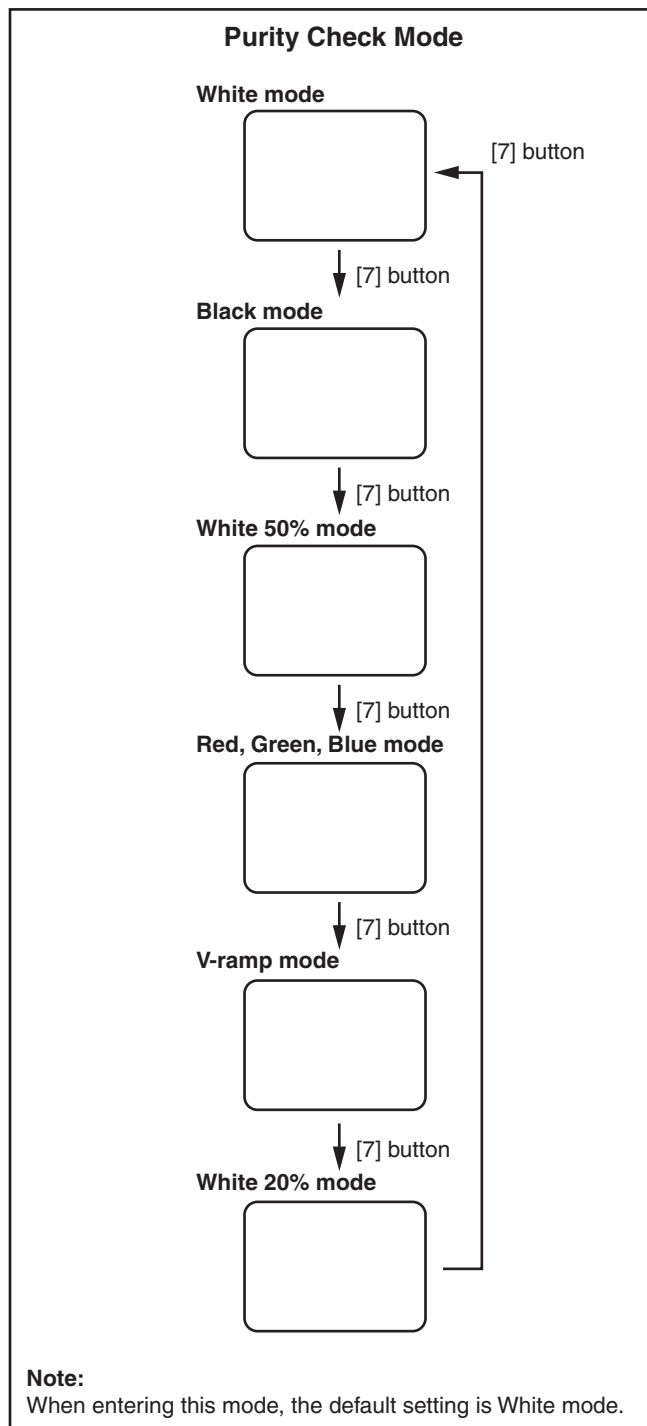
Flicker:      *****
Tuner:        *****
HDMI UART:    OFF
Touch Sensor Ver: ----- / -.-.-
EDID:         Push "0" key

Total Watch Time: *****
User Watch Time  *****
System Time:     **.**.
Lightsensor:     **
```

## 1. Purity Check Mode

This mode cycles through full-screen displays of red, green, blue, and white to check for non-active pixels.

1. Enter the service mode.
2. Each time the [7] button on the remote control unit is pressed, the display changes as follows.

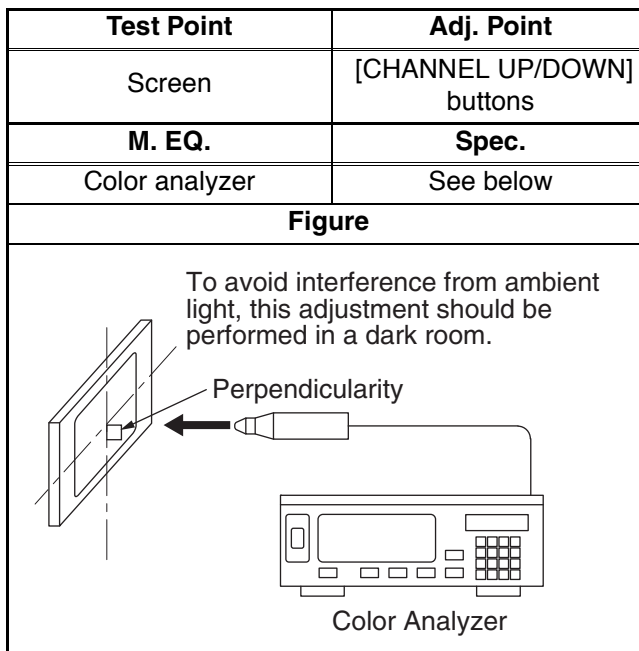


3. To cancel or to exit from the Purity Check Mode, press [CH RETURN] or [PREV CH] button.

**The VCOM Adjustment should be performed when replacing the Digital Main CBA.**

## 2. VCOM Adjustment

### [TYPE A]



1. Set the color analyzer at the zero point calibration and bring the optical receptor pointing at the center of the LCD-Panel.  
**Note:** The optical receptor must be set perpendicular to the LCD Panel surface.
2. Turn the power on.  
**Note:** Execute the VCOM adjustment within 2 minutes after you turn the power on.
3. Enter the service mode.
4. Press [2] button to select the VCOM adjustment.
5. Press [0] button to select the VCOM2(AUTO) adjustment. VCOM2(AUTO) pattern signal (1x2 flicker 1 line vertical shift) appears in the screen.
6. Press [CHANNEL UP/DOWN] buttons on the remote control unit so that the color analyzer value becomes minimum.
7. To cancel or to exit from the VCOM Adjustment, press [CH RETURN] or [PREV CH] button.

**The White Balance Adjustment should be performed when replacing the LCD Panel, Digital Main CBA.**

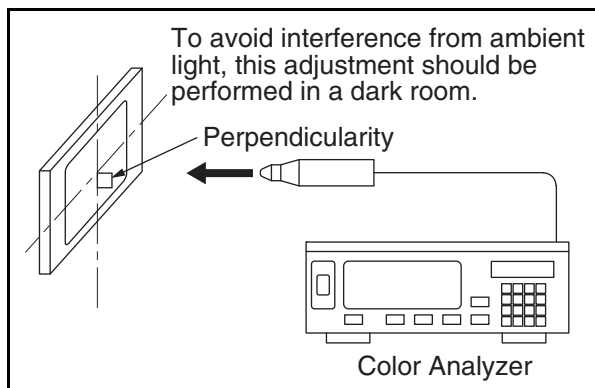
### 3. White Balance Adjustment

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

**Symptom of Misadjustment:** White becomes bluish or reddish.

ITEM	SPECIFICATION
Color temperature	$x = 0.272 \pm 0.003$ $y = 0.278 \pm 0.003$
Input Signal	Internal pattern (30/80% raster)
Measurement point	Screen center
M. EQ.	CA-310 (KONICA MINOLTA Luminance meter) or measuring instrument as good as CA-310.
Aging time	60min. (Retail MODE/100IRE Raster HDMI 1080i@60)
MODE setting of TV	Shipment setting/ Retail MODE
Ambient temperature	$25^{\circ}\text{C} \pm 5^{\circ}\text{C}$

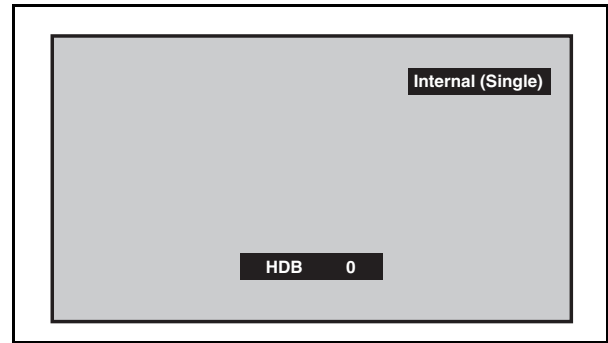
1. Operate the unit for more than 30 minutes.
2. Enter the service mode.
3. Press [VOLUME DOWN] button three times on the remote control unit to select "Drive setting" mode. "Drive -" appears in the screen.
4. Set the color analyzer at the CHROMA mode and zero point calibration. Bring the optical receptor pointing at the center of the LCD-Panel.



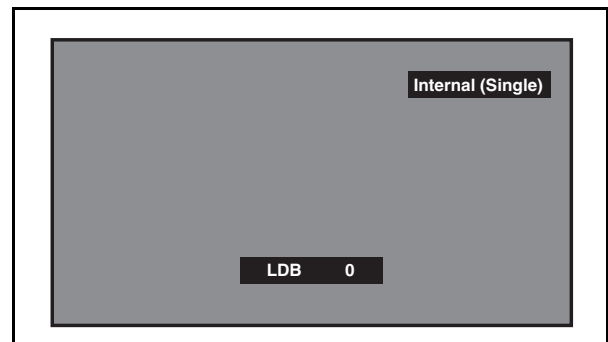
**Note:** The optical receptor must be set perpendicularly to the LCD Panel surface.

5. Press [3] button to select the "HDB" for High Drive Blue adjustment. ("HDB" appears in the screen.)

6. Press [MENU] button. The internal Raster signal appears in the screen. ("Internal (Single)" appears in the upper right of the screen as shown below.)



7. Press [CHANNEL UP/DOWN] buttons to adjust the color temperature becomes 12000°K ( $x = 0.272$  /  $y = 0.278 \pm 0.003$ ).
8. Press [1] button to select the "HDR" for High Drive Red adjustment ("HDR" appears in the screen.) and press [CHANNEL UP/DOWN] buttons to adjust the color temperature.
9. If necessary, adjust the "HDB", "HDR" again.
10. Press [9] button to select the "LDB" for Low Drive Blue adjustment ("LDB" appears in the screen.) and press [CHANNEL UP/DOWN] buttons to adjust the color temperature.



11. Press [7] button to select the "LDR" for Low Drive Red adjustment ("LDR" appears in the screen.) and press [CHANNEL UP/DOWN] buttons to adjust the color temperature.
12. Press [8] button to select the "LDG" for Low Drive Green adjustment ("LDG" appears in the screen.) and press [CHANNEL UP/DOWN] buttons to adjust the color temperature.
13. If necessary, adjust the "LDB", "LDR" or "LDG" again.
14. Press [VOLUME DOWN] button to shift to the "Debugging Message" mode.  
If there is no message under "[WB]" section, this adjustment completes.  
If "Drive settings are NG. Retry again." is displayed, repeat above steps from 5. to 13. Then check "Debugging Message" again. If "Drive settings are NG. Retry again." is displayed, replace the LCD Panel or Digital Main CBA.

15. To cancel or to exit from the White Balance Adjustment, press [CH RETURN] or [PREV CH] button.

# HOW TO INITIALIZE THE LCD TV

The purpose of initialization is to place the set in a new out of box condition. The customer will be prompted to select a language and program channels after the set has been initialized.

To put the program back at the factory-default, initialize the LCD TV using the following procedure.

**NOTE:** Disconnect any device from the USB Port before you conduct on this procedure.

1. Turn the power on.
2. Enter the service mode.
  - To cancel the service mode, press [⏻] button on the remote control unit.
3. Press [BACK] button to enter the Control Panel Key Confirmation Menu.
4. Press all buttons on the control panel.
5. Press [INFO] button to proceed with the self check mode.
6. Make sure to confirm the "INITIALIZED: OK" appears in the green screen.
7. Unplug the AC Cord and plug it back on again.

# FIRMWARE RENEWAL MODE

## Equipment Required

- USB storage device
- Remote Control Unit

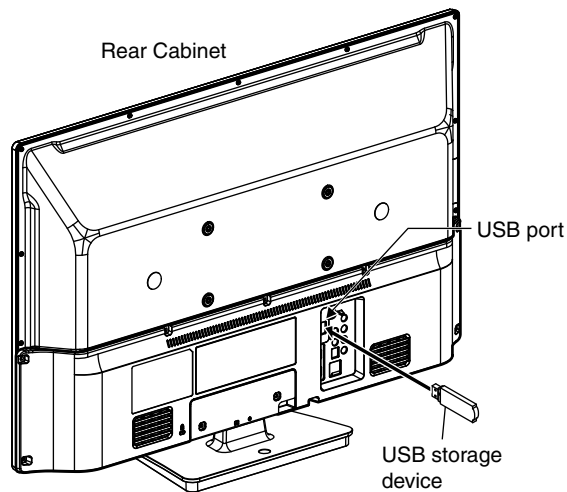
## Firmware Update Procedure

**User Upgrade** (Filename example: PHL-0C0HA\_\*\*\*\_\*.upg)

Upgrade the firmware only. The setting values will not be initialized.

### Update procedure

- Plug the AC Cord and turn the power on.
- Insert the USB storage device to the USB port as shown below.
- Press the [MENU] button on the remote control unit.
- Select "Setup" and press the [OK] button to display the setup menu.
- Select "Update software" and press the [OK] button on the remote control unit.
- Select "USB" and press the [OK] button on the remote control unit to enter the update mode. Update file selection screen appears as follows. (Files included in the USB storage device are displayed.)
- Select the file and press [OK] button.
- The update will start and the following will appear in the screen.



"\*" differs depending on the models.

Software update			
Current Version		***_***** ** *	
New Version		***_***** ** *	
Are you sure you want to update?			
1	2	No	Yes
			3 4

### Note:

If the above screen isn't displayed, repeat from step 1.

- Select "Yes" and press the [OK] button to update.

### Note:

Do not remove the USB storage device or turn the TV off while update is in progress.

- When the firmware update is completed, the following will appear in the screen.

"\*" differs depending on the models.

Software update			
Software update is successful.			
Please remove the USB storage device and restart the TV set.			
1	2	3	4

Remove the USB storage device from the USB port.  
Turn the power off and turn the power on again.

"\*" differs depending on the models.

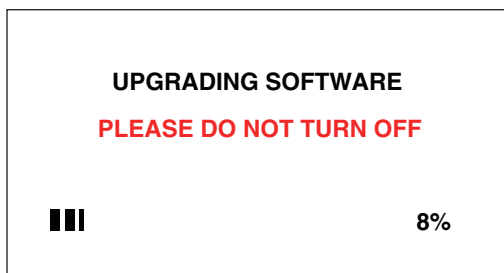
Software update			
Select a file		***_***** ** *.upg	
1	Cancel	2	3 4

### Note:

To cancel the update mode, select "Cancel" and press the [OK] button.



11. Updating software is started, the following will appear in the screen.

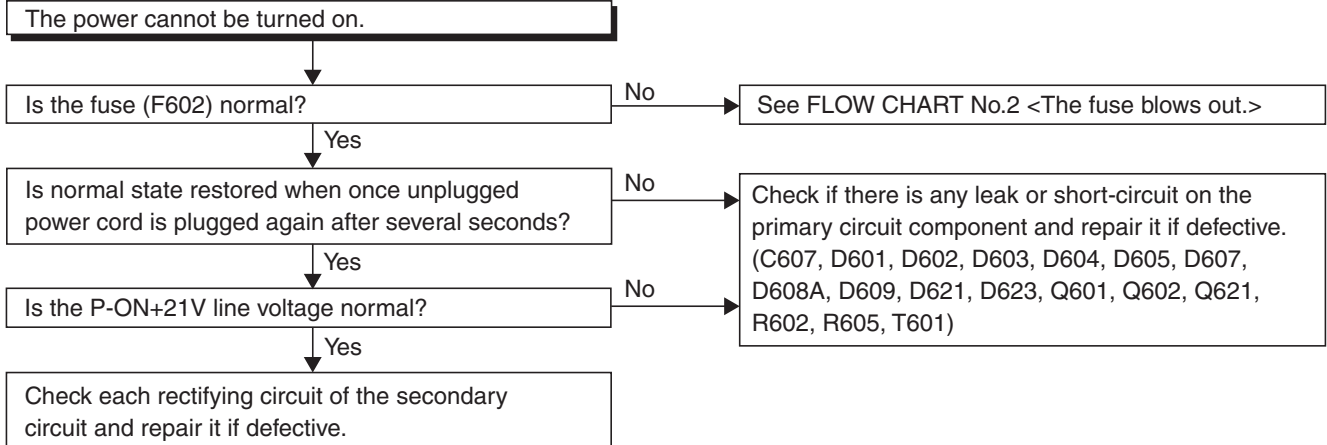


12. After finished the updating software, TV set will automatically reboot

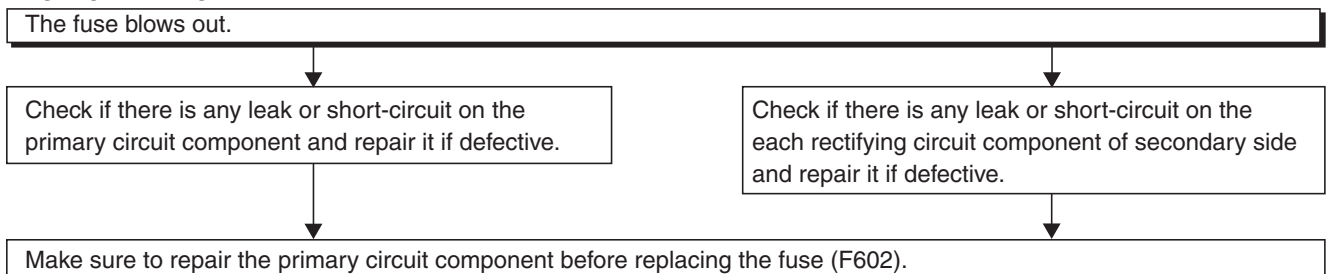
# TROUBLESHOOTING

## [Power Supply Section]

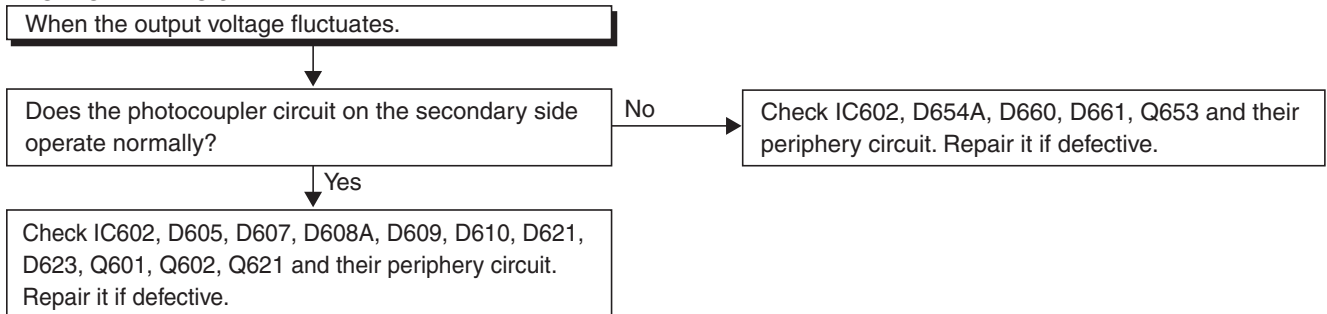
### FLOW CHART NO.1



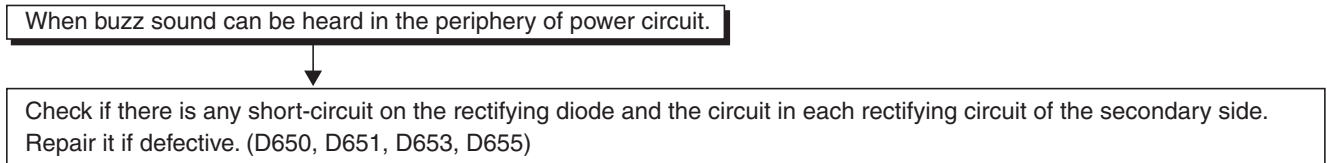
### FLOW CHART NO.2



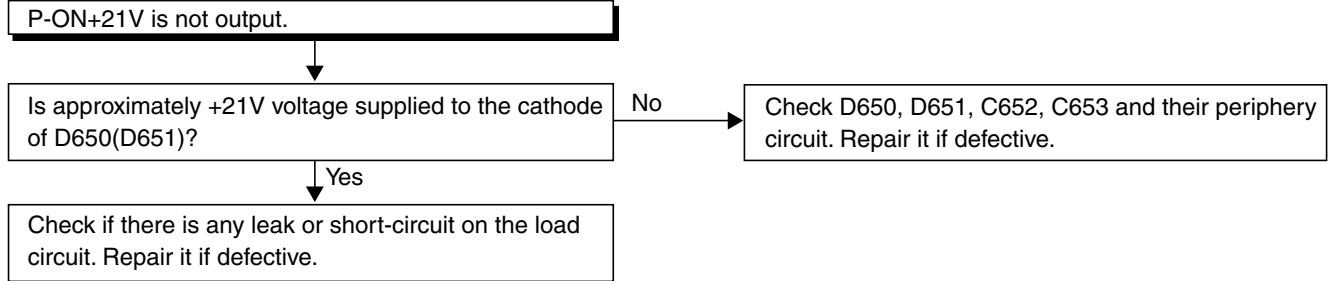
### FLOW CHART NO.3



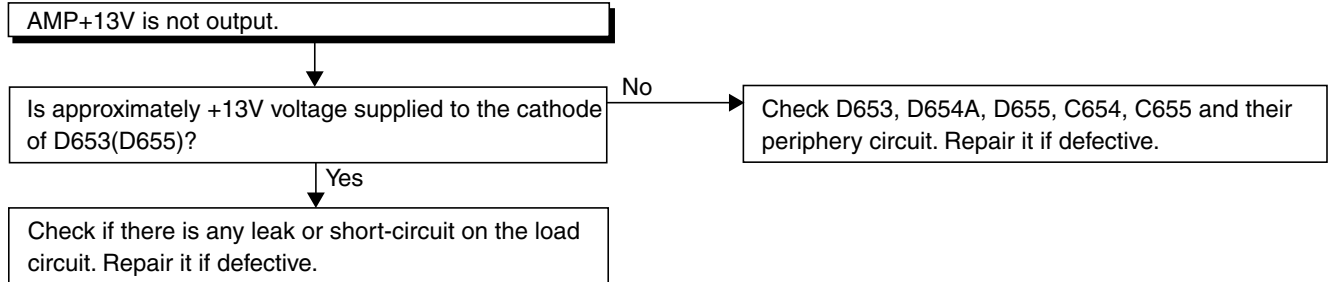
### FLOW CHART NO.4



#### FLOW CHART NO.5

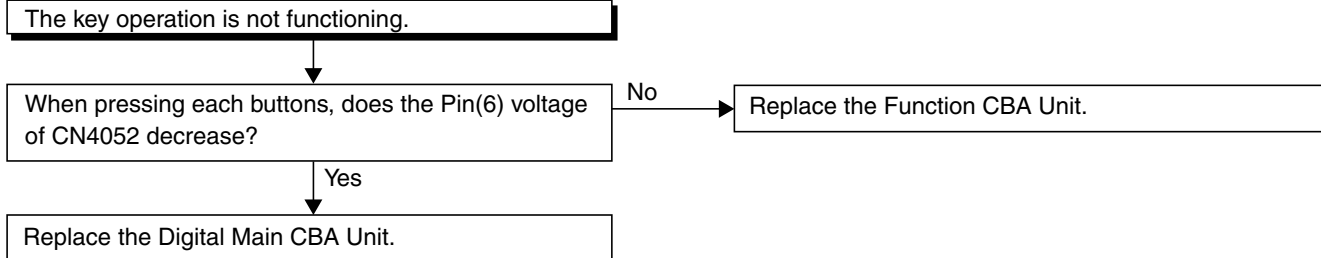


#### FLOW CHART NO.6

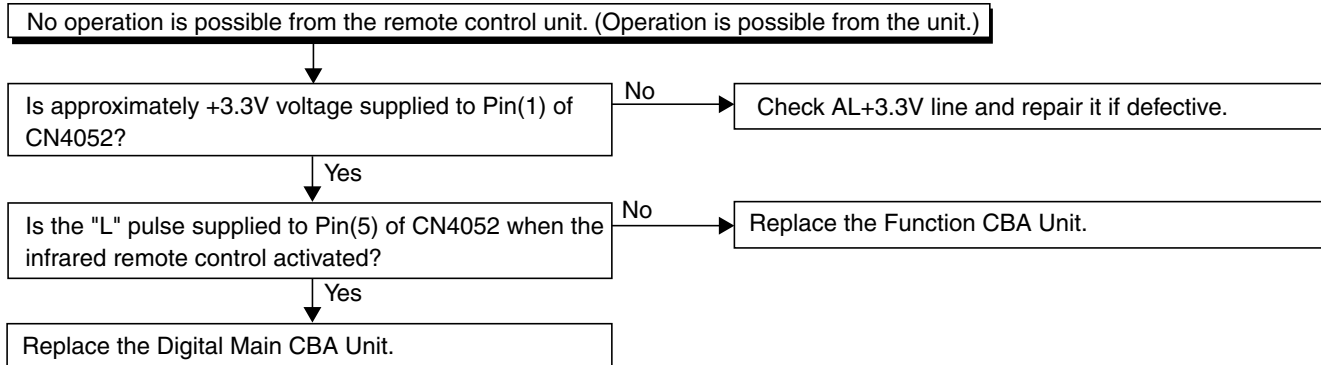


## [Video Signal Section]

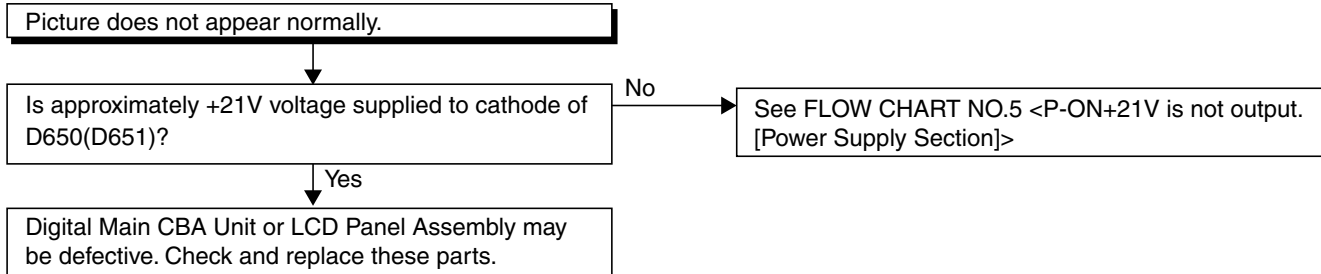
### FLOW CHART NO.1



### FLOW CHART NO.2

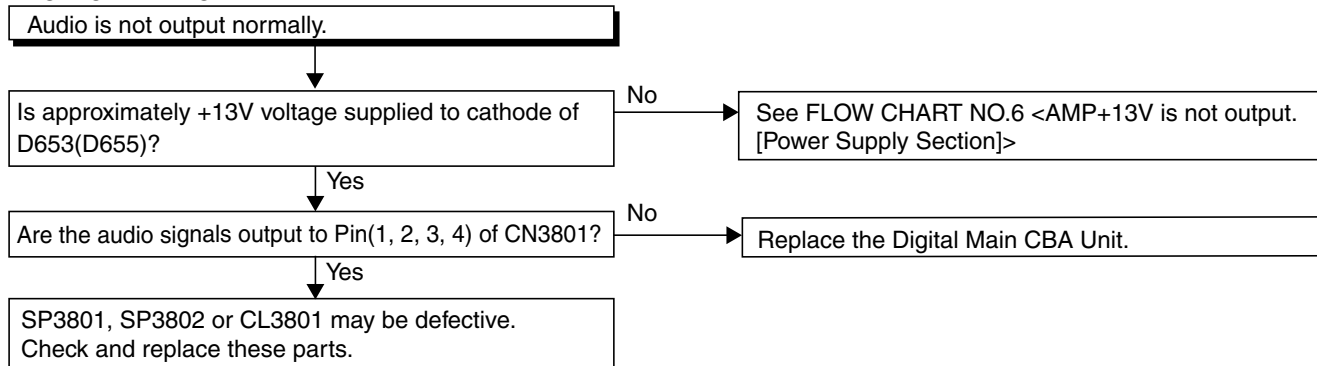


### FLOW CHART NO.3



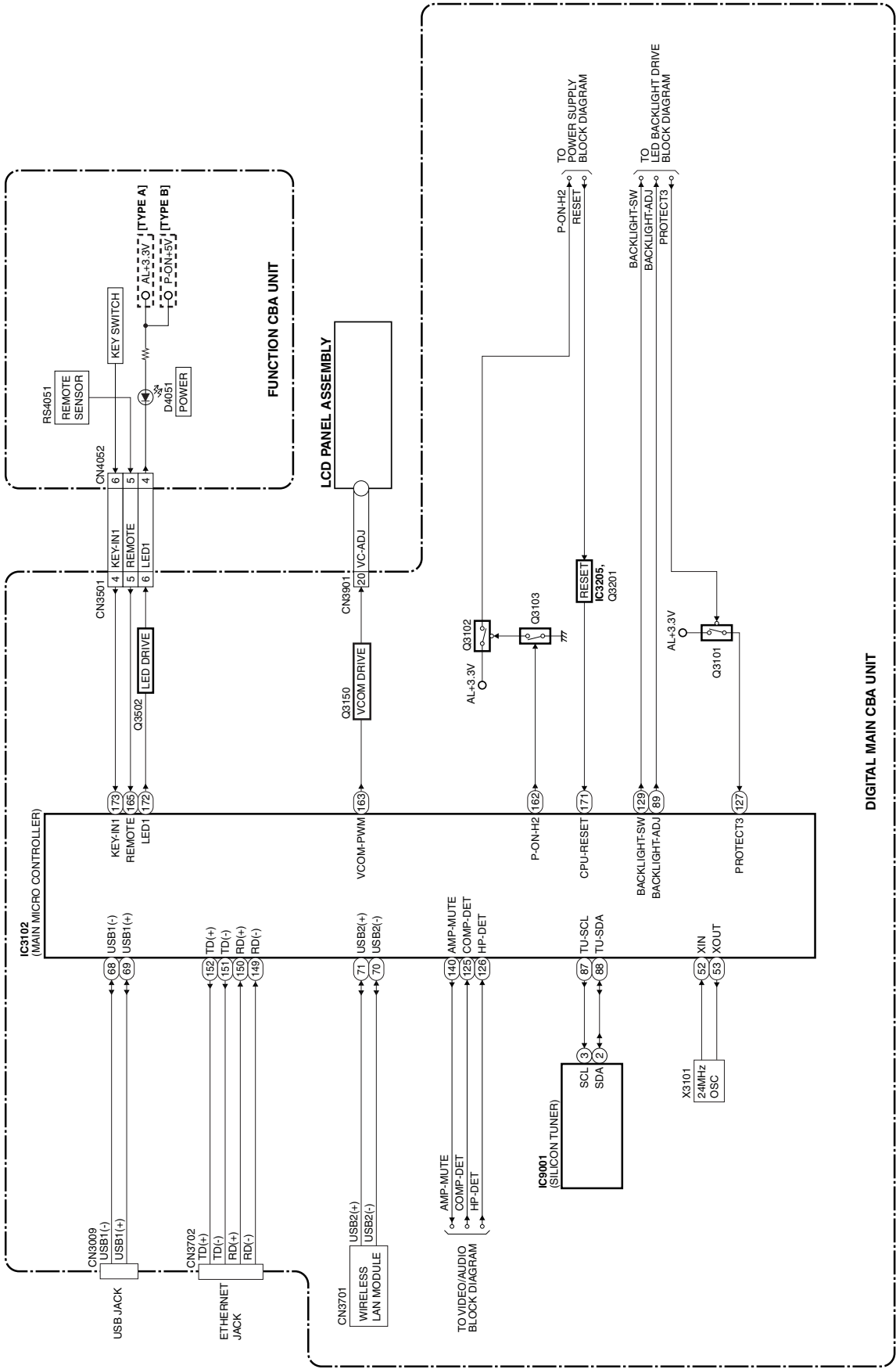
## [Audio Signal Section]

### FLOW CHART NO.1

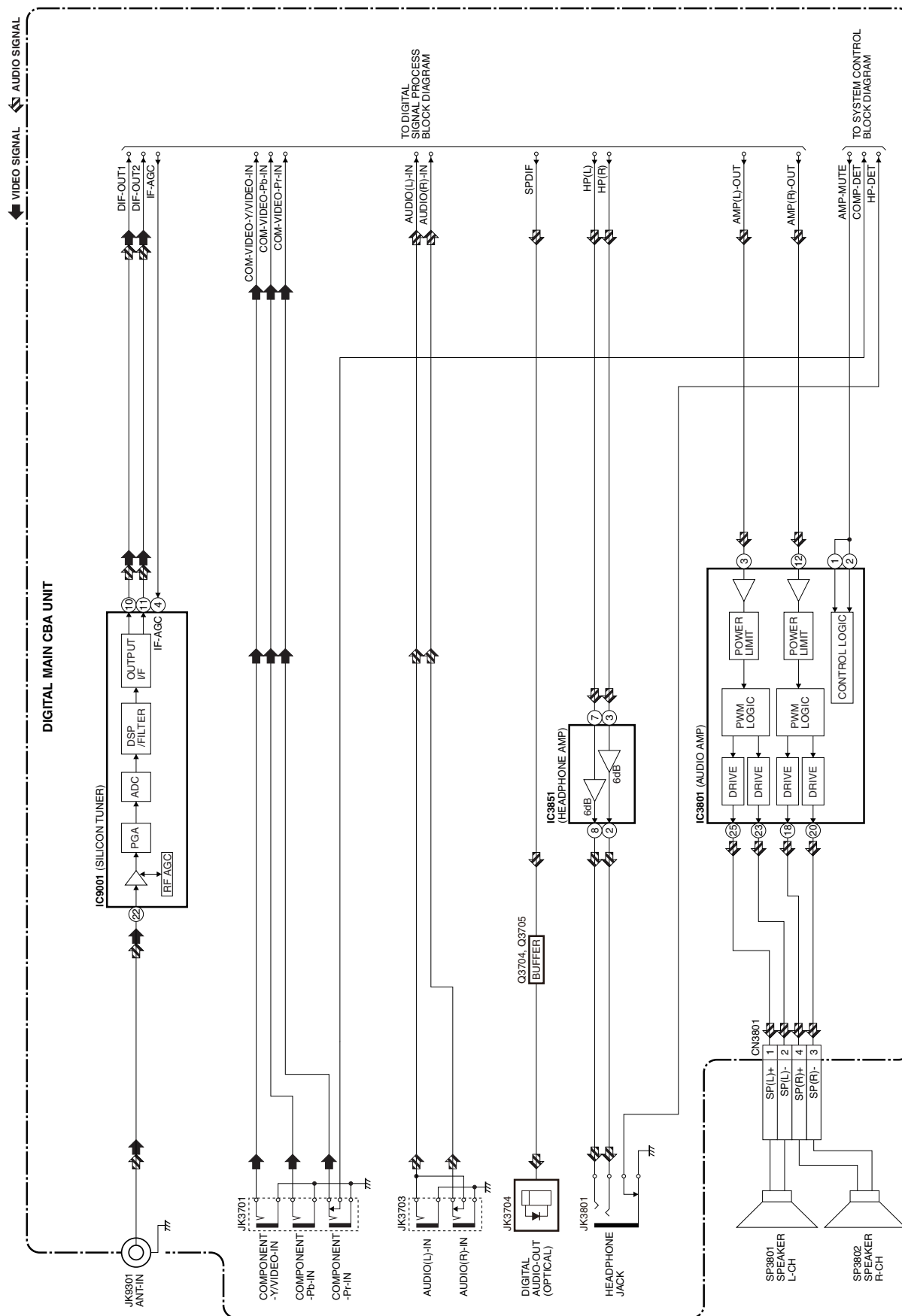


# BLOCK DIAGRAMS

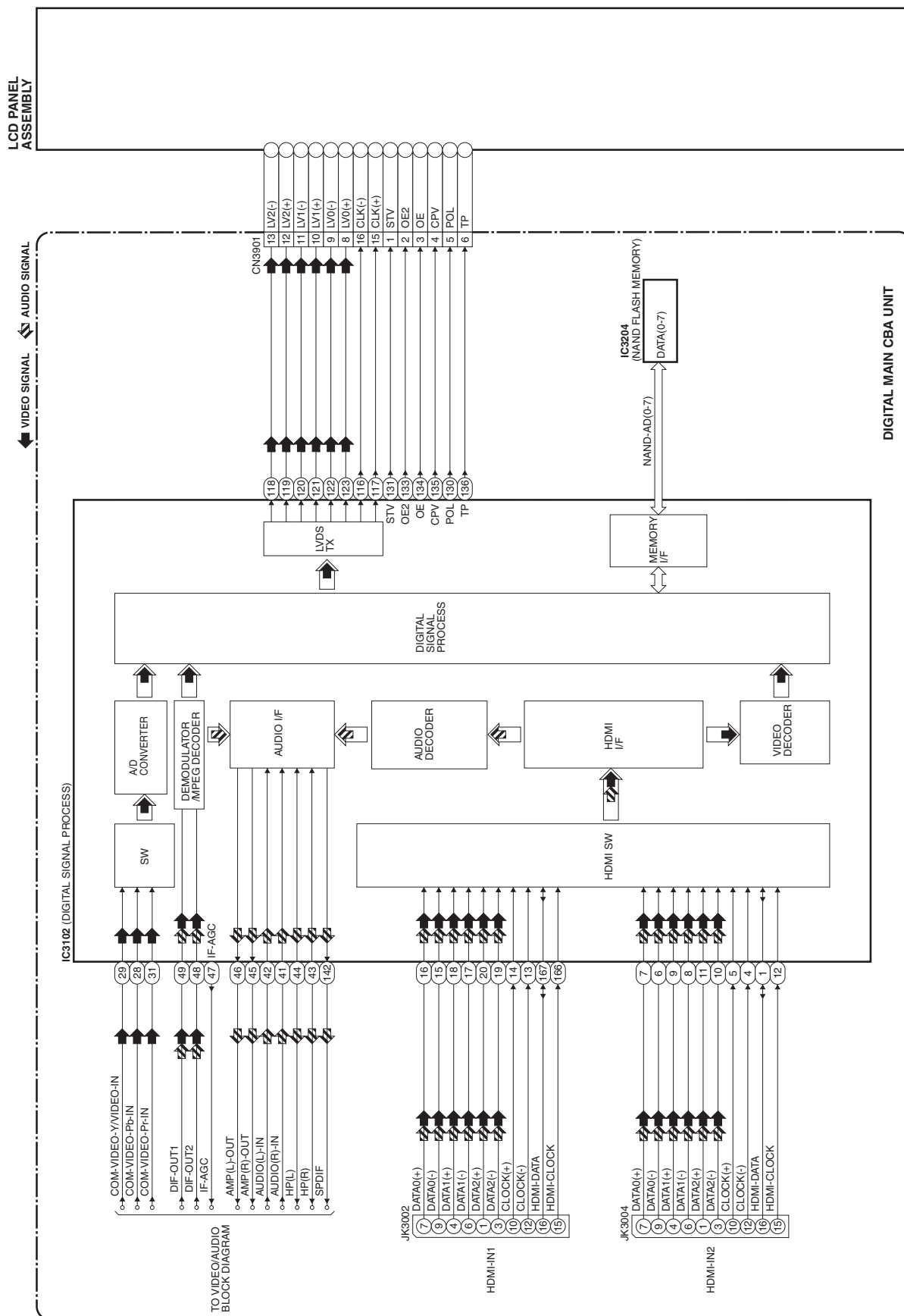
## 1. System Control Block Diagram



## 2. Video/Audio Block Diagram

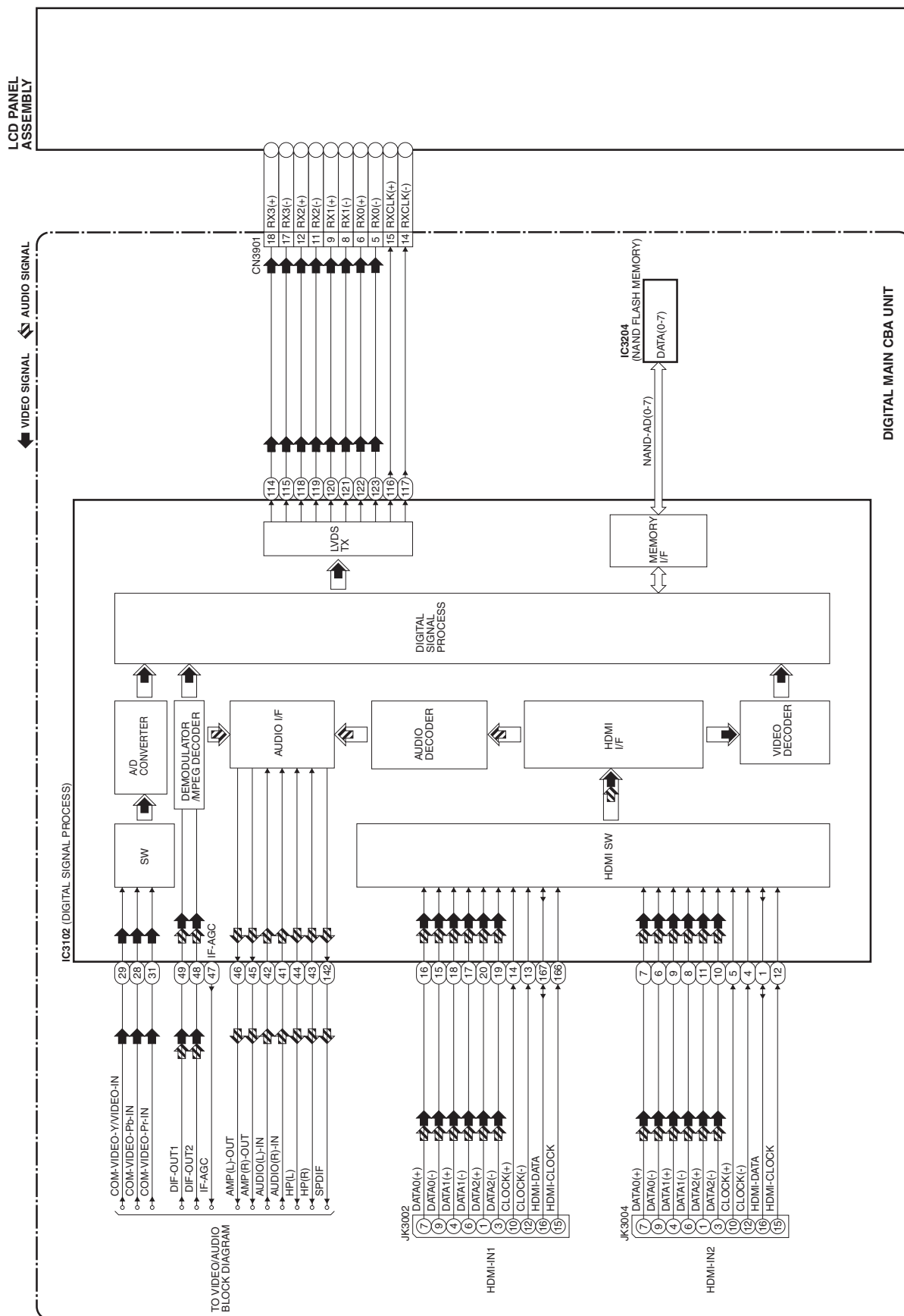


### 3. Digital Signal Process Block Diagram [TYPE A]

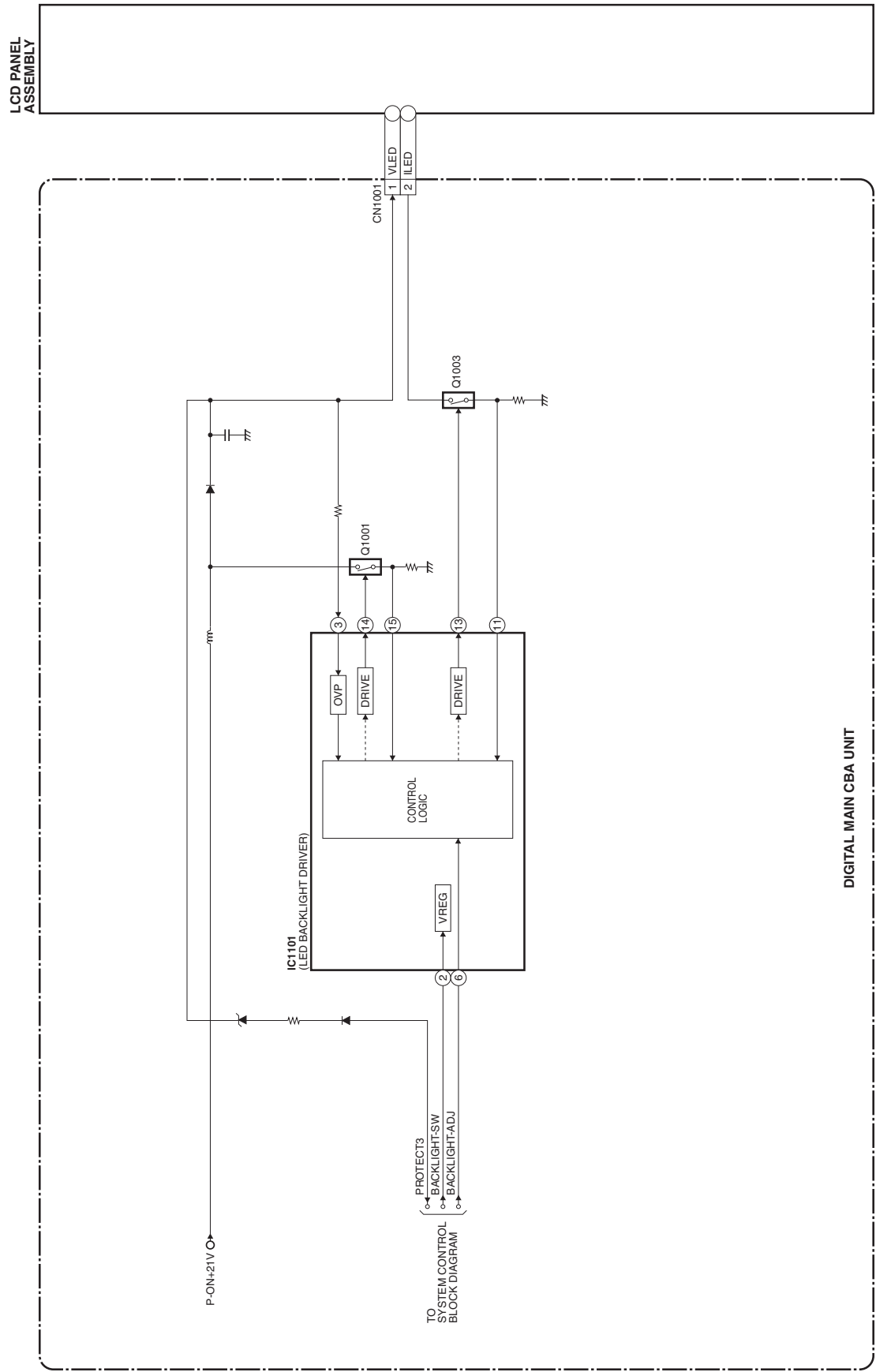




### 3. Digital Signal Process Block Diagram [TYPE B]



# 4. LED Backlight Drive Block Diagram



## 5. Power Supply Block Diagram

### CAUTION !

Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.  
If Main Fuse (F602) 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.

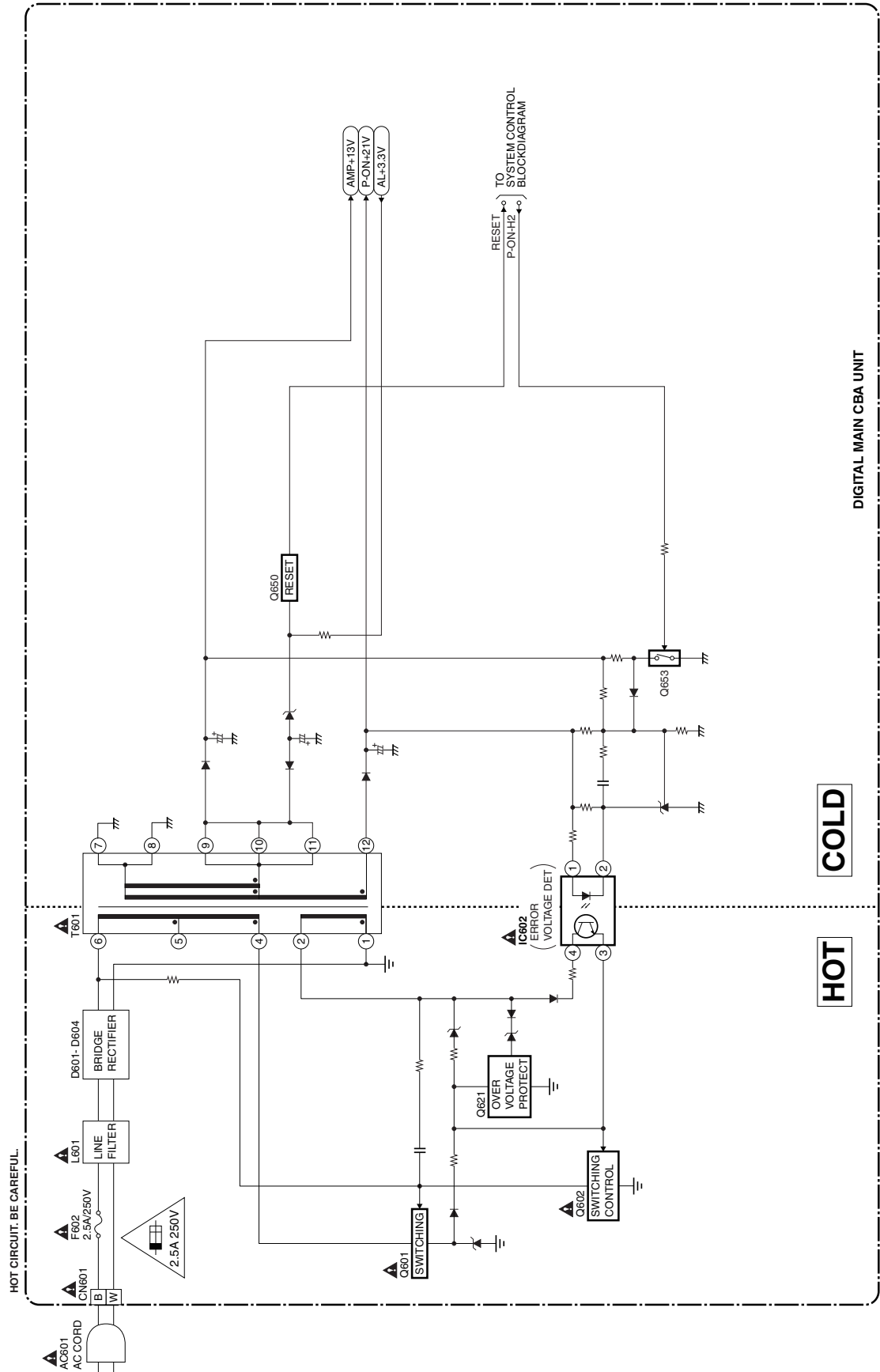


**CAUTION ! :** For continued protection against risk of fire,  
replace only with same type 2.5A, 250V fuse.

**ATTENTION :** Utiliser un fusible de rechange de même type de 2.5A, 250V.

### NOTE:

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



# SCHEMATIC DIAGRAMS / CBA AND TEST POINTS

## Standard Notes

### WARNING

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.

### Notes:

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.
6. This schematic diagrams are masterized version that should cover the entire PL16.00 chassis models.  
Thus some parts in detail illustrated on this schematic diagrams may vary depend on the model within the PL16.00 chassis.  
Please refer to the parts lists for each models.
7. The Circuit Board layout illustrated on this service manual is the latest version for this chassis at the moment of making this service manual.  
Depend on the mass production date of each model, the actual layout of each Board may differ slightly from this version.

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

### 1. CAUTION:

**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.

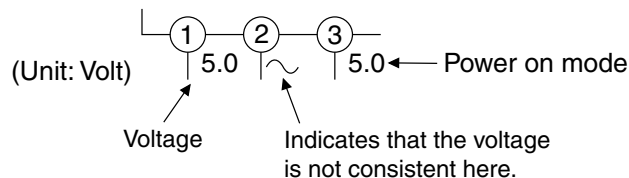
If Main Fuse (F602) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

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

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

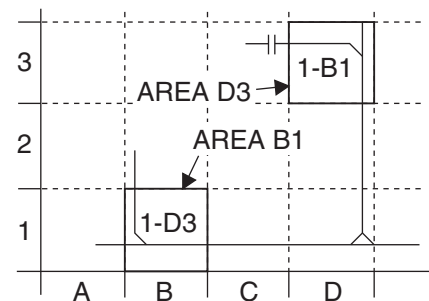


### 5. How to read converged lines

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

Examples:

1. "1-D3" means that line number "1" goes to the line number "1" of the area "D3".
2. "1-B1" means that line number "1" goes to the line number "1" of the area "B1".



### 6. 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.

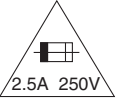
⊗ : Used to indicate a test point with no test pin.

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

The reference number of parts on Schematic Diagrams/CBA can be retrieved by application search function.

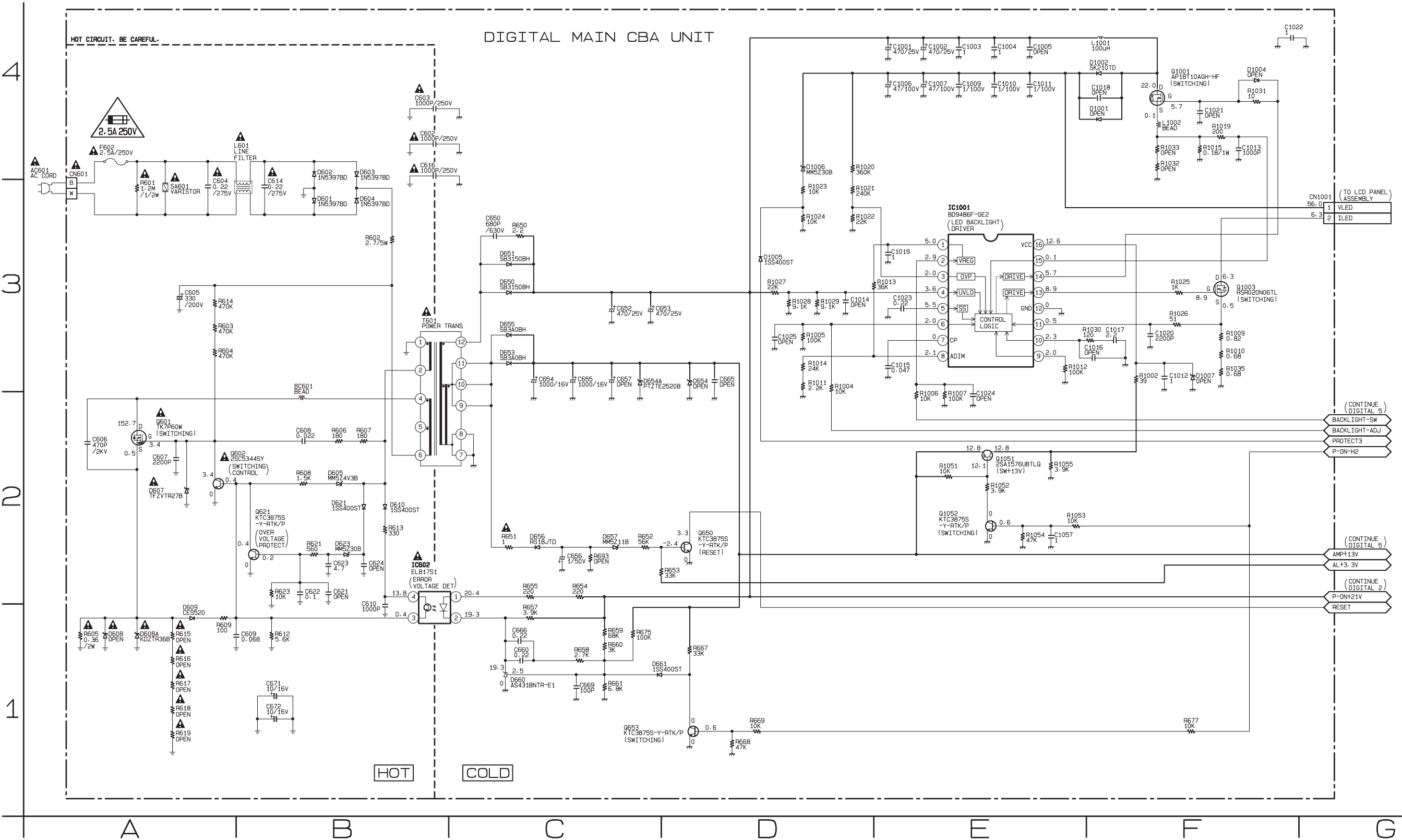
# Digital Main 1 Schematic Diagram [TYPE A]

**CAUTION !**  
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.  
If Main Fuse (F602) 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.



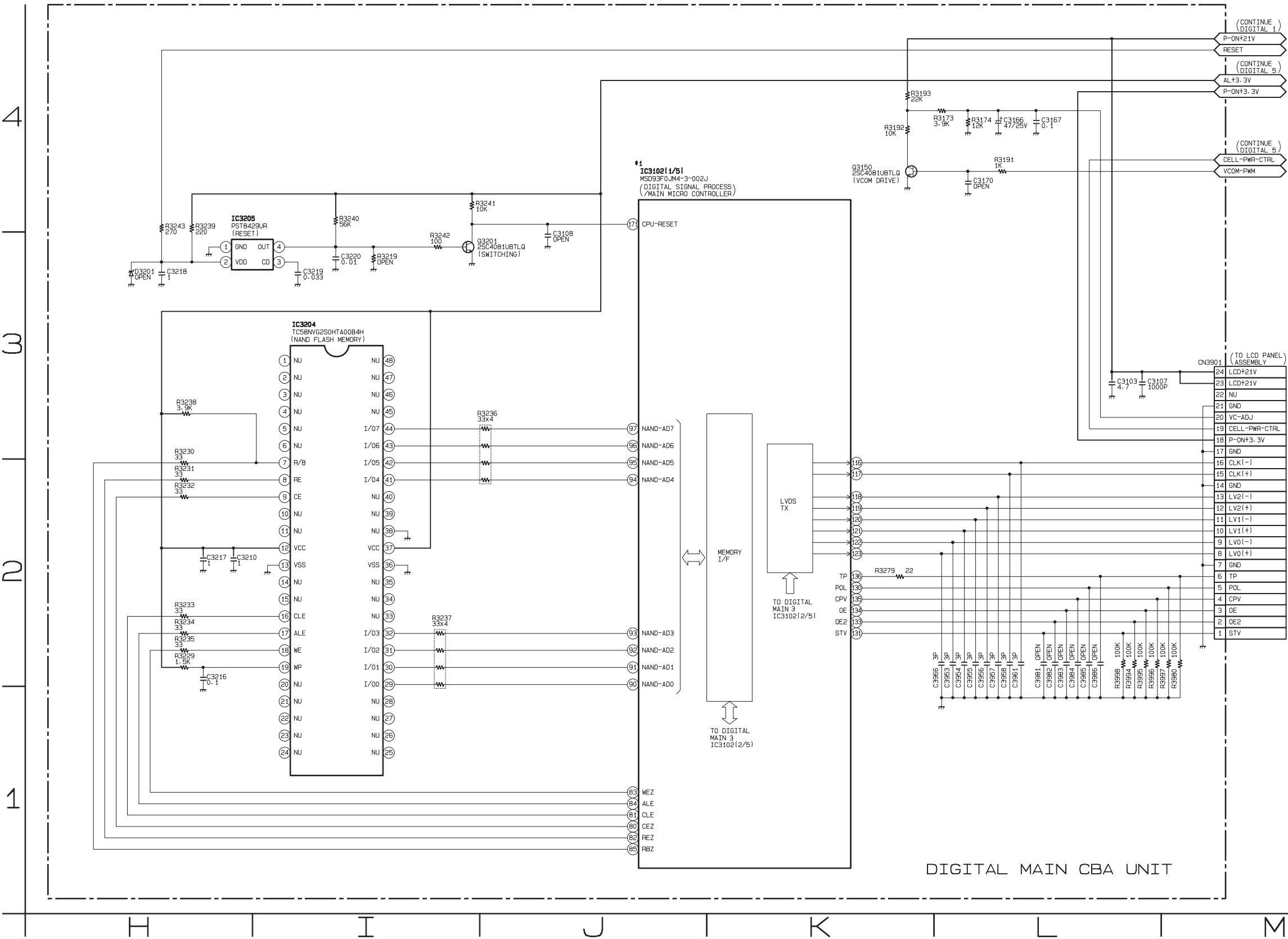
**CAUTION ! :** For continued protection against risk of fire,  
replace only with same type 2.5A, 250V fuse.  
**ATTENTION :** Utiliser un fusible de rechange de même type de 2.5A, 250V.

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



Digital Main 2 Schematic Diagram [TYPE A]

\*1 NOTE:  
The order of pins shown in this diagram is different from that of actual IC3102.  
IC3102 is divided into five and shown as IC3102 (1/5) ~ IC3102 (5/5) in this Digital Main Schematic Diagram Section.

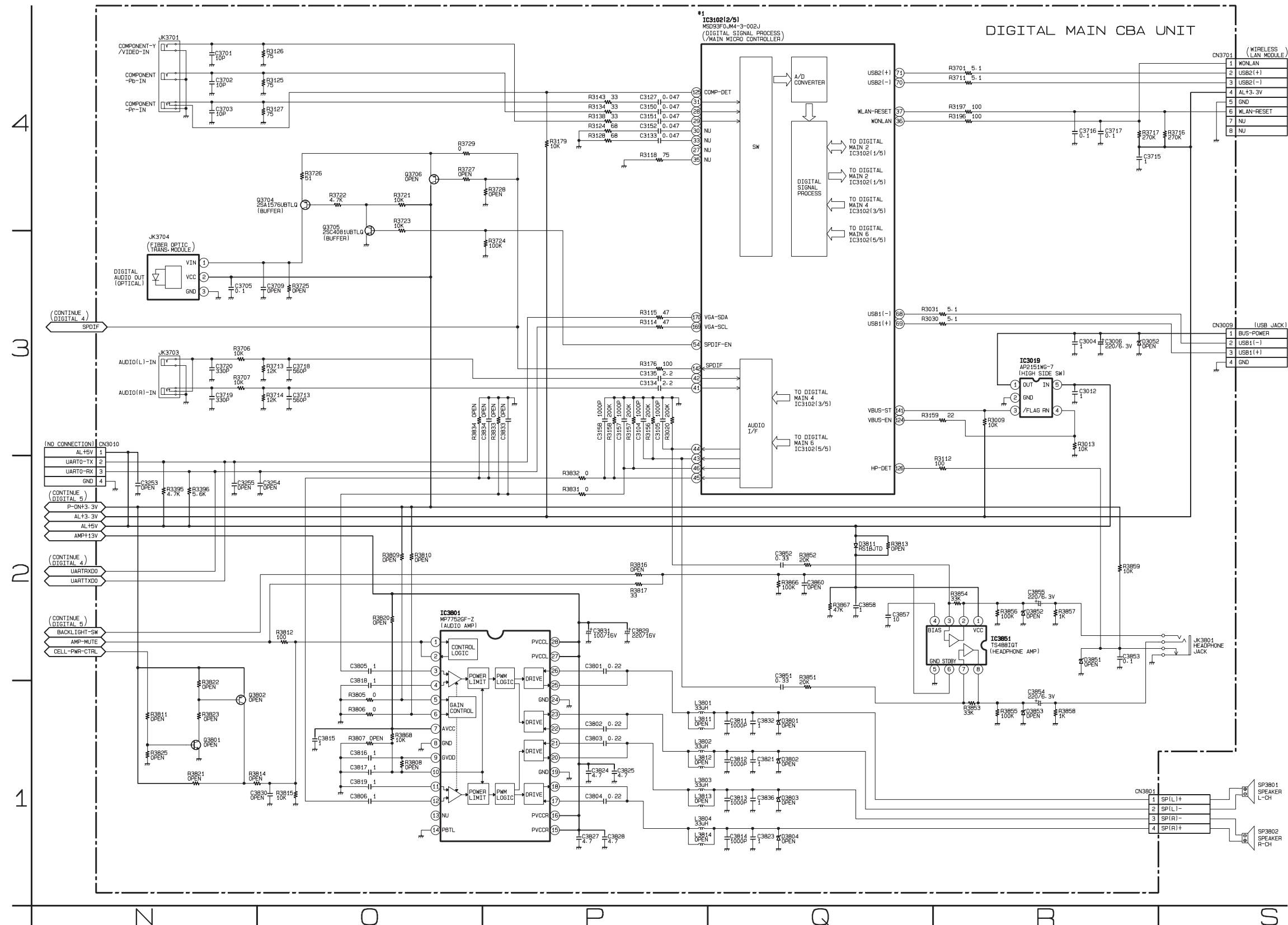


### Digital Main 3 Schematic Diagram [TYPE A]

**\*1 NOTE:**

The order of pins shown in this diagram is different from that of actual IC3102.

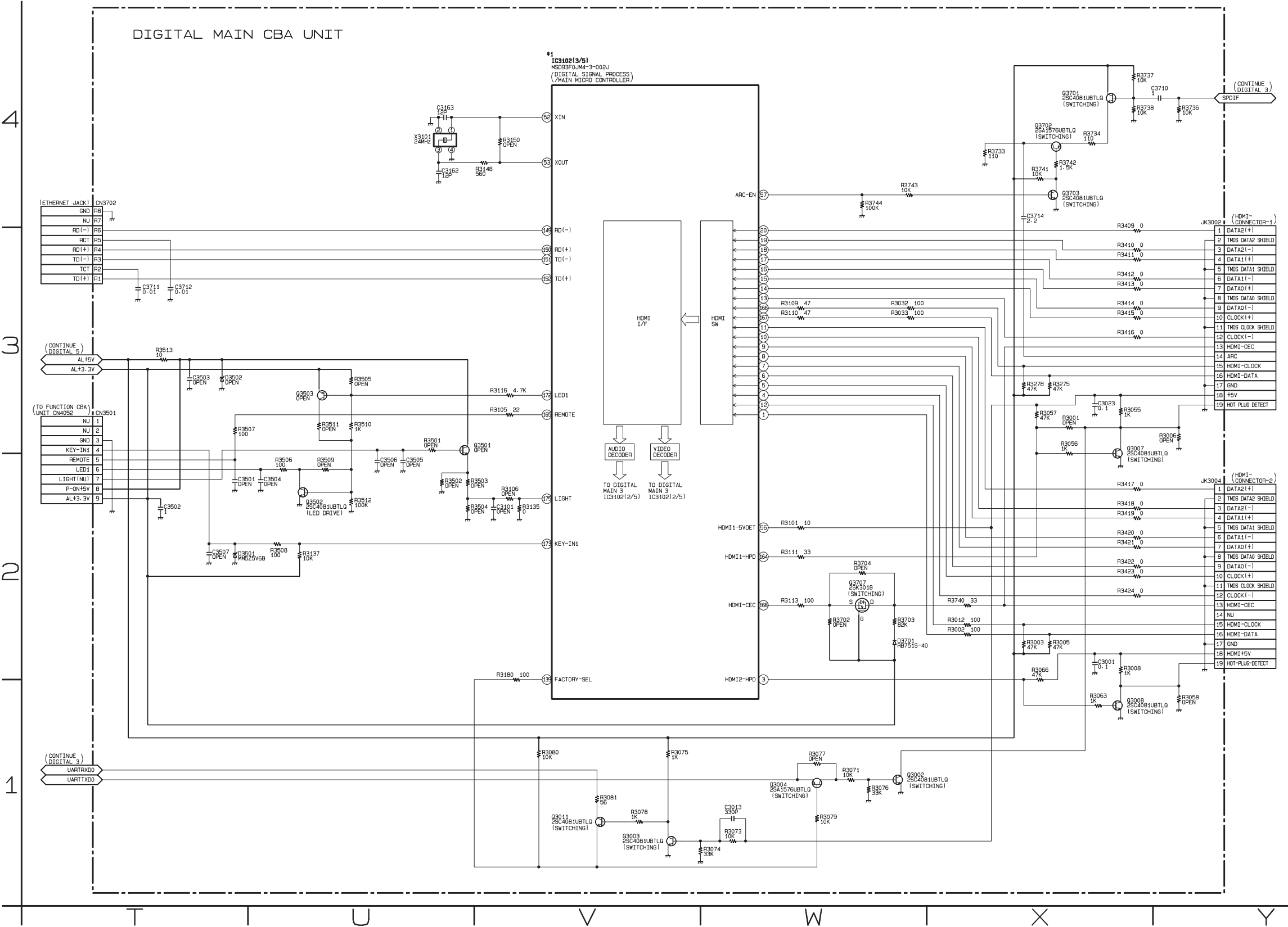
IC3102 is divided into five and shown as IC3102 (1/5) ~ IC3102 (5/5) in this Digital Main Schematic Diagram Section.





Digital Main 4 Schematic Diagram [TYPE A]

\*1 NOTE:  
The order of pins shown in this diagram is different from that of actual IC3102.  
IC3102 is divided into five and shown as IC3102 (1/5) ~ IC3102 (5/5) in this Digital Main Schematic Diagram Section.

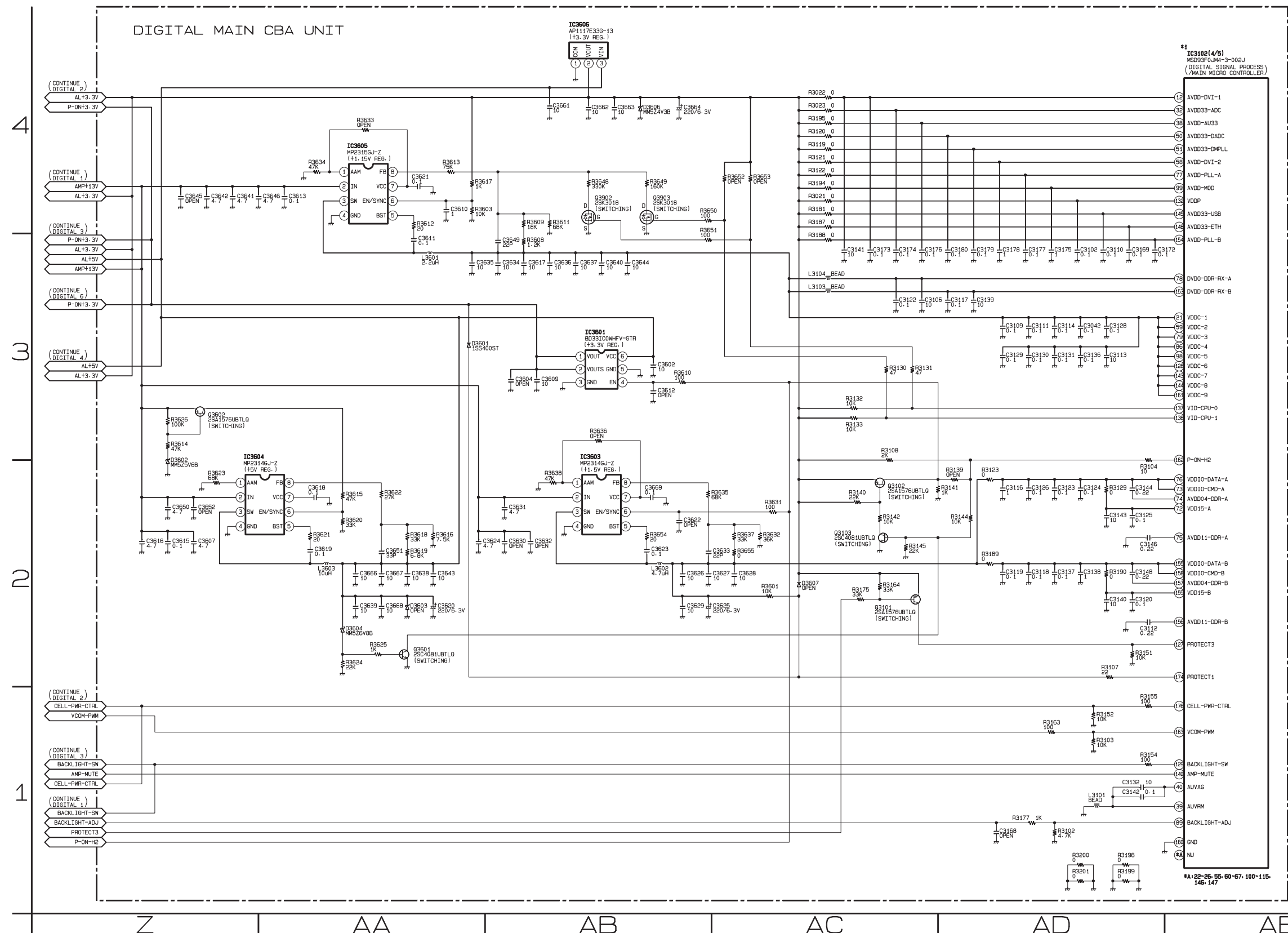


### Digital Main 5 Schematic Diagram [TYPE A]

**\*1 NOTE:**

The order of pins shown in this diagram is different from that of actual IC3102.

IC3102 is divided into five and shown as IC3102 (1/5) ~ IC3102 (5/5) in this Digital Main Schematic Diagram Section.

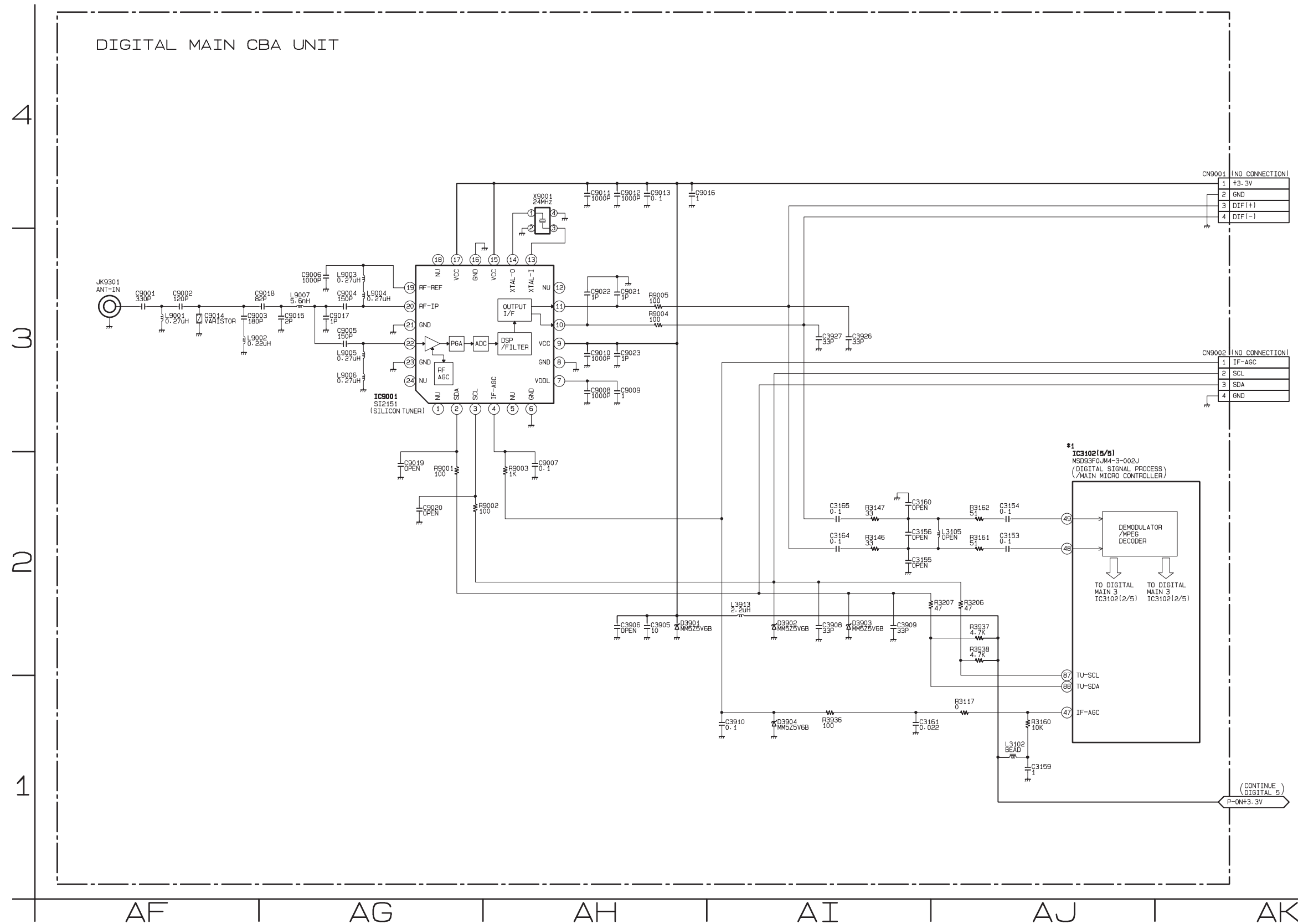


### Digital Main 6 Schematic Diagram [TYPE A]

**\*1 NOTE:**

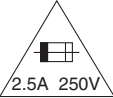
The order of pins shown in this diagram is different from that of actual IC3102.

IC3102 is divided into five and shown as IC3102 (1/5) ~ IC3102 (5/5) in this Digital Main Schematic Diagram Section.



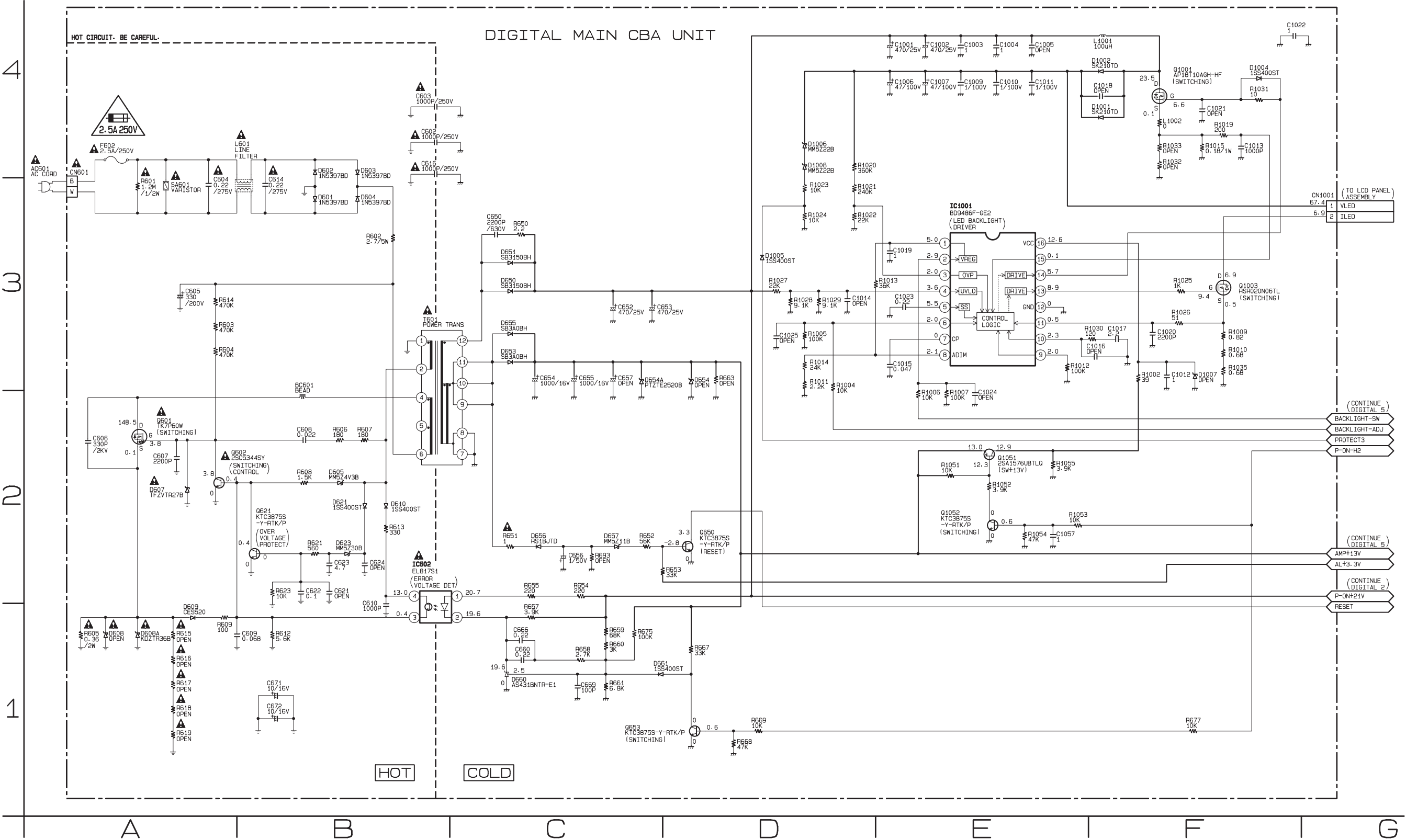
Digital Main 1 Schematic Diagram [TYPE B]

**CAUTION !**  
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.  
If Main Fuse (F602) 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 2.5A, 250V fuse.  
**ATTENTION :** Utiliser un fusible de rechange de même type de 2.5A, 250V.

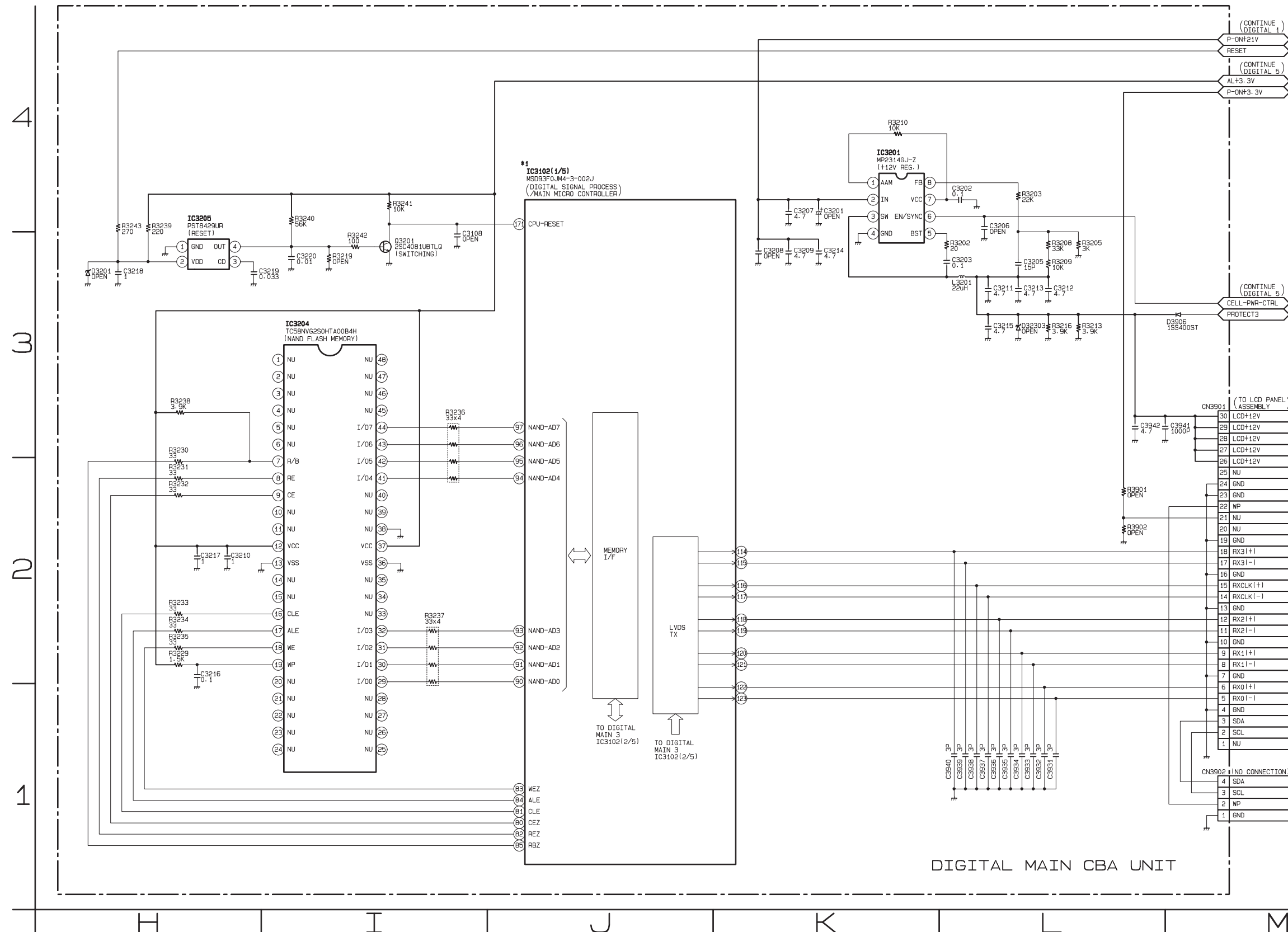
**NOTE:**  
The voltage for parts in hot circuit is measured using  
hot GND as a common terminal.



### Digital Main 2 Schematic Diagram [TYPE B]

**\*1 NOTE:**

The order of pins shown in this diagram is different from that of actual IC3102.  
IC3102 is divided into five and shown as IC3102 (1/5) ~ IC3102 (5/5) in this Digital Main Schematic Diagram Section.

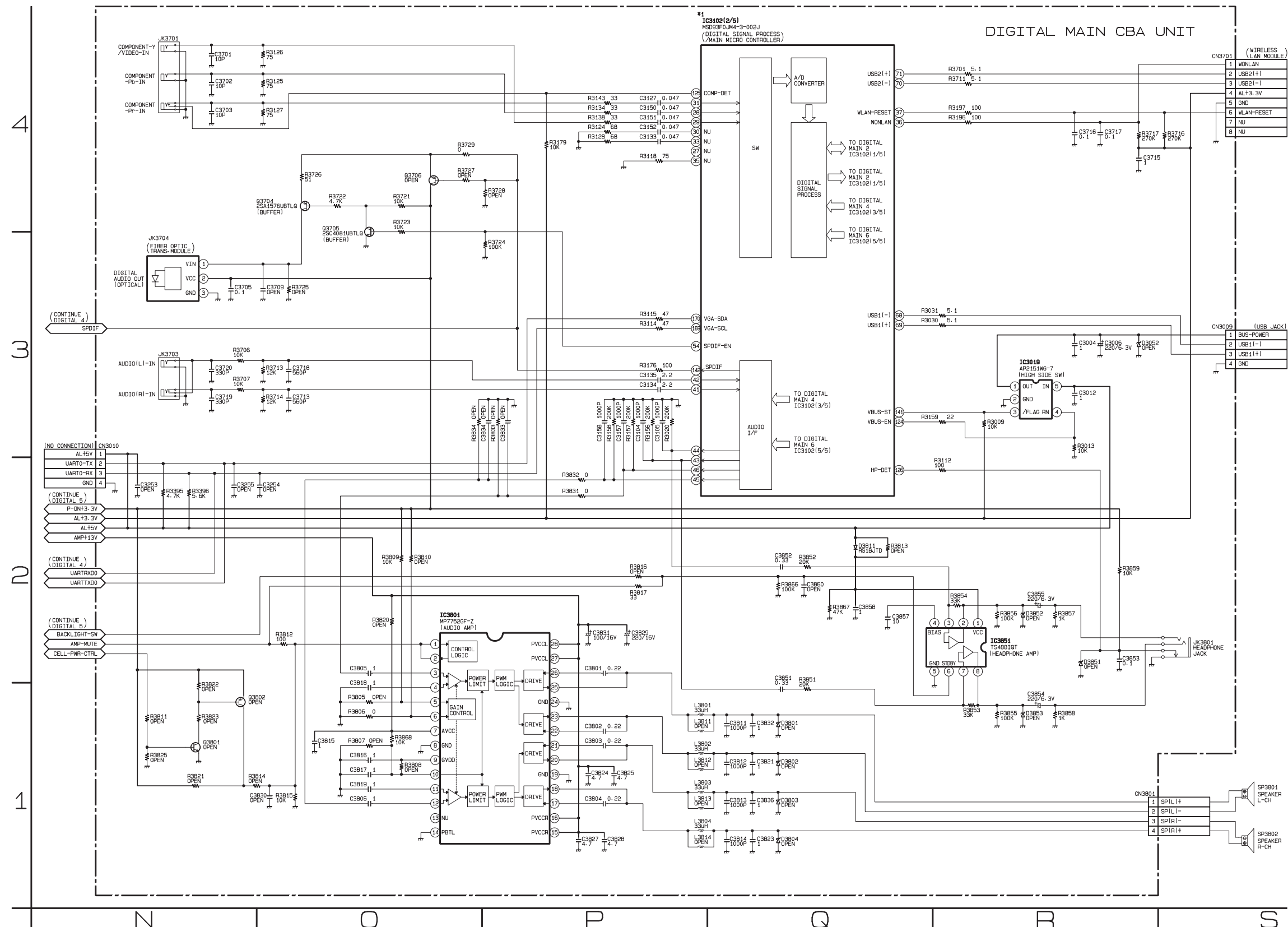


### Digital Main 3 Schematic Diagram [TYPE B]

**\*1 NOTE:**

The order of pins shown in this diagram is different from that of actual IC3102.

IC3102 is divided into five and shown as IC3102 (1/5) ~ IC3102 (5/5) in this Digital Main Schematic Diagram Section.

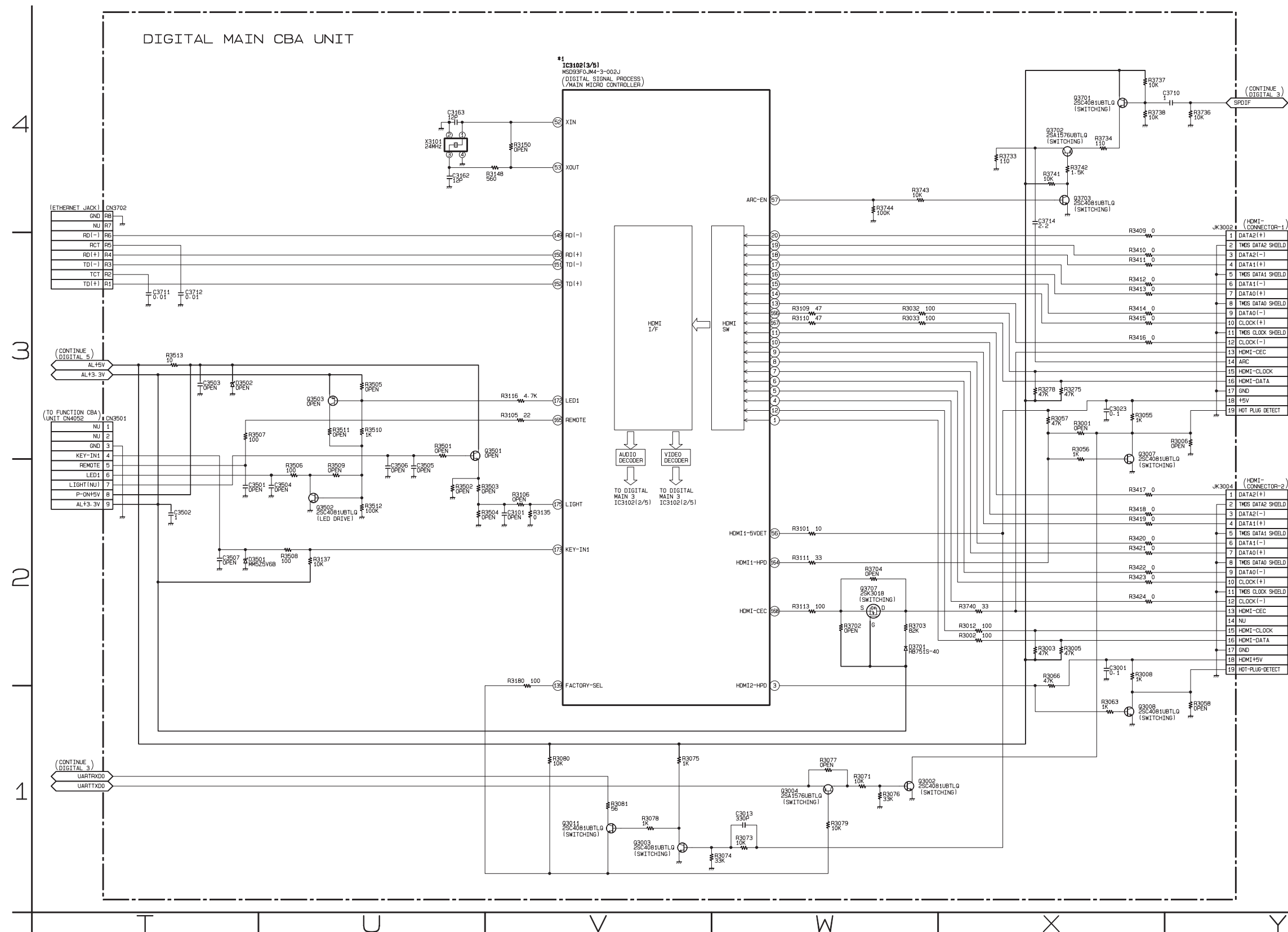


### Digital Main 4 Schematic Diagram [TYPE B]

**\*1 NOTE:**

The order of pins shown in this diagram is different from that of actual IC3102.

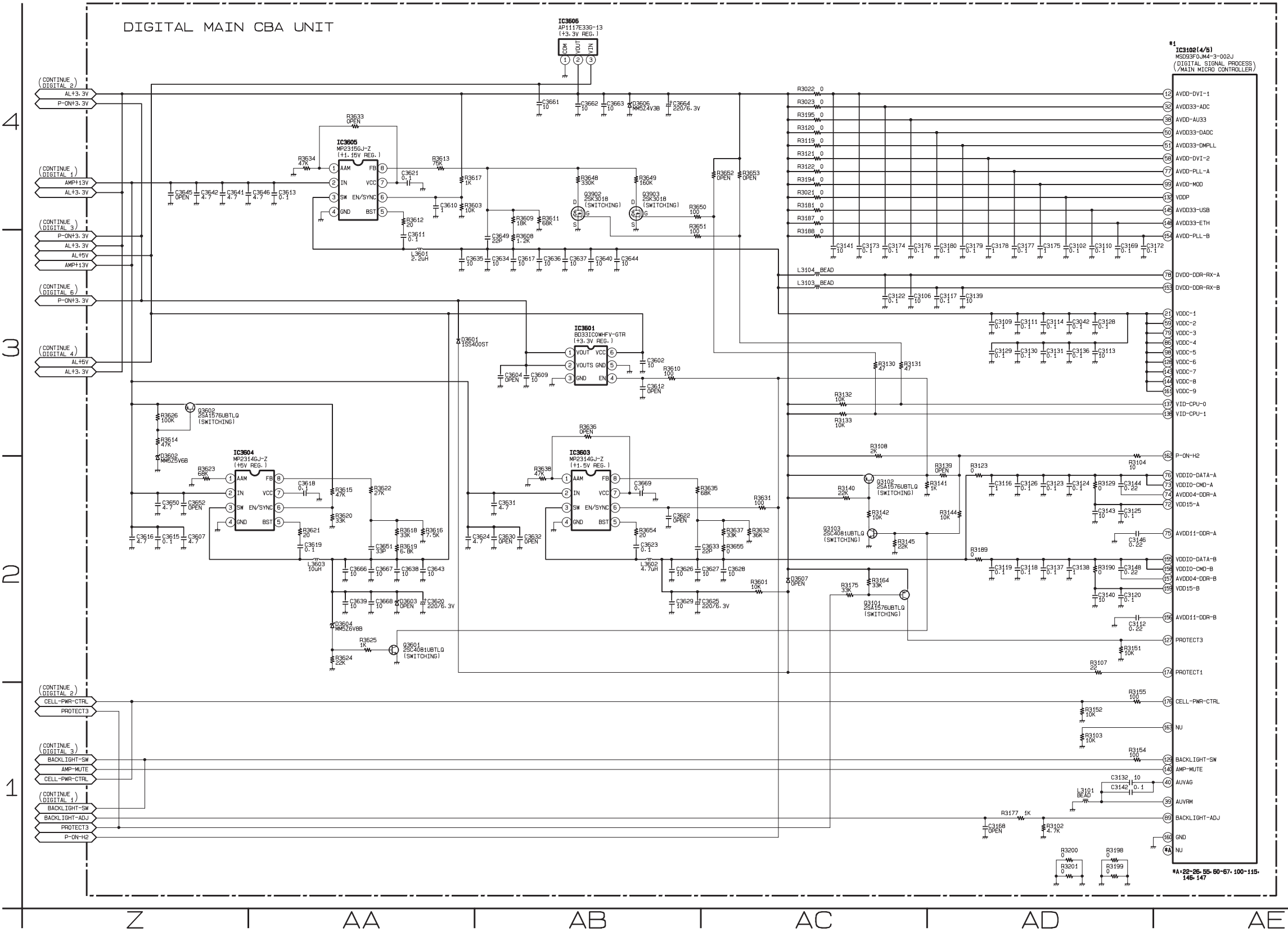
IC3102 is divided into five and shown as IC3102 (1/5) ~ IC3102 (5/5) in this Digital Main Schematic Diagram Section.





Digital Main 5 Schematic Diagram [TYPE B]

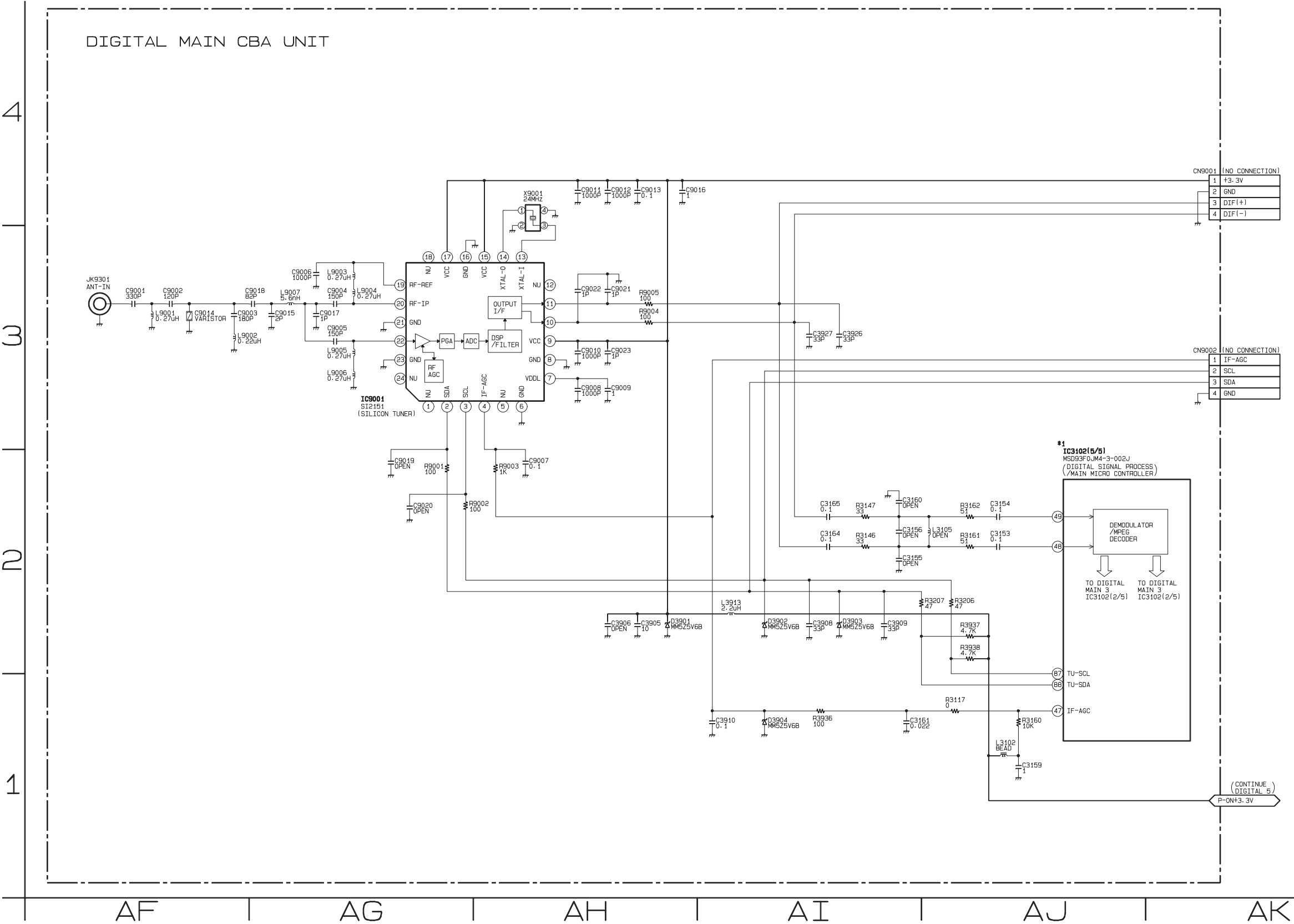
\*1 NOTE:  
The order of pins shown in this diagram is different from that of actual IC3102.  
IC3102 is divided into five and shown as IC3102 (1/5) ~ IC3102 (5/5) in this Digital Main Schematic Diagram Section.



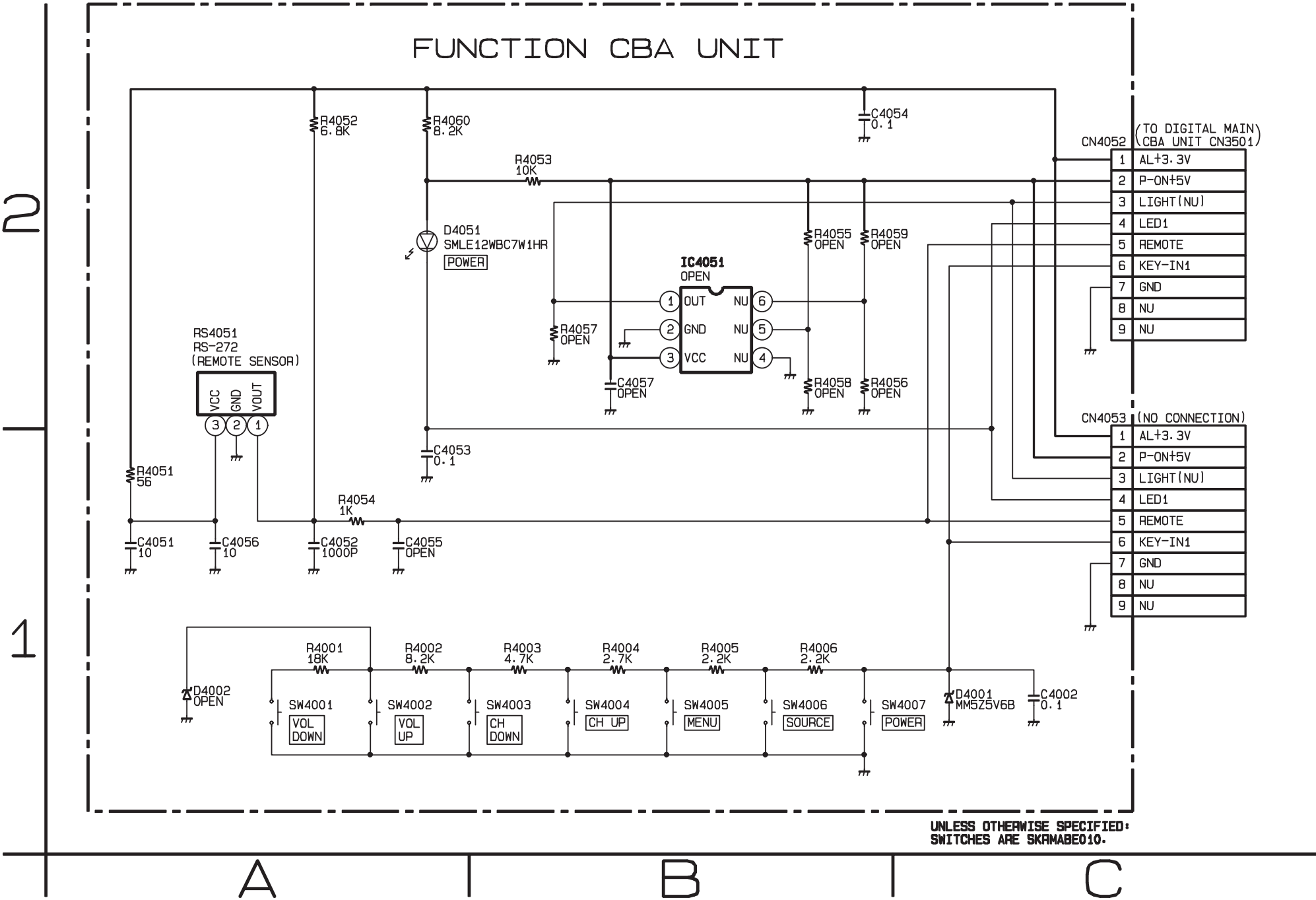


Digital Main 6 Schematic Diagram [TYPE B]

\*1 NOTE:  
The order of pins shown in this diagram is different from that of actual IC3102.  
IC3102 is divided into five and shown as IC3102 (1/5) ~ IC3102 (5/5) in this Digital Main Schematic Diagram Section.

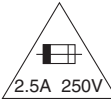


Function Schematic Diagram



Digital Main CBA Top View [TYPE A]

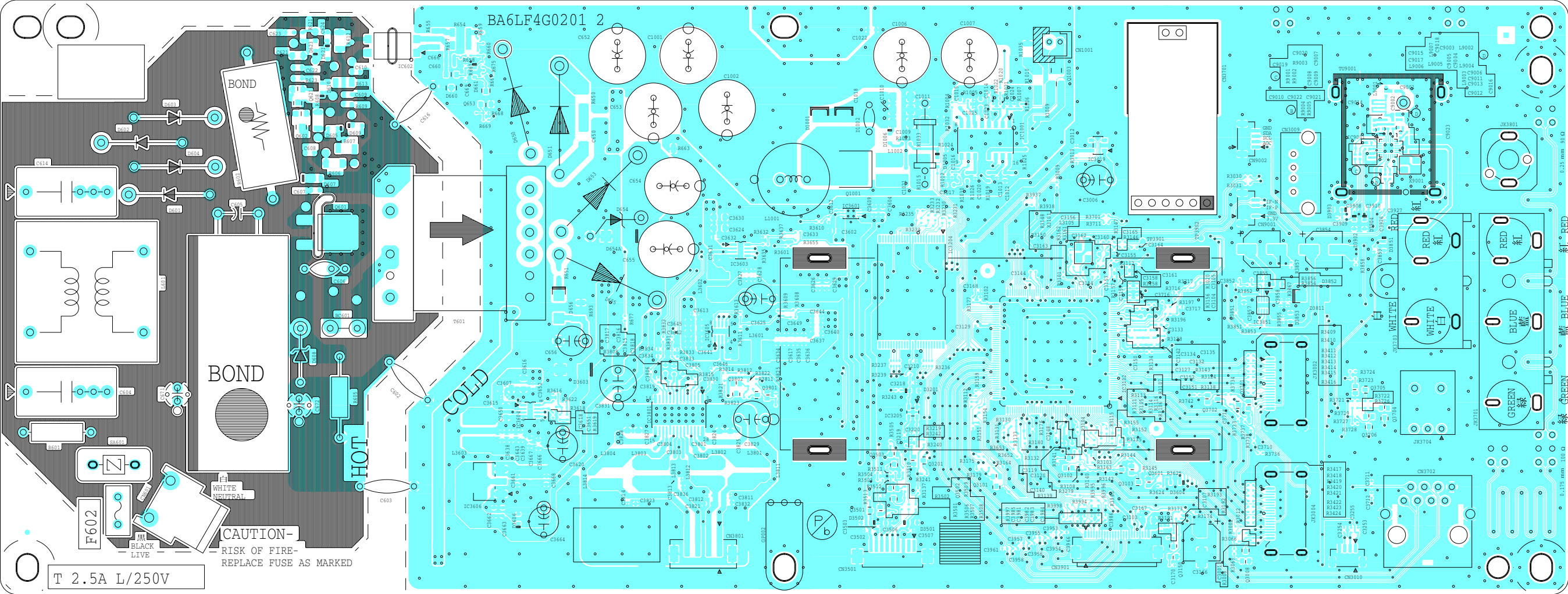
**CAUTION !**  
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.  
If Main Fuse (F602) is blown , check to see that all components in the power supply  
circuit are not defective before you connect the AC plug to the AC power supply.  
Otherwise it may cause some components in the power supply circuit to fail.



**CAUTION ! :** For continued protection against risk of fire,  
replace only with same type 2.5A, 250V fuse.  
**ATTENTION :** Utiliser un fusible de rechange de même type de 2.5A, 250V.

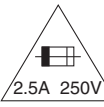
Because a hot chassis ground is present in the power supply  
circuit, an isolation transformer must be used when repairing.  
Also, in order to have the ability to increase the input slowly,  
when troubleshooting this type of power supply circuit,  
a variable isolation transformer is required.

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



Digital Main CBA Bottom View [TYPE A]

**CAUTION !**  
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.  
If Main Fuse (F602) 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.



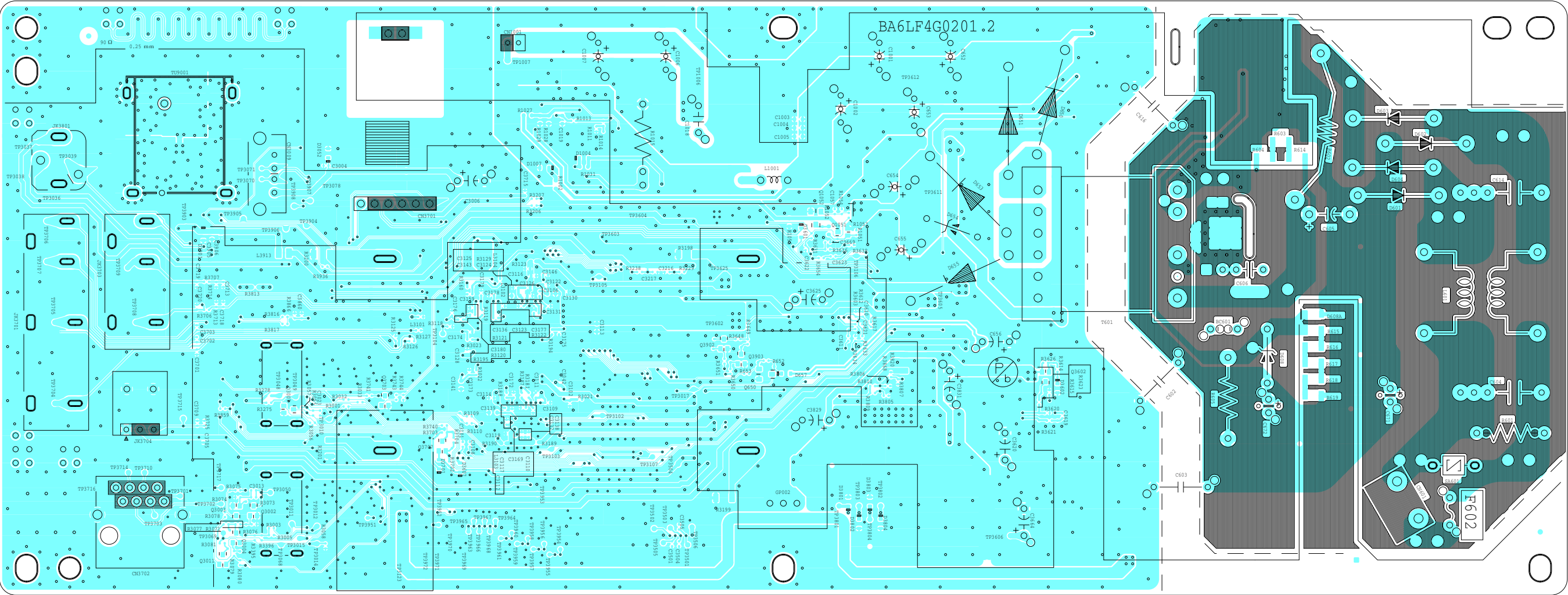
2.5A 250V

**CAUTION ! :** For continued protection against risk of fire,  
replace only with same type 2.5A, 250V fuse.

**ATTENTION :** Utiliser un fusible de rechange de même type de 2.5A, 250V.

Because a hot chassis ground is present in the power supply  
circuit, an isolation transformer must be used when repairing.  
Also, in order to have the ability to increase the input slowly,  
when troubleshooting this type of power supply circuit,  
a variable isolation transformer is required.

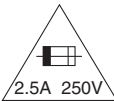
**NOTE:**  
The voltage for parts in hot circuit is measured using  
hot GND as a common terminal.





Digital Main CBA Top View [TYPE B]

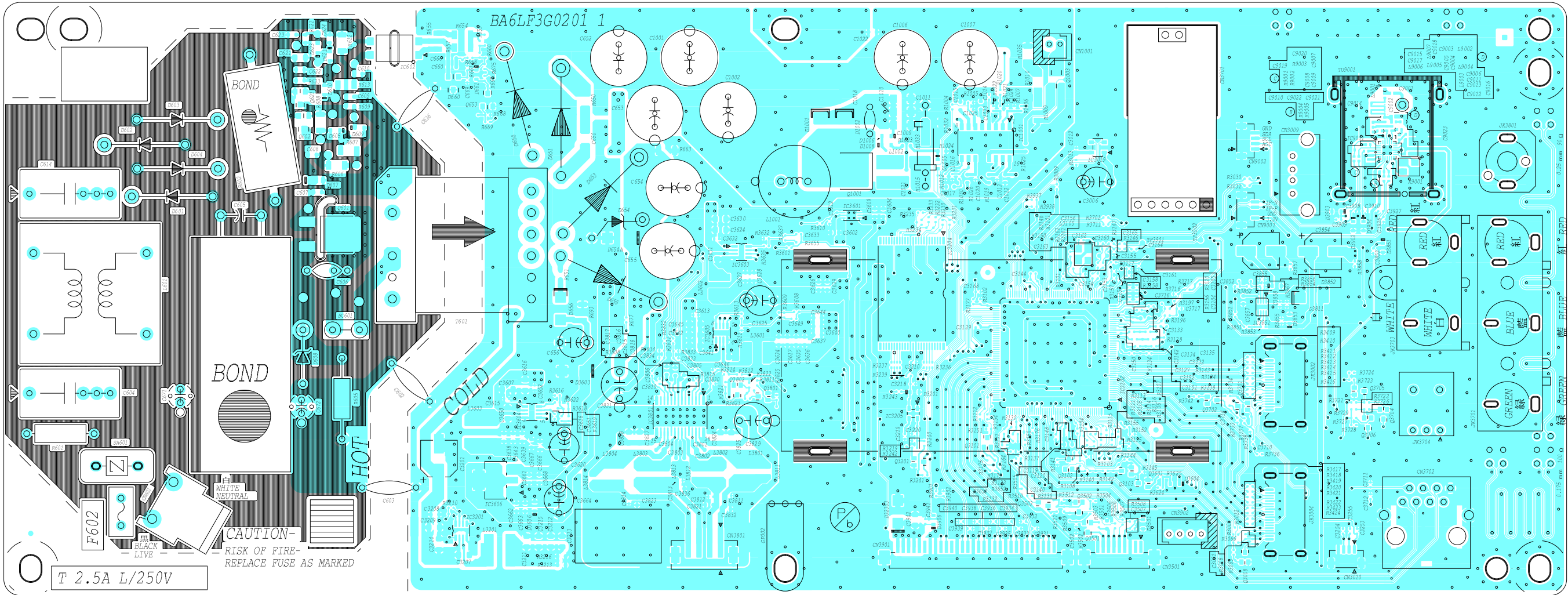
**CAUTION !**  
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.  
If Main Fuse (F602) is blown , check to see that all components in the power supply  
circuit are not defective before you connect the AC plug to the AC power supply.  
Otherwise it may cause some components in the power supply circuit to fail.



**CAUTION ! :** For continued protection against risk of fire,  
replace only with same type 2.5A, 250V fuse.  
**ATTENTION :** Utiliser un fusible de rechange de même type de 2.5A, 250V.

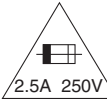
Because a hot chassis ground is present in the power supply  
circuit, an isolation transformer must be used when repairing.  
Also, in order to have the ability to increase the input slowly,  
when troubleshooting this type of power supply circuit,  
a variable isolation transformer is required.

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



Digital Main CBA Bottom View [TYPE B]

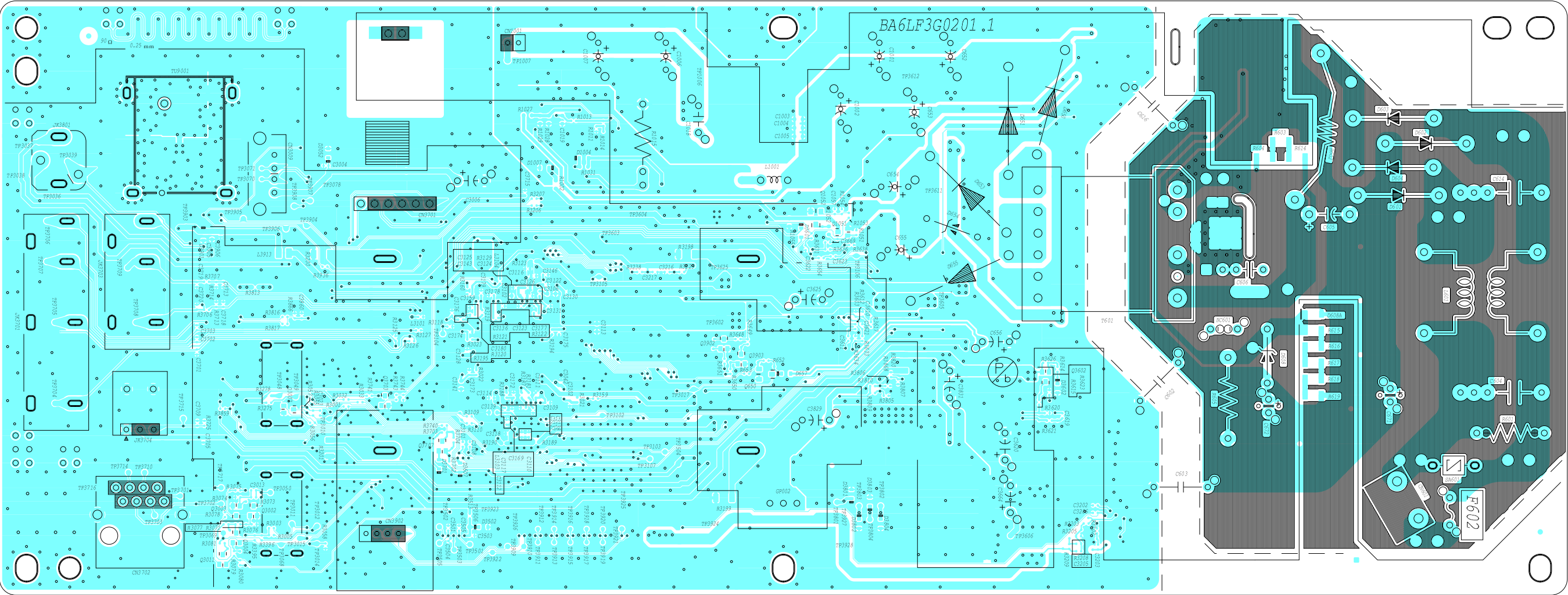
**CAUTION !**  
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.  
If Main Fuse (F602) is blown , check to see that all components in the power supply  
circuit are not defective before you connect the AC plug to the AC power supply.  
Otherwise it may cause some components in the power supply circuit to fail.



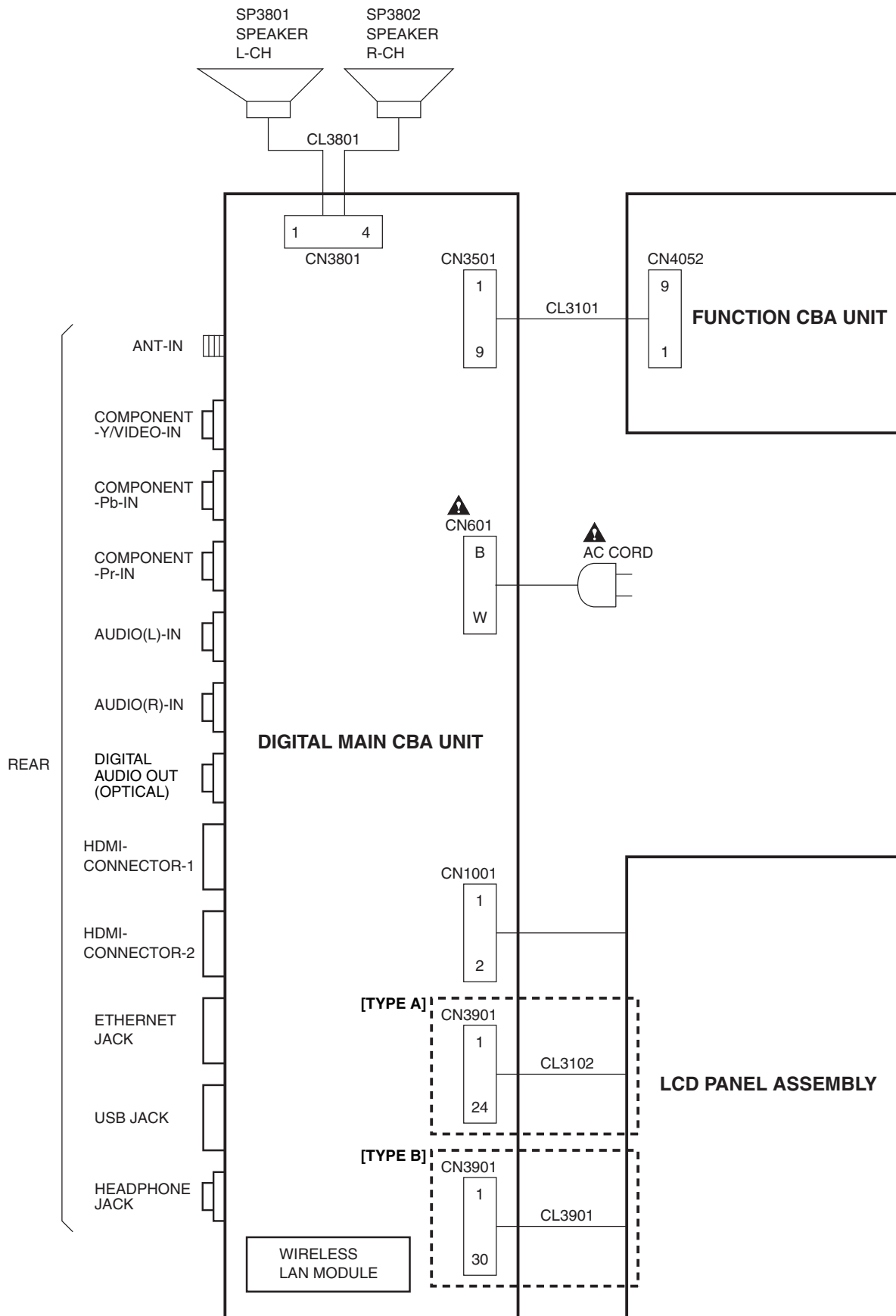
**CAUTION ! :** For continued protection against risk of fire,  
replace only with same type 2.5A, 250V fuse.  
**ATTENTION :** Utiliser un fusible de rechange de même type de 2.5A, 250V.

Because a hot chassis ground is present in the power supply  
circuit, an isolation transformer must be used when repairing.  
Also, in order to have the ability to increase the input slowly,  
when troubleshooting this type of power supply circuit,  
a variable isolation transformer is required.

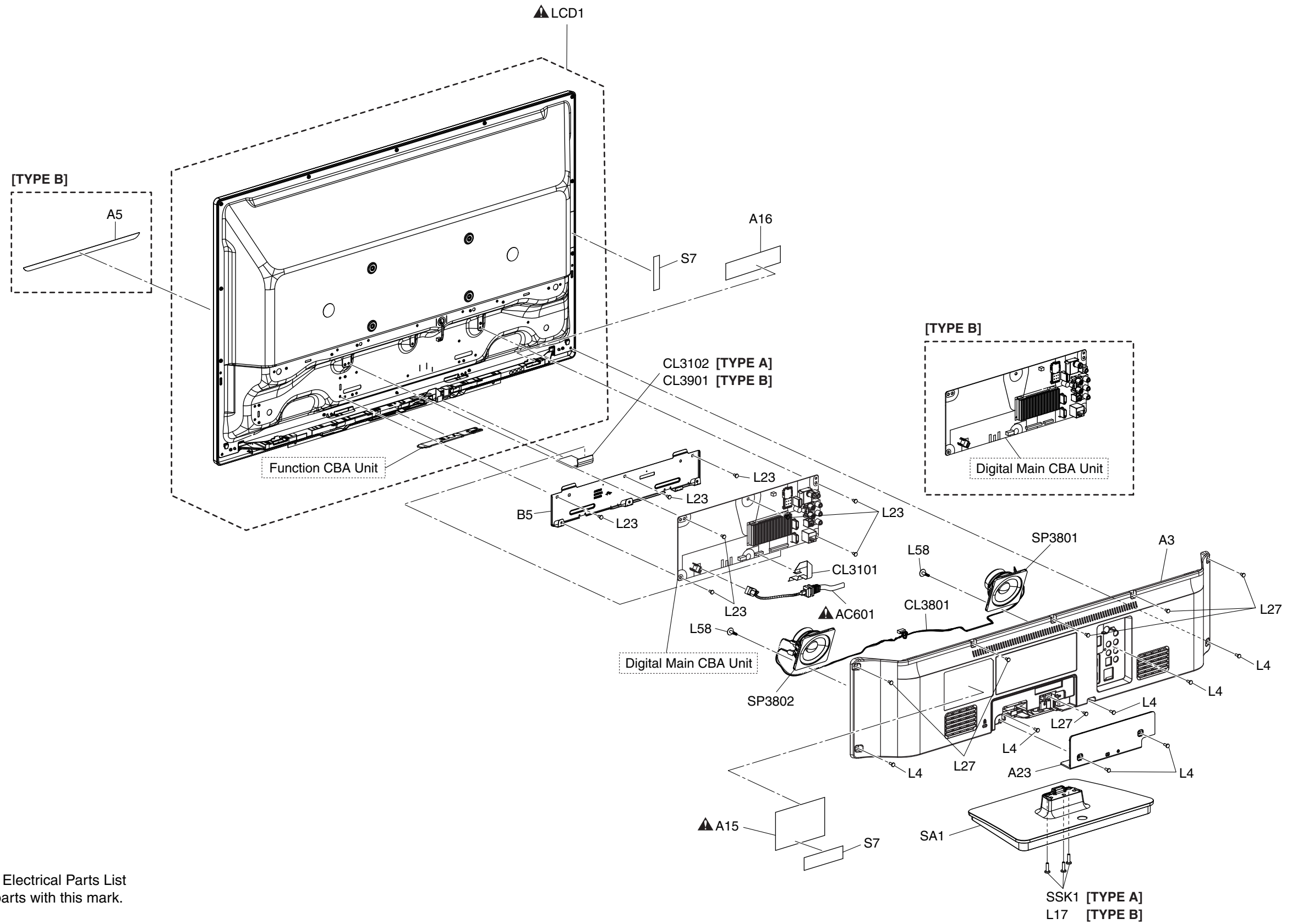
**NOTE:**  
The voltage for parts in hot circuit is measured using  
hot GND as a common terminal.



# WIRING DIAGRAM

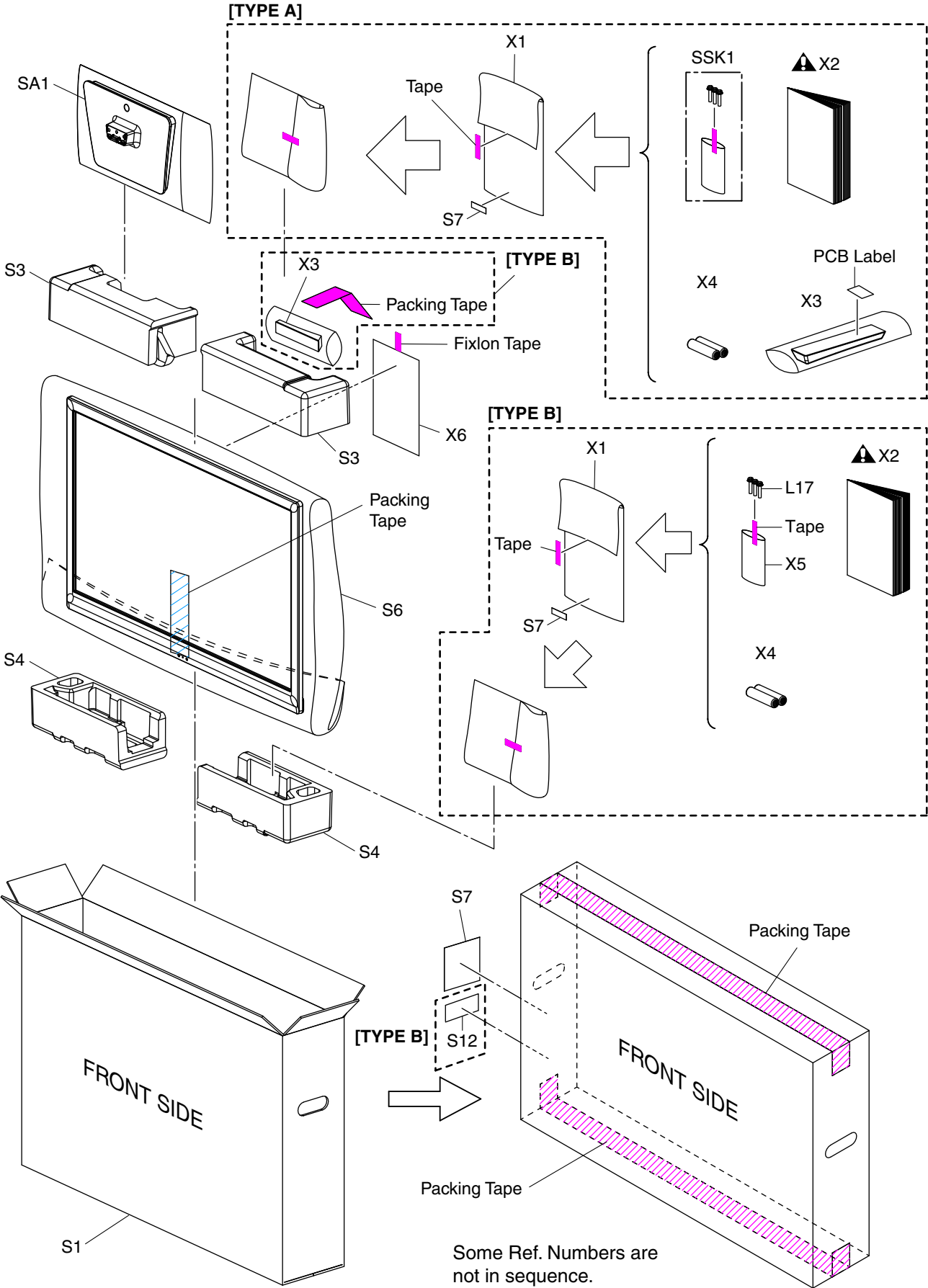


# EXPLODED VIEWS






Packing



# TYPE A


## PARTS LIST [FW32C06FM (Serial No.: ME1)]



### Mechanical Parts

**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.

### LCD PANEL ASSEMBLY

Ref. No.	Description	Part No.
LCD1 	LCD PANEL ASSEMBLY	U64F0SA
	LCD MODULE	-----

Ref.No.	Description	Parts No.
A3	REAR COVER A6LF4UT	2EMM00731
A15 	RATING LABEL A6LFBMT	-----
A16	LOGO LABEL A6LFBMT	-----
A23	AC CORD COVER A4AF0UH	2EMM00174
AC601 	AC CORD W/O A GND WIRE /T_ UL/CSA/1700/ NO/BLACK	WAC172TWF002
B5	PCB HOLDER A4AF0UH	2EMS00098A
CL3101	FFC WIRE ASSEMBLY 9PIN 9PIN/WHITE/ 127.5MM	WX1A4AF0S203
CL3102	FFC WIRE ASSEMBLY 24PIN 24PIN/WHITE/ 50MM	WX1A4AFPS101
CL3801	WIRE ASSEMBLY 4PIN 4P/ 315&325&355&365MM	WX1A4AF0T302
L4	SCREW BIND BLACK_NI +P-TITE M3X8.0 M3X8 BIND HEAD+ BLK	GBHP3080
L23	SCREW BIND 3CHROM +S-TITE M3X6.0 M3X6 BIND HEAD+	GBJS3060
L27	SCREW BIND BLACK_NI +S-TITE M3X8.0 M3X8 BIND HEAD+	GBHS3080
L58	ASSEMBLED SCREW M3X10	1EM420633A
SA1	STAND ASSEMBLY A31M0UT	1ESA34014
SP3801	SPEAKER MAGNETIC S065F44	DS08060XQ003
SP3802	SPEAKER MAGNETIC S065F44	DS08060XQ003
SSK1	STAND SCREW KIT A31M0UT(SCREW BIND BLACK_NI +P-TITE M4X14.0)	1ESA34004
<b>PACKING</b>		
S1	CARTON A6LFBMT	2EMC01019
S3	STYROFOAM TOP A6LF4UT	2EMC00942
S4	STYROFOAM BOTTOM A6LF4UT	2EMC00943
S6	SET BAG A31F0UT	2EMC00088A
S7	SERIAL NO. LABEL A4GF1UT	-----
<b>ACCESSORIES</b>		
X1	POLYETHYLENE BAG HDPE 180X340XT0.03	1EM435579
X2 	OWNERS MANUAL A6LFBMT	2EMN00431
X3	REMOTE CONTROL UNIT NH420UP	NH420UP
X4	BATTERY DRY R03(SIZE AAA )	XB00M0RKT001
X6	QUICK START GUIDE A6LFBMT	2EMN00432

# Electrical Parts

**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%

## DIGITAL MAIN CBA UNIT

Ref. No.	Description	Part No.
	DIGITAL MAIN CBA UNIT	A6LFBMMA-001
	Following parts can be supplied.	
<b>CAPACITORS</b>		
C602▲	CAP CERAMIC SAFETY 1000pF/250V E M KX	CJMR102M42E1
C603▲	CAP CERAMIC SAFETY 1000pF/250V E M KX	CJMR102M42E1
C604▲	CAP METALLIZED FILM 0.22μF/275V/K	CTA224PKR001
C605	CAP ELE 330μF/200V/M85	CEA3310S6016
C606	CERAMIC CAP. 470pF/2KV	CA3D471PAN04
C607	CHIP CERAMIC CAP. B K 2200pF/50V	CHD1JK30B222
C608	CHIP CERAMIC CAP.(1608) B K 0.022μF/50V	CHD1JK30B223
C609	CHIP CERAMIC CAP. B K 0.068μF/50V	CHD1JK30B683
C610	CHIP CERAMIC CAP.(1608) B K 1000pF/50V	CHD1JK30B102
C614▲	CAP METALLIZED FILM 0.22μF/275V/K	CTA224PKR001
C616▲	CAP CERAMIC SAFETY 1000pF/250V E M KX	CJMR102M42E1
C622	CHIP CERAMIC CAP.(1608) B K 0.1μF/50V	CHD1JK30B104
C623	CHIP CERAMIC CAP.(1608) B K 4.7μF/6.3V	CHD0KK30B475
C650	CAP CHIP 3216 680pF/630V/C0G/J	CHB6810TE009
C652	CAP ELE 470μF/25V/M85	CED4710V8006
C653	CAP ELE 470μF/25V/M85	CED4710V8006
C654	CAP ELE 1000μF/16V/M85	CEC1020V8006
C655	CAP ELE 1000μF/16V/M85	CEC1020V8006
C656	CAP ELE 1μF/50V/M85	CEF1R00V8006
C660	CHIP CERAMIC CAP.(1608) B K 0.22μF/25V	CHD1EK30B224
C666	CHIP CERAMIC CAP.(1608) B K 0.22μF/25V	CHD1EK30B224
C669	CHIP CERAMIC CAP.(1005) CH J 100pF/50V	CHB1JJ3CH101
C671	ELECTROLYTIC CAP. 10μF/16V M H7	CE1CMAVSL100
C672	ELECTROLYTIC CAP. 10μF/16V M H7	CE1CMAVSL100
C1001	CAP ELE 470μF/25V/M85	CED4710V8006
C1002	CAP ELE 470μF/25V/M85	CED4710V8006
C1003	CHIP CERAMIC CAP.(1608) B K 1μF/25V	CHD1EK30B105
C1004	CHIP CERAMIC CAP.(1608) B K 1μF/25V	CHD1EK30B105
C1006	CAP ELE 47μF/100V/M85	CEH4700V8006
C1007	CAP ELE 47μF/100V/M85	CEH4700V8006
C1009	CHIP CERAMIC CAP.(3216) X7R K 1.0μF/100V	CA2A105MR080
C1010	CHIP CERAMIC CAP.(3216) X7R K 1.0μF/100V	CA2A105MR080
C1011	CHIP CERAMIC CAP.(3216) X7R K 1.0μF/100V	CA2A105MR080
C1012	CHIP CERAMIC CAP.(1608) B K 1μF/25V	CHD1EK30B105

Ref. No.	Description	Part No.
C1013	CHIP CERAMIC CAP.(1005) B K 1000pF/50V	CHB1JK30B102
C1015	CHIP CERAMIC CAP.(1608) B K 0.047μF/25V	CHD1EK30B473
C1017	CAP CHIP CERAMIC (1608) B K 2.2μF/16V	CHD1CK30B225
C1019	CHIP CERAMIC CAP.(1608) B K 1μF/25V	CHD1EK30B105
C1020	CHIP CERAMIC CAP.(1005) B K 2200pF/50V	CHB1JK30B222
C1022	CHIP CERAMIC CAP.(1608) B K 1μF/25V	CHD1EK30B105
C1023	CHIP CERAMIC CAP.(1608) B K 0.22μF/25V	CHD1EK30B224
C1057	CHIP CERAMIC CAP.(1005) B K 1μF/6.3V	CHB0KK30B105
<b>CONNECTORS</b>		
CN601▲	CONNECTOR S2P3-VH (LF)(SN)	JCVHC02JG002
CN1001	PH CONNECTOR TOP 2P B2B-PH-K-S (LF)(SN)	J3PHC02JG029
CN3701	WIRELESS LAN MODULE WM5208	UWLMDLACM006
<b>DIODES</b>		
D601	DIODE 1N5397BD	NDL1001N5397
D602	DIODE 1N5397BD	NDL1001N5397
D603	DIODE 1N5397BD	NDL1001N5397
D604	DIODE 1N5397BD	NDL1001N5397
D605	ZENER DIODE MM5Z4V3B	ND1B0MM5Z4V3B
D607▲	ZENER DIODE SMD TFZVTR27B	QD1B00TFZV27
D608A▲	DIODE ZENER KDZTR36B	QD1B000KDZ36
D609	DIODE SCHOTTKY SMD CES520.L3F(T)	QD1Z0CES520T
D610	DIODE SWITCHING SMD 1SS400ST(SOD-523)	ND1Z1SS400ST
D621	DIODE SWITCHING SMD 1SS400ST(SOD-523)	ND1Z1SS400ST
D623	ZENER DIODE MM5Z30B	ND1B0MM5Z30B
D650	DIODE SCHOTTKY SB3150BH	NDWZ00SB3150
D651	DIODE SCHOTTKY SB3150BH	NDWZ00SB3150
D653	DIODE SCHOTTKY SB3A0BH	NDWZ000SB3A0
D654A	ZENER DIODE PTZTE2520B	QD1B000PTZ20
D655	DIODE SCHOTTKY SB3A0BH	NDWZ000SB3A0
D656	DIODE FAST RECOVERY RS1BJTD	ND1Z0RS1BJTD
D657	ZENER DIODE MM5Z11B	ND1B0MM5Z11B
D660	IC SHUNT REGULATOR AS431BNTR-E1	NSCA0TBCD041
D661	DIODE SWITCHING SMD 1SS400ST(SOD-523)	ND1Z1SS400ST
D1002	DIODE SCHOTTKY SMD SK210TD	ND1Z0SK210TD
D1005	DIODE SWITCHING SMD 1SS400ST(SOD-523)	ND1Z1SS400ST
D1006	ZENER DIODE MM5Z30B	ND1B0MM5Z30B
<b>ICS</b>		
IC602▲	PHOTO COUPLER EL817S1(C)(TU)-F	NP2C0EL817S1
IC1001	IC LED BACKLIGHT CONTROLLER BD9486F-GE2/SOP/16P	QSCA0T0RM425
IC3019	IC USB HIGH-SIDE SW AP2151WG-7/SOT25/5PI	NSCA0TDES015
IC3102	IC MSD93F0JM4-3-002J	NSAA0RMST005
IC3204	IC NAND FLASH 4GB TC58NVG2S0HTA00B4H	QSCA0R0TS150
IC3205	IC RESET IC-PST8429UR	QSCA0T0MM075
IC3601	IC REGULATOR BD33IC0WHFV-GTR	QA3R300RM003
IC3603	IC DC-DC CONVERTER MP2314GJ-Z TSOT23-8	NSCA0T09M025
IC3604	IC DC-DC CONVERTER MP2314GJ-Z TSOT23-8	NSCA0T09M025
IC3605	IC DC-DC CONVERTER MP2315GJ-Z TSOT23-8	NSCA0T09M026
IC3606	IC REGULATOR AP1117E33G-13/3PIN	NSCA0TDES017
IC3801	IC D-CLASS AUDIO POWER AMPLIFI MP7752GF-Z	NSCA0T09M031
IC3851	IC STEREO HEADPHONE AMPLIFIER TS4881QT DFN8 8PIN	NSCA0T0SS070
IC9001	IC SILICON TUNER SI2151-A10-GMR	NSCA0T05S010
<b>COILS</b>		
L601▲	COIL LINE FILTER LCL-2456	LLEG0ZMEK016

Ref. No.	Description	Part No.
L1001	COIL POWER INDUCTORS DIP RP1315BNP-101M/100UH	LLF1010SF013
L1002	COIL CHIP BEADS PZ2012D121-2R5T(F)	LLF121SSN006
<b>TRANSISTORS</b>		
Q601▲	FET MOS TK7P60W.RVQ(S)	QF220TK7P60W
Q602▲	NPN TRANSISTOR SMD 2SC5344SY	NQZY2SC5344S
Q621	CHIP TRANSISTOR KTC3875S-YRTK/P	NQ1YKTC3875S
Q650	CHIP TRANSISTOR KTC3875S-YRTK/P	NQ1YKTC3875S
Q653	CHIP TRANSISTOR KTC3875S-YRTK/P	NQ1YKTC3875S
<b>RESISTORS</b>		
R601▲	RES CARBON FILM /T_ 1/2W J 1.2 M Ω	RCJ125RYL001
R602	RES CEMENT /T_ 5W J 2.7 Ω	RWJ2R7RYL001
R603	RES CHIP 3216 1/4W J 470k Ω	RRX4474HH034
R604	RES CHIP 3216 1/4W J 470k Ω	RRX4474HH034
R605▲	METAL OXIDE RES. 2W J 0.36 Ω	RN02R36ZU001
R606	RES CHIP 3216 1/4W J 180 Ω	RRX4181HH034
R607	RES CHIP 3216 1/4W J 180 Ω	RRX4181HH034
R608	RES CHIP 3216 1/4W J 1.5k Ω	RRX4152HH034
R609	RES CHIP 1608 1/10W J 100 Ω	RRXA101HH013
R612	RES CHIP 3216 1/4W J 5.6k Ω	RRX4562HH034
R613	RES CHIP 3216 1/4W J 330 Ω	RRX4331HH034
R614	RES CHIP 3216 1/4W J 470k Ω	RRX4474HH034
R621	RES CHIP 1608 1/10W J 560 Ω	RRXA561HH013
R623	RES CHIP 1608 1/10W J 10k Ω	RRXA103HH013
R650	RES CHIP 3216 1/4W J 2.2 Ω	RRX42R2HH034
R651▲	RES CHIP 1608 1/10W J 1.0 Ω	RRXA1R0HH013
R652	RES CHIP 1005 1/16W F 56k Ω	RTV5602HH004
R653	RES CHIP 1005 1/16W F 33.0k Ω	RTV3302HH004
R654	RES CHIP 3216 1/4W J 220 Ω	RRX4221HH034
R655	RES CHIP 3216 1/4W J 220 Ω	RRX4221HH034
R657	RES CHIP 3216 1/4W J 3.9k Ω	RRX4392HH034
R658	CHIP RES.(1005) 1/16W J 2.7k Ω	RRXG272HH004
R659	CHIP RES 1/16W F 68k Ω	RTV6802HH004
R660	RES CHIP 1005 1/16W F 3k Ω	RTV3001HH004
R661	RES CHIP 1005 1/16W F 6.8k Ω	RTV6801HH004
R667	RES CHIP 1005 1/16W J 33k Ω	RRXG333HH004
R668	CHIP RES. 1/16W J 47k Ω	RRXG473HH004
R669	CHIP RES.(1005) 1/16W J 10k Ω	RRXG103HH004
R675	RES CHIP 1005 1/16W F 100k Ω	RTV1003HH004
R677	CHIP RES.(1005) 1/16W J 10k Ω	RRXG103HH004
R1002	RES CHIP 1608 1/10W J 39 Ω	RRXA390HH013
R1004	CHIP RES.(1005) 1/16W J 10k Ω	RRXG103HH004
R1005	CHIP RES. 1/16W J 100k Ω	RRXG104HH004
R1006	CHIP RES.(1005) 1/16W J 10k Ω	RRXG103HH004
R1007	CHIP RES. 1/16W J 100k Ω	RRXG104HH004
R1009	RES CHIP 3216 1/4W F 0.820 Ω	RTR820RYL011
R1010	RES CHIP 3216 1/4W F 0.680 Ω	RTR680RYL011
R1011	RES CHIP 1005 1/16W F 2.2k Ω	RTV2201HH004
R1012	RES CHIP 1005 1/16W F 100k Ω	RTV1003HH004
R1013	RES CHIP 1005 1/16W F 36.0k Ω	RTV3602HH004
R1014	RES CHIP 1005 1/16W F 24.0k Ω	RTV2402HH004
R1015	METAL OXIDE RES. 1W J 0.18 Ω	RN01R18ZU001
R1019	RES CHIP 1608 1/10W J 200 Ω	RRXA201HH013
R1020	RES CHIP 1005 1/16W F 360k Ω	RTV3603HH004
R1021	RES CHIP 1005 1/16W F 240k Ω	RTV2403HH004
R1022	RES CHIP 1005 1/16W F 22k Ω	RTV2202HH004
R1023	RES CHIP 1608 1/10W J 10k Ω	RRXA103HH013
R1024	RES CHIP 1608 1/10W J 10k Ω	RRXA103HH013
R1025	RES CHIP 1608 1/10W J 1.0k Ω	RRXA102HH013
R1026	RES CHIP 1608 1/10W J 51 Ω	RRXA510HH013
R1027	RES CHIP 1608 1/10W F 22.0k Ω	RTW2202HH008
R1028	RES CHIP 1608 1/10W F 9.10k Ω	RTW9101HH008
R1029	RES CHIP 1608 1/10W F 9.10k Ω	RTW9101HH008

Ref. No.	Description	Part No.
R1030	RES CHIP 1005 1/16W J 120 Ω	RRXG121HH004
R1031	RES CHIP 1608 1/10W J 10 Ω	RRXA100HH013
R1035	RES CHIP 3216 1/4W F 0.680 Ω	RTR680RYL011
R1051	CHIP RES.(1005) 1/16W J 10k Ω	RRXG103HH004
R1052	RES CHIP 1608 1/10W J 3.9k Ω	RRXA392HH013
R1053	CHIP RES.(1005) 1/16W J 10k Ω	RRXG103HH004
R1054	CHIP RES. 1/16W J 47k Ω	RRXG473HH004
R1055	RES CHIP 1608 1/10W J 3.9k Ω	RRXA392HH013
<b>MISCELLANEOUS</b>		
BC601	BEADS INDUCTOR FBR07HA121SB-00	LLBF00STU030
F602▲	FUSE TIME RAG 2010T2.5A1	PDG21B0W3252
SA601▲	VARIATOR 10D 471K SVR	NVQZVR10D471
T601▲	TRANS POWER SRW26LEC-T11H016	LTT2PC0TE005


## FUNCTION CBA UNIT

Ref. No.	Description	Part No.
	FUNCTION CBA UNIT	A6LFBMSW-001

# TYPE B




## PARTS LIST [32PFL3901/F8 (Serial No.: XA1)]

### Mechanical Parts


**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.

### Different parts from the original model FW32C06FM (Serial No. : ME1)

Ref. No.	Description	Part No.
A5	DECORATION PLATE A3UFZZT	2EMH00095
A15 	RATING LABEL A6LF3MA	-----
A16	LOGO LABEL A6LF3MA	-----
AC601	AC CORD W/O A GND WIRE UL/CSA/1700/NO/ BLACK	WAC172LTE005
CL3101	FFC WIRE ASSEMBLY 9PIN 9PIN/WHITE/ 90MM	WX1A4AFFS213
CL3102	Not used	
CL3801	WIRE ASSEMBLY 4PIN 4P/ 315&325&355&365MM	WX1A4AF0A302
CL3901	FFC WIRE ASSEMBLY 30PIN(W/SHIELD) 30P/ FFC/SHIELD/60MM	WX1A4AFDS101
L17	SCREW BIND BLACK_NI +P-TITE M4X14.0 M4X14 BIND HEAD+BLK	GBHP4140
SA1	STAND ASSEMBLY A6LF3TK	2ESA02982
SSK1	Not used	
S1	CARTON A6LF3MA	2EMC01000
S12	CARTON LABEL A6LF3MA	-----
X2 	OWNERS MANUAL A6LF3MA	2EMN00421
X3	REMOTE CONTROL UNIT YKF340-007	URMT41JHG007
X5	SCREW BAG A81N0UH	1EM424596A
X6	QUICK START GUIDE A6LF3MA	2EMN00422
LCD1 	LCD PANEL ASSEMBLY	U6DF2PL

# Electrical Parts

**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:

1. Parts that are not assigned part numbers (-----) are not available.
2. 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%

## Different parts from the original model FW32C06FM (Serial No. : ME1)

Ref. No.	Description	Part No.
	DIGITAL MAIN CBA UNIT	A6LF3MMA-002
C606	CERAMIC CAP. 330pF/2kV	CA3D331PAN04
C650	CAP CHIP X7R C3216X7R2J222KT	CHD2220TE009
D1006	ZENER DIODE MM5Z22B	ND1B0MM5Z22B
IC3201	IC DC-DC CONVERTER MP2314GJ-Z TSOT23-8	NSCA0T09M025
L1002	CHIP RES.(2125) 1/8W 0 Ω	RRX8000HH024
R601	RES. CARBON FILM J 1/2W J 1.2M Ω	RCX2125T1003
R602	RES CEMENT 5W J 2.7 Ω	RWJ2R7PAK007
TU9001	TUNER FRAME ASSEMBLY U9ZA0XZ	U9ZA0XZ
	FUNCTION CBA UNIT	A6LF3MSW-001

# REVISION HISTORY

## Chassis PL16.00

- 2016/03/11 FW32C06FM (Serial No.: ME1) First draft added
- 2016/05/09 32PFL3901/F8 (Serial No.: XA1) First draft added

# COMPARISON LIST OF MODEL NAMES

## Chassis PL16.00

FW32C06FM	(ME1)	A6LFBMT
32PFL3901/F8	(XA1)	A6LF3MA