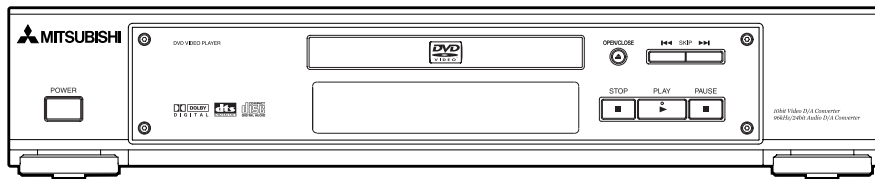




Service Manual

DVD PLAYER



MODEL

DD-4021

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 **MITSUBISHI ELECTRIC**
MITSUBISHI DIGITAL ELECTRONICS AMERICA, INC.

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HOW TO INITIALIZE THE SETUP MENU

After turning the power ON, without a disc in the tray, press the "1," "2," "3," "4," "DISPLAY" and "ENTER" buttons on the remote control unit in this order. Then, after turning the power OFF temporarily, turn the power ON again to initialize the Setup Menu.

HOW TO CLEAR THE PASSWORD PROTECTION (In case the Parental Lock password is forgotten)

To release parental lock, initialize the setup menu using the procedure above.

HOW TO SET OR CLEAR THE TRAY LOCK

To set the tray lock mode to on, follow the procedures below:

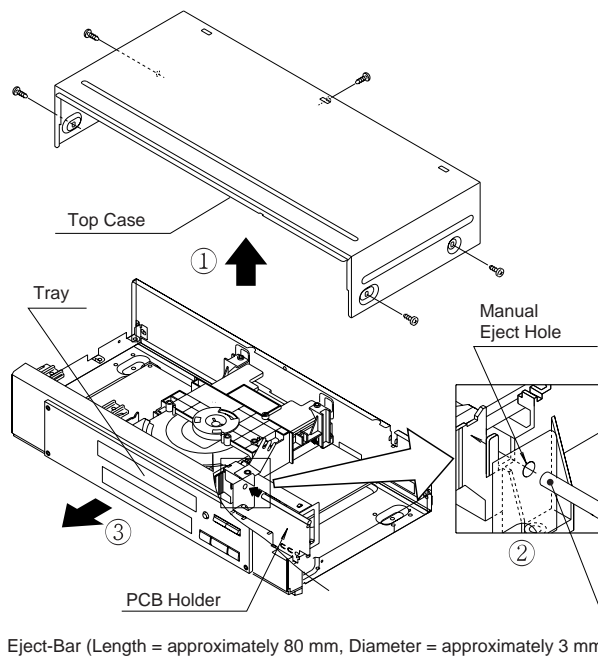
1. With loading a disc, set the DVD player to the stop mode.
2. Press the "SETUP" button to display the SETUP menu.
3. Press the "TITLE" button.
4. Press the "3" button.
5. Press the "AUDIO" button.
6. Press the "0" button.
7. Press the "SETUP" button. Tray Lock mode is set to ON and "Tray Lock On" is displayed on the top right of the screen.

While the Tray Lock mode is on, the tray cannot be opened or closed. Other operations are available.

To release the Tray Lock mode, perform the above procedures again. Tray Lock mode is set to OFF and "Tray Lock Off" is displayed on the top right of the screen.

HOW TO MANUAL EJECT

1. Remove the Top Case.
2. Insert the eject-bar (length = approximately 3 mm, diameter = approximately 8 mm) into the manual eject hole on the PCB Holder. Then, press it until the tray is ejected.
3. Pull out the tray.



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"DTS" and "DTS Digital Out" are trademarks of Digital Theater Systems Inc.

SPECIFICATIONS

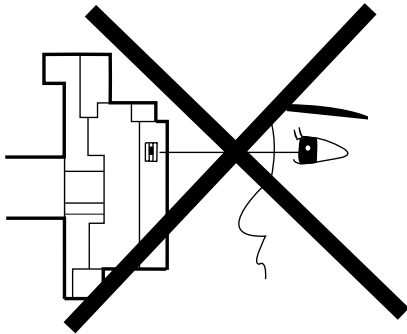
ITEM	CONDITIONS	UNIT	NOMINAL	LIMIT
1 Video Output	75 ohm load	Vpp	1.0	
2 Optical Digital Out		dBm	-18	
3 Audio(PCM)				
3-1. Output Level	1kHz 0dB	Vrms	2.0	
3-2. S/N		dB	110	
3-3. Freq. Response				
DVD	fs=48kHz 20~22kHz	dB	± 2	
CD	fs=44.1kHz 20~20 kHz	dB	± 2	
3-4. THD+N	1 kHz 0dB	%	0.005	

NOTES:

1. All Items are measured without pre-emphasis unless otherwise specified.
2. Power supply : AC120 V 60 Hz
3. Load imp. : 100 K ohm
4. Room ambient : +25 °C

LASER BEAM SAFETY PRECAUTIONS

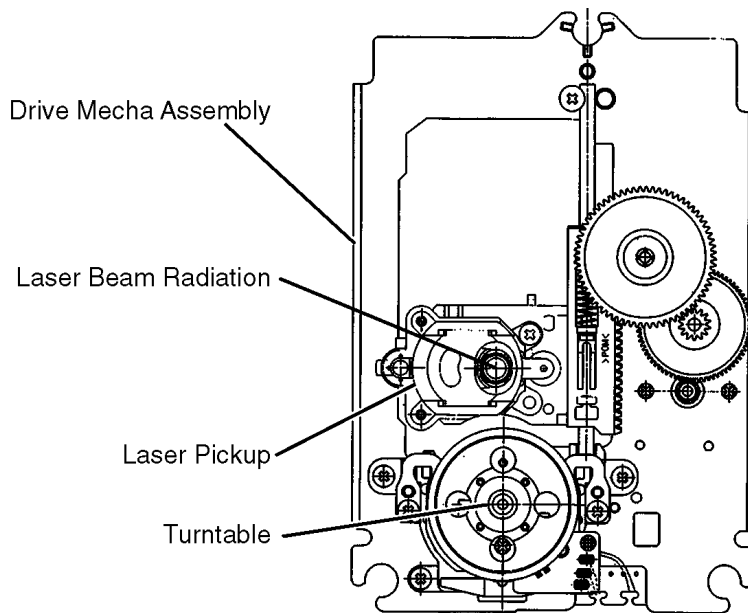
This DVD player uses a pickup that emits a laser beam.



Do not look directly at the laser beam coming from the pickup or allow it to strike against your skin.

The laser beam is emitted from the location shown in the figure. When checking the laser diode, be sure to keep your eyes at least 30cm away from the pickup lens when the diode is turned on. Do not look directly at the laser beam.

Caution: Use of controls and adjustments, or doing procedures other than those specified herein, may result in hazardous radiation exposure.



CAUTION
LASER RADIATION
WHEN OPEN. DO NOT
STARE INTO BEAM.

Location: Inside Top of DVD mechanism.

IMPORTANT SAFETY PRECAUTIONS

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 carefully inspected to confirm 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 edges 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 drop-lets, 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 a crimping tool to crimp the metal sleeve at its center. 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 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 their original positions. Afterwards, do the following tests and confirm the specified values 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	Clearance Distance (d) (d')
120 V	≥ 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 the terminals of load Z. See Fig. 2 and the following table.

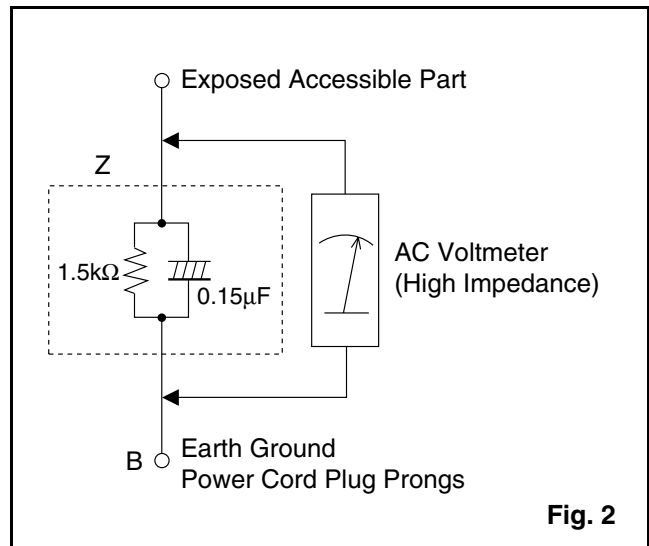
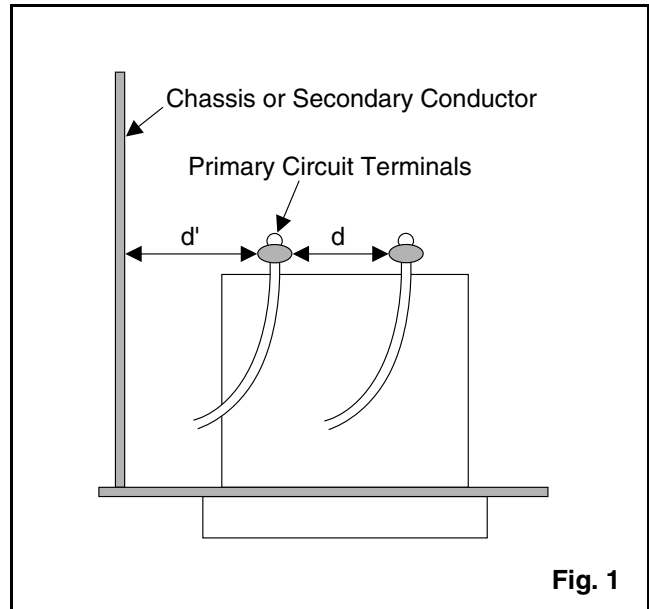


Table 2 : Leakage current ratings for selected areas

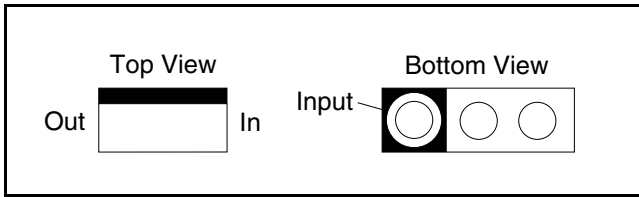
AC Line Voltage	Load Z	Leakage Current (i)	Earth Ground (B) to:
120 V	0.15 μ F CAP. & 1.5k Ω RES. Connected in parallel	$i \leq 0.5$ mA Peak	Exposed accessible parts

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

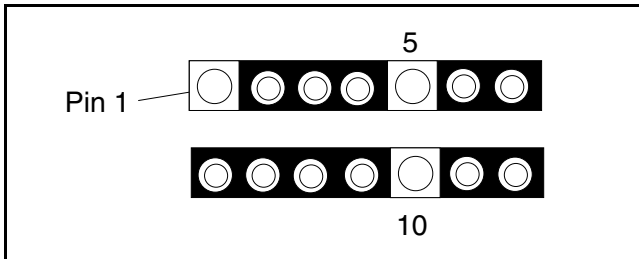
STANDARD NOTES FOR SERVICING

Circuit Board Indications

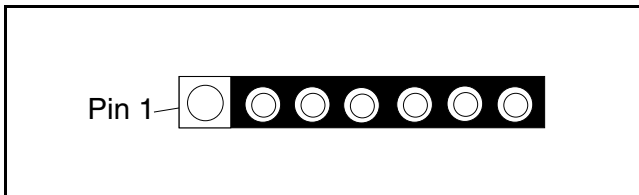
- a. The output pin of the 3 pin Regulator ICs is indicated as shown.



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

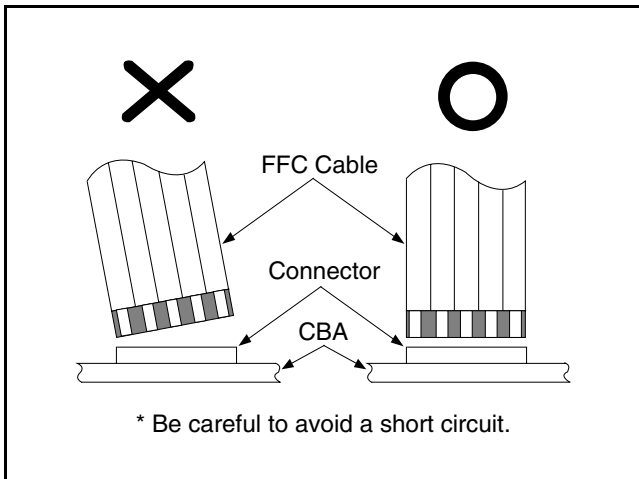


- c. The 1st pin of every male connector is indicated as shown.



Instructions for Connectors

- When you connect or disconnect the FFC (Flexible Foil Connector) cable, be sure to first disconnect the AC cord.
- FFC (Flexible Foil Connector) cable should be inserted parallel into the connector, not at an angle.

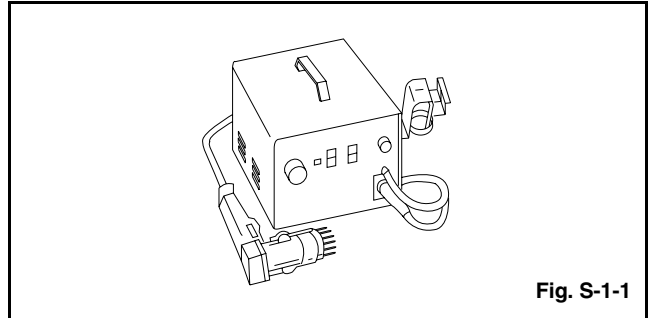


How to Remove / Install Flat Pack-IC

1. Removal

With Hot-Air Flat Pack-IC Desoldering Machine:

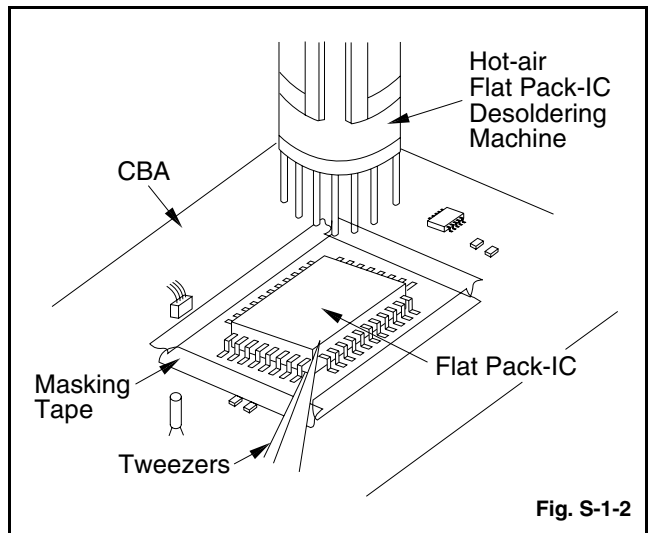
- Prepare the hot-air flat pack-IC desoldering machine, then apply hot air to the Flat Pack-IC (about 5 to 6 seconds). (Fig. S-1-1)



- Remove the flat pack-IC with tweezers while applying the hot air.
- 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)
- Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

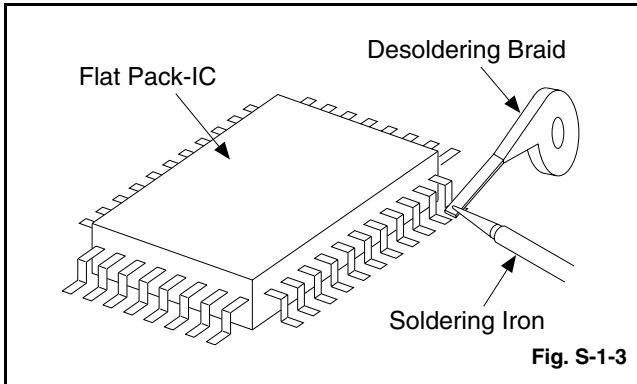
Caution:

- 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.

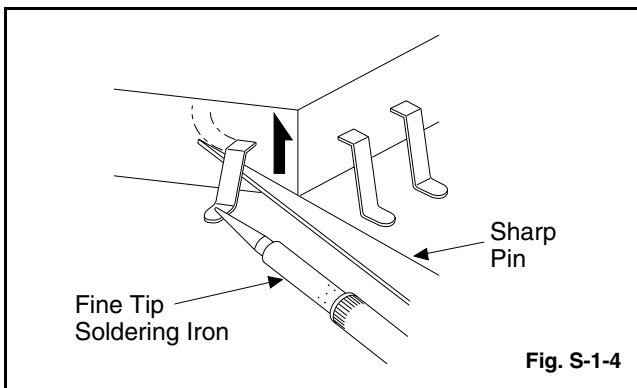


With Soldering Iron:

- (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:

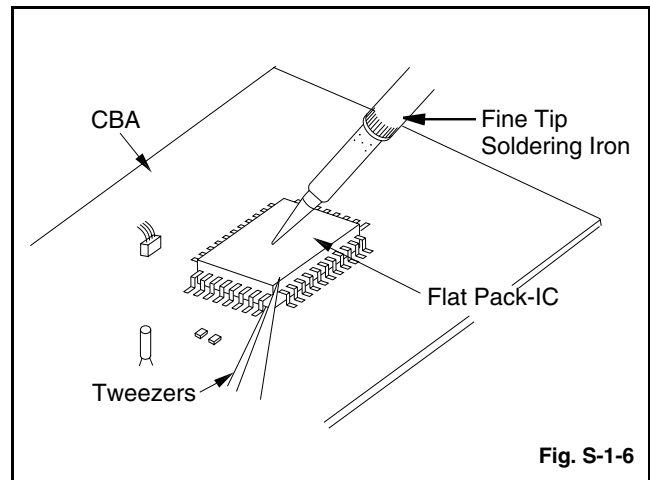
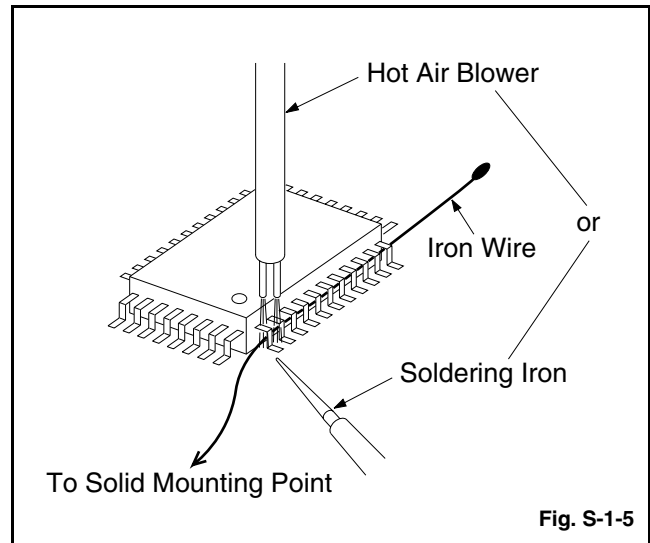
- (1) Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)
- (2) Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
- (3) While heating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

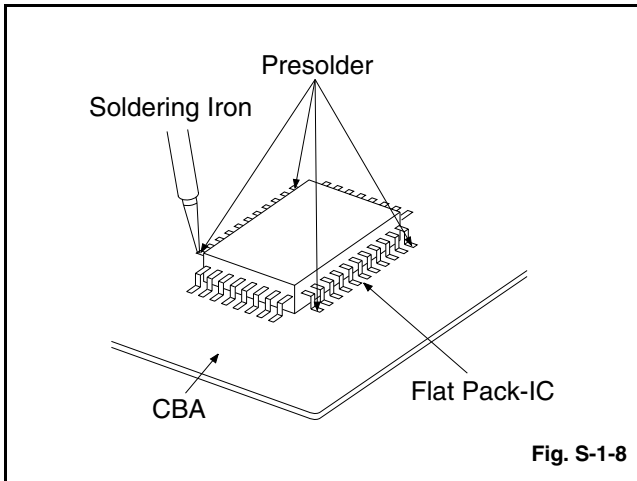
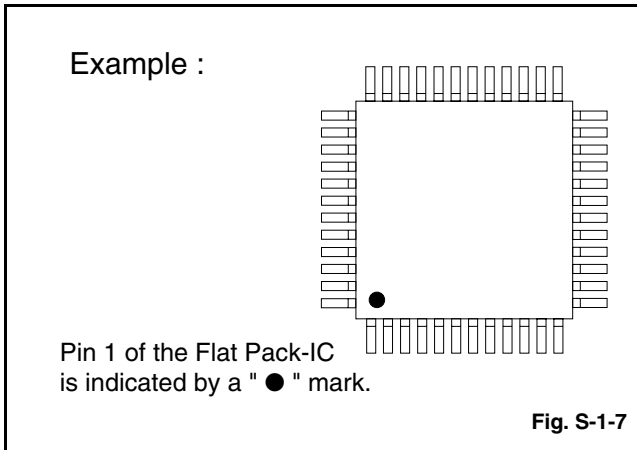
Note:

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

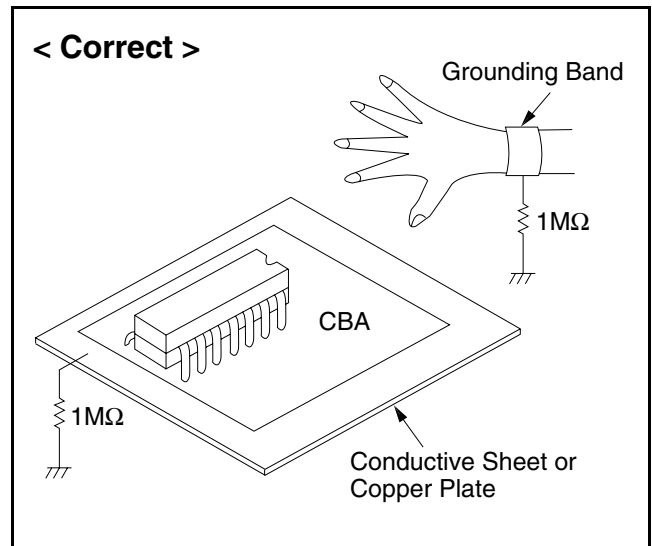
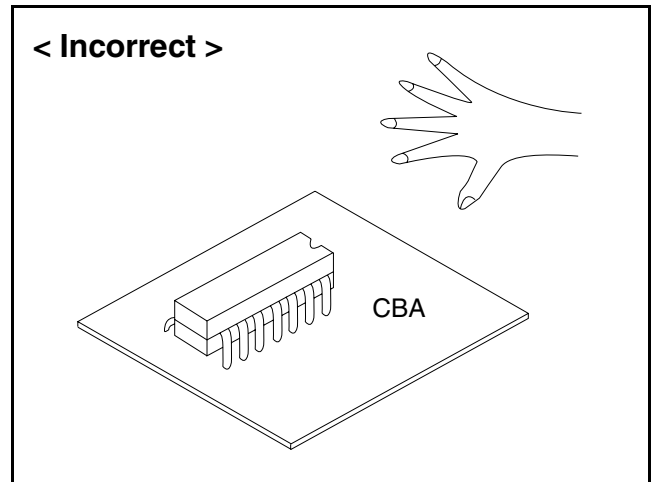
Electrostatic breakdown of the semiconductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

1. Ground for Human Body

Be sure to wear a grounding band ($1M\Omega$) 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 ($1M\Omega$) 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.

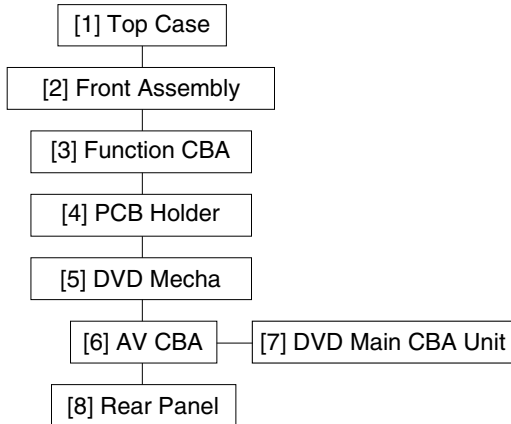


CABINET DISASSEMBLY INSTRUCTIONS

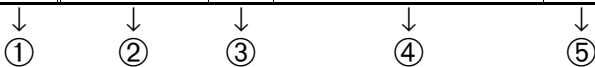
1. Disassembly Flowchart

This flowchart indicates the disassembly steps 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 originally.

2. Disassembly Method



ID/ LOC. No.	PART	REMOVAL		
		Fig. No.	REMOVE/ *UNHOOK/UNLOCK/ RELEASE/UNPLUG/ DESOLDER	Note
[1]	Top Case	1	5(S-1)	-
[2]	Front Assembly	2	*2(L-1), Tray Panel, *2(L-2), *5(L-3)	1-1 1-2
[3]	Function CBA	3	*3(L-4), *(CN2001)	-
[4]	PCB Holder	4	2(S-2)	-
[5]	DVD Mecha	4,5	*(CN001, CN201), 2(S-3)	2-1 2-2 2-3 3
[6]	AV CBA	6	4(S-4), 4(S-5), *2(L-5), *(CN701, CN501)	-
[7]	DVD Mecha CBA Unit	6	4(S-6)	-
[8]	Rear Panel	7	3(S-7)	-



- ①: Identification (location) No. of parts in the figures
- ②: Name of the part
- ③: Figure Number for reference
- ④: Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P=Spring, L=Locking Tab, S=Screw, CN=Connector
*=Unhook, Unlock, Release, Unplug, or Desolder
e.g. 2(S-2) = two Screws (S-2),
2(L-2) = two Locking Tabs (L-2)
- ⑤: Refer to "Reference Notes."

Reference Notes

CAUTION 1: Locking Tabs (L-1) are fragile. Be careful not to break them.

1-1. Connect the wall plug to an AC outlet and press the OPEN/CLOSE button to open the Tray.

1-2. First, remove the Tray Panel by releasing two Locking Tabs (L-1). Second, release two Locking Tabs (L-2). Then, release five Locking Tabs (L-3) (to do this, first release three Locking Tabs (A) at the bottom, and then two Locking Tabs (B) at the side.) (Fig. 2)

CAUTION 2: Electrostatic breakdown of the laser diode in the optical system block may occur as a potential difference caused by electrostatic charge accumulated on cloth, human body etc, during unpacking or repair work.

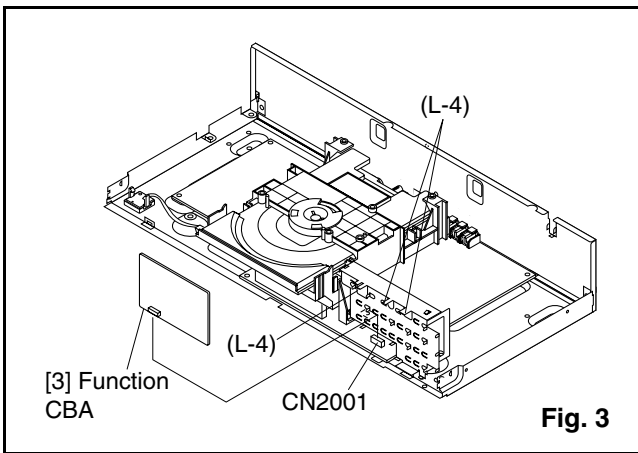
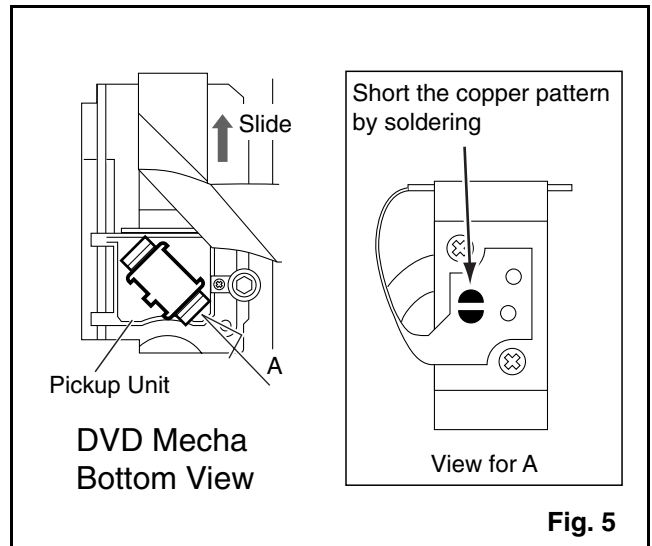
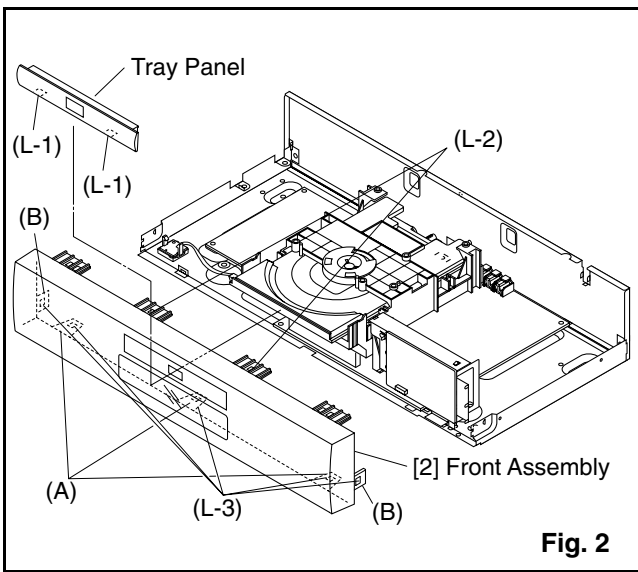
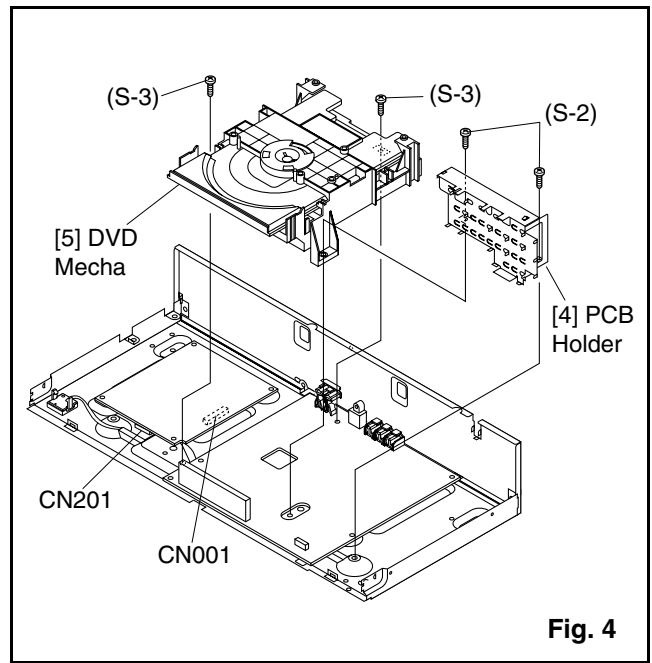
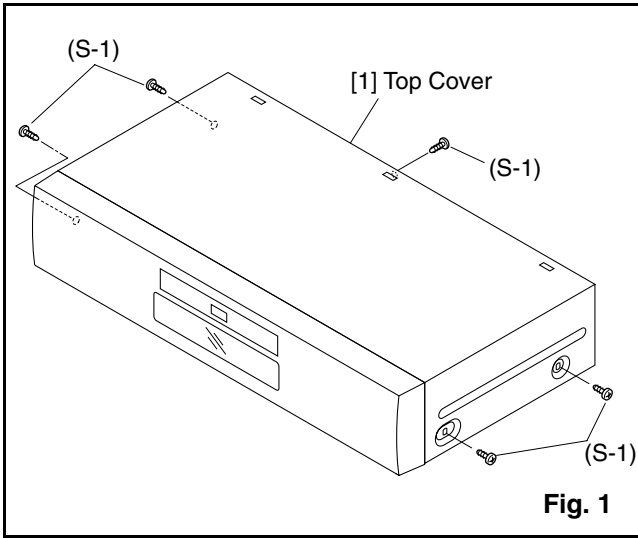
To avoid damage of pickup follow next procedures.

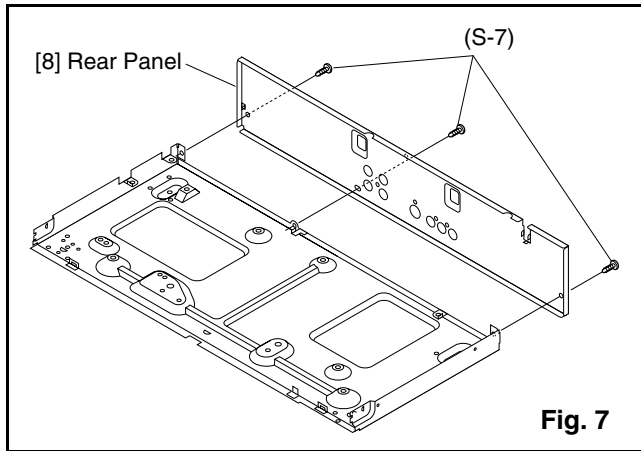
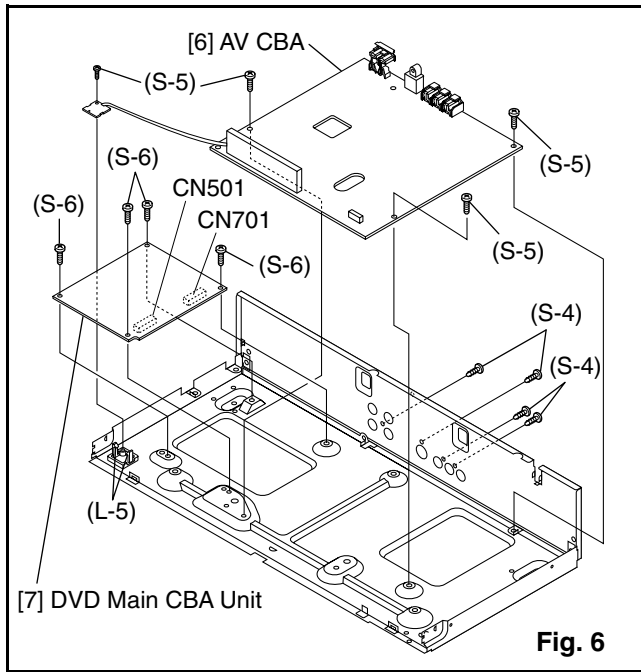
2-1. Slide out the pickup unit as shown in Fig. 5.

2-2. Short the copper pattern (half-moon shape) of FPC cable with solder before removing the FFC cable (CN001) from it. If you disconnect the FFC cable (CN001), the laser diode of pickup will be destroyed. (Fig. 5)

2-3. Disconnect Connector (CN201). Remove two Screws (S-3) and lift the DVD Mecha. (Fig. 4)

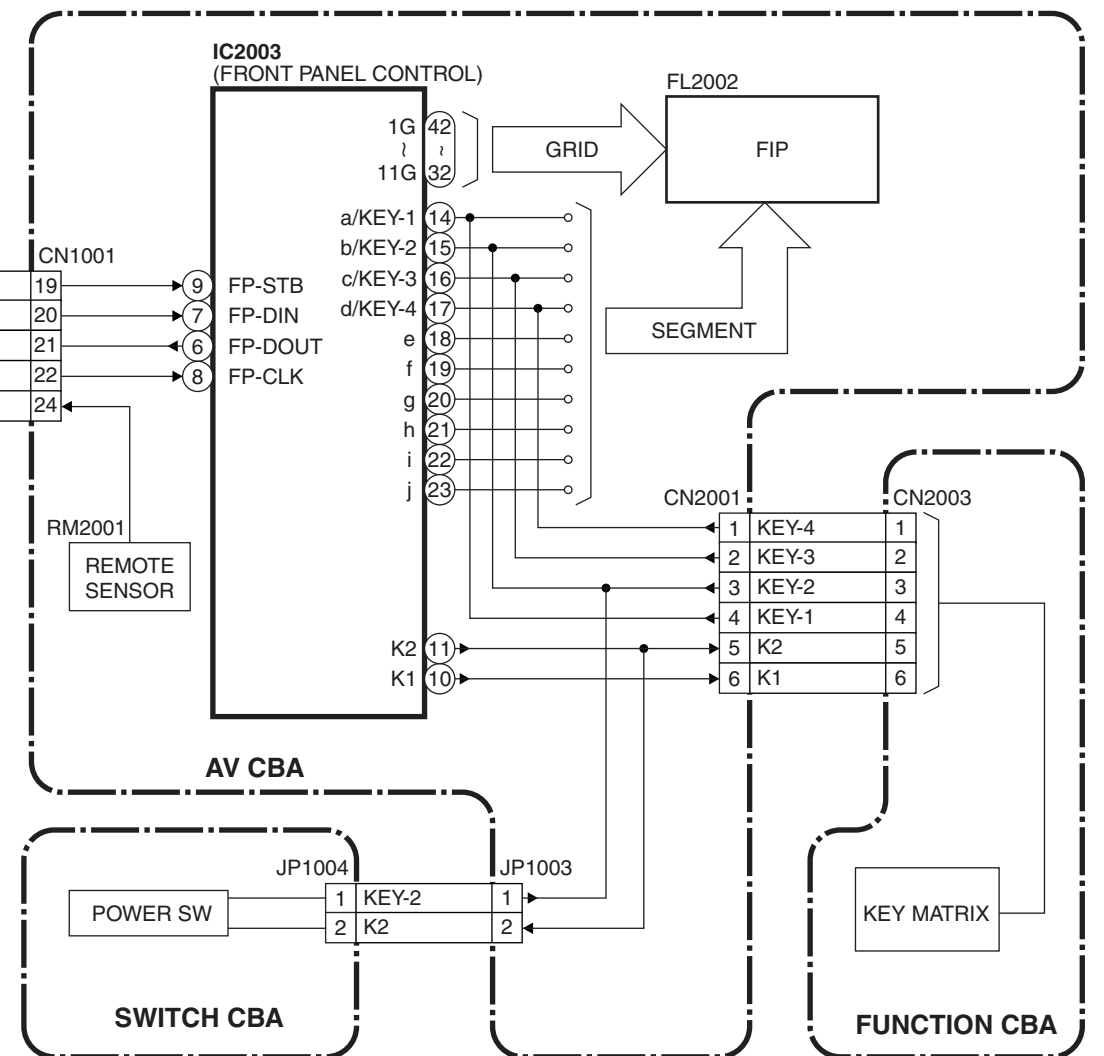
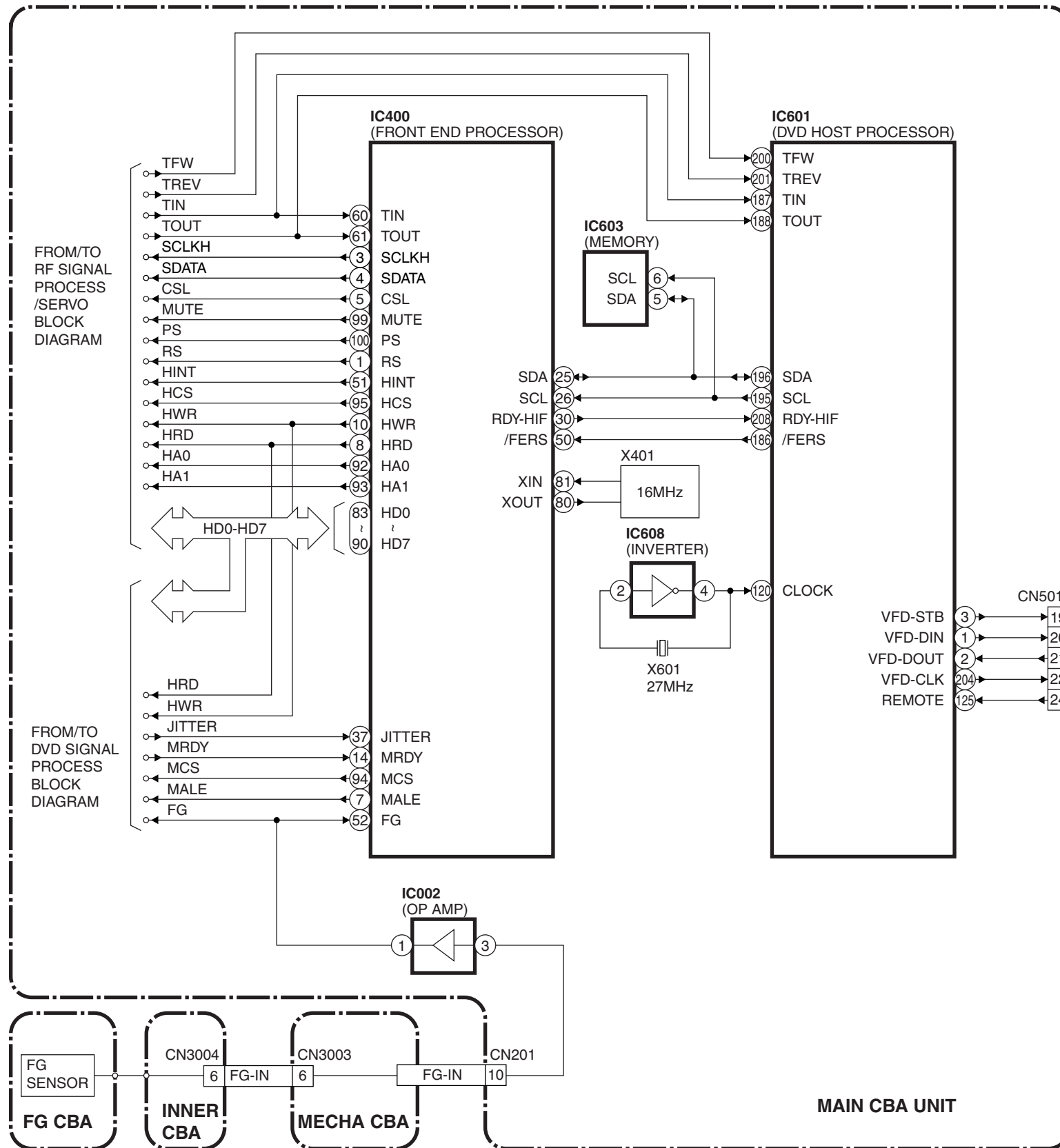
CAUTION 3: When reassembling, confirm the FFC cable (CN001) is connected completely. Then remove the solder from copper pattern (half-moon shape) of FPC cable. (Fig. 5)



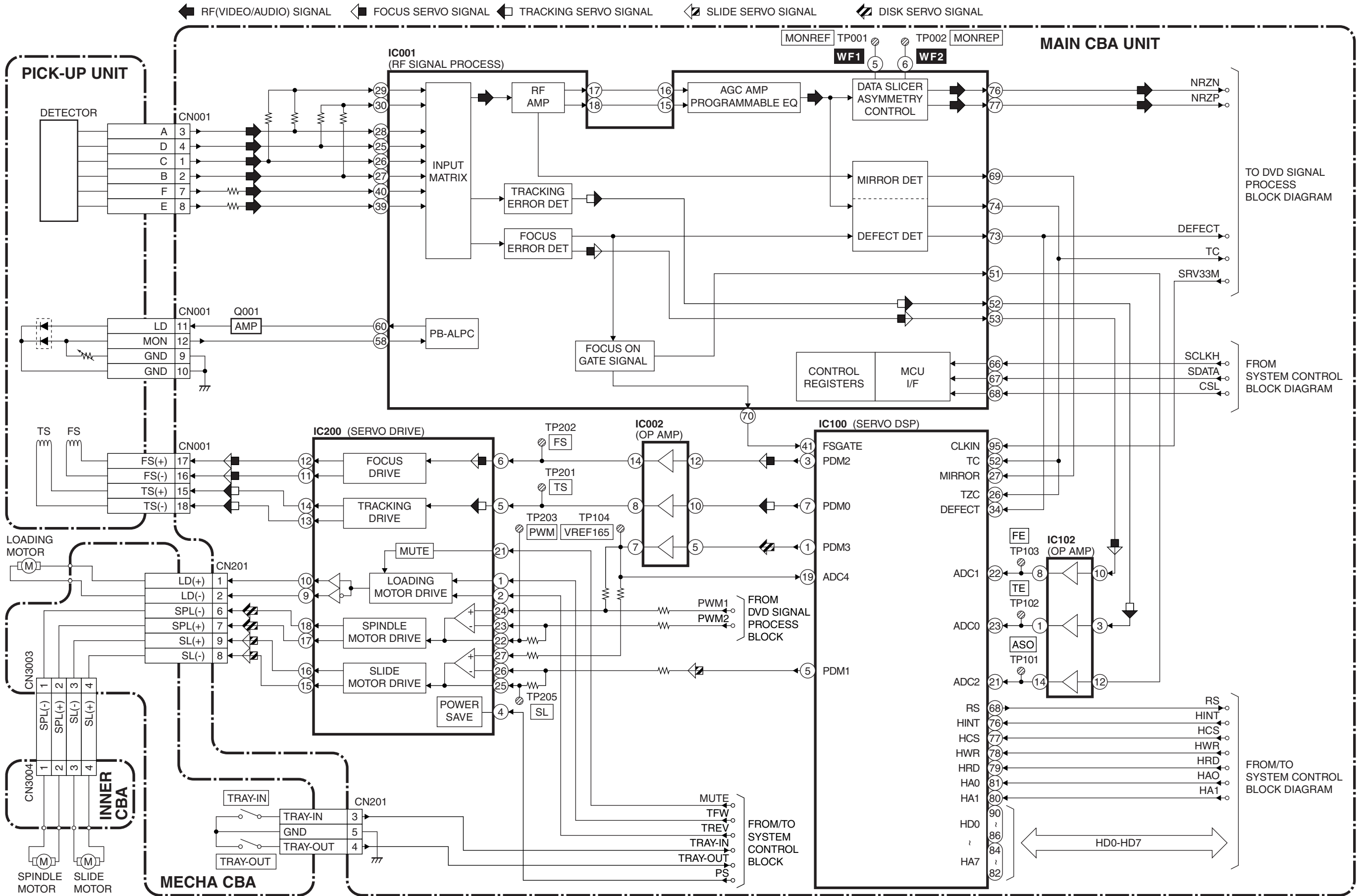


BLOCK DIAGRAMS

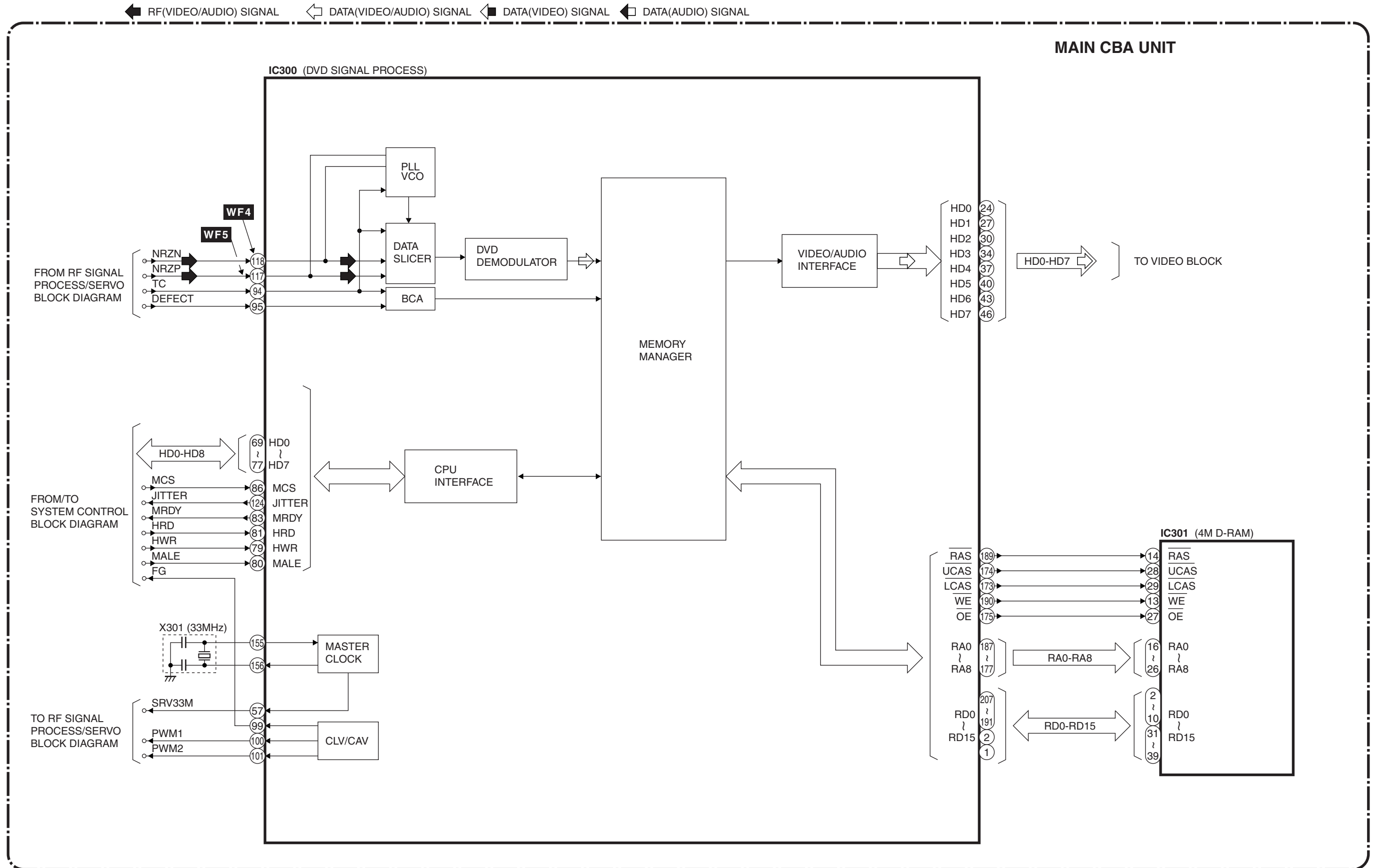
System Control Block Diagram



RF Signal Process/Servo Block Diagram

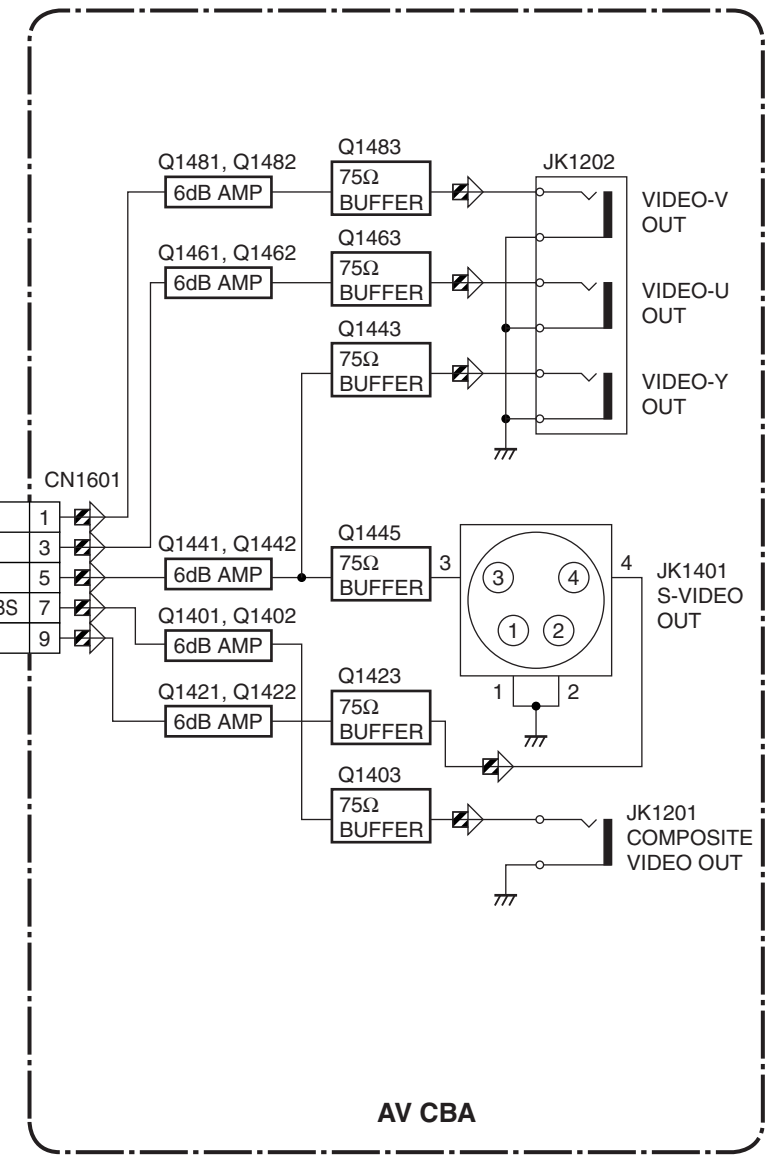
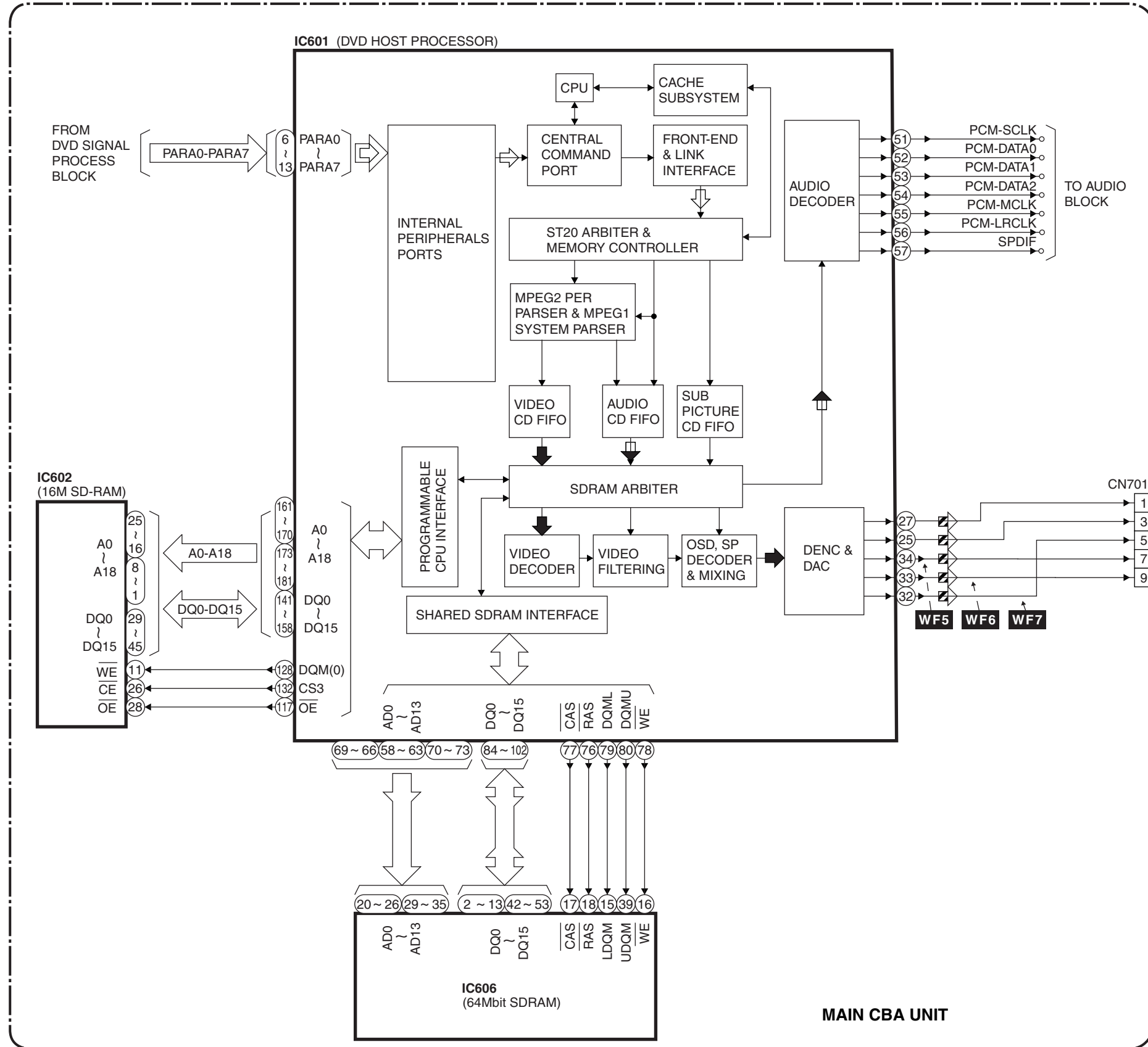


DVD Signal Process Block Diagram



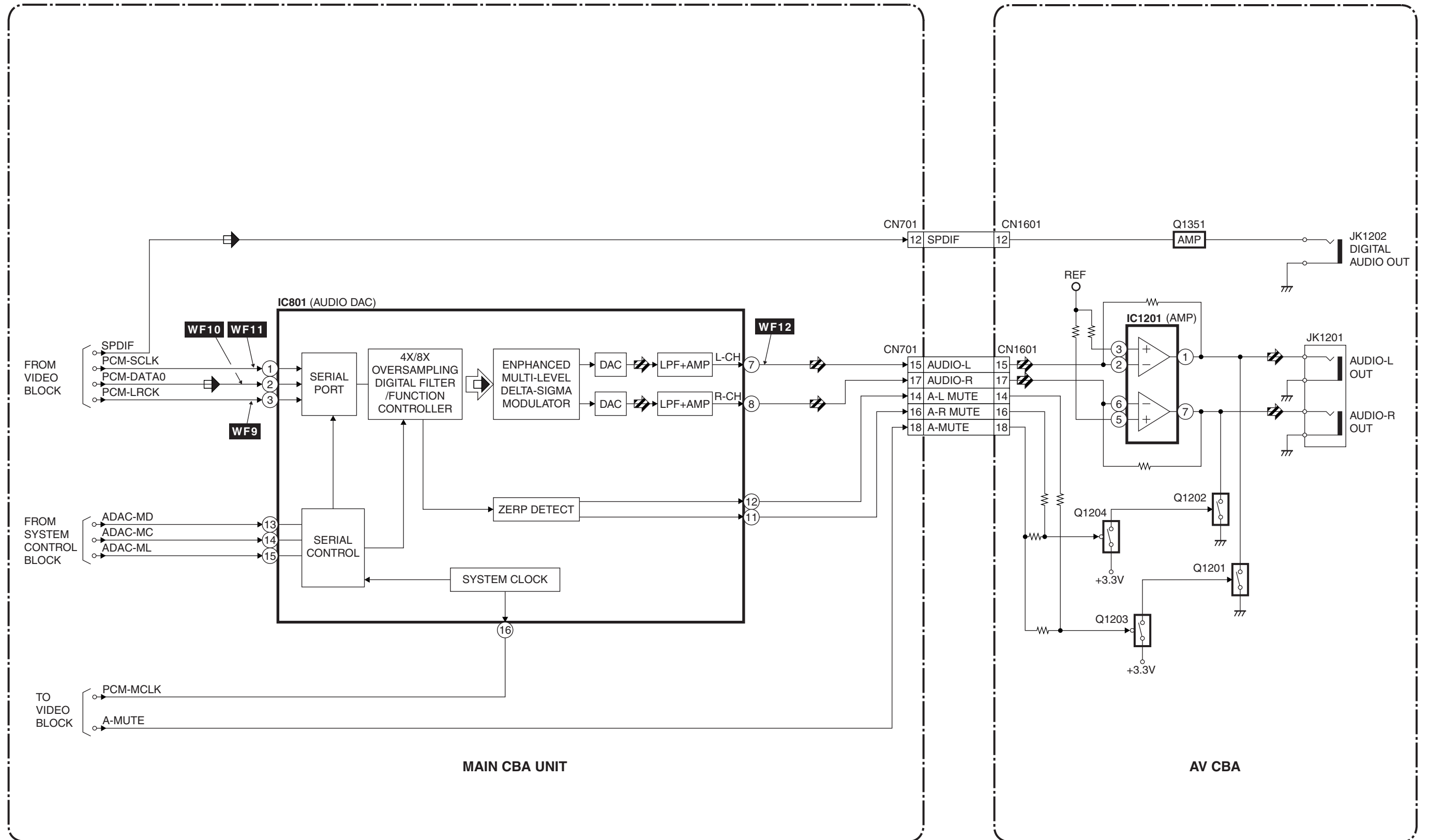
Video Block Diagram

DATA(VIDEO) SIGNAL
 DATA(AUDIO) SIGNAL
 VIDEO SIGNAL
 AUDIO SIGNAL
 DATA(VIDEO/AUDIO) SIGNAL
 DATA(VIDEO) SIGNAL



Audio Block Diagram

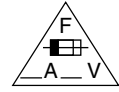
 DATA(AUDIO) SIGNAL
  VIDEO SIGNAL
  AUDIO SIGNAL



Power Supply Block Diagram

CAUTION !

Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F1001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.



CAUTION

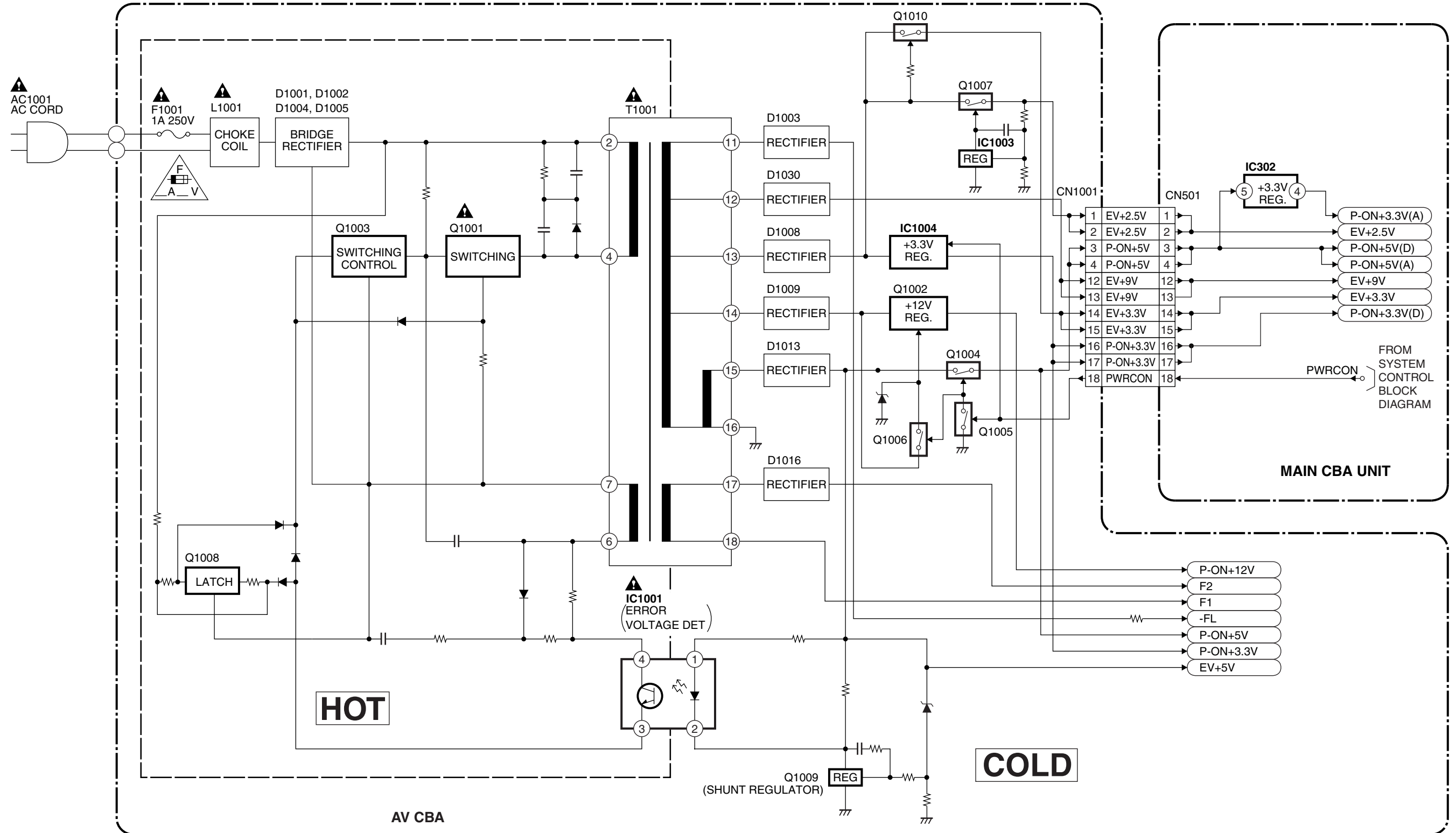
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQUES
D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.

RISK OF FIRE -REPLACE FUSE AS MARKED.

☒ "This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

NOTE :

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



SCHEMATIC DIAGRAMS / CBA'S 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.

Note:

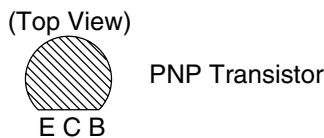
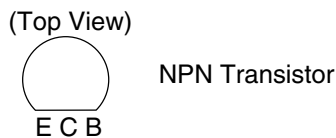
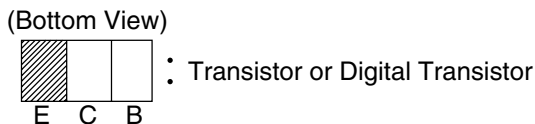
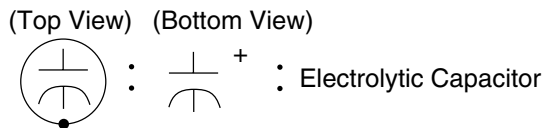
1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms ($K=10^3$, $M=10^6$).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in μF ($P=10^{-6}\mu F$).
5. All voltages are DC voltages unless otherwise specified.

Capacitor Temperature Markings

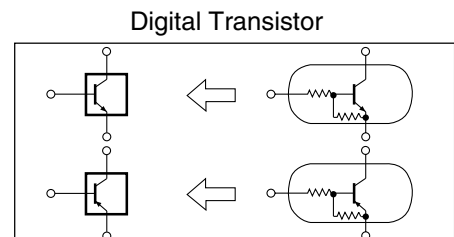
Mark	Capacity change rate	Standard temperature	Temperature range
(B)	$\pm 10\%$	20°C	-25~+85°C
(F)	+30 -80%	20°C	-25~+85°C
(SR)	$\pm 15\%$	20°C	-25~+85°C
(Z)	+30 -80%	20°C	-10~+70°C

Capacitors and transistors are represented by the following symbols.

CBA Symbols

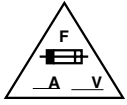


Schematic Diagram Symbols



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

1. CAUTION:



FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.

RISK OF FIRE-REPLACE FUSE AS MARKED.

2. CAUTION:



This symbol means fast operating fuse.
Ce symbole représente un fusible à fusion rapide.

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

3. Note:

- (1) Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.
- (2) To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

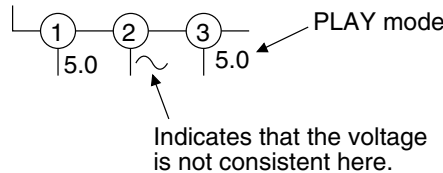
4. Wire Connectors

- (1) Prefix symbol "CN" means "connector" (can disconnect and reconnect).
- (2) Prefix symbol "CL" means "wire-solder holes of the PCB" (wire is soldered directly).

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

6. Mode: SP

7. Voltage indications for PLAY mode on the schematics are as shown below:



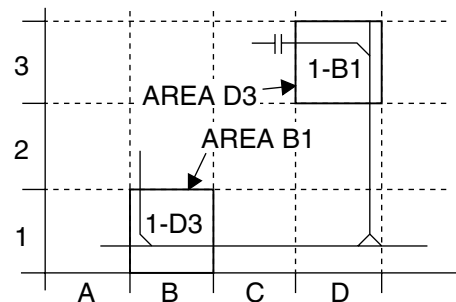
Unit: Volts

8. How to read converged lines

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

Examples:

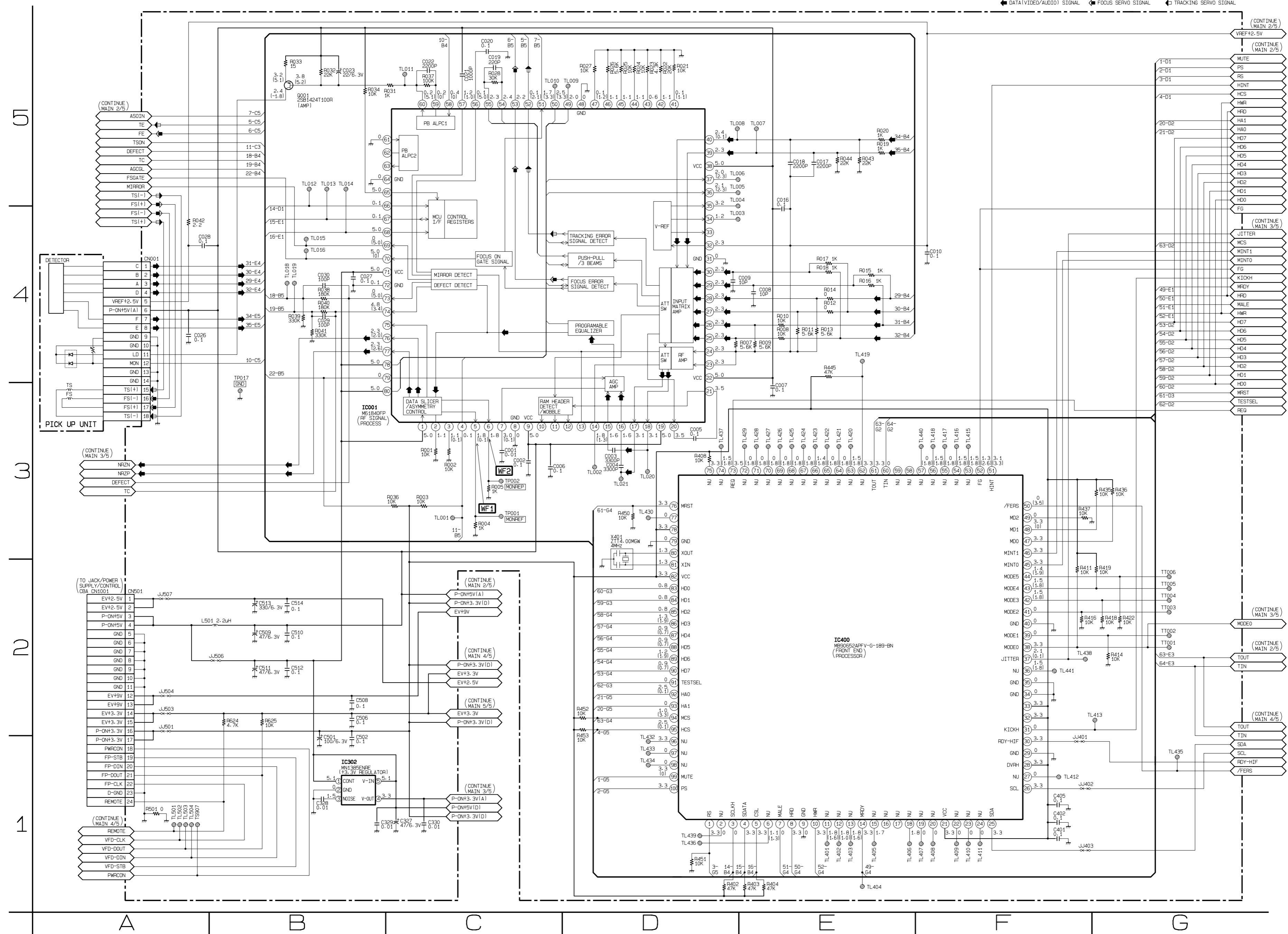
1. "1-D3" means that line number "1" goes to area "D3".
2. "1-B1" means that line number "1" goes to area "B1".



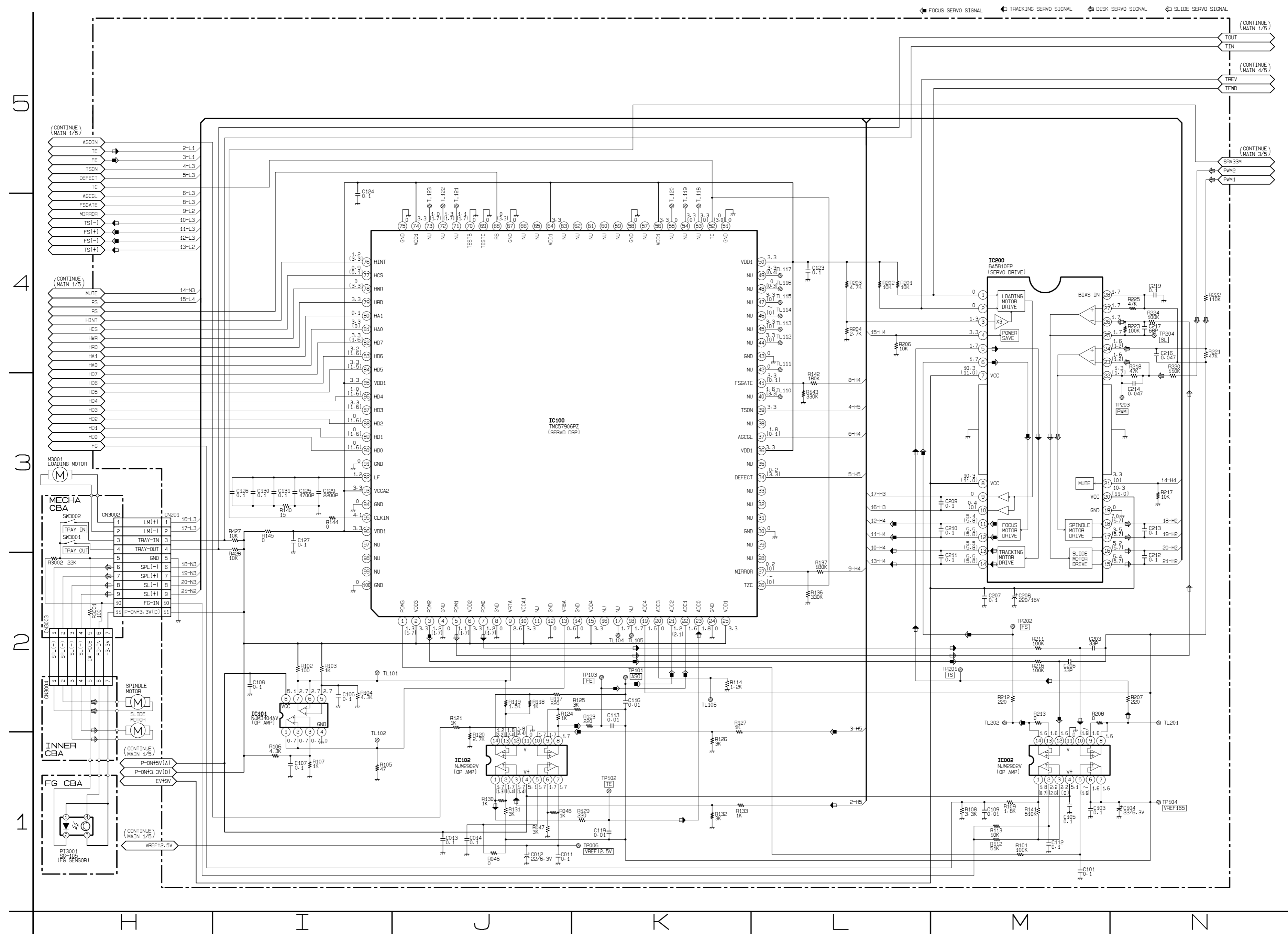
9. Test Point Information

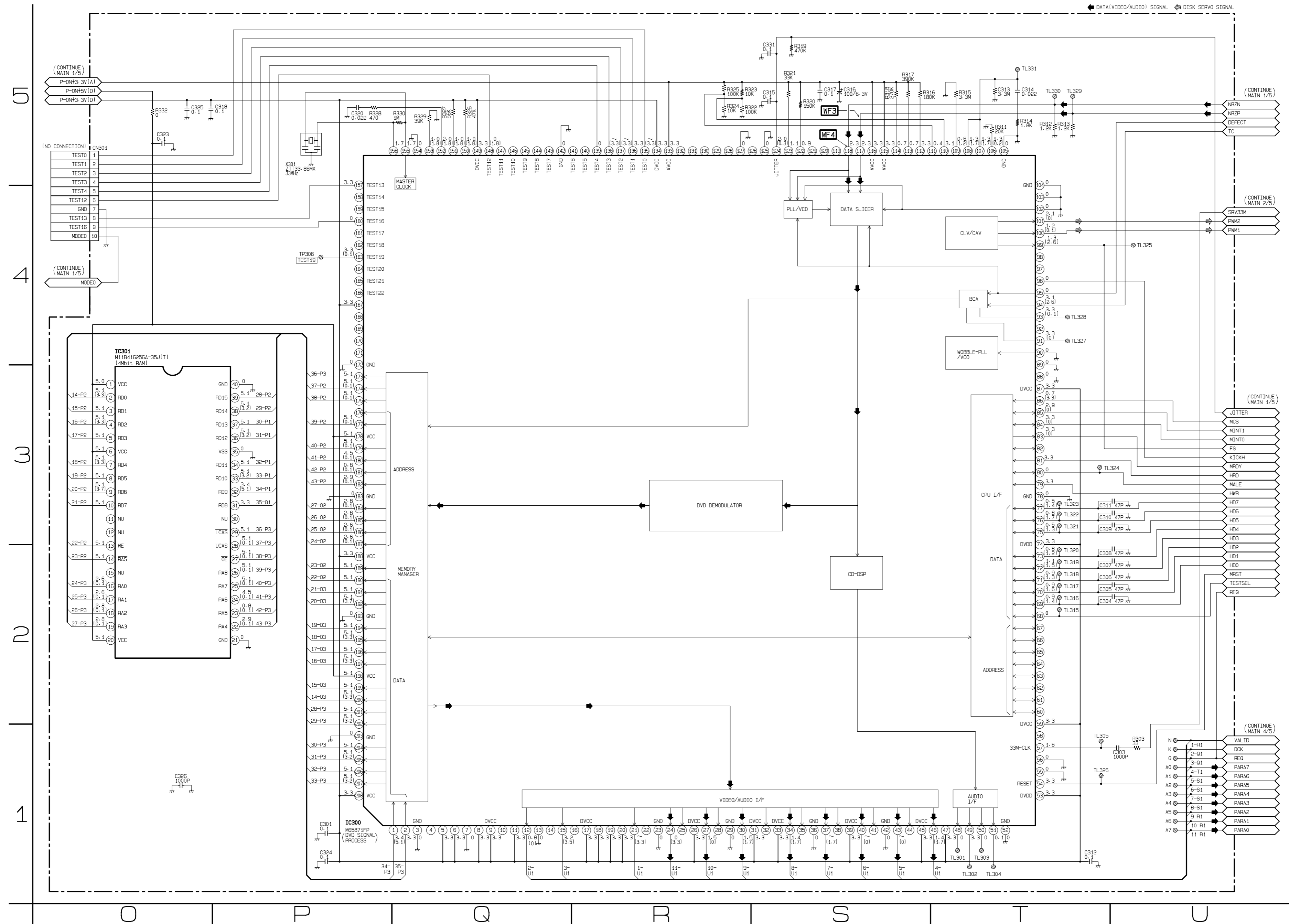
- ⊙ : Indicates a test point with a jumper wire across a hole in the PCB.
- : Used to indicate a test point with a component lead on foil side.
- ⊘ : Used to indicate a test point with no test pin.
- : Used to indicate a test point with a test pin.

Main 1/5 Schematic Diagram

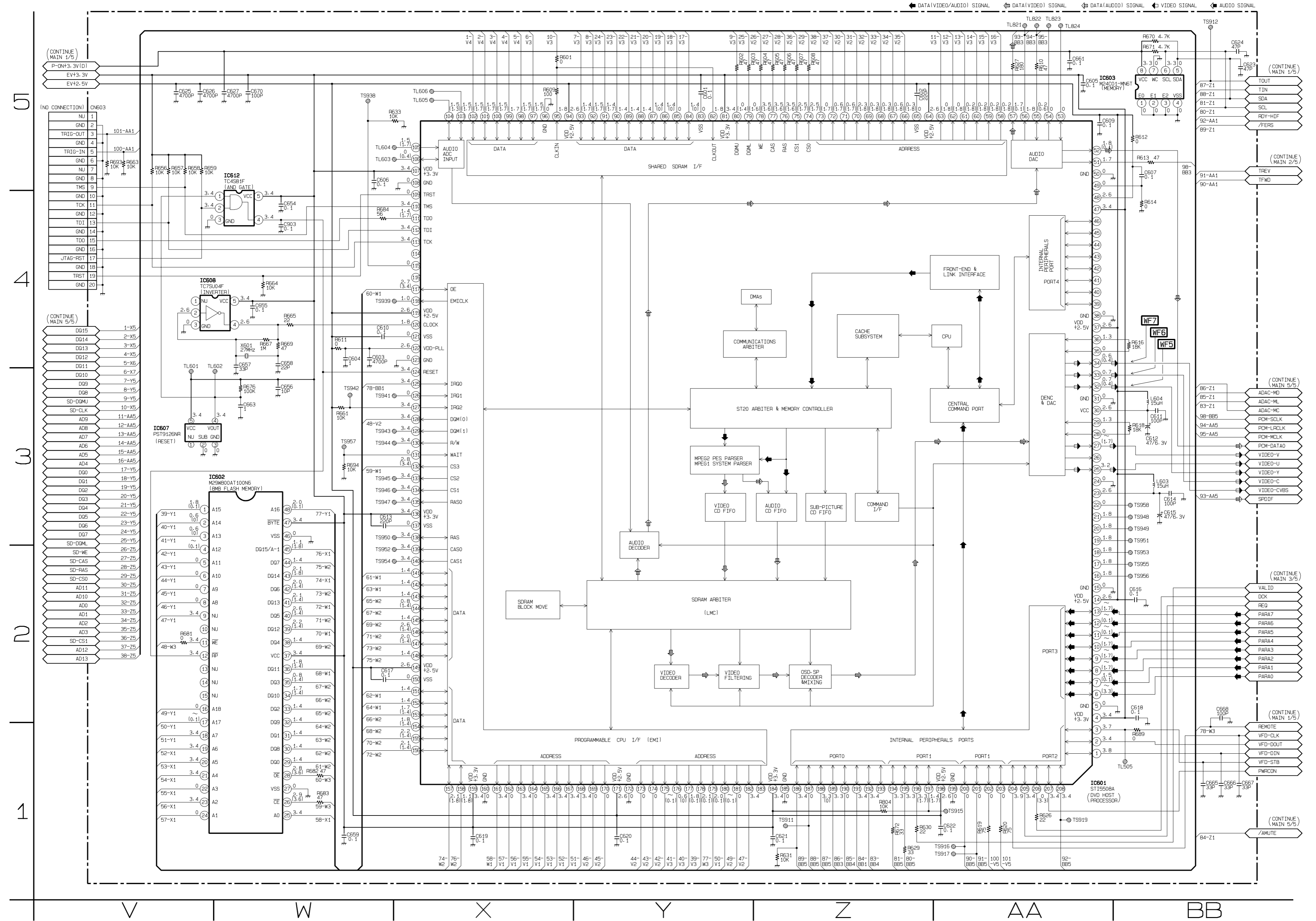


Main 2/5 Schematic Diagram

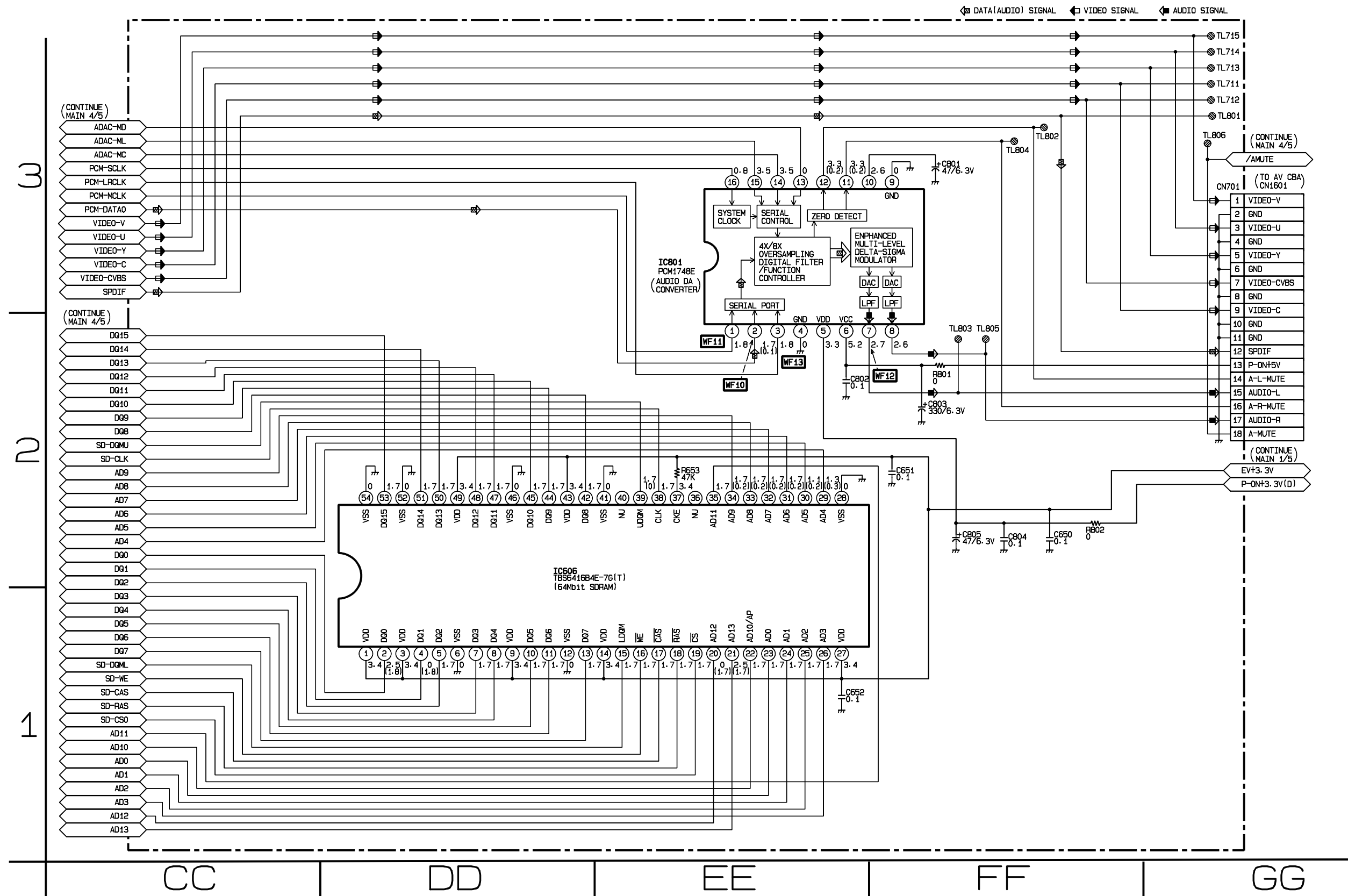




Main 4/5 Schematic Diagram



Main 5/5 Schematic Diagram



AV 1/3 Schematic Diagram

CAUTION !

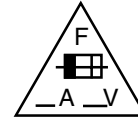
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F1001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

NOTE :

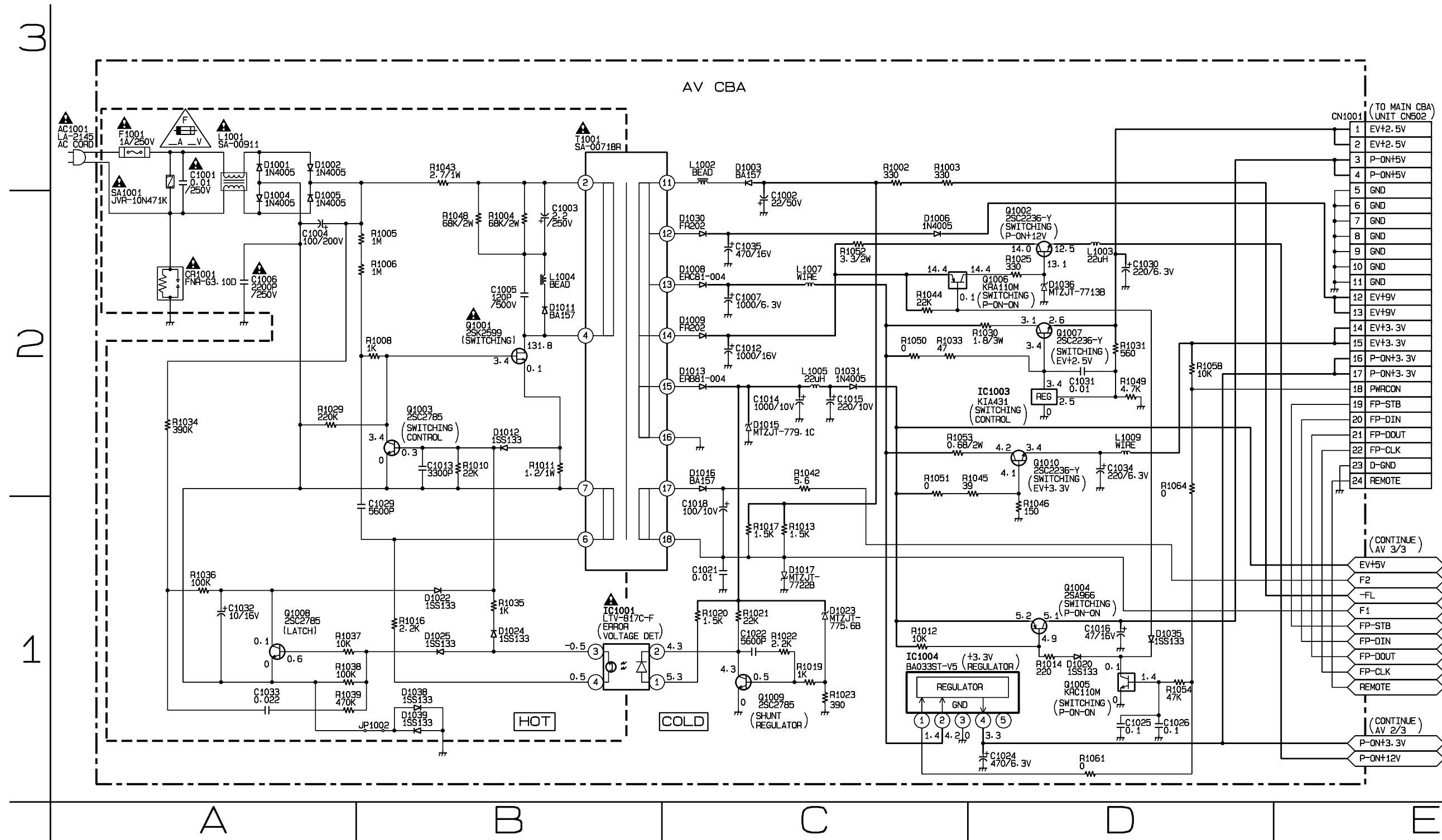
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

CAUTION

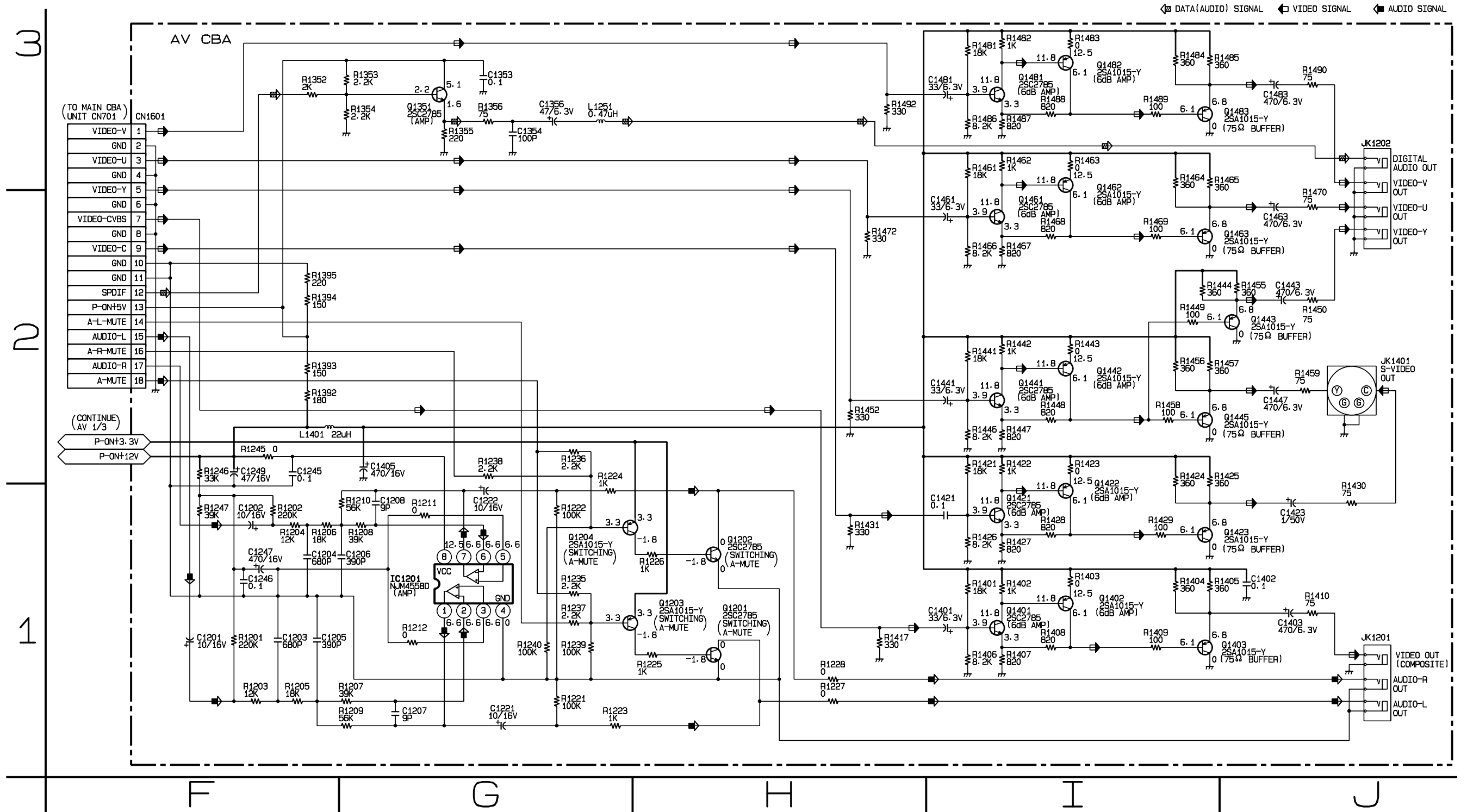
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQUES
D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.



"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."



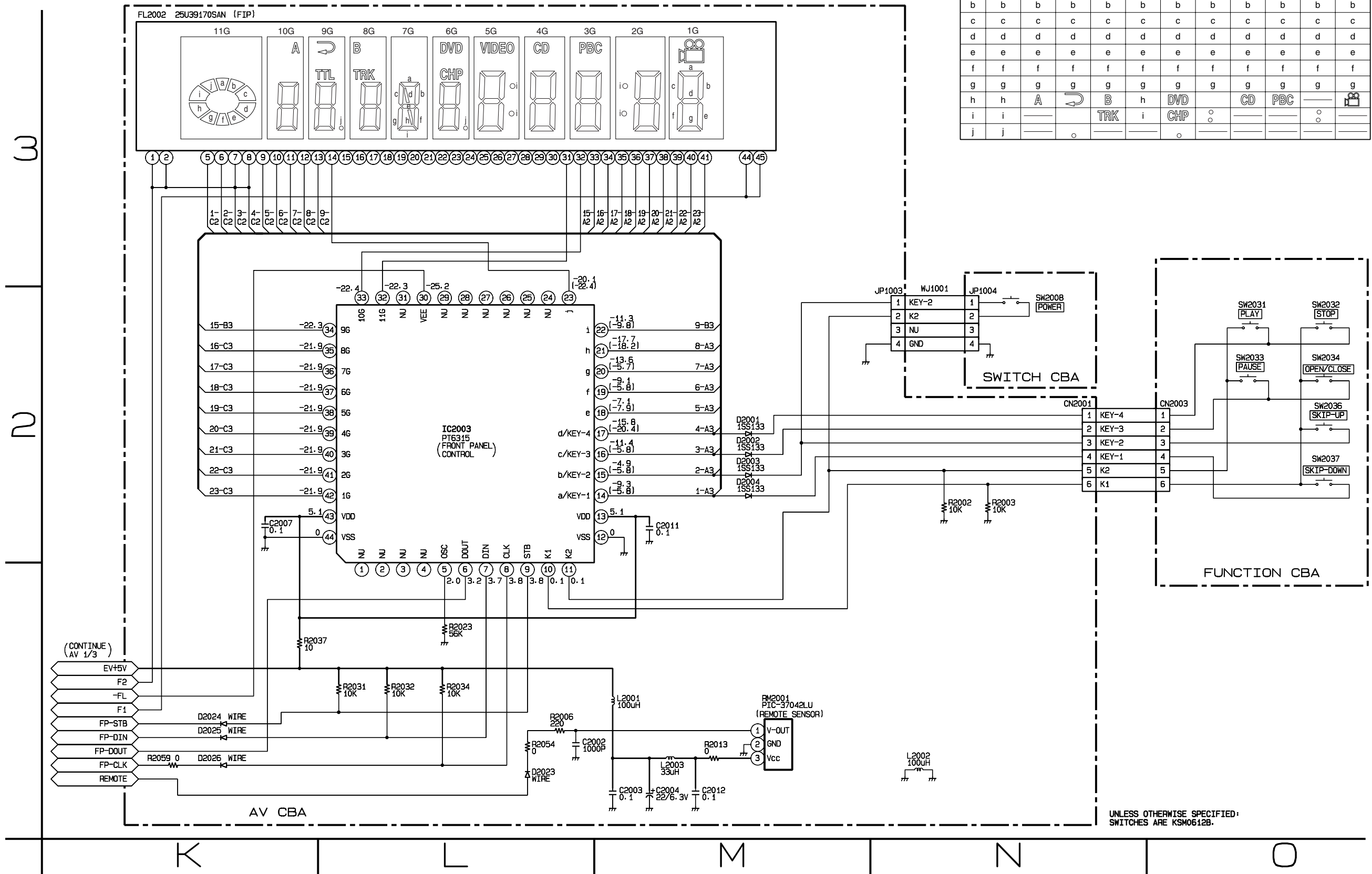
AV 2/3 Schematic Diagram



AV 3/3 & Function Schematic Diagram

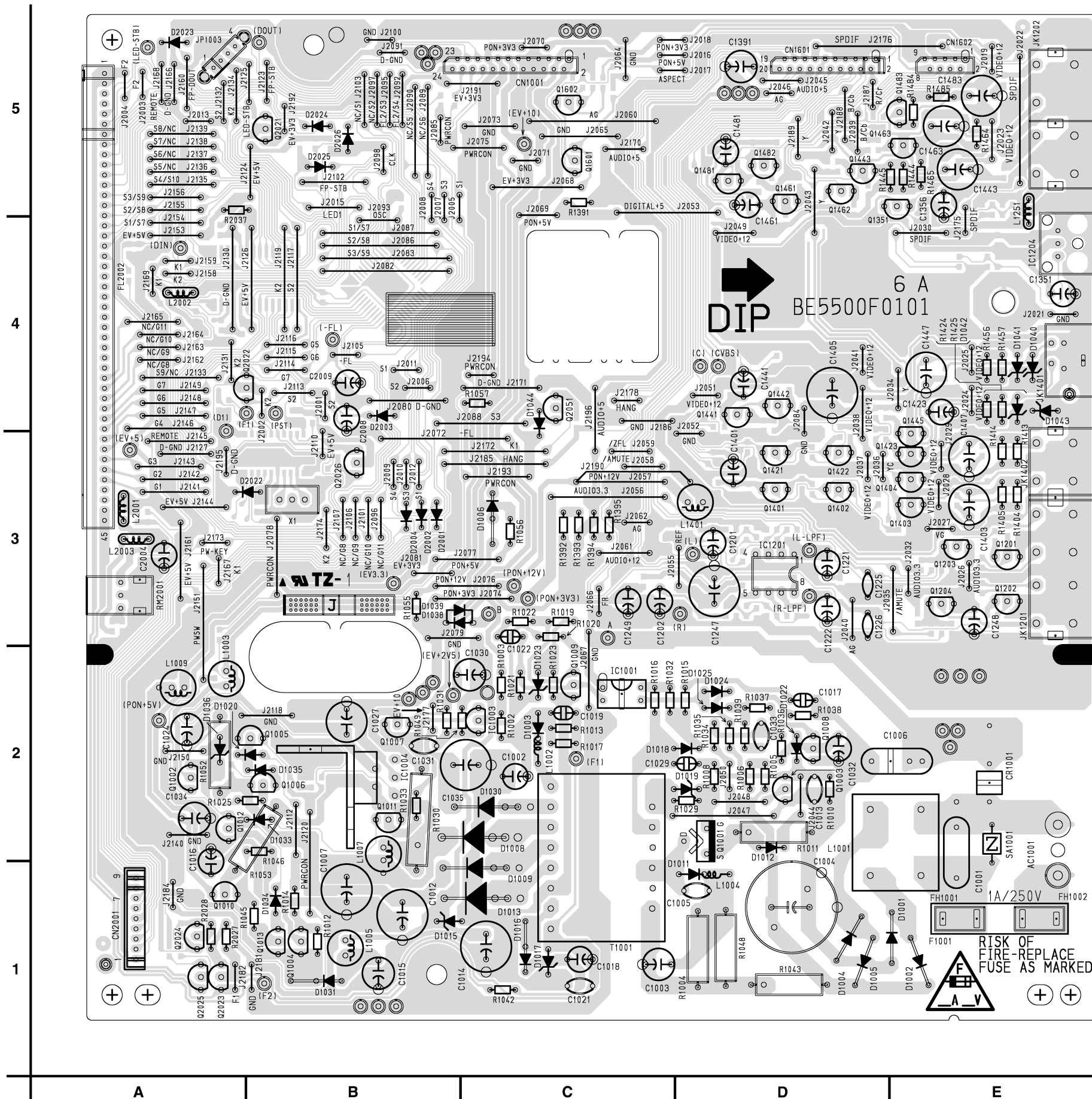
FL2001 MATRIX CHART

	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
a	a	a	a	a	a	a	a	a	a	a	a
b	b	b	b	b	b	b	b	b	b	b	b
c	c	c	c	c	c	c	c	c	c	c	c
d	d	d	d	d	d	d	d	d	d	d	d
e	e	e	e	e	e	e	e	e	e	e	e
f	f	f	f	f	f	f	f	f	f	f	f
g	g	g	g	g	g	g	g	g	g	g	g
h	h	A	B	h	DVD	CD	PBC				
i	i		TRK	i	CHP						
j	j										



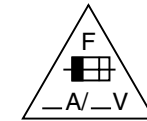
UNLESS OTHERWISE SPECIFIED:
SWITCHES ARE KSM0612B.

AV CBA Top View




CAUTION !

Fixed voltage power supply circuit is used in this unit.
 If Main Fuse (F1001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
 Otherwise it may cause some components in the power supply circuit to fail.



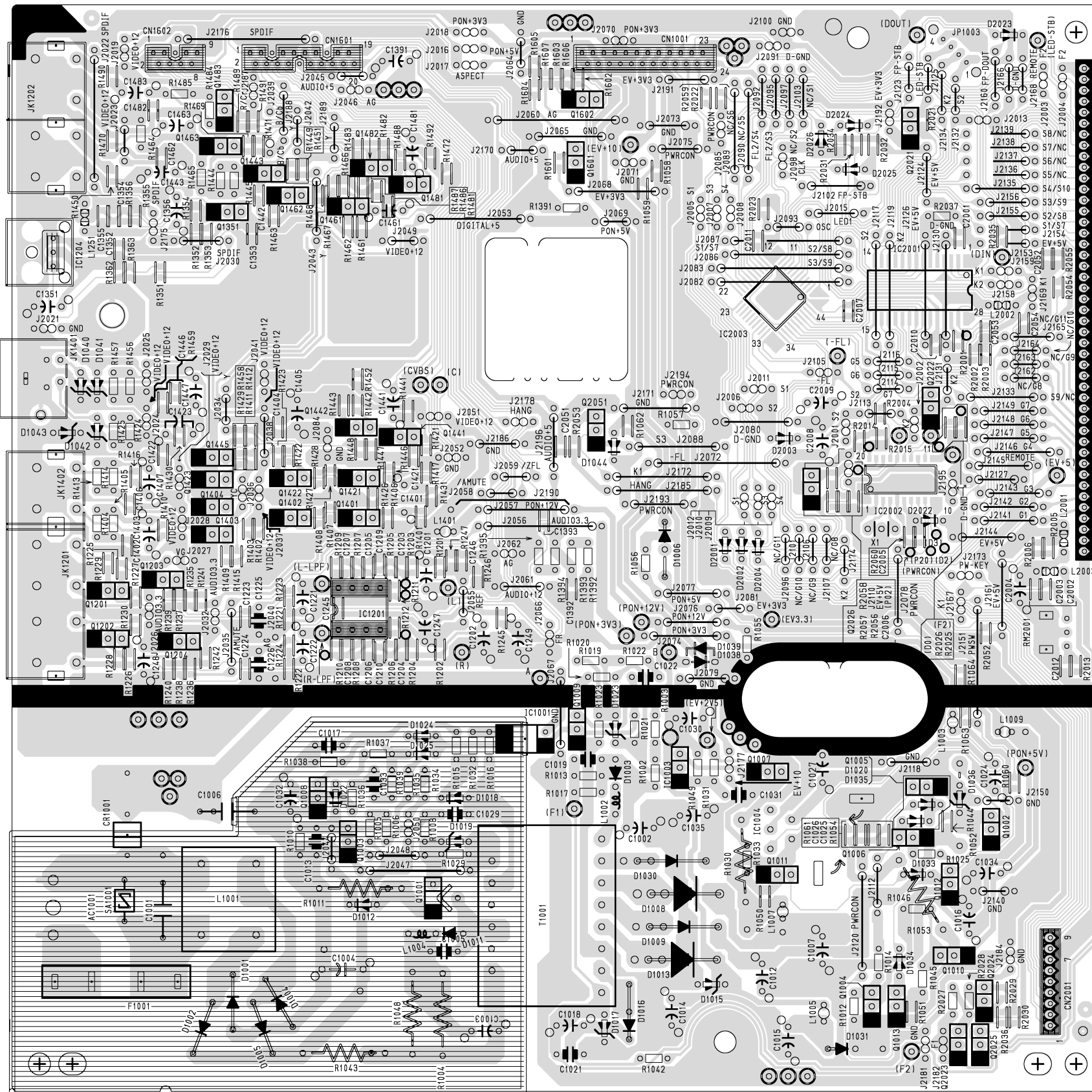
CAUTION
 FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
 REPLACE ONLY WITH THE SAME TYPE FUSE.
 ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQUES
 D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.

 "This symbol means fast operating fuse."
 "Ce symbole représente un fusible à fusion rapide."

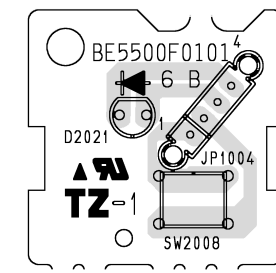
BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT, AN ISOLATION TRANSFORMER MUST BE USED. ALSO, IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY, WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT, A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.

RISK OF FIRE-REPLACE FUSE AS MARKED

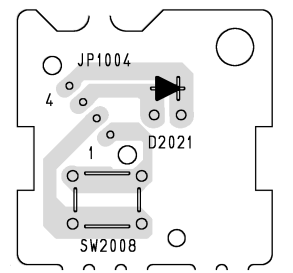
AV CBA Bottom View



Switch CBA Top View



Switch CBA Bottom View



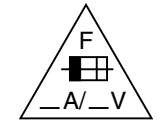
A

B

BE5500F01016-B

CAUTION !

Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F1001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.



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

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

E

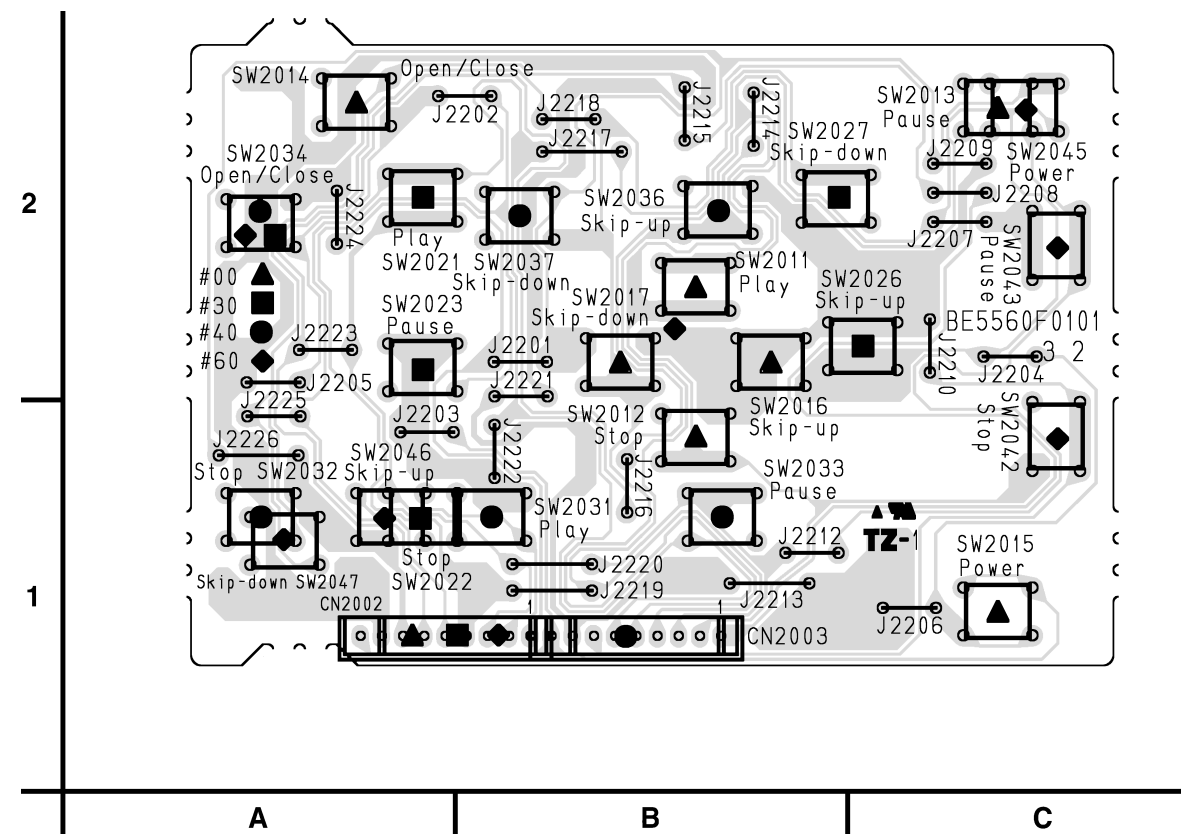
D

C

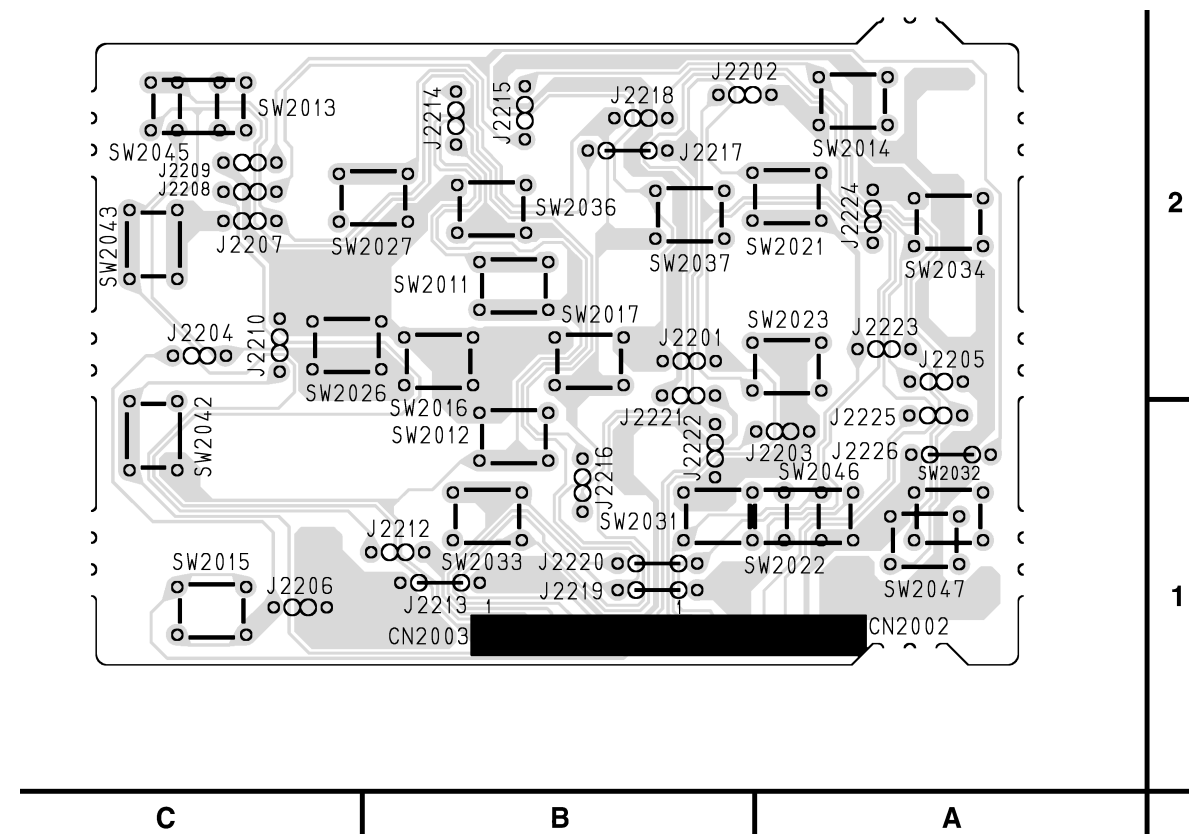
B

A

Function CBA Top View

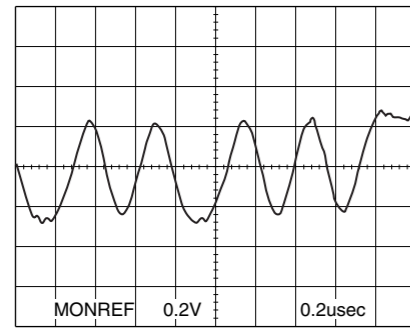


Function CBA Bottom View

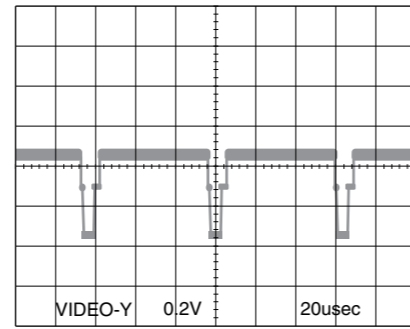


WAVEFORMS

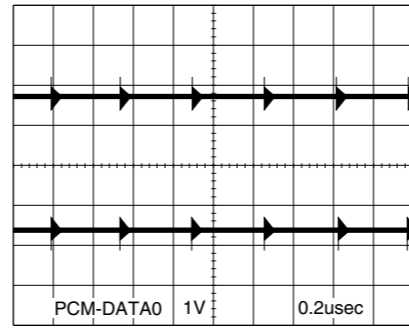
WF1 Pin 5 of IC001



WF5 Pin32 of IC601



WF9 Pin2 of IC801



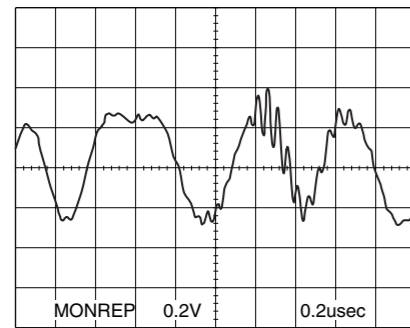
NOTE:

Input

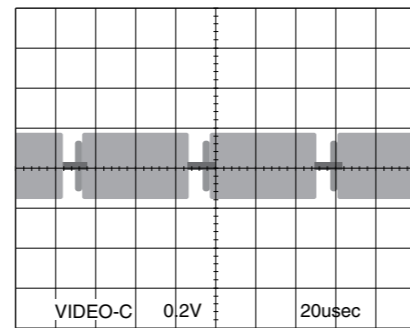
CD: 1KHz PLAY
(WF8~WF11)

DVD: BLUE BACK (STOP MODE)
(WF1~WF7)

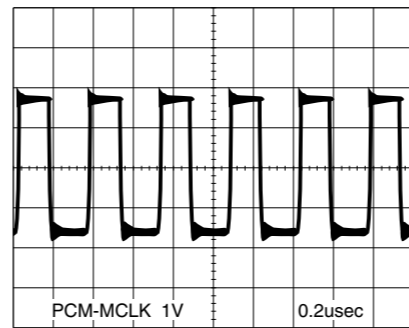
WF2 Pin 6 of IC001



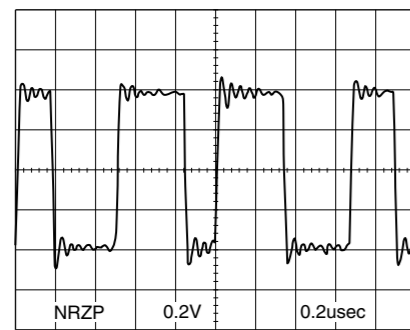
WF6 Pin33 of IC601



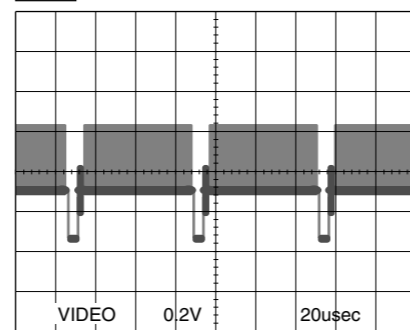
WF10 Pin1 of IC801



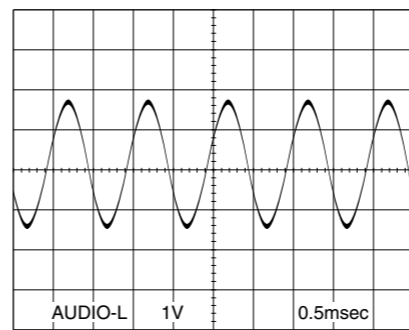
WF3 Pin 117 of IC300



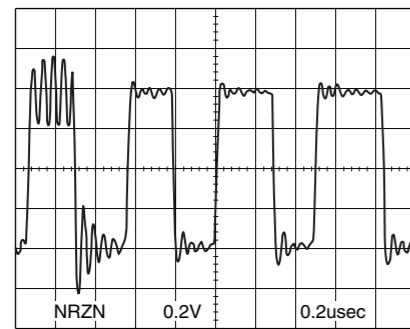
WF7 Pin34 of IC601



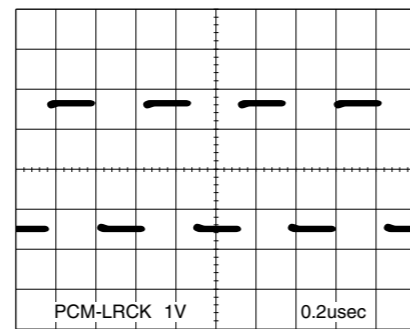
WF11 Pin7 of IC801



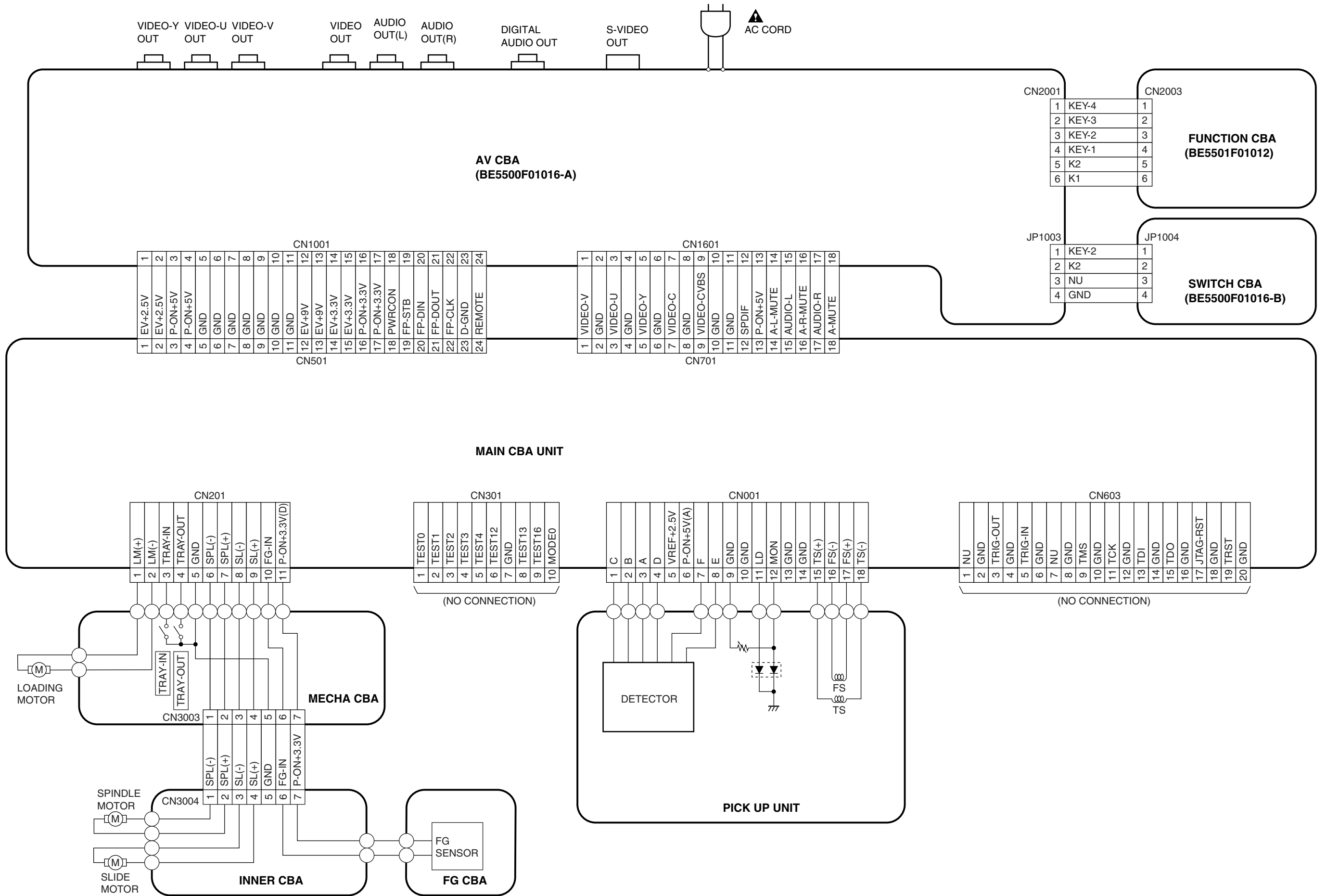
WF4 Pin 118 of IC300



WF8 Pin3 of IC801

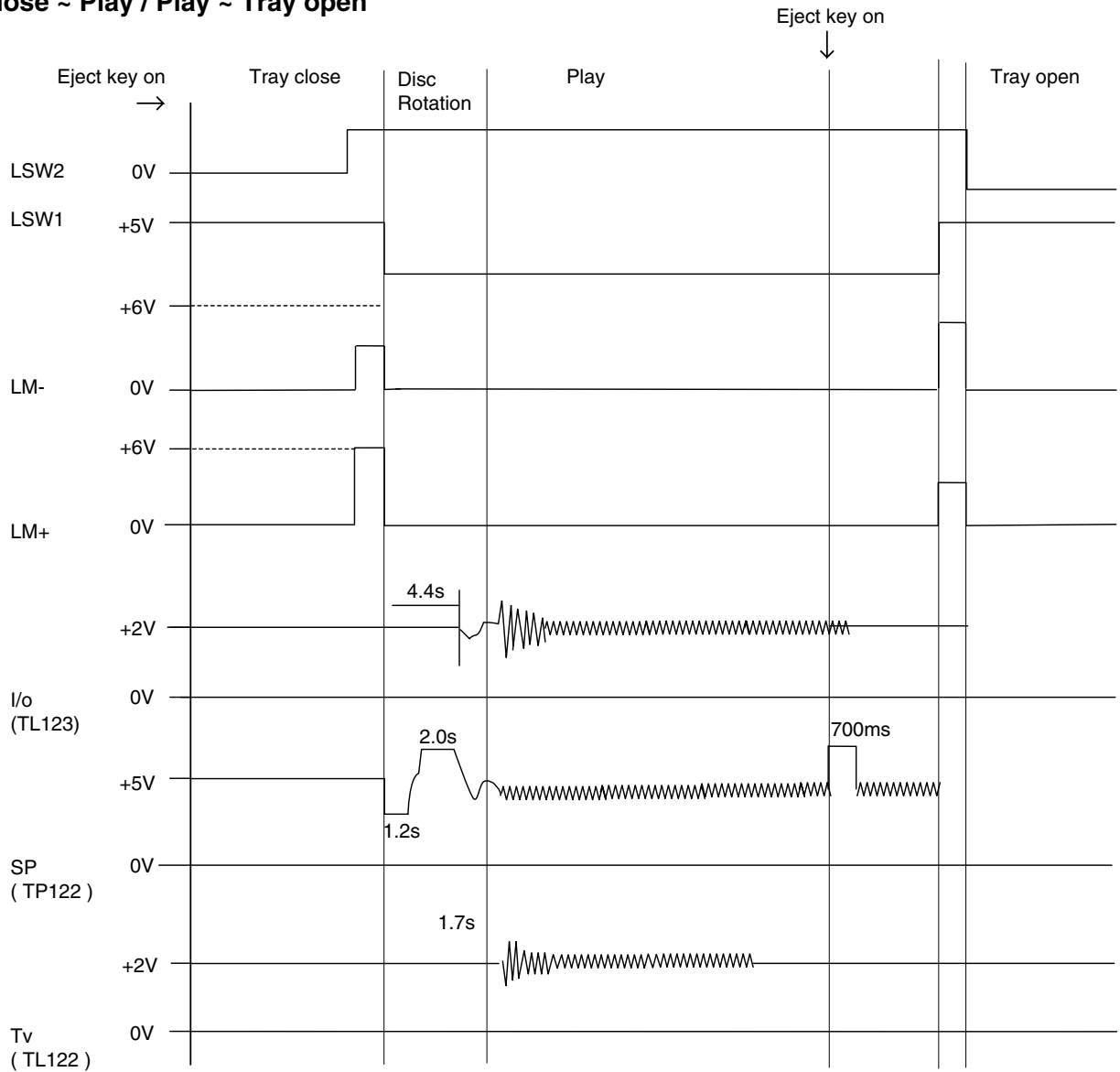


WIRING DIAGRAM



SYSTEM CONTROL TIMING CHARTS

Tray close ~ Play / Play ~ Tray open



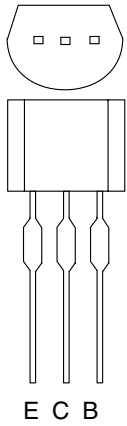
IC PIN FUNCTION DESCRIPTIONS

IC2003 (PT6315)

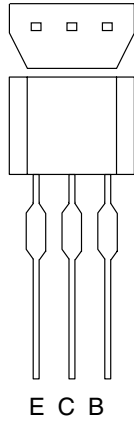
Pin No.	In/ Out	Signal Name	Function
1	-	N.U.	Not Used
2	-	N.U.	Not Used
3	-	N.U.	Not Used
4	-	N.U.	Not Used
5	In	OSC	Oscillator Input
6	Out	DOUT	Serial Data Output
7	In	DIN	Serial Data Input
8	In	CLK	Clock Input
9	In	STB	Serial Interface Strobe
10	In	K1	Key Data 1 Input
11	In	K2	Key Data 2 Input
12	-	VSS	GND
13	-	VDD	Power Supply
14	Out	a / KEY-1	Segment Output / Key Souce-1
15	Out	b / Key-2	Segment Output / Key Souce-2
16	Out	c / Key-3	Segment Output / Key Souce-3
17	Out	d / Key-4	Segment Output / Key Souce-4
18	OUT	e	Display Segment
19	OUT	f	Display Segment
20	OUT	g	Display Segment
21	OUT	h	Display Segment
22	OUT	i	Display Segment
23	OUT	j	Display Segment
24	-	N.U.	Not Used
25	-	N.U.	Not Used
26	-	N.U.	Not Used
27	-	N.U.	Not Used
28	-	N.U.	Not Used
29	-	N.U.	Not Used
30	-	VEE	Pull Down Level
31	-	N.U.	Not Used

Pin No.	In/ Out	Signal Name	Function		
32	OUT	11G	Grid Output		
33		10G			
34		9G			
35		8G			
36		7G			
37		6G			
38		5G			
39		4G			
40		3G			
41		2G			
42		1G			
43		-		VDD	Power Supply
44		-		VSS	GND

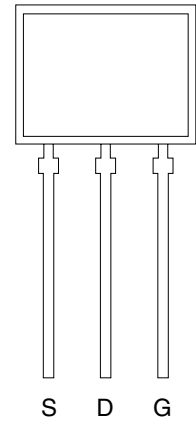
LEAD IDENTIFICATION



2SA1015-Y (TPE2)
 2SC1815-Y (TPE2)
 KTA1266 (Y)
 2SC1815-GR (TPE2)
 2SA966 (Y)
 2SC2236-Y-TPE6,C
 KTC3205(Y)

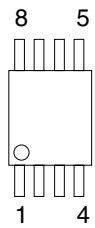


2SC2785 (J, H, F)
 KTC3199 (Y, GR)
 KRA110M
 KTA1273 (Y)
 KRC110M-AT
 BA1L3Z-T
 BN1L3Z (P)

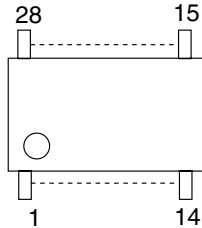


2SK2599

NJM4558D

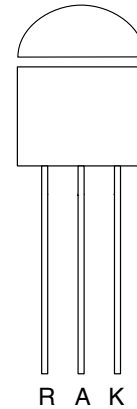


PT6315

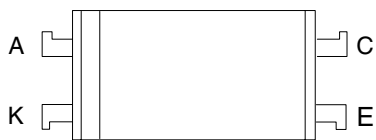


KIA431

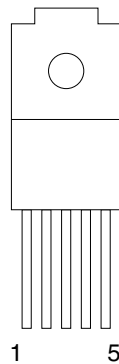
AN1431-(NSC)



LTV-817B-F
 LTV-817C-F
 PS2501-1 (D, H, L, M, W)
 PF-5001-B, C
 PC817 (A, B, AB)



BA033ST-V5




Note:

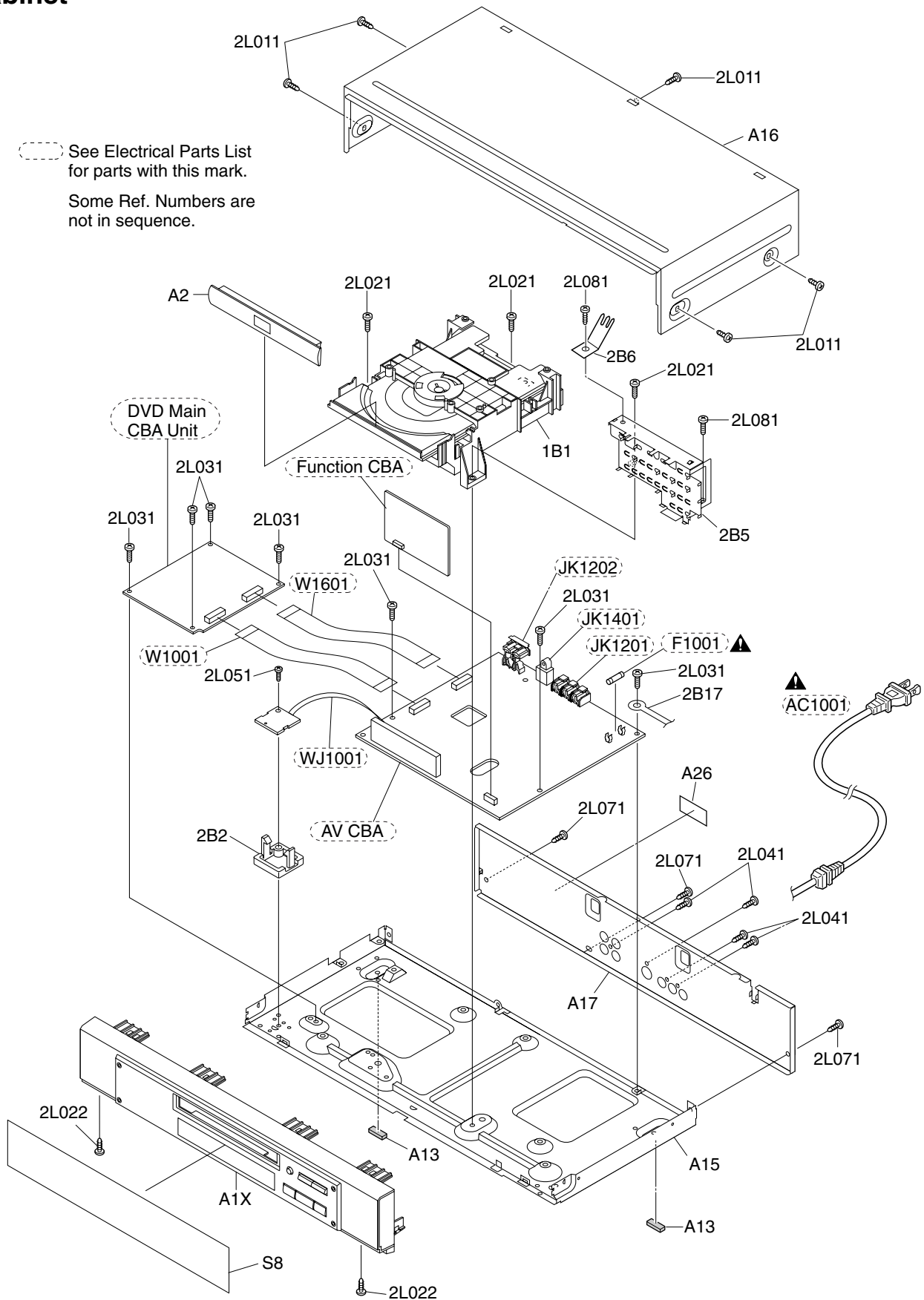
- A: Anode
- K: Cathode
- E: Emitter
- C: Collector
- B: Base
- R: Reference
- 1 VCC
- 2 GND
- 3 OUT

EXPLODED VIEWS

Cabinet

 See Electrical Parts List for parts with this mark.

Some Ref. Numbers are not in sequence.



ELECTRICAL PARTS LIST

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

NOTE:

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

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

Main CBA

Ref. No.	Description	Part No.
	DVD MAIN CBA	N79M0EUP

AV CBA

Ref. No.	Description	Part No.
	AV CBA Consists of the following:	0VSA11636
CAPACITORS		
C1001 ▲	METALLIZED FILM CAP. 0.01µF/250V K or	CT2E103DC011
▲	METALLIZED FILM CAP. 0.01µF/250V M	CT2E103MS037
C1002	ELECTROLYTIC CAP. 22µF/50V M	CE1JMASDL220
C1003	ELECTROLYTIC CAP. 2.2µF/250V M or	CA2E2R2S6009
	ELECTROLYTIC CAP. 2.2µF/250V M(105°C)	CE2EMASTH2R2
C1004	ELECTROLYTIC CAP. 100µF/200V M	CE2DMZNDL101
C1005	CERAMIC CAP. B K 120pF/500V	CCD2JKP0B121
C1006 ▲	SAFETY CAP. 2200pF/250V or	CCG2EMA0F222
▲	SAFETY CAP. 2200pF/125V or	CCG2BMA0E222
▲	SAFETY CAP. 2200pF/250V	CCG2EMA0E222
C1007	ELECTROLYTIC CAP. 1000µF/6.3V M	CE0KMASDL102
C1012	ELECTROLYTIC CAP. 1000µF/16V M	CE1CMASDL102
C1013	FILM CAP.(P) 0.0033µF/50V J or	CMA1JJS00332
	FILM CAP.(P) 0.0033µF/50V J	CA1J332MS029
C1014	ELECTROLYTIC CAP. 1000µF/10V M	CE1AMASDL102
C1015	ELECTROLYTIC CAP. 220µF/10V M	CE1AMASDL221
C1016	ELECTROLYTIC CAP. 47µF/16V M	CE1CMASDL470
C1018	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C1021	CERAMIC CAP. B K 0.01µF/50V	CCD1JKS0B103
C1022	CERAMIC CAP.(AX) X K 5600pF/16V	CCA1CKT0X562
C1024	ELECTROLYTIC CAP. 470µF/6.3V M	CE0KMASDL471
C1025	CHIP CERAMIC CAP. B K 0.1µF/25V or	CHD1EK30B104
	CHIP CERAMIC CAP. B K 0.1µF/16V	CHD1CK30B104
C1026	CHIP CERAMIC CAP. B K 0.1µF/25V or	CHD1EK30B104
	CHIP CERAMIC CAP. B K 0.1µF/16V	CHD1CK30B104
C1029	CERAMIC CAP.(AX) X K 5600pF/16V	CCA1CKT0X562
C1030	ELECTROLYTIC CAP. 220µF/6.3V M	CE0KMASDL221
C1031	FILM CAP.(P) 0.01µF/50V J or	CMA1JJS00103
	FILM CAP.(P) 0.01µF/50V J	CA1J103MS029
C1032	ELECTROLYTIC CAP. 10µF/16V M	CE1CMASDL100
C1033	CERAMIC CAP. YV Z 0.022µF/50V or	CCD1JZSYV223

Ref. No.	Description	Part No.
	CERAMIC CAP. F Z 0.022µF/50V	CCD1JZS0F223
C1034	ELECTROLYTIC CAP. 220µF/6.3V M	CE0KMASDL221
C1035	ELECTROLYTIC CAP. 470µF/16V M	CE1CMASDL471
C1201	ELECTROLYTIC CAP. 10µF/16V M	CE1CMASDL100
C1202	ELECTROLYTIC CAP. 10µF/16V M	CE1CMASDL100
C1203	CHIP CERAMIC CAP. CH J 680pF/50V	CHD1JJ3CH681
C1204	CHIP CERAMIC CAP. CH J 680pF/50V	CHD1JJ3CH681
C1205	CHIP CERAMIC CAP. CH J 390pF/50V	CHD1JJ3CH391
C1206	CHIP CERAMIC CAP. CH J 390pF/50V	CHD1JJ3CH391
C1207	CHIP CERAMIC CAP. CH D 9pF/50V	CHD1JD3CH9R0
C1208	CHIP CERAMIC CAP. CH D 9pF/50V	CHD1JD3CH9R0
C1221	ELECTROLYTIC CAP. 10µF/16V M	CE1CMASDL100
C1222	ELECTROLYTIC CAP. 10µF/16V M	CE1CMASDL100
C1245	CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZ30F104
	CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZ30F104
C1246	CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZ30F104
	CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZ30F104
C1247	ELECTROLYTIC CAP. 470µF/16V M	CE1CMASDL471
C1249	ELECTROLYTIC CAP. 47µF/16V M	CE1CMASDL470
C1353	CHIP CERAMIC CAP. B K 0.1µF/25V or	CHD1EK30B104
	CHIP CERAMIC CAP. B K 0.1µF/16V	CHD1CK30B104
C1354	CHIP CERAMIC CAP. CH J 100pF/50V	CHD1JJ3CH101
C1356	ELECTROLYTIC CAP. 47µF/6.3V M	CE0KMASDL470
C1401	ELECTROLYTIC CAP. 33µF/6.3V M	CE0KMASDL330
C1402	CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZ30F104
	CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZ30F104
C1403	ELECTROLYTIC CAP. 470µF/6.3V M	CE0KMASDL471
C1405	ELECTROLYTIC CAP. 470µF/16V M	CE1CMASDL471
C1421	CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZ30F104
	CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZ30F104
C1423	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL1R0
C1441	ELECTROLYTIC CAP. 33µF/6.3V M	CE0KMASDL330
C1443	ELECTROLYTIC CAP. 470µF/6.3V M	CE0KMASDL471
C1447	ELECTROLYTIC CAP. 470µF/6.3V M	CE0KMASDL471
C1461	ELECTROLYTIC CAP. 33µF/6.3V M	CE0KMASDL330
C1463	ELECTROLYTIC CAP. 470µF/6.3V M	CE0KMASDL471
C1481	ELECTROLYTIC CAP. 33µF/6.3V M	CE0KMASDL330
C1483	ELECTROLYTIC CAP. 470µF/6.3V M	CE0KMASDL471
C2002	CHIP CERAMIC CAP. B K 1000pF/50V	CHD1JK30B102
C2003	CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZ30F104
	CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZ30F104
C2004	ELECTROLYTIC CAP. 22µF/6.3V M H7	CE0KMASSL220
C2007	CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZ30F104
	CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZ30F104
C2011	CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZ30F104
	CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZ30F104
C2012	CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZ30F104
	CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZ30F104
CONNECTORS		
CN1001	FMN CONNECTOR, TOP 24P 24FMN-BTRK	JCFNG24JG002
CN1601	FMN CONNECTOR, TOP 18P 18FMN-BTK	JCFNG18JG001
CN2001	CONNECTOR BASE, 6P TUC-P06P-B1	J3TUA06TG001
DIODES		
D1001	RECTIFIER DIODE 1N4005 or	NDQZ001N4005
	RECTIFIER DIODE 1N4005	ND8Z001N4005
D1002	RECTIFIER DIODE 1N4005 or	NDQZ001N4005
	RECTIFIER DIODE 1N4005	ND8Z001N4005

Ref. No.	Description	Part No.
D1003	RECTIFIER DIODE BA157 or FAST RECOVERY DIODE ERA18-04	NDQZ000BA157 QDPZ0ERA1804
D1004	RECTIFIER DIODE 1N4005 or RECTIFIER DIODE 1N4005	NDQZ001N4005 ND8Z001N4005
D1005	RECTIFIER DIODE 1N4005 or RECTIFIER DIODE 1N4005	NDQZ001N4005 ND8Z001N4005
D1006	RECTIFIER DIODE 1N4005 or RECTIFIER DIODE 1N4005	NDQZ001N4005 ND8Z001N4005
D1008	SCHOTTKY BARRIER DIODE SB340 or SCHOTTKY BARRIER DIODE ERC81-004	NDQZ000SB340 QDPZERC81004
D1009	RECTIFIER DIODE FR202 or FAST RECOVERY DIODE ERB32-01L3	NDQZ000FR202 QDQZ0ERB3201
D1011	RECTIFIER DIODE BA157 or FAST RECOVERY DIODE ERA18-04	NDQZ000BA157 QDPZ0ERA1804
D1012	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D1013	SCHOTTKY BARRIER DIODE SB140 or SCHOTTKY BARRIER DIODE ERB81-004	NDQZ000SB140 AERB81004***
D1015	ZENER DIODE MTZJT-779.1C	QDTC0MTZJ9R1
D1016	RECTIFIER DIODE BA157 or FAST RECOVERY DIODE ERA18-04	NDQZ000BA157 QDPZ0ERA1804
D1017	ZENER DIODE MTZJT-7722B	QDTB00MTZJ22
D1020	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D1022	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D1023	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D1024	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D1025	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D1030	RECTIFIER DIODE FR202 or FAST RECOVERY DIODE ERB32-01L3	NDQZ000FR202 QDQZ0ERB3201
D1031	RECTIFIER DIODE 1N4005 or RECTIFIER DIODE 1N4005	NDQZ001N4005 ND8Z001N4005
D1035	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D1036	ZENER DIODE MTZJT-7713B	QDTB00MTZJ13
D1038	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D1039	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D2001	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D2002	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D2003	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D2004	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D2023	PCB JUMPER D0.6-P5.0	JW5.0T
D2024	PCB JUMPER D0.6-P5.0	JW5.0T
D2025	PCB JUMPER D0.6-P5.0	JW5.0T
D2026	PCB JUMPER D0.6-P5.0	JW5.0T
ICS		
IC1001 ▲	PHOTOCOUPLER LTV-817C-F or ▲ PHOTOCOUPLER LTV-817B-F or ▲ PHOTO COUPLER PF5001-B,C or ▲ PHOTOCOUPLER PS2501-1H or ▲ PHOTO COUPLER PS2501-1L or	NPEC0LTV817F NPEB0LTV817F QPE300PF5001 QPEH0PS25011 QPEL0PS25011

Ref. No.	Description	Part No.
▲	PHOTO COUPLER PS2501-1M or	QPEM0PS25011
▲	PHOTOCOUPLER PS2501-1W or	QPEW0PS25011
▲	PHOTOCOUPLER PS2501-1D or	QPED0PS25011
▲	PHOTOCOUPLER PC817(A) or	QPPA000PC817
▲	PHOTOCOUPLER PC817(B) or	QPPB000PC817
▲	PHOTO COUPLER PC817(AB) or	QPP1000PC817
▲	PHOTOCOUPLER EL817A or	NPEA000EL817
▲	PHOTOCOUPLER EL817B or	NPEB000EL817
▲	PHOTOCOUPLER EL817C	NPEC000EL817
IC1003	IC KIA431 or IC AN1431-(NSC)	NSZLA0ZJY001 QSBLA0ZMS001
IC1004	3.3V REGULATOR(1A) BA033ST-V5	QSZBA0SRM013
IC1201	IC NUM4558D	QSMLA0STR001
IC2003	FL DRIVER IC PT6315	NSZBA0RG2002
COILS		
L1001 ▲	LINE FILTER 20MH SA-00911	LLBG00ZSA003
L1002	BEAD CORE B16 RH 3.5X10X1.3 or BEAD CORE HF70BB3.5X10X1.3	XL03010XM001 XL03010TE001
L1003	CHOKE COIL 22μH-K	LLBD00PKV006
L1004	BEAD CORE B16 RH 3.5X10X1.3 or BEAD CORE HF70BB3.5X10X1.3	XL03010XM001 XL03010TE001
L1005	CHOKE COIL 22μH-K	LLBD00PKV006
L1007	PCB JUMPER D0.6-P5.0	JW5.0T
L1009	PCB JUMPER D0.6-P5.0	JW5.0T
L1251	INDUCTOR 0.47μH-K-26T	LLAXKATTUR47
L1401	CHOKE COIL 22μH-K	LLBD00PKV006
L2001	INDUCTOR 100μH-K-26T	LLAXKATTU101
L2002	INDUCTOR 100μH-K-26T	LLAXKATTU101
L2003	INDUCTOR 33μH-K-26T	LLAXKATTU330
TRANSISTORS		
Q1001	FET 2SK2599	QFQZ02SK2599
Q1002	TRANSISTOR 2SC2236-Y-TPE6,C or TRANSISTOR KTC3205(Y)	QQS02SC2236 NQS00KTC3205
Q1003	TRANSISTOR 2SC2785(J) or TRANSISTOR 2SC2785(H) or TRANSISTOR 2SC2785(F) or TRANSISTOR 2SC1815-Y(TPE2) or TRANSISTOR 2SC1815-GR(TPE2) or TRANSISTOR KTC3199(Y) or TRANSISTOR KTC3199(GR)	QQSJ02SC2785 QQSH02SC2785 QQSF02SC2785 QQSY02SC1815 QQS102SC1815 NQS00KTC3199 NQS10KTC3199
Q1004	TRANSISTOR 2SA966(Y) or TRANSISTOR KTA1273(Y)	QQS002SA966 NQS00KTA1273
Q1005	RES. BUILT-IN TRANSISTOR BA1L3Z-T or RES. BUILT-IN TRANSISTOR KRC110M-AT	QQSZ00BA1L3Z NQSZ0KRC110M
Q1006	RES. BUILT-IN TRANSISTOR BN1L3Z(F) or RES. BUILT-IN TRANSISTOR KRA110M	QQSP00BN1L3Z NQSZ0KRA110M
Q1007	TRANSISTOR 2SC2236-Y-TPE6,C or TRANSISTOR KTC3205(Y)	QQS02SC2236 NQS00KTC3205
Q1008	TRANSISTOR 2SC2785(J) or TRANSISTOR 2SC2785(H) or TRANSISTOR 2SC2785(F) or TRANSISTOR 2SC1815-Y(TPE2) or TRANSISTOR 2SC1815-GR(TPE2) or TRANSISTOR KTC3199(Y) or TRANSISTOR KTC3199(GR)	QQSJ02SC2785 QQSH02SC2785 QQSF02SC2785 QQSY02SC1815 QQS102SC1815 NQS00KTC3199 NQS10KTC3199
Q1009	TRANSISTOR 2SC2785(J) or TRANSISTOR 2SC2785(H) or TRANSISTOR 2SC2785(F) or TRANSISTOR 2SC1815-Y(TPE2) or TRANSISTOR 2SC1815-GR(TPE2) or	QQSJ02SC2785 QQSH02SC2785 QQSF02SC2785 QQSY02SC1815 QQS102SC1815

Ref. No.	Description	Part No.
	TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q1010	TRANSISTOR 2SC2236-Y-TPE6,C or	QQSY02SC2236
	TRANSISTOR KTC3205(Y)	NQSY0KTC3205
Q1201	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC1815-Y(TPE2) or	QQSY02SC1815
	TRANSISTOR 2SC1815-GR(TPE2) or	QQS102SC1815
	TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q1202	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC1815-Y(TPE2) or	QQSY02SC1815
	TRANSISTOR 2SC1815-GR(TPE2) or	QQS102SC1815
	TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q1203	TRANSISTOR 2SA1015-Y(TPE2) or	QQSY02SA1015
	TRANSISTOR KTA1266(Y)	NQSY0KTA1266
Q1204	TRANSISTOR 2SA1015-Y(TPE2) or	QQSY02SA1015
	TRANSISTOR KTA1266(Y)	NQSY0KTA1266
Q1351	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC1815-Y(TPE2) or	QQSY02SC1815
	TRANSISTOR 2SC1815-GR(TPE2) or	QQS102SC1815
	TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q1401	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC1815-Y(TPE2) or	QQSY02SC1815
	TRANSISTOR 2SC1815-GR(TPE2) or	QQS102SC1815
	TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q1402	TRANSISTOR 2SA1015-Y(TPE2) or	QQSY02SA1015
	TRANSISTOR KTA1266(Y)	NQSY0KTA1266
Q1403	TRANSISTOR 2SA1015-Y(TPE2) or	QQSY02SA1015
	TRANSISTOR KTA1266(Y)	NQSY0KTA1266
Q1421	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC1815-Y(TPE2) or	QQSY02SC1815
	TRANSISTOR 2SC1815-GR(TPE2) or	QQS102SC1815
	TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q1422	TRANSISTOR 2SA1015-Y(TPE2) or	QQSY02SA1015
	TRANSISTOR KTA1266(Y)	NQSY0KTA1266
Q1423	TRANSISTOR 2SA1015-Y(TPE2) or	QQSY02SA1015
	TRANSISTOR KTA1266(Y)	NQSY0KTA1266
Q1441	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC1815-Y(TPE2) or	QQSY02SC1815
	TRANSISTOR 2SC1815-GR(TPE2) or	QQS102SC1815
	TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q1442	TRANSISTOR 2SA1015-Y(TPE2) or	QQSY02SA1015
	TRANSISTOR KTA1266(Y)	NQSY0KTA1266
Q1443	TRANSISTOR 2SA1015-Y(TPE2) or	QQSY02SA1015

Ref. No.	Description	Part No.
	TRANSISTOR KTA1266(Y)	NQSY0KTA1266
Q1445	TRANSISTOR 2SA1015-Y(TPE2) or	QQSY02SA1015
	TRANSISTOR KTA1266(Y)	NQSY0KTA1266
Q1461	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC1815-Y(TPE2) or	QQSY02SC1815
	TRANSISTOR 2SC1815-GR(TPE2) or	QQS102SC1815
	TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q1462	TRANSISTOR 2SA1015-Y(TPE2) or	QQSY02SA1015
	TRANSISTOR KTA1266(Y)	NQSY0KTA1266
Q1463	TRANSISTOR 2SA1015-Y(TPE2) or	QQSY02SA1015
	TRANSISTOR KTA1266(Y)	NQSY0KTA1266
Q1481	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC1815-Y(TPE2) or	QQSY02SC1815
	TRANSISTOR 2SC1815-GR(TPE2) or	QQS102SC1815
	TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q1482	TRANSISTOR 2SA1015-Y(TPE2) or	QQSY02SA1015
	TRANSISTOR KTA1266(Y)	NQSY0KTA1266
Q1483	TRANSISTOR 2SA1015-Y(TPE2) or	QQSY02SA1015
	TRANSISTOR KTA1266(Y)	NQSY0KTA1266
RESISTORS		
R1002	CARBON RES. 1/4W J 330 Ω	RCX4JATZ0331
R1003	CARBON RES. 1/4W J 330 Ω	RCX4JATZ0331
R1004	METAL OXIDE FILM RES. 2W J 68k Ω or	RN02683ZU001
	METAL OXIDE FILM RES. 2W J 68k Ω	RN02683KE010
R1005	CARBON RES. 1/4W J 1M Ω	RCX4JATZ0105
R1006	CARBON RES. 1/4W J 1M Ω	RCX4JATZ0105
R1008	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R1010	CARBON RES. 1/6W J 22k Ω or	RCX6JATZ0223
	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R1011	METAL OXIDE FILM RES. 1W J 1.2 Ω or	RN011R2ZU001
	METAL OXIDE FILM RES. 1W J 1.2 Ω	RN011R2KE009
R1012	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R1013	CARBON RES. 1/6W J 1.5k Ω or	RCX6JATZ0152
	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R1014	CARBON RES. 1/6W J 220 Ω or	RCX6JATZ0221
	CARBON RES. 1/4W J 220 Ω	RCX4JATZ0221
R1016	CARBON RES. 1/6W J 2.2k Ω or	RCX6JATZ0222
	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R1017	CARBON RES. 1/6W J 1.5k Ω or	RCX6JATZ0152
	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R1019	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R1020	CARBON RES. 1/6W J 1.5k Ω or	RCX6JATZ0152
	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R1021	CARBON RES. 1/6W J 22k Ω or	RCX6JATZ0223
	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R1022	CARBON RES. 1/6W J 2.2k Ω or	RCX6JATZ0222
	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R1023	CARBON RES. 1/6W J 390 Ω or	RCX6JATZ0391
	CARBON RES. 1/4W J 390 Ω	RCX4JATZ0391
R1025	CARBON RES. 1/4W J 330 Ω	RCX4JATZ0331
R1029	CARBON RES. 1/6W J 220k Ω or	RCX6JATZ0224
	CARBON RES. 1/4W J 220k Ω	RCX4JATZ0224

Ref. No.	Description	Part No.
R1030	METAL OXIDE FILM RES. 3W J 1.8 Ω or	RN031R8ZU001
	METAL OXIDE FILM RES. 3W J 1.8 Ω	RN031R8KE009
R1031	CARBON RES. 1/6W G 560 Ω or	RCX6GATZ0561
	CARBON RES. 1/4W G 560 Ω	RCX4GATZ0561
R1033	CARBON RES. 1/6W J 47 Ω or	RCX6JATZ0470
	CARBON RES. 1/4W J 47 Ω	RCX4JATZ0470
R1034	CARBON RES. 1/4W J 390k Ω	RCX4JATZ0394
R1035	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R1036	CARBON RES. 1/6W J 100k Ω or	RCX6JATZ0104
	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R1037	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R1038	CARBON RES. 1/6W J 100k Ω or	RCX6JATZ0104
	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R1039	CARBON RES. 1/6W J 470k Ω or	RCX6JATZ0474
	CARBON RES. 1/4W J 470k Ω	RCX4JATZ0474
R1042	CARBON RES. 1/6W J 5.6 Ω or	RCX6JATZ05R6
	CARBON RES. 1/4W J 5.6 Ω	RCX4JATZ05R6
R1043	METAL OXIDE FILM RES. 1W J 2.7 Ω or	RN012R7ZU001
	METAL OXIDE FILM RES. 1W J 2.7 Ω	RN012R7KE009
R1044	CHIP RES.(1608) 1/16W J 22k Ω or	RRXGJR5Z0223
	CHIP RES.(1608) 1/10W J 22k Ω	RRXAJR5Z0223
R1045	CARBON RES. 1/6W G 39 Ω or	RCX6GATZ0390
	CARBON RES. 1/4W G 39 Ω	RCX4GATZ0390
R1046	CARBON RES. 1/6W G 150 Ω or	RCX6GATZ0151
	CARBON RES. 1/4W G 150 Ω	RCX4GATZ0151
R1048	METAL OXIDE FILM RES. 2W J 68k Ω or	RN02683ZU001
	METAL OXIDE FILM RES. 2W J 68k Ω	RN02683KE010
R1049	CARBON RES. 1/6W G 4.7k Ω or	RCX6GATZ0472
	CARBON RES. 1/4W G 4.7k Ω	RCX4GATZ0472
R1050	CHIP RES.(1608) 1/16W 0 Ω or	RRXGZR5Z0000
	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1051	CHIP RES.(1608) 1/16W 0 Ω or	RRXGZR5Z0000
	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1052	METAL OXIDE FILM RES. 2W J 3.3 Ω or	RN023R3ZU001
	METAL OXIDE FILM RES. 2W J 3.3 Ω	RN023R3KE010
R1053	METAL OXIDE FILM RES. 2W J 0.68 Ω or	RN02R68ZU001
	METAL OXIDE FILM RES. 2W J 0.68 Ω	RN02R68KE010
R1054	CHIP RES.(1608) 1/16W J 47k Ω or	RRXGJR5Z0473
	CHIP RES.(1608) 1/10W J 47k Ω	RRXAJR5Z0473
R1058	CHIP RES.(1608) 1/16W J 10k Ω or	RRXGJR5Z0103
	CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R1061	CHIP RES.(1608) 1/16W 0 Ω or	RRXGZR5Z0000
	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1064	CHIP RES.(1608) 1/16W 0 Ω or	RRXGZR5Z0000
	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1201	CHIP RES.(1608) 1/16W J 220k Ω or	RRXGJR5Z0224
	CHIP RES.(1608) 1/10W J 220k Ω	RRXAJR5Z0224
R1202	CHIP RES.(1608) 1/16W J 220k Ω or	RRXGJR5Z0224
	CHIP RES.(1608) 1/10W J 220k Ω	RRXAJR5Z0224
R1203	CHIP RES. 1/16W F 12k Ω or	RRXGFR5Z1202
	CHIP RES.(100PPM) 1/16W F 12k Ω	RRXGFR5H1202
R1204	CHIP RES. 1/16W F 12k Ω or	RRXGFR5Z1202
	CHIP RES.(100PPM) 1/16W F 12k Ω	RRXGFR5H1202
R1205	CHIP RES. 1/16W F 18k Ω or	RRXGFR5Z1802
	CHIP RES.(100PPM) 1/16W F 18k Ω	RRXGFR5H1802
R1206	CHIP RES. 1/16W F 18k Ω or	RRXGFR5Z1802
	CHIP RES.(100PPM) 1/16W F 18k Ω	RRXGFR5H1802
R1207	CHIP RES.(1608) 1/16W J 39k Ω or	RRXGJR5Z0393
	CHIP RES.(1608) 1/10W J 39k Ω	RRXAJR5Z0393

Ref. No.	Description	Part No.
R1208	CHIP RES.(1608) 1/16W J 39k Ω or	RRXGJR5Z0393
	CHIP RES.(1608) 1/10W J 39k Ω	RRXAJR5Z0393
R1209	CHIP RES. 1/16W F 56k Ω or	RRXGFR5Z5602
	CHIP RES.(100PPM) 1/16W F 56k Ω	RRXGFR5H5602
R1210	CHIP RES. 1/16W F 56k Ω or	RRXGFR5Z5602
	CHIP RES.(100PPM) 1/16W F 56k Ω	RRXGFR5H5602
R1211	CHIP RES.(1608) 1/16W 0 Ω or	RRXGZR5Z0000
	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1212	CHIP RES.(1608) 1/16W 0 Ω or	RRXGZR5Z0000
	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1221	CHIP RES.(1608) 1/16W J 100k Ω or	RRXGJR5Z0104
	CHIP RES.(1608) 1/10W J 100k Ω	RRXAJR5Z0104
R1222	CHIP RES.(1608) 1/16W J 100k Ω or	RRXGJR5Z0104
	CHIP RES.(1608) 1/10W J 100k Ω	RRXAJR5Z0104
R1223	CHIP RES.(1608) 1/16W J 1k Ω or	RRXGJR5Z0102
	CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R1224	CHIP RES.(1608) 1/16W J 1k Ω or	RRXGJR5Z0102
	CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R1225	CHIP RES.(1608) 1/16W J 1k Ω or	RRXGJR5Z0102
	CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R1226	CHIP RES.(1608) 1/16W J 1k Ω or	RRXGJR5Z0102
	CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R1227	CHIP RES.(1608) 1/16W 0 Ω or	RRXGZR5Z0000
	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1228	CHIP RES.(1608) 1/16W 0 Ω or	RRXGZR5Z0000
	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1235	CHIP RES.(1608) 1/16W J 2.2k Ω or	RRXGJR5Z0222
	CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R1236	CHIP RES.(1608) 1/16W J 2.2k Ω or	RRXGJR5Z0222
	CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R1237	CHIP RES.(1608) 1/16W J 2.2k Ω or	RRXGJR5Z0222
	CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R1238	CHIP RES.(1608) 1/16W J 2.2k Ω or	RRXGJR5Z0222
	CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R1239	CHIP RES.(1608) 1/16W J 100k Ω or	RRXGJR5Z0104
	CHIP RES.(1608) 1/10W J 100k Ω	RRXAJR5Z0104
R1240	CHIP RES.(1608) 1/16W J 100k Ω or	RRXGJR5Z0104
	CHIP RES.(1608) 1/10W J 100k Ω	RRXAJR5Z0104
R1245	CHIP RES.(1608) 1/16W 0 Ω or	RRXGZR5Z0000
	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1246	CHIP RES.(1608) 1/16W J 33k Ω or	RRXGJR5Z0333
	CHIP RES.(1608) 1/10W J 33k Ω	RRXAJR5Z0333
R1247	CHIP RES.(1608) 1/16W J 39k Ω or	RRXGJR5Z0393
	CHIP RES.(1608) 1/10W J 39k Ω	RRXAJR5Z0393
R1352	CHIP RES.(1608) 1/16W J 2k Ω or	RRXGJR5Z0202
	CHIP RES.(1608) 1/10W J 2k Ω	RRXAJR5Z0202
R1353	CHIP RES.(1608) 1/16W J 2.2k Ω or	RRXGJR5Z0222
	CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R1354	CHIP RES.(1608) 1/16W J 2.2k Ω or	RRXGJR5Z0222
	CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R1355	CHIP RES.(1608) 1/16W J 220 Ω or	RRXGJR5Z0221
	CHIP RES.(1608) 1/10W J 220 Ω	RRXAJR5Z0221
R1356	CHIP RES.(1608) 1/16W J 75 Ω or	RRXGJR5Z0750
	CHIP RES.(1608) 1/10W J 75 Ω	RRXAJR5Z0750
R1392	CARBON RES. 1/6W G 180 Ω or	RCX6GATZ0181
	CARBON RES. 1/4W G 180 Ω	RCX4GATZ0181
R1393	CARBON RES. 1/6W G 150 Ω or	RCX6GATZ0151
	CARBON RES. 1/4W G 150 Ω	RCX4GATZ0151
R1394	CARBON RES. 1/6W G 150 Ω or	RCX6GATZ0151
	CARBON RES. 1/4W G 150 Ω	RCX4GATZ0151
R1395	CARBON RES. 1/6W G 220 Ω or	RCX6GATZ0221

Ref. No.	Description	Part No.
	CHIP RES.(1608) 1/10W J 10kΩ	RRXAJR5Z0103
R2037	CARBON RES. 1/6W J 10 Ω or	RCX6JATZ0100
	CARBON RES. 1/4W J 10 Ω	RCX4JATZ0100
R2054	CHIP RES.(1608) 1/16W 0 Ω or	RRXGZR5Z0000
	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R2059	CHIP RES.(1608) 1/16W 0 Ω or	RRXGZR5Z0000
	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
SWITCHES		
SW2008	TACT SWITCH SKQSAF001A or	SST0101AL041
	TACT SWITCH KSM0614B	SST0101HH013
MISCELLANEOUS		
AC1001 ▲	AC CORD WAC0172LTE01 or	WAC0172LTE01
▲	AC CORD LA-2145 or	WAC0172LW005
▲	AC CORD 9806190	WAC0172AS004
CR1001 ▲	GAP. FNR-G3.10D	FAZ000LD6005
F0001	CABLE ASSY(BLACK) AWG22 UL1007 L=35MM	WX3001A2FF04
F1001 ▲	FUSE 1A/250V or	PAGA20CW3102
▲	FUSE 1A/250V	PAGG20CAG102
FL2002	F.I.P. 25U39170SAN	TVFD1C0FT037
JK1201	RCA JACK MSP-253V1-07 PBSN	JXRL030LY030
JK1202	RCA JACK MSP-244V10-42 PBSN	JXRL040LY031
JK1401	S TYPE JACK MDC-050V-2.4	JXEL040LY001
RM2001	REMOTE RECEIVER PIC-37042LU	USESJR5K033
SA1001 ▲	SURGE ABSORBER CNR-10D471K or	NVQZR10D471K
▲	SURGE ABSORBER JVR-10N471K or	NVQZR10N471K
▲	SURGE ABSORBER ENC471D-10AC	QVQZC471D10A
T1001 ▲	PULSE TRANS SA-00718R	LTT00CPSA094
W1001	24P FFC POWER TO MAIN	WX1E5500-006
W1601	18P FFC POWER TO MAIN	WX1E5500-008
WJ1001	4P P-WIRE ASSEMBLY	WX1E5520-001

Function CBA

Ref. No.	Description	Part No.
	FUNCTION CBA Consists of the following:	0VSA11639
CONNECTOR		
CN2003	CONNECTOR, 6P TUC-P06X-B1	JCTUS06TG001
SWITCHES		
SW2031	TACT SWITCH SKQSAF001A or	SST0101AL041
	TACT SWITCH KSM0614B	SST0101HH013
SW2032	TACT SWITCH SKQSAF001A or	SST0101AL041
	TACT SWITCH KSM0614B	SST0101HH013
SW2033	TACT SWITCH SKQSAF001A or	SST0101AL041
	TACT SWITCH KSM0614B	SST0101HH013
SW2034	TACT SWITCH SKQSAF001A or	SST0101AL041
	TACT SWITCH KSM0614B	SST0101HH013
SW2036	TACT SWITCH SKQSAF001A or	SST0101AL041
	TACT SWITCH KSM0614B	SST0101HH013
SW2037	TACT SWITCH SKQSAF001A or	SST0101AL041
	TACT SWITCH KSM0614B	SST0101HH013

