

SERVICE MANUAL

MODEL	JP	E3	E2	EK	E2A	E1C	E1K	E2R
DVD-1800BD			✓					✓

BLU-RAY DISC / DVD VIDEO PLAYER

注 意

サービスをおこなう前に、このサービスマニュアルを必ずお読みください。本機は、火災、感電、けがなどに対する安全性を確保するために、さまざまな配慮をおこなっており、また法的には「電気用品安全法」にもとづき、所定の許可を得て製造されています。従ってサービスをおこなう際は、これらの安全性が維持されるよう、このサービスマニュアルに記載されている注意事項を必ずお守りください。

• For purposes of improvement, specifications and design are subject to change without notice.

• 本機の仕様は性能改良のため、予告なく変更することがあります。
• 補修用性能部品の保有期間は、製造打切後 8 年です。

• Please use this service manual with referring to the operating instructions without fail.

• 修理の際は、必ず取扱説明書を参照の上、作業を行ってください。

• Some illustrations using in this service manual are slightly different from the actual set.

• 本文中に使用しているイラストは、説明の都合上現物と多少異なる場合があります。

DENON

Denon Brand Company, D&M Holdings Inc.

SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 460 kohms, the unit is defective.

LASER RADIATION

Caution - Class 2M visible and invisible laser radiation when open.
Do not view directly with optical instruments.

CAUTION Please heed the points listed below during servicing and inspection.

◎ Heed the cautions!

Spots requiring particular attention when servicing, such as the cabinet, parts, chassis, etc., have cautions indicated on labels or seals. Be sure to heed these cautions and the cautions indicated in the handling instructions.

◎ Caution concerning electric shock!

- (1) An AC voltage is impressed on this set, so touching internal metal parts when the set is energized could cause electric shock. Take care to avoid electric shock, by for example using an isolating transformer and gloves when servicing while the set is energized, unplugging the power cord when replacing parts, etc.
- (2) There are high voltage parts inside. Handle with extra care when the set is energized.

◎ Caution concerning disassembly and assembly!

Though great care is taken when manufacturing parts from sheet metal, there may in some rare cases be burrs on the edges of parts which could cause injury if fingers are moved across them. Use gloves to protect your hands.

◎ Only use designated parts!

The set's parts have specific safety properties (fire resistance, voltage resistance, etc.). For replacement parts, be sure to use parts which have the same properties. In particular, for the important safety parts that are marked \triangle on wiring diagrams and parts lists, be sure to use the designated parts.

◎ Be sure to mount parts and arrange the wires as they were originally!

For safety reasons, some parts use tape, tubes or other insulating materials, and some parts are mounted away from the surface of printed circuit boards. Care is also taken with the positions of the wires inside and clamps are used to keep wires away from heating and high voltage parts, so be sure to set everything back as it was originally.

◎ Inspect for safety after servicing!

Check that all screws, parts and wires removed or disconnected for servicing have been put back in their original positions, inspect that no parts around the area that has been serviced have been negatively affected, conduct an insulation check on the external metal connectors and between the blades of the power plug, and otherwise check that safety is ensured.

(Insulation check procedure)

Unplug the power cord from the power outlet, disconnect the antenna, plugs, etc., and turn the power switch on. Using a 500V insulation resistance tester, check that the insulation resistance between the terminals of the power plug and the externally exposed metal parts (antenna terminal, headphones terminal, microphone terminal, input terminal, etc.) is $1M\Omega$ or greater. If it is less, the set must be inspected and repaired.

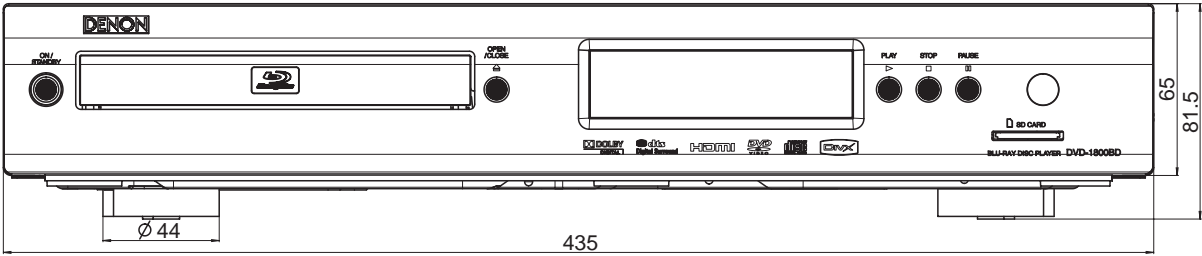
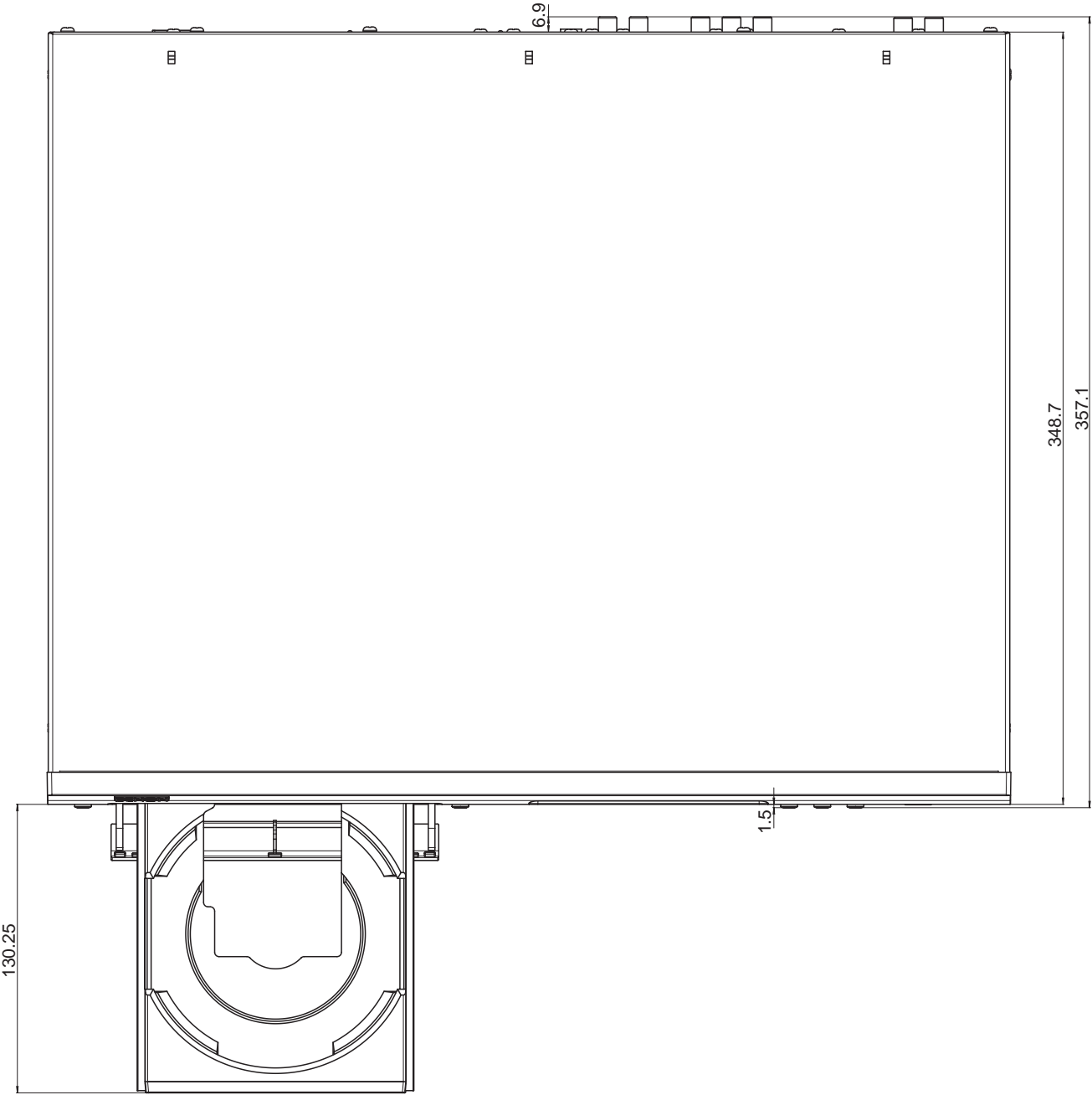
CAUTION Concerning important safety parts

Many of the electric and structural parts used in the set have special safety properties. In most cases these properties are difficult to distinguish by sight, and using replacement parts with higher ratings (rated power and withstand voltage) does not necessarily guarantee that safety performance will be preserved. Parts with safety properties are indicated as shown below on the wiring diagrams and parts lists in this service manual. Be sure to replace them with parts with the designated part number.

- (1) Schematic diagrams ... Indicated by the \triangle mark.
- (2) Parts lists ... Indicated by the \triangle mark.

Using parts other than the designated parts could result in electric shock, fires or other dangerous situations.

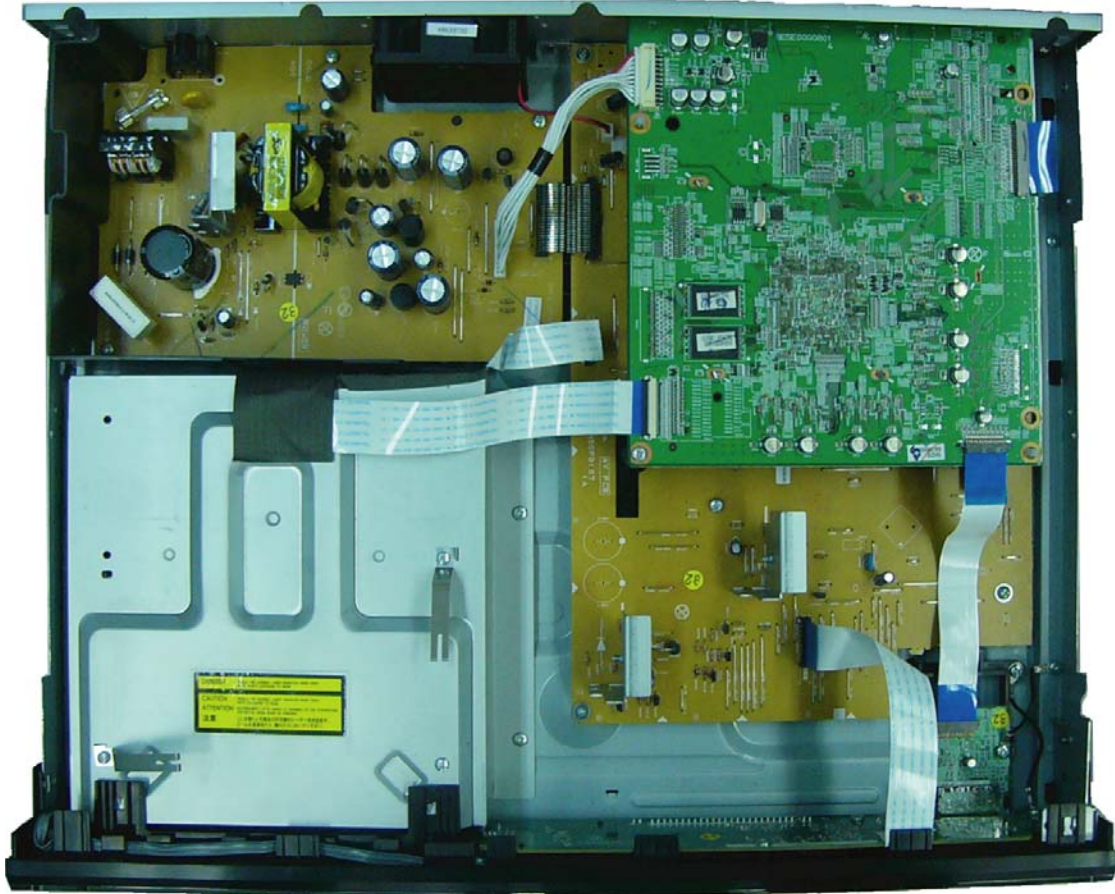
DIMENSION



WIRE ARRANGEMENT

If wire bundles are untied or moved to perform adjustment or parts replacement etc., be sure to rearrange them neatly as they were originally bundled or placed afterward.
Otherwise, incorrect arrangement can be a cause of noise generation.

Wire arrangement viewed from the top



SPECIFICATIONS

SIGNAL SYSTEM

NTSC/PAL colour

APPLICABLE DISCS

- (1) BD/DVD-video Discs
 - 1-layer 12cm single-sided discs, 2-layer 12cm single-sided discs, 2-layer 12cm double-sided discs (1 layer per side)
 - 1-layer 8cm single-sided discs, 2-layer 8cm single-sided discs, 2-layer 8cm double-sided discs (1 layer per side)
- (2) BD-RE / BD-R (Recorded in BDMV format)
 - 1-layer 12cm single-sided discs, 2-layer 12cm single-sided discs
 - 1-layer 8cm single-sided discs, 2-layer 8cm single-sided discs
- (3) DVD-R
 - 1-layer 12cm single-sided discs, 2-layer 12cm single-sided discs
 - 1-layer 8cm single-sided discs, 2-layer 8cm single-sided discs
- (4) DVD-RW
 - 1-layer 12cm single-sided discs
 - 1-layer 8cm single-sided discs
- (5) Compact discs (audio CD)
 - 12cm discs, 8cm discs
- (6) CD-RW/-R
 - 12cm discs, 8cm discs

APPLICABLE MEMORY CARDS

- (1) SD Memory Card
- (2) SDHC Memory Card
- (3) miniSD Card
- (4) microSD Card

VIDEO OUTPUT

Y output level: 1Vp-p (75Ω/ohms)

Output connectors: Pin jack, 1 set

COMPONENT OUTPUT

Y output level: 1Vp-p (75Ω/ohms)

Pb/Cb output level: 0.7Vp-p (75Ω/ohms)

Pr/Cr output level: 0.7Vp-p (75Ω/ohms)

Output connectors: Pin jacks, 1 set

HDMI OUTPUT

Output jack: 19-pin HDMI terminal, 1 set

HDMI ver. 1.3a (Deep Colour, Dolby Digital Plus, Dolby TrueHD, DTS-HD)

ANALOGUE AUDIO OUTPUT

Output level: 2Vrms (10kΩ/kohms)

2 channel (L, R) output connector: Pin jacks

AUDIO OUTPUT PROPERTIES

- (1) Frequency response
1 BDs (linear PCM) : 4Hz to 22kHz (48kHz sampling)
: 4Hz to 44kHz (96kHz sampling)
: 4Hz to 88kHz (192kHz sampling)
2 DVDs (linear PCM) : 4Hz to 22kHz (48kHz sampling)
: 4Hz to 44kHz (96kHz sampling)
3 CDs : 4Hz to 20kHz
(2) S/N ratio : 115dB
(3) Total harmonic distortion : 1kHz 0.004%
(4) Dynamic range : 100dB (BD/DVD) / 98db (CD)

DIGITAL AUDIO OUTPUT

Coaxial digital output: Pin jack, 1 set

POWER SUPPLY

AC 120V, 60Hz

POWER CONSUMPTION

30W (Standby: 0.3W) 

MAXIMUM EXTERNAL DIMENSIONS

W :434mm (17-2/16")
H :139mm (5-8/16")
D :399mm (15-12/16")
(including protruding parts)

MASS

10.3 kg (22.8 lbs)

REMOTE CONTROL

RC-1090

Infrared pulse type

Supply: DC 3V, 2 R6P/AA batteries

External dimensions:

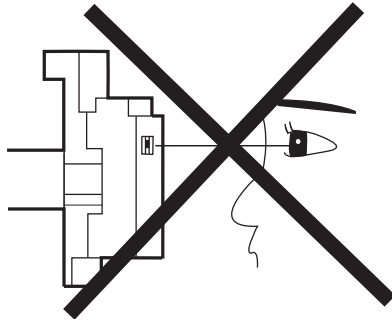
W :52mm (2-1/16")
H :227mm (8-15/16")
D :30mm (1-3/16")

Mass: 171g (0.4 lbs) (included batteries)

- For purposes of improvement, specifications and design are subject to change without notice.

LASER BEAM SAFETY PRECAUTIONS

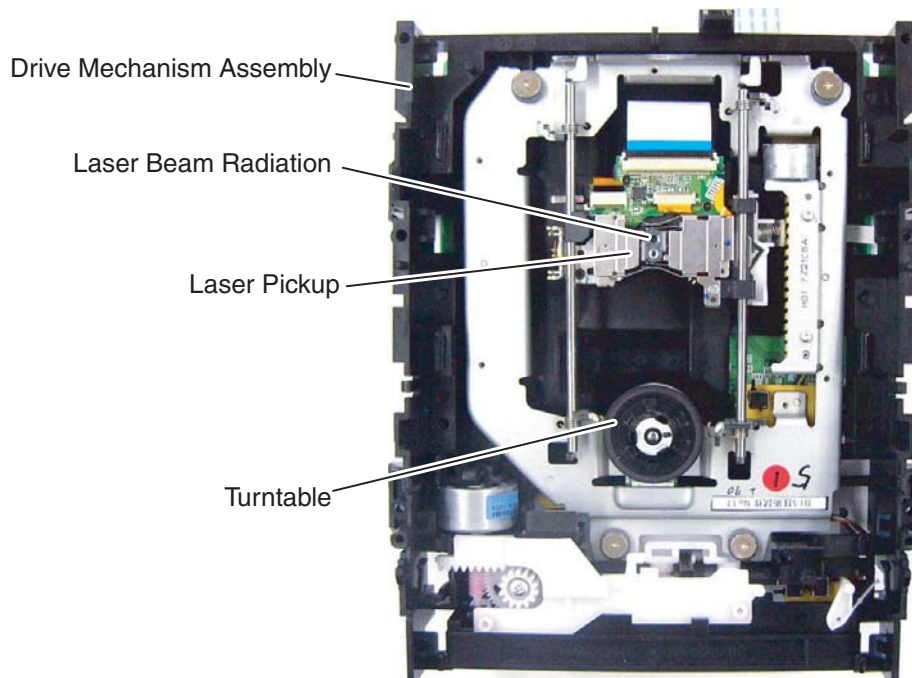
This BD player uses a pickup that emits a laser beam.



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 30 cm 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 - CLASS 2 LASER
RADIATION WHEN OPEN DO
NOT STARE INTO THE BEAM



Location: Inside Top of BD mechanism.

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')
230 V	$\geq 3 \text{ mm}(d)$ $\geq 6 \text{ mm}(d')$

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.

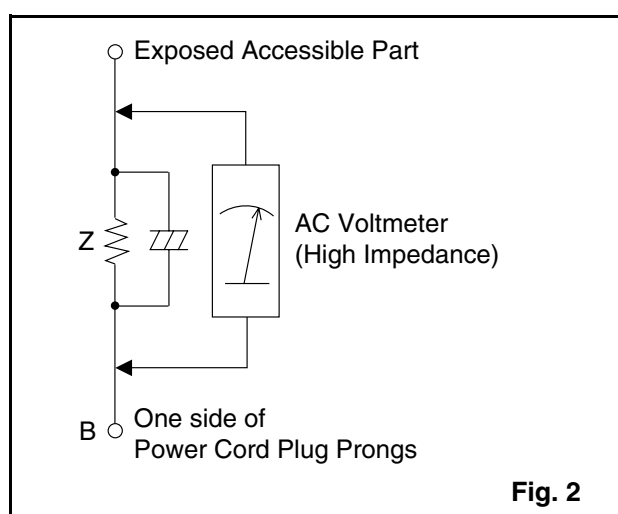
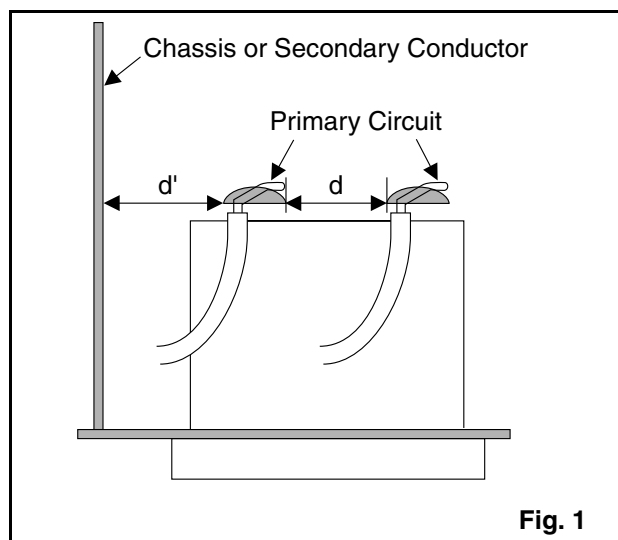


Table 2: Leakage current ratings for selected areas

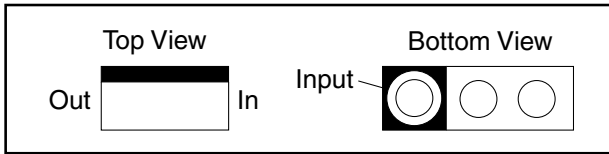
AC Line Voltage	Load Z	Leakage Current (i)	One side of power cord plug prongs (B) to:
230 V	2kΩ RES. Connected in parallel	$i \leq 0.7 \text{ mA AC Peak}$ $i \leq 2 \text{ mA DC}$	RF or Antenna terminals
	50kΩ RES. Connected in parallel	$i \leq 0.7 \text{ mA AC Peak}$ $i \leq 2 \text{ mA DC}$	A/V Input, Output

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

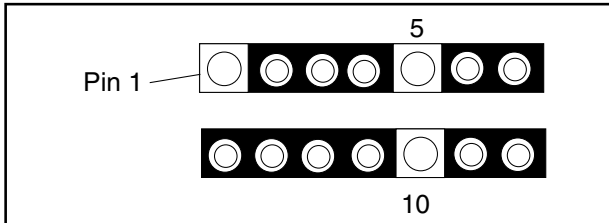
STANDARD NOTES FOR SERVICING

Circuit Board Indications

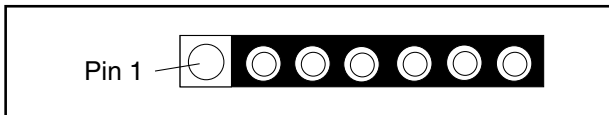
1. The output pin of the 3 pin Regulator ICs is indicated as shown.



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

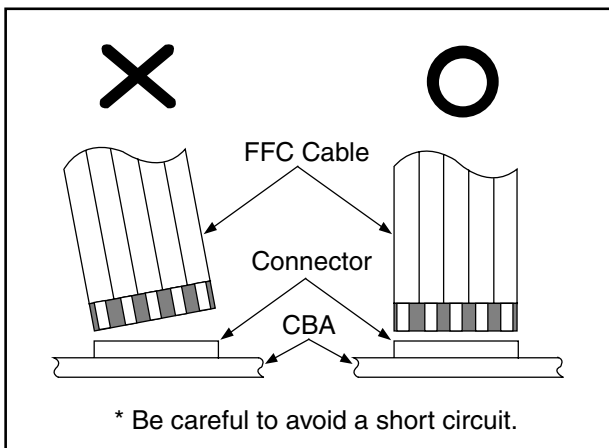


3. The 1st pin of every male connector is indicated as shown.



Instructions for Connectors

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



Pb (Lead) Free Solder

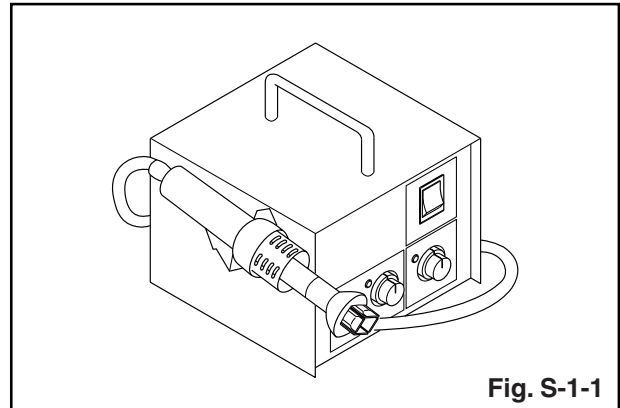
When soldering, be sure to use the Pb free solder.

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)

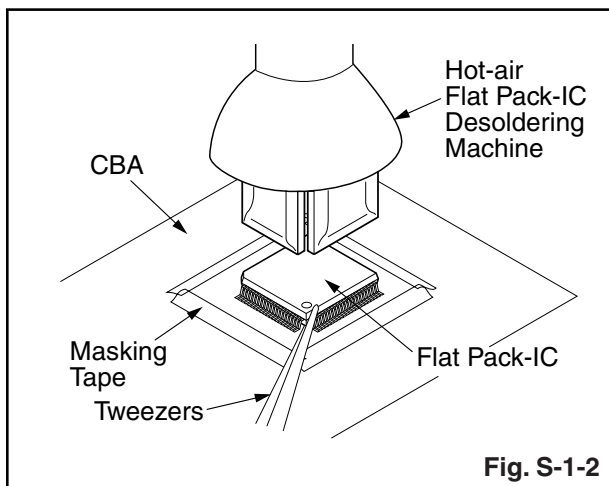


2. Remove the flat pack-IC with tweezers while applying the hot air.
3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat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

CAUTION:

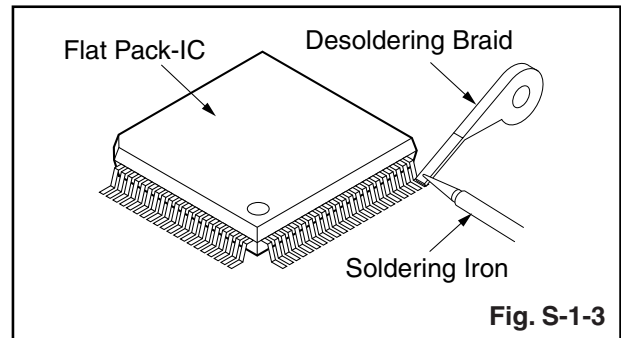
1. The Flat Pack-IC shape may differ by models. Use an appropriate hot-air flat pack-IC desoldering machine, whose shape matches that of the Flat Pack-IC.
2. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape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

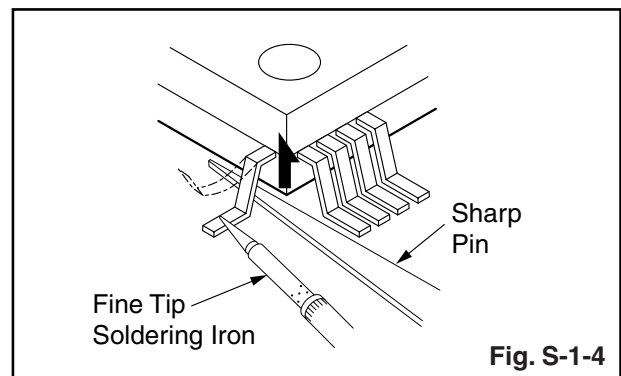


With Soldering Iron:

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)

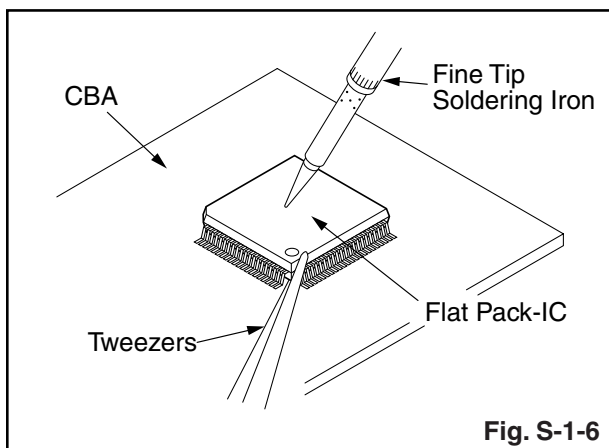
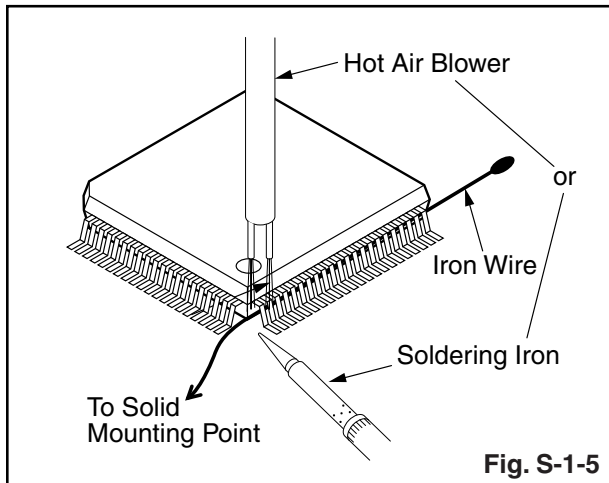


3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

With Iron Wire:

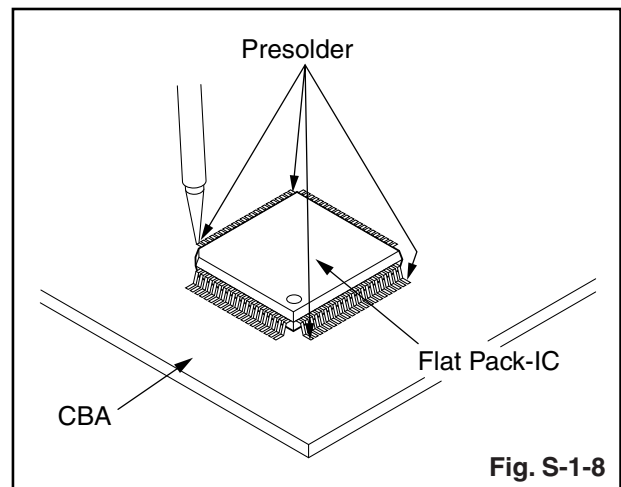
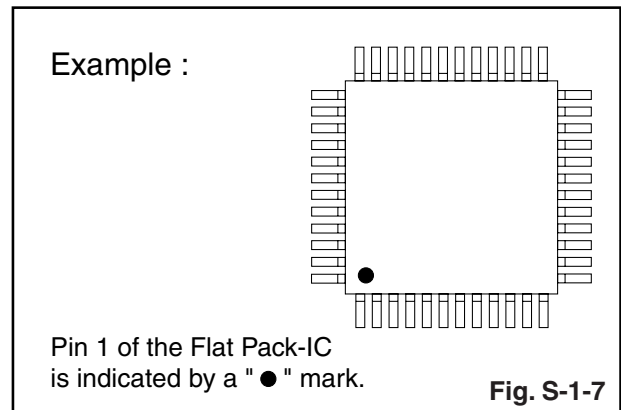
1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)
2. Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
3. While heating the pins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

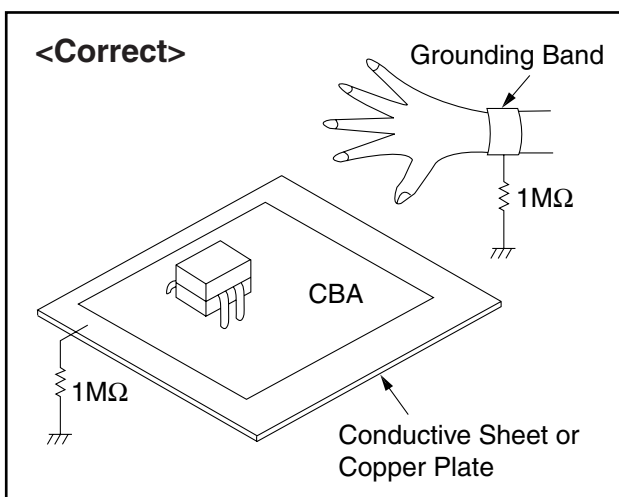
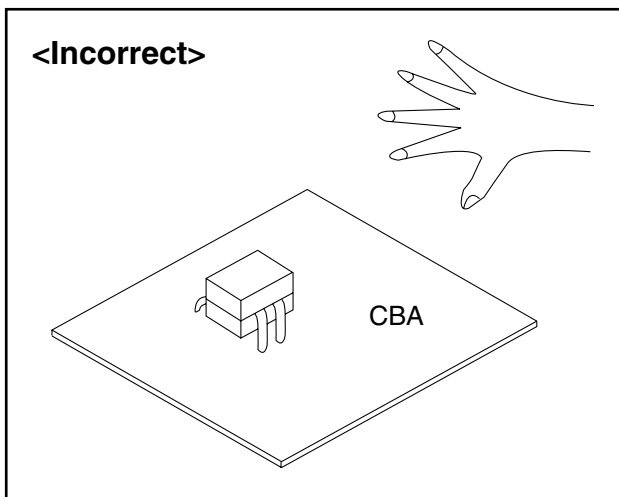
Electrostatic breakdown of the semi-conductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

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

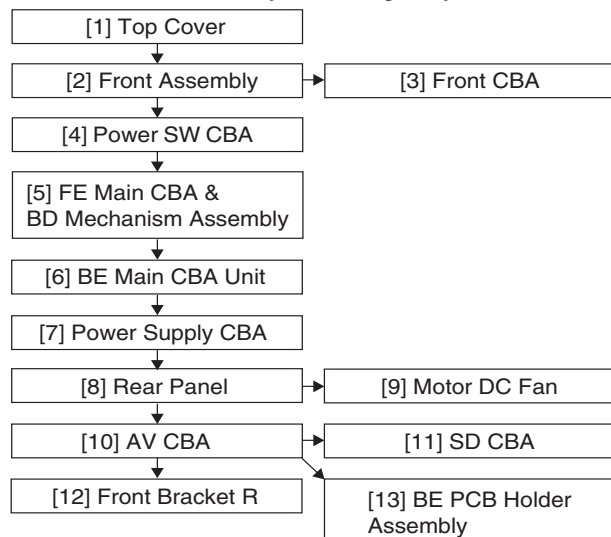
Be sure to place a conductive sheet or copper plate with proper grounding ($1\text{ M}\Omega$) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors with your clothing.



CABINET DISASSEMBLY INSTRUCTIONS

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 Cover	D1	6(S-1)	---
[2]	Front Assembly	D2	*5(L-1), *3(L-2), (S-2), *CN2001	1
[3]	Front CBA	D2	4(S-3), *CN3001	---
[4]	Power SW CBA	D2	(S-4)	---
[5]	FE Main CBA & BD Mechanism Assembly	D3	4(S-5), *CN2601, *CN6401	2
[6]	BE Main CBA Unit	D3	(S-6), (S-7), *CN7001, *CN7401, *CN7602, Locking Card Spacers	---
[7]	Power Supply CBA	D4	4(S-8), (S-9), 2(S-10), *CN2600, Power PCB Holder	---
[8]	Rear Panel	D5	3(S-11), 3(S-12), *CN2004	---
[9]	Motor DC Fan	D5	2(S-13)	---
[10]	AV CBA	D5	5(S-14), (S-15)	---
[11]	SD CBA	D5	2(S-16), (S-17), SD Card Holder	---
[12]	Front Bracket R	D5	(S-18)	---

ID/ Loc. No.	Part	Removal		
		Fig. No.	Remove/*Unhook/ Unlock/Release/ Unplug/Desolder	Note
[13]	BE PCB Holder Assembly	D5	(S-19)	---
(1)	(2)	(3)	(4)	(5)

Note:

- (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."

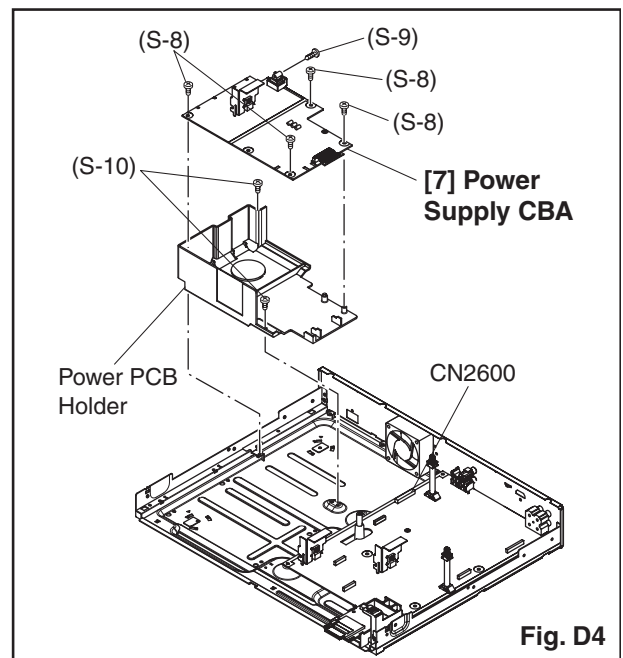
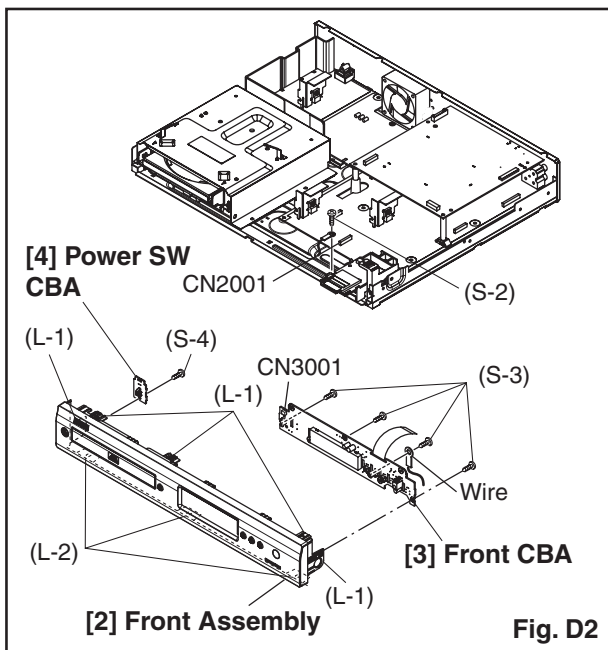
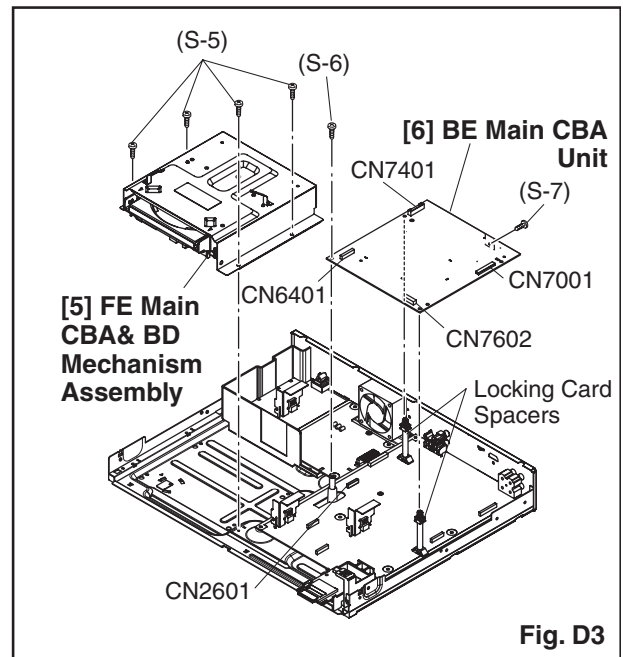
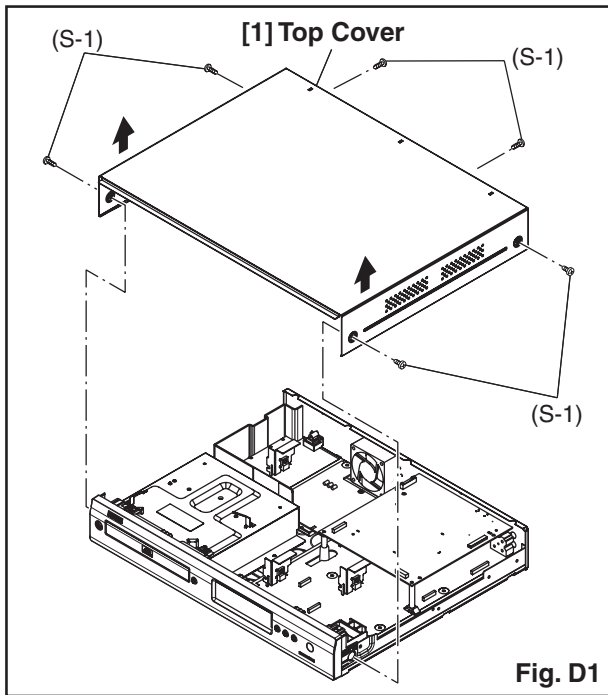
About tightening screws

When tightening screws, tighten them with the following torque.

Torque
0.45 ± 0.05 N·m

Reference Notes

- CAUTION 1:** Locking Tabs (L-1) and (L-2) are fragile. Be careful not to break them.
- The FE Main CBA & BD Mechanism Assembly is adjusted as a unit at factory. Therefore, do not disassemble it. Replace the FE Main CBA & BD Mechanism Assembly as a unit.



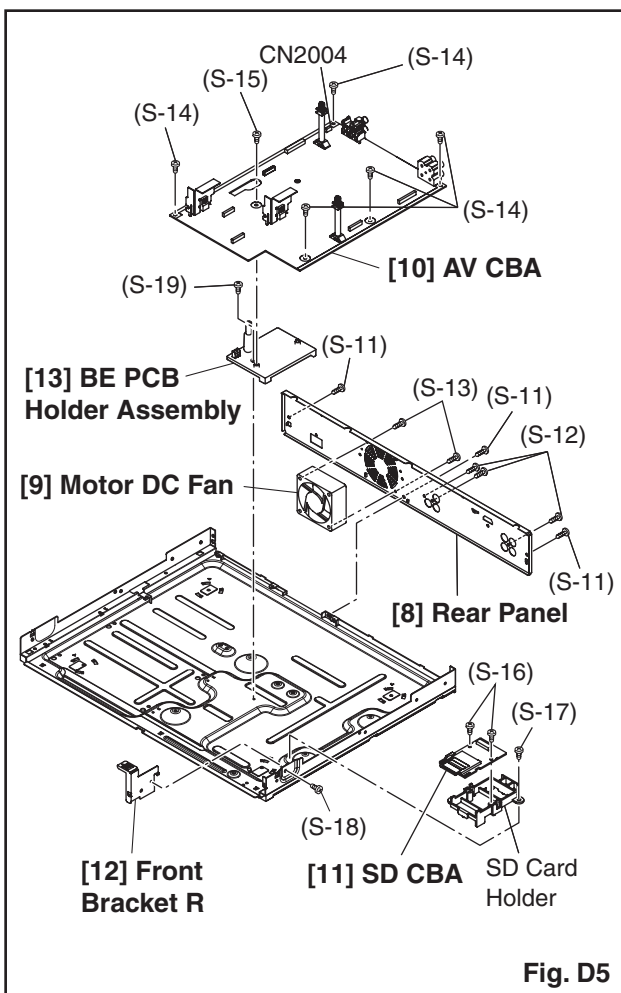
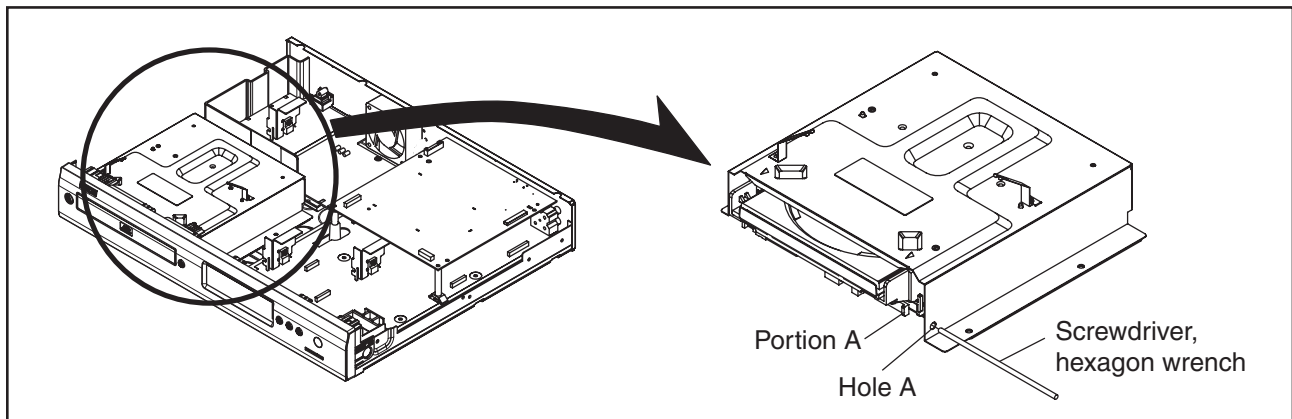


Fig. D5

3. How to Eject Manually

1. Remove the Top Cover.
2. Insert a screwdriver, etc. into the Hole A straightly so that the Portion A is pushed.
3. Pull the tray out manually and remove a disc.



HOW TO INITIALIZE THE BLU-RAY DISC PLAYER

To put the program back at the factory-default, initialize the BD player as the following procedure.

1. Turn the power on.
2. Remove the disc on the tray and close the tray.
3. Press [1], [2], [3], [4], and [DISPLAY] buttons on the remote control unit in that order.

Fig. a appears on the screen.

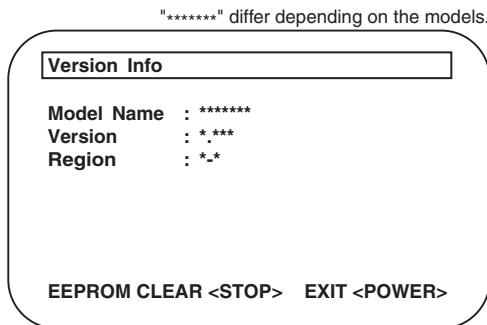


Fig. a

4. Press [STOP] button on the remote control unit.
Fig. b appears on the screen and Fig. c appears on the VFD.

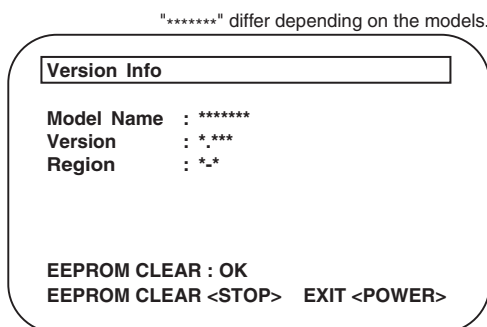


Fig. b

Fig. c

5. To exit this mode, press [POWER OFF] button.

FIRMWARE RENEWAL MODE

1. Turn the power on and remove the disc on the tray.
2. To put the BD player into version up mode, press [9], [8], [7], [6], and [POP UP MENU/MENU] buttons on the remote control unit in that order. The tray will open automatically. Fig. a appears on the screen and Fig. b appears on the VFD.

"*****" differs depending on the models.

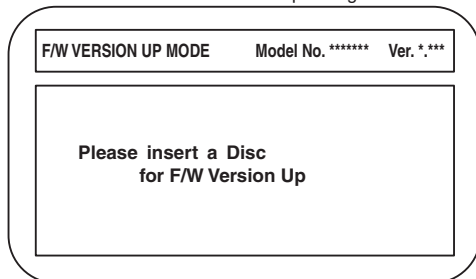


Fig. a Version Up Mode Screen

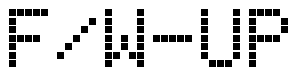


Fig. b VFD in Version Up Mode

The BD player can also enter the version up mode with the tray open. In this case, Fig. a will be shown on the screen while the tray is open.

3. Load the disc for version up.
4. The BD player enters the F/W version up mode automatically. Fig. c appears on the screen and Fig. d appears on the VFD. If you enter the F/W for different models, "Disc Error" will appear on the screen, then the tray will open automatically.

"*****" differs depending on the models.

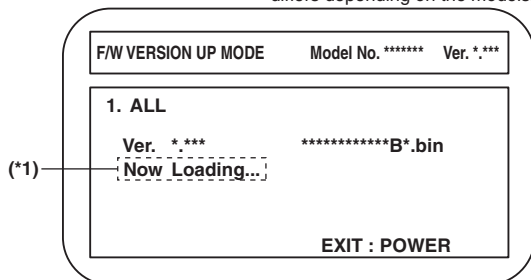


Fig. c Programming Mode Screen (Example)



Fig. d VFD in Programming Mode (Example)

The appearance shown in (*1) of Fig. c is described as follows:

No.	Appearance	State
1	Now Loading...	Loading the disc
2	Reading...	Sending files into the memory. After reading, automatically the tray opens.
3	Remove the disc	Reading has finished. Remove the disc and close the tray.
4	See FL display	Writing new version data, the progress will be displayed as shown in Fig. e.

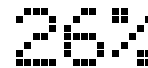


Fig. e VFD in Version Up Mode

5. After programming is finished, the checksum on the VFD (Fig. f).



Fig. f VFD upon Finishing the Programming Mode (Example)

At this time, no button is available.

6. Unplug the AC cord from the AC outlet. Then plug it again.
7. Turn the power on.
8. Press [1], [2], [3], [4], and [DISPLAY] buttons on the remote control unit in that order. Fig. g appears on the screen.

"*****" differ depending on the models.

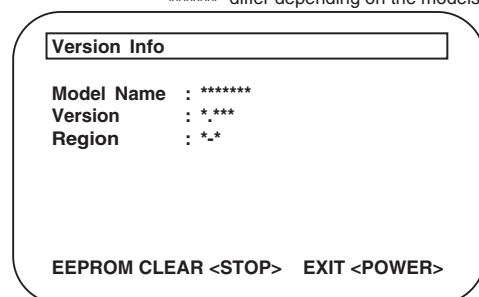


Fig. g

9. Press [STOP] button on the remote control unit.
Fig. h appears on the screen and Fig. i appears on the VFD.

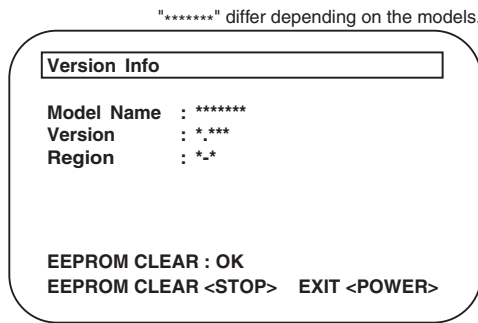


Fig. h

CLEAR

Fig. i

How to Verify the Firmware Version

1. Turn the power on.
2. Remove the disc on the tray and close the tray.
3. Press [1], [2], [3], [4], and [DISPLAY] buttons on the remote control unit in that order.
Fig. j appears on the screen.

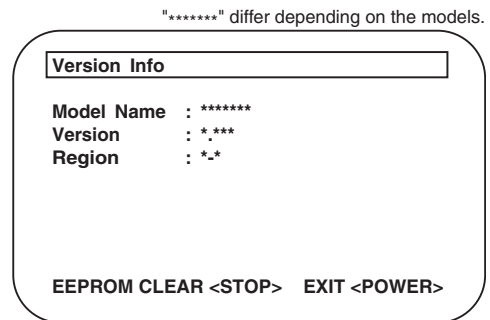


Fig. j

10. To exit this mode, press [POWER OFF] button.
4. To exit this mode, press [POWER OFF] button.

※ The region setting can be changed up to five times (including factory preset).
If you exceed the region change limit, DVD playback images will be affected by noise.

※ The BD Mechanism Assembly for service use has the E3 (U.S.A. & Canada model) specification.
After replacing the BD Mechanism Assembly for service use, be sure to rewrite Firmware to the latest for the particular region.

SERVICE MODE

Service Mode

1st level		2nd level		3rd level		Description
1	Mecha test	1	Tray Aging			Aging of tray open/close
		2	TOC Read			TOC reading
		3	Heat Run			Tray close -> TT1 playback -> TT10 playback -> Tray open -> Tray close
2	VFD/LED Test	1	All On			Turning on all VFD
		2	All Off			Turning off all VFD
3	Error Rate					Displaying Error rate, Jitter during playback
4	LD Test	1	LD Power	1	Off	Turning off LD
				2	BD	Turning on BD LD
				3	DVD	Turning on DVD LD
				4	CD	Turning on CD LD
		2	Operating Time			Displaying LD Operation Time (with clear function)
5	Channel Test	1	TEST TONE	1	Center/ Subwoofer/Front LR	
				2	Surround LR/ Surround Back LR	
		2	Front Lch			
		3	Center			
		4	Front Rch			
		5	Surround Rch			
		6	Surround Back Rch			
		7	Surround Back Lch			
		8	Surround Lch			
		9	Sub woofer			
6	RS-232C	1	Parity Setting	1	Even	Setting even parity
				2	Non	Setting non parity
		2	Version Up Mode			Realta Version up with connecting RS-232C
7	SD Card Test					
8	Default Setting					Default setting

Note: If some test are performed continuously, any error will occur.

Entering Service Mode

In power on condition, no discs and tray close, it will be entered into service mode by the following operation using the remote controller. However, it will not be entered when Media Select Item is SD Memory.

Service Mode by using remote controller

Press the following buttons on the remote controller in power on condition, no discs and tray close;

[2]->[5]->[8]->[0]->[CLEAR]

Release from Service Mode

Press the [POWER OFF] button to turn off power.

Screen saver/Auto Power Off in Service Mode

These functions are not performed in Service Mode.

After entering, Fig. k appears on the screen and Fig. l appears on the VFD.

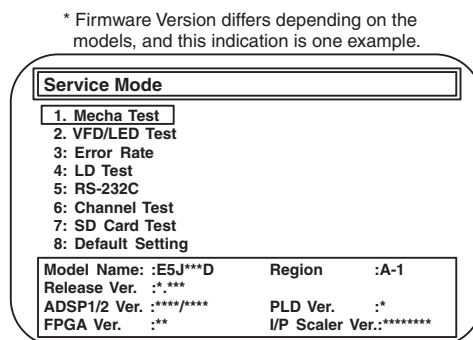


Fig. k Service Mode (Main menu)



Fig. l Service Mode

Available button in service mode

Button	condition
ENTER	Enter the next level
POWER	Turn the power off (when the service mode is completed)
1~8	Enter the selected item (next level)
OTHER	Not available

Note: Press the number key to select items. Or, press the cursor button (up/down) to select items and press [ENTER] button.

INDICATION	DESCRIPTION	REMARK
Model Name	Model Name	E5J***D, etc.
Region	BD region - DVD region	A-1, etc.
Release Ver.	Release version	D.jpp, etc.

TRAY LOCK MODE

Tray Lock Mode prevents the tray opening or closing to prevent disc theft in demo mode.

Enter this mode using the following procedure.

1. Confirm that the TV Monitor is connected.
2. With playback stopped, press [SETUP], [TOP MENU], [3], [AUDIO], [0] and [SETUP] buttons on the remote control unit in that order. "Trade-On" appears in the upper right corner on the screen, and Fig. a appears on the VFD for 2 seconds.

The image shows a VFD (Vacuum Fluorescent Display) with the text "Demomode" displayed in a pixelated, digital font. The letters are composed of small squares, giving it a retro, low-resolution appearance.

Fig. a

3. To exit this mode, press [SETUP], [TOP MENU], [3], [AUDIO], [0] and [SETUP] buttons on the remote control unit in that order. "Trade-Off" appears in the upper right corner on the screen, and Fig. b appears on the VFD for 2 seconds.

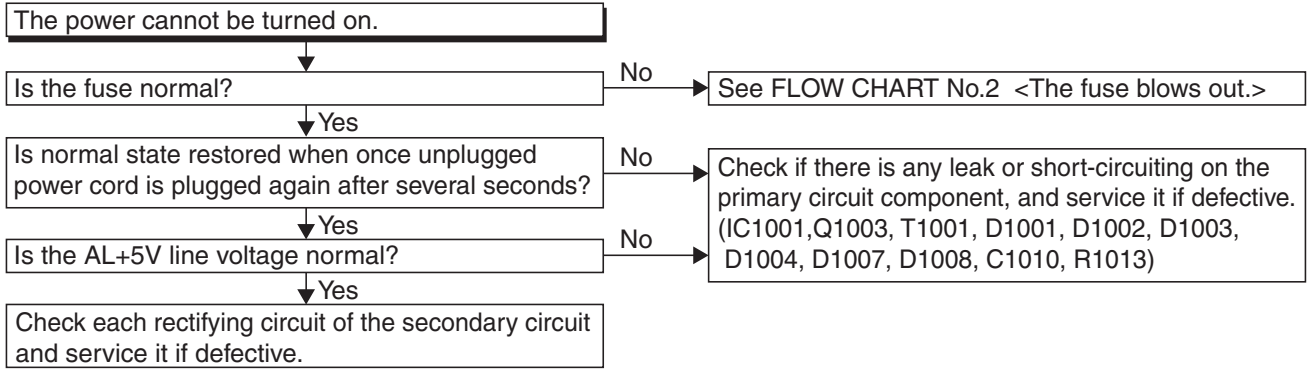
The image shows a VFD (Vacuum Fluorescent Display) with the text "INIT." displayed in a pixelated, digital font. The letters are composed of small squares, giving it a retro, low-resolution appearance.

Fig. b

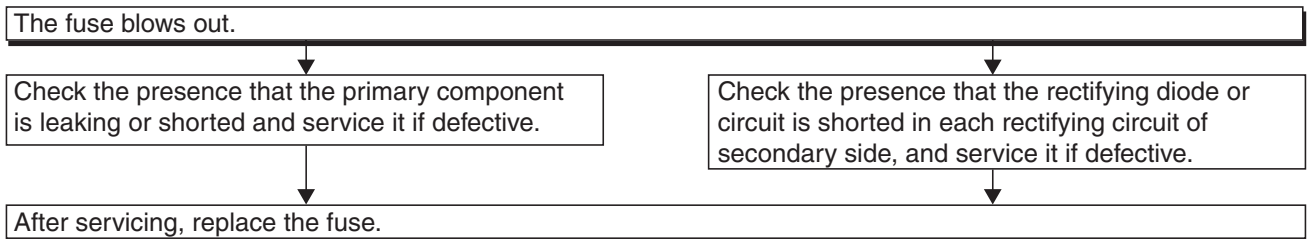
---MEMO---

TROUBLESHOOTING

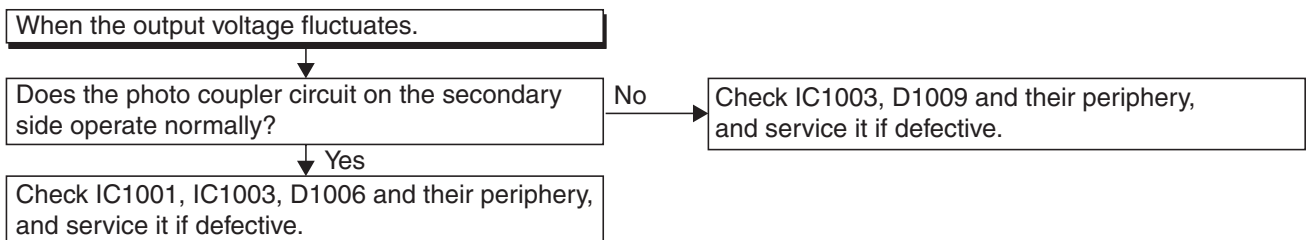
FLOW CHART NO.1



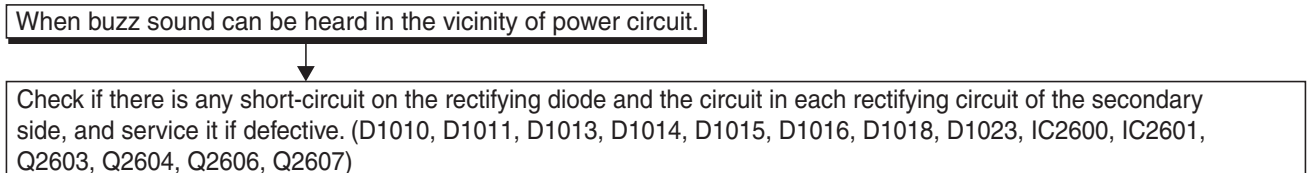
FLOW CHART NO.2



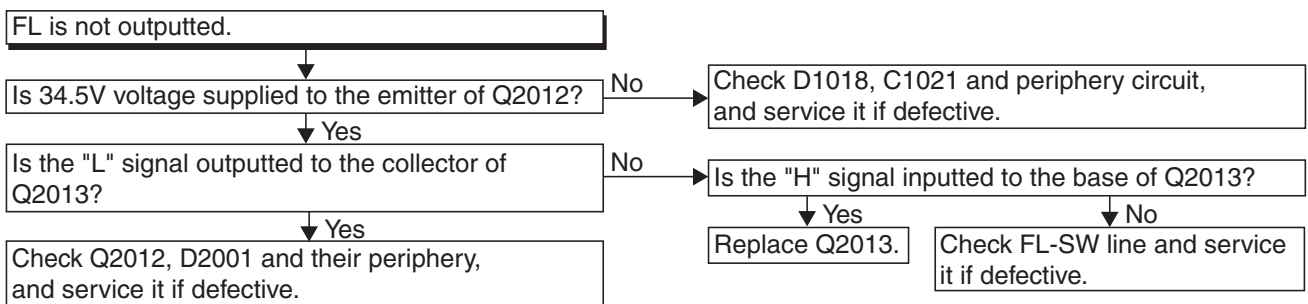
FLOW CHART NO.3



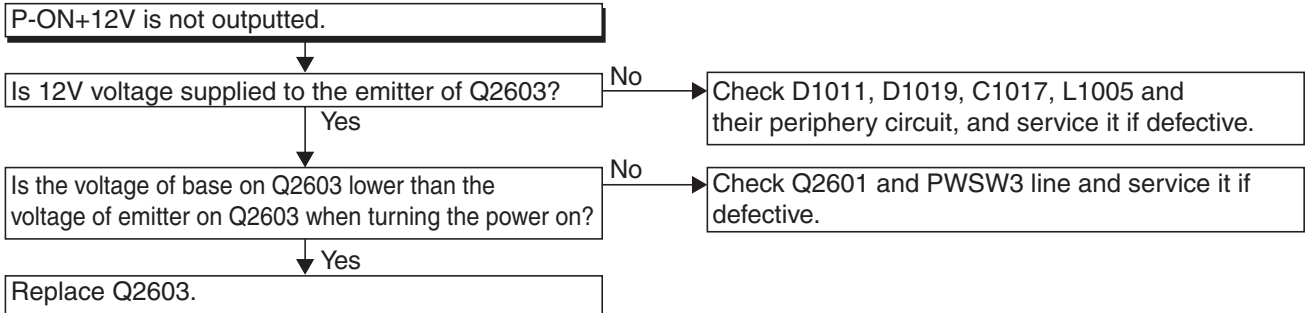
FLOW CHART NO.4



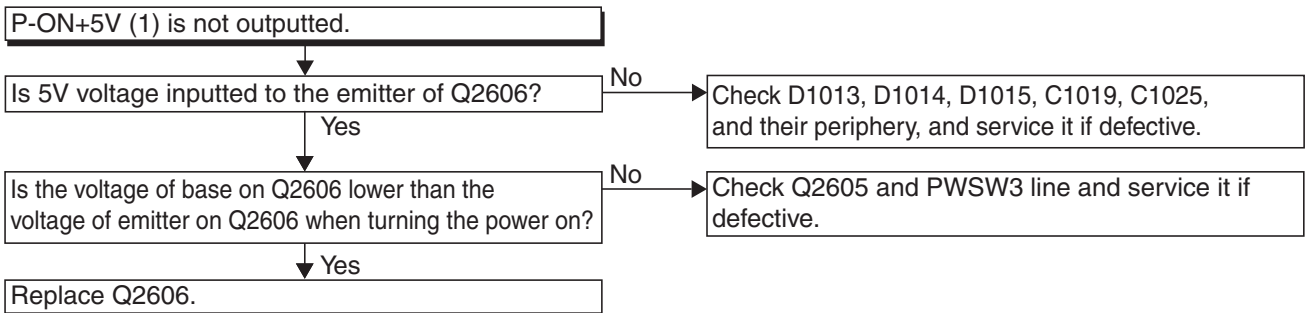
FLOW CHART NO.5



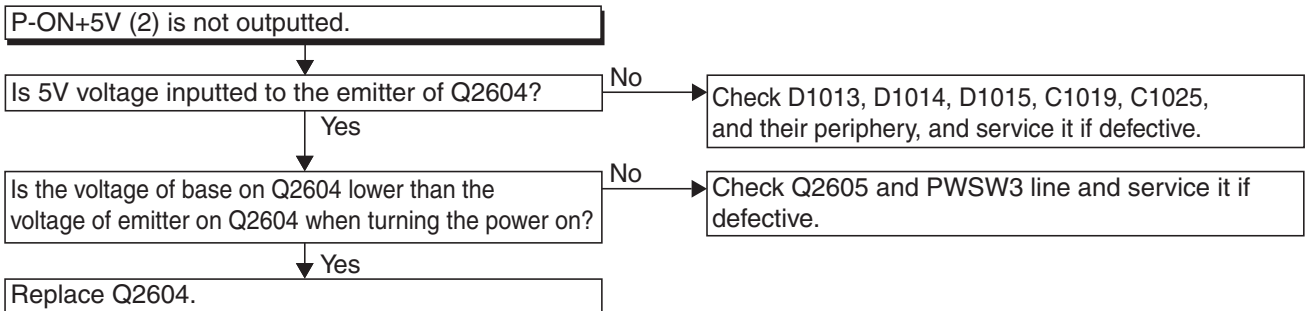
FLOW CHART NO.6



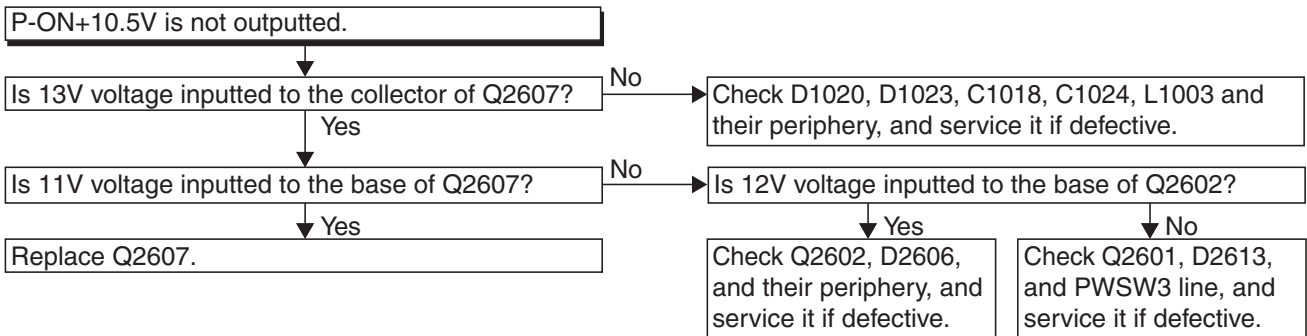
FLOW CHART NO.7



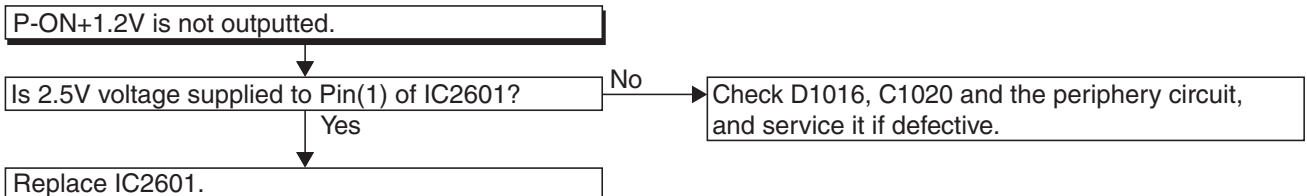
FLOW CHART NO.8



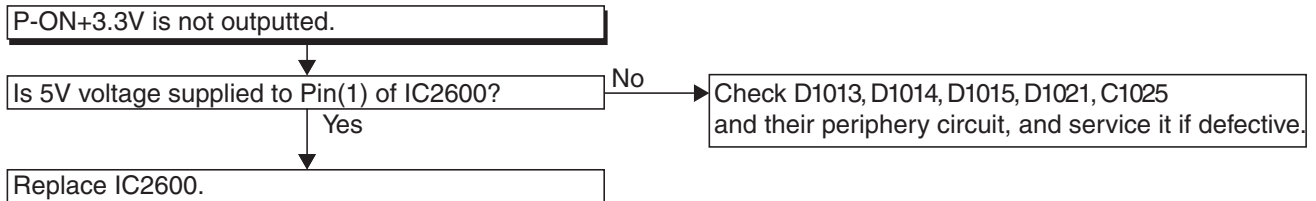
FLOW CHART NO.9



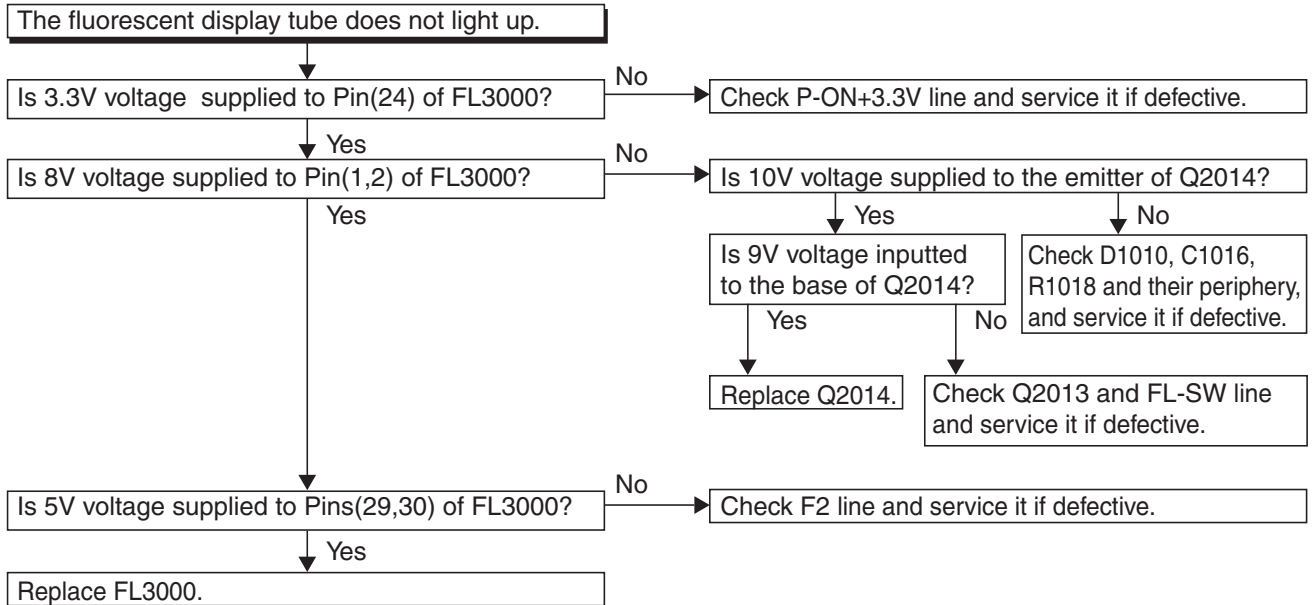
FLOW CHART NO.10



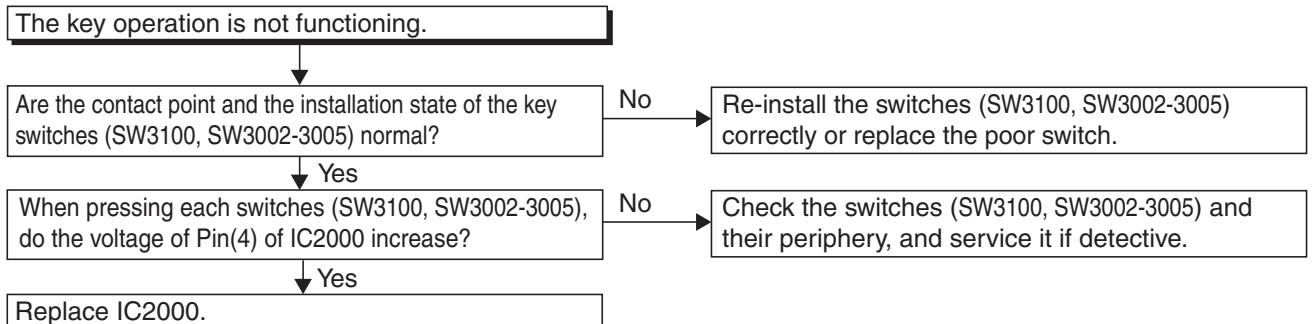
FLOW CHART NO.11



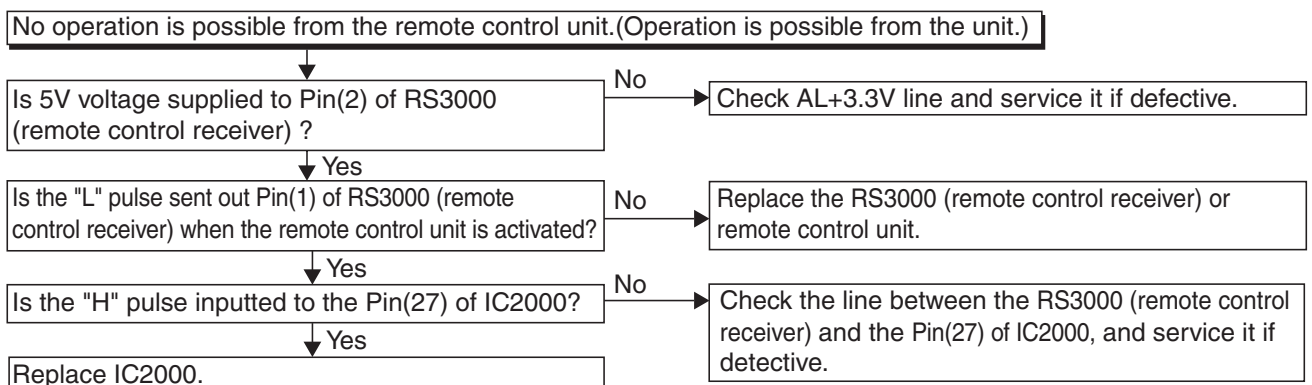
FLOW CHART NO.12



FLOW CHART NO.13

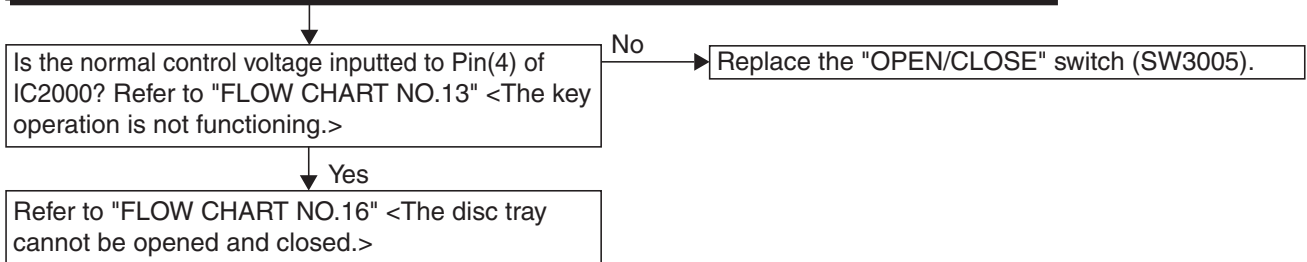


FLOW CHART NO.14



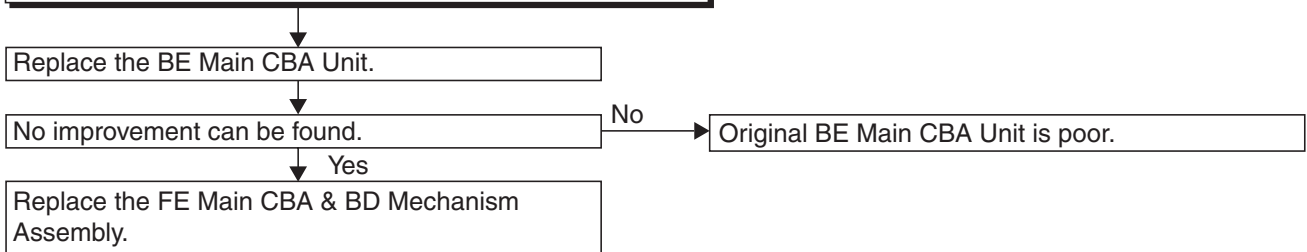
FLOW CHART NO.15

The disc tray cannot be opened and closed. (It can be done using the remote control unit.)

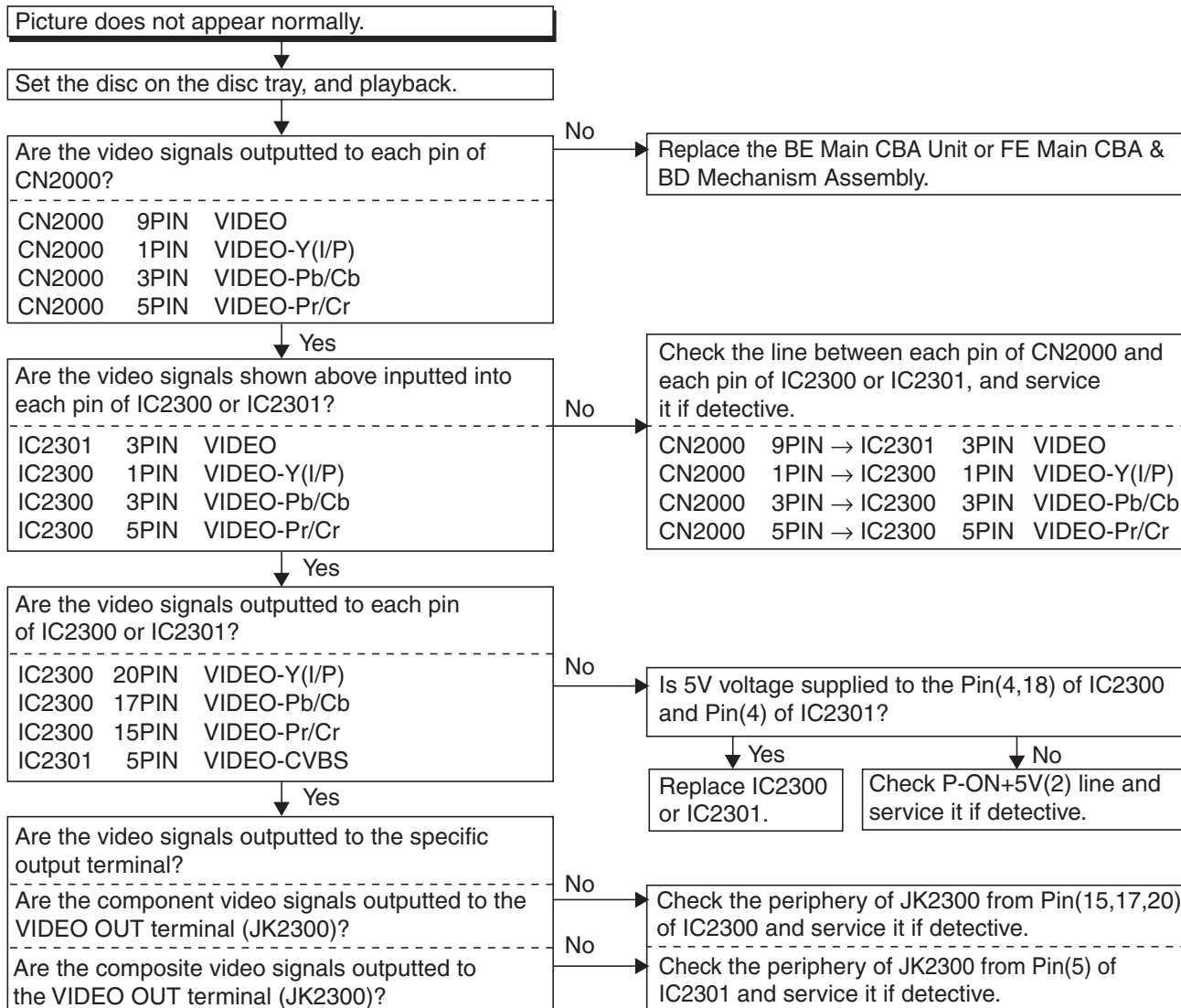


FLOW CHART NO.16

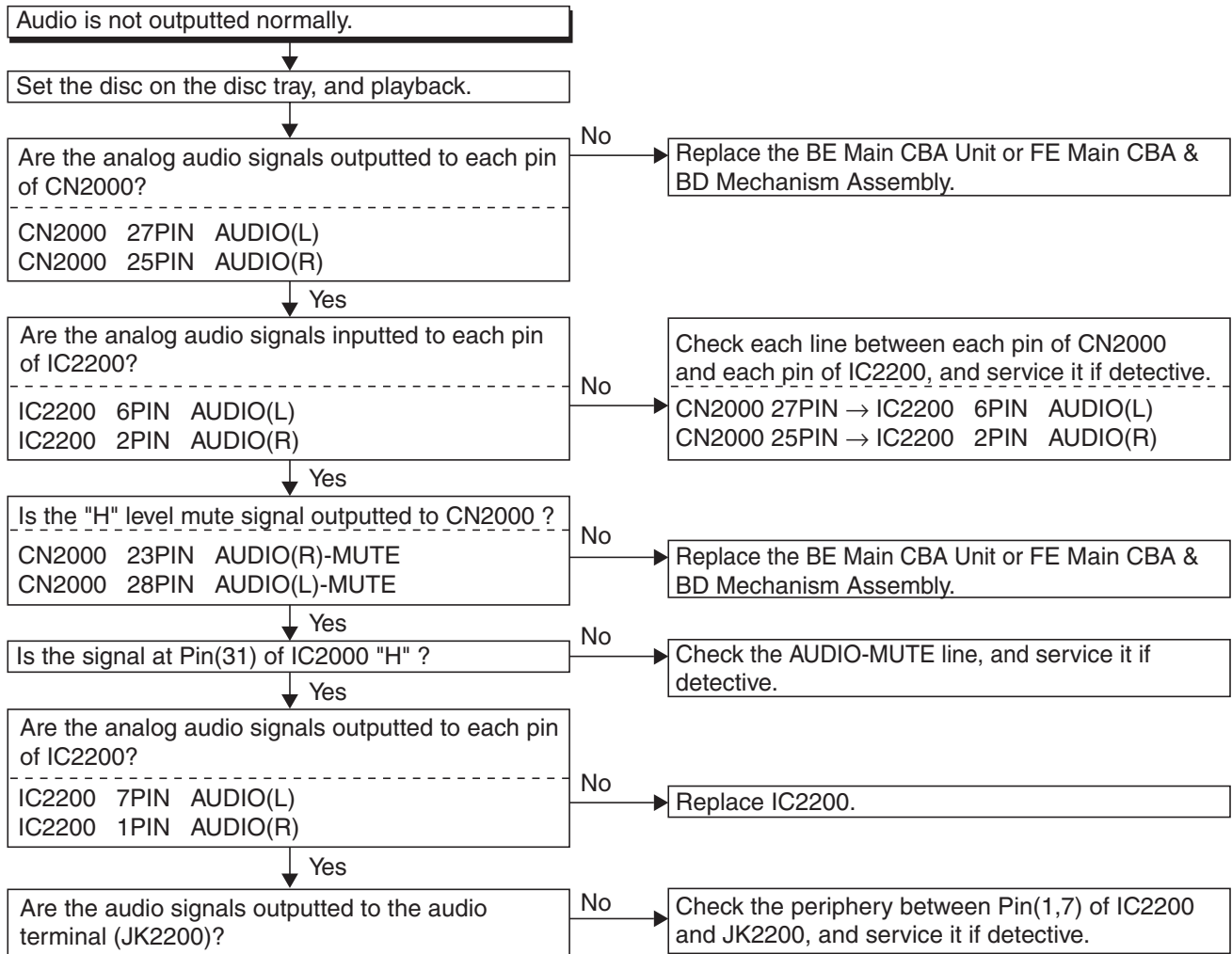
The disc tray cannot be opened and closed.
[No Disc] indicated.
Both functions of picture and sound do not operate normally.



FLOW CHART NO.17



FLOW CHART NO.18



BD Mechanism Replacement Guidelines

The guidelines describe how to determine whether a BD Mechanism Assembly is defective or not.
Confirm that the malfunction is eliminated after replacing the defective BD Mechanism Assembly with a new one.

*The BD Mechanism Assembly shall be acceptable when the following test disc can be played successfully;

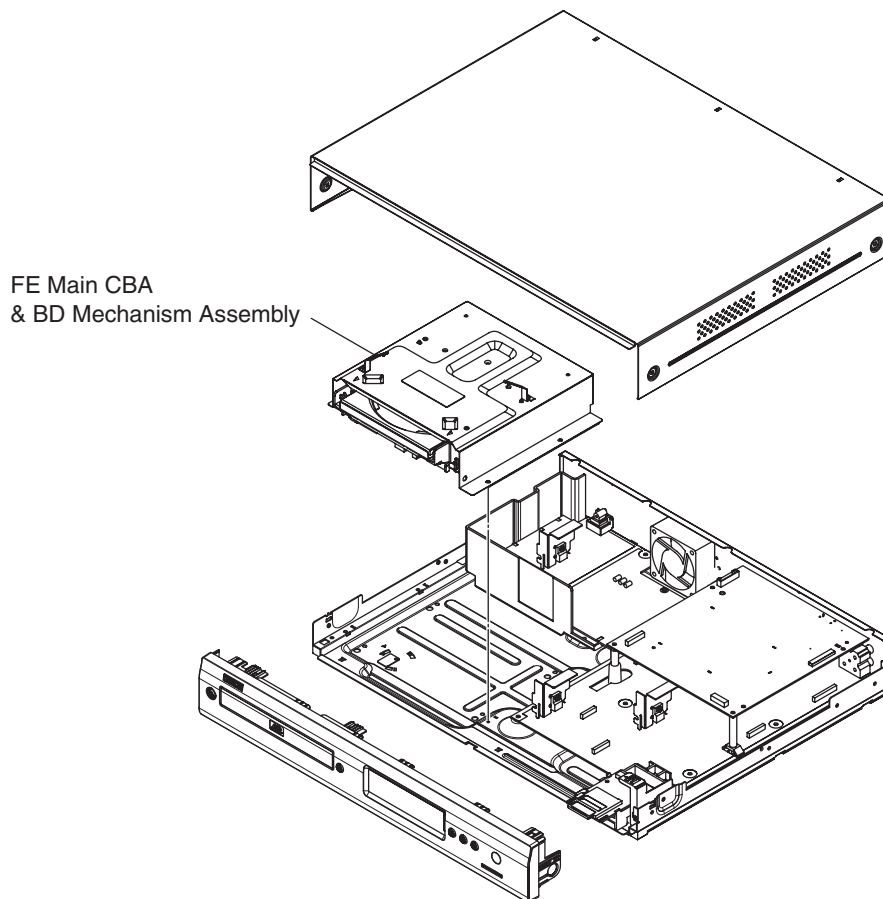
BD-ROM	BLX-201S3(SONY) chp12
BD-R	SBD-8284(ALMEDIO)

*Select [4: LD Test] and select [2: Operating Time] in Service Mode.

If the Operating Time shows 3,000 hours or more, the BD Mechanism Assembly shall be determined that it has reached the end of its life.

Replacement of FE Main CBA & BD Mechanism Assembly

1. Remove the Top Cover and Front Assembly.
2. Disconnect Connectors and replace the FE Main CBA & BD Mechanism Assembly.
Refer to CABINET DISASSEMBLY INSTRUCTIONS.

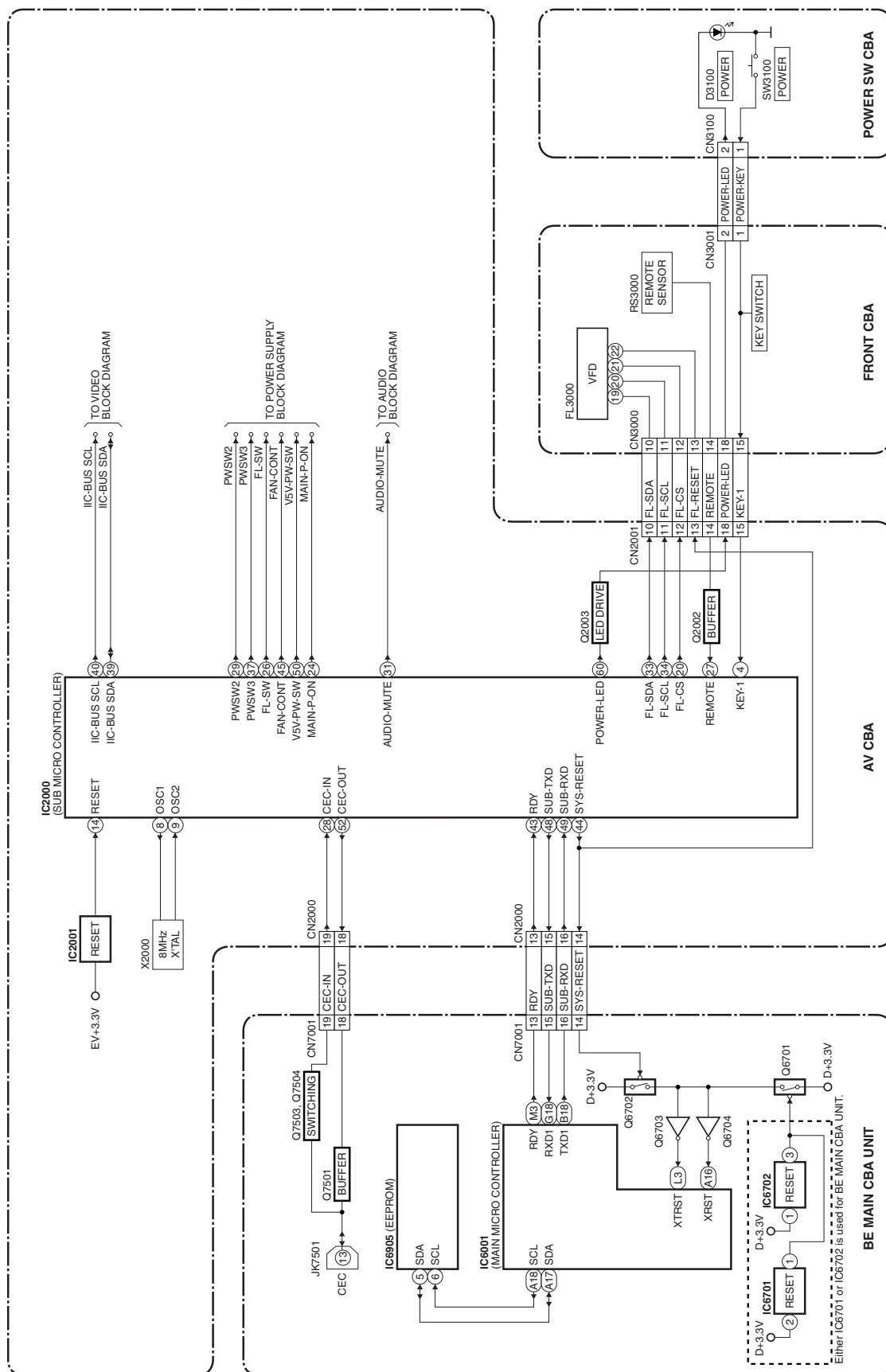


※ The region setting can be changed up to five times (including factory preset).
If you exceed the region change limit, DVD playback images will be affected by noise.

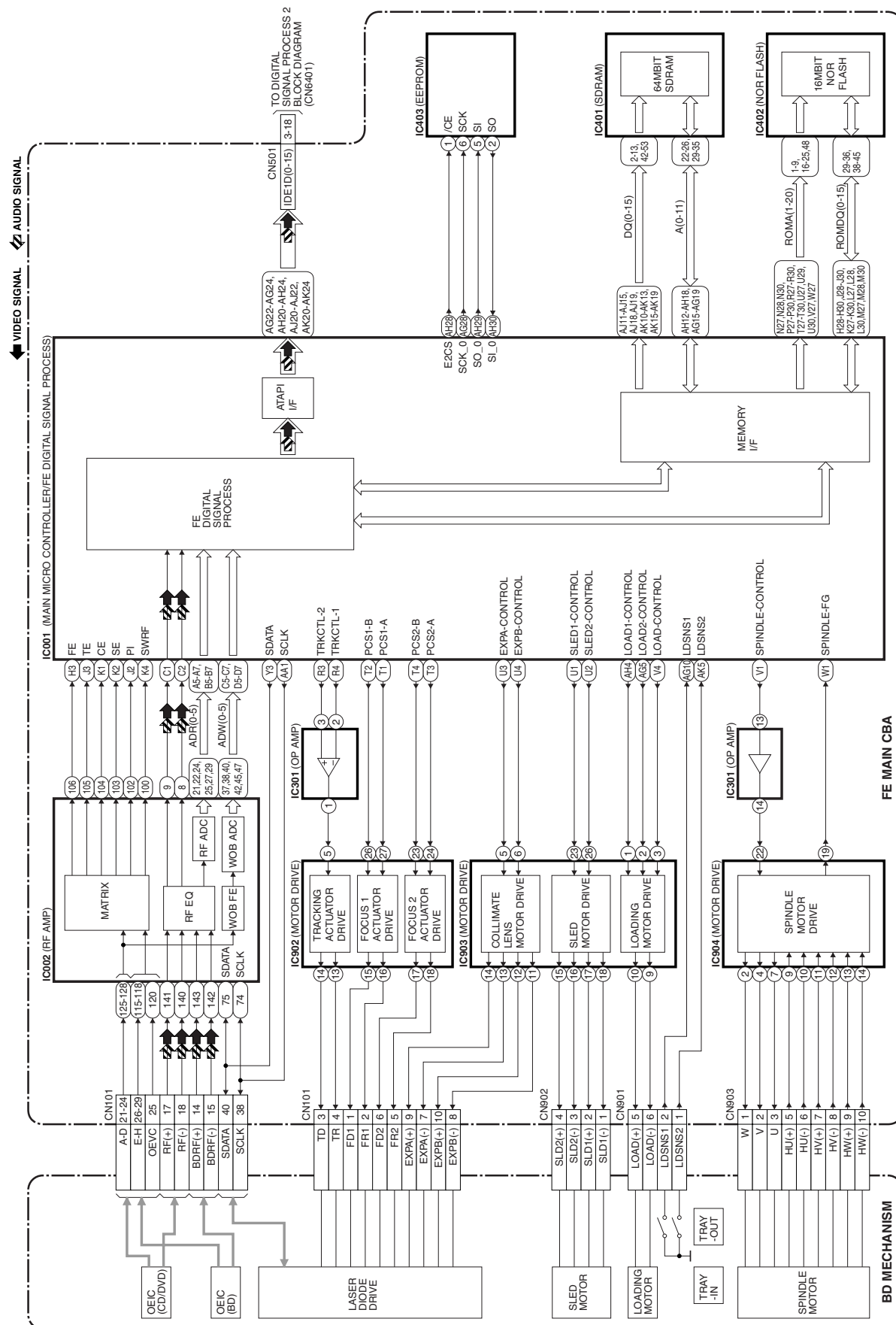
※ The BD Mechanism Assembly for service use has the E3 (U.S.A. & Canada model) specification.
After replacing the BD Mechanism Assembly for service use, be sure to rewrite Firmware to the latest for the particular region.

BLOCK DIAGRAMS

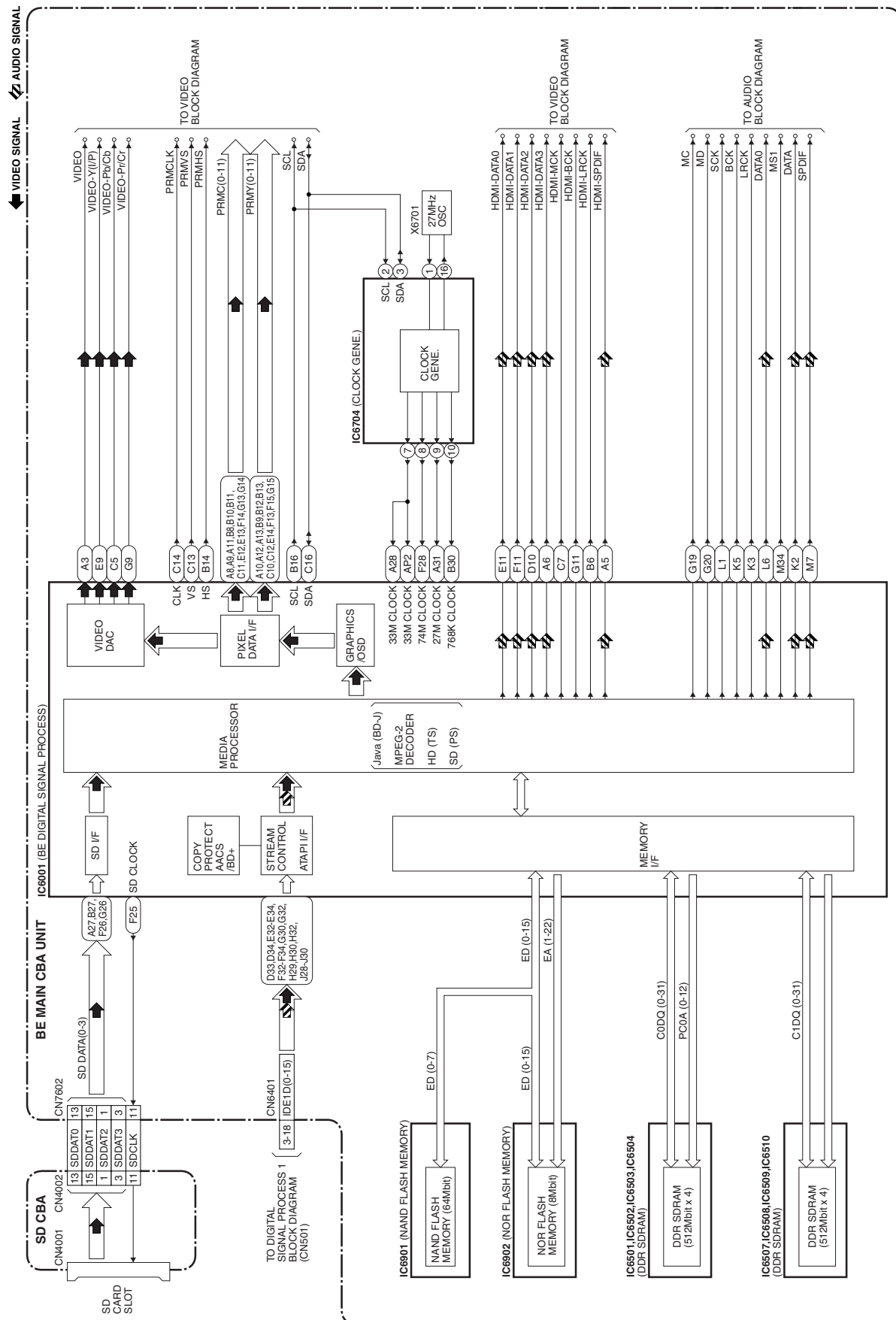
System Control Block Diagram



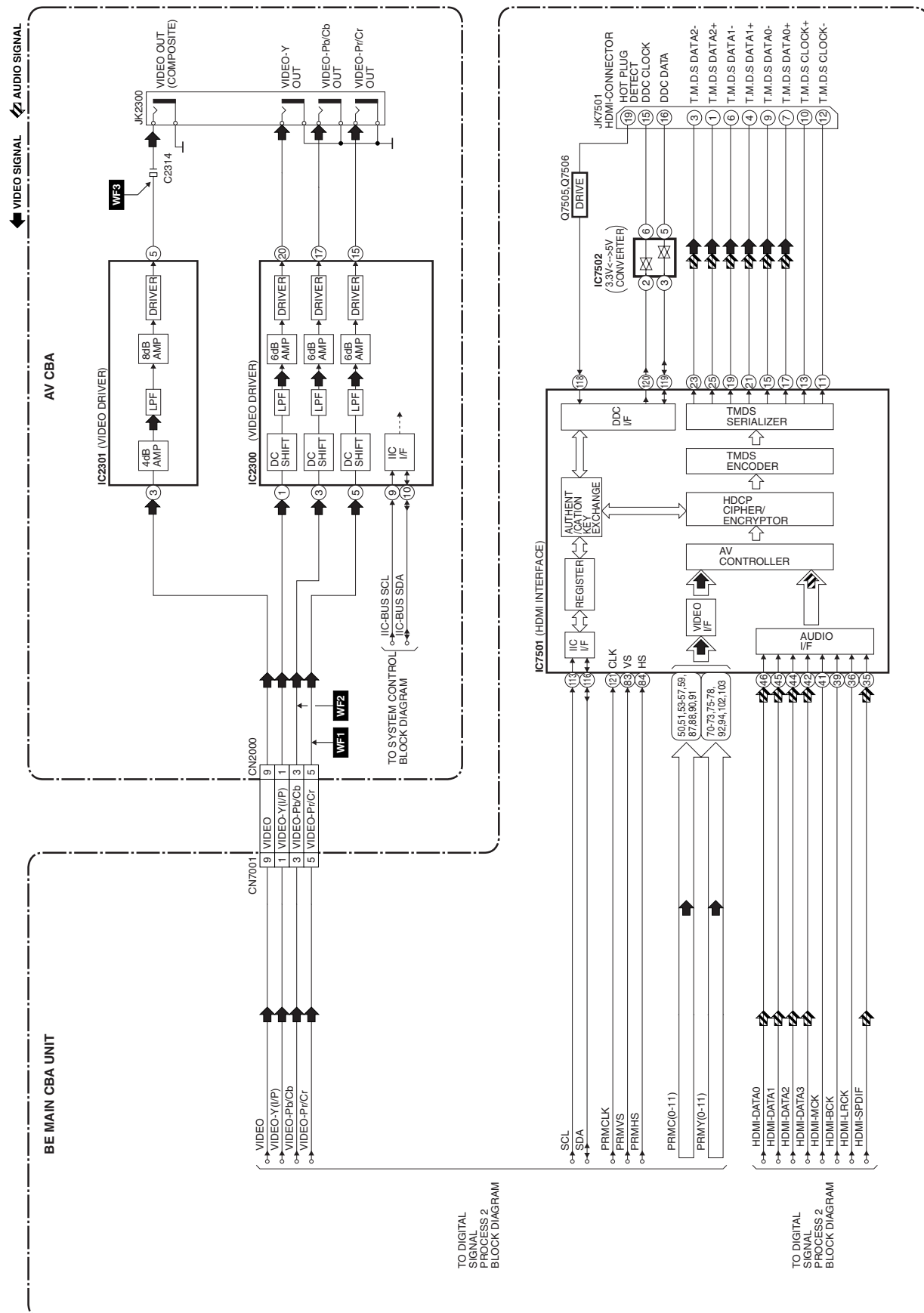
Digital Signal Process 1 Block Diagram



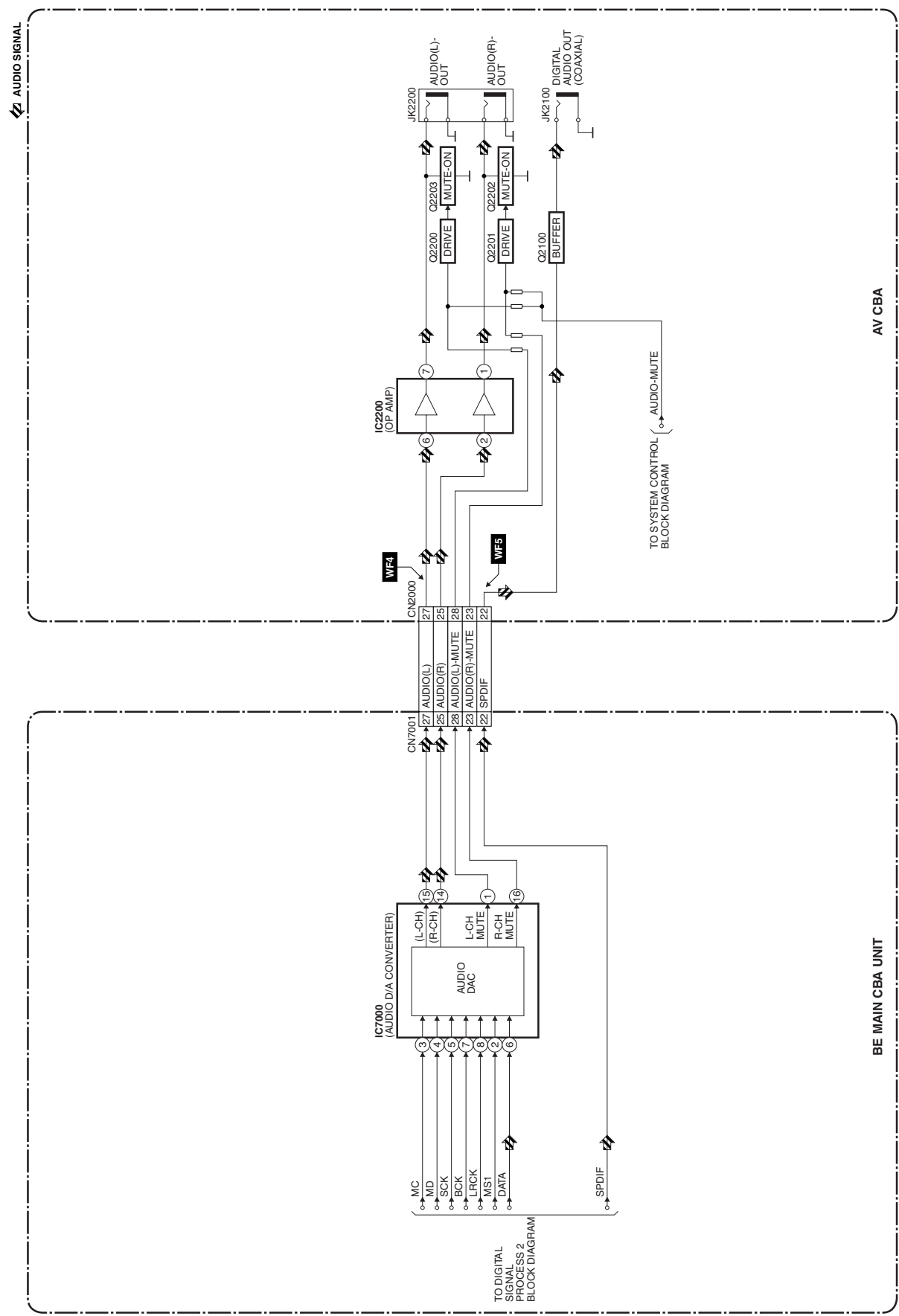
Digital Signal Process 2 Block Diagram



Video Block Diagram



Audio Block Diagram



Power Supply Block Diagram

CAUTION !

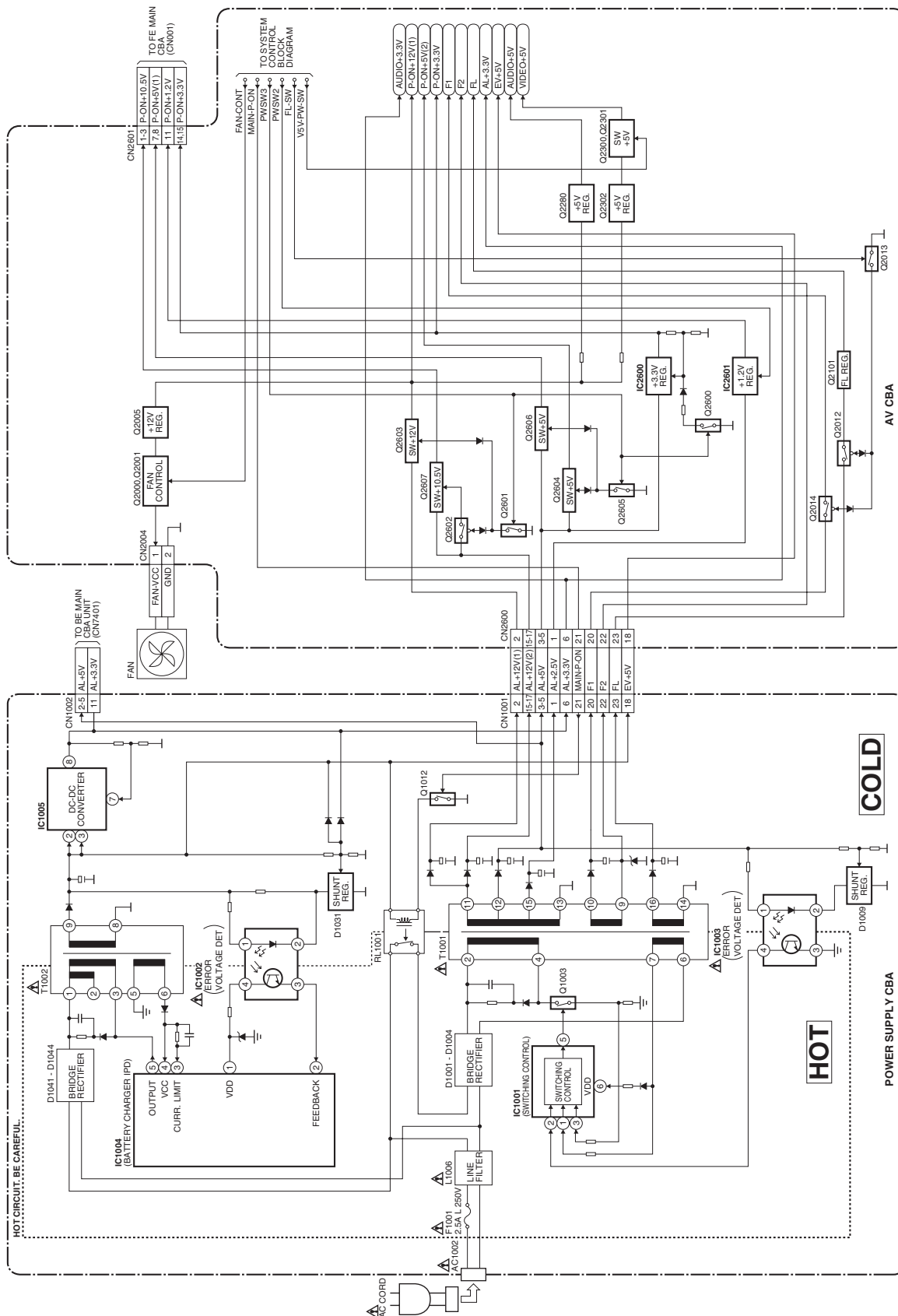
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power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

CAUTION !

For continued protection against fire hazard, replace only with the same type fuse.

NOTE:


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



SCHEMATIC DIAGRAMS 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 μF ($P = 10^{-6} \mu F$).
5. All voltages are DC voltages unless otherwise specified.
6. Electrical parts such as capacitors, connectors, diodes, IC's, transistors, resistors, switches, and fuses are identified by four digits. The first two digits are not shown for each component. In each block of the diagram, there is a note such as shown below to indicate these abbreviated two digits.

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.

2. CAUTION:

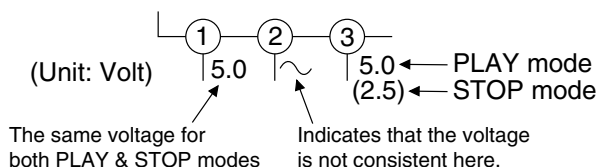
Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.

If Main Fuse (F1001) 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 for PLAY and STOP mode on the schematics are as shown below:



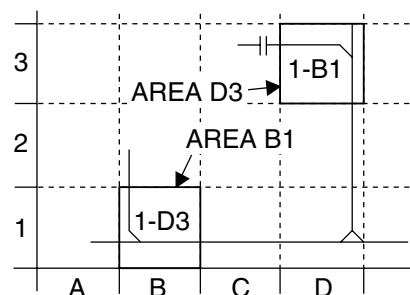
5. How to read converged lines

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".



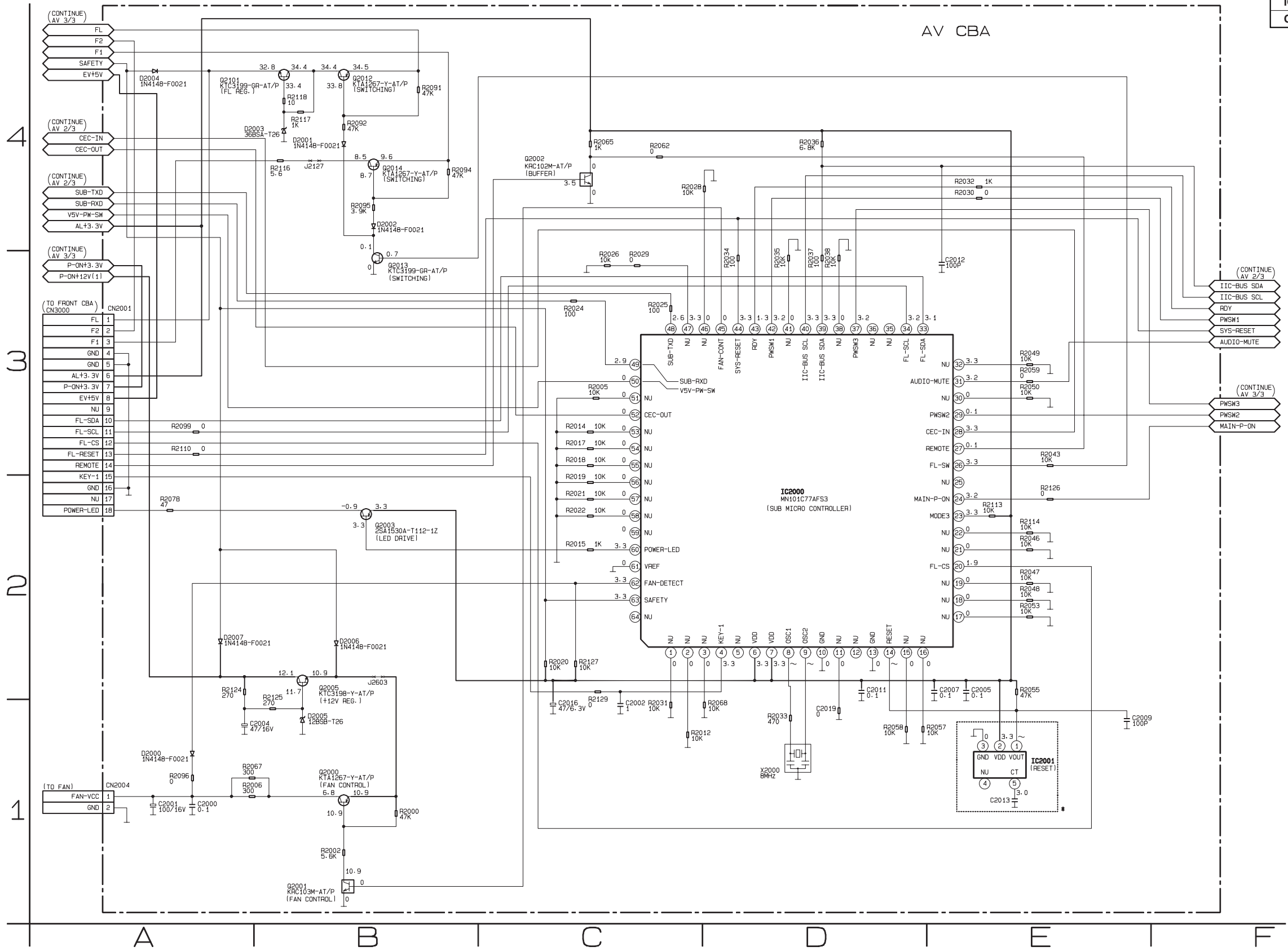
6. Test Point Information

- : 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.

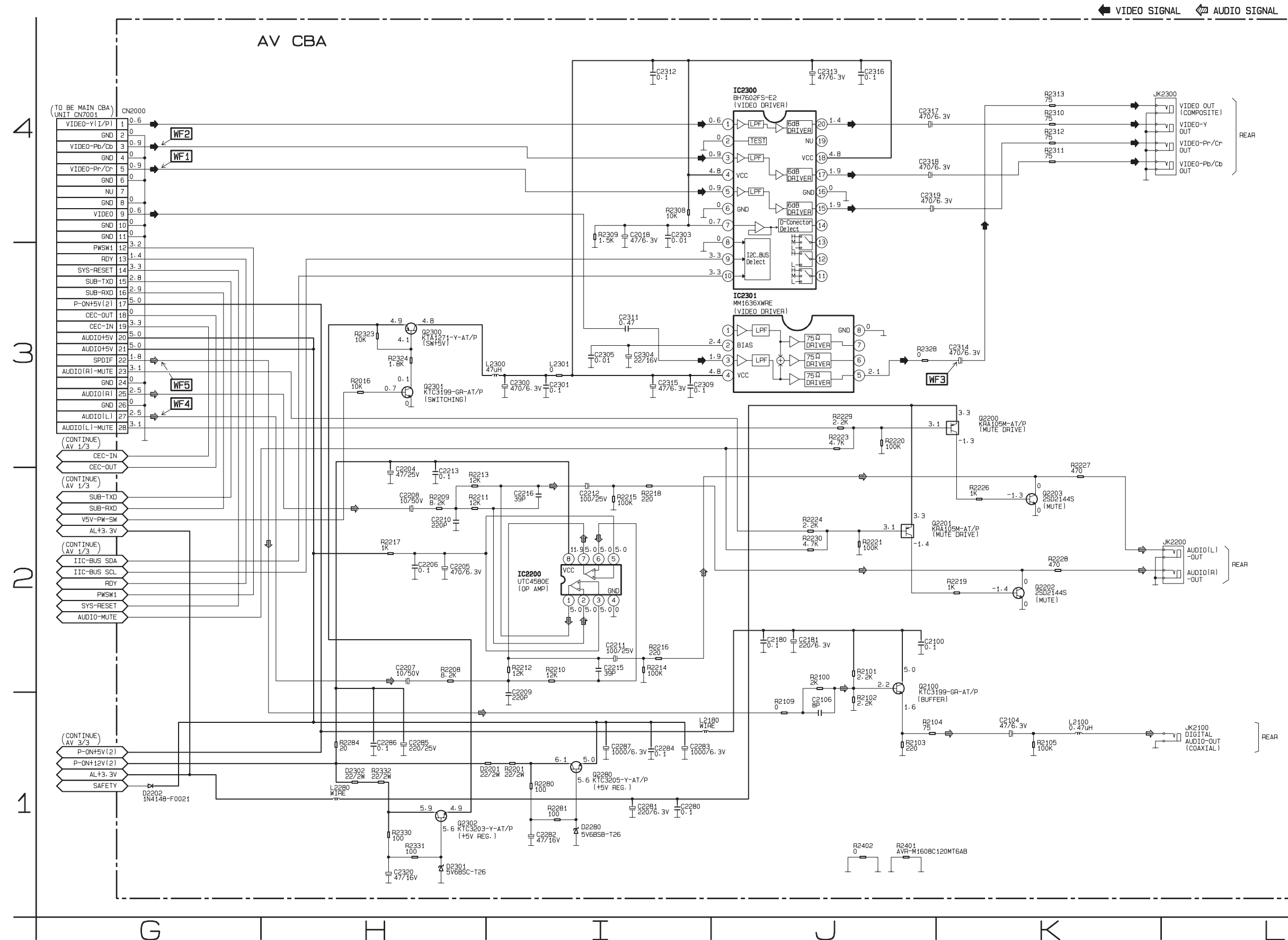
AV 1/3 Schematic Diagram

* NOTE
These components (IC2001, C2013)
can be used in any models.
However, you cannot mix components under
Group A with the ones under Group B.
You can choose either Group. The difference
between Group A and Group B is shown below.

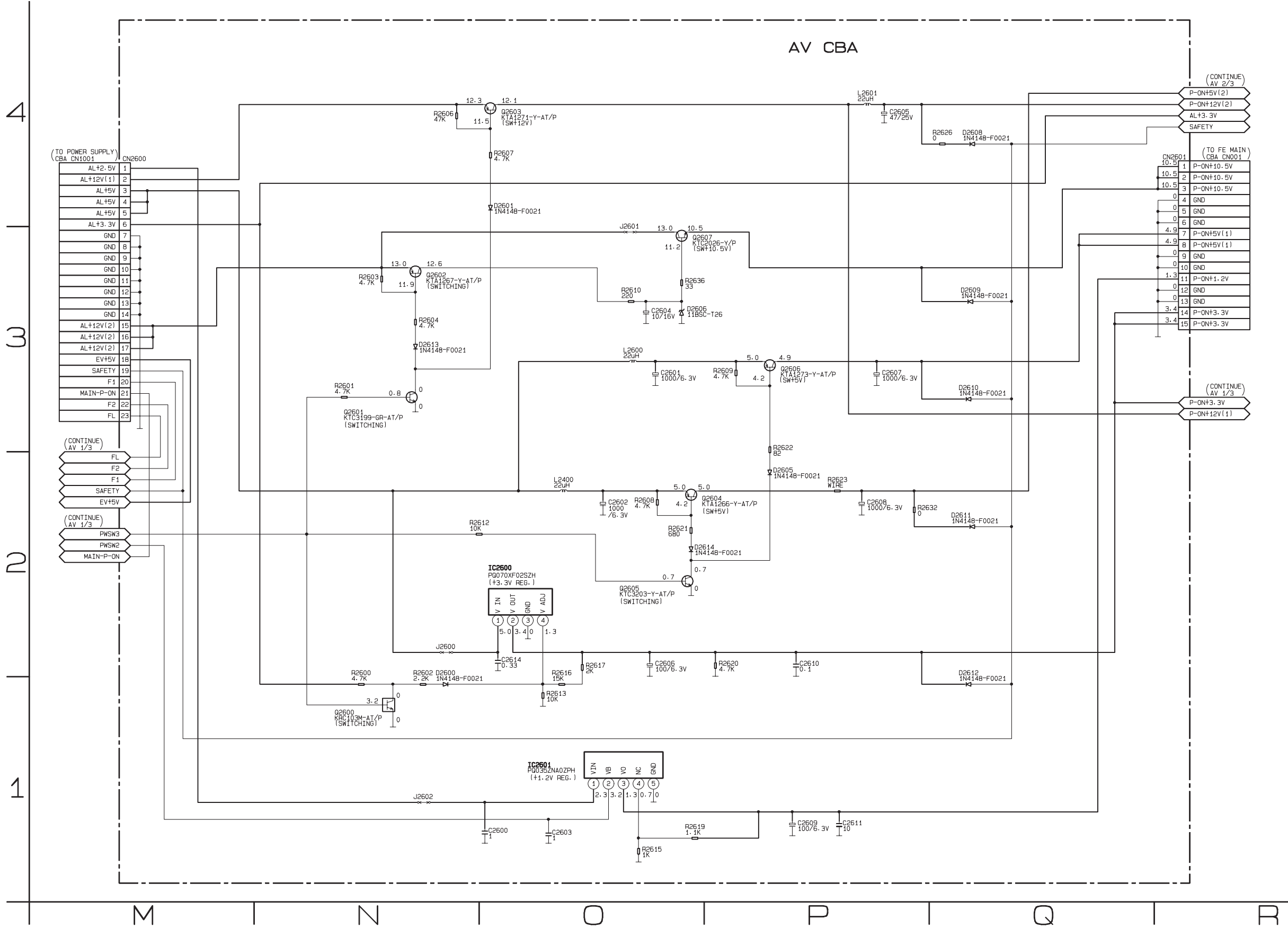
	Group A	Group B
IC2001	PST3630NR	PST8430NR
C2013	0.1	0.01



AV 2/3 Schematic Diagram



AV 3/3 Schematic Diagram



Power Supply Schematic Diagram

CAUTION !

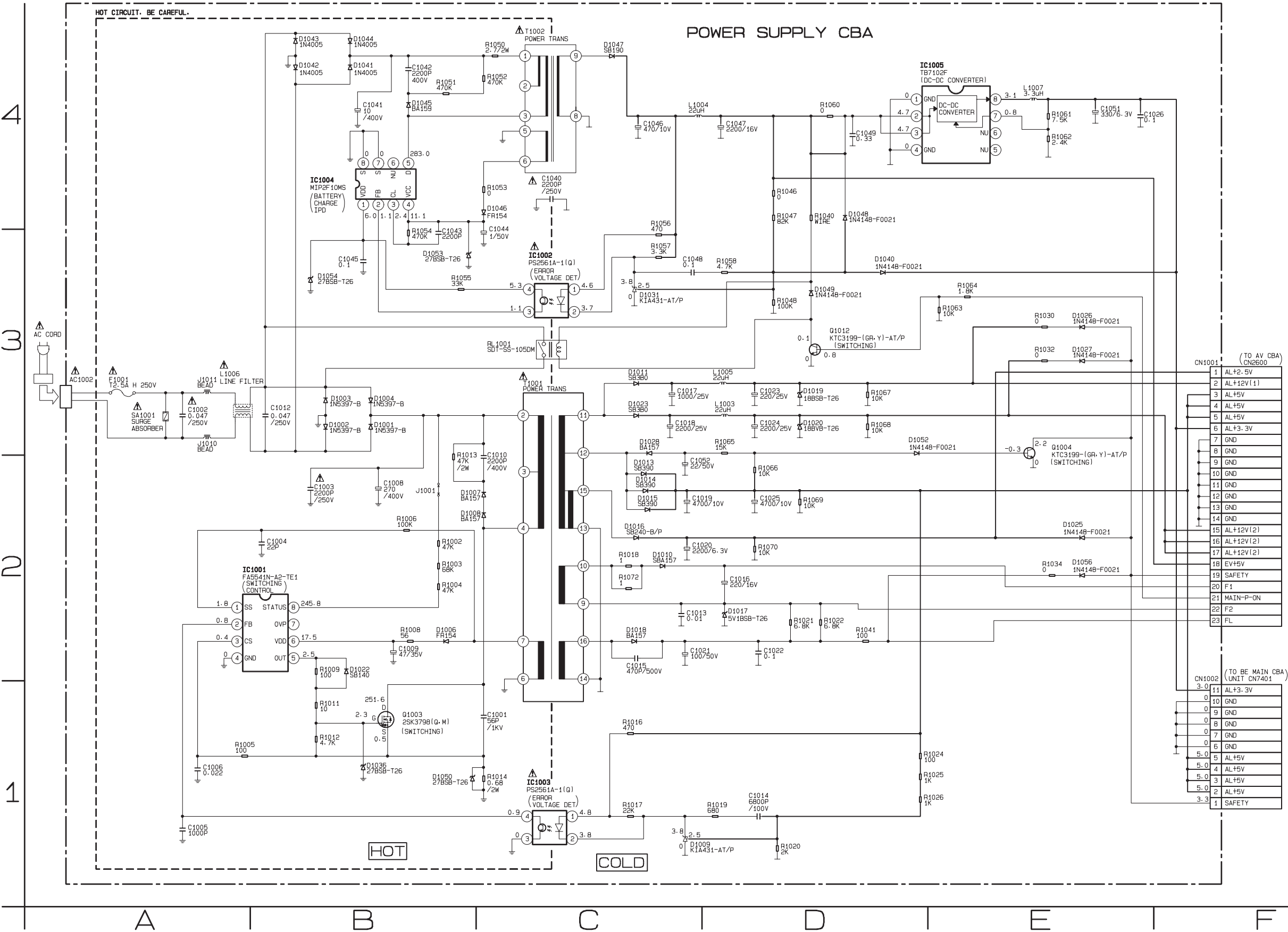
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1001) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power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

CAUTION !

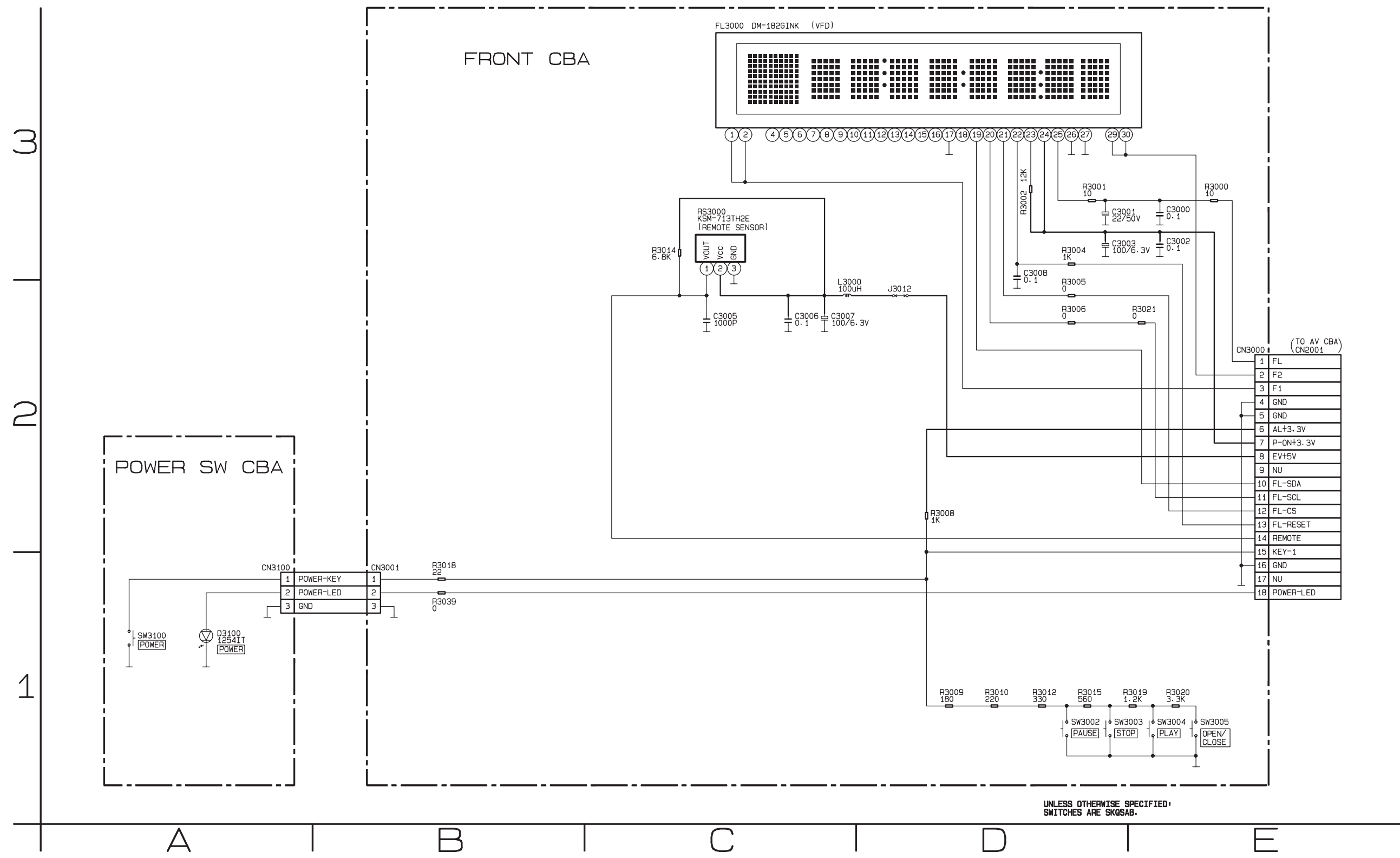
For continued protection against fire hazard,
replace only with the same type fuse.

NOTE:

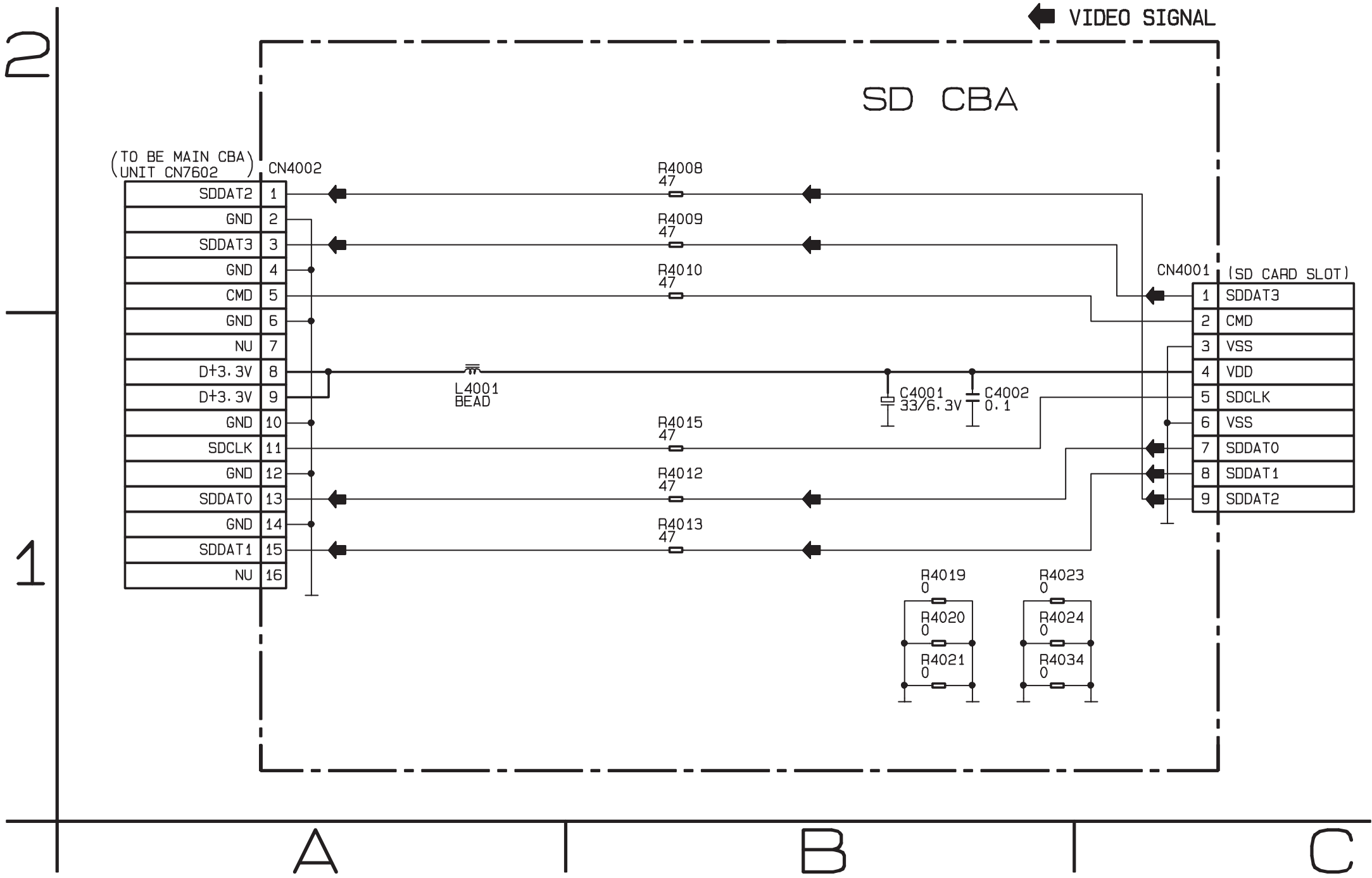
The voltage for parts in hot circuit is measured using
hot GND as a common terminal.



Front & Power SW Schematic Diagram



SD Schematic Diagram

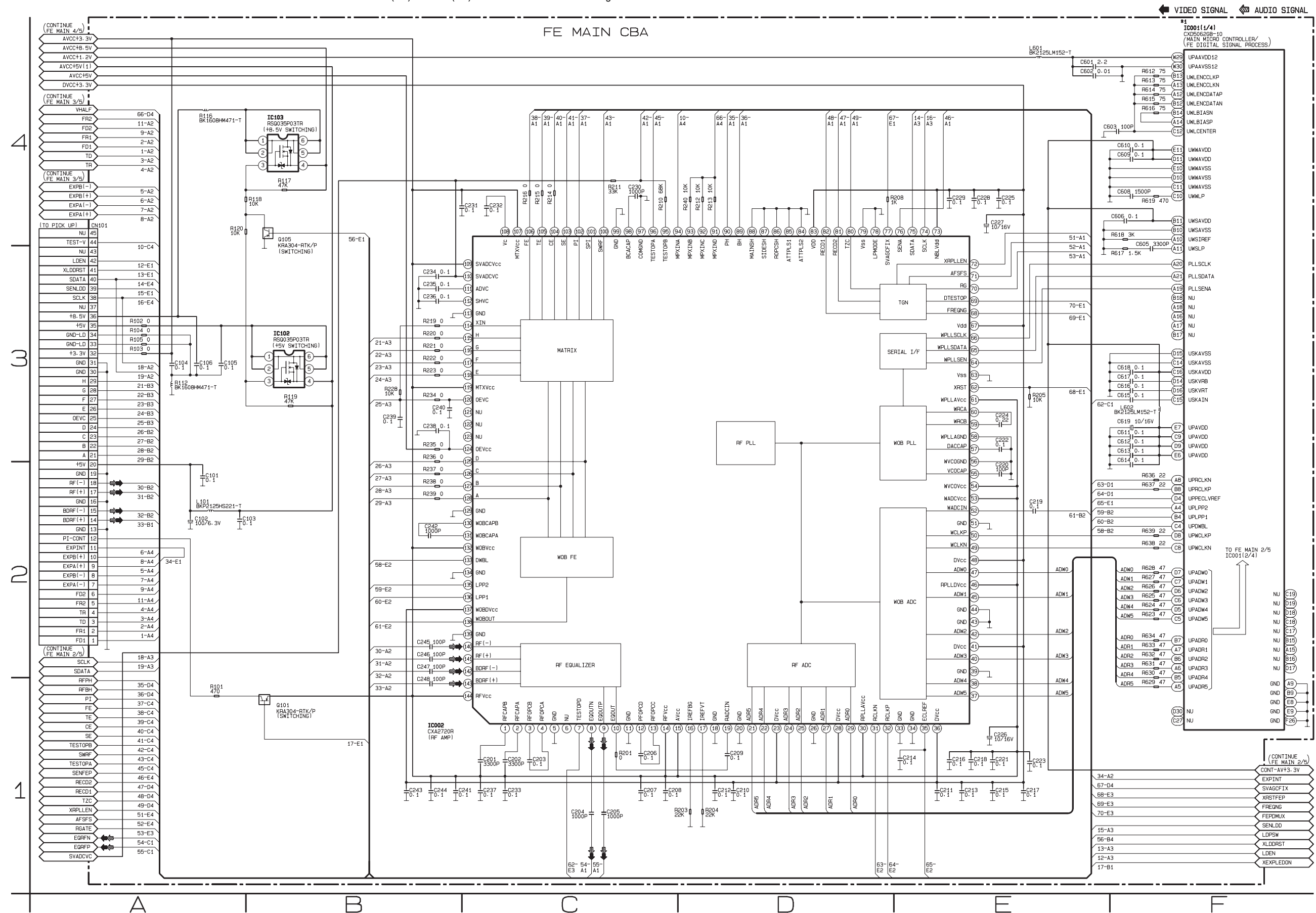


FE Main 1/5 Schematic Diagram

***1 NOTE:**

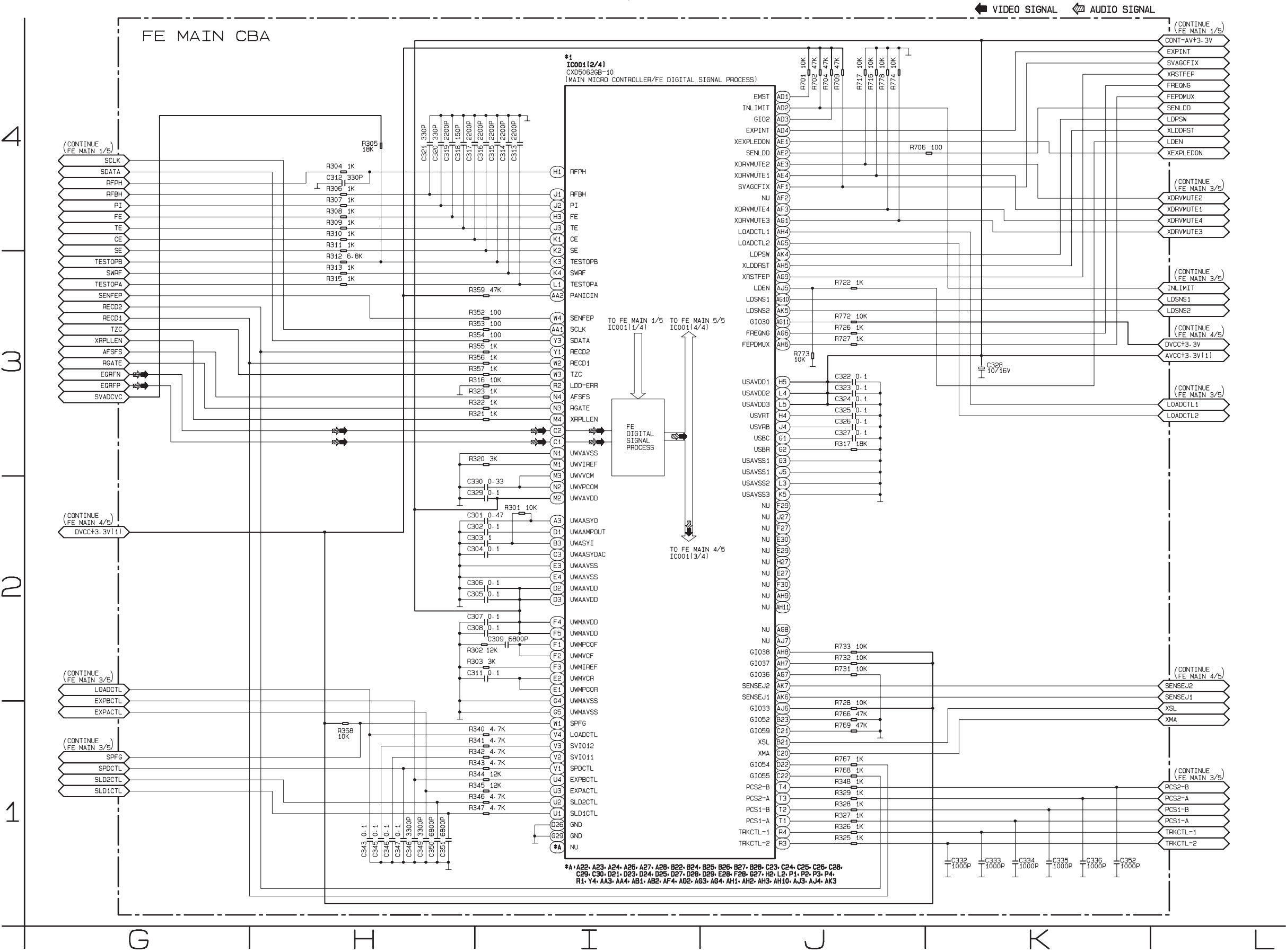
The order of pins shown in this diagram is different from that of actual IC001.

IC001 is divided into four and shown as IC001 (1/4) ~ IC001 (4/4) in this FE Main Schematic Diagram Section.

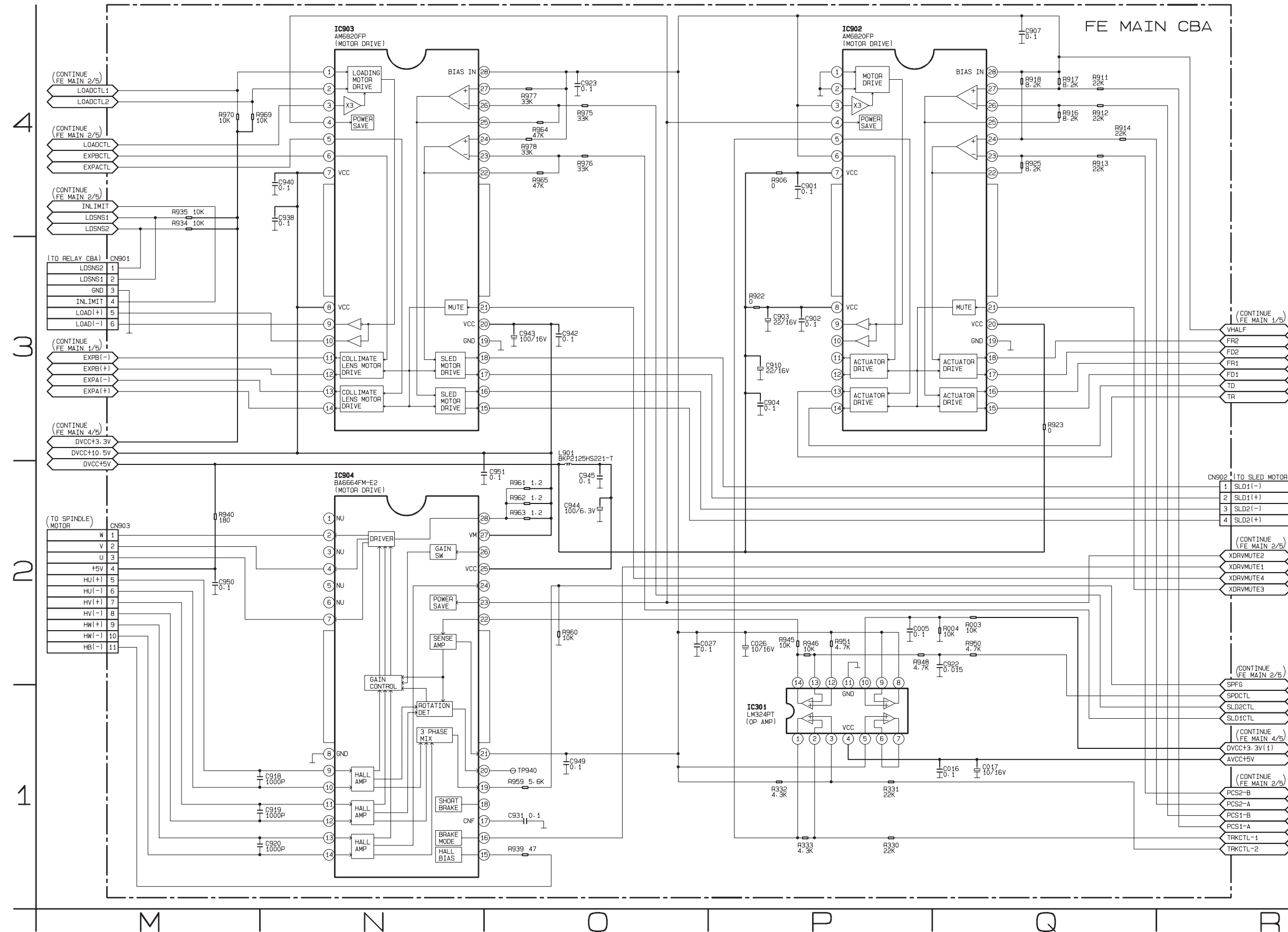


FE Main 2/5 Schematic Diagram

*1 NOTE:
The order of pins shown in this diagram is different from that of actual IC001.
IC001 is divided into four and shown as IC001 (1/4) ~ IC001 (4/4) in this FE Main Schematic Diagram Section.



FE Main 3/5 Schematic Diagram



4

3

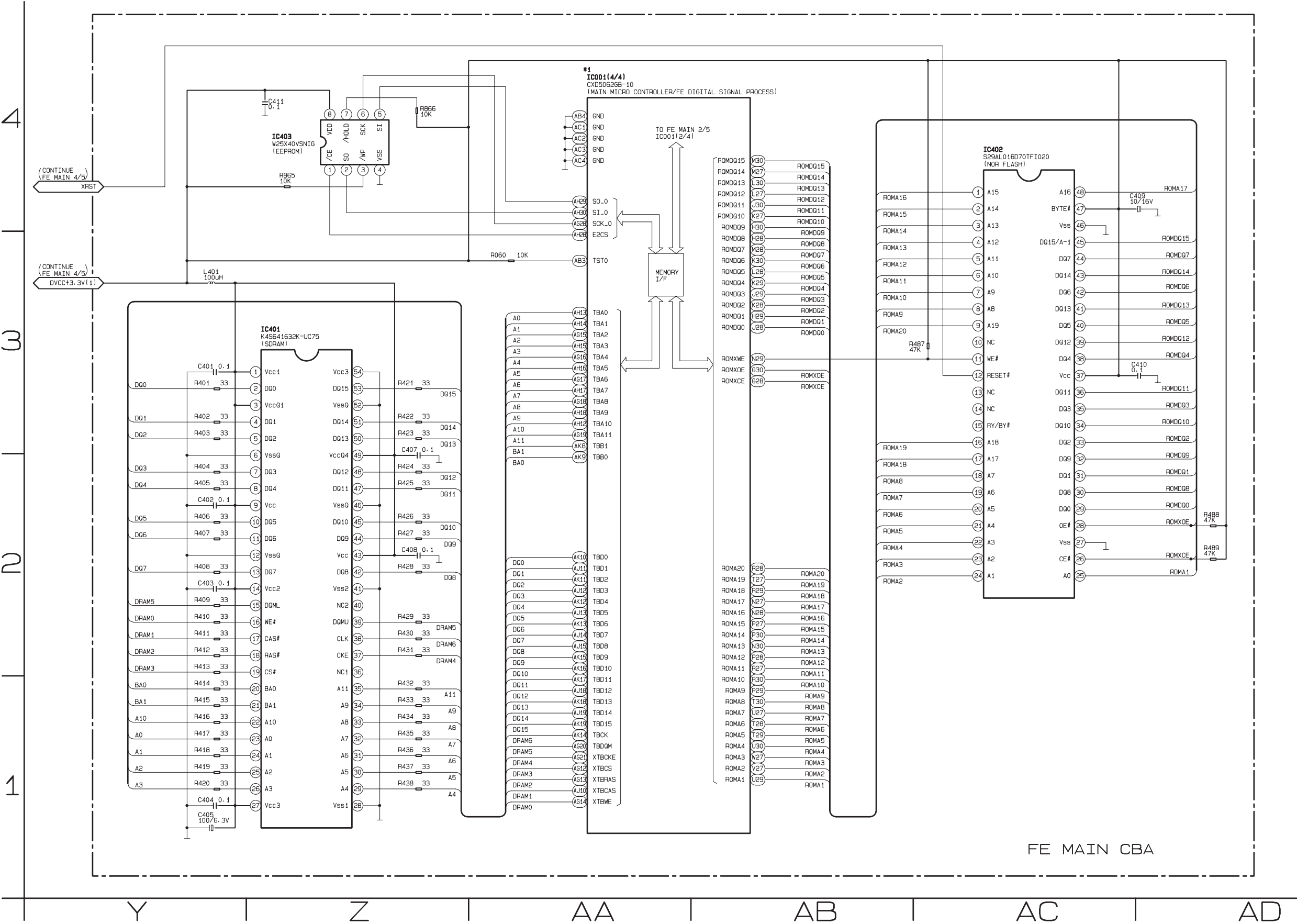
2

1



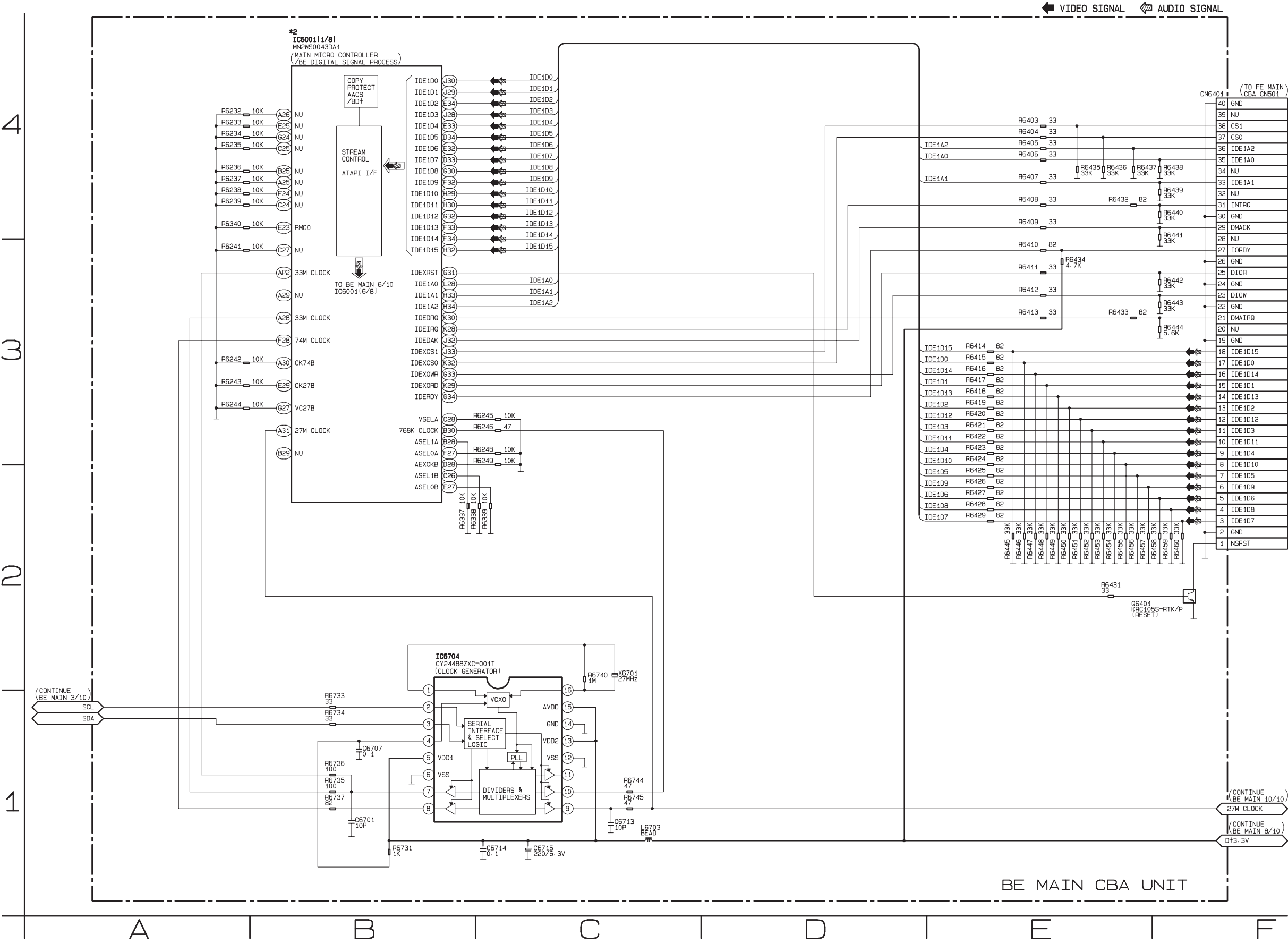
FE Main 5/5 Schematic Diagram

*1 NOTE:
The order of pins shown in this diagram is different from that of actual IC001.
IC001 is divided into four and shown as IC001 (1/4) ~ IC001 (4/4) in this FE Main Schematic Diagram Section.



BE Main 1/10 Schematic Diagram

*2 NOTE:
The order of pins shown in this diagram is different from that of actual IC6001.
IC6001 is divided into eight and shown as IC6001 (1/8) ~ IC6001 (8/8) in this BE Main Schematic Diagram Section.

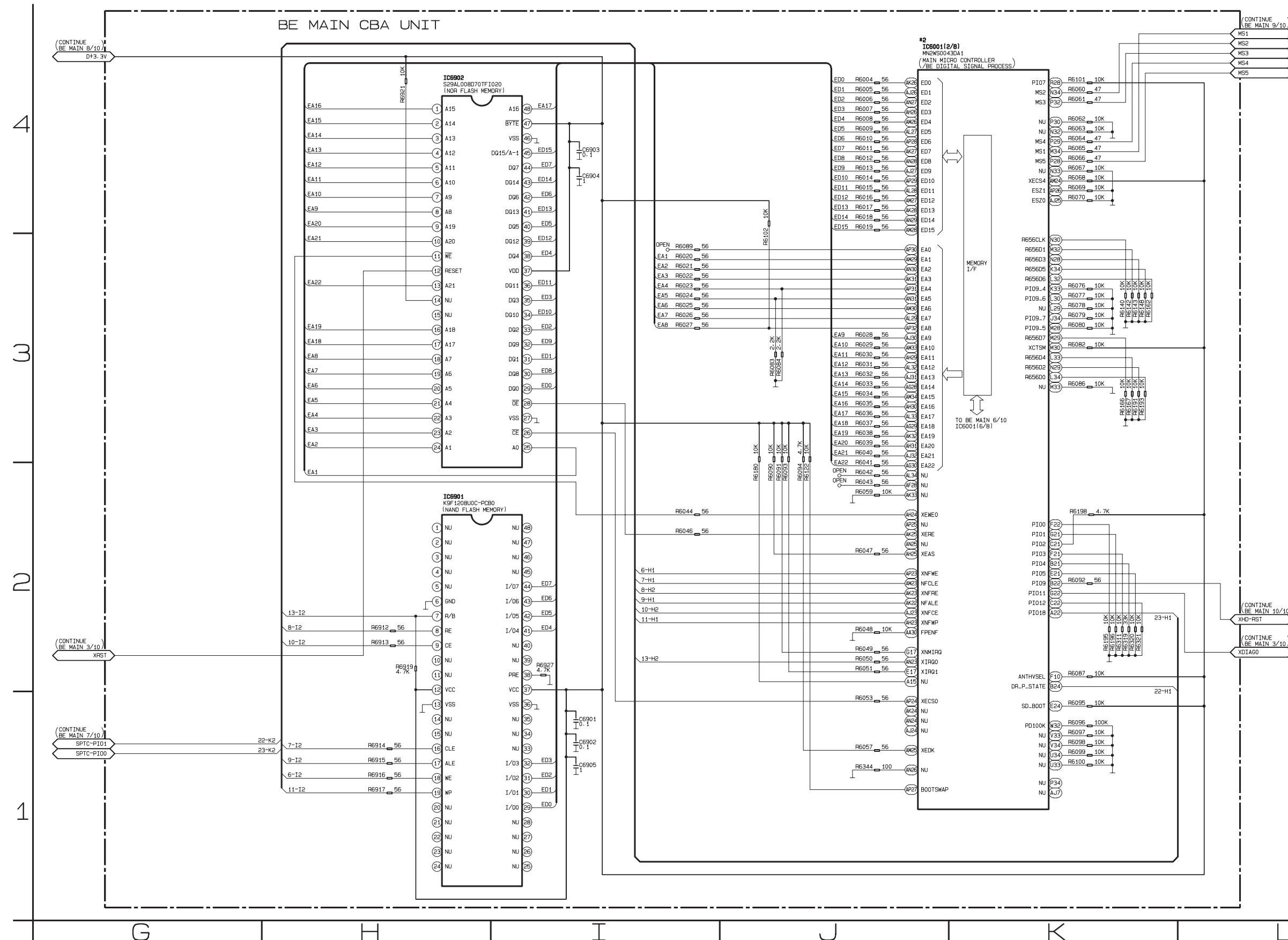


BE Main 2/10 Schematic Diagram

***2 NOTE:**

The order of pins shown in this diagram is different from that of actual IC6001.

IC6001 is divided into eight and shown as IC6001 (1/8) ~ IC6001 (8/8) in this BE Main Schematic Diagram Section.

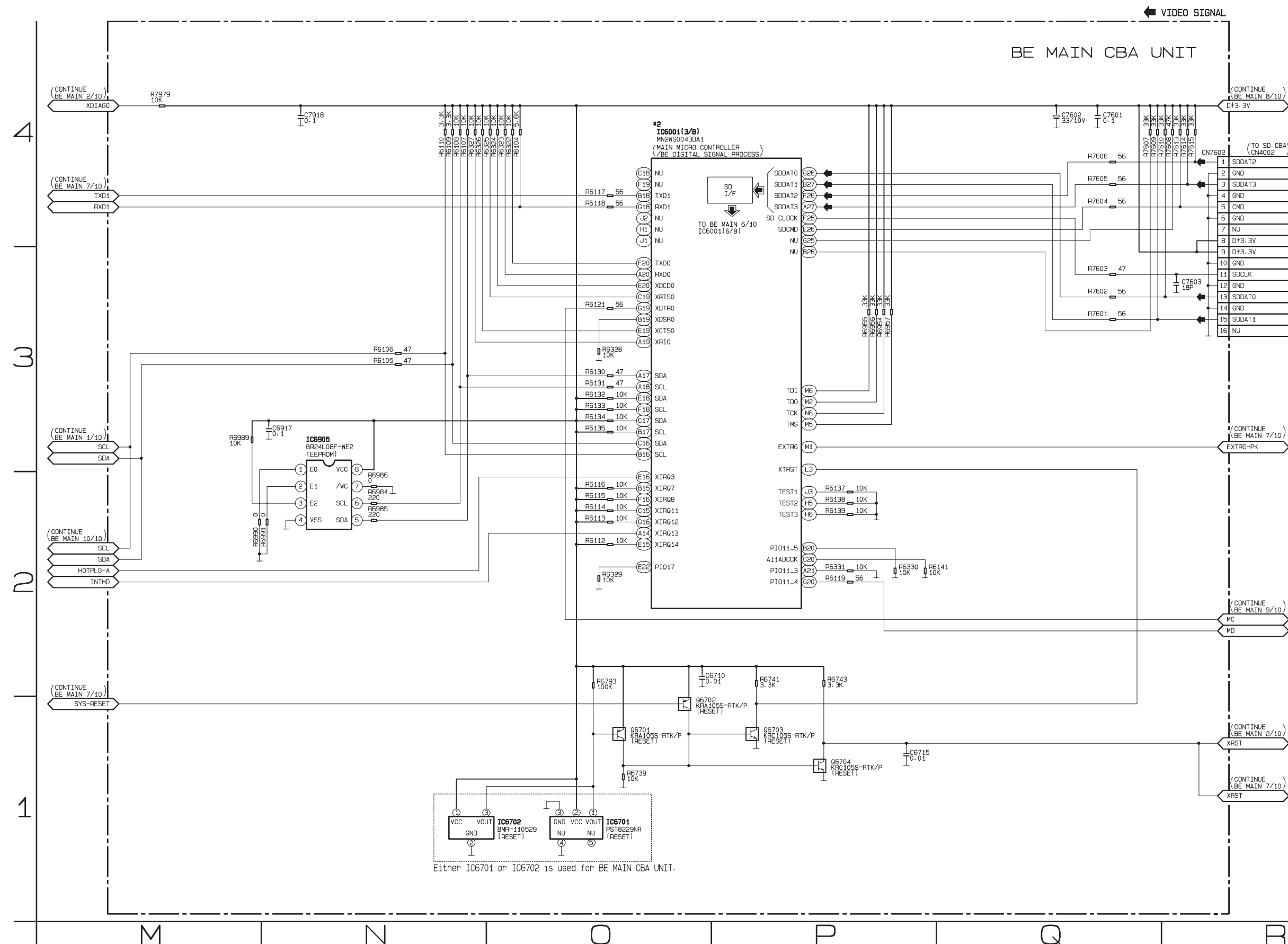


BE Main 3/10 Schematic Diagram

***2 NOTE:**

The order of pins shown in this diagram is different from that of actual IC6001.

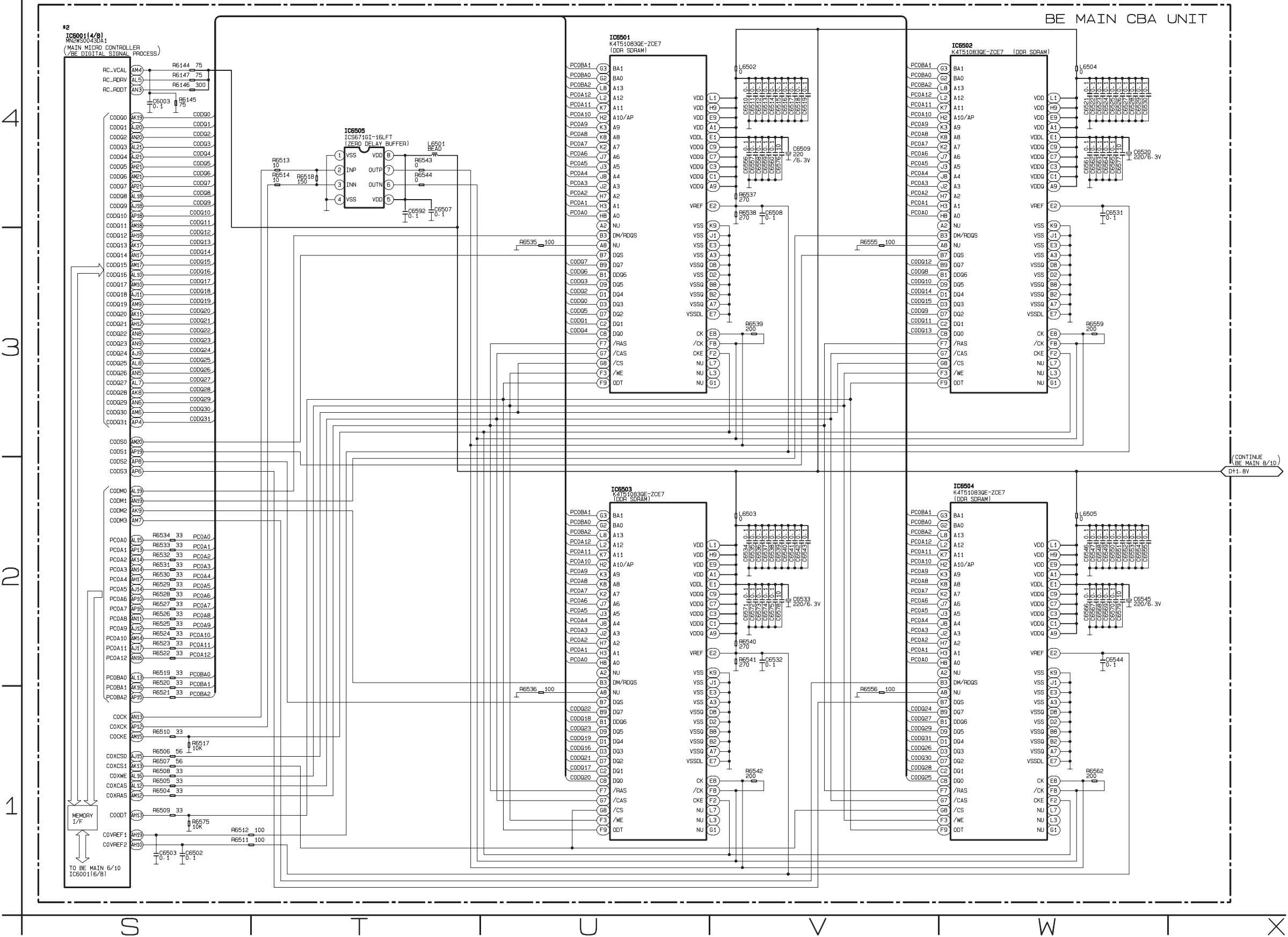
IC6001 is divided into eight and shown as IC6001 (1/8) ~ IC6001 (8/8) in this BE Main Schematic Diagram Section.



.....
Either IC6701 or IC6702 is used for BE MAIN CBA UNIT.

BE Main 4/10 Schematic Diagram

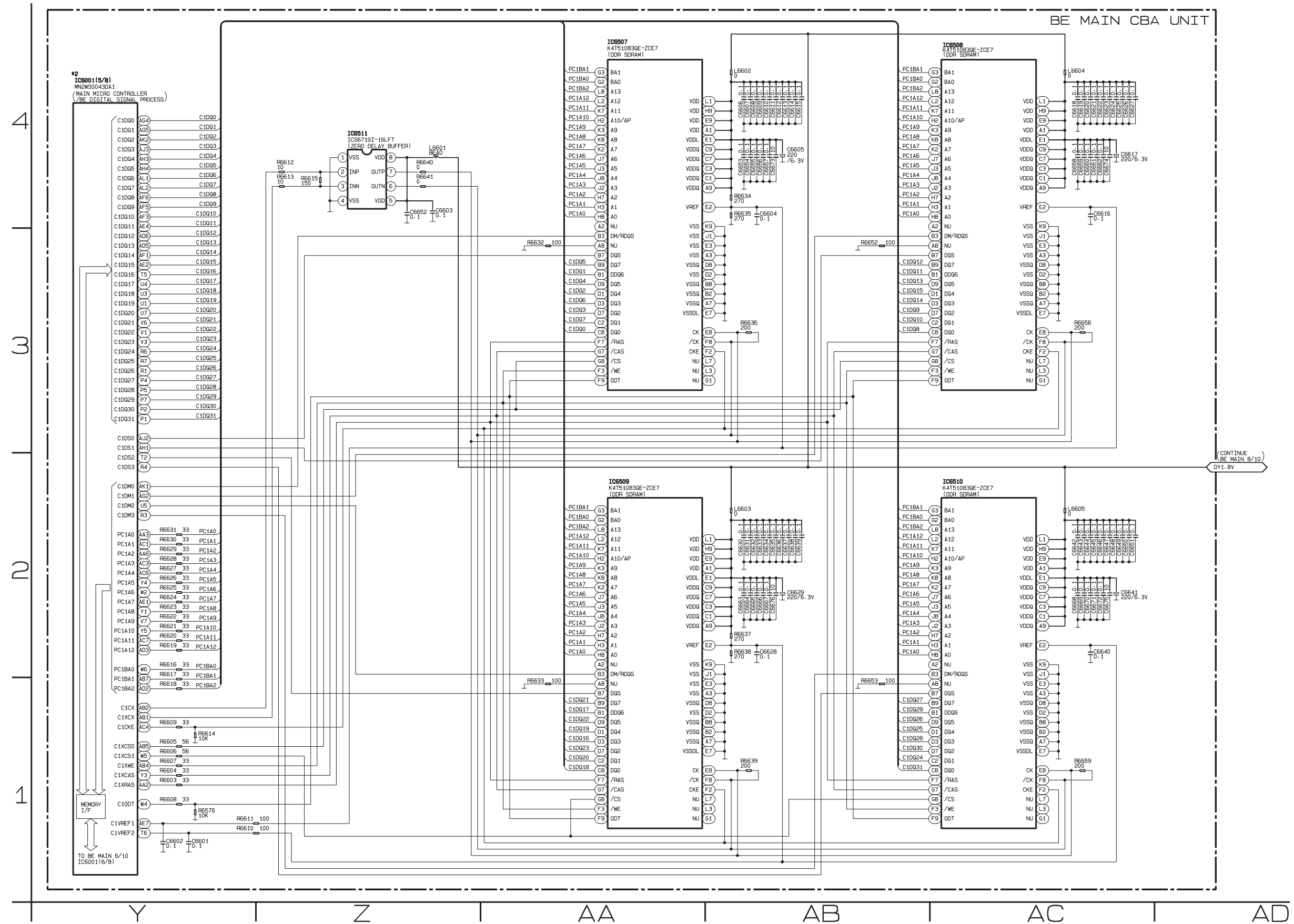
*2 NOTE:
The order of pins shown in this diagram is different from that of actual IC6001.
IC6001 is divided into eight and shown as IC6001 (1/8) ~ IC6001 (8/8) in this BE Main Schematic Diagram Section.



BE Main 5/10 Schematic Diagram

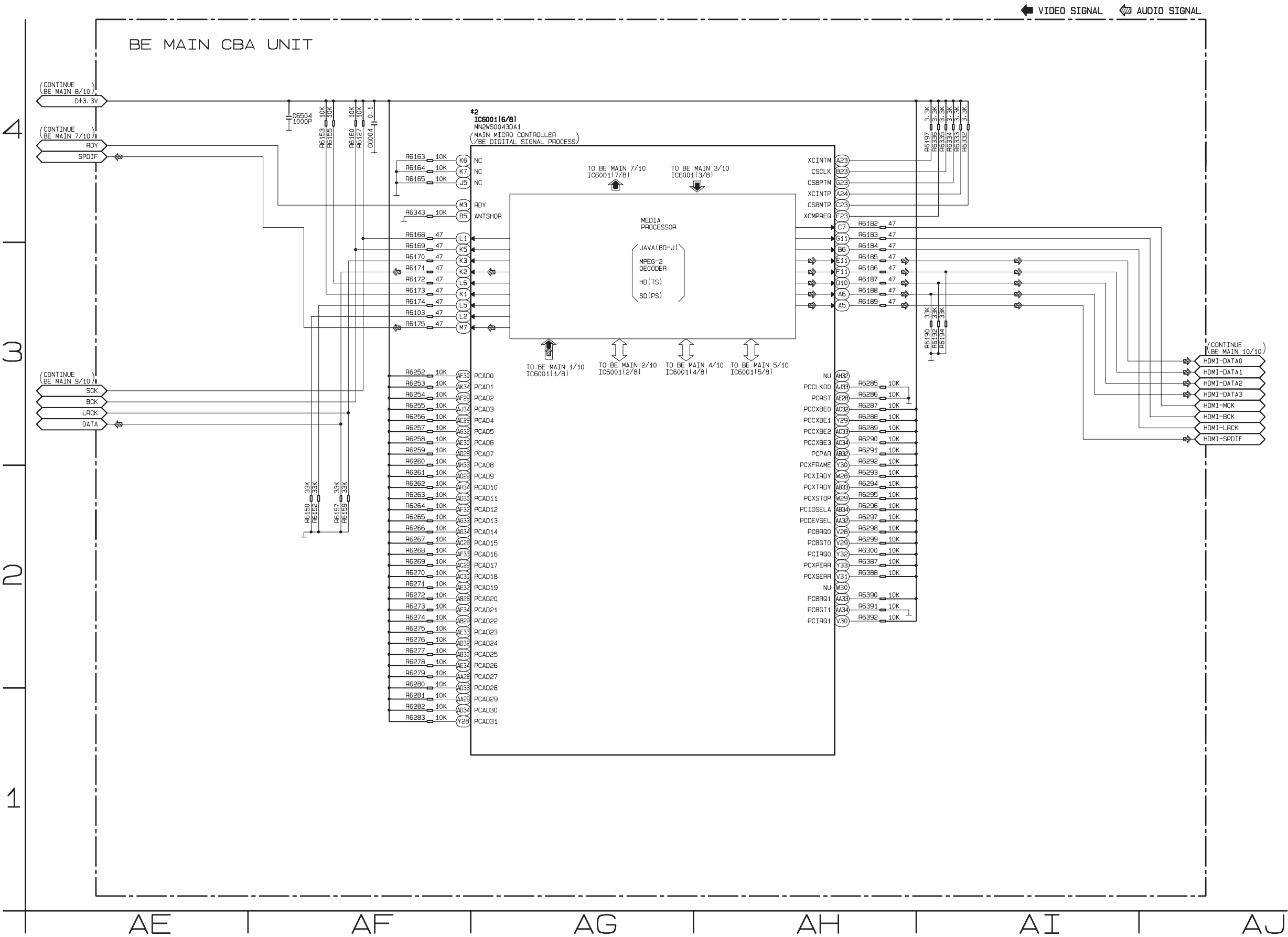
***2 NOTE:**

The order of pins shown in this diagram is different from that of actual IC6001.
IC6001 is divided into eight and shown as IC6001 (1/8) ~ IC6001 (8/8) in this BE Main Schematic Diagram Section.



BE Main 6/10 Schematic Diagram

*2 NOTE:
The order of pins shown in this diagram is different from that of actual IC6001.
IC6001 is divided into eight and shown as IC6001 (1/8) ~ IC6001 (8/8) in this BE Main Schematic Diagram Section.

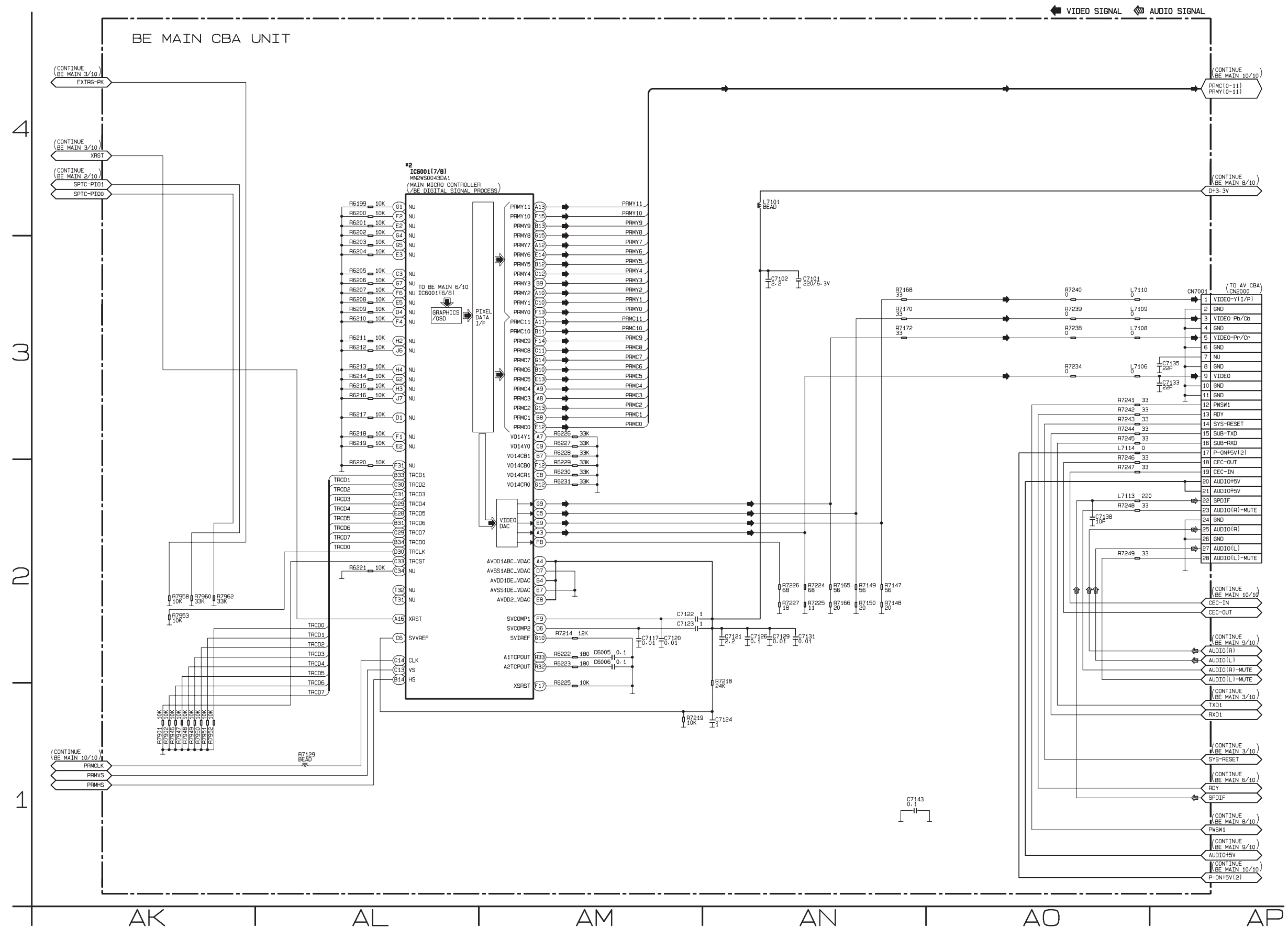


BE Main 7/10 Schematic Diagram

***2 NOTE:**

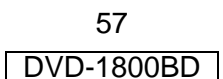
The order of pins shown in this diagram is different from that of actual IC6001.

IC6001 is divided into eight and shown as IC6001 (1/8) ~ IC6001 (8/8) in this BE Main Schematic Diagram Section.

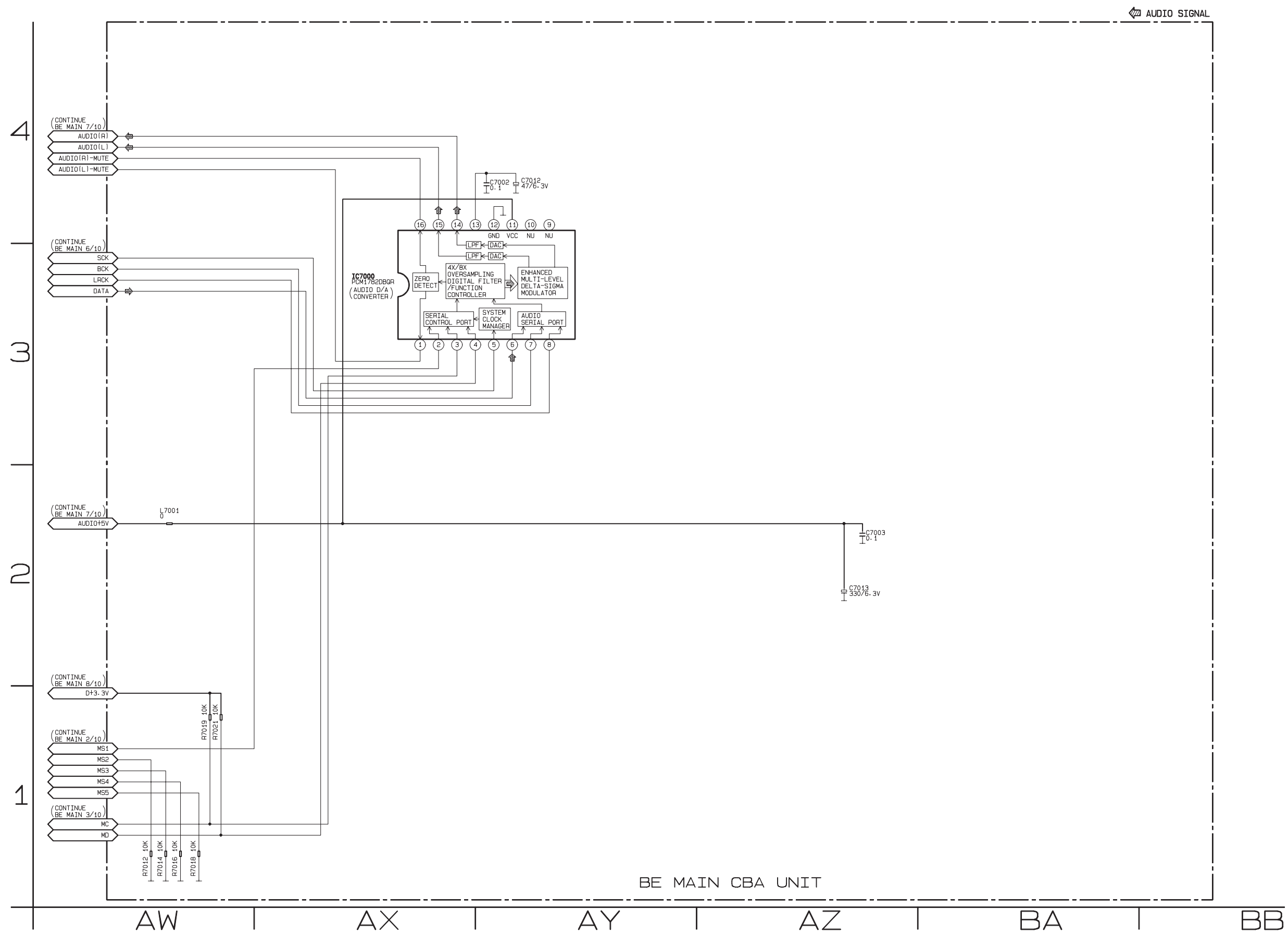


1

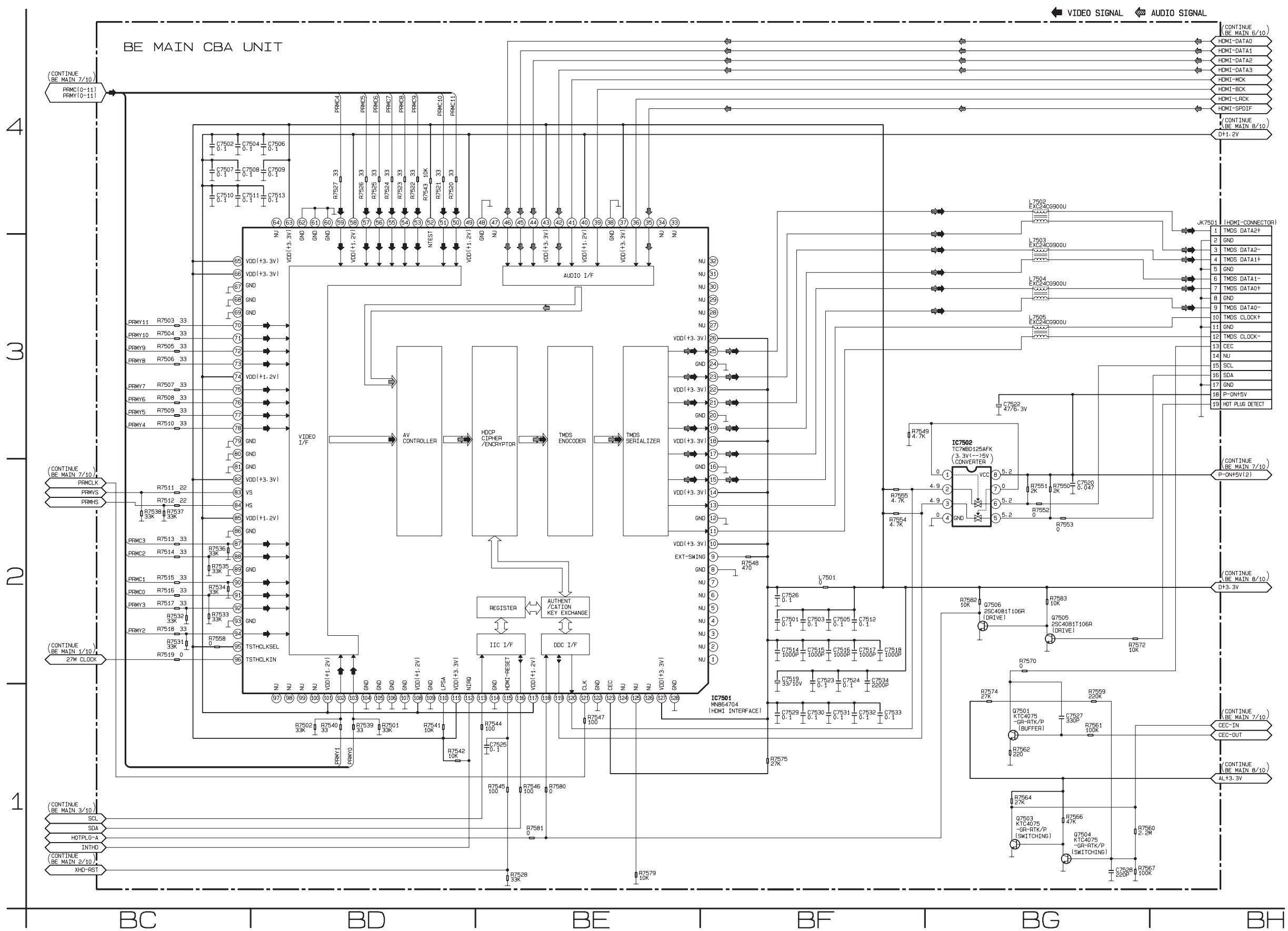
The order of pins shown in this diagram is different from that of actual IC6001.
IC6001 is divided into eight and shown as IC6001 (1/8) ~ IC6001 (8/8) in this BE Main Schematic Diagram Section.



BE Main 9/10 Schematic Diagram

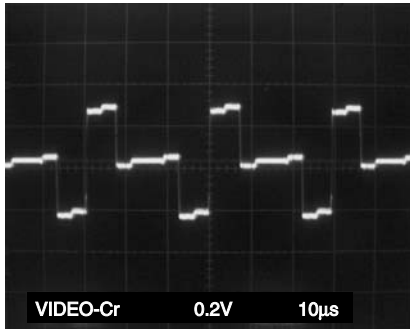


BE Main 10/10 Schematic Diagram

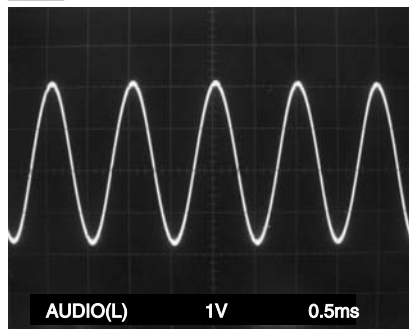


WAVEFORMS

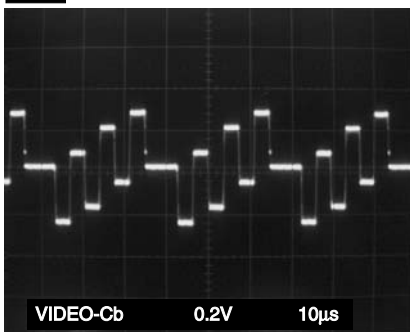
WF1 Pin 5 of CN2000



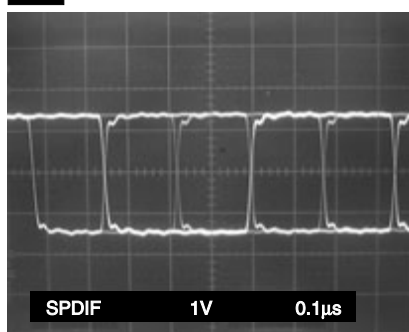
WF4 Pin 27 of CN2000



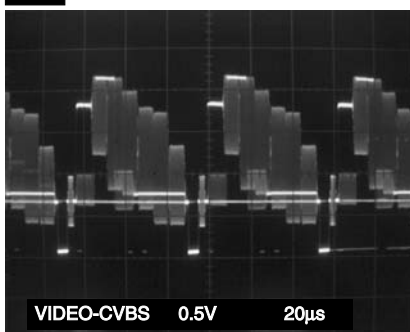
WF2 Pin 3 of CN2000



WF5 Pin 22 of CN2000



WF3 C2314 PLUS LEAD



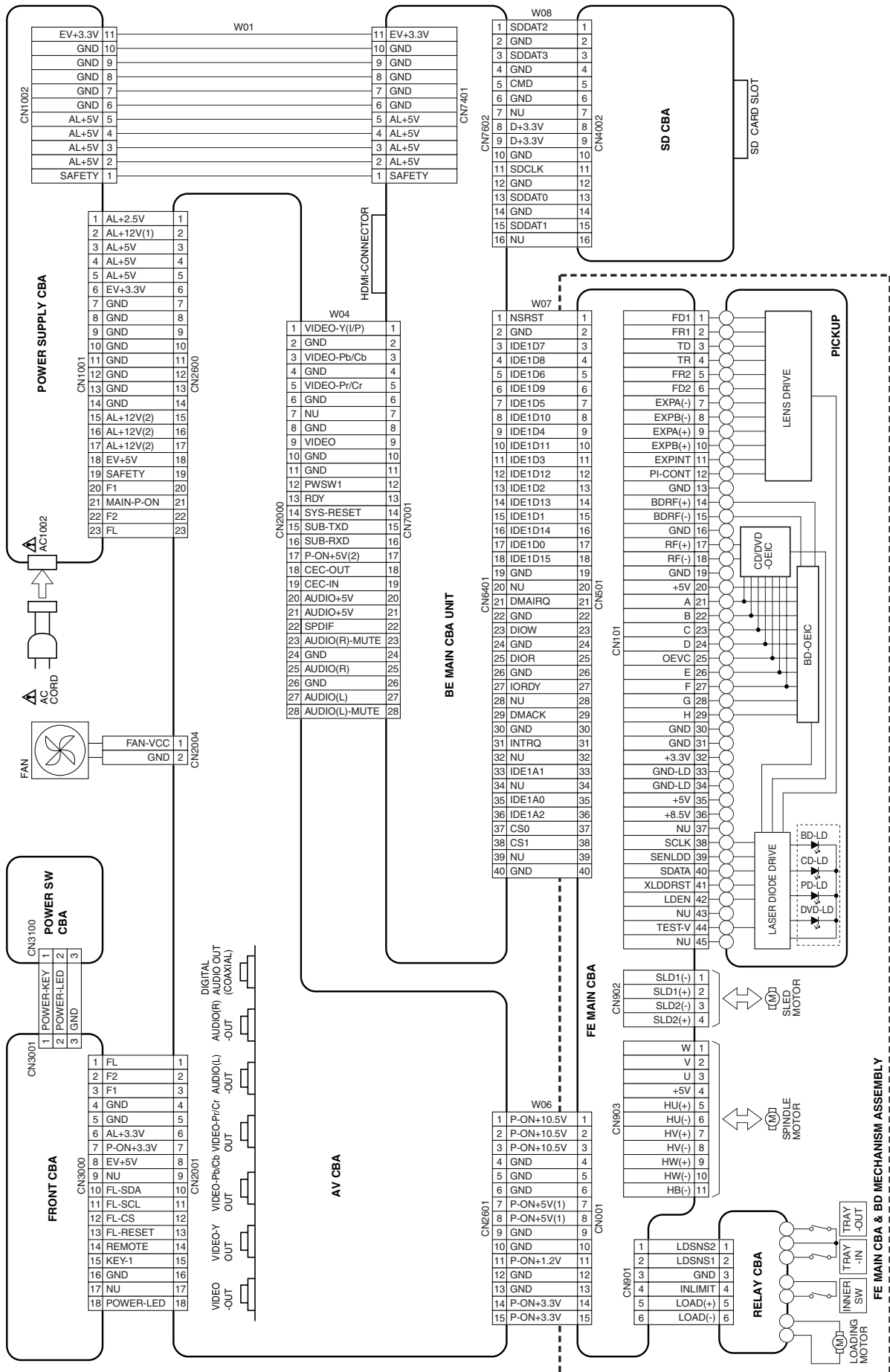
NOTE:

Input Signal (DVD)

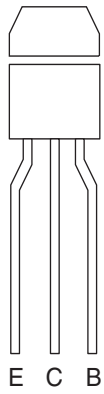
VIDEO: 75% COLOR BAR

AUDIO: 1KHz, 0dB

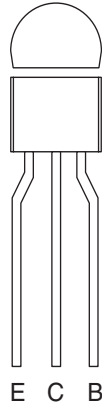
WIRING DIAGRAM



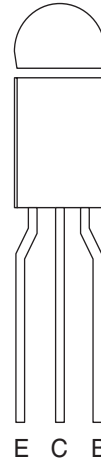
LEAD IDENTIFICATIONS



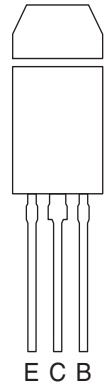
2SA1980M Y
2SC5343M Y
2SC5343MG-AT
2SC5343Y-AT
KRA105M-AT/P
KRC102M-AT/P
KRC103M-AT/P
KTA1267-Y-AT/P
KTC3199-(GR,Y)-AT/P
SRA2205M
SRC1203MAT



2SA1981Y-AT
2SC1815-(GR,Y)(TE2 F T)
2SC5344 Y
KTA1266-Y-AT/P
KTA1271-Y-AT/P
KTC3198-Y-AT/P
KTC3203-Y-AT/P

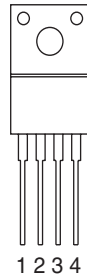


STB1277LY-AT

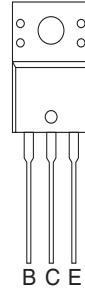


KTA1273-Y-AT/P
KTC3205-Y-AT/P
STD1862LY-AT

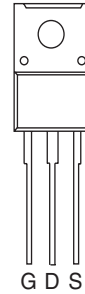
PQ070XF02SZH



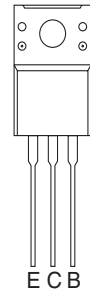
STC403



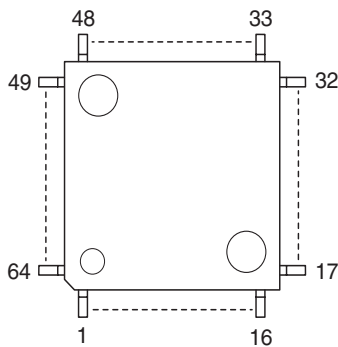
2SK3798(Q)
2SK3798(Q.M)



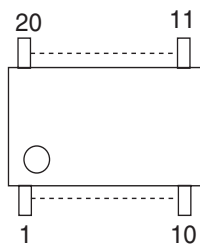
KTC2026-Y/P



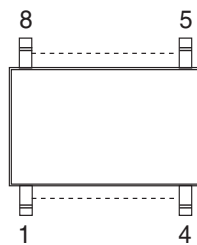
MN101C77AFS3



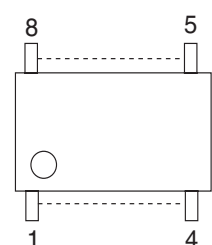
BH7602FS-E2



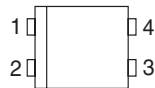
UTC4580E



MM1636XWRE

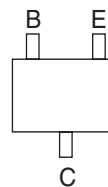


EL817B
LTV-817B-F
PS2561A-1(Q,W)

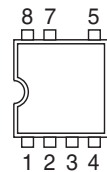


1: Anode
2: Cathode
3: Emitter
4: Collector

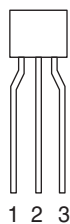
2SA1530A-T112-1Z
2SA1980SFY
KTA1504S-Y-RTK/P



MIP2F10MS

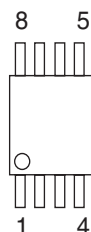


2SD2144S

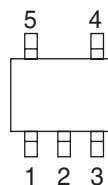


1: GND
2: OUT
3: IN

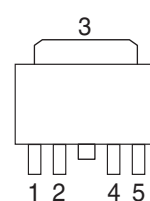
FA5541N-A2-TE1
TB7102F



PST3630NR
PST8430NR



PQ035ZN01ZPH

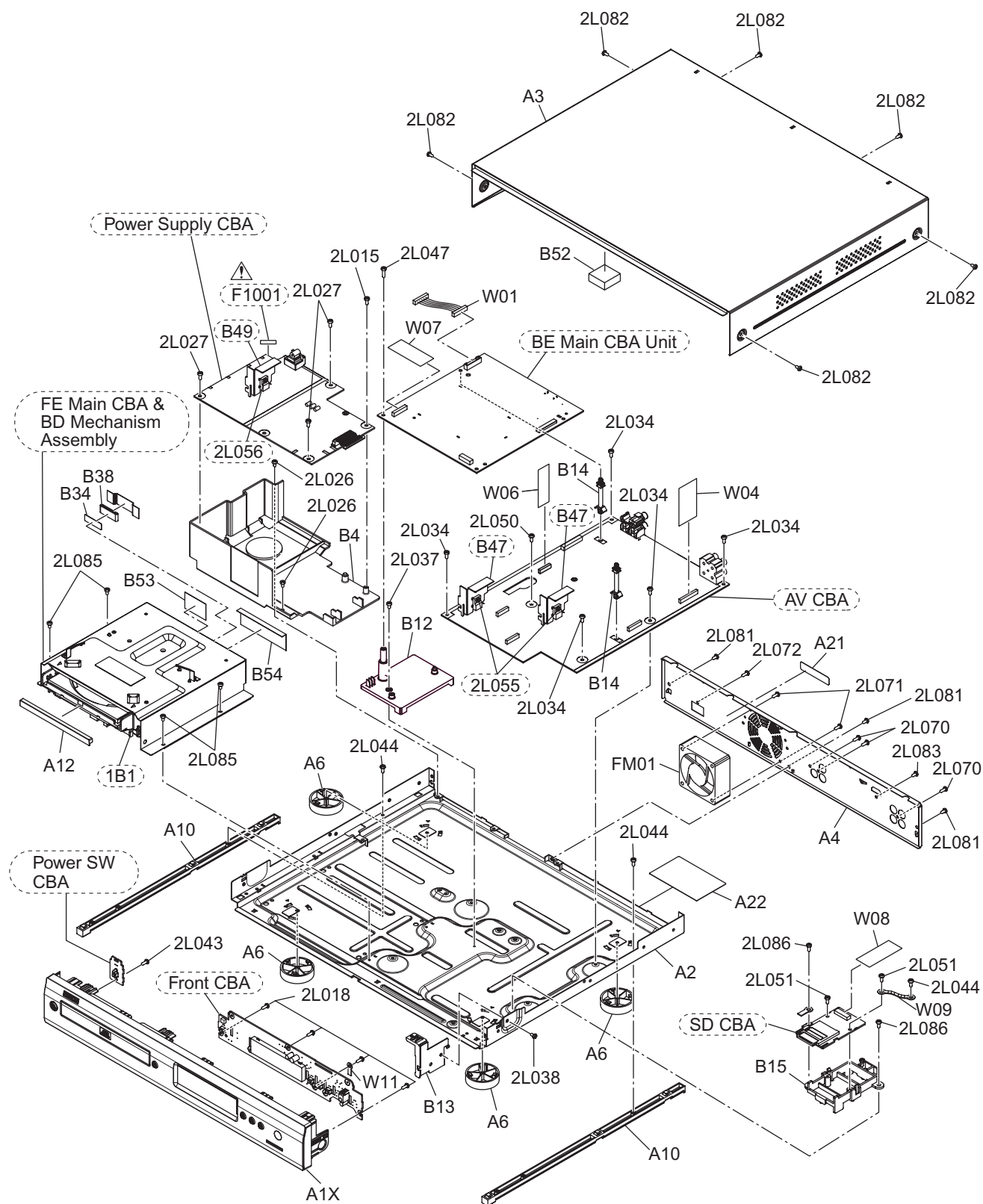


Note:

A: Anode
K: Cathode
E: Emitter
C: Collector
B: Base
R: Reference
G: Gate
D: Drain
S: Source

EXPLODED VIEWS

Cabinet



PARTS LIST OF EXPLODED VIEW

* 本表に "nsp" と記載されている部品は供給できません。

* Parts for which "nsp" is indicated on this table cannot be supplied.

* 本表に "nsp" と記載されている基板 ASS'Y は供給できません。基板 ASS'Y の修理の際には基板部品表を確認のうえ、交換部品を発注してください。

* P.W.B. ASS'Y for which "nsp" is indicated on this table cannot be supplied. When repairing the P.W.B. ASS'Y, check the board parts table and order replacement parts.

* 本表に記載されている部品は、補修用部品のため製品に使用している部品とは一部、形状、寸法などが異なる場合があります。

* The parts listed below are for maintenance only, might differ from the parts used in the unit in appearances or dimensions

Note: The symbols in the column "Remarks" indicate the following destinations.

E2 : Europe model

BKE2 : Black model

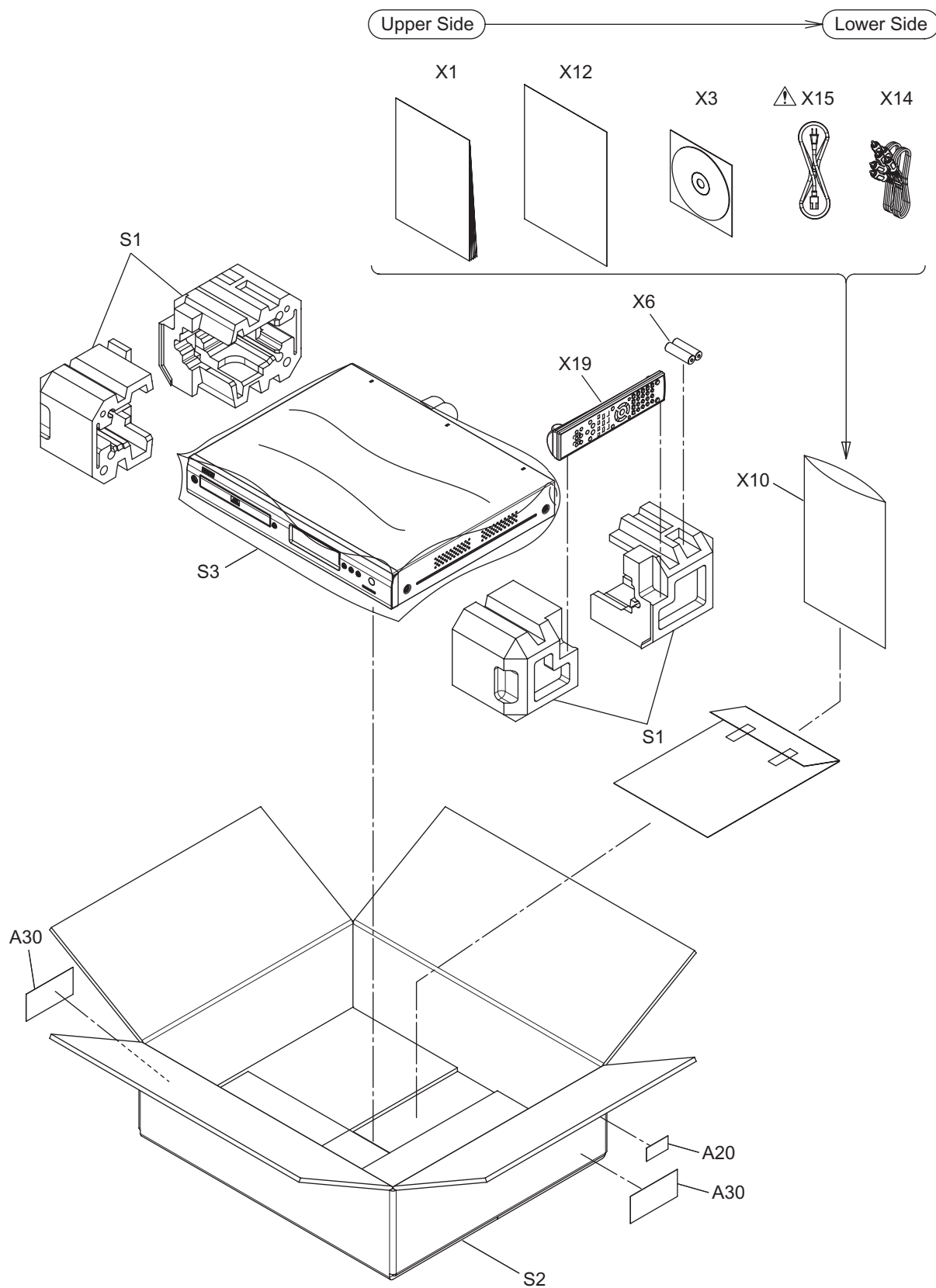
SPE2 : Premium silver model

E2R : Russia model

Ref. No.	Part No.	Part Name	Remark		Q'ty	New
	9H2189001570S	BE MAIN CBA UNIT	E2	1VSA20367		*
	9H2189001570S	BE MAIN CBA UNIT	E2R	-		*
	9H2189001600S	AV ASSEMBLY		1VSA20374		*
	-	AV CBA		-		
	-	POWER SW CBA		-		
	-	FRONT CBA		-		
	9H2189001610S	POWER SUPPLY CBA		1VSA20377		*
	9H2189001100S	SD CBA		1VSA20070		
A1X	9H2402000990D	FRONT ASSEMBLY E5H60UD	BKE2,E2R	1VM122159	1	
A1X	9H2402001510D	FRONT ASSEMBLY E5J61ED	SPE2	1VM122319	1	*
A2	nsp	CHASSIS E5H50UD		1VM225696	1	
A3	9H2403001000D	TOP COVER E5J20ED	BKE2,E2R	1VM225860	1	
A3	9H2403001520D	TOP COVER E5J51ED	SPE2	1VM226136	1	
A4	9H2406001530D	REAR PANEL E5J60ED	E2	1VM226436	1	*
A4	9H2406001920D	REAR PANEL E5J62RD	E2R	1VM226437	1	*
A6	9H2407001020S	FOOT ASSEMBLY E5H50UD		1VM430199	4	
A10	nsp	BOTTOM GUIDE E5E20UD		1VM224296D	2	*
A12	9H2418001160S	TRAY DECORATION E5H60UD		1VM328517	1	
A21	nsp	LABEL SERIAL NO. E56E1ED		-	1	
A22	nsp	LICENSE LABEL E5H60UD		-	1	
1B1	9H2304001060S	FE MAIN CBA & BD MECHANISM ASSEMBLY		N7JD8AUN	1	
B4	nsp	POWER PCB HOLDER E5E10UD		1VM121339E	1	
B12	nsp	BE PCB HOLDER ASSEMBLY E5H40UD		1VM327680	1	
B13	nsp	FRONT BRACKET R E5E10UD		1VM425934	1	
B14	nsp	LOCKING CARD SPACER KGLS-22S		XP0U039WD001	2	
B15	nsp	SD CARD HOLDER E5E20UD		1VM326404	1	
B34	nsp	DOUBLE SIDE TAPE E5E10UD		1VM427670	1	
B38	nsp	CORE FERRITE HF70SH25*0.7*10		XL05028TE001	1	
B52	nsp	CUSHION E5E10UD		1VM428082	1	
B53	nsp	CONDUCTIVE TAPE CSTK-026065		XT1H000WD001	1	
B54	nsp	CONDUCTIVE TAPE CSTK-040055		XT1H000WD002	1	
FM01	9H2685001110S	MOTOR DC FAN 2D65BL100190		MMEZR12XNR08	1	
W01	nsp	WX1E5E10-001 11/110/AWG24		WX1E5E10-001	1	
W04	nsp	WX1E5E10-004 28/75/1.0		WX1E5E10-004	1	
W06	nsp	WIRE ASSEMBLY FFC 15/218/1.0		WX1E5E10-012	1	
W07	nsp	WX1E5E10-007 40/240/0.5		WX1E5E10-007	1	
W08	nsp	WIRE ASSEMBLY FFC 16/125/1.0		WX1E5E20-002	1	
W09	nsp	WIRE ASSEMBLY 15/BLACK		WX1E5E10-009	1	
W11	nsp	WIRE ASSEMBLY 38/BLACK		WX1E5E10-011	1	

	Ref. No.	Part No.	Part Name	Remark		Q'ty	New
SCREWS							
	2L015	nsp	SCREW P-TIGHT M3X8 BIND HEAD+		GBJP3080	1	
	2L018	nsp	SCREW P-TIGHT M3X8 BIND HEAD+		GBJP3080	4	
	2L026	nsp	SCREW C-TIGHT M3X6 E5610UD		0VM412937A	2	
	2L027	nsp	SCREW C-TIGHT M3X6 E5610UD		0VM412937A	3	
	2L034	nsp	SCREW S-TIGHT M3X6 E5E10UD		1VM429667	5	
	2L037	nsp	SCREW C-TIGHT M3X6 E5610UD		0VM412937A	1	
	2L038	nsp	SCREW C-TIGHT M3X6 E5610UD		0VM412937A	1	
	2L043	nsp	SCREW P-TIGHT M3X8 BIND HEAD+		GBJP3080	1	
	2L044	nsp	SCREW P-TIGHT M3X6 BIND HEAD+		GBJP3060	3	
	2L047	nsp	SCREW P-TIGHT M3X10 BIND HEAD+		GBJP3100	1	
	2L050	nsp	SCREW P-TIGHT M3X8 BIND HEAD+		GBJP3080	1	
	2L051	nsp	SCREW P-TIGHT M3X8 BIND HEAD+		GBJP3080	2	
	2L070	nsp	B-TIGHT SCREW M3X8 E5E00UD		1VM428563	3	
	2L071	nsp	B-TIGHT SCREW M3X8 E5E00UD		1VM428563	2	
	2L072	nsp	SCREW TAP TIGHT M3X8 BIND PAN HEAD+BLK NI		GPHB3080	1	
	2L081	nsp	S-TIGHT SCREW M3X6 E5E00UD		1VM428564	3	
	2L082	nsp	SCREW TAP TIGHT M3X5 BIND HEAD+BLK NI		GBHC3050	6	
	2L082	nsp	SCREW C-TIGHT M3X5 BIND HEAD +		GBCC3050	6	
	2L083	nsp	S-TIGHT SCREW M3X6 E5E00UD		1VM428564	1	
	2L085	nsp	SCREW C-TIGHT M3X6 E5610UD		0VM412937A	4	
	2L086	nsp	SCREW C-TIGHT M3X6 E5610UD		0VM412937A	2	

Packing



PARTS LIST OF PACKING & ACCESSORIES

* 本表に "nsp" と記載されている部品は供給できません。

* Parts for which "nsp" is indicated on this table cannot be supplied.

* 本表に記載されている部品は、補修用部品のため製品に使用している部品とは一部、形状、寸法などが異なる場合があります。

* The parts listed below are for maintenance only, might differ from the parts used in the unit in appearances or dimensions.

Note: The symbols in the column "Remarks" indicate the following destinations.

E2 : Europe model

BKE2 : Black model

SPE2 : Premium silver model

E2R : Russia model

	Ref. No.	Part No.	Part Name	Remark		Q'ty	New
	A20	nsp	BAR CODE LABEL E5J60ED	BKE2	-	1	*
	A20	nsp	BAR CODE LABEL E5J61ED	SPE2	-	1	*
	A20	nsp	BAR CODE LABEL E5J62RD	E2R	-	1	*
	A30	nsp	CONTROL LABEL E5J60ED	BKE2	-	2	
	A30	nsp	CONTROL LABEL E5J61ED	SPE2	-	2	
	A30	nsp	CONTROL LABEL E5J62RD	E2R	-	2	
	S1	9H2533001030S	SIDE PAD E5H60UD		1VM122259	2	
	S2	9H2531001540D	GIFT BOX CARTON E5J60ED	BKE2,E2R	1VM328637	1	*
	S2	9H2531001580D	GIFT BOX CARTON E5J61ED	SPE2	1VM328677	1	*
	S3	nsp	UNIT BAG E5500UD		0VM411683	1	
	X1	9H2541001590D	OWNERS MANUAL E5J60ED	E2	1VMN26512	1	*
	X1	9H2406001940D	OWNERS MANUAL E5J62RD	E2R	1VMN26560	1	*
	X3	9H2541001550D	OWNERS MANUAL CD-ROM E5J60ED	E2	1VMN26513	1	*
	X6	nsp	MANGANESE DRY BATTERY R6UWC/2SK		XB0M311MS002	1	
	X6	nsp	DRY BATTERY ES-GR6M-C		XB0M571GLP01	1	
	X10	nsp	ACCESSORY BAG E5795ED		0VM416059	1	
	X12	nsp	SERVICE CENTER SHEET E8700UD		1VM425536C	1	
	X14	00D9H26000226	AV CORD WPZ0102TM015		WPZ0102TM015	1	
	X14	00D9H26000762	AV CORD RCA(M*2)TO RCA(M*2)		WPZ0102LTE01	1	
△	X15	nsp	AC CORD WITH A GND WIRE CB/162/NO/BLACK		WAE0162LW003	1	
△	X15	00D9H26000869	AC CORD W/O A GND WIRE CEE/ 162/ NO/ BLACK		WAE0162LTE01	1	
	X19	9H2307000750D	REMOTE CONTROL UNIT NA848ED		NA848ED	1	

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