

DENON

Ver. 2

Please refer to the
MODIFICATION NOTICE.

SERVICE MANUAL

MODEL	JP	E3	E2	EK	E2A	E1C	E1K	EUT
DBP-1610		✓						

BLU-RAY DISC/DVD VIDEO PLAYER

- For purposes of improvement, specifications and design are subject to change without notice.
- Please use this service manual with referring to the operating instructions without fail.
- Some illustrations using in this service manual are slightly different from the actual set.

DENON

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 resistance check. If the leakage current exceeds 0.5 mA, or if the resistance from chassis to either side of the power cord is less than 460 kΩ, the unit is defective.

LASER RADIATION

Caution - Class 1M visible and invisible laser radiation when open.
Do not view directly 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. Be sure to heed these cautions and the cautions indicated in the handling instructions.

● Caution concerning electric shock!

- (1) An AC voltage 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 isolation transformer and gloves when servicing the set. Energized, unplugging the power cord when repairing parts, etc.
- (2) There are high voltage parts inside. Handle with extra care when the set is energized.

● Caution concerning disassembly and assembly!

Through 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 with a 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 insulation materials, and some parts are mounted away from the surface of printed circuit boards. Care is also taken with the positions of the wires on the boards. Care is also 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 inspection on 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 plug and the external exposed metal parts (antenna terminal, headphones terminal, input terminal, etc.) is 1MΩ or greater. If less, the set must be inspected and repaired.

CAUTION

Concerning important safety parts

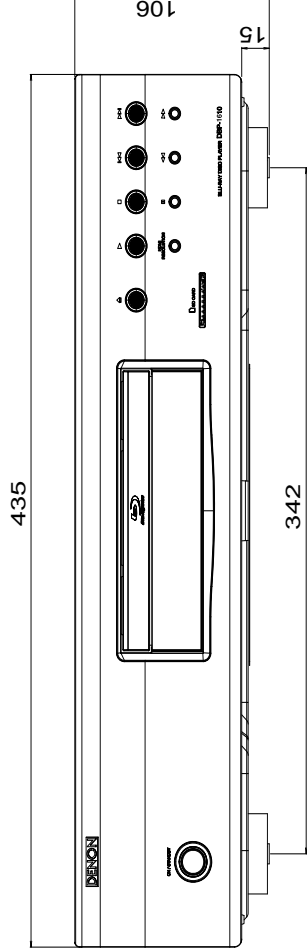
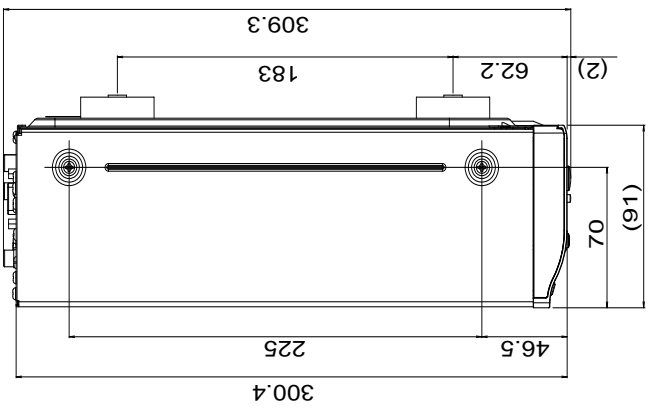
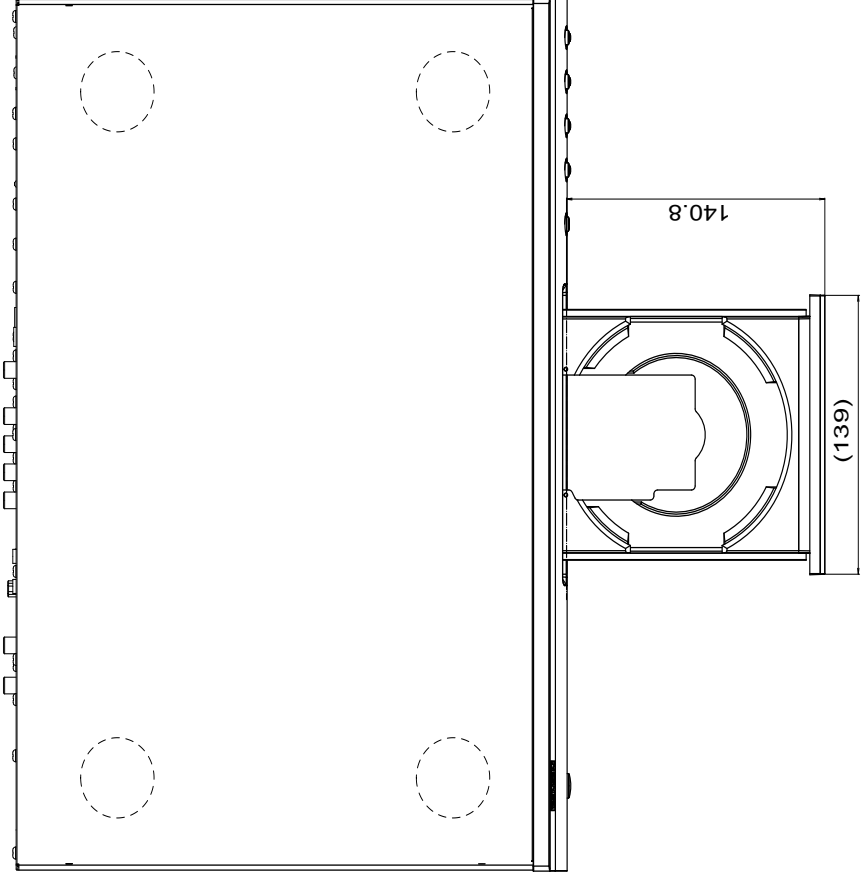
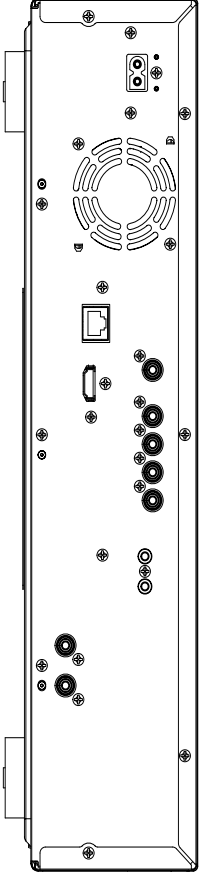
Many of the electrical and structural parts used in the set have specific safety properties. In most cases these properties are difficult to distinguish by sight, and using replacement parts with higher ratings (rated power and withstand voltage) does not necessarily guarantee that safety performance will be preserved. Parts with safety properties are indicated as shown below on the wiring diagrams and parts lists in the 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.

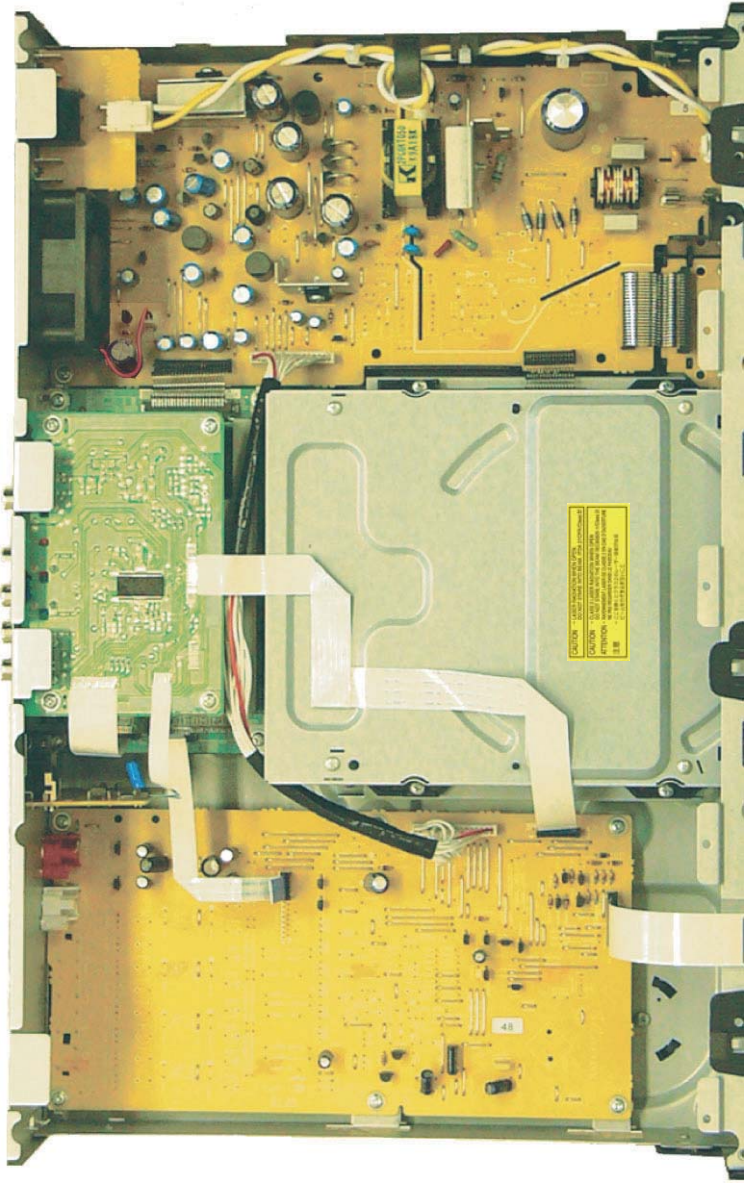
DIMENSION



WIRE ARRANGEMENT

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

Wire arrangement viewed from the top



SPECIFICATIONS

SIGNAL SYSTEM

NTSC color

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)
- (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)
P_B/C_B output level: 0.7Vp-p (75Ω/ohms)
P_R/C_R 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 Color, Dolby Digital Plus, Dolby TrueHD, DTS-HD)

ETHERNET TERMINAL

10BASE-T/ 100BASE-TX

ANALOG AUDIO OUTPUT

Output level: 2Vrms (10k Ω /kohms)
2 channel (L, R) output connector: Pin jacks, 1 set

AUDIO OUTPUT PROPERTIES

- (1) Frequency response
 - 1 BDs (linear PCM)
 - : 20Hz to 22kHz (48kHz sampling)
 - : 20Hz to 44kHz (96kHz sampling)
 - : 20Hz to 88kHz (192kHz sampling)
 - 2 DVDs (linear PCM)
 - : 20Hz to 22kHz (48kHz sampling)
 - : 20Hz to 44kHz (96kHz sampling)
 - 3 CDs
 - : 20Hz 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: 0.6W)

MAXIMUM EXTERNAL DIMENSIONS

W : 435mm (17-3/16")
H : 106mm (4-3/16")
D : 309.3mm (12-3/16")
(including protruding parts)

MASS

4.1 kg (9.1 lbs)

REMOTE CONTROL

RC-1128

Infrared pulse type

Supply: DC 3V, 2 R6/AA batteries

External dimensions:

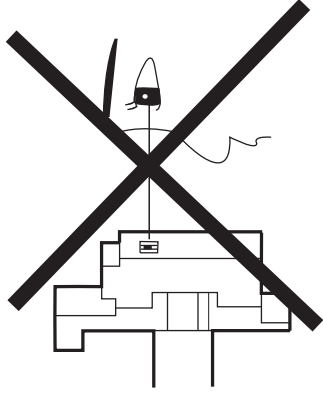
W : 52mm (2-1/16")
H : 227mm (8-15/16")
D : 30mm (1-3/16")

Mass: 138g (0.3 lbs) (including batteries)

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

LASER BEAM SAFETY PRECAUTIONS

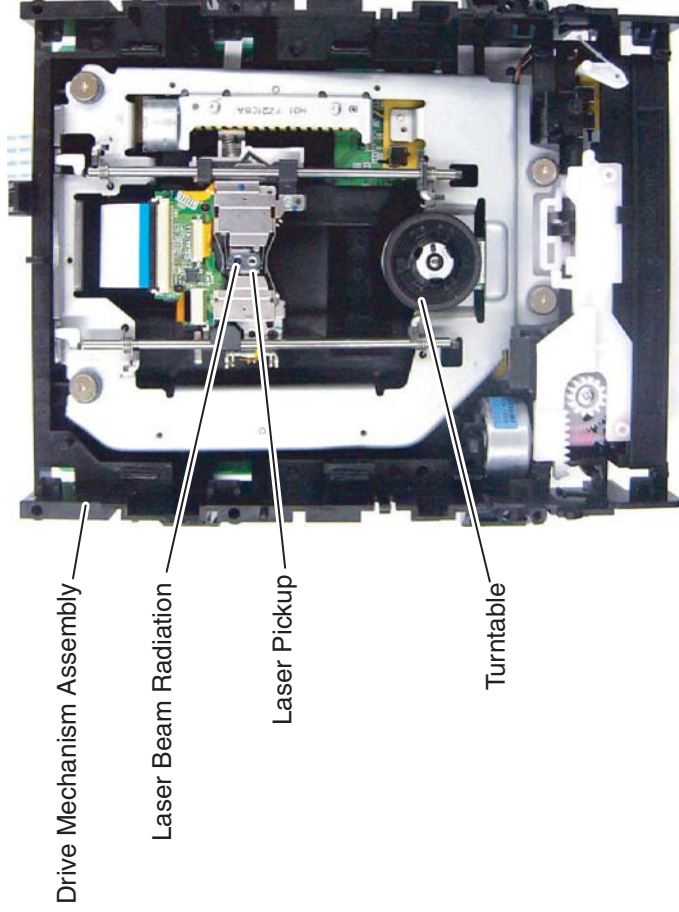
This BD player uses a pickup that emits a laser beam.



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	- LASER RADIATION WHEN OPEN. DO NOT STARE INTO BEAM. (FDA 21CFR/Class II)
CAUTION	- CLASS 2 LASER RADIATION WHEN OPEN
ATTENTION	- DO NOT STARE INTO THE BEAM (IEC60825-1/Class 2) - RAYONNEMENT LASER DE CLASSE 2 EN CAS D'OUVERTURE - NE PAS REGARDER DANS LE FAISCEAU - ここを覗くとクラス2のレーザー放射が出る - ビームをのぞきまはさないこと

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')
120 V	$\geq 3\text{mm}(d)$ $\geq 4\text{mm}(d')$

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

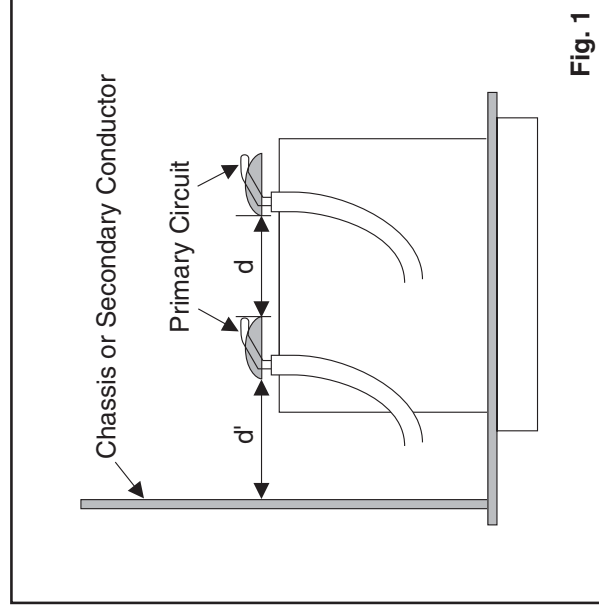


Fig. 1

2. Leakage Current Test

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

Measuring Method (Power ON):

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

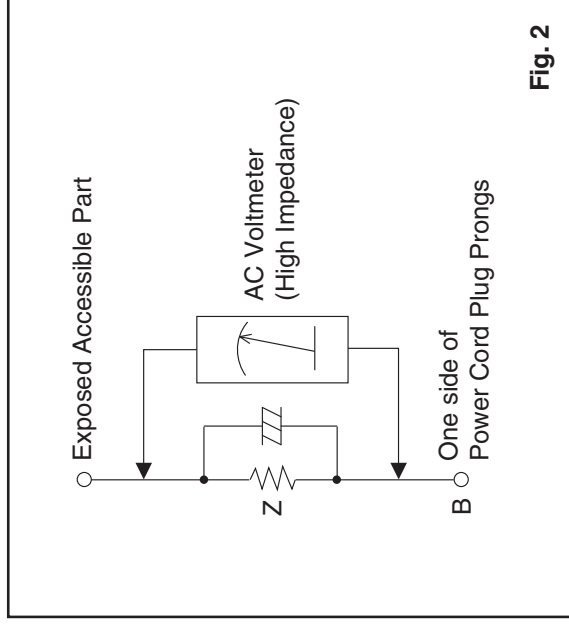


Fig. 2

Table 2: Leakage current ratings for selected areas

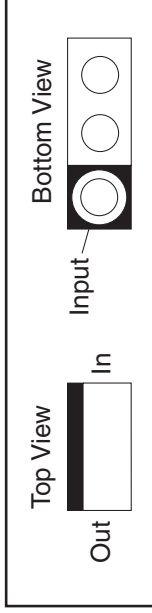
AC Line Voltage	Load Z	Leakage Current (i)	One side of power cord plug prongs (B) to:
120 V	2kΩ RES. Connected in parallel	$i \leq 0.7\text{mA AC Peak}$ $i \leq 2\text{mA DC}$	RF or Antenna terminals
	50kΩ RES. Connected in parallel	$i \leq 0.7\text{mA AC Peak}$ $i \leq 2\text{mA DC}$	A/V Input, Output

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

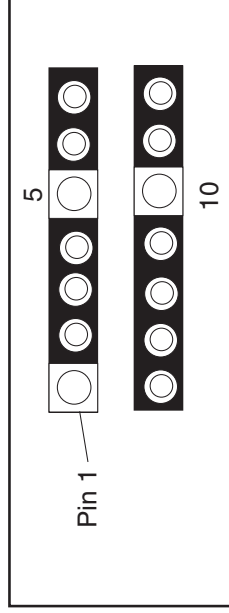
STANDARD NOTES FOR SERVICING

Circuit Board Indications

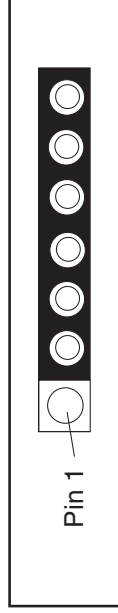
1. The output pin of the 3 pin Regulator ICs is indicated as shown.



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

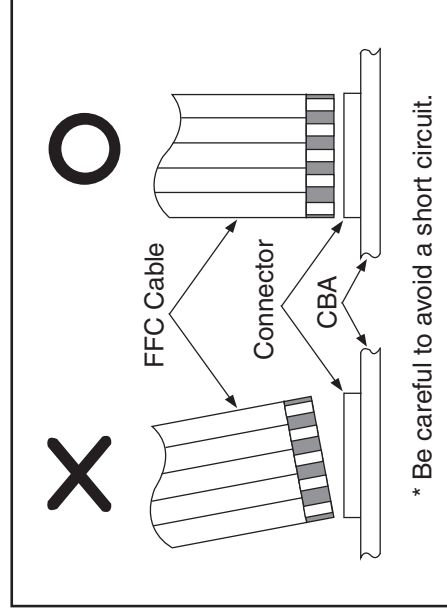


3. The 1st pin of every male connector is indicated as shown.



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

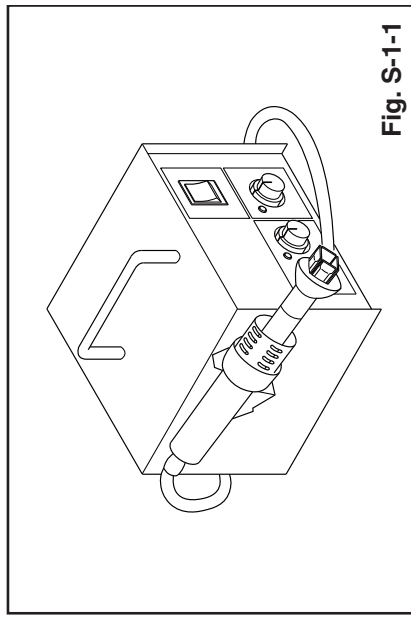
When soldering, be sure to use the Pb free solder.

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.

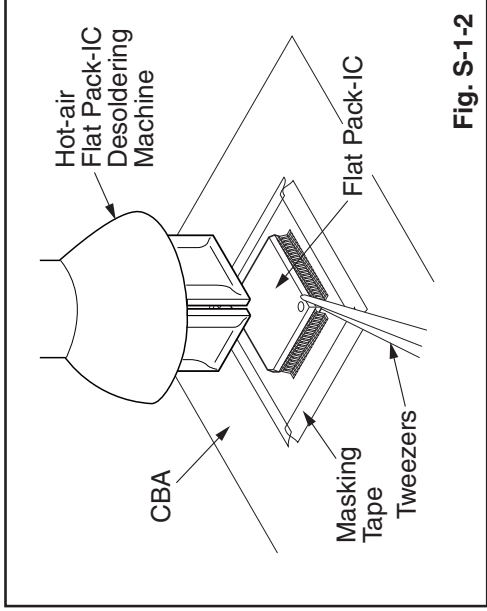


Fig. S-1-2

With Soldering Iron:

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

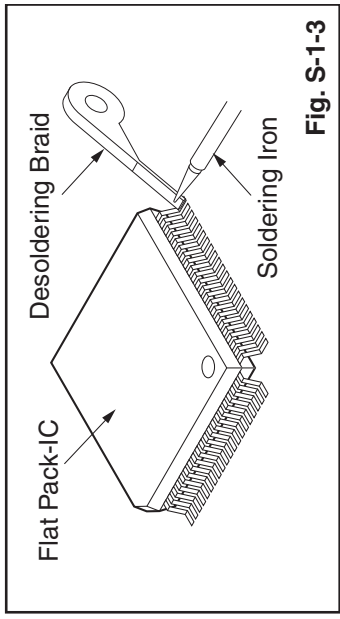


Fig. S-1-3

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

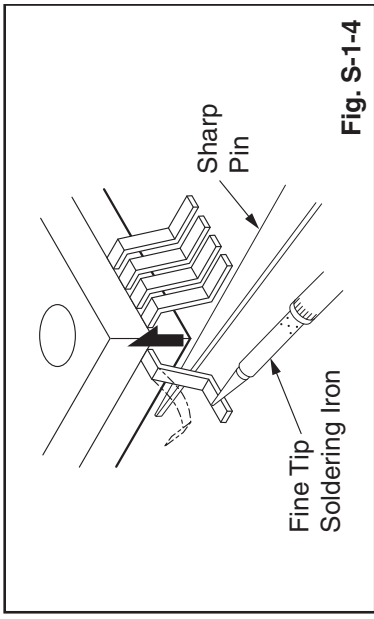


Fig. S-1-4

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

With Iron Wire:

1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)
2. Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
3. While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig. S-1-5.
4. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
5. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

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

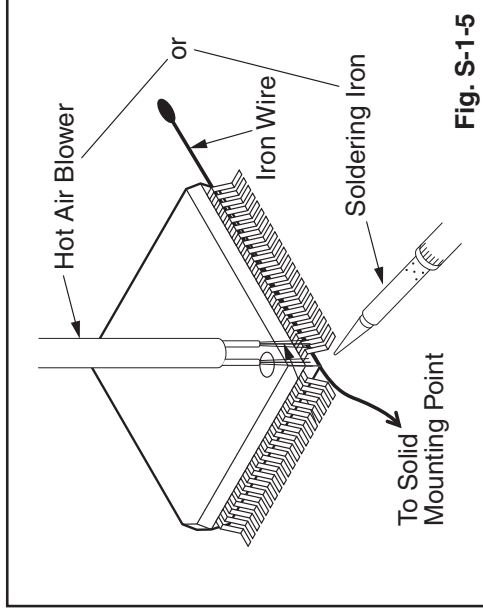


Fig. S-1-5

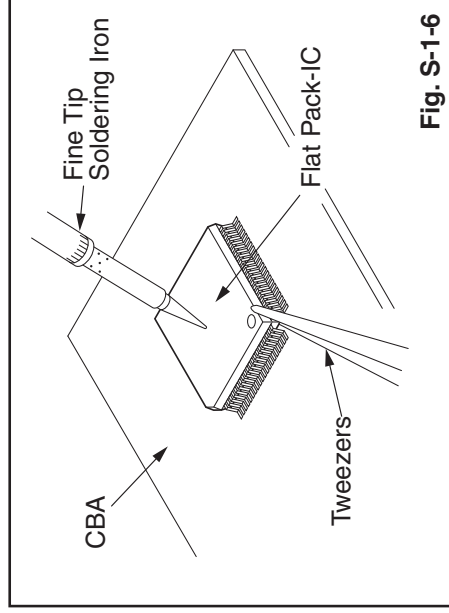


Fig. S-1-6

2. Installation

1. Using desoldering braid, remove the solder from the foil of each pin of the flat pack-IC on the CBA so you can install a replacement flat pack-IC more easily.
2. The "●" mark on the flat pack-IC indicates pin 1. (See Fig. S-1-7.) Be sure this mark matches the pin 1 on the PCB when positioning for installation. Then presolder the four corners of the flat pack-IC. (See Fig. S-1-8.)
3. Solder all pins of the flat pack-IC. Be sure that none of the pins have solder bridges.

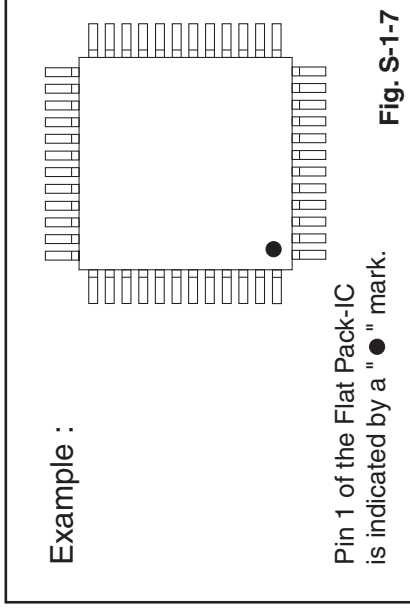


Fig. S-1-7

Example :
Pin 1 of the Flat Pack-IC is indicated by a "●" mark.

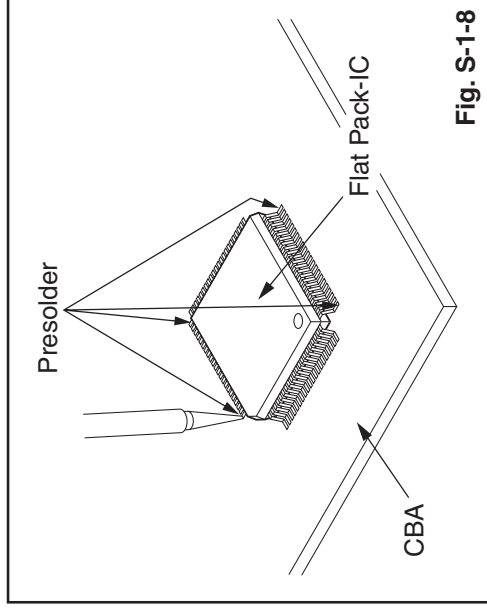


Fig. S-1-8

Instructions for Handling Semi-conductors

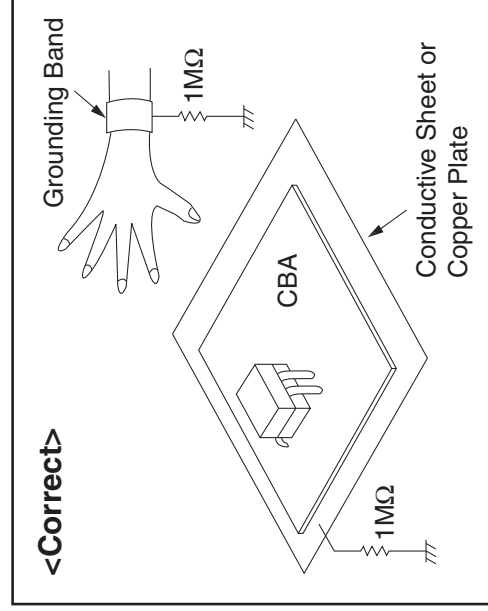
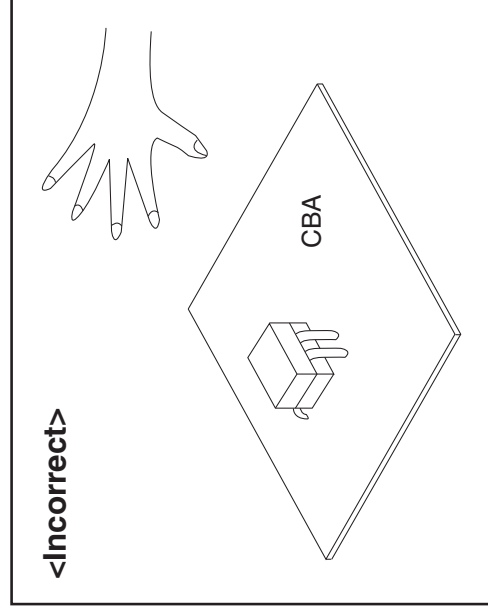
Electrostatic breakdown of the semi-conductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

1. Ground for Human Body

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

2. Ground for Workbench

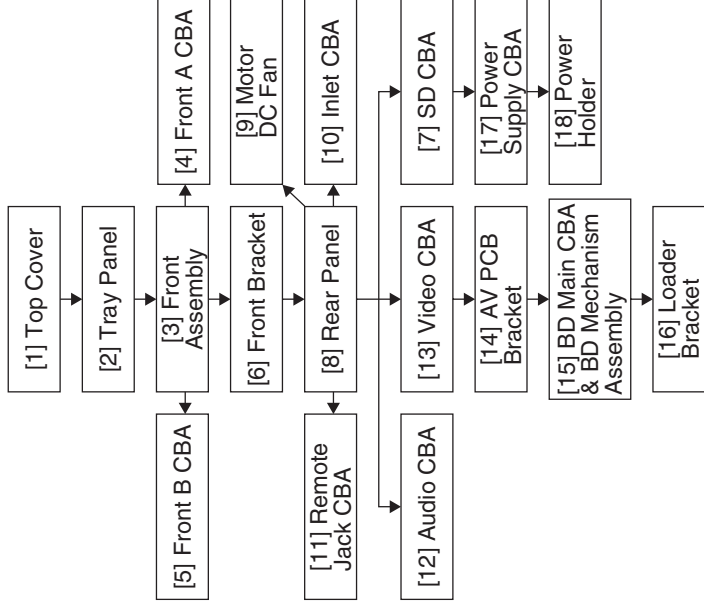
Be sure to place a conductive sheet or copper plate with proper grounding (1 M Ω) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors 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	9(S-1)	---
[2]	Tray Panel	D2	-----	1
[3]	Front Assembly	D2	*5(L-1), *3(L-2), 9(S-2), *CN2002	2
[4]	Front A CBA	D2	*CN3001	---
[5]	Front B CBA	D2	-----	---
[6]	Front Bracket	D3	7(S-3), (S-4)	---
[7]	SD CBA	D3	2(S-5), *CN5001	---
[8]	Rear Panel	D4	5(S-6), (S-7), 2(S-8), (S-9), (S-10), 8(S-11), 2(S-12), *CN1006	---
[9]	Motor DC Fan	D4	-----	---
[10]	Inlet CBA	D4	*CN1001	---

ID/ Loc. No.	Part	Removal		
		Fig. No.	Remove/*Unhook/ Unlock/Release/ Unplug/Desolder	Note
[11]	Remote Jack CBA	D4	*CN5501	---
[12]	Audio CBA	D5	6(S-13), *CN2005, *CN2007, *CN2008	---
[13]	Video CBA	D6	4(S-14), *CN7101	---
[14]	AV PCB Bracket	D6	4(S-15)	---
[15]	BD Main CBA & BD Mechanism Assembly	D6	4(S-16), *CN6001, *CN7601	3
[16]	Loader Bracket	D6	6(S-17)	---
[17]	Power Supply CBA	D7	2(S-18), 2(S-19)	---
[18]	Power Holder	D7	3(S-20)	---

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."

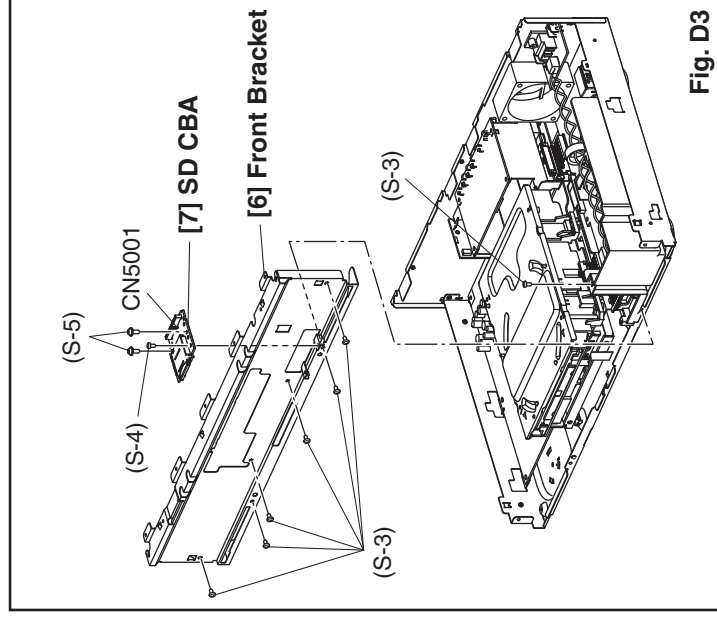
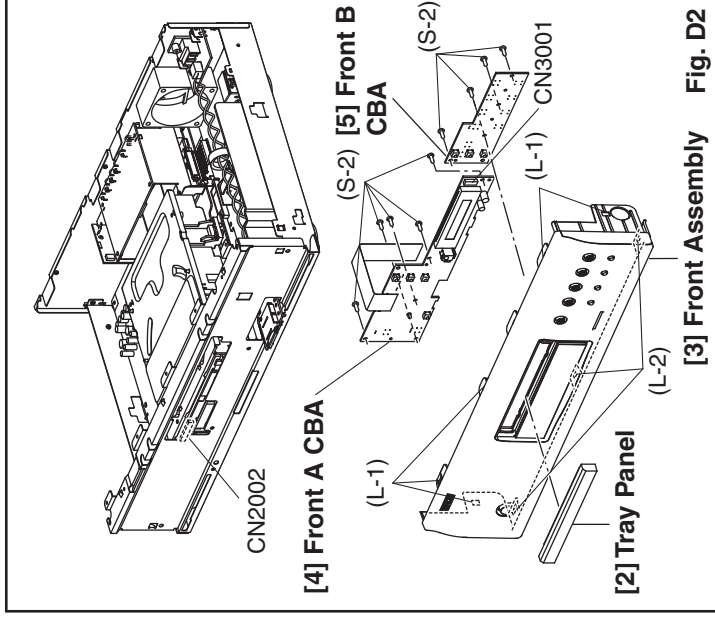
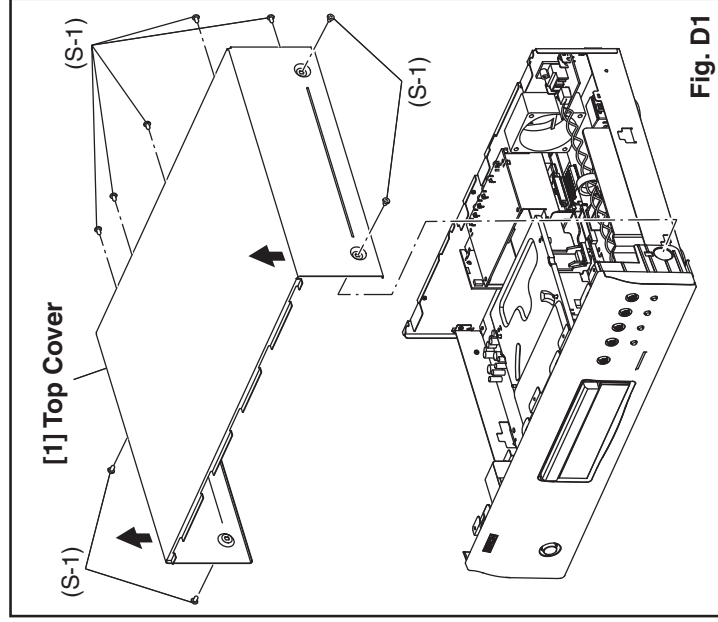
About tightening screws

When tightening screws, tighten them with the following torque.

Torque
0.45 ± 0.05 N·m

Reference Note

1. **How to remove tray panel**
 - 1) Connect the wall plug to an AC outlet and press the [▲] button to open the tray.
 - 2) To lift up, the tray panel is removed.
 - 3) Press the [▲] button again to close the tray.
 - 4) Press the [ON/STANDBY] button to turn the power off.
 - 5) Unplug an AC cord.
2. **CAUTION:** Locking Tabs (L-1) and (L-2) are fragile. Be careful not to break them.
3. **The BD Main CBA & BD Mechanism Assembly is adjusted as a unit at factory. Therefore, do not disassemble it. Replace the BD Main CBA & BD Mechanism Assembly as a unit.**



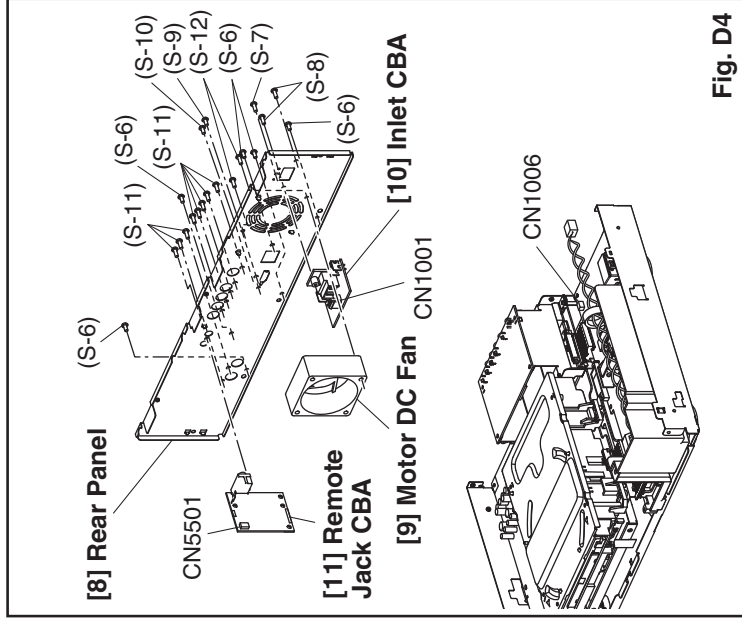
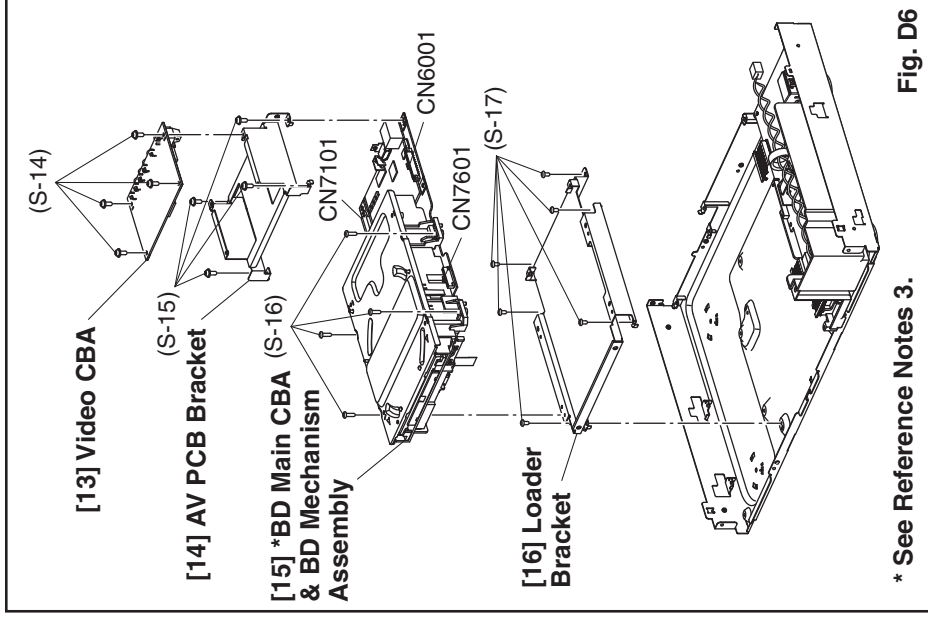


Fig. D4



* See Reference Notes 3.

Fig. D6

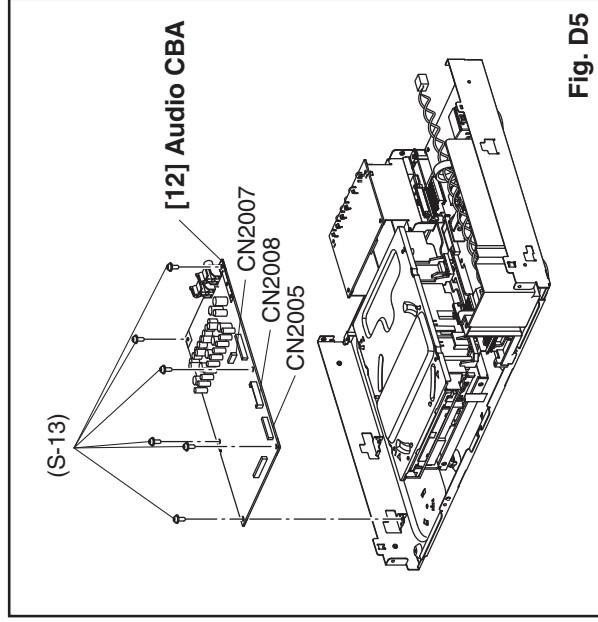


Fig. D5

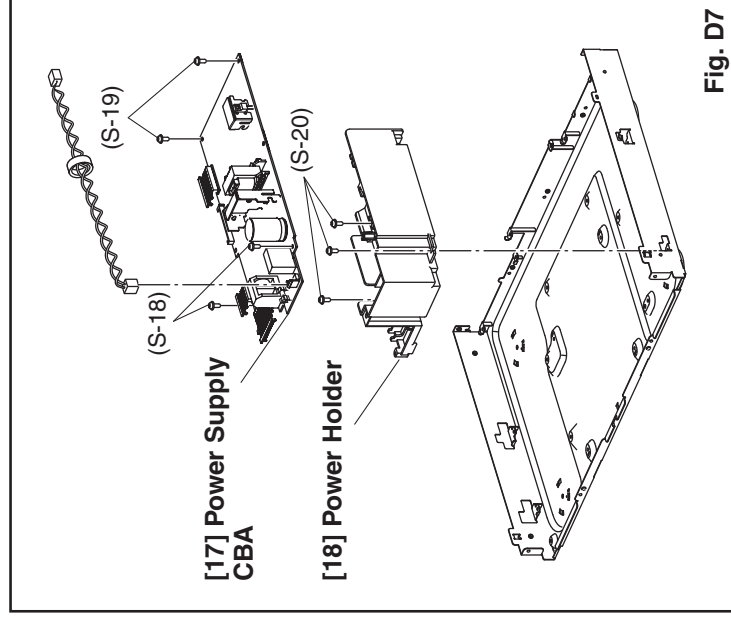
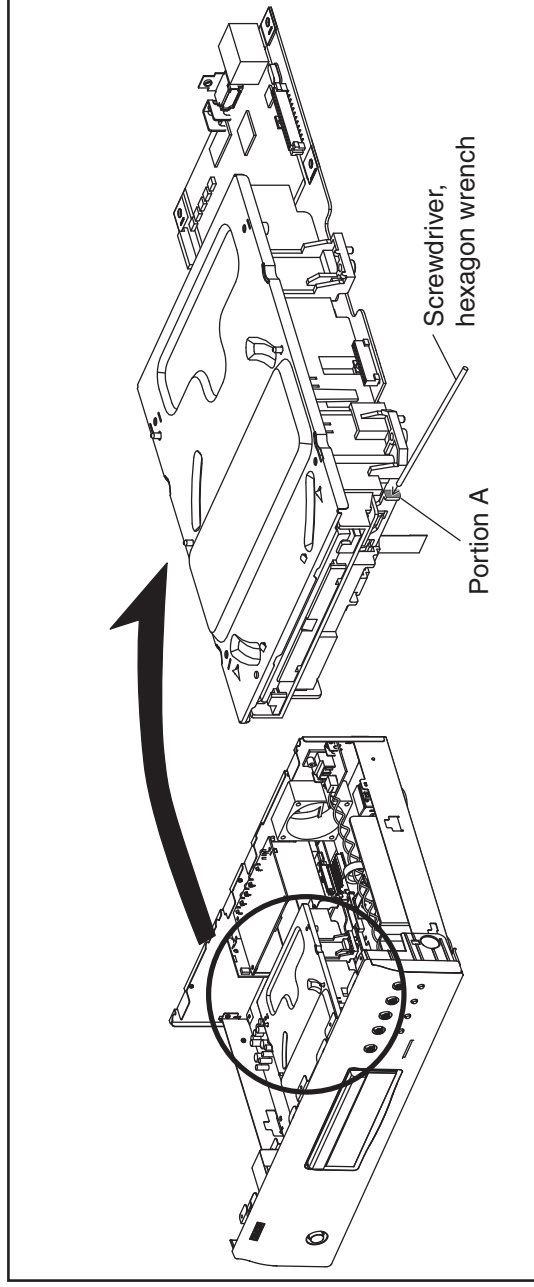


Fig. D7

3. How to Eject Manually

1. Remove the Top Cover.
2. Insert a screwdriver, etc. into the 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.

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

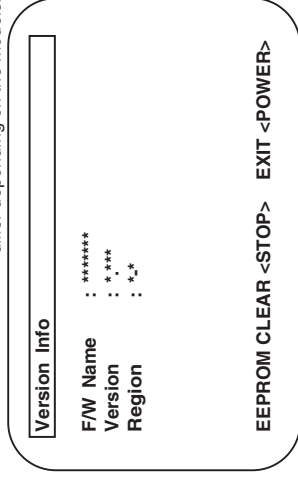


Fig. a

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

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

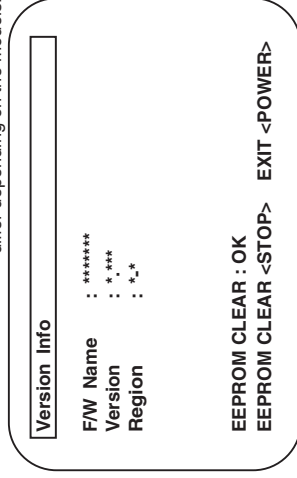


Fig. b

CLEAR

Fig. c

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

FIRMWARE RENEWAL MODE

Note: The file extension of the available firmware is "b20".

1. Turn the power on and remove the disc on the tray and close 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.

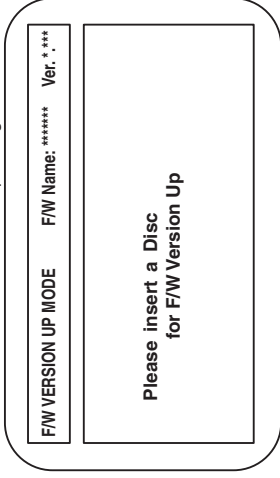


Fig. a Version Up Mode Screen

F/W UP

Fig. b VFD in Version Up Mode

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. Make sure to insert the proper FW for the state of this model.

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

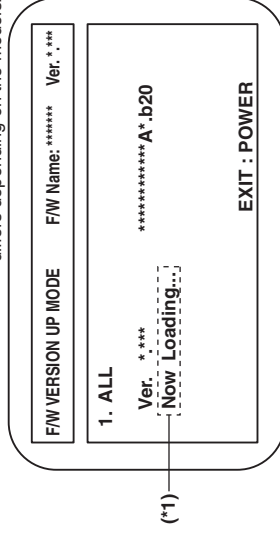


Fig. c Programming Mode Screen (Example)

Ver: 1000

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	See FL Display	Writing new version data, the progress will be displayed as shown in Fig. e.

b20

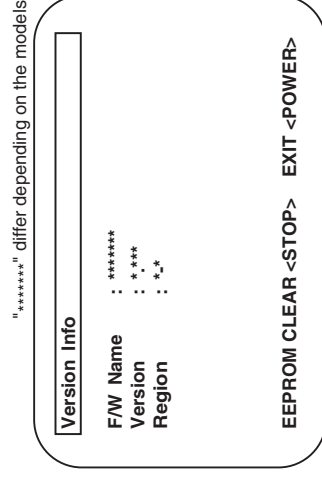
Fig. e VFD in Vresion Up Mode

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

F34E

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

- Checksum appears on the VFD then the tray will open automatically. Remove the disc on the tray. 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.



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

Fig. g

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

¹“*****” differ depending on the models.

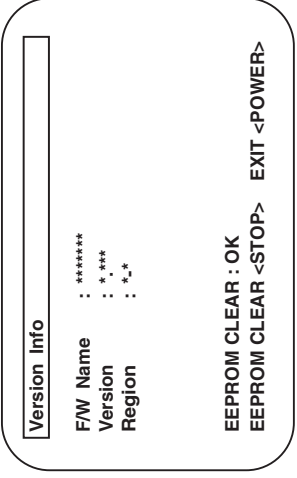


Fig. h

CLEAR

Fig. i

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

FIRMWARE RENEWAL MODE (Network Update)

1. Press [SETUP] button on the remote control unit in stop mode.
2. Use [◀/▶] button to select "CUSTOM", then press [ENTER] button.
3. Use [◀/▶] button to select "Other", then press [ENTER] button.
4. Use [△/▽] button to select "Network Update", then press [ENTER] button.
Confirmation message will appear.
5. Use [△/▽] button to select "Yes", then press [ENTER] button.
This unit will start checking for the latest firmware version.

NOTE:

If any error message concerning the network environment appears, please confirm the setting of your unit according to the error message. If you need to change any of your network environmental setting in order to execute the update, please contact to the internet service provider.

6. Confirmation message will appear.
Use [△/▽] button to select "Yes", then press [ENTER] button.
The unit will start downloading the latest firmware version.
7. When the download completes, confirmation message will appear.
Press [ENTER] button.
The unit will start updating the firmware version. It may take a while to complete the updating. (Please wait until "100%" appears on the front panel display.)
8. After updating finishes, this unit will restart and open the disc tray automatically.

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.

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

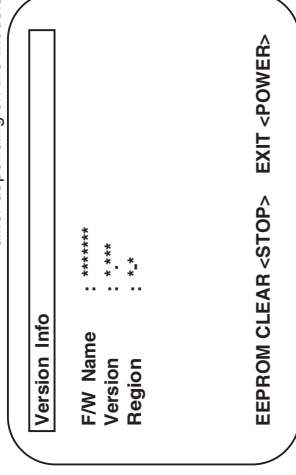


Fig. j

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

SERVICE MODE

Service Mode

1st level		2nd level		3rd level	Description	
1	MECHA TEST	1	Tray Aging		Aging of tray open/c use	
		2	TOC Read		TOC reading	
		3	Heat Run		Tray close -> TT1 playback -> TT10 playback -> Tray open -> Tray close	
2	VFD/LED TEST	1	A On		Turning on a VFD (The power LED lights red)	
		2	A Off		Turning off a VFD (The power LED lights green)	
3	ERROR RATE				Displaying Error rate 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	SD CARD TEST					
7	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]

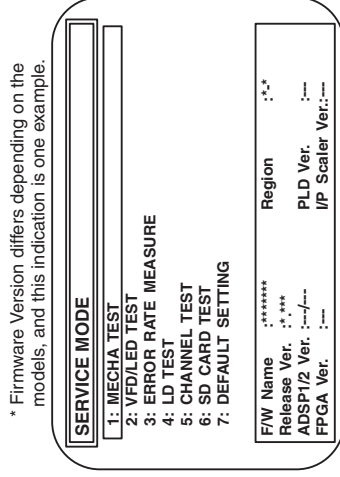
Release from Service Mode

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.



* Firmware Version differs depending on the models, and this indication is one example.

Fig. k Service Mode (Main Menu)

Ver: 1.000

Fig. l Service Mode

Available button in service mode

Button	condition
ENTER	Enter the next level
POWER OFF	Turn the power off (when the service mode is completed)
1~7	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
F/W Name	Model Name	E5K***D, etc.
Region	BD region - DVD region	A-1, etc.
Release Ver.	Release version	D.jp, 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 the text "Trade-On" displayed in a pixelated, dot-matrix font on a VFD screen.

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 the text "Trade-Off" displayed in a pixelated, dot-matrix font on a VFD screen.

Fig. b

REMOTE LOCK MODE

SETTING MENU:

Remote Lock Off Mode:

This mode receives an input signal from the remote control unit or from the Remote In-Jack on the rear panel.

Remote Lock On Mode:

This mode does not receive an input signal from the remote control unit or from the Remote In-Jack on the rear panel.

Perform the setting using the following procedure.

1. Press [POWER ON] and [STOP] buttons on the front panel simultaneously for over 3 seconds to set "Remote Lock Mode" and display mode.
2. Press [STILL/PAUSE] button on the front panel to set to "On" or "Off". When "Remote Lock On", "Remote Lock On" will appear in the upper right corner on the screen and appears on the VFD.



Fig. a VFD

When "Remote Lock Off", "Remote Lock Off" will appear in the upper right corner on the screen and appears on the VFD.

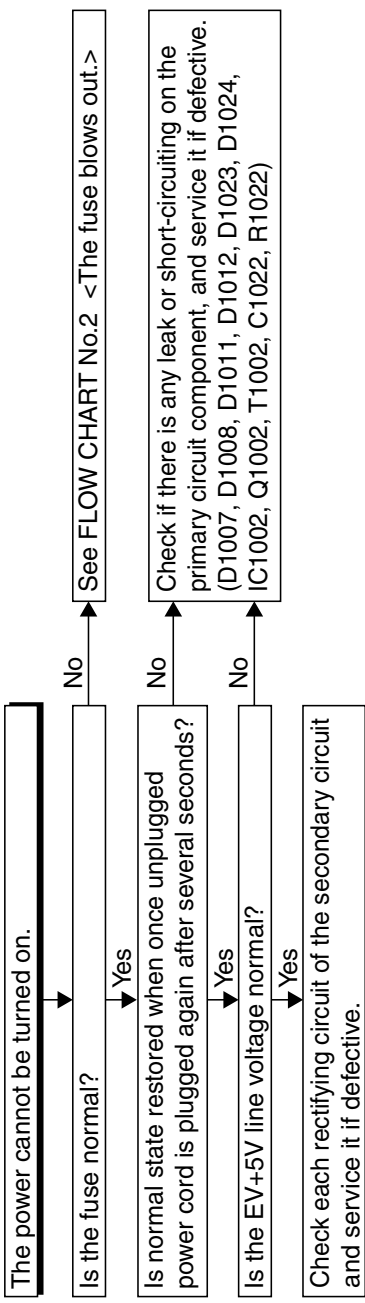


Fig. b VFD

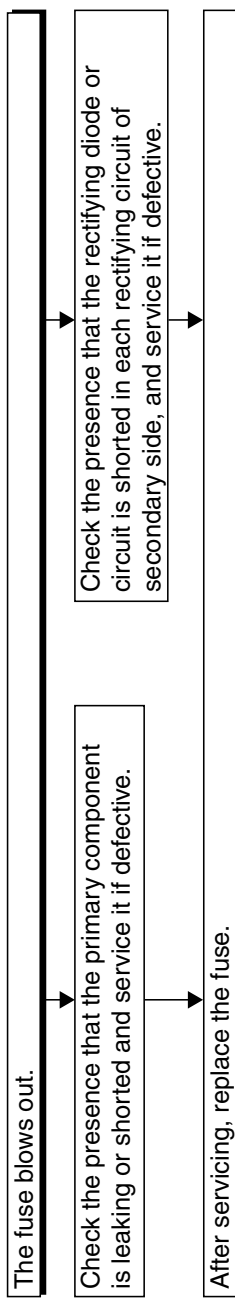
- a. If [STILL/PAUSE] button is not pressed for 2 seconds or any other button is pressed within 2 seconds, the unit will be released from "Remote Lock Mode".
- b. When initializing, set the Remote Lock Mode "off".

TROUBLESHOOTING

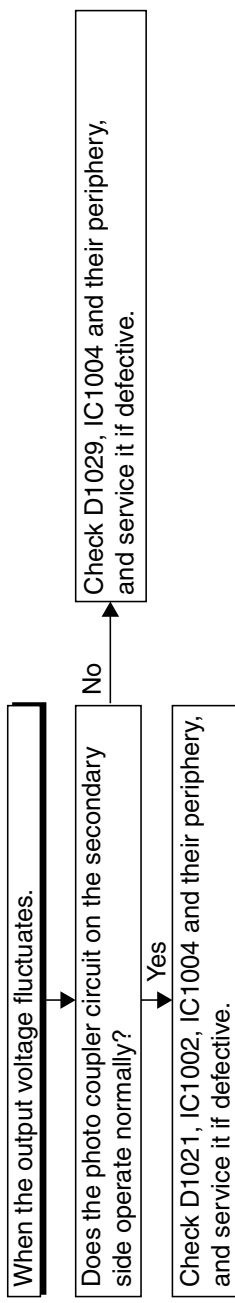
FLOW CHART NO.1



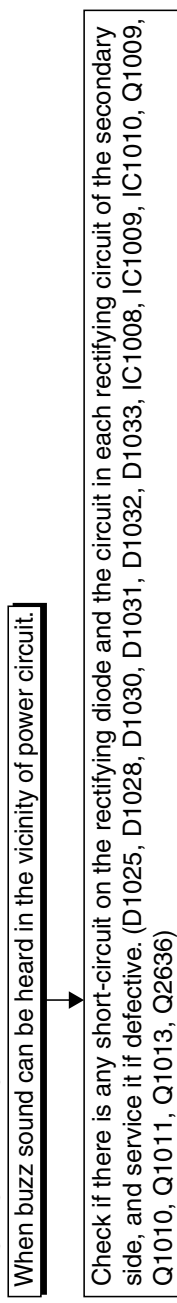
FLOW CHART NO.2



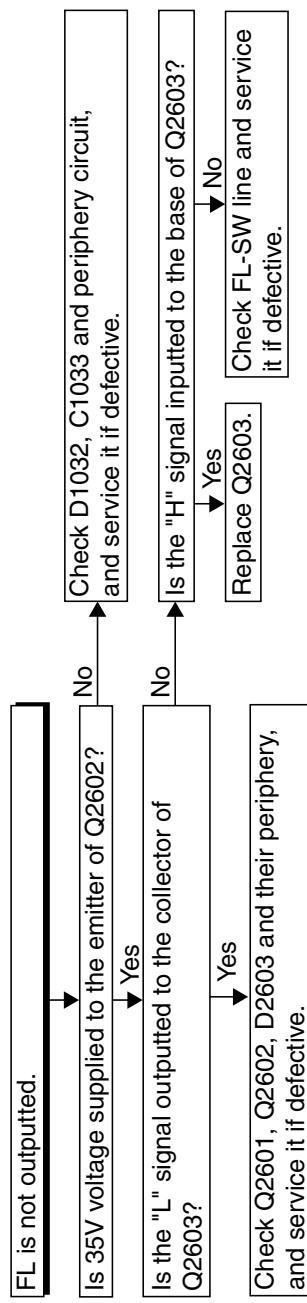
FLOW CHART NO.3



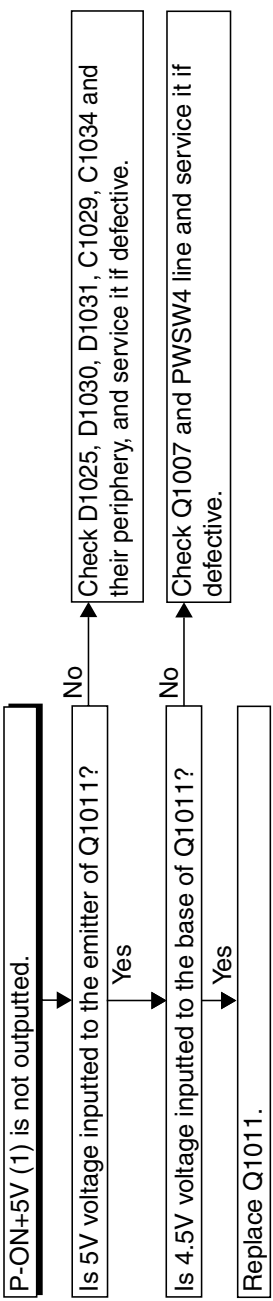
FLOW CHART NO.4



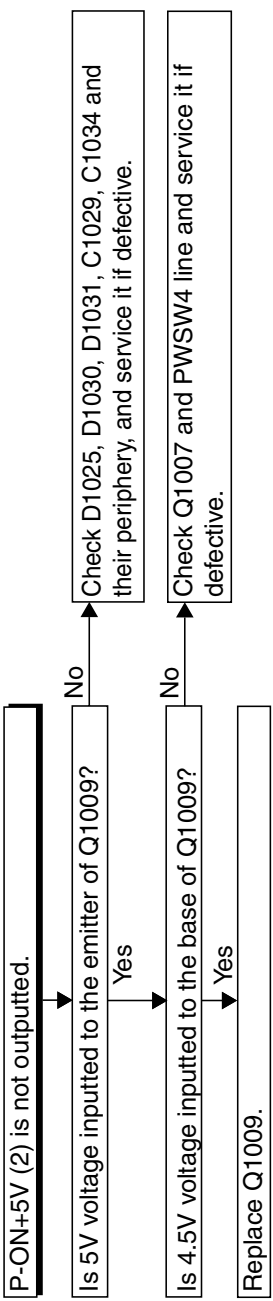
FLOW CHART NO.5



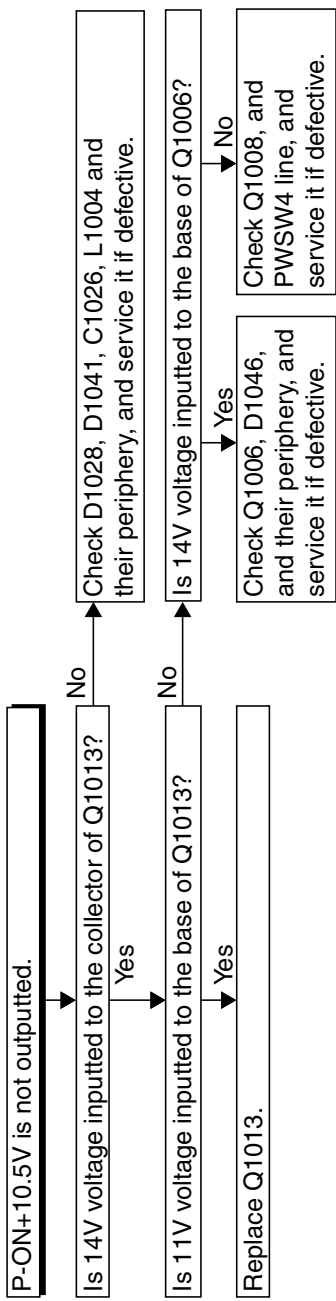
FLOW CHART NO.6



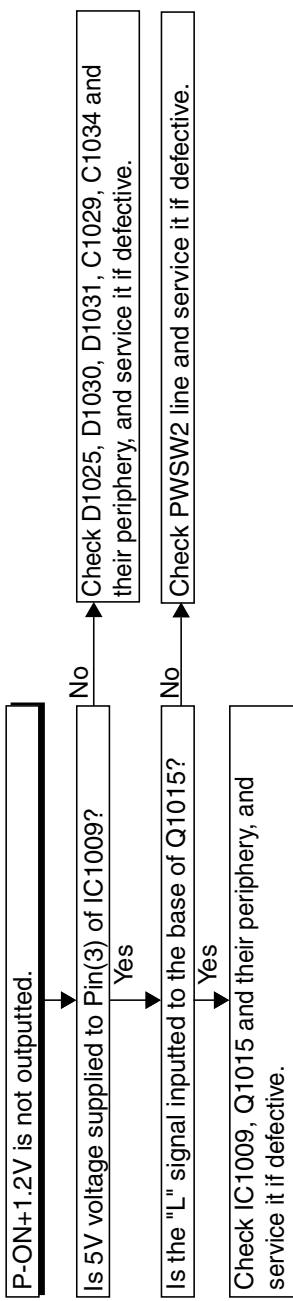
FLOW CHART NO.7



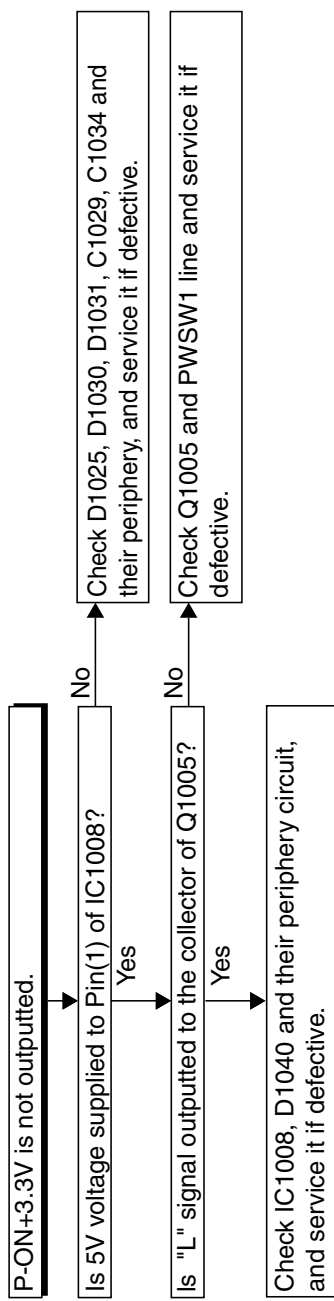
FLOW CHART NO.8



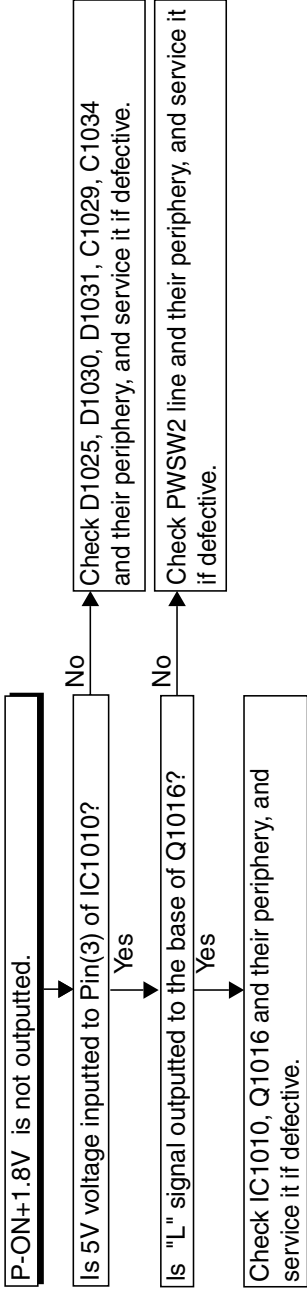
FLOW CHART NO.9



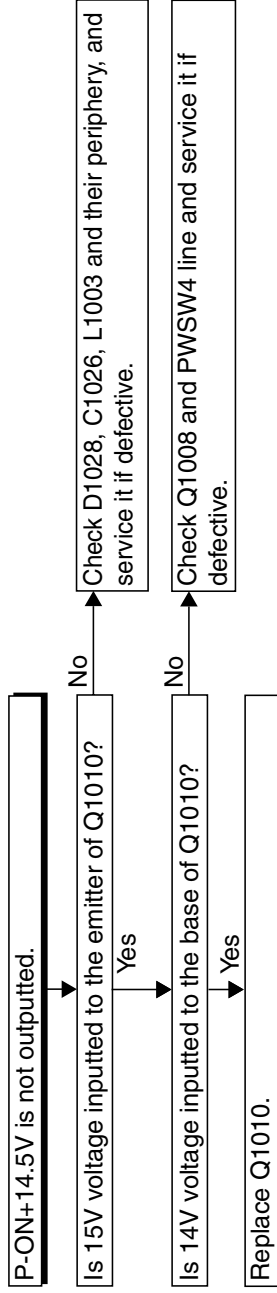
FLOW CHART NO.10



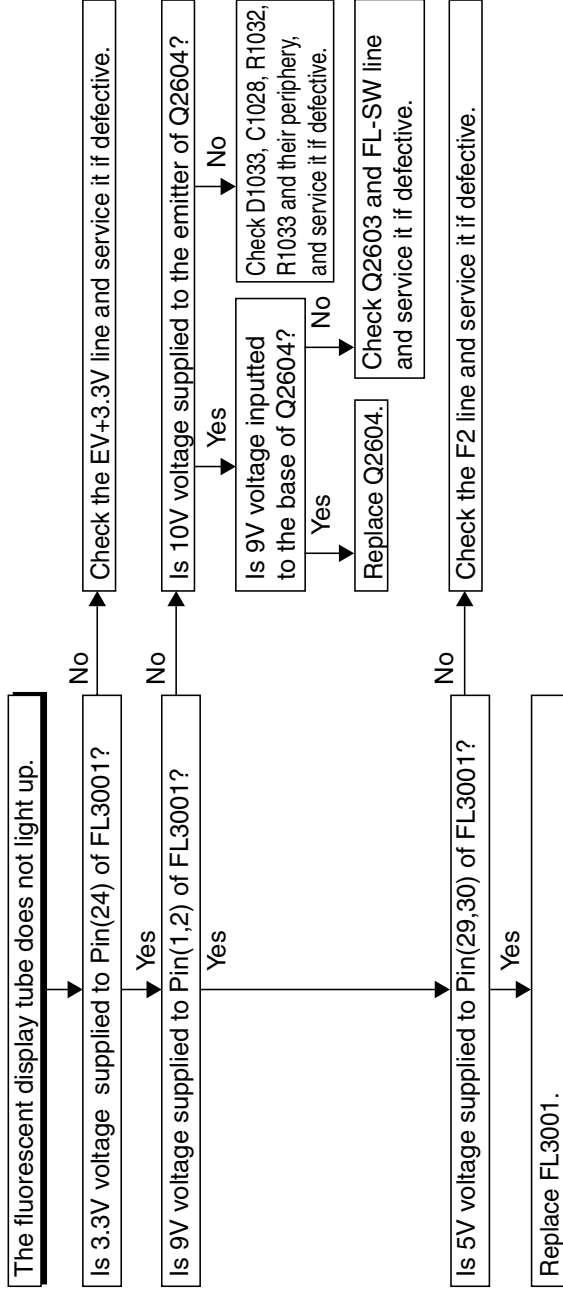
FLOW CHART NO.11



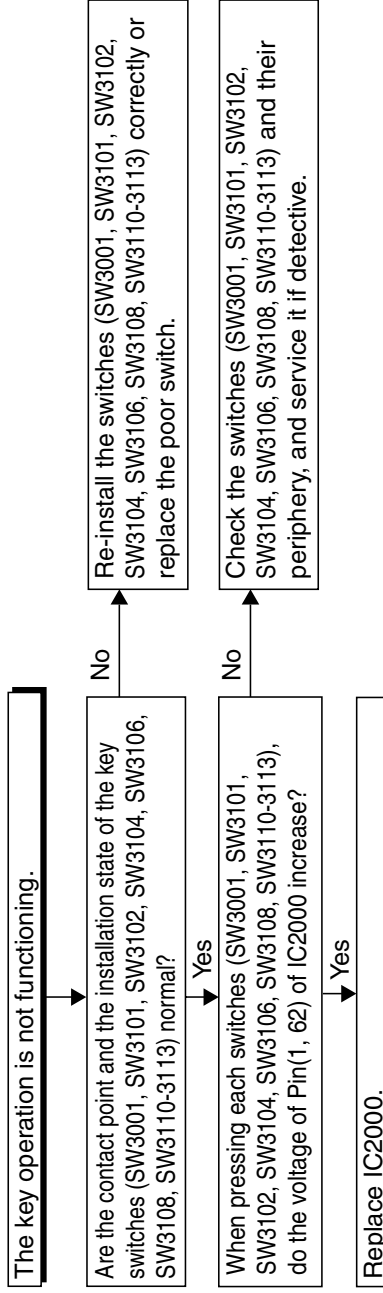
FLOW CHART NO.12



FLOW CHART NO.13

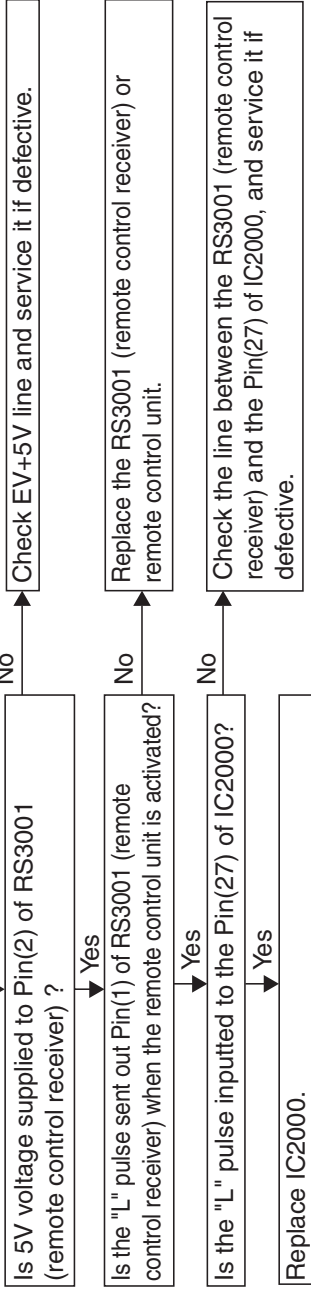


FLOW CHART NO.14



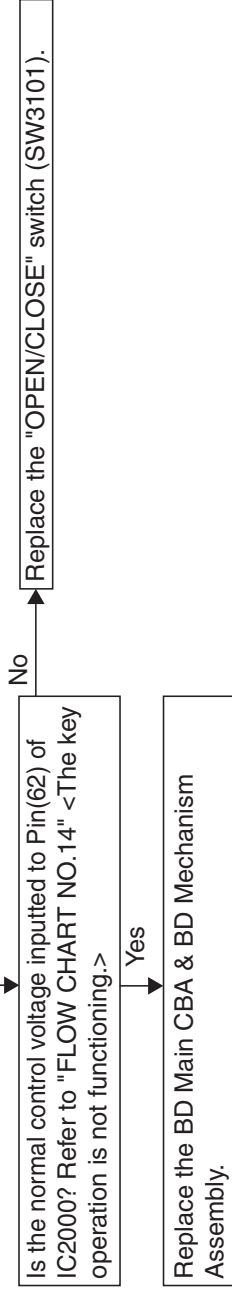
FLOW CHART NO.15

No operation is possible from the remote control unit. (Operation is possible from the unit.)



FLOW CHART NO.16

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

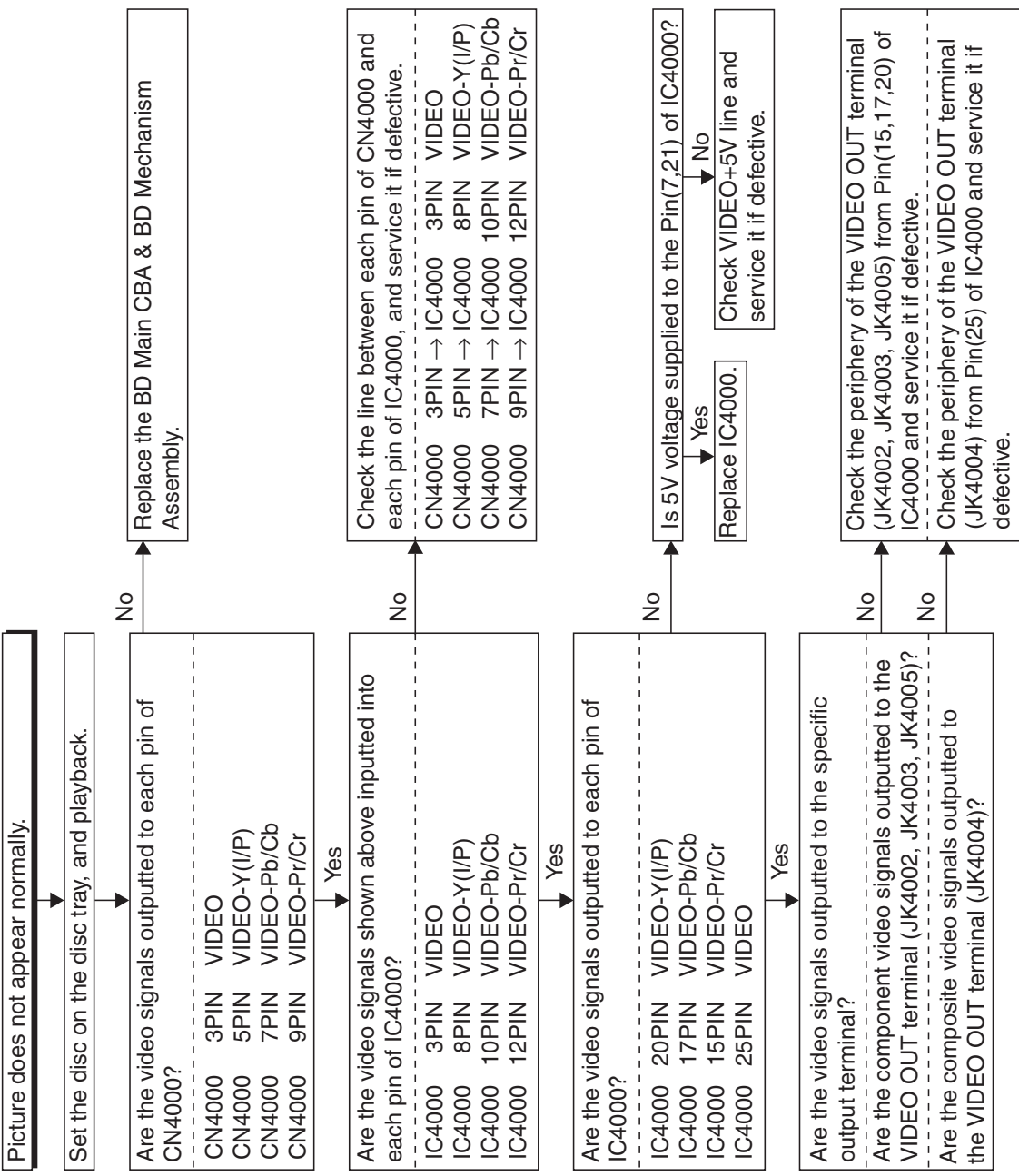


FLOW CHART NO.17

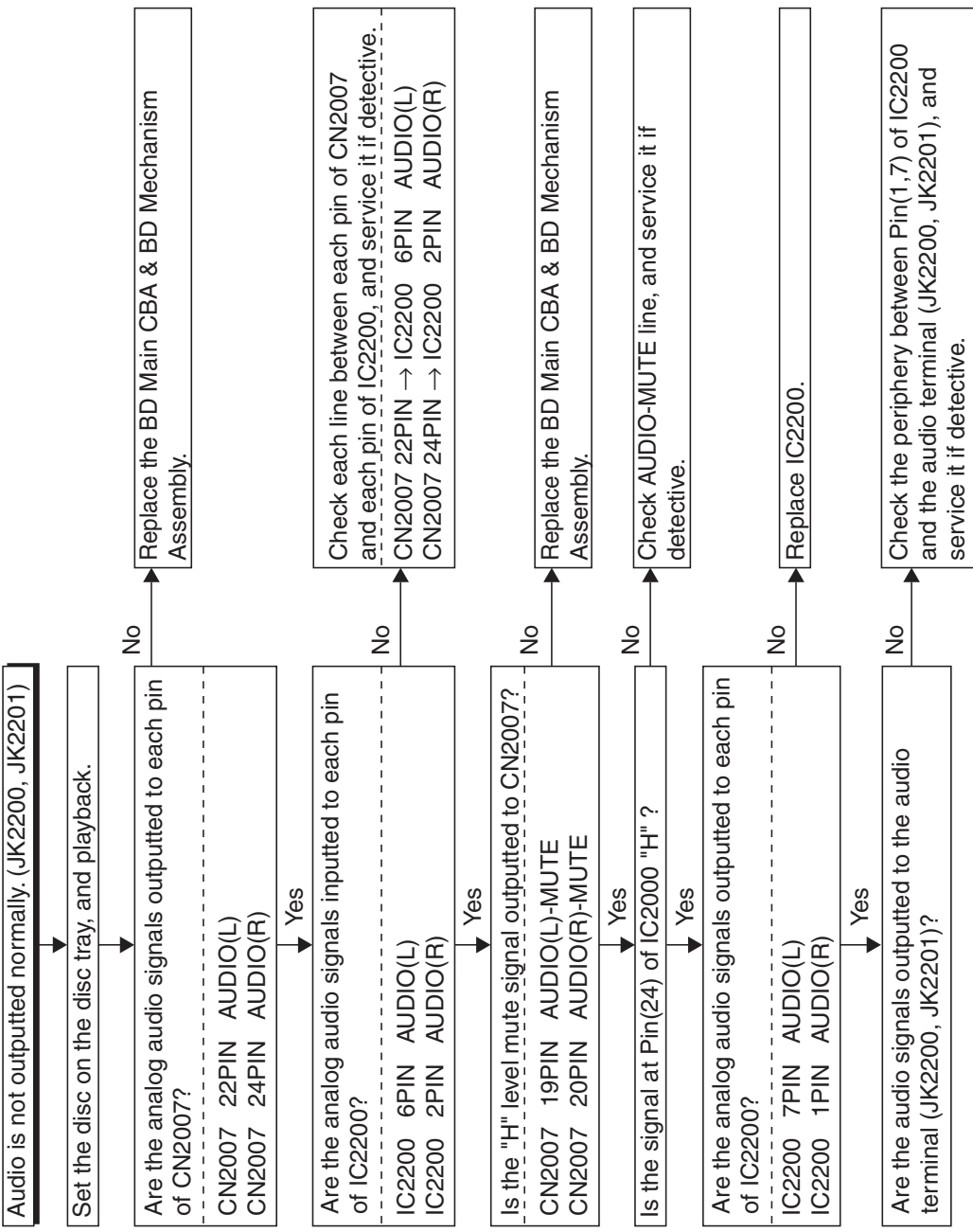
The disc tray cannot be opened and closed. [No Disc] indicated. Both functions of picture and sound do not operate normally.



FLOW CHART NO.18



FLOW CHART NO.19



BD Mechanism Replacement Guidelines

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

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

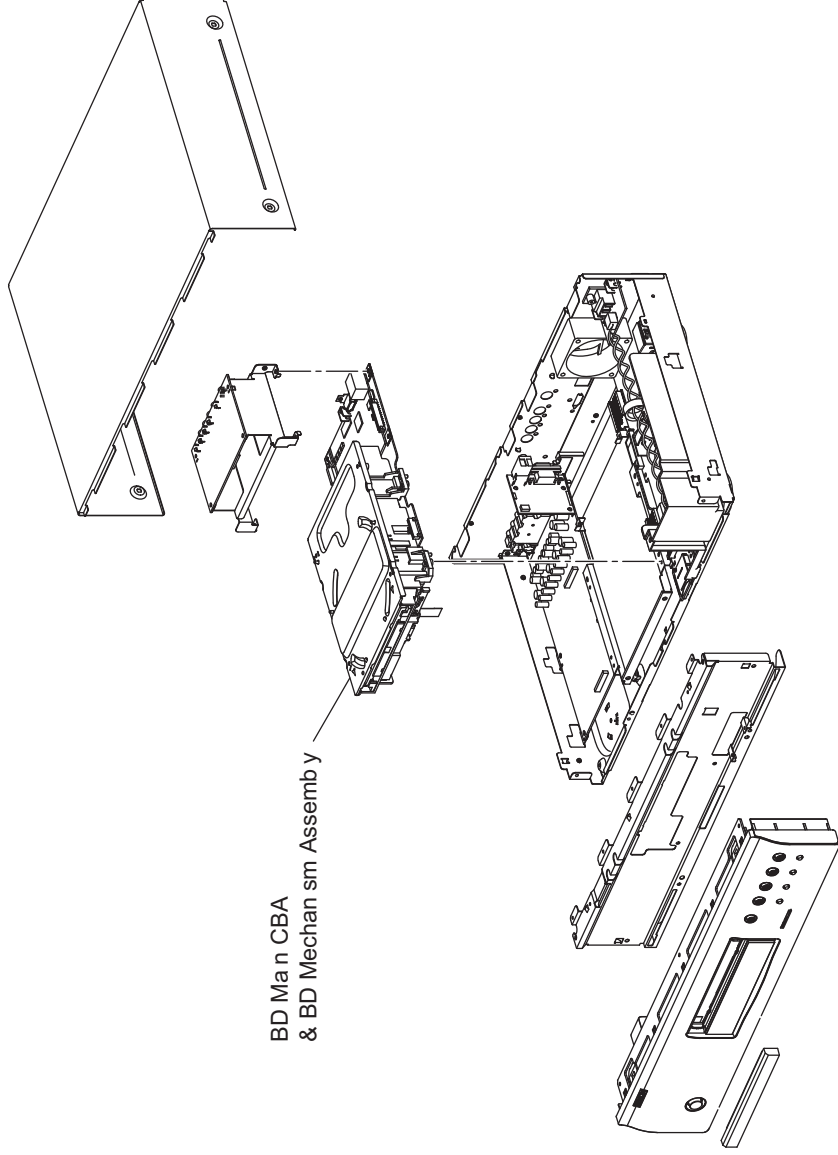
BD-ROM

BLX-201S3(SONY) chp12

*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 should be determined that it has reached the end of its life.

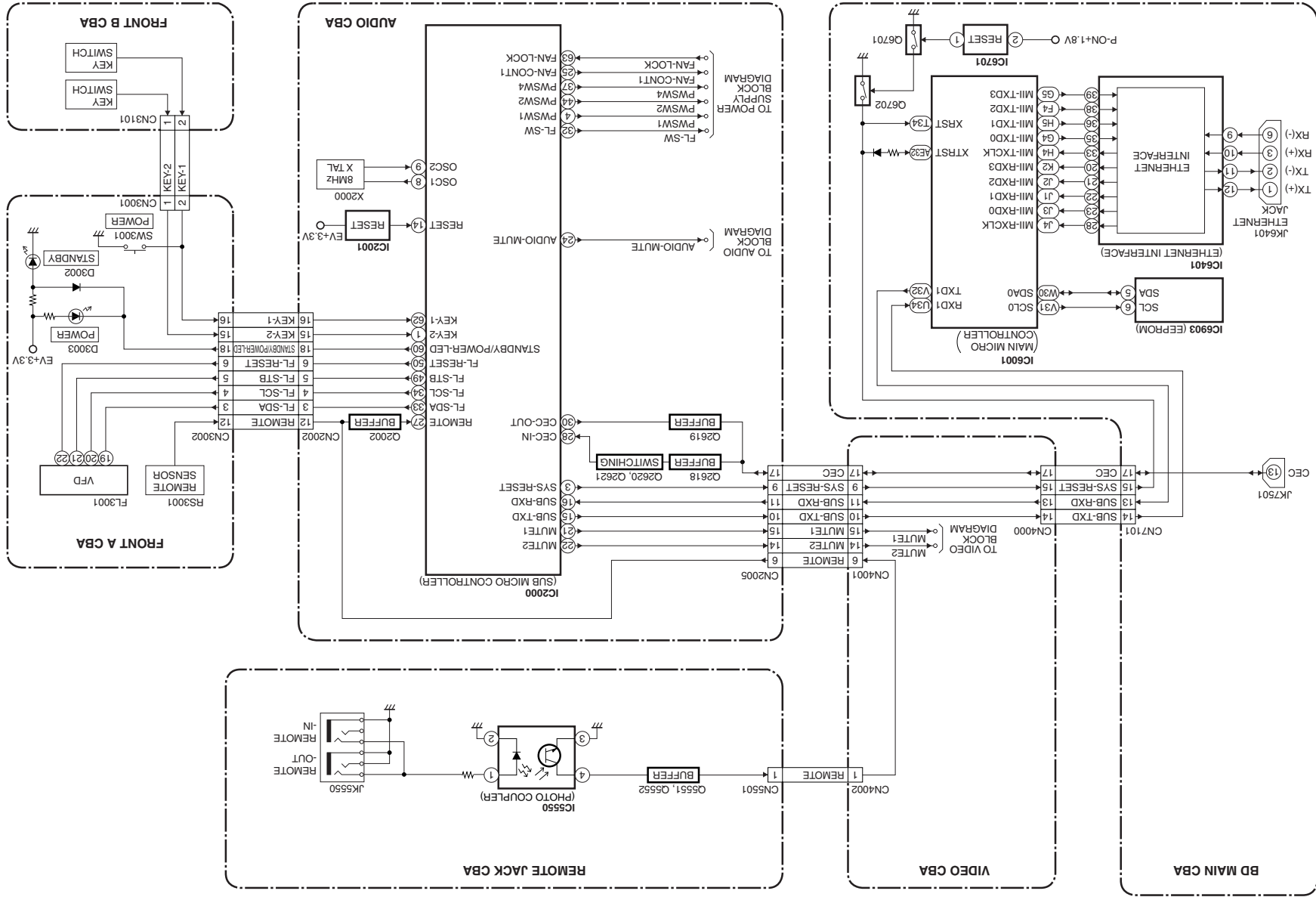
Replacement of BD Main CBA & BD Mechanism Assembly

1. Remove the Top Cover, Tray Panel, Front Assembly, Front Bracket, Video CBA and AV PCB Holder.
 2. Disconnect Connectors and replace the BD Main CBA & BD Mechanism Assembly.
- Refer to CABINET DISASSEMBLY INSTRUCTIONS.

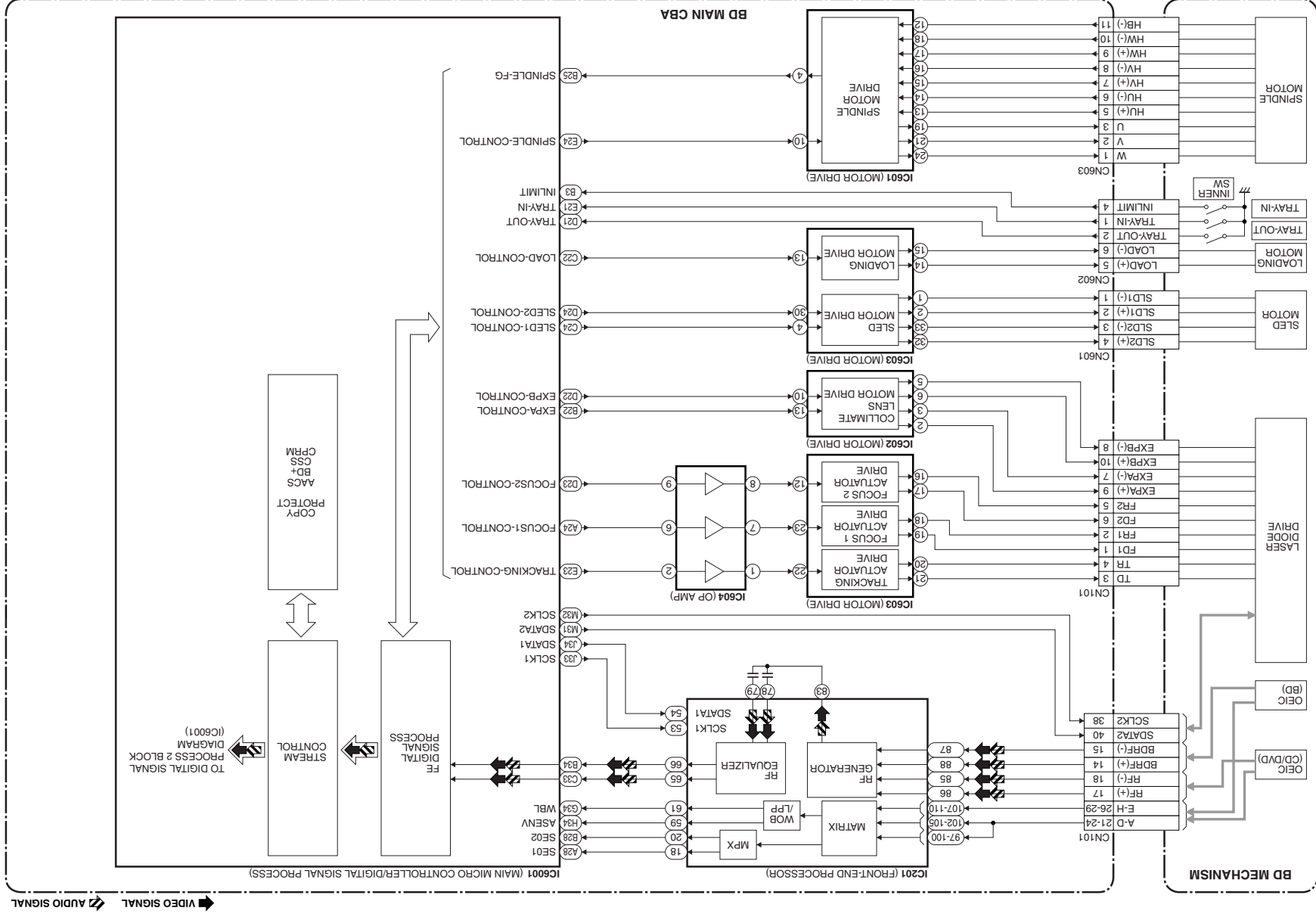


BLOCK DIAGRAMS

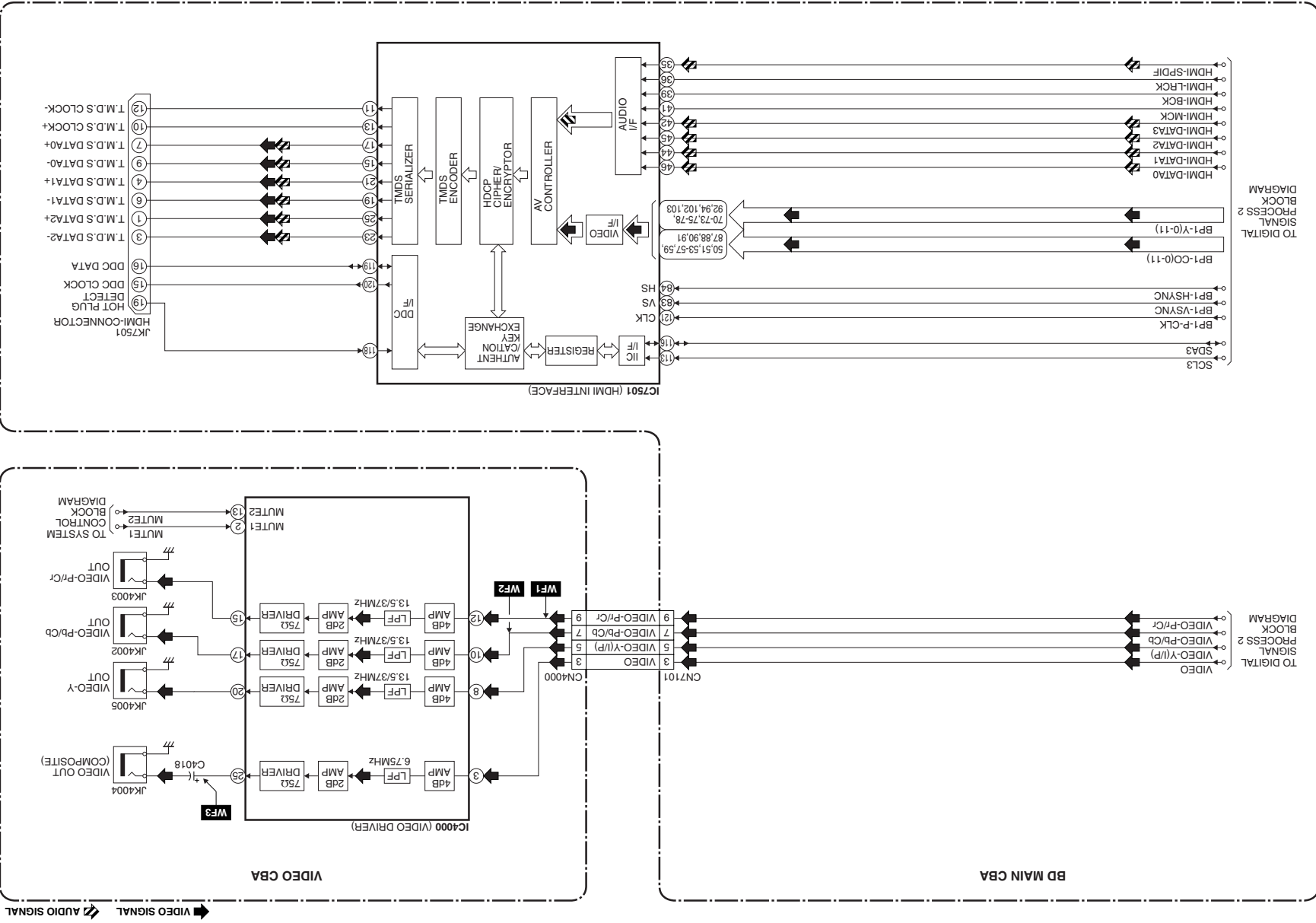
System Control Block Diagram



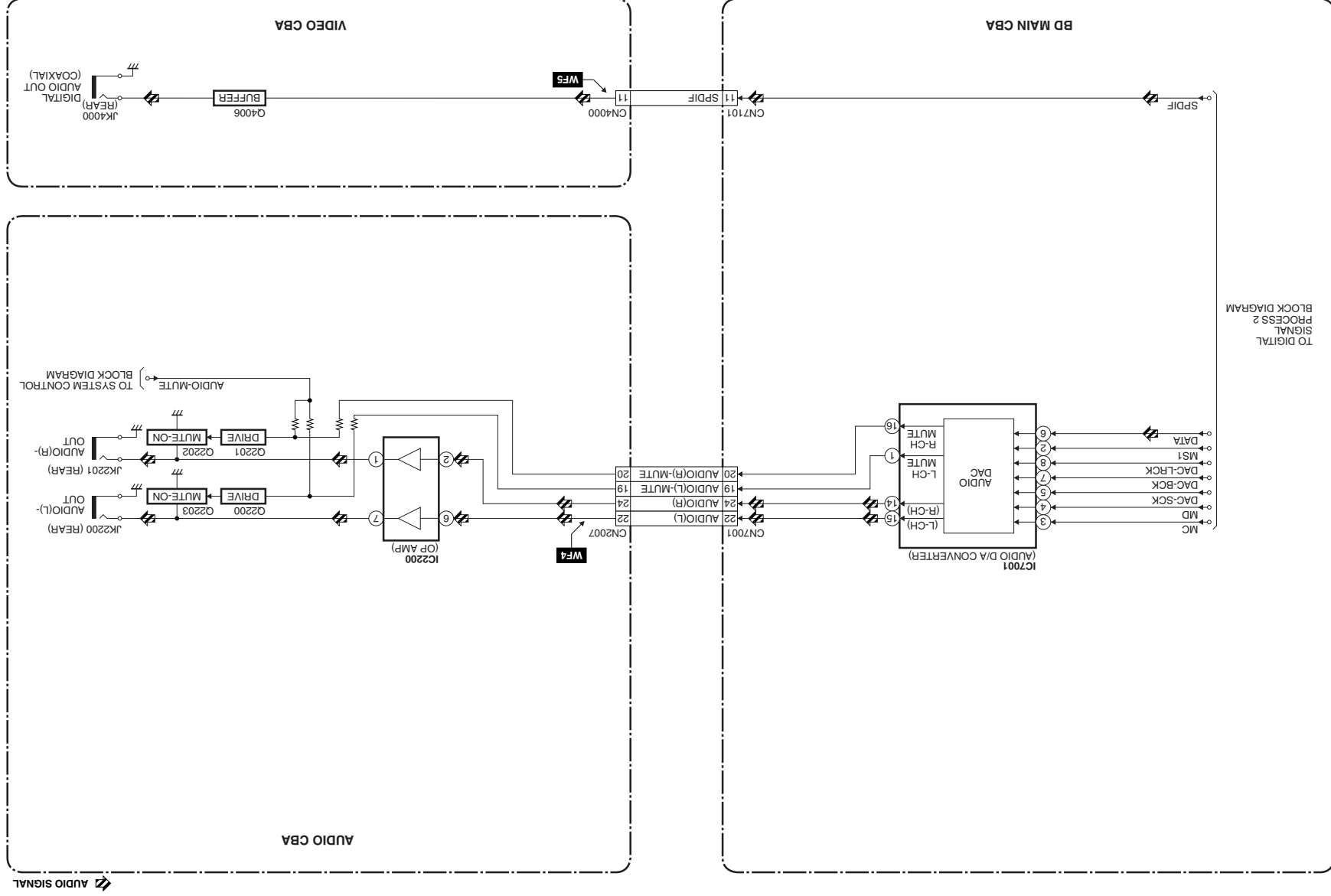
Digital Signal Process 1 Block Diagram



Video Block Diagram



Audio Block Diagram



TO DIGITAL
SIGNAL
PROCESS 2
BLOCK DIAGRAM

----MEMO----

SCHEMATIC DIAGRAMS AND TEST POINTS

Standard Notes

WARNING

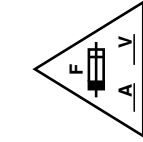
Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special 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 ($\text{P} = 10^{-6} \mu\text{F}$).
5. All voltages are DC voltages unless otherwise specified.

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 MÊME TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.



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

2. CAUTION:

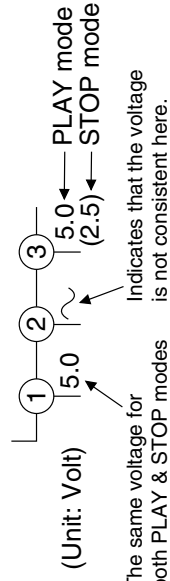
Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.

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.

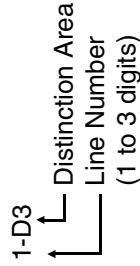
3. Note:

- 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.
- 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:

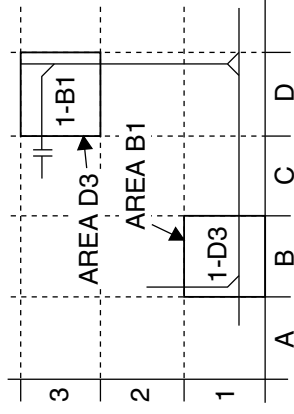


5. How to read converged lines



Examples:

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



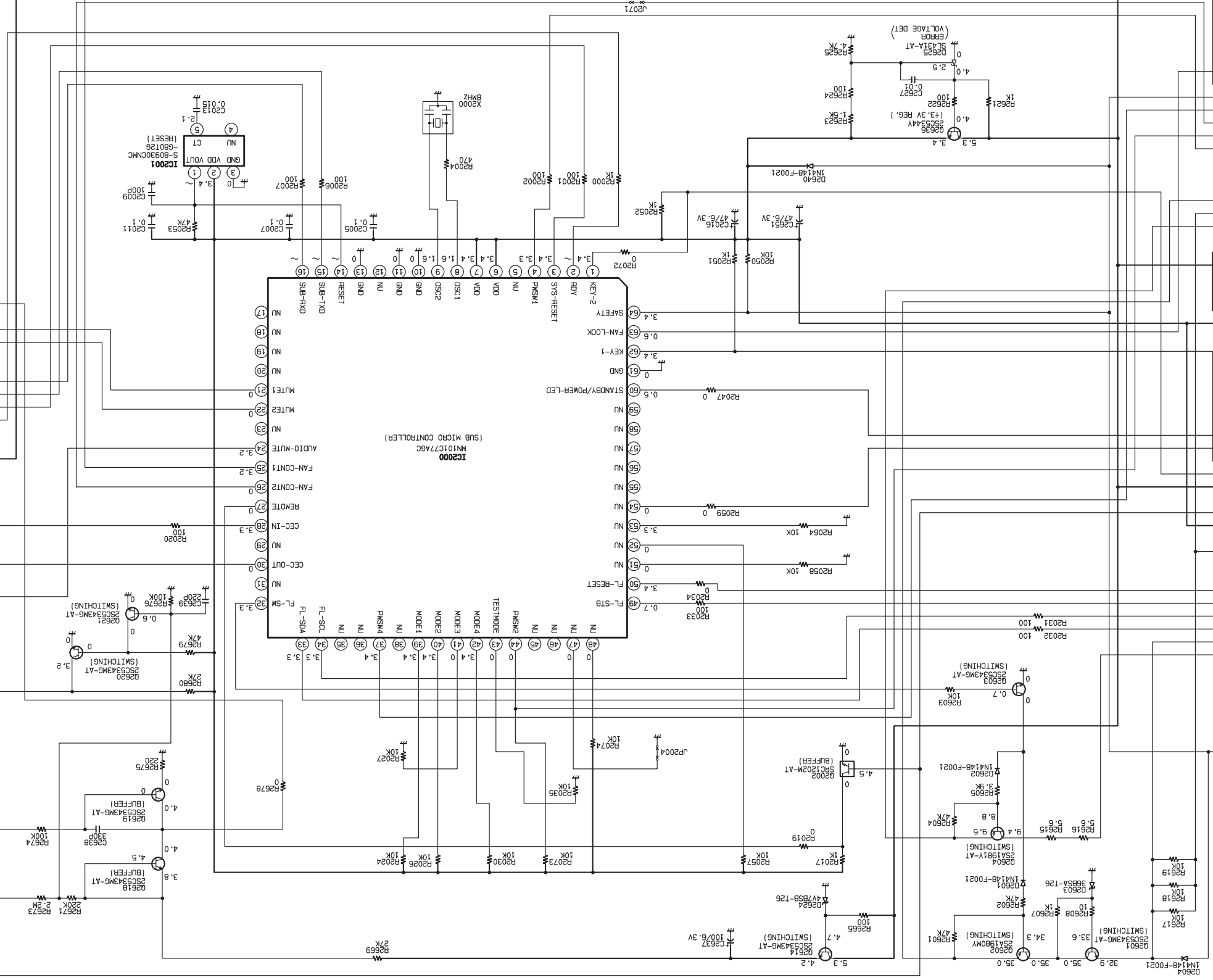
6. Test Point Information

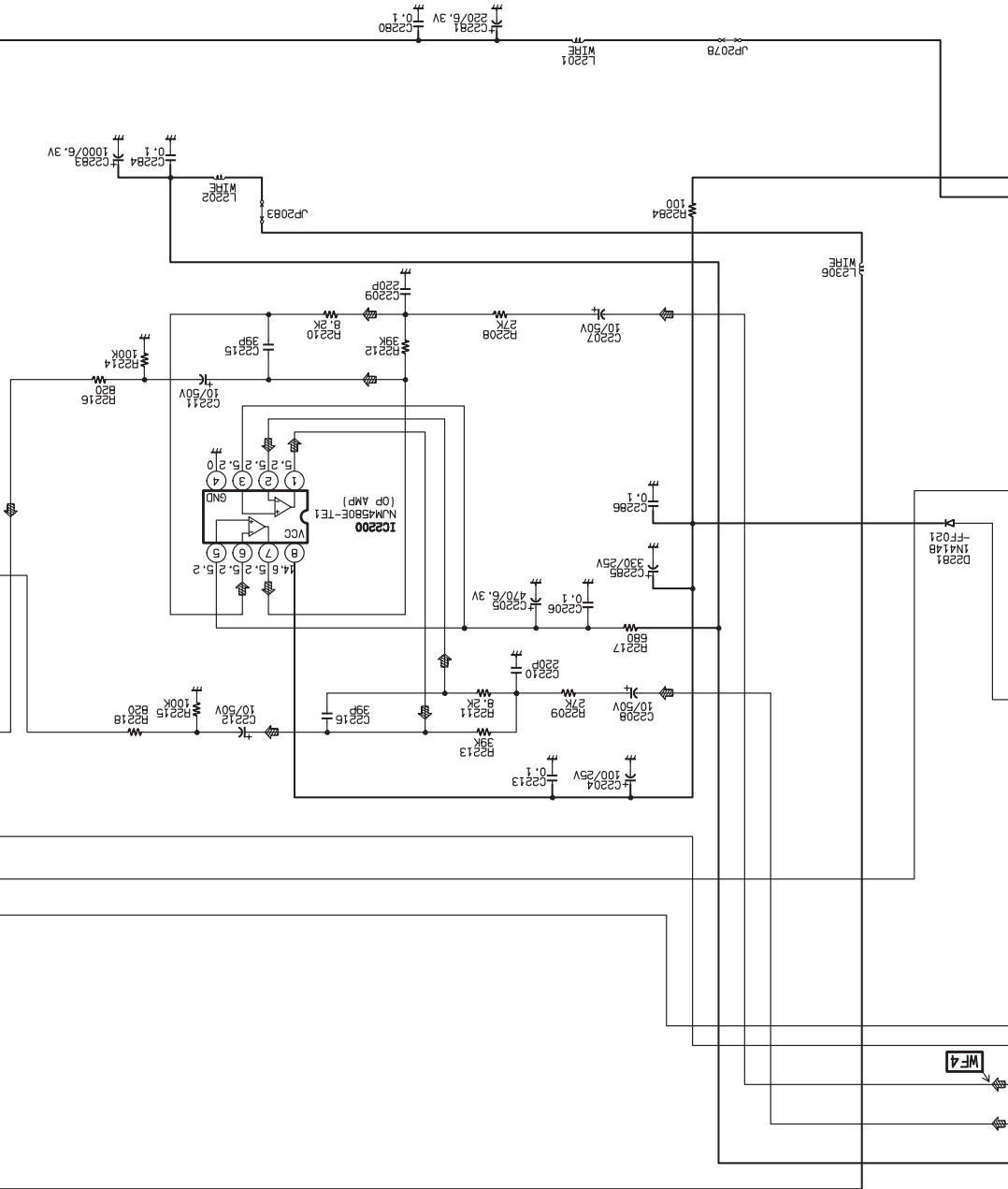
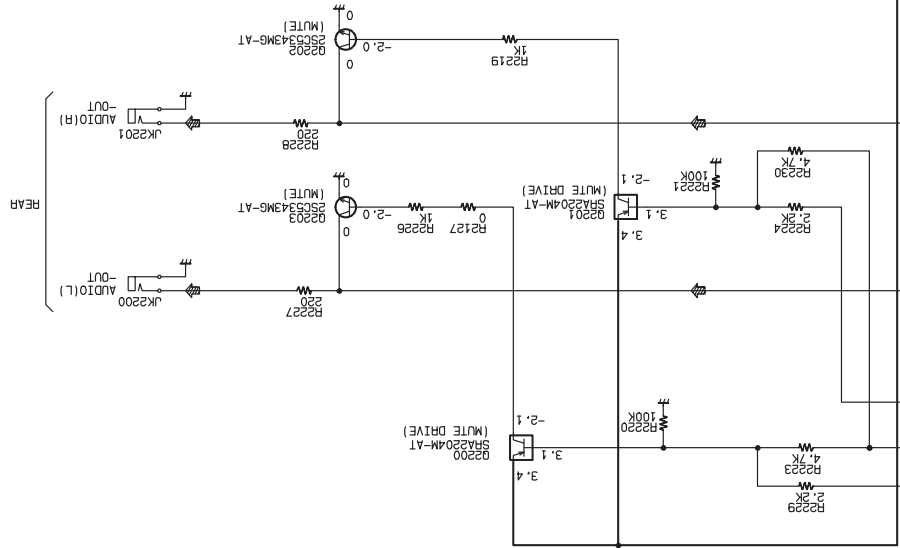
- : Indicates a test point with a jumper wire across a hole in the PCB.
- : Used to indicate a test point with a component lead on foil side.
- : Used to indicate a test point with no test pin.
- : Used to indicate a test point with a test pin.

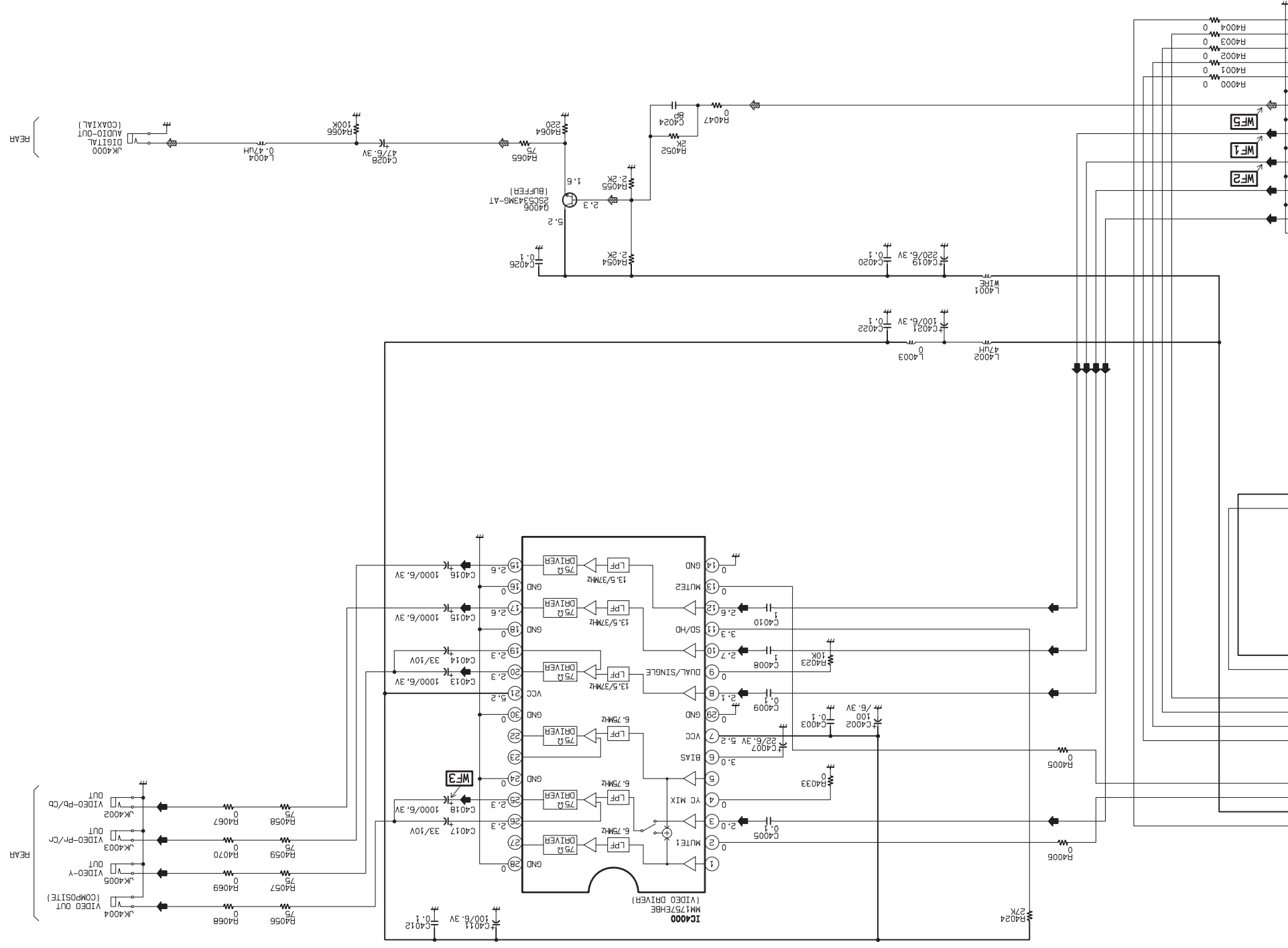
VIDEO+5V
(CONTINUE AUDIO 2/2)

- 17 CEC
- 16 VIDEO+5V
- 15 MUTE1
- 14 MUTE2
- 13 NU
- 12 GND
- 11 SUB-RXD
- 10 SUB-TXD
- 9 SYS-RESET
- 8 RDY
- 7 GND
- 6 REMOTE
- 5 EV+5V
(TO VIDEO CBA CM4001)

AUDIO-MUTE
(CONTINUE AUDIO 2/2)



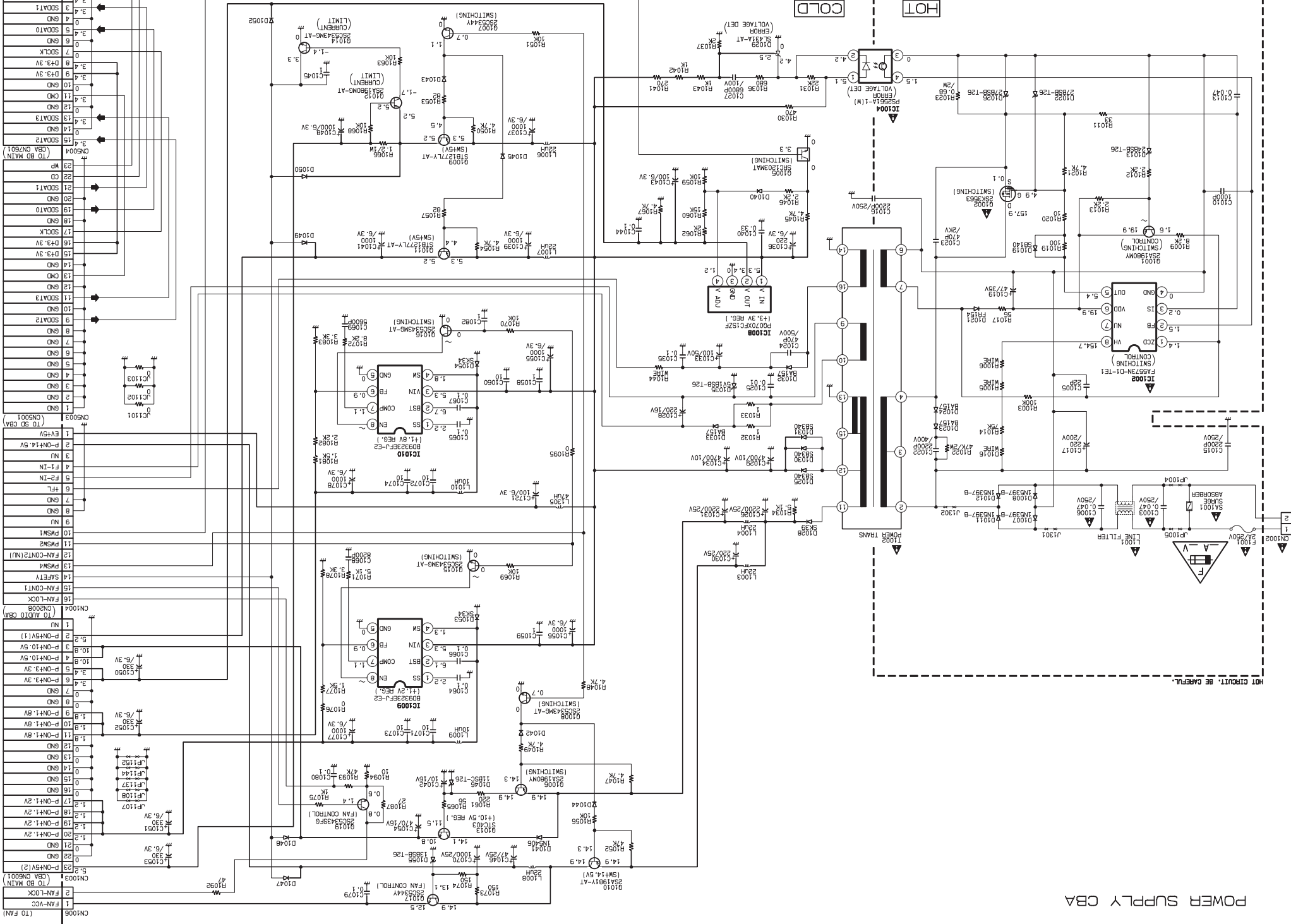




REAR

REAR

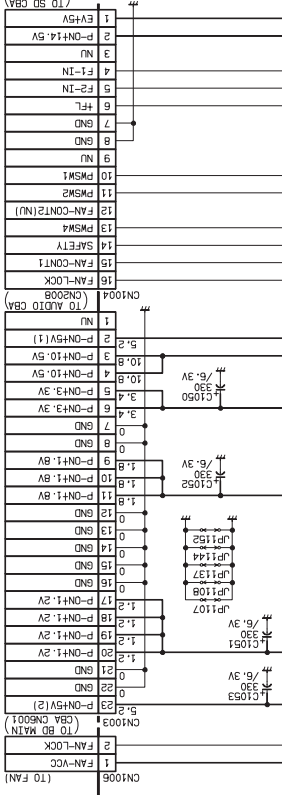
POWER SUPPLY CBA



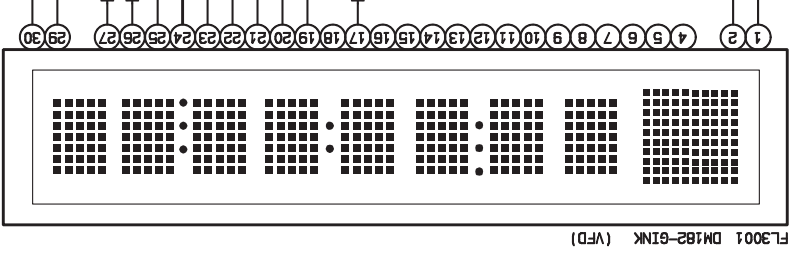
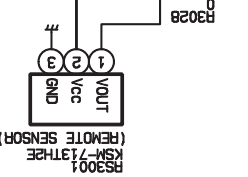
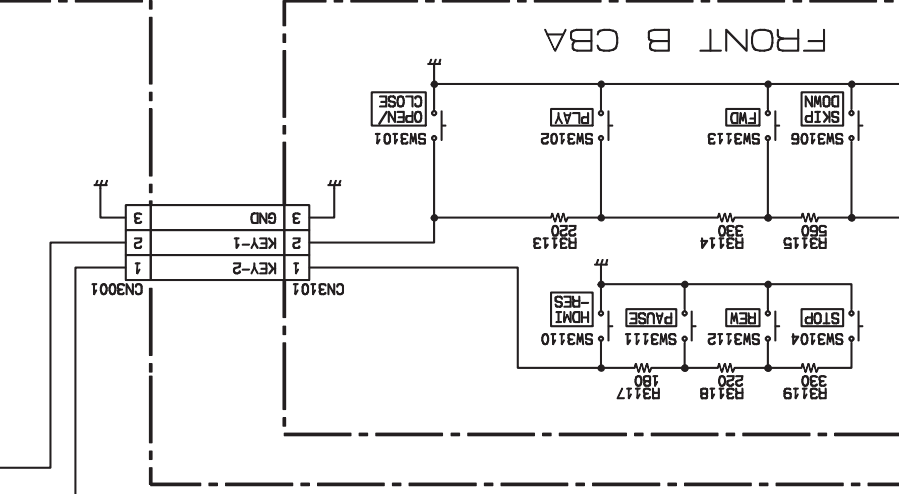
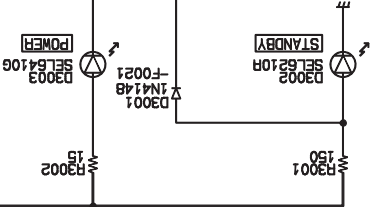
Risk of fire: replace fuse as marked.
 Ce symbole représente un fusible à fusion rapide.

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

VIDEO SIGNAL



FRONT A CBA

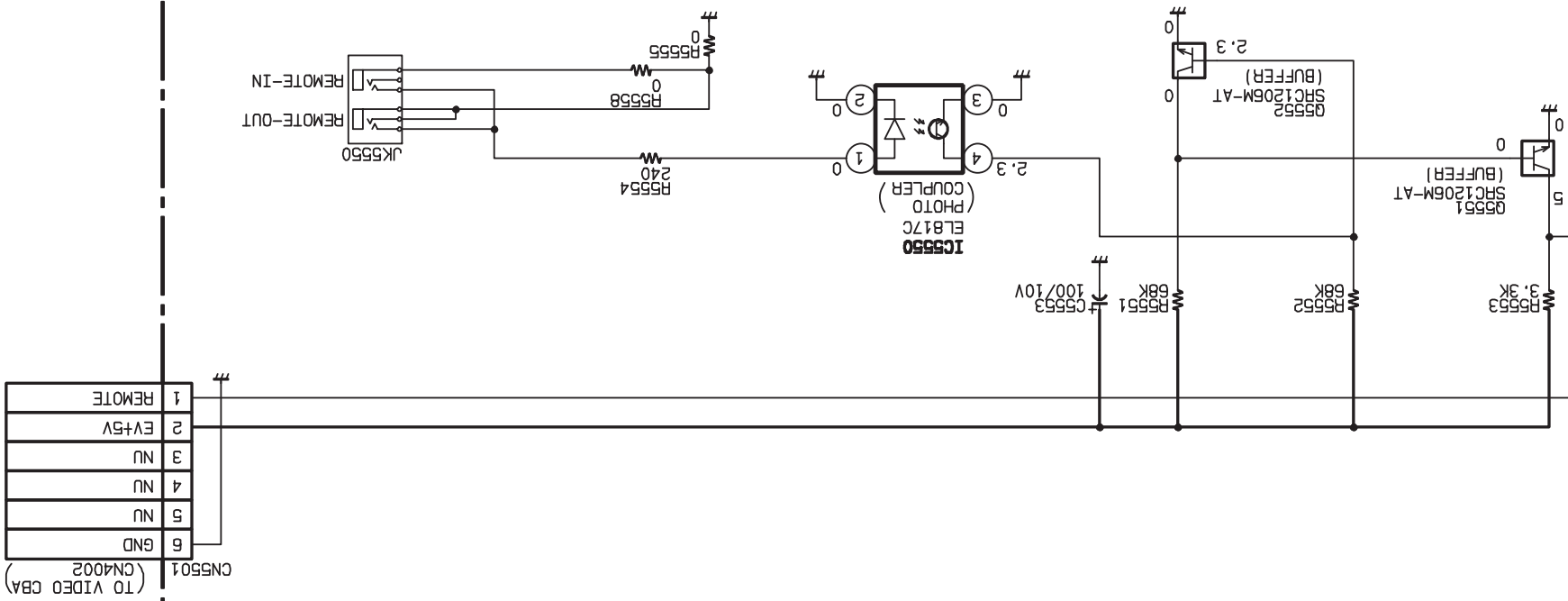


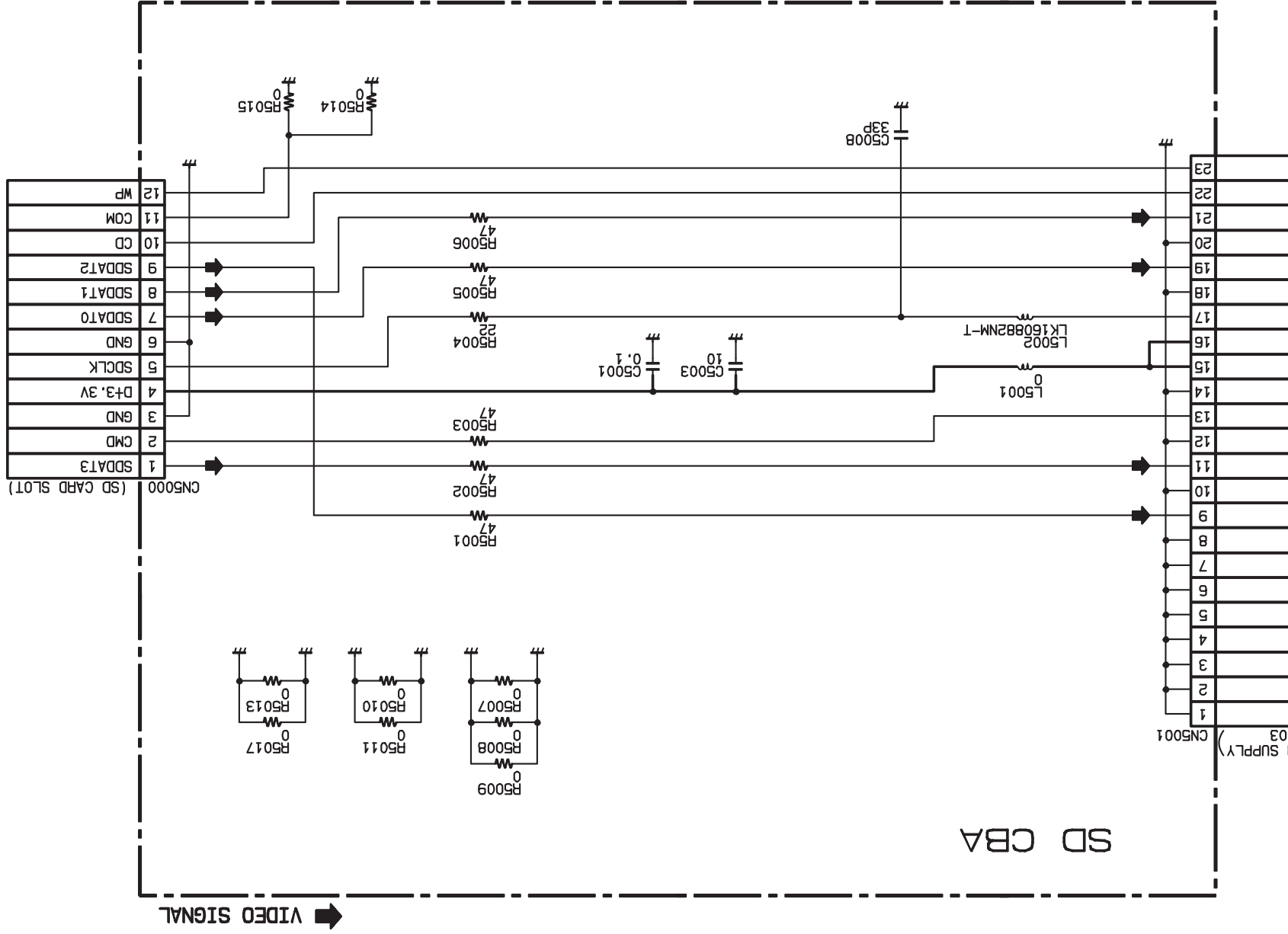
18	STANDBY/POWER-LED
17	NU
16	KEY-1
15	KEY-2
14	EV+5V
13	GND
12	REMOTE
11	EV+3.3V
10	GND
9	F2
8	GND
7	GND
6	FL-RESET
5	FL-STB
4	FL-SCL
3	FL-SDA
2	FL
1	F1

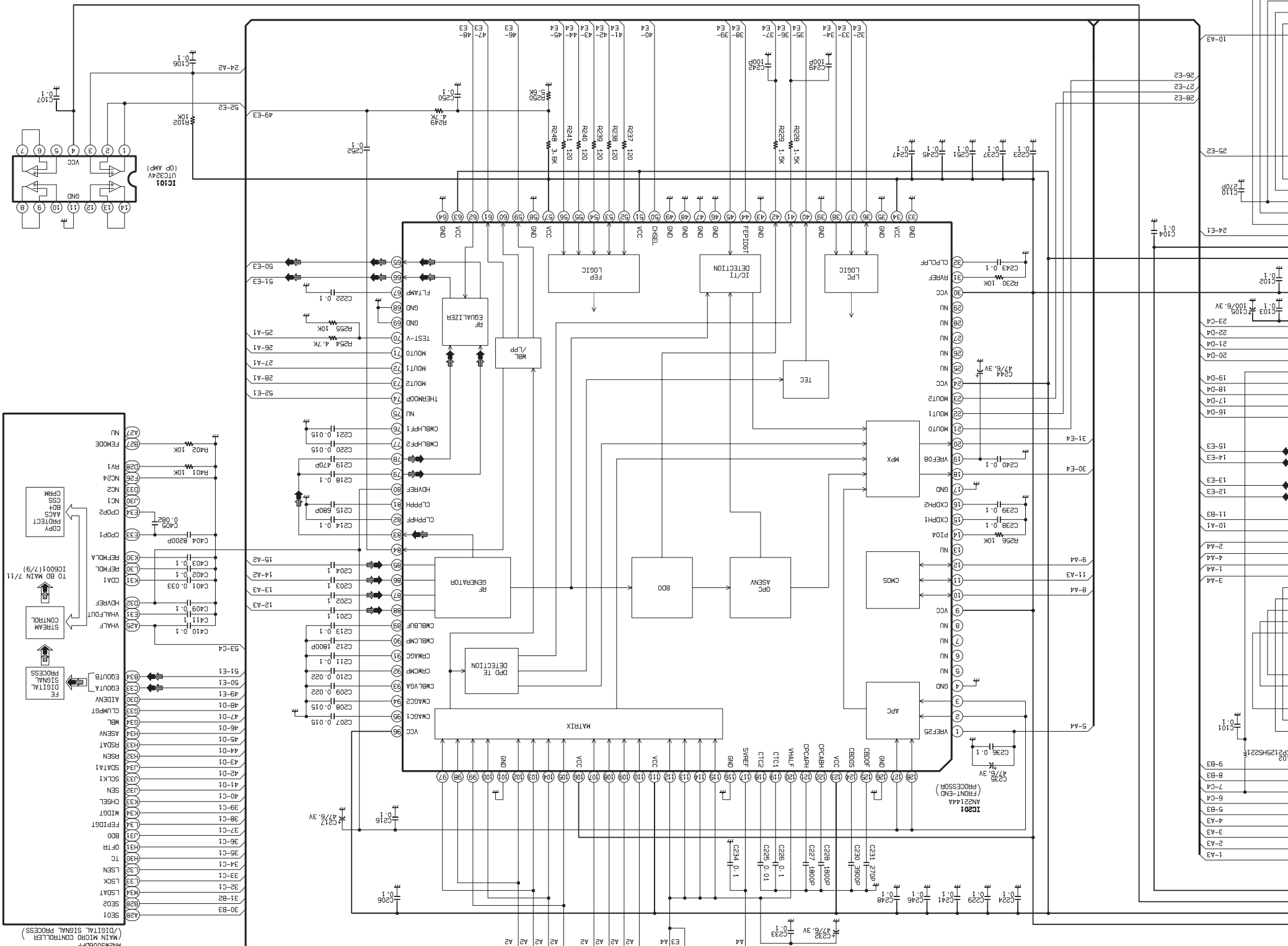
TO AUDIO CBA (CN3002)

UNLESS OTHERWISE SPECIFIED:

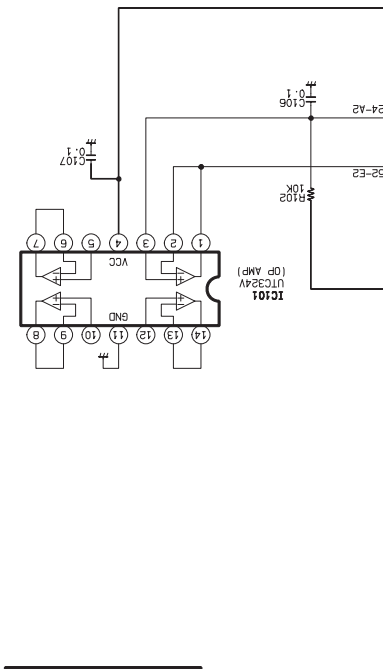
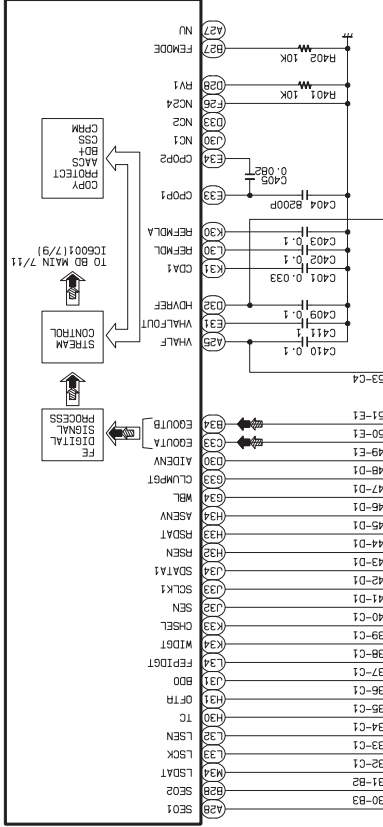
REMOTE JACK CBA

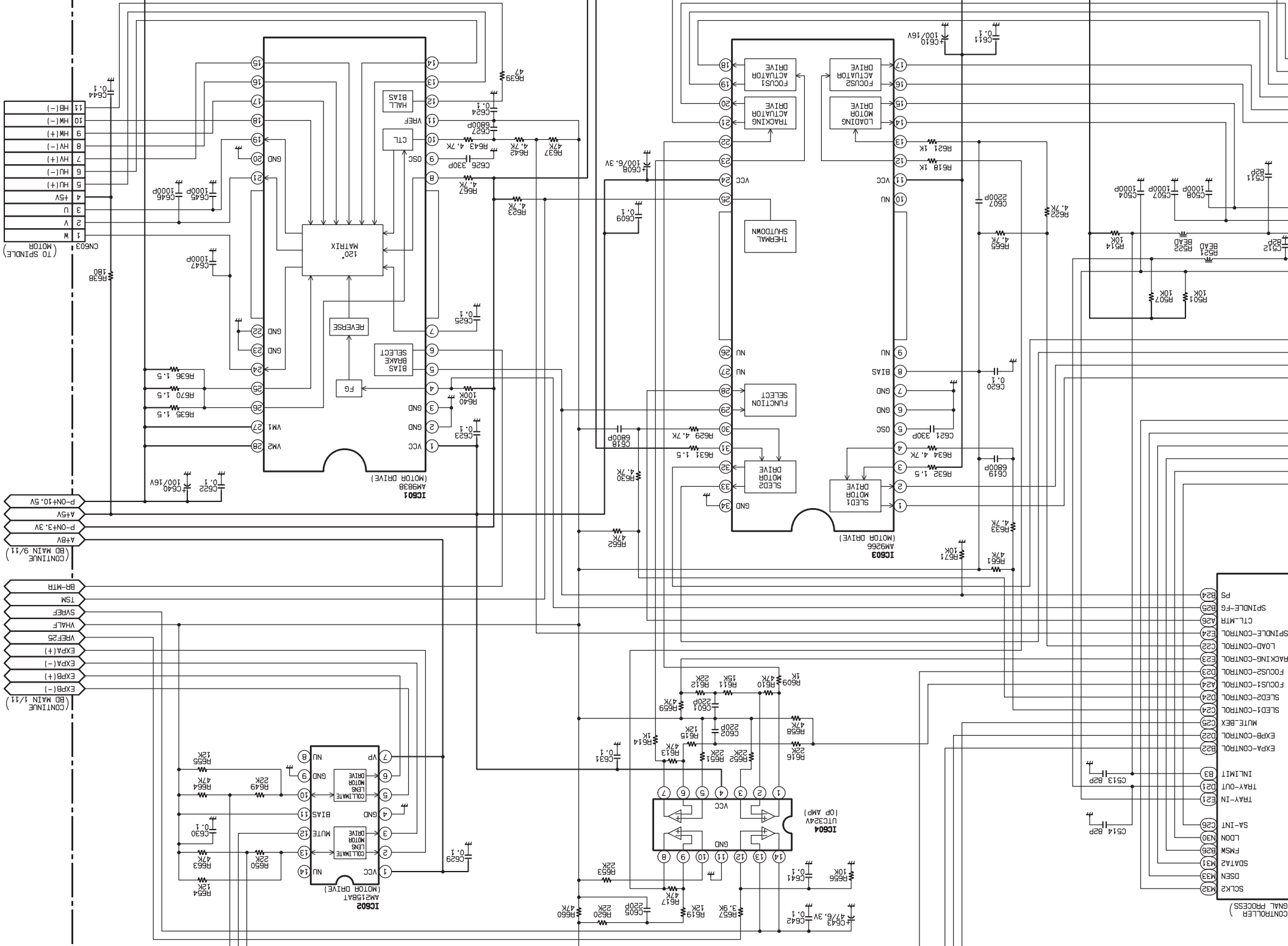






IC8001(1/9)
 NM2500CFF
 MAIN MICRO CONTROLLER
 /DIGITAL SIGNAL PROCESS





MAIN CBA

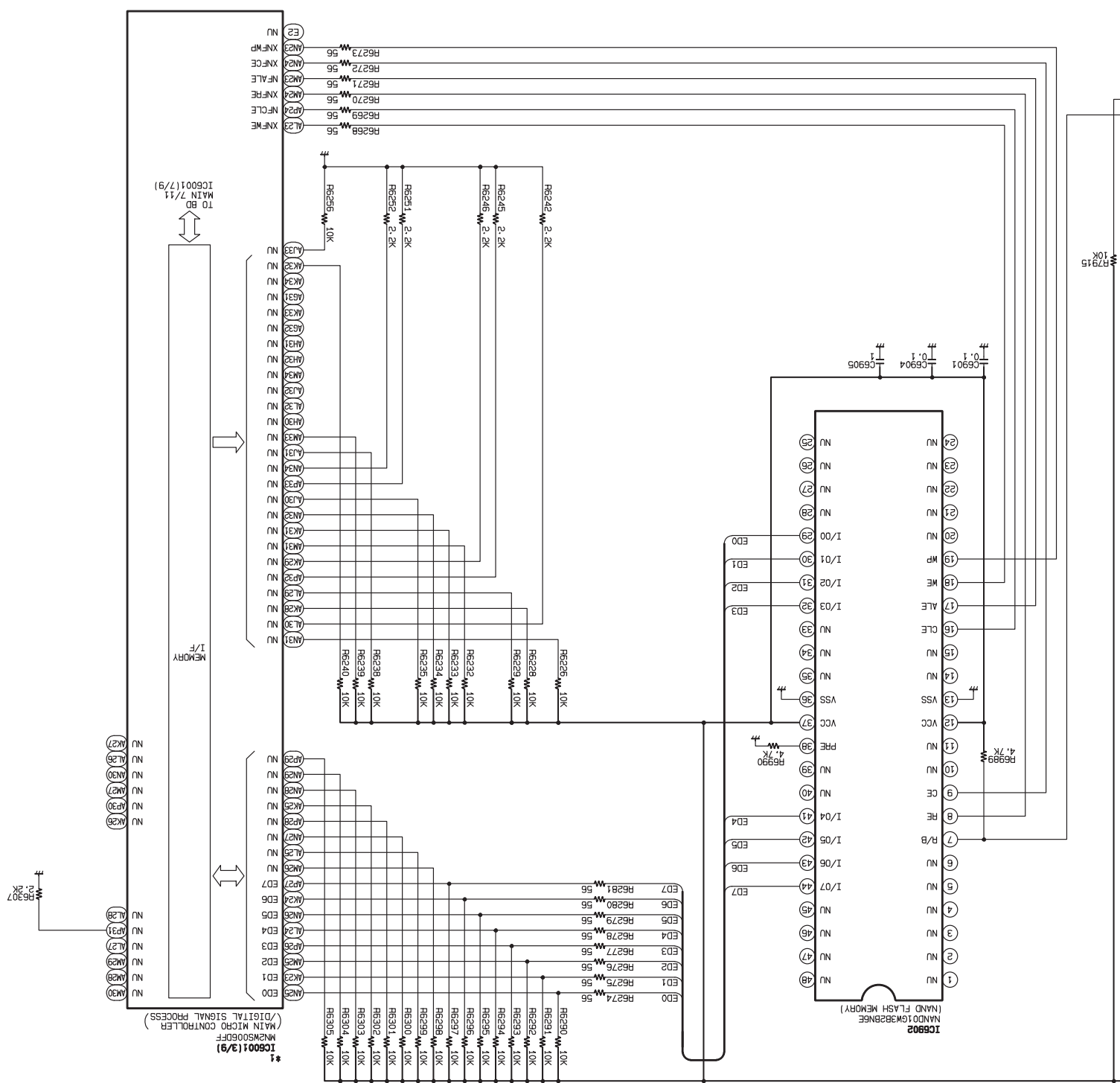
CONTROL BOARD SIGNAL PROCESS

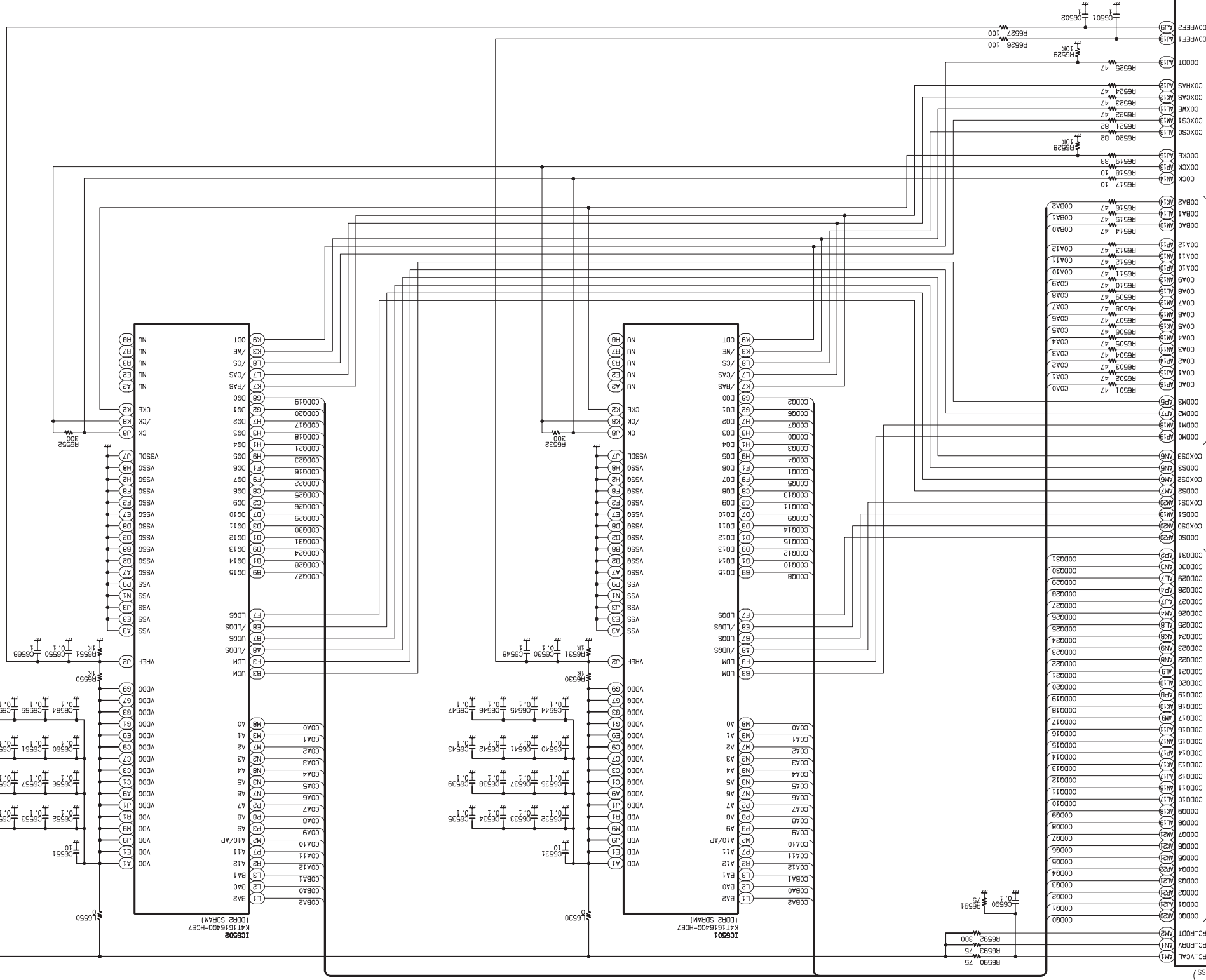
- PS
- SPINDLE-F6
- CTL-MTR
- SPINDLE-CONTROL
- LOAD-CONTROL
- TRACKING-CONTROL
- FOCUS-CONTROL
- SLED-CONTROL
- SLED1-CONTROL
- EXP-CONTROL
- EXP-CONTROL
- INLIMIT
- TRAY-IN
- TRAY-OUT
- SA-INT
- FWM
- LON
- SDATA2
- DSN
- SCLK2

- 11 HB(-)
- 10 HM(-)
- 9 HW(+)
- 8 HV(-)
- 7 HV(+)
- 6 HU(-)
- 5 HU(+)
- 4 +5V
- 3 U
- 2 V
- 1 W

- P-ON+10.5V
- A+5V
- P-ON+3.3V
- A+B+
- (CONTINUE BD MAIN 9/11)
- BR-MTR
- TSM
- SVREF
- VHALF
- VREF25
- EXPA(+)
- EXPA(-)
- EXPB(+)
- EXPB(-)
- (CONTINUE BD MAIN 1/11)

BD MAIN CBA

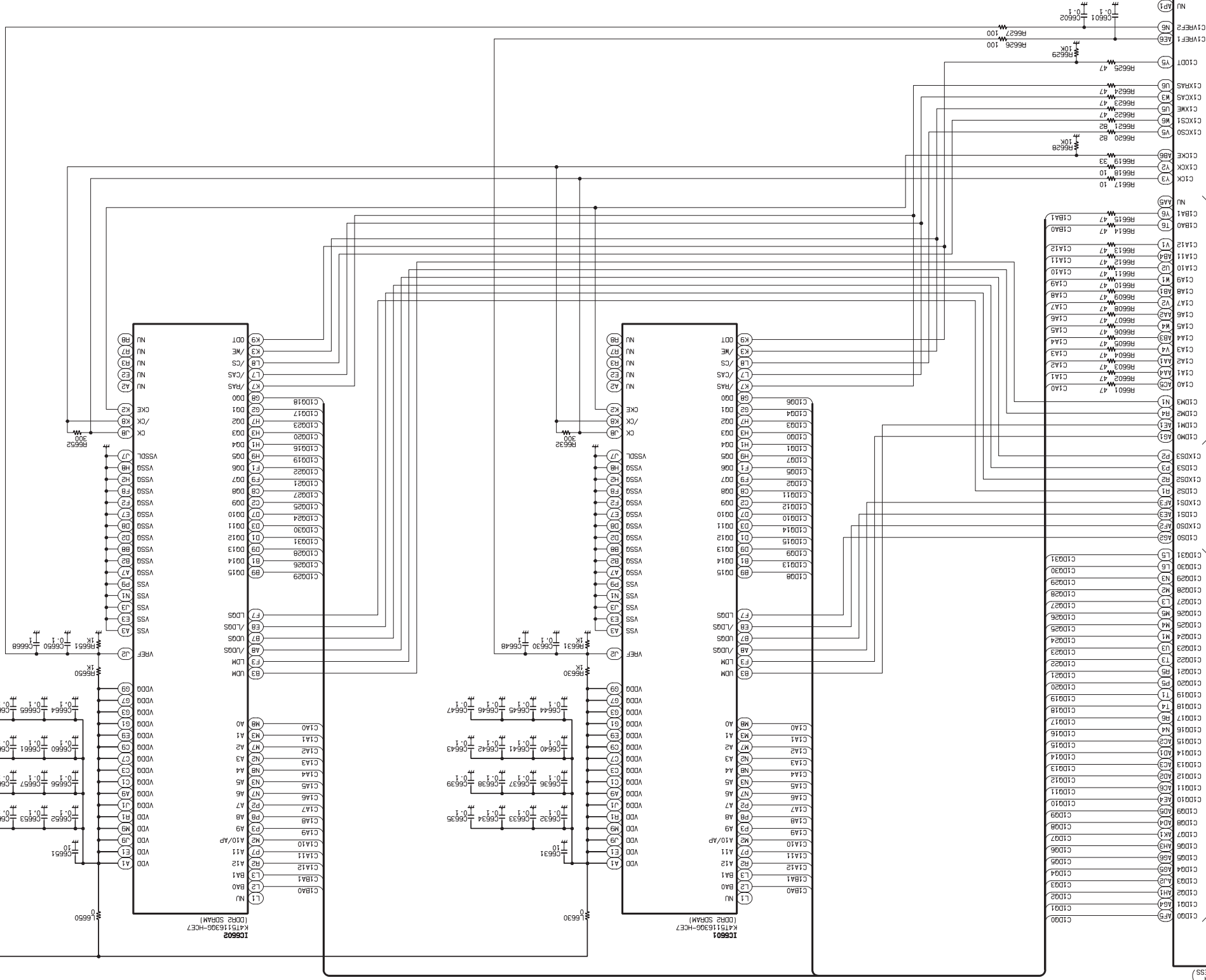




CONTINUE
 BD MAIN 9/11
 P-ON+1. BV

BD MAIN CRA

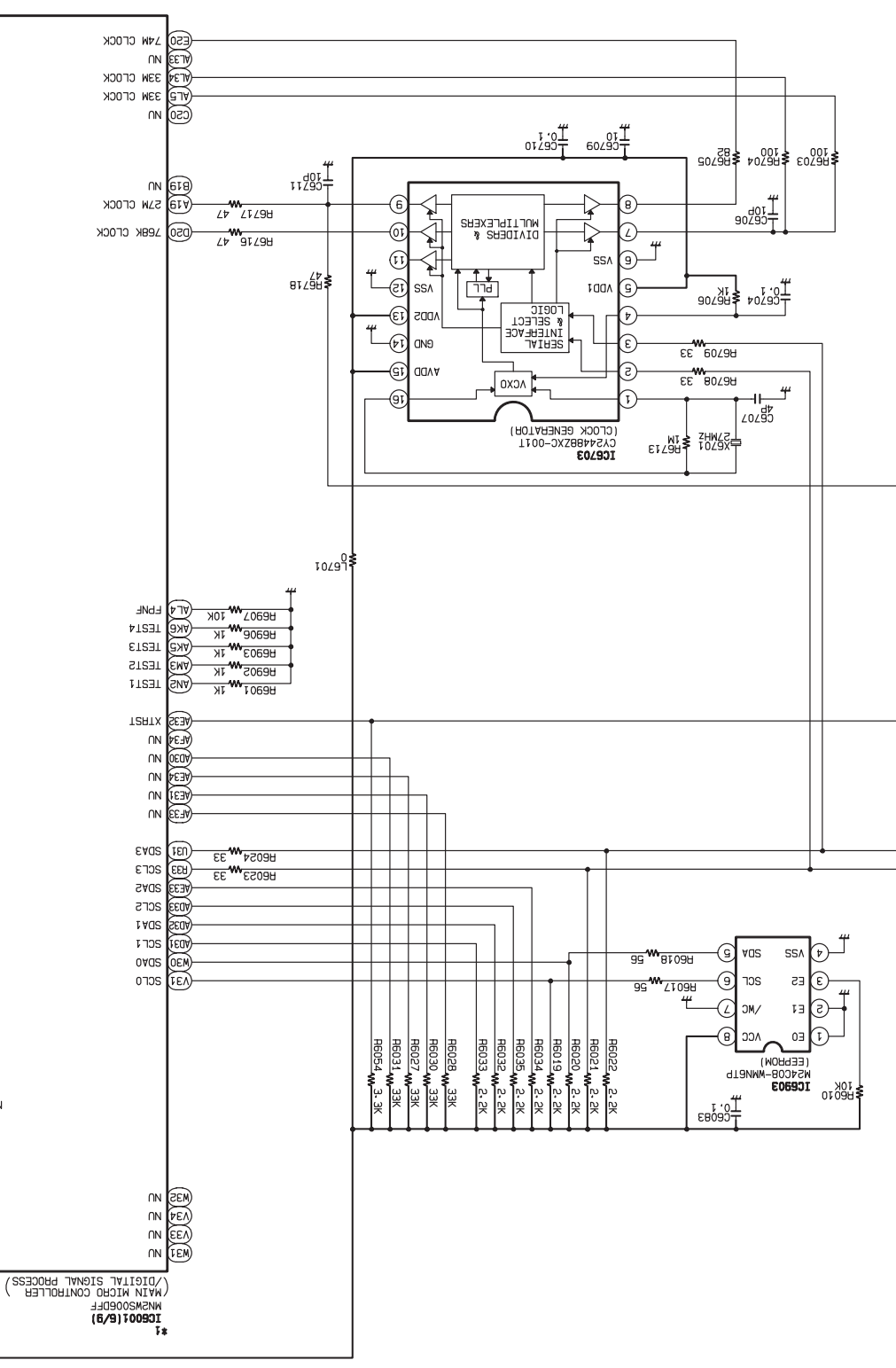
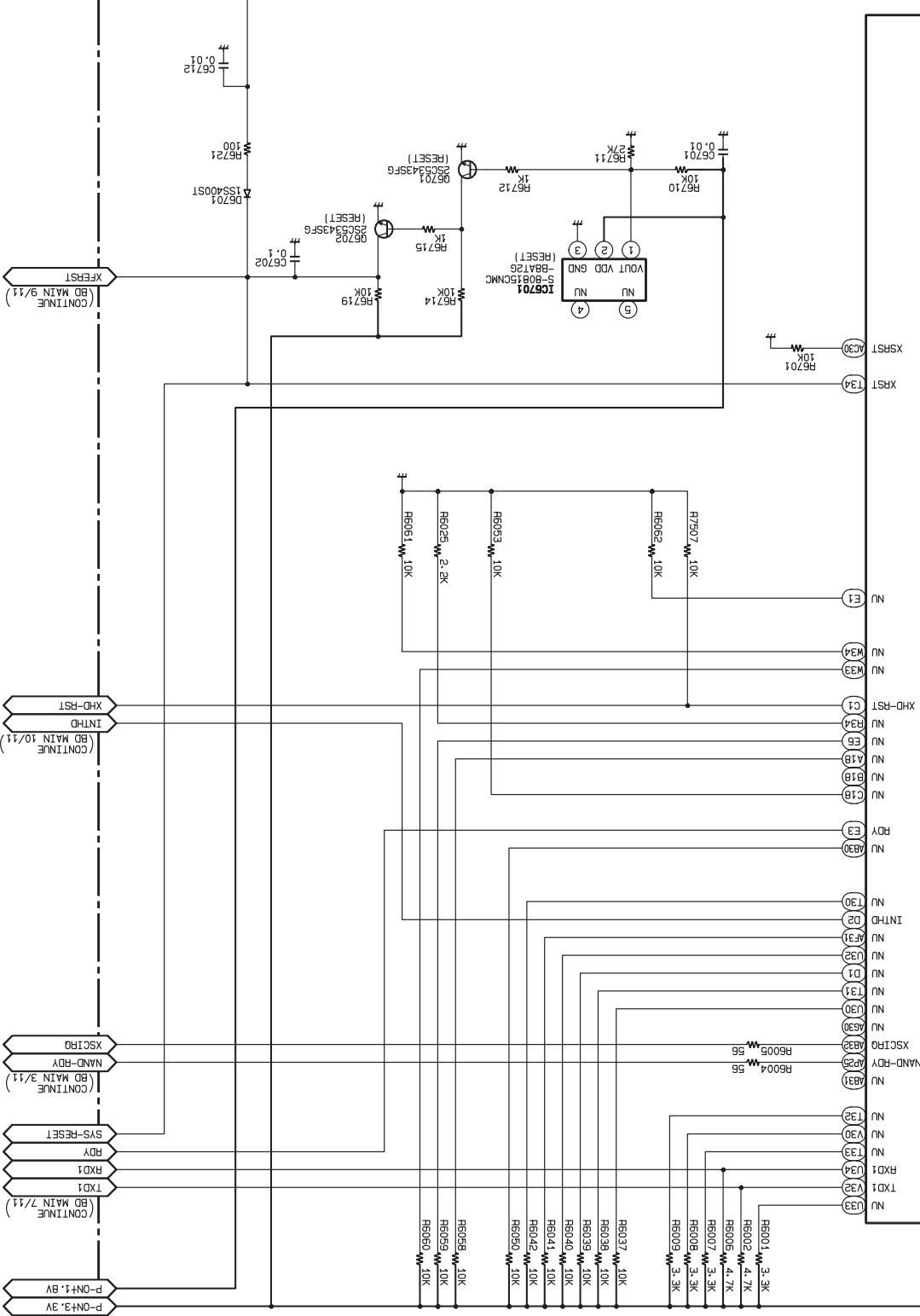
CESS)



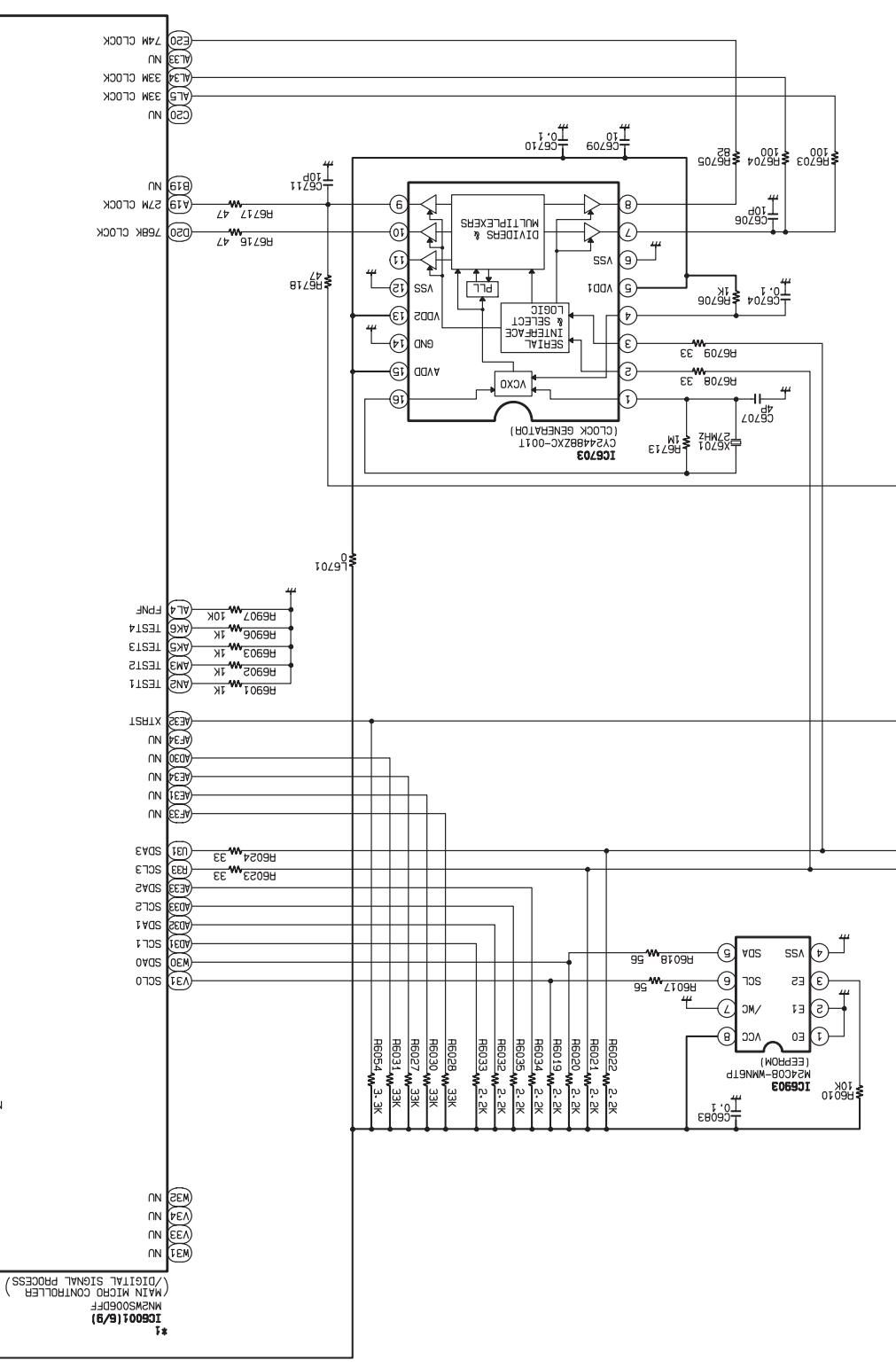
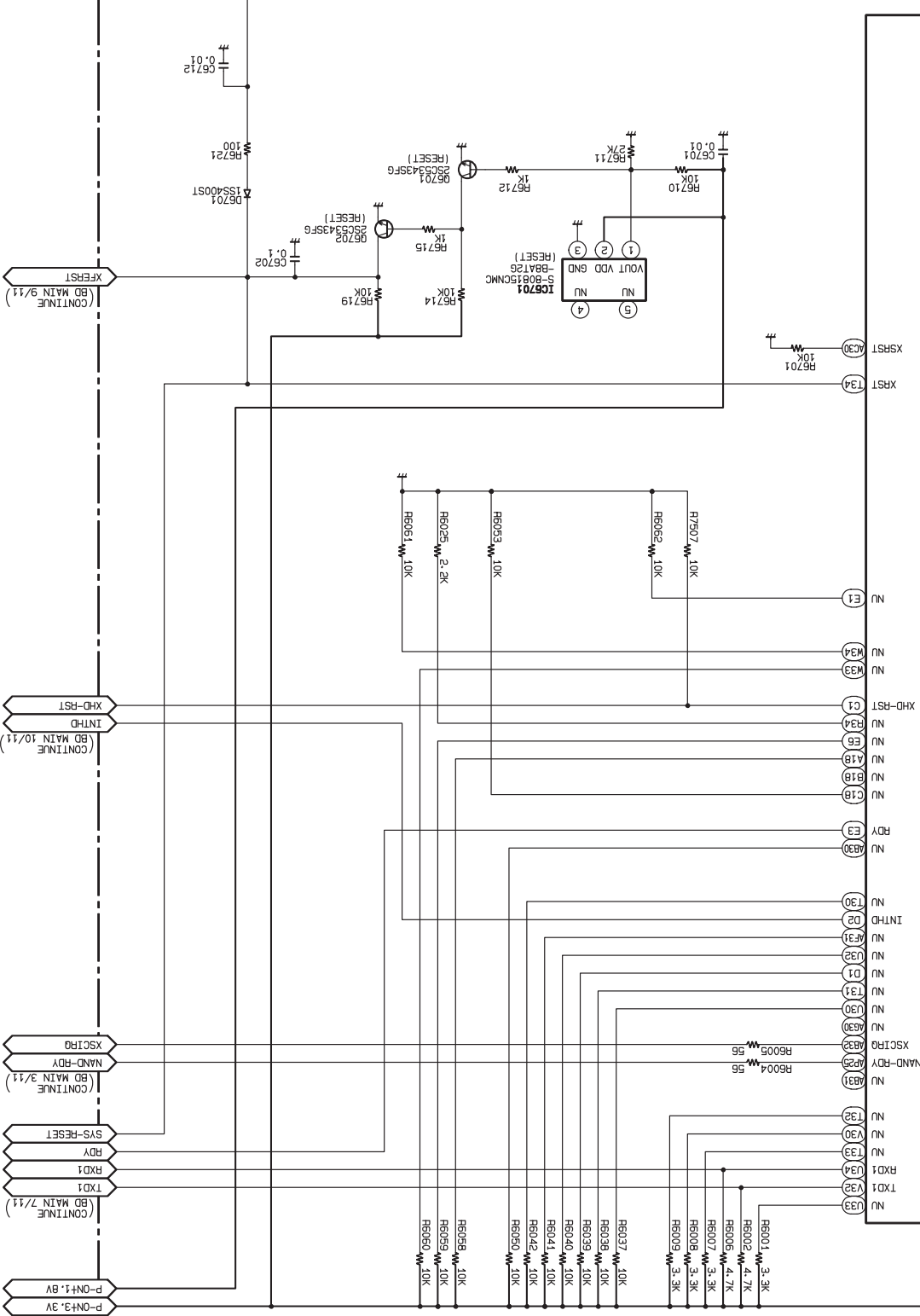
IC6602 K47116306-HCE7 (DDP2 SDHAM)

IC6601 K47116306-HCE7 (DDP2 SDHAM)

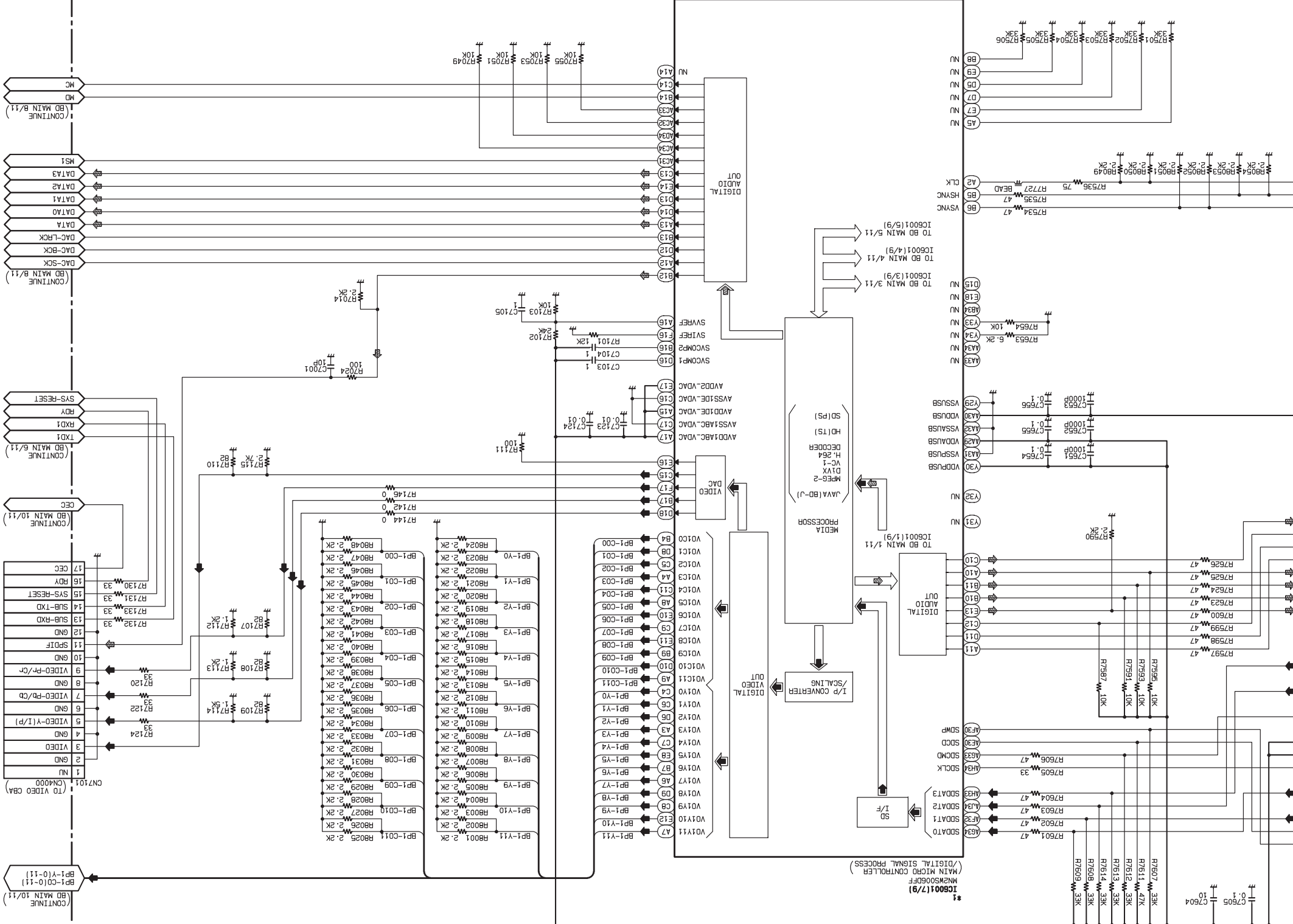
BD MAIN CBA



BD MAIN CBA



BD MAIN CBA



BP1-C01 (0-11)
 (CONTINUE)
 BD MAIN 10/11

BP1-Y10 (0-11)
 (CONTINUE)
 BD MAIN 10/11

BP1-Y9 (0-11)
 (CONTINUE)
 BD MAIN 10/11

BP1-Y8 (0-11)
 (CONTINUE)
 BD MAIN 10/11

BP1-Y7 (0-11)
 (CONTINUE)
 BD MAIN 10/11

BP1-Y6 (0-11)
 (CONTINUE)
 BD MAIN 10/11

BP1-Y5 (0-11)
 (CONTINUE)
 BD MAIN 10/11

BP1-Y4 (0-11)
 (CONTINUE)
 BD MAIN 10/11

BP1-Y3 (0-11)
 (CONTINUE)
 BD MAIN 10/11

BP1-Y2 (0-11)
 (CONTINUE)
 BD MAIN 10/11

BP1-Y1 (0-11)
 (CONTINUE)
 BD MAIN 10/11

MSM5000DF
 (/MAIN MICRO CONTROLLER)
 DIGITAL SIGNAL PROCESS

IC6001(1/9)

IC6001(1/9)

IC6001(1/9)

IC6001(1/9)

IC6001(1/9)

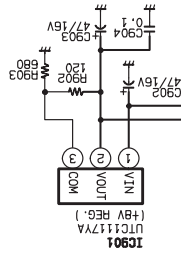
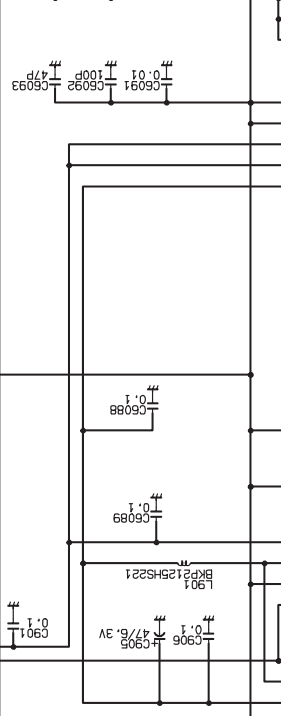
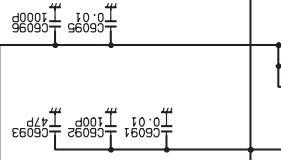
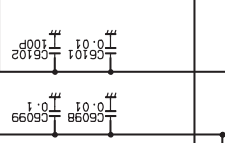
IC6001(1/9)

IC6001(1/9)

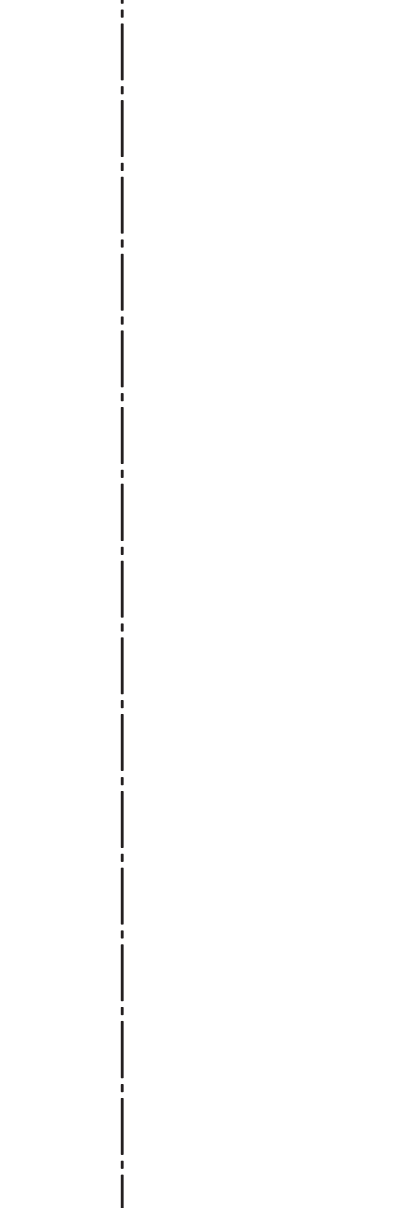
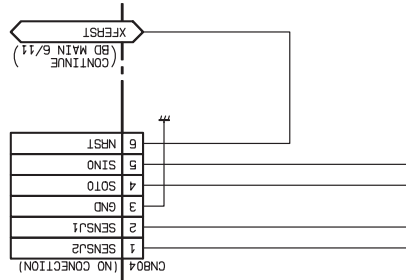
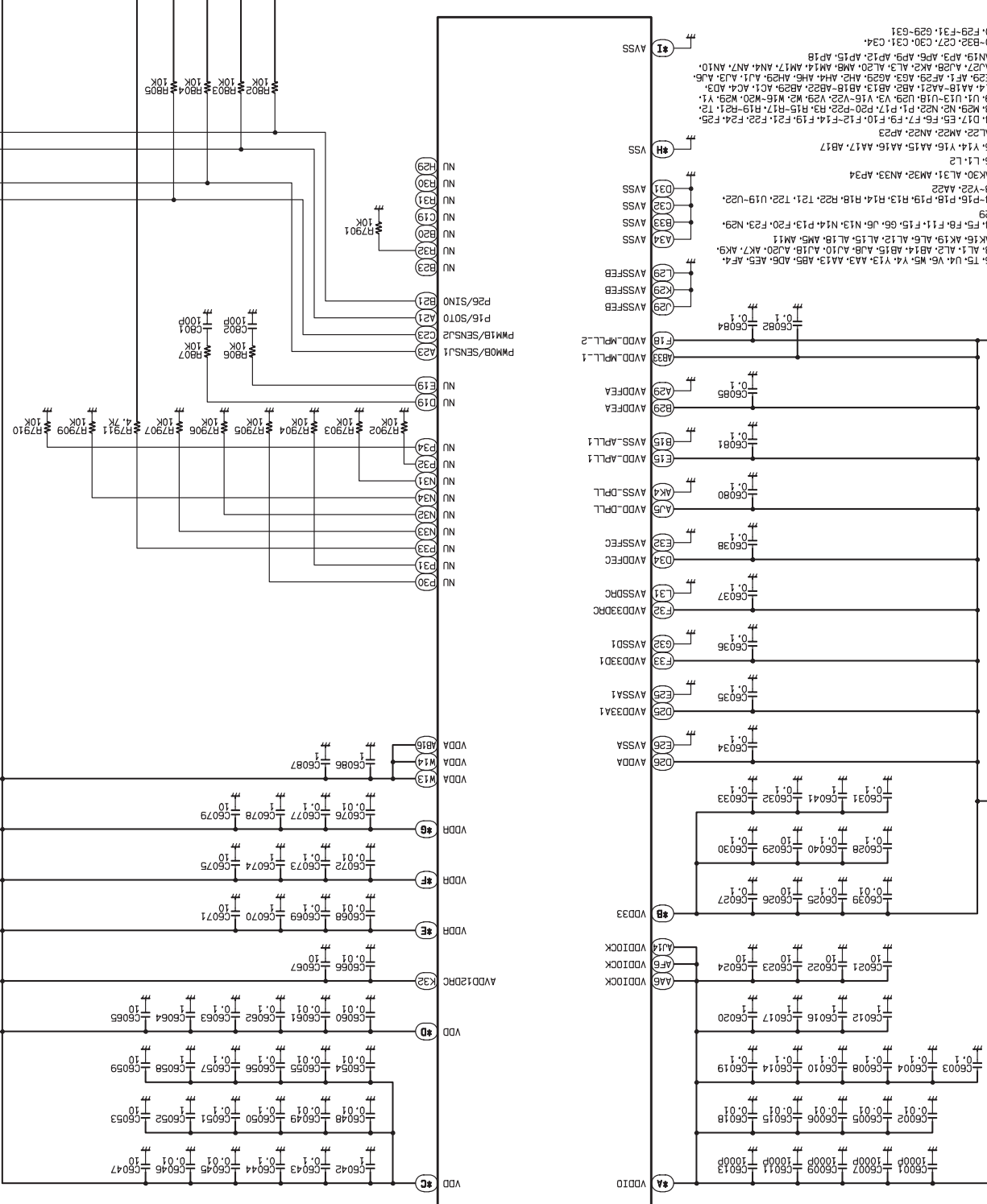
IC6001(1/9)

IC6001(1/9)

IC6001(1/9)

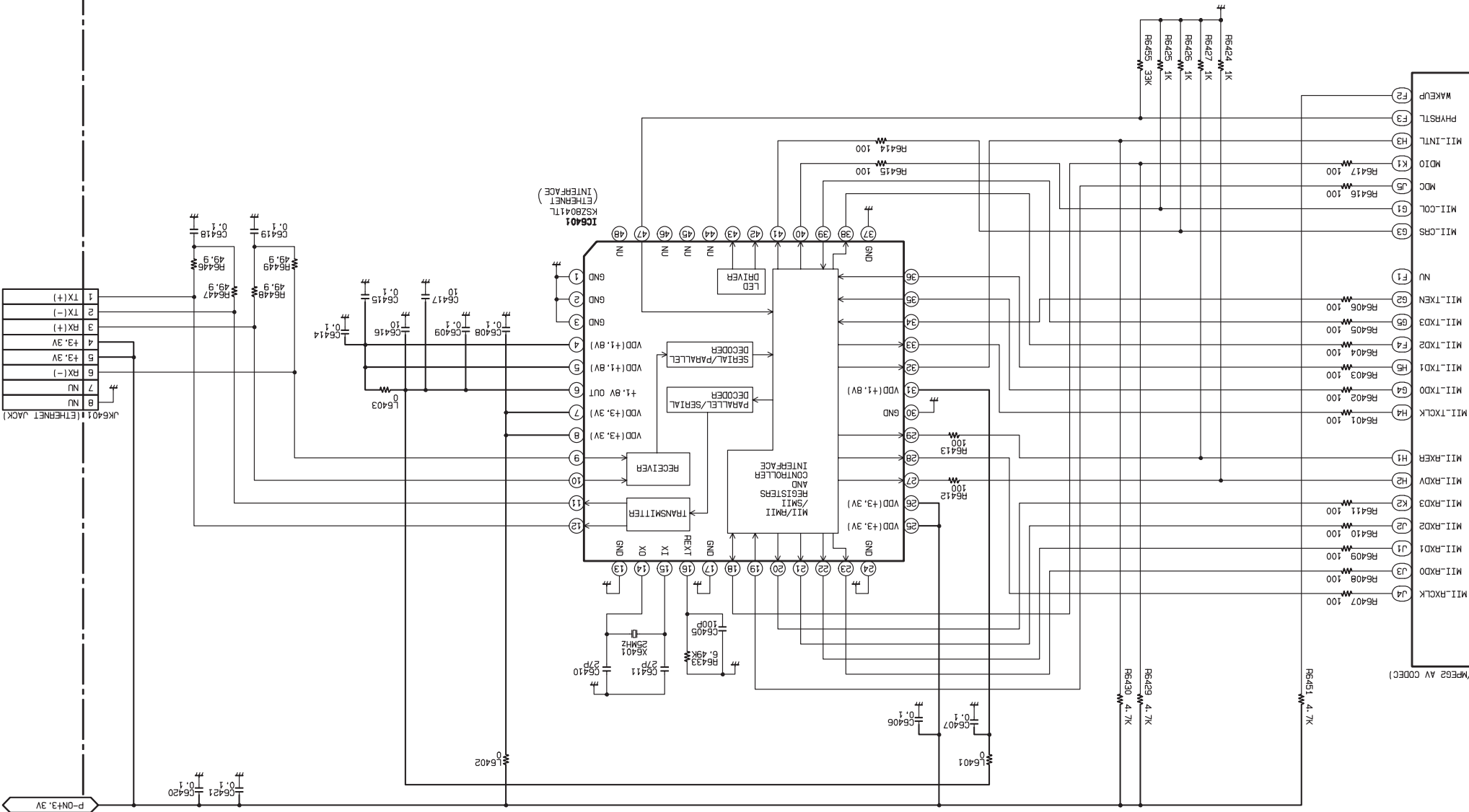


*1
 I6901(B/9)
 MAIN MICRO CONTROLLER
 NMC5060DF



*1
 I6901(B/9)
 MAIN MICRO CONTROLLER
 NMC5060DF

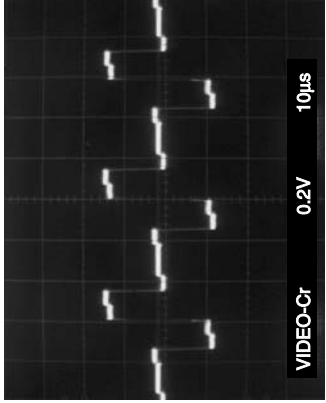
BD MAIN CBA



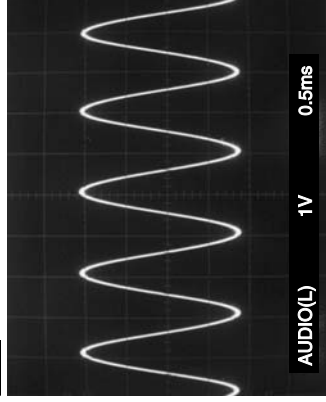
(CONTINUE
 BD MAIN 9/13
 P-0N+3.3V)

WAVEFORMS

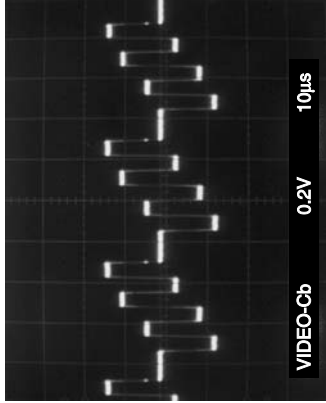
WF1 Pin 9 of CN4000



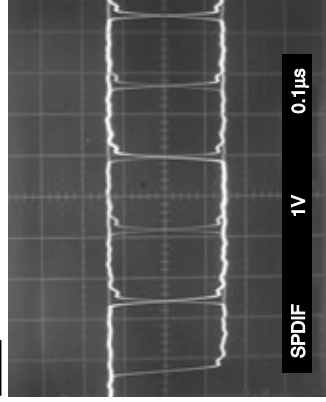
WF4 Pin 22 of CN2007



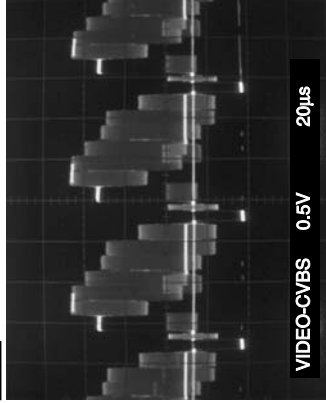
WF2 Pin 7 of CN4000



WF5 Pin 11 of CN4000

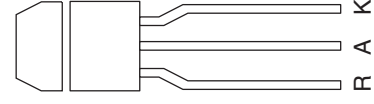
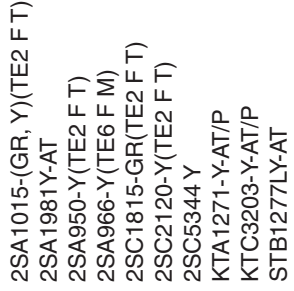
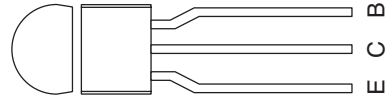
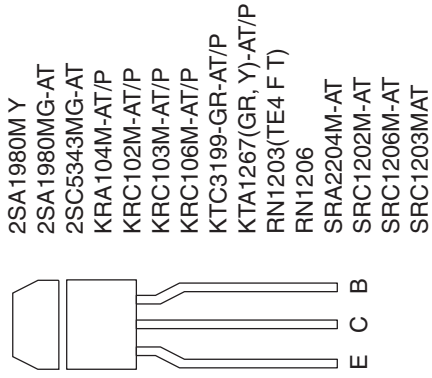


WF3 C4018 PLUS LEAD

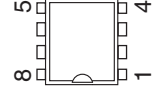
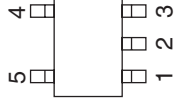
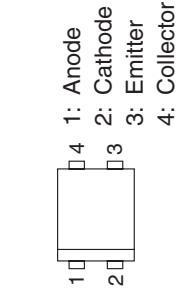
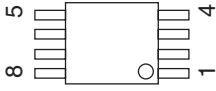
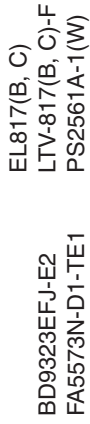


NOTE:
Input Signal (DVD)
VIDEO: 75% COLOR BAR
AUDIO: 1KHz, 0dB

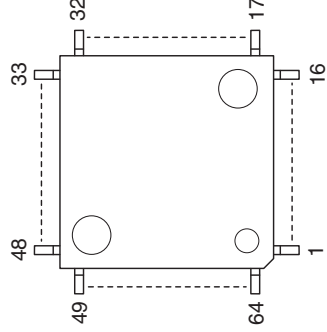
LEAD IDENTIFICATIONS



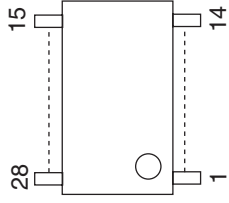
KTA1273-Y-AT/P



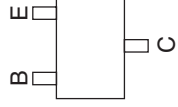
MN101C77A GC



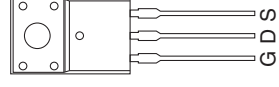
MM1757EHBE



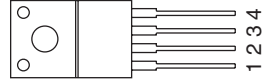
2SC3928A-T112-1Z
2SC5343SFG
2SC5343SG
KTC3875S-GR-RTK/P



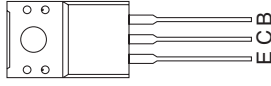
KHB4D5N60F-U/PMC



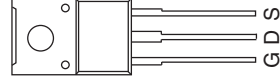
PQ070XF01SZH
PQ070XFC1SZF



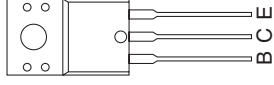
KTC2026-Y/P



2SK3563(Q)
2SK3563(Q M)



STC403



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

--MEMO--

PARTS LIST OF EXPLODED VIEW

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

* PW B ASSY for which "nsp" is indicated on this table cannot be supplied When repairing the PW B ASSY check the board parts table and order replacement parts

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

Ref. No.	Part No.	Part Name	Remarks	Q'ty	New
	9H2189002290D	AV ASSEMBLY		1	*
	-	VIDEO CBA	1VSA22251		
	-	AUDIO CBA	-		
	-	FRONT A CBA	-		
	-	FRONT B CBA	-		
	9H2189002300D	POWER ASSEMBLY		1	*
	-	POWER SUPPLY CBA	1VSA22246		
	-	REMOTE JACK CBA	-		
	-	SD CBA	-		
	-	INLET CBA	-		
1B1	9H2309002280D	BD MAIN CBA & BD MECHANISM ASSEMBLY	N77D1BUN		*
A1X	9H2402002230D	FRONT ASSEMBLY E5KC1UD	1VM123602	1	*
A2	nsp	CHASSIS E5KA0UD		1	
A3	9H2403001970D	TOP COVER E5KA0UD	1VM021192	1	
A4	9H2406002240D	REAR PANEL E5KC1UD	1VM021193	1	*
A6	9H2407001020S	FOOT ASSEMBLY E5H50UD	1VM227738	1	
A8	9H2418001990D	TRAY PANEL ASSEMBLY E5KA0UD	1VM430199A	4	
			1VM227177	1	
A21	nsp	LABEL SERIAL NO. E57E0UD		1	
A22	nsp	LICENSE LABEL E5KA0UD		1	
B2	nsp	FRONT BRACKET(B2 DENON MOLD) E5KC1UD	1VM330757	1	
B2	nsp	FRONT BRACKET(B2 DENON MOLD) E5KC1UD	1VM330757C	1	
B4	nsp	POWER HOLDER E5KA0UD	1VM122880	1	
B39	nsp	LEAD CLAMPER 100MM	1790356	3	
B70	nsp	HIMELON TAPE(5X40) E5KA0UD	1VM431686	1	
B71	nsp	HIMELON TAPE(5X25) E5KA0UD	1VM431688	1	
B72	nsp	AV PCB BRACKET E5KA0UD	1VM226905	1	
B73	nsp	LOADER BRACKET E5KA0UD	1VM122901	1	
B77	nsp	WASHER E5KB0UD	1VM432940	2	
B77	nsp	WASHER-E5KB0UD	1VM432940	2	
FM1001	9H2685001110S	MOTOR DC FAN 2D65BL100190	MMEZR12XNR08	1	
W006	9H2606002250S	WIRE ASSEMBLY FFC 8/177/1.0	WX1E5KC1-002	1	
W007	nsp	WIRE ASSEMBLY VH 2/265/AWG20	WX1E5KA0-007	1	
W009	nsp	WIRE ASSEMBLY PH 16/290/AWG24	WX1E5KA0-009	1	
SCREWS					
2L015	nsp	SCREW TAP TIGHT WASHER+ P-TIGHT	GCJP3080	2	
2L018	nsp	SCREW P-TIGHT M3X8 BIND HEAD+	GBJP3080	9	
2L026	nsp	SCREW S-TIGHT M3X6 E5E10UD	1VM429667	3	
2L027	nsp	SCREW S-TIGHT M3X6 E5E10UD	1VM429667	2	
2L028	nsp	SCREW S-TIGHT M3X10 E5610UD	0VM412936A	4	
2L032	nsp	SCREW S-TIGHT M3X6 E5E10UD	1VM429667	6	
2L034	nsp	SCREW S-TIGHT M3X6 E5E10UD	1VM429667	4	
2L036	nsp	SCREW S-TIGHT M3X6 BIND HEAD+	GBJS3060	7	
2L036	nsp	SCREW S-TIGHT M3X6 BIND HEAD+	GBJS3060	9	
2L040	nsp	SCREW P-TIGHT M3X8 BIND HEAD+	GBJP3080	4	

Ref. No.	Part No.	Part Name	Remarks	Q'ty	New
2L051	nsp	SCREW TAP TIGHT WASHER+ P-TIGHT		2	
2L054	nsp	SCREW C-TIGHT M3X6 E5E10UD		6	
2L056	nsp	SCREW S-TIGHT M3X6 E5E10UD		4	
2L057	nsp	SCREW S-TIGHT M3X6 BIND HEAD+		1	
2L070	nsp	B-TIGHT SCREW M3X8 E5E00UD		8	
2L072	nsp	B-TIGHT SCREW M3X8 E5E00UD		1	
2L073	nsp	B-TIGHT SCREW M3X8 E5E00UD		2	
2L079	nsp	S-TIGHT SCREW M3X6 E5E00UD		1	
2L081	nsp	S-TIGHT SCREW M3X6 E5E00UD		5	
2L082	nsp	S-TIGHT SCREW M3X6 BIND HEAD+BLACK		9	
2L083	nsp	S-TIGHT SCREW M3X6 E5E00UD		1	
2L089	nsp	S-TIGHT SCREW M3X6 E5E00UD		2	

PACKING VIEW

