Service Manual

BD7004 /U1B

BLU-RAY DISC Player

TABLE OF CONTENTS

Please use this service manual with referring to the user guide (D.F.U.) without fail.
修理の際は、必ず取扱説明書を準備し操作方法を確認の上作業を行ってください。

marantz®

BD7004

Ver. 2

Please refer to the MODIFICATION NOTICE.

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, **MARANTZ** company has created the ultimate in stereo sound. Only original **MARANTZ** parts can insure that your **MARANTZ** product will continue to perform to the specifications for which it is famous.

Parts for your **MARANTZ** equipment are generally available to our National Marantz Subsidiary or Agent.

ORDERING PARTS :

Parts can be ordered either by mail or by Fax.. In both cases, the correct part number has to be specified.

The following information must be supplied to eliminate delays in processing your order :

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature : any order form or Fax. must be signed, otherwise such part order will be considered as null and void.

USA

MARANTZ AMERICA, INC
100 CORPORATE DRIVE
MAHWAH, NEW JERSEY 07430
USA

EUROPE / TRADING

D&M EUROPE B. V.
P. O. BOX 8744, BUILDING SILVERPOINT
BEEMDSTRAAT 11, 5653 MA EINDHOVEN
THE NETHERLANDS
PHONE : +31 - 40 - 2507844
FAX : +31 - 40 - 2507860

CANADA

D&M Canada Inc.
5-505 APPLE CREEK BLVD.
MARKHAM, ONTARIO L3R 5B1
CANADA
PHONE : 905 - 415 - 9292
FAX : 905 - 475 - 4159

JAPAN

D&M Holdings Inc.
D&M BUILDING, 2-1 NISSHIN-CHO,
KAWASAKI-KU, KAWASAKI-SHI,
KANAGAWA, 210-8569 JAPAN

株式会社 ディーアンドエムホールディングス

本　社　〒210-8569
　　　　　神奈川県川崎市川崎区日進町2-1 D&Mビル

KOREA

D&M SALES AND MARKETING KOREA LTD.
CHUNG JIN B/D., #1001,
53-5, WONHYORO 3 GA, YONGSAN-GU,
SEOUL, 140-719, KOREA
PHONE : +82 - 2 - 323 - 2155
FAX : +82 - 2 - 323 - 2154

CHINA

D&M SALES AND MARKETING SHANGHAI LTD.
ROOM.808 SHANGHAI AIRPORT CITY TERMINAL
NO.1600 NANJING (WEST) ROAD, SHANGHAI,
CHINA. 200040
TEL : 021 - 6248 - 5151
FAX : 021 - 6248 - 4434

NOTE ON SAFETY :

Symbol ⚠ Fire or electrical shock hazard. Only original parts should be used to replaced any part marked with symbol ⚠. Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

安全上の注意：

⚠がついている部品は、安全上重要な部品です。必ず指定されている部品番号のものを使用して下さい。

SHOCK, FIRE HAZARD SERVICE TEST :

CAUTION : After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom.

Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before it is return to the user/customer.

Ref. UL Standard No. 60065.

In case of difficulties, do not hesitate to contact the Technical Department at above mentioned address.

080702MZ

1. TECHNICAL 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: 0.648Vp-p (75Ω/ohms)
P_R/C_R output level: 0.648Vp-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)

NETWORK TERMINAL
10BASE-T/ 100BASE-TX

ANALOG AUDIO OUTPUT
Output level: 2Vrms (10kΩ/kohms)
2 channel (L, R) output connector: Pin jacks, 1 set
Multi channel (FL, FR, C, SL, SR, SBL, SBR, SW): 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: 0.8W, Power saving: 0.75W)

MAXIMUM EXTERNAL DIMENSIONS
W : 440mm (17-3/8")
H : 105mm (4-3/16")
D : 324mm (12-13/16")
(including protruding parts)

MASS
4.9 kg (10.9 lbs)

REMOTE CONTROL: RC004BD
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)

About Discs

Disc Handling

- Handle the discs so that fingerprints and dust do not adhere to the surfaces of the discs.
- Always store the disc in its protective case when it is not used.
- Note that discs with special shapes cannot be played on this product. Do not attempt to play back such discs, as they may damage the unit.

Cleaning Discs

- When a disc becomes dirty, clean it with a cleaning cloth. Wipe the disc from the center to out. Do not wipe in a circular motion.
- Do not use solvents such as benzine, thinner, commercially available cleaners, detergent, abrasive cleaning agents or antistatic spray intended for analog records.

Playable Discs and Files

This unit is compatible to play back the following discs.
To play back a BD or DVD, make sure that it meets the requirements for region codes and color systems as described on page 5. You can play back discs that have the following logos on the disc. Other disc types are not guaranteed to play back.

Playable discs	Logos

Blu-ray Disc
- BD-Video
- BD-RE (ver.2.1)
  (Recorded in BDMV format)
- BD-R (ver.1.1/1.2/1.3)
  (Recorded in BDMV format)
  (Unclosed discs may not be played back.)
	Blu-ray Disc

DVD-Video	DVD VIDEO
DVD-RW (Finalized discs only)	DVD RW
DVD-R DVD-R DL (Finalized discs only)	DVD R
CD-DA (audio CD)	COMPACT DISC DIGITAL AUDIO
CD-RW	COMPACT DISC DIGITAL AUDIO ReWritable
CD-R	COMPACT DISC DIGITAL AUDIO Recordable
Kodak Picture CD	Kodak Picture CD COMPATIBLE
DTS-CD (5.1 Music Disc)	—

| Playable files	Logos	Media
AVCHD	AVCHD™	DVD-RW/-R SD Memory Card (including SDHC) miniSD Card microSD Card
DivX®	DivX HD	BD-RE/-R DVD-RW/-R CD-RW/-R
MP3	—	BD-RE/-R DVD-RW/-R CD-RW/-R SD Memory Card (including SDHC) miniSD Card microSD Card
Windows Media™ Audio	Plays Windows Media™	
JPEG	—	

Note

- ABOUT DIVX VIDEO: DivX® is a digital video format created by DivX, Inc. This is an official Divx Certified device that plays DivX video. Visit www.divx.com for more information and software tools to convert your files into DivX video.
- ABOUT DIVX VIDEO-ON-DEMAND: This DivX Certified® device must be registered in order to play DivX Video-on-Demand (VOD) content. To generate the registration code, locate the DivX VOD section in the device setup menu. Go to vod.divx.com with this code to complete the registration process and learn more about DivX VOD.
- Discs containing the DivX® files with the DivX® GMC (Global Motion Compensation) playback feature, which is DivX® supplemental function, cannot be played back on this unit.
- This unit cannot play back the disc contents protected by Windows Media™ Digital Rights Management (DRM).
- "WMA" (Windows Media™ Audio) is an audio codec developed by Microsoft® in the United States of America.

Readable cards	Playable files / data
SD Memory Card (8MB - 2GB)	AVCHD, MP3, Windows Media™ Audio, JPEG, Picture-in-picture commentary, subtitles or other extras for BD-ROM ver. 2 (Profile 2.0/ Profile 1.1)
SDHC Memory Card (4GB - 8GB)	
miniSD Card (8MB - 2GB)	
microSD Card (8MB - 2GB)	

Note for SD Memory Cards

- Do not remove the SD Memory Card or turn the unit to the standby mode while the contents of the card is in playback. It may result in malfunction or loss of the card's data.
- Please keep the SD Memory Cards in their cases when you are not using them.
- Do not try to open or modify the card.
- Do not touch the terminal surface with your fingers or any metals.
- Do not attach additional labels or stickers to cards.
- Do not remove the label of the SD Memory Cards.
- This unit supports SD Memory Card with FAT12/FAT16 file system, and SDHC Memory Card with FAT32 file system.
- This unit may not read the SD Memory Cards formatted on computer. If that is the case, please reformat the SD Memory Cards on this unit and try again.
- This unit does not support mini SDHC and micro SDHC Memory Card.
- For miniSD Card and microSD Card adapter is necessary.

miniSD Card Adapter
miniSD Card
microSD Card Adapter
microSD Card
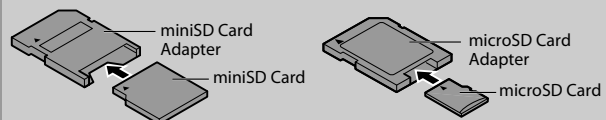
- Portions of this product are protected under copyright law and are provided under license by ARIS/SOLANA/4C.

Unplayable Discs

The following discs will not play back on this unit.
- BD-RE (ver.1.0) (BD-disc with cartridge)
- BD-RE (ver.2.1) (Recorded in BDAV format)
- BD-R (ver.1.1/1.2/1.3) (Recorded in BDAV format)
- BD that contains AVCHD files
- Multi-session burn BD/DVD with DivX® files
- Multi-session burn BD-RE/-R with MP3/Windows Media™ Audio/ JPEG files
- BD/DVD hybrid disc (e.g. Total Hi Def hybrid disc)
- BD-Video that does not include "A" on its region code.
- DVD-Video that does not include either "1" nor "ALL" on its region code.
- DVD-ROM/RAM (For DVD-ROM discs, data files in DivX® 3.11, 4.x, 5.x and 6.x can be played)
- DVD-RW/-R recorded in non-compatible recording format
- CD-ROM (Data files in DivX® 3.11, 4.x, 5.x and 6.x can be played)
- CDV (Only the audio part can be played)
- CD-G (Only the audio signals can be output)
- Compact Disc-Interactive (CD-I)
- Video Single Disc (VSD)
- Video CD, Super Video CD
- Super audio CD (Only the sound on the CD layer can be heard. The sound on the high-density super audio CD layer cannot be heard.)
- DVD-Audio
- HD DVD
- Disc with recording area less than 55mm in diameter
- Unauthorized disc (Pirated disc)
- Unfinalized disc

Color Systems

BD and DVD are recorded in different color systems throughout the world. The most common color system is NTSC (which is used primarily in the United States and Canada).
This unit uses NTSC, so BD or DVD you play back must be recorded in the NTSC system. You cannot play back BD or DVD recorded in other color systems.

Region Codes

This unit has been designed to play back BD with region A and DVD-Video with region 1. You cannot play back BD or DVD-Video that are labeled for other regions. Look for the symbols on the right on your BD or DVD-Video. If these region symbols do not appear on your BD or DVD-Video, you cannot play back the disc in this unit. The letter or number inside the globe refers to region of the world. A BD or DVD-Video labeled for a specific region can only play back on the unit with the same region code.

BD-Video

DVD-Video

Structure of Disc/SD Memory Card Contents

The contents of disc are generally divided into titles. Titles may be further subdivided into chapters.
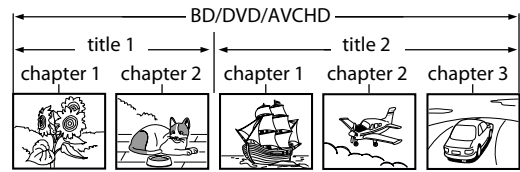
Audio CDs are divided into tracks.
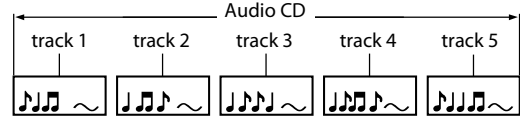
Data discs or SD Memory Cards containing DivX® (in discs only)/ MP3/Windows Media™ Audio/JPEG are divided into folders, and the folders are subdivided into files.
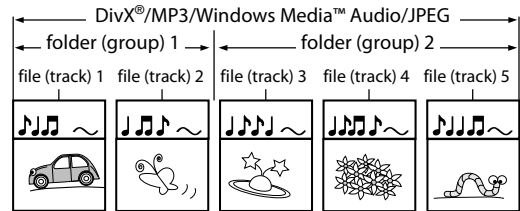
Symbols Used in this User Guide

To specify for which media type each function is, we put the following symbols at the beginning of each item to operate.

Symbol	Description
BD-V	Description refers to BD-Video and BD-RE (ver. 2.1)/ BD-R (ver.1.1/1.2/1.3) recorded in BDMV format
DVD-V	Description refers to DVD-Video and DVD-RW/-R recorded in video mode
DVD-VR	Description refers to DVD-RW/-R recorded in VR mode
CD	Description refers to audio CD and DTS-CD
AVCHD	Description refers to DVD-RW/-R and SD Card with AVCHD files
DivX®	Description refers to BD-RE/-R, DVD-RW/-R and CD-RW/-R with DivX® files
MP3	Description refers to BD-RE/-R, DVD-RW/-R, CD-RW/-R and SD Memory Card with MP3 files
WMA	Description refers to BD-RE/-R, DVD-RW/-R, CD-RW/-R and SD Memory Card with Windows Media™ Audio files
JPEG	Description refers to BD-RE/-R, DVD-RW/-R, CD-RW/-R and SD Memory Card with JPEG files

If you do not find any of the symbols listed above under the function heading, the operation is applicable to all media.

About the button names in this explanation
< > : Buttons on the main unit
[ ] : Buttons on the remote control
Button name only:
Buttons on the main unit and remote control

2. SERVICE HINTS AND TOOLS

SERVICE HINTS

GENERAL

CHIP COMPONENT
SOLDER — SOLDER
— COPPER TRACK
— P.C.B.
GLUE

SERVICE PACKAGE

DISMOUNTING

VACUUM PISTON
4822 395 10082
SOLDERING IRON
e.g. WELLER
solder tip PT-H7

A

SOLDERING IRON
SOLDER WICK
4822 321 40042

e.g. A PAIR OF TWEEZERS

HEATING   HEATING   B

SOLDERING IRON
CLEANING
SOLDER WICK   C

PRECAUTIONS

SOLDERING IRON
CORRECT
COPPER TRACK

SOLDERING IRON
CHIP COMPONENT

MOUNTING

e.g. A PAIR OF TWEEZERS
A

SOLDER
∅0.5-0.8mm
SOLDERING IRON   PRESSURE

SOLDERING TIME   SOLDER
<3 sec/side   ∅0.5-0.8mm
PRESSURE   SOLDERING IRON

B

EXAMPLES

CORRECT

SOLDERING IRON
NO!

SERVICE TOOLS

Audio signals disc	4822 397 30184
Disc without errors (SBC444)+	
Disc with DO errors, black spots and fingerprints (SBC444A)	4822 397 30245
Disc (65 min 1kHz) without no pause	4822 397 30155
Max. diameter disc (58.0 mm)	4822 397 60141
Torx screwdrivers	
Set (straight)	4822 395 50145
Set (square)	4822 395 50132
13th order filter	4822 395 30204
DVD test disc (PAL)	4822 397 10131
DVD test disc (NTSC) ALMEDIO	TDV-540

3. WARNING AND LASER SAFETY INSTRUCTION

GB WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

ESD

NL WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor elektrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

F ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise a leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller a ce que les composants ainsi que les outils que l'on utilise soient également a ce potentiel.

D WARNUNG

Alle IC und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).
Unsorgfältige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern.
Sorgen sie dafür, das Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

I AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevita potrebbe essere fortemente ridatta in caso di non osservazione della piu grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

NL

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt terug gebracht en dat onderdelen, identiek aan de gespecifieerde worden toegepast.

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne."

D

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Gerats darf nicht verandert werden.
Fur Reparaturen sind Original-Ersatzteile zu verwenden.

I

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambiago idetici a quelli specificati.

F

Les normes de sécurité exigent que l'appareil soit remis a l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

LASER SAFETY

This unit employs a laser. Only a qualified service person should remove the cover or attempt to service this device, due to possible eye injury.

**CLASS 1
LASER PRODUCT**

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURE OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

AVOID DIRECT EXPOSURE TO BEAM

WARNING

The use of optical instruments with this product will increase eye hazard.
Repair handling should take place as much as possible with a disc loaded inside the player

WARNING LOCATION: INSIDE ON LASER COVERSHIELD

CAUTION VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL Å PNES UNNGÅ EKSPONERING FOR STRÅLEN
VARNING SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD BETRAKTA EJ STRÅLEN
VARO! AVATT AESSA OLET ALTTIINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LASER SÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN
VORSICHT SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETSEN
DANGER VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID DIRECT EXPOSURE TO BEAM
ATTENTION RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE EXPOSITION DANGEREUSE AU FAISCEAU

030804ecm

4. LASER BEAM SAFETY PRECAUTIONS

This BD player uses a pickup that emits a laser beam.
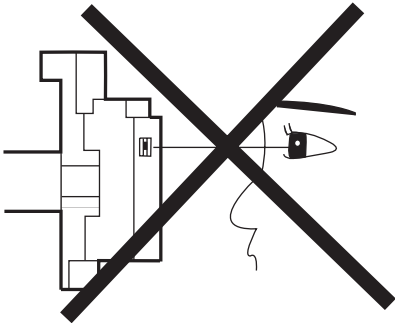
Do not look directly at the laser beam coming from the pickup or allow it to strike against your skin.

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.

Drive Mechanism Assembly

Laser Beam Radiation

Laser Pickup

Turntable
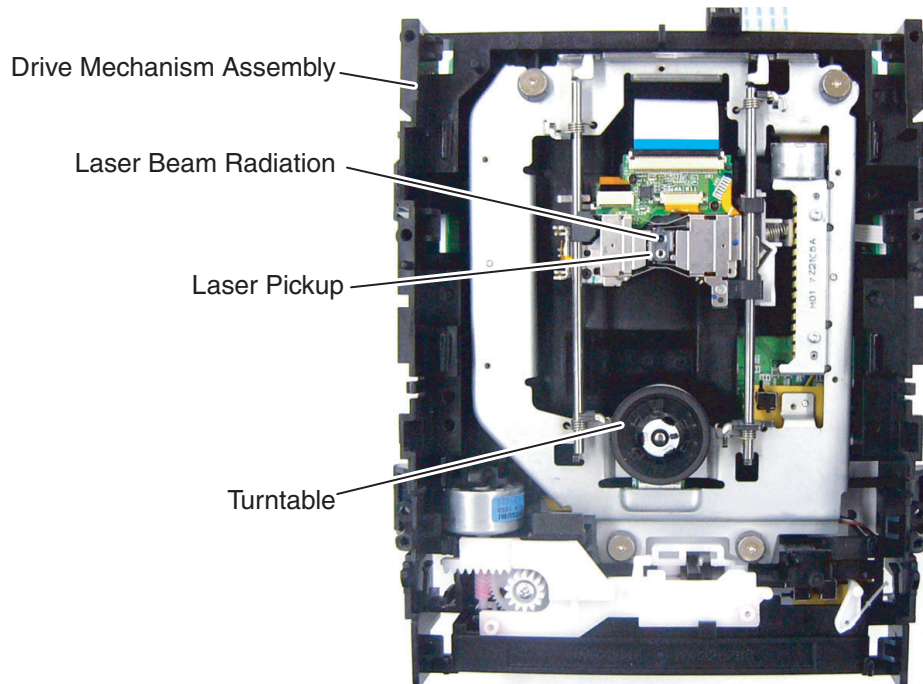
DANGER	- VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.
CAUTION	- VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ATTENTION	- RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE EXPOSITION DANGEREUSE AU FAISCEAU.
注意	- ここを開くと可視及び不可視のレーザー光が出ます。 ビームを直接見たり、触れたりしないでください。

Location: Inside Top of BD mechanism.

5. IMPORTANT SAFETY PRECAUTIONS

Product Safety Notice

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by a ⚠ on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The Product's Safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are carefully inspected to confirm with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Precautions during Servicing

A. Parts identified by the ⚠ symbol are critical for safety. Replace only with part number specified.

B. In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements. Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

C. Use specified internal wiring. Note especially:

    1) Wires covered with PVC tubing

    2) Double insulated wires

    3) High voltage leads

D. Use specified insulating materials for hazardous live parts. Note especially:

    1) Insulation tape

    2) PVC tubing

    3) Spacers

    4) Insulators for transistors

E. When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

F. Observe that the wires do not contact heat producing parts (heat sinks, oxide metal film resistors, fusible resistors, etc.).

G. Check that replaced wires do not contact sharp edges or pointed parts.

H. When a power cord has been replaced, check that 5 - 6 kg of force in any direction will not loosen it.

I. Also check areas surrounding repaired locations.

J. Be careful that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

K. When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC outlet.

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts, and wires have been returned to their original positions. Afterwards, do the following tests and confirm the specified values to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1: Ratings for selected area

AC Line Voltage	Clearance Distance (d), (d')
120 V	$\geq$ 3mm(d) $\geq$ 4mm(d')

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.
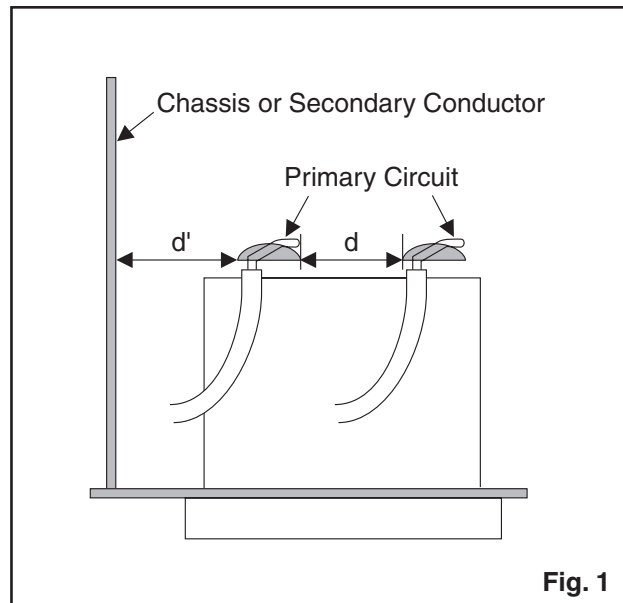
Fig. 1

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.
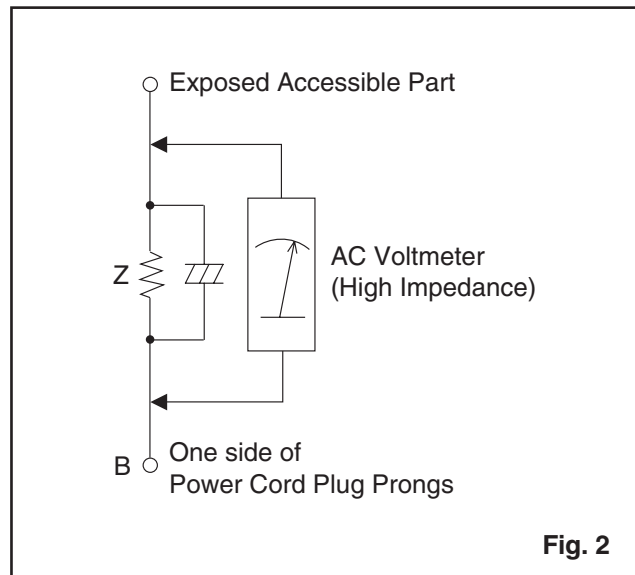
Fig. 2

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$0.7mA AC Peak i$\leq$2mA DC	RF or Antenna terminals
	50kΩ RES. Connected in parallel	i$\leq$0.7mA AC Peak i$\leq$2mA DC	A/V Input, Output

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

6. STANDARD NOTES FOR SERVICING

Circuit Board Indications

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

Top View

Out ▢ In

Bottom View

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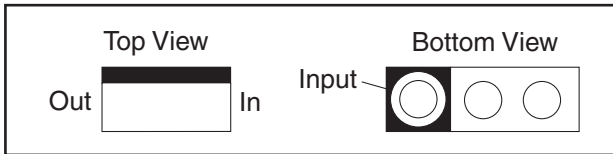
2. For other ICs, pin 1 and every fifth pin are indicated as shown.

Pin 1

5

10
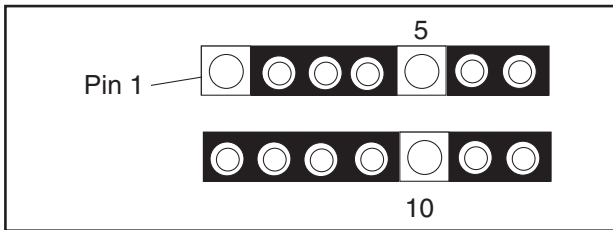
3. The 1st pin of every male connector is indicated as shown.

Pin 1
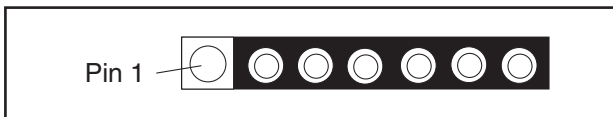
Instructions for Connectors

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.

FFC Cable

Connector

CBA

* Be careful to avoid a short circuit.
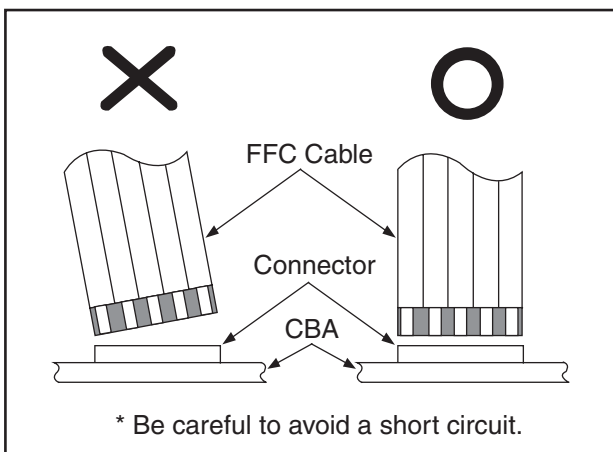
Pb (Lead) Free Solder

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)

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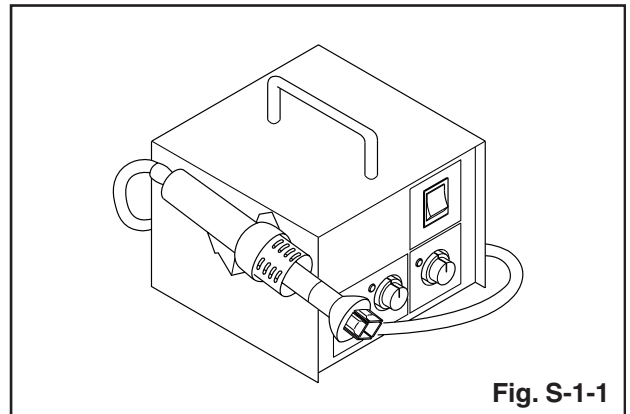
2. Remove the flat pack-IC with tweezers while applying the hot air.
3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat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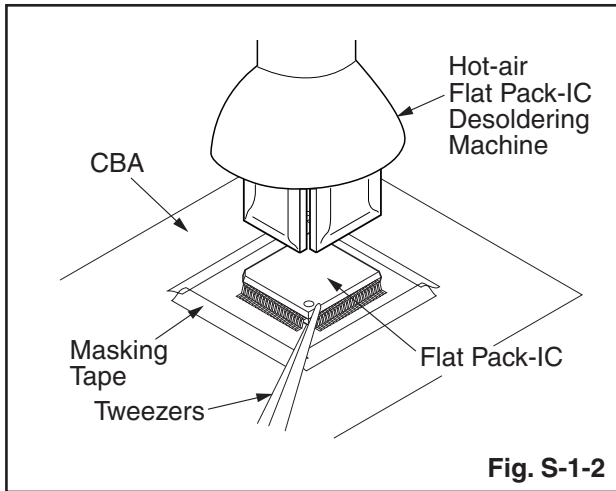
Fig. S-1-2

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)
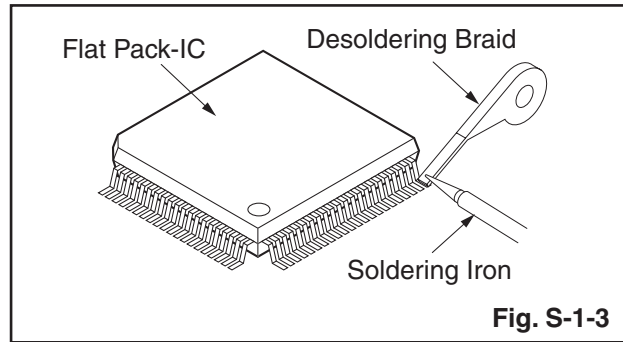
Fig. S-1-3

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)
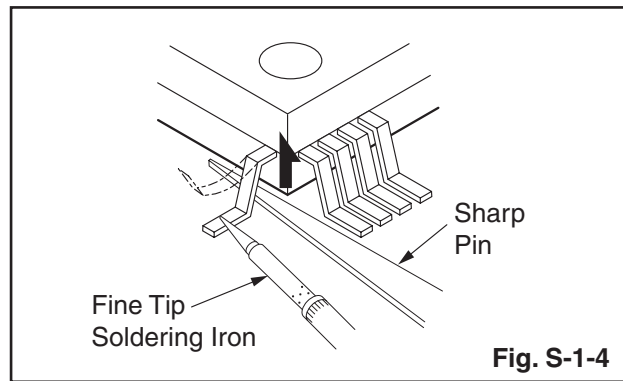
Fig. S-1-4

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.
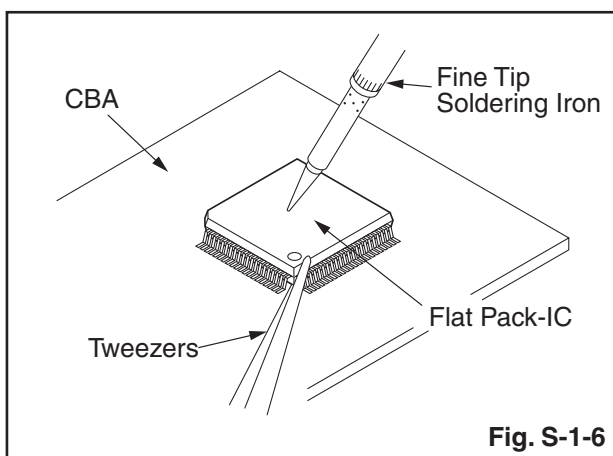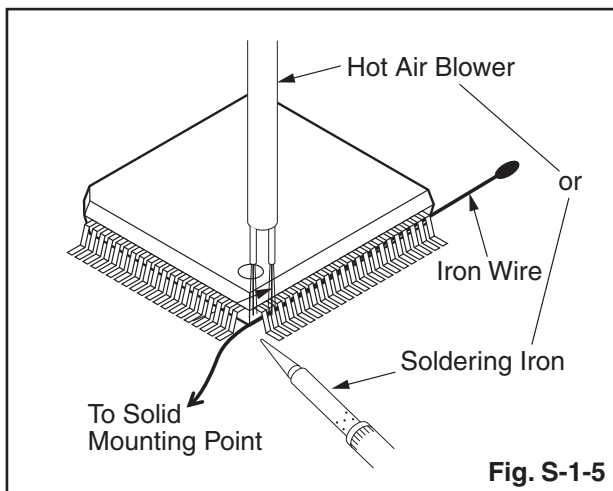
Fig. S-1-5

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.

Example :

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

Fig. S-1-7

Fig. S-1-8
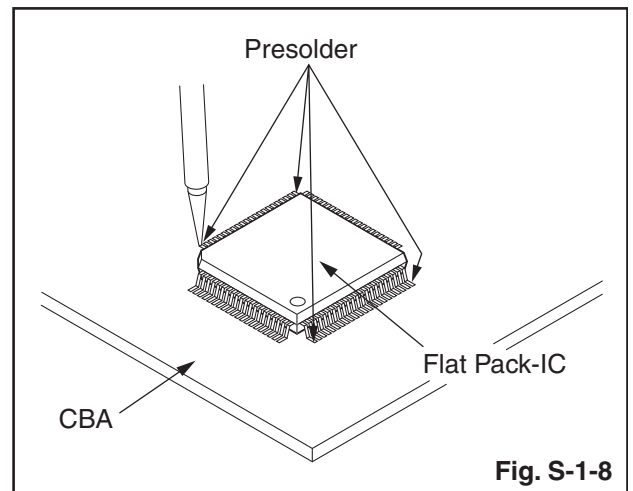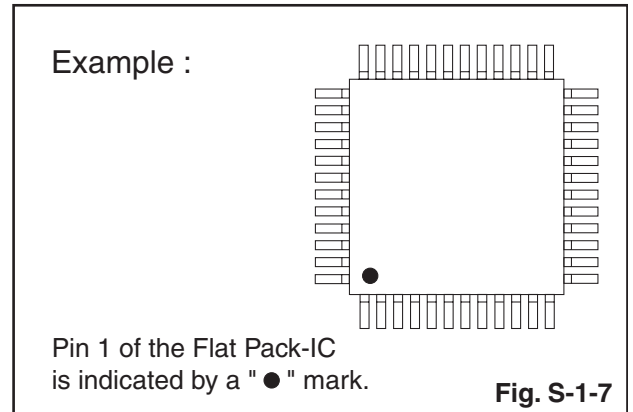
Instructions for Handling Semi-conductors

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 MΩ) 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 MΩ) 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.

<Incorrect>

CBA

<Correct>

Grounding Band

1MΩ

CBA

1MΩ

Conductive Sheet or Copper Plate
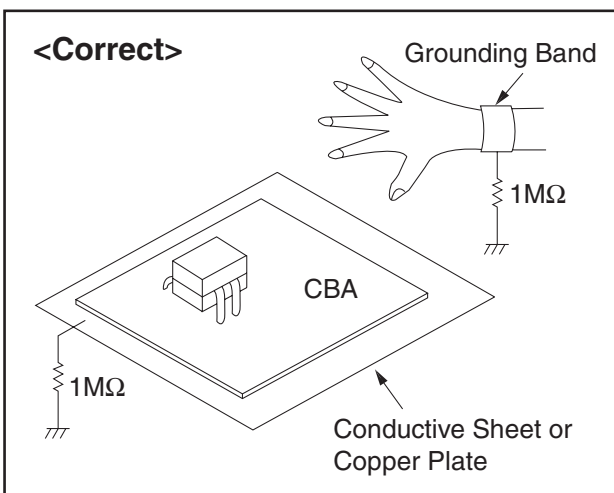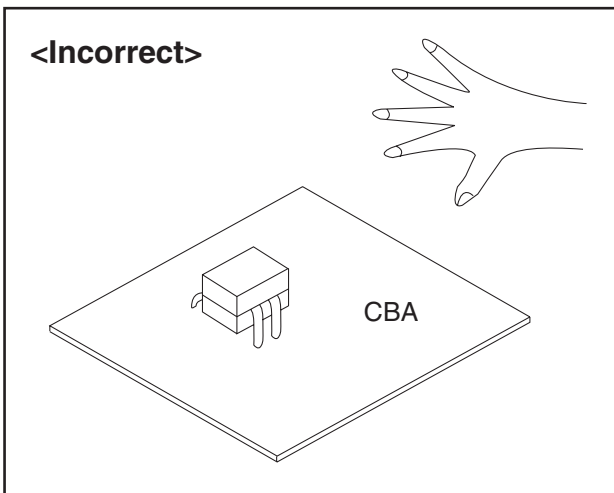
7. CABINET DISASSEMBLY INSTRUCTIONS

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.

```
                    [1] Top Cover
                         ↓
                    [2] Tray Panel
                         ↓
[5] Front B CBA ←   [3] Front    → [4] Front A CBA
                    Assembly
                         ↓
                  [6] Front Bracket      [9] Motor
                         ↓               DC Fan
[11] RS232C                                ↑
CBA         ←       [8] Rear Panel → [10] Inlet CBA
                         ↓
        ↓                ↓                ↓
[12] Audio CBA   [13] Video CBA      [7] SD CBA
                         ↓                ↓
                  [14] AV PCB        [17] Power
                  Bracket            Supply CBA
                         ↓                ↓
                 [15] BD Main CBA    [18] Power
                 & BD Mechanism      Holder
                 Assembly
                         ↓
                  [16] Loader
                  Bracket
```
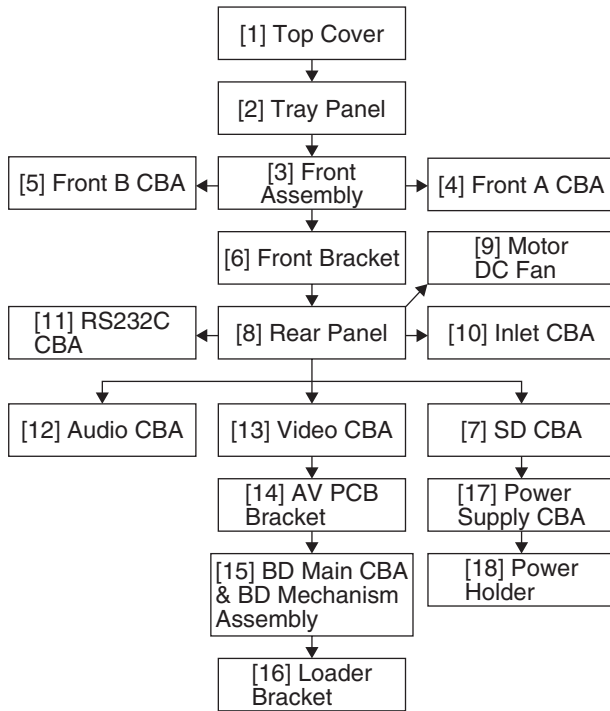
2. Disassembly Method

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), 2(S-2), 3(S-3), 10(S-4), *CN2002	2
[4]	Front A CBA	D2	*CN3001	---
[5]	Front B CBA	D2	--------------	---
[6]	Front Bracket	D3	7(S-5), (S-6)	---
[7]	SD CBA	D3	2(S-7), *CN5001	---
[8]	Rear Panel	D4	5(S-8), (S-9), 2(S-10), (S-11), (S-12), 11(S-13), 2(S-14), 2(S-15), *CN1006	---

ID/Loc. No.	Part	Removal		
		Fig. No.	Remove/*Unhook/ Unlock/Release/ Unplug/Desolder	Note
[9]	Motor DC Fan	D4	--------------	---
[10]	Inlet CBA	D4	*CN1001	---
[11]	RS232C CBA	D4	*CN5501	---
[12]	Audio CBA	D5	5(S-16), *CN2005, *CN2007, *CN2008	---
[13]	Video CBA	D6	4(S-17), *CN7101	---
[14]	AV PCB Bracket	D6	4(S-18)	---
[15]	BD Main CBA & BD Mechanism Assembly	D6	4(S-19), *CN6001, *CN7601	3
[16]	Loader Bracket	D6	6(S-20)	---
[17]	Power Supply CBA	D7	3(S-21), 2(S-22)	---
[18]	Power Holder	D7	3(S-23)	---

```
   ↓        ↓        ↓         ↓           ↓
  (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 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 [POWER ON/STANDBY] button to turn the power off.

   5) Unplug an AC cord.

2. **CAUTION 1:** 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. D1

Fig. D2

Fig. D3

14

Fig. D4

Fig. D5

* See Reference Notes 3.
Fig. D6

Fig. D7

15
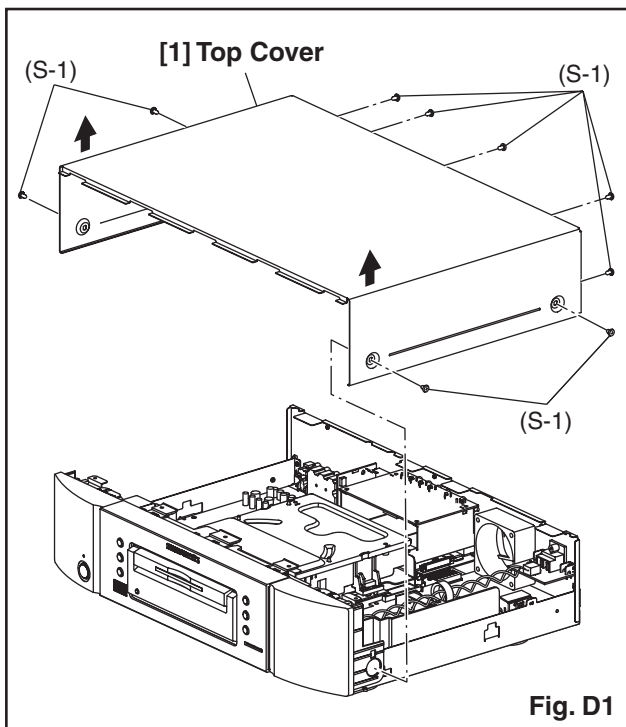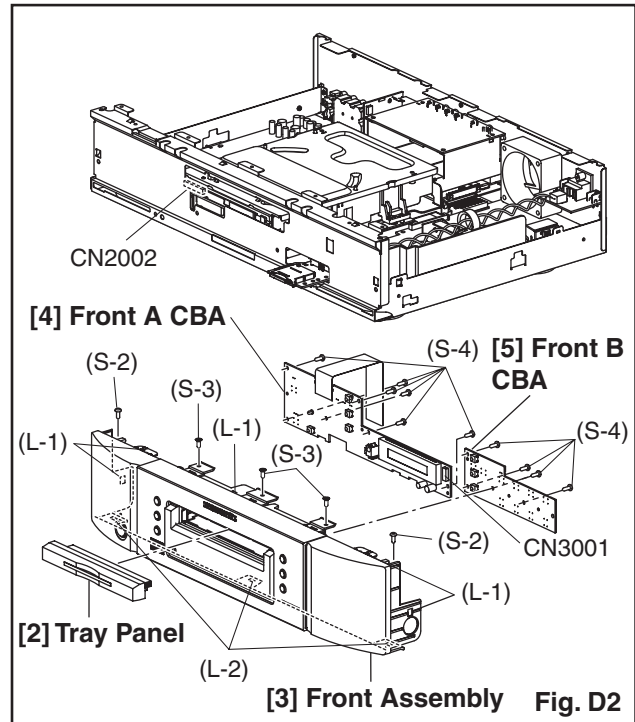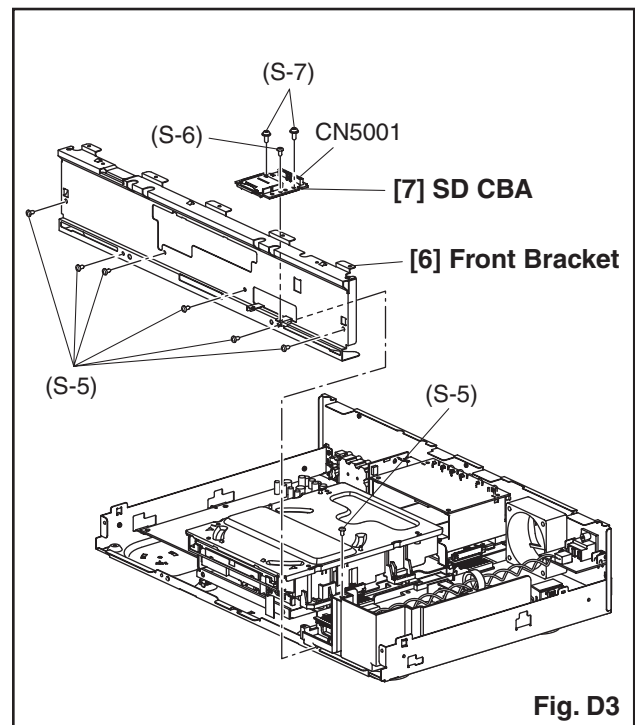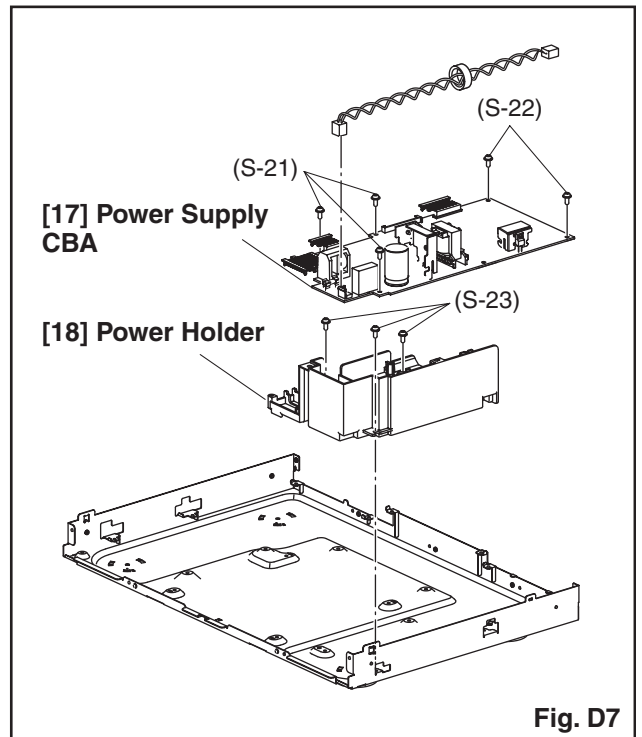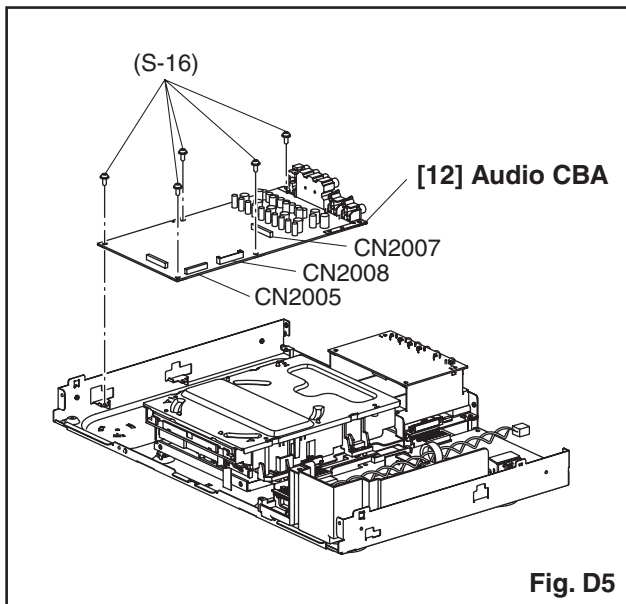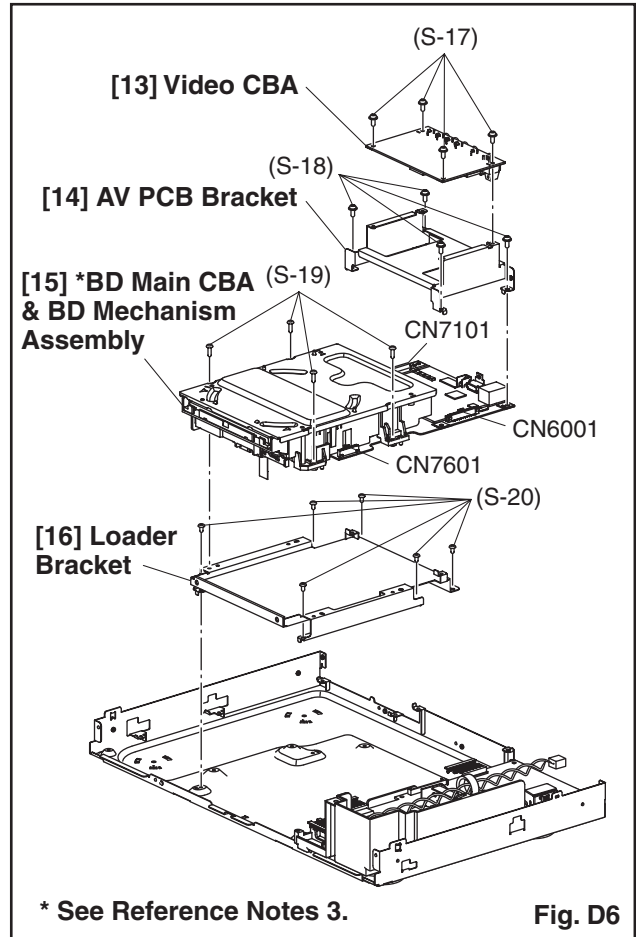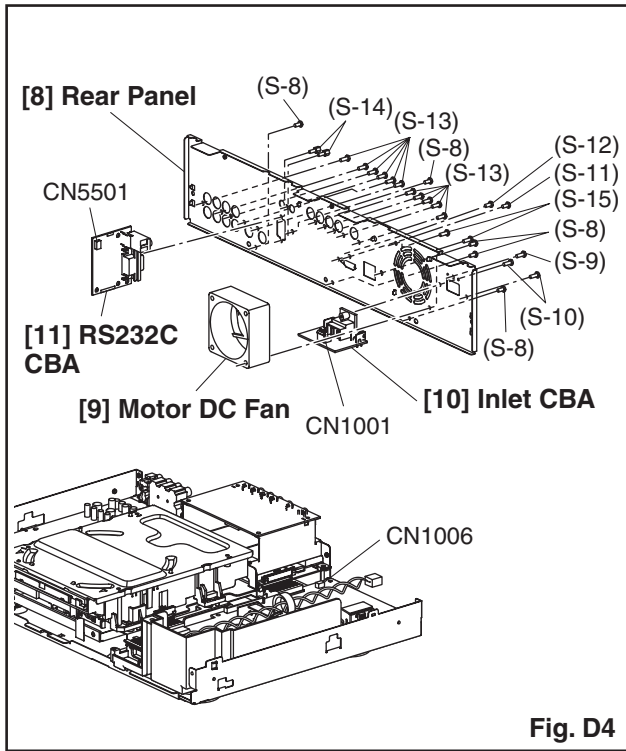
3. How to Eject Manually

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.

Portion A

Screwdriver, hexagon wrench
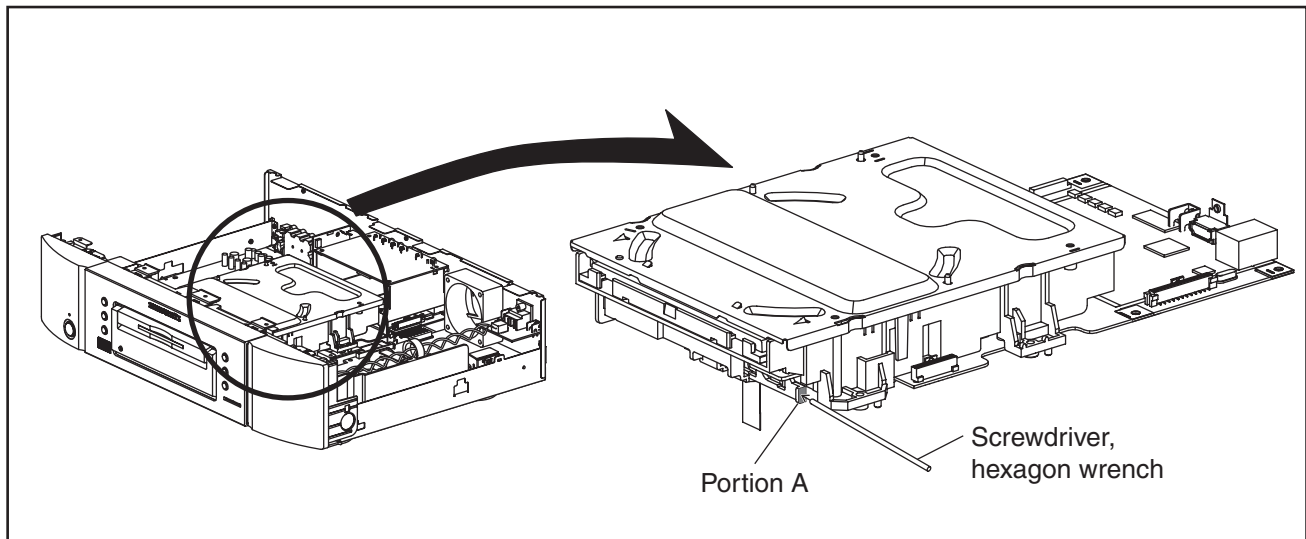
8. HOW TO INITIALIZE THE BLU-RAY DISC PLAYER

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.

Version Info

F/W Name : *******
Version   : *.***
Region   : *-*

EEPROM CLEAR <STOP>   EXIT <POWER>

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.

Version Info

F/W Name : *******
Version   : *.***
Region   : *-*

EEPROM CLEAR : OK
EEPROM CLEAR <STOP>   EXIT <POWER>
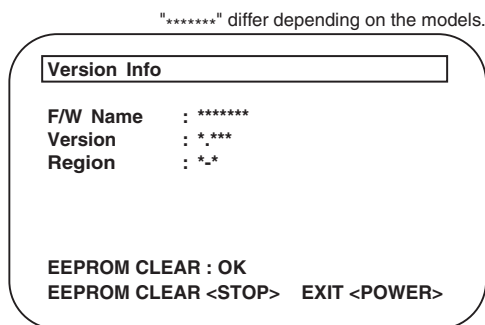
Fig. b

CLEAR

Fig. c

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

9. 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.

F/W VERSION UP MODE	F/W Name: ******* Ver. *.***

Please insert a Disc
for F/W Version Up
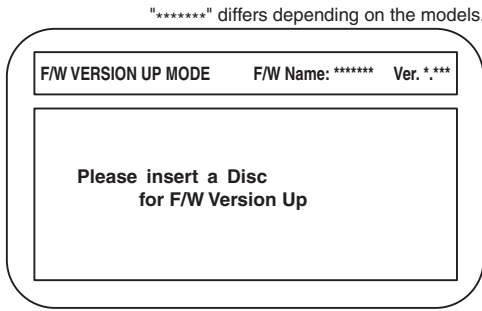
Fig. a Version Up Mode Screen

F/W-UP
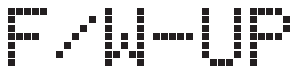
Fig. b VFD in Version Up Mode

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 F/W for the state of this model.

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

F/W VERSION UP MODE   F/W Name: *******   Ver. *.***

1. ALL

Ver. *.***   ************A*.b20

(*1)—— Now Loading...

EXIT : POWER
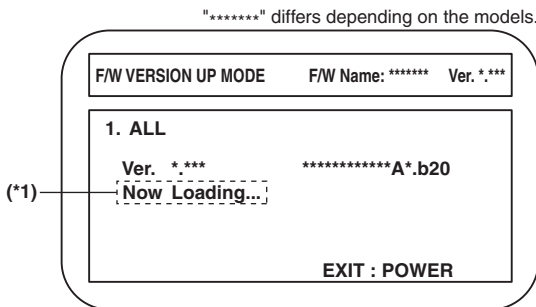
Fig. c Programming Mode Screen (Example)

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.

26%

Fig. e VFD in Vresion Up Mode

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

F3A8

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.

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

Version Info

F/W Name	: *******
Version	: *.***
Region	: *-*

EEPROM CLEAR <STOP>   EXIT <POWER>
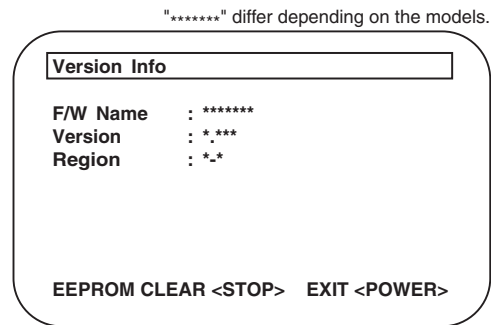
Fig. g

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

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

Version Info

F/W Name   : *******
Version   : *.***
Region   : *-*

EEPROM CLEAR : OK
EEPROM CLEAR <STOP>   EXIT <POWER>
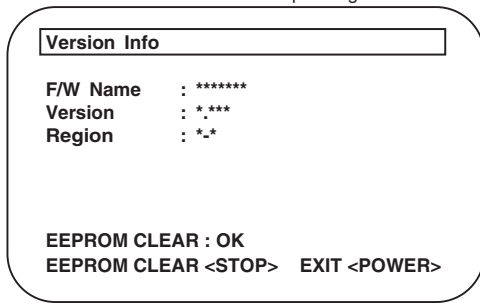
Fig. h

CLEAR

Fig. i

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

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.

Version Info

F/W Name   : *******
Version   : *.***
Region   : *-*

EEPROM CLEAR <STOP>   EXIT <POWER>
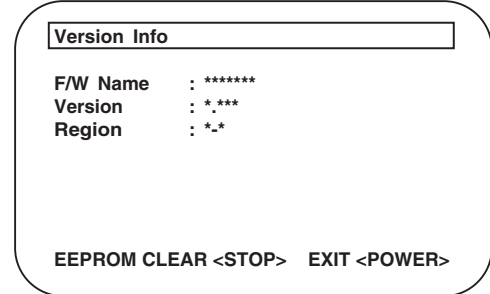
Fig. j

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

10. 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.
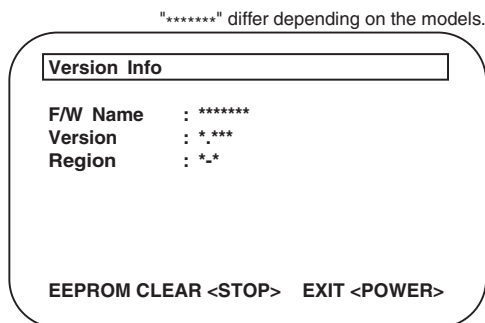   Fig. j appears on the screen.

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

```
┌─────────────────────────────────────┐
│ ┌─────────────────────────────────┐ │
│ │ Version  Info                   │ │
│ └─────────────────────────────────┘ │
│                                      │
│   F/W  Name    : *******             │
│   Version      : *.***               │
│   Region       : *-*                 │
│                                      │
│                                      │
│                                      │
│                                      │
│   EEPROM CLEAR <STOP>   EXIT <POWER> │
│                                      │
└─────────────────────────────────────┘
```
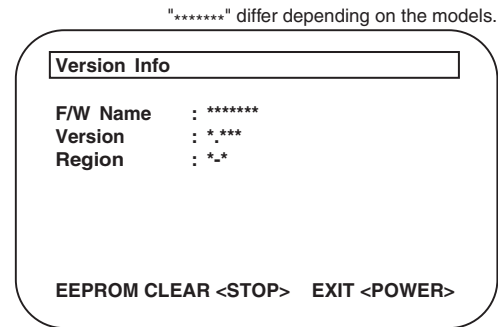
Fig. j

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

11. 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	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.
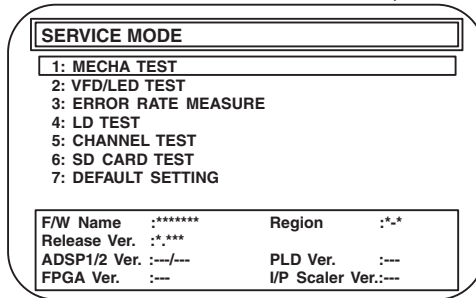
Fig. k Service Mode (Main Menu)

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)
1~7	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.jpp, etc.

12. 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.

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.

Fig. b

13. TROUBLESHOOTING

FLOW CHART NO.1

The power cannot be turned on.

↓

Is the fuse normal?	→No→	See FLOW CHART No.2 <The fuse blows out.>

↓Yes

Is normal state restored when once unplugged power cord is plugged again after several seconds?	→No→

↓Yes

Is the EV+5V line voltage normal?	→No→

Check if there is any leak or short-circuiting on the primary circuit component, and service it if defective. (D1007, D1008, D1011, D1012, D1023, D1024, IC1002, Q1002, T1002, C1022, R1022)

↓Yes

Check each rectifying circuit of the secondary circuit and service it if defective.

FLOW CHART NO.2

The fuse blows out.

↓ ↓

Check the presence that the primary component is leaking or shorted and service it if defective.	Check the presence that the rectifying diode or circuit is shorted in each rectifying circuit of secondary side, and service it if defective.

↓ ↓

After servicing, replace the fuse.

FLOW CHART NO.3

When the output voltage fluctuates.

↓

Does the photo coupler circuit on the secondary side operate normally?	→No→	Check D1029, IC1004 and their periphery, and service it if defective.

↓Yes

Check D1021, IC1002, IC1004 and their periphery, and service it if defective.

FLOW CHART NO.4

When buzz sound can be heard in the vicinity of power circuit.

↓

Check if there is any short-circuit on the rectifying diode and the circuit in each rectifying circuit of the secondary side, and service it if defective. (D1025, D1028, D1030, D1031, D1032, D1033, IC1008, IC1009, IC1010, Q1009, Q1010, Q1011, Q1013, Q2636)

FLOW CHART NO.5

FL is not outputted.

↓

Is 35V voltage supplied to the emitter of Q2602?	→No→	Check D1032, C1033 and periphery circuit, and service it if defective.

↓Yes

Is the "L" signal outputted to the collector of Q2603?	→No→	Is the "H" signal inputted to the base of Q2603?

↓Yes

Check Q2601, Q2602, D2603 and their periphery, and service it if defective.

For "Is the 'H' signal inputted to the base of Q2603?":

↓Yes → | Replace Q2603. |

↓No → | Check FL-SW line and service it if defective. |

FLOW CHART NO.6

P-ON+5V (1) is not outputted.

Is 5V voltage inputted to the emitter of Q1011? — **No** → Check D1025, D1030, D1031, C1029, C1034 and their periphery, and service it if defective.

Yes

Is 4.5V voltage inputted to the base of Q1011? — **No** → Check Q1007 and PWSW4 line and service it if defective.

Yes

Replace Q1011.

FLOW CHART NO.7

P-ON+5V (2) is not outputted.

Is 5V voltage inputted to the emitter of Q1009? — **No** → Check D1025, D1030, D1031, C1029, C1034 and their periphery, and service it if defective.

Yes

Is 4.5V voltage inputted to the base of Q1009? — **No** → Check Q1007 and PWSW4 line and service it if defective.

Yes

Replace Q1009.

FLOW CHART NO.8

P-ON+10.5V is not outputted.

Is 14V voltage inputted to the collector of Q1013? — **No** → Check D1029, D1041, C1026, L1004 and their periphery, and service it if defective.

Yes

Is 11V voltage inputted to the base of Q1013? — **No** → Is 14V voltage inputted to the base of Q1006?

Yes

Replace Q1013.

Is 14V voltage inputted to the base of Q1006?

Yes → Check Q1006, D1046, and their periphery, and service it if defective.

No → Check Q1008, and PWSW4 line, and service it if defective.

FLOW CHART NO.9

P-ON+1.2V is not outputted.

Is 5V voltage supplied to Pin(3) of IC1009? — **No** → Check D1025, D1030, D1031, C1029, C1034 and their periphery, and service it if defective.

Yes

Is the "L" signal inputted to the base of Q1015? — **No** → Check PWSW2 line and service it if defective.

Yes

Check IC1009, Q1015 and their periphery, and service it if defective.

FLOW CHART NO.10

P-ON+3.3V is not outputted.

Is 5V voltage supplied to Pin(1) of IC1008? — **No** → Check D1025, D1030, D1031, C1029, C1034 and their periphery, and service it if defective.

Yes

Is "L" signal outputted to the collector of Q1005? — **No** → Check Q1005 and PWSW1 line and service it if defective.

Yes

Check IC1008, D1040 and their periphery circuit, and service it if defective.

FLOW CHART NO.11

P-ON+1.8V is not outputted.

Is 5V voltage inputted to Pin(3) of IC1010? — No → Check D1025, D1030, D1031, C1029, C1034 and their periphery, and service it if defective.

Yes

Is "L" signal outputted to the base of Q1016? — No → Check PWSW2 line and their periphery, and service it if defective.

Yes

Check IC1010, Q1016 and their periphery, and service it if defective.

FLOW CHART NO.12

P-ON+14.5V is not outputted.

Is 15V voltage inputted to the emitter of Q1010? — No → Check D1028, C1026, L1003 and their periphery, and service it if defective.

Yes

Is 14V voltage inputted to the base of Q1010? — No → Check Q1008 and PWSW4 line and service it if defective.

Yes

Replace Q1010.

FLOW CHART NO.13

The fluorescent display tube does not light up.

Is 3.3V voltage supplied to Pin(24) of FL3001? — No → Check the EV+3.3V line and service it if defective.

Yes

Is 9V voltage supplied to Pin(1,2) of FL3001? — No → Is 10V voltage supplied to the emitter of Q2604?

Yes

        Yes → Is 9V voltage inputted to the base of Q2604?

        No → Check D1033, C1028, R1032, R1033 and their periphery, and service it if defective.

Is 9V voltage inputted to the base of Q2604?

Yes → Replace Q2604.

No → Check Q2603 and FL-SW line and service it if defective.

Is 5V voltage supplied to Pin(29,30) of FL3001? — No → Check the F2 line and service it if defective.

Yes

Replace FL3001.

FLOW CHART NO.14

The key operation is not functioning.

Are the contact point and the installation state of the key switches (SW3002, SW3004-SW3007, SW3105, SW3107, SW3109) normal? — No → Re-install the switches (SW3002, SW3004-SW3007, SW3105, SW3107, SW3109) correctly or replace the poor switch.

Yes

When pressing each switches (SW3002, SW3004-SW3007, SW3105, SW3107, SW3109), do the voltage of Pin(1, 62) of IC2000 increase? — No → Check the switches (SW3002, SW3004-SW3007, SW3105, SW3107, SW3109) and their periphery, and service it if detective.

Yes

Replace IC2000.

FLOW CHART NO.15

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

Is 5V voltage supplied to Pin(2) of RS3001 (remote control receiver) ? — **No** → Check EV+5V line and service it if defective.

↓ Yes

Is the "L" pulse sent out Pin(1) of RS3001 (remote control receiver) when the remote control unit is activated? — **No** → Replace the RS3001 (remote control receiver) or remote control unit.

↓ Yes

Is the "L" pulse inputted to the Pin(27) of IC2000? — **No** → Check the line between the RS3001 (remote control receiver) and the Pin(27) of IC2000, and service it if defective.

↓ Yes

Replace IC2000.

FLOW CHART NO.16

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

Is the normal control voltage inputted to Pin(62) of IC2000? Refer to "FLOW CHART NO.14" <The key operation is not functioning.> — **No** → Replace the "OPEN/CLOSE" switch (SW3101).

↓ Yes

Replace the BD Main CBA & BD Mechanism Assembly.

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.

↓ Yes

Replace the BD Main CBA & BD Mechanism Assembly.

FLOW CHART NO.18

Picture does not appear normally.

↓

Set the disc on the disc tray, and playback.

↓

Are the video signals outputted to each pin of CN4000?

No → | Replace the BD Main CBA & BD Mechanism Assembly. |

```
CN4000    3PIN    VIDEO
CN4000    5PIN    VIDEO-Y(I/P)
CN4000    7PIN    VIDEO-Pb/Cb
CN4000    9PIN    VIDEO-Pr/Cr
```

↓ Yes

Are the video signals shown above inputted into each pin of IC4000?

```
IC4000    3PIN     VIDEO
IC4000    8PIN     VIDEO-Y(I/P)
IC4000    10PIN    VIDEO-Pb/Cb
IC4000    12PIN    VIDEO-Pr/Cr
```

No → | Check the line between each pin of CN4000 and each pin of IC4000, and service it if defective.

```
CN4000    3PIN → IC4000   3PIN    VIDEO
CN4000    5PIN → IC4000   8PIN    VIDEO-Y(I/P)
CN4000    7PIN → IC4000  10PIN    VIDEO-Pb/Cb
CN4000    9PIN → IC4000  12PIN    VIDEO-Pr/Cr
```
|

↓ Yes

Are the video signals outputted to each pin of IC4000?

```
IC4000   20PIN    VIDEO-Y(I/P)
IC4000   17PIN    VIDEO-Pb/Cb
IC4000   15PIN    VIDEO-Pr/Cr
IC4000   25PIN    VIDEO
```

No → | Is 5V voltage supplied to the Pin(7,21) of IC4000? |

    ↓ Yes   ↓ No

| Replace IC4000. | | Check VIDEO+5V line and service it if defective. |

↓ Yes

Are the video signals outputted to the specific output terminal?
Are the component video signals outputted to the VIDEO OUT terminal (JK4002, JK4003, JK4005)?
Are the composite video signals outputted to the VIDEO OUT terminal (JK4004)?

No → | Check the periphery of the VIDEO OUT terminal (JK4002, JK4003, JK4005) from Pin(15,17,20) of IC4000 and service it if defective. |

No → | Check the periphery of the VIDEO OUT terminal (JK4004) from Pin(25) of IC4000 and service it if defective. |

FLOW CHART NO.19

```
┌──────────────────────────────────────────────┐
│ Audio is not outputted normally. (JK2200, JK2201) │
└──────────────────────────────────────────────┘
                      │
                      ▼
┌──────────────────────────────────────────────┐
│ Set the disc on the disc tray, and playback.  │
└──────────────────────────────────────────────┘
                      │
                      ▼
┌──────────────────────────────────────────────┐   No   ┌──────────────────────────────────────┐
│ Are the analog audio signals outputted to each pin ├───────►│ Replace the BD Main CBA & BD Mechanism │
│ of CN2007?                                    │        │ Assembly.                              │
│ ─────────────────────────────────────────    │        └──────────────────────────────────────┘
│ CN2007  22PIN  AUDIO(L)                       │
│ CN2007  24PIN  AUDIO(R)                       │
└──────────────────────────────────────────────┘
                      │ Yes
                      ▼
┌──────────────────────────────────────────────┐        ┌──────────────────────────────────────────────┐
│ Are the analog audio signals inputted to each pin │    │ Check each line between each pin of CN2007   │
│ of IC2200?                                    │        │ and each pin of IC2200, and service it if detective. │
│ ─────────────────────────────────────────    │  No    │ CN2007 22PIN → IC2200  6PIN  AUDIO(L)        │
│ IC2200  6PIN  AUDIO(L)                        ├───────►│ CN2007 24PIN → IC2200  2PIN  AUDIO(R)        │
│ IC2200  2PIN  AUDIO(R)                        │        └──────────────────────────────────────────────┘
└──────────────────────────────────────────────┘
                      │ Yes
                      ▼
┌──────────────────────────────────────────────┐   No   ┌──────────────────────────────────────┐
│ Is the "H" level mute signal outputted to CN2007? ├─────►│ Replace the BD Main CBA & BD Mechanism │
│ CN2007  19PIN  AUDIO(R)-MUTE                  │        │ Assembly.                              │
│ CN2007  20PIN  AUDIO(L)-MUTE                  │        └──────────────────────────────────────┘
└──────────────────────────────────────────────┘
                      │ Yes
                      ▼
┌──────────────────────────────────────────────┐   No   ┌──────────────────────────────────────┐
│ Is the signal at Pin(24) of IC2000 "H" ?      ├───────►│ Check AUDIO-MUTE line, and service it if │
└──────────────────────────────────────────────┘        │ detective.                             │
                      │ Yes                               └──────────────────────────────────────┘
                      ▼
┌──────────────────────────────────────────────┐
│ Are the analog audio signals outputted to each pin │
│ of IC2200?                                    │
│ ─────────────────────────────────────────    │  No    ┌──────────────────────────────────────┐
│ IC2200  7PIN  AUDIO(L)                        ├───────►│ Replace IC2200.                        │
│ IC2200  1PIN  AUDIO(R)                        │        └──────────────────────────────────────┘
└──────────────────────────────────────────────┘
                      │ Yes
                      ▼
┌──────────────────────────────────────────────┐   No   ┌──────────────────────────────────────┐
│ Are the audio signals outputted to the audio  ├───────►│ Check the periphery between Pin(1,7) of IC2200 │
│ terminal (JK2200, JK2201)?                    │        │ and the audio terminal (JK2200, JK2201), and │
└──────────────────────────────────────────────┘        │ service it if detective.               │
                                                         └──────────────────────────────────────┘
```

FLOW CHART NO.20

Audio is not outputted. (JK2202, JK2203)

↓

Set the disc (with 7.1ch Audio) on the disc tray, and playback.

↓

Are the analog audio signals outputted to each pin of CN2007?

CN2007 15PIN FRONT-AUDIO(L)
CN2007 17PIN FRONT-AUDIO(R)
CN2007 5PIN SURROUND(L)
CN2007 7PIN SURROUND(R)
CN2007 3PIN SURROUND BACK(L)
CN2007 1PIN SURROUND BACK(R)
CN2007 12PIN CENTER
CN2007 10PIN SUB WOOFER

→ No → Replace the BD Main CBA & BD Mechanism Assembly.

↓ Yes

Are the analog audio signals inputted to each pin of IC2601, IC2602, IC2603 and IC2604?

IC2601 2, 6PIN FRONT-AUDIO(L/R)
IC2603 2, 6PIN SURROUND(L/R)
IC2604 2, 6PIN SURROUND BACK(L/R)
IC2602 2, 6PIN CENTER/SUB WOOFER

→ No → Check each line between each pin of CN2007 and each pin of IC2601, IC2602,IC2603 and IC2604 and service it if defective.

CN2007 15,17PIN → IC2601 2,6PIN FRONT-AUDIO(L/R)
CN2007 5,7PIN → IC2603 2,6PIN SURROUND(L/R)
CN2007 1,3PIN → IC2604 2,6PIN SURROUND BACK(L/R)
CN2007 10,12PIN → IC2602 2,6PIN CENTER/SUB WOOFER

↓ Yes

Are the analog audio signals outputted to each pin of IC2601, IC2602, IC2603 and IC2604?

IC2601 1,7PIN FRONT-AUDIO(L/R)
IC2603 1,7PIN SURROUND(L/R)
IC2604 1,7PIN SURROUND BACK(L/R)
IC2602 1,7PIN CENTER/SUB WOOFER

→ No → Replace ICs (IC2601, IC2602, IC2603 or IC2604).

↓ Yes

Do the mute signals of CN2007 become to "H" level?

FRONT-AUDIO(L) → CN2007 14PIN
FRONT-AUDIO(R) → CN2007 18PIN
SURROUND(L/R) → CN2007 8PIN
SURROUND BACK(L/R) → CN2007 4PIN
CENTER → CN2007 13PIN
SUB WOOFER → CN2007 9PIN

→ No → Replace the BD Main CBA & BD Mechanism Assembly.

↓ Yes

Is the analog audio signal of each line outputted to each terminal of JK2202 and JK2203 (as shown below) ?

IC2601 7PIN → JK2202 FRONT-AUDIO(L)
IC2601 1PIN → JK2202 FRONT-AUDIO(R)
IC2603 7PIN → JK2202 SURROUND(L)
IC2603 1PIN → JK2202 SURROUND(R)
IC2604 7PIN → JK2203 SURROUND BACK(L)
IC2604 1PIN → JK2203 SURROUND BACK(R)
IC2602 7PIN → JK2202 SUB WOOFER
IC2602 1PIN → JK2202 CENTER

→ No → Check each line and service it if defective.

BD Mechanism Replacement Guidelines ⚠②

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

*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.
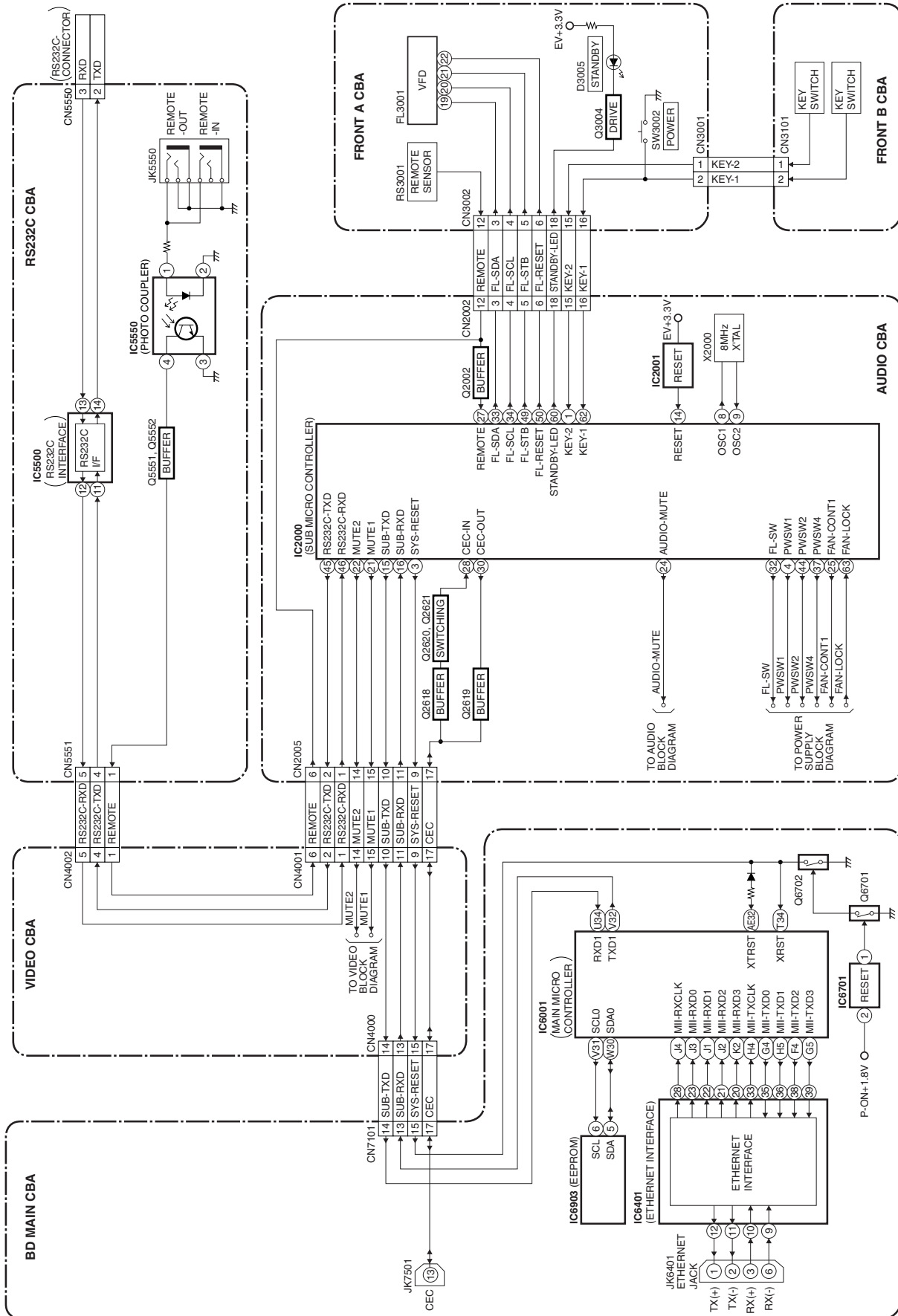

Replacement of BD Main CBA & BD Mechanism Assembly
1. Remove the Top Cover, Tray Panel, Front Assembly, Front Bracket, Video CBA and AV PCB Holder.
2. Disconnect Connectors and replace the BD Main CBA & BD Mechanism Assembly.
   Refer to CABINET DISASSEMBLY INSTRUCTIONS.
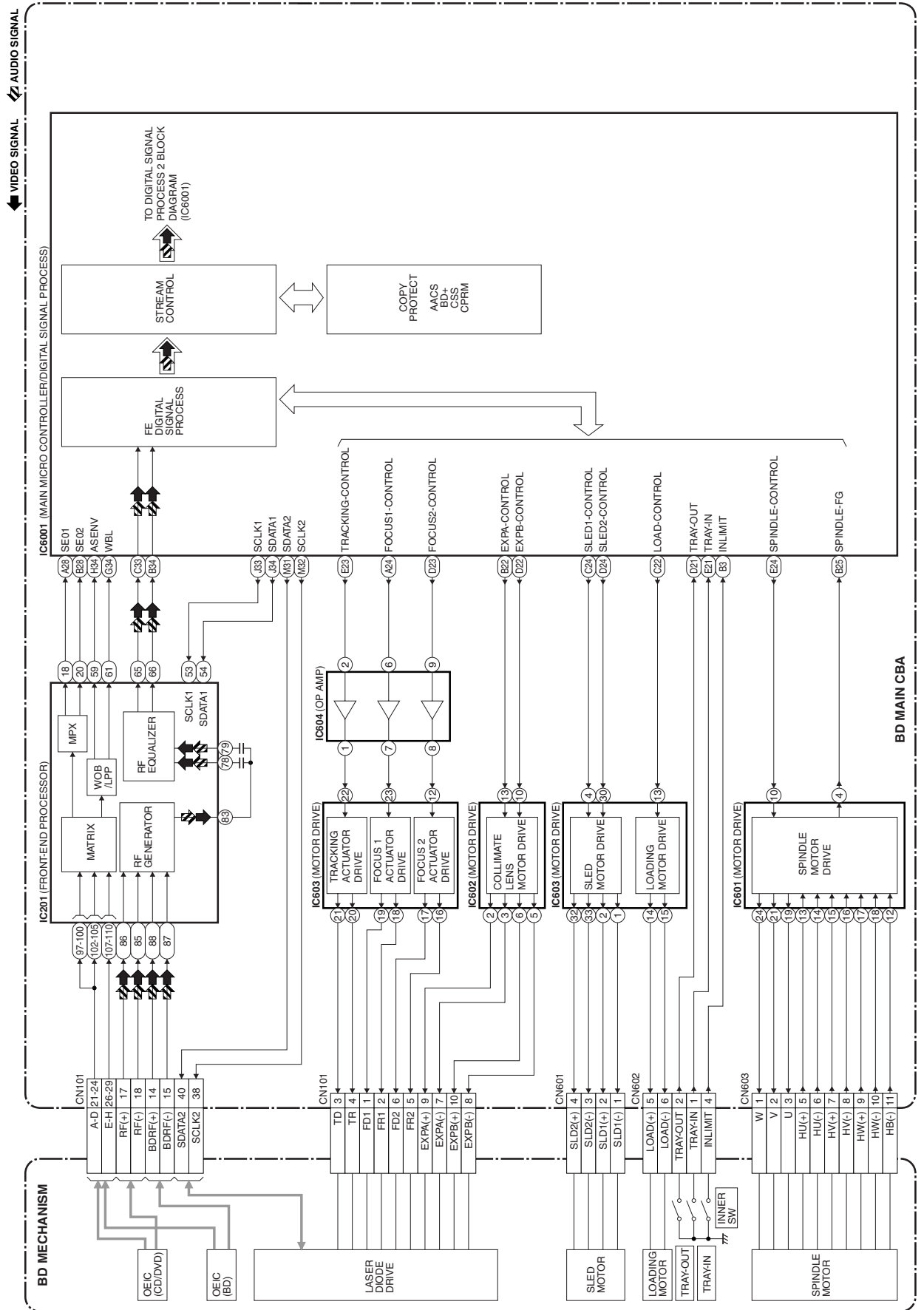

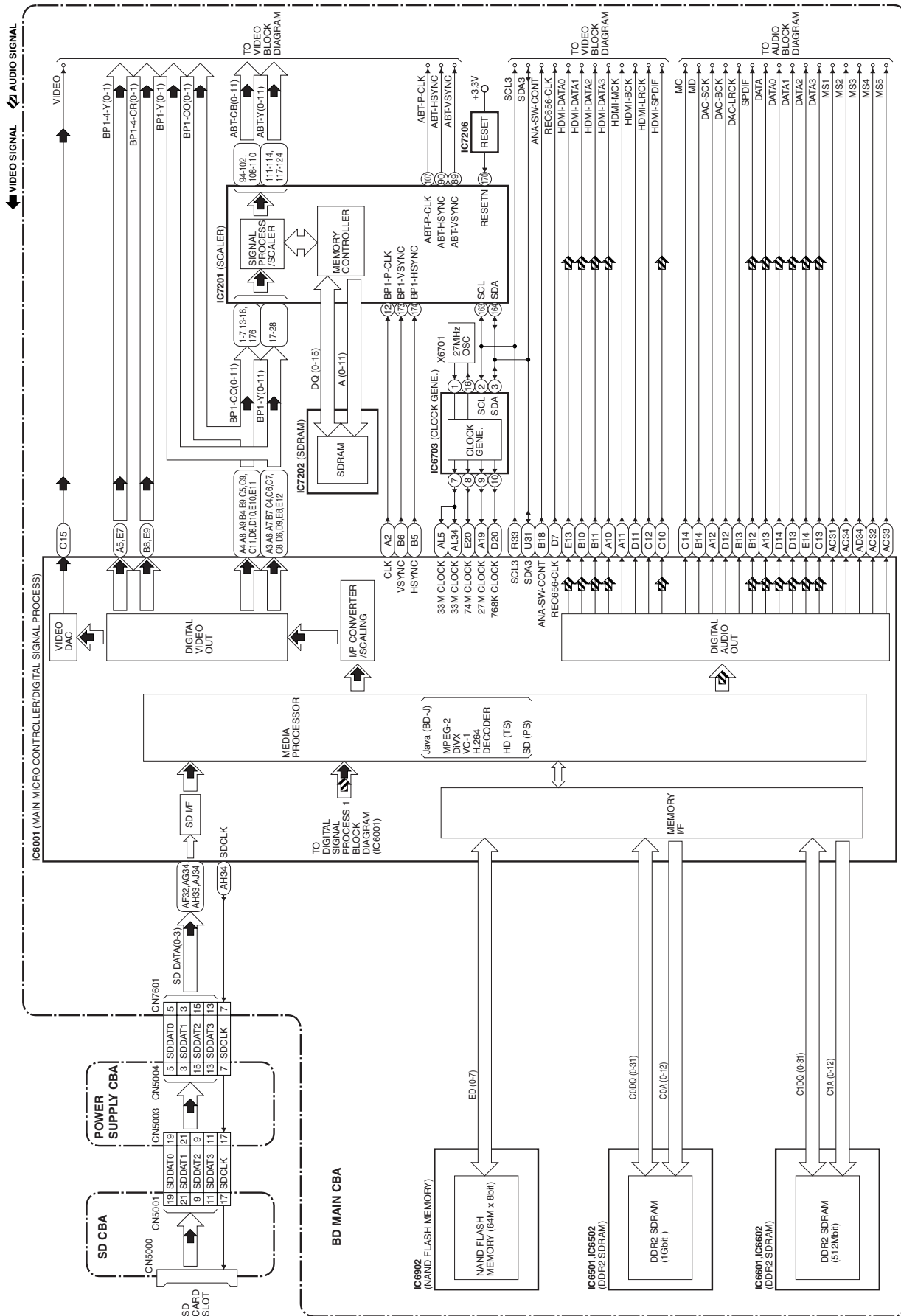BD Main CBA
& BD Mechanism Assembly
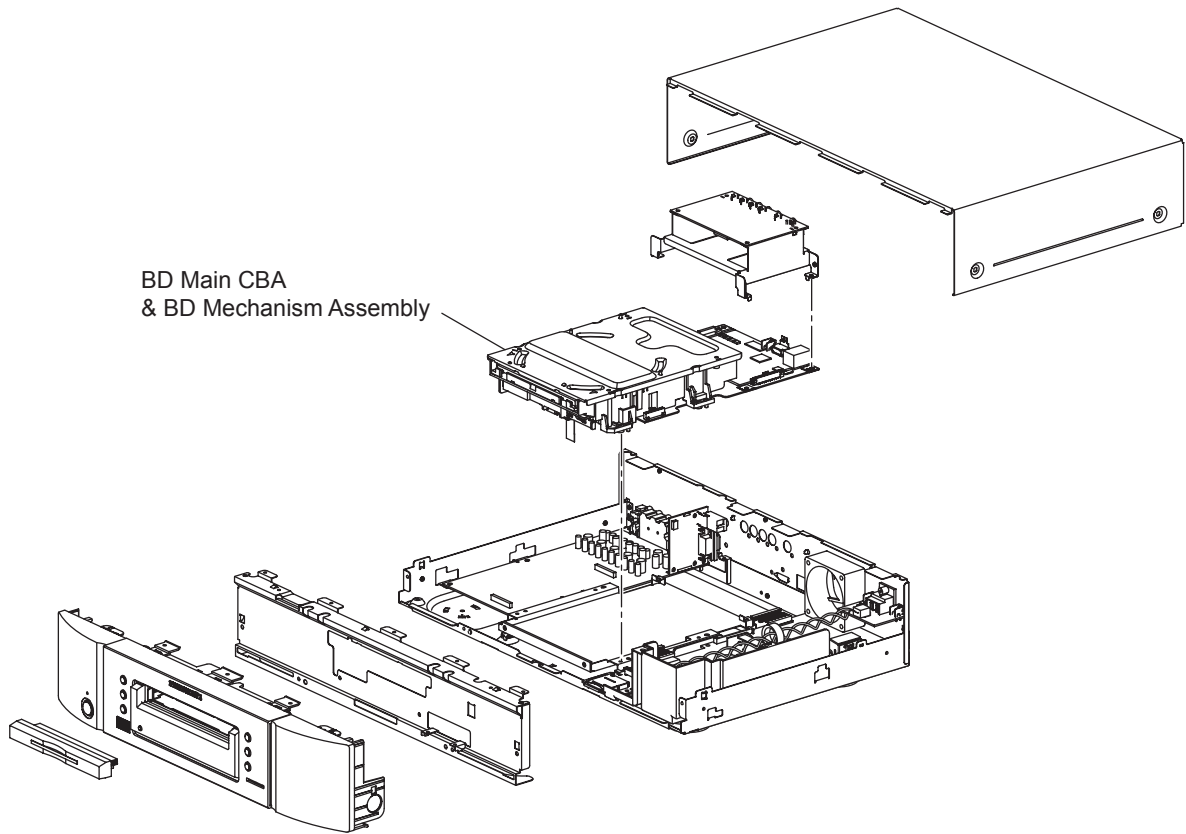
14. BLOCK DIAGRAMS

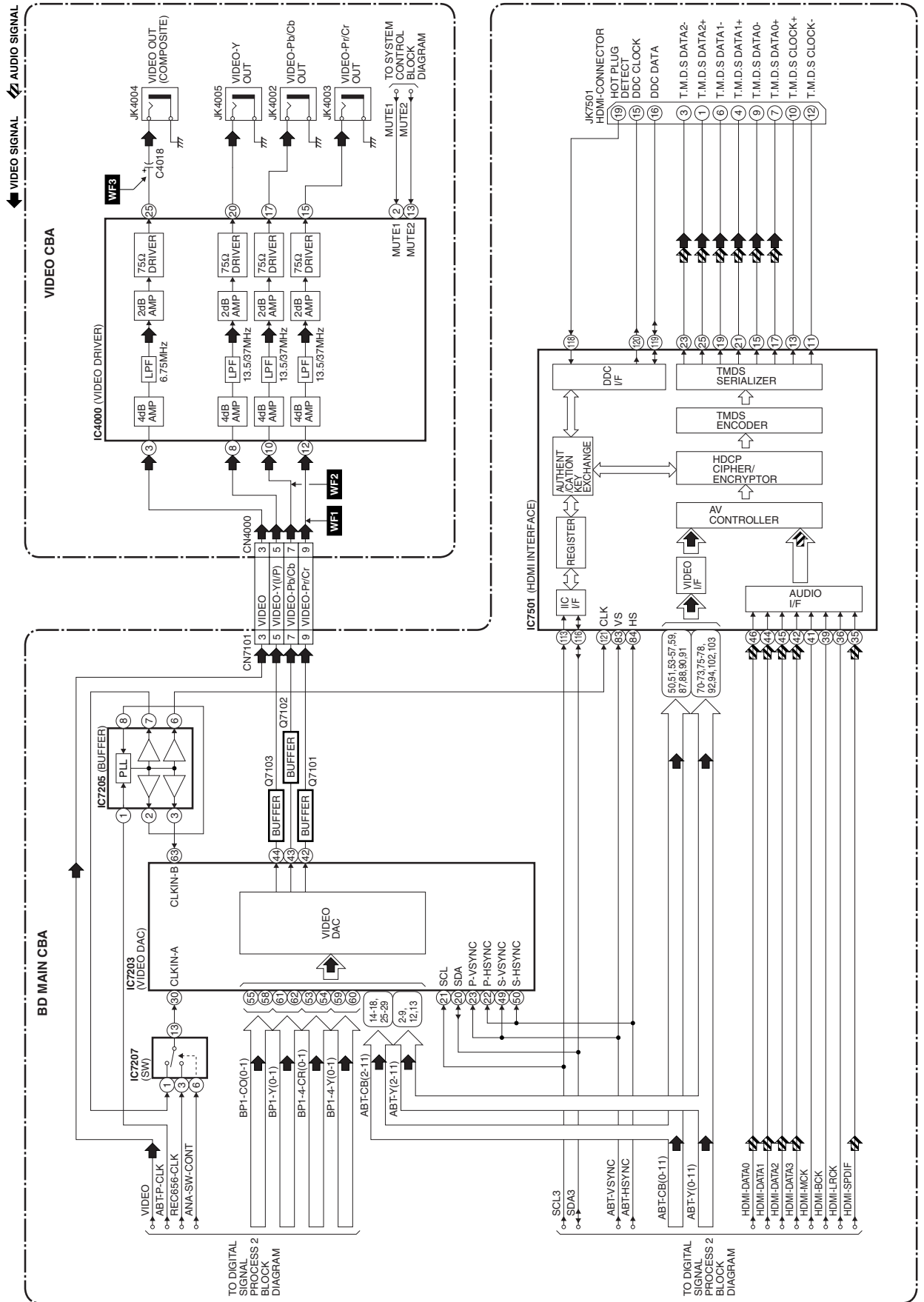## System Control Block Diagram
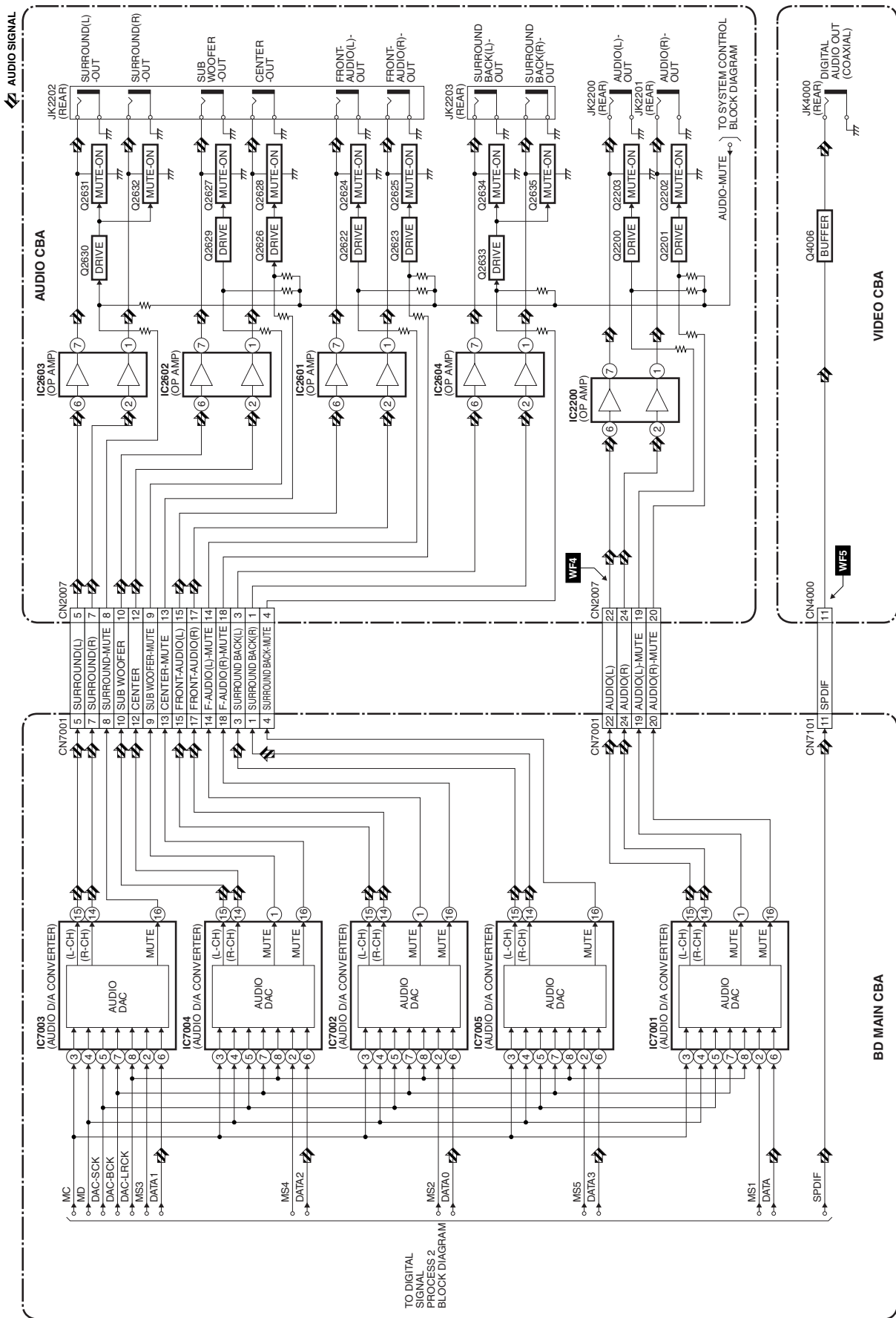
Digital Signal Process 1 Block Diagram

Digital Signal Process 2 Block Diagram

Video Block Diagram

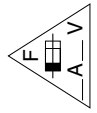# Audio Block Diagram

Power Supply Block Diagram

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

CAUTION !
For continued protection against fire hazard,
replace only with the same type fuse.
ATTENTION : Pour une protection continue les risqes
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."
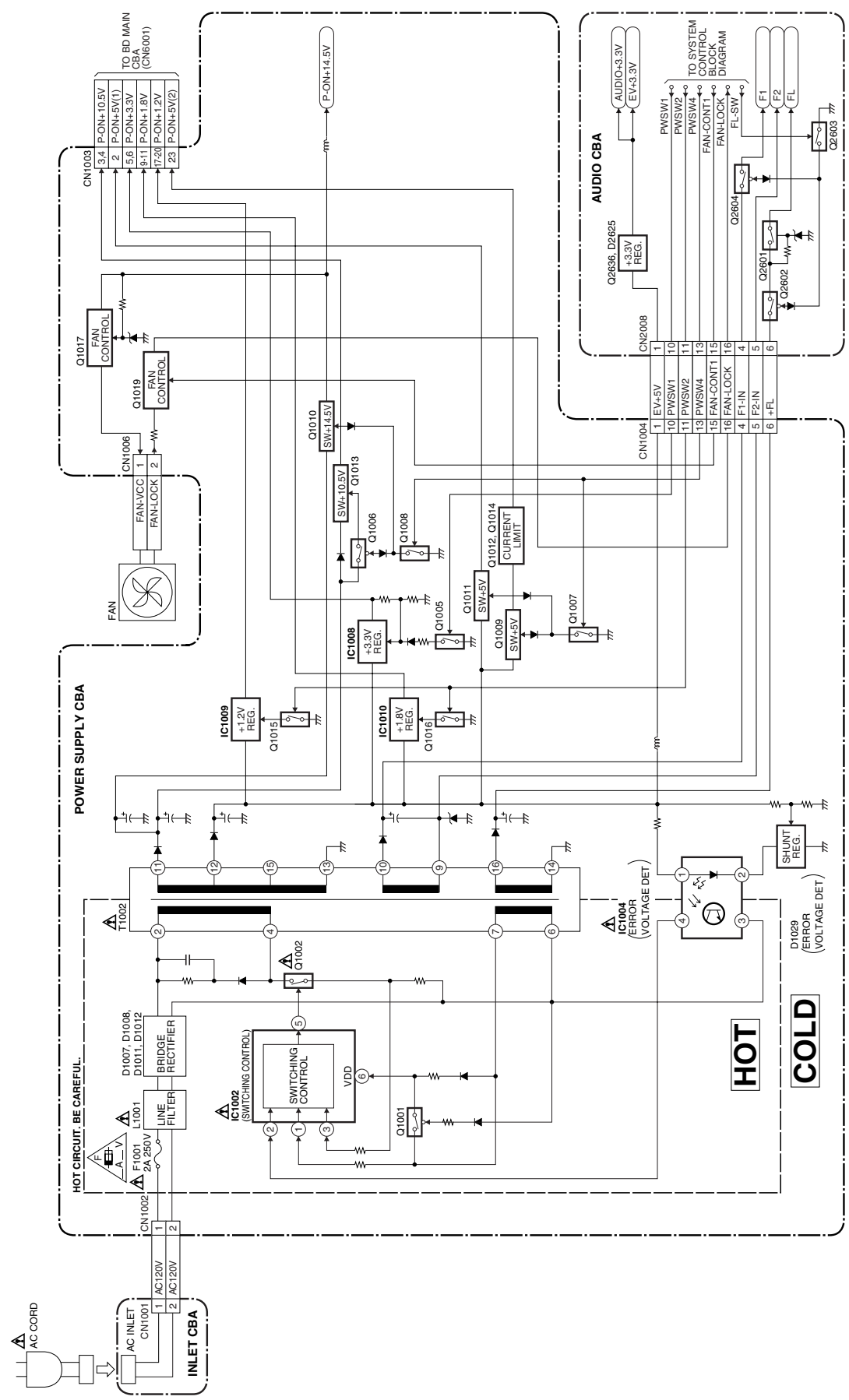
CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1001) is blown , check to see that all components in the power supply
circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

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15. SCHEMATIC DIAGRAMS / CBA AND TEST POINTS

Standard Notes

WARNING

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark "⚠" in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

Notes:

1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.

2. All resistance values are indicated in ohms $(K = 10^3, M = 10^6)$.

3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.

4. All capacitance values are indicated in μF $(P = 10^{-6} \mu F)$.

5. All voltages are DC voltages unless otherwise specified.V

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

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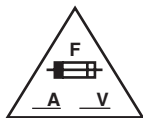
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MÊME TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.

This symbol means fast operating fuse.
Ce symbole reprèsente 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:

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:

(Unit: Volt)

1 — 2 — 3
5.0   ∼   5.0 ← PLAY mode
(2.5) ← STOP mode

The same voltage for both PLAY & STOP modes

Indicates that the voltage is not consistent here.

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".

3

AREA D3 →

1-B1

2

AREA B1

1

1-D3

A   B   C   D
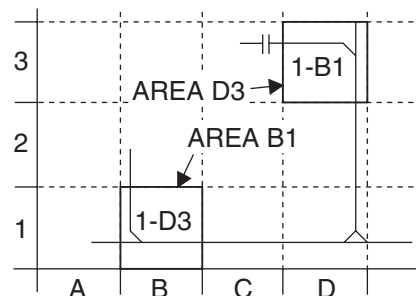
6. Test Point Information

: 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.

Personal notes:

Audio 1/3 Schematic Diagram

Audio 2/3 Schematic Diagram

AUDIO SIGNAL

AUDIO CBA

Audio 3/3 Schematic Diagram

Audio CBA schematic diagram

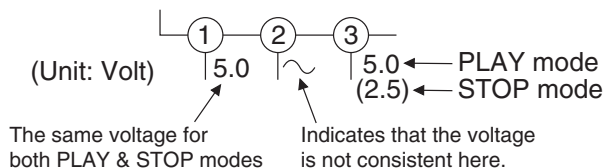# Video Schematic Diagram

Power Supply & Inlet 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.
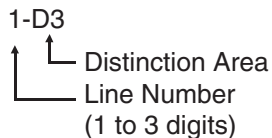
CAUTION !
For continued protection against fire hazard, replace only with the same type fuse.
ATTENTION : Pour une protection continue les risqes d'Incele n'utiliser que des fusible de même type.
Risk of fire-replace fuse as marked.
"This symbol means fast operating fuse."
"Ce symbole représente à fusion rapide."

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

POWER SUPPLY CBA

49   50

Front A & Front B Schematic Diagram
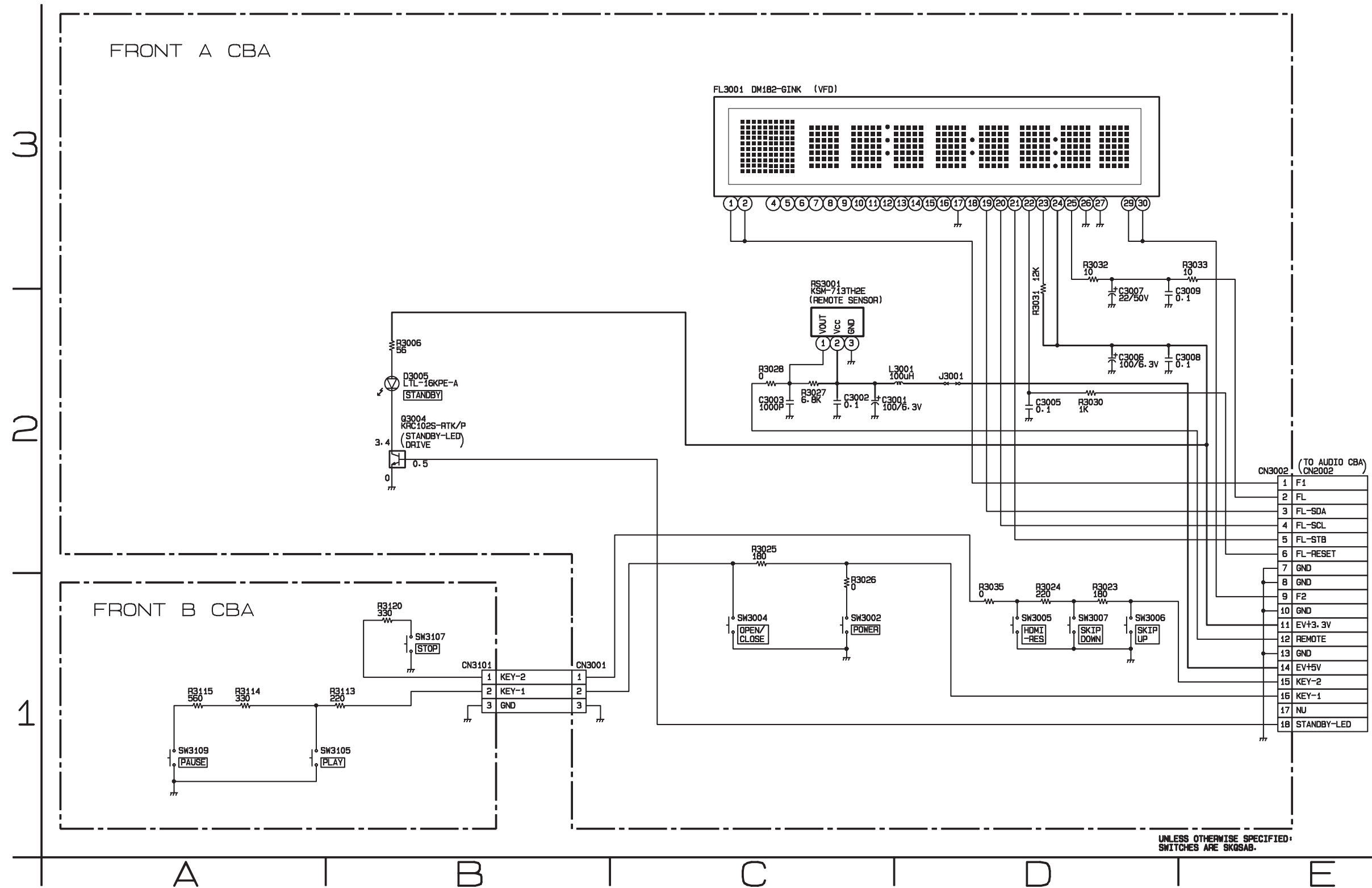
RS232C Schematic Diagram

RS232C CBA
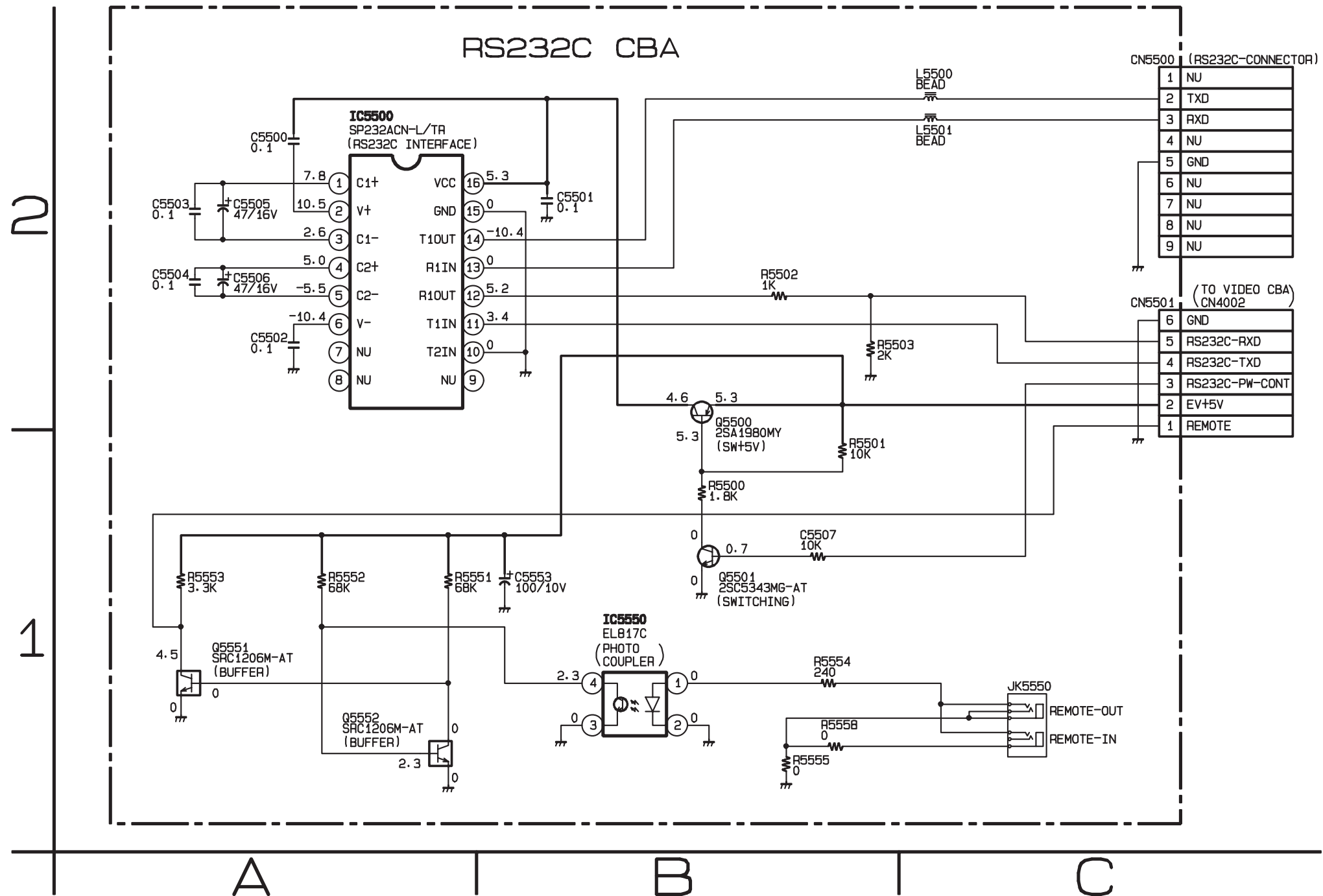
SD Schematic Diagram

BD Main 1/13 Schematic Diagram

∗1 NOTE:
The order of pins shown in this diagram is different from that of actual IC6001.
IC6001 is divided into nine and shown as IC6001 (1/9) ~ IC6001 (9/9) in this BD Main Schematic Diagram Section.

BD Main 2/13 Schematic Diagram

∗1 NOTE:
The order of pins shown in this diagram is different from that of actual IC6001.
IC6001 is divided into nine and shown as IC6001 (1/9) ~ IC6001 (9/9) in this BD Main Schematic Diagram Section.

BD Main 3/13 Schematic Diagram

*1 **NOTE:**
The order of pins shown in this diagram is different from that of actual IC6001.
IC6001 is divided into nine and shown as IC6001 (1/9) ~ IC6001 (9/9) in this BD Main Schematic Diagram Section.

BD MAIN CBA

*1
IC6001(3/9)
MN2WS006DFF
(MAIN MICRO CONTROLLER /DIGITAL SIGNAL PROCESS)

IC6902
NAND01GW3B2BN6E
(NAND FLASH MEMORY)

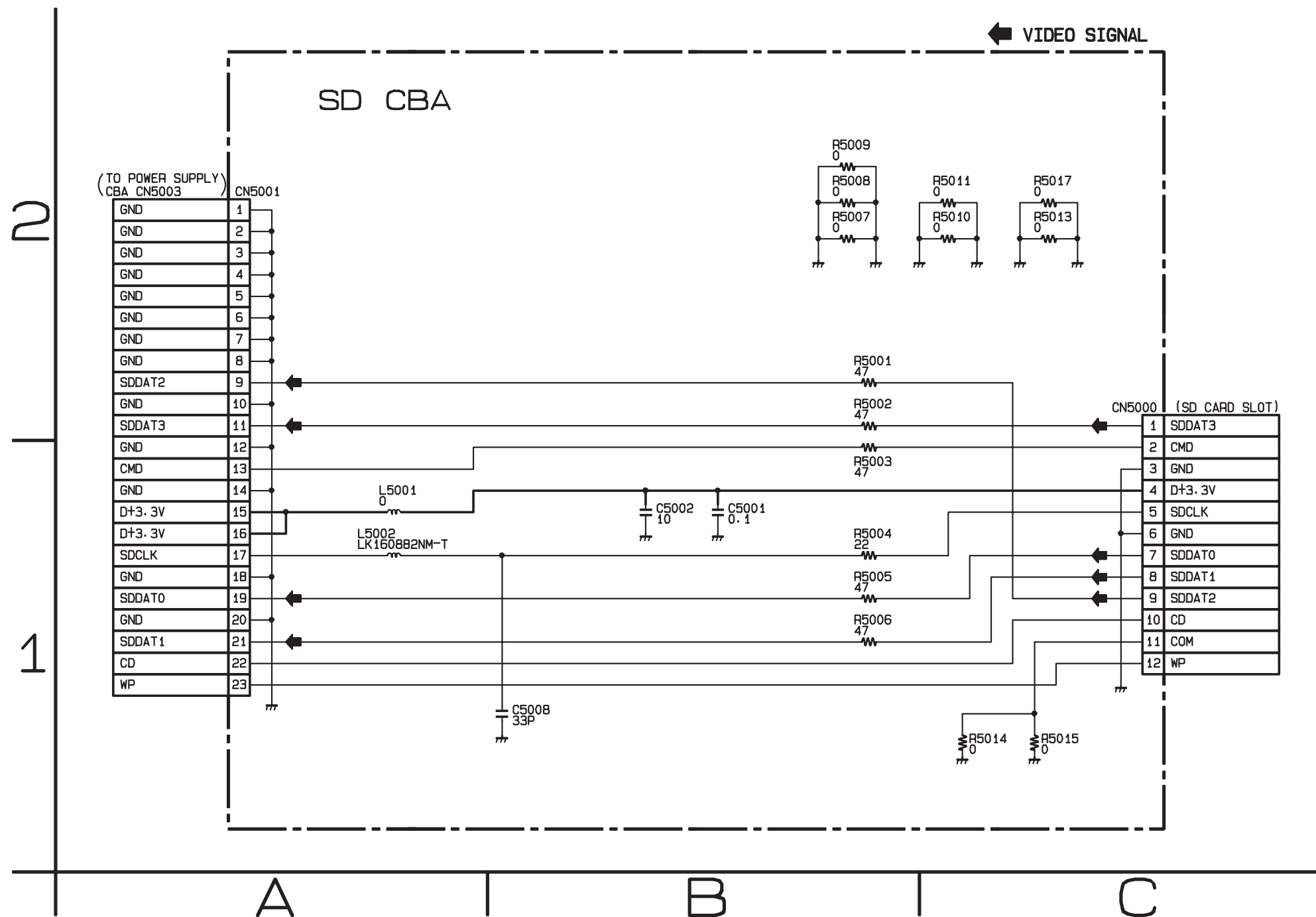| Pin	Signal		Pin	Signal
1	NU		48	NU
2	NU		47	NU
3	NU		46	NU
4	NU		45	NU
5	NU		44	I/O7
6	NU		43	I/O6
7	R/B		42	I/O5
8	RE		41	I/O4
9	CE		40	NU
10	NU		39	NU
11	NU		38	PRE
12	VCC		37	VCC
13	VSS		36	VSS
14	NU		35	NU
15	NU		34	NU
16	CLE		33	NU
17	ALE		32	I/O3
18	WE		31	I/O2
19	WP		30	I/O1
20	NU		29	I/O0
21	NU		28	NU
22	NU		27	NU
23	NU		26	NU
24	NU		25	NU

R6989 4.7K
R6990 4.7K

ED0 R6274 56
ED1 R6275 56
ED2 R6276 56
ED3 R6277 56
ED4 R6278 56
ED5 R6279 56
ED6 R6280 56
ED7 R6281 56

R6290 10K, R6291 10K, R6292 10K, R6293 10K, R6294 10K, R6295 10K, R6296 10K, R6297 10K, R6298 10K, R6299 10K, R6300 10K, R6301 10K, R6302 10K, R6303 10K, R6304 10K, R6305 10K

AN25 ED0
AK23 ED1
AM25 ED2
AP26 ED3
AL24 ED4
AN26 ED5
AK24 ED6
AP27 ED7
AM26 NU
AL25 NU
AN27 NU
AP28 NU
AK25 NU
AM28 NU
AN29 NU
AP29 NU

NU AM30
NU AM28
NU AM29
NU AL27
NU AP31
NU AL28

R6307 2.2K

NU AK26
NU AP30
NU AM27
NU AN30
NU AL26
NU AK27

MEMORY I/F

R6226 10K, R6228 10K, R6229 10K, R6232 10K, R6233 10K, R6234 10K, R6235 10K, R6238 10K, R6239 10K, R6240 10K

ED3
ED2
ED1
ED0

AN31 NU
AL30 NU
AK26 NU
AL26 NU
AP32 NU
AK25 NU
AM30 NU
AK31 NU
AN32 NU
AJ30 NU
AP33 NU
AN34 NU
AJ31 NU
AM33 NU
AH30 NU
AL32 NU
AJ32 NU
AM34 NU
AH32 NU
AH31 NU
AG32 NU
AK33 NU
AG31 NU
AK34 NU
AK32 NU
AJ33 NU

C6901 0.1, C6904 0.1, C6905 1

R6242 2.2K, R6245 2.2K, R6246 2.2K, R6251 2.2K, R6252 2.2K, R6256 10K

TO BD MAIN 7/13 IC6001(7/9)

R7915 10K

R6268 56 AL23 XNFWE
R6269 56 AP24 NFCLE
R6270 56 AM24 XNFRE
R6271 56 AM23 NFALE
R6272 56 AN24 XNFCE
R6273 56 AN23 XNFWP
E2 NU

M   N   O   P   Q   R

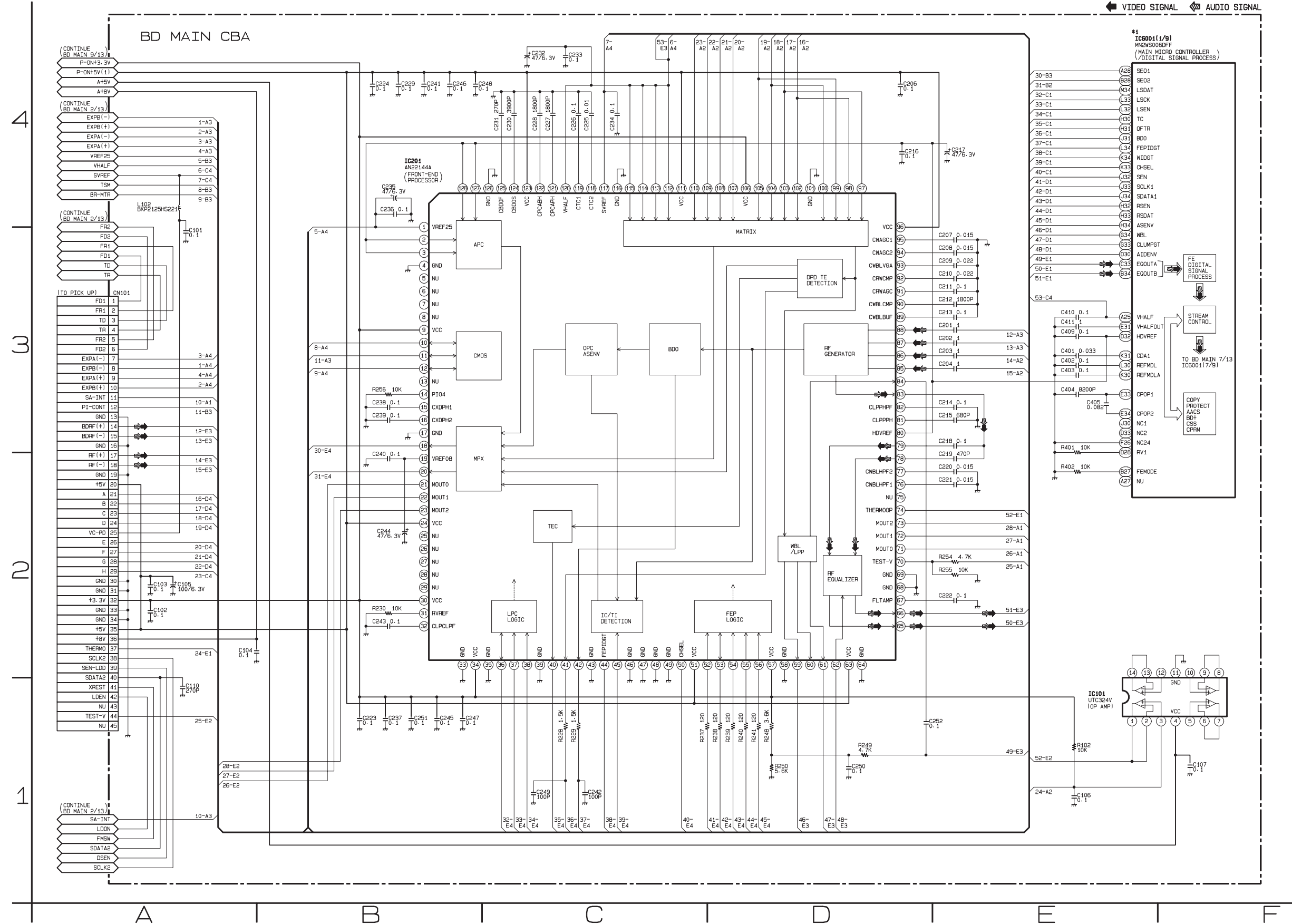61   62

BD Main 4/13 Schematic Diagram

BD MAIN CBA

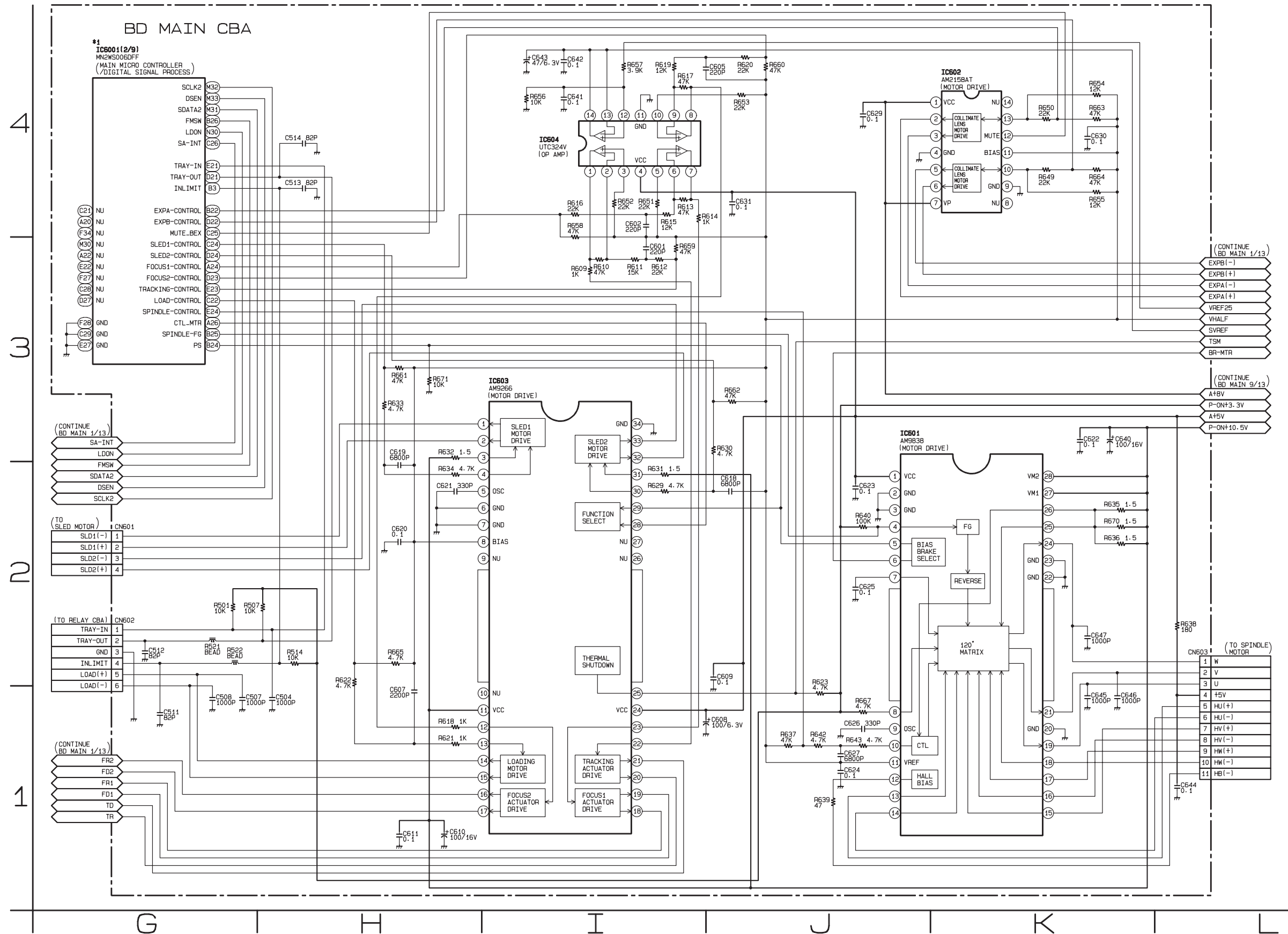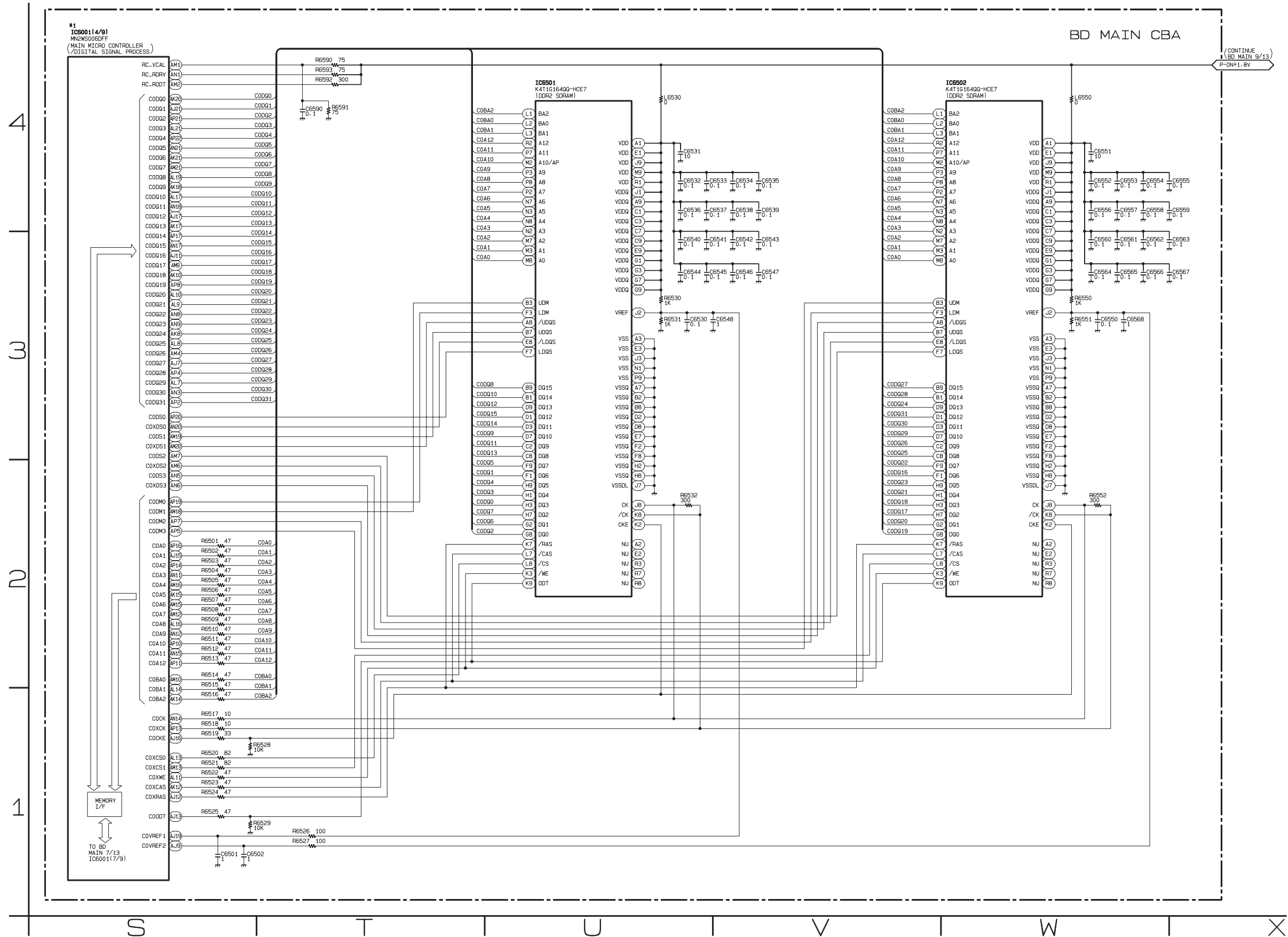# BD Main 5/13 Schematic Diagram

∗1 NOTE:
The order of pins shown in this diagram is different from that of actual IC6001.
IC6001 is divided into nine and shown as IC6001 (1/9) ~ IC6001 (9/9) in this BD Main Schematic Diagram Section.
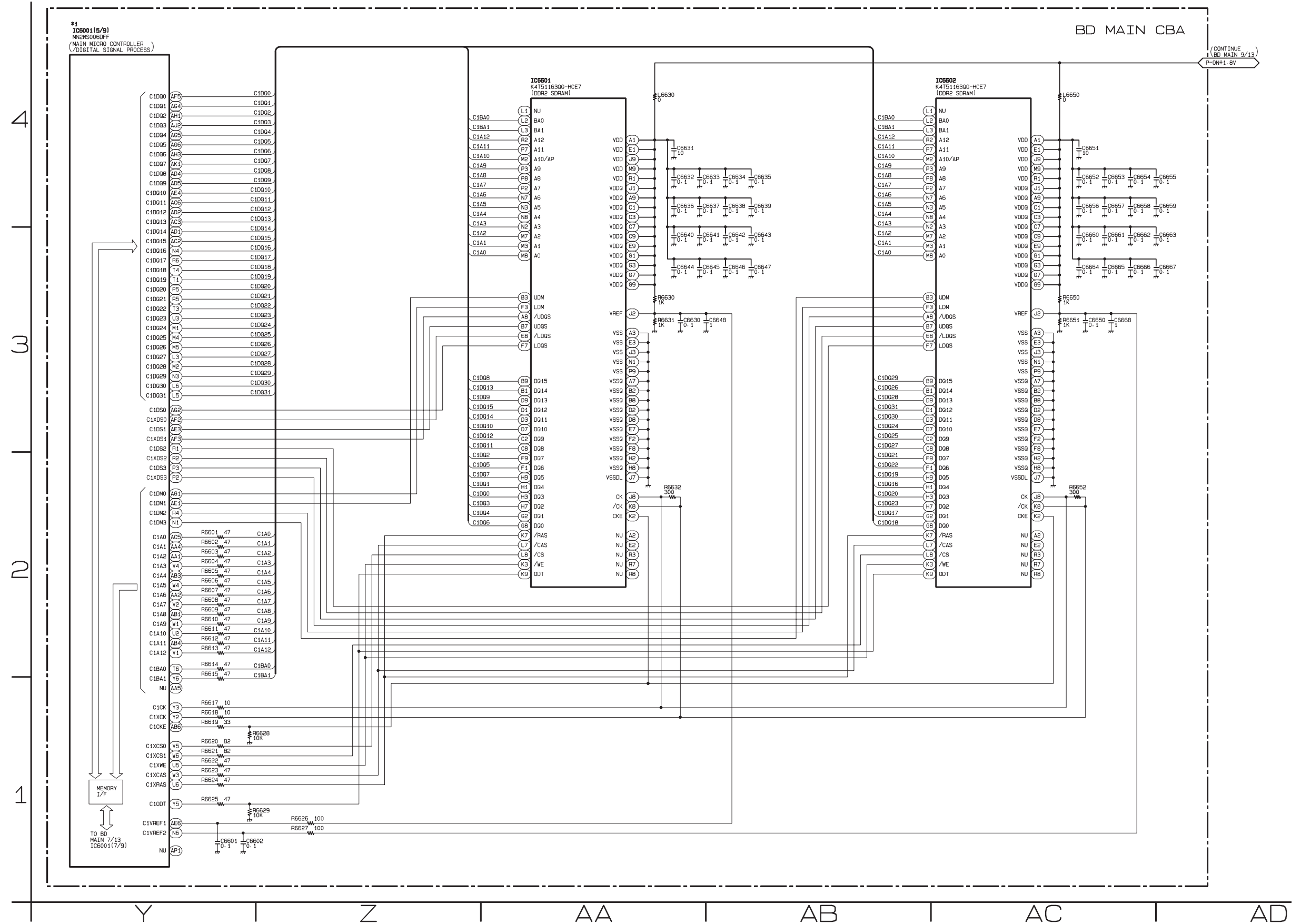
BD MAIN CBA

BD Main 6/13 Schematic Diagram

BD Main 7/13 Schematic Diagram

*1 NOTE:
The order of pins shown in this diagram is different from that of actual IC6001.
IC6001 is divided into nine and shown as IC6001 (1/9) ~ IC6001 (9/9) in this BD Main Schematic Diagram Section.
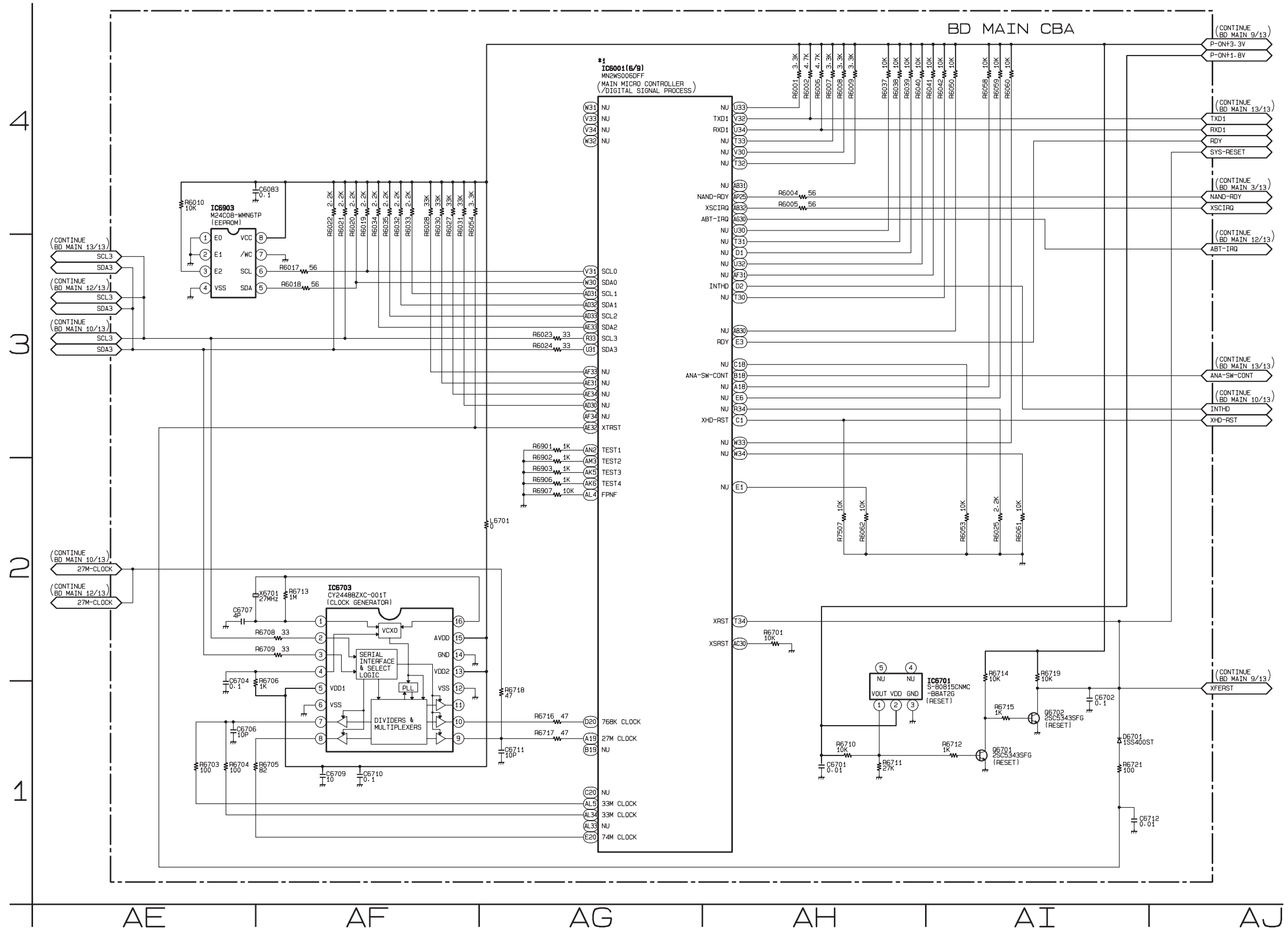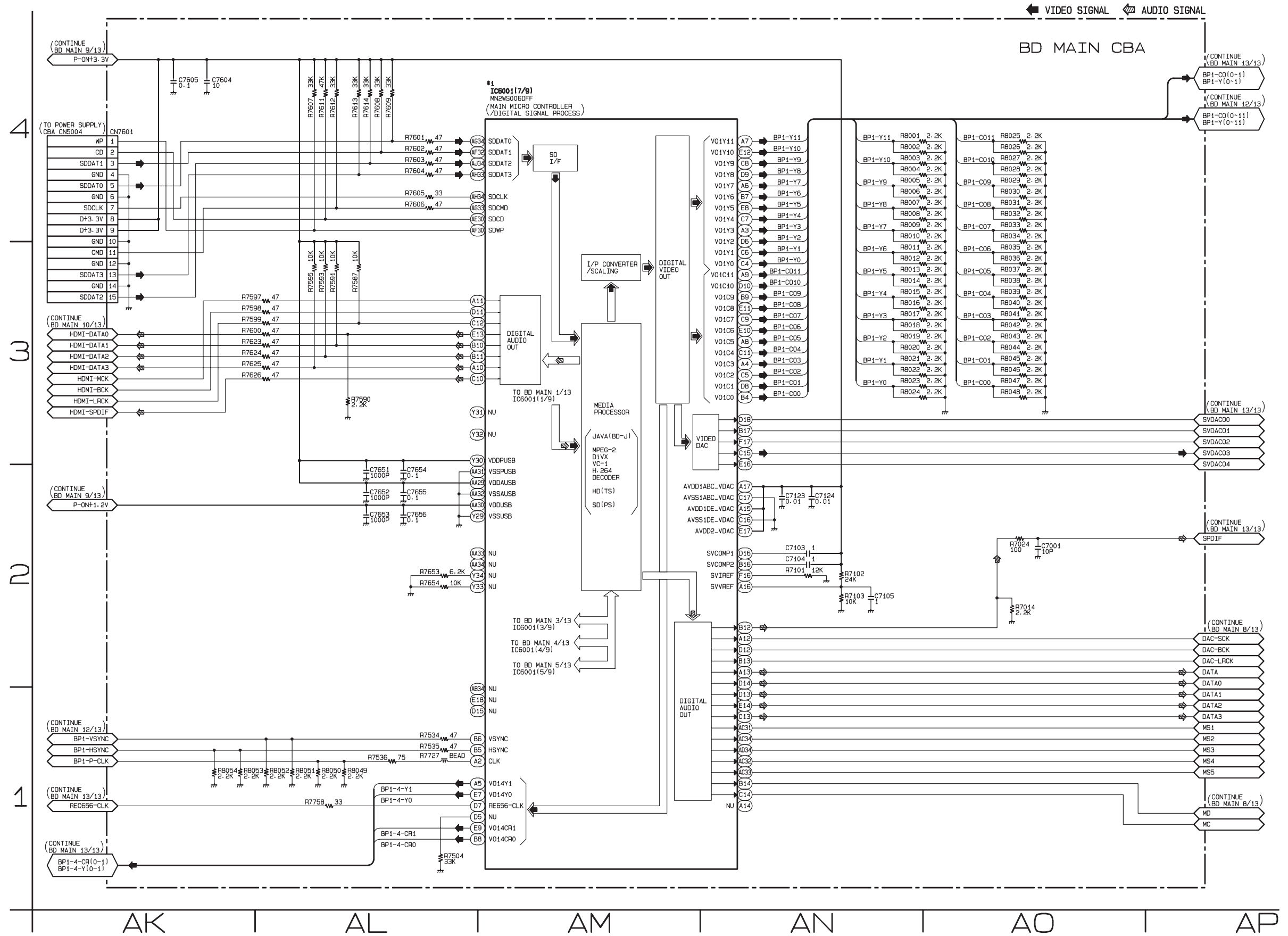
BD Main 8/13 Schematic Diagram

BD MAIN CBA

AUDIO SIGNAL

IC7001 PCM1782DBQR (AUDIO D/A CONVERTER)
IC7002 PCM1782DBQR (AUDIO D/A CONVERTER)
IC7003 PCM1782DBQR (AUDIO D/A CONVERTER)
IC7004 PCM1782DBQR (AUDIO D/A CONVERTER)
IC7005 PCM1782DBQR (AUDIO D/A CONVERTER)

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

(CONTINUE BD MAIN 7/13)
DAC-SCK
DAC-BCK
DAC-LRCK
DATA
DATA0
DATA1
DATA2
DATA3
MS1
MS2
MS3
MS4
MS5

(CONTINUE BD MAIN 7/13)
MD
MC

CN7001 (TO AUDIO CBA) CN2007
1 SURROUND BACK(R)
2 GND
3 SURROUND BACK(L)
4 SURROUND BACK-MUTE
5 SURROUND(L)
6 GND
7 SURROUND(R)
8 SURROUND-MUTE
9 SUB WOOFER-MUTE
10 SUB WOOFER
11 GND
12 CENTER
13 CENTER-MUTE
14 F-AUDIO(L)-MUTE
15 FRONT-AUDIO(L)
16 GND
17 FRONT-AUDIO(R)
18 F-AUDIO(R)-MUTE
19 AUDIO(L)-MUTE
20 AUDIO(R)-MUTE
21 GND
22 AUDIO(L)
23 GND
24 AUDIO(R)
25 AUDIO+5V
26 AUDIO+5V

AQ AR AS AT AU AV

71

72

BD Main 9/13 Schematic Diagram

*1 NOTE:
The order of pins shown in this diagram is different from that of actual IC6001.
IC6001 is divided into nine and shown as IC6001 (1/9) ~ IC6001 (9/9) in this BD Main Schematic Diagram Section.
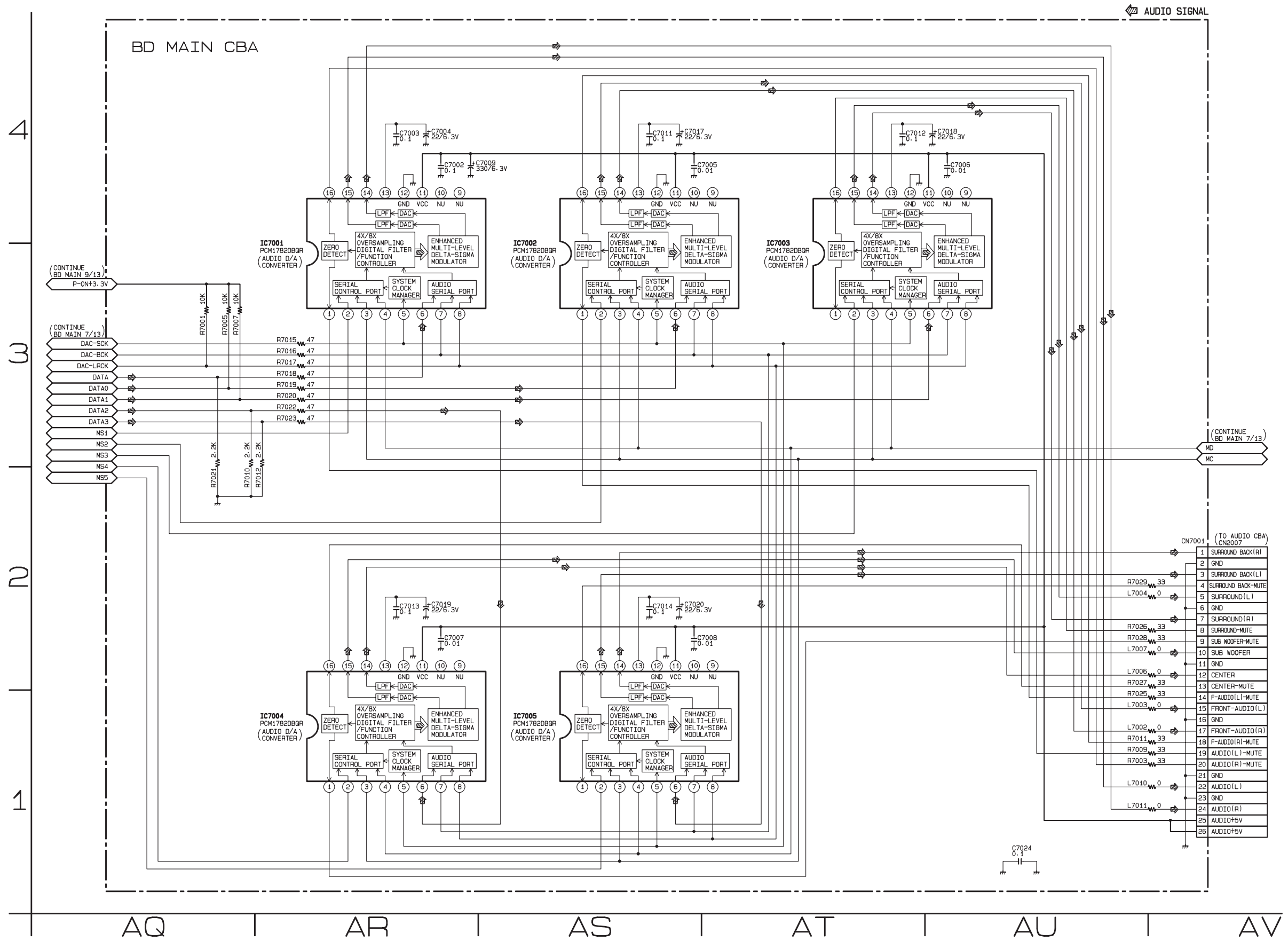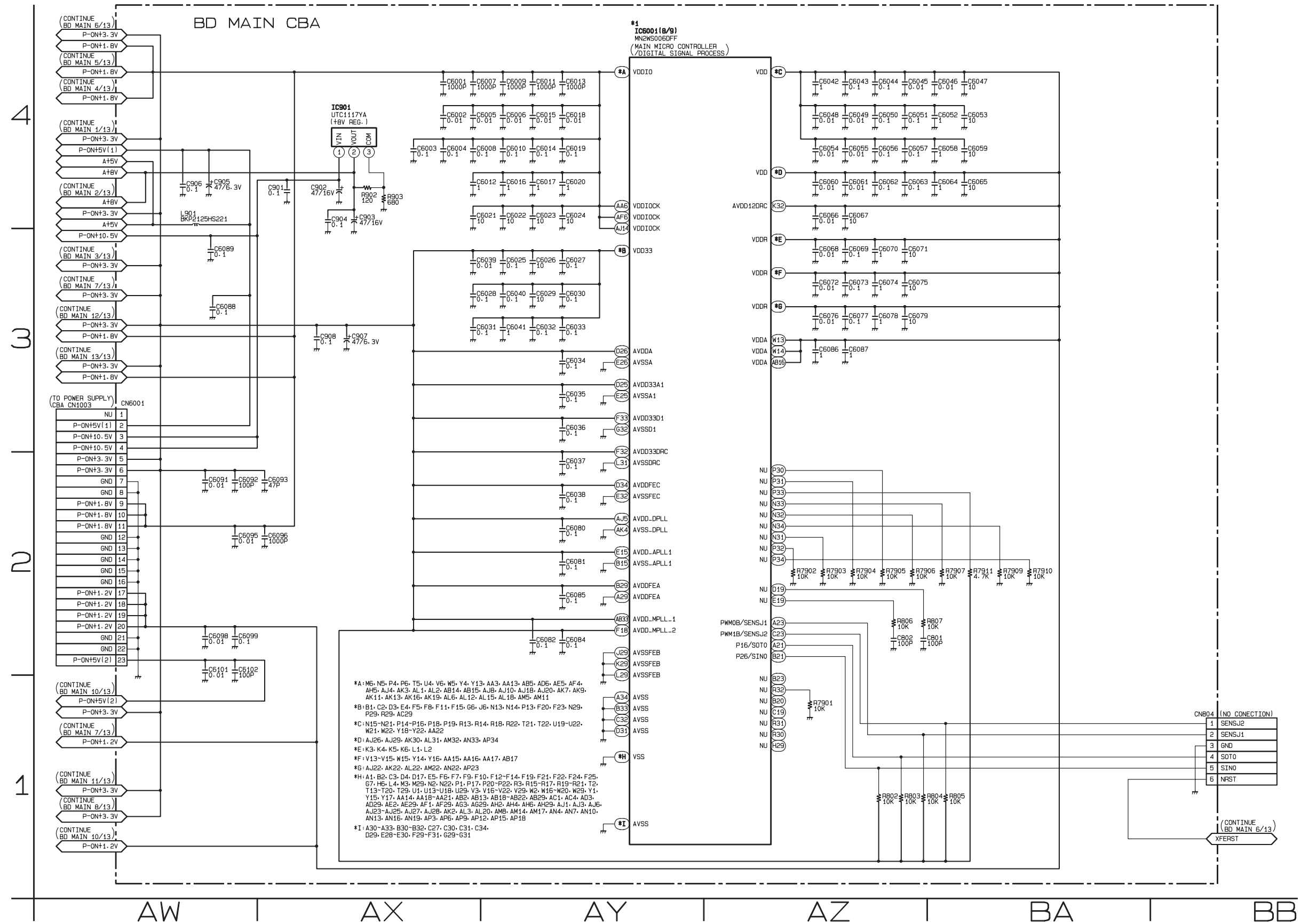
BD MAIN CBA

*1
IC6001(8/9)
MN2WS006DFF
(MAIN MICRO CONTROLLER /DIGITAL SIGNAL PROCESS)

IC901
UTC1117YA
(+8V REG.)
VIN VOUT COM

(TO POWER SUPPLY)
CBA CN1003   CN6001

NU	1	
P-ON+5V(1)	2	
P-ON+10.5V	3	
P-ON+10.5V	4	
P-ON+3.3V	5	
P-ON+3.3V	6	
GND	7	
GND	8	
P-ON+1.8V	9	
P-ON+1.8V	10	
P-ON+1.8V	11	
GND	12	
GND	13	
GND	14	
GND	15	
GND	16	
P-ON+1.2V	17	
P-ON+1.2V	18	
P-ON+1.2V	19	
P-ON+1.2V	20	
GND	21	
GND	22	
P-ON+5V(2)	23	

VDDIO
VDD
VDDIOCK
VDD33
AVDDA
AVSSA
AVDD33A1
AVSSA1
AVDD33D1
AVSSD1
AVDD33DRC
AVSSDRC
AVDDFEC
AVSSFEC
AVDD_DPLL
AVSS_DPLL
AVDD_APLL1
AVSS_APLL1
AVDDFEA
AVDDFEA
AVDD_MPLL_1
AVDD_MPLL_2
AVSSFEB
AVSSFEB
AVSSFEB
AVSS
AVSS
AVSS
AVSS
VSS
AVSS

VDDR
VDDR
VDDR
VDDA
VDDA
VDDA
AVDD12DRC

PWM0B/SENSJ1
PWM1B/SENSJ2
P16/SOT0
P26/SIN0

CN804 (NO CONECTION)
1	SENSJ2
2	SENSJ1
3	GND
4	SOT0
5	SIN0
6	NRST

(CONTINUE BD MAIN 6/13)
XFERST

AW   AX   AY   AZ   BA   BB

BD Main 10/13 Schematic Diagram

BD MAIN CBA

VIDEO SIGNAL   AUDIO SIGNAL

IC7501
MN864704
(HDMI INTERFACE)

JK7501 (HDMI-CONNECTOR)

BD Main 11/13 Schematic Diagram

*1 **NOTE:**
The order of pins shown in this diagram is different from that of actual IC6001.
IC6001 is divided into nine and shown as IC6001 (1/9) ~ IC6001 (9/9) in this BD Main Schematic Diagram Section.
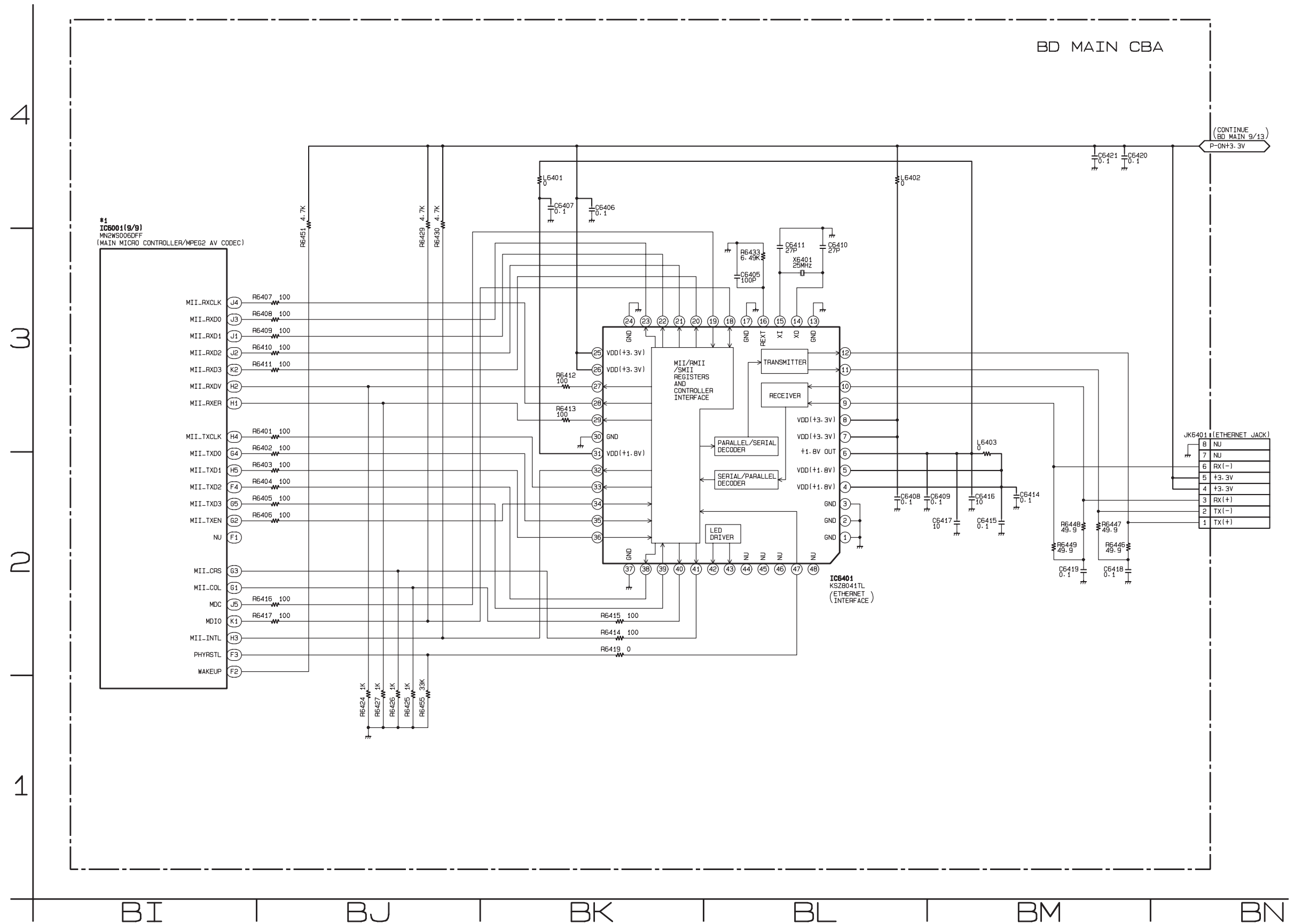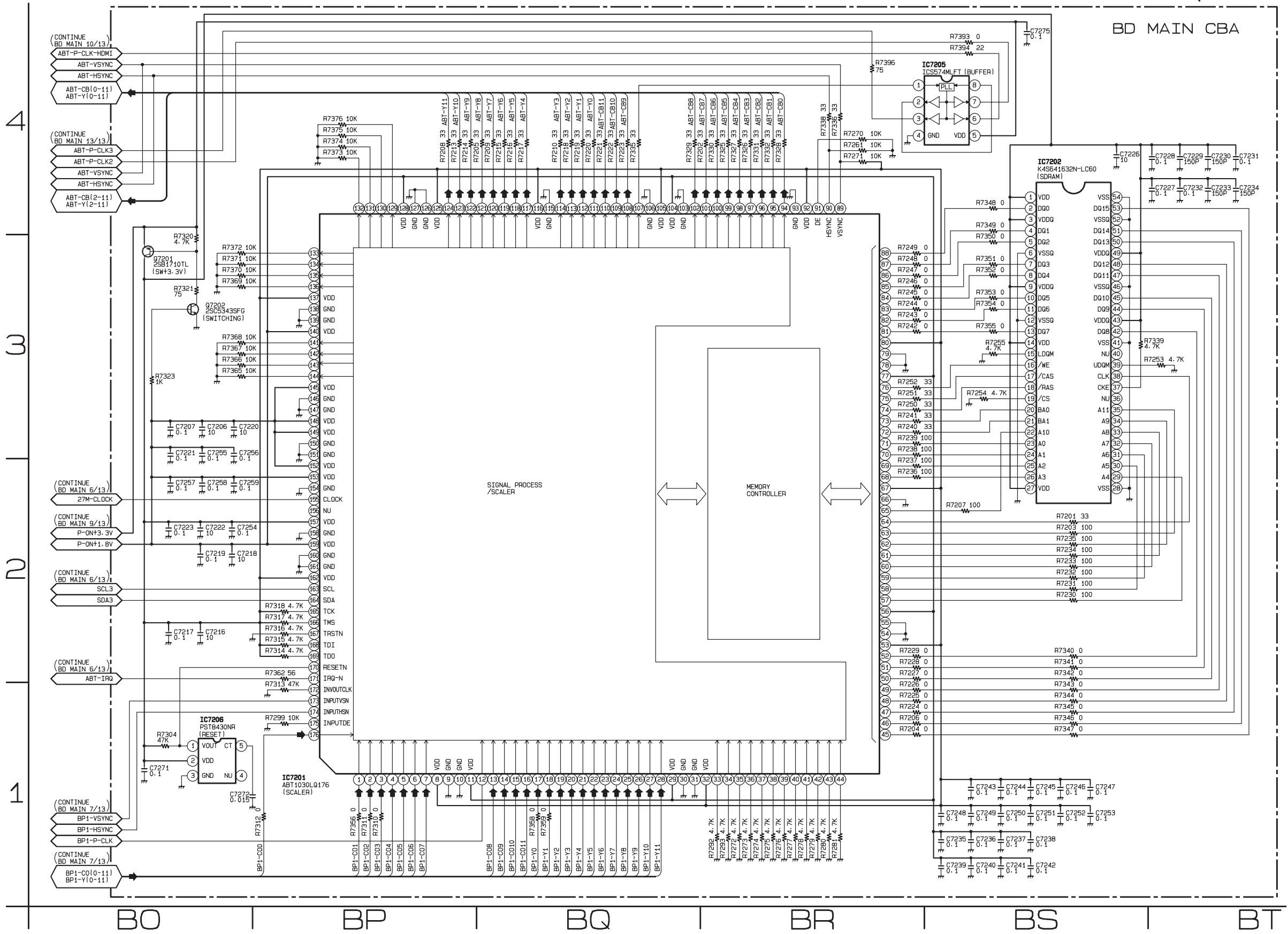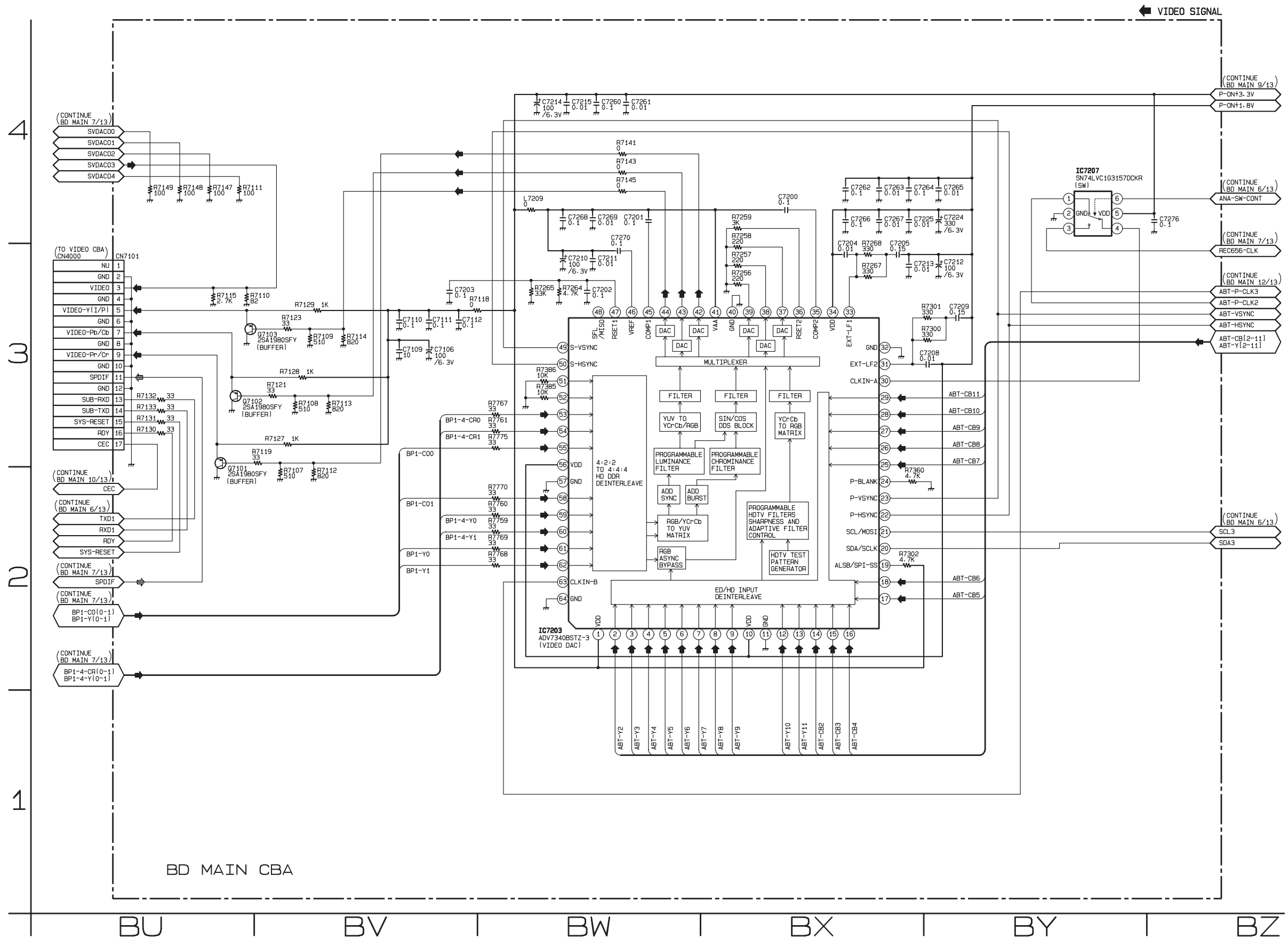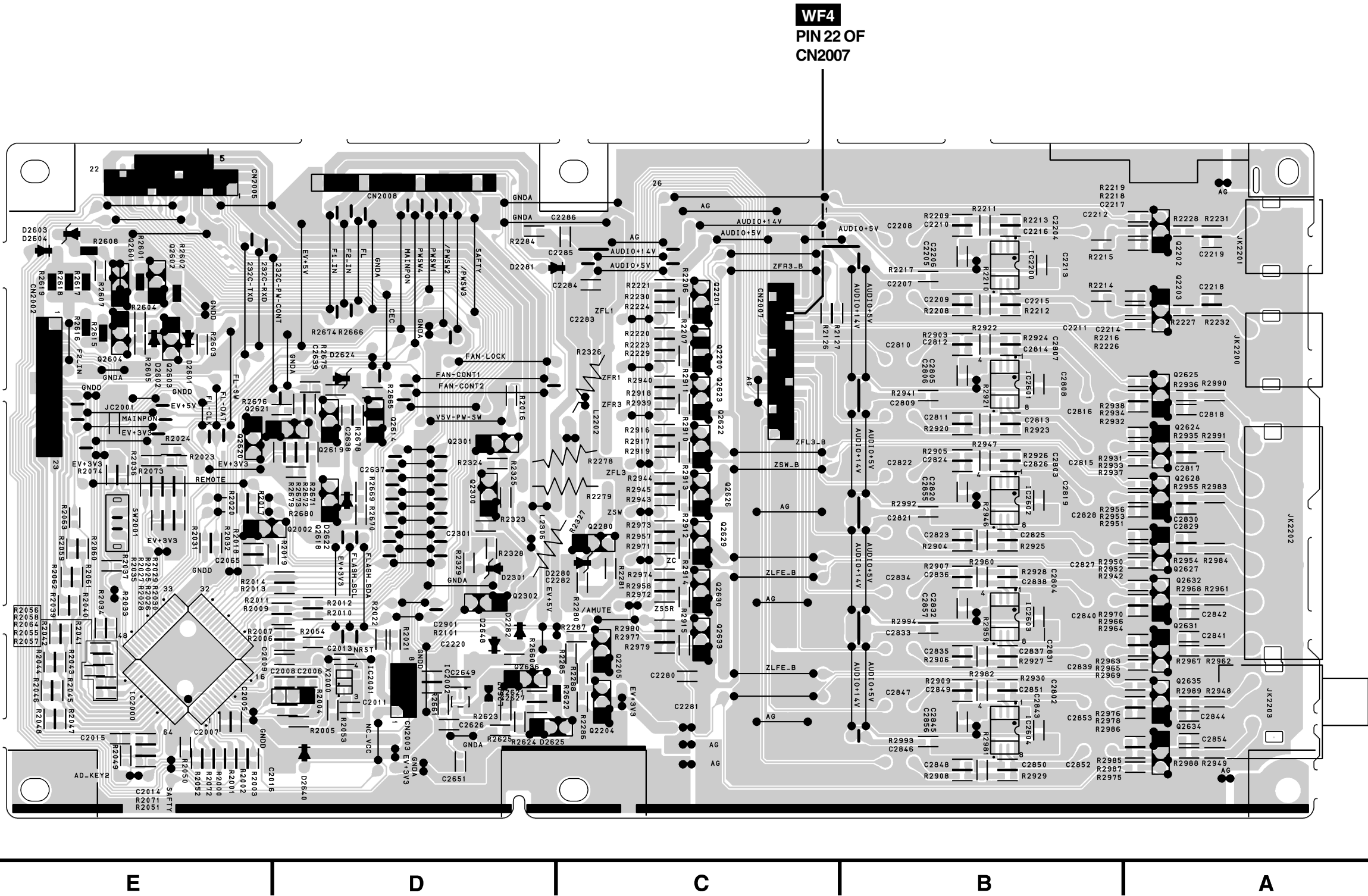
BD MAIN CBA

*1
IC6001(9/9)
MN2WS006DFF
(MAIN MICRO CONTROLLER/MPEG2 AV CODEC)

MII_RXCLK J4 R6407 100
MII_RXD0 J3 R6408 100
MII_RXD1 J1 R6409 100
MII_RXD2 J2 R6410 100
MII_RXD3 K2 R6411 100
MII_RXDV H2
MII_RXER H1

MII_TXCLK H4 R6401 100
MII_TXD0 G4 R6402 100
MII_TXD1 H5 R6403 100
MII_TXD2 F4 R6404 100
MII_TXD3 G5 R6405 100
MII_TXEN G2 R6406 100
NU F1

MII_CRS G3
MII_COL G1
MDC J5 R6416 100
MDIO K1 R6417 100
MII_INTL H3
PHYRSTL F3
WAKEUP F2

R6451 4.7K
R6429 4.7K
R6430 4.7K

L6401 0
C6407 0.1
C6406 0.1

R6433 6.49K
C6411 27P
C6410 27P
X6401 25MHz
C6405 100P

L6402 0

C6421 0.1
C6420 0.1

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

(24)(23)(22)(21)(20)(19)(18)(17)(16)(15)(14)(13)
GND   REXT X1 XO GND

25 VDD(+3.3V)
26 VDD(+3.3V)
27
28
29
30 GND
31 VDD(+1.8V)
32
33
34
35
36

MII/RMII
/SMII
REGISTERS
AND
CONTROLLER
INTERFACE

TRANSMITTER
RECEIVER

PARALLEL/SERIAL
DECODER
SERIAL/PARALLEL
DECODER

LED
DRIVER

R6412 100
R6413 100

12
11
10
9
VDD(+3.3V) 8
VDD(+3.3V) 7
+1.8V OUT 6
VDD(+1.8V) 5
VDD(+1.8V) 4
GND 3
GND 2
GND 1

GND   NU NU NU NU NU
(37)(38)(39)(40)(41)(42)(43)(44)(45)(46)(47)(48)

IC6401
KSZ8041TL
(ETHERNET
INTERFACE)

L6403 0

C6408 0.1
C6409 0.1
C6416 10
C6414 0.1
C6417 10
C6415 0.1

R6448 49.9
R6447 49.9
R6449 49.9
R6446 49.9
C6419 0.1
C6418 0.1

JK6401 (ETHERNET JACK)
8 NU
7 NU
6 RX(-)
5 +3.3V
4 +3.3V
3 RX(+)
2 TX(-)
1 TX(+)

R6415 100
R6414 100
R6419 0

R6424 1K
R6427 1K
R6426 1K
R6425 1K
R6455 33K

BI   BJ   BK   BL   BM   BN

77
78

BD Main 12/13 Schematic Diagram

BD MAIN CBA

VIDEO SIGNAL

BD Main 13/13 Schematic Diagram

VIDEO SIGNAL

BD MAIN CBA

IC7203
ADV7340BSTZ-3
(VIDEO DAC)

IC7207
SN74LVC1G3157DCKR
(SW)

BU   BV   BW   BX   BY   BZ

Audio CBA Top View

Audio CBA Bottom View

WF4
PIN 22 OF
CN2007

3

2

1

E   D   C   B   A

Video CBA Top View

Video CBA Bottom View

Power Supply CBA Top View

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.
ATTENTION : Pour une protection continue les risqes 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 reprèsente un fusible à fusion rapide."

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

NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.
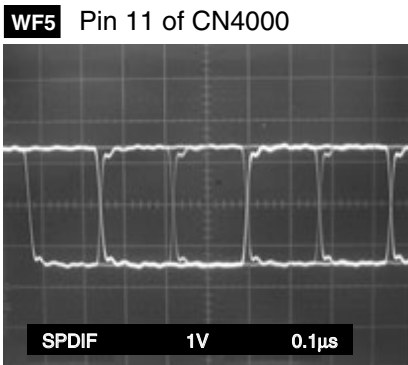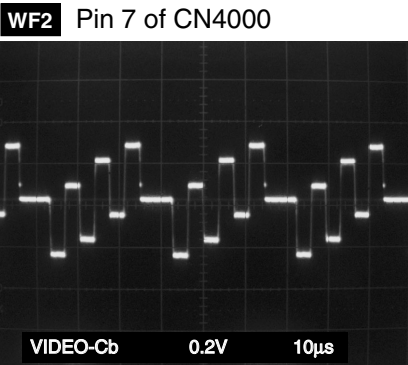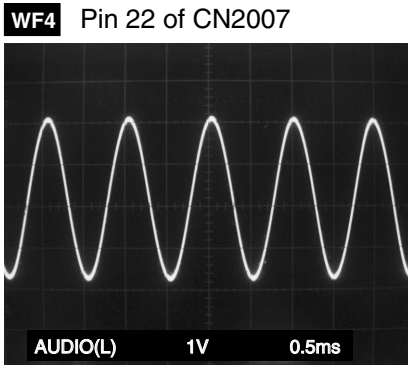
RISK OF FIRE-REPLACE
FUSE AS MARKED

2A/250V

Power Supply CBA Bottom View

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.
ATTENTION : Pour une protection continue les risqes
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 reprèsente à fusible à fusion rapide."

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

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

91 92

Front A CBA Top View

Front B CBA Top View

Front A CBA Bottom View

Front B CBA Bottom View

BE5KA0F01011

BE5KA0F01011

93

94

RS232C CBA Top View

RS232C CBA Bottom View

BE5KA0F01021E

SD CBA Top View

SD CBA Bottom View

INLET CBA Top View

INLET CBA Bottom View

BE5KA0F01021B

BE5KA0F01021C

16. WAVEFORMS

WF1 Pin 9 of CN4000

VIDEO-Cr   0.2V   10µs

WF4 Pin 22 of CN2007

AUDIO(L)   1V   0.5ms

WF2 Pin 7 of CN4000

VIDEO-Cb   0.2V   10µs

WF5 Pin 11 of CN4000

SPDIF   1V   0.1µs

WF3 C4018 PLUS LEAD
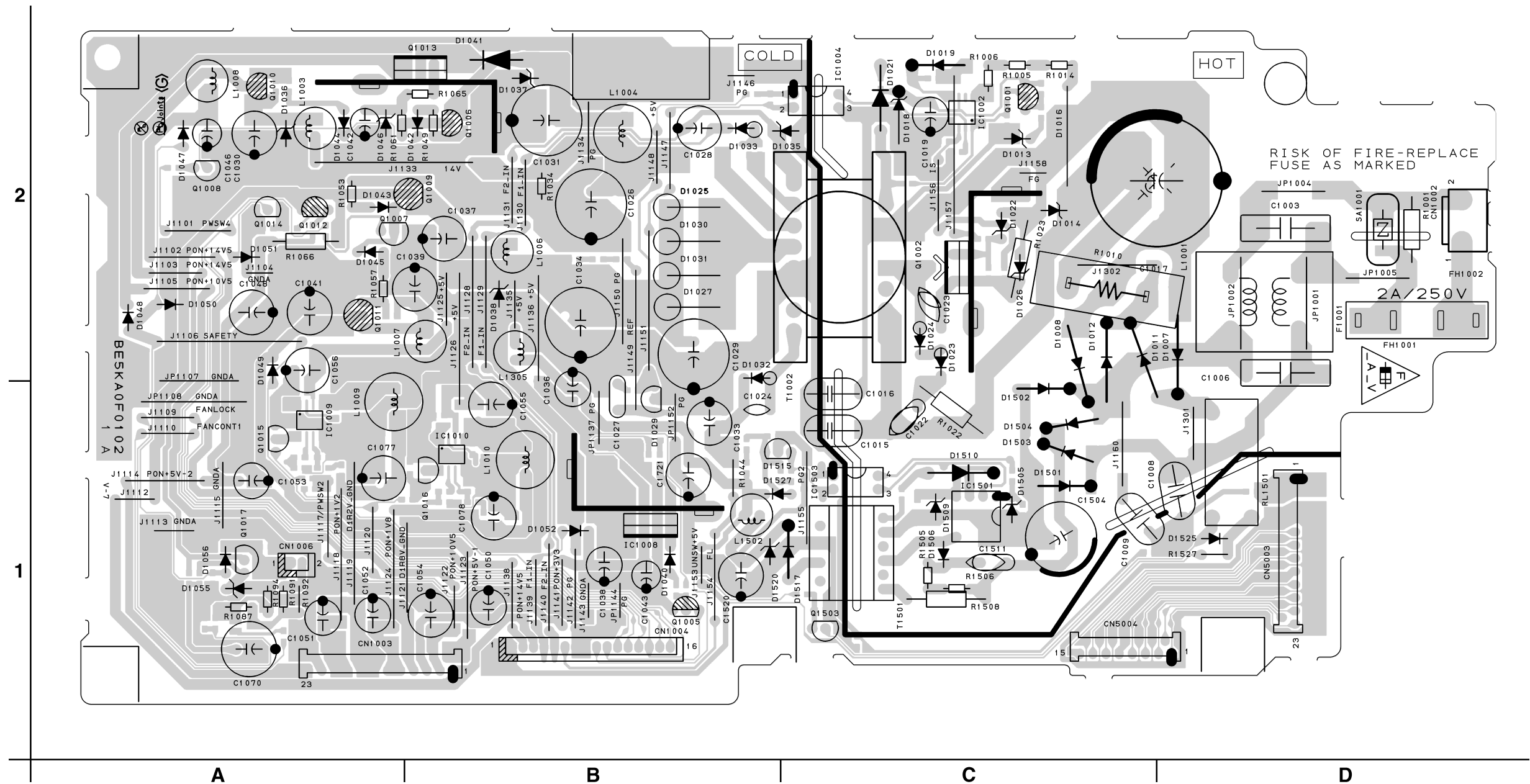
VIDEO-CVBS   0.5V   20µs
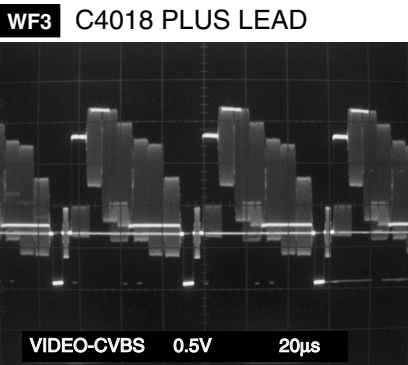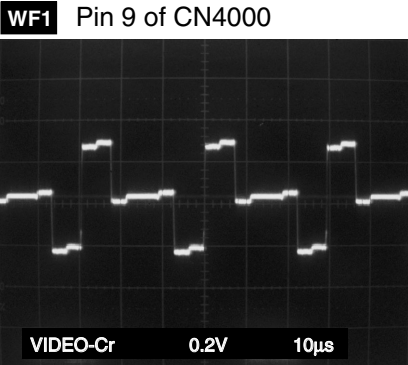
NOTE:
Input Signal (DVD)
  VIDEO: 75% COLOR BAR
  AUDIO: 1KHz, 0dB

17. WIRING DIAGRAM
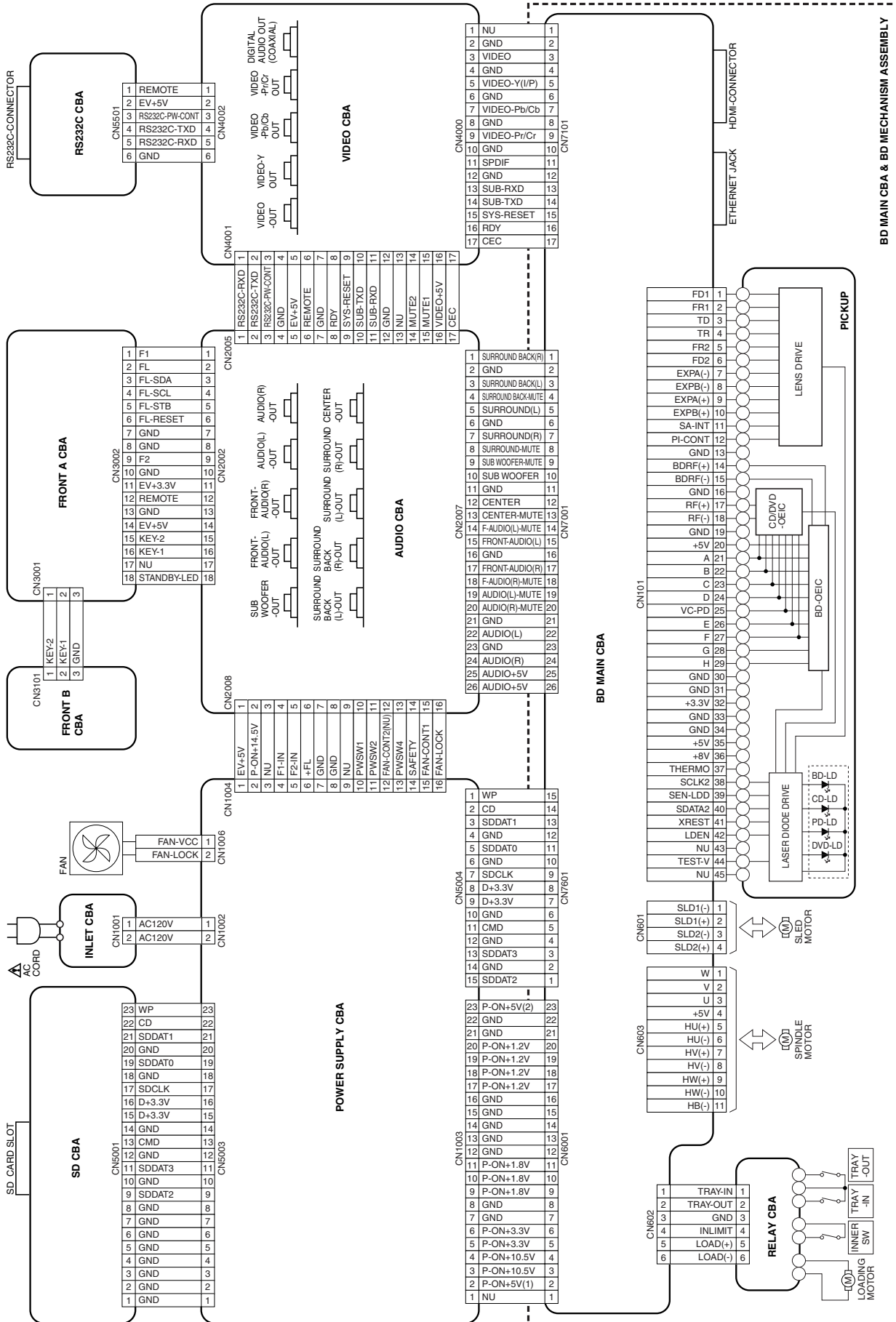
18. LEAD IDENTIFICATIONS
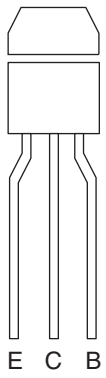
2SA1980M Y
2SA1980MG-AT
2SC5343MG-AT
KRA104M-AT/P
KRC102M-AT/P
KRC103M-AT/P
KRC106M-AT/P
KTC3199-GR-AT/P
KTA1267(GR, Y)-AT/P
RN1203(TE4 F T)
RN1206
SRA2204M-AT
SRC1202M-AT
SRC1206M-AT
SRC1203MAT

E C B
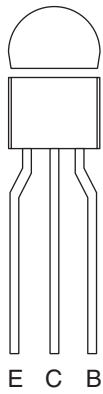
2SA1015-(GR, Y)(TE2 F T)
2SA1981Y-AT
2SA950-Y(TE2 F T)
2SA966-Y(TE6 F M)
2SC1815-GR(TE2 F T)
2SC2120-Y(TE2 F T)
2SC5344 Y
KTA1271-Y-AT/P
KTC3203-Y-AT/P
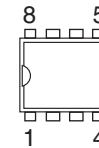STB1277LY-AT

E C B

KTA1273-Y-AT/P

R A K

KHB4D5N60F-U/PMC

G D S
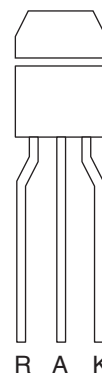
BD9323EFJ-E2
FA5573N-D1-TE1

8   5

1   4
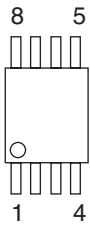
EL817(B, C)
LTV-817(B, C)-F
PS2561A-1(W)

1   4
2   3

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

PST8430NR
S-80930CNMC-G80T2(G, J)

5   4
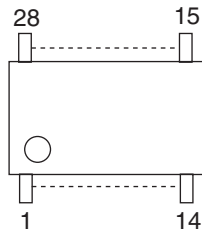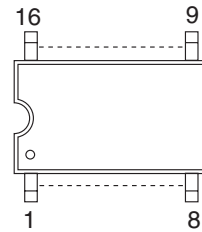
1 2 3

NJM4580E-TE1

8   5

1   4

MN101C77A GC

48   33
49   32

64   17
1   16
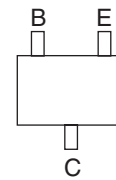
MM1757EHBE
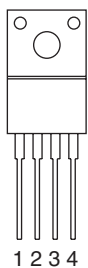
28   15

1   14
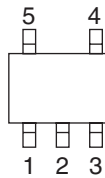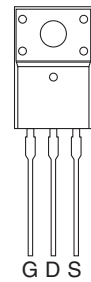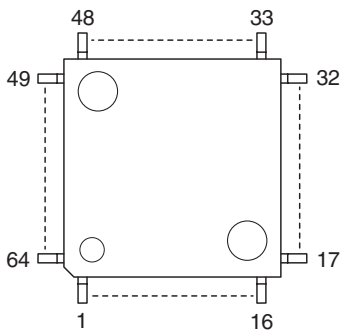
ADM232AARN
SP232ACN-L/TR

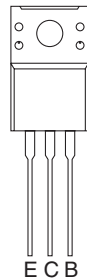16   9

1   8

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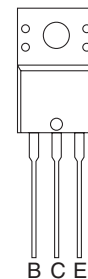
B   E

C

PQ070XF01SZH
PQ070XFC1SZF

1 2 3 4

KTC2026-Y/P

E C B

2SK3563(Q)
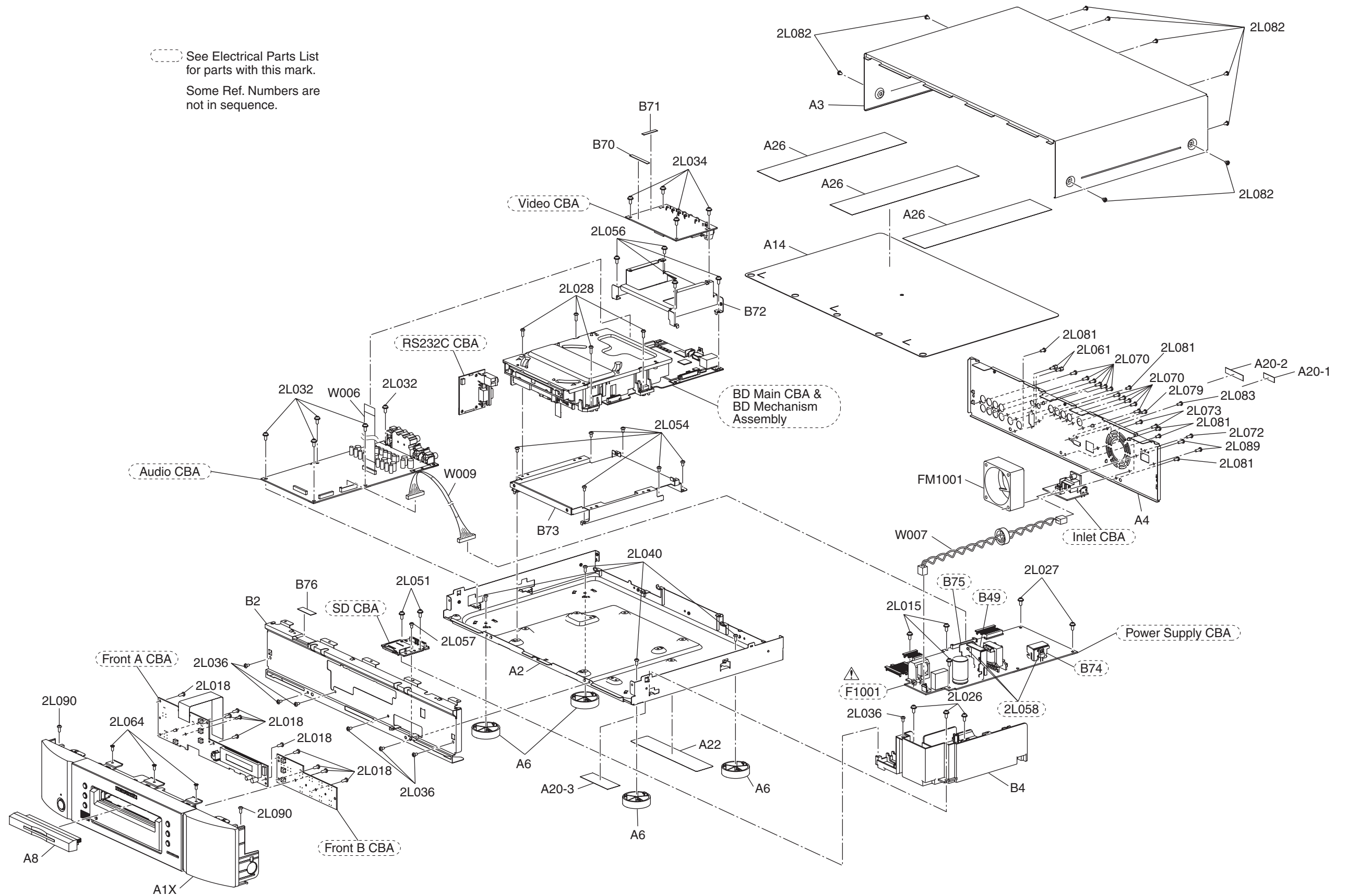2SK3563(Q M)

G D S

STC403

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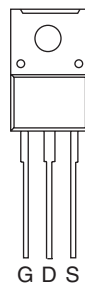
Note:
A: Anode
K: Cathode
E: Emitter
C: Collector
B: Base
R: Reference
G: Gate
D: Drain
S: Source

Personal notes:

19. EXPLODED VIEW AND PARTS LIST

Cabinet

See Electrical Parts List for parts with this mark.

Some Ref. Numbers are not in sequence.

2L082

2L082

A3

A26

A26

A26

A14

B71

B70

2L034

Video CBA

2L056

2L028

B72

RS232C CBA

2L081

2L061

2L070

2L081

2L070

2L079

2L083

A20-2

A20-1

2L032

W006

2L032

2L073

2L081

2L072

2L089

2L081

BD Main CBA & BD Mechanism Assembly

Audio CBA

W009

2L054

B73

FM1001

Inlet CBA

A4

W007

2L040

2L027

B75

B49

B76

2L051

B2

SD CBA

2L015

Power Supply CBA

2L057

B74

Front A CBA

2L036

A2

F1001

2L018

2L036

2L090

2L064

2L018

2L018

2L018

2L026

2L058

2L036

2L018

A22

B4

2L036

A20-3

A6

A6

A8

A6

A1X

Front B CBA

2L090

A6

Packing

Upper Side ──────────────────────→ Lower Side

X1   X41   X40   ⚠ X15   X14   X6

Some Ref. Numbers
are not in sequence.

S1

X11

X19

X10

S3

A20

S1

S2

A20

P.W.B. NAME	POS. NO.	PART NO. (MZ)	PART NAME	DESCRIPTION	
	A1X	9H2402002110M	PANEL	FRONT ASSEMBLY E5KB0UD	1VM123079
	A2	nsp	CHASSIS	CHASSIS E5KA0UD	1VM021192
	A4	nsp	PANEL	REAR PANEL E5KB0UD	1VM227396
	A6	9H2407002120M	LEG	FOOT ASSEMBLY E5KB0UD	1VM431645
	A8	9H2418002130M	ESCUTCHEON	TRAY PANEL ASSEMBLY E5KB0UD	1VM227256
	FM1001	9H2685001110S	MOTOR	MOTOR DC FAN 2D65BL100190	MMEZR12XNR08
	W006	9H2606002000S	CORD	WIRE ASSEMBLY FFC 26/169/1.0	WX1E5KA0-006
BD	1B1	9H2189002140M	PWB ASSY	BD MAIN CBA & BD MECHANISM ASSEMBLY	N77B0BUN
AV		9H2189002150M	PWB ASSY	AV ASSEMBLY	1VSA21908
POWER		9H2189002160M	PWB ASSY	POWER ASSEMBLY	1VSA21907
PACKING					
	X1!	9H2541002170M	USER GUIDE	OWNERS MANUAL E5KB0UD	1VMN27573
POWER	⚠X15	00D9H26000887	MAINS CORD	AC CORD WITH A GND WIRE UL/CSA/ 162/ NO/BLACK	WAV0162LW001
	X15	9H2611002050S	CORD	CORD W/O A GND WIRE UL/CSA(VW-1)/152/NO/	WAV0152LTE01
	X19	9H2307002180M	UNIT KIT	REMOTE CONTROL UNIT RC004BD	NB423UD
NOT STANDARD SPARE PART					
	A3	9H2403001970D	LID	TOP COVER E5KA0UD	1VM021193
	S1	9H2533002190M	CUSHION	SIDE PAD E5KB0UD	1VM123119
	S2	9H2531002200M	PACKING CASE	GIFT BOX CARTON E5KB0UD	1VM330460
	X14	9H2605002100S	CORD	AV CORD 1000/BLACK	WPZ0102TM018
	X14	00D9H26000762	CORD	AV CORD RCA(M*2)TO RCA(M*2)	WPZ0102LTE01
ELECTRICAL PART					
AUDIO	JK2200	9H2646000490S	TERMINAL	RCA JACK MSP-251V-10 GILT LF	JXRL010LY143
AUDIO	JK2202	9H2646002210M	TERMINAL	RCA JACK 6PIN MSD-246V-21 GILT LF	JXRL060LY169
AUDIO	JK2203	9H2646002220M	TERMINAL	RCA JACK 2PIN MSD-242V-12 GILT LF	JXRL020LY168
RS232C	JK5550	9H2643001890S	TERMINAL	JACK HPEP SML PCB L MSJ-035-50B AG (PPO)	JYSL020LY009
RS232C	JK5550	00D2048729008	TERMINAL	PHONE JACK HSJ1003-016020	JYSL020HD007