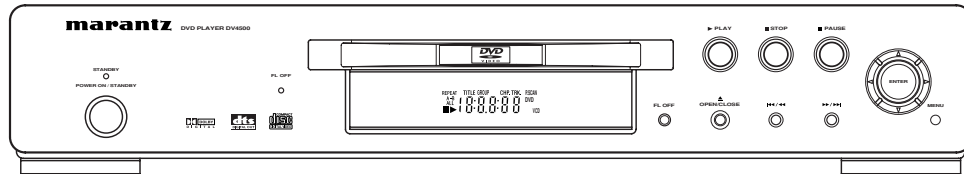


# Service Manual

DV4500 /N1B/N1S

DVD Player



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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®

## DV4500

## 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**  
1100 MAPLEWOOD DRIVE  
ITASCA, IL. 60143  
USA  
PHONE : 630 - 741 - 0300  
FAX : 630 - 741 - 0301

#### EUROPE / TRADING

**MARANTZ 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

**MARANTZ CANADA INC.**  
5-505 APPLE CREEK BLVD.  
MARKHAM, ONTARIO L3R 5B1  
CANADA  
PHONE : 905 - 415 - 9292  
FAX : 905 - 475 - 4159

#### PROFESSIONAL AMERICAS

**SUPERSCOPE TECHNOLOGIES, INC.**  
MARANTZ PROFESSIONAL PRODUCTS  
2640 WHITE OAK CIRCLE, SUITE A  
AURORA, ILLINOIS 60504 USA  
PHONE : 630 - 820 - 4800  
FAX : 630 - 820 - 8103

#### PROFESSIONAL AUSTRALIA

**TECHNICAL AUDIO GROUP PTY, LTD**  
43-53 Bridge Rd.,  
STANMORE NSW 2048  
AUSTRALIA  
PHONE : +61 - (0)2 - 9519 - 0900  
FAX : +61 - (0)2 - 9519 - 0600

#### PROFESSIONAL HONG KONG

**Jolly ProAudio Broadcast Engineering Ltd.**  
UNIT 2, 10F, WAH HUNG CENTRE,  
41 HUNG TO ROAD, KWUN TONG, KLN.,  
HONG KONG  
PHONE : 852 - 21913660  
FAX : 852 - 21913990

#### AUSTRALIA

**QualiFi Pty Ltd,**  
24 LIONEL ROAD,  
MT. WAVERLEY VIC 3149  
AUSTRALIA  
PHONE : +61 - (0)3 - 9543 - 1522  
FAX : +61 - (0)3 - 9543 - 3677

#### THAILAND

**MRZ STANDARD CO., LTD**  
746 - 754 MAHACHAI ROAD.,  
WANGBURAPAPIROM, PHRANAKORN,  
BANGKOK, 10200 THAILAND  
PHONE : +66 - 2 - 222 9181  
FAX : +66 - 2 - 224 6795

#### SINGAPORE

**WO KEE HONG DISTRIBUTION PTE LTD**  
No.1 JALAN KILANG TIMOR  
#08-03 PACIFIC TECH CENTRE  
SINGAPORE 159303  
PHONE : +65 6376 0338  
FAX : +65 6376 0166

#### NEW ZEALAND

**WILDASH AUDIO SYSTEMS NZ**  
14 MALVERN ROAD MT ALBERT  
AUCKLAND NEW ZEALAND  
PHONE : +64 - 9 - 8451958  
FAX : +64 - 9 - 8463554

#### TAIWAN

**PAI- YUING CO., LTD.**  
6 TH FL NO, 148 SUNG KIANG ROAD,  
TAIPEI, 10429, TAIWAN R.O.C.  
PHONE : +886 - 2 - 25221304  
FAX : +886 - 2 - 25630415

#### MALAYSIA

**WO KEE HONG ELECTRONICS SDN. BHD.**  
2ND FLOOR BANGUNAN INFINITE CENTRE  
LOT 1, JALAN 13/6, 46200 PETALING JAYA  
SELANGOR DARUL EHSAN, MALAYSIA  
PHONE : +60 - 3 - 7954 8088  
FAX : +60 - 3 - 7954 7088

#### JAPAN *Technical*

**MARANTZ JAPAN, INC.**  
35- 1, 7- CHOME, SAGAMIONO  
SAGAMIHARA - SHI, KANAGAWA  
JAPAN 228-8505  
PHONE : +81 42 748 1013  
FAX : +81 42 741 9190

#### 日本マランツ株式会社

本社 〒228-8505  
神奈川県相模原市相模大野7-35-1

#### KOREA

**MK ENTERPRISES LTD.**  
ROOM 604/605, ELECTRO-OFFICETEL, 16-58,  
3GA, HANGANG-RO, YONGSAN-KU, SEOUL  
KOREA  
PHONE : +822 - 3232 - 155  
FAX : +822 - 3232 - 154

### 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. 1492.

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

# TECHNICAL SPECIFICATIONS

## SIGNAL SYSTEM

PAL color

## APPLICABLE DISCS

- (1) DVD-Video Discs  
1-layer 12cm single-sided discs, 2-layer 12cm single-sided discs, 2-layer 12cm double-sided discs (1 layer per side)  
1-layer 8cm single-sided discs, 2-layer 8cm single-sided discs, 2-layer 8cm double-sided discs (1 layer per side)
- (2) DVD-R/DVD-RW
- (3) Compact discs (CD-DA, Video CD)  
12cm discs, 8cm discs
- (4) CD-R/CD-RW

## S-VIDEO OUTPUT

Y output level: 1Vp-p (75  $\Omega$ )  
C output level: 0.30Vp-p  
Output connectors: S connectors, 1 set

## VIDEO OUTPUT

Output level: 1Vp-p (75  $\Omega$ )  
Output connector: Pin jacks, 1 set

## COMPONENT OUTPUT

Y output level: 1Vp-p (75  $\Omega$ )  
C<sub>B</sub>/P<sub>B</sub> output level: 0.7Vp-p (75  $\Omega$ )  
C<sub>R</sub>/P<sub>R</sub> output level: 0.7Vp-p (75  $\Omega$ )  
Output connector: Pin jacks, 1 set

## AUDIO/VIDEO

21-pin scart jack

## AUDIO OUTPUT

Output level: 2Vrms  
2 channel (L, R) output connector: Pin jack, 1 set

## AUDIO OUTPUT PROPERTIES

- (1) Frequency response  
1 DVDs (linear PCM) : 4Hz to 22kHz (48 kHz sampling)  
                              : 4Hz to 44kHz (96 kHz sampling)  
2 CDs : 4Hz to 20kHz
- (2) S/N ratio : 115dB
- (3) Total harmonic distortion : 1kHz CD: 0.0045%
- (4) Dynamic range : DVD: 100dB  
                              CD: 98dB

## DIGITAL AUDIO OUTPUT

Optical digital output: Optical connector, 1 set  
Coaxial digital output: Pin jack, 1 set

## POWER SUPPLY

AC 230V, 50Hz

## POWER CONSUMPTION

12 W

## MAXIMUM EXTERNAL DIMENSIONS

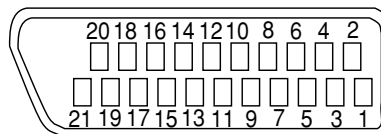
440 (width) x 75 (height) x 211 (depth) mm

## MASS

2.1 Kg (4.6 lbs)

## REMOTE CONTROL UNIT

RC6500DV  
Infrared pulse type  
Supply: DC 3V, 2 R6P/AA batteries








## Contacts, signal levels and impedances

<i>Contact 1</i>	Audio Output (Right):	2.0Vrms/ 1k $\Omega$
<i>Contact 3</i>	Audio Output (Left):	2.0Vrms/ 1k $\Omega$
<i>Contact 4</i>	Audio, Ground	
<i>Contact 5</i>	RGB, Ground (Blue)	
<i>Contact 7</i>	RGB Output (Blue):	0.7Vp-p/75 $\Omega$
<i>Contact 8</i>	Function Select Switching Control	L : 0.0~2.0V DC Power Off M: 4.5~7.0V DC Wide-Screen Mode (16:9) H: 9.5~12.0V DC Normal Mode (4:3)
<i>Contact 9</i>	RGB, Ground (Green)	
<i>Contact 11</i>	RGB Output (Green):	0.7Vp-p/75 $\Omega$
<i>Contact 13</i>	RGB, Ground (Red)	
<i>Contact 14</i>	RGB Switching Control, Ground	
<i>Contact 15</i>	RGB Output (Red):	0.7Vp-p/75 $\Omega$
<i>Contact 16</i>	RGB Switching Control	H: 3.3V DC
<i>Contact 17</i>	Video Output Signal, Ground	RGB Mode
<i>Contact 18</i>	Video Input Signal, Ground	
<i>Contact 19</i>	Video Output (CVBS):	1.0Vp-p/75 $\Omega$
<i>Contact 21</i>	Common Ground (shielding)	

## Playable Discs

The following discs can be played back on this DVD player.

Usable discs	Mark (logo)	Recorded signals	Disc Size
DVD-Video (NOTE 1)		Digital video (MPEG2)	12 cm
DVD-R DVD-RW (NOTE 2, 3)			8 cm
CD CD-R CD-RW (NOTE 4)		Digital audio MP3 WMA (NOTE 5) Digital picture (JPEG)	12 cm 8 cm
Video CD		Sound and Pictures	12 cm 8 cm (Singles)
Picture CD			JPEG


NOTE 1: Some DVD-Video discs do not operate as described in this manual due to the intentions of the discs' producers.

NOTE 2: This unit can play DVD-RW discs recorded in DVD video format or DVD video recording format.

\* The disc may not be played back due to recording quality or properties of the disc, dirt on the disc or the pickup lens, or condensation on the pickup lens.

NOTE 3: Discs that have not been finalized cannot be played. Depending on the disc's recording status, the disc may not be accepted or may not be played normally (the picture or sound may not be smooth, etc.).

NOTE 4: Some of CD-R/CD-RW discs may be incompatible because of "scratch and stain of disc", "Recording condition", and "Characteristic of Recorder".

NOTE 5:  Windows Media and the Windows logo are trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries.

This player conforms to the PAL colour system. Also you can play discs recorded with the NTSC system via a PAL system TV set.

- Some discs include region codes as shown below.



- The number inside the symbol refers to a region of the world, and a disc encoded in a specific region format can only be played back on DVD players with the same region code.

- RW** COMPATIBLE: This label indicates playback compatibility with DVD-RW discs recorded in VR mode (Video Recording Format).

- On the following discs, only the sound can be heard (picture cannot be viewed).

CDV

CD-G

- NEVER play back the following discs. Otherwise, malfunction may result!

DVD-RAM

CD-I

Photo CD

DVD with region codes other than 2 or ALL

DVD-ROM for personal computers

CD-ROM for personal computers

- On the following disc, the sound MAY NOT be heard.

Super Audio CD

## NOTE:

Only the sound recorded on the normal CD layer can be delivered.

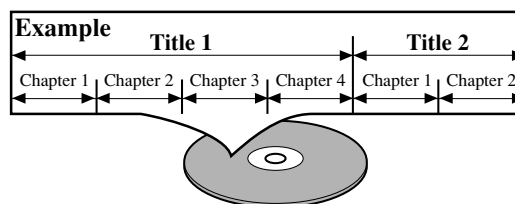
The sound recorded on the high density Super Audio CD layer cannot be delivered.

- Any other discs without compatibility indications.

## Disc Types

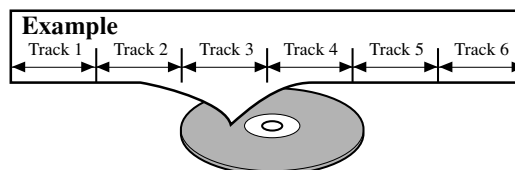
### [DVD-Video]

Data on a DVD is divided into sections called "titles" and then into subsections called "chapters" each of which is given a title or chapter number. Playback conditions are preset on some DVD-Video discs, and these playback conditions take priority over user operations on this player. If a function you selected does not run as desired, refer to the manual accompanying the disc.



### [Audio CD, Video CD]

Data on an Audio CD, or a Video CD is divided into sections called "tracks" each of which is given a track number.



### ABOUT THE PBC FUNCTION OF VIDEO CD

This unit conforms to ver.1.1 and ver.2.0 of Video CD standard, with PBC function.

Ver.1.1 (without PBC function): You can enjoy playback picture as well as music CD.

Ver.2.0 (with PBC function): While using a Video CD with PBC function, "PBC" appears on the screen and the display.

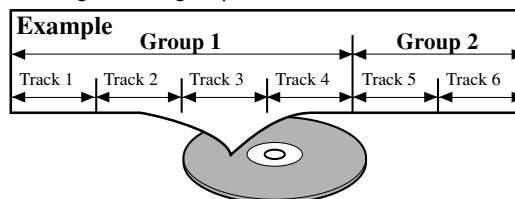
**What is PBC?** "PBC" stands for the Playback Control. You can play interactive software using menu screens. Refer to instructions in the Video CD.

## NOTE:

When playing Video CDs with PBC function, some operations (e.g., track search and repeat tracks) cannot be performed unless the function is cancelled temporarily (Refer to page 15).

### [MP3, JPEG, WMA]

Data on an MP3, JPEG or WMA are divided into sections called "groups" and then into subsections called "tracks" each of which is given an group or track number.

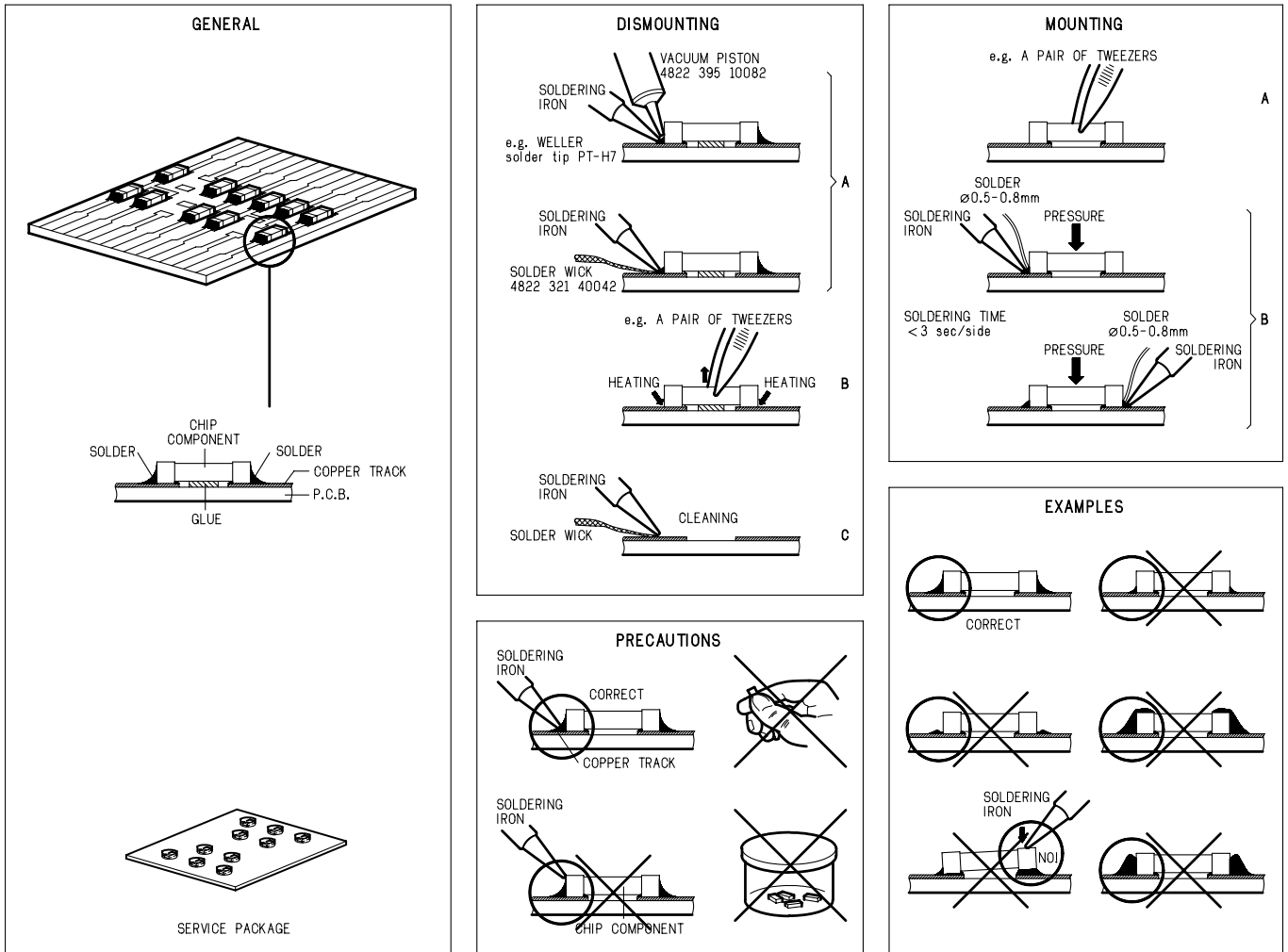


## CAUTION:

- Use caution not to pinch your finger in the disc slot.
- Be sure to remove a disc and unplug the AC power cord from the outlet before carrying the DVD player.

# SERVICE HINTS AND TOOLS

## SERVICE HINTS



## 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

# WARNING AND LASER SAFETY INSTRUCTIONS

## **(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.



## **(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 hetzelfde 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 à 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 à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

## **(D)** WARNUNG

Alle IC und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).  
Unvorsichtige 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 longevità potrebbe essere fortemente ridotta in caso di non osservazione della più 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 gespecificeerde worden toegepast.

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

## **(F)**

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

## **(D)**

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten.  
Der Originalzustand des Gerats darf nicht verändert werden.  
Für 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 ricambio identici a quelli specificati.

## 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.



**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

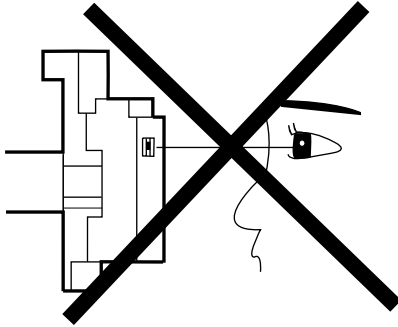
**The use of optical instruments with this product will increase eye hazard.  
Repair handling should take place as much as possible with a disc loaded inside the player**

## WARNING LOCATION: INSIDE ON LASER COVERSHEILD

**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  
**WARNING** SYNLIG OCH OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÅR 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 AUSSETZEN  
**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

# LASER BEAM SAFETY PRECAUTIONS

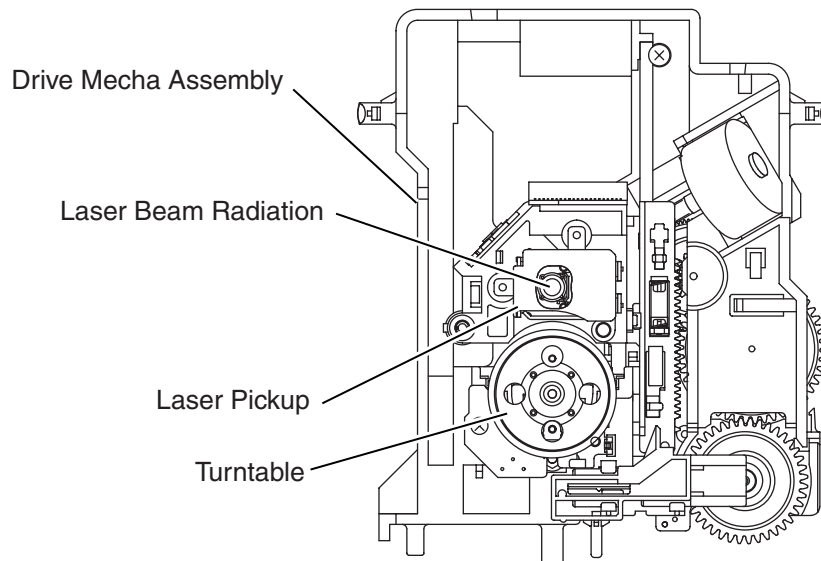
This DVD player uses a pickup that emits a laser beam.



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

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

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



# 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  $\triangle$  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  $\triangle$  symbol are critical for safety. Replace only with part number specified.
- B. In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.  
Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.
- C. Use specified internal wiring. Note especially:
  - 1) Wires covered with PVC tubing
  - 2) Double insulated wires
  - 3) High voltage leads
- D. Use specified insulating materials for hazardous live parts. Note especially:
  - 1) Insulation tape
  - 2) PVC tubing
  - 3) Spacers
  - 4) Insulators for transistors
- E. When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.
- F. Observe that the wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
- G. Check that replaced wires do not contact sharp edges or pointed parts.
- H. When a power cord has been replaced, check that 5 - 6 kg of force in any direction will not loosen it.
- I. Also check areas surrounding repaired locations.
- J. Be careful that foreign objects (screws, solder droplets, etc.) do not remain inside the set.
- K. Crimp type wire connector  
The power transformer uses crimp type connectors which connect the power cord and the primary side of the transformer. When replacing the transformer, follow these steps carefully and precisely to prevent shock hazards.  
Replacement procedure
  - 1) Remove the old connector by cutting the wires at a point close to the connector.  
**Important:** Do not re-use a connector. (Discard it.)
  - 2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.
  - 3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.
  - 4) Use a crimping tool to crimp the metal sleeve at its center. Be sure to crimp fully to the complete closure of the tool.
- L. When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC outlet.



## Safety Check after Servicing

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

### 1. Clearance Distance

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

**Table 1 : Ratings for selected area**

AC Line Voltage	Clearance Distance ( $d$ ), ( $d'$ )
220 to 240 V	$\geq 3 \text{ mm}(d)$ $\geq 6 \text{ mm}(d')$

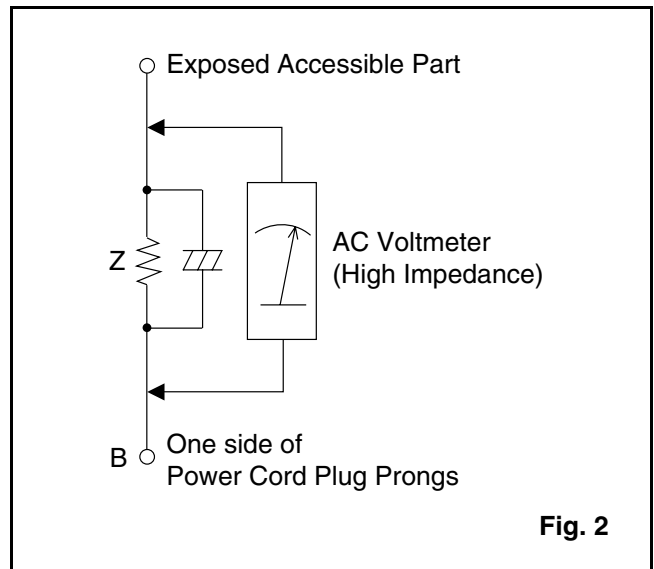
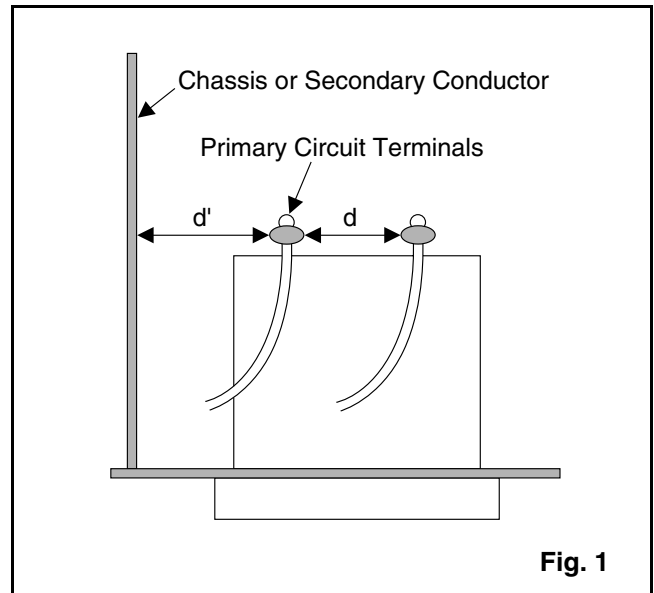
**Note:** This table is unofficial and for reference only. Be sure to confirm the precise values.

### 2. Leakage Current Test

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

#### Measuring Method (Power ON) :

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



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

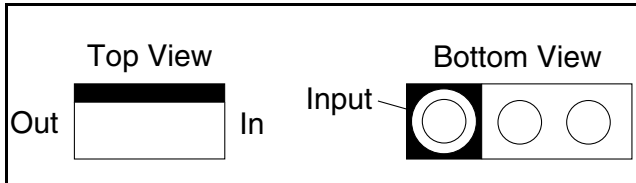
AC Line Voltage	Load $Z$	Leakage Current ( $i$ )	One side of power cord plug prongs (B) to:
220 to 240 V	2k $\Omega$ RES. Connected in parallel	$i \leq 0.7 \text{ mA AC Peak}$ $i \leq 2 \text{ mA DC}$	RF or Antenna terminals
	50k $\Omega$ RES. Connected in parallel	$i \leq 0.7 \text{ mA AC Peak}$ $i \leq 2 \text{ mA DC}$	A/V Input, Output

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

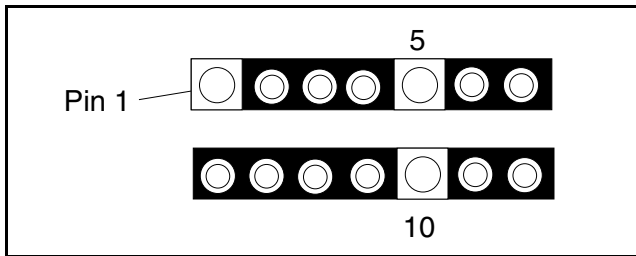
# STANDARD NOTES FOR SERVICING

## Circuit Board Indications

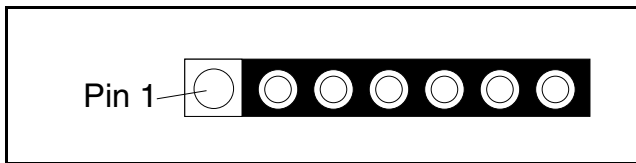
1. The output pin of the 3 pin Regulator ICs is indicated as shown.



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

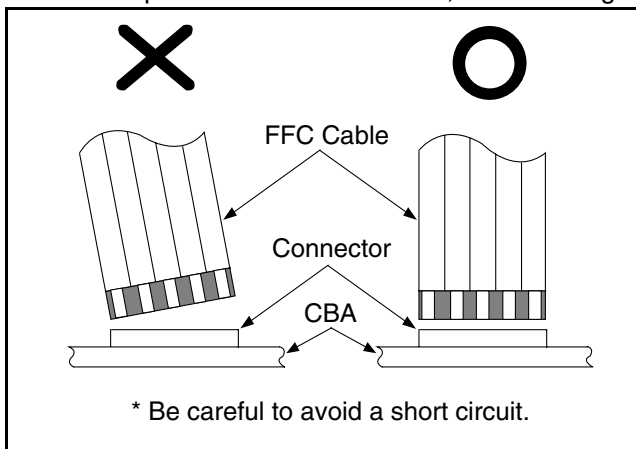


3. The 1st pin of every male connector is indicated as shown.



## Instructions for Connectors

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



## Pb (Lead) Free Solder

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

## How to Remove / Install Flat Pack-IC

### 1. Removal

With Hot-Air Flat Pack-IC Desoldering Machine:

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

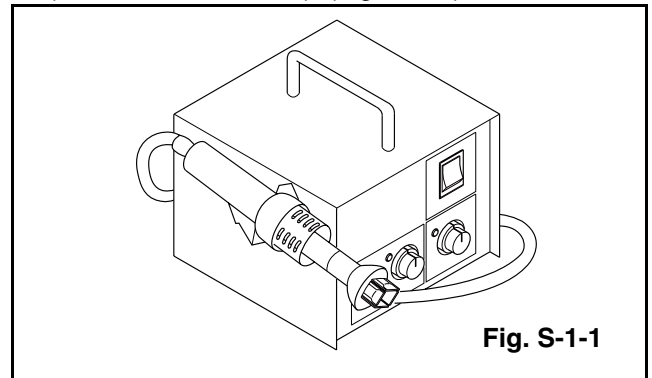


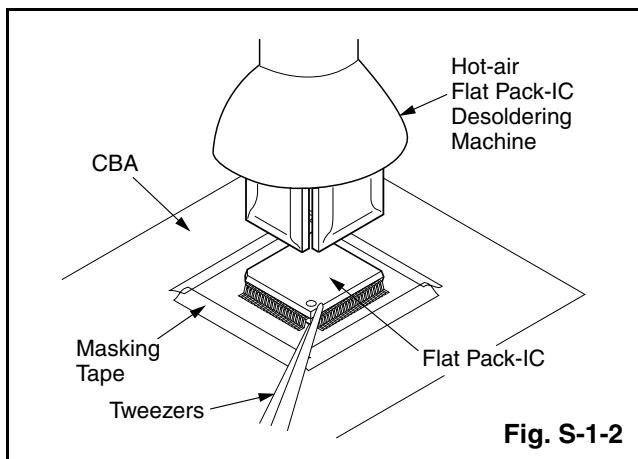
Fig. S-1-1

- (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:

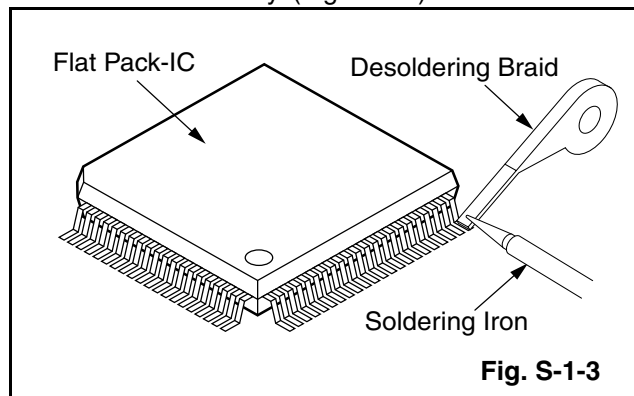
1. The Flat Pack-IC shape may differ by models. Use an appropriate hot-air flat pack-IC desoldering machine, whose shape matches that of the Flat Pack-IC.
2. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape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

- The flat pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or the solder lands under the IC when removing it.

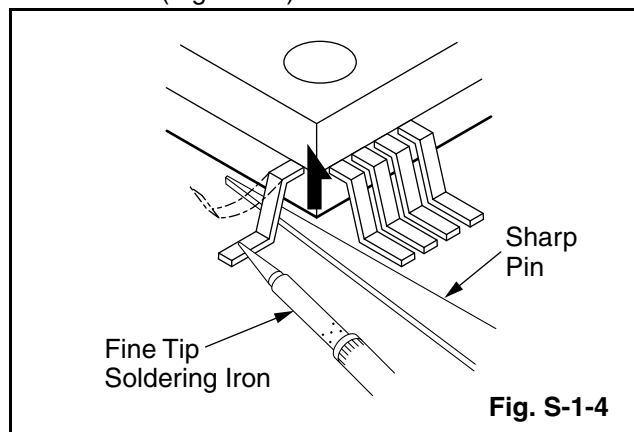


#### With Soldering Iron:

- 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)



- 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)



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

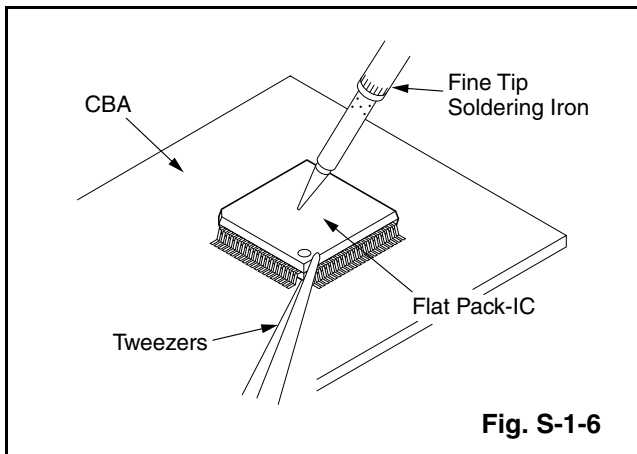
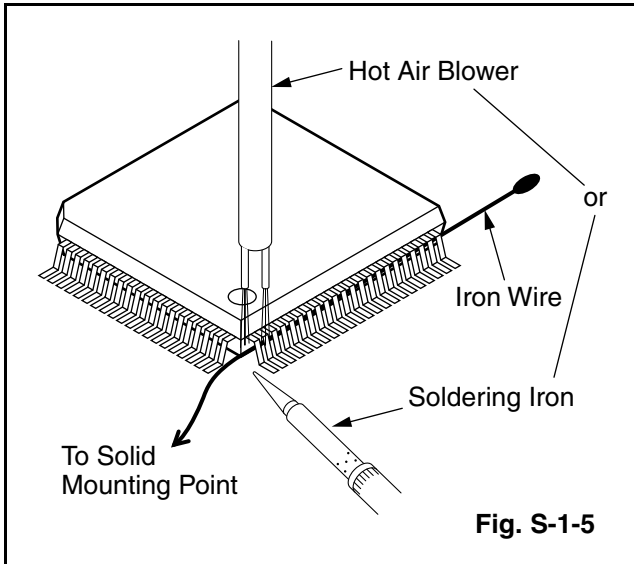
#### With Iron Wire:

- 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)
- Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
- While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig. S-1-5

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

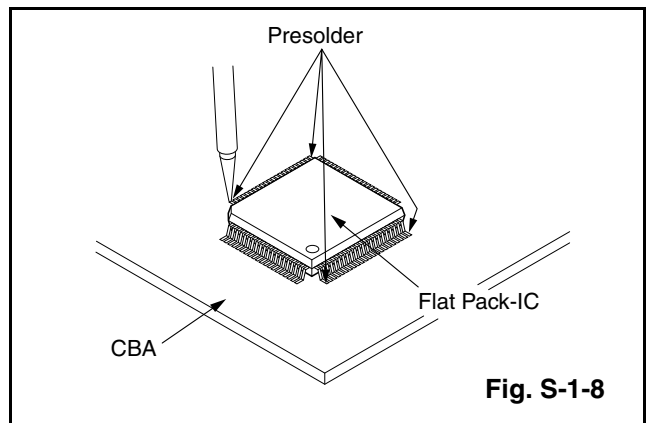
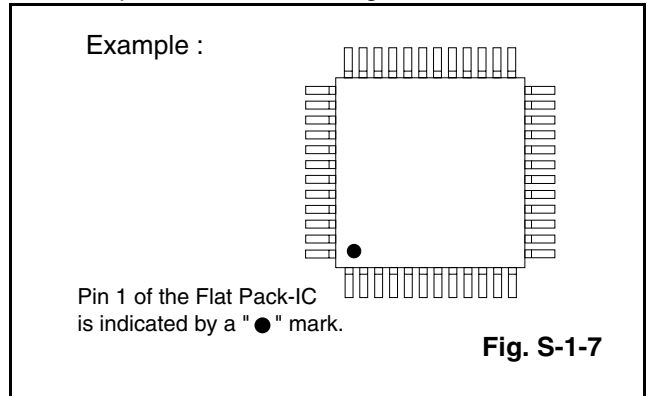
**Note:**

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



**2. Installation**

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



# Instructions for Handling Semi-conductors

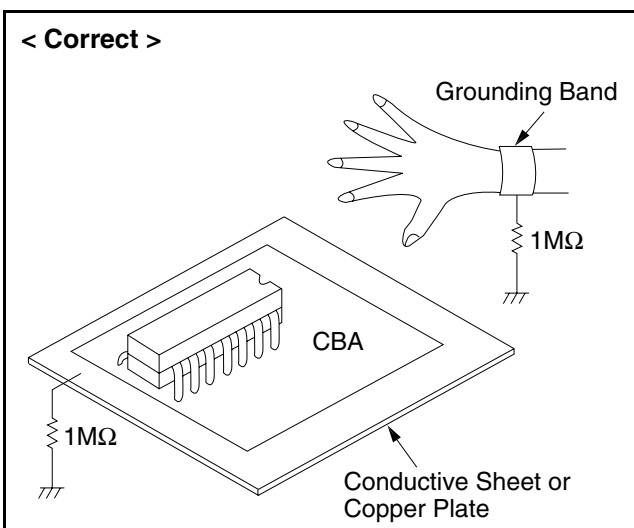
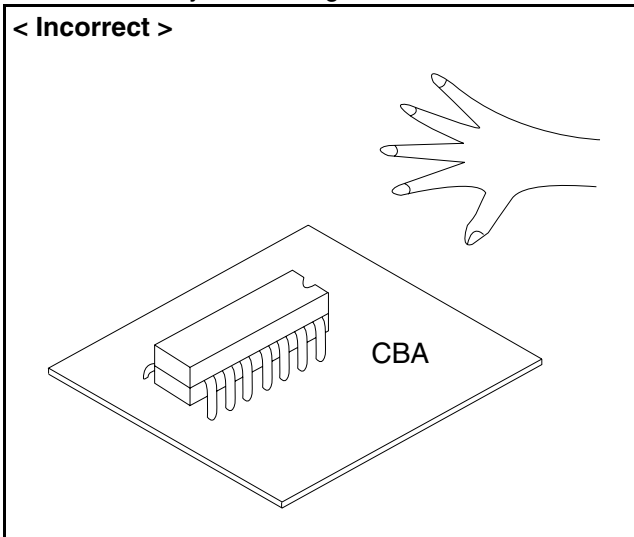
Electrostatic breakdown of the semi-conductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

## 1. Ground for Human Body

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

## 2. Ground for Workbench

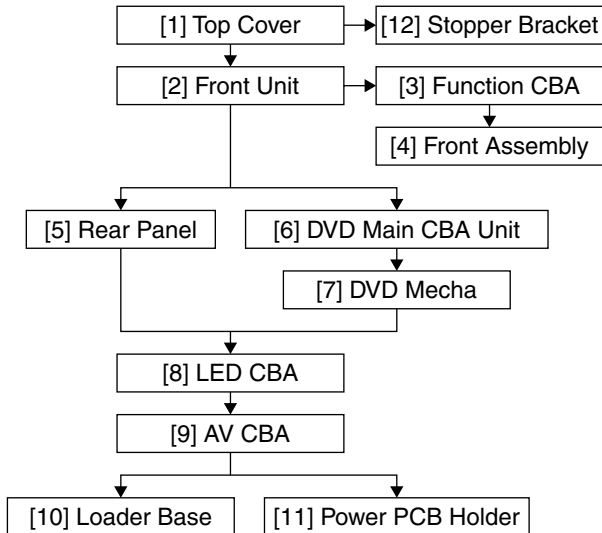
(1) Be sure to place a conductive sheet or copper plate with proper grounding ( $1M\Omega$ ) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting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



# CABINET DISASSEMBLY INSTRUCTIONS

## 1. Disassembly Flowchart

This flowchart indicates the disassembly steps to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route, and dress the cables as they were originally.



ID/ LOC. No.	PART	REMOVAL		
		Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	Note
[12]	Stopper Bracket	D8	-----	-
		(1)	(2)	(3)
			(4)	(5)

- (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.

Screws	Torque
(S-1), (S-2), (S-3), (S-4), (S-5A), (S-6), (S-7), (S-8), (S-9), (S-10)	0.45 ± 0.05 N·m
(S-5B)	0.38 ± 0.04 N·m

## 2. Disassembly Method

ID/ LOC. No.	PART	REMOVAL		
		Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	Note
[1]	Top Cover	D1	5(S-1)	-
[2]	Front Unit	D2	*2(L-1), Tray Panel, *2(L-2), *3(L-3), *CN2081	1 1-1 1-2 1-3 1-4 1-5 1-6 1-7
[3]	Function CBA	D3	6(S-2)	-
[4]	Front Assembly	D3	-----	-
[5]	Rear Panel	D4	8(S-3), 3(S-4)	-
[6]	DVD Main CBA Unit	D5	(S-5A), (S-5B), *CN201, *CN301, *CN401, *CN601	2 2-1 2-2
[7]	DVD Mecha	D5 D6	4(S-6)	2 3
[8]	LED CBA	D7	*CN2082	-
[9]	AV CBA	D7	3(S-7), (S-8)	-
[10]	Loader Base	D8	4(S-9)	-
[11]	Power PCB Holder	D8	2(S-10)	-

### Reference Notes

CAUTION 1: Locking Tabs (L-1), (L-2) and (L-3) are fragile. Be careful not to break them.

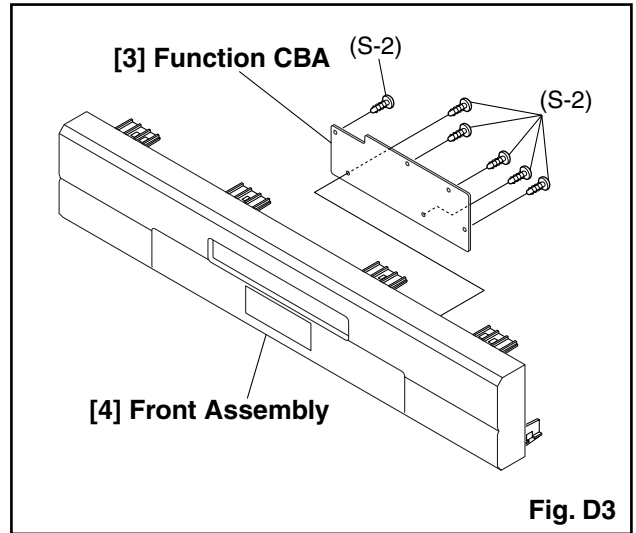
- 1-1. Connect the wall plug to an AC outlet and press the [OPEN/CLOSE] button to open the tray.
- 1-2. Remove the Tray Panel by releasing two locking tabs (L-1).
- 1-3. Press the [OPEN/CLOSE] button again to close the tray.
- 1-4. Press the [POWER] button to turn the power off.
- 1-5. Unplug an AC cord.
- 1-6. Disconnect connector CN2081.
- 1-7. Release two Locking Tabs (L-2). Then release three Locking Tabs (L-3), and remove the Front Unit.

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

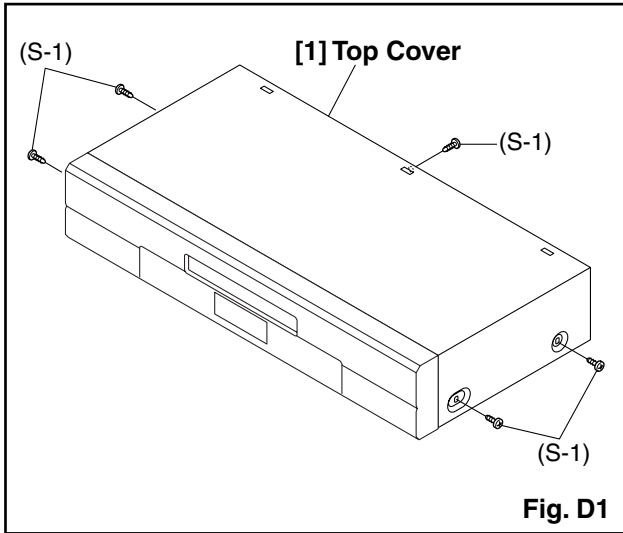
To avoid damage of pickup follow next procedures.

- 2-1. Short the three short lands of FPC cable with solder before removing the FFC cable (CN201) from it. If you disconnect the FFC cable (CN201), the laser diode of pickup will be destroyed. (Fig. D4)
- 2-2. Disconnect Connectors (CN301), (CN401) and (CN601). Remove two Screws (S-5A) and (S-5B) and lift the DVD Main CBA Unit. (Fig. D4)

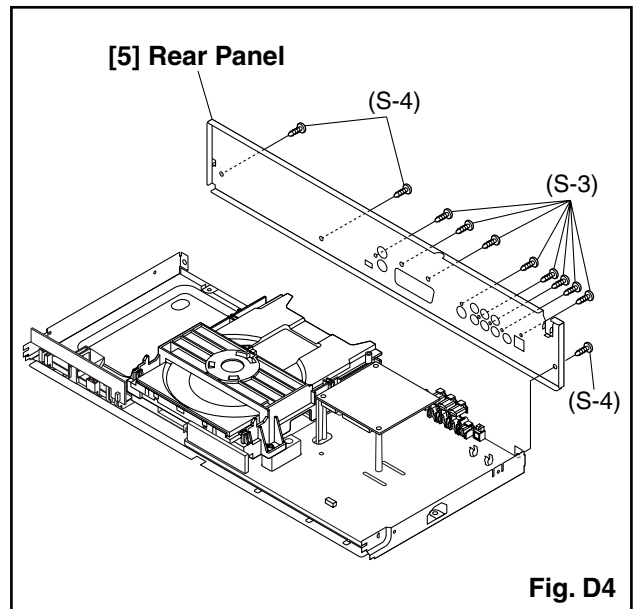
**CAUTION 3:** When reassembling, confirm the FFC cable (CN201) is connected completely. Then remove the solder from the three short lands of FPC cable. (Fig. D4)



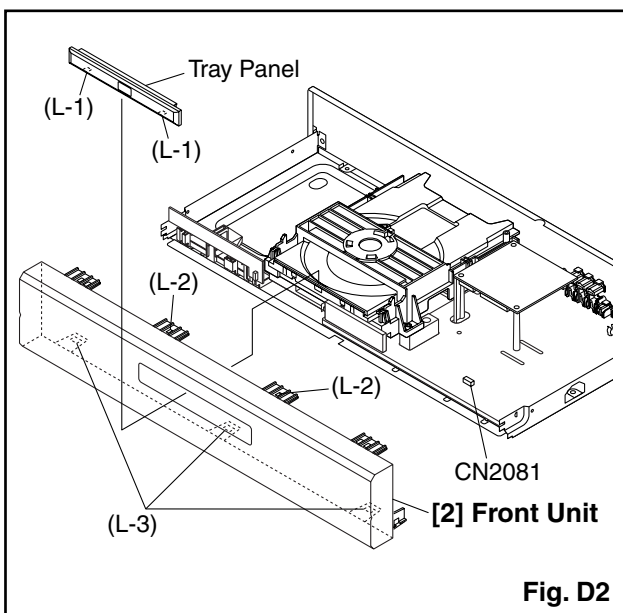
**Fig. D3**



**Fig. D1**



**Fig. D4**



**Fig. D2**

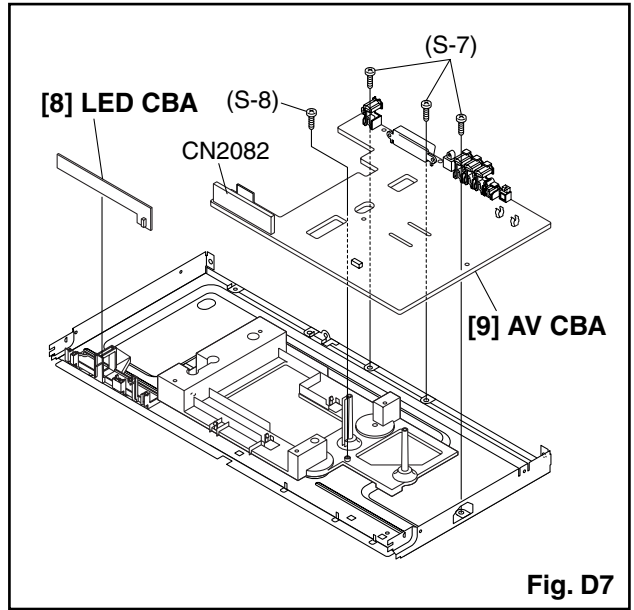
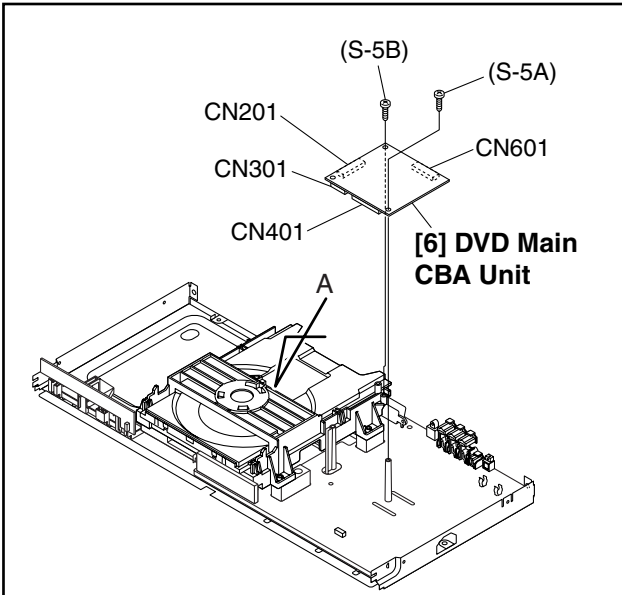


Fig. D7

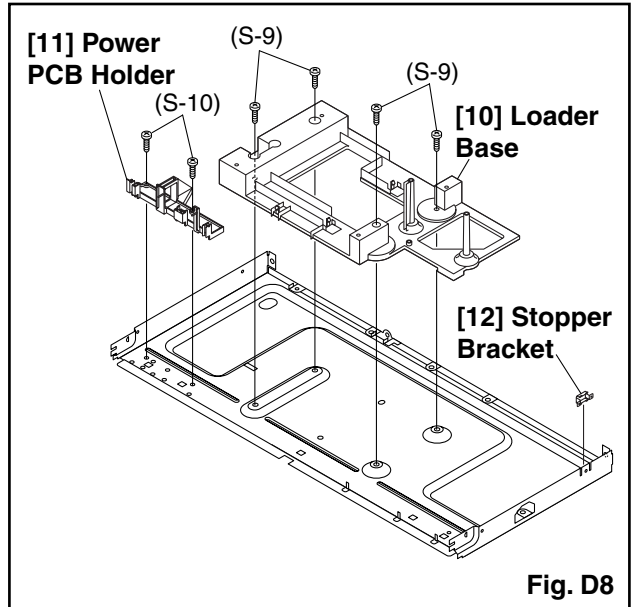
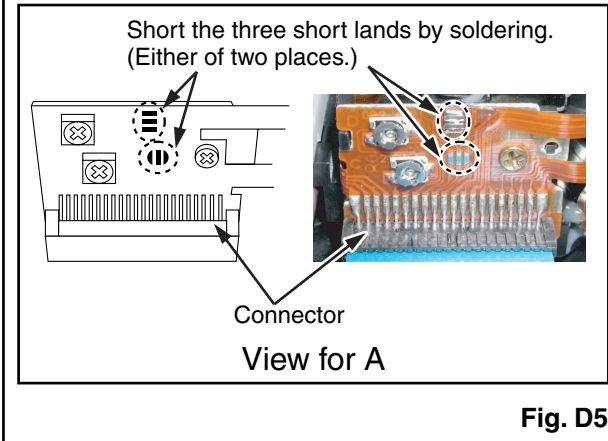


Fig. D8

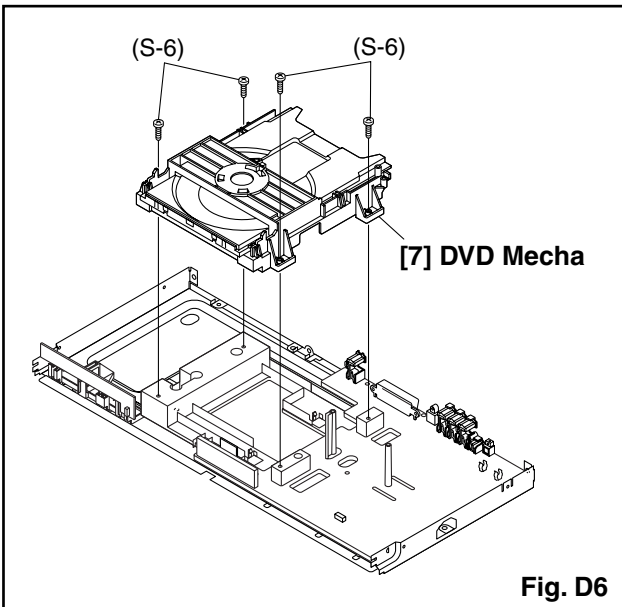
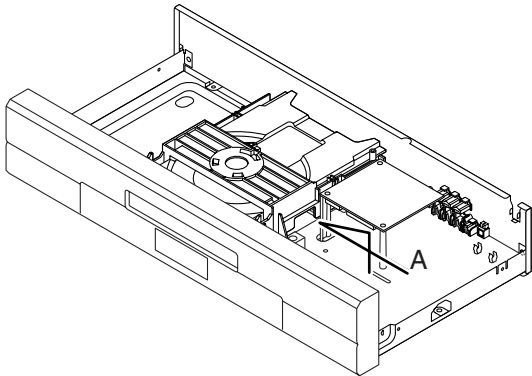


Fig. D6

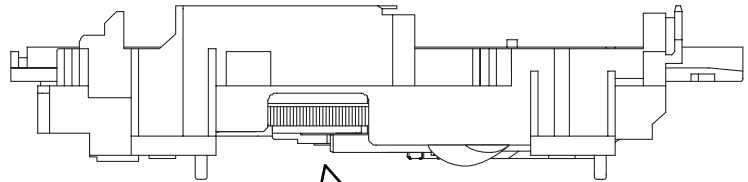


## HOW TO EJECT MANUALLY

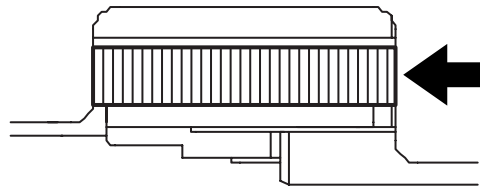
1. Remove the Top Cover.
2. Rotate the roulette in the direction of the arrow as shown below.



View for A

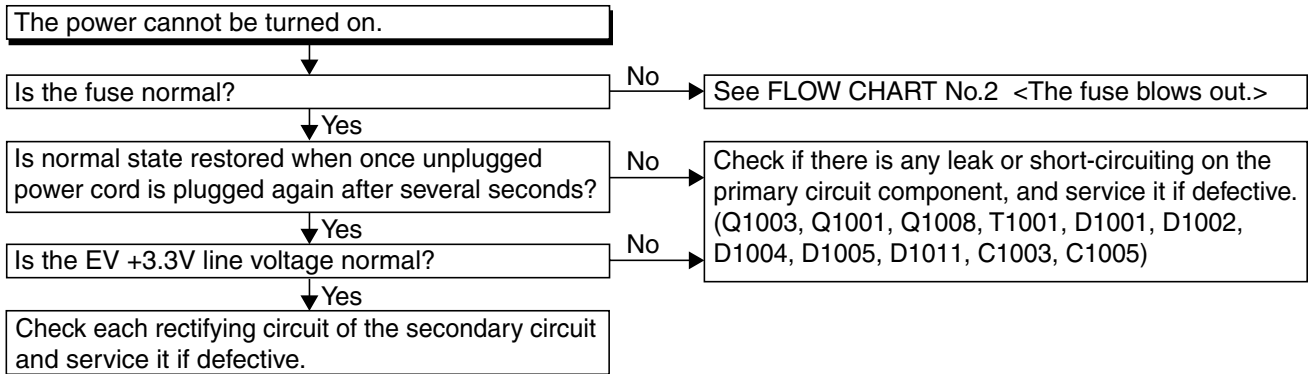


Rotate this roulette in  
the direction of the arrow

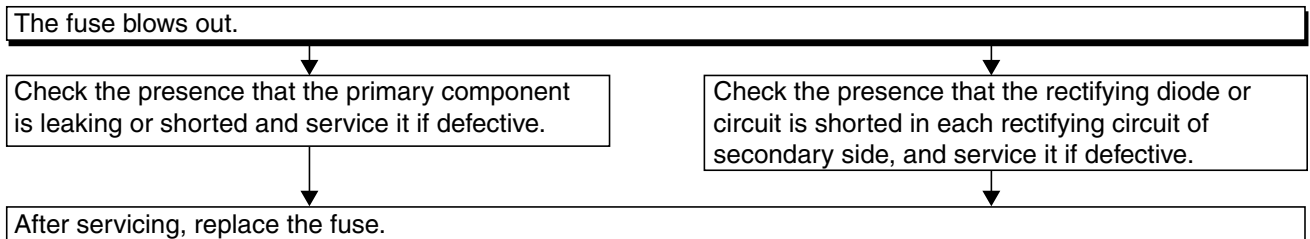


# TROUBLESHOOTING

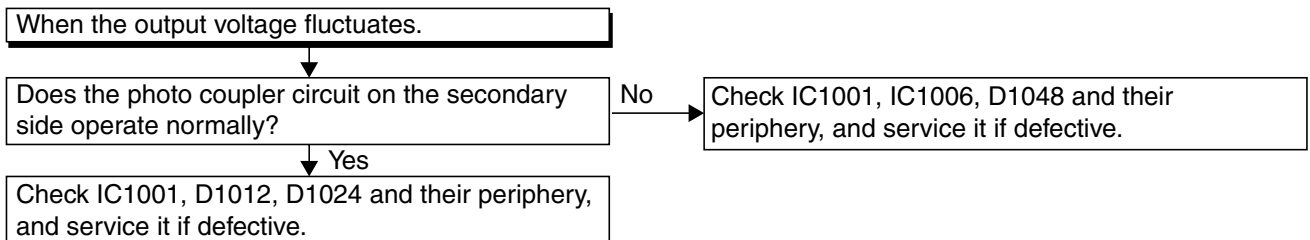
## FLOW CHART NO.1



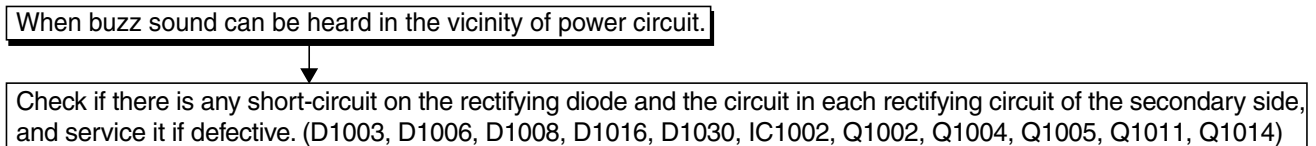
## FLOW CHART NO.2



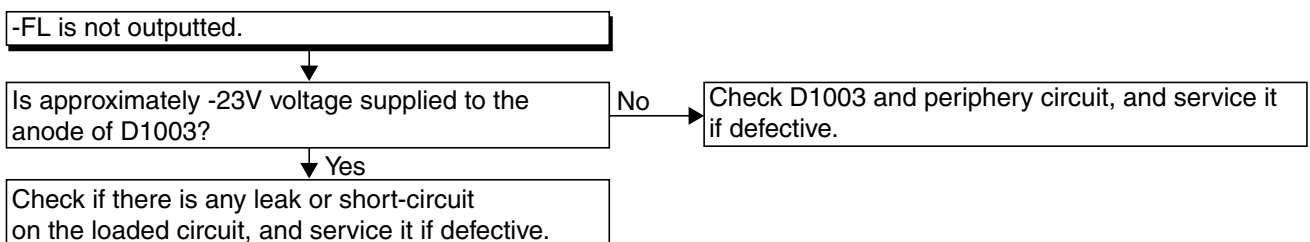
## FLOW CHART NO.3



## FLOW CHART NO.4



## FLOW CHART NO.5



### FLOW CHART NO.6

P-ON+11V (EV+11V) is not outputted.

Is 11V voltage supplied to the emitter of Q1002?

No

Check D1030, D1048, C1035, C1048, L1009 and the periphery circuit, and service it if defective.

Yes

Is the voltage of base on Q1002 lower than the voltage of emitter on Q1002 when turning the power on?

No

Check Q1016 and PWRCON line and service it if defective.

Yes

Replace Q1002.

### FLOW CHART NO.7

P-ON+5V is not outputted. (EV+11V is outputted normally.)

Is the "H" signal inputted into the base of Q1004?

No

Check R1068 and D1046, and service it if defective.

Yes

Replace Q1004.

### FLOW CHART NO.8

P-ON+3.3V is not outputted. (P-ON+11V is outputted normally.)

Is 3.3V voltage supplied to the collector of Q1011?

No

Check D1008, C1007, C1038, L1007 and the periphery circuit, and service it if defective.

Yes

Replace Q1011 or R1067.

### FLOW CHART NO.9

EV+5V is not outputted.

Is EV+11V outputted normally?

No

Refer to "FLOW CHART NO.6"  
<P-ON+11V (EV+11V) is not outputted.>

Yes

Is the "H" signal inputted into the base of Q1014?

No

Check D1047, R1069, R1098 and the periphery circuit, and service it if defective.

Yes

Replace Q1014.

### FLOW CHART NO.10

EV+1.2V is not outputted.

Is 2.5V voltage supplied to Pin(1) of IC1002?

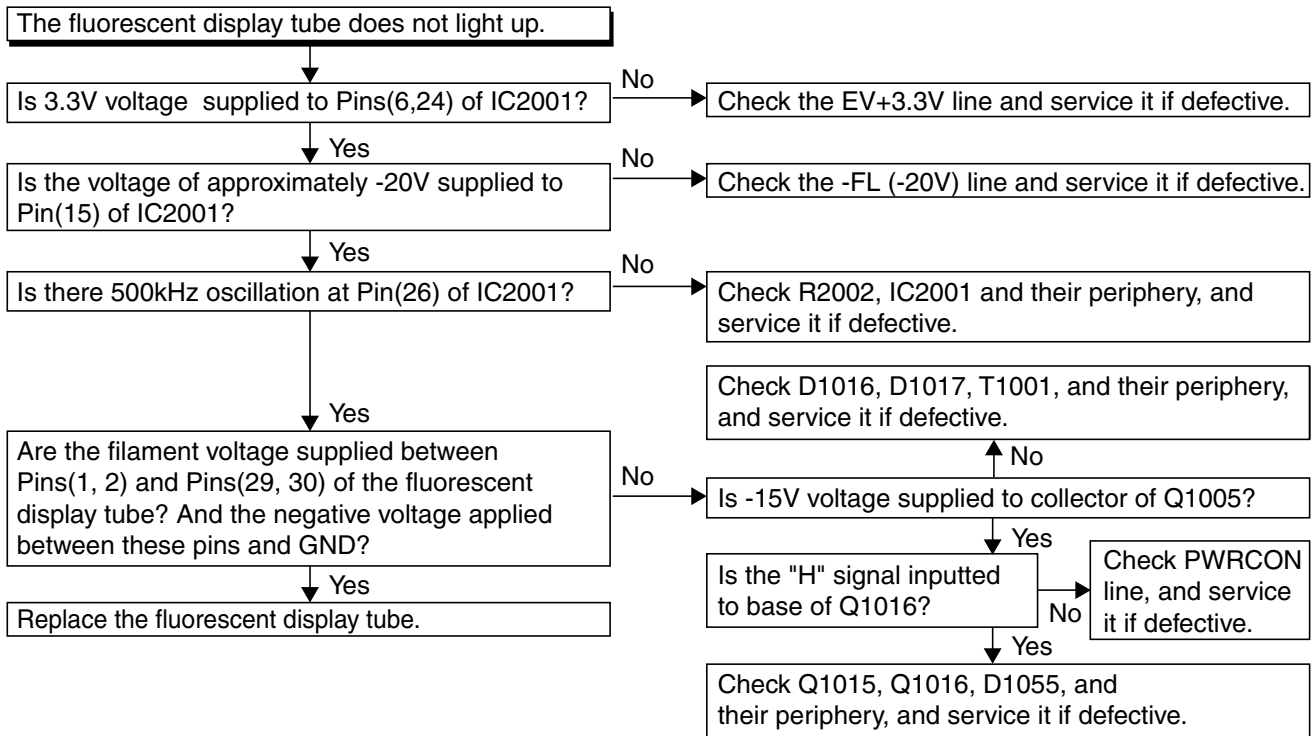
No

Check D1006, C1014, C1050, L1008 and the periphery circuit, and service it if defective.

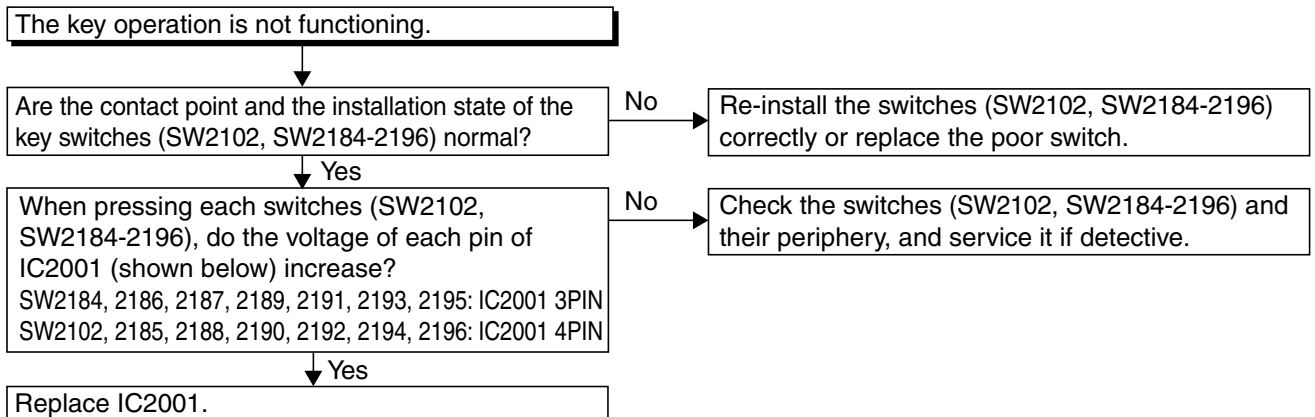
Yes

Replace IC1002.

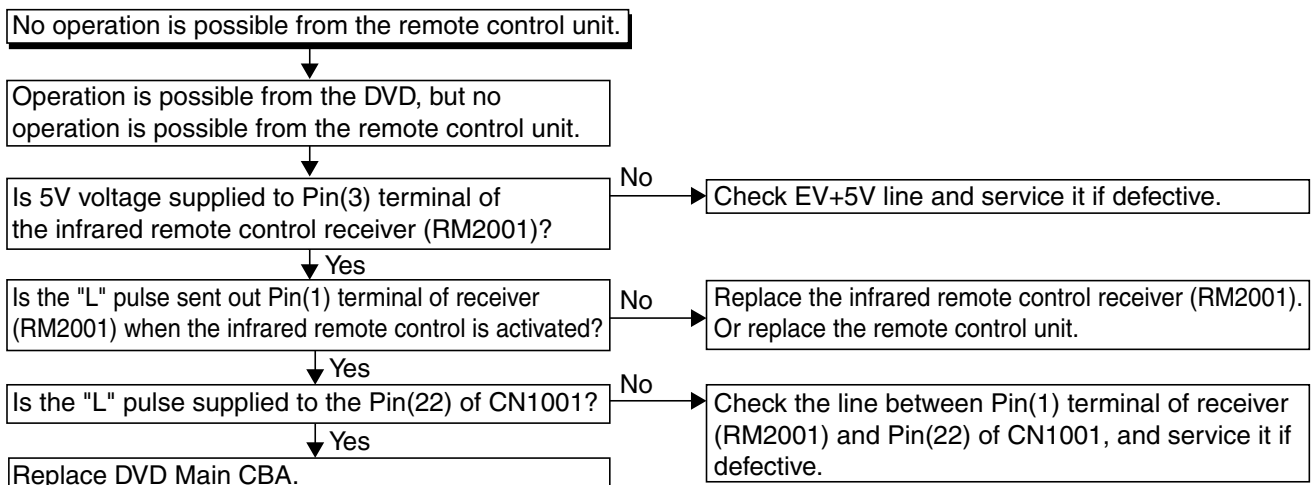
**FLOW CHART NO.11**



**FLOW CHART NO.12**



**FLOW CHART NO.13**



### FLOW CHART NO.14

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(4) of IC2001? Refer to "FLOW CHART NO.12" <The key operation is not functioning.>

No

Replace the "OPEN/CLOSE" button (SW2188).

Yes

Refer to "FLOW CHART NO.15" <The disc tray cannot be opened and closed.>

### FLOW CHART NO.15

The disc tray cannot be opened and closed.

Replace the DVD Main CBA.

No improvement can be found.

No

Original DVD Main CBA is poor.

Yes

Replace the DVD Mecha.

### FLOW CHART NO.16

[No Disc] indicated. (When the focus error occurs.)

Replace the DVD Main CBA.

No improvement can be found.

No

Original DVD Main CBA is poor.

Yes

Replace the DVD Mecha.

### FLOW CHART NO.17

[No Disc] indicated. (When the focus servo is not functioning.)

Replace the DVD Main CBA.

No improvement can be found.

No

Original DVD Main CBA is poor.

Yes

Replace the DVD Mecha.

### FLOW CHART NO.18

[No Disc] indicated. (When the laser beam does not light up.)

Replace the DVD Main CBA.

No improvement can be found.

No

Original DVD Main CBA is poor.

Yes

Replace the DVD Mecha.

### FLOW CHART NO.19

Both functions of picture and sound do not operate normally.

Replace the DVD Main CBA.

No improvement can be found.

No

Original DVD Main CBA is poor.

Yes

Replace the DVD Mecha.

## FLOW CHART NO.20

Picture does not appear normally.

Set the disc on the disc tray, and playback.

Are the video signals outputted to each pin of CN1601 on the AV CBA?

CN1601	1PIN	S-Y
CN1601	4PIN	Cr/Pr, R
CN1601	6PIN	Cb/Pb, B
CN1601	8PIN	Y, G
CN1601	10PIN	S-C

No → Replace the DVD Main CBA or DVD Mecha.

Yes

Are the video signals shown above inputted into each pin of IC1401, IC1402, IC1405?

S-VIDEO OUT, VIDEO OUT is NG.	IC1401	3PIN	S-Y
	IC1401	1PIN	S-C
RGB OUT is NG.	IC1402	8PIN	R
	IC1402	3PIN	G
	IC1402	6PIN	B
Y, Cb/Pb, Cr/Pr is NG.	IC1405	3PIN	Y
	IC1405	6PIN	Cb/Pb
	IC1405	8PIN	Cr/Pr

No → Check the line between each pin of CN1601 and each pin of IC1401, IC1402, IC1405 on the AV CBA, and service it if defective.

CN1601	1PIN	→	IC1401	3PIN			
CN1601	10PIN	→	IC1401	1PIN			
CN1601	4PIN	→	IC1404	4PIN			
		→	IC1404	5PIN	→	IC1402	8PIN
		→	IC1404	3PIN	→	IC1405	8PIN
CN1601	6PIN	→	IC1404	15PIN			
		→	IC1404	2PIN	→	IC1402	6PIN
		→	IC1404	1PIN	→	IC1405	6PIN
CN1601	8PIN	→	IC1404	14PIN			
		→	IC1404	12PIN	→	IC1402	3PIN
		→	IC1404	13PIN	→	IC1405	3PIN

Yes

Are the video signals outputted to each pin of IC1401, IC1402, IC1405?

S-VIDEO OUT, VIDEO OUT is NG.	IC1401	5PIN	S-Y
	IC1401	7PIN	S-C
	IC1401	6PIN	CVBS
RGB OUT is NG.	IC1402	10PIN	R
	IC1402	13PIN	G
	IC1402	11PIN	B
Y, Cb/Pb, Cr/Pr is NG.	IC1405	13PIN	Y
	IC1405	11PIN	Cb/Pb
	IC1405	10PIN	Cr/Pr

No → Is 5V voltage applied to the pin(4, 12) of IC1402, IC1405 and pin (4) of IC1401?

Yes → Replace IC1401, IC1402, IC1405.  
No → Check P-ON+5V line and service it if defective.

Yes

Are the video signals outputted to the specific output terminal?

Are the luminance signals outputted to the S-VIDEO OUT terminal (JK1401)?

Are the chroma signals outputted to the S-VIDEO OUT terminal (JK1401)?

Are the component video signals outputted to the VIDEO OUT terminal (JK1402)?

Are the R, G, B signals outputted to the RGB OUT terminal (JK1405)?

Are the Y, Cb/Pb, Cr/Pr signals outputted to the COMPONENT OUT terminal (JK1404)?

No → Check the periphery of JK1401 from Pin (5) of IC1401 and service it if defective.

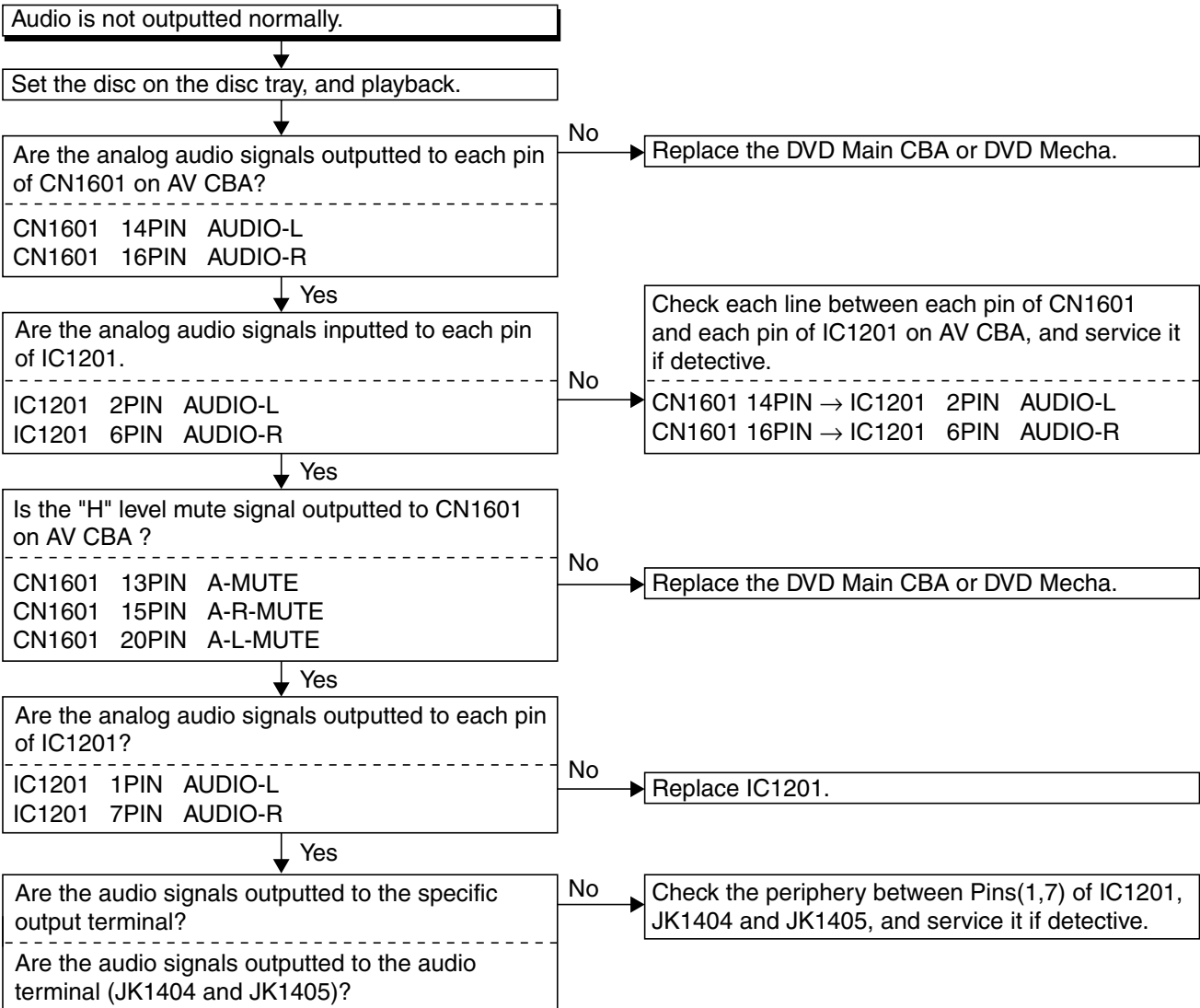
No → Check the periphery of JK1401 from Pin (7) of IC1401 and service it if defective.

No → Check the periphery of JK1404 from Pin (6) of IC1401 and service it if defective.

No → Check the periphery of JK1405 from Pins (10, 11, 13) of IC1402 and service it if defective.

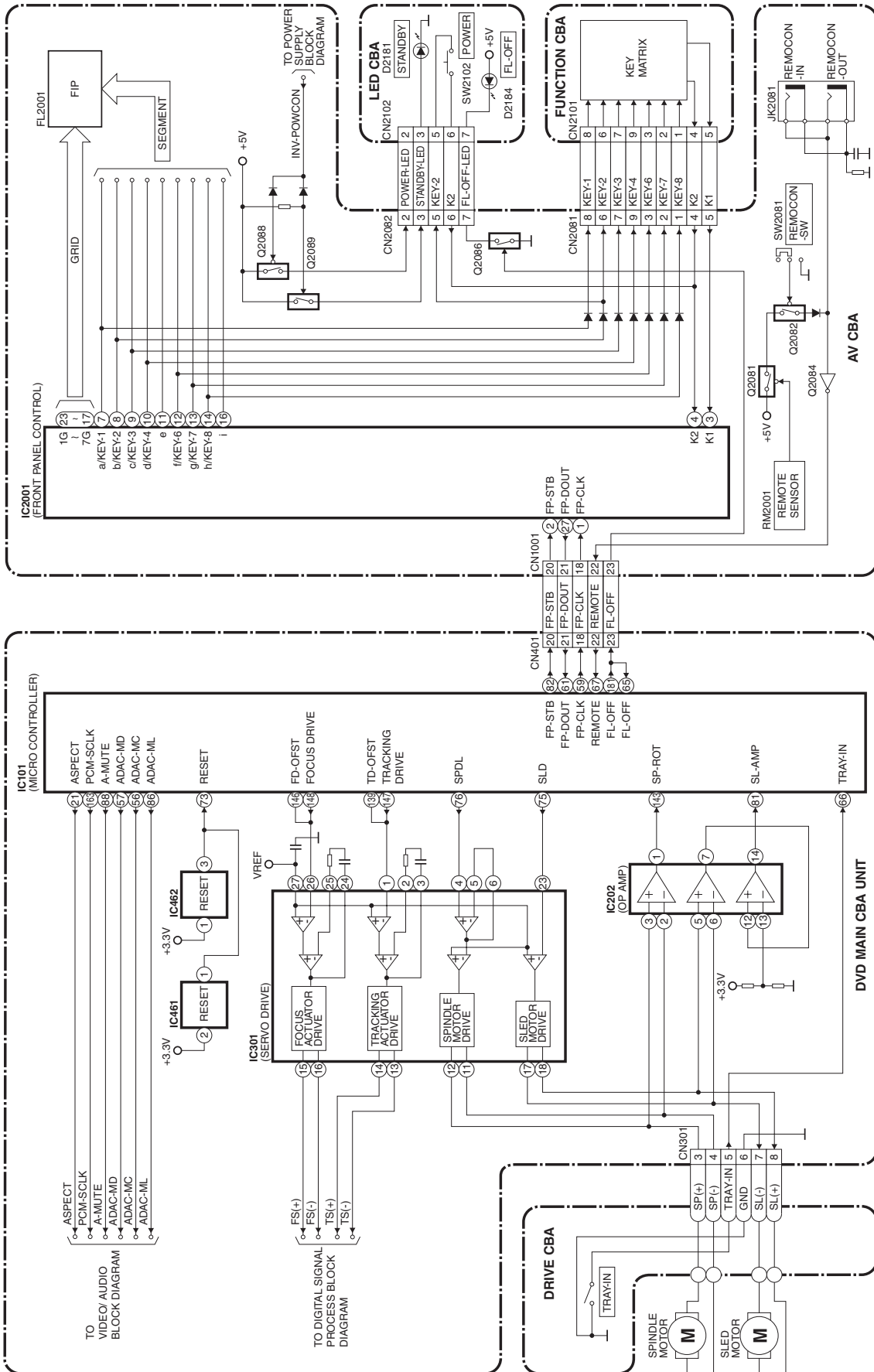
No → Check the periphery of JK1404 from Pins (10, 11, 13) of IC1405 and service it if defective.

**FLOW CHART NO.21**



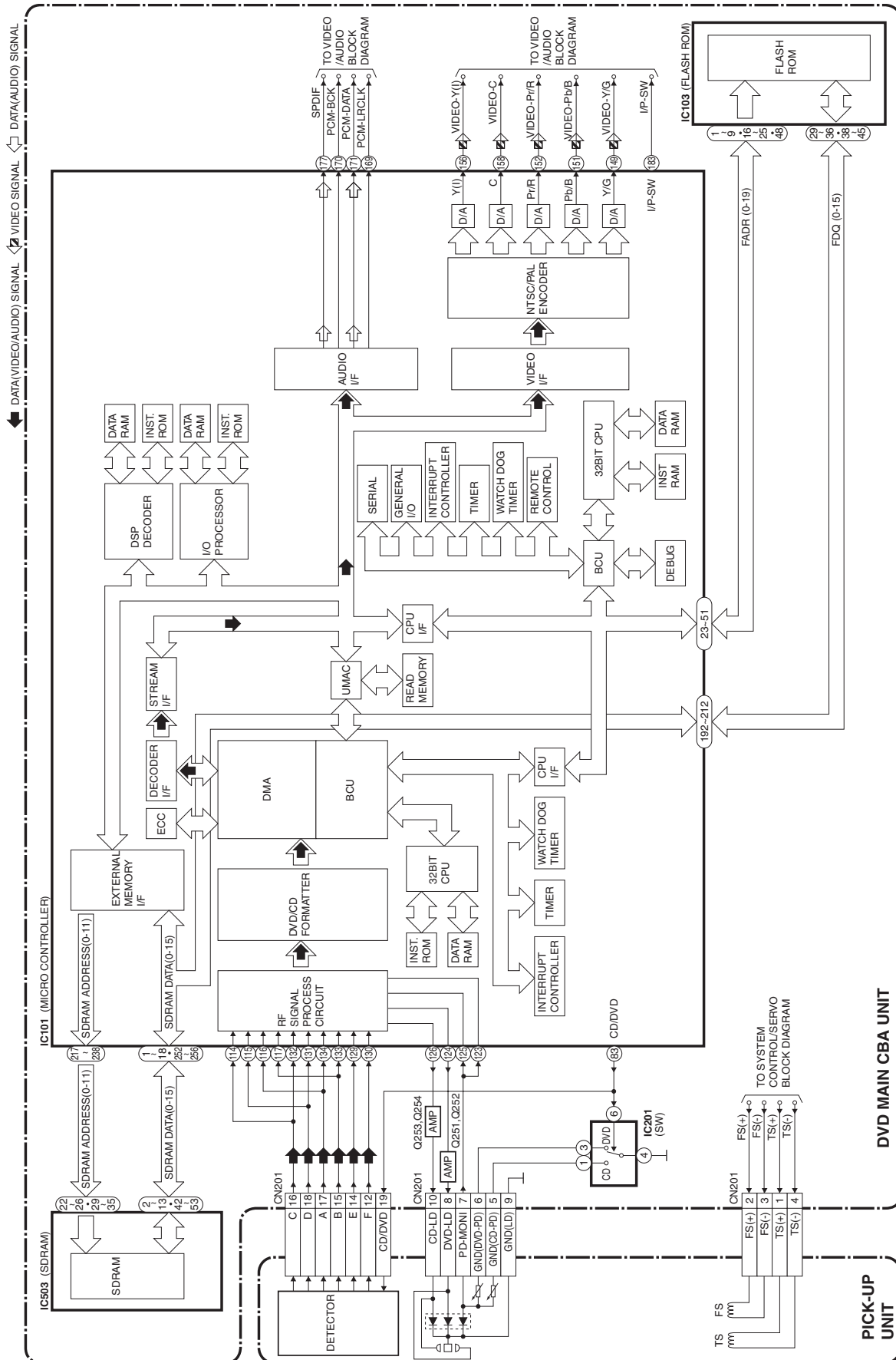
# BLOCK DIAGRAMS

## System Control / Servo Block Diagram

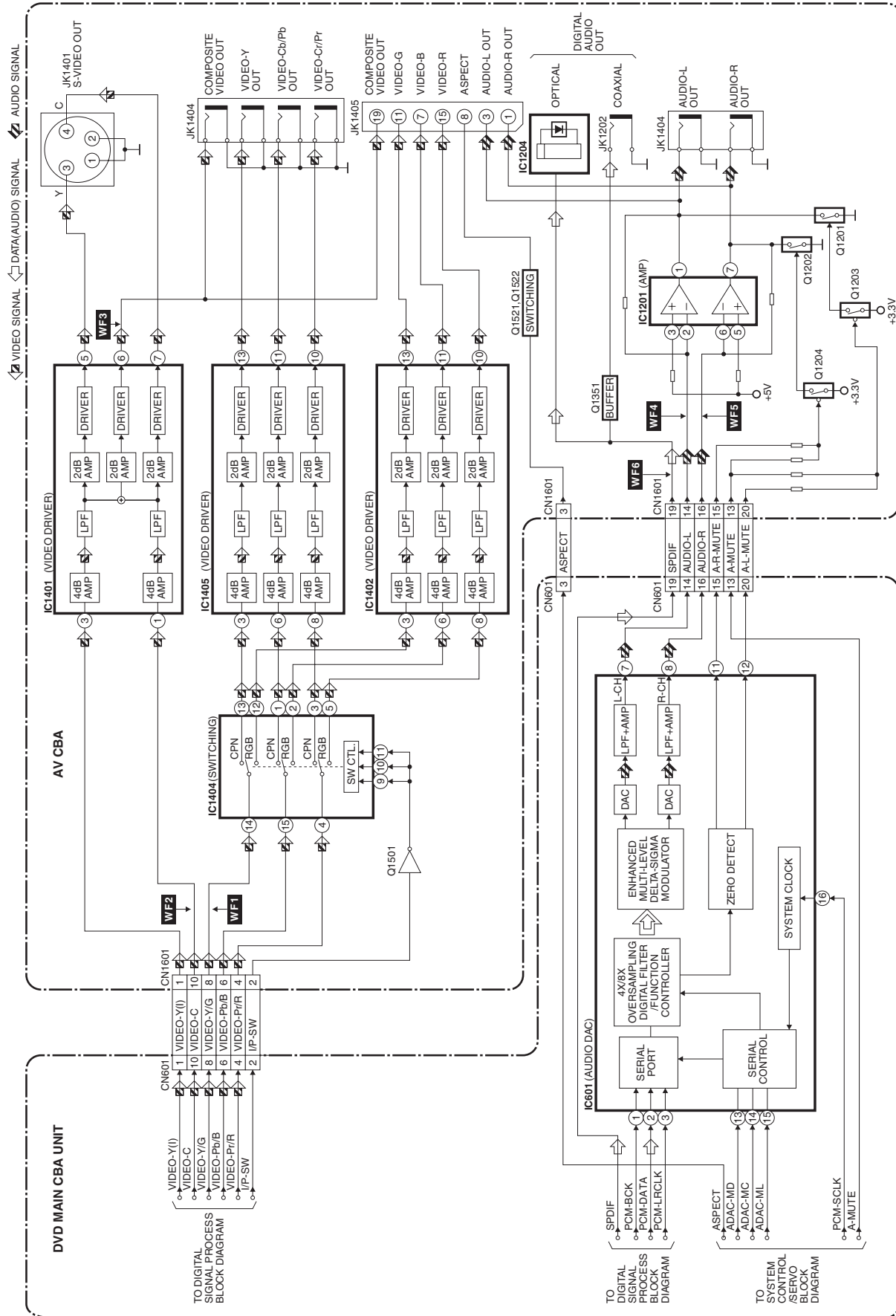




# Digital Signal Process Block Diagram



# Video / Audio Block Diagram

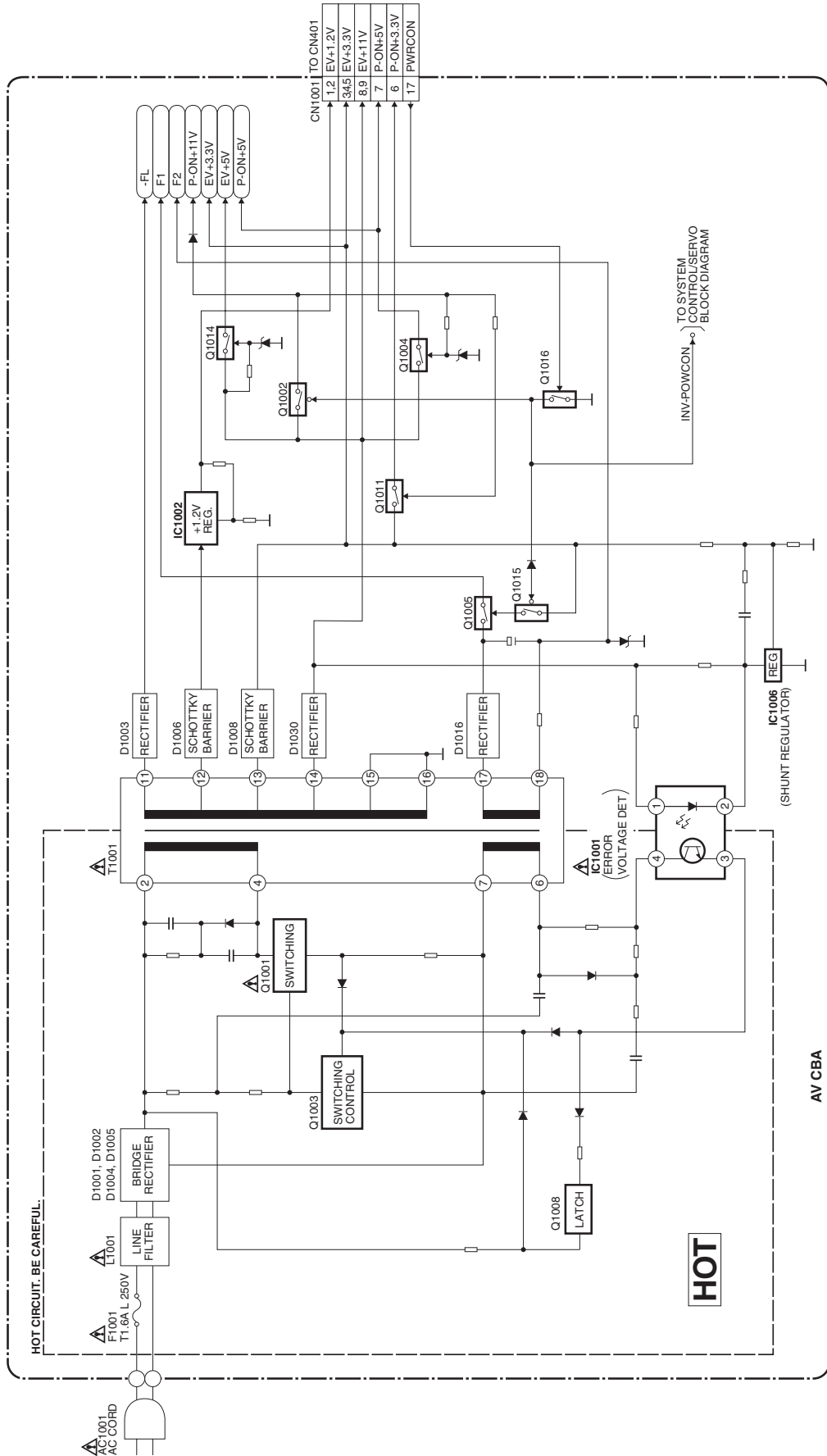


# Power Supply Block Diagram

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

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

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



AV CBA

# SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

## Standard Notes

### WARNING

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

## Notes:

1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms (K= $10^3$ , M= $10^6$ ).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in  $\mu$ F (P= $10^{-6}$   $\mu$ F).
5. All voltages are DC voltages unless otherwise specified.
6. Electrical parts such as capacitors, connectors, diodes, IC's, transistors, resistors, switches, and fuses are identified by four digits. The first two digits are not shown for each component. In each block of the diagram, there is a note such as shown below to indicate these abbreviated two digits.

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

**1. CAUTION:**

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

**2. CAUTION:**

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

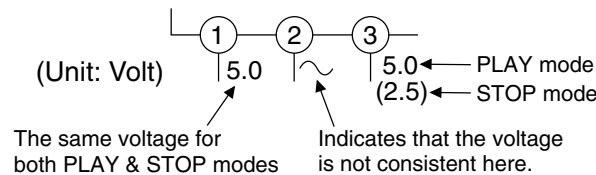
If Main Fuse (F1001) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

**3. Note:**

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

(2) To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Voltage indications for PLAY modes on the schematics are as shown below:

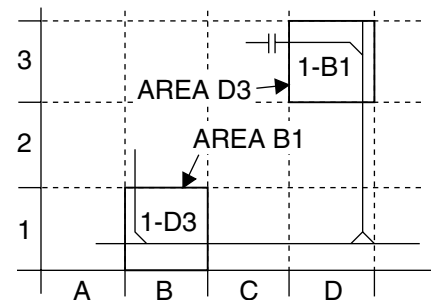


5. How to read converged lines

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

Examples:

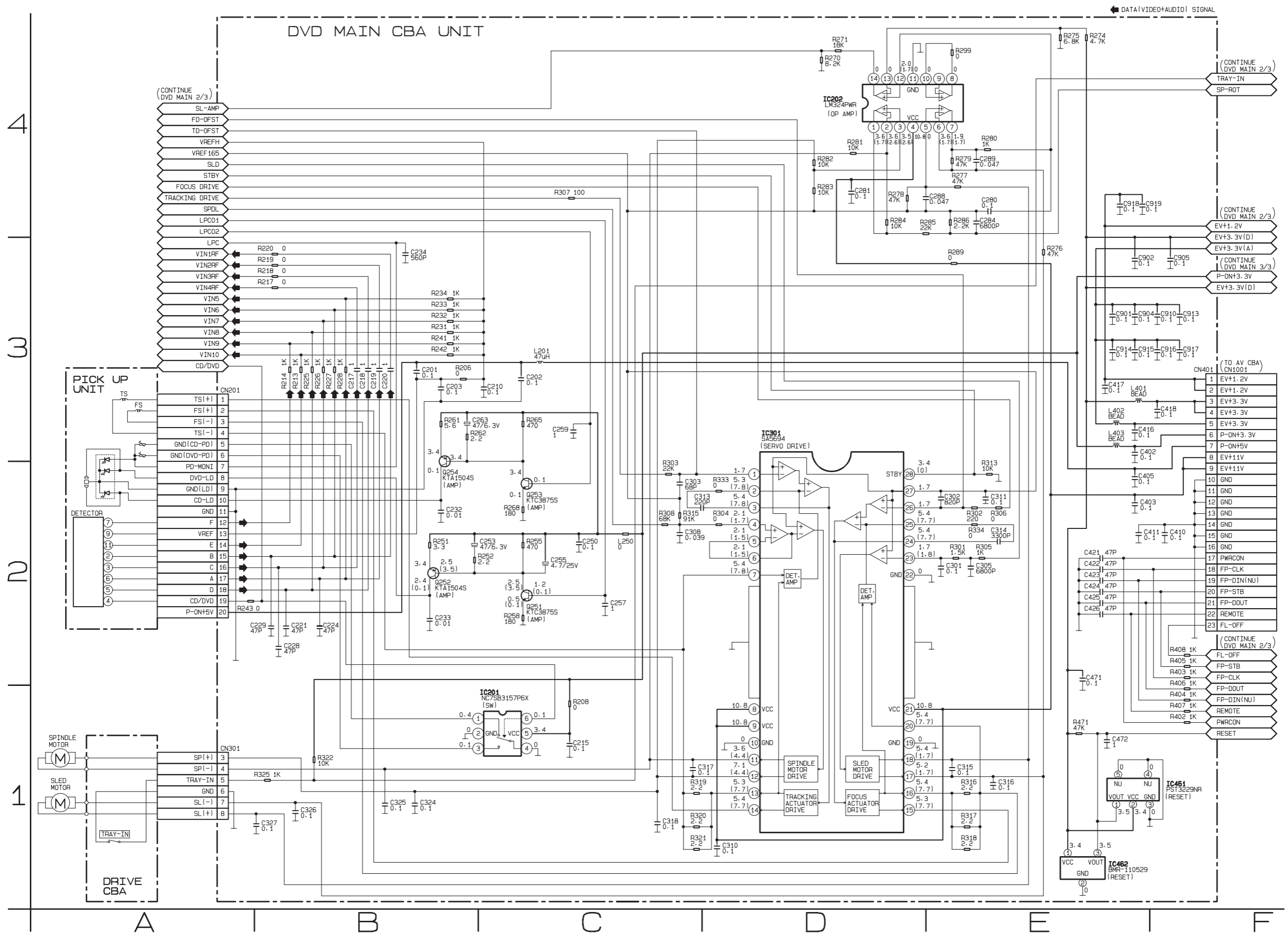
1. "1-D3" means that line number "1" goes to area "D3".
2. "1-B1" means that line number "1" goes to area "B1".



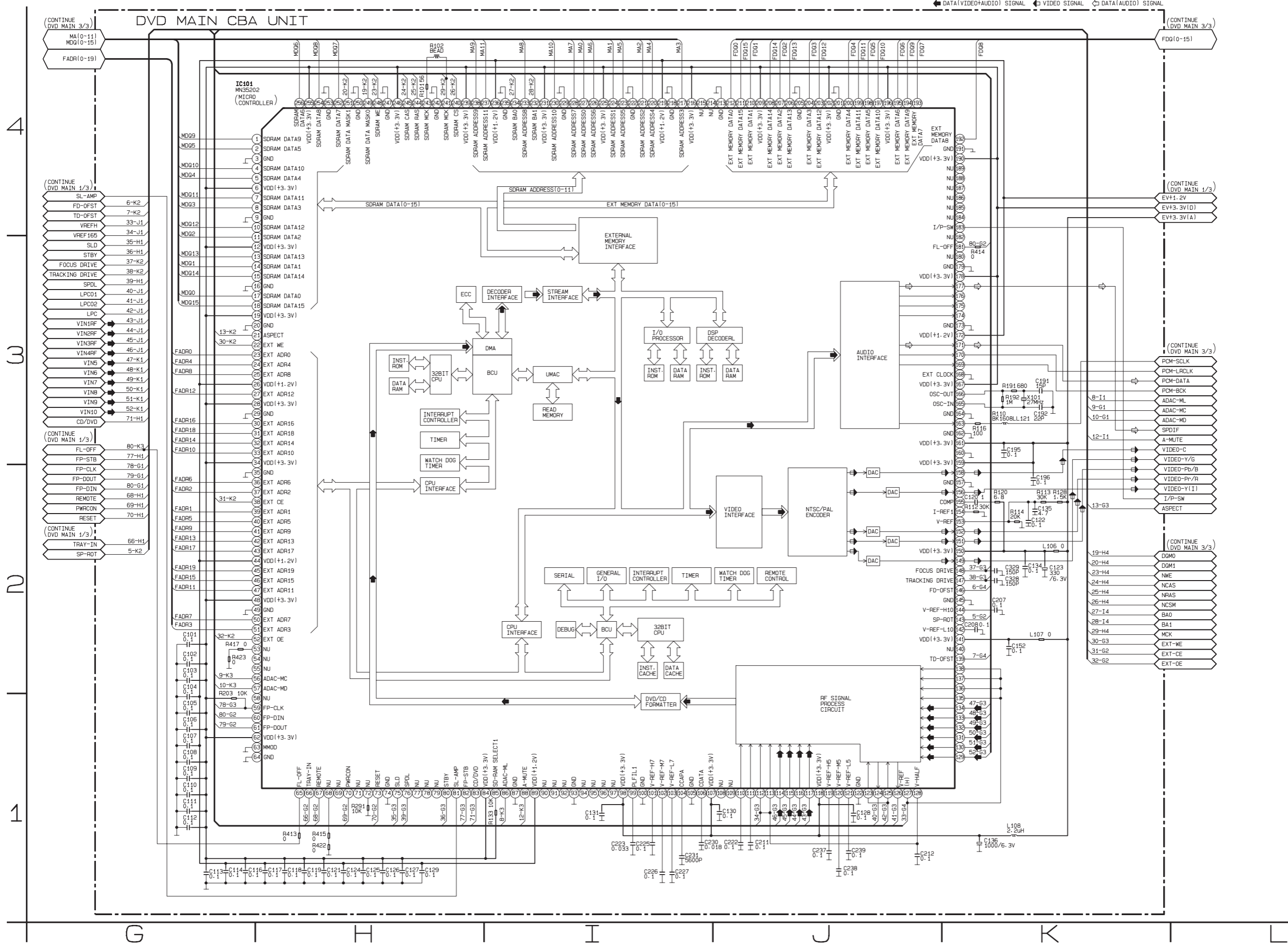
6. Test Point Information

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

# DVD Main 1/3 Schematic Diagram



# DVD Main 2/3 Schematic Diagram

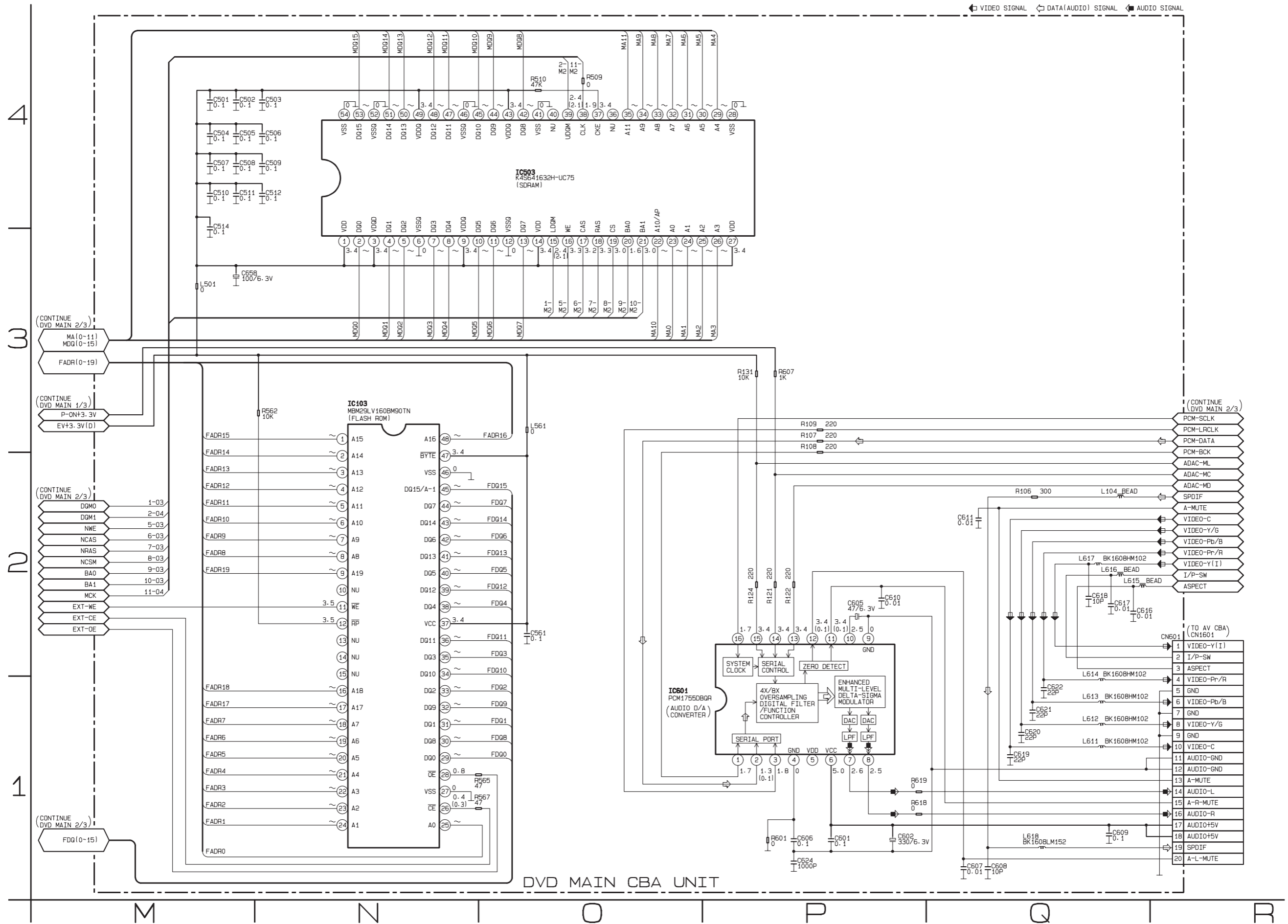


### IC101 VOLTAGE CHART

PIN.NO	PLAY	STOP	PIN.NO	PLAY	STOP	PIN.NO	PLAY	STOP	PIN.NO	PLAY	STOP	PIN.NO	PLAY	STOP	PIN.NO	PLAY	STOP	PIN.NO	PLAY	STOP	PIN.NO	PLAY	STOP
1	~	~	33	~	~	65	0	0	97	----	----	129	2.3	2.3	161	3.4	3.4	193	~	~	225	3.4	3.4
2	~	~	34	3.4	3.4	66	3.4	3.5	98	3.4	3.4	130	2.3	2.3	162	0	0	194	~	~	226	~	~
3	0	0	35	0	0	67	3.2	3.2	99	0.9	0.8	131	2.3	2.3	163	1.8	1.8	195	~	~	227	~	~
4	~	~	36	~	~	68	0	0	100	0	0	132	2.4	2.3	164	0	0	196	3.4	3.4	228	~	~
5	~	~	37	~	~	69	----	----	101	2.4	2.4	133	2.4	2.4	165	1.7	1.8	197	~	~	229	0	0
6	3.4	3.4	38	0.4	0.3	70	3.4	3.4	102	2.2	2.2	134	2.4	2.4	166	1.7	1.7	198	~	~	230	~	~
7	~	~	39	~	~	71	----	----	103	1.9	1.9	135	2.3	2.3	167	3.4	3.4	199	~	~	231	3.4	3.4
8	~	~	40	~	~	72	1.4	2.7	104	0.4	0.3	136	2.3	2.3	168	0	0	200	~	~	232	1.3	1.6
9	0	0	41	~	~	73	3.4	3.4	105	0	0	137	2.3	2.3	169	1.8	1.8	201	0	0	233	~	~
10	~	~	42	~	~	74	0	0	106	1.7	1.7	138	2.3	2.3	170	1.7	1.7	202	3.4	3.4	234	1.9	2.3
11	~	~	43	~	~	75	1.7	1.8	107	3.4	3.4	139	1.7	1.7	171	1.3	0.1	203	~	~	235	0	0
12	3.4	3.4	44	1.3	1.3	76	2.3	1.8	108	----	----	140	----	----	172	1.3	1.3	204	~	~	236	1.3	1.3
13	~	~	45	~	~	77	----	----	109	----	----	141	3.4	3.4	173	0	0	205	0	0	237	~	~
14	~	~	46	~	~	78	----	----	110	1.9	1.9	142	1.3	1.3	174	----	----	206	~	~	238	~	~
15	~	~	47	~	~	79	----	----	111	1.9	1.9	143	2.1	1.7	175	----	----	207	~	~	239	3.4	3.4
16	0	0	48	3.4	3.4	80	3.4	0.1	112	1.7	1.7	144	2.2	2.2	176	----	----	208	~	~	240	3.4	3.3
17	~	~	49	0	0	81	0.1	0.1	113	1.7	1.7	145	0	0	177	1.8	1.7	209	3.4	3.4	241	1.9	1.9
18	~	~	50	~	~	82	2.8	2.8	114	1.7	1.7	146	1.7	1.7	178	3.4	3.5	210	~	~	242	0	0
19	3.4	3.4	51	~	~	83	0.1	0.1	115	1.7	1.7	147	1.8	1.7	179	0	0	211	~	~	243	1.9	1.9
20	0	0	52	0.8	0.8	84	3.4	3.4	116	1.7	1.7	148	1.7	1.7	180	----	----	212	~	~	244	3.4	3.3
21	0.9	0.1	53	0	0	85	0.1	0.1	117	1.7	1.7	149	0.6	0.5	181	0	0	213	0	0	245	3.4	3.4
22	3.5	3.5	54	----	----	86	3.6	3.4	118	3.4	3.4	150	3.4	3.4	182	----	----	214	----	----	246	3.4	3.4
23	~	~	55	----	----	87	0	0	119	2.0	2.0	151	0.5	0.6	183	3.5	3.5	215	----	----	247	0	0
24	~	~	56	3.4	3.4	88	3.5	0.1	120	1.7	1.7	152	0.5	0.4	184	----	----	216	3.4	3.4	248	3.3	3.4
25	~	~	57	3.5	3.5	89	1.3	1.3	121	1.5	1.5	153	1.4	1.3	185	----	----	217	~	~	249	3.2	3
26	1.3	1.3	58	----	----	90	----	----	122	0	0	154	1.4	1.3	186	----	----	218	0	0	250	0	0
27	~	~	59	3.4	3.4	91	----	----	123	0.3	0.1	155	2.4	2.4	187	----	----	219	1.3	1.3	251	3.2	3.0
28	3.4	3.4	60	3.4	3.4	92	----	----	124	1.2	0.1	156	3.4	3.4	188	----	----	220	~	~	252	~	~
29	0	0	61	3.5	3.5	93	0	0	125	0.3	0.1	157	0	0	189	----	----	221	~	~	253	0	0
30	~	~	62	3.4	3.4	94	----	----	126	0.1	0.1	158	0.9	0.9	190	3.4	3.5	222	0	0	254	~	~
31	~	~	63	0	0	95	----	----	127	2.3	2.3	159	3.4	3.4	191	0	0	223	~	~	255	3.4	3.4
32	~	~	64	0	0	96	----	----	128	1.7	1.7	160	0	0	192	~	~	224	~	~	256	~	~



# DVD Main 3/3 Schematic Diagram



# AV 1/3 Schematic Diagram

## CAUTION !

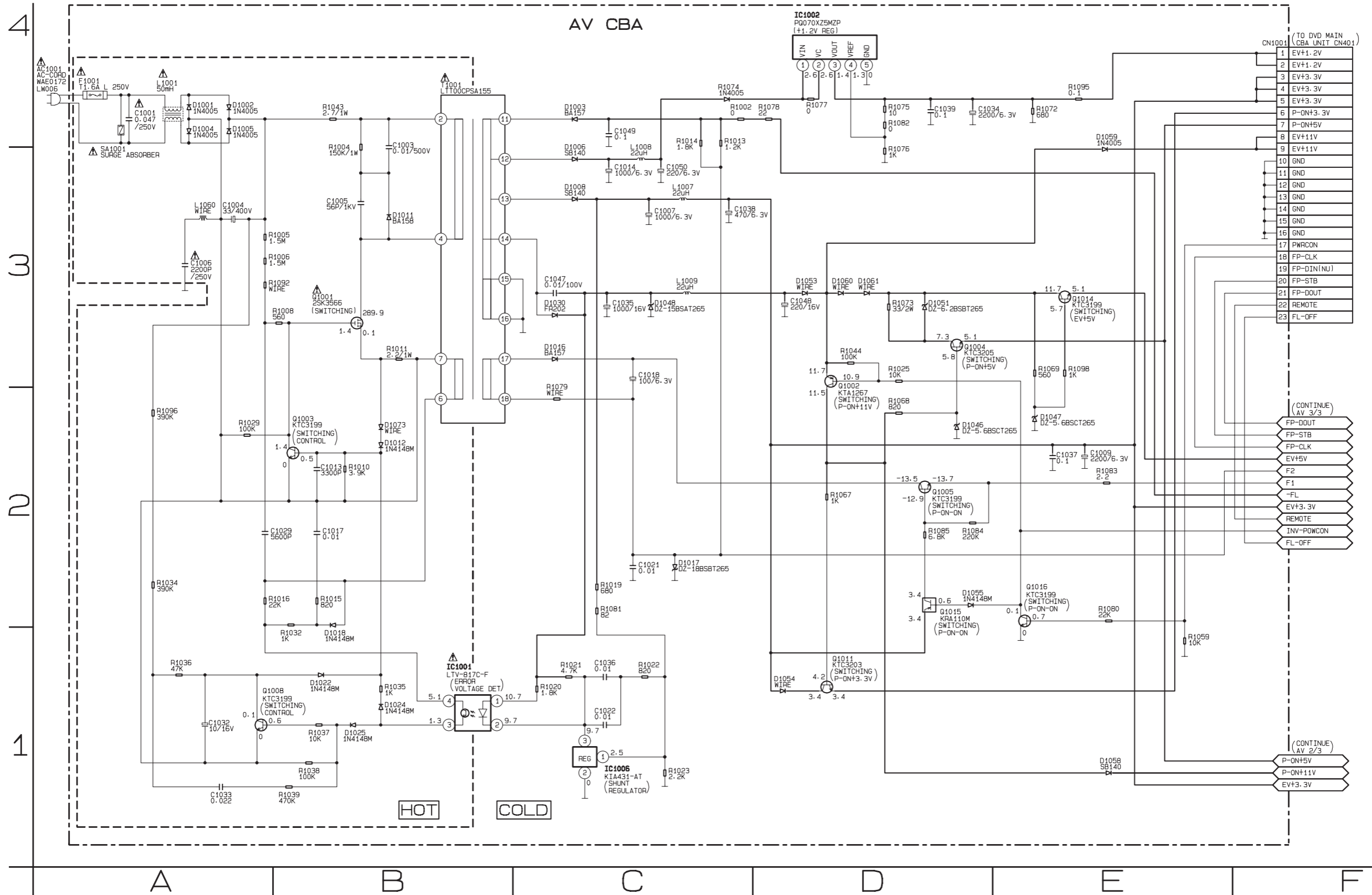
Fixed voltage ( or Auto voltage selectable ) power supply circuit is used in this unit.  
If Main Fuse ( F1001 ) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.  
Otherwise it may cause some components in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

## CAUTION

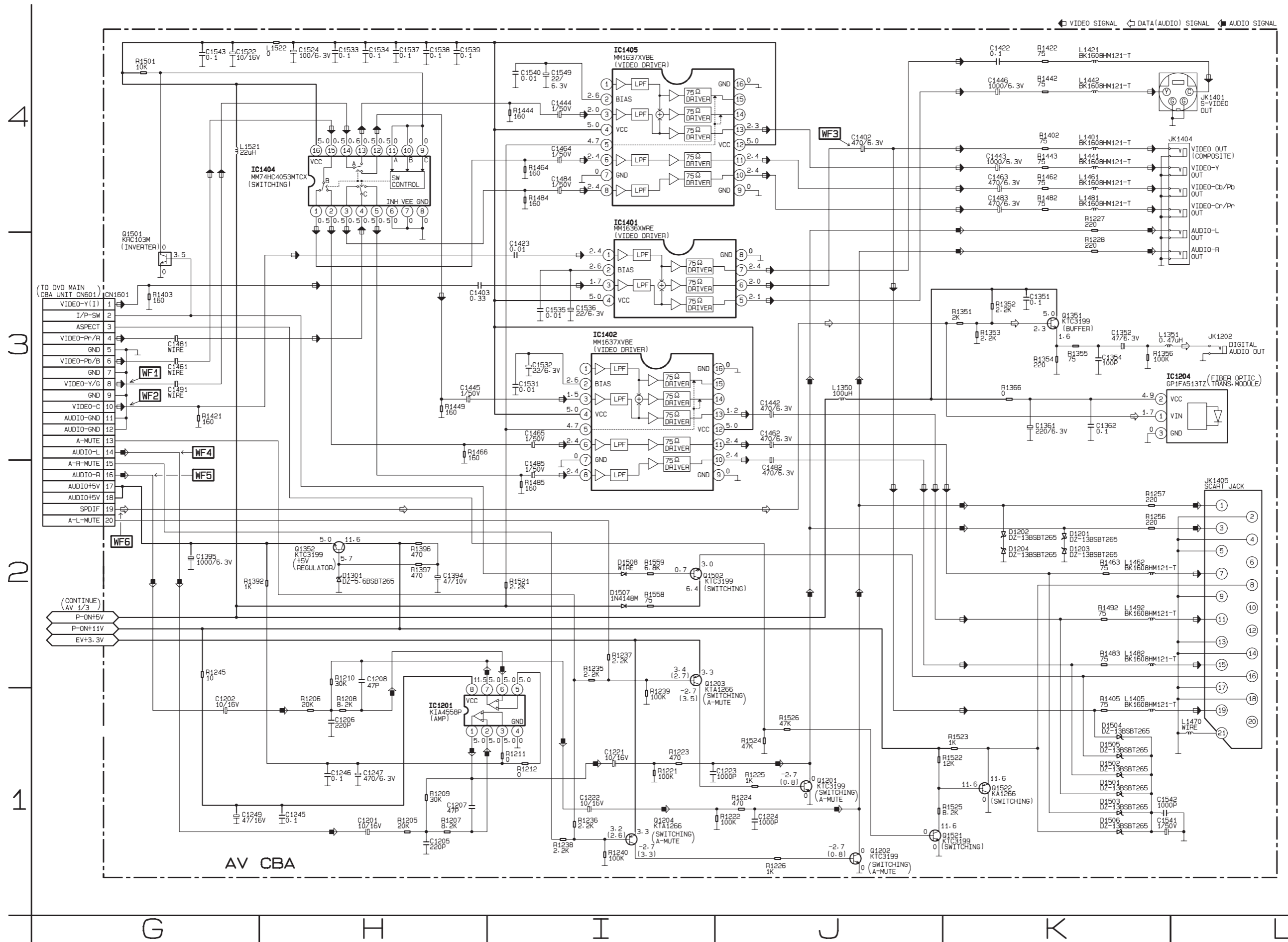
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,  
REPLACE ONLY WITH THE SAME TYPE FUSE.

## NOTE :

THE VOLTAGE FOR PARTS IN HOT CIRCUIT IS MEASURED USING  
HOT GND AS A COMMON TERMINAL.



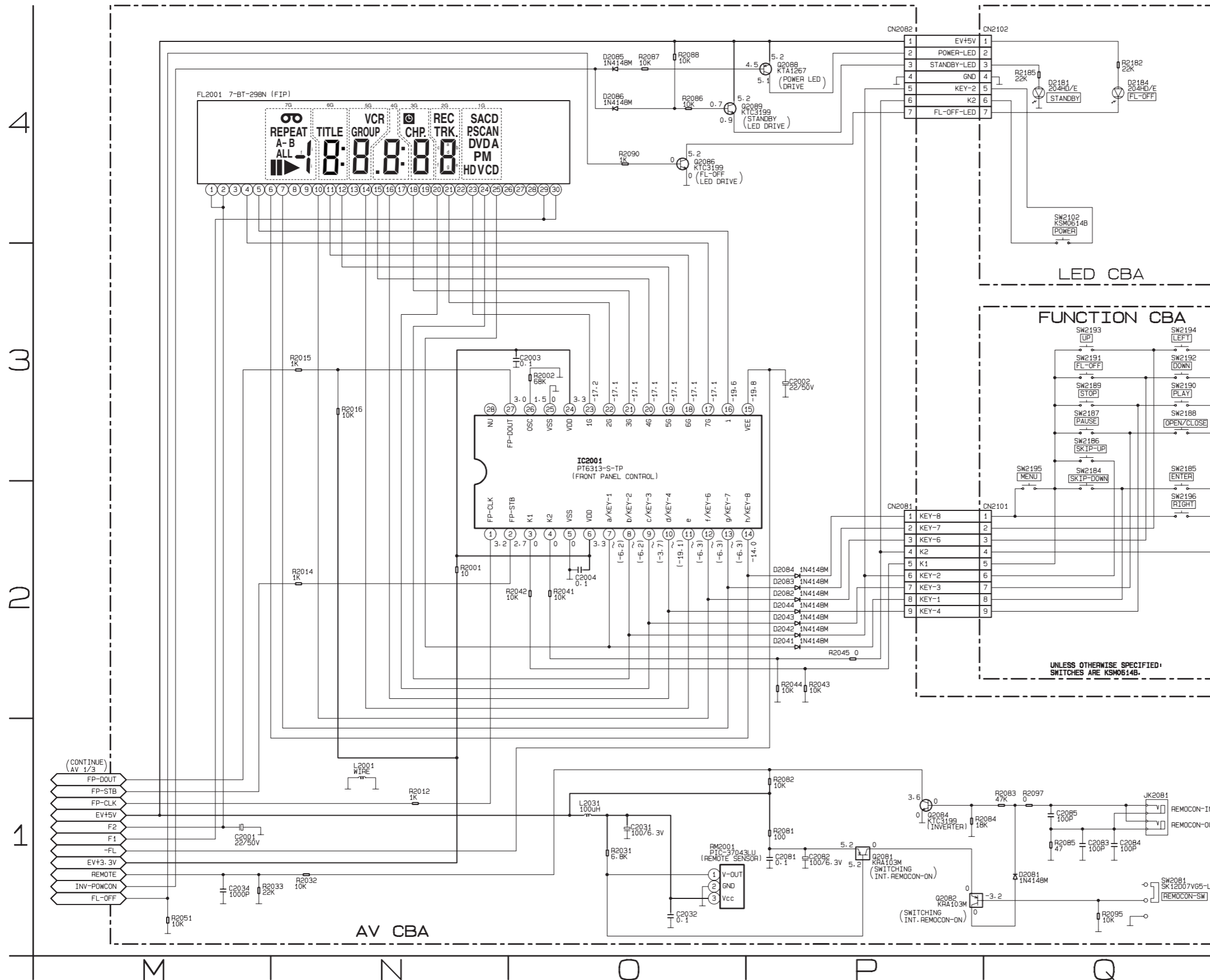
# AV 2/3 Schematic Diagram



# AV 3/3, Function & LED Schematic Diagram

FL2001 MATRIX CHART

	7G	6G	5G	4G	3G	2G	1G
a		a	a	a	a	a	SACD
b	REPEAT	b	b	b	b	b	PSCAN
c	A-	c	c	c	c	c	DVD
d	B	d	d	d	d	d	A
e	ALL	e	e	e	e	e	P
f		f	f	f	f	f	M
g		g	g	g	g	g	HD
h		GROUP		CHP	TRK.	V	
i	TITLE	VCR		REC	CD		



# AV CBA Top View

**CAUTION !**

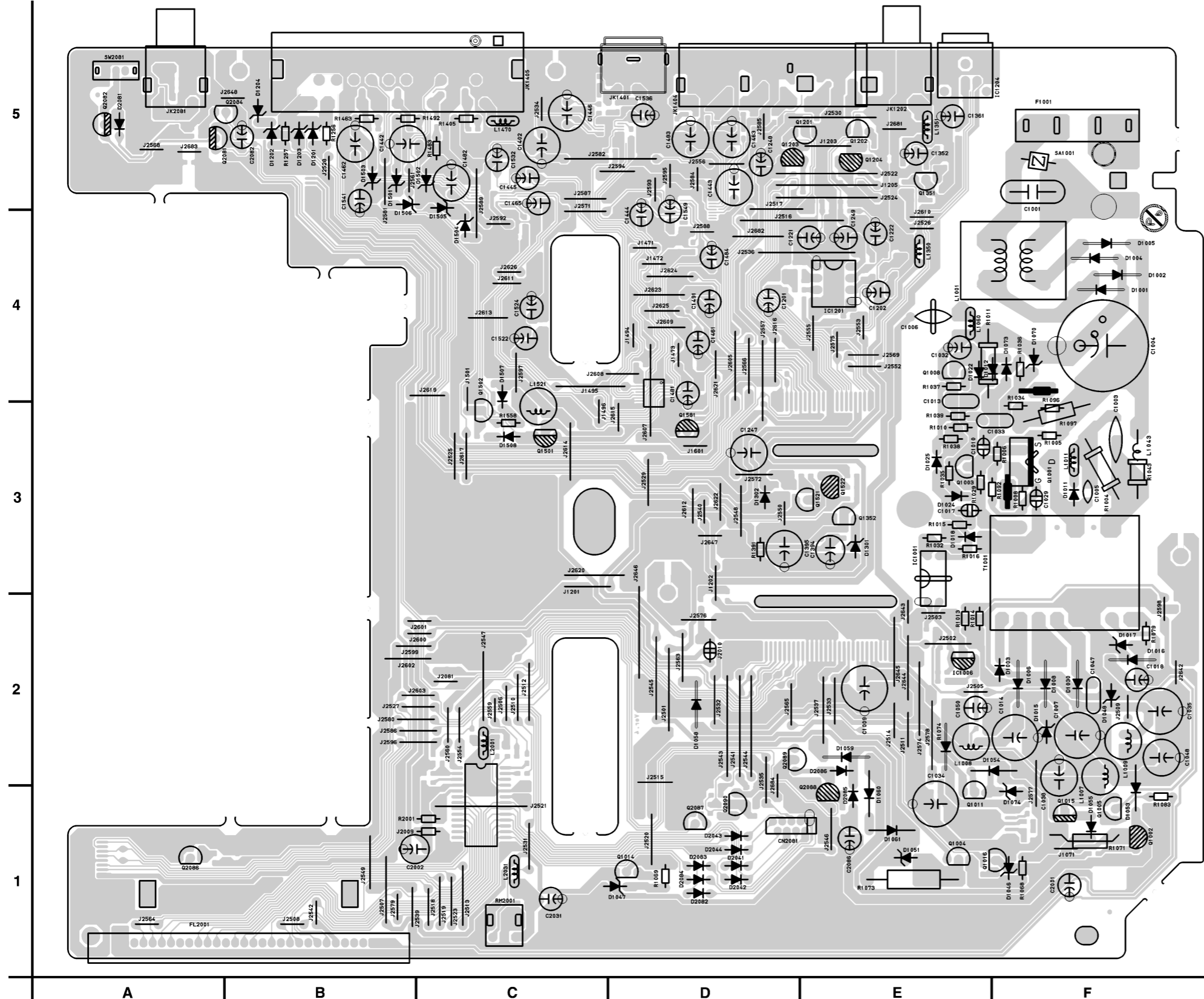
Fixed voltage ( or Auto voltage selectable ) power supply circuit is used in this unit.  
If Main Fuse ( F1001 ) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.  
Otherwise it may cause some components in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

**CAUTION**

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

**NOTE :**

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



# AV CBA Bottom View

## CAUTION !

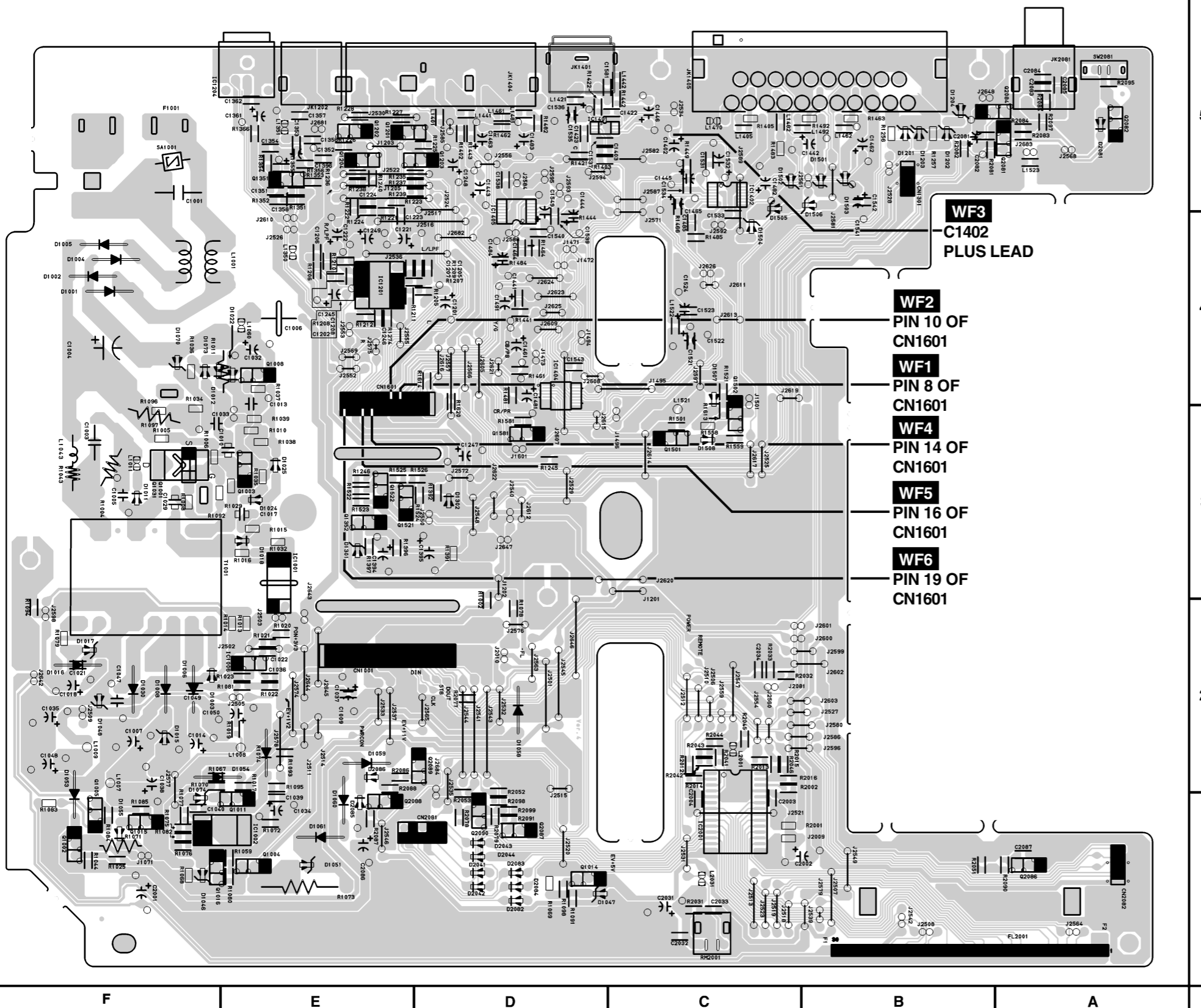
Fixed voltage ( or Auto voltage selectable ) power supply circuit is used in this unit.  
 If Main Fuse (F1001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.  
 Otherwise it may cause some components in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

## CAUTION

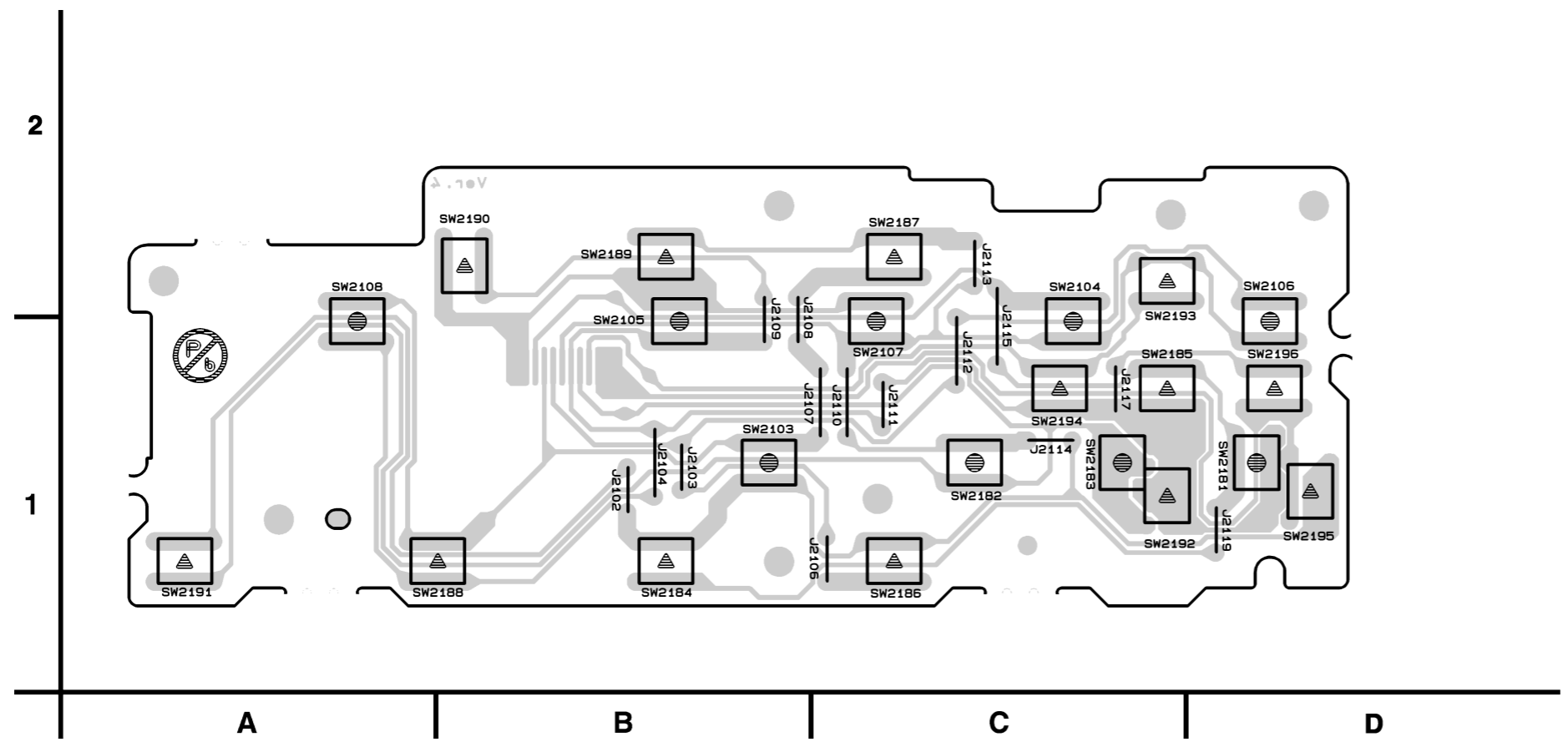
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,  
 REPLACE ONLY WITH THE SAME TYPE FUSE.

## NOTE :

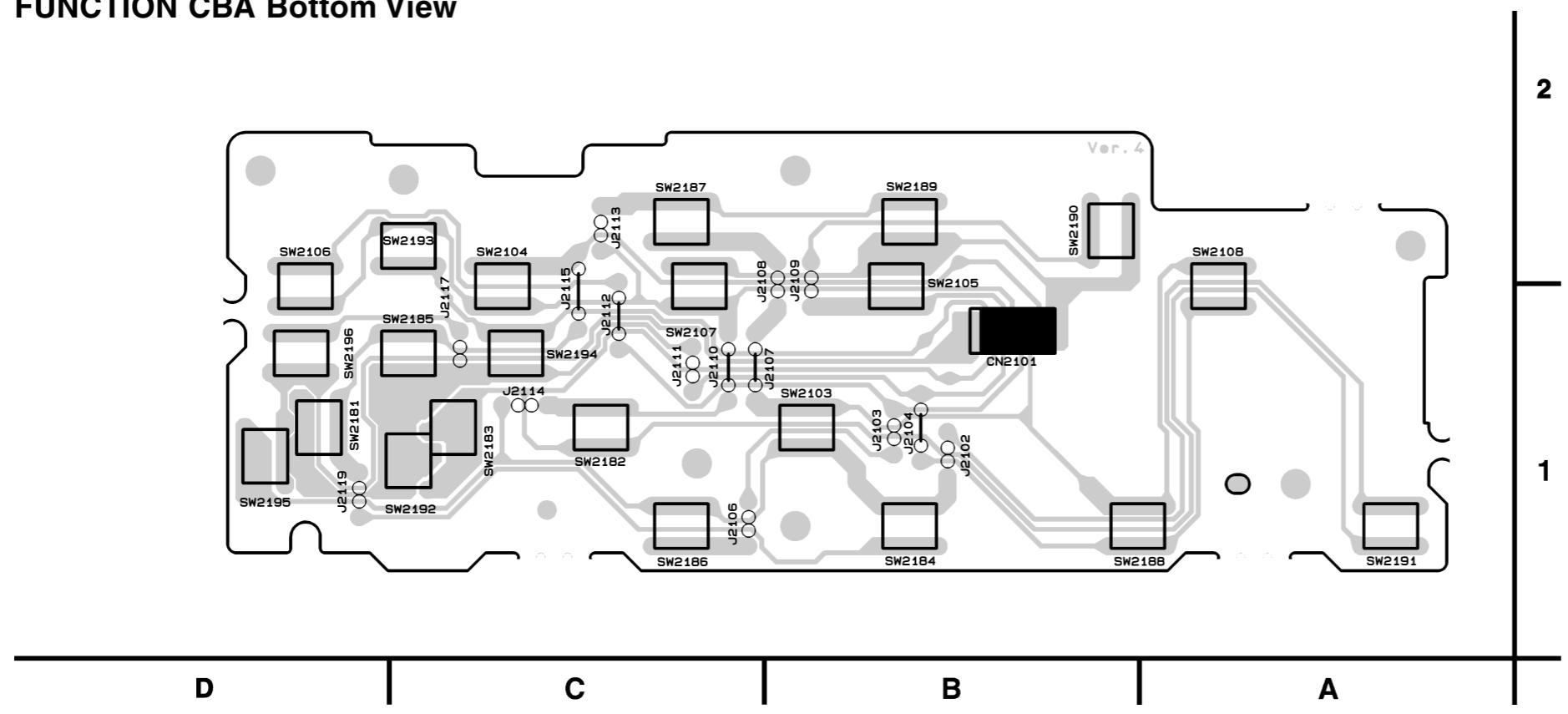
The voltage for parts in hot circuit is measured using hot GND as a common terminal.



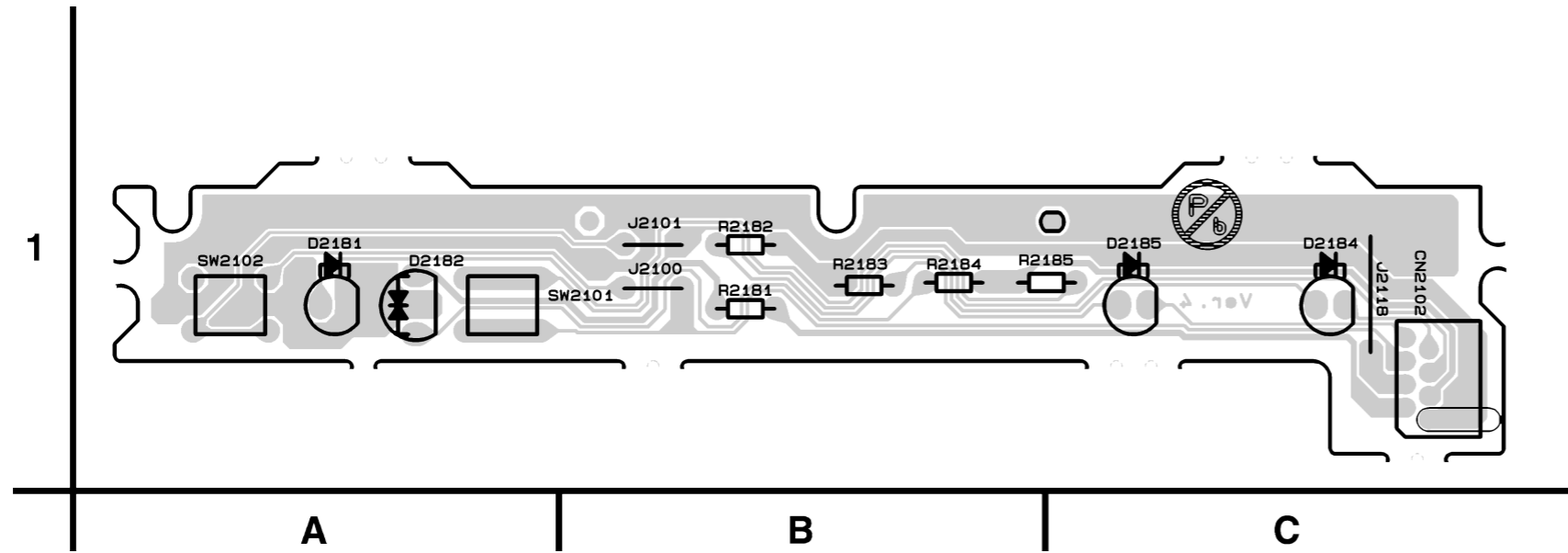
**FUNCTION CBA Top View**



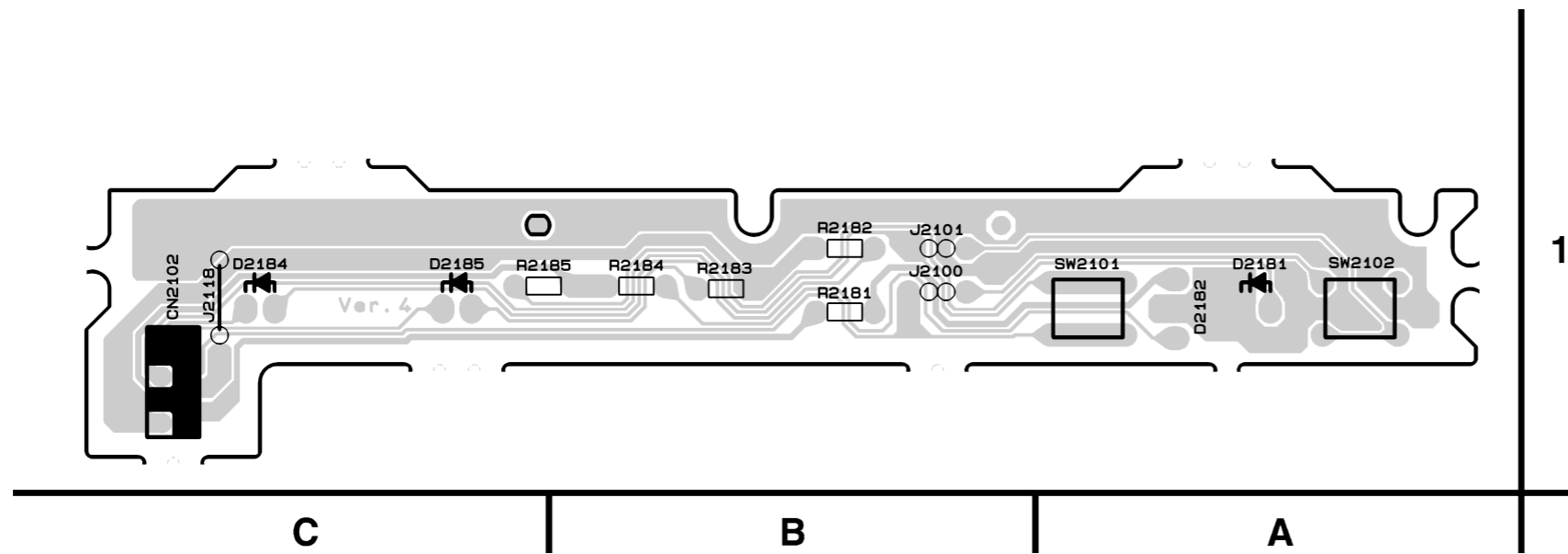
**FUNCTION CBA Bottom View**



LED CBA Top View



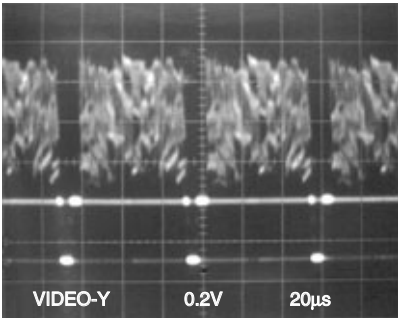
LED CBA Bottom View



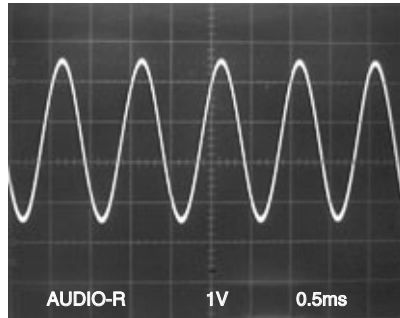


# WAVEFORMS

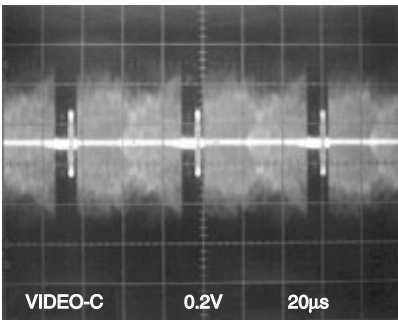
**WF1** Pin 8 of CN1601



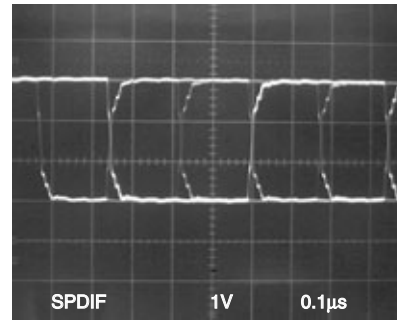
**WF5** Pin 16 of CN1601



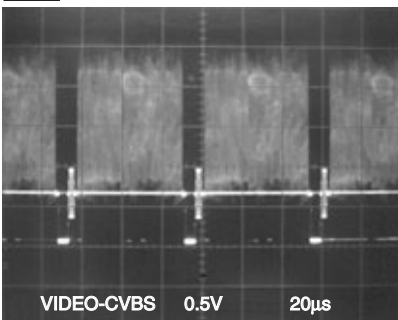
**WF2** Pin 10 of CN1601



**WF6** Pin 19 of CN1601



**WF3** C1402 PLUS LEAD



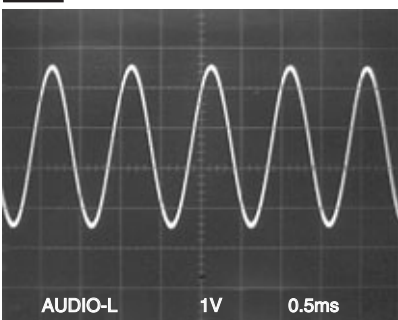
## NOTE:

Input

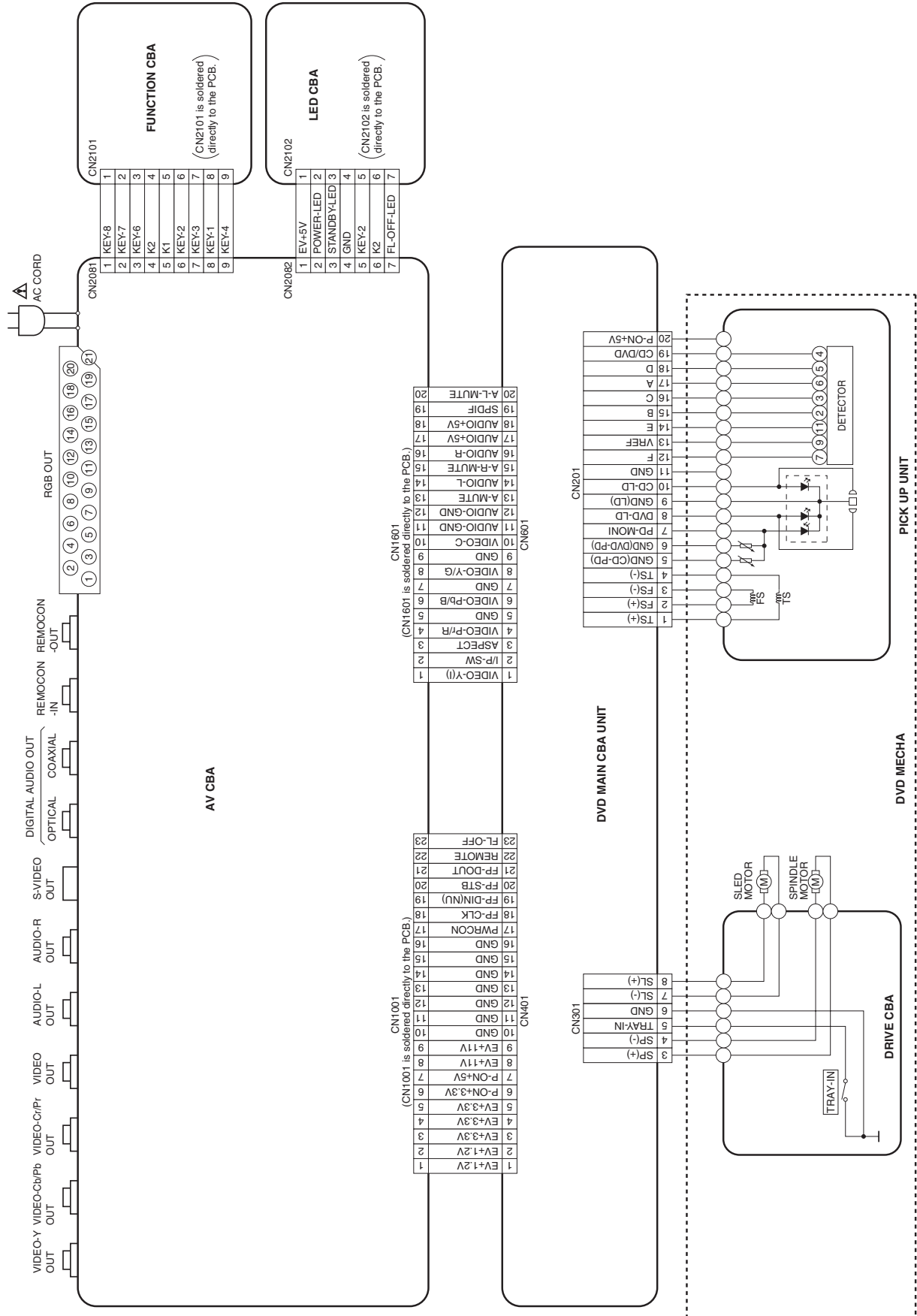
CD: 1kHz PLAY  
(WF4~WF6)

DVD: POWER ON (STOP) MODE  
(WF1~WF3)

**WF4** Pin 14 of CN1601



# WIRING DIAGRAM



# FIRMWARE RENEWAL MODE

1. Turn the power on and remove the disc on the tray.
2. To put the DVD player into version up mode, press [9], [8], [7], [6], and [SEARCH MODE] 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.

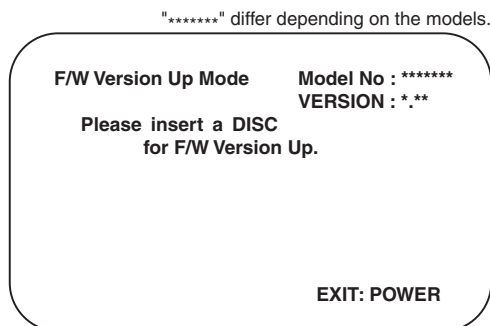


Fig. a Version Up Mode Screen

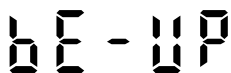


Fig. b VFD in Version Up Mode

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

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

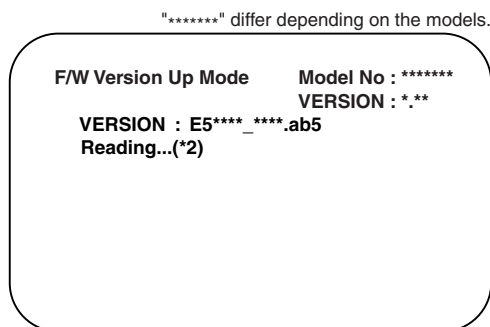


Fig. c Programming Mode Screen



Fig. d VFD in Programming Mode (Example)

The appearance shown in (\*2) of Fig. c is described as follows:

No.	Appearance	State
1	Reading...	Sending files into the memory
2	Erasing...	Erasing previous version data
3	Programming...	Writing new version data

5. After programming is finished, the tray opens automatically. Fig. e appears on the screen and the checksum in (\*3) of Fig. e appears on the VFD. (Fig. f)

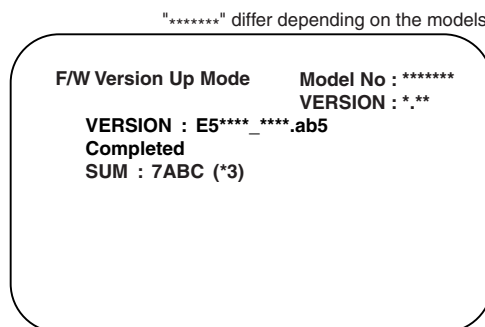


Fig. e Completed Program Mode Screen



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

At this time, no buttons are available.

6. Remove the disc on the tray.
7. Unplug the AC cord from the AC outlet. Then plug it again.
8. Turn the power on by pressing the [POWER] button and the tray will close.
9. Press [1], [2], [3], [4], and [DISPLAY] buttons on the remote control unit in that order. Fig. g appears on the screen.

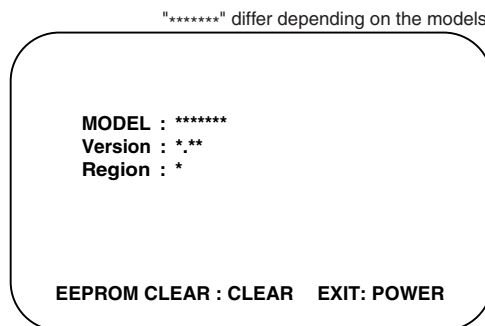


Fig. g

10. Press [CLEAR] button on the remote control unit.

Fig. h appears on the screen.

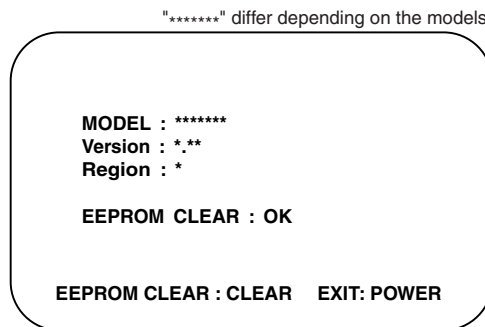


Fig. h

When "OK" appears on the screen, the factory default will be set. Then the firmware renewal mode is complete.

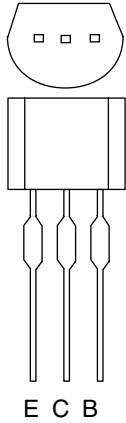
11. To exit this mode, press [POWER] button.

# IC PIN FUNCTION DESCRIPTIONS

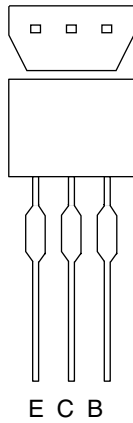
## IC2001 [ PT6313-S-TP ]

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

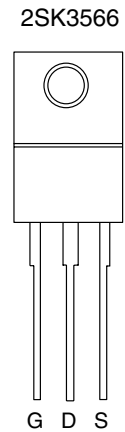
# LEAD IDENTIFICATIONS



2SA1015-Y(TPE2)  
 2SC2120-Y(TPE2)  
 2SC2236-Y-TPE6,C  
 BN1F4M-T  
 KRC103M  
 KTA1266(Y)  
 KTC3203(Y)  
 KTC3205(Y)

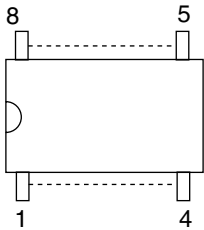


2SC1815-Y(TPE2)  
 2SC2785(H)  
 BN1L3Z(P)  
 KRA110M  
 KTA1267(Y)  
 KTC3199(GR,Y)

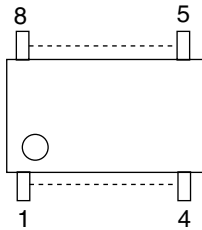


2SK3566

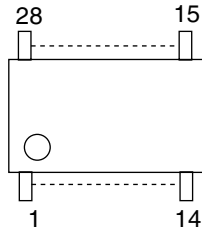
KIA4558P  
 MM1636XWRE



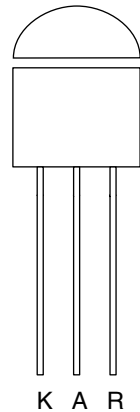
NJM4558D



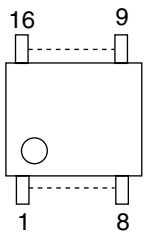
PT6313-S-TP  
 SC16313



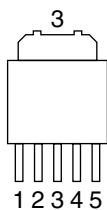
FAN431AZXA  
 KIA431-AT



MM1637XVBE



PQ070XZ5MZP

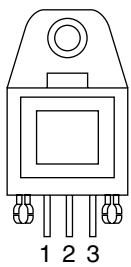


1: Vin  
 2: Vc  
 3: Vo  
 4: Vadj  
 5: GND

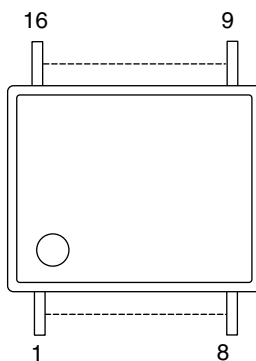
LTV-817B-F  
 LTV-817C-F  
 PS2561A-1(Q,W)



GP1FA513TZ



MM74HC4053MTCX



**Note:**

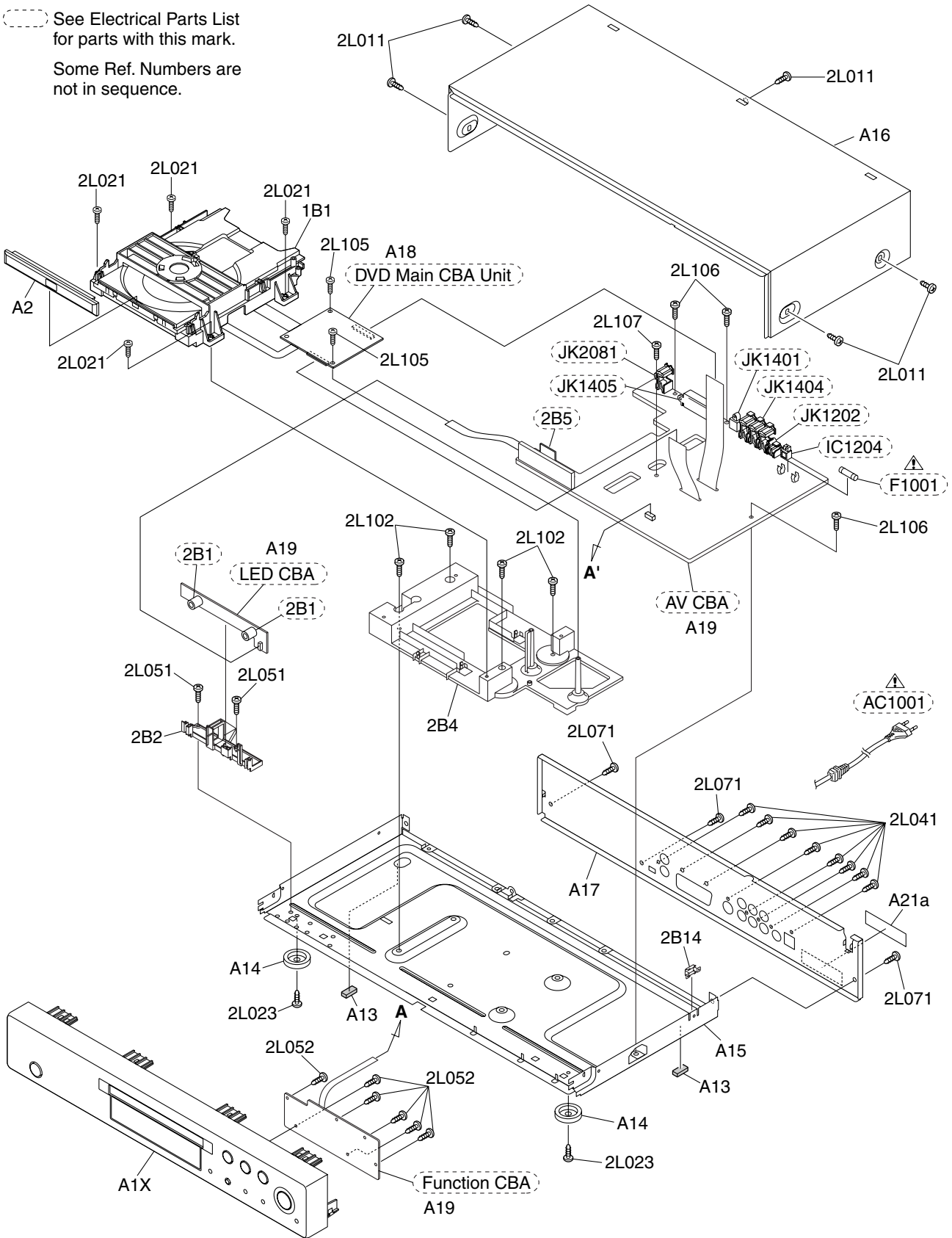
A: Anode  
 K: Cathode  
 E: Emitter  
 C: Collector  
 B: Base  
 R: Reference  
 G: Gate  
 D: Drain  
 S: Source

# EXPLODED VIEWS

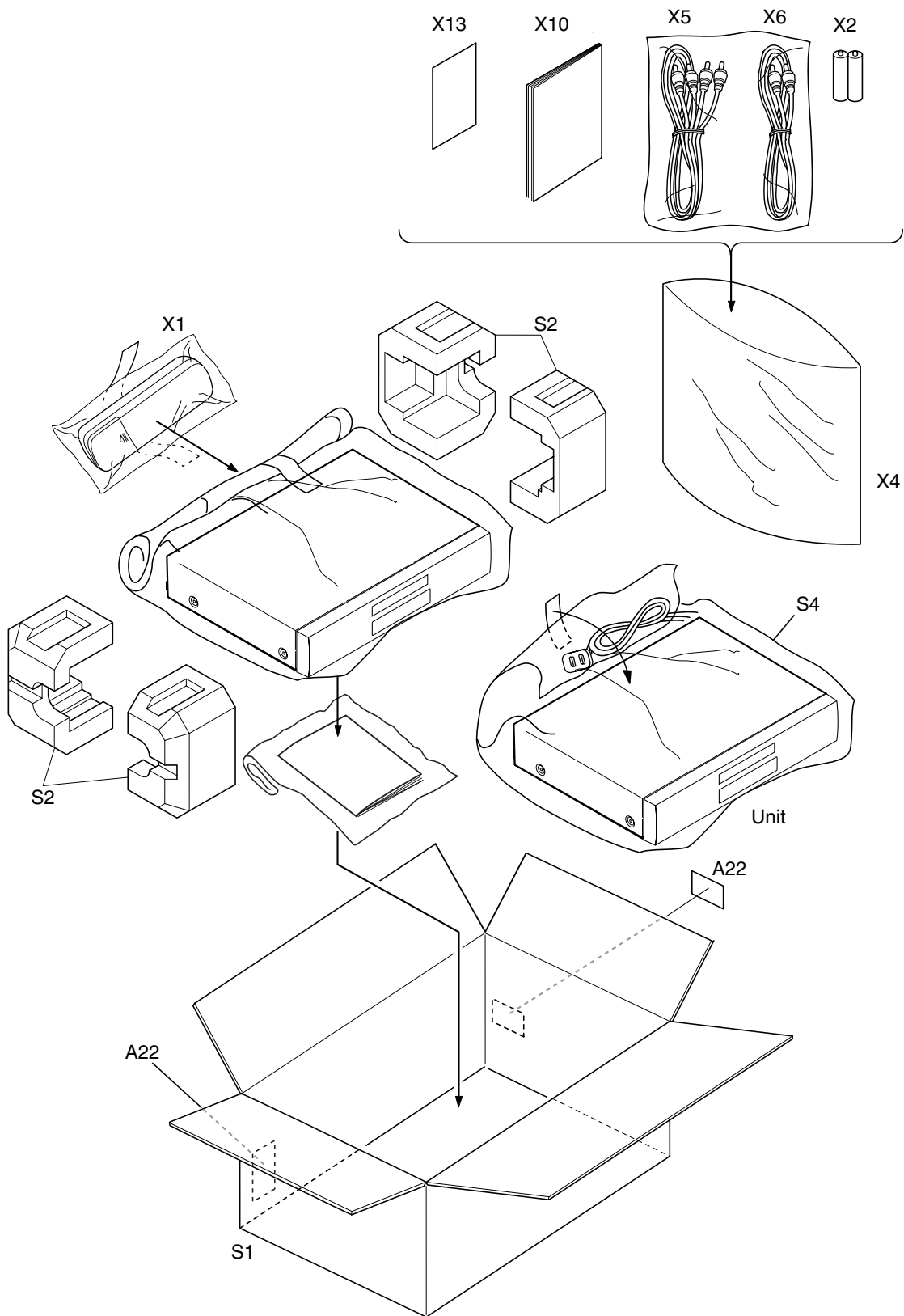
## Cabinet

See Electrical Parts List for parts with this mark.

Some Ref. Numbers are not in sequence.



# Packing



# PARTS LIST

POS. NO.	VERS. COLOR	PART NO. (FOR EUR)	PART NO. (MJI)	PARTS NAME	DISCRIPTION
<b>EXPLODED VIEW PARTS</b>					
A1X	/N1B	12BW248510	00M12BW248510	PANEL	FRONT ASSEMBLY BLACK 1VM220042
A1X	/N1S	12BW248530	00M12BW248530	PANEL	FRONT ASSEMBLY SILVER 1VM220044
A2	/N1B	44AW063010	00M44AW063010	ESCUTCHEON	TRAY PANEL BLACK 0VM204372
A2	/N1S	44AW063210	00M44AW063210	ESCUTCHEON	TRAY PANEL SILVER 0VM416014
A13		44AW057020	00M44AW057020	LEG	FOOT(REAR) DV4500 0VM415007
A14	/N1B	44AW057010	00M44AW057010	LEG	LEG ASSY BLACK GOLD 0VM415913
A14	/N1S	44AW057210	00M44AW057210	LEG	LEG ASSY SILVER 0VM416056
A15		nsp	nsp	CHASSIS	MAIN CHASSIS DV4500 0VM101362
A17		nsp	nsp	PANEL	REAR PANEL DV4500 FOR N 1VM220059
1B1		00M12BW304010	00M12BW304010	MECHA LOADER / MECHA TRAVERSE	DVD MECHA(FG LESS) 0838 VCZL0500 N79F0HVM
A18		90M-ZZ002500R	90M-ZZ002500R	PCB ASSY	DVD MAIN CBA UNIT N79B0HEP
A19		90M-ZZ002510R	90M-ZZ002510R	PCB ASSY	AV CBA ASSY / FUNCTION CBA ASSY / LED CBA ASSY 1VSA10352
▲ AC1001		90M-YC000820R	90M-YC000820R	MAINS CORD	! MAINS CORD PE8B2CG980A-057 WAE0172LW006
<b>PACKING</b>					
X1		00MZK12BW0010	00MZK12BW0010	UNIT KIT	REMOTE CONTROLLER RC6500DV NA819ED
X10		00M12BW851310	00M12BW851310	USER GUIDE	USER GUIDE DV4500 FOR N 1VMN20116
<b>NOT STANDARD SPARE PARTS</b>					
A16	/N1B	nsp	00M44AW257010	LID	TOP COVER BLACK 0VM101038B
A16	/N1S	nsp	00M44AW257210	LID	TOP COVER SILVER 0VM305312C
S1		nsp	00M12BW801010	CARTON BOX	GIFT BOX CARTON DV4500 1VM320178
S2		nsp	00M44AW809010	CUSHION	CUSHION DV4500 0VM101316
<b>ELECTRICAL PARTS LIST</b>					
<b>AV CBA</b>					
▲ C1001		90M-DF100360R	90M-DF100360R	FILM CAP.	! 0.047UF/250V K OR M CT2E473DC011 OR CT2E473MS037
▲ C1006		90M-DK100850R	90M-DK100850R	CERAMIC CAP.	! SAFETY CAP. 2200PF/250V CCN2EMP0E222 OR CA2E222MR049
CN1001		nsp	90M-YU001620R	FPC	23P FFC AV PCB TO MAIN WX1E59M2-003
CN1601		nsp	90M-YU001630R	FPC	20P FFC AV PCB TO MAIN WX1E5982-004
CN2082		nsp	90M-YU001640R	FPC	7P FFC AV PCB TO IND PCB WX1E59M2-001
▲ F1001		90M-FS001120R	90M-FS001120R	FUSE	! FUSE T1.6AL/250V PAGC20BW3162 OR 1790994
IC1204		90M-YJ002710R	90M-YJ002710R	OPT. CONNECTOR	OPTIC TRANS.MODULE GP1FA513TZ JWHHA00SH005
JK1202		90M-YT003370R	90M-YT003370R	TERMINAL	CINCH (BLACK) MSP-251V-01 NI JXRL010LY070
JK1401		90M-YT003380R	90M-YT003380R	TERMINAL	S TYPE JACK MDC-050V-2.4 JXEL040LY001
JK1404		90M-YT003850R	90M-YT003850R	TERMINAL	CINCH MSP-246V34-65NI-FELF OR MSD-246V-65NI/PBSN JXRL060LY082 OR JXRL060LY069
JK1405		90M-YT003390R	90M-YT003390R	TERMINAL	SCART CONNECTOR 21P RGB AJ-2050*040 JXGL210JD002
JK2081		90M-YT003860R	90M-YT003860R	TERMINAL	CINCH 2PIN (ORANGE) MSD-242V-24 NI JXRL020LY105
▲ L1001		90M-FN000190R	90M-FN000190R	FILTER	! 50MH LF-4Z-E503 OR LF-4D-E503 OR TLF14CB5630R2 LLBG00ZKQ008 OR LLBG00ZKQ009 OR LLBG00ZTU022
▲ SA1001		90M-HV000050R	90M-HV000050R	VARIATOR	! PVR-10D471KB OR CNR-10D471K NVQZ10D471KB OR
SW2081		90M-SS000760R	90M-SS000760R	SWITCH	SLIDE SWITCH SK12D07VG5-L A SSS0102LY003
▲ T1001		90M-TP000080R	90M-TP000080R	TRANSF.	! PULSE TRANS CGS-SW0005A OR 04715 LTT00CPSA155 OR LTT00CPKT128
<b>FUNCTION CBA</b>					
CN2101		nsp	90M-YU001650R	FPC	9P FFC AV PCB TO FNT PCB WX1E59M2-002

NOTE : "nsp" PARTS IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.

## 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部品を使用して下さい。