

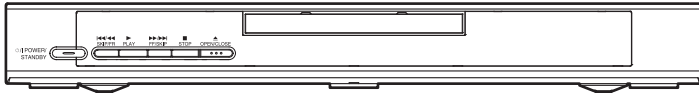
HITACHI

SERVICE MANUAL

TK

No. 9301E

**DV-P735U
DV-P735U(C)
DV-P533U**



SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

DVD PLAYER

February

2003

Digital Media Division, Tokai

CONTENTS

1 CAUTIONS FOR SAFETY IN PERFORMING

REPAIR1-1

1-1 LASER BEAM SAFETY PRECAUTIONS	1-1
1-2 IMPORTANT SAFETY PRECAUTIONS	1-2
1-2-1 Product Safety Notice	1-2
1-2-2 Precautions during Servicing	1-2
1-2-3 Safety Check after Servicing.....	1-3
1-3 STANDARD NOTES FOR SERVICING.....	1-4
1-3-1 Circuit Board Indications	1-4
1-3-2 Instructions for Connectors	1-4
1-3-3 How to Remove/Install Flat Pack-IC	1-4
1-3-4 Instructions for Handling Semi-conductors	1-6

2 GENERAL INFORMATION2-1

2-1 SPECIFICATIONS	2-1
2-2 COMPARISON OF MODELS.....	2-2
2-3 OPERATING CONTROLS AND FUNCTIONS.....	2-4

3 MAINTENANCE AND INSPECTION.....3-1

3-1 TROUBLESHOOTING.....	3-1
3-2 FIRMWARE RENEWAL MODE.....	3-7
3-2-1 How to Update the Firmware Version	3-7
3-2-2 How to Verify the Firmware Version	3-8

4 DISASSEMBLY4-1

4-1 CABINET DISASSEMBLY INSTRUCTIONS	4-1
4-1-1 Disassembly Flowchart	4-1
4-1-2 Disassembly Method.....	4-1

5 EXPLODED VIEW AND PARTS LIST.....5-1

5-1 EXPLODED VIEW.....	5-1
5-2 REPLACEMENT PARTS LIST.....	5-2
5-2-1 Mechanical Parts List	5-2
5-2-2 Electrical Parts List	5-3

SCHEMATIC AND BLOCK DIAGRAMS/CBA'S

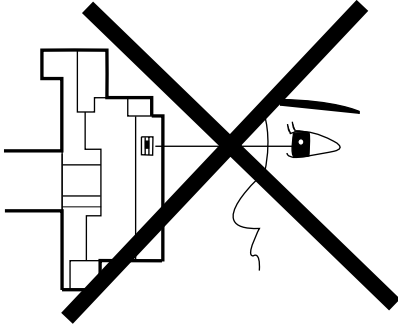
1 SCHEMATIC DIAGRAMS/CBA'S AND TEST POINTS ..	1
2 WIRING DIAGRAM.....	3
3 SCHEMATIC DIAGRAMS	4
3-1 DVD Main 1/3 Schematic Diagram	4
3-2 DVD Main 2/3 Schematic Diagram	5
3-3 DVD Main 3/3 Schematic Diagram	7
3-4 AV 1/3 Schematic Diagram	8
3-5 AV 2/3 Schematic Diagram	9
3-6 AV 3/3 & Function Schematic Diagram	10
4 WAVEFORMS.....	11
5 CIRCUIT BOARD DIAGRAMS	12
5-1 AV CBA Top View	12
5-2 AV CBA Bottom View.....	13
5-3 Function CBA Top/Bottom View	14
6 BLOCK DIAGRAMS	15
6-1 System Control/Servo Block Diagram	15
6-2 Digital Signal Process Block Diagram	16
6-3 Video/Audio Block Diagram.....	17
6-4 Power Supply Block Diagram.....	18
7 SYSTEM CONTROL TIMING CHARTS	19
8 IC PIN FUNCTION DESCRIPTIONS	20
9 LEAD IDENTIFICATIONS	21

1

CAUTION FOR SAFETY IN PERFORMING REPAIR

1-1 LASER BEAM SAFETY PRECAUTIONS

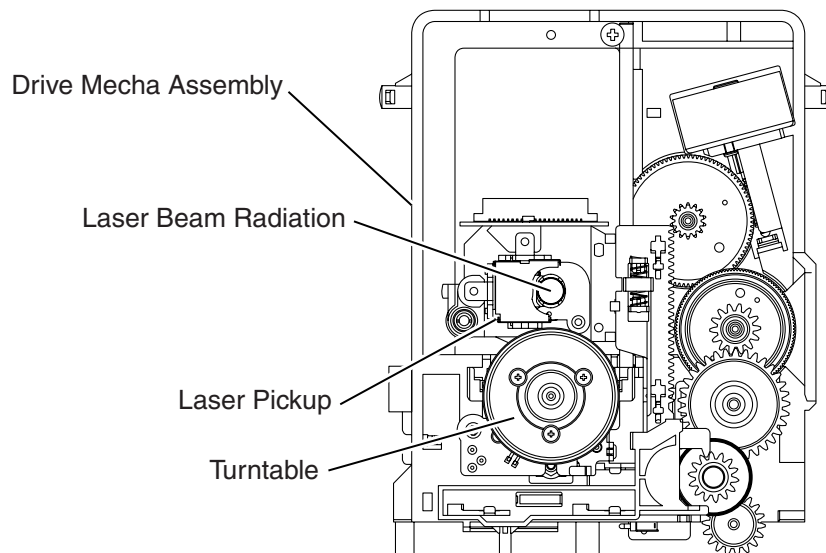
This DVD player uses a pickup that emits a laser beam.



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

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

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



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

Location: Inside Top of DVD mechanism.

1-2 IMPORTANT SAFETY PRECAUTIONS

1-2-1 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.

1-2-2 Precautions during Servicing

- A. Parts identified by the **▲** symbol are critical for safety. Replace only with part number specified.
- B. In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.
Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.
- C. Use specified internal wiring. Note especially:
 - 1) Wires covered with PVC tubing
 - 2) Double insulated wires
 - 3) High voltage leads
- D. Use specified insulating materials for hazardous live parts. Note especially:
 - 1) Insulation tape
 - 2) PVC tubing
 - 3) Spacers
 - 4) Insulators for transistors
- E. When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.
- F. Observe that the wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
- G. Check that replaced wires do not contact sharp edges or pointed parts.
- H. When a power cord has been replaced, check that 5 - 6 kg of force in any direction will not loosen it.

- I. Also check areas surrounding repaired locations.
- J. 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.

1-2-3 Safety Check after Servicing

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

1. Clearance Distance

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

Table 1 : Ratings for selected area

AC Line Voltage	Clearance Distance (d) (d')
120 V	$\geq 3.2\text{mm}$ (0.126 inches)

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

2. Leakage Current Test

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

Measuring Method (Power ON) :

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

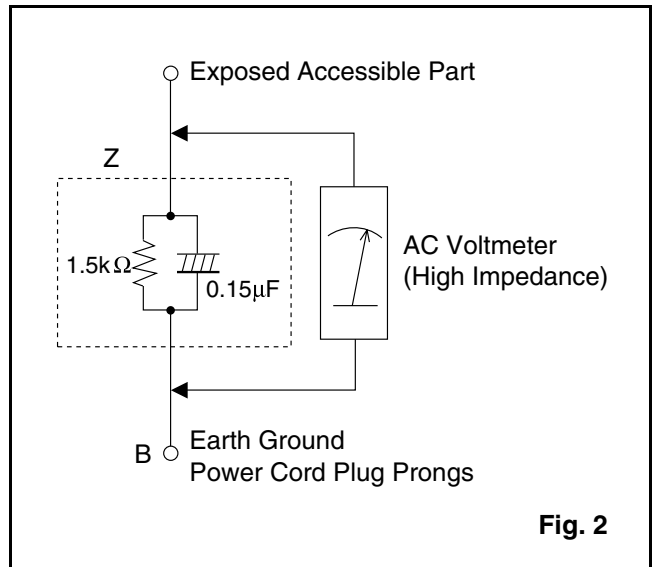
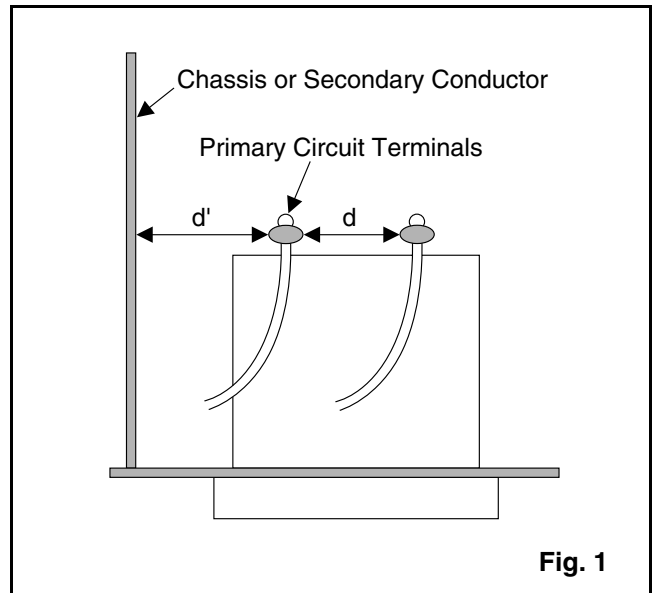


Table 2: Leakage current ratings for selected areas

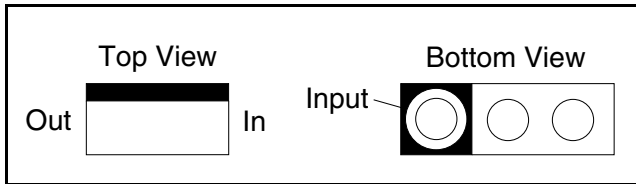
AC Line Voltage	Load Z	Leakage Current (i)	Earth Ground (B) to:
120 V	0.15 μF CAP. & 1.5k Ω RES. Connected in parallel	$i \leq 0.5\text{mA}$ Peak	Exposed accessible parts

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

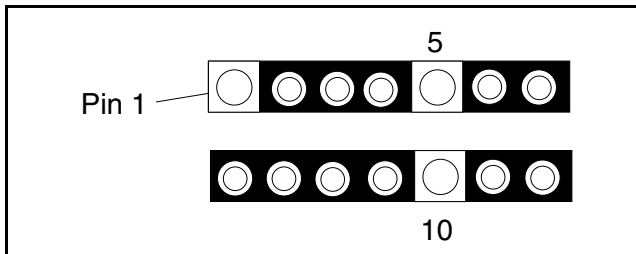
1-3 STANDARD NOTES FOR SERVICING

1-3-1 Circuit Board Indications

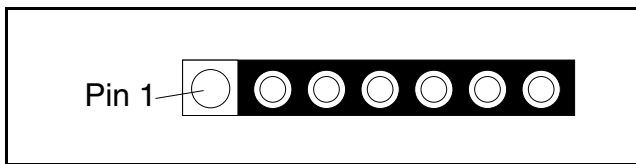
- a. The output pin of the 3 pin Regulator ICs is indicated as shown.



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

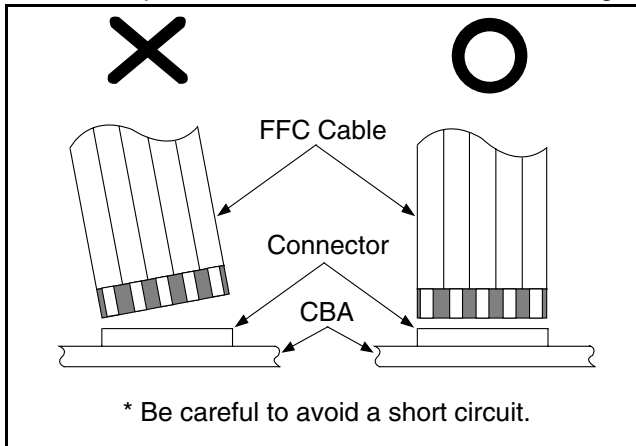


- c. The 1st pin of every male connector is indicated as shown.



1-3-2 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.



1-3-3 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)

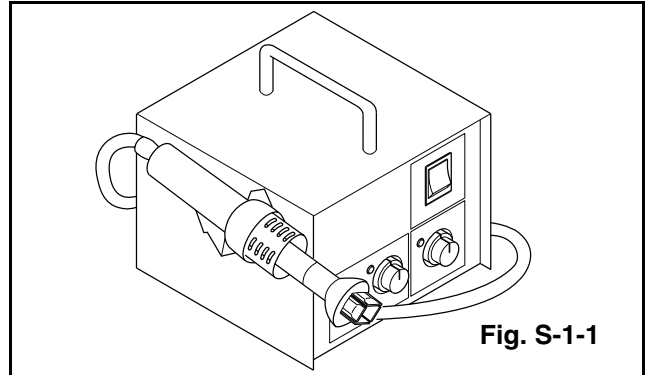


Fig. S-1-1

- (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)
- (1) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Caution:

1. 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)
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.

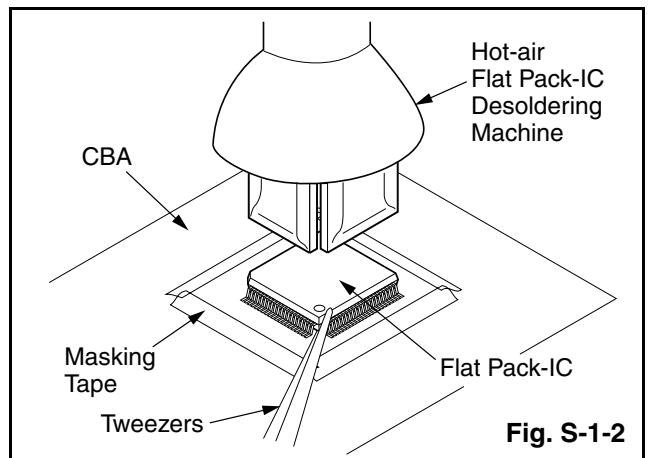
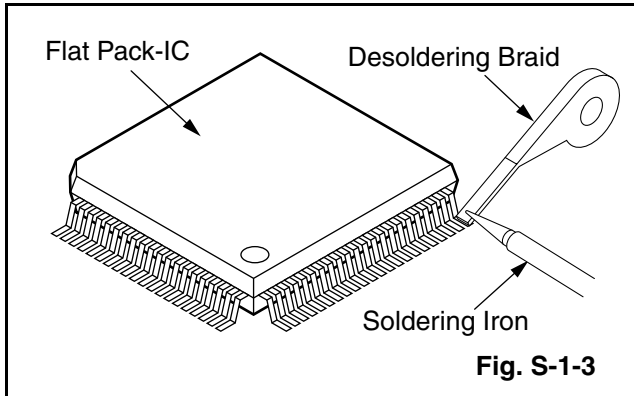


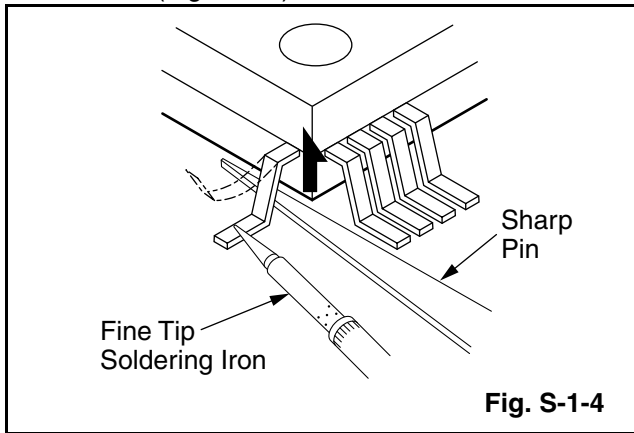
Fig. S-1-2

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)



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



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

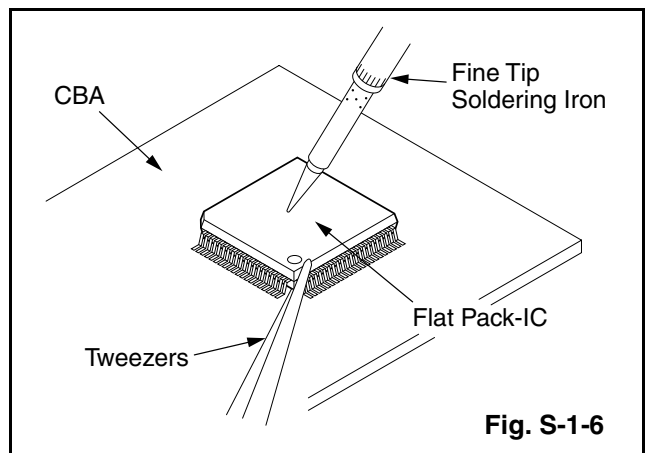
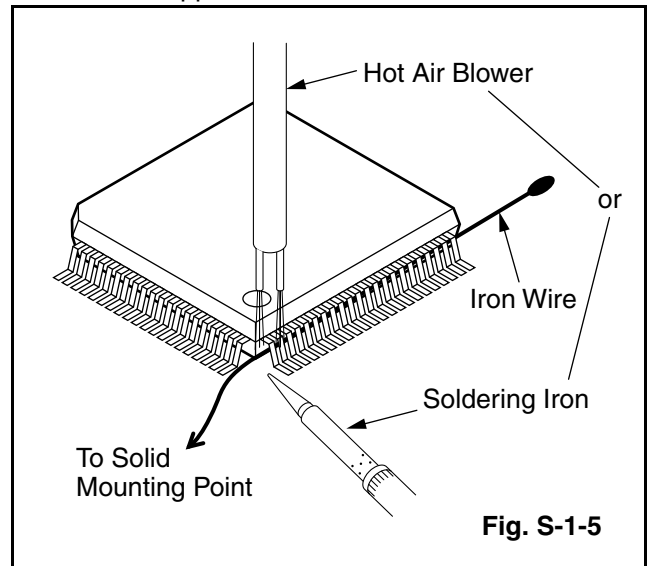
With Iron Wire:

- (1) Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)
- (2) Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
- (3) While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig. S-1-5

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

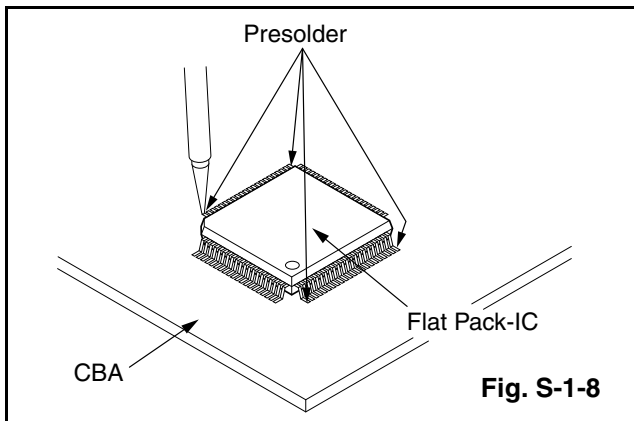
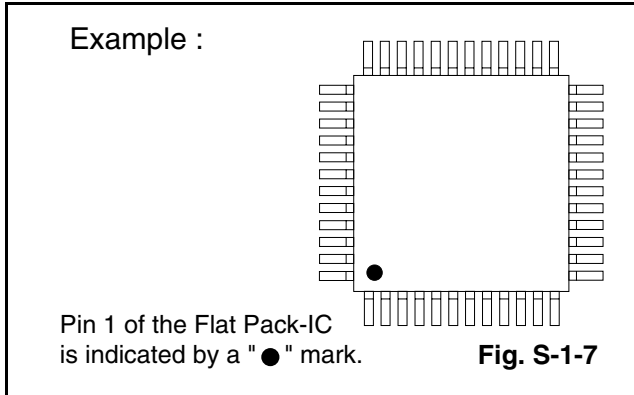
Note:

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



2. Installation

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



1-3-4 Instructions for Handling Semi-conductors

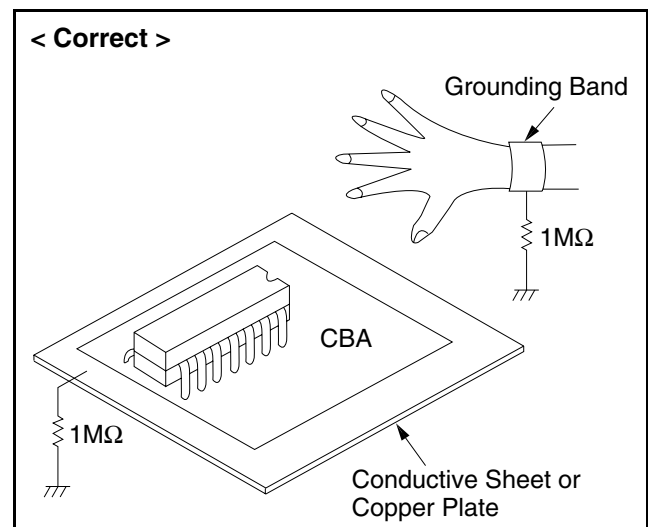
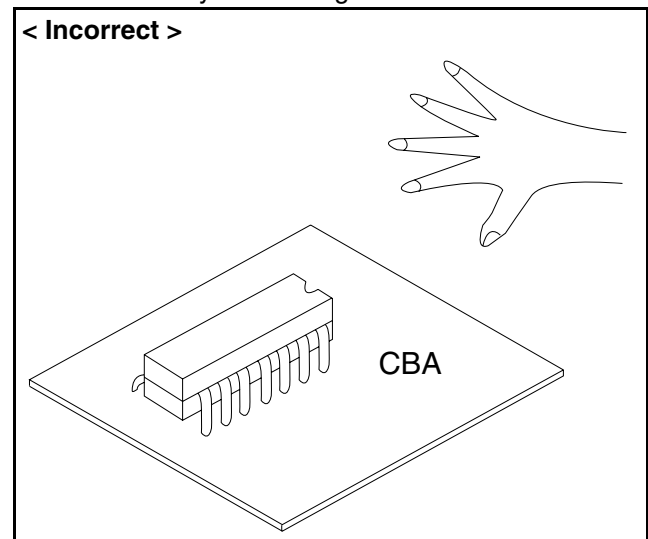
Electrostatic breakdown of the semi-conductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

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

- (4) 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.



2-1 SPECIFICATIONS

Product type :	DVD Player
Discs :	DVD video Audio CD
Output signal format :	NTSC color
Frequency response	
DVD (linear sound) :	20 Hz to 22 kHz (sample rate: 48 kHz) 20 Hz to 44 kHz (sample rate: 96 kHz)
CD :	20 Hz to 20 kHz
Signal-to-noise ratio (S/N ratio)	
CD :	110 dB (JEITA)
Dynamic range	
DVD (linear sound) :	95 dB
CD :	94 dB (JEITA)
Total distortion factor	
CD :	0.005% (JEITA)
Wow and flutter :	Below the measurement limitation (+/-0.001% W PEAK) (JEITA)
Connections	
S-Video output :	Mini DIN 4-pin jack (75 ohm)
Video output :	One RCA connector, 1 Vpp (75 ohm)
Coaxial digital audio output :	One pin jack, 500mVpp (75 ohm)
Analog audio output :	Two RCA connectors (one left channel, one right channel) 2 Vrms (47 k ohm)
Component video output :	One pin jack (Y), 1 Vpp (75 ohm) Two pin jacks (C _B)/(C _R), 700mVpp (75 ohm)
Optical digital audio output :	Optical connector
Power source :	120 V AC +/- 10%, 60 Hz +/- 0.5%
Power consumption :	11 W (standby: 3.9W)
Operating temperature :	5°C to 40°C
Dimensions :	W 17-1/8" (435mm) H 2-1/4" (55mm) D 8-1/4" (211mm)
Weight :	3.8 lbs (1.8kg)

• Designs and specifications are subject to change without notice.

2-2 COMPARISON OF MODELS

←: Same as on left

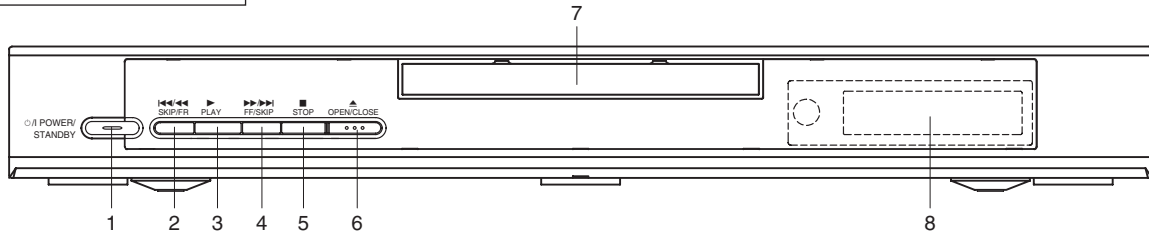
	ITEM	DV-P735U/P735U(C)/P533U	DV-P725U/P325U/P323U
APPEARANCE	Dimensional	435(W) x 55(H) x 211(D) mm	435(W) x 75(H) x 216(D) mm
	Weight	1.8 kg	2.1 kg
	Tray Panel	Clear	Silver
	Color Front / Button	Silver/Silver (DV-P735U/P735U(C)) Black/Silver (DV-P533U)	Dark Silver/Silver (DV-P725U) Black/Silver (DV-P325U) Silver/Silver (DV-P323U)
	Hot Stamp	---	O (DV-P725U) --- (DV-P325U/P323U)
	Ultra Vision Badge	---	O (DV-P725U) --- (DV-P325U/P323U)
GENERAL	Drive Speed	1x	←
	Laser	2	←
	DVD/VCD/SVCD/CD-DA	O / --- / --- / O	←
	CD-R/CD-RW/DVD-R (Video Format)	O / O / O	←
	DVD-RAM (VR Format)	---	←
	MP3	O	---
	OSD languages	3 (English, French, Spanish)	←
	Jog Shuttle on Front	---	Only switch shuttle
	Headphone Jack / Volume	--- / ---	O / O (DV-P725U) --- / --- (DV-P325U/P323U)
VIDEO	PAL Disc NTSC Out	---	O
	Video Out Mode NTSC/PAL/PAL60	O / --- / ---	←
	S-Video / Component / Composite	O / O / O	←
	Video D/A Converter	10bit	←
	Black Level Select	O	←
	Picture Control	---	←
	Progressive Out	O (DV-P735U/P735U(C)) --- (DV-P533U)	O (DV-P725U) --- (DV-P325U/P323U)
AUDIO	Audio D/A Converter	192kHz / 24bit	←
	Digital Audio Out Optical / Coaxial	--- / O	O / O
	Dolby Digital 5.1 ch Decode	---	←
	DTS Digital Out	---	O
	Virtual Surround	O	O (DV-P725U/P325U) --- (DV-P323U)
	Dynamic Range Compression (Dolby Digital)	O	←
	DVD Audio	---	←
	Power on sound	---	←
TRICK PLAY	Search Speed	2 to 100 (FORWARD/REWIND) (DVD: 2, 8, 50, 100/CD: 16)	2 to 60 (FORWARD/REWIND) (DVD: 2, 8, 30, 60/CD: 16)
	Slow Speed	1/16, 1/8, 1/2 (FORWARD/REWIND)	1/16, 1/8, 1/2 (FORWARD only)
	IP Search (Smooth 2x Play)	O	←
	2x Play with Audio	---	←
	Step Forward / Reverse	O / O	O / ---
	Still Picture Select (Frame/Field)	Auto Only	←

ITEM		DV-P735U/P735U(C)/P533U	DV-P725U/P325U/P323U
FEATURES	Disc Navigation	O (DV-P735U/P735U(C)) --- (DV-P533U)	---
	DVD Zoom x2 / x4 / x16	O / O / ---	←
	Program and Random Play of DVD / VCD	---	←
	A-B Repeat	O	←
	Repeat	O	←
	Last Play	O	←
	Closed Caption for NTSC DVD	O	←
	Front Panel Display Dimmer	O	←
	Screen Saver	O	←
	Auto Power Off	O	←
REMOTE CONTROLLER	Jog Shuttle on Remote	---	←
	TV Control	O (DV-P735U/P735U(C)) --- (DV-P533U)	O

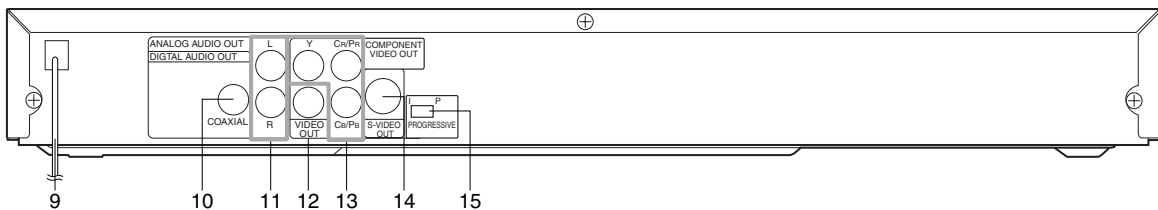
2-3 OPERATING CONTROLS AND FUNCTIONS

[DV-P735U/P735(C)]

FRONT PANEL

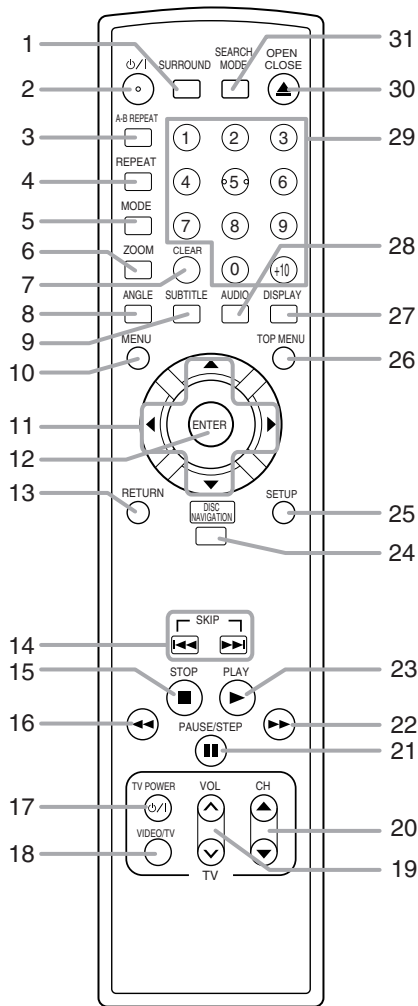


REAR VIEW



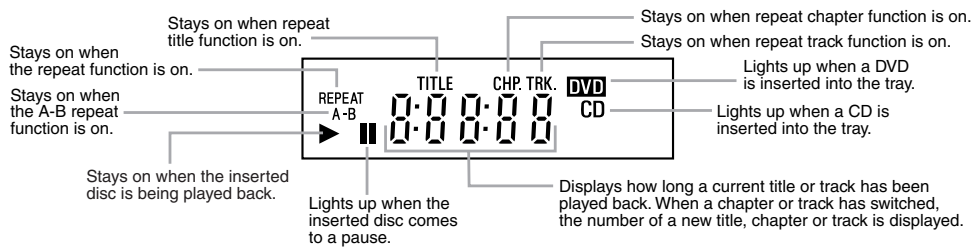
- | | |
|---|---|
| <ol style="list-style-type: none"> 1. ⏻/I (POWER/STANDBY)
to switch the player to ON or OFF
(As to the indication of the Operate switch, "I" indicates ON and "⏻" indicates electrical power STANDBY) 2. SKIP/FR
goes to previous chapter or track during playback; press and hold for 1.5 seconds for a reverse search 3. PLAY
to start or resume disc playback 4. FF/SKIP
goes to next chapter or track during playback; press and hold for 1.5 seconds for a forward search 5. STOP
to stop playback 6. OPEN/CLOSE
to open/close the disc tray 7. Disc tray 8. Display | <ol style="list-style-type: none"> 9. MAIN (AC Power Cord)
connect to a standard AC outlet 10. COAXIAL (Digital audio out)
connect to AUDIO inputs of a digital (coaxial) audio equipment 11. AUDIO OUT (Left/Right)
connect to AUDIO inputs of an amplifier, receiver or stereo system 12. VIDEO OUT
connect to the Video Input of a TV. 13. COMPONENT VIDEO OUT
connect to a TV with Component video in jacks. 14. S-VIDEO OUT
connect to a TV with S-Video inputs 15. INTERLACE/PROGRESSIVE SCAN SELECTOR
to select interlace or progressive scanning <p>Caution: Do not touch the inner pins of the jacks on the rear panel. Electrostatic discharge may cause permanent damage to the player.</p> |
|---|---|

REMOTE CONTROL



1. **SURROUND**
Press to activate the virtual sound.
2. **⏻/⏪(POWER/STANDBY)**
Press to turn the power on and off.
(As to the indication of the Operate switch, "I" shows ON and "⏻/⏪" shows electrical power stand-by.)
3. **A-B REPEAT**
Repeats playback of a selected section.
4. **REPEAT**
Repeats playback of the current disc, title, chapter or track.
5. **MODE**
Activates program playback or random playback mode when playing CDs or MP3. Sets Black level and virtual surround.
6. **ZOOM**
Enlarges part of a DVD-reproduced image.
7. **CLEAR**
Press to reset the setting.
8. **ANGLE**
Press to change the camera angle to see the sequence being played back from a different angle.
9. **SUBTITLE**
Press to select the desired subtitle language.
10. **MENU**
Press to display the menu of the Disc.
11. **Arrow Buttons (◀▶▶▶)**
Move the cursor (◀▶▶▶) and determines its position.
12. **ENTER**
Press to accept a setting.
13. **RETURN**
Returns to the previous operation.
14. **SKIP**
Press to skip Chapters or Tracks.
15. **STOP**
Press to stop the disc motion.
16. **◀◀**
Press to view the DVD picture in fast reverse motion or to (reverse playback of an Audio CD).
17. **TV POWER**
To exclusively turn ON/OFF the TV.
18. **VIDEO/TV**
Press to select the external input mode or TV mode of the TV.
19. **TV VOL (^ / \)**
Press to exclusively control the TV volume.
20. **TV CH ▼/▲**
Press to exclusively control the TV channels.
21. **PAUSE/STEP**
Press to pause Disc playback. Press repeatedly to advance the DVD picture step by step (or one frame at a time).
22. **▶▶**
Press to fast forward the Disc. Press PAUSE/STEP, then press this button to begin slow motion playback. Press this button repeatedly to change the forward speed of slow motion.
23. **PLAY**
Press to begin playback.
24. **DISC NAVIGATION**
Press to enter the setup mode.
25. **SETUP**
Press to display the first scenes of each chapter of the title being played.
26. **TOP MENU**
Press to call up the title menu.
27. **DISPLAY**
Press to access or remove the display screen during DVD or Audio CD playback.
28. **AUDIO**
Press to select a desired audio language or sound mode.
29. **Numerical Buttons**
Press to directly select a Track (Audio CD) for playback.
30. **OPEN/CLOSE**
Press to open or close the disc loading tray.
31. **SEARCH MODE**
Press to access or remove the Search display, which allows you to go directly to a specific Title/Chapter/Track/Time.

Display

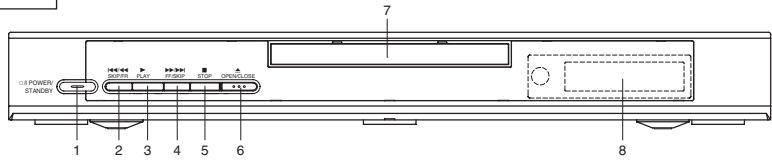


Displays During Operation

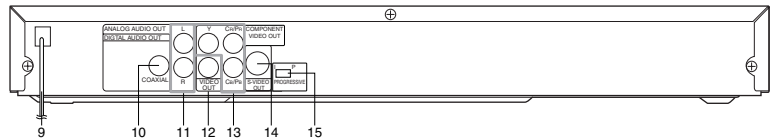
	Power on
	No disc inserted/can not read
	Tray open
	Tray closed
	Loading the Disc
	Power off
	When a disc is being Play back

[DV-P533U]

FRONT PANEL



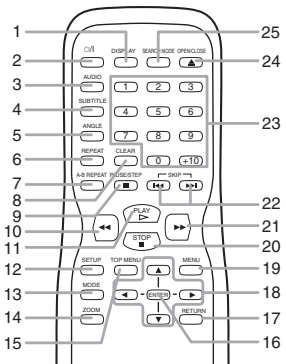
REAR VIEW



1. **⏻/I (POWER/STANDBY)**
to switch the player to ON or OFF
(As to the indication of the Operate switch, "I" indicates ON and "⏻" indicates electrical power STANDBY)
2. **SKIP/FR**
goes to previous chapter or track during playback; press and hold for 1.5 seconds for a reverse search
3. **PLAY**
to start or resume disc playback
4. **FF/SKIP**
goes to next chapter or track during playback; press and hold for 1.5 seconds for a forward search
5. **STOP**
to stop playback
6. **OPEN/CLOSE**
to open/close the disc tray
7. **Disc tray**
8. **Display**
9. **MAIN (AC Power Cord)**
connect to a standard AC outlet
10. **COAXIAL (Digital audio out)**
connect to AUDIO inputs of a digital (coaxial) audio equipment
11. **AUDIO OUT (Left/Right)**
connect to AUDIO inputs of an amplifier, receiver or stereo system
12. **VIDEO OUT**
connect to the Video Input of a TV.
13. **COMPONENT VIDEO OUT**
connect to a TV with Component video in jacks.
14. **S-VIDEO OUT**
connect to a TV with S-Video inputs
15. **INTERLACE/PROGRESSIVE SCAN SELECTOR**
to select interlace or progressive scanning

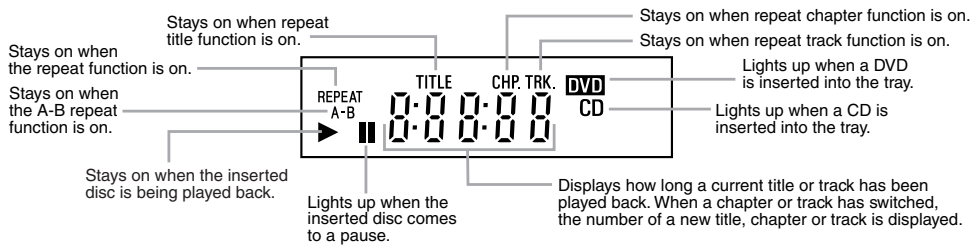
Caution: Do not touch the inner pins of the jacks on the rear panel. Electrostatic discharge may cause permanent damage to the player.

REMOTE CONTROL



1. **DISPLAY**
to access or remove the display screen during DVD or Audio CD playback
2. **⏻/I (POWER/STANDBY)**
switch DVD player ON or OFF
3. **AUDIO**
to choose audio languages or sound modes
4. **SUBTITLE**
subtitle language DVD selector
5. **ANGLE**
select DVD camera angle
6. **REPEAT**
repeat chapter, track, title, all.
7. **A-B REPEAT**
repeat a specific segment
8. **CLEAR**
to reset the setting
9. **PAUSE/STEP**
pause playback temporarily / frame-by-frame playback
10. **◀◀**
to view DVD picture in fast reverse motion
11. **PLAY**
to start a DVD disc playback
12. **SETUP**
to access or remove the DVD setup menu
13. **MODE**
to set up programmed or random playback (Audio CD) to set the black level and virtual surround during DVD playback
14. **ZOOM**
enlarge DVD video image
15. **TOP MENU**
to display title menu of a disc
16. **ENTER**
acknowledge menu selection
17. **RETURN**
to return previous or remove setup menu
18. **Arrow (◀▶▲▼)**
(left/right/up/down) select an item in the menu
19. **MENU**
to display the menu of the DVD disc
20. **STOP**
to stop a DVD disc playback
21. **▶▶**
to view DVD picture in fast forward motion
22. **SKIP I◀◀▶▶I**
to skip chapter/tracks
23. **0-9 numerical buttons**
select numbered items in a menu
+10
use this button to enter number 10 and above
24. **OPEN/CLOSE**
to open/close the disc tray
25. **SEARCH MODE**
to locate a desired point

Display



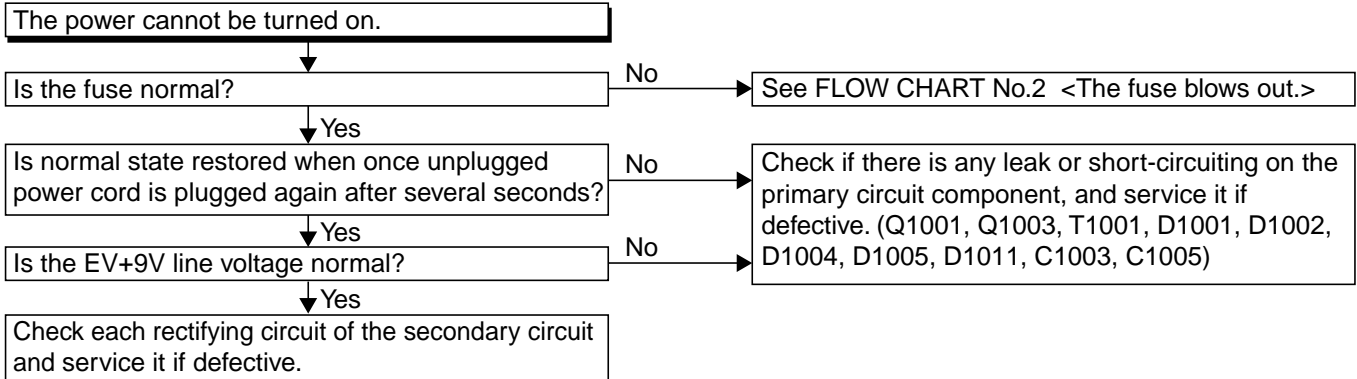
Displays During Operation

	Power on
	No disc inserted
	Tray open
	Tray closed
	Loading the Disc
	Power off
	When a disc is being Play back

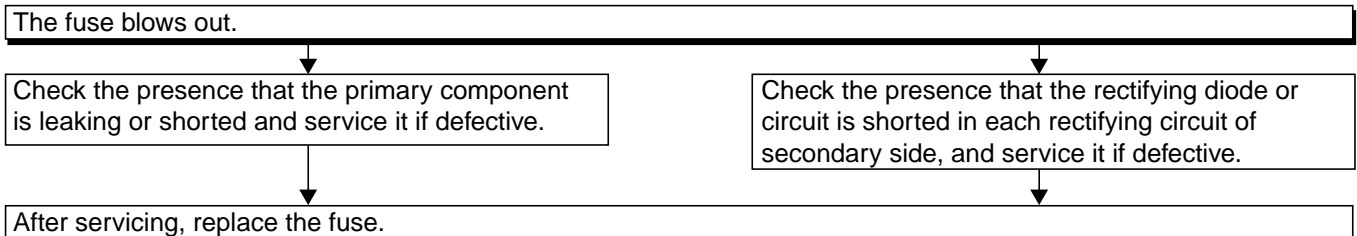
3-1 TROUBLESHOOTING

Troubleshooting is how to service for the specifying malfunction or poor parts.
Detect malfunction or poor parts and service as the following charts.

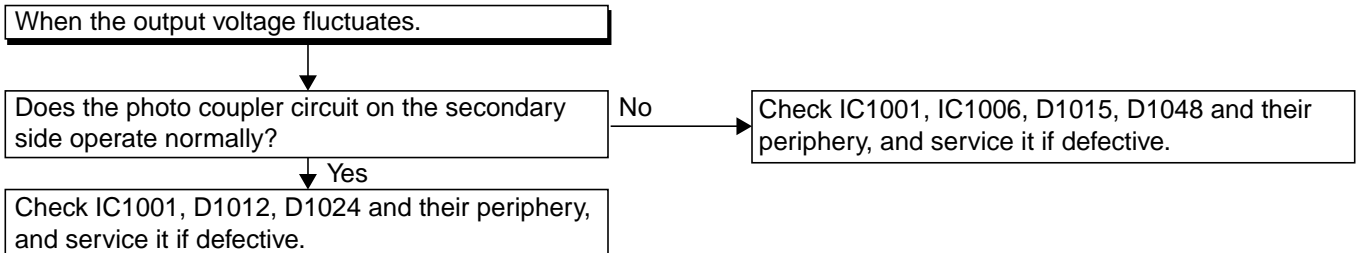
FLOW CHART NO.1



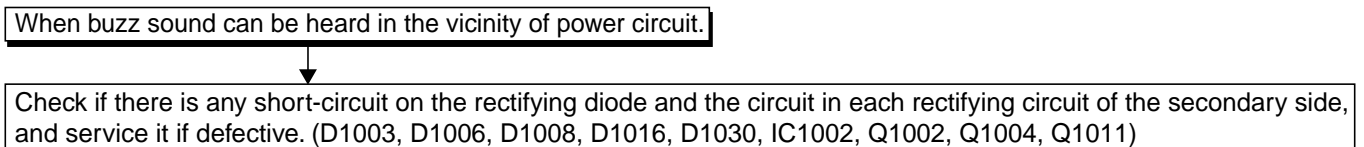
FLOW CHART NO.2



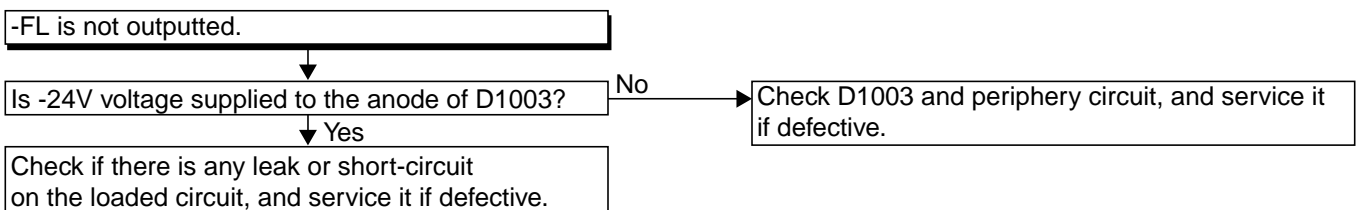
FLOW CHART NO.3



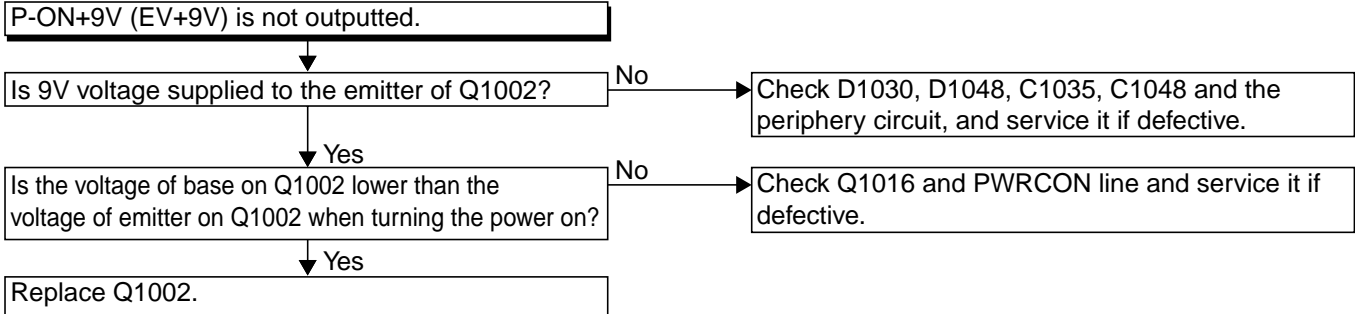
FLOW CHART NO.4



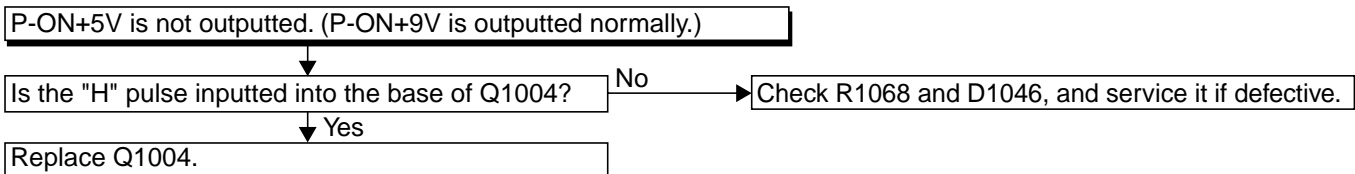
FLOW CHART NO.5



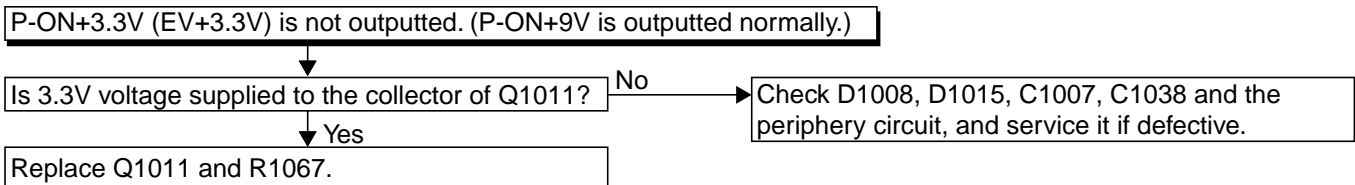
FLOW CHART NO.6



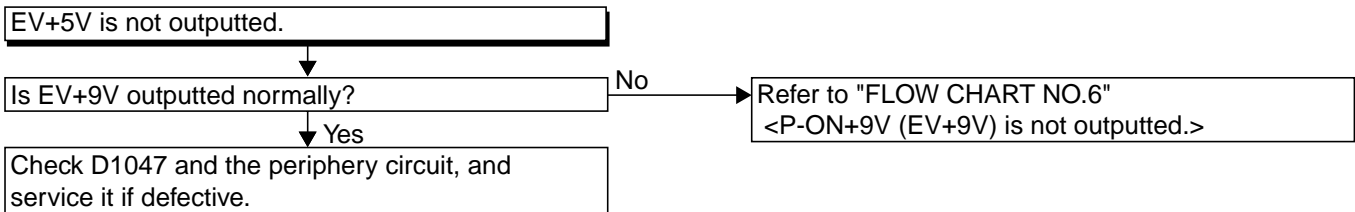
FLOW CHART NO.7



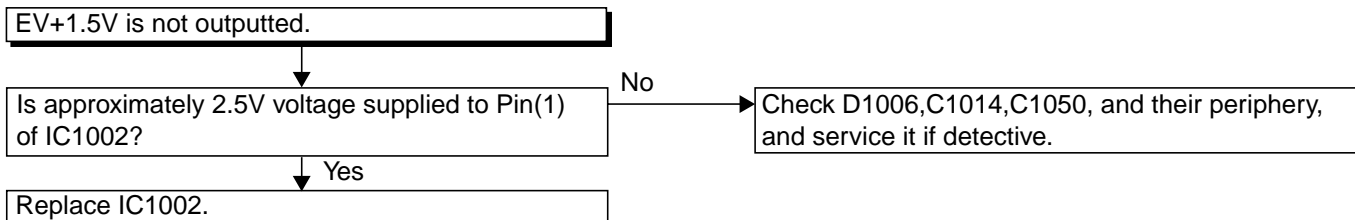
FLOW CHART NO.8



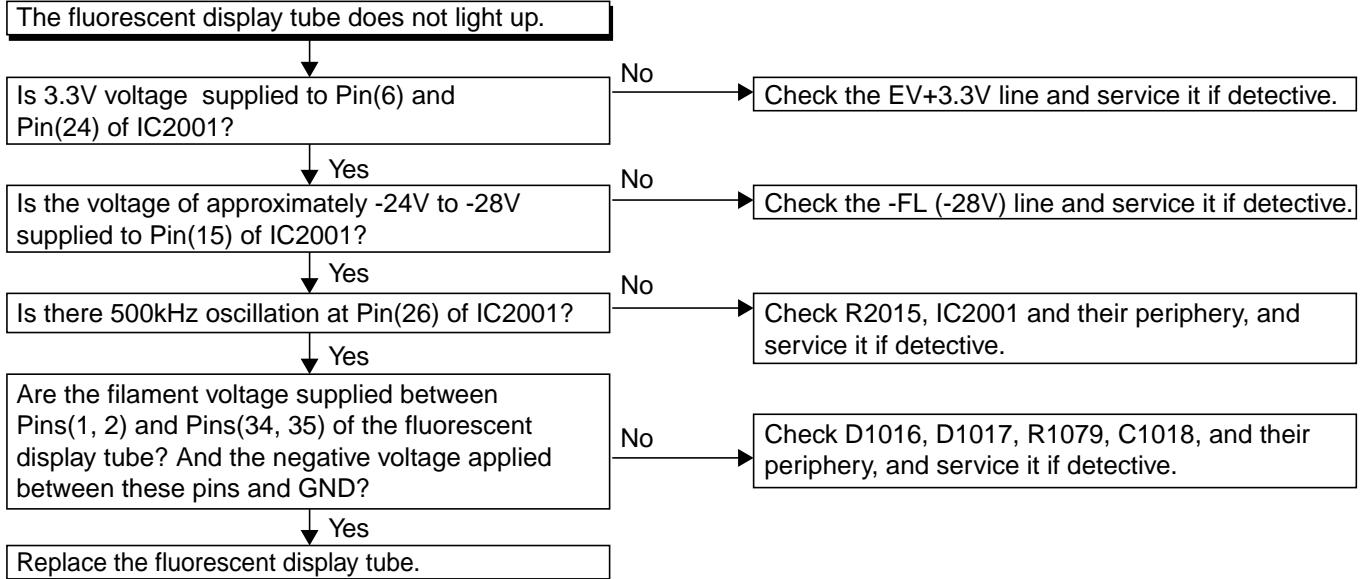
FLOW CHART NO.9



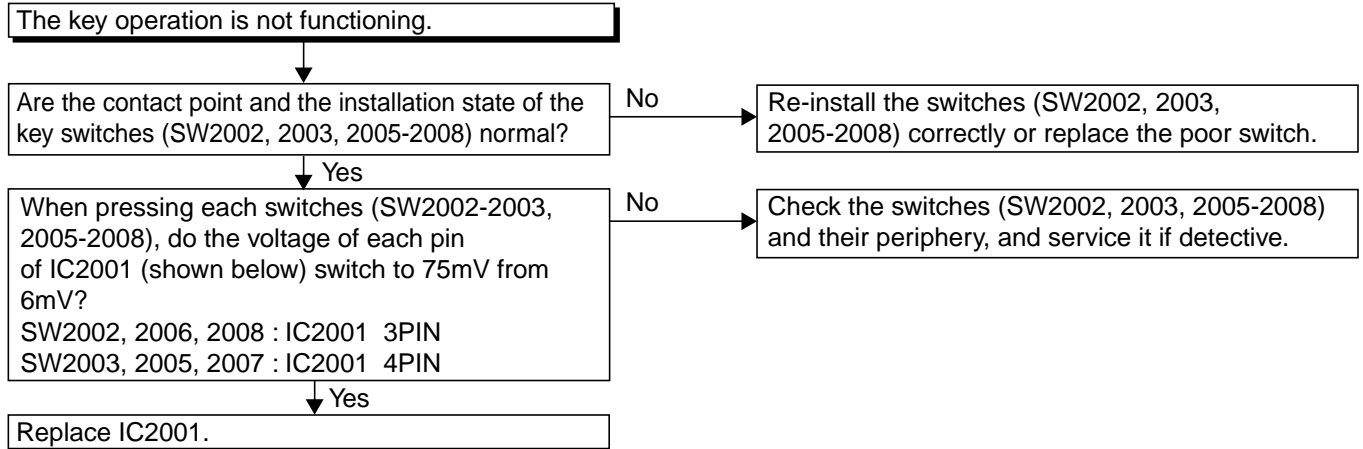
FLOW CHART NO.10



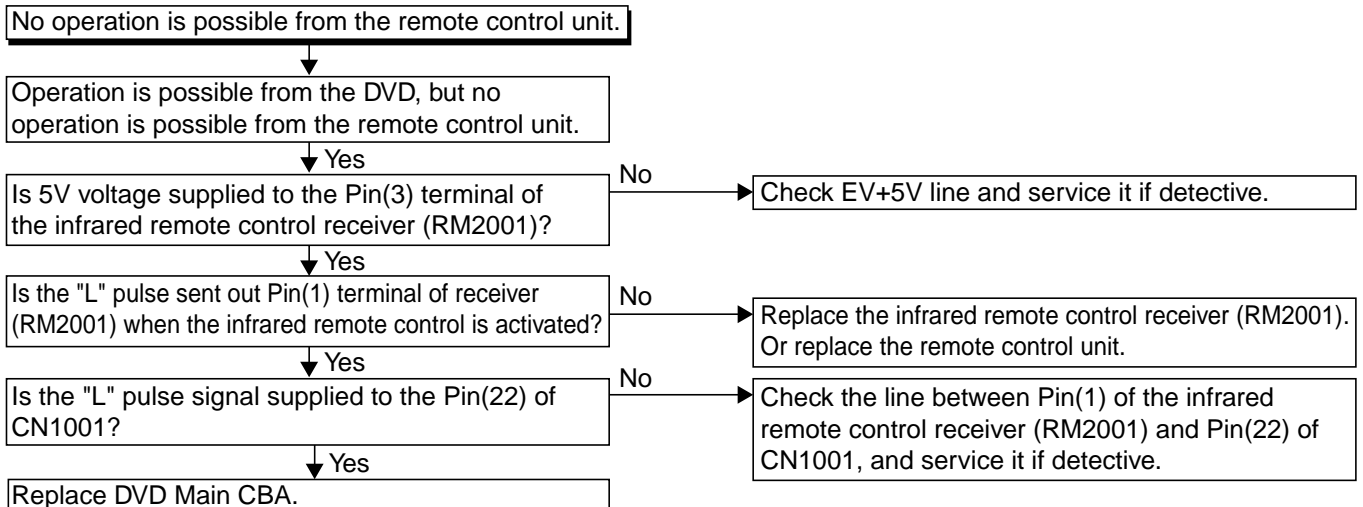
FLOW CHART NO.11



FLOW CHART NO.12

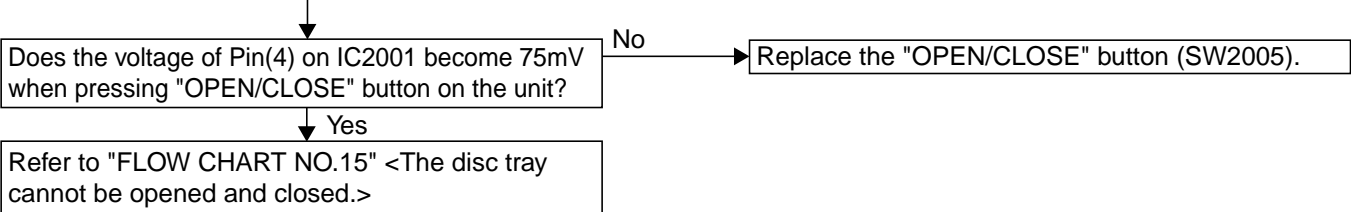


FLOW CHART NO.13



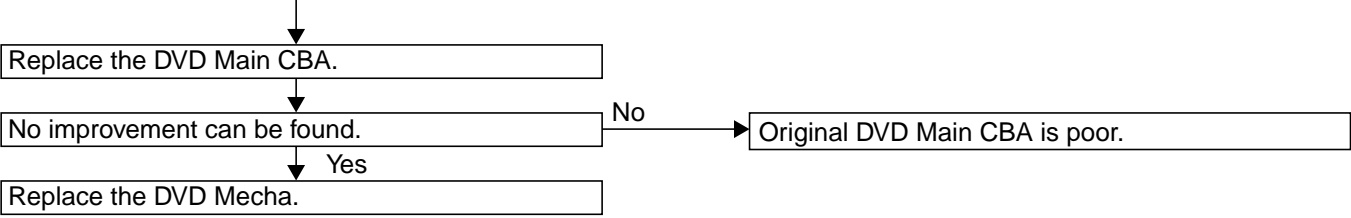
FLOW CHART NO.14

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



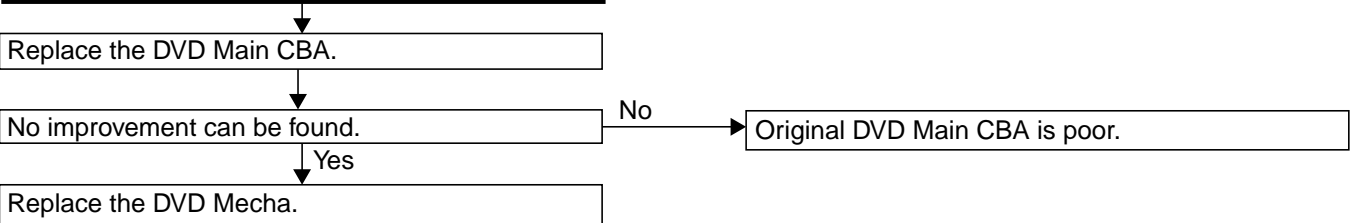
FLOW CHART NO.15

The disc tray cannot be opened and closed.



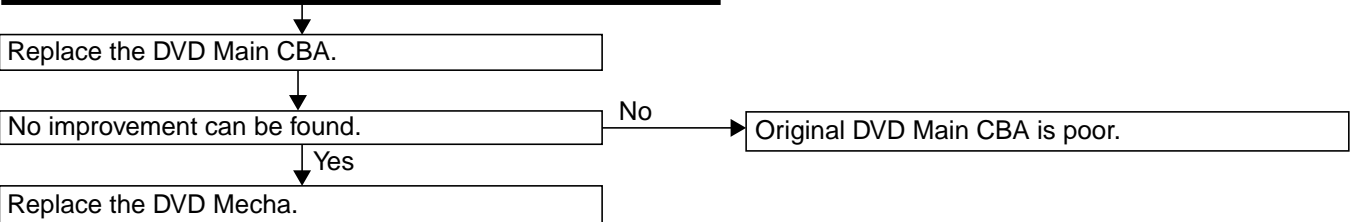
FLOW CHART NO.16

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



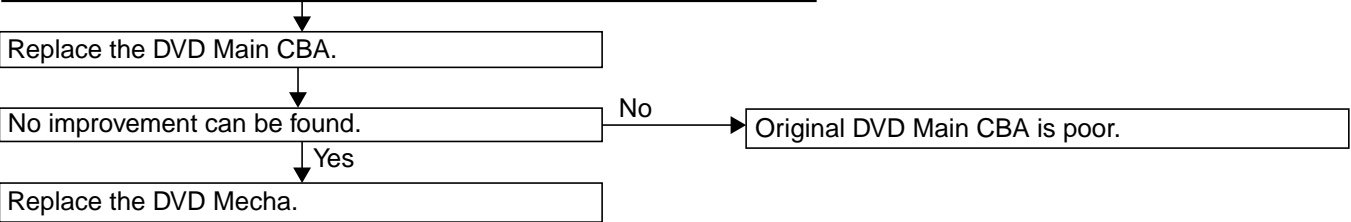
FLOW CHART NO.17

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



FLOW CHART NO.18

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



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?

No → Replace the DVD Main CBA or DVD Mecha.

-
- CN1601 7PIN S-Y
- CN1601 9PIN S-C
- CN1601 5PIN Cb
- CN1601 3PIN Cr

Yes

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

No →

Check the line between each pin of CN1601 and each pin of IC1402 on the AV CBA, and service it if defective.			
CN1601	7PIN	→	IC1402 6PIN S-Y
CN1601	9PIN	→	IC1402 2PIN S-C
CN1601	5PIN	→	IC1402 9PIN Cb
CN1601	3PIN	→	IC1402 11PIN Cr

-
- IC1402 6PIN S-Y
- IC1402 2PIN S-C
- IC1402 9PIN Cb
- IC1402 11PIN Cr

Yes

Are the video signals outputted to each pin of IC1402?

No → Is 5V voltage applied to the pin(1, 24) of IC1402?

-
- IC1402 21PIN CVBS
- IC1402 18PIN S-Y
- IC1402 23PIN S-C
- IC1402 15PIN Cb
- IC1402 13PIN Cr

Yes

Yes → Replace IC1402.

No → Check P-ON+5V line and service it if defective.

Are the video signals outputted to the specific output terminal?

No →

Check the periphery of JK1401 from Pin (18) of IC1402 and service it if defective.

Check the periphery of JK1401 from Pin (23) of IC1402 and service it if defective.

Check the periphery of JK1404 from Pins (13, 15, 18) of IC1402 and service it if defective.

Check the periphery of JK1404 from Pin(21) of IC1402 and service it if defective.

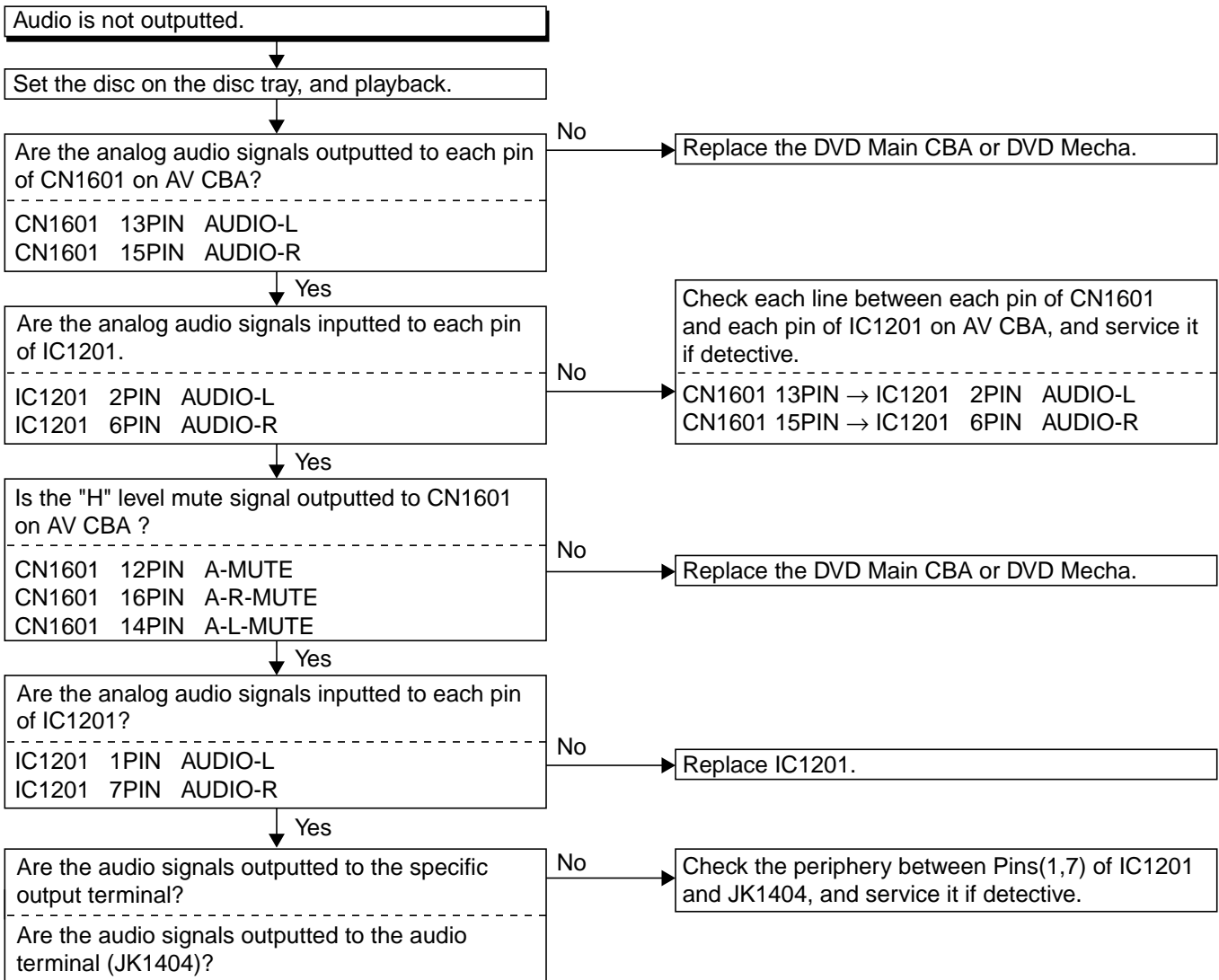
Are the luminance signals outputted to the S-OUT terminal (JK1401)?

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

Are the component video signals outputted to the VIDEO OUT terminal (JK1404)?

Are the composite video signals outputted to the VIDEO OUT terminal (JK1404)?

FLOW CHART NO.21



3-2 FIRMWARE RENEWAL MODE

3-2-1 How to Update the Firmware Version

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.

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.

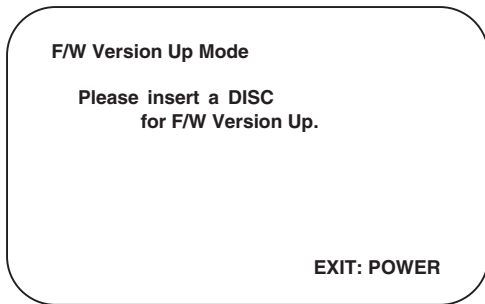


Fig. a Version Up Mode Screen

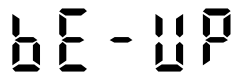


Fig. b VFD in Version Up Mode

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.

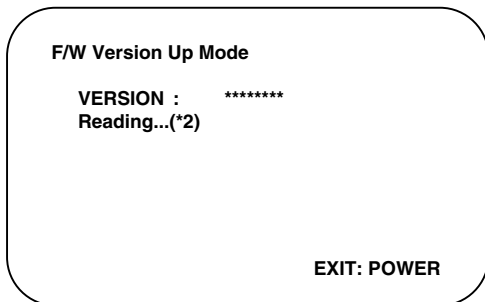


Fig. c Programming Mode Screen



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)

At this time, no buttons are available.

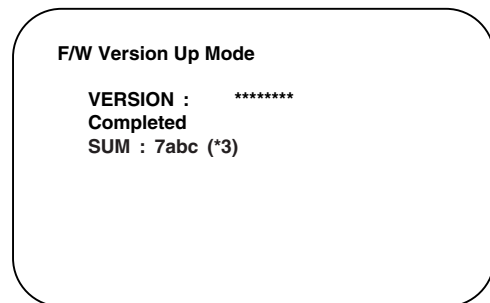


Fig. e Completed Program Mode Screen



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

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

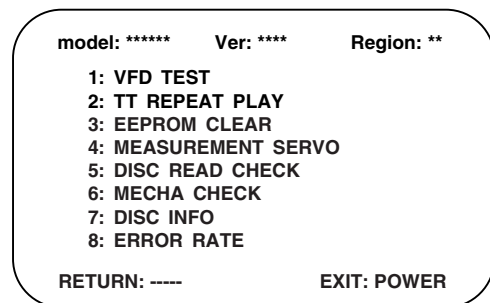


Fig. g

9. Press [3] button on the remote control unit. Fig. h appears on the screen.

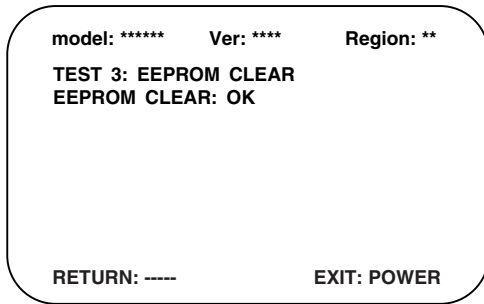


Fig. h

10. To finish this mode, press [POWER] button.

3-2-2 How to Verify the Firmware Version

1. After making sure that no disc is in unit, turn the power on.
2. Press [1], [2], [3], [4], and [DISPLAY] buttons on the remote control unit in that order. The B/E version appears on the VFD, and the F/E and B/E versions appear on TV screen.
3. Turn the power off to reset the unit.

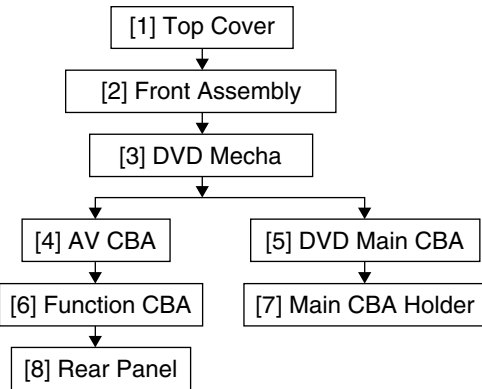
Note:

If the firmware has been changed, etc., we will use Service News, etc. to report on how to obtain new firmware data and create an upgraded disc.

4-1 CABINET DISASSEMBLY INSTRUCTIONS

4-1-1 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.



4-1-2 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 Assembly	D2	*2(L-1), Tray Panel, *2(L-2), *5(L-3), *3(L-4)	1-1 1-2 1-3 1-4 1-5 1-6
[3]	DVD Mecha	D3, D4	*CN301, 3(S-2), *CN201	2 2-1 2-2 2-3 3
[4]	AV CBA	D5	4(S-3), 3(S-4), *CN1001, *CN1601	-
[5]	DVD Main CBA	D5	2(S-5)	-
[6]	Function CBA	D5	Desolder	-
[7]	Main CBA Holder	D6	(S-6)	-
[8]	Rear Panel	D6	3(S-7)	-

↓ ↓ ↓ ↓ ↓
 (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."

Reference Notes

CAUTION 1: Locking Tabs (L-1), (L-2), (L-3) and (L-4) are fragile. Be careful not to break them.

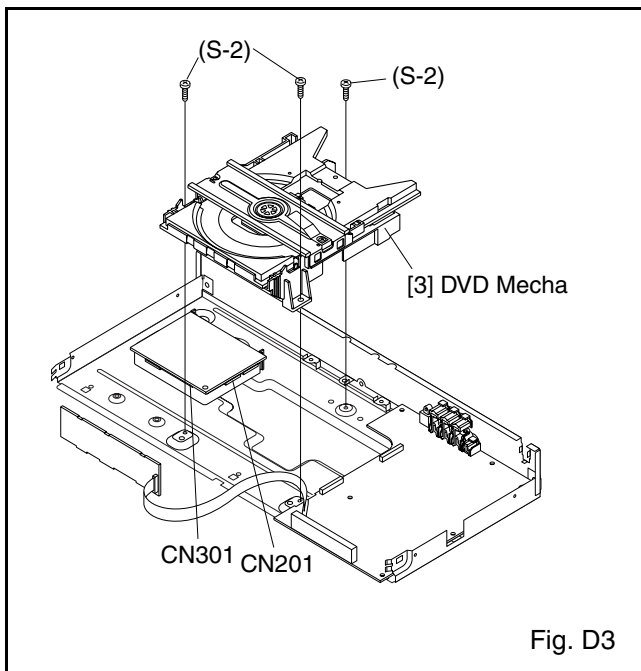
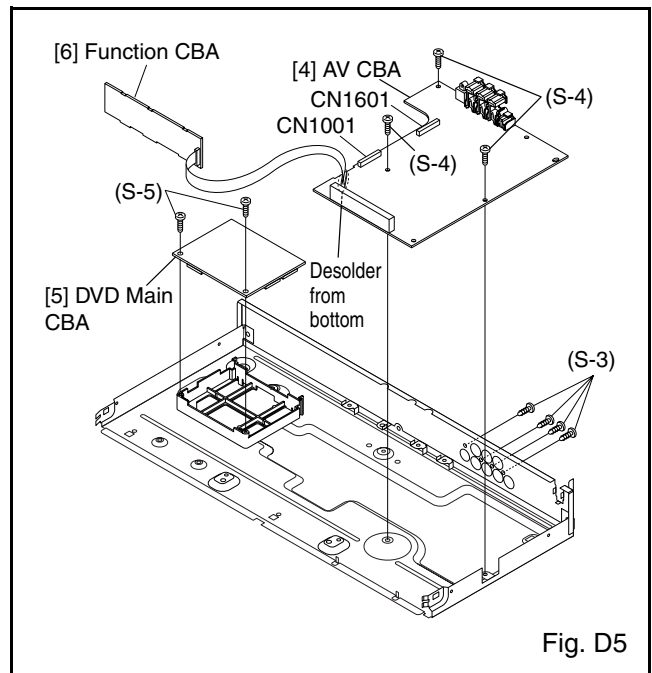
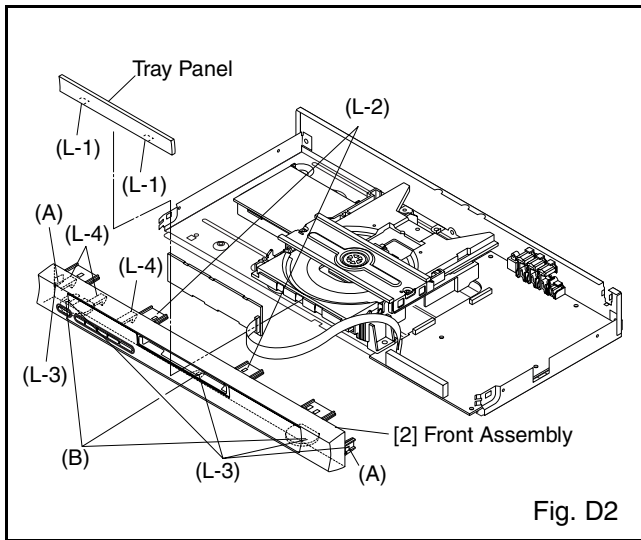
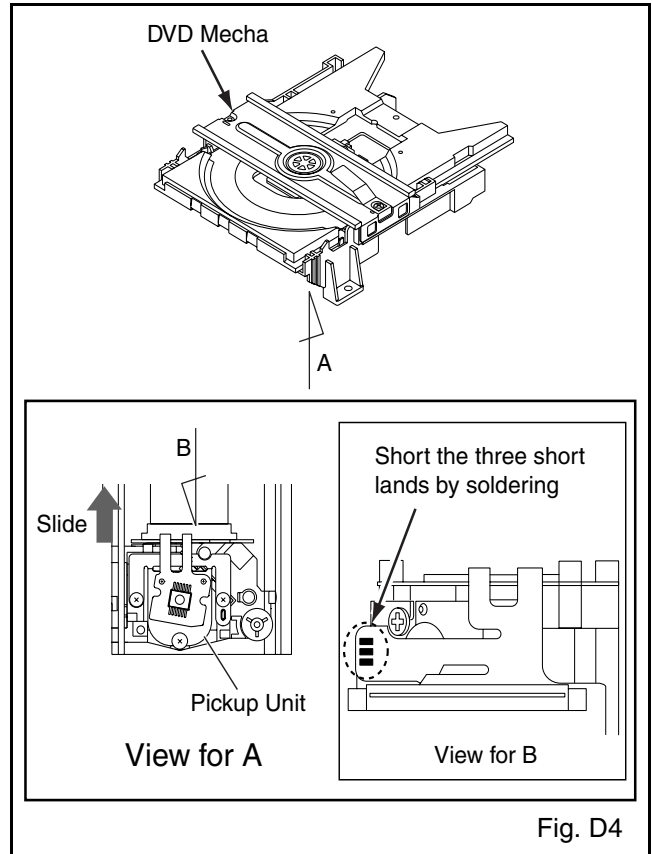
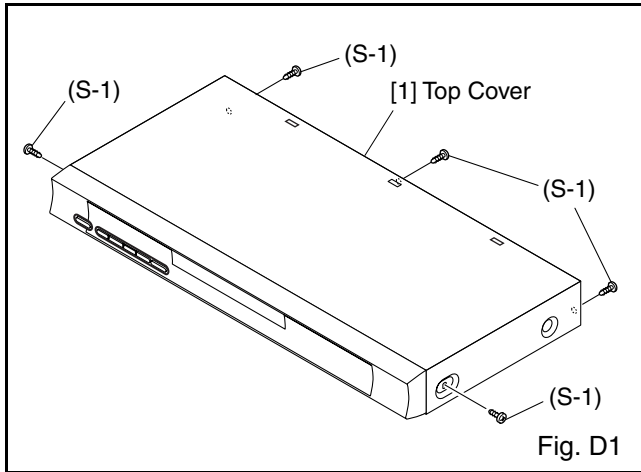
- 1-1. Connect the wall plug to an AC outlet and press the OPEN/CLOSE button to open the Tray.
- 1-2. Remove the Tray Panel by releasing two Locking Tabs (L-1).
- 1-3. Press the OPEN/CLOSE button again to close the Tray.
- 1-4. Press the POWER button to turn the power off. and unplug an AC cord.
- 1-5. Release two Locking Tabs (L-2). Then, release five Locking Tabs (L-3) (to do this, first release two Locking Tabs (A) at the side, and then three Locking Tabs (B) at the bottom.)
- 1-6. Release three Locking Tabs (L-4). Then remove the Front Assembly.

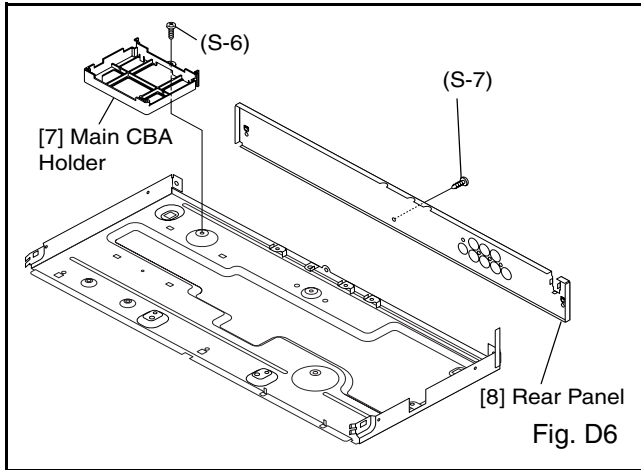
CAUTION 2: Electrostatic breakdown of the laser diode in the optical system block may occur as a potential difference caused by electrostatic charge accumulated on cloth, human body etc, during unpacking or repair work.

To avoid damage of pickup follow next procedures.

- 2-1. Disconnect Connector (CN301). Remove three Screws (S-2) and lift the DVD Mecha. (Fig. D3)
- 2-2. Slide out the pickup unit as shown in Fig. D4.
- 2-3. 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)

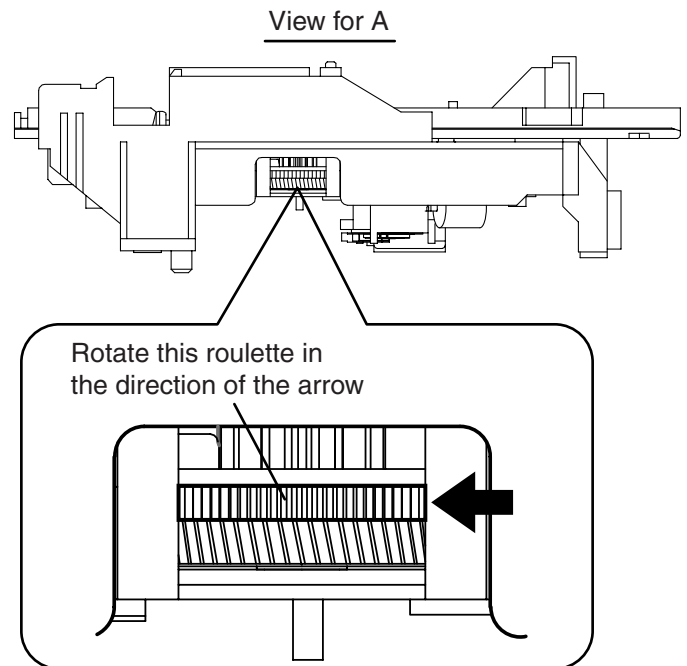
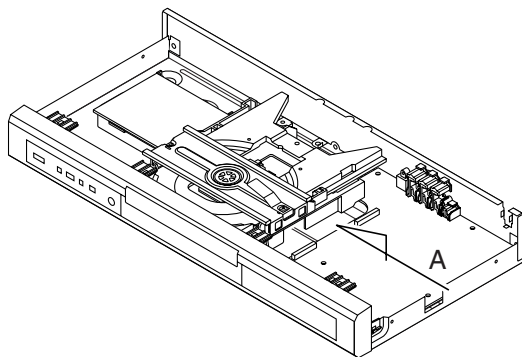
CAUTION 3: When reassembling, confirm the FFC cable (CN201) is connected completely. Then remove the solder from the three short lands of FPC cable. (Fig. D4)





To Remove the Disc manually

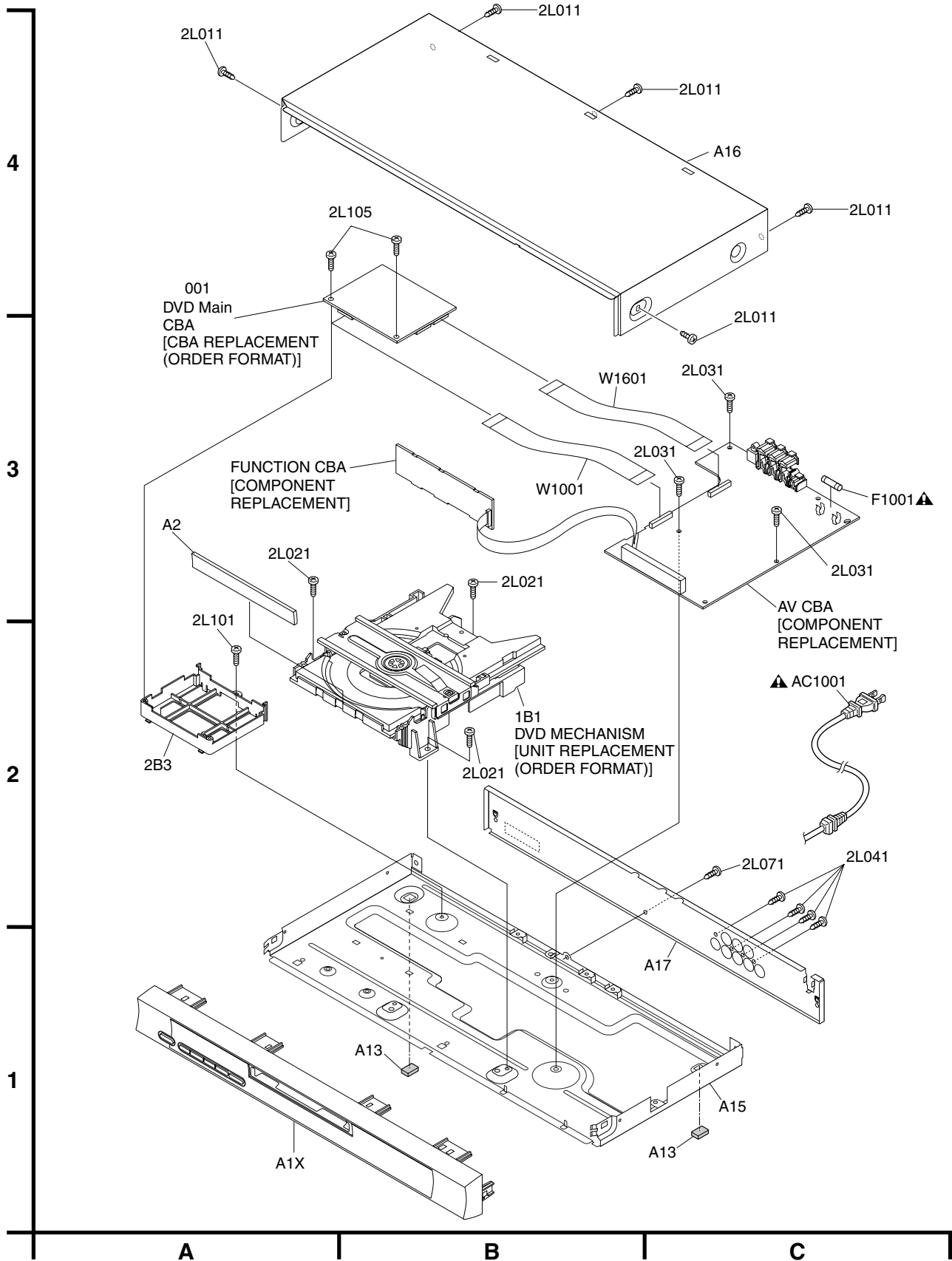
1. Remove the Top Cover.
2. Rotate the roulette in the direction of the arrow as shown below.



5

EXPLODED VIEW AND PARTS LIST

5-1 EXPLODED VIEW



5-2 REPLACEMENT PARTS LIST

5-2-1 Mechanical Parts List

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
MECHANISM SECTION					
A1X	TS18381	FRONT ASSEMBLY [P735U/P735U(C)]			
A1X	TS18382	FRONT ASSEMBLY [P533U]			
A2	TS18383	TRAY ASSEMBLY			
A13	TJ16831	FOOT			
A15	TS18384	MAIN CHASSIS			
A16	TJ16832	TOP COVER(SILVER) [P735U/P735U(C)]			
A16	TJ16833	TOP COVER(BLACK) [P533U]			
A17	TJ16834	REAR PANEL [P735U/P735U(C)]			
A17	TJ16835	REAR PANEL [P533U]			
▲ AC1001	TE15463	AC CORD			
1B1	TS18391	DVD MECHA			
2B3	TJ16837	HOLDER, MAIN PCB			
2L011	TJ16023	SCREW M3X5 [P735U/P735U(C)]			
2L011	TJ15891	SCREW M3X5 [P533U]			
2L021	TJ15952	SCREW 3X8			
2L031	TJ15683	SCREW M3X6			
2L041	TJ15892	SCREW M3X8			
2L071	TJ15683	SCREW M3X6			
2L101	TJ15683	SCREW M3X6			
2L105	TJ10177	SCREW 3X8			
001	TS18393	DVD Main CBA			
ACCESSORIES					
X1	TS18331	REMOTE CONTROL UNIT [P735U/P735U(C)]			
X1	TS18311	REMOTE CONTROL UNIT [P533U]			
X5	TE14751	AV CORD			

5-2-2 Electrical Parts List

Note: Although some parts in the schematic diagrams have different names from those in the parts list, there is no problem in replacing parts.

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
SEMI-CONDUCTORS			Q1204	TC10784	TRANSISTOR KTA1266(Y)
D1001	TC10752	RECTIFIER DIODE 1N4005	Q1351	TC10778	TRANSISTOR KTC3199(GR)
D1002	TC10752	RECTIFIER DIODE 1N4005	Q1352	TC10778	TRANSISTOR KTC3199(GR)
D1003	TC10791	RECTIFIER DIODE BA157	R1074	TC10752	RECTIFIER DIODE 1N4005
D1004	TC10752	RECTIFIER DIODE 1N4005	TRANSFORMER		
D1005	TC10752	RECTIFIER DIODE 1N4005	▲ T1001	TE15473	PULSE TRANS
D1006	TC10877	SCHOTTKY BARRIER DIODE SB140	COILS		
D1008	TC10877	SCHOTTKY BARRIER DIODE SB140	▲ L1001	TJ15243	LINE FILTER 20MH
D1010	TC12471	ZENER DIODE DZ-39BSBT265	L1007	TA14471	CHOKO COIL 22UH
D1011	TC10791	RECTIFIER DIODE BA157	L1008	TA14471	CHOKO COIL 22UH
D1012	TC10112	SWITCHING DIODE 1SS133(T-77)	L1009	TA14471	CHOKO COIL 22UH
D1015	TC12191	ZENER DIODE DZ-6.8BSBT265	L1011	TA12554	BEAD CORE
D1016	TC10791	RECTIFIER DIODE BA157	L1043	TA12554	BEAD CORE
D1017	TJ13897	ZENER DIODE MTZJT-7722B	L1060	TA12554	BEAD CORE
D1018	TC10112	SWITCHING DIODE 1SS133(T-77)	L1350	TA12561	INDUCTOR 100UH
D1022	TC10112	SWITCHING DIODE 1SS133(T-77)	L1351	TA14481	INDUCTOR 0.47UH
D1024	TC10112	SWITCHING DIODE 1SS133(T-77)	L1401	TC12685	CHIP INDUCTOR
D1025	TC10112	SWITCHING DIODE 1SS133(T-77)	L1421	TC12685	CHIP INDUCTOR
D1030	TJ15128	RECTIFIER DIODE FR202	L1441	TC12685	CHIP INDUCTOR
D1046	TJ14689	ZENER DIODE MTZJT-775.6C	L1442	TC12685	CHIP INDUCTOR
D1047	TC12611	ZENER DIODE DZ-5.1BSBT265	L1461	TC12685	CHIP INDUCTOR
D1048	TC12681	ZENER DIODE DZ-15BSAT265	L1481	TC12685	CHIP INDUCTOR
D1051	TJ14752	ZENER DIODE MTZJT-776.2B	L1521	TA14471	CHOKO COIL 22UH
D1055	TC10112	SWITCHING DIODE 1SS133(T-77)	L1522	TC12686	CHIP BEAD
D1058	TC10877	SCHOTTKY BARRIER DIODE SB140	L2002	TA12561	INDUCTOR 100UH
D1301	TJ13895	ZENER DIODE MTZJT-775.6B	R1522	TC12685	CHIP INDUCTOR
D2005	TC10112	SWITCHING DIODE 1SS133(T-77)	R1523	TC12685	CHIP INDUCTOR
D2006	TC10112	SWITCHING DIODE 1SS133(T-77)	R1524	TC12685	CHIP INDUCTOR
D2007	TC10112	SWITCHING DIODE 1SS133(T-77)	MISCELLANEOUS		
D2008	TC10112	SWITCHING DIODE 1SS133(T-77)	CN1001	TE15464	FMN CONNECTOR 22P
▲ IC1001	TE13224	PHOTOCOUPLER LTV-817B-F	CN1601	TE14781	FMN CONNECTOR 18P
IC1002	TC12682	VOLTAGE REGULATOR PQ070XF01SZ	▲ F1001	TE13223	FUSE 1A/250V
IC1006	TC12241	IC KIA431-AT	FH1001	TE11084	FUSE HOLDER
IC1201	TC12251	IC KIA4558P	FH1002	TE11084	FUSE HOLDER
IC1402	TC12683	IC MM1622XJBE	FL2001	TE15471	V.F.D. 7-BT-292GN
IC2001	TC12684	IC PT6313-S-TP	JK1202	TE15465	RCA JACK(BLACK)
▲ Q1001	TC12291	FET 2SK3374	JK1401	TE14821	S TYPE JACK
Q1002	TC10782	TRANSISTOR KTA1267(Y)	JK1404	TE15466	RCA JACK
Q1003	TC10778	TRANSISTOR KTC3199(GR)	JP2001	TE15472	PARALLEL WIRE
Q1004	TC12687	TRANSISTOR KTC3198(Y)	JP2002	TE15472	PARALLEL WIRE
Q1005	TC12687	TRANSISTOR KTC3198(Y)	RM2001	TC12331	REMOTE RECEIVER PIC-37043LU
Q1006	TC12411	TRANSISTOR KRA110M	▲ SA1001	TC10891	SURGE ABSORBER PVR-10D471KB
Q1008	TC10778	TRANSISTOR KTC3199(GR)	SW1401	TE11942	SLIDE SWITCH
Q1011	TC12634	TRANSISTOR 2SC2120-Y(TPE2)	SW2002	TE11957	TACT SWITCH
Q1015	TC12411	TRANSISTOR KRA110M	SW2003	TE11957	TACT SWITCH
Q1016	TC10778	TRANSISTOR KTC3199(GR)	SW2005	TE11957	TACT SWITCH
Q1201	TC10778	TRANSISTOR KTC3199(GR)	SW2006	TE11957	TACT SWITCH
Q1202	TC10778	TRANSISTOR KTC3199(GR)			
Q1203	TC10784	TRANSISTOR KTA1266(Y)			

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
SW2007	TE11957	TACT SWITCH			
SW2008	TE11957	TACT SWITCH			
W1001	TE15461	22P FFC			
W1601	TE15462	18P FFC			

SCHEMATIC AND BLOCK DIAGRAMS/CBA'S

1 SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Standard Notes

WARNING

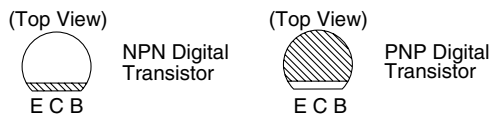
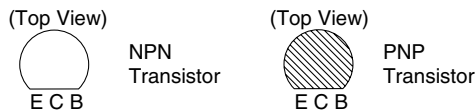
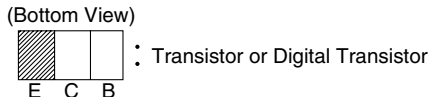
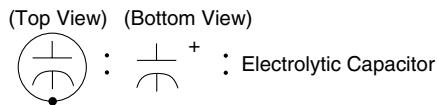
Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special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

Capacitor Temperature Markings

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

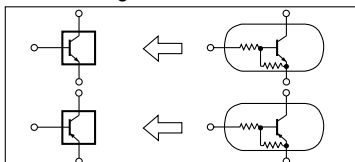
Capacitors and transistors are represented by the following symbols.

CBA Symbols



Schematic Diagram Symbols

Digital Transistor



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 voltages are DC voltages unless otherwise specified.

Values in schematic diagrams

The values, dielectric strength (power capacitance) and tolerances of the resistors (excluding variable resistors) and capacitors are indicated in the schematic diagrams using abbreviations.

[Resistors]

Item	Indication
Value	No indication.....Ω K.....kΩ M.....MΩ
Power capacitance	No indication.....1/4W,1/6W All capacitances other than the above are indicated in schematic diagrams.

[Capacitors]

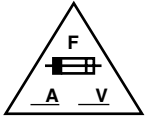
Item	Indication
Value	No indication.....μF P.....pF
Dielectric strength	No indication.....50V All dielectric strengths other than 50V are indicated in schematic diagrams.

[Coils]

Item	Indication
Value	μ.....μH m.....mH

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

1. CAUTION:



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



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

2. CAUTION:

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

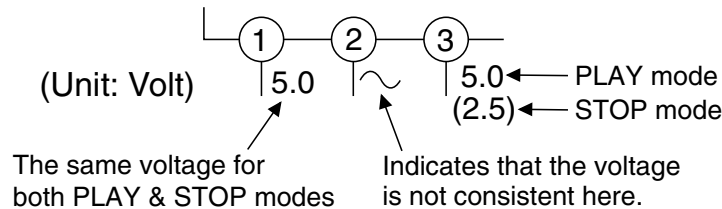
3. Note:

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

4. Wire Connectors

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

5. Voltage indications for PLAY and STOP mode on the schematics are as shown below:



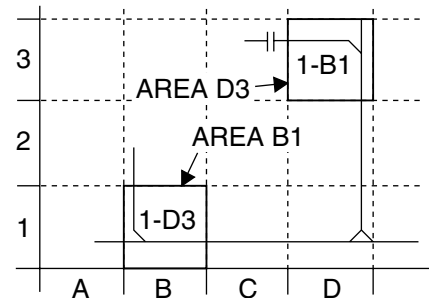
6. How to read converged lines

1-D3

 Distinction Area
 Line Number
 (1 to 3 digits)

Examples:

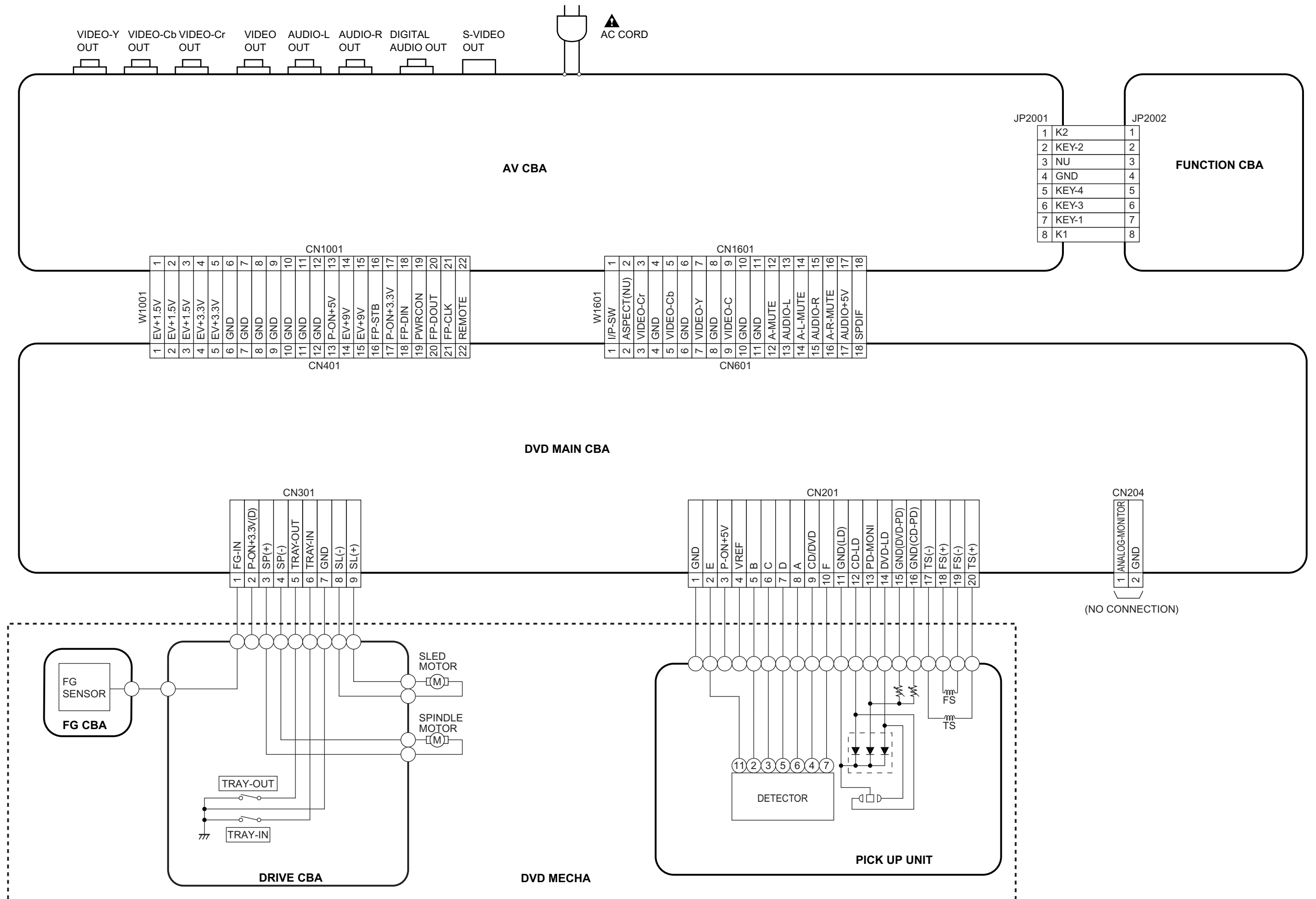
1. "1-D3" means that line number "1" goes to area "D3".
2. "1-B1" means that line number "1" goes to area "B1".



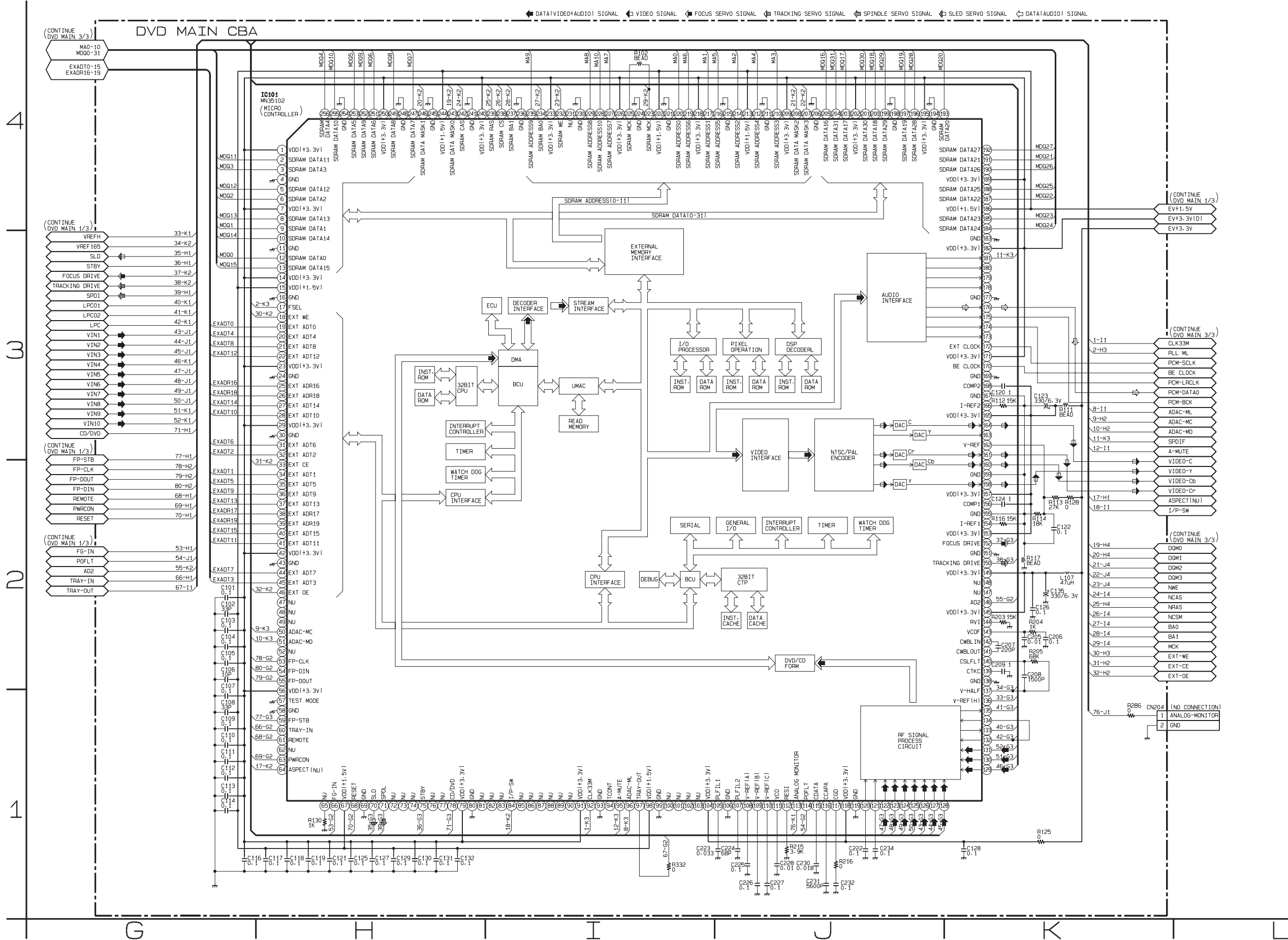
7. Test Point Information

- : 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.

2 WIRING DIAGRAM



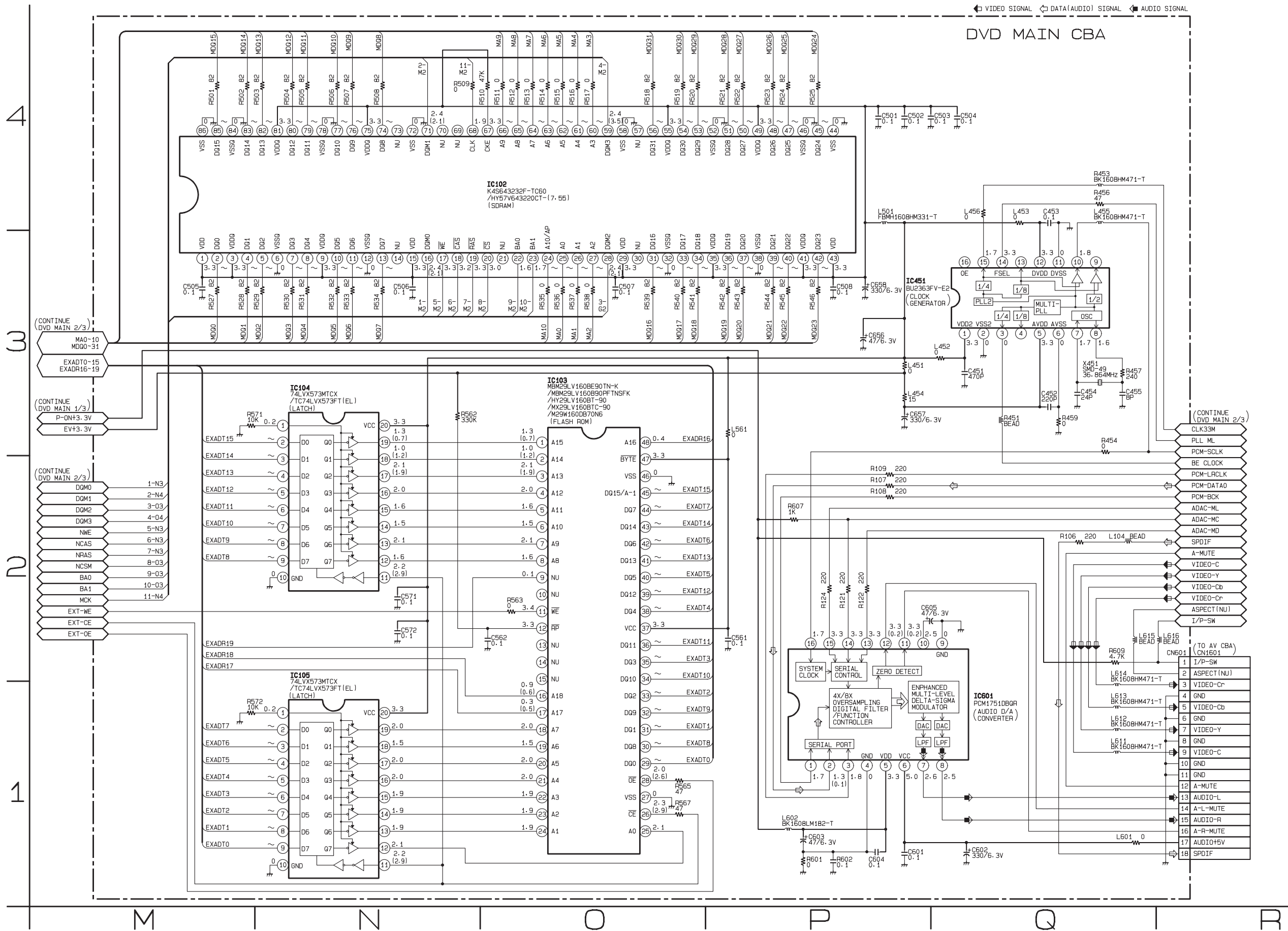
3-2 DVD Main 2/3 Schematic Diagram



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	3.3	3.3	33	2.2	2.9	65	0.1	0.1	97	3.4	3.4	129	2.0	2.0	161	0.5	0.5	193	~	~	225	1.9	1.9
2	~	~	34	~	~	66	1.2	2.5	98	1.6	1.6	130	2.2	2.2	162	1.4	1.4	194	0	0	226	3.3	3.3
3	~	~	35	~	~	67	1.6	1.6	99	0	0	131	2.3	2.3	163	----	----	195	3.3	3.3	227	~	~
4	0	0	36	~	~	68	3.4	3.4	100	----	----	132	0.4	0.1	164	0.9	0.9	196	~	~	228	~	~
5	~	~	37	~	~	69	0	0	101	----	----	133	1.2	0.4	165	3.3	3.3	197	~	~	229	~	~
6	~	~	38	0.3	0.5	70	1.7	1.7	102	----	----	134	0.4	0.1	166	1.5	1.5	198	0	0	230	0	0
7	3.3	3.3	39	0.1	0.1	71	2.4	1.7	103	----	----	135	0.2	0.2	167	0	0	199	~	~	231	----	----
8	~	~	40	~	~	72	----	----	104	3.3	3.3	136	2.3	2.3	168	2.1	2.1	200	~	~	232	3.3	3.3
9	~	~	41	~	~	73	----	----	105	0.9	0.9	137	1.7	1.7	169	0	0	201	~	~	233	3.3	3.3
10	~	~	42	3.3	3.3	74	----	----	106	0	0	138	0	0	170	0.8	0.8	202	3.3	3.3	234	1.6	1.6
11	0	0	43	0	0	75	3.4	3.4	107	0.8	0.8	139	1.7	1.7	171	3.3	3.3	203	~	~	235	~	~
12	~	~	44	~	~	76	----	----	108	1.6	1.6	140	1.7	1.7	172	1.6	1.6	204	~	~	236	0	0
13	~	~	45	~	~	77	----	----	109	2.1	2.1	141	1.7	1.7	173	----	----	205	~	~	237	1.7	1.7
14	3.3	3.3	46	2.0	2.6	78	0.1	0.1	110	2.6	2.6	142	1.7	1.7	174	1.8	1.8	206	0	0	238	3.0	3.0
15	1.5	1.5	47	----	----	79	3.3	3.3	111	2.0	2.0	143	0.5	0.5	175	1.7	1.7	207	2.4	3.5	239	3.3	3.3
16	0	0	48	----	----	80	0	0	112	0.7	0.9	144	1.6	1.6	176	1.4	0.1	208	2.4	2.1	240	3.3	3.3
17	3.4	3.4	49	----	----	81	----	----	113	2.1	2.1	145	3.3	3.3	177	0	0	209	3.3	3.3	241	0	0
18	3.4	3.4	50	3.4	3.4	82	----	----	114	1.8	1.8	146	1.8	1.8	178	----	----	210	~	~	242	3.2	3.2
19	~	~	51	3.4	3.4	83	----	----	115	1.4	1.4	147	----	----	179	----	----	211	0	0	243	2.4	2.1
20	~	~	52	----	----	84	2.4	2.4	116	0.3	0.3	148	----	----	180	----	----	212	~	~	244	1.5	1.5
21	~	~	53	3.4	3.4	85	----	----	117	1.6	1.6	149	3.3	3.3	181	1.7	1.7	213	1.5	1.5	245	0	0
22	~	~	54	3.4	3.4	86	----	----	118	3.3	3.3	150	1.7	1.7	182	3.3	3.3	214	~	~	246	2.4	2.1
23	3.3	3.3	55	3.3	3.3	87	----	----	119	0	0	151	0	0	183	0	0	215	0	0	247	~	~
24	0	0	56	3.3	3.3	88	----	----	120	1.9	1.9	152	1.7	1.7	184	~	~	216	~	~	248	0	0
25	0.4	0.4	57	0	0	89	----	----	121	1.9	1.9	153	3.3	3.3	185	~	~	217	~	~	249	~	~
26	0.9	0.6	58	0	0	90	----	----	122	2.4	2.4	154	1.4	1.4	186	1.5	1.5	218	3.3	3.3	250	3.3	3.3
27	~	~	59	3.3	3.3	91	3.3	3.3	123	2.4	2.4	155	0	0	187	~	~	219	~	~	251	~	~
28	~	~	60	3.4	3.4	92	1.7	1.5	124	2.4	2.4	156	2.2	2.2	188	~	~	220	~	~	252	~	~
29	3.3	3.3	61	3.1	3.1	93	0	0	125	2.4	2.4	157	3.3	3.3	189	3.3	3.3	221	0	0	253	~	~
30	0	0	62	----	----	94	----	----	126	2.0	2.0	158	0.7	0.7	190	~	~	222	1.5	1.5	254	0	0
31	~	~	63	3.4	3.4	95	3.4	0.1	127	2.0	2.0	159	0	0	191	~	~	223	1.9	1.9	255	~	~
32	~	~	64	0.8	0.8	96	3.4	3.4	128	2.0	2.0	160	0.5	0.5	192	~	~	224	0	0	256	~	~

3-3 DVD Main 3/3 Schematic Diagram



3-4 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.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQUES
D'INCELE N'UTILISER QUE DES FUSIBLE DE MÊME TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.

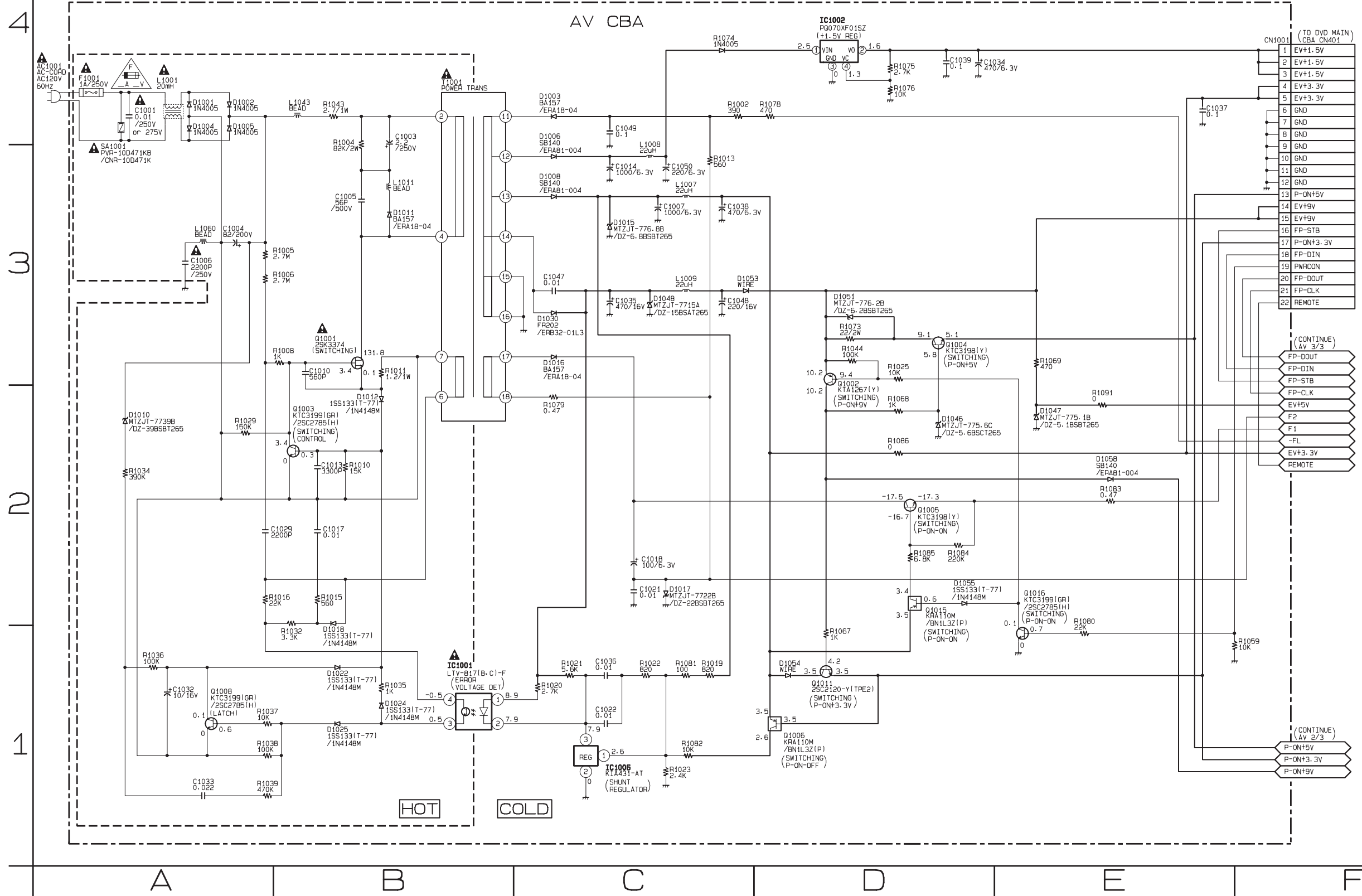


"This symbol means fast operating fuse."

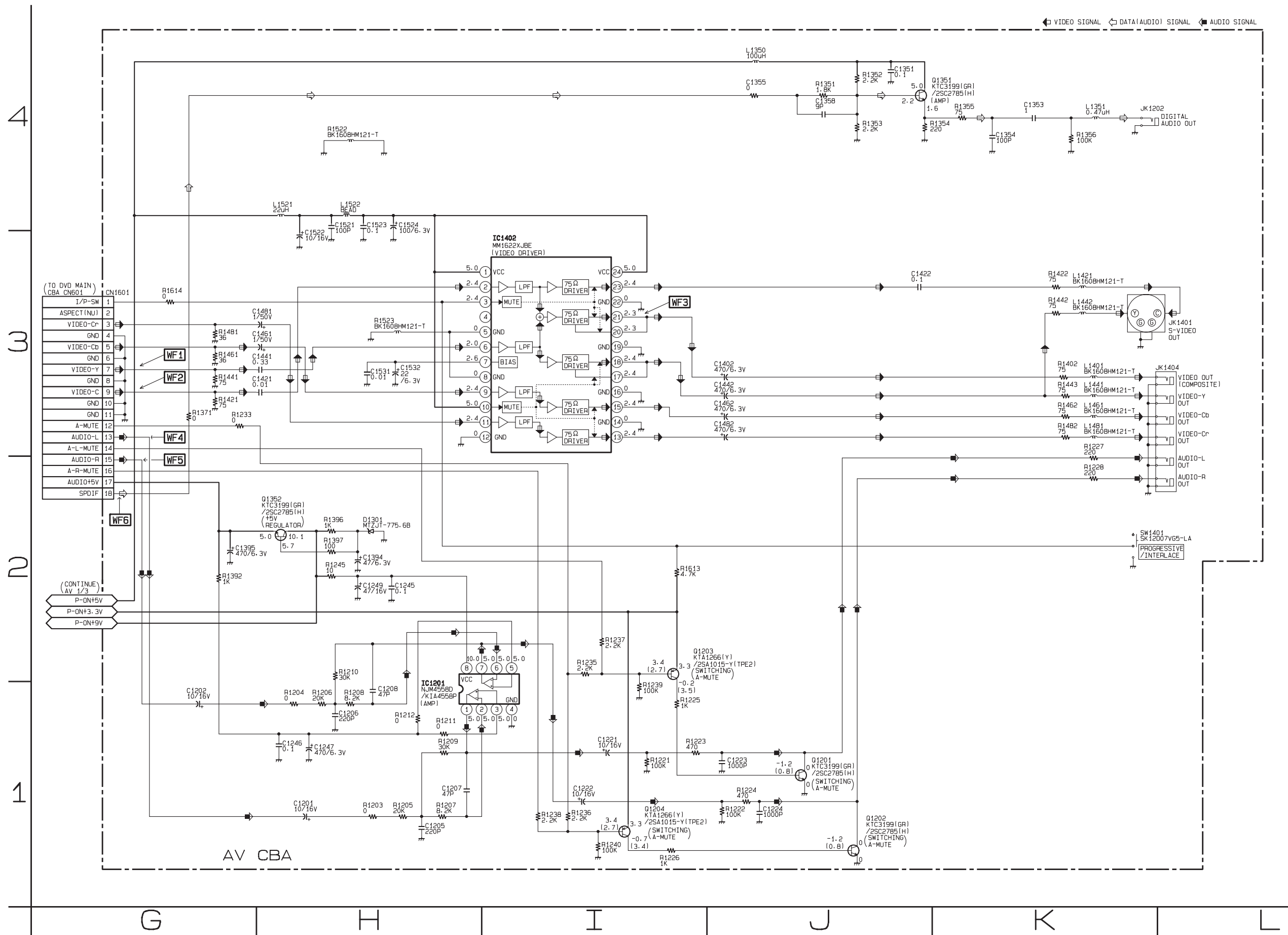
"Ce symbole représente un fusible à fusion rapide."

NOTE :

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



3-5 AV 2/3 Schematic Diagram

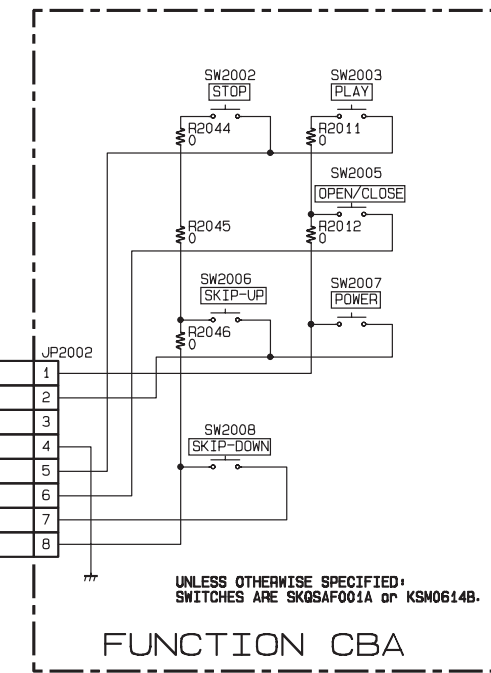
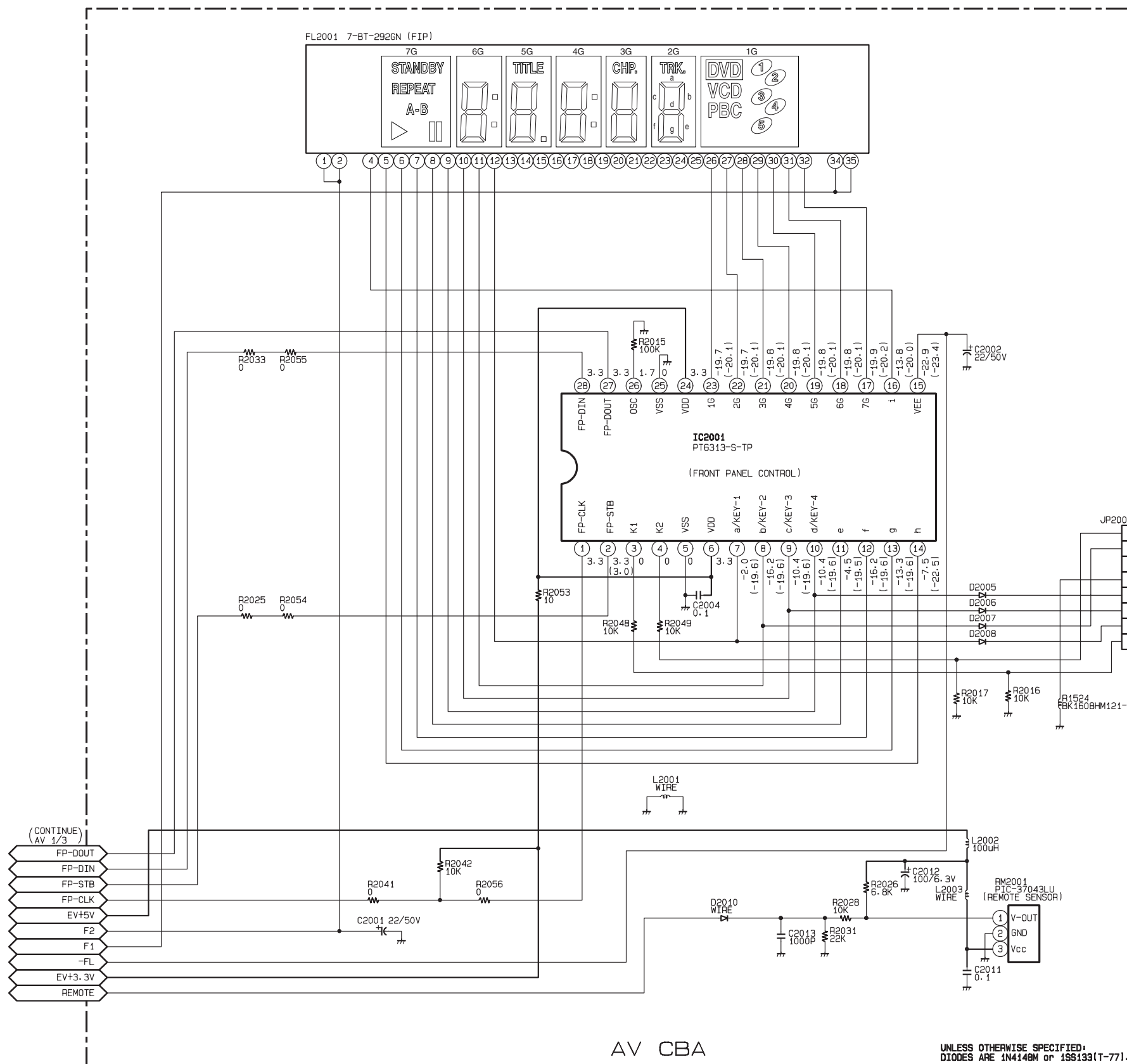


3-6 AV 3/3 & Function Schematic Diagram

4
3
2
1

FL2001 MATRIX CHART

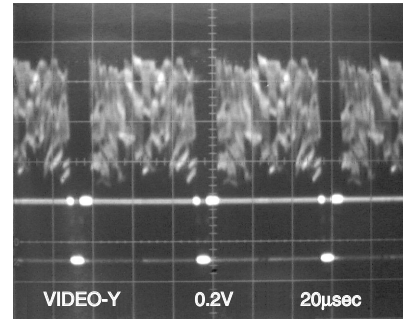
	7G	6G	5G	4G	3G	2G	1G
a	STANDBY	a	a	a	a	a	①
b	REPEAT	b	b	b	b	b	②
c	A	c	c	c	c	c	③
d	B	d	d	d	d	d	④
e	▶	e	e	e	e	e	⑤
f	⏸	f	f	f	f	f	DVD
g	—	g	g	g	g	g	PBC
h	⏮	□	TITLE	⏭	CHP.	TRK.	CD
i	—	—	□	—	—	—	V



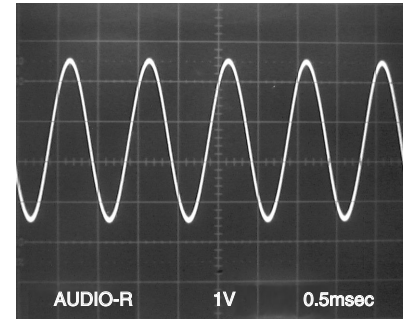
M I N O P Q

4 WAVEFORMS

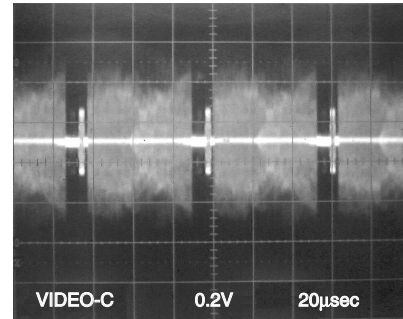
WF1 Pin 7 of CN1601



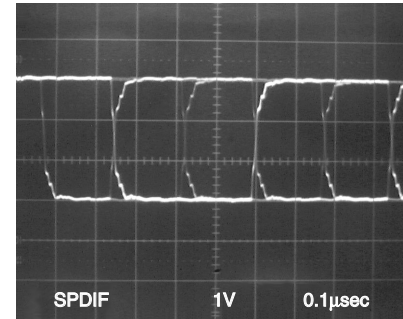
WF5 Pin 15 of CN1601



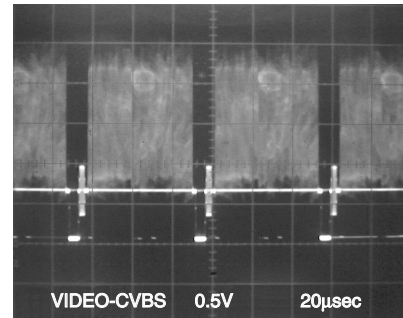
WF2 Pin 9 of CN1601



WF6 Pin 18 of CN1601



WF3 Pin 21 of IC1402



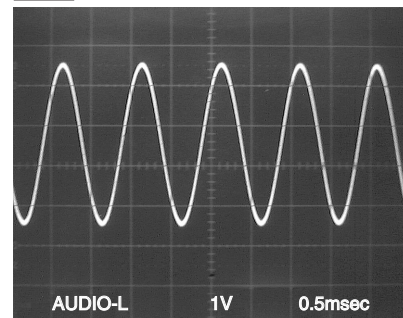
NOTE:

Input

CD: 1kHz PLAY
(WF4~WF6)

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

WF4 Pin 13 of CN1601



5 CIRCUIT BOARD DIAGRAMS

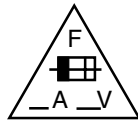
5-1 AV CBA Top View

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.

NOTE :

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



CAUTION

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

RISK OF FIRE-REPLACE FUSE AS MARKED.



"This symbol means fast operating fuse."

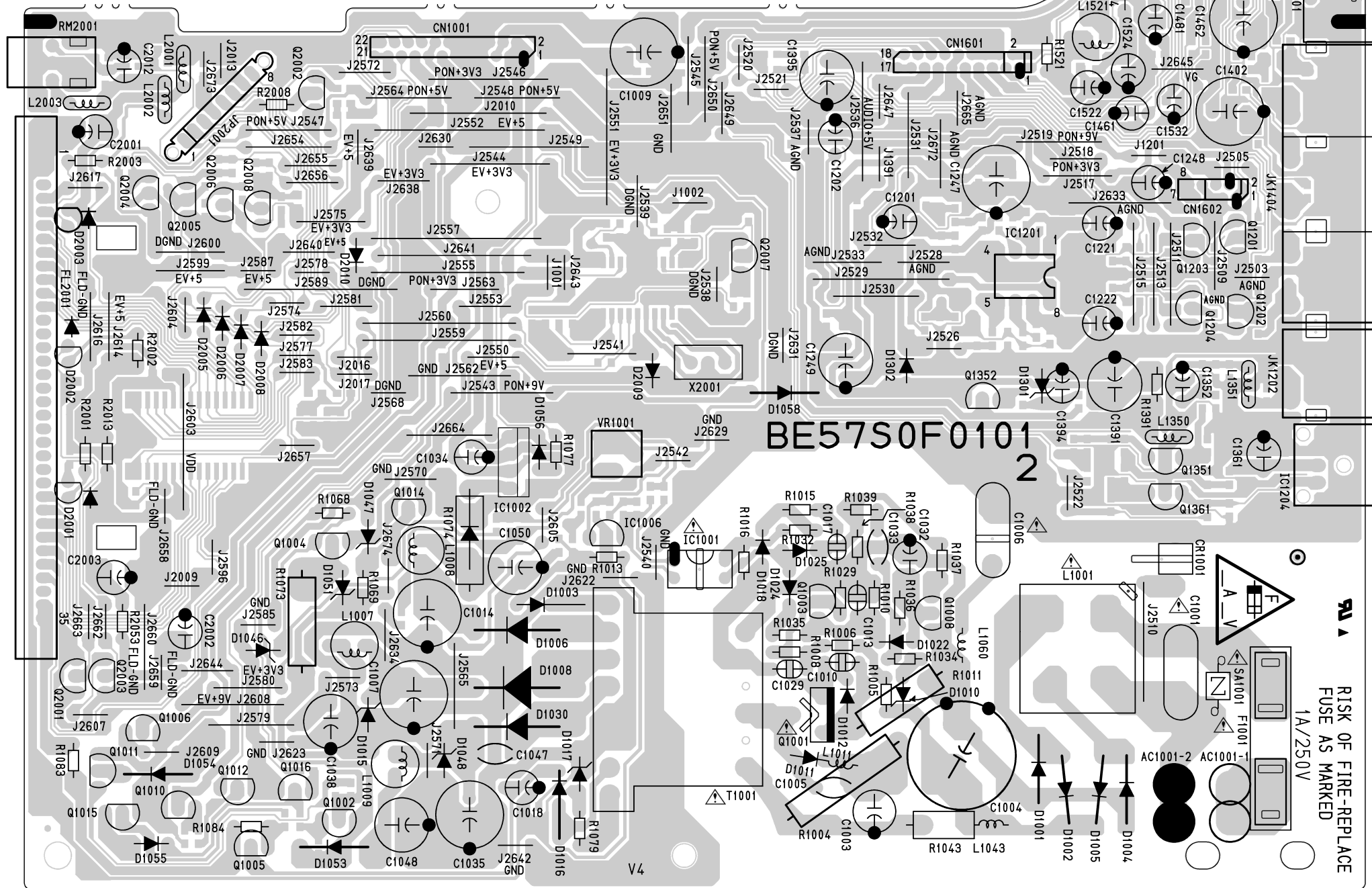
"Ce symbole représente un fusible à fusion rapide."

4

3

2

1



BE57S0F0101 2

RISK OF FIRE-REPLACE FUSE AS MARKED 1A/250V

A

B

C

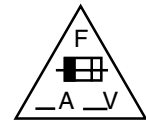
D

E

5-2 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

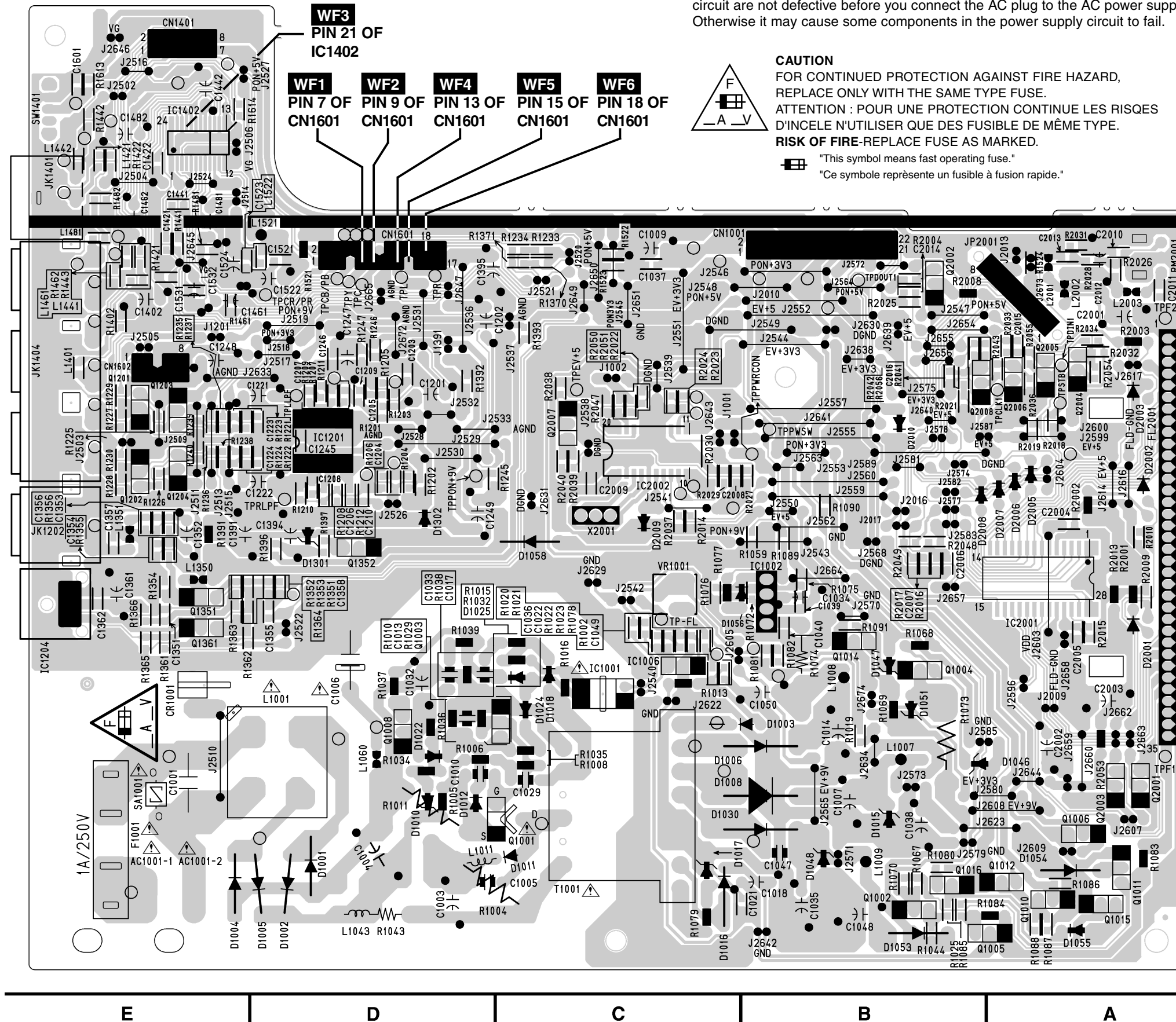
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQUES
D'INCELE N'UTILISER QUE DES FUSIBLE DE MÊME TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.

"This symbol means fast operating fuse."

"Ce symbole représente un fusible à fusion rapide."

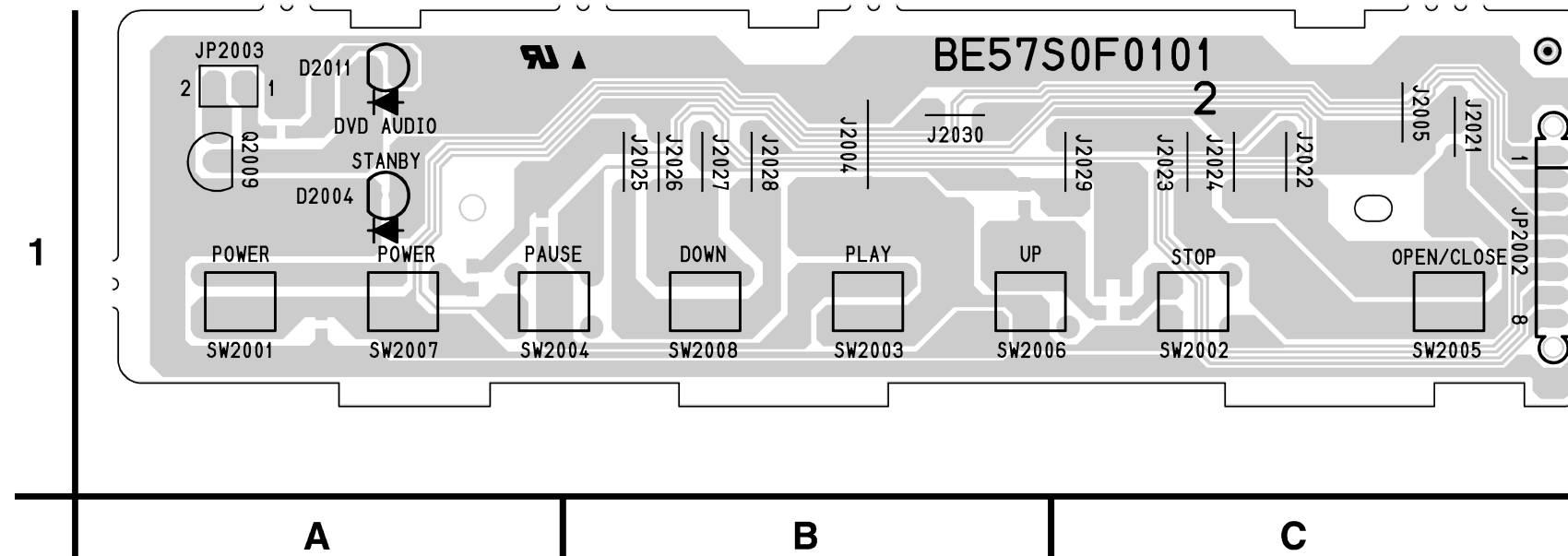
NOTE:

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

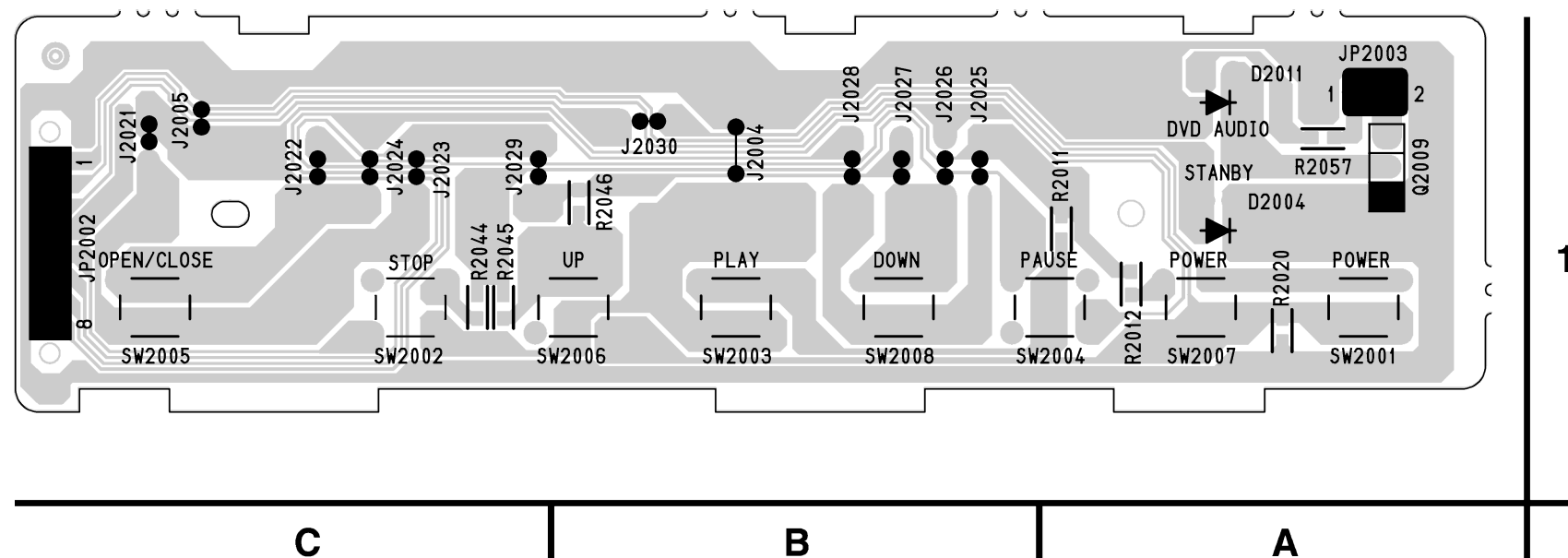


5-3 Function CBA Top/Bottom View

FUNCTION CBA Top View

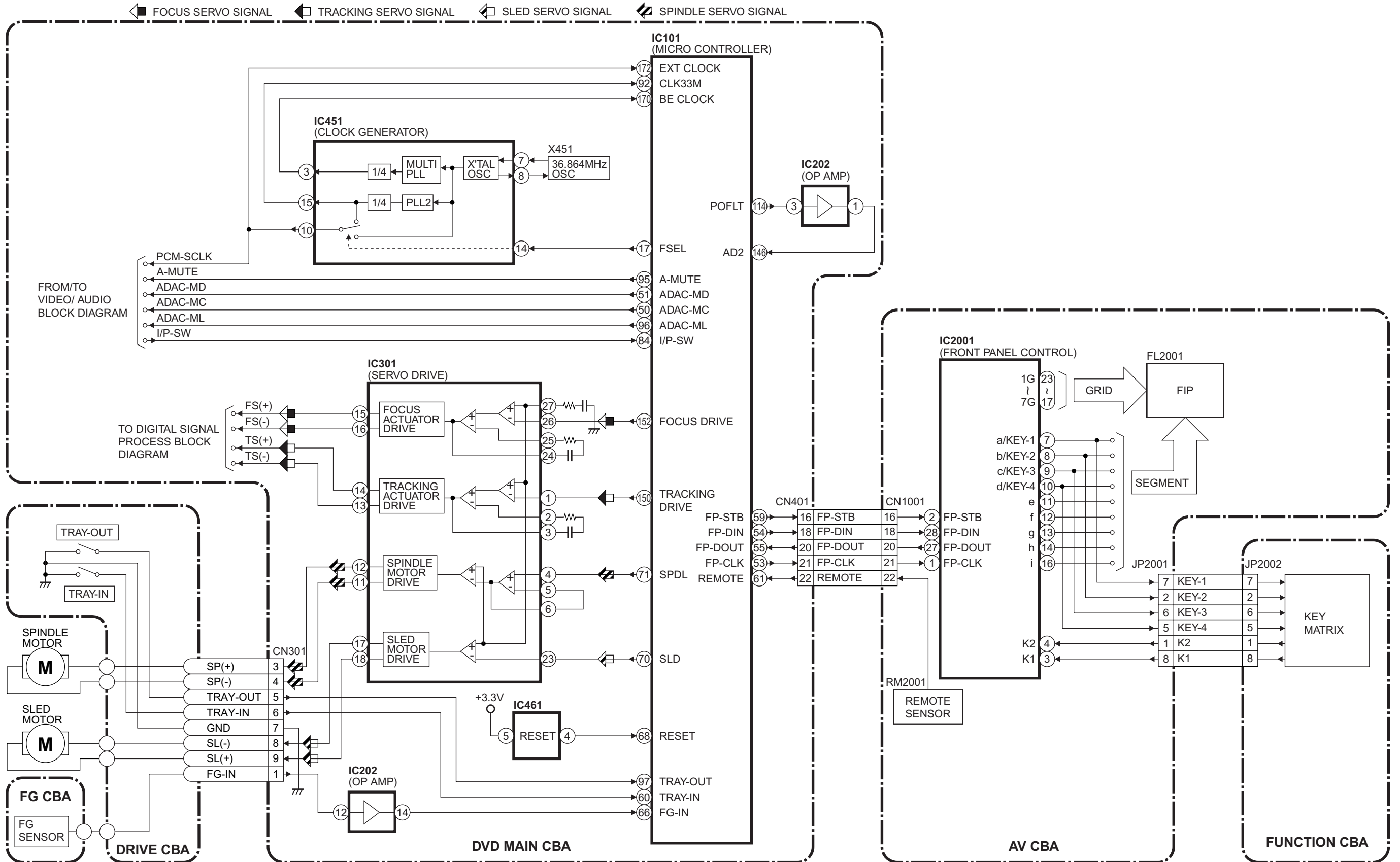


FUNCTION CBA Bottom View



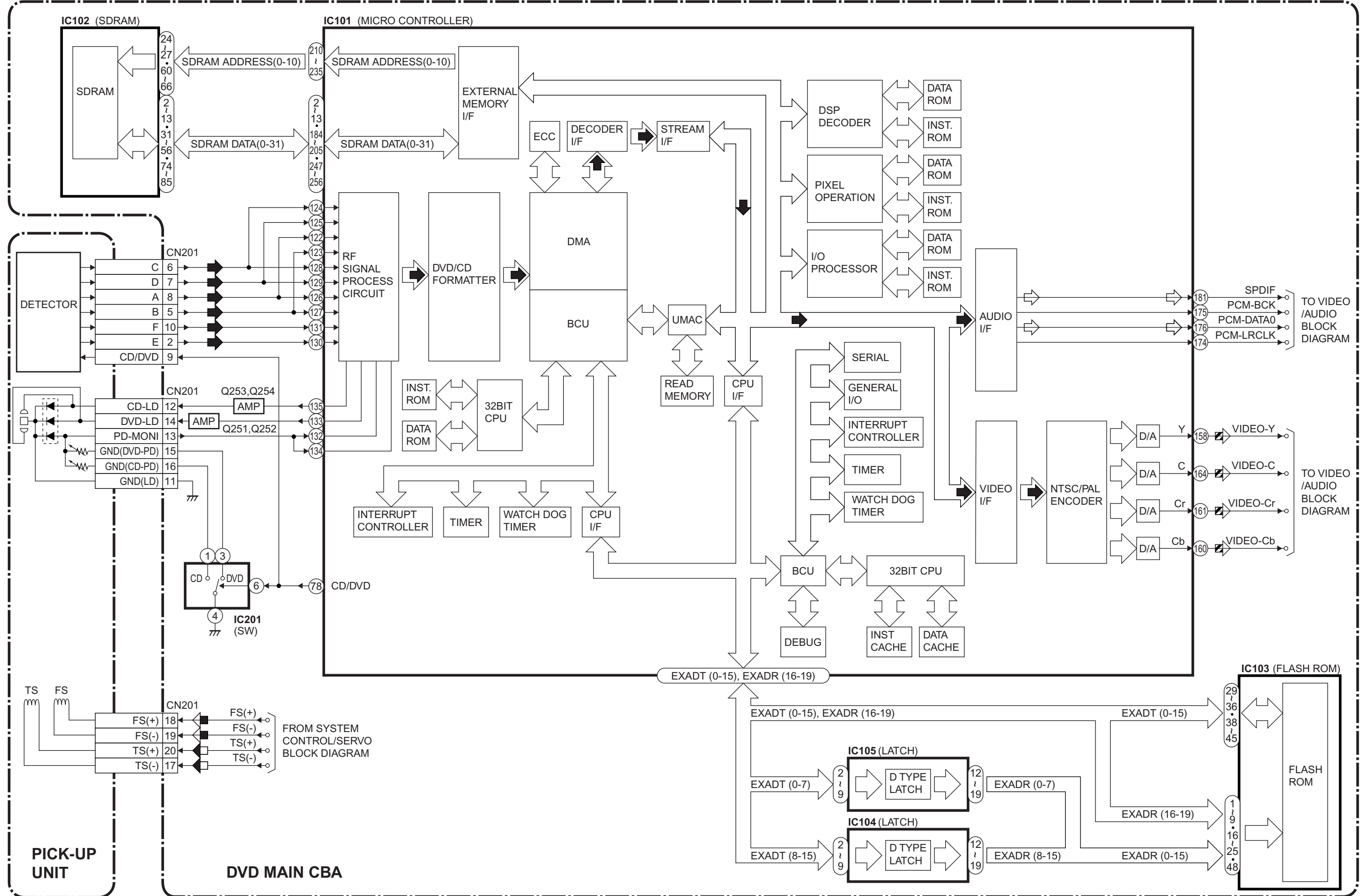
6 BLOCK DIAGRAMS

6-1 System Control/Servo Block Diagram



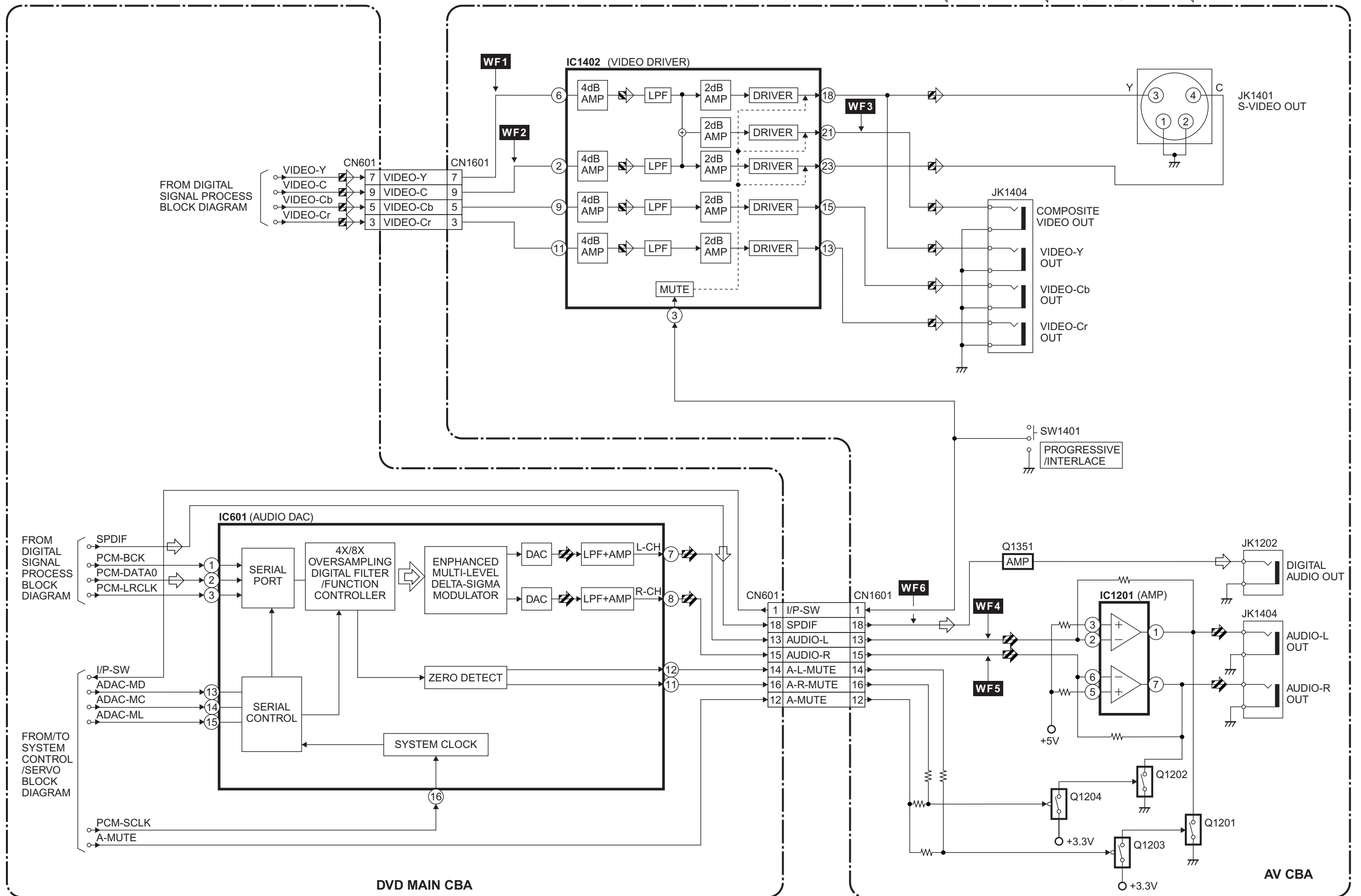
6-2 Digital Signal Process Block Diagram

DATA(VIDEO/AUDIO) SIGNAL
 VIDEO SIGNAL
 DATA(AUDIO) SIGNAL
 FOCUS SERVO SIGNAL
 TRACKING SERVO SIGNAL



6-3 Video / Audio Block Diagram

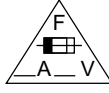
VIDEO SIGNAL
 DATA(AUDIO) SIGNAL
 AUDIO SIGNAL



6-4 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

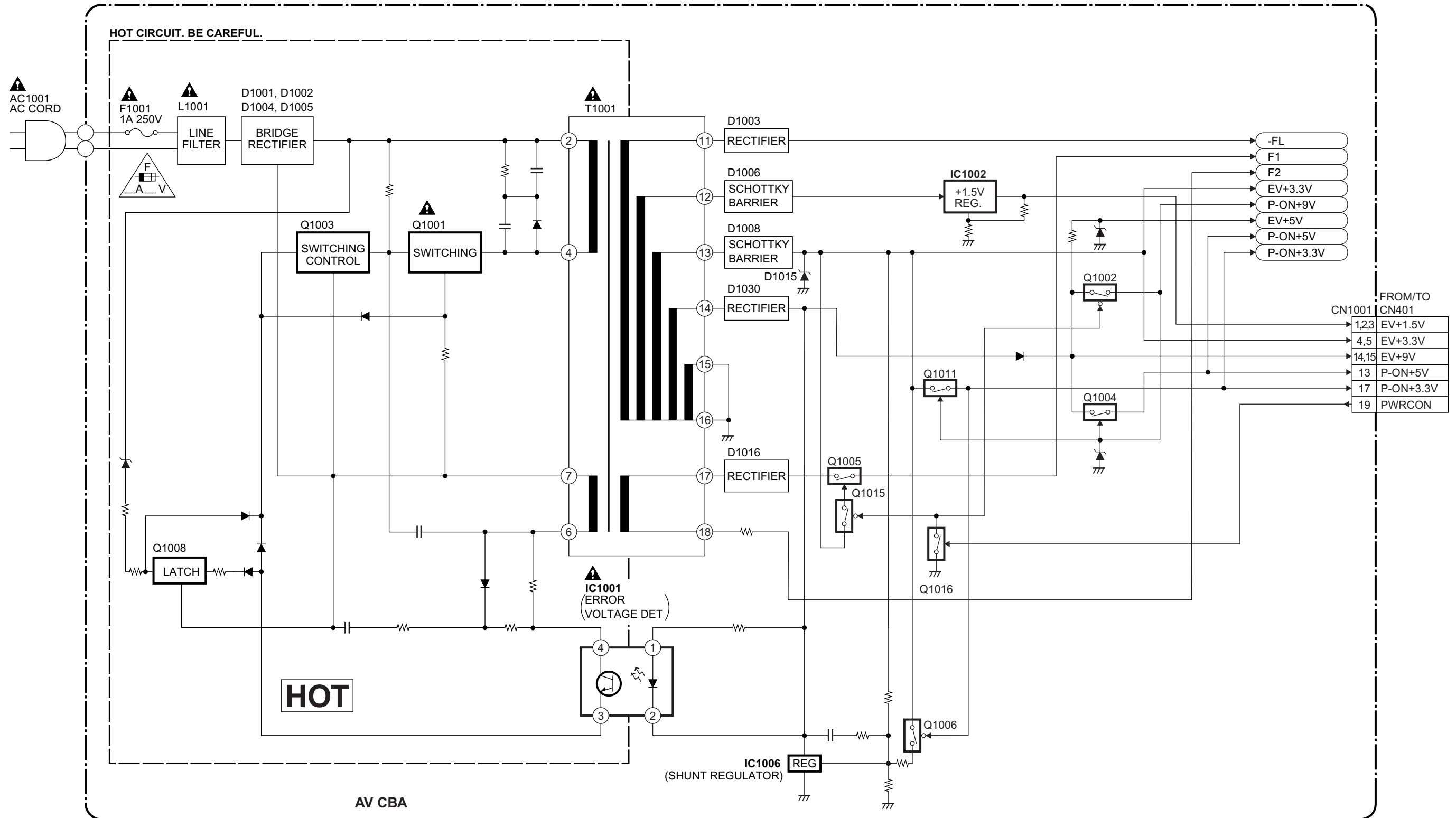
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQUES
D'INCELE N'UTILISER QUE DES FUSIBLE DE MÊME TYPE.

RISK OF FIRE -REPLACE FUSE AS MARKED.

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

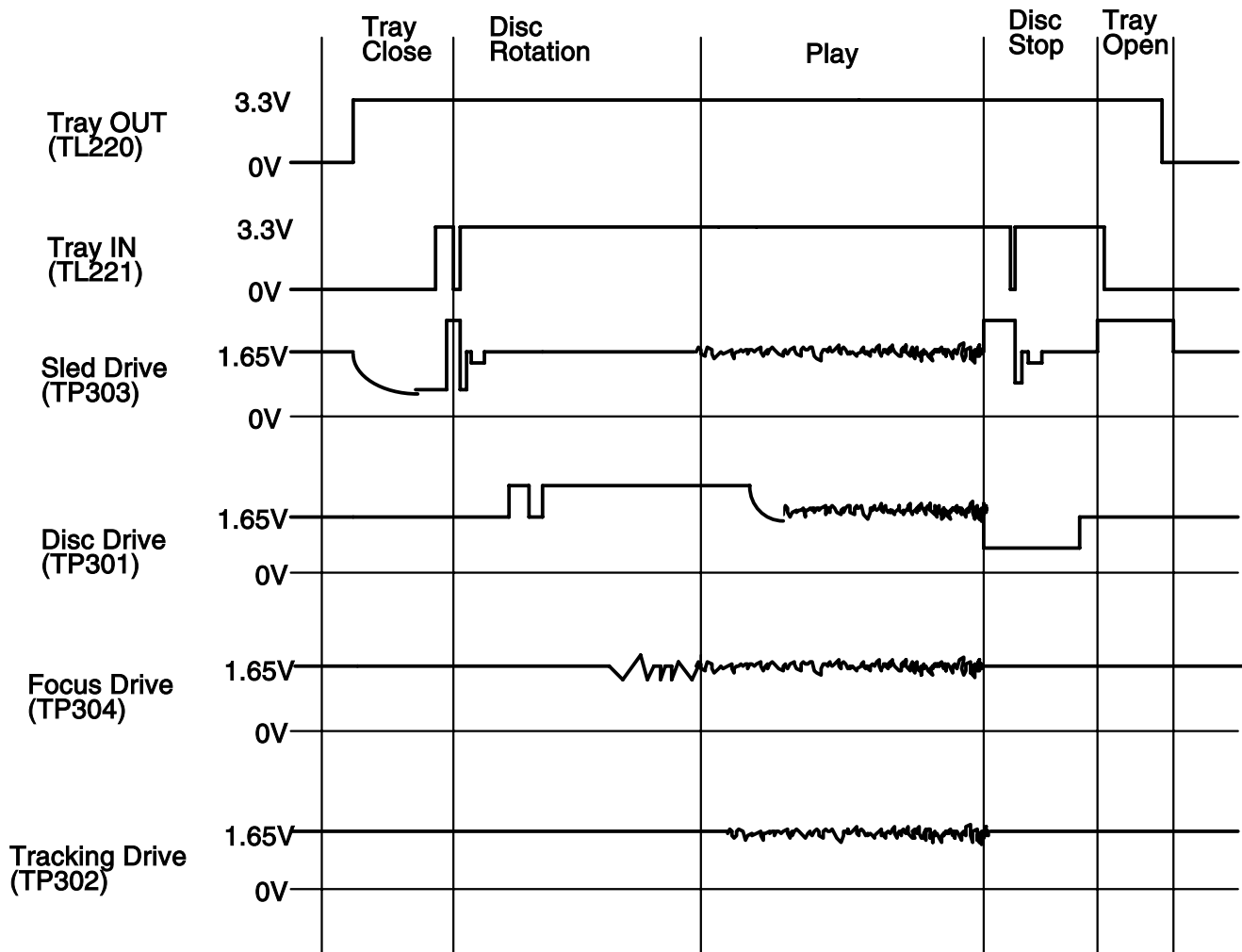
NOTE :

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



7 SYSTEM CONTROL TIMING CHARTS

Tray Close ~ Play / Play ~ Tray Open

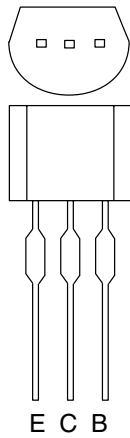


8 IC PIN FUNCTION DESCRIPTIONS

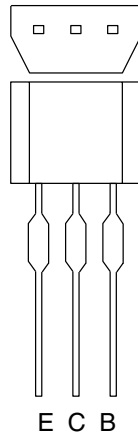
IC2001 [PT6313-S-TP]

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	
13	In	g	
14	Out	h	
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	In	FP-DIN	Serial Data Input

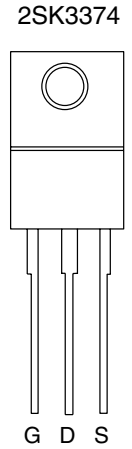
9 LEAD IDENTIFICATIONS



2SA1015-Y (TPE2)
KTA1266 (Y)
KTC3198 (Y)
2SC2120-Y(TPE2)

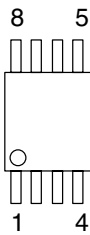


2SC2785 (H)
KTC3199 (GR)
KRA110M
KTA1267 (Y)
BN1L3Z (P)

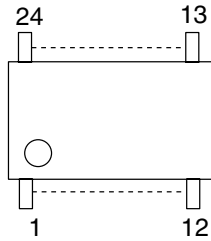


2SK3374

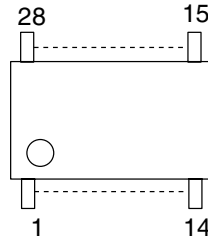
NJM4558D
KIA4558P



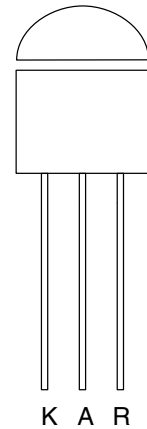
MM1622XJBE



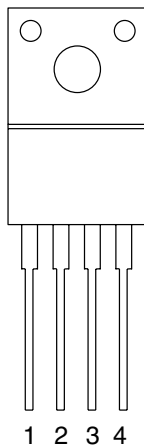
PT6313-S-TP



KIA431-AT



PQ070XF01SZ



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

LTV-817(B,C)-F



Note:

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

HITACHI

DV-P735U/DV-P735U(C)/DV-P533U

DV-P735U/DV-P735U(C)/DV-P533U

DV-P735U
DV-P735U(C)
DV-P533U

TK No. 9301E

Digital Media Division, Tokai

Copyright © Hitachi, Ltd. 2003. All rights reserved.

Printed in Japan (F)