

DENON

For U.S.A. & Canada model

SERVICE MANUAL

Ver. 2

MODEL DVM-1815

DVD VIDEO AUTO CHANGER

注 意

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

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

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

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

- 修理の際は、必ず取扱説明書を参照の上、作業を行ってください。

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

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

DENON, Ltd.

16-11, YUSHIMA 3-CHOME, BUNKYU-KU, TOKYO 113-0034 JAPAN

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SPECIFICATIONS

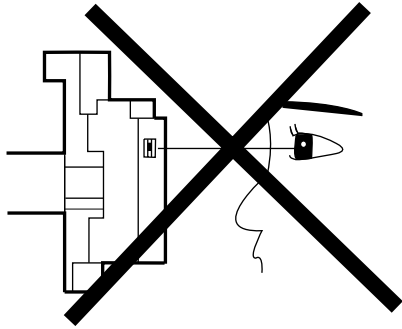
ITEM	CONDITIONS	UNIT	NOMINAL	LIMIT
1. Video Output	75 ohm load	Vpp	1.0	± 0.1
2. Optical Digital Out		dBm	-18	
3. Audio (PCM)				
3-1. Output Level	1kHz 0dB	Vrms	2.0	
3-2. S/N		dB	120	
3-3. Freq. Response				
DVD	fs=48kHz 20~22kHz	dB	± 0.5	
CD	fs=44.1kHz 20~20 kHz	dB	± 0.5	
3-4. THD+N				
DVD	1 kHz 0dB	%	0.025	
CD	1 kHz 0dB	%	0.03	

NOTES:

1. All Items are measured without pre-emphasis unless otherwise specified.
2. Power supply : AC120 V 60 Hz
3. Load imp. : 100 K ohm
4. Room ambient : 5 °C ~ 40 °C

LASER BEAM SAFETY PRECAUTIONS

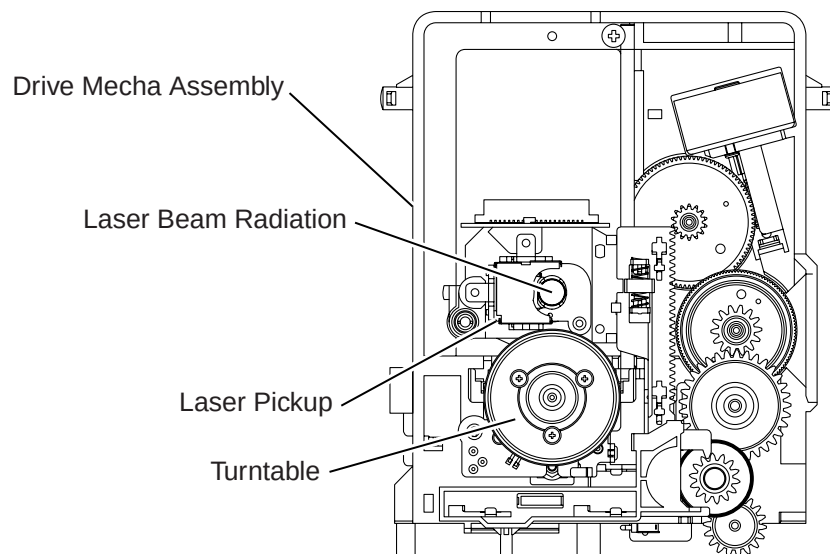
This DVD player uses a pickup that emits a laser beam.



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.

IMPORTANT SAFETY PRE-CAUTIONS

Product Safety Notice

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

Precautions during Servicing

- A. Parts identified by the  symbol are critical for safety. Replace only with part number specified.
- B. In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.
Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.
- C. Use specified internal wiring. Note especially:
 - 1) Wires covered with PVC tubing
 - 2) Double insulated wires
 - 3) High voltage leads
- D. Use specified insulating materials for hazardous live parts. Note especially:
 - 1) Insulation tape
 - 2) PVC tubing
 - 3) Spacers
 - 4) Insulators for transistors
- E. When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.
- F. Observe that the wires do not contact heat producing parts (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')
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.

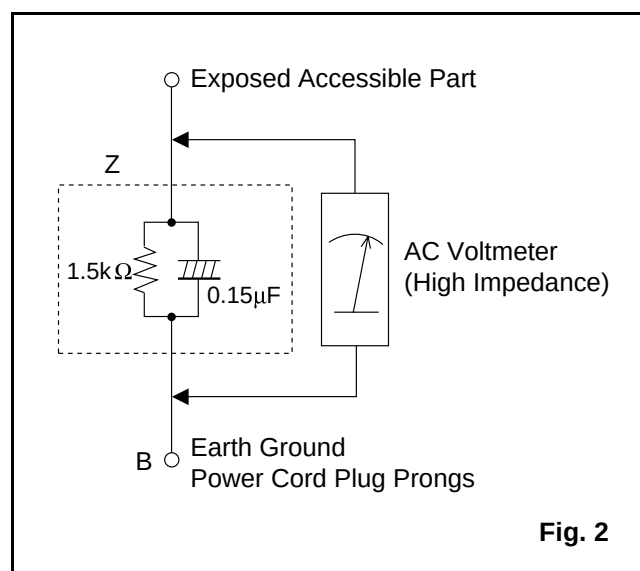
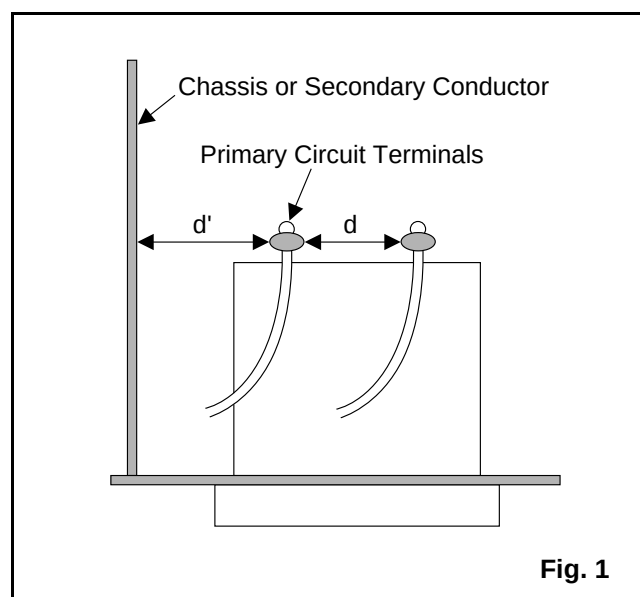


Table 2: Leakage current ratings for selected areas

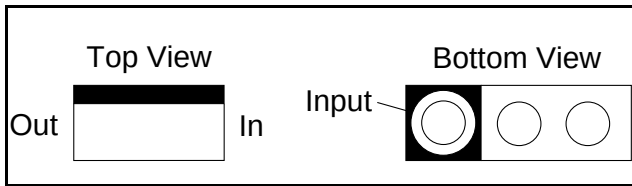
AC Line Voltage	Load Z	Leakage Current (i)	Earth Ground (B) to:
120 V	$0.15\mu\text{F}$ CAP. & $1.5\text{k}\Omega$ RES. Connected in parallel	$i \leq 0.5\text{mA}$ Peak	Exposed accessible parts

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

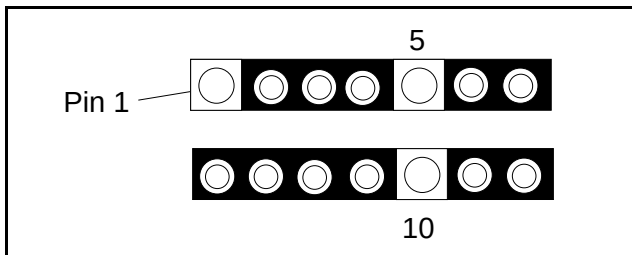
STANDARD NOTES FOR SERVICING

Circuit Board Indications

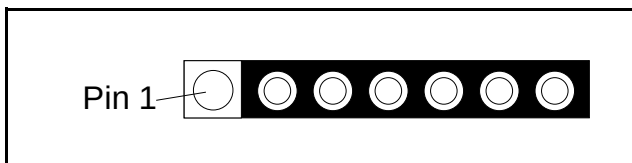
1. The output pin of the 3 pin Regulator ICs is indicated as shown.



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

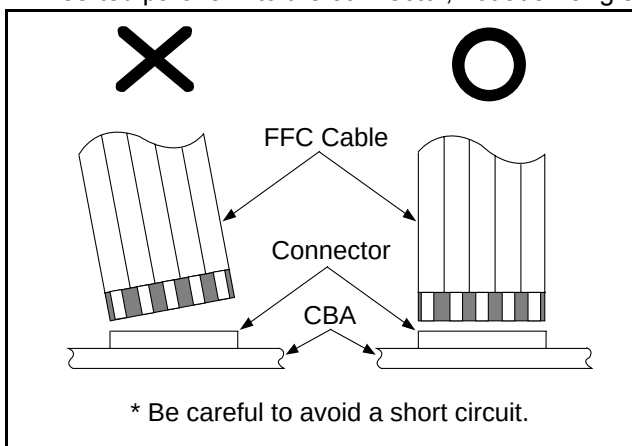


3. The 1st pin of every male connector is indicated as shown.



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.

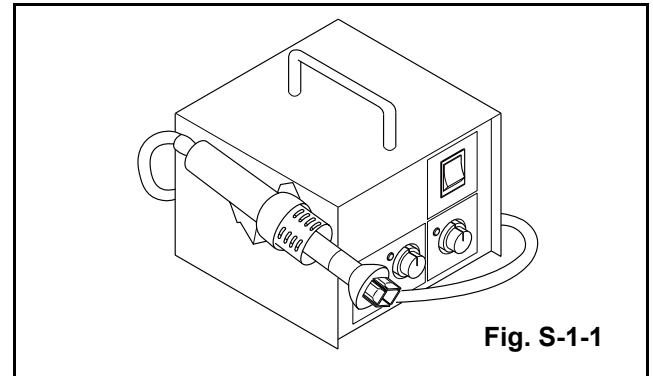


How to Remove / Install Flat Pack-IC

1. Removal

With Hot-Air Flat Pack-IC Desoldering Machine:

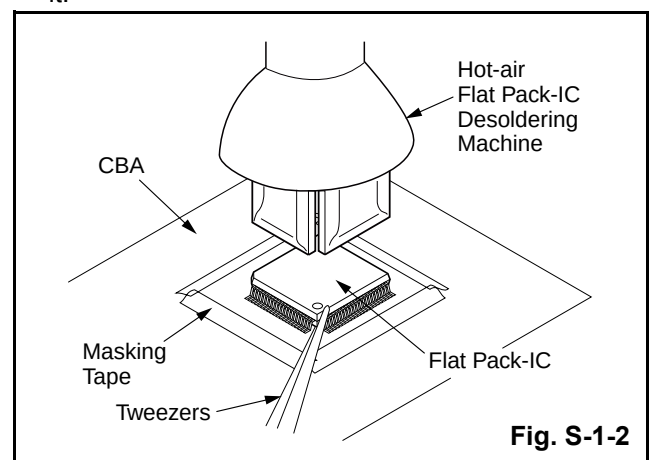
- (1) Prepare the hot-air flat pack-IC desoldering machine, then apply hot air to the Flat Pack-IC (about 5 to 6 seconds). (Fig. S-1-1)



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

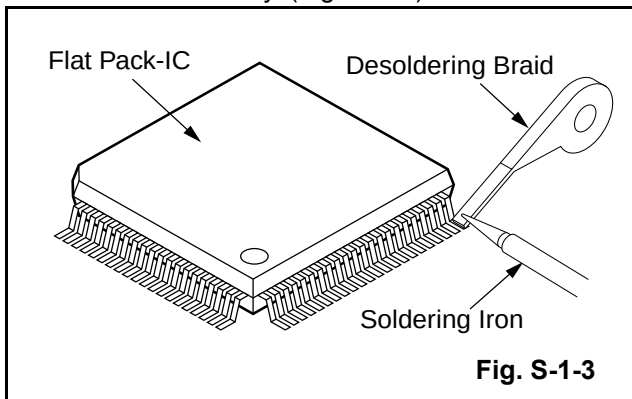
Caution:

1. 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.

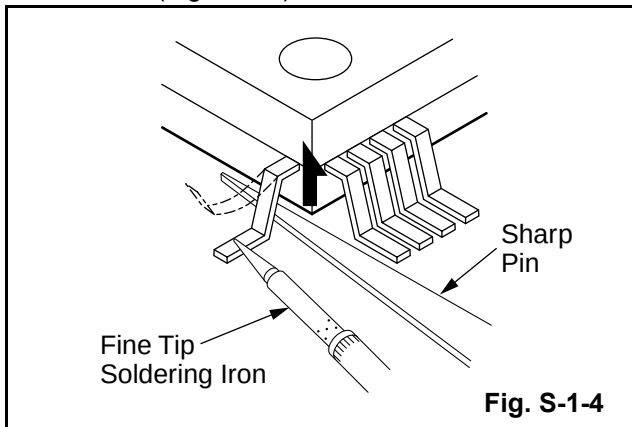


With Soldering Iron:

- (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)

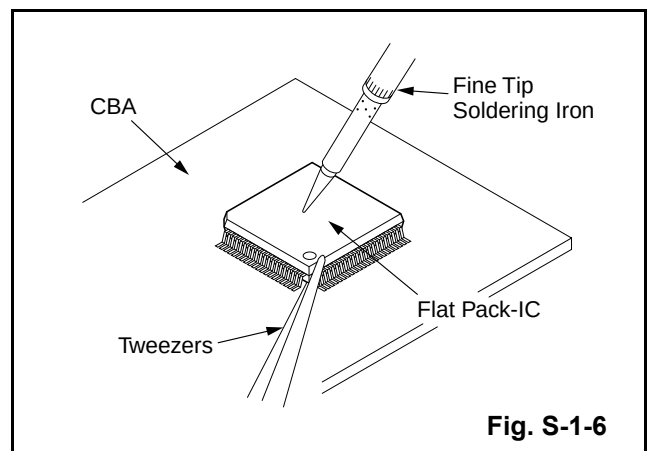
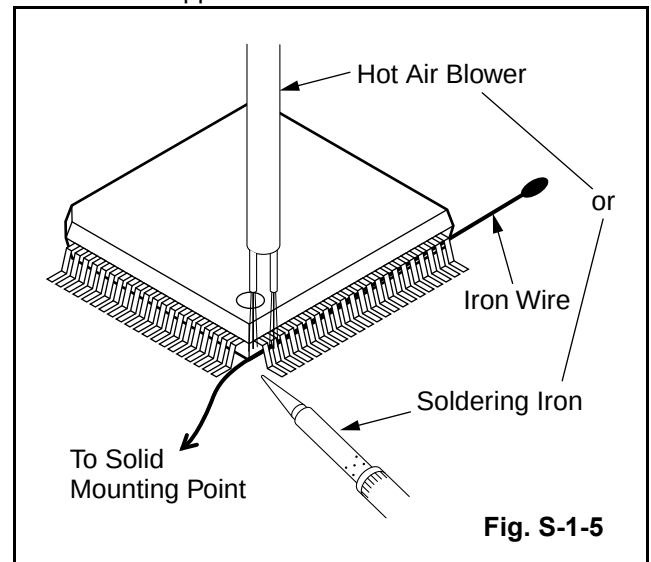
With Iron Wire:

- (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:

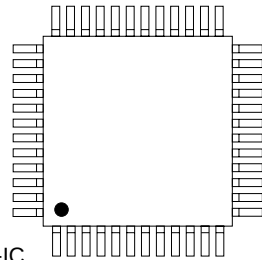
When using a soldering iron, care must be taken to ensure that the flat pack-IC is not being held by glue. When the flat pack-IC is removed from the CBA, handle it gently because it may be damaged if force is applied.



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 "1" 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.

Example :



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

Fig. S-1-7

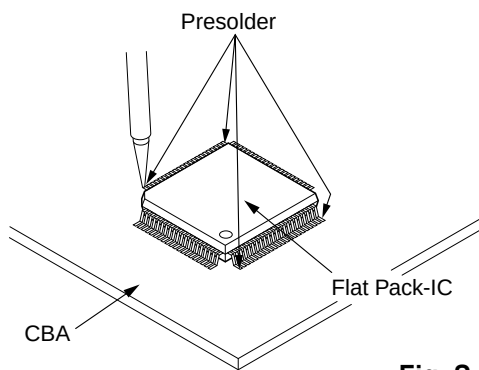


Fig. S-1-8

Instructions for Handling Semi-conductors

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

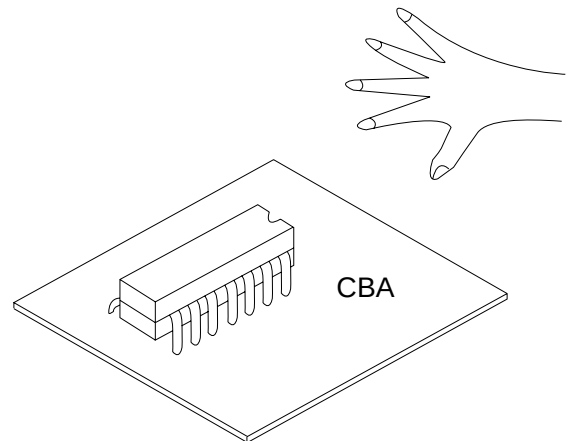
1. Ground for Human Body

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

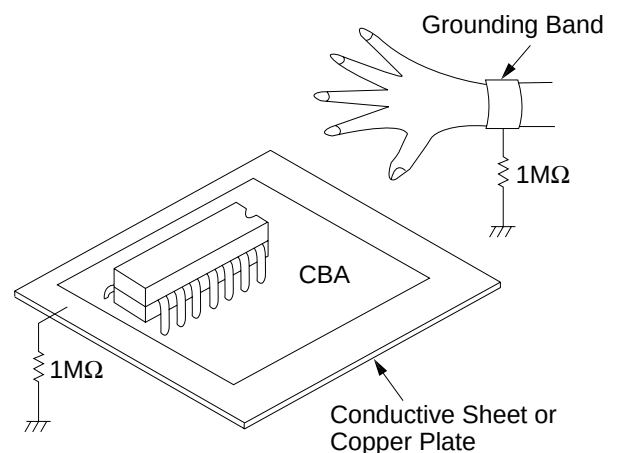
2. Ground for Workbench

- (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.

< Incorrect >



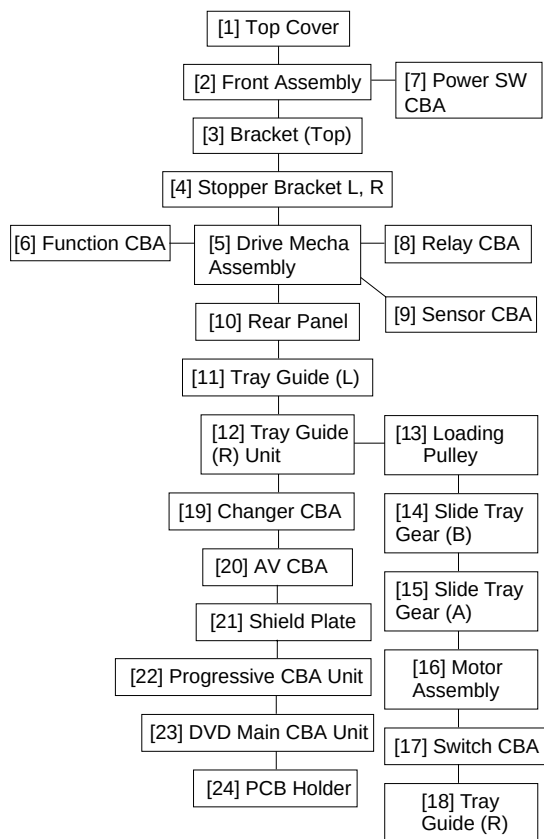
< Correct >



CABINET DISASSEMBLY INSTRUCTIONS

1. Disassembly Flowchart

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



2. Disassembly Method

ID/ LOC. No.	PART	REMOVAL		
		Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	Note
[1]	Top Cover	D1	6(S-1)	-
[2]	Front Assembly	D2	2(S-2), *8(L-1)	1-1
[3]	Bracket (Top)	D3	*2(L-2)	-
[4]	Stopper Bracket L, R	D3	4(S-3)	-
[5]	Drive Mecha Assembly	D4, D5	CN201, CN3001	2 2-1 2-2 3 4

ID/ LOC. No.	PART	REMOVAL		
		Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	Note
[6]	Function CBA	D4	*2(L-3), CN2201	-
[7]	Power SW CBA	D4	CN2103, (S-4)	-
[8]	Relay CBA	D6	2(S-5), CN5001, CN5002, CN5003, CN5005	-
[9]	Sensor CBA	D6	2(S-6)	-
[10]	Rear Panel	D7	4(S-7), 11(S-8)	-
[11]	Tray Guide (L)	D8	3(S-9)	-
[12]	Tray Guide (R) Unit	D8	4(S-10), CN3003, CN3004	-
[13]	Loading Pulley	D9	(S-11), Belt L	-
[14]	Slide Tray Gear (B)	D9	(S-12), *(P-1)	-
[15]	Slide Tray Gear (A)	D9	-----	-
[16]	Motor Assembly	D9	(S-13)	-
[17]	Switch CBA	D9	*2(L-4)	-
[18]	Tray Guide (R)	D9	-----	-
[19]	Changer CBA	D10	CN3102, 2(S-14), CN3301	-
[20]	AV CBA	D10	6(S-15), CN1601, CN1602, CN1001, FFC Clamper	-
[21]	Shield Plate	D11	2(S-16), 2(W-1)	-
[22]	Progressive CBA Unit	D11	CN1801	-
[23]	DVD Main CBA Unit	D11	2(S-17)	-
[24]	PCB Holder	D11	(S-18)	-

↓ ↓ ↓ ↓ ↓

(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) are fragile. Be careful not to break them.

1-1. To release eight Locking Tabs (L-1), first release five Locking Tabs (A), and then three Locking Tabs (B). (Fig. D2)

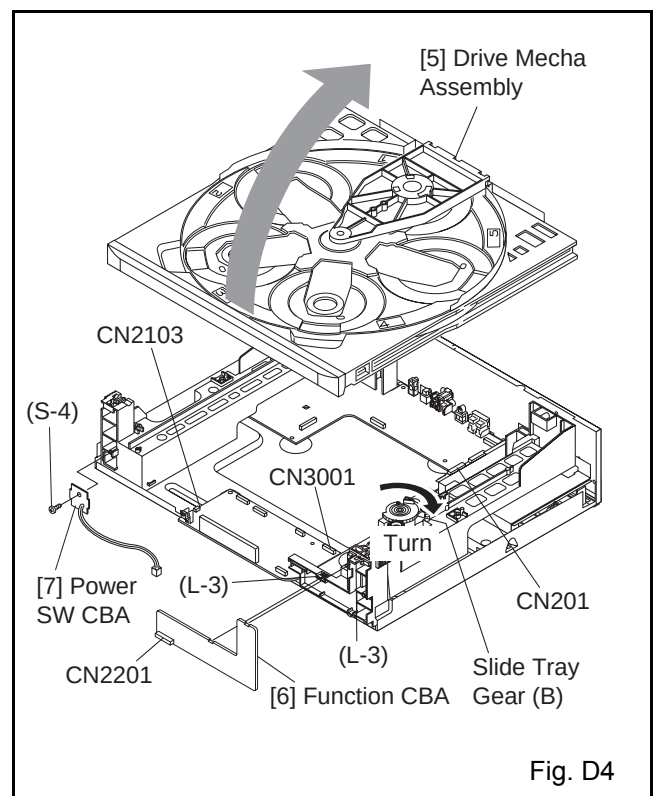
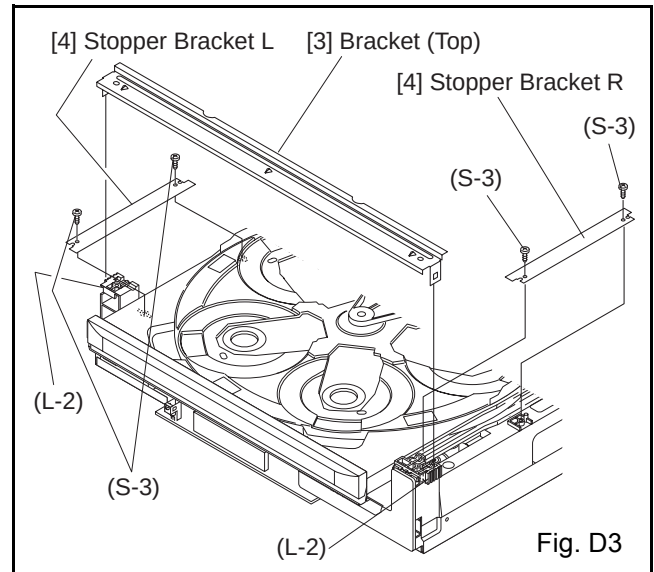
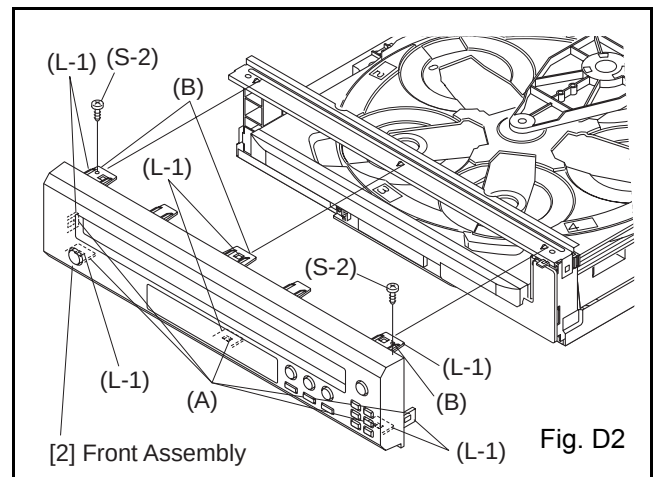
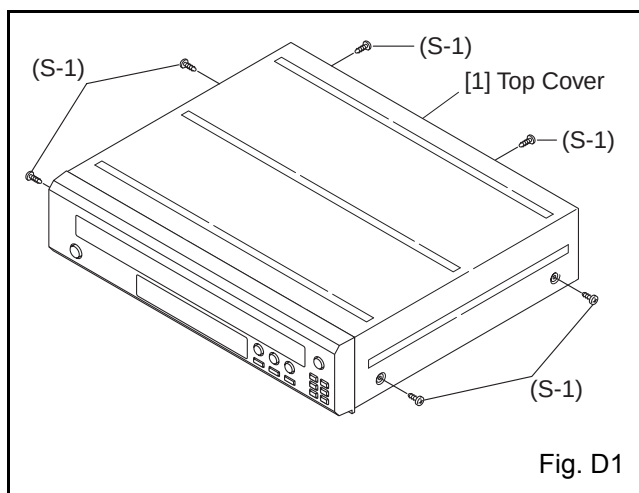
CAUTION 2: Electrostatic breakdown of the laser diode in the optical system block may occur as a potential difference caused by electrostatic charge accumulated on cloth, human body etc, during unpacking or repair work.
 To avoid damage of pickup follow next procedures.

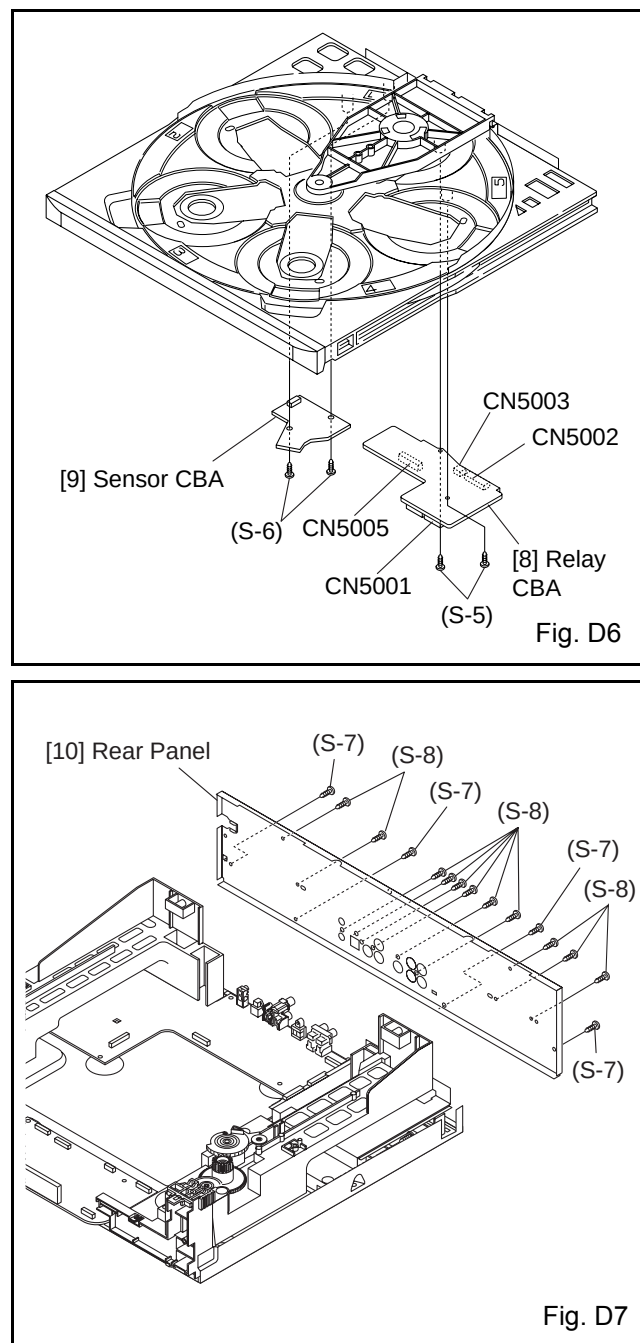
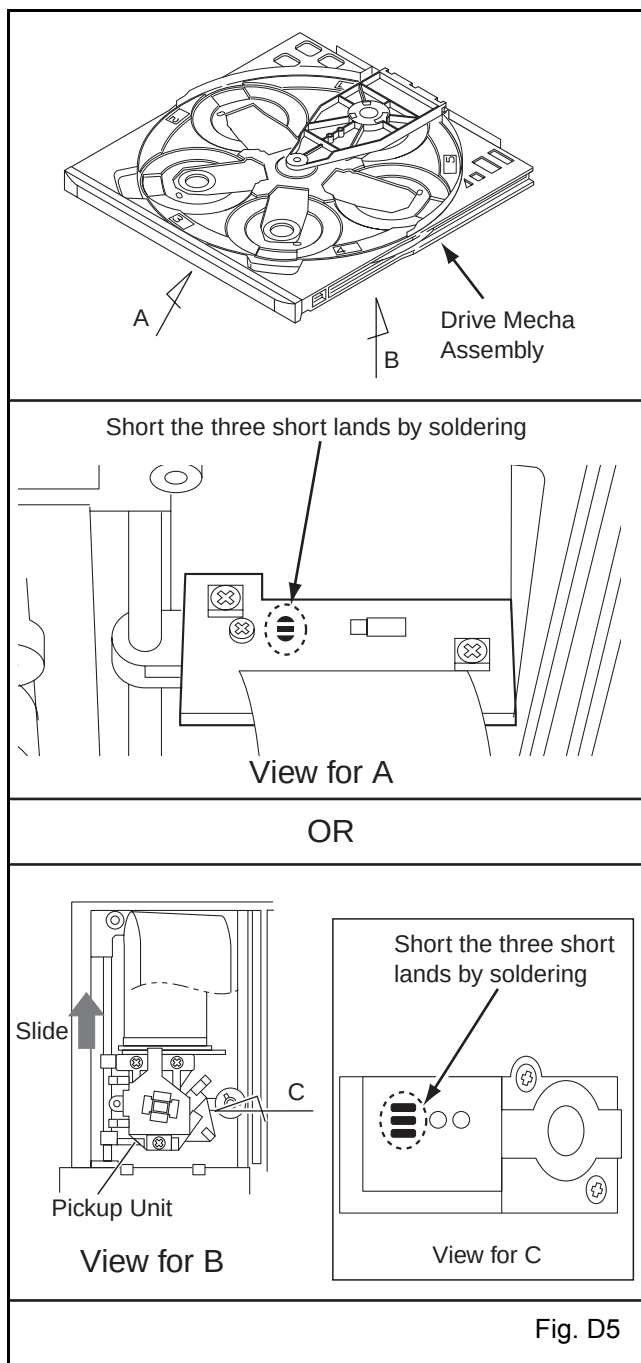
2-1. Slide out the pickup unit as shown in Fig. D5.

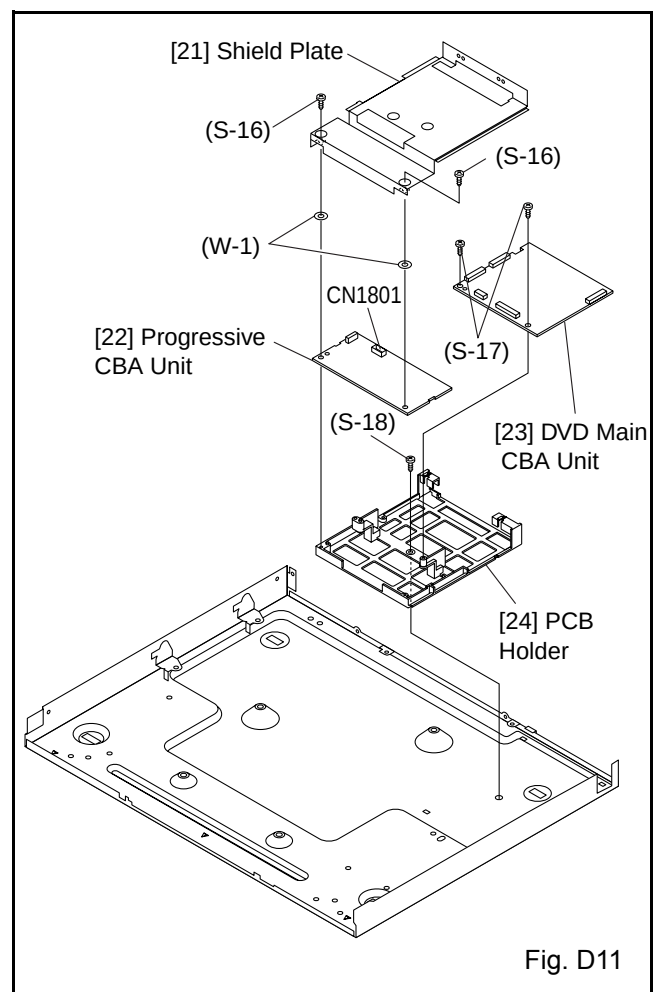
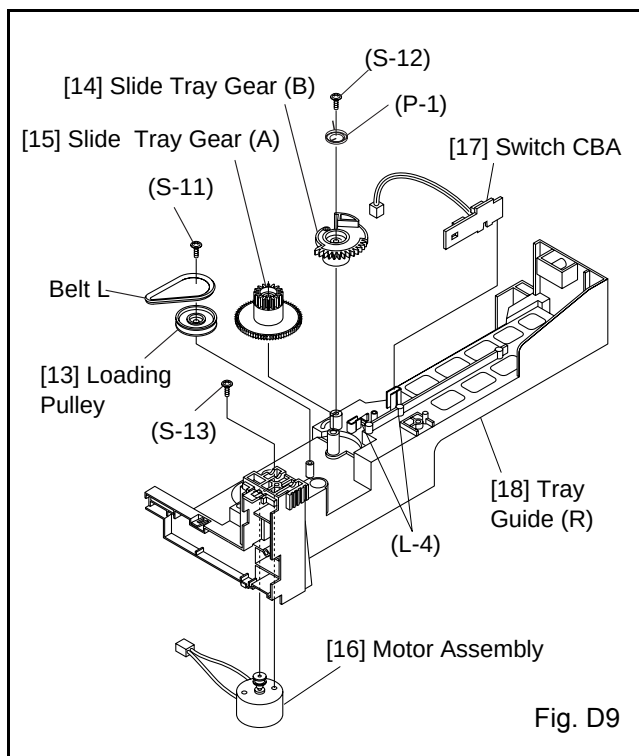
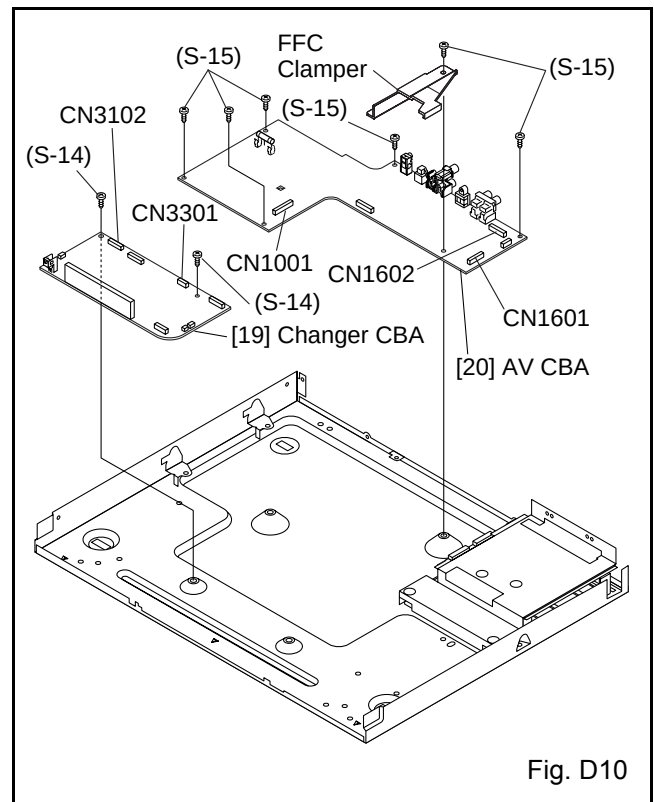
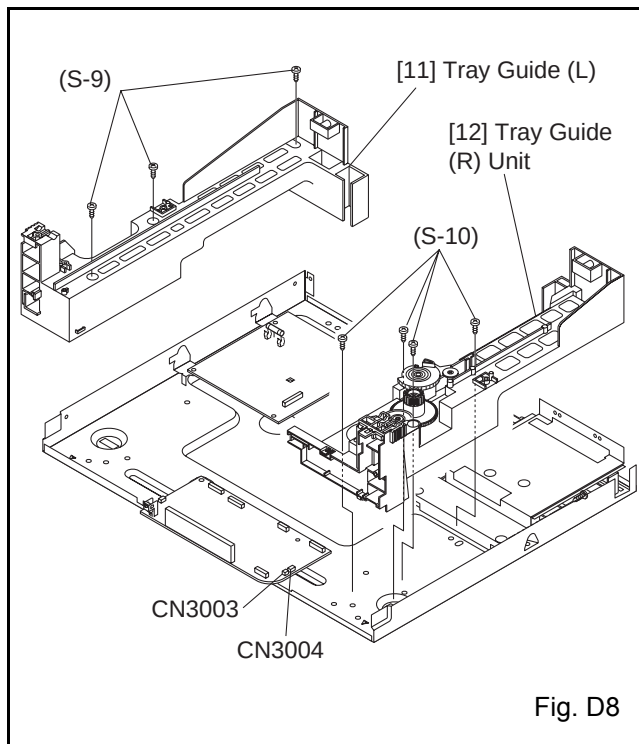
2-2. Short the three short lands of FPC cable with solder before removing the FFC cable (CN201) from it. If you disconnect the FFC cable (CN201), the laser diode of pickup will be destroyed. (Fig. D5)

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. D5)

CAUTION 4: Before reinstalling, turn the Slide Tray Gear (B) fully clockwise. (Fig. D4)

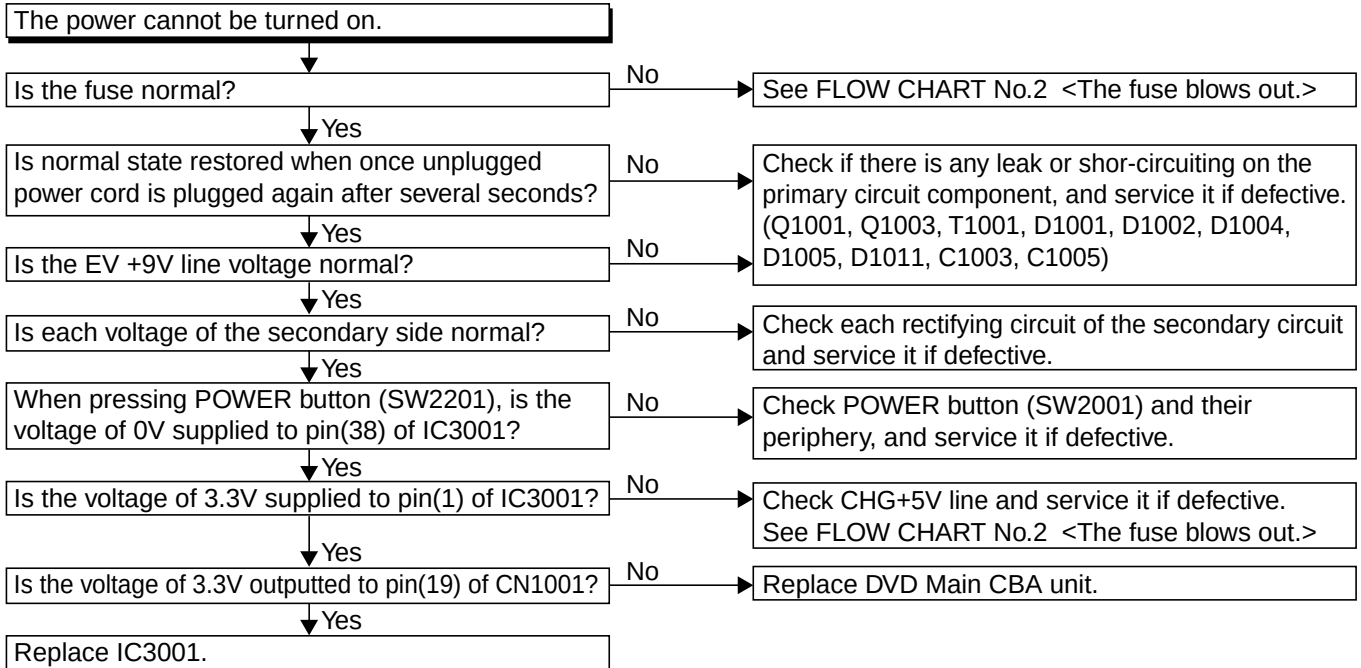




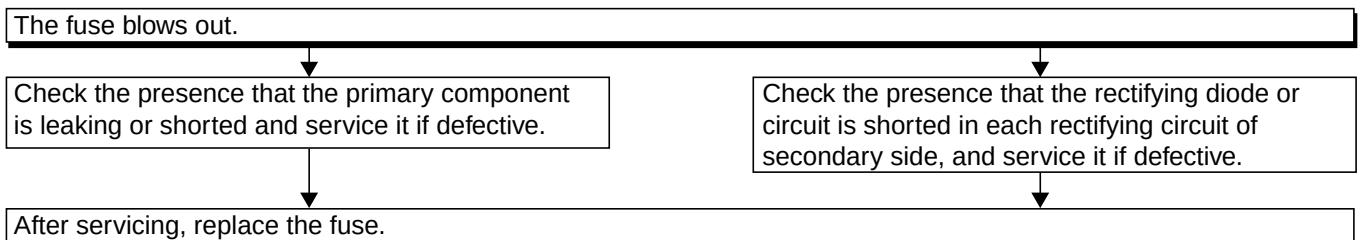


TROUBLESHOOTING

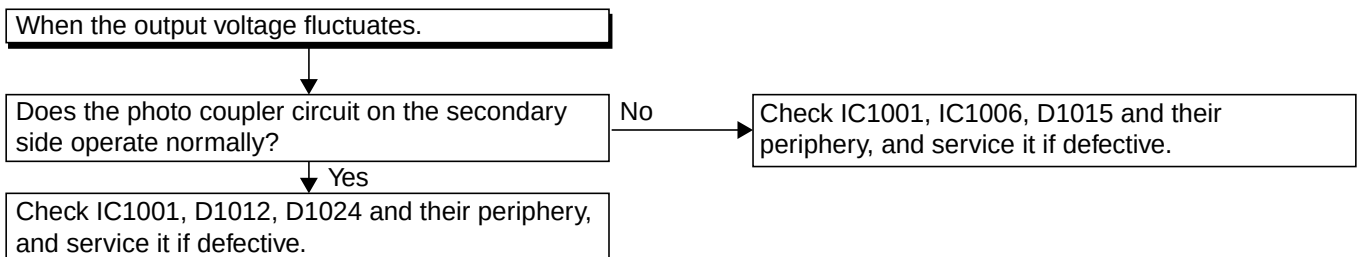
FLOW CHART NO.1



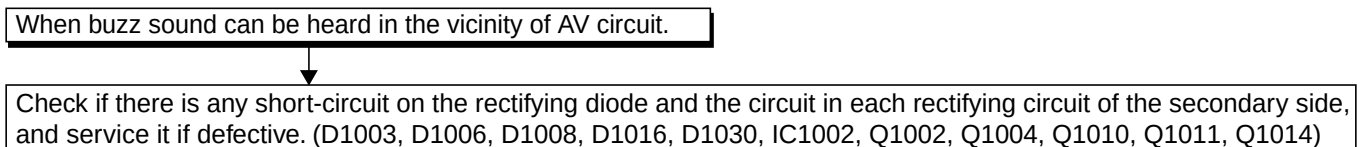
FLOW CHART NO.2



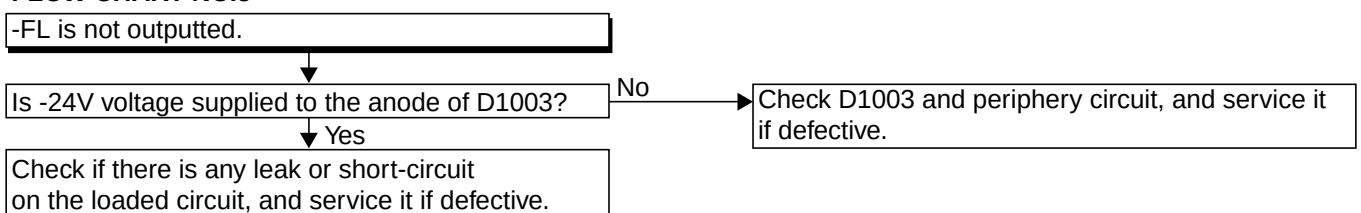
FLOW CHART NO.3



FLOW CHART NO.4



FLOW CHART NO.5



FLOW CHART NO.6

P-ON+9V (EV+9V) is not outputted.

Is 9V voltage supplied to the emitter of Q1002?

No

Check D1030, 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 service it if defective.

Yes

Replace Q1002.

FLOW CHART NO.7

P-ON+5V is not outputted. (P-ON+9V is outputted normally.)

Is the "H" pulse 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+9V is outputted normally.)

Is 3.3V voltage supplied to the collector of Q1011?

No

Check D1008, D1015, C1007, C1038, L1007 and the periphery circuit, and service it if defective.

Yes

Replace Q1011 and R1067.

FLOW CHART NO.9

EV+5V is not outputted.

Is EV+9V outputted normally?

No

Refer to "FLOW CHART NO.6"
<P-ON+9V (EV+9V) is not outputted.>

Yes

Check Q1014, D1047 and the periphery circuit, and service it if defective.

FLOW CHART NO.10

EV+1.5V 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

Is 1.25V voltage supplied to Pin(4) of IC1002?

No

Is the "L" pulse outputted into Pin(18) of IC3001?

Yes

Replace IC1002.

Check the circuit between Pin(18) of IC3001 and Pin(4) of IC1002, and service it if defective.

No

Replace IC3001.

FLOW CHART NO.11

EV+3.3V is not outputted.

Is 3.3V voltage supplied to emitter of Q1010?

No

Check D1008, D1015, C1007, C1038, L1007 and the periphery circuit, and service it if defective.

Yes

Is the "L" pulse inputted to base of Q1012?

No

Is the "L" pulse outputted into Pin(18) of IC3001?

Yes

Check Q1010, Q1012, R1087 and R1088, and service it if defective.

Check the circuit between Pin(18) of IC3001 and base of Q1012, and service it if defective.

No

Replace IC3001.

FLOW CHART NO.12

The fluorescent display tube does not light up.

Is 3.3V voltage supplied to Pin(6) and Pin(24) of IC2001?

No

Check the P-ON+3.3V line and service it if defective.

Yes

Is the voltage of approximately -24V to -28V supplied to Pin(15) of IC2001?

No

Check the -FL (-28V) line and service it if defective.

Yes

Is there 500kHz oscillation at Pin(26) of IC2001?

No

Check R2015, IC2001 and their periphery, and service it if defective.

Check D1016, D1017, T1001, and their periphery, and service it if defective.

Yes

Are the filament voltage supplied between Pins(1, 2) and Pins(34, 35) of the fluorescent display tube? And the negative voltage applied between these pins and GND?

No

Is -17V voltage supplied to collector of Q1005?

Yes

Is the "H" signal inputted to base of Q1016?

No

Check the EV+3.3V line, and service it if defective.

Yes

Check Q1015, Q1016, D1055, and their periphery, and service it if defective.

Yes

Replace the fluorescent display tube.

FLOW CHART NO.13

The key operation is not functioning.

Are the contact point and the installation state of the key switches (SW2201 - 2214) normal?

No

Re-install the switches (SW2201 - 2214) correctly or replace the poor switch.

Yes

Terminal Voltage of Pins (38 - 42) on IC3001

	IC3001				
	38pin	39pin	40pin	41pin	42pin
	KEY1	KEY2	KEY3	KEY4	KEY5
0.00 - 0.50	SW2201 POWER	SW2204 SKIP DOWN	SW2207 DISC-5	SW2210 DISC-3	SW2213 STILL/PAUSE
0.51 - 1.53	SW2202 STOP	SW2205 SKIP UP	SW2208 DISC-4	SW2211 DISC-2	SW2214 EXTRA CHANGE
1.54 - 2.57	SW2203 PLAY	SW2206 SELECT	SW2209 OPEN/CLOSE	SW2212 DISC-1	-----
2.58 - 3.30	(KEY OFF)	(KEY OFF)	(KEY OFF)	(KEY OFF)	(KEY OFF)

Yes

Is the control voltage normally supplied to pins(38, 39, 40, 41, 42) of IC3001?

No

Check the switches (SW2201 - 2214) and their periphery, and service it if defective.

Yes

Replace IC3001.

FLOW CHART NO.14

No operation is possible from the remote control unit.

Operation is possible from the DVD, but no operation is possible from the remote control unit.

Yes

Is 5V voltage supplied to the Pin(3) terminal of the infrared remote control receiver (RM2001)?

No

Check P-ON+5V line and service it if defective.

Yes

Is the "L" pulse sent out Pin(1) terminal of receiver (RM2001) when the infrared remote control is activated?

No

Replace the infrared remote control receiver (RM2001). Or replace the remote control unit.

Yes

Is the "L" pulse supplied to the Pin(22) of CN1001?

No

Check the line between Pin(20) of IC2002 and Pin(22) of CN1001, and service it if defective.

Yes

Replace DVD Main CBA.

FLOW CHART NO.15

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(40) of IC3001?

No

Replace the "OPEN/CLOSE" button (SW2209).

Yes

Refer to "FLOW CHART NO.16" <The disc tray cannot be opened and closed.>

FLOW CHART NO.16

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.17

[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.18

[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.19

[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.20

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.21

Picture does not appear normally.

Set the disc on the disc tray, and playback.

Are the video signals outputted to each pin (as shown below) of CN1601 and CN1602 on the AV CBA?

<Interlace mode>

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

No

Replace the DVD Main CBA or DVD Mecha.

<Progressive mode>

CN1602	2PIN	S-Y
CN1602	4PIN	Pb
CN1602	6PIN	Pr

No

Is FFC cable (W1802) connecting CN1602 on the AV CBA and Progressive CBA Unit normally?

Yes

Is FFC cable (W1801) connecting CN1801 on the Progressive CBA Unit and DVD Main CBA Unit normally?

Yes

Is component video signals outputted in interlace mode?

Yes

Replace Progressive CBA Unit.

No

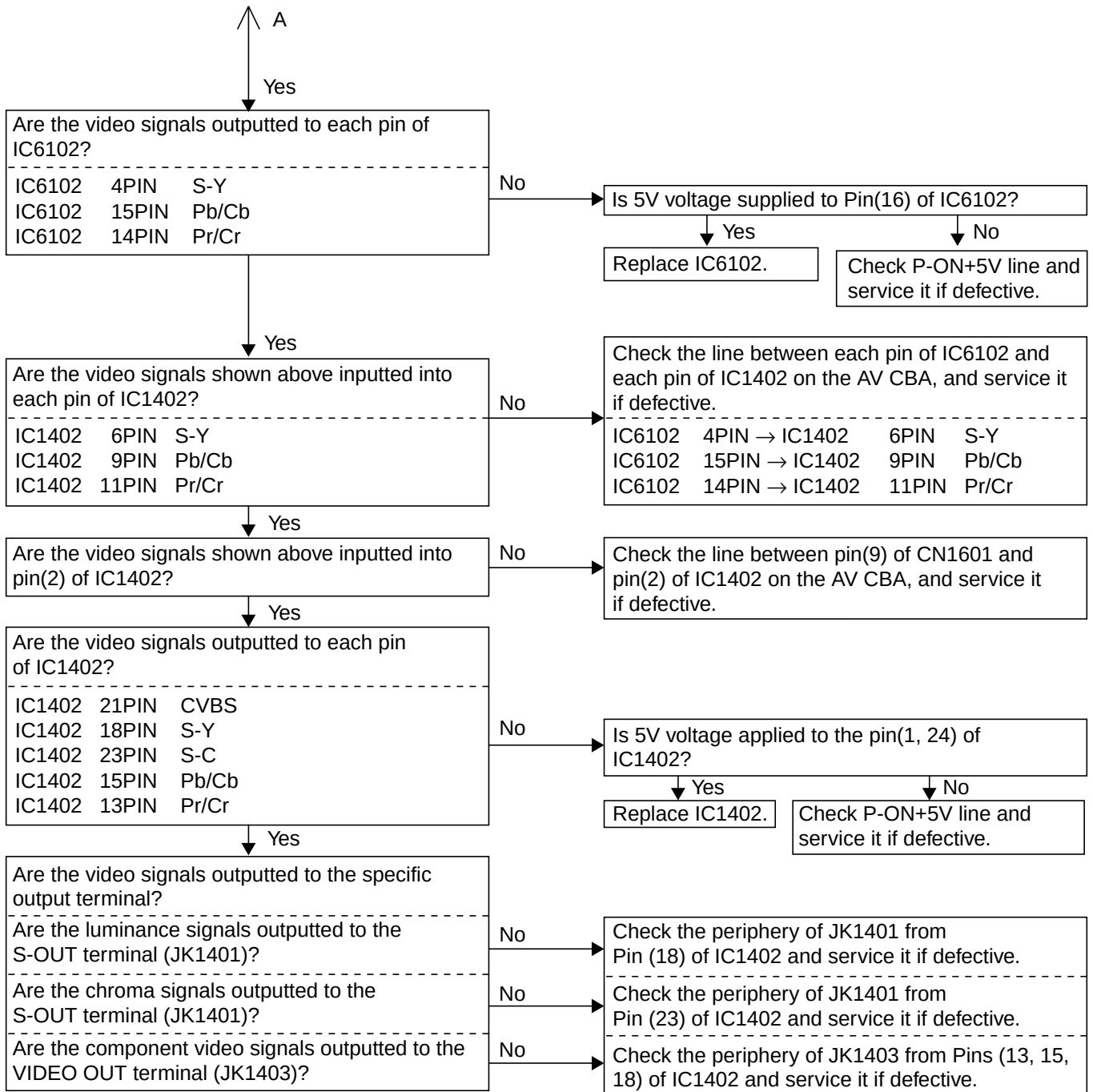
Replace the DVD Main CBA Unit or DVD Mecha.

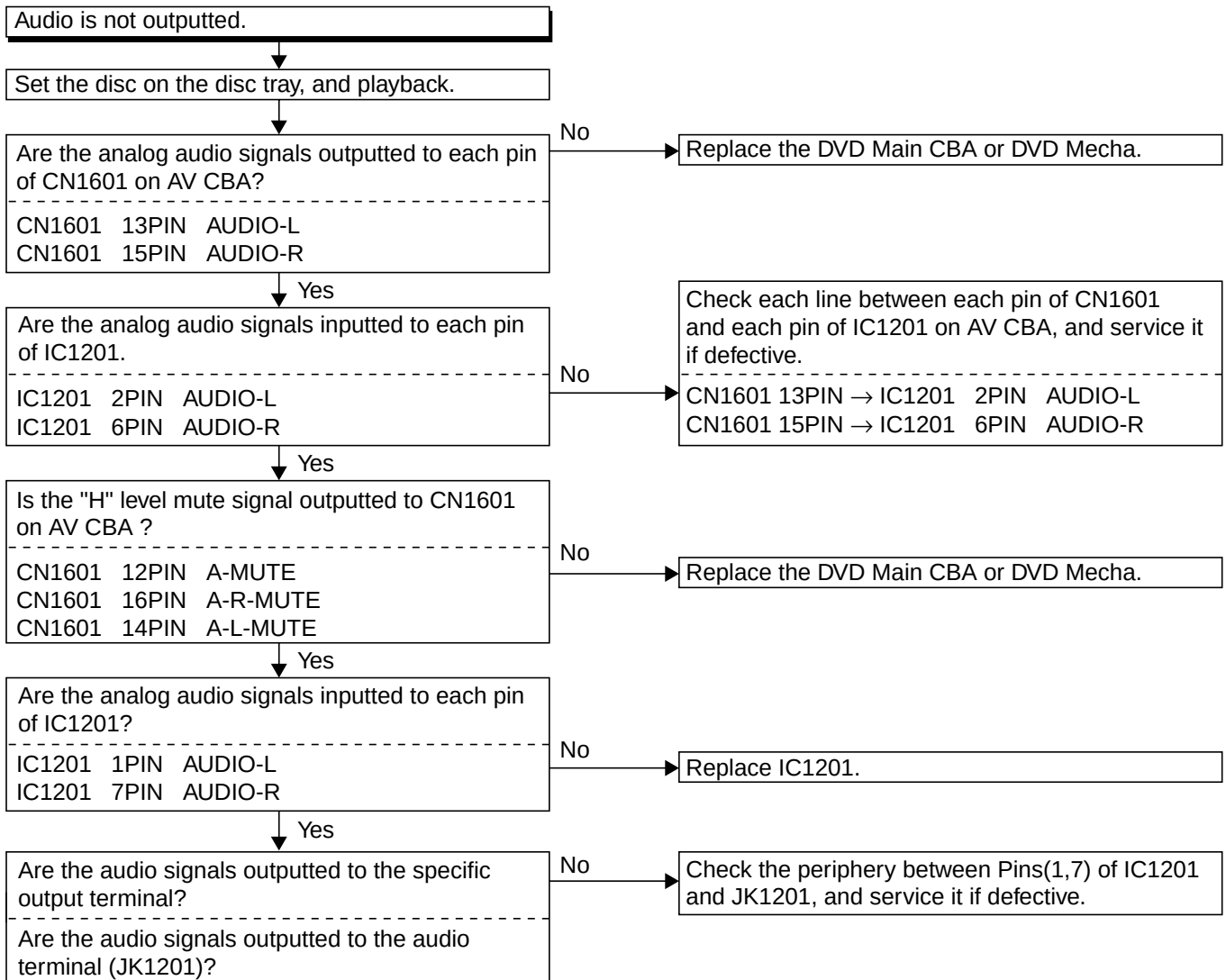
Replace FFC cable.

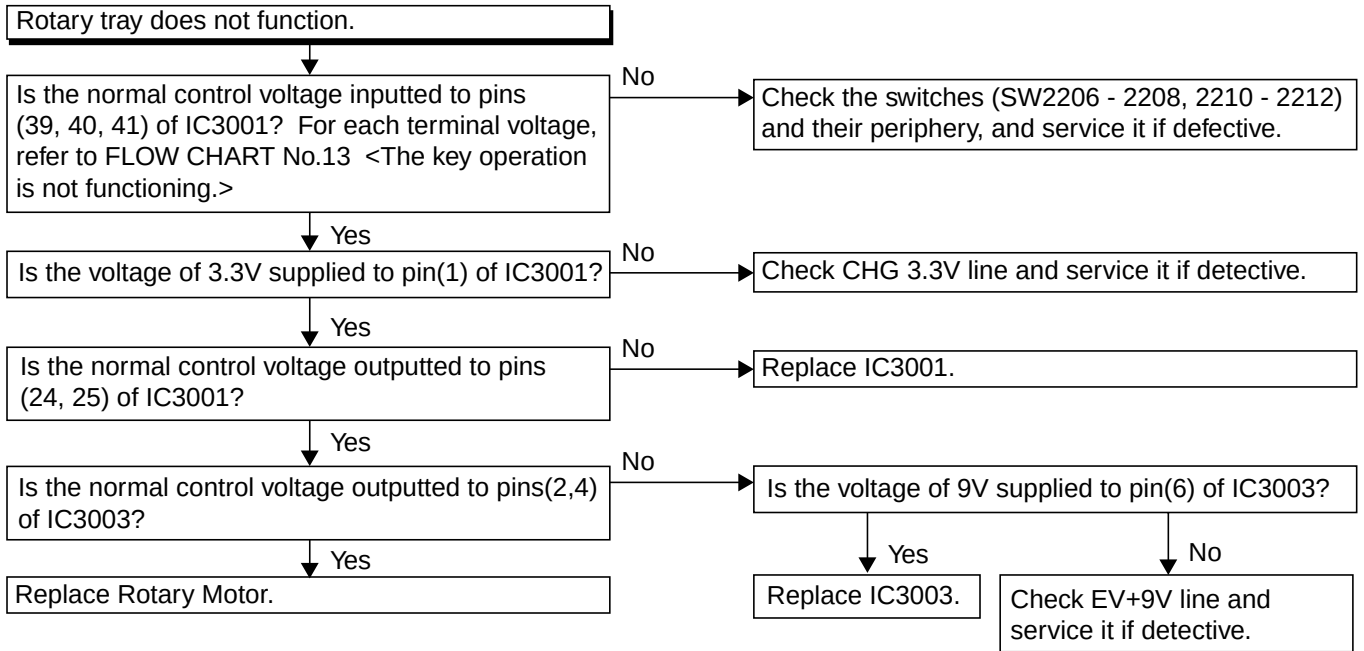
Replace FFC cable.

No

✓ (continued to "A" on next page)

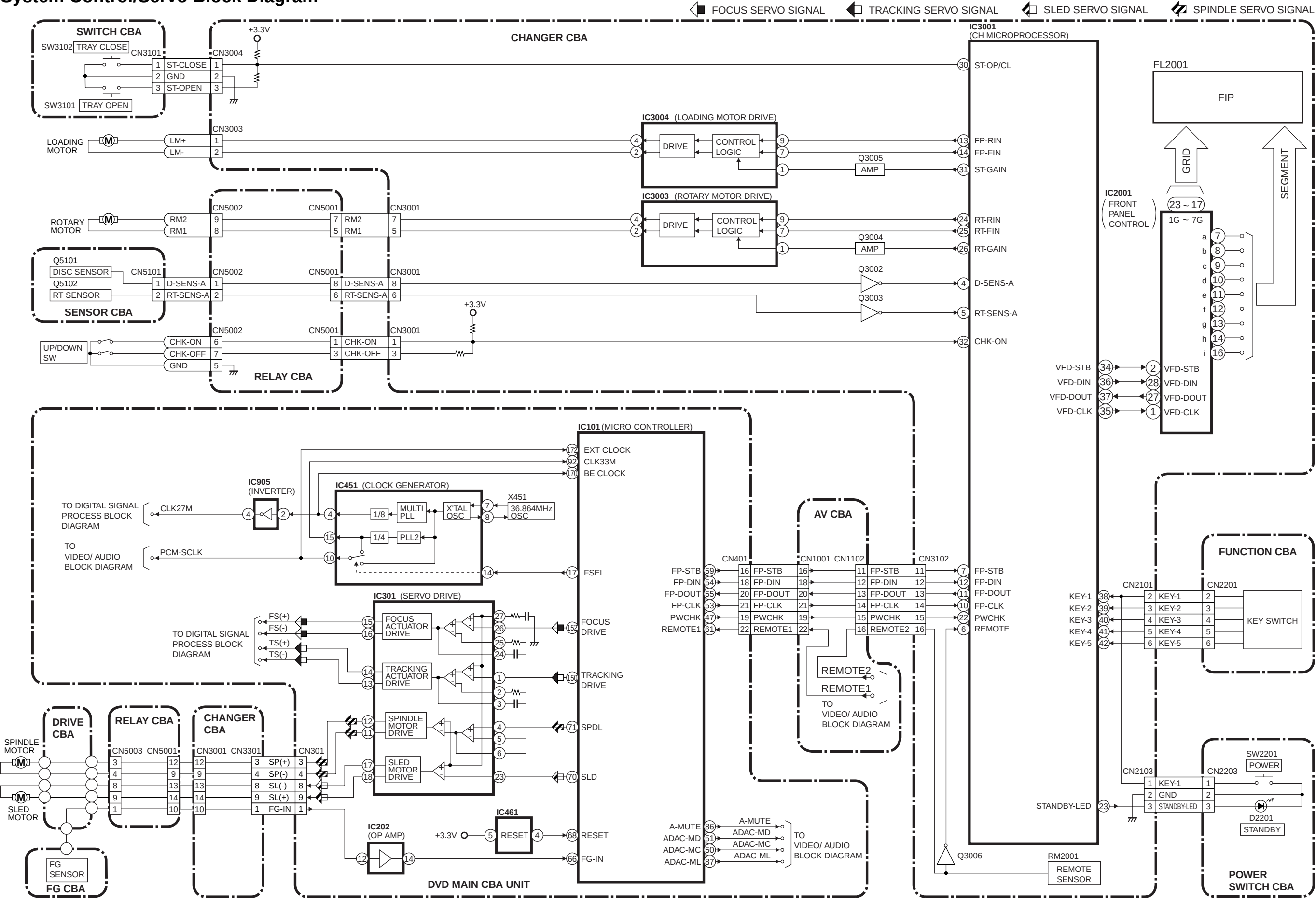


FLOW CHART NO.22

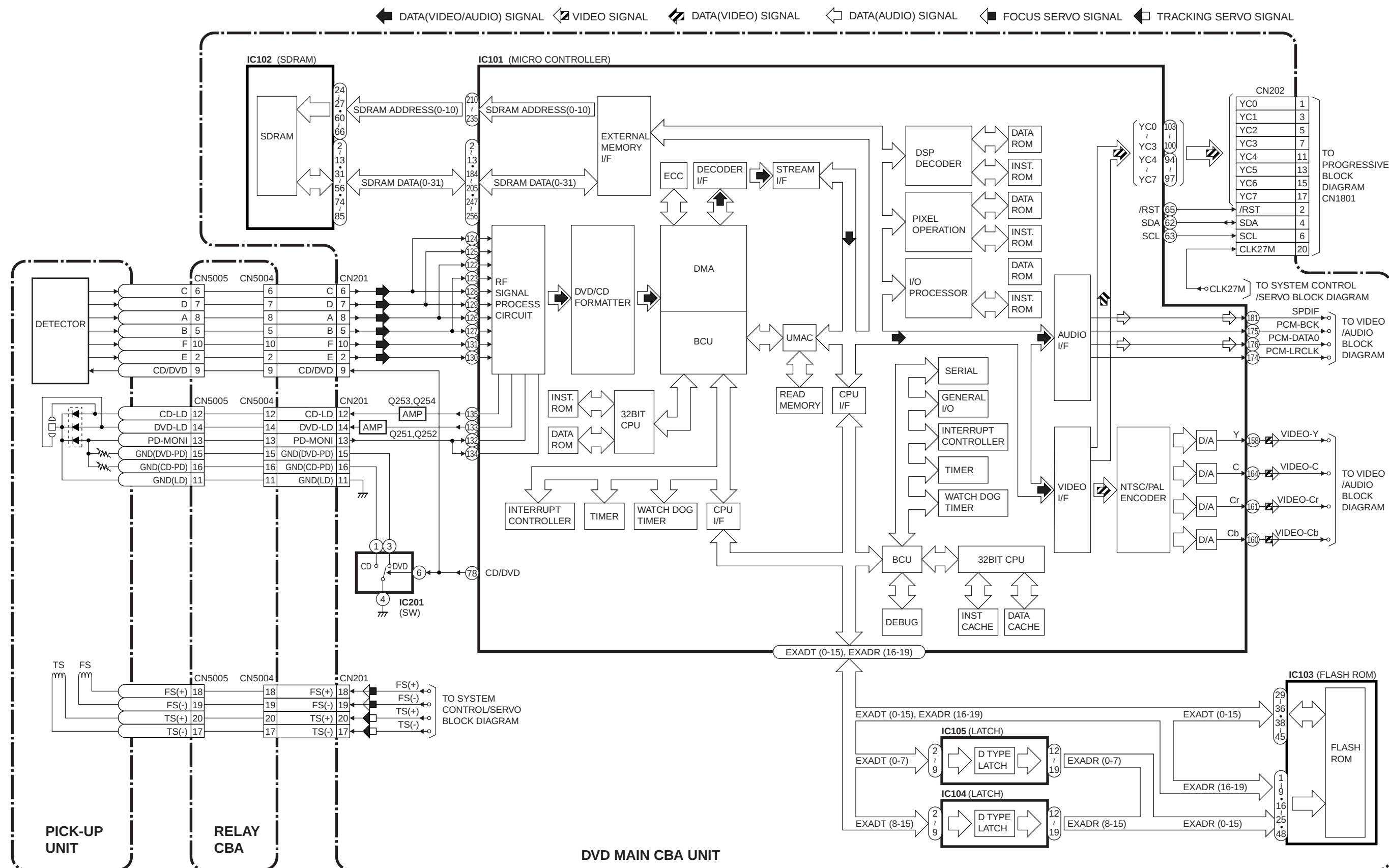
FLOW CHART NO.23

BLOCK DIAGRAMS

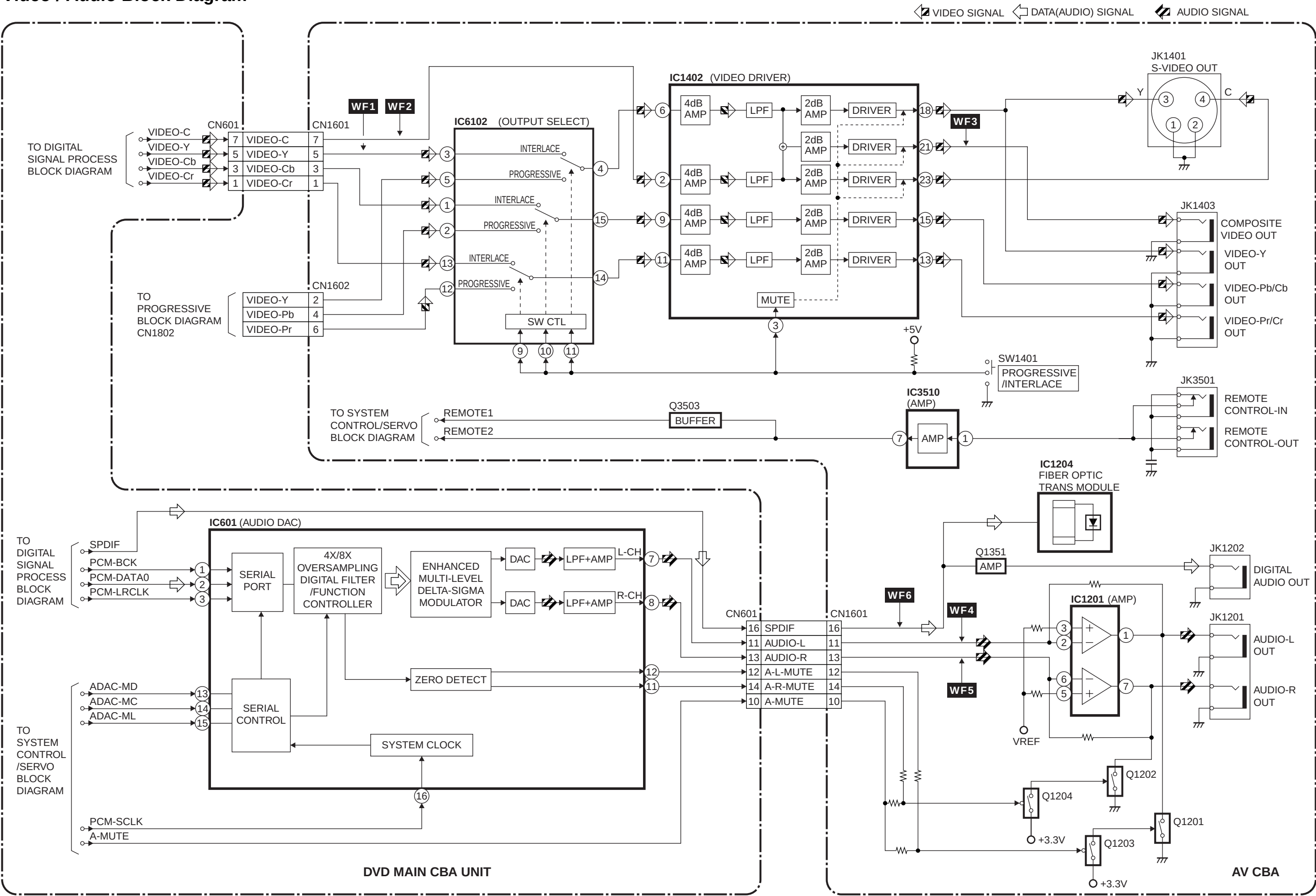
System Control/Servo Block Diagram



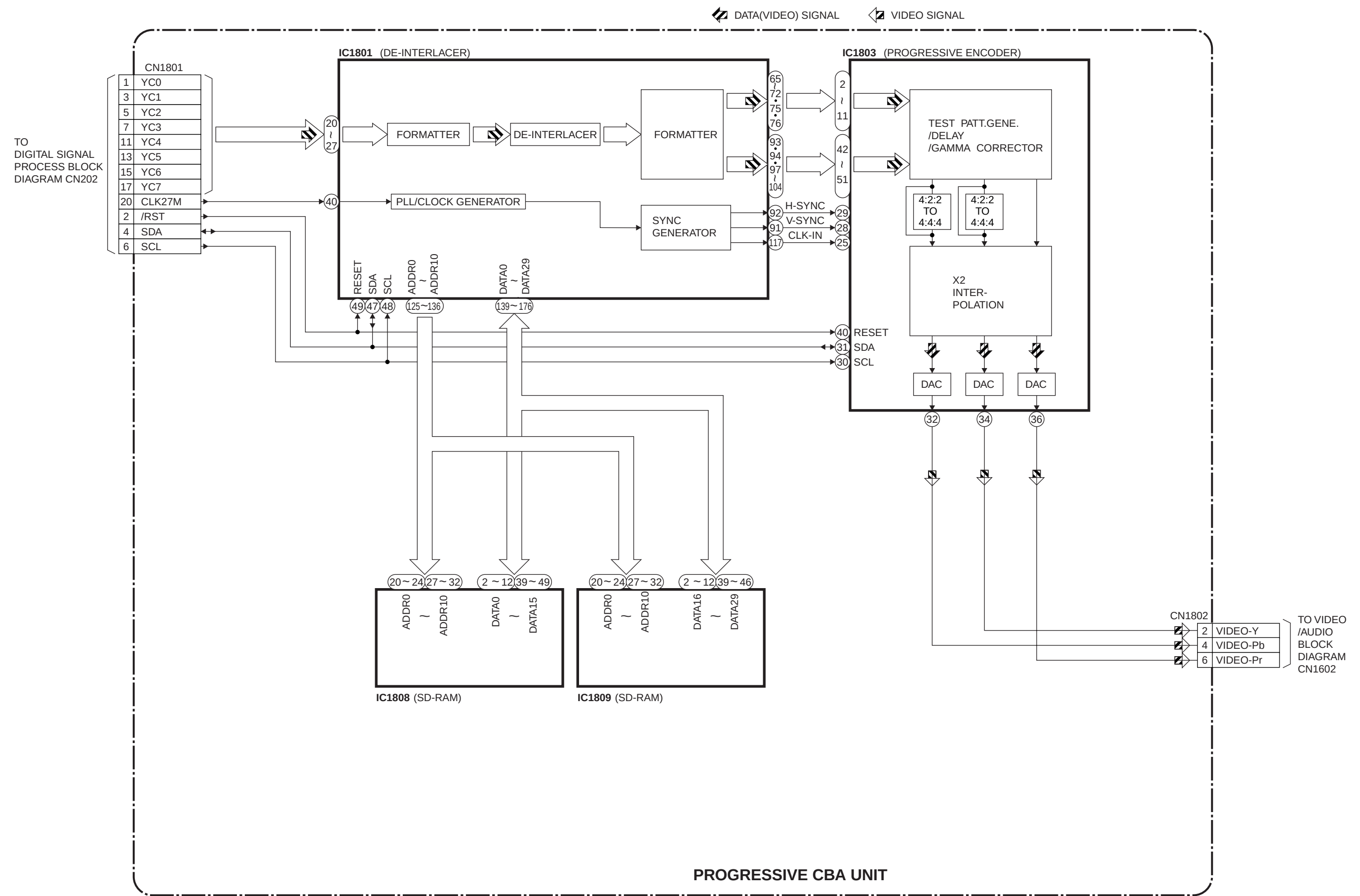
Digital Signal Process Block Diagram



Video / Audio Block Diagram

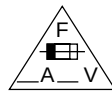


Progressive Block Diagram



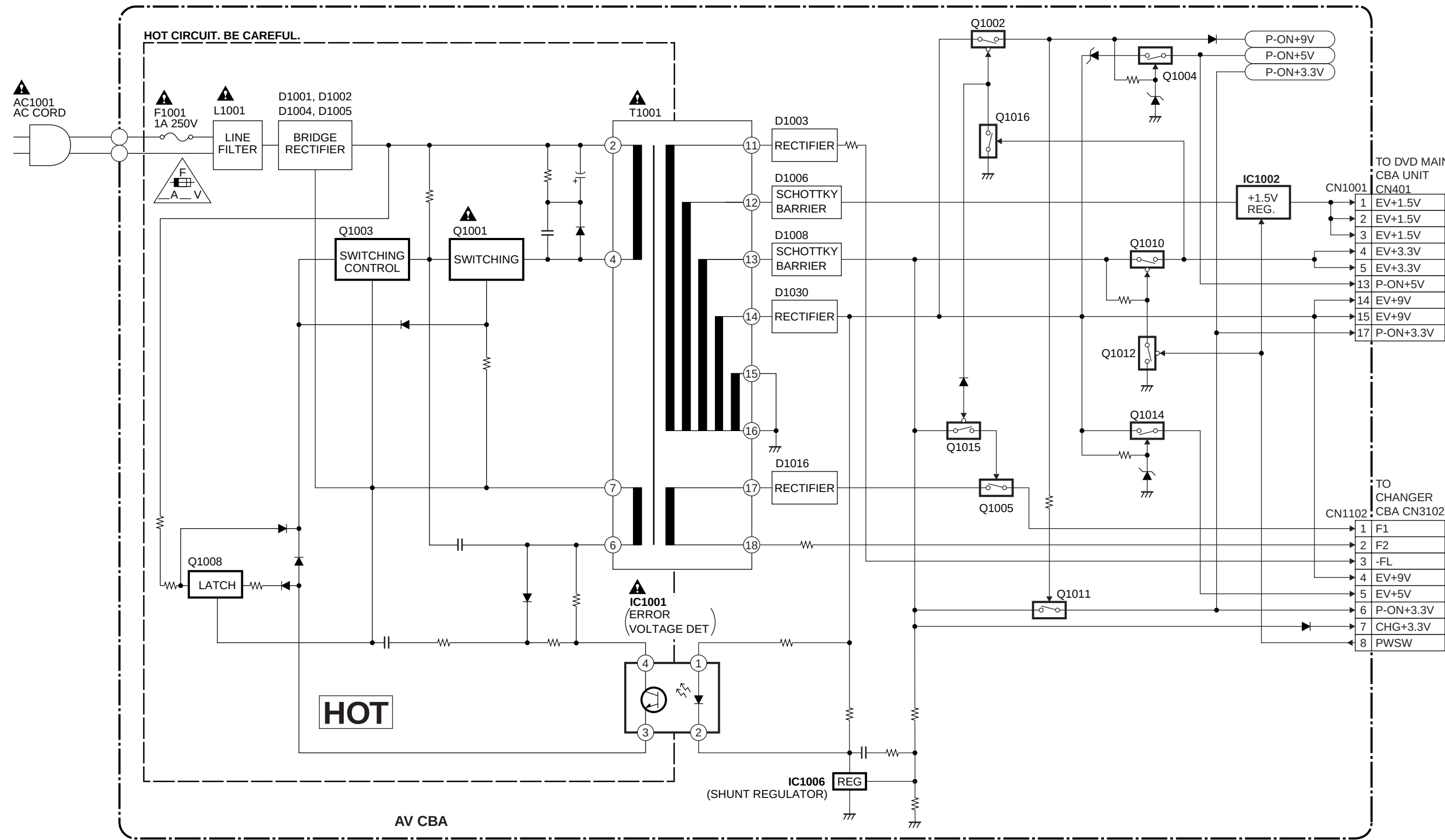
Power Supply Block Diagram

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.
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."

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



SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Standard Notes

WARNING

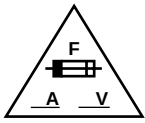
Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special 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.

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=10³, M=10⁶).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in μF (P=10⁻⁶ μF).
5. All voltages are DC voltages unless otherwise specified.

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

1. CAUTION:



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

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCELE N'UTILISER QUE DES FUSIBLE DE MÊME TYPE.

RISK OF FIRE-REPLACE FUSE AS MARKED.



This symbol means fast operating fuse.

Ce symbole représente un fusible à fusion rapide.

2. CAUTION:

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

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

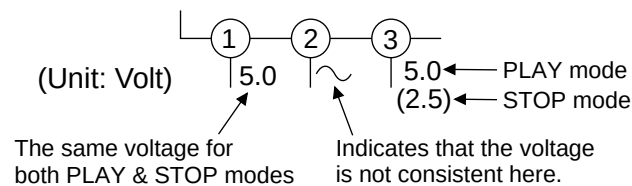
3. Note:

- (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:



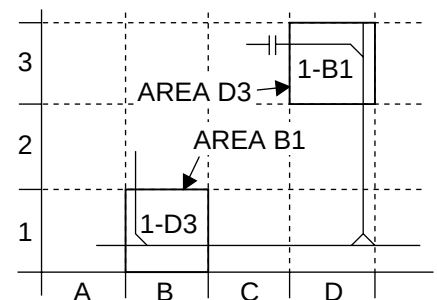
6. How to read converged lines

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

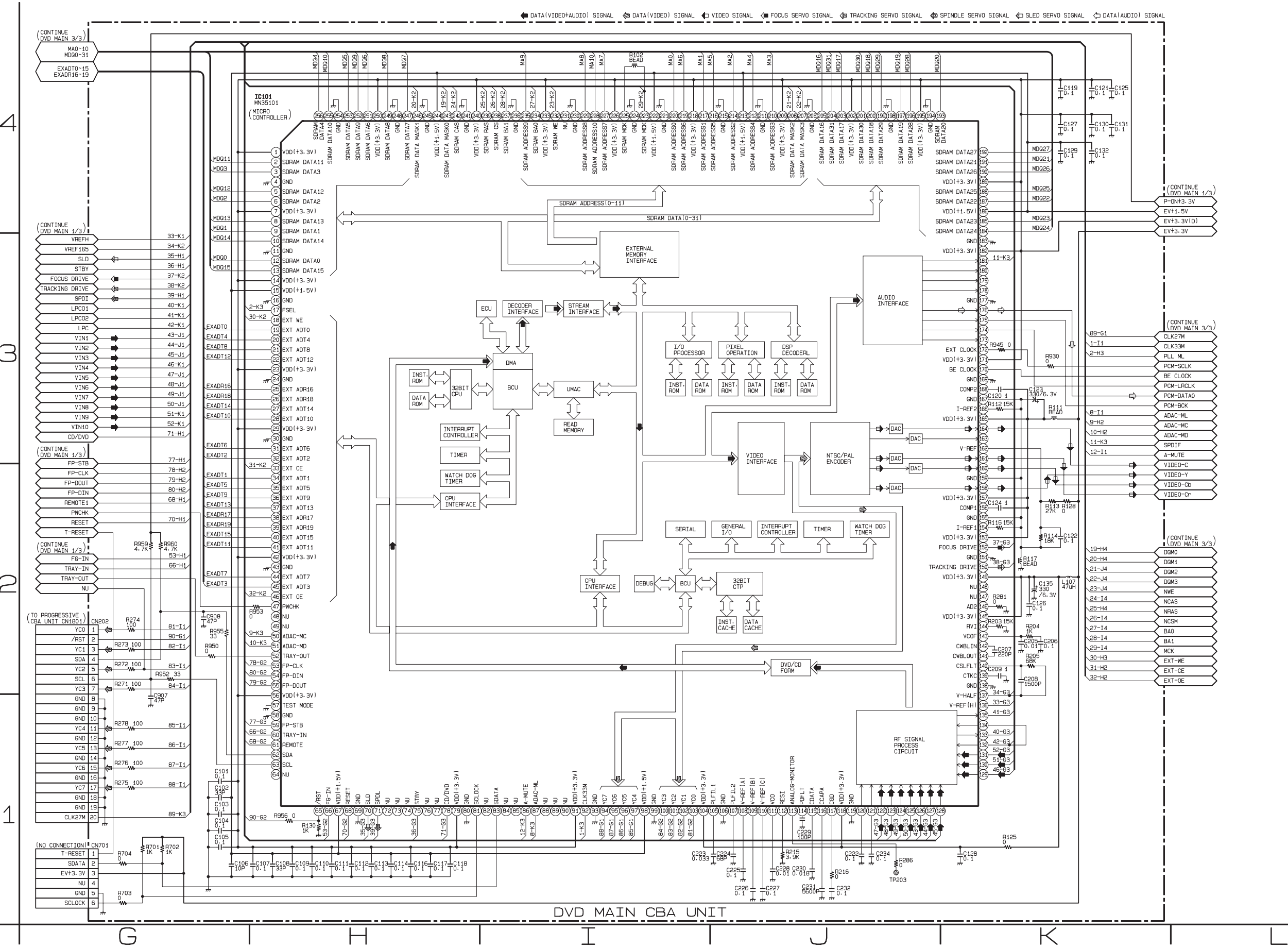
: Indicates a test point with a jumper wire across a hole in the PCB.

: 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.

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	1.4	1.4	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	1.1	1.1	132	0.4	0.1	164	0.9	0.9	196	~	~	228	~	~
5	~	~	37	~	~	69	0	0	101	1.3	1.3	133	1.2	0.4	165	3.3	3.3	197	~	~	229	~	~
6	~	~	38	0.3	0.5	70	1.7	1.7	102	1.2	1.2	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	1.2	1.2	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	3.4	3.4	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	3.3	3.3	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	3.4	3.4	115	1.4	1.4	147	-----	-----	179	-----	-----	211	0	0	243	2.4	2.1
20	~	~	52	3.4	3.4	84	-----	-----	116	0.3	0.3	148	-----	-----	180	-----	-----	212	~	~	244	1.5	1.5
21	~	~	53	3.4	3.4	85	2.4	2.4	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	3.4	0.1	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	3.4	3.4	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	3.3	3.3	94	2.0	2.0	126	2.0	2.0	158	0.7	0.7	190	~	~	222	1.5	1.5	254	0	0
31	~	~	63	3.3	3.3	95	1.3	1.3	127	2.0	2.0	159	0	0	191	~	~	223	1.9	1.9	255	~	~
32	~	~	64	0.8	0.8	96	1.5	1.5	128	2.0	2.0	160	0.5	0.5	192	~	~	224	0	0	256	~	~

AV 1/2 Schematic Diagram

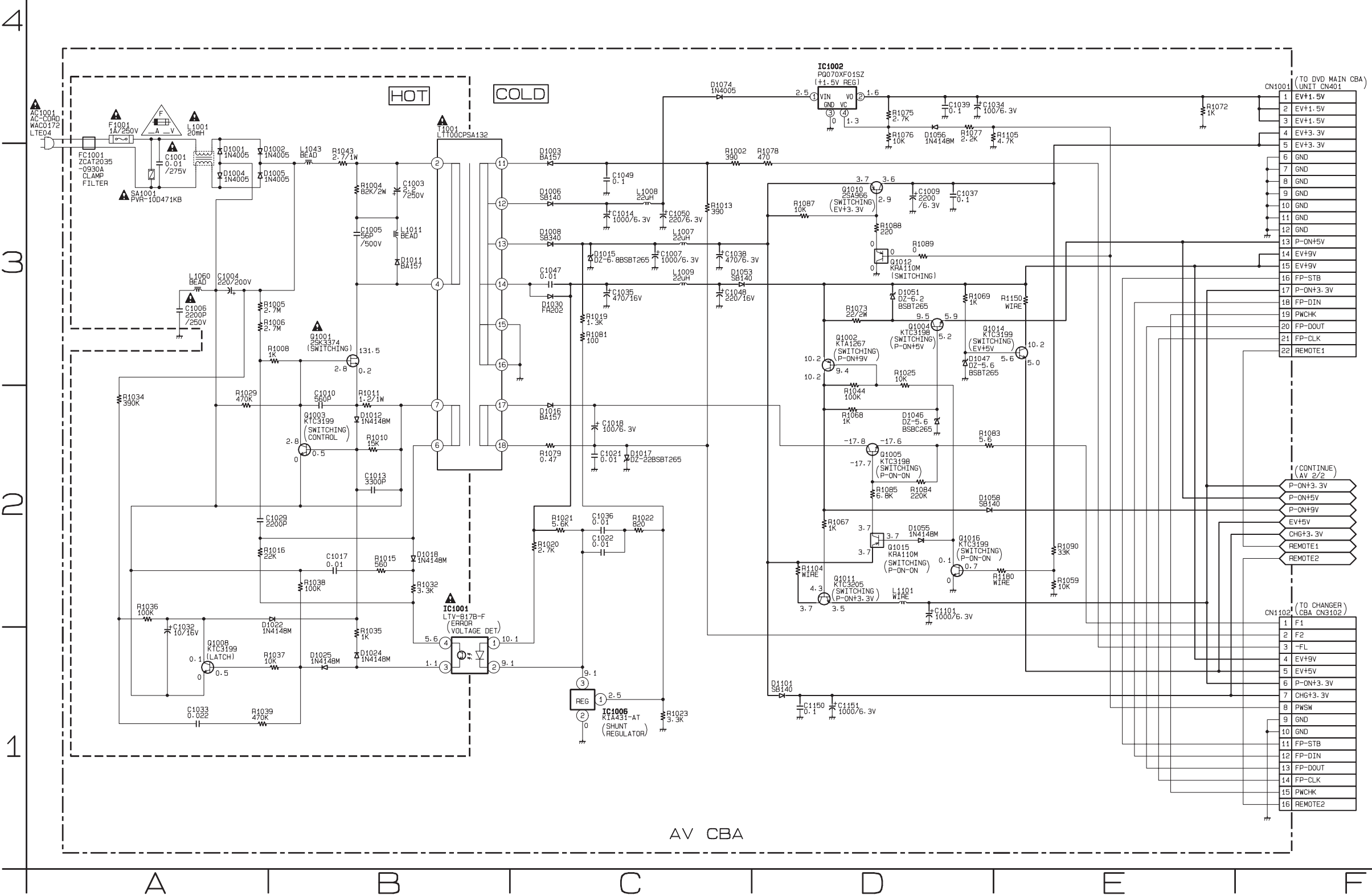
CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in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

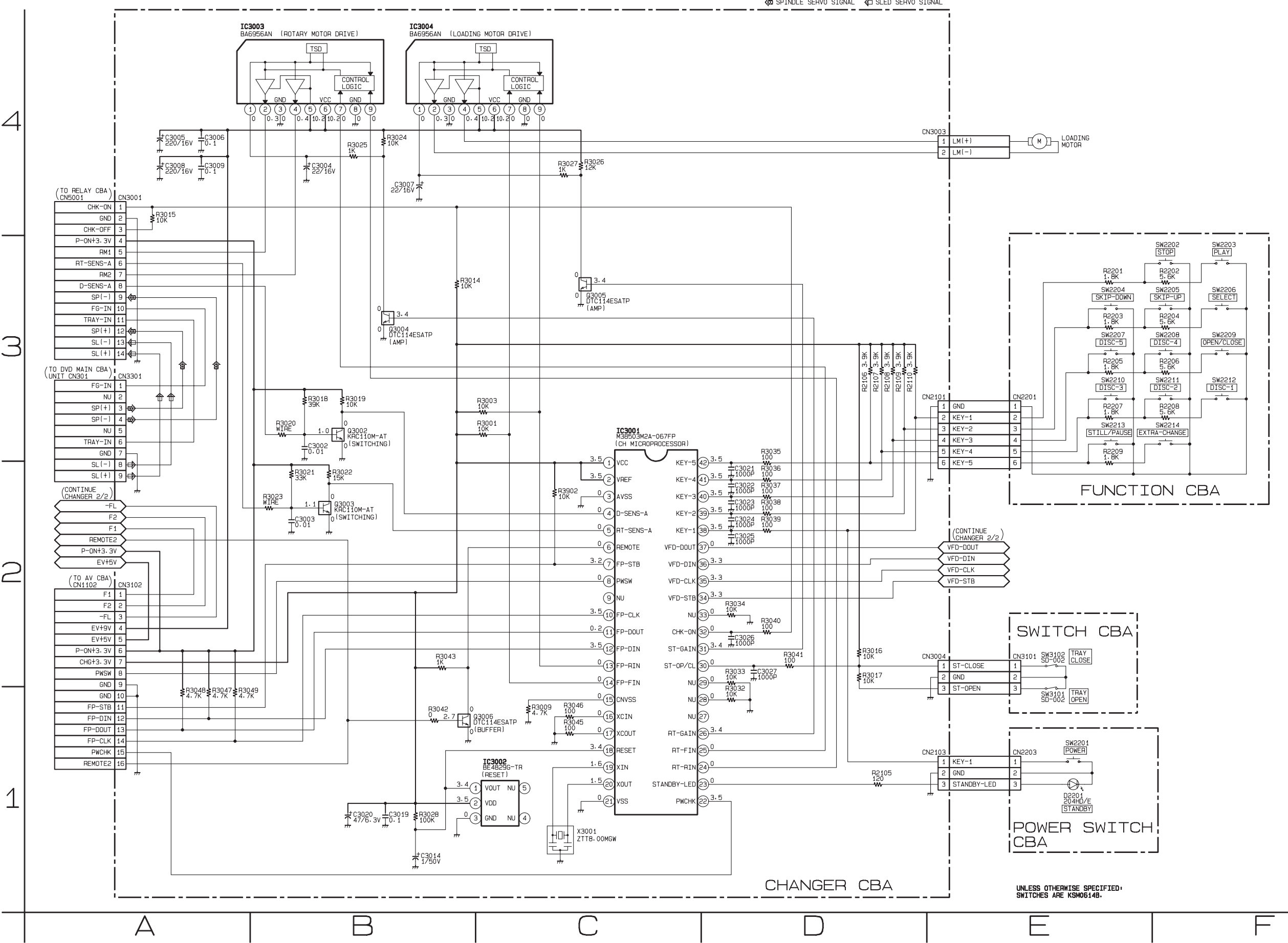
NOTE :
The voltage for parts in hot circuit is measured
using hot GND as a common terminal.



4



Changer 1/2, Function, Power Switch & Switch Schematic Diagram



3



	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

The diagram illustrates the electrical connections for a CBA (Control Board Assembly) unit, organized into four main sections: A, B, C, and D.

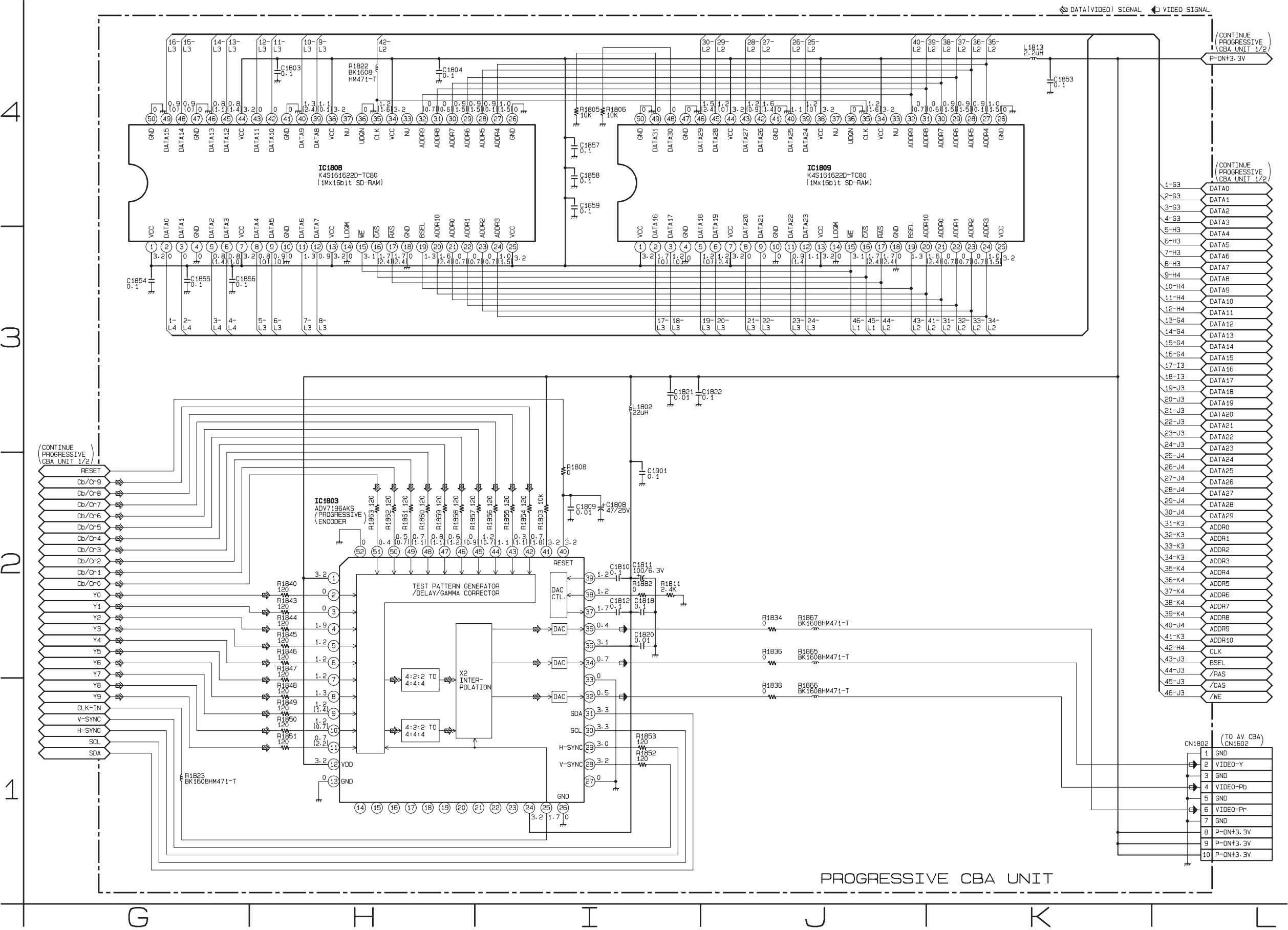
- Section A: Input/Output Connectors**
 - RELAY CBA (CN5001):** 14-pin connector with signals: CHK-ON, GND, CHK-OFF, P-ON+3.3V, RM1, RT-SENS-A, RM2, D-SENS-A, SP(-), FG-IN, TRAY-IN, SP(+), SL(-), SL(+).
 - (NO CONNECTION) (CN5006):** 3-pin connector: GND(LD), DVD-LD, CD-LD.
 - (TO DVD MAIN CBA UNIT CN201) (CN5004):** 20-pin connector with signals: GND, E, P-ON+5V, VREF, B, C, D, A, CD/DVD, F, GND(LD), CD-LD, PD-MONI, DVD-LD, GND(DVD-PD), GND(CD-PD), TS(-), FS(+), FS(-), TS(+).
- Section B: Internal CBA Components**
 - RELAY CBA (CN5002):** 9-pin connector: D-SENS-A, RT-SENS-A, P-ON+3.3V, GND, CHK-ON, CHK-OFF, RM1, RM2.
 - DRIVE CBA (CN5003):** 9-pin connector: FG-IN, P-ON+3.3V, SP(+), SP(-), NU, TRAY-IN, GND, SL(-), SL(+).
 - PICK UP UNIT (CN5005):** 20-pin connector: GND, E, P-ON+5V, VREF, B, C, D, A, CD/DVD, F, GND(LD), CD-LD, PD-MONI, DVD-LD, GND(DVD-PD), GND(CD-PD), TS(-), FS(+), FS(-), TS(+).
- Section C: Motor and Sensor Connections**
 - UP/DOWN SW:** Connected to CHK-ON and CHK-OFF.
 - ROTARY MOTOR:** Connected to RM1 and RM2.
 - FG CBA:** FG SENSOR connected to FG-IN.
 - SPINDLE MOTOR:** Connected to SP(+) and SP(-).
 - SLED MOTOR:** Connected to SL(-) and SL(+).
- Section D: Sensor Details**
 - SENSOR CBA (CN5101):** Disc sensor circuit with D5101 (LTE-3271T-F), R5101 (150Ω), and D5102 (LTE-3271T-F).
 - DETECTOR:** 7-pin connector (1-7) for the PICK UP UNIT.
 - TS/FS Sensors:** TS (Tape Sensor) and FS (Focus Sensor) components.

Legend for signal types:

- DATA (VIDEO+AUDIO) SIGNAL: Solid line
- FOCUS SERVO SIGNAL: Line with a square wave symbol
- TRACKING SERVO SIGNAL: Line with a triangle wave symbol
- SPINDLE SERVO SIGNAL: Line with a circle wave symbol
- SLED SERVO SIGNAL: Line with a square wave symbol

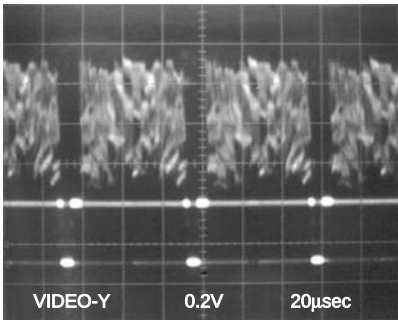
[illegible]

Progressive 2/2 Schematic Diagram

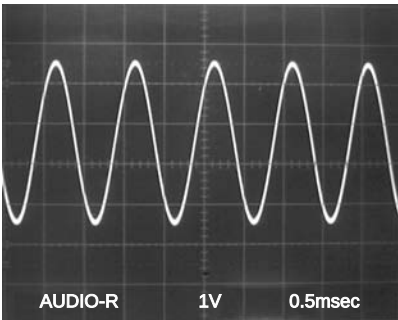


WAVEFORMS

WF1 Pin 5 of CN1601

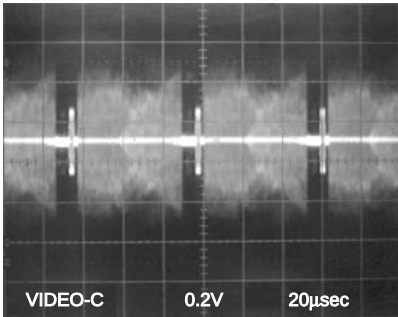


WF5 Pin 13 of CN1601

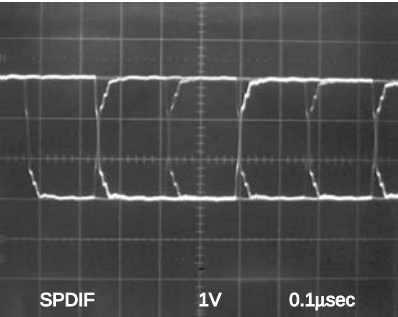


NOTE:
Input
CD: 1kHz PLAY
 (WF4~WF6)
DVD: POWER ON (STOP) MODE
 (WF1~WF3)

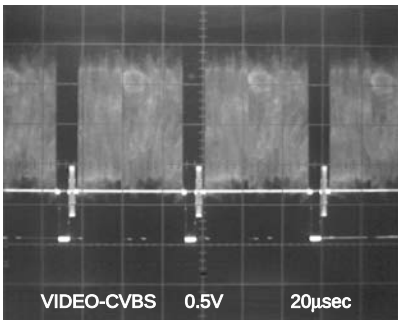
WF2 Pin 7 of CN1601



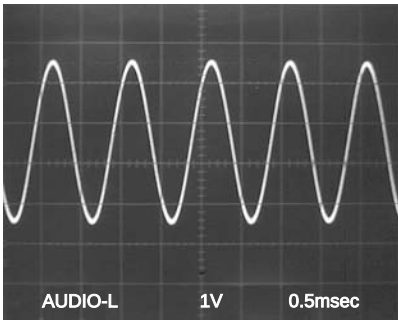
WF6 Pin 16 of CN1601



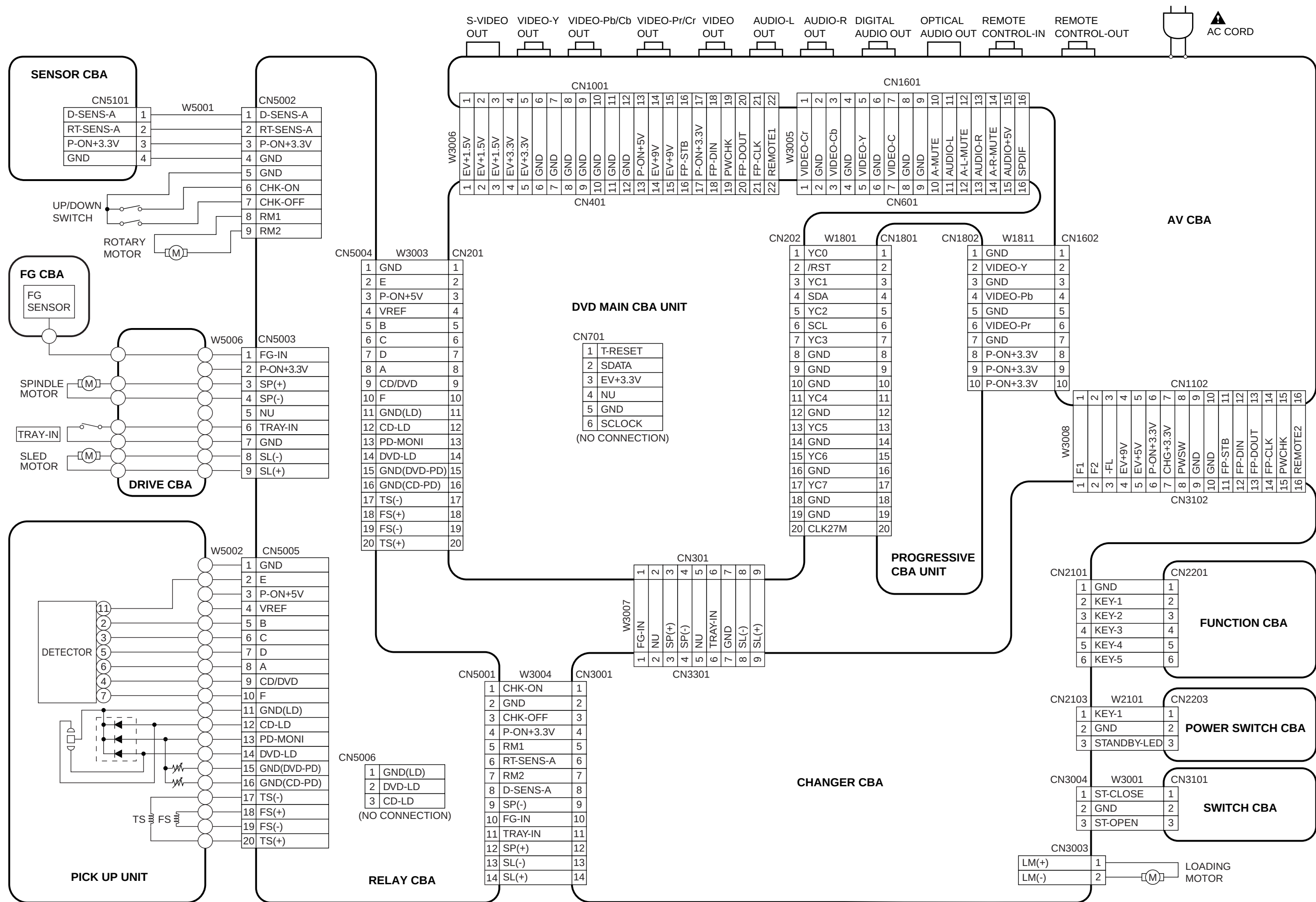
WF3 Pin 21 of IC1402



WF4 Pin 11 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.

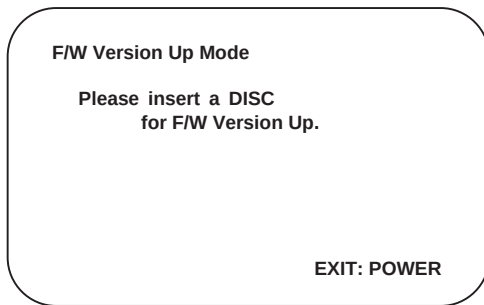


Fig. a Version Up Mode Screen

bE-UP

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.

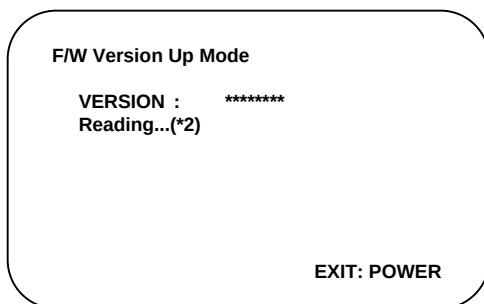


Fig. c Programming Mode Screen

1.223

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)

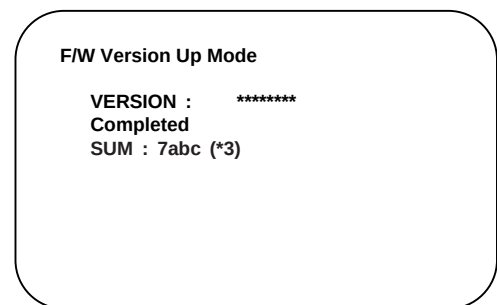


Fig. e Completed Program Mode Screen

786E

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

At this time, no buttons are available.

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.

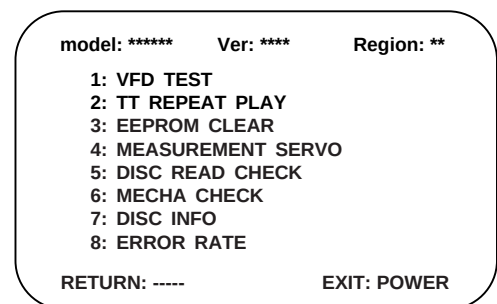


Fig. g

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

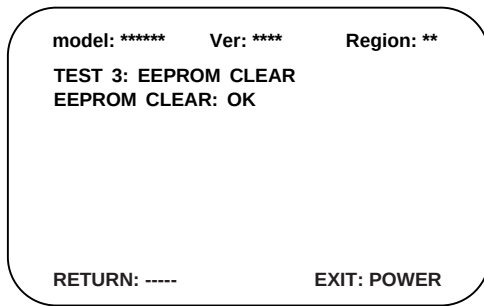
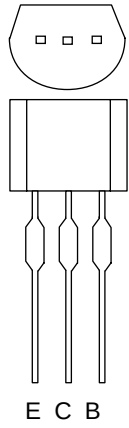


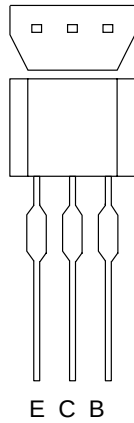
Fig. h

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

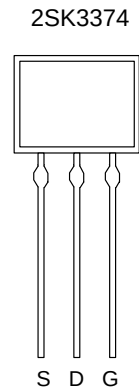
LEAD IDENTIFICATIONS



KTC3198 (Y)
KTC3205 (Y)
2SA966(Y)

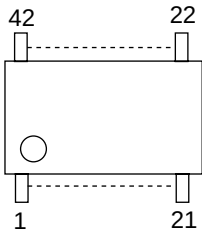


2SC2785 (H)
KTC3199 (GR)
KRA110M
KRC110M-AT
BA1L3Z-T
BN1L3Z (P)
2SA1015-Y (TPE2)
KTA1266 (Y)
KTA1267 (Y)
DTC114ESA TP

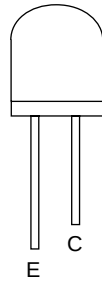


2SK3374

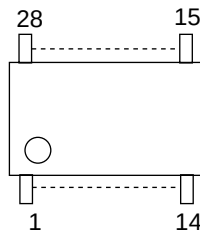
M38503M2A-067FP



PT204-6B-12



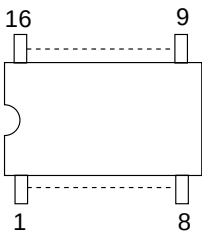
PT6313-S-TP



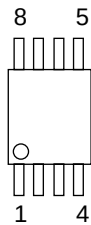
KIA431-AT



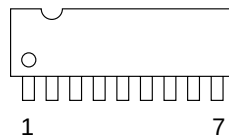
BU4053BCFV-E2
MM74HC4053MTCX



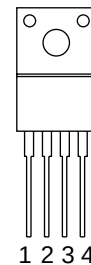
NJM4558D
KIA4558P
CXA1511M



BA6956AN

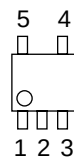


PQ070XF01SZ

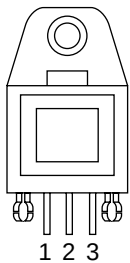


1: Vin
2: Vo
3: GND
4: Vc

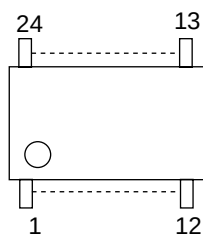
BE4829G-TR



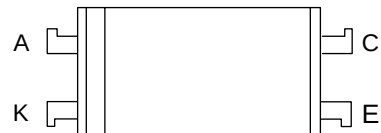
GP1FA513TZ



MM1622XJBE



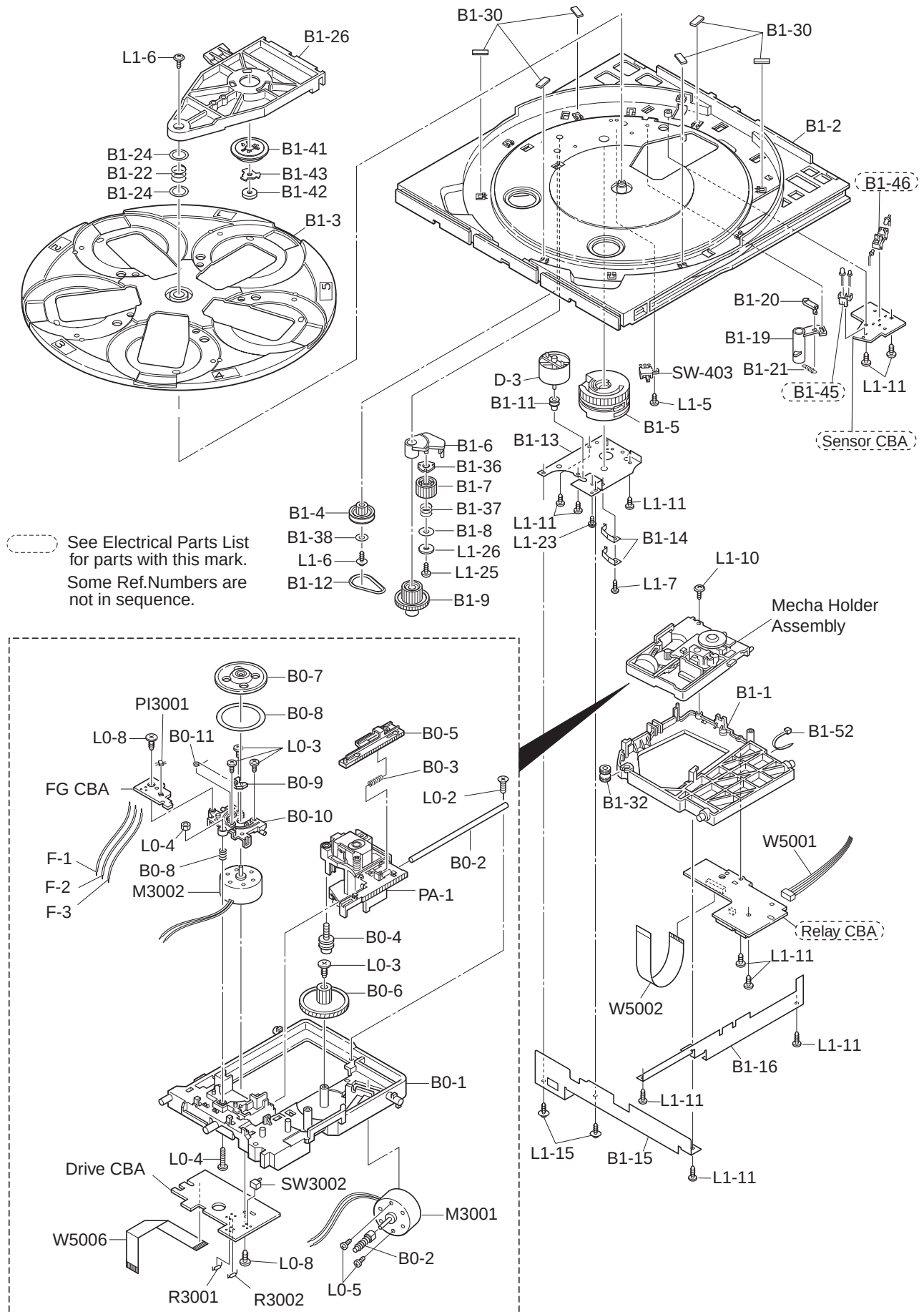
LTV-817(B,C)-F



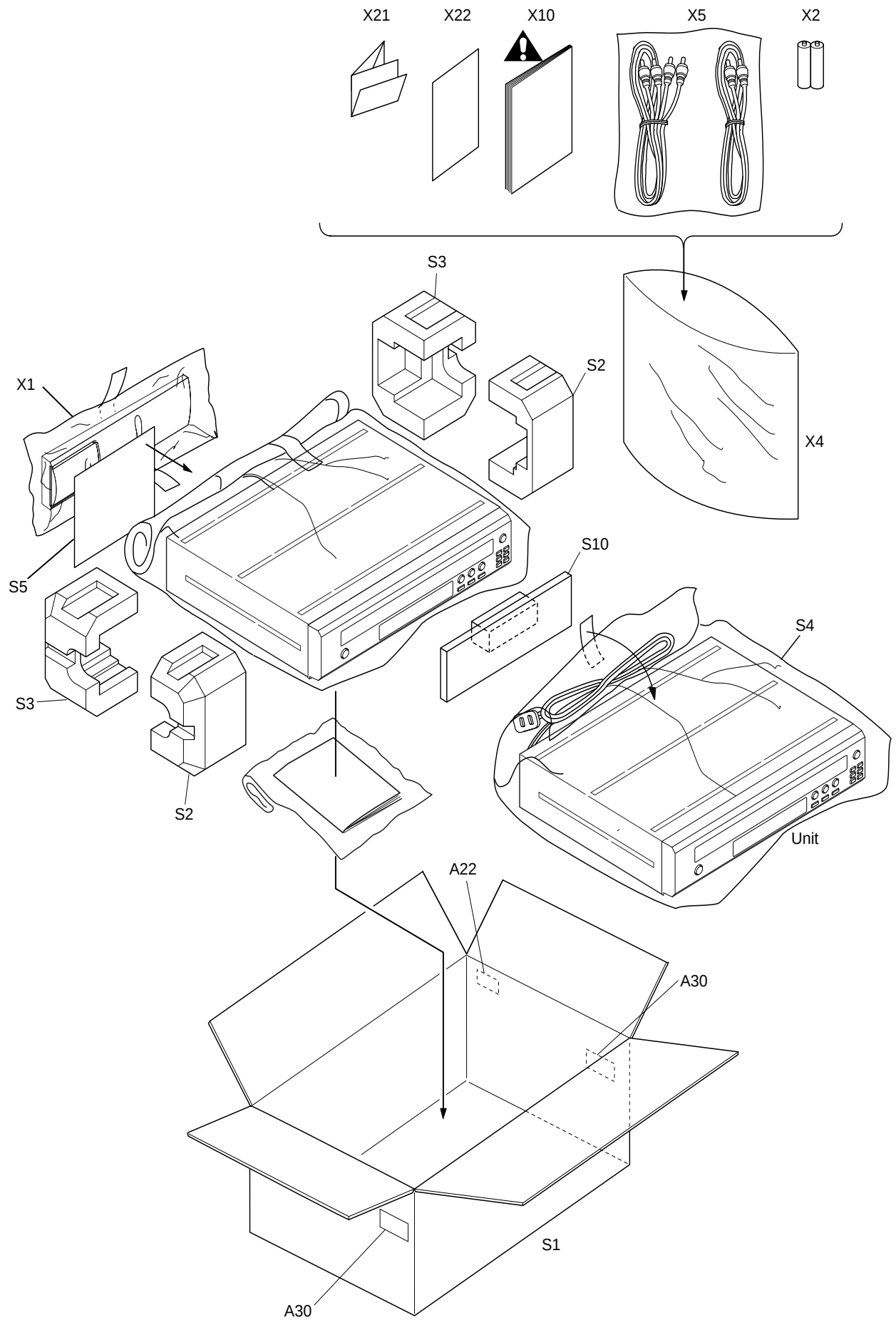
Note:

A: Anode
K: Cathode
E: Emitter
C: Collector
B: Base
R: Reference
1 VCC
2 GND
3 OUT

Cabinet View 2



Packing



PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a  have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTE:

Parts that are not assigned part numbers (-----) are not available.

Safe	Ref. No.	Description	Funai Parts No.	DENON Parts.No	Qty	New
	A1X	FRONT ASSEMBLY	0VM204290	9H2 6000 410	1	
	A2	TRAY PANEL ASSEMBLY	0VM414121	9H2 6000 322	1	
	A3	FOOT	0VM406940	9H2 6000 411	2	
	A15	CHASSIS	0VM101293	9H2 6000 412	1	
	A16	TOP COVER	0VM203048	9H2 6000 325	1	
	A17	REAR PANEL	0VM204152	9H2 6000 413	1	
	A21	LABEL, SERIAL NO.	-----		1	
	A22	LABEL, BAR CODE	-----		1	
	A30	LABEL, CONTROL	-----		2	
	1B1	SLIDE TRAY ASSEMBLY N79F0GV C	N79F0GV C	9H2 6000 424	1	
	1B4	LOADING PULLEY	0VM304636	9H2 6000 328	1	
	1B11	MOTOR PULLEY	21P7048	9H2 6000 329	1	
	1B12	BELT L	0RM400160	9H2 6000 330	1	
	1B31	SLIDE TRAY GEAR(B)	0VM304632	9H2 6000 331	1	
	1B32	SLIDE TRAY GEAR(A)	0VM304631	9H2 6000 332	1	
	1B33	TRAY GUIDE SPRING	0VM412360	9H2 6000 333	1	
	1L016	SCREW, P-TIGHT M3X8 WASHER+	GCM P3080	9H2 6000 351	1	
	1L017	SCREW, P-TIGHT 3X12 WASHER HEAD+	GCM P3120	9H2 6000 352	1	
	1L023	SCREW, SEMS M2.6X4 PAN HEAD+	CPM39040	9H2 6000 353	1	
	2B1	TRAY GUIDE(L)	0VM000136H	9H2 6000 414	1	
	2B2	TRAY GUIDE(R)	0VM000137I	9H2 6000 415	1	
	2B3	BRACKET(TOP)	0VM203160	9H2 6000 336	1	
	2B6	STOPPER BRACKET	0VM411941	9H2 6000 337	2	
	2B9	WIRE TAPE K3220UA	0VM404993	-	3	
	2B10	NON WOVEN FABRICS(35*20)		-	1	
	2B11	HOLDER, PCB	0VM204153	9H2 6000 416	1	
	2B12	SHIELD PLATE	0VM204262	9H2 6000 417	1	
	2B15	WASHER(D8)	0VM408931	9H2 6000 436	2	
	2B18	FFC CLAMPER	0VM415656	9H2 6000 418	1	
	2B21	GASKET	0VM415817	9H2 6000 437	1	
	2B22	GASKET(B)	0VM415818	9H2 6000 438	1	
	2B24	DOUBLE SIDE TAPE	0VM415819	9H2 6000 481	1	
	2L011	SCREW, C-TIGHT M3X6 BIND HEAD	GBMC3060	9H2 6000 303	7	
	2L012	SCREW, C-TIGHT M3X5 BIND HEAD +	GBKC3050	9H2 6000 301	4	
	2L021	SCREW, C-TIGHT M3X5 BIND HEAD +	GBKC3050	9H2 6000 301	6	
	2L031	P-TIGHT SCREW 3X8 BIND +	GBMP3080	9H2 6000 240	2	
	2L032	P-TIGHT SCREW 3X8 BIND +	GBMP3080	9H2 6000 240	4	
	2L033	SCREW, A-TIGHT M3X8 BIND HEAD+	DBK13080	9H2 6000 354	11	
	2L041	P-TIGHT SCREW 3X8 BIND +	GBMP3080	9H2 6000 240	2	
	2L051	SCREW, S-TIGHT M3X8 BIND + CHROME	GBMS3080	9H2 6000 355	7	
	2L061	P-TIGHT SCREW 3X8 BIND +	GBMP3080	9H2 6000 240	2	
	2L081	SCREW, S-TIGHT M3X8 BIND + CHROME	GBMS3080	9H2 6000 355	1	
	2L091	SCREW, C-TIGHT M3X6 BIND HEAD	GBMC3060	9H2 6000 303	1	
	2L103	P-TIGHT SCREW 3X8 BIND +	GBMP3080	9H2 6000 240	1	
	D-3	MOTOR(LOAD/ROTARY) M31E-1(R-14 7218)	MMDZB4EMM002	9H2 6000 419	1	
	FC1001	CLAMP FILTER	XL06035TE001	9H2 6000 439	1	
	FC1002	FERRITE CORE	XL05033TU001	9H2 6000 448	1	
	W1811	10P FFC AV TO PRS	WX1E8620-010	9H2 6000 428	1	

Safe	Ref. No.	Description	Funai Parts No.	DENON Parts.No	Qty	New
	W3002	MOTOR CABLE MOTOR CABLE	WX1E8620-902	9H2 6000 429	1	
	W3003	20P FFC MAIN TO RELAY	WX1E8620-120	9H2 6000 430	1	
	W3004	14P FFC CONTROL TO RELAY	WX1E8620-014	9H2 6000 431	1	
	W3005	16P FFC AV TO MAIN	WX1E8620-016	9H2 6000 432	1	
	W3006	22P FFC AV TO MAIN	WX1E8620-022	9H2 6000 433	1	
	W3007	9P FFC CONTROL TO MAIN	WX1E8620-009	9H2 6000 434	1	
	W3008	16P FFC AV TO CONTROL	WX1E8620-116	9H2 6000 435	1	
		PACKING & ACCESSORIES				
	S1	GIFT BOX CARTON	OVM306356	9H2 6000 420	1	
	S2	FRONT PAD	OVM101008A	9H2 6000 317	2	
	S3	REAR PAD	OVM101007	9H2 6000 318	2	
	S4	SET BAG	ODM400731	9H2 6000 316	2	
	S5	PAD	OVM415718	9H2 6000 421	1	
	S10	TRAY PAD	OVM415859	9H2 6000 449	1	
	X1	REMOTE CONTROL UNIT	NA801UD	9H2 6000 422	1	
	X2	DRY BATTERY R6P/2S	XB0M451T0001	-	2	
	X2	or DRY BATTERY ES-GR6M-C	XB0M571GLP01	-		
	X4	I/B BAG	ODM400757	9H2 6000 319	1	
	X5	AV CORD TSCKA-Y/RW100	WPZ0102TM015	9H2 6000 226	1	
	X5	AV CORD RCA(M*2)TO RCA(M*2)	WPZ0102LTE01	9H2 6000 243	1	
⚠	X10	OWNER'S MANUAL	OVMN03732	9H2 6000 423	1	
	X21	WARRANTY SHEET	OVM305871	-	1	
	X22	SERVICE CENTER SHEET	OVM413951B	-	1	
		ELECTRICAL PARTS				
		DVD MAIN CBA UNIT	N79DKGUP	9H2 6000 425	1	
		PROGRESSIVE CBA UNIT	OVSA14428	9H2 6000 426	1	
		CHG-MAIN CBA ASSEMBLY	OVSA14418	9H2 6000 427	1	