TOSHIBA

SERVICE MANUAL

HD DVD DVD VIDEO COMPACT disc DIGITAL AUDIO

DOLBY DIGITAL·PLUS DOLBY TRUEHD dts Digital Surround HDMI SHARC PROCESSOR by Analog Devices

HD DVD PLAYER
HD-EP10

The above models are classified as green products (*1), as indicated by the underlined serial numbers. This Service Manual describes replacement parts for the green products. When repairing these green product(s), use the part(s) described in this manual and lead-free solder (*2).

For (*1) and (*2), see the next page.

(*1)   GREEN PRODUCT PROCUREMENT

The EC is actively promoting the WEEE & RoHS Directives that define standards for recycling and reuse of Waste Electrical and Electronic Equipment and for the Restriction of the use of certain Hazardous Substances. From July 1, 2006, the RoHS Directive will prohibit any marketing of new products containing the restricted substances.

Increasing attention is given to issues related to the global environmental. Toshiba Corporation recognizes environmental protection as a key management tasks, and is doing its utmost to enhance and improve the quality and scope of its environmental activities. In line with this, Toshiba proactively promotes Green Procurement, and seeks to purchase and use products, parts and materials that have low environmental impacts.

Green procurement of parts is not only confined to manufacture. The same green parts used in manufacture must also be used as replacement parts.

(*2)   LEAD-FREE SOLDER

This product is manufactured using lead-free solder as a part of a movement within the consumer products industry at large to be environmentally responsible. Lead-free solder must be used in the servicing and repair of this product.

WARNING
This product is manufactured using lead free solder.

DO NOT USE LEAD BASED SOLDER TO REPAIR THIS PRODUCT !

The melting temperature of lead-free solder is higher than that of leaded solder by 86°F to 104°F (30°C to 40°C). Use of a soldering iron designed for lead-based solders to repair product made with lead-free solder may result in damage to the component and or PCB being soldered. Great care should be made to ensure high-quality soldering when servicing this product especially when soldering large components, through-hole pins, and on PCBs as the level of heat required to melt lead-free solder is high.

SAFETY INSTRUCTIONS

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE " SAFETY PRECAUTION "
AND " PRODUCT SAFETY NOTICE " INSTRUCTIONS BELOW.

SAFETY PRECAUTION

WARNING: SERVICE SHOULD NOT BE ATTEMPTED BY ANYONE UNFAMILIAR WITH THE NECESSARY PRECAUTIONS ON THIS RECEIVER. THE FOLLOWING ARE THE NECESSARY PRECAUTIONS TO BE OBSERVED BEFORE SERVICING THIS CHASSIS.

· An isolation transformer should be connected in the power line between the product and the AC line before any service
  is performed on the product.

· When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as;
  nonmetallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.

· Always advise users to keep children away. There is danger of injury to children from tools, disassembled products, etc.

· Always disconnect the power plug before starting work whenever power is not required.   Failure to disconnect the power
  plug before starting work can result in electrical shock.

· Depending on the model, use an insulation transformer or wear gloves when servicing with the power on, and disconnect
  the power plug to avoid electrical shock when replacing parts.   In some cases, alternating current is also impressed in
  the chassis, so electrical shock is possible if the chassis is contacted with the power on.

· Always use the replacement parts specified for the particular model when making repairs. The parts used in products
  have the necessary safety characteristics such as inflammability, voltage resistance, etc. ; therefore, use only
  replacement parts that have these same characteristics. Use only the ⚠ specified parts when the mark is
  include in a circuit diagram or parts list.

· Parts mounting and routing of the wiring should be the same as that used originally. For safety purposes, insulating materials
  such as tubing or tape is sometimes used and printed circuit boards are sometimes mounted floating. Also make sure that
  wiring is routed and clamped to avoid parts that generate heat and which use high voltage. Always follow the original scheme.

· After a repair has been completed, reassemble all disassembled pars, and route and reconnect the wiring, in accordance with
  the original   scheme.   Do not allow internal wiring to be pinched by cabinets, panels, etc. Any error in reassembly or wiring
  can result in electrical leakage, flame, etc.,and may be hazardous.

· Never remodel the product in any way. Remodeling can result in improper operation, malfunction, or electrical leakage and
  flame, which may be hazardous.

Touch current check

(After completing the work, measure touch current to prevent an electric shock.)

・ Plug the AC cord directly into the AC outlet.　Do not use an isolation transformer for this check..

・ Connect a measuring network for touch currents between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure D.1

・ The potential at any point(TOUCH CURRENT) expressed as voltage U_1 and U_2 does not exceed the following value:

The part or contact of a TERMINAL is not HAZARDOUS LIVE if:

a) the open-circuit voltage does not exceed 35 V (peak) a.c　or 60 V　d.c.,

or,if a)is not met,

b) the measurement of the TOUCH-CURRENT shall be carried out in accordance with IEC 60990, with the measuring network

　described in annex D of this standard.

　The TOUCH CURRENT expressed as voltages U_1 and U_2, does not exceed the following values:

　-　for a.c.:U_1= 35 V(peak)and U_2=0.35 V (perk);

　-　for d.c.:U_1= 1,0 V,

　NOTE 5 -The limit values of U_2=0.35 V (peak) for a.c. and U_1=1.0 V for d.c. correspond, to the values 0,7mA (peak) a.c. and 2,0 mA 2,0mA d.c.

　The limit value U_1= 35 V (peak) for a.c. corresponds to the value 70mA (peak) a.c. for frequencies greater than 100 kHz.

Annex D
(normative)
Measuring network for TOUCH CURRENTS
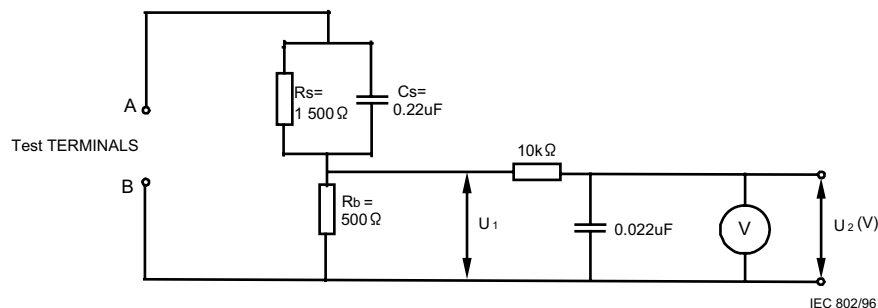
Resistance values in ohms(Ω)
V: Voltmeter or oscilloscope
　(r.m.s or peak reading)

　　Input resistance: $\geqq$1 MΩ

　　Input capacitance: $\leqq$　200 pF

　　Frequency range: 15 Hz to 1 MHz and d.c. respectively
NOTE-Appropriate measures should be taken to obtain the correct value in case of non-sinusoidal waveforms.

The measuring instrument is calibrated by comparing the frequency factor of U_2 with the solid line in figure F.2 of IEC 60990 at various frequencies. A calibration curve is constructed showing the deviation of U_2 from the ideal curve as a function of frequency.

TOUCH CURRENT=U_2/500(peak value)

Fig.D.1

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the international hazard symbols on 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 which do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated " dangerous voltage " within the products enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

LASER BEAM CAUTION LABEL

CAUTION	– VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM. (for 21 CFR)
CAUTION	– CLASS 2 VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. DO NOT STARE INTO THE BEAM.
ATTENTION	– RAYONNEMENT VISIBLE ET INVISIBLE LASER DE CLASSE 2 EN CAS D'OUVERTURE NE PAS REGARDER DAMS LE FAISCEAU.
VORSICHT	– SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG KLASSE 2, WENN ABDECKUNG GEÖFFNET NICHT IN DEN STRAHL BLICKEN.
ADVARSEL	– KLASSE 2 SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. SE IKKE IND I STRÅLEN.
ADVARSEL	– KLASSE 2 SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES. STIRR IKKE INN I STRÅLEN.
VARO!	– LUOKAN 2 NÄKYVÄÄ JA NÄKYMÄTÖN AVATTAESSA OLET ALTTIINA LASERSÄTEILYLLE. ÄLÄ TUIJOTA SÄTEESEEN.
VARNING	– SYNLIG OCH OSYNLIG KLASS 2 LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. STIRRA EJ IN I STRÅLE.
注 意	– 打开时有2级的可见及不可见激光辐射.请勿直接观察射线.
注 意	– ここを開くとクラス2可視レーザー光及び不可視レーザー光がでます。ビームを凝視しないこと。

When the power supply is being turned on, you may not remove this laser cautions label. If it removes, radiation of a laser may be received.

PREPARATION OF SERVICING

Pickup Head consists of a laser diode that is very susceptible to external static electricity.

Although it operates properly after replacement, if it was subject to electrostatic discharge during replacement, its life might be shortened. When replacing, use a conductive mat, soldering iron with ground wire, etc. to protect the laser diode from damage by static electricity.

And also, the LSI and IC are same as above.

Ground conductive wrist strap for body.

Soldering iron with ground wire or ceramic type

Conductive mat

1MΩ

The ground resistance between the ground line and the ground is less than 10Ω.
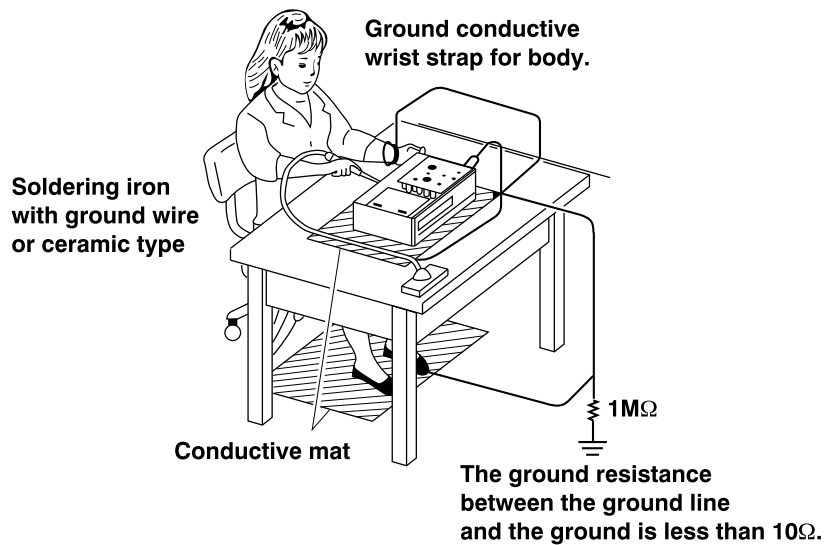
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CONTENTS

SECTION 1
GENERAL DESCRIPTIONS

1. OPERATING INSTRUCTIONS

Please refer to the owner's manual about the contents.

2. LOCATION OF MAIN PARTS

2-1. Location of Main Parts

RAM1 DVD Drive

FAN1 Fan
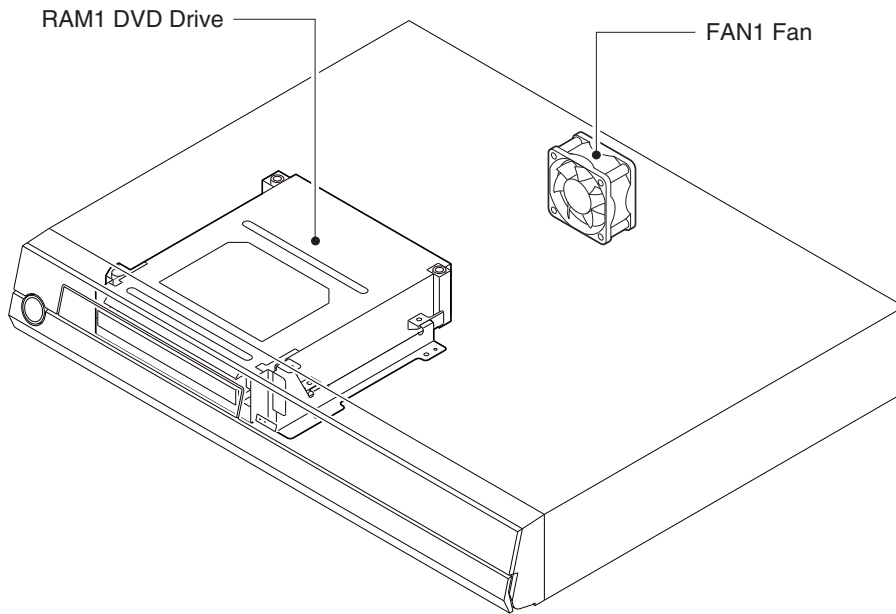
Fig. 1-2-1

2-2. Location of PC Boards

PWR1 Power PC board

ATA1 ATAPI PC board

U001 Main PC board

PSW1 Power switch PC board

USB1 Front switch/USB PC board

FRT1 Front FIP PC board
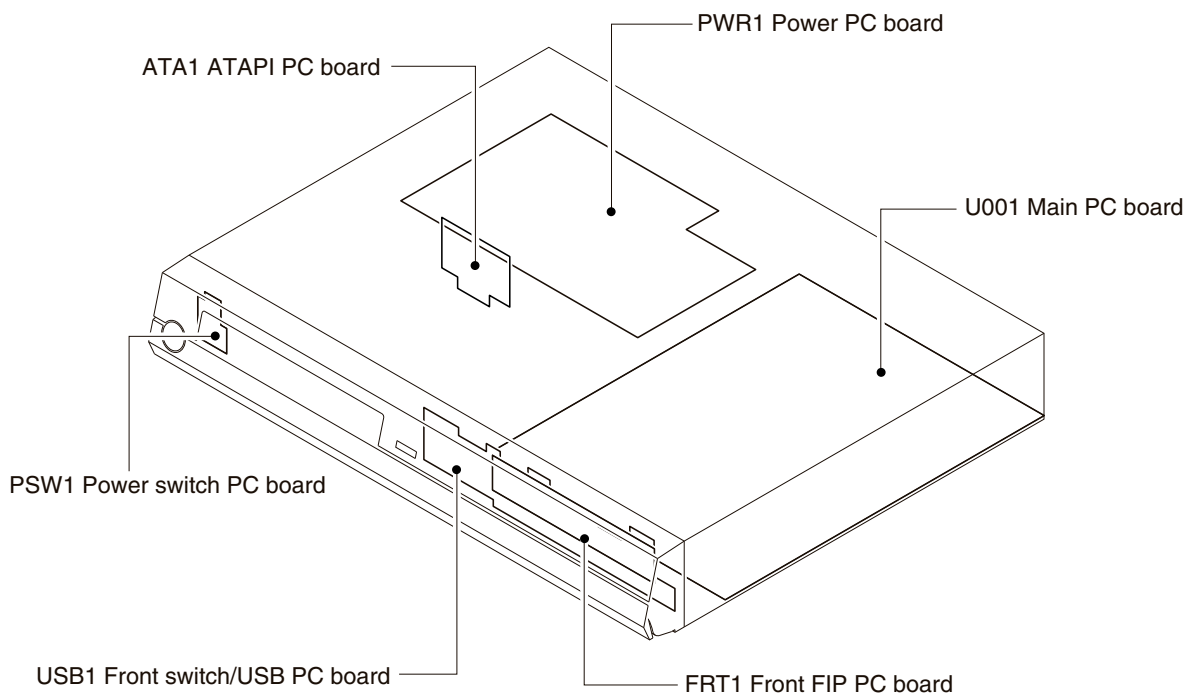
Fig. 1-2-2

SECTION 2
PART REPLACEMENT PROCEDURES

CAUTIONS BEFORE STARTING PART REPLACEMENT

Electronic parts are susceptible to static electricity and may easily damaged, so do not forget to ground as required. Many screws are used inside the unit. To prevent the screws from missing or dropping, etc. always use a magnetized screwdriver in servicing. Several kinds of screws are used and some of them need special cautions. That is, take care of the tapping screws securing molded parts and fine pitch screws used to secure metal parts. If they are used improperly, the screw holes will be easily damaged and the parts can not be fixed.

1. REPLACEMENT OF MECHANICAL PARTS

Note:

- Circled numbers in the figure show the main disassembly procedure. Refer to them when disassembling.

1-1. Front Panel, Front PC Boards
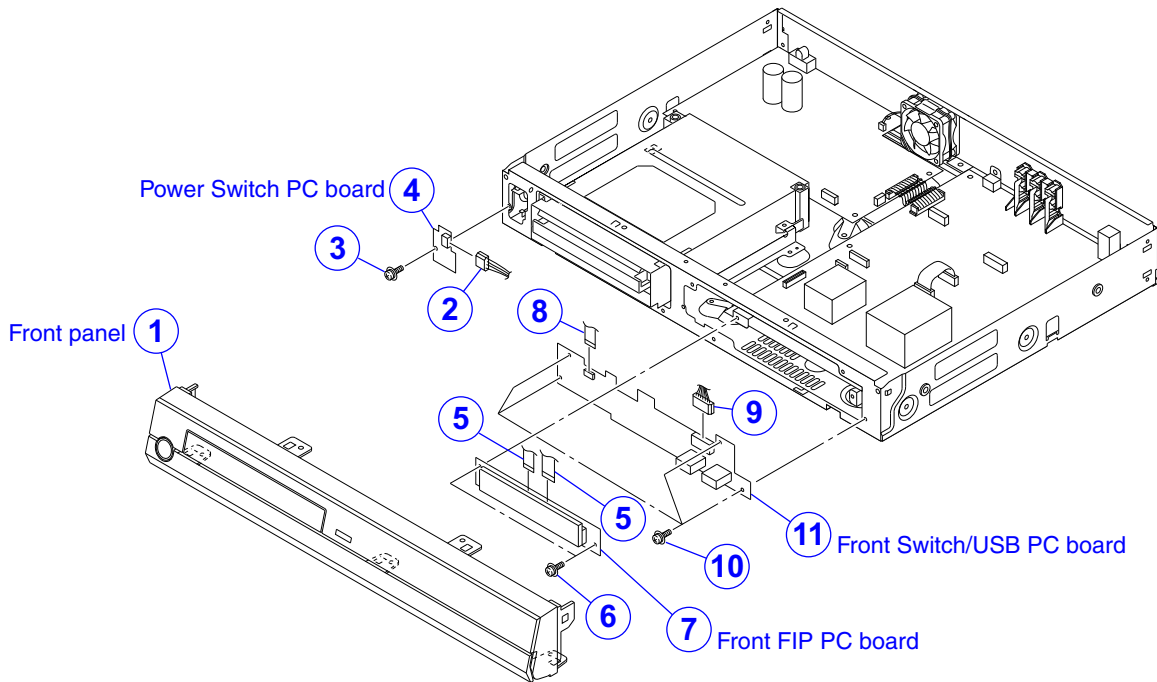
Fig. 2-1-1

1-2. Main/Power PC Boards

Power PC board ⑦

Fan ③

MainPC board ⑫
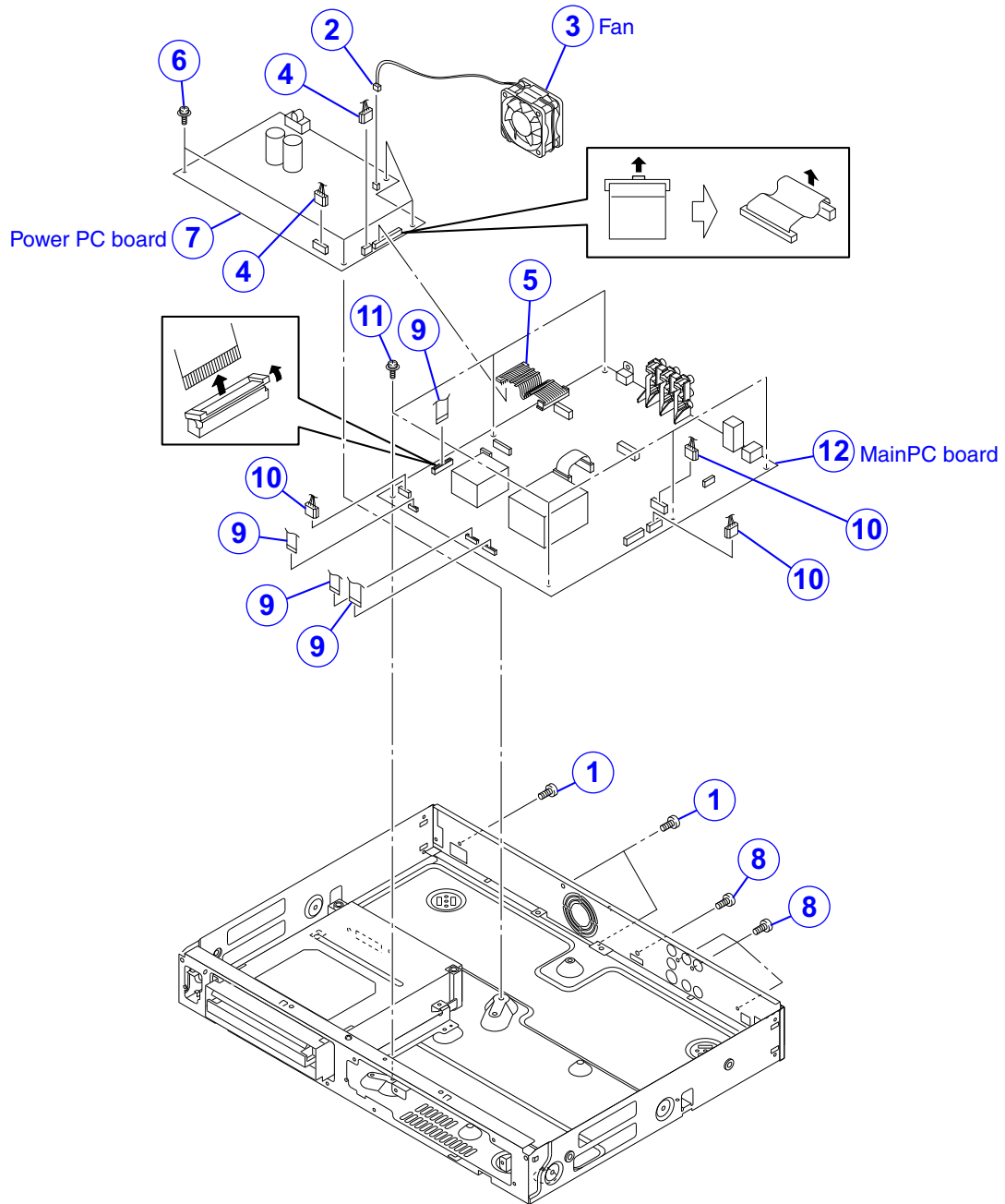
Fig. 2-1-2

1-3. DVD Drive
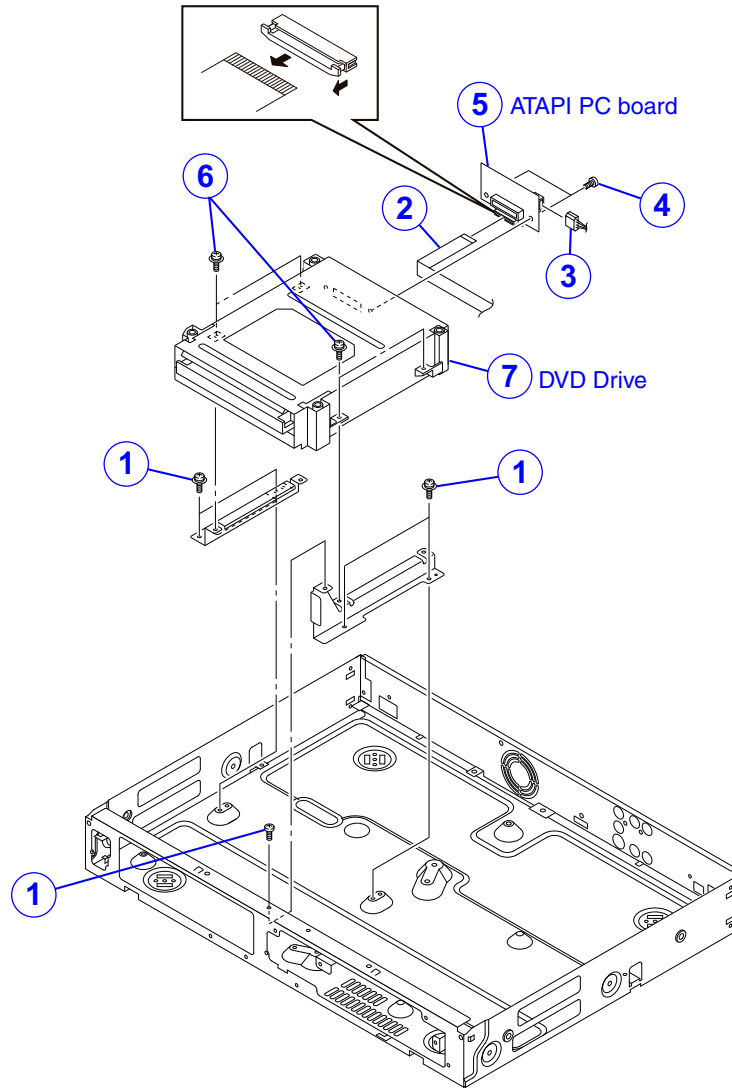
Fig. 2-1-3

2. WIRING CONNECTION DIAGRAM

2-1. Wiring Connection Diagram

After the servicing is complete, return the wiring to its original state by using the diagram below as a reference.
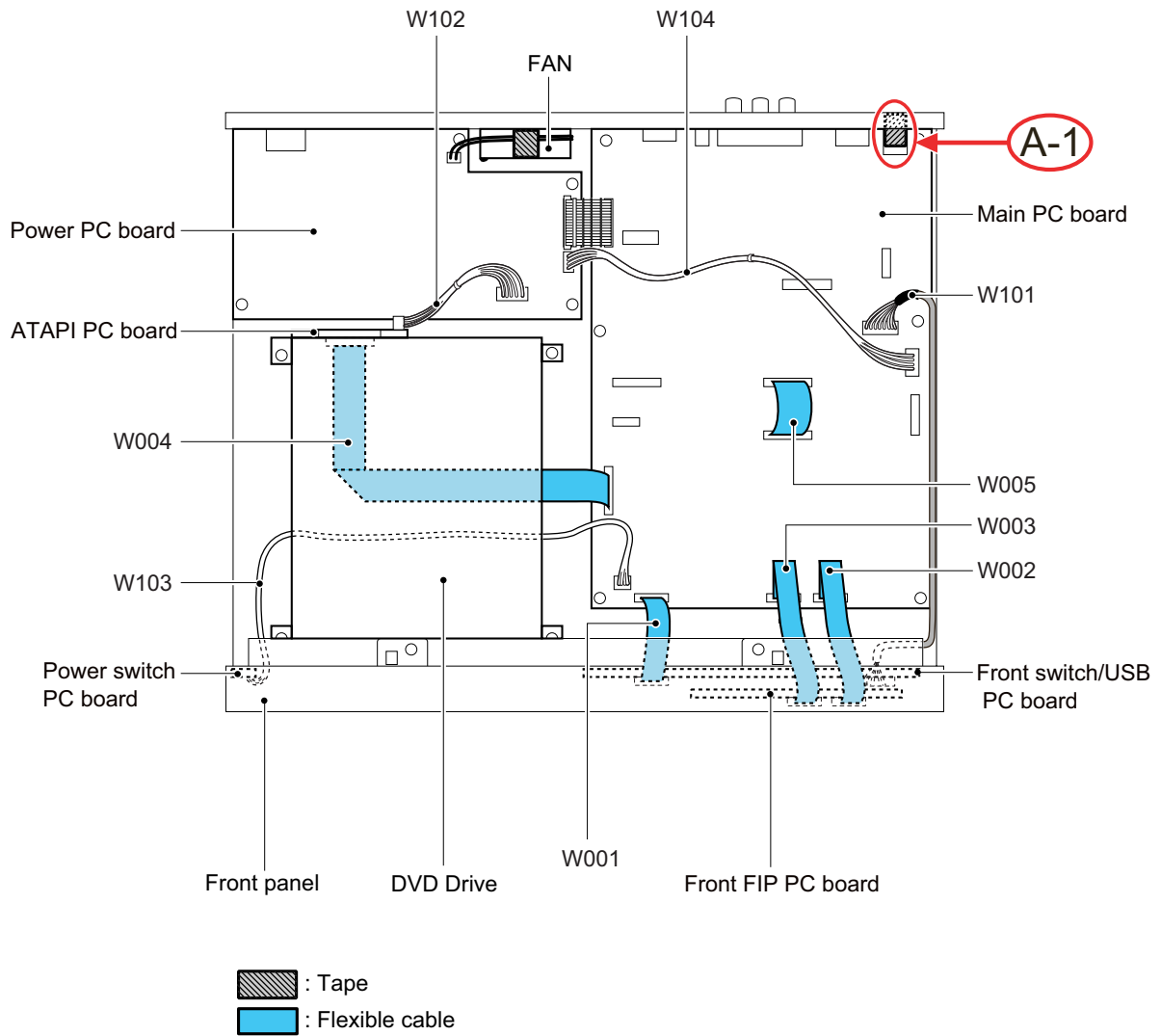
Fig. 2-2-1

A-1. Paste aluminum tape (AL-25T,15mm) between LAN Jack (CN210) and rear panel as follows.
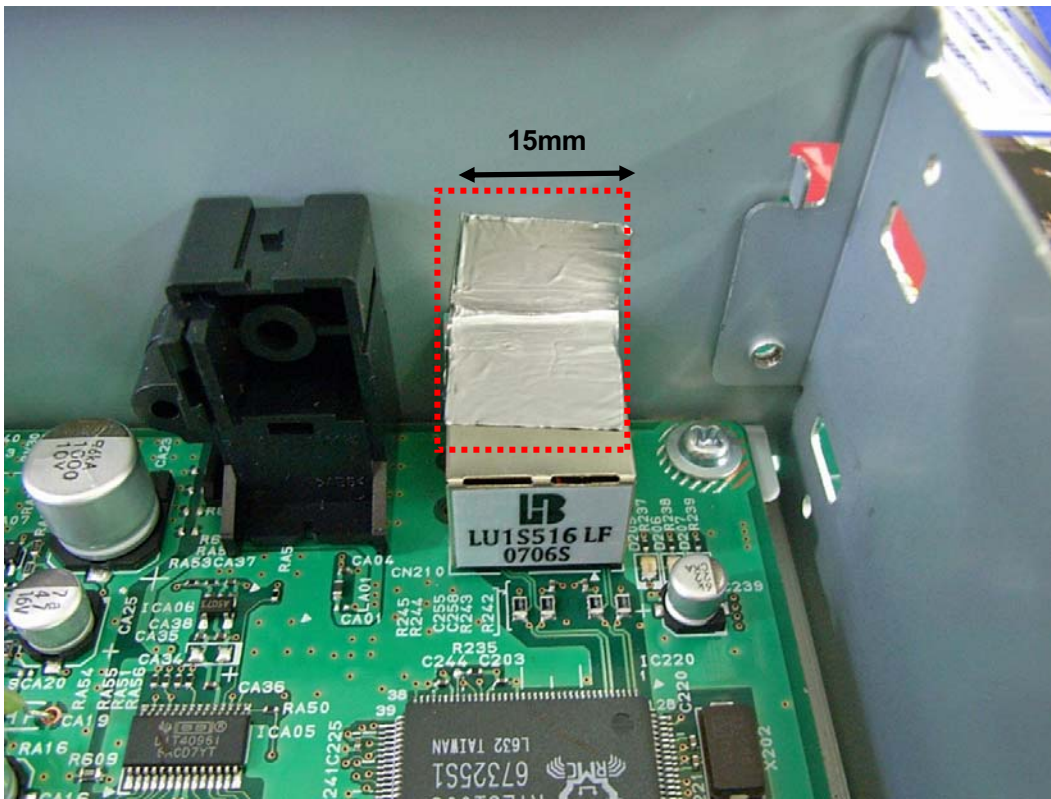
SECTION 3
SERVICING DIAGRAMS

1. CIRCUIT SYMBOLS AND SUPPLEMENTARY EXPLANATION

1-1. Precautions for Part Replacement

• In the schematic diagram, parts marked △ (ex. △ F801) are critical part to meet the safety regulations, so always use the parts bearing specified part codes (SN) when replacing them.

• Using the parts other than those specified shall violate the regulations, and may cause troubles such as operation failures, fire etc.

1-2. Solid Resistor Indication

Unit	None ....Ω K ....kΩ M ....MΩ
Tolerance	None ....±5% B ....±0.1% C ....±0.25% D ....±0.5% F ....±1% G ....±2% K ....±10% M ....±20%

Rated Wattage	(1) Chip Parts
	    None 1/16W
	(2) Other Parts
	    None 1/6W
	Other than above, described in the Circuit Diagram.

Type	None ....Carbon film S ....Solid R ....Oxide metal film M ....Metal film W ....Cement FR ....Fusible

Eg. 1

Rated Wattage   Type   Tolerance
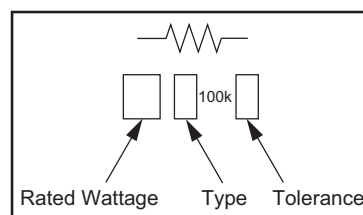
Fig. 3-1-1

1-3. Capacitance Indication

Symbol	...........Electrolytic, Special electrolytic ....Non polarity electrolytic ....Ceramic, plastic ....Film ....Trimmer
Unit	None ....F μ ....μF p ....pF
Rated voltage	None ....50V For other than 50V and electrolytic capacitors, described in the Circuit Diagram.
Tolerance	(1) Ceramic, plastic, and film capacitors of which capacitance are more than 10 pF. None ....±5% or more B ....±0.1% C ....±0.25% D ....±0.5% F ....±1% G ....±2% (2) Ceramic, plastic, and film capacitors of which capacitance are 10 pF or less. None ....more than ±5 pF B ....±0.1 pF C ....±0.25 pF (3) Electrolytic, Trimmer Tolerance is not described.
Temperature characteristic (Ceramic capacitor)	None ....SL For others, temperature characteristics are described. (For capacitors of 0.01 μF and no indications are described as F.)
Static electricity capacity (Ceramic capacitor)	Sometimes described with abbreviated letters as shown in Eg. 3.

Eg. 2

Temperature   Rated   Tolerance
response   voltage

Fig. 3-1-2

Eg. 3

104

10×10^4 pF (0.1μF)

Temperature characteristic
(or Temperature characteristic+
Static electricity capacity tolerance)
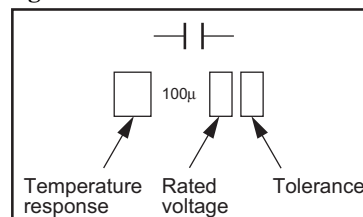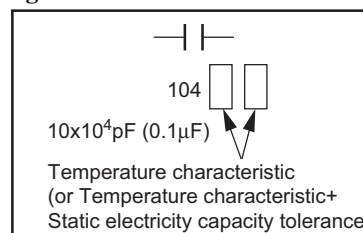
Fig. 3-1-3

1-4. Inductor Indication

Unit	None	...........H
	μ	...........μH
	m	...........mH
Tolerance	None	...........±5%
	B	...........±0.1%
	C	...........±0.25%
	D	...........±0.5%
	F	...........±1%
	G	...........±2%
	K	...........±10%
	M	...........±20%

Eg. 4
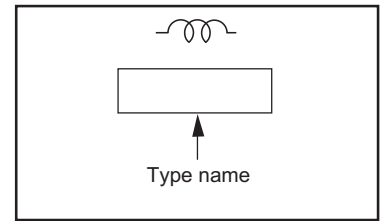
Fig. 3-1-4

1-5. Waveform and Voltage Measurement

• The waveforms for CD/DVD and RF shown in the circuit diagrams are obtained when a test disc is played back.

• All voltage values except the waveforms are expressed in DC and measured by a digital voltmeter.

1-6. Others

• The parts indicated with "NC" or "KETU" etc. are not used in the circuits of this model.

Eg. 5

Fig. 3-1-5

Fig. 3-2-1

U001 MAIN

PWR1 POWER 800

HD-DVD

ATA1 ATAPI ADAPTOR

FAN

LEADS CABLE

PSW1 PWR SW UNIT 100

FRT1 FIP UNIT 100

FRONT

USB1 SW_USB UNIT 100

memo
W001 FFC	12	L110
W002 FFC	20	L110
W003 FFC	16	L110
W004 FFC	40	L250
W005 FFC	40	L70
W101 WIRE	09	L1300 AWG28
W102 WIRE	06	L100 AWG26 UL1007
W103 WIRE	04	L380 AWG28
W104 WIRE	04	L260 AWG26
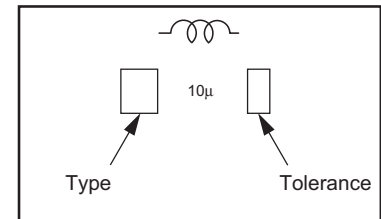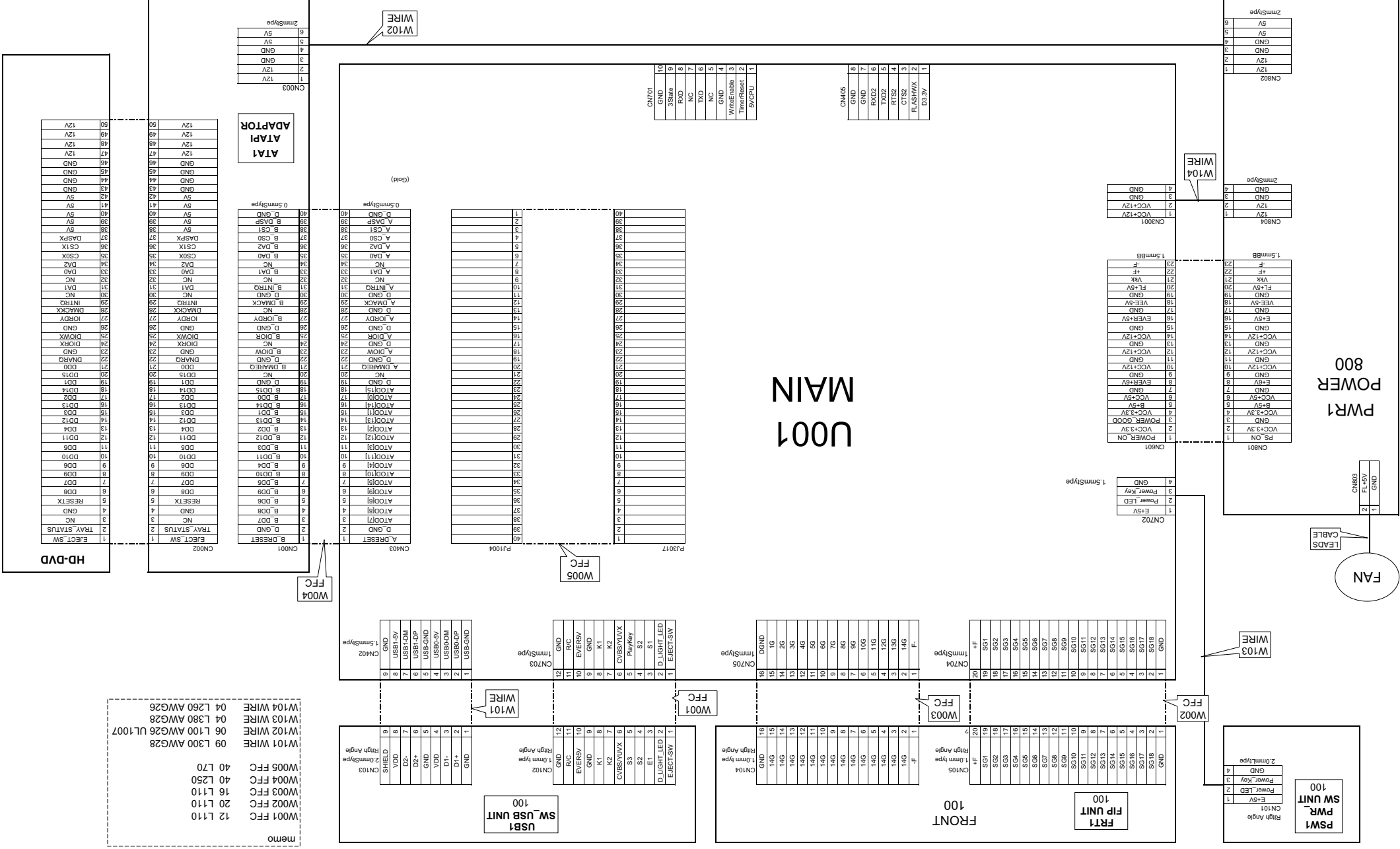
3. SYSTEM BLOCK DIAGRAM
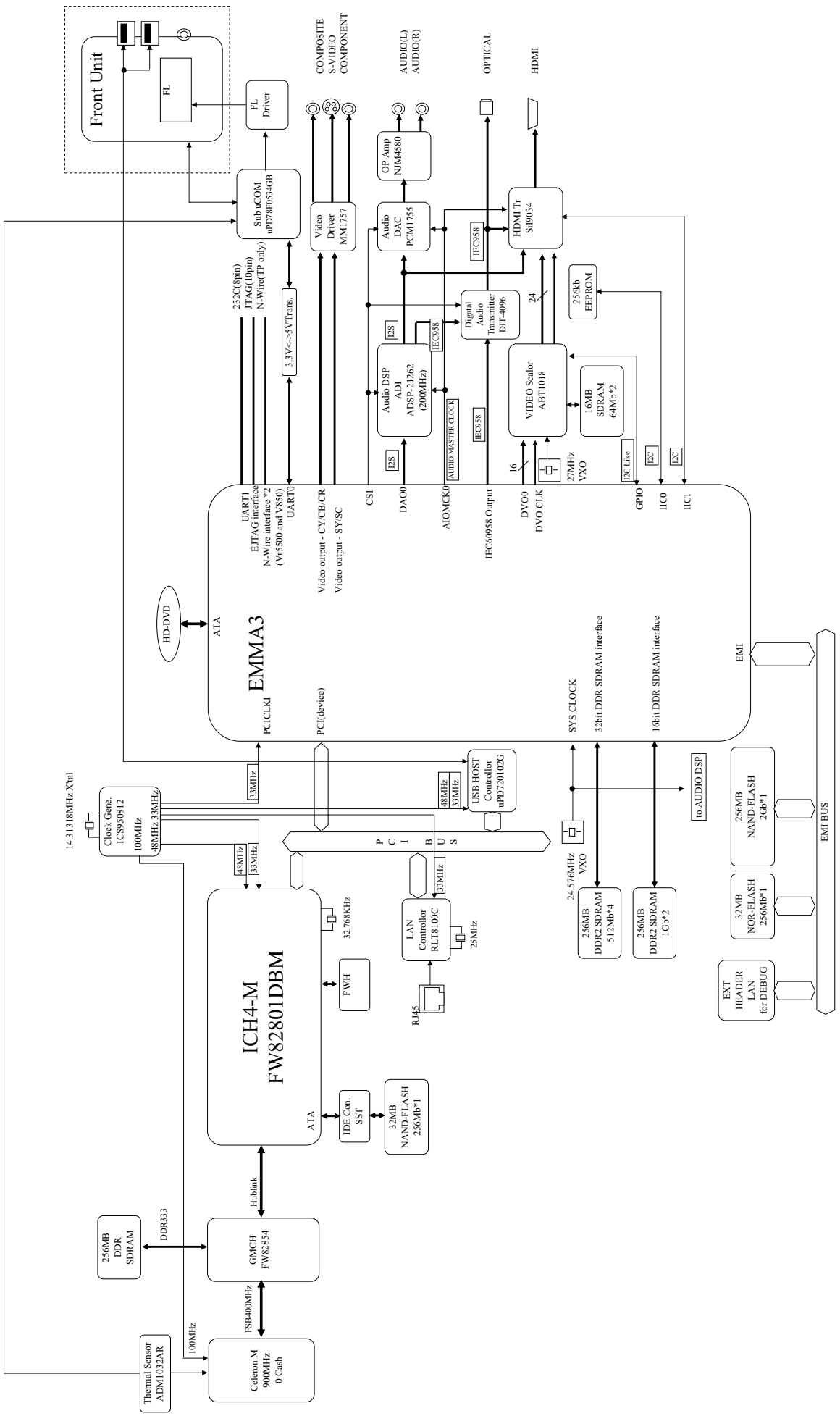
Fig.3-3-1

4. CIRCUIT DIAGRAMS

4-1. Power Supply Circuit Diagram

MPN5115P
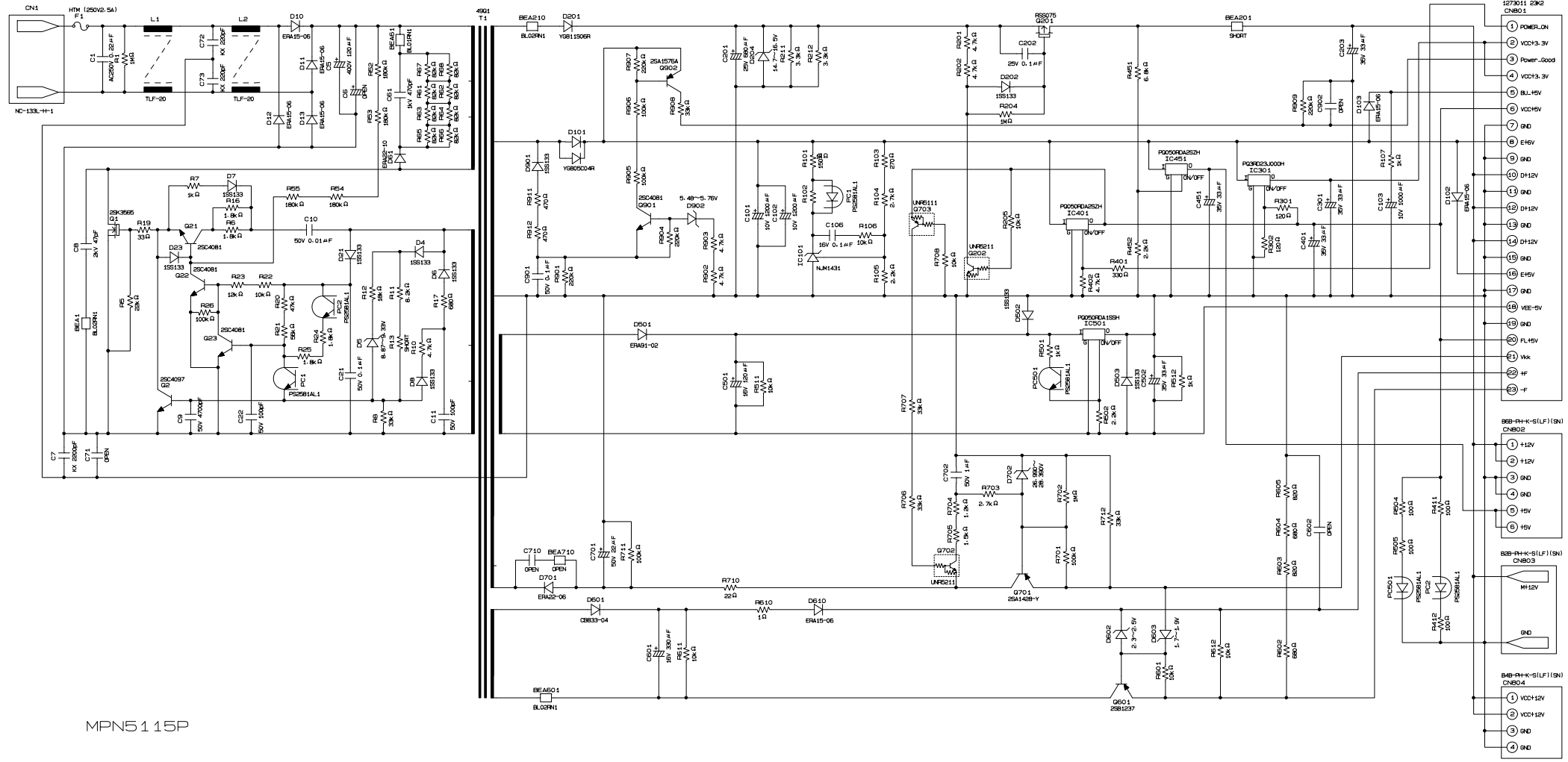
Fig. 3-4-1

4-2. Front Circuit Diagram

4-2-1. Front FIP Circuit Diagram
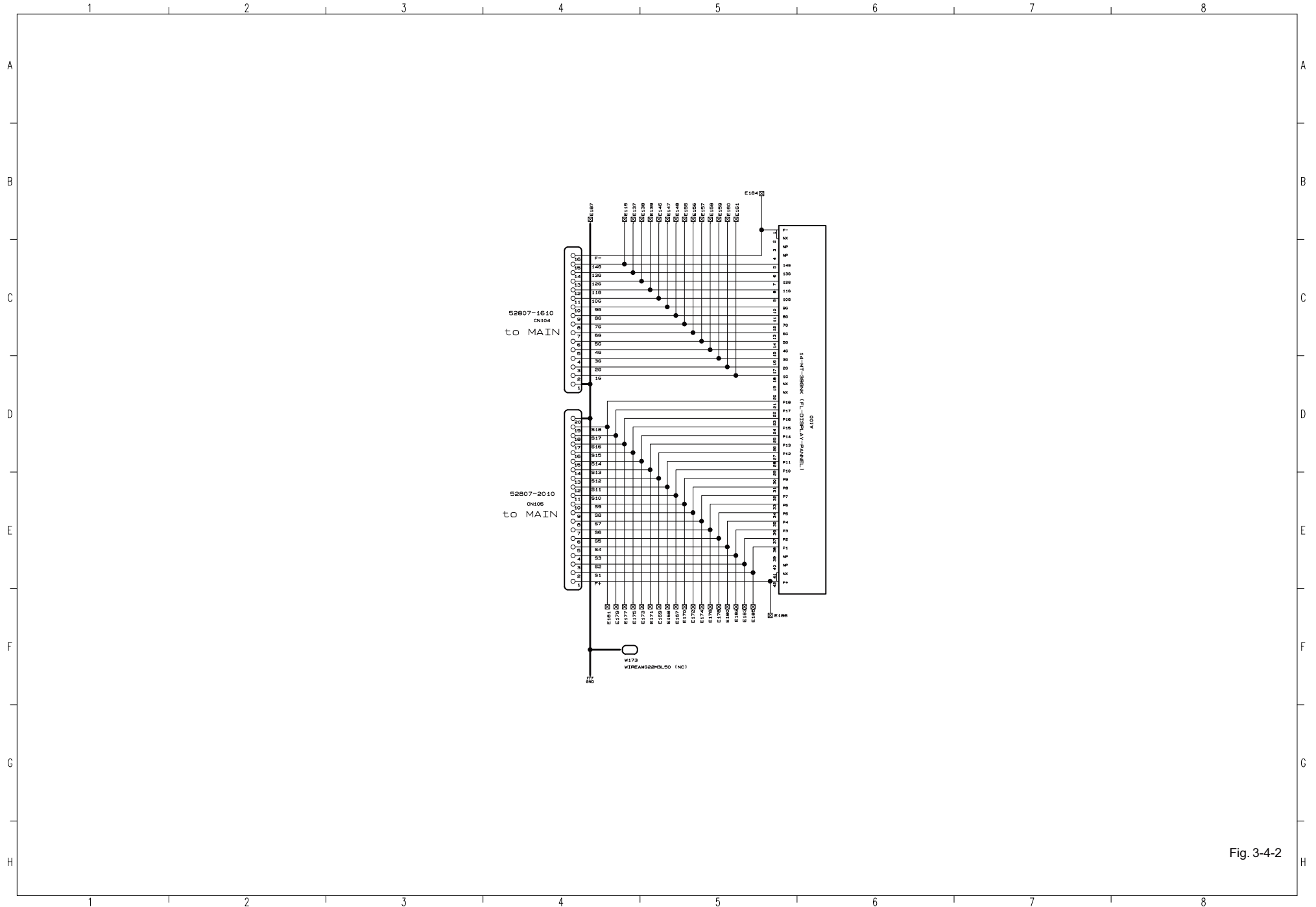
Fig. 3-4-2

4-2-2. Power Switch Circuit Diagram

	HD-A2 HD-EP10	HD-XA2
D121	Use	Not use
D122	Not use	Use

Q101
RN2402

Q102
RN2402

E150

E141

E140

EL-1259-7SDRSUBW/S530-A3/S1142/F14-9

470
R146

D121
RED   BLUE
POWER(A2,EP10)

330
R147

E149

2.2k
R101

D122
RED   BLUE
POWER(XA2)

EL-1259-7SDRSUBW/S530-A3/S1142/F14-9

GND

POWER

S115

10k
R102

103
C118

E101 E102 E103 E104

CN101

1 E+5V
2 Power_LED
3 Power_Key
4 GND

S4B-PH-K-S(LF)
to MAIN

Fig. 3-4-3

to D_LIGHT

to MAIN

USB PART

to MAIN
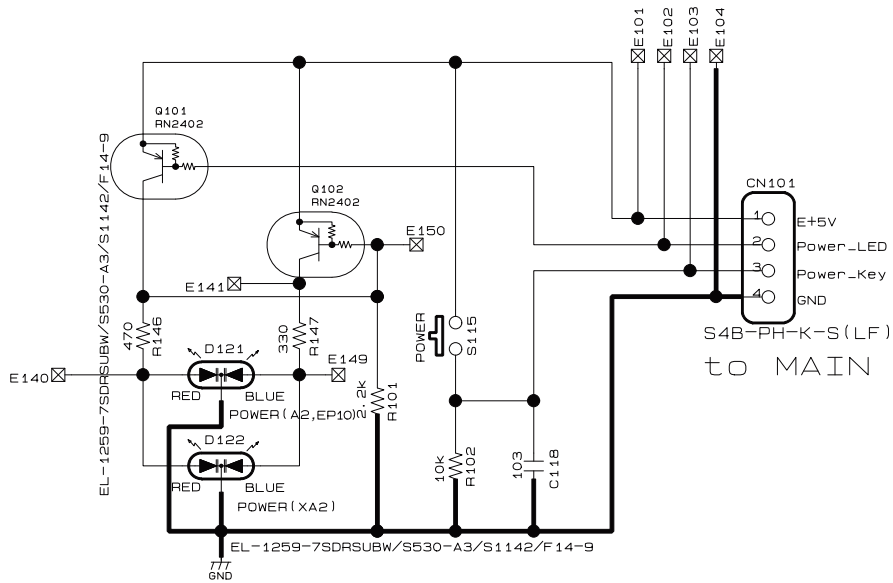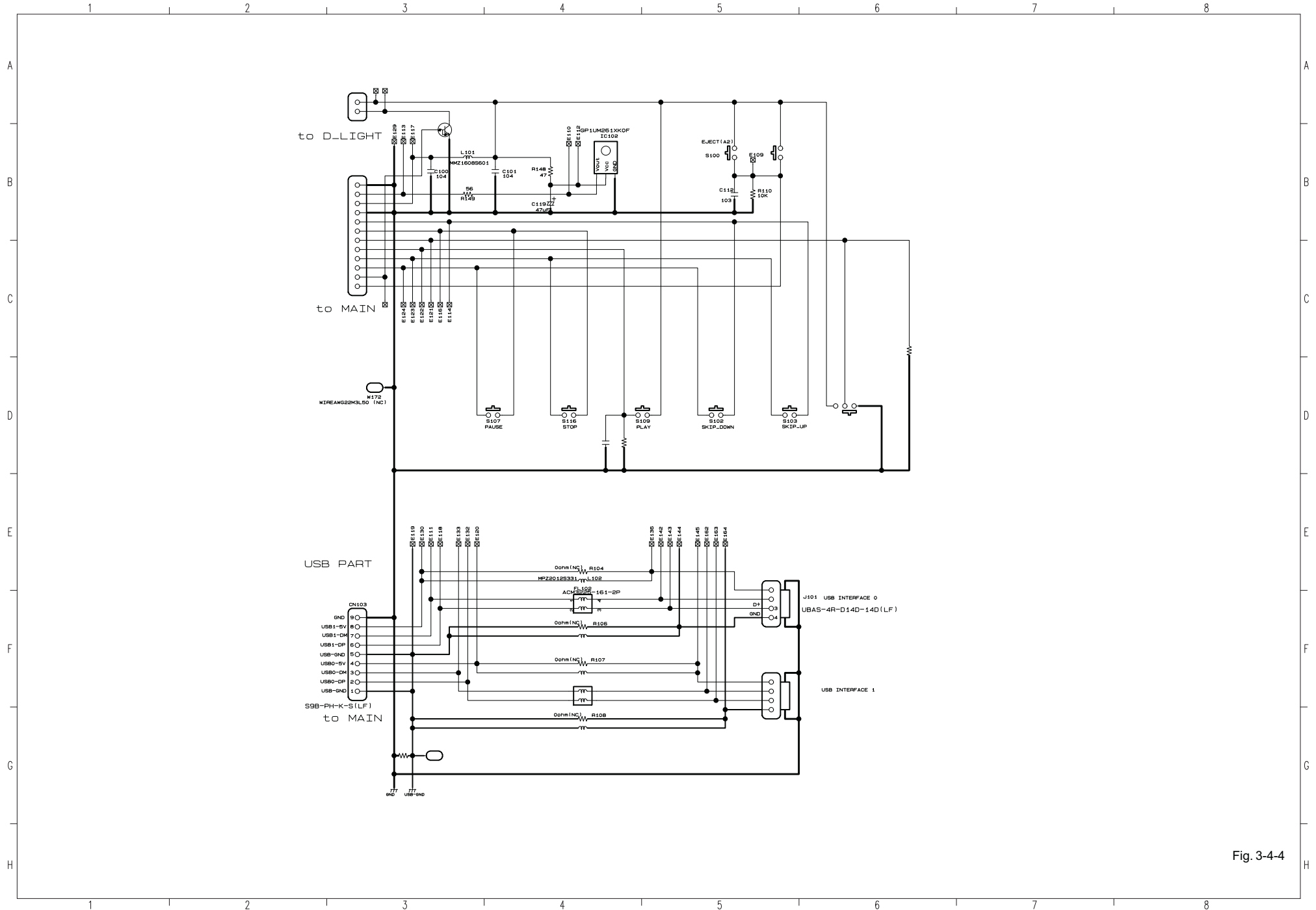
Fig. 3-4-4

4-3. ATAPI Conversion Circuit Diagram

S6B-PH-SM4-TB

CN003

5V	6
5V	5
GND	4
GND	3
12V	2
12V	1

CN002
KX14-50K5D-RE

No.	Signal
50	12V
49	12V
48	12V
47	12V
46	GND
45	GND
44	GND
43	GND
42	5V
41	5V
40	5V
39	5V
38	5V
37	DASPX
36	CS1X
35	CSOX
34	DA2
33	DA0
32	NC
31	DA1
30	NC
29	INTRQ
28	DMACKX
27	IORDY
26	GND
25	DIOWX
24	DIORX
23	GND
22	DNARQ
21	DD0
20	DD15
19	DD1
18	DD14
17	DD2
16	DD13
15	DD3
14	DD12
13	DD4
12	DD11
11	DD5
10	DD10
9	DD6
8	DD9
7	DD7
6	DD8
5	RESETX
4	GND
3	NC
2	TRAY_STATUS
1	EJECT_SW

⊠TRAY_STATUS

⊠EJECT_SW

CN001

Signal	No.
D_GND	40
B_DASP	39
B_CS1	38
B_CS0	37
B_DA2	36
B_DA0	35
NC	34
B_DA1	33
NC	32
B_INTRQ	31
D_GND	30
B_DMACK	29
NC	28
B_IORDY	27
D_GND	26
B_DIOR	25
NC	24
B_DIOW	23
D_GND	22
B_DMAREQ	21
NC	20
D_GND	19
B_DD15	18
B_DD0	17
B_DD14	16
B_DD1	15
B_DD13	14
B_DD2	13
B_DD12	12
B_DD3	11
B_DD11	10
B_DD4	9
B_DD10	8
B_DD5	7
B_DD9	6
B_DD6	5
B_DD8	4
B_DD7	3
D_GND	2
B_DRESET	1

DGND

04_6274_040_000_800_+

(52559-4052)

Fig. 3-4-5

4-4. Main Circuit Diagram
4-4-1.AV Output Circuit Diagram

Note:The main circuit diagrams describe only part of information.
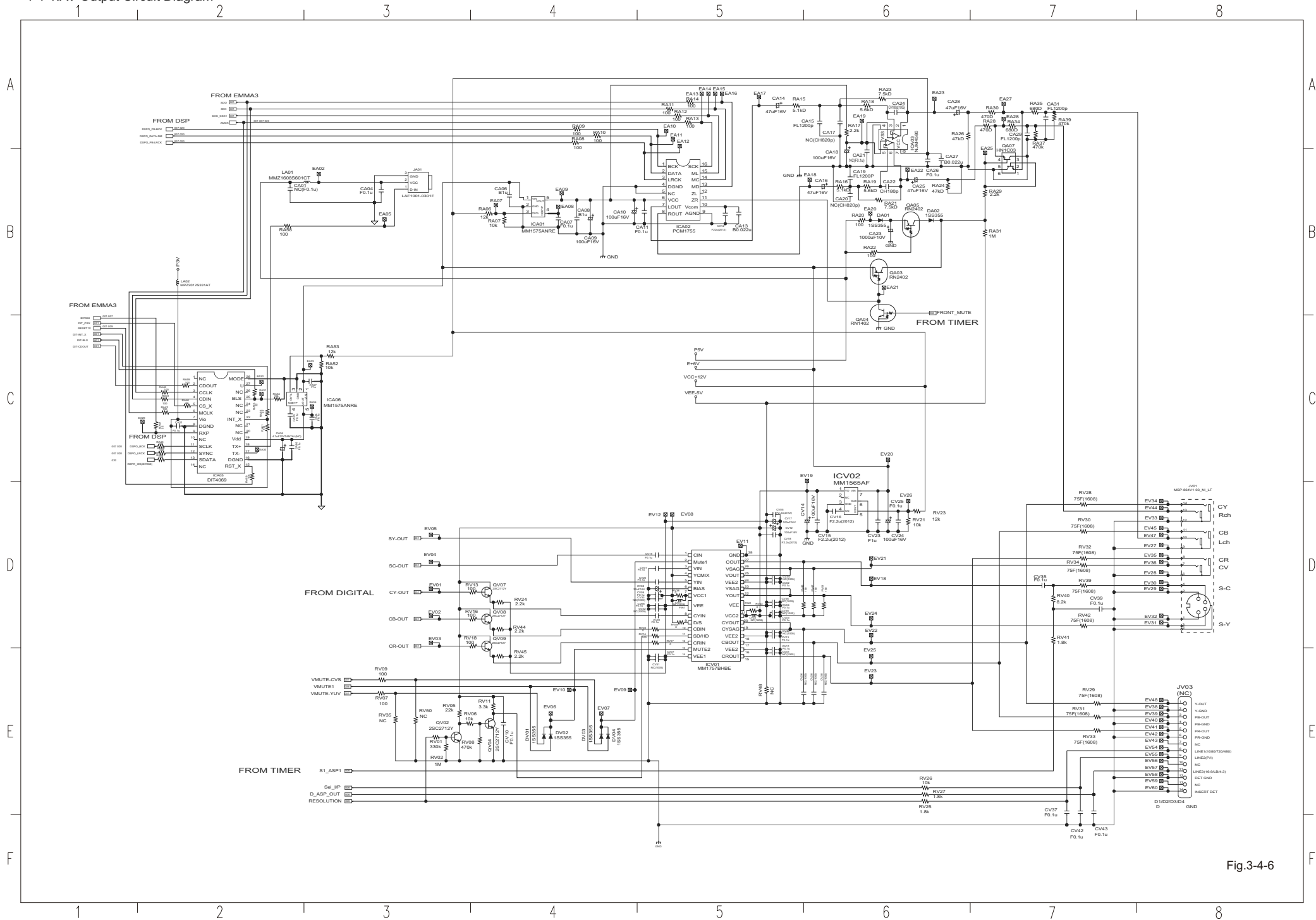
Fig.3-4-6
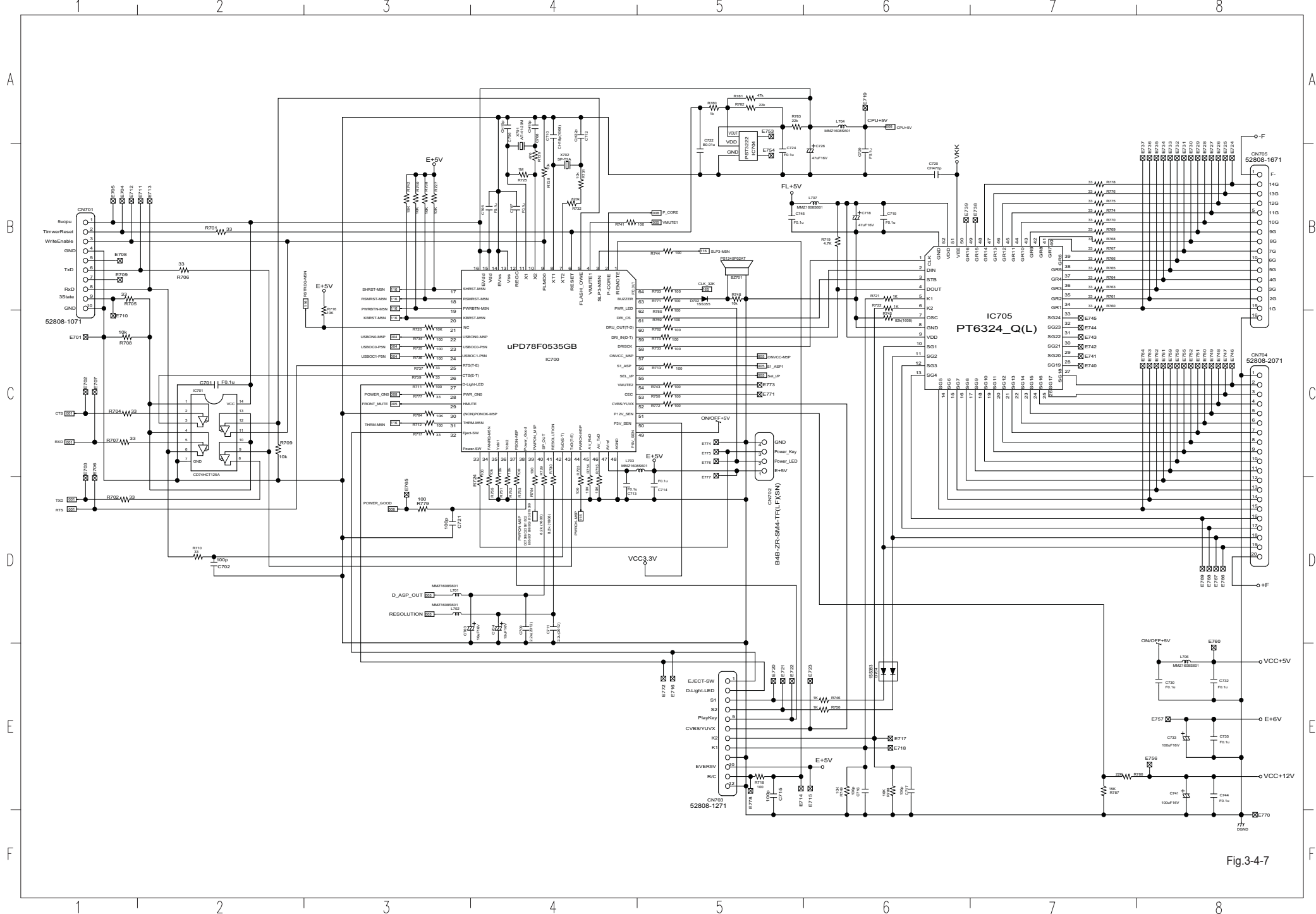
Fig.3-4-7

5. PC BOARDS

5-1. Front FIP PC Board
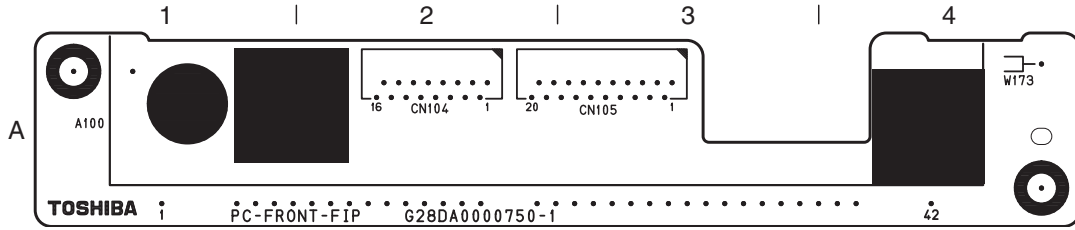
Fig. 3-5-1 Front FIP PC Board (Top side)
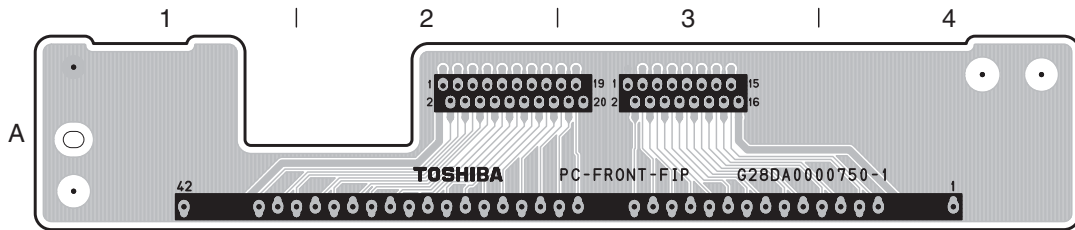
Fig. 3-5-2 Front FIP PC Board (Bottom side)

5-2. Power Switch PC Board
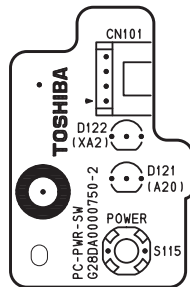
Fig. 3-5-3 Power Switch PC Board (Top side)
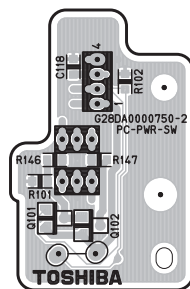
Fig. 3-5-4 Power Switch PC Board (Bottom side)

5-3. Front Switch/USB PC Board
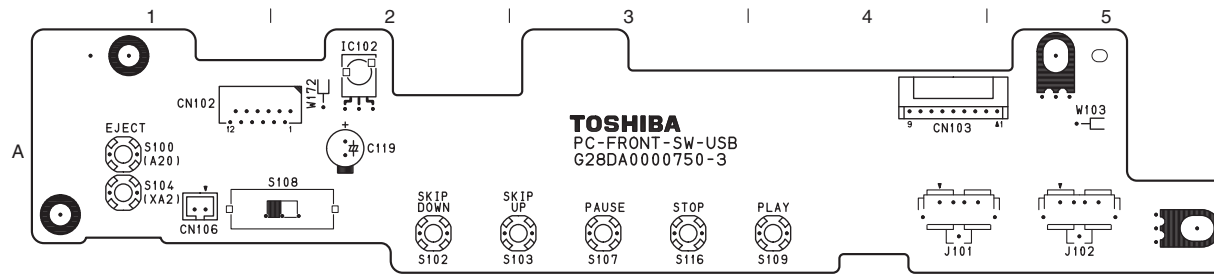
Fig. 3-5-5 Front Switch/USB PC Board (Top side)
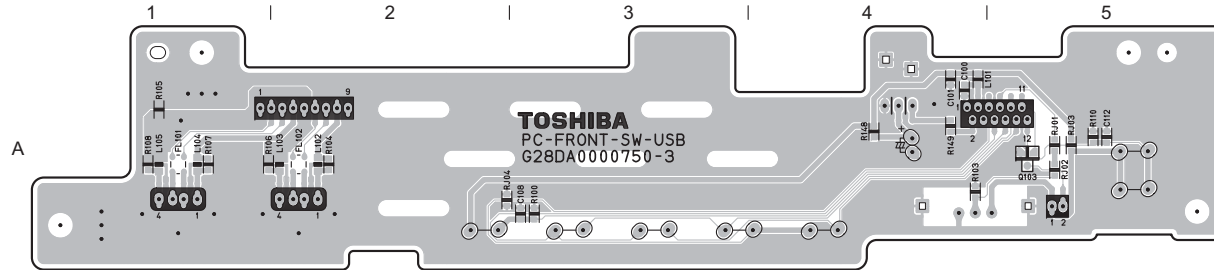
Fig. 3-5-6 Front Switch/USB PC Board (Bottom side)

5-4. ATAPI PC Board
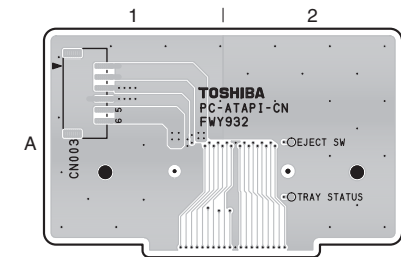
Fig. 3-5-7 ATAPI PC Board (Top side)
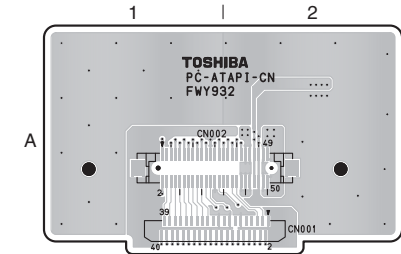
Fig. 3-5-8 ATAPI PC Board (Bottom side)

SECTION 4
PARTS LIST

SAFETY PRECAUTION

The parts identified by ! (⚠) mark are critical for safety. Replace only with part number specified.

The mounting position of replacement is to be identical with originals.

The substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

NOTICE

The part number must be used when ordering parts in order to assist in processing, be sure to include the model number and description.

ABBREVIATIONS

● **Integrated Circuit (IC)**

● **Capacitor (Cap)**

• **Capacitance Tolerance (for Nominal Capacitance more than 10pF)**

Table 4-1

Symbol	B	C	D	F	G	J	K	M	N
Tolerance %	±0.1	±0.25	±0.5	±1	±2	±5	±10	±20	±30

Symbol	P	Q	T	U	V	W	X	Y	Z
Tolerance %	+100 0	+30 −10	+50 −10	+75 −10	+20 −10	+100 −10	+40 −20	+150 −10	+80 −20

Ex. 10μF J = 10μF ± 5%

• **Capacitance Tolerance (for Nominal Capacitance 10pF or less)**

Table 4-2

Symbol	B	C	D	F	G
Tolerance pF	±0.1	±0.25	±0.5	±1	±2

Ex. 10pF G = 10pF ± 2pF

● **Resistor (Res)**

• **Resistance tolerance**

Table 4-3

Symbol	B	C	D	F	G	J	K	M
Tolerance %	±0.1	±0.25	±0.5	±1	±2	±5	±10	±20

Ex. 470ΩJ = 470Ω±5%

1. EXPLODED VIEWS

1-1. Packing Assembly

Note: The shape of the packing
material is sometimes different.
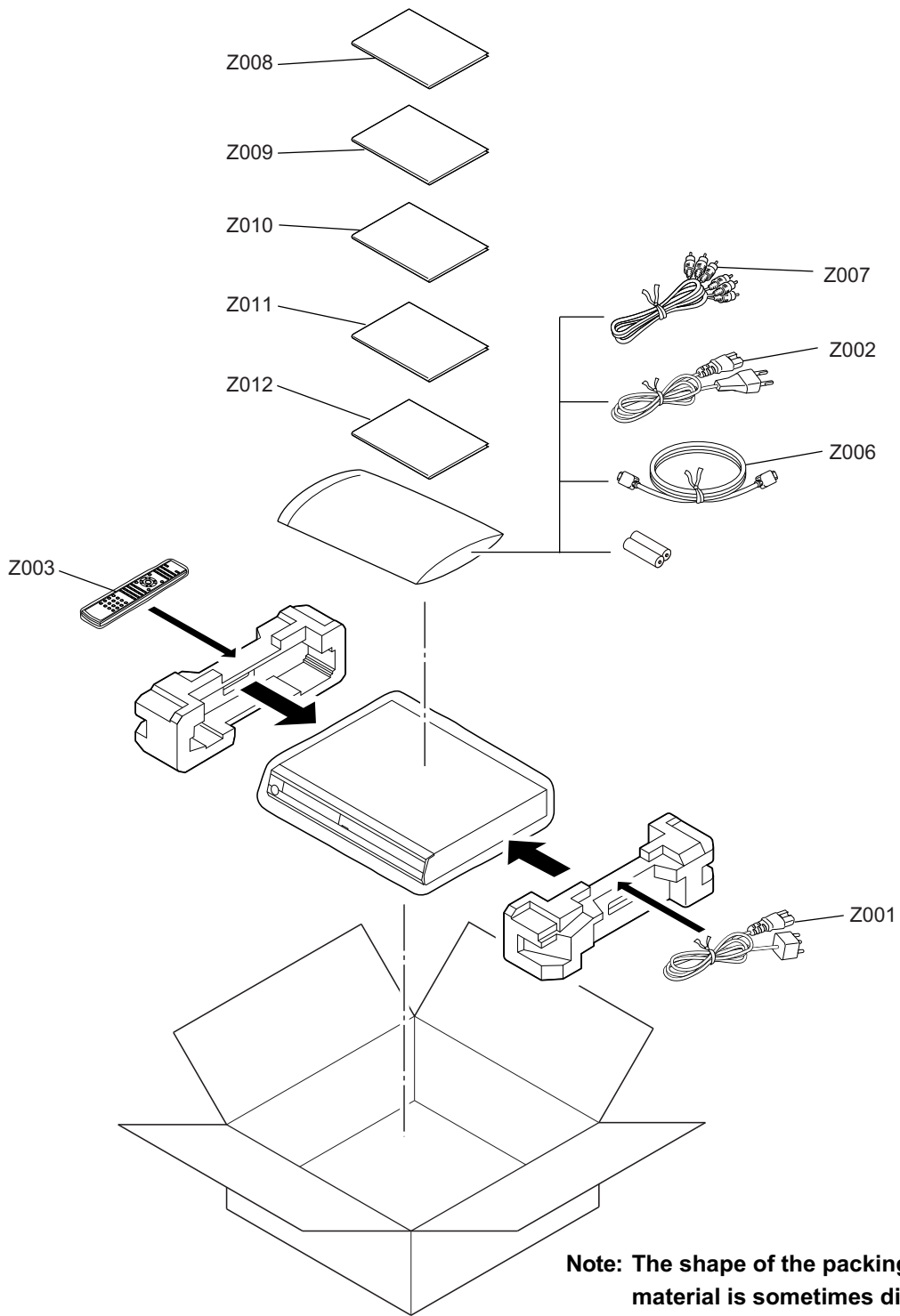
Fig. 4-1-1

1-2. Chassis Assembly
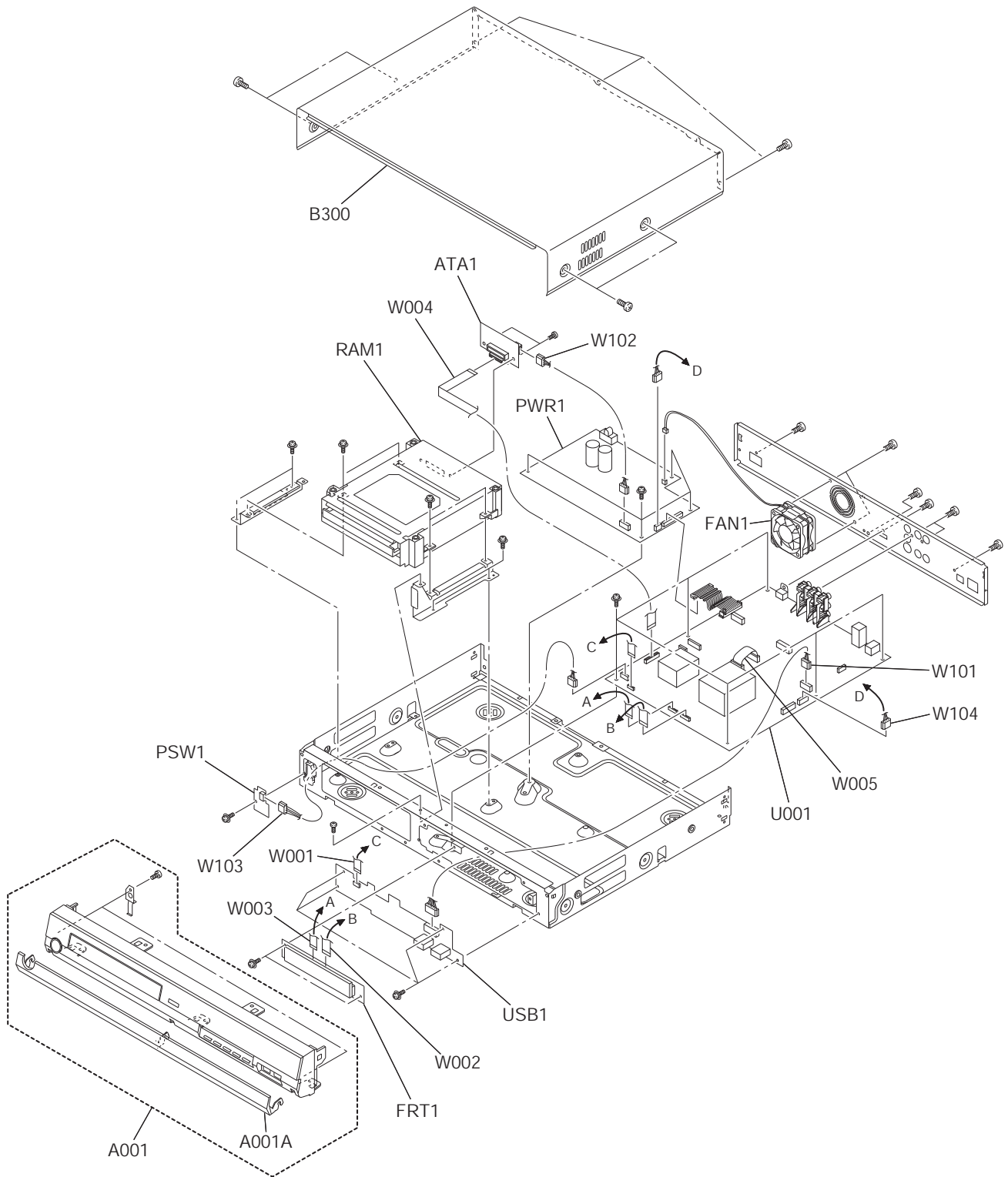
Fig. 4-1-2

2.PARTS LIST

Location No.	Part No.	Description
		- ELECTRICAL PARTS -
U001	P000483090	PC BOARD ASSY, MAIN
⚠ PWR1	P000479360	POWER-UNIT, MPN5115P
FRT1	P000483010	PC BOARD ASSY, FRONT
PSW1	P000483070	PC BOARD ASSY, POWER-SW
USB1	P000483020	PC BOARD ASSY, USB
ATA1	P000477350	ATAPI-FFC ADAPTER
		- MECHANICAL PARTS -
A001	P000483110	PANEL ASSY, FRONT
A001A	P000483120	DOOR, FRONT
B300	P000477380	COVER, TOP
FAN1	P000477470	FAN DC, DSB0512LD-6T10
⚠ RAM1	P000477500	HD-DVD-DRIVE, SD-E802A
W001	P000477420	FFC-12P-L110, MAIN-FRONT
W002	P000477430	FFC-20P-L110, MAIN-FRONT
W003	P000477440	FFC-16P-L110, MAIN-FRONT
W004	P000477450	FFC-40P-L250, MAIN-DRIVE
W005	P000483040	FFC-40P-L70, MAIN-FWH
W101	P000477530	WIRE CABLE ZHR-9P-L300, MAIN-USB
W102	P000477540	WIRE CABLE PHR-6P-L100, POWER-ATAPI
W103	P000477550	WIRE CABLE ZHR-4P-L380, MAIN-PWRSW
W104	P000477560	WIRE CABLE PHR-4P-L260, MAIN-POWER
⚠ Z001	P000354930	CORD POWER, AC-UK
⚠ Z002	P000477770	CORD POWER, AC-TE
Z003	P000483100	REMOTE CONTROL ,SE-R0252-WEEE
Z006	P000416860	CABLE HDMI, DC1P019ST30200B
Z007	P000477520	AV CABLE, 3P-L1500 GR
⚠ Z008	P000480990	OWNERS MANUAL, ENGLISH
⚠ Z009	P000481000	OWNERS MANUAL, FRENCH
⚠ Z010	P000481010	OWNERS MANUAL, GERMANY
⚠ Z011	P000483450	OWNERS MANUAL, SPANISH
⚠ Z012	P000483460	OWNERS MANUAL, ITALY

SUPPLEMENT

SUPPLEMENT1. Firmware Version Update

We plan to respond to these developments by providing the firmware update.
The latest information will be informed Toshiba customer support on the WEB.

    1) Main Firmware
    2) HD DVD Drive Firmware

1. HD DVD Player FW Update
To update the firmware, the following procedures are provided.
1) HD DVD based
   Internet connection Direct Download to player
2) CD-ROM
   CD-ROM (mail)

2. Check Main Firmware version (in detail)
   Check Main FW Version by the special Code from the remote control
       <Field Service Use only — Do not disclose to users.>
    1) Press "ON / STAND BY" on the unit or remote.
    2) Press "DISPLAY" -> "1"->"9"->"5"-> "DISPLAY"
    3) FW version is show on TV display as below.

```
Machine Code:    ******
Submicom Version:  ***********
Group ID:  **
Model ID:  **
Package Version:   1000
NAND Version:  ***
NOR Version:  ***
WinCE Version:  ***
FWH Version:  ***
Drive Version:   T20M
```

3. Firmware Version Check procedure
Check from "SET UP Menu"
    1) Press "ON / STAND BY" on the unit or remote.
    2) Press "SETUP" button.
    3) Select "General" -> "Maintenance"->"Update".
    4) The firmware version is shown on TV display as below.

```
                    Update
                   1.0/T20M
          Would you like to continue
            The update procedure?
              [Yes]      [No]
```

    5) If select [Yes], downloading update will be started.

4. Firmware Update Procedure

(1) Main (or Drive) FW Update by CD-ROM disc

      1) Insert Update disc into the unit.

      2) Indicate the notice.

          -> Select YES & press "OK" button on the remote control.

      3) Version update is started. Waiting a few minutes.

      4) Tray will be opened and power off automatically.

      5) Power On & confirm the FW version.

(2) FW Update from WEB site

      From "SETUP" menu, the latest firmware can be downloaded to the unit.

    * Refer to Firmware version check procedure.

    * Internet always-on broadband connection is needed.

SUPPLEMENT2. Error Code

1. System Error

External Error Code								Content of Error	OSD	VFD
1	0	0	0	4	0	0	1	CPU Error		Error Code
2	0	0	0	C	0	0	1	No Disc	No Disc	Error Code
2	0	0	1	C	0	0	2	Disc Detection Error	Cannot play the disc. Check the disc.	Error Code
2	0	0	2	C	0	0	3	Not Support Disc	This disc is not DVD format. Cannot play the disc.	Error Code
2	0	0	3	C	0	0	4	PAL Contents Error	This disc is PAL. Cannot play the disc.	Error Code
2	0	0	4	C	0	0	5	NTSC Error	This disc is NTSC Cannot play the disc.	Error Code
2	0	0	5	C	0	0	6	Region Error	Region error	Error Code
2	0	0	D	C	0	0	7	Parental Error	Cannot play the disc due to parental lock.	Error Code
2	0	0	1	C	0	0	8	Disc Navigation Error	Cannot play the disc. Check the disc.	Error Code
2	0	1	9	C	0	0	9	ICT Warning	High resolution output is prohibited for this content. Resolution was changed to 480p.	Error Code
2	0	2	4	C	0	0	A	ICT Warning	High resolution output is prohibited for this content. Resolution was changed to 480p.	Error Code
2	0	2	5	C	0	0	B	DOT Warning	Analog output is prohibited. Change to HDMI output.	Error Code
2	0	2	2	C	0	0	C	Version Up Confirmation	Version Up ? [[Yes]] No	Error Code
2	0	2	0	C	0	0	D	Latest firmware no version up	The software has already been updated. The update process will end.	Error Code
2	0	1	F	C	0	0	E	Start Version Up Procedure	Updating. Do not turn off.	Error Code
2	0	0	7	C	0	0	F	Version Up Error	Error Code : 0xXXXXXXXX	Error Code
2	0	0	7	C	0	1	0	Version Up Error	Error Code : 0xXXXXXXXX	Error Code
2	0	0	E	C	0	1	1	AACS Error	The prohibited transaction was executed by the content.	Error Code
2	0	0	F	C	0	1	2	AACS Error	This disc is not available for this player.	Error Code
2	0	1	0	C	0	1	3	AACS Error	Playback is prohibited. The playback is stopped.	Error Code
2	0	1	1	C	0	1	4	AACS Error	Failed to verify the content. The playback is stopped.	Error Code
2	0	1	2	C	0	1	5	AACS Error	Management system error occurred. Please call Toshiba Customer Support.	Error Code
2	0	1	3	C	0	1	6	AACS Error	System error occurred.	Error Code
2	0	*	*	C	0	1	7	AACS Error	Cannot play the disc. Error code : 0x00000000	Error Code
2	0	*	*	C	0	1	8	AACS Error	Cannot play the disc. Error code : 0x00000000	Error Code
2	0	*	*	C	0	1	9	Initialization Error	Cannot play the disc. Error code : 0x00000000	Error Code
2	0	*	*	C	0	1	A	Celeron CPU Interconnection Error	Cannot play the disc. Error code : 0x00000000	Error Code
2	0	*	*	C	0	1	B	File creation error	Cannot play the disc. Error code : 0x00000000	Error Code
2	0	*	*	C	0	1	C	internal error	Cannot play the disc. Error code : 0x00000000	Error Code
2	0	*	*	C	0	1	D	DISCID.DAT,Playlist Error	Cannot play the disc.	Error Code
2	0	*	*	C	0	1	E	internal error	Cannot play the disc. Error code : 0x00000000	Error Code
2	0	*	*	C	0	1	F	advanced error	Cannot play the disc. Error code : 0x00000000	Error Code
4	0	*	*	C	5	0	1	Disc unreadable error	Cannot play the disc. Check the disc.	Error Code
4	0	*	*	C	5	0	2	50Hz HD DVD warning	Cannot play the disc.	Error Code
4	0	*	*	C	5	0	3	AACS Error		Error Code
4	0	*	*	C	5	0	4	Contents Error	Cannot play the disc. Error code : 0x00000000	Error Code
4	0	*	*	C	5	0	5	No File	Cannot play the disc. Error code : 0x00000000	Error Code
4	0	*	*	C	5	1	6	AACS Error	Failed to verify the content. The playback is stopped.	Error Code
4	0	*	*	C	5	1	A	AACS Error	System error occurred.	Error Code
4	0	*	*	C	5	F	E	unexpected error	Cannot play the disc. Error code : 0x00000000	Error Code

External Error Code								Content of Error	OSD	VFD
4	0	*	*	C	8	1	3	AACS Error	The prohibited transaction was executed by the content.	Error Code
4	0	*	*	C	8	1	4	AACS Error	This disc is not available for this player.	Error Code
4	0	*	*	C	8	1	5	AACS Error	Playback is prohibited. The playback is stopped.	Error Code
4	0	*	*	C	8	1	6	AACS Error	Failed to verify the content. The playback is stopped.	Error Code
4	0	*	*	C	8	1	7	AACS Error	Management system error occurred. Please call Toshiba Customer Support.	Error Code
4	0	*	*	C	8	1	A	AACS Error	System error occurred.	Error Code
4	0	*	*	C	0	0	3	Contents Error	Cannot play the disc. Error code : 0x00000000	Error Code
4	0	*	*	C	0	0	4	System Error	Cannot play the disc. Error code : 0x00000000	Error Code
4	0	*	*	C	0	0	8	Secure Access Controller Failure	Cannot play the disc. Error code : 0x00000000	Error Code
4	0	*	*	C	0	0	B	Resource Load Failure	Cannot play the disc. Error code : 0x00000000	Error Code
4	0	*	*	C	0	0	C	Script Failure	Cannot play the disc. Error code : 0x00000000	Error Code
4	0	*	*	C	0	0	D	Markup Error	Cannot play the disc. Error code : 0x00000000	Error Code
4	0	*	*	C	2	0	3	Playlist Error	Cannot play the disc. Error code : 0x00000000	Error Code
4	0	*	*	4	6	0	0	Graphics critical Error	Cannot play the disc. Error code : 0x00000000	Error Code
4	0	*	*	4	6	0	1	Pixel Buffer Error	Cannot play the disc. Error code : 0x00000000	Error Code
4	0	*	*	4	6	0	3	Unexpected Error	Cannot play the disc. Error code : 0x00000000	Error Code
4	0	8	B	C	7	0	0	Network API Error	Cannot play the disc. Error code : 0x00000000	Error Code
4	0	8	B	C	7	0	1	DISCID.DAT Error	Cannot play the disc. Error code : 0x00000000	Error Code
4	0	8	B	C	7	1	0	Illegal Input File	Cannot play the disc. Error code : 0x00000000	Error Code
4	0	8	B	C	7	1	1	AACS Initialize Error	Cannot play the disc. Error code : 0x00000000	Error Code
4	0	8	B	C	7	1	3	Illegal AACS call	Cannot play the disc. Error code : 0x00000000	Error Code
4	0	8	B	C	7	1	A	System Error	Cannot play the disc. Error code : 0x00000000	Error Code
4	0	8	B	C	7	F	E	Network API Critical Error	Cannot play the disc. Error code : 0x00000000	Error Code

*OSD is a display of the TV monitor screen.
*VFD is a display of the indicator of the front panel

2. Update Error

Error Code								Contents of Error	Remark
2	0	*	*	C	5	0	1	Decryption Error	
2	0	*	*	C	5	0	2	Decryption Error	
2	0	*	*	C	5	0	8	Same Version	
2	0	*	*	C	5	1	0	file read error	
2	0	*	*	C	5	1	1	file read error	
2	0	*	*	C	5	1	8	Memory Error	
2	0	*	*	C	5	1	9	Memory Error	
2	0	*	*	C	5	2	1	File Error	
2	0	*	*	C	5	2	2	Network Error	Wrong Network Setting
2	0	*	*	C	5	2	3	Proxy Error	Wrong Network Setting
2	0	*	*	C	5	2	4	Proxy Error	Wrong Network Setting
2	0	*	*	C	5	2	5	Proxy Error	LAN connection error
2	0	*	*	C	5	2	6	connect error	
2	0	*	*	C	5	2	7	connect error	
2	0	*	*	C	5	2	8	server error	line busy
2	0	*	*	C	5	2	9	server error	line busy
2	0	*	*	C	5	2	A	server error	line busy
2	0	*	*	C	5	2	B	SSL error	
2	0	*	*	C	5	2	C	SSL error	
2	0	*	*	C	5	2	D	SSL error	
2	0	*	*	C	5	2	E	SSL error	
2	0	*	*	C	5	2	F	SSL error	
2	0	*	*	C	5	3	0	SSL error	
2	0	*	*	C	5	3	1	SSL error	
2	0	*	*	C	5	3	2	SSL error	
2	0	*	*	C	5	3	3	CRL error	
2	0	*	*	C	5	3	4	verification error	
2	0	*	*	C	5	3	5	CRL error	
2	0	*	*	C	5	3	6	CRL error	
2	0	*	*	C	5	3	7	CRL error	
2	0	*	*	C	5	3	8	CRL error	
2	0	*	*	C	5	3	9	verification error	
2	0	*	*	C	5	3	A	verification error	
2	0	*	*	C	5	3	B	verification error	
2	0	*	*	C	5	3	C	verification error	
2	0	*	*	C	5	3	D	verification error	
2	0	*	*	C	5	3	E	verification error	
2	0	*	*	C	5	3	F	verification error	
2	0	*	*	C	5	4	0	verification error	clock setting
2	0	*	*	C	5	4	1	verification error	
2	0	*	*	C	5	4	2	verification error	
2	0	*	*	C	5	4	3	verification error	
2	0	*	*	C	5	4	4	Application Error	
2	0	*	*	C	5	4	5	Memory Error	
2	0	*	*	C	5	4	6	verification error	
2	0	*	*	C	5	4	7	verification error	
2	0	*	*	C	5	4	8	verification error	
2	0	*	*	C	5	4	9	verification error	
2	0	*	*	C	5	4	A	authority and subject key identifier mismatch	
2	0	*	*	C	5	4	B	not match serial number	
2	0	*	*	C	5	4	C	verification error	
2	0	*	*	C	5	4	D	not valid time	clock setting

Error Code								Contents of Error	Remark
2	0	*	*	C	5	4	E	not valid time	clock setting
2	0	*	*	C	5	4	F	long path name	
2	0	*	*	C	5	5	0	verification error	
2	0	*	*	C	5	5	1	server error	line busy
2	0	*	*	C	5	5	2	server error	line busy
2	0	*	*	C	5	5	3	server error	line busy
2	0	*	*	C	5	5	4	SSL error	
2	0	*	*	C	5	5	5	data size error	
2	0	*	*	C	5	5	6	data size error	
2	0	*	*	C	5	7	0	Drive Error	
2	0	*	*	C	5	7	1	Drive manufacturer Error	
2	0	*	*	C	5	7	2	Drive Error	
2	0	*	*	C	5	7	3	Drive Error	
2	0	*	*	C	5	9	0	Drive Error	
2	0	*	*	C	5	9	1	flash memory error	
2	0	*	*	C	5	9	2	flash memory error	
2	0	*	*	C	5	9	3	flash memory error	
2	0	*	*	C	5	9	8	flash memory error	
2	0	*	*	C	5	9	9	flash memory error	
2	0	*	*	C	5	9	A	flash memory error	
2	0	*	*	C	5	A	0	flash memory error	VR NAND
2	0	*	*	C	5	A	1	flash memory error	VR NAND
2	0	*	*	C	5	A	2	flash memory error	VR NAND
2	0	*	*	C	5	A	3	Memory Error	memory shortage
2	0	*	*	C	5	A	4	Memory Error	memory shortage
2	0	*	*	C	5	A	5	Memory Error	memory shortage
2	0	*	*	C	5	A	6	flash memory error	VR NAND
2	0	*	*	C	5	A	7	flash memory error	VR NAND
2	0	*	*	C	5	A	8	flash memory error	VR NAND
2	0	*	*	C	5	A	9	flash memory error	VR NAND
2	0	*	*	C	5	A	A	flash memory error	VR NAND
2	0	*	*	C	5	A	B	flash memory error	VR NAND
2	0	*	*	C	5	A	C	flash memory error	VR NAND
2	0	*	*	C	5	A	D	flash memory error	VR NAND
2	0	*	*	C	5	A	E	flash memory error	VR NAND
2	0	*	*	C	5	C	0	machine code error	
2	0	*	*	C	5	C	1	hardware type unmatch	
2	0	*	*	C	5	C	2	hardware type unmatch	
2	0	*	*	C	5	C	3	same version	
2	0	*	*	C	5	D	8	not good version up image	
2	0	*	*	C	5	D	9	memory write error	
2	0	*	*	C	5	D	A	memory write error	
2	0	*	*	C	5	D	B	memory write error	
2	0	*	*	C	5	E	0	Drive firmware version up error	
2	0	*	*	C	5	E	1	internal command error	
2	0	*	*	C	5	E	2	internal command error	
2	0	*	*	C	5	E	3	internal command error	
2	0	*	*	C	5	E	4	internal command error	
2	0	*	*	C	5	F	1	internal command error	
2	0	*	*	C	5	F	2	internal command error	

SUPPLEMENT3. TROUBLESHOOTING

3-1. Standby LED (red) does not light.

```
              ┌─────────────────┐
              │   START (1)      │
              └────────┬────────┘
                       │
                       ▼
         ◇───────────────────────◇          ◇───────────────────────◇
         E+5V supplied to pin 16 of   Yes    Power_LED on pin 2 of    Yes    ┌────────────────────┐
         CN601 from power unit?   ────────>  CN702 is "L"?        ────────>  │ Replace PWR_SW unit. │
         ◇───────────────────────◇          ◇───────────────────────◇       └────────────────────┘
                       │ No                           │ No
                       ▼                              ▼
         ┌─────────────────────┐          ┌─────────────────────┐
         │  Replace power unit. │          │  Failure of main unit. │
         └─────────────────────┘          └─────────────────────┘
```

3-2. LED (green) does not light at power on.

```
              ┌─────────────────┐
              │   START (2)      │
              └────────┬────────┘
                       │
                       ▼
         ◇───────────────────────◇          ◇───────────────────────◇
         Power_LED on pin 2 of       Yes    CN702 FFC ( W103) cable   Yes    ┌────────────────────┐
         CN702 is "H"?            ────────>  inserted correctly?   ────────>  │ Replace PWR_SW unit. │
         ◇───────────────────────◇          ◇───────────────────────◇       └────────────────────┘
                       │ No                           │ No
                       ▼                              ▼
         ┌─────────────────────┐          ┌─────────────────────┐
         │  Failure of main unit │          │ Replace FFC (W103) cable. │
         └─────────────────────┘          └─────────────────────┘
```

3-3. CPU FAN does not work.

```
          ┌─────────────────┐
          │   START (3)     │
          └────────┬────────┘
                   │
                   ▼
            ╱─────────────╲
           ╱ Pin 1 of CN803 ╲        Yes      ┌──────────────────┐
          ╱  develope        ╲──────────────▶ │ Replace FAN unit. │
           ╲  12V±5%?        ╱               └──────────────────┘
            ╲───────────────╱
                   │ No
                   ▼
          ┌─────────────────┐
          │  Power circuit  │
          │  troubleshooting│
          └─────────────────┘
```

3-4. Indicator does not light. ("WELCOME" does not light at startup.)

```
          ┌─────────────────┐
          │   START (4)     │
          └────────┬────────┘
                   │
                   ▼
            ╱──────────────╲
           ╱ Pin 1~4 of IC705╲
          ╱  VFD driver IF    ╲
         ╱  bus working at     ╲    Yes      ╱────────────╲      Yes     ┌──────────────────┐
        ╱   startup?           ╲──────────▶ ╱ PIN 20 of    ╲──────────▶ │ Replace front FIP │
        ╲    1: CLK            ╱            ╲ CN601 develope╱            │ unit or main unit.│
         ╲   2: DIN           ╱             ╲ 5V±5%?       ╱             └──────────────────┘
          ╲  3: STB          ╱               ╲────────────╱
           ╲ 4: DOUT        ╱                     │ No
            ╲──────────────╱                      ▼
                   │ No                  ┌──────────────────────────┐
                   ▼                     │ Power circuit            │
          ┌──────────────────┐          │ troubleshooting          │
          │ Failure of main  │          └──────────────────────────┘
          │ unit             │
          └──────────────────┘
```
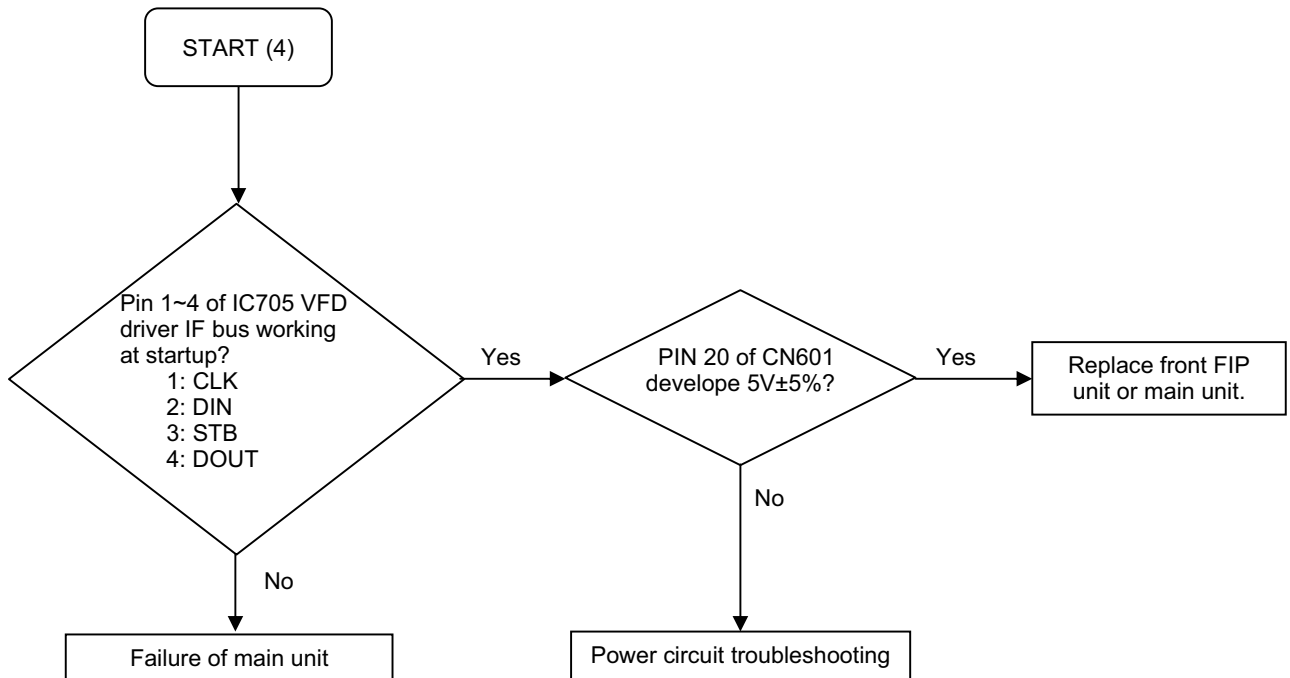
3-5. System does not run. ("WELCOME" displayed and key operation disabled)

```
                    ┌──────────────┐
                    │  START (5)   │
                    └──────┬───────┘
                           │
                           ▼
                      ╱─────────╲              No        ╱─────────────────╲       No    ┌─────────────────────────────┐
                     ╱  TP414 is  ╲ ──────────────────▶ ╱ E602(VCC+3.3V)     ╲ ─────────▶ │ Power circuit troubleshooting│
                     ╲ "H" (3.3V)? ╱                    ╲ voltage output      ╱            └─────────────────────────────┘
                      ╲───────────╱                      ╲ correctly?        ╱
                           │ Yes                          ╲─────────────────╱
                           │                                    │ Yes
                           ▼                                    ▼
                                                        ┌──────────────────┐
                                                        │ Failure of main  │
                                                        │     unit         │
                                                        └──────────────────┘
```

Connector (CN403) of DVD drive and power connector connected correctly? — No → Check CN403 connection and replace FFC cable.

Check CN403 connection and replace FFC cable. — Not restored → Replace DVD drive. — Restored → END

Is the cable of CN3001 inserted correctly? (Pin 1 and 2 are +12V?) — No → Connect the cable correctly. — Restored → END

Connect the cable correctly. — Not restored →

Check PJ1004 and PJ3017 connection and replace FFC cable. — Yes → END — No → Failure of main unit

3-6. No picture appears.

```
           ┌─────────────┐              • Before repair, confirm the connection with a TV
           │  START (6)  │                set and the settings of DVD player.
           └──────┬──────┘
                  │
                  ▼
            ╱───────────╲
           ╱  All analog  ╲
          ╱ (video, S-video,╲            ┌──────────────────────────────────────┐
         ◇ component) and HDMI◇──No────▶ │ Check HDMI troubleshooting.(3-6-1)   │
          ╲ do not output   ╱            │               or                     │
           ╲  picture?     ╱             │    Check and replace cable.          │
            ╲───────────╱                │               or                     │
                  │                      │       Replace main unit.             │
                 Yes                     └──────────────────────────────────────┘
                  │
                  ▼
  ┌──────────────────────────────────────┐
  │ Check owner's manual. (Resolution Setting) │
  │               or                     │
  │    Check TV resolution setting.      │
  │               or                     │
  │       Replace main unit.             │
  └──────────────────────────────────────┘
```
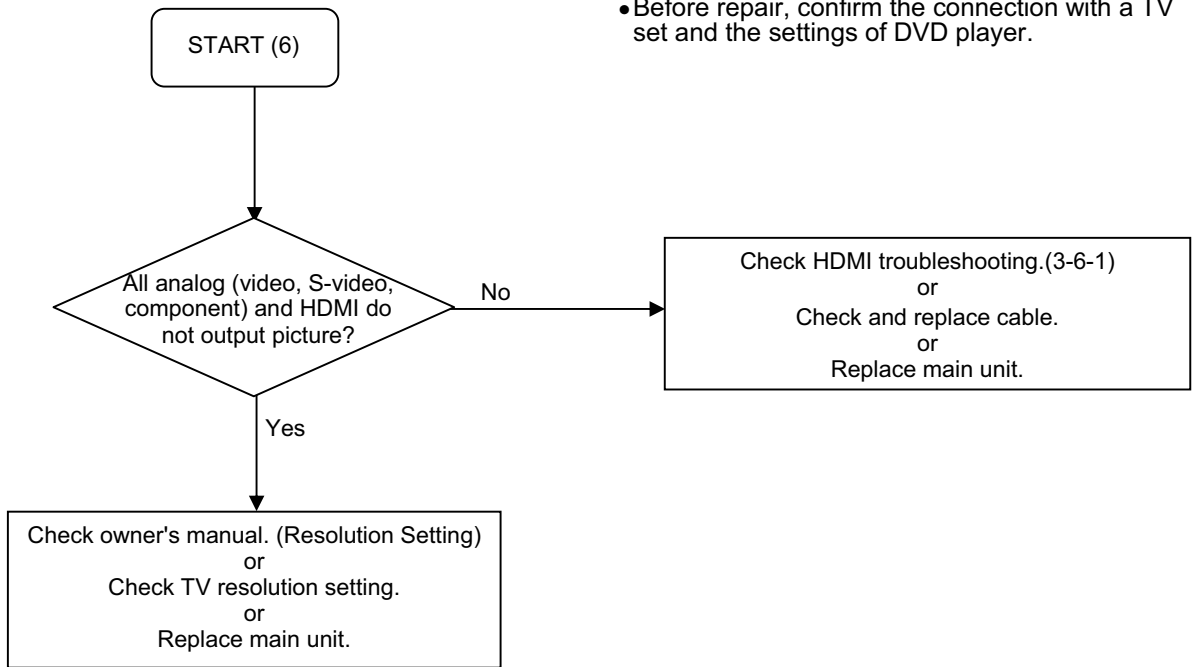
3-6-1. No output from HDMI.

• Replace main unit.

3-7. No audio is played back.

```
        ┌─────────────┐              • Before repair, confirm the connection with a TV
        │  START (7)  │                set and the settings of DVD player.
        └─────────────┘
               │
               ▼
          ╱─────────╲                    ┌──────────────────────────────────────────────┐
        ╱  All analog, ╲        No        │ Check and replace AV cable.                  │
       ╱  digital, and   ╲────────────────▶│ Check and replace HDMI cable.               │
       ╲  HDMI audio are ╱                │ Check and replace optical and coaxial cable. │
        ╲ not played    ╱                 │ Replace main unit.                           │
          ╲  back?    ╱                   └──────────────────────────────────────────────┘
               │
              Yes
               │
               ▼
        ┌──────────────────┐
        │ Replace main unit.│
        └──────────────────┘
```

3-8. Buzzer does not sound.

```
        ┌─────────────┐
        │  START (8)  │
        └─────────────┘
               │
               ▼
          ╱─────────────╲                               ┌────────────────────────────────┐
        ╱ [Remote        ╲     Not selected              │ Select [Remote Controller Sound] in │
       ╱  Controller Sound]╲──────────────────────────────▶│ application's Setup menu.       │
       ╲  in Setup menu    ╱                             └────────────────────────────────┘
        ╲  selected?      ╱
          ╲─────────────╱
               │
            Selected
               │
               ▼
        ┌──────────────────┐
        │ Failure of main unit│
        └──────────────────┘
```

3-9. Extension port does not work.

```
                    ┌─────────────────┐
                    │   START (9)     │
                    └────────┬────────┘
                             │
                             │
                             ▼
                    ◇─────────────────◇
                   ╱                   ╲        No        ┌──────────────────────────────┐
                  ◇ Neither right port  ◇─────────────────►│ Check and replace CN402 cable │
                   ╲  nor left port     ╱                  │ (W101) or replace front       │
                    ◇   works?        ◇   Either one port  │ SW_USB unit.                  │
                     ╲───────┬───────╱    does not work.   └──────────────────────────────┘
                             │
                            Yes
                             │
                             ▼
                    ◇─────────────────◇
                   ╱                   ╲        No        ┌──────────────────────────────┐
                  ◇ Device to be        ◇─────────────────►│ Check the device supported    │
                   ╲ connected is       ╱                  │ by this mode.                 │
                    ◇  supported?     ◇                    └──────────────────────────────┘
                     ╲───────┬───────╱
                             │
                            Yes
                             │
                             ▼
                    ┌─────────────────┐
                    │ Failure of main │
                    │ unit            │
                    └─────────────────┘
```

3-10. Front panel keys/remote control are disabled.

```
                    ┌──────────────────┐
                    │    START (10)    │
                    └──────────────────┘
                              │
                              ▼
                    ╱─────────────────╲                 No      ┌──────────────────────┐
                   ╱  Front Power LED   ╲ ─────────────────────▶ │  Change power unit.  │
                   ╲    lighting?       ╱                        └──────────────────────┘
                    ╲─────────────────╱
                              │ Yes
                              ▼
                    ╱─────────────────╲                 No      ┌─────────────────────────────────────────┐
                   ╱  PJ7 connected     ╲ ─────────────────────▶ │ Check and replace CN703 FFC (W001) cable.│
                   ╲    correctly?      ╱                        │ Replace front SW_USB unit.               │
                    ╲─────────────────╱                          └─────────────────────────────────────────┘
                              │ Yes
                              ▼
                    ┌──────────────────┐
                    │ Failure of main  │
                    │      unit        │
                    └──────────────────┘
```
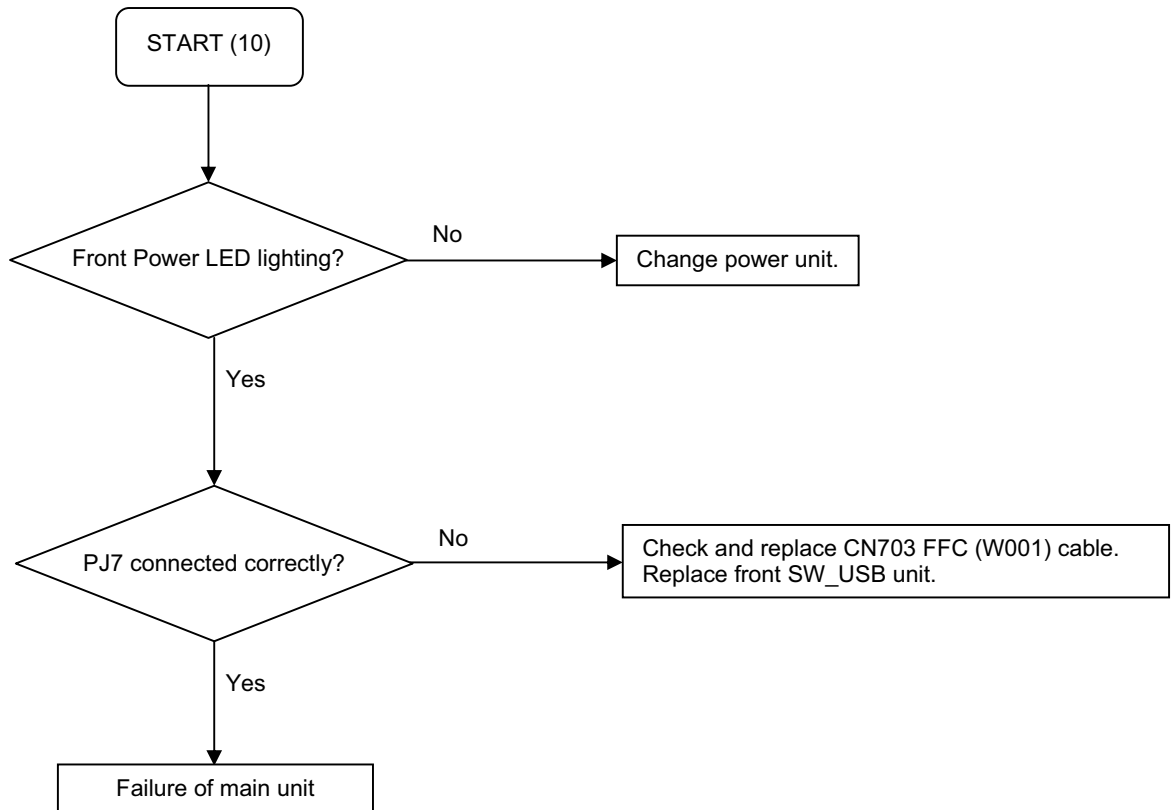
3-11. Other Symptoms

- Improper LAN connection
  LAN depends on the quality of the environment and lines to which LAN is connected. Check the DVD player as well as network settings, cables, and connected devices.

- Improper CONTROL pin connection
  Use a serial cross cable to connect the unit to a PC.
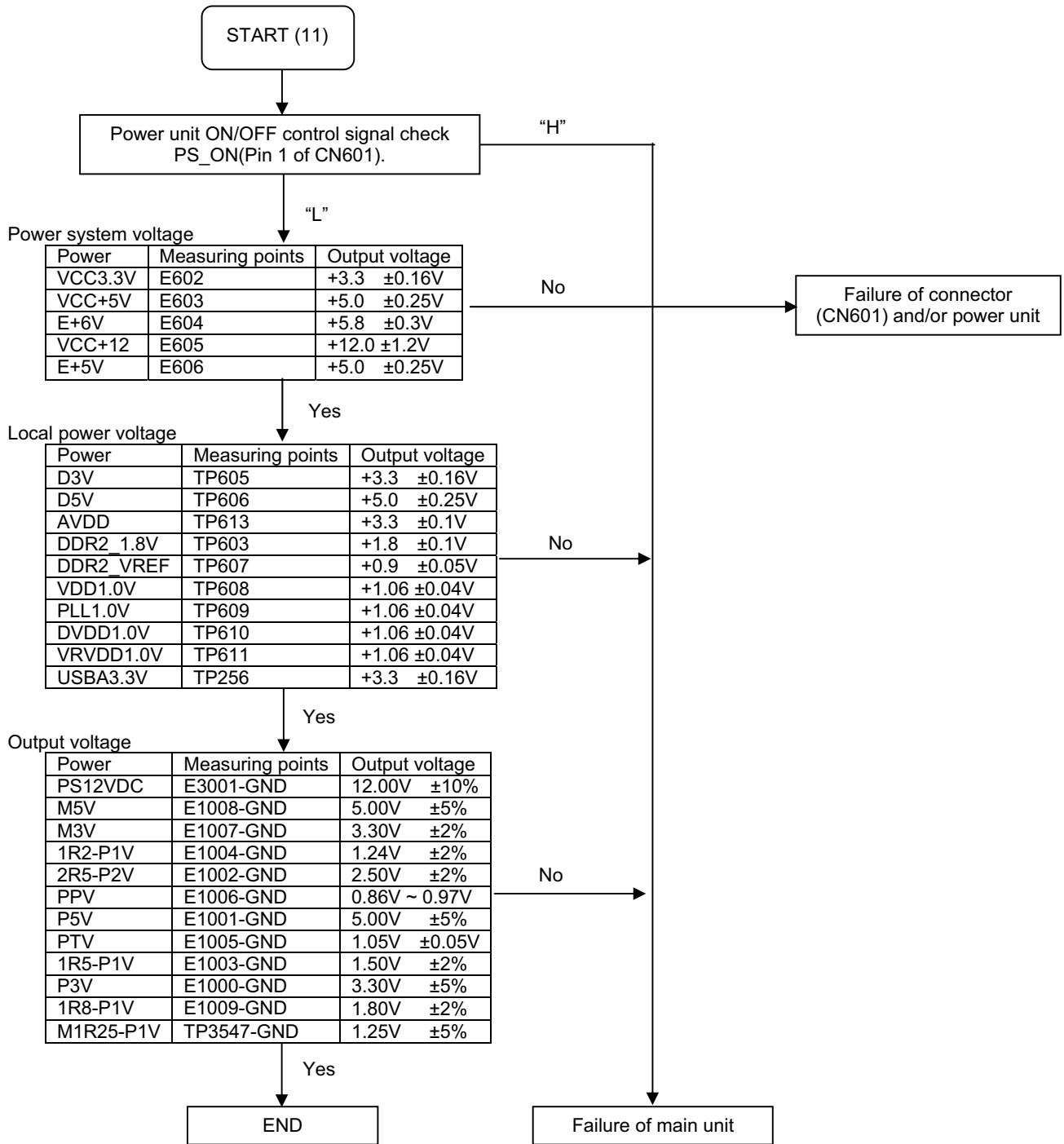
  Check the above. However, if the problem still remains, the main unit may be faulty.

3-12.Power Circuit Troubleshooting

START (11)

Power unit ON/OFF control signal check
PS_ON(Pin 1 of CN601).

"H"

"L"

Power system voltage

Power	Measuring points	Output voltage
VCC3.3V	E602	+3.3 ±0.16V
VCC+5V	E603	+5.0 ±0.25V
E+6V	E604	+5.8 ±0.3V
VCC+12	E605	+12.0 ±1.2V
E+5V	E606	+5.0 ±0.25V

No

Yes

Local power voltage

Power	Measuring points	Output voltage
D3V	TP605	+3.3 ±0.16V
D5V	TP606	+5.0 ±0.25V
AVDD	TP613	+3.3 ±0.1V
DDR2_1.8V	TP603	+1.8 ±0.1V
DDR2_VREF	TP607	+0.9 ±0.05V
VDD1.0V	TP608	+1.06 ±0.04V
PLL1.0V	TP609	+1.06 ±0.04V
DVDD1.0V	TP610	+1.06 ±0.04V
VRVDD1.0V	TP611	+1.06 ±0.04V
USBA3.3V	TP256	+3.3 ±0.16V

No

Yes

Output voltage

Power	Measuring points	Output voltage
PS12VDC	E3001-GND	12.00V ±10%
M5V	E1008-GND	5.00V ±5%
M3V	E1007-GND	3.30V ±2%
1R2-P1V	E1004-GND	1.24V ±2%
2R5-P2V	E1002-GND	2.50V ±2%
PPV	E1006-GND	0.86V ~ 0.97V
P5V	E1001-GND	5.00V ±5%
PTV	E1005-GND	1.05V ±0.05V
1R5-P1V	E1003-GND	1.50V ±2%
P3V	E1000-GND	3.30V ±5%
1R8-P1V	E1009-GND	1.80V ±2%
M1R25-P1V	TP3547-GND	1.25V ±5%

No

Yes

END

Failure of connector
(CN601) and/or power unit

Failure of main unit

SPECIFICATIONS

Power requirement	41.0W
Power supply	220 - 240V AC 50/60Hz
Mass	4.1kg
External dimension	Width 430 x Height 65.5 x Depth 343mm
Signal system	Standard PAL/NTSC colour TV system
Laser	Semiconductor laser, Wavelength: 405nm/650nm/780nm
VIDEO output	1.0Vp-p (75Ω), Sync signal negative, Pin jack x 1 system
S-VIDEO output	(Y) 1.0Vp-p (75Ω), Sync signal negative, (C) 0.286Vp-p (75Ω), 1 at rear Mini DIN4 Pin x 1 system
COMPONENT output (Y, P$_B$, P$_R$)	Y output (green), 1.0Vp-p (75Ω), Sync signal negative, Pin jack x 1 system P$_B$, P$_R$ output (blue, red), 0.7Vp-p (75Ω), Pin jack x 1 system each
ANALOG AUDIO output	2.0V (rms), 2.2kΩ or below, pin jack (L, R) x 1 system
DIGITAL AUDIO OUTPUT (BITSTREAM/PCM jack)	Optical connector x 1 system
LAN port	100BASE-TX/10BASE-T x 1
EXTENSION port	EXTENSION port x 2 systems
HDMI output	19 pin
Remote control	Wireless remote control (SE-R0252)
Operating conditions	Temperature: 41°F ~ 95°F (5°C ~ 35°C), Position: Horizontal
Clock accuracy	Quartz (monthly deviation: approximately ±30 seconds)

• This model complies with the above specifications.

• Designs and specifications are subject to change without notice.

• This model may not be compatible with features and/or specifications that may be added in the future.

• The Illustrations and screens described in this manual may be exaggerated or simplified for easy recognition and may be slightly different from the actual unit.

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