

SERVICE MANUAL



HD DVD PLAYER

HD-A2KU
HD-A2WKU
HD-D2KU
HD-A2KC



(HD-A2KU)

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.

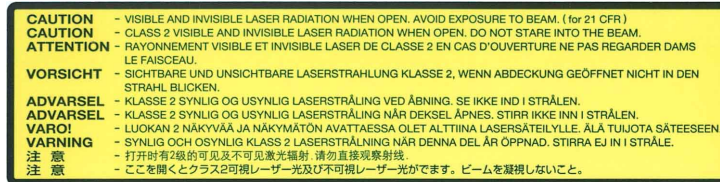
WARNING

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.

LASER BEAM CAUTION LABEL



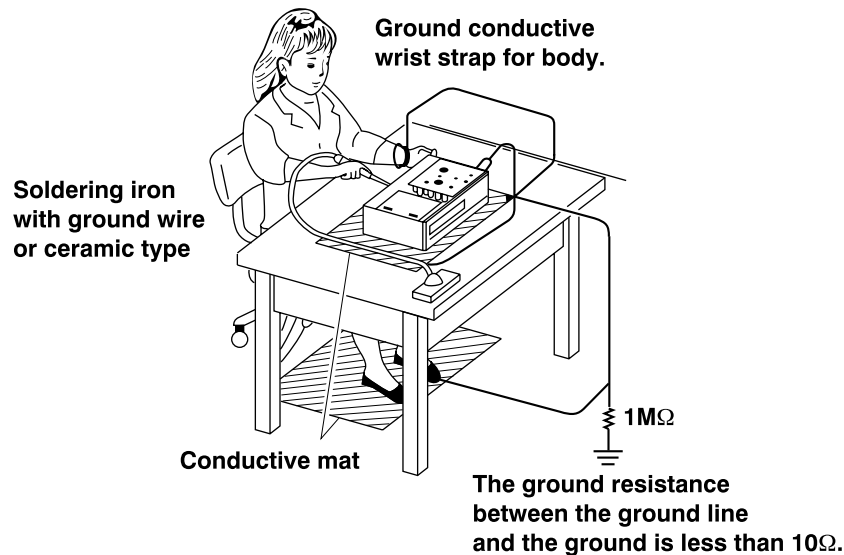
When the power supply is being turned on, you may not remove this laser cautions label. If it removes, radiation of a laser may be received.

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.



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SAFETY NOTICE

SAFETY PRECAUTIONS

LEAKAGE CURRENT CHECK

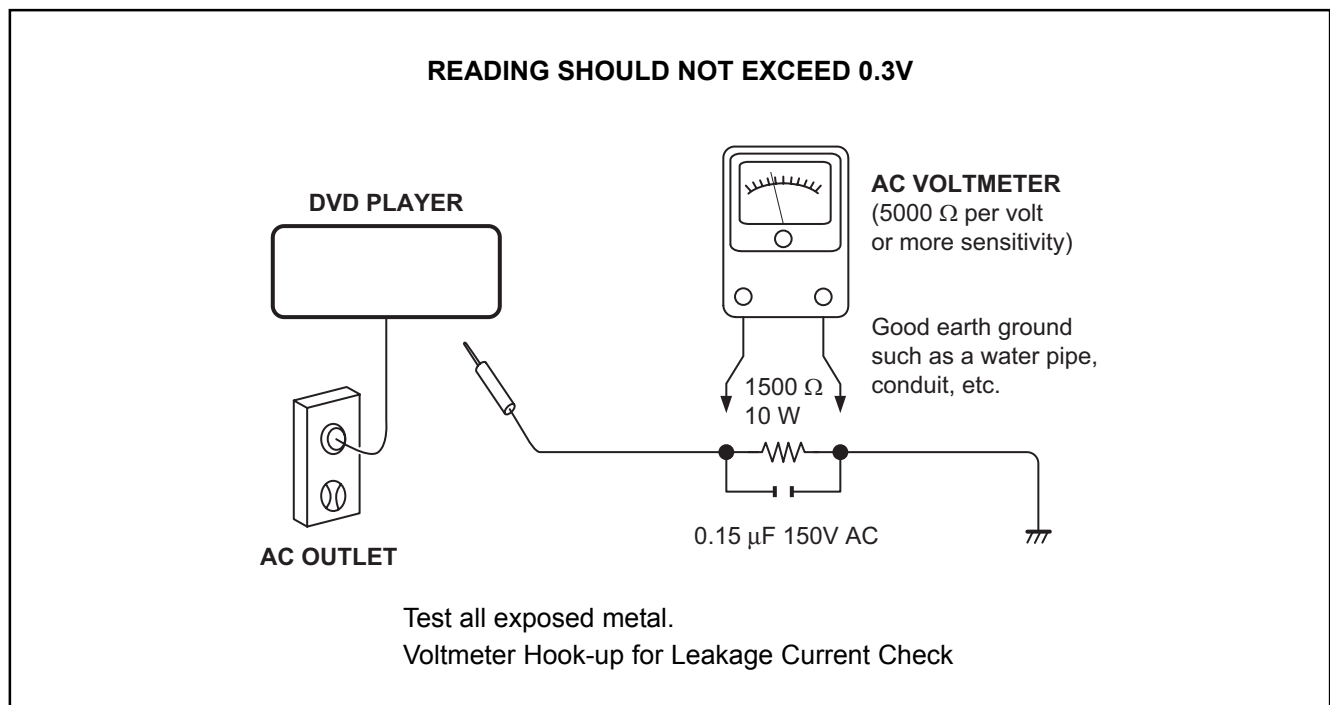
Plug the AC line cord directly into a 120V AC outlet (do not use an isolation transformer for this check). Use an AC voltmeter, having $5000\ \Omega$ per volt or more sensitivity. Connect a $1500\ \Omega$ 10 W resistor, paralleled by a $0.15\ \mu\text{F}$ 150V AC capacitor between a known good earth ground (water pipe, conduit, etc.) and all exposed metal parts of cabinet (antennas, handle bracket, metal cabinet screwheads, metal overlays, control shafts, etc.).

Measure the AC voltage across the $1500\ \Omega$ resistor.

The test must be conducted with the AC switch on and then repeated with the AC switch off. The AC voltage indicated by the meter may not exceed 0.3 V. A reading exceeding 0.3 V indicates that a dangerous potential exists, the fault must be located and corrected.

Repeat the above test with the DVD PLAYER power plug reversed.

NEVER RETURN A DVD PLAYER TO THE CUSTOMER WITHOUT TAKING NECESSARY CORRECTIVE ACTION.



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 product’s 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.

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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

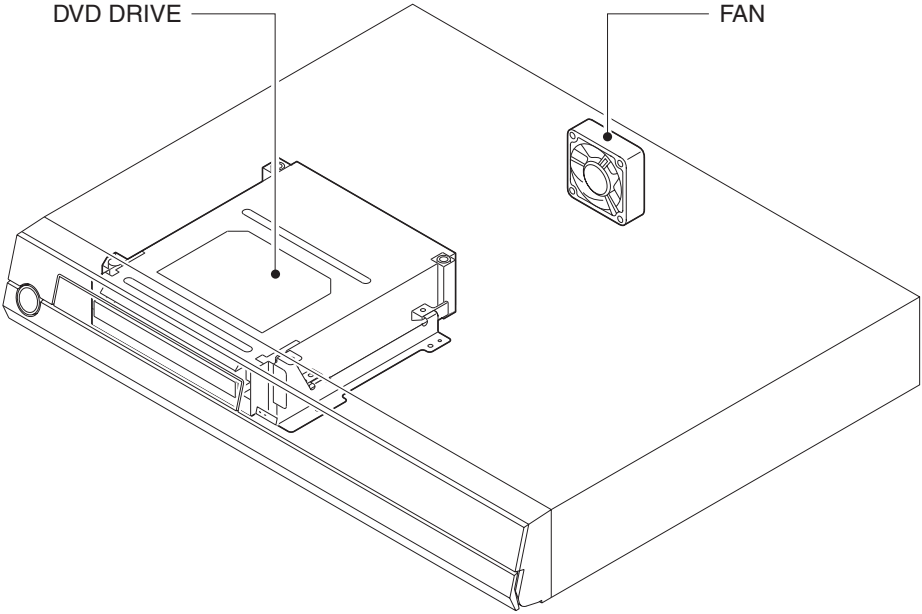


Fig. 1-2-1

2-2. Location of PC Boards

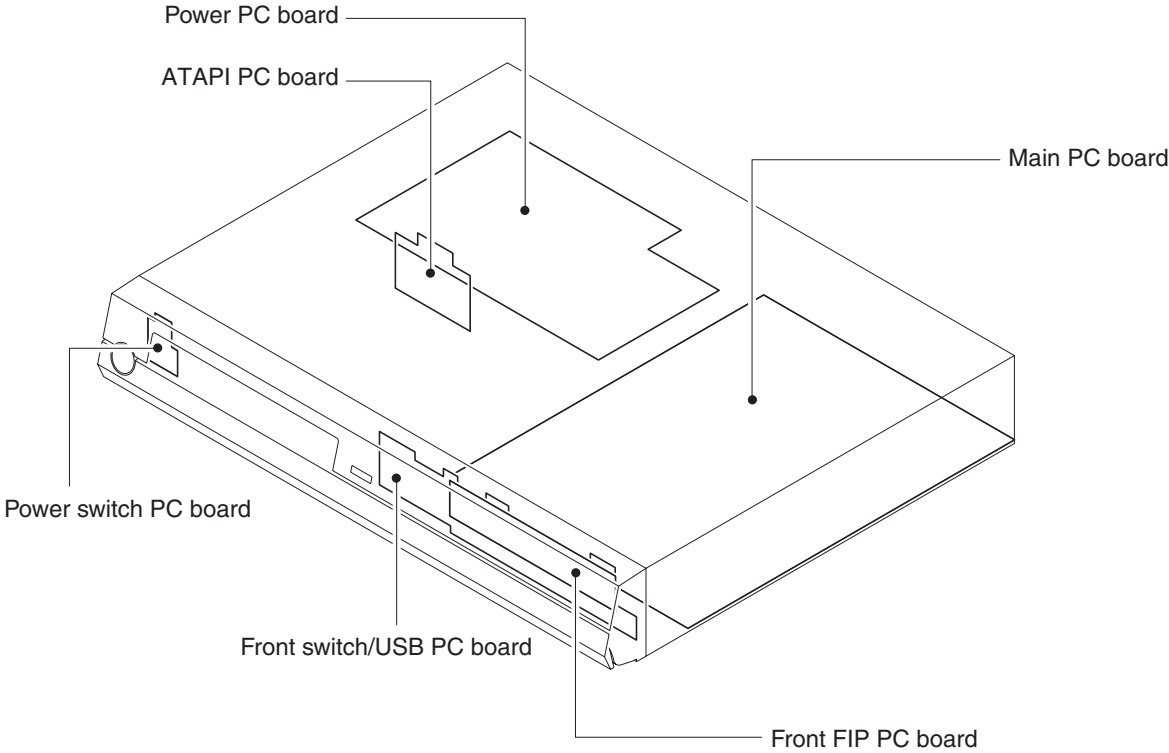


Fig. 1-2-2

SECTION 2

PART REPLACEMENT PROCEDURES

CAUTIONS BEFORE STARTING PART REPLACEMENT

Electronic parts are susceptible to static electricity and may easily be 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.
- This section describes how to replace the parts of HD-A2KU as a representative.

1-1. Front Panel, Front PC Boards

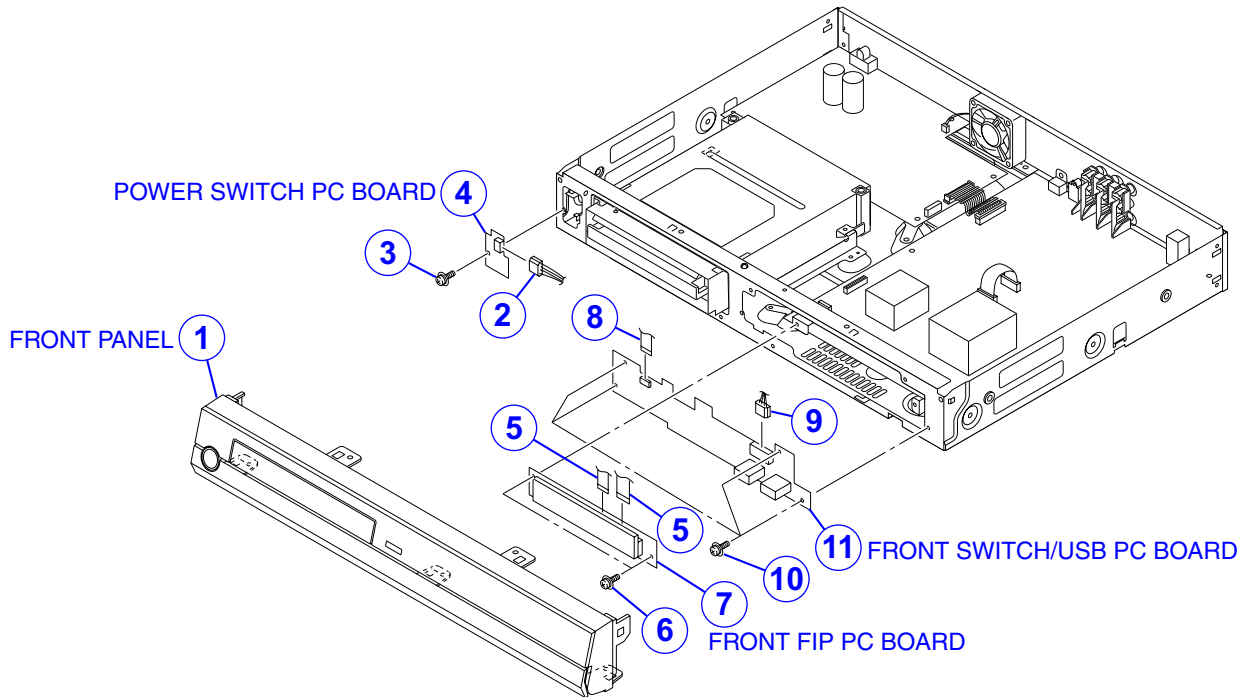


Fig. 2-1-1

1-2. Main/Power PC Boards

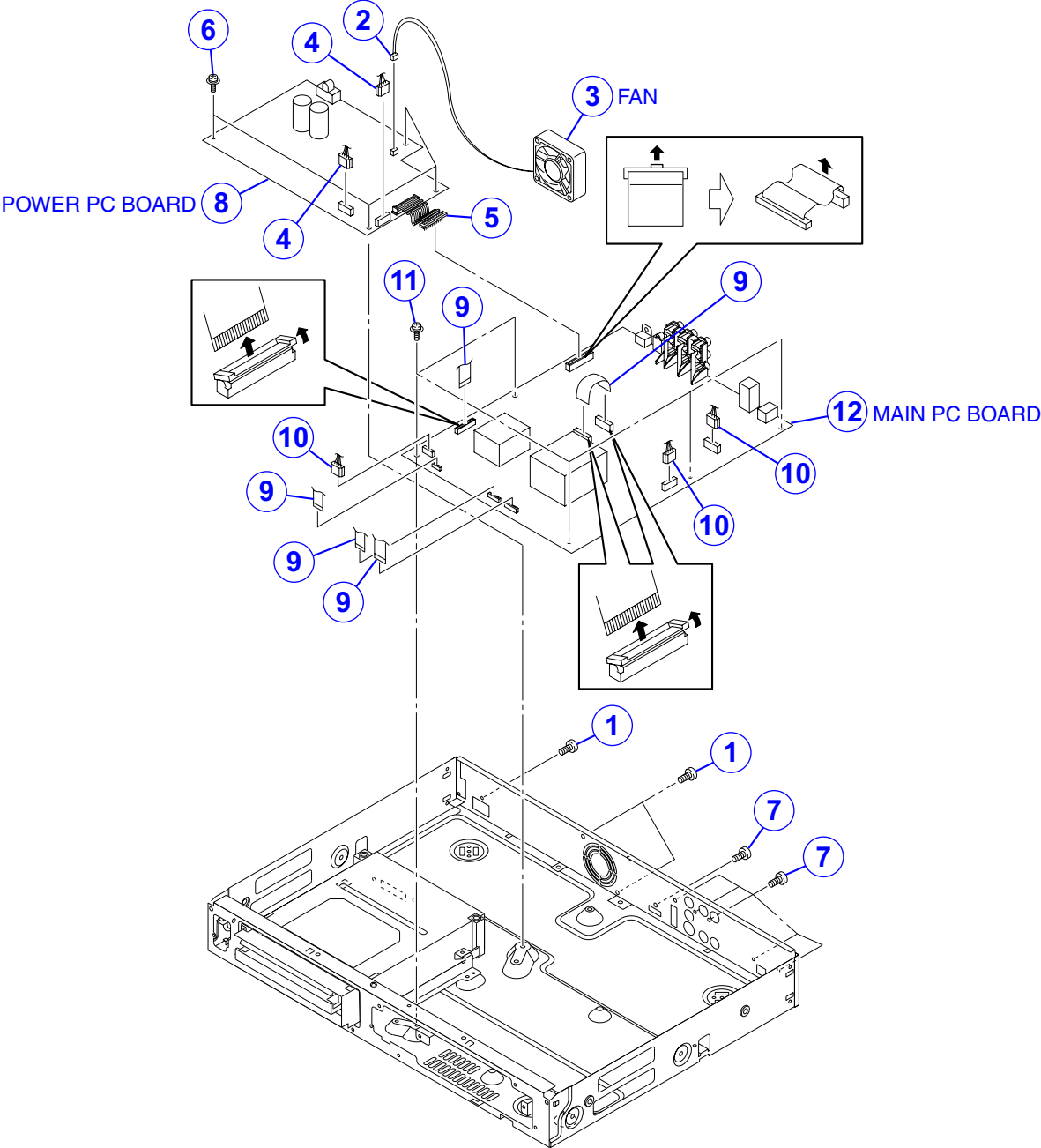


Fig. 2-1-2

1-3. DVD Drive

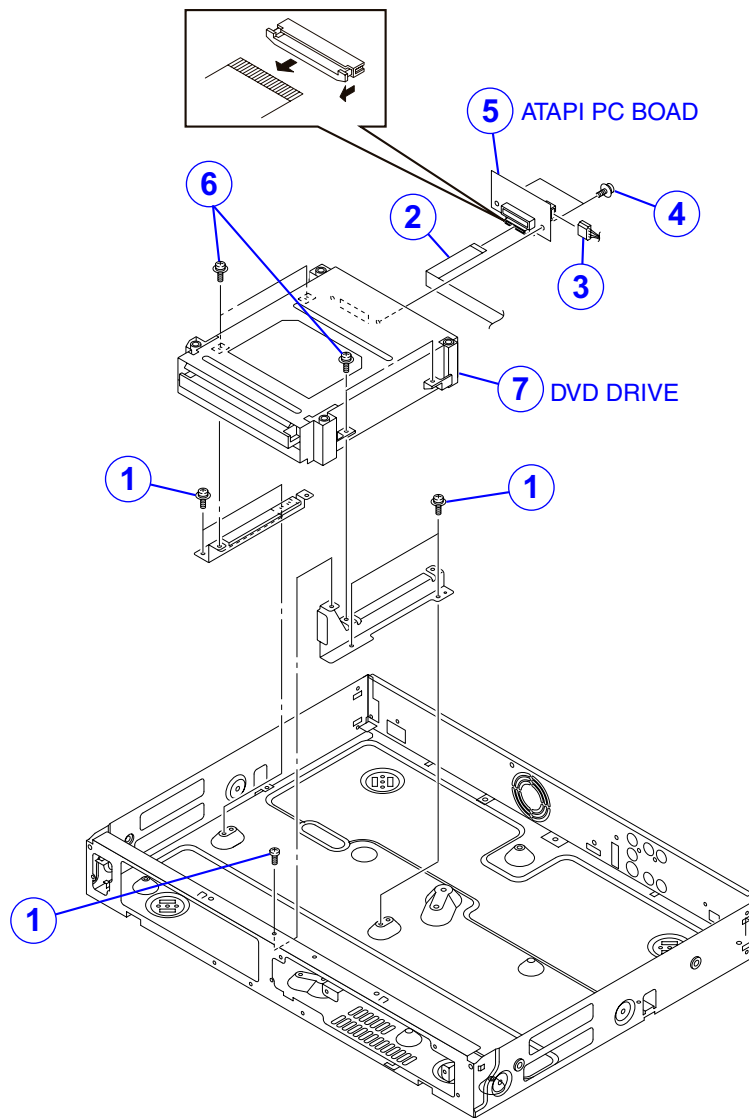


Fig. 2-1-3

2. WIRING CONNECTION DIAGRAM

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

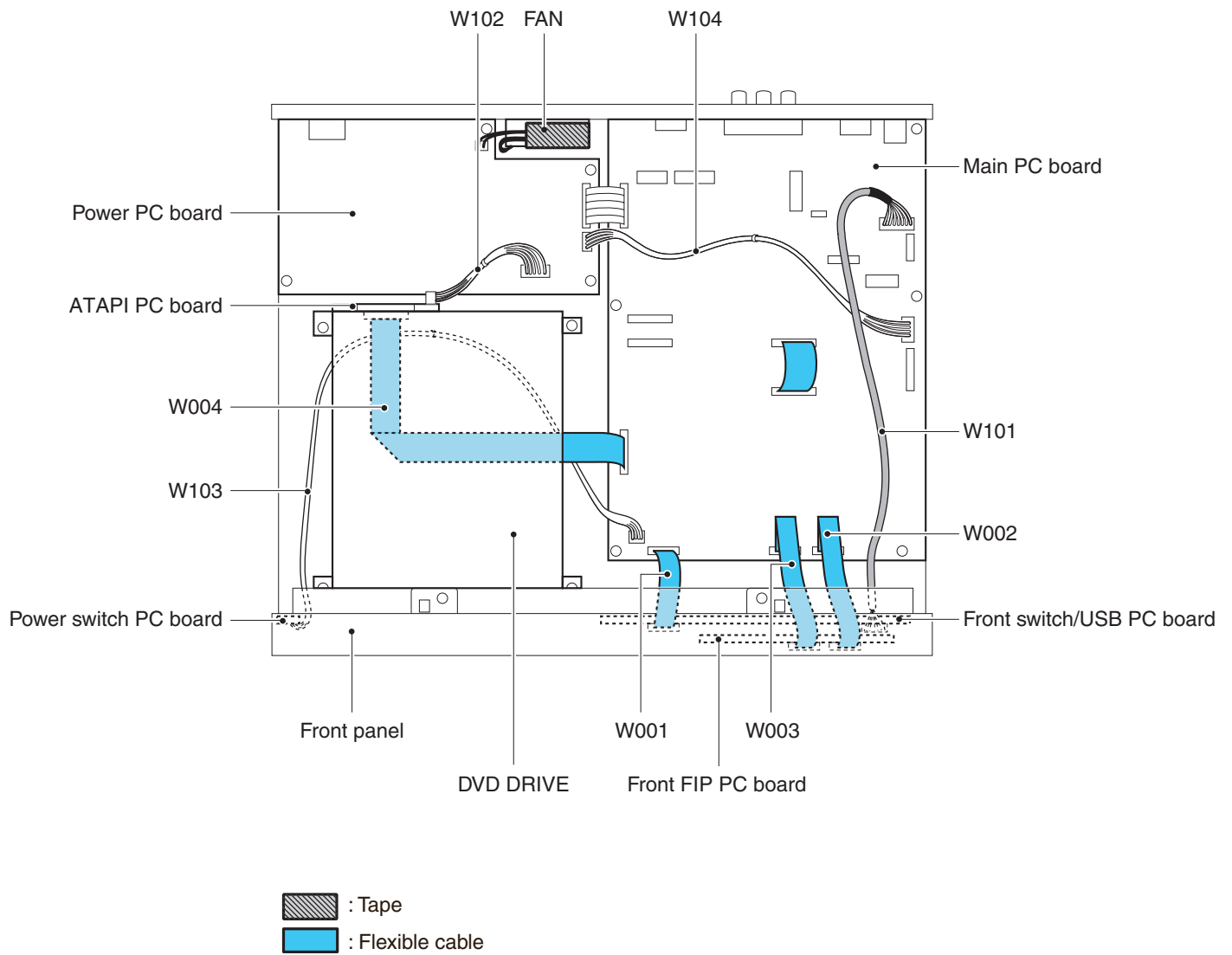


Fig. 2-2-1

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

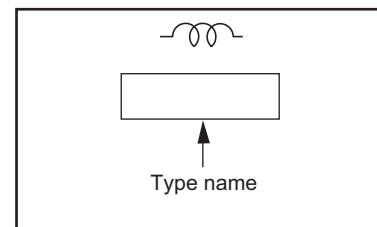


Fig. 3-1-4

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

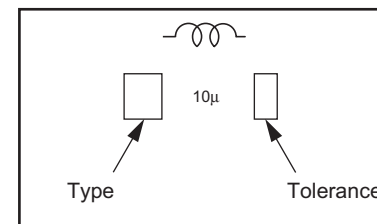


Fig. 3-1-5

2. PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

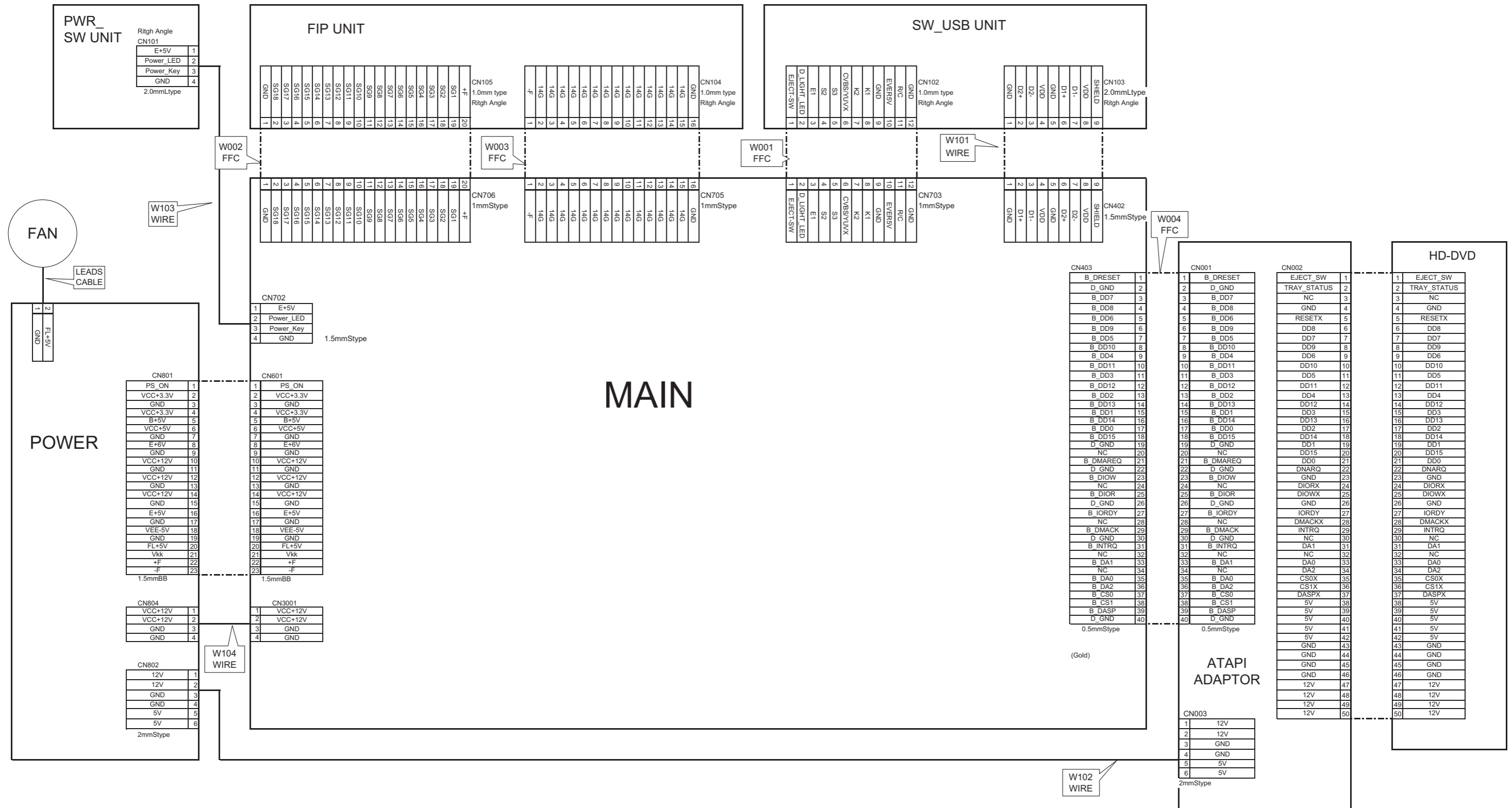


Fig. 3-2-1

3. BLOCK DIAGRAMS

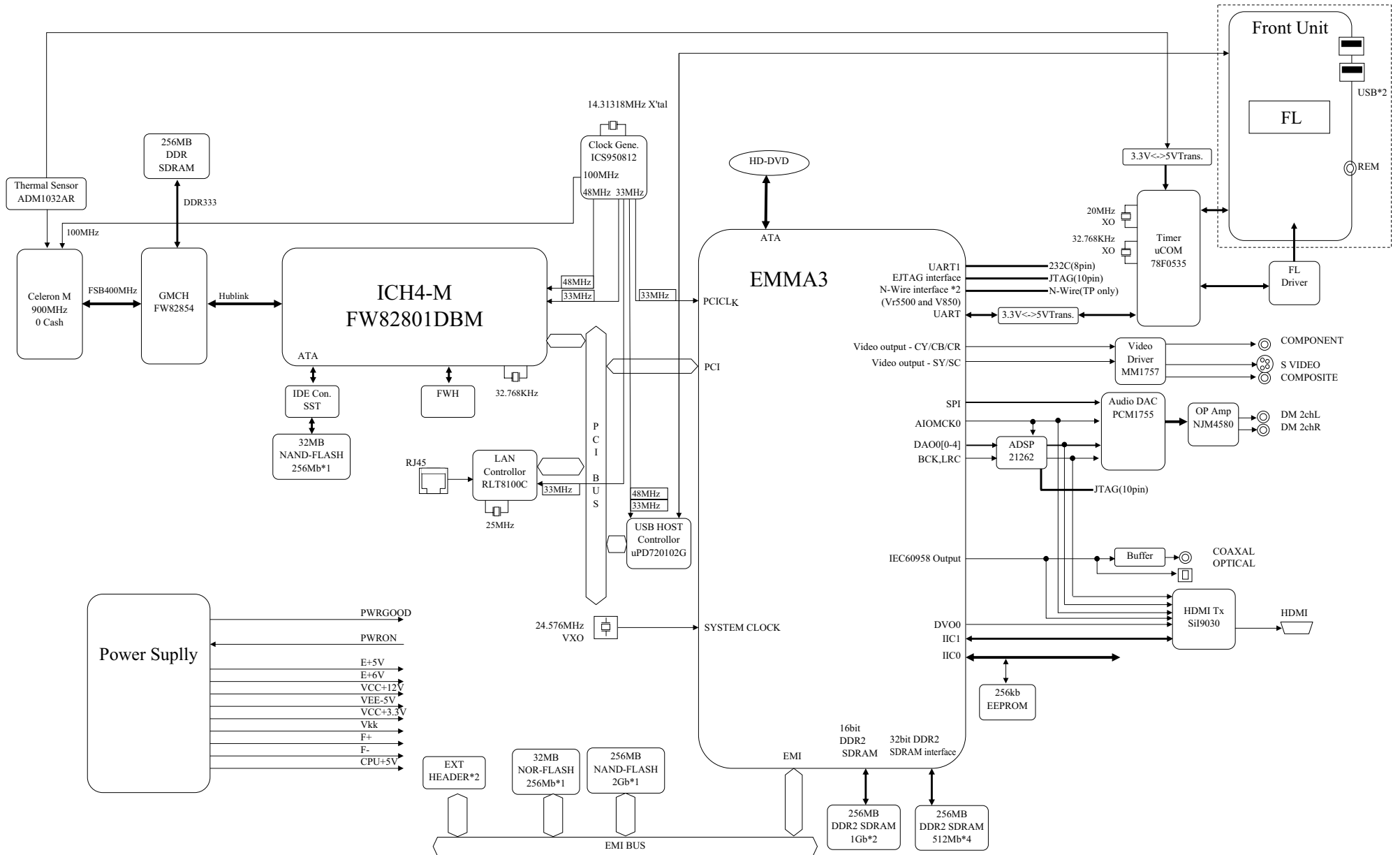


Fig. 3-3-1

4-1-2. Power Supply Circuit Diagram (Type B)

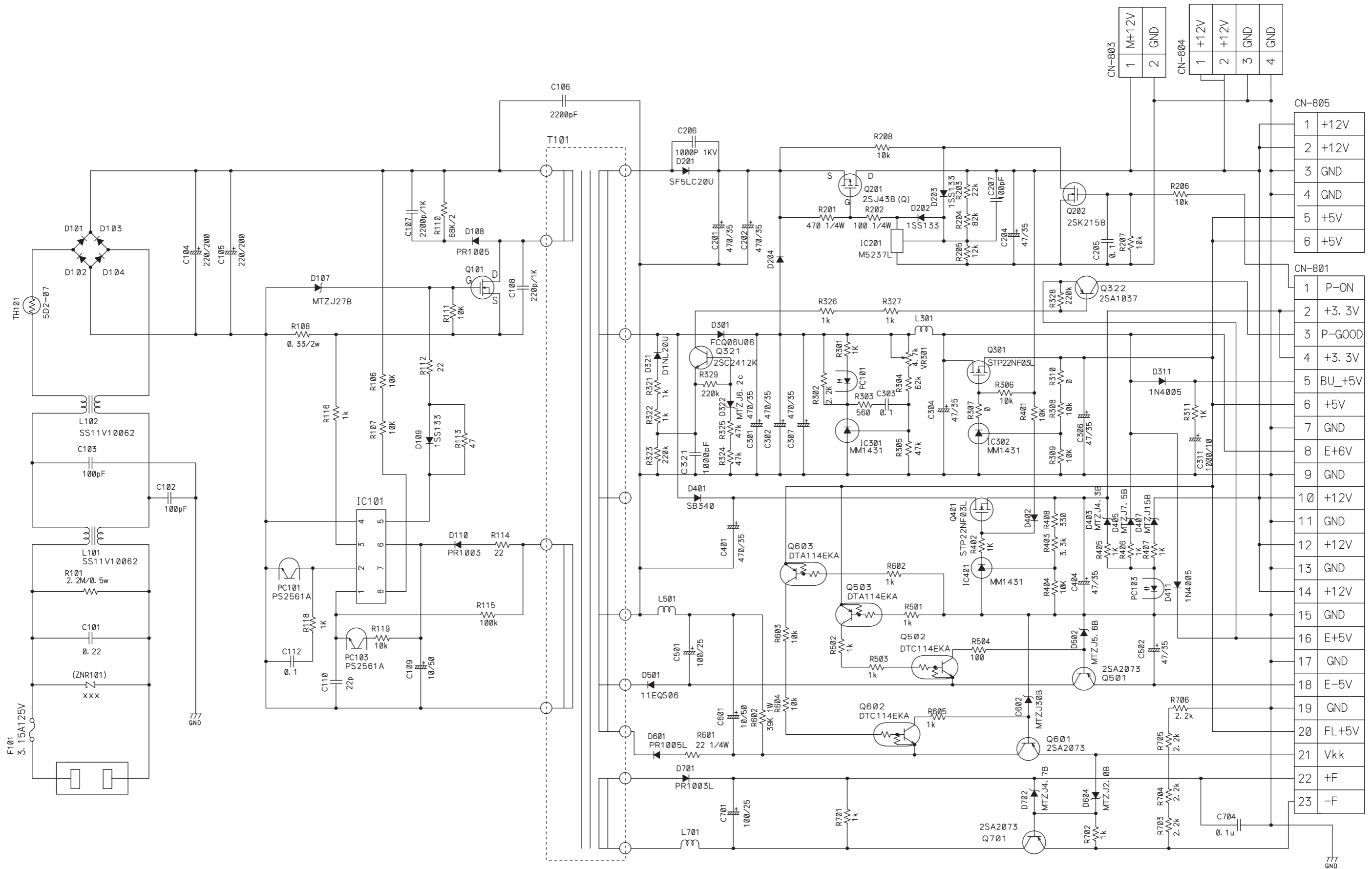


Fig. 3-4-2

4-2. Front Circuit Diagram

4-2-1. Front FIP Circuit Diagram

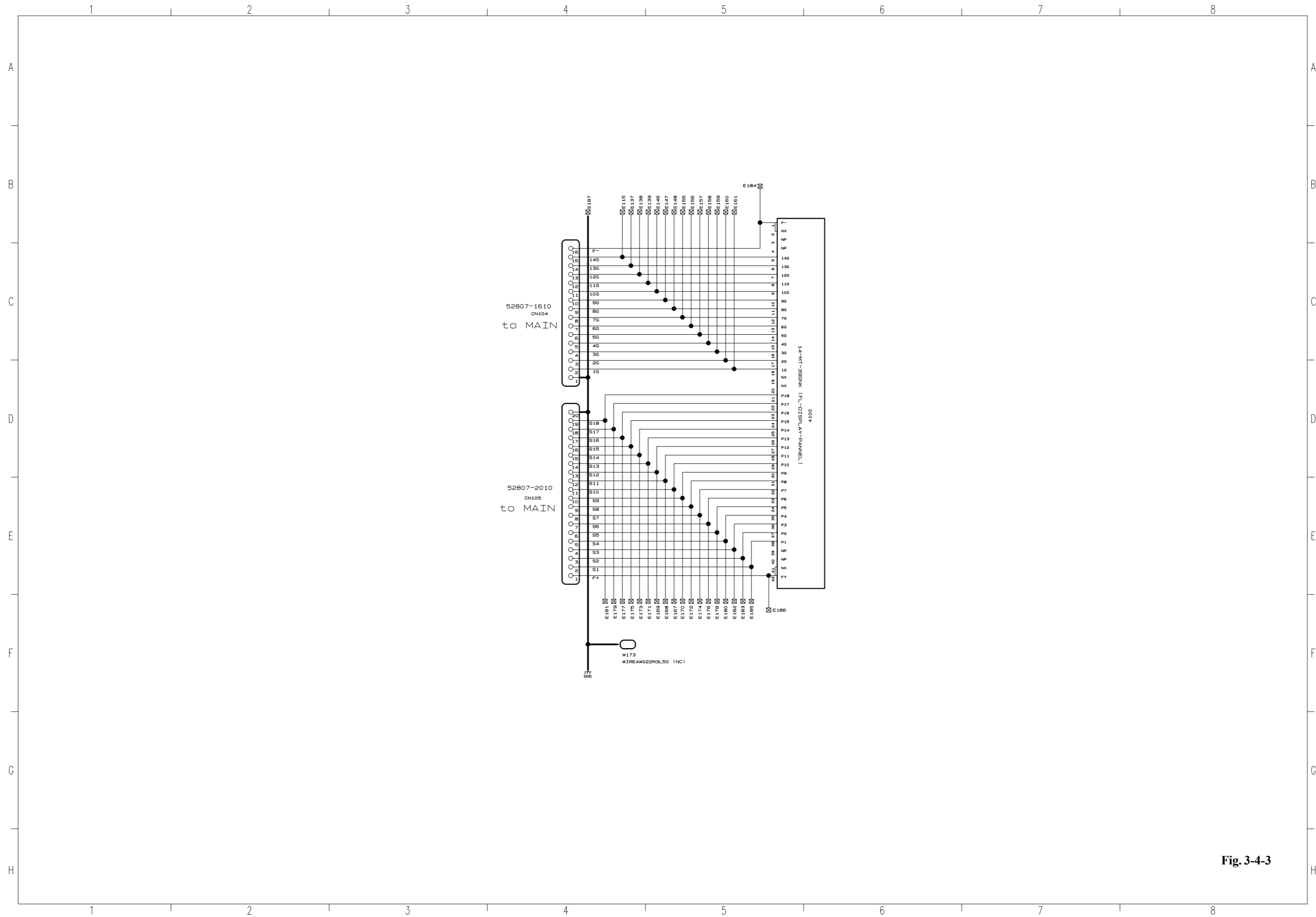


Fig. 3-4-3

4-2-2. Power Switch Circuit Diagram

D121	Use
D122	Not use

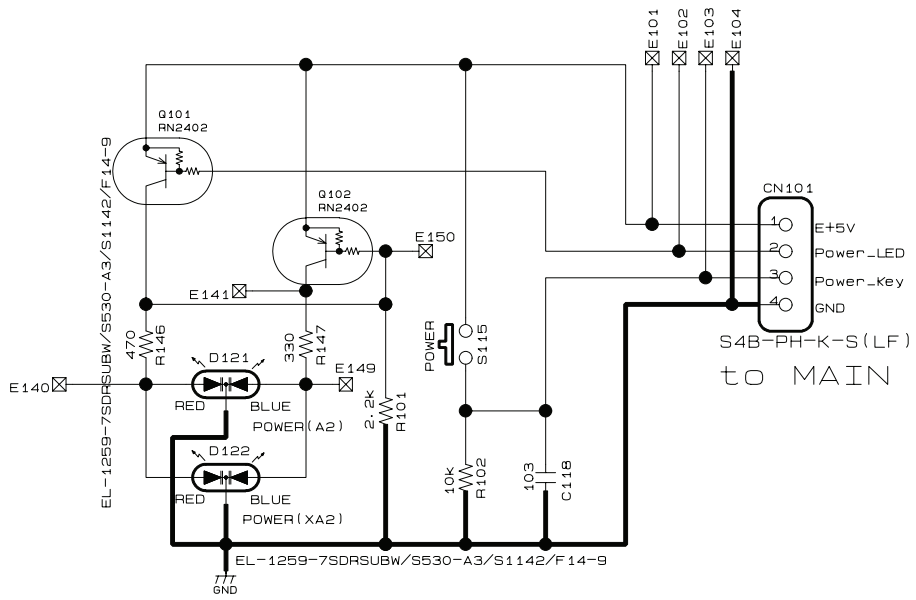


Fig. 3-4-4

4-2-3. Front Switch/USB Circuit Diagram

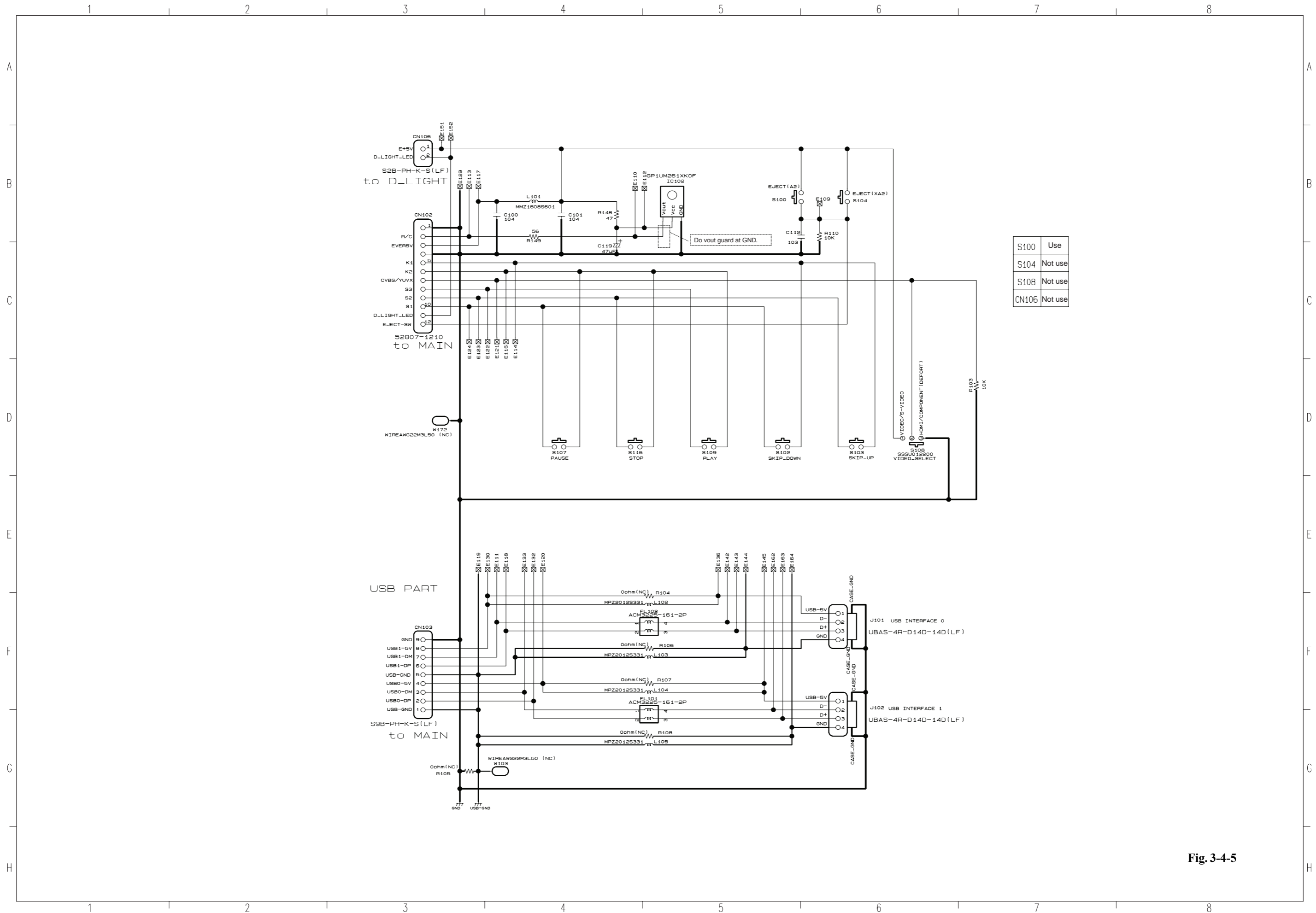


Fig. 3-4-5

4-3. ATAPI Conversion Circuit Diagram

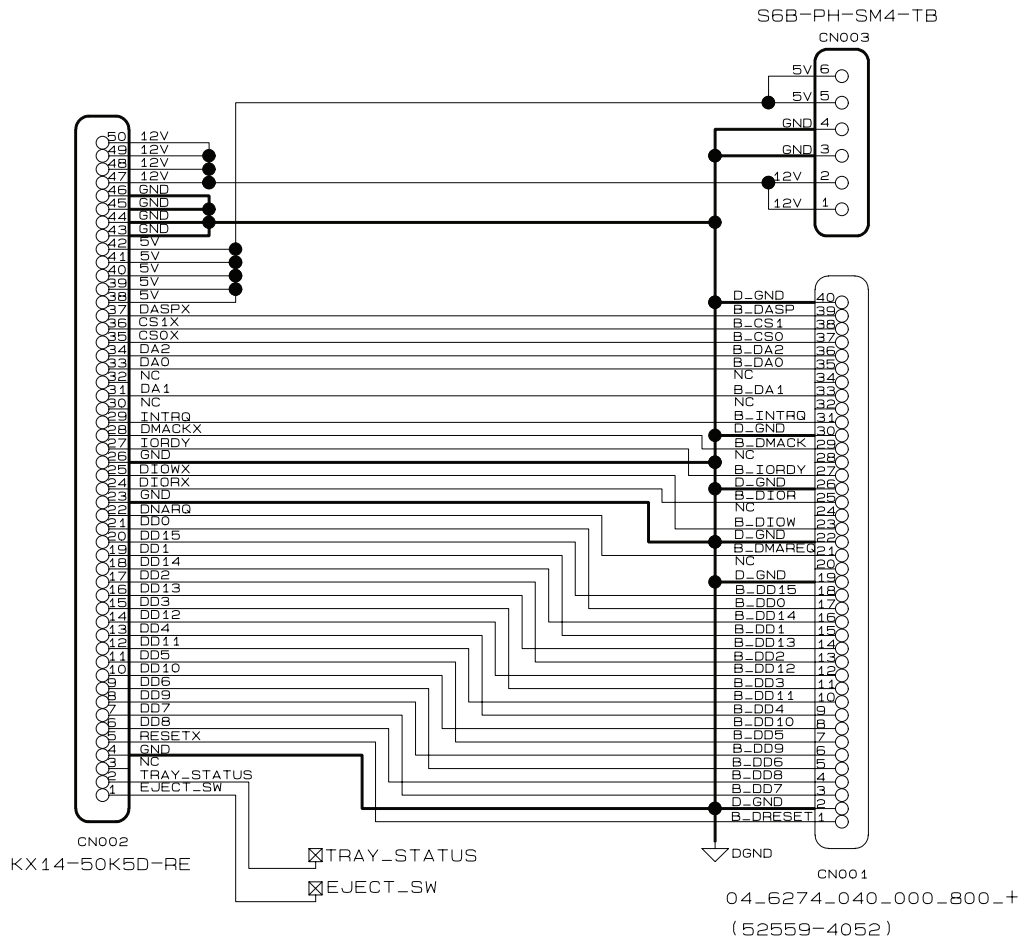


Fig. 3-4-6

4-4. Main Circuit Diagram

4-4-1. AV Output Circuit Diagram

Note : The main circuit diagrams describe only part of information.

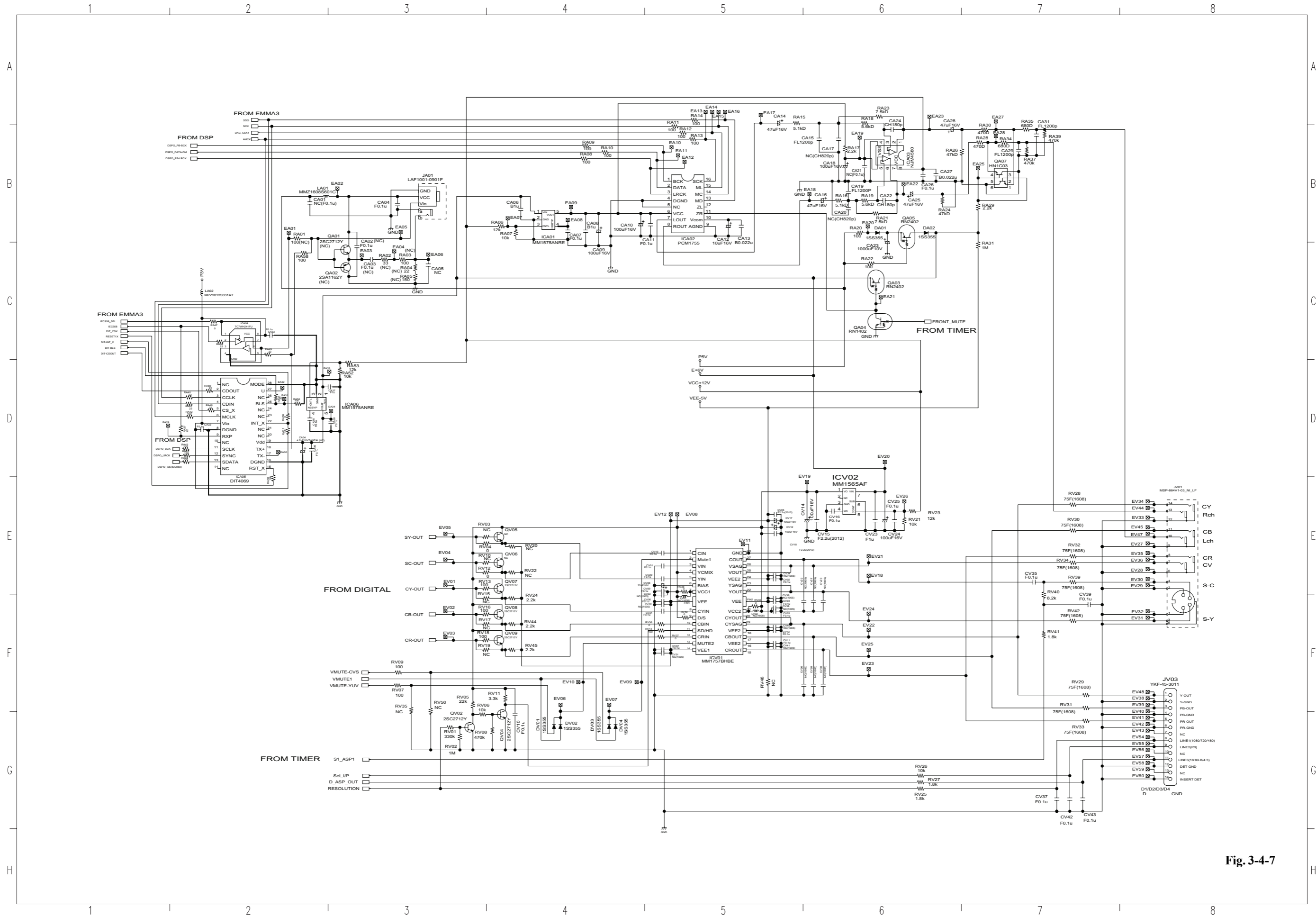


Fig. 3-4-7

4-4-2. Timer Circuit Diagram

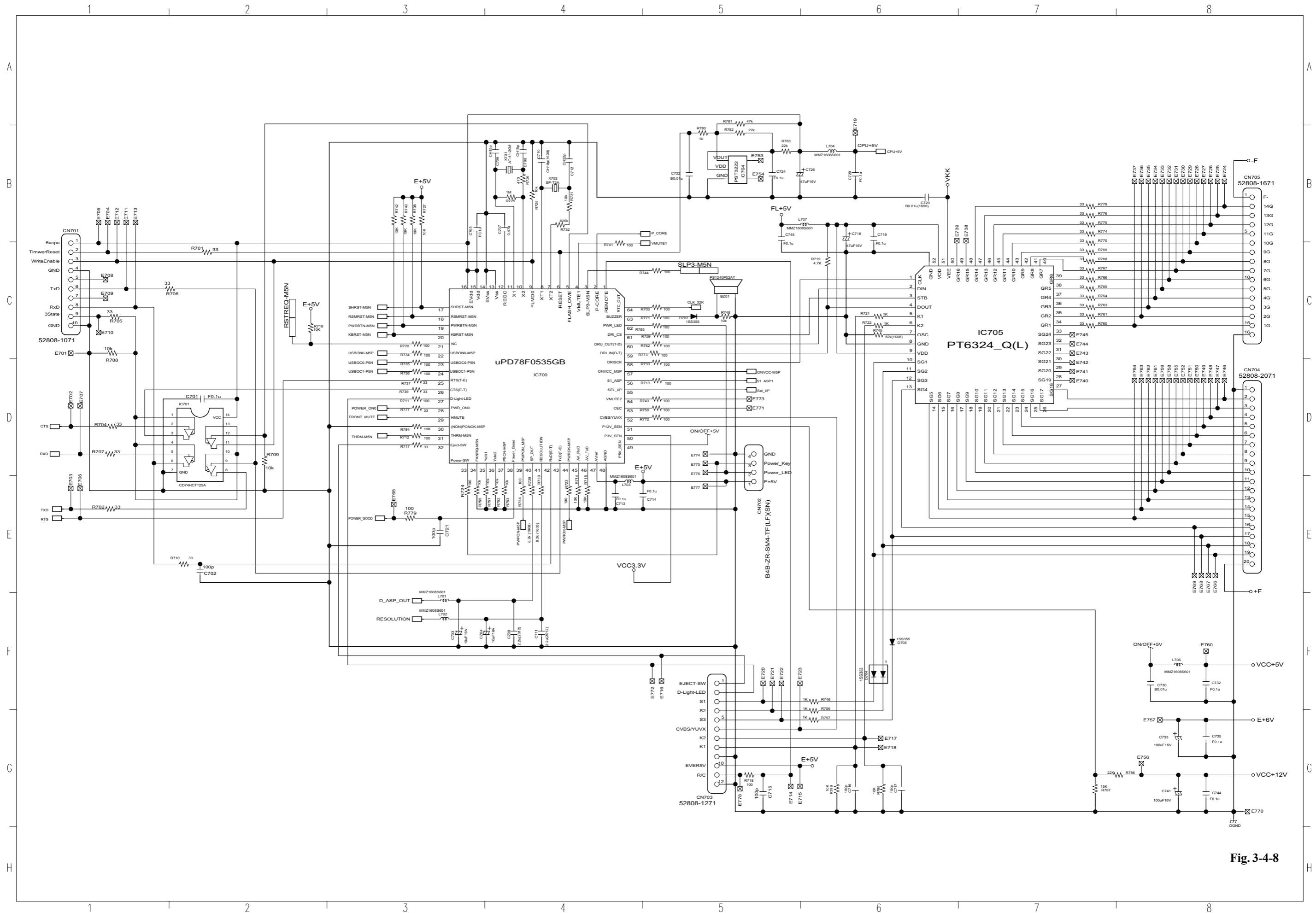


Fig. 3-4-8

5. PC BOARDS

5-1. Front FIP PC Board

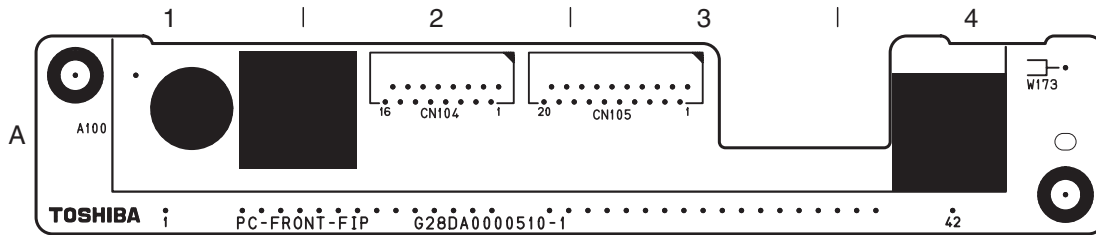


Fig. 3-5-1 Front FIP PC Board (Top side)

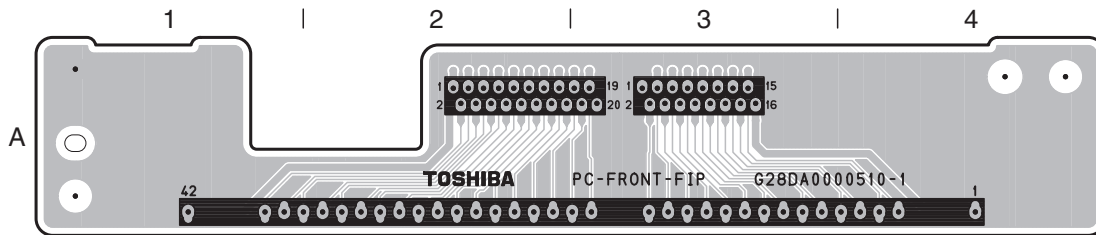


Fig. 3-5-2 Front FIP PC Board (Bottom side)

5-2. Power Switch PC Board

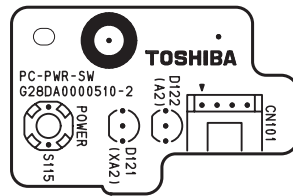


Fig. 3-5-3 Power Switch PC Board (Top side)

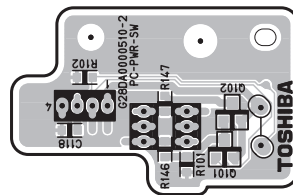


Fig. 3-5-4 Power Switch PC Board (Bottom side)

5-3. Front Switch/USB PC Board

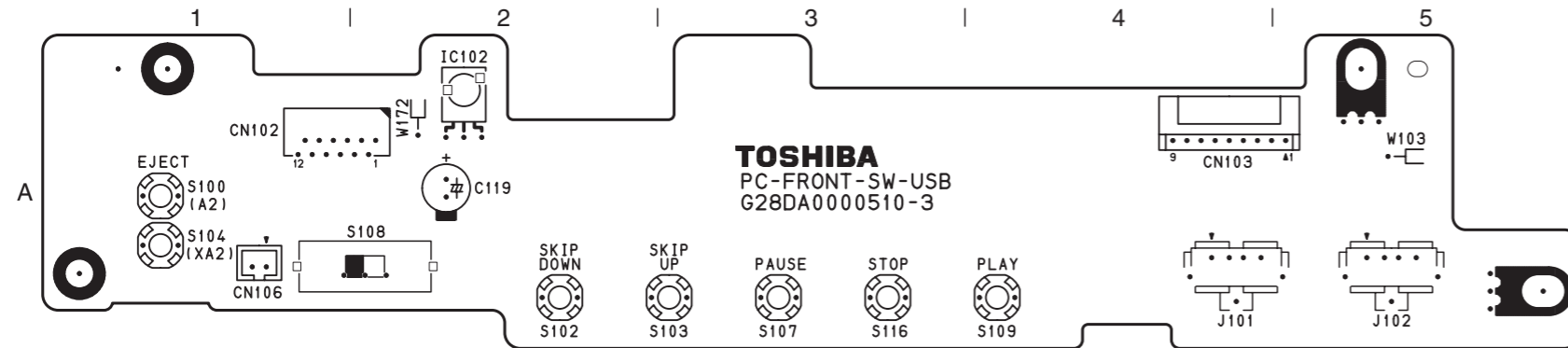


Fig. 3-5-5 Front Switch/USB PC Board (Top side)

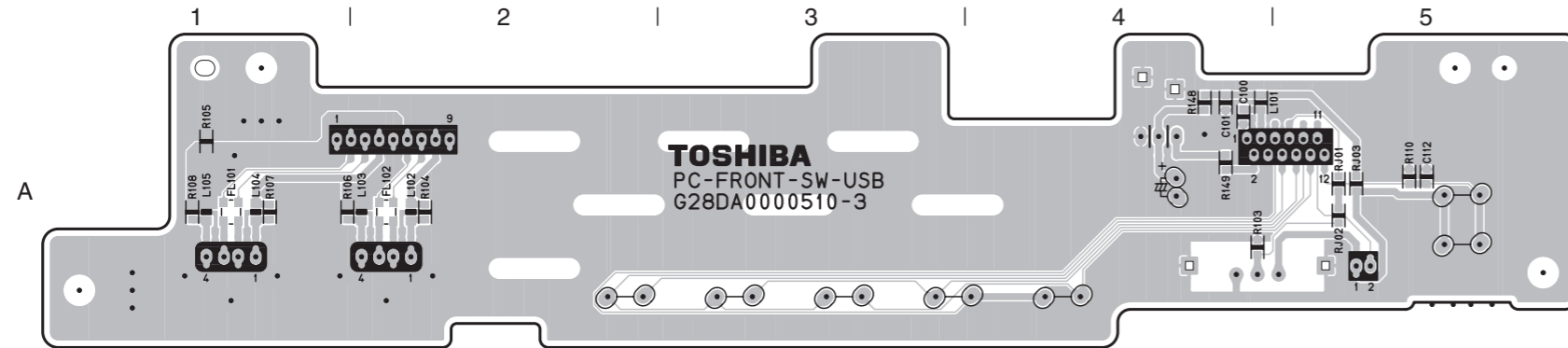


Fig. 3-5-6 Front Switch/USB PC Board (Bottom side)

5-4. ATAPI PC Board

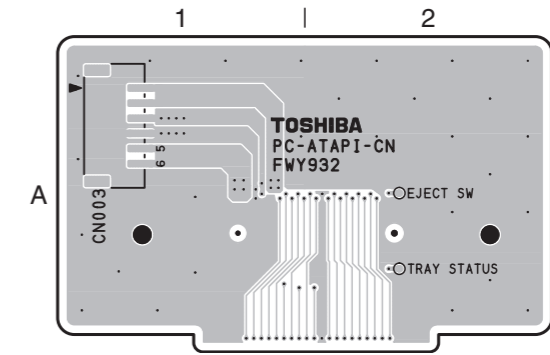


Fig. 3-5-7 ATAPI PC Board (Top side)

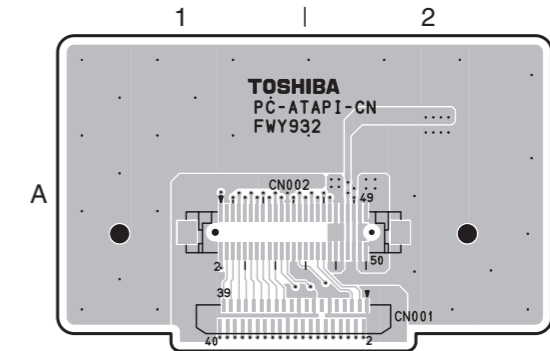


Fig. 3-5-8 ATAPI PC Board (Bottom side)

SECTION 4 PARTS LIST

SAFETY PRECAUTION

The parts identified by ! (Δ) 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 4-2-1

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. 10 μ F J = 10 μ F ± 5%

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

Table 4-2-2

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**

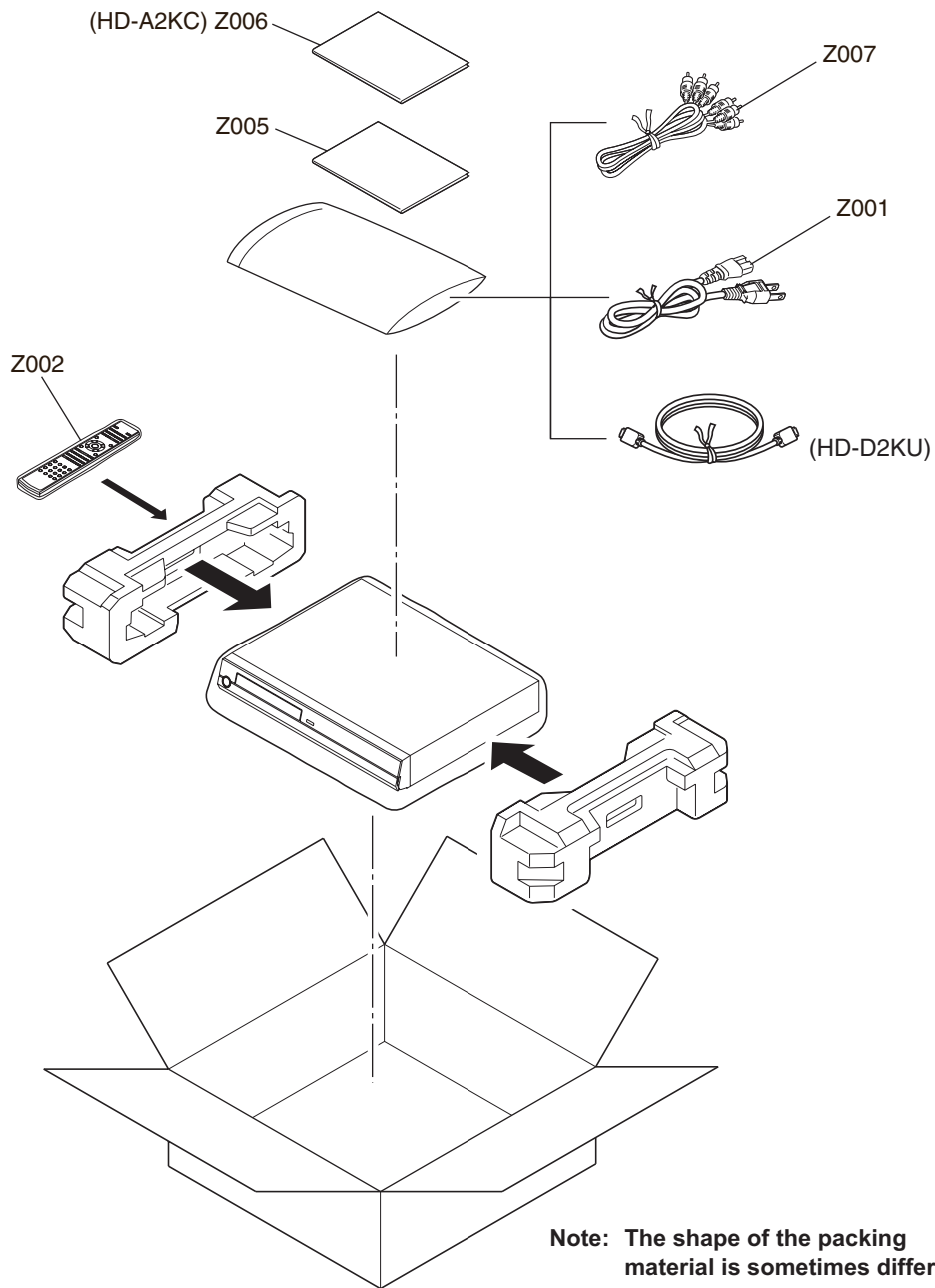
Table 4-3-1

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

Ex. 470 Ω J = 470 Ω ± 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

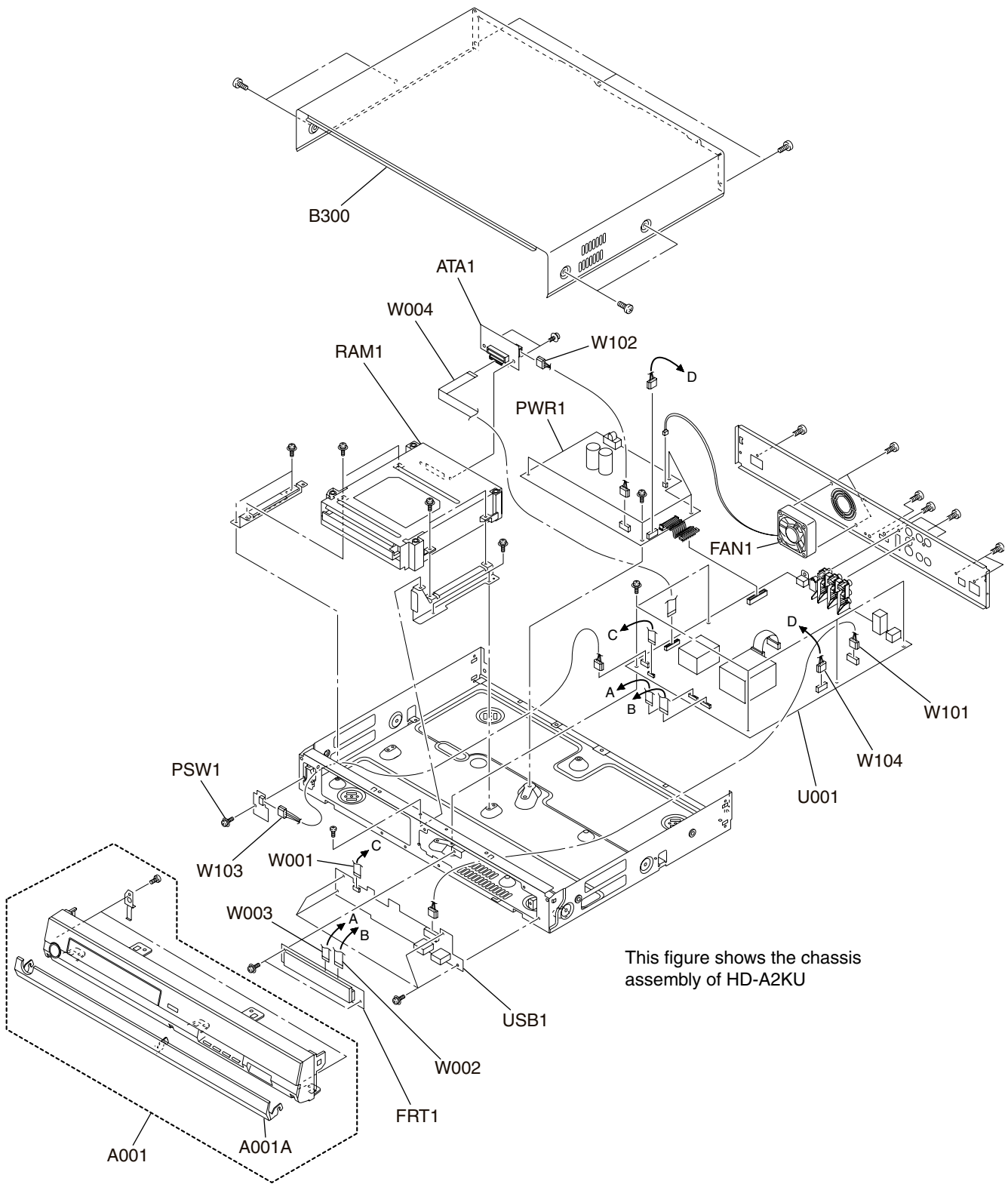


Fig. 4-1-2

2.PARTS LIST

Location No.	Part No.	Description	
- ELECTRICAL PARTS -			
U001	P000477410	PC BOARD ASSY, MAIN	HD-A2KU/A2WKU/D2KU
U001	P000477820	PC BOARD ASSY, MAIN	HD-A2KC
⚠ PWR1	P000477370	POWER-UNIT, MPN5236	
FRT1	P000477360	PC BOARD ASSY, FRONT FIP	
PSW1	P000477610	PC BOARD ASSY, POWER-SW	
USB1	P000477630	PC BOARD ASSY, FRONT SW/USB	
ATA1	P000477350	ATAPI-FFC ADAPTER	
- MECHANICAL PARTS -			
A001	P000477390	PANEL ASSY, FRONT	HD-A2KU/A2KC
A001A	P000477400	DOOR, FRONT	HD-A2KU/A2KC
A001	P000477680	PANEL ASSY, FRONT	HD-A2WKU
A001A	P000477690	DOOR, FRONT	HD-A2WKU
A001	P000477710	PANEL ASSY, FRONT	HD-D2KU
A001A	P000477720	DOOR, FRONT	HD-D2KU
B300	P000477380	COVER, TOP	
FAN1	P000477470	FAN DC, DSB0512LD-6T10	
⚠ RAM1	P000477500	HD-DVD-DRIVE, SD-E802A	
W001	P000477420	FFC-12P-L102, MAIN-FRONT	
W002	P000477430	FFC-20P-L102, MAIN-FRONT	
W003	P000477440	FFC-16P-L102, MAIN-FRONT	
W004	P000477450	FFC-40P-L242, MAIN-DRIVE	
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	P000446040	CORD POWER, AC-US	
Z002	P000477490	REMOTE CONTROL ,SE-R0252	
⚠ Z005	P000477620	OWNERS MANUAL, ENGLISH	HD-A2KU
⚠ Z005	P000477700	OWNERS MANUAL, ENGLISH	HD-A2WKU
⚠ Z005	P000477730	OWNERS MANUAL, ENGLISH	HD-D2KU
⚠ Z005	P000477660	OWNERS MANUAL, ENGLISH	HD-A2KC
⚠ Z006	P000477650	OWNERS MANUAL, FRENCH	HD-A2KC
Z007	P000477520	AV CABLE, 3P-L1500 GR	

SPECIFICATIONS

Power requirement	33.0W
Power supply	120V AC 60Hz
Mass	4.1kg
External dimension	Width 430 x Height 65.5 x Depth 345mm
Signal system	Standard NTSC Color 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.

TOSHIBA CORPORATION

1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-8001, JAPAN