HBD-TZ130

SERVICE MANUAL

Ver. 1.2 2011.01

US Model
Canadian Model
E Model
Australian Model
Chinese Model

- HBD-TZ130 is the amplifier, DVD/CD and tuner section in DAV-TZ130.

This system incorporates with Dolby* Digital and Dolby Pro Logic adaptive matrix surround decoders.

* Manufactured under license from Dolby Laboratories. Dolby, Pro Logic, and the double-D symbol are trademarks of Dolby Laboratories.

This system incorporates High-Definition Multimedia Interface (HDMI™) technology.

HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.

"BRAVIA" is a trademark of Sony Corporation.

MPEG Layer-3 audio coding technology and patents licensed from Fraunhofer IIS and Thomson.

Windows Media is a registered trademark of Microsoft Corporation in the United States and/or other countries.

Model Name Using Similar Mechanism	NEW
DVD Drive Mechanism Type	CDM85
Optical Pick-up Name	KHM-313

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS for the U.S. models

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:
(FTC)

Front L + Front R: With 3 ohms loads, both channels driven, from 180 - 15,000 Hz; rated 23 watts per channel minimum RMS power, with no more than 1% total harmonic distortion from 250 milli watts to rated output.

Amplifier Section

POWER OUTPUT (rated):

Front L + Front R: 32 W + 32 W (at 3 ohms, 1 kHz, 1% THD)

POWER OUTPUT (reference):

Front L/Front R/ Surround L/Surround R: 43 watts (per channel at 3 ohms, 1 kHz)
Center: 89 watts (per channel at 6 ohms, 1 kHz)
Subwoofer: 89 watts (at 6 ohms, 100 Hz)

Inputs

TV/CABLE : Pin jack

CD/DVD System

Laser Diode Properties
Emission Duration: Continuous
Laser Output*: Less than 1,000 µW

* This output is the value measurement at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with 7 mm aperture.

USB Section

(USB) port:
Maximum current: 500 mA

– Continued on next page –

DVD RECEIVER

9-889-971-03
2011A04-1
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Sony Corporation
Published by Sony Techno Create Corporation

SONY®

Tuner Section

System	PLL quartz-locked digital synthesizer
Tuning range	
North American and Brazilian models:	
	87.5 MHz - 108.0 MHz (100 kHz step)
Other models:	87.5 MHz - 108.0 MHz (50 kHz step)
Antenna (aerial) terminals	
	75 ohms, unbalanced
Intermediate frequency	
	10.7 MHz

Video Section

Outputs	VIDEO: Pin jack HDMI OUT: HDMI 19-pin

General

Power requirements	
North American models:	
	120 V AC, 60 Hz
Argentine models:	220 V - 240 V AC, 50/60 Hz
Brazilian models:	127 V - 240 V AC, 50/60 Hz
Latin American models:	
	110 V - 240 V AC, 50/60 Hz
Other models:	220 V - 240 V AC, 50/60 Hz
Power consumption	On: 67 W Standby: <1 W*

* *Valid when the system is in the following status:*
– [Control for HDMI] is set to [Off].

Dimensions (approx.)	360 mm × 56 mm × 342 mm (14 1/4 in × 2 1/4 in × 13 1/2 in) (w/h/d) incl. projecting parts
Mass (approx.)	2.6 kg (5 lb. 12 oz.)

Design and specifications are subject to change without notice.

SAFETY CHECK-OUT (US MODEL)

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage.
Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes.). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

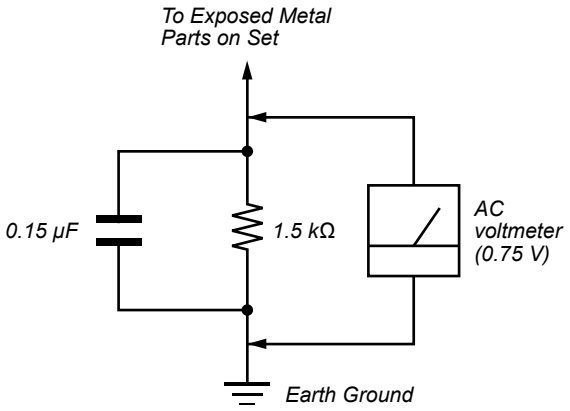


Fig. A. Using an AC voltmeter to check AC leakage.

SAFETY-RELATED COMPONENT WARNING!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

关于安全相关零部件的警告

原理图和零件清单中标有⚠记号的零部件，或带有⚠记号的虚线所表示的零部件，对于安全操作至关重要。更换时，必须依据本手册或索尼公司追加发行的手册中列明的零件号，使用索尼公司的零件进行。

SPECIAL COMPONENT NOTICE

The components identified by mark 🔒 contain confidential information.
Strictly follow the instructions whenever the components are repaired and/or replaced.

NOTICE POUR COMPOSANTS SPÉCIAUX

Les composants identifiés par la marque 🔒 contiennent des informations confidentielles.
Suivre scrupuleusement les instructions chaque fois qu’un composant est remplacé et / ou réparé.

特别元件注意

标识有 🔒 的元件包含机密信息。
更换或维修元件时请严格遵守指示。

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

For European models:

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

This appliance is classified as a CLASS 1 LASER product. This marking is located on the rear exterior of unit.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

NOTES ON CHIP COMPONENT REPLACEMENT

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

FLEXIBLE CIRCUIT BOARD REPAIRING

- Keep the temperature of soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

UNLEADED SOLDER

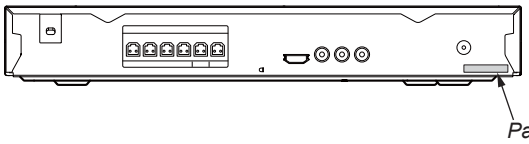
Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(**Caution:** Some printed circuit boards may not come printed with the lead free mark due to their particular size)

: LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40 °C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350 °C.
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
  Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

MODEL IDENTIFICATION
– Back Cabinet –



Model	Part No.
SP model	GSE200276-0001
AUS model	GSE200276-0004
TH model	GSE200276-0007
CH model	GSE200276-0008
E32 model	GSE200276-0009
US model	GSE200276-0011
CND model	GSE200276-0012
E3, SAF model	GSE200276-0013
E12 model	GSE200276-0015
AR model	GSE200276-0017
BR model	GSE200276-0018

- Abbreviation
  AR : Argentina model
  AUS : Australian model
  BR : Brazilian model
  CH : Chinese model
  CND : Canadian model
  E3 : 240V AC area in E model
  E12 : 220 – 240V AC area in E model
  E32 : 110 – 240V AC area in E model
  SAF : South African model
  SP : Singapore model
  TH : Thai model

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SECTION 1
SERVICING NOTES

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body. During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pickup block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

LASER DIODE AND FOCUS SEARCH

1. Open the case and turn POWER on with no disc inserted.
2. Confirm that the following operation is performed while observing the objecting lens from the clearance of DVD mechanism deck.
   1) Confirm that laser beam is spread.
   2) Up and down motion of the objective lens. (2 times)

DISC TRAY LOCK

The disc tray lock function for the antitheft of an demonstration disc in the store is equipped.

Setting Procedure :

1. Press the [I/⏻] button to turn the set on.
2. Press the [FUNCTION] button to set DVD/CD function.
3. Insert a disc.
4. Press the [■] button and the [⏏] button simultaneously for five seconds.
5. The message “LOCKED” is displayed and the tray is locked.

Releasing Procedure :

1. Press the [■] button and the [⏏] button simultaneously for five seconds again.
2. The message “UNLOCKED” is displayed and the tray is unlocked.

Note: When “LOCKED” is displayed, the tray lock is not released by turning power on/off with the [I/⏻] button.

On cleaning discs, disc/lens cleaners

• Do not use cleaning discs or disc/lens cleaners (including wet or spray types). These may cause the apparatus to malfunction.

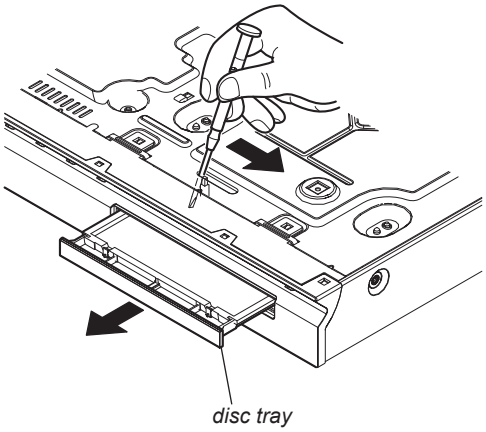
IMPORTANT NOTICE

Caution: This system is capable of holding a still video image or on-screen display image on your television screen indefinitely. If you leave the still video image or on-screen display image displayed on your TV for an extended period of time you risk permanent damage to your television screen.
Projection televisions are especially susceptible to this.

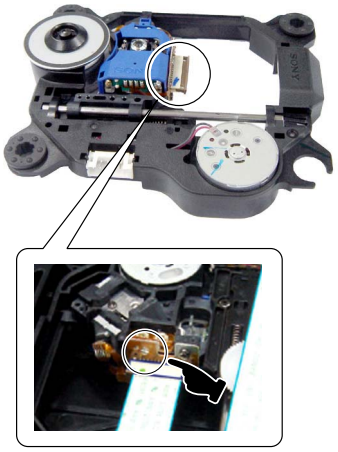
How to open the disc tray when power switch turns off

Insert a tapering driver into the aperture of the unit bottom, and slide it in the direction of the arrow.

Insert a screwdriver from between the front panel and the chassis and slide the rod in the direction of the arrow.



Precaution when installing a new OP unit/ Precaution before unsoldering the static electricity prevention solder bridge

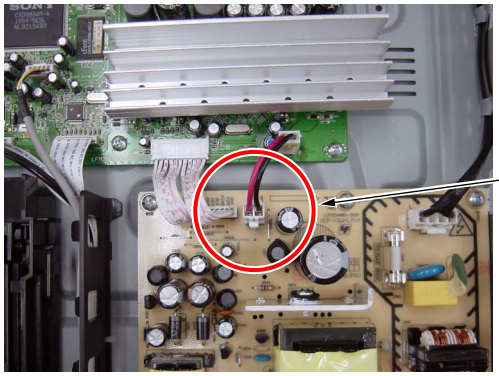


When installing a new OP unit, be sure to connect the wire (flat type) (24 core) first of all before removing the static electricity prevention solder bridge by unsoldering.
Remove the static electricity prevention solder bridge by unsoldering after the wire (flat type) (24 core) has already been connected. (Do not remove nor unsolder the solder bridge as long as the OP unit is kept standalone.)

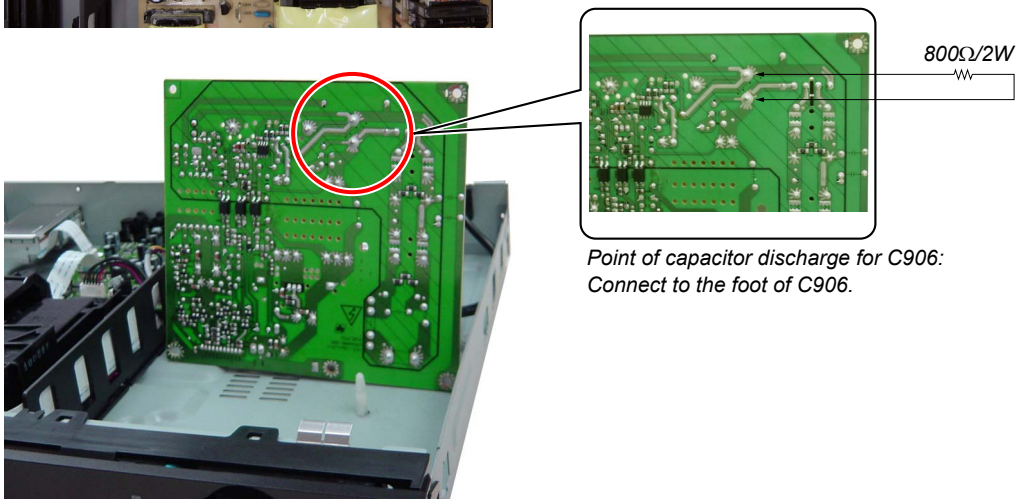
Discharge the charged electricity in capacitors to prevent electric shock as follows

When disassembling the machine, be sure to discharge the charged electricity in the following capacitors.
Use a resistor of 800 ohms, 2 Watts for discharging the following capacitors.

POWER board
C906: 390V
C936, C944 and CN902: 32V

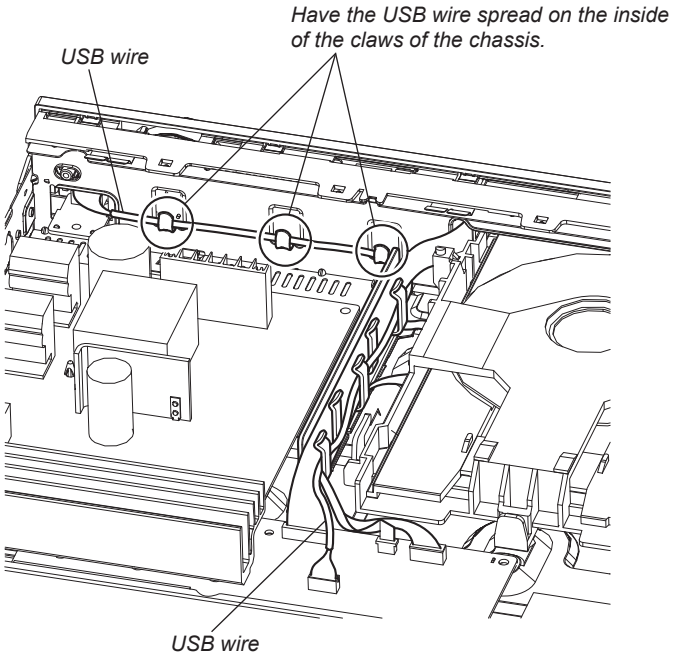


Point of capacitor discharge for C936 and C944:
Connect to the red and black wires of CN902.



Point of capacitor discharge for C906:
Connect to the foot of C906.

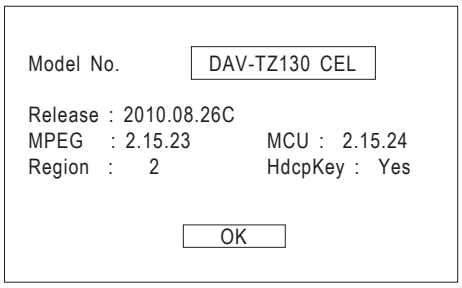
Arranging the USB wire



Version display

• Confirmation procedure of version only

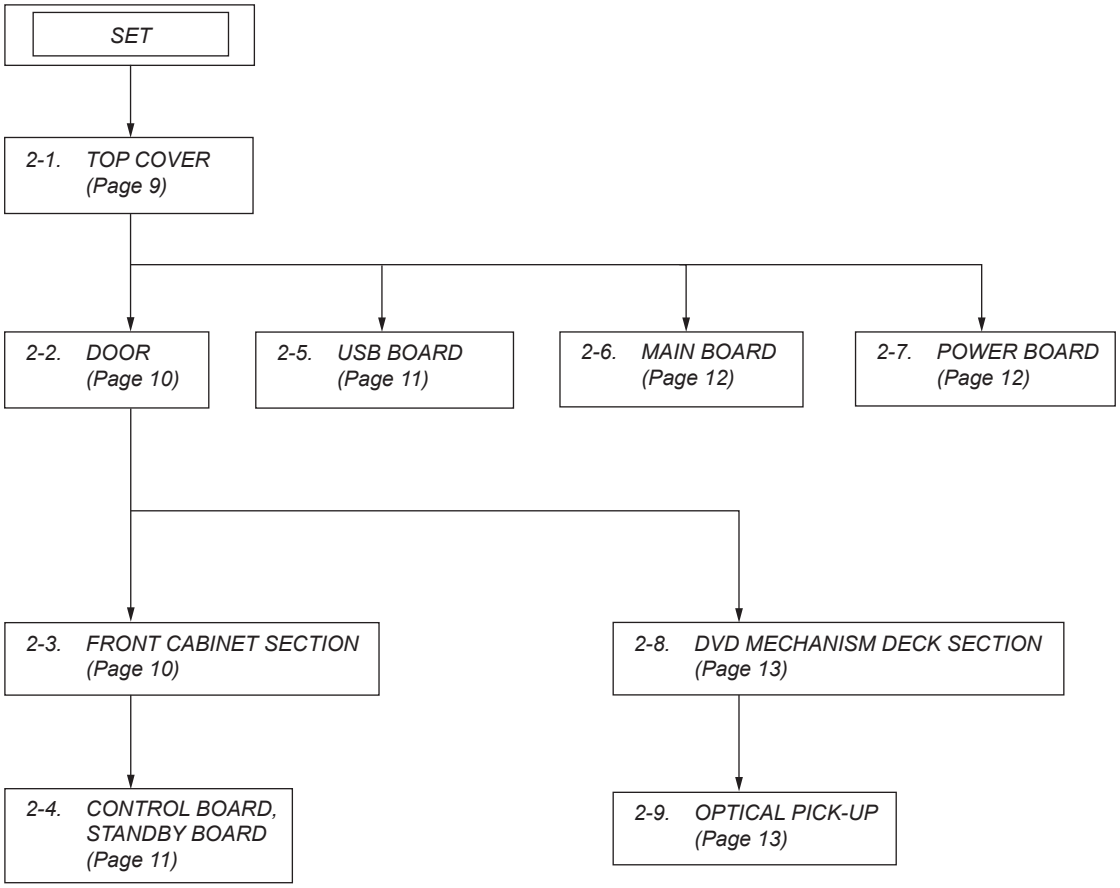
1. Press the [I/⏻] button to turn the set on.
2. Press the [EJECT] button. (State of "Tray open")
3. After press the "STOP" button, the "DISPLAY" button press.
4. The version information appears to the TV.



5. Press the "ENTER" button on the remote.
6. The system will return to normal mode.

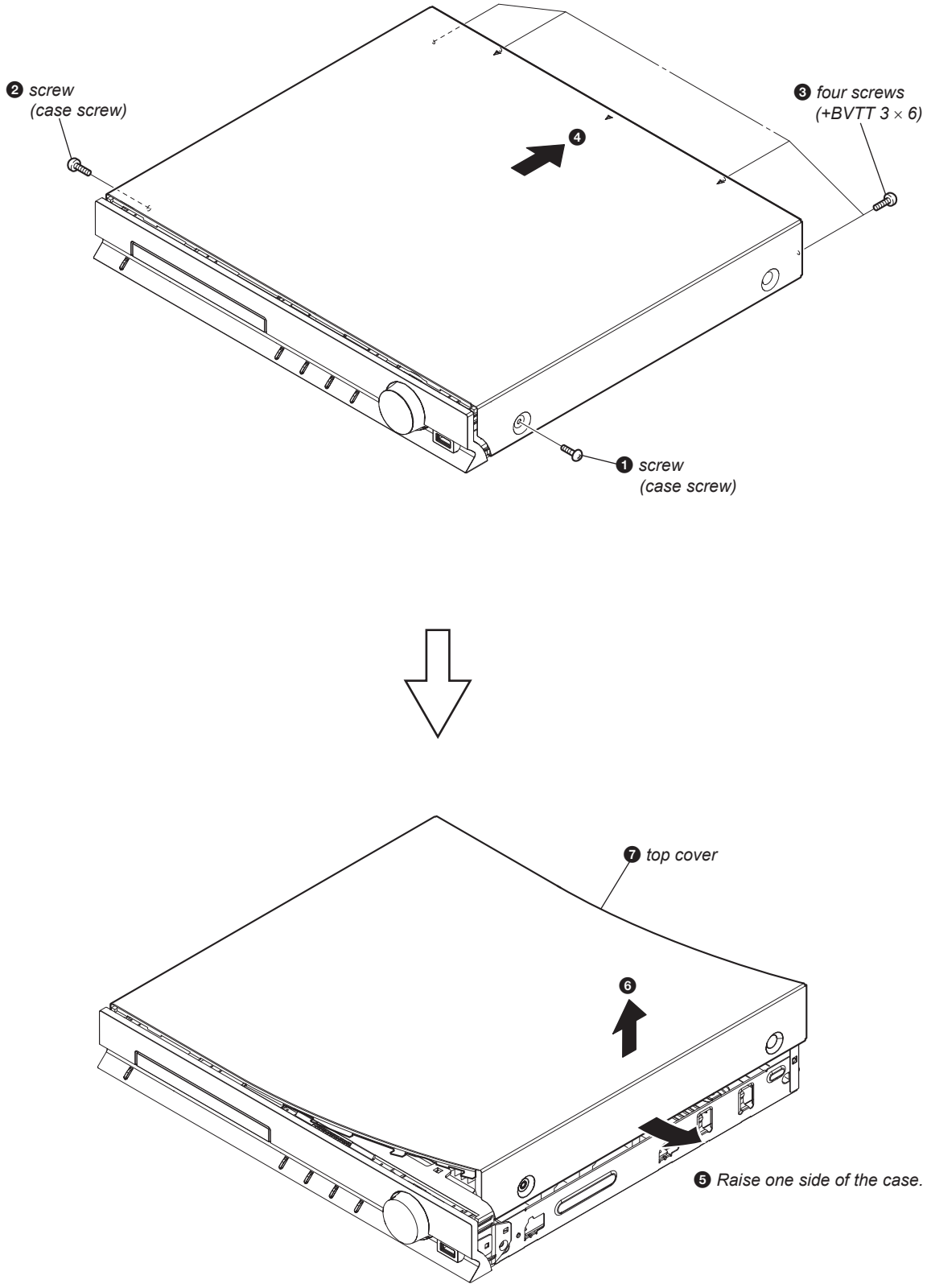
SECTION 2
DISASSEMBLY

- This set can be disassembled in the order shown below.

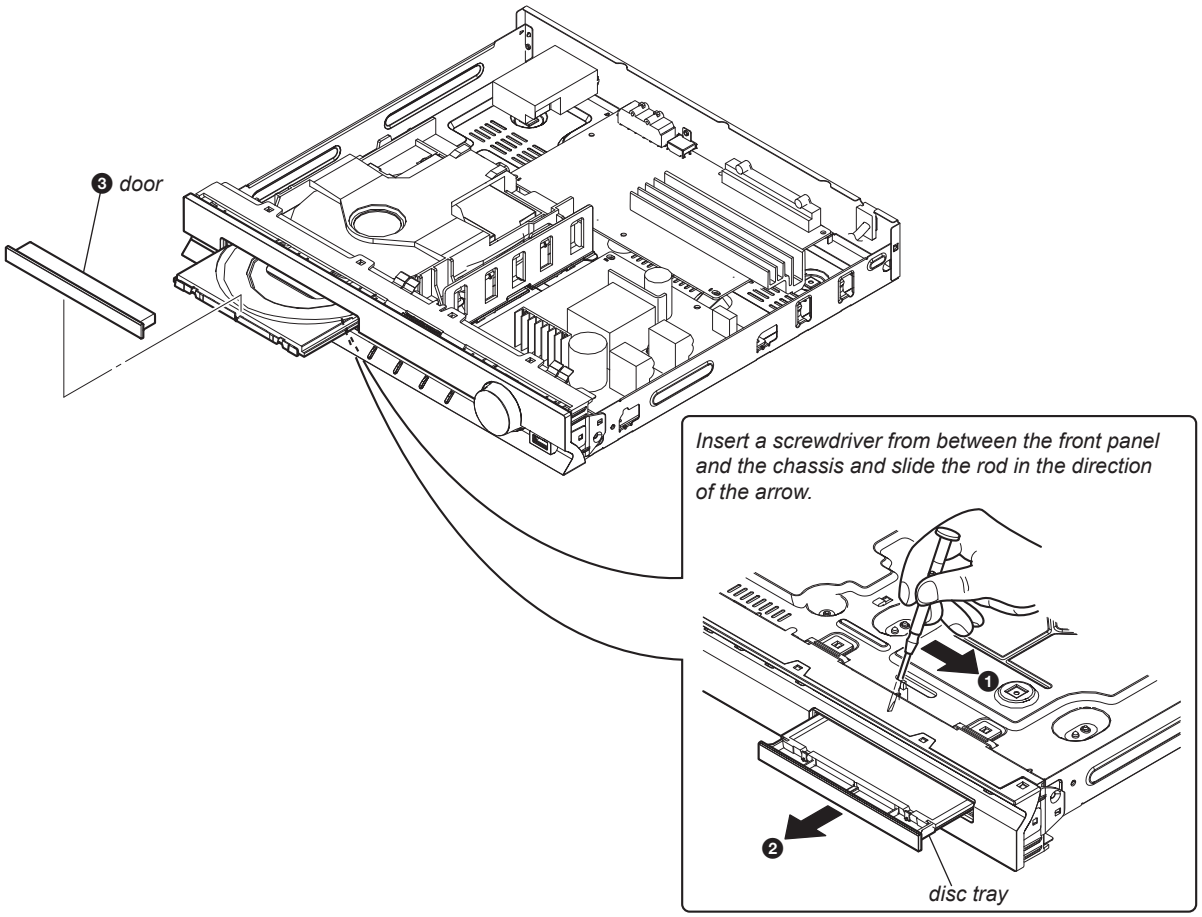


Note: Follow the disassembly procedure in the numerical order given.

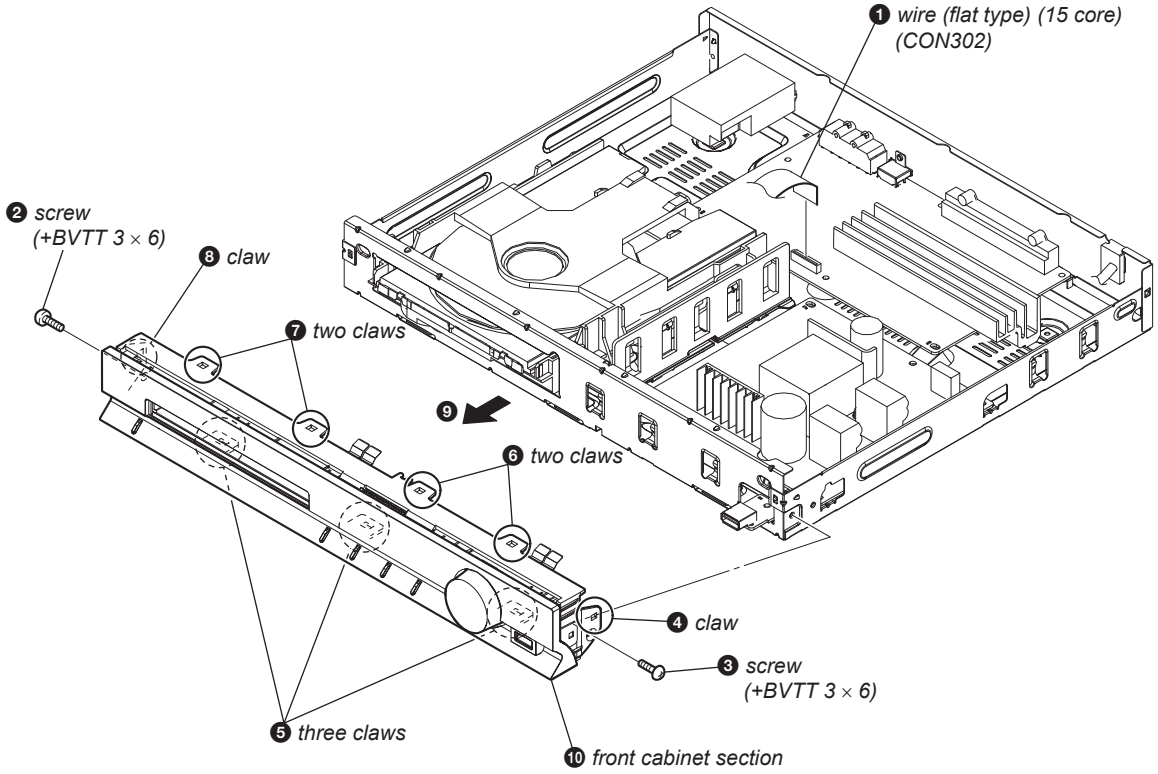
2-1. TOP COVER



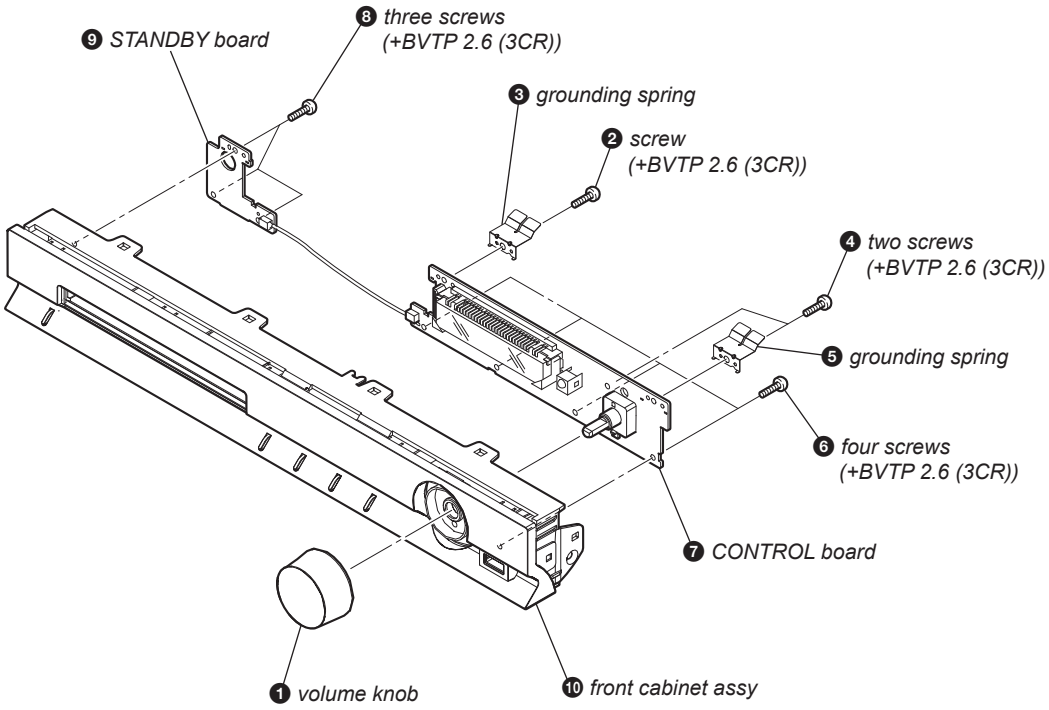
2-2. DOOR



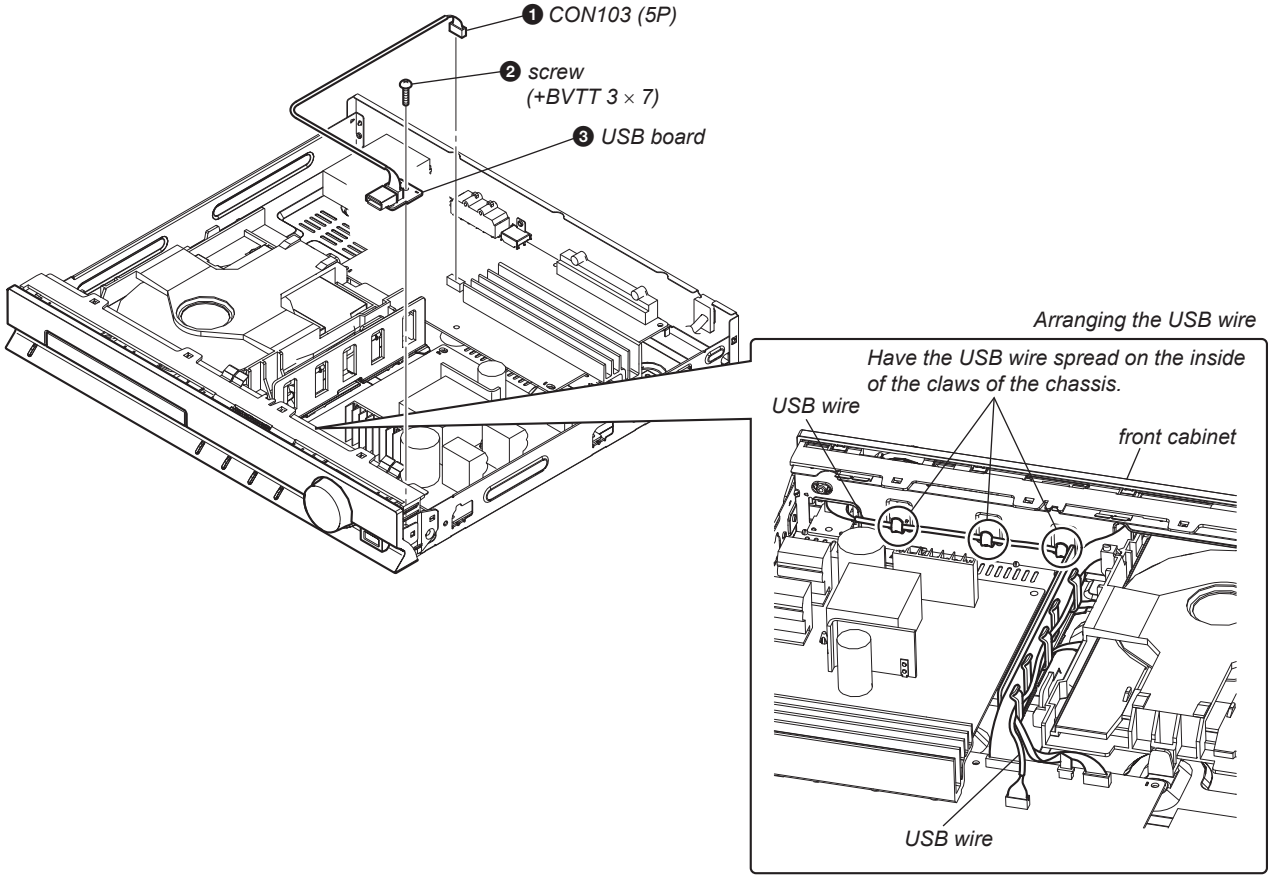
2-3. FRONT CABINET SECTION



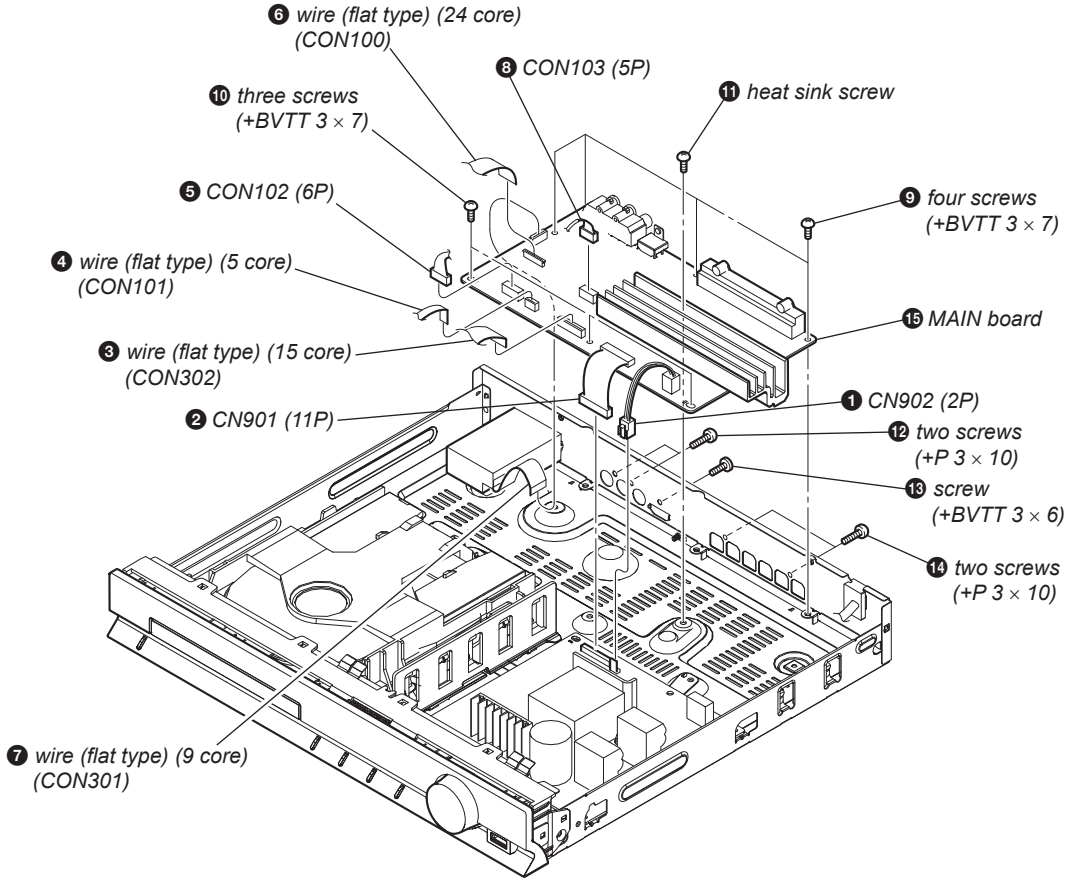
2-4. CONTROL BOARD, STANDBY BOARD



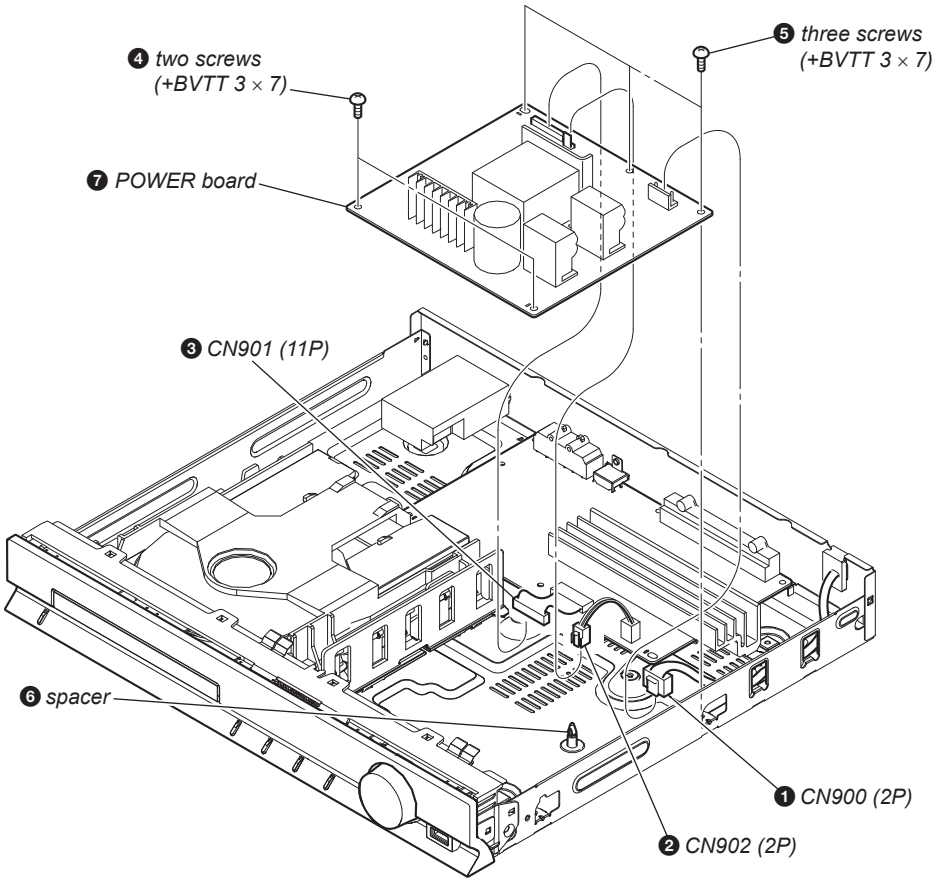
2-5. USB BOARD



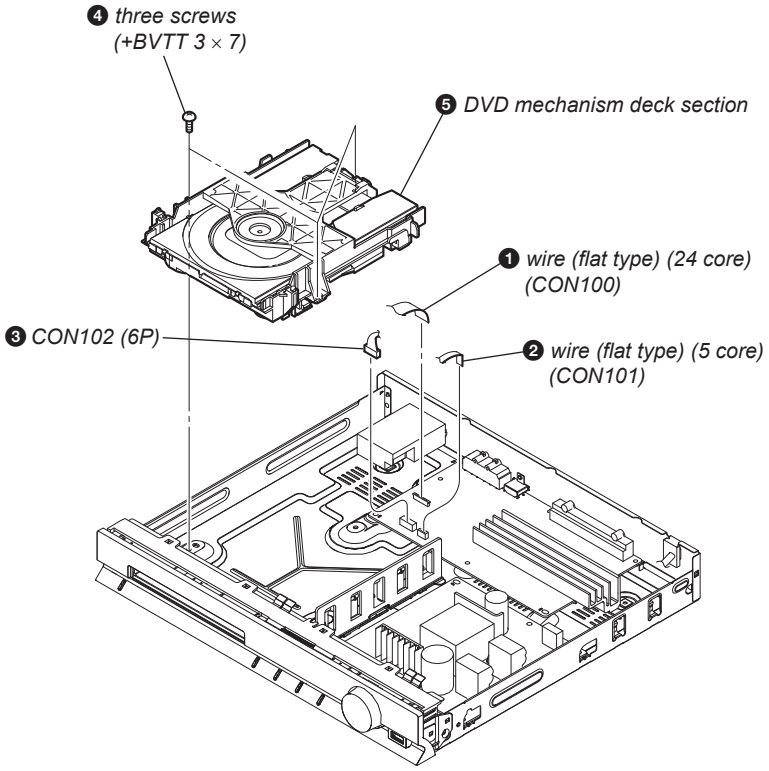
2-6. MAIN BOARD



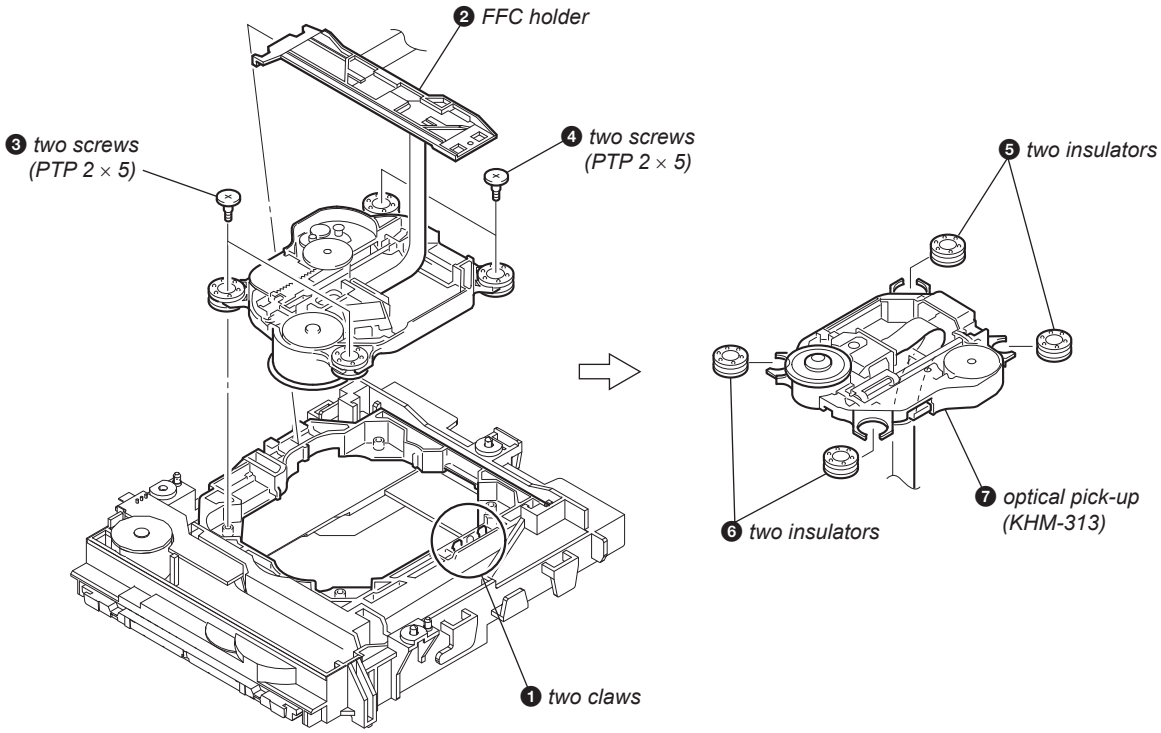
2-7. POWER BOARD



2-8. DVD MECHANISM DECK SECTION



2-9. OPTICAL PICK-UP



SECTION 3
DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

For Printed Wiring Boards.

Note:

- : Pattern from the side which enables seeing.
  (The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (SIDE B)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (SIDE A)	Parts on the parts face side seen from the parts face are indicated.

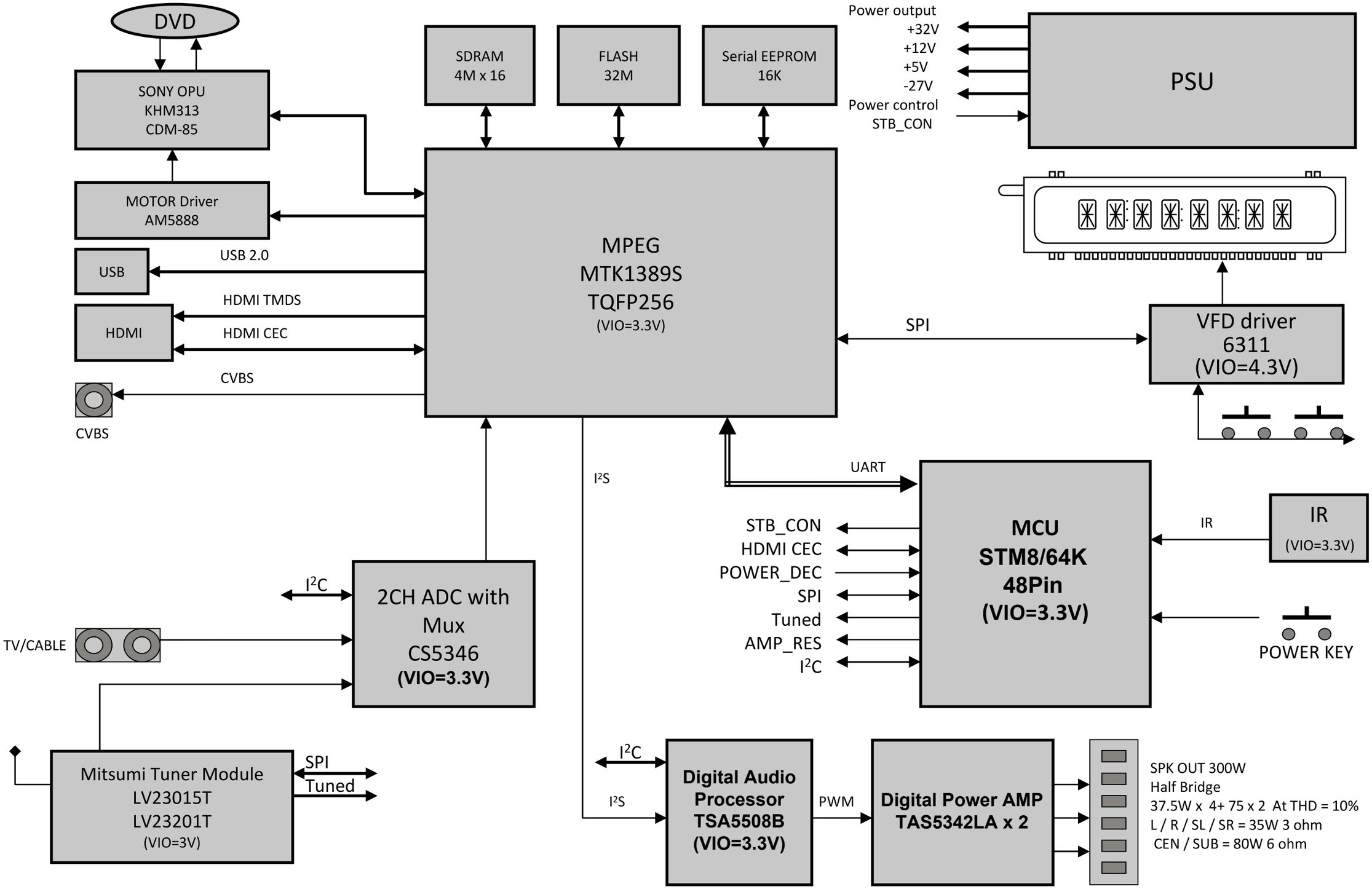
For Schematic Diagrams.

Note:

- All capacitors are in μF unless otherwise noted. (p: pF) 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.

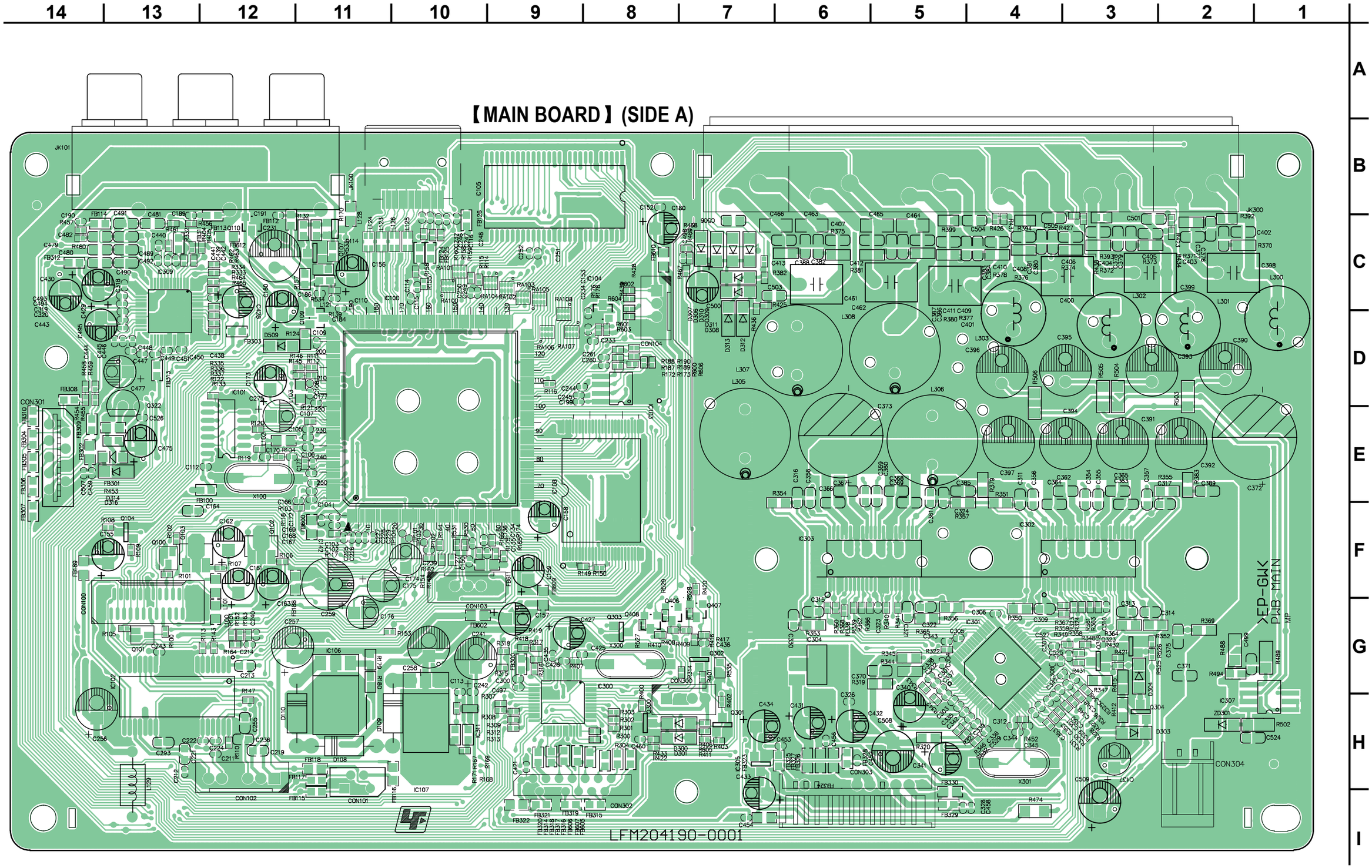
Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

3-1. BLOCK DIAGRAM



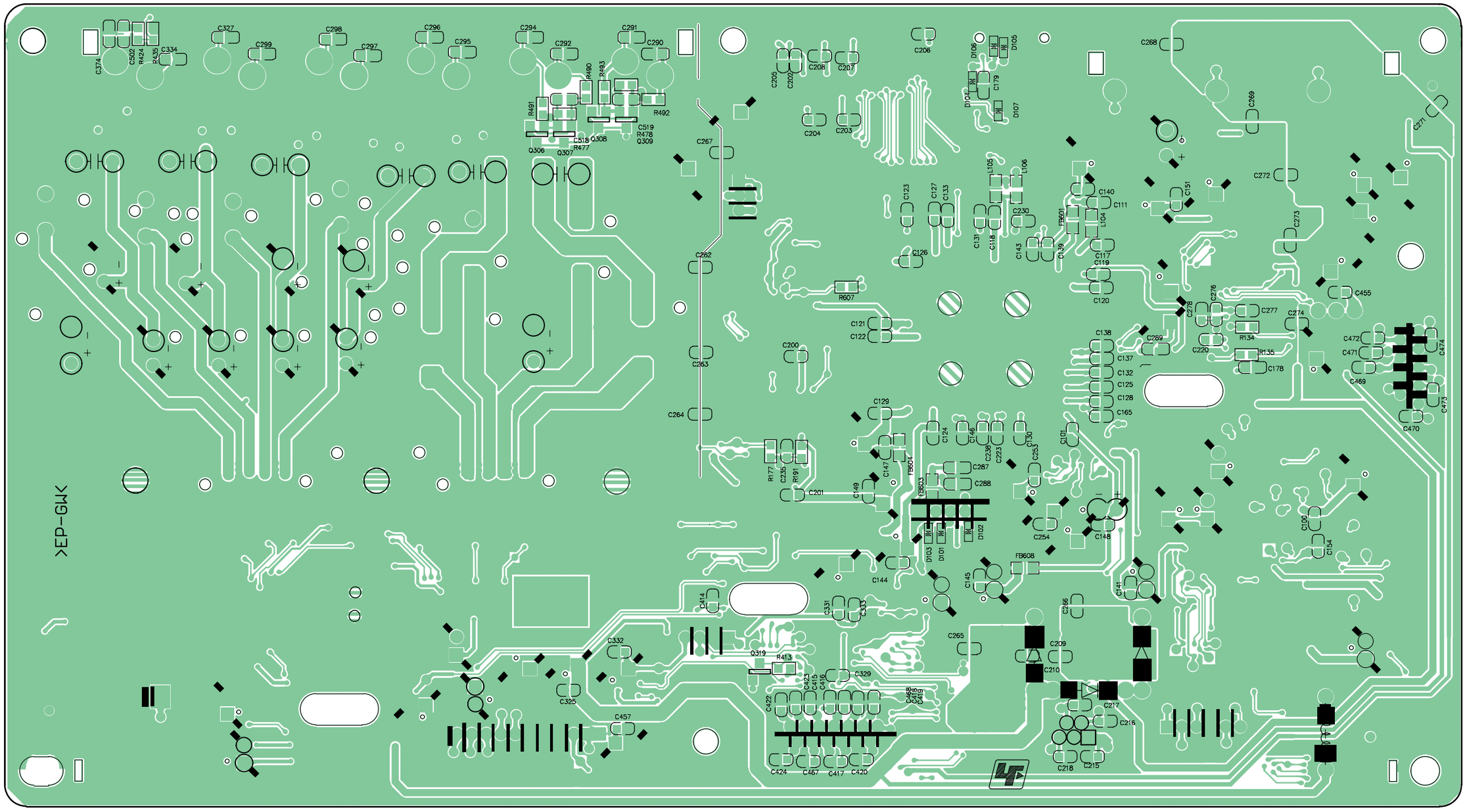
3-2. PRINTED WIRING BOARD – MAIN Section (1/2) – • : Uses unleaded solder.

【MAIN BOARD】(SIDE A)

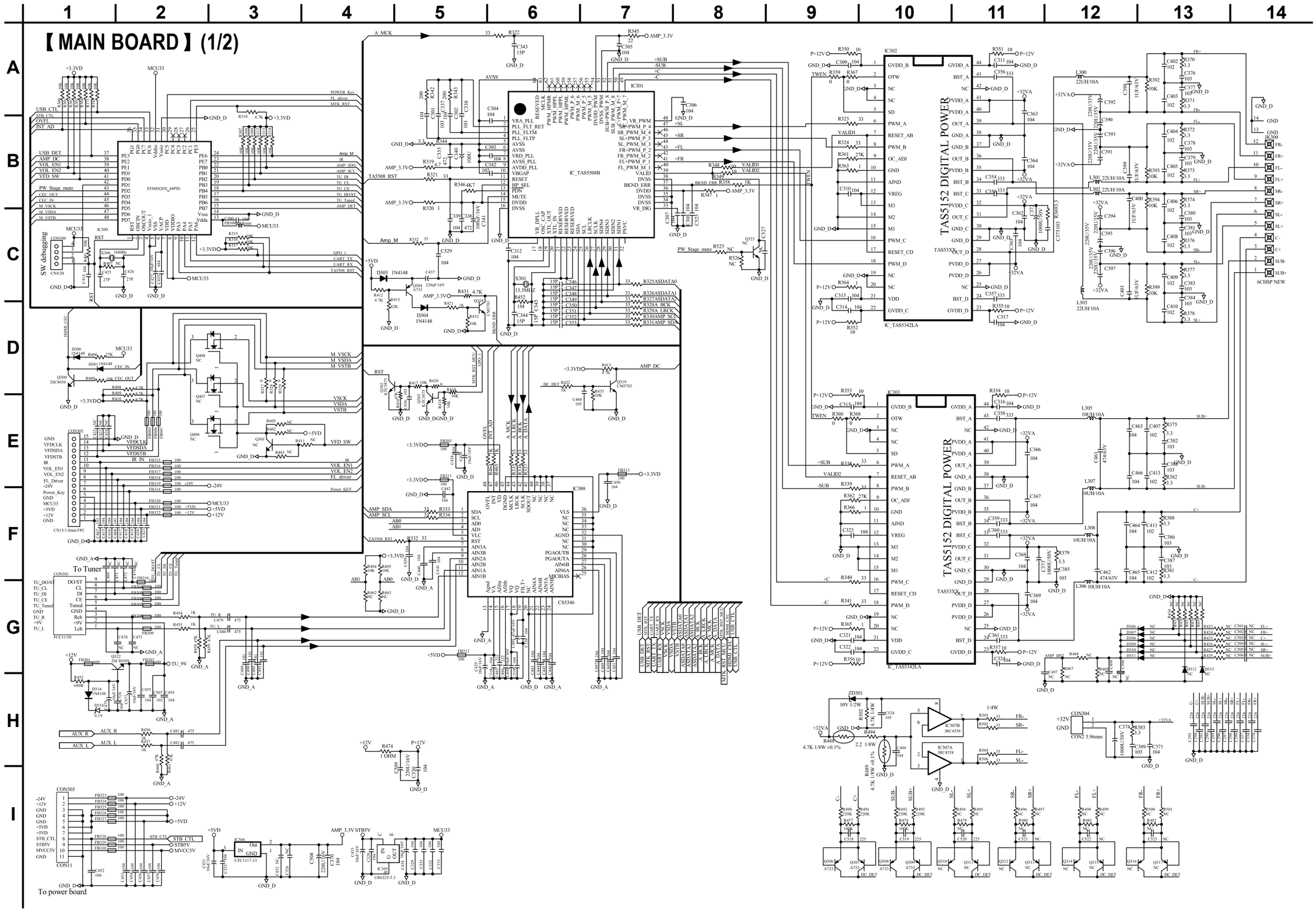


3-3. PRINTED WIRING BOARD – MAIN Section (2/2) – • : Uses unleaded solder.

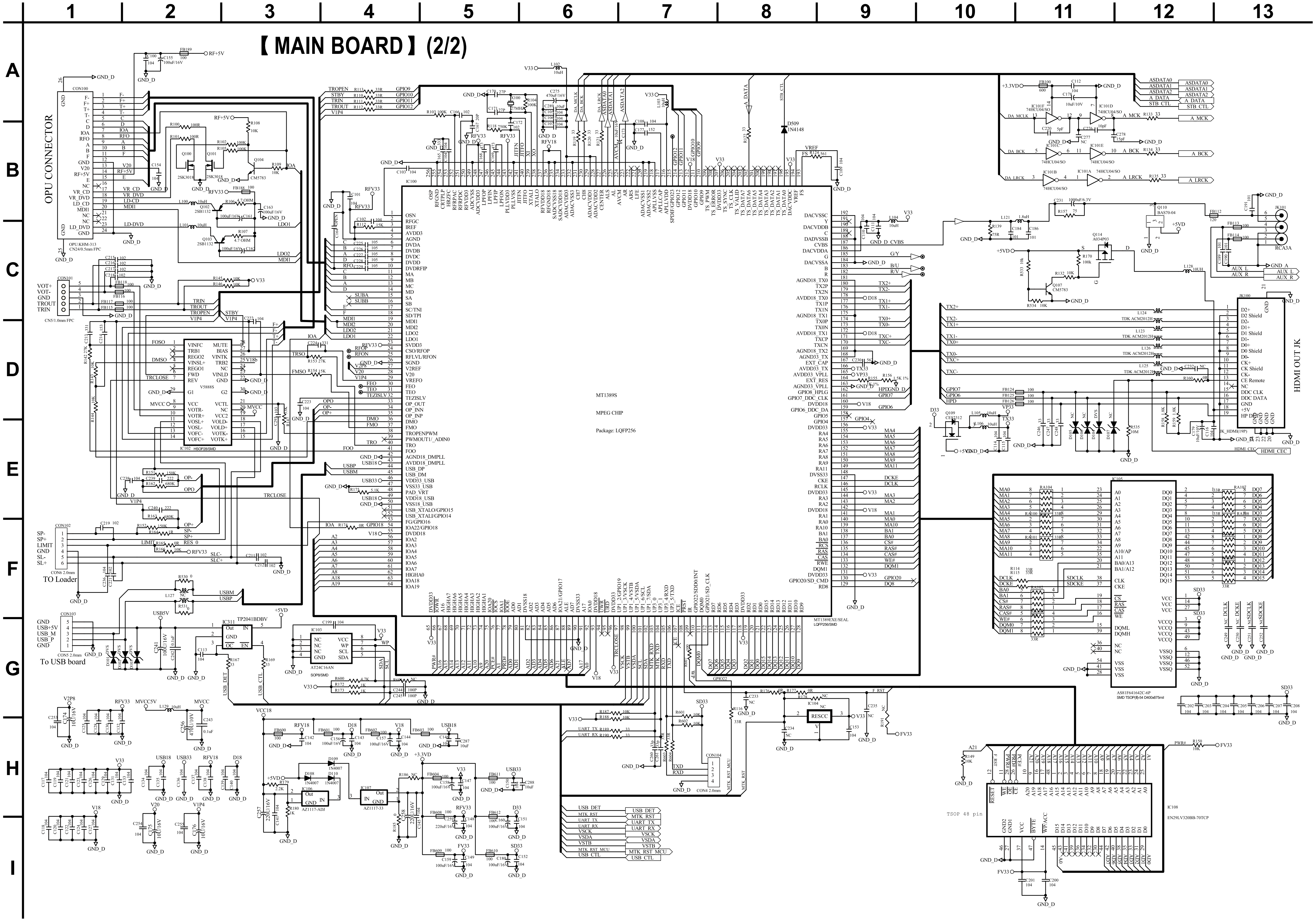
【MAIN BOARD】(SIDE B)



3-4. SCHEMATIC DIAGRAM – MAIN Section (1/2) –

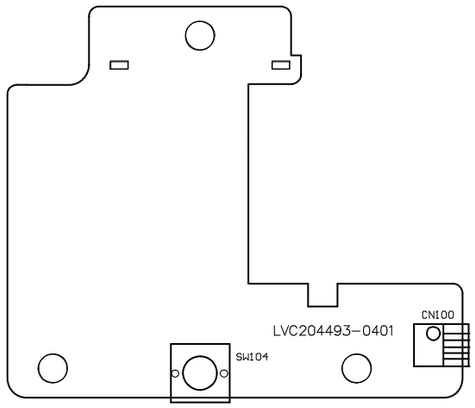


3-5. SCHEMATIC DIAGRAM – MAIN Section (2/2) –

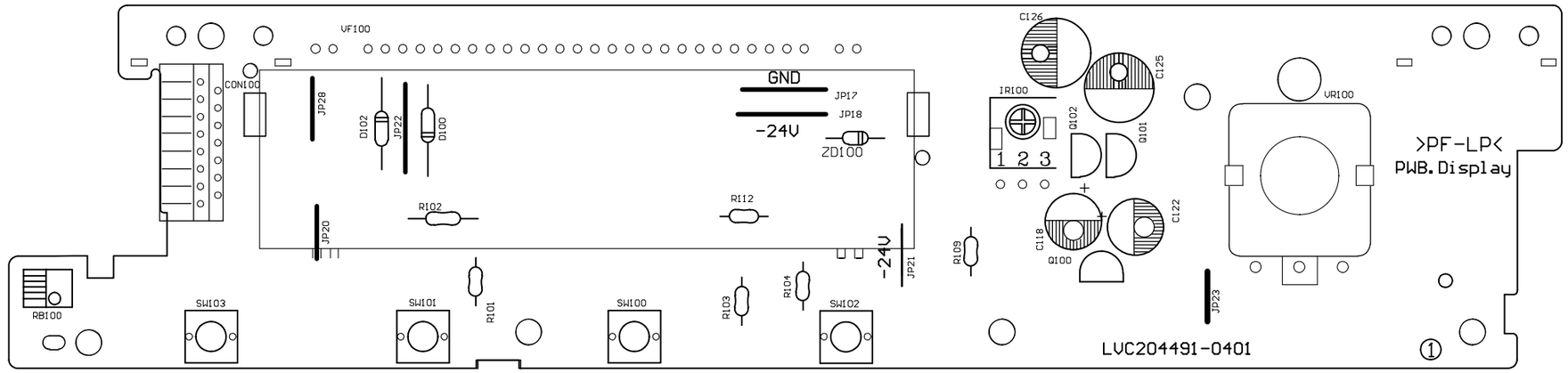


3-6. PRINTED WIRING BOARDS – DISPLAY Section –

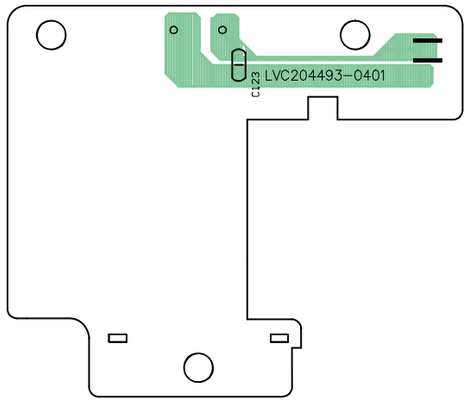
【STANDBY BOARD】(SIDE A)



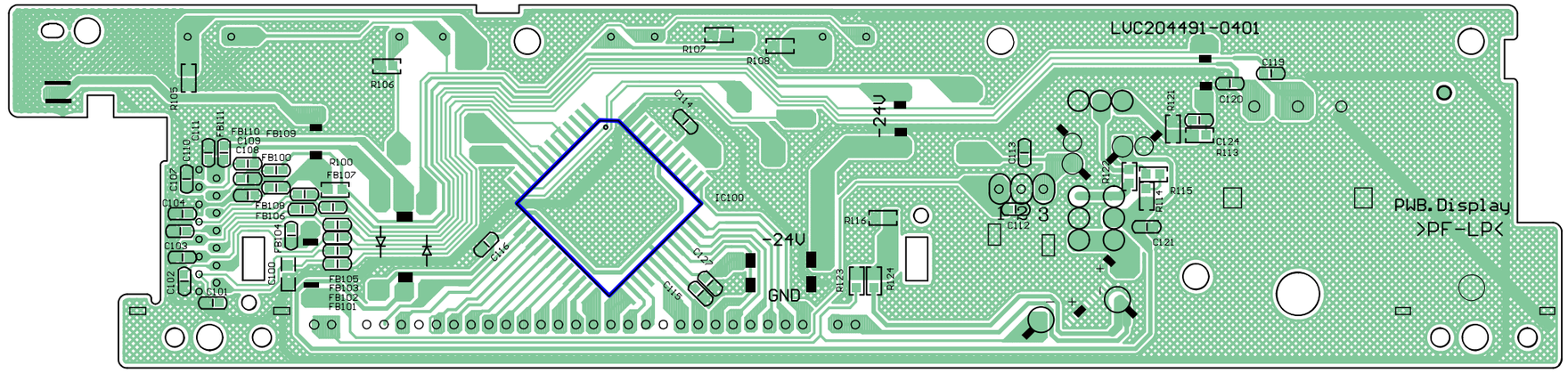
【CONTROL BOARD】(SIDE A)



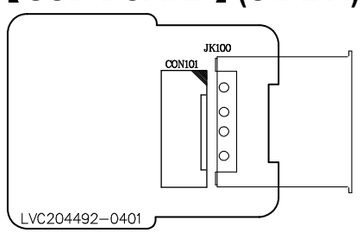
【STANDBY BOARD】(SIDE B)



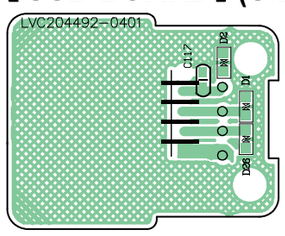
【CONTROL BOARD】(SIDE B)



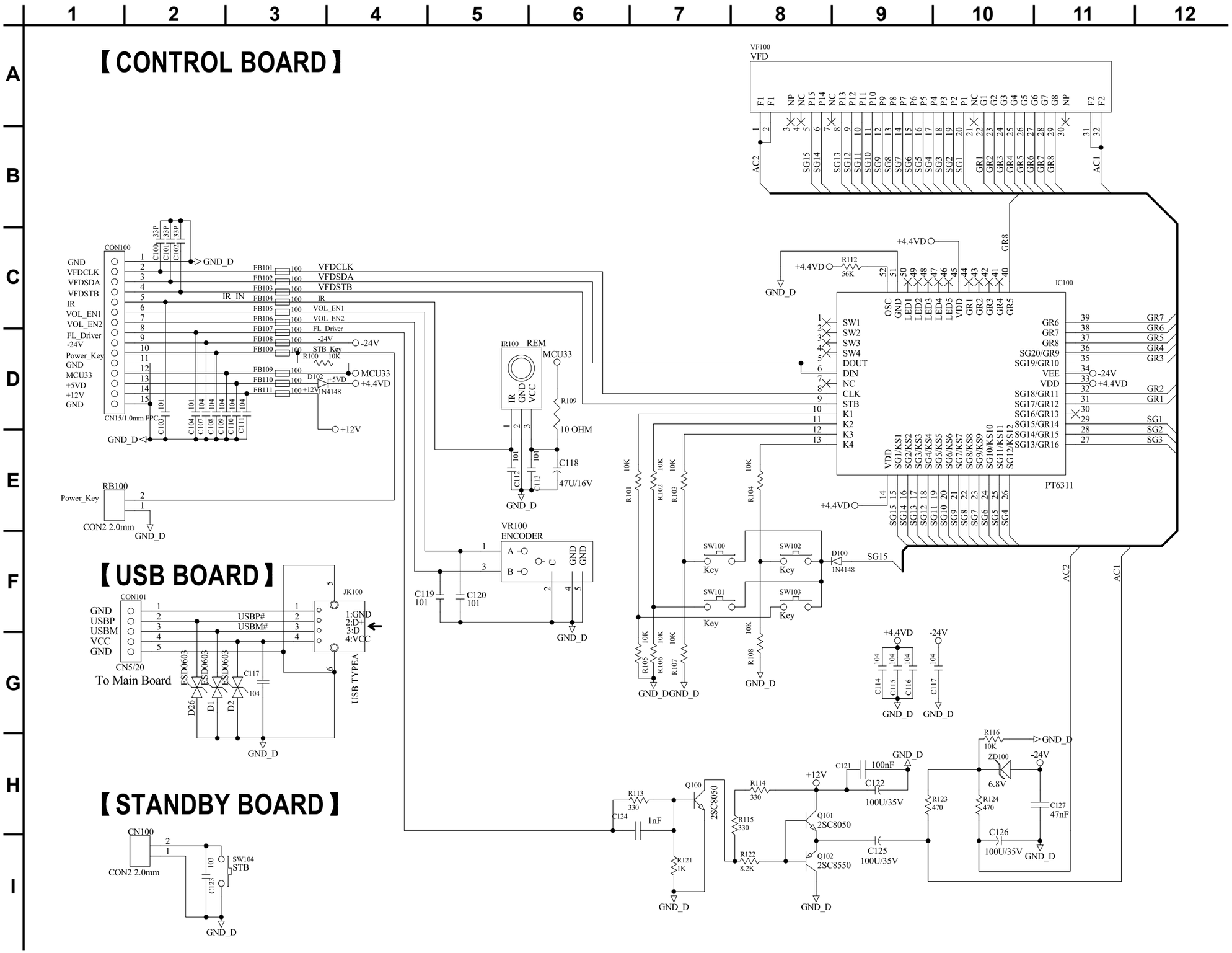
【USB BOARD】(SIDE A)



【USB BOARD】(SIDE B)

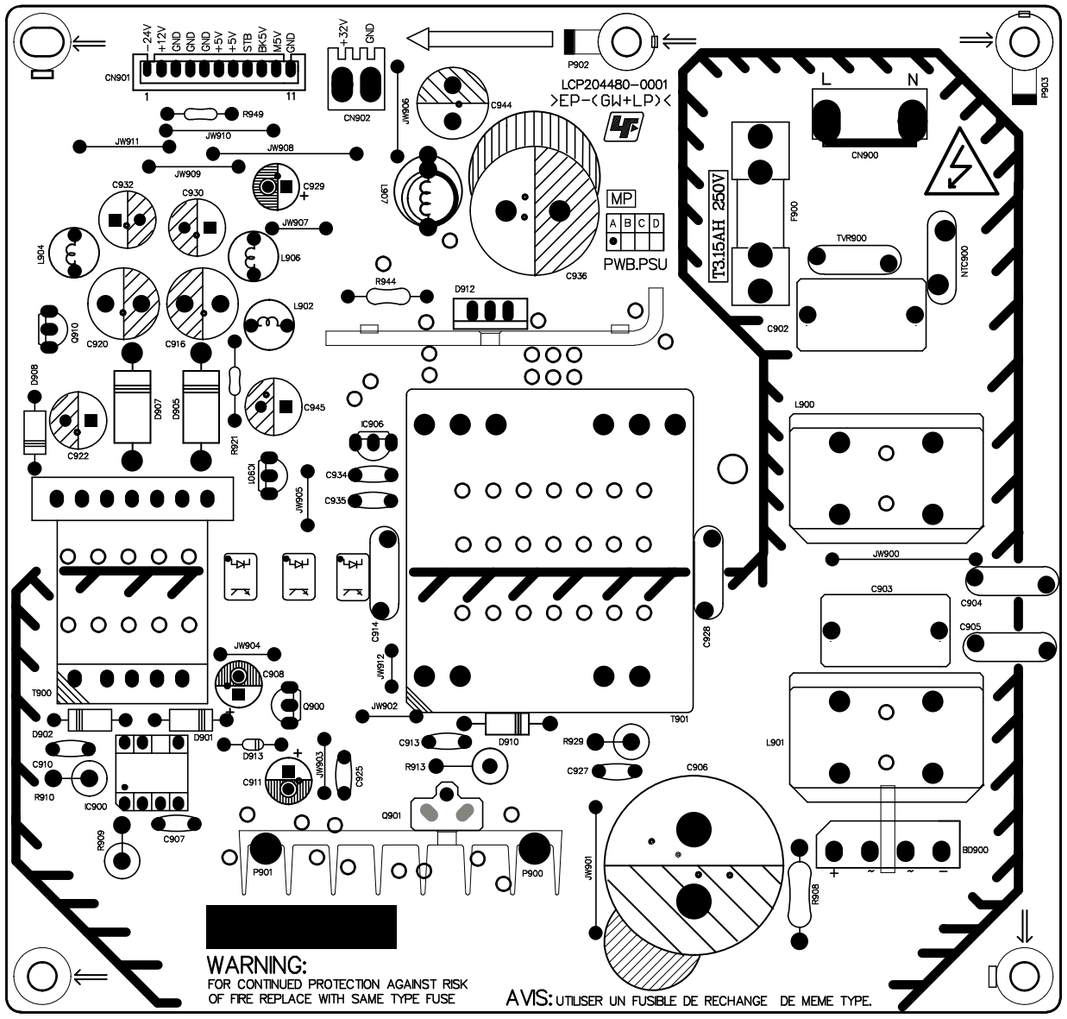


3-7. SCHEMATIC DIAGRAM – DISPLAY Section –

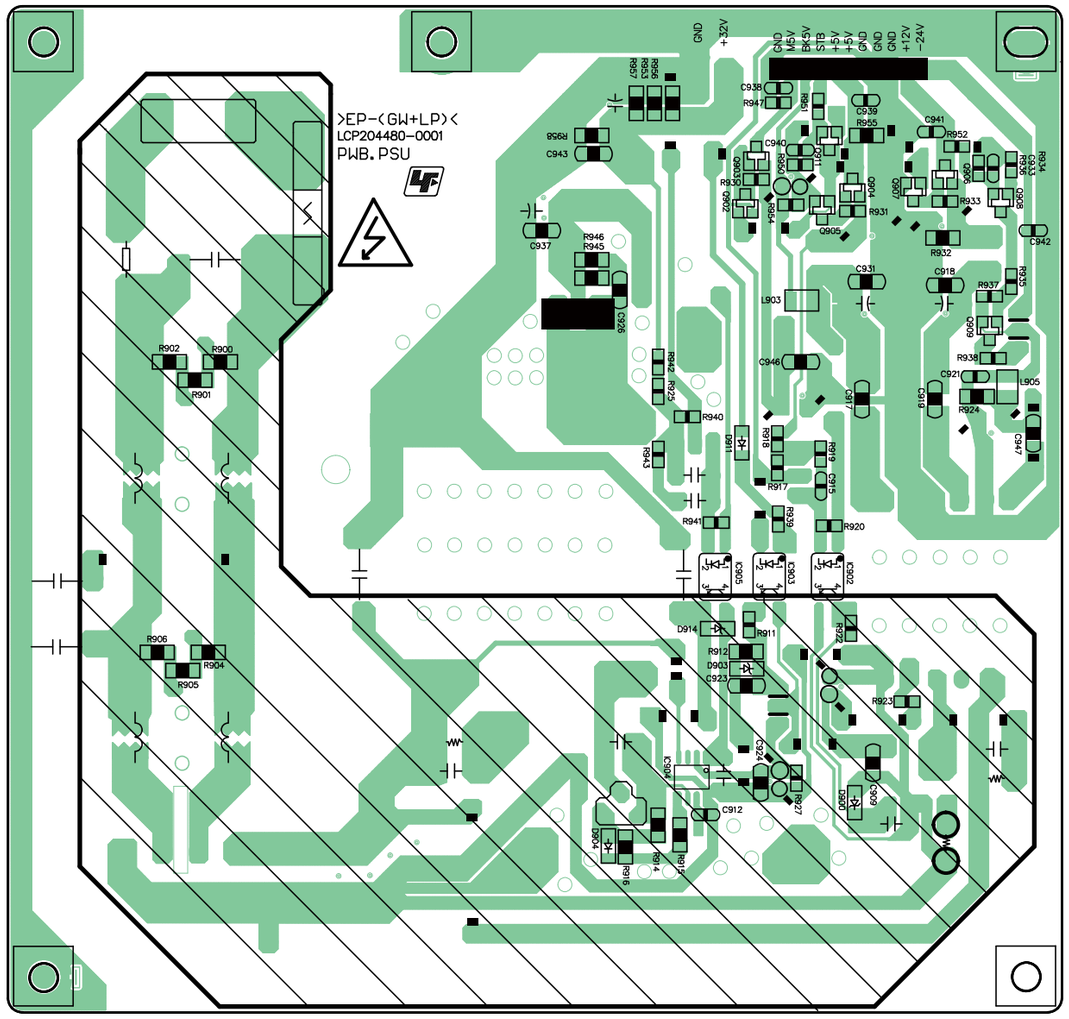


3-8. PRINTED WIRING BOARD – POWER Section –

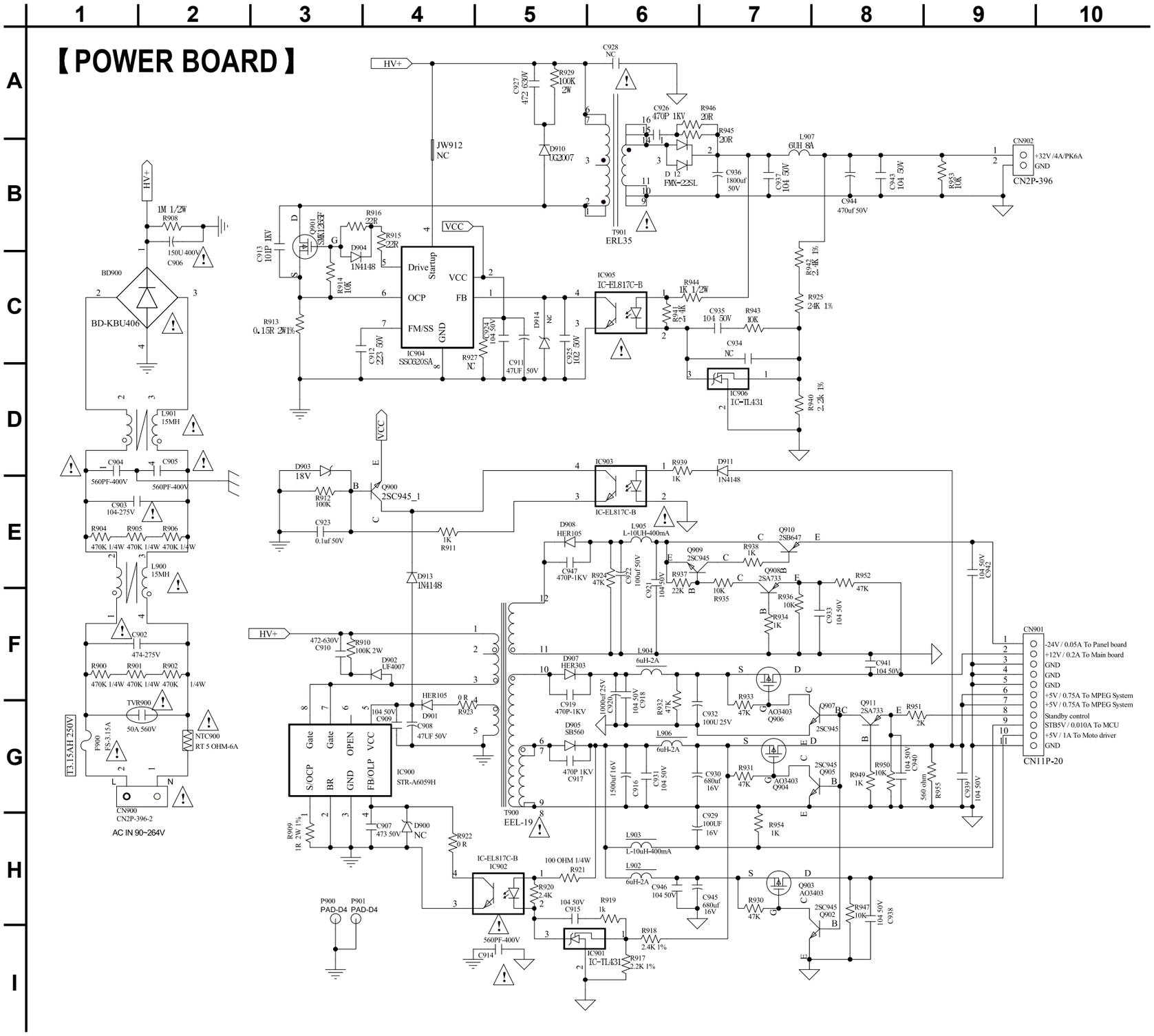
【 POWER BOARD 】(SIDE A)



【 POWER BOARD 】(SIDE B)



3-9. SCHEMATIC DIAGRAM – POWER Section –



MEMO

SECTION 4
EXPLODED VIEWS

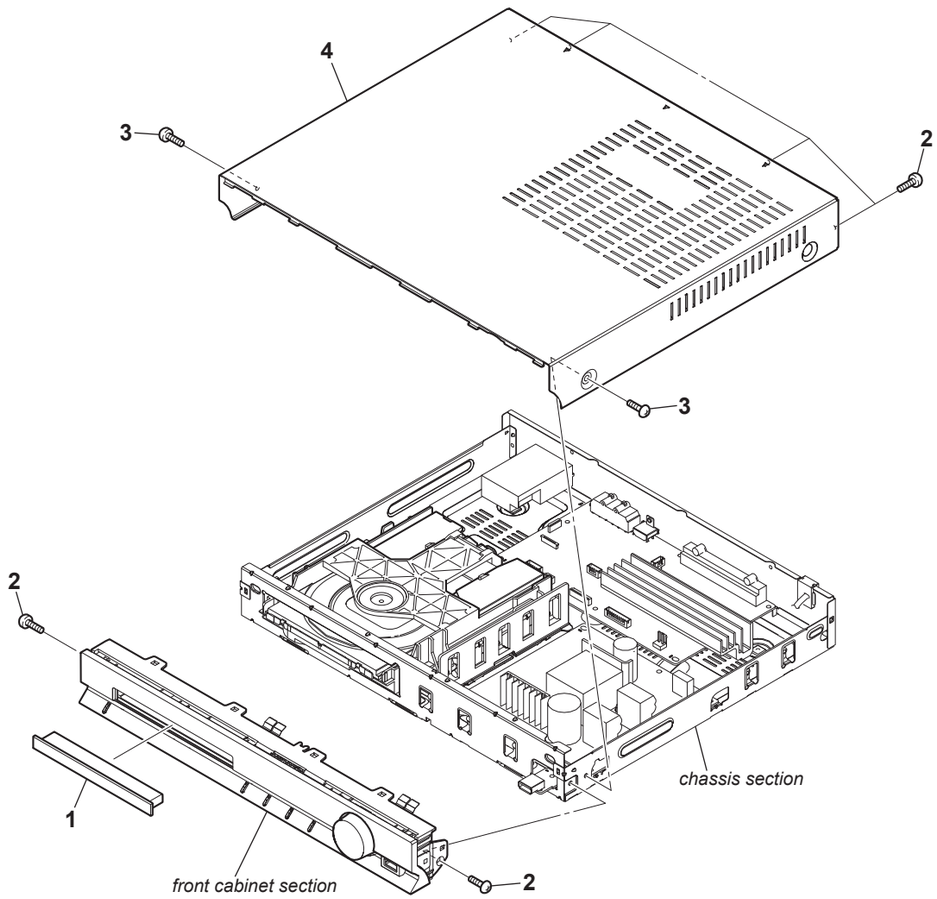
Note:

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories are given in the last of the electrical parts list.
- Abbreviation
  AR : Argentina model
  AUS : Australian model
  BR : Brazilian model
  CH : Chinese model
  CND : Canadian model
  E3 : 240V AC area in E model
  E12 : 220 – 240V AC area in E model
  E32 : 110 – 240V AC area in E model
  SAF : South African model
  SP : Singapore model
  TH : Thai model

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
原理图和零件清单中标有⚠记号的零部件，或带有⚠记号的虚线所圈示的零部件，对于维系安全至关重要。因此只能以指定号码的零部件来更换。

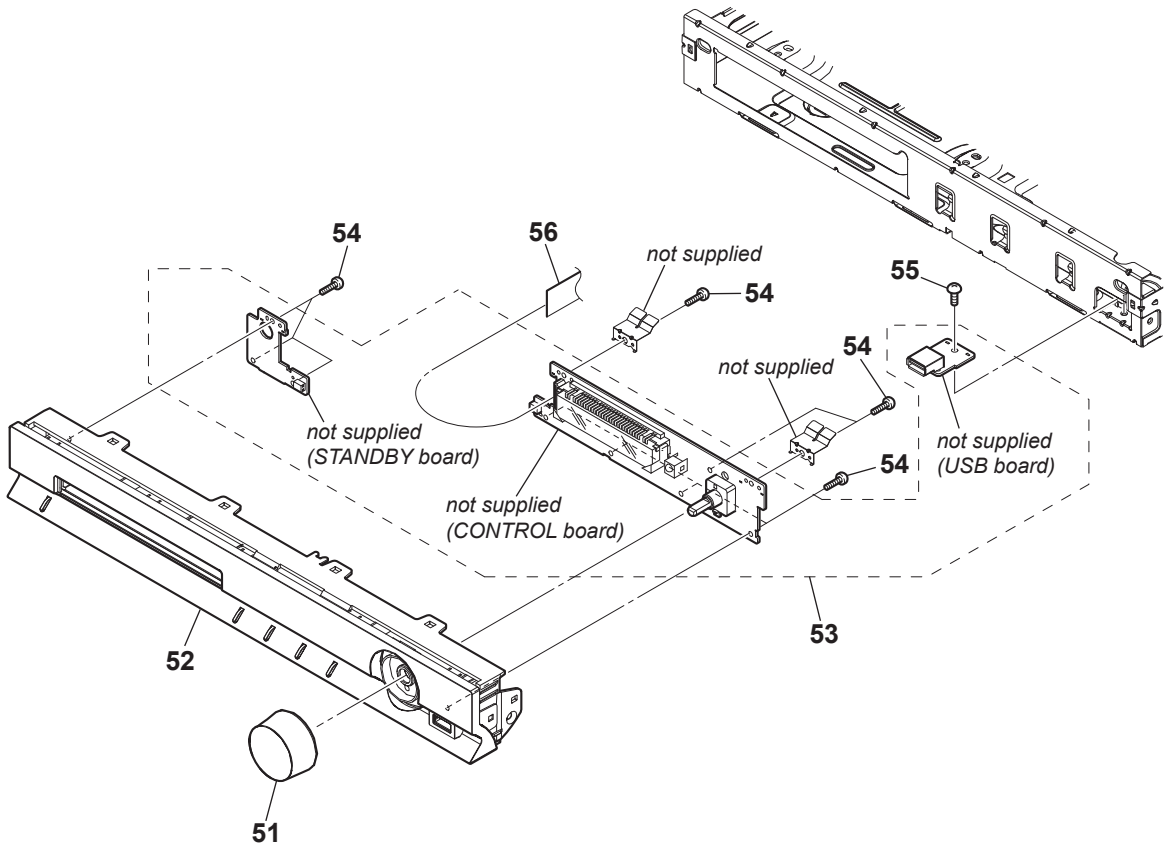
The components identified by mark 🔒 contain confidential information. Strictly follow the instructions whenever the components are repaired and/or replaced.
Les composants identifiés par la marque 🔒 contiennent des informations confidentielles. Suivre scrupuleusement les instructions chaque fois qu'un composant est remplacé et / ou réparé.
标识有 🔒 的元件包含机密信息。 更换或维修元件时请严格遵守指示。

4-1. OVERALL SECTION



Ref. No.	Part No.	Description	Remark
1	9-885-148-07	DOOR	
2	9-885-144-64	+BVTT 3X6 BZN3	
3	9-885-149-85	CASE SCREW	
4	9-885-148-14	TOP COVER	

4-2. FRONT CABINET SECTION

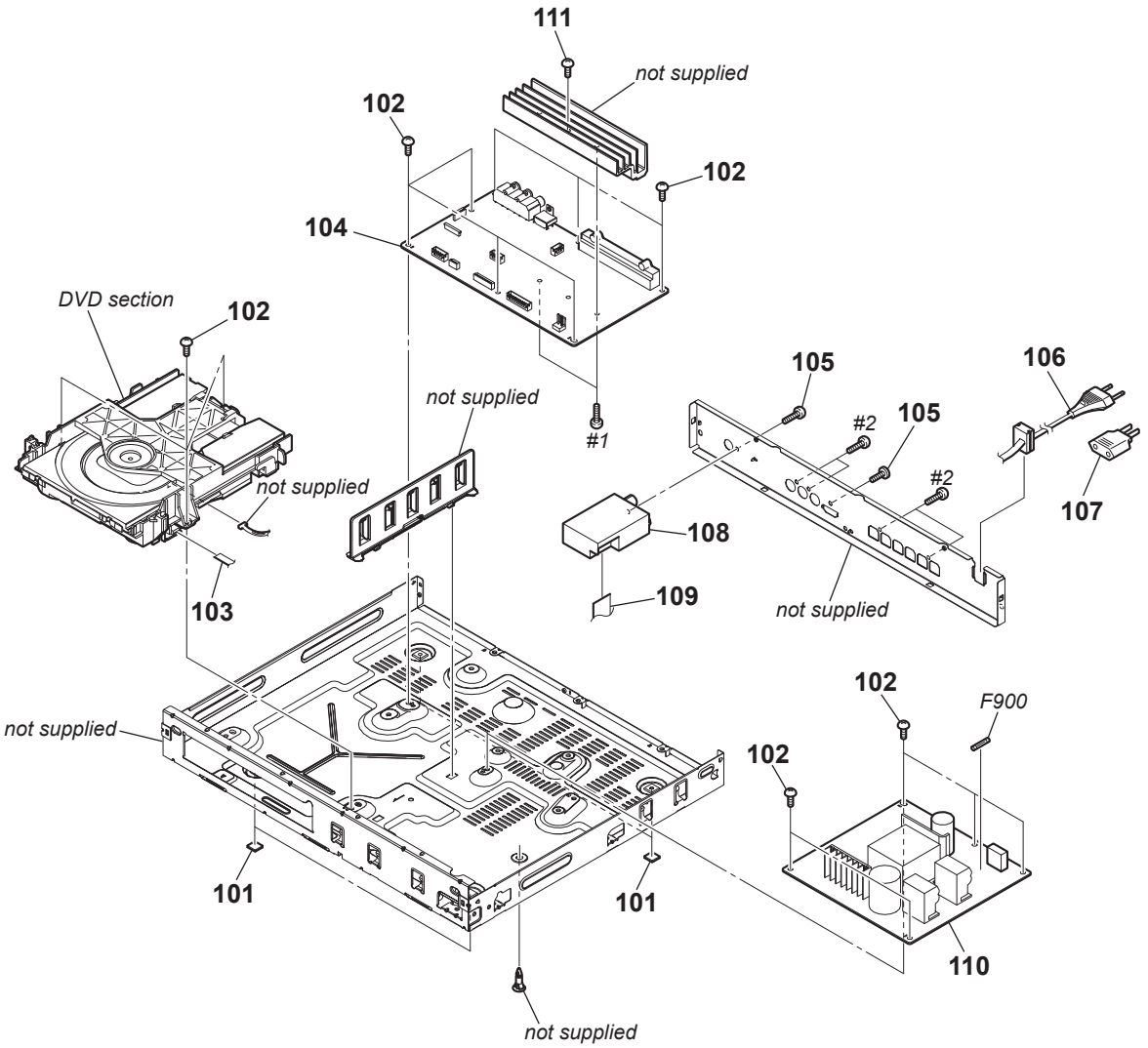


Note: If the wire (flat type) was replaced, fold it some as the wire (flat type) before replacement.

Ref. No.	Part No.	Description	Remark
51	9-885-148-08	VOLUME KNOB	
52	9-885-149-61	FRONT CABINET ASSY (EXCEPT US)	
52	9-885-149-62	FRONT CABINET ASSY (US)	
53	9-885-150-24	VFD PCB ASM	

Ref. No.	Part No.	Description	Remark
54	3-087-053-01	+BVTP2.6 (3CR)	
55	9-885-144-66	+BVTT 3X7 CZN3 (POINT CIRCLE)	
56	9-885-150-27	FLEXIBLE CABLE (15 CORE)	

4-3. CHASSIS SECTION

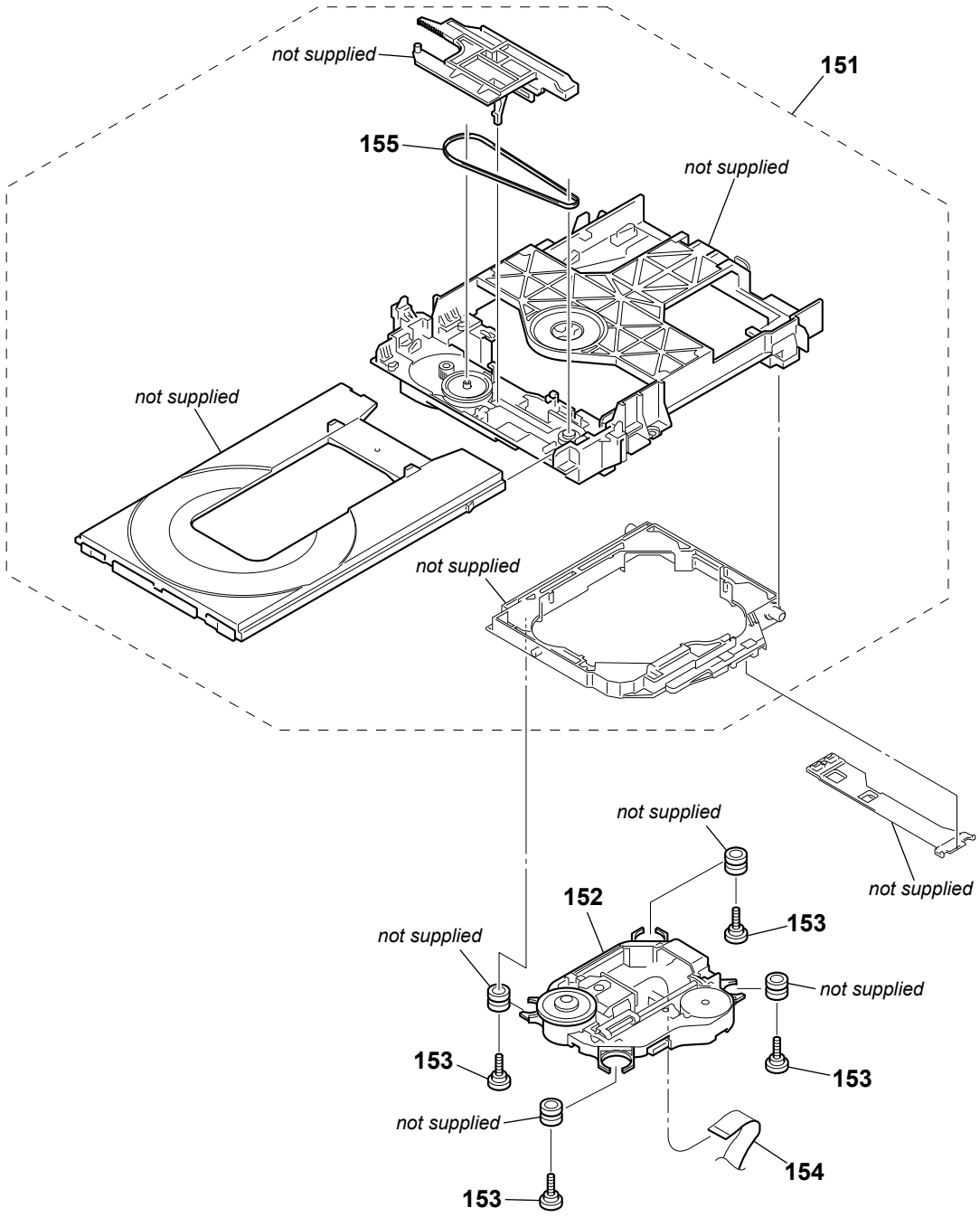


Note: If the wire (flat type) was replaced, fold it some as the wire (flat type) before replacement.

Ref. No.	Part No.	Description	Remark
101	9-885-144-39	FOOT	
102	9-885-144-66	+BVTT 3X7 CZN3 (POINT CIRCLE)	
103	9-885-150-26	FLEXIBLE CABLE (5 CORE)	
104	A-1805-849-A	MAIN PCB ASSY (U2) (US)	
104	A-1805-850-A	MAIN PCB ASSY (CA2) (CND)	
104	A-1805-854-A	MAIN PCB ASSY (E12) (E12)	
104	A-1805-855-A	MAIN PCB ASSY (E3) (E3)	
104	A-1805-856-A	MAIN PCB ASSY (SA2) (SAF)	
104	A-1805-857-A	MAIN PCB ASSY (SP1) (SP)	
104	A-1805-859-A	MAIN PCB ASSY (CN4) (CH)	
104	A-1805-860-A	MAIN PCB ASSY (AU1) (AUS)	
104	A-1805-861-A	MAIN PCB ASSY (TH1) (TH)	
104	A-1805-862-A	MAIN PCB ASSY (E32) (E32)	
104	A-1805-864-A	MAIN PCB ASSY (BR1) (BR)	
104	A-1805-865-A	MAIN PCB ASSY (AR2) (AR)	
105	9-885-144-64	+BVTT 3X6 BZN3	
⚠ 106	9-885-150-12	AC CORD (E3, E12, E32, SAF, SP)	

Ref. No.	Part No.	Description	Remark
⚠ 106	9-885-150-13	AC CORD (AUS)	
⚠ 106	9-885-150-14	AC CORD (TH)	
⚠ 106	9-885-150-16	AC CORD (CH)	
⚠ 106	9-885-150-18	AC CORD (US, CND)	
⚠ 106	9-885-150-20	AC CORD (AR)	
⚠ 106	9-885-150-21	AC CORD (BR)	
⚠ 107	9-885-151-52	AC PLUG ADAPTOR FOR E12 (E12)	
108	1-693-780-21	TUNER (FM) (E3, E12, E32, AUS, AR, SP, TH)	
108	1-693-781-21	TUNER (FM) (US, CND, BR)	
108	1-693-788-21	TUNER (FM) (CH, SAF)	
109	9-885-150-28	FLEXIBLE CABLE (9 CORE)	
110	9-885-150-22	POWER PCB ASM	
111	9-885-152-89	HEAT SINK SCREW	
⚠ F900	9-885-150-11	FUSE (T3.15AH/250V)	
#1	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3	
#2	7-685-647-79	SCREW +P 3X10 TYPE2 NON-SLIT	

4-4. DVD MECHANISM DECK SECTION



Note: If the wire (flat type) was replaced, fold it some as the wire (flat type) before replacement.

Ref. No.	Part No.	Description	Remark
⚠ 151	A-1749-923-A	CDM85 (MB) ASSY	
⚠ 152	8-820-321-05	OPTICAL PICK-UP BLOCK (KHM-313CAA/C2RP)	
153	4-674-137-11	SCREW (PTP2X5)	
154	9-885-150-25	FLEXIBLE CABLE (24 CORE)	
155	3-088-371-01	BELT	

REVISION HISTORY

Checking the version allows you to jump to the revised page.
Also, clicking the version at the top of the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.0	2010.09	New
1.1	2010.10	Change of DVD MECHANISM DECK SECTION. (SMR-10046)
1.2	2011.01	Addition of US model.