

SONY[®]

AC ADAPTOR

AC-DN2B

MAINTENANCE MANUAL

1st Edition

Serial No. 10001 and Higher

⚠ 警告

このマニュアルは、サービス専用です。
お客様が、このマニュアルに記載された設置や保守、点検、修理などを行うと感電や火災、人身事故につながる可能性があります。
危険をさけるため、サービストレーニングを受けた技術者のみご使用ください。

⚠ WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠ WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegebenen Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠ AVERTISSEMENT

Ce manuel est destiné uniquement aux personnes compétentes en charge de l'entretien. Afin de réduire les risques de décharge électrique, d'incendie ou de blessure n'effectuer que les réparations indiquées dans le mode d'emploi à moins d'être qualifié pour en effectuer d'autres. Pour toute réparation faire appel à une personne compétente uniquement.

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Manual Structure

Purpose of this manual

This manual is the maintenance manual for AC Adaptor AC-DN2B.
This manual describes the information items on maintenance, and items that premise the service based on the components parts such as alignment, schematic diagram, board layout and spare parts list, assuming use of service engineers.

Related manual

Besides this maintenance manual, the following manual is available for this unit.

- **Operation Manual (Supplied with this unit)**

This manual is necessary for application and operation of this unit.

Part number : 3-204-884-0X

Contents

The following are summaries of the each section for understanding the manual.

Section 1 Service Overview

Describes information about connector input/output signals, recommended power cords, and replacement of part.

Section 2 Electrical Alignment

Describes electrical adjustment.

Section 3 Spare Parts

Describes parts list, exploded view, and supplied accessories used in the unit.

Section 4 Diagrams and Board Layouts

Describes block diagram, schematic diagram and board layouts.

Section 1

Service Overview

1-1. Connectors and Cable

1-1-1. Recommended DC OUT Cable

When connecting a cable to the DC OUT connector (XLR, 4P), be sure to use the specified connector/complete cable assemblies.

Connection Connector

- XLR 4P, MALE : 1-508-369-11

Connection Cable

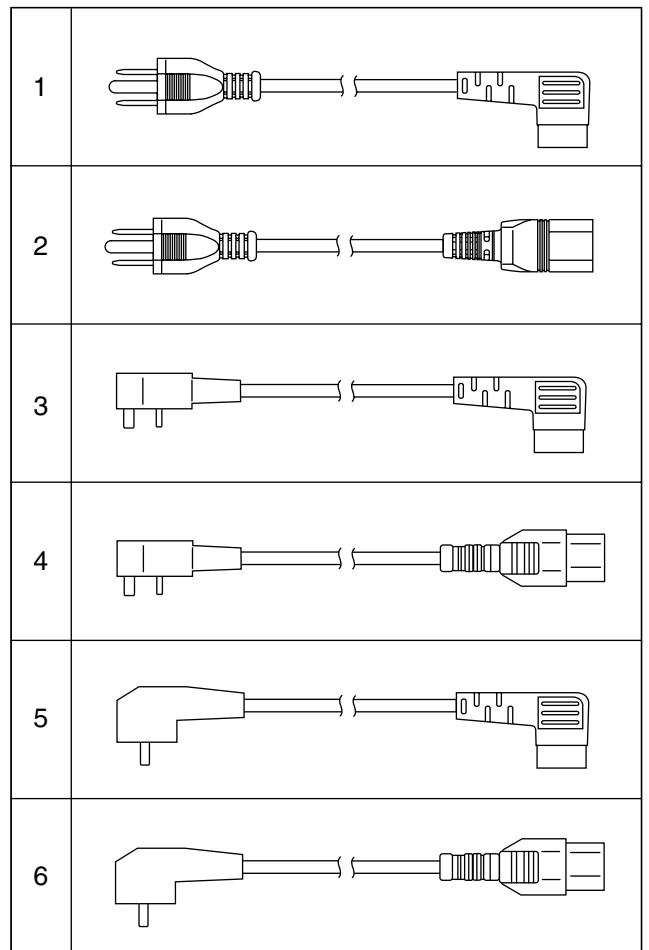
- CORD WITH CONNECTOR : 1-790-446-11
(0.26 m, supplied with the unit)
- CCDD-X2 (2 m, option)

1-1-2. Recommended Power Cords

The following power cords are available separately for this unit. See the following table to determine the proper power code for your location.

SONY POWER CORD (2.4 m) DK-2401L (Angle type)

Fig.	Power cord	Rated current	Rated voltage
1	DK-2401L (UC)	7 A	125 V
2	P/N 1-557-377-11	10 A	
3	P/N 1-782-167-11	7 A	250 V
4	P/N 1-782-165-11	10 A	
5	P/N 1-782-168-11	10 A	250 V
6	P/N 1-782-164-11		

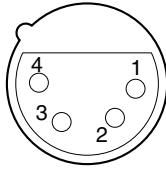


1-1-3. Connector Input/Output Signals

AC IN

AC 100 V to 240 V, 200 W

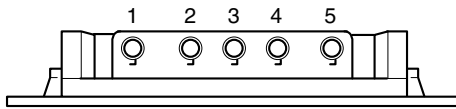
DC OUT (4P FEMALE)



– EXT VIEW –

Pin No.	Signal	Specifications
1	GND	GND for UNREG
2	NC	No connection
3	NC	No connection
4	DC OUT	+16.4 to +17.0 V, 9 A MAX

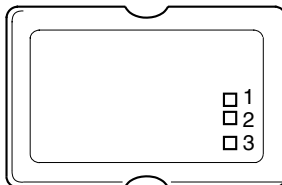
DC OUT (5P FEMALE)



– EXT VIEW –

Pin No.	Signal	Specifications
1	GND	GND for DC OUT
2	NC	No connection
3	NC	
4	NC	
5	DC OUT	+16.4 to +17.0 V, 9 A MAX

DC OUT (3P)



– EXT VIEW –

Pin No.	Signal	Specifications
1	BATT (-) OUT	GND for DC OUT
2	BATT (+) OUT	+16.5 to +16.9 V, 2.2 A MAX
3	RID IN	SENS

1-2. Operating Environment

Operating Temperature : 0 °C to +40 °C

Storage Temperature : -5 °C to +45 °C

Humidity : No condensation

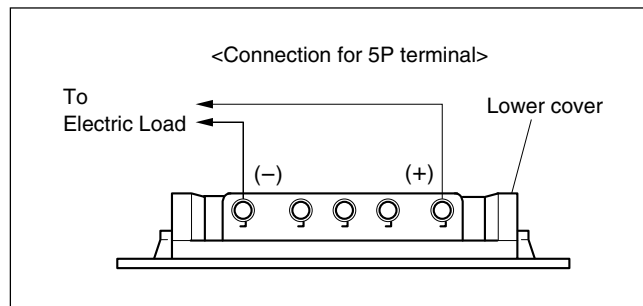
1-3. Checking the Fan Operation

The unit is provided with a fan. It is designed to run automatically when temperature of the heat sink inside the equipment exceeds over 55°C. If there is any doubt that the fan or fan motor control circuit fails, check the fan operation as follows.

Equipment Required

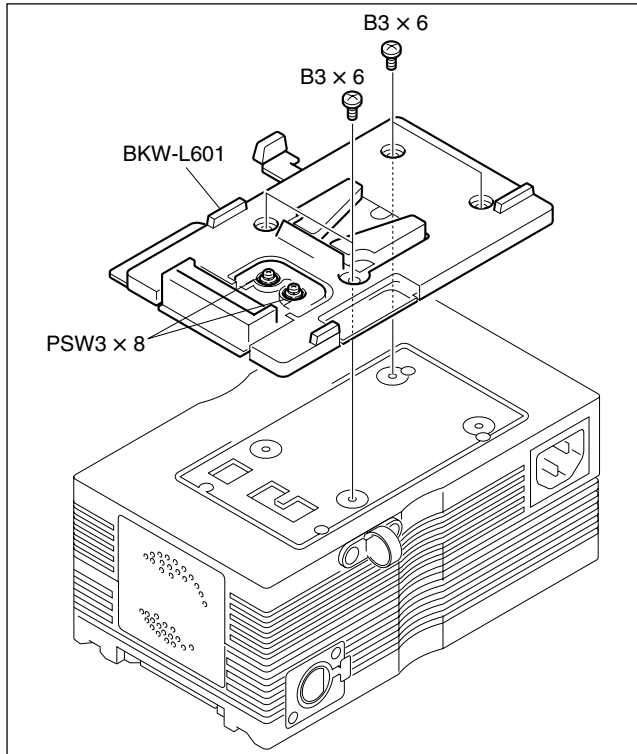
- Electric Load
 Hewlett-Packard HP6051A + HP60501B

1. Set the electric load to 9 A in the CC (constant current) mode.
2. Connect the electric load as follows and make sure that the fan starts up within ten minutes.

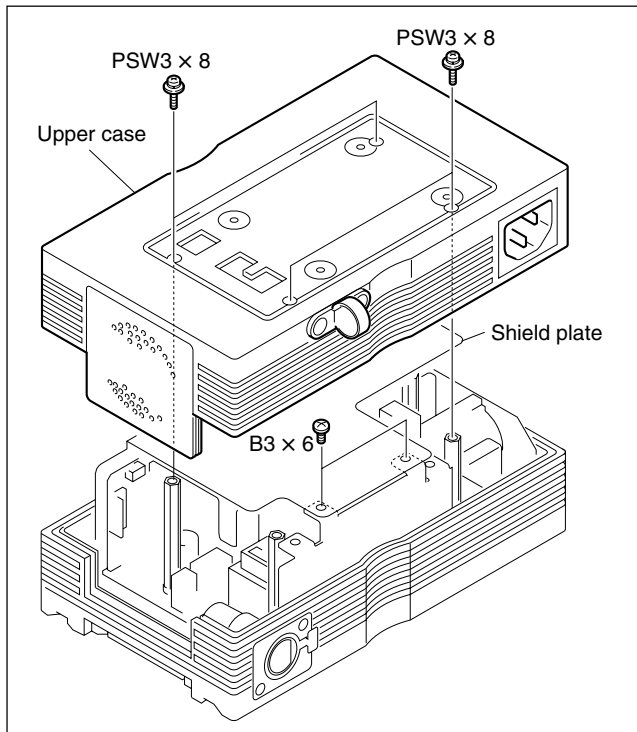


1-4. Removing the Cabinets

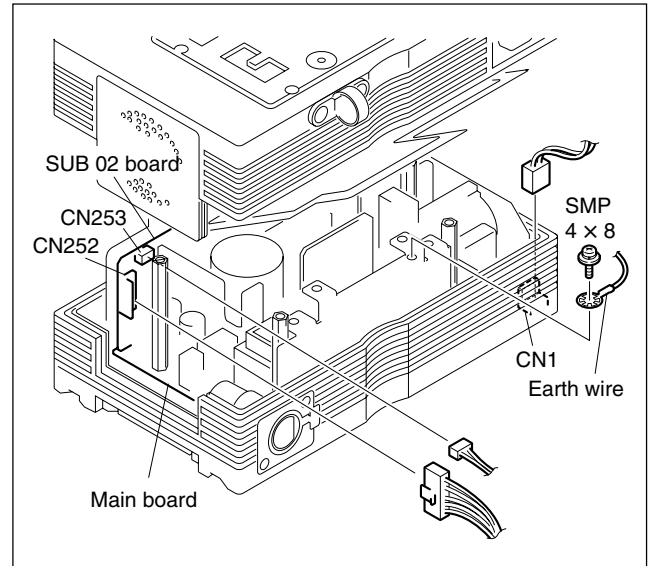
1. Remove the four screws (B3 × 6) securing the BKW-L601 and loosen the two screws (PSW3 × 8).



2. Remove the four screws (PSW3 × 8) and remove the upper case.
3. Remove the two screws (B3 × 6) securing the shield plate.



4. Remove the screw securing the earth wire and disconnect the harnesses from the connector (CN1) on the main board.
5. Disconnect the harness from the connectors (CN252, CN253) on the SUB02 board.



6. Assemble the parts in reverse order of the disassembling procedure.

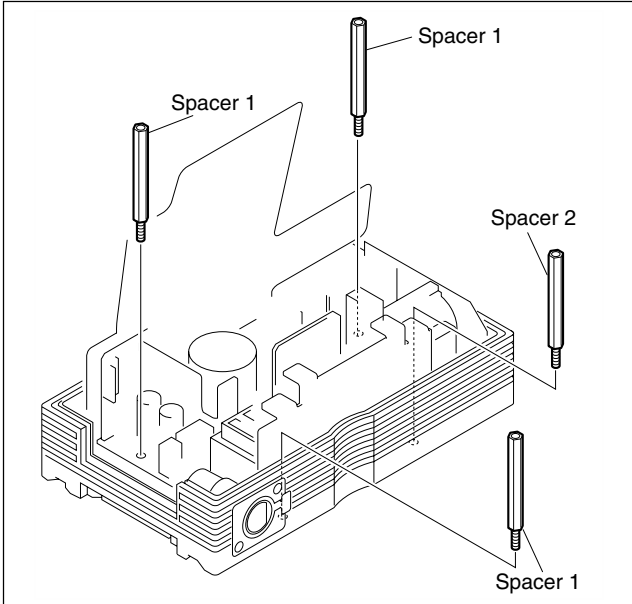
1-5. Replacing the Fuse

WARNING

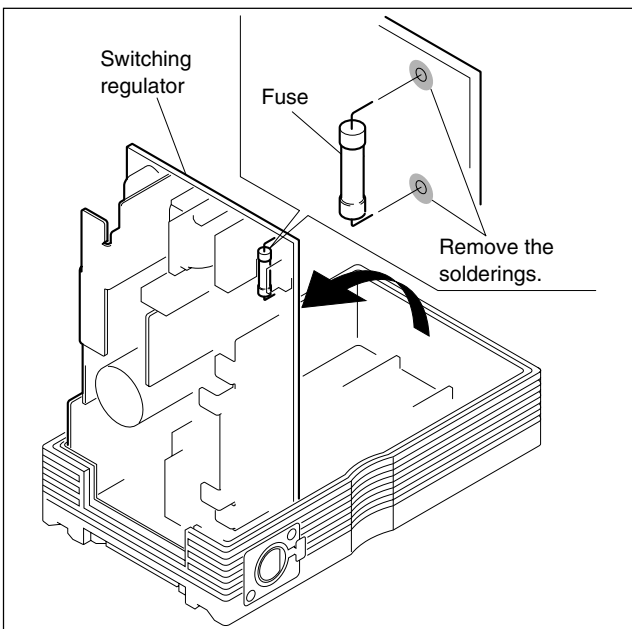
The fuse is critical to safe operation. For replacement, be sure to use the specified part.

Sony P/N : Δ 9-885-009-46 5 A 250 V

1. Remove the cabinets while referring to Section 1-4.
2. Remove the three spacer 1s and the one spacer 2.



3. Raise the switching regulator and remove the two solderings as shown in the figure. Then, replace the fuse.



4. Assemble the unit in the reverse order of removal.
Spacer 1/Spacer 2 tightening torque : 4 N•m (40 kgf•cm)

1-4 (E)

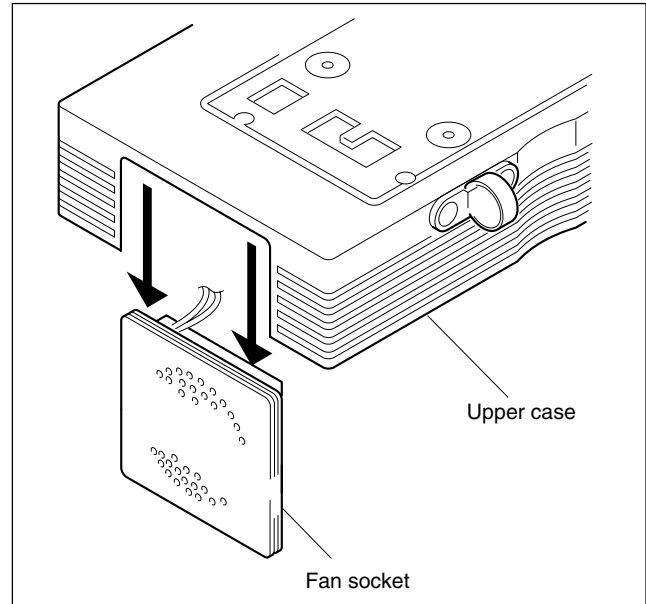
1-6. Replacing the Fan

Fan used in the unit is a periodic replacement part. For replacement, be sure to use the specified part.

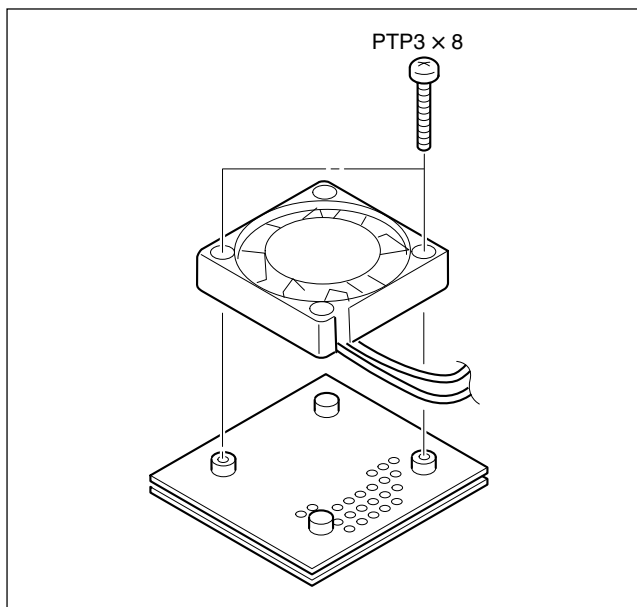
Sony P/N : 1-763-098-11

Recommended Replacement Period : Every five years

1. Remove the cabinets while referring to Section 1-4.
2. Pull the fan socket out of the upper case.



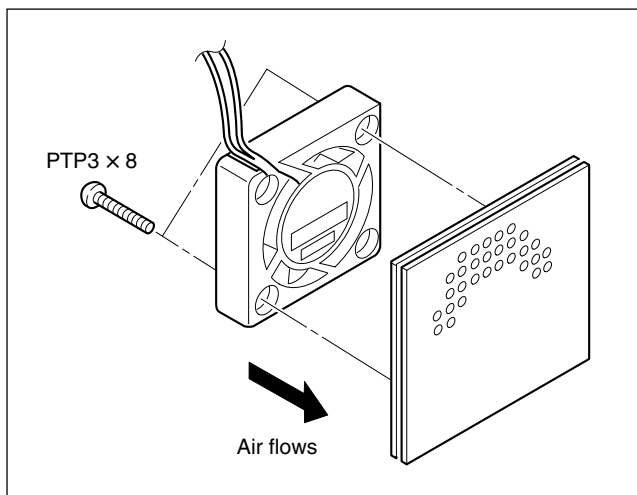
3. Remove the two screws and remove the fan.



4. Install a new fan in the reverse order of removal.

Note at installation

Install the fan to the fan socket with care so that air flows in the direction of the arrow.



1-7. Notes on Repair Parts

1. Safety Related Components Warning

WARNING

Components marked \triangle are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement. Parts list has the present standardized repair parts.

3. Stock of Parts

Parts marked with “o” at SP (Supply Code) column of the spare parts list may not be stocked. Therefore, the delivery date will be delayed.

4. Harness

Harnesses with no part number are not registered as spare parts.

In need of repair, get components shown in the list and repair using them.

1-8. Printing of the Reference Numbers on Printed Boards

Only the lower two digits of the reference numbers of the SUB01 board and SUB02 board are shown respectively on the printed board. Note that these indications differ from those on the schematic diagram, block diagram and electrical parts list. (example)

Board	Indication on the printed board	Ref.No. in the manual
SUB01	CN01	CN101
SUB02	VR51	VR251

1-9. Optional Fixture

The following special driver is separately available as a fixture to remove the screws securing the V shoe to the unit.

Description	Sony Part No.
5-wing screwdriver DF-018 (for M3)	J-6530-180-A

Section 2

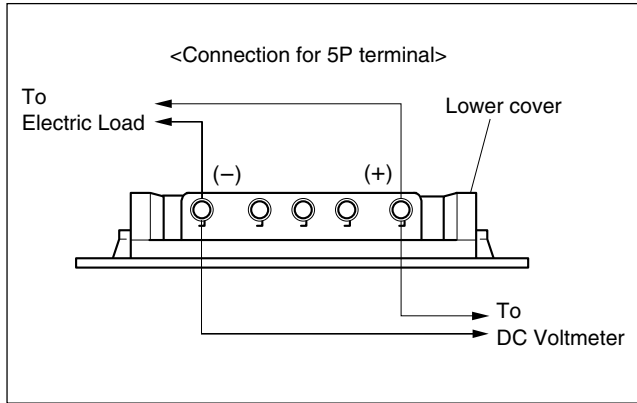
Electrical Alignment

2-1. Preparations

Equipment Required

- Electric Load
Hewlett-Packard HP6051A + HP60501B
- DC Voltmeter

Connection



2-2. Output Voltage Adjustment

Preparation

- Set the electric load to 9 A in the CC (constant current) mode.
- Test Points : Pins (+), (-)/5P terminal
Adj. Point : ●VR251 (SUB02 board)
Specifications : 16.7 ± 0.3 V



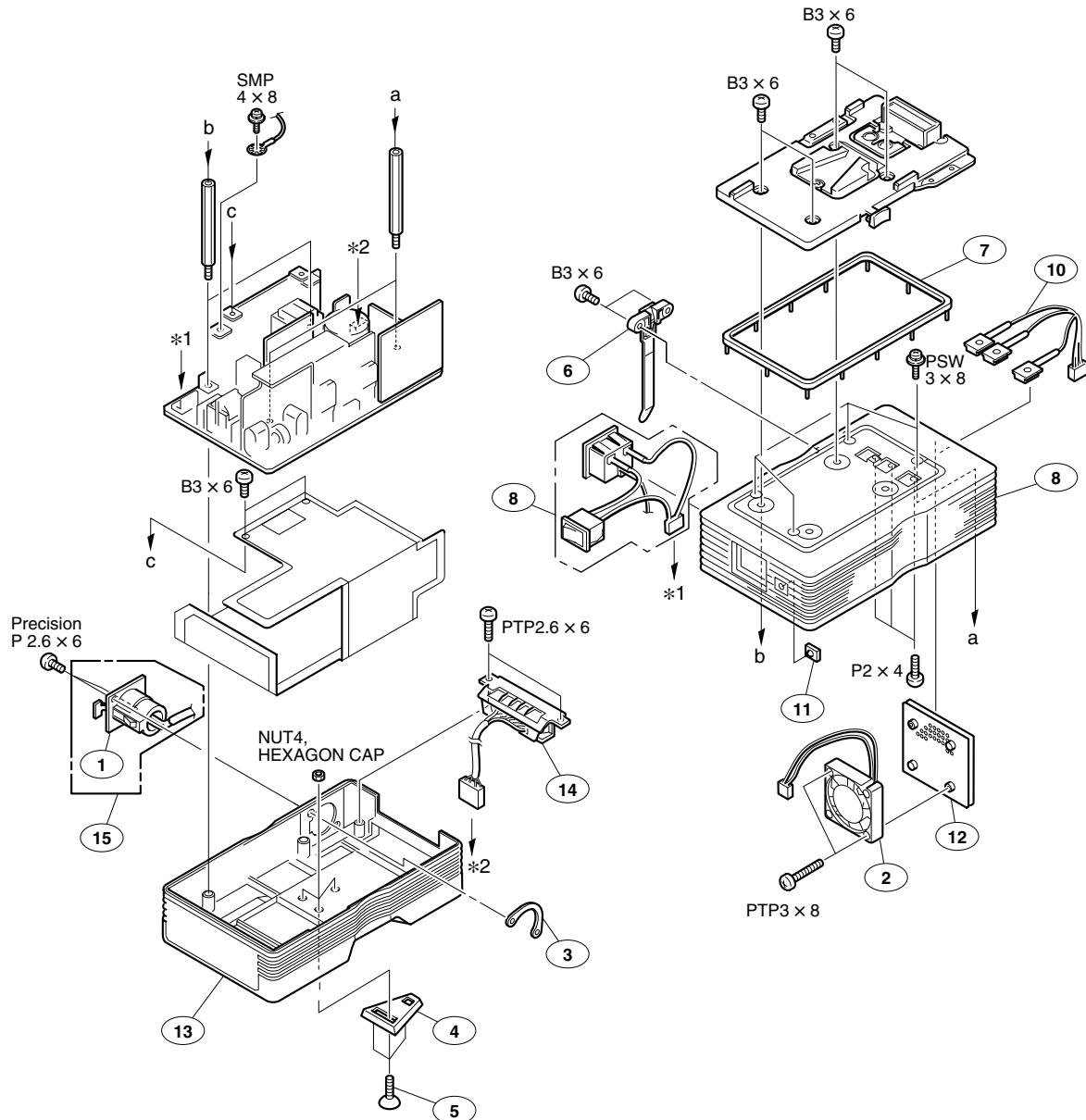
SUB02 board (B side)

2-3. Note after Adjustment

After adjustment has been completed, be sure to lock ●VR251 with paint.

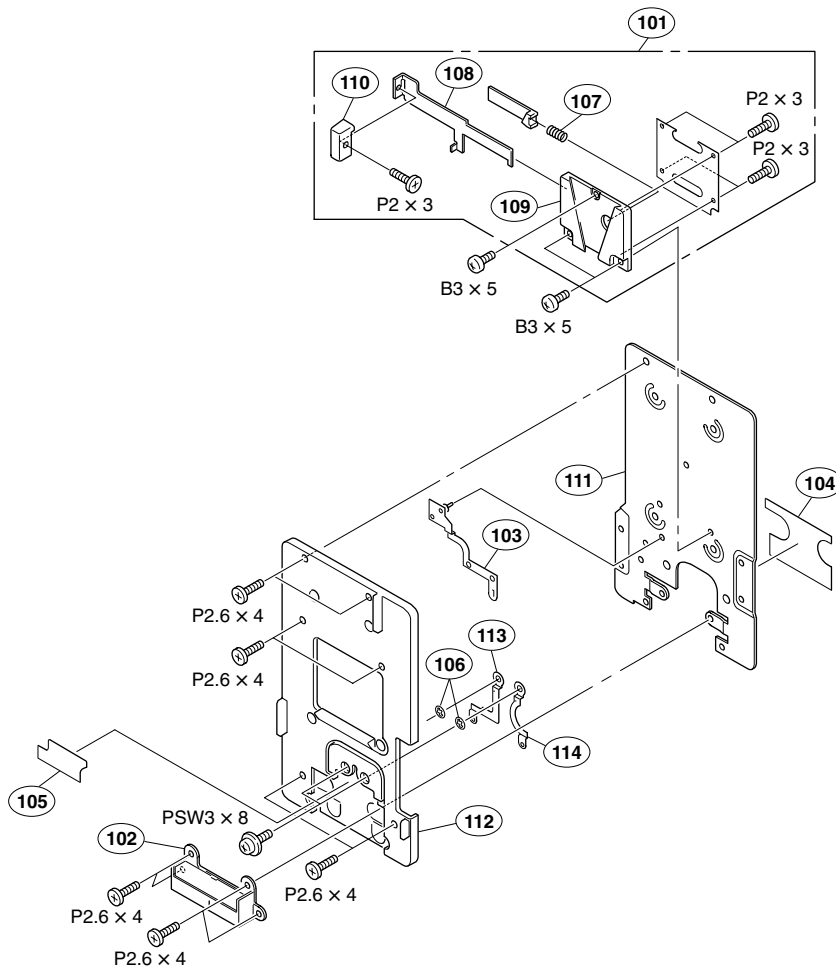
Section 3 Spare Parts

3-1. Exploded Views



No.	Part No.	SP Description	No.	Part No.	SP Description
1	1-509-185-31	s CONNECTOR (RECEPTACLE) 4P	11	9-885-009-71	o LENS, LED
2	1-763-098-11	s FAN, DC (40 SQUARE)	12	9-885-009-72	o SOCKET, FAN
3	2-378-311-01	o NUT (XLR), PLATE	13	9-885-009-73	o CASE, LOWER
4	3-193-925-01	o SHOE (AC), V	14	9-885-009-74	o CONNECTOR ASSY, BATTERY
5	3-193-926-01	o SCREW (M3X7), 5LR PLATE SMALL	15	9-885-009-75	o HARNESS ASSY, XLR
6	3-692-186-01	s HOLDER, CABLE	7-627-553-47	s SCREW PRECISION +P2X4	
7	3-724-723-01	s RUBBER (BATT), DROP PROTECTION	7-627-556-77	s SCREW PRECISION +P2.6X6 TYPE1	
8	9-885-004-70	o HARNESS ASSY, INLET (WITH SW)	7-682-547-09	s SCREW +B3X6	
9	9-885-009-68	o CASE, UPPER	7-684-221-00	s NUT 4, HEXAGON CAP	
10	9-885-009-69	o HARNESS ASSY, OUTPUT	7-685-752-09	s SCREW +PTT3X8	
			7-685-792-09	s SCREW +PTP2.6X6	

Battery Adaptor



No.	Part No.	SP Description	No.	Part No.	SP Description
101	A-8278-025-C	s MOUNT, V ASSY	111	3-680-996-02	o PLATE
102	1-766-377-12	s CONNECTOR, BATTERY	112	3-680-997-02	o INSULATOR
103	3-606-344-01	o PLATE (ID)	113	3-680-998-02	o PLATE (+)
104	3-606-345-01	o SEAL	114	3-680-999-02	o PLATE (-)
105	3-606-346-02	o SEAL (FRONT)			
106	3-669-596-00	s WASHER (2.3), STOPPER		7-627-553-38	s SCREW, PRECISION +P 2X3
107	3-679-648-02	o SPRING, COMPRESSION		7-627-556-38	s SCREW +P 2.6X4.0
108	3-679-688-02	o LEVER, RELEASE		7-682-546-09	s SCREW +B 3X5
109	3-679-690-02	o MOUNT, V		7-682-948-01	s SCREW +PSW 3X8
110	3-680-952-01	o KNOB, RELEASE LEVER			

3-2. Electrical Parts List

 MAIN BOARD

Ref.No. or Q'ty	Part No.	SP	Description
C1	△ 9-885-009-14	s	CAPACITOR 1uF/AC250
C2	△ 9-885-009-15	s	CAPACITOR 0.22uF/AC250
C3	△ 9-885-009-16	s	CAPACITOR 1500PF/AC250
C4	△ 9-885-009-16	s	CAPACITOR 1500PF/AC250
C5	9-885-009-17	s	CAPACITOR 470PF/AC250
C6	9-885-009-18	s	CAPACITOR 0.47uF/450V
C7	9-885-009-18	s	CAPACITOR 0.47uF/450V
C8	9-885-009-19	s	CAPACITOR 270uF/450V
C9	9-885-009-20	s	CAPACITOR 47uF/50V
C10	9-885-009-21	s	CAPACITOR 100uF/50V
C11	9-885-009-22	s	CAPACITOR 47uF/50V
C12	9-885-009-23	s	CAPACITOR 220uF/25V
C13	9-885-009-24	s	CAPACITOR 15000PF/630V
C14	9-885-009-25	s	CAPACITOR 1000PF/630V
C15	9-885-009-25	s	CAPACITOR 1000PF/630V
C17	9-885-009-26	s	CAPACITOR 0.22uF/25V
C18	9-885-009-27	s	CAPACITOR 4700PF/50V
C19	9-885-009-28	s	CAPACITOR 0.1uF/50V
C20	9-885-009-29	s	CAPACITOR 0.1uF/50V
C21	9-885-009-30	s	CAPACITOR 10000PF/50V
C22	9-885-009-31	s	CAPACITOR 470PF/630V
C23	9-885-009-31	s	CAPACITOR 470PF/630V
C24	9-885-009-31	s	CAPACITOR 470PF/630V
C25	9-885-009-31	s	CAPACITOR 470PF/630V
C26	9-885-009-32	s	CAPACITOR 0.22uF/25V
C27	9-885-009-32	s	CAPACITOR 0.22uF/25V
C28	9-885-009-33	s	CAPACITOR 10000PF/50V
C29	9-885-009-34	s	CAPACITOR 470PF/50V
C30	9-885-009-35	s	CAPACITOR 10000PF/50V
C31	9-885-009-36	s	CAPACITOR 4700PF/50V
C32	9-885-009-37	s	CAPACITOR 10000PF/630V
C33	9-885-009-37	s	CAPACITOR 10000PF/630V
C34	9-885-009-37	s	CAPACITOR 10000PF/630V
C51	9-885-009-38	s	CAPACITOR 680uF/25V
C52	9-885-009-38	s	CAPACITOR 680uF/25V
C53	9-885-009-38	s	CAPACITOR 680uF/25V
C54	9-885-009-39	s	CAPACITOR 100uF/25V
C55	9-885-009-40	s	CAPACITOR 10000PF/AC250
C56	9-885-009-41	s	CAPACITOR 470PF/630V
C57	9-885-009-41	s	CAPACITOR 470PF/630V
C58	9-885-009-42	s	CAPACITOR 0.1uF/50V
C59	9-885-009-43	s	CAPACITOR 1uF/25V
C60	9-885-009-43	s	CAPACITOR 1uF/25V
D1	9-885-009-05	s	DIODE D5SB60
D2	9-885-009-06	s	DIODE SF10L60U
D3	9-885-009-07	s	DIODE U1DL44A-TE12L
D4	9-885-009-07	s	DIODE U1DL44A-TE12L
D5	9-885-009-08	s	DIODE U1JU44-TE12L
D6	9-885-009-09	s	DIODE 1SS184-TE85L
D7	9-885-009-09	s	DIODE 1SS184-TE85L
D8	9-885-009-09	s	DIODE 1SS184-TE85L
D9	9-885-009-09	s	DIODE 1SS184-TE85L
D10	9-885-009-09	s	DIODE 1SS184-TE85L
D11	9-885-009-09	s	DIODE 1SS184-TE85L
D12	9-885-009-09	s	DIODE 1SS184-TE85L
D13	9-885-009-09	s	DIODE 1SS184-TE85L
D14	9-885-009-10	s	DIODE U2JC44
D51	9-885-009-11	s	DIODE FCH30A06

(MAIN BOARD)

Ref.No. or Q'ty	Part No.	SP	Description
D52	9-885-009-11	s	DIODE FCH30A06
F1	△ 9-885-009-46	s	FUSE 215005ME600
IC1	9-885-008-98	s	IC TA78M18S
IC2	9-885-008-97	s	IC IR2101
IC3	9-885-008-99	s	IC MC34262D
IC4	9-885-009-00	s	IC NJM431U-TE1
L1	△ 9-885-009-76	s	COIL
L2	9-885-009-77	s	COIL
L3	9-885-009-78	s	COIL
L51	9-885-009-79	s	COIL
Q1	9-885-009-01	s	FET 2SK2837
Q2	9-885-009-02	s	FET 2SK2842
Q3	9-885-009-02	s	FET 2SK2842
Q4	9-885-009-03	s	TRANSISTOR 2SA1298-TE85L
Q5	9-885-009-04	s	TRANSISTOR RN2404
RY1	△ 9-885-009-80	s	RELAY
SW51	9-885-009-47	s	SWITCH OHD5R-60B
T1	△ 9-885-009-44	s	TRANSFORMER
T2	9-885-009-45	s	TRANSFORMER
TH51	△ 9-885-009-13	s	THERMISTOR
ZD1	9-885-009-12	s	DIODE 02CZ20
ZD2	9-885-009-12	s	DIODE 02CZ20

 SUB01 BOARD

Ref.No.
 or Q'ty Part No. SP Description

IC101 9-885-009-48 s IC MC34067P
 Q101 9-885-009-49 s TRANSISTOR 2SC2712-TE85L
 Q102 9-885-009-49 s TRANSISTOR 2SC2712-TE85L
 Q103 9-885-009-50 s TRANSISTOR 2SA1162-TE85L
 Q104 9-885-009-51 s TRANSISTOR DTC114EKA-T146
 ZD101 9-885-009-52 s DIODE 02CZ6.8Y

 SUB02 BOARD

Ref.No.
 or Q'ty Part No. SP Description

D251 9-885-009-62 s DIODE FCH30A06
 D252 9-885-009-63 s DIODE 1SS184-TE85L
 D253 9-885-009-64 s DIODE 1SS181-TE85L
 IC251 9-885-009-53 s IC NJM2903M-TE2
 IC252 9-885-009-54 s IC NJM2904M-TE2
 IC253 9-885-009-55 s IC NJM431U-TE1
 PC201 Δ 9-885-009-56 s PHOTO COUPLER TLP621D4-GB-LF2
 PC202 Δ 9-885-009-56 s PHOTO COUPLER TLP621D4-GB-LF2
 PC203 Δ 9-885-009-56 s PHOTO COUPLER TLP621D4-GB-LF2
 Q251 9-885-009-57 s FET 2SJ334
 Q252 9-885-009-58 s TRANSISTOR 2SC2655 TPE6
 Q253 9-885-009-59 s TRANSISTOR DTC114EKA-T146
 Q254 9-885-009-60 s TRANSISTOR 2SC2712-TE85L
 Q255 9-885-009-61 s TRANSISTOR 2SA1162-TE85L
 Q256 9-885-009-61 s TRANSISTOR 2SA1162-TE85L
 ZD251 9-885-009-65 s DIODE HZM5.1N B2-TL
 ZD252 9-885-009-66 s DIODE HZM18N B2-TL
 ZD253 9-885-009-65 s DIODE HZM5.1N B2-TL

 SUB03 BOARD

Ref.No.
 or Q'ty Part No. SP Description

D301 9-885-009-67 s DIODE TLG223

 FRAME

Ref.No.
 or Q'ty Part No. SP Description

HN001 9-885-009-69 o HARNESS ASSY, OUTPUT
 HN002 Δ 9-885-009-70 o HARNESS ASSY, INLET (WITH SW)
 HN003 9-885-009-74 o CONNECTOR ASSY, BATTERY
 HN004 9-885-009-75 o HARNESS ASSY, XLR

3-3. Supplied Accessory

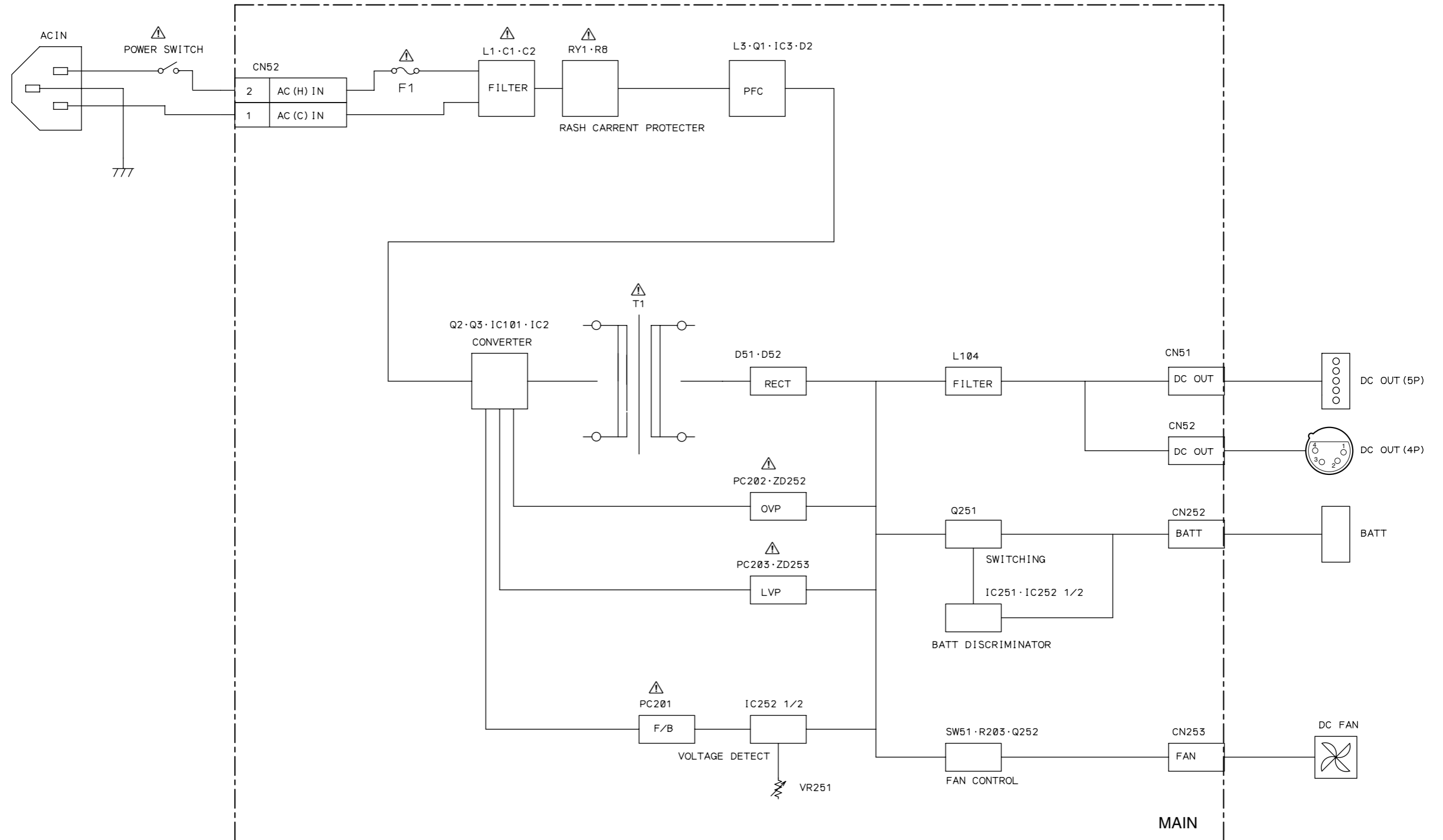
Ref.No.
 or Q'ty Part No. SP Description
 1pc 1-790-446-11 s CORD, CONNECTION (XLR TYPE 4P)

3-4. Optional Fixture

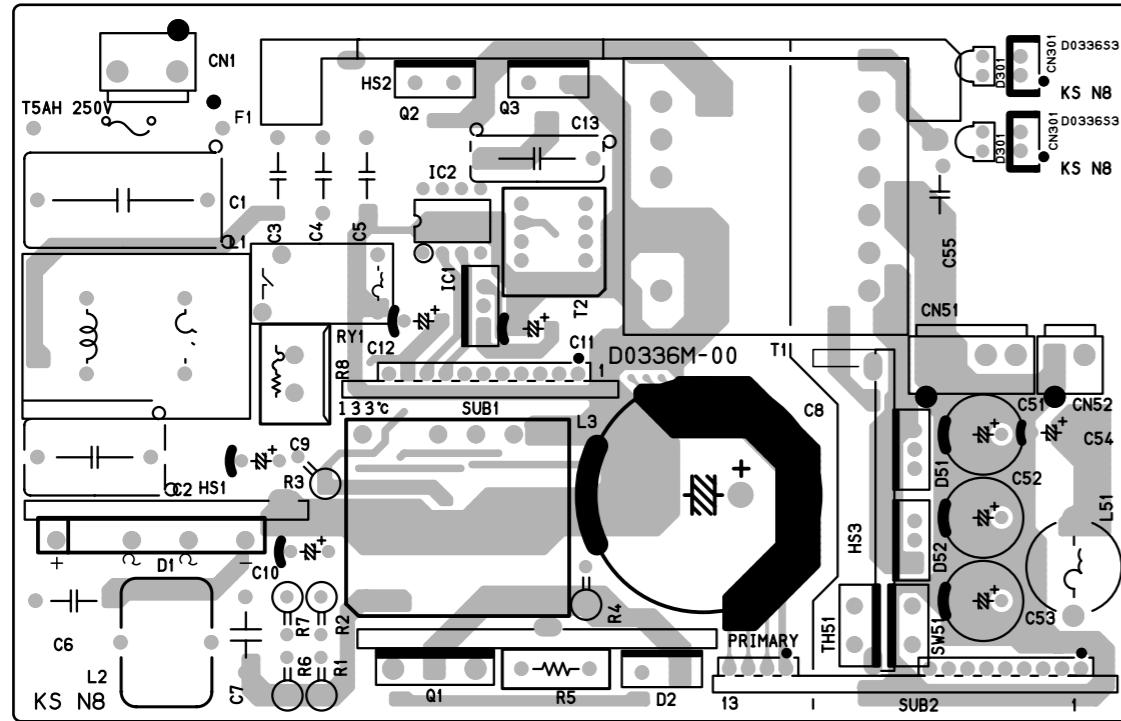
Part No. SP Description
 J-6530-180-A o SCREW DRIVER, 5-WING (FOR M3)

Section 4 Diagrams and Board Layouts

AC-DN2B (SY) : S/N 10001 and Higher

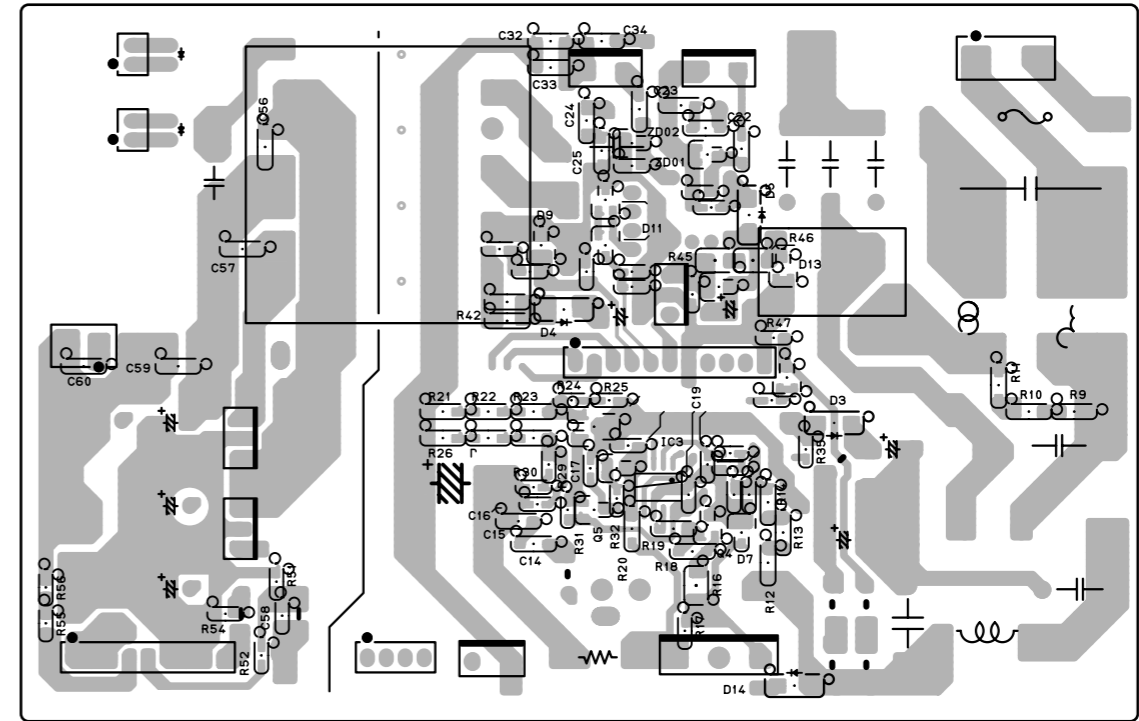


Overall
LOT NO. 085-

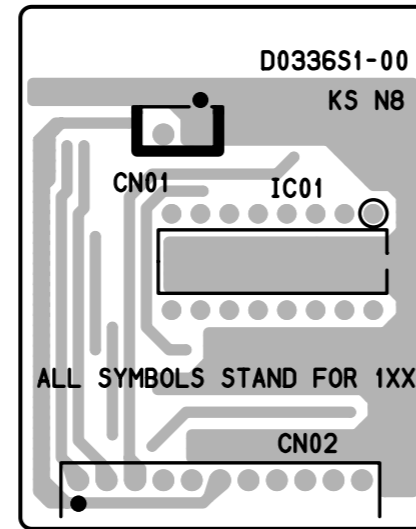


AC-DN2B (SY) : S/N 10001 and Higher

MAIN -A SIDE-

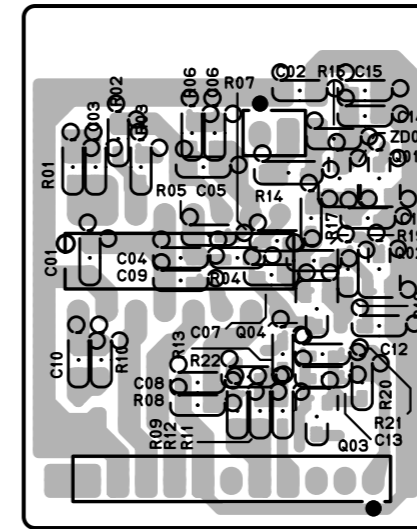


MAIN -B SIDE-

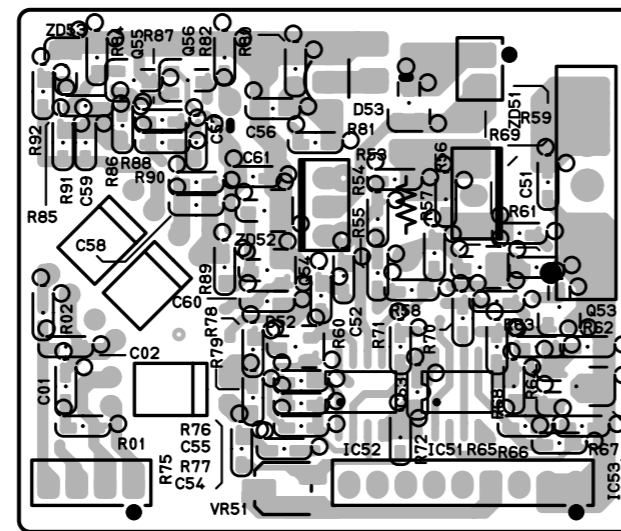


AC-DN2B (SY) : S/N 10001 and Higher

SUB01 -A SIDE-

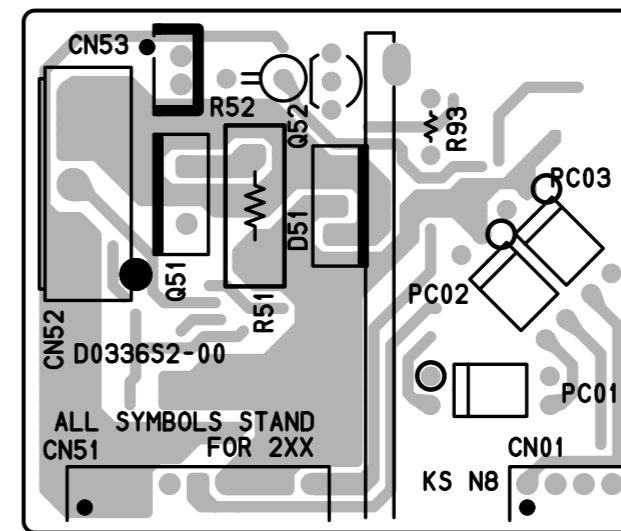


SUB01 -B SIDE-



AC-DN2B (SY) : S/N 10001 and Higher

SUB02 -A SIDE-



SUB02 -B SIDE-

AC-DN2B (SY) : S/N 10001 and Higher

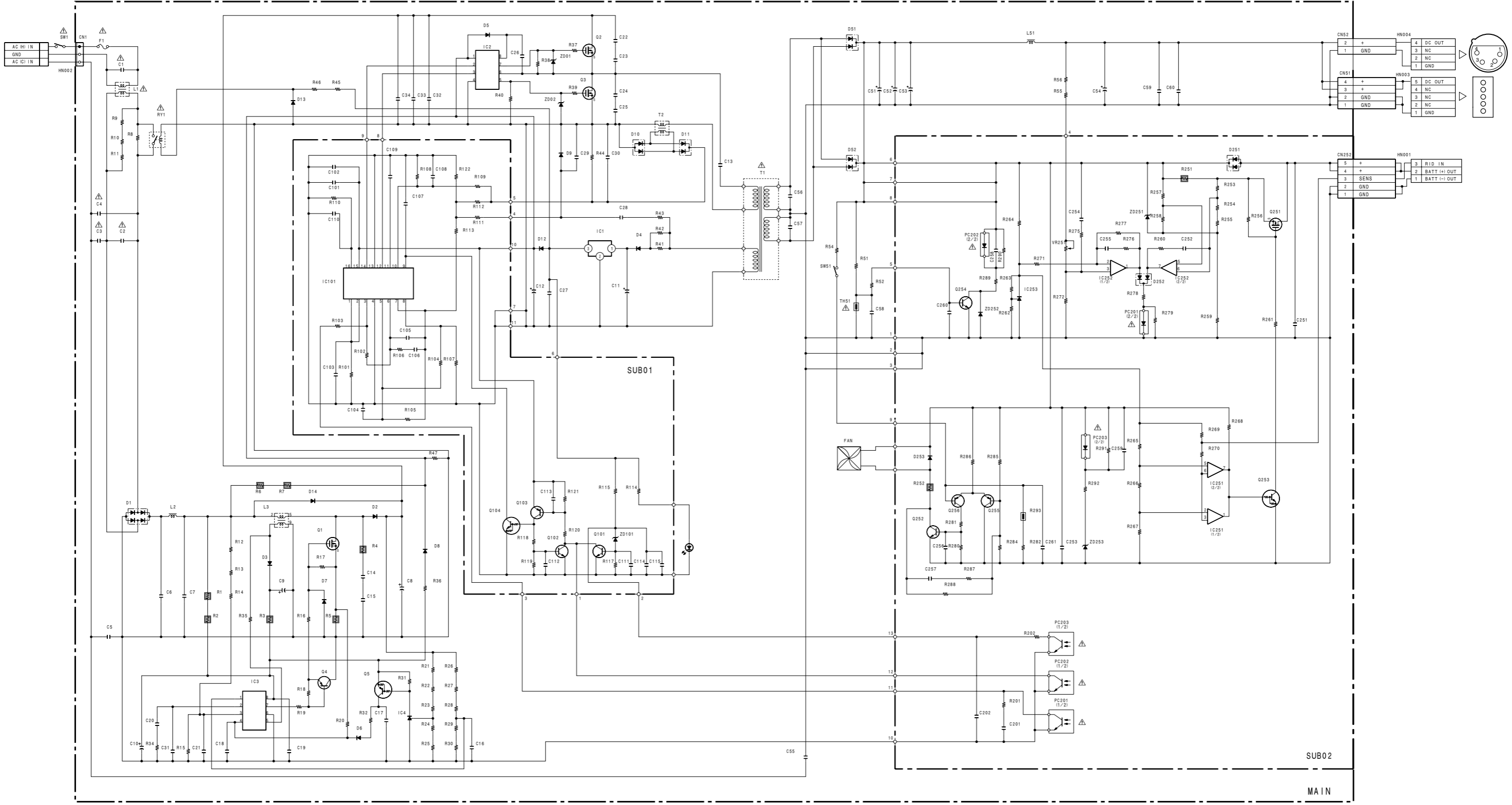
1

2

3

4

5



Frame

4-4

4-4

A B C D E F G H

For the U.S.A. and Canada

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer :

Check the 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. 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)

