DR-BT22

SERVICE MANUAL

Ver. 1.0 2007. 07

US Model
Canadian Model
AEP Model
UK Model
E Model
Australian Model

SPECIFICATIONS

General

Communication System
Bluetooth Specification version 2.0
Output
Bluetooth Specification Power Class 2
Maximum communication range
Line of sight approx. 10 m (30 ft) *1
Frequency band
2.4 GHz band (2.4000 GHz – 2.4835 GHz)
Modulation method
FHSS
Compatible Bluetooth Profiles*2
A2DP (Advanced Audio Distribution Profile)
AVRCP (Audio Video Remote Control Profile)
HSP (Headset Profile)
HFP (Hands-free Profile)
Supported Codecs*3
SBC*4, MP3
Supported content protection method
SCMS-T
Transmission range (A2DP)
20 - 20,000 Hz (Sampling frequency 44.1 kHz)
Supplied accessory
AC power adaptor (1)
Operating instruction (1)

*1 The actual range will vary depending on factors such as obstacles between devices, magnetic fields around a microwave oven, static electricity, reception sensitivity, aerial's performance, operating system, software application, etc.
*2 Bluetooth standard profiles indicate the purpose of Bluetooth communication between devices.
*3 Codec: Audio signal compression and conversion format
*4 Subband Codec

Headset

Power source
DC 3.7 V: Built-in lithium-ion rechargeable battery
Mass
Approx. 78 g (2.8 oz)
Rated power consumption
1.5 W

Receiver

Type
Open air, dynamic
Driver unit
30 mm dome type
Reproduction frequency range
14 – 24,000 Hz

Microphone

Type
Omni directional, electret condenser
Effective frequency range
100 – 4,000 Hz

Design and specifications are subject to change without notice.

WIRELESS STEREO HEADSET

9-887-791-01
2007G04-1

Sony Corporation
Personal Audio Division
Published by Sony Techno Create Corporation

SONY

TABLE OF CONTENTS

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.

CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

● 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.

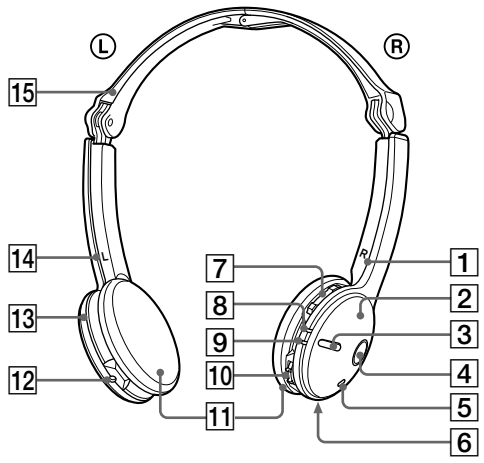
- Unleaded solder melts at a temperature about 40°C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350°C.
  Caution: The printed 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.

- IC101 (CXN1450-2ABL) on MAIN board cannot be replaced individually.
  Replace it with “MAIN BOARD, COMPLETE”.

SECTION 1
GENERAL

This section is extracted from instruction manual.

Location and Function of Parts

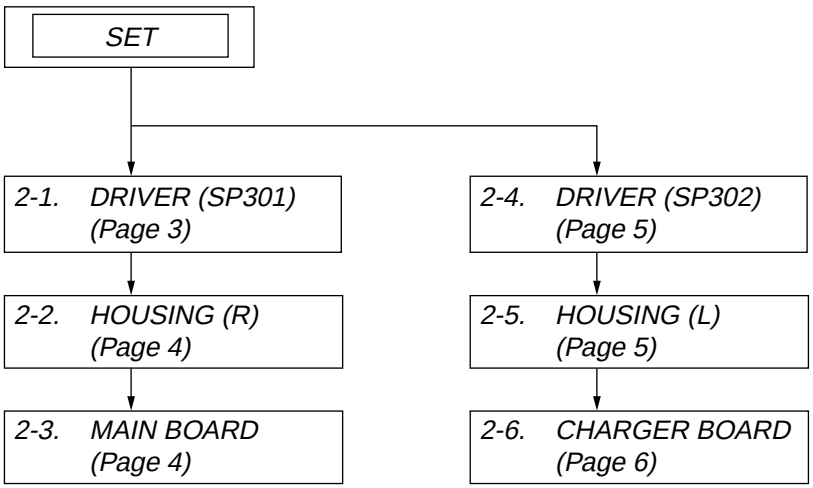


1. **Ⓡ (right) indication**
2. **Right (Ⓡ) unit**
3. **Multi function button**
   Controls various call functions.
4. **POWER button**
5. **Microphone**
6. **RESET button**
   Push this button when this unit does not operate properly. Pairing information is not deleted by this operation.
7. **VOL (volume) +*/– buttons**
8. **Indicator (blue)**
   Indicates the communication status of the unit.
9. **Indicator (red)**
   Indicates the power status of the unit.
10. **Jog switch**
    Controls various functions when listening to music.
11. **Ear pad**
12. **DC IN 3 V jack**
13. **Left (Ⓛ) unit**
14. **Ⓛ (left) indication**
15. **Headband**

* This button has a tactile dot.

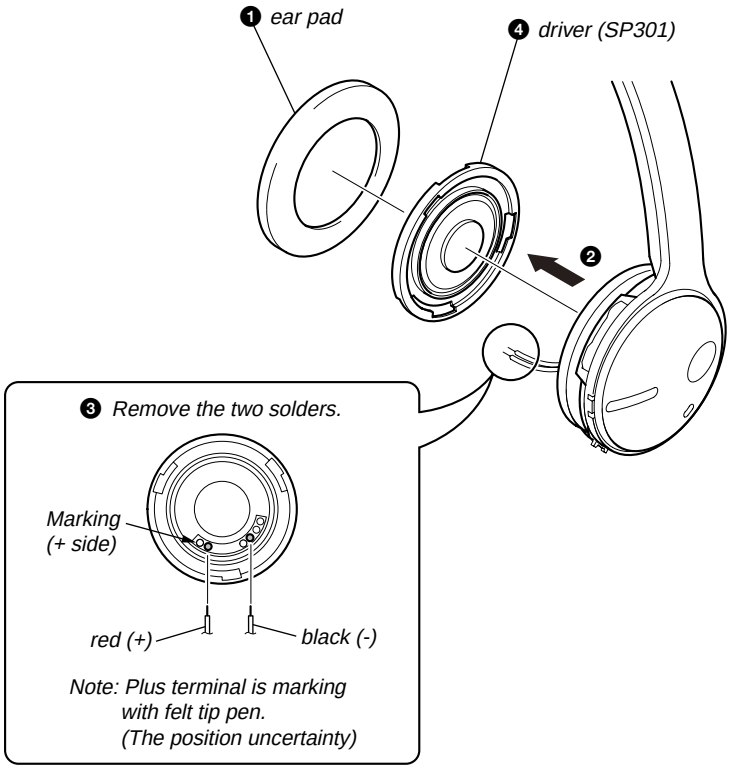
SECTION 2
DISASSEMBLY

Note: This set can be disassemble according to the following sequence.

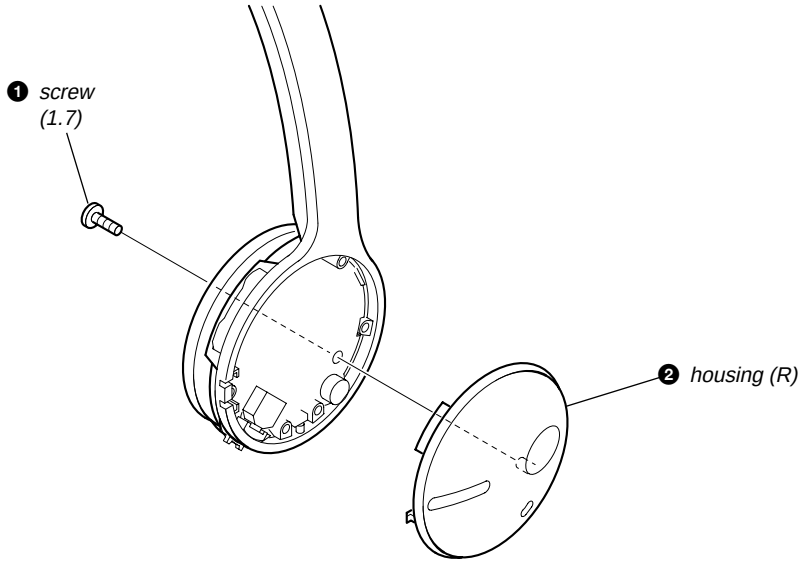


Note: Follow the disassembly procedure in the numerical order given.

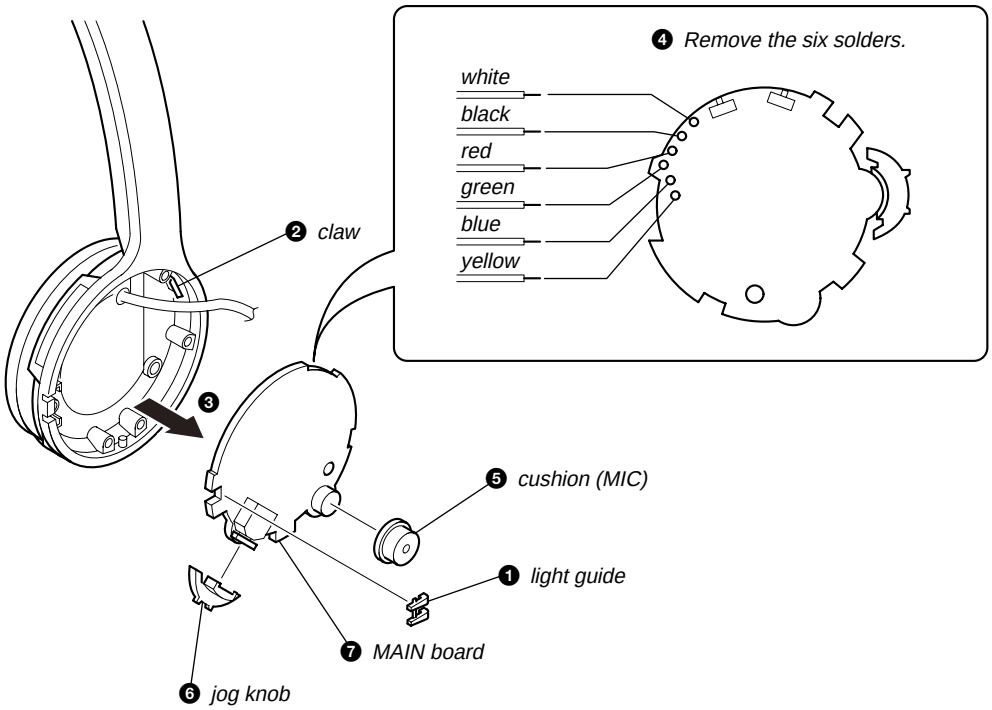
2-1. DRIVER (SP301)



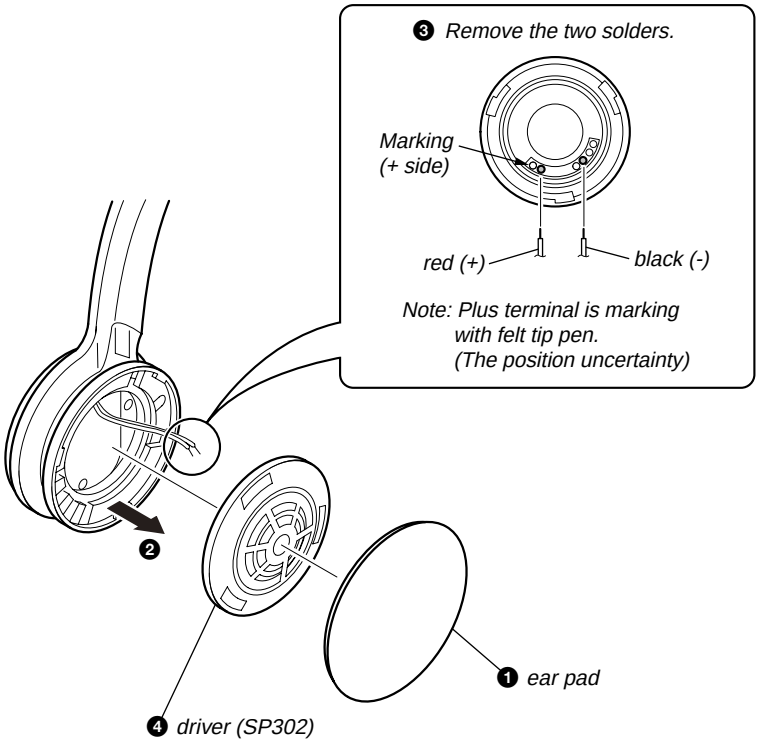
2-2. HOUSING (R)



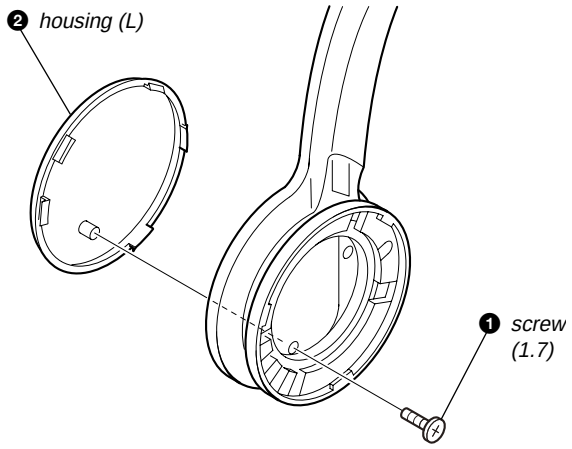
2-3. MAIN BOARD



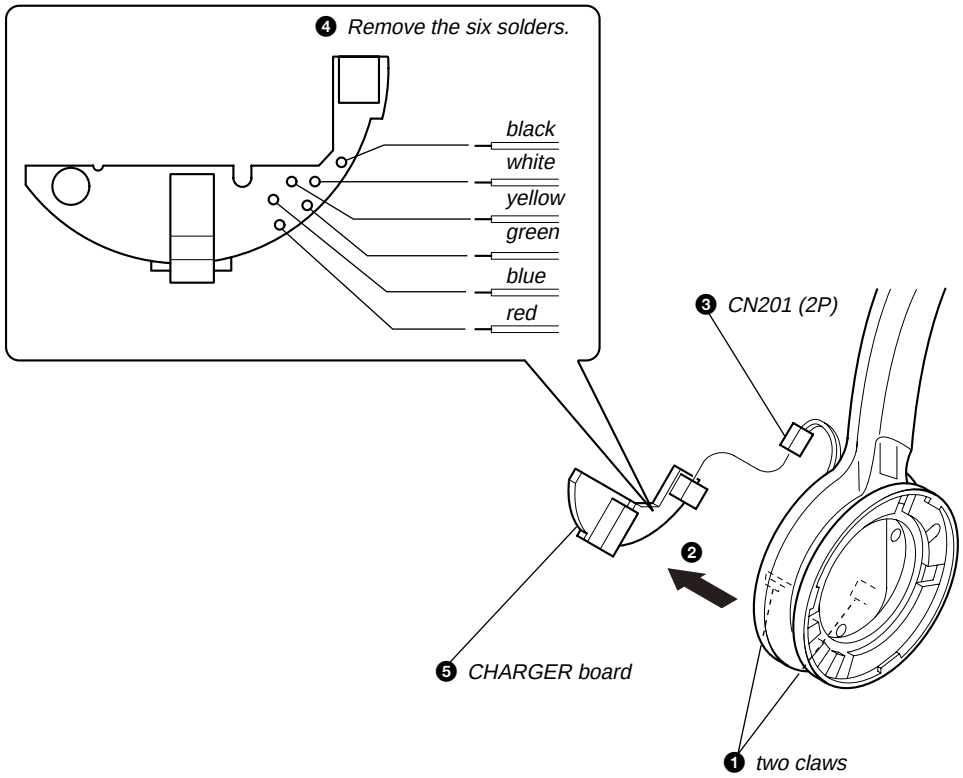
2-4. DRIVER (SP302)



2-5. HOUSING (L)



2-6. CHARGER BOARD



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 schematic diagram:

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.
- % : indicates tolerance.
- ▭ : panel designation.
- ▬ : B+ Line.
- Power voltage are dc 3.7 V and fed with regulated dc power supply from battery terminal.
- Voltages are dc with respect to ground under tolerances.
  no mark : STANDBY
  ( ) : AC ADAPTOR IN
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : AUDIO

- IC101 (CXN1450-2ABL) on MAIN board cannot be replaced individually.
  Replace it with “MAIN BOARD, COMPLETE”.

- The voltage of IC101 cannot be measured.

for printed wiring boards:

Note:

- ○——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- ▬ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

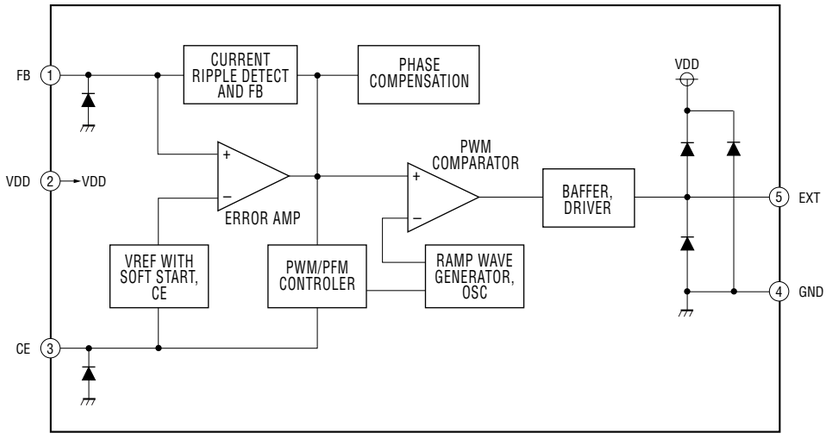
Caution:	
Parts face side: (Side A)	Parts on the parts face side seen from the parts face are indicated.
Pattern face side: (Side B)	Parts on the pattern face side seen from the pattern face are indicated.

- MAIN board is four-layer pritnted board.However, the patterns of layer 2 and 3 have not been included in this diagrams.

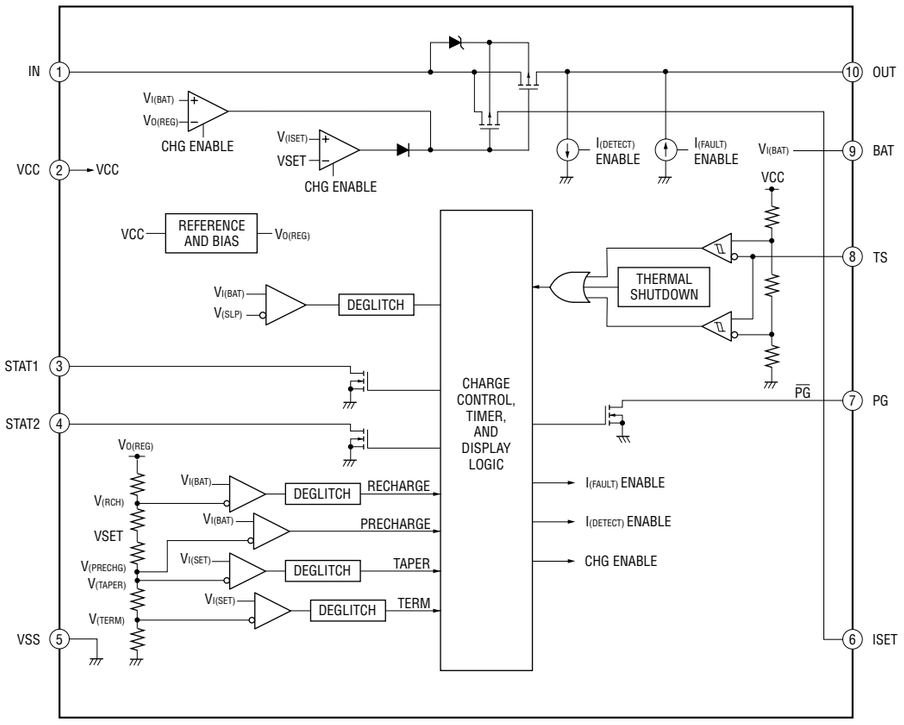
• IC Block Diagrams

— CHARGER Board —

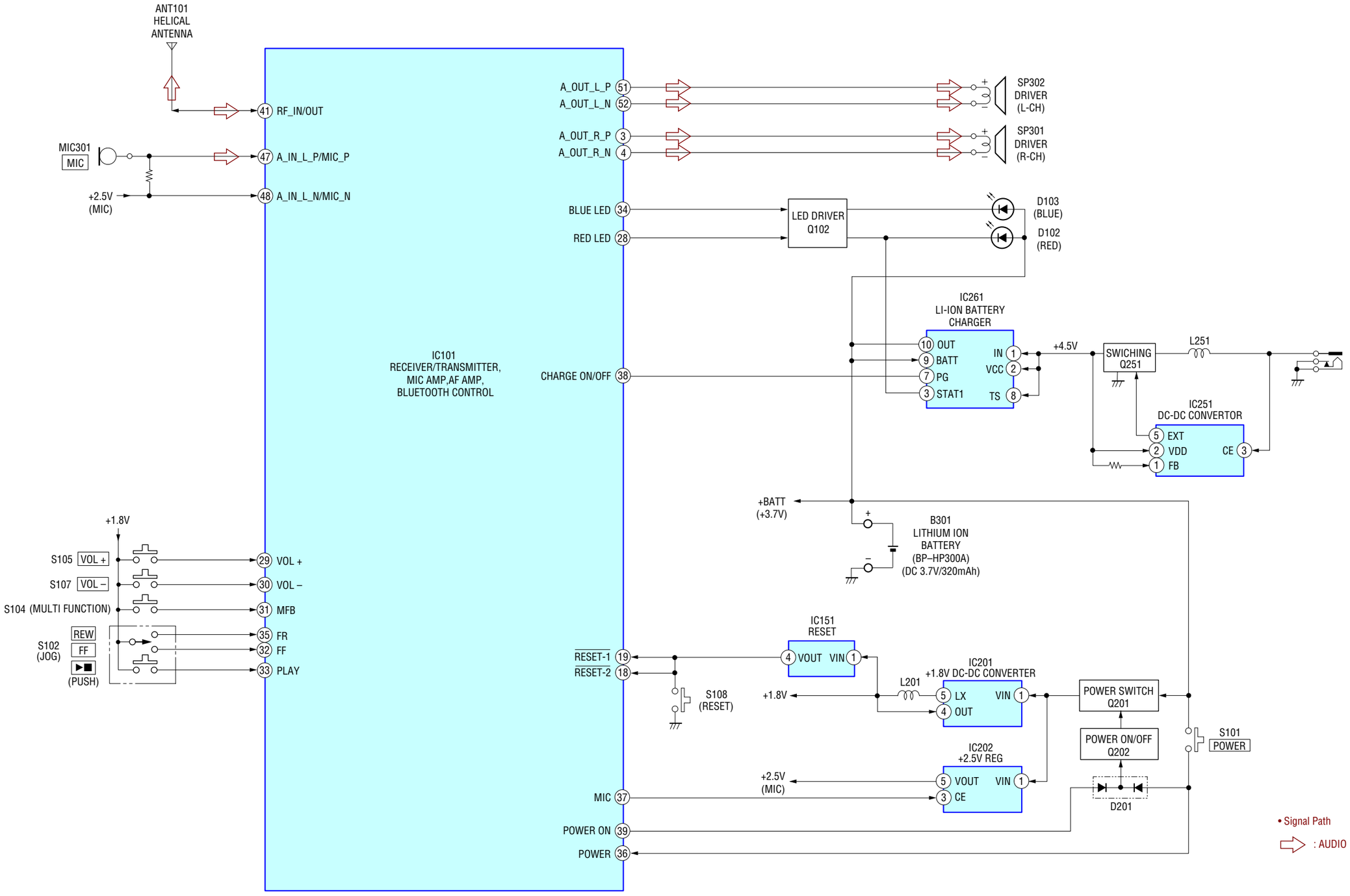
IC251 XC9103D093MR



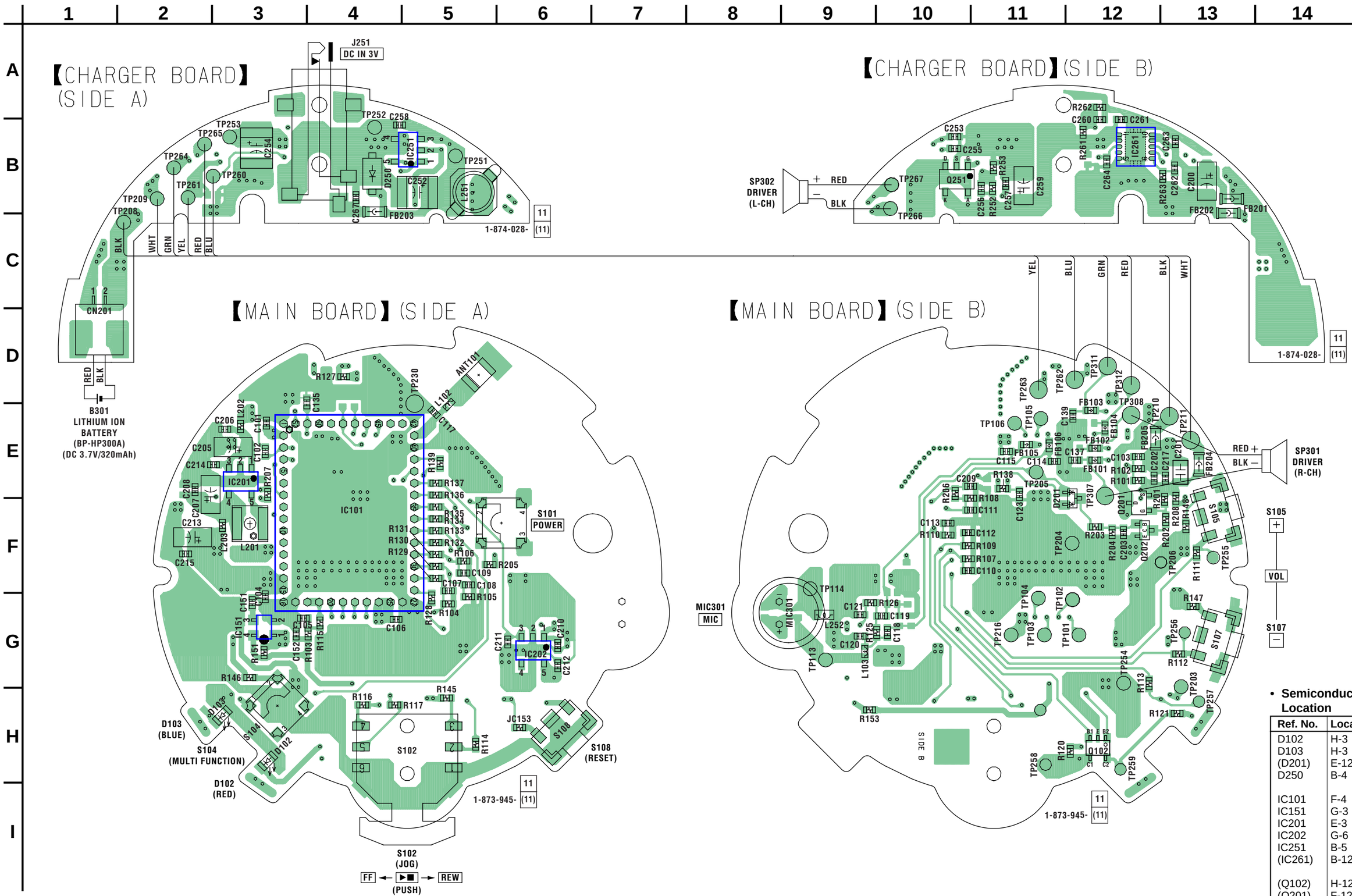
IC261 BQ24010ADRCR



3-1. BLOCK DIAGRAM



3-2. PRINTED WIRING BOARDS : Uses unleaded solder.

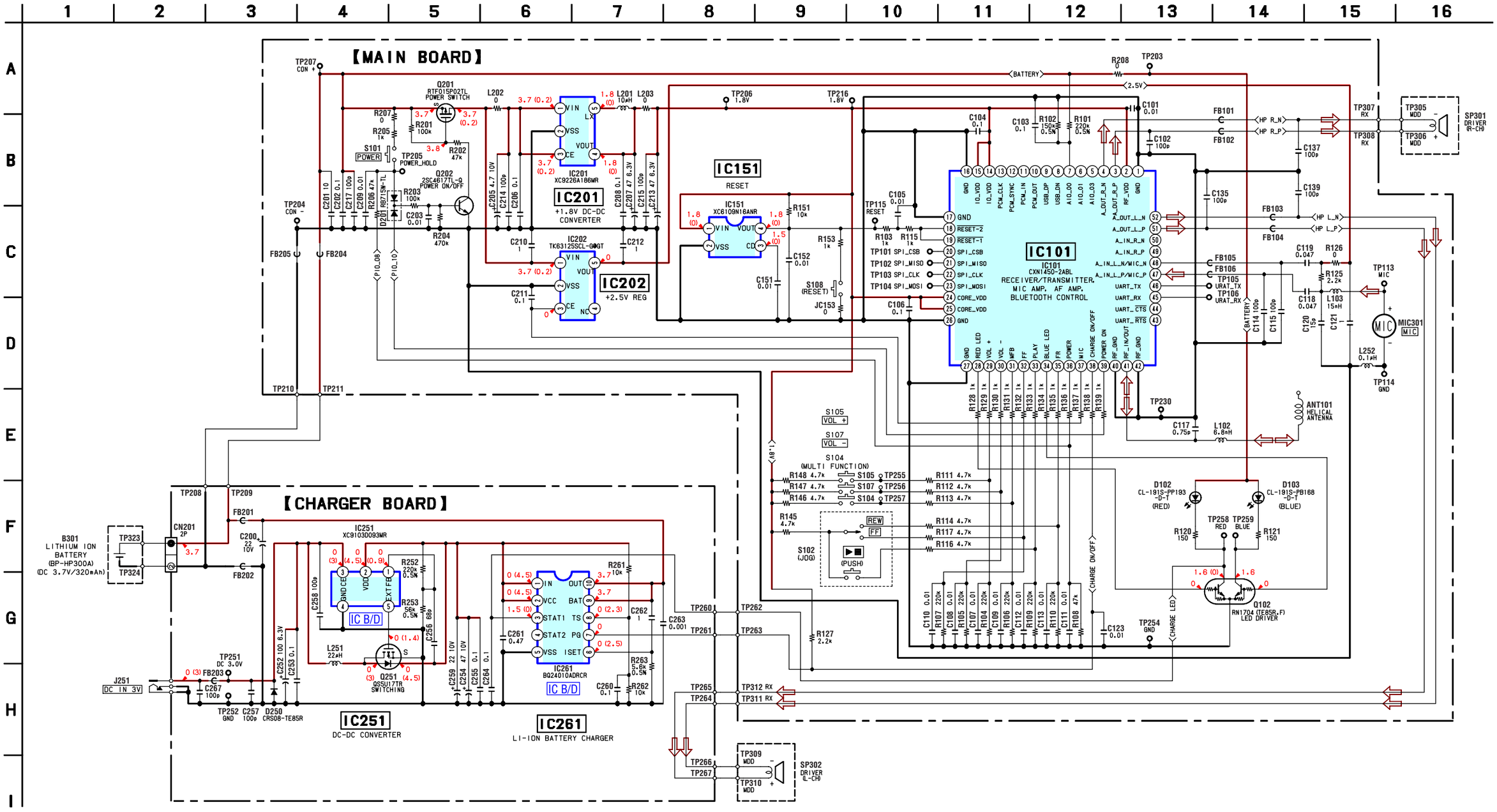


- **Semiconductor Location**

Ref. No.	Location
D102	H-3
D103	H-3
(D201)	E-12
D250	B-4
IC101	F-4
IC151	G-3
IC201	E-3
IC202	G-6
IC251	B-5
(IC261)	B-12
(Q102)	H-12
(Q201)	F-12
(Q202)	F-12
(Q251)	B-10

( ): SIDE B

3-3. SCHEMATIC DIAGRAM • Refer to page 7 for IC Block Diagrams.

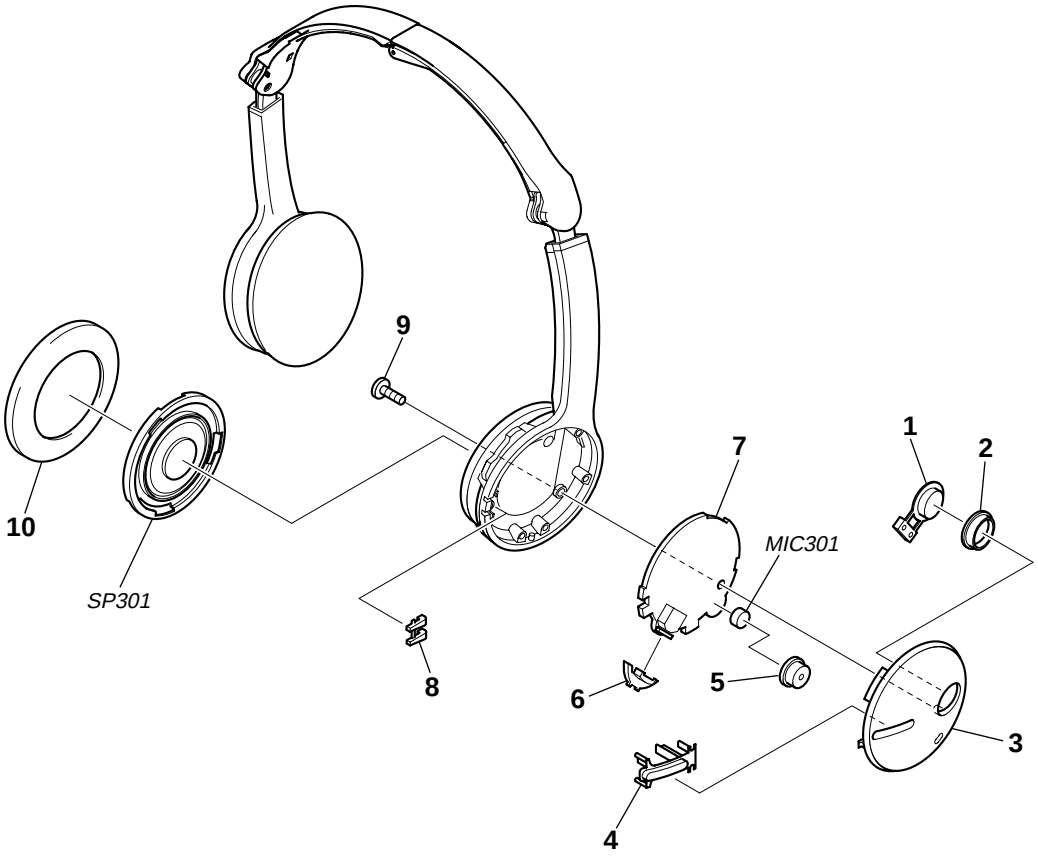


SECTION 4
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE) ... (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Accessories are given in the last of this parts list.

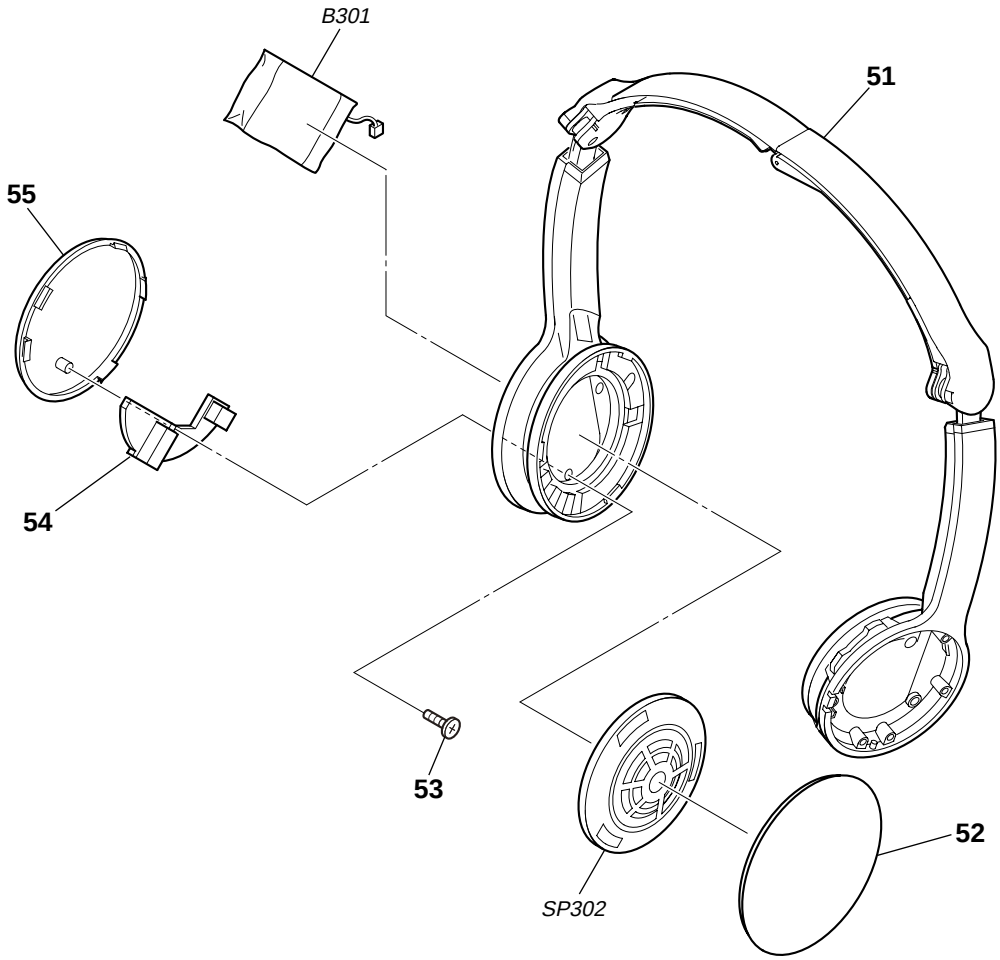
4-1. HOUSING (R) SECTION



Ref. No.	Part No.	Description	Remark
1	3-209-796-01	BUTTON, POWER	
2	3-209-797-01	RING, POWER	
3	3-209-792-01	HOUSING (R)	
4	3-209-795-01	BUTTON, MULTI FUNCTION	
5	2-898-746-01	CUSHION (MIC)	
6	3-209-793-01	KNOB, JOG	

Ref. No.	Part No.	Description	Remark
7	A-1308-882-A	MAIN BOARD, COMPLETE	
8	3-209-798-01	GUIDE, LIGHT	
9	3-252-825-01	SCREW (1.7)	
10	4-994-324-01	PAD, EAR	
MIC301	1-542-707-11	MICROPHONE, ELECTRET CONDENSER (MIC)	
SP301	1-542-653-21	DRIVER (030F041Q) (R-CH)	

4-2. HOUSING (L) SECTION



Ref. No.	Part No.	Description	Remark
51	X-2187-558-1	HEAD BAND ASSY	
52	4-994-324-01	PAD, EAR	
53	3-252-825-01	SCREW (1.7)	
54	A-1308-884-A	CHARGER BOARD, COMPLETE	

Ref. No.	Part No.	Description	Remark
55	3-209-791-01	HOUSING (L)	
B301	X-2184-559-1	LITHIUM ION BATTERY SUB ASSY (BP-HP300A) (DC 3.7V/320mAh)	
SP302	1-542-653-21	DRIVER (030F041Q) (L-CH)	

SECTION 5
ELECTRICAL PARTS LIST

CHARGER | MAIN

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : µ, for example:
  uA.. : µA.. uPA.. : µPA..
  uPB.. : µPB.. uPC.. : µPC.. uPD.. : µPD..
- CAPACITORS
  uF : µF
- COILS
  uH : µH
- Abbreviation
  CND : Canadian model
  KR : Korean model
  E13 : AC 220 – 230 V area in E model
  AUS : Australian 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 piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
	A-1308-884-A	CHARGER BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C200	1-165-897-11	TANTAL. CHIP	22uF	20%	10V
C252	1-128-964-11	TANTAL. CHIP	100uF	20%	6.3V
C253	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C254	1-137-934-11	TANTAL. CHIP	47uF	20%	10V
C255	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C256	1-164-870-11	CERAMIC CHIP	68PF	5%	50V
C257	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C258	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C259	1-165-897-11	TANTAL. CHIP	22uF	20%	10V
C260	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C261	1-112-324-11	CERAMIC CHIP	0.47uF	20%	10V
C262	1-100-506-11	CERAMIC CHIP	1uF	20%	6.3V
C263	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C264	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C267	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
		< CONNECTOR >			
CN201	1-770-619-11	PIN, CONNECTOR 2P			
		< DIODE >			
D250	6-500-453-01	DIODE CRS08-TE85R			
		< FERRITE BEAD >			
FB201	1-400-050-11	INDUCTOR, FERRITE BEAD			
FB202	1-400-050-11	INDUCTOR, FERRITE BEAD			
FB203	1-400-050-11	INDUCTOR, FERRITE BEAD			
		< IC >			
IC251	6-709-933-01	IC XC9103D093MR			
IC261	6-704-354-02	IC BQ24010ADRCR			
		< JACK >			
J251	1-820-573-11	JACK, DC (DC IN 3V)			
		< COIL >			
L251	1-457-422-11	INDUCTOR	22uH		
		< TRANSISTOR >			
Q251	6-551-556-01	FET QS5U17TR			

Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
R252	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R253	1-208-929-81	METAL CHIP	56K	0.5%	1/16W
R261	1-218-965-11	RES-CHIP	10K	5%	1/16W
R262	1-218-965-11	RES-CHIP	10K	5%	1/16W
R263	1-208-905-11	METAL CHIP	5.6K	0.5%	1/16W
**********					
	A-1308-882-A	MAIN BOARD, COMPLETE			
		**********			
		< ANTENNA >			
ANT101	1-754-380-11	ANTENNA, HELICAL			
		< CAPACITOR >			
C101	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C102	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C103	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C104	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C105	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C106	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C107	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C108	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C109	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C110	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C111	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C112	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C113	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C114	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C115	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C117	1-117-727-81	CERAMIC CHIP	0.75PF	0.1PF	16V
C118	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C119	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C120	1-164-854-11	CERAMIC CHIP	15PF	5%	50V
C121	1-100-506-11	CERAMIC CHIP	1uF	20%	6.3V
C123	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C135	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C137	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C139	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C151	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C152	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C201	1-165-989-11	CERAMIC CHIP	10uF	10%	6.3V
C202	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C203	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C205	1-135-210-11	TANTAL. CHIP	4.7uF	20%	10V

MAIN

Ref. No.	Part No.	Description			Remark
C206	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C207	1-100-539-11	TANTAL. CHIP	47uF	20%	6.3V
C208	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C209	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C210	1-100-506-11	CERAMIC CHIP	1uF	20%	6.3V
C211	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C212	1-100-506-11	CERAMIC CHIP	1uF	20%	6.3V
C213	1-100-539-11	TANTAL. CHIP	47uF	20%	6.3V
C214	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C215	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C217	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
		< DIODE >			
D102	6-501-537-01	LED CL-191S-PP193-D-T (RED)			
D103	6-501-538-01	LED CL-191S-PB168-D-T (BLUE)			
D201	8-719-082-45	DIODE RB715W-TL			
		< FERRITE BEAD >			
FB101	1-469-084-21	INDUCTOR, FERRITE BEAD			
FB102	1-469-084-21	INDUCTOR, FERRITE BEAD			
FB103	1-469-084-21	INDUCTOR, FERRITE BEAD			
FB104	1-469-084-21	INDUCTOR, FERRITE BEAD			
FB105	1-469-084-21	INDUCTOR, FERRITE BEAD			
FB106	1-469-084-21	INDUCTOR, FERRITE BEAD			
FB204	1-400-050-11	INDUCTOR, FERRITE BEAD			
FB205	1-400-050-11	INDUCTOR, FERRITE BEAD			
		< IC >			
IC101	(Not supplied)	IC CXN1450-2ABL			
IC151	6-709-935-01	IC XC6109N16ANR			
IC201	6-709-718-01	IC XC9226A186MR			
IC202	6-711-211-01	IC TK63125SCL-G@GT			
		< JUMPER RESISTOR >			
JC153	1-218-990-81	SHORT CHIP	0		
		< COIL >			
L102	1-481-261-11	INDUCTOR	6.8nH		
L103	1-414-842-21	INDUCTOR	15nH		
L201	1-481-035-11	INDUCTOR	10uH		
L202	1-218-990-81	SHORT CHIP	0		
L203	1-218-990-81	SHORT CHIP	0		
L252	1-412-967-31	INDUCTOR	0.1uH		
		< TRANSISTOR >			
Q102	6-550-974-01	TRANSISTOR RN1704(TE85R.F)			
Q201	6-551-067-01	FET RTF015P02TL			
Q202	8-729-927-99	TRANSISTOR 2SC4617R			
		< RESISTOR >			
R101	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R102	1-208-939-11	METAL CHIP	150K	0.5%	1/16W
R103	1-218-953-11	RES-CHIP	1K	5%	1/16W
R104	1-218-981-11	RES-CHIP	220K	5%	1/16W
R105	1-218-981-11	RES-CHIP	220K	5%	1/16W
R106	1-218-981-11	RES-CHIP	220K	5%	1/16W
R107	1-218-981-11	RES-CHIP	220K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R108	1-218-973-11	RES-CHIP	47K	5%	1/16W
R109	1-218-981-11	RES-CHIP	220K	5%	1/16W
R110	1-218-981-11	RES-CHIP	220K	5%	1/16W
R111	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R112	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R113	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R114	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R115	1-218-953-11	RES-CHIP	1K	5%	1/16W
R116	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R117	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R120	1-218-943-11	RES-CHIP	150	5%	1/16W
R121	1-218-943-11	RES-CHIP	150	5%	1/16W
R125	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R126	1-218-990-81	SHORT CHIP	0		
R127	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R128	1-218-953-11	RES-CHIP	1K	5%	1/16W
R129	1-218-953-11	RES-CHIP	1K	5%	1/16W
R130	1-218-953-11	RES-CHIP	1K	5%	1/16W
R131	1-218-953-11	RES-CHIP	1K	5%	1/16W
R132	1-218-953-11	RES-CHIP	1K	5%	1/16W
R133	1-218-953-11	RES-CHIP	1K	5%	1/16W
R134	1-218-953-11	RES-CHIP	1K	5%	1/16W
R135	1-218-953-11	RES-CHIP	1K	5%	1/16W
R136	1-218-953-11	RES-CHIP	1K	5%	1/16W
R137	1-218-953-11	RES-CHIP	1K	5%	1/16W
R138	1-218-953-11	RES-CHIP	1K	5%	1/16W
R139	1-218-953-11	RES-CHIP	1K	5%	1/16W
R145	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R146	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R147	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R148	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R151	1-218-965-11	RES-CHIP	10K	5%	1/16W
R153	1-218-953-11	RES-CHIP	1K	5%	1/16W
R201	1-218-977-11	RES-CHIP	100K	5%	1/16W
R202	1-218-973-11	RES-CHIP	47K	5%	1/16W
R203	1-218-977-11	RES-CHIP	100K	5%	1/16W
R204	1-218-985-11	RES-CHIP	470K	5%	1/16W
R205	1-218-953-11	RES-CHIP	1K	5%	1/16W
R206	1-218-973-11	RES-CHIP	47K	5%	1/16W
R207	1-218-990-81	SHORT CHIP	0		
R208	1-218-990-81	SHORT CHIP	0		
		< SWITCH >			
S101	1-771-844-21	SWITCH, TACTILE (SMD) (POWER)			
S102	1-798-088-11	SWITCH, LEVER (SLIDE) (JOG)			
S104	1-771-844-21	SWITCH, TACTILE (SMD) (MULTI FUNCTION)			
S105	1-786-722-21	SWITCH, TACTILE (VOL +)			
S107	1-786-722-21	SWITCH, TACTILE (VOL –)			
S108	1-786-722-21	SWITCH, TACTILE (RESET)			

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- IC101 (CXN1450-2ABL) on MAIN board cannot be replaced individually.
  Replace it with “MAIN BOARD, COMPLETE”.

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	
		**********	
B301	X-2184-559-1	LITHIUM ION BATTERY SUB ASSY (BP-HP300A) (DC 3.7V/320mAh)	
MIC301	1-542-707-11	MICROPHONE, ELECTRET CONDENSER (MIC)	
SP301	1-542-653-21	DRIVER (030F041Q) (R-CH)	
SP302	1-542-653-21	DRIVER (030F041Q) (L-CH)	
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		ACCESSORIES	
		**********	
⚠	1-478-846-12	ADAPTOR, AC (AC-ES3010K2) (US,CND)	
⚠	1-478-847-11	ADAPTOR, AC (AC-ES3010K2) (KR)	
⚠	1-478-848-13	ADAPTOR, AC (AC-ES3010K2) (AEP,E13)	
⚠	1-478-849-12	ADAPTOR, AC (AC-ES3010K2) (UK)	
⚠	1-478-850-11	ADAPTOR, AC (AC-ES3010K2) (AUS)	
	3-268-834-11	MANUAL, INSTRUCTION (ENGLISH) (AEP,UK)	
	3-268-834-21	MANUAL, INSTRUCTION (FRENCH,GERAN, SPANISH) (AEP)	
	3-268-834-31	MANUAL, INSTRUCTION (DUTCH,ITALIAN, PORTUGUESE,RUSSIAN) (AEP)	
	3-268-834-41	MANUAL, INSTRUCTION (SWEDISH, NORWEGIAN,FINNISH,DANISH) (AEP)	
	3-268-834-51	MANUAL, INSTRUCTION (ENGLISH,SPANISH) (US)	
	3-268-834-61	MANUAL, INSTRUCTION (ENGLISH,FRENCH) (CND)	
	3-268-834-71	MANUAL, INSTRUCTION (ENGLISH) (E13,AUS,KR)	
	3-268-834-81	MANUAL, INSTRUCTION (KOREAN) (KR)	
	3-268-834-91	MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (UK)	

REVISION HISTORY

Clicking 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	2007. 07	New