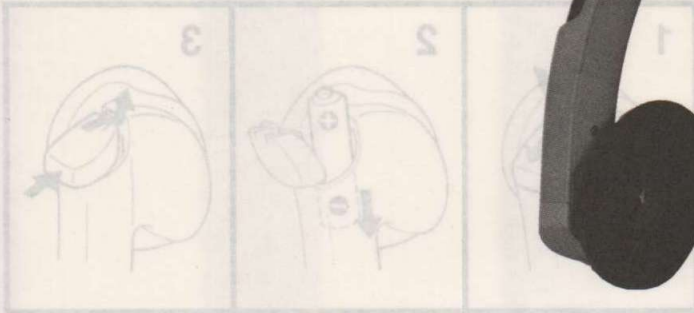


# MDR-IF510

## SERVICE MANUAL

*AEP Model  
E Model*



Free service manuals  
Gratis schema's

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### SPECIFICATIONS

- Infrared wavelength: 850 nm
- Modulation: Frequency modulation
- Carrier frequency: Right 2.8 MHz  
Left 2.3 MHz
- Effective range: Up to 7 m (23 ft)
- Frequency response: 18 - 22,000 Hz
- Distortion: Less than 1% at 1 kHz
- Power source: DC 3 V; two size AA (R6) batteries  
or two rechargeable batteries,  
NC-6WM or NC-5WM (not supplied)
- Weight: Approx. 180 g (6.3 oz.) including  
size AA (R6) batteries

Design and specifications subject to change without notice.

### Overview

The MDR-IF510 is a cordless stereo headphone which uses infrared rays. By using with the infrared transmitter (not supplied) with this unit, you can listen to a program free from the restriction of a headphone cord.

#### Note

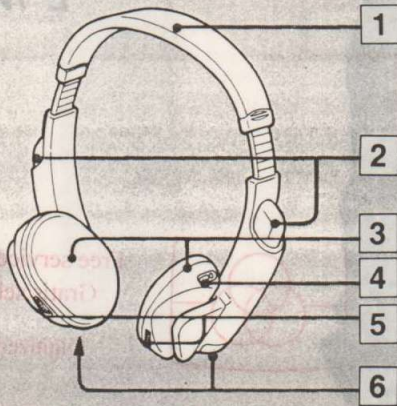
If you use the headphones at too great a distance from the emitter, you may hear a hissing sound and if there is an object between the headphones and the emitter, the sound may be interrupted. These phenomena are inherent to infrared-ray communication and do not mean there is a problem with the unit itself.



# CORDLESS STEREO HEADPHONES SONY®

# SECTION 1 GENERAL

## Parts Identification



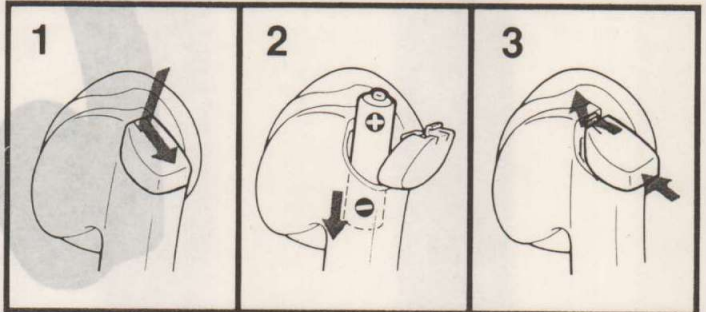
- 1** Head band
- 2** Infrared sensors
- 3** Ear pads
- 4** **POWER switch and indicator**  
Press the switch to turn on the power of headphones. When power is turned on, the red indicator glows. To turn off, press it again. When the headphones are kept turned on for more than three hours, they are turned off automatically to prevent battery drain.
- 5** **VOL (volume) controls**  
Adjust the level of each channel.
- 6** **Battery compartment covers**

**Note**

If you use the headphones at too great a distance from the emitter, you may hear a hissing sound and if there is an object between the headphones and the emitter, the sound may be interrupted. These phenomena are inherent to infrared communication and do not mean there is a problem with the unit itself.

## Installation

- 1** Open the battery compartment cover.
- 2** Insert batteries as shown on the cover.
- 3** Close the battery compartment cover.



## Installing batteries

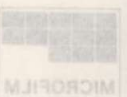
### Usable Batteries

The headphones can be powered by two size AA (R6) batteries or the NC-6WM/NC-5WM rechargeable batteries (not supplied). Always use the same type of batteries for right and left battery compartments. When you use the rechargeable batteries, use the dedicated battery charger BC-7L. Refer to the operating instructions which come with the charger for charging operation.

### When the batteries get weak

The POWER indicator dims, and hissing sound increases. In this case, replace (or charge) both batteries. The approximate battery life for continuous operation is as follows:

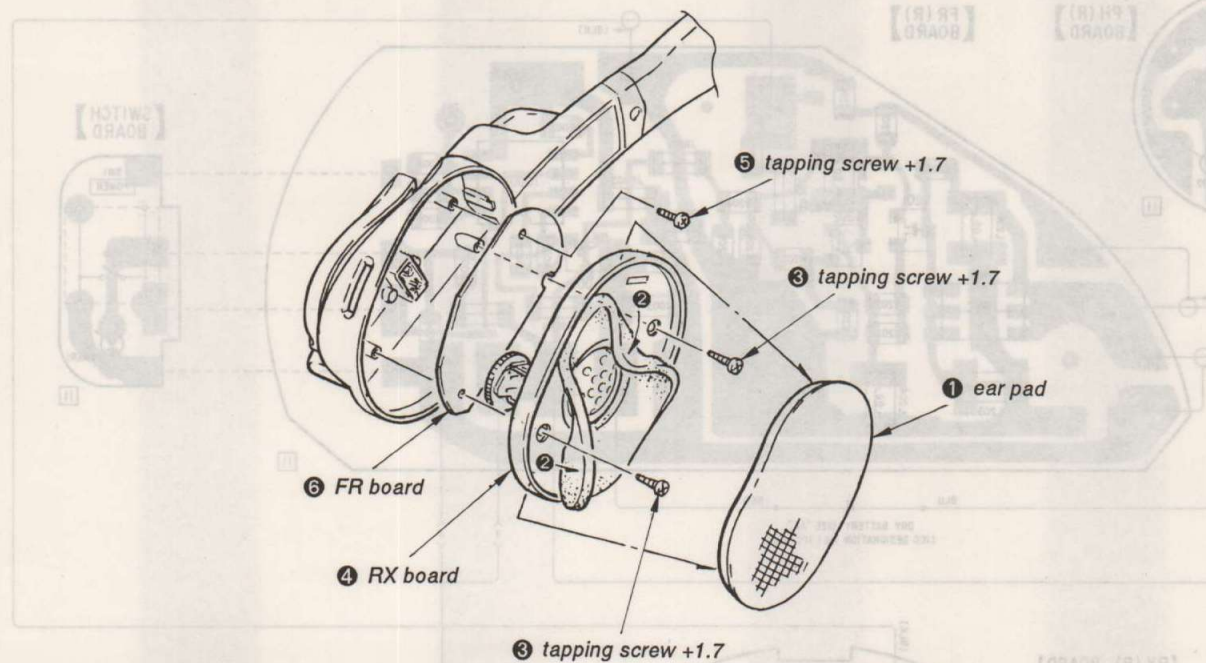
Sony alkaline battery AM-3:	90 hours
Sony battery SUM-3 NS:	45 hours
Rechargeable battery NC-6WM:	25 hours
Rechargeable battery NC-5WM:	20 hours



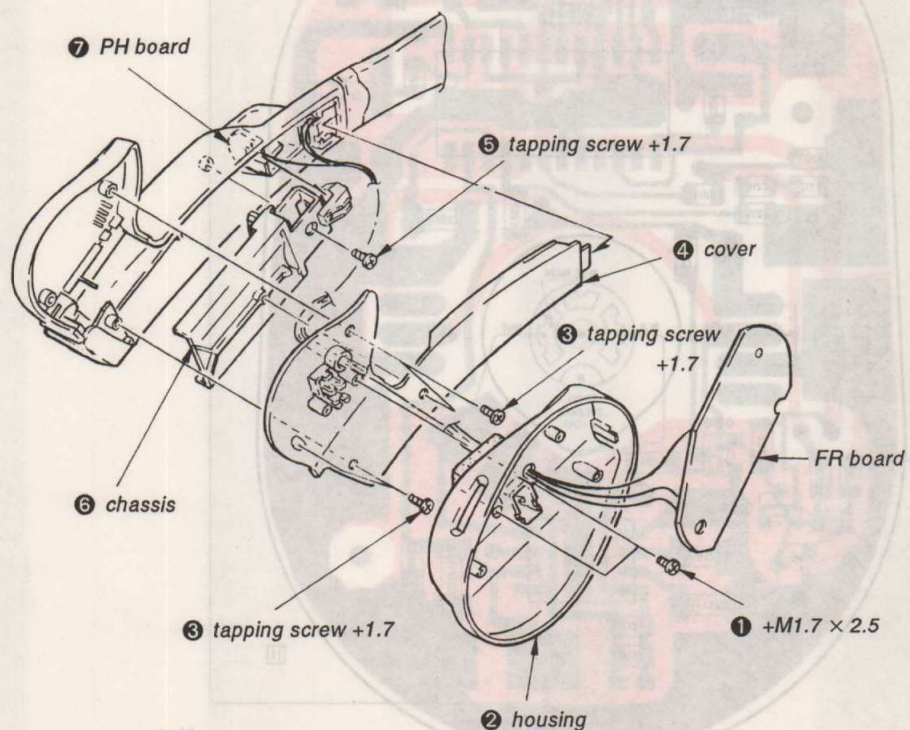
## SECTION 2 DISASSEMBLY

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

### RX (L), (R) BOARDS, FR (L), (R) BOARDS



### PH (L), (R) BOARDS



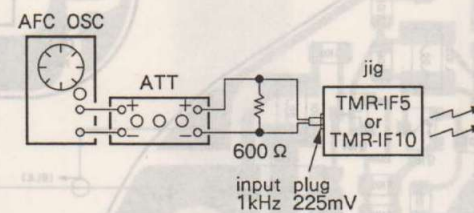
**Note:**  
 • parts extracted from the component side.  
 • Through hole.  
 • Pattern on the side which is seen.  
 • Pattern of the rear side.

## SECTION 3 ELECTRICAL ADJUSTMENTS

**Note:**

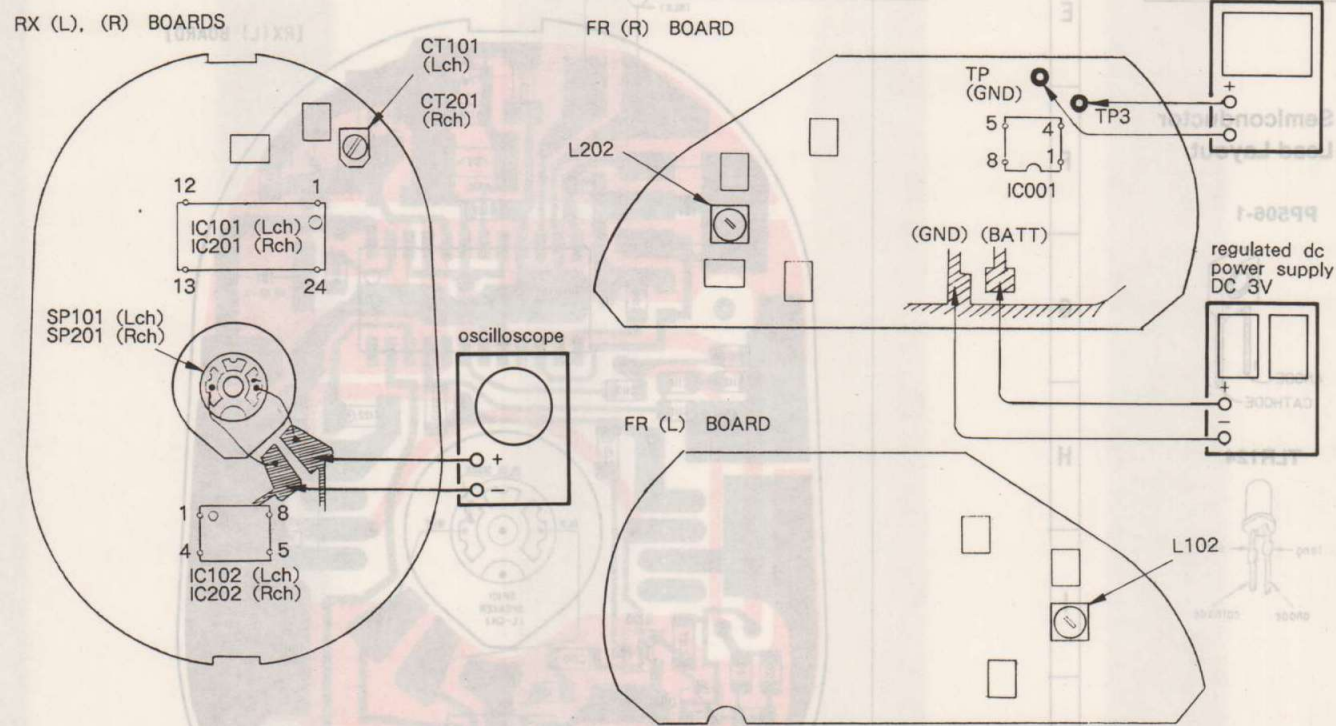
1. On adjusting, use the transmitter (TMR-IF5 or TMR-IF10) as a jig.
2. The patterns of the printed circuit boards for L-ch and R-ch as common.
3. L-ch adjustment should be completed before performing R-ch adjustment.

### [Preparation]



1. Feed a signal to jig (TMR-IF5 or TMR-IF10) and connect a power supply.

### [Connection and Adjustment Location]



### [Receiving Frequency Adjustment]

**Procedure:**

1. Connect an oscilloscope to SP101 or SP201.
2. Turn on the power switch on the headphones.
3. Adjust to make minute input level with changing the direction of the emitting position of jig so that the noise appears on the waveform.
4. Adjust with CT101 (L-ch) or CT201 (R-ch) to maximize the reading on the oscilloscope.
5. Adjust with L102 (L-ch) or L202 (R-ch) to maximize the reading on the oscilloscope.

### [Timer Clock Frequency Check]

1. Connect a frequency counter to TP3 and TP (GND).
2. Check the reading on the frequency counter becomes to the checking value.  
Checking value:  $350 \pm 20$  Hz.

SECTION 4  
ELECTRIC DIAGRAMS

SECTION 5  
DISASSEMBLY

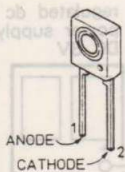
4-1. PRINTED WIRING BOARDS

• Semiconductor Location

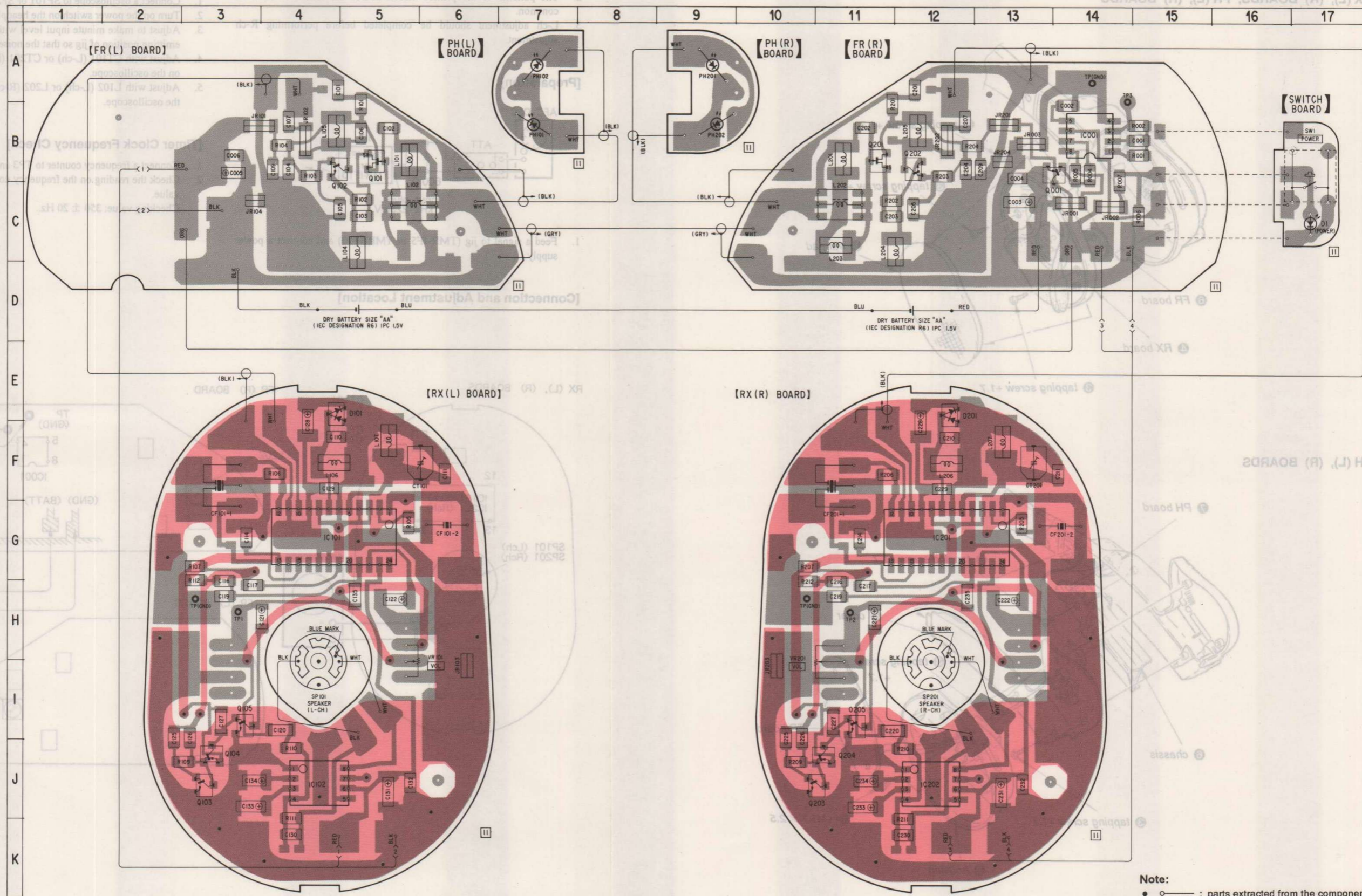
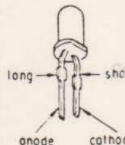
Ref. No.	Location
D1	C-17
D101	E-4
D102	E-12
IC1	B-14
IC101	G-4
IC102	J-4
IC201	G-12
IC202	J-12
Q1	B-14
Q101	B-5
Q102	B-4
Q103	J-3
Q104	J-3
Q105	I-3
Q201	B-11
Q202	B-12
Q203	J-11
Q204	J-11
Q205	I-11
PH101	B-7
PH102	A-7
PH201	A-9
PH202	B-9

• Semiconductor Lead Layout

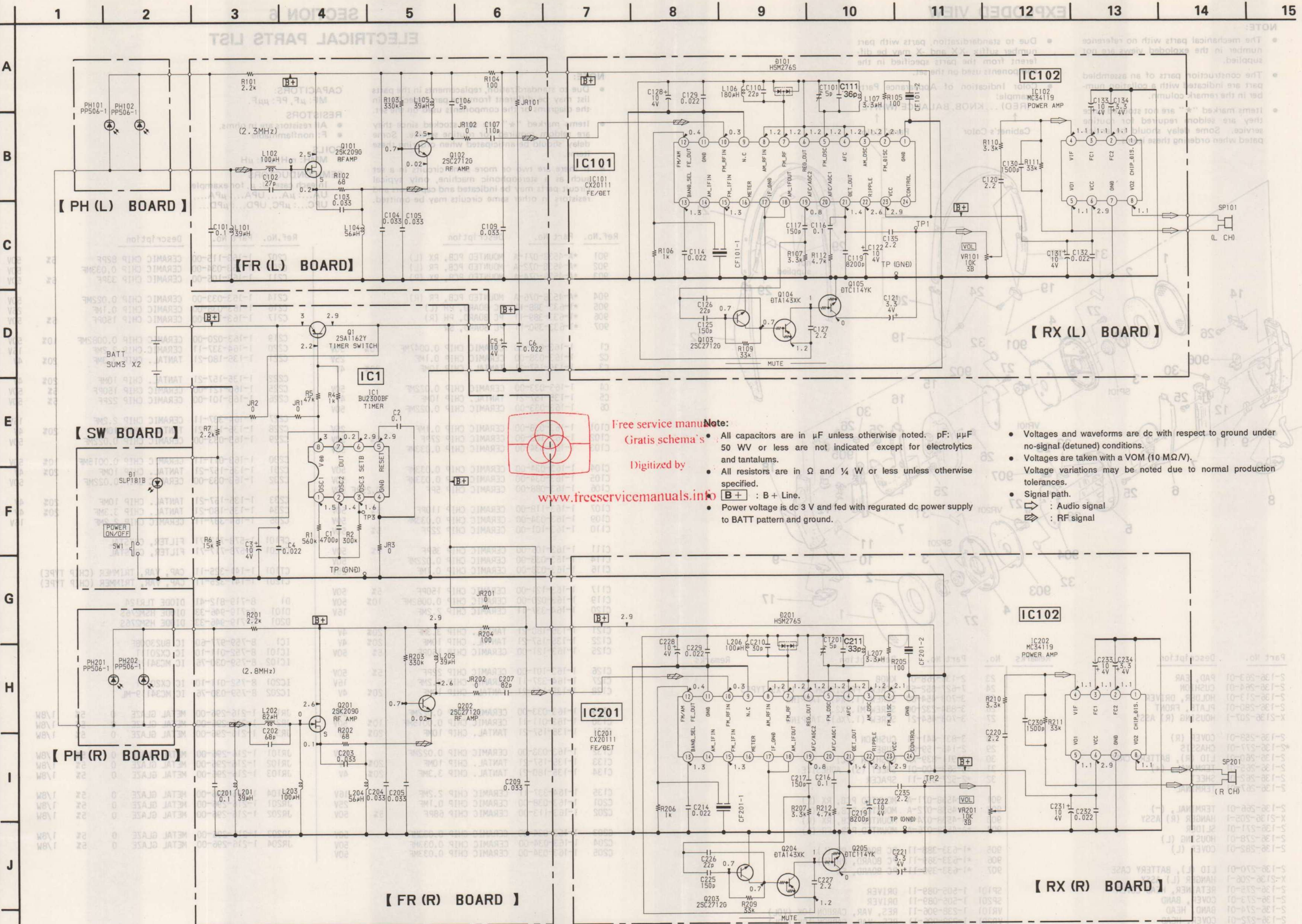
PP506-1



TLR124



**Note:**  
 ○ — : parts extracted from the component side.  
 ● : Through hole.  
 ◐ : Pattern on the side which is seen.  
 ◑ : Pattern of the rear side.



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- Note:
- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\text{pF}$
  - 50 WV or less are not indicated except for electrolytics and tantalums.
  - All resistors are in  $\Omega$  and  $\frac{1}{4}$  W or less unless otherwise specified.
  - B+** : B+ Line.
  - Power voltage is dc 3 V and fed with regulated dc power supply to BATT pattern and ground.

- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (10  $\text{M}\Omega/\text{V}$ ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
- : Audio signal
- : RF signal

## SECTION 5 EXPLODED VIEW

**NOTE:**

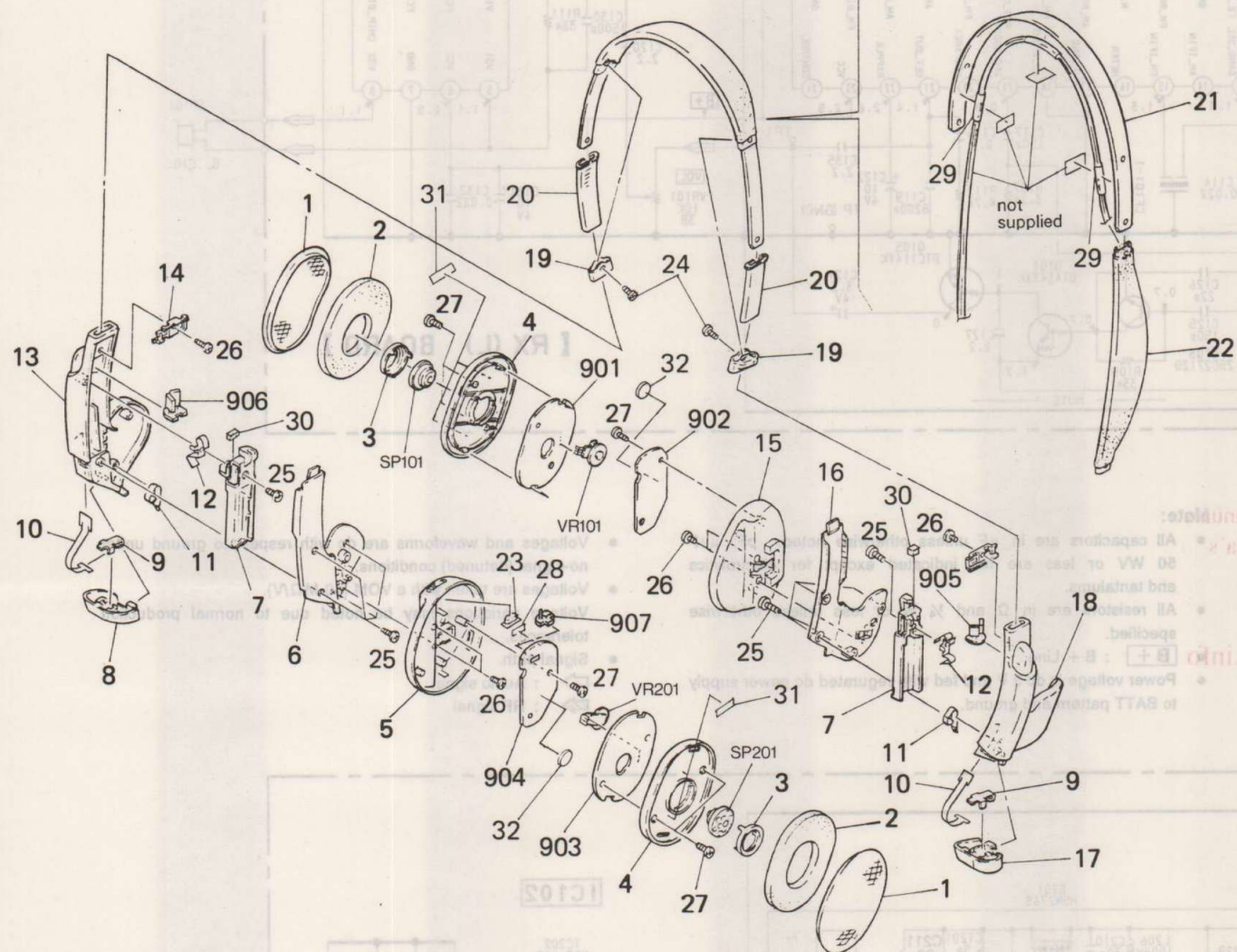
- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.

• Color Indication of Appearance Parts  
Example:  
(RED) ... KNOB, BALANCE (WHITE)

↑ Cabinet's Color

↑ Parts' Color



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	2-136-263-01	PAD, EAR		23	2-136-268-01	KNOB	
2	2-136-264-01	CUSHION		24	7-627-852-58	SCREW, PRECISION +P 1.7X5 TYPE3	
3	2-136-213-01	HOLDER, DRIVER		25	3-703-454-00	SCREW (1.7X4), TAPPING	
4	2-136-280-01	PLATE, FRONT		26	3-884-232-00	SCREW M1.7X2.5	
5	X-2136-207-1	HOUSING (R) ASSY		27	3-703-454-21	SCREW (1.7X6), TAPPING	
6	2-136-258-01	COVER (R)		28	3-831-441-11	CUSHION	
7	*2-136-277-01	CHASSIS		29	2-145-159-01	TUBE	
8	2-136-260-01	LID (R), BATTERY CASE		30	*9-911-839-XX	CUSHION (DC)	
9	2-136-265-01	TERMINAL, (+)		31	*3-563-500-01	SHEET (S), ADHESIVE	
10	2-136-262-01	SHEET		32	*2-527-551-11	SPACER	
11	2-136-267-01	TERMINAL					
12	2-136-266-01	TERMINAL, (-)		901	*A-4538-071-A	MOUNTED PCB, RX (L)	
13	X-2136-205-1	HANGER (R) ASSY		902	*A-4538-072-A	MOUNTED PCB, FR (L)	
14	2-136-271-01	SLIDER		903	*A-4538-074-A	MOUNTED PCB, RX (R)	
15	2-136-278-01	HOUSING (L)		904	*A-4538-076-A	MOUNTED PCB, FR (R)	
16	2-136-282-01	COVER (L)					
17	2-136-270-01	LID (L), BATTERY CASE		905	*1-633-388-11	PC BOARD, PH (L)	
18	X-2136-206-1	HANGER (L) ASSY		906	*1-633-389-11	PC BOARD, PH (R)	
19	2-136-275-01	RETAINER, HEAD COVER		907	*1-633-390-11	PC BOARD, SW	
20	2-136-273-01	COVER, BAND		SP101	1-505-089-11	DRIVER	
21	2-136-274-01	BAND, HEAD		SP201	1-505-089-11	DRIVER	
22	2-136-272-01	COVER, HEAD		VR101	1-238-906-11	RES, VAR, CARBON 10K (VOL)	
				VR201	1-238-906-11	RES, VAR, CARBON 10K (VOL)	

## SECTION 6 ELECTRICAL PARTS LIST

**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.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

**CAPACITORS:**

MF:  $\mu$ F, PF:  $\mu$ F.

**RESISTORS**

- All resistors are in ohms.
- F: nonflammable

**COILS**

- MMH: mH, UH:  $\mu$ H

**SEMICONDUCTORS**

In each case, U:  $\mu$ , for example:

UA....:  $\mu$ A...., UPA....:  $\mu$ PA....,

UPC....:  $\mu$ PC, UPD....:  $\mu$ PD....

Ref.No.	Part No.	Description			Ref.No.	Part No.	Description		
901	*A-4538-071-A	MOUNTED PCB, RX (L)			C207	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
902	*A-4538-072-A	MOUNTED PCB, FR (L)			C209	1-163-034-00	CERAMIC CHIP 0.033MF		50V
903	*A-4538-074-A	MOUNTED PCB, RX (R)			C211	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
904	*A-4538-076-A	MOUNTED PCB, FR (R)			C214	1-163-033-00	CERAMIC CHIP 0.022MF		50V
905	*1-633-388-11	PC BOARD, PH (L)			C216	1-163-038-00	CERAMIC CHIP 0.1MF		25V
906	*1-633-389-11	PC BOARD, PH (R)			C217	1-163-121-00	CERAMIC CHIP 150PF	5%	50V
907	*1-633-390-11	PC BOARD, SW							
C1	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V	C219	1-163-020-00	CERAMIC CHIP 0.0082MF	10%	50V
C2	1-163-038-00	CERAMIC CHIP 0.1MF		25V	C220	1-164-337-11	CERAMIC CHIP 2.2MF		16V
C3	1-135-157-21	TANTAL. CHIP 10MF	20%	4V	C221	1-135-180-21	TANTAL. CHIP 3.3MF	20%	4V
C4	1-163-033-00	CERAMIC CHIP 0.022MF		50V	C222	1-135-157-21	TANTAL. CHIP 10MF	20%	4V
C5	1-135-157-21	TANTAL. CHIP 10MF	20%	4V	C225	1-163-121-00	CERAMIC CHIP 150PF	5%	50V
C6	1-163-033-00	CERAMIC CHIP 0.022MF		50V	C226	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C101	1-163-038-00	CERAMIC CHIP 0.1MF		25V	C227	1-164-337-11	CERAMIC CHIP 2.2MF		16V
C102	1-163-103-00	CERAMIC CHIP 27PF	5%	50V	C228	1-135-157-21	TANTAL. CHIP 10MF	20%	4V
C103	1-163-034-00	CERAMIC CHIP 0.033MF		50V	C229	1-163-033-00	CERAMIC CHIP 0.022MF		50V
C104	1-163-034-00	CERAMIC CHIP 0.033MF		50V	C230	1-163-011-11	CERAMIC CHIP 0.0015MF	10%	50V
C105	1-163-034-00	CERAMIC CHIP 0.033MF		50V	C231	1-135-157-21	TANTAL. CHIP 10MF	20%	4V
C106	1-163-088-00	CERAMIC CHIP 5PF		0.25PF 50V	C232	1-163-033-00	CERAMIC CHIP 0.022MF		50V
C107	1-163-118-00	CERAMIC CHIP 110PF	5%	50V	C233	1-135-157-21	TANTAL. CHIP 10MF	20%	4V
C109	1-163-034-00	CERAMIC CHIP 0.033MF		50V	C234	1-135-180-21	TANTAL. CHIP 3.3MF	20%	4V
C110	1-163-101-00	CERAMIC CHIP 22PF	5%	50V	C235	1-164-337-11	CERAMIC CHIP 2.2MF		16V
C111	1-163-106-00	CERAMIC CHIP 36PF	5%	50V	CF101	1-578-717-71	FILTER, CRYSTAL		
C114	1-163-033-00	CERAMIC CHIP 0.022MF		50V	CF201	1-578-717-71	FILTER, CRYSTAL		
C116	1-163-038-00	CERAMIC CHIP 0.1MF		25V	CT101	1-141-325-11	CAP, VAR, TRIMMER (CHIP TYPE)		
C117	1-163-121-00	CERAMIC CHIP 150PF	5%	50V	CT201	1-141-325-11	CAP, VAR, TRIMMER (CHIP TYPE)		
C119	1-163-020-00	CERAMIC CHIP 0.0082MF	10%	50V	D1	8-719-812-41	DIODE TLR124		
C120	1-164-337-11	CERAMIC CHIP 2.2MF		16V	D101	8-719-946-33	DIODE HSM276S		
C121	1-135-180-21	TANTAL. CHIP 3.3MF	20%	4V	D201	8-719-946-33	DIODE HSM276S		
C122	1-135-157-21	TANTAL. CHIP 10MF	20%	4V					
C125	1-163-121-00	CERAMIC CHIP 150PF	5%	50V	IC1	8-759-977-60	IC BU2300BF		
C126	1-163-101-00	CERAMIC CHIP 22PF	5%	50V	IC101	8-752-011-10	IC CX20111		
C127	1-164-337-11	CERAMIC CHIP 2.2MF		16V	IC102	8-759-030-76	IC MC34119-ML		
C128	1-135-157-21	TANTAL. CHIP 10MF	20%	4V	IC201	8-752-011-10	IC CX20111		
C129	1-163-033-00	CERAMIC CHIP 0.022MF		50V	IC202	8-759-030-76	IC MC34119-ML		
C130	1-163-011-11	CERAMIC CHIP 0.0015MF	10%	50V	JR1	1-216-296-00	METAL GLAZE	0	5% 1/8W
C131	1-135-157-21	TANTAL. CHIP 10MF	20%	4V	JR2	1-216-296-00	METAL GLAZE	0	5% 1/8W
C132	1-163-033-00	CERAMIC CHIP 0.022MF		50V	JR3	1-216-296-00	METAL GLAZE	0	5% 1/8W
C133	1-135-157-21	TANTAL. CHIP 10MF	20%	4V	JR101	1-216-296-00	METAL GLAZE	0	5% 1/8W
C134	1-135-180-21	TANTAL. CHIP 3.3MF	20%	4V	JR102	1-216-296-00	METAL GLAZE	0	5% 1/8W
C135	1-164-337-11	CERAMIC CHIP 2.2MF		16V	JR103	1-216-296-00	METAL GLAZE	0	5% 1/8W
C201	1-163-038-00	CERAMIC CHIP 0.1MF		25V	JR104	1-216-296-00	METAL GLAZE	0	5% 1/8W
C202	1-163-113-00	CERAMIC CHIP 68PF	5%	50V	JR201	1-216-296-00	METAL GLAZE	0	5% 1/8W
C203	1-163-034-00	CERAMIC CHIP 0.033MF		50V	JR202	1-216-296-00	METAL GLAZE	0	5% 1/8W
C204	1-163-034-00	CERAMIC CHIP 0.033MF		50V	JR203	1-216-296-00	METAL GLAZE	0	5% 1/8W
C205	1-163-034-00	CERAMIC CHIP 0.033MF		50V	JR204	1-216-296-00	METAL GLAZE	0	5% 1/8W

Ref.No.	Part No.	Description
L101	1-408-784-11	INDUCTOR CHIP 39UH
L102	1-424-333-11	COIL
L104	1-408-786-21	INDUCTOR CHIP 56UH
L105	1-408-784-11	INDUCTOR CHIP 39UH
L106	1-408-792-00	INDUCTOR CHIP 180UH
L107	1-408-771-11	INDUCTOR CHIP 3.3UH
L201	1-408-784-11	INDUCTOR CHIP 39UH
L202	1-424-334-11	COIL
L203	1-408-789-21	INDUCTOR CHIP 100UH
L204	1-408-786-21	INDUCTOR CHIP 56UH
L205	1-408-784-11	INDUCTOR CHIP 39UH
L206	1-408-789-21	INDUCTOR CHIP 100UH
L207	1-408-771-11	INDUCTOR CHIP 3.3UH
PH101	8-719-975-19	PHOTO DIODE PP506-1
PH102	8-719-975-19	PHOTO DIODE PP506-1
PH201	8-719-975-19	PHOTO DIODE PP506-1
PH202	8-719-975-19	PHOTO DIODE PP506-1
Q1	8-729-216-22	TRANSISTOR 2SA1162
Q101	8-729-220-93	TRANSISTOR 2SK209-G
Q102	8-729-271-22	TRANSISTOR 2SC2712-G
Q103	8-729-271-22	TRANSISTOR 2SC2712-G
Q104	8-729-906-45	TRANSISTOR DTA143XK
Q105	8-729-900-52	TRANSISTOR DTC114YK
Q201	8-729-220-93	TRANSISTOR 2SK209-G
Q202	8-729-271-22	TRANSISTOR 2SC2712-G
Q203	8-729-271-22	TRANSISTOR 2SC2712-G
Q204	8-729-906-45	TRANSISTOR DTA143XK
Q205	8-729-900-52	TRANSISTOR DTC114YK
R1	1-216-115-00	METAL GLAZE 560K 5% 1/10W
R2	1-216-108-00	METAL GLAZE 300K 5% 1/10W
R4	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R5	1-216-089-00	METAL GLAZE 47K 5% 1/10W
R6	1-216-077-00	METAL GLAZE 15K 5% 1/10W
R7	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R101	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R102	1-216-021-00	METAL GLAZE 68 5% 1/10W
R103	1-216-109-00	METAL GLAZE 330K 5% 1/10W
R104	1-216-025-00	METAL GLAZE 100 5% 1/10W
R105	1-216-025-00	METAL GLAZE 100 5% 1/10W
R106	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R107	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W
R109	1-216-085-00	METAL GLAZE 33K 5% 1/10W
R110	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W
R111	1-216-085-00	METAL GLAZE 33K 5% 1/10W
R112	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W
R201	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W

Ref.No.	Part No.	Description
R202	1-216-021-00	METAL GLAZE 68 5% 1/10W
R203	1-216-109-00	METAL GLAZE 330K 5% 1/10W
R204	1-216-025-00	METAL GLAZE 100 5% 1/10W
R205	1-216-025-00	METAL GLAZE 100 5% 1/10W
R206	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R207	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W
R209	1-216-085-00	METAL GLAZE 33K 5% 1/10W
R210	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W
R211	1-216-085-00	METAL GLAZE 33K 5% 1/10W
R212	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W
SP101	1-505-089-11	DRIVER
SP201	1-505-089-11	DRIVER
SW1	1-554-303-21	SWITCH, KEY BOARD (POWER)
VR101	1-238-906-11	RES, VAR, CARBON 10K (VOL)
VR201	1-238-906-11	RES, VAR, CARBON 10K (VOL)

ACCESSORY & PACKING MATERIAL

- \*2-145-135-01 PLATE, ORNAMENTAL, CASE
- \*2-145-136-01 (AEP)...BOX, ORNAMENTAL, ACC
- \*3-701-624-00 BAG, POLYETHYLENE
- 3-751-794-11 MANUAL, INSTRUCTION  
(ENGLISH/FRENCH/SPANISH)
- 3-751-794-41 (AEP)...MANUAL, INSTRUCTION  
(GERMAN/ITALIAN/PORTUGUESE)

