JVC

SERVICE MANUAL

CORDLESS FM STEREO HEADPHONES

HA-W500RF (EG)/(EK)

Contents

Specifications

General Specifications

System	: Radio Frequency (UHF stereo)
Modulation	: Frequency modulation
Carrier frequency	: 863-865 MHz
Usable area (distance to reach)	: Approx. 100m (328 ft) : using JVC measurements systems
Frequency response	: 30 Hz-15,000 Hz
Distortion	: Less than 4 % (at 1 kHz)

Transmitter (J22121-001)

Power requirements	: DC 9 V (with the exclusive AC adaptor J47126-001(EG Model) /J47127-001(EK Model))
Audio input terminal	: 3.5 mm dia. stereo mini plug
Input impedance	: 25 kΩ
Reference input level	: 300 mV
Dimensions	: 100(W) x 100(D) x 106(H) mm (3-15/16" x 3-15/16" x 4-3/16") (Including antenna)
Mass	: 115 g (4.1 oz) (Without connection cord and AC adaptor)

Headphones (HA-W500RF)

Power requirements	: Rechargeable Ni-Cd battery (1.2 V) x 2
Battery running time	: 20 hours (When charged for 24 hours)
Mass	: 280 g (9.9 oz) (With installed rechargeable Ni-Cd battery x 2)

Provided Accessories

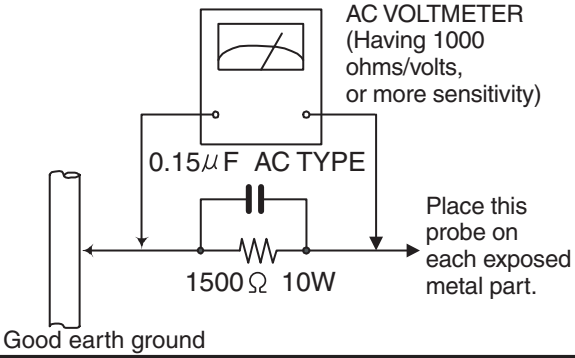
Instructions	x 1
AC adaptor	x 1
Connection cord	x 1 (3.5 mm dia. stereo mini jack-RCA pin plug x 2 : 0.1 m (0.3 ft))
Plug adaptor	x 1 (converts 3.5 mm dia. stereo mini plug to a 6.3 mm dia. standard stereo phone plug)

** Design and specifications subject to change without notice.*

No.70270
Sep. 2002

Safety Precautions

1. This design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer`s warranty and will further relieve the manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.
5. Leakage currnet check (Electrical shock hazard testing)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
   Do not use a line isolation transformer during this check.
   - Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal parts of the cabinet , particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.)
   - Alternate check method
     Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground.
     Measure the AC voltage across the resistor with the AC voltmeter.
     Move the resistor connection to eachexposed metal part, particularly any exposed metal part having a return path to the chassis, and meausre the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. voltage measured Any must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).



Warning

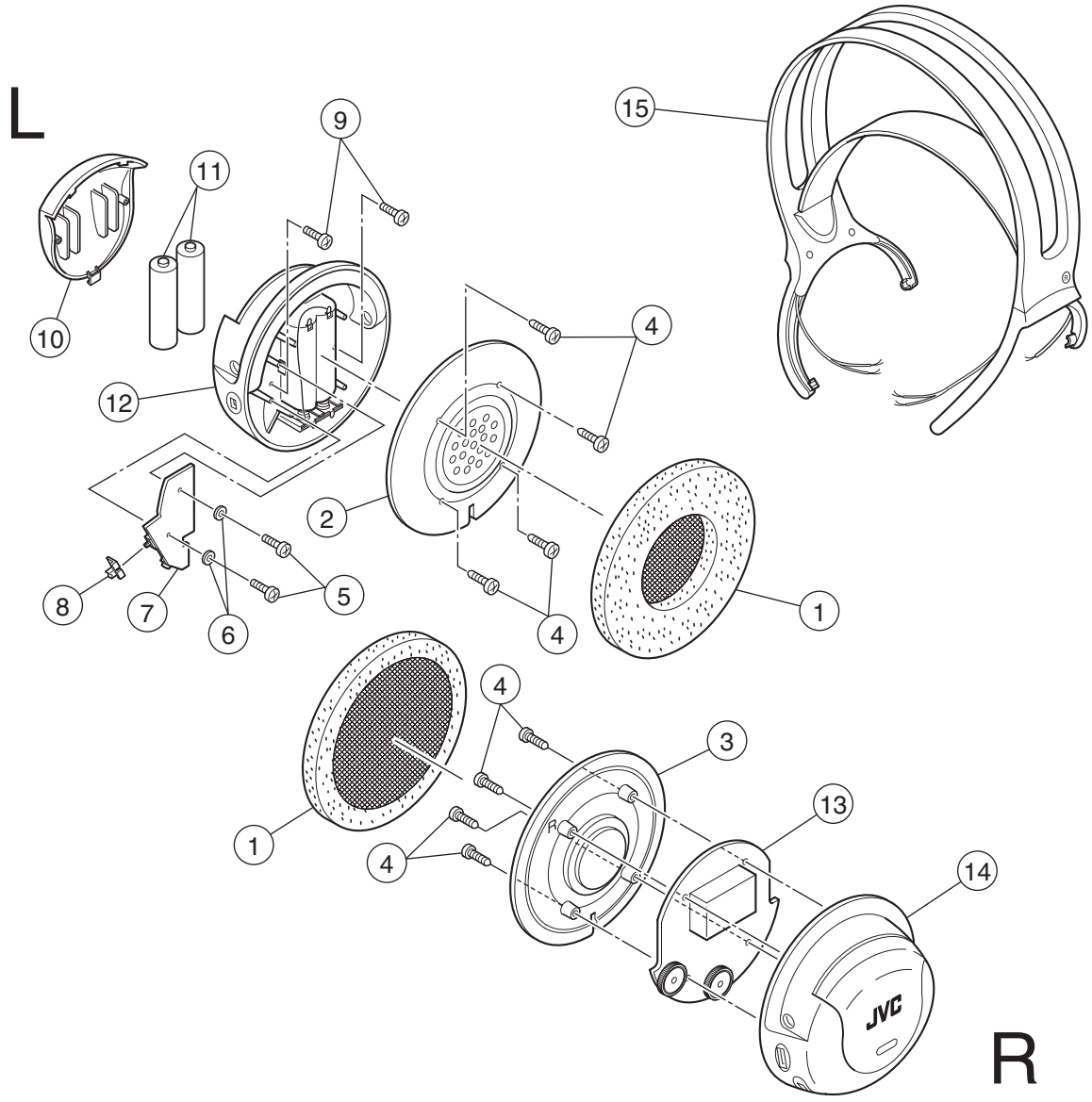
1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

1.Disassembly

■ **Transmitter**

In case of some problems arise in this transmitter unit, have to change the transmitter unit itself, due to avoid the law of radio regulation.

■ **Receiver(Headphones)**



1.Remove the ear pad **1** from the driver unit ass'y (L) **2** and (R) **3**.

2.Remove the screw **4** and pull up the driver unit ass'y (L) **2** and (R) **3**.

3.At channel L. Remove the screw **5** and insulation washer **6**, and pull up the charge print circuit board **7**.

4.Remove the switch knob **8**.

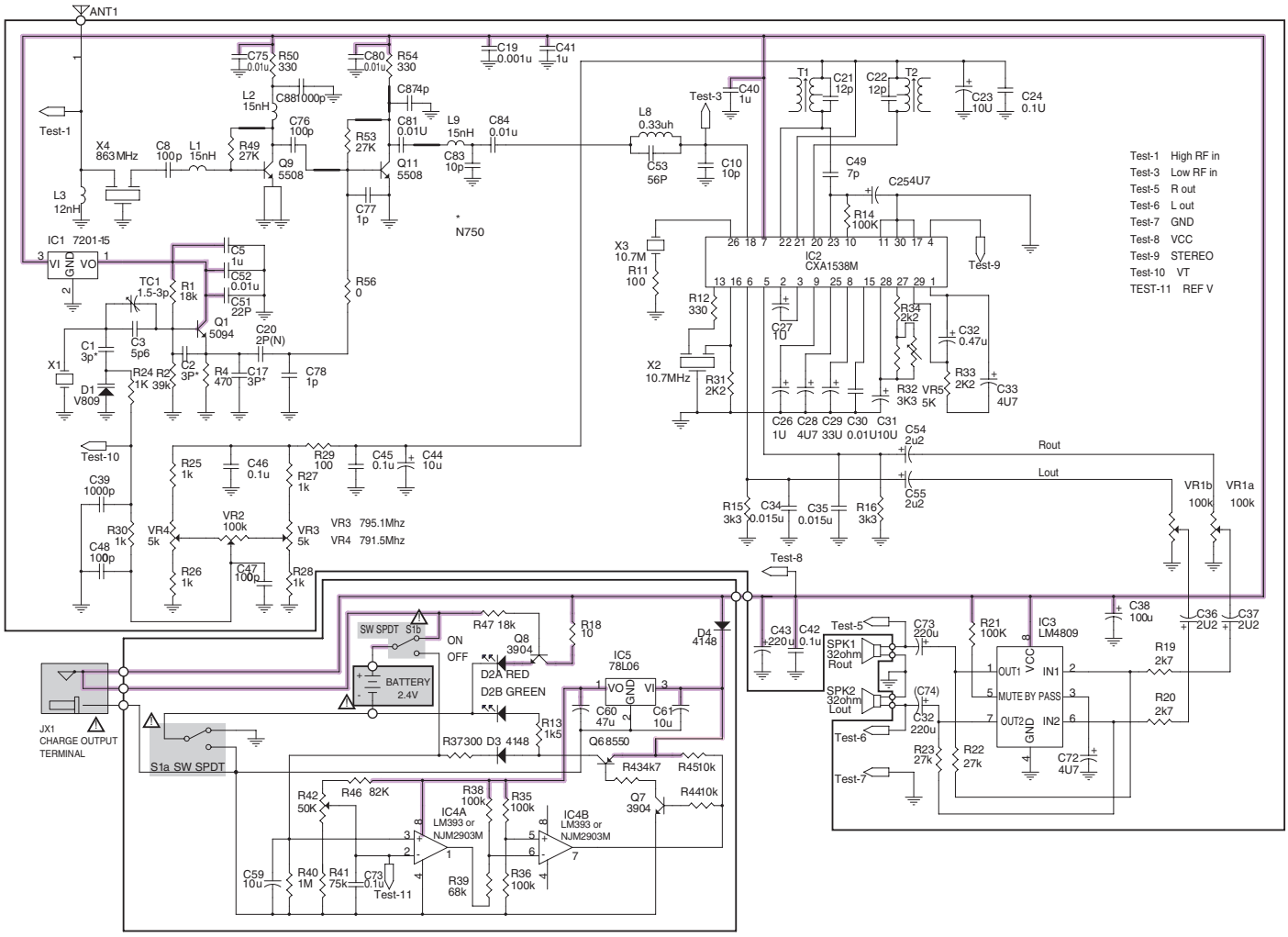
5.Remove the screw **9** and remove the battery door **10** from the housing ass'y (L) **12**.

6.Remove the battery **11** from the housing ass'y (L) **12**.

7.At channel R. Remove the main print circuit board **13** from the housing (R) **14**

8.Remove the wire with solder from the charge and main print circuit board **7 13**, then remove the headband ass'y **15**.

2.Schematic diagram

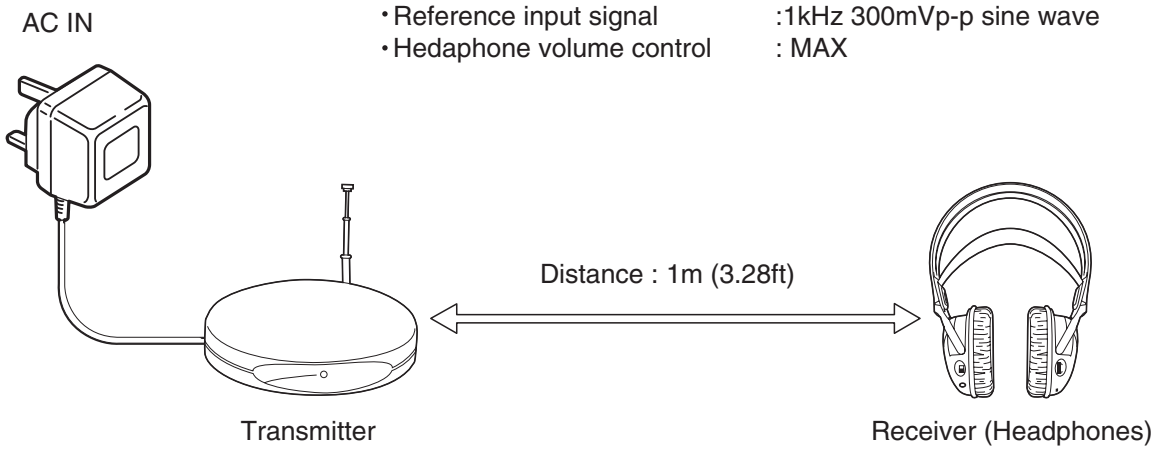


— Use of Circuit Diagram —

Notes:

1. The thick line ( ) is the B (+) power supply.
2. This circuit diagram is the reference diagram. Circuits and constans are subject to change without notice for improvement.
3. Values printed in red show the voltares of each section measured by the tester (internal resistance 20 kOhms/V), with the power switch ON.
4. Parts marked with ⚠ (in the shaded area) are safety parts.When replacing these, be sure to use only the designated parts to ensure safety.

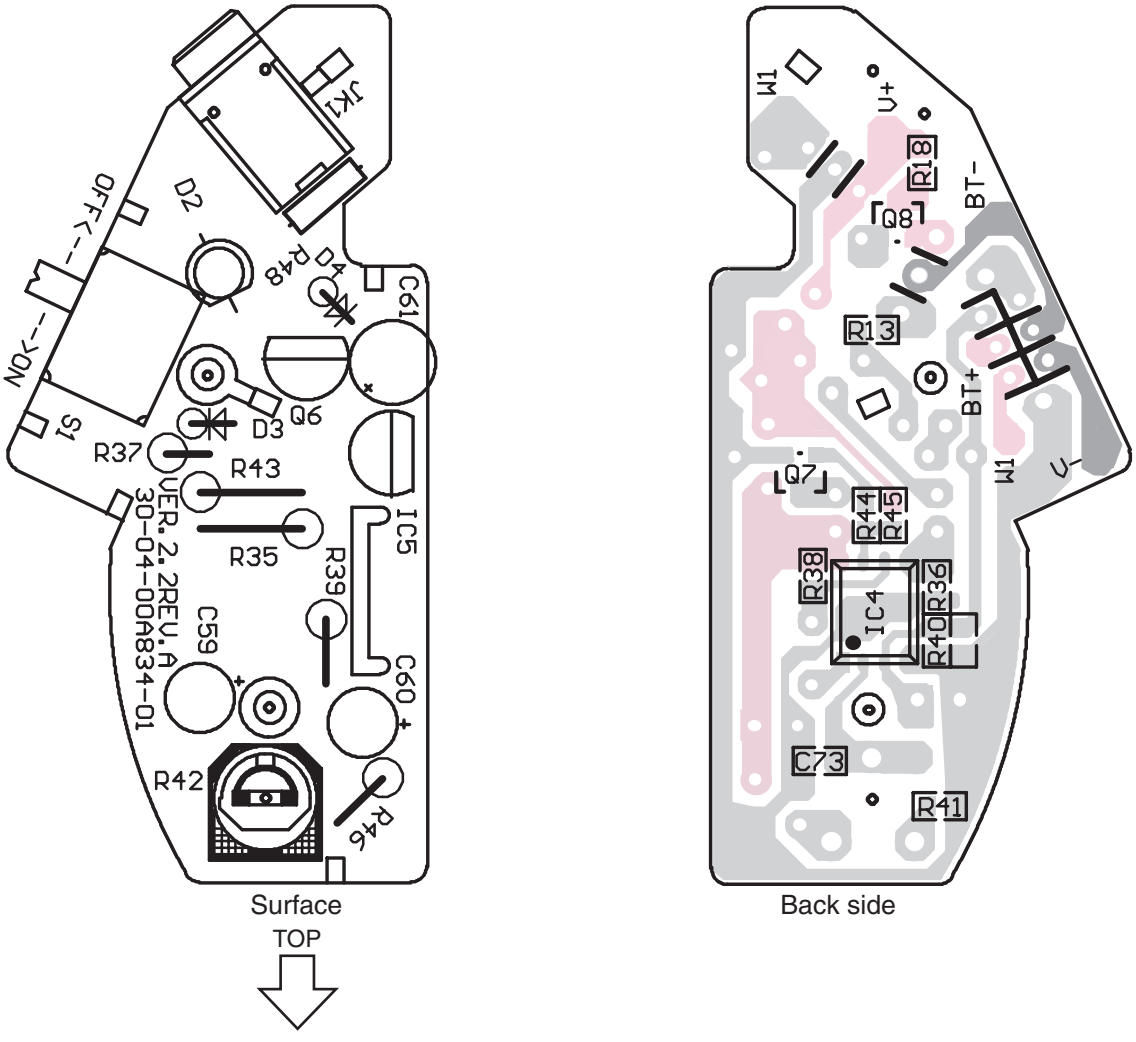
3.Measurement Condition



4.Print Circuit Board

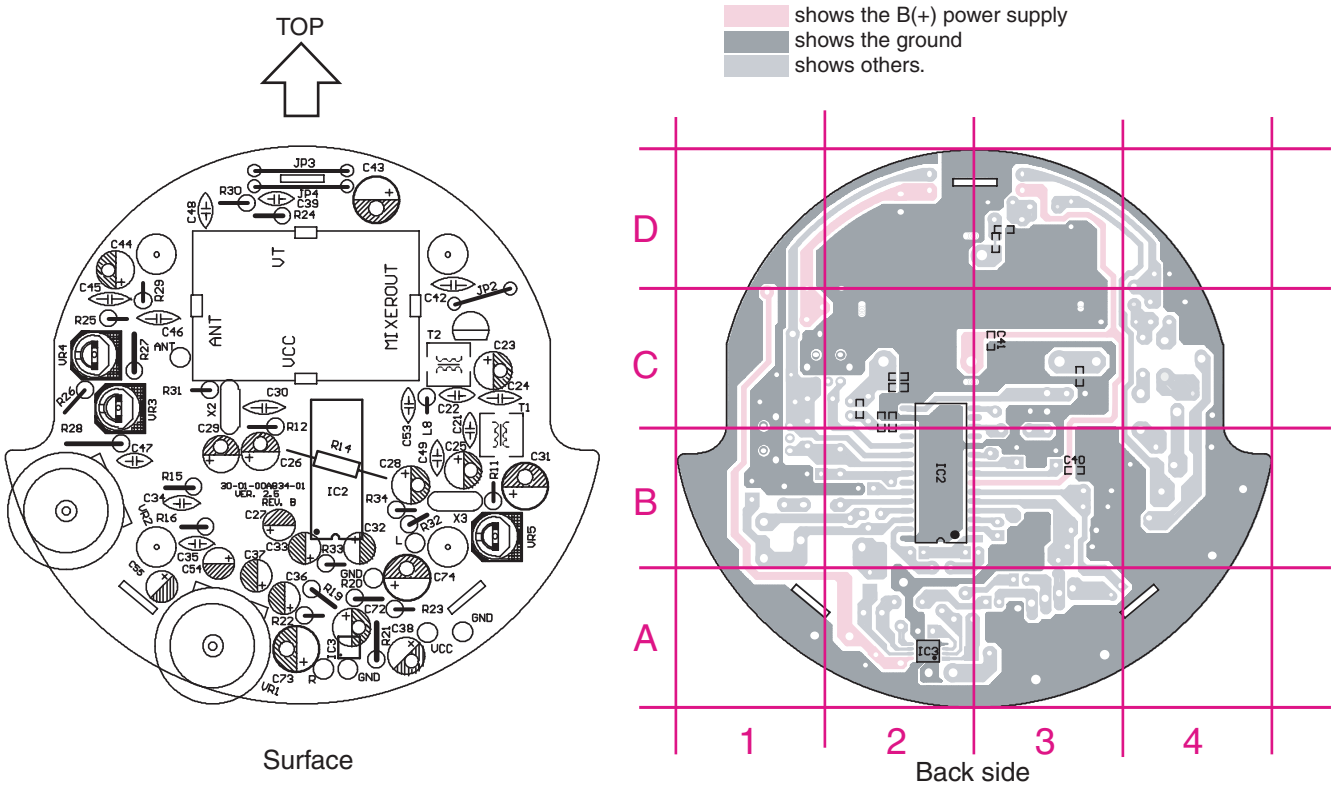
■ Receiver (Headphones)
CHARGE P. C. BOARD

shows the B(+) power supply
shows the ground
shows others.



4.Print Circuit Board

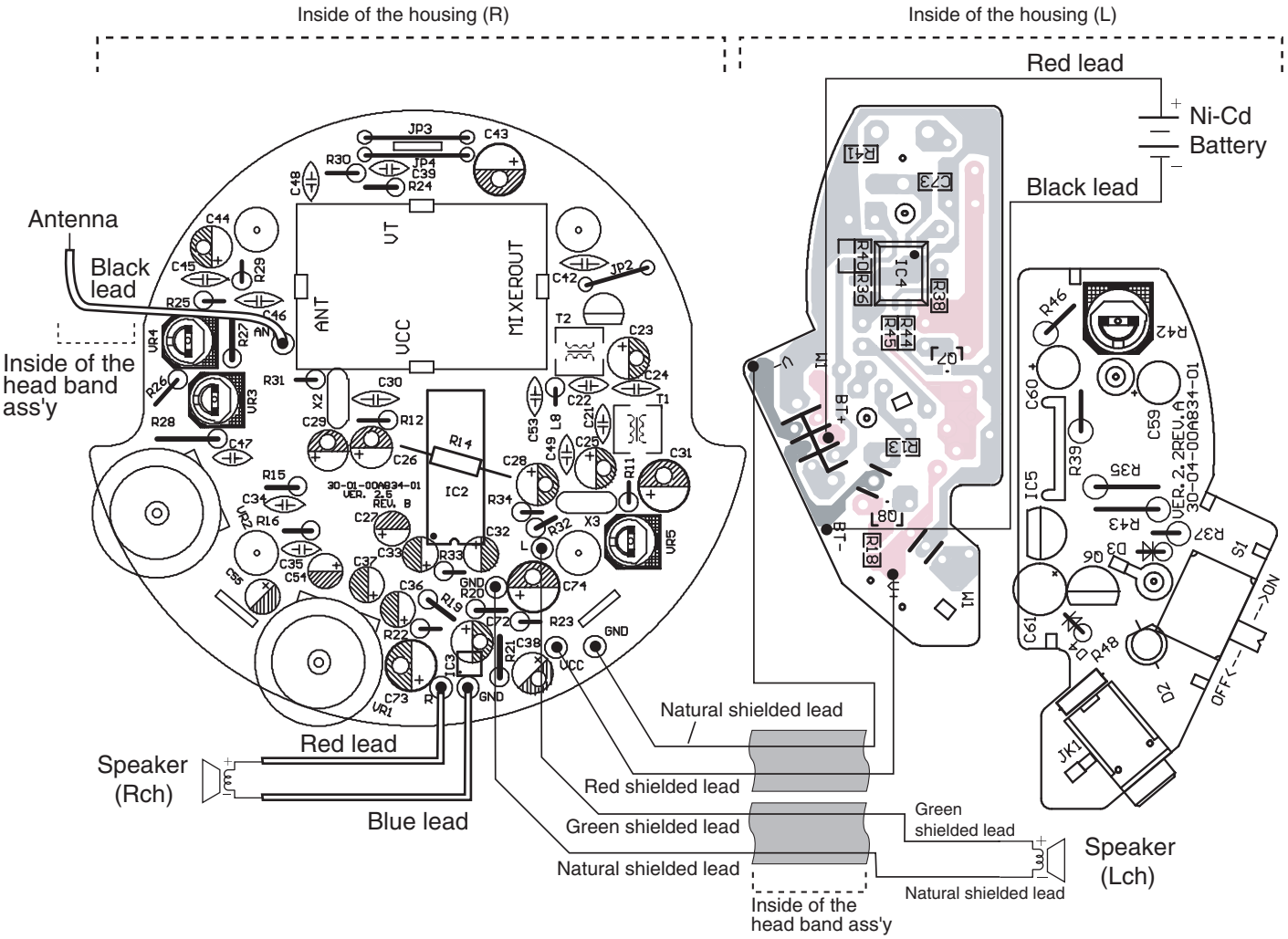
■ Receiver (Headphones)
MAIN P.C.BOARD



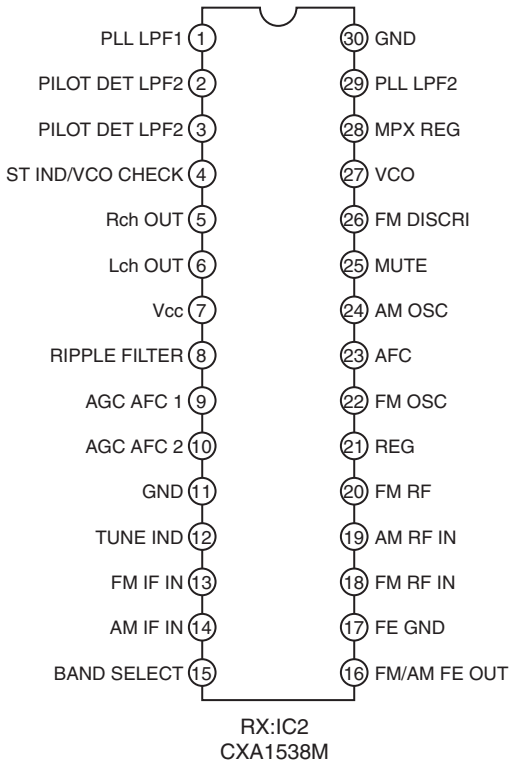
■ Receiver (Headphones)
MAIN P.C.B. LOCATION

Symbol	Location	Symbol	Location	Symbol	Location	Symbol	Location	Symbol	Location
ICs		Resistors		Resistors		Capacitors		Capacitors	
IC2	2B	R11	1B	R37	CHG.PCB	C23	1C	C49	2B
IC3	2A	R12		R38	CHG.PCB	C24	1C	C50	
IC4	CHG.PCB	R13	CHG.PCB	R39	CHG.PCB	C25	1B	C51	
IC5	CHG.PCB	R14	2B	R40	CHG.PCB	C26	3B	C52	
Transistors		R15	3B	R41	CHG.PCB	C27	3B	C53	2C
Q6	CHG.PCB	R16	3B	R42	CHG.PCB	C28	2B	C54	3B
Q7	CHG.PCB	R17		R43	CHG.PCB	C29	3B	C55	3A
Q8	CHG.PCB	R18	CHG.PCB	R44	CHG.PCB	C30	3C	C59	CHG.PCB
Filters		R19	2A	R45	CHG.PCB	C31	1B	C60	CHG.PCB
X2	3C	R20	2A	R46	CHG.PCB	C32	2B	C61	CHG.PCB
X3	2B	R21	2A	R47	CHG.PCB	C33	3B	C72	2A
Diodes		R22	3A	R48		C34	3B	C73	3A
D2	CHG.PCB	R23	2A	R49		C35	3B	C74	2A
D3	CHG.PCB	R24	3D	R50		C36	3A	Coils	
D4	CHG.PCB	R25	4C	VR1	3A	C37	3A	T1	1B
Resistors		R26	4C	VR2	4B	C38	2A	T2	2C
R1		R27	4C	VR3	4C	C39	3D	L8	2C
R2		R28		VR4	4C	C40			
R3		R29	4C	VR5	1B	C41			
R4		R30	3D	JP1		C42	2D		
R5		R31	3C	JP2	1C	C43	2D		
R6		R32	2B	JP3	3D	C44	4D		
R7		R33	2B	JP4	3D	C45	4C		
R8		R34	2B	Capacitors		C46	3C		
R9		R35	CHG.PCB	C21	1B	C47	4B		
R10		R36	CHG.PCB	C22	2C	C48	3D		

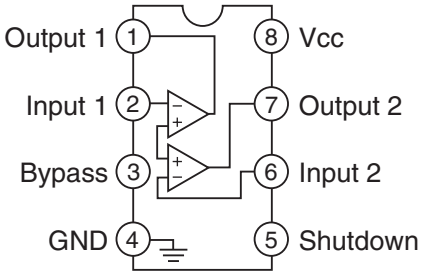
5.Wiring Diagram



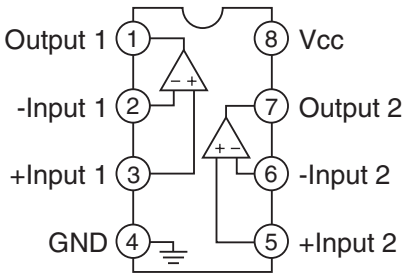
6.Block View Inside IC



RX:IC2
CXA1538M



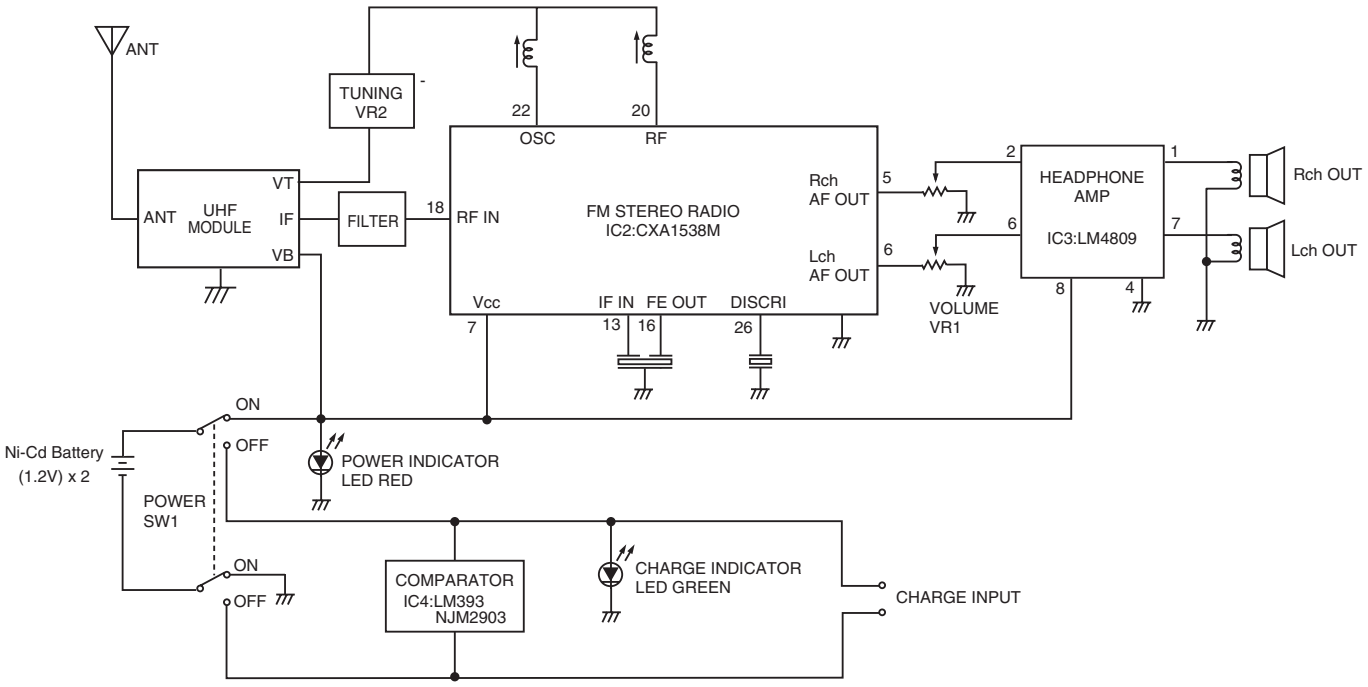
RX:IC3
LM4809



RX:IC4
NJM2903M
LM393

7.Block Diagram

■ Receiver (Headphones)



8.Electric Parts List

■ Transmitter

⚠	Item No.	Parts No.	Parts Name	Description
⚠		J22121-001	Transmitter Unit	

In case of some problem arise in this transmitter unit, have to change the transmitter unit itself, due to avoid the law of radio regulation.
※ Parts marked (⚠) ave safety parts. When replacing, be sure to use the specified one.

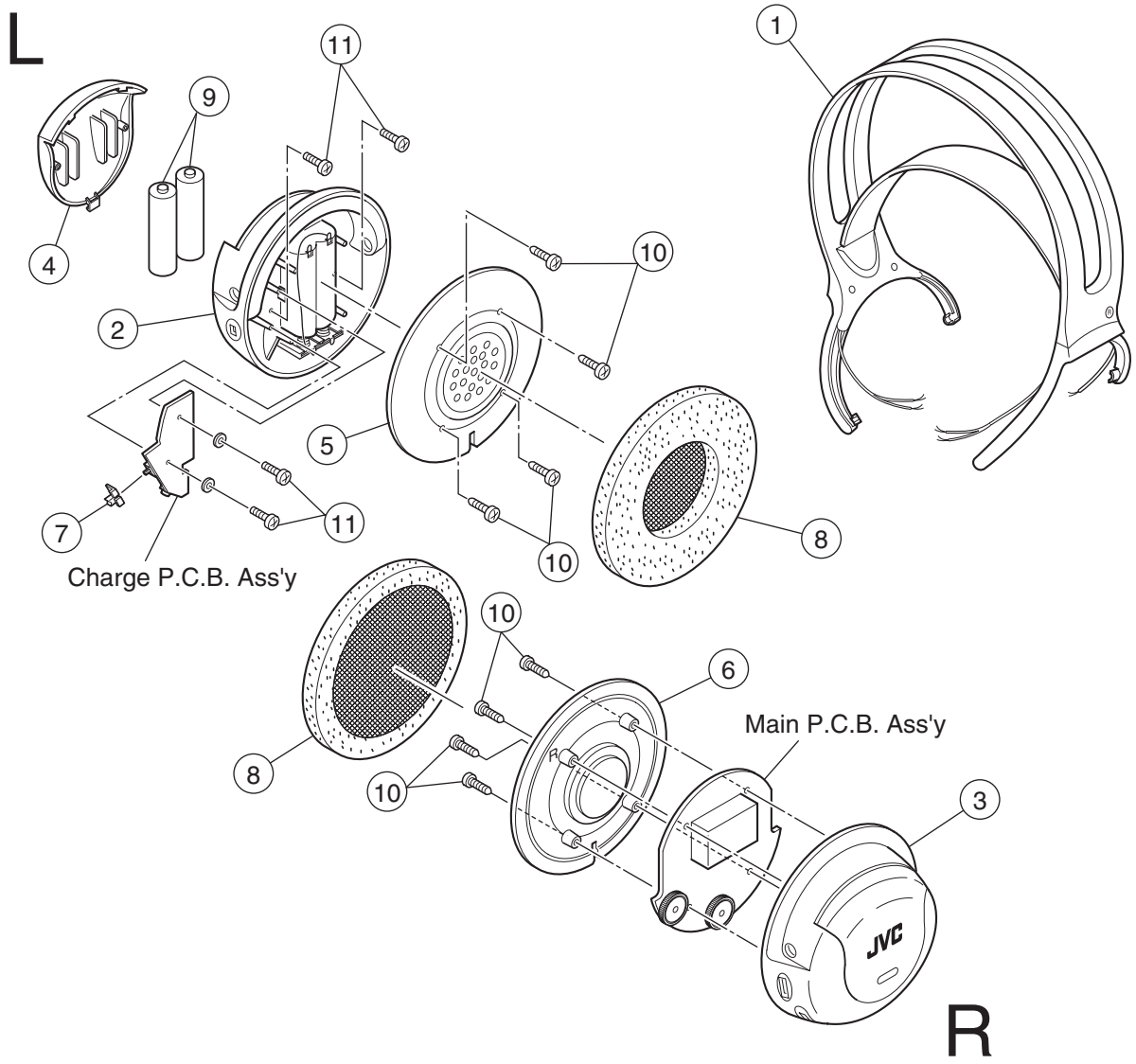
■ Receiver (Headphones)

⚠	Item No.	Parts No.	Parts Name	Description
⚠		J22133-001	Main P.C.B Ass'y	Adjusted
		J22134-001	Charge P.C.B Ass'y	
	D2	J47138-001	LED	Power and charge Indicator
	VR1	J47139-001	Variable Resistor	Volume control, 100 k Ω X 2
	VR2	J47140-001	Variable Resistor	Tuning control, 100 k Ω X 1
⚠	SW1	J47145-001	Power Switch	Slide
⚠	JK1	J47141-001	Charge Jack	

※ Parts marked (⚠) are safety parts. When replacing, be sure to use the specified one.

9.Exploded View

■ **Receiver(Headphones)**



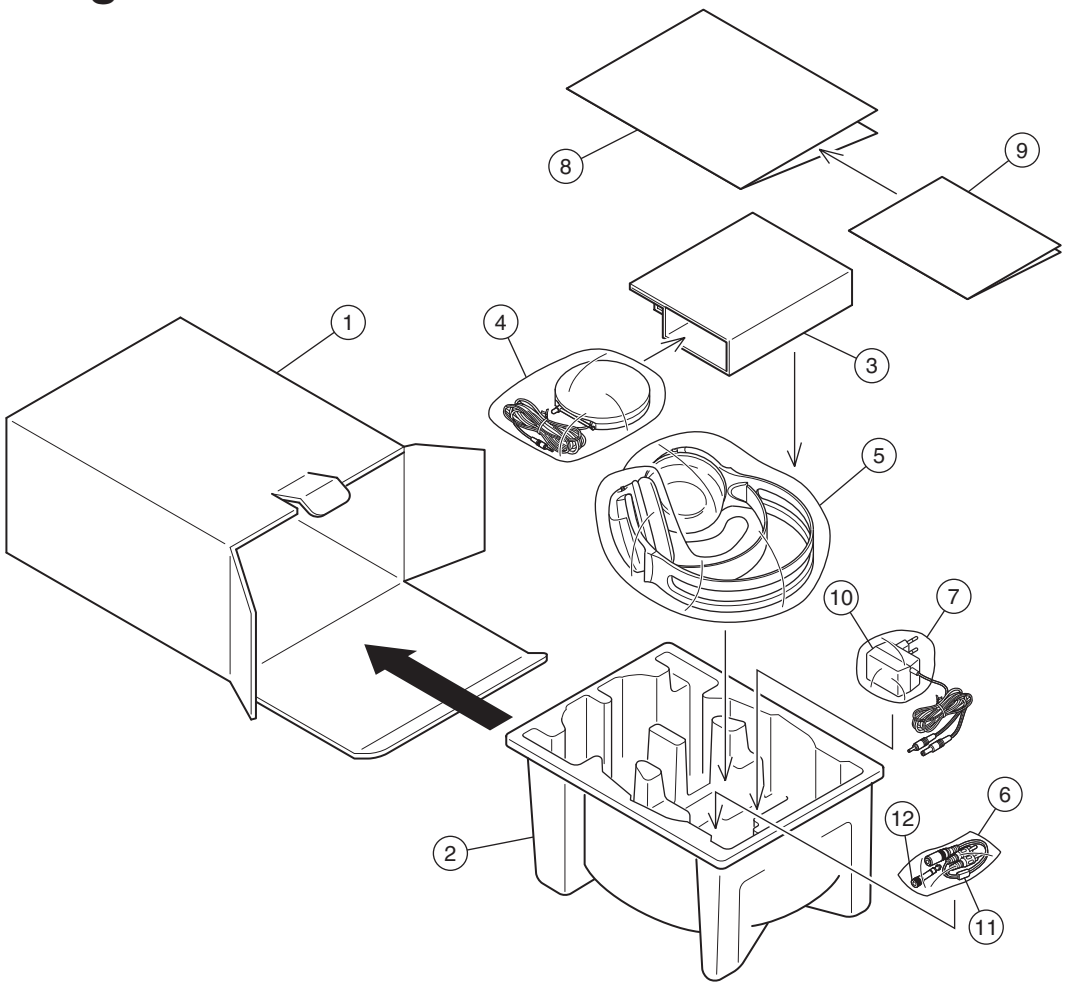
10.Mechanical Parts List

■ **Receiver(Headphones)**

⚠	Item No.	Parts No.	Parts Name	Q'ty	Description
	1	J34073-001	Headband Ass'y	1	with connecting wir e
	2	J34074-001	Housing(L) Ass'y	1	with battery terminal
	3	J34075-001	Housing(R) Ass'y	1	
	4	J34076-001	Battery Door	1	
	5	J34077-001	Driver Unit(L) Ass'y	1	with protector
	6	J34078-001	Driver Unit(R) Ass'y	1	with protector
	7	J47146-001	Swihch knob	1	
	8	J47144-001	Ear Pad	2	
	9	J46514-001	Rechargeable Ni-Cd batteries	1	2pcs/pack
	10	QYSPSPU1411M	Screw	8	
	11	QYSPSFT1403M	Screw	4	

※ Parts marked (⚠) are safety parts. When replacing, be sur e to use the specifide one.

11.Packing Method



12.Packing Materials Parts List

⚠	Item No.	Parts No.	Parts Name	Q'ty	Description
	1	J22110-001	Packing case	1	for (EG) model
	1	J22110-002	Packing case	1	for (EK) model
	2	J22135-001	Packing Holder	1	
	3	J47142-001	Sub Packing Holder	1	
	4	QPA01202005	Poly Bag	1	for transmitter
	5	QPA01506005	Poly Bag	1	for receiver(headphones)
	6	QPA00500805	Poly Bag	1	for connection cord
	7	QPA01202005	Poly Bag	1	for AC Adaptor

※ Parts marked (⚠) are safety parts. When replacing, be sure to use the specifide one.

13.Accessories List

⚠	Item No.	Parts No.	Parts Name	Q'ty	Description
⚠	8	J5500-114A	Instructions	1	for (EG) model
⚠	8	J5500-115A	Instructions	1	for (EK) model
	9	BT-54008-4	European Guarantee Certificate	1	
⚠	10	J47126-001	AC Adaptor	1	for (EG) model
⚠	10	J47127-001	AC Adaptor	1	for (EK) model
	11	J47143-001	Connection cord	1	
	12	J46517-001	Plug adaptor	1	

※ Parts marked (⚠) are safety parts. When replacing, be sure to use the specifide one.

< MEMO >

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