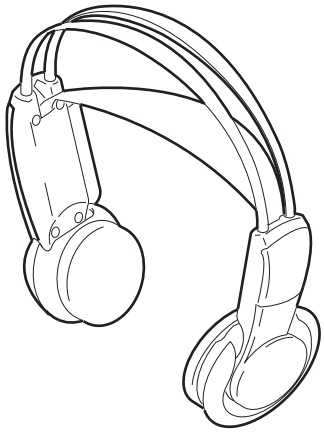
MDR-RF830

SERVICE MANUAL

AEP Model
UK Model

REVISED

Ver 1.2 1999. 09



MDR-RF830 is the component model block one in the MDR-RF830RK.

COMPONENT MODEL NAME FOR MDR-RF830RK

Wireless Stereo Headphones	MDR-RF830
Transmitter	TMR-RF830R

SPECIFICATIONS

Power source	DC 3 V: 2 × R6 (size AA) battery or 2 × supplied NC-AA-HJ Ni-Cd rechargeable battery
Mass	Approx. 215 g (7.6 oz.) incl. Ni-Cd batteries

Design and specifications are subject to change without notice.

WIRELESS STEREO HEADPHONES

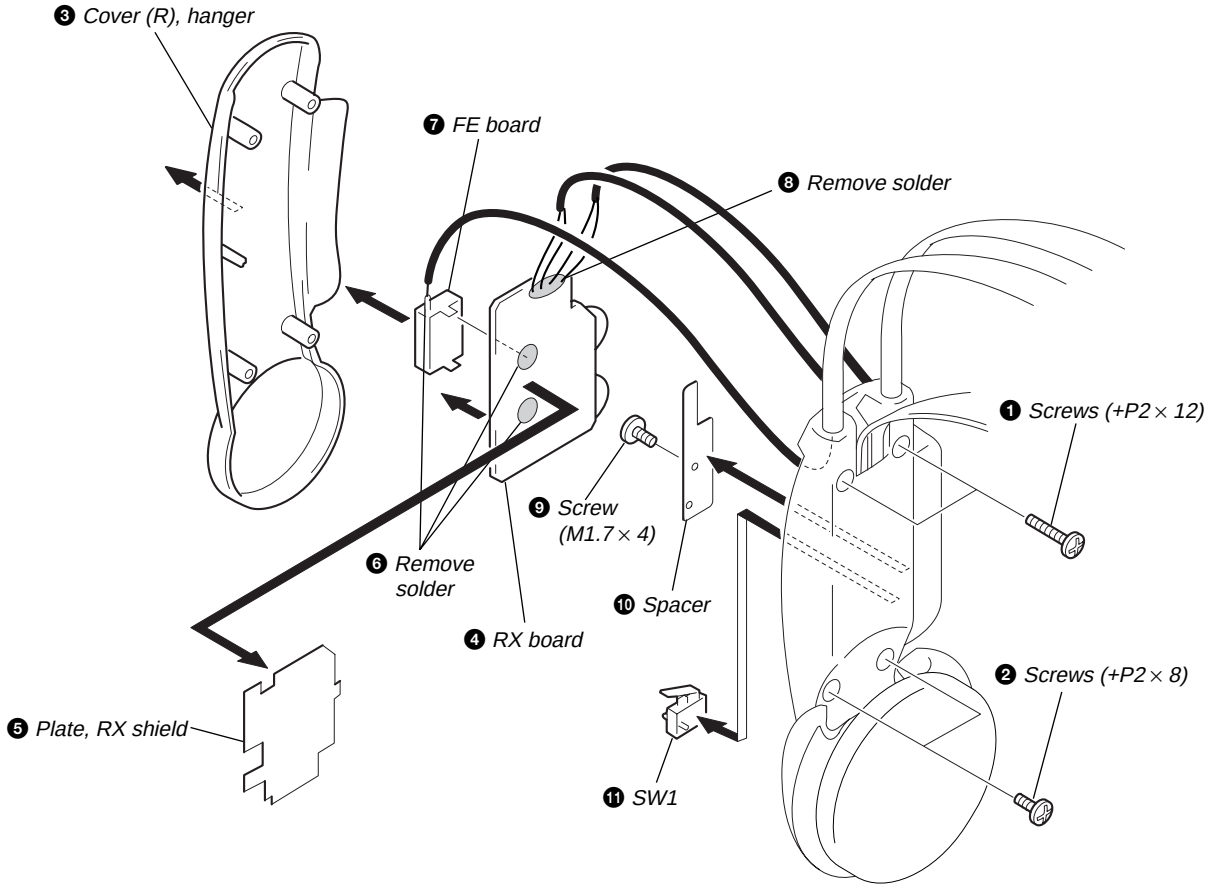
MICROFILM

SONY®

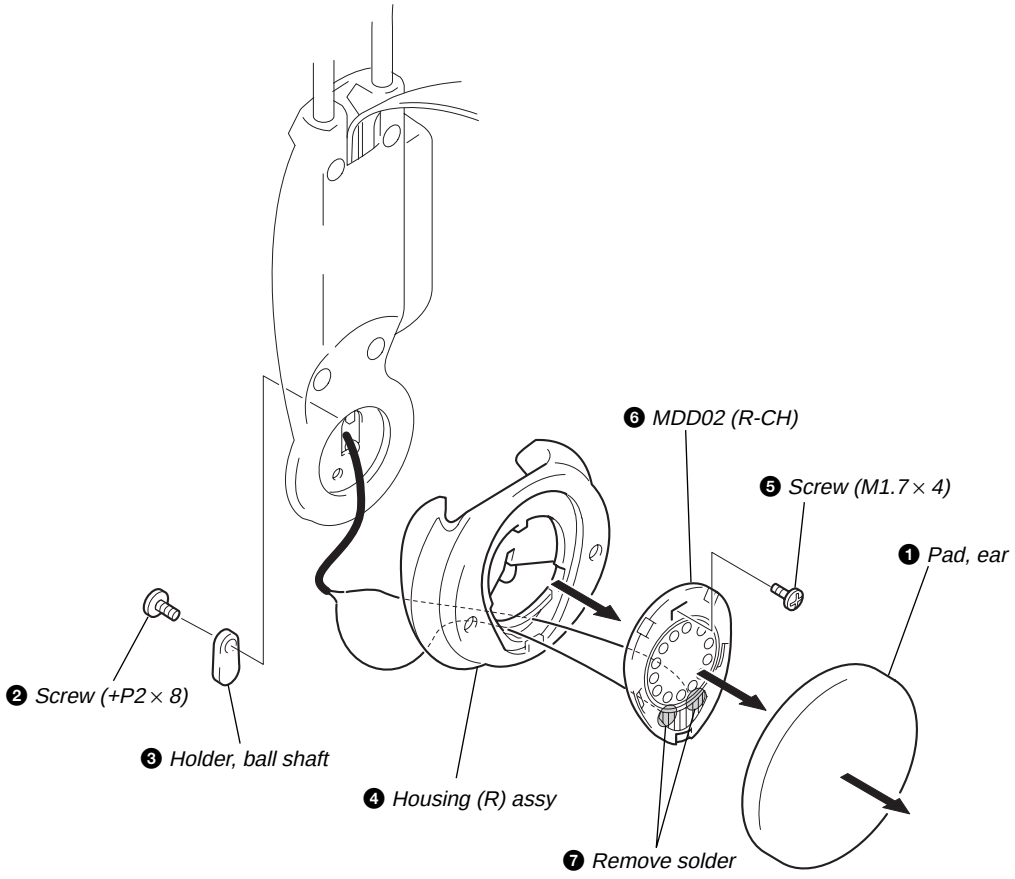
SECTION 1
DISASSEMBLY

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

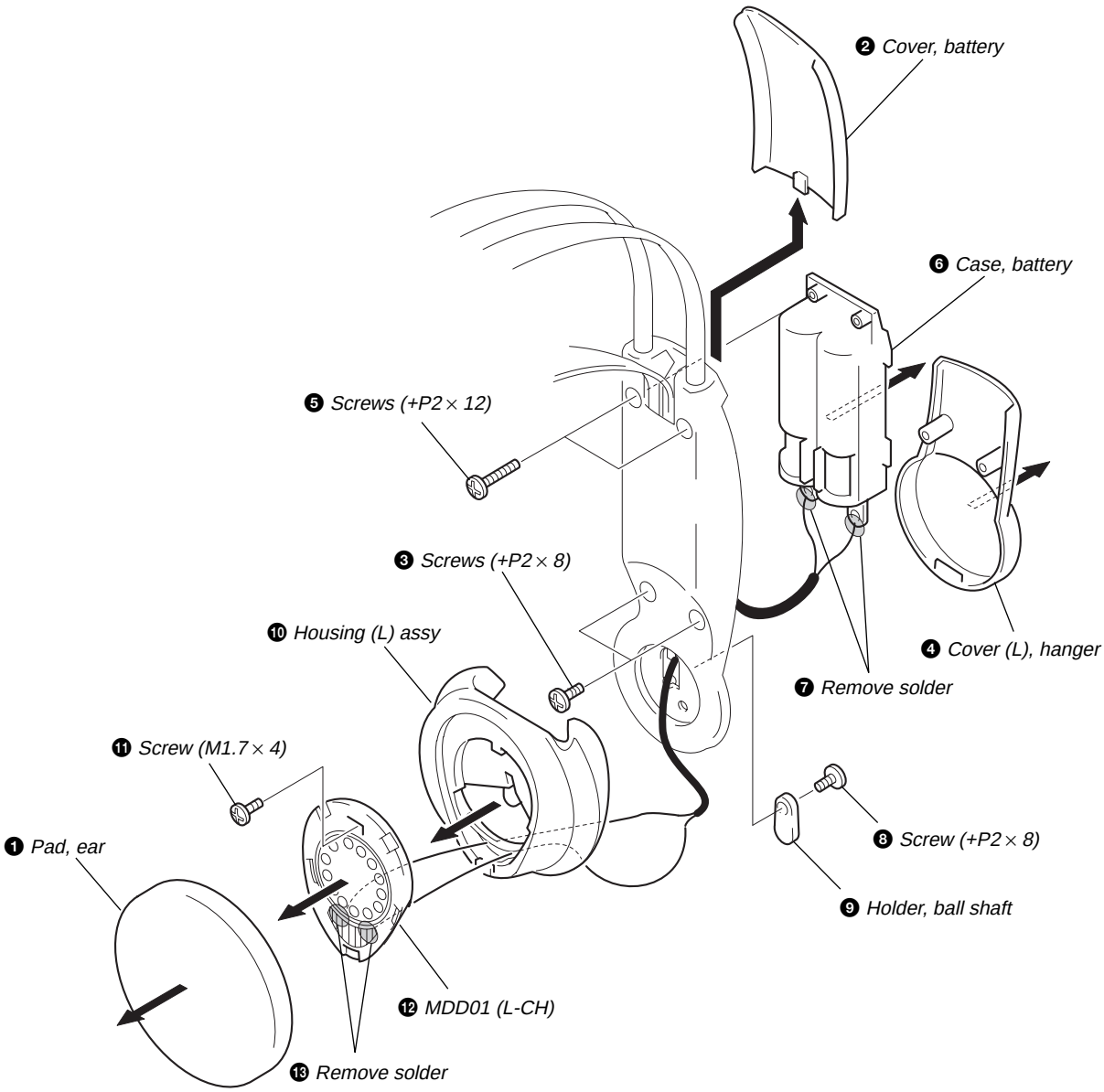
1-1. RX BOARD, FE BOARD (R-CH)



1-2. MDD02 (R-CH)



1-3. CASE, BATTERY, MDD01 (L-CH)



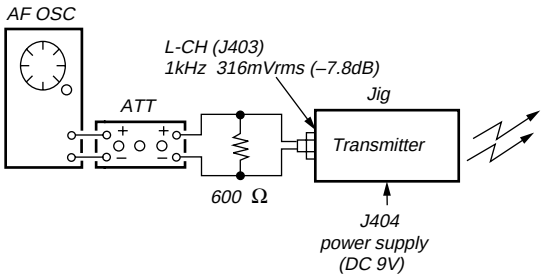
SECTION 2
ELECTRICAL ADJUSTMENTS

Notes:

1. Use transmitter with check and adjustment alreadycompleted.
2. The transmitter section adjustments should be completed before performing the headphones section adjustment.
3. On adjusting the headphones section, use the transmitter as a jig.

Headphones	Transmitter
MDR-RF830	TMR-RF830R

Procedure:



1. Feed a signal to jig (transmitter) and connect a power supply to DC IN 9V jack (J404).

Receive frequency check and adjustment

1. Set the transmitter channel to CH2.
2. Set the transmitter noise filter SW to OFF .
3. Input a signal of 1kHz 316mVrms to onl y the transmitter L-CH (J403).
4. Place transmitter and headphones at a distance of more than 5m apart.
5. Set the VOL (RV301) to MIN.
6. Position RX board TUNING VOL (RV302) to the center .
7. Connect a digital voltmeter (DC range) and an oscilloscope between
   IC301 pin ㉑ and GND.
8. First check to make sure that a demodulated waveform of 1kHz (appr oximately 13mVrms) is outputted to the oscilloscope , then
   check to make sure the DC voltmeter reading is DC 1 to 1.2V .
9. If a demodulated waveform of 1kHz is not outputted to the oscilloscope or if the DC level is not within the range specified above, adjust the RX board L301 so that a demodulated waveform of 1kHz is outputted to the oscilloscope and while the wave-form is outputted, further fine adjust the L301 so that the DC voltmeter reading is DC1.1V.
10. When completed, make sure signals can be received when switching the transmitter channel to CH1 or CH3 by turning RX board TUNING VOL (RV302).

Connection points and Adjustment Location:

RX BOARD (See page 5)

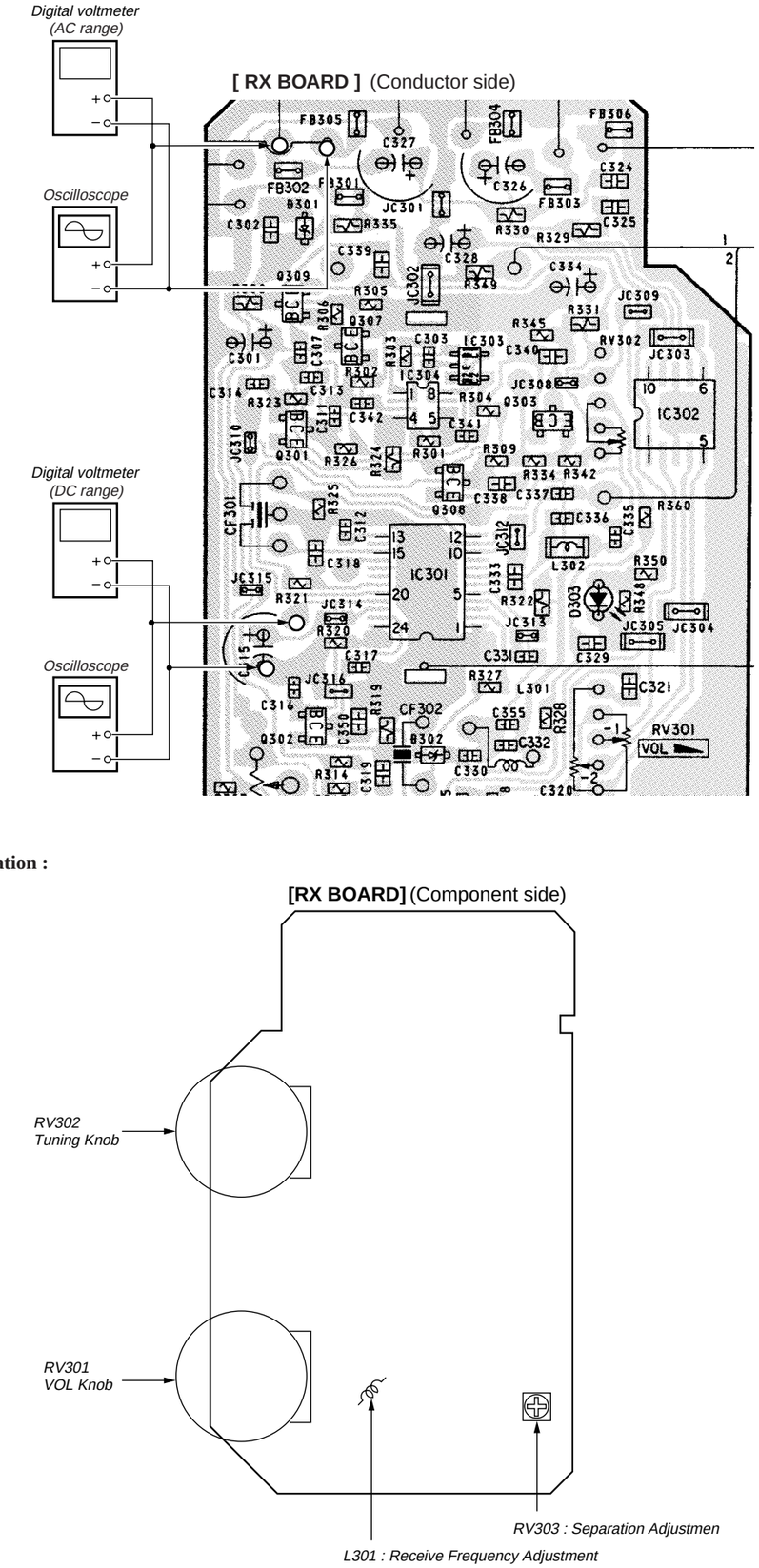
Separation check and adjustment

1. Set the transmitter channel to CH2.
2. Set the transmitter noise filter SW to OFF .
3. Input a signal of 1kHz 316mVrms to onl y the transmitter L-CH (J403).
4. Connect an digital voltmeter (AC range) and oscilloscope to the L-CH speaker outputs (both sides of MDD01).
5. Receive signals by turning the TUNING VOL (RV302).
6. Adjust the VOL (RV301) so that the RX board L-CH speaker outputs (both sides of MDD01) are 155mVrms.
7. Connect an digital voltmeter (AC range) and oscilloscope to the R-CH speaker outputs (both sides of MDD02) and measure the voltages.
8. At this time, check to make sure the level separation of L-CH and R-CH speaker outputs is more than 20dB. If the separation is less than 20dB, turn R V303 on the RX boar d so that the R-CH output is minimal, then check to see if the level separation of L-CH and R-CH speaker outputs is more than 20dB.
9. Input a signal of 1kHz 316mVrms to only the transmitter R-CH (J402).
10. Adjust the VOL (RV301) so that the RX boar d R-CH speaker outputs (both sides of MDD02) are 155mVrms.
11. Connect an digital voltmeter (AC range) and oscilloscope to the L-CH speaker outputs (both sides of MDD01) and measure the voltages.
12. At this time, check to make sure the level separation of L-CH and R-CH speaker outputs is more than 20dB.

Connection points and Adjustment Location:

RX BOARD (See page 5)

Connection points :

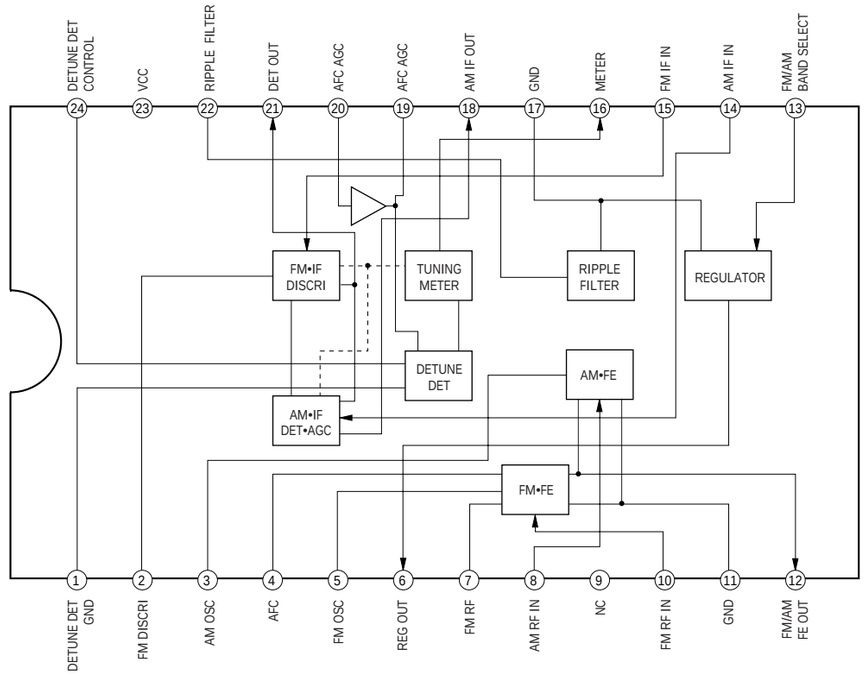


Adjustment Location :

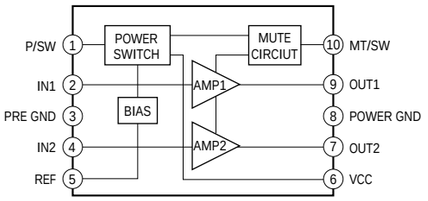
SECTION 3
DIAGRAMS

• IC BLOCK DIAGRAMS

IC301 CXA1611N-T4



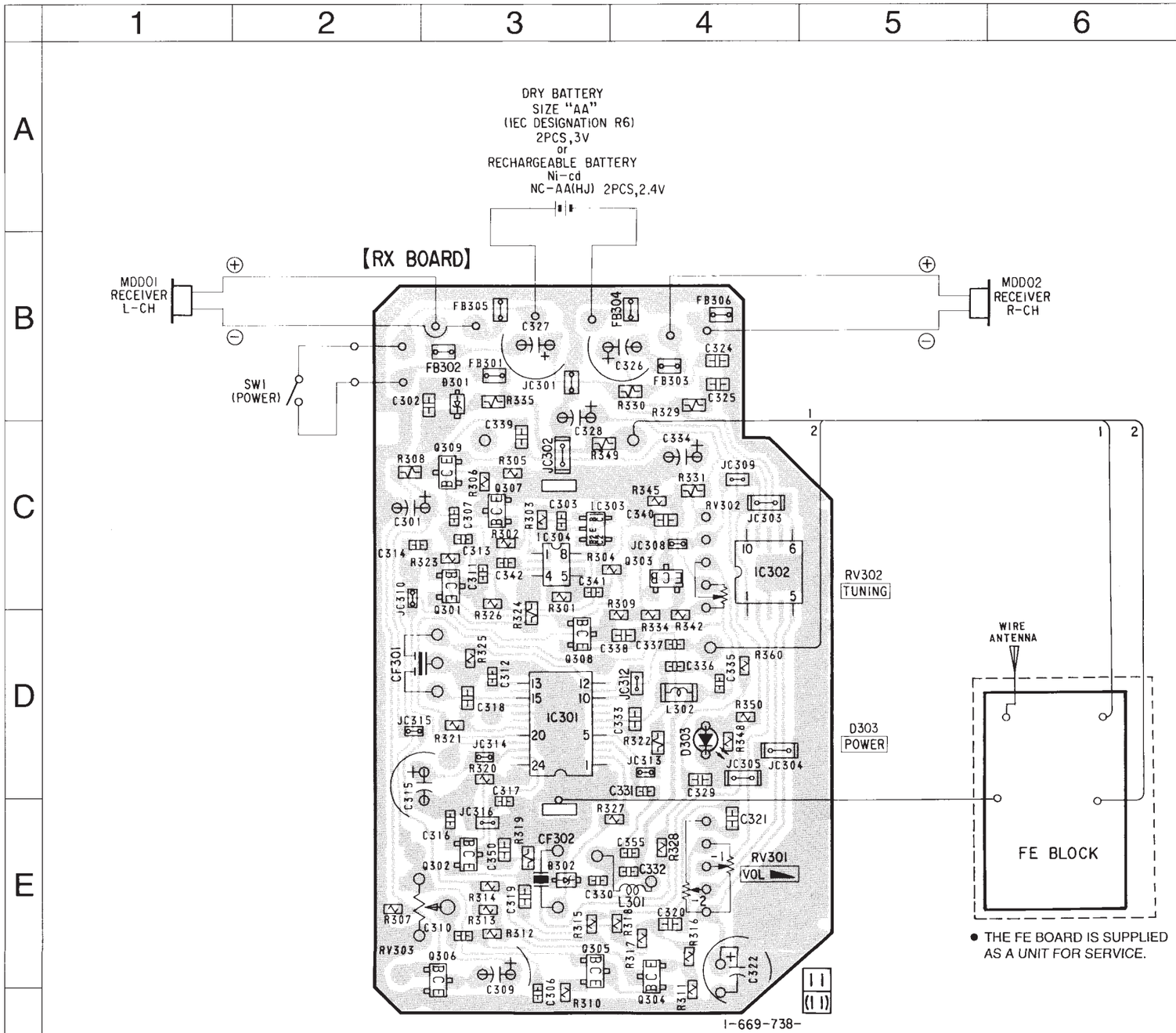
IC302 LA4533M



3.1 PRINTED WIRING BOARDS

• **Semiconductor Location**

Ref. No.	Location
D301	B-3
D302	E-3
D303	D-4
IC301	D-3
IC302	C-4
IC303	C-3
IC304	C-3
Q301	C-3
Q302	E-3
Q303	C-4
Q304	E-4
Q305	E-3
Q306	E-3
Q307	C-3
Q308	D-3
Q309	C-3



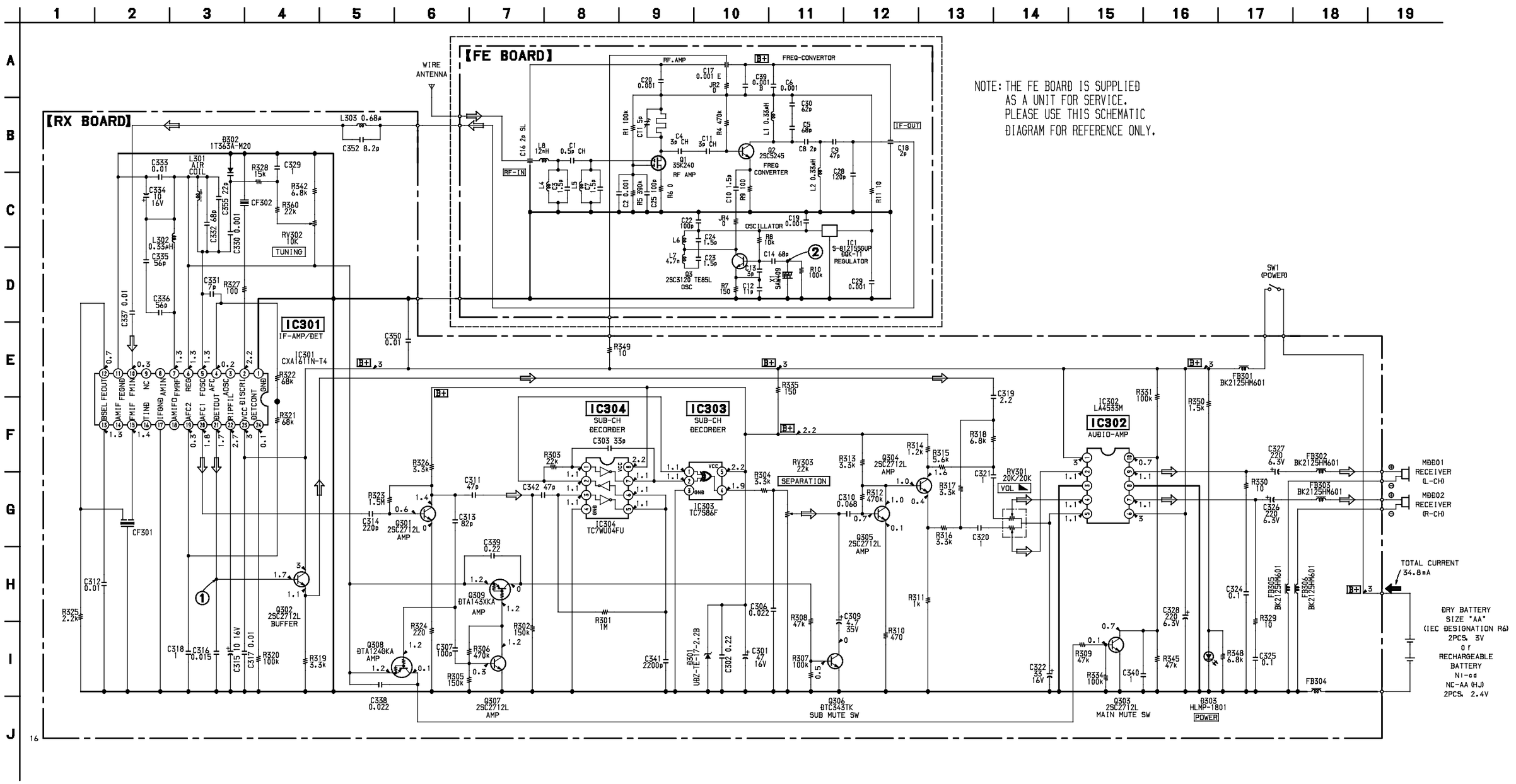
● THE FE BOARD IS SUPPLIED AS A UNIT FOR SERVICE.

Note:
- ○—— : parts extracted from the component side.
- ○ : Through hole.
- ▒▒ : Pattern from the side which enables seeing.

Caution:	
Pattern face side: (SideB)	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.

3.2 SCHEMATIC DIAGRAM

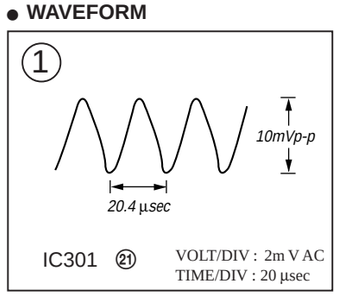
• Refer tp page 6 IC Block Diagrams.



Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 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.
- △ : internal component.
- B+ : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 3 V and fed with regulated dc power supply from battery terminal.
- Voltages are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path. ⇨

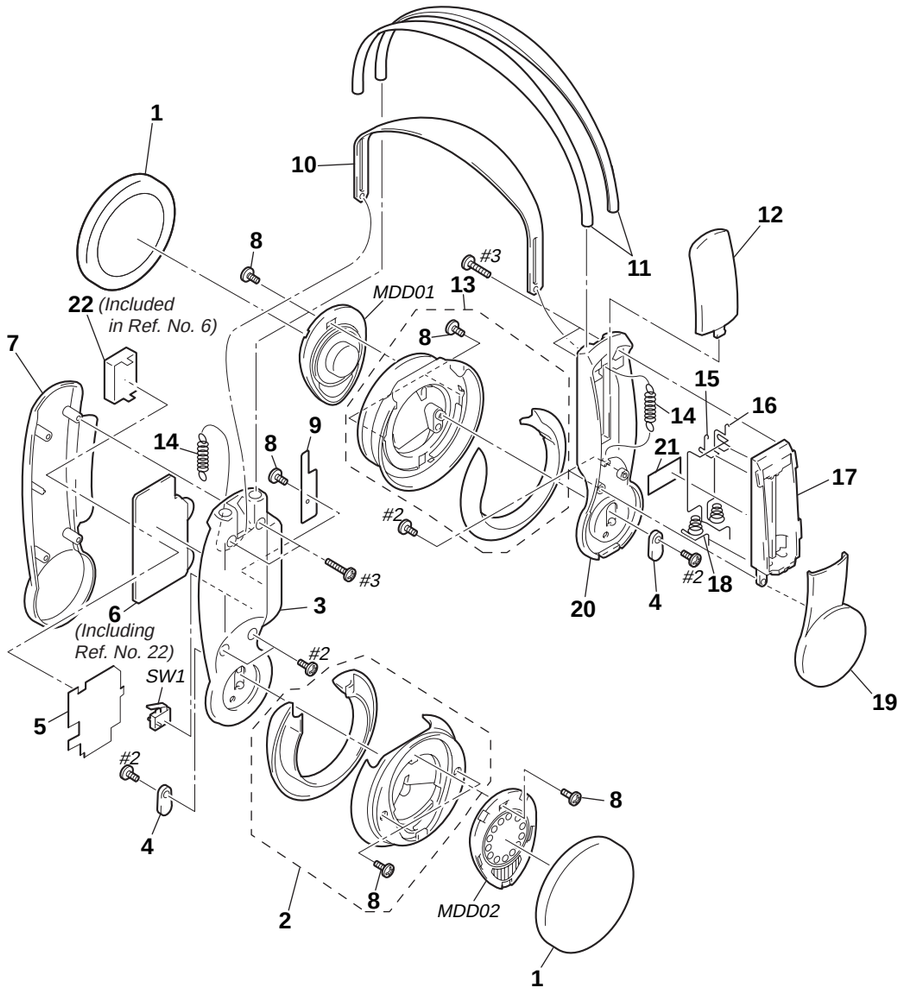
● **WAVEFORM**



SECTION 4
EXPLODED VIEW

NOTE:
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- 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.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

4-1. EXPLODED VIEW



Ref. No.	Part No.	Description	Remarks
1	4-994-129-01	PAD, EAR	
2	X-4950-086-1	HOUSING (R) ASSY	
3	4-994-119-01	HANGER (R)	
4	4-992-281-01	HOLDER, BALL SHAFT	
5	4-210-280-01	PLATE, RX SHIELD	
* 6	A-4542-535-A	RX BOARD, COMPLETE	
7	4-994-121-11	COVER (R), HANGER	
8	3-713-791-01	SCREW (M1.7X4), TAPPING, P2	
9	4-995-597-01	SPACER	
10	4-994-124-11	SUSPENDER	
11	4-994-118-01	BAND, HEAD	
12	4-994-123-11	COVER, BATTERY	
13	X-4950-087-1	HOUSING (L) ASSY	
14	4-995-475-01	SPRING, TENSION	
15	4-994-130-01	TERMINAL (+), BATTERY	
16	4-994-132-01	TERMINAL (MIDWAY), BATTERY	
17	4-993-020-01	CASE, BATTERY	
18	4-994-131-01	TERMINAL (-), BATTERY	
19	4-994-122-01	COVER (L), HANGER	
20	4-994-120-01	HANGER (L)	
21	3-831-441-99	CUSHION, SPEAKER	
* 22	A-4542-536-A	FE BOARD, COMPLETE	
MDD01	1-505-117-21	RECEIVER (L-CH)	
MDD02	1-505-117-21	RECEIVER (R-CH)	
SW1	1-771-249-11	SWITCH, PUSH (1 KEY)(POWER)	

SECTION 5
ELECTRICAL PARTS LIST

FE RX

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

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.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- 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

Ref. No.	Part No.	Description			Remarks
*	A-4542-536-A	FE BOARD, COMPLETE			
		**********			
**********					
*	A-4542-535-A	RX BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C301	1-124-589-11	ELECT	47uF	20%	16V
C302	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C303	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C306	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C307	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C309	1-126-572-11	ELECT	4.7uF	20%	35V
C310	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V
C311	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C312	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C313	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C314	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C315	1-124-233-11	ELECT	10uF	20%	16V
C316	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C317	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C318	1-164-346-11	CERAMIC CHIP	1uF		16V
C319	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C320	1-164-346-11	CERAMIC CHIP	1uF		16V
C321	1-164-346-11	CERAMIC CHIP	1uF		16V
C322	1-124-242-00	ELECT	33uF	20%	25V
C324	1-107-725-11	CERAMIC CHIP	0.1uF	10%	16V
C325	1-107-725-11	CERAMIC CHIP	0.1uF	10%	16V
C326	1-124-635-00	ELECT	220uF	20%	6.3V
C327	1-124-635-00	ELECT	220uF	20%	6.3V
C328	1-124-635-00	ELECT	220uF	20%	6.3V
C329	1-164-346-11	CERAMIC CHIP	1uF		16V
C330	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C331	1-162-912-11	CERAMIC CHIP	7PF	0.5PF	50V
C332	1-164-441-11	CERAMIC CHIP	68PF	5%	50V
C333	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C334	1-124-233-11	ELECT	10uF	20%	16V
C335	1-162-924-11	CERAMIC CHIP	56PF	5%	50V
C336	1-162-924-11	CERAMIC CHIP	56PF	5%	50V
C337	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C338	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C339	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C340	1-164-346-11	CERAMIC CHIP	1uF		16V
C341	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C342	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C350	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C352	1-162-198-31	CERAMIC	8.2PF	10%	50V
C355	1-162-919-11	CERAMIC CHIP	22PF	0.5PF	50V
		< FILTER >			
CF301	1-577-588-11	FILTER, CERAMIC			
CF302	1-567-163-11	FILTER, CERAMIC			
		< DIODE >			
D301	8-719-045-99	DIODE RD2.2M-T1B			
D302	8-719-002-81	DIODE 1T363			
D303	8-719-066-57	LED SA2512 (POWER)			
		< FERRITE BEAD >			
FB301	1-414-234-11	INDUCTOR CHIP 0UH			
FB302	1-414-234-11	INDUCTOR CHIP 0UH			
FB303	1-414-234-11	INDUCTOR CHIP 0UH			
FB304	1-414-234-11	INDUCTOR CHIP 0UH			
FB305	1-414-234-11	INDUCTOR CHIP 0UH			
FB306	1-414-234-11	INDUCTOR CHIP 0UH			
		< IC >			
IC301	8-752-066-93	IC CXA1611N-T4			
IC302	8-759-802-75	IC LA4533M			
IC303	8-759-195-02	IC TC7S86F-TE85L			
IC304	8-759-096-87	IC TC7WU04FU(TE12R)			
		< JUMPER RESISTOR >			
JC301	1-216-296-91	SHORT	0		
JC302	1-216-296-91	SHORT	0		
JC303	1-216-296-91	SHORT	0		
JC304	1-216-296-91	SHORT	0		
JC305	1-216-296-91	SHORT	0		
JC308	1-216-864-11	METAL CHIP	0	5%	1/16W
JC309	1-216-295-91	SHORT	0		
JC310	1-216-864-11	METAL CHIP	0	5%	1/16W
JC312	1-216-295-91	SHORT	0		
JC313	1-216-864-11	METAL CHIP	0	5%	1/16W
JC314	1-216-864-11	METAL CHIP	0	5%	1/16W
JC315	1-216-864-11	METAL CHIP	0	5%	1/16W
JC316	1-216-295-91	SHORT	0		
JC317	1-216-295-91	SHORT	0		
		< COIL >			
L301	1-422-317-31	COIL, AIR-CORE			
L302	1-412-933-11	INDUCTOR	0.33uH		
L303	1-414-140-11	INDUCTOR	0.68uH		

Ref. No.	Part No.	Description			Remarks
		< TRANSISTOR >			
Q301	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q302	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q303	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q304	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q305	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q306	8-729-920-31	TRANSISTOR DTC343TK			
Q307	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q308	8-729-040-78	TRANSISTOR DTA124GKA-T146			
Q309	8-729-027-36	TRANSISTOR DTA143XKA-T146			
		< RESISTOR >			
R301	1-216-857-11	METAL CHIP	1M	5%	1/16W
R302	1-216-101-00	METAL CHIP	150K	5%	1/10W
R303	1-216-081-00	METAL CHIP	22K	5%	1/10W
R304	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R305	1-216-101-00	METAL CHIP	150K	5%	1/10W
R306	1-216-853-11	METAL CHIP	470K	5%	1/16W
R307	1-216-845-11	METAL CHIP	100K	5%	1/16W
R308	1-216-089-91	RES,CHIP	47K	5%	1/10W
R309	1-216-841-11	METAL CHIP	47K	5%	1/16W
R310	1-216-817-11	METAL CHIP	470	5%	1/16W
R311	1-216-821-11	METAL CHIP	1K	5%	1/16W
R312	1-216-853-11	METAL CHIP	470K	5%	1/16W
R313	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R314	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R315	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R316	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R317	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R318	1-216-831-11	METAL CHIP	6.8K	5%	1/10W
R319	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R320	1-216-845-11	METAL CHIP	100K	5%	1/16W
R321	1-216-843-11	METAL CHIP	68K	5%	1/16W
R322	1-216-843-11	METAL CHIP	68K	5%	1/16W
R323	1-216-859-11	RES,CHIP	1.5M	5%	1/16W
R324	1-216-033-00	METAL CHIP	22	5%	1/10W
R325	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R326	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R327	1-216-809-11	METAL CHIP	100	5%	1/16W
R328	1-216-835-11	METAL CHIP	15K	5%	1/16W
R329	1-216-001-00	METAL CHIP	10	5%	1/10W
R330	1-216-001-00	METAL CHIP	0	5%	1/10W
R331	1-216-097-91	RES,CHIP	100K	5%	1/10W
R334	1-216-845-11	METAL CHIP	100K	5%	1/16W
R335	1-216-029-00	METAL CHIP	150	5%	1/10W
R342	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R345	1-216-841-11	METAL CHIP	47K	5%	1/16W
R348	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R349	1-216-001-00	METAL CHIP	10	5%	1/10W
R350	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R360	1-216-837-91	METAL CHIP	22K	5%	1/16W
		< VARIABLE RESISTOR >			
RV301	1-223-968-11	RES, VAR, CARBON 20K/20K (VOL)			
RV302	1-225-641-11	RES, VAR, CARBON 10K (TUNING)			
RV303	1-238-601-11	RES, ADJ, CARBON 22K (SEPARATION)			

****

Ref. No.	Part No.	Description	Remarks
		MISCELLANEOUS	
		**********	
MDD01	1-505-117-21	RECEIVER (L-CH)	
MDD02	1-505-117-21	RECEIVER (R-CH)	
SW1	1-771-249-11	SWITCH, PUSH (1 KEY)(POWER)	

****

		**********	
		HARDWARE LIST	
		**********	
#1	7-685-106-19	SCREW +P2X10 TYPE2 NON-SLIT	
#2	7-685-105-19	SCREW +P2X8 TYPE2 NON-SLIT	
#3	7-685-107-19	SCREW +P2X12 TYPE2 NON-SLIT	

9-924-939-13

Sony Corporation
Personal Audio Company

99H1639-1
Printed in Japan
Published by General Engineering Dept.