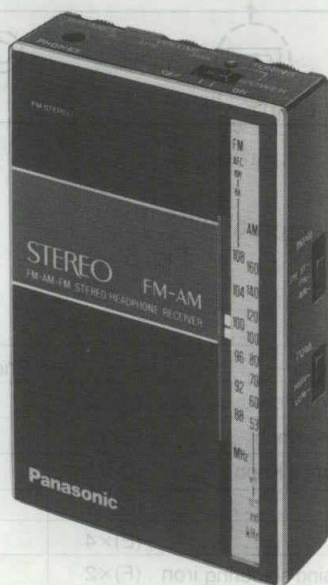


Service Manual

Ultra Compact FM-AM-FM Stereo
Headphone Radio

Radio
RF-8



■ SPECIFICATIONS

Frequency Range:	FM 87.5~108 MHz
	AM 520~1610 kHz
Intermediate Frequency:	FM 10.7 MHz
	AM 455 kHz
Sensitivity:	FM 2.5 μ V for 5 mW output (-3 dB Limit Sens)
	AM 126 μ V/m for 1 mW output
Batteries:	3 V (Two "AAA" size Penlight Batteries) (National UM-4 or equivalent)
Power Output:	Headphones; 80 mW (40 mW $\times$ 2) (RMS Max)
Dimensions:	52 (Wide) $\times$ 80 (High) $\times$ 17.5 (Deep) mm (2 $\frac{1}{16}$ " $\times$ 3 $\frac{1}{8}$ " $\times$ 1 $\frac{1}{16}$ ")
Weight:	60 g (2.1 oz) without batteries
Impedance:	Earphone Jack 32 Ω
HEADPHONE	
Input:	12.8 mW (MAX 40 mW)
Impedance:	32 Ω
Connection Cord:	1.35 m (52 $\frac{1}{16}$ ")
Weight:	30 g (1.1 oz) without cord

Specifications are subject to change without notice.

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DISASSEMBLY INSTRUCTIONS

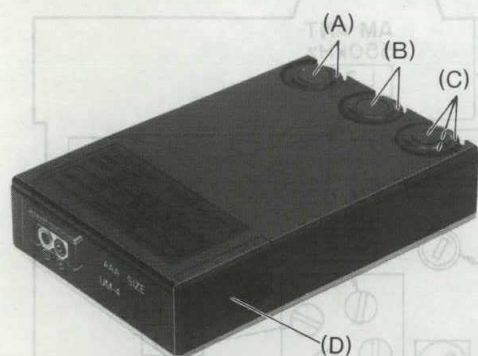


Fig. 1

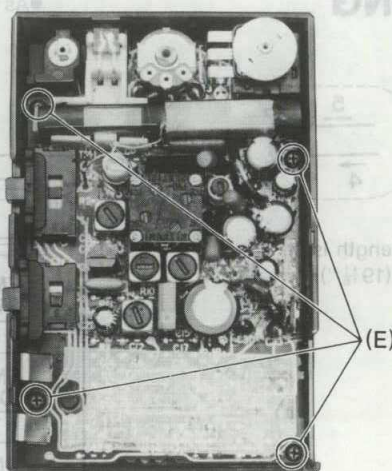


Fig. 2

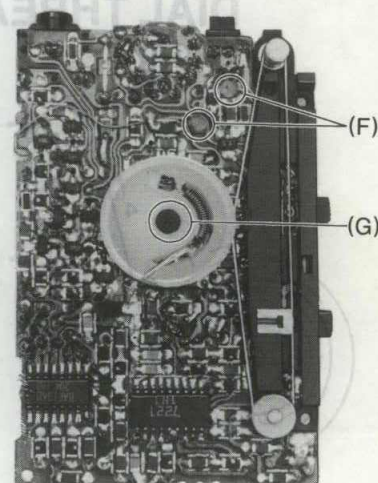


Fig. 3

Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

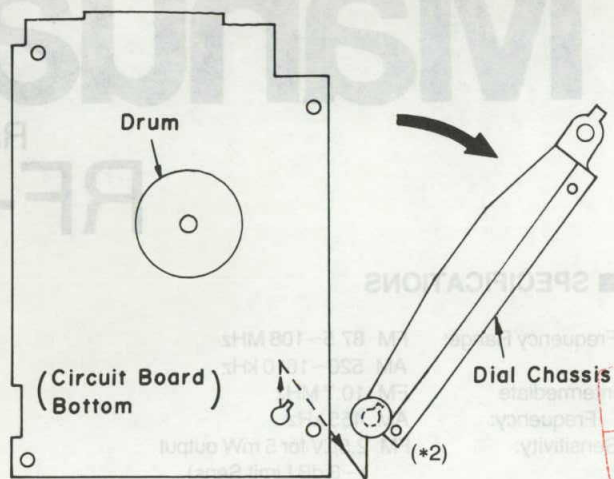


Fig. 4

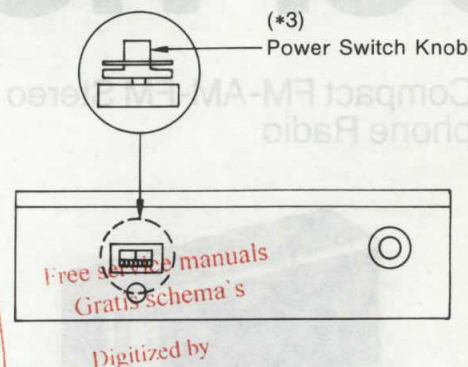


Fig. 5

Procedure	To remove—	Remove—	Shown in Fig.—
1	Rear Cabinet (*1)	Screw (Knob) and Tuning Knob (A)×2	1
2		Screw (Knob) and Volume Knob (B)×2	1
3		Screw, Spacer and Balance Knob (C)×2	1
4		Battery Compartment (D)×1	1
5	Circuit Board	Screw (1.7×4) (E)×4	2
6	Antenna Holder	Remove weldment by using soldering iron . (F)×2	3
7	Dial Chassis Ass'y (*2)	Screw (1.7×2) (G)×1	3

*1 The screw for Volume Control is longer than the other two screw.

*2 Pull out the protuberance of the dial chassis through the hole on the printed circuit board. (Refer to Fig. 4)

*3 Be careful not to misset the power switch knob. (Refer to Fig. 5)

DIAL THREADING

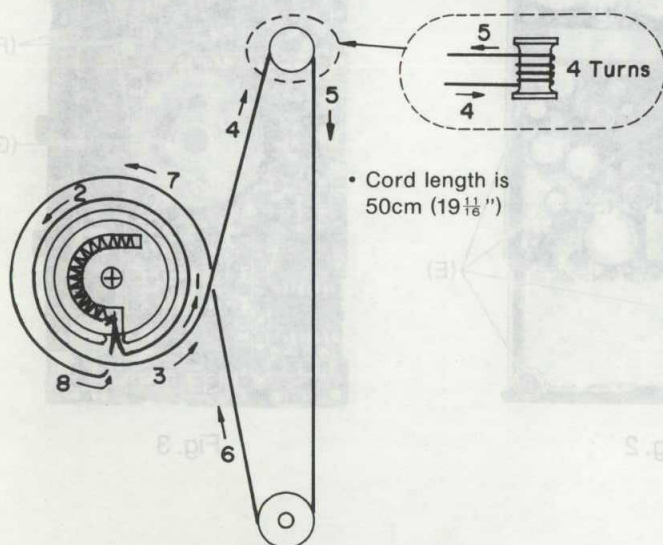


Fig. 6

ALIGNMENT POINT

•As for test points, refer to the circuit board, on page 5.

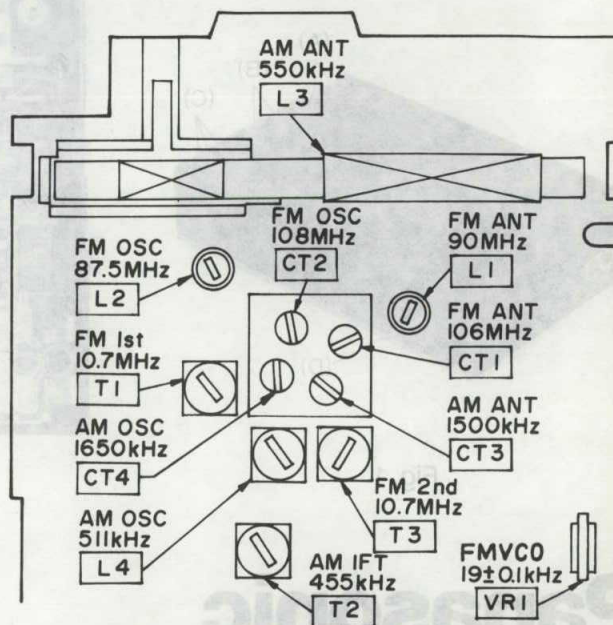


Fig. 7

MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

1. Set volume control to maximum.
2. Set tone switch to high.
3. Set band switch to AM or FM.
4. Set balance control to center.
5. Set power source voltage to 3 V DC.
6. Output of signal generator should be no higher than necessary to obtain an output reading.

■ AM ALIGNMENT

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
	CONNECTIONS	FREQUENCY				
AM-IF ALIGNMENT						
AM	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz 30% Mod. at 400 Hz	Point of non-interference. (on/ about 600 kHz)	Output meter across voice coil.	T2 (AM IFT)	Adjust for maximum output.
AM-RF ALIGNMENT						
AM	..	511 kHz	Tuning capacitor fully closed.	..	L4 (AM OSC Coil)	Adjust for maximum output.
AM	..	1,650 kHz	Tuning capacitor fully open.	..	CT4 (AM OSC Trimmer)	..
AM	..	550 kHz	Tune to signal.	..	(*1) L3 (AM ANT Coil)	Adjust for maximum output. Adjust L3 by moving coil bobbin along ferrite core.
AM	..	1,500 kHz	..	..	CT3 (AM ANT Trimmer)	Adjust for maximum output. Repeat steps (2)~(5).
(*1) Cement antenna bobbin with wax after completing alignment.						

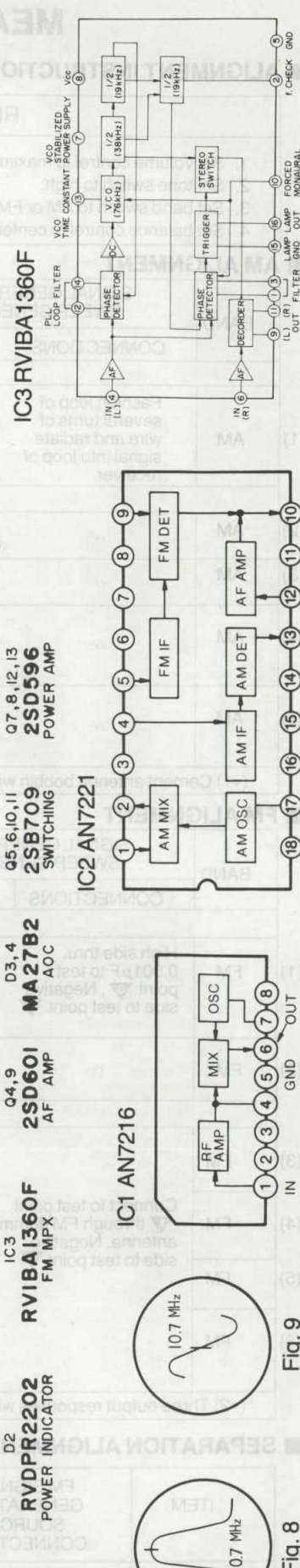
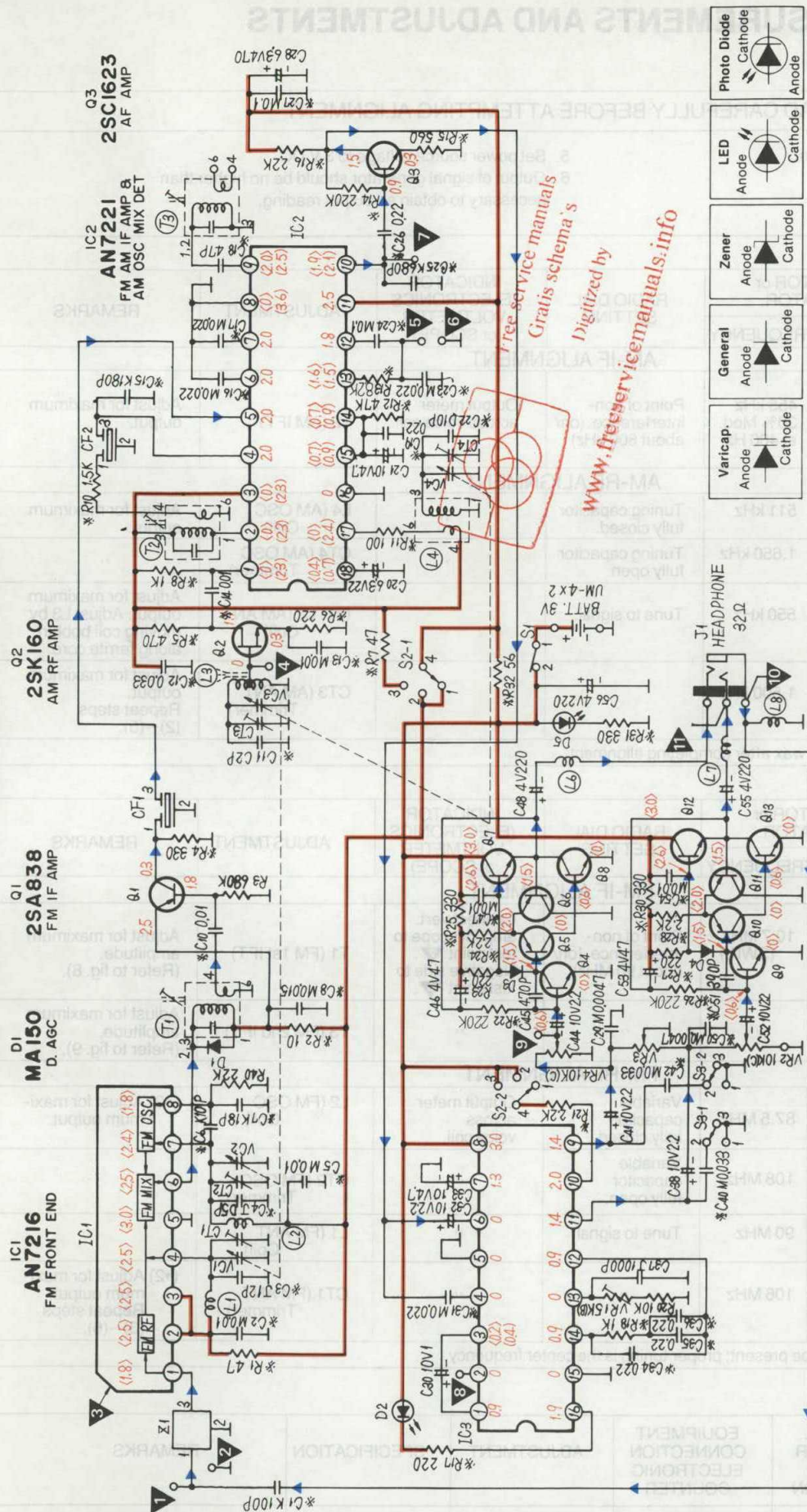
■ FM ALIGNMENT

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS	
	CONNECTIONS	FREQUENCY					
FM-IF ALIGNMENT							
(1)	FM	High side thru. 0.001 μ F to test point ∇ , Negative side to test point ∇ .	10.7 MHz (SWP.)	Point of non-interference. (on/about 90 MHz)	Connect vert. amp. of scope to test point ∇ . Negative side to test point ∇ .	T1 (FM 1st IFT)	Adjust for maximum amplitude. (Refer to fig. 8).
(2)	FM	"	"	"	"	T3 (FM 2nd IFT)	Adjust for maximum amplitude. (Refer to fig. 9).
FM-RF ALIGNMENT							
(3)	FM	Connect to test point ∇ through FM dummy antenna. Negative side to test point ∇ .	87.5 MHz	Variable capacitor fully closed.	Output meter across voice coil.	L2 (FM OSC Coil)	(*2) Adjust for maximum output.
(4)	FM		108 MHz	Variable capacitor fully open.	"	CT2 (FM OSC Trimmer)	"
(5)	FM		90 MHz	Tune to signal.	"	L1 (FM ANT Coil)	"
(6)	FM		106 MHz	"	"	CT1 (FM ANT Trimmer)	(*2) Adjust for maximum output. Repeat steps (3)~(6).
(*2) Three output responses will be present; proper tuning is the center frequency.							

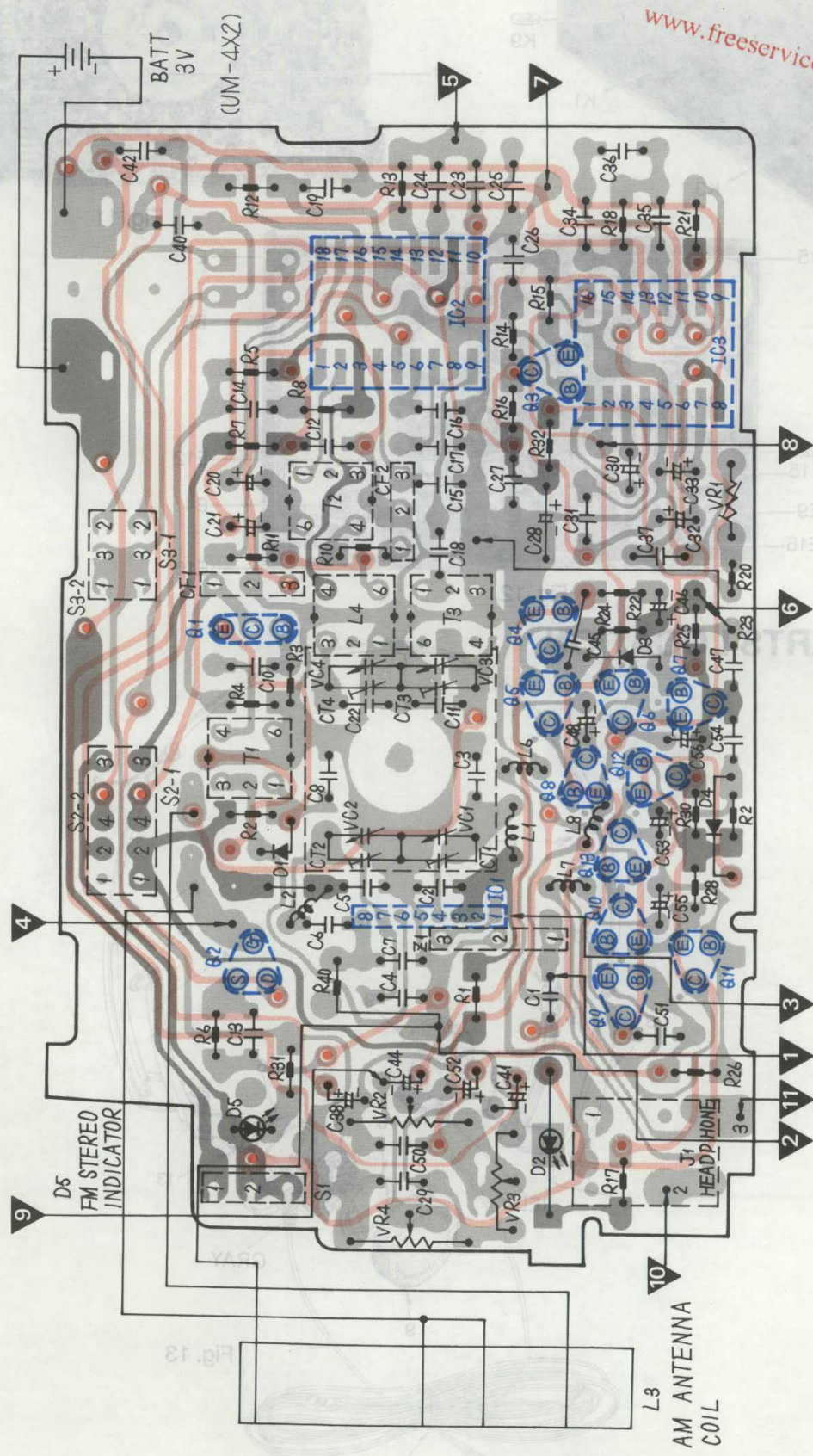
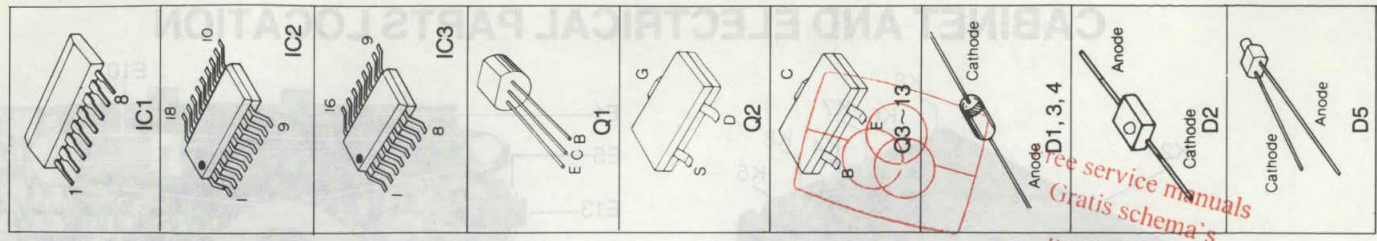
■ SEPARATION ALIGNMENT

ITEM	FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
Adjustment of pilot signal.	98 MHz, 60 dB	∇ ... (+) ∇ ... (-)	VR1	19 kHz	Adjust VR1, for 19 kHz (± 100 Hz) reading on electronics counter.

SCHEMATIC DIAGRAM MODEL RF-8



CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM MODEL RF-8



- Notes:**
1. S1: Power switch in "ON" position.
 2. S2-1, S2-2: Band switch in "FMST" position. (1 ... FMST, 2 ... FM, 3 ... AM)
 3. S3-1, S3-2: Tone High/Low switch in "Low" position. (1 ... HIGH, 2 ... LOW)
 4. VR1: VCO adjustment VR.
 5. VR2, 4: Volume control.
 6. VR3: Balance control VR.
 7. The mark (▼) shows test point. e.g. ▼=test point 1.
 8. ※ mark ... chip resistor and capacitor.
 9. DC voltage measurement are taken with electronics voltmeter from negative terminal of battery.
 10. Battery current:
 - No signal 38 mA
 - Maximum output (radio) 51 mA
 11. +Ⓢ Voltage Line
 12. The circuit shown in — on the conductor indicates printed circuit on the front side of the printed circuit board.
 13. The symbols (●) shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.

CABINET AND ELECTRICAL PARTS LOCATION

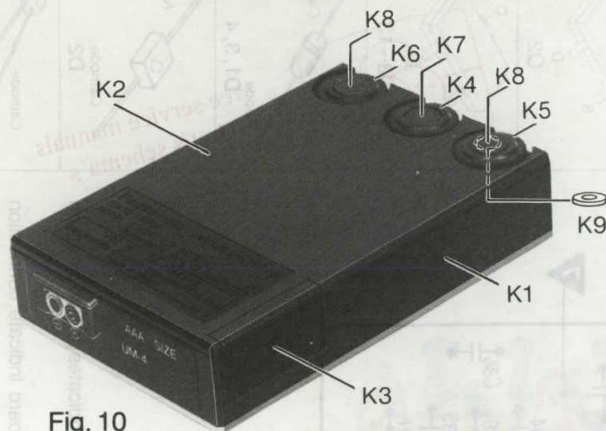


Fig. 10

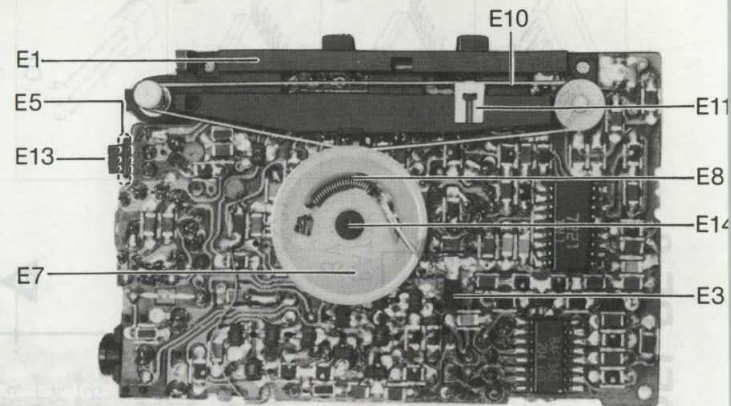


Fig. 11

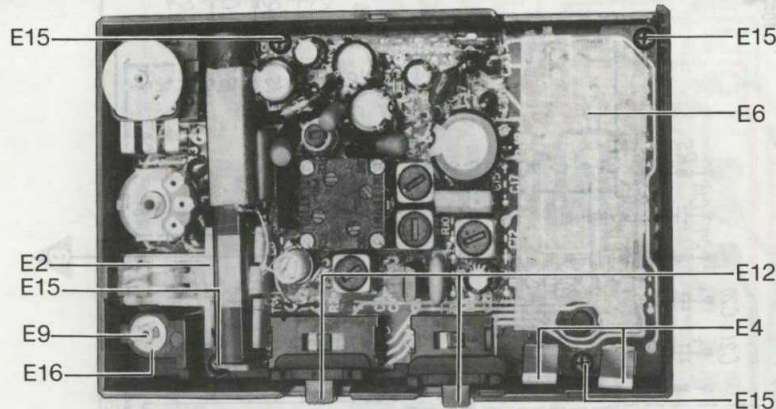


Fig. 12

HEADPHONE PARTS LOCATION

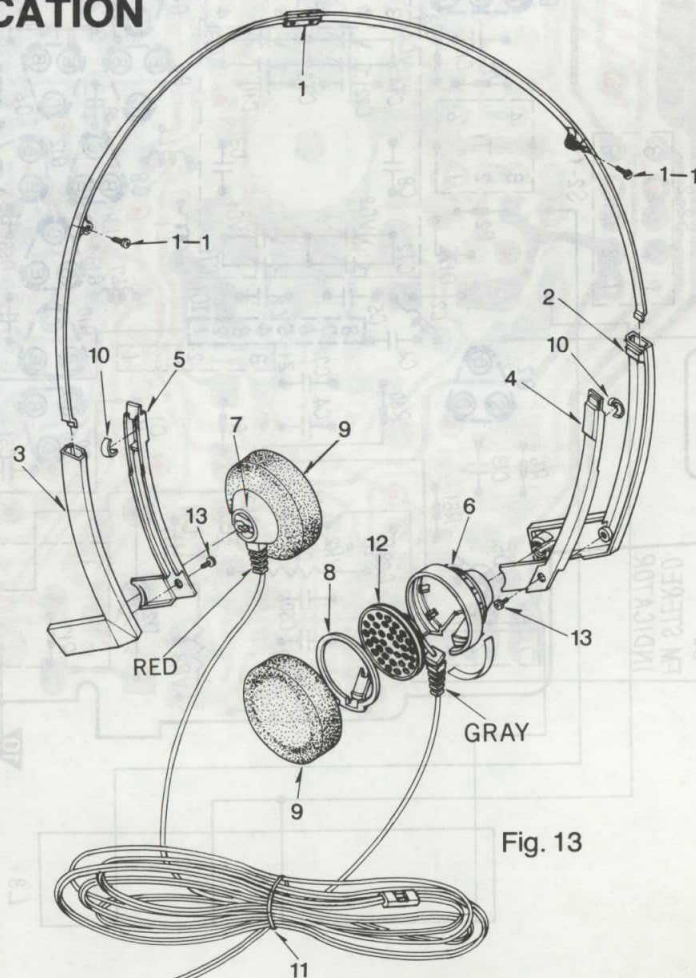


Fig. 13

PACKING MATERIALS

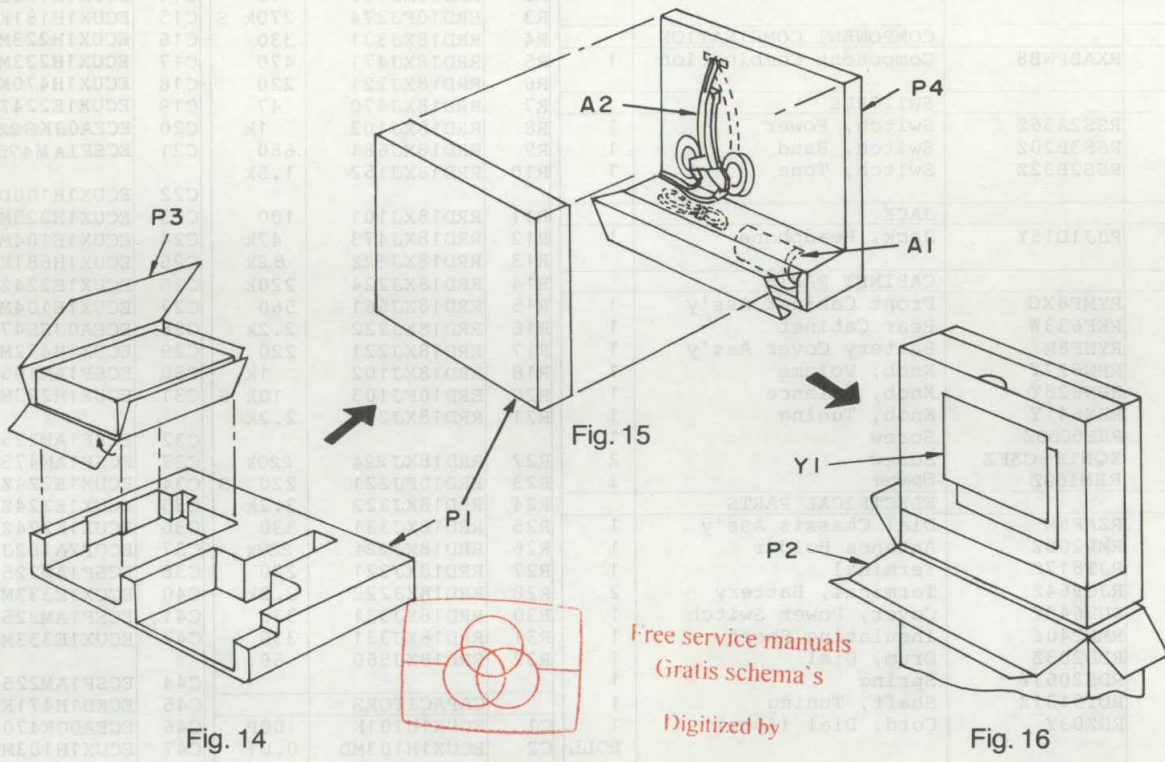


Fig. 14

Fig. 15

Fig. 16

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REPLACEMENT PARTS LIST.....Model RF-8

Notes:

- Important safety notice.
Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.
- The S mark indicates service standard parts and may differ from production parts.
- RESISTORS & CAPACITORS
Unless otherwise specified.
All resistors are in OHMS (Ω) K=1000 Ω , M=1000k Ω
All capacitors are in MICRO FARADS (μF) P= $\mu\mu F$

* Type & Wattage of Resistor

ERC:Solid	ERX:Metal Film	ERW:Wirewound Resistor
ERD:Carbon	ERG:Metal Oxide	ERS:Fusible Resistor
RRD:Chip	ERO:Metal Film	ERF:Cement Resistor

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W
------------	------------	---------	------	------	------

* Type & Voltage of Capacitor

Type

ECFW:Semi-conductor	ECQD,ECKD,ECBT: Ceramic
ECQS:Styrol	ECQM,ECQV,ECQG: Polyester
ECUX:Chip	ECEA,ECSZ :Electrolytic
ECMS:Mica	ECQP :Polypropylene

Voltage

ECQ Type	ECQV, Type	ECSZ Type	Others
1H: 50V	0.5: 50V	OF:3.15V	OJ :6.3V 1H,1V,50: 50V
2A:100V	1:100V	1A:10V	1A :10V 1J : 63V
2E:500V	2:200V	1V:35V	1C :16V 2A :100V
2H:500V		OJ:6.3V	1E,25:25V

Ref.No.	Part No.	Part Name & Description	Per Set
INTEGRATED CIRCUITS, TRANSISTORS AND DIODES			
IC1	AN7216	IC	1
IC2	AN7221	IC	1
IC3	RVIBA1360F	IC	1
Q1	2SA838C	Transistor (Si)	1
Q2	2SK160K5	Transistor (Ge)	1
Q3	2SC1623L5A	Transistor (Si)	1
Q4,9	2SD601S	Transistor (Si)	2
Q5,6,10,11	2SB709Q	Transistor (Si)	4
Q7,8,12,13	2SB596DV3	Transistor (Si)	4
D1	MA161	Diode (Si)	1 S
D2	RVDP2202S	Diode (Ge)	1
D3,4	MA27B2	Diode (Si)	2
D5	LN230RPP	Diode (LED)	1
COILS AND TRANSFORMERS			
L1	RLO4N125	Antenna Coil, FM	1
L2	RLO4N162	Oscillator Coil, FM	1
L3	RLF2Y27	Antenna Coil, AM	1
L4	RLO2A3	Oscillator Coil, AM	1
L6~8	RLQZ22G3	Choke Coil	3
T1,3	RLI4A19	IFT, FM 1st, 2nd	2
T2	RLI2A8	IFT, AM	1
VARIABLE RESISTORS			
VR1	EVNA1AA00B53	Variable Resistor, 5k Ω (B)	1
VR2,4	EVUCAAT65C14	" 10k Ω (C)	1
VR3	EVLCCAA00G54	" 50k Ω (G)	1
VARIABLE CAPACITOR			
VC1~4	RCV4LC8V	Tuning Capacitor, w/Trimmer Capacitor (CT1~4)	1

Ref. No.	Part No.	Part Name & Description	Per Set	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
		CERAMIC FILTER			RESISTORS				
CF1	RVF107WMZ	Ceramic Filter	1	R1	RRD18XJ470	47	C12	ECUX1H333ZF	0.033
CF2	RVFCFM2455B	Ceramic Filter	1	R2	RRD18XJ100	10	C13	ECUX1H103MD	0.01
		COMPONENT COMBINATION		R3	ERD10FJ274	270k S	C14	ECUX1H103ZA	0.01
Z1	RXABPWB8	Component Combination	1	R4	RRD18XJ331	330	C15	ECUX1H181K	180P
		SWITCHES		R5	RRD18XJ471	470	C16	ECUX1H223MD	0.022
S1	RSS2A36Z	Switch, Power	1	R6	RRD18XJ221	220	C17	ECUX1H223MD	0.022
S2	RSS3B20Z	Switch, Band	1	R7	RRD18XJ470	47	C18	ECUX1H470KC	47P
S3	RSS2B32Z	Switch, Tone	1	R8	RRD18XJ102	1k	C19	ECUX1E224ZF	0.22
		JACK		R9	RRD18XJ681	680	C20	ECEA0JKS220	22
J1	RJJ1D15Y	Jack, Headphone	1	R10	RRD18XJ152	1.5k	C21	ECSF1AM475	4.7
		CABINET PARTS		R11	RRD18XJ101	100	C22	ECUX1H100DC	10P
K1	RYMP8XG	Front Cabinet Ass'y	1	R12	RRD18XJ473	47k	C23	ECUX1H223MD	0.022
K2	RKF633W	Rear Cabinet	1	R13	RRD18XJ822	8.2k	C24	ECUX1E104MD	0.1
K3	RYNF8M	Battery Cover Ass'y	1	R14	RRD18XJ224	220k	C25	ECUX1H681K	680P
K4	RBN627Y	Knob, Volume	1	R15	RRD18XJ561	560	C26	ECUX1E224ZF	0.22
K5	RBN628Y	Knob, Balance	1	R16	RRD18XJ222	2.2k	C27	ECUX1E104MD	0.1
K6	RBN641Y	Knob, Tuning	1	R17	RRD18XJ221	220	C28	ECEA0JSS471	470
K7	RHE5050Z	Screw	1	R18	RRD18XJ102	1k	C29	ECUX1H472MD	0.0047
K8	XQN12+C3FZ	Screw	2	R20	ERD10FJ103	10k S	C30	ECSF1AM105X1	1
K9	RHM169Z	Spacer	1	R21	RRD18XJ222	2.2k	C31	ECUX1H223MD	0.022
		ELECTRICAL PARTS		R22	RRD18XJ224	220k	C32	ECSF1AM225	2.2
E1	RZAF8M	Dial Chassis Ass'y	1	R23	ERD10FJ221	220 S	C33	ECSF1AM475	4.7
E2	RMP200Z	Antenna Holder	1	R24	RRD18XJ222	2.2k	C34	ECUX1E224ZF	0.22
E3	RJT817Z	Terminal	1	R25	RRD18XJ331	330	C35	ECUX1E224ZF	0.22
E4	RJC964Z	Terminal, Battery	2	R26	RRD18XJ224	220k	C36	ECUX1E224ZF	0.22
E5	RUV640Y	Cover, Power Switch	1	R27	RRD18XJ221	220	C37	ECOP2A102JZ	0.001
E6	RMX240Z	Insulating Sheet	1	R28	RRD18XJ222	2.2k	C38	ECSF1AM225	2.2
E7	RDD203Z	Drum, Dial	1	R30	RRD18XJ331	330	C40	ECUX1E333MD	0.033
E8	RDS2061Z	Spring	1	R31	RRD18XJ331	330	C41	ECSF1AM225	2.2
E9	RDT9131Z	Shaft, Tuning	1	R32	RRD18XJ560	56	C42	ECUX1E333MD	0.033
E10	RDZ03Y	Cord, Dial (40cm)	1		CAPACITORS		C44	ECSF1AM225	2.2
		ROLL		C1	ECUX1H101K	100P	C45	ECKD1H471KB	470P
E11	RDP865Z	Pointer, Dial	1	C2	ECUX1H103MD	0.01	C46	ECEA0GK470	47
E12	RBD194Z	Knob, Tone & Band	2	C3	ECUX1H220JC	22P	C47	ECUX1H103MD	0.01
E13	RBD195Z	Knob, Power	1	C4	ECUX1H180JC	18P	C48	ECEA0GK221	220
E14	XSHR17+2FZ	Screw	1	C5	ECUX1H103MD	0.01	C50	ECUX1H472MD	0.0047
E15	XTNR17+4JFZ	Screw	4	C6	ECUX1H070DC	7P	C51	ECUX1H471K	470P
E16	XUC2FY	Circlip	1	C7	ECUX1H180KC	18P	C52	ECSF1AM225	2.2
		ACCESSORIES		C8	ECUX1H153MD	0.015	C53	ECEA0GK470	47
A1	RQD189Z	Carrying Case	1	C10	ECUX1H103ZA	0.01	C54	ECUX1H103MD	0.01
A2	RD9257MRD	Headphone	1	C11	ECUX1H020CC	2P	C55	ECEA0GK221	220
		PACKING MATERIALS					C56	ECEA0GK221	220
P1	RPN3965Z	Pad 1	1						
P2	RPK1536Z	Gift Box	1						
P3	RPE488Z	Pad 2	1						
P4	RPE489Z	Display Stand	1						
		PRINTED MATERIAL							
Y1	RQX4117Z	Instruction Book	1						
		HEADPHONES							
1	RWR6323A11	Head Band Ass'y	1						
1-1	XQH14DB2FN	Screw	2						
2	RWR8227A11	Arm (Head Band "L" Side)	1						
3	RWR8228A11	Arm (Head Band "R" Side)	1						
4	RWR8453A11	Cover (Head Band Arm "L" Side)	1						
5	RWR8454A11	Cover (Head Band Arm "R" Side)	1						
6	RWR8022A8	Case (Speaker "L" Side)	1						
7	RWR8023A8	Case (Speaker "R" Side)	1						
8	RWR8021A8	Cover	2						
9	RWR8462A8	Ear Pad	2						
10	RWR7271A8	Spring	2						
11	RWR4924A11	Input Cord	1						
12	RWR2601A8	Speaker Unit	2						
13	XSS17+35	Screw	2						