

RM-VS10

SERVICE MANUAL

US Model

Ver 1.0 2000. 06



- RM-VS10 is the component model block one in RM-VS10TV.

COMPONENT MODEL NAME FOR RM-VS10TV

TRANSMITTER	TMR-IF10M
REMOTE COMMANDER	RM-VS10

SPECIFICATIONS

General

Modulation system	Frequency modulation
Carrier frequency	2.3 MHz (monaural)

Remote Commander RM-VS10

Power source	Four size AA (R6) batteries (not supplied)/ external DC 4.5 V power sources (AC power adaptor not supplied)
Maximum speaker output	0.8 W
Battery life (for 5 mW speaker output usage)	Approx. 20 hours (using Sony battery R6) Approx. 60 hours (using Sony alkaline battery LR6)

Remote control operation distance

Approx. 7 m* (23 ft.) (when facing directly
toward the infrared receptor of your TV/analog
cable box)

Dimensions	93 × 86 × 158 mm (3 3/4 × 3 1/2 × 6 1/4 in.) (w × h × d)
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Mass	Approx. 355 g (13 oz.) (including batteries)
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* The distance may vary depending on using conditions and
the manufacturer and equipment that is used.

Design and specifications are subject to change without
notice.

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.

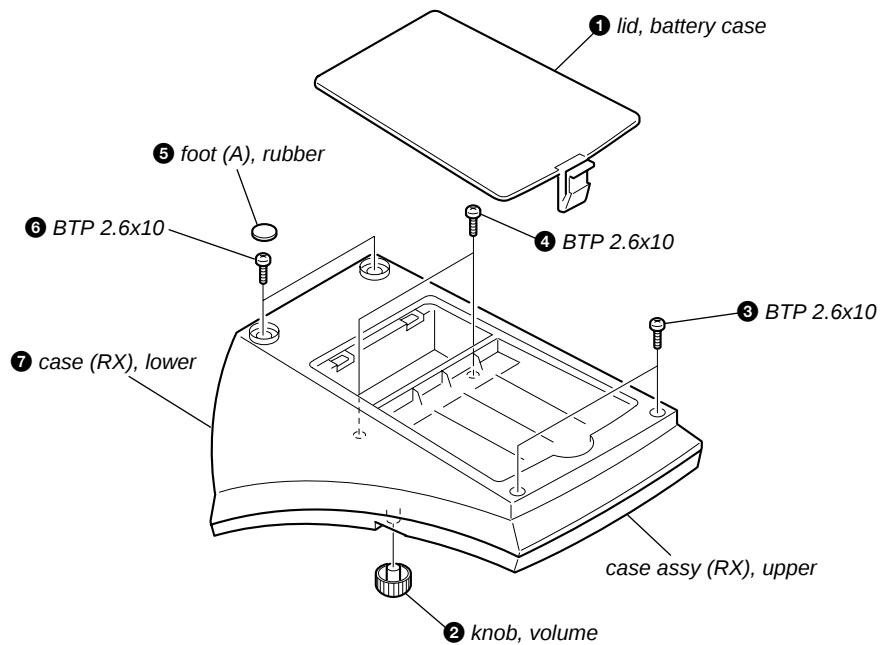
SPEAKER REMOTE COMMANDER SYSTEM

SONY®

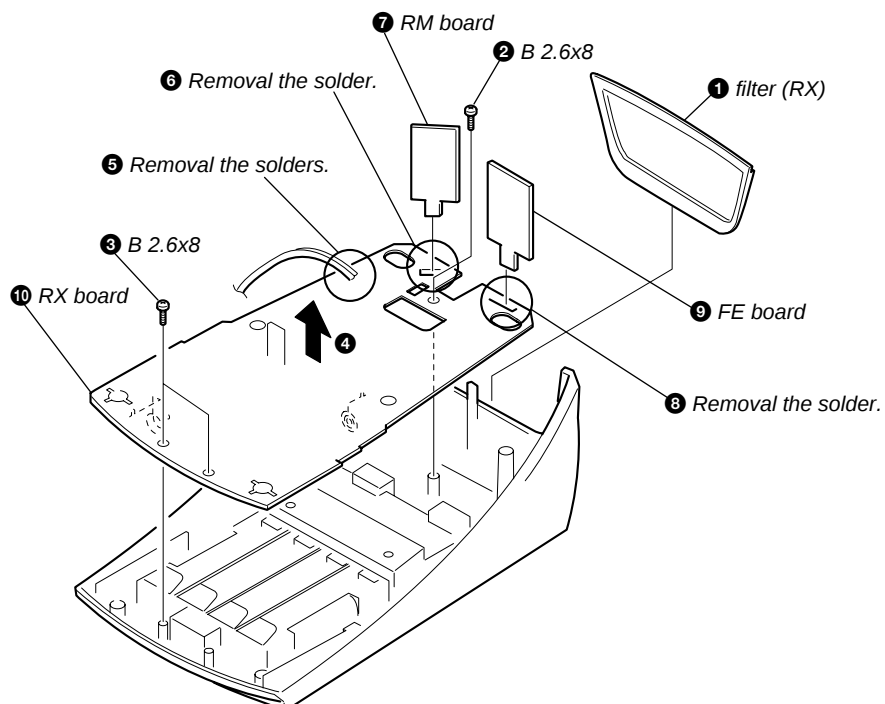
SECTION 1 DISASSEMBLY

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

1-1. CASE (RX), LOWER

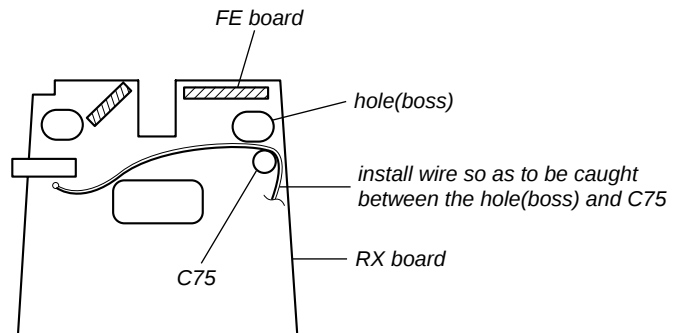


1-2. FE, RM AND RX BOARDS



1-3. WIRING METHOD FOR RX BOARD

When assembling the RM-VS10, wire as shown in the figure below.



SECTION 2

ELECTRICAL ADJUSTMENTS

Note:

1. The adjustments is performed in the order that they are listed.
2. When adjusting the remote commander, the transmitter is used for adjustment.
3. 0 dB=1.0 V

2-1. Remote commander

2-1-1. Tuning adjustment

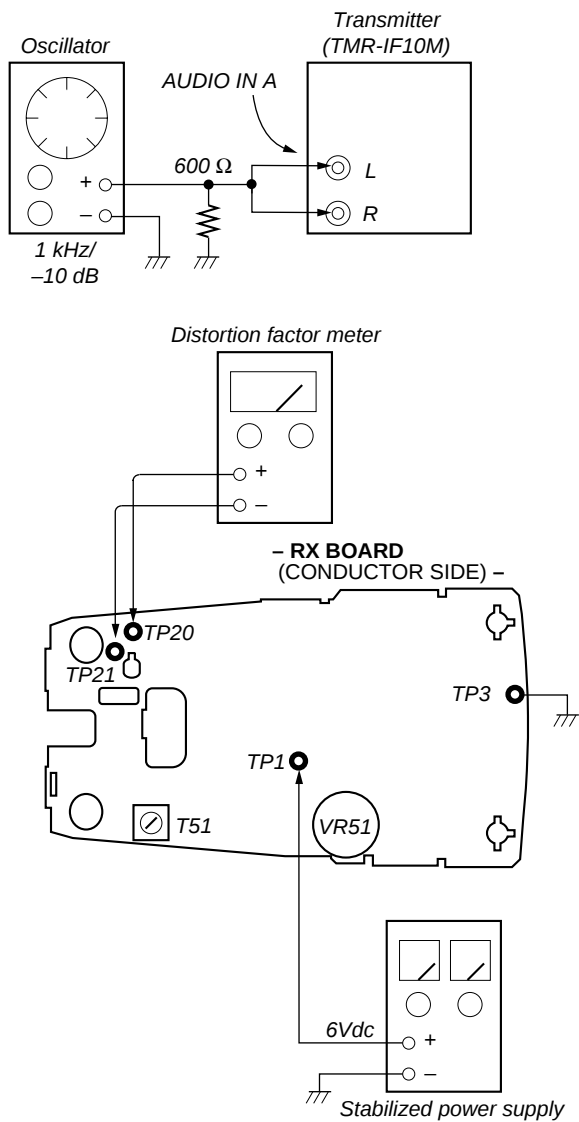
Method:

1. Supply 6 V to TP1 (6 V) from a stabilized power supply.
(TP3 (GND) is connected to the ground.)
2. Input a signal of 1 kHz and -10 dB to the transmitter (TMR-IF10M) from an oscillator.
3. Connect a distortion factor meter between TP20 and TP21.

Note: The speaker should be always connected to protect the circuit.

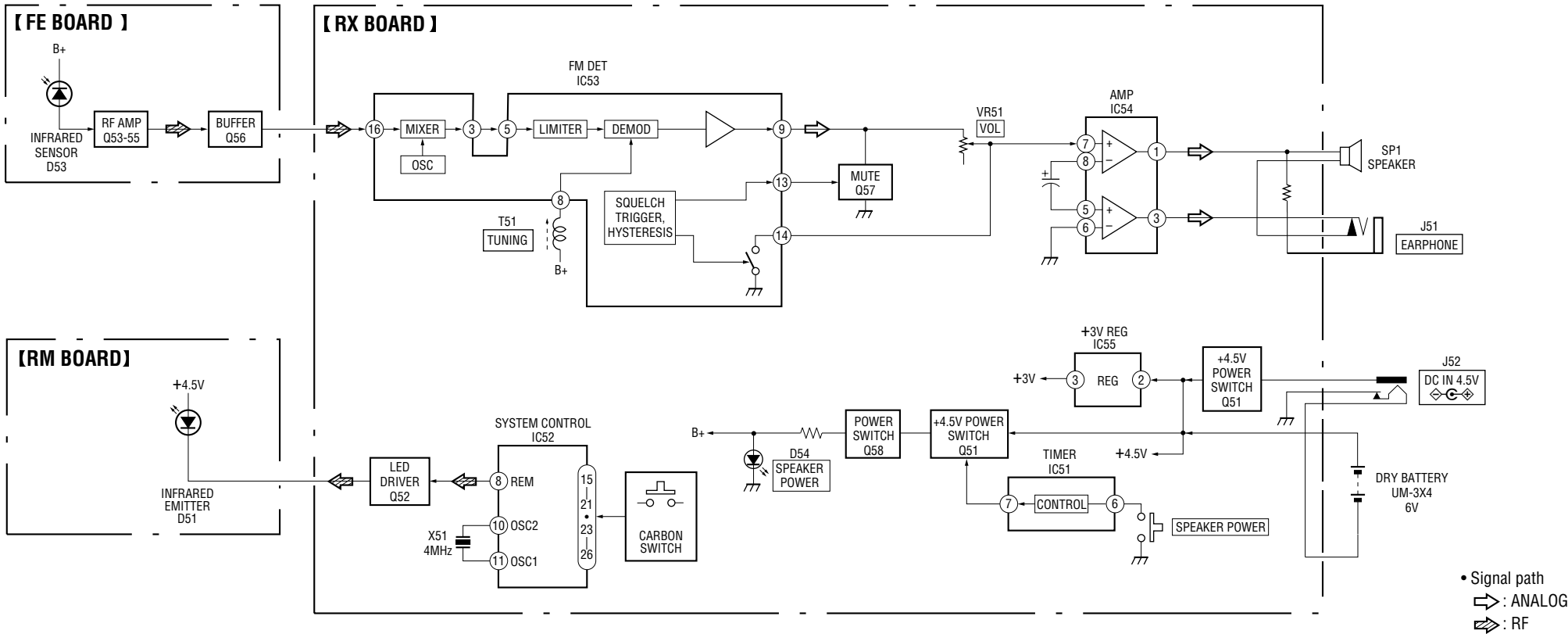
4. Set the volume (VR51) to the maximum position.
5. Adjust T51 so that the reading on the distortion factor meter is minimum.

Connections and adjustment element:



SECTION 3
DIAGRAMS

3-1. BLOCK DIAGRAM



THIS NOTE IS COMMON FOR PRINTED WIRING
BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is
printed in each block.)

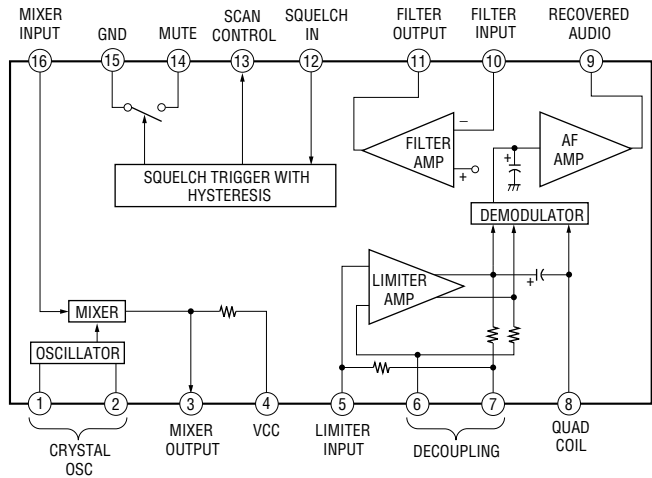
- for Schematic Diagram:
- All capacitors are in μF unless otherwise noted. pF : μF 50 WV or less are not indicated except for electrolytics and tantalums.
 - All resistors are in Ω and $1/4\text{ W}$ or less unless otherwise specified.
 - % : indicates tolerance.
 - Δ : internal component.
 - $\square$: panel designation.
 - B+ : B+ Line.
 - $\square$: adjustment for repair.
 - Power voltage is dc 4.5 V and fed with regulated dc power supply from external power voltage jack.
 - Voltage is dc with respect to ground under no-signal (detuned) condition.
 - no mark : POWER on
 - Voltages are taken with a VOM (Input impedance $10\text{ M}\Omega$). Voltage variations may be noted due to normal production tolerances.
 - Signal path.
 - $\Rightarrow$: Analog
 - $\Rightarrow$: RF

- for Printed Wiring Boards:
- $\circ$: parts extracted from the component side.
 - $\square$: parts extracted from the conductor side.
 - $\bullet$: Through hole.
 - Δ : internal component.
 - $\square$: Pattern from the side which enables seeing. (The other layer's patterns are not indicated.)

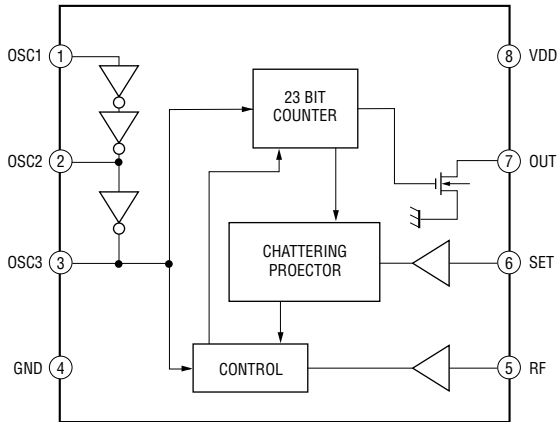
Caution:
Pattern face side: Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: Parts on the carbon pattern face side seen from the carbon pattern face are indicated.

• IC BLOCK DIAGRAMS

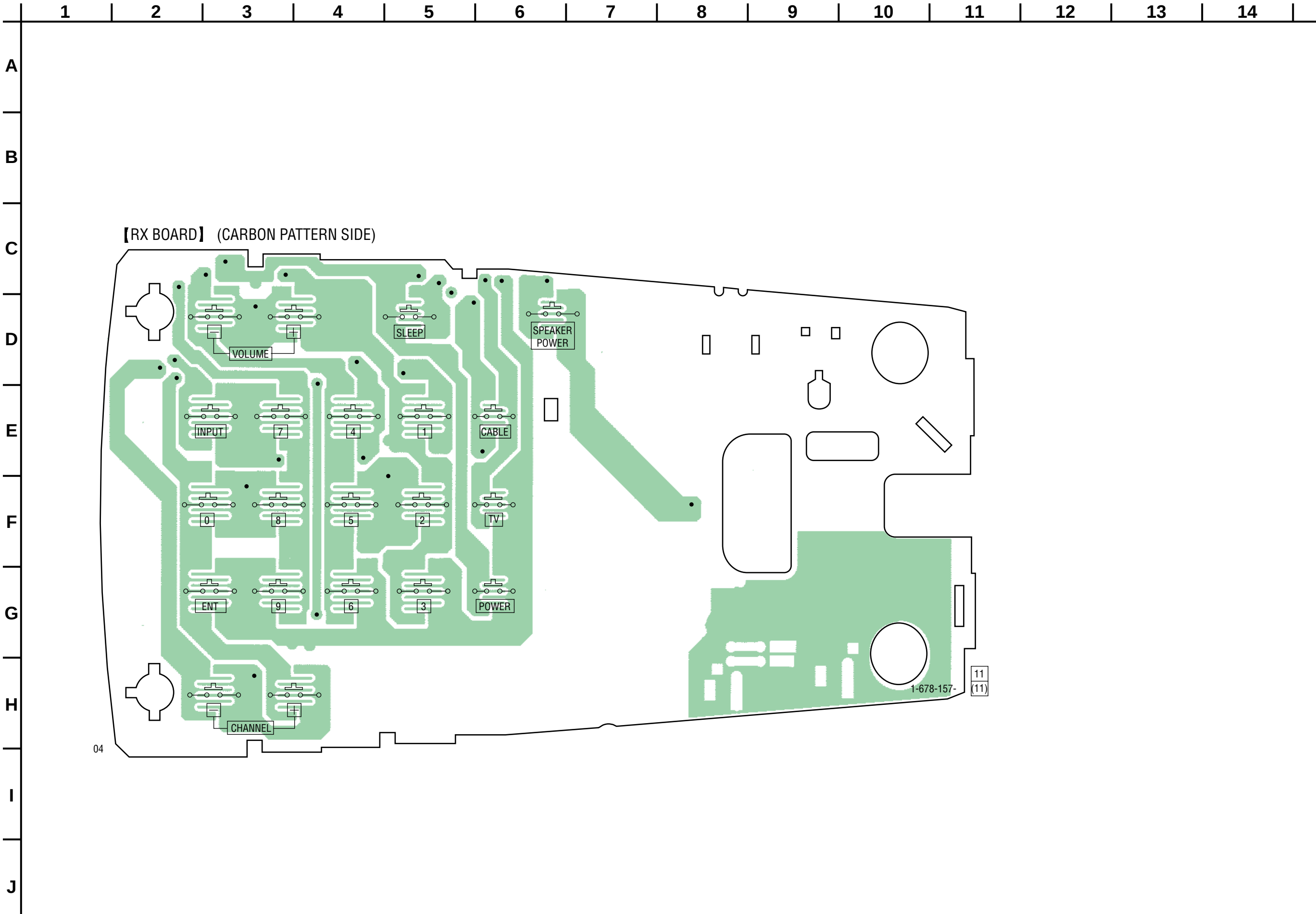
IC53 MC3361CD



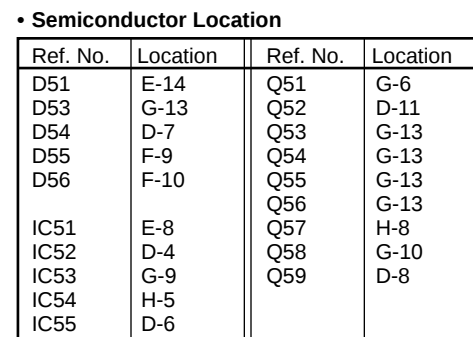
IC51 BU2305F-E2



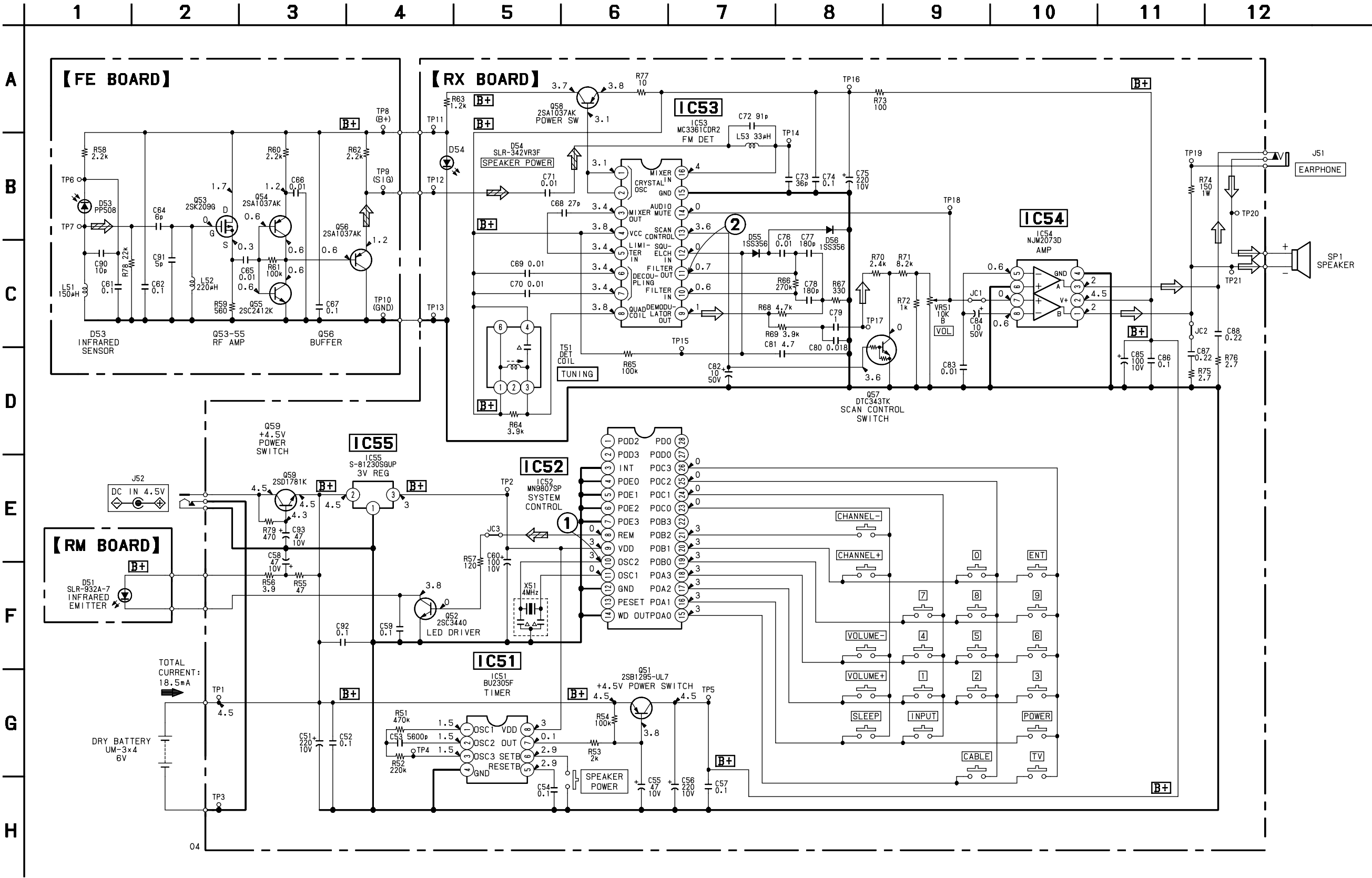
3-2. PRINTED WIRING BOARDS • Refer to page 6 for Note.



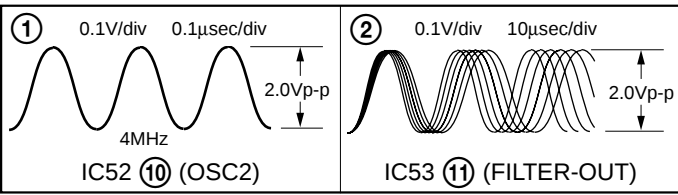
04



3-3. SCHEMATIC DIAGRAM • Refer to page 5 for IC Block Diagram. Refer to page 6 for Note.



• Waveforms (When pressing the buttons on the commander)



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

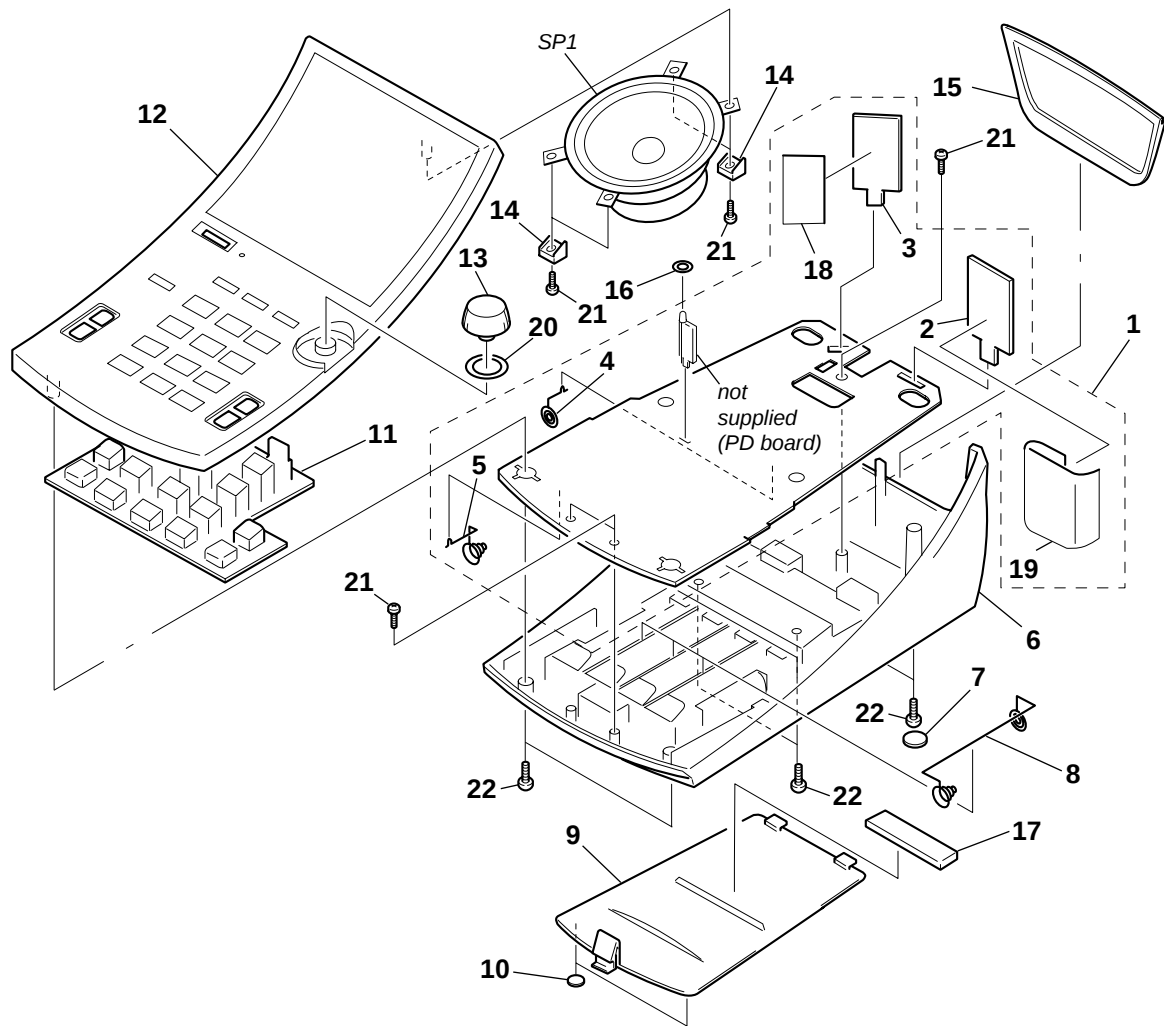
Example :

KNOB, BALANCE (WHITE) ... (RED)

Parts Color Cabinet's Color

- Accessories and packing materials and hardware (# mark) list are given in the last of this parts list.

REMOTE COMMANDER SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 1	A-4542-653-A	RX BOARD, COMPLETE		13	4-224-827-01	KNOB, VOLUME	
* 2	A-4542-654-A	FE BOARD, COMPLETE		14	4-224-828-01	HOLDER, SPEAKER	
* 3	1-678-159-11	RM BOARD		15	4-224-825-01	FILTER (RX)	
4	4-224-829-01	TERMINAL, BATTERY		16	3-044-560-01	PACKING, LED	
5	4-224-830-01	SPRING (A), BATTERY		17	3-043-324-01	CUSHION, BATTERY	
6	4-224-823-11	CASE (RX), LOWER		18	3-044-715-01	SEAL, SHIELD	
7	3-043-447-01	FOOT (B), RUBBER		19	3-045-142-01	PLATE, FE SHIELD	
8	4-224-831-01	SPRING (B), BATTERY		20	3-044-561-01	PACKING, VOLUME	
9	4-224-824-11	LID, BATTERY CASE		21	7-685-534-14	SCREW +BTP 2.6X8 TYPE2 N-S	
10	3-043-446-01	FOOT (A), RUBBER		22	7-685-535-19	SCREW +BTP 2.6X10 TYPE2 N-S	
11	4-224-826-11	SHEET, RUBBER KEY		SP1	1-505-851-11	SPEAKER (057F014)	
12	X-3379-559-1	CASE ASSY (RX), UPPER					

SECTION 5

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.
 • -XX and -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.. : μ A.. uPA.. : μ PA..
 uPB.. : μ PB.. uPC.. : μ PC.. uPD.. : μ PD..
 • CAPACITORS
 uF : μ F
 • COILS
 uH : μ H

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

Ref. No.	Part No.	Description	Remark			
*	A-4542-654-A	FE BOARD, COMPLETE (SUPPLIED WITH RX BOARD, COMPLETE)	*****			
	3-045-142-01	PLATE, FE SHIELD				
		< CAPACITOR >				
C61	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C62	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C64	1-163-089-00	CERAMIC CHIP	6PF		50V	
C65	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	
C66	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	
C67	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C90	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V	
C91	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V	
		< PHOTO SENSOR >				
D53	8-719-058-49	PHOTO SENSOR	PP508 (INFRARED SENSOR)			
		< COIL >				
L51	1-412-213-21	INDUCTOR CHIP	150uH			
L52	1-412-215-21	INDUCTOR CHIP	220uH			
		< TRANSISTOR >				
Q53	8-729-220-93	FET	2SK209-G			
Q54	8-729-026-49	TRANSISTOR	2SA1037AK-T146-R			
Q55	8-729-120-28	TRANSISTOR	2SC1623-L5L6			
Q56	8-729-026-49	TRANSISTOR	2SA1037AK-T146-R			
		< RESISTOR >				
R58	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R59	1-216-043-91	RES-CHIP	560	5%	1/10W	
R60	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R61	1-216-097-91	RES-CHIP	100K	5%	1/10W	
R62	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R78	1-216-081-00	METAL CHIP	22K	5%	1/10W	

*	1-678-159-11	RM BOARD (SUPPLIED WITH RX BOARD, COMPLETE)	*****			
	3-044-715-01	SEAL, SHIELD				
		< DIODE >				
D51	8-719-053-06	LED	SLR-932A-7 (INFRARED EMITTER)			

Ref. No.	Part No.	Description	Remark			
*	A-4542-653-A	RX BOARD, COMPLETE (INCLUDING FE BOARD, COMPLETE AND RM BOARD)	*****			
	4-224-829-01	TERMINAL, BATTERY				
	4-224-830-01	SPRING (A), BATTERY				
		< CAPACITOR >				
C51	1-126-176-11	ELECT	220uF	20%	10V	
C52	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C53	1-163-018-00	CERAMIC CHIP	0.0056uF	5%	50V	
C54	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C55	1-126-785-11	ELECT	47uF	20%	10V	
C56	1-126-176-11	ELECT	220uF	20%	10V	
C57	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C58	1-126-785-11	ELECT	47uF	20%	10V	
C59	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C60	1-124-584-00	ELECT	100uF	20%	10V	
C68	1-163-237-11	CERAMIC CHIP	27PF	5%	50V	
C69	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	
C70	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	
C71	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	
C72	1-163-116-00	CERAMIC CHIP	91PF	5%	50V	
C73	1-163-106-00	CERAMIC CHIP	36PF	5%	50V	
C74	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C75	1-126-176-11	ELECT	220uF	20%	10V	
C76	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	
C77	1-163-257-11	CERAMIC CHIP	180PF	5%	50V	
C78	1-163-257-11	CERAMIC CHIP	180PF	5%	50V	
C79	1-164-346-11	CERAMIC CHIP	1uF		16V	
C80	1-163-024-00	CERAMIC CHIP	0.018uF	10%	50V	
C81	1-117-720-11	CERAMIC CHIP	4.7uF		10V	
C82	1-126-964-11	ELECT	10uF	20%	50V	
C83	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	
C84	1-126-964-11	ELECT	10uF	20%	50V	
C85	1-124-584-00	ELECT	100uF	20%	10V	
C86	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C87	1-164-222-11	CERAMIC CHIP	0.22uF		25V	
C88	1-164-222-11	CERAMIC CHIP	0.22uF		25V	
C92	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	
C93	1-104-664-11	ELECT	47uF	20%	10V	
		< DIODE >				
D54	8-719-059-40	LED SLR-342VR3F (SPEAKER POWER)				
D55	8-719-044-76	DIODE 1SS356-TW11				
D56	8-719-044-76	DIODE 1SS356-TW11				

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
		< IC >				< COIL >	
IC51	8-759-583-17	IC BU2305F-E2		T51	1-406-915-11	COIL (DET)	
IC52	8-759-586-60	IC MN9807SP-E1				< VARIABLE RESISTOR >	
IC53	8-759-375-39	IC MC3361CD		VR51	1-237-979-11	RES, VAR, CARBON 10K (VOL)	
IC54	8-759-701-54	IC NJM2073D				< VIBRATOR >	
IC55	8-759-431-95	IC S-81230SGUP-DQB-T1		X51	1-781-282-11	VIBRATOR, CERAMIC (4MHz)	
		< JACK >		*****			
J51	1-563-836-21	JACK (EARPHONE)				MISCELLANEOUS	
J52	1-568-907-21	JACK, DC (POLARITY UNIFIED TYPE)				*****	
		(DC IN 4.5V)					
		< JUMPER RESISTOR >					
JC1	1-216-295-91	SHORT 0		SP1	1-505-851-11	SPEAKER (057F014)	
JC2	1-216-296-91	SHORT 0					
		< COIL >					
L53	1-412-237-11	INDUCTOR CHIP 33uH					
		< TRANSISTOR >					
Q51	8-729-807-96	TRANSISTOR 2SB1295-UL7-TB					
Q52	8-729-047-62	TRANSISTOR 2SC3440-T12-1F					
Q57	8-729-920-31	TRANSISTOR DTC343TK					
Q58	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R					
Q59	8-729-921-73	TRANSISTOR 2SD1781K-QR					
		< RESISTOR >					
R51	1-216-113-00	METAL CHIP 470K 5% 1/10W					
R52	1-216-105-91	RES-CHIP 220K 5% 1/10W					
R53	1-216-056-00	RES-CHIP 2K 5% 1/10W					
R54	1-216-097-91	RES-CHIP 100K 5% 1/10W					
R55	1-216-017-91	RES-CHIP 47 5% 1/10W					
R56	1-216-306-11	METAL CHIP 3.9 5% 1/10W					
R57	1-216-027-00	METAL CHIP 120 5% 1/10W					
R63	1-216-051-00	METAL CHIP 1.2K 5% 1/10W					
R64	1-216-063-91	RES-CHIP 3.9K 5% 1/10W					
R65	1-216-097-91	RES-CHIP 100K 5% 1/10W					
R66	1-216-107-00	METAL CHIP 270K 5% 1/10W					
R67	1-216-037-00	METAL CHIP 330 5% 1/10W					
R68	1-216-065-91	RES-CHIP 4.7K 5% 1/10W					
R69	1-216-063-91	RES-CHIP 3.9K 5% 1/10W					
R70	1-216-058-00	RES-CHIP 2.4K 5% 1/10W					
R71	1-216-071-00	METAL CHIP 8.2K 5% 1/10W					
R72	1-216-049-91	RES-CHIP 1K 5% 1/10W					
R73	1-216-025-91	RES-CHIP 100 5% 1/10W					
R74	1-218-628-11	METAL CHIP 150 5% 1W					
R75	1-216-136-00	RES-CHIP 2.7 5% 1/8W					
R76	1-216-136-00	RES-CHIP 2.7 5% 1/8W					
R77	1-216-001-00	METAL CHIP 10 5% 1/10W					
R79	1-216-041-00	METAL CHIP 470 5% 1/10W					

