

ICF-SW11

SERVICE MANUAL

Ver 1.0 1999.09



*US Model
Canadian Model
AEP Model
E Model
Chinese Model
Tourist Model*

SPECIFICATIONS

Frequency range:

FM:	87.5 – 108 MHz (Other models) 76 – 108 MHz (Tourist model)
SW1:	4.750 – 5.060 MHz (Other models) 3.850 – 4.050 MHz (Tourist model)
SW2:	5.900 – 6.200 MHz
SW3:	7.100 – 7.350 MHz
SW4:	9.400 – 9.990 MHz
SW5:	11.600 – 12.100 MHz
SW6:	13.570 – 13.870 MHz
SW7:	15.100 – 15.800 MHz
SW8:	17.480 – 17.900 MHz
SW9:	21.450 – 21.750 MHz
MW:	525 – 1620 MHz
LW:	141 – 290 kHz
Speaker	Approx. 5.7 cm (2¼ inches) dia., 4 Ω
Power output	140 mW (at 10 % harmonic distortion)
Ourput	Headphones jack (stereo minijack, 3.5 mm dia)

Power requirements

	3 V DC, two R6 (size AA) batteries DC IN 3V jack accepts : AC power adaptor (Except chinese model) AC-E30L, HG (not supplied)
Battery life	Approx. 30 hours with Sony SUM-3 (NS)
Dimensions	Approx. 162 × 93.8 × 34.8 mm(w/h/d) (6½ × 3¾ × 1⅜ inches)
Mass	Approx. 340 g (12 oz) incl. batteries
Supplied accessory	Short wave guide (1)
Accessories not supplied	AC power adaptor

*AC-E3L, HG

LW/MW/SW wide range antenna AN-1, AN-102
*The voltage of power supply is different depending on the country .
Please buy an AC power adaptor in the country where the radio is to be used.

Design and specifications are subject to change without notice.

**FM STEREO/SW1-9/
MW/LW 12 BAND RECEIVER**

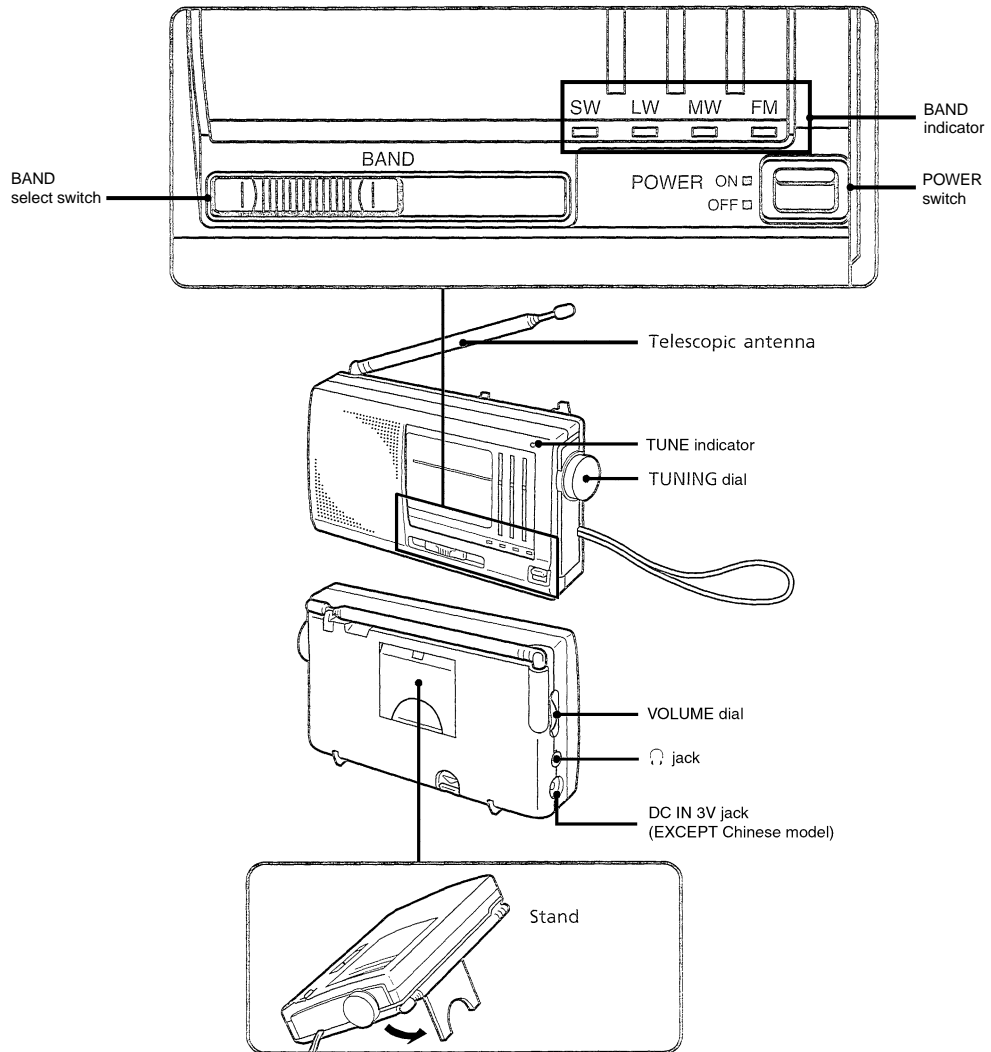


SONY®

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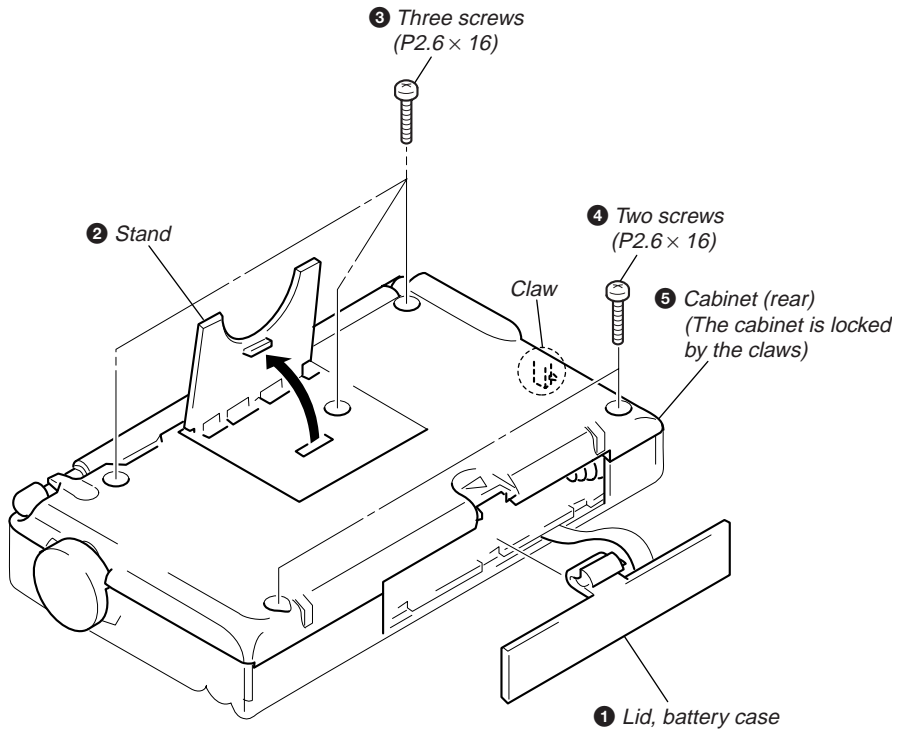
SECTION 1 GENERAL



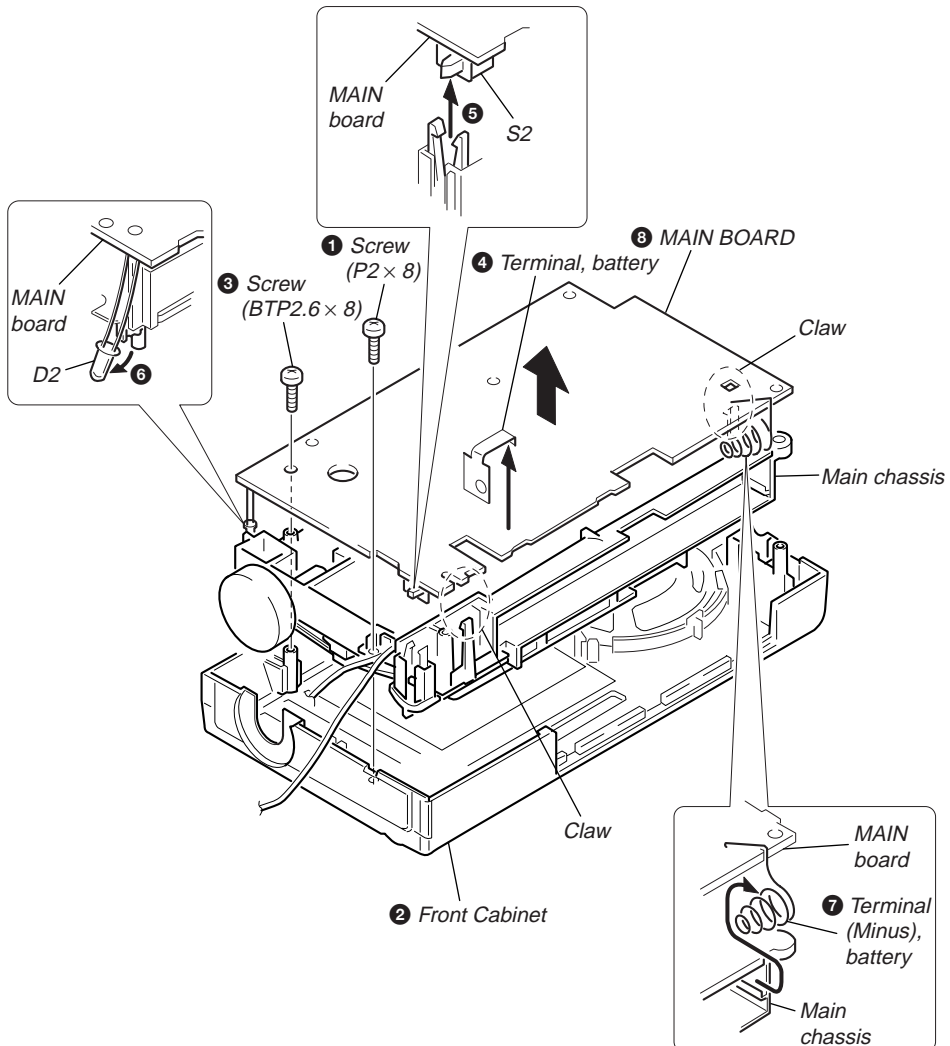
SECTION 2 DISASSEMBLY

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

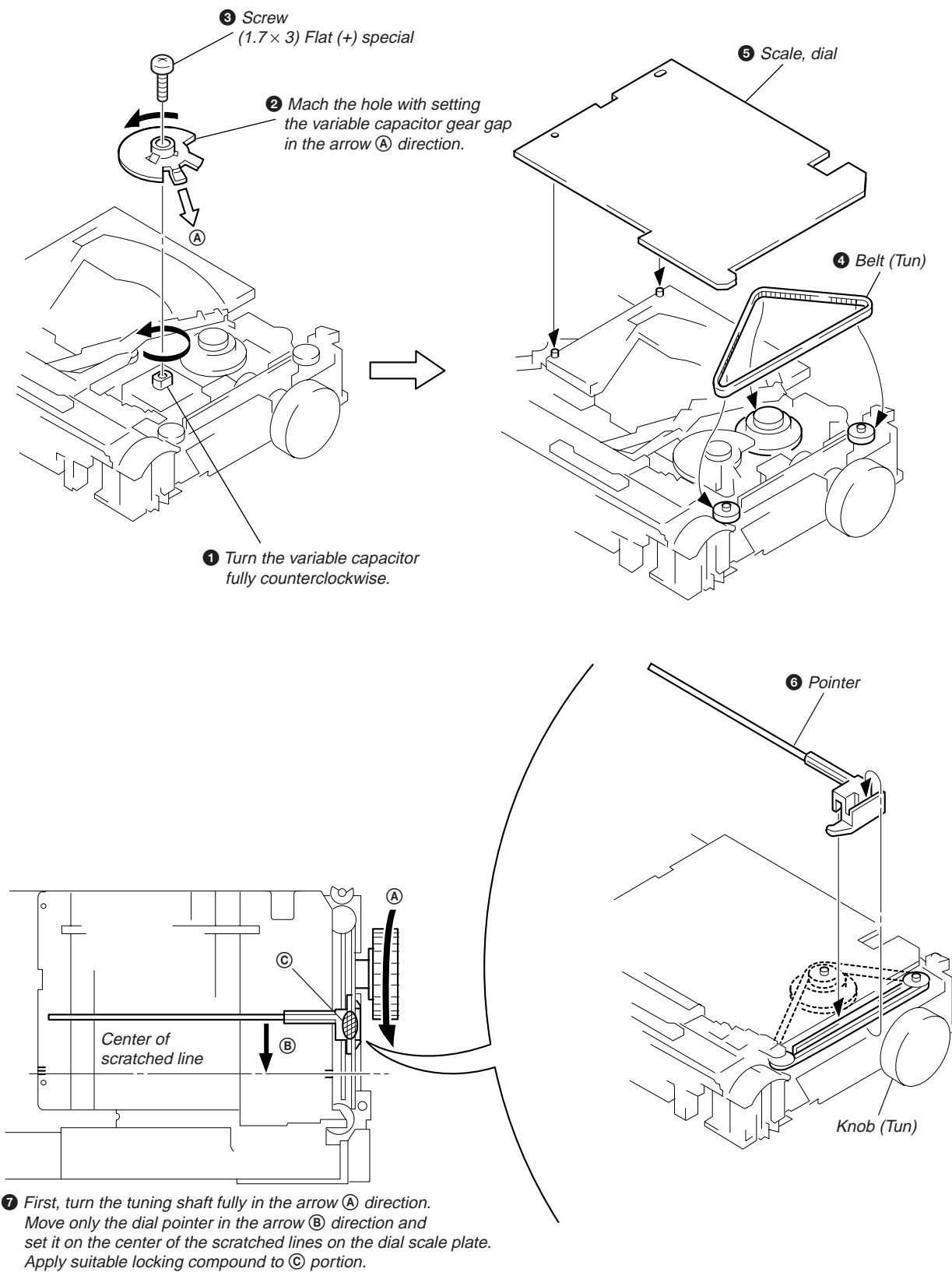
2-1. REAR CABINET



2-2. FRONT CABINET, MAIN BOARD



2-3. DIAL POINTER SETTING



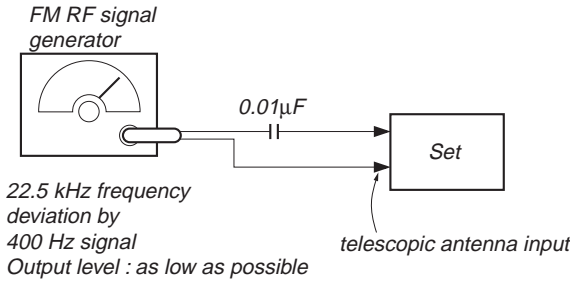
SECTION 3 ELECTRICAL ADJUSTMENTS

FM section

Setting

BAND switch : FM

0 dB=1 μ V



- This adjustment should be executed after MW band adjustment is completed because the LW and SW bands use the BAR ANT and CV1 in common with the MW band. Therefore, if MW band is adjusted, the LW and SW bands must also be readjusted.

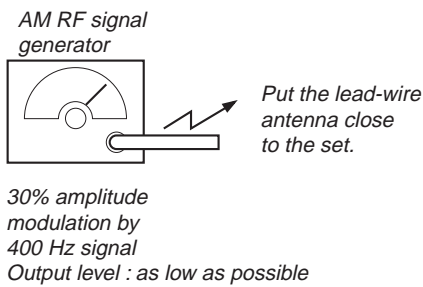
FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on Level meter.	
L7	CT1-4
87.3MHz (75MHz)	108.3MHz (109.5MHz)

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on Level meter.	
L6	CT1-3
87.3MHz (75MHz)	108.3MHz (109.5MHz)

MW/LW section

Setting

BAND switch : MW/LW



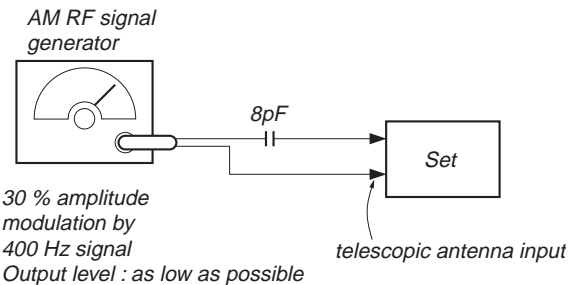
MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on Level meter.	
L4	CT1-2
520kHz	1,650kHz

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on Level meter.	
L1	CT1-1
600kHz	1,400kHz

SW section

Setting

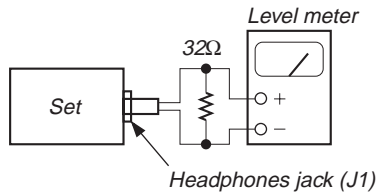
BAND switch : SW1 – SW9



AM IF ADJUSTMENT	
Adjust for a maximum reading on Level meter.	
T1	
455kHz	

LW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on Level meter.	
L5	CT3
137kHz	295kHz

LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on Level meter.	
L2	CT2
155kHz	260kHz



- Preparation for SW band adjustment
After making sure that the MW band adjustment has completed, set the pointer to the center of character of 6.0, 7.2, 11.8 or 21.6MHz which is reference position of dial character, and fix the CV1 at this position.

() : Tourist model

- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

SECTION 4 DIAGRAMS

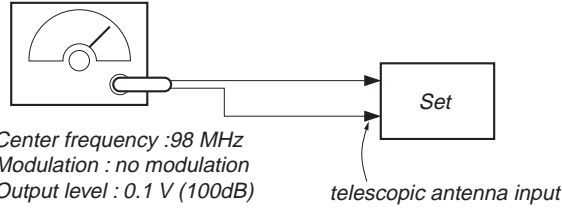
SW FREQUENCY CENTER ADJUSTMENT		
Adjust for a maximum reading on Level meter.		
SW1	L25	4.85MHz (3.88MHz)
SW2	L24	6MHz
SW3	L23	7.2MHz
SW4	L22	9.62MHz
SW5	L21	11.8MHz
SW6	L20	13.65MHz
SW7	L19	15.35MHz
SW8	L18	17.65MHz
SW9	L17	21.6MHz

1. After completion of SW1-9 adjustment, confirm that each center frequency +910kHz signal is received from AM reference signal generator.
2. If not received, readjust, then repeat 1.

() : Tourist model

[VCO Adjustment] Procedure :

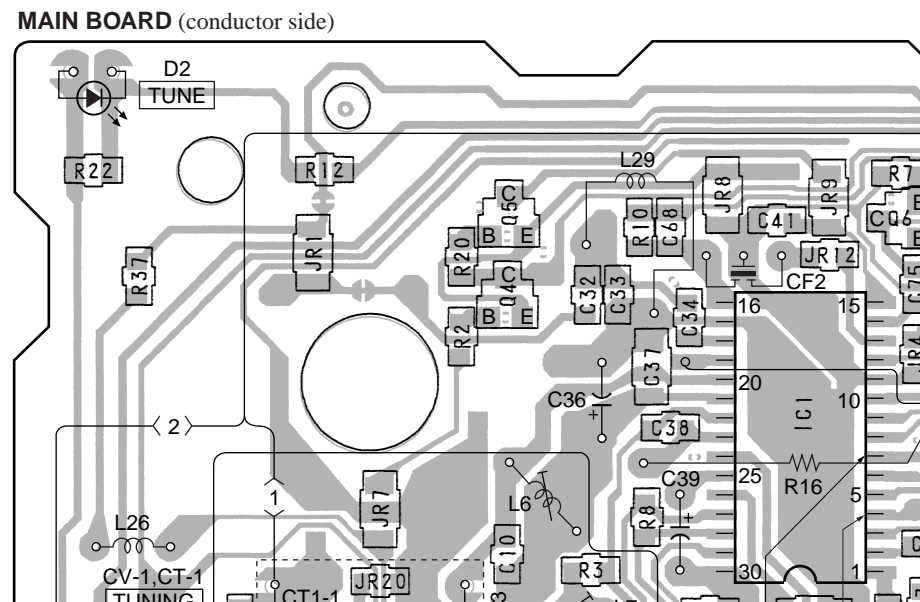
FM RF signal generator



1. Insert the plug to Headphones jack (J1).
2. Connect frequency counter to the positions shown the figure right.
3. Tune the set to 98 MHz.
4. Adjust RV1 so that the frequency counter reading becomes 76,000Hz.

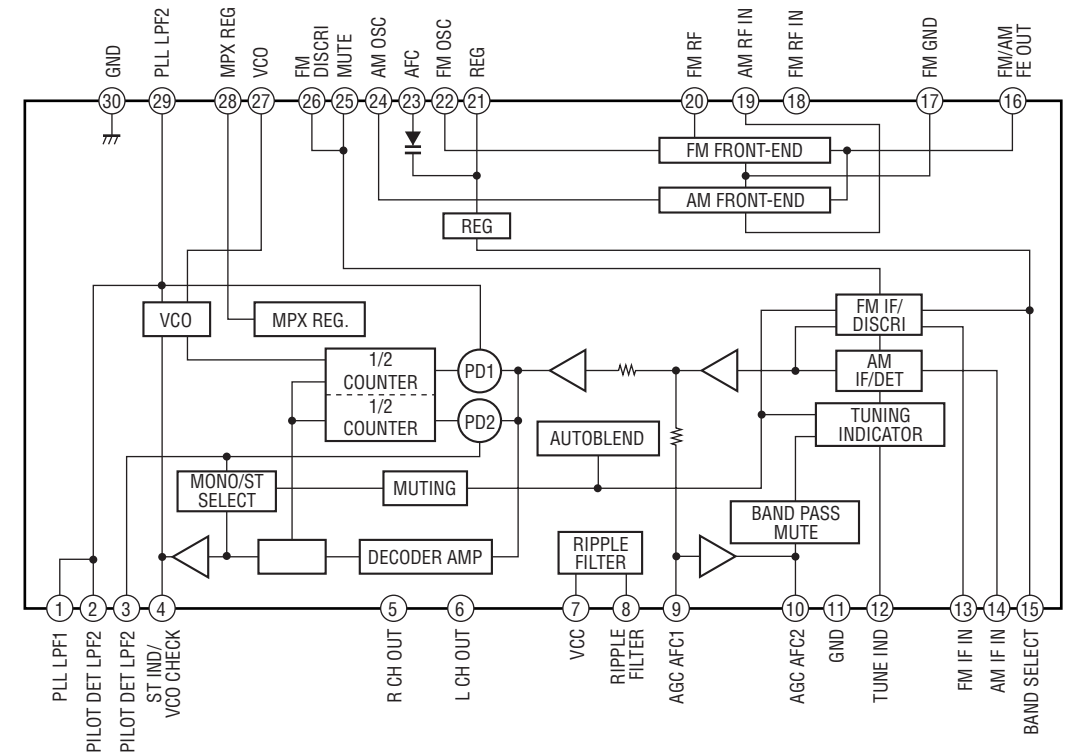
Specification Value :

Frequency counter
75,950 – 76,050 Hz

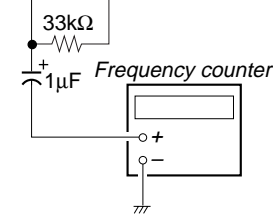
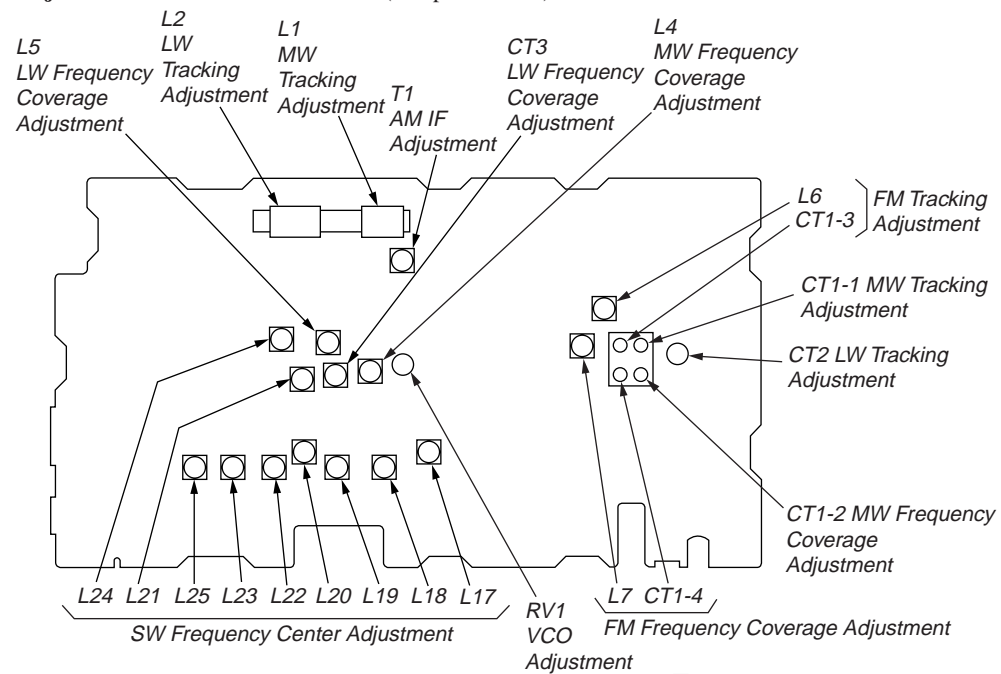


4-1. IC BLOCK DIAGRAM

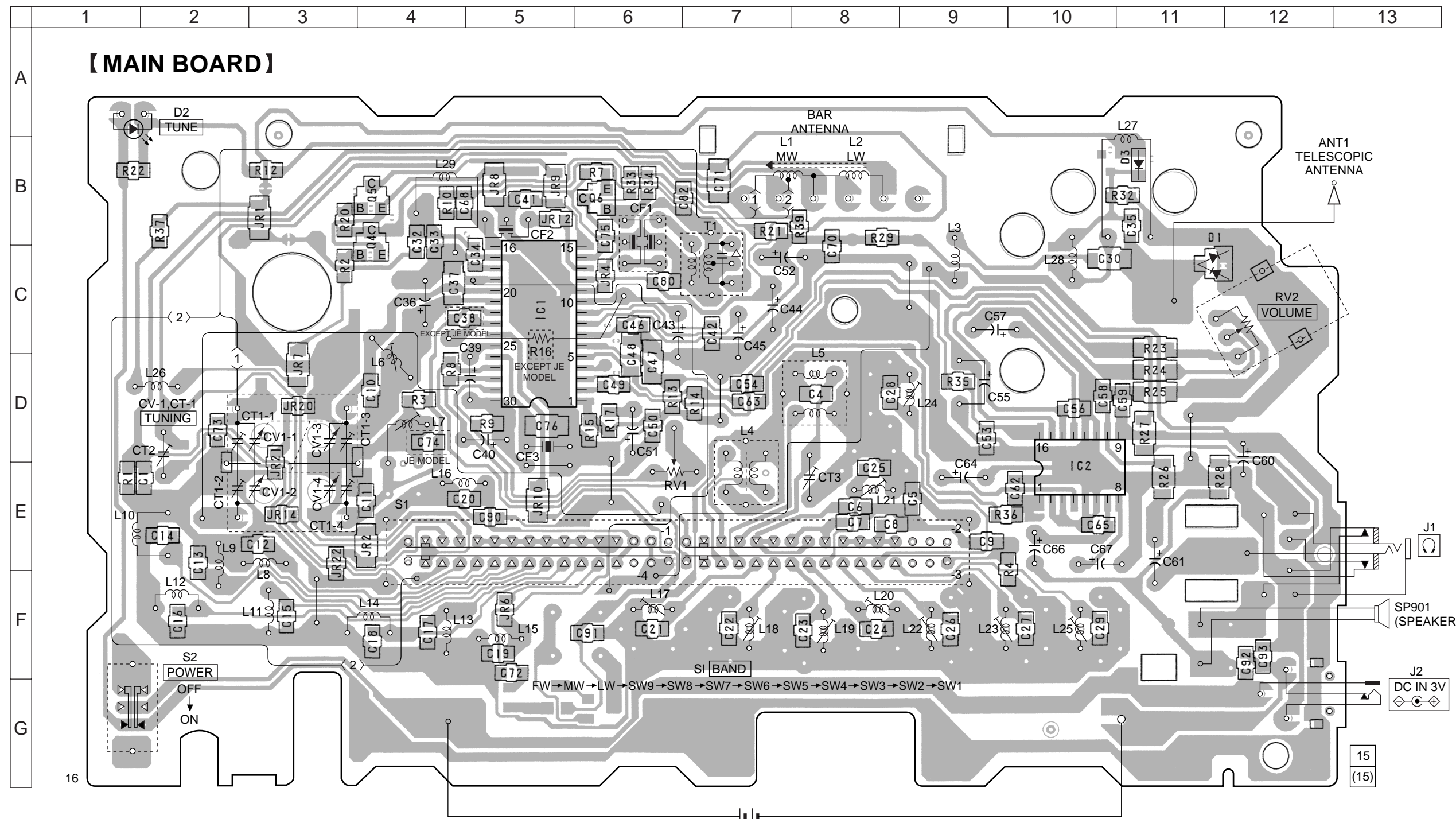
IC1 CXA1238M-T6



Adjustment Location : MAIN board (component side)



4-2. PRINTED WIRING BOARD



• Semiconductor Location

Ref. No.	Location
D1	C-11
D2	A-1
D3	B-11
IC1	C-5
IC2	D-10
Q4	B-4
Q5	B-4
Q6	B-6

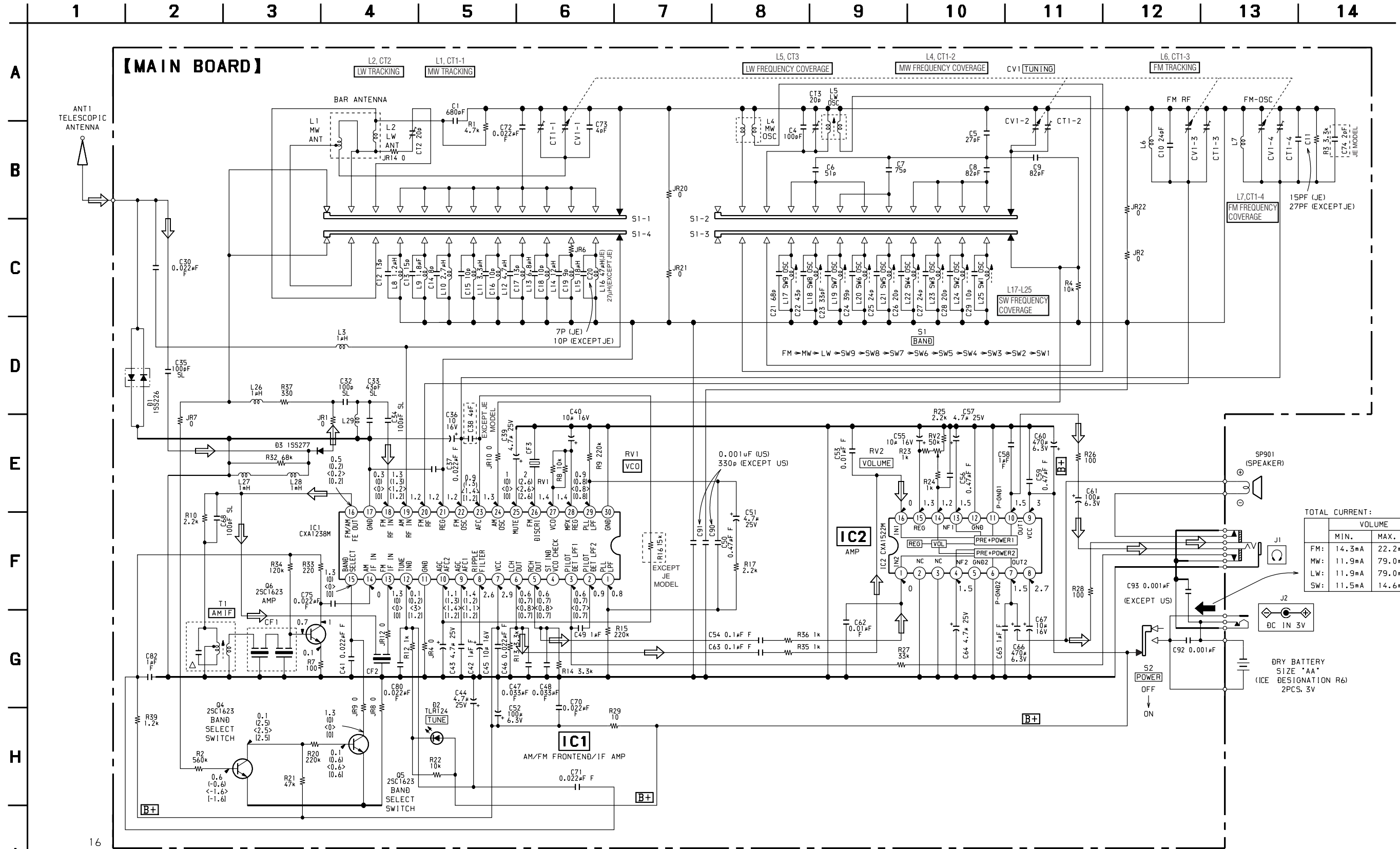
Note on Printed Wiring Board:

- : parts extracted from the component side.
- ▨ : Pattern from the side which enables seeing.
- Abbreviation
JE : Tourist model

DRY BATTERY
SIZE "AA"
(ICE DESIGNATION R6)
2PCS, 3V

4-3. SCHEMATIC DIAGRAM

• Refer to page 8 for IC Block Diagrams.



Note on 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.
- Δ : internal component.
- **B+**: B+ Line.
- \square : panel designation.
- \square : adjustment for repair.

- no mark: () : MW < > : SW [] : LW
- 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 : FM
- Abbreviation JE : Tourist model

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
		< FILTER >		L14	1-408-410-00	INDUCTOR 12uH	
CF1	1-577-317-11	FILTER, CERAMIC		L15	1-408-412-00	INDUCTOR 18uH	
CF2	1-760-238-71	FILTER, CERAMIC		L16	1-408-608-31	INDUCTOR 27uH (US,CND,AEP,IT,E,CH,EA)	
CF3	1-760-238-71	FILTER, CERAMIC		L16	1-408-611-31	INDUCTOR 47uH (JE)	
		< TRIMMER >		L17	1-409-895-11	COIL (OSC)	
CT2	1-141-411-11	CAP, ADJ 20PF		L18	1-409-515-11	COIL (OSC)	
CT3	1-141-411-11	CAP, ADJ 20PF		L19	1-409-514-11	COIL (OSC)	
CT1	1-141-550-11	CAP, VAR (INCLUDING CV1) (JE)		L20	1-409-513-11	COIL (OSC)	
CT1	1-151-636-11	CAP, VAR (INCLUDING CV1) (US,CND,AEP,IT,E,CH,EA)		L21	1-409-512-11	COIL (OSC)	
		< VARIABLE CAPACITOR >		L22	1-409-511-11	COIL (OSC)	
CV1	1-141-550-11	CAP, VAR (JE)		L23	1-409-510-11	COIL (OSC)	
CV1	1-151-636-11	CAP, VAR (US,CND,AEP,IT,E,CH,EA)		L24	1-409-509-11	COIL (OSC)	
		< DIODE >		L25	1-409-508-11	COIL (OSC) (US,CND,AEP,IT,E,CH,EA)	
D1	8-719-800-76	DIODE 1SS226		L25	1-411-856-11	COIL (OSC) (JE)	
D2	8-719-812-41	DIODE GL3PR8 (TUNE)		L26	1-414-142-61	INDUCTOR 1uH	
D3	8-719-921-22	DIODE 1SS277		L27	1-414-167-11	INDUCTOR 1mH	
		< IC >		L28	1-414-167-11	INDUCTOR 1mH	
IC1	8-752-062-48	IC CXA1238M-T6		L29	1-428-769-11	COIL, AIR-CORE	
IC2	8-752-064-80	IC CXA1522M				< TRANSISTOR >	
		< JACK >		Q4	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
J1	1-566-891-11	JACK (HEADPHONE)		Q5	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
J2	1-764-799-11	JACK, EXTERNAL POWER (DC IN 3V)		Q6	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
		< JUMPER RESISTOR >				< RESISTOR >	
JR1	1-216-296-91	SHORT 0		R1	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
JR2	1-216-296-91	SHORT 0		R2	1-216-115-00	METAL CHIP 560K 5% 1/10W	
JR4	1-216-295-91	SHORT 0		R3	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
JR6	1-216-295-91	SHORT 0		R4	1-216-073-00	METAL CHIP 10K 5% 1/10W	
JR7	1-216-296-91	SHORT 0		R7	1-216-025-91	RES,CHIP 100 5% 1/10W	
JR8	1-216-296-91	SHORT 0		R8	1-216-073-00	METAL CHIP 10K 5% 1/10W	
JR9	1-216-296-91	SHORT 0		R9	1-216-105-91	RES,CHIP 220K 5% 1/10W	
JR10	1-216-296-91	SHORT 0		R10	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
JR12	1-216-295-91	SHORT 0		R12	1-216-049-91	RES,CHIP 1K 5% 1/10W	
JR14	1-216-295-91	SHORT 0		R13	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
JR20	1-216-295-91	SHORT 0		R14	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
JR21	1-216-295-91	SHORT 0		R15	1-216-105-91	RES,CHIP 220K 5% 1/10W	
JR22	1-216-295-91	SHORT 0		R16	1-247-883-00	CARBON 150K 5% 1/4W (US,CND,AEP,IT,E,CH,EA)	
		< COIL >		R17	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
L1	1-501-683-11	ANTENNA, FERRITE-ROD (LW/MW)		R20	1-216-105-91	RES,CHIP 220K 5% 1/10W	
L2	1-501-683-11	ANTENNA, FERRITE-ROD (LW/MW)		R21	1-216-089-91	RES,CHIP 47K 5% 1/10W	
L3	1-414-142-61	INDUCTOR 1uH		R22	1-216-073-00	METAL CHIP 10K 5% 1/10W	
L4	1-406-028-00	COIL, OSC (MW)		R23	1-216-198-91	RES,CHIP 1K 5% 1/8W	
L5	1-416-749-11	COIL (LW OSC)		R24	1-216-198-91	RES,CHIP 1K 5% 1/8W	
L6	1-428-768-11	COIL, AIR-CORE (US,CND,AEP,IT,E,CH,EA)		R25	1-216-206-00	RES,CHIP 2.2K 5% 1/8W	
L6	1-428-840-11	COIL, AIR-CORE (JE)		R26	1-216-174-00	RES,CHIP 100 5% 1/8W	
L7	1-406-042-00	COIL, FM OSC (US,CND,AEP,IT,E,CH,EA)		R27	1-216-234-00	RES,CHIP 33K 5% 1/8W	
* L7	1-422-202-11	COIL (AIR-CORE) (JE)		R28	1-216-174-00	RES,CHIP 100 5% 1/8W	
L8	1-408-592-11	INDUCTOR 1.2uH		R29	1-216-001-00	METAL CHIP 10 5% 1/10W	
L9	1-408-594-21	INDUCTOR 1.8uH		R32	1-216-093-91	RES,CHIP 68K 5% 1/10W	
L10	1-408-596-31	INDUCTOR 2.7uH		R33	1-216-033-00	METAL CHIP 220 5% 1/10W	
L11	1-408-597-31	INDUCTOR 3.3uH		R34	1-216-099-00	METAL CHIP 120K 5% 1/10W	
L12	1-408-599-31	INDUCTOR 4.7uH		R35	1-216-049-91	RES,CHIP 1K 5% 1/10W	
L13	1-408-601-31	INDUCTOR 6.8uH		R36	1-216-049-91	RES,CHIP 1K 5% 1/10W	
				R37	1-216-037-00	METAL CHIP 330 5% 1/10W	
				R39	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	

MAIN

Ref. No.	Part No.	Description	Remarks
		< VARIABLE RESISTOR >	
RV1	1-228-995-00	RES, ADJ, METAL22K	
RV2	1-238-555-11	RES, VAR, CARBON 50K	
		< SWITCH >	
S1	1-692-846-11	SWITCH, SLIDE (BAND)	
S2	1-571-850-81	SWITCH, SLIDE (POWER)	
		< TRANSFORMER >	
T1	1-416-021-11	COIL (AM IFT)	

		MISCELLANEOUS	

ANT1	1-501-222-81	ANTENNA, TELESCOPIC (FM)	
SP901	1-544-517-11	SPEAKER	

		ACCESSORIES & PACKING MATERIALS	

3-867-546-02		MANUAL, INSTRUCTION (JAPANESE,ENGLISH,KOREAN,CHINESE)(JE,CH)	
3-867-546-12		MANUAL, INSTRUCTION (ENGLISH,FRENCH,GERMAN,SPANISH,DUTCH, SWEDISH,ITALIAN,PORTUGUESE) (US,CND,AEP,IT)	
3-867-546-22		MANUAL, INSTRUCTION (DANISH,FINNISH,POLISH,RUSSIAN)(AEP)	
3-867-546-32		MANUAL, INSTRUCTION (ENGLISH,FRENCH,GERMAN,SPANISH, PORTUGUESE,KOREAN,ARABIC)(E,EA)	
3-912-863-05		GUIDE, SHORT WAVE	