

ICF-703S

SERVICE MANUAL

Ver 1.1 2001. 09

*AEP Model
Australian Model*



(Photo: BLACK)

SPECIFICATIONS

Frequency range:

Band	ICF-703S
FM	87.5 - 108.0 MHz
SW	5.95 - 18 MHz
MW	530 - 1605 kHz

Speaker

Approx. 10.2 cm (4 1/8 inches) dia. 8 ohms

Power output

430 mW (at 10 % harmonic distortion)

Output

Ⓞ jack (ø 3.5 mm minijack)

Power requirements

With the supplied AC power cord:

220 - 230 V AC, 50 Hz (AEP model)

240 V AC, 50 Hz (Australian model)

With four R6 (size AA) batteries: 6V DC

Dimensions

Approx. 265 × 137 × 69 mm (w/h/d)

(10 1/2 × 5 1/2 × 2 3/4 inches) incl. projecting parts
and control with carrying handle pushed in.

Mass

Approx. 1019 g (2 lb 4 oz) incl. batteries

Supplied accessory

AC power cord (1)

Design and specifications are subject to change without notice.

FM/SW/MW 3 BAND RADIO

9-927-916-12
200110400-1
© 2001. 9

Sony Corporation
Personal Audio Company
Shinagawa Tec Service Manual Production Group

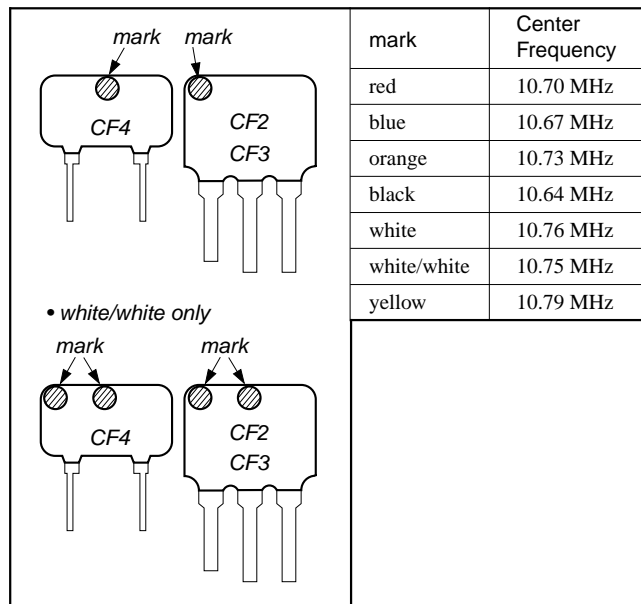
SONY®

HOW TO CHANGE THE CERAMIC FILTERS

This model is used two ceramic filters of CF2, CF3 and CF4.

You must use same type of color marked ceramic filters in order to meet same specifications.

Therefore, the ceramic filter must change two pieces together since it's supply two pieces in one package as a spare parts.



Notes on Chip Component Replacement

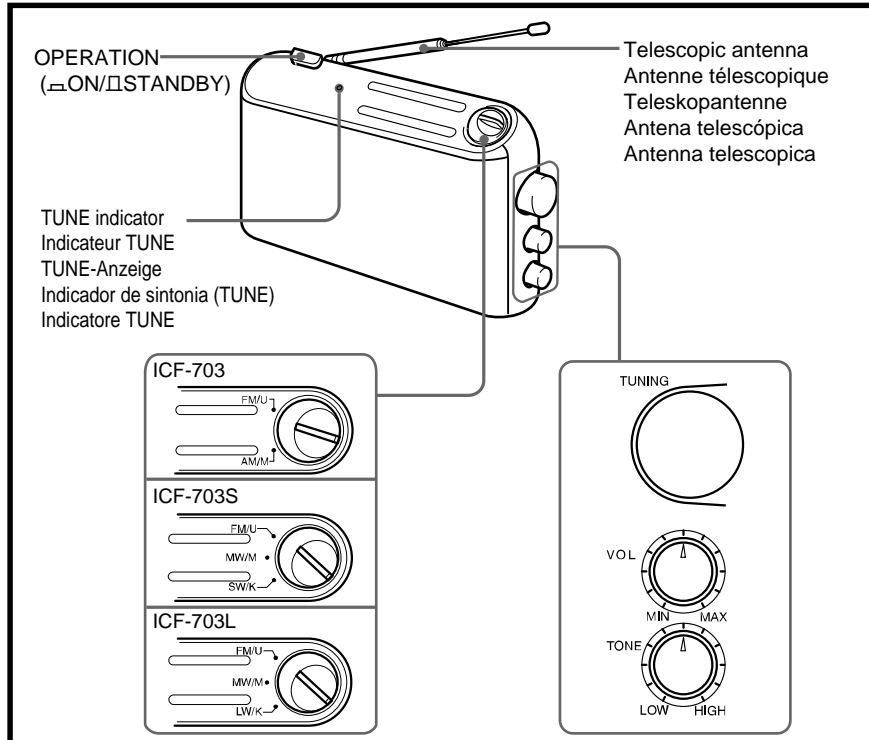
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK \triangle OR DOTTED LINE WITH MARK \triangle ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1 GENERAL

This section is extracted from instruction manual.



Choosing Power Sources

Batteries (See Fig. A)

- 1 Open the lid of the battery case.
Slide fully in the direction of the arrow (▶) on the lid and lift it. Do not force to open it.
Doing so may damage the unit.
- 2 Insert four R6 (size AA) batteries (not supplied) with correct polarity.
- 3 Close the lid.

Battery life

Using Sony LR6 (size AA) alkaline batteries:
Approx. 100 hours
Using Sony R6 (size AA) batteries:
Approx. 35 hours

Replacing batteries

When the sound becomes weak or distorted, replace all the batteries with new ones.

Notes on batteries

- Insert the batteries with correct polarity.
- Do not charge the dry batteries.
- Do not use different types of batteries at the same time.
- When you replace the batteries, replace all with new ones.
- When the unit is not being used for a long period of time, remove the batteries to avoid damage from battery leakage and corrosion.
- If a battery leakage occurs, wipe the battery compartment with a soft cloth before inserting new ones.

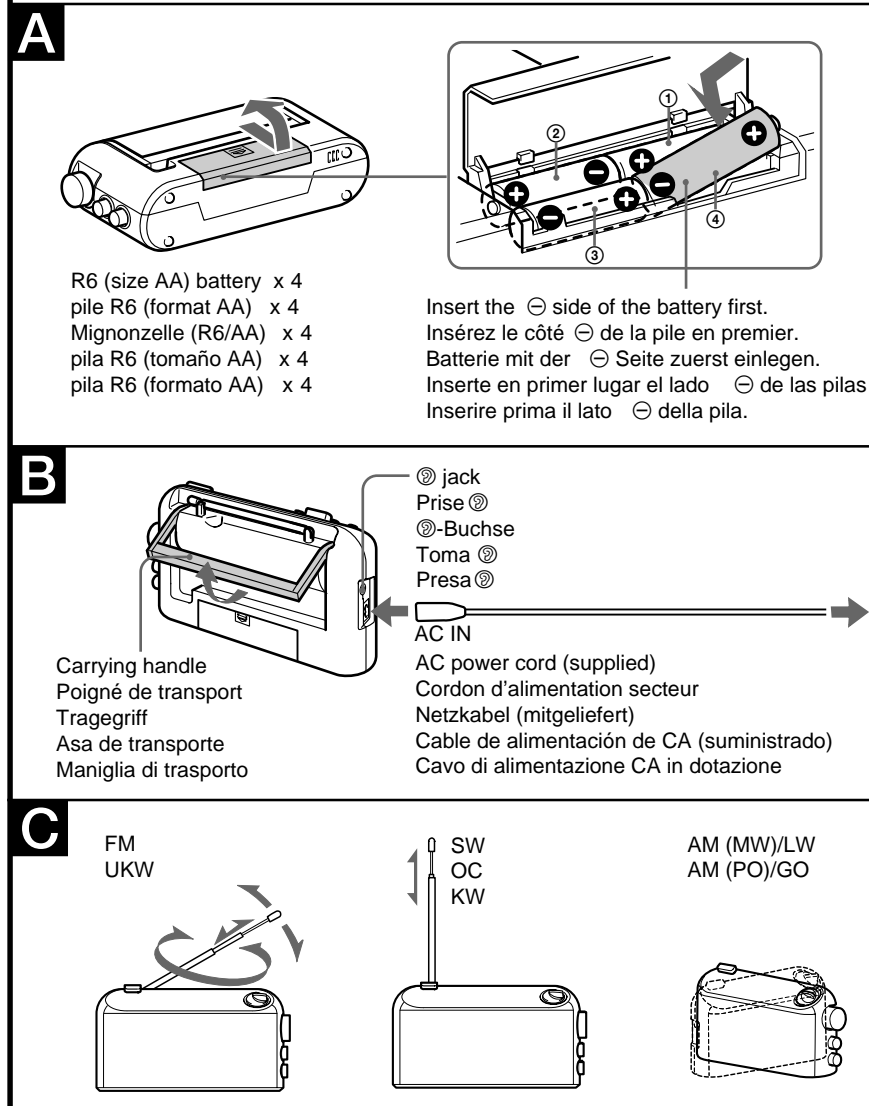
House Current (See Fig. B)

- 1 Connect the AC power cord supplied to the AC IN jack of the radio.
- 2 Plug into a wall outlet.

Operating the Radio

- 1 Press OPERATION (⏻) to turn on the radio.
- 2 Select a desired band, and tune in a station using TUNING.
TUNE (tuning) indicator lights up when a station is tuned in.
- 3 Adjust the volume using VOL.
- 4 Adjust the tone to your preference using TONE.
To obtain clear treble, turn to "HIGH".
To reinforce bass, set to "LOW".

- To turn off the radio, press OPERATION (⏻).
- To listen with an earphone connect the earphone to the Ⓜ (earphone) jack.
The speaker is deactivated when an earphone is connected.
- **To improve Receiving condition (See Fig. C)**
FM: Extend the telescopic antenna and adjust the length and angle for the best reception.
SW: Extend the telescopic antenna vertically.
AM(MW)/LW: Since the reception is affected by the direction of the radio, rotate the unit horizontally for optimum reception.



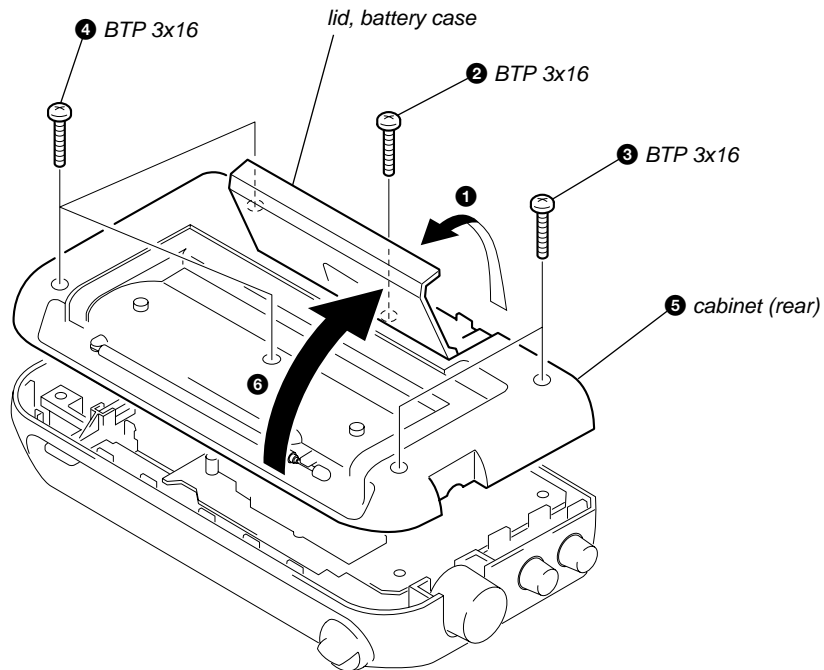
SECTION 2 DISASSEMBLY

Note : This set can be disassemble according to the following sequence.

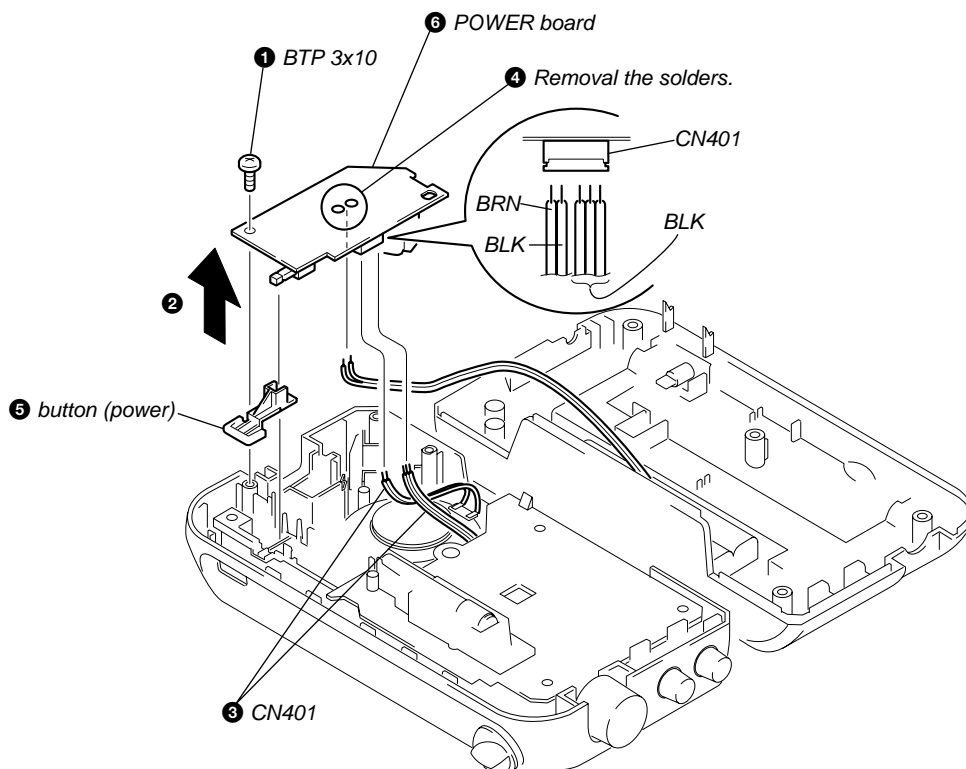
Set → Cabinet (Rear) → Power Board → Main Board, Led Board → Setting the Pointer

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

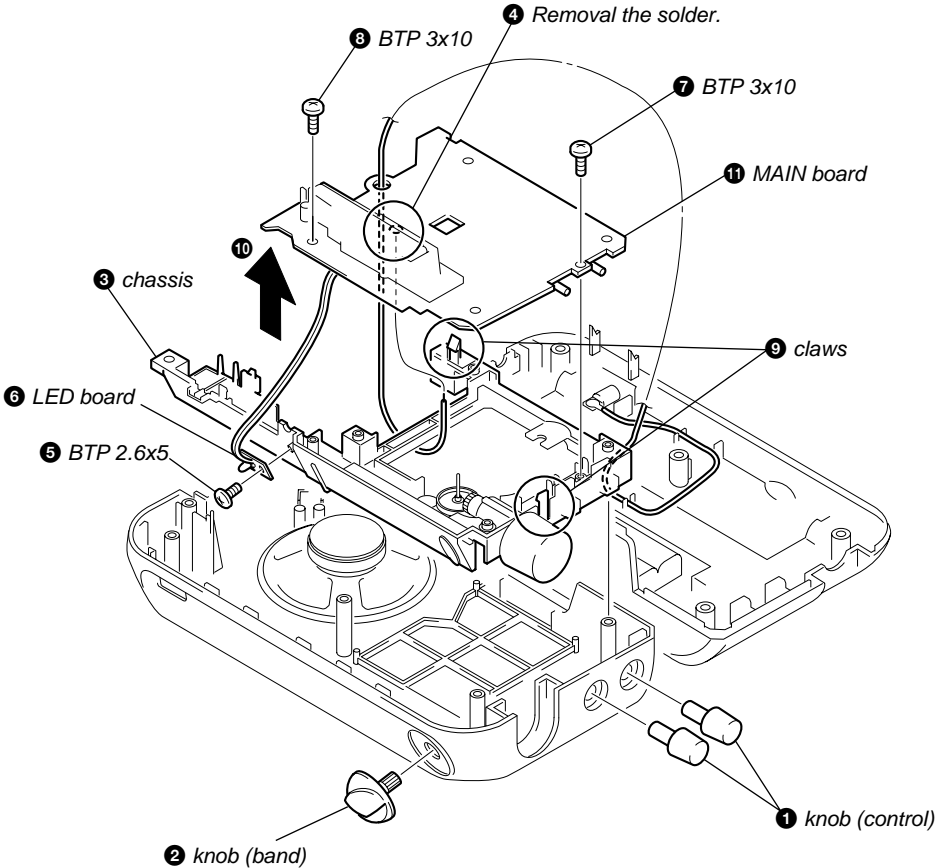
2-1. CABINET (REAR)



2-2. POWER BOARD

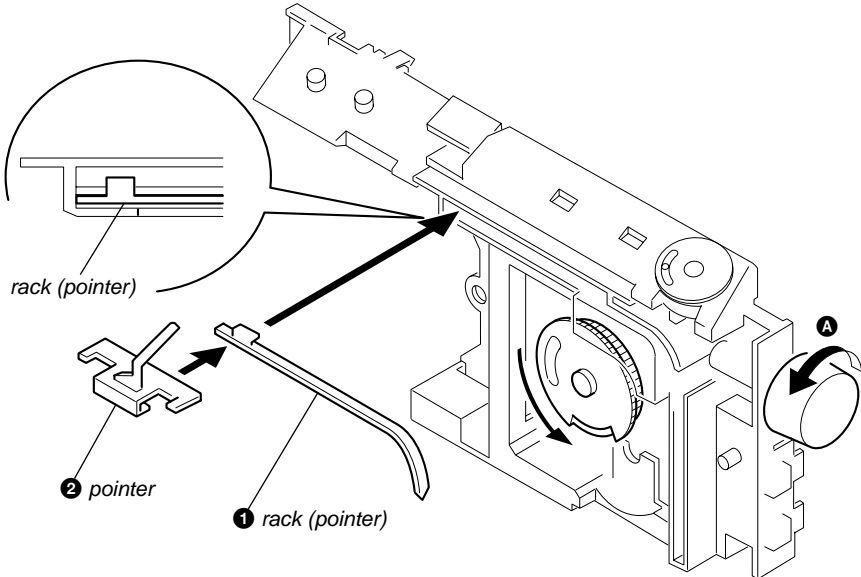


2-3. MAIN BOARD, LED BOARD



2-4. SETTING THE POINTER

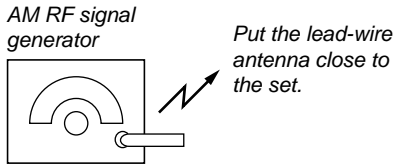
- *Setting the Pointer*
 1. Turn the Knob (Tuning) in the direction of **A** until it is stopped.
 2. Place the rack as shown in the figure.
 3. Mount the pointer.



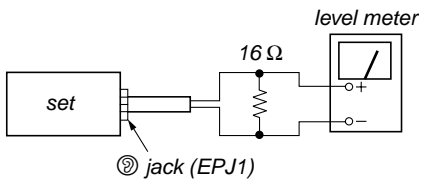
SECTION 3 ELECTRICAL ADJUSTMENTS

MW SECTION

BAND switch : MW



400Hz, 30%
AM modulation
Output level: as low as possible



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

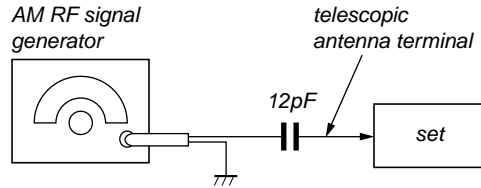
MW IF ADJUSTMENT	
Adjust for a maximum reading on level meter	
T1	
455 kHz	

MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter	
L5	520 kHz
CT1-4	1,650 kHz

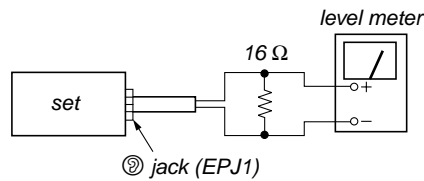
MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter	
L1	600 kHz
CT1-1	1,400 kHz

SW SECTION

BAND switch : SW



400Hz, 30%
AM modulation
Output level: as low as possible



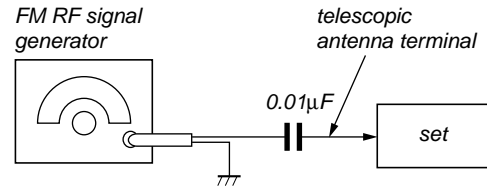
- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

SW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter	
L7	5.8 MHz
CT6	18.5 MHz

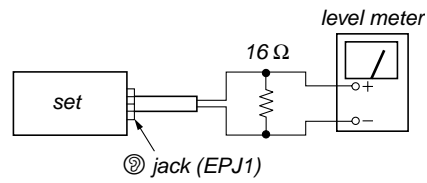
SW TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter	
L6	5.8 MHz
CT5	18.5 MHz

FM SECTION

BAND switch : FM



22.5kHz frequency deviation
by 400Hz signal
Output level: as low as possible



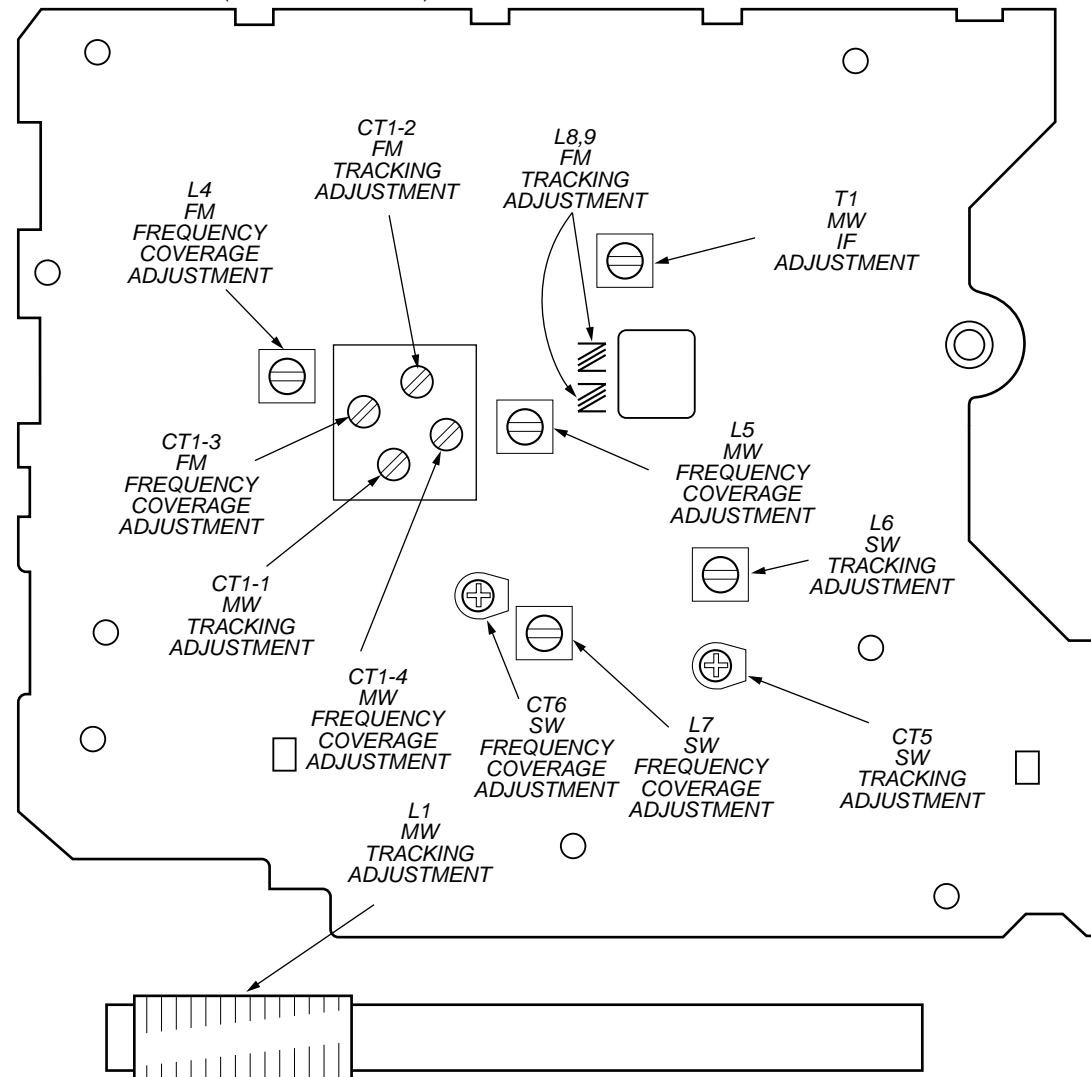
- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter	
L4	86.5 MHz
CT1-3	109.5 MHz

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter	
L8, L9	86.5 MHz
CT1-2	109.5 MHz

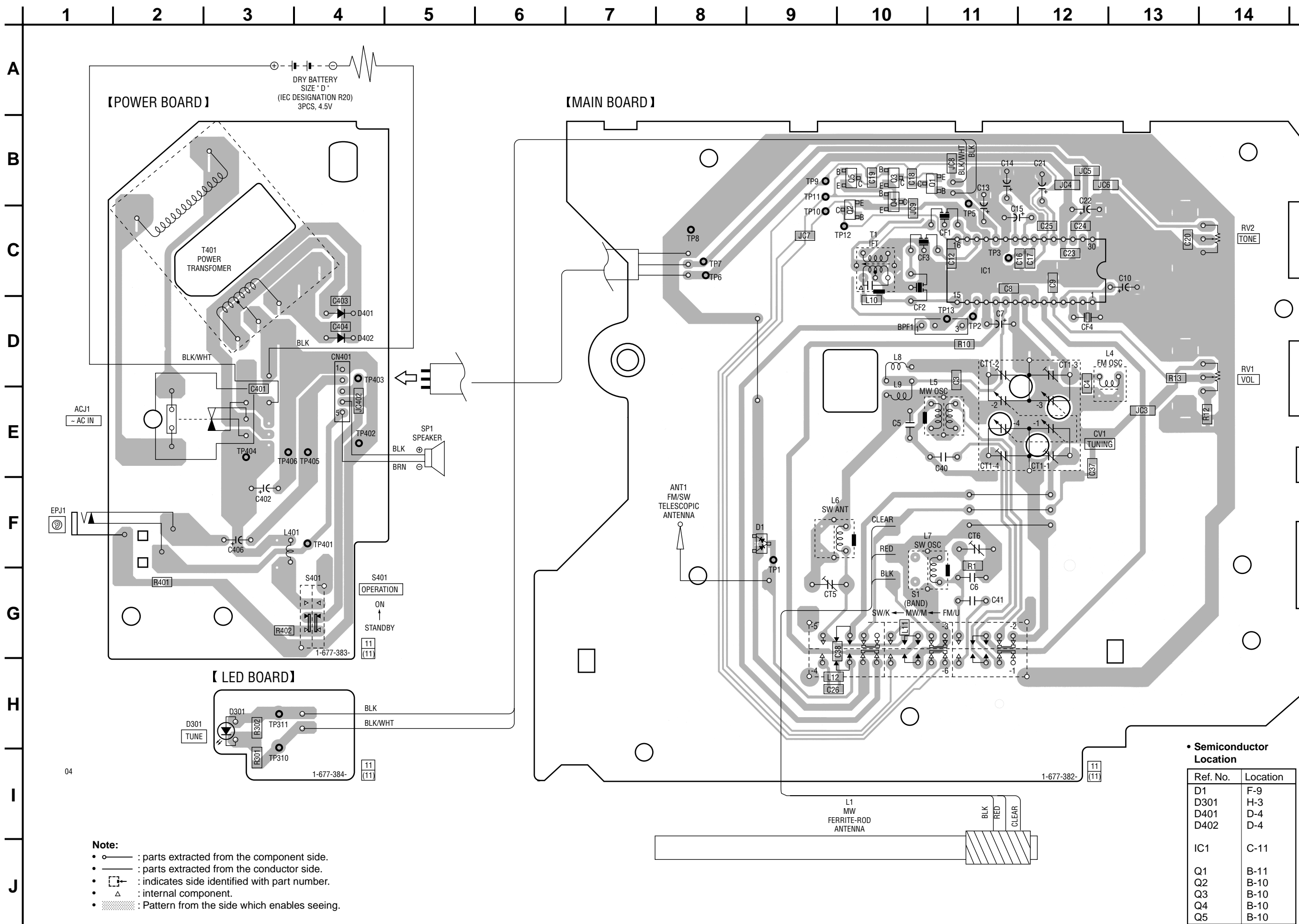
Adjustment Location: MAIN BOARD

- MAIN BOARD (COMPONENT SIDE) -



SECTION 4
DIAGRAMS

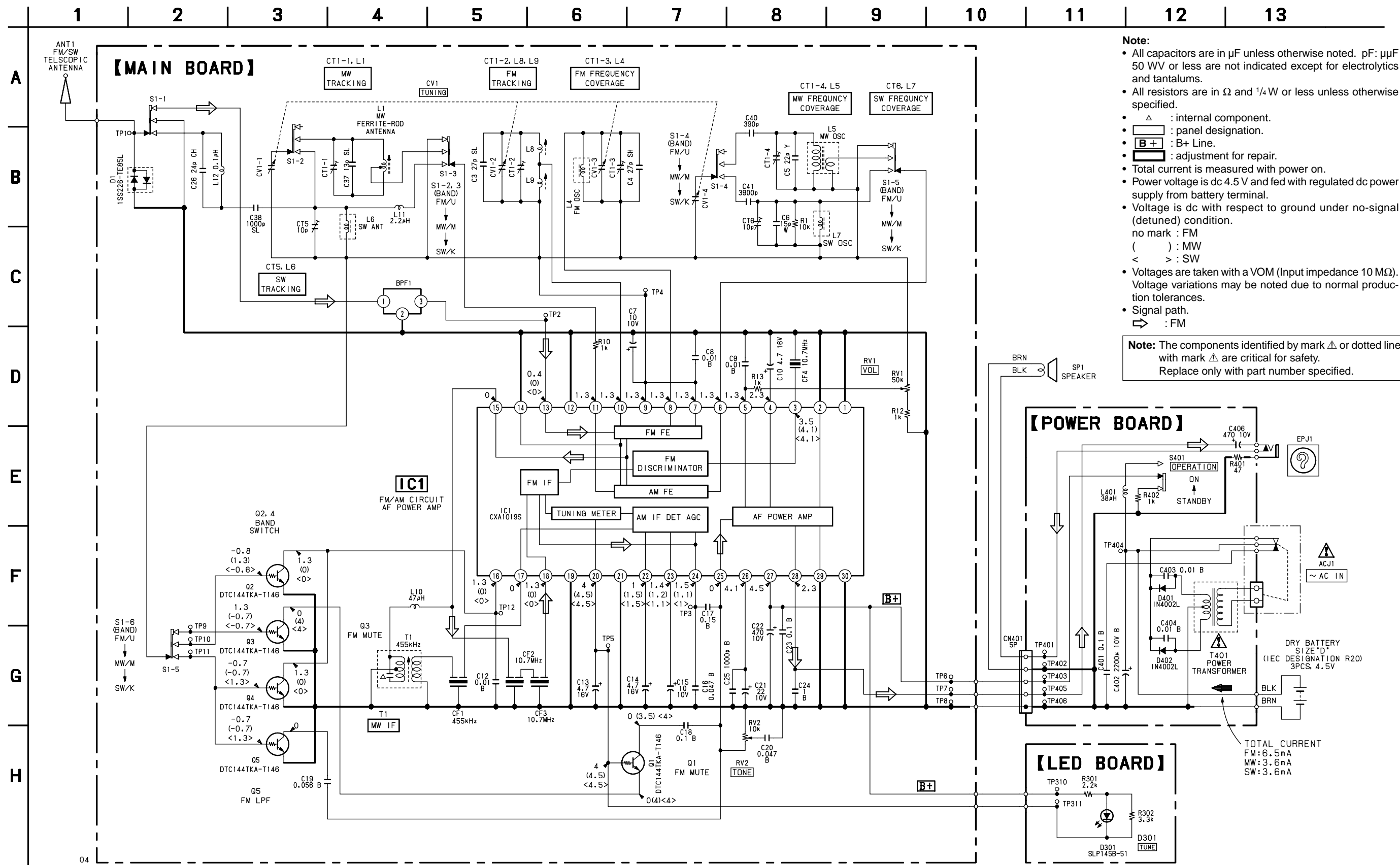
4-1. PRINTED WIRING BOARDS



• Semiconductor Location

Ref. No.	Location
D1	F-9
D301	H-3
D401	D-4
D402	D-4
IC1	C-11
Q1	B-11
Q2	B-10
Q3	B-10
Q4	B-10
Q5	B-10

4-2. SCHEMATIC DIAGRAMS



SECTION 5 EXPLODED VIEW

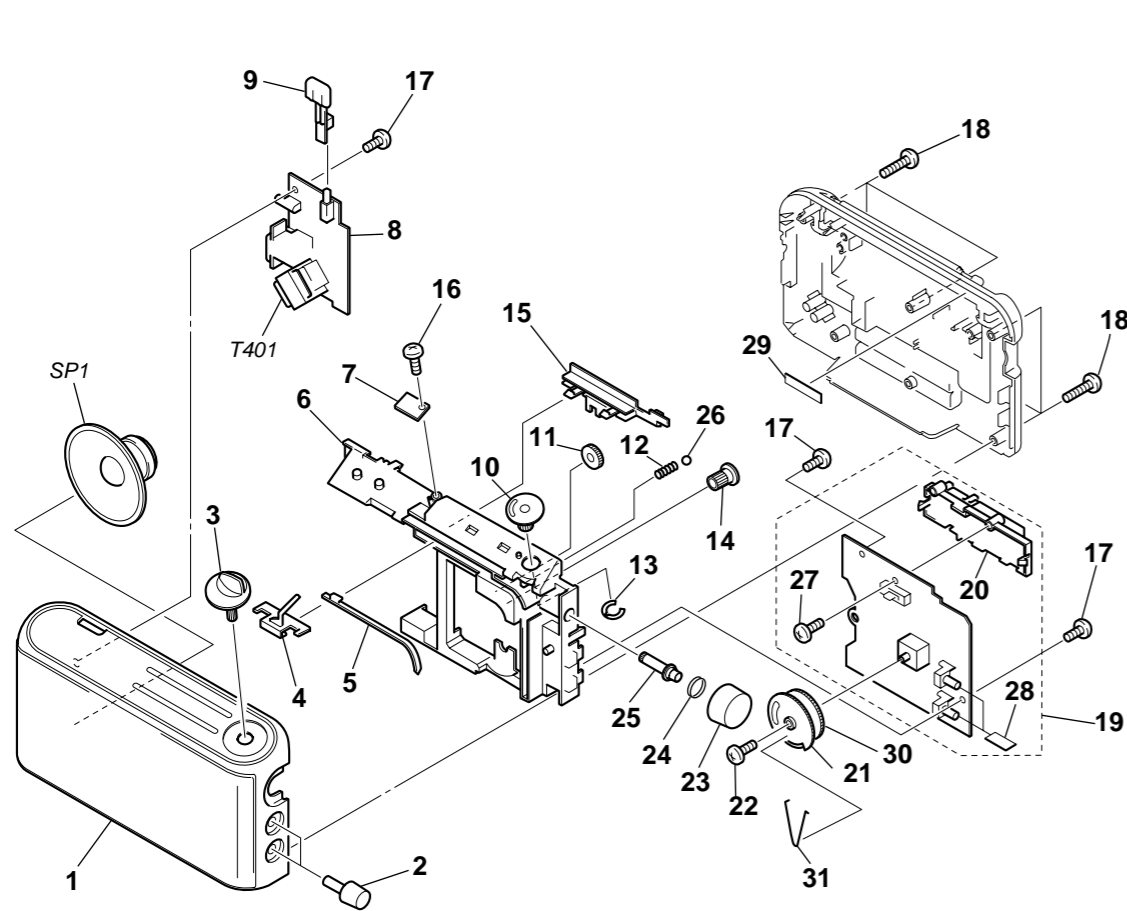
NOTE:

- 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.

- Color Indication of Appearance Parts
Example :
KNOB, BALANCE (WHITE) ... (RED)
↑ ↑
Parts Color Cabinet's Color
- Accessories and packing materials are given in the last of this parts list.

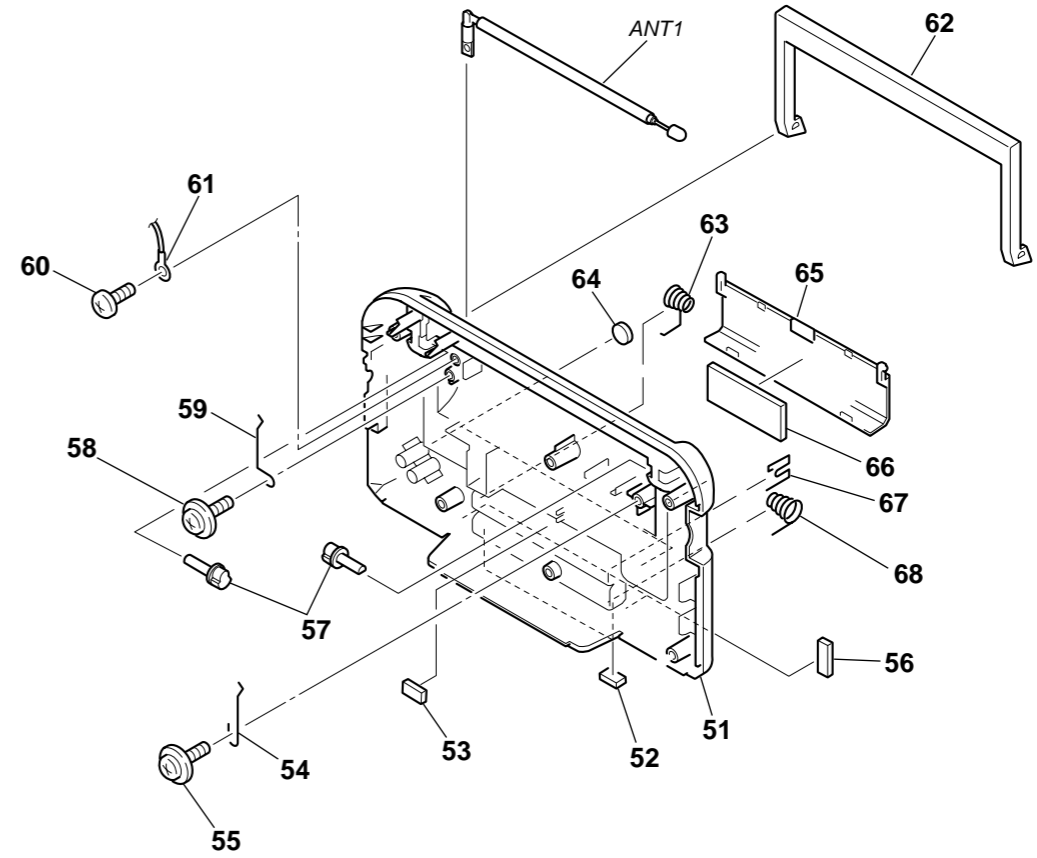
The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

5-1. CABINET (FRONT) SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	X-3379-334-1	CABINET (FRONT) SUB ASSY (BLACK)		16	7-685-532-14	SCREW +BTP 2.6X5 TYPE2 N-S	
1	X-3379-337-1	CABINET (FRONT) SUB ASSY (WHITE)		17	7-685-547-19	SCREW +BTP 3X10 TYPE2 N-S	
1	X-3381-198-1	CABINET (FRONT) SUB ASSY (DARK BLACK)		18	7-685-550-14	SCREW +BTP 3X16 TYPE2 N-S	
2	3-043-337-01	KNOB (CONTROL) (BLACK,DARK BLACK)		* 19	A-3683-172-A	MAIN BOARD, COMPLETE	
2	3-043-337-11	KNOB (CONTROL) (WHITE)		20	3-043-346-01	HOLDER, FERRITE-ROD ANTENNA	
3	3-043-343-01	KNOB (BAND) (BLACK,DARK BLACK)		21	3-043-342-01	DRUM(A), VC	
3	3-043-343-11	KNOB (BAND) (WHITE)		22	3-364-941-11	SCREW (+B) (2.6X5), NYLOCK	
4	3-043-347-01	POINTER		23	3-043-338-01	KNOB (TUNING) (BLACK,DARK BLACK)	
5	3-043-348-01	RACK (POINTER)		23	3-043-338-11	KNOB (TUNING) (WHITE)	
6	3-043-330-01	CHASSIS		24	3-045-680-01	SPRING (TUNING)	
* 7	1-677-384-11	LED BOARD		25	3-043-336-01	SHAFT (TUNING)	
* 8	1-677-383-11	POWER BOARD		26	7-671-112-11	BALL, STEEL	
9	3-043-339-01	BUTTON (POWER) (BLACK,DARK BLACK)		27	7-685-534-14	SCREW +BTP 2.6X8 TYPE2 N-S	
9	3-043-339-11	BUTTON (POWER) (WHITE)		28	3-049-870-01	WOVEN (VOL), FABRIC NON	
10	3-043-344-21	BAND, GEAR		29	3-831-441-99	CUSHION	
11	3-043-349-01	GEAR (A), MIDWAY		* 30	3-363-397-01	DRUM (B)	
12	3-043-721-01	SPRING (BAND)		31	3-363-366-11	SPRING, DRUM	
13	3-048-207-01	RING (BAND)		SP1	1-529-676-11	SPEAKER (10.2cm)	
14	3-043-350-01	GEAR (B), MIDWAY		Δ T401	1-435-513-11	TRANSFORMER, POWER	
15	3-043-345-01	SLIDER (BAND)					

5-2. CABINET (REAR) SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	3-045-684-01	CABINET (REAR) (BLACK)		62	3-043-334-01	HANDLE (BLACK)	
51	3-045-684-11	CABINET (REAR) (WHITE)		62	3-043-334-11	HANDLE (WHITE)	
51	3-045-684-21	CABINET (REAR) (DARK BLACK)		63	3-043-334-21	HANDLE (DARK BLACK)	
52	3-049-207-01	CUSHION (BATTERY) (B)		63	3-043-718-01	TERMINAL (+,-), BATTERY	
53	3-049-448-01	CUSHION (BATTERY) (D)		64	3-049-208-01	CUSHION (HANDLE)	
54	3-043-717-01	SPRING (HANDLE)		65	3-043-331-01	LID, BATTERY CASE (BLACK)	
55	7-685-903-31	SCREW +PTPWH 3X10 (TYPE2)		65	3-043-331-11	LID, BATTERY CASE (WHITE)	
56	3-049-447-01	CUSHION (BATTERY) (C)		65	3-043-331-21	LID, BATTERY CASE (DARK BLACK)	
57	3-043-335-01	SHAFT (HANDLE)		66	9-911-815-02	CUSHION	
58	7-685-903-21	SCREW +PTPWH 3X8 (TYPE2)		67	3-043-719-01	TERMINAL (+), BATTERY	
59	3-049-592-01	SPRING (HANDLE) (B)		68	3-043-720-01	TERMINAL (-), BATTERY	
60	7-685-534-14	SCREW +BTP 2.6X8 TYPE2 N-S		ANT1	1-501-222-71	ANTENNA, TELESCOPIC (FM/SW)	
61	7-623-508-01	LUG, 3					

SECTION 6 ELECTRICAL PARTS LIST

LED

MAIN

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.
- RESISTORS
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable
- Abbreviation
AUS : Australian model

- 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

The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.

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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	1-677-384-11	LED BOARD *****		C37	1-163-096-00	CERAMIC CHIP 13PF 5%	50V
		< DIODE >		C38	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
D301	8-719-080-08	LED SLP145B-51 (TUNE) < RESISTOR >		C40	1-104-732-11	FILM 390PF 5%	100V
R301	1-216-057-00	METAL CHIP 2.2K 5%	1/10W	C41	1-136-682-11	FILM 0.0039uF 5%	100V
R302	1-216-061-00	METAL CHIP 3.3K 5%	1/10W			< FILTER >	
*****				CF1	1-567-177-00	FILTER, CERAMIC	
				CF2	1-577-600-81	FILTER, CERAMIC	
				CF3	1-577-600-81	FILTER, CERAMIC	
				CF4	1-577-600-81	FILTER, CERAMIC	
						< VARIABLE CAPACITOR >	
*	A-3683-172-A	MAIN BOARD, COMPLETE *****		CT1-4	1-151-679-11	CAP, VAR	
	3-043-346-01	HOLDER, FERRITE-ROD ANTENNA		CV1-4	1-151-679-11	CAP, VAR (TUNING)	
	3-049-870-01	WOVEN (VOL), FABRIC NON				< TRIMMER >	
	7-685-534-14	SCREW +BTP 2.6X8 TYPE2 N-S		CT5	1-141-354-21	CAP, TRIMMER 10PF	
		< BPF >		CT6	1-141-354-21	CAP, TRIMMER 10PF	
BPF1	1-236-022-11	FILTER, BAND PASS < CAPACITOR >				< DIODE >	
C3	1-163-103-00	CERAMIC CHIP 27PF 5%	50V	D1	8-719-800-76	DIODE 1SS226	
C4	1-163-103-00	CERAMIC CHIP 27PF 5%	50V			< IC >	
C5	1-102-959-00	CERAMIC 22PF 5%	50V	IC1	8-752-037-02	IC CXA1019S	
C6	1-102-951-00	CERAMIC 15PF 5%	50V			< JUMPER RESISTOR >	
C7	1-124-261-00	ELECT 10uF 20%	50V	JC3	1-216-296-00	SHORT 0	
C8	1-163-021-11	CERAMIC CHIP 0.01uF 10%	50V	JC4	1-216-296-00	SHORT 0	
C9	1-163-021-11	CERAMIC CHIP 0.01uF 10%	50V	JC5	1-216-296-00	SHORT 0	
C10	1-124-259-11	ELECT 4.7uF 20%	16V	JC6	1-216-296-00	SHORT 0	
C12	1-163-021-11	CERAMIC CHIP 0.01uF 10%	50V	JC7	1-216-295-00	SHORT 0	
C13	1-124-259-11	ELECT 4.7uF 20%	16V	JC8	1-216-295-00	SHORT 0	
C14	1-124-259-11	ELECT 4.7uF 20%	16V	JC9	1-216-295-00	SHORT 0	
C15	1-124-261-00	ELECT 10uF 20%	50V			< COIL >	
C16	1-163-809-11	CERAMIC CHIP 0.047uF 10%	25V	L1	1-754-132-11	ANTENNA, FERRITE-ROD (MW)	
C17	1-164-492-11	CERAMIC CHIP 0.15uF 10%	16V	L4	1-406-431-11	COIL (WITH CORE) (OSC)	
C18	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V	L5	1-406-092-11	COIL, OSC (MW)	
C19	1-164-343-11	CERAMIC CHIP 0.056uF 10%	25V	L6	1-402-538-11	COIL, SW (ANT)	
C20	1-163-809-11	CERAMIC CHIP 0.047uF 10%	25V	L7	1-406-413-11	COIL, SW (OSC)	
C21	1-124-234-00	ELECT 22uF 20%	16V	L8	1-428-291-11	COIL, AIR-CORE	
C22	1-126-925-11	ELECT 470uF 20%	10V	L9	1-428-291-11	COIL, AIR-CORE	
C23	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V	L10	1-412-959-11	INDUCTOR 47uH	
C24	1-109-982-11	CERAMIC CHIP 1uF 10%	10V	L11	1-410-997-22	INDUCTOR CHIP 2.2uH	
C25	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V				
C26	1-104-896-11	CERAMIC CHIP 24PF 2%	50V				

ICF-703S

MAIN **POWER**

Ref. No.	Part No.	Description	Remark
L12	1-410-981-22	INDUCTOR CHIP 0.1uH	
		< TRANSISTOR >	
Q1	8-729-027-60	TRANSISTOR DTC144TKA-T146	
Q2	8-729-027-60	TRANSISTOR DTC144TKA-T146	
Q3	8-729-027-60	TRANSISTOR DTC144TKA-T146	
Q4	8-729-027-60	TRANSISTOR DTC144TKA-T146	
Q5	8-729-027-60	TRANSISTOR DTC144TKA-T146	
		< RESISTOR >	
R1	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R10	1-216-049-11	RES-CHIP 1K 5% 1/10W	
R12	1-216-049-11	RES-CHIP 1K 5% 1/10W	
R13	1-216-049-11	RES-CHIP 1K 5% 1/10W	
		< VARIABLE RESISTOR >	
RV1	1-225-498-11	RES, VAR, CARBON 50K (VOL)	
RV2	1-225-499-11	RES, VAR, CARBON 10K (TONE)	
		< SWITCH >	
S1	1-571-170-11	SWITCH, SLIDE (BAND)	
		< TRANSFORMER >	
T1	1-404-902-11	TRANSFORMER, IF	

*	1-677-383-11	POWER BOARD	

		< AC INLET >	
△ACJ1	1-526-838-11	INLET, AC 2P (～ AC IN)	
		< CAPACITOR >	
C401	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C402	1-126-927-11	ELECT 2200uF 20% 10V	
C403	1-163-021-11	CERAMIC CHIP 0.01uF 10% 50V	
C404	1-163-021-11	CERAMIC CHIP 0.01uF 10% 50V	
C406	1-126-925-11	ELECT 470uF 20% 10V	
		< CONNECTOR >	
* CN401	1-568-271-11	SOCKET, CONNECTOR 5P	
		< DIODE >	
D401	8-719-031-85	DIODE 1N4002L	
D402	8-719-031-85	DIODE 1N4002L	
		< JACK >	
EPJ1	1-563-836-21	JACK (⊙)	
		< JUMPER RESISTOR >	
JC402	1-216-296-00	SHORT 0	

Ref. No.	Part No.	Description	Remark
		< COIL >	
L401	1-410-294-11	INDUCTOR 38uH	
		< RESISTOR >	
R401	1-216-017-11	RES-CHIP 47 5% 1/10W	
R402	1-216-049-11	RES-CHIP 1K 5% 1/10W	
		< SWITCH >	
S401	1-571-042-11	SWITCH, PUSH (1 KEY) (OPERATION)	

		MISCELLANEOUS	

ANT1	1-501-222-71	ANTENNA, TELESCOPIC (FM/SW)	
SP1	1-529-676-11	SPEAKER (10.2cm)	
△T401	1-435-513-11	TRANSFORMER, POWER	

		ACCESSORIES & PACKING MATERIALS	

△	1-696-562-11	CORD, POWER (AEP)	
△	1-696-819-11	CORD, POWER (AUS)	
	3-046-205-11	MANUAL, INSTRUCTION (ENGLISH,FRENCH, GERMAN,SPANISH,ITALIAN,DUTCH, SWEDISH,PORTUGUESE,FINNISH,DANISH)	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

MEMO

