

CFS-229

SERVICE MANUAL

*Canadian Model
AEP Model
Taiwan Model*



Photo : AEP model

SPECIFICATIONS

Frequency range

Sales area	FM	AM
Italian model	87.5—108MHz	526.5—1,606.5kHz
AEP model	87.6—107MHz	531—1,602kHz
Canadian, Taiwan model	87.6—108MHz	530—1,710kHz

IF	FM: 10.7 MHz AM: 455 kHz
Aerials	FM: Telescopic aerial AM: Built-in ferrite bar aerial
Recording system	4-track, 2-channel stereo
Frequency response	80—10,000 Hz
Speakers	Two way 10 cm dia. full range × 2 2 cm dia. tweeter × 2
Input	CD/LINE IN jacks (stereo pinjacks) (2) input impedance 47 kilohms, sensitivity 0.44 V
Output	Headphones jack (stereo minijack) for 16—68 ohm impedance headphones
Maximum power output	2.6 W + 2.6 W
Power requirements	220—230 V AC, 50Hz (AEP, Italian model) 120V AC, 60Hz (Canadian, Taiwan model) 9 V DC, six R20 (size D) batteries 14 W in AC operation
Power consumption	
Battery life	

Batteries	FM recording	Tape playing
Sony SUM-1 (NS)	Approx. 12 hours	Approx. 7 hours
Sony AM1 alkaline	Approx. 24 hours	Approx. 14 hours

Dimensions	Approx. 428 × 153 × 147.5 mm (w/h/d) incl. projecting parts and controls, not incl. handle
Mass	Approx. 2.9 kg incl. batteries
Accessory supplied	Mains lead (1)

Design and specifications subject to change without notice.

Model Name Using Similar Mechanism	CFS-209
Tape Transport Mechanism Type	MF-209-102

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.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE $\triangle$ SUR LES DIAGRAMMES SCHEMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

RADIO CASSETTE-CORDER
SONY®

MODEL IDENTIFICATION

—Label Model Number—

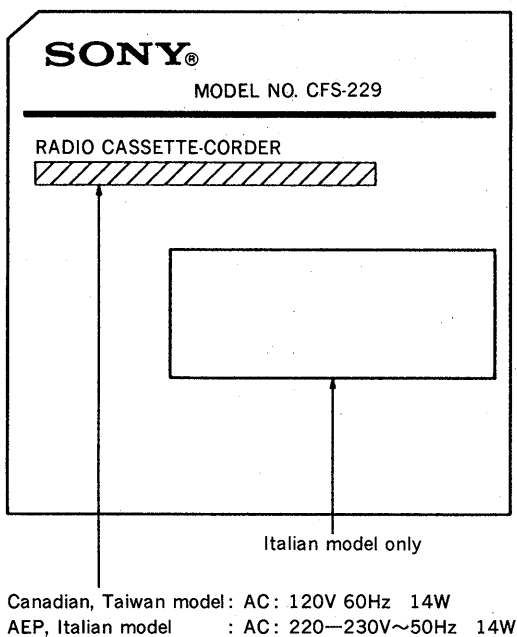
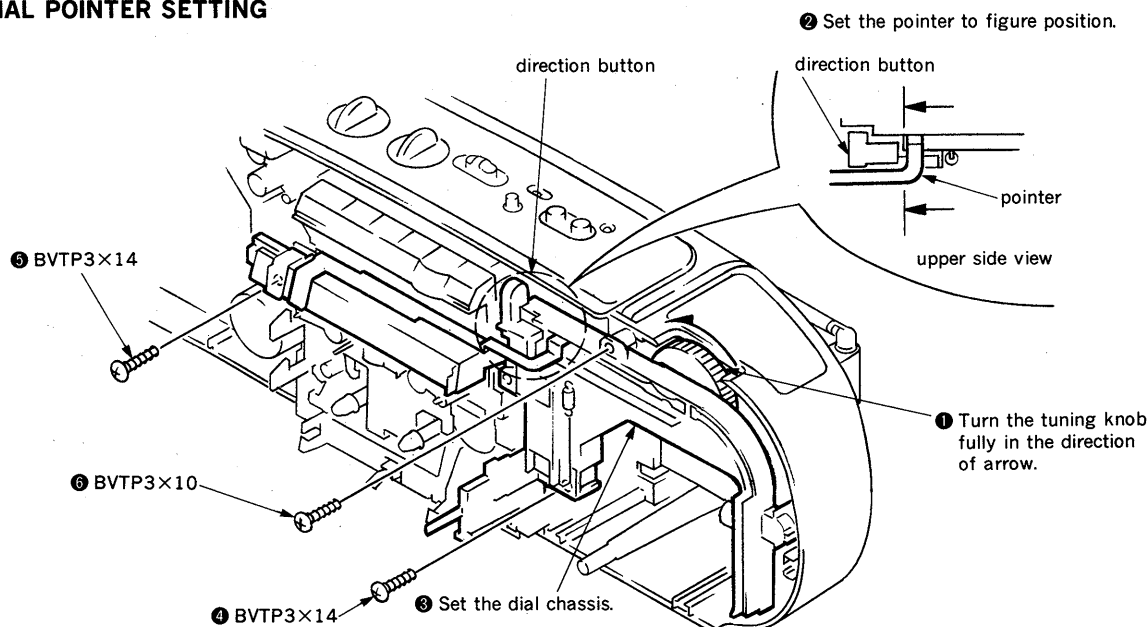


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SECTION 1 DIAL POINTER SETTING

1-1. DIAL POINTER SETTING



SECTION 2 MECHANICAL ADJUSTMENTS

PRECAUTION

- Clean the following parts with a denatured-alcohol-moistened swab :

record/playback head	pinch roller
erase head	rubber belts
capstan	idlers
- Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
- Do not use a magnetized screwdriver for the adjustments.
- After the adjustments, apply suitable locking compound to the parts adjusted.
- The adjustments should be performed with the rated power supply voltage unless otherwise noted.
- Power supply voltage : 9V dc.

Torque Measurement

Torque	Torque Meter	Meter Reading
FWD	CQ-102C	22—55g•cm (0.31—0.76oz•inch)
FWD Back Tension	CQ-102C	2—5g•cm (0.03—0.06oz•inch)
REV	CQ-102RC	22—55g•cm (0.31—0.76oz•inch)
REV Back Tension	CQ-102RC	2—5g•cm (0.03—0.06oz•inch)
FF	CQ-201B	more than 60g•cm (more than 0.84oz•inch)
REW	CQ-201B	more than 55g•cm (more than 0.77oz•inch)

Tape Tension Measurement

Mode	Tension meter	Meter Reading
FWD	CQ-403A	more than 100g (more than 3.53 oz)
REV	CQ-403R	

SECTION 3 ELECTRICAL ADJUSTMENTS

3-1. TAPE RECORDER SECTION 0dB=0.775V

Standard Output Level

Output terminal	SP OUT	HP OUT
load impedance	3.2Ω	32Ω
output signal level	0.775V (0dB)	0.25V (−10dB)

Test Tape

Type	Signal	Used for
WS-48A	3kHz, 0dB	tape speed adjustment

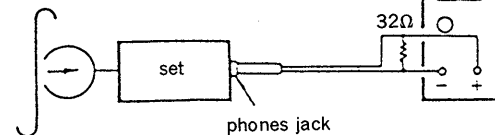
Tape Speed Adjustment

Procedure :

Mode : playback

speed checker
LFM-30
or
digital frequency
counter

test tape
WS-48A
(3kHz, 0dB)



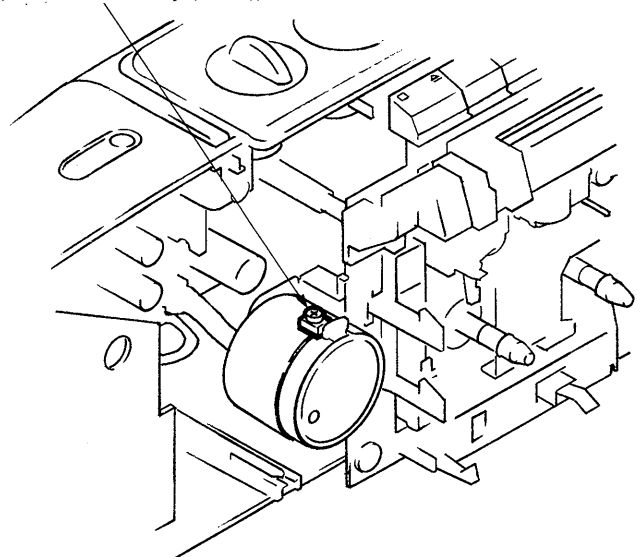
Adjustment Value :

Speed checker	Digital frequency counter
−3% to +3%	2,910 to 3,090Hz

Frequency difference between the beginning and the end of the tape should be within $\pm 1.5\%$ (45Hz).

Adjustment Location :

adjustment resistor RV401
(included motor assy (M901))

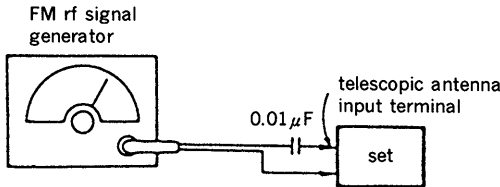


3-2. TUNER SECTION 0dB = 1 μ V

• FM Section

Setting :

FUNCTION switch : FM

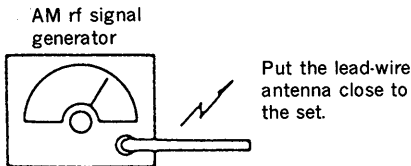


22.5kHz frequency
deviation by 400Hz signal
output level : as low as possible

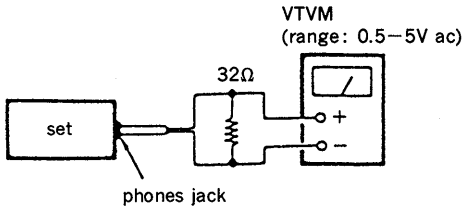
• AM Section

Setting :

FUNCTION switch : AM



30% amplitude
modulation 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.
- Remove telescopic antenna in FM section adjustments.

FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L2	CT2
86.5MHz (87.35MHz)	109.5MHz <107.8MHz> (108.3MHz)

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L1	CT1
86.5MHz (87.35MHz)	109.5MHz <107.8MHz> (108.3MHz)

AM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L4	CT4
515kHz [516kHz]	1,780kHz <1,680kHz> [1,630kHz]

AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L3	CT3
600kHz	1,500kHz (1,400kHz)

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

(): AEP, Italian model
< > : AEP model
[] : Italian model

HOW TO CHANGED THE CERAMIC FILTERS

This model is used three ceramic filters of CF1, 3 and 4.

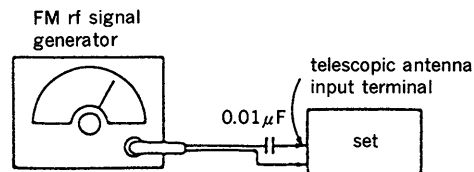
You must used same type of color marked ceramic filters in order to meet same specifications.

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

mark1	mark2	mark1	mark2	mark1	mark2	Center Frequency
red	—	red	—	red	—	10.70MHz
blue	—	blue	—	blue	—	10.67MHz
orange	—	orange	—	orange	—	10.73MHz
black	—	black	—	black	—	10.64MHz
white	—	white	—	white	—	10.76MHz
white	white	white	white	white	white	10.75MHz
yellow	—	yellow	—	yellow	—	10.79MHz

FM VCO Adjustment

Setting :

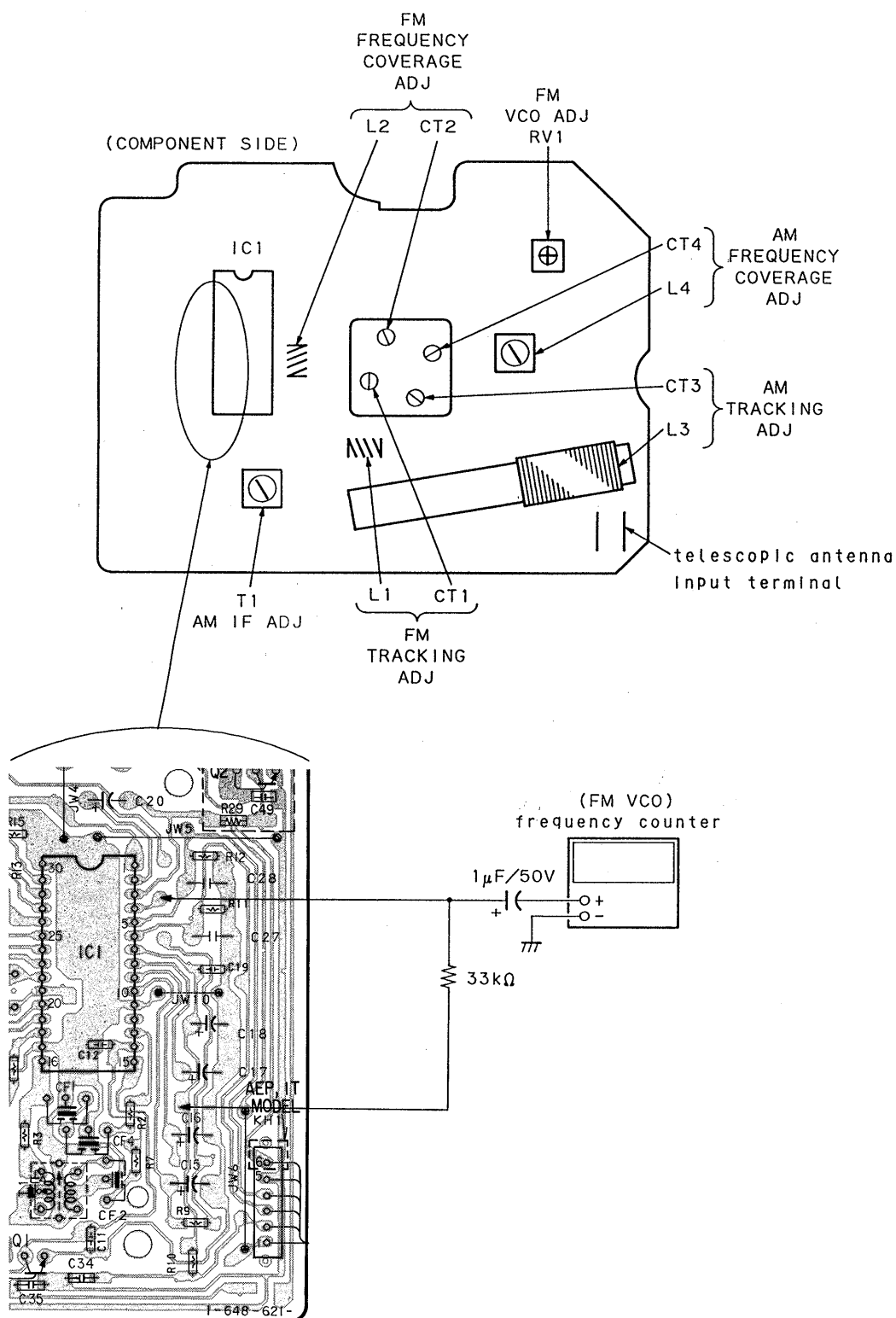


Carrier frequency : 98MHz
Modulation : no modulation
Output level : 0.1V (100dB)

Procedure :

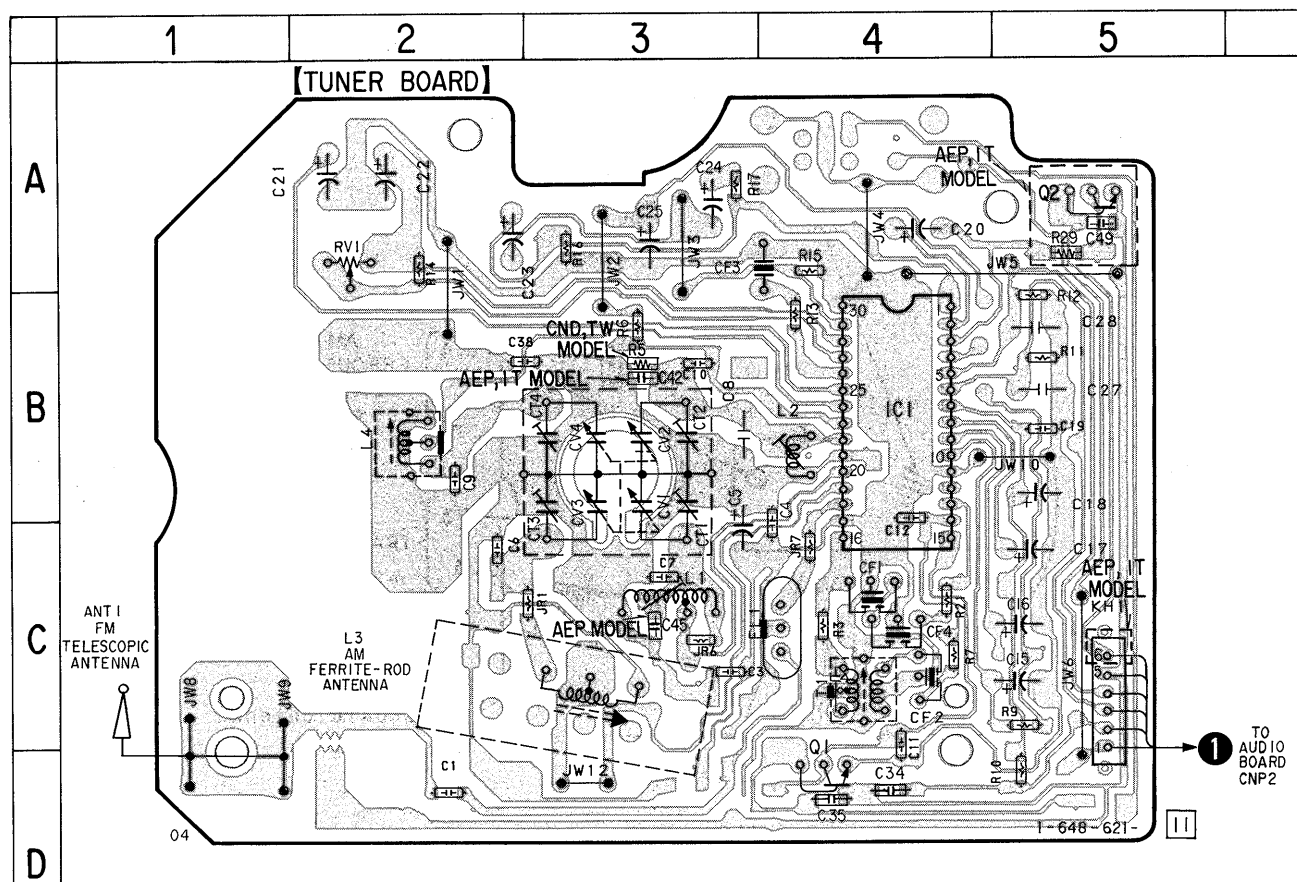
1. Connect frequency counter as shown next page.
2. Tune the set to 98MHz.
3. Adjust RV1 for 76kHz $\pm$ 500Hz reading on the frequency counter.

Adjustment Location : tuner board



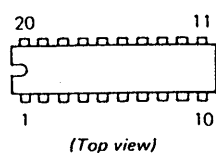
SECTION 4 DIAGRAMS

4-1. PRINTED WIRING BOARD—TUNER SECTION—



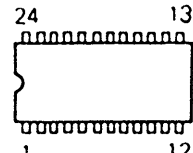
4-2. SEMICONDUCTOR LEAD LAYOUTS

BA3870

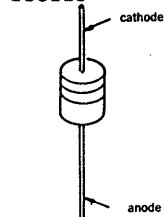


(Top view)

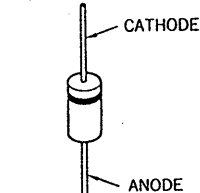
TA2036N



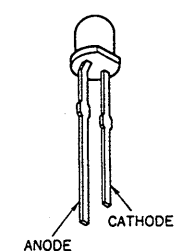
(Top view)

RD6.8ES-B2
1SS119

10E2



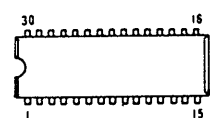
MVR3338S



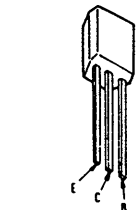
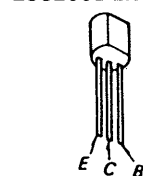
Note:

- : parts extracted from the component side.
- : indicates side identified with part number.
- ▨ : Pattern on the side which is seen.
- Abbreviations
CND : Canadian model
IT : Italian model
TW : Taiwan model

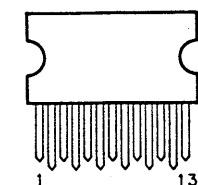
CXA1238S



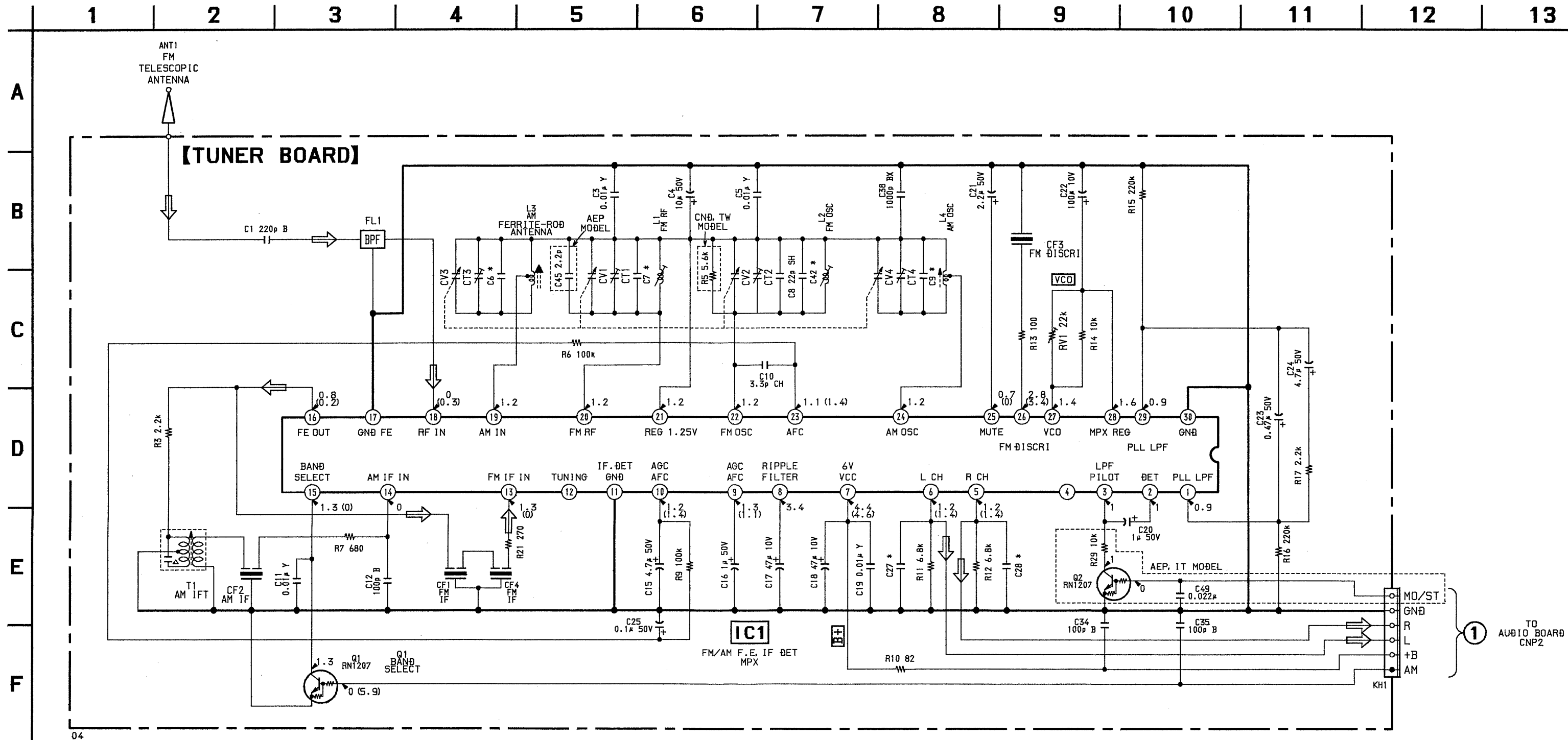
(Top view)

DTA144ES
DTC114YS
DTC144ES
RN12072SC1815-GR
2SC2001-LK

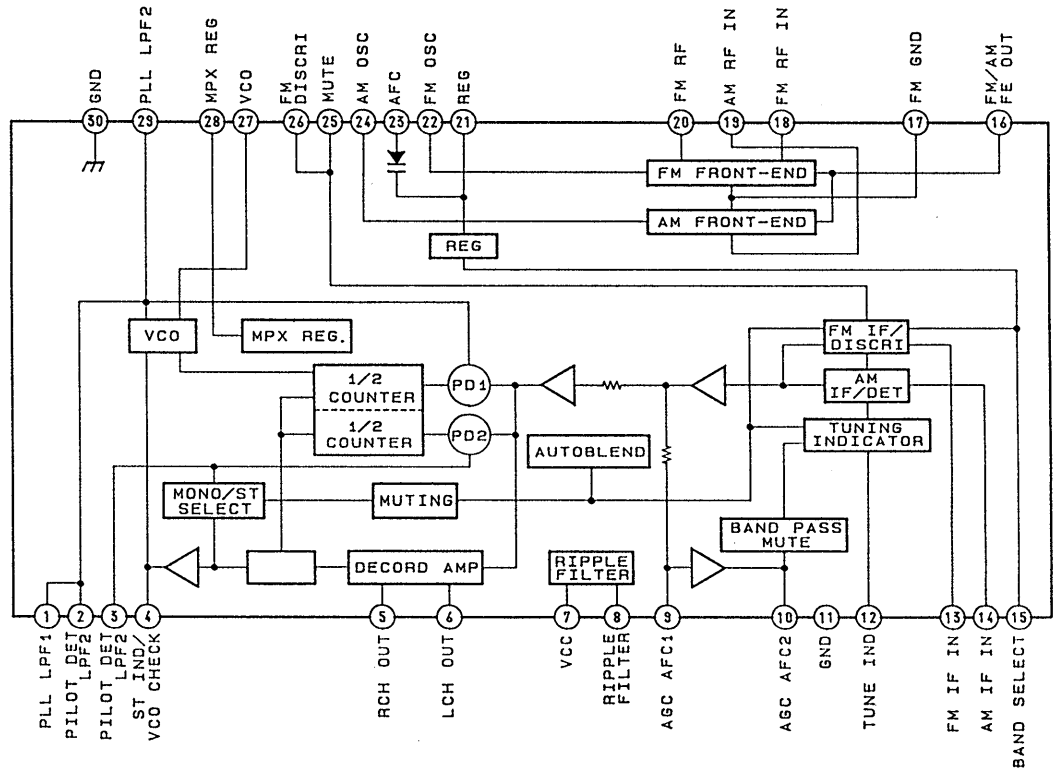
LA4598



4-3. SCHEMATIC DIAGRAM—TUNER SECTION—



• IC Block Diagram
IC1 CXA1238S

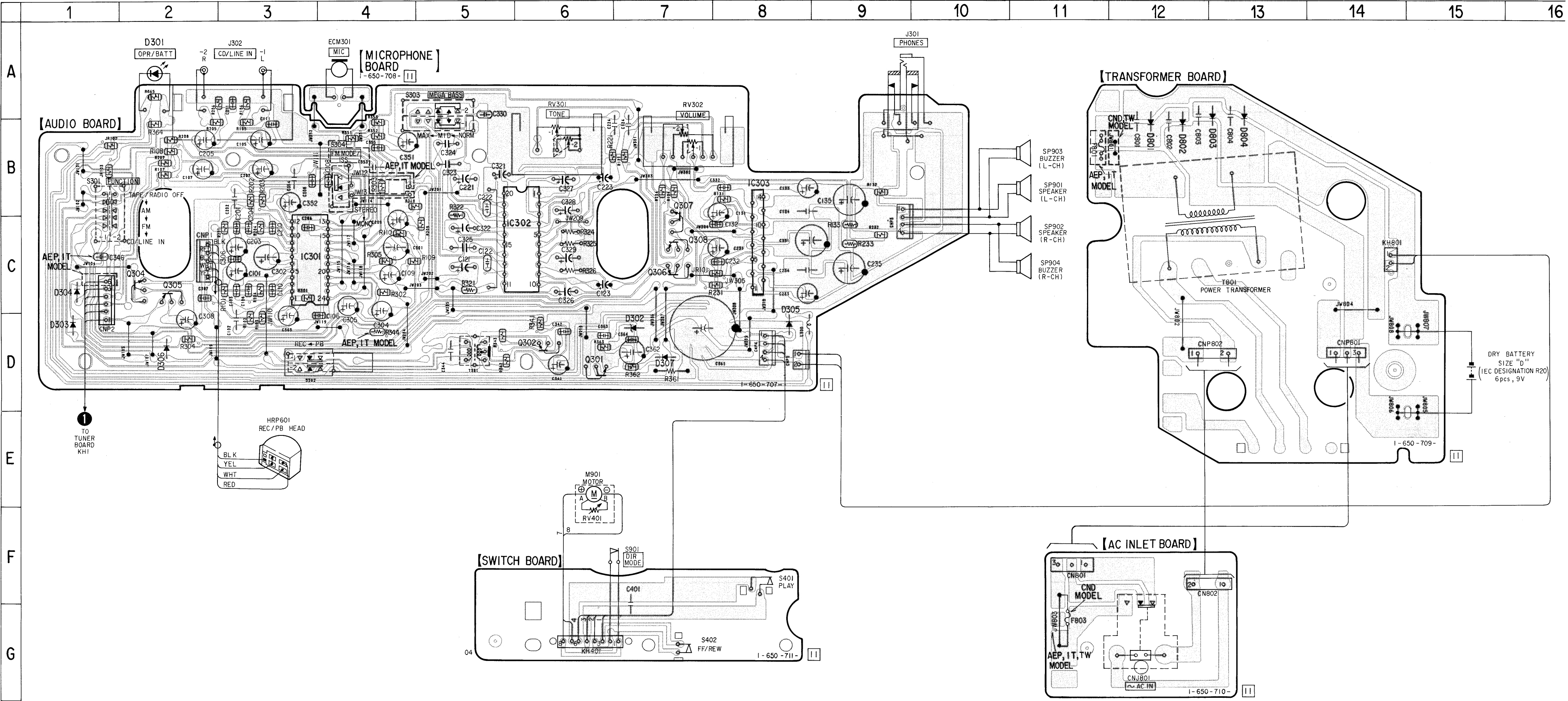


Note:

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- Δ : internal component.
- B+ : B+ Line
- □ : adjustment for repair.
- Voltage is dc with respect to ground under no-signal (detuned) conditions.
- no mark: FM
- (): AM
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
- ⇨ : FM
- Abbreviations
- CND : Canadian model
- IT : Italian model
- TW : Taiwan model

• Semiconductor Location 4-4. PRINTED WIRING BOARDS—AUDIO SECTION—• Refer to page 6 for Semiconductor Lead Layouts.

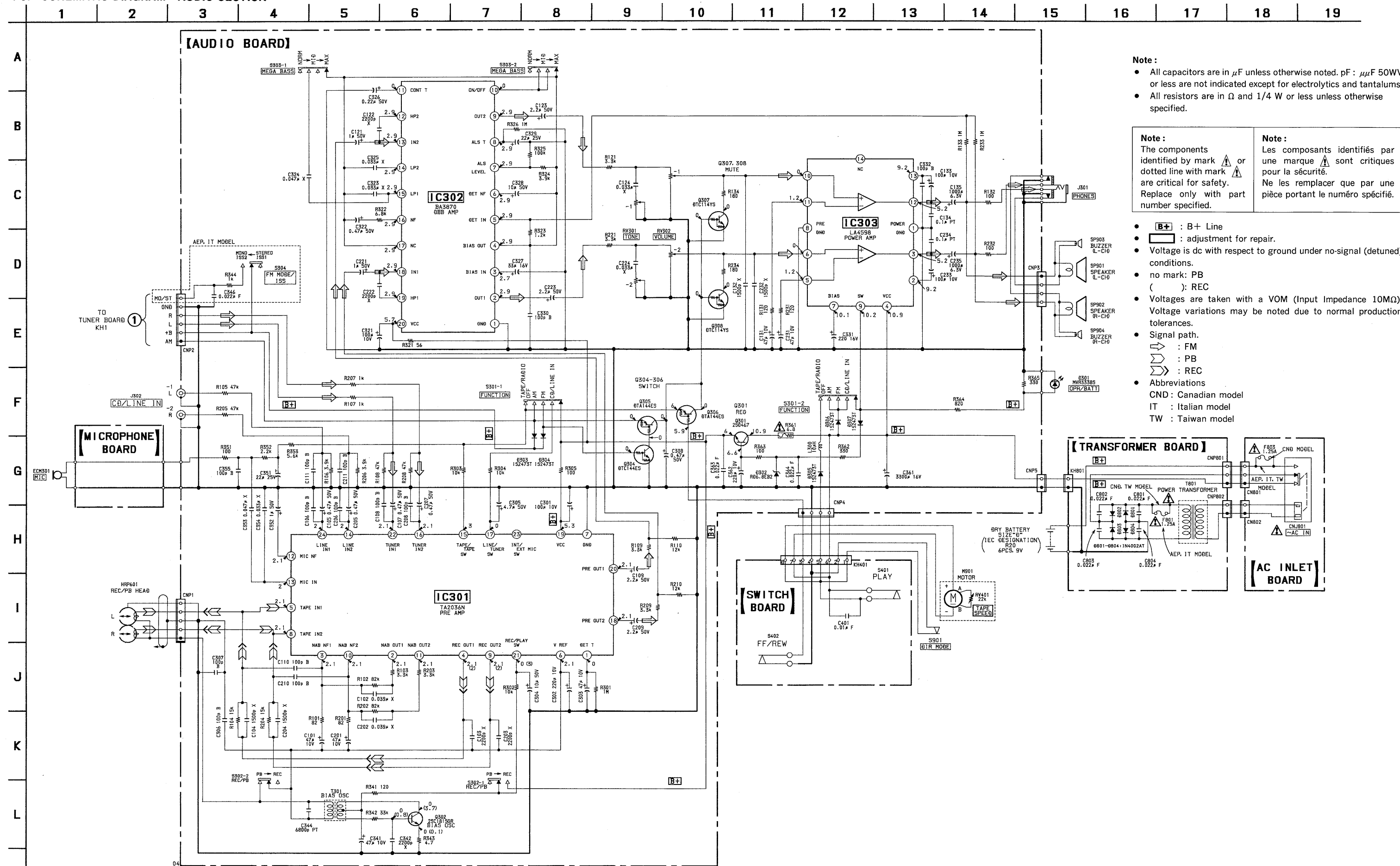
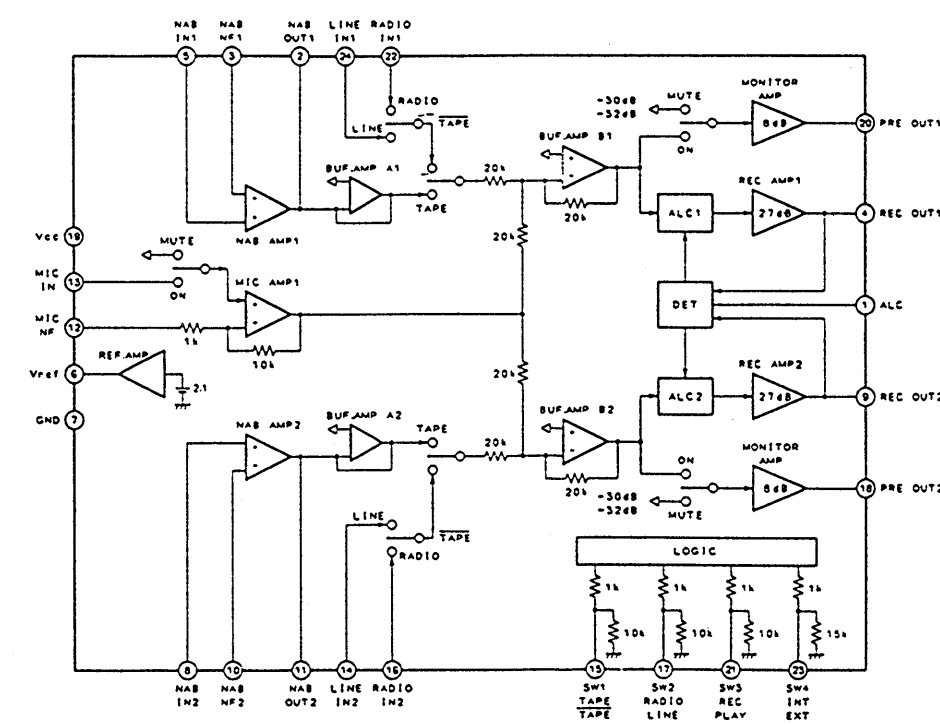
Ref. No.	Location
D301	A-2
D302	D-7
D303	D-1
D304	C-1
D305	D-8
D306	D-2
D307	D-7
D801	B-12
D802	B-12
D803	B-12
D804	B-13
IC301	C-3
IC302	C-6
IC303	B-8
Q301	D-6
Q302	D-6
Q304	C-2
Q305	C-2
Q306	C-7
Q307	C-7
Q308	C-7



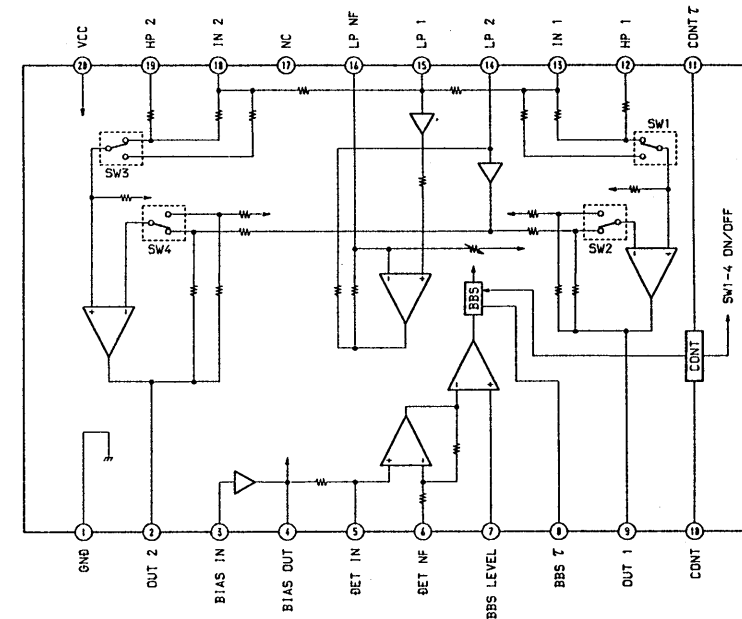
Note :

-  : parts extracted from the component side.
-  indicates side identified with part number.
-  : Pattern on the side which is seen.
- Abbreviations
 CND : Canadian model
 IT : Italian model
 TW : Taiwan model

4-5. SCHEMATIC DIAGRAM—AUDIO SECTION—

• IC Block Diagrams
IC301 TA2036

IC302 BA3870



SECTION 5

EXPLODED VIEWS

NOTE:-

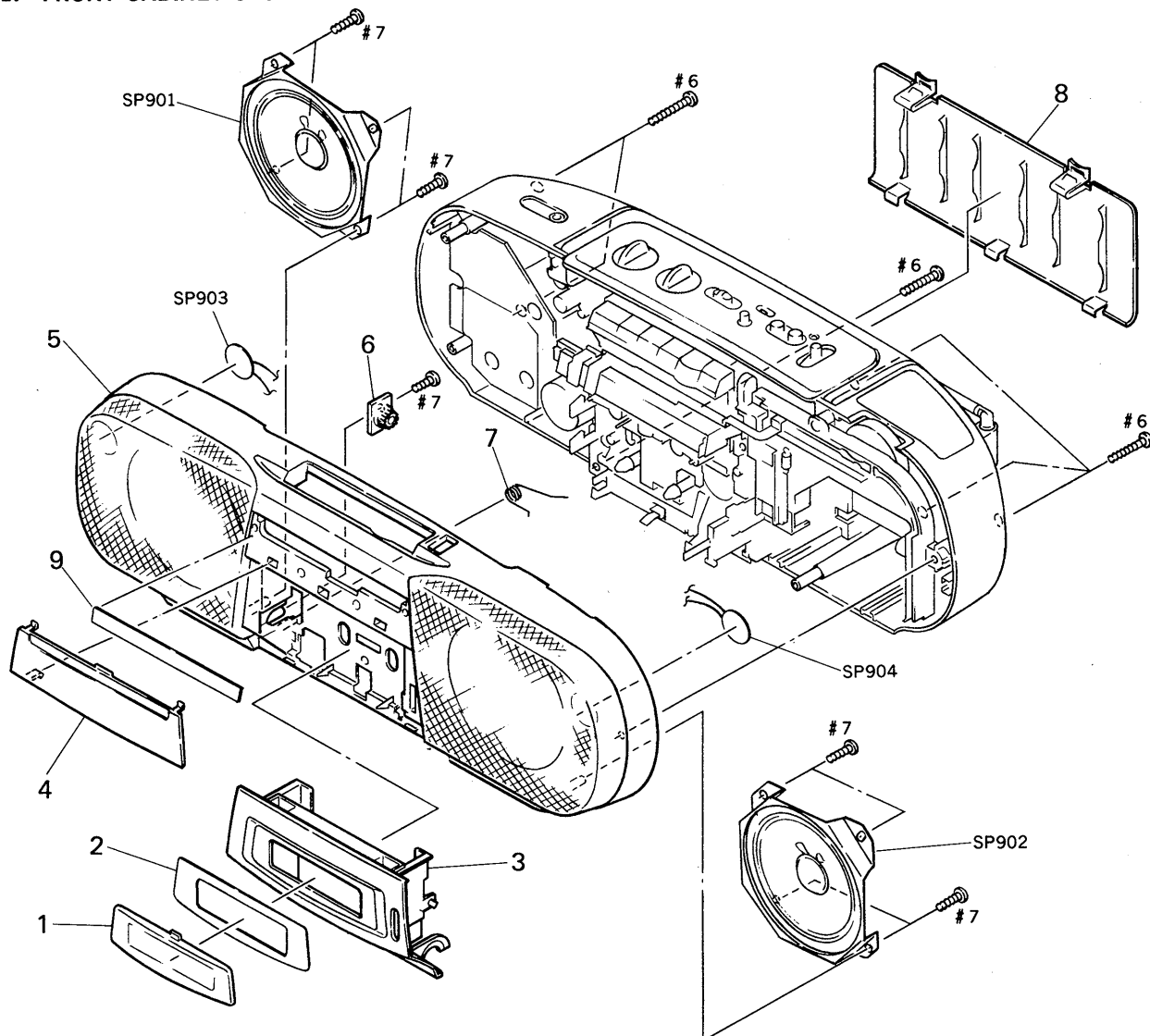
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Abbreviation
IT : Italian model
TW : Taiwan model

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

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

Les composants identifiés par une
marque **A** sont critiques pour
la sécurité.
Ne les remplacer que par une pièce
portant le numéro spécifié.

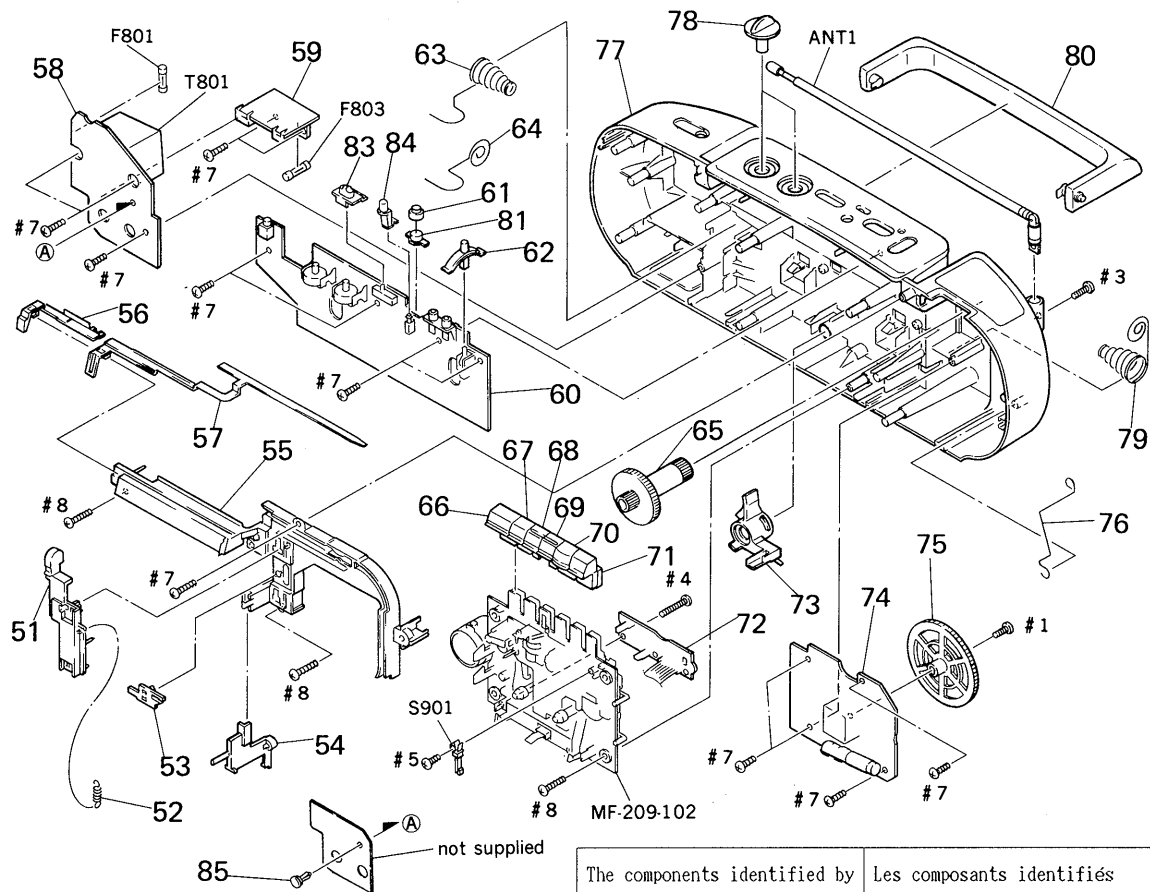
5-1. FRONT CABINET SECTION



Ref. No.	Part No.	Description	Remark
1	3-908-068-01	WINDOW, CASSETTE	
* 2	3-909-459-01	SHEET, ADHESIVE	
3	3-908-073-11	HOLDER, CASSETTE	
4	3-908-069-01	PLATE, DIAL (Canadian, TW)	
4	3-908-069-11	PLATE, DIAL (AEP)	
4	3-908-069-21	PLATE, DIAL (IT)	
5	X-3367-743-1	CABINET (F) SUB ASSY	
6	3-351-377-11	DAMPER	

Ref. No.	Part No.	Description	Remark
7	3-909-454-01	SPRING, CASSETTE	
8	3-343-064-31	LID, BATTERY CASE	
* 9	3-909-458-01	SHEET (DIAL PLATE), ADHESIVE	
SP901	1-504-474-11	SPEAKER (10CM)	
SP902	1-504-474-11	SPEAKER (10CM)	
SP903	1-529-059-12	BUZZER	
SP904	1-529-059-12	BUZZER	

5-2. REAR CABINET SECTION



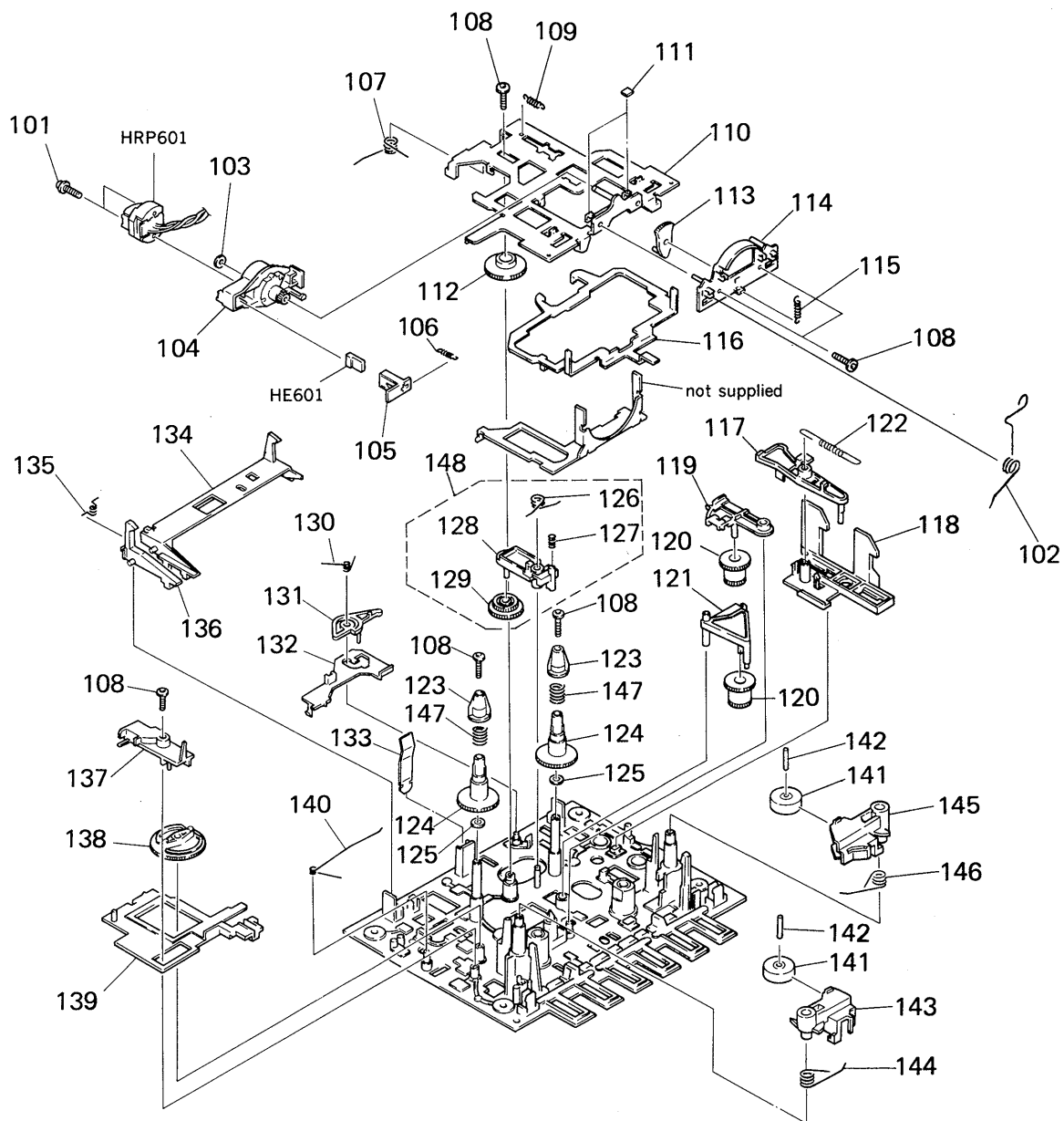
The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
51	3-909-480-01	BUTTON, DIRECTION	
52	3-379-754-01	SPRING (DIR.), TENSION	
53	3-909-456-01	LEVER, DIRECTION	
54	3-909-457-01	KNOB, DIRECTION	
55	3-909-481-01	CHASSIS, DIAL	
56	3-909-460-01	INDICATOR	
57	3-908-072-01	POINTER	
* 58	1-650-709-11	TRANSFORMER BOARD	
* 59	1-650-710-11	AC INLET BOARD	
* 60	A-3269-036-A	AUDIO BOARD, COMPLETE (Canadian, TW)	
* 60	A-3269-037-A	AUDIO BOARD, COMPLETE (AEP, IT)	
61	3-379-413-01	CUSHION (MICROPHONE)	
62	3-386-953-01	KNOB (LEVER)	
63	3-909-453-01	SPRING (-), BATTERY COIL	
64	3-909-452-01	TERMINAL (+), BATTERY	
65	3-908-066-01	KNOB, TUNING	
66	3-908-062-01	BUTTON (S/E), M. D.	
67	3-908-065-01	BUTTON (PAUSE), M. D.	
68	3-908-063-01	BUTTON (FF), M. D.	
69	3-908-064-01	BUTTON (REW), M. D.	
70	3-908-060-01	BUTTON (PLAY), M. D.	
71	3-908-061-01	BUTTON (REC), M. D.	
* 72	1-650-711-11	SWITCH BOARD	

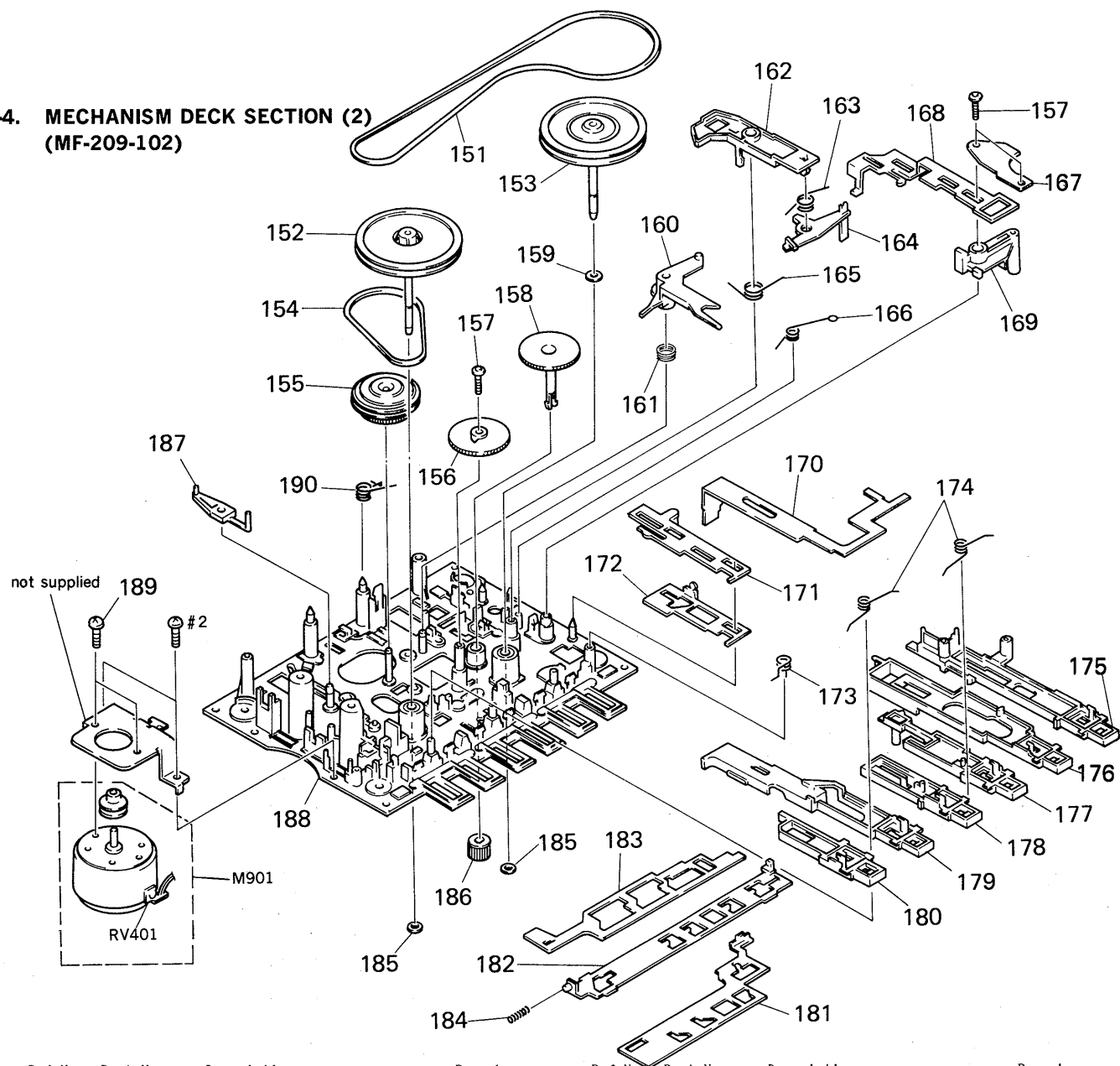
Ref. No.	Part No.	Description	Remark
73	3-909-461-01	LEVER, REC	
* 74	A-3269-030-A	TUNER BOARD, COMPLETE (Canadian, TW)	
* 74	A-3269-038-A	TUNER BOARD, COMPLETE (AEP)	
* 74	A-3269-039-A	TUNER BOARD, COMPLETE (IT)	
75	3-907-415-01	DRUM (P. V. C)	
* 76	3-909-455-01	TERMINAL, ANTENNA	
77	3-908-224-11	CABINET, REAR (Canadian, TW)	
77	3-908-224-71	CABINET, REAR (AEP, IT)	
78	3-379-771-31	KNOB (ROTARY)	
79	3-379-412-11	TERMINAL (+ -), BATTERY	
80	X-3367-740-1	HANDLE ASSY	
* 81	1-650-708-11	MICROPHONE BOARD	
83	3-907-412-01	KNOB (MEGA BASS)	
84	3-909-450-01	PUSH BUTTON (AEP, IT)	
85	4-812-134-00	RIVET, NYLON (AEP, IT)	
ANT1	1-501-378-11	ANTENNA, TELESCOPIC (AEP, IT)	
ANT1	1-501-388-11	ANTENNA, TELESCOPIC (Canadian, TW)	
Δ F801	1-532-285-00	FUSE, TIME-LAG (T1.25A) (AEP, IT)	
Δ F803	1-576-101-21	FUSE (1.25A) (Canadian)	
S901	1-570-559-11	SWITCH, LEAF (DIR MODE)	
Δ T801	1-450-016-11	TRANSFORMER, POWER (Canadian, TW)	
Δ T801	1-450-492-11	TRANSFORMER, POWER (AEP, IT)	

5-3. MECHANISM DECK SECTION (1)
(MF-209-102)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	3-309-597-81	SCREW (1.4), TAPPING		124	3-374-326-01	TABLE, REEL	
102	3-384-551-01	SPRING (R), HEAD WIRE		125	3-377-195-01	WASHER (S)	
103	3-336-319-01	RING, RETAINING		126	3-374-327-01	SPRING (N R), TORSION	
104	3-374-371-01	HOLDER, HEAD		127	3-343-264-81	COLLAR, SPRING	
105	3-374-344-01	GUIDE, ERASE HEAD		128	3-374-363-01	LEVER (FWD)	
106	3-374-345-01	SPRING, TENSION		129	3-374-328-01	GEAR, FWD	
107	3-374-342-01	SPRING (HEAD), TORSION		130	3-374-334-01	SPRING (BRAKE), TORSION	
108	3-344-737-11	SCREW (B1.4X6), TAPPING		131	3-374-333-01	LEVER (PAUSE)	
109	3-380-814-01	SPRING, TENSION		132	3-374-332-01	SLIDER (BRAKE)	
* 110	X-3363-914-1	CHASSIS ASSY, HEAD		133	3-376-135-01	SPRING, CASSETTE	
* 111	3-377-197-01	SHEET (AZ) (T=0.09)		134	3-374-366-01	LEVER (ERASE R)	
* 111	3-377-197-11	SHEET (AZ) (T=0.115)		135	4-930-451-01	SPRING	
* 111	3-377-197-21	SHEET (AZ) (T=0.14)		136	3-374-335-01	LEVER (ERASE N)	
* 111	3-377-197-31	SHEET (AZ) (T=0.165)		137	3-374-330-01	LEVER (DIR A)	
* 111	3-377-097-41	SHEET (AZ) (T=0.23)		138	3-374-365-01	GEAR (NR), CAM	
112	3-374-329-01	GEAR, MIDWAY		139	3-374-364-01	SLIDER (NR)	
113	3-374-343-01	LEVER (FAN TYPE)		140	3-374-331-01	SPRING (DIR), TORSION	
114	3-374-369-01	GEAR (BASE), HEAD		141	3-366-051-11	PINCH ROLLER	
115	3-386-829-01	SPRING, TENSION		142	3-366-052-11	SHAFT, PINCH ROLLER	
* 116	3-374-370-01	SLIDER (HD)		* 143	3-374-373-01	LEVER (PINCH R)	
117	3-374-336-01	LEVER (SW)		144	3-374-347-01	SPRING (R), TORSION	
* 118	3-374-367-01	LEVER (EJECT)		* 145	3-374-372-01	LEVER (PINCH N)	
119	3-374-338-01	LEVER (REW)		146	3-374-346-01	SPRING (N), TORSION	
120	3-374-339-01	GEAR, FR		147	4-931-747-11	SPRING, COMPRESSION	
121	3-374-368-01	LEVER (FF)		148	X-3364-952-1	LEVER (FWD) ASSY	
122	3-377-194-01	SPRING, TENSION		HE601	1-543-719-11	HEAD, MAGNETIC (ERASE)	
123	4-930-408-11	CLAW, REEL		HRP601	1-543-872-11	HEAD, MAGNETIC (REC/PB)	

5-4. MECHANISM DECK SECTION (2)
(MF-209-102)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	3-374-322-01	BELT		* 172	3-374-305-01	SLIDER (MODE A)	
152	X-3365-411-1	FLY ASSY (N2)		173	3-374-309-01	SPRING (REC), TORSION	
153	X-3363-913-1	FLY ASSY (R)		174	3-374-308-01	SPRING (CONTROL), TORSION	
154	3-374-321-01	BELT		175	3-374-356-01	SLIDER (REC)	
155	X-3363-917-1	LIMITER ASSY, FWD		176	3-374-355-01	SLIDER (FWD)	
156	3-374-359-11	GEAR (S OFF), CAM		177	3-374-354-01	SLIDER (REW)	
157	3-344-737-11	SCREW (B1.4X6), TAPPING		178	3-374-353-01	SLIDER (FF)	
158	3-374-318-11	GEAR (A), DECELERATION		179	3-374-352-01	SLIDER (PAUSE)	
159	3-683-454-01	WASHER, POLYETHYLENE		180	3-374-351-01	SLIDER (STOP)	
* 160	3-374-316-01	LEVER (S OFF A)		* 181	3-374-348-01	SLIDER (FR)	
161	3-375-011-01	SPRING, COMPRESSION		182	3-374-350-01	SLIDER (LOCK)	
162	3-374-357-01	LEVER (S OFF C)		* 183	3-374-349-01	SLIDER (SW)	
163	3-374-311-01	SPRING (S OFF C), TORSION		184	4-932-648-01	SPRING, COMPRESSION	
164	3-374-312-01	LEVER (S OFF B)		185	3-374-324-01	RING, RETAINING	
165	3-374-313-01	SPRING (S OFF), TORSION		186	3-374-325-01	GEAR (B), DECELERATION	
166	3-374-307-01	SPRING (MUTUAL), TORSION		187	3-374-304-01	LEVER (PAUSE ROCK)	
* 167	3-374-317-01	REINFORCEMENT		* 188	X-3363-918-1	CHASSIS ASSY, MECHANICAL	
168	3-374-358-01	SLIDER (ERASING)		189	3-343-251-01	SCREW (M2.6X2.5)	
169	3-374-314-01	LEVER (DIR B)		190	3-374-310-01	SPRING (FWD), TORSION	
* 170	3-374-315-01	SLIDER (CR)		M901	A-3253-181-A	MOTOR ASSY	
171	3-374-306-01	SLIDER (MODE B)		RV401	1-230-495-11	RES, ADJ, CARBON 2K	

SECTION 6 ELECTRICAL PARTS LIST

AC INLET

AUDIO

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.

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

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- Abbreviation
IT : Italian model
TW : Taiwan model

Ref. No.	Part No.	Description	Remark
*	1-650-710-11	AC INLET BOARD *****	
	1-533-217-31	HOLDER, FUSE (Canadian)	
		< CONNECTOR >	
* CN801	1-764-648-11	HOUSING, CONNECTOR 3P	
* CN802	1-764-647-11	HOUSING, CONNECTOR 3P	
		< JACK >	
Δ CNJ801	1-526-838-11	INLET, AC 2P ($\sim$ AC IN) (AEP, IT)	
Δ CNJ801	1-540-009-11	INLET, AC ($\sim$ AC IN) (Canadian)	
Δ CNJ801	1-526-818-11	INLET, AC ($\sim$ AC IN) (TW)	
		< FUSE >	
Δ F803	1-576-101-21	FUSE (1.25A) (Canadian)	

*	A-3269-036-A	AUDIO BOARD, COMPLETE (Canadian, TW)	
*	A-3269-037-A	AUDIO BOARD, COMPLETE (AEP, IT)	

		< CAPACITOR >	
C101	1-124-126-00	ELECT 47uF 20% 10V	
C102	1-161-020-11	CERAMIC 0.039uF 10% 16V	
C103	1-163-213-00	CERAMIC CHIP 0.0022uF 5% 50V	
C104	1-163-209-00	CERAMIC MELF 0.0015uF 20% 16V	
C105	1-124-902-00	ELECT 0.47uF 20% 50V	
C106	1-163-181-00	CERAMIC MELF 100PF 10% 50V	
C107	1-124-902-00	ELECT 0.47uF 20% 50V	
C108	1-163-181-00	CERAMIC MELF 100PF 10% 50V	
C109	1-124-925-11	ELECT 2.2uF 20% 100V	
C110	1-163-181-00	CERAMIC MELF 100PF 10% 50V	
C111	1-163-181-00	CERAMIC MELF 100PF 10% 50V	
C121	1-124-903-11	ELECT 1uF 20% 50V	
C122	1-163-213-00	CERAMIC CHIP 0.0022uF 5% 50V	
C123	1-124-925-11	ELECT 2.2uF 20% 100V	
C124	1-161-057-00	CERAMIC 0.033uF 10% 50V	
C131	1-124-126-00	ELECT 47uF 20% 10V	
C132	1-163-209-00	CERAMIC MELF 0.0015uF 20% 16V	

Ref. No.	Part No.	Description	Remark
C133	1-124-443-00	ELECT 100uF 20% 10V	
C134	1-130-495-00	MYLAR 0.1uF 5% 50V	
C135	1-124-471-00	ELECT 1000uF 20% 6.3V	
C201	1-124-126-00	ELECT 47uF 20% 10V	
C202	1-161-020-11	CERAMIC 0.039uF 10% 16V	
C203	1-163-213-00	CERAMIC CHIP 0.0022uF 5% 50V	
C204	1-163-209-00	CERAMIC MELF 0.0015uF 20% 16V	
C205	1-124-902-00	ELECT 0.47uF 20% 50V	
C206	1-163-181-00	CERAMIC MELF 100PF 10% 50V	
C207	1-124-902-00	ELECT 0.47uF 20% 50V	
C208	1-163-181-00	CERAMIC MELF 100PF 10% 50V	
C209	1-124-925-11	ELECT 2.2uF 20% 100V	
C210	1-163-181-00	CERAMIC MELF 100PF 10% 50V	
C211	1-163-181-00	CERAMIC MELF 100PF 10% 50V	
C221	1-124-903-11	ELECT 1uF 20% 50V	
C222	1-163-213-00	CERAMIC CHIP 0.0022uF 5% 50V	
C223	1-124-925-11	ELECT 2.2uF 20% 100V	
C224	1-161-057-00	CERAMIC 0.033uF 10% 50V	
C231	1-124-126-00	ELECT 47uF 20% 10V	
C232	1-163-209-00	CERAMIC MELF 0.0015uF 20% 16V	
C233	1-124-443-00	ELECT 100uF 20% 10V	
C234	1-130-495-00	MYLAR 0.1uF 5% 50V	
C235	1-124-471-00	ELECT 1000uF 20% 6.3V	
C301	1-124-443-00	ELECT 100uF 20% 10V	
C302	1-126-176-11	ELECT 220uF 20% 10V	
C303	1-124-126-00	ELECT 47uF 20% 10V	
C304	1-124-907-11	ELECT 10uF 20% 50V	
C305	1-124-927-11	ELECT 4.7uF 20% 100V	
C306	1-163-181-00	CERAMIC MELF 100PF 10% 50V	
C307	1-163-181-00	CERAMIC MELF 100PF 10% 50V	
C308	1-124-902-00	ELECT 0.47uF 20% 50V	
C321	1-124-443-00	ELECT 100uF 20% 10V	
C322	1-124-902-00	ELECT 0.47uF 20% 50V	
C323	1-161-057-00	CERAMIC 0.033uF 10% 50V	
C324	1-162-847-11	CERAMIC 0.047uF 10% 16V	
C325	1-161-057-00	CERAMIC 0.033uF 10% 50V	
C326	1-124-464-11	ELECT 0.22uF 20% 50V	
C327	1-124-792-51	ELECT 33uF 20% 50V	
C328	1-124-907-11	ELECT 10uF 20% 50V	
C329	1-126-233-11	ELECT 22uF 20% 50V	

AUDIO

Ref. No.	Part No.	Description	Remark
C330	1-163-181-00	CERAMIC MELF 100PF	10% 50V
C331	1-124-120-11	ELECT 220uF	20% 25V
C332	1-163-181-00	CERAMIC MELF 100PF	10% 50V
C341	1-124-126-00	ELECT 47uF	20% 10V
C342	1-163-213-00	CERAMIC CHIP 0.0022uF	5% 50V
C344	1-130-481-00	MYLAR 0.0068uF	5% 50V
C346	1-163-063-00	CERAMIC MELF (AEP, IT) 0.022uF	25V
C351	1-126-233-11	ELECT 22uF	20% 50V
C352	1-124-903-11	ELECT 1uF	20% 50V
C353	1-162-847-11	CERAMIC 0.047uF	10% 16V
C354	1-161-057-00	CERAMIC 0.033uF	10% 50V
C355	1-163-181-00	CERAMIC MELF 100PF	10% 50V
C361	1-124-887-00	ELECT 3300uF	20% 16V
C362	1-126-176-11	ELECT 220uF	20% 10V
C363	1-163-063-00	CERAMIC MELF 0.022uF	25V
C364	1-163-063-00	CERAMIC MELF 0.022uF	25V
< CONNECTOR >			
CNP1	1-506-987-11	PIN, CONNECTOR (PC BOARD) 5P	
* CNP2	1-568-271-11	SOCKET, CONNECTOR 5P (Canadian, TW)	
* CNP2	1-568-272-11	SOCKET, CONNECTOR 6P (AEP, IT)	
CNP3	1-506-986-11	PIN, CONNECTOR (PC BOARD) 4P	
CNP4	1-506-986-11	PIN, CONNECTOR (PC BOARD) 4P	
* CNP5	1-691-573-11	PIN, CONNECTOR (PC BOARD) 2P	
< DIODE >			
D301	8-719-980-67	LED MVR3338S (OPR/BATT)	
D302	8-719-109-97	DIODE RD6. 8ES-B2	
D303	8-719-911-19	DIODE 1SS119	
D304	8-719-911-19	DIODE 1SS119	
D305	8-719-911-19	DIODE 1SS119	
D306	8-719-911-19	DIODE 1SS119	
D307	8-719-911-19	DIODE 1SS119	
< IC >			
IC301	8-759-164-45	IC TA2036N	
IC302	8-759-048-60	IC BA3870	
IC303	8-759-060-21	IC LA4598	
< JACK >			
J301	1-566-891-11	JACK (PHONES)	
J302	1-563-716-11	JACK, PIN (CD/LINE IN)	
< JUMPER RESISTOR >			
JR101	1-259-041-11	CARBON MELF 0 5% 1/8W	
JR102	1-259-041-11	CARBON MELF 0 5% 1/8W	
JR103	1-259-041-11	CARBON MELF 0 5% 1/8W	

Ref. No.	Part No.	Description	Remark
< COIL >			
L300	1-414-183-41	INDUCTOR 10uH	
< TRANSISTOR >			
Q301	8-729-142-46	TRANSISTOR 2SC2001-LK	
Q302	8-729-281-53	TRANSISTOR 2SC1815-GR	
Q304	8-729-900-89	TRANSISTOR DTC144ES	
Q305	8-729-900-65	TRANSISTOR DTA144ES	
Q306	8-729-900-65	TRANSISTOR DTA144ES	
Q307	8-729-904-36	TRANSISTOR DTC114YS	
Q308	8-729-904-36	TRANSISTOR DTC114YS	
< RESISTOR >			
R101	1-249-404-00	CARBON 82 5% 1/4W	
R102	1-249-440-11	CARBON 82K 5% 1/4W	
R103	1-249-423-11	CARBON 3.3K 5% 1/4W	
R104	1-249-431-11	CARBON 15K 5% 1/4W	
R105	1-249-437-11	CARBON 47K 5% 1/4W	
R106	1-249-424-11	CARBON 3.9K 5% 1/4W	
R107	1-249-417-11	CARBON 1K 5% 1/4W	
R108	1-249-437-11	CARBON 47K 5% 1/4W	
R109	1-249-423-11	CARBON 3.3K 5% 1/4W	
R110	1-249-430-11	CARBON 12K 5% 1/4W	
R121	1-249-423-11	CARBON 3.3K 5% 1/4W	
R131	1-249-406-11	CARBON 120 5% 1/4W	
R132	1-247-807-11	CARBON 100 5% 1/8W	
R133	1-215-493-00	METAL 1M 1% 1/6W	
R134	1-249-408-11	CARBON 180 5% 1/4W	
R201	1-249-404-00	CARBON 82 5% 1/4W	
R202	1-249-440-11	CARBON 82K 5% 1/4W	
R203	1-249-423-11	CARBON 3.3K 5% 1/4W	
R204	1-249-431-11	CARBON 15K 5% 1/4W	
R205	1-249-437-11	CARBON 47K 5% 1/4W	
R206	1-249-424-11	CARBON 3.9K 5% 1/4W	
R207	1-249-417-11	CARBON 1K 5% 1/4W	
R208	1-249-437-11	CARBON 47K 5% 1/4W	
R209	1-249-423-11	CARBON 3.3K 5% 1/4W	
R210	1-249-430-11	CARBON 12K 5% 1/4W	
R221	1-249-423-11	CARBON 3.3K 5% 1/4W	
R231	1-249-406-11	CARBON 120 5% 1/4W	
R232	1-247-807-11	CARBON 100 5% 1/8W	
R233	1-215-493-00	METAL 1M 1% 1/6W	
R234	1-249-408-11	CARBON 180 5% 1/4W	
R301	1-215-493-00	METAL 1M 1% 1/6W	
R302	1-249-429-11	CARBON 10K 5% 1/4W	
R303	1-249-429-11	CARBON 10K 5% 1/4W	
R304	1-249-429-11	CARBON 10K 5% 1/4W	
R305	1-247-807-11	CARBON 100 5% 1/8W	

AUDIO

MICROPHONE

SWITCH

TRANSFORMER

Ref. No.	Part No.	Description	Remark
R321	1-249-402-11	CARBON	56 5% 1/4W
R322	1-249-427-11	CARBON	6.8K 5% 1/4W
R323	1-249-418-11	CARBON	1.2K 5% 1/4W
R324	1-249-424-11	CARBON	3.9K 5% 1/4W
R325	1-259-090-11	CARBON MELF	100K 5% 1/8W
R326	1-215-493-00	METAL	1M 1% 1/6W
R341	1-249-406-11	CARBON	120 5% 1/4W
R342	1-249-435-11	CARBON	33K 5% 1/4W
R343	1-249-389-11	CARBON	4.7 5% 1/4W
R344	1-249-417-11	CARBON	1K 5% 1/4W (AEP, IT)
R351	1-247-807-11	CARBON	100 5% 1/8W
R352	1-249-421-11	CARBON	2.2K 5% 1/4W
R353	1-249-426-11	CARBON	5.6K 5% 1/4W
△R361	1-219-113-11	FUSIBLE	6.8 5% 1/4W F
R362	1-249-411-11	CARBON	330 5% 1/4W
R363	1-247-807-11	CARBON	100 5% 1/8W
R364	1-249-416-11	CARBON	820 5% 1/4W
R365	1-249-411-11	CARBON	330 5% 1/4W

< VARIABLE RESISTOR >

RV301	1-241-745-11	RES, VAR, CARBON 20K/20K (TONE)
RV302	1-241-746-11	RES, VAR, CARBON 20K/20K (VOLUME)

< SWITCH >

S301	1-571-345-11	SWITCH, LEVER SLIDE (FUNCTION)
S302	1-570-068-11	SWITCH, PUSH (1 KEY) (PB/REC)
S303	1-571-307-11	SWITCH, SLIDE (MEGA BASS)
S304	1-572-006-11	SWITCH, PUSH (1 KEY) (FM MODE/ISS) (AEP, IT)

< TRANSFORMER >

T301	1-433-268-00	TRANSFORMER, BIAS OSCILLATOR
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*	1-650-708-11	MICROPHONE BOARD

< MICROPHONE >

ECM301	1-542-178-11	MICROPHONE, ELECTRET CONDENSER (MIC)
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Ref. No.	Part No.	Description	Remark
*	1-650-711-11	SWITCH BOARD	

		< CAPACITOR >	
C401	1-101-004-00	CERAMIC	0.01uF 50V
		< CONNECTOR >	
* KH401	1-573-288-11	HOLDER, CABLE 8P	
		< SWITCH >	
S401	1-696-515-11	SWITCH, LEAF (PLAY)	
S402	1-696-515-11	SWITCH, LEAF (FF/REW)	

*	1-650-709-11	TRANSFORMER BOARD	

		< CAPACITOR >	
		< CONNECTOR >	
C801-804	1-101-005-00	CERAMIC	22000PF 50V
		< CONNECTOR >	
* CNP801	1-560-666-00	PIN, CONNECTOR 3P	
* CNP802	1-764-646-11	PIN, CONNECTOR (PC BOARD) 2P	
		< DIODE >	
D801	8-719-200-02	DIODE	10E2
D802	8-719-200-02	DIODE	10E2
D803	8-719-200-02	DIODE	10E2
D804	8-719-200-02	DIODE	10E2
		< FUSE >	
△F801	1-532-285-00	FUSE, TIME-LAG (T1.25A) (AEP, IT)	
		< CONNECTOR >	
* KH801	1-573-287-11	HOLDER, CABLE 2P	
		< TRANSFORMER >	
△T801	1-450-016-11	TRANSFORMER, POWER (Canadian, TW)	
△T801	1-450-492-11	TRANSFORMER, POWER (AEP, IT)	

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

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

TUNER

Ref. No.	Part No.	Description	Remark
*	A-3269-030-A	TUNER BOARD, COMPLETE (Canadian, TW)	
*	A-3269-038-A	TUNER BOARD, COMPLETE (AEP)	
*	A-3269-039-A	TUNER BOARD, COMPLETE (IT)	

	3-907-415-01	DRUM (P. V. C)	
	7-621-770-87	SCREW +P 2. 6X5	
		< CAPACITOR >	
C1	1-163-189-00	CERAMIC MELF 220PF	10% 50V
C3	1-163-059-00	CERAMIC CHIP 0. 01uF	10% 50V
C4	1-124-907-11	ELECT 10uF	20% 50V
C5	1-163-059-00	CERAMIC CHIP 0. 01uF	10% 50V
C6	1-163-148-00	CERAMIC MELF 1. 5PF	20% 50V
		(Canadian, TW)	
C6	1-163-149-00	CERAMIC MELF 2. 2PF	10% 50V
		(AEP, IT)	
C7	1-163-163-00	CERAMIC MELF 18PF	5% 50V
		(Canadian, TW)	
C7	1-163-167-00	CERAMIC MELF 27PF	5% 50V
		(AEP)	
C7	1-163-166-00	CERAMIC CHIP 24PF	5% 50V
		(IT)	
C8	1-102-959-00	CERAMIC 22PF	5% 50V
C9	1-163-153-00	CERAMIC MELF 5. 6PF	10% 50V
		(Canadian, TW)	
C9	1-163-154-00	CERAMIC MELF 6. 8PF	10% 50V
		(AEP)	
C9	1-163-155-00	CERAMIC MELF 8. 2PF	10% 50V
		(IT)	
C10	1-163-150-00	CERAMIC MELF 3. 3PF	10% 50V
C11	1-163-059-00	CERAMIC CHIP 0. 01uF	10% 50V
C12	1-163-181-00	CERAMIC MELF 100PF	10% 50V
C15	1-124-927-11	ELECT 4. 7uF	20% 100V
C16	1-124-903-11	ELECT 1uF	20% 50V
C17	1-124-126-00	ELECT 47uF	20% 10V
C18	1-124-126-00	ELECT 47uF	20% 10V
C19	1-163-059-00	CERAMIC CHIP 0. 01uF	10% 50V
C20	1-124-903-11	ELECT 1uF	20% 50V
C21	1-124-925-11	ELECT 2. 2uF	20% 100V
C22	1-124-443-00	ELECT 100uF	20% 10V
C23	1-124-902-00	ELECT 0. 47uF	20% 50V
C24	1-124-927-11	ELECT 4. 7uF	20% 100V
C25	1-124-463-00	ELECT 0. 1uF	20% 50V
C27	1-161-053-00	CERAMIC 0. 015uF	10% 50V
		(Canadian, TW)	
C27	1-162-840-11	CERAMIC 0. 012uF	10% 16V
		(AEP, IT)	
C28	1-161-053-00	CERAMIC 0. 015uF	10% 50V
		(Canadian, TW)	

Ref. No.	Part No.	Description	Remark
C28	1-162-840-11	CERAMIC 0. 012uF	10% 16V
		(AEP, IT)	
C34	1-163-181-00	CERAMIC MELF 100PF	10% 50V
C35	1-163-181-00	CERAMIC MELF 100PF	10% 50V
C38	1-162-397-11	CERAMIC MELF 0. 001uF	10% 50V
C42	1-163-154-00	CERAMIC MELF 6. 8PF	10% 50V
		(IT)	
C42	1-163-155-00	CERAMIC MELF 8. 2PF	10% 50V
		(AEP)	
C45	1-163-149-00	CERAMIC MELF 2. 2PF	10% 50V
		(AEP)	
C49	1-163-063-00	CERAMIC MELF 0. 022uF	25V
		(AEP, IT)	
		< FILTER >	
CF1	1-577-327-81	FILTER, CERAMIC	
CF2	1-527-870-00	FILTER	
CF3	1-577-327-81	FILTER, CERAMIC	
CF4	1-577-327-81	FILTER, CERAMIC	
		< VARIABLE CAPACITOR >	
CT1-4	1-141-484-11	CAP, VAR (TINING) (AEP, IT)	
CV1-4			
CT1-4	1-151-696-11	CAP, VAR (TUNING) (Canadian, TW)	
CV1-4			
		< FILTER >	
FL1	1-236-711-21	FILTER, BAND PASS	
		< IC >	
IC1	8-752-050-20	IC CXA1238S	
		< JUMPER RESISTOR >	
JR1	1-259-041-11	CARBON MELF 0 5%	1/8W
JR5	1-259-041-11	CARBON MELF 0 5%	1/8W
JR6	1-259-041-11	CARBON MELF 0 5%	1/8W
JR7	1-259-041-11	CARBON MELF 0 5%	1/8W
		< COIL >	
L1	1-406-998-11	COIL, AIR-CORE (Canadian, TW)	
L1	1-406-999-11	COIL, AIR-CORE (AEP, IT)	
L2	1-428-775-11	COIL, AIR-CORE (Canadian, TW)	
L2	1-406-957-11	COIL (WITH CORE) (AEP, IT)	
L3	1-501-646-11	ANTENNA, FERRITE-ROD (MW) (Canadian, TW)	
L3	1-402-158-11	ANTENNA, FERRITE-ROD (MW) (AEP, IT)	
L4	1-406-040-00	COIL (OSC)	
		< TRANSISTOR >	
Q1	8-729-206-25	TRANSISTOR RN1207	

Ref. No.	Part No.	Description	Remark
Q2	8-729-206-25	TRANSISTOR RN1207 (AEP, IT)	
< RESISTOR >			
R3	1-249-421-11	CARBON 2.2K 5% 1/4W	
R5	1-249-426-11	CARBON 5.6K 5% 1/4W	
	(Canadian)		
R6	1-259-090-11	CARBON MELF 100K 5% 1/8W	
R7	1-249-415-11	CARBON 680 5% 1/4W	
R9	1-259-090-11	CARBON MELF 100K 5% 1/8W	
R10	1-249-404-00	CARBON 82 5% 1/4W	
R11	1-249-427-11	CARBON 6.8K 5% 1/4W	
R12	1-249-427-11	CARBON 6.8K 5% 1/4W	
R13	1-247-807-11	CARBON 100 5% 1/8W	
R14	1-249-429-11	CARBON 10K 5% 1/4W	
R15	1-215-477-00	METAL 220K 1% 1/6W	
R16	1-215-477-00	METAL 220K 1% 1/6W	
R17	1-249-421-11	CARBON 2.2K 5% 1/4W	
R21	1-249-410-11	CARBON 270 5% 1/4W	
R29	1-249-429-11	CARBON 10K 5% 1/4W (AEP, IT)	
< VARIABLE RESISTOR >			
RV1	1-238-601-11	RES, ADJ, CARBON 22K	
< TRANSFORMER >			
T1	1-404-355-00	TRANSFORMER, IF	

MISCELLANEOUS			

ANT1	1-501-378-11	ANTENNA, TELESCOPIC (AEP, IT)	
ANT1	1-501-388-11	ANTENNA, TELESCOPIC (Canadian, TW)	
HE601	1-543-719-11	HEAD, MAGNETIC (ERASE)	
HRP601	1-543-872-11	HEAD, MAGNETIC (REC/PB)	
M901	A-3253-181-A	MOTOR ASSY	
RV401	1-230-495-11	RES, ADJ, CARBON 2K	
S901	1-570-559-11	SWITCH, LEAF (DIR MODE)	
SP901	1-504-474-11	SPEAKER (10CM)	
SP902	1-504-474-11	SPEAKER (10CM)	
SP903	1-529-059-12	BUZZER	
SP904	1-529-059-12	BUZZER	

Ref. No.	Part No.	Description	Remark

HARDWARE LIST			

#1	7-621-770-87	SCREW +P 2.6X5	
#2	7-621-775-20	SCREW +PTT 2.6X5 (S)	
#3	7-682-548-09	SCREW +B 3X8	
#4	7-682-553-04	SCREW +BVTT 3X20 (S)	
#5	7-685-133-19	SCREW +P 2.6X6 TYPE2	
#6	7-685-153-19	SCREW +P 3X30 TYPE2 NON-SLIT	
#7	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#8	7-685-649-79	SCREW +BVTP 3X14 TYPE2 N-S	

ACCESSORIES & PACKING MATERIALS			

△	1-557-287-11	CORD, POWER (TW)	
△	1-575-131-11	CORD, POWER (AEP, IT)	
△	1-690-952-11	CORD, POWER (Canadian)	
	3-758-128-21	MANUAL, INSTRUCTION (ENGLISH)	
		(Canadian, TW)	
	3-758-128-31	MANUAL, INSTRUCTION (ENGLISH, FRENCH)	
		(Canadian)	
	3-758-128-51	MANUAL, INSTRUCTION	
		(ENGLISH, FRENCH, GERMAN, SPANISH) (AEP)	
	3-758-128-61	MANUAL, INSTRUCTION	
		(DUTCH, SWEDISH, ITALIAN, PORTUGUESE)	
		(AEP, IT)	
	3-758-128-71	MANUAL, INSTRUCTION (CHINESE) (TW)	
*	3-909-585-01	INDIVIDUAL CARTON (Canadian, TW)	
*	3-909-586-01	INDIVIDUAL CARTON (AEP, IT)	
*	3-912-042-01	CUSHION (LEFT)	
*	3-912-043-01	CUSHION (RIGHT)	

The components identified by mark △ or dotted line with mark. △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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