

CFS-W435S

SERVICE MANUAL

*E Model
East European Model*



Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MF-W435

SPECIFICATIONS

Frequency range

Saudi Arabia model

FM: 87.6–107 MHz
MW: 530–1,605 kHz
SW1: 2.3–7 MHz
SW2: 7–22 MHz

E, United Arab Emirates model

FM: 87.6–108 MHz
MW: 530–1,605 kHz
SW1: 2.3–7 MHz
SW2: 7–22 MHz

East European model

FM: 87.6–107 MHz
MW: 531–1,602 kHz
SW1: 2.3–7 MHz
SW2: 7–22 MHz

Aerials

FM/SW: Telescopic
MW: Built-in ferrite bar

Recording system

4-track, 2-channel stereo

Frequency response

80–8,000 Hz

Speakers

Two way
Approx. 10 cm dia. woofer × 2
Approx. 2 cm dia. tweeter × 2

Output

Headphones jack (stereo minijack) (1)
for 8–300 ohm impedance
headphones

Maximum power output

5 W (2.5 W+2.5 W)

Power requirements

East European model

220–230 V AC, 50 Hz

Other model

110–120/220–240 V AC, 50/60 Hz

selectable

9 V DC, six R20 (size D) batteries

Power consumption

14 W in AC operation

Battery life

Battery FM recording

Sony SUM-1 (NS) Approx. 8.5 hours

Sony AM1 (N) alkaline Approx. 24 hours

Dimensions

Approx. 680 × 216 × 188 mm (w/h/d)
incl. projecting parts and controls, not
incl. handle

Mass

Approx. 5.8 kg incl. batteries

Accessory supplied

Mains lead (1)

Design and specifications are subject to change
without notice.





RADIO CASSETTE-CORDER
SONY®

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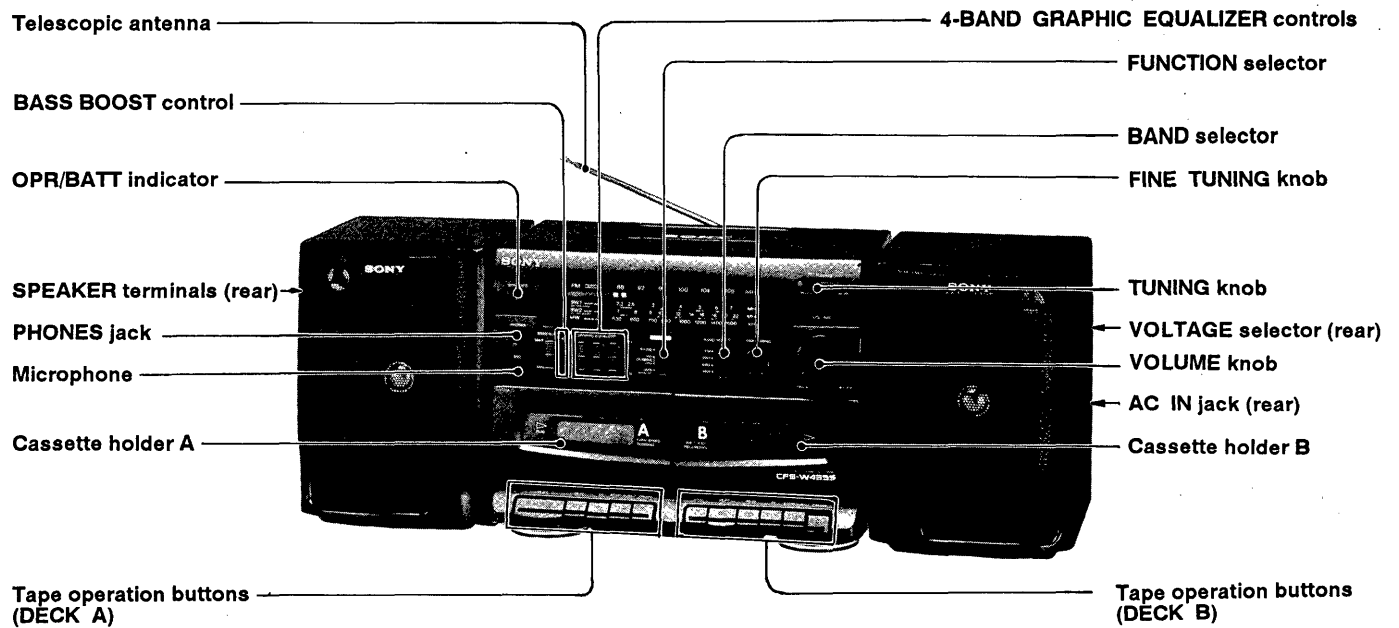
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SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  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

LOCATION AND FUNCTION OF CONTROLS

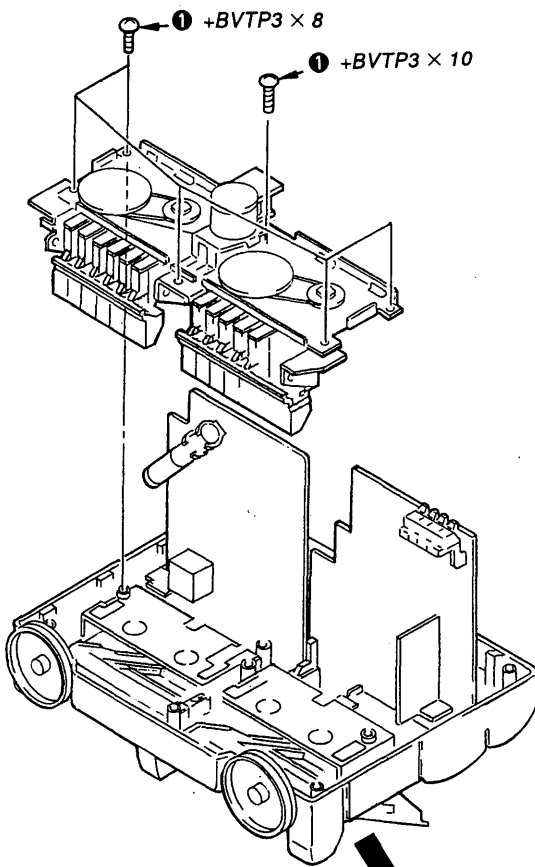


SECTION 2 DISASSEMBLY

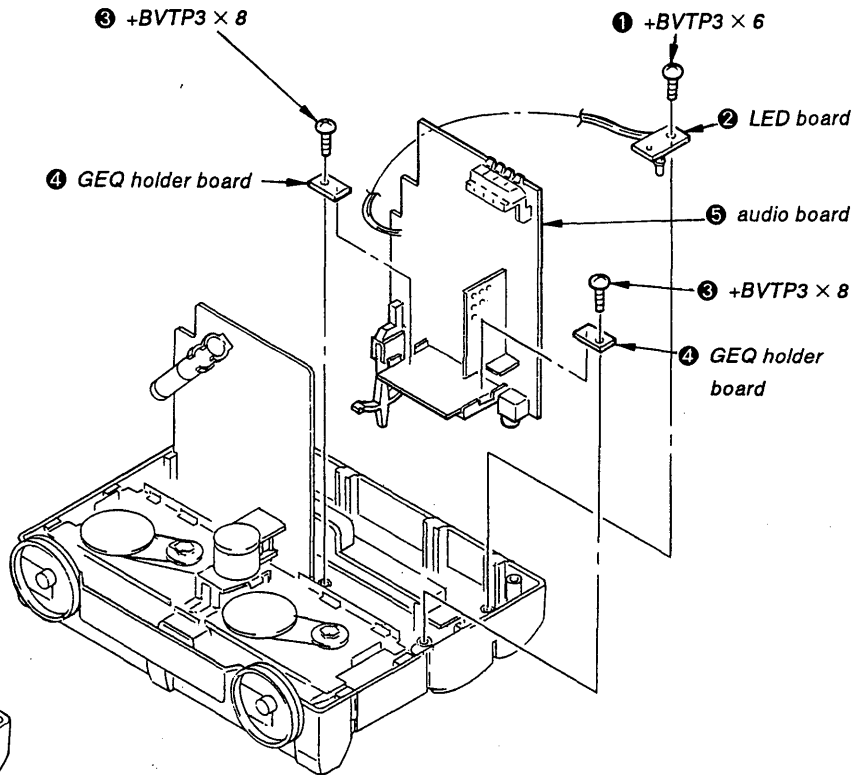
Note: Follow the disassembly procedure in the numerical order given.

Remove rear cabinet ass'y by
removing 5 screws +P3 × 25

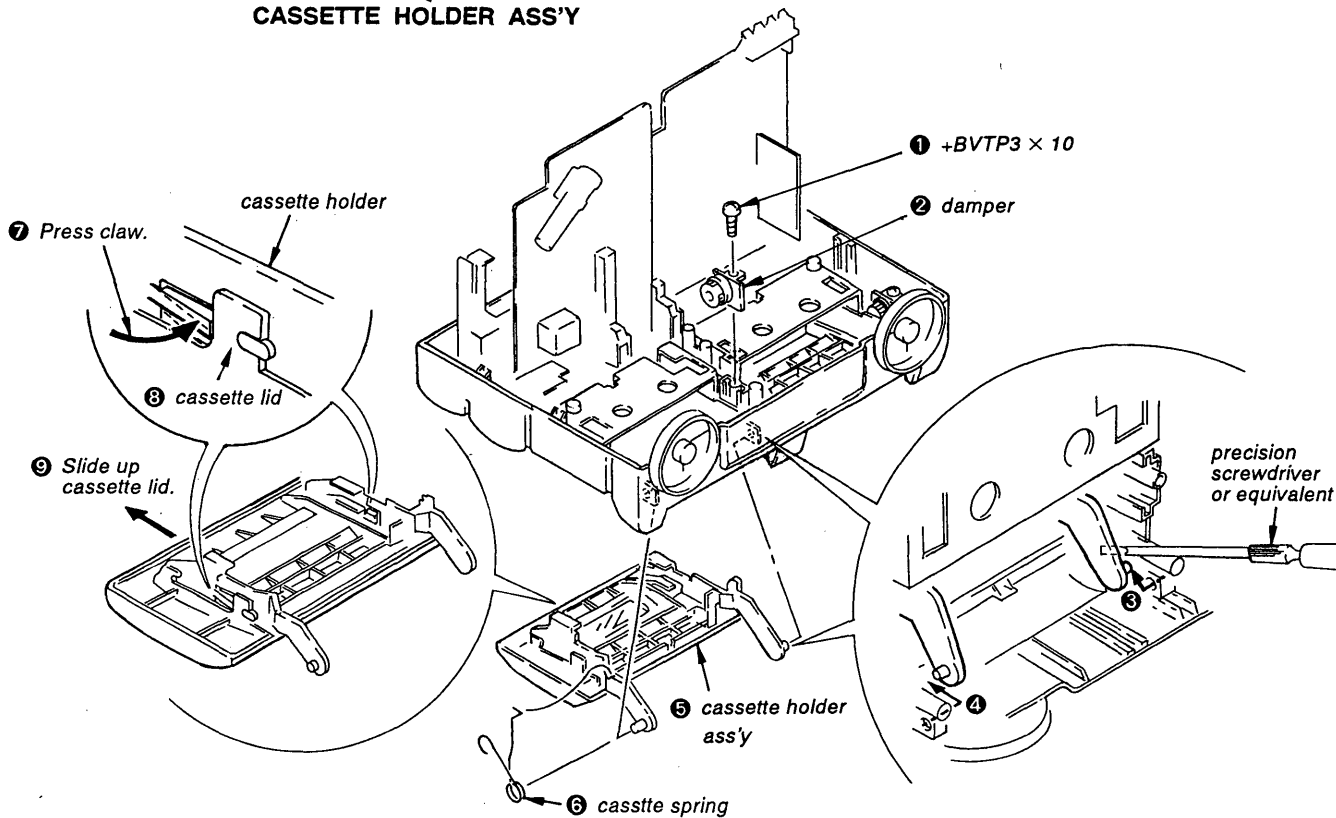
MD ASS'Y



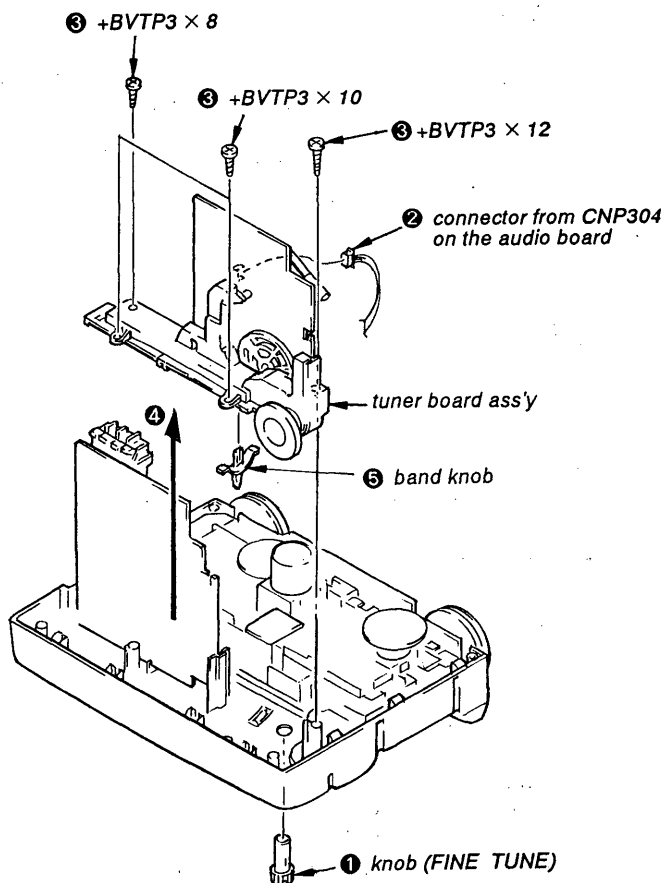
AUDIO BOARD



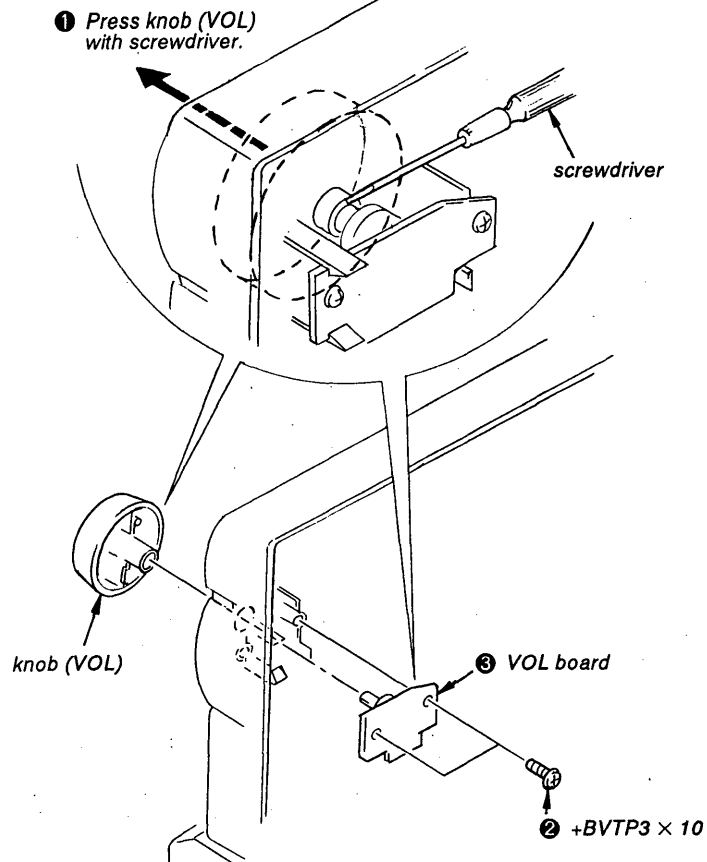
CASSETTE HOLDER ASS'Y



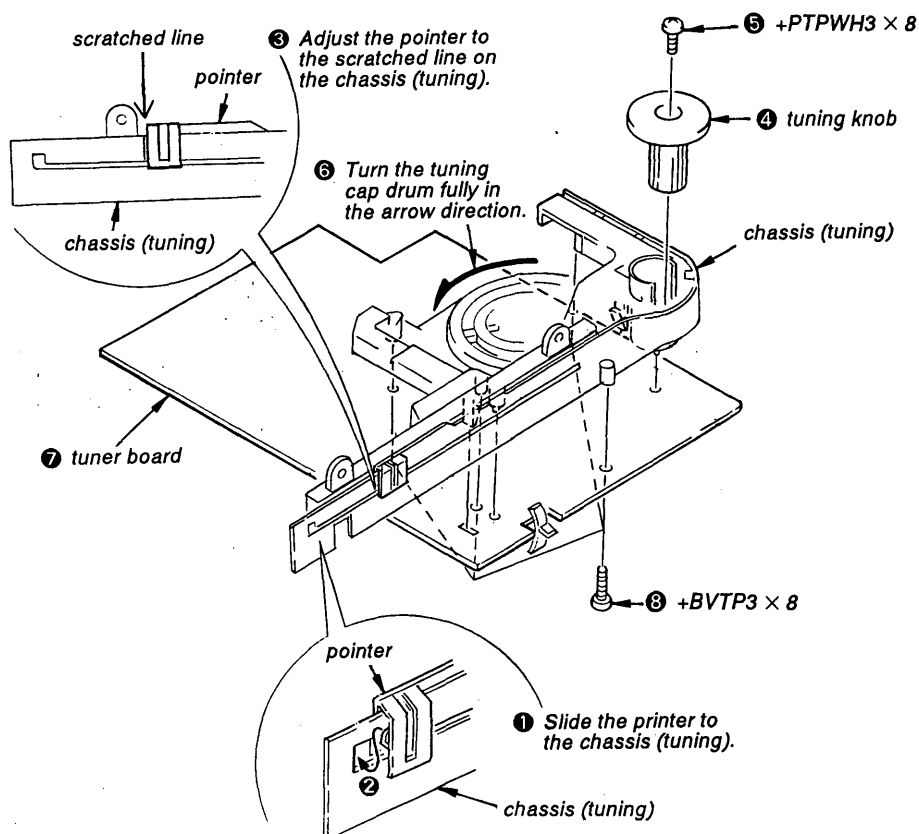
TUNER BOARD ASS'Y



VOL BOARD



POINTER SETTING



SECTION 3 ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

PRECAUTION

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

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

Torque Measurement

DECK A **DECK B**

Mode	Torque Meter	Meter Reading
Playback	CQ-102C	30 – 70 g•cm (0.42 – 0.97 oz•inch)
Back tension	CQ-102C	1.5 – 5.5 g•cm (0.021 – 0.076 oz•inch)
Rewind	CQ-201B	Deck-A: More than 80g•cm (More than 1.12 oz•inch)
Fast forward		Deck-B: More than 55g•cm (More than 0.76 oz•inch)

Tape Tension Measurement

DECK A **DECK B**

Tension Meter	Meter Reading
CQ-403A	more than 100 g (3.53 oz)

3-2. ELECTRICAL ADJUSTMENTS

TAPE SECTION

1. The adjustments should be performed in the order given in the service manual. (As a general rule. Playback circuit adjustment should be completed before performing recording circuit adjustment.)
2. The adjustments should be performed for both L-ch and R-ch unless otherwise indicated.

- Switch position
 FUNCTION TAPE (RADIO OFF)
 GRAPHIC EQUALIZER center click
 BALANCE center click
 VOLUME mechanical center
 BASS BOOST mechanical center

• Standard input level

	MIC IN
Source impedance	300 Ω
Input level	3.085 mV (– 48 dB)

• Standard output level

	SP OUT	PHONES
Load impedance	3.2 Ω	32 Ω
Output level	0.775 V (0 dB)	0.25 V (– 10 dB)

• Test Tape

Type	Signal	Used for
WS-48B	3 kHz, 0 dB	tape speed adjustment
P-4-A063	6.3 kHz, – 10 dB	azimuth speed adjustment

0 dB=0.775 V

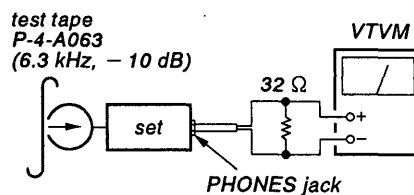
Record/Playback Head Azimuth Adjustment

DECK A

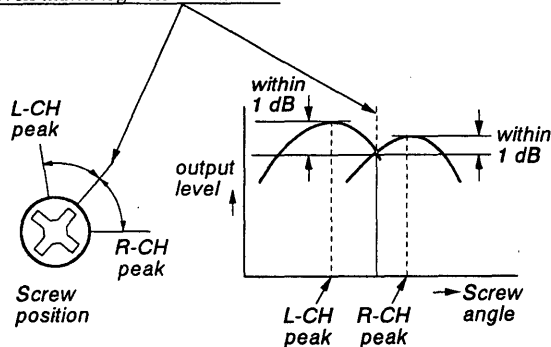
DECK B

Procedure:

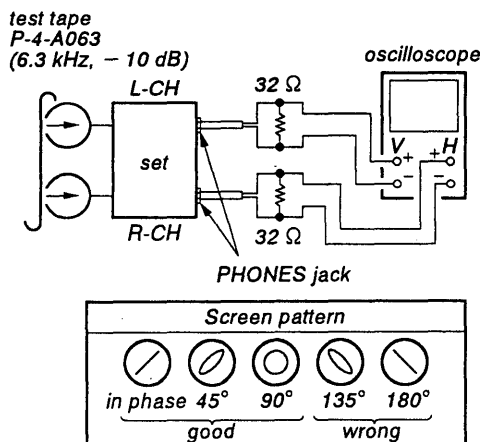
1. Mode: playback



- Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1 dB.



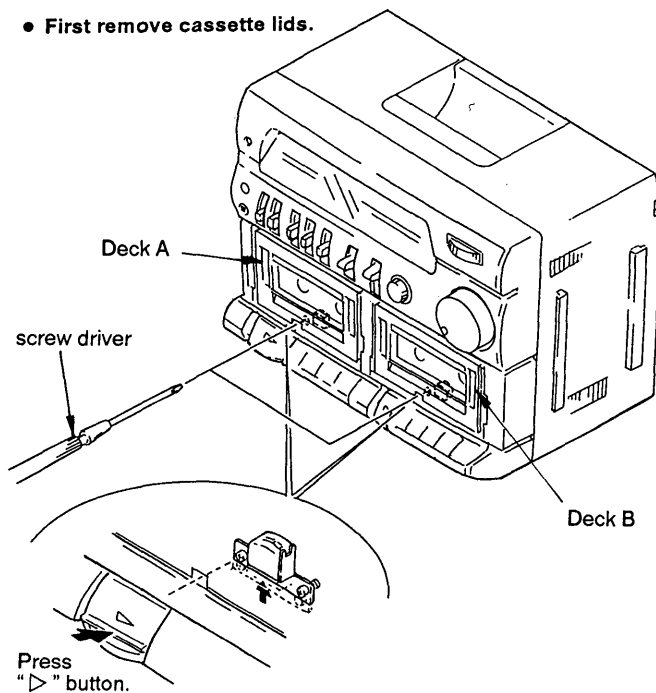
- Phase Check
Mode: playback



- After the adjustment, lock the screws with locking compound.

Adjustment Location:

- First remove cassette lids.



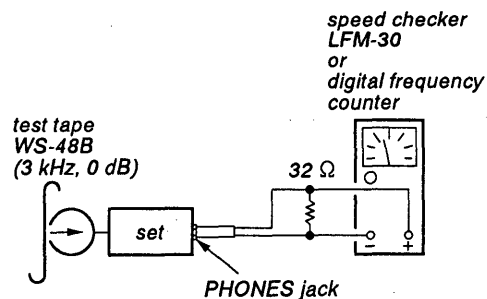
Tape Speed Adjustment

DECK A

Setting:

Mode: playback

Procedure:



Adjustment Values:

Adjustment part	Speed checker	Digital frequency counter
RV303	± 3%	2,970 to 3,000 Hz

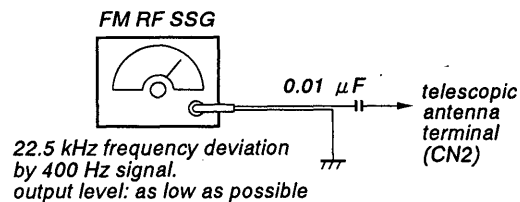
Frequency difference between the beginning and the end of the tape should be within 1.5% (45 Hz).

Note: On high speed, Adjustment is not required.

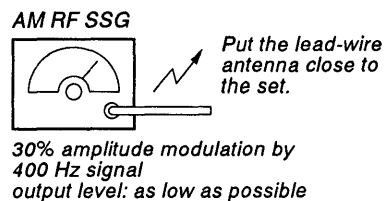
Adjustment Location: Audio board

TUNER SECTION

[FM]

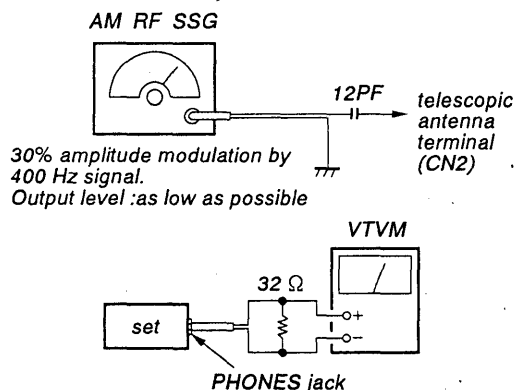


[MW]



[SW]

FINE TUNE Mechanical center



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.
- (): Saudi Arabia model []: East European model

FM IF ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T7	10.7 MHz

FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L2	86.5 MHz (87.35 MHz) [64 MHz]
TC2	109.5 MHz (107.8 MHz) [109.5 MHz]

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L1	86.5 MHz (87.35 MHz) [68 MHz]
TC1	109.5 MHz (107.8 MHz) [102 MHz]

AM IF ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T6	455 kHz

MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T5	520 kHz
TC4	1680 kHz

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
ANT1	620 kHz
TC3	1400 kHz

SW1 FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T3	2.2 MHz
CT1	7.4 MHz

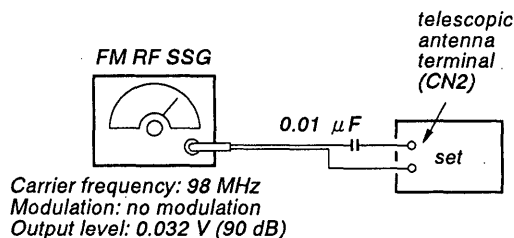
SW1 TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T1	2.2 MHz

SW2 FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T4	6.8 MHz
CT2	22.4 MHz

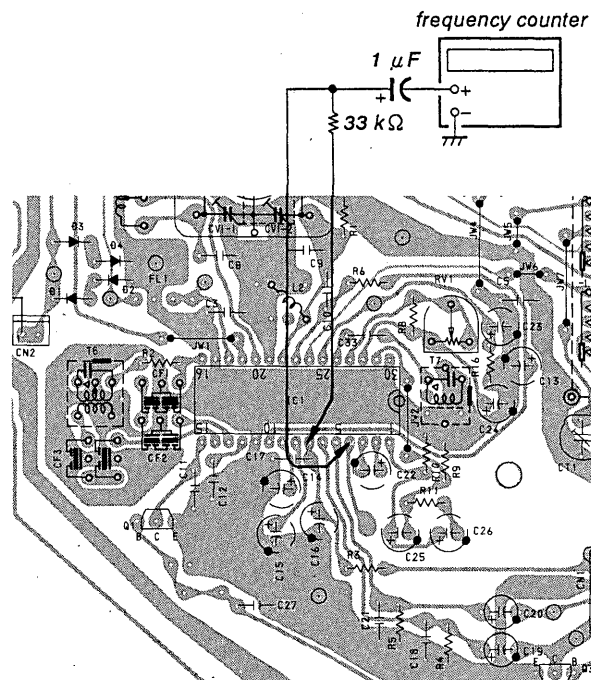
SW2 TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T2	6.8 MHz

VCO Adjustment

Procedure:



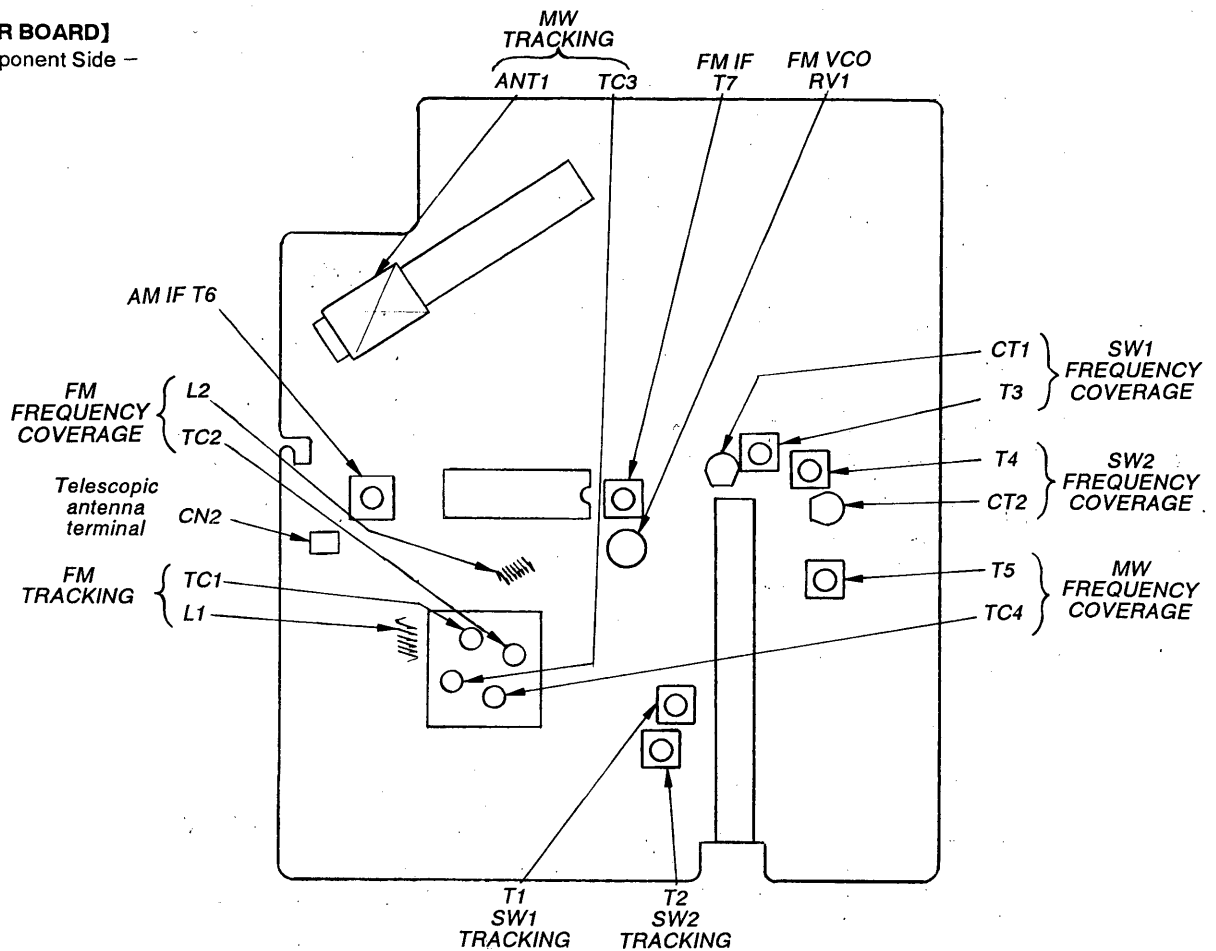
- Connect frequency counter to ④ and ⑦ pins of IC1 as shown the figure below.
- Tune the set to 98 MHz.
- Adjust RV1 for 76 kHz ± 500 Hz reading on the frequency counter.



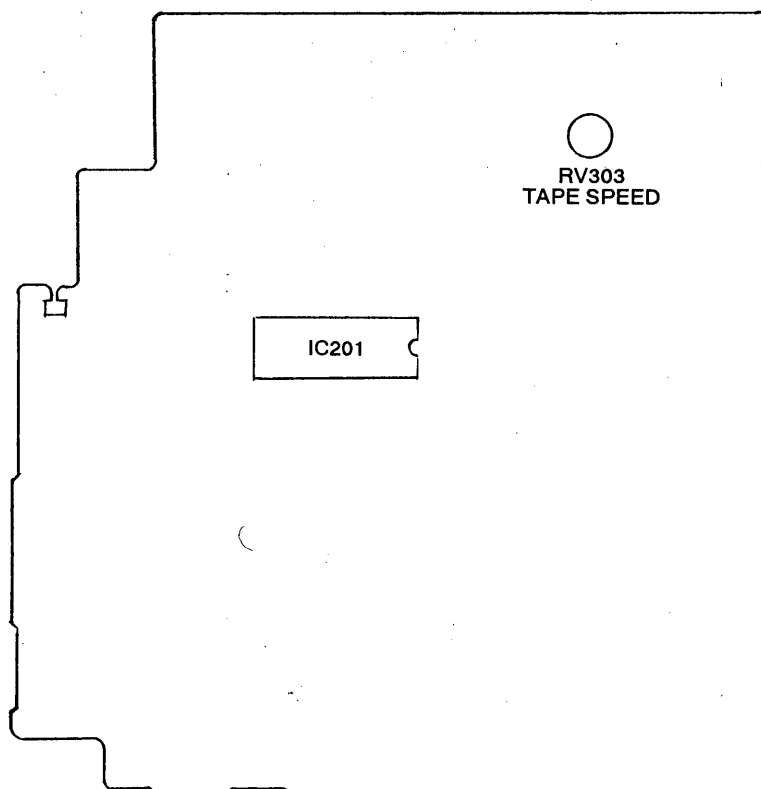
• Adjusting Location

[TUNER BOARD]

— Component Side —



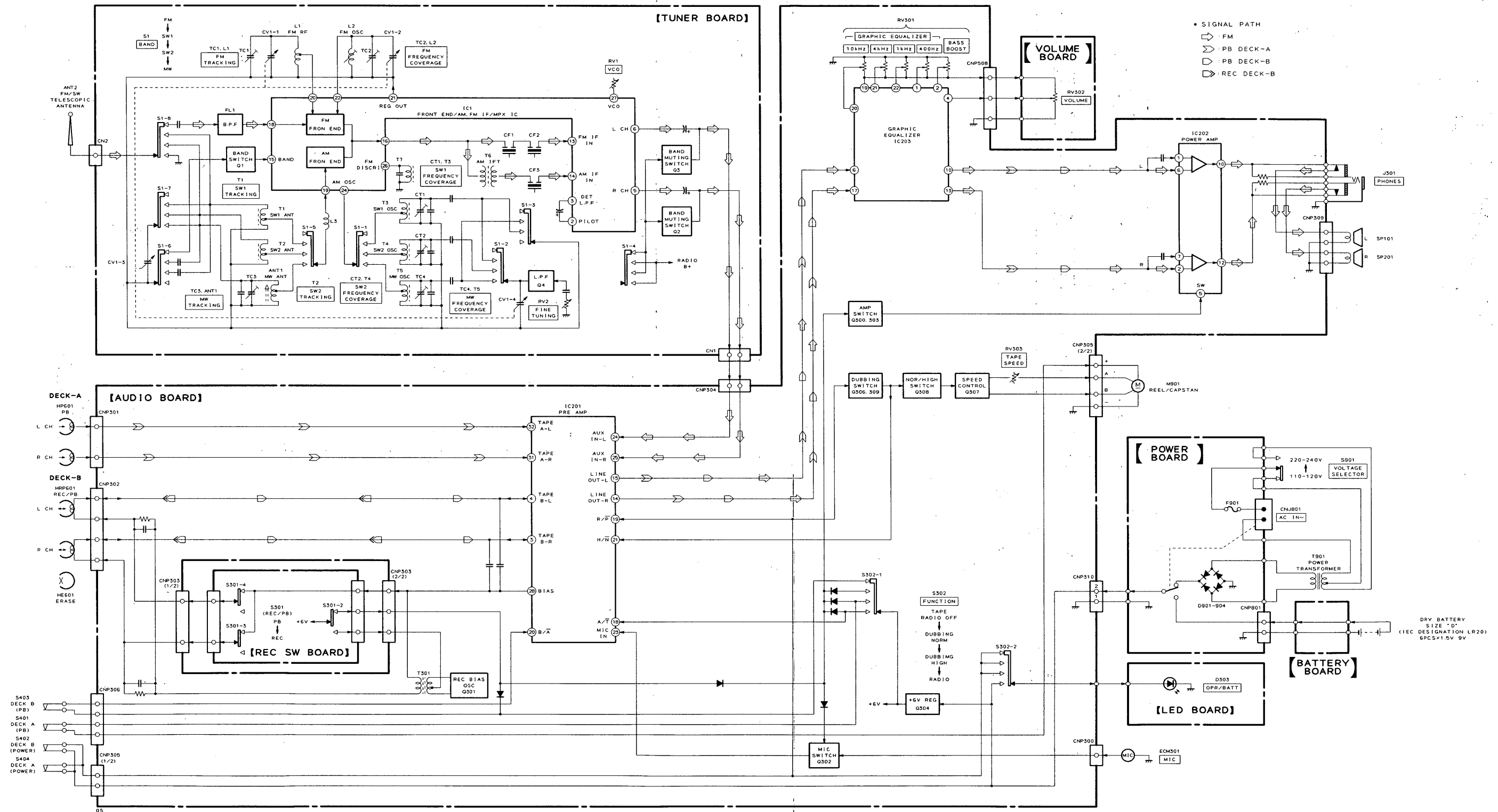
[AUDIO BOARD] — Component Side —



SECTION 4

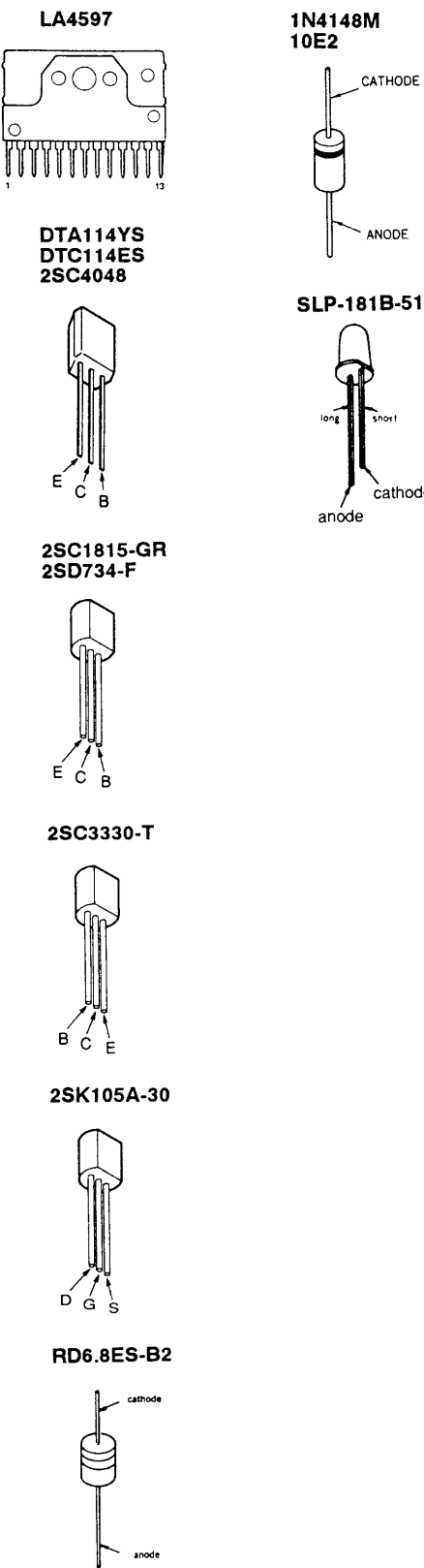
DIAGRAMS

4-1. BLOCK DIAGRAM



4-2. PRINTED WIRING BOARDS

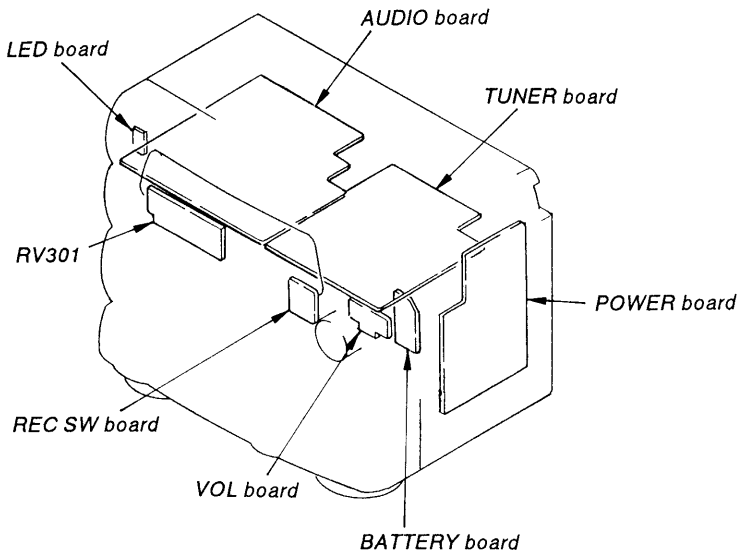
Semiconductor Lead Layouts



Semiconductor Location

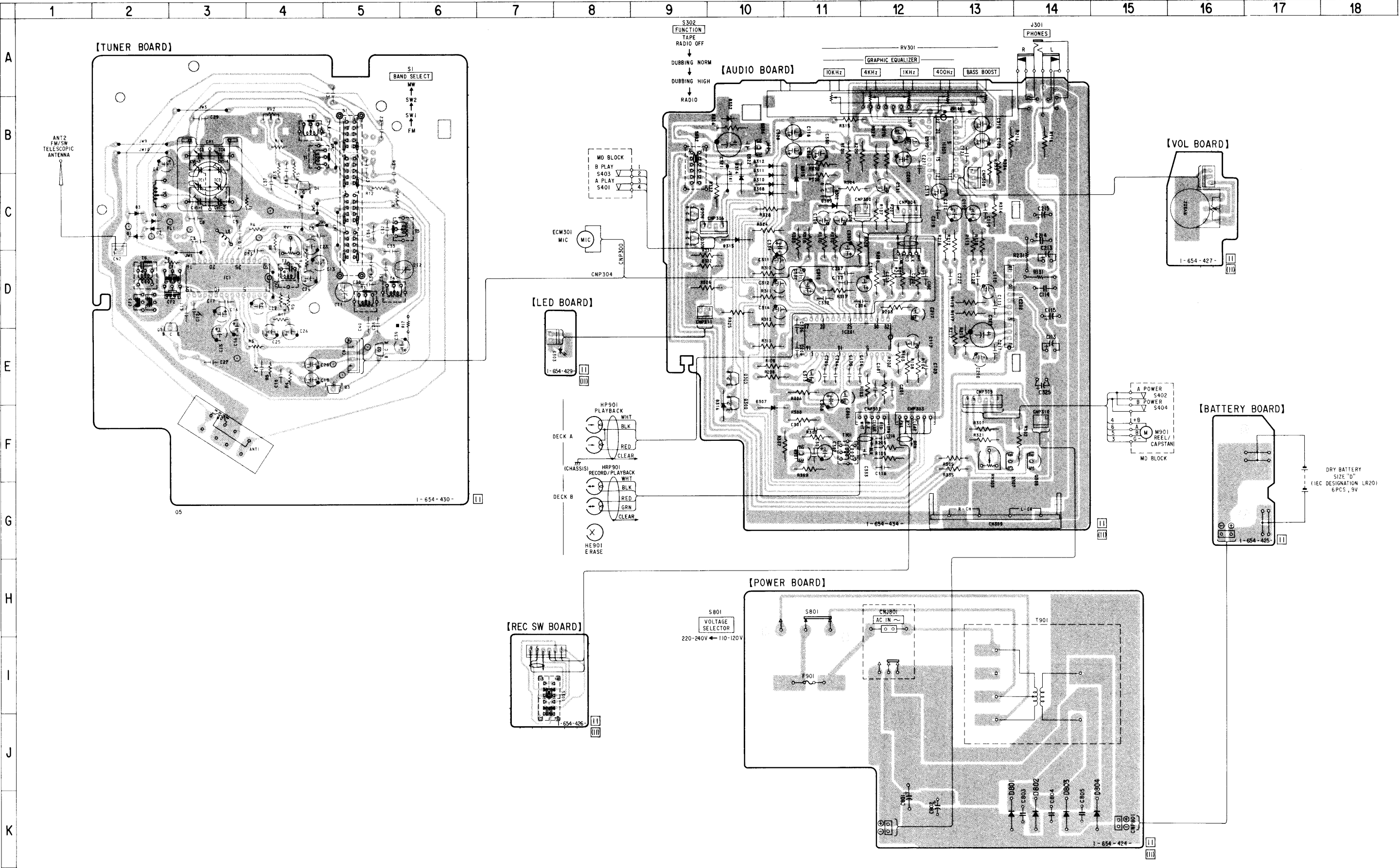
Ref. No.	Location
D1	C-2
D2	C-2
D3	C-2
D4	C-2
D302	B-10
D303	E-8
D307	F-10
D308	C-10
D309	C-11
D310	C-10
D311	C-10
D312	B-10
D313	C-11
D314	C-10
D315	C-10
D316	F-10
D801	K-13
D802	K-14
D803	K-14
D804	K-15
IC1	D-3
IC201	E-11
IC202	D-13
IC203	B-13
Q1	E-3
Q2	E-5
Q3	F-5
Q4	C-4
Q300	F-10
Q301	F-11
Q302	C-11
Q303	E-10
Q304	B-10
Q306	C-9
Q307	F-13
Q308	F-14
Q309	C-9

Circuit Boards Location

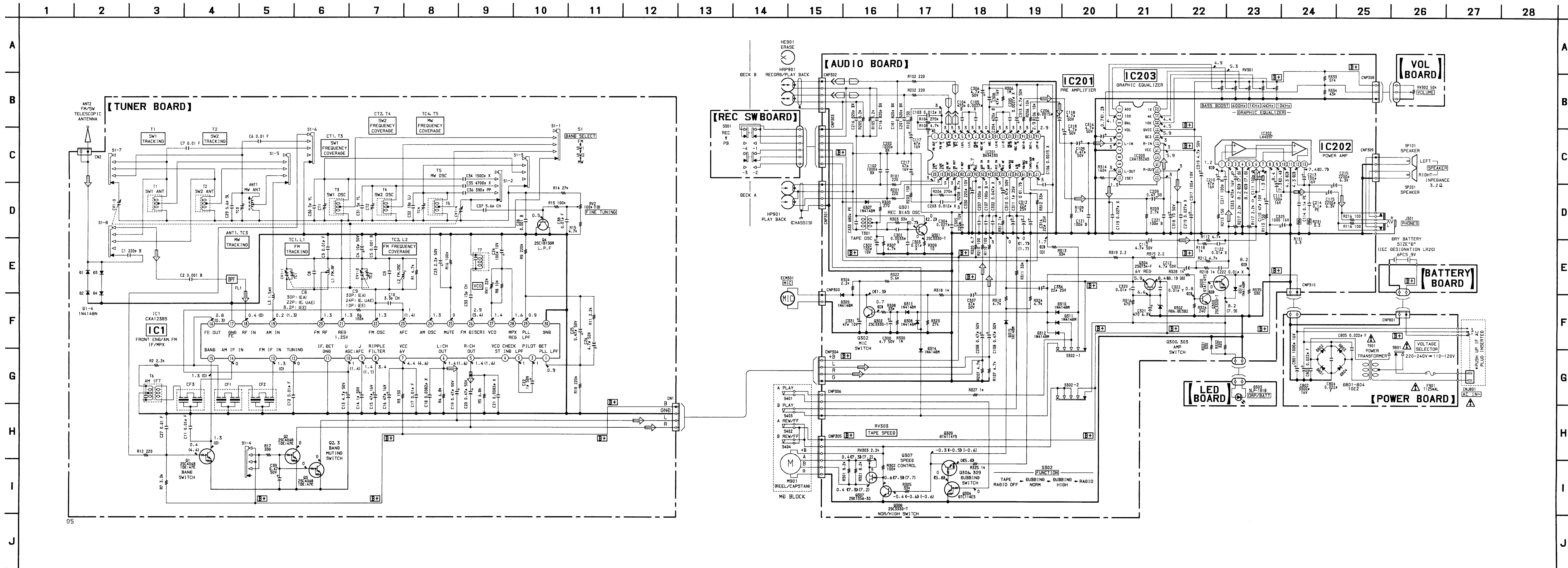


Note:

- : parts extracted from the component side.
- : parts mounted on the conductor side.
- : indicates side identified with part number.
- △ : internal component.



4-3. SCHEMATIC DIAGRAM • See page 19 for IC Block Diagrams.



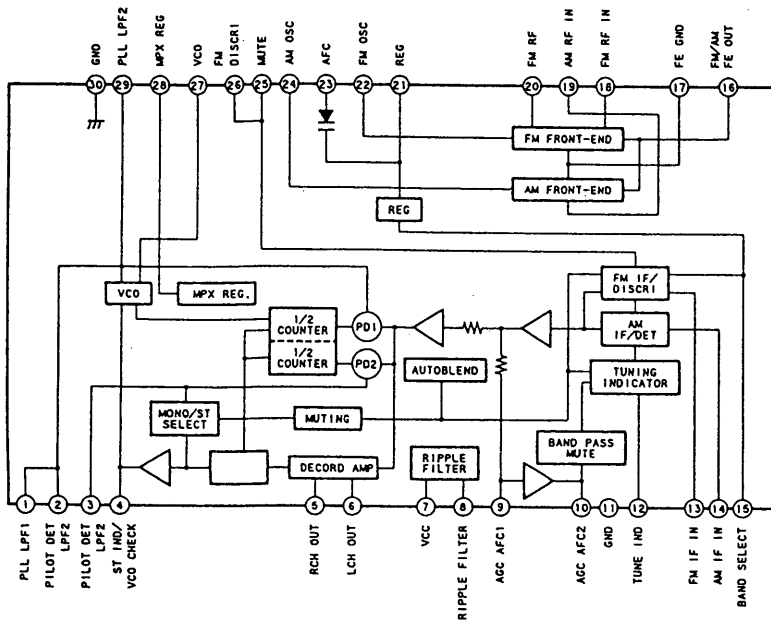
- Note:**
- All capacitors are in μF unless otherwise noted. pF: μF 50 WV or less are not indicated except for electrolytics and tantalums.
 - All resistors are in Ω and $\frac{1}{4}$ W or less unless otherwise specified.
 - Δ : internal component.

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

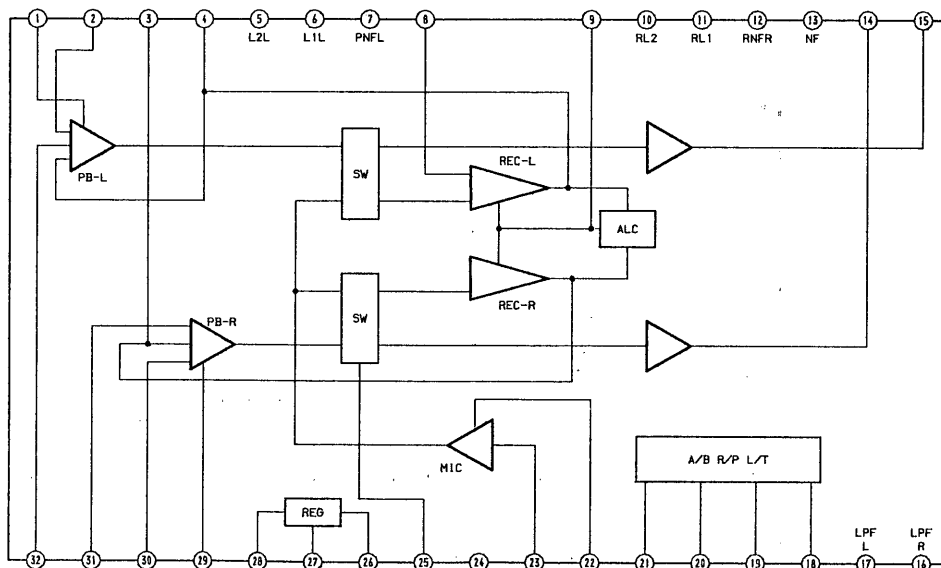
- **[B+]** : B+ Line.
- **[]** : panel designation.
- **[]** : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
no mark : FM (Common)
() : AM (MW, SW)
() : REC (Deck-B)
[] : PB (Deck-B)
- Voltages are taken with a VOM (10 M Ω /V). Voltage variations may be noted due to normal production tolerances.
- Signal path.
◻ : FM
◻ : PB (DECK B)
◻ : REC (DECK B)
- Abbreviation
EA : Saudi Arabia model
EE : East European model
UAE : United Arab Emirates model

• IC Block Diagrams

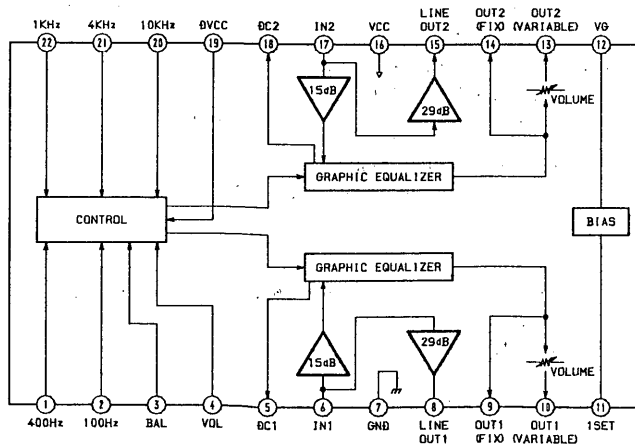
IC1 CXA1238S



IC201 BA3423S



IC203 CXA1352AS



SECTION 5

EXPLODED VIEWS

NOTE:

- -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

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

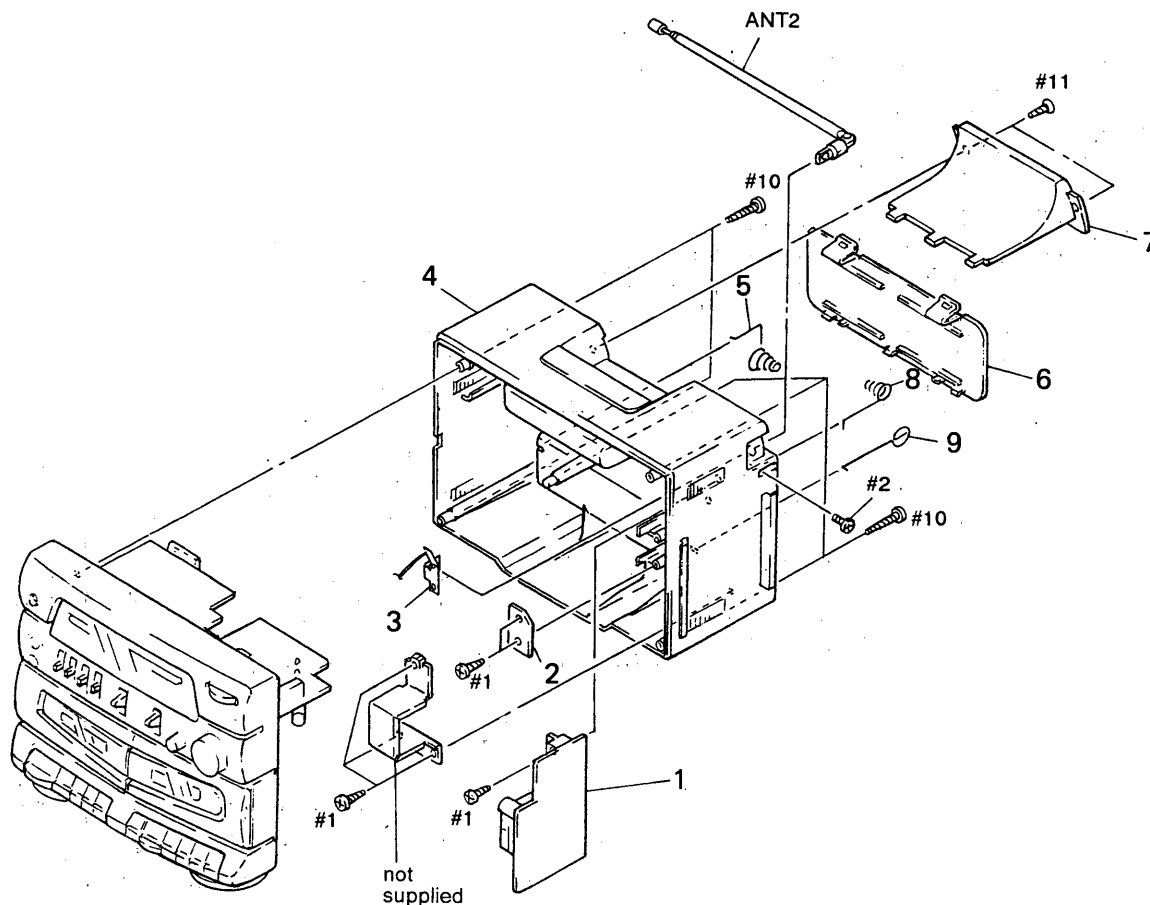
- The mechanical parts with no reference number in the exploded views are not supplied.

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

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

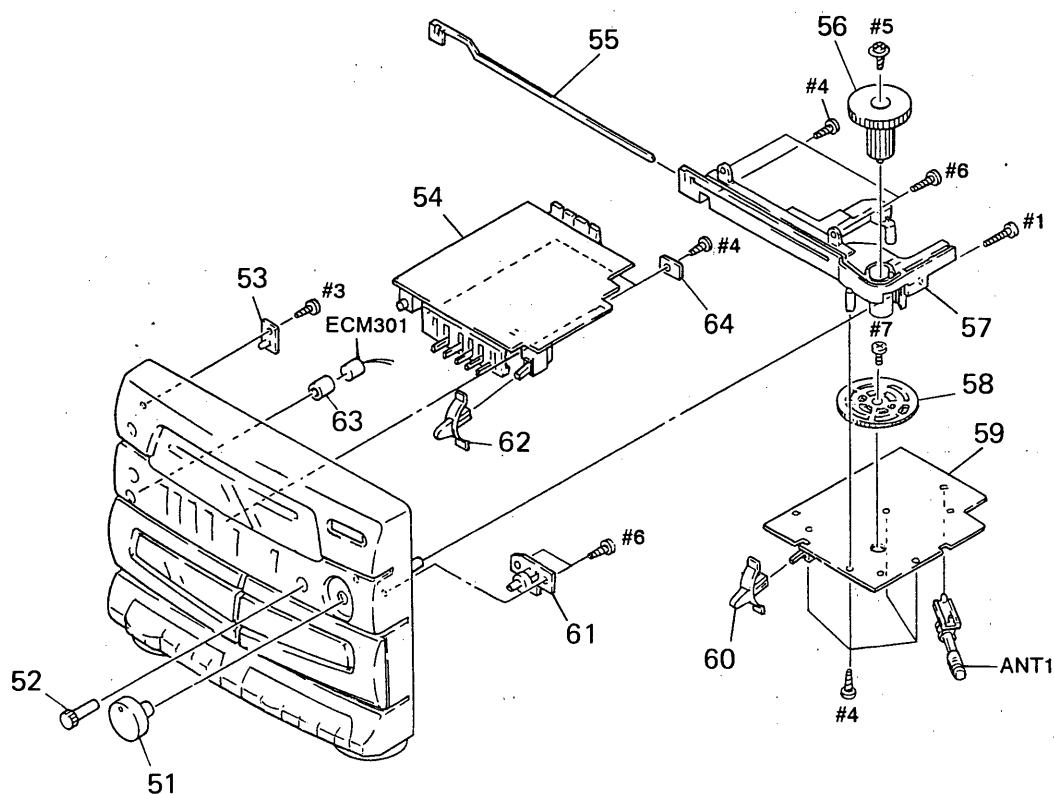
- Abbreviation
EA : Saudi Arabia model
UAE : United Arab Emirates model

(1) REAR CABINET ASSEMBLY SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 1	1-654-424-11	POWER BOARD		6	3-918-472-01	LID, BATTERY CASE	
* 2	1-654-425-11	BATTERY BOARD		7	3-918-477-01	HANDLE, COVER	
3	3-918-507-01	TERMINAL BOARD, ANTENNA		8	3-918-656-01	TERMINAL (-), BATTERY	
4	3-918-449-01	CABINET REAR (E, East European)		9	3-918-655-01	TERMINAL (+), BATTERY	
4	3-918-449-11	CABINET REAR (EA, UAE)		ANT2	1-501-668-11	ANTENNA, TELESCOPIC (FM/SW)	
5	3-918-654-01	TERMINAL (+, -), BATTERY					

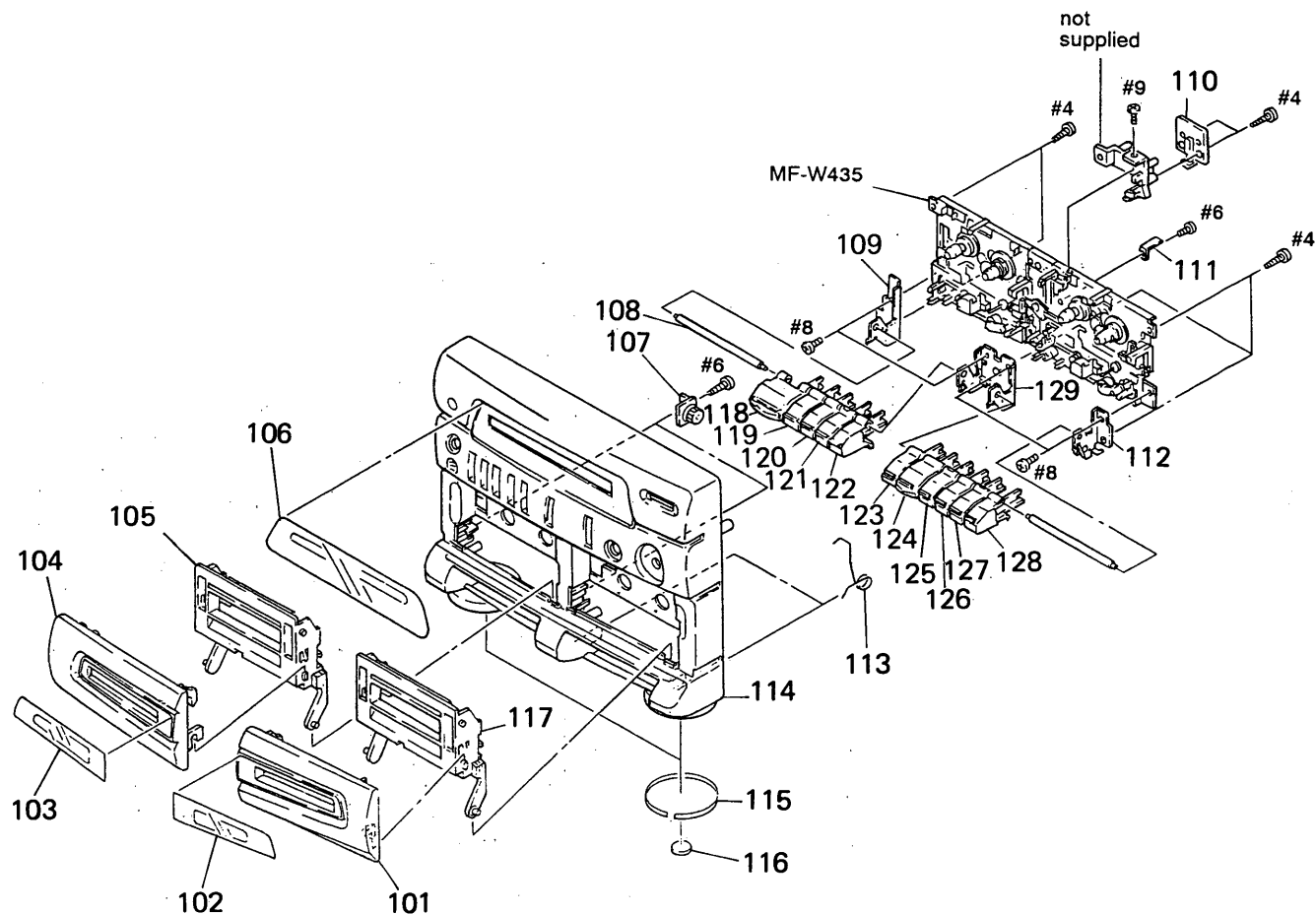
(2) CIRCUIT BOARDS SECTION



Ref. No.	Part No.	Description	Remark
51	3-364-526-01	KNOB (VOL)	
52	3-913-093-01	KNOB (FINE TUNE)	
* 53	1-654-429-11	LED BOARD	
* 54	A-3269-743-A	AUDIO BOARD, COMPLETE	
55	3-918-452-01	POINTER	
56	3-918-456-01	KNOB, TUNING	
* 57	3-918-455-01	CHASSIS (TUNING)	
58	3-918-457-01	DRUM, TUNING CAP	
* 59	A-3269-738-A	TUNER BOARD, COMPLETE (EA)	

Ref. No.	Part No.	Description	Remark
* 59	A-3269-745-A	TUNER BOARD, COMPLETE (E, UAE)	
* 59	A-3305-010-A	TUNER BOARD, COMPLETE (East European)	
60	3-918-458-01	KNOB, BAND	
* 61	1-654-427-11	VOL BOARD	
62	3-918-459-01	KNOB, FUNCTION	
* 63	3-918-516-01	CUSHION, MICROPHONE	
* 64	1-654-520-11	GEQ HOLDER BOARD	
ANT1	1-402-507-11	ANTENNA FERRITE-RD (MW)	
ECM301	1-542-118-21	MICROPHONE, ELECTRET CONDENSER	

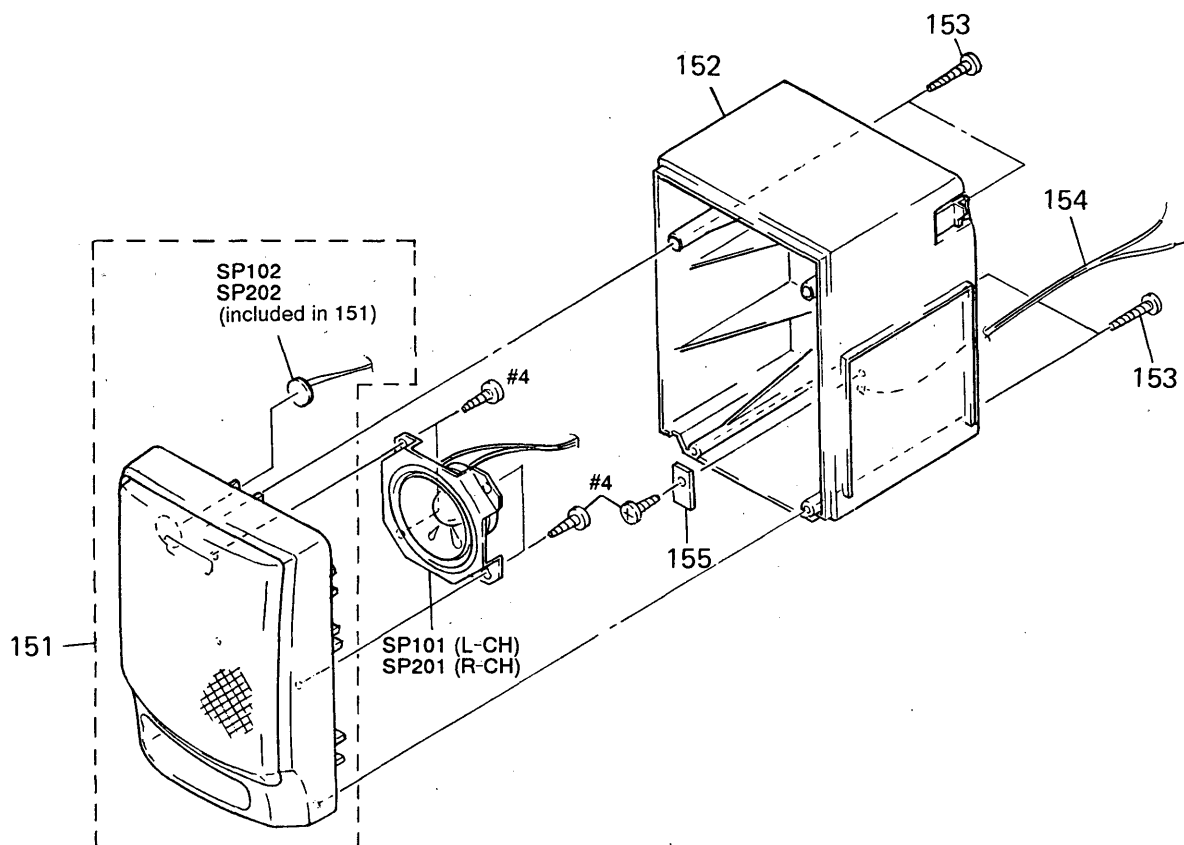
(3) FRONT PANEL ASSEMBLY SECTION



Ref. No.	Part No.	Description	Remark
101	3-918-451-01	LID, CASSETTE (R)	
102	3-918-514-01	WINDOW (R), CASSETTE	
103	3-918-515-01	WINDOW (L), CASSETTE	
104	3-918-450-01	LID, CASSETTE (L)	
105	3-918-453-01	HOLDER, CASSETTE (L)	
106	3-918-513-01	PANEL, DIAL (E, UAE)	
106	3-918-513-11	PANEL, DIAL (East European)	
106	3-918-633-01	PANEL, DIAL (EA)	
107	3-351-377-01	DAMPER	
* 108	3-918-512-01	SHAFT, MD	
* 109	3-918-510-01	HOLDER (L), BUTTON	
* 110	1-654-426-11	REC SW BOARD C1	
111	3-918-501-01	LEVER, REC	
* 112	3-918-509-01	HOLDER (R), BUTTON	
113	3-918-502-01	SPRING, CASSETTE	
114	3-918-448-01	CABINET, FRONT	

Ref. No.	Part No.	Description	Remark
115	3-919-203-01	SEAL, FOOT RING	
116	3-908-999-01	FOOT	
117	3-918-454-01	HOLDER, CASSETTE (R)	
118	3-918-461-01	BUTTON (PLAY 1)	
119	3-918-462-01	BUTTON (FF 1)	
120	3-918-463-01	BUTTON (REW 1)	
121	3-918-464-01	BUTTON (STOP. EJECT 1)	
122	3-918-465-01	BUTTON (PAUSE 1)	
123	3-918-466-01	BUTTON (REC)	
124	3-918-467-01	BUTTON (PLAY 2)	
125	3-918-468-01	BUTTON (FF 2)	
126	3-918-469-01	BUTTON (REW 2)	
127	3-918-470-01	BUTTON (STOP. EJECT 2)	
128	3-918-471-01	BUTTON (PAUSE 2)	
* 129	3-918-511-01	HOLDER (S), BUTTON	

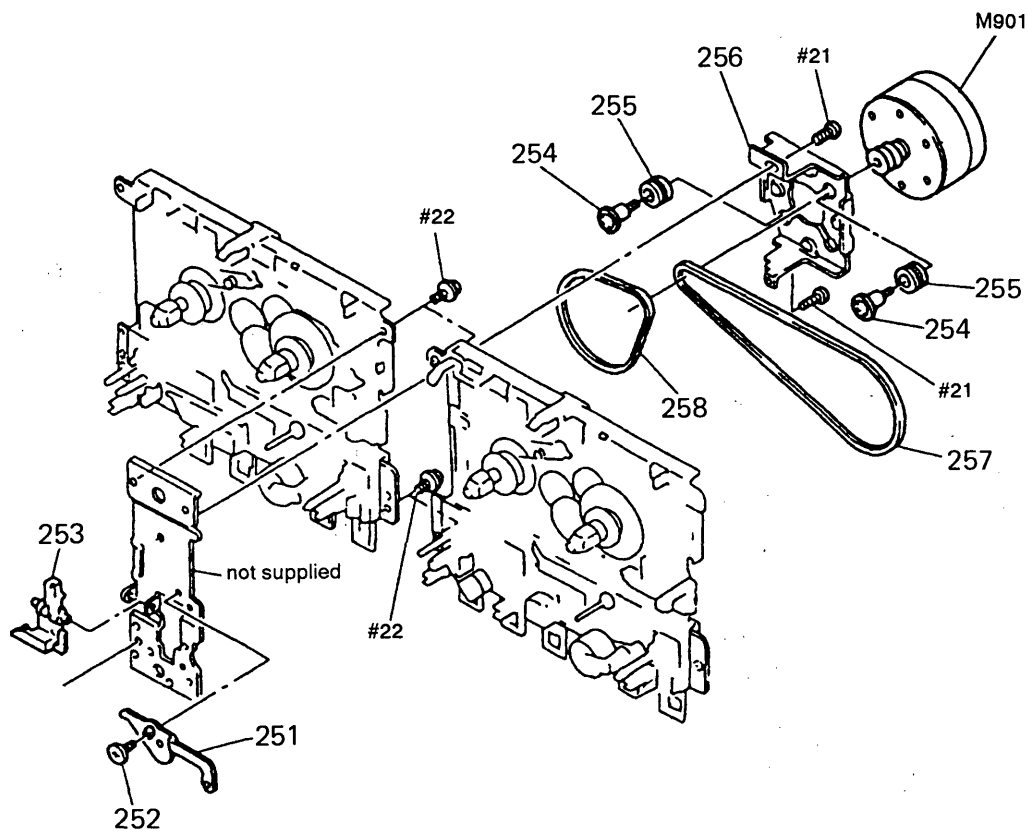
(4) SPEAKER SECTION



Ref. No.	Part No.	Description	Remark
151	A-3303-310-A	BOX (FRONT) (L) SUB ASSY, SPEAKER (L-CH)	
151	A-3303-313-A	BOX (FRONT) (R) SUB ASSY, SPEAKER (R-CH)	
152	3-907-635-01	BOX (REAR) (L), SP (L-CH)	
152	3-907-636-01	BOX (REAR) (R), SP (R-CH)	
153	3-325-679-31	SCREW, TAPPING +BV 3X14	

Ref. No.	Part No.	Description	Remark
154	1-690-969-11	CORD, SPEAKER CONNECTION	
* 155	1-654-435-11	WIRE HOLDER BOARD	
SP101	1-544-742-11	SPEAKER (10CM) (L-CH)	
SP201	1-544-742-11	SPEAKER (10CM) (R-CH)	

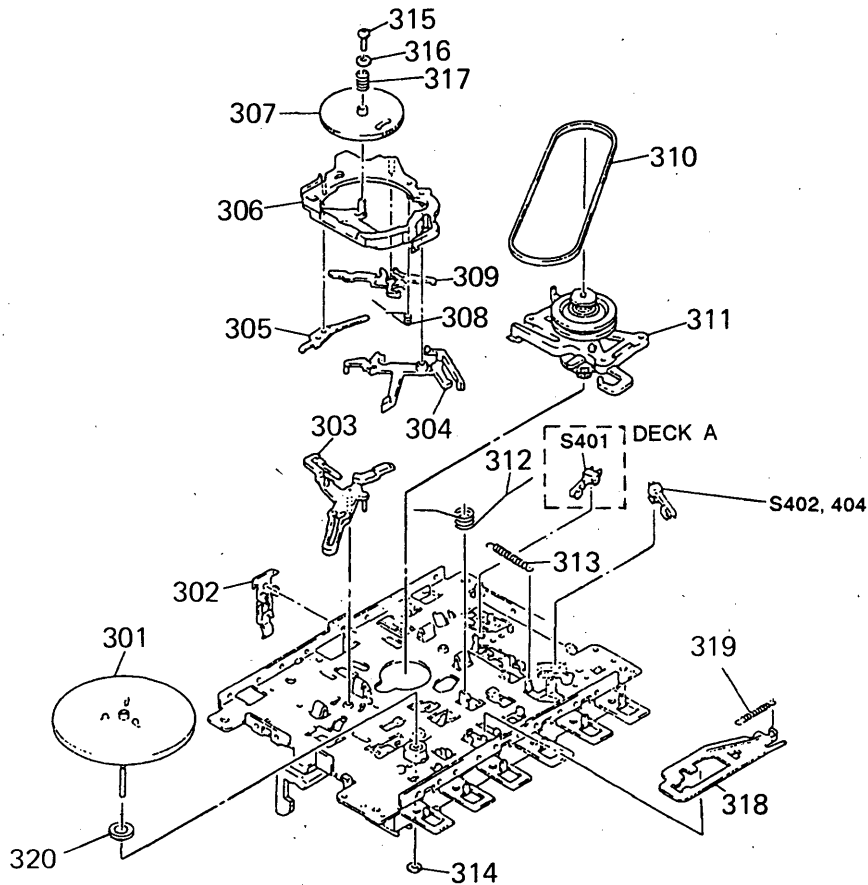
(5) MECHANISM DECK SECTION-1
(MF-W435)



Ref. No.	Part No.	Description	Remark
* 251	3-369-927-01	ARM, CONNECT	
252	3-362-958-01	SCREW	
253	3-369-928-01	ARM, RELEASE	
254	3-343-896-01	SCREW, MOTOR	
255	3-343-897-01	WASHER, RUBBER	

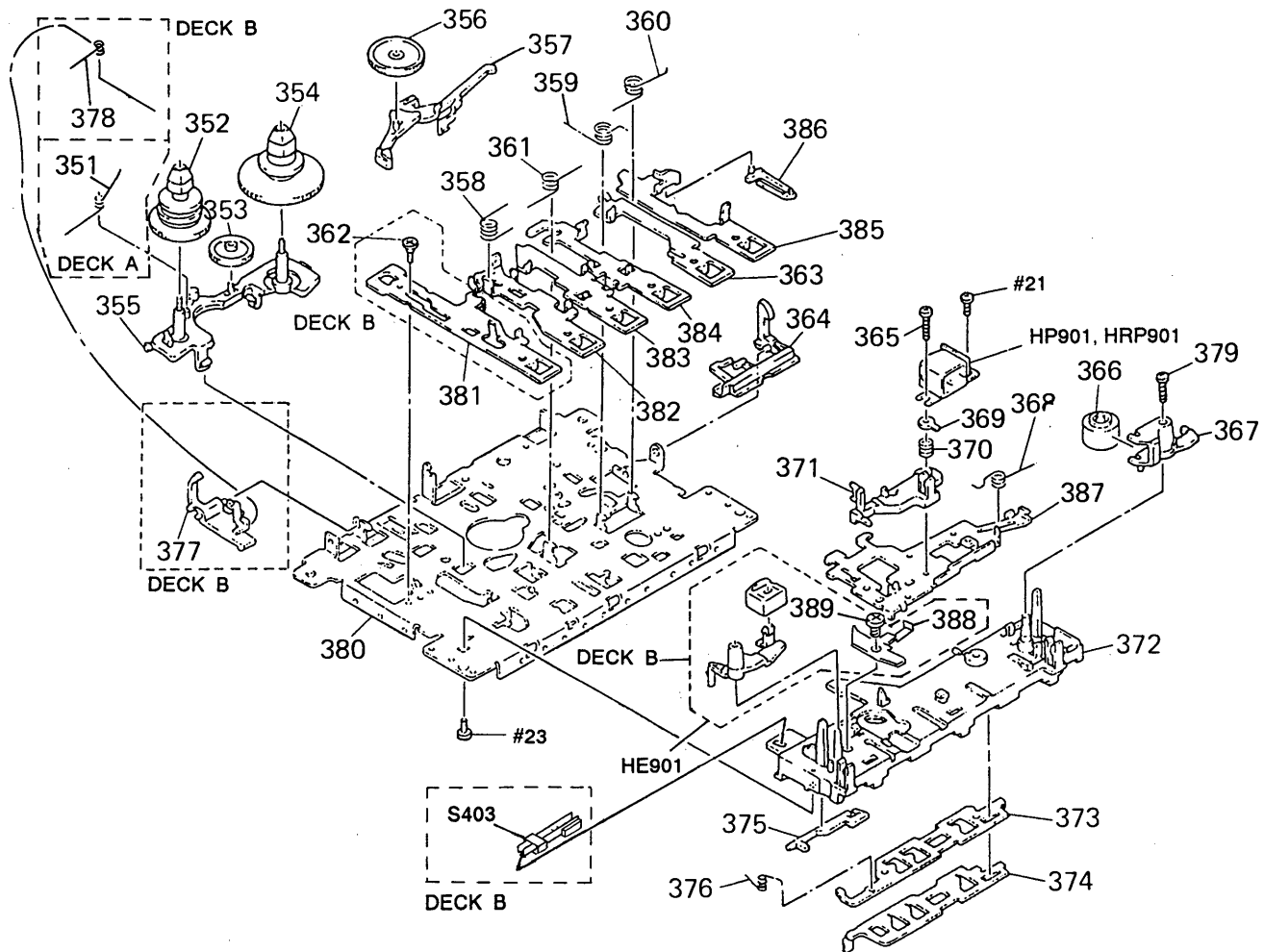
Ref. No.	Part No.	Description	Remark
* 256	3-918-742-01	HOLDER, MOTOR	
257	3-369-931-01	BELT	
258	3-918-743-01	BELT	
M901	3-378-834-01	MOTOR ASSY (REEL/CAPSTAN)	

(6) MECHANISM DECK SECTION-2
(MF-W435)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
301	3-369-921-01	FW ASSY		313	3-362-971-01	SPRING	
302	3-918-744-01	SPRING, CASSETTE		314	3-362-980-01	WASHER	
303	3-387-697-01	SENSOR		315	3-366-352-01	SCREW	
304	3-362-975-01	LEVER, SENSOR		316	3-369-961-01	WASHER	
305	3-362-978-01	SPRING, PLATE		317	3-369-962-01	SPRING, COMPRESSION	
306	3-362-973-01	AS (BASE)		* 318	3-371-919-01	PLATE FR STOP (DECK B)	
307	X-3363-315-1	GEAR, CAM		319	3-918-738-01	SPRING	
308	3-362-977-01	SPRING		320	3-918-736-01	WASHER	
309	3-362-976-01	LEVER, CONTROL		S401	1-571-745-11	SWITCH, LEAF (PLAY) (DECK A)	
310	3-918-734-01	BELT		S402	1-571-556-11	SWITCH, LEAF (POWER) (DECK A)	
311	3-362-969-01	IDLER ASSY, PF		S404	1-571-556-11	SWITCH, LEAF (POWER) (DECK B)	
312	3-362-970-01	SPRING					

(7) MECHANISM DECK SECTION-3
(MF-W435)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
351	3-372-120-01	SPRING (DECK A)		* 373	3-362-943-01	PLATE, FUNCTION	
352	X-3363-611-1	REEL, S		* 374	3-362-946-01	LEVER, SW	
353	3-362-965-01	IDLER, FF		375	3-362-944-01	STOPPER, REC	
354	3-362-962-01	REEL ASSY, T		376	3-362-945-01	SPRING	
355	3-362-961-01	SPINDLE (BASE)		377	3-362-966-01	INTER LOCK (DECK B)	
356	3-362-960-01	PULLEY, IDLER		378	3-918-735-01	SPRING	
357	3-362-959-01	ARM, IDLER		379	3-366-352-01	SCREW	
358	3-362-954-01	SPRING		* 380	3-362-941-01	CHASSIS	
359	3-362-956-01	SPRING		* 381	3-362-947-01	LEVER, REC (DECK B)	
360	3-918-733-01	SPRING		* 382	3-362-948-01	LEVER, PLAY	
361	3-362-955-01	SPRING		* 383	3-362-949-01	LEVER, REW	
362	3-362-958-01	SCREW		* 384	3-362-950-01	LEVER, FF	
* 363	3-362-951-01	LEVER, SE		* 385	3-362-952-01	LEVER, PAUSE	
364	3-362-968-01	LEVER, EJECT		386	3-362-953-01	ARM, PAUSE	
365	3-363-229-01	SCREW		* 387	3-362-984-01	HEAD (BASE)	
366	3-362-982-01	PINCH ROLLER		* 388	3-918-739-01	PLATE, SWITCH	
367	3-362-981-01	PINCH ARM		389	3-918-740-01	SCREW	
368	3-362-983-01	SPRING		HE901	3-918-737-01	HEAD ASSY, E (DECK B)	
369	3-390-817-01	LUG		HP901	1-543-424-21	HEAD (PLAYBACK) (DECK A)	
370	3-362-985-01	SPRING		HRP901	1-543-424-21	HEAD (RECORD/PLAYBACK) (DECK B)	
371	3-362-986-01	HOLDER, HEAD		S403	1-571-556-11	SWITCH, LEAF (PLAY) (DECK B)	
372	3-362-942-01	FRAME ASSY					

SECTION 6 ELECTRICAL PARTS LIST

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
EA: Saudi Arabia model
- COILS
uH: μ H
UAE: United Arab Emirates model

The components identified by mark Δ or dotted line with mark Δ 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
*	A-3269-743-A	AUDIO BOARD, COMPLETE *****		C213	1-126-101-11	ELECT	100uF 20% 16V
				C214	1-130-495-00	MYLAR	0.1uF 5% 50V
	3-918-459-01	KNOB, FUNCTION		C215	1-126-927-11	ELECT	2200uF 20% 6.3V
*	3-918-508-01	HEAT SINK		C216	1-162-293-31	CERAMIC	820PF 10% 50V
		< CAPACITOR >		C217	1-124-477-11	ELECT	47uF 20% 25V
				C218	1-124-927-11	ELECT	4.7uF 20% 100V
				C219	1-162-844-11	CERAMIC	0.027uF 10% 16V
C101	1-162-293-31	CERAMIC	820PF 10% 50V	C221	1-162-282-31	CERAMIC	100PF 10% 50V
C102	1-162-294-31	CERAMIC	0.001uF 10% 50V	C222	1-162-839-11	CERAMIC	0.01uF 10% 16V
C103	1-162-840-11	CERAMIC	0.012uF 10% 16V	C300	1-124-927-11	ELECT	4.7uF 20% 100V
C104	1-162-290-31	CERAMIC	470PF 10% 50V	C301	1-161-045-00	CERAMIC	0.0033uF 10% 50V
C105	1-162-832-11	CERAMIC	0.0027uF 10% 16V	C302	1-124-443-00	ELECT	100uF 20% 10V
C106	1-161-041-00	CERAMIC	0.0015uF 10% 50V	C303	1-162-839-11	CERAMIC	0.01uF 10% 16V
C107	1-162-282-31	CERAMIC	100PF 10% 50V	C304	1-162-844-11	CERAMIC	0.027uF 10% 16V
C108	1-124-902-00	ELECT	0.47uF 20% 50V	C305	1-126-176-11	ELECT	220uF 20% 10V
C109	1-124-902-00	ELECT	0.47uF 20% 50V	C306	1-124-927-11	ELECT	4.7uF 20% 100V
C110	1-124-477-11	ELECT	47uF 20% 25V	C307	1-124-927-11	ELECT	47uF 20% 100V
C111	1-162-282-31	CERAMIC	100PF 10% 50V	C308	1-124-477-11	ELECT	47uF 20% 25V
C112	1-124-927-11	ELECT	4.7uF 20% 100V	C310	1-124-902-00	ELECT	0.47uF 20% 50V
C113	1-126-101-11	ELECT	100uF 20% 16V	C311	1-124-903-11	ELECT	1uF 20% 50V
C114	1-130-495-00	MYLAR	0.1uF 5% 50V	C312	1-126-233-11	ELECT	22uF 20% 50V
C115	1-126-927-11	ELECT	2200uF 20% 6.3V	C313	1-124-927-11	ELECT	4.7uF 20% 100V
C116	1-162-293-31	CERAMIC	820PF 10% 50V	C314	1-126-233-11	ELECT	22uF 20% 50V
C117	1-124-477-11	ELECT	47uF 20% 25V	C316	1-124-927-11	ELECT	4.7uF 20% 100V
C118	1-124-927-11	ELECT	4.7uF 20% 100V	C317	1-124-443-00	ELECT	100uF 20% 10V
C119	1-162-844-11	CERAMIC	0.027uF 10% 16V	C318	1-124-907-11	ELECT	10uF 20% 50V
C121	1-162-282-31	CERAMIC	100PF 10% 50V	C319	1-124-927-11	ELECT	4.7uF 20% 100V
C122	1-162-839-11	CERAMIC	0.01uF 10% 16V	C320	1-162-306-11	CERAMIC	0.01uF 30% 16V
C201	1-162-293-31	CERAMIC	820PF 10% 50V	C321	1-124-472-11	ELECT	470uF 20% 10V
C202	1-162-294-31	CERAMIC	0.001uF 10% 50V	C322	1-162-306-11	CERAMIC	0.01uF 30% 16V
C203	1-162-840-11	CERAMIC	0.012uF 10% 16V	C323	1-126-103-11	ELECT	470uF 20% 16V
C204	1-162-290-31	CERAMIC	470PF 10% 50V	C325	1-124-360-00	ELECT	1000uF 20% 16V
C205	1-162-832-11	CERAMIC	0.0027uF 10% 16V	C330	1-126-176-11	ELECT	220uF 20% 10V
C206	1-161-041-00	CERAMIC	0.0015uF 10% 50V	C331	1-124-477-11	ELECT	47uF 20% 25V
C207	1-162-282-31	CERAMIC	100PF 10% 50V	C332	1-162-847-11	CERAMIC	0.047uF 10% 16V
C208	1-124-902-00	ELECT	0.47uF 20% 50V	C333	1-130-469-00	MYLAR	680PF 5% 50V
C209	1-124-902-00	ELECT	0.47uF 20% 50V				
C210	1-124-477-11	ELECT	47uF 20% 25V	C334	1-126-233-11	ELECT	22uF 20% 50V
C211	1-162-282-31	CERAMIC	100PF 10% 50V				
C212	1-124-927-11	ELECT	4.7uF 20% 100V				

AUDIO

Ref. No.	Part No.	Description	Remark
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< CONNECTOR >

* CNP300	1-580-154-11	PIN, CONNECTOR (PC BOARD) 2P	
CNP301	1-506-986-11	PIN, CONNECTOR (PC BOARD) 4P	
CNP302	1-506-987-11	PIN, CONNECTOR (PC BOARD) 5P	
* CNP303	1-580-158-11	PIN, CONNECTOR (PC BOARD) 6P	
CNP304	1-506-986-11	PIN, CONNECTOR (PC BOARD) 4P	
* CNP305	1-580-158-11	PIN, CONNECTOR (PC BOARD) 6P	
CNP306	1-506-986-11	PIN, CONNECTOR (PC BOARD) 4P	
* CNP307	1-580-154-11	PIN, CONNECTOR (PC BOARD) 2P	
* CNP308	1-580-155-11	PIN, CONNECTOR (PC BOARD) 3P	
CNP309	1-537-421-11	TERMINAL BOARD (SP)	
* CNP310	1-580-154-11	PIN, CONNECTOR (PC BOARD) 2P	

< DIODE >

D302	8-719-109-97	DIODE RD6.8ES-B2	
D307	8-719-987-63	DIODE 1N4148M	
D308	8-719-987-63	DIODE 1N4148M	
D309	8-719-987-63	DIODE 1N4148M	
D310	8-719-987-63	DIODE 1N4148M	
D311	8-719-987-63	DIODE 1N4148M	
D312	8-719-987-63	DIODE 1N4148M	
D313	8-719-987-63	DIODE 1N4148M	
D314	8-719-987-63	DIODE 1N4148M	
D315	8-719-987-63	DIODE 1N4148M	
D316	8-719-987-63	DIODE 1N4148M	

< IC >

IC201	8-759-048-59	IC BA3423S	
IC202	8-759-820-22	IC LA4597	
IC203	8-752-067-34	IC CXA1352AS	

< JACK >

J301	1-566-891-11	JACK (PHONES)	
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< TRANSISTOR >

Q300	8-729-902-80	TRANSISTOR DTA114YS	
Q301	8-729-820-24	TRANSISTOR 2SC3330-T	
Q302	8-729-820-24	TRANSISTOR 2SC3330-T	
Q303	8-729-820-24	TRANSISTOR 2SC3330-T	
Q304	8-729-873-43	TRANSISTOR 2SD734-F	
Q306	8-729-900-89	TRANSISTOR DTC144ES	
Q307	8-729-115-30	TRANSISTOR 2SK105A-30	
Q308	8-729-820-24	TRANSISTOR 2SC3330-T	
Q309	8-729-902-80	TRANSISTOR DTA114YS	

Ref. No.	Part No.	Description	Remark
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< RESISTOR >

R101	1-249-409-11	CARBON 220 5% 1/4W F	
R102	1-249-409-11	CARBON 220 5% 1/4W F	
R103	1-247-811-31	CARBON 150 5% 1/4W	
R104	1-247-889-00	CARBON 270K 5% 1/4W	
R105	1-249-428-11	CARBON 8.2K 5% 1/4W F	
R106	1-247-855-11	CARBON 10K 5% 1/4W	
R107	1-247-847-11	CARBON 4.7K 5% 1/4W	
R108	1-247-847-11	CARBON 4.7K 5% 1/4W	
R109	1-249-422-11	CARBON 2.7K 5% 1/4W F	
R110	1-247-807-11	CARBON 100 5% 1/4W	
R112	1-247-847-11	CARBON 4.7K 5% 1/4W	
R113	1-247-811-31	CARBON 150 5% 1/4W	
R116	1-247-807-11	CARBON 100 5% 1/4W	
R117	1-247-839-11	CARBON 2.2K 5% 1/4W	
R118	1-249-417-11	CARBON 1K 5% 1/4W F	
R131	1-249-387-11	CARBON 3.3 5% 1/4W	
R201	1-249-409-11	CARBON 220 5% 1/4W F	
R202	1-249-409-11	CARBON 220 5% 1/4W F	
R203	1-247-811-31	CARBON 150 5% 1/4W	
R204	1-247-889-00	CARBON 270K 5% 1/4W	
R205	1-249-428-11	CARBON 8.2K 5% 1/4W F	
R206	1-247-855-11	CARBON 10K 5% 1/4W	
R207	1-247-847-11	CARBON 4.7K 5% 1/4W	
R208	1-247-847-11	CARBON 4.7K 5% 1/4W	
R209	1-249-422-11	CARBON 2.7K 5% 1/4W F	
R210	1-247-807-11	CARBON 100 5% 1/4W	
R212	1-247-847-11	CARBON 4.7K 5% 1/4W	
R213	1-247-811-31	CARBON 150 5% 1/4W	
R216	1-247-807-11	CARBON 100 5% 1/4W	
R217	1-247-839-11	CARBON 2.2K 5% 1/4W	
R218	1-249-417-11	CARBON 1K 5% 1/4W F	
R231	1-249-387-11	CARBON 3.3 5% 1/4W	
R300	1-249-410-11	CARBON 270 5% 1/4W F	
R301	1-249-428-11	CARBON 8.2K 5% 1/4W F	
R302	1-247-879-11	CARBON 100K 5% 1/4W	
R303	1-249-435-11	CARBON 33K 5% 1/4W	
R304	1-247-839-11	CARBON 2.2K 5% 1/4W	
R305	1-249-435-11	CARBON 33K 5% 1/4W	
R306	1-247-903-00	CARBON 1M 5% 1/4W	
R307	1-247-847-11	CARBON 4.7K 5% 1/4W	
R308	1-249-435-11	CARBON 33K 5% 1/4W	
R309	1-249-393-11	CARBON 10 5% 1/4W F	
R310	1-247-847-11	CARBON 4.7K 5% 1/4W	
R311	1-249-435-11	CARBON 33K 5% 1/4W	
R312	1-249-435-11	CARBON 33K 5% 1/4W	
R313	1-249-435-11	CARBON 33K 5% 1/4W	
R314	1-247-884-11	CARBON 160K 5% 1/4W	

AUDIO

BATTERY

LED

POWER

REC SW

Ref. No.	Part No.	Description	Remark
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R315	1-249-385-11	CARBON	2.2 5% 1/6W F
R316	1-249-413-11	CARBON	470 5% 1/4W F
R317	1-249-417-11	CARBON	1K 5% 1/4W F

R318	1-249-417-11	CARBON	1K 5% 1/4W F
R319	1-249-385-11	CARBON	2.2 5% 1/6W F
R320	1-249-389-11	CARBON	4.7 5% 1/4W F
R321	1-249-428-11	CARBON	8.2K 5% 1/4W F
R322	1-249-426-11	CARBON	5.6K 5% 1/4W

R323	1-249-434-11	CARBON	27K 5% 1/4W
R324	1-247-847-11	CARBON	4.7K 5% 1/4W
R325	1-249-417-11	CARBON	1K 5% 1/4W F
R326	1-247-816-11	CARBON	240 5% 1/4W
R327	1-249-417-11	CARBON	1K 5% 1/4W F

R328	1-249-417-11	CARBON	1K 5% 1/4W F
R330	1-247-903-00	CARBON	1M 5% 1/4W
R331	1-249-411-11	CARBON	330 5% 1/4W
R332	1-249-416-11	CARBON	820 5% 1/4W F
R333	1-247-872-11	CARBON	51K 5% 1/4W

R334	1-247-870-11	CARBON	43K 5% 1/4W
R335	1-249-411-11	CARBON	330 5% 1/4W

< VARIABLE RESISTOR >

RV301	1-223-760-11	RES, VAR, SLIDE 50KX5 (BASS BOOST/GRAPHIC EQUALIZER)
RV303	1-223-639-11	RES, ADJ, CARBON 2.2K

< SWITCH >

S302	1-762-201-11	SWITCH, LEVER SLIDE (FUNCTION)
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< TRANSFORMER >

T301	1-433-346-11	TRANSFORMER, BIAS OSCILLATOR
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*	1-654-425-11	BATTERY BOARD
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*	1-654-429-11	LED BOARD
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< DIODE >

D303	8-719-038-29	DIODE SLP-181B-51 (ORP/BATT)
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Ref. No.	Part No.	Description	Remark
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*	1-654-424-11	POWER BOARD	*****
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1-533-217-31 HOLDER, FUSE

< CAPACITOR >

C801	1-124-360-00	ELECT	1000uF	20%	16V
C802	1-128-489-11	ELECT	3300uF	20%	16V
C803	1-161-494-00	CERAMIC	0.022uF		25V
C804	1-161-494-00	CERAMIC	0.022uF		25V
C805	1-161-494-00	CERAMIC	0.022uF		25V

< JACK >

△CNJ801 1-526-838-11 INLET, AC 2P (AC IN)

< CONNECTOR >

* CNP801 1-580-154-11 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 >

△F901 1-532-611-00 FUSE (TO.125A 250V)

< SWITCH >

△S801 1-552-921-00 SWITCH, POWER (VOLTAGE SELECTOR)

< TRANSFORMER >

△T901 1-427-696-11 TRANSFORMER, POWER

*	1-654-426-11	REC SW BOARD
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< SWITCH >

S301 1-572-325-11 SWITCH, SLIDE (REC/PLAY)

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

TUNER

Ref. No.	Part No.	Description	Remark
*	A-3269-738-A	TUNER BOARD, COMPLETE (EA) *****	
*	A-3269-745-A	TUNER BOARD, COMPLETE (E, UAE) *****	
*	A-3305-010-A	TUNER BOARD, COMPLETE (East European) *****	
		< ANTENNA >	
ANT1	1-402-507-11	ANTENNA, FERRITE-ROD (MW)	
		< CAPACITOR >	
C1	1-162-286-31	CERAMIC 220PF 10% 50V	
C2	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C3	1-162-306-11	CERAMIC 0.01uF 30% 16V	
C4	1-124-907-11	ELECT 10uF 20% 50V	
C5	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C6	1-162-306-11	CERAMIC 0.01uF 30% 16V	
C7	1-162-306-11	CERAMIC 0.01uF 30% 16V	
C8	1-162-198-31	CERAMIC 8.2PF 10% 50V	
C8	1-162-207-31	CERAMIC 22PF 5% 50V (E, UAE)	
C8	1-162-210-31	CERAMIC 30PF 5% 50V (EA)	
C9	1-102-947-00	CERAMIC 10PF 0.5PF 50V	
C9	1-102-960-00	CERAMIC 24PF 5% 50V (E, UAE)	
C9	1-102-962-00	CERAMIC 30PF 55 50V (EA)	
C10	1-162-193-31	CERAMIC 3.3PF 10% 50V	
C11	1-162-306-11	CERAMIC 0.01uF 30% 16V	
C12	1-162-306-11	CERAMIC 0.01uF 30% 16V	
C13	1-124-927-11	ELECT 4.7uF 20% 100V	
C14	1-124-903-11	ELECT 1uF 20% 50V	
C15	1-124-477-11	ELECT 47uF 20% 25V	
C16	1-124-477-11	ELECT 47uF 20% 25V	
C17	1-162-306-11	CERAMIC 0.01uF 30% 16V	
C18	1-162-842-11	CERAMIC 0.0082uF 10% 16V	
C19	1-124-902-00	ELECT 0.47uF 20% 50V	
C20	1-124-902-00	ELECT 0.47uF 20% 50V	
C21	1-162-842-11	CERAMIC 0.0082uF 10% 16V	
C22	1-124-903-11	ELECT 1uF 20% 50V	
C23	1-124-925-11	ELECT 2.2uF 20% 100V	
C24	1-124-443-01	ELECT 100uF 20% 10V	
C25	1-124-902-00	ELECT 0.47uF 20% 50V	
C26	1-124-927-11	ELECT 4.7uF 20% 100V	
C27	1-162-306-11	CERAMIC 0.01uF 30% 16V	
C28	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C29	1-162-196-31	CERAMIC 5.6PF 10% 50V	
C30	1-102-942-00	CERAMIC 5.0PF +-0.5PF 50V	

Ref. No.	Part No.	Description	Remark
C31	1-102-942-00	CERAMIC 5.0PF +-0.5PF 50V	
C32	1-162-205-31	CERAMIC 18PF 5% 50V	
C33	1-162-203-31	CERAMIC 15PF 5% 50V	
C34	1-161-041-00	CERAMIC 0.0015uF 10% 50V	
C35	1-162-835-11	CERAMIC 0.0047uF 10% 16V	
C36	1-110-342-11	FILM 390PF 5% 63V	
C37	1-162-196-31	CERAMIC 5.6PF 10% 50V	
C38	1-162-306-11	CERAMIC 0.01uF 30% 16V	
C39	1-124-902-00	ELECT 0.47uF 20% 50V	
		< FILTER >	
CF1	1-567-390-11	FILTER, CERAMIC 10.7M	
CF2	1-567-390-11	FILTER, CERAMIC 10.7M	
CF3	1-567-670-11	FILTER, CERAMIC	
		< CONNECTOR >	
CN1	1-506-986-11	PIN, CONNECTOR (PC BOARD) 4P	
* CN2	1-580-154-11	PIN, CONNECTOR (PC BOARD) 2P	
		< TRIMMER >	
CT1	1-141-304-21	CAP, TRIMMER 10PF	
CT2	1-141-304-21	CAP, TRIMMER 10PF	
		< VARIABLE CAPACITOR >	
CV1	1-151-693-11	CAP, VAR (EXCEPT East European)	
TC1-4			
CV1	1-151-710-11	CAP, VAR (East European)	
TC1-4			
		< DIODE >	
D1	8-719-987-63	DIODE 1N4148M	
D2	8-719-987-63	DIODE 1N4148M	
D3	8-719-987-63	DIODE 1N4148M	
D4	8-719-987-63	DIODE 1N4148M	
		< FILTER >	
FL1	1-236-022-11	FILTER, BAND PASS (EXCEPT East European)	
FL1	1-239-831-11	FILTER, BAND PASS (East European)	
		< IC >	
IC1	8-752-050-20	IC CXA1238S	
		< COIL >	
L1	1-409-943-11	COIL, AIR-CORE (E, UAE)	
L1	1-409-968-11	COIL, AIR-CORE (EA)	
L1	1-411-261-11	COIL, AIR-CORE (East European)	
L2	1-409-969-11	COIL (WITH CORE) (EA)	
L2	1-411-262-11	COIL, AIR-CORE (East European)	

Ref. No.	Part No.	Description	Remark
L2	1-422-230-11	COIL, AIR-CORE (E, UAE)	
L3	1-410-499-41	INDUCTOR 1.5uH	
< TRANSISTOR >			
Q1	8-729-806-30	TRANSISTOR 2SC4048	
Q2	8-729-806-30	TRANSISTOR 2SC4048	
Q3	8-729-806-30	TRANSISTOR 2SC4048	
Q4	8-729-281-53	TRANSISTOR 2SC1815-GR	
< RESISTOR >			
R1	1-247-847-11	CARBON 4.7K 5% 1/4W	
R2	1-247-839-11	CARBON 2.2K 5% 1/4W	
R3	1-247-811-31	CARBON 150 5% 1/4W	
R4	1-249-427-11	CARBON 6.8K 5% 1/4W F	
R5	1-249-427-11	CARBON 6.8K 5% 1/4W F	
R6	1-247-879-11	CARBON 100K 5% 1/4W	
R7	1-249-423-11	CARBON 3.3K 5% 1/4W F	
R8	1-247-855-11	CARBON 10K 5% 1/4W	
R9	1-247-887-00	CARBON 220K 5% 1/4W	
R10	1-247-887-00	CARBON 220K 5% 1/4W	
R11	1-247-839-11	CARBON 2.2K 5% 1/4W	
R12	1-249-409-11	CARBON 220 5% 1/4W F	
R13	1-247-879-11	CARBON 100K 5% 1/4W	
R14	1-249-434-11	CARBON 27K 5% 1/4W	
R15	1-247-847-11	CARBON 4.7K 5% 1/4W	
R16	1-247-879-11	CARBON 100K 5% 1/4W	
R17	1-249-411-11	CARBON 330 5% 1/4W	
< VARIABLE RESISTOR >			
RV1	1-223-641-11	RES, ADJ, CARBON 22K	
RV2	1-223-693-11	RES, VAR, CARBON 100K (FINE TUNING)	
< SWITCH >			
S1	1-571-503-11	SWITCH, LEVER SLIDE (BAND SELECT)	
< TRANSFORMER >			
T1	1-402-456-31	COIL (ANT)	
T2	1-402-539-11	COIL (ANT)	
T3	1-406-299-11	COIL (OSC)	
T4	1-406-470-11	COIL (OSC)	
T5	1-406-253-11	COIL (OSC)	
T6	1-404-355-00	TRANSFORMER, IF	
T7	1-409-944-11	COIL (DET)	

Ref. No.	Part No.	Description	Remark
*	1-654-427-11	VOL BOARD	

< VARIABLE RESISTOR >			
RV302	1-223-761-11	RES, VAR, CARBON 50K (VOLUME)	

MISCELLANEOUS			

154	1-690-969-01	CORD, SPEAKER CONNECTOR	
ANT2	1-501-668-11	ANTENNA, TELESCOPIC (FM/SW)	
ECM301	1-542-118-21	MICROPHONE, ELECTRET CONDENSER	
HE901	3-918-737-01	HEAD ASSY, E (DECK B)	
HP901	1-543-424-21	HEAD (PLAYBACK) (DECK A)	
HRP901	1-543-424-21	HEAD (RECORD/PLAYBACK) (DECK B)	
M901	3-378-834-01	MOTOR ASSY (REEL/CAPSTAN)	
S401	1-571-745-11	SWITCH, LEAF (PLAY) (DECK A)	
S402	1-571-556-11	SWITCH, LEAF (POWER) (DECK B)	
S403	1-571-556-11	SWITCH, LEAF (PLAY) (DECK B)	
S404	1-571-556-11	SWITCH, LEAF (POWER) (DECK A)	
SP101	1-544-742-11	SPEAKER (10CM) (L-CH)	
SP201	1-544-742-11	SPEAKER (10CM) (R-CH)	

ACCESSORIES & PACKING MATERIALS			

△	1-559-048-31	CORD, POWER (E:110-120V AC AREA)	
△	1-569-007-11	ADAPTER, CONVERSION 2P (E:110-120V AC AREA)	
△	1-569-008-11	ADAPTER, CONVERSION 2P (EA)	
△	1-769-412-11	CORD, POWER (E:220-240V AC AREA, EA, UAE, East European)	
3-759-569-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH) (E, EA, UAE)		
3-759-569-41	MANUAL, INSTRUCTION (POLISH, ENGLISH, GERMAN, RUSSIAN) (East European)		
3-759-569-51	MANUAL, INSTRUCTION (CZECK, HUNGARIAN) (East European)		
3-918-498-01	INDIVIDUAL CARTON		
*	3-918-499-01	CUSHION (TOP)	
*	3-918-500-01	CUSHION (BOTTOM)	

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

Ref.No.	Part No.	Description	Remark
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HARDWARE LIST

#1	7-685-648-79	SCREW, TAPPING +BV 3X12	
#2	7-685-548-09	SCREW +P 3X8	
#3	7-685-645-79	SCREW +BVTP 3X6 TYPE2 SLIT	
#4	7-685-646-79	SCREW, TAPPING +BV 3X8	
#5	7-685-903-21	SCREW +PTPWH 3X8 (TYPE2)	
#6	7-685-647-79	SCREW, TAPPING +BV 3X10	
#7	7-621-770-67	SCREW +P 2.6X6	
#8	7-685-133-19	SCREW +P 2.6X6 TYPE2 SLIT	
#9	7-685-131-19	SCREW +P 2.6X4 TYPE2 SLIT	
#10	7-685-152-19	SCREW +P 3X25 TYPE2 NON-SLIT	
#11	7-685-245-19	SCREW +KTP 3X6 TYPE2 NON-SLIT	
#21	7-621-255-25	SCREW +PTT 2X4 (S)	
#22	7-621-773-86	SCRTEWTOTSU PTTWH 2.6X4	
#23	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT	