CFD-S38

SERVICE MANUAL

US Model
Canadian Model
E Model

Ver. 1.3 2005.09

CD Section	Model Name Using Similar Mechanism	NEW
	CD Mechanism Type	KSM-213CDM
	Optical Pick-up Name	KSS-213C
TC Section	Model Name Using Similar Mechanism	CFD-V10
	Tape Transport Mechanism Type	MF-V10-117

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS (US Model)
POWER OUTPUT AND TOTAL
HARMONIC DISTORTION
With 6-ohm loads, both channels driven from 100 - 10,000 Hz; rated 4 W per channel-minimum RMS power, with no more than 10% total harmonic distortion in AC operation.

Other Specifications
CD player section
System
Compact disc digital audio system
Laser diode properties
Material: GaAlAs
Wave length: 780 nm
Emission duration: Continuous
Laser output: Less than 44.6 μW
(This output is the value measured at a distance of about 200 mm from the objective lens surface on the optical pick-up block with 7 mm aperture.)
Spindle speed
200 r/min (rpm) to 500 r/min (rpm) (CLV)
Number of channels
2
Frequency response
20 - 20,000 Hz +1/–2 dB
Wow and flutter
Below measurable limit

Radio section
Frequency range
FM: 87.6 - 108 MHz
AM: 530 - 1,710 kHz
Aerials
FM: Telescopic aerial
AM: Built-in ferrite bar aerial

Cassette-corder section
Recording system
4-track 2 channel stereo
Fast winding time
Approx. 120 sec. with Sony cassette C-60
Frequency response
TYPE I (normal): 70 - 13,000 Hz

General
Speaker
Full range: 10 cm (4 in.) dia., 6 ohms, cone type (2)
Outputs
Headphones jack (stereo minijack)
For 16 - 68 ohms impedance headphones

– Continued on next page –

CD RADIO CASSETTE-CORDER

9-926-939-13
2005I04-1

Sony Corporation
Personal Audio Group
Published by Sony Engineering Corporation

SONY®

Power requirements
For CD radio cassette-corder:
120 V AC, 60 Hz
9 V DC, 6 size D (R20) batteries
For memory back-up:
6 V DC, 4 size AA (R6) batteries
For remote control:
3 V DC, 2 size AA (R6) batteries

Power consumption
AC 25 W

Battery life
For CD radio cassette-corder:

FM recording
Sony R20P: approx. 3.5 h
Sony alkaline LR20: approx. 10 h
Tape playback
Sony R20P: approx. 1.5 h
Sony alkaline LR20: approx. 5 h
CD playback
Sony R20P: approx. 1 h
Sony alkaline LR20: approx. 4 h

Dimensions
Approx. 420 × 156 × 262 mm (w/h/d)
(16 5/8 × 6 1/4 × 10 3/8 inches) (incl. projecting parts)

Mass
Approx. 4.7 kg (10 lb. 6 oz.) (incl. batteries)

Supplied accessories
AC power cord (1)
Remote control RMT-CS38A (1) (Except Singapore model)
Remote control RMT-CS38AD (1) (Singapore model)

Design and specifications are subject to change without notice.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

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.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

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.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES 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.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.

2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

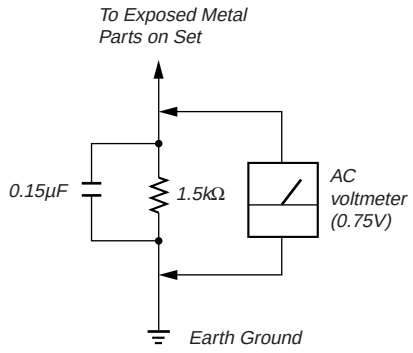


Fig. A. Using an AC voltmeter to check AC leakage.

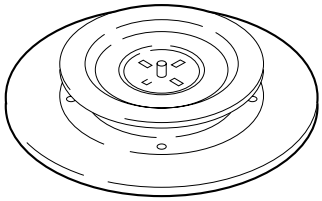
TABLE OF CONTENTS

SECTION 1
SERVICING NOTES

CHUCK PLATE JIG ON REPAIRING

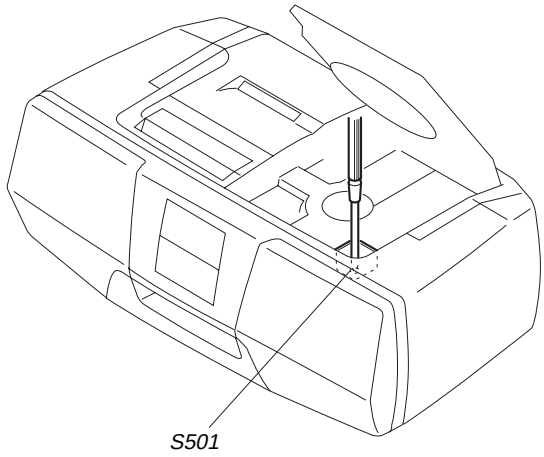
On repairing CD section, playing a disc without the lid (CD), use Chuck Plate Jig.

• Code number of Chuck Plate Jig: X-4918-255-1



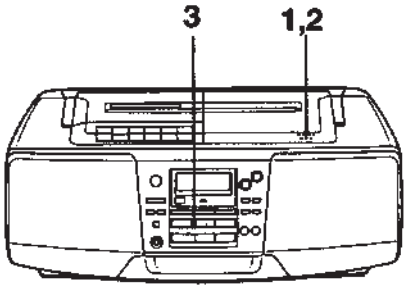
LASER DIODE AND FOCUS SEARCH OPERATION CHECK

1. Turn ON the POWER button and press FUNCTION button to CD position.
2. Open the lid (CD).
3. Turn on S501 with screwdriver, etc. as following figure.
4. Press the CD ▷II button.
5. Confirm the laser diode emission while observing the objecting lens. When there is no emission, Auto Power Control circuit or Optical Pick-up is broken.
   Objective lens moves up and down three times for focus search.



This section is extracted from instruction manual.

Playing a CD



Connect the supplied AC power cord (see page 25).

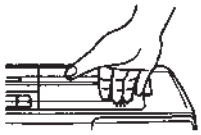
1

Press ≙ PUSH OPEN/CLOSE down to open the CD compartment and place the CD on the CD compartment.

With the label side up

2

Close the lid of the CD compartment.



3

Press ▶II.

The player turns on (direct power-on) and plays all the tracks once.

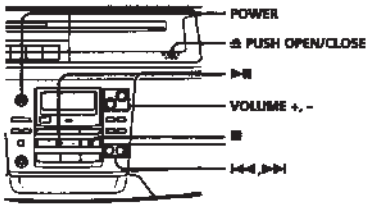
Display

Track number Playing time

Tip

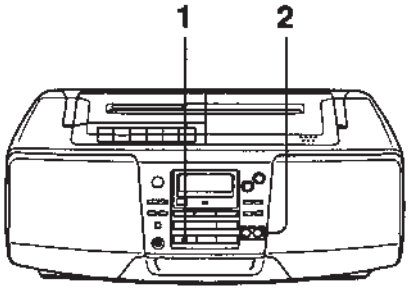
Next time you want to listen to a CD, just press ▶II. The player turns on automatically and starts playing the CD.

Use these buttons for additional operations



To	Press
adjust the volume	VOLUME +, – (VOL +, – on the remote, CFD-S38 only)
stop playback	■
pause playback	▶II (II on the remote, CFD-S38 only) Press the button again to resume play after pause.
go to the next track	▶▶I
go back to the previous track	I◀◀
remove the CD	≙ PUSH OPEN/CLOSE
turn on/off the player	POWER

Listening to the radio

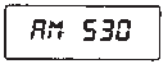


Connect the supplied AC power cord (see page 25).

1

Press RADIO BAND until the band you want appears in the display (direct power-on).

Display



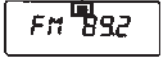
2

Hold down TIME SET+TUNE + or – (TUNE + or – on the remote, CFD-S38 only) until the frequency digits begin to change in the display.

The player automatically scans the radio frequencies and stops when it finds a clear station.

If you can't tune in a station, press the button repeatedly to change the frequency step by step.

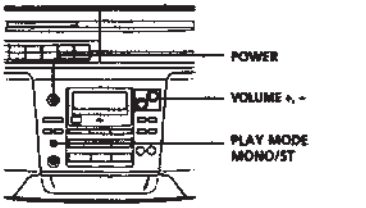
indicates an FM stereo broadcast



Tips

- If the FM broadcast is noisy, press PLAY MODE +MONO/ST until "Mono" appears in the display and the radio will play in monaural.
- Next time you want to listen to the radio, just press RADIO BAND. The player turns on automatically and starts playing the previous station.

Use these buttons for additional operations

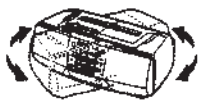


To	Press
adjust the volume	VOLUME +, – (VOL +, – on the remote, CFD-S38 only)
turn on/off the radio	POWER

To improve broadcast reception

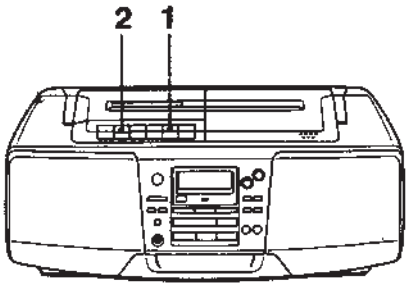
Reorient the antenna for FM. Reorient the player itself for AM.

for FM



for AM

Playing a tape

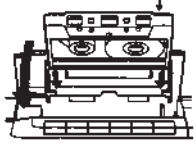


Connect the supplied AC power cord (see page 25).

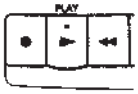
1

Press ■⏏ to open the tape compartment and insert a recorded tape. Use TYPE I (normal) tape only. Close the compartment.

With the side you want to play facing upward



2



Press ▶.

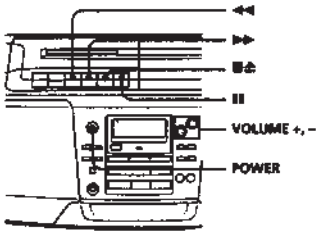
The player turns on (direct power-on) and starts playing.

Display

Tip

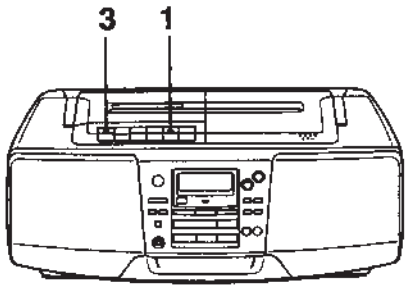
Next time you want to listen to a tape, just press ▶. The player turns on automatically and starts playing the tape.

Use these buttons for additional operations



To	Press
adjust the volume	VOLUME +, – (VOL +, – on the remote, CFD-S36 only)
stop playback	■⏏
fast-forward or rewind the tape	▶▶ or ◀◀
pause playback	II Press the button again to resume play after pause.
eject the cassette	■⏏
turn on/off the player	POWER

Recording on a tape

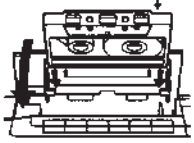


Connect the supplied AC power cord (see page 25).

1

Press ■⏏ to open the tape compartment and insert a blank tape. Use TYPE I (normal) tape only.

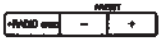
With the side you want to record on facing upward



2

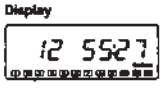
Select the program source you want to record.

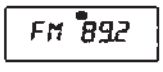
To record from the CD player, insert a CD (see page 4) and press ■ on the CD section.



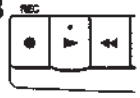
To record from the radio, tune in the station you want (see page 6).

Display





3

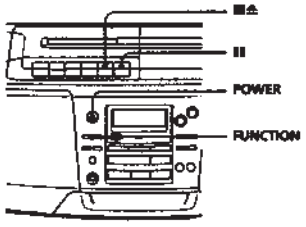


Press ● to start recording (▶ is depressed automatically).

Tips

- Adjusting the volume or the audio emphasis (see page 27) will not affect the recording level.
- For the best results, use the AC power as a power source.
- To erase a recording, proceed as follows:
  1 Insert the tape whose recording you want to erase.
  2 Press FUNCTION to select "TAPE".
  3 Press ●.

Use these buttons for additional operations



To	Press
stop recording	■⏏
pause recording	II Press the button again to resume recording.
turn on/off the player	POWER

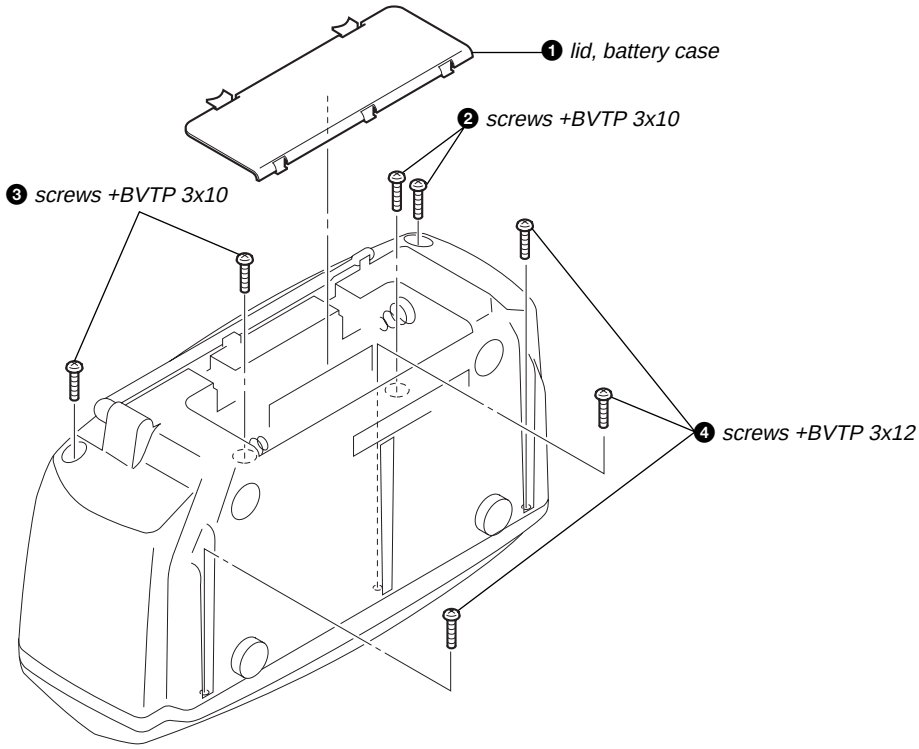
SECTION 3
DISASSEMBLY

• The equipment can be removed using the following procedure.

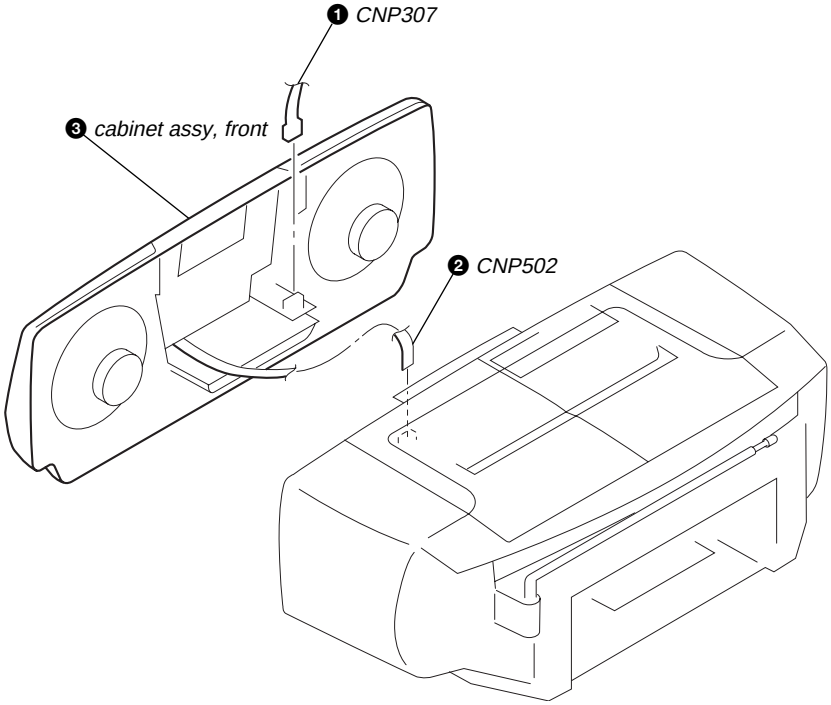
Set → Lid, battery case → Cabinet assy, front → Wires → Transformer, power
Wires → Antenna, telescopic → Tuner board
Wires → Cabinet (upper) assy → Main board → CD mechanism block
Main board → Tape mechanism block

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

3-1. LID, BATTERY CASE

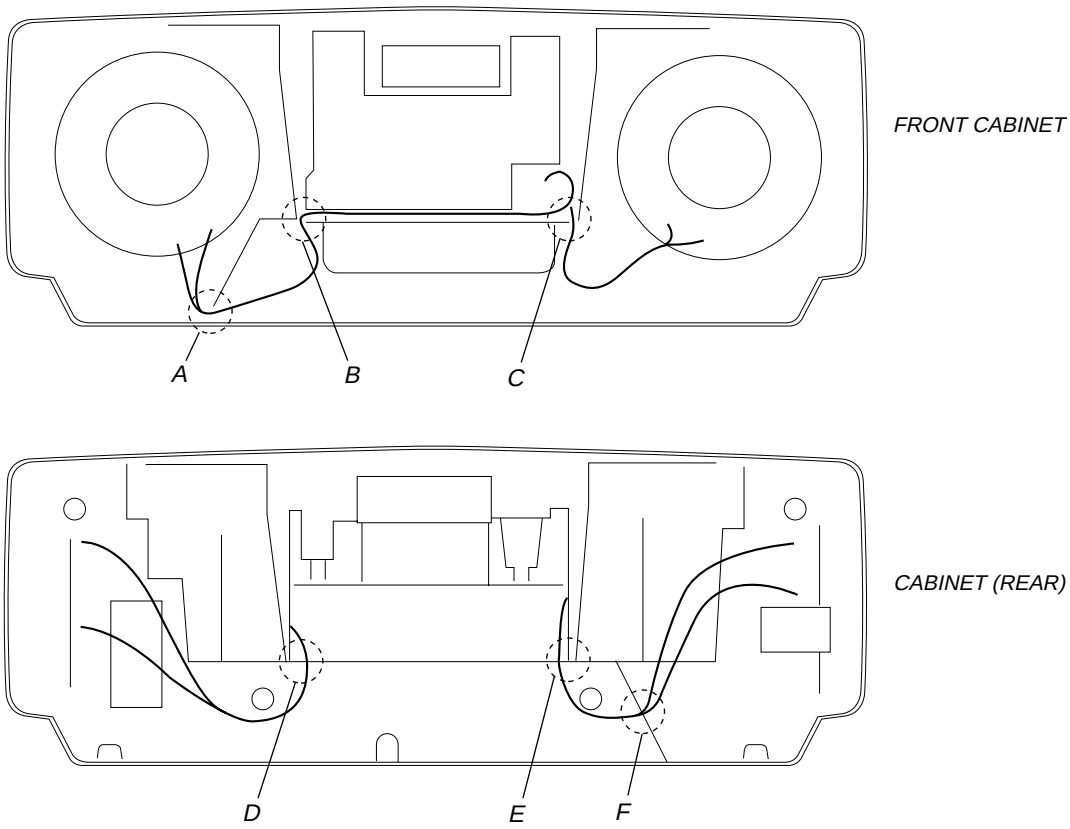


3-2. CABINET ASSY, FRONT

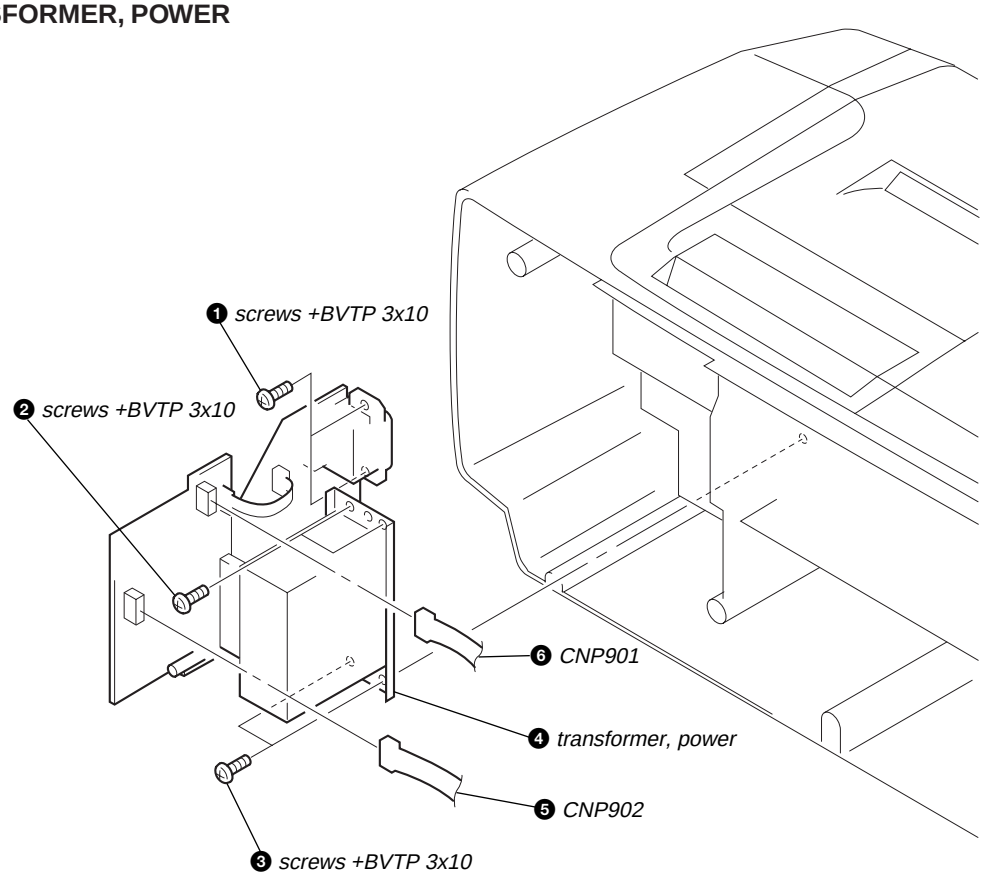


3-3. WIRES

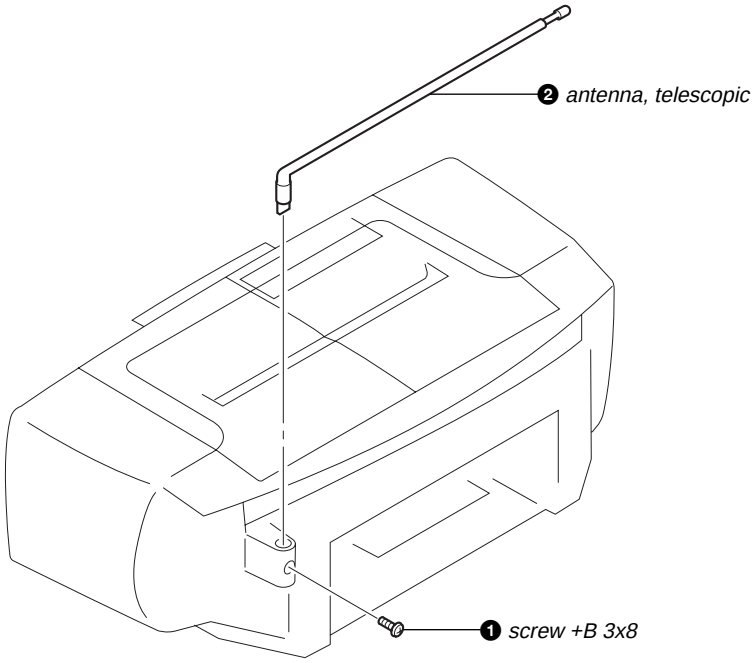
Put flat cable and wires between the cabinets and push them in the grooves located at A to F in the figure to prevent disconnection before assembling the set.



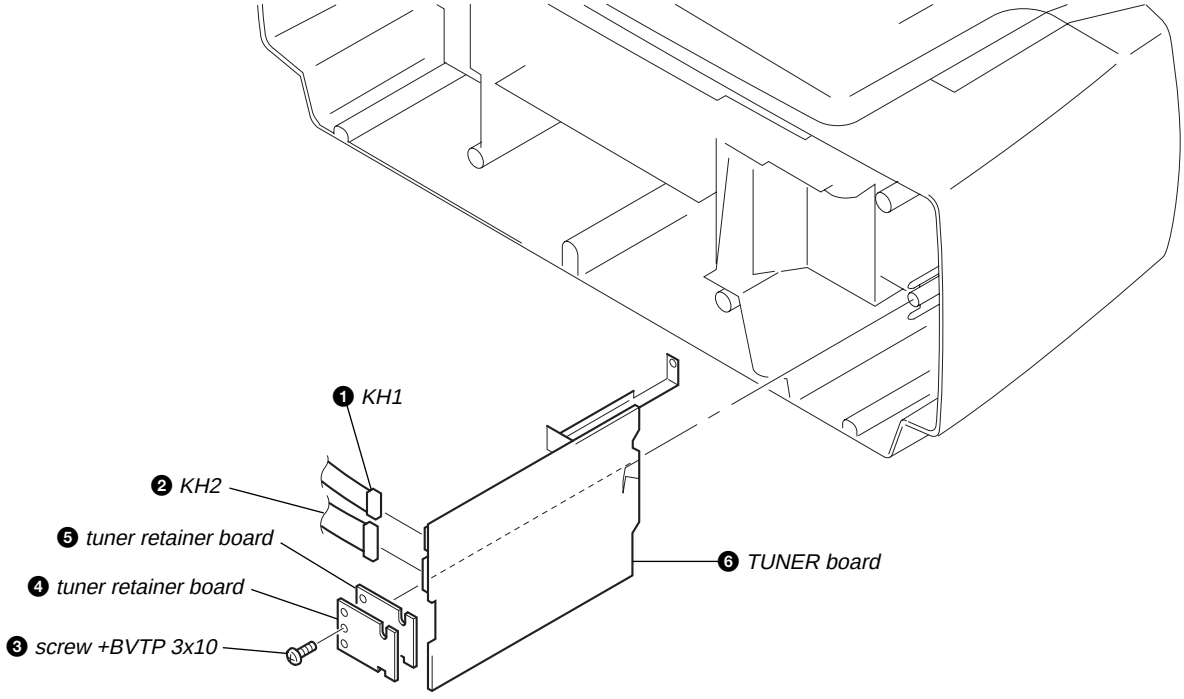
3-4. TRANSFORMER, POWER



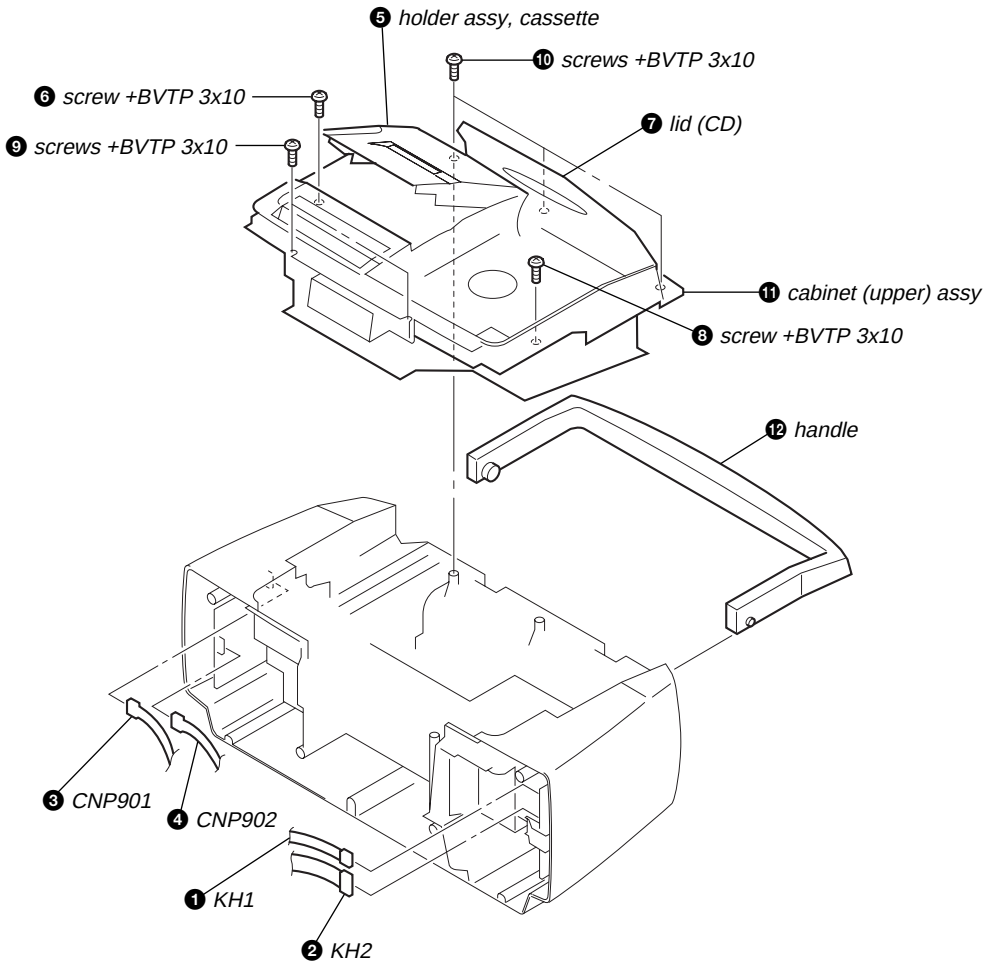
3-5. ANTENNA, TELESCOPIC



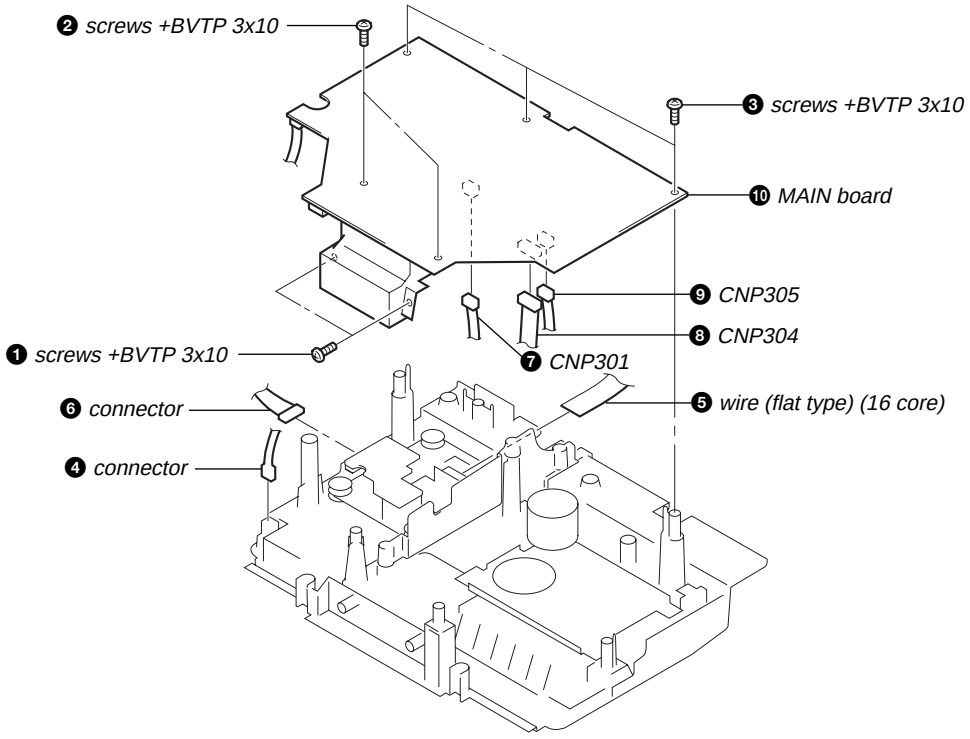
3-6. TUNER BOARD



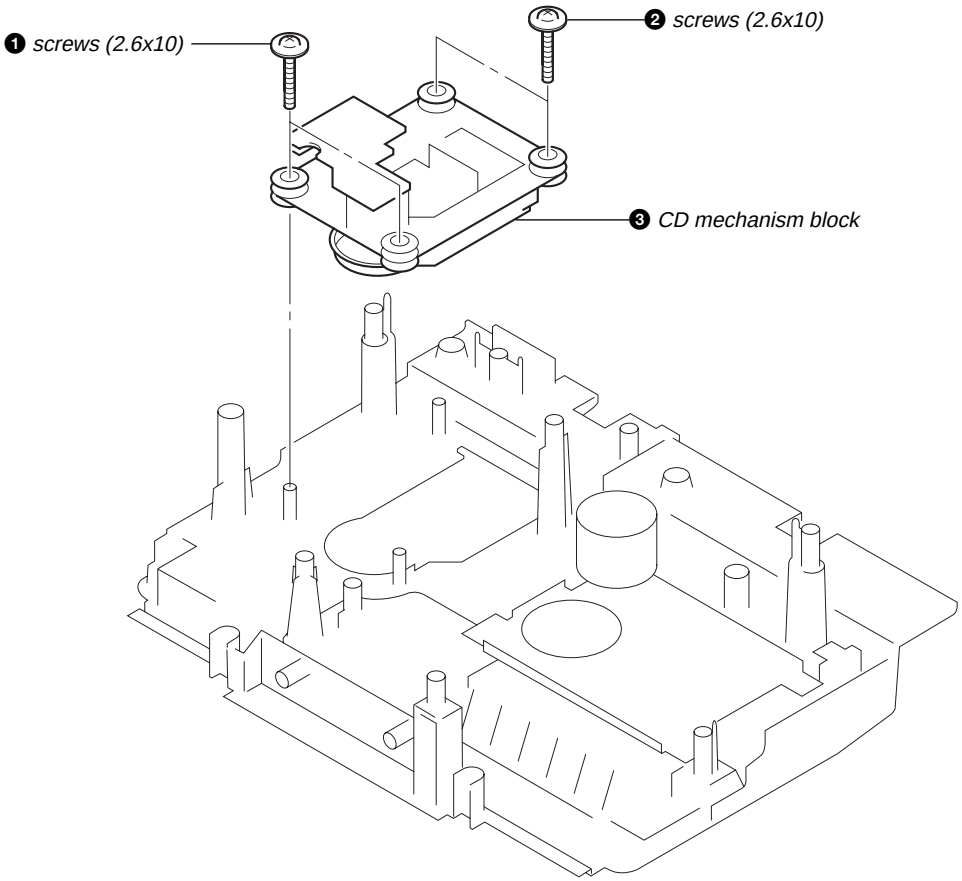
3-7. CABINET (UPPER) ASSY



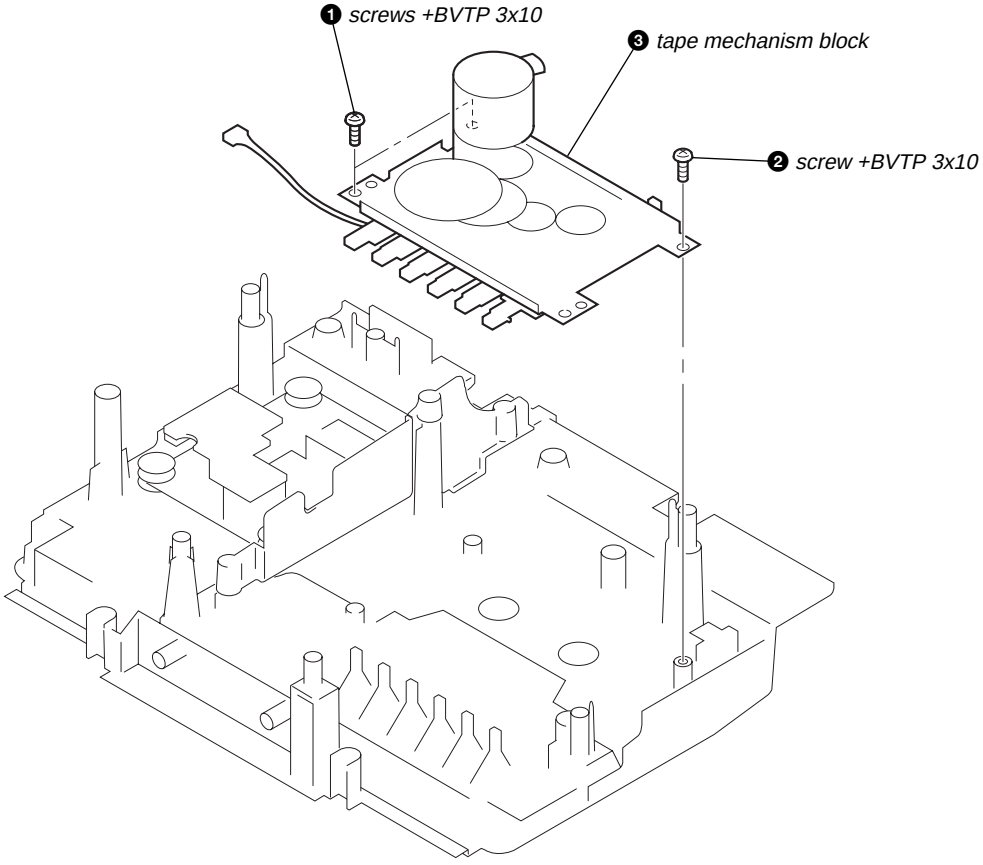
3-8. MAIN BOARD



3-9. CD MECHANISM BLOCK



3-10. TAPE MECHANISM BLOCK



SECTION 4
MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab :
   record/playback head, erase head, capstan, pinch roller, rubber belts, idlers
2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head magnetizer 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

Mode	Torque meter	Meter reading
FWD	CQ-102C	30 – 70 g • cm (0.42 – 0.97 oz • inch)
FWD Back Tension	CQ-102C	1.5 – 5.5 g • cm (0.021 – 0.076 oz • inch)
FF	CQ-201B	more than 60 g • cm (more than 0.83 oz • inch)
REW	CQ-201B	more than 60 g • cm (more than 0.83 oz • inch)

Tape Tension Measurement

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

SECTION 5
ELECTRICAL ADJUSTMENTS

TAPE SECTION **0 dB = 0.775 V**

• Standard Output Level

Output terminal	HP OUT
load impedance	32 Ω
output signal level	0.25 V (–10 dB)

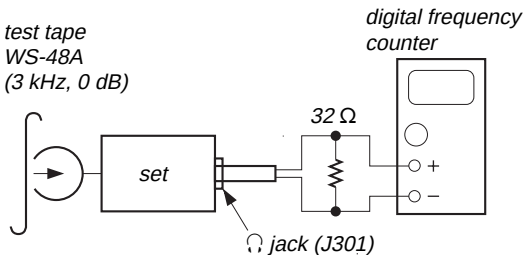
• Test Tape

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

Tape Speed Adjustment

Procedure:

Mode: playback



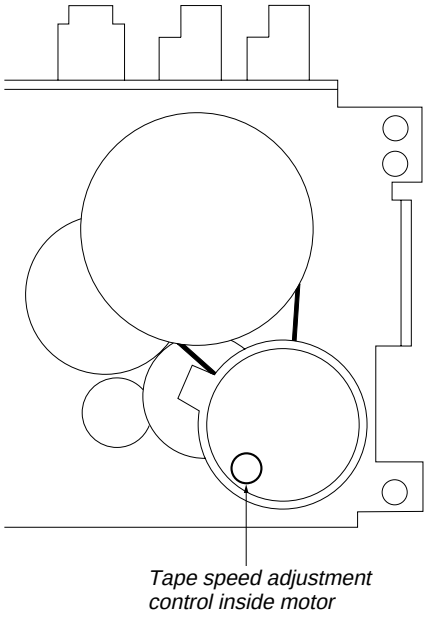
Adjust so that the value on the digital frequency counter is 3,000 Hz.

Specification Value:

Digital frequency counter
2,910 to 3,090 Hz

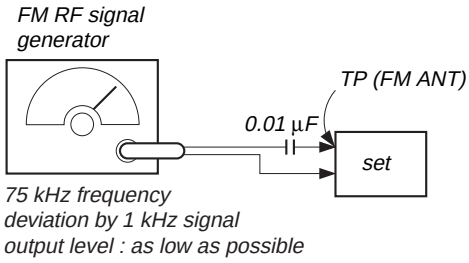
Adjust so that the frequency at the beginning and that at the end of tape winding are between 2,910 to 3,090 Hz.

Adjustment Location:

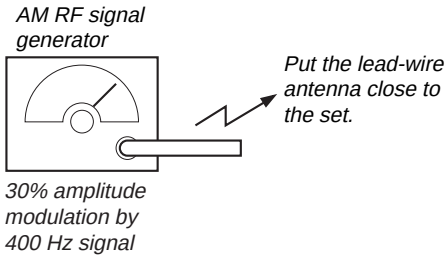


TUNER SECTION | 0 dB = 1 µV

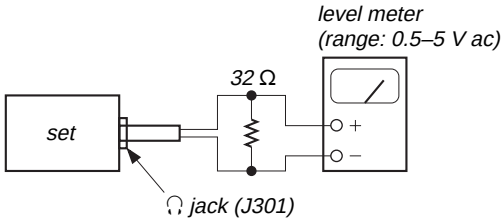
- **FM Section**
  Setting:
  RADIO (BAND) button: FM



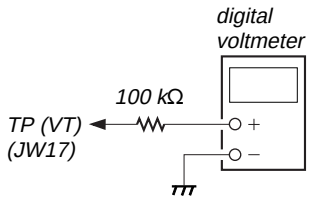
- **AM Section**
  Setting:
  RADIO (BAND) button: AM



- **Connecting Level Meter (FM and AM)**



- **Connecting Digital Voltmeter (FM and AM)**



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

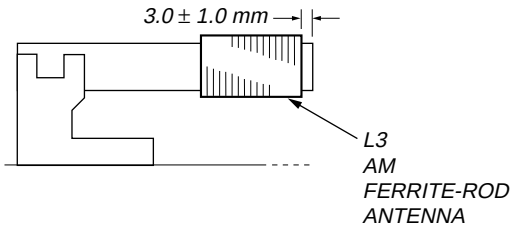
FM FREQUENCY COVERAGE ADJUSTMENT		
Frequency Display	87.5 MHz	108 MHz
Reading on Digital voltmeter	1.6 ± 0.4 V	4.0 ± 0.1V
Adjustment Part	<confirmation>	L2

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L1	CT1
87.5 MHz	108 MHz

AM FREQUENCY COVERAGE CHECK		
Frequency Display	530 kHz	1,710 kHz
Reading on Digital voltmeter	1.0 $^{+ 0.7\ V}_{- 0.5\ V}$	4.8 $^{+ 1.2V}_{- 0.6\ V}$
Adjustment Part	<confirmation>	<confirmation>

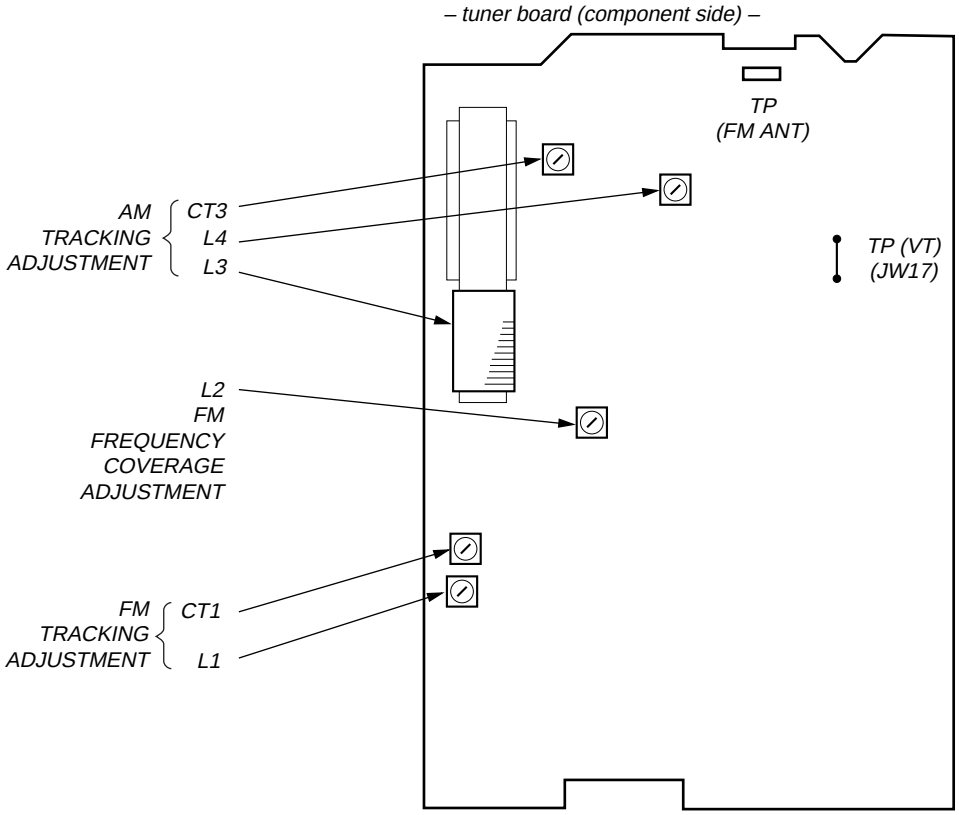
AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L4	CT3
620 kHz	1,400 kHz

- For AM adjustment, fix the ferrite-rod antenna (L3) as shown below and then perform tracking adjustment at L4 and CT3. Lastly check the voltage.



Adjustment Location: See page 14.

Adjustment Location:



CD SECTION

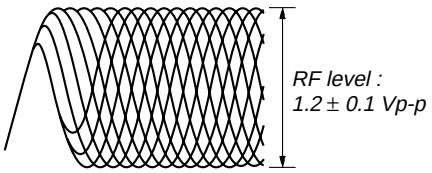
CD section adjustments are done automatically in this set.
In case of operation check, confirm that focus bias.

FOCUS BIAS CHECK

1. Connect the oscilloscope between IC701 pin ㉝ (TP RFO) and GND on CD board.
2. Insert the disc (YEDS-18). (Part No. : 3-702-101-01)
3. Press the CD ▷II button.
4. Confirm that the oscilloscope waveform is as shown in the figure below. (eye pattern)
   A good eye pattern means that the diamond shape (◇) in the center of the waveform can be clearly distinguished.

• RF signal reference waveform (eye pattern)

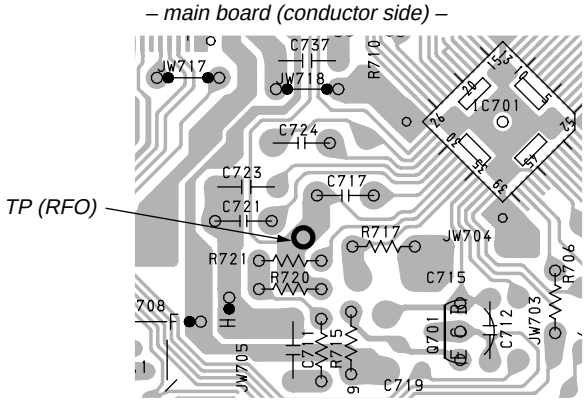
VOLT/DIV : 200 mV (10 : 1 probe in use)
TIME/DIV : 500 nS



When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

Test Point:

– main board (conductor side) –



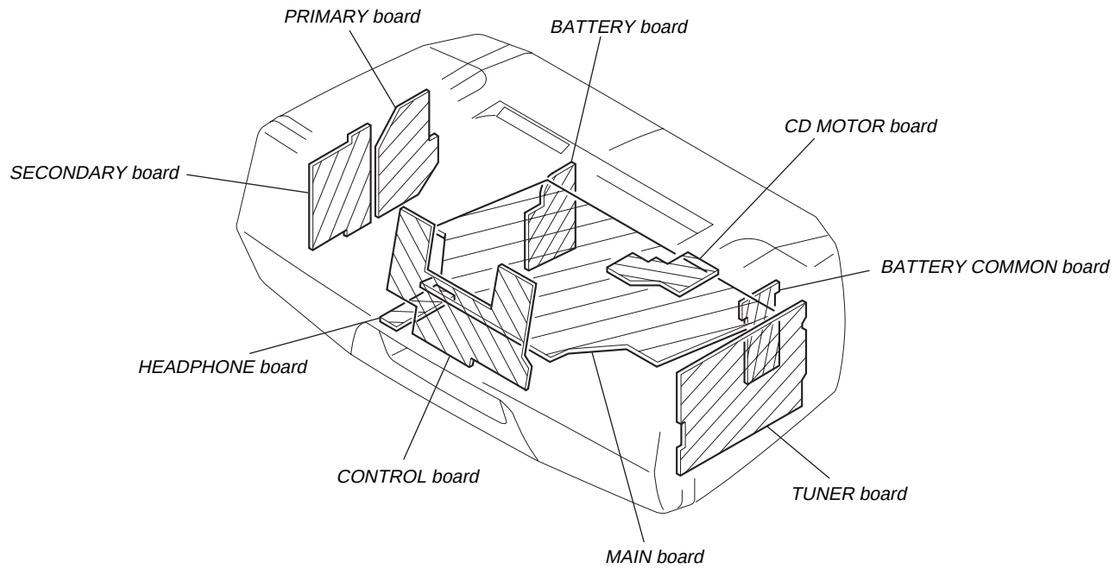
SECTION 6
DIAGRAMS

6-1. IC PIN DESCRIPTION

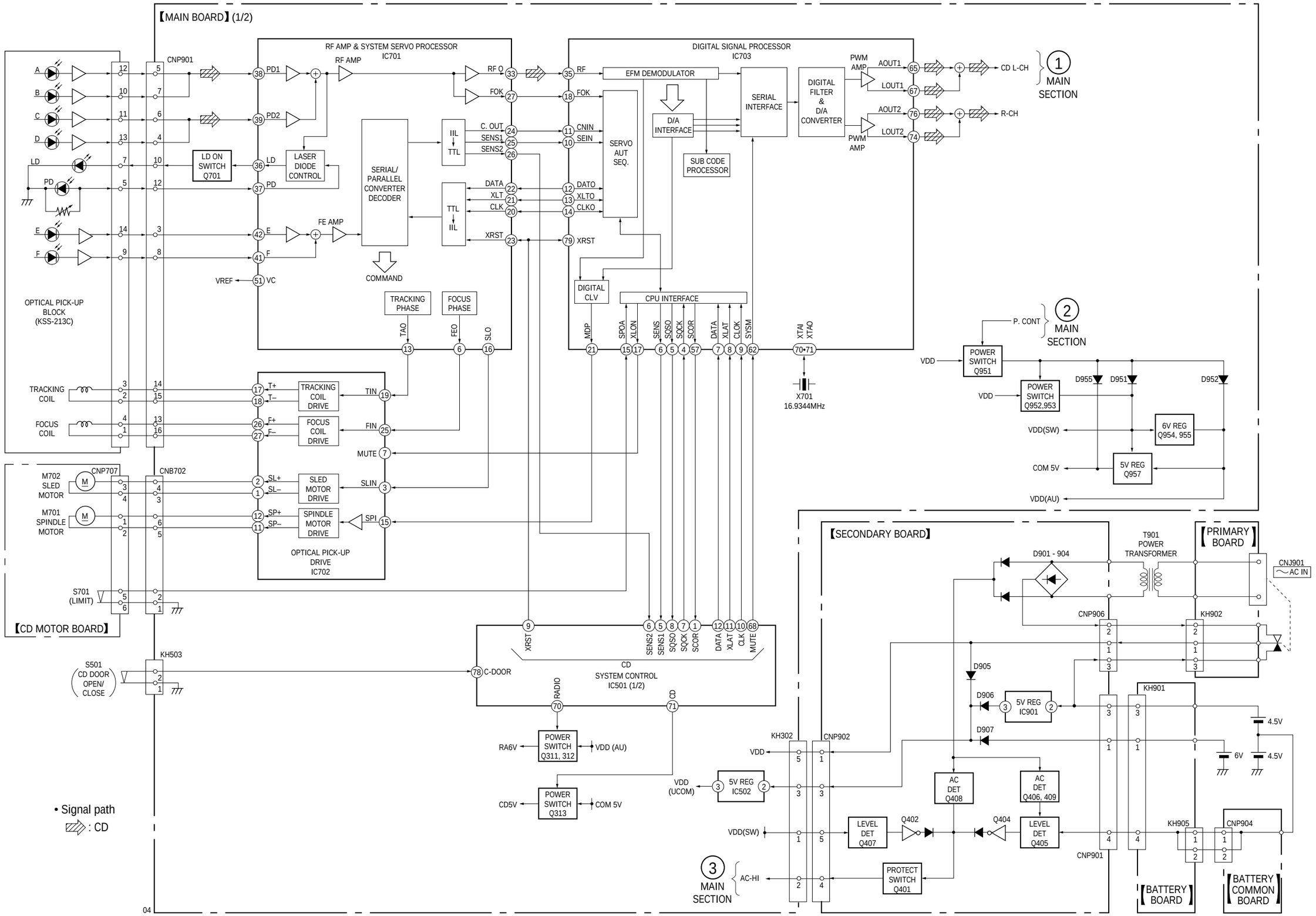
• IC501 CXP83620-007Q (SYSTEM CONTROL)

Pin No.	Pin Name	I/O	Pin Description
1	C-SCOR	I	CD SCOR input
2	RMC	I	Sircs receiver input
3, 4	NC	—	Not used.
5	C-SENS1	I	CD SENSE-1 input
6	C-SENS2	I	CD SENSE-2 input
7	C-SQCK	O	CD Sub-Q read clock output
8	C-SQSO	I	CD Sub-Q data input
9	C-RST	O	CD reset output
10	C-CLOCK	O	CD serial clock output
11	C-LATCH	O	CD serial latch output
12	C-DATA	O	CD serial data output
13	$\overline{\text{REC}}$	I	Tape record signal input L: REC
14	R-COUNT	I	Tuner PLL data input
15	R-DATA	O	Tuner PLL data output
16	R-CLOCK	O	Tuner PLL clock output
17	R-LATCH	O	Tuner PLL latch output
18	V-LATCH	O	Volume latch output
19	V-DATA	O	Volume data output
20	V-CLOCK	O	Volume clock output
21	P-CON	O	System power control output
22	DIRECTION	—	Not used.
23 – 25	KEY-1 – 3	I	Key input
26	NC	—	Not used.
27	INIT	O	Initial set signal output
28	MODE CHECK	I	Mode set pin
29	SHIFT CLOCK	O	Shift clock output
30	$\overline{\text{RST}}$	I	System reset input
31	EXTAL	I	Oscillation input (4.19 MHz)
32	XTAL	O	Oscillation output (4.19 MHz)
33	VSS	—	GND
34	VL	O	LCD drive port ON/OFF output
35 – 37	VLC-3 – 1	O	LCD drive voltage terminal
38 – 41	COM0 – 3	O	LCD drive common output
42 – 64	SEG0 – 22	O	LCD drive segment output
65	NC	—	Not used.
66	A-MUTE	O	Audio mute output H: Mute
67	B-MUTE	O	Tuner block mute output H: Mute
68	C-MUTE	O	CD block mute output H: Mute
69	TAPE	O	Tape function output H: Tape
70	RADIO	O	Tuner function output H: Radio
71	$\overline{\text{CD}}$	O	CD function output L: CD
72	VDD	—	Power supply pin (+5 V)
73	TX	O	Oscillation output (32.768 kHz)
74	TEX	I	Oscillation input (32.768 kHz)
75	NC	—	Not used.
76	ISS1	O	Not used.
77	ISS2	O	Not used.
78	C-DOOR	I	CD door open/close switch input L: Close
79	$\overline{\text{TC-PLAY}}$	I	Tape play switch input L: Tape
80	REG CHK	I	Regulator check signal input H: ON

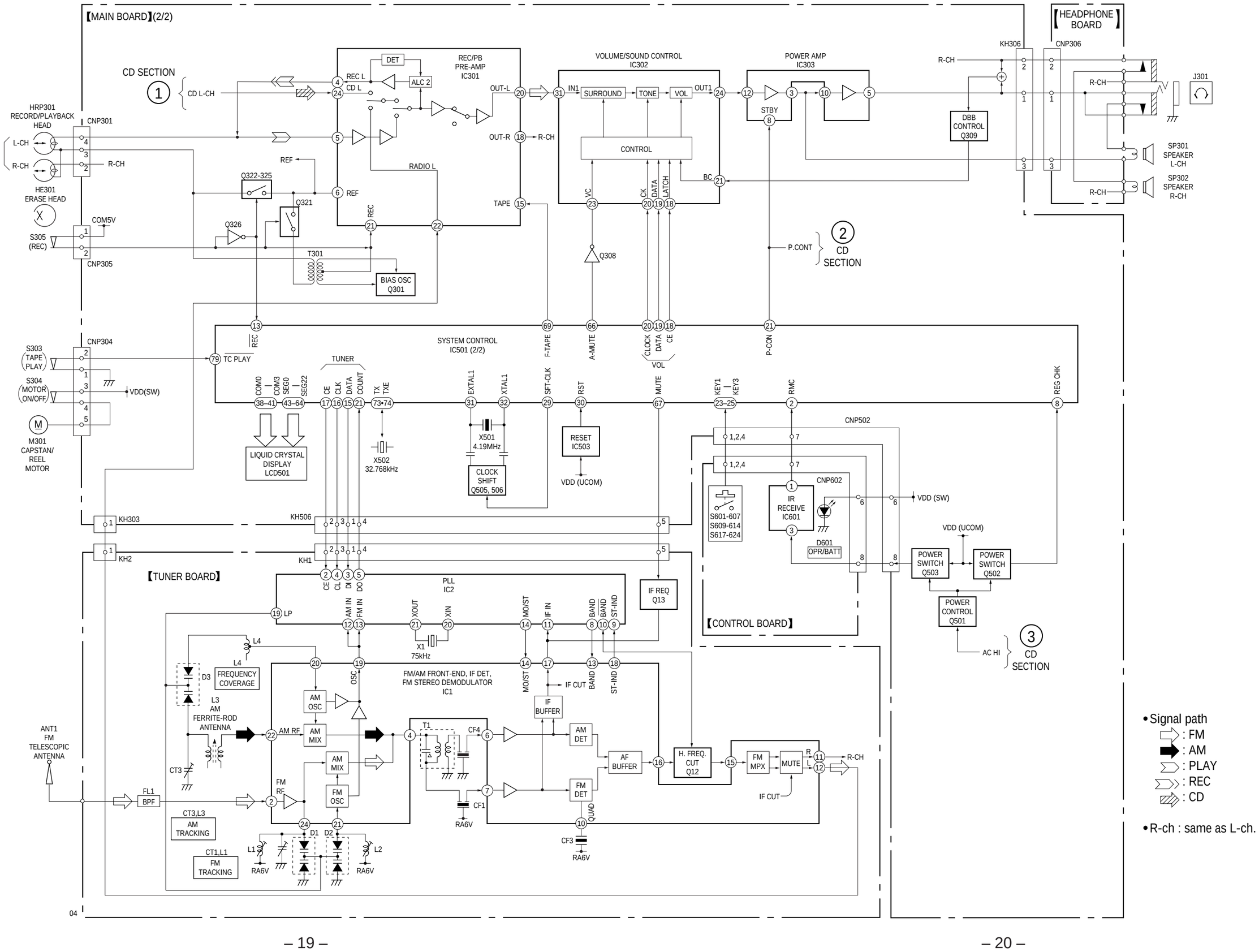
6-2. CIRCUIT BOARDS LOCATION



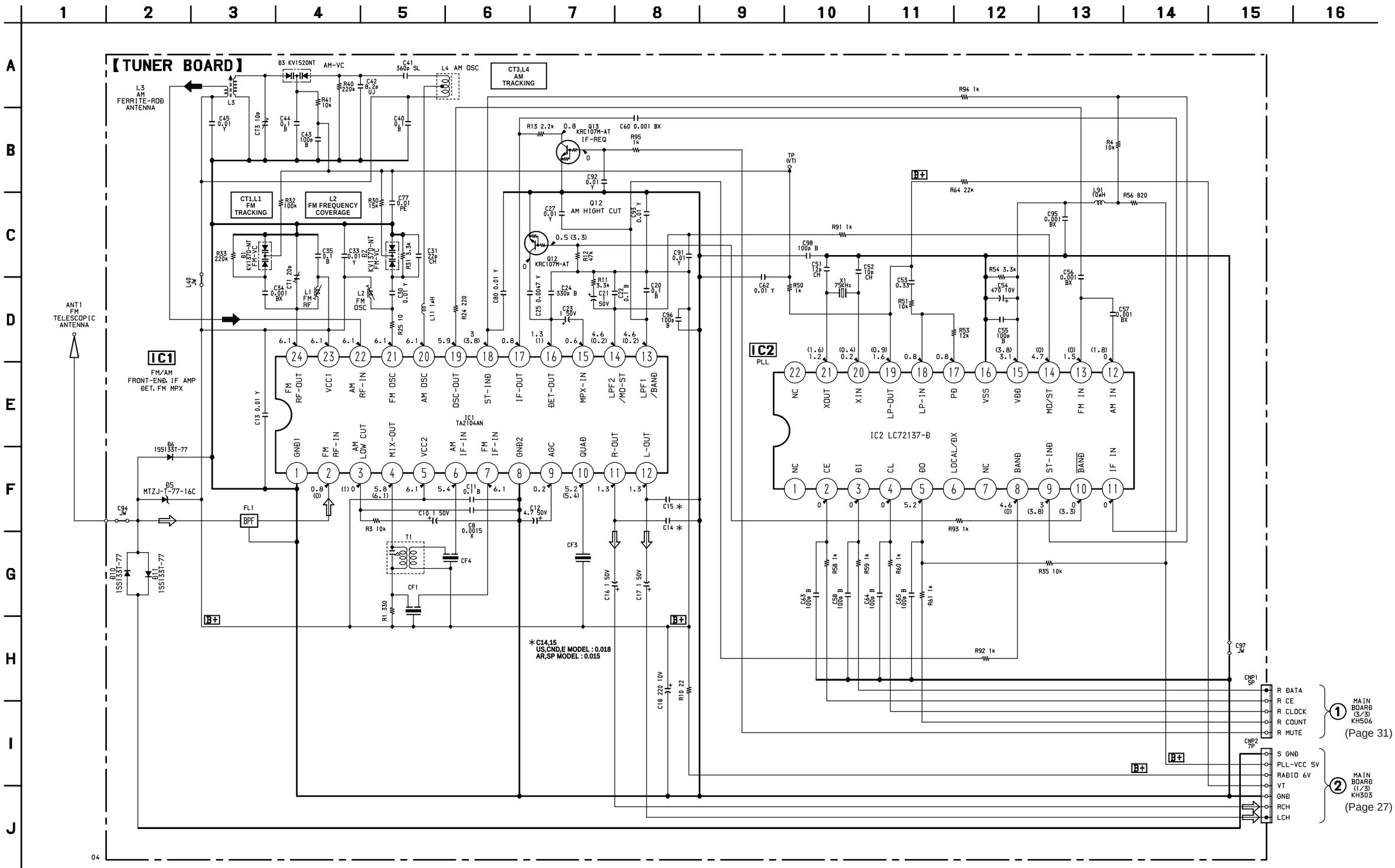
6-3. BLOCK DIAGRAM — CD SECTION —



6-4. BLOCK DIAGRAM — MAIN SECTION —



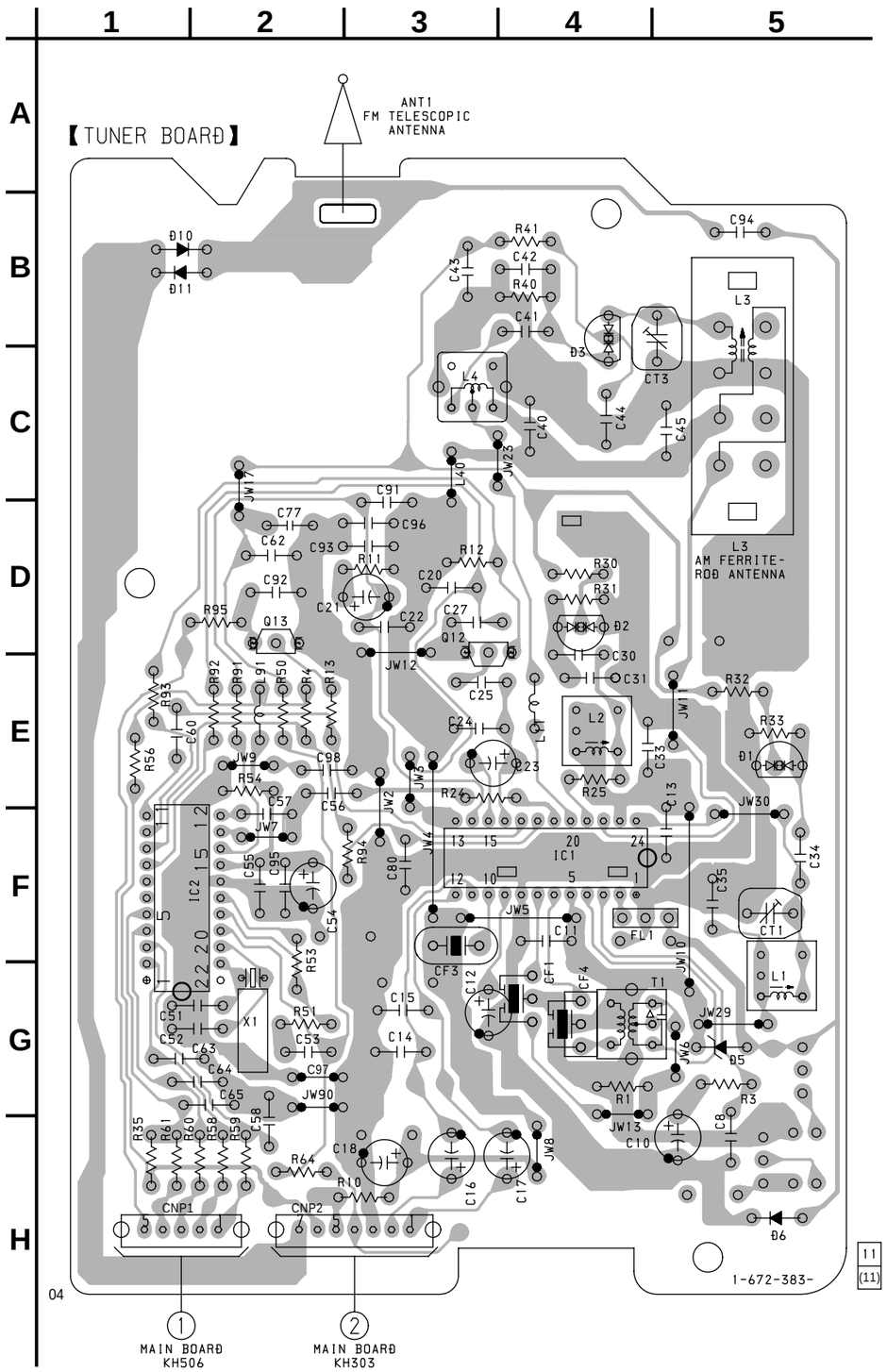
6-5. SCHEMATIC DIAGRAM — TUNER SECTION — • Refer to page 37 for IC Block Diagrams.



Note:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- B+ : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 9 V and fed with regulated dc power supply from battery terminal.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  ( ) : AM
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
  ➡ : AM
- Abbreviation
  AR : Argentine model.
  CND : Canadian model.
  SP : Singapore model.

6-6. PRINTED WIRING BOARD — TUNER SECTION — • Refer to page 16 for Circuit Boards Location.

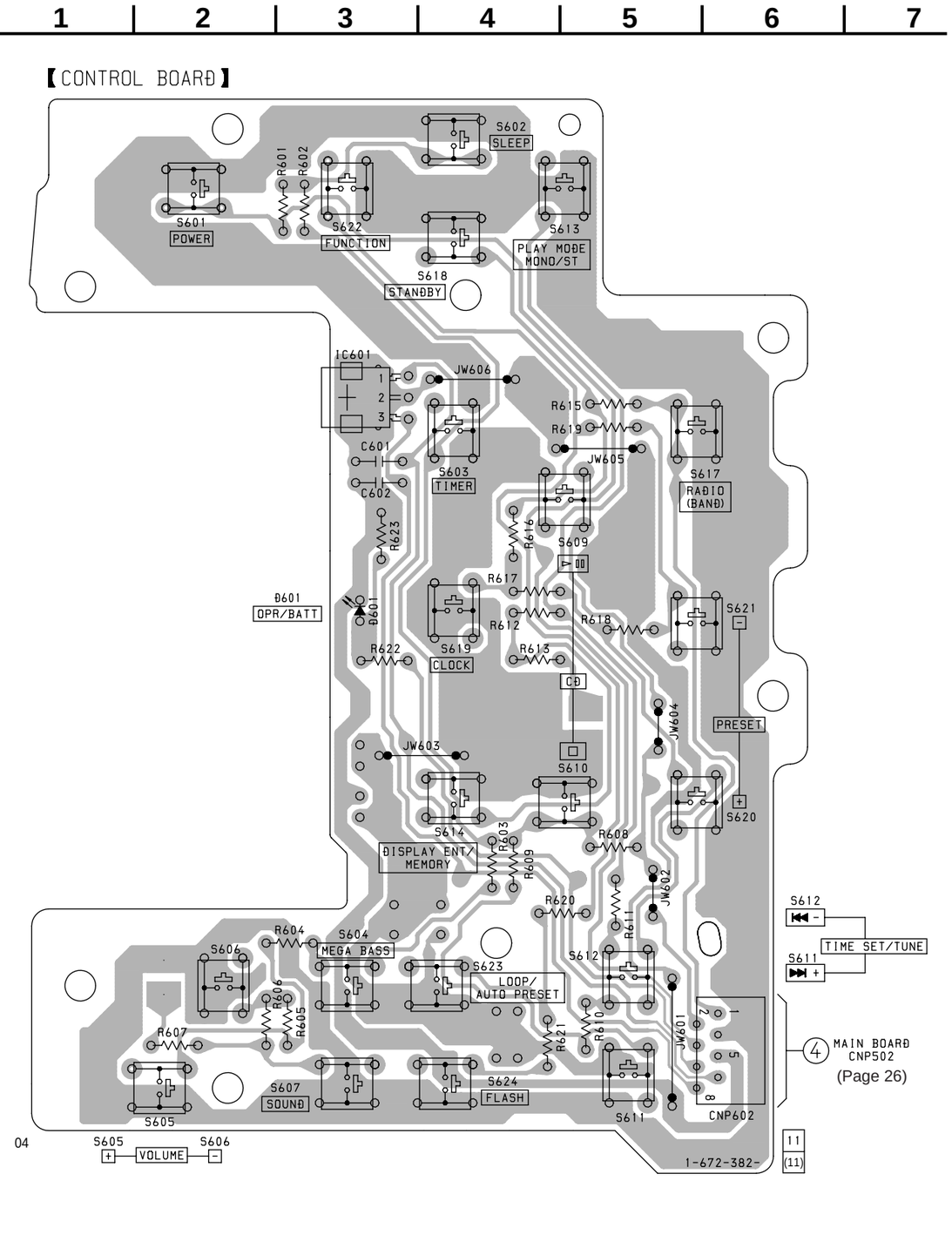


• **Semiconductor Location (tuner board)**

Ref. No.	Location
D1	D-1
D2	D-4
D3	B-4
D5	H-5
D6	G-5
D10	B-1
D11	B-1
IC1	F-4
IC2	F-1
Q12	D-3
Q13	D-2

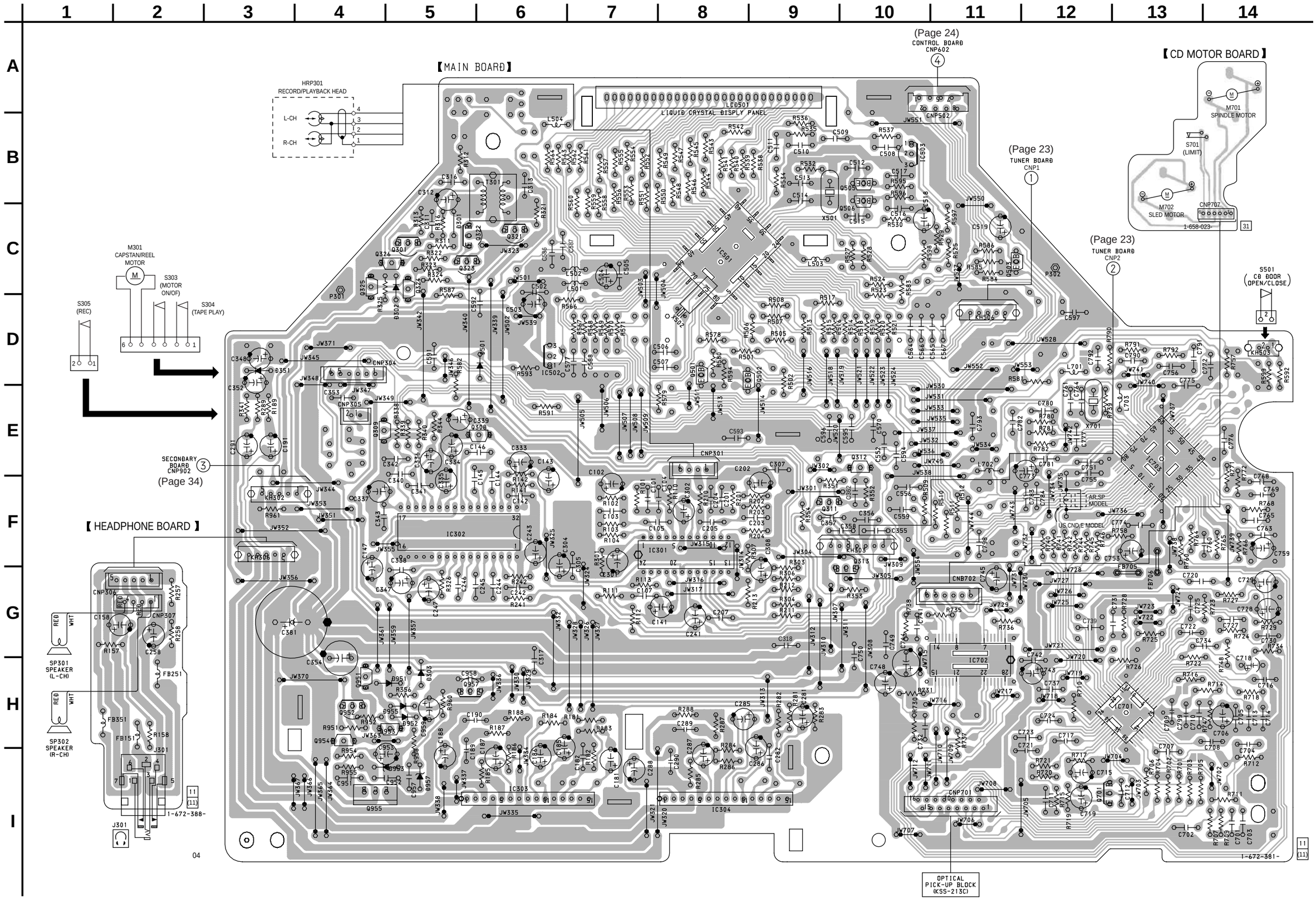
Note:
- ○—— : parts extracted from the component side.
- △ : internal component.
- ▒▒ : Pattern from the side which enables seeing.

6-7. PRINTED WIRING BOARD — CONTROL SECTION — • Refer to page 16 for Circuit Boards Location.

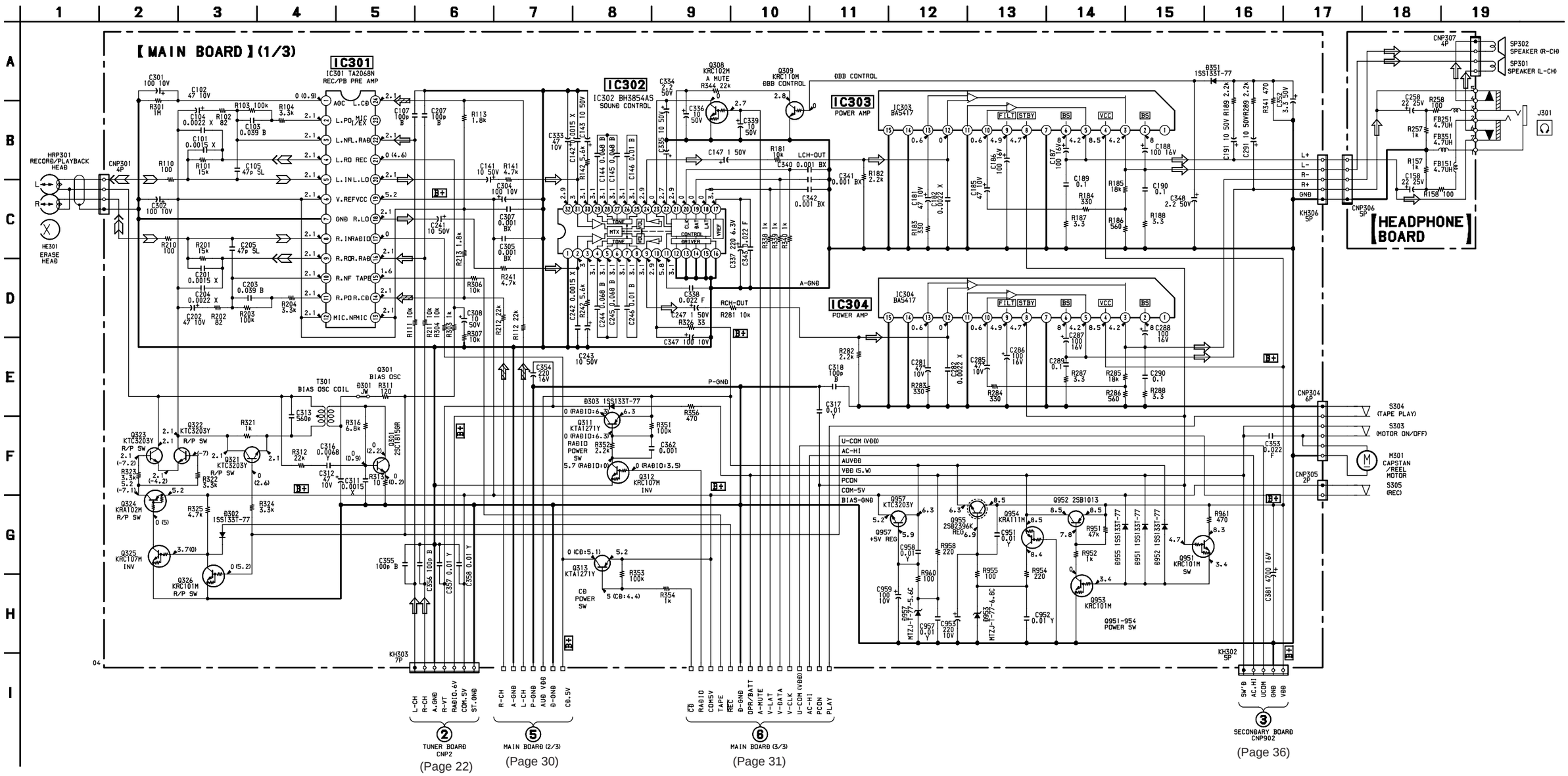


Note:
- ○—— : parts extracted from the component side.
- ▒▒ : Pattern from the side which enables seeing.

6-8. PRINTED WIRING BOARDS — MAIN SECTION — • Refer to page 16 for Circuit Boards Location.



6-9. SCHEMATIC DIAGRAM — MAIN SECTION (1/3) — • Refer to page 37 for IC Block Diagrams.



• Semiconductor Location

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D302	C-5	IC502	D-6	Q324	C-5
D303	H-5	IC503	B-10	Q325	C-4
D351	D-3	IC701	H-13	Q326	C-5
D501	D-6	IC702	H-11	Q501	D-8
D951	H-5	IC703	E-13	Q502	D-8
D952	H-5			Q503	C-11
D953	I-4	Q301	C-5	Q505	B-10
D955	H-5	Q308	E-5	Q506	B-10
D957	I-5	Q309	E-4	Q701	I-11
		Q311	F-9	Q951	H-4
IC301	F-8	Q312	E-10	Q952	H-4
IC302	F-5	Q313	F-10	Q953	H-4
IC303	I-6	Q321	C-6	Q954	H-4
IC304	I-8	Q322	C-5	Q955	I-4
IC501	C-8	Q323	C-5	Q957	H-5

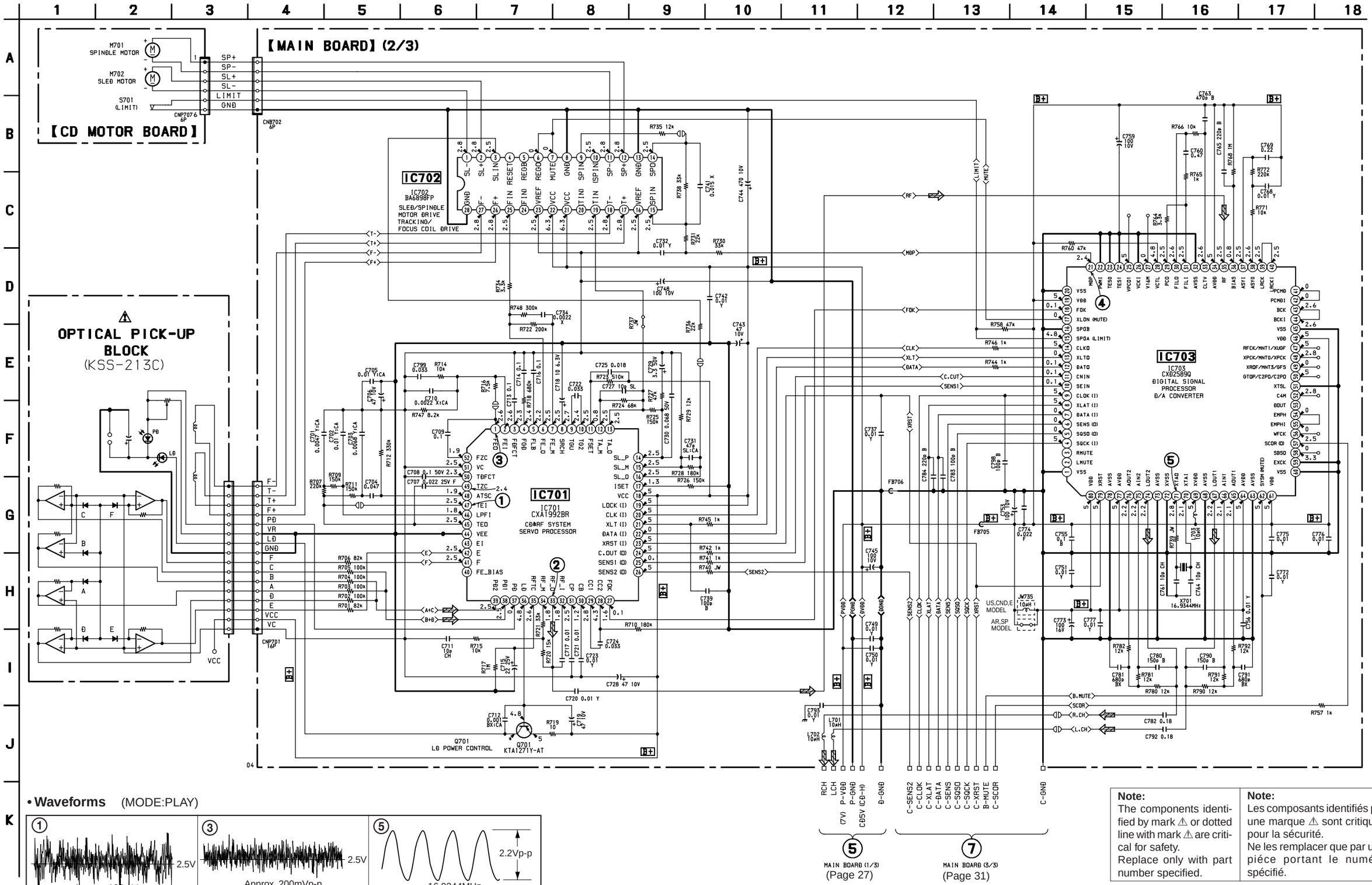
Note on Printed Wiring Boards:

- ○——— : parts extracted from the component side.
- ▒▒▒▒ : Pattern from the side which enables seeing.
- Abbreviation
  AR : Argentine model.
  CND : Canadian model.
  SP : Singapore model.

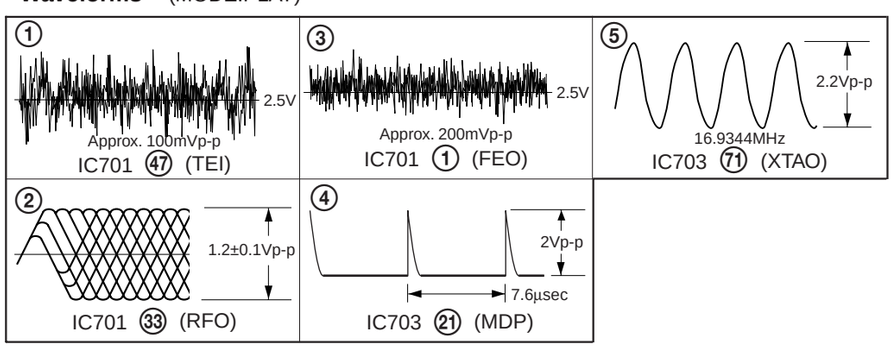
Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- [ ] : panel designation.
- [B+] : B+ Line.
- Power voltage is dc 9 V and fed with regulated dc power supply from battery terminal.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : PB
  ( ) : REC
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
  ⇨ : PB
  ⇨ : REC

6-10. SCHEMATIC DIAGRAM — MAIN SECTION (2/3) — • Refer to page 38 for IC Block Diagrams.



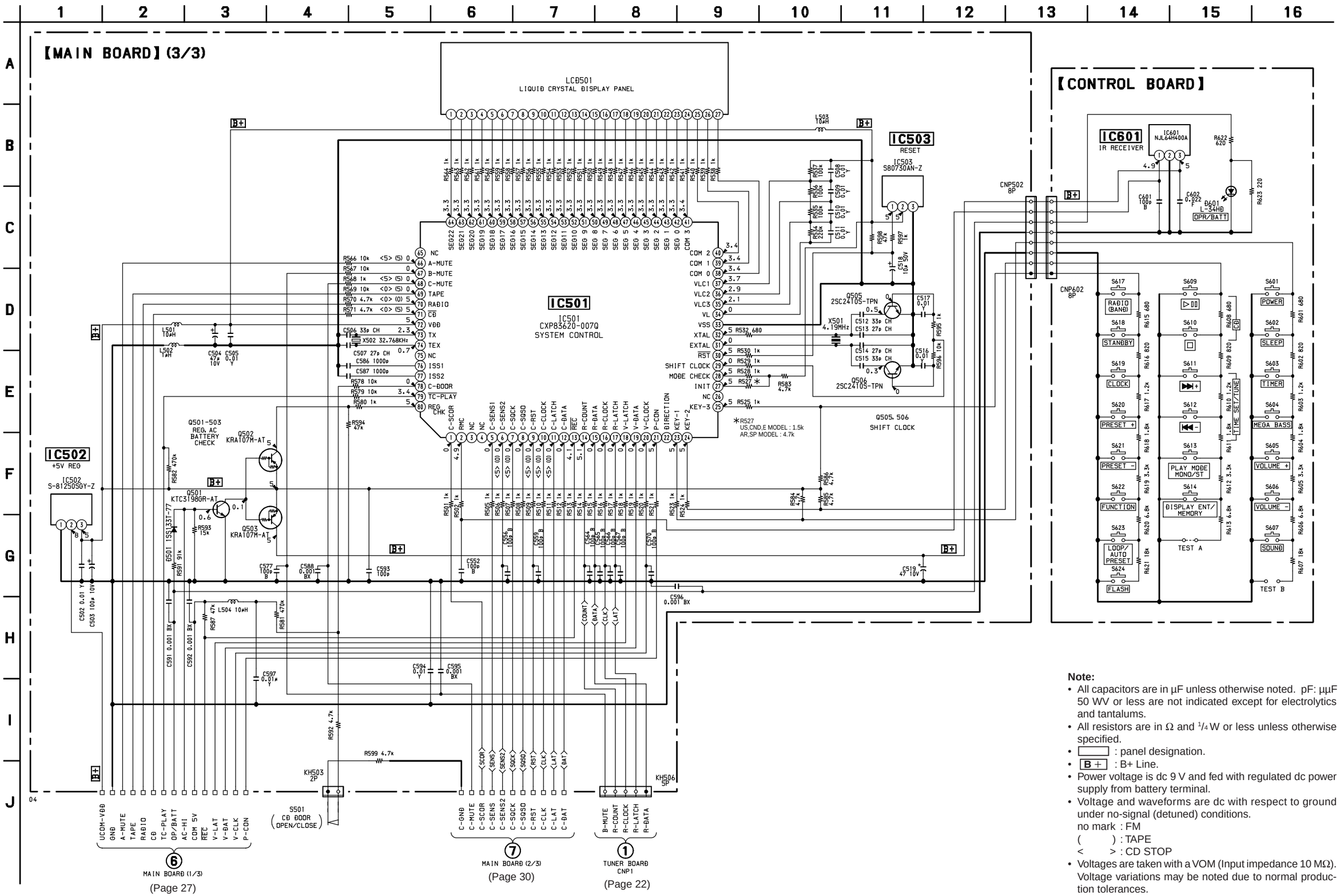
• **Waveforms** (MODE:PLAY)



Note:
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- B+ : B+ Line.
- Power voltage is dc 9 V and fed with regulated dc power supply from battery terminal.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : CD STOP
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : CD
- Abbreviation
  AR : Argentine model.
  CND : Canadian model.
  SP : Singapore model.

Note:	**Note:**
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 piéce portant le numéro spécifié.

6-11. SCHEMATIC DIAGRAM — MAIN SECTION (3/3) —



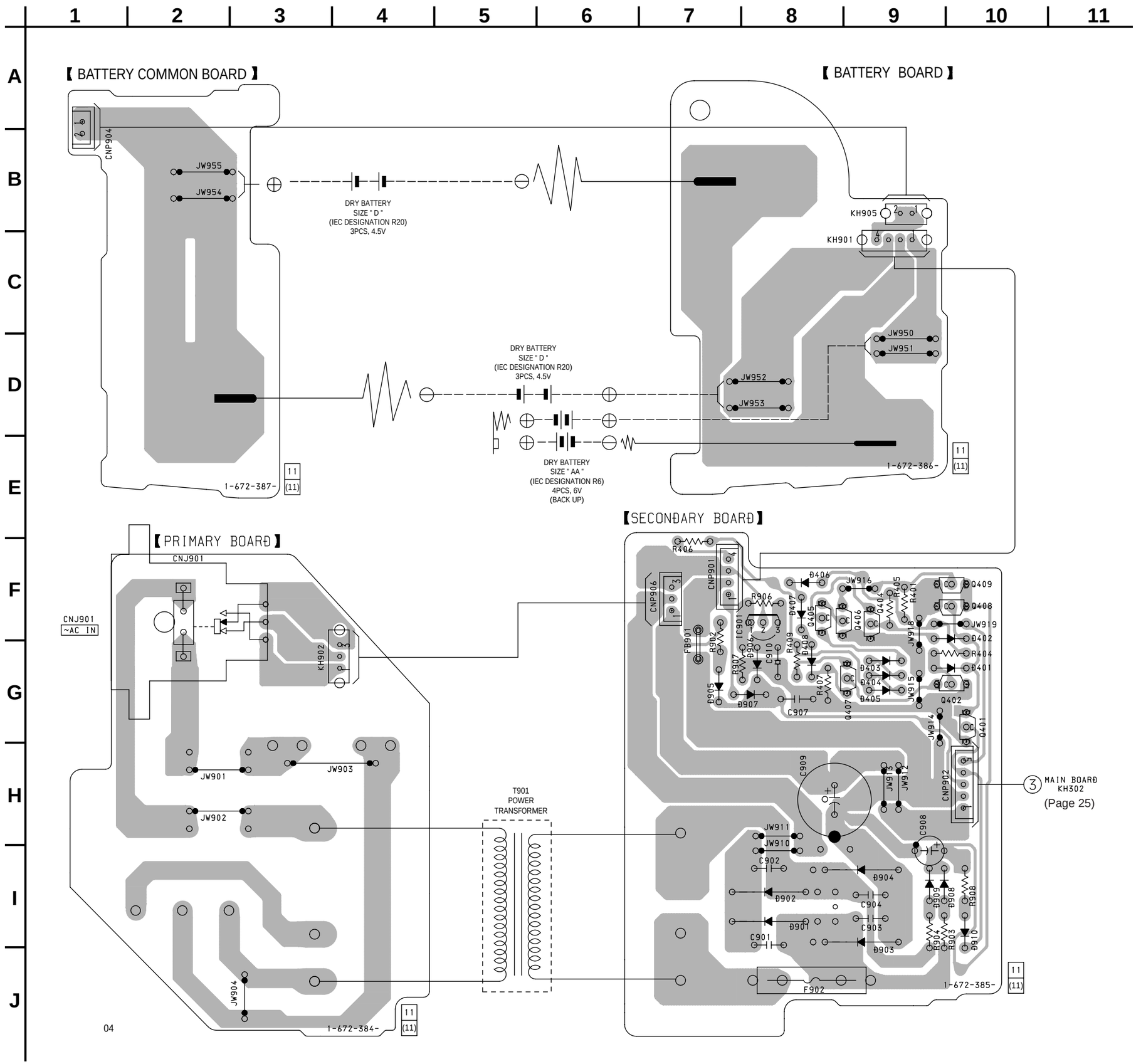
Note:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ▭ : panel designation.
- B+ : B+ Line.
- Power voltage is dc 9 V and fed with regulated dc power supply from battery terminal.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  ( ) : TAPE
  < > : CD STOP
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Abbreviation
  AR : Argentine model.
  CND : Canadian model.
  SP : Singapore model.

6-12. PRINTED WIRING BOARDS — POWER SUPPLY SECTION — • Refer to page 16 for Circuit Boards Location.

• **Semiconductor Location**

Ref. No.	Location
D401	G-10
D402	F-10
D403	G-9
D404	G-9
D405	G-9
D406	F-8
D407	F-8
D408	G-8
D901	I-8
D902	I-8
D903	I-9
D904	I-9
D905	G-7
D906	G-8
D907	G-8
D908	I-9
D909	I-9
D910	I-10
IC901	F-8
Q401	G-10
Q402	G-10
Q404	F-9
Q405	F-8
Q406	F-9
Q407	G-9
Q408	F-10
Q409	F-10

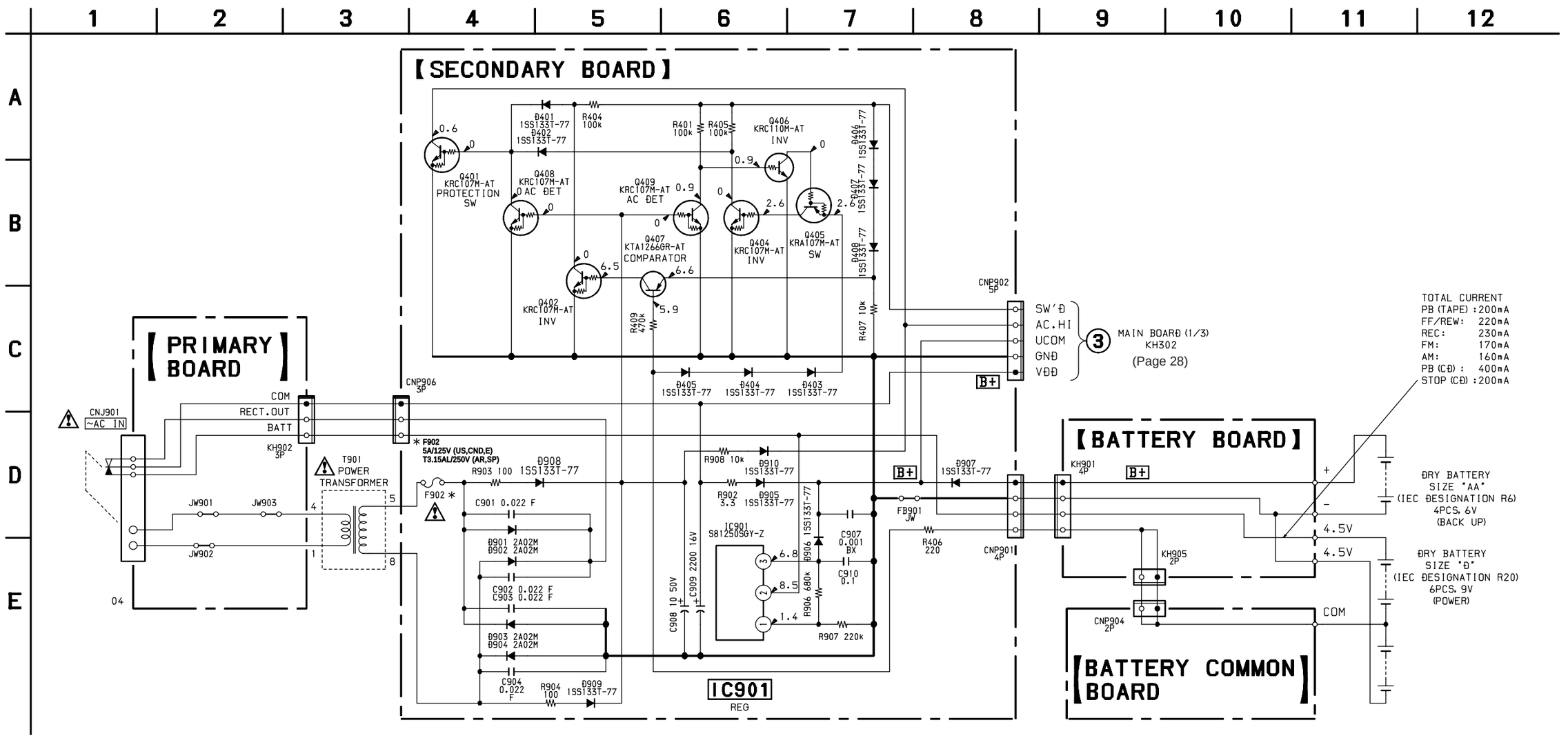


Note:

• ——o—— : parts extracted from the component side.

• ▒▒▒ : Pattern from the side which enables seeing.

6-13. SCHEMATIC DIAGRAM — POWER SUPPLY SECTION — • Refer to page 37 for IC Block Diagrams.



Note:

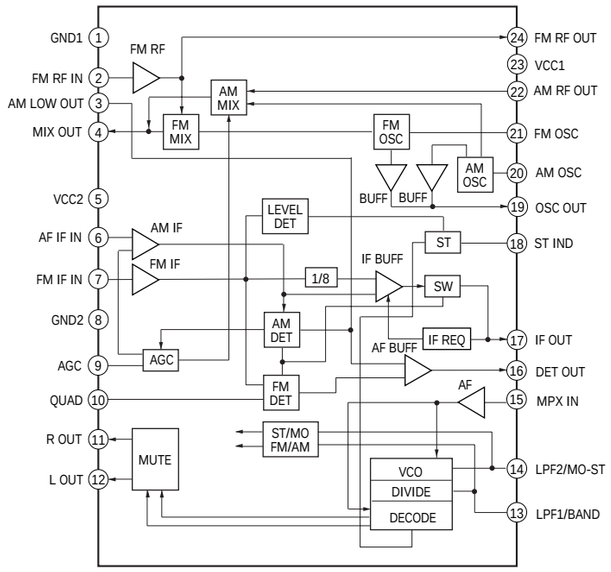
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ▭ : panel designation.
- B+ : B+ Line.

Note:	**Note:**
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 piéce portant le numéro spécifié.

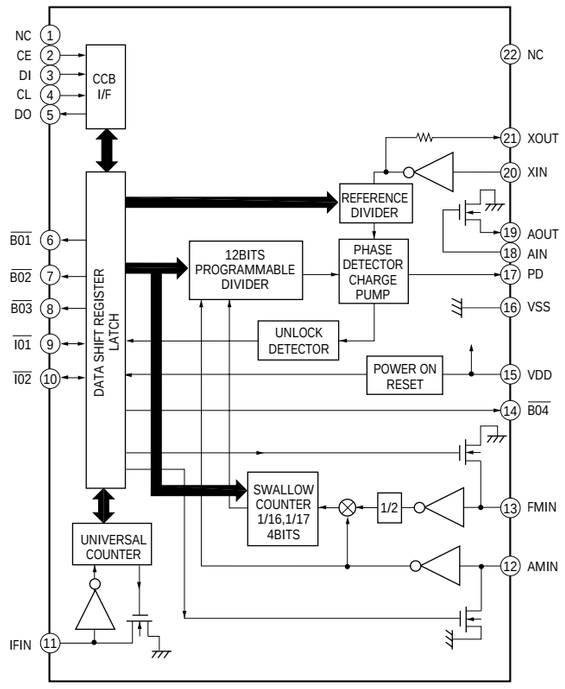
- Total current is measured with no cassette installed.
- Power voltage is dc 9 V and fed with regulated dc power supply from battery terminal.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Abbreviation
  AR : Argentine model.
  CND : Canadian model.
  SP : Singapore model.

• **IC Block Diagrams**

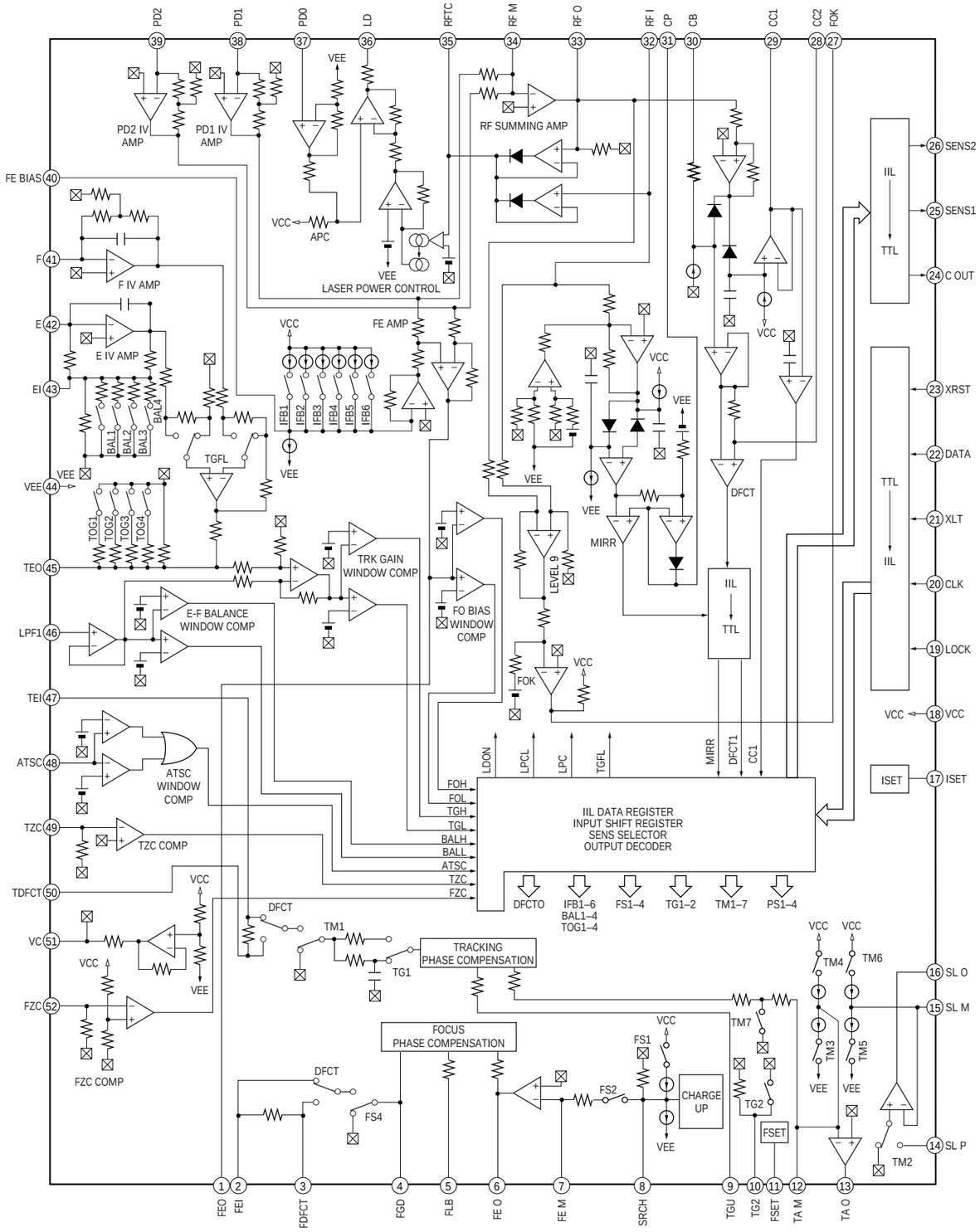
IC1 TA2104N



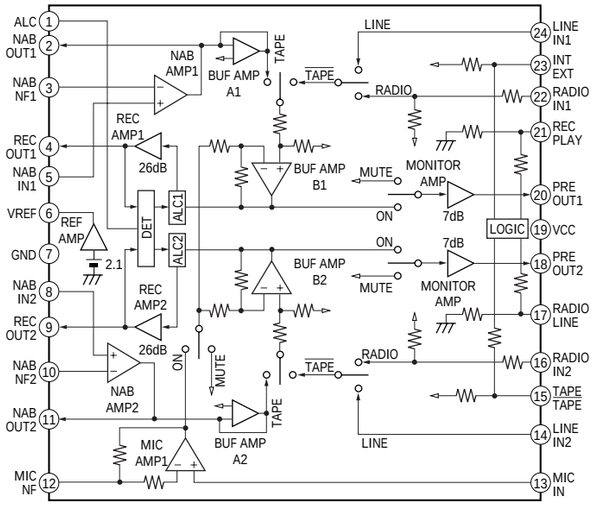
IC2 LC72137-Q



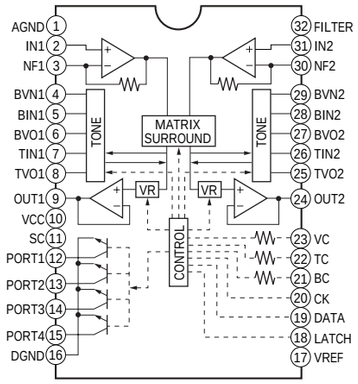
IC701 CXA1992BR



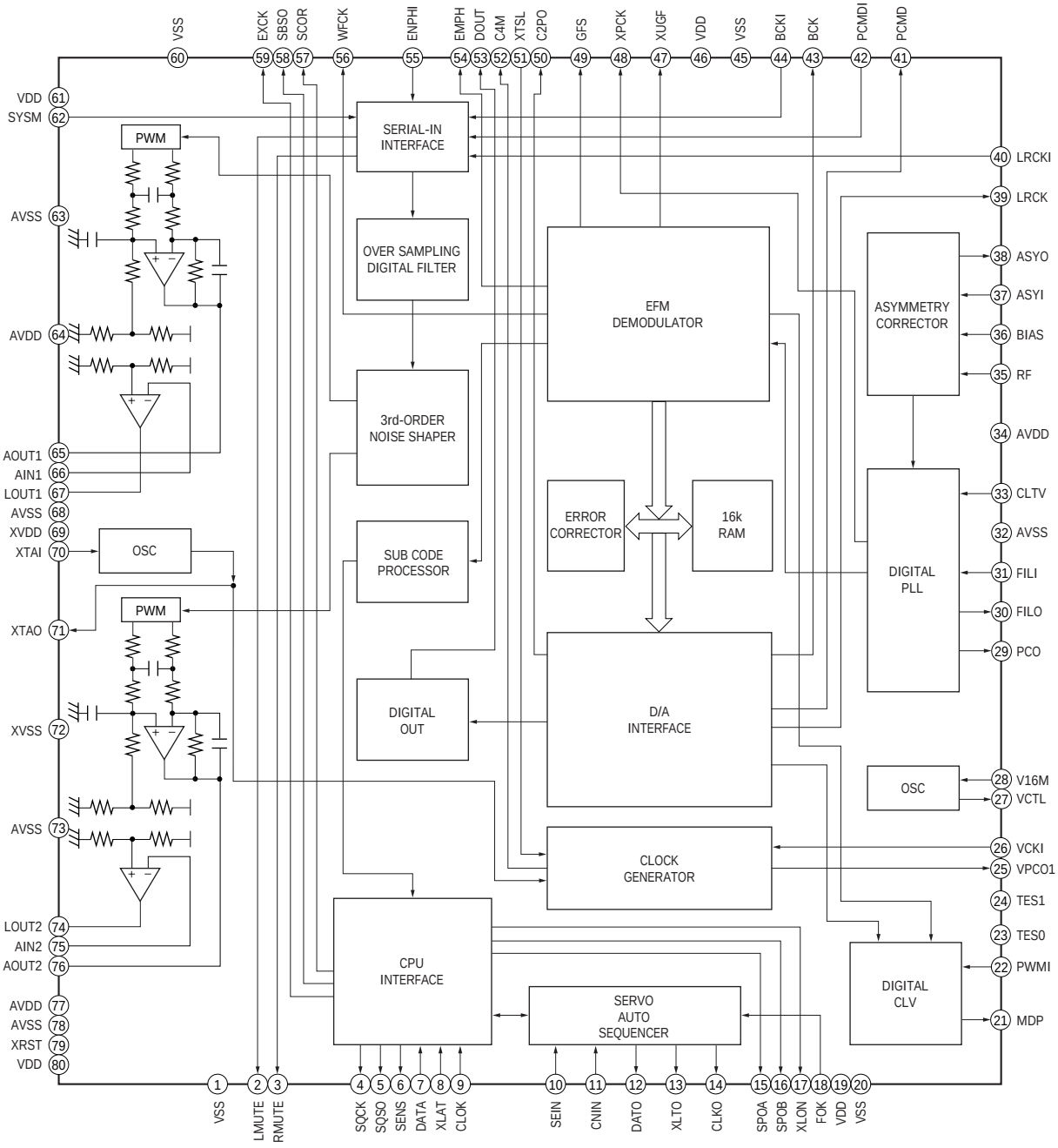
IC301 TA2068N



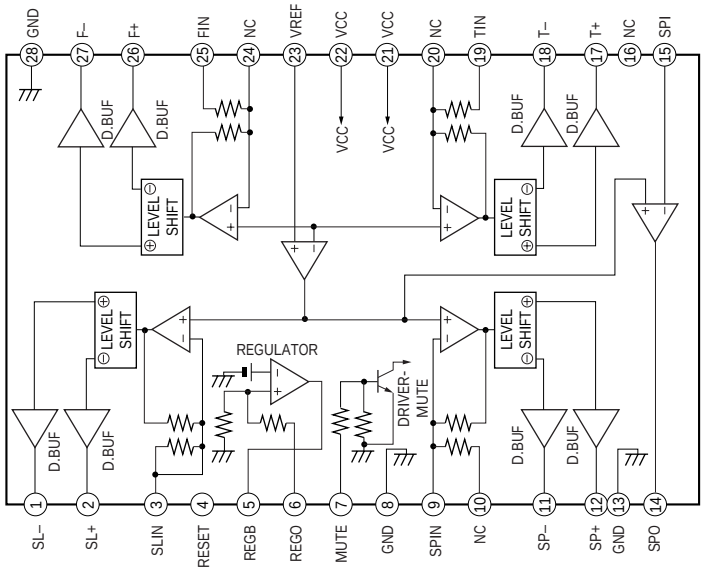
IC302 BH3854AS



IC703 CXD2589Q



IC702 BA6898FP



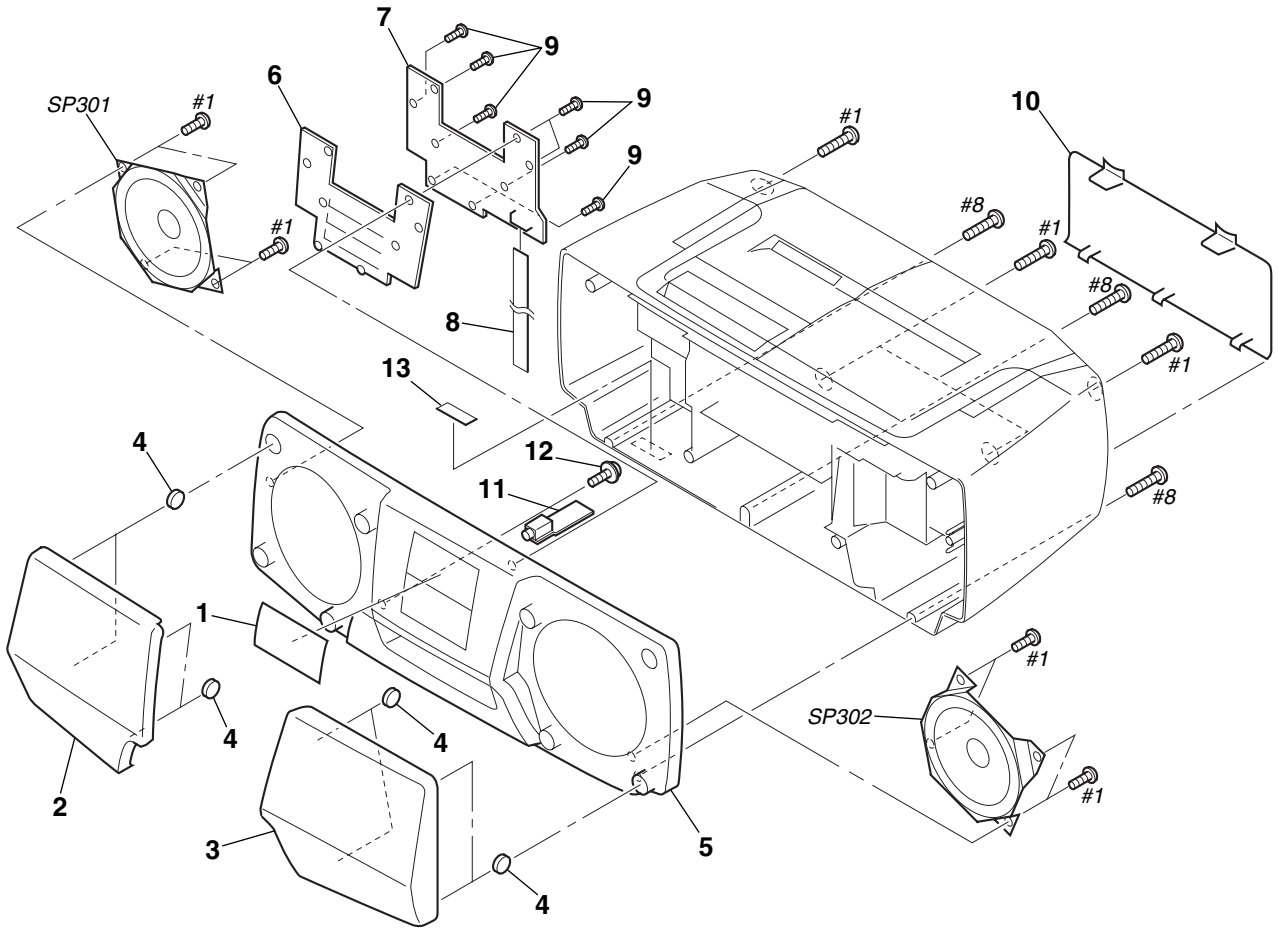
SECTION 7
EXPLODED VIEWS

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
  AR : Argentine model
  CND : Canadian model
  SP : Singapore 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
- Accessories and hardware (# mark) list 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 ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

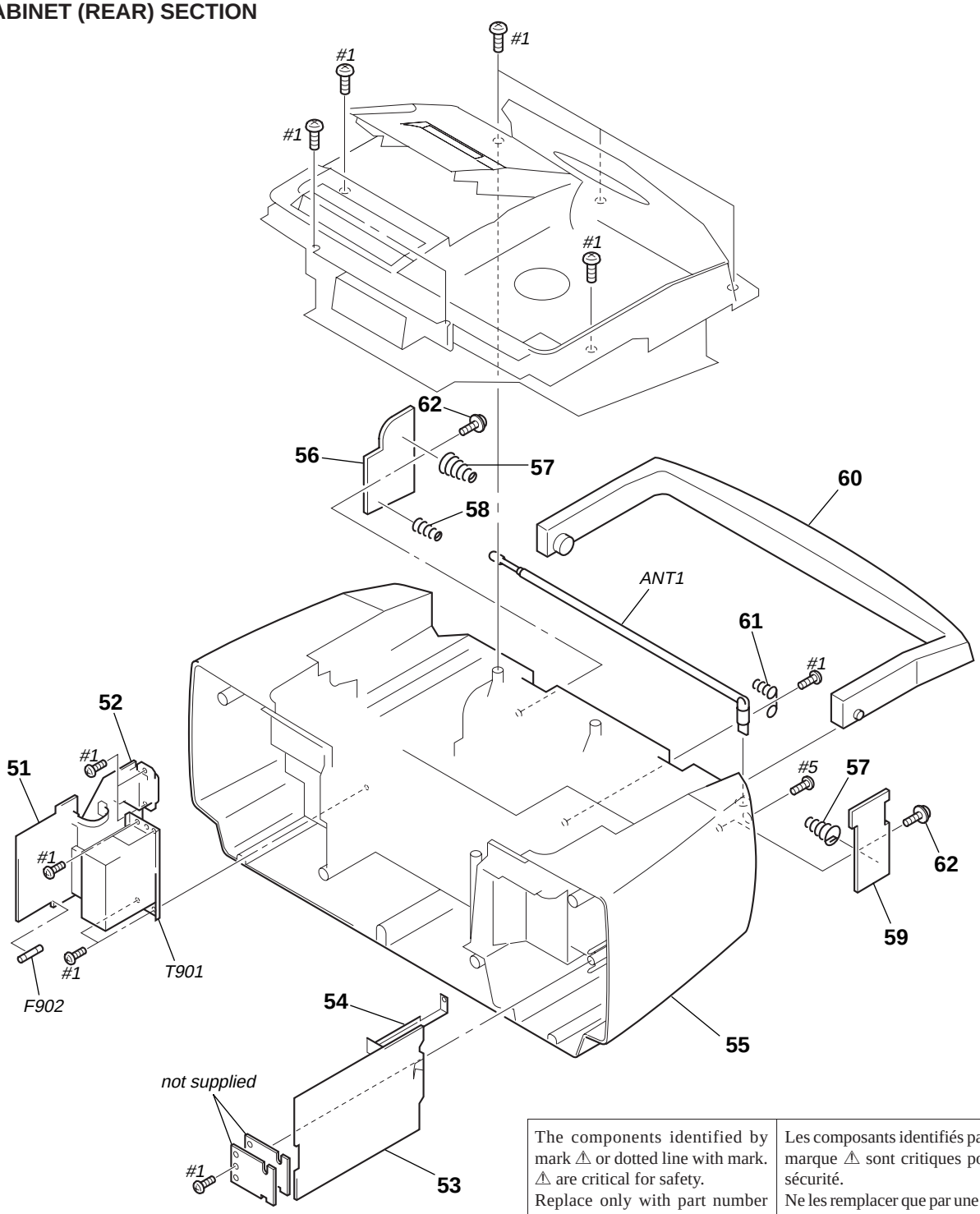
7-1. FRONT CABINET SECTION



Ref. No.	Part No.	Description	Remark
1	3-032-033-01	WINDOW (LCD)	
2	X-3376-915-1	GRILLE (L) ASSY, SPEAKER (BLACK)	
2	X-3376-916-1	GRILLE (L) ASSY, SPEAKER (DARK BLUE)	
3	X-3376-918-1	GRILLE (R) ASSY, SPEAKER (BLACK)	
3	X-3376-919-1	GRILLE (R) ASSY, SPEAKER (DARK BLUE)	
4	4-212-330-01	BUSHING	
5	X-3376-921-1	CABINET (FRONT) SUB ASSY (US)	
5	X-3376-923-1	CABINET (FRONT) SUB ASSY (CND,E,AR,SP)	
6	3-032-032-01	BUTTON (MAIN)	

Ref. No.	Part No.	Description	Remark
* 7	A-3323-105-A	CONTROL BOARD, COMPLETE	
8	1-790-378-11	WIRE (FLAT TYPE) (8 CORE)	
9	4-951-620-11	SCREW (2.6X10), +BVTP	
10	3-926-244-91	LID, BATTERY CASE	
* 11	1-672-388-11	HEADPHONE BOARD	
12	3-921-725-01	SCREW (2.6X10), +PWH	
* 13	3-703-044-26	LABEL, CAUTION (US,CND)	
SP301	1-529-185-11	SPEAKER (10cm) (L-CH)	
SP302	1-529-185-11	SPEAKER (10cm) (R-CH)	

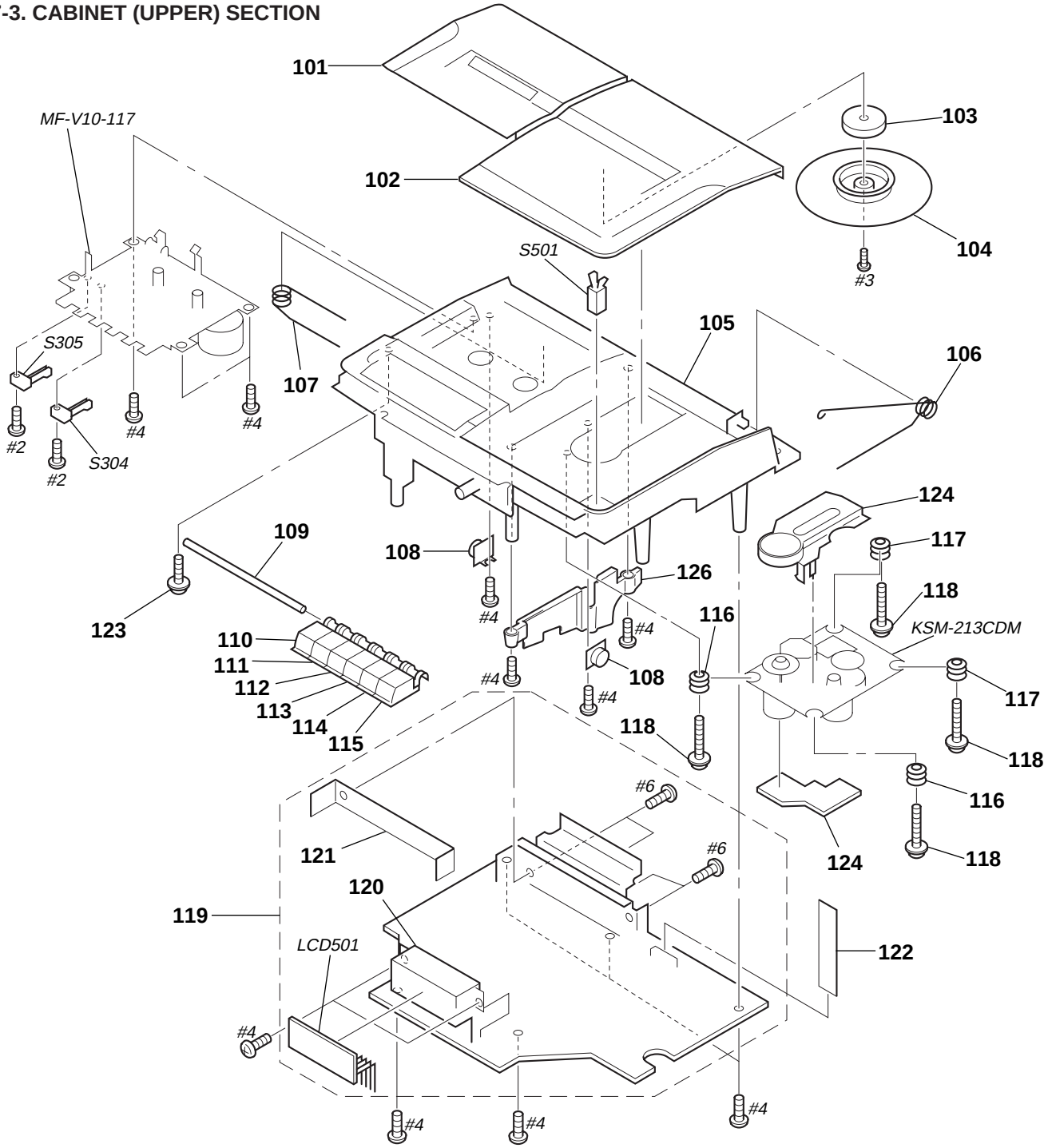
7-2. CABINET (REAR) SECTION



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 piéce portant le numéro spécifié.

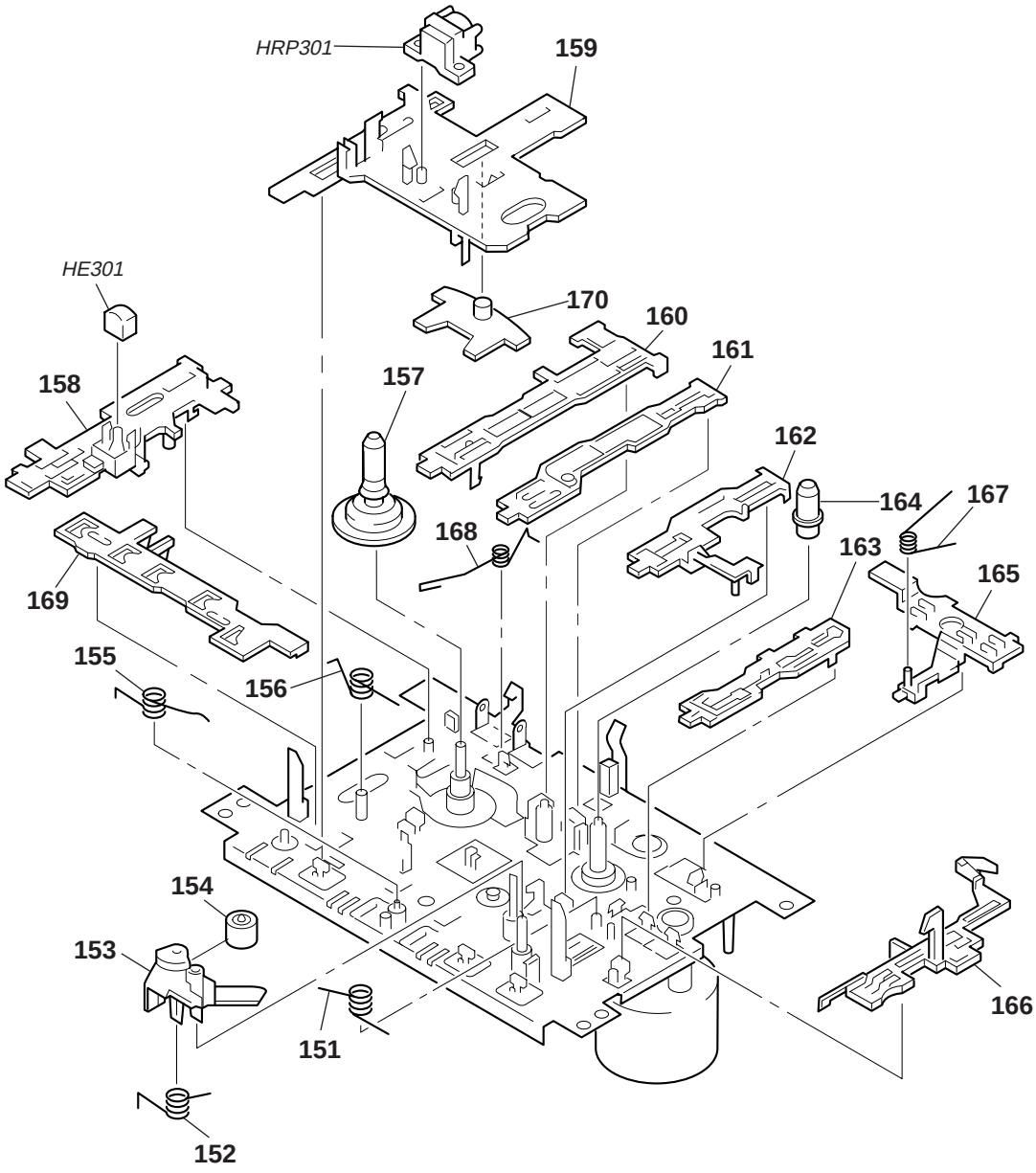
Ref. No.	Part No.	Description	Remark
* 51	A-3321-755-A	SECONDARY BOARD, COMPLETE	
* 52	1-672-384-11	PRIMARY BOARD	
* 53	A-3321-748-A	TUNER BOARD, COMPLETE (US,CND,E)	
* 53	A-3321-940-A	TUNER BOARD, COMPLETE (AR,SP)	
54	3-032-038-01	TERMINAL, ANTENNA	
55	3-032-025-01	CABINET (REAR) (US)	
55	3-032-025-11	CABINET (REAR) (CND)	
55	3-032-025-81	CABINET (REAR) (AR,SP)	
55	3-032-025-91	CABINET (REAR) (E)	
* 56	1-627-386-11	BATTERY BOARD	
57	3-028-154-01	TERMINAL (-), BATTERY	
58	3-028-156-01	TERMINAL (S) (-), BATTERY	
* 59	1-672-387-11	BATTERY COMMON BOARD	
60	3-032-029-01	HANDLE	
61	3-028-157-01	TERMINAL (S) (+.-), BATTERY	
62	4-960-167-01	SCREW (3X8) (DIA. 10), +WH	
ANT1	1-501-891-11	ANTENNA, TELESCOPIC	
⚠F902	1-532-465-51	FUSE, TIME LAG (T3.15AL/250V) (AR,SP)	
⚠F902	1-576-109-11	FUSE (5A/125V) (US,CND,E)	
⚠T901	1-433-638-11	TRANSFORMER, POWER (US,CND,E)	
⚠T901	1-433-639-11	TRANSFORMER, POWER (AR,SP)	

7-3. CABINET (UPPER) SECTION



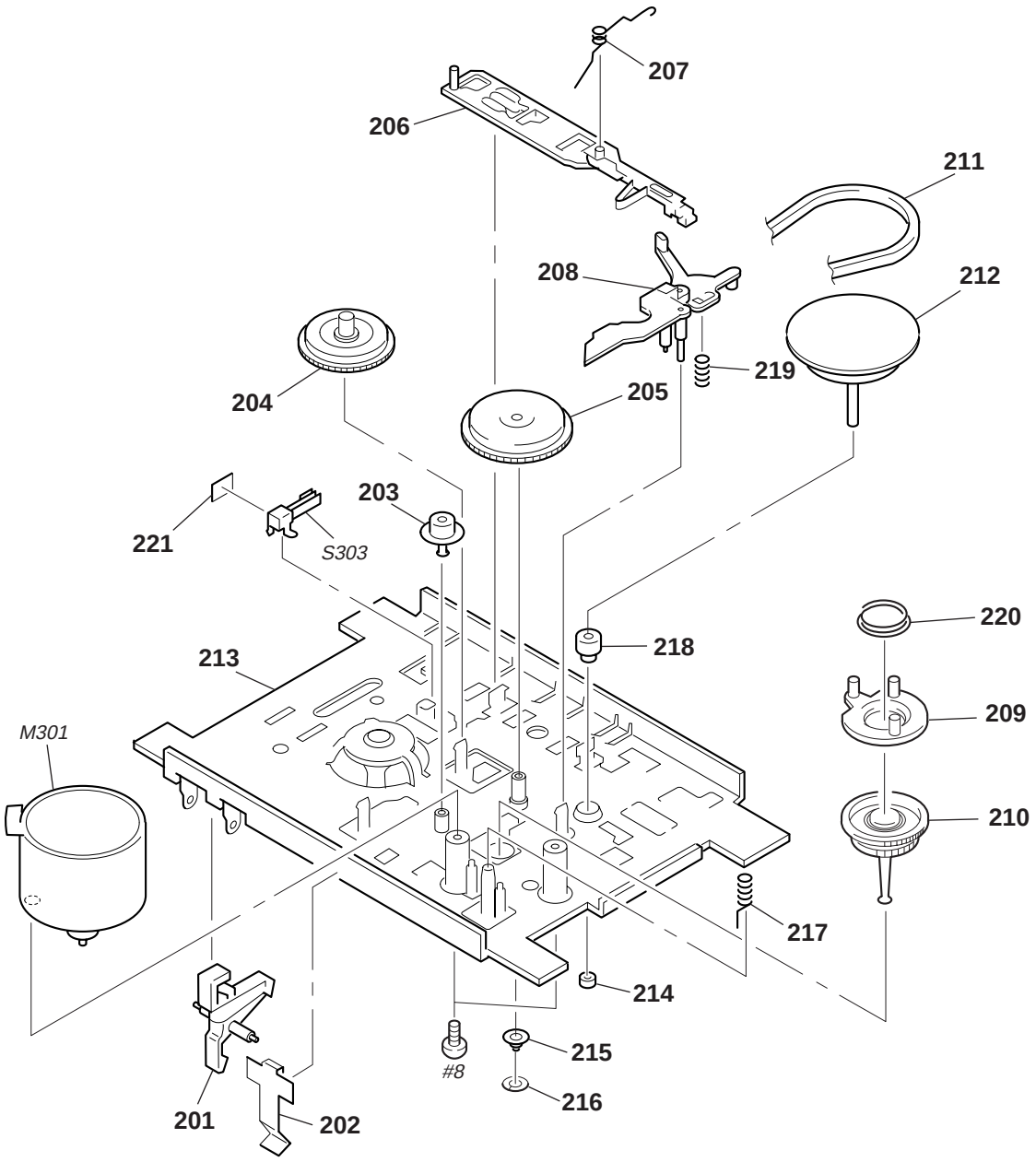
Ref. No.	Part No.	Description	Remark
101	A-3320-814-A	HOLDER ASSY, CASSETTE	
102	3-032-027-01	LID (CD)	
103	1-452-899-11	MAGNET	
104	3-019-395-01	PLATE, CHUCKING	
105	3-032-026-01	CABINET (UPPER)	
106	3-034-331-01	SPRING (CD)	
107	3-034-332-01	SPRING (CASSETTE)	
108	3-922-112-31	DAMPER	
109	3-031-560-01	SHAFT (MD)	
110	3-032-041-01	BUTTON (REC)	
111	3-032-042-01	BUTTON (PLAY)	
112	3-032-043-01	BUTTON (REW)	
113	3-032-044-01	BUTTON (FF)	
114	3-032-045-01	BUTTON (STOP)	
115	3-032-046-01	BUTTON (PAUSE)	
116	3-910-095-21	RUBBER, VIBRATION PROOF	
117	3-910-095-31	RUBBER, VIBRATION PROOF	
118	3-921-725-01	SCREW (2.6X10), +PWH	
* 119	A-3321-757-A	MAIN BOARD, COMPLETE (US,CND,E)	
* 119	A-3321-938-A	MAIN BOARD, COMPLETE (AR,SP)	
120	3-032-035-01	HOLDER (LCD)	
121	3-034-118-01	HOLDER (IC)	
122	1-777-955-11	WIRE (FLAT TYPE) (16 CORE)	
123	4-960-167-01	SCREW (3X8) (DIA. 10), +WH	
124	3-923-736-01	COVER, CD	
125	1-658-023-31	CD MOTOR BOARD	
126	3-035-372-01	PLATE, HEAT RESISTING	
LCD501	1-803-460-11	DISPLAY PANEL, LIQUID CRYSTAL	
S304	1-771-059-11	SWITCH, LEAF (TAPE PLAY)	
S305	1-771-686-11	SWITCH, LEAF (REC)	
S501	1-692-960-11	SWITCH, PUSH (1 KEY) (CD DOOR OPEN/CLOSE)	

7-4. TAPE MECHANISM SECTION-1
(MF-V10-117)



Ref. No.	Part No.	Description	Remark
151	3-933-010-01	SPRING (S/P), TORSION	
152	3-933-025-01	SPRING (P), TORSION	
153	3-933-026-01	LEVER (P)	
154	3-933-024-01	ROLLER, PINCH	
155	3-933-019-01	SPRING (F/R), TORSION	
156	3-933-028-01	SPRING (FWD), TORSION	
157	3-933-016-01	GEAR (S REEL)	
158	3-008-590-01	SLIDER (REC)	
159	3-008-592-01	BASE (H), HEAD	
* 160	3-008-588-01	SLIDER (REW)	
* 161	3-008-589-13	SLIDER (FF)	
* 162	3-008-587-01	SLIDER (STOP)	
* 163	3-008-591-01	SLIDER (PAUSE)	
164	3-933-004-01	CLAW, REEL	
* 165	3-933-021-01	SLIDER (FRP)	
* 166	3-933-006-01	SLIDER (EJECT)	
167	3-934-833-01	SPRING (FRP)	
168	3-022-794-02	SPRING (BT)	
169	3-933-007-01	PLATE, LOCK	
* 170	3-012-114-01	LEVER (FR)	
HE301	1-543-876-11	HEAD (ERASE)	
HRP301	1-500-454-11	HEAD, MAGNETIC (RECORD/PLAYBACK)	

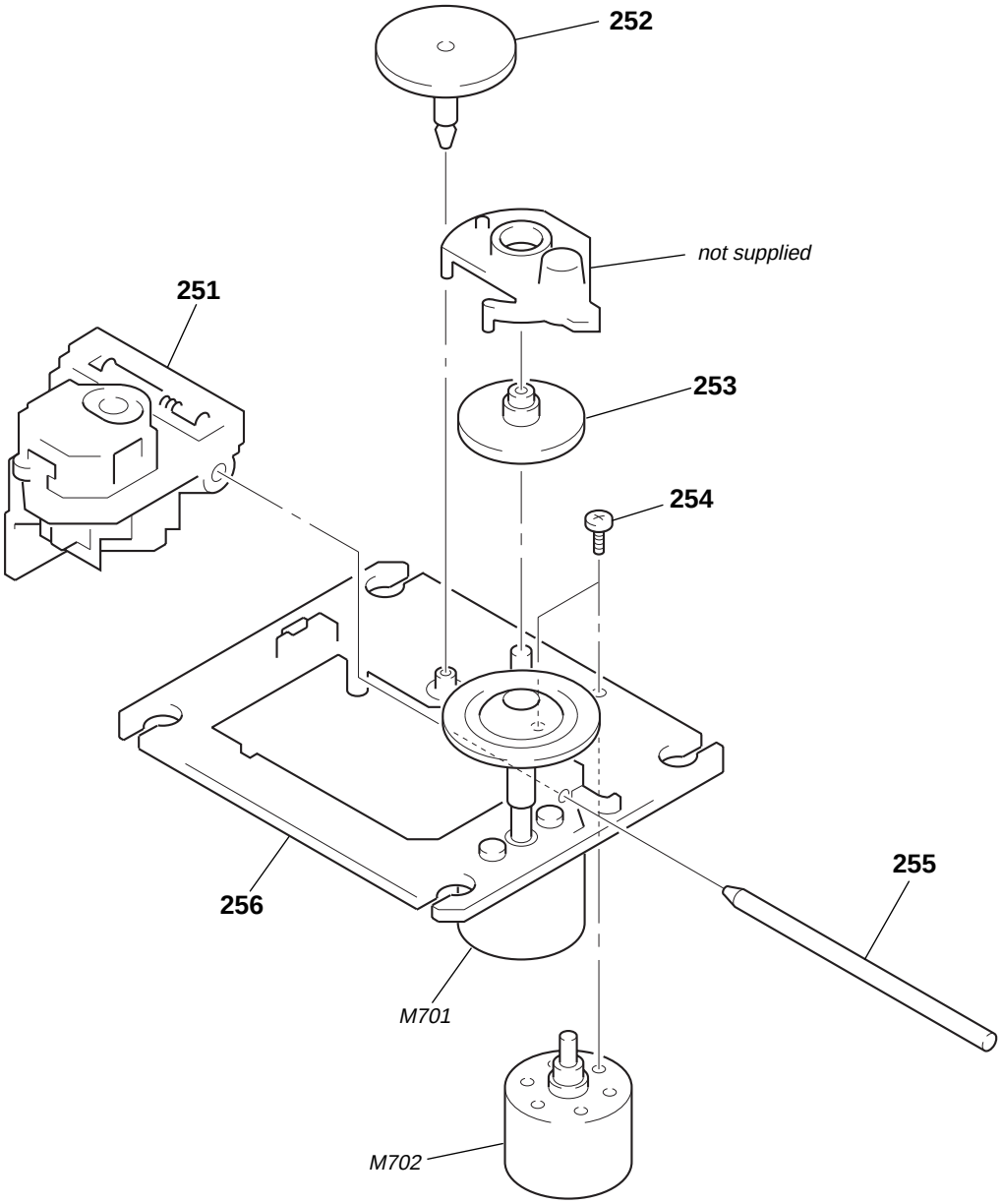
7-5. TAPE MECHANISM SECTION-2
(MF-V10-117)



Ref. No.	Part No.	Description	Remark
201	3-933-029-01	LEVER, ERASING PREVENTION	
202	3-933-182-01	SPRING, CASSETTE	
203	3-932-995-01	GEAR (MID)	
204	X-3371-667-1	CLUTCH ASSY	
205	3-932-997-01	GEAR (CAM)	
* 206	3-932-999-01	SLIDER (SW)	
207	3-932-998-01	SPRING (GROUND), TORSION	
208	3-009-648-01	LEVER (S.OFF)	
209	3-936-438-01	LEVER (K)	
210	X-3373-572-1	REEL ASSY (N), T	
211	3-933-020-01	BELT	
212	X-3372-924-1	FLYWHEEL ASSY	

Ref. No.	Part No.	Description	Remark
213	3-932-993-01	CHASSIS, OUTSERT	
214	3-343-358-01	RING, RETAINING	
215	3-933-005-01	SPRING (CAM), COMPRESSION	
216	3-016-349-01	WASHER	
217	3-937-760-01	SPRING (GROUND), COMPRESSION	
218	3-934-336-01	BEARING	
219	3-939-383-02	SPRING, COMPRESSION	
220	3-009-650-02	SPRING (K), COMPRESSION	
221	3-320-454-01	SHEET	
M301	A-3320-446-A	MOTOR ASSY (CAPSTAN/REEL)	
S303	1-762-679-11	SWITCH, LEAF (MOTOR ON/OFF)	

7-6. OPTICAL PICK-UP SECTION (KSM-213CDM)



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 piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
⚠251	8-848-483-05	PICK-UP, OPTICAL KSS-213C/Q-RP	
252	2-626-907-01	GEAR (A)	
253	2-627-003-02	GEAR (B) (RP)	
254	3-713-786-51	SCREW +P 2X3	
255	2-626-908-01	SHAFT, SLED	
256	X-2626-202-1	CHASSIS ASSY (MB), MOTOR (SPINDLE) (INCLUDING M701)	
M702	X-2625-769-1	GEAR ASSY (MB), MOTOR (SLED)	

BATTERY | BATTERY COMMON | CD MOTOR | CONTROL

SECTION 8
ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Abbreviation
  AR : Argentine model
  CND : Canadian model
  SP : Singapore 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.. : µA.. uPA.. : µPA..
  uPB.. : µPB.. uPC.. : µPC.. uPD.. : µPD..
- CAPACITORS
  uF : µF
- COILS
  uH : µH

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 piéce portant le numéro spécifié.

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

Ref. No.	Part No.	Description	Remark
*	1-672-386-11	BATTERY BOARD	
		**********	
	3-028-154-01	TERMINAL (–), BATTERY	
	3-028-156-01	TERMINAL (S) (–), BATTERY	
		< CABLE HOLDER >	
* KH901	1-565-385-11	HOLDER, CABLE 4P	
* KH905	1-573-287-11	HOLDER, CABLE 2P	
**********			
*	1-672-387-11	BATTERY COMMON BOARD	
		**********	
	3-028-154-01	TERMINAL (–), BATTERY	
		< CONNECTOR >	
* CNP904	1-580-154-11	PIN, CONNECTOR (PC BOARD) 2P	
**********			
	1-658-023-31	CD MOTOR BOARD	
		**********	
		< CONNECTOR >	
CNP707	1-564-722-11	PIN, CONNECTOR (SMALL TYPE) 6P	
		< SWITCH >	
S701	1-572-085-12	SWITCH, LEAF (LIMIT)	
**********			
*	A-3323-105-A	CONTROL BOARD, COMPLETE	
		**********	
		< CAPACITOR >	
C601	1-162-282-31	CERAMIC 100PF 10%	50V
C602	1-161-494-00	CERAMIC 0.022uF	25V
		< CONNECTOR >	
CNP602	1-770-516-31	PIN, CONNECTOR (PC BOARD) 8P	
		< DIODE >	
D601	8-719-059-97	LED L-34HD (OPR/BATT)	
		< IC >	
IC601	8-749-014-66	IC NJL64H400A	

Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
R601	1-249-415-11	CARBON	680	5%	1/4W
R602	1-249-416-11	CARBON	820	5%	1/4W
R603	1-249-418-11	CARBON	1.2K	5%	1/4W
R604	1-249-420-11	CARBON	1.8K	5%	1/4W
R605	1-247-843-11	CARBON	3.3K	5%	1/4W
R606	1-249-427-11	CARBON	6.8K	5%	1/4W
R607	1-249-432-11	CARBON	18K	5%	1/4W
R608	1-249-415-11	CARBON	680	5%	1/4W
R609	1-249-416-11	CARBON	820	5%	1/4W
R610	1-249-418-11	CARBON	1.2K	5%	1/4W
R611	1-249-420-11	CARBON	1.8K	5%	1/4W
R612	1-247-843-11	CARBON	3.3K	5%	1/4W
R613	1-249-427-11	CARBON	6.8K	5%	1/4W
R615	1-249-415-11	CARBON	680	5%	1/4W
R616	1-249-416-11	CARBON	820	5%	1/4W
R617	1-249-418-11	CARBON	1.2K	5%	1/4W
R618	1-249-420-11	CARBON	1.8K	5%	1/4W
R619	1-247-843-11	CARBON	3.3K	5%	1/4W
R620	1-249-427-11	CARBON	6.8K	5%	1/4W
R621	1-249-432-11	CARBON	18K	5%	1/4W
R622	1-247-826-00	CARBON	620	5%	1/4W
R623	1-247-815-11	CARBON	220	5%	1/4W
		< SWITCH >			
S601	1-762-798-11	SWITCH, KEY BOARD (POWER)			
S602	1-762-798-11	SWITCH, KEY BOARD (SLEEP)			
S603	1-762-798-11	SWITCH, KEY BOARD (TIMER)			
S604	1-762-798-11	SWITCH, KEY BOARD (MEGA BASS)			
S605	1-762-798-11	SWITCH, KEY BOARD (VOLUME +)			
S606	1-762-798-11	SWITCH, KEY BOARD (VOLUME –)			
S607	1-762-798-11	SWITCH, KEY BOARD (SOUND)			
S609	1-762-798-11	SWITCH, KEY BOARD (CD ▷ II)			
S610	1-762-798-11	SWITCH, KEY BOARD (CD □)			
S611	1-762-798-11	SWITCH, KEY BOARD (TIME SET/TUNE ▷▷I +)			
S612	1-762-798-11	SWITCH, KEY BOARD (TIME SET/TUNE I◁◁ –)			
S613	1-762-798-11	SWITCH, KEY BOARD (PLAY MODE/MONO/ST)			
S614	1-762-798-11	SWITCH, KEY BOARD (DISPLAY ENT/MEMORY)			
S617	1-762-798-11	SWITCH, KEY BOARD (RADIO (BAND))			
S618	1-762-798-11	SWITCH, KEY BOARD (STANDBY)			
S619	1-762-798-11	SWITCH, KEY BOARD (CLOCK)			
S620	1-762-798-11	SWITCH, KEY BOARD (PRESET +)			
S621	1-762-798-11	SWITCH, KEY BOARD (PRESET –)			
S622	1-762-798-11	SWITCH, KEY BOARD (FUNCTION)			

Ref. No.	Part No.	Description			Remark
S623	1-762-798-11	SWITCH, KEY BOARD (LOOP/AUTO PRESET)			
S624	1-762-798-11	SWITCH, KEY BOARD (FLASH)			
**********					
*	1-672-388-11	HEADPHONE BOARD			
		**********			
		< CAPACITOR >			
C158	1-126-233-11	ELECT	22uF	20%	50V
C258	1-126-233-11	ELECT	22uF	20%	50V
		< CONNECTOR >			
CNP306	1-506-987-11	PIN, CONNECTOR (PC BOARD) 5P			
CNP307	1-506-986-11	PIN, CONNECTOR (PC BOARD) 4P			
		< COIL >			
FB151	1-408-599-31	INDUCTOR	4.7uH		
FB251	1-408-599-31	INDUCTOR	4.7uH		
FB351	1-408-599-31	INDUCTOR	4.7uH		
		< JACK >			
J301	1-568-267-11	JACK (🎧)			
		< RESISTOR >			
R157	1-249-417-11	CARBON	1K	5%	1/4W
R158	1-247-807-11	CARBON	100	5%	1/4W
R257	1-249-417-11	CARBON	1K	5%	1/4W
R258	1-247-807-11	CARBON	100	5%	1/4W
**********					
*	A-3321-757-A	MAIN BOARD, COMPLETE (US,CND,E)			
*	A-3321-938-A	MAIN BOARD, COMPLETE (AR,SP)			
		**********			
	3-032-035-01	HOLDER (LCD)			
	3-034-118-01	HOLDER (IC)			
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S			
		< CAPACITOR >			
C101	1-162-301-11	CERAMIC	0.0015uF	20%	16V
C102	1-104-664-11	ELECT	47uF	20%	10V
C103	1-127-883-21	CAPACITOR	0.039uF	10%	50V
C104	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C105	1-162-215-31	CERAMIC	47PF	5%	50V
C107	1-162-282-31	CERAMIC	100PF	10%	50V
C141	1-124-907-11	ELECT	10uF	20%	50V
C142	1-162-301-11	CERAMIC	0.0015uF	20%	16V
C143	1-124-907-11	ELECT	10uF	20%	50V
C144	1-127-886-21	CAPACITOR	0.068uF	10%	50V
C145	1-127-886-21	CAPACITOR	0.068uF	10%	50V
C146	1-127-876-21	CAPACITOR	0.01uF	10%	50V
C147	1-124-903-11	ELECT	1uF	20%	50V
C181	1-126-785-11	ELECT	47uF	20%	10V
C182	1-162-302-11	CERAMIC	0.0022uF	20%	16V

Ref. No.	Part No.	Description			Remark
C185	1-126-785-11	ELECT	47uF	20%	10V
C186	1-126-382-11	ELECT	100uF	20%	16V
C187	1-104-665-11	ELECT	100uF	20%	16V
C188	1-104-665-11	ELECT	100uF	20%	16V
C189	1-136-165-00	FILM	0.1uF	5%	50V
C190	1-136-165-00	FILM	0.1uF	5%	50V
C191	1-124-907-11	ELECT	10uF	20%	50V
C201	1-162-301-11	CERAMIC	0.0015uF	20%	16V
C202	1-104-664-11	ELECT	47uF	20%	10V
C203	1-127-883-21	CAPACITOR	0.039uF	10%	50V
C204	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C205	1-162-215-31	CERAMIC	47PF	5%	50V
C207	1-162-282-31	CERAMIC	100PF	10%	50V
C241	1-124-907-11	ELECT	10uF	20%	50V
C242	1-162-301-11	CERAMIC	0.0015uF	20%	16V
C243	1-124-907-11	ELECT	10uF	20%	50V
C244	1-127-886-21	CAPACITOR	0.068uF	10%	50V
C245	1-127-886-21	CAPACITOR	0.068uF	10%	50V
C246	1-127-876-21	CAPACITOR	0.01uF	10%	50V
C247	1-124-903-11	ELECT	1uF	20%	50V
C281	1-104-664-11	ELECT	47uF	20%	10V
C282	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C285	1-104-664-11	ELECT	47uF	20%	10V
C286	1-104-665-11	ELECT	100uF	20%	16V
C287	1-104-665-11	ELECT	100uF	20%	16V
C288	1-126-382-11	ELECT	100uF	20%	16V
C289	1-136-165-00	FILM	0.1uF	5%	50V
C290	1-136-165-00	FILM	0.1uF	5%	50V
C291	1-124-907-11	ELECT	10uF	20%	50V
C301	1-124-443-00	ELECT	100uF	20%	10V
C302	1-124-443-00	ELECT	100uF	20%	10V
C304	1-124-443-00	ELECT	100uF	20%	10V
C305	1-162-294-31	CERAMIC	0.001uF	10%	50V
C307	1-162-294-31	CERAMIC	0.001uF	10%	50V
C308	1-124-907-11	ELECT	10uF	20%	50V
C311	1-162-301-11	CERAMIC	0.0015uF	20%	16V
C312	1-104-664-11	ELECT	47uF	20%	10V
C313	1-137-431-11	FILM	560PF	5%	50V
C316	1-162-305-11	CERAMIC	0.0068uF	20%	16V
C317	1-162-306-11	CERAMIC	0.01uF	20%	16V
C318	1-162-282-31	CERAMIC	100PF	10%	50V
C333	1-104-664-11	ELECT	47uF	20%	10V
C334	1-126-961-11	ELECT	2.2uF	20%	50V
C335	1-124-907-11	ELECT	10uF	20%	50V
C336	1-124-907-11	ELECT	10uF	20%	50V
C337	1-104-666-11	ELECT	220uF	20%	6.3V
C338	1-161-494-00	CERAMIC	0.022uF		25V
C339	1-124-907-11	ELECT	10uF	20%	50V
C340	1-162-294-31	CERAMIC	0.001uF	10%	50V
C341	1-162-294-31	CERAMIC	0.001uF	10%	50V
C342	1-162-294-31	CERAMIC	0.001uF	10%	50V
C343	1-161-494-00	CERAMIC	0.022uF		25V
C347	1-124-443-00	ELECT	100uF	20%	10V

MAIN

Ref. No.	Part No.	Description			Remark
C348	1-126-961-11	ELECT	2.2uF	20%	50V
C352	1-126-962-11	ELECT	3.3uF	20%	50V
C353	1-101-005-00	CERAMIC	22000PF		50V
C354	1-104-666-11	ELECT	220uF	20%	16V
C355	1-162-282-31	CERAMIC	100PF	10%	50V
C356	1-162-282-31	CERAMIC	100PF	10%	50V
C357	1-162-306-11	CERAMIC	0.01uF	20%	16V
C358	1-162-306-11	CERAMIC	0.01uF	20%	16V
C362	1-162-294-31	CERAMIC	0.001uF	10%	50V
C381	1-126-937-11	ELECT	4700uF	20%	16V
C502	1-162-306-11	CERAMIC	0.01uF	20%	16V
C503	1-124-443-00	ELECT	100uF	20%	10V
C504	1-104-664-11	ELECT	47uF	20%	10V
C505	1-162-306-11	CERAMIC	0.01uF	20%	16V
C506	1-102-518-11	CERAMIC	33PF	5%	50V
C507	1-102-516-11	CERAMIC	27PF	5%	50V
C508	1-162-306-11	CERAMIC	0.01uF	20%	16V
C509	1-162-306-11	CERAMIC	0.01uF	20%	16V
C510	1-162-306-11	CERAMIC	0.01uF	20%	16V
C511	1-162-306-11	CERAMIC	0.01uF	20%	16V
C512	1-102-518-11	CERAMIC	33PF	5%	50V
C513	1-102-516-11	CERAMIC	27PF	5%	50V
C514	1-102-516-11	CERAMIC	27PF	5%	50V
C515	1-102-518-11	CERAMIC	33PF	5%	50V
C516	1-162-306-11	CERAMIC	0.01uF	20%	16V
C517	1-162-306-11	CERAMIC	0.01uF	20%	16V
C518	1-124-907-11	ELECT	10uF	20%	50V
C519	1-104-664-11	ELECT	47uF	20%	10V
C552	1-162-282-31	CERAMIC	100PF	10%	50V
C556	1-162-282-31	CERAMIC	100PF	10%	50V
C559	1-162-282-31	CERAMIC	100PF	10%	50V
C564	1-162-282-31	CERAMIC	100PF	10%	50V
C565	1-162-282-31	CERAMIC	100PF	10%	50V
C566	1-162-282-31	CERAMIC	100PF	10%	50V
C567	1-162-282-31	CERAMIC	100PF	10%	50V
C570	1-162-282-31	CERAMIC	100PF	10%	50V
C577	1-162-282-31	CERAMIC	100PF	10%	50V
C586	1-162-294-31	CERAMIC	0.001uF	10%	50V
C587	1-162-294-31	CERAMIC	0.001uF	10%	50V
C588	1-162-294-31	CERAMIC	0.001uF	10%	50V
C591	1-162-294-31	CERAMIC	0.001uF	10%	50V
C592	1-162-294-31	CERAMIC	0.001uF	10%	50V
C593	1-162-282-31	CERAMIC	100PF	10%	50V
C594	1-162-306-11	CERAMIC	0.01uF	20%	16V
C595	1-162-294-31	CERAMIC	0.001uF	10%	50V
C596	1-162-294-31	CERAMIC	0.001uF	10%	50V
C597	1-162-306-11	CERAMIC	0.01uF	20%	16V
C701	1-162-600-11	CERAMIC	0.0047uF	20%	16V
C702	1-162-306-11	CERAMIC	0.01uF	20%	16V
C703	1-162-305-11	CERAMIC	0.0068uF	20%	16V
C704	1-137-374-11	FILM	0.047uF	5%	50V
C705	1-162-306-11	CERAMIC	0.01uF	20%	16V
C706	1-104-664-11	ELECT	47uF	20%	10V

Ref. No.	Part No.	Description			Remark
C707	1-161-494-00	CERAMIC	0.022uF		25V
C708	1-136-165-00	FILM	0.1uF	5%	50V
C709	1-136-165-00	FILM	0.1uF	5%	50V
C710	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C711	1-162-199-31	CERAMIC	10PF	5%	50V
C712	1-162-294-31	CERAMIC	0.001uF	10%	50V
C713	1-136-165-00	FILM	0.1uF	5%	50V
C714	1-136-165-00	FILM	0.1uF	5%	50V
C715	1-126-233-11	ELECT	22uF	20%	50V
C716	1-136-165-00	FILM	0.1uF	5%	50V
C717	1-137-370-11	FILM	0.01uF	5%	50V
C718	1-131-377-00	TANTALUM	10uF	10%	10V
C719	1-104-664-11	ELECT	47uF	20%	10V
C720	1-162-306-11	CERAMIC	0.01uF	20%	16V
C721	1-137-370-11	FILM	0.01uF	5%	50V
C722	1-130-489-00	MYLAR	0.033uF	5%	50V
C723	1-162-306-11	CERAMIC	0.01uF	20%	16V
C724	1-130-489-00	MYLAR	0.033uF	5%	50V
C725	1-137-440-11	FILM	0.018uF	5%	50V
C727	1-162-199-31	CERAMIC	10PF	5%	50V
C728	1-104-664-11	ELECT	47uF	20%	10V
C729	1-126-962-11	ELECT	3.3uF	20%	50V
C730	1-137-375-11	FILM	0.068uF	5%	50V
C731	1-162-215-31	CERAMIC	47PF	5%	50V
C732	1-162-306-11	CERAMIC	0.01uF	20%	16V
C734	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C737	1-162-306-11	CERAMIC	0.01uF	20%	16V
C739	1-162-282-31	CERAMIC	100PF	10%	50V
C741	1-127-878-21	CAPACITOR	0.015uF	10%	50V
C742	1-162-306-11	CERAMIC	0.01uF	20%	16V
C743	1-104-664-11	ELECT	47uF	20%	10V
C744	1-124-472-11	ELECT	470uF	20%	10V
C745	1-124-443-00	ELECT	100uF	20%	10V
C748	1-124-443-00	ELECT	100uF	20%	10V
C749	1-162-306-11	CERAMIC	0.01uF	20%	16V
C750	1-162-306-11	CERAMIC	0.01uF	20%	16V
C751	1-162-306-11	CERAMIC	0.01uF	20%	16V
C753	1-124-443-00	ELECT	100uF	20%	10V
C755	1-127-888-21	CAPACITOR	0.1uF	10%	50V
C756	1-162-306-11	CERAMIC	0.01uF	20%	16V
C759	1-124-443-00	ELECT	100uF	20%	10V
C760	1-137-194-81	FILM	0.47uF	5%	50V
C761	1-162-199-31	CERAMIC	10PF	5%	50V
C763	1-162-290-31	CERAMIC	470PF	10%	50V
C764	1-162-199-31	CERAMIC	10PF	5%	50V
C765	1-162-286-21	CERAMIC	220PF	10%	50V
C768	1-162-306-11	CERAMIC	0.01uF	20%	16V
C769	1-136-169-00	FILM	0.22uF	5%	50V
C772	1-162-306-11	CERAMIC	0.01uF	20%	16V
C773	1-126-382-11	ELECT	100uF	20%	16V
C774	1-161-494-00	CERAMIC	0.022uF		25V
C775	1-162-306-11	CERAMIC	0.01uF	20%	16V
C776	1-162-306-11	CERAMIC	0.01uF	20%	16V

Ref. No.	Part No.	Description			Remark
C777	1-162-306-11	CERAMIC	0.01uF	20%	16V
C780	1-162-284-31	CERAMIC	150PF	10%	50V
C781	1-162-292-31	CERAMIC	680PF	10%	50V
C782	1-137-189-11	FILM	0.18uF	5%	50V
C783	1-162-282-31	CERAMIC	100PF	10%	50V
C784	1-162-286-21	CERAMIC	220PF	10%	50V
C790	1-162-284-31	CERAMIC	150PF	10%	50V
C791	1-162-292-31	CERAMIC	680PF	10%	50V
C792	1-137-189-11	FILM	0.18uF	5%	50V
C793	1-162-306-11	CERAMIC	0.01uF	20%	16V
C798	1-162-282-31	CERAMIC	100PF	10%	50V
C799	1-130-489-00	MYLAR	0.033uF	5%	50V
C951	1-162-306-11	CERAMIC	0.01uF	20%	16V
C952	1-162-306-11	CERAMIC	0.01uF	20%	16V
C953	1-104-666-11	ELECT	220uF	20%	10V
C957	1-162-306-11	CERAMIC	0.01uF	20%	16V
C958	1-162-306-11	CERAMIC	0.01uF	20%	16V
C959	1-124-443-00	ELECT	100uF	20%	10V
		< CONNECTOR >			
CNP301	1-506-986-11	PIN, CONNECTOR (PC BOARD) 4P			
* CNP304	1-580-158-11	PIN, CONNECTOR (PC BOARD) 6P			
* CNP305	1-580-154-11	PIN, CONNECTOR (PC BOARD) 2P			
CNP502	1-691-040-31	PIN, CONNECTOR (PC BOARD) 8P			
CNP701	1-770-674-11	CONNECTOR, FFC/FPC 16P			
		< DIODE >			
D302	8-719-991-33	DIODE 1SS133T-77			
D303	8-719-991-33	DIODE 1SS133T-77			
D351	8-719-991-33	DIODE 1SS133T-77			
D501	8-719-991-33	DIODE 1SS133T-77			
D951	8-719-991-33	DIODE 1SS133T-77			
D952	8-719-991-33	DIODE 1SS133T-77			
D953	8-719-109-97	DIODE RD6.8ES-B2			
D955	8-719-991-33	DIODE 1SS133T-77			
D957	8-719-109-89	DIODE RD5.6ESB2			
		< FERRITE BEAD >			
FB705	1-412-911-11	FERRITE BEAD INDUCTOR			
FB706	1-412-911-11	FERRITE BEAD INDUCTOR			
		< IC >			
IC301	8-759-264-71	IC TA2068N			
IC302	8-759-432-41	IC BH3854AS			
IC303	8-759-426-51	IC BA5417			
IC304	8-759-426-51	IC BA5417			
IC501	8-752-905-50	IC CXP83620-007Q			
IC502	8-759-479-70	IC S-81250SGY-B			
IC503	8-759-511-42	IC S-80730AN			
IC701	8-752-082-14	IC CXA1992BR			
IC702	8-759-473-42	IC BA6898FP			
IC703	8-752-384-13	IC CXD2589Q			

Ref. No.	Part No.	Description			Remark
		< COIL >			
JW735	1-410-509-11	INDUCTOR	10uH (US,CND,E)		
		< CABLE HOLDER >			
* KH302	1-565-386-11	HOLDER, CABLE 5P			
* KH303	1-568-135-21	HOLDER, CABLE 7P			
* KH306	1-565-386-11	HOLDER, CABLE 5P			
* KH503	1-573-287-11	HOLDER, CABLE 2P			
* KH506	1-565-386-11	HOLDER, CABLE 5P			
		< COIL >			
L501	1-408-117-00	INDUCTOR	10uH		
L502	1-408-105-00	INDUCTOR	1uH		
L503	1-410-509-11	INDUCTOR	10uH		
L504	1-410-509-11	INDUCTOR	10uH		
L701	1-410-509-11	INDUCTOR	10uH		
L702	1-410-509-11	INDUCTOR	10uH		
L703	1-410-509-11	INDUCTOR	10uH		
		< LIQUID CRYSTAL DISPLAY >			
LCD501	1-803-460-11	DISPLAY PANEL, LIQUID CRYSTAL			
		< TRANSISTOR >			
Q301	8-729-281-53	TRANSISTOR 2SC1815-GR			
Q308	8-729-036-58	TRANSISTOR KRC102M-AT			
Q309	8-729-036-80	TRANSISTOR KRC110M			
Q311	8-729-037-13	TRANSISTOR KTA1271Y			
Q312	8-729-036-77	TRANSISTOR KRC107M			
Q313	8-729-037-13	TRANSISTOR KTA1271Y			
Q321	8-729-036-86	TRANSISTOR KTC3203Y-AT			
Q322	8-729-036-86	TRANSISTOR KTC3203Y-AT			
Q323	8-729-036-86	TRANSISTOR KTC3203Y-AT			
Q324	8-729-037-29	TRANSISTOR KRA102M			
Q325	8-729-036-77	TRANSISTOR KRC107M			
Q326	8-729-036-57	TRANSISTOR KRC101M-AT			
Q501	8-729-036-89	TRANSISTOR KTC3198GR-AT			
Q502	8-729-037-34	TRANSISTOR KRA107M			
Q503	8-729-037-34	TRANSISTOR KRA107M			
Q505	8-729-922-66	TRANSISTOR 2SC2410SN			
Q506	8-729-922-66	TRANSISTOR 2SC2410SN			
Q701	8-729-037-13	TRANSISTOR KTA1271Y			
Q951	8-729-036-57	TRANSISTOR KRC101M-AT			
Q952	8-729-801-84	TRANSISTOR 2SB1013-4			
Q953	8-729-036-57	TRANSISTOR KRC101M-AT			
Q954	8-729-037-24	TRANSISTOR KRA111M-AT			
Q955	8-729-021-82	TRANSISTOR 2SD2396K			
Q957	8-729-036-86	TRANSISTOR KTC3203Y-AT			
		< RESISTOR >			
R101	1-249-431-11	CARBON	15K	5%	1/4W
R102	1-249-404-00	CARBON	82	5%	1/4W
R103	1-249-441-11	CARBON	100K	5%	1/4W

MAIN

Ref. No.	Part No.	Description			Remark
R104	1-247-843-11	CARBON	3.3K	5%	1/4W
R110	1-247-807-11	CARBON	100	5%	1/4W
R111	1-249-429-11	CARBON	10K	5%	1/4W
R112	1-247-863-11	CARBON	22K	5%	1/4W
R113	1-249-420-11	CARBON	1.8K	5%	1/4W
R141	1-249-425-11	CARBON	4.7K	5%	1/4W
R142	1-249-426-11	CARBON	5.6K	5%	1/4W
R181	1-249-429-11	CARBON	10K	5%	1/4W
R182	1-249-421-11	CARBON	2.2K	5%	1/4W
R183	1-249-411-11	CARBON	330	5%	1/4W
R184	1-249-411-11	CARBON	330	5%	1/4W
R185	1-249-432-11	CARBON	18K	5%	1/4W
R186	1-249-414-11	CARBON	560	5%	1/4W
R187	1-249-387-11	CARBON	3.3	5%	1/4W
R188	1-249-387-11	CARBON	3.3	5%	1/4W
R189	1-249-421-11	CARBON	2.2K	5%	1/4W
R201	1-249-431-11	CARBON	15K	5%	1/4W
R202	1-249-404-00	CARBON	82	5%	1/4W
R203	1-249-441-11	CARBON	100K	5%	1/4W
R204	1-247-843-11	CARBON	3.3K	5%	1/4W
R210	1-247-807-11	CARBON	100	5%	1/4W
R211	1-249-429-11	CARBON	10K	5%	1/4W
R212	1-247-863-11	CARBON	22K	5%	1/4W
R213	1-249-420-11	CARBON	1.8K	5%	1/4W
R241	1-249-425-11	CARBON	4.7K	5%	1/4W
R242	1-249-426-11	CARBON	5.6K	5%	1/4W
R281	1-249-429-11	CARBON	10K	5%	1/4W
R282	1-249-421-11	CARBON	2.2K	5%	1/4W
R283	1-249-411-11	CARBON	330	5%	1/4W
R284	1-249-411-11	CARBON	330	5%	1/4W
R285	1-249-432-11	CARBON	18K	5%	1/4W
R286	1-249-414-11	CARBON	560	5%	1/4W
R287	1-249-387-11	CARBON	3.3	5%	1/4W
R288	1-249-387-11	CARBON	3.3	5%	1/4W
R289	1-249-421-11	CARBON	2.2K	5%	1/4W
R301	1-247-903-00	CARBON	1M	5%	1/4W
R303	1-249-417-11	CARBON	1K	5%	1/4W
R304	1-249-429-11	CARBON	10K	5%	1/4W
R306	1-249-429-11	CARBON	10K	5%	1/4W
R307	1-249-429-11	CARBON	10K	5%	1/4W
R311	1-249-406-11	CARBON	120	5%	1/4W
R312	1-247-863-11	CARBON	22K	5%	1/4W
R313	1-249-393-11	CARBON	10	5%	1/4W
R316	1-249-427-11	CARBON	6.8K	5%	1/4W
R321	1-249-417-11	CARBON	1K	5%	1/4W
R322	1-247-843-11	CARBON	3.3K	5%	1/4W
R323	1-247-843-11	CARBON	3.3K	5%	1/4W
R324	1-247-843-11	CARBON	3.3K	5%	1/4W
R325	1-249-425-11	CARBON	4.7K	5%	1/4W
R326	1-249-399-11	CARBON	33	5%	1/4W
R338	1-249-417-11	CARBON	1K	5%	1/4W
R339	1-249-417-11	CARBON	1K	5%	1/4W
R340	1-249-417-11	CARBON	1K	5%	1/4W

Ref. No.	Part No.	Description			Remark
R341	1-249-413-11	CARBON	470	5%	1/4W
R344	1-247-863-11	CARBON	22K	5%	1/4W
R351	1-249-441-11	CARBON	100K	5%	1/4W
R352	1-249-421-11	CARBON	2.2K	5%	1/4W
R353	1-249-441-11	CARBON	100K	5%	1/4W
R354	1-249-417-11	CARBON	1K	5%	1/4W
R356	1-249-413-11	CARBON	470	5%	1/4W
R501	1-249-417-11	CARBON	1K	5%	1/4W
R502	1-249-417-11	CARBON	1K	5%	1/4W
R505	1-249-417-11	CARBON	1K	5%	1/4W
R506	1-249-417-11	CARBON	1K	5%	1/4W
R507	1-249-417-11	CARBON	1K	5%	1/4W
R508	1-249-417-11	CARBON	1K	5%	1/4W
R509	1-249-417-11	CARBON	1K	5%	1/4W
R510	1-249-417-11	CARBON	1K	5%	1/4W
R511	1-249-417-11	CARBON	1K	5%	1/4W
R512	1-249-417-11	CARBON	1K	5%	1/4W
R513	1-249-417-11	CARBON	1K	5%	1/4W
R514	1-249-417-11	CARBON	1K	5%	1/4W
R515	1-249-417-11	CARBON	1K	5%	1/4W
R516	1-249-417-11	CARBON	1K	5%	1/4W
R517	1-249-417-11	CARBON	1K	5%	1/4W
R518	1-249-417-11	CARBON	1K	5%	1/4W
R519	1-249-417-11	CARBON	1K	5%	1/4W
R520	1-249-417-11	CARBON	1K	5%	1/4W
R521	1-249-417-11	CARBON	1K	5%	1/4W
R523	1-249-417-11	CARBON	1K	5%	1/4W
R524	1-249-417-11	CARBON	1K	5%	1/4W
R525	1-249-417-11	CARBON	1K	5%	1/4W
R527	1-249-419-11	CARBON	1.5K	5%	1/4W (US,CND,E)
R527	1-249-425-11	CARBON	4.7K	5%	1/4W (AR,SP)
R528	1-249-417-11	CARBON	1K	5%	1/4W
R529	1-249-417-11	CARBON	1K	5%	1/4W
R530	1-249-417-11	CARBON	1K	5%	1/4W
R532	1-249-415-11	CARBON	680	5%	1/4W
R534	1-247-887-00	CARBON	220K	5%	1/4W
R535	1-249-441-11	CARBON	100K	5%	1/4W
R536	1-249-441-11	CARBON	100K	5%	1/4W
R537	1-249-441-11	CARBON	100K	5%	1/4W
R538	1-249-417-11	CARBON	1K	5%	1/4W
R539	1-249-417-11	CARBON	1K	5%	1/4W
R540	1-249-417-11	CARBON	1K	5%	1/4W
R541	1-249-417-11	CARBON	1K	5%	1/4W
R542	1-249-417-11	CARBON	1K	5%	1/4W
R543	1-249-417-11	CARBON	1K	5%	1/4W
R544	1-249-417-11	CARBON	1K	5%	1/4W
R545	1-249-417-11	CARBON	1K	5%	1/4W
R546	1-249-417-11	CARBON	1K	5%	1/4W
R547	1-249-417-11	CARBON	1K	5%	1/4W
R548	1-249-417-11	CARBON	1K	5%	1/4W
R549	1-249-417-11	CARBON	1K	5%	1/4W

Ref. No.	Part No.	Description			Remark
R550	1-249-417-11	CARBON	1K	5%	1/4W
R551	1-249-417-11	CARBON	1K	5%	1/4W
R552	1-249-417-11	CARBON	1K	5%	1/4W
R553	1-249-417-11	CARBON	1K	5%	1/4W
R554	1-249-417-11	CARBON	1K	5%	1/4W
R555	1-249-417-11	CARBON	1K	5%	1/4W
R556	1-249-417-11	CARBON	1K	5%	1/4W
R557	1-249-417-11	CARBON	1K	5%	1/4W
R558	1-249-417-11	CARBON	1K	5%	1/4W
R559	1-249-417-11	CARBON	1K	5%	1/4W
R560	1-249-417-11	CARBON	1K	5%	1/4W
R561	1-249-417-11	CARBON	1K	5%	1/4W
R562	1-249-417-11	CARBON	1K	5%	1/4W
R563	1-249-417-11	CARBON	1K	5%	1/4W
R564	1-249-417-11	CARBON	1K	5%	1/4W
R566	1-249-429-11	CARBON	10K	5%	1/4W
R567	1-249-429-11	CARBON	10K	5%	1/4W
R568	1-249-417-11	CARBON	1K	5%	1/4W
R569	1-249-429-11	CARBON	10K	5%	1/4W
R570	1-249-425-11	CARBON	4.7K	5%	1/4W
R571	1-249-425-11	CARBON	4.7K	5%	1/4W
R578	1-249-429-11	CARBON	10K	5%	1/4W
R579	1-249-429-11	CARBON	10K	5%	1/4W
R580	1-249-417-11	CARBON	1K	5%	1/4W
R581	1-247-895-11	CARBON	470K	5%	1/4W
R582	1-247-895-11	CARBON	470K	5%	1/4W
R583	1-249-425-11	CARBON	4.7K	5%	1/4W
R584	1-249-425-11	CARBON	4.7K	5%	1/4W
R585	1-249-425-11	CARBON	4.7K	5%	1/4W
R586	1-249-425-11	CARBON	4.7K	5%	1/4W
R587	1-249-437-11	CARBON	47K	5%	1/4W
R591	1-247-878-00	CARBON	91K	5%	1/4W
R592	1-249-425-11	CARBON	4.7K	5%	1/4W
R593	1-249-431-11	CARBON	15K	5%	1/4W
R594	1-249-437-11	CARBON	47K	5%	1/4W
R595	1-249-417-11	CARBON	1K	5%	1/4W
R596	1-249-429-11	CARBON	10K	5%	1/4W
R597	1-249-417-11	CARBON	1K	5%	1/4W
R598	1-249-437-11	CARBON	47K	5%	1/4W
R599	1-249-425-11	CARBON	4.7K	5%	1/4W
R701	1-249-440-11	CARBON	82K	5%	1/4W
R702	1-249-441-11	CARBON	100K	5%	1/4W
R703	1-249-441-11	CARBON	100K	5%	1/4W
R704	1-249-441-11	CARBON	100K	5%	1/4W
R705	1-249-441-11	CARBON	100K	5%	1/4W
R706	1-249-440-11	CARBON	82K	5%	1/4W
R707	1-247-887-00	CARBON	220K	5%	1/4W
R709	1-247-883-00	CARBON	150K	5%	1/4W
R710	1-247-885-00	CARBON	180K	5%	1/4W
R711	1-247-883-00	CARBON	150K	5%	1/4W
R712	1-247-891-00	CARBON	330K	5%	1/4W
R714	1-249-429-11	CARBON	10K	5%	1/4W
R715	1-249-429-11	CARBON	10K	5%	1/4W
R716	1-247-852-11	CARBON	7.5K	5%	1/4W
R717	1-247-903-00	CARBON	1M	5%	1/4W
R718	1-247-899-11	CARBON	680K	5%	1/4W
R719	1-249-393-11	CARBON	10	5%	1/4W
R720	1-249-431-11	CARBON	15K	5%	1/4W
R721	1-249-435-11	CARBON	33K	5%	1/4W
R722	1-247-886-11	CARBON	200K	5%	1/4W
R723	1-247-896-11	CARBON	510K	5%	1/4W
R724	1-249-439-11	CARBON	68K	5%	1/4W
R725	1-247-887-00	CARBON	220K	5%	1/4W
R726	1-247-883-00	CARBON	150K	5%	1/4W
R727	1-249-437-11	CARBON	47K	5%	1/4W
R728	1-247-885-11	CARBON	180K	5%	1/4W
R729	1-249-430-11	CARBON	12K	5%	1/4W
R730	1-249-435-11	CARBON	33K	5%	1/4W
R731	1-247-863-11	CARBON	22K	5%	1/4W
R734	1-247-843-11	CARBON	3.3K	5%	1/4W
R735	1-249-430-11	CARBON	12K	5%	1/4W
R736	1-247-863-11	CARBON	22K	5%	1/4W
R738	1-249-435-11	CARBON	33K	5%	1/4W
R741	1-249-417-11	CARBON	1K	5%	1/4W
R742	1-249-417-11	CARBON	1K	5%	1/4W
R744	1-249-417-11	CARBON	1K	5%	1/4W
R745	1-249-417-11	CARBON	1K	5%	1/4W
R746	1-249-417-11	CARBON	1K	5%	1/4W
R747	1-249-428-11	CARBON	8.2K	5%	1/4W
R748	1-247-890-11	CARBON	300K	5%	1/4W
R757	1-249-417-11	CARBON	1K	5%	1/4W
R758	1-249-437-11	CARBON	47K	5%	1/4W
R760	1-249-437-11	CARBON	47K	5%	1/4W
R764	1-247-843-11	CARBON	3.3K	5%	1/4W
R765	1-249-417-11	CARBON	1K	5%	1/4W
R766	1-249-429-11	CARBON	10K	5%	1/4W
R768	1-247-903-00	CARBON	1M	5%	1/4W
R771	1-249-429-11	CARBON	10K	5%	1/4W
R772	1-247-887-00	CARBON	220K	5%	1/4W
R780	1-249-430-11	CARBON	12K	5%	1/4W
R781	1-249-430-11	CARBON	12K	5%	1/4W
R782	1-249-430-11	CARBON	12K	5%	1/4W
R790	1-249-430-11	CARBON	12K	5%	1/4W
R791	1-249-430-11	CARBON	12K	5%	1/4W
R792	1-249-430-11	CARBON	12K	5%	1/4W
R951	1-249-437-11	CARBON	47K	5%	1/4W
R952	1-249-417-11	CARBON	1K	5%	1/4W
R954	1-247-815-11	CARBON	220	5%	1/4W
R955	1-247-807-11	CARBON	100	5%	1/4W
R958	1-247-815-11	CARBON	220	5%	1/4W
R960	1-247-807-11	CARBON	100	5%	1/4W
R961	1-249-413-11	CARBON	470	5%	1/4W

< TRANSFORMER >

T301	1-416-041-11	TRANSFORMER, BIAS OSCILLATION	

MAIN **PRIMARY** **SECONDARY** **TUNER**

Ref. No.	Part No.	Description			Remark
		< VIBRATOR >			
X501	1-781-357-11	VIBRATOR, CERAMIC (4.19MHz)			
X502	1-767-697-11	VIBRATOR, CRYSTAL (32.768kHz)			
X701	1-760-793-11	VIBRATOR, CERAMIC (16.9344MHz)			
**********					
*	1-672-384-11	PRIMARY BOARD			
		**********			
		< AC INLET >			
⚠CNJ901	1-526-818-11	INLET, AC (～ AC IN) (E)			
⚠CNJ901	1-526-838-11	INLET, AC 2P (～ AC IN) (AR,SP)			
⚠CNJ901	1-540-009-11	INLET, AC (～ AC IN) (US,CND)			
		< CABLE HOLDER >			
* KH902	1-565-384-11	HOLDER, CABLE 3P			
**********					
*	A-3321-755-A	SECONDARY BOARD, COMPLETE			
		**********			
	1-533-233-11	HOLDER, FUSE			
		< CAPACITOR >			
C901	1-101-005-00	CERAMIC	22000PF		50V
C902	1-101-005-00	CERAMIC	22000PF		50V
C903	1-101-005-00	CERAMIC	22000PF		50V
C904	1-101-005-00	CERAMIC	22000PF		50V
C907	1-162-294-31	CERAMIC	0.001uF	10%	50V
C908	1-124-907-11	ELECT	10uF	20%	50V
C909	1-126-768-11	ELECT	2200uF	20%	16V
C910	1-136-165-00	FILM	0.1uF	5%	50V
		< CONNECTOR >			
CNP901	1-506-986-11	PIN, CONNECTOR (PC BOARD) 4P			
CNP902	1-506-987-11	PIN, CONNECTOR (PC BOARD) 5P			
* CNP906	1-580-155-11	PIN, CONNECTOR (PC BOARD) 3P			
		< DIODE >			
D401	8-719-991-33	DIODE 1SS133T-77			
D402	8-719-991-33	DIODE 1SS133T-77			
D403	8-719-991-33	DIODE 1SS133T-77			
D404	8-719-991-33	DIODE 1SS133T-77			
D405	8-719-991-33	DIODE 1SS133T-77			
D406	8-719-991-33	DIODE 1SS133T-77			
D407	8-719-991-33	DIODE 1SS133T-77			
D408	8-719-991-33	DIODE 1SS133T-77			
D901	8-719-046-07	DIODE 2A02M			
D902	8-719-046-07	DIODE 2A02M			
D903	8-719-046-07	DIODE 2A02M			
D904	8-719-046-07	DIODE 2A02M			
D905	8-719-991-33	DIODE 1SS133T-77			
D906	8-719-991-33	DIODE 1SS133T-77			
D907	8-719-991-33	DIODE 1SS133T-77			

Ref. No.	Part No.	Description			Remark
D908	8-719-991-33	DIODE 1SS133T-77			
D909	8-719-991-33	DIODE 1SS133T-77			
D910	8-719-991-33	DIODE 1SS133T-77			
		< IC >			
IC901	8-759-479-70	IC S-81250SGY-B			
		< TRANSISTOR >			
Q401	8-729-036-77	TRANSISTOR KRC107M			
Q402	8-729-036-77	TRANSISTOR KRC107M			
Q404	8-729-036-77	TRANSISTOR KRC107M			
Q405	8-729-037-34	TRANSISTOR KRA107M			
Q406	8-729-036-80	TRANSISTOR KRC110M			
Q407	8-729-037-03	TRANSISTOR KTA1266GR-AT			
Q408	8-729-036-77	TRANSISTOR KRC107M			
Q409	8-729-036-77	TRANSISTOR KRC107M			
		< RESISTOR >			
R401	1-249-441-11	CARBON	100K	5%	1/4W
R404	1-249-441-11	CARBON	100K	5%	1/4W
R405	1-249-441-11	CARBON	100K	5%	1/4W
R406	1-247-815-11	CARBON	220	5%	1/4W
R407	1-249-429-11	CARBON	10K	5%	1/4W
R409	1-247-895-11	CARBON	470K	5%	1/4W
R902	1-249-387-11	CARBON	3.3	5%	1/4W
R903	1-247-807-11	CARBON	100	5%	1/4W
R904	1-247-807-11	CARBON	100	5%	1/4W
R906	1-247-899-11	CARBON	680K	5%	1/4W
R907	1-247-887-00	CARBON	220K	5%	1/4W
R908	1-249-429-11	CARBON	10K	5%	1/4W
**********					
*	A-3321-748-A	TUNER BOARD, COMPLETE (US,CND,E)			
*	A-3321-940-A	TUNER BOARD, COMPLETE (AR,SP)			
		**********			
		< CAPACITOR >			
C8	1-162-301-11	CERAMIC	0.0015uF	30%	16V
C10	1-124-903-11	ELECT	1uF	20%	50V
C11	1-127-888-21	CAPACITOR	0.1uF	10%	50V
C12	1-126-963-11	ELECT	4.7uF	20%	50V
C13	1-162-306-11	CERAMIC	0.01uF	20%	16V
C14	1-127-878-21	CERAMIC	0.015uF	10%	50V (AR,SP)
C14	1-127-879-21	CERAMIC	0.018uF	10%	50V (US,CND,E)
C15	1-127-878-21	CERAMIC	0.015uF	10%	50V (AR,SP)
C15	1-127-879-21	CERAMIC	0.018uF	10%	50V (US,CND,E)

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 piéce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark
C16	1-124-903-11	ELECT	1uF	20%	50V
C17	1-124-903-11	ELECT	1uF	20%	50V
C18	1-104-666-11	ELECT	220uF	20%	10V
C20	1-127-888-21	CAPACITOR	0.1uF	10%	50V
C21	1-124-903-11	ELECT	1uF	20%	50V
C22	1-127-888-21	CAPACITOR	0.1uF	10%	50V
C23	1-124-903-11	ELECT	1uF	20%	50V
C24	1-162-288-31	CERAMIC	330PF	10%	50V
C25	1-162-600-11	CERAMIC	0.0047uF	20%	16V
C27	1-162-306-11	CERAMIC	0.01uF	20%	16V
C30	1-162-306-11	CERAMIC	0.01uF	20%	16V
C31	1-102-514-11	CERAMIC	22PF	5%	50V
C33	1-162-306-11	CERAMIC	0.01uF	20%	16V
C34	1-162-294-31	CERAMIC	0.001uF	10%	50V
C35	1-127-888-21	CAPACITOR	0.1uF	10%	50V
C40	1-127-888-21	CAPACITOR	0.1uF	10%	50V
C41	1-102-821-00	CERAMIC	360PF	5%	50V
C42	1-162-198-31	CERAMIC	8.2PF	10%	50V
C43	1-162-282-31	CERAMIC	100PF	10%	50V
C44	1-127-888-21	CAPACITOR	0.1uF	10%	50V
C45	1-162-306-11	CERAMIC	0.01uF	20%	16V
C51	1-162-201-31	CERAMIC	12PF	5%	50V
C52	1-162-199-31	CERAMIC	10PF	5%	50V
C53	1-136-171-00	FILM	0.33uF	5%	50V
C54	1-124-472-11	ELECT	470uF	20%	10V
C55	1-162-282-31	CERAMIC	100PF	10%	50V
C56	1-162-294-31	CERAMIC	0.001uF	10%	50V
C57	1-162-294-31	CERAMIC	0.001uF	10%	50V
C58	1-162-282-31	CERAMIC	100PF	10%	50V
C60	1-162-294-31	CERAMIC	0.001uF	10%	50V
C62	1-162-306-11	CERAMIC	0.01uF	20%	16V
C63	1-162-282-31	CERAMIC	100PF	10%	50V
C64	1-162-282-31	CERAMIC	100PF	10%	50V
C65	1-162-282-31	CERAMIC	100PF	10%	50V
C77	1-137-370-11	FILM	0.01uF	5%	50V
C80	1-162-306-11	CERAMIC	0.01uF	20%	16V
C91	1-162-306-11	CERAMIC	0.01uF	20%	16V
C92	1-162-306-11	CERAMIC	0.01uF	20%	16V
C93	1-162-306-11	CERAMIC	0.01uF	20%	16V
C95	1-162-294-31	CERAMIC	0.001uF	10%	50V
C96	1-162-282-31	CERAMIC	100PF	10%	50V
C98	1-162-282-31	CERAMIC	100PF	10%	50V
		< FILTER >			
CF1	1-760-738-61	FILTER, CERAMIC			
CF3	1-781-171-11	DISCRIMINATOR, CERAMIC			
CF4	1-781-344-11	FILTER, AM CERAMIC			
		< TRIMMER >			
CT1	1-141-603-11	CAP, ADJ	20PF		
CT3	1-141-601-11	CAP, ADJ	10PF		

Ref. No.	Part No.	Description			Remark
		< DIODE >			
D1	8-719-050-72	DIODE KV1370NT			
D2	8-719-050-72	DIODE KV1370NT			
D3	8-719-050-69	DIODE KV1520N			
D5	8-719-923-93	DIODE MTZJ-T-77-16C			
D6	8-719-991-33	DIODE 1SS133T-77			
D10	8-719-991-33	DIODE 1SS133T-77			
D11	8-719-991-33	DIODE 1SS133T-77			
		< BPF >			
FL1	1-236-711-21	FILTER, BAND PASS			
		< IC >			
IC1	8-759-549-84	IC TA2104AN			
IC2	8-759-549-57	IC LC72137-D			
		< CABLE HOLDER >			
* CNP1	1-565-386-11	HOLDER, CABLE 5P			
* CNP2	1-568-135-21	HOLDER, CABLE 7P			
		< COIL >			
L1	1-416-987-11	COIL, FM RF			
L2	1-409-904-31	COIL, FM OSC			
L3	1-501-923-21	ANTENNA, FERRITE-ROD (AM)			
L4	1-411-234-41	COIL, AM OSC			
L11	1-414-142-11	INDUCTOR	1uH		
L91	1-410-509-11	INDUCTOR	10uH		
		< TRANSISTOR >			
Q12	8-729-036-77	TRANSISTOR KRC107M			
Q13	8-729-036-77	TRANSISTOR KRC107M			
		< RESISTOR >			
R1	1-249-411-11	CARBON	330	5%	1/4W
R3	1-249-429-11	CARBON	10K	5%	1/4W
R4	1-249-429-11	CARBON	10K	5%	1/4W
R10	1-247-791-11	CARBON	22	5%	1/4W
R11	1-247-843-11	CARBON	3.3K	5%	1/4W
R12	1-249-437-11	CARBON	47K	5%	1/4W
R13	1-249-421-11	CARBON	2.2K	5%	1/4W
R24	1-247-815-11	CARBON	220	5%	1/4W
R25	1-249-393-11	CARBON	10	5%	1/4W
R30	1-249-431-11	CARBON	15K	5%	1/4W
R31	1-247-843-11	CARBON	3.3K	5%	1/4W
R32	1-249-441-11	CARBON	100K	5%	1/4W
R33	1-247-887-00	CARBON	220K	5%	1/4W
R35	1-249-429-11	CARBON	10K	5%	1/4W
R40	1-247-887-00	CARBON	220K	5%	1/4W
R41	1-249-429-11	CARBON	10K	5%	1/4W
R50	1-249-417-11	CARBON	1K	5%	1/4W
R51	1-249-429-11	CARBON	10K	5%	1/4W

TUNER

Ref. No.	Part No.	Description			Remark
R53	1-249-430-11	CARBON	12K	5%	1/4W
R54	1-247-843-11	CARBON	3.3K	5%	1/4W
R56	1-249-416-11	CARBON	820	5%	1/4W
R58	1-249-417-11	CARBON	1K	5%	1/4W
R59	1-249-417-11	CARBON	1K	5%	1/4W
R60	1-249-417-11	CARBON	1K	5%	1/4W
R61	1-249-417-11	CARBON	1K	5%	1/4W
R64	1-247-863-11	CARBON	22K	5%	1/4W
R91	1-249-417-11	CARBON	1K	5%	1/4W
R92	1-249-417-11	CARBON	1K	5%	1/4W
R93	1-249-417-11	CARBON	1K	5%	1/4W
R94	1-249-417-11	CARBON	1K	5%	1/4W
R95	1-249-417-11	CARBON	1K	5%	1/4W
		< TRANSFORMER >			
T1	1-433-741-11	TRANSFORMER, IF			
		< VIBRATOR >			
X1	1-760-130-11	VIBRATOR, CRYSTAL (75kHz)			
**********					
		MISCELLANEOUS			
		**********			
8	1-790-378-11	WIRE (FLAT TYPE) (8 CORE)			
103	1-452-899-11	MAGNET			
122	1-777-955-11	WIRE (FLAT TYPE) (16 CORE)			
⚠251	8-848-483-05	PICK-UP, OPTICAL KSS-213C/Q-RP			
256	X-2626-202-1	CHASSIS ASSY (MB), MOTOR (SPINDLE) (INCLUDING M701)			
ANT1	1-501-891-11	ANTENNA, TELESCOPIC			
⚠F902	1-532-465-51	FUSE, TIME LAG (T3.15AL/250V) (AR,SP)			
⚠F902	1-576-109-11	FUSE (5A/125V) (US,CND,E)			
HE301	1-543-876-11	HEAD (ERASE)			
HRP301	1-500-454-11	HEAD, MAGNETIC (RECORD/PLAYBACK)			
M301	A-3320-446-A	MOTOR ASSY (CAPSTAN/REEL)			
M702	X-2625-769-1	GEAR ASSY (MB), MOTOR (SLED)			
S303	1-762-679-11	SWITCH, LEAF (MOTOR ON/OFF)			
S304	1-771-059-11	SWITCH, LEAF (TAPE PLAY)			
S305	1-771-686-11	SWITCH, LEAF (REC)			
S501	1-692-960-11	SWITCH, PUSH (1 KEY) (CD DOOR OPEN/CLOSE)			
SP301	1-529-185-11	SPEAKER (10cm) (L-CH)			
SP302	1-529-185-11	SPEAKER (10cm) (R-CH)			
⚠T901	1-433-638-11	TRANSFORMER, POWER (US,CND,E)			
⚠T901	1-433-639-11	TRANSFORMER, POWER (AR,SP)			
**********					

Ref. No.	Part No.	Description	Remark
		ACCESSORIES	
		**********	
⚠	1-557-287-11	CORD, POWER (E)	
⚠	1-690-952-11	CORD, POWER (CND)	
⚠	1-769-412-13	CORD, POWER (SP)	
⚠	1-782-126-11	CORD, POWER (US)	
⚠	1-783-952-11	CORD, POWER (AR)	
	3-027-153-11	LID, BATTERY CASE (for RMT-CS38A/CS38AD)	
	3-865-706-11	MANUAL, INSTRUCTION (ENGLISH) (US,CND,E)	
	3-865-706-21	MANUAL, INSTRUCTION (FRENCH) (CND)	
	3-865-706-31	MANUAL, INSTRUCTION (ENGLISH,SPANISH) (AR,SP)	
	3-865-706-41	MANUAL, INSTRUCTION (FRENCH,GERMAN) (SP)	
	A-3250-910-A	RMT-CS38A//C SET (EXCEPT SP)	
	A-3250-911-A	RMT-CS38AD//C SET (SP)	
**********			
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#2	7-685-783-09	SCREW +PTT 2X6 (S)	
#3	7-685-533-19	SCREW +BTP 2.6X6 TYPE2 N-S	
#4	7-685-647-01	SCREW +BVTP 3X10 TYPE1	
#5	7-682-548-04	SCREW +B 3X8	
#6	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#7	7-621-770-87	SCREW +B 2.6X5	
#8	7-685-648-79	SCREW +BVTP 3X12 TYPE2 N-S	

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 piéce portant le numéro spécifié.

CFD-S38

SONY

SERVICE MANUAL

US Model
Canadian Model
E Model

Ver 1.2 1999. 09

SUPPLEMENT-1

File this supplement with the service manual.

Subject : 1. Mexican model addition
2. Main board modification
3. Tuner board modification

(ECN-RCA00257)

1. Mexican model addition

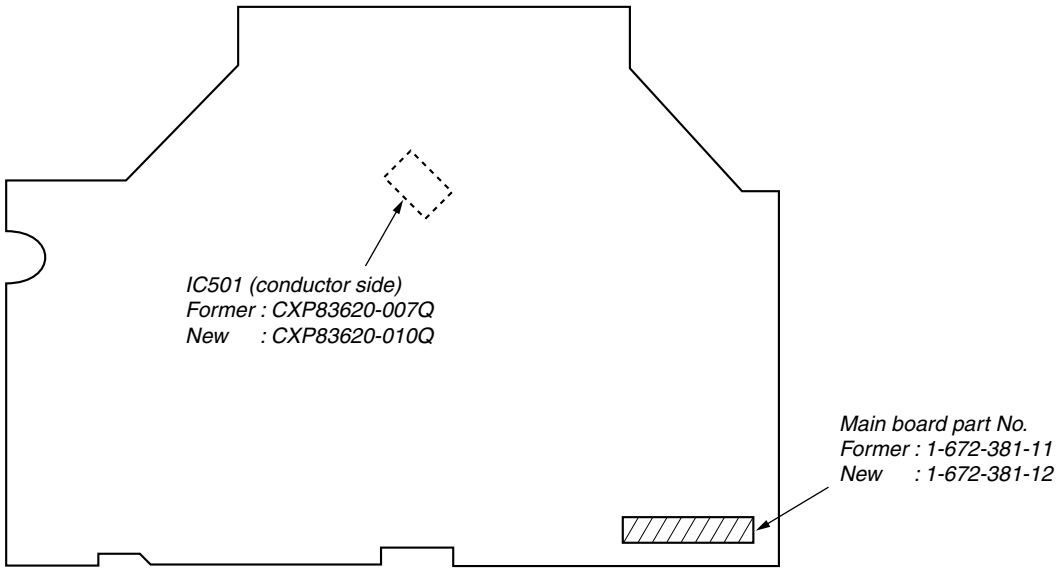
CFD-S38 Mexican model is same as CFD-S38 E model.
When repairing CFD-S38 Mexican model, please refer to CFD-S38 service manual (9-926-939-□□) previously issued.

2. Main board modification

There are the board change and micro computer (IC501) change for main board.

Former	→	New-I	→	New-II
MAIN board part No. : 1-672-381-11 IC501 : CXP83620-007Q		MAIN board part No. : 1-672-381-12 IC501 : CXP83620-007Q		MAIN board part No. : 1-672-381-12 IC501 : CXP83620-010Q

When performing service and inspection, check the suffix of the part number of the main board and type name of IC501.



2-1. Electrical Parts List — Main board —

(Page 47-52)

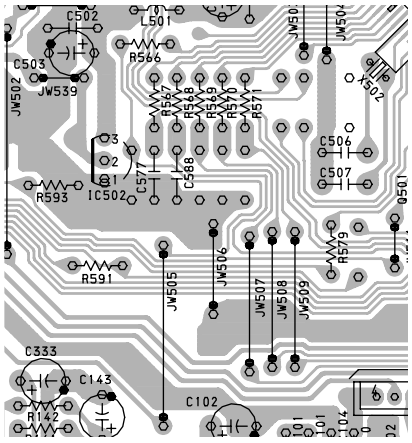
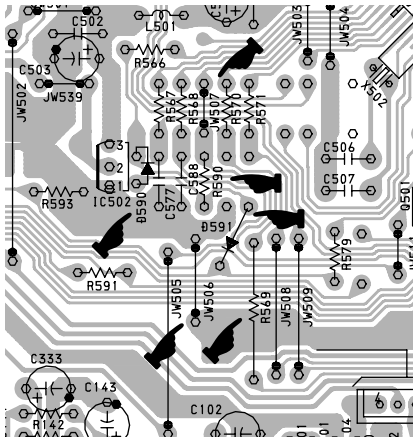
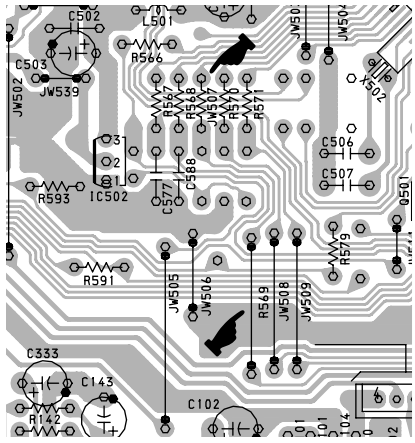
(Board part No.)	**Former** (1-672-381-11)	**New-I** (1-672-381-12)	**New-II** (1-672-381-12)
Ref. No.	Part No. Description Remark	Part No. Description Remark	Part No. Description Remark
D590, D591	No mount	8-719-991-33 DIODE 1SS133T-77	No mount
JW506	Jumper wire	Change of installing position	Jumper wire
JW507	Jumper wire	Change of installing position	1-249-429-11 CARBON 10K 5% 1/4W
IC501	8-752-905-50 IC CXP83620-007Q	8-752-905-50 IC CXP83620-007Q	8-752-907-79 IC CXP83620-010Q
R569	1-249-429-11 CARBON 10K 5% 1/4W	Change of installing position	Jumper wire
R590	No mount	1-249-425-11 CARBON 4.7K 5% 1/4W	No mount

Note : Part change should be made at the same time.

2-2. Printed Wiring Board — Main board —

(Page 25, 26/Location D-E, 5-7)

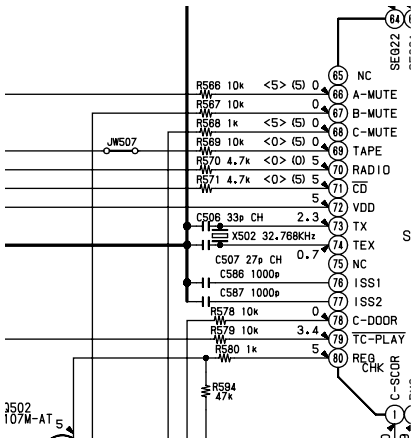
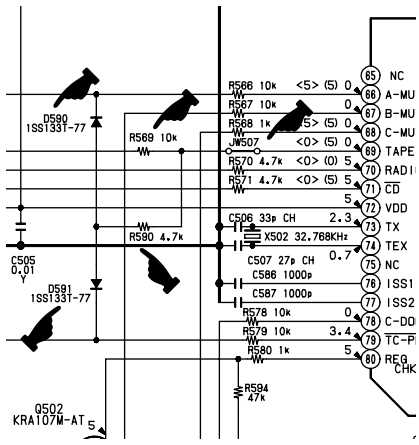
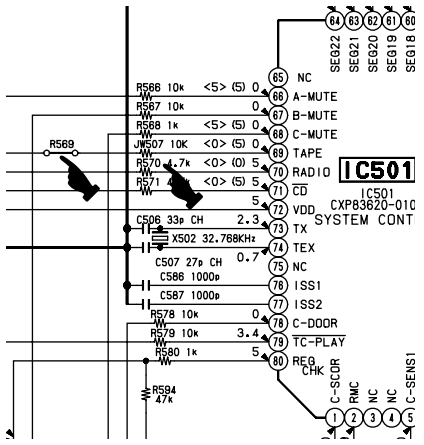
☛ : Changed portion

Former (1-672-381-11)	**New-I** (1-672-381-12)	**New-II** (1-672-381-12)
		

2-3. Schematic Diagram — Main section (3/3) —

(Page 31, 32/Location C-E, 4-6)

☛ : Changed portion

Former (1-672-381-11)	**New-I** (1-672-381-12)	**New-II** (1-672-381-12)
		

3. Tuner board modification

3-1. Electrical Parts List — Tuner board —

(Page 52-53)

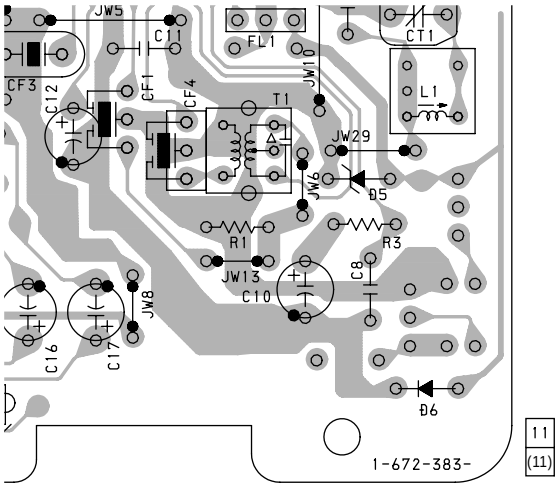
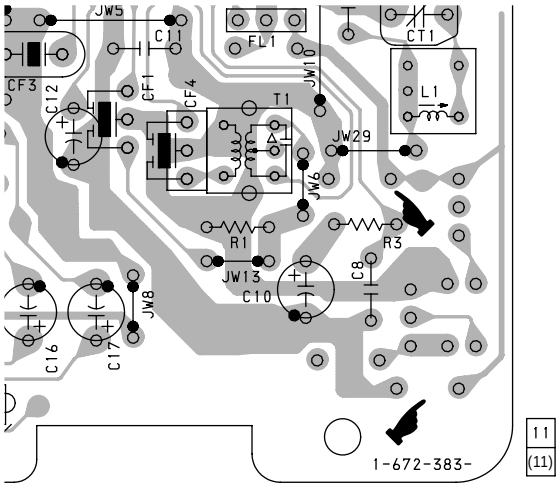
	Former			New		
Ref. No.	Part No.	Description	Remark	Part No.	Description	Remark
D5	8-719-923-93	DIODE MTZJ-T-77-16C		No mount		
D6	8-719-991-33	DIODE 1SS133T-77		No mount		
IC1	8-759-549-84	IC TA2104AN		8-759-644-86	IC TA2104BN	

Note : Part change should be made at the same time.

3-2. Printed Wiring Board — Tuner board —

(Page 23/Location G-H, 5)

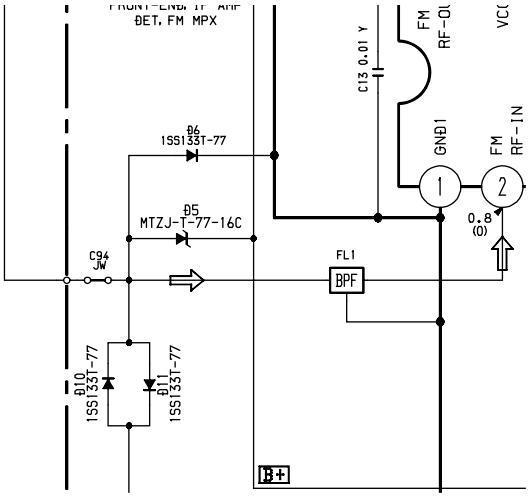
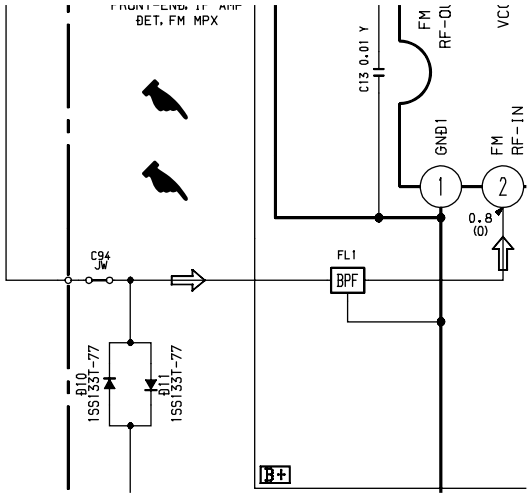
☛ : Changed portion

Former	New
	

3-3. Schematic Diagram — Tuner section —

(Page 21-22/Location F, 2-3)

☛ : Changed portion

Former	New
	

REVISION HISTORY

Clicking the version allows you to jump to the revised page.
Also, clicking the version at the upper on the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.0	1999.02	New
1.1	1999.04	Canadian, E, Argentina and Singapore model addition.
1.2	1999.09	Mexican model addition. (SUPPLEMENT-1)
1.3	2005.09	Change of part number of power cord of US model. (SPM-05123)