

CFD-G70

SERVICE MANUAL

Ver. 1.4 2005.09
With SUPPLEMENT-1

US Model
Canadian Model
E Model



Model Name Using	CD Section	CFD-S40CP
Similar Mechanism	Tape Section	CFD-S40CP
CD Mechanism Type		KSM-213CDP
Optical Pick-up Type		KSS-213C
Tape Transport Mechanism Type		MF-V5-117

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS (US Model)

POWER OUTPUT AND TOTAL HARMONIC DISTORTION
Main speaker with 3.2-ohm loads, both channels driven from 1,000 - 10,000 Hz; rated 3 W per channel-minimum RMS power, with no more than 10 % total harmonic distortion in AC operation.
Subwoofer with 4-ohm loads, driven at 50 - 150 Hz; rated 6 W minimum RMS power, with no more than 10 % total harmonic distortion in AC operation.
GAME Xpand with 12-ohm loads, driven at 3,000 - 10,000 Hz; rated 1 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 μ W

(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

Antennas

FM: Telescopic antenna

AM: Built-in ferrite bar antenna

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

Speakers

Main speaker: 10 cm (4 in.) dia., 3.2 Ω , cone type (2)

Subwoofer: 8 cm (3 1/4 in.) dia., 4 Ω , cone type (1)

GAME Xpand: 5 cm (2 in.) dia., 12 Ω , cone type (2)

Inputs

LINE IN jack (stereo minijack): sensitivity 436 mV

Outputs

Headphones jack (stereo minijack): for 16 - 68 Ω impedance headphones

— Continued on page 2 —

CD RADIO CASSETTE-CORDER

9-873-132-15

2005I02-1

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Sony Corporation

Personal Audio Group

Published by Sony Engineering Corporation

SONY®

Power output

Main speaker: 4 W + 4W (at 3.2 Ω , 10 % harmonic distortion in DC operation)
 Subwoofer: 12 W (at 4 Ω , 10 % harmonic distortion in DC operation)
 GAME Xpand: 1.2 W + 1.2 W (at 12 Ω , 10 % harmonic distortion in DC operation)

Power requirements

For CD radio cassette-corder:
 120 V AC, 60 Hz
 12 V DC, 8 size D (R20) batteries
 For remote control:
 3 V DC, 2 size AA (R6) batteries

Power consumption

AC 35 W

Battery life

For CD radio cassette-corder:

FM recording

Sony R20P: approx. 8 h

Sony alkaline LR20: approx. 18 h

Tape playback

Sony R20P: approx. 1.5 h

Sony alkaline LR20: approx. 6 h

CD playback

Sony R20P: approx. 1 h

Sony alkaline LR20: approx. 4 h

Dimensions

Approx. 530 × 193 × 345 mm (w/h/d)
 (20 7/8 × 7 5/8 × 13 5/8 inches) (incl. projecting parts)

Mass

Approx. 7 kg (15 lb. 5 oz) (incl. batteries)

Supplied accessories

AC power cord (1)
 Remote control (1)
 AV connecting cord (1)
 Audio connecting cord (1)

Design and specifications are subject to change without notice.

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.

SAFETY-RELATED COMPONENT WARNING!!

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

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE $\triangle$ SUR LES DIAGRAMMES 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.

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SECTION 1 SERVICING NOTES

SAFETY CHECK-OUT (US model)

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)

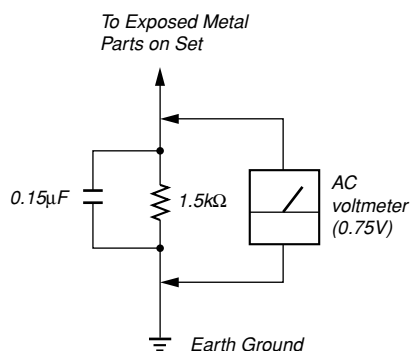


Fig. A. Using an AC voltmeter to check AC leakage.

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.

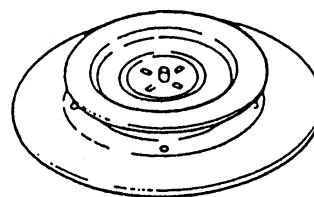
NOTES ON LASER DIODE EMISSION CHECK

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 more than 30 cm away from the objective lens.

CHUCK PLATE JIG ON REPAIRING

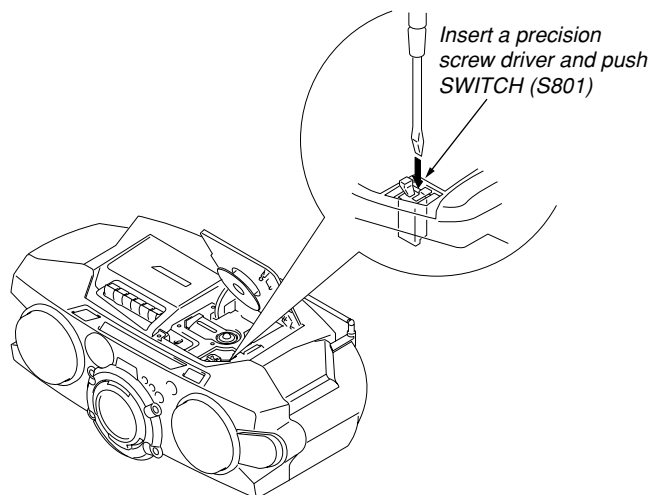
On repairing CD section, playing a disc without the CD lid, use Chuck Plate Jig.

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



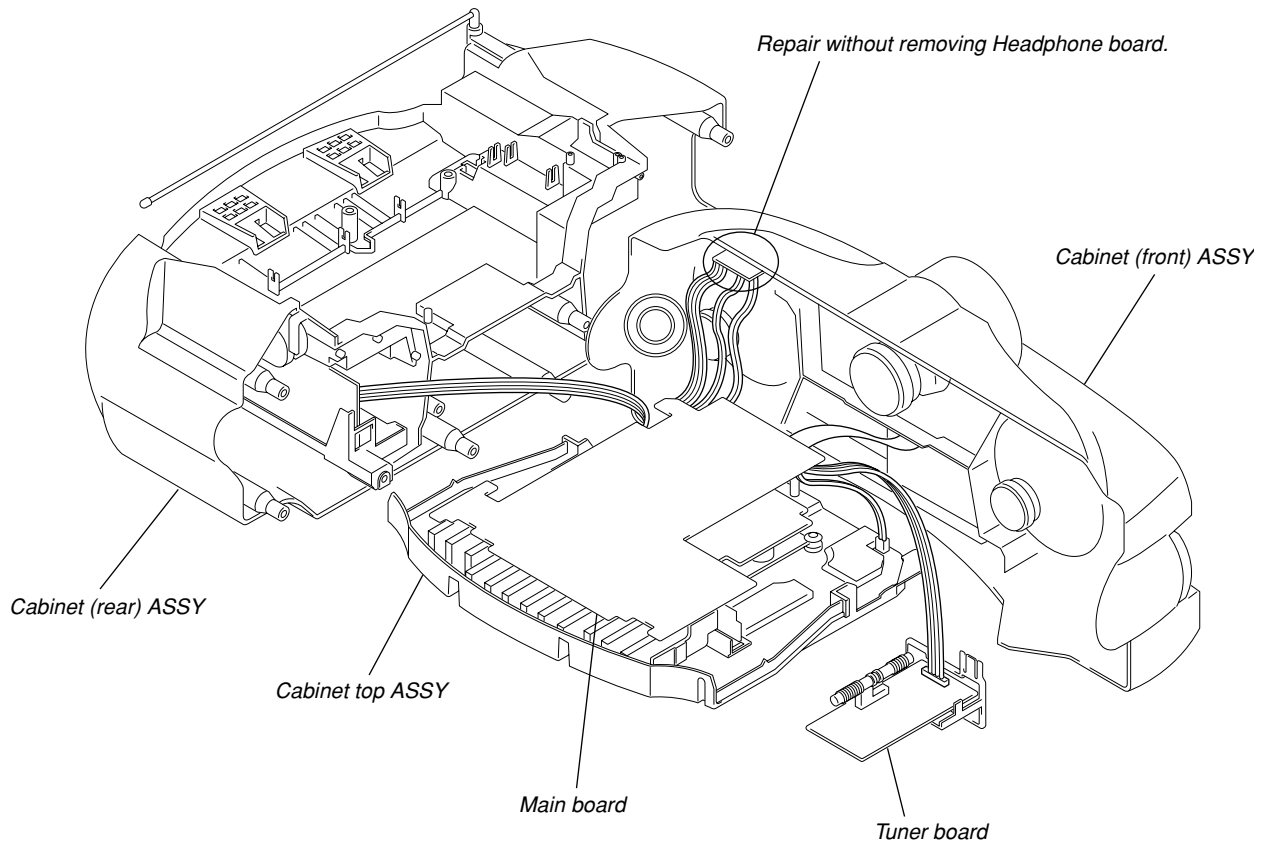
LASER DIODE AND FOCUS SEARCH OPERATION CHECK

1. Press CD open knob.
2. Open the lid for CD.
3. Push on SWITCH (S801) as following figure.
4. 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 once for the focus search.



• Service Position

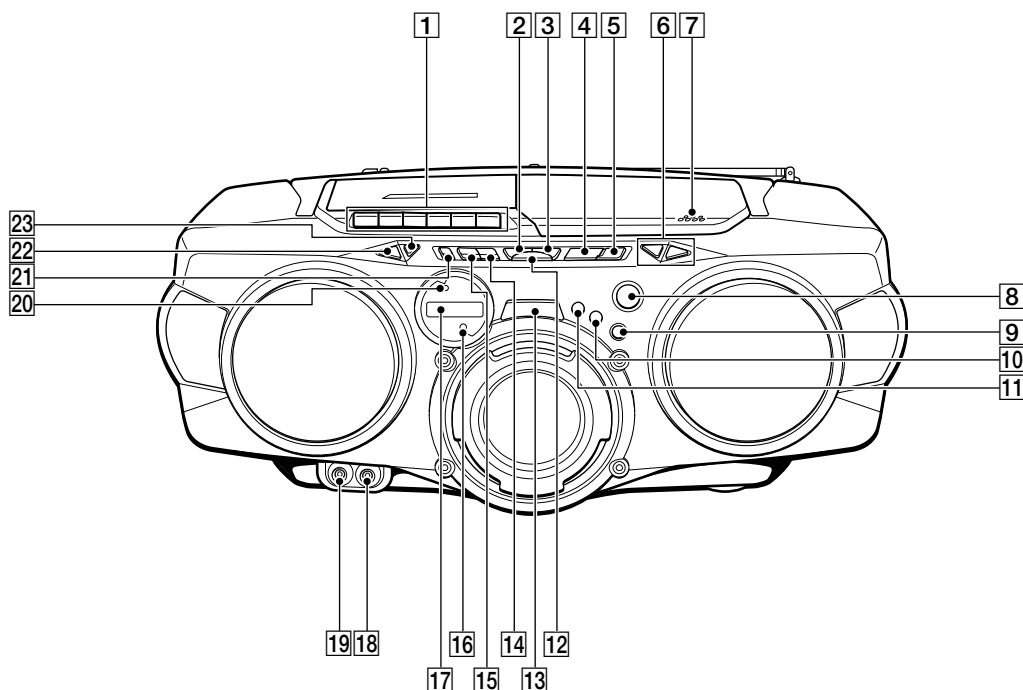
Note: For removal, a screwdriver with the long shaft 25cm or more is required.



SECTION 2 GENERAL

This section is extracted from instruction manual.

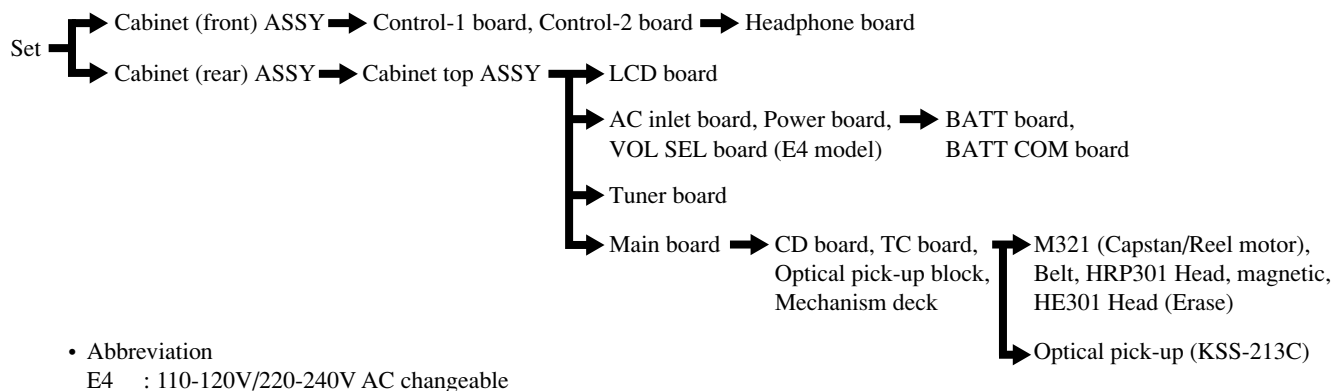
LOCATION AND FUNCTION OF CONTROLS



- | | |
|--|---|
| 1 Tape operation buttons
REC ●
PLAY ►
REW ◀◀
FF ►►
STOP/EJECT ■/▲
PAUSE | 11 SOUND button |
| 2 PRESET – button | 12 RADIO BAND/AUTO PRESET button |
| 3 PRESET + button | 13 POWER DRIVE WOOFER button |
| 4 CD ► button | 14 CD: AMS ►► button
Radio: TUNE + button |
| 5 CD ■ button | 15 CD: AMS ◀◀ button
Radio: TUNE – button |
| 6 VOLUME –/+ button | 16 Remote sensor |
| 7 ▲ PUSH OPEN/CLOSE | 17 Display window |
| 8 GAME/LINE button | 18 GAME/LINE IN jack |
| 9 GAME Xpand button | 19 ⌀ jack |
| 10 MODE button | 20 OPR/BATT indicator |
| | 21 DISPLAY ENT/MEMORY button |
| | 22 POWER button |
| | 23 SLEEP button |

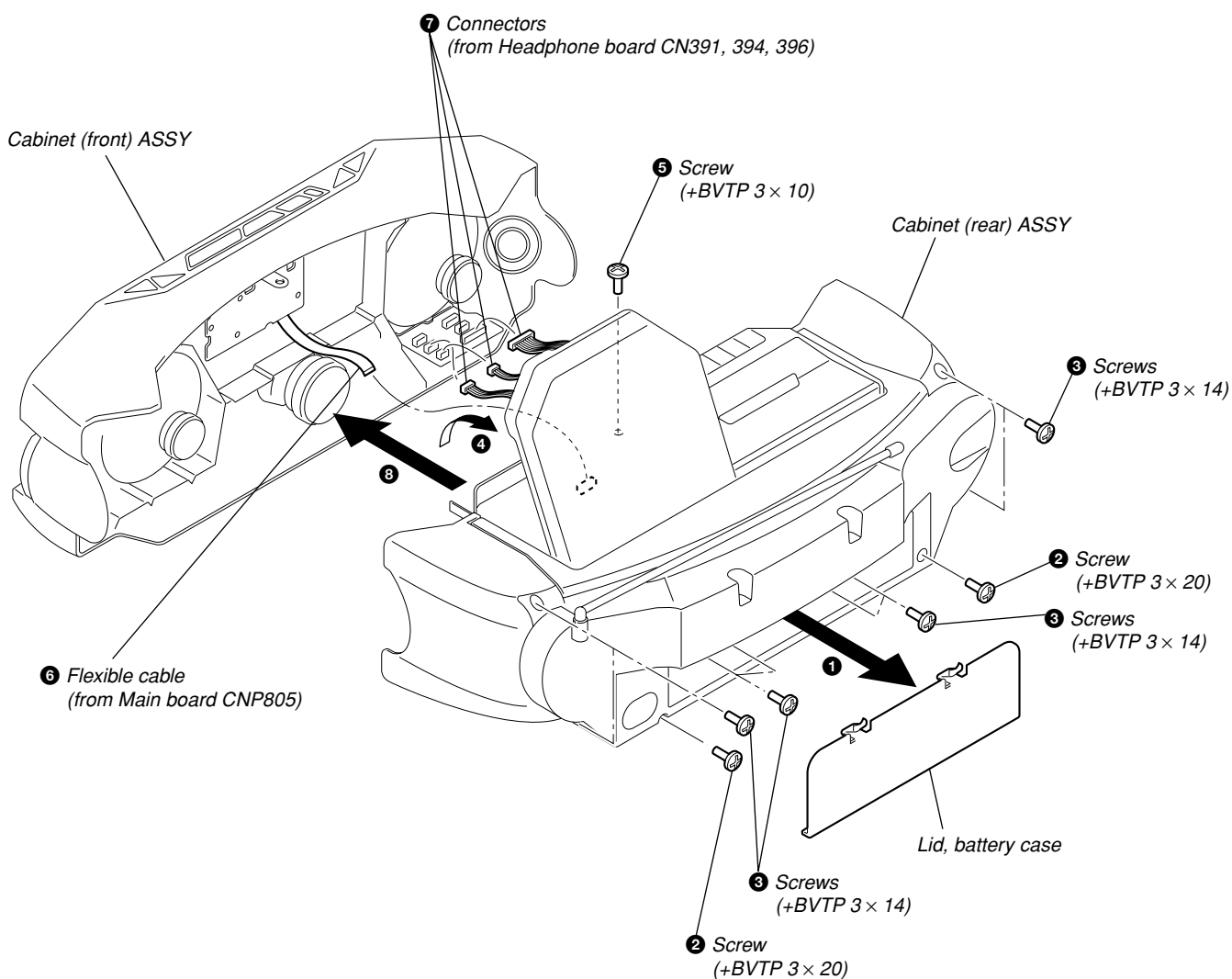
SECTION 3 DISASSEMBLY

- The equipment can be removed using the following procedure.

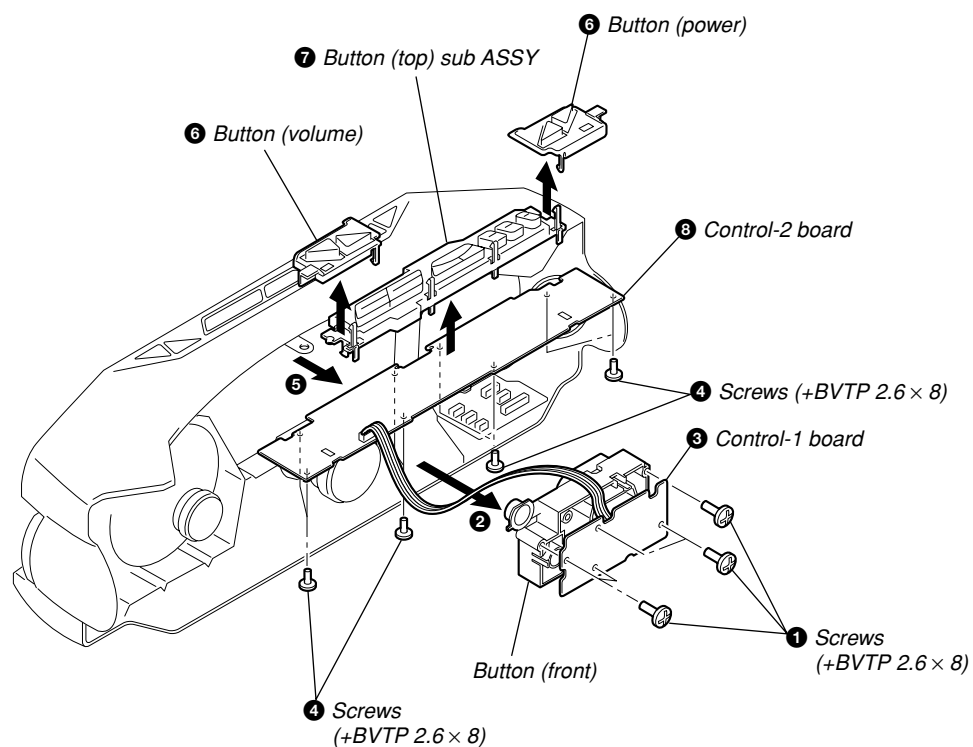


Note : Follow the disassembly procedure in the numerical order given.

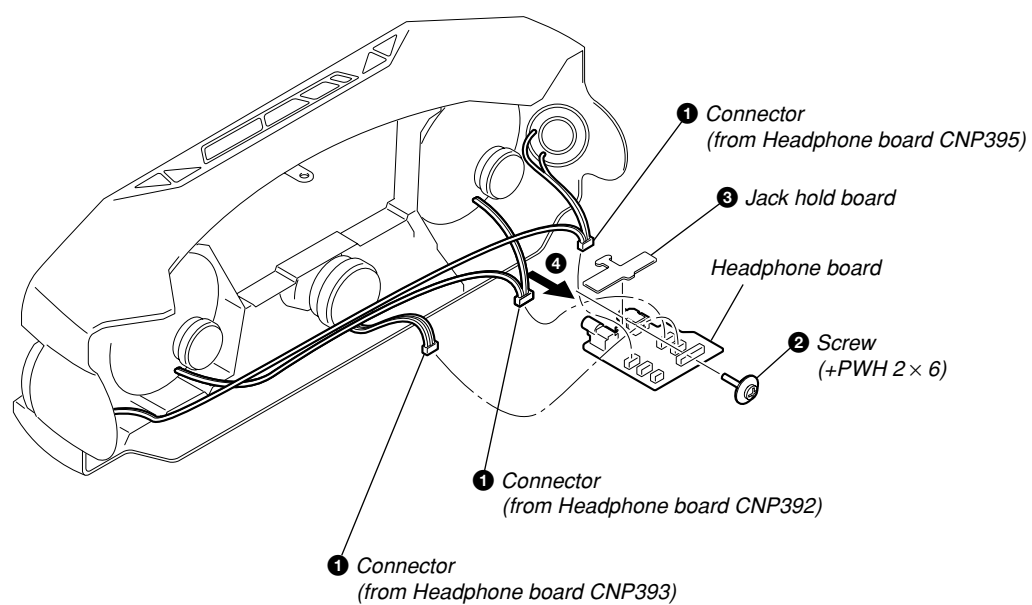
3-1. CABINET (FRONT) ASSY, CABINET (REAR) ASSY



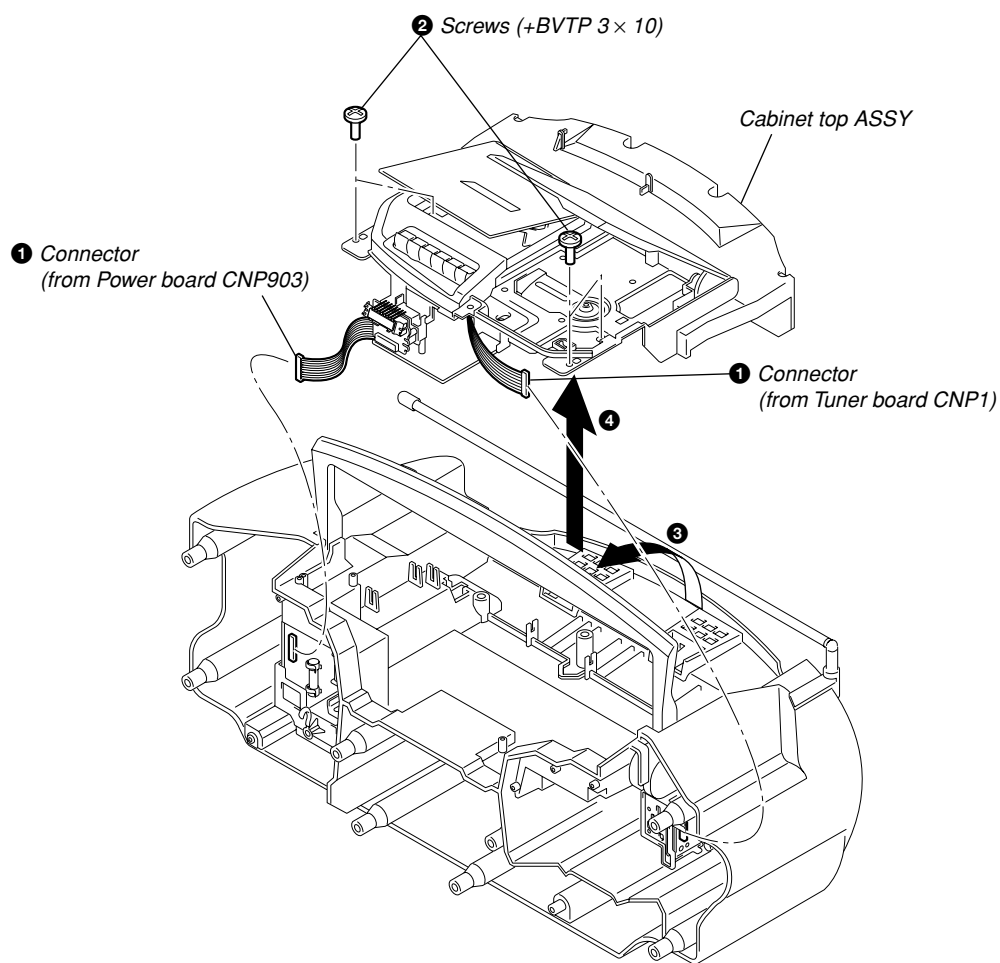
3-2. CONTROL-1 BOARD, CONTROL-2 BOARD



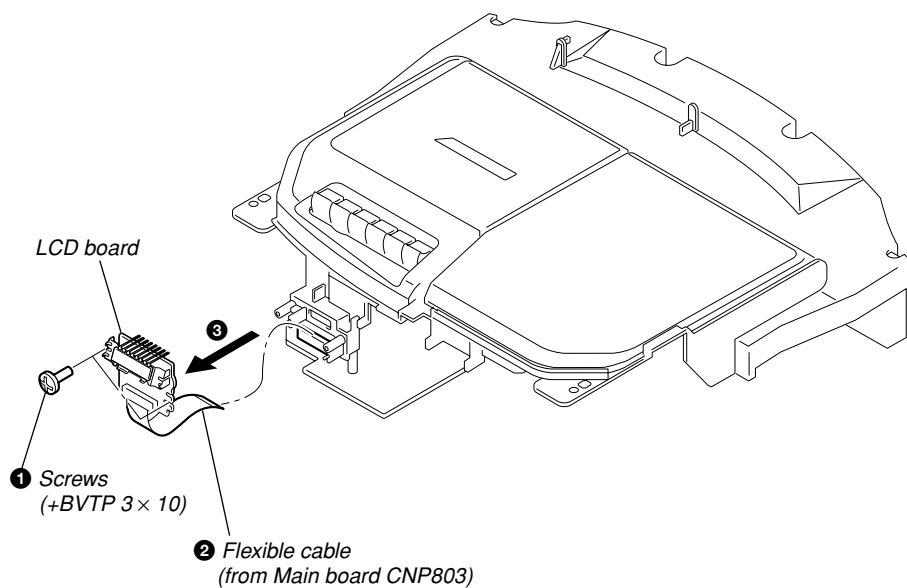
3-3. HEADPHONE BOARD



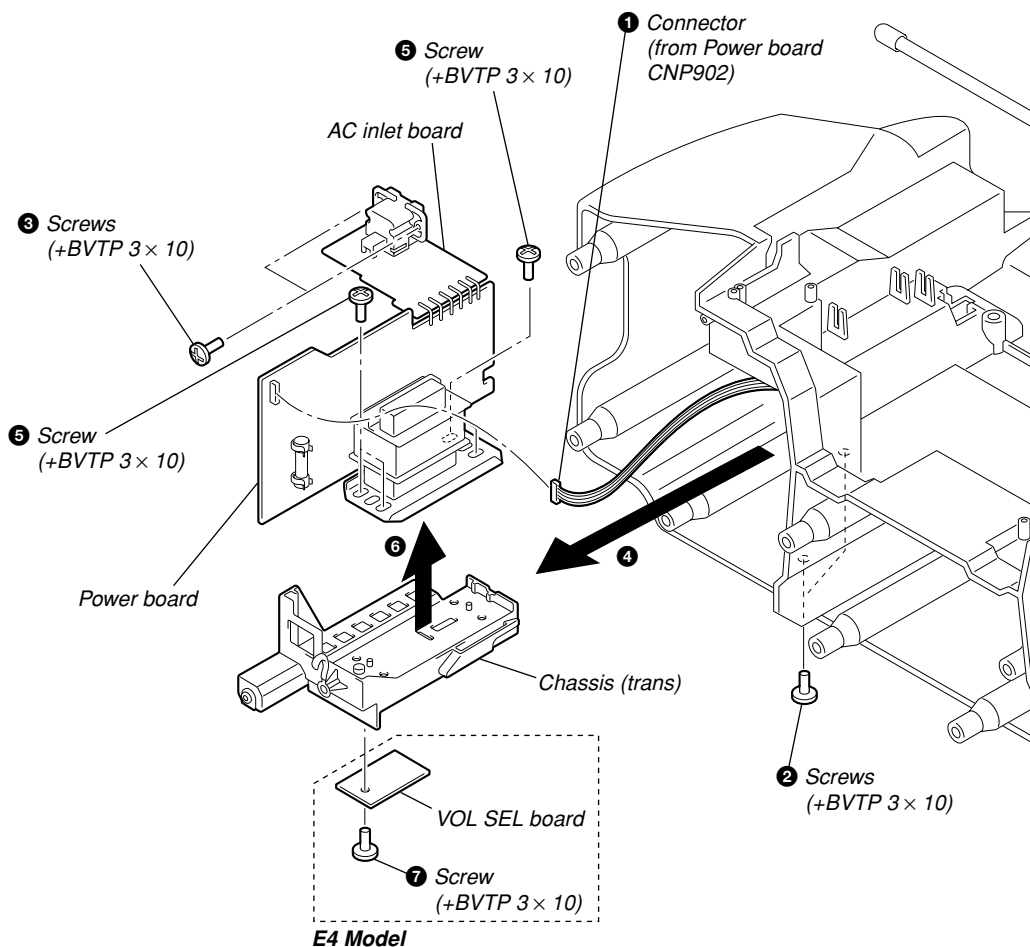
3-4. CABINET TOP ASSY



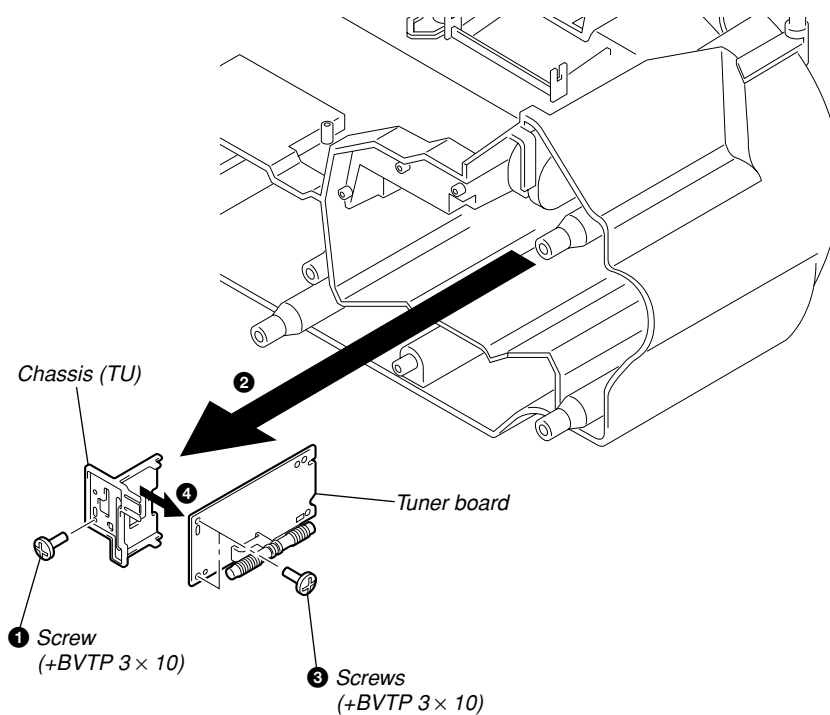
3-5. LCD BOARD



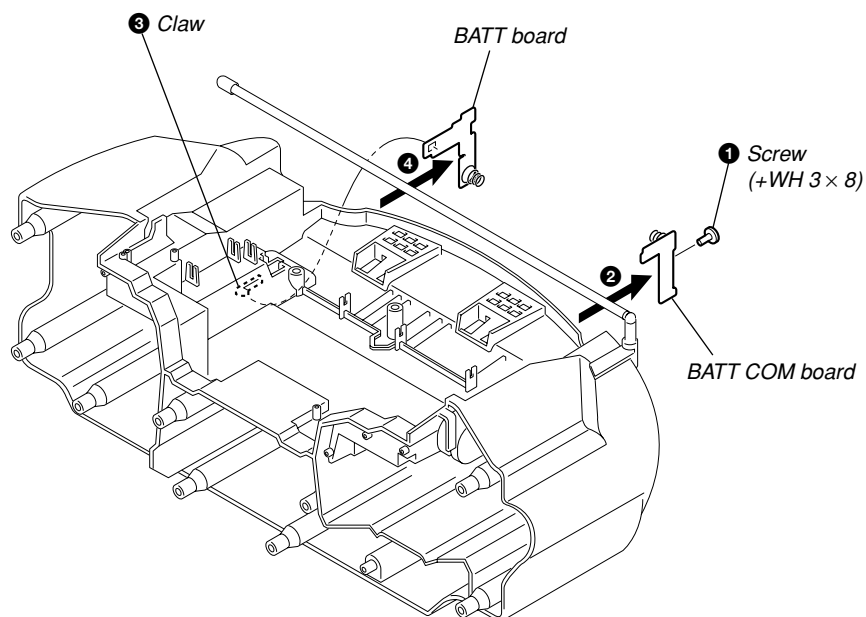
3-6. AC INLET BOARD, POWER BOARD, VOL SEL BOARD (E4 model)



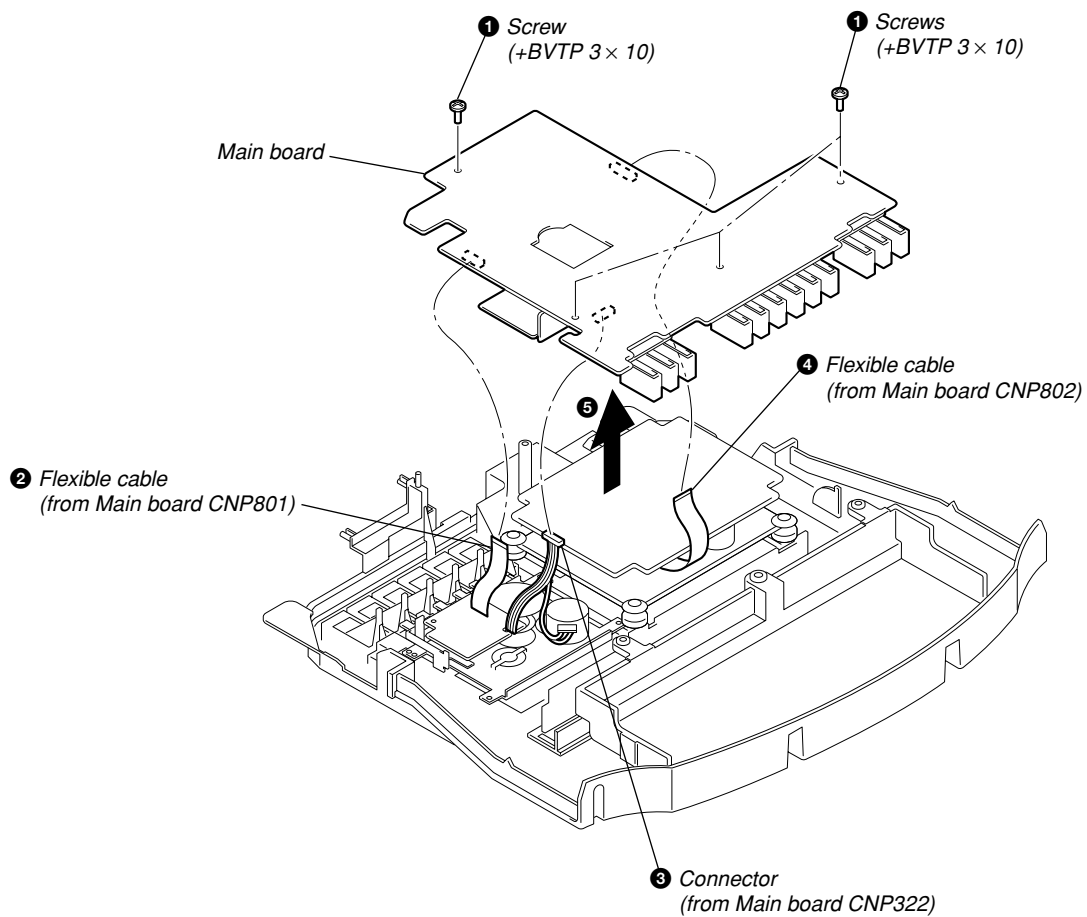
3-7. TUNER BOARD



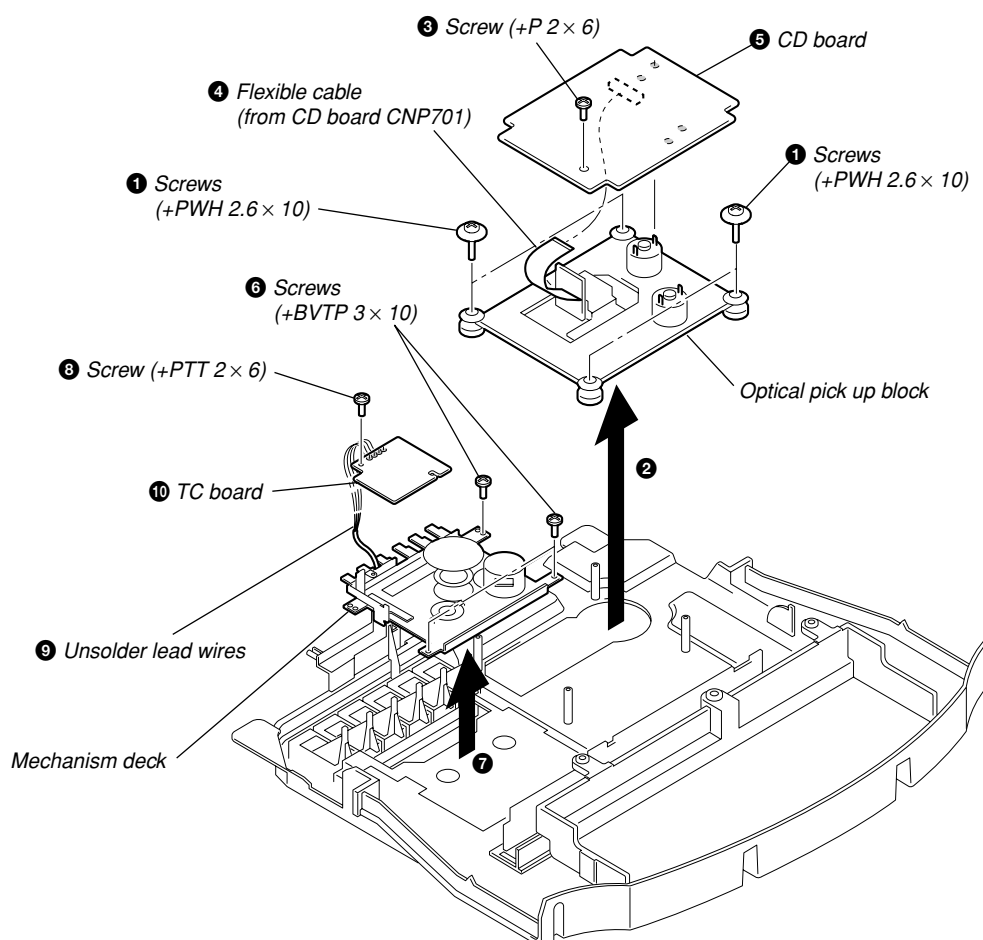
3-8. BATT BOARD, BATT COM BOARD



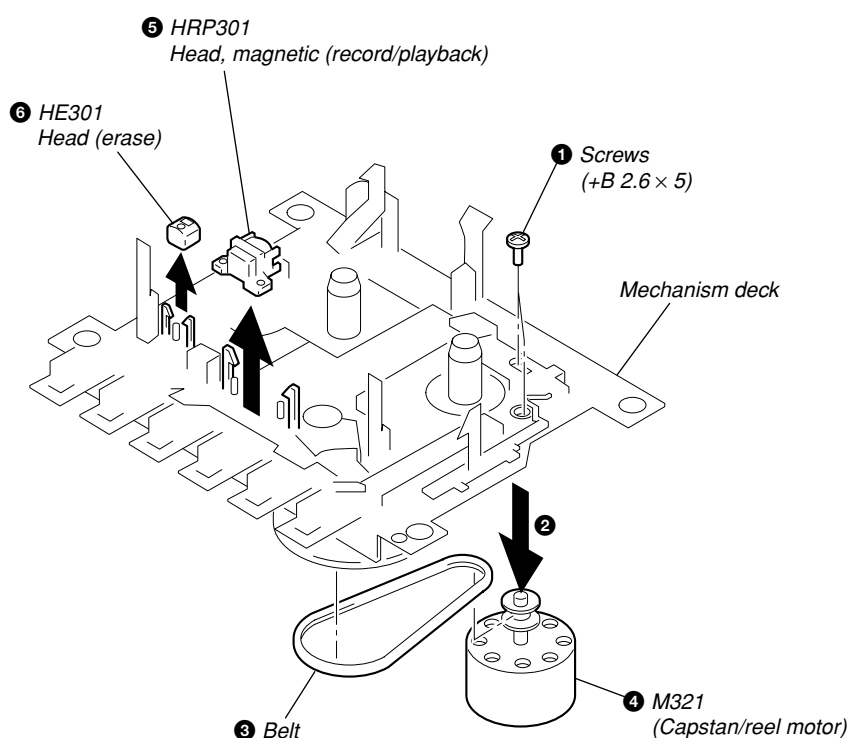
3-9. MAIN BOARD



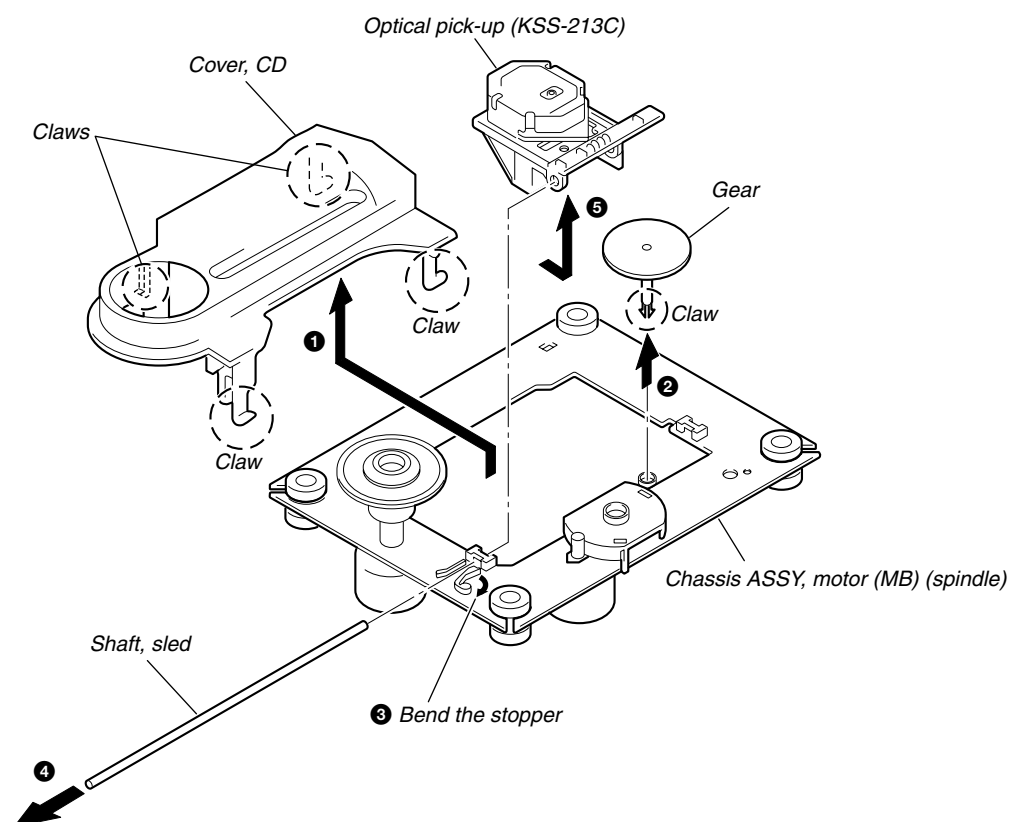
3-10. CD BOARD, TC BOARD, OPTICAL PICK-UP BLOCK, MECHANISM DECK



3-11. M321 (CAPSTAN/REEL MOTOR), BELT, "HRP301 HEAD, MAGNETIC (RECORD/PLAYBACK)" HE301 HEAD (ERASE)



3-12. OPTICAL PIC-UP (KSS-213C)



SECTION 4

ADJUSTMENTS

4-1. MECHANICAL ADJUSTMENTS

PRECAUTION

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

record/playback head	pinch roller
erase head	rubber belts
capstan	
- Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
- Do not use a magnetized screwdriver for the adjustments.
- The adjustments should be performed with the rated power supply voltage (12V) unless otherwise noted.

Torque Measurement

Torque	Torque Meter	Meter Reading
Forward	CQ-102C	1.77 – 5.88 mN•m (18 – 60 g•cm) (0.25 – 0.83 oz•inch)
Forward Back Tension	CQ-102C	0.1 – 0.49 mN•m (1.0 – 5.0 g•cm) (0.014 – 0.069 oz•inch)
Fast Forward	CQ-201B	4.42 – 9.31 mN•m (45 – 95 g•cm) (0.62 – 1.32 oz•inch)
Rewind	CQ-201B	4.42 – 9.31 mN•m (45 – 95 g•cm) (0.62 – 1.32 oz•inch)

Tape Tension Measurement

Torque Meter	Meter Reading
CQ-403A	more than 60g (more than 2.12 oz)

4-2. ELECTRICAL ADJUSTMENTS

TAPE RECORDER SECTION

0dB = 0.775V

Standard Output Level

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

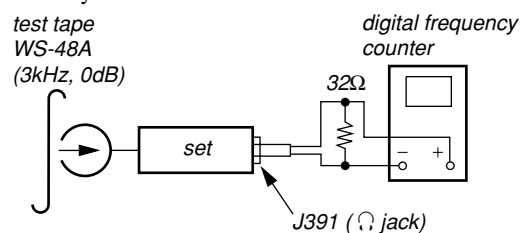
Test Tape

Type	Signal	Used for
WS-48A	3kHz, 0dB	Tape Speed Adjustment

Tape Speed Adjustment

Procedure :

Mode : Playback



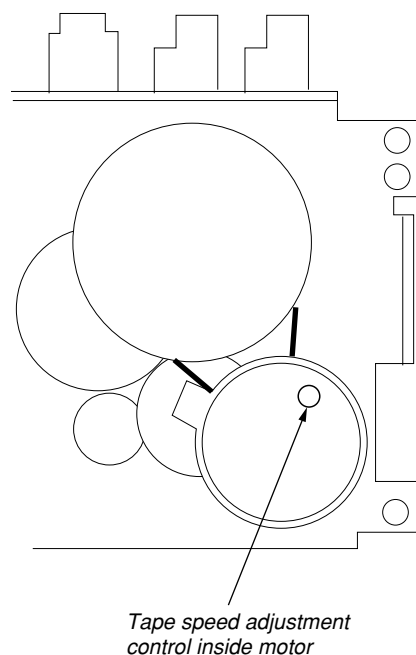
Adjustment so that the value on the digital frequency counter is 3,000 Hz.

Adjustment Value : 3,000Hz

Standard Value : 2,940 - 3,060Hz

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

Adjustment Location : Mechanism deck

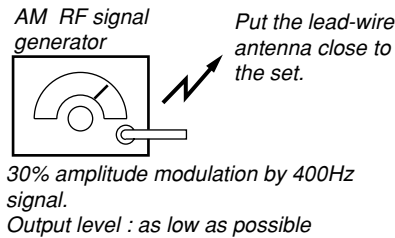


TUNER SECTION

0dB = 1 μV

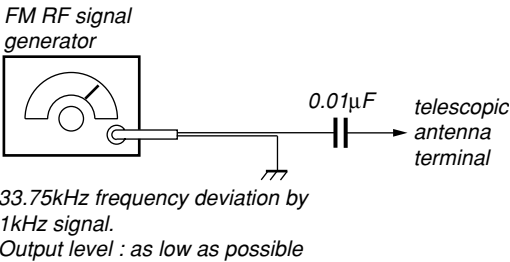
AM Section

Function switch : AM
Volume : MIN

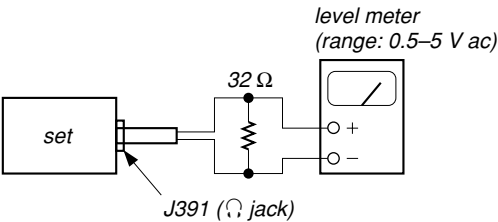


FM Section

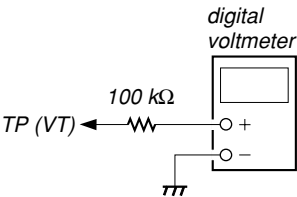
Function switch : FM
Volume : MIN



• 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.

AM IF ADJUSTMENT	
Adjust for a maximum reading on level meter.	
T1	450 kHz

() : E4

AM FREQUENCY COVERAGE CHECK		
Frequency Display	530 kHz (530 kHz)	1,710 kHz (1,610 kHz)
Reading on Digital voltmeter	1.0 ± 0.1 V (1.0 ± 0.1 V)	5.3 ± 0.8V (4.8 ± 0.8V)
Adjustment Part	< L 4 >	<confirmation>

AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L3	CT3
620 kHz	1,400 kHz

FM IF ADJUSTMENT	
Adjust for a maximum reading on level meter.	
T2	10.7 MHz

FM FREQUENCY COVERAGE ADJUSTMENT		
Frequency Display	87.5 MHz	108 MHz
Reading on Digital voltmeter	1.3 ± 0.4 V	3.0 ± 0.3 V
Adjustment Part	<confirmation>	L2

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

- Abbreviation
E4 : 110-120V/220-240V AC changeable.

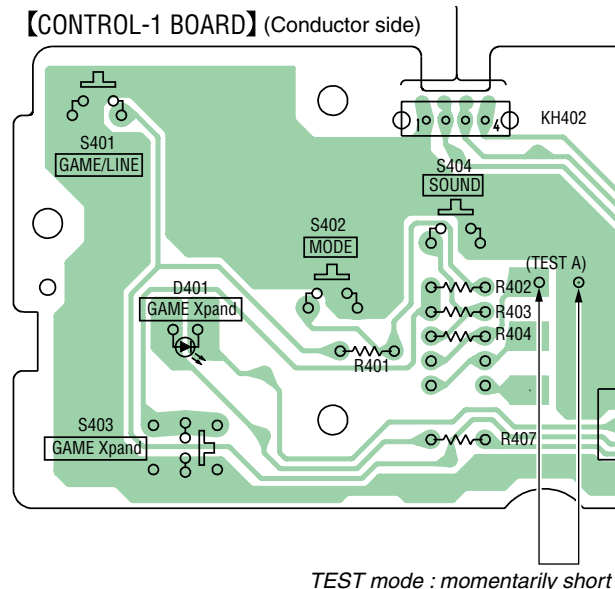
Adjustment Location : Main board (See page 16)

CD SECTION

Perform all CD section check and all adjustments in the test mode.

How to put the set into CD test mode

1. Press the POWER button turn the set ON.
2. Press the FUNCTION button to select CD.
3. Set Tset mode by momentarily shorting both side of TEST A.
4. Press the  button two times. The set is into CD test mode. (BB is displayed)
5. Turn the power off to release test mode.

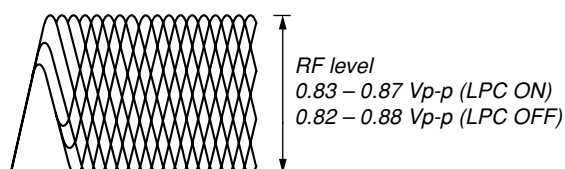


Focus Bias Check

1. Connect the oscilloscope between TP (RF) and GND on CD board.
2. Insert the disc (YEDS-18). (Part No. : 3-702-101-01) (CD)
3. Press the  button two times (LPC ON).
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.
5. Press the  button. (LPC OFF)
6. Perform confirmation in step 4 again.

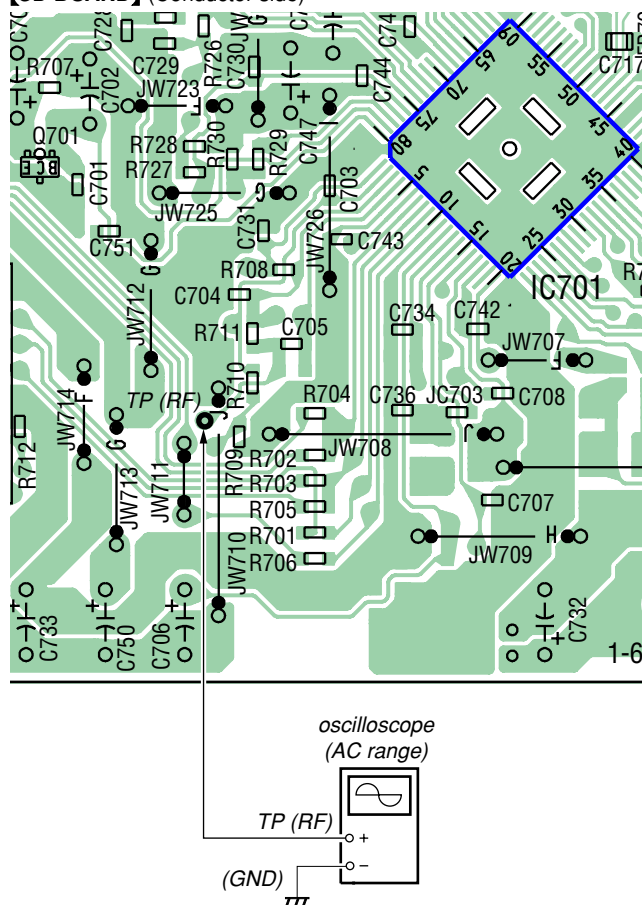
- RF Signal Reference Waveform (eye pattern)

VOLT/DIV : 200mV
TIME/DIV : 500 nS

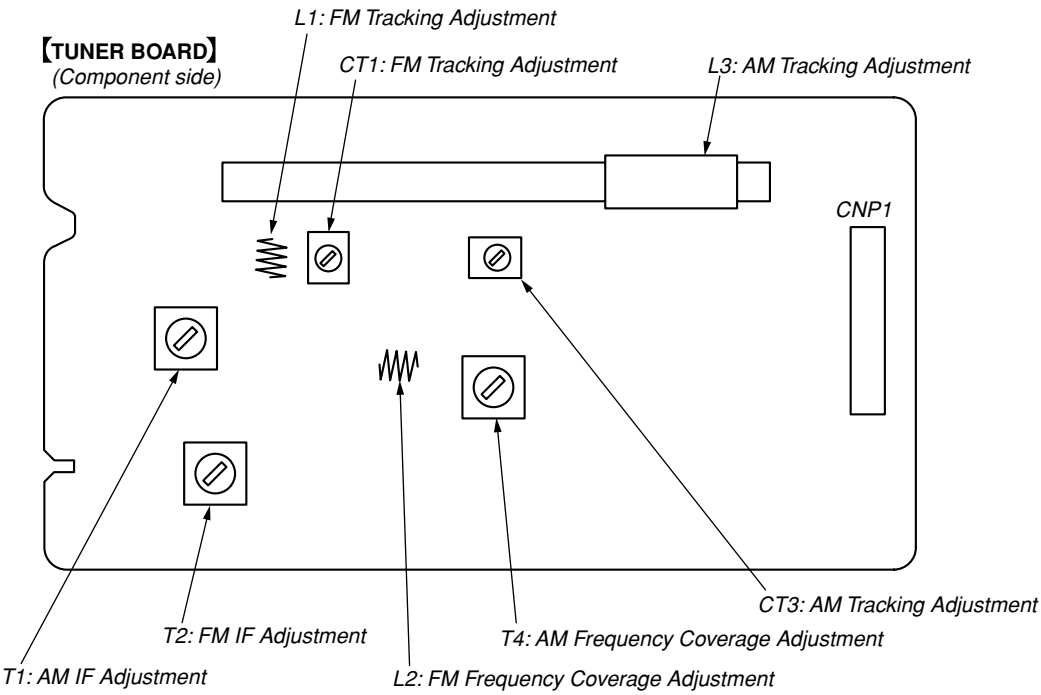


When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

【CD BOARD】 (Conductor side)



Adjustment Location :



SECTION 5 DIAGRAMS

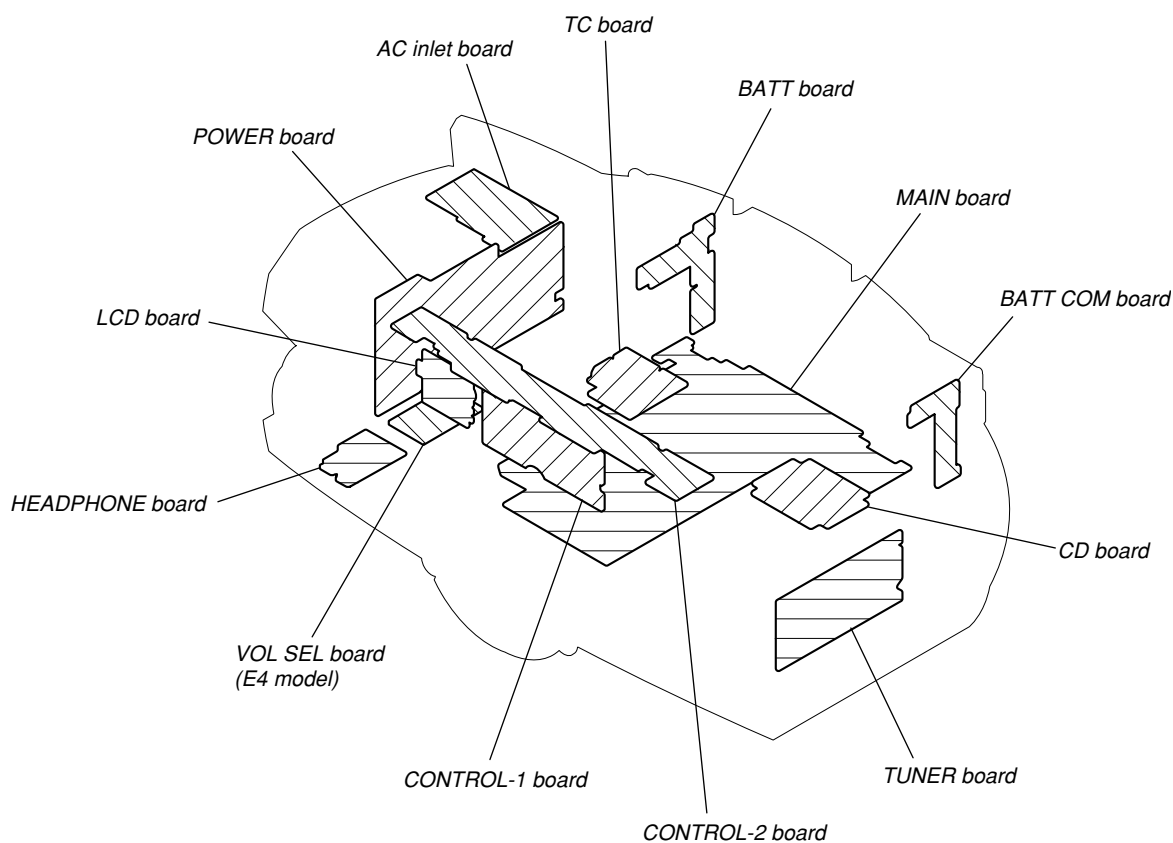
5-1. EXPLANATION OF IC TERMINALS

IC802 CXP83620-031Q SYSTEM CONTROL

Pin No.	Pin name	I/O	Description
1	WRQ	I	CD subcorde Q signal input
2	RMC	I	Remote control signal input
3	R-MUTE	O	Radio mute signal output
4	ADJ	O	DC 1.7 V output for beep signal (Not used)
5	C-FSEQ	I	CD FSEQ signal input
6	C-CE	O	CD chip select signal output
7	C-CL	O	CD clock signal output
8	C-DO	I	CD serial data signal input
9	C-DI	O	CD serial data signal output
10	C-DRF	I	CD DRF signal input
11	C-RES	O	CD reset signal output
12	NC	—	Not used
13	SUR ON/OFF	O	Surround ON/OFF signal output
14	R-COUNT	I	Radio count signal input
15	R-CLOCK	O	Radio control clock signal output
16	R-DATA	O	Radio control data signal output
17	R-CE	O	Radio latch signal output
18	V-LATCH	O	Data latch signal output to LC75342 (VOL IC)
19	V-DATA	O	Data signal output to LC75342 (VOL IC)
20	V-CLOCK	O	Clock signal output to LC75342 (VOL IC)
21	P-CON	O	Power control signal output
22	REG CHK	I	Regulator voltage check signal input
23	REC	I	Tape recording function signal input
24	SDA	I/O	EEPROM serial data in/out
25 – 27	KEY-1 – 3	I	Key input terminal of A/D port
28	LIGHT CONT	O	Woofer monitor LED ON/OFF signal output
29	MODE CHECK	I	Reading specification and MEGA BASS signal input terminal (A/D port)
30	$\overline{\text{RST}}$	I	System reset signal input
31	EXTAL	I	Crystal oscillator terminal (4.0MHz)
32	XTAL	O	Crystal oscillator terminal (4.0MHz)
33	VSS	—	Ground terminal
34	VL	O	LCD bias control signal output
35	VLC3	—	LCD bias voltage terminal
36	VLC2	—	LCD bias voltage terminal
37	VLC1	—	LCD bias voltage terminal
38 – 41	COM0 – 3	O	LCD common signal output
42 – 59	SEG0 – 17	O	LCD segment signal output
60, 61	NC	—	Not used
62	INIT	O	Initial signal output
63, 64	WOOFER2, 1	O	Woofer function signal output
65	VM	O	Battery check signal output
66	VH	O	TAPE deck motor control signal output
67, 68	ISS1, 2	O	ISS select signal output
69	TAPE	O	TAPE function signal output
70	RADIO	O	Radio function signal output

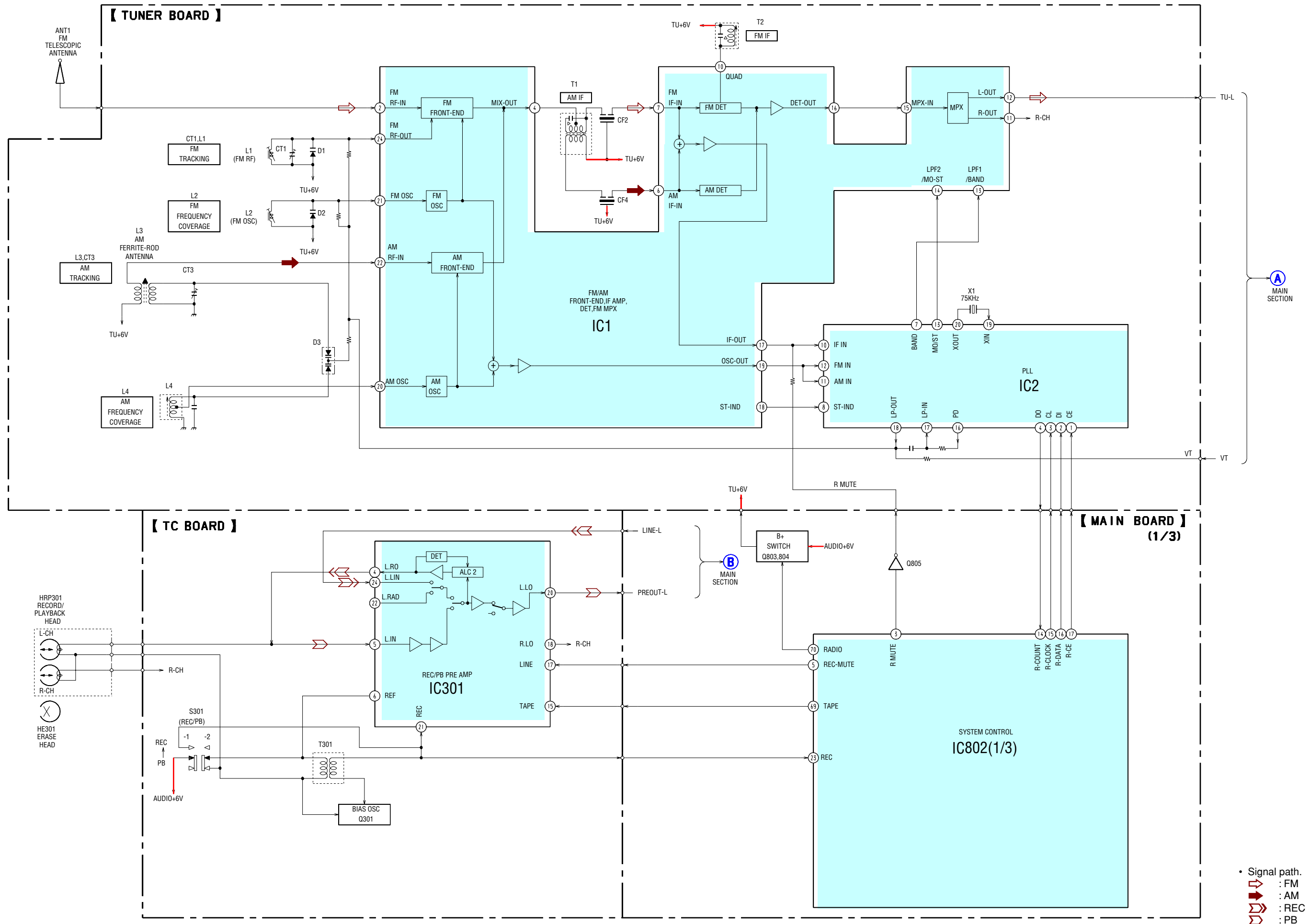
Pin No.	Pin name	I/O	Description
71	CD	O	CD function signal output
72	VDD	—	Power supply terminal
73	TX	O	Crystal oscillator terminal (153kHz)
74	TEX	I	Crystal oscillator terminal (153kHz)
75	NC	—	Not used (Open)
76	A-MUTE	O	Audio mute signal output
77	SCL	O	EEPROM clock signal output
78	EC	I	Connect to ADJ (pin 4)
79	TC-PLAY	I	Tape play switch (S321) input
80	CD DOOR	I	Door open/close switch (S801) input

• Circuit Boards Location

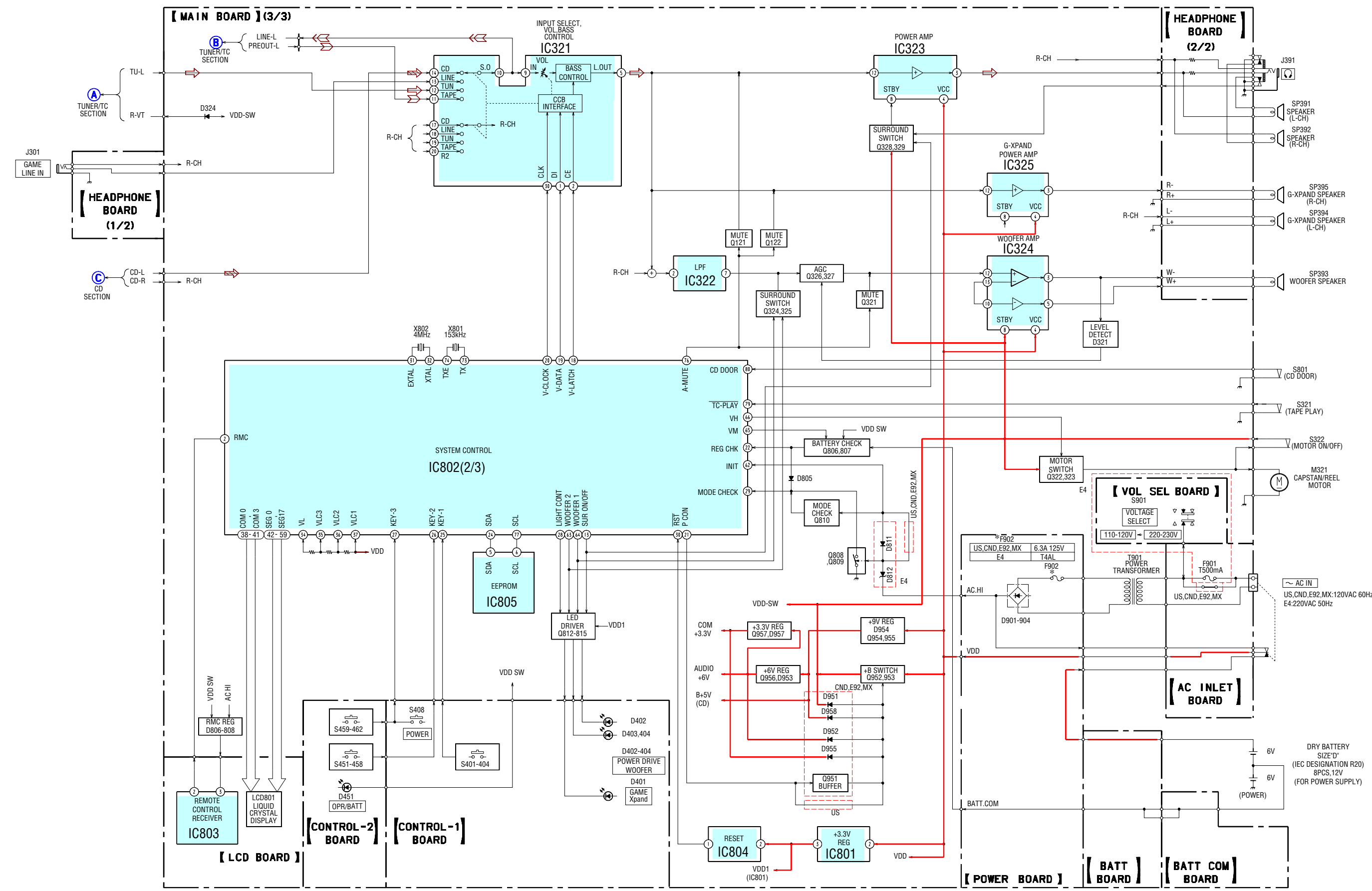


- Abbreviation
E4 : 110-120V/220-240V AC changeable.

5-2. BLOCK DIAGRAM – TUNER/TC SECTION –

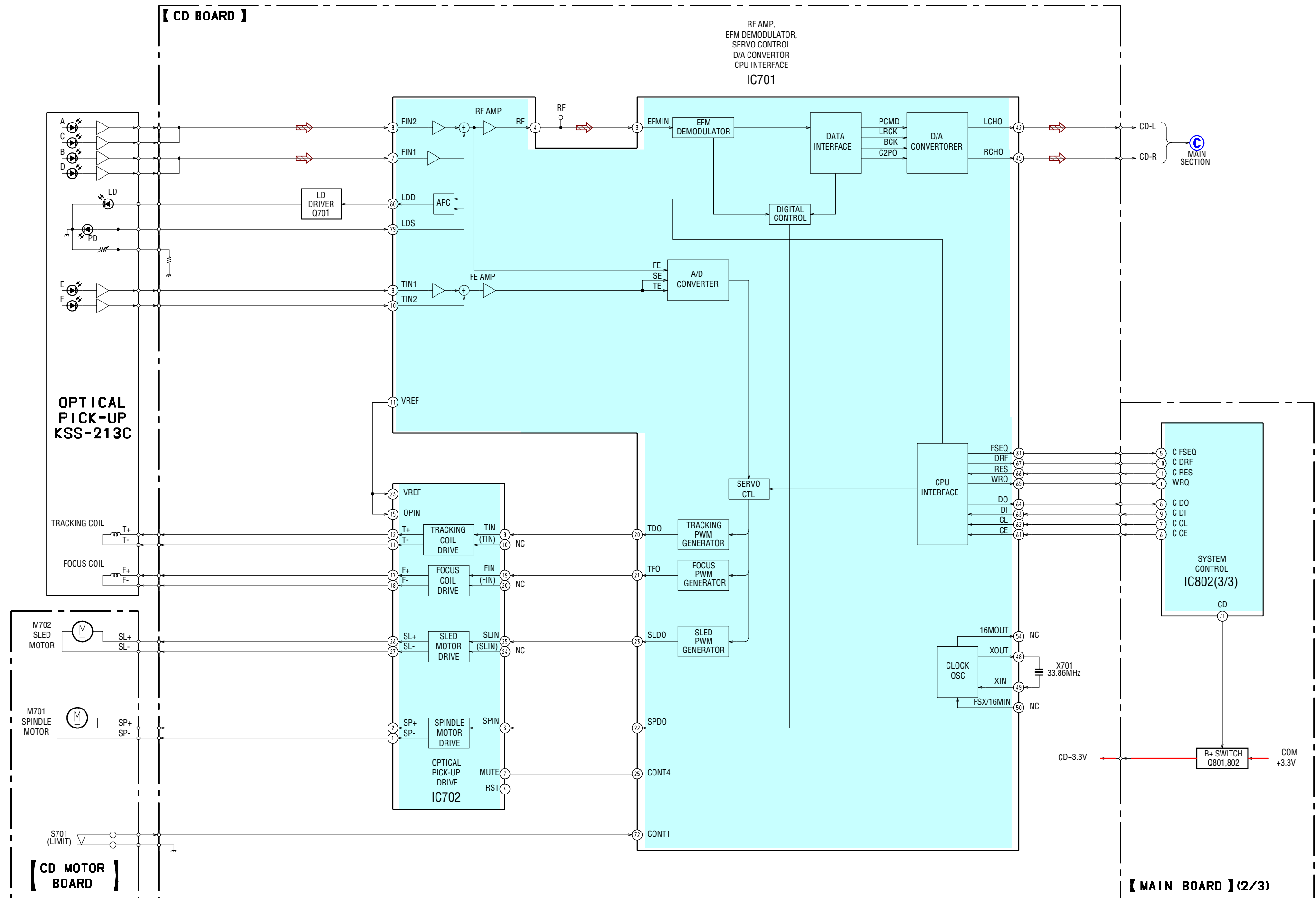


5-3. BLOCK DIAGRAM – MAIN SECTION –



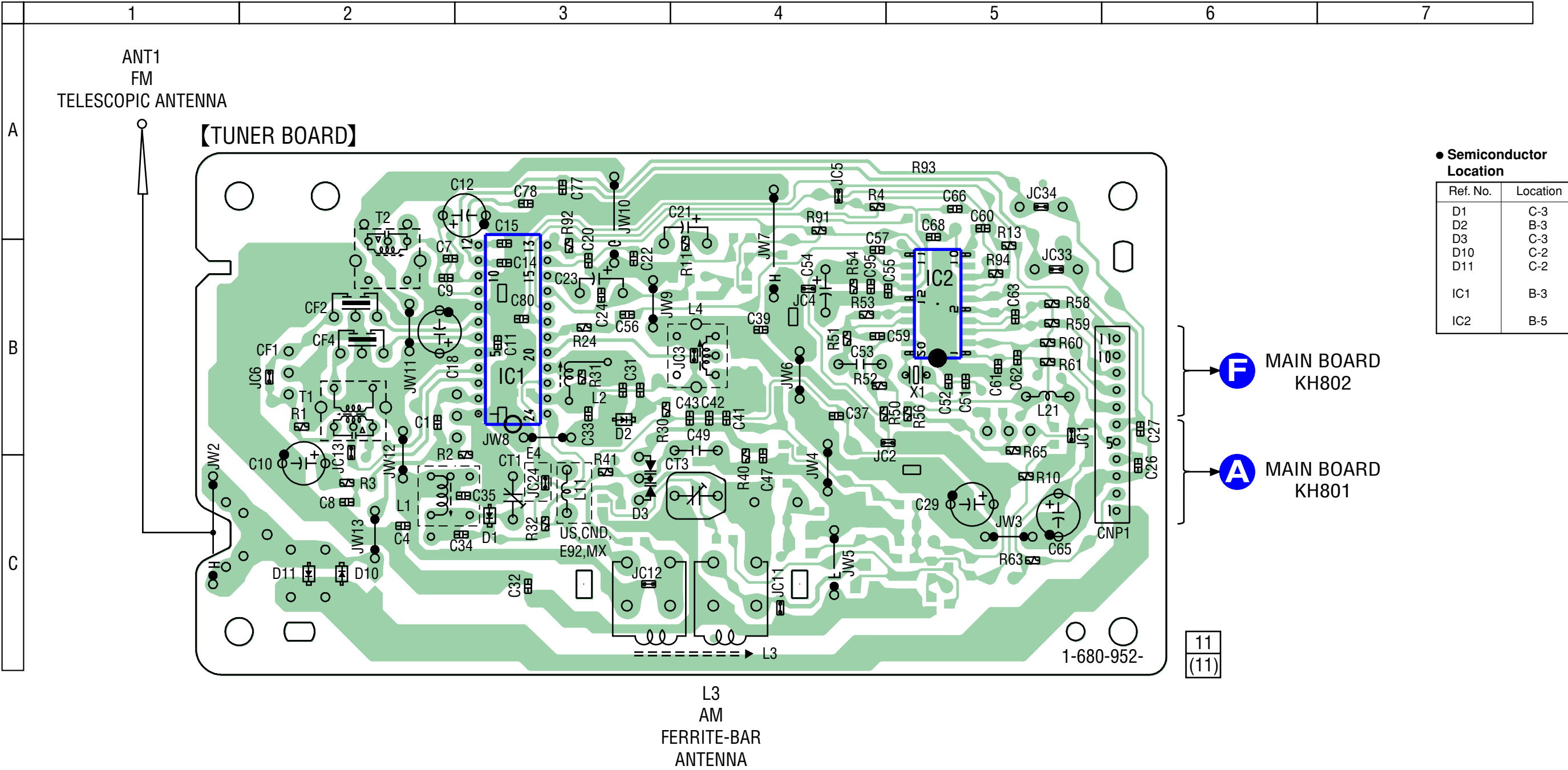
- Signal path.
 - FM
 - REC
 - PB
 - CD
- Abbreviation
 - CND : Canadian
 - MX : Mexican
 - E92 : Central and South America
 - E4 : 110-120V/220-240V AC changeable

5-4. BLOCK DIAGRAM – CD SECTION –



Signal path.
 : CD

5-5. PRINTED WIRING BOARD –TUNER SECTION – • Refer to page 18 for Circuit Boards Location.



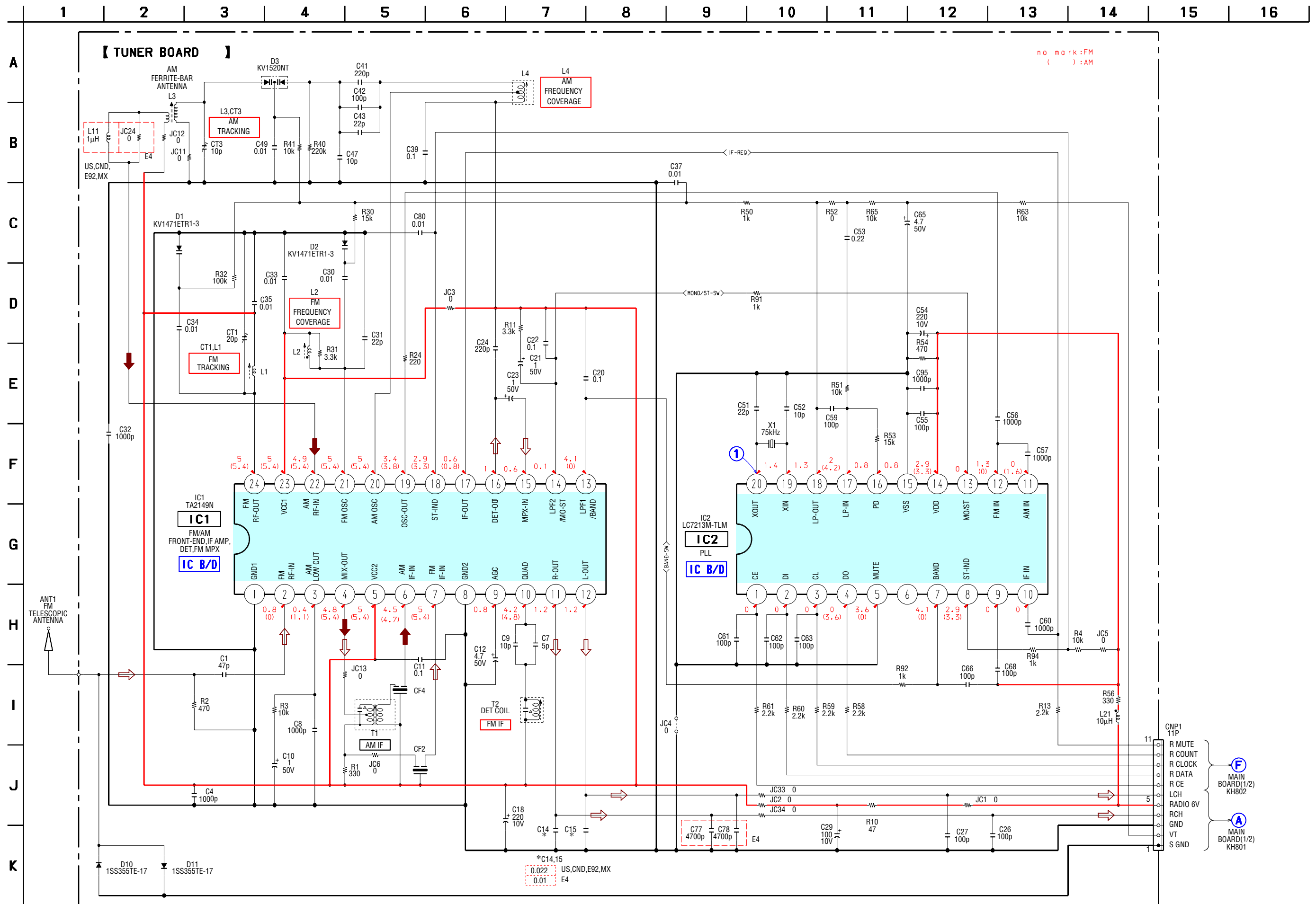
● Semiconductor Location

Ref. No.	Location
D1	C-3
D2	B-3
D3	C-3
D10	C-2
D11	C-2
IC1	B-3
IC2	B-5

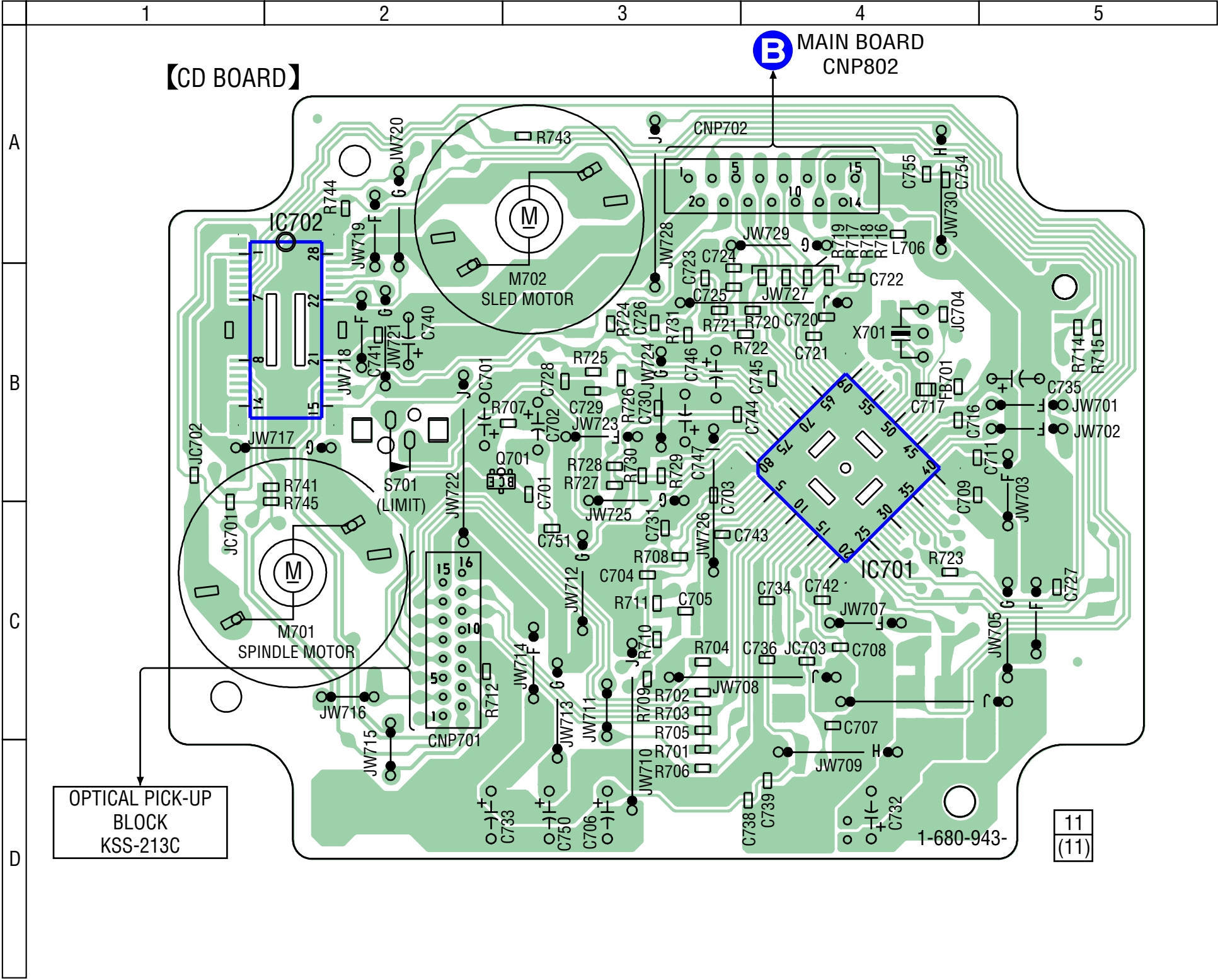
Note on Printed Wiring Boards:

- : parts extracted from the component side.
- △ : internal component.
- : Pattern from the side which enables seeing.
- Abbreviation
 - CND : Canadian
 - MX : Mexican
 - E4 : 110-120V/220-240V AC changeable
 - E92 : Central and South America

5-6. SCHEMATIC DIAGRAM – TUNER SECTION – • Refer to page 34 for IC Block Diagrams. • Refer to page 36 for notes. • Refer to page 37 for Waveforms.



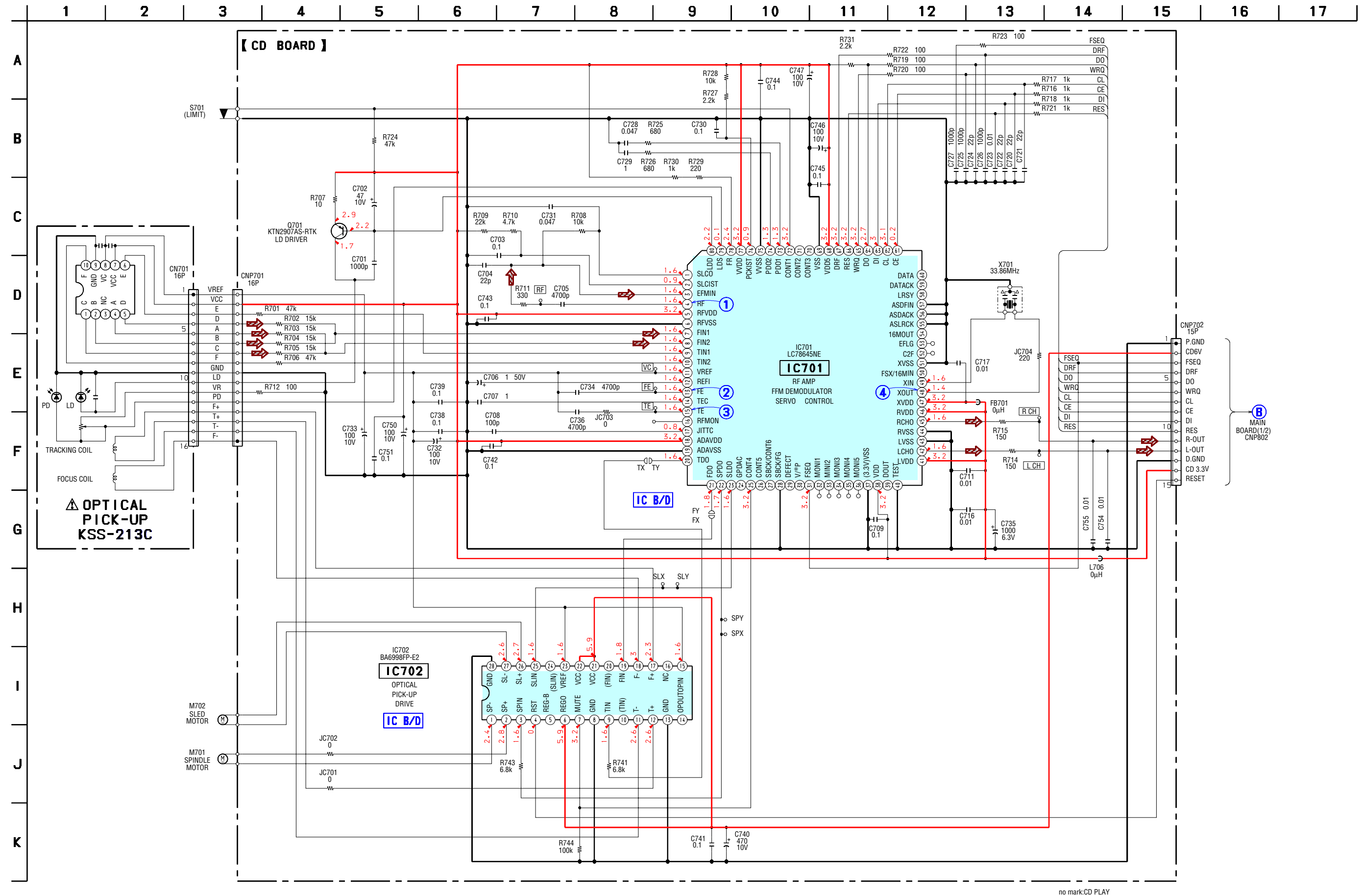
5-7. PRINTED WIRING BOARD – CD SECTION – • Refer to page 18 for Circuit Boards Location.



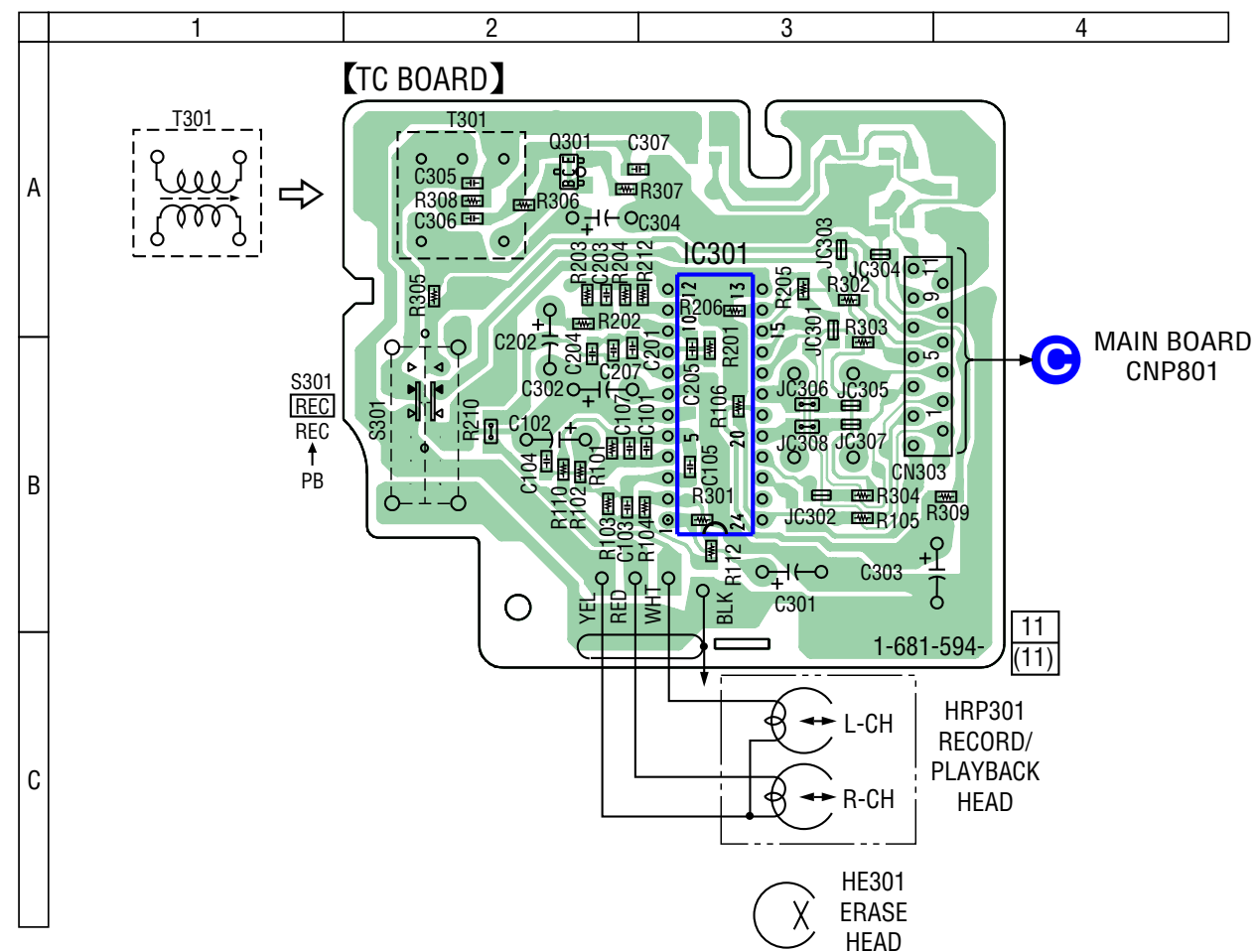
Note on Printed Wiring Boards:

- : parts extracted from the component side.
- : Pattern from the side which enables seeing.

5-8. SCHEMATIC DIAGRAM – CD SECTION – • Refer to page 34, 35 for IC Block Diagrams. • Refer to page 36 for notes. • Refer to page 37 for Waveforms.



5-9. PRINTED WIRING BOARD – TC SECTION – • Refer to page 18 for Circuit Boards Location.

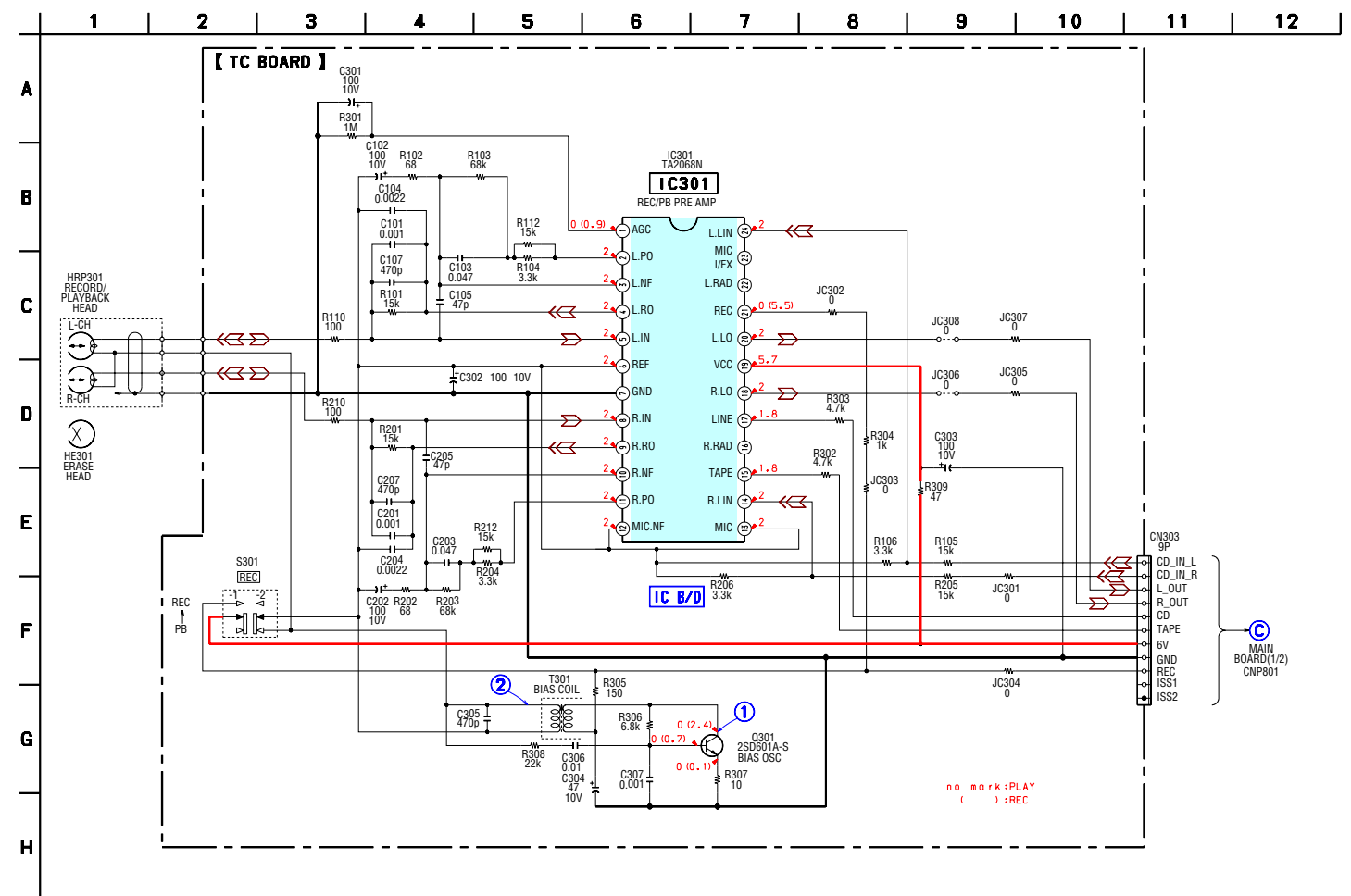


Note on Printed Wiring Boards:

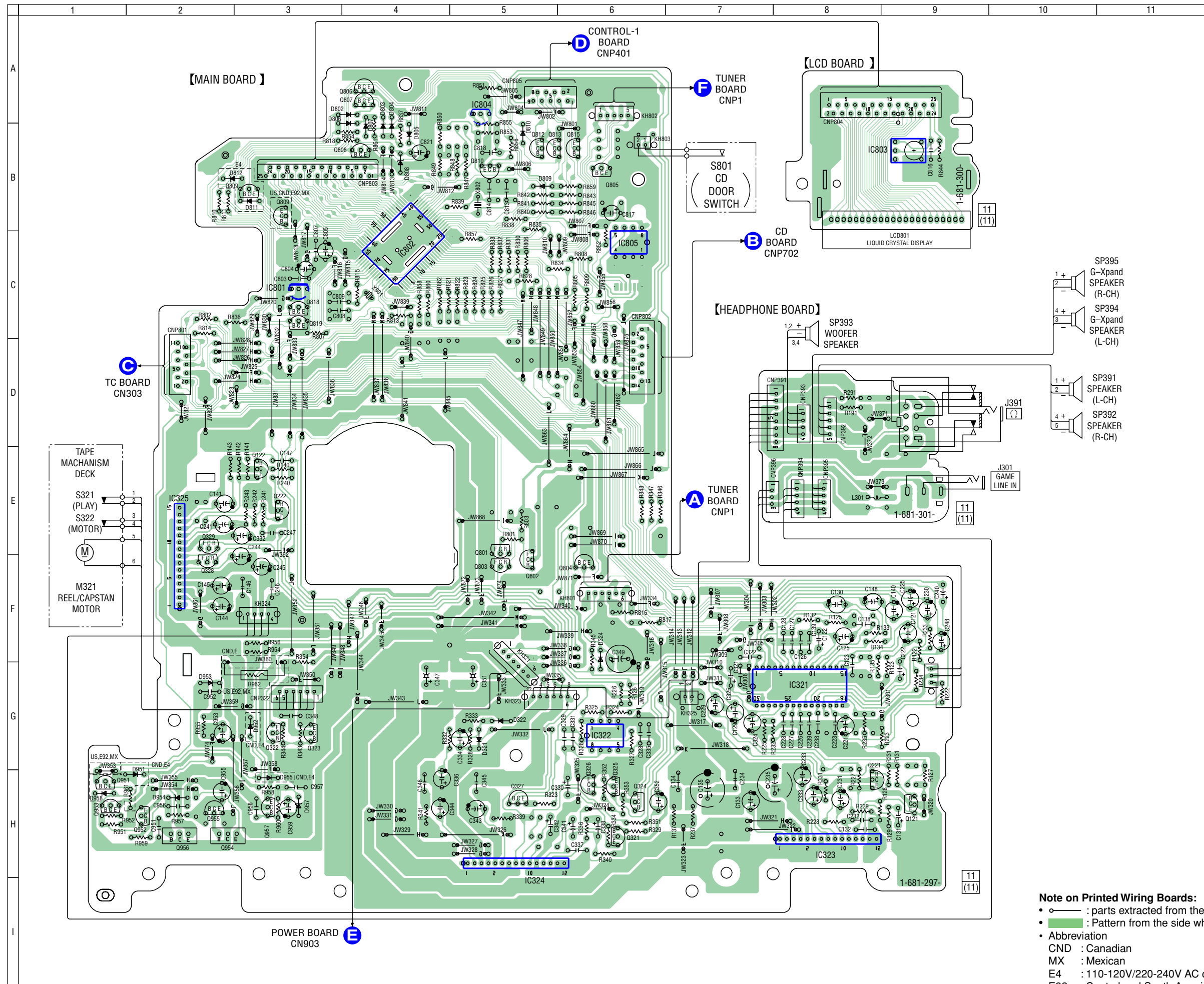
- — : parts extracted from the component side.
- : Pattern from the side which enables seeing.

5-10. SCHEMATIC DIAGRAM – TC SECTION –

- Refer to page 35 for IC Block Diagrams.
- Refer to page 36 for notes.
- Refer to page 37 for Waveforms.



5-11. PRINTED WIRING BOARD – MAIN SECTION – • Refer to page 18 for Circuit Boards Location.



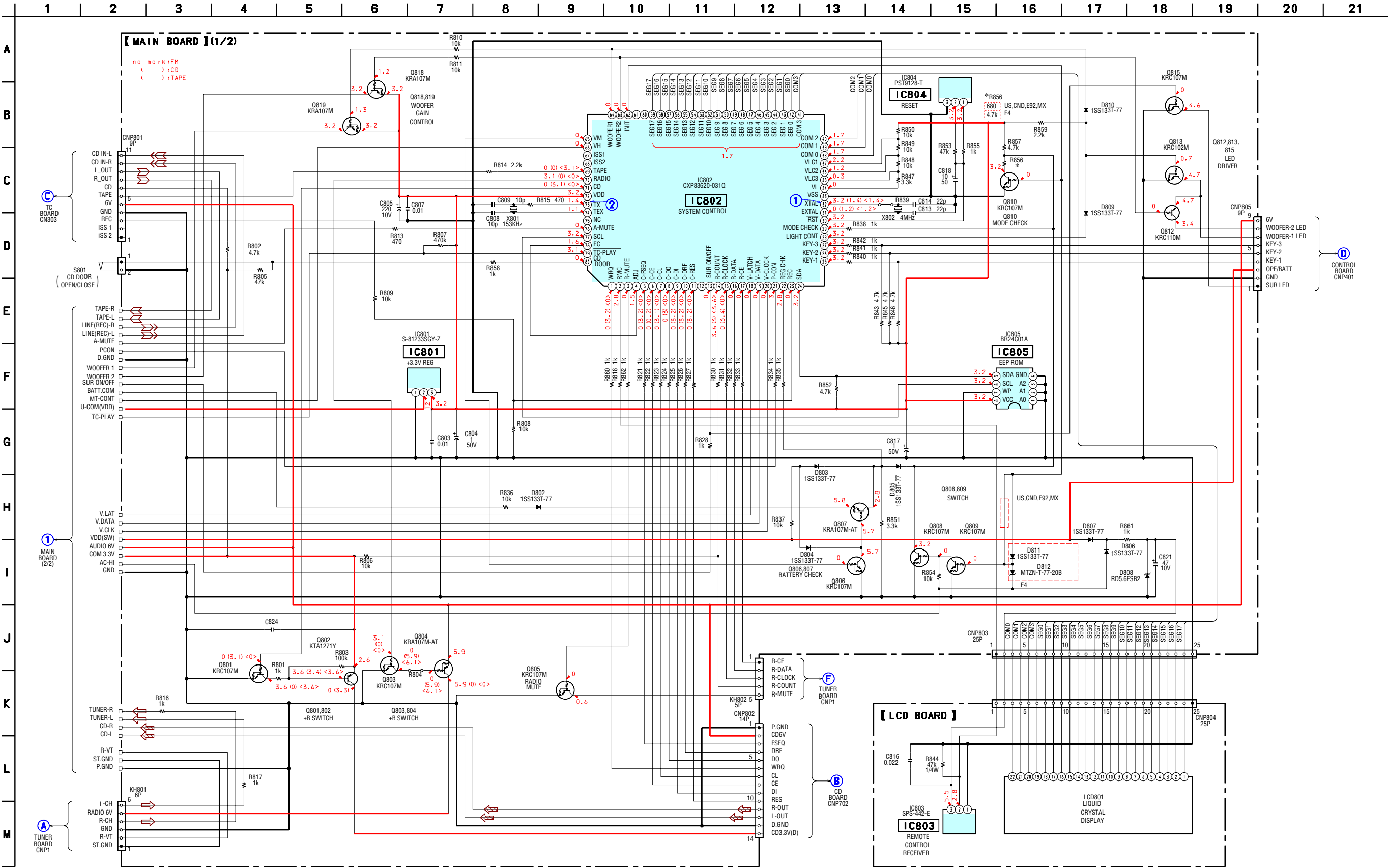
- **Semiconductor Location**

Ref. No.	Location
D321	G-5
D322	G-5
D324	F-6
D802	A-4
D803	B-4
D804	B-4
D805	B-4
D806	B-4
D807	B-4
D808	B-4
D809	B-5
D810	B-5
D811	B-3
D812	B-2
D951	H-2
D952	G-3
D953	G-2
D954	H-2
D955	H-3
D957	H-3
D958	H-1
IC321	G-8
IC322	G-6
IC323	H-8
IC324	H-5
IC325	E-2
IC801	C-3
IC802	C-4
IC803	B-9
IC804	A-5
IC805	C-6
Q121	H-9
Q122	E-3
Q221	H-8
Q222	E-3
Q321	H-6
Q322	G-3
Q323	G-3
Q324	H-6
Q325	H-6
Q326	H-6
Q327	H-5
Q328	F-2
Q329	E-2
Q801	E-5
Q802	F-5
Q803	F-5
Q804	F-6
Q805	B-6
Q806	A-4
Q807	A-4
Q808	B-4
Q809	B-3
Q810	B-5
Q812	B-5
Q813	B-5
Q815	B-6
Q818	C-3
Q819	C-3
Q951	H-1
Q952	H-2
Q953	H-1
Q954	H-2
Q955	H-2
Q956	H-2
Q957	H-3

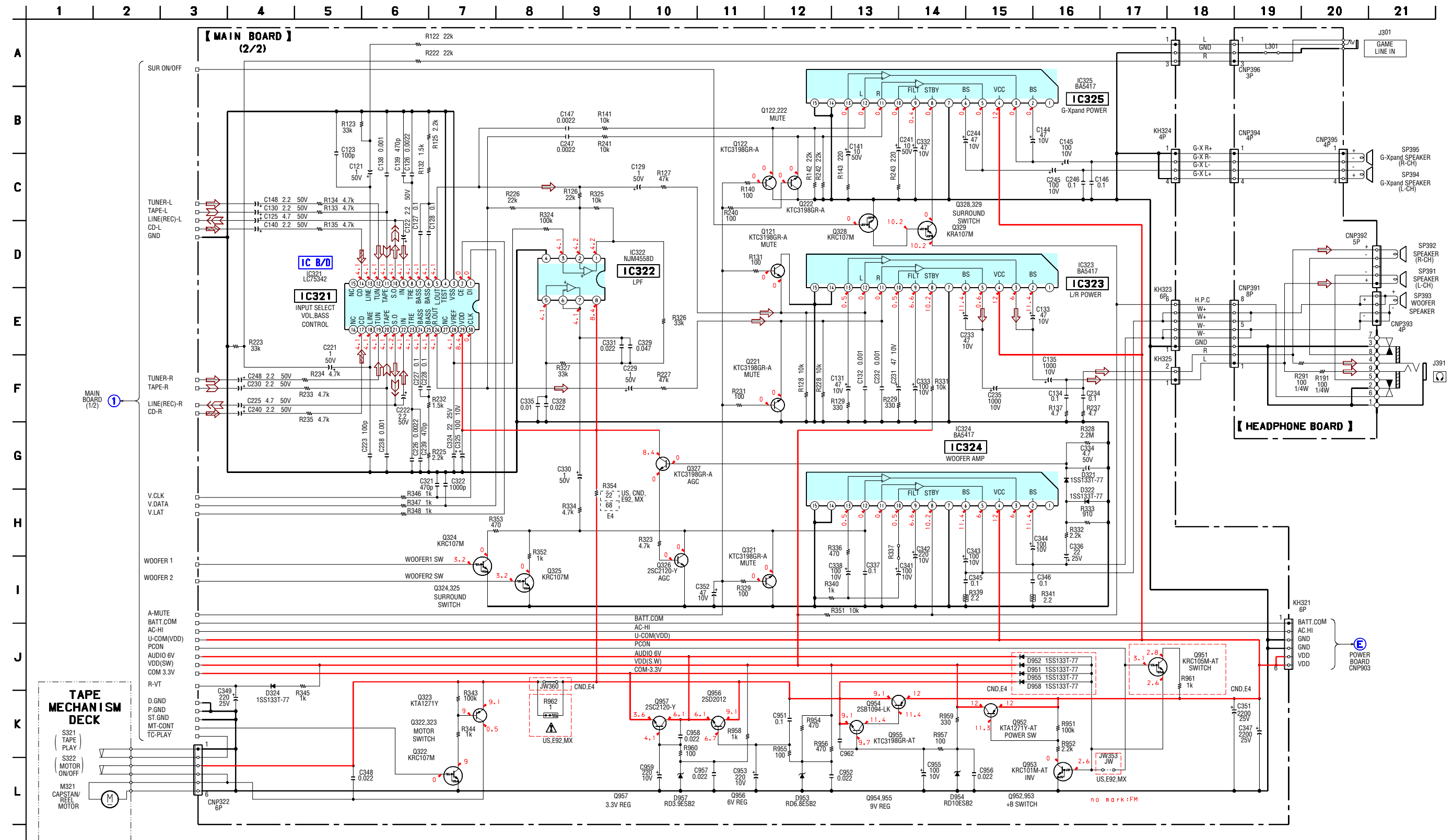
Note on Printed Wiring Boards:

- — : parts extracted from the component side.
- : Pattern from the side which enables seeing.
- Abbreviation
 - CND : Canadian
 - MX : Mexican
 - E4 : 110-120V/220-240V AC changeable
 - E92 : Central and South America

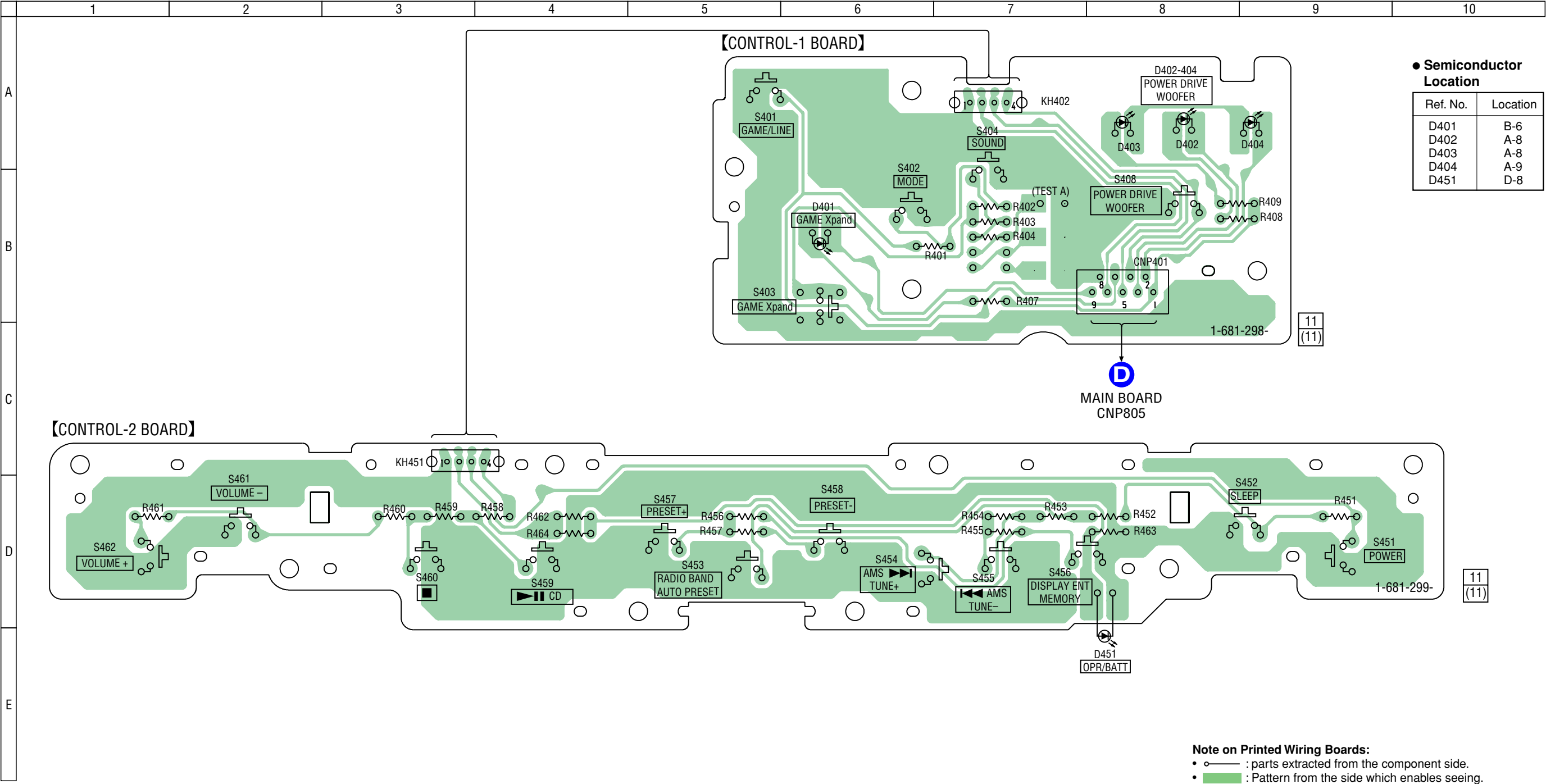
5-12. SCHEMATIC DIAGRAM – MAIN SECTION (1/2) – • Refer to page 36 for notes. • Refer to page 37 for Waveforms.



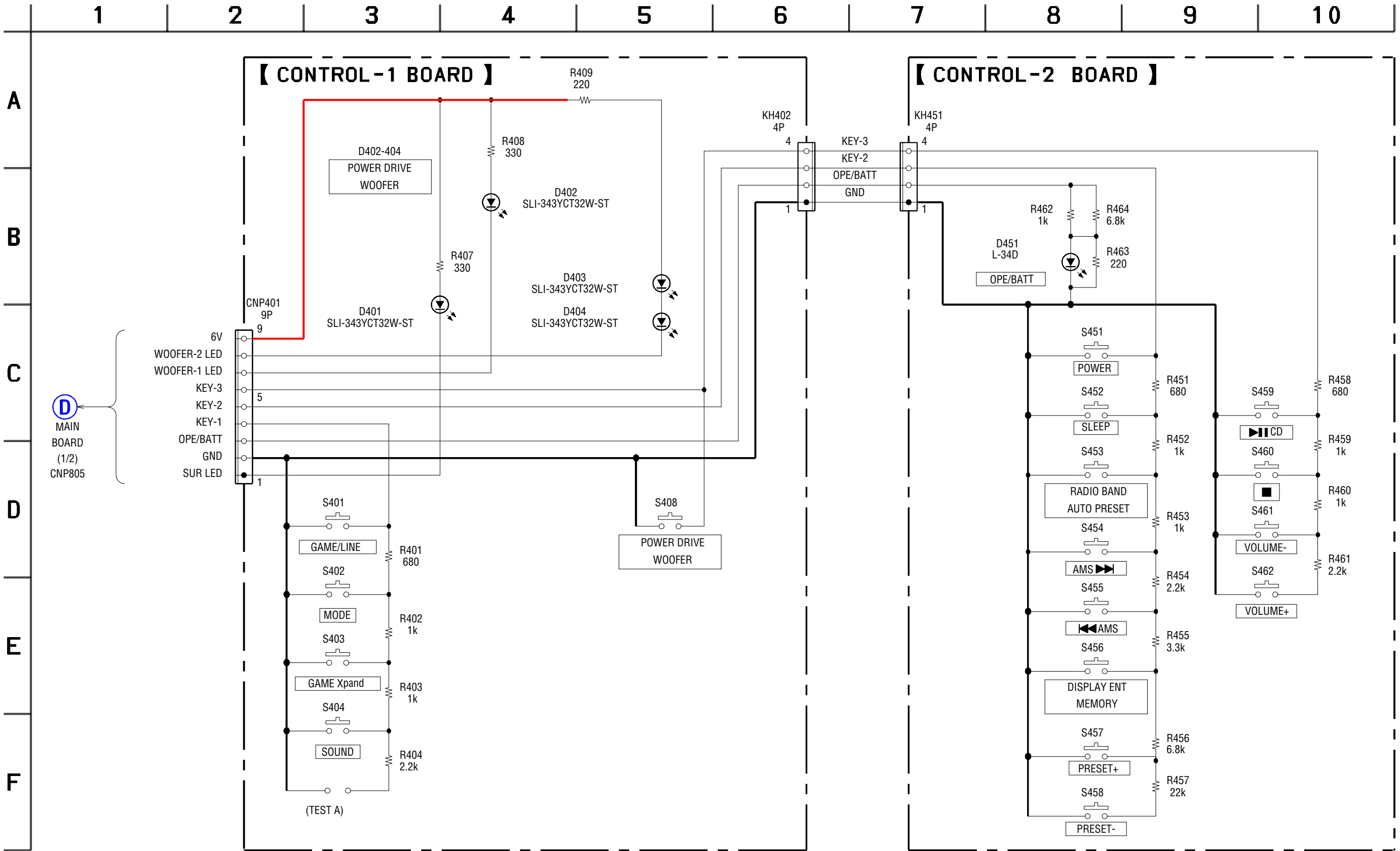
5-13. SCHEMATIC DIAGRAM – MAIN SECTION (2/2) – • Refer to page 36 for IC Block Diagrams. • Refer to page 36 for notes.



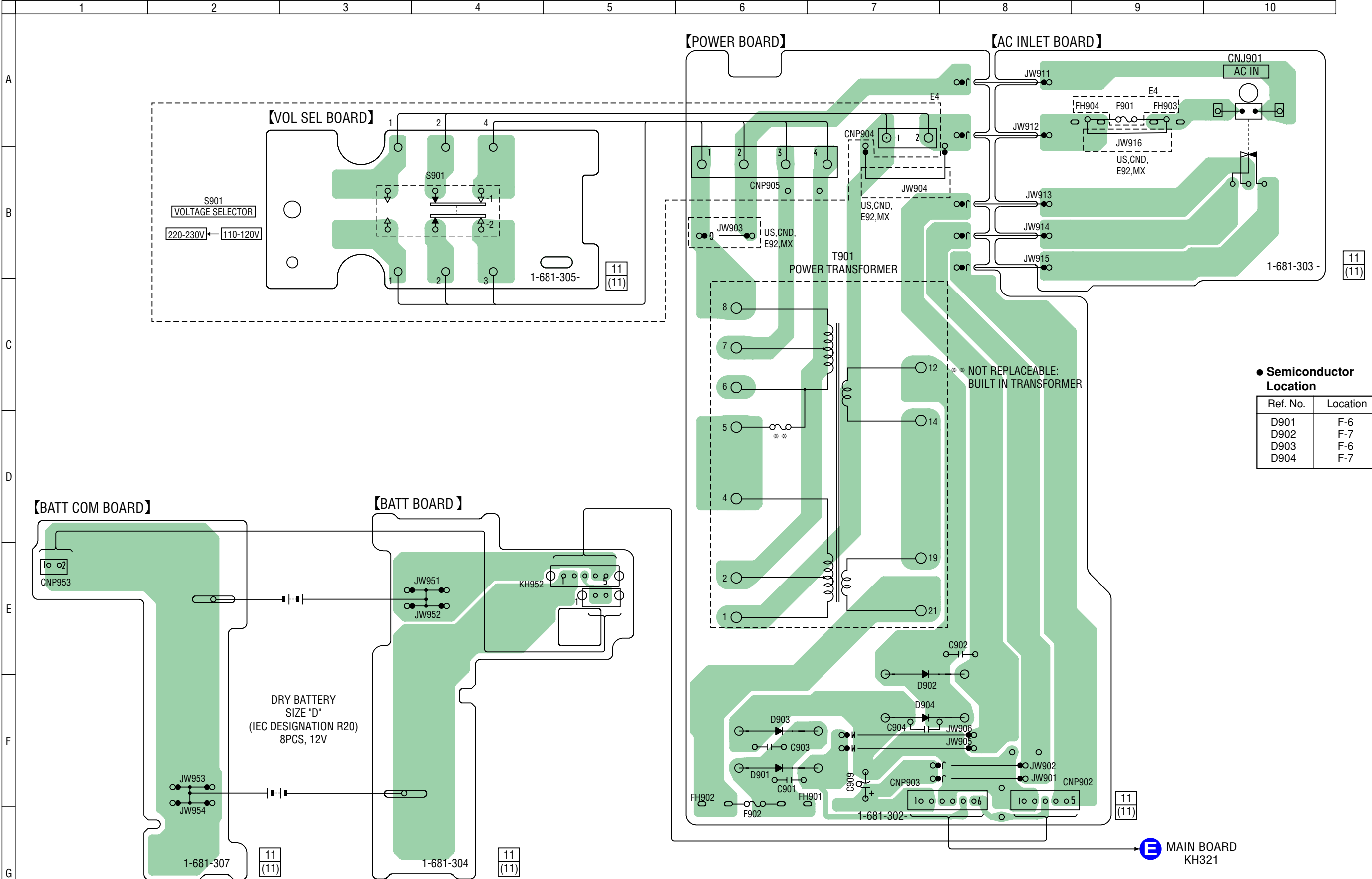
5-14. PRINTED WIRING BOARD – CONTROL SECTION – • Refer to page 18 for Circuit Boards Location.



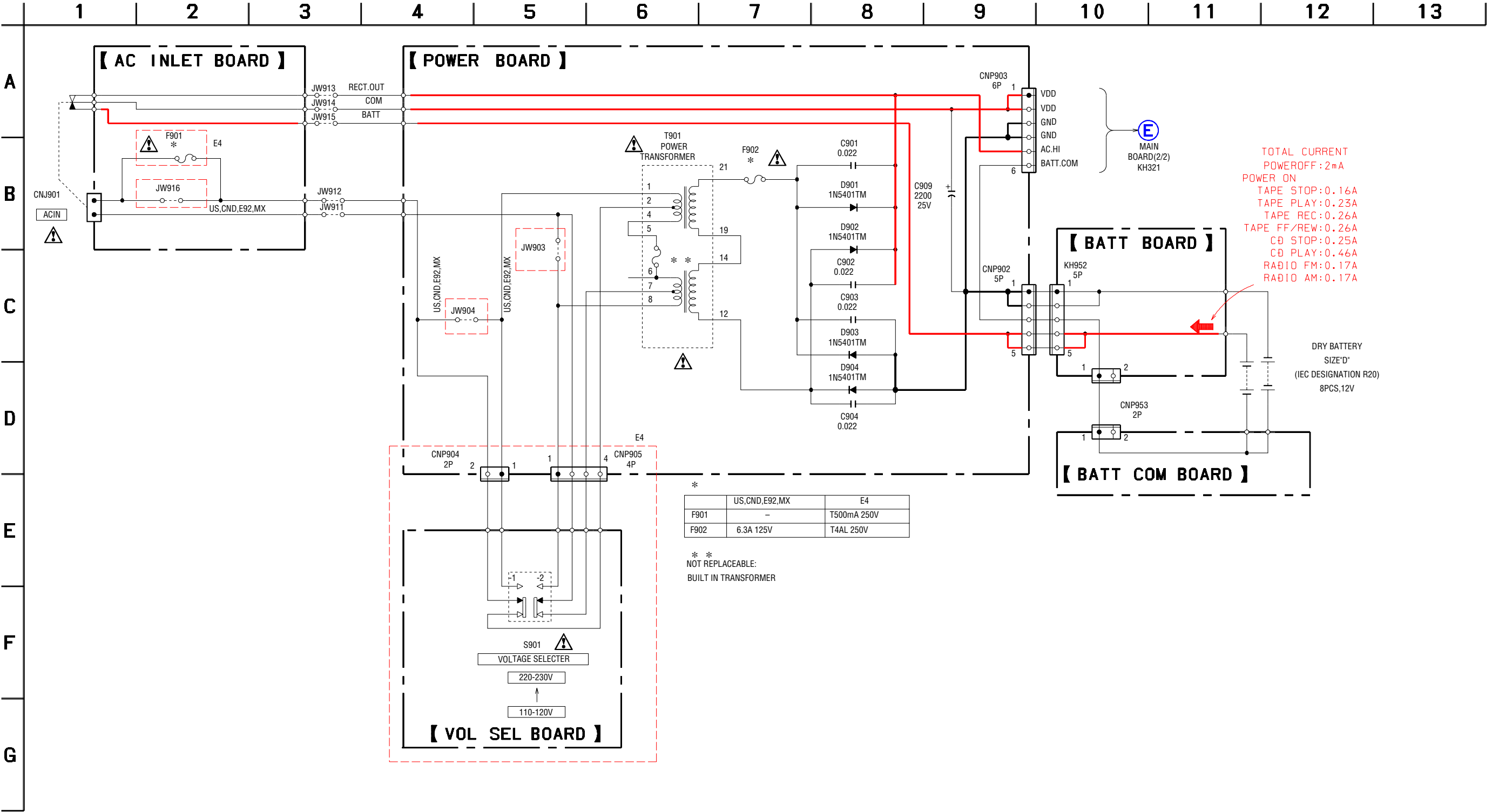
5-15. SCHEMATIC DIAGRAM – CONTROL SECTION – • Refer to page 36 for notes.



5-16. PRINTED WIRING BOARD – POWER SUPPLY SECTION – • Refer to page 18 for Circuit Boards Location.

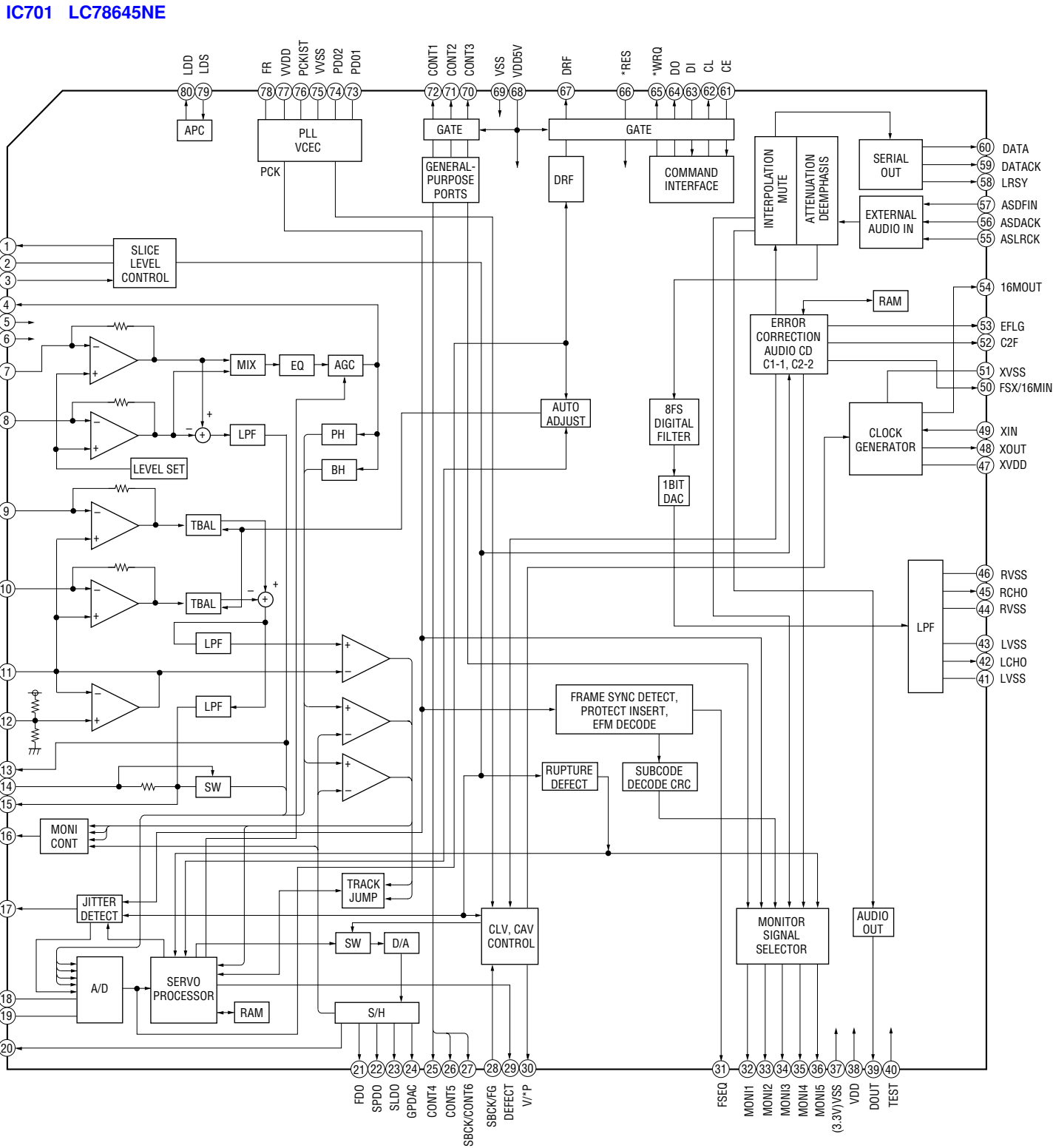
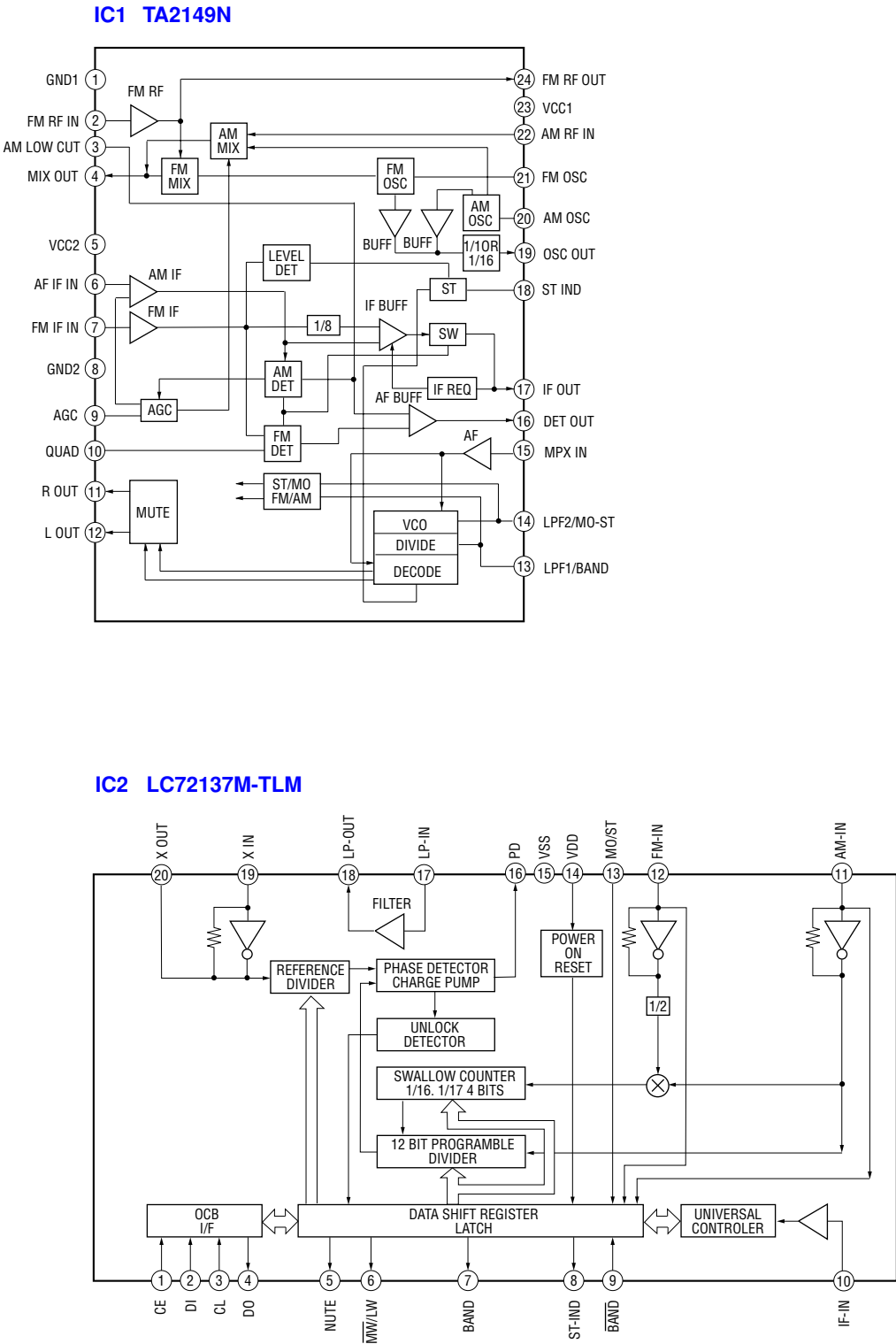


5-17. SCHEMATIC DIAGRAM – POWER SUPPLY SECTION – • Refer to page 36 for notes.

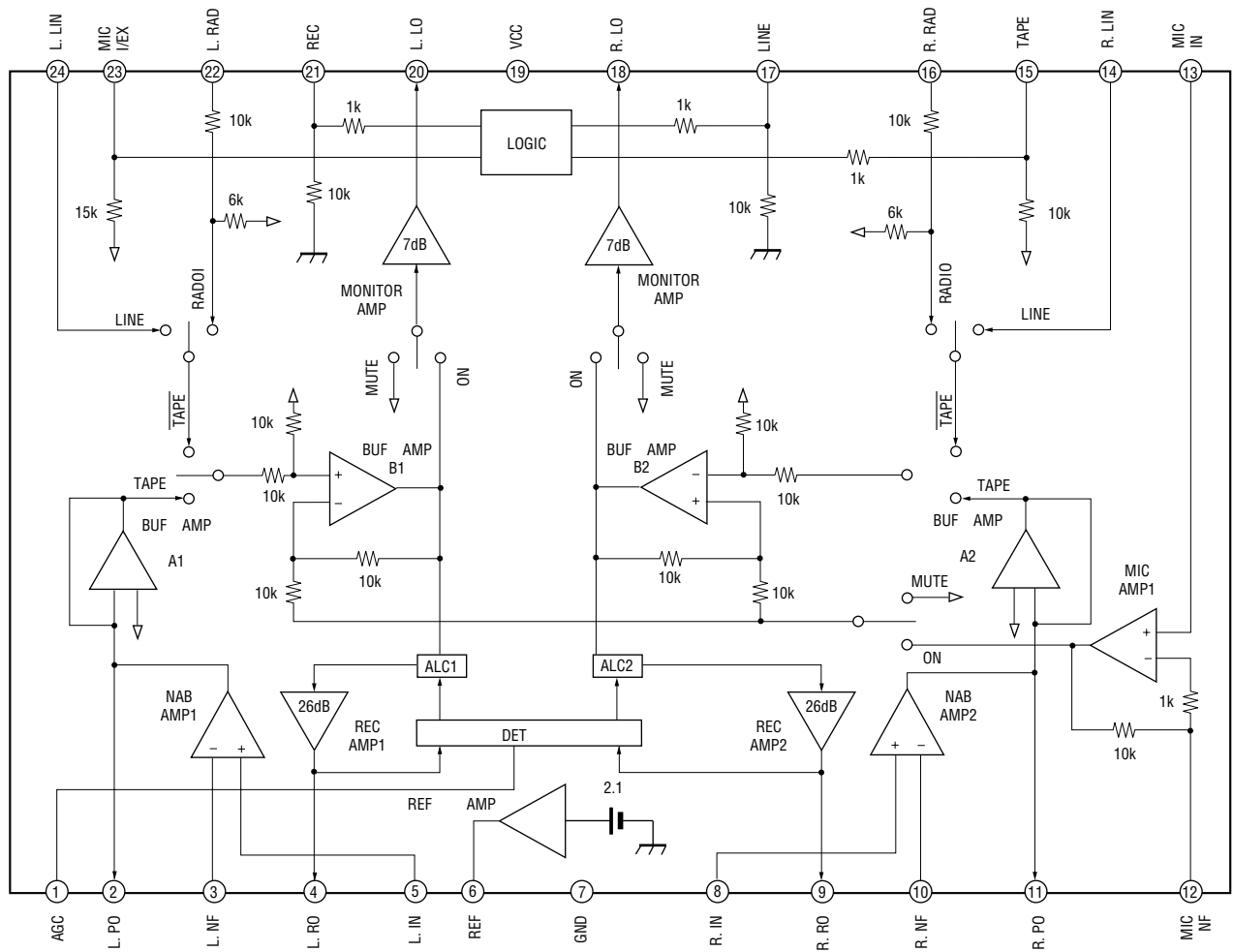


CFD-G70

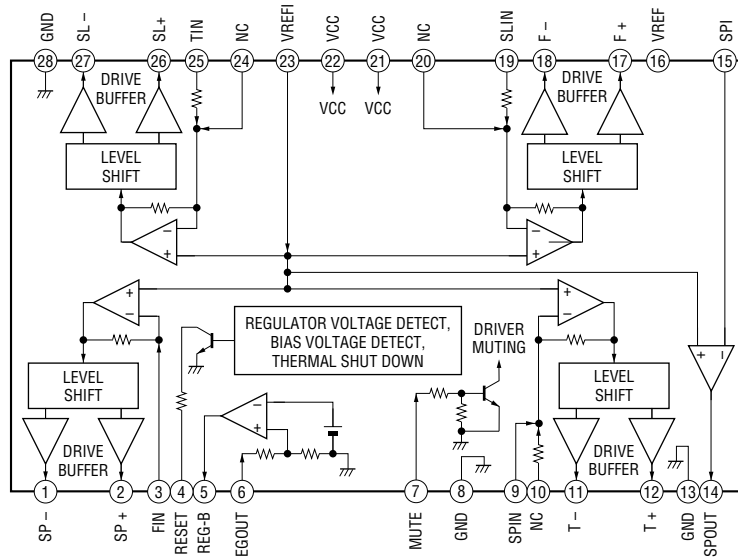
• IC BLOCK DIAGRAMS



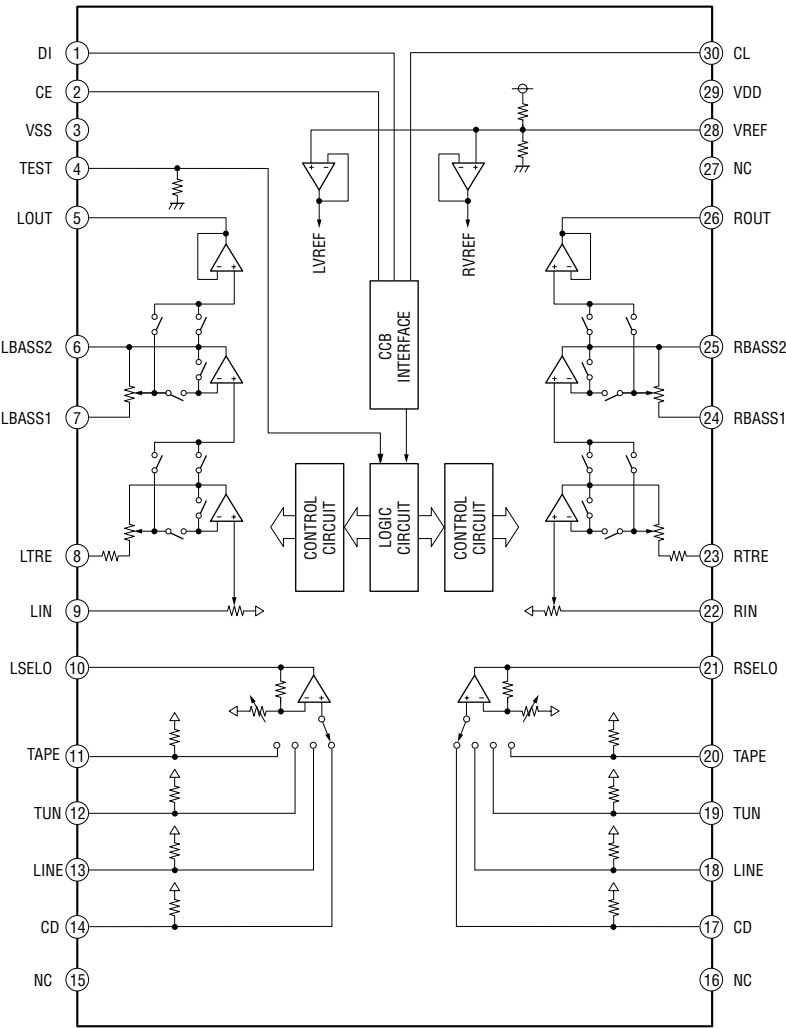
IC301 TA2068N



IC702 BA6998FP-E2



IC321 LC75342



Note on Schematic Diagram:

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

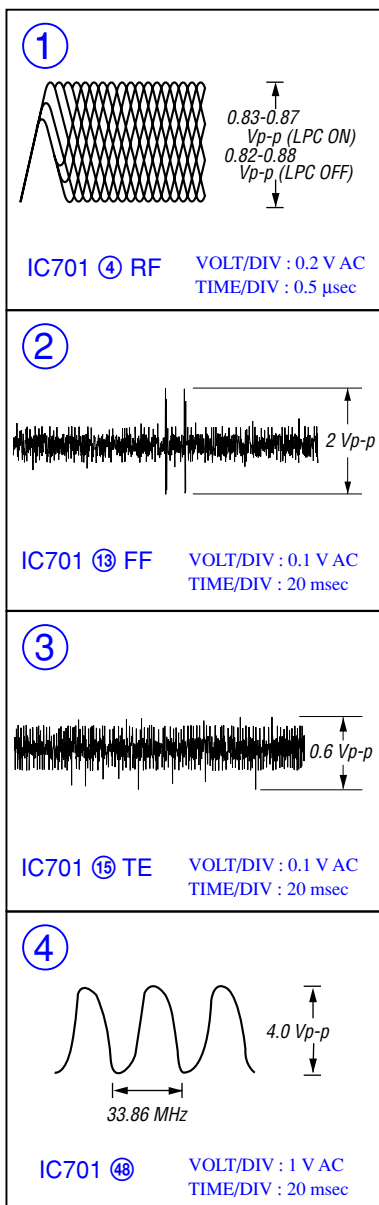
Note: The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.	Note: Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
---	--

- $\text{---}\text{---}\text{---}$: B+ Line.
- $\text{---}\text{---}\text{---}$: adjustment for repair.
- Total current is measured with no cassette installed.
- Power voltage is dc 9 V and fed with regulated dc power supply from battery terminal.

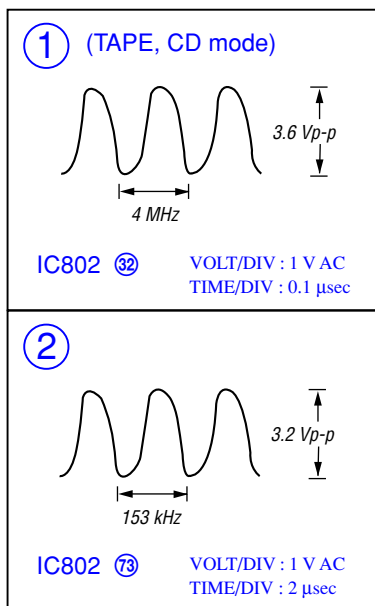
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input impedance 10 $\text{M}\Omega$). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
 - $\text{---}\text{---}\text{---}$: FM
 - $\text{---}\text{---}\text{---}$: AM
 - $\text{---}\text{---}\text{---}$: PB
 - $\text{---}\text{---}\text{---}$: REC
 - $\text{---}\text{---}\text{---}$: CD
- Abbreviation
 - CND : Canadian
 - MX : Mexican
 - E4 : 110-120V/220-240V AC changeable
 - E92 : Central and South America

• Waveforms

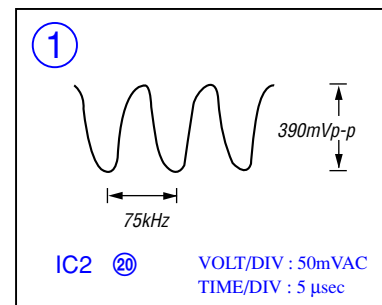
– CD SECTION –



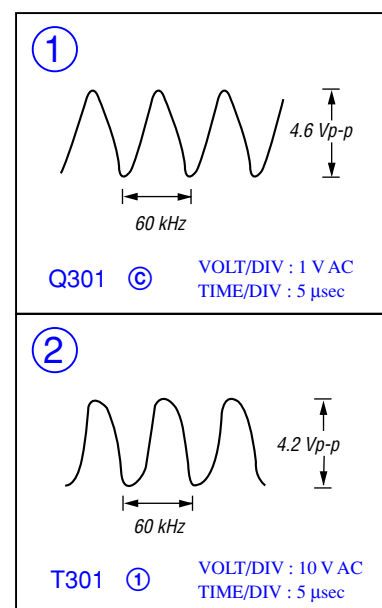
– MAIN SECTION (1/2) –



– TUNER SECTION –



– TC SECTION –



SECTION 6 EXPLODED VIEWS

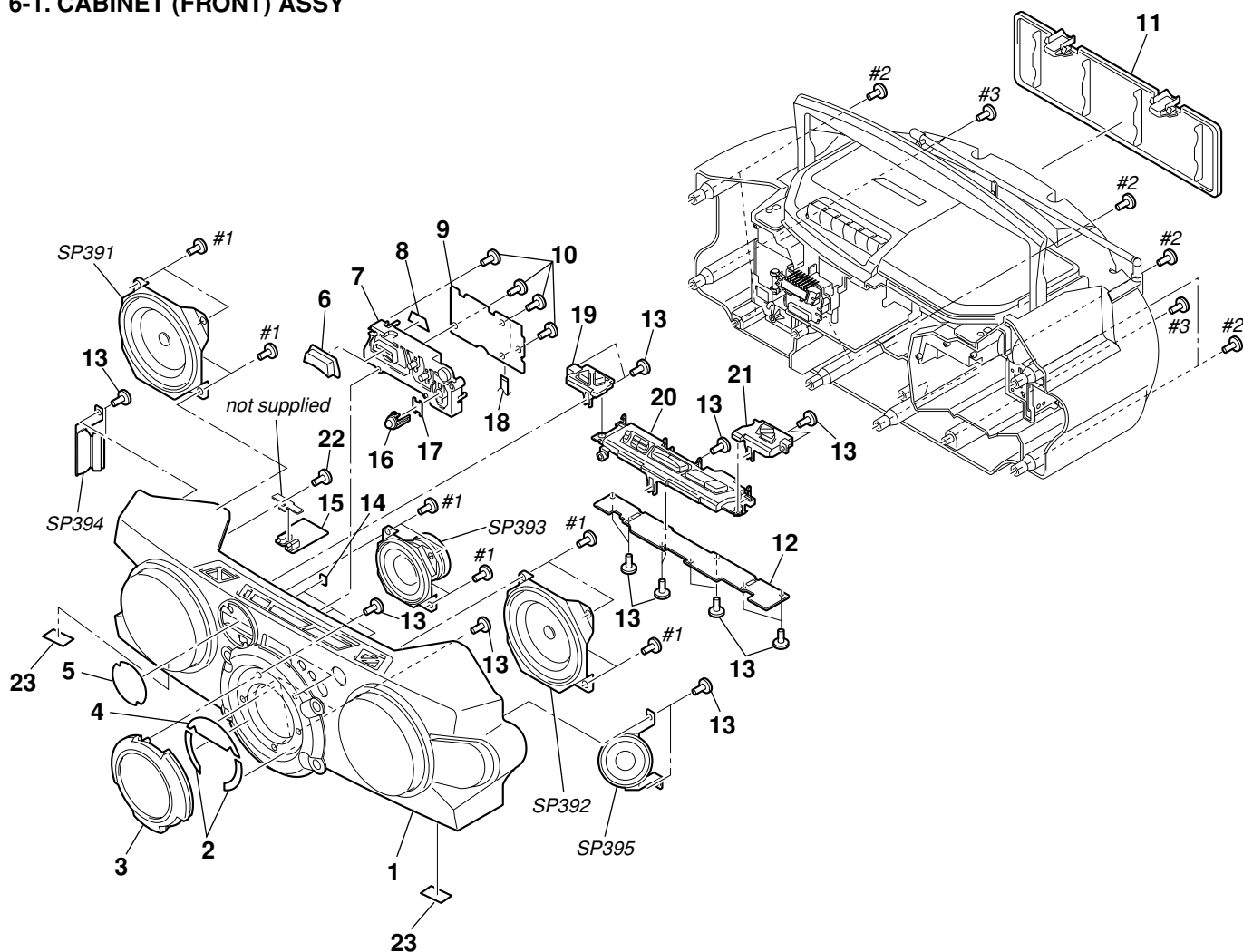
NOTE :

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- 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 this parts list.
- Abbreviation
CND : Canadian
MX : Mexican
E4 : 110-120V/220-240V AC changeable
E92 : Central and South America

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

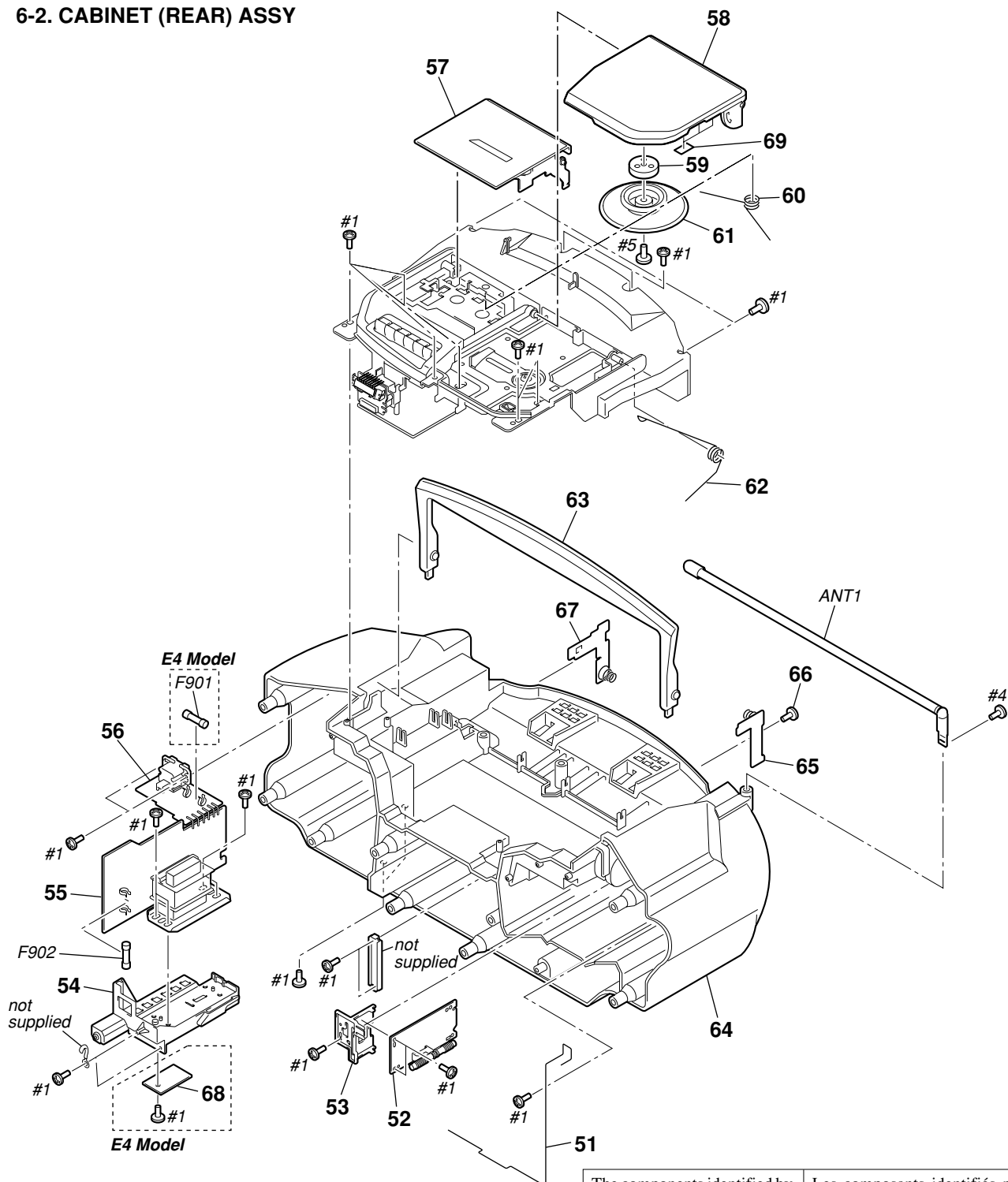
Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

6-1. CABINET (FRONT) ASSY



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	X-3380-605-1	CABINET (FRONT) SUB ASSY		16	3-230-779-01	BUTTON (SURROUND)	
2	3-231-280-01	SHEET (WOOFER.B)		17	3-231-255-01	SHEET (DIFFUSION) (SURROUND)	
3	X-3380-606-1	COVER ASSY, WOOFER		* 18	1-757-781-11	CABLE, FLEXIBLE FLAT (9 CORE)	
4	3-231-279-01	SHEET (WOOFER.A)		19	3-230-770-01	BUTTON (POWER)	
5	3-231-275-01	WINDOW (LCD)		20	X-3380-607-1	BUTTON (TOP) SUB ASSY	
6	3-230-780-01	BUTTON (PDW)		21	3-230-769-01	BUTTON (VOLUME)	
7	3-230-781-01	BUTTON (FRONT)		22	3-921-725-01	SCREW (2.6X10), +PWH	
8	3-231-254-01	SHEET (DIFFUSION) (PDW)		23	3-036-274-01	FOOT, RUBBER	
* 9	1-681-298-11	CONTROL-1 BOARD		SP391	1-544-790-11	SPEAKER (10cm)	
10	4-951-620-11	SCREW (2.6X10), +BVTP		SP392	1-544-790-11	SPEAKER (10cm)	
11	3-230-787-01	LID, BATTERY CASE		SP393	1-544-791-11	SPEAKER (8cm)	
* 12	1-681-299-11	CONTROL-2 BOARD		SP394	1-544-792-11	SPEAKER (5cm)	
13	4-951-620-01	SCREW (2.6X8), +BVTP		SP395	1-544-792-11	SPEAKER (5cm)	
14	3-831-441-99	CUSHION, STOPPER					
* 15	1-681-301-11	HEADPHONE BOARD					

6-2. CABINET (REAR) ASSY

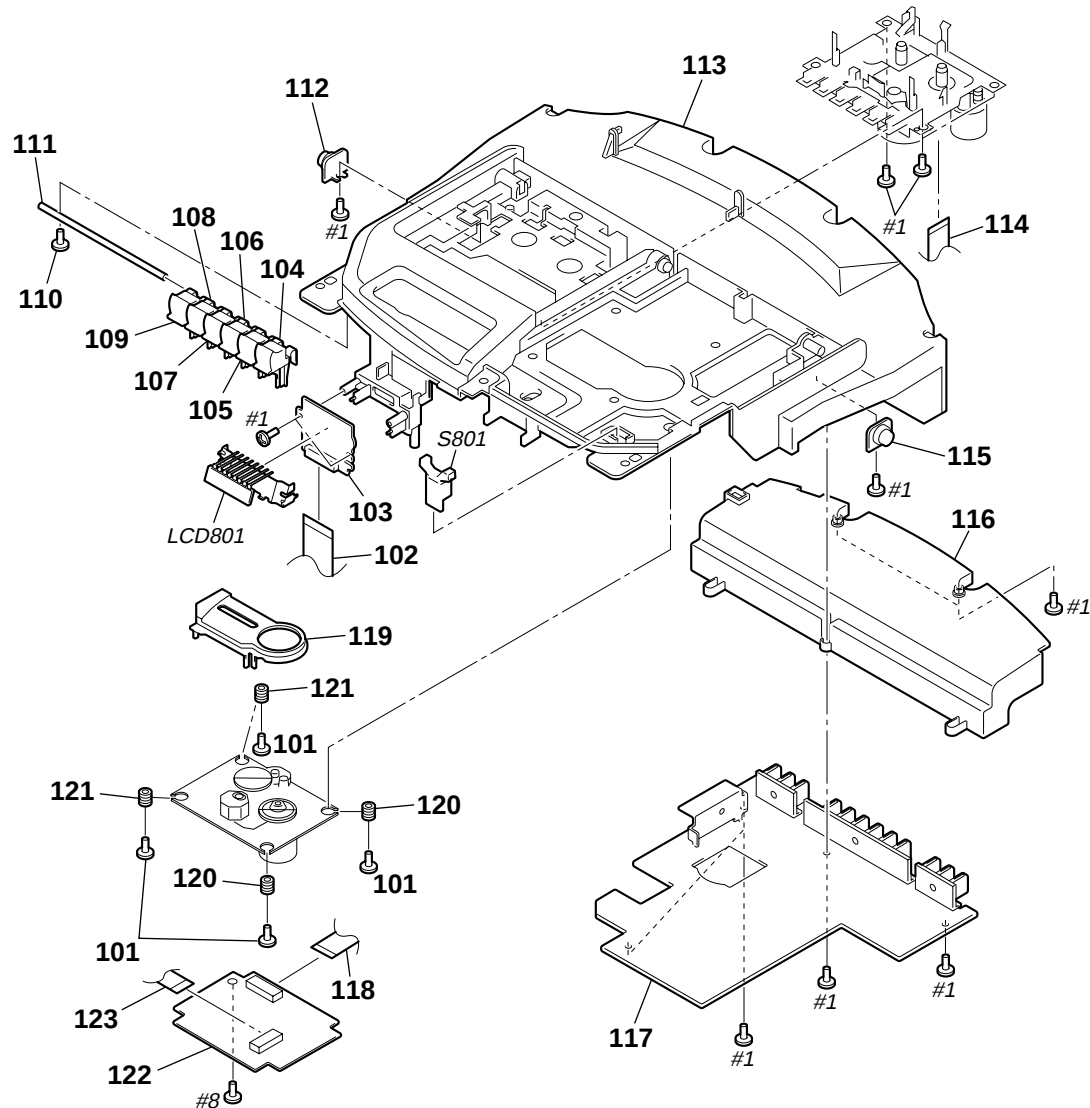


The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

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

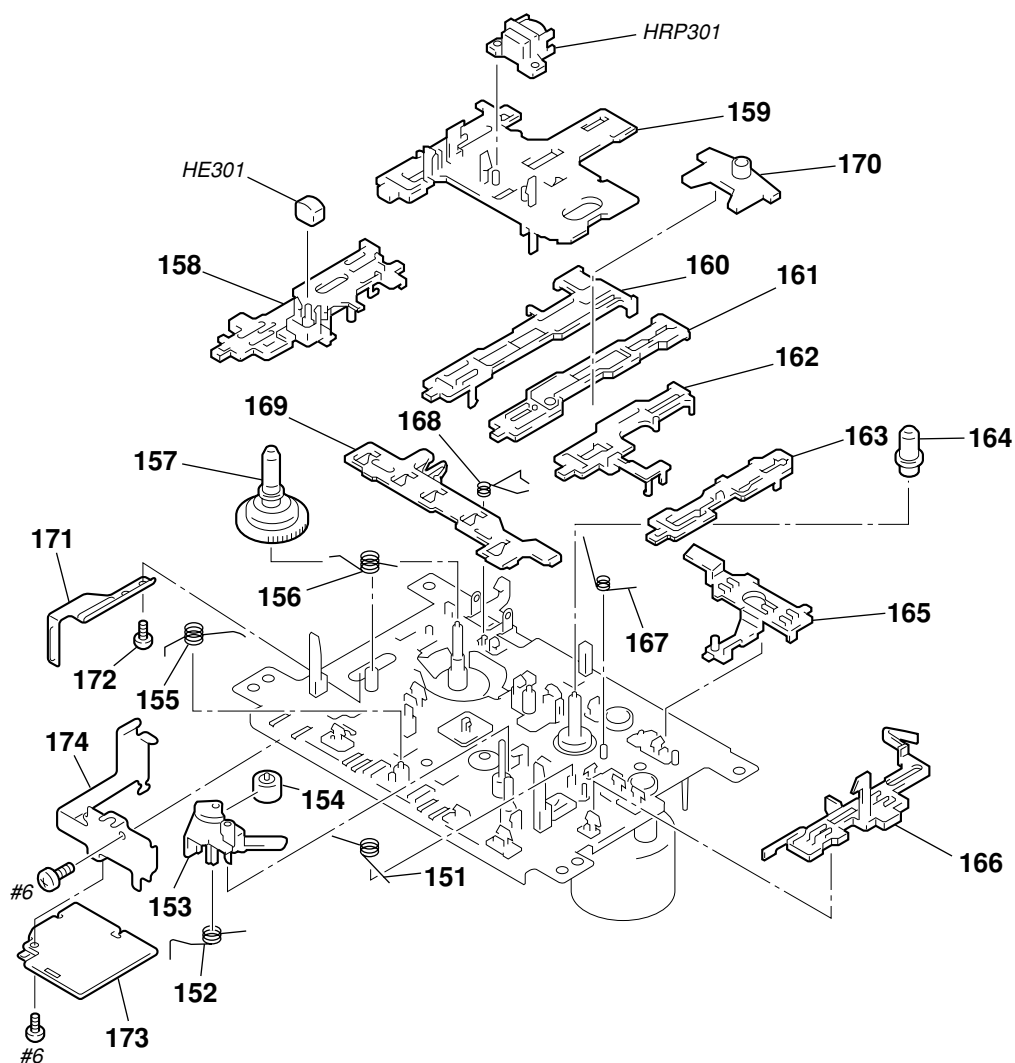
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	3-231-283-01	TERMINAL, ANTENNA		63	3-230-776-01	HANDLE	
* 52	A-3062-356-A	TUNER BOARD, COMPLETE (EXCEPT E4)		64	3-230-772-01	CABINET (REAR) (US)	
* 52	A-3062-468-A	TUNER BOARD, COMPLETE (E4)		64	3-230-772-21	CABINET (REAR) (CND,E92,MX)	
53	3-230-784-01	CHASSIS (TU)		64	3-230-772-41	CABINET (REAR) (E4)	
54	3-230-783-01	CHASSIS (TRANS)		* 65	1-681-307-11	BAATT COM BOARD	
* 55	1-681-302-11	POWER BOARD		66	4-960-167-01	SCREW (3X8) (DIA. 10), +WH	
* 56	1-681-303-11	AC INLET BOARD		* 67	1-681-304-11	BATT BOARD	
57	X-3380-604-1	HOLDER ASSY, CASSETTE		* 68	1-681-305-11	VOL SEL BOARD (E4)	
58	3-230-774-01	LID (CD)		69	3-831-441-99	CUSHION, SPEAKER GRILLE (FAB-NW)	
59	1-452-899-11	MAGNET		ANT1	1-501-883-21	ANTENNA, TELESCOPIC	
60	3-231-285-01	SPRING (CASSETTE)		Δ F901	1-532-279-00	FUSE T500mA 250V (E4)	
61	3-019-395-01	PLATE, CHUCKING		Δ F902	1-532-350-00	FUSE T4A 250V (E4)	
62	3-231-284-01	SPRING (CD)		Δ F902	1-576-193-11	FUSE 6.3A 125V (EXCEPT E4)	

6-3. CABINET TOP ASSY



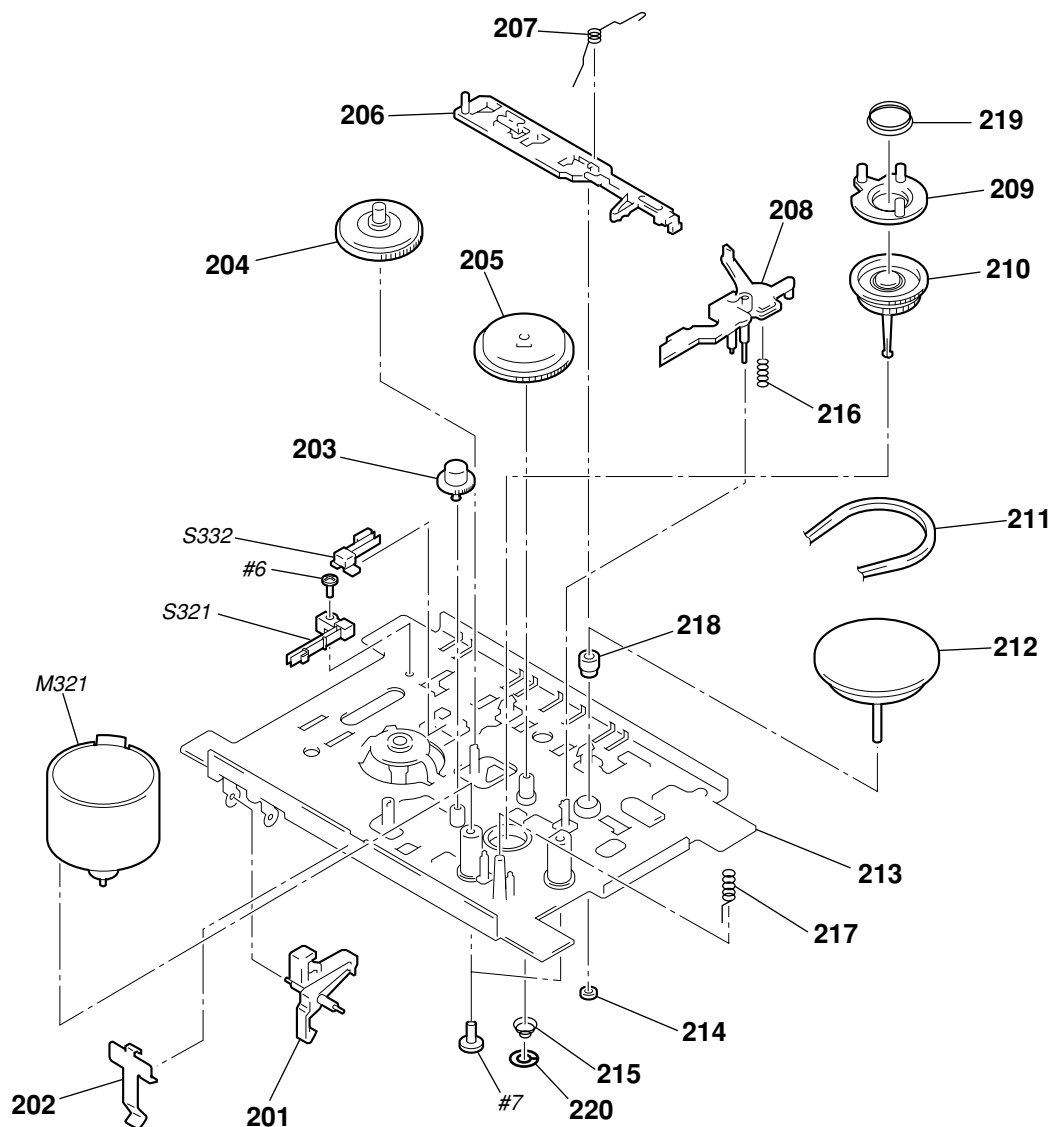
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	3-921-725-01	SCREW (2.6X10), +PWH		115	3-047-468-01	DAMPER	
102	1-757-780-11	CABLE, FLEXIBLE FLAT (25 CORE)		116	3-230-777-01	PLATE, HEAT RESISTING	
* 103	1-681-300-11	LCD BOARD		* 117	A-3021-434-A	MAIN BOARD, COMPLETE (US,E92,MX)	
104	3-032-046-41	BUTTON (PAUSE)		* 117	A-3021-470-A	MAIN BOARD, COMPLETE (CND)	
105	3-032-045-41	BUTTON (STOP)		* 117	A-3021-488-A	MAIN BOARD, COMPLETE (E4)	
106	3-032-044-41	BUTTON (FF)		118	1-757-779-11	WIRE (FLAT TYPE) (14 CORE)	
107	3-032-043-41	BUTTON (REW)		119	3-923-736-01	COVER, CD	
108	3-032-042-41	BUTTON (PLAY)		120	3-931-379-21	RUBBER, VIBRATION PROOF (PINK)	
109	3-032-041-41	BUTTON (REC)		121	3-931-379-31	RUBBER, VIBRATION PROOF (BLUE)	
110	4-960-167-01	SCREW (3X8) (DIA. 10), +WH		* 122	A-3347-089-A	CD BOARD, COMPLETE	
111	3-031-560-01	SHAFT (MD)		123	1-792-684-11	WIRE (FLAT TYPE) (16 CORE)	
112	3-047-468-11	DAMPER		LCD801	1-804-339-11	DISPLAY PANEL, LIQUID CRYSTAL	
113	3-230-773-01	CABINET (UPPER)		S801	1-692-960-11	SWITCH, PUSH (1 KEY) (CD DOOR)	
114	1-757-777-11	CABLE, FLEXIBLE FLAT (9 CORE)					

6-4. MECHANISM DECK SECTION (1) (MF-V5-117)



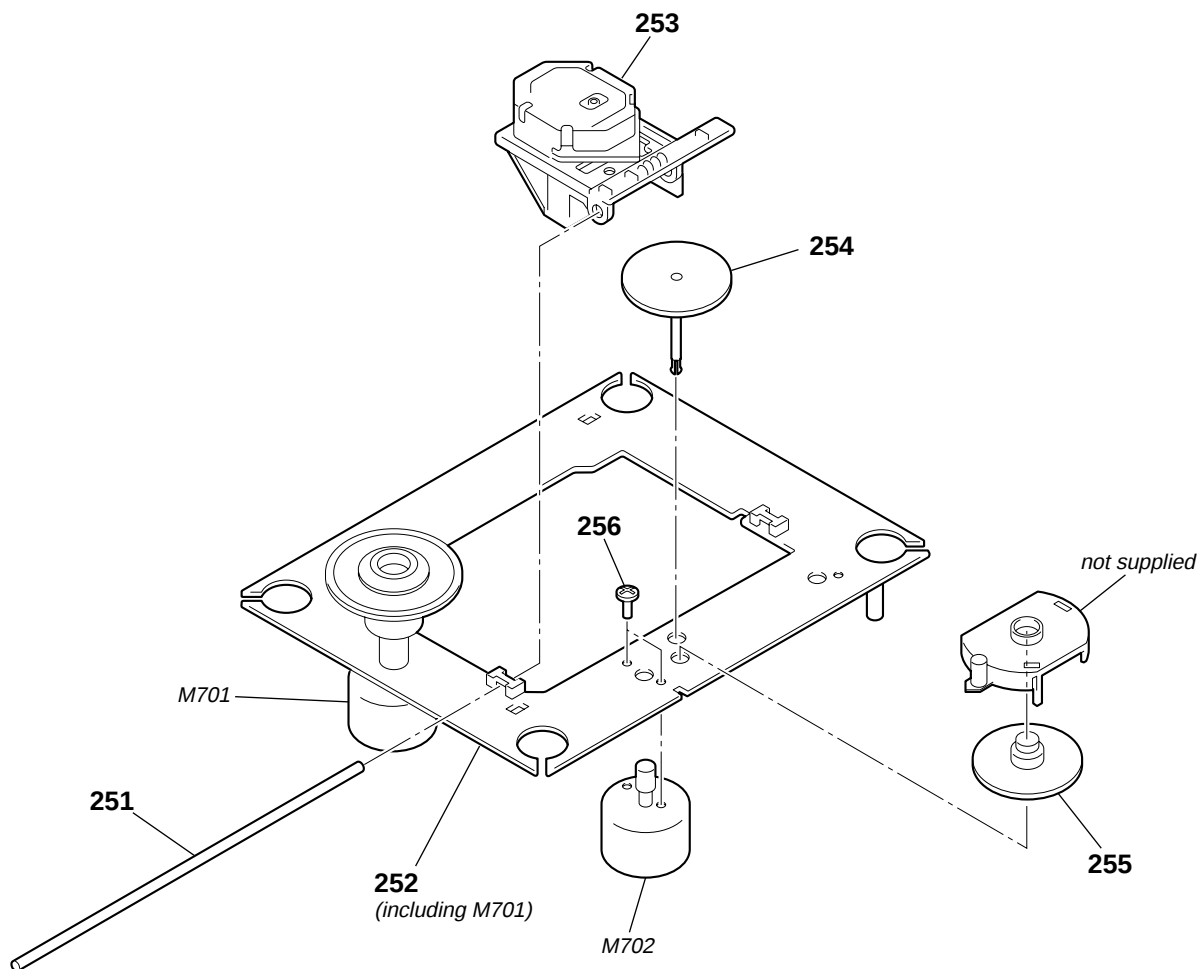
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	3-933-010-01	SPRING (S/P), TORSION		164	3-933-004-01	CLAW, REEL	
152	3-933-025-01	SPRING (P), TORSION		* 165	3-933-021-01	SLIDER (FRP)	
153	3-040-857-01	LEVER (P)					
154	3-934-024-01	ROLLER, PINCH		* 166	3-933-006-01	SLIDER (EJECT)	
155	3-933-019-01	SPRING (F/R), TORSION		167	3-934-833-01	SPRING (FRP)	
				168	3-022-794-02	SPRING (BT)	
156	3-933-028-01	SPRING (FWD), TORSION		169	3-933-007-01	PLATE, LOCK	
157	3-933-016-01	GEAR (S REEL)		* 170	3-012-114-01	LEVER (FR)	
158	3-008-590-01	SLIDER (REC)					
159	3-008-592-01	BASE (H), HEAD		171	3-222-727-01	LEVER (REC)	
* 160	3-008-588-01	SLIDER (REW)		172	4-951-620-01	SCREW (2.6X8), +BVTP	
				* 173	A-3347-148-A	TC BOARD, COMPLETE	
* 161	3-008-589-13	SLIDER (FF)		174	3-222-726-01	CHASSIS (TC)	
* 162	3-008-587-01	SLIDER (STOP)		HE301	1-543-876-11	HEAD (ERASE)	
* 163	3-008-591-01	SLIDER (PAUSE)		HRP301	1-500-668-11	HEAD, MAGNETIC (RECORD/PLAYBACK)	

6-5. MECHANISM DECK SECTION (2) (MF-V5-117)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
201	3-933-029-01	LEVER, ERASING PREVENTION		212	X-3377-877-2	FLYWHEEL ASSY	
202	3-933-182-01	SPRING, CASSETTE		213	3-932-993-01	CHASSIS, OUTSERT	
203	3-932-995-01	GEAR (MID)		214	3-343-358-01	RING, RETAINING	
204	X-3371-667-1	CLUTCH ASSY		215	3-223-156-01	SPRING (CAM), COMPRESSION	
205	3-932-997-01	GEAR (CAM)		216	3-939-383-02	SPRING, COMPRESSION	
* 206	3-932-999-01	SLIDER (SW)		217	3-937-760-01	SPRING (GROUND), COMPRESSION	
207	3-932-998-01	SPRING (GROUND), TORSION		218	3-934-336-01	BEARING	
208	3-009-648-01	LEVER (S.OFF)		219	3-009-650-02	SPRING (K), COMPRESSION	
209	3-936-438-01	LEVER (K)		M321	A-3320-446-A	MOTOR ASSY	
210	X-3373-572-1	REEL ASSY (N), T		S321	1-771-686-11	SWITCH, LEAF (PLAY)	
211	3-933-020-11	BELT		S322	1-762-679-11	SWITCH, LEAF (MOTOR)	

6-6. OPTICAL PICK-UP BLOCK SECTION (KSM-213CDP)



The components identified by mark $\triangle$ or dotted line with mark $\triangle$ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque $\triangle$ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
251	2-626-908-01	SHAFT, SLED		255	2-627-003-01	GEAR (B) (RP)	
252	X-2162-709-1	CHASSIS ASSY (CDP), MOTOR (SPINDLE) (INCLUDING M701)		256	3-713-786-51	SCREW +P 2X3	
$\triangle$ 253	8-848-483-05	OPTICAL PICK-UP KSS-213C		M702	X-2625-769-1	GEAR ASSY (MB), MOTOR (SLED) (INCLUDING GEAR)	
254	2-625-188-02	GEAR (A)					

AC INLET

BATT

BATT COM

CD

SECTION 7
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
 - Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- SEMICONDUCTORS
In each case, u: μ , for example:
uA. . : μ A. . uPA. . : μ PA. .
uPB. . : μ PB. . uPC. . : μ PC. .
uPD. . : μ PD. .
- CAPACITORS
uF: μ F
- COILS
uH: μ H
- Abbreviation
CND : Canadian
MX : Mexican
E4 : 110-120V/220-240V AC changeable
E92 : Central and South America

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

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

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

Ref. No.	Part No.	Description	Remark
*	1-681-303-11	AC INLET BOARD *****	
	1-533-233-31	HOLDER, FUSE (E4) <JACK>	
Δ CNJ901	1-526-838-11	INLET, AC 2P (E4)	
Δ CNJ901	1-526-818-11	INLET, AC (E92,MX)	
Δ CNJ901	1-540-009-11	INLET, AC (US,CND) <FUSE>	
Δ F901	1-532-279-00	FUSE T500mA 250V (E4) *****	
*	1-681-304-11	BATT BOARD *****	
	3-028-595-01	SPRING (–) (L), BATTERY <CABLE HOLDER>	
* KH952	1-565-386-11	HOLDER, CABLE 5P *****	
*	1-681-307-11	BATT COM BOARD *****	
	3-028-595-01	SPRING (–) (L), BATTERY <CONNECTOR>	
* CNP953	1-785-668-11	PIN, CONNECTOR (PC BOARD) 2P *****	
*	A-3347-089-A	CD BOARD, COMPLETE ***** <CAPACITOR>	
C701	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C702	1-104-664-11	ELECT 47uF 20% 10V	
C703	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C704	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
C705	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C706	1-126-960-11	ELECT 1uF 20% 50V	
C707	1-115-156-11	CERAMIC CHIP 1uF 10V	
C708	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	

Ref. No.	Part No.	Description	Remark
C709	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C711	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C716	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C717	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V
C720	1-162-919-11	CERAMIC CHIP 22PF 5%	50V
C721	1-162-919-11	CERAMIC CHIP 22PF 5%	50V
C722	1-162-919-11	CERAMIC CHIP 22PF 5%	50V
C723	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C724	1-162-919-11	CERAMIC CHIP 22PF 5%	50V
C725	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C726	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C727	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C728	1-165-176-11	CERAMIC CHIP 0.047uF 10%	16V
C729	1-125-837-11	CERAMIC CHIP 1uF 10%	6.3V
C730	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V
C731	1-165-176-11	CERAMIC CHIP 0.047uF 10%	16V
C732	1-104-665-11	ELECT 100uF 20%	10V
C733	1-104-665-11	ELECT 100uF 20%	10V
C734	1-162-968-11	CERAMIC CHIP 0.0047uF 10%	50V
C735	1-126-916-11	ELECT 1000uF 20%	6.3V
C736	1-162-968-11	CERAMIC CHIP 0.0047uF 10%	50V
C738	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C739	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C740	1-126-935-11	ELECT 470uF 20%	10V
C741	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C742	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C743	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C744	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C745	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C746	1-104-665-11	ELECT 100uF 20%	10V
C747	1-104-665-11	ELECT 100uF 20%	10V
C750	1-104-665-11	ELECT 100uF 20%	10V
C751	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C754	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C755	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
		<CONNECTOR>	
* CNP701	1-779-466-11	CONNECTOR, FFC/FPC 16P	
* CNP702	1-784-736-11	CONNECTOR, FFC 14P	
		<FERRITE BEAD>	
FB701	1-469-701-21	INDUCTOR 0UH	

CD

CONTROL-1

CONTROL-2

Ref. No.	Part No.	Description	Remark		
<IC>					
IC701	6-700-455-01	IC LC78645NE			
IC702	8-759-591-62	IC BA6998FP-E2			
<JUMPER RESISTOR>					
JC701	1-216-864-11	METAL CHIP	0	5%	1/16W
JC702	1-216-864-11	METAL CHIP	0	5%	1/16W
JC703	1-216-864-11	METAL CHIP	0	5%	1/16W
JC704	1-216-813-11	METAL CHIP	220	5%	1/16W
<COIL>					
L706	1-414-445-11	FERRITE	0uH		
<TRANSISTOR>					
Q701	8-729-054-57	TRANSISTOR	KTN2907AS-RTK		
<RESISTOR>					
R701	1-216-841-11	METAL CHIP	47K	5%	1/16W
R702	1-216-835-11	METAL CHIP	15K	5%	1/16W
R703	1-216-835-11	METAL CHIP	15K	5%	1/16W
R704	1-216-835-11	METAL CHIP	15K	5%	1/16W
R705	1-216-835-11	METAL CHIP	15K	5%	1/16W
R706	1-216-841-11	METAL CHIP	47K	5%	1/16W
R707	1-216-797-11	METAL CHIP	10	5%	1/16W
R708	1-216-833-11	METAL CHIP	10K	5%	1/16W
R709	1-216-837-11	METAL CHIP	22K	5%	1/16W
R710	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R711	1-216-815-11	METAL CHIP	330	5%	1/16W
R712	1-216-809-11	METAL CHIP	100	5%	1/16W
R714	1-216-811-11	METAL CHIP	150	5%	1/16W
R715	1-216-811-11	METAL CHIP	150	5%	1/16W
R716	1-216-821-11	METAL CHIP	1K	5%	1/16W
R717	1-216-821-11	METAL CHIP	1K	5%	1/16W
R718	1-216-821-11	METAL CHIP	1K	5%	1/16W
R719	1-216-809-11	METAL CHIP	100	5%	1/16W
R720	1-216-809-11	METAL CHIP	100	5%	1/16W
R721	1-216-821-11	METAL CHIP	1K	5%	1/16W
R722	1-216-809-11	METAL CHIP	100	5%	1/16W
R723	1-216-809-11	METAL CHIP	100	5%	1/16W
R724	1-216-841-11	METAL CHIP	47K	5%	1/16W
R725	1-216-819-11	METAL CHIP	680	5%	1/16W
R726	1-216-819-11	METAL CHIP	680	5%	1/16W
R727	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R728	1-216-833-11	METAL CHIP	10K	5%	1/16W
R729	1-216-813-11	METAL CHIP	220	5%	1/16W
R730	1-216-821-11	METAL CHIP	1K	5%	1/16W
R731	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R741	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R743	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R744	1-216-845-11	METAL CHIP	100K	5%	1/16W
<SWITCH>					
S701	1-762-812-11	SWITCH, LEAF (LIMIT)			
<VIBRATOR>					
X701	1-795-158-21	VIBRATOR, CERAMIC (33.86MHz)			

Ref. No.	Part No.	Description	Remark			
*	1-681-298-11	CONTROL-1 BOARD *****				
<CONNECTOR>						
CNP401	1-784-731-11	CONNECTOR, FFC 9P				
<DIODE>						
D401	8-719-079-31	DIODE SLI-342YCT32-ST (GAME Xpand)				
D402	8-719-080-07	DIODE SLI-342URC3FST (POWER DRIVE WOOFER)				
D403	8-719-080-07	DIODE SLI-342URC3FST (POWER DRIVE WOOFER)				
D404	8-719-080-07	DIODE SLI-342URC3FST (POWER DRIVE WOOFER)				
<CABLE HOLDER>						
* KH402	1-565-385-11	HOLDER, CABLE 4P				
<RESISTOR>						
R401	1-249-415-11	CARBON	680	5%	1/4W	F
R402	1-249-417-11	CARBON	1K	5%	1/4W	F
R403	1-249-417-11	CARBON	1K	5%	1/4W	F
R404	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R407	1-249-411-11	CARBON	330	5%	1/4W	
R408	1-249-411-11	CARBON	330	5%	1/4W	
R409	1-249-409-11	CARBON	220	5%	1/4W	F
<SWITCH>						
S401	1-771-349-21	SWITCH, TACT (GAME/LINE)				
S402	1-771-349-21	SWITCH, TACT (MODE)				
S403	1-771-349-21	SWITCH, TACT (GAME Xpand)				
S404	1-771-349-21	SWITCH, TACT (SOUND)				
S408	1-771-349-21	SWITCH, TACT (POWER DRIVE WOOFER)				

*	1-681-299-11	CONTROL-2 BOARD *****				
<DIODE>						
D451	8-719-059-97	DIODE L-34HD (OPR/BATT)				
<CABLE HOLDER>						
* KH451	1-565-385-11	HOLDER, CABLE 4P				
<RESISTOR>						
R451	1-249-415-11	CARBON	680	5%	1/4W	F
R452	1-249-417-11	CARBON	1K	5%	1/4W	F
R453	1-249-417-11	CARBON	1K	5%	1/4W	F
R454	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R455	1-247-843-11	CARBON	3.3K	5%	1/4W	
R456	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R457	1-249-433-11	CARBON	22K	5%	1/4W	
R458	1-249-415-11	CARBON	680	5%	1/4W	F
R459	1-249-417-11	CARBON	1K	5%	1/4W	F
R460	1-249-417-11	CARBON	1K	5%	1/4W	F
R461	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R462	1-249-417-11	CARBON	1K	5%	1/4W	F
R463	1-249-409-11	CARBON	220	5%	1/4W	F
R464	1-249-427-11	CARBON	6.8K	5%	1/4W	

Ref. No.	Part No.	Description	Remark
		<SWITCH>	
S451	1-771-349-21	SWITCH, TACT (POWER)	
S452	1-771-349-21	SWITCH, TACT (SLEEP)	
S453	1-771-349-21	SWITCH, TACT (RADIO BAND,AUTO PRESET	
S454	1-771-349-21	SWITCH, TACT (AMS ▶▶▶)	
S455	1-771-349-21	SWITCH, TACT (◀◀◀ AMS)	
S456	1-771-349-21	SWITCH, TACT (DISPLAY ENT MEMORY)	
S457	1-771-349-21	SWITCH, TACT (PRESET +)	
S458	1-771-349-21	SWITCH, TACT (PRESET -)	
S459	1-771-349-21	SWITCH, TACT (▶▶ CD)	
S460	1-771-349-21	SWITCH, TACT (■)	
S461	1-771-349-21	SWITCH, TACT (VOLUME -)	
S462	1-771-349-21	SWITCH, TACT (VOLUME +)	

*	1-681-301-11	HEADPHONE BOARD	

		<CONNECTOR>	
* CNP391	1-785-660-11	PIN, CONNECTOR (PC BOARD) 8P	
* CNP392	1-785-657-11	PIN, CONNECTOR (PC BOARD) 5P	
* CNP393	1-785-656-11	PIN, CONNECTOR (PC BOARD) 4P	
* CNP394	1-785-656-11	PIN, CONNECTOR (PC BOARD) 4P	
* CNP395	1-785-656-21	PIN, CONNECTOR (PC BOARD) 4P	
* CNP396	1-785-655-11	PIN, CONNECTOR (PC BOARD) 3P	
		<JACK>	
J301	1-566-822-21	JACK (GAME LINE IN)	
J391	1-794-016-11	JACK (○)	
		<RESISTOR>	
R191	1-247-807-31	CARBON 100 5% 1/4W	
R291	1-247-807-31	CARBON 100 5% 1/4W	

*	1-681-300-11	LCD BOARD	

		<CAPACITOR>	
C816	1-161-494-00	CERAMIC 0.022uF 25V	
		<CONNECTOR>	
CNP804	1-784-747-11	CONNECTOR, FFC 25P	
		<IC>	
IC803	6-600-481-01	IC SPS-442-VP	
		<LIQUID CRYSTAL DISPLAY>	
LCD801	1-804-339-11	DISPLAY PANEL, LIQUID CRYSTAL	
		<RESISTOR>	
R844	1-249-437-11	CARBON 47K 5% 1/4W	

Ref. No.	Part No.	Description	Remark
*	A-3021-434-A	MAIN BOARD, COMPLETE (US,E92,MX)	
*	A-3021-470-A	MAIN BOARD, COMPLETE (CND)	
*	A-3021-488-A	MAIN BOARD, COMPLETE (E4)	

4-960-167-01	SCREW (3X8) (DIA. 10), +WH		
7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S		
7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S		
		<CAPACITOR>	
C121	1-126-960-11	ELECT 1uF 20% 50V	
C122	1-126-961-11	ELECT 2.2uF 20% 50V	
C123	1-162-282-31	CERAMIC 100PF 10% 50V	
C125	1-126-963-11	ELECT 4.7uF 20% 50V	
C126	1-127-868-21	CERAMIC 2200PF 10% 50V	
C127	1-127-888-21	CERAMIC 0.1uF 10% 50V	
C128	1-127-888-21	CERAMIC 0.1uF 10% 50V	
C129	1-126-960-11	ELECT 1uF 20% 50V	
C130	1-126-961-11	ELECT 2.2uF 20% 50V	
C131	1-104-664-11	ELECT 47uF 20% 10V	
C132	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C133	1-104-664-11	ELECT 47uF 20% 10V	
C134	1-136-165-00	FILM 0.1uF 5.00% 50V	
C135	1-126-926-11	ELECT 1000uF 20% 10V	
C138	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C139	1-162-290-31	CERAMIC 470PF 10% 50V	
C140	1-126-961-11	ELECT 2.2uF 20% 50V	
C141	1-126-964-11	ELECT 10uF 20% 50V	
C144	1-104-664-11	ELECT 47uF 20% 10V	
C145	1-104-665-11	ELECT 100uF 20% 10V	
C146	1-136-165-00	FILM 0.1uF 5.00% 50V	
C147	1-127-868-21	CERAMIC 2200PF 10% 50V	
C148	1-126-961-11	ELECT 2.2uF 20% 50V	
C221	1-126-960-11	ELECT 1uF 20% 50V	
C222	1-126-961-11	ELECT 2.2uF 20% 50V	
C223	1-162-282-31	CERAMIC 100PF 10% 50V	
C225	1-126-963-11	ELECT 4.7uF 20% 50V	
C226	1-127-868-21	CERAMIC 2200PF 10% 50V	
C227	1-127-888-21	CERAMIC 0.1uF 10% 50V	
C228	1-127-888-21	CERAMIC 0.1uF 10% 50V	
C229	1-126-960-11	ELECT 1uF 20% 50V	
C230	1-126-961-11	ELECT 2.2uF 20% 50V	
C231	1-104-664-11	ELECT 47uF 20% 10V	
C232	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C233	1-104-664-11	ELECT 47uF 20% 10V	
C234	1-136-165-00	FILM 0.1uF 5.00% 50V	
C235	1-126-926-11	ELECT 1000uF 20% 10V	
C238	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C239	1-162-290-31	CERAMIC 470PF 10% 50V	
C240	1-126-961-11	ELECT 2.2uF 20% 50V	
C241	1-126-964-11	ELECT 10uF 20% 50V	
C244	1-104-664-11	ELECT 47uF 20% 10V	
C245	1-104-665-11	ELECT 100uF 20% 10V	
C246	1-136-165-00	FILM 0.1uF 5.00% 50V	
C247	1-127-868-21	CERAMIC 2200PF 10% 50V	
C248	1-126-961-11	ELECT 2.2uF 20% 50V	
C321	1-162-290-31	CERAMIC 470PF 10% 50V	
C322	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C324	1-128-551-11	ELECT 22uF 20% 25V	

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark
C325	1-104-665-11	ELECT	100uF	20%	10V	D805	8-719-991-33	DIODE 1SS133T-77	
C328	1-127-880-21	CERAMIC	0.022uF	10%	50V	D806	8-719-991-33	DIODE 1SS133T-77	
C329	1-127-884-21	CERAMIC	0.047uF	10%	50V	D807	8-719-991-33	DIODE 1SS133T-77	
C330	1-126-960-11	ELECT	1uF	20%	50V	D808	8-719-109-89	DIODE RD5.6ESB2	
C331	1-127-880-21	CERAMIC	0.022uF	10%	50V	D809	8-719-991-33	DIODE 1SS133T-77	
C332	1-104-664-11	ELECT	47uF	20%	10V	D810	8-719-991-33	DIODE 1SS133T-77	
C333	1-104-665-11	ELECT	100uF	20%	10V	D811	8-719-991-33	DIODE 1SS133T-77 (E4)	
C334	1-126-963-11	ELECT	4.7uF	20%	50V	D812	8-719-924-05	DIODE MTZN-T-77-20B (E4)	
C335	1-127-876-21	CERAMIC	0.01uF	10%	50V	D951	8-719-991-33	DIODE 1SS133T-77 (CND,4E)	
C336	1-128-551-11	ELECT	22uF	20%	25V	D952	8-719-991-33	DIODE 1SS133T-77 (CND,4E)	
C337	1-127-888-21	CERAMIC	0.1uF	10%	50V	D953	8-719-109-97	DIODE RD6.8ESB2	
C338	1-104-665-11	ELECT	100uF	20%	10V	D954	8-719-110-17	DIODE RD10ESB2	
C341	1-104-665-11	ELECT	100uF	20%	10V	D955	8-719-991-33	DIODE 1SS133T-77 (CND,4E)	
C342	1-126-934-11	ELECT	220uF	20%	10V	D957	8-719-109-72	DIODE RD3.9ESB2	
C343	1-104-665-11	ELECT	100uF	20%	10V	D958	8-719-991-33	DIODE 1SS133T-77 (CND,4E)	
C344	1-104-665-11	ELECT	100uF	20%	10V			<IC>	
C345	1-136-165-00	FILM	0.1uF	5.00%	50V	IC321	8-759-669-03	IC LC75342	
C346	1-136-165-00	FILM	0.1uF	5.00%	50V	IC322	8-759-634-51	IC NJM4558D	
C347	1-126-943-11	ELECT	2200uF	20%	25V	IC323	8-759-426-51	IC BA5417	
C348	1-127-880-21	CERAMIC	0.022uF	10%	50V	IC324	8-759-426-51	IC BA5417	
C349	1-104-666-11	ELECT	220uF	20%	25V	IC325	8-759-426-51	IC BA5417	
C351	1-126-943-11	ELECT	2200uF	20%	25V	IC801	8-759-658-46	IC S-81233SGY-Z	
C352	1-104-664-11	ELECT	47uF	20%	10V	IC802	8-752-916-06	IC CXP83620-031Q	
C803	1-162-306-11	CERAMIC	0.01uF	20%	16V	IC804	8-759-645-87	IC PST9128-T	
C804	1-126-960-11	ELECT	1uF	20%	50V	IC805	8-759-487-03	IC BR24C01AF-WE2	
C805	1-126-934-11	ELECT	220uF	20%	10V			<CABLE HOLDER>	
C807	1-162-306-11	CERAMIC	0.01uF	20%	16V	KH321	1-565-134-21	HOLDER, CABLE 6P	
C808	1-162-199-31	CERAMIC	10PF	5%	50V	KH323	1-565-134-21	HOLDER, CABLE 6P	
C809	1-162-199-31	CERAMIC	10PF	5%	50V	* KH324	1-565-385-11	HOLDER, CABLE 4P	
C813	1-128-801-21	CERAMIC	22PF	5%	50V	KH801	1-565-134-21	HOLDER, CABLE 6P	
C814	1-128-801-21	CERAMIC	22PF	5%	50V			<TRANSISTOR>	
C817	1-126-960-11	ELECT	1uF	20%	50V	Q121	8-729-036-89	TRANSISTOR KTC3198GR-A	
C818	1-126-964-11	ELECT	10uF	20%	50V	Q122	8-729-036-89	TRANSISTOR KTC3198GR-A	
C821	1-104-664-11	ELECT	47uF	20%	10V	Q221	8-729-036-89	TRANSISTOR KTC3198GR-A	
C951	1-127-888-21	CERAMIC	0.1uF	10%	50V	Q222	8-729-036-89	TRANSISTOR KTC3198GR-A	
C952	1-161-494-00	CERAMIC	0.022uF		25V	Q321	8-729-036-89	TRANSISTOR KTC3198GR-A	
C953	1-126-934-11	ELECT	220uF	20%	10V	Q322	8-729-036-77	TRANSISTOR KRC107M	
C955	1-104-665-11	ELECT	100uF	20%	10V	Q323	8-729-037-13	TRANSISTOR KTA1271Y	
C956	1-161-494-00	CERAMIC	0.022uF		25V	Q324	8-729-036-77	TRANSISTOR KRC107M	
C957	1-161-494-00	CERAMIC	0.022uF		25V	Q325	8-729-036-77	TRANSISTOR KRC107M	
C958	1-161-494-00	CERAMIC	0.022uF		25V	Q326	8-729-212-02	TRANSISTOR 2SC2120-Y	
C959	1-126-934-11	ELECT	220uF	20%	10V	Q327	8-729-036-89	TRANSISTOR KTC3198GR-A	
<CONNECTOR>						Q328	8-729-036-77	TRANSISTOR KRC107M	
* CNP322	1-785-658-11	PIN, CONNECTOR (PC BOARD) 6P				Q329	8-729-037-34	TRANSISTOR KRA107M	
CNP801	1-784-731-11	CONNECTOR, FFC 9P				Q801	8-729-036-77	TRANSISTOR KRC107M	
* CNP802	1-784-736-11	CONNECTOR, FFC 14P				Q802	8-729-037-13	TRANSISTOR KTA1271Y	
CNP803	1-784-786-11	CONNECTOR, FFC 25P				Q803	8-729-036-77	TRANSISTOR KRC107M	
CNP805	1-568-828-11	CONNECTOR, FFC 9P				Q804	8-729-037-34	TRANSISTOR KRA107M	
<DIODE>						Q805	8-729-036-77	TRANSISTOR KRC107M	
D321	8-719-991-33	DIODE 1SS133T-77				Q806	8-729-036-77	TRANSISTOR KRC107M	
D322	8-719-991-33	DIODE 1SS133T-77				Q807	8-729-037-34	TRANSISTOR KRA107M	
D324	8-719-991-33	DIODE 1SS133T-77				Q808	8-729-036-77	TRANSISTOR KRC107M	
D802	8-719-991-33	DIODE 1SS133T-77				Q809	8-729-036-77	TRANSISTOR KRC107M	
D803	8-719-991-33	DIODE 1SS133T-77				Q810	8-729-036-77	TRANSISTOR KRC107M	
D804	8-719-991-33	DIODE 1SS133T-77				Q812	8-729-036-80	TRANSISTOR KRC110M	

MAIN

Ref. No.	Part No.	Description	Remark				Ref. No.	Part No.	Description	Remark			
Q813	8-729-036-58	TRANSISTOR	KRC102M-AT				R340	1-249-417-11	CARBON	1K	5%	1/4W	F
Q815	8-729-036-77	TRANSISTOR	KRC107M				R341	1-249-385-11	CARBON	2.2	5%	1/6W	F
Q818	8-729-037-34	TRANSISTOR	KRA107M				R343	1-249-441-11	CARBON	100K	5%	1/4W	
Q819	8-729-037-34	TRANSISTOR	KRA107M				R344	1-249-417-11	CARBON	1K	5%	1/4W	F
Q951	8-729-036-61	TRANSISTOR	KRC105M-AT (CND,E4)				R345	1-249-417-11	CARBON	1K	5%	1/4W	F
Q952	8-729-037-13	TRANSISTOR	KTA1271Y				R346	1-249-417-11	CARBON	1K	5%	1/4W	F
Q953	8-729-036-57	TRANSISTOR	KRC101M-AT				R347	1-249-417-11	CARBON	1K	5%	1/4W	F
Q954	8-729-141-83	TRANSISTOR	2SB1094-LK				R348	1-249-417-11	CARBON	1K	5%	1/4W	F
Q955	8-729-036-89	TRANSISTOR	KTC3198GR-A				R351	1-249-429-11	CARBON	10K	5%	1/4W	
Q956	8-729-209-15	TRANSISTOR	2SD2012				R352	1-249-417-11	CARBON	1K	5%	1/4W	F
Q957	8-729-212-02	TRANSISTOR	2SC2120-Y				R353	1-249-413-11	CARBON	470	5%	1/4W	F
<RESISTOR>							R354	1-247-791-91	CARBON	22	5%	1/4W	
R122	1-249-433-11	CARBON	22K	5%	1/4W								
R123	1-249-435-11	CARBON	33K	5%	1/4W								
R125	1-249-421-11	CARBON	2.2K	5%	1/4W	F	R801	1-249-417-11	CARBON	1K	5%	1/4W	F
R126	1-249-433-11	CARBON	22K	5%	1/4W		R802	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R127	1-249-437-11	CARBON	47K	5%	1/4W		R803	1-249-441-11	CARBON	100K	5%	1/4W	
R128	1-249-429-11	CARBON	10K	5%	1/4W		R805	1-249-437-11	CARBON	47K	5%	1/4W	
R129	1-249-411-11	CARBON	330	5%	1/4W		R806	1-249-429-11	CARBON	10K	5%	1/4W	
R131	1-247-807-31	CARBON	100	5%	1/4W		R807	1-247-895-91	CARBON	470K	5%	1/4W	
R132	1-249-419-11	CARBON	1.5K	5%	1/4W	F	R808	1-249-429-11	CARBON	10K	5%	1/4W	
R133	1-249-425-11	CARBON	4.7K	5%	1/4W	F	R809	1-249-429-11	CARBON	10K	5%	1/4W	
R134	1-249-425-11	CARBON	4.7K	5%	1/4W	F	R810	1-249-429-11	CARBON	10K	5%	1/4W	
R135	1-249-425-11	CARBON	4.7K	5%	1/4W	F	R811	1-249-429-11	CARBON	10K	5%	1/4W	
R137	1-249-389-11	CARBON	4.7	5%	1/4W	F	R813	1-249-413-11	CARBON	470	5%	1/4W	F
R140	1-247-807-31	CARBON	100	5%	1/4W		R814	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R141	1-249-429-11	CARBON	10K	5%	1/4W	F	R815	1-249-413-11	CARBON	470	5%	1/4W	F
R142	1-249-433-11	CARBON	22K	5%	1/4W		R816	1-249-417-11	CARBON	1K	5%	1/4W	F
R143	1-249-409-11	CARBON	220	5%	1/4W	F	R817	1-249-417-11	CARBON	1K	5%	1/4W	F
R222	1-249-433-11	CARBON	22K	5%	1/4W		R818	1-249-417-11	CARBON	1K	5%	1/4W	F
R223	1-249-435-11	CARBON	33K	5%	1/4W		R821	1-249-417-11	CARBON	1K	5%	1/4W	F
R225	1-249-421-11	CARBON	2.2K	5%	1/4W	F	R822	1-249-417-11	CARBON	1K	5%	1/4W	F
R226	1-249-433-11	CARBON	22K	5%	1/4W		R823	1-249-417-11	CARBON	1K	5%	1/4W	F
R227	1-249-437-11	CARBON	47K	5%	1/4W		R824	1-249-417-11	CARBON	1K	5%	1/4W	F
R228	1-249-429-11	CARBON	10K	5%	1/4W		R825	1-249-417-11	CARBON	1K	5%	1/4W	F
R229	1-249-411-11	CARBON	330	5%	1/4W		R826	1-249-417-11	CARBON	1K	5%	1/4W	F
R231	1-247-807-31	CARBON	100	5%	1/4W		R827	1-249-417-11	CARBON	1K	5%	1/4W	F
R232	1-249-419-11	CARBON	1.5K	5%	1/4W	F	R828	1-249-417-11	CARBON	1K	5%	1/4W	F
R233	1-249-425-11	CARBON	4.7K	5%	1/4W	F	R830	1-249-417-11	CARBON	1K	5%	1/4W	F
R234	1-249-425-11	CARBON	4.7K	5%	1/4W	F	R831	1-249-417-11	CARBON	1K	5%	1/4W	F
R235	1-249-425-11	CARBON	4.7K	5%	1/4W	F	R832	1-249-417-11	CARBON	1K	5%	1/4W	F
R237	1-249-389-11	CARBON	4.7	5%	1/4W	F	R833	1-249-417-11	CARBON	1K	5%	1/4W	F
R240	1-247-807-31	CARBON	100	5%	1/4W		R834	1-249-417-11	CARBON	1K	5%	1/4W	F
R241	1-249-429-11	CARBON	10K	5%	1/4W	F	R835	1-249-417-11	CARBON	1K	5%	1/4W	F
R242	1-249-433-11	CARBON	22K	5%	1/4W		R836	1-249-429-11	CARBON	10K	5%	1/4W	
R243	1-249-409-11	CARBON	220	5%	1/4W	F	R837	1-249-429-11	CARBON	10K	5%	1/4W	
R323	1-249-425-11	CARBON	4.7K	5%	1/4W	F	R838	1-249-417-11	CARBON	1K	5%	1/4W	F
R324	1-249-441-11	CARBON	100K	5%	1/4W		R840	1-249-417-11	CARBON	1K	5%	1/4W	F
R325	1-249-429-11	CARBON	10K	5%	1/4W		R841	1-249-417-11	CARBON	1K	5%	1/4W	F
R326	1-249-435-11	CARBON	33K	5%	1/4W		R842	1-249-417-11	CARBON	1K	5%	1/4W	F
R327	1-249-435-11	CARBON	33K	5%	1/4W		R843	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R328	1-259-880-11	CARBON	2.2M	5%	1/4W		R845	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R329	1-247-807-31	CARBON	100	5%	1/4W		R846	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R331	1-249-429-11	CARBON	10K	5%	1/4W		R847	1-247-843-11	CARBON	3.3K	5%	1/4W	
R332	1-249-421-11	CARBON	2.2K	5%	1/4W	F	R848	1-249-429-11	CARBON	10K	5%	1/4W	
R333	1-247-830-91	CARBON	910	5%	1/4W	F	R849	1-249-429-11	CARBON	10K	5%	1/4W	
R334	1-249-425-11	CARBON	4.7K	5%	1/4W	F	R850	1-249-429-11	CARBON	10K	5%	1/4W	
R336	1-249-413-11	CARBON	470	5%	1/4W	F	R851	1-247-843-11	CARBON	3.3K	5%	1/4W	
R339	1-249-385-11	CARBON	2.2	5%	1/6W	F	R852	1-249-425-11	CARBON	4.7K	5%	1/4W	F

MAIN

POWER

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Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark									
R853	1-249-437-11	CARBON	47K	5%	1/4W	△F902	1-576-193-11	FUSE (6.3A/125V) (EXCEPT E4)	<TRANSFORMER>									
R854	1-249-429-11	CARBON	10K	5%	1/4W													
R855	1-249-417-11	CARBON	1K	5%	1/4W F													
R856	1-249-425-11	CARBON	4.7K	5%	1/4W F													
R856	1-249-415-11	CARBON	680	5%	1/4W F	△T901	1-435-966-11	TRANSFORMER, POWER (E4)										
					(EXCEPT E4)	△T901	1-439-710-11	TRANSFORMER, POWER (EXCEPT E4)										
						When you exchange T901 (EXCEPT E4), please also exchange POWER BOARD for a new type (1-688-009-11).												

R857	1-249-425-11	CARBON	4.7K	5%	1/4W F	*	A-3347-148-A	TC BOARD, COMPLETE	*****									
R858	1-249-417-11	CARBON	1K	5%	1/4W F													
R859	1-249-421-11	CARBON	2.2K	5%	1/4W F													
R860	1-249-417-11	CARBON	1K	5%	1/4W F													
R861	1-249-417-11	CARBON	1K	5%	1/4W F													
R862	1-249-417-11	CARBON	1K	5%	1/4W F		3-222-726-01	CHASSIS (TC)										
R951	1-249-441-11	CARBON	100K	5%	1/4W													
R952	1-249-421-11	CARBON	2.2K	5%	1/4W F													
R954	1-249-413-11	CARBON	470	5%	1/4W F													
R955	1-247-807-31	CARBON	100	5%	1/4W													
R956	1-249-413-11	CARBON	470	5%	1/4W F		7-685-783-09	SCREW +PTT 2X6 (S)	<CAPACITOR>									
R957	1-247-807-31	CARBON	100	5%	1/4W													
R958	1-249-417-11	CARBON	1K	5%	1/4W F													
R959	1-249-411-11	CARBON	330	5%	1/4W													
R960	1-247-807-31	CARBON	100	5%	1/4W													
R961	1-249-417-11	CARBON	1K	5%	1/4W F													
(CND,E4)																		
△R962	1-219-149-11	RESISTOR, FUSE 1 (US,E92,MX)											C101	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
<VIBRATOR>													C102	1-104-665-11	ELECT	100uF	20%	10V
X801	1-781-721-11	VIBRATOR, CRYSTAL (153kHz)											C103	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
X802	1-781-775-21	VIBRATOR, CERAMIC (4MHz)				C104	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V							

*	1-681-302-11	POWER BOARD (FORMER TYPE)				C105	1-162-923-11	CERAMIC CHIP	47PF	5%	50V							
	1-688-009-11	POWER BOARD (NEW TYPE)				C107	1-162-962-11	CERAMIC CHIP	470PF	10%	50V							
	*****						C201	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V						
	1-533-233-31	HOLDER, FUSE				C202	1-104-665-11	ELECT	100uF	20%	10V							
	3-230-783-01	CHASSIS (TRANS)				C203	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V							
7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S				C204	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V								
<CAPACITOR>						C205	1-162-923-11	CERAMIC CHIP	47PF	5%	50V							
C901	1-127-880-21	CERAMIC	0.022uF	10%	50V	C207	1-162-962-11	CERAMIC CHIP	470PF	10%	50V							
C902	1-127-880-21	CERAMIC	0.022uF	10%	50V	C301	1-104-665-11	ELECT	100uF	20%	10V							
C903	1-127-880-21	CERAMIC	0.022uF	10%	50V	C302	1-104-665-11	ELECT	100uF	20%	10V							
C904	1-127-880-21	CERAMIC	0.022uF	10%	50V	C303	1-104-665-11	ELECT	100uF	20%	10V							
C909	1-126-943-11	ELECT	2200uF	20%	25V	C304	1-104-664-11	ELECT	47uF	20%	10V							
<CONNECTOR>						C305	1-162-962-11	CERAMIC CHIP	470PF	10%	50V							
* CNP902	1-785-657-11	PIN, CONNECTOR (PC BOARD) 5P				C306	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V							
* CNP903	1-785-658-11	PIN, CONNECTOR (PC BOARD) 6P				C307	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V							
* CNP904	1-691-961-11	PIN, CONNECTOR (PC BOARD) 2P (E4)				<CONNECTOR>												
* CNP905	1-695-295-11	PIN, CONNECTOR (PC BOARD) 4P (E4)				CN303	1-568-828-11	CONNECTOR, FFC 9P										
<DIODE>						<IC>												
D901	8-719-046-47	DIODE 1N5401TM				IC301	8-759-264-71	IC TA2068N										
D902	8-719-046-47	DIODE 1N5401TM				<JUMPER RESISTOR>												
D903	8-719-046-47	DIODE 1N5401TM				JC301	1-216-864-11	METAL CHIP	0	5%	1/16W							
D904	8-719-046-47	DIODE 1N5401TM				JC302	1-216-864-11	METAL CHIP	0	5%	1/16W							
<FUSE>						JC303	1-216-864-11	METAL CHIP	0	5%	1/16W							
△F902	1-532-504-51	FUSE (T4AL/250V) (E4)				JC304	1-216-864-11	METAL CHIP	0	5%	1/16W							
						JC305	1-216-864-11	METAL CHIP	0	5%	1/16W							
						JC306	1-216-295-91	SHORT	0									
						JC307	1-216-864-11	METAL CHIP	0	5%	1/16W							
						JC308	1-216-295-91	SHORT	0									
						<TRANSISTOR>												
						Q301	8-729-422-29	TRANSISTOR	2SD601A-S									
						The components identified by												
						Les composants identifiés par une												

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TUNER

Ref. No.	Part No.	Description	Remark		
<RESISTOR>					
R101	1-216-835-11	METAL CHIP	15K	5%	1/16W
R102	1-216-807-11	METAL CHIP	68	5%	1/16W
R103	1-216-843-11	METAL CHIP	68K	5%	1/16W
R104	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R105	1-216-835-11	METAL CHIP	15K	5%	1/16W
R106	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R110	1-216-809-11	METAL CHIP	100	5%	1/16W
R112	1-216-835-11	METAL CHIP	15K	5%	1/16W
R201	1-216-835-11	METAL CHIP	15K	5%	1/16W
R202	1-216-807-11	METAL CHIP	68	5%	1/16W
R203	1-216-843-11	METAL CHIP	68K	5%	1/16W
R204	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R205	1-216-835-11	METAL CHIP	15K	5%	1/16W
R206	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R210	1-216-025-11	RES-CHIP	100	5%	1/10W
R212	1-216-835-11	METAL CHIP	15K	5%	1/16W
R301	1-216-857-11	METAL CHIP	1M	5%	1/16W
R302	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R303	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R304	1-216-821-11	METAL CHIP	1K	5%	1/16W
R305	1-216-811-11	METAL CHIP	150	5%	1/16W
R306	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R307	1-216-797-11	METAL CHIP	10	5%	1/16W
R308	1-216-837-11	METAL CHIP	22K	5%	1/16W
R309	1-216-805-11	METAL CHIP	47	5%	1/16W
<SWITCH>					
S301	1-762-565-11	SWITCH, SLIDE (REC/PB)			
<TRANSFORMER>					
T301	1-416-041-11	TRANSFORMER, BIAS OSCILLATION			

*	A-3062-356-A	TUNER BOARD, COMPLETE (EXCEPT E4)			
*	A-3062-468-A	TUNER BOARD, COMPLETE (E4)			

	3-230-784-01	CHASSIS (TU)			
	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S			
<CAPACITOR>					
C1	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C4	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C7	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C8	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C9	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C10	1-126-960-11	ELECT	1uF	20%	50V
C11	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C12	1-126-963-11	ELECT	4.7uF	20%	50V
C14	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
(E4)					
C14	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
(EXCEPT E4)					
C15	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
(E4)					
C15	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
(EXCEPT E4)					
C18	1-126-934-11	ELECT	220uF	20%	10V

Ref. No.	Part No.	Description			Remark
C20	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C21	1-126-960-11	ELECT	1uF	20%	50V
C22	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C23	1-126-960-11	ELECT	1uF	20%	50V
C24	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C26	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C27	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C29	1-104-665-11	ELECT	100uF	20%	10V
C30	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C31	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C32	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C33	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C34	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C35	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C37	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C39	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C41	1-164-230-11	CERAMIC CHIP	220PF	5.00%	50V
C42	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C43	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C47	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C49	1-161-051-00	CERAMIC	0.01uF	10%	50V
C51	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C52	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C53	1-136-169-00	FILM	0.22uF	5.00%	50V
C54	1-126-934-11	ELECT	220uF	20%	10V
C55	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C56	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C57	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C59	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C60	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C61	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C62	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C63	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C65	1-126-963-11	ELECT	4.7uF	20%	50V
C66	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C68	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C77	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
(E4)					
C78	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
(E4)					
C80	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C95	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
<FILTER>					
CF2	1-760-233-71	FILTER, CERAMIC			
CF2	1-760-023-11	FILTER, CERAMIC			
CF4	1-781-962-21	FILTER, CERAMIC			
<CONNECTOR>					
* CNP1	1-564-713-11	PIN, CONNECTOR (SMALL TYPE) 11P			
<TRIMMER CAPACITOR>					
CT1	1-141-603-11	CAP, ADJ	20P (FM TRACKING)		
CT3	1-141-601-11	CAP, ADJ	10P (AM TRACKING)		
<DIODE>					
D1	8-719-078-48	DIODE KV1471ETR1-3			

TUNER

VOL SEL

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
D2	8-719-078-48	DIODE KV1471ETR1-3		R91	1-216-821-11	METAL CHIP 1K 5%	1/16W
D3	8-719-050-69	DIODE KV1520N		R92	1-216-821-11	METAL CHIP 1K 5%	1/16W
D10	8-719-988-61	DIODE 1SS355TE-17		R94	1-216-821-11	METAL CHIP 1K 5%	1/16W
D11	8-719-988-61	DIODE 1SS355TE-17				<TRANSFORMER>	
		<IC>		T1	1-433-741-11	TRANSFORMER, IF (AM IF)	
IC1	8-759-662-67	IC TA2149N		T2	1-419-465-11	COIL (DET) (FM IF)	
IC2	8-759-483-40	IC LC72137M-TLM				<VIBRATOR>	
		<JUMPER RESISTOR>		X1	1-760-130-11	VIBRATOR, CRYSTAL (75kHz) (E4)	
JC1	1-216-864-11	METAL CHIP 0 5%	1/16W	X1	1-781-592-11	VIBRATOR, CRYSTAL (75kHz) (EXCEPT E4)	
JC2	1-216-864-11	METAL CHIP 0 5%	1/16W			*****	
JC3	1-216-864-11	METAL CHIP 0 5%	1/16W				
JC4	1-216-864-11	METAL CHIP 0 5%	1/16W	*	1-681-305-11	VOL SEL BOARD (E4)	
JC5	1-216-864-11	METAL CHIP 0 5%	1/16W			*****	
JC6	1-216-864-11	METAL CHIP 0 5%	1/16W			<SWITCH>	
JC11	1-216-864-11	METAL CHIP 0 5%	1/16W	△S901	1-570-173-31	SELECTOR, POWER VOLTAGE	
JC12	1-216-864-11	METAL CHIP 0 5%	1/16W			(VOLTAGE SELECTOR) (E4)	
JC13	1-216-864-11	METAL CHIP 0 5%	1/16W			*****	
JC24	1-216-864-11	METAL CHIP 0 5%	1/16W			MISCELLANEOUS	
		(E4)				*****	
JC33	1-216-864-11	METAL CHIP 0 5%	1/16W				
JC34	1-216-864-11	METAL CHIP 0 5%	1/16W				
		<COIL>		* 18	1-757-781-11	CABLE, FLEXIBLE FLAT (9 CORE)	
L1	1-409-775-11	COIL, AIR-CORE (FM TRACKING)		59	1-452-899-11	MAGNET	
L2	1-416-509-11	COIL, AIR-CORE (FM FREQUENCY COVERAGE)		102	1-757-780-11	CABLE, FLEXIBLE FLAT (25 CORE)	
L3	1-754-117-11	ANTENNA, FERRITE-ROD (MW)		114	1-757-777-11	CABLE, FLEXIBLE FLAT (9 CORE)	
		(AM TRACKING)		118	1-757-779-11	WIRE (FLAT TYPE) (14 CORE)	
L4	1-411-234-21	COIL, AM OSC (AM FREQUENCY COVERAGE)		123	1-792-684-11	WIRE (FLAT TYPE) (16 CORE)	
L11	1-414-142-11	INDUCTOR 1uH (EXCEPT E4)		252	X-2162-709-1	CHASSIS ASSY (CDP) , MOTOR (SPINDLE)	
						(INCLUDING M701)	
L21	1-410-509-61	INDUCTOR 10uH		△253	X-848-483-05	OPTICAL PICK-UP KSS-213C	
		<RESISTOR>		ANT1	1-501-883-21	ANTENNA, TELESCOPIC	
R1	1-216-815-11	METAL CHIP 330 5%	1/16W	△F901	1-532-279-00	FUSE T500mA 250V (E4)	
R2	1-216-817-11	METAL CHIP 470 5%	1/16W				
R3	1-216-833-11	METAL CHIP 10K 5%	1/16W	△F902	1-532-350-00	FUSE T4A 250V (E4)	
R4	1-216-833-11	METAL CHIP 10K 5%	1/16W	△F902	1-576-193-11	FUSE 6.3A 125V (EXCEPT E4)	
R10	1-216-805-11	METAL CHIP 47 5%	1/16W	HE301	1-543-876-11	HEAD (ERASE)	
				HRP301	1-500-668-11	HEAD,MAGNETIC(RECORD/PLAYBACK)	
R11	1-216-827-11	METAL CHIP 3.3K 5%	1/16W	M321	A-3320-446-A	MOTOR ASSY	
R13	1-216-825-11	METAL CHIP 2.2K 5%	1/16W				
R24	1-216-813-11	METAL CHIP 220 5%	1/16W	M702	X-2625-769-1	GEAR ASSY (MB), MOTOR (SLED)	
R30	1-216-835-11	METAL CHIP 15K 5%	1/16W			(INCLUDING GEAR)	
R31	1-216-827-11	METAL CHIP 3.3K 5%	1/16W	S321	1-771-686-11	SWITCH, LEAF (PLAY)	
				S322	1-762-679-11	SWITCH, LEAF (MOTOR)	
R32	1-216-845-11	METAL CHIP 100K 5%	1/16W	S801	1-692-960-11	SWITCH, PUSH (1 KEY) (CD DOOR)	
R40	1-216-849-11	METAL CHIP 220K 5%	1/16W	SP391	1-544-790-11	SPEAKER (10cm)	
R41	1-216-833-11	METAL CHIP 10K 5%	1/16W				
R50	1-216-821-11	METAL CHIP 1K 5%	1/16W	SP392	1-544-790-11	SPEAKER (10cm)	
R51	1-216-833-11	METAL CHIP 10K 5%	1/16W	SP393	1-544-791-11	SPEAKER (8cm)	
				SP394	1-544-792-11	SPEAKER (5cm)	
R52	1-216-864-11	METAL CHIP 0 5%	1/16W	SP395	1-544-792-11	SPEAKER (5cm)	
R53	1-216-835-11	METAL CHIP 15K 5%	1/16W			*****	
R54	1-216-817-11	METAL CHIP 470 5%	1/16W				
R56	1-216-815-11	METAL CHIP 330 5%	1/16W				
R58	1-216-825-11	METAL CHIP 2.2K 5%	1/16W				
R59	1-216-825-11	METAL CHIP 2.2K 5%	1/16W				
R60	1-216-825-11	METAL CHIP 2.2K 5%	1/16W				
R61	1-216-825-11	METAL CHIP 2.2K 5%	1/16W				
R63	1-216-833-11	METAL CHIP 10K 5%	1/16W				
R65	1-216-833-11	METAL CHIP 10K 5%	1/16W				

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

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

Ref. No.	Part No.	Description	Remark
		ACCESSORIES	

	A-3013-894-A	REMOTE COMMANDER RMT-CG70AD	
	A-3052-475-A	CONNECTION UNIT ASSY	
*△	1-557-287-11	CORD, POWER (E92,MX)	
△	1-569-008-21	ADAPTOR, CONVERSION (E4)	
	1-757-404-11	CORD, CONNECTION	
△	1-769-412-11	CORD, POWER (E4)	
△	1-782-126-11	CORD, POWER (US,CND)	
	3-027-153-01	LID, BATTERY CASE (FOR RMT-CG70AD)	
	3-232-025-11	MANUAL, INSTRUCTION (ENGLISH)	
		(US,CND,E92,MX)	
	3-232-025-21	MANUAL, INSTRUCTION (FRENCH) (CND)	
	3-232-025-31	MANUAL, INSTRUCTION (SPANISH) (E92,MX)	
	3-232-025-41	MANUAL, INSTRUCTION (ENGLISH,SPANISH)	
		(E4)	
	3-232-025-61	MANUAL, INSTRUCTION	
		(DUTCH,PORTUGUESE) (E4)	

		HARDWARE LIST	

#1	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#2	7-685-649-79	SCREW +BVTP 3X14 TYPE2 N-S	
#3	7-685-651-79	SCREW +BVTP 3X20 TYPE2 N-S	
#4	7-682-548-04	SCREW +BVTT 3X8	
#5	7-685-533-19	SCREW +BVTP 2.6X6 TYPE2 N-S	
#6	7-685-783-09	SCREW +PTT 3X6 (S)	
#7	7-621-770-87	SCREW +B 2.6X5	
#8	7-621-255-45	SCREW +P 2.6X6	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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CFD-G70

SONY®

SERVICE MANUAL

2002.06

*US Model
Canadian Model
E Model*

SUPPLEMENT - 1

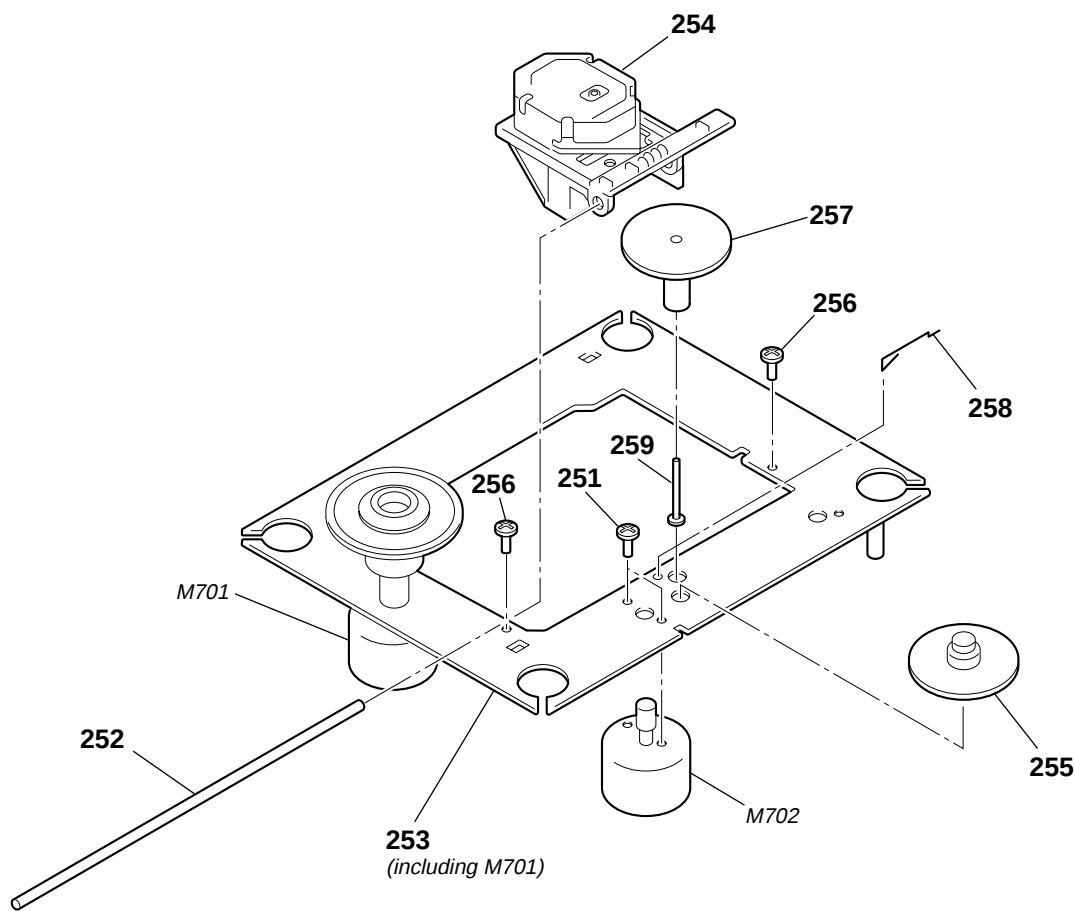
File this Supplement with the Service Manual.

Subject : CHANGE OF CD MECHANISM

(SPM-02027)

CD mechanism changed to KSM-213RDP from KSM-213CDP after serial No.0029461.
Please check serial No. when you exchange the parts of CD mechanism.

OPTICAL PICK-UP SECTION (KSM-213RDP)



The components identified by mark $\triangle$ or dotted line with mark $\triangle$ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque $\triangle$ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
251	3-713-786-51	SCREW (M2X3)		256	2-169-388-01	TAPPING (M2), +PWB	
252	2-626-908-01	SHAFT, SLED		* 257	2-169-065-01	GEAR (A)	
253	X-2162-707-1	CHASSIS ASSY (RDP) (RP), MOTOR (SPINDLE) (INCLUDING M701)		* 258	2-169-385-01	SPRING, SLED	
$\triangle$ 254	8-820-161-02	OPTICAL PICK-UP KSS-213R		* 259	2-169-384-01	SHAFT (S), GEAR	
* 255	2-647-408-02	GEAR (B)		M702	X-2162-712-1	GEAR ASSY (R) (RP), MOTOR (MB) (SLED) (INCLUDING GEAR)	

MEMO

REVISION HISTORY

Clicking the version allows you to jump to the revised page.

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

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