

HCD-EP315

SERVICE MANUAL

AEP Model

Ver 1.2 2003.08



HCD-EP315 is the Amplifier, CD player, Tape Deck and Tuner section in CMT-EP315.

CD Section	Model Name Using Similar Mechanism	HCD-EP313
	CD Mechanism Type	KSM-213EDP
	Base Unit Name	BU-K7BD44B
TAPE Section	Optical Pick-up Name	KSS-213E/C2N
	Model Name Using Similar Mechanism	HCD-EP313
	Tape Transport Mechanism Type	ADR2080FR4

SPECIFICATIONS

Amplifier section

DIN power output (rated): 7 + 7 W
(6 ohms at 1 kHz, DIN)
Continuous RMS power output (reference):
10 + 10 W
(6 ohms at 1 kHz, 10% THD)
Music power output (reference):
20 + 20 W

Inputs
MD IN (phono jacks):

Sensitivity 500 mV,
impedance 47 kilohms

Outputs
PHONES (stereo minijack):

Accepts headphones with
an impedance of 8 ohms or
more

SPEAKER:
Accepts impedance of 6 to
16 ohms.

CD player section

System Compact disc and digital
audio system
Laser Semiconductor laser
($\lambda=780$ nm)
Emission duration:
continuous
Frequency response 2 Hz – 20 kHz (± 0.5 dB)

Tape deck section

Recording system 4-track 2-channel stereo
Frequency response 50 – 13,000 Hz (± 3 dB),
using Sony TYPE I
cassettes

Tuner section

FM stereo, FM/AM superheterodyne tuner

FM tuner section

Tuning range 87.5 – 108.0 MHz (50-kHz
step)

Antenna FM lead antenna

Antenna terminals 75 ohms balanced

Intermediate frequency 10.7 MHz

AM tuner section

Tuning range 531 – 1,602 kHz
(with the tuning interval
set at 9 kHz)

Antenna AM loop antenna, external
antenna terminal

Intermediate frequency 450 kHz

General

Power requirements 230 V AC, 50/60 Hz
Power consumption 32 watts
0.3 watts (in the standby
mode)
Dimensions (w/h/d) Approx. 148 × 233 × 208
mm
Mass Approx. 2.9 kg
Supplied accessories Remote (1)
R6 (size AA) batteries (2)
AM loop antenna (1)
FM lead antenna (1)

Design and specifications are subject to change
without notice.

MICRO HI-FI COMPONENT SYSTEM

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2003H16-1
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Home Audio Company
Published by Sony Engineering Corporation

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SAFETY-RELATED COMPONENT WARNING!!

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

SECTION 1 SERVICING NOTES

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.

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.

CAUTION

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

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the exterior.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

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

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

During repair, pay attention to electrostatic break-down 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

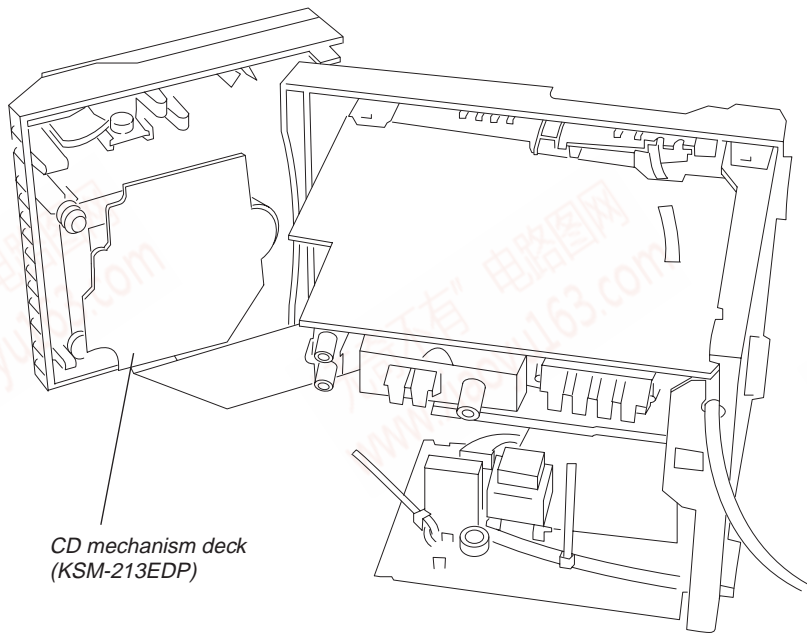
The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

Carry out the "S curve check" in "CD section adjustment" and check that the S curve waveforms is output three times.

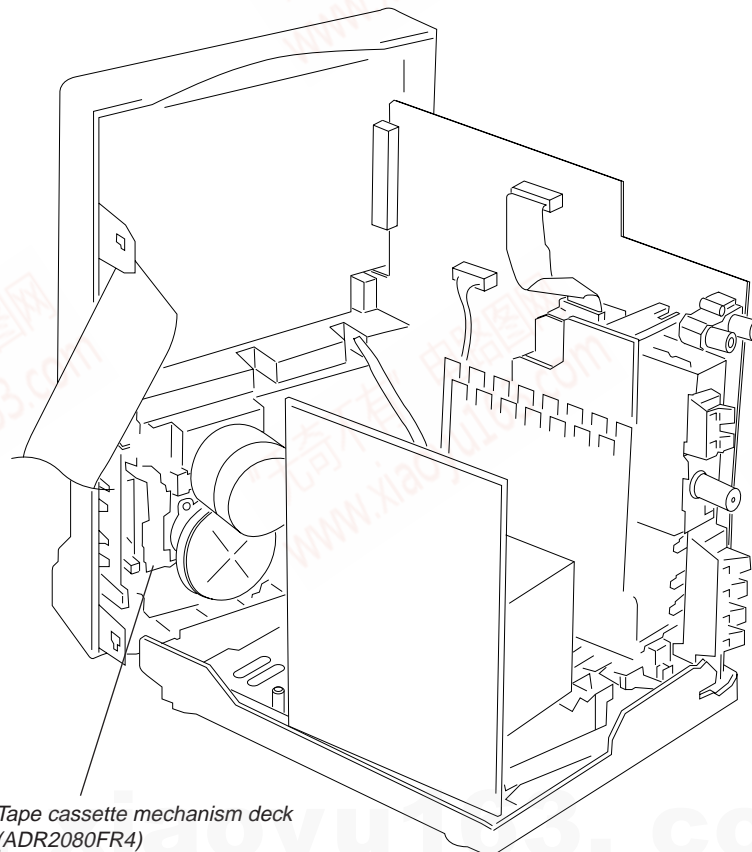
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Service Position of the CD Mechanism Deck



CD mechanism deck
(KSM-213EDP)

Service Position of the Tape Cassette Mechanism Deck



Tape cassette mechanism deck
(ADR2080FR4)

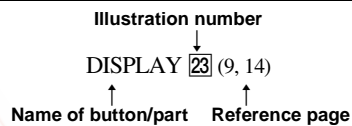
**SECTION 2
GENERAL**

This section is extracted from instruction manual.

List of button locations and reference pages

How to use this page

Use this page to find the location of buttons and other parts of the system that are mentioned in the text.



Main unit

ALPHABETICAL ORDER

A - M

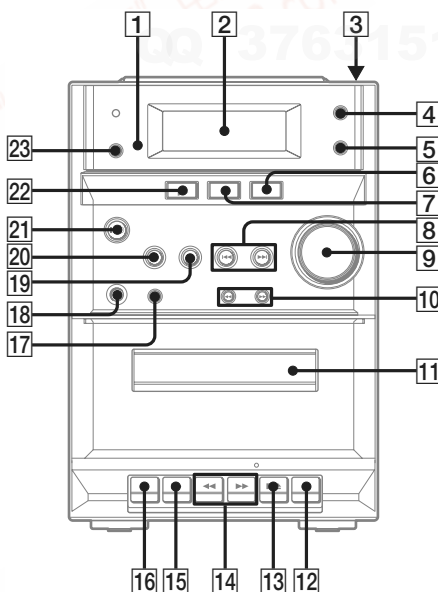
- BASS/TREBLE 5 (12)
- Cassette compartment 11
- DISPLAY 23 (9, 14)
- Display window 2
- DSG 4 (12)
- MD 6 (15)

P - Z

- PHONES jack 18
- PLAY MODE 17 (6, 7)
- PRESET +/- 8 (9)
- Remote sensor 1
- TUNER BAND 7 (8, 9)
- TUNING +/- 10 (8, 9)
- VOLUME 9 (13)

BUTTON DESCRIPTIONS

- I/⏻ (power) 21 (5, 9, 13)
- ⏮/⏪ (fast forward/rewind) 10 (6)
- ⏮/⏪/⏩/⏭ (go back/go forward) 8 (5, 6, 7, 12, 13)
- (stop) 19 (6, 7, 11, 17)
- ⏸ (pause) 20 (6)
- CD ▶ (play) 22 (6, 7, 11)
- ▲ PUSH OPEN/CLOSE (open/close) 3 (6)
- TAPE
- ⏮/⏪ (fast forward/rewind) 14 (10)
- ▲ (stop/eject) 13 (10, 11)
- ⏸ (pause) 12 (10, 11)
- ▶ (play) 15 (10)
- (record) 16 (11)



Remote control

ALPHABETICAL ORDER

A - M

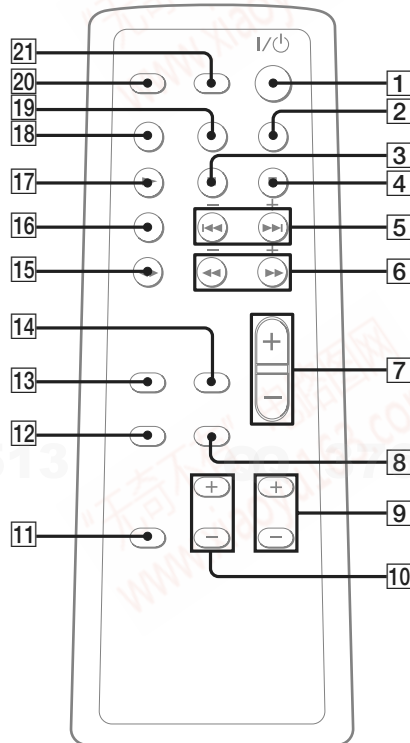
- BASS +/- [10] (12)
- CLEAR [8] (8, 9)
- CLOCK/TIMER SELECT [20] (13)
- CLOCK/TIMER SET [21] (5, 13)
- DISPLAY [2] (9, 14)
- DSG [11] (12)
- MD [18] (15)

P - Z

- PLAY MODE/DIRECTION [13] (6, 7)
- PRESET +/- [5] (9)
- REPEAT/FM MODE [14] (7, 9)
- SLEEP [19] (12)
- TREBLE +/- [9] (12)
- TUNER BAND [16] (8, 9)
- TUNER MEMORY [12] (8)
- TUNING +/- [6] (8, 9)
- VOL +/- [7] (13)

BUTTON DESCRIPTIONS

- I/⏻ (power) [1] (5, 9, 13)
- ⏩/⏪ (fast forward/rewind) [6] (6)
- ⏮/⏭ (go back/go forward) [5] (5, 6, 7, 13)
- (stop) [4] (6, 7, 11, 17)
- ⏸ (pause) [3] (6)
- CD ▶ (play) [17] (6, 7, 11)
- TAPE ◀▶ [15] (10)



Setting the clock

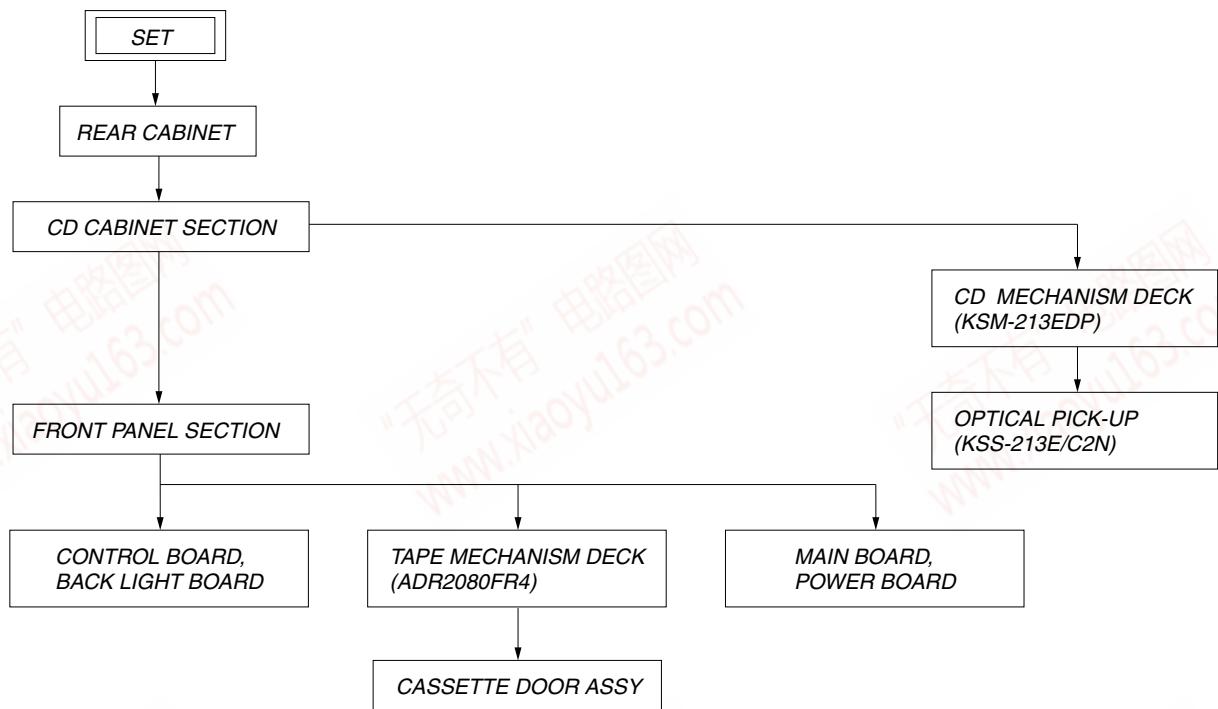
- 1** Press I/⏻ to turn on the system.
- 2** Press CLOCK/TIMER SET.
- 3** Press ⏮/⏭ repeatedly to set the hour.
- 4** Press CLOCK/TIMER SET.
- 5** Press ⏮/⏭ repeatedly to set the minute.
- 6** Press CLOCK/TIMER SET.
The clock starts working.

To adjust the clock

- 1** Press CLOCK/TIMER SET.
- 2** Press ⏮/⏭ to select the clock display, then press CLOCK/TIMER SET.
- 3** Do the same procedures as step 3 to 6 above.

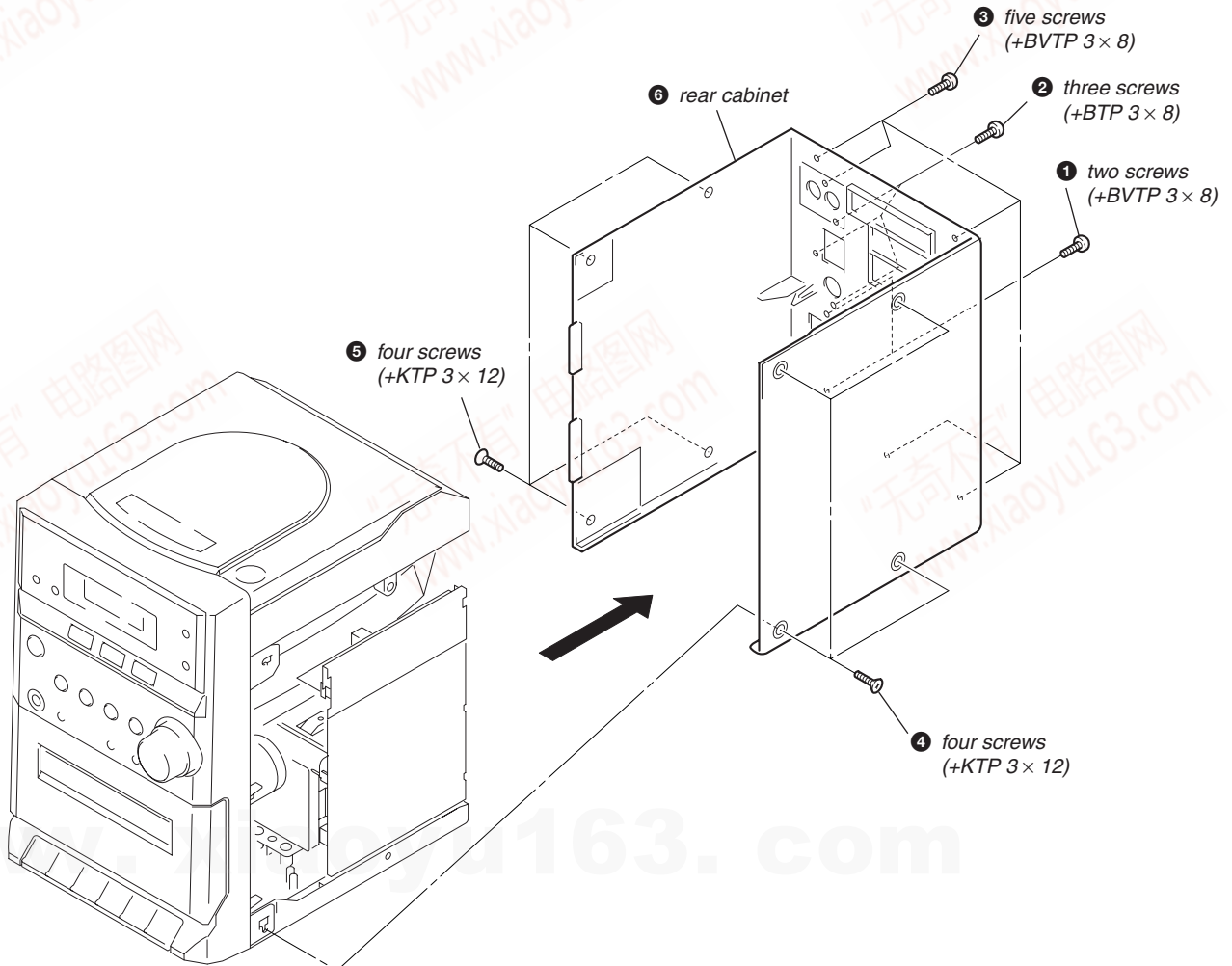
SECTION 3 DISASSEMBLY

- This set can be disassembled in the order shown below.

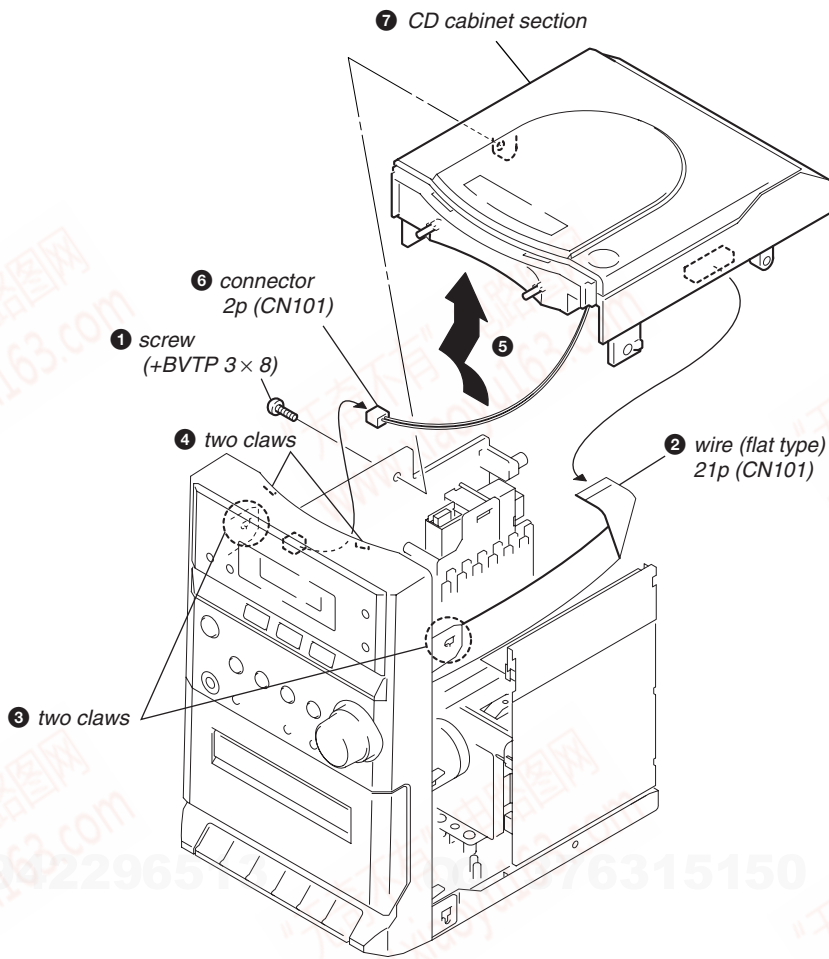


Note: Follow the disassembly procedure in the numerical order given.

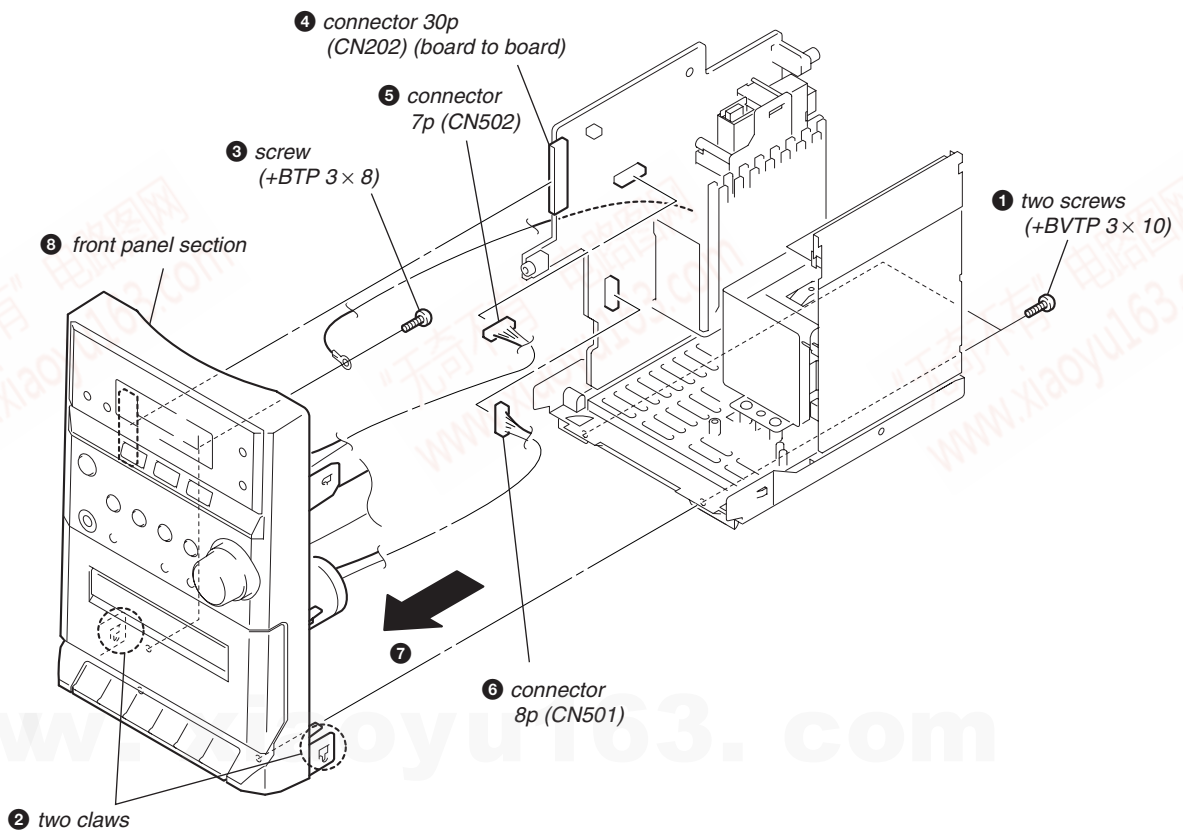
3-1. Rear Cabinet



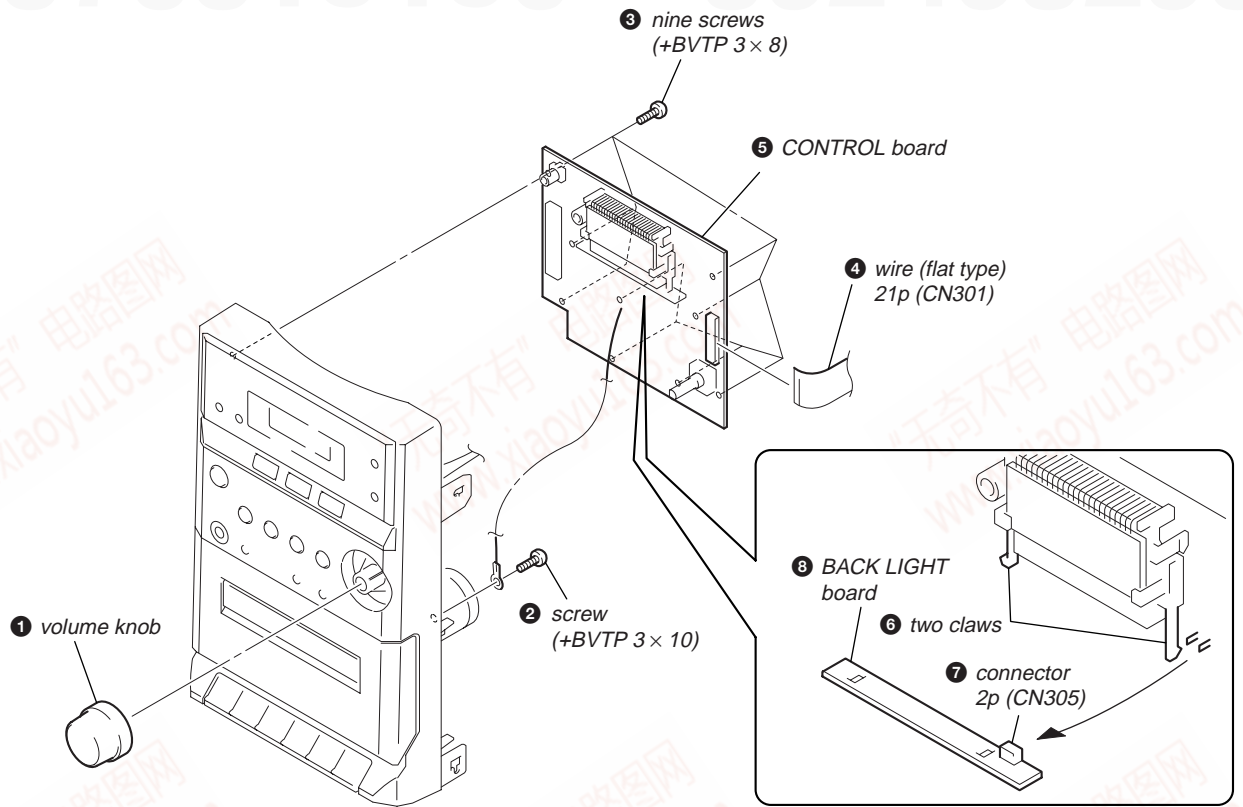
3-2. CD Cabinet Section



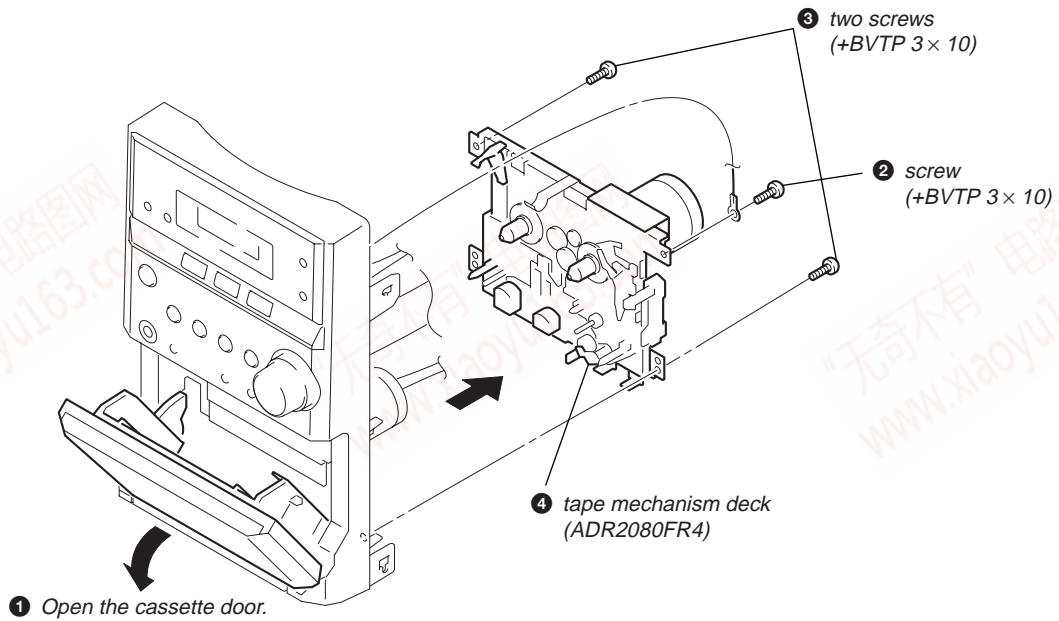
3-3. Front Panel Section



3-4. CONTROL Board, BACK LIGHT Board

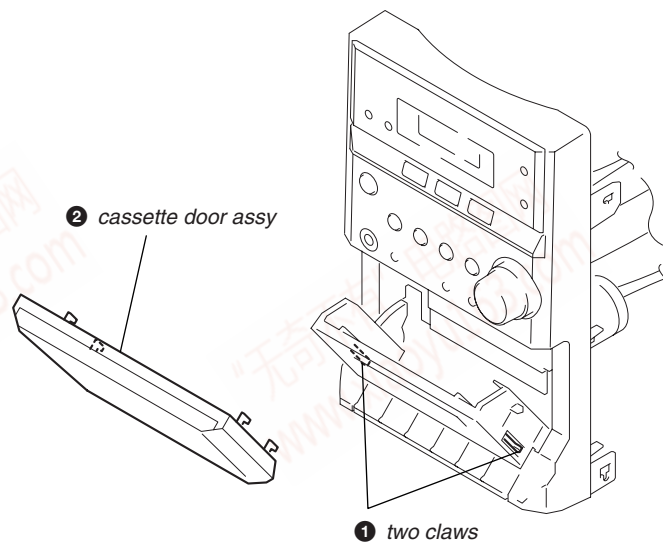


3-5. Tape Mechanism Deck (ADR2080FR4)

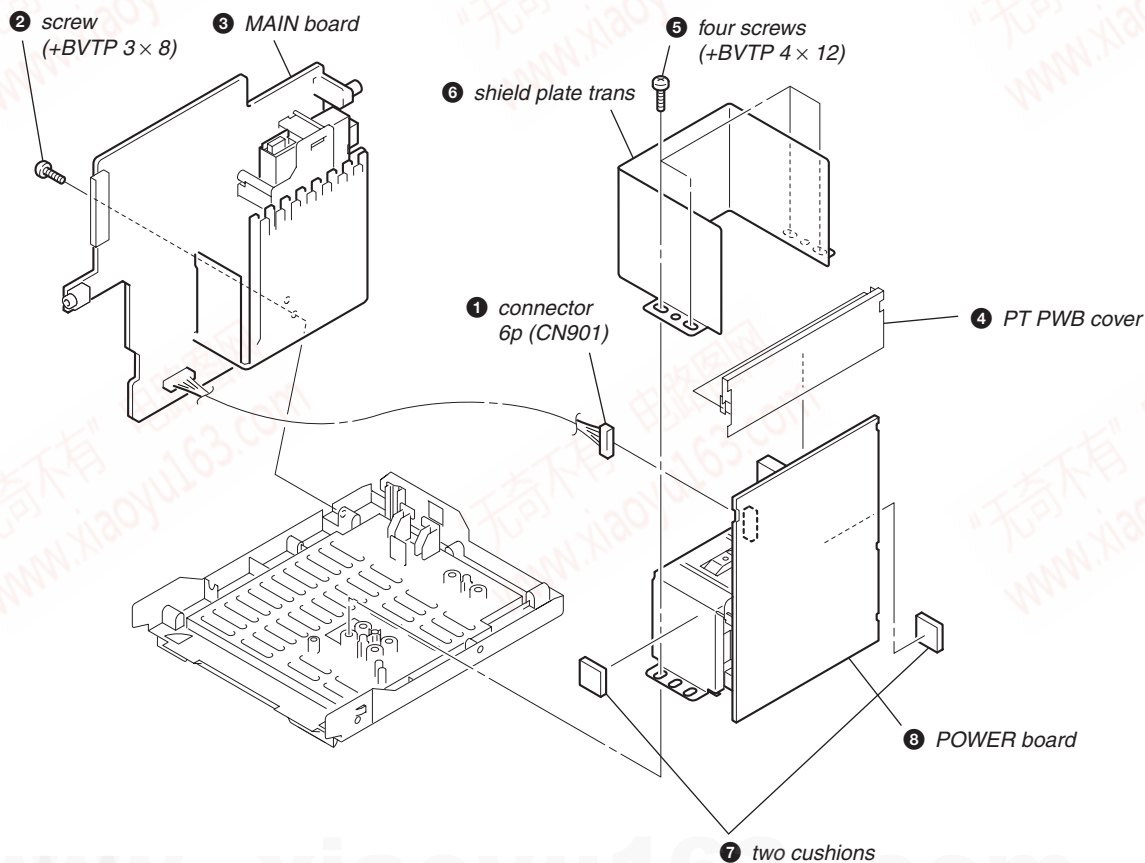


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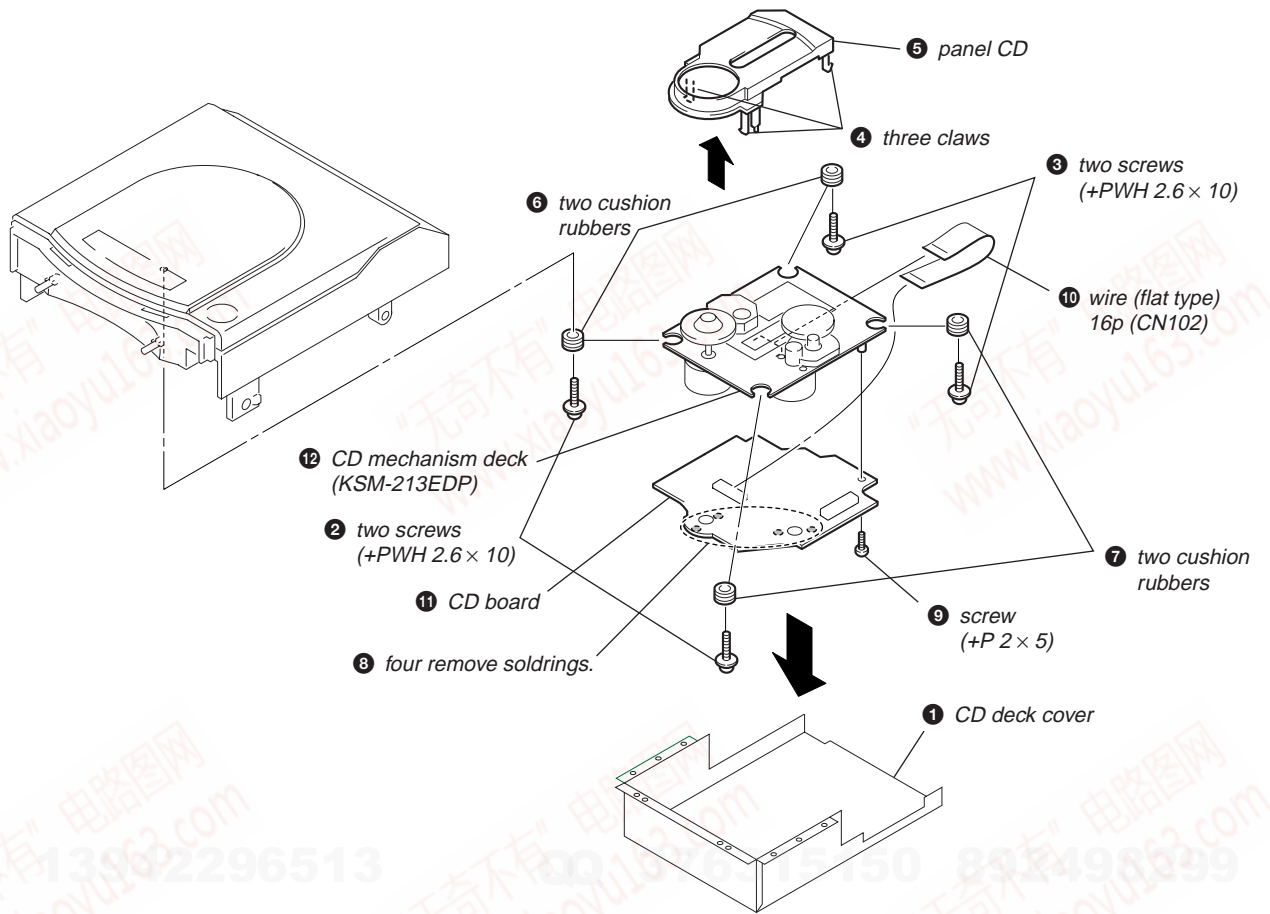
3-6. Cassette Door Assy



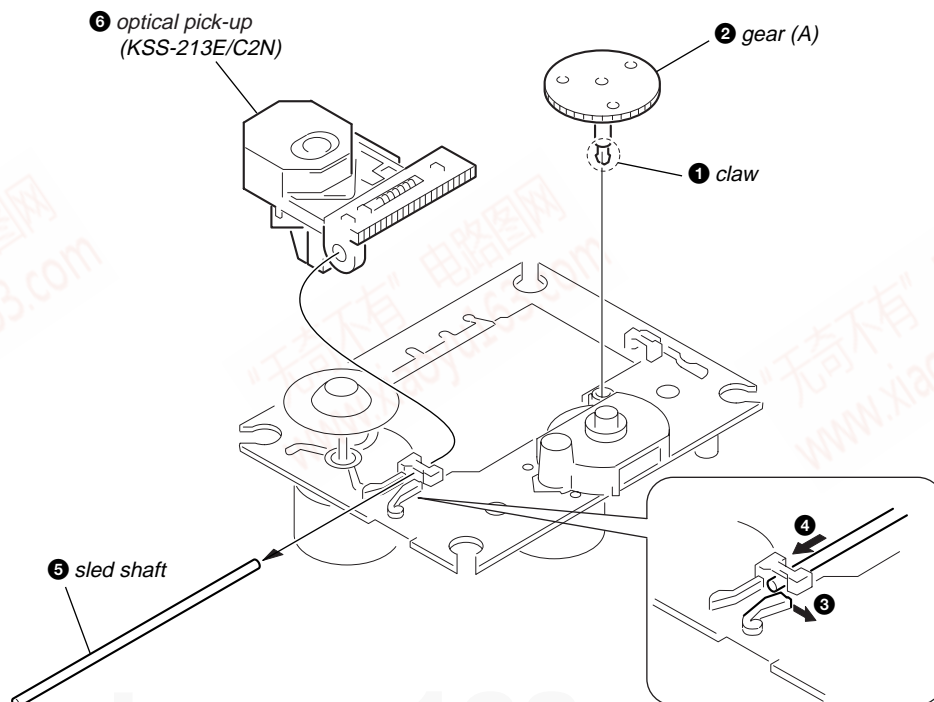
3-7. MAIN Board, POWER Board



3-8. CD Mechanism Deck (KSM-213EDP)



3-9. Optical Pick-up (KSS-213E/C2N)



SECTION 4 MECHANICAL ADJUSTMENTS

Precaution

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

record/playback heads	pinch rollers
erase head	rubber belts
capstan	idlers
2. Demagnetize the record/playback head with a head demagnetizer.
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	2.94 – 7.84 mN • m (30 to 79 g • cm) (0.42 – 1.11 oz • inch)
FWD back tension	CQ-102C	0.15 – 0.59 mN • m (2 to 6 g • cm) (0.03 – 0.08 oz • inch)
REV	CQ-102RC	0.15 – 0.59 mN • m (2 to 6 g • cm) (0.03 – 0.08 oz • inch)
REV back tension	CQ-102RC	0.15 – 0.59 mN • m (2 to 6 g • cm) (0.03 – 0.08 oz • inch)
FF/REW	CQ-201B	6.86 – 17.64 mN • m (70 to 179 g • cm) (0.98 – 2.49 oz • inch)
FWD tension	CQ-403A	9.8 mN • m or more (100 g • cm or more) (1.4 oz • inch or more)
REV tension	CQ-403R	9.8 mN • m or more (100 g • cm or more) (1.4 oz • inch or more)

SECTION 5 ELECTRICAL ADJUSTMENTS

DECK SECTION

0 dB=0.775V

1. Demagnetize the record/playback head with a head demagnetizer.
2. Do not use a magnetized screwdriver for the adjustments.
3. After the adjustments, apply suitable locking compound to the parts adjusted.
4. The adjustments should be performed with the rated power supply voltage unless otherwise noted.
5. The adjustments should be performed in the order given in this service manual. (As a general rule, playback circuit adjustment should be completed before performing recording circuit adjustment.)
6. The adjustments should be performed for both L-CH and R-CH.
7. Switches and controls should be set as follows unless otherwise specified.

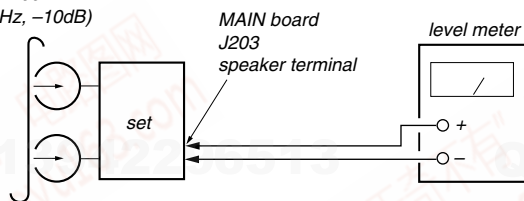
Tape	Signal	Used for
P-4-A100	10 kHz, -10 dB	Azimuth Adjustment
WS-48B	3 kHz, 0 dB	Tape Speed Adjustment

[Record/Playback Head Azimuth Adjustment]

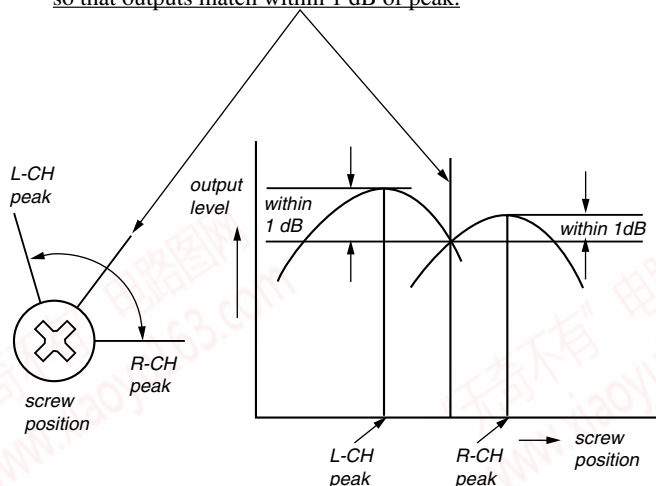
Procedure:

1. Mode : Playback

*test tape
P-4-A100
(10kHz, -10dB)*

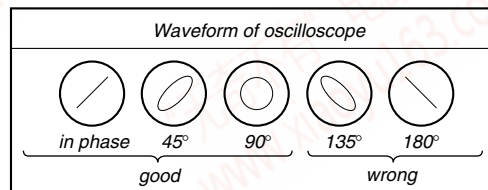
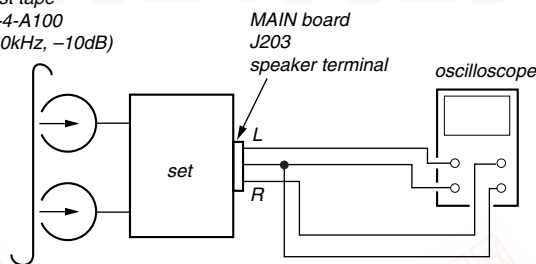


2. Turn the adjustment screw and check output peaks. If the peaks do not match for L-CH and R-CH, turn the adjustment screw so that outputs match within 1 dB of peak.



3. Mode: Playback

*test tape
P-4-A100
(10kHz, -10dB)*



4. After the adjustments, apply suitable locking compound to the parts adjusted.

Adjustment Location: Record/Playback/Erase Head

[Tape Speed Check]

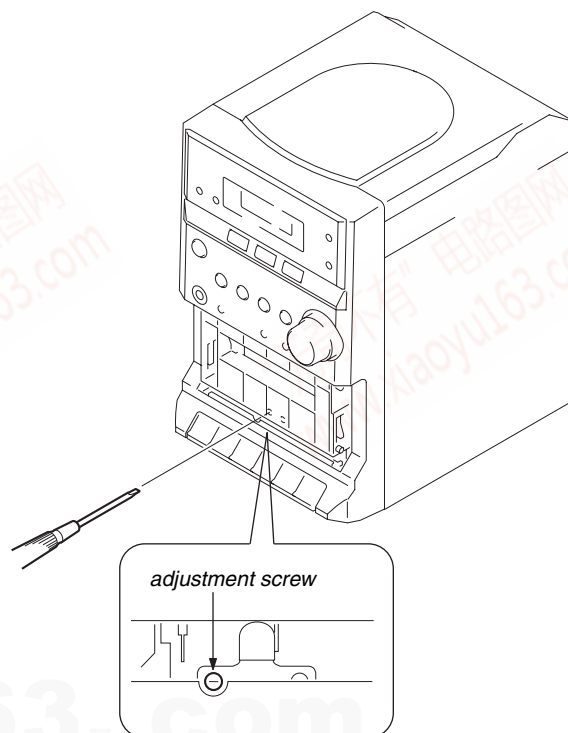
Procedure:

1. Turn the power on.
2. Insert the WS-48B into deck.
3. Press the button of deck.
4. Check the reading of frequency counter becomes 3000 ± 90 Hz.

Sample Value of Wow and flutter

W.RMS (JIS) less than 0.3%
(test tape: WS-48B)

Adjustment Location: Record/Playback Head.



Note: Refer to "3-6. Cassette Door Assy" (see page 10)

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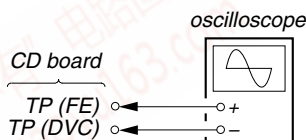
CD SECTION

Note:

1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10MΩ impedance.
4. Clean the object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

S-curve Check

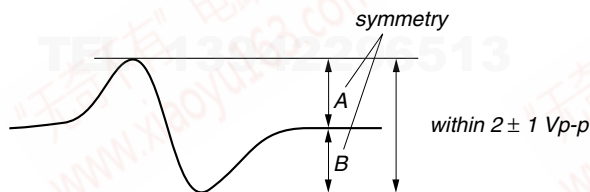
Connection:



Procedure:

1. Connect an oscilloscope to test point TP (FE) and TP (DVC) on the CD board.
2. Turn the power on.
3. Put the disc (YEDS-18) in and turned power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out)
4. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 2 ± 1 Vp-p.

S-curve waveform

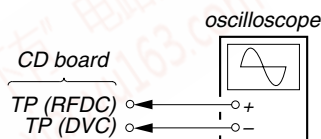


- Note:**
- Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
 - Take sweep time as long as possible and light up the brightness to obtain best waveform.

Checking Location: CD board (Conductor side)

RFDC Level Check

Connection:

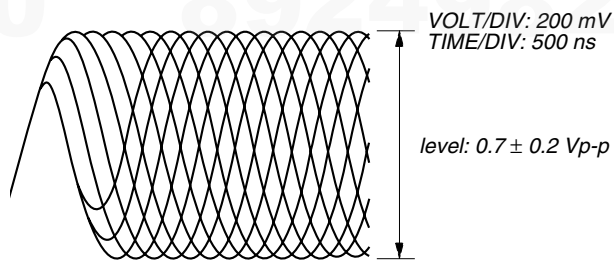


Procedure:

1. Connect an oscilloscope to test point TP (RFDC) and TP (DVC) on the CD board.
2. Turn the power on.
3. Put the disc (YEDS-18) in to playback the number five track.
4. Confirm that oscilloscope waveform is clear and check RFDC signal level is correct or not.

Note: A clear RFDC signal waveform means that the shape “∩” can be clearly distinguished at the center of the waveform.

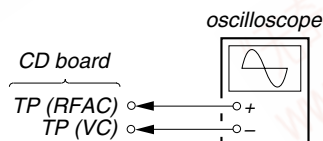
RFDC signal waveform



Checking Location: CD board (Conductor side)

RFAC Level Check

Connection:

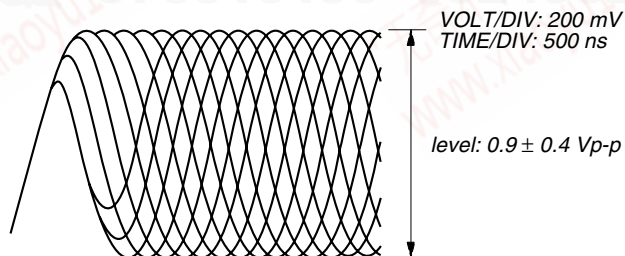


Procedure:

1. Connect an oscilloscope to test point TP (RFAC) and TP (VC) on the CD board.
2. Turn the power on.
3. Put the disc (YEDS-18) in to playback the number five track.
4. Confirm that oscilloscope waveform is clear and check RFAC signal level is correct or not.

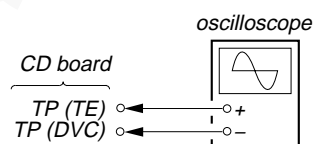
Note: A clear RFAC signal waveform means that the shape “∩” can be clearly distinguished at the center of the waveform.

RFAC signal waveform



Checking Location: CD board (Conductor side)

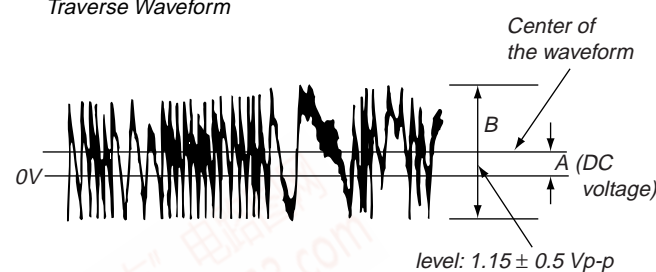
E-F Balance Check Connection:



Procedure:

1. Connect an oscilloscope to test point TP (TE) and TP (DVC) on the CD board.
2. AC is put in pushing **CD ▶** button.
3. FL tube carries out all lights and goes into CD test mode.
4. Put the disc (YEDS-18) in to playback the number five track.
5. Press the **CD ▶** button. (The tracking servo and the sledding servo are turned OFF)
6. Check the level B of the oscilloscope's waveform and the A (DC voltage) of the center of the Traverse waveform.
Confirm the following :
 $A/B \times 100 = \text{less than } \pm 22\%$

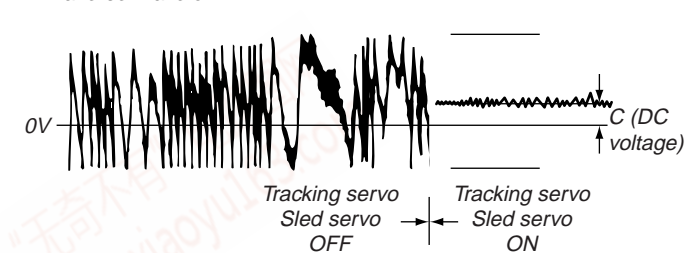
Traverse Waveform



7. Press the **CD ▶** button. (The tracking servo and sledding servo are turned ON)
Confirm the C (DC voltage) is almost equal to the A (DC voltage) is step 4.
8. To exit from this mode, turn the power off.

- Notes:**
- Always move the optical pick-up to most inside track when exiting from this mode. Otherwise, a disc will not be unloaded.
 - Do not run the sled motor excessively, otherwise the gear can be chipped.

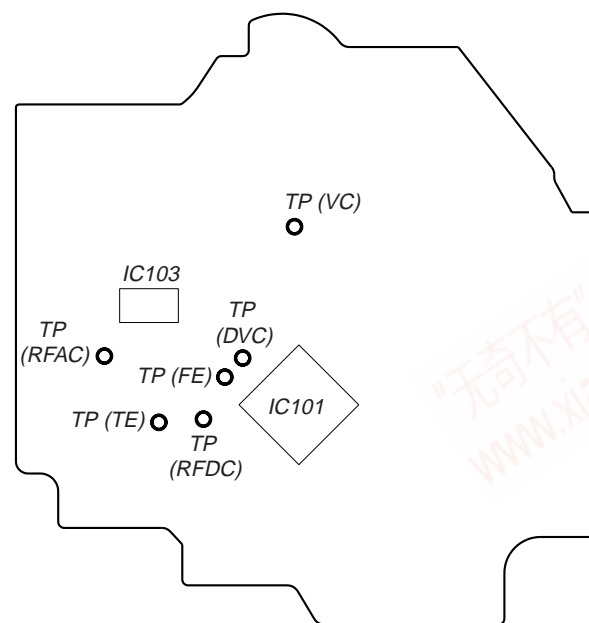
Traverse Waveform



Checking Location: CD board (Conductor side)

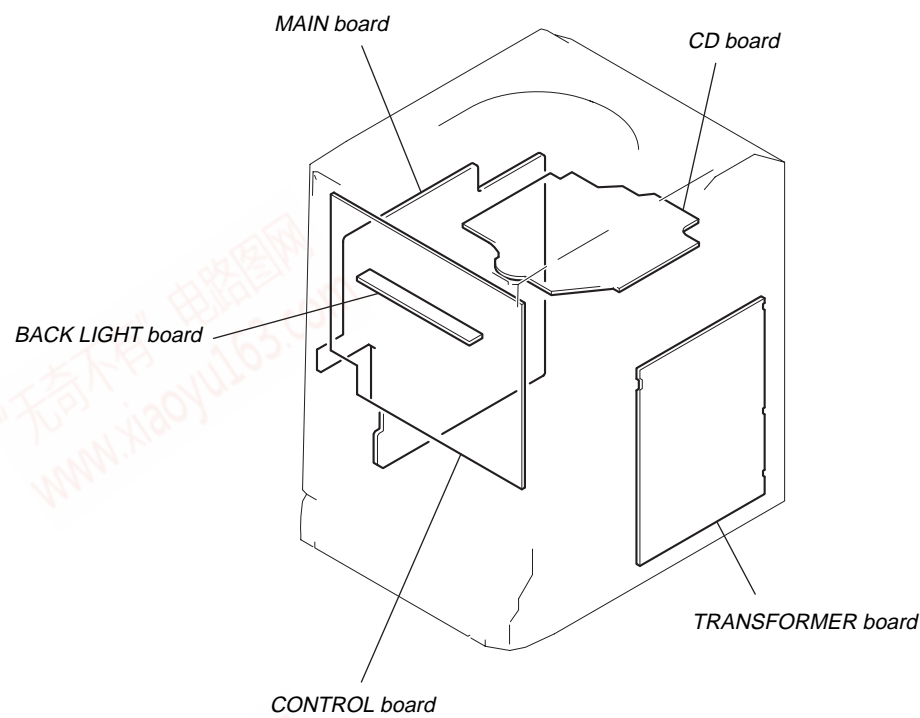
Checking Location:

– CD BOARD (Conductor Side) –

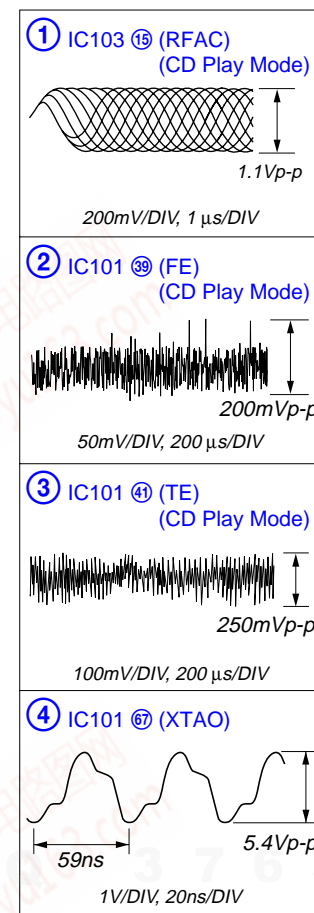


SECTION 6
DIAGRAMS

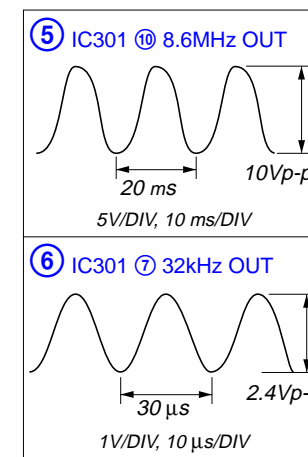
• Circuit Boards Location



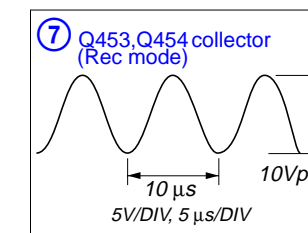
• Waveforms
- CD Board -



- CONTROL Board -



- MAIN Board -



THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS. (In addition to this, the necessary note is printed in each block.)

For schematic diagrams.

- Note:
- All capacitors are in μF unless otherwise noted. pF: μF
 - 50 WV or less are not indicated except for electrolytics and tantalums.
 - All resistors are in Ω and 1/4 W or less unless otherwise specified.
 - △ : internal component.
 - ⊞ : nonflammable resistor.
 - ⊞ : fusible resistor.
 - : panel designation.

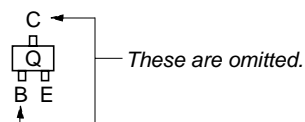
Note: The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

- : B+ Line.
- - - : B- Line.
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Abbreviation
CND : Canadian model
- Signal path.
⇨ : TUNER (FM)
⇨ : CD
⇨ : MD
⇨ : PB (TAPE)
⇨ : REC (TAPE)

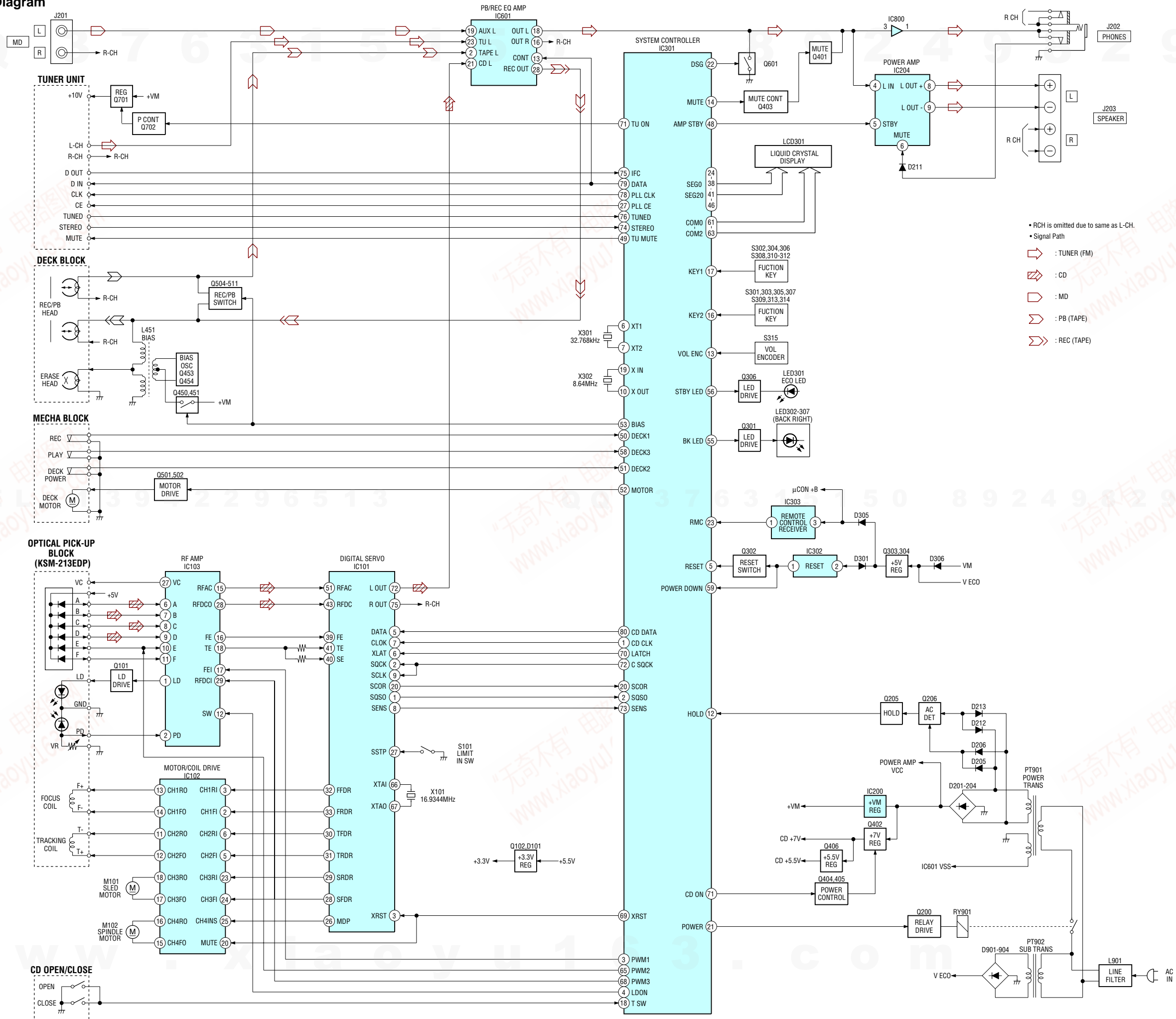
For printed wiring boards.

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

• Indication of transistor



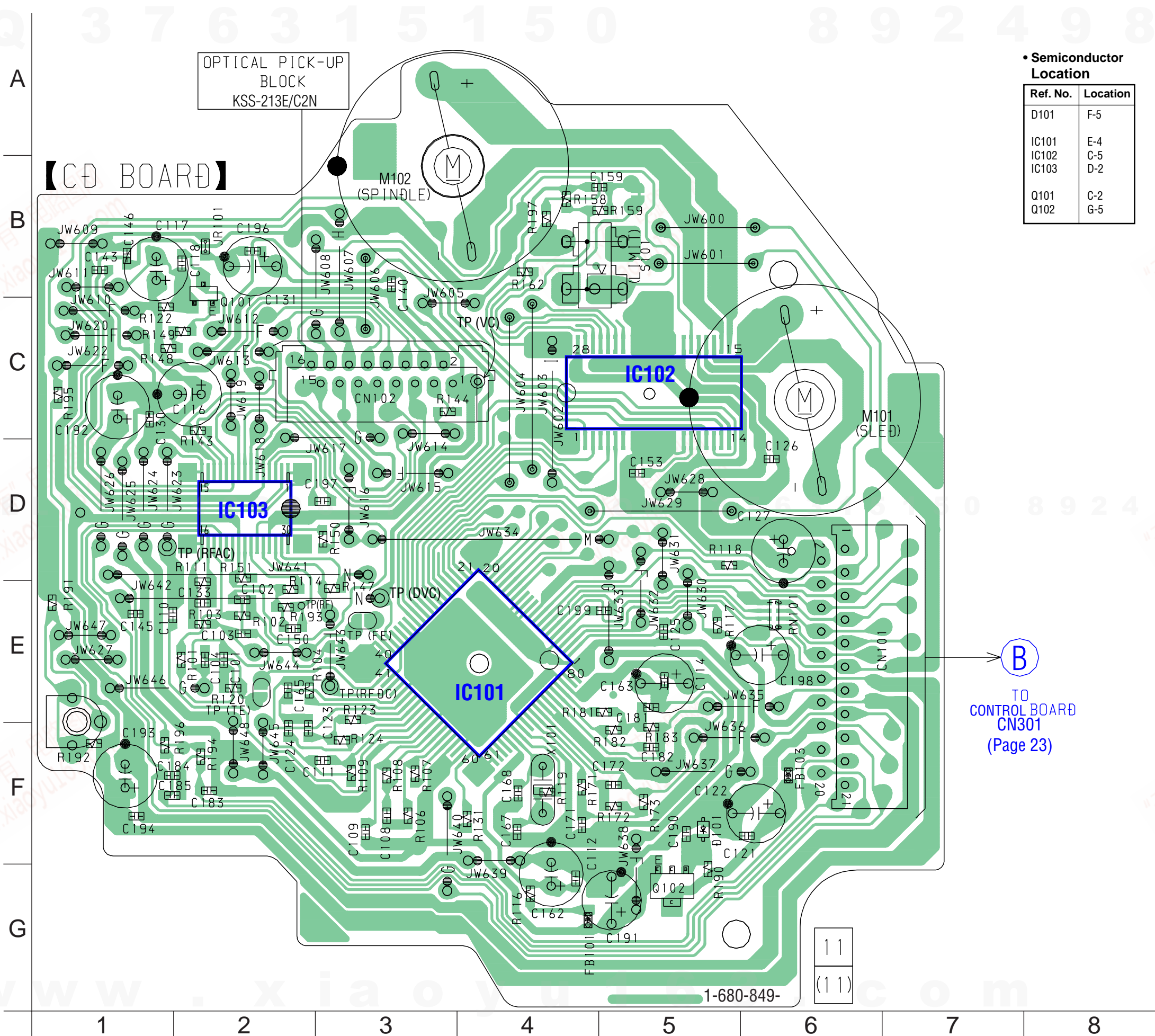
6-1. Block Diagram



• RCH is omitted due to same as L-CH.
 • Signal Path

➡ : TUNER (FM)
 ➡ : CD
 ➡ : MD
 ➡ : PB (TAPE)
 ➡ : REC (TAPE)

6-2. Printed Wiring Board – CD Section – • See page 16 for Circuit Boards Location.



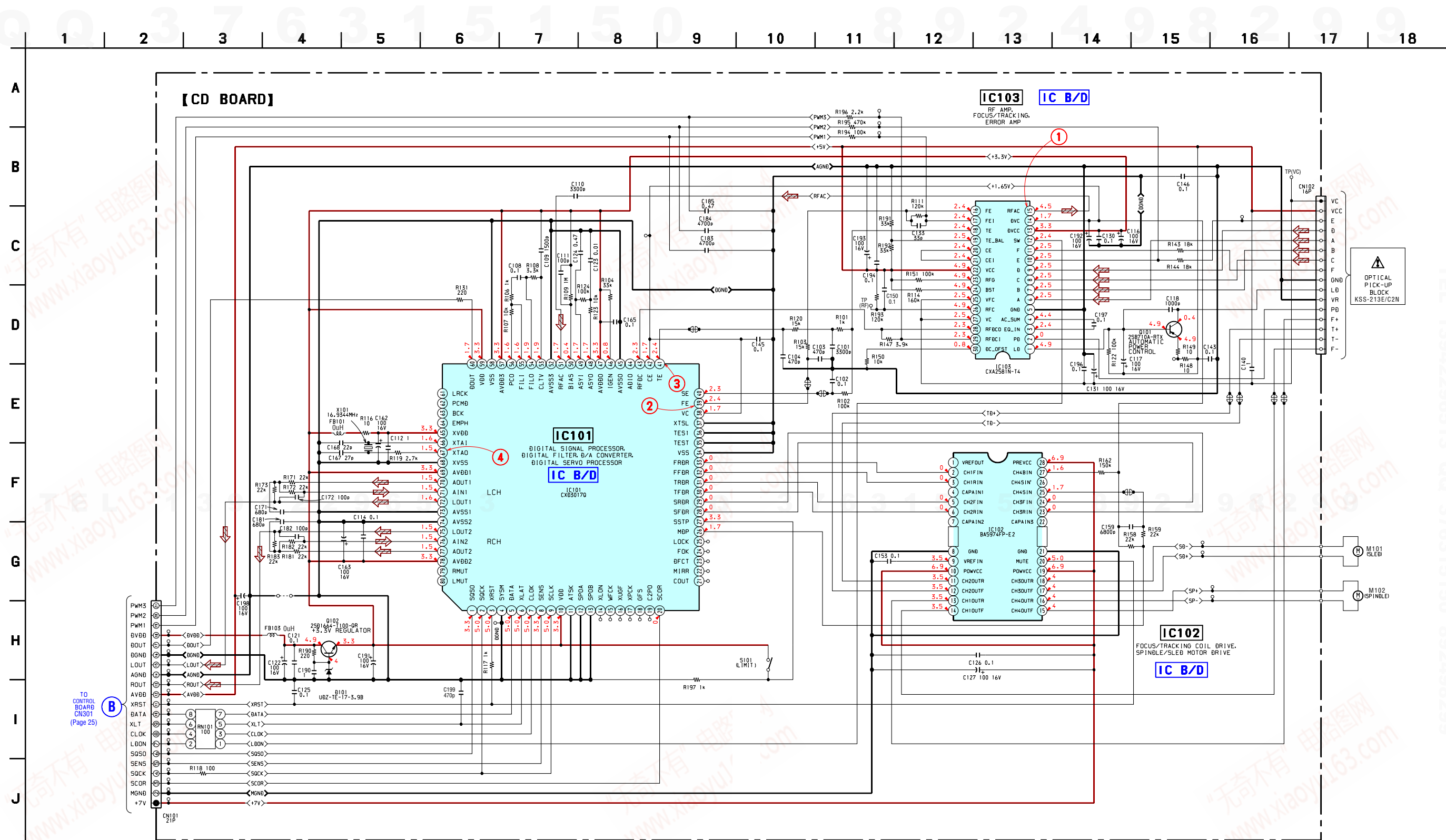
• Semiconductor Location

Ref. No.	Location
D101	F-5
IC101	E-4
IC102	C-5
IC103	D-2
Q101	C-2
Q102	G-5

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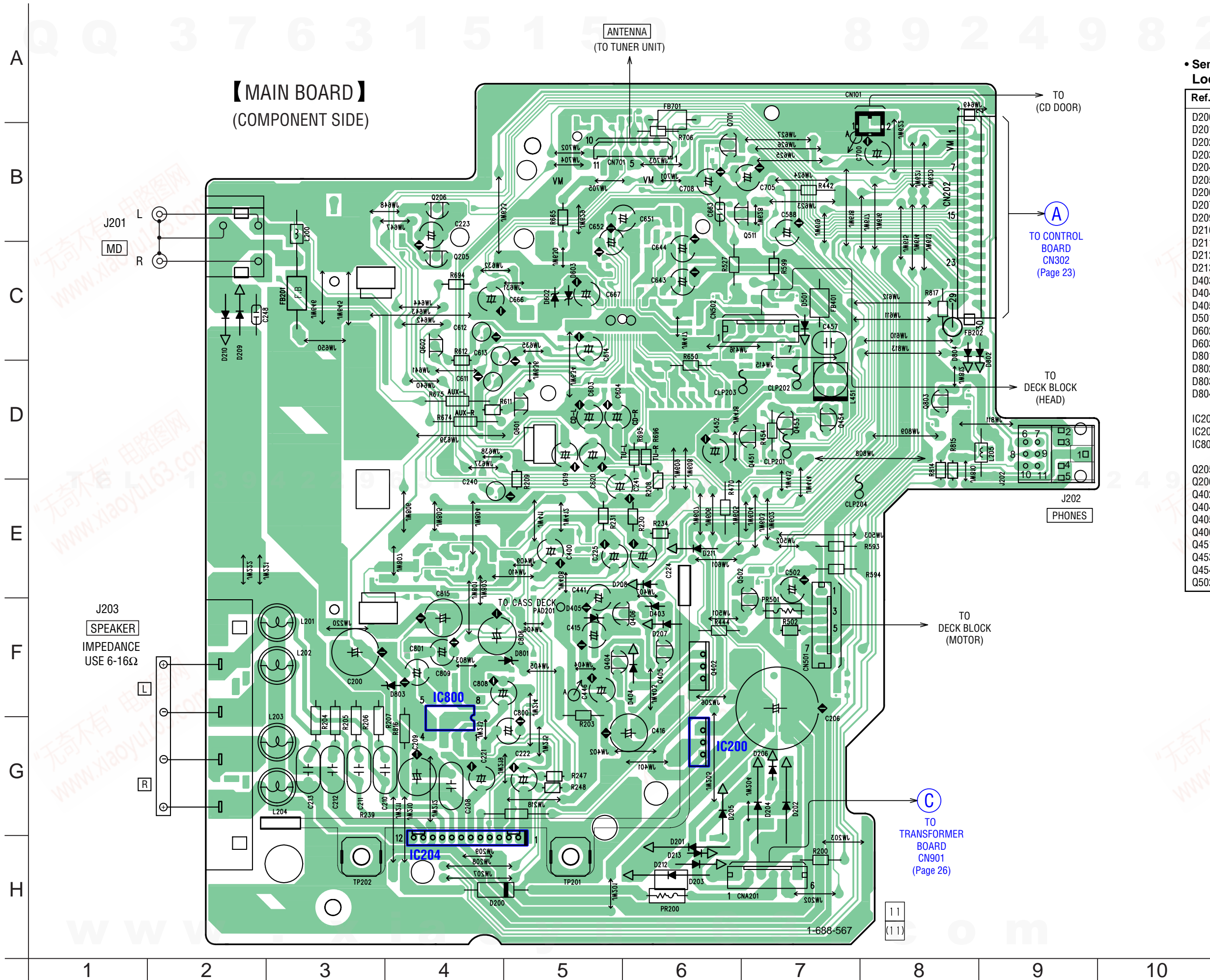
6-3. Schematic Diagram – CD Section – • See page 16 for Waveforms. • See page 28 for IC Block Diagrams.



TEL: 13942296513 QQ: 376345150 892498299

TEL: 13942296513 QQ: 376345150 892498299

6-4. Printed Wiring Board – MAIN Section (COMPONENT SIDE) – • See page 16 for Circuit Boards Location.



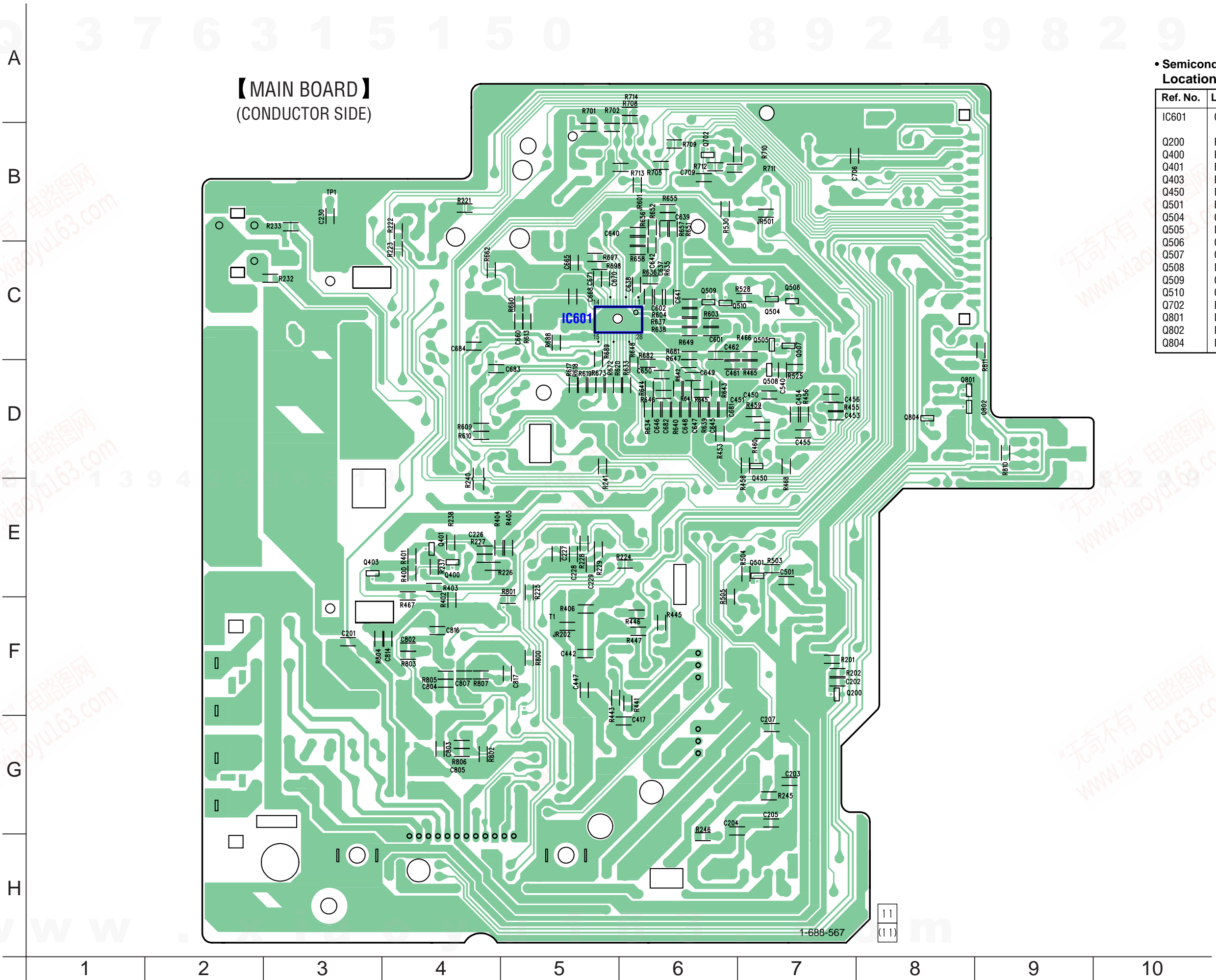
• Semiconductor Location

Ref. No.	Location
D200	H-4
D201	H-6
D202	G-7
D203	H-6
D204	G-7
D205	G-6
D206	G-7
D207	F-6
D209	C-2
D210	C-2
D211	E-6
D212	H-6
D213	H-6
D403	F-6
D404	F-6
D405	F-5
D501	C-7
D602	C-5
D603	C-5
D801	F-4
D802	D-9
D803	F-3
D804	D-8
IC200	G-6
IC204	H-4
IC800	F-4
Q205	C-4
Q206	B-4
Q402	F-6
Q404	F-6
Q405	F-6
Q406	F-5
Q451	D-6
Q453	D-7
Q454	D-7
Q502	F-6

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6-5. Printed Wiring Board – MAIN Section (CONDUCTOR SIDE) – • See page 16 for Circuit Boards Location.



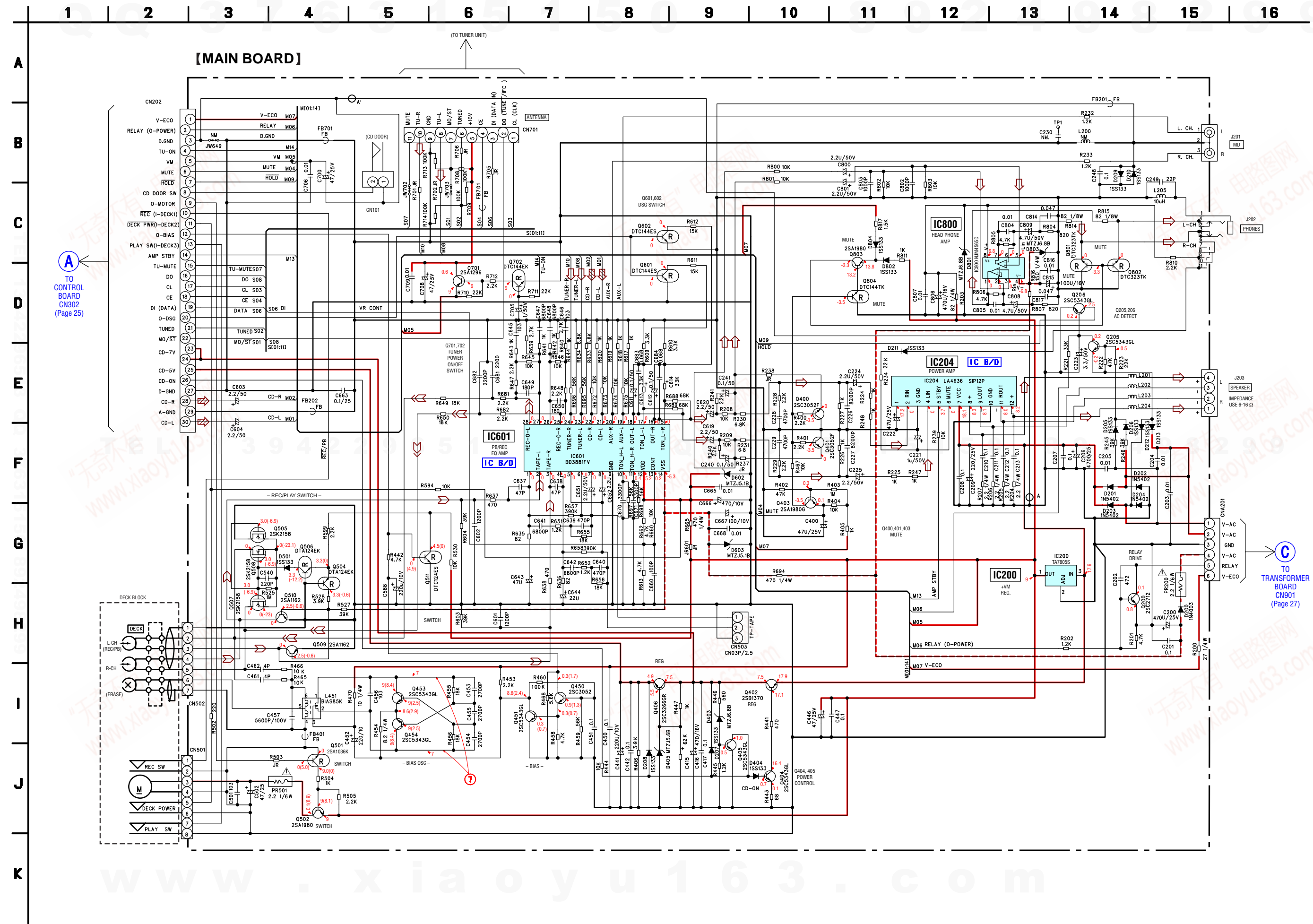
• Semiconductor Location

Ref. No.	Location
IC601	C-5
Q200	F-7
Q400	E-4
Q401	E-4
Q403	E-3
Q450	D-7
Q501	E-7
Q504	C-7
Q505	D-7
Q506	C-7
Q507	C-7
Q508	D-7
Q509	C-6
Q510	C-7
Q702	B-6
Q801	D-8
Q802	D-8
Q804	D-8

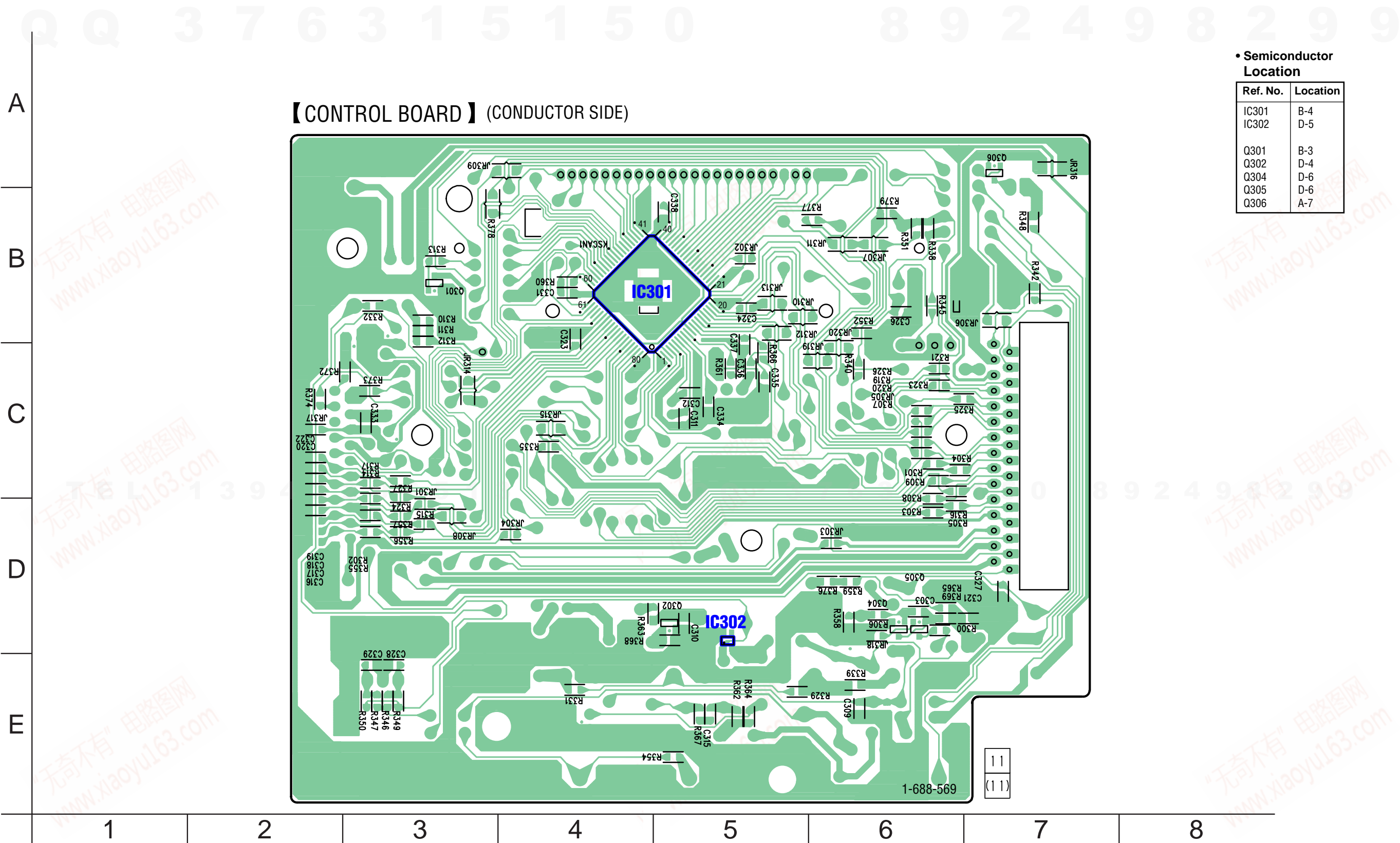
TEL 13942296513 QQ 376315150 892498299

TEL 13942296513 QQ 376315150 892498299

6-6. Schematic Diagram – MAIN Section – See page 16 for Waveform. See page 29 for IC Block Diagram.



6-8. Printed Wiring Board – CONTROL Section (CONDUCTOR SIDE) – • See page 16 for Circuit Boards Location.



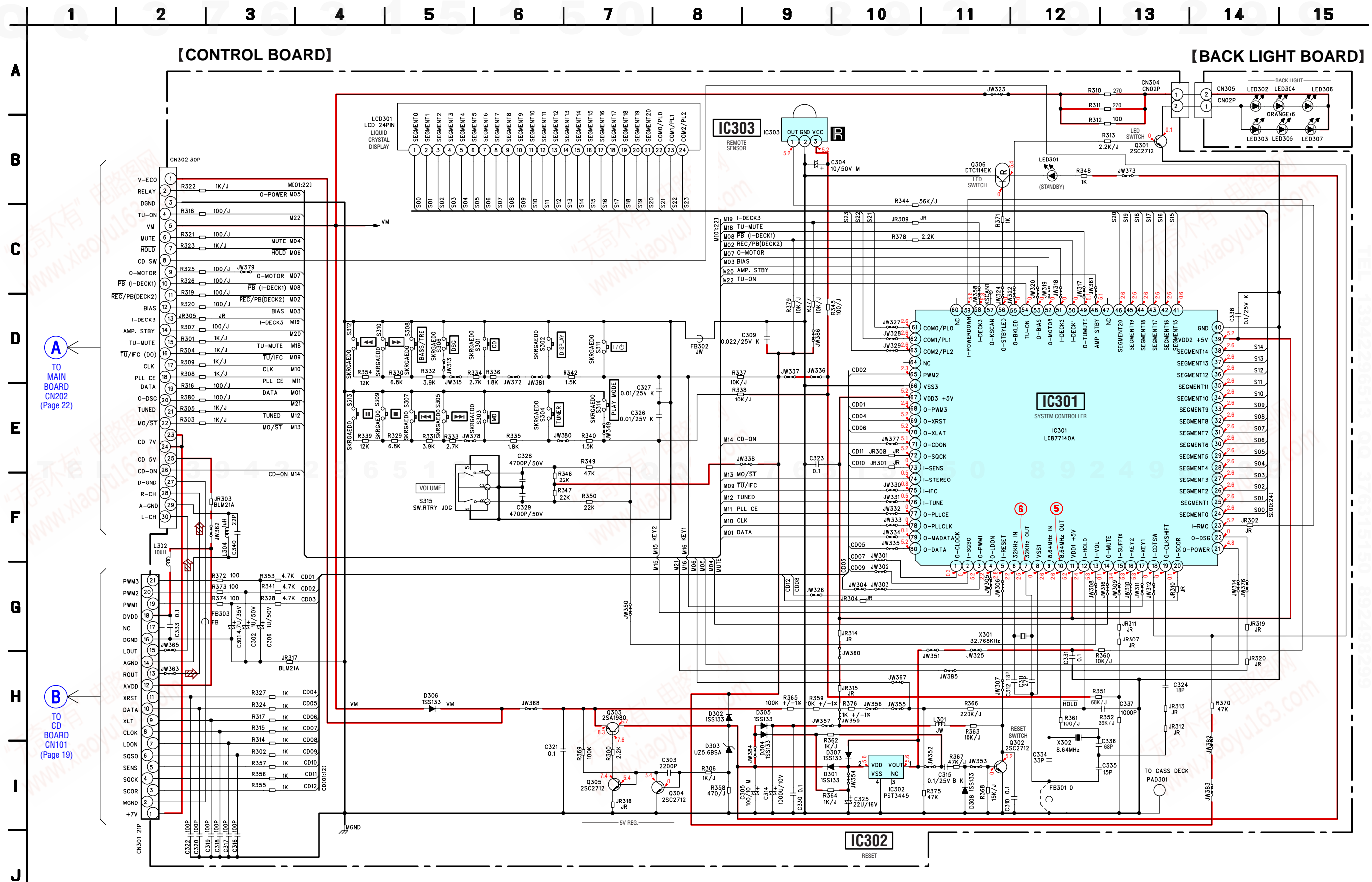
• Semiconductor Location

Ref. No.	Location
IC301	B-4
IC302	D-5
Q301	B-3
Q302	D-4
Q304	D-6
Q305	D-6
Q306	A-7

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6-9. Schematic Diagram – CONTROL Section – See page 16 for Waveforms.



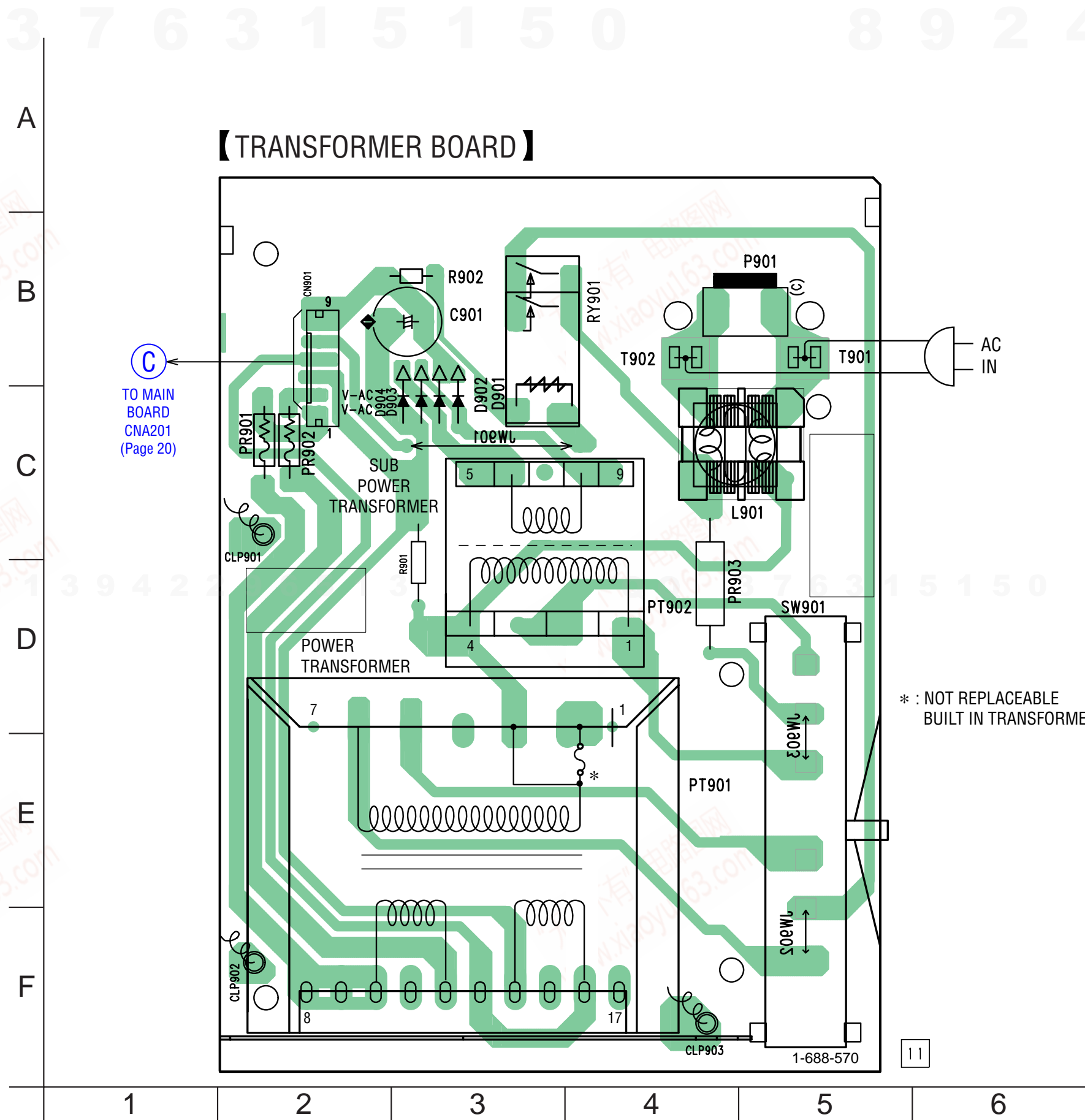
A TO MAIN BOARD CN202 (Page 22)

B TO CD BOARD CN101 (Page 19)

6-10. Printed Wiring Board – POWER Section – • See page 16 for Circuit Boards Location.

• Semiconductor Location

Ref. No.	Location
D901	C-3
D902	C-3
D903	C-3
D904	C-3



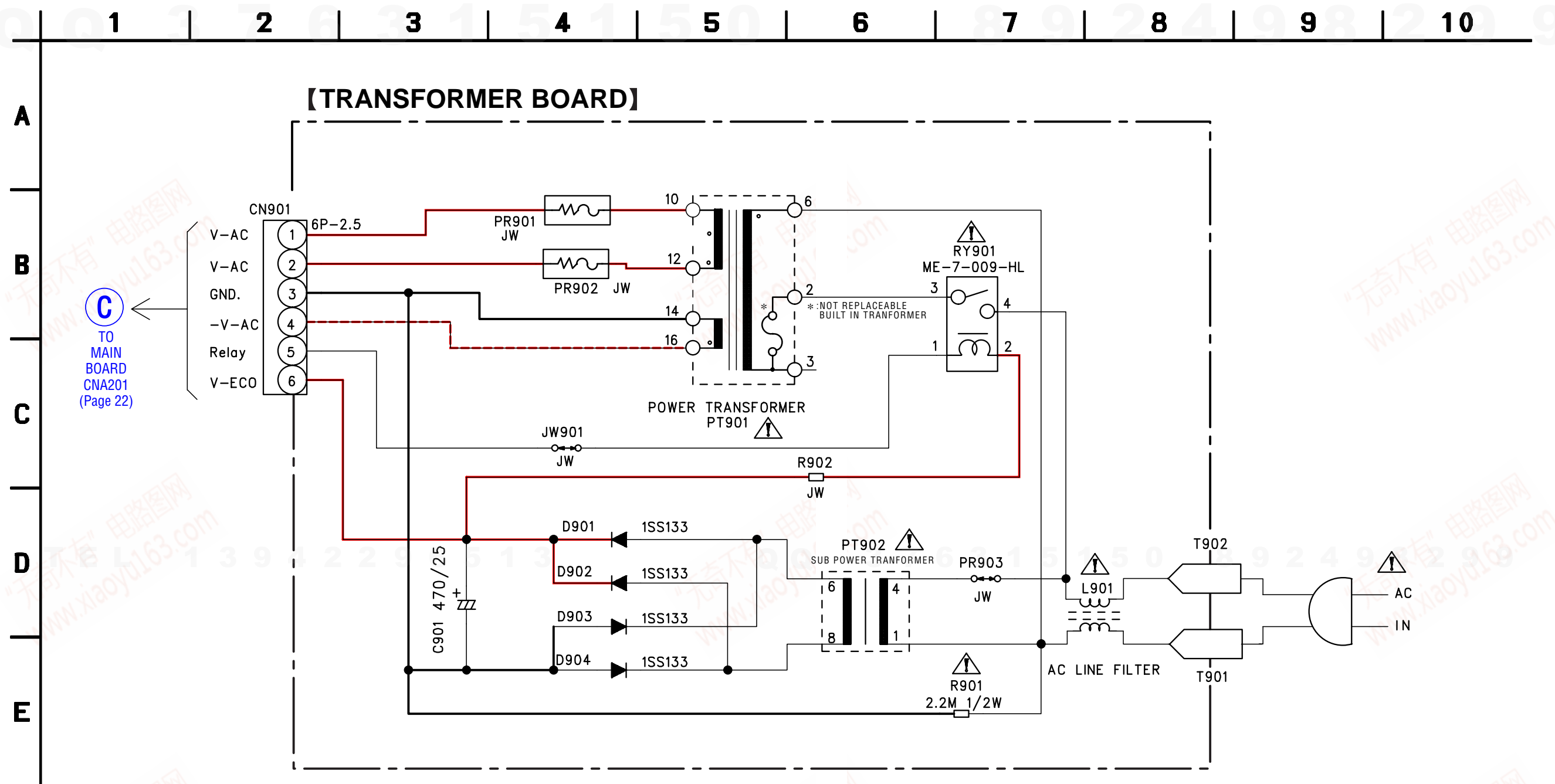
(C)
TO MAIN BOARD
CNA201
(Page 20)

* : NOT REPLACEABLE
BUILT IN TRANSFORMER

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TEL 13942296513 QQ 376315150 892498299

6-11. Schematic Diagram – POWER Section –



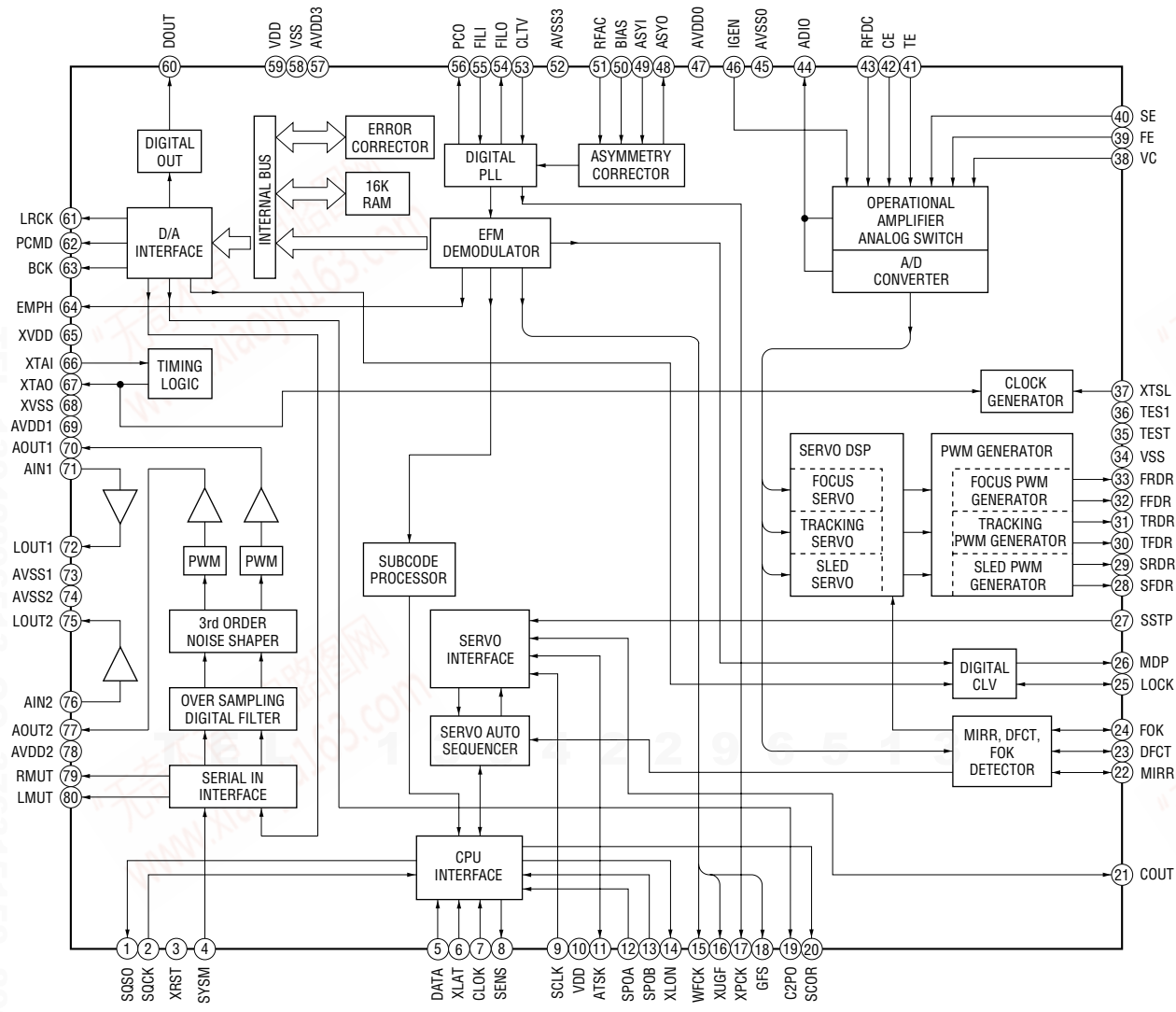
C
TO
MAIN
BOARD
CNA201
(Page 22)

TEL 13942296513 QQ 376315150 892498299

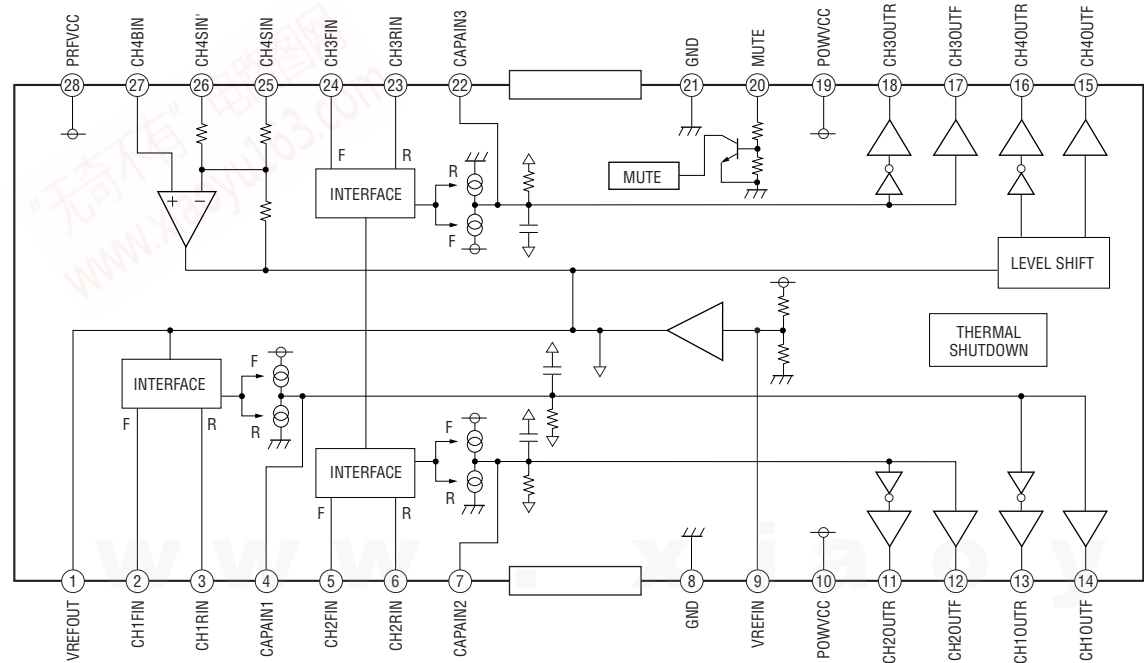
TEL 13942296513 QQ 376315150 892498299

• IC Block Diagrams
– CD Board –

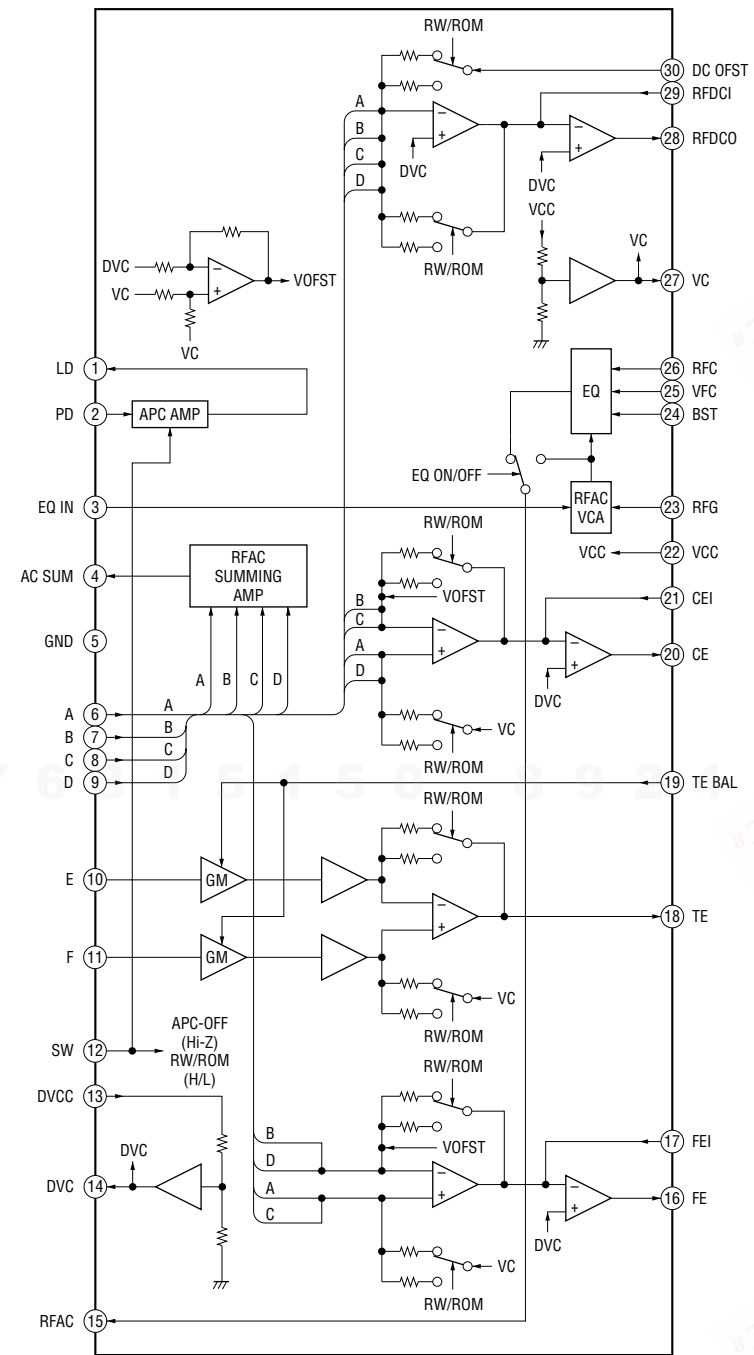
IC101 CXD3017Q



IC102 BA5974FP-E2

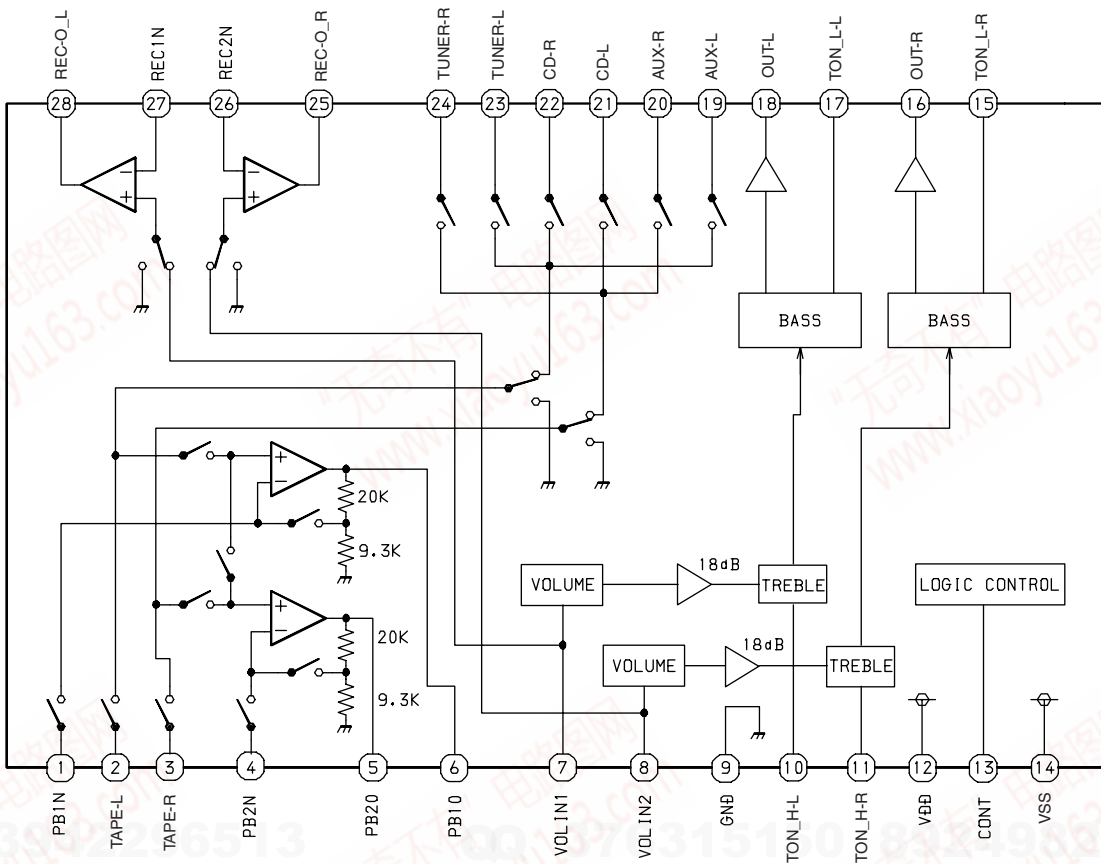


IC103 CXA2581N-T4

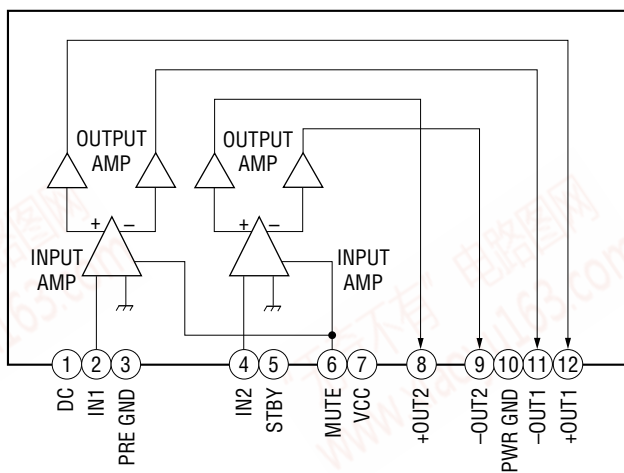


- MAIN Board -

IC601 BD3881FV



IC204 LA4636



HCD-EP315

6-12. IC Pin Function Description

• IC301 LC877140A (SYSTEM CONTROLLER)

Pin No.	Pin Name	I/O	Description
1	O-CLOCK	O	Clock output to the CD unit
2	I-SQSO	I	SUB-Q data input from the CD unit
3	O-PWM1	O	PWM1 signal output to the CD unit
4	O-LDON	O	LD ON signal output to the CD unit
5	I-RESET	I	Reset signal input from the reset IC (IC302)
6	32KHz IN	I	Resonator terminal (32.768kHz)
7	32KHz OUT	O	Resonator terminal (32.768kHz)
8	VSS1	—	Ground terminal
9	8.64MHz IN	I	Resonator terminal (8.64MHz)
10	8.64MHz OUT	O	Resonator terminal (8.64MHz)
11	VDD1 +5V	—	Power supply terminal
12	I-HOLD	I	Voltage detection signal input
13	I-VOL	I	Volume signal input from the encoder
14	O-MUTE	O	Muting signal output
15	I-SUFFIX	I	Model setting input terminal
16	I-KEY2	I	Key input 2
17	I-KEY1	I	Key input 1
18	I-CDTSW	I	CD door open/close switch signal input
19	O-CLKSHIFT	O	Clock shift control signal output
20	I-SCOR	I	SCOR signal input from the CD unit
21	O-POWER	O	Power relay control signal output
22	O-DSG	O	DSG signal output
23	I-RMC	I	Remote sensor signal input from the IC303
24 to 38	SEGMENT 0 to 14	O	Segment signal output to the liquid crystal display module
39	VDD2 +5V	—	Power supply terminal
40	GND	—	Ground terminal
41 to 46	SEGMENT 15 to 20	O	Segment signal output to the liquid crystal display module
47	NC	—	Not used (open)
48	AMP STBY	O	Standby control signal output to the power amplifier
49	O-TUMUTE	O	Muting signal output to the tuner
50	I-DECK1	I	Tape switch status signal input from the tape deck
51	I-DECK2	I	Tape switch status signal input from the tape deck
52	O-MOTOR	O	Motor control signal output to the tape deck
53	O-BIAS	O	Bias control signal output to the bias oscillation circuit
54	TU-ON	O	Tuner power supply control signal output
55	O-BKLED	O	Back light control signal output
56	O-STBYLED	O	STANDBY LED control signal output
57	O-KSCAN	O	Not used (open)
58	I-DECK3	I	Tape switch status signal input from the tape deck
59	I-POWERDOWN	I	Power down detection signal input
60	NC	—	Not used (open)
61	COM0/PL0	O	Common signal output to the liquid crystal display module
62	COM1/PL1	O	Common signal output to the liquid crystal display module
63	COM2/PL2	O	Common signal output to the liquid crystal display module
64	NC	—	Not used (open)
65	PWM2	O	PWM2 signal output to the CD unit
66	VSS3	—	Ground terminal
67	VDD3 +5V	—	Power supply terminal
68	O-PWM3	O	PWM3 signal output to the CD unit
69	O-XRST	O	Reset signal output to the CD unit

QQ 376315150

892498299

Pin No.	Pin Name	I/O	Description
70	O-XLAT	O	Latch signal output to the CD unit
71	O-CDON	O	CD power supply control signal output
72	O-SQCK	O	SUBQ clock output to the CD unit
73	I-SENS	I	SENS signal input from the CD unit
74	I-STEREO	I	Stereo/mono detection signal input from the tuner
75	I-IFC	I	Data input from the tuner
76	I-TUNE	I	Tuner tuned status signal input
77	O-PLLCE	O	Tuner chip enable signal output to the tuner
78	O-PLLCLK	O	Clock signal output to the tuner
79	O-MADATA	O	Data output to the tuner
80	O-DATA	O	Data output to the CD unit

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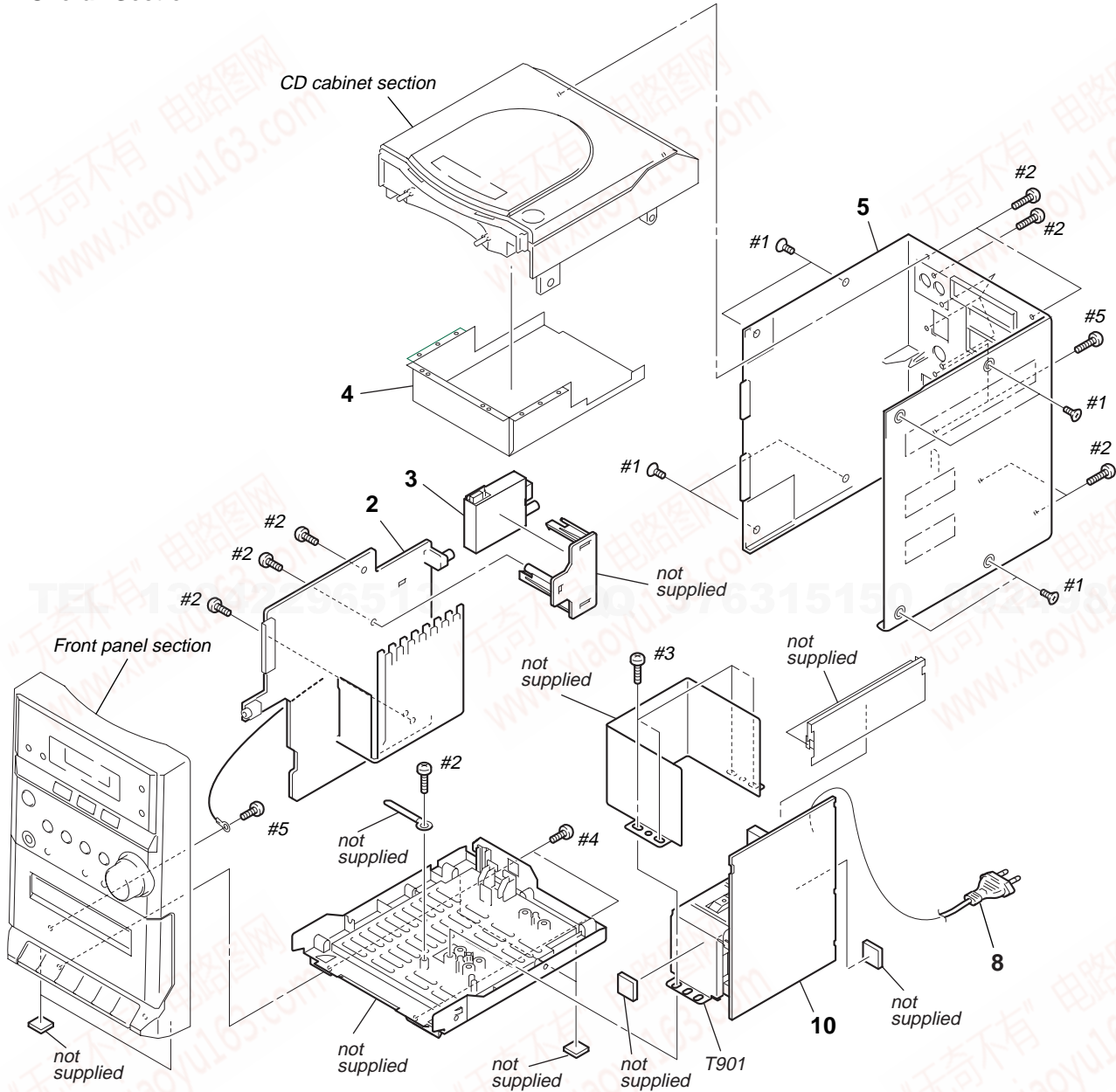
SECTION 7 EXPLODED VIEWS

NOTE:

- XX, -X mean standardized parts, so they may have some differences 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.

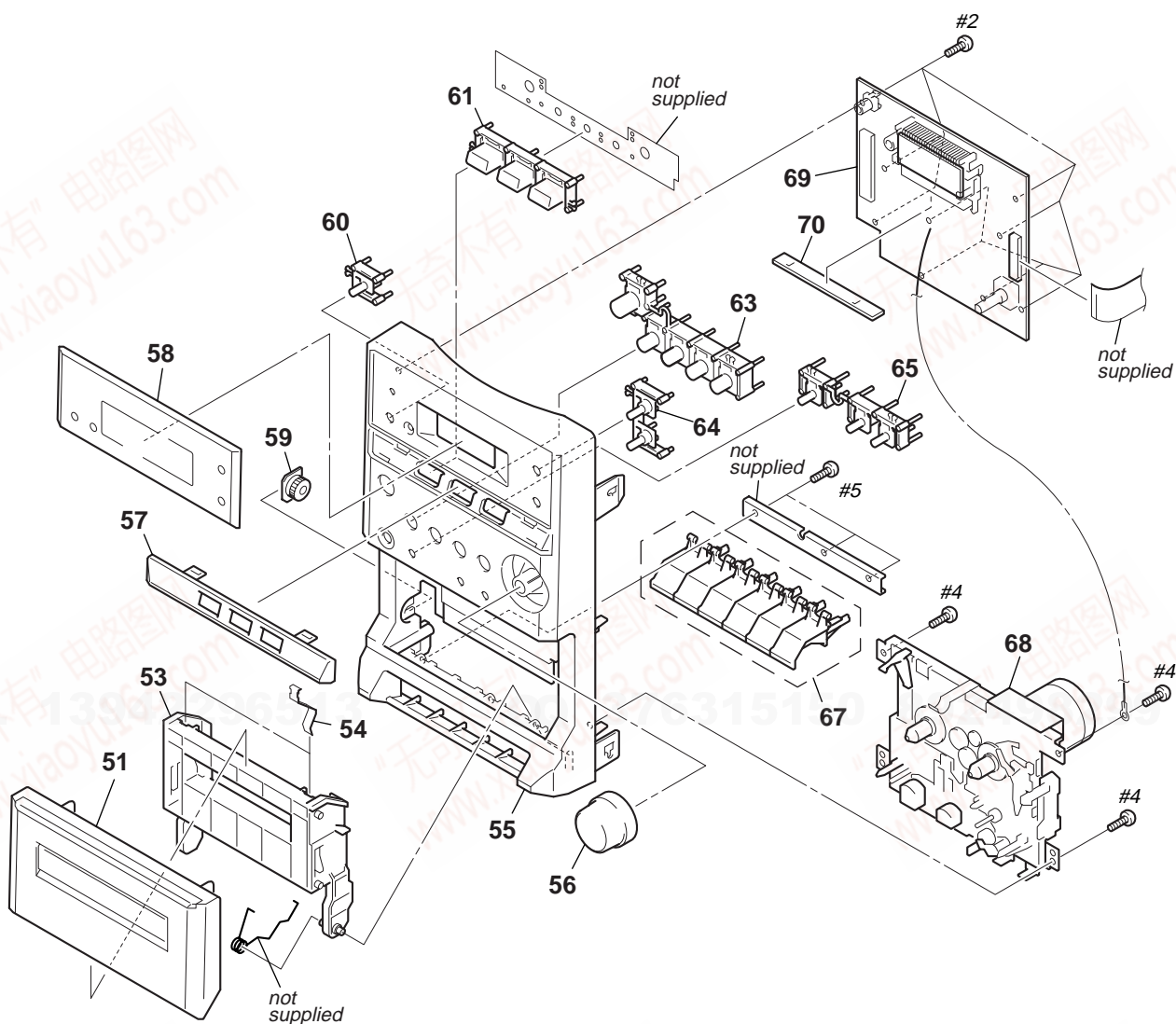
The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

7-1. Overall Section



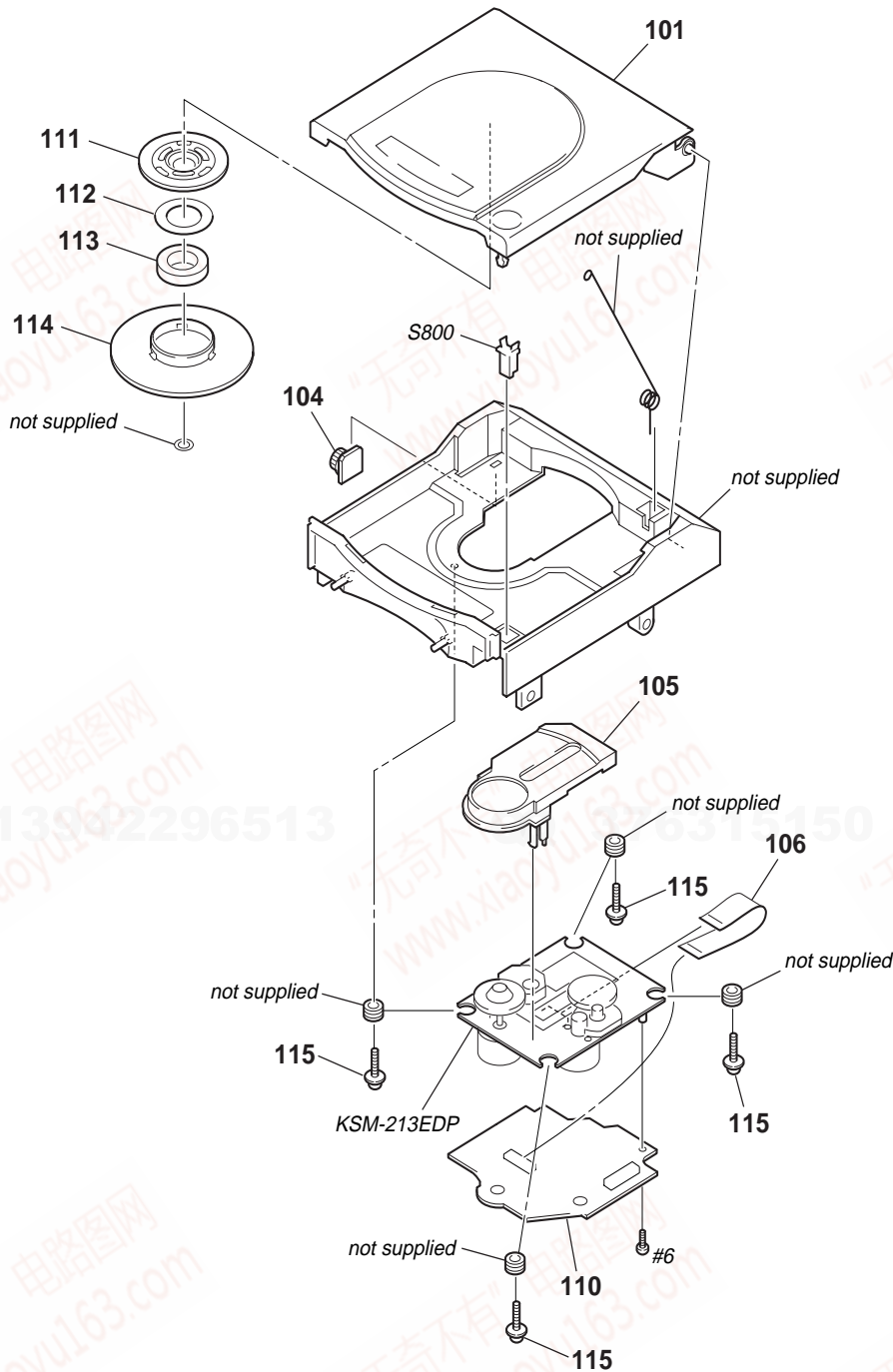
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
2	A-4732-945-A	MAIN BOARD, COMPLETE		Δ T901	1-439-657-11	TRANSFORMER, POWER	
3	1-693-622-11	TUNER UNIT		#1	7-685-248-14	SCREW +KTP 3X12 TYPE2 NON-SLIT	
4	4-251-533-01	COVER, CD DECK		#2	7-685-646-14	SCREW +BVTP 3X8 TYPE2 N-S	
5	4-245-240-01	CABINET, REAR		#3	7-685-661-79	SCREW +BVTP 4X12 TYPE2 SLIT	
Δ 8	1-555-795-00	CORD, POWER		#4	7-685-647-14	SCREW +BVTP 3X10 TYPE2 N-S	
10	1-688-570-11	TRANSFORMER BOARD		#5	7-685-546-14	SCREW +BTP 3X8 TYPE2 N-S	

7-2. Front Panel Section



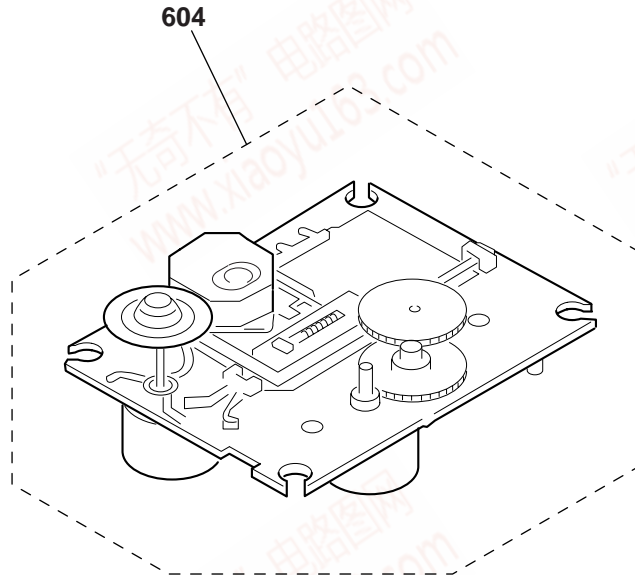
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	A-4740-923-A	DOOR CASSETTE ASSY		63	4-245-248-01	BUTTON,CD	
53	4-245-244-01	HOLDER,CASSETTE		64	4-245-250-01	BUTTON,BASS	
54	4-238-631-01	TAPE SPRING		65	4-245-251-01	BUTTON,ENTER	
55	4-245-239-01	CABINET,FRONT		67	4-245-252-01	BUTTON, CASSETTE	
56	4-244-787-01	KNOB (VOLUME)		68	1-796-689-11	DECK MECHANICAL	
57	4-245-253-01	PLATE,FUNCTION		69	A-4732-942-A	CONTROL BOARD, COMPLETE	
58	4-245-245-01	WINDOW,DISPLAY		70	1-688-568-11	BACK LIGHT BOARD	
59	4-242-318-01	OIL-DMPR, 70		#2	7-685-646-14	SCREW +BVTP 3X8 TYPE2 N-S	
60	4-245-249-01	BUTTON,DISPLAY		#4	7-685-647-14	SCREW +BVTP 3X10 TYPE2 N-S	
61	4-245-247-01	BUTTON,FUNCTION		#5	7-685-546-14	SCREW +BTP 3X8 TYPE2 N-S	

7-3. CD Cabinet Section



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
101	A-4740-924-A	DOOR CD ASSY		112	4-246-191-01	PLATE, MAGNET	
104	4-242-171-01	DAMPER 150 N		113	4-249-238-01	MAGNET (18-30-5)	
105	4-247-493-01	PANEL, CD		114	4-246-192-01	BASE, CHUCK N	
106	1-757-055-11	WIRE, PARALLEL (FFC) (16 CORE)		115	3-921-725-11	SCREW (2.6X10), +PWH	
110	A-4728-536-A	CD BOARD, COMPLETE		S800	1-692-960-11	SW, PUSH 1-1-1	
111	4-246-193-01	HOLDER, CHUCK A		#6	7-621-255-32	SCREW +P 2X5	

7-4. Optical Pick-up Block (KSM-213EDP)



Ref. No.	Part No.	Description	Remarks
△ 604	8-820-221-01	OPTICAL PICK-UP KSM-213EDP	

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

HCD-EP315

BACK LIGHT **CD**

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, -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.

- CAPACITORS:
uF: μ F
- RESISTORS
All resistors are in ohms.
METAL: metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable
- COILS
uH: μ H

- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A..., uPA..., μ PA...,
uPB..., μ PB..., uPC..., μ PC...,
uPD..., μ PD...

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

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

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
	1-688-568-11	BACK LIGHT BOARD *****		C162	1-126-382-11	ELECT 100uF	20.00% 16V
	4-245-258-01	HOLDER,LED < LED >		C163	1-126-933-11	ELECT 100uF	20.00% 16V
LED302	8-719-051-17	DIODE SLR-342DCT31		C165	1-164-360-11	CERAMIC CHIP 0.1uF	16V
LED303	8-719-051-17	DIODE SLR-342DCT31		C167	1-162-920-11	CERAMIC CHIP 27PF	5% 50V
LED304	8-719-051-17	DIODE SLR-342DCT31		C168	1-162-919-11	CERAMIC CHIP 22PF	5% 50V
LED305	8-719-051-17	DIODE SLR-342DCT31					
LED306	8-719-051-17	DIODE SLR-342DCT31		C171	1-115-412-11	CERAMIC CHIP 680PF	5.00% 25V
LED307	8-719-051-17	DIODE SLR-342DCT31		C172	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
*****				C181	1-115-412-11	CERAMIC CHIP 680PF	5.00% 25V
A-4728-536-A	CD BOARD, COMPLETE *****			C182	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
		< CAPACITOR >		C183	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V
C101	1-162-967-11	CERAMIC CHIP 0.0033uF	10% 50V	C184	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V
C102	1-107-826-11	CERAMIC CHIP 0.1uF	10.00% 16V	C185	1-125-891-11	CERAMIC CHIP 0.47uF	10.00% 10V
C103	1-162-962-11	CERAMIC CHIP 470PF	10% 50V	C190	1-115-156-11	CERAMIC CHIP 1uF	10V
C104	1-162-962-11	CERAMIC CHIP 470PF	10% 50V	C191	1-126-933-11	ELECT 100uF	20.00% 16V
C108	1-107-826-11	CERAMIC CHIP 0.1uF	10.00% 16V	C192	1-126-382-11	ELECT 100uF	20.00% 16V
C109	1-162-965-11	CERAMIC CHIP 0.0015uF	10% 50V				
C110	1-162-967-11	CERAMIC CHIP 0.0033uF	10% 50V	C193	1-126-382-11	ELECT 100uF	20.00% 16V
C111	1-162-927-11	CERAMIC CHIP 100PF	5% 50V	C194	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C112	1-115-156-11	CERAMIC CHIP 1uF	10V	C196	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C114	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C197	1-107-826-11	CERAMIC CHIP 0.1uF	10.00% 16V
C116	1-126-382-11	ELECT 100uF	20.00% 16V	C198	1-126-933-11	ELECT 100uF	20.00% 16V
C117	1-126-382-11	ELECT 100uF	20.00% 16V				
C118	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	C199	1-162-962-11	CERAMIC CHIP 470PF	10% 50V
C121	1-164-360-11	CERAMIC CHIP 0.1uF	16V				
C122	1-126-933-11	ELECT 100uF	20.00% 16V	< CONNECTOR >			
C123	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	CN101	1-770-528-31	CONNECTOR, FFC/FPC 21P	
C124	1-125-891-11	CERAMIC CHIP 0.47uF	10.00% 10V	CN102	1-779-553-21	CONNECTOR, FFC(LIF(NON-ZIF))16P	
C125	1-164-360-11	CERAMIC CHIP 0.1uF	16V				
C126	1-164-360-11	CERAMIC CHIP 0.1uF	16V	< DIODE >			
C127	1-126-382-11	ELECT 100uF	20.00% 16V	D101	8-719-056-77	DIODE UDZ-TE-17-3.9B	
C130	1-164-360-11	CERAMIC CHIP 0.1uF	16V				
C131	1-126-933-11	ELECT 100uF	20.00% 16V	< FERRITE BEAD >			
C133	1-162-921-11	CERAMIC CHIP 33PF	5% 50V	FB101	1-469-144-21	FERRITE 0uH	
C140	1-115-156-11	CERAMIC CHIP 1uF	10V	FB103	1-469-144-21	FERRITE 0uH	
C143	1-164-360-11	CERAMIC CHIP 0.1uF	16V				
C145	1-164-360-11	CERAMIC CHIP 0.1uF	16V	< IC >			
C146	1-107-826-11	CERAMIC CHIP 0.1uF	10.00% 16V	IC101	8-752-402-31	IC CXD3017Q	
C150	1-107-826-11	CERAMIC CHIP 0.1uF	10.00% 16V	IC102	8-759-549-28	IC BA5974FP-E2	
C153	1-164-360-11	CERAMIC CHIP 0.1uF	16V	IC103	8-752-089-74	IC CXA2581N-T4	
C159	1-162-969-11	CERAMIC CHIP 0.0068uF	10% 25V				
				< JUMPER RESISTOR >			
				JR101	1-216-864-11	METAL CHIP 0	5% 1/16W
				< TRANSISTOR >			
				Q101	8-729-049-31	TRANSISTOR 2SB710A-RTX	
				Q102	8-729-920-85	TRANSISTOR 2SD1664-T100-QR	

CD	CONTROL
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Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
< RESISTOR >				A-4732-942-A CONTROL BOARD, COMPLETE *****			
R101	1-216-821-11	METAL CHIP	1K 5% 1/16W	4-245-258-01	HOLDER,LED		
R102	1-216-845-11	METAL CHIP	100K 5% 1/16W	< CAPACITOR >			
R103	1-216-835-11	METAL CHIP	15K 5% 1/16W	C301	1-124-259-11	ELECT	4.7uF 20.00% 35V
R104	1-216-839-11	METAL CHIP	33K 5% 1/16W	C302	1-126-960-11	ELECT	1uF 20.00% 50V
R106	1-216-821-11	METAL CHIP	1K 5% 1/16W	C303	1-162-966-11	CERAMIC CHIP	0.0022uF 10% 50V
R107	1-216-833-11	METAL CHIP	10K 5% 1/16W	C304	1-126-964-11	ELECT	10uF 20.00% 50V
R108	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	C305	1-124-584-00	ELECT	100uF 20% 10V
R109	1-216-857-11	METAL CHIP	1M 5% 1/16W	C306	1-126-960-11	ELECT	1uF 20.00% 50V
R111	1-216-846-11	METAL CHIP	120K 5% 1/16W	C307			
R114	1-218-745-11	METAL CHIP	160K 5% 1/10W	C308			
R116	1-216-797-11	METAL CHIP	10 5% 1/16W	C309	1-164-227-11	CERAMIC CHIP	0.022uF 10% 25V
R117	1-216-821-11	METAL CHIP	1K 5% 1/16W	C310	1-164-156-11	CERAMIC CHIP	0.1uF 25V
R118	1-216-809-11	METAL CHIP	100 5% 1/16W	C311	1-162-920-11	CERAMIC CHIP	27PF 5% 50V
R119	1-216-826-11	METAL CHIP	2.7K 5% 1/16W	C312	1-162-918-11	CERAMIC CHIP	18PF 5.00% 50V
R120	1-216-835-11	METAL CHIP	15K 5% 1/16W	C313			
R122	1-216-845-11	METAL CHIP	100K 5% 1/16W	C314	1-126-926-11	ELECT	1000uF 20.00% 10V
R123	1-216-833-11	METAL CHIP	10K 5% 1/16W	C315	1-164-156-11	CERAMIC CHIP	0.1uF 25V
R124	1-216-845-11	METAL CHIP	100K 5% 1/16W	C316	1-162-927-11	CERAMIC CHIP	100PF 5% 50V
R131	1-216-813-11	METAL CHIP	220 5% 1/10W	C317	1-162-927-11	CERAMIC CHIP	100PF 5% 50V
R143	1-216-836-11	METAL CHIP	18K 5% 1/16W	C318	1-162-927-11	CERAMIC CHIP	100PF 5% 50V
R144	1-216-836-11	METAL CHIP	18K 5% 1/16W	C319	1-162-927-11	CERAMIC CHIP	100PF 5% 50V
R147	1-216-828-11	METAL CHIP	3.9K 5% 1/16W	C320	1-162-927-11	CERAMIC CHIP	100PF 5% 50V
R148	1-216-797-11	METAL CHIP	10 5% 1/16W	C321	1-164-156-11	CERAMIC CHIP	0.1uF 25V
R149	1-216-797-11	METAL CHIP	10 5% 1/16W	C322	1-162-927-11	CERAMIC CHIP	100PF 5% 50V
R150	1-216-833-11	METAL CHIP	10K 5% 1/16W	C323	1-164-156-11	CERAMIC CHIP	0.1uF 25V
R151	1-216-845-11	METAL CHIP	100K 5% 1/16W	C324	1-162-918-11	CERAMIC CHIP	18PF 5.00% 50V
R158	1-216-837-11	METAL CHIP	22K 5% 1/16W	C325	1-128-551-11	ELECT	22uF 20.00% 25V
R159	1-216-837-11	METAL CHIP	22K 5% 1/16W	C326	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
R162	1-216-847-11	METAL CHIP	150K 5% 1/16W	C327	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
R171	1-216-837-11	METAL CHIP	22K 5% 1/16W	C328	1-162-968-11	CERAMIC CHIP	0.0047uF 10% 50V
R172	1-216-837-11	METAL CHIP	22K 5% 1/16W	C329	1-162-968-11	CERAMIC CHIP	0.0047uF 10% 50V
R173	1-216-837-11	METAL CHIP	22K 5% 1/16W	C330	1-127-888-11	CERAMIC	0.1uF 10% 50V
R181	1-216-837-11	METAL CHIP	22K 5% 1/16W	C331	1-164-156-11	CERAMIC CHIP	0.1uF 25V
R182	1-216-837-11	METAL CHIP	22K 5% 1/16W	C333	1-164-156-11	CERAMIC CHIP	0.1uF 25V
R183	1-216-837-11	METAL CHIP	22K 5% 1/16W	C334	1-162-921-11	CERAMIC CHIP	33PF 5% 50V
R190	1-216-813-11	METAL CHIP	220 5% 1/16W	C335	1-162-917-11	CERAMIC CHIP	15PF 5% 50V
R191	1-216-839-11	METAL CHIP	33K 5% 1/16W	C336	1-162-925-11	CERAMIC CHIP	68PF 5.00% 50V
R192	1-216-839-11	METAL CHIP	33K 5% 1/16W	C337	1-162-964-91	CERAMIC CHIP	1000P 10% 50V
R193	1-216-846-11	METAL CHIP	120K 5% 1/16W	C338	1-164-156-11	CERAMIC CHIP	0.1uF 25V
R194	1-216-845-11	METAL CHIP	100K 5% 1/16W	C340			
R195	1-216-853-11	METAL CHIP	470K 5% 1/16W	< CONNECTOR >			
R196	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	CN301	1-568-864-11	CONNECTOR, FFC 21P	
R197	1-216-821-11	METAL CHIP	1K 5% 1/16W	CN302	1-793-767-11	CONNECTOR, BOARD TO BOARD 30P	
< NETWORK RESISTOR >				< DIODE >			
RN101	1-233-576-11	RES, CHIP NETWORK 100		D301	8-719-991-33	DIODE 1SS133T-72	
< SWITCH >				D302	8-719-991-33	DIODE 1SS133T-72	
S101	1-771-853-11	SWITCH, DETECTION (LIMIT IN)		D303	8-719-010-41	DIODE UZ-5.6BSA-TP	
< VIBRATOR >				D304	8-719-991-33	DIODE 1SS133T-72	
X101	1-767-226-11	VIBRATOR, CRYSTAL 16.9344MHZ		D305	8-719-991-33	DIODE 1SS133T-72	
*****				D306	8-719-991-33	DIODE 1SS133T-72	
*****				D307	8-719-991-33	DIODE 1SS133T-72	
*****				D308	8-719-991-33	DIODE 1SS133T-72	

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Ref. No.	Part No.	Description	Remarks
		< FERRITE BEAD >	
FB301 FB303	1-400-297-11	INDUCTOR 0uH	
		< IC >	
IC301	6-802-783-01	IC LC877140A-51E2	
IC302	6-700-250-01	IC PST3445UL	
IC303	6-701-681-01	IC RPM7140-V4	
		< JUMPER RESISTOR >	
JR301	1-216-864-11	METAL CHIP 0 5% 1/16W	
JR302	1-216-864-11	METAL CHIP 0 5% 1/16W	
JR303	1-216-864-11	METAL CHIP 0 5% 1/16W	
JR304	1-216-864-11	METAL CHIP 0 5% 1/16W	
JR305	1-216-864-11	METAL CHIP 0 5% 1/16W	
JR306	1-216-295-91	SHORT CHIP 0	
JR307	1-216-295-91	SHORT CHIP 0	
JR308	1-216-295-91	SHORT CHIP 0	
JR309	1-216-295-91	SHORT CHIP 0	
JR310	1-216-295-91	SHORT CHIP 0	
JR311	1-216-295-91	SHORT CHIP 0	
JR312	1-216-295-91	SHORT CHIP 0	
JR313	1-216-295-91	SHORT CHIP 0	
JR314	1-216-295-91	SHORT CHIP 0	
JR315	1-216-295-91	SHORT CHIP 0	
JR317	1-216-864-11	METAL CHIP 0 5% 1/16W	
JR318	1-216-864-11	METAL CHIP 0 5% 1/16W	
JR319	1-216-295-91	SHORT CHIP 0	
JR320	1-216-295-91	SHORT CHIP 0	
		< COIL >	
L301			
L302	1-408-117-00	INDUCTOR 10uH	
L304			
		< LIQUID CRYSTAL DISPLAY >	
LCD301	1-805-184-11	DISPLAY PANEL, LIQUID CRYSTAL	
		< LED >	
LED301	8-719-059-98	DIODE SLR-342VCT31 (STANDBY)	
		< TRANSISTOR >	
Q301	8-729-230-49	TRANSISTOR 2SC2712L-TE85R	
Q302	8-729-230-49	TRANSISTOR 2SC2712L-TE85R	
Q303	6-550-296-01	TRANSISTOR 2SA1980G	
Q304	8-729-230-49	TRANSISTOR 2SC2712L-TE85R	
Q305	8-729-230-49	TRANSISTOR 2SC2712L-TE85R	
Q306	8-729-900-53	TRANSISTOR DTC114EK	
		< RESISTOR >	
R300	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R301	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R302	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R303	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R304	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R305	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R306	1-216-821-11	METAL CHIP 1K 5% 1/16W	

Ref. No.	Part No.	Description	Remarks
R307	1-216-809-11	METAL CHIP 100 5% 1/16W	
R308	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R309	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R310	1-216-814-11	METAL CHIP 270 5% 1/16W	
R311	1-216-814-11	METAL CHIP 270 5% 1/16W	
R312	1-216-809-11	METAL CHIP 100 5% 1/16W	
R313	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R314	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R315	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R316	1-216-809-11	METAL CHIP 100 5% 1/16W	
R317	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R318	1-216-810-11	RES CHIP 120 5% 1/10W	
R319	1-216-809-11	METAL CHIP 100 5% 1/16W	
R320	1-216-809-11	METAL CHIP 100 5% 1/16W	
R321	1-216-809-11	METAL CHIP 100 5% 1/16W	
R322	1-249-417-11	CARBON 1K 5% 1/4W F	
R323	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R324	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R325	1-216-809-11	METAL CHIP 100 5% 1/16W	
R326	1-216-809-11	METAL CHIP 100 5% 1/16W	
R327	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R328	1-249-425-11	CARBON 4.7K 5% 1/4W F	
R329	1-218-867-11	METAL CHIP 6.8K 5% 1/10W	
R330	1-249-427-11	CARBON 6.8K 5% 1/4W F	
R331	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R332	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R333	1-249-422-11	CARBON 2.7K 5% 1/4W F	
R334	1-249-422-11	CARBON 2.7K 5% 1/4W F	
R335	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R336	1-249-420-11	CARBON 1.8K 5% 1/4W F	
R337	1-249-429-11	CARBON 10K 5% 1/4W	
R338	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R339	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R340	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R341	1-249-425-11	CARBON 4.7K 5% 1/4W F	
R342	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R344	1-249-438-11	CARBON 56K 5% 1/4W	
R345	1-216-809-11	METAL CHIP 100 5% 1/16W	
R346	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R347	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R348	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R349	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R350	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R351	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R352	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R353	1-249-425-11	CARBON 4.7K 5% 1/4W F	
R354	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R355	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R356	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R357	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R358	1-216-817-11	METAL CHIP 470 5% 1/16W	
R359	1-245-191-21	METAL CHIP 10K 1% 1/10W	
R360	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R361	1-216-809-11	METAL CHIP 100 5% 1/16W	
R362	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R363	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R364	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R365	1-216-845-11	METAL CHIP 100K 5% 1/16W	

CONTROL	MAIN
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Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R366	1-247-887-00	CARBON	220K 5% 1/4W	C223	1-126-962-11	ELECT	3.3uF 20.00% 50V
R367	1-216-841-11	METAL CHIP	47K 5% 1/16W	C224	1-126-961-11	ELECT	2.2uF 20.00% 50V
R368	1-216-835-11	METAL CHIP	15K 5% 1/16W	C225	1-126-961-11	ELECT	2.2uF 20.00% 50V
R369	1-216-845-11	METAL CHIP	100K 5% 1/16W	C226	1-164-174-11	CERAMIC CHIP	0.0082uF 10% 25V
R370	1-216-841-11	RES CHIP	47K 5% 1/10W	C227	1-164-174-11	CERAMIC CHIP	0.0082uF 10% 25V
R371	1-249-417-11	CARBON	1K 5% 1/4W F	C228	1-162-968-11	CERAMIC CHIP	0.0047uF 10% 50V
R372	1-216-809-11	METAL CHIP	100 5% 1/16W	C229	1-162-968-11	CERAMIC CHIP	0.0047uF 10% 50V
R373	1-216-809-11	METAL CHIP	100 5% 1/16W	C230	1-164-156-11	CERAMIC CHIP	0.1uF 25V
R374	1-216-809-11	METAL CHIP	100 5% 1/16W	C240	1-126-956-91	ELECT	0.1uF 20.00% 50V
R375	1-216-841-11	RES CHIP	47K 5% 1/10W	C241	1-126-956-91	ELECT	0.1uF 20.00% 50V
R376	1-216-821-11	METAL CHIP	1K 5% 1/16W	C242			
R377	1-249-429-11	CARBON	10K 5% 1/4W	C243			
R378	1-216-825-11	RES CHIP	2.2K 5% 1/10W	C248	1-164-156-91	CERAMIC CHIP	0.1uF 25V
R379	1-216-833-11	METAL CHIP	10K 5% 1/16W	C249			
R380	1-216-825-11	RES CHIP	2.2K 5% 1/10W	C400	1-126-947-11	ELECT	47uF 20.00% 25V
< SWITCH >				C415	1-216-964-11	METAL	62K 1% 0.6W
S301	1-786-050-21	SWITCH, KEY BOARD (CD)		C416	1-126-935-11	ELECT	470uF 20.00% 16V
S302	1-786-050-21	SWITCH, KEY BOARD (DISPLAY)		C417	1-164-156-11	CERAMIC CHIP	0.1uF 25V
S303	1-786-050-21	SWITCH, KEY BOARD (MD)		C441	1-126-934-11	ELECT	220uF 20.00% 10V
S304	1-786-050-21	SWITCH, KEY BOARD (TUNER)		C442	1-164-156-11	CERAMIC CHIP	0.1uF 25V
S305	1-786-050-21	SWITCH, KEY BOARD (▶▶▶)		C446	1-126-947-11	ELECT	47uF 20.00% 25V
S306	1-786-050-21	SWITCH, KEY BOARD (DSG)		C447	1-164-156-11	CERAMIC CHIP	0.1uF 25V
S307	1-786-050-21	SWITCH, KEY BOARD (◀◀◀)		C450	1-164-156-11	CERAMIC CHIP	0.1uF 25V
S308	1-786-050-21	SWITCH, KEY BOARD (BASS/TRE)		C451	1-164-156-11	CERAMIC CHIP	0.1uF 25V
S309	1-786-050-21	SWITCH, KEY BOARD (■)		C452	1-126-934-11	ELECT	220uF 20.00% 10V
S310	1-786-050-21	SWITCH, KEY BOARD (▶▶▶)		C453	1-162-979-11	CERAMIC CHIP	0.0027uF 10.00% 50V
S311	1-786-050-21	SWITCH, KEY BOARD (I/⏻)		C454	1-162-979-11	CERAMIC CHIP	0.0027uF 10.00% 50V
S312	1-786-050-21	SWITCH, KEY BOARD (◀◀◀)		C455	1-162-979-11	CERAMIC CHIP	0.0027uF 10.00% 50V
S313	1-786-050-21	SWITCH, KEY BOARD (■)		C456	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
S314	1-786-050-21	SWITCH, KEY BOARD (PLAY/MODE)		C457	1-106-361-00	MYLAR	0.0056uF 5.00% 100V
S315	1-786-419-11	SW, RTRY RE121PVB25FINB1-24E (VOLUME)		C461	1-162-935-11	CERAMIC CHIP	4PF 0.25PF 50V
< VIBRATOR >				C462	1-162-935-11	CERAMIC CHIP	4PF 0.25PF 50V
X301	9-300-001-87	VIB,XTAL 32.768KHZ CFS-308 CT		C501	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
X302	1-795-880-11	VIBRATOR, CERAMIC 8.64MHZ		C502	1-126-947-11	ELECT	47uF 20.00% 25V
*****				C540	1-164-230-11	CERAMIC CHIP	220PF 5.00% 50V
A-4732-945-A MAIN BOARD, COMPLETE				C588	1-126-934-11	ELECT	220uF 20.00% 10V
*****				C601	1-164-730-11	CERAMIC CHIP	0.0012uF 10.00% 50V
7-685-546-14 SCREW +BTP 3X8 TYPE2 N-S				C602	1-164-730-11	CERAMIC CHIP	0.0012uF 10.00% 50V
< CAPACITOR >				C603	1-126-961-11	ELECT	2.2uF 20.00% 50V
C200	1-126-941-11	ELECT	470uF 20.00% 25V	C604	1-126-961-11	ELECT	2.2uF 20.00% 50V
C201	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C611	1-126-956-91	ELECT	0.1uF 20.00% 50V
C202	1-162-968-11	CERAMIC CHIP	0.0047uF 10% 50V	C612	1-126-956-91	ELECT	0.1uF 20.00% 50V
C203	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C613	1-216-957-91	METAL	33K 1% 0.6W
C204	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C614	1-216-957-91	METAL	33K 1% 0.6W
C205	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C619	1-126-961-11	ELECT	2.2uF 20.00% 50V
C206	1-128-548-11	ELECT	4700uF 20% 25V	C620	1-126-961-11	ELECT	2.2uF 20.00% 50V
C207	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C637	1-162-923-11	CERAMIC CHIP	47PF 5% 50V
C208	1-130-495-00	MYLAR	0.1uF 5% 50V	C638	1-162-923-11	CERAMIC CHIP	47PF 5% 50V
C209	1-104-666-11	ELECT	220uF 20.00% 25V	C639	1-164-315-11	CERAMIC CHIP	470PF 5.00% 50V
C210	1-130-495-00	MYLAR	0.1uF 5% 50V	C640	1-164-315-11	CERAMIC CHIP	470PF 5.00% 50V
C211	1-130-495-00	MYLAR	0.1uF 5% 50V	C641	1-100-229-11	C-CAP, U	6800P-50 K B GRM
C212	1-130-495-00	MYLAR	0.1uF 5% 50V	C642	1-100-229-11	C-CAP, U	6800P-50 K B GRM
C213	1-130-495-00	MYLAR	0.1uF 5% 50V	C643	1-128-551-11	ELECT	22uF 20.00% 25V
C221	1-126-960-11	ELECT	1uF 20.00% 50V	C644	1-128-551-11	ELECT	22uF 20.00% 25V
C222	1-126-947-11	ELECT	47uF 20.00% 25V	C645	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
				C646	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
				C647	1-100-229-11	C-CAP, U	6800P-50 K B GRM
				C648	1-100-229-11	C-CAP, U	6800P-50 K B GRM
				C649	1-164-218-11	CERAMIC CHIP	180PF 0.25PF 50V

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Ref. No.	Part No.	Description	Remarks
C650	1-164-218-11	CERAMIC CHIP 180PF	0.25PF 50V
C651	1-126-961-11	ELECT 2.2uF	20.00% 50V
C652	1-126-961-11	ELECT 2.2uF	20.00% 50V
C660	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C663	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C665	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C666	1-126-935-11	ELECT 470uF	20.00% 10V
C667	1-104-665-11	ELECT 100uF	20.00% 10V
C668	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C670	1-162-967-11	CERAMIC CHIP 0.0033uF	10% 50V
C671	1-162-967-11	CERAMIC CHIP 0.0033uF	10% 50V
C681	1-162-966-11	CERAMIC CHIP 0.0022uF	10% 50V
C682	1-162-966-11	CERAMIC CHIP 0.0022uF	10% 50V
C683	1-110-563-11	CERAMIC CHIP 0.068uF	10% 16V
C684	1-110-563-11	CERAMIC CHIP 0.068uF	10% 16V
C700	1-126-947-11	ELECT 47uF	20.00% 25V
C705	1-126-963-11	ELECT 4.7uF	20.00% 50V
C706	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C708	1-126-947-11	ELECT 47uF	20.00% 25V
C709	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C800	1-126-961-11	ELECT 2.2uF	20.00% 50V
C801	1-126-961-11	ELECT 2.2uF	20.00% 50V
C802	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C803	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C804	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C805	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C806	1-126-935-11	ELECT 470uF	20.00% 16V
C807	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C808	1-126-963-11	ELECT 4.7uF	20.00% 50V
C809	1-126-963-11	ELECT 4.7uF	20.00% 50V
C814	1-165-176-11	CERAMIC CHIP 0.047uF	10% 16V
C815	1-126-933-11	ELECT 100uF	20.00% 16V
C816	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C817	1-165-176-11	CERAMIC CHIP 0.047uF	10% 16V
< CONNECTOR >			
CN202	1-793-766-11	CONNECTOR, BOARD TO BOARD 30P	
* CN305	1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P	
* CN501	1-564-710-11	PIN, CONNECTOR (SMALL TYPE) 8P	
* CN502	1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P	
CN701	1-568-830-11	CONNECTOR, FFC 11P	
< DIODE >			
D200	6-500-376-01	DIODE 1N4003LES	
D201	6-500-378-01	DIODE 1N5402GW(F20)	
D202	6-500-378-01	DIODE 1N5402GW(F20)	
D203	6-500-378-01	DIODE 1N5402GW(F20)	
D204	6-500-378-01	DIODE 1N5402GW(F20)	
D205	8-719-991-33	DIODE 1SS133T-72	
D206	8-719-991-33	DIODE 1SS133T-72	
D207	8-719-991-33	DIODE 1SS133T-72	
D208	8-719-991-33	DIODE 1SS133T-72	
D209	8-719-991-33	DIODE 1SS133T-72	
D210	8-719-991-33	DIODE 1SS133T-72	
D211	8-719-991-33	DIODE 1SS133T-72	
D212	8-719-991-33	DIODE 1SS133T-72	
D213	8-719-991-33	DIODE 1SS133T-72	
D403	8-719-109-97	DIODE MTZJ-T-77-6.8B	

Ref. No.	Part No.	Description	Remarks
D404	8-719-991-33	DIODE 1SS133T-72	
D405	8-719-109-89	DIODE MTZJ-T-72-5.6B	
D501	8-719-991-33	DIODE 1SS133T-72	
D602	8-719-109-85	DIODE MTZJ-T-72-5.1B	
D603	8-719-109-85	DIODE MTZJ-T-72-5.1B	
D801	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D802	8-719-991-33	DIODE 1SS133T-72	
D803	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D804	8-719-991-33	DIODE 1SS133T-72	
< FERRITE BEAD >			
FB201			
FB202			
FB401	1-400-297-11	INDUCTOR	0uH
FB701	1-400-297-11	INDUCTOR	0uH
FB710			
< IC >			
IC200	8-759-231-53	IC TA7805S	
IC204	6-704-060-01	IC LA4636	
IC601	6-702-895-01	IC BD3881FV	
IC800	8-759-167-88	IC NJM4565D	
< JACK >			
J201	1-793-484-11	JACK, PIN 2P	
J202	1-816-219-11	JACK, HEADPHONE	
J203	1-536-708-81	TERMINAL BOARD, PUSH (4P) (SPEAKER)	
< COIL >			
L200	1-400-297-11	INDUCTOR	0uH
L201	1-456-107-11	COIL, K (MDEC)	
L202	1-456-107-11	COIL, K (MDEC)	
L203	1-456-107-11	COIL, K (MDEC)	
L204	1-456-107-11	COIL, K (MDEC)	
L205	1-408-117-00	INDUCTOR	10uH
L451	1-456-094-11	COIL, OSC	85kHz BIAS
< CARBON >			
△ PR200	1-249-385-11	CARBON	2.2 5% 1/6W F
△ PR501	1-249-385-11	CARBON	2.2 5% 1/6W F
< TRANSISTOR >			
Q200	8-729-230-49	TRANSISTOR	2SC2712L-TE85R
Q205	6-550-333-01	TRANSISTOR	2SC5343GL
Q206	6-550-333-01	TRANSISTOR	2SC5343GL
Q400	8-729-120-28	TRANSISTOR	2SC3052F-T1-LF
Q401	8-729-120-28	TRANSISTOR	2SC3052F-T1-LF
Q402	8-729-024-94	TRANSISTOR	2SB1370-EF
Q403	6-550-296-01	TRANSISTOR	2SA1980G
Q404	6-550-333-01	TRANSISTOR	2SC5343GL
Q405	6-550-333-01	TRANSISTOR	2SC5343GL
Q406	6-550-344-01	TRANSISTOR	2SC3266GR
Q450	8-729-120-28	TRANSISTOR	2SC3052F-T1-LF
Q451	6-550-333-01	TRANSISTOR	2SC5343GL
Q453	6-550-333-01	TRANSISTOR	2SC5343GL
Q454	6-550-333-01	TRANSISTOR	2SC5343GL
Q501	8-729-901-97	TRANSISTOR	2SA1036K-T-147-Q

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

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
Q502	6-550-296-01	TRANSISTOR	2SA1980G	R441	1-216-817-11	METAL CHIP	470 5% 1/16W
Q504	8-729-901-05	TRANSISTOR	DTA124EK	R442	1-249-425-11	CARBON	4.7K 5% 1/4W F
Q505	8-729-045-62	TRANSISTOR	2SK2158-T2B	R443	1-216-807-11	METAL CHIP	68 5% 1/16W
Q506	8-729-901-05	TRANSISTOR	DTA124EK	R444	1-249-429-11	CARBON	10K 5% 1/4W
Q507	8-729-045-62	TRANSISTOR	2SK2158-T2B	R445	1-216-822-11	METAL CHIP	1.2K 5% 1/16W
Q508	8-729-045-62	TRANSISTOR	2SK2158-T2B	R446	1-216-818-11	METAL CHIP	560 5% 1/16W
Q509	8-729-216-22	TRANSISTOR	2SA1162-G	R447	1-216-821-11	METAL CHIP	1K 5% 1/16W
Q510	8-729-216-22	TRANSISTOR	2SA1162-G	R453	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
Q511	1-809-869-11	TRANSISTOR	DTA124EL-TL2	R454	1-249-392-11	CARBON	8.2 5% 1/4W F
Q601	8-729-030-03	TRANSISTOR	DTC144ESA-TP	R455	1-216-836-11	METAL CHIP	18K 5% 1/16W
Q602	8-729-030-03	TRANSISTOR	DTC144ESA-TP	R456	1-216-836-11	METAL CHIP	18K 5% 1/16W
Q701	6-550-305-01	TRANSISTOR	2SA1296GR	R458	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
Q702	8-729-030-03	TRANSISTOR	2SA1296GR	R459	1-216-842-11	METAL CHIP	56K 5% 1/16W
Q801	8-729-920-31	TRANSISTOR	DTC343TK	R460	1-216-845-11	METAL CHIP	100K 5% 1/16W
Q802	8-729-920-31	TRANSISTOR	DTC343TK	R465	1-216-833-11	METAL CHIP	10K 5% 1/16W
Q803	6-550-296-01	TRANSISTOR	2SA1980G	R466	1-216-833-11	METAL CHIP	10K 5% 1/16W
Q804	8-729-029-69	TRANSISTOR	DTC114TSA-TP	R467	1-216-833-11	METAL CHIP	10K 5% 1/16W
		< RESISTOR >		R470	1-249-393-11	CARBON	10 5% 1/4W F
R200	1-249-398-11	CARBON	27 5%	R502	1-249-409-11	CARBON	220 5% 1/4W F
R201	1-216-829-11	METAL CHIP	4.7K 5%	R503	1-216-864-11	METAL CHIP	0 5% 1/16W
R202	1-216-822-11	METAL CHIP	1.2K 5%	R504	1-216-821-11	METAL CHIP	1K 5% 1/16W
R203	1-247-807-31	CARBON	100 5%	R505	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R204	1-249-385-11	CARBON	2.2 5%	R525	1-216-857-11	METAL CHIP	1M 5% 1/16W
R205	1-249-385-11	CARBON	2.2 5%	R527	1-249-436-11	CARBON	39K 5% 1/4W
R206	1-249-385-11	CARBON	2.2 5%	R528	1-216-828-11	METAL CHIP	3.9K 5% 1/16W
R207	1-249-385-11	CARBON	2.2 5%	R530	1-216-833-11	METAL CHIP	10K 5% 1/16W
R208	1-249-429-11	CARBON	10K 5%	R593	1-249-429-11	CARBON	10K 5% 1/4W
R209	1-249-429-11	CARBON	10K 5%	R594	1-249-429-11	CARBON	10K 5% 1/4W
R221	1-216-839-11	METAL CHIP	33K 5%	R599	1-249-421-11	CARBON	2.2K 5% 1/4W F
R222	1-216-841-11	METAL CHIP	47K 5%	R603	1-216-840-11	METAL CHIP	39K 5% 1/16W
R223	1-216-837-11	METAL CHIP	22K 5%	R604	1-216-840-11	METAL CHIP	39K 5% 1/16W
R224	1-216-821-11	METAL CHIP	1K 5%	R609	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
R225	1-216-821-11	METAL CHIP	1K 5%	R610	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
R226	1-216-821-11	METAL CHIP	1K 5%	R611	1-249-432-11	CARBON	18K 5% 1/4W
R227	1-216-821-11	METAL CHIP	1K 5%	R612	1-249-432-11	CARBON	18K 5% 1/4W
R228	1-216-825-11	METAL CHIP	2.2K 5%	R613	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R229	1-216-825-11	METAL CHIP	2.2K 5%	R617	1-216-821-11	METAL CHIP	1K 5% 1/16W
R230	1-249-427-11	CARBON	6.8K 5%	R618	1-216-821-11	METAL CHIP	1K 5% 1/16W
R231	1-249-427-11	CARBON	6.8K 5%	R619	1-216-821-11	METAL CHIP	1K 5% 1/16W
R232	1-216-822-11	METAL CHIP	1.2K 5%	R620	1-216-821-11	METAL CHIP	1K 5% 1/16W
R233	1-216-822-11	METAL CHIP	1.2K 5%	R633	1-218-867-11	METAL CHIP	6.8K 5% 1/10W
R234	1-249-433-11	CARBON	22K 5%	R634	1-218-867-11	METAL CHIP	6.8K 5% 1/10W
R237	1-216-864-11	METAL CHIP	0 5%	R635	1-216-808-11	METAL CHIP	82 5% 1/16W
R238	1-216-864-11	METAL CHIP	0 5%	R636	1-216-808-11	METAL CHIP	82 5% 1/16W
R239	1-216-222-00	RES-CHIP	10K 5%	R637	1-216-817-11	METAL CHIP	470 5% 1/16W
R240	1-216-825-11	METAL CHIP	2.2K 5%	R638	1-216-817-11	METAL CHIP	470 5% 1/16W
R241	1-216-825-11	METAL CHIP	2.2K 5%	R639	1-216-826-11	METAL CHIP	2.7K 5% 1/16W
R245	1-216-840-11	METAL CHIP	39K 5%	R640	1-216-826-11	METAL CHIP	2.7K 5% 1/16W
R246	1-216-840-11	METAL CHIP	39K 5%	R641	1-216-821-11	METAL CHIP	1K 5% 1/16W
R247				R642	1-216-821-11	METAL CHIP	1K 5% 1/16W
R248				R643	1-216-821-11	METAL CHIP	1K 5% 1/16W
R400	1-216-825-11	METAL CHIP	2.2K 5%	R644	1-216-821-11	METAL CHIP	1K 5% 1/16W
R401	1-216-825-11	METAL CHIP	2.2K 5%	R645	1-216-833-11	METAL CHIP	10K 5% 1/16W
R402	1-216-841-11	METAL CHIP	47K 5%	R646	1-216-833-11	METAL CHIP	10K 5% 1/16W
R403	1-216-857-11	METAL CHIP	1M 5%	R647	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R404	1-216-833-11	METAL CHIP	10K 5%	R648	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R405	1-216-821-11	METAL CHIP	1K 5%	R649	1-216-836-11	METAL CHIP	18K 5% 1/16W
R406	1-216-828-11	METAL CHIP	3.9K 5%	R650	1-249-432-11	CARBON	18K 5% 1/4W
				R651	1-216-822-11	METAL CHIP	1.2K 5% 1/16W
				R652	1-216-822-11	METAL CHIP	1.2K 5% 1/16W

HCD-EP315
Ver 1.1 2003.07

MAIN TRANSFORMER

Ref. No.	Part No.	Description	Remarks
R655	1-216-836-11	METAL CHIP 18K	5% 1/16W
R656	1-216-836-11	METAL CHIP 18K	5% 1/16W
R657	1-216-852-11	METAL CHIP 390K	5% 1/16W
R658	1-216-852-11	METAL CHIP 390K	5% 1/16W
R660	1-216-833-11	METAL CHIP 10K	5% 1/16W
R662	1-216-829-11	METAL CHIP 4.7K	5% 1/16W
R665	1-249-413-11	CARBON 470	5% 1/4W F
R672	1-216-833-11	METAL CHIP 10K	5% 1/16W
R673	1-216-833-11	METAL CHIP 10K	5% 1/16W
R674	1-249-429-11	CARBON 10K	5% 1/4W
R675	1-249-429-11	CARBON 10K	5% 1/4W
R681	1-216-825-11	METAL CHIP 2.2K	5% 1/16W
R682	1-216-825-11	METAL CHIP 2.2K	5% 1/16W
R688	1-216-843-11	METAL CHIP 68K	5% 1/16W
R689	1-216-843-11	METAL CHIP 68K	5% 1/16W
R694	1-249-413-11	CARBON 470	5% 1/4W F
R695	1-249-438-11	CARBON 56K	5% 1/4W
R696	1-249-438-11	CARBON 56K	5% 1/4W
R697	1-216-842-11	METAL CHIP 56K	5% 1/16W
R698	1-216-842-11	METAL CHIP 56K	5% 1/16W
R701	1-216-864-11	METAL CHIP 0	5% 1/16W
R702	1-216-864-11	METAL CHIP 0	5% 1/16W
R705	1-216-864-11	METAL CHIP 0	5% 1/16W
R706			
R708	1-216-864-11	METAL CHIP 0	5% 1/16W
R709	1-216-864-11	METAL CHIP 0	5% 1/16W
R710	1-216-837-11	METAL CHIP 22K	5% 1/16W
R711	1-216-837-11	METAL CHIP 22K	5% 1/16W
R712	1-216-825-11	METAL CHIP 2.2K	5% 1/16W
R713	1-216-864-11	METAL CHIP 0	5% 1/16W
R714	1-216-864-11	METAL CHIP 0	5% 1/16W
R800	1-216-833-11	METAL CHIP 10K	5% 1/16W
R801	1-216-833-11	METAL CHIP 10K	5% 1/16W
R802	1-216-833-11	METAL CHIP 10K	5% 1/16W
R803	1-216-833-11	METAL CHIP 10K	5% 1/16W
R804	1-216-820-11	METAL CHIP 820	5% 1/16W
R805	1-216-829-11	METAL CHIP 4.7K	5% 1/16W
R806	1-216-829-11	METAL CHIP 4.7K	5% 1/16W
R807	1-216-820-11	METAL CHIP 820	5% 1/16W
R810	1-216-825-11	METAL CHIP 2.2K	5% 1/16W
R811	1-216-821-11	METAL CHIP 1K	5% 1/16W
R814	1-249-404-00	CARBON 82	5% 1/4W F
R815	1-249-404-00	CARBON 82	5% 1/4W F
R816	1-249-407-11	CARBON 150	5% 1/4W F
R817	1-216-823-11	RES CHIP 1.5K	5% 1/10W

1-688-570-11 TRANSFORMER BOARD

< CAPACITOR >

C901 1-126-941-11 ELECT 470uF 20.00% 25V

< DIODE >

D901 8-719-991-33 DIODE 1SS133T-72
D902 8-719-991-33 DIODE 1SS133T-72
D903 8-719-991-33 DIODE 1SS133T-72
D904 8-719-991-33 DIODE 1SS133T-72

Ref. No.	Part No.	Description	Remarks
		< COIL >	
△ L901			
		< TRANSFORMER >	
△ PT901			
△ PT902	1-439-735-11	TRANSFORMER, POWER	
		< RESISTOR >	
△ R901	1-219-236-51	RES SOLID 2.2M 20% 1/2W	
		< RELAY >	
△ RY901	1-755-276-11	RELAY, POWER	

		MISCELLANEOUS	

△ 8	1-555-795-00	CORD, POWER	
68	1-796-689-11	DECK MECHANICAL	
106	1-757-055-11	WIRE, PARALLEL (FFC) (16 CORE)	
△ 604	8-820-221-01	OPTICAL PICK-UP KSM-213EDP	
M102	X-2625-769-1	GEAR ASSY (MB) (RP), MOTOR (SLED)	
△ T901	1-439-657-11	TRANSFORMER, POWER	

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

MEMO

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