

RCD-W222ES

SERVICE MANUAL

US Model

Ver 1.0 2002.09



CD-R section	Model Name Using Similar Mechanism	NEW
	CD Mechanism Type	CDM65-RBD1
	Base Unit Name	RBD1
	Optical Pick-up Name	KRS-220C
CDP section	Model Name Using Similar Mechanism	NEW
	CD Mechanism Type	CDM53L-30B61B
	Base Unit Name	BU-30BBD61B
	Optical Pick-up Name	A-MAX.3

SPECIFICATIONS

DECK A (the CD player section)

System	Compact disc digital audio system
Laser	Semiconductor laser ($\lambda = 780$ nm) Emission duration: continuous
Frequency response	20 Hz - 20,000 Hz (± 0.5 dB)
Wow and flutter	Below measurable limit

DECK B (the CD-R and CD-RW recording section)

System	Compact disc digital audio system
Laser	Semiconductor laser ($\lambda = 780$ nm) Emission duration: continuous
Playable discs	CD, CD-R, CD-RW
Recordable discs	CD-R, CD-RW (for music use)
Frequency response	20 Hz - 20,000 Hz (± 0.5 dB)
Wow and flutter	Below measurable limit

Inputs

ANALOG IN (Phono jacks)	Impedance: 47 kilohms Rated input: 500 mVrms Minimum input: 250 mVrms
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DIGITAL OPTICAL IN (Square optical connector jack)	Optical wavelength: 660nm
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DIGITAL COAXIAL IN (Phono jack)	Impedance: 75 ohms Rated input: 0.5 Vp-p, ± 20 %
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Outputs

ANALOG OUT (Phono jacks)	Impedance: 47 kilohms Rated output: 2 Vrms Load impedance: over 10 kilohms
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DIGITAL OPTICAL OUT (Square optical connector jack)	Optical wavelength: 660nm Rated output: -18 dBm
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DIGITAL COAXIAL OUT (Phono jack)	Rated output: 0.5 Vp-p, ± 20 % Load impedance: 75 ohms
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PHONES (Stereo phono jack)	Rated output: 28mW Load impedance: 32 ohms
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General

Power requirements	120 V AC, 60 Hz
Power consumption	29 W
Dimensions (approx.) (w/h/d) incl. projecting parts and control	430 x 110 x 400 mm (17 x 4 ³ / ₈ x 15 ³ / ₄ inch)
Mass (approx.)	7.5 kg (16 ¹ / ₂ lbs)

Supplied accessories

- Audio connecting cords
Phono jack x 2 (red/white) \leftrightarrow Phono jack x 2 (red/white) (2)
- Remote commander (remote) (1)
- Size AA (R6) batteries (2)

Design and specifications are subject to change without notice.

COMPACT DISC RECORDER

SONY®

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.

CAUTION

The use of optical instruments with this product will increase eye hazard. As the laser beam used in this Compact Disc Recorder is harmful to eyes, do not attempt to disassemble the cabinet. Refer servicing to qualified personnel only.

The following caution label is located inside the apparatus.

<p>DANGER INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCK DEFEATED. AVOID DIRECT EXPOSURE TO BEAM.</p>	<p>DANGER RADIATION DE LASER INVISIBLE LORS D'OUVERTURE, AVEC L'ENCLANCHEMENT DE SECURITE ANNULE. EVITER L'EXPOSITION DIRECTE AU RAYON.</p>
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CAUTION

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

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 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.

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.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks 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

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)

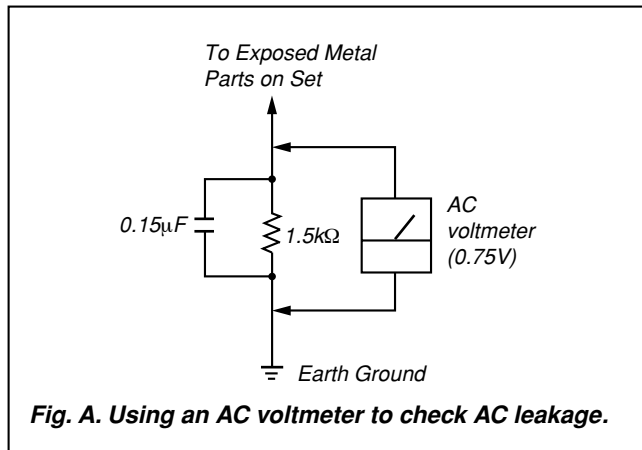


Fig. A. Using an AC voltmeter to check AC leakage.

SELF-DIAGNOSIS FUNCTION

When the self-diagnosis function is activated to prevent the player from malfunctioning, three character service numbers in a combination with a message appears in the display. In this case, check the following table.

Message	Explanation
C12/ Cannot Copy	You are trying to record a disc that cannot be played back in DECK-A or with an external device, such as CD-ROM or VIDEO CD. • Remove the disc, and then insert a music CD for playback.
C13/ Rec Error	Recording has not been completed successfully because of vibration. • Relocate the unit in a place free of vibration and restart the recording again. The disc you try to record is excessively dirty (such as oilstained or finger marked) or scratched. Or the disc is not normal. • Replace the disc with another one and restart the recording again.
C14/ TOC Error	The unit did not read the TOC information. • Insert other discs.
C41/ Cannot Copy	The sound source you are trying to record is a copy of a commercial music software. Or you are trying to record on a CD-R/CD-RW digitally. • Because of the restriction of the Serial Copy Management System, you cannot record a copy of a commercial music software. Neither can you record a CD-R/ CD-RW digitally. • Use analog recording through the ANALOG IN jack when you record from other units. Or use Synchro-Recording when you record from DECK A. (The recording mode is automatically changed to analog recording.)
C71/ Din Unlock	If this message is displayed momentarily, this is not an error. It is caused by the digital signal during recording. During recording of a digital sound source, the connecting cable has been disconnected or the player of the sound source has turned off. • Connect the cable or turn on the digital player.

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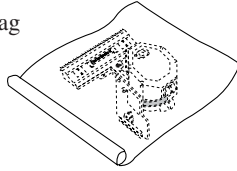
SECTION 1 SERVICING NOTE

NOTES REGARDING HANDLING OF THE PICK-UP

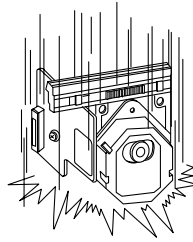
1. Notes for transport and storage

- 1) The pick-up should always be left in its conductive bag until immediately prior to use.
- 2) The pick-up should never be subjected to external pressure or impact.

Storage in conductive bag

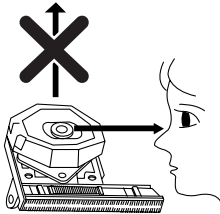


Drop impact



2. Repair notes

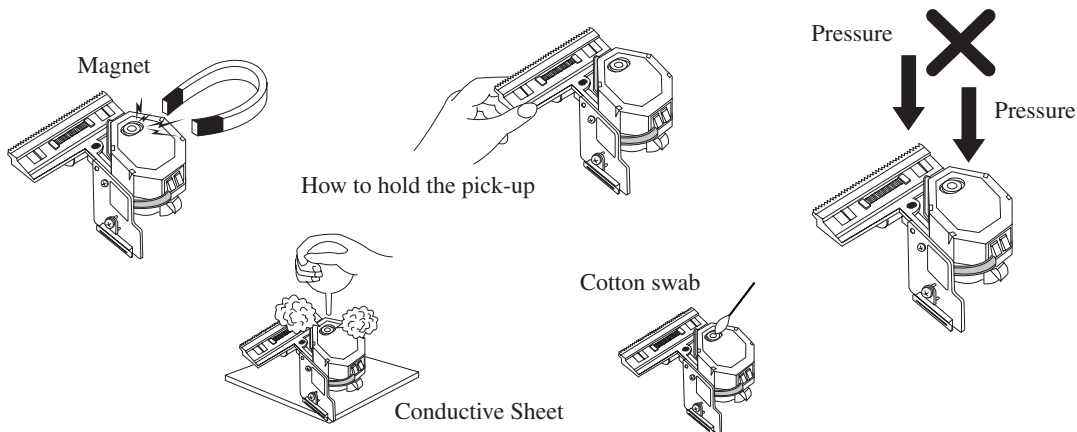
- 1) The pick-up incorporates a strong magnet, and so should never be brought close to magnetic materials.
- 2) The pick-up should always be handled correctly and carefully, taking care to avoid external pressure and impact. If it is subjected to pressure or impact, the result may be an operational malfunction and/or damage to the printed-circuit board.
- 3) Each and every pick-up is already individually adjusted to a high degree of precision, and for that reason the adjustment point and installation screws should absolutely never be touched.
- 4) Laser beams may damage the eyes!
 Absolutely never permit laser beams to enter the eyes!
 Also NEVER switch ON the power to the laser output part (lens, etc.) of the pick-up if it is damaged.



NEVER look directly at the laser beam, and don't let contact fingers or other exposed skin.

5) Cleaning the lens surface

If there is dust on the lens surface, the dust should be cleaned away by using an air bush (such as used for camera lens). The lens is held by a delicate spring. When cleaning the lens surface, therefore, a cotton swab should be used, taking care not to distort this.



6) Never attempt to disassemble the pick-up.

Spring by excess pressure. If the lens is extremely dirty, apply isopropyl alcohol to the cotton swab. (Do not use any other liquid cleaners, because they will damage the lens.) Take care not to use too much of this alcohol on the swab, and do not allow the alcohol to get inside the pick-up.

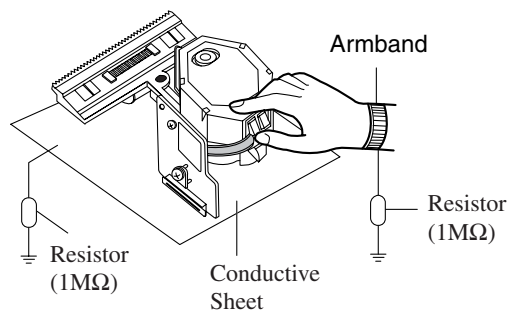
NOTES REGARDING COMPACT DISC PLAYER REPAIRS

1. Preparations

- 1) Compact disc players incorporate a great many ICs as well as the pick-up (laser diode). These components are sensitive to, and easily affected by, static electricity. If such static is high voltage, components can be damaged, and for that reason components should be handled with care.
- 2) The pick-up is composed of many optical components and other high-precision components. Care must be taken, therefore, to avoid repair or storage where the temperature of humidity is high, where strong magnetism is present, or where there is excessive dust.

2. Notes for repair

- 1) Before replacing a component part, first disconnect the power supply lead wire from the unit
- 2) All equipment, measuring instruments and tools must be grounded.
- 3) The workbench should be covered with a conductive sheet and grounded.
When removing the laser pick-up from its conductive bag, do not place the pick-up on the bag. (This is because there is the possibility of damage by static electricity.)
- 4) To prevent AC leakage, the metal part of the soldering iron should be grounded.
- 5) Workers should be grounded by an armband ($1M\Omega$)
- 6) Care should be taken not to permit the laser pick-up to come in contact with clothing, in order to prevent static electricity changes in the clothing to escape from the armband.
- 7) The laser beam from the pick-up should NEVER be directly facing the eyes or bare skin.



Electrostatically Sensitive Devices (ESD)

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive Devices (ESD). Examples of typical ESD devices are integrated circuits and some field-effect transistors and semiconductor chip components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

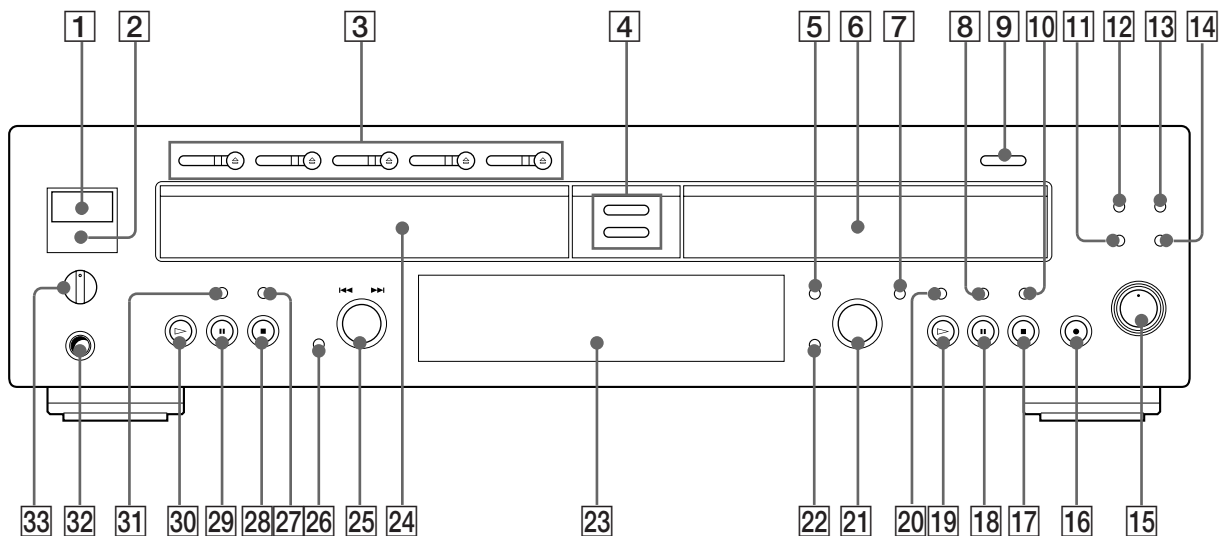
1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ESD devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ESD devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESD devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESD devices.
6. Do not remove a replacement ESD device from its protective package until immediately before you are ready to install it. (Most replacement ESD devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive materials).
7. Immediately before removing the protective material from the leads of a replacement ESD device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION : BE SURE NO POWER IS APPLIED TO THE CHASSIS OR CIRCUIT, AND OBSERVE ALL OTHER SAFETY PRECAUTIONS.

8. Minimize bodily motions when handling unpackaged replacement ESD devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ESD device).

SECTION 2 GENERAL

Parts and Controls

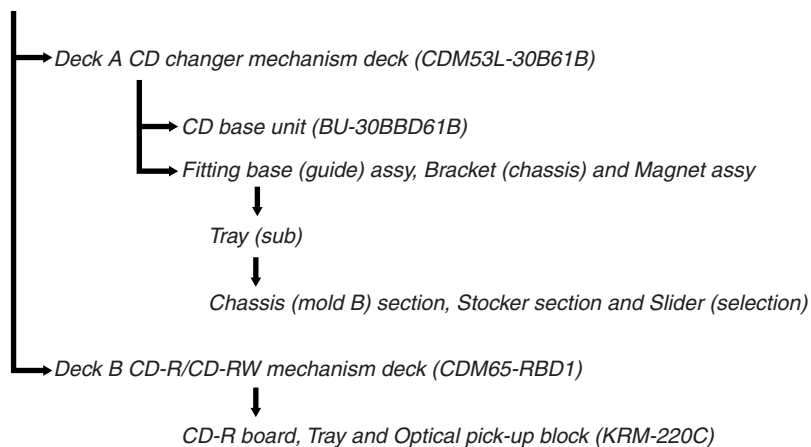


- | | |
|--|--|
| 1 POWER button | 18 (pause) button -Deck B |
| 2 (remote sensor) | 19 ▶ (play) button -Deck B |
| 3 DISC 1-5 buttons | 20 DISPLAY button |
| 4 CD SYNCHRO NORMAL/HIGH buttons | 21 /PUSH ENTER-Deck B |
| 5 MENU/NO button | 22 CLEAR-Deck B |
| 6 Disc tray-Deck B | 23 Display button |
| 7 YES button | 24 Disc tray-Deck A |
| 8 TIME-Deck B button | 25 /PUSH ENTER knob -Deck A |
| 9 OPEN/CLOSE button -Deck B | 26 CLEAR button -Deck A |
| 10 PLAY MODE button -Deck B | 27 PLAY MODE button -Deck A |
| 11 INPUT button | 28 ■ (stop) button -Deck A |
| 12 FINALIZE button | 29 (pause) button -Deck A |
| 13 ERASE button | 30 ▶ (play) button -Deck A |
| 14 SBM button and indicator | 31 TIME button -Deck A |
| 15 REC LEVEL knob | 32 PHONES jack |
| 16 REC ● button -Deck B | 33 PHONE LEVEL knob |
| 17 ■ (stop) button -Deck B | |

SECTION 3 DISASSEMBLY

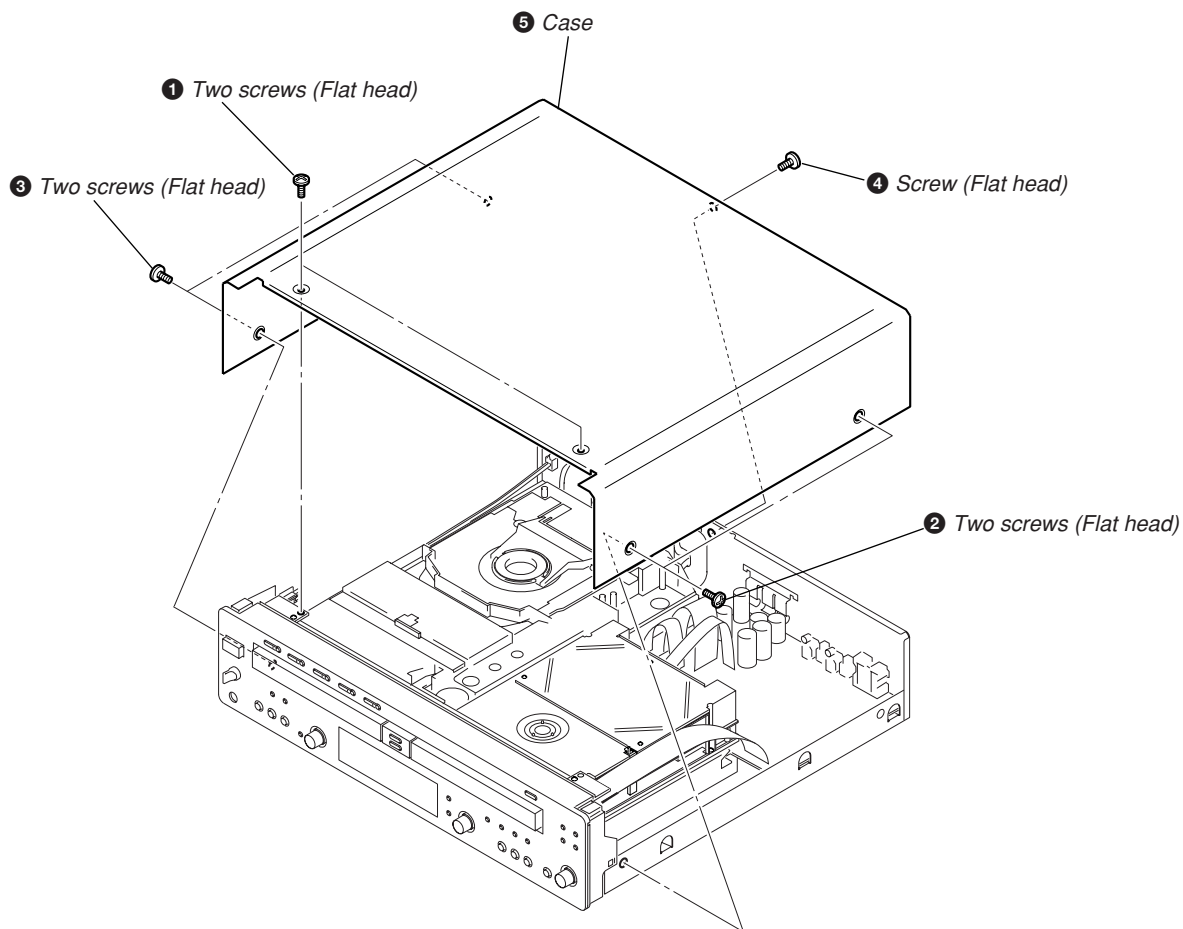
Note: Disassemble the unit in the order as shown below.

Set → Case(top) → Front panel section → POWER SW board, HP board, RM board, CD SW board, LED board and DISPLAY board

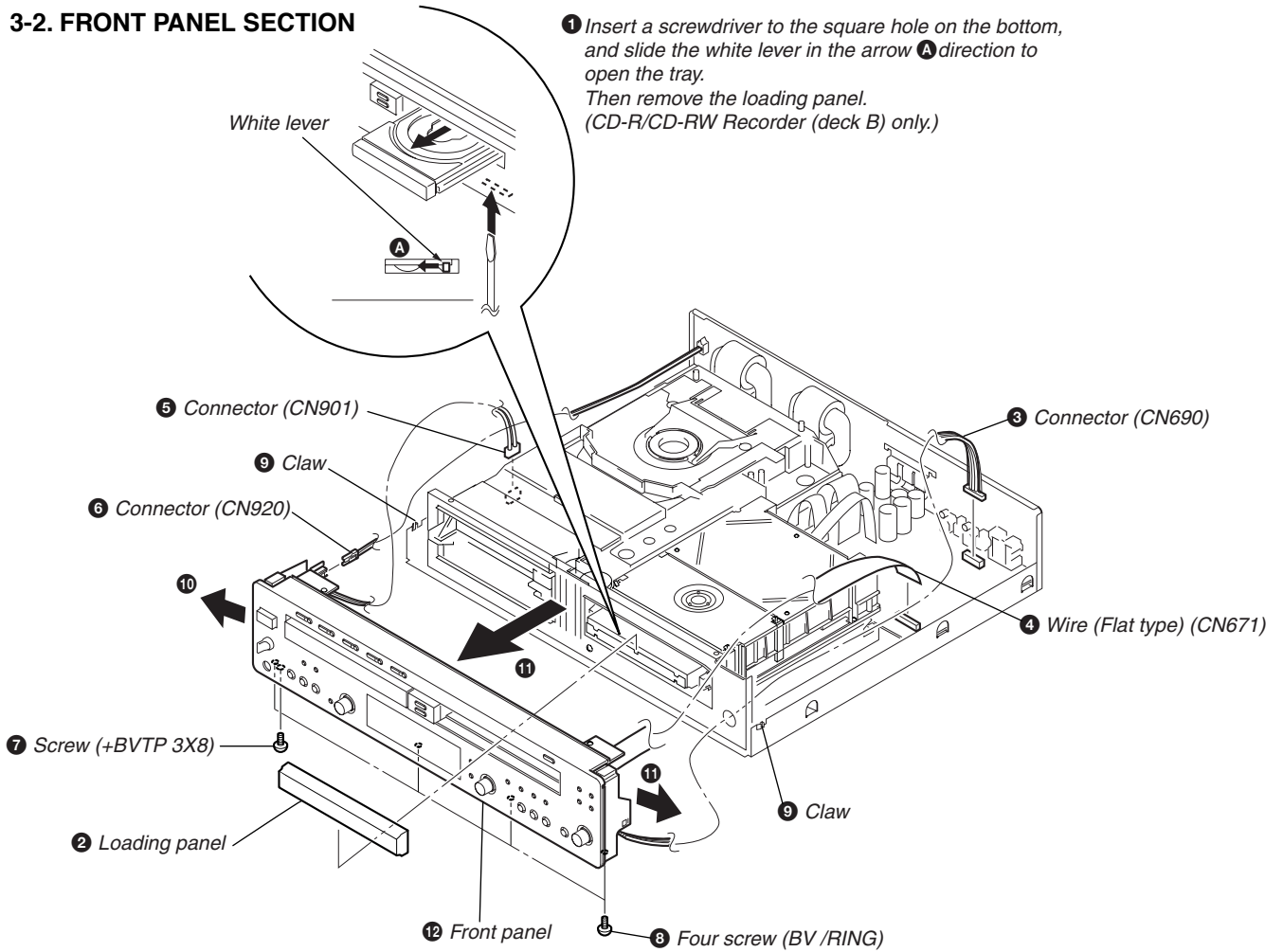


Note: Follow the disassembly procedure in the numerical order given.

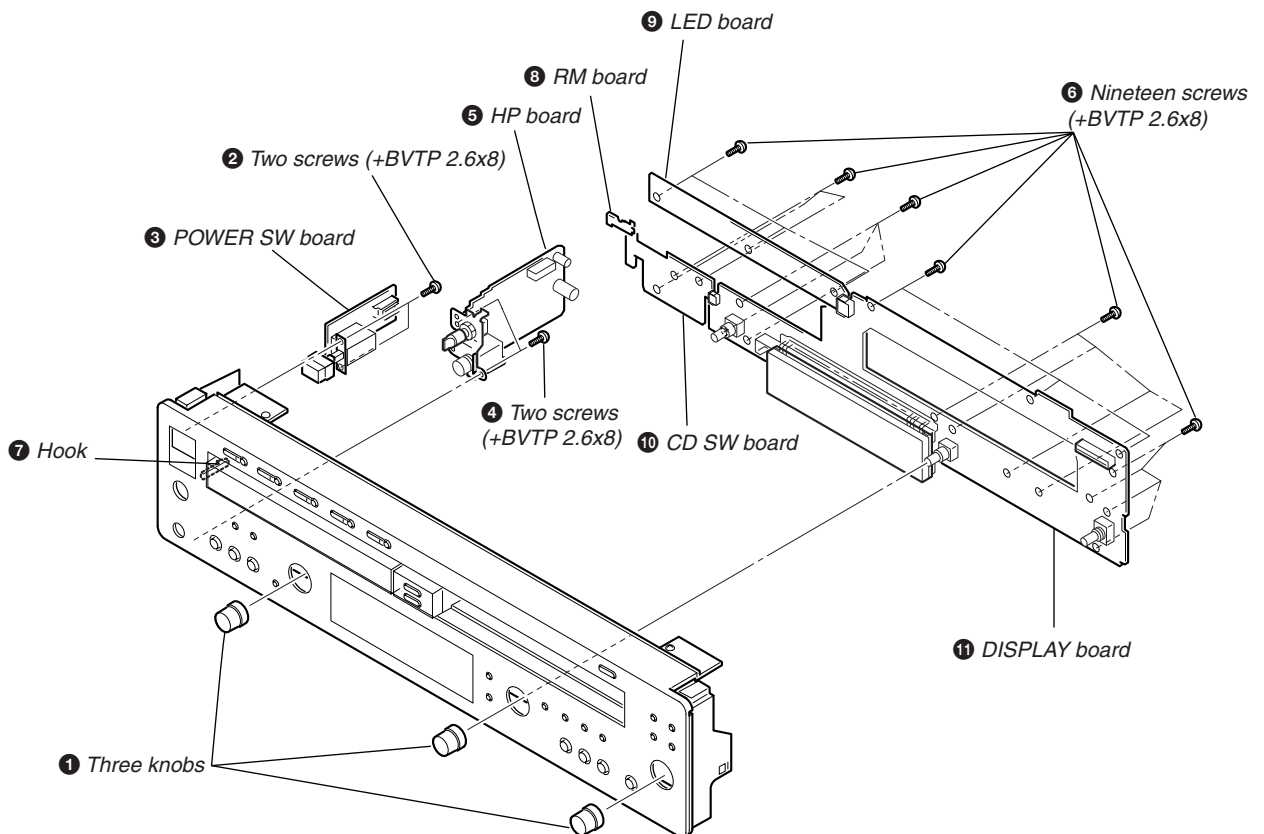
3-1. CASE (TOP)



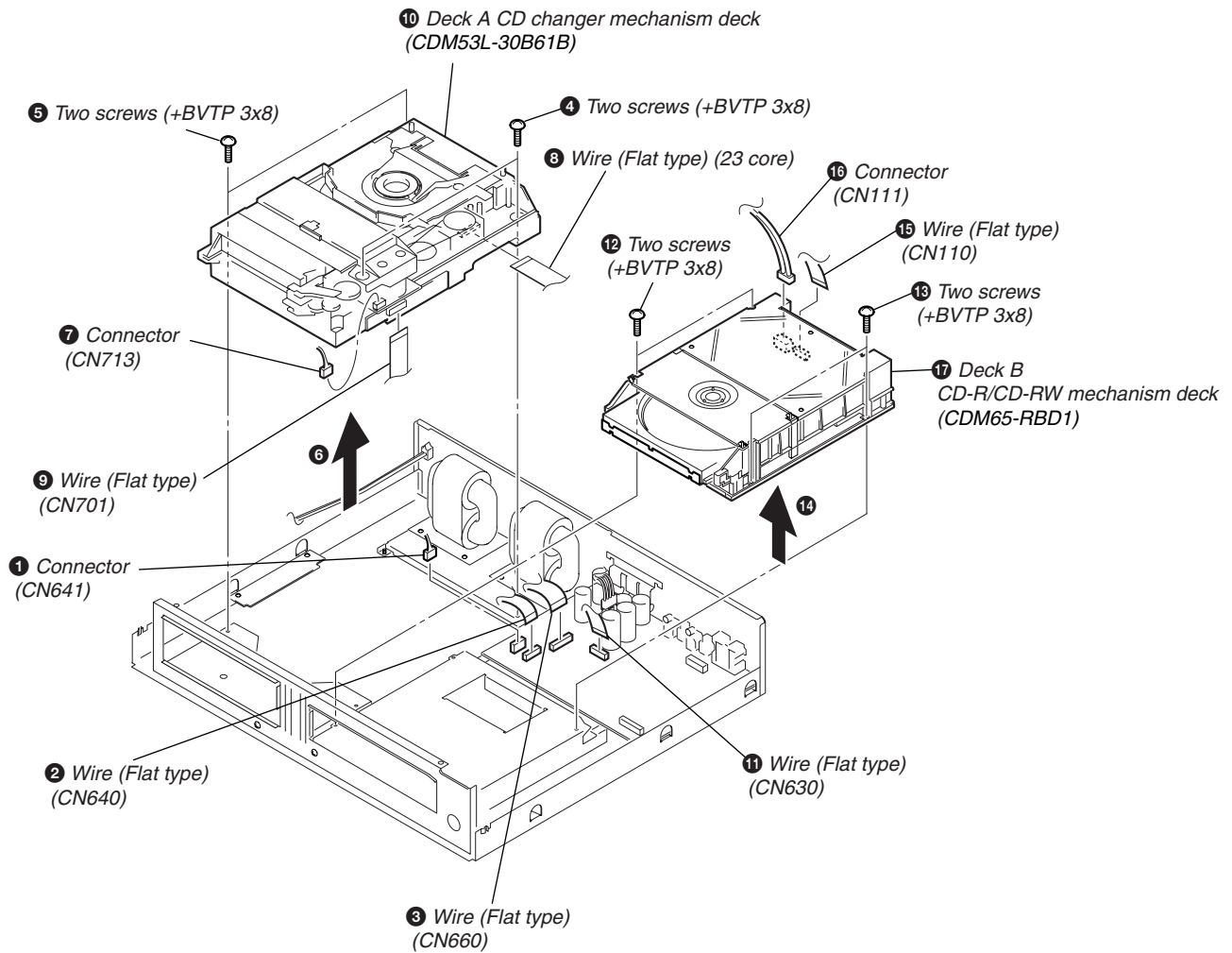
3-2. FRONT PANEL SECTION



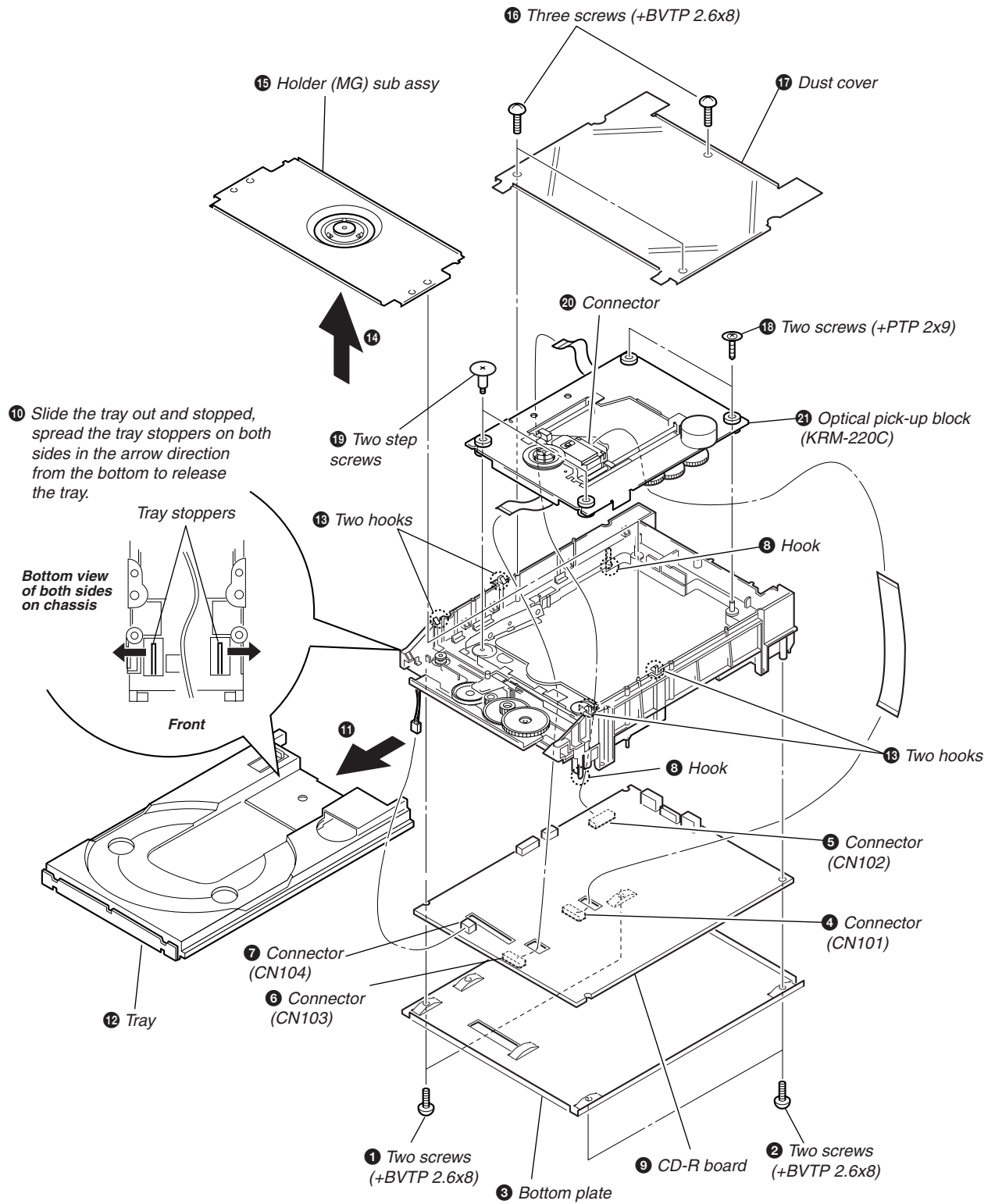
3-3. POWER SW BOARD, HP BOARD, RM BOARD, LED BOARD, CD SW BOARD, DISPLAY BOARD



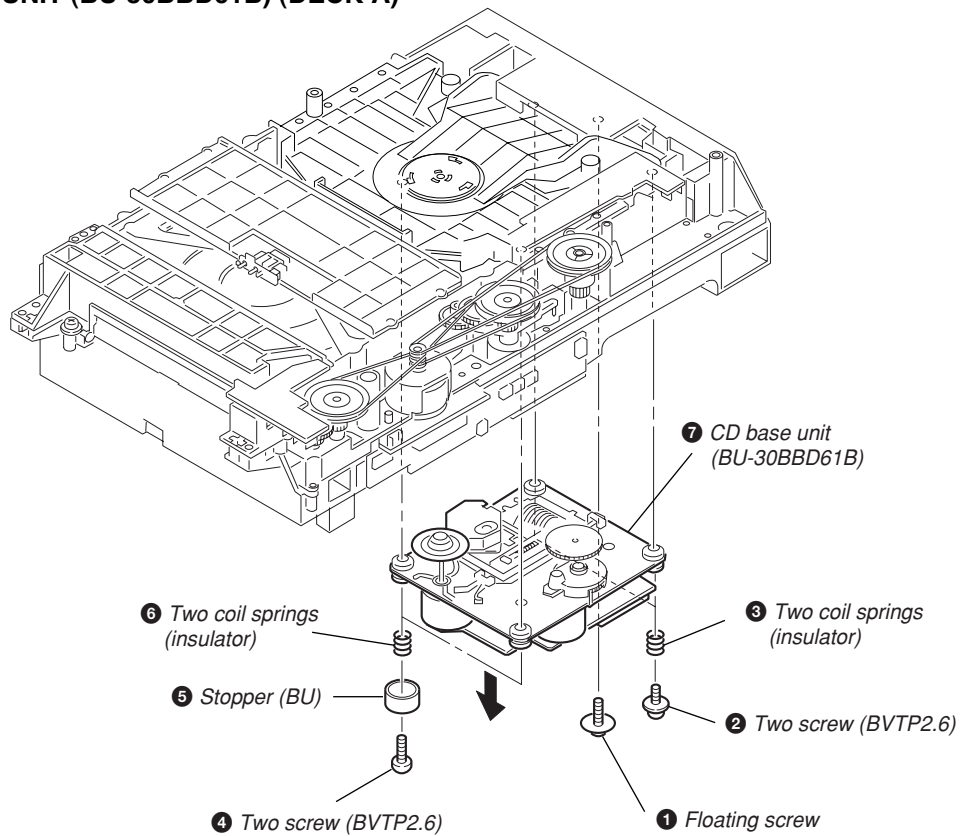
3-4. DECK A (CDM53L-30B61B), DECK B (CDM65-RBD1)



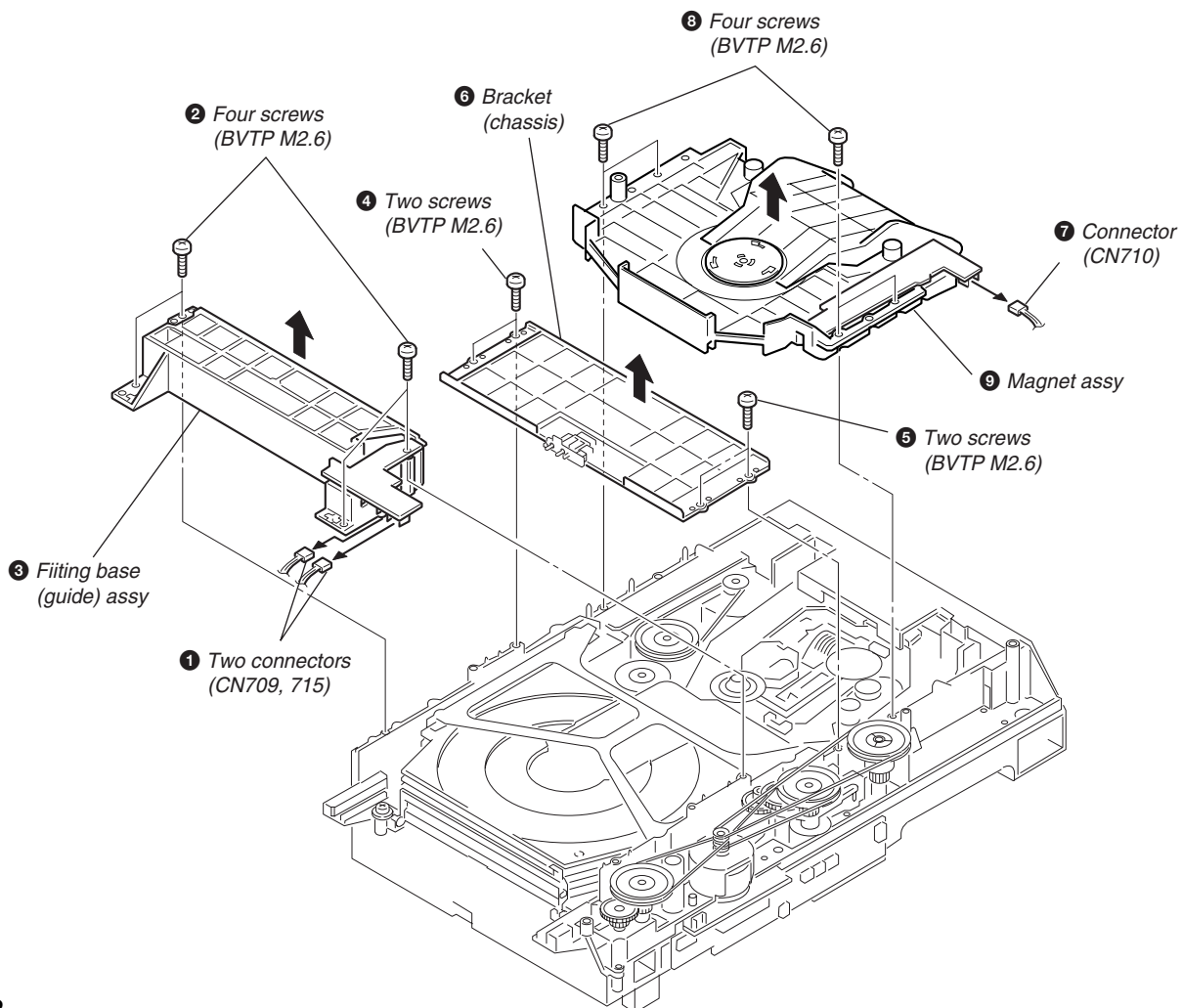
3-5. CD-R BOARD, TRAY AND OPTICAL PICK-UP BLOCK (KRM-220C) (DECK B)



3-6. CD BASE UNIT (BU-30BBD61B) (DECK A)

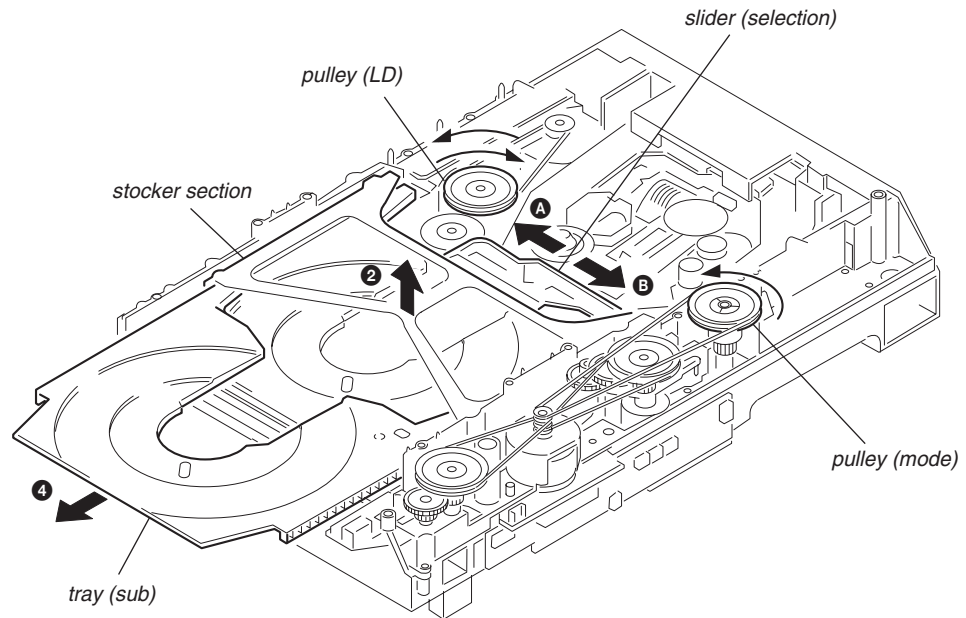


3-7. FITTING BASE (GUIDE) ASSY, BRACKET (CHASSIS) AND MAGNET ASSY (DECK A)



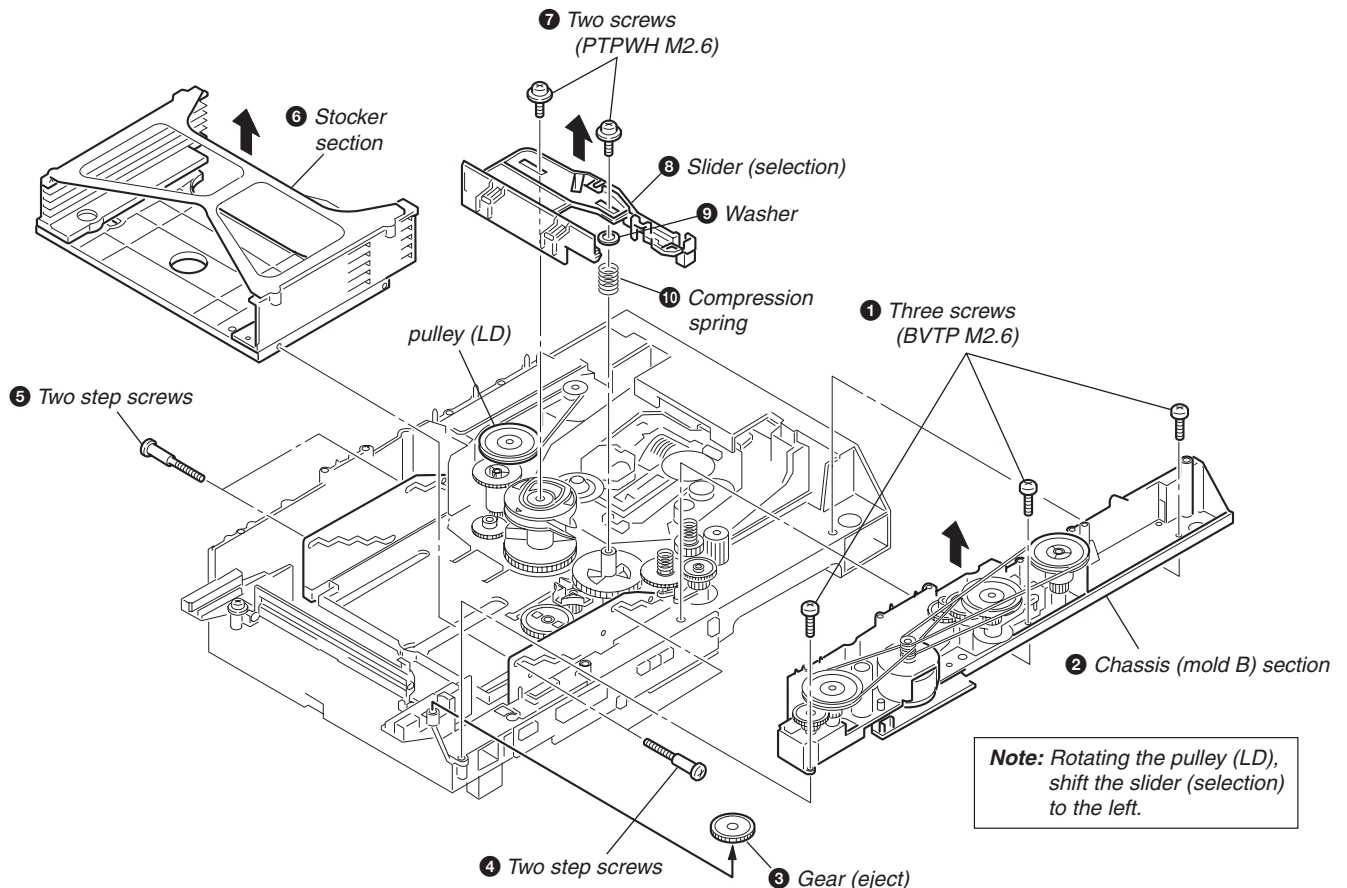
3-8. TRAY (SUB) (DECK A)

- ① Rotating the pulley (LD), shift the slider (selection) in the direction of arrow **A**.
- ② Rotating the pulley (mode) in the arrow direction, adjust the tray (sub) to be removed.
- ③ Rotating the pulley (LD), shift the slider (selection) in the direction of arrow **B**.
- ④ Rotating the pulley (mode) in the arrow direction, remove the tray (sub).

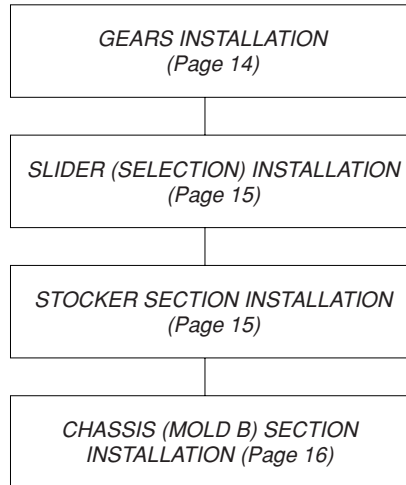


3-9. CHASSIS (MOLD B) SECTION, STOCKER SECTION AND SLIDER (SELECTION)

Note: On mounting parts, refer to pages 14 to 16.

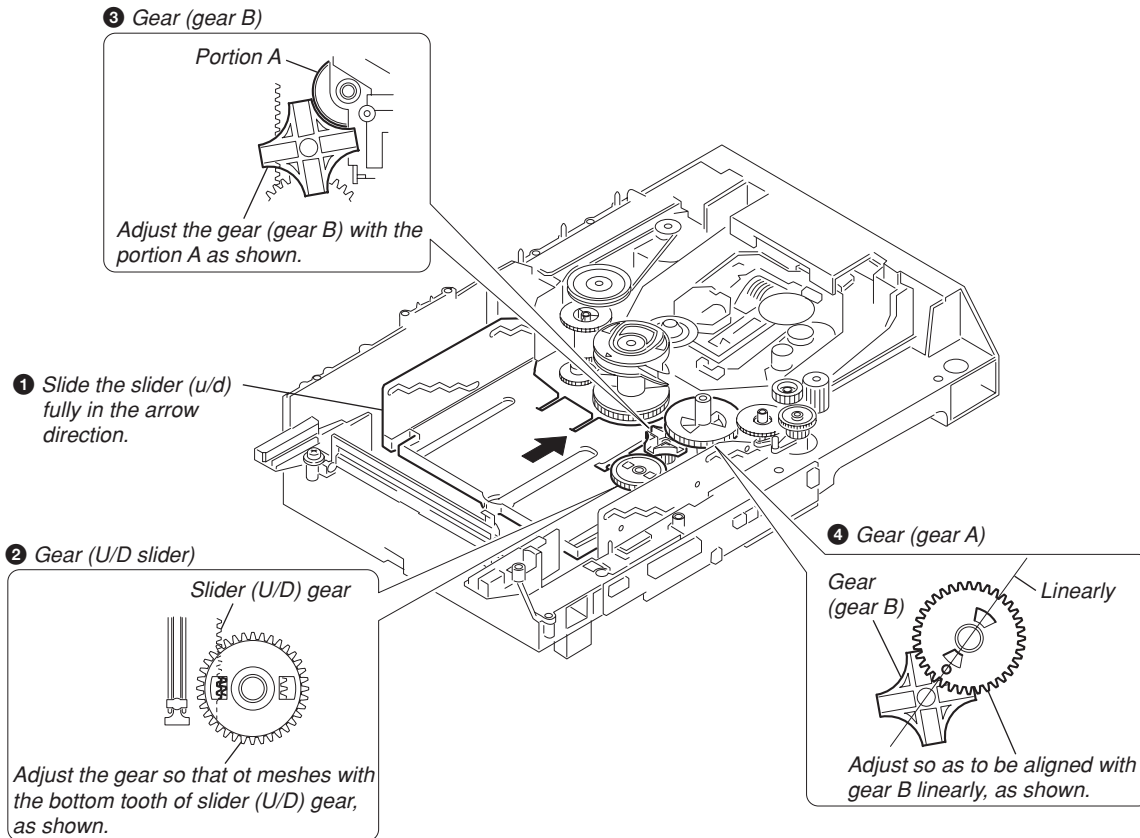


SECTION 4 ASSEMBLY

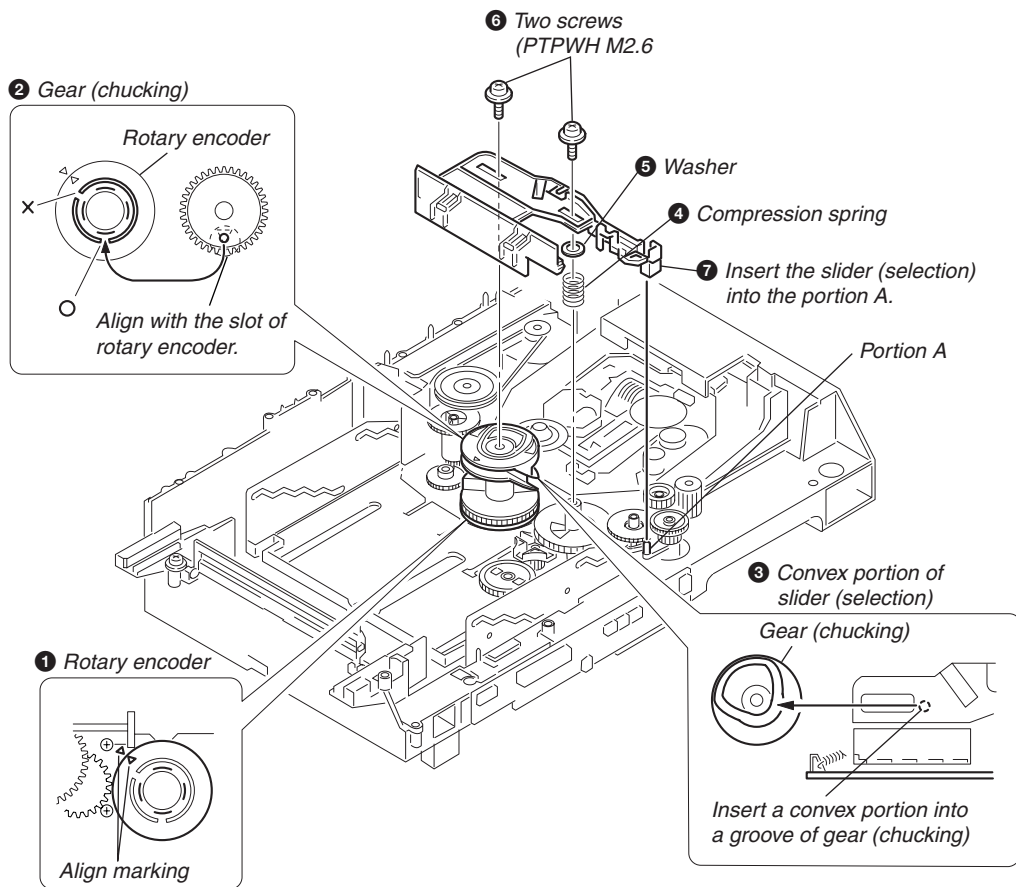


Note : Follow the assembly procedure in the numerical order given.

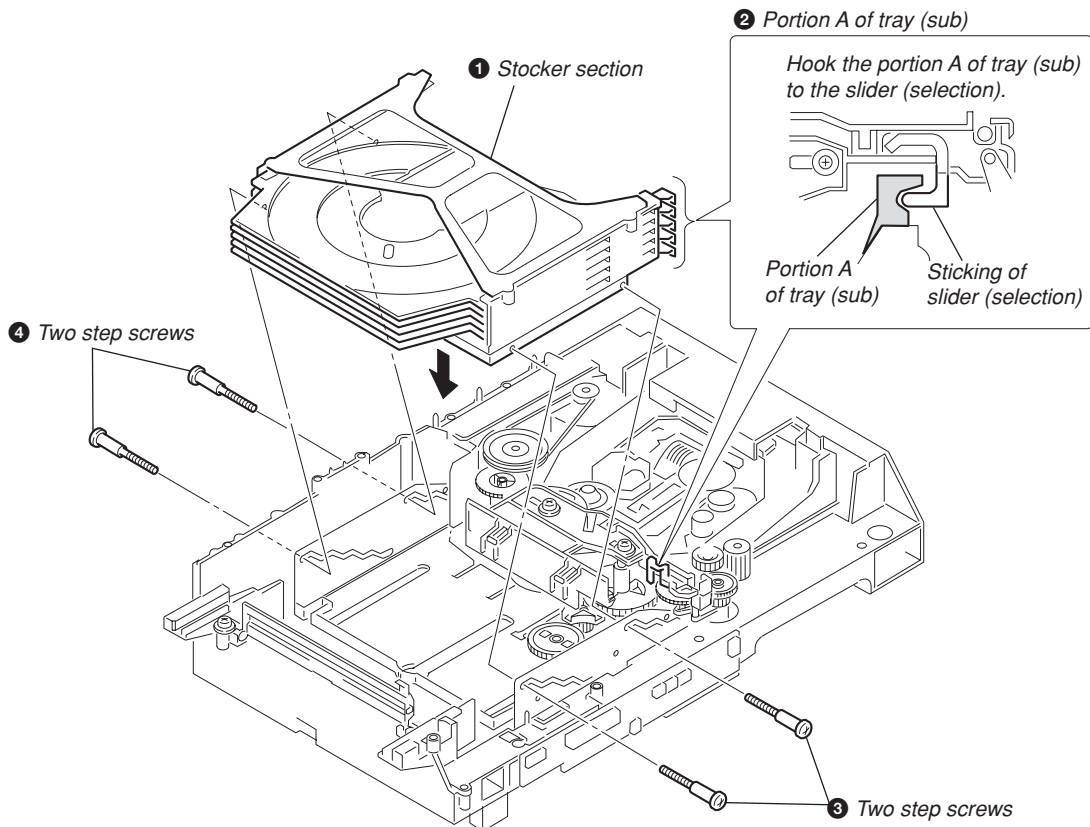
4-1. GEARS INSTALLATION



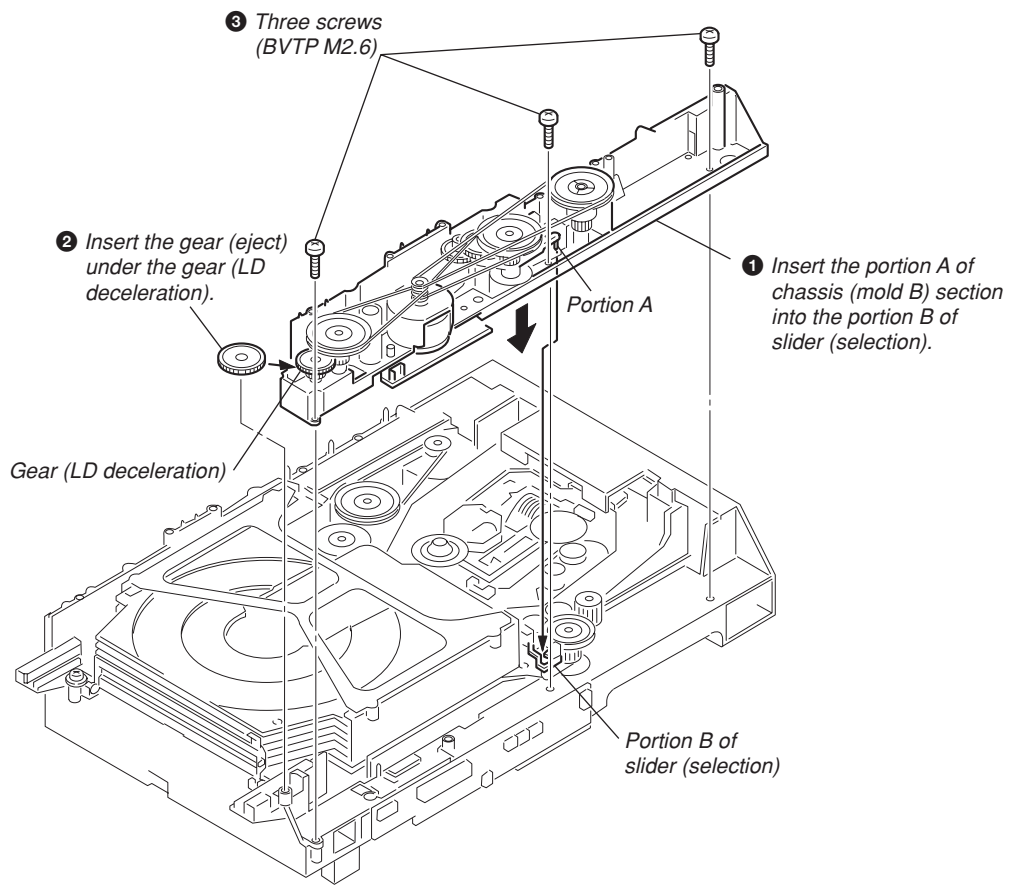
4-2. SLIDER (SELECTION) INSTALLATION



4-3. STOCKER SECTION INSTALLATION



4-4. CHASSIS (MOLD B) SECTION INSTALLATION



SECTION 5 TEST MODE

Setting the Test Mode

Procedure:

1. Press the **POWER** button to POWER on.
2. Press the **◀◀ AMS ▶▶** (DECK A), **SBM** and **◀◀ AMS ▶▶** (DECK B) buttons in order without releasing the button.
3. Turn the **◀◀ AMS ▶▶** (DECK B) knob to select the menu.
4. Press the **◀◀ AMS ▶▶** (DECK B) knob to execute the test mode.

Releasing the Test Mode

Procedure 1:

1. Turn the **◀◀ AMS ▶▶** (DECK B) knob to select the Ship Mode.
2. Press the **◀◀ AMS ▶▶** (DECK B) knob to execute the Ship Mode.
3. Press the **POWER** button to POWER off.

Contents of test mode

No.	Display	Function
1	SYS Version	System version display
2	CDR Version	CDR version display
3	BU Test	Deck A BU test mode
4	SERVICE	Deck A Service mode
5	Ship Mode	CD Shipment mode
6	FL ALL ON	Fluorescent indicator tube test
7	FL ALL OFF	Fluorescent indicator tube test
8	FL ITIMATSU	Fluorescent indicator tube test
9	LED CHECK	LED check
10	KEY CHECK	Keyboard check
11	RM CHECK	Remote commander check
12	CDR History	CDR error history display
13	Play Speed	Deck A x4 speed

System Version Display

Procedure:

1. Enter the test mode, then turn the **◀◀ AMS ▶▶** (DECK B) knob to display “SYS Version”, and press the **◀◀ AMS ▶▶** (DECK B) knob.
2. The system version is displayed.
3. To exit from this mode, turn the **◀◀ AMS ▶▶** (DECK B) knob to display “Ship Mode”, and press the **◀◀ AMS ▶▶** (DECK B) knob to execute the Ship Mode.
4. Press the **POWER** button to POWER off.

CDR Version Display

Procedure:

1. Enter the test mode, then turn the **◀◀ AMS ▶▶** (DECK B) knob to display “CDR Version”, and press the **◀◀ AMS ▶▶** (DECK B) knob.
2. The CDR version is displayed.
3. To exit from this mode, turn the **◀◀ AMS ▶▶** (DECK B) knob to display “Ship Mode”, and press the **◀◀ AMS ▶▶** (DECK B) knob to execute the Ship Mode.
4. Press the **POWER** button to POWER off.

Service Mode (Deck A)

Procedure:

1. Enter the test mode, then turn the **◀◀ AMS ▶▶** (DECK B) knob to display “SERVICE”, and press the **◀◀ AMS ▶▶** (DECK B) knob.
2. “SERVICE MODE” is displayed.
3. Press the **ERASE** button, the “SLED OUT” is displayed and the sled moves to the outermost position.
4. Press the **FINALIZE** button, the “SLED IN” is displayed and

the sled moves to the innermost position.

5. Press the **◀◀ AMS ▶▶** (DECK B) knob, then “SERVICE MODE” is displayed again.
 6. To exit from this mode, press the **◀◀ AMS ▶▶** (DECK A), **SBM** and **◀◀ AMS ▶▶** (DECK B) buttons in order without releasing the button.
 7. Press the **POWER** button to POWER off.
- Note: Always move the pick-up to the most inside position when exiting from this mode.

Ship Mode

Procedure:

1. Enter the test mode, then turn the **◀◀ AMS ▶▶** (DECK B) knob to display “Ship Mode”, and press the **◀◀ AMS ▶▶** (DECK B) knob.
2. “Push POWER!” is displayed.
3. Press the **POWER** button to POWER off.

FL ALL ON Mode

Procedure:

1. Enter the test mode, then turn the **◀◀ AMS ▶▶** (DECK B) knob to display “FL ALL ON”, and press the **◀◀ AMS ▶▶** (DECK B) knob.
2. All segments of fluorescent indicator tube and all LEDs turn on.
3. Press the **MENU/NO** button, then “FL ALL ON” is displayed again.
4. To exit from this mode, turn the **◀◀ AMS ▶▶** (DECK B) knob to display “Ship Mode”, and press the **◀◀ AMS ▶▶** (DECK B) knob to execute the Ship Mode.
5. Press the **POWER** button to POWER off.

FL ALL OFF Mode

Procedure:

1. Enter the test mode, then turn the **◀◀ AMS ▶▶** (DECK B) knob to display “FL ALL OFF”, and press the **◀◀ AMS ▶▶** (DECK B) knob.
2. All segments of fluorescent indicator tube and all LEDs turn off.
3. Press the **MENU/NO** button, then “FL ALL OFF” is displayed again.
4. To exit from this mode, turn the **◀◀ AMS ▶▶** (DECK B) knob to display “Ship Mode”, and press the **◀◀ AMS ▶▶** (DECK B) knob to execute the Ship Mode.
5. Press the **POWER** button to POWER off.

FL ITIMATSU Mode

Procedure:

1. Enter the test mode, then turn the **◀◀ AMS ▶▶** (DECK B) knob to display “FL ITIMATSU”, and press the **◀◀ AMS ▶▶** (DECK B) knob.
2. Checkered patterns of segments are displayed.
3. Press the **MENU/NO** button, then “FL ITIMATSU” is displayed again.
4. To exit from this mode, turn the **◀◀ AMS ▶▶** (DECK B) knob to display “Ship Mode”, and press the **◀◀ AMS ▶▶** (DECK B) knob to execute the Ship Mode.
5. Press the **POWER** button to POWER off.

LED Check Mode

Procedure:

1. Enter the test mode, then turn the **◀◀ AMS ▶▶** (DECK B) knob to display “LED CHECK”, and press the **◀◀ AMS ▶▶** (DECK B) knob.
2. Turn the **◀◀ AMS ▶▶** (DECK A) or (DECK B) knob clockwise. The green LED (DISC 1) turns on, then the orange LED (DISC 1) turns on. The each orange LED turns on after the green LED from DISC 1 to DISC 5. The LED (SBM) turns on at last. Counterclockwise rotation gives a performance in reverse order.

- Press the **MENU/NO** button, then "LED CHECK" is displayed again.
- To exit from this mode, turn the **◀◀ AMS ▶▶** (DECK B) knob to display "Ship Mode", and press the **◀◀ AMS ▶▶** (DECK B) knob to execute the Ship Mode.
- Press the **POWER** button to POWER off.

KEY Check Mode

Procedure:

- Enter the test mode, then turn the **◀◀ AMS ▶▶** (DECK B) knob to display "KEY CHECK", and press the **◀◀ AMS ▶▶** (DECK B) knob.
- "Got ◀◀ keys" is displayed.
- Press the buttons, and when all the buttons are pressed (without the **POWER** button), "Got 35 keys" will be displayed.
- To exit from this mode, press the **◀◀ AMS ▶▶** (DECK A), **SBM** and **◀◀ AMS ▶▶** (DECK B) buttons in order without releasing the button.
- Press the **POWER** button to POWER off.

Remote Commander Check

Procedure:

- Enter the test mode, then turn the **◀◀ AMS ▶▶** (DECK B) knob to display "RM CHECK", and press the **◀◀ AMS ▶▶** (DECK B) knob.
- Press the **▶** key on the remote commander, then "Got PlayCom" is displayed.
- Press the **MENU/NO** button, then "RM CHECK" is displayed again.
- To exit from this mode, turn the **◀◀ AMS ▶▶** (DECK B) knob to display "Ship Mode", and press the **◀◀ AMS ▶▶** (DECK B) knob to execute the Ship Mode.
- Press the **POWER** button to POWER off.

CDR History Display

Procedure:

- Enter the test mode, then turn the **◀◀ AMS ▶▶** (DECK B) knob to display "CDR History", and press the **◀◀ AMS ▶▶** (DECK B) knob.
- "00 #####" is displayed as the first error history.
- Turn the **◀◀ AMS ▶▶** (DECK B) knob to select the error history. The number of error histories is ten in all. (Refer to "Contents of CDR error history".)
- Press the **MENU/NO** button, then "CDR History" is displayed again.
- To exit from this mode, turn the **◀◀ AMS ▶▶** (DECK B) knob to display "Ship Mode", and press the **◀◀ AMS ▶▶** (DECK B) knob to execute the Ship Mode.
- Press the **POWER** button to POWER off.

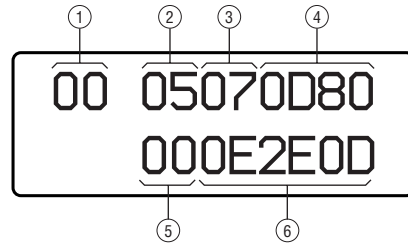
Play Speed Selection Mode (Deck A)

Procedure:

- Enter the test mode, then turn the **◀◀ AMS ▶▶** (DECK B) knob to display "Play Speed", and press the **◀◀ AMS ▶▶** (DECK B) knob.
- "x4 Play" is displayed. If a CD is in the deck A, pressing the **▶** button executes the 4 times speed playback.
- Press the **■** button to stop the playback.
- Press the **MENU/NO** button, then "Play Speed" is displayed again.
- To exit from this mode, turn the **◀◀ AMS ▶▶** (DECK B) knob to display "Ship Mode", and press the **◀◀ AMS ▶▶** (DECK B) knob to execute the Ship Mode.
- Press the **POWER** button to POWER off.

Contents of CDR error history

display(example)



(hexadecimal)

① Order of the error history

00 to 09: ten error histories in all

② Error contents

- 01: unable to focus on
- 02: Q code/ATIP discontinuous (several frames preceding)
- 03: Q code/ATIP unreadable
- 04: search taking more than sixteen seconds
- 05: focus failure
- 06: sled over run
- 07: not passing by start time to write
- 08: audio buffer over
- 09: sync failure

example : 05 is focus failure

③ Operation mode

bit 7: Speed

- 0: normal speed
- 1: x4 speed

bit 6 to bit 0: Number of inner condition

- 01: POWER off condition/during shift to POWER on
- 02: POWER off and shipment setting/during shift to POWER off and shipment setting
- 03: stop condition/during stop
- 04: during start up of servo
- 05: during TOC reading and others
- 06: during CD TEXT reading
- 07: during standby(waiting for command from the CD system)/during search
- 08: during playback
- 09: during manual search(playback)

0A: during pause

0B: during manual search(pause)

0C: during OPC

0D: recording standby/during recording pause (enable to shift to recording)

0E: during recording

0F: unable to record (waiting for shift to being recordable)

10: PMA updating

11: during operation of unfinalize

12: during operation of finalize

13: PMA erasing

14: emergency

15: recording preparation

16: recording end

examples :

HEX \ bit	7	6	5	4	3	2	1	0	Operation mode
07	0000				0111				normal speed, during standby(waiting for command from the CD system)/during search
	0		0		7				
91	1001				0001				x4 speed, during operation of unfinalize
	1		1		1				

④ Start time of read in(compression method)

bit 15 to bit 13 : (min)

- 0: 97 min
- 1: 96 min
- 2: 95 min
- 7: others

bit 12 to bit 7: (sec)

bit 6 to bit 0: (frame)

examples :

HEX \ bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Start time of read in
0D,80	0000			1101				1	0000			0000			97 : 27 : 00		
	97(min)			27(sec)					0(frame)								
11,16	0001			0001				0001			0110			97 : 34 : 22			
	97(min)			34(sec)				22(frame)									

⑤ Write POWER (integer of mW x 10, available during write processing)

examples: 00 means unavailable

(when ③ operation mode is not recording)

: A3 means 163(decimal), i.e. 16.3 mW

⑥ ATIME (min)/(sec)/(frame)

example: 0E, 2E, 0D means 14 : 46 : 13

Abbreviations:

ATIP : Absolute Time In Pre-groove

OPC : Optimum POWER Control

PMA : Program Memory Area

SECTION 6 ELECTRICAL ADJUSTMENTS

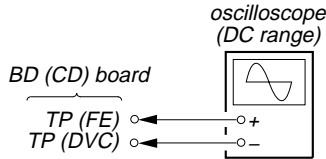
CD SECTION (DECK A)

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.

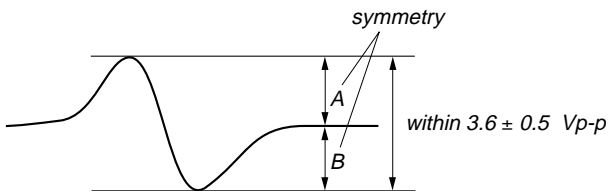
S Curve Check

Connection :



Procedure :

1. Connect an oscilloscope to test point TP (FE) and TP (DVC) on the BD board.
2. Turn the power on.
3. Load the disc (YEDS-18).
4. Enter the test mode, select the BU Test and press the \lll AMS \ggg (DECK B) knob to display "bdt S CURVE".
5. Press the \lll AMS \ggg (DECK B) knob. "LD AL" is displayed and playback starts automatically.
6. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 3.6 ± 0.5 Vp-p.
7. Press the MENU/NO button to stop playback.
8. Exit from the test mode.
(Refer to the TEST MODE Section)

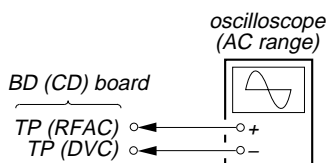


VOLT/DIV : 1V
TIME/DIV : 2ms

Note: Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.

RF Level Check

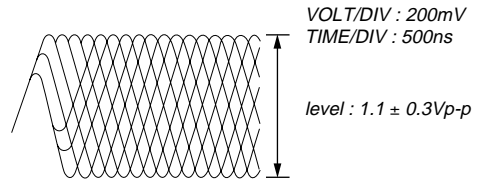
Connection :



Procedure :

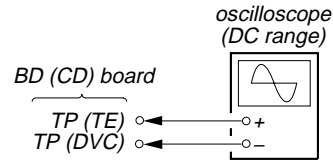
1. Connect an oscilloscope to TP (RFAC) and TP (DVC).
2. Turn the power on.
3. Load the disc (YEDS-18) and playback the number five track.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

Note: A clear RF signal waveform means that the shape "◇" can be clearly distinguished at the center of the waveform.



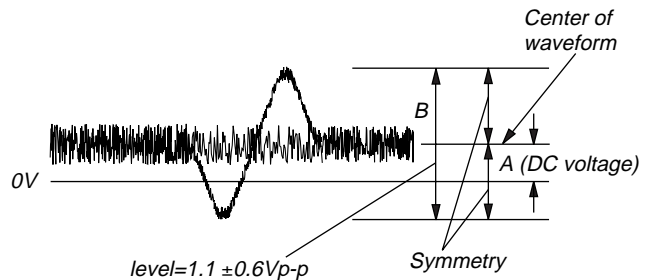
E-F Balance (1 Track jump) Check

Connection :



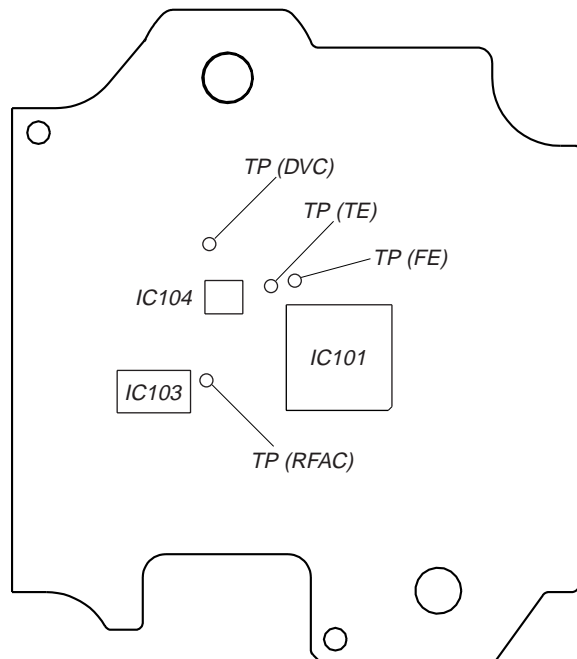
Procedure:

1. Connect an oscilloscope to TP (TE) and TP (DVC).
2. Turn the power on.
3. Load the disc (YEDS-18) and playback the number five track.
4. Press the \lll (DECK A) button.
(Becomes the 1 track jump mode.)
5. Confirm the level B and A (DC voltage) on the oscilloscope waveform.



Specification level: $\frac{A}{B} \times 100 = \text{less than } \pm 22\%$

[BD BOARD] Δ SIDE A Δ

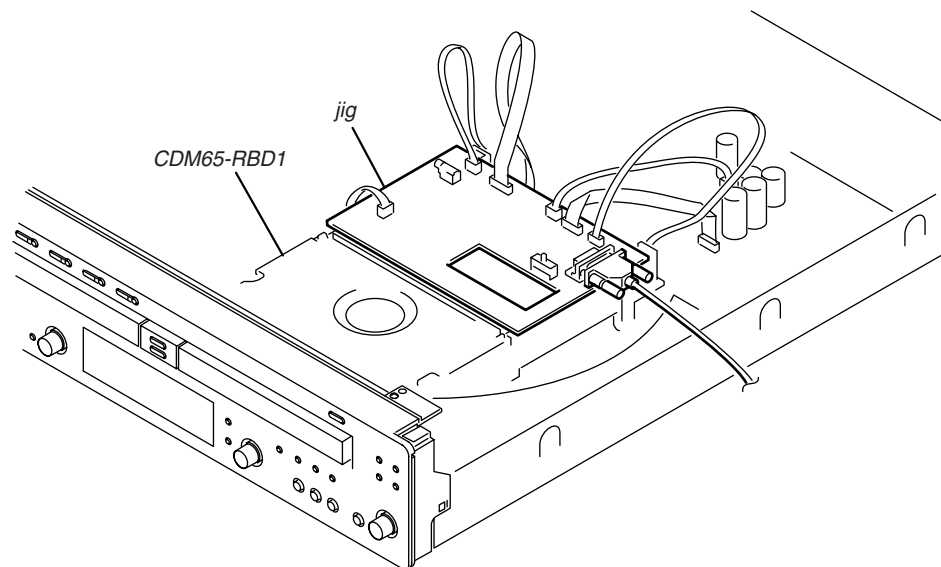
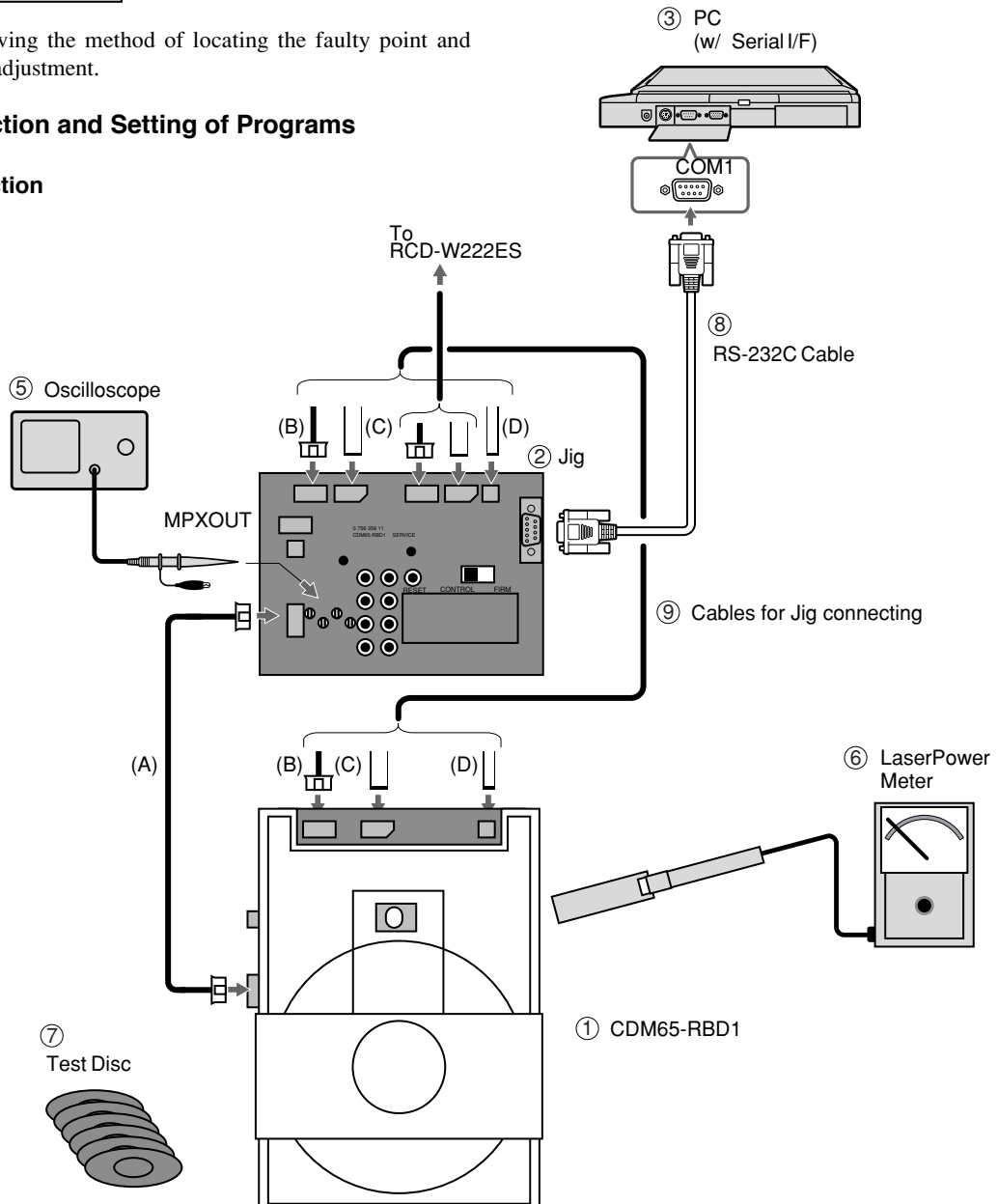


CD-R/RW SECTION

* The following the method of locating the faulty point and electrical adjustment.

1. Connection and Setting of Programs

1-1. Connection

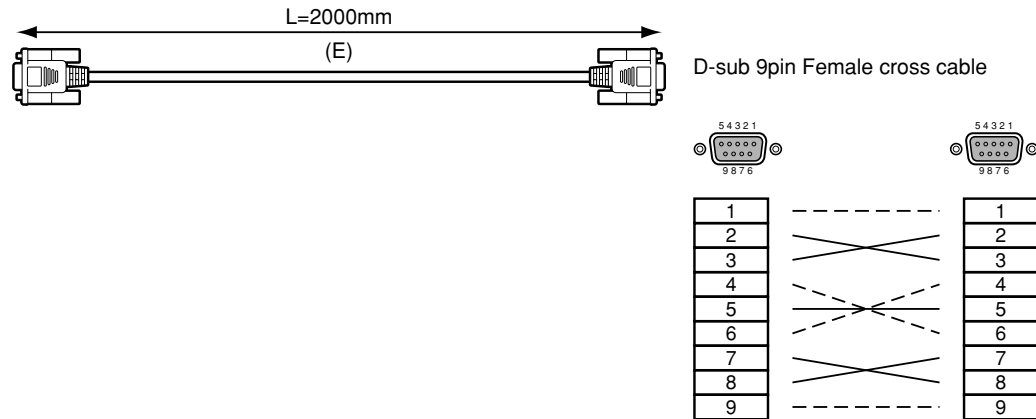


▲ Fig. Position of Jig (Set the jig after removing the cover of CDM65-RBD1)

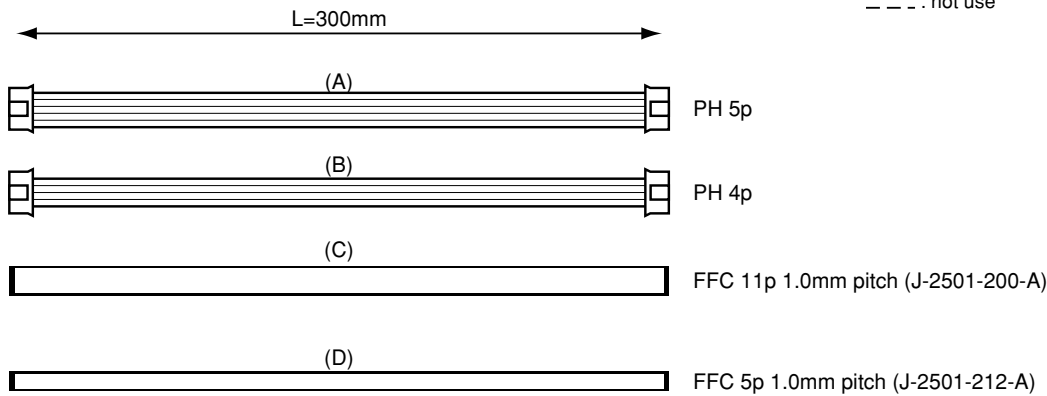
1-2. Equipments to prepare

- ① Test Object Both RBD1 and CDM65-RBD1 shall be tested.
RBD1 : Flash Memory Writing of of
 Circuit Test by Self-diagnostics
CDM65-RBD1 : Electrical Adjustment
 Performance Test
- ② Jig (With ⑨ Cables, Parts No.J-2501-223-A)
- ③ PC Windows95/98/2000/Me with COMport (RS-232C)
- ④ Programs TeraTerm Pro + Service macro
- ⑤ Oscilloscope More than 150MHz
- ⑥ Laser Power Meter LEADER LPM-8001 (Parts No.J-2501-046-A)
- ⑦ Test Disc

PATD-012 : (Parts No.4-225-203-1)	Adjustment for Playback	(CD,CD-R)
TCD-W091W : (Parts No.J-2501-226-A)	Adjustment for Playback	(CD-RW)
CRM74 (Blank CD-R) :	Adjustment and Check for Recording	(CD-R)
CWM74 (Blank CD-RW) :	Check for Recording	(CD-RW)
TCD-W032W : (Parts No.J-2501-227-A)	Defocus tolerance	(CD-RW)
- ⑧ RS-232C Cable



⑨ Cables for Jig connecting



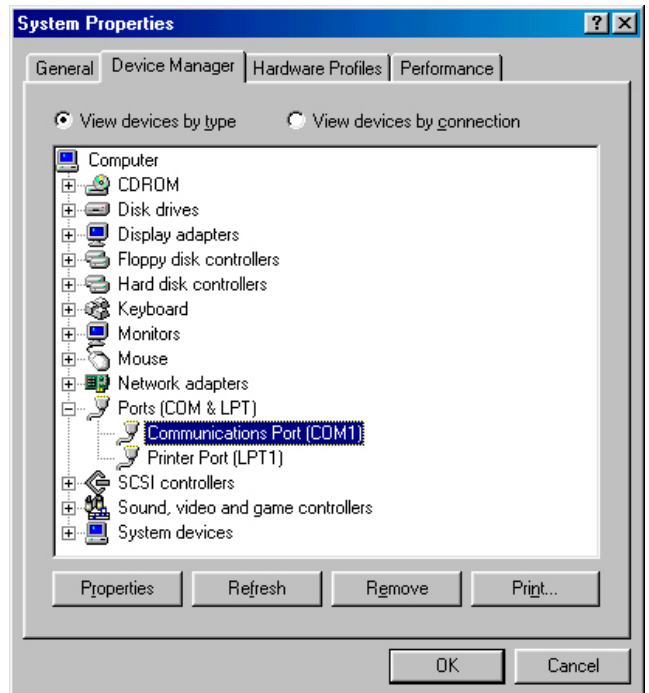
1-3. Setting of Programs (Tera Term Pro and Service macro)

* Confirmation of System (Windows 98 is used in this explanation) Preparation for Terminal software

1) Set up the serial port from OS.

a) Select Start → Settings → Control Panel and select System → Device manager → Communication Port (COMn)
(See Fig. 1-1)

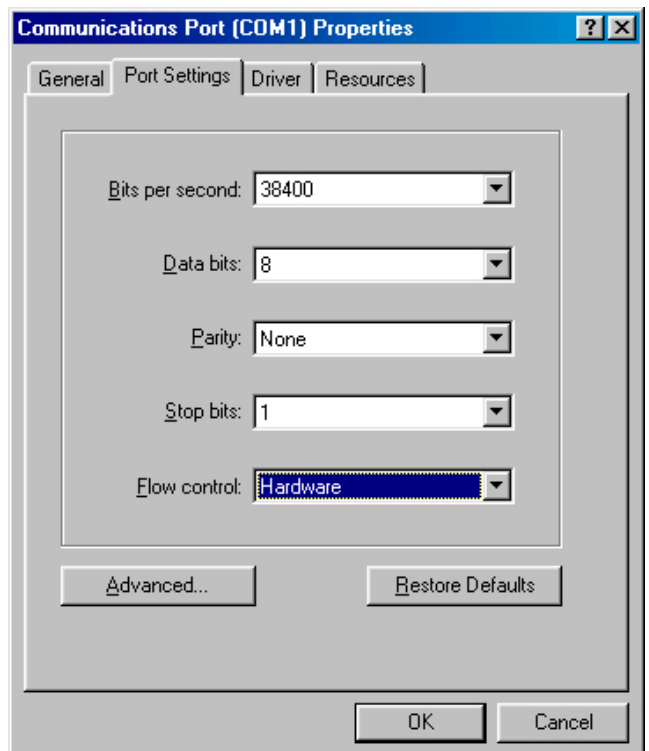
* Specify the COM port that connected with JIG of CDM65.



▲ Fig. 1-1

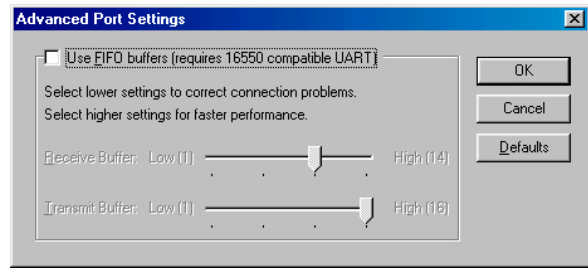
b) Double click COMn (as you connect to the Jig-CDM65)
Set the parameters as below.

Bits per second : 38400
Data bits : 8
Parity : non
Stop bits : 1
Flow control : hardware
(See Fig.1-2)



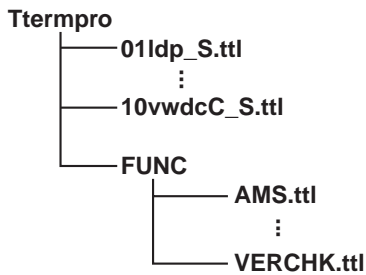
▲ Fig. 1-2

- c) Press “Advanced...” button
Remove the check “Use FIFO buffers ...”
(See Fig.1-3)



▲ Fig. 1-3

- 2) Unzip the file “ttermp.zip” by PC.
(The file “ttermp.zip” is distributed together with the service manual.)
- 3) After unzip the files, you can find setup.exe.
Double click the setup.exe.
Please install as the installer is.
Do not change the directory that files are installed. (use default)
- 4) Unzip the file “files-0208.zip” by PC.
Copy all “.ttl” file and “FUNC” folder which are contained in “files-0208” and paste them in the “Ttermpro” file as below.
(The file “files-0208.zip” is distributed together with the service manual.)



▲ Fig. 1-4

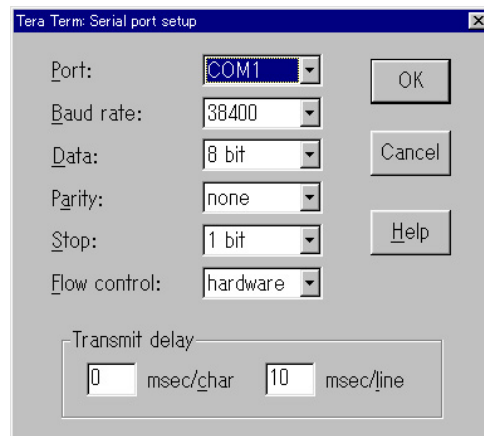
Note : Do not change the directory path.

- 5) Start-up the TeraTermPro
Double click the ttermpro.exe.
- 6) Set up the TeraTermPro (IMPORTANT!!)
- a) Select Setup → Serial Port... and set the parameters as below.

Port : (As you connect to the Jig-CDM65)
Baud rate : 38400
Data : 8 bit
Parity : none
Stop : 1 bit
Flow control : hardware
Transmit delay : 0 msec/char 10 msec/line

After settings, press “OK” button. (See Fig.1-5)

- b) Terminal setup

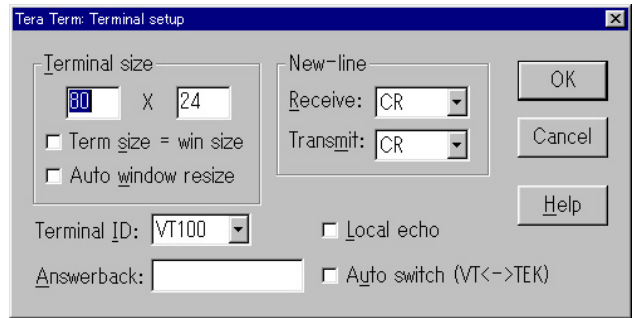


▲ Fig. 1-5

- b) Terminal setup
Set the parameters as below.

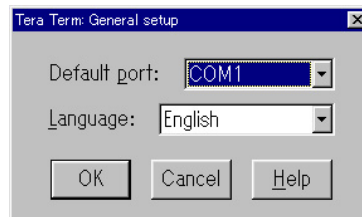
New-line receive : CR
transmit : CR

After settings, press “OK” button. (See Fig.1-6)



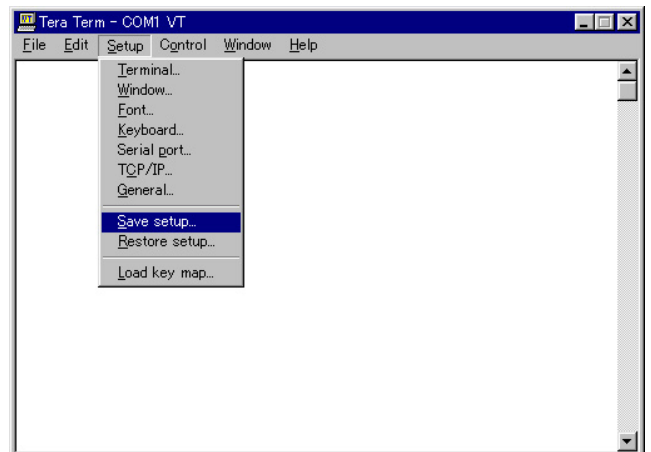
▲ Fig. 1-6

- c) General setup
Select the language and press “OK” button. (See Fig.1-7)



▲ Fig. 1-7

- d) Saving the setup
Select Setup → Save setup... and save as teraterm.ini in the Ttermpro directory. (See Fig.1-8)

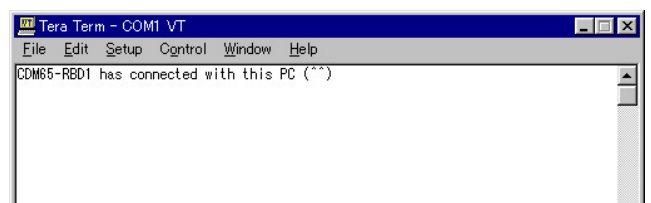


▲ Fig. 1-8

- 7) Connect the JIG and CDM65.
- 8) Confirm the S510 on JIG is ‘CONTROL’.
- 9) Power on the CDM65 and press SW101(RESET) on JIG.

“CDM65-RBD1 has connected with this PC (^)” is displayed.
(See Fig.1-9)

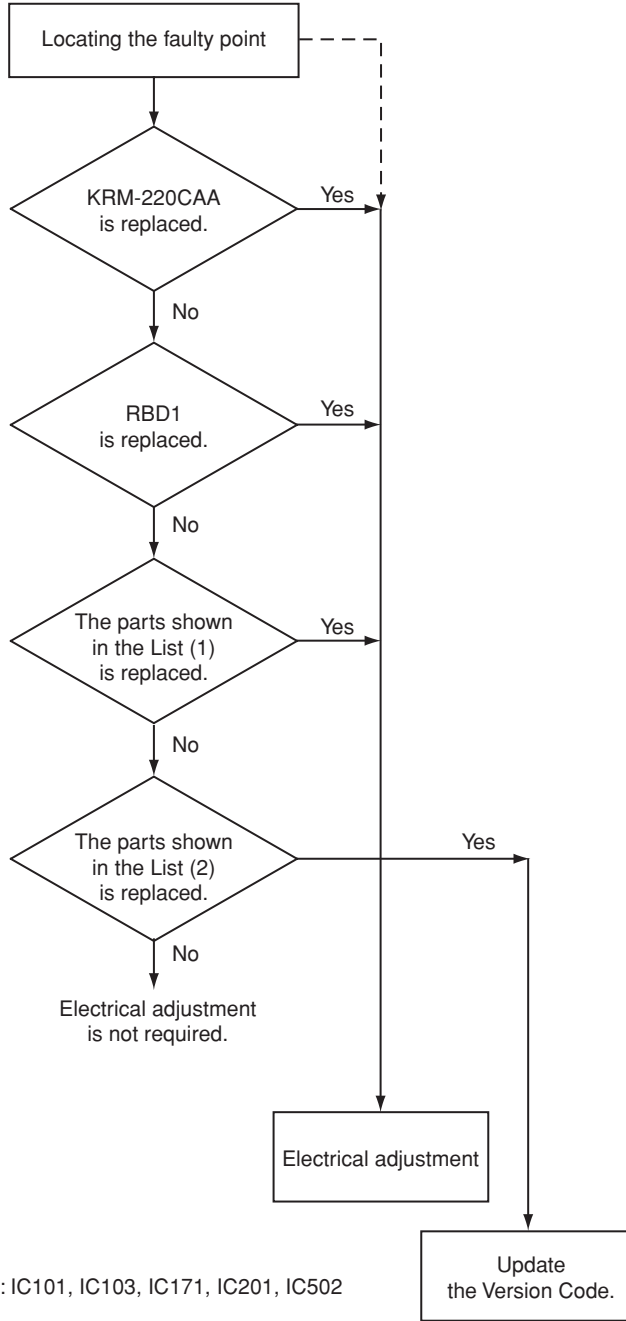
If above message is not displayed, you may have some mistakes.
Please confirm previous setting procedures again.



▲ Fig. 1-9

2. Repair Works That Require Electrical Adjustment

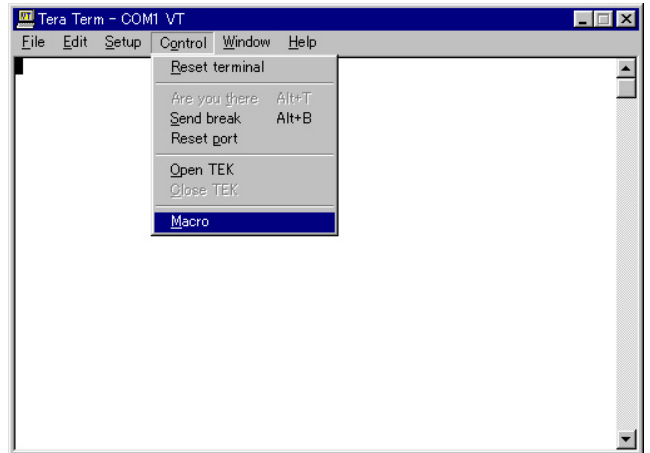
In the case of repair works as shown below, electrical adjustment is required.



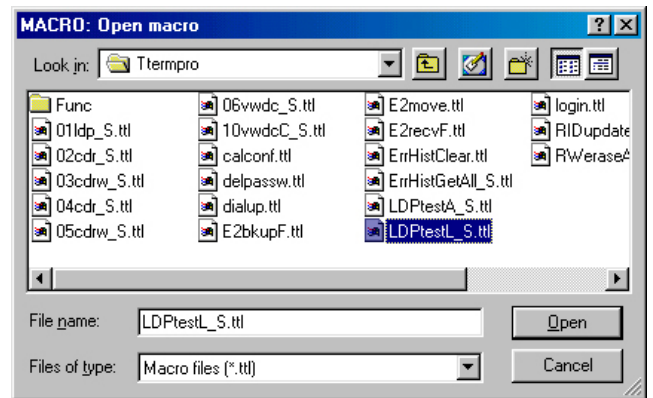
3. Locating the Faulty Point

3-1. Laser Power Check

- 1) Select the menu as follows. Control → Macro, and select LDPtestL_S.ttl.
Press “Open”. (See Fig. 3-1, 3-2)



▲ Fig. 3-1

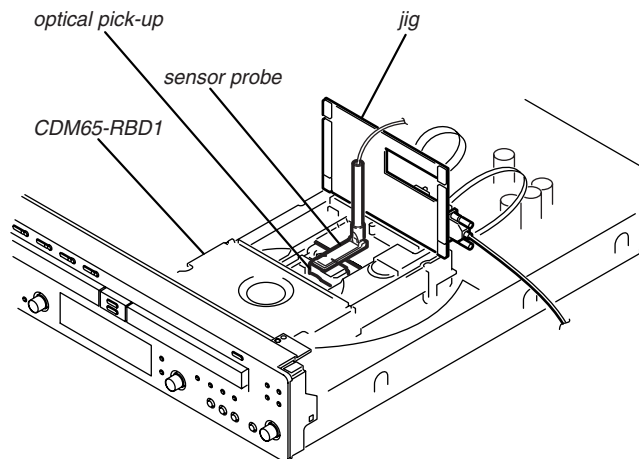


▲ Fig. 3-2

- 2) Press the “RESET” button (SW101) of the jig as prompted by the display.
- 3) Place probe of a laser power meter in the specified position following the display as shown in Fig. 3-3. (See Fig. 3-3-a)



▲ Fig. 3-3



▲ Fig. 3-3-a

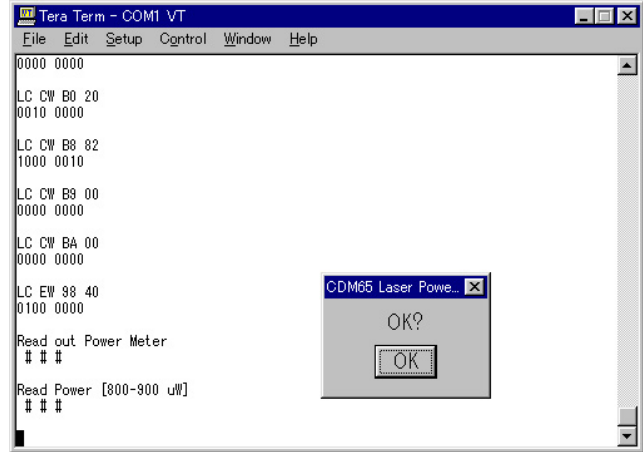
- 4) When the display shown in Fig. 3-4 appears, set the Range of a laser power meter to “1 mW” and press “OK”.



▲ Fig. 3-4

- 5) Check that the laser power meter reading satisfies the following requirement. When the laser power satisfies the required specification, press “OK”. (See Fig. 3-5)

LEADER LPM-8001 : 0.76 to 0.86 mW
 ADVANTEST QQQ : 0.80 to 0.90 mW



▲ Fig. 3-5

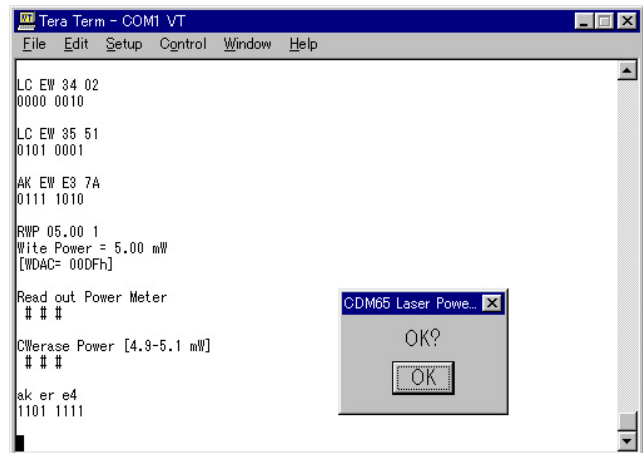
- 6) When the display shown in Fig. 3-6 appears, set the Range of a laser power meter to “10 mW” and press “OK”.



▲ Fig. 3-6

- 7) Check that the laser power meter reading satisfies the following requirement. When the laser power satisfies the required specification, press “OK”. (See Fig. 3-7)

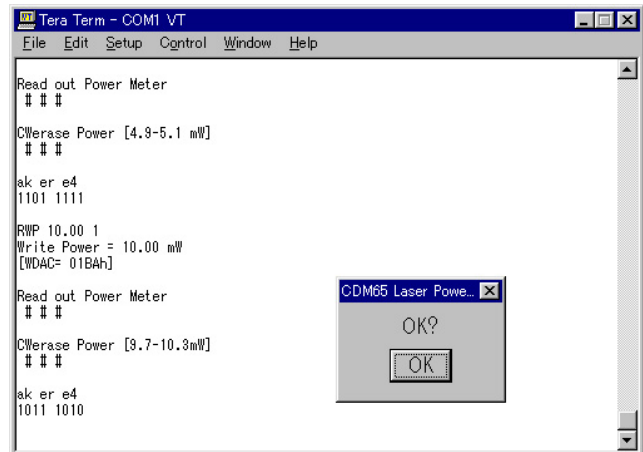
LEADER LPM-8001 : 4.5 to 4.7 mW
 ADVANTEST QQQ : 4.9 to 5.1 mW



▲ Fig. 3-7

- 8) Check that the laser power meter reading satisfies the following requirement. When the laser power satisfies the required specification, press “OK”. (See Fig. 3-8)

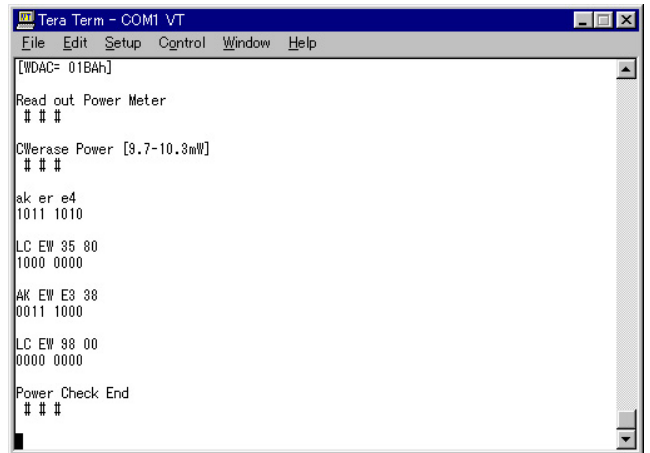
LEADER LPM-8001 : 9.2 to 9.6 mW
 ADVANTEST QQQ : 9.7 to 10.3 mW



▲ Fig. 3-8

- 9) Check that the message “Power Check End” appears on display. (See Fig. 3-9)

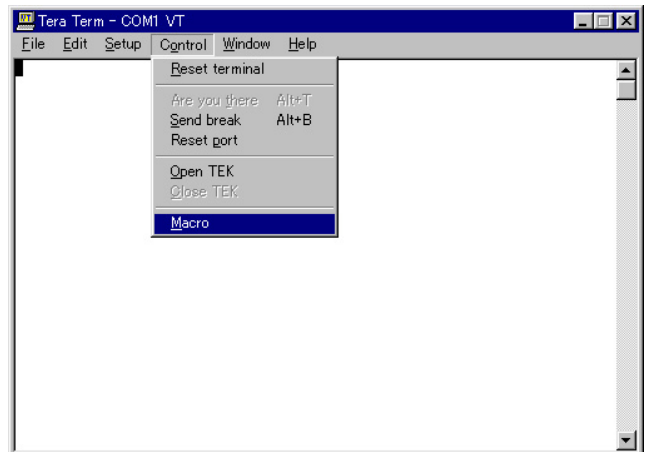
If the measurement result is outside the specification value, either perform Section 4. CDM65-RBD1 Electrical Adjustment, or locate the cause of the error by performing the Laser Deterioration Judgment.



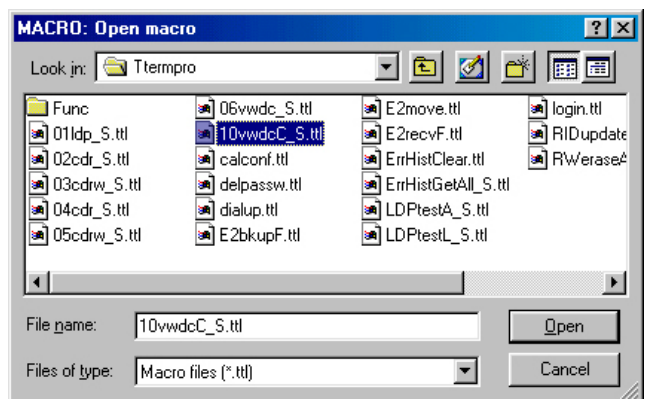
▲ Fig. 3-9

3-2. Laser Deterioration Judgment

- 1) Select the menu as follows. Control → Macro, and select 10vwdcC_S.ttl. Press “Open”. (See Fig. 3-10, 3-11)

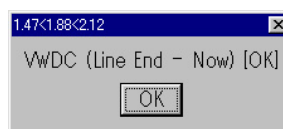


▲ Fig. 3-10



▲ Fig. 3-11

- 2) Press the “RESET” button (SW101) of the jig as prompted by the display.
- 3) When the message [OK] appears as shown in Fig. 3-12, press the “OK” button. When the laser unit KRM-220CAA (Op) is normal without deterioration of laser, the message [OK] appears. If the laser unit is deteriorated, the message [NG] appears. Then, replace the laser unit KRM-220CAA (Op).



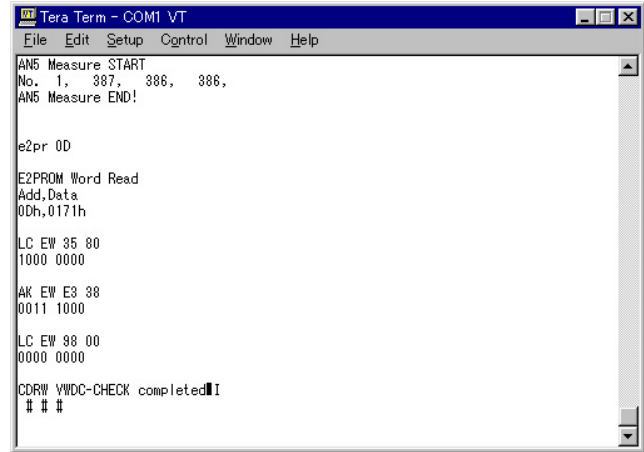
▲ Fig. 3-12

- 4) Check that the message “CDRW VWDC-CHECK completed!” appears. (See Fig. 3-13)

NG Judgment Result Indication

When the present VWDC value of the laser unit KRM-220CAA (Op) does not satisfy the required specification, the message “VWDC (Line End - Now) [NG]” appears.

Measure: Check the peripheral of CN101.
Replace KRM-220CAA.

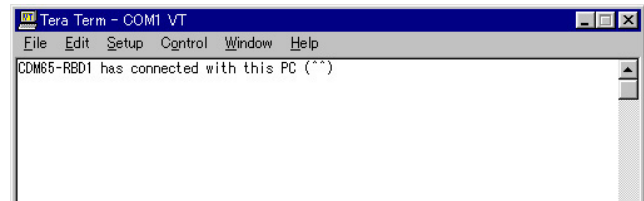


▲ Fig. 3-13

3-3. Use of Self Diagnosis Function-1 (In the case when result data of the past electrical adjustment, is not needed.)

Perform the self diagnosis as described below in the case when electrical adjustment is not performed yet, or when result data of the electrical adjustment in the past, is not needed and ready to be erased.)

- 1) Connect the CDM65-RBD1 (abbreviated as CDM65 hereafter) that is going to be repaired, the jig and a PC following the Connection Diagram as shown in section 1-1.
- 2) Turn on the power of the RCD-W222ES in which the CDM65 is installed.
- 3) Start up the TeraTermPro that is installed in PC. Set the switch S510 on the jig to “CONTROL”.
- 4) Press the “RESET” button (SW101) of the jig. (See Fig. 3-14)



▲ Fig. 3-14

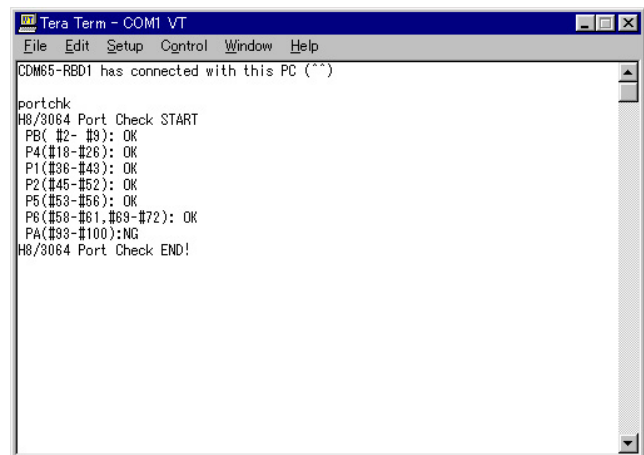
- 5) Type portchk [Enter] from keyboard of PC. (See Fig. 3-15)

Note 5-1 : When the KRM-220CAA is connected, the spindle motor rotates at a high speed. If the message “H8/3064 Port Check END!” appears, press the “RESET” button and stop the spindle.

Note 5-2 : When the CDM65 (loading mechanism) is installed, ignore the message “PA (#93-100): NG”.

Confirm that “OK” is displayed in all items except for the cases as described above.

If “NG” is displayed in any item, it is assumed that the pin number of IC501 as shown in Fig. 3-15 is defective or its peripheral has abnormality. Perform the repair work again and repeat the self diagnosis. Repeat the repair work and self diagnosis until OK is displayed.



▲ Fig. 3-15

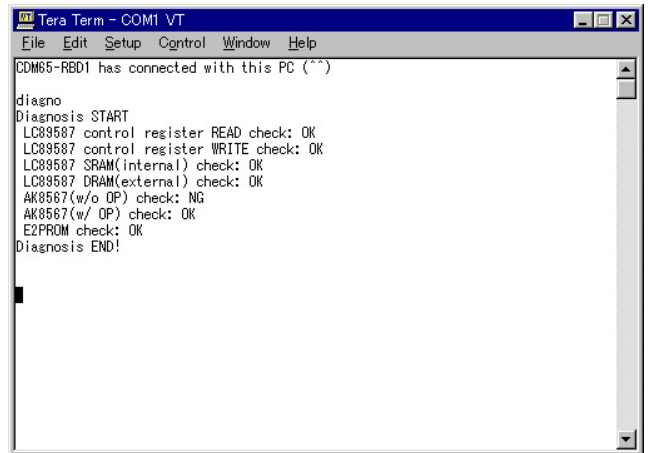
- 6) Type diagno [Enter] from keyboard of PC.

Note 6-1 : When the KRM-220CAA is connected, the spindle motor rotates at a high speed. If the message “Diagnosis END!” appears, press the “RESET” button and stop the spindle.

Note 6-2 : When the KRM-220CAA is connected (i.e. when the FFC for optical laser unit is connected to CN101 is connected), ignore the message “AK8567 (w/o OP) check: NG”.

Confirm that “OK” is displayed in all items except for the cases as described above.

If “NG” is displayed in any item, it is assumed that the point indicated by the item in Fig. 3-16 is defective or its peripheral has abnormality. Perform the repair work again and repeat the self diagnosis. Repeat the repair work and self diagnosis until “OK” is displayed.



▲ Fig. 3-16

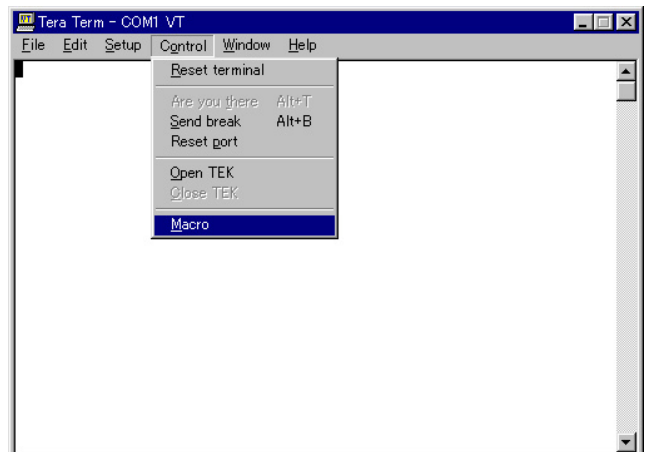
- 7) Perform the operation check.

3-4. Use of Self Diagnosis Function-2

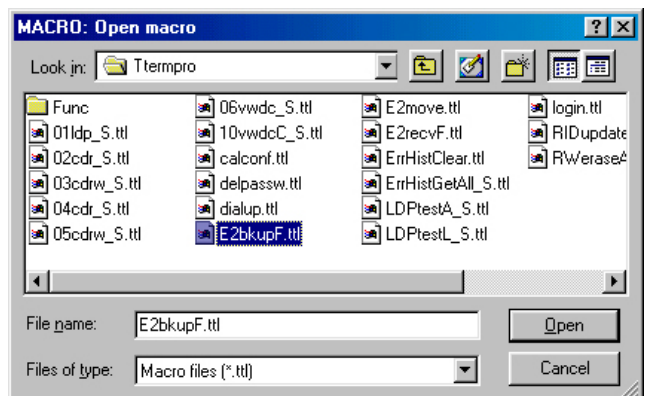
(In the case when result data of the past electrical adjustment, should be left saved.)

Perform the self diagnosis as described below in the case when the faulty point could not be identified even after completion of the repair work that is defined as “The repair work in which electrical adjustment is not required” in section “2. Repair Works That Require Electrical Adjustment”.

- 1) Select the menu as follows. Control → Macro, and select E2bkupF.ttl. Press “Open”. (See Fig. 3-17, 3-18)

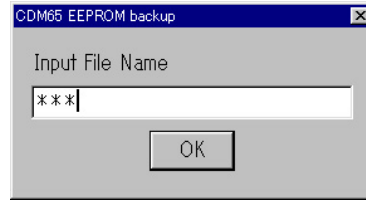


▲ Fig. 3-17



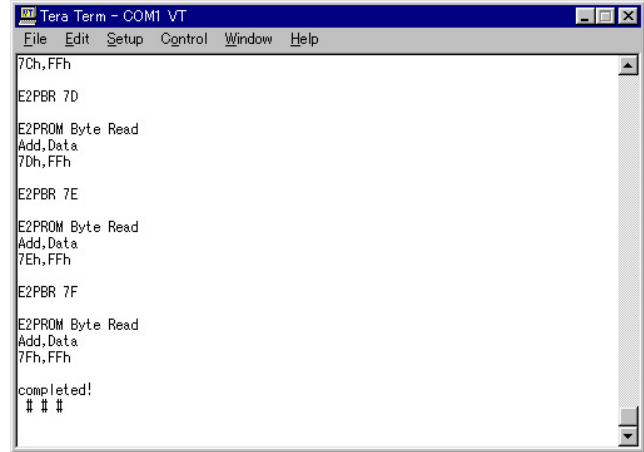
▲ Fig. 3-18

- 2) Type the filename in which result of electrical adjustment is going to be saved. Press “OK”. (See Fig. 3-19)



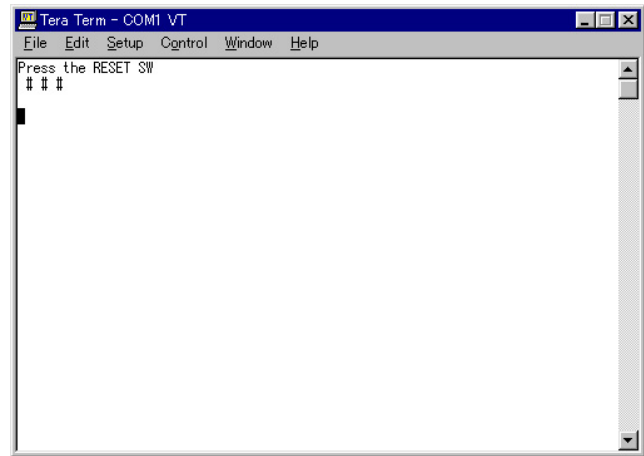
▲ Fig. 3-19

- 3) Confirm that the message “completed!” appears. The EEPROM data is backed up. (See Fig. 3-20)



▲ Fig. 3-20

- 4) Perform step 1) through step 6) of section “3-3. Use of Self Diagnosis Function-1”.
- 5) Select the menu as follows. Control → Macro, and select E2recvF.ttl. Press “Open”.
- 6) Press the “RESET” button (SW101) of the jig as prompted by the display. (See Fig. 3-21)



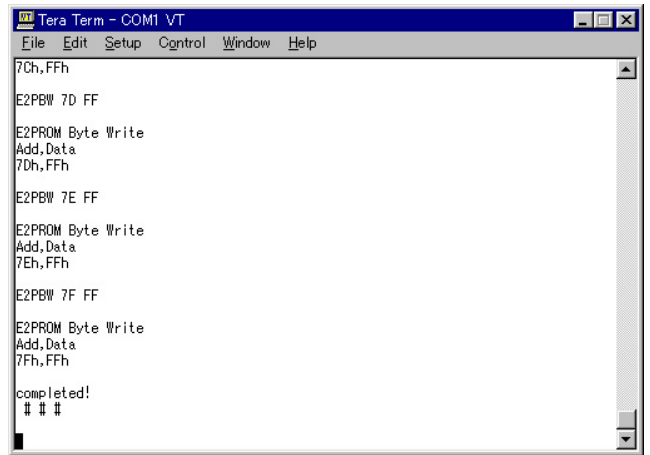
▲ Fig. 3-21

- 7) Type the filename in which result of electrical adjustment is saved. Press “OK”. (See Fig. 3-22)



▲ Fig. 3-22

- 8) Confirm that the message “completed!” appears. The EEPROM data is recovered. (See Fig. 3-23)



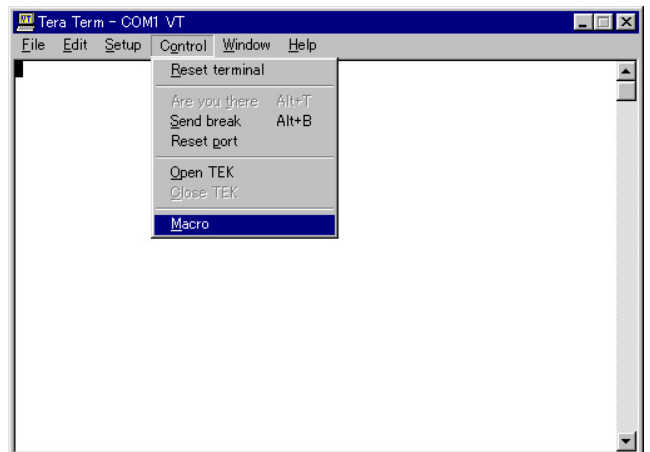
▲ Fig. 3-23

- 9) Perform the operation check.

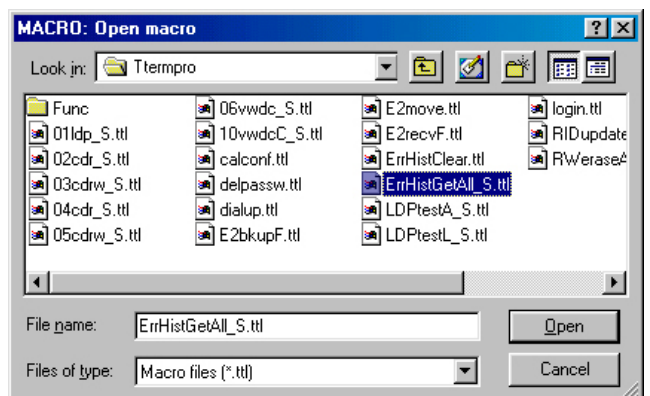
3-5. Acquisition of Error History and Acquisition of Elapsed Operating Hours

Check if error has occurred or not by performing the following steps. If error has occurred, it is interpreted and saved in the specific directory. Check contents of the error by viewing the specific directory as described below.

- 1) Select the menu as follows. Control → Macro, and select ErrHistGetAll_S.ttl. Press “Open”. (See Fig. 3-24, 3-25)

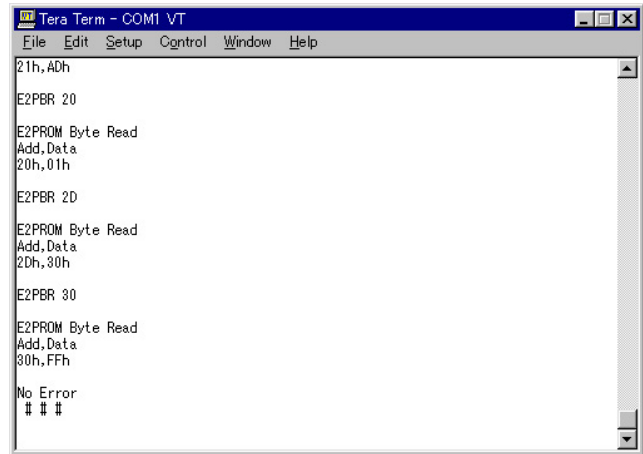


▲ Fig. 3-24



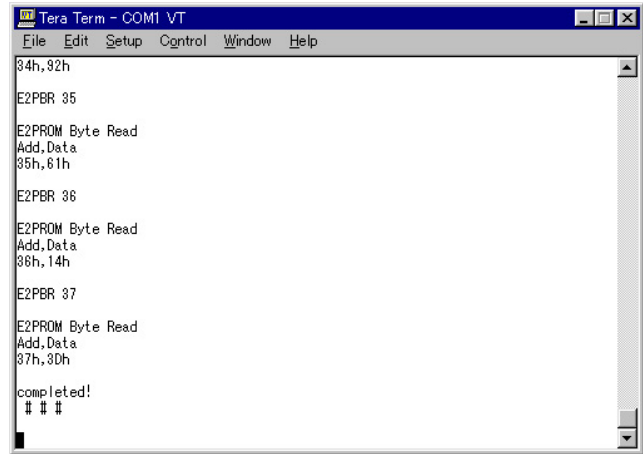
▲ Fig. 3-25

- 2) Press the “RESET” button (SW101) of the jig as prompted by the display.
- 3) When there is no error, the display as shown in Fig. 3-26 appears.



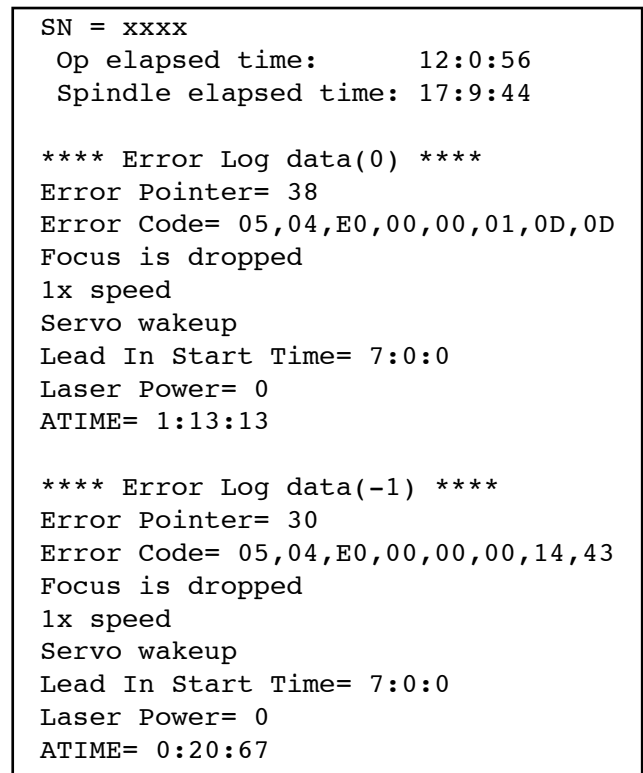
▲ Fig. 3-26

- 4) When error has occurred, the display as shown in Fig. 3-27 appears showing error history. Contents of the errors are displayed as shown in Fig. 3-28 after interpretation of the error log. Check the contents of the error by looking at the file “EEPROM_Errorlog.txt” in the TeraTermPro directory



▲ Fig. 3-27

- 5) The elapsed operating hours is shown at the top of “EEPROM_Errorlog.txt” regardless of presence/absence of the error history. Check the elapsed operating hours from the display as shown in Fig. 3-28.

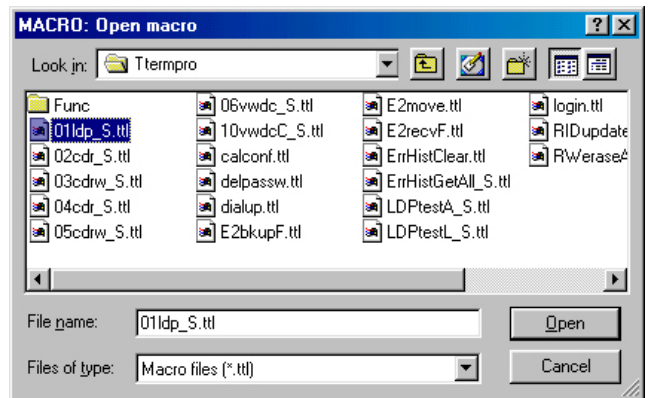


▲ Fig. 3-28 : Error log example

4. CDM65-RBD1 Electrical Adjustment

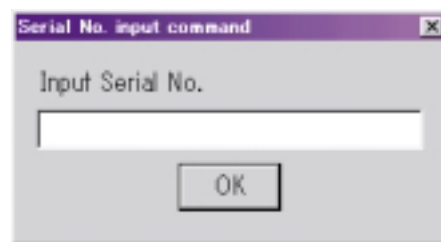
4-1. Laser Power Adjustment

- 1) Start up the TeraTermPro and set the switch S510 on the jig to “CONTROL”.
- 2) Select the menu as follows. Control → Macro, and select 01ldp_S.ttl. Press “Open”. (See Fig. 4-1)



▲ Fig. 4-1

- 3) Press the “RESET” button (SW101) of the jig as prompted by the display.
- 4) Press the “RESET” button (SW101) of the jig again as prompted by the display.
- 5) When the display as shown in Fig. 4-2 appears, type the serial number (See Fig. 4-3) that is printed on the label attached to the RBD1. (This dialog appears only when the EEPROM IC502 is replaced.)

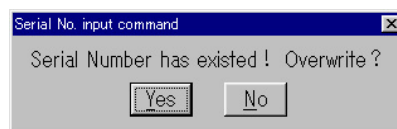


▲ Fig. 4-2



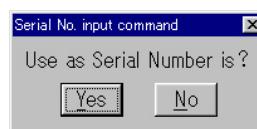
▲ Fig. 4-3

When the display as shown in Fig. 4-4 appears, press “No”.



▲ Fig. 4-4

When the display as shown in Fig. 4-5 appears after that, press “Yes”.



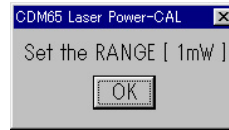
▲ Fig. 4-5

6) When the display as shown in Fig. 4-6 appears, place the probe of the laser power meter on top of the optical laser unit, and press “OK”. (See Fig. 3-3-a, page 27)



▲ Fig. 4-6

7) When the display as shown in Fig. 4-7 appears, set the Range of a laser power meter to “1 mW” and press “OK”.



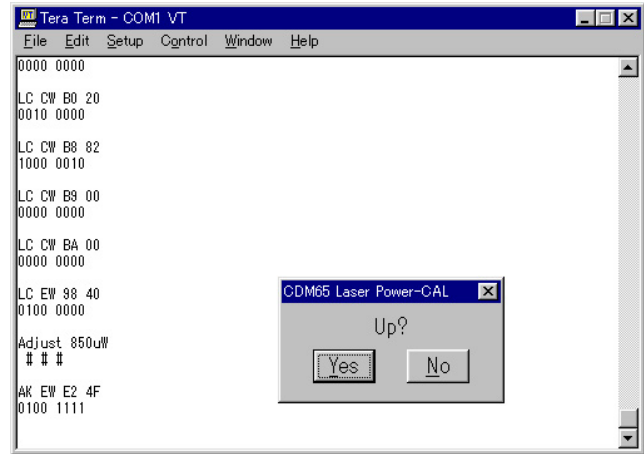
▲ Fig. 4-7

8) Adjust the laser output power as follows.
The laser output power (i.e., laser power meter reading) should satisfy the specification shown below.

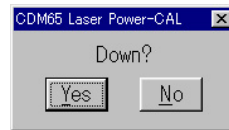
LEADER LPM-8001 : 0.81 +/- 0.05 mW (0.76 to 0.86 mW)
ADVANTEST @@@ : 0.85 +/- 0.05 mW (0.80 to 0.90 mW)

- * To increase the laser output power
Press [Yes] of the “Up?” dialog box.
- * To decrease the laser output power
Press [No] of the “Up?” dialog box and then press [Yes] of the “Down?” dialog box.

Repeat until the laser output power satisfies the specification.
(See Fig. 4-8, 4-9)

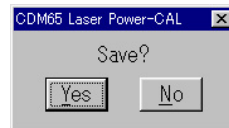


▲ Fig. 4-8



▲ Fig. 4-9

- * When the setting value is determined
Press [No] of the “Up?” dialog box
and then press [No] of the “Down?” dialog box
and press [Yes] of the “Save?” dialog box. (See Fig. 4-10)



▲ Fig. 4-10

9) When the display shown in Fig. 4-11 appears, set the Range of a laser power meter to “10 mW” and press “OK”.



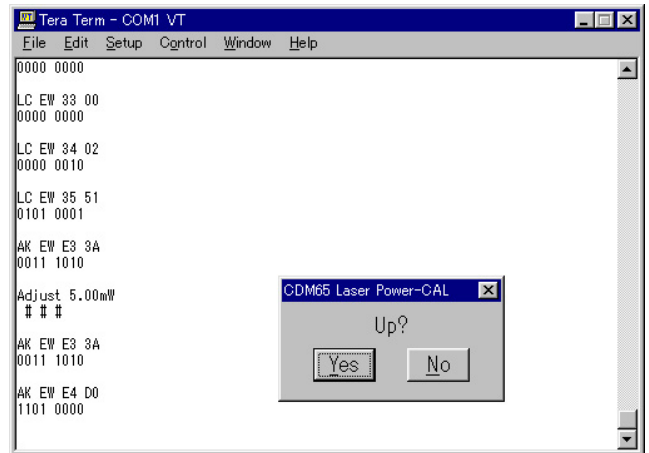
▲ Fig. 4-11

- 10) Adjust the laser output power as follows.
The laser output power (i.e., laser power meter reading) should satisfy the specification shown below.

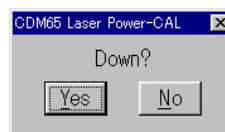
LEADER LPM-8001 : 4.6 +/- 0.1 mW (4.5 to 4.7 mW)
ADVANTEST @@@ : 5.0 +/- 0.1 mW (4.9 to 5.1 mW)

- * To increase the laser output power
Press [Yes] of the “Up?” dialog box.
- * To decrease the laser output power
Press [No] of the “Up?” dialog box
and then press [Yes] of the “Down?” dialog box.

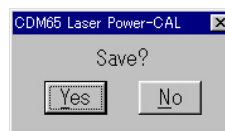
Repeat until the laser output power satisfies the specification.
(See Fig. 4-12, 4-13)



▲ Fig. 4-12



▲ Fig. 4-13



▲ Fig. 4-14

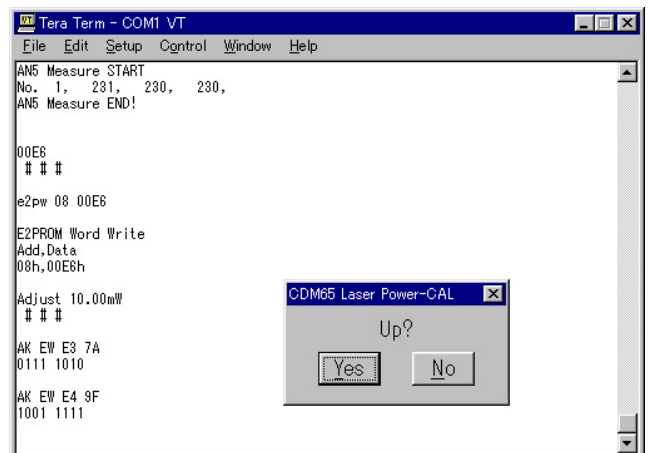
- * When the setting value is determined
Press [No] of the “Up?” dialog box
and then press [No] of the “Down?” dialog box
and press [Yes] of the “Save?” dialog box. (See Fig. 4-14)

- 11) Adjust the laser output power as follows.
The laser output power (i.e., laser power meter reading) should satisfy the specification shown below.

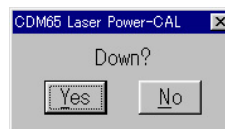
LEADER LPM-8001 : 9.4 +/- 0.2 mW (9.2 to 9.6 mW)
ADVANTEST @@@ : 10.0 +/- 0.3 mW (9.7 to 10.3 mW)

- * To increase the laser output power
Press [Yes] of the “Up?” dialog box.
- * To decrease the laser output power
Press [No] of the “Up?” dialog box
and then press [Yes] of the “Down?” dialog box.

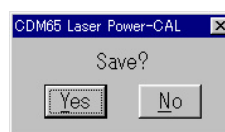
Repeat until the laser output power satisfies the specification.
(See Fig. 4-15, 4-16)



▲ Fig. 4-15



▲ Fig. 4-16



▲ Fig. 4-17

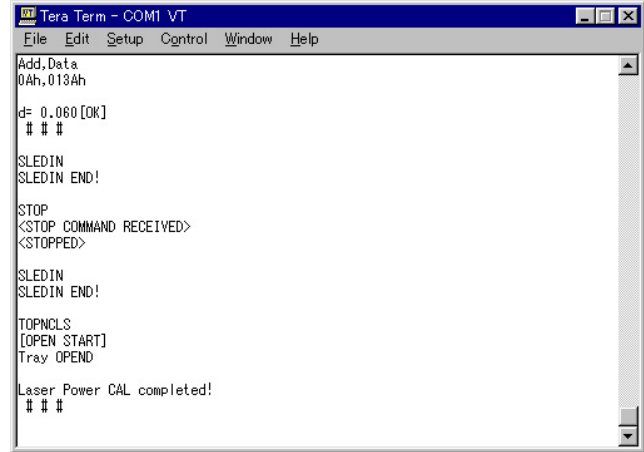
- * When the setting value is determined
Press [No] of the “Up?” dialog box
and then press [No] of the “Down?” dialog box
and press [Yes] of the “Save?” dialog box. (See Fig. 4-17)

- When the display shown in Fig. 4-18 appears, remove probe of the laser power meter and press OK.



▲ Fig. 4-18

- Check that the message “Laser Power CAL completed!” appears. (See Fig. 4-19)
NG Judgment Result Indication



▲ Fig. 4-19

4-1-1. Sled Speed NG!

- Contents : This message appears when the movement performance of sled is outside the specification.
- Measure : Check if there is any abnormality in the slid drive circuit (IC171 peripheral) and the sled drive mechanism.

4-1-2. Power CAL NG!

- Contents : This message appears when the laser emission intensity is outside the specification.
- Measure : Check peripheral of CN101.
Replace KRM-220CAA.

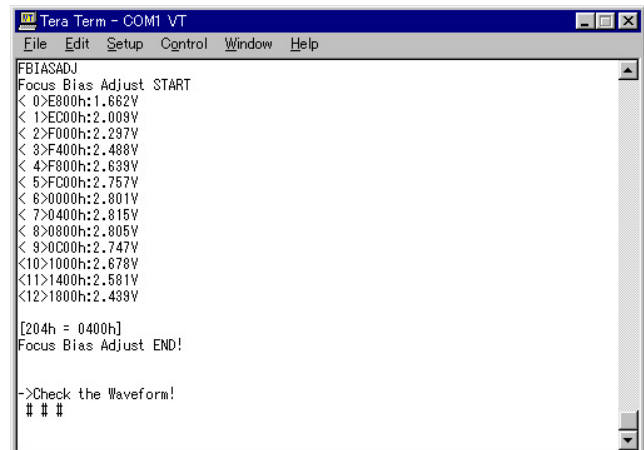
4-2. CD/CD-R Playback Adjustment

- Select the menu as follows. Control → Macro, and select 02cdr_S.ttl. Press “Open”.
- Place the test CD disc PATD-012 on the tray as prompted by the display and press “OK”. (See Fig. 4-20)



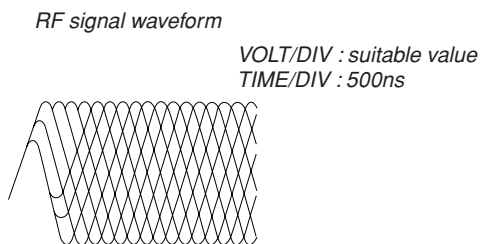
▲ Fig. 4-20

- Press the “RESET” button (SW101) of the jig as prompted by the display.
- As prompted by the message shown in Fig. 4-21, check that the waveform as shown in Fig. 4-22 appears on an oscilloscope.



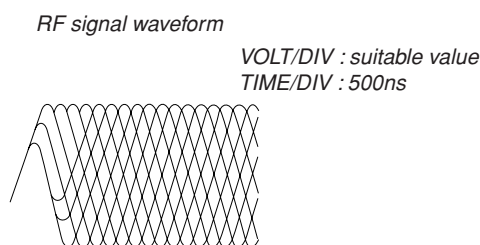
▲ Fig. 4-21

Note :The clear RF signal waveform means that the shape “@@” can be clearly distinguished at the center of the waveform.

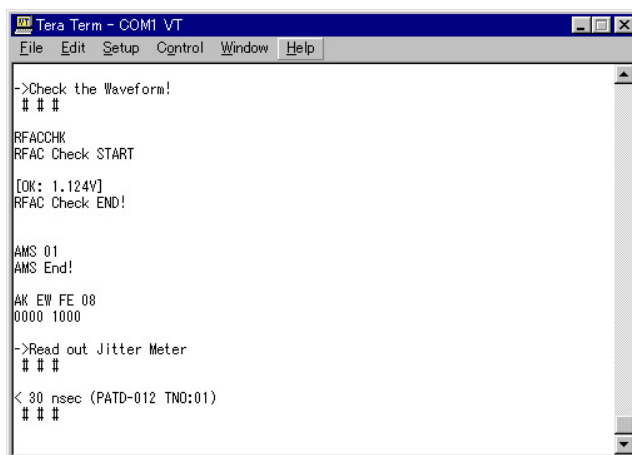


▲ Fig. 4-22

- 5) As prompted by the message shown in Fig. 4-24, check that the waveform as shown in Fig. 4-23 appears on an oscilloscope.

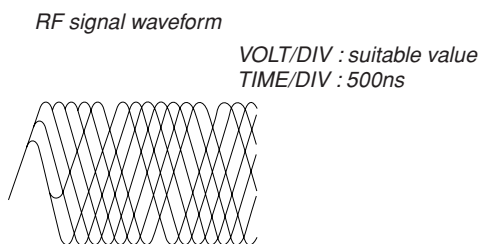


▲ Fig. 4-23

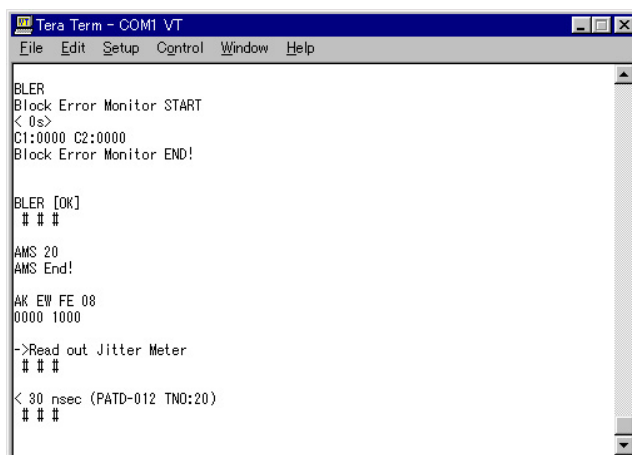


▲ Fig. 4-24

- 6) As prompted by the message shown in Fig. 4-26, check that the waveform as shown in Fig. 4-25 appears on an oscilloscope.



▲ Fig. 4-25



▲ Fig. 4-26

- 7) Check that the message “CDR PB-CAL completed!” appears.

NG Judgment Result Indication

4-2-1. Playback Measurement NG!

Contents : This message appears when the BLER (Block Error Rate) during playback is outside the specification.

Measure : Check if there is any abnormality in RBD1.

Replace KRM-220CAA.

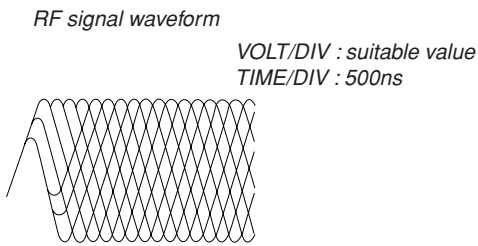
4-3. CD-RW Playback Adjustment

- 1) Select the menu as follows. Control → Macro, and select 03cdr_S.ttl.
Press “Open”.
- 2) Place the test CD TCD-W091W on the tray as prompted by the display and press “OK”. (See Fig. 4-30)

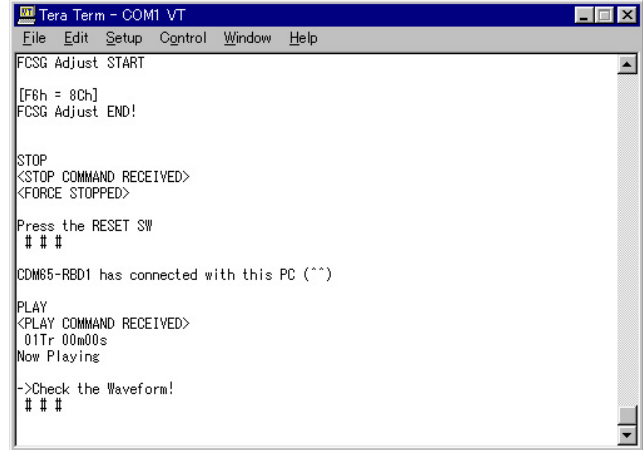


▲ Fig. 4-30

- 3) Press the “RESET” button (SW101) of the jig as prompted by the display.
- 4) As prompted by the message shown in Fig. 4-32, check that the waveform as shown in Fig. 4-31 appears on an oscilloscope.

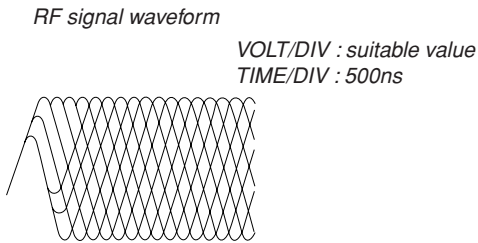


▲ Fig. 4-31

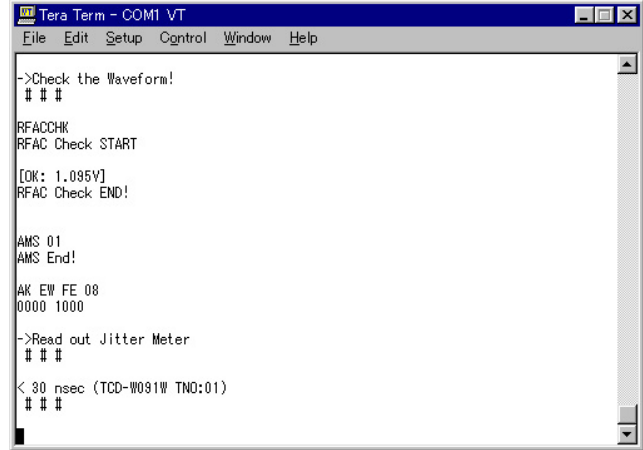


▲ Fig. 4-32

- 5) As prompted by the message shown in Fig. 4-34, check that the waveform as shown in Fig. 4-33 appears on an oscilloscope.

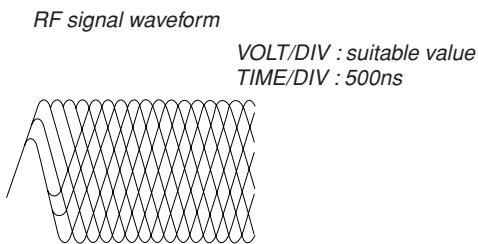


▲ Fig. 4-33

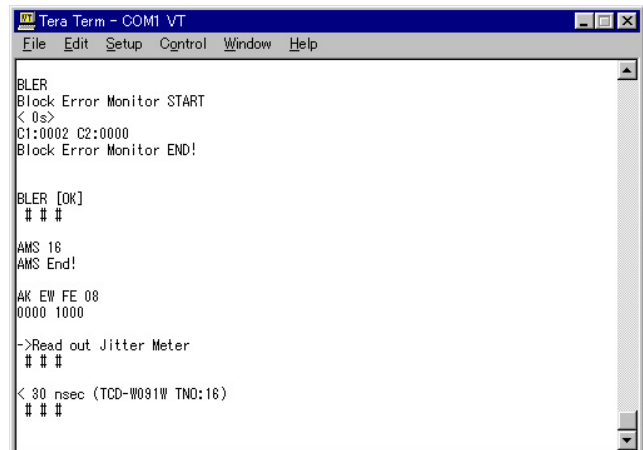


▲ Fig. 4-34

- 6) As prompted by the message shown in Fig. 4-36, check that the waveform as shown in Fig. 4-35 appears on an oscilloscope.



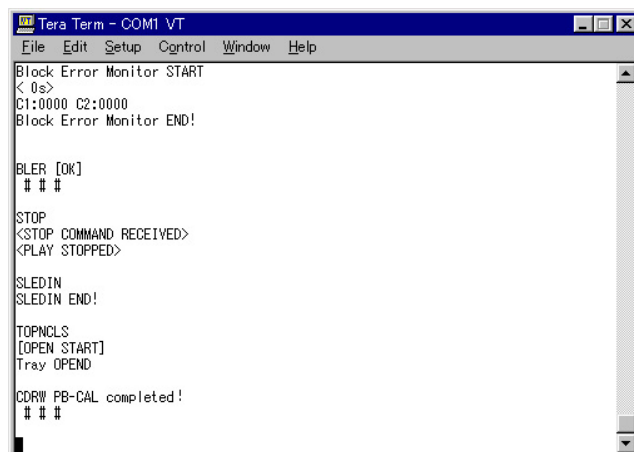
▲ Fig. 4-35



▲ Fig. 4-36

- 7) Check that the message “CDRW PB-CAL completed!” appears.
(See Fig. 4-37)

NG Judgment Result Indication



▲ Fig. 4-37

4-3-1. Playback Measurement NG!

Contents: This message appears when the BLER (Block Error Rate) during playback is outside the specification.

Measure : Check if there is any abnormality in RBD1.

Replace KRM-220CAA.

4-4. CD-R Recording Adjustment and Self Record/Playback Check

- 1) Select the menu as follows. Control → Macro, and select 04cdr_S.ttl.
Press “Open”.
- 2) Place the test CD disc PATD-012 on the Deck A. Place the recording CD-R disc (see Note: 4-4-1) on the tray (Deck B) as prompted by the display and press “OK”. (See Fig. 4-38)

Note : 4-4-1

The disc to be used in this step.

- * Use the CD-R disc CRM74 for audio, that is manufactured by Sony.
 - * The disc that is used by this step cannot be used for the general purposes and for the purpose of operation check of the RCD series equipment. The disc that is used for the general purposes or for the purpose of operation check of the RCD series equipment, cannot be used in this step.
 - * If the recording is interrupted by any reasons during the recording operation (i.e., the WRITE POWER ON LED of the jig is lighting), the disc cannot be used any more in the subsequent step. Use the un-used brand new disc and repeat this step from the very beginning again.
- 3) When the disc that is used in step 2) is the disc that has been used in the electrical adjustment in the past..... Press “Yes”.

When the disc that is used in step 2) is a completely blank disc.
..... Press “No”. (See Fig. 4-39)

Note: The recording CD-R disc can be used only for the electrical adjustment. The recording CD-R disc must be controlled so that it must not be used for any other applications.

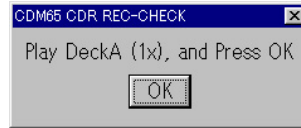


▲ Fig. 4-38




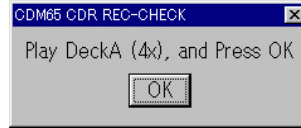
▲ Fig. 4-39

- 4) Press the  button of Deck A. After playback starts, press “OK”. (See Fig. 4-40)



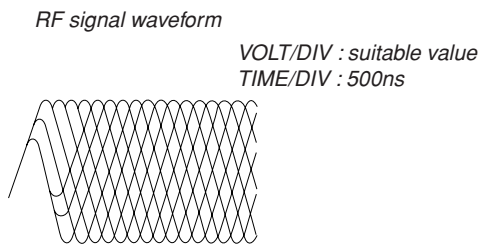
▲ Fig. 4-40

- 5) When the message as shown in Fig. 4-41 appears some seconds later, select 4x of the test mode (refer to page 18, Play Speed Selection Mode (Deck A)) PLAYBACK SPEED. Then press the  button of Deck A. After playback starts, press “OK”.

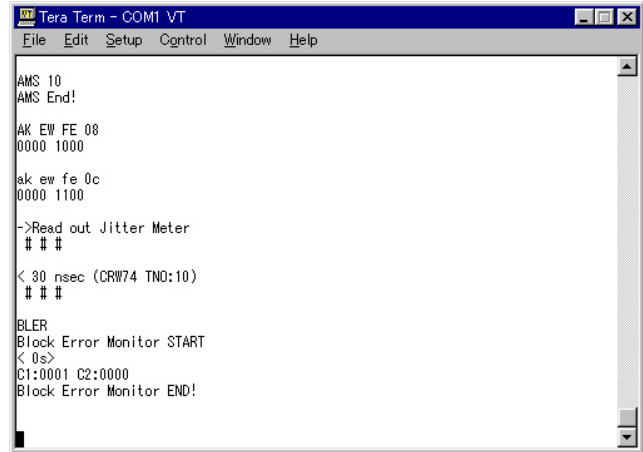


▲ Fig. 4-41

- 6) As prompted by the message shown in Fig. 4-43, check that the waveform as shown in Fig. 4-42 appears on an oscilloscope.

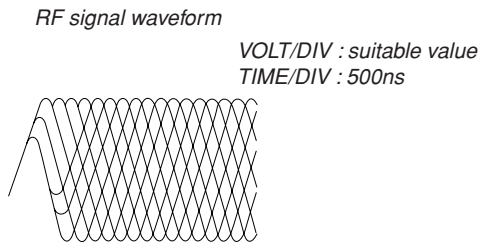


▲ Fig. 4-42

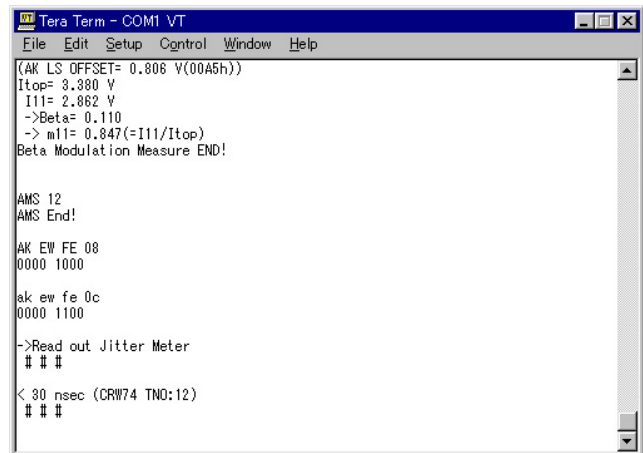


▲ Fig. 4-43

- 7) As prompted by the message shown in Fig. 4-45, check that the waveform as shown in Fig. 4-44 appears on an oscilloscope.



▲ Fig. 4-44



▲ Fig. 4-45

- 8) Check that the message “CDR REC-CHECK completed!” appears.
NG Judgment Result Indication

4-4-1. CD-R Playback Measurement NG!

Contents : This message appears when the BLER (Block Error Rate) *Beta/m11 of the track that is recorded and played back, is outside the specification.

Measure : Check if there is any abnormality in RBD1.

Replace KRM-220CAA.

4-5. CD-RW Recording Adjustment and Self Record/Playback Check

- 1) Select the menu as follows. Control → Macro, and select 05cdrw_S.ttl.
Press “Open”.

- 2) Place the test CD disc PATD-012 on the Deck A. Place the recording CD-RW disc (See Note: 4-5-1) on the tray (Deck B) as prompted by the display and press “OK”. (See Fig. 4-46)

Note : 4-5-1

The disc to be used in this step.


- * Use the CD-RW disc CWM74 for audio, that is manufactured by Sony.
- * The disc that is used by this step cannot be used for the general purposes and for the purpose of operation check of the RCD series equipment as it is. The disc that is used for the general purposes or for the purpose of operation check of the RCD series equipment, cannot be used in this step.
When you want to use the CD-RW disc for other applications, erase the CD-RW disc.
- * If the recording is interrupted by any reasons during the recording operation (i.e., the WRITE POWER ON LED of the jig is lighting), the disc cannot be used any more in the subsequent step. In such a case, erase the CD-RW disc and repeat this step from the very beginning again.

- 3) When the disc that is used in step 2) is the disc that has been used in the electrical adjustment in the past..... Press “Yes”.

When the disc that is used in step 2) is a completely blank disc. Press “No”. (See Fig. 4-47)

Note: The recording CD-RW disc can be used only for the electrical adjustment. The recording CD-RW disc must be controlled so that it must not be used for any other applications.

- 4) Press the  button of Deck A. After playback starts, press “OK”. (See Fig. 4-48)

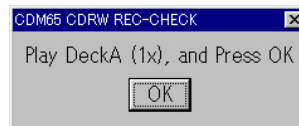
- 5) When the message as shown in Fig. 4-49 appears some seconds later, select 4x of the test mode (refer to page 18, Play Speed Selection Mode (Deck A)) PLAYBACK SPEED. Then press the  button of Deck A. After playback starts, press “OK”.



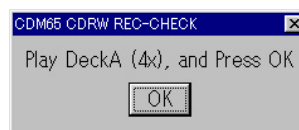
▲ Fig. 4-46



▲ Fig. 4-47

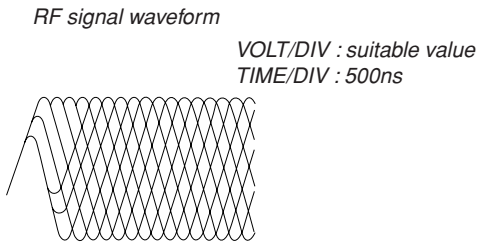


▲ Fig. 4-48

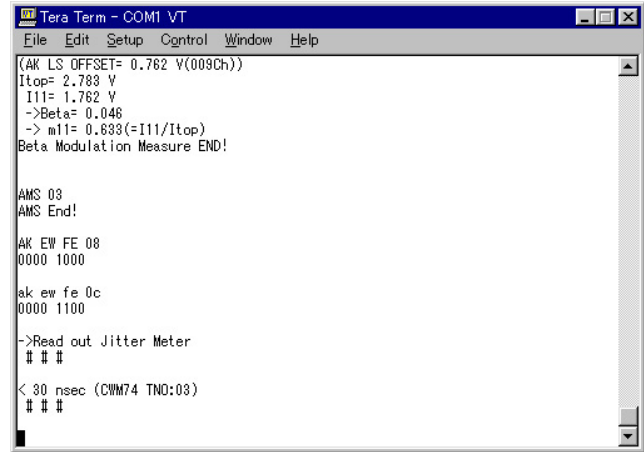


▲ Fig. 4-49

- 6) As prompted by the message shown in Fig. 4-51, check that the waveform as shown in Fig. 4-50 appears on an oscilloscope.

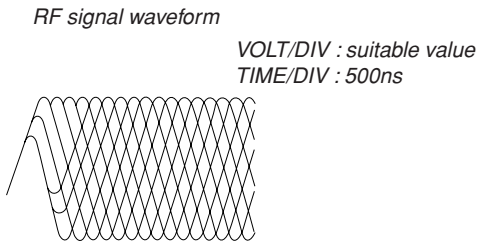


▲ Fig. 4-50



▲ Fig. 4-51

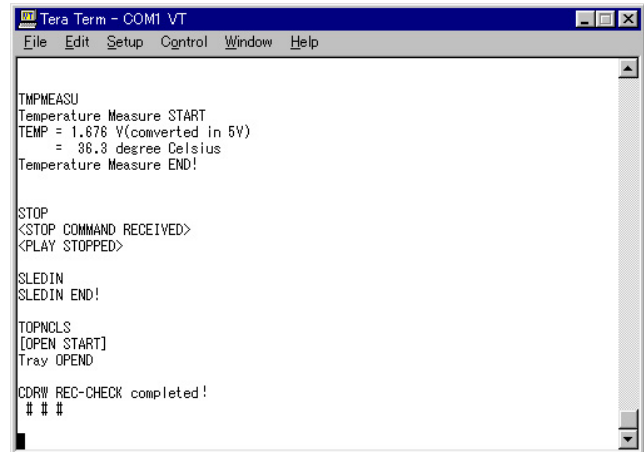
- 7) As prompted by the message shown on display, check that the waveform as shown in Fig. 4-52 appears on an oscilloscope.



▲ Fig. 4-52

- 8) Check that the message “CDRW REC-CHECK completed!” appears. (See Fig. 4-53)

NG Judgment Result Indication



▲ Fig. 4-53

4-5-1. CD-RW Playback Measurement NG!

Contents : This message appears when the BLER (Block Error Rate) *Beta/m11 of the track that is recorded and played back, is outside the specification.

Measure : Check if there is any abnormality in RBD1.
Replace KRM-220CAA.

4-6. VWDC Check

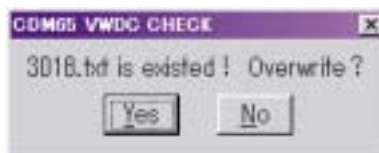
- 1) Select the menu as follows. Control → Macro, and select 06vwdc_S.ttl. Press “Open”.
- 2) As prompted by the message shown in Fig. 4-54, remove the disc from the tray and press “OK”.



▲ Fig. 4-54

- 3) Because this step saves the result of electrical adjustment in a file, there can be a case that the dialog as shown in Fig. 4-55 appears.

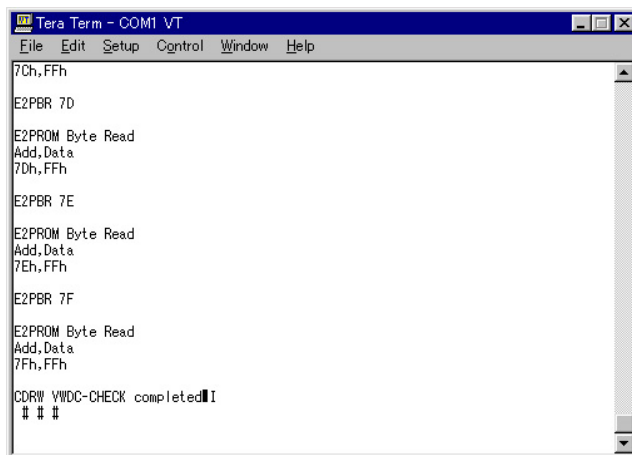
When you want to overwrite Press “Yes”.
When you want to create a new file Press “No”.



▲ Fig. 4-55

- 4) Check that the message “CDRW VWDC-CHECK completed!” appears. (See Fig. 4-56)

NG Judgment Result Indication



▲ Fig. 4-56

4-6-1. EEPROM Write NG!

Contents : This message appears when writing data into EEPROM fails.

Measure : When the steps of 011dp_S.ttl through 05cdrw_S.ttl have no problem and the error occurs only in this step, it is assumed that an error has occurred momentarily in the interface between PC and CDM64. Therefore, repeat execution of 06vwdc_S.ttl again.

4-6-2. VWDC judge [Line Top - End] [NG]

Contents : This message appears when the VWDC value is outside the specification.

Measure : It is assumed that the optical laser unit has deteriorated. If this error occurs after the KRM-220CAA is replaced, the adjustment error in the step of 011dp_S.ttl is assumed. Therefore, repeat execution of steps of 011dp_S.ttl through 05cdrw_S.ttl again. In the cases other than above, check if the laser power adjustment is correctly performed or not, using LDPtestL_S.ttl.

4-7. NG Message List

Message	Cause
Tray OPEN NG!	The tray has not opened within the specified time.
Tray Close NG!	The tray has not closed within the specified time.
SLEDIN NG!	The sled has not moved toward inner circumference within the specified time.
SLEDOUT NG!	The sled has not moved toward outer circumference within the specified time.
RIDR NG!	The RID information could not be read out within the specified time.
SNread (1) NG!	The SN (1) information could not be read out within the specified time.
SNread (2) NG!	The SN (2) information could not be read out within the specified time.
SNread (3) NG!	The SN (3) information could not be read out within the specified time.
FBIASADJ NG!	The Focus Bias Adjustment has not completed within the specified time.
FEOSADJ NG!	The FE Offset Adjustment has not completed within the specified time.
FESAMPADJ NG!	The FE Amplitude Adjustment has not completed within the specified time.
RFACCHK NG!	The RFAC amplitude is abnormal or the adjustment has not completed within the specified time.
RPINWADJ1 NG!	The Read Power (during Write1) Adjustment has not completed within the specified time.
RPINWADJ2 NG!	The Read Power (during Write2) Adjustment has not completed within the specified time.
SERVOSET NG!	The Servo Setting has not completed within the specified time.
TSa NG!	The ATIME Search has not completed within the specified time.
PLAYSW NG!	The Play operation has not started within the specified time.
STOP NG!	The Stop operation has not completed within the specified time.
AMS NG!	The AMS operation has not completed within the specified time.
ATIPLAY NG!	The ATIP Play operation has not started within the specified time.
END TNO get NG!	The record-end track information could not be obtained within the specified time.
LEADOUT info.get NG!	The record-end time information could not be obtained within the specified time.
Invalid EndTrackNo./LeadoutTime !	The illegal record-end track and its time information were obtained.
Use the Blank disc	The disc exceeding the allowable limit is used.
DIR unlock!	The equipment could not be synchronized with the signal connected to DIN2.
RWP NG!	The CD-R Write Power setting has not completed within the specified time.
RWWP NG!	The CD-RW Write Power setting has not completed within the specified time.
REC NG!	The record operation could not be started within the specified time.

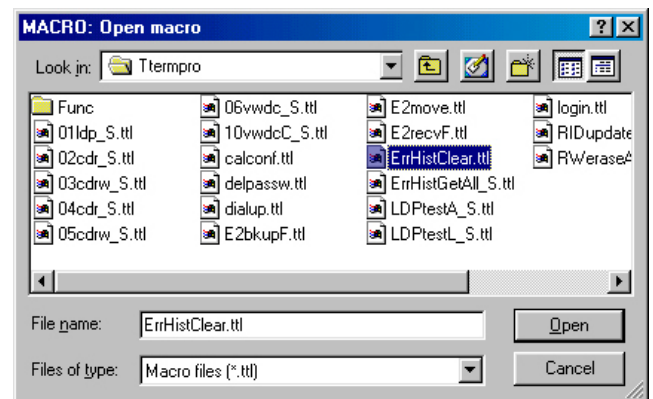
5. Operation Check

5-1. Erasing the Error History

- 1) Select the menu as follows. Control → Macro, and select ErrHistClear.ttl.
Press “Open”. (See Fig. 5-1, 5-2)

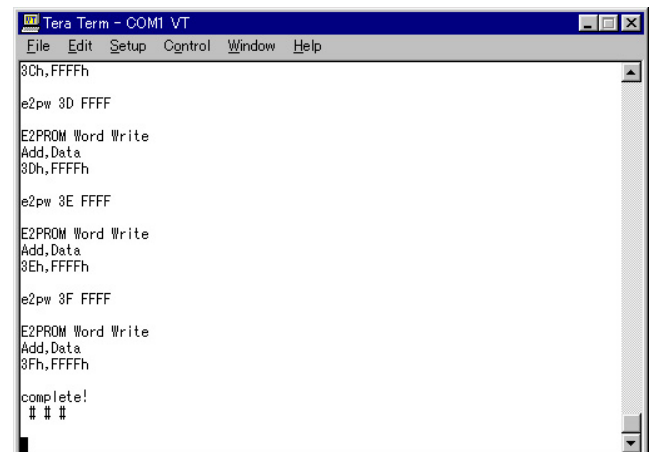


▲ Fig. 5-1



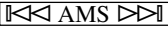

▲ Fig. 5-2

- 2) Press the “RESET” button (SW101) of the jig as prompted by the display.
- 3) Check that the message “completed!” appears. (See Fig. 5-3)



▲ Fig. 5-3

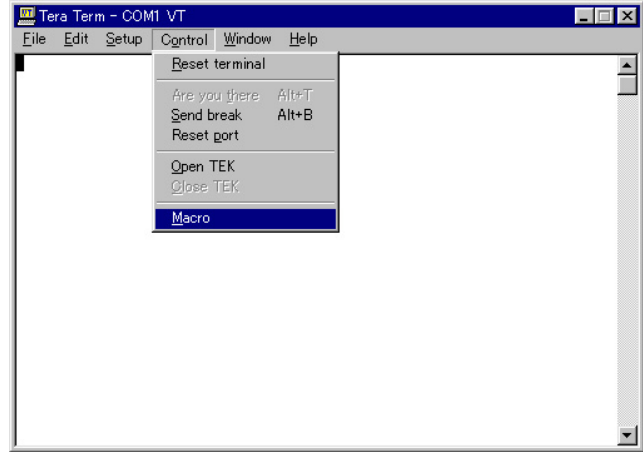
5-2. Playback Check using TCD-W032W

- 1) Install the CDM65 in the equipment and install the TCD-W032W in Deck B.
- 2) Rotate the  (Deck B) knob to select the track 16. Start playback by pressing the same knob or by pressing the  (Deck B) button.
- 3) Perform playback for 10 seconds or more and confirm that there is no abnormality such as sound skipping and others.

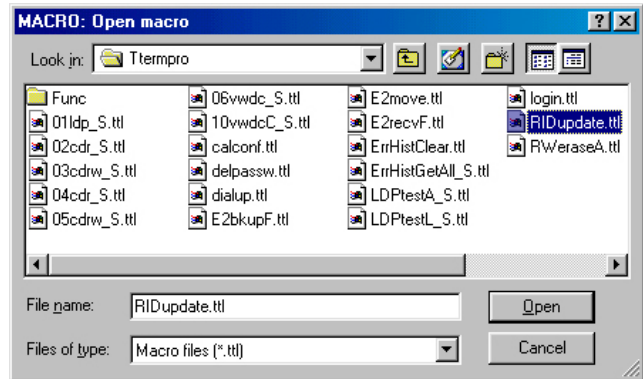
5-3. Updating the RID Code

When the IC501 firmware is upgraded, the following operation may be required.

- 1) Select the menu as follows. Control → Macro, and select RIDupdate.ttl.
Press “Open”. (See Fig. 5-4, 5-5)



▲ Fig. 5-4



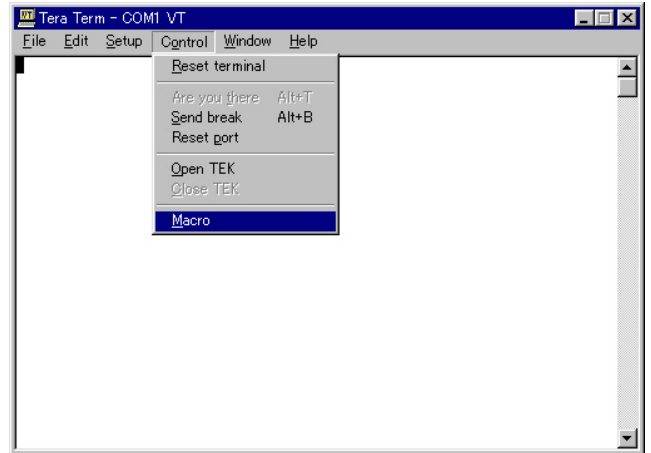
▲ Fig. 5-5

- 2) Press the “RESET” button (SW101) of the jig as prompted by the display.
- 3) Check that the message “completed!” appears.

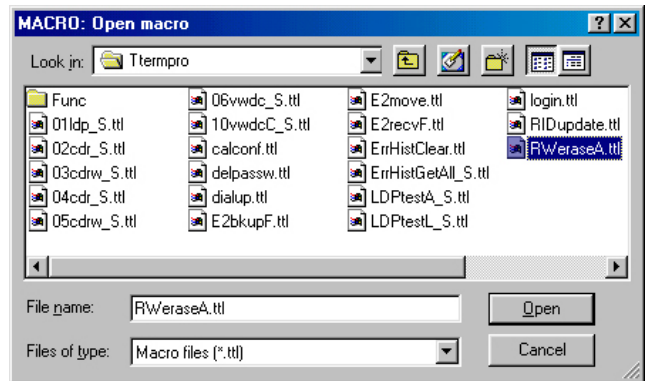
Supplementary Information

Method to Erase the CD-RW Disc

- 1) Select the menu as follows. Control → Macro, and select RWeraseA.ttl.
Press “Open”. (See Fig. A-1, A-2)

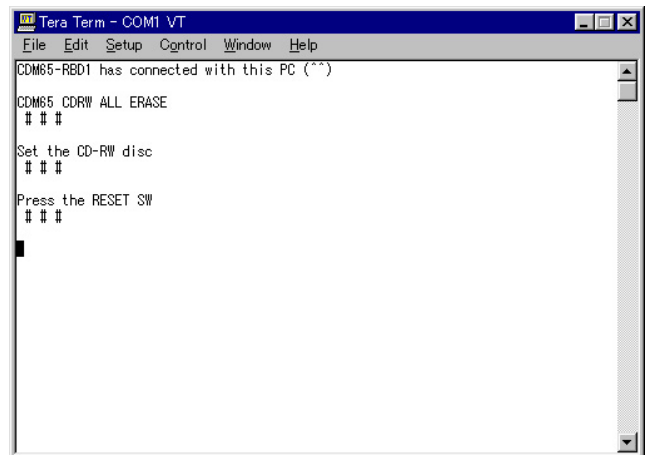


▲ Fig. A-1



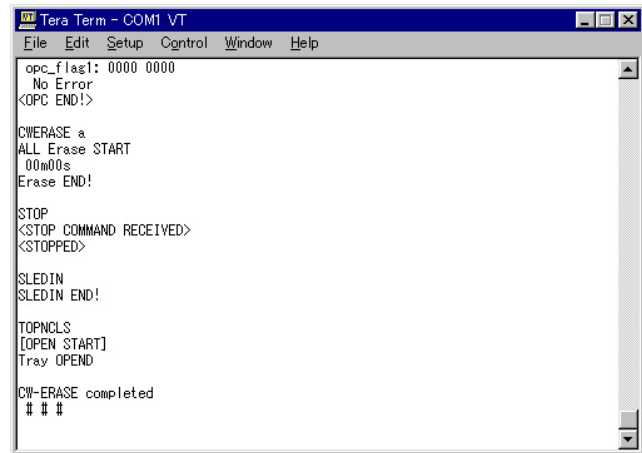
▲ Fig. A-2

- 2) Press the “RESET” button (SW101) of the jig as prompted by the display. (See Fig. A-3)



▲ Fig. A-3

- 3) Check that the time display as shown by the arrow mark in Fig. A-4 is updated after a while.



```
Tera Term - COM1 VT
File Edit Setup Control Window Help
opc_flag1: 0000 0000
No Error
<OPC END!>

CWERASE a
ALL Erase START
00m00s
Erase END!

STOP
<STOP COMMAND RECEIVED>
<STOPPED>

SLEDIN
SLEDIN END!

TOPNCLS
[OPEN START]
Tray OPEND

CW-ERASE completed
# # #
```

▲ Fig. A-4

- 4) When update of time display is stopped and rotation of spindle is stopped, press the STOP button (SW501) of the Jig, and then press the EJECT button (SW508) of the jig to remove the disc.

SECTION 7 DIAGRAMS

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 $1/4\text{W}$ or less unless otherwise specified.
- % : indicates tolerance.
- Δ : internal component.
- \square : panel designation.
- $\text{---}\text{---}$: fusible resistor.

Note:

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

- --- : B+ Line.
- --- : B- Line.
- \square : adjustment for repair.
- AC voltage readings in the bias oscillator with a level meter.
no mark : STOP
() : PLAY
< > REC (CD-R only)
- Voltages are taken with a VOM (Input impedance 10M Ω).
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.

• Signal path.

- --- : LINE (ANALOG)
- --- : CD PLAY (ANALOG)
- --- : CD PLAY (DIGITAL)
- --- : CD REC

For printed wiring boards.

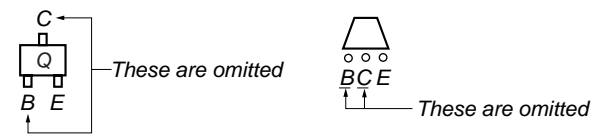
Note:

- \square : Pattern from the side which enables seeing. (The other layers' patterns are not indicated.)

Caution:

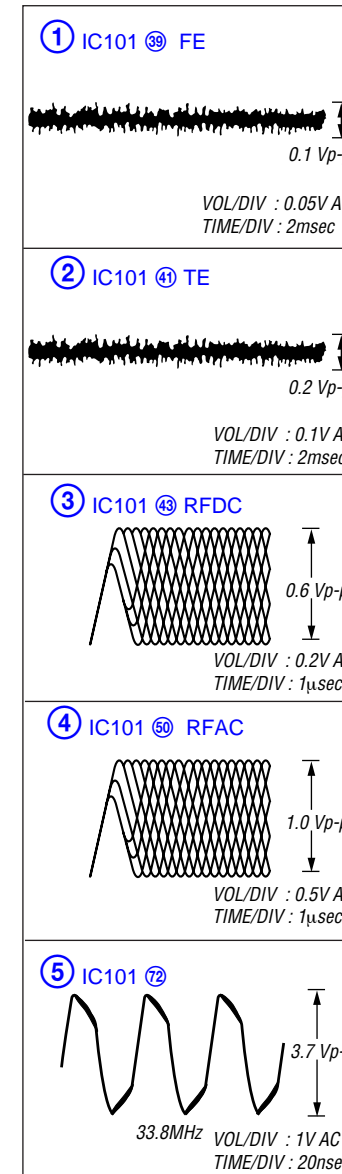
Pattern face side: Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: Parts on the parts face side seen from the parts face are indicated.

• Indication of transistor

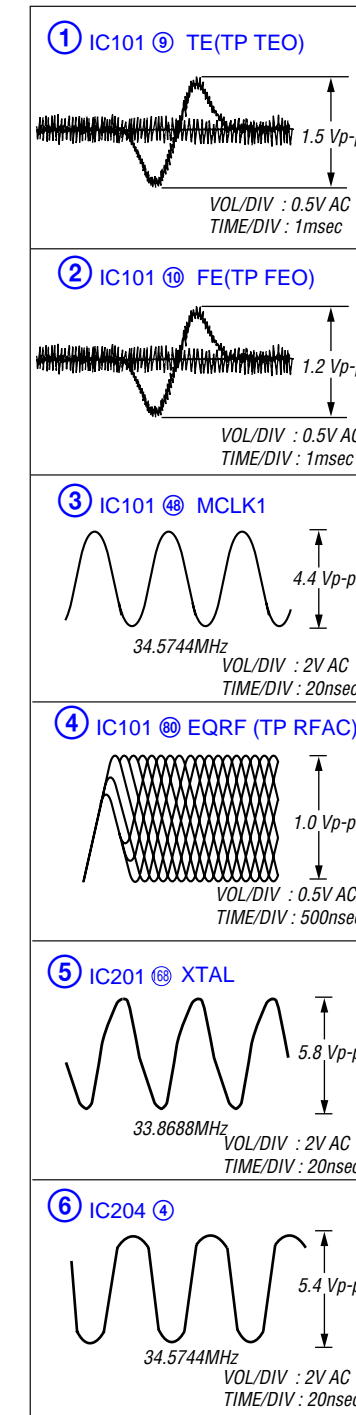


• WAVEFORMS

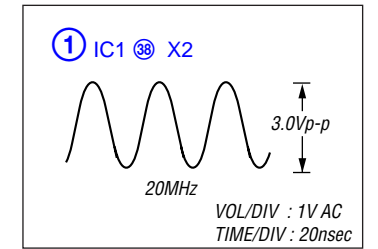
– BD BOARD –



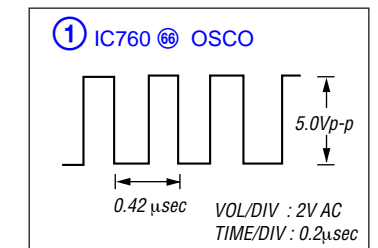
– CD-R BOARD –



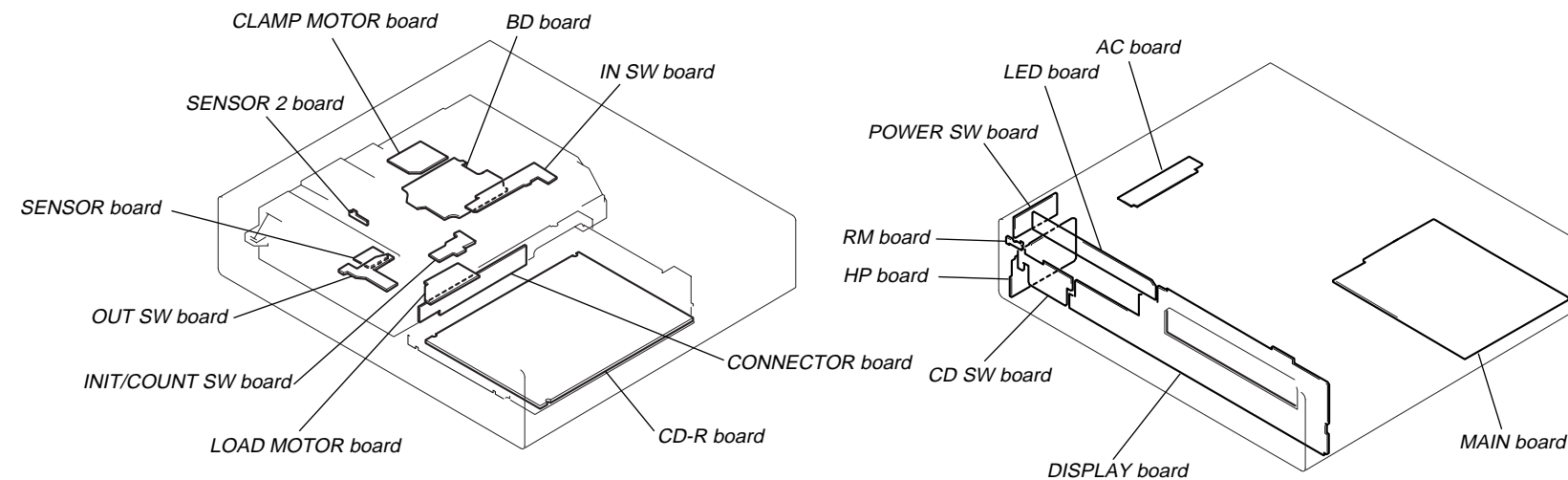
– MAIN BOARD –



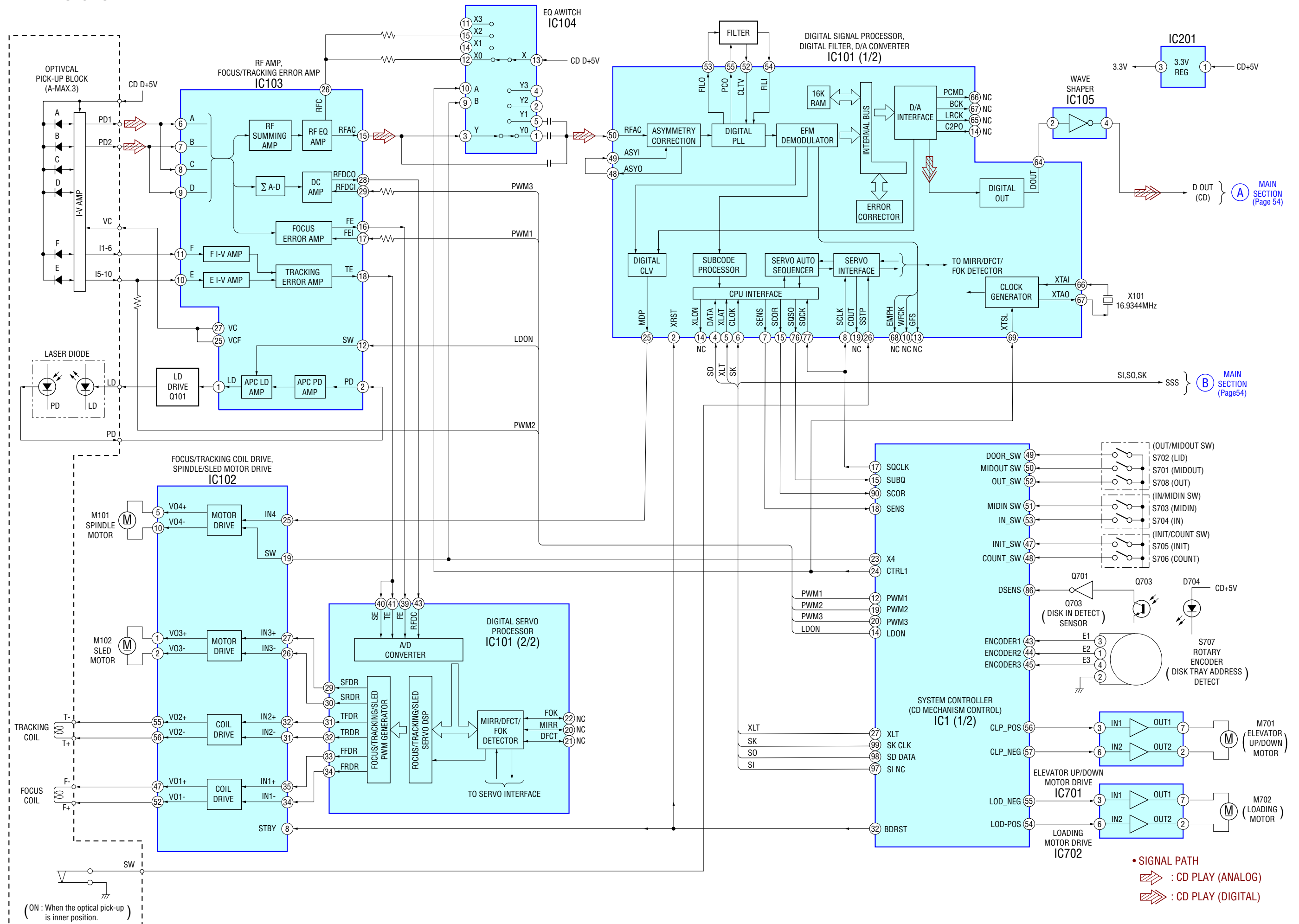
– DISPLAY BOARD –



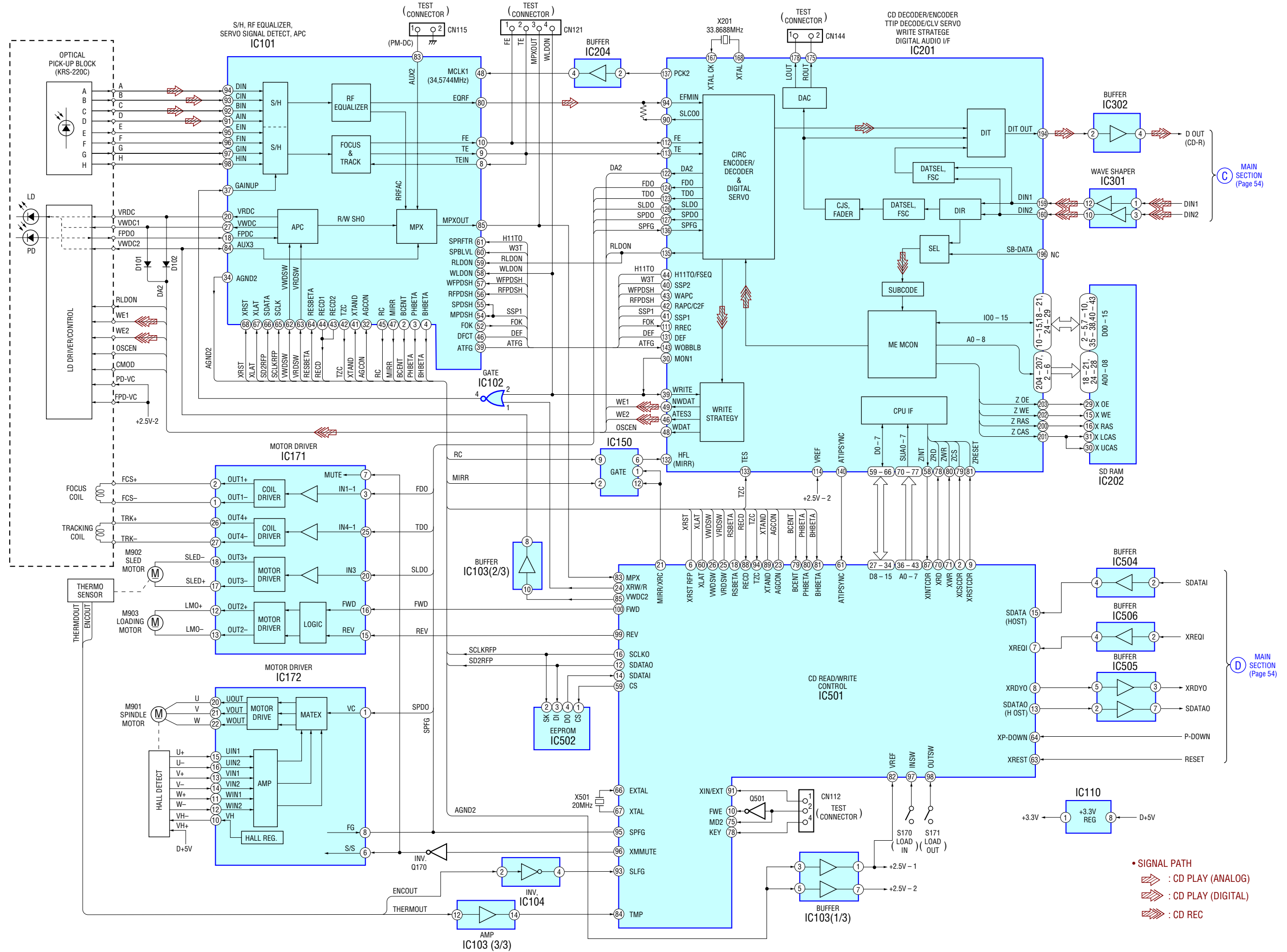
7-1. CIRCUIT BOARD LOCATION



7-2. BLOCK DIAGRAMS
- BD SECTION -



- CD-R SECTION -



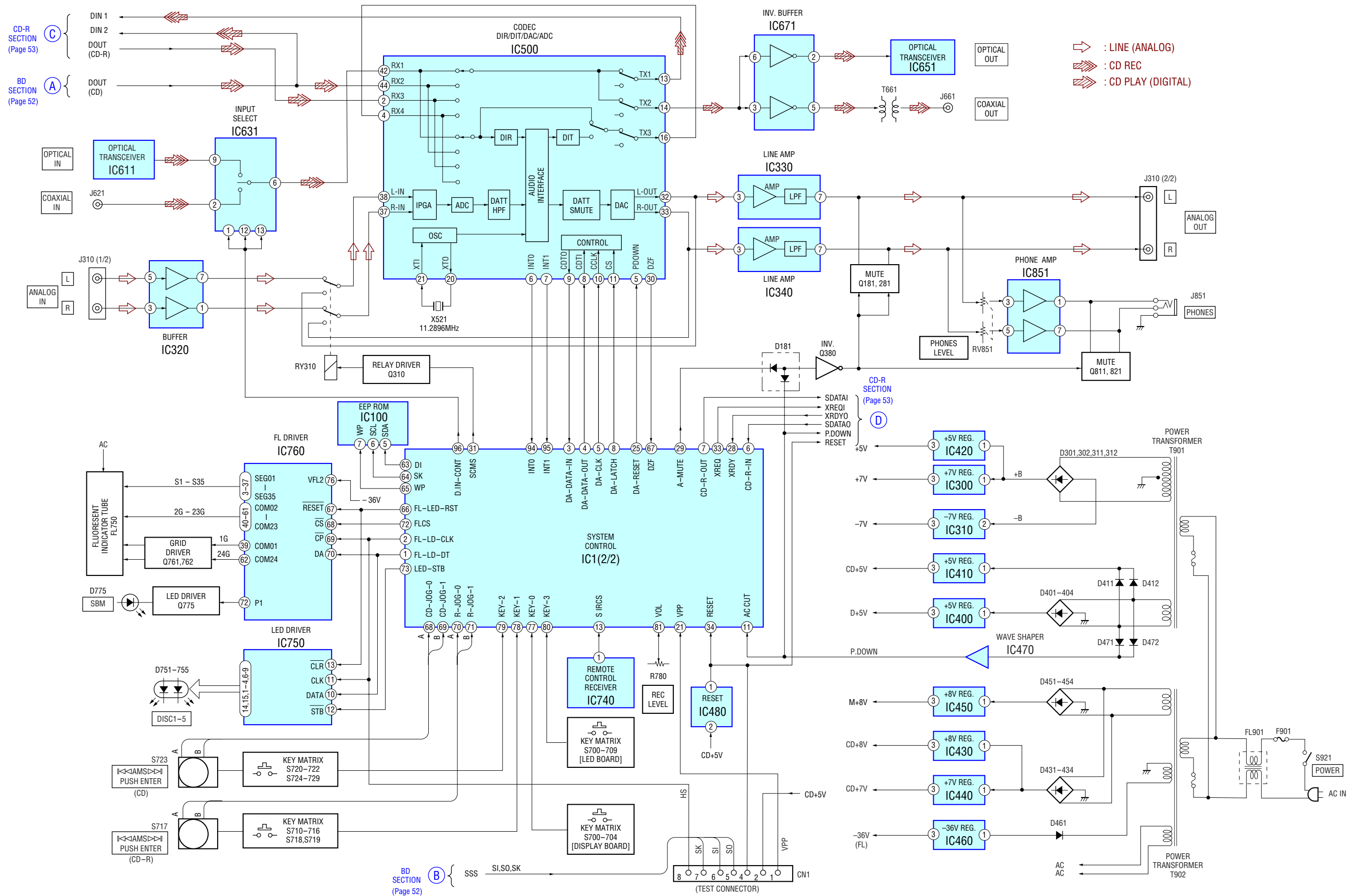
C MAIN SECTION (Page 54)

D MAIN SECTION (Page 54)

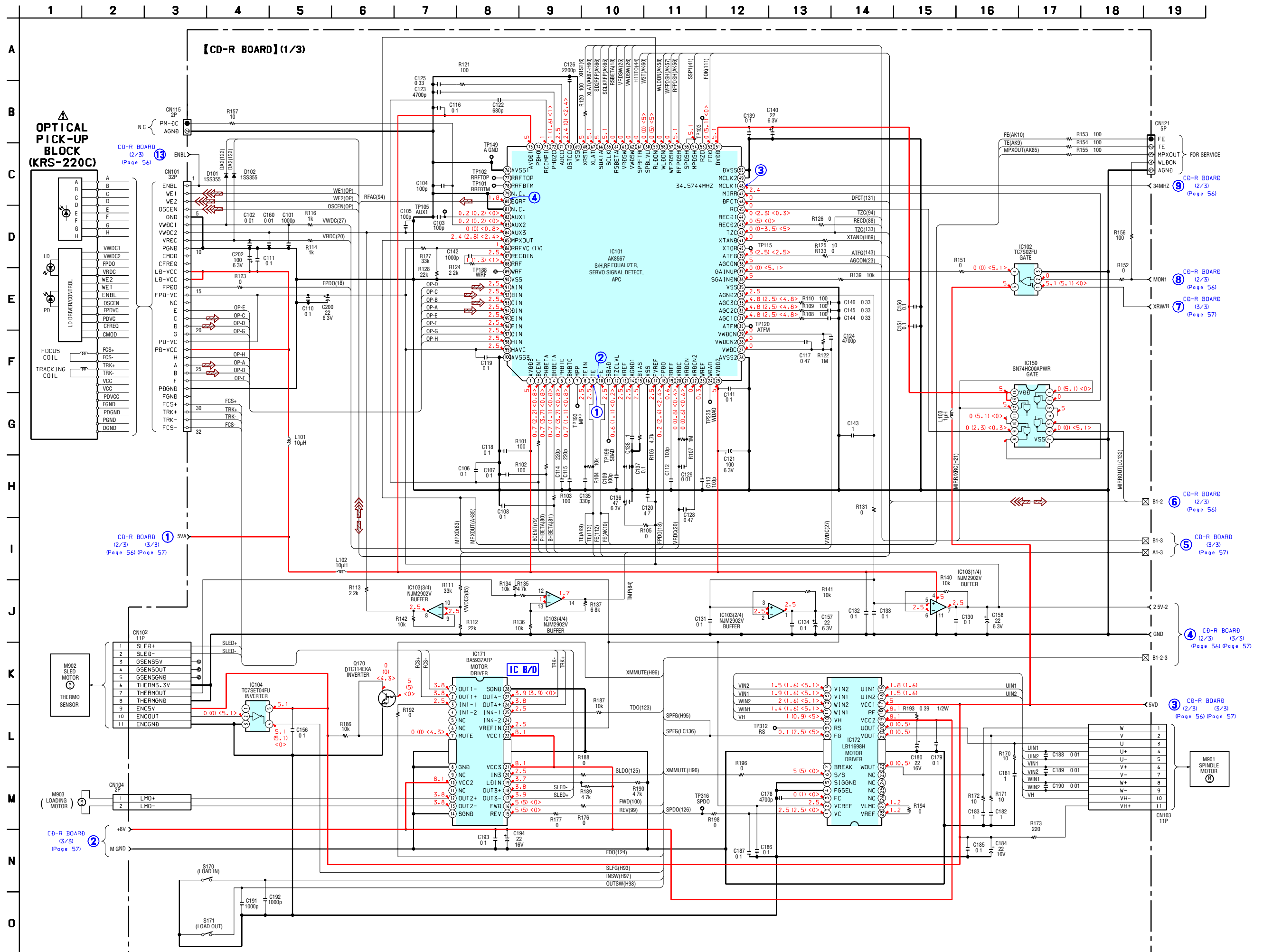
- SIGNAL PATH
- ➡ : CD PLAY (ANALOG)
- ➡ : CD PLAY (DIGITAL)
- ➡ : CD REC

RCD-W222ES

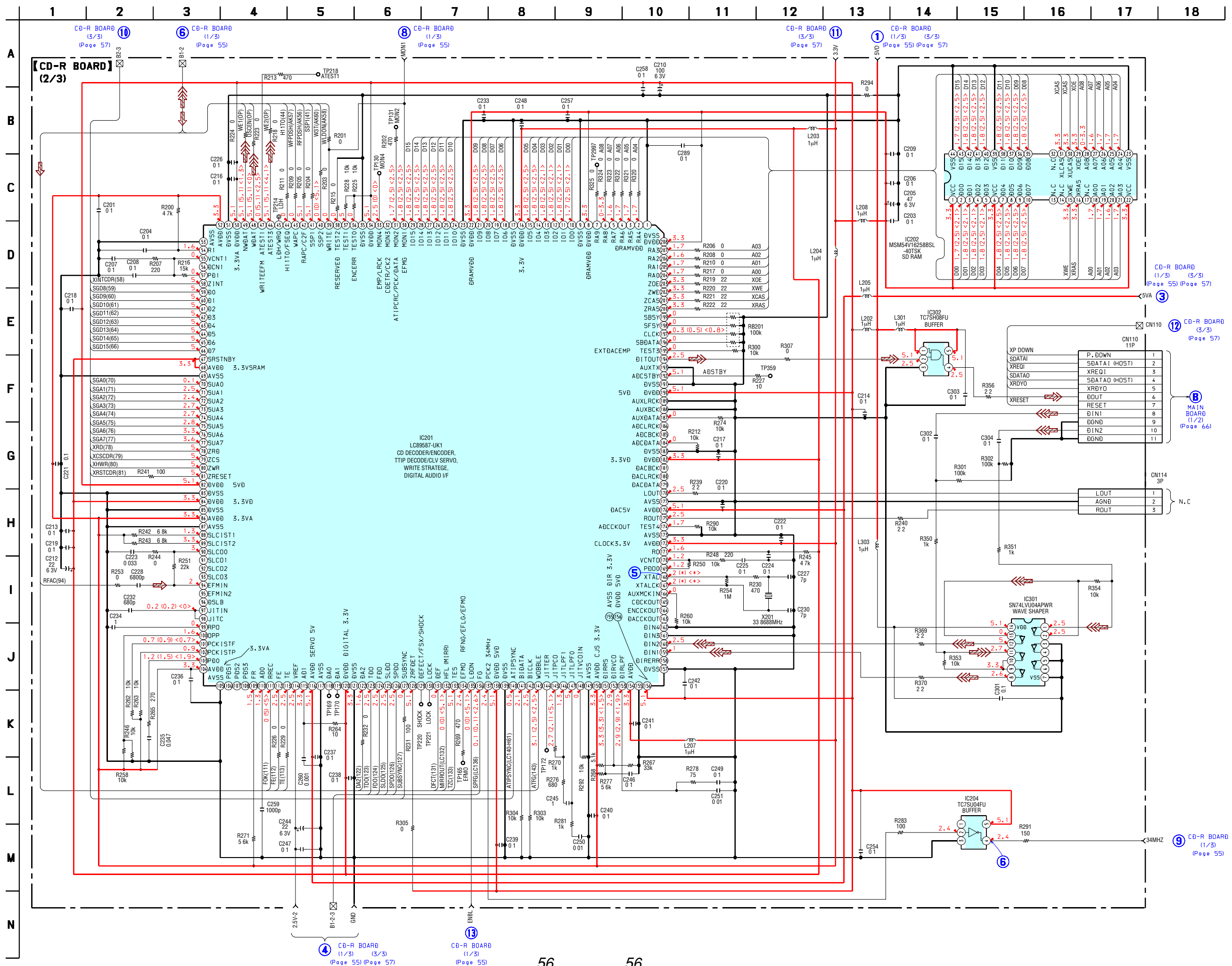
- MAIN SECTION -



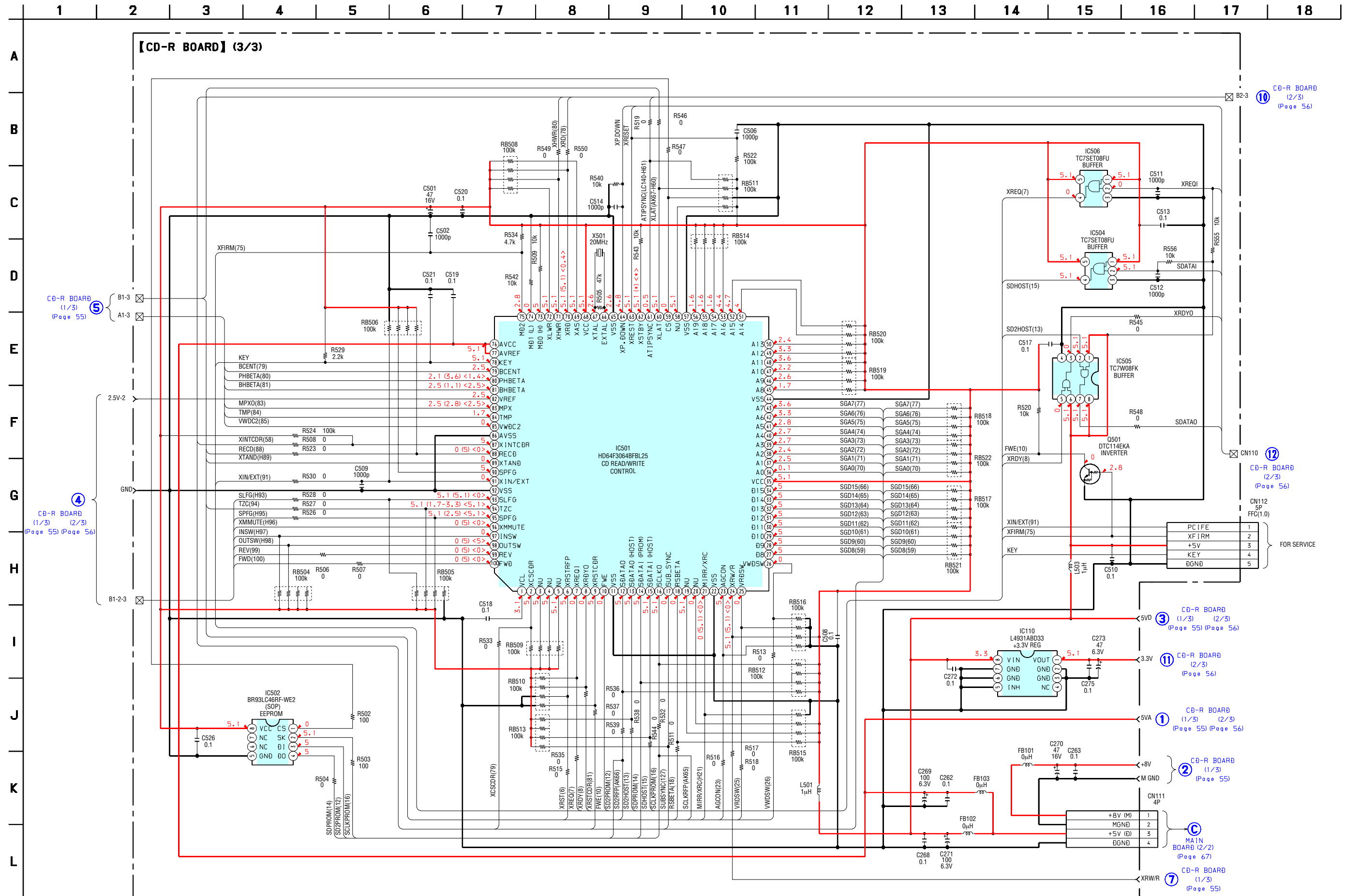
7-3. SCHEMATIC DIAGRAM – CD-R (1/3) SECTION – • See page 81 for IC Pin Function Description.



7-4. SCHEMATIC DIAGRAM – CD-R (2/3) SECTION – See page 75 for IC Pin Function Description.



7-5. SCHEMATIC DIAGRAM – CD-R (3/3) SECTION – See page 79 for IC Pin Function Description.



CD-R BOARD (1/3) (Page 55)

CD-R BOARD (1/3) (2/3) (Page 55) (Page 56)

CD-R BOARD (2/3) (Page 56)

CD-R BOARD (2/3) (Page 56)

CD-R BOARD (1/3) (2/3) (Page 55) (Page 56)

CD-R BOARD (2/3) (Page 56)

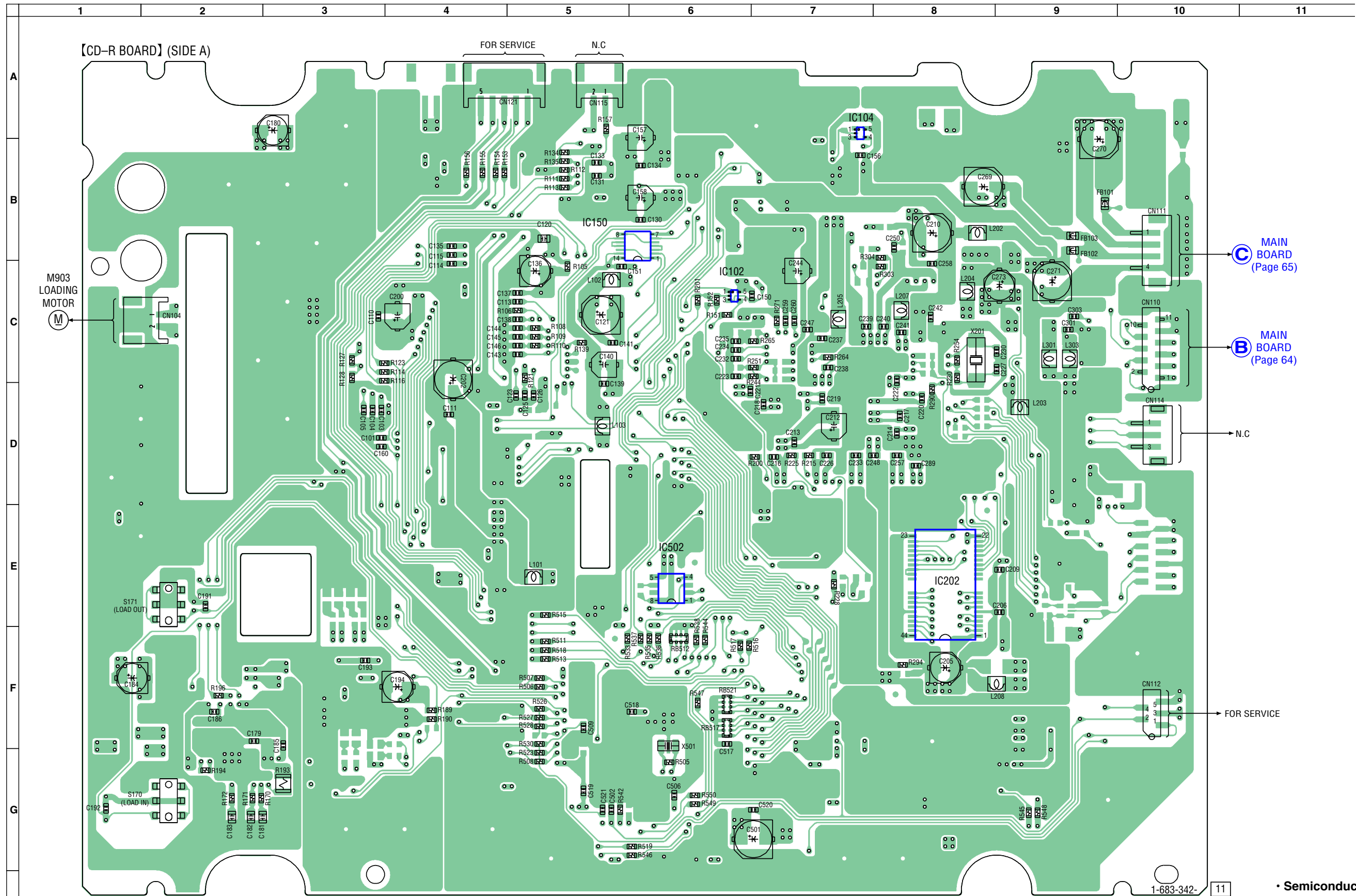
CD-R BOARD (1/3) (2/3) (Page 55) (Page 56)

CD-R BOARD (1/3) (Page 55)

MAIN BOARD (2/2) (Page 67)

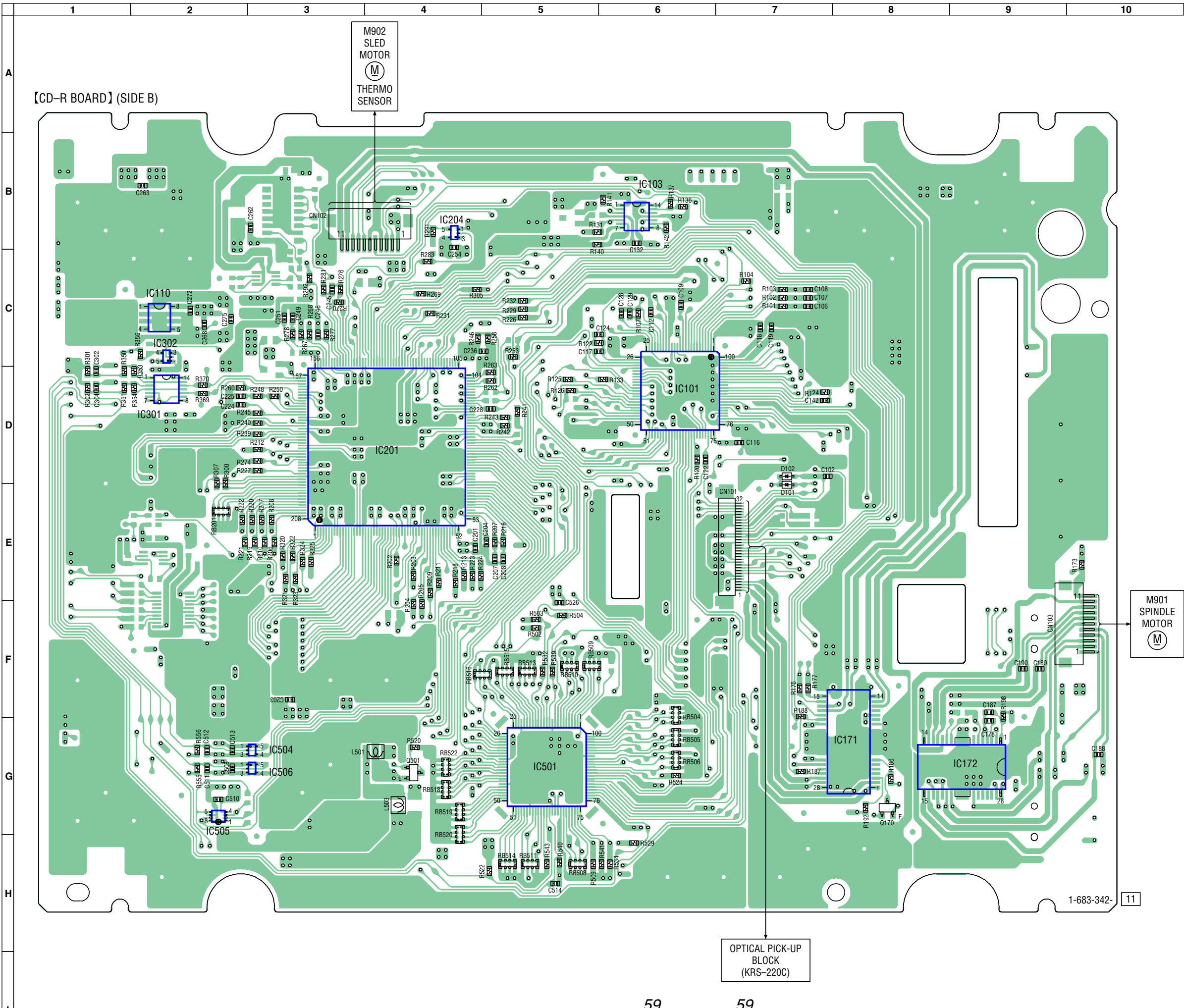
CD-R BOARD (1/3) (Page 55)

7-6. PRINTED WIRING BOARD – CD-R SECTION – • See page 51 for Circuit Boards Location.



• Semiconductor Location

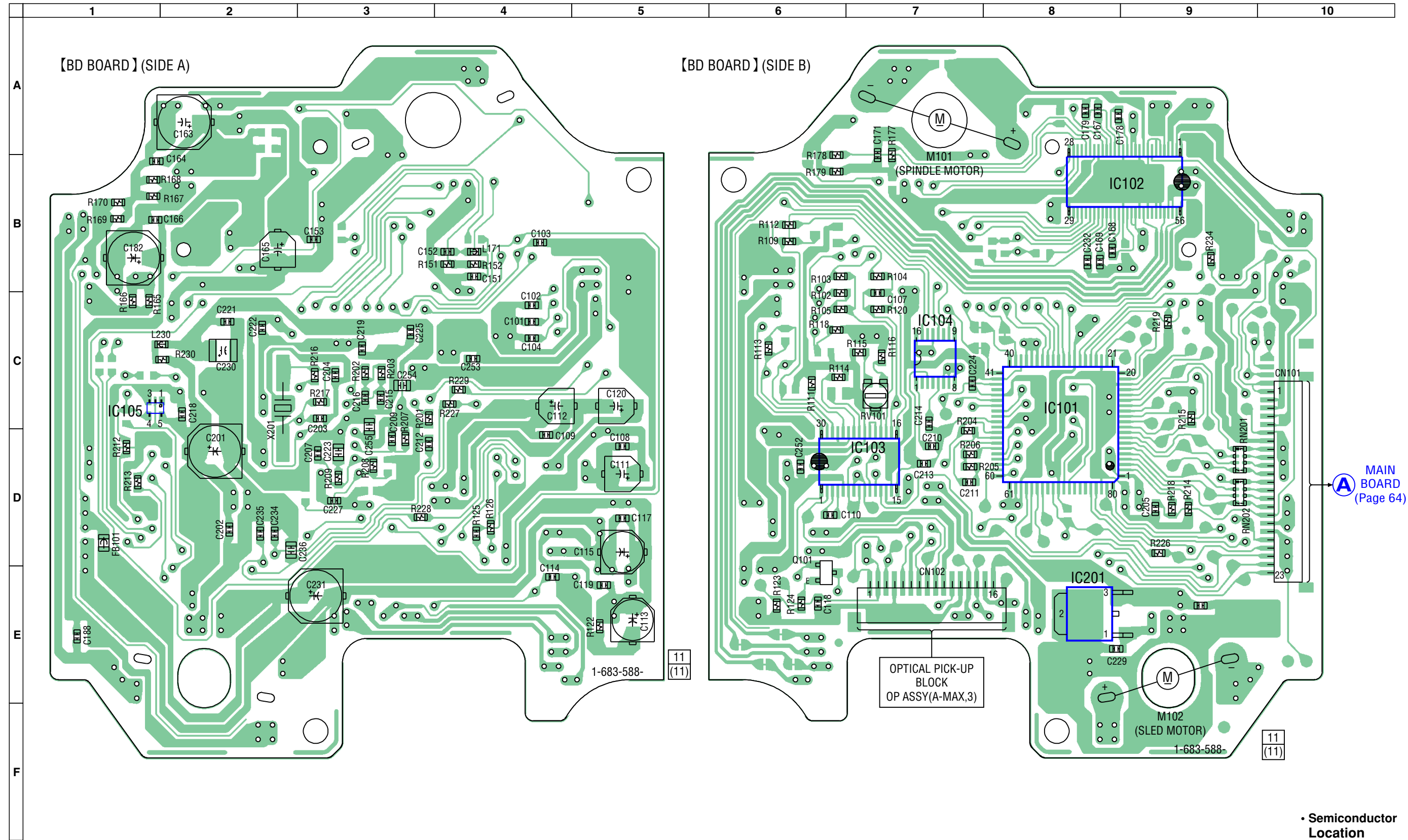
Ref. No.	Location
IC102	C-6
IC104	A-7
IC150	B-6
IC202	E-8
IC502	E-6



• Semiconductor Location

Ref. No.	Location
D101	D-7
D102	D-7
IC101	D-6
IC103	B-6
IC110	C-2
IC171	G-8
IC172	G-9
IC201	D-4
IC204	B-4
IC301	D-2
IC302	C-2
IC501	G-5
IC504	G-3
IC505	G-2
IC506	G-3
Q170	G-8
Q501	G-4

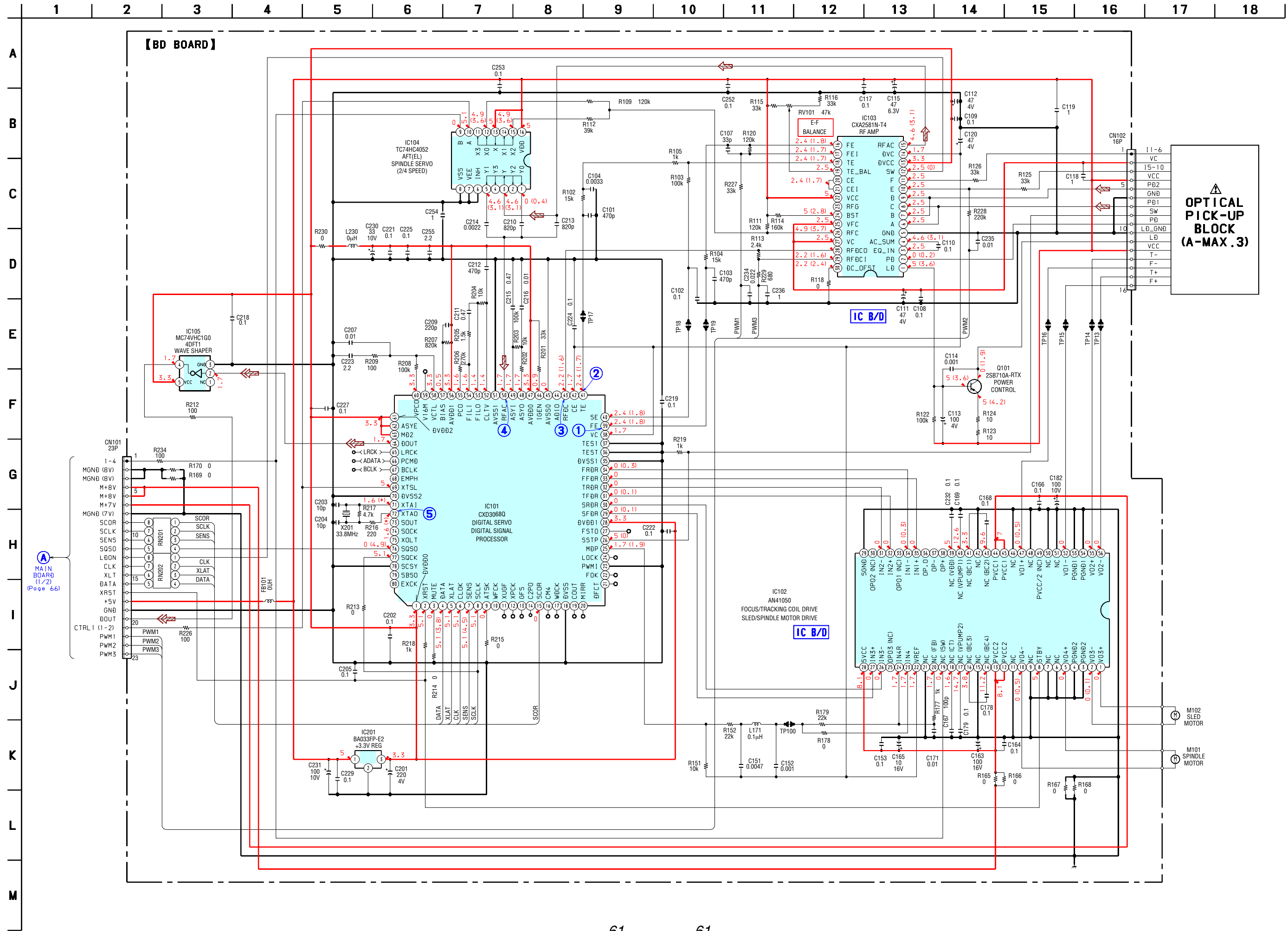
7-7. PRINTED WIRING BOARD – BD SECTION – • See page 51 for Circuit Boards Location.



• Semiconductor Location

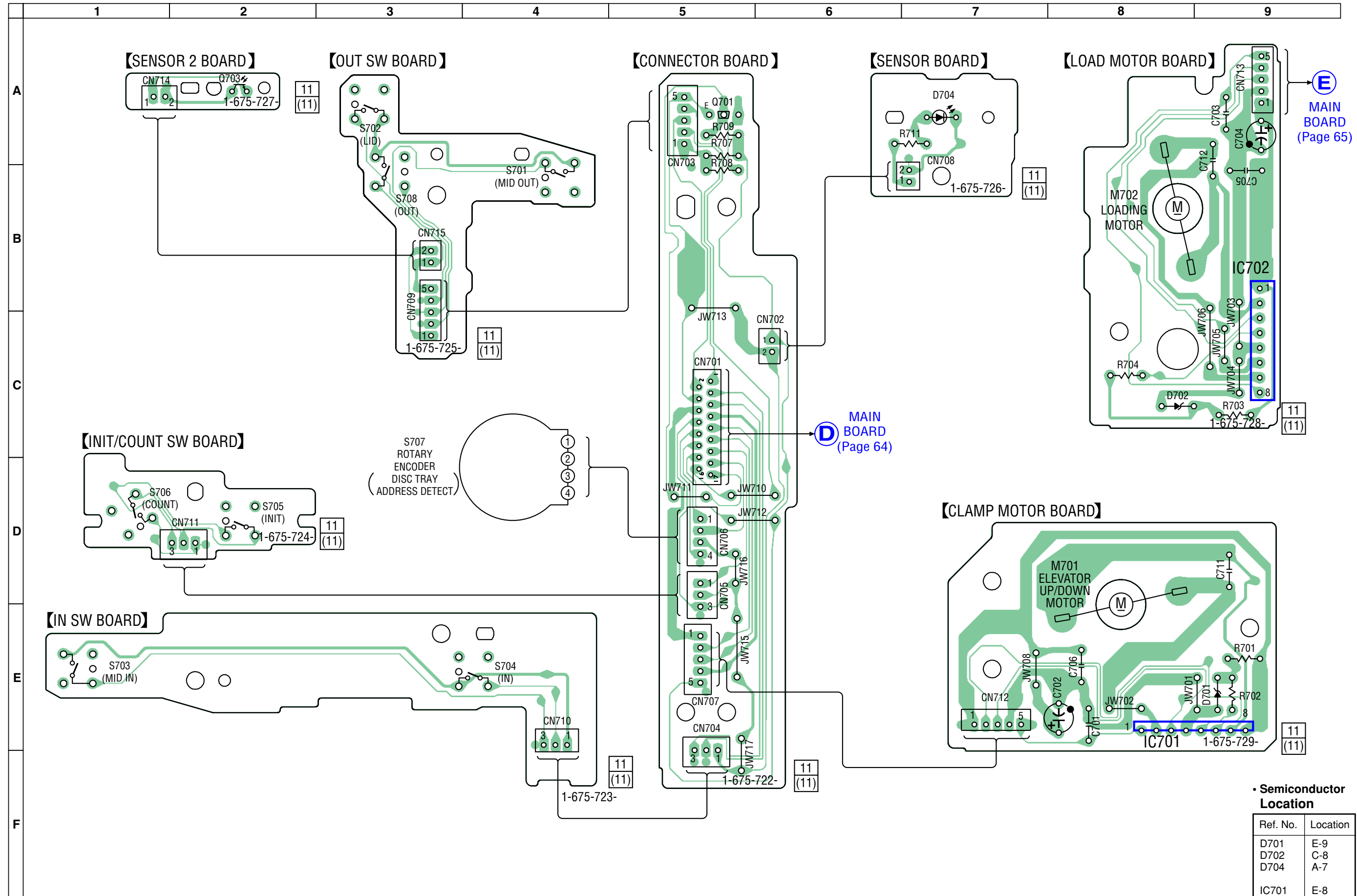
Ref. No.	Location
IC101	C-8
IC102	B-9
IC103	D-7
IC104	C-7
IC105	C-1
IC201	E-8
Q101	E-6

7-8. SCHEMATIC DIAGRAM – BD SECTION – • See page 72 for IC Pin Function Description.



MAIN BOARD (1/2) (Page 66)

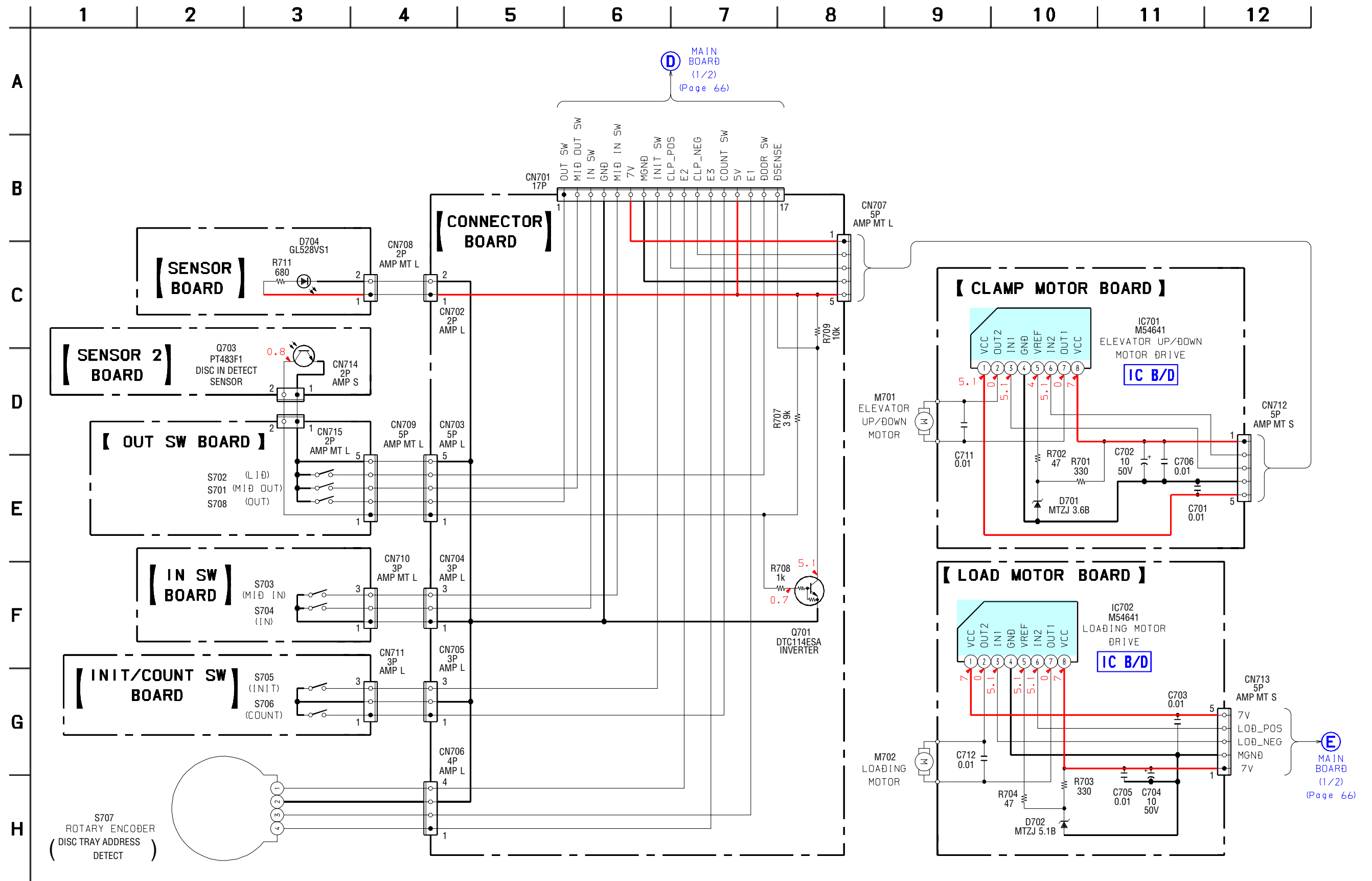
OPTICAL PICK-UP BLOCK (A-MAX.3)



• Semiconductor Location

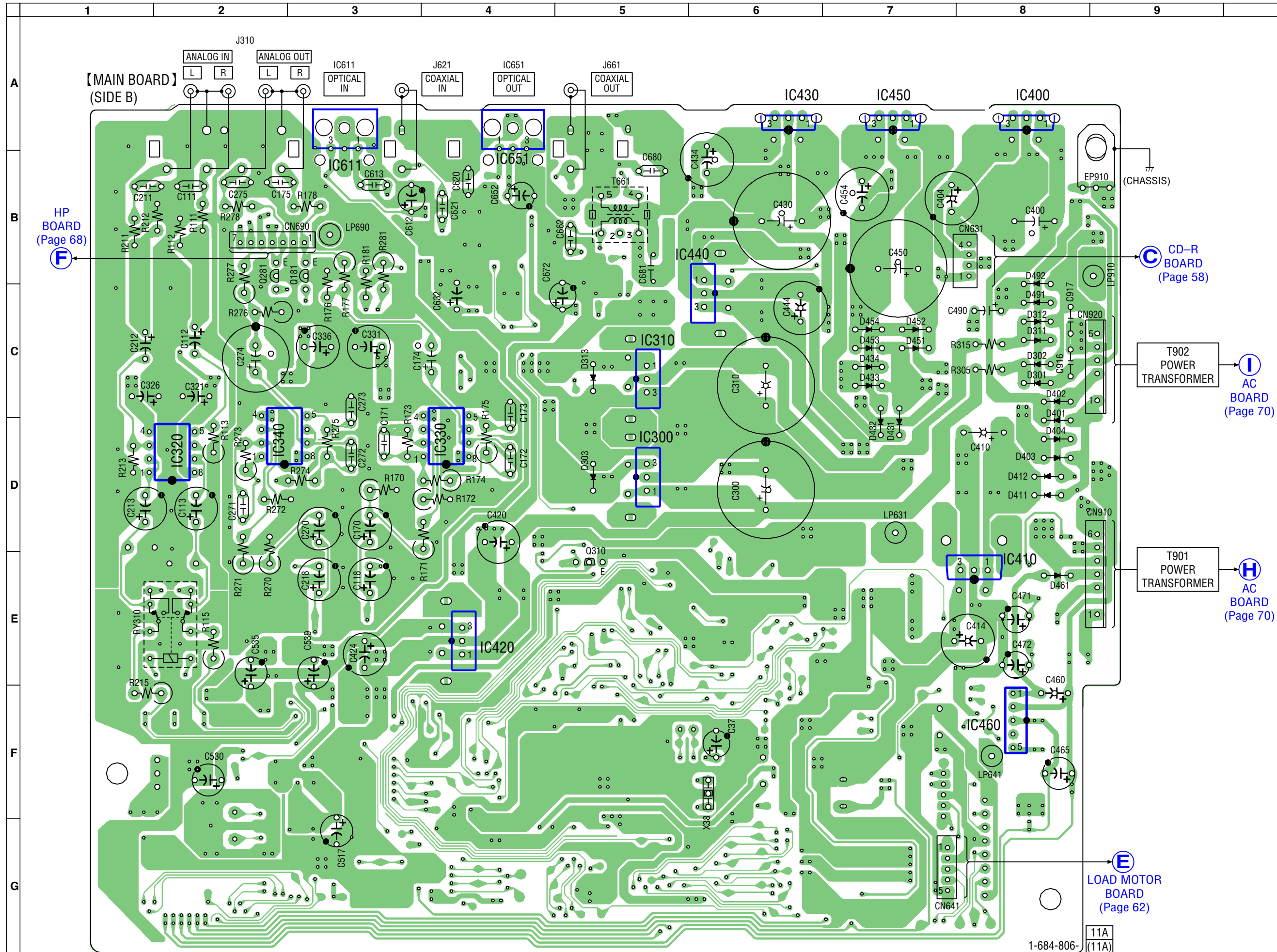
Ref. No.	Location
D701	E-9
D702	C-8
D704	A-7
IC701	E-8
IC702	B-9
Q701	A-5
Q703	A-2

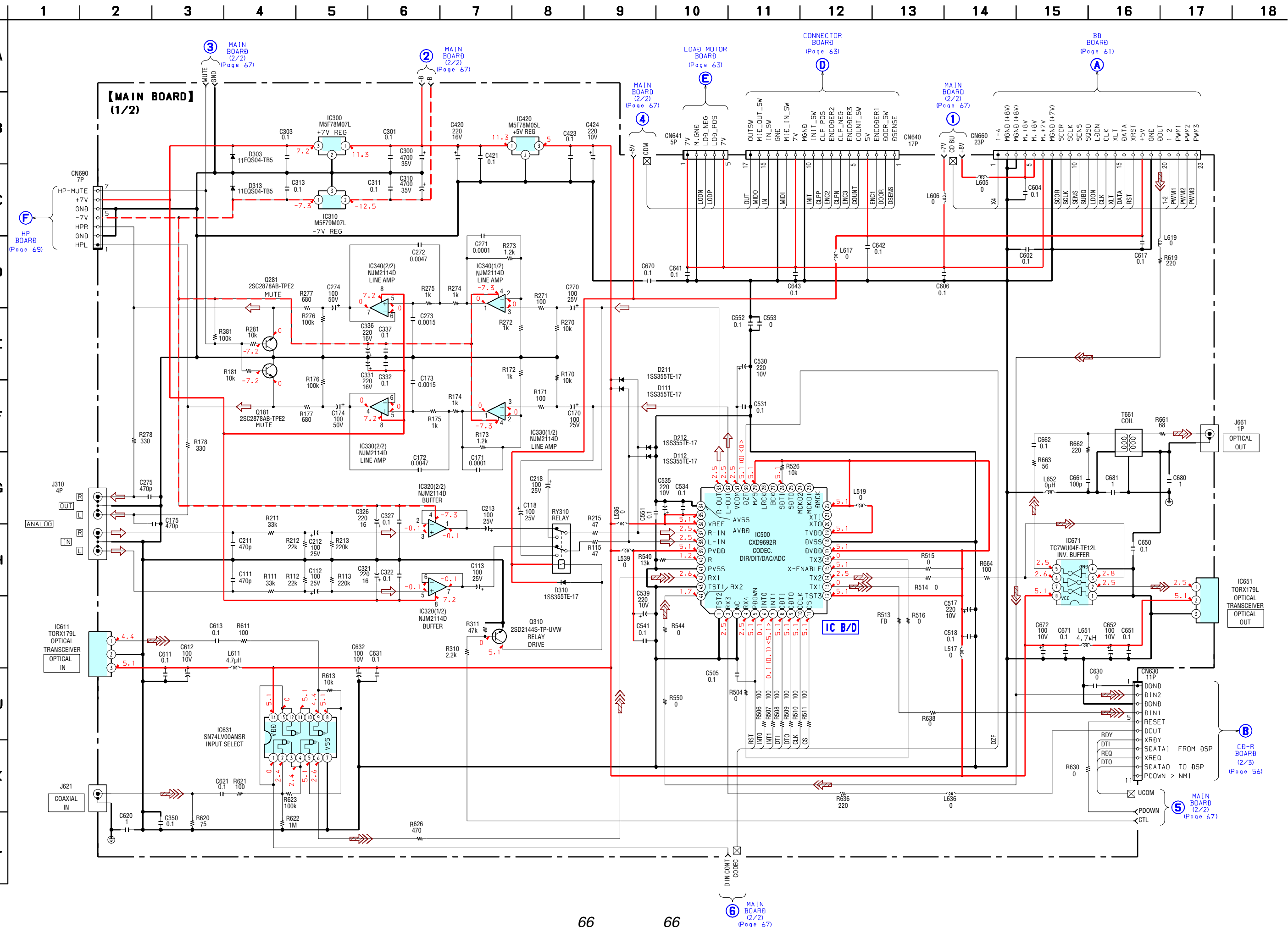
7-10. SCHEMATIC DIAGRAM – CDM SECTION –



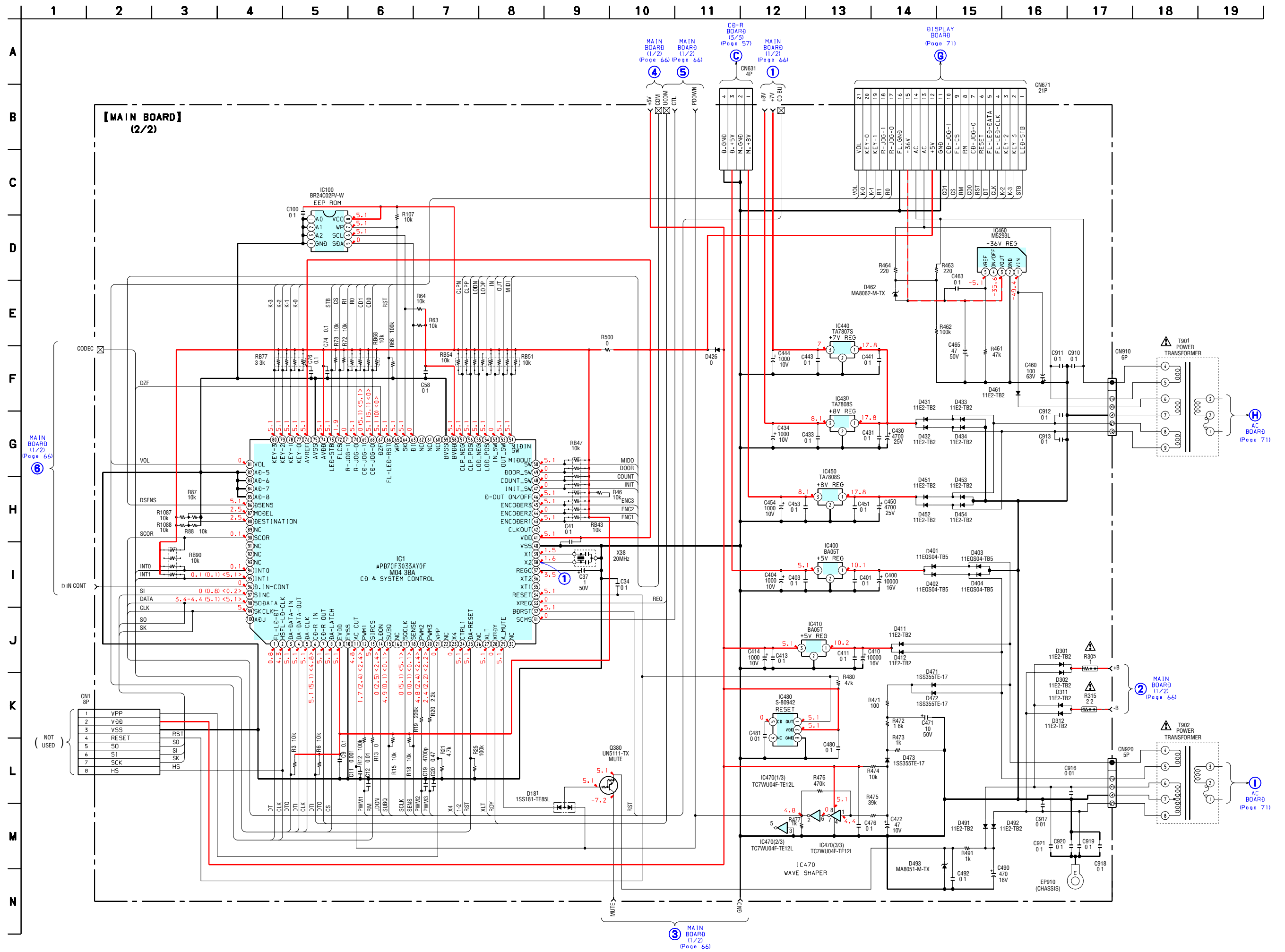
• Semiconductor Location

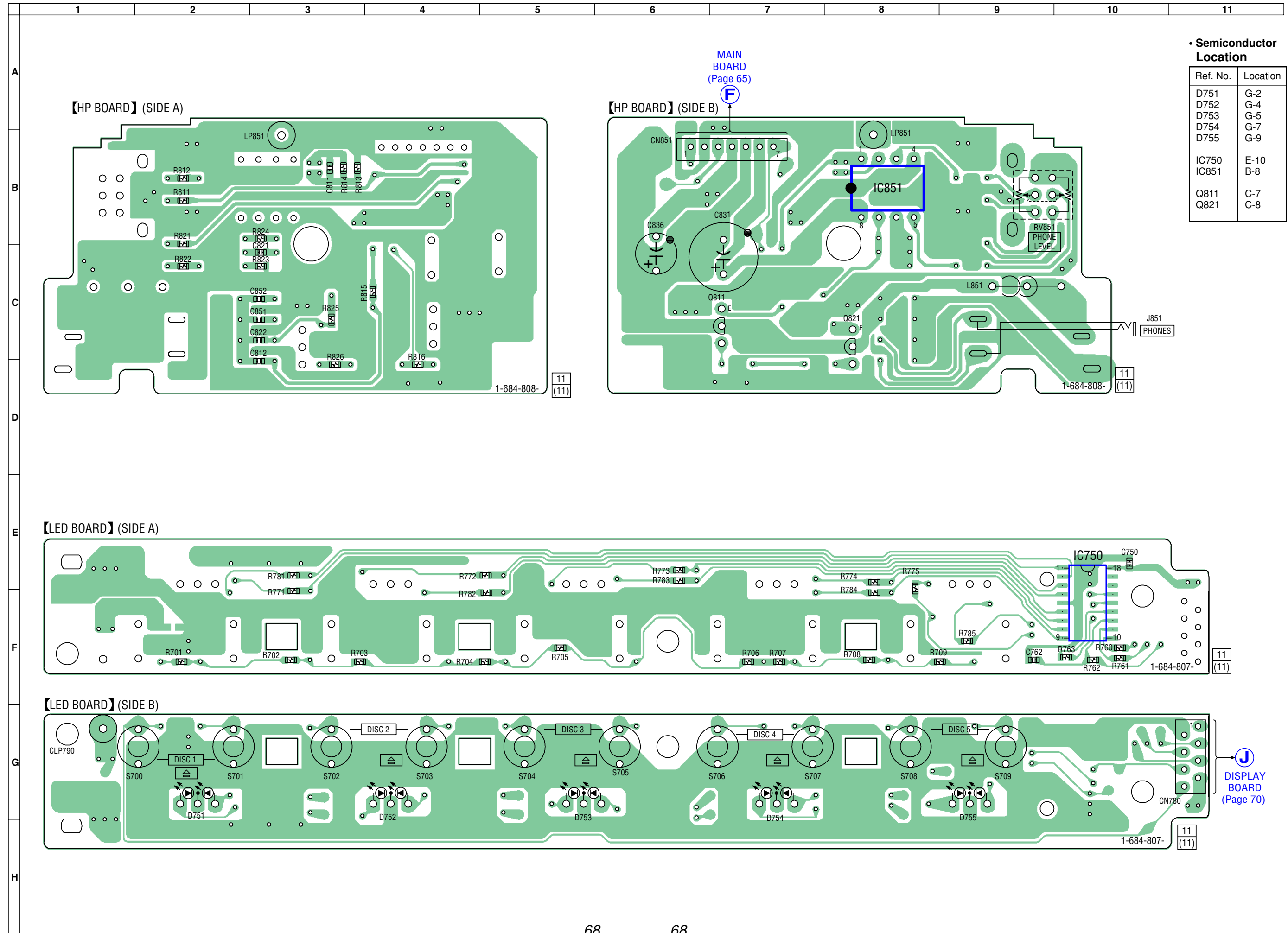
Ref. No.	Location
D301	C-8
D302	C-8
D303	D-5
D311	C-8
D312	C-8
D313	C-5
D401	C-8
D402	D-8
D403	D-8
D404	D-8
D411	D-8
D412	D-8
D431	D-7
D432	D-7
D433	C-7
D434	C-7
D451	C-7
D452	C-7
D453	C-7
D454	C-7
D461	E-8
D491	C-8
D492	C-8
IC300	D-5
IC310	C-5
IC320	D-2
IC330	D-4
IC340	D-2
IC400	A-8
IC410	E-8
IC420	E-4
IC430	A-6
IC440	B-6
IC450	A-7
IC460	F-8
IC611	A-3
IC651	A-4
Q181	B-3
Q281	B-2
Q310	E-5





7-13. SCHEMATIC DIAGRAM – MAIN (2/2) SECTION – See page 73 for IC Pin Function Description.

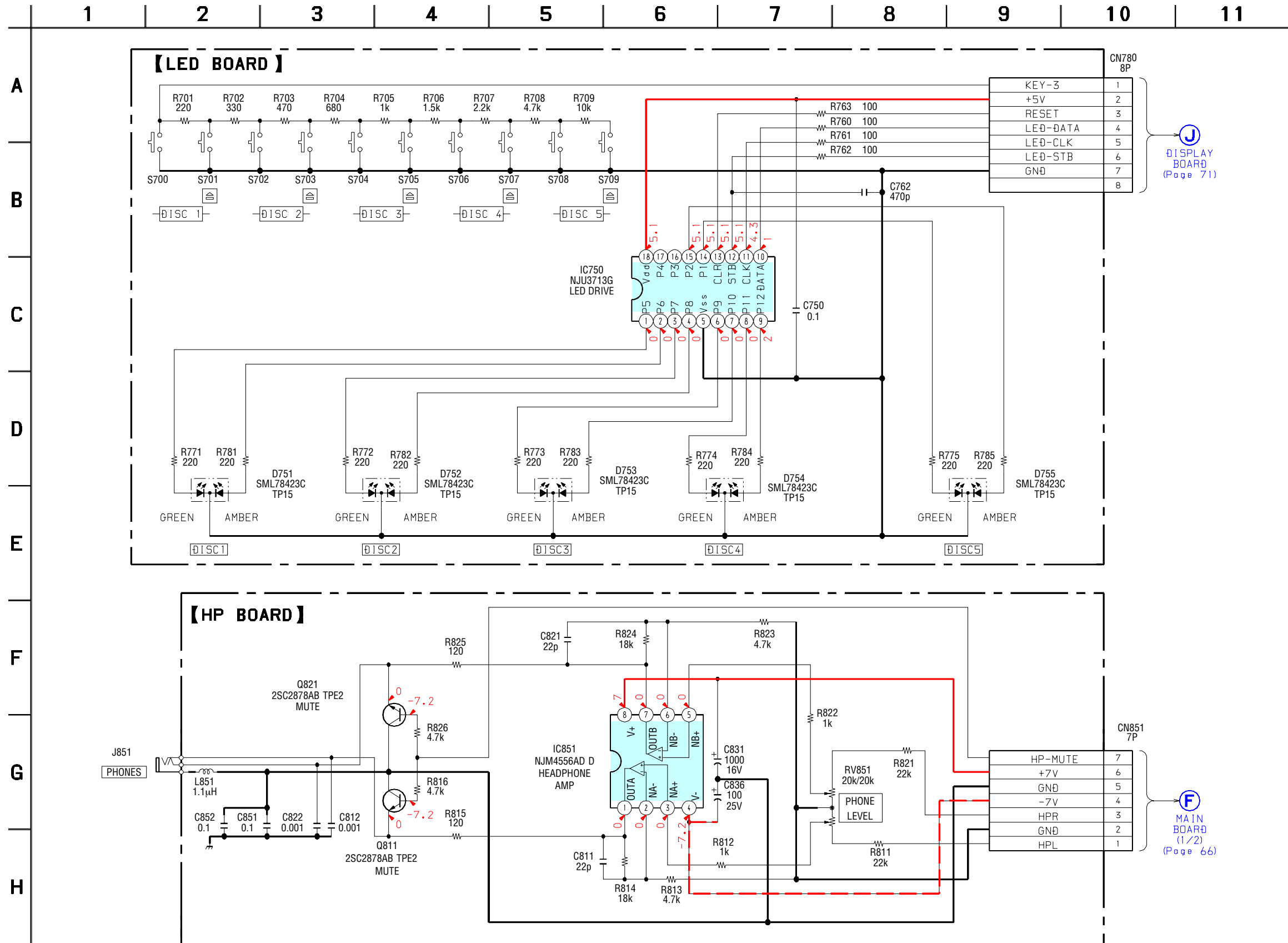




• Semiconductor Location

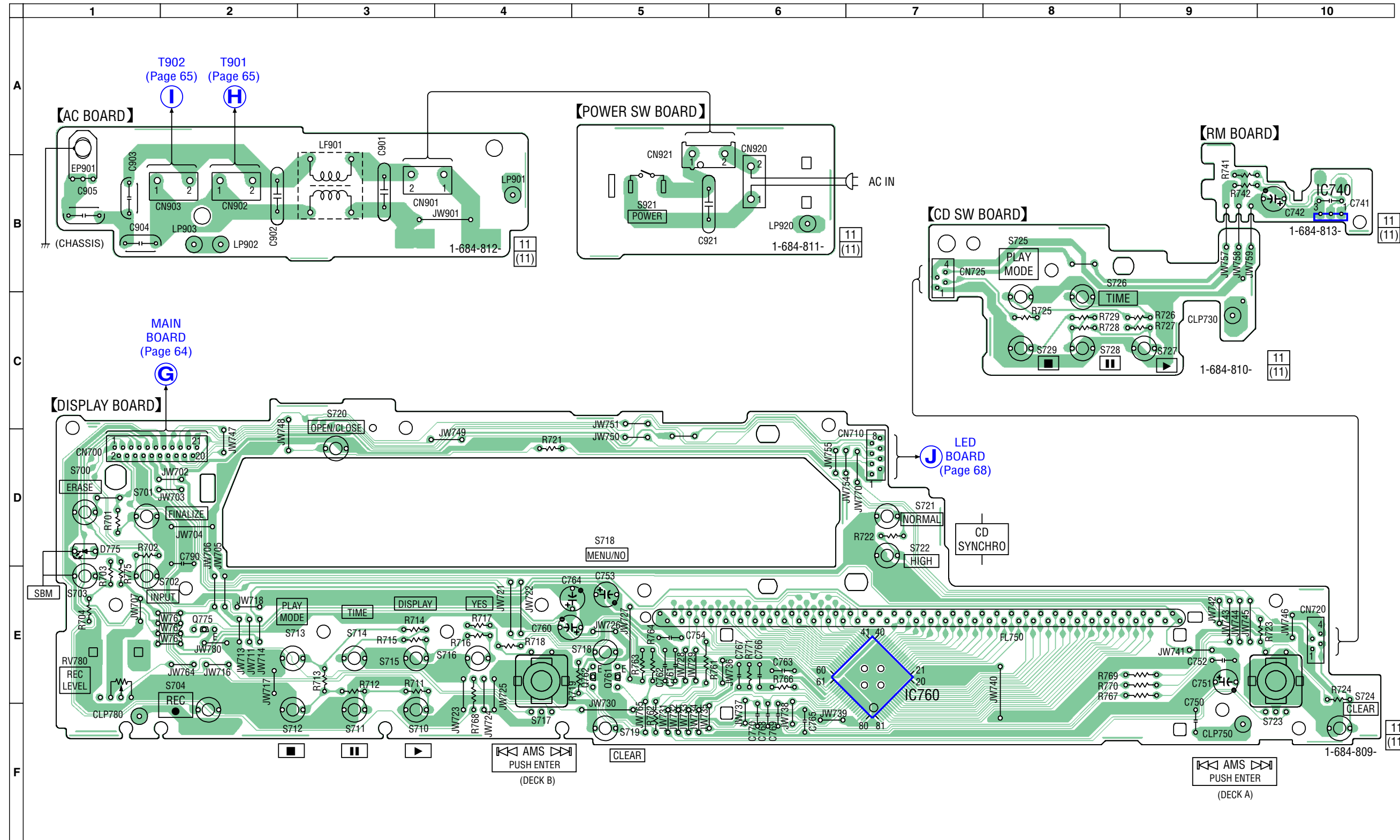
Ref. No.	Location
D751	G-2
D752	G-4
D753	G-5
D754	G-7
D755	G-9
IC750	E-10
IC851	B-8
Q811	C-7
Q821	C-8

7-15. SCHEMATIC DIAGRAM – LED, HP SECTION –



RCD-W222ES

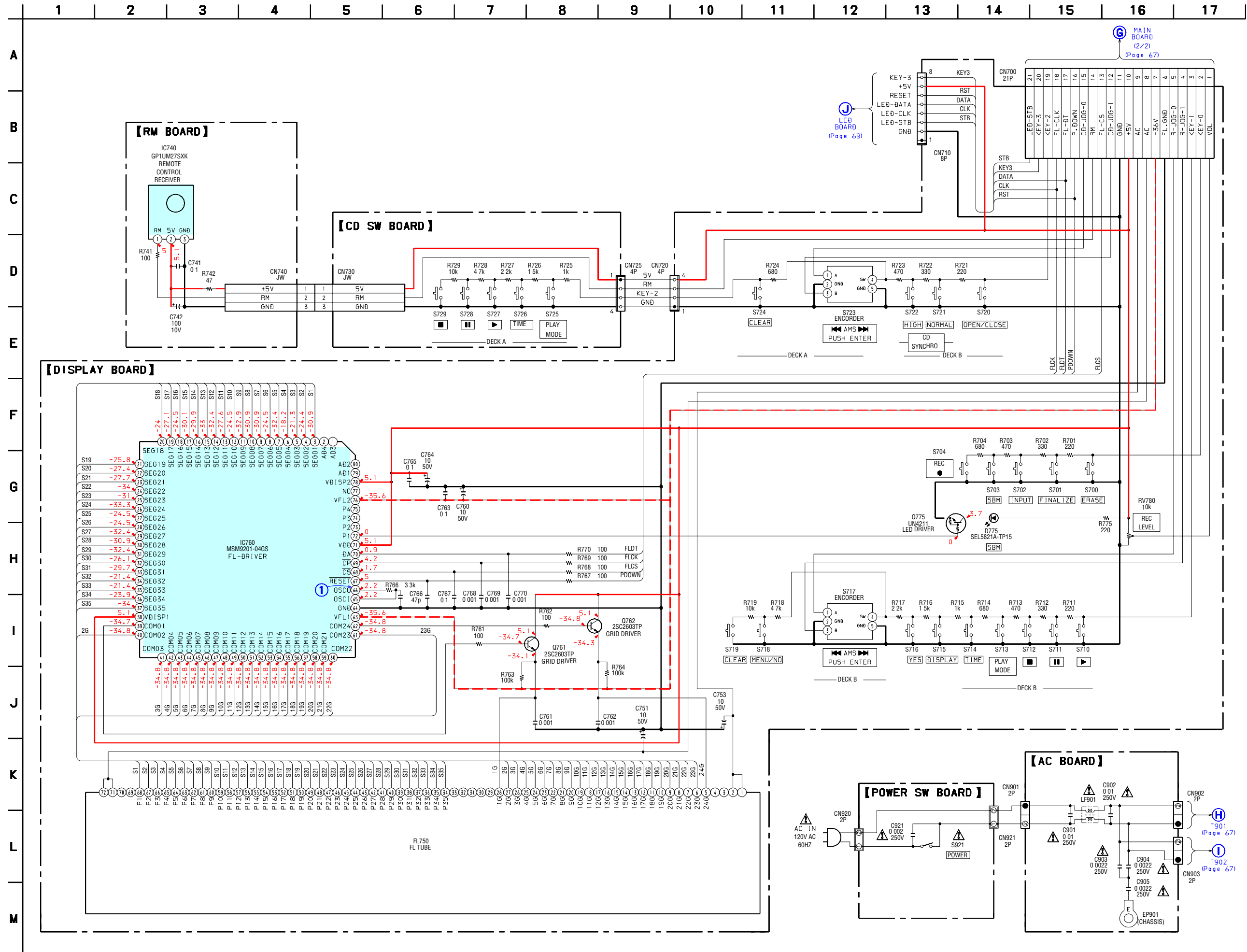
7-16. PRINTED WIRING BOARD – DISPLAY, POWER SECTION – • See page 51 for Circuit Boards Location.



• Semiconductor Location

Ref. No.	Location
D775	D-1
IC740	B-10
IC760	E-7
Q761	E-5
Q762	E-5
Q775	E-2

7-17. SCHEMATIC DIAGRAM – DISPLAY, POWER SECTION –



7-18. IC PIN FUNCTION DESCRIPTION

• IC101 CXD3068Q (DIGITAL SERVO, DIGITAL SIGNAL PROCESSOR) (BD Board)

Pin No.	Pin Name	I/O	Description
1	DVDD0	—	Power supply (+3.3V)
2	XRST	I	System reset signal input
3	MUTE	I	Muting selection input (Connected to ground)
4	DATA	I	Serial data input from μPD703033AYGF
5	XLAT	I	Latch signal input from μPD703033AYGF
6	CLOK	I	Serial data transfer clock input from μPD703033AYGF
7	SENS	O	SENS signal output
8	SCLK	I	SENS serial data read-out clock input
9	ATSK	I	Anti-shock input (Connected to ground)
10	WFCK	O	WFCK (Write Frame Clock) output (Not used)
11	XUGF	O	XUGF output (Not used)
12	XPCK	O	XPCK output (Not used)
13	GFS	O	GFS output (Not used)
14	C2PO	O	C2PO output (Not used)
15	SCOR	O	Sub-code sync signal output
16	CM4	O	4.2336MHz output (Not used)
17	WDCK	O	D/A interface word clock output (Not used)
18	DVSS	—	Ground
19	COUT	O	Numbers of track counted signal output (Not used)
20	MIRR	O	Mirror signal output (Not used)
21	DFCT	O	Defect signal output (Not used)
22	FOK	O	Focus OK signal output (Not used)
23	PWM1	I	Not used (Connected to ground)
24	LOCK	I/O	Not used
25	MDP	O	Spindle motor control signal output
26	SSTP	I	Detect disc inner most trak signal input
27	FST0	O	Not used
28	DVDD1	—	Power supply (+3.3V)
29	SFDR	O	Sled motor control signal output
30	SRDR	O	
31	TFDR	O	Tracking coil drive signal output
32	TRDR	O	
33	FFDR	O	Focus coil drive signal output
34	FRDR	O	
35	DVSS1	—	Ground
36	TEST	I	Not used (Connected to ground)
37	TES1	I	
38	VC	I	Center voltage input
39	FE	I	Focus error signal input
40	SE	I	Sled error signal input

Pin No.	Pin Name	I/O	Description
41	TE	I	Tracking error signal input
42	CE	I	Center servo analog input
43	RFDC	I	RF signal input
44	ADI0	O	Not used (Open)
45	AVSS0	—	Ground
46	IGEN	I	OP AMP constant current input
47	AVDD	—	Power supply (+3.3V)
48	ASYO	O	EFM full swing output
49	ASYI	I	Asymmetry compare voltage input
50	RFAC	I	EFM signal input
51	AVSS1	—	Ground
52	CLTV	I	Control voltage input for μPD703033AYGF
53	FILO	O	Filter output for master PLL
54	FILI	I	Filter input for master PLL
55	PCO	O	Charge-pump output for master PLL
56	AVDD1	—	Power supply (+3.3V)
57	BIAS	I	Asymmetry circuit constant current input
58	VCTL	I	Control voltage input for variable pitch PLL
59	V16M	O	16.9344MHz clock output (Not used)
60	VPCO	O	Charge-pump output for variable pitch PLL
61	DVDD2	—	Power supply (+3.3V)
62	ASYE	I	Asymmetry circuit ON/OFF input (Connected to VDD)
63	MD2	I	Digital-out ON/OFF control input (Connected to VDD)
64	DOUT	O	Digital-out output
65	LRCK	O	D/A interface, LR clock output (Not used)
66	PCMD	O	D/A interface, Serial data output (Not used)
67	BCLK	O	D/A interface, bit clock output (Not used)
68	EMPH	O	Not used (Open)
69	XTSL	I	X'tal selection signal input
70	DVSS2	—	Ground
71	XTAI	I	X'tal oscillator input
72	XTAO	O	X'tal oscillator output
73	SOUT	O	Not used (Open)
74	SOCK	O	
75	XOCT	O	
76	SQSO	O	Sub-Q serial data output
77	SQCK	I	SQSO read-out clock input
78	SCSY	I	Sub-code input (Connected to ground)
79	SBSO	O	Sub-P through Sub-W serial output (Not used)
80	EXCR	I	SBSO read-out Clock input (Not used)

• IC1 μ PD70F3033AYGF-M04-3BA (SYSTEM CONTROL) (MAIN BOARD)

Pin No.	Pin Name	I/O	Description
1	FL-LD-DT	O	FL/LED driver data output
2	[HS] FL-LD-CLK	O	FL/LED driver data clock output
3	DA-DATA-IN	I	Serial data input from CXD9692R
4	DA-DATA-OUT	O	Serial data output to CXD9692R
5	DA-CLK	O	Clock output to CXD9692R
6	CD-R IN	I	CD-R control data input from HD64F3064BFBL25
7	CD-R OUT	O	CD-R control data output to HD64F3064BFBL25
8	DA-LATCH	O	Data latch signal output to CXD9692R
9	EVDD	—	Power supply (+5V)
10	EVSS	—	Ground
11	AC CUT	I	AC cut signal input
12	PWM1	O	PWM signal output for FE (focus error)
13	SIRCS	I	SIRCS signal input
14	LDON	O	Laser ON signal output
15	SUBQ	I	Sub-Q serial data input
16	NC	O	Not used (open)
17	SQCLK	O	Sub code Q clock output
18	SENSE	I	SENSE signal input from CXD3068Q
19	PWM2	O	PWM signal output for TE (tracking error)
20	PWM3	O	PWM signal output for RFDC
21	VPP	I	VPP input at flash program
22	NC	O	Not used (open)
23	X4	O	Four times set signal output for disc speed
24	CTRL1	O	Four times set signal output for disc speed
25	DA-RESET	O	Reset signal output to CXD9692R
26	NC	—	Not used (open)
27	XLT	O	Serial data latch signal output to CXD30689Q
28	XRDY	I	RDY signal input from HD64F3064BFBL25
29	A_MUTE	O	Line out mute signal output
30	NC	—	Not used (open)
31	SCMS	O	Line in select signal output
32	BDRST	O	Reset signal output to CXD3068Q
33	XREQ	O	Data REQ signal output HD64F3064BFBL25
34	RESET	I	System reset signal input
35	XT1	I	Not used (open)
36	XT2	O	Not used (open)
37	REGC	—	Connected to ground with capacitor of regulator
38	X2	O	Crystal oscillator output (20MHz)
39	X1	I	Crystal oscillator input (20MHz)
40	VSS	—	Ground
41	VDD	—	Power supply (+5V)
42	CLKOUT	O	Not used (open)
43	ENCODER1	I	Encoder address signal input from disc tray
44	ENCODER2	I	Encoder address signal input from disc tray
45	ENCODER3	I	Encoder address signal input from disc tray
46	D-OUT ON/OFF	I	Not used (pull up)
47	INIT_SW	I	INIT detect signal input
48	COUNT_SW	I	COUNT detect signal input
49	DOOR_SW	I	Tray lid open detect signal input

Pin No.	Pin Name	I/O	Description
50	MIDOUT_SW	I	MIDOUT detect signal input
51	MIDIN SW	I	MIDIN detect signal input
52	OUT_SW	I	Tray out detect signal input
53	IN SW	I	Tray in detect signal input
54	LOD_POS	O	Loading motor control signal output
55	LOD_NEG	O	Loading motor control signal output
56	CLP_POS	O	Elevator up/down control signal output
57	CLP_NEG	O	Elevator up/down control signal output
58	BVDD	—	Power supply (+5V)
59	BVSS	—	Ground
60 to 62	NC	—	Not used (open)
63	DI	I/O	Data input/output for BR24C02FV-M
64	SK	O	Clock output for BR24C02FV-M
65	WP	O	Write protect signal output for BR24C02FV-M
66	FL-LED-RST	O	FL/LED driver reset signal output
67	DZC	I	Zero data detect input from CXD9692R
68	CD-JOG-0	I	CD-JOG encoder signal input
69	CD-JOG-1	I	CD-JOG encoder signal input
70	R-JOG-0	I	CD-R-JOG encoder signal input
71	R-JOG-1	I	CD-R-JOG encoder signal input
72	FLCS	O	FL driver chip select signal output
73	LED-STB	O	LED driver strobe signal output
74	AVDD	—	Power supply (+5V)
75	AVSS	—	Ground
76	AVREF	I	ADC reference voltage input
77	KEY-0	I	Key data input (A/D input)
78	KEY-1	I	Key data input (A/D input)
79	KEY-2	I	Key data input (A/D input)
80	KEY-3	I	Key data input (A/D input)
81	VOL	I	Analog recording volume level input (A/D input)
82 to 85	AD-5 to AD-8	I	Not used (connected to ground)
86	DSSENS	I	Disc in detect signal input
87	MODE	I	MODE input
88	DESTINATION	I	DESTINATION input
89	NC	—	Not used (open)
90	SCOR	I	Sub code sync detect input from CXD3068Q
91 to 93	NC	—	Not used (open)
94	INT0	I	INT signal input from CXD9692R
95	INT1	I	INTO signal input from CXD9692R
96	D.IN-CONT	O	Digital input select signal output
97	SI NC	I	Serial data input
98	SO DATA	O	Serial data output
99	SK CLK	O	Serial clock output
100	ADJ	I	ADJ mode select terminal

• IC201 LC89587-UK1-E CD DECODER/ENCODER, ATIP-DEMODULATOR, TTIP-DECODE/CLV-SERVO, WRITE STRATAGE, DIGITAL AUDIO I/F (CD-R BOARD)

Pin No.	Pin Name	I/O	Description
1	DVSS	—	Ground
2 to 7	RA4 to RA9	O	Address output for RAM
8	DVDD (DRAMVDD)	—	Power supply (+3.3V)
9	DVSS	—	Ground
10 to 15	IO0 to IO5	I/O	Data input/output for RAM
16	DVDD (3.3V)	—	Power supply (+3.3V)
17	DVSS	—	Ground
18 to 21	IO6 to IO9	I/O	Data input/output for RAM
22	DVDD (DRAMVDD)	—	Power supply (+3.3V)
23	CVSS	—	Ground
24 to 29	IO10 to IO15	I/O	Data input/output for RAM
30	MON1 (FEMG)	O	LD write signal output
31	MON2 (ATIPCRC/PCK/DATA)	O	Not used (open)
32	MON3 (CDETR/CK2)	O	Not used (open)
33	MON4 (EMP/LRCK)	O	Not used (open)
34	DVDD	—	Power supply (+5V)
35	DVSS	—	Ground
36	TEST0 (ENCERR)	I	Not used (pull up)
37	TEST1	I	Not used (pull up)
38	TEST2 (RESERVED)	I	Not used (pull up)
39	WRITE	I	Write strategy control signal input
40	SSP2	O	Servo sampling pulse output to AK8567
41	SSP1	O	Servo sampling pulse output to AK8567
42	RAPC/C2F	O	LD sampling pulse output to AK8567
43	WAPC	O	LD sampling pulse output to AK8567
44	H11T0/FSEQ	O	OPC sampling pulse output to AK8567
45	LDH/WRQ	O	Not used (open)
46	ATEST3	O	LD write control signal output
47	ATEST1 (WRITEEFM)	O	Not used (open)
48	WDAT	O	LD write control signal output
49	NWDAT	O	LD write control signal output
50	DVDD	—	Power supply (+5V)
51	DVSS	—	Ground
52	AVDD	—	Power supply (+3.3V)
53	AVSS	—	Ground
54	R1	I	Not used (pull up)
55	VCNT1	I	Write strategy signal input
56	DCN1	I	Not used (open)
57	PD1	O	Write strategy signal output
58	ZINT	O	Interrupt signal output to HD64F3064BFBL25
59 to 66	D0 to D7	I/O	System data to HD64F3064BFBL25
67	SRSTNBY	I	Not used (connected to AVDD)
68	AVDD (3.3VSRAM)	—	Power supply (+3.3V)
69	AVSS	—	Ground
70 to 77	SUA0 to SUA7	I	Address input from HD64F3064BFBL25
78	ZRD	I	Read signal input from HD64F3064BFBL25
79	ZCS	I	Chip select signal input from HD64F3064BFBL25
80	ZWR	I	Write signal input from HD64F3064BFBL25
81	ZRESET	I	Reset signal input from HD64F3064BFBL25

Pin No.	Pin Name	I/O	Description
82	DVDD (5VD)	—	Power supply (+5V)
83	DVSS	—	Ground
84	DVDD (3.3VD)	—	Power supply (+3.3V)
85	DVSS	—	Ground
86	AVDD (3.3VA)	—	Power supply (+3.3V)
87	AVSS	—	Ground
88	SLCIST1	I	EFM slice level set input
89	SLCIST2	I	EFM slice level set input
90	SLCO0	O	EFM slice level output
91	SLCO1	O	Not used (open)
92	SLCO2	O	Not used (open)
93	SLCO3	O	Not used (open)
94	EFMIN	I	EFM signal input to AK8567
95	EFMIN2	I	Not used (open)
96	DSL B	O	Not used (open)
97	JITIN	I	Jitter signal input
98	JITC	O	Jitter signal output
99	RPO	O	P/N balance adj.terminal
100	OPP	I	P/N balance adj.terminal
101	PCKISTF	I	Charge pump set input
102	PCKISTP	I	Charge pump set input
103	PD0	O	Charge pump filter output
104	AVDD (3.3VA)	—	Power supply (+3.3V)
105	AVSS	—	Ground
106	PDS1	O	Not used (open)
107	PDS2	O	Not used (open)
108	PDS3	O	Not used (open)
109	FR	I	VCO frequency set input
110	AD0	I	ADC input (not used)
111	RREC	I	FOK signal input from AK8567
112	FE	I	FE signal input from AK8567
113	TE	I	TE signal input from AK8567
114	VREF	I	ADC reference voltage input (+2.5V)
115	AD1	I	ADC input (not used)
116	AVDD (SERVO 5V)	—	Power supply (+5V)
117	AVSS	—	Ground
118,119	DA0,DA1	O	Not used (open)
120	DVDD (DIGITAL 3.3V)	—	Power supply (+3.3V)
121	DVSS	—	Ground
122	DA2	O	DA output
123	TDO	O	Tracking servo signal output
124	FDO	O	Focus servo signal output
125	SLDO	O	Sled servo signal output
126	SPDO	O	Spindle servo signal output
127	SUBSYNC	O	Sub code SYNC output to HD64F3064BFBL25
128	ZRFDET	I	Not used (connected to VDD)
129	DEFECT/FSX/SHOCK	O	Not used (open)
130	LOCK	O	Not used (open)
131	DEF	I	Defect detect signal input form AK8567
132	HFL (MIRR)	I	Mirror detect signal input from AK8567

Pin No.	Pin Name	I/O	Description
133	TES	I	TES comparator signal input from AK8567
134	EFMO (RFNG/EFLG/EFMO)	O	Not used (open)
135	LDON	O	LD control signal output
136	FG	I	SPFG signal input from LB11698H
137	PCK2 (34MHz)	O	PICK clock output to AK8567
138	DODD (5VD)	—	Power supply (+5V)
139	DOSS	—	Ground
140	ATIPSYNC	O	ATIP sync signal output to LB11698H
141	BIDATA	I/O	Not used (pull down)
142	BICLK	I/O	Not used (pull down)
143	WOBBLE	I	ATFG signal input to AK8567
144	JITTER	O	Not used (open)
145	JITPCO	O	PLL PH output
146	JITLPPF1	I	PLL LPF input
147	JITLPPF0	O	PLL LPF output
148	JITVCON	I	PLL VCO clock input
149	AVSS	—	Ground
150	AVDD (CJS 3.3V)	—	Power supply (+3.3V)
151	DIRRS	I	VCO gain control input
152	DIRVCO	I	VCO OSC control input
153	DIRLPF	O	Loop filter set output
154	AVDD	—	Power supply (+3.3V)
155	AVSS	—	Ground
156	DVDD (5VD)	—	Power supply (+5V)
157	DVSS	—	Ground
158	DIRERR	O	Not used (open)
159	DIN1	I	Digital data input
160	DIN2	I	Digital data input
161	DIN3	I	Not used (connected ground)
162	DIN4	I	Not used (connected ground)
163	DACCKOUT	O	Not used (open)
164	ENCKOUT	O	Not used (open)
165	CDCKOUT	O	Not used (open)
166	AUXMCKIN	I	Not used (pull down)
167	XTALCK	I	Crystal oscillator input (33.8688MHz)
168	XTAL	O	Crystal oscillator output (33.8688MHz)
169	PDO0	O	Charge pump output
170	VCNTO	I	VCO control input
171	RD	I	VCO bias resistor terminal
172	AVDD (CLOCK3.3V)	—	Power supply (+3.3V)
173	AVSS	—	Ground
174	TEST4 (ADCKOUT)	—	Not used (pull down)
175	ROUT	O	Audio R output (for check)
176	AVDD	—	Power supply (+5V)
177	AVSS	—	Ground
178	LOUT	O	Audio L output (for check)
179	DACDATA	O	Not used (open)
180	DACLK	O	Not used (open)
181	DACBCK	O	Not used (open)
182	DVDD (3.3VD)	—	Power supply (+3.3V)

Pin No.	Pin Name	I/O	Description
183	DVSS	—	Ground
184	ADCDATA	I	Not used (pull down)
185	ADCBCK	O	Not used (open)
186	ADCLRCK	O	Not used (open)
187	AUXDATA	I	Not used (pull down)
188	AUXBCK	I	Not used (connected ground)
189	AUXLRCK	I	Not used (connected ground)
190	DVDD (5VD)	—	Power supply (+5V)
191	DVSS	—	Ground
192	ADCSTBY	O	Not used (open)
193	AUXTX	I	Not used (connected ground)
194	DITOUT	O	DIT data outout
195	TEST3 (EXTDACEMP)	I/O	Not used (pull down)
196	SBDATA	I/O	Not used (pull down)
197	CLCK	I/O	Not used (pull down)
198	SFSY	I/O	Not used (pull down)
199	SBSY	I/O	Not used (pull down)
200	ZRAS	O	RAS signal output for RAM
201	ZCAS	O	CAS signal output for RAM
202	ZWE	O	Write signal output for RAM
203	ZOE	O	Out enable signal output for RAM
204 to 207	RA0 to RA3	O	Address output for RAM
208	DVDD (DRAMVDD)	—	Power supply (+3.3V)

• IC501 HD64F3064BFBL25 CD-R REC/PB CONTROL (CD-R BOARD)

Pin No.	Pin Name	I/O	Description
1	VCL	—	Not used (Connected to ground with capacitor)
2	XCSCDR	O	Chip select signal output to LC89587-UK1-E
3 to 5	NU	I	Not used (pull up)
6	XRSTRFP	O	Reset signal output to AK8567
7	XREQI	I	Data REQ signal input from uPD703033AYGF
8	XRDYO	O	RDY signal output to uPD703033AYGF
9	XRSTCDR	O	Reset signal output to LC89587-UK1-E
10	FEW	I	Write enable signal input
11	VSS	—	Ground
12	SDATAO	O	Serial data output to AK8567 and EEPROM
13	SDATAO(HOST)	O	Serial data output to uPD703033AYGF
14	SDATAI(PROM)	I	Serial data input from EEPROM
15	SDATAI(HOST)	I	Serial data input from uPD703033AYGF
16	SCLKO	O	Serial clock output to AK8567 and EEPROM
17	SUB_SYNC	I	Sub sync signal input from LC89587-UK1-E
18	RSBETA	O	Reset signal output to AK8567
19,20	NU	—	Not used (pull up)
21	MIRR/XRC	O	Mirror signal output
22	VSS	—	Ground
23	AGCON	O	AGC enable signal output to AK8567
24	XRW/R	O	CD-RW/CD-R select signal output to AK8567
25	VRDSW	O	Read LD control signal output to AK8567
26	VWDSW	O	Write LD control signal output to AK8567
27 to 34	D8 to D15	I/O	System data input/output to LC89587-UK1-E
35	VCC	—	Power supply (+5V)
36 to 43	A0 to A7	O	Address output to LC89587-UK1-E
44	VSS	—	Ground
45 to 56	A8 to A19	O	Not used (pull up)
57	VSS	—	Ground
58	NU	I	Not used (pull up)
59	CS	O	Chip select signal output to EEPROM
60	XLAT	O	Latch signal output to AK8567
61	ATIPSYNC	I	ATIP sync signal input from LC89587-UK1-E
62	XSTBY	I	Not used (pull up)
63	XREST	I	System reset input
64	XP.DOWN	I	AC cut (power down) signal input
65	VSS	—	Ground
66	EXTAL	I	Crystal oscillator input (20MHz)
67	XTAL	O	Crystal oscillator output (20MHz)
68	VCC	—	Power supply (+5V)
69	XAS	O	Not used (pull up)
70	XRD	O	Data read signal output to LC89587-UK1-E
71	XHWR	O	Data write signal output to LC89587-UK1-E
72	XLWR	O	Not used (pull up)
73	MD0 (H)	I	Mode selector (high) input
74	MD1 (L)	I	Mode selector (low) input
75	MD2	I	Mode selector (high) input
76	AVCC	—	Power supply (+5V)
77	AVREF	I	A/D reference voltage input (+5V)
78	KEY	I	Key scan input
79	BCENT	I	Center signal input from AK8567

RCD-W222ES

Pin No.	Pin Name	I/O	Description
80	PHBETA	I	Beta signal top level input from AK8567
81	BHBETA	I	Beta signal bottom level input from AK8567
82	VREF	I	Reference voltage input (+2.5V) from AK8567
83	MPX	I	Monitor signal multiplex input from AK8567
84	TMP	I	Thermometer signal input
85	VWDC2	O	Write LD control signal output
86	AVSS	—	Ground
87	XINTCDR	I	Interrupt signal input from LC89587-UK1-E
88	RECD	I	CD recoding area detect signal input from AK8567
89	XTAND	I	Tracking off detect signal input from AK8567
90	SPFG	I	SPFG signal input from LB11698H
91	XIN/EXT	I	EXT data detect signal input
92	VSS	—	Ground
93	SLFG	I	SLFG signal input
94	TZC	I	Tracking zero cross detect signal input from AK8567
95	SPFG	I	SPFG signal input from LB11698H
96	XMMUTE	O	Spindle motor control signal output
97	INSW	I	Loading in limit switch signal input
98	OUTSW	I	Loading out limit switch signal input
99	REV	O	Loading motor control signal output
100	FWD	O	Loading motor control signal output

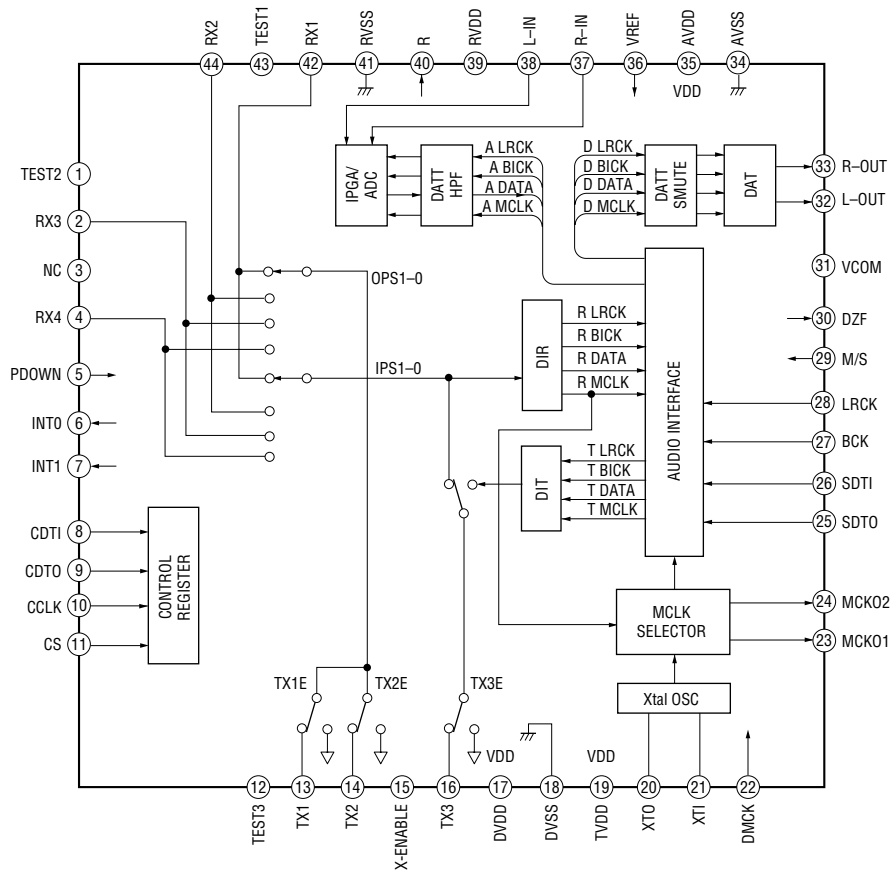
• IC101 AK8567 (S/H,RF EQUALIZER,APC,SERVO) (CD-R BOARD)

Pin No.	Pin Name	I/O	Description
1	AVDD3	—	Power supply (+5V)
2	BCENT	O	Center signal output
3	PHBETA	O	Data signal top level output to HD64F3064BFBL25
4	BHBETA	O	Data signal bottom level output to HD64F3064BFBL25
5	PHBTC	O	Not used (Connected to ground with capacitor)
6	BHBTC	O	Not used (Connected to ground with capacitor)
7	MPP	O	Not used (open)
8	TEIN	I	TE (tracking error) signal input
9	TE	O	TE (tracking error) signal output
10	FE	O	FE (focus error) signal output
11	SBAD	O	Not used (open)
12	TZCLVL	I	Not used (Connected to ground with capacitor)
13	VREF	I	Reference voltage input (+2.5V)
14	AGND1	O	Not used (Connected to ground with capacitor)
15	BIAS	O	Bias setting terminal (Connected to ground with resister)
16	VSS	—	Ground
17	FVREF	I	APC reference voltage input (+2.5V)
18	FPDO	I	LD monitor voltage input
19	RREF	I/O	Not used (Connected to ground with capacitor)
20	VRDC	O	Read LD control signal output
21	VRDCN	I	Read LD control AMP (-) input
22	VRDCN2	I	Read LD control time constant setting input
23	WREF	I/O	Not used (Connected to ground with capacitor)
24	WDAO	O	Not used (open)
25	AVDD2	—	Power supply (+5V)
26	AVSS2	—	Ground
27	VWDC	O	Write LD control signal output
28	VWDCN2	I	Write LD control time constant setting input
29	VWDCN	I	Write LD control AMP (-) input
30	ATFM	O	Not used (open)
31	AGC1C	O	AGC time constant setting terminal
32	AGC2C	O	AGC time constant setting terminal
33	AGC3C	O	AGC time constant setting terminal
34	AGND2	O	AGC time constant setting terminal
35	VSS	—	Ground
36	SGAINDN	I	Gain setting input
37	GAINUP	I	CD-RW select signal input
38	AGCON	I	Wobble AGC enable signal input
39	ATFG	O	ATIP FG signal output
40	XTOR	O	Not used (open)
41	XTAND	O	Tracking off detect signal output
42	TZC	O	Tracking zero cross detect signal output
43	RECD2	O	CD recoding area detect signal output
44	RECD1	O	Not used (open)
45	RC	O	RC signal output
46	DFCT	O	DFCT signal output
47	MIRR	O	MIRR signal output
48	MCLK1	I	Main clock input from LC89587-UK1-E
49	MCLK2	I	Not used (Connected to ground)
50	DVSS	—	Ground
51	DVDD	—	Power supply (+5V)

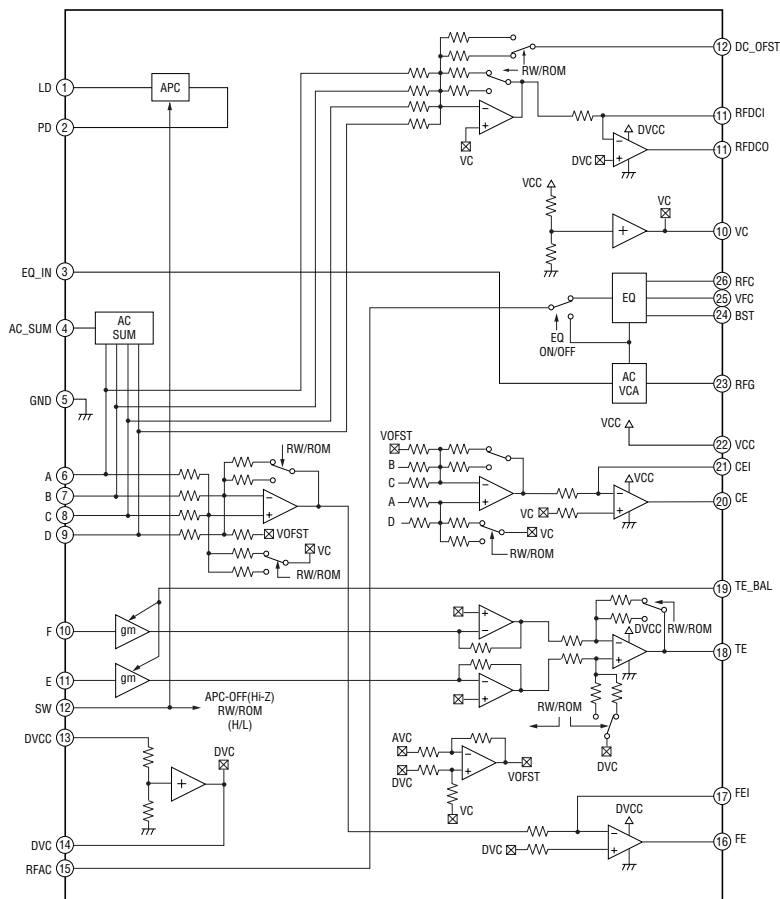
Pin No.	Pin Name	I/O	Description
52	FOK	O	FOK signal output
53	RZC	O	Not used (open)
54	MPDSH	I	Servo sampling pulse input from LC89587-UK1-E
55	SPDSH	I	Servo sampling pulse input from LC89587-UK1-E
56	RFPDSH	I	Read APC sampling pulse signal input from LC89587-UK1-E
57	WFPDSH	I	Write APC sampling pulse signal input from LC89587-UK1-E
58	WLDON	I	Write LD control signal input from LC89587-UK1-E
59	RLDON	I	Read LD control signal input from LC89587-UK1-E
60	SPBLVL	I	BLEVEL sampling pulse input from LC89587-UK1-E
61	SPRFTR	I	WRFTR sampling pulse signal input from LC89587-UK1-E
62	VWDSW	I	Write LD control time constant setting input from HD64F3064BFBL25
63	VRDSW	I	Read LD control time constant setting input from HD64F3064BFBL25
64	RSBETA	I	Beta circuit reset signal input from HD64F3064BFBL25
65	SCLK	I	Register clock input from HD64F3064BFBL25
66	SDATA	I	Register data input from HD64F3064BFBL25
67	XLAT	I	Register latch signal input from HD64F3064BFBL25
68	XRST	I	Register reset signal input from HD64F3064BFBL25
69	VSS	—	Ground
70	OSTCC	O	Not used (Connected to ground with capacitor)
71	AGCC	O	RFAGC time constant setting terminal
72	PHD2C	O	Not used (Connected to ground with capacitor)
73	RCCMPI	I	RC detect comparator signal input
74	PBH0	O	Not used (open)
75	AVDD1	—	Power supply (+5V)
76	AVSS1	—	Ground
77	RRFTOP	O	Not used (open)
78	RRFBTM	O	Not used (open)
79	N.C.	—	Not used (open)
80	EQRF	O	EFM signal output to LC89587-UK1-E
81	N.C.	—	Not used (open)
82	AUX1	I	Not used (Connected to ground with capacitor)
83	AUX2	I	Monitor signal input
84	AUX3	I	Monitor signal input
85	MPXOUT	O	Monitor signal multiplex output to HD64F3064BFBL25
86	RRFVC(1V)	I	RRF level shift voltage input
87	RECDIN	I	Write RF signal input
88	RRF	O	Read RF signal output
89	WRF	O	Not used (open)
90	VSS	—	Ground
91	AIN	I	Optical pickup RF data (A) input
92	BIN	I	Optical pickup RF data (B) input
93	CIN	I	Optical pickup RF data (C) input
94	DIN	I	Optical pickup RF data (D) input
95	EIN	I	Optical pickup RF data (E) input
96	FIN	I	Optical pickup RF data (F) input
97	GIN	I	Optical pickup RF data (G) input
98	HIN	I	Optical pickup RF data (H) input
99	HAVC	I	Optical pickup RF data (I) input
100	AVSS3	—	Ground

7-19. IC BLOCK DIAGRAMS

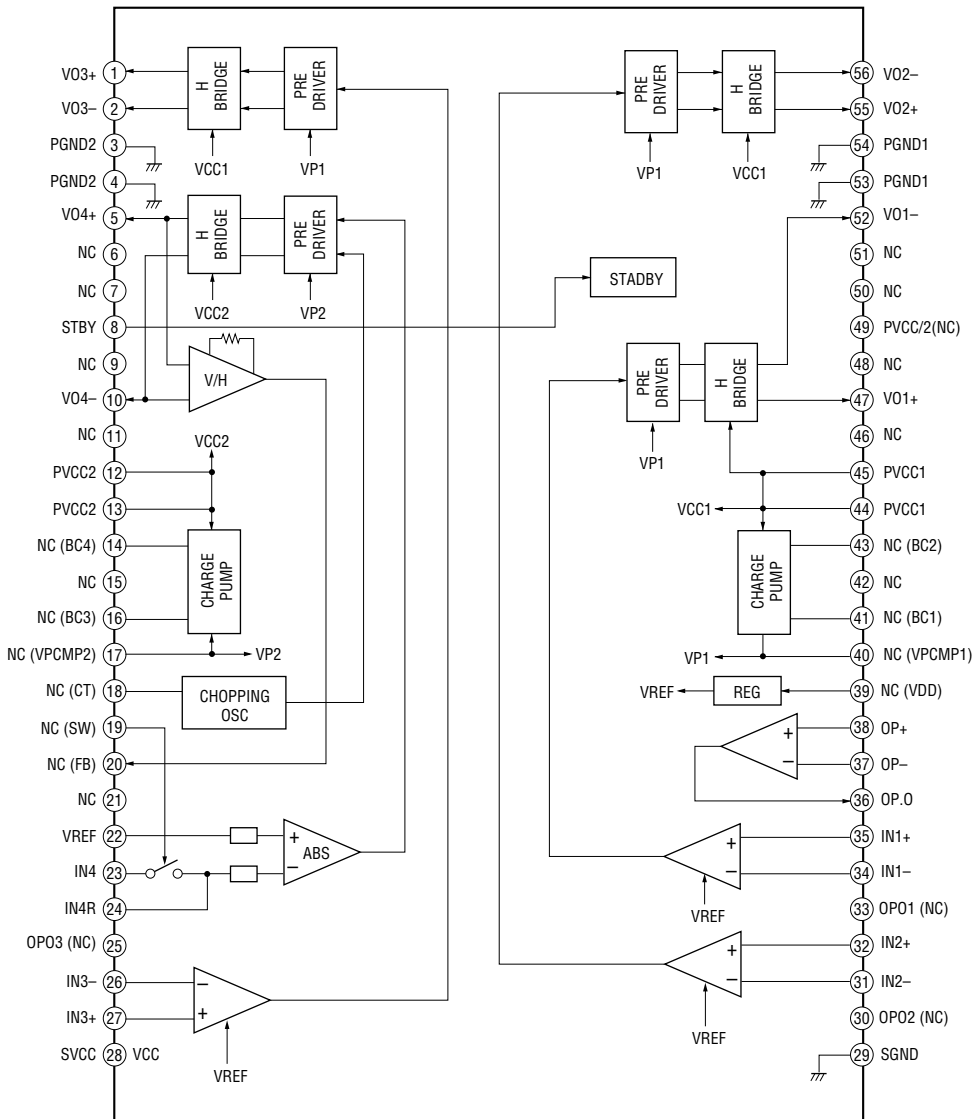
IC500 CXD9692R (MAIN BOARD)



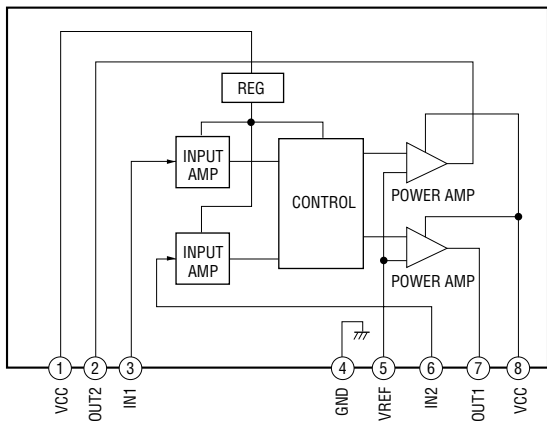
IC103 CXA2581N-T4 (BD BOARD)



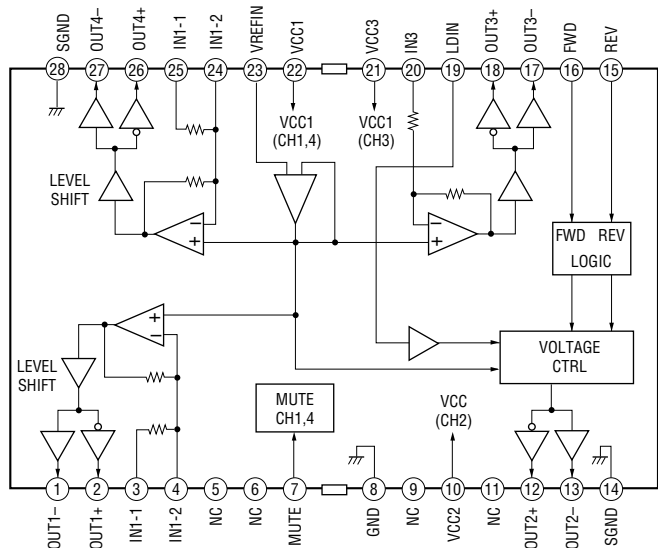
IC102 AN41050 (BD BOARD)



IC701 M54641L (CLAMP MOTOR BOARD)
 IC702 M54641L (LOADING MOTOR BOARD)



IC171 BA5937AFP-E2 (CD-R BOARD)



SECTION 8 EXPLODED VIEWS

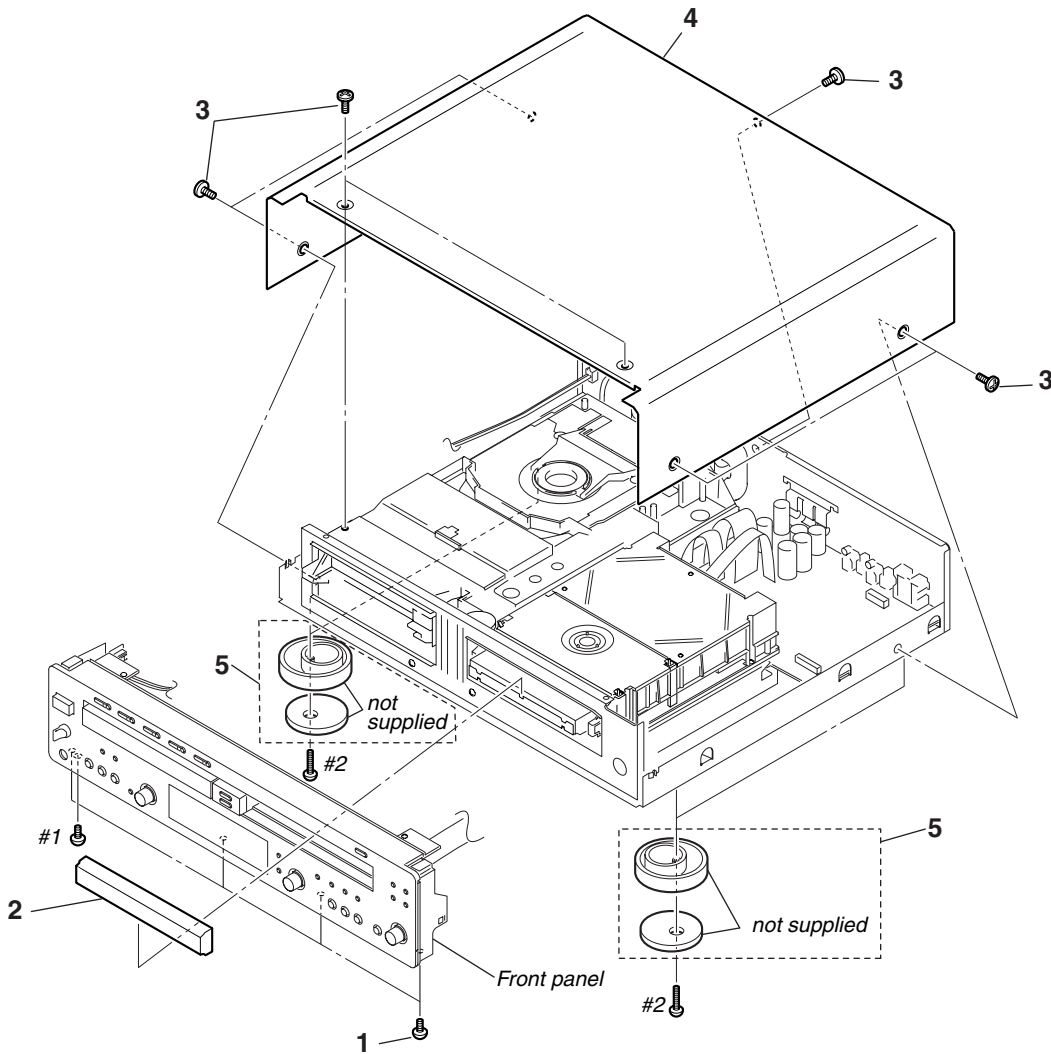
NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color indication of Appearance Parts
Example :
KNOB, BALANCE (WHITE) ••• (RED)
 ↑ ↑
 Parts color Cabinet's color

- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

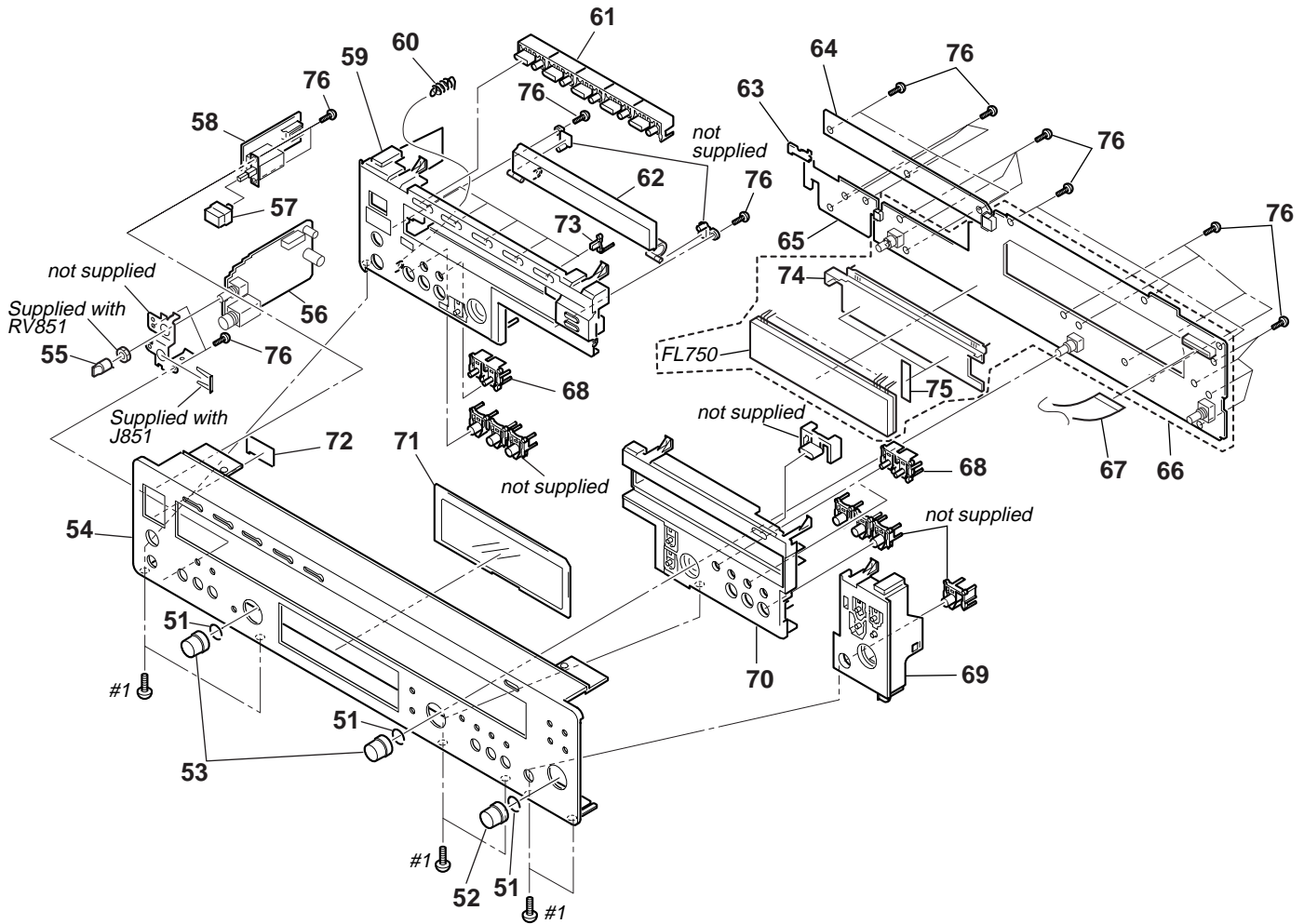
The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.

8-1. CASE SECTION



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
1	3-704-515-21	SCREW (BV/RING)		#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
2	4-240-483-01	PANEL, LOADING		#2	7-685-885-01	SCREW +BVTT 4X6(S)	
3	4-227-843-01	SCREW (TP), FLAT HEAD					
4	4-240-475-11	CASE					
5	X-4953-883-2	FOOT ASSY (F50180S)					

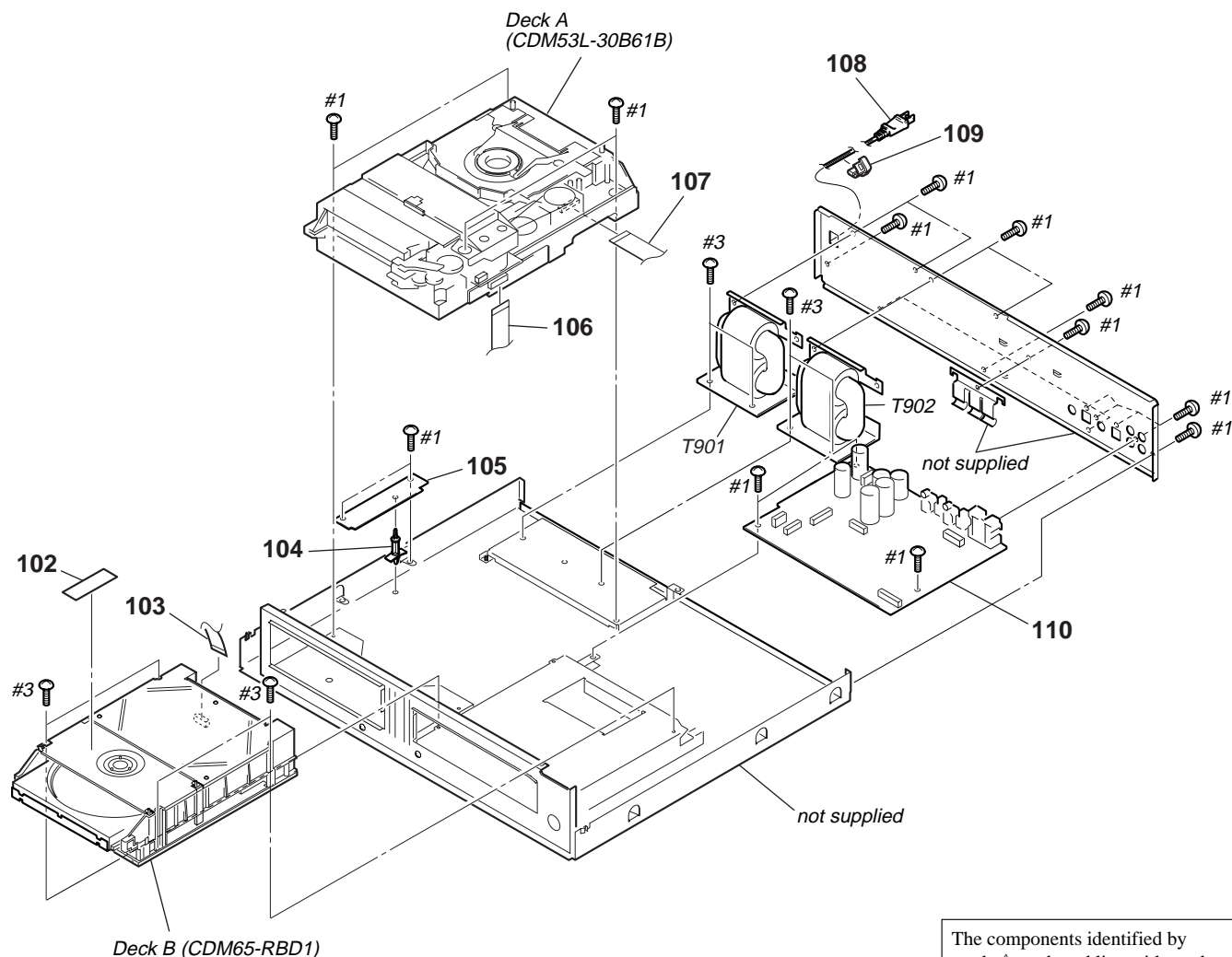
8-2. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remarks
51	3-354-981-11	SPRING (SUS), RING	
52	4-238-396-11	KNOB (AMS)	
53	4-238-396-01	KNOB (AMS)	
54	4-240-476-01	PANEL, FRONT	
55	3-931-378-51	KNOB (F10)	
56	A-4676-885-A	HP BOARD, COMPLETE	
57	4-917-460-41	KNOB, POWER	
58	1-684-811-11	POWER-SW BOARD	
59	4-240-478-01	BASE (L), PANEL	
60	4-240-490-01	SPRING (5CD), TENSION COIL	
61	4-240-485-01	BUTTON (5CD)	
62	4-240-481-01	LID (5CD)	
63	1-684-813-11	RM BOARD	
64	A-4676-879-A	LED BOARD, COMPLETE	
65	1-684-810-11	CD-SW BOARD	

Ref. No.	Part No.	Description	Remarks
66	A-4676-881-A	DISPLAY BOARD, COMPLETE	
67	1-823-923-11	WIRE (FLAT TYPE) (21 CORE)	
68	4-240-486-01	BUTTON (FUNC)	
69	4-240-480-01	BASE (R), PANEL	
70	4-240-479-01	BASE (M), PANEL	
71	4-240-488-01	WINDOW (FL)	
72	4-240-487-01	WINDOW (RM)	
73	4-240-484-01	INDICATOR (5CD)	
74	4-996-686-03	HOLDER (FL)	
75	4-949-935-41	CUSHION (FL)	
76	4-951-620-01	SCREW (2.6X8), +BVTP	
FL750	1-518-789-11	INDICATOR TUBE, FLUORESCENT	
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	

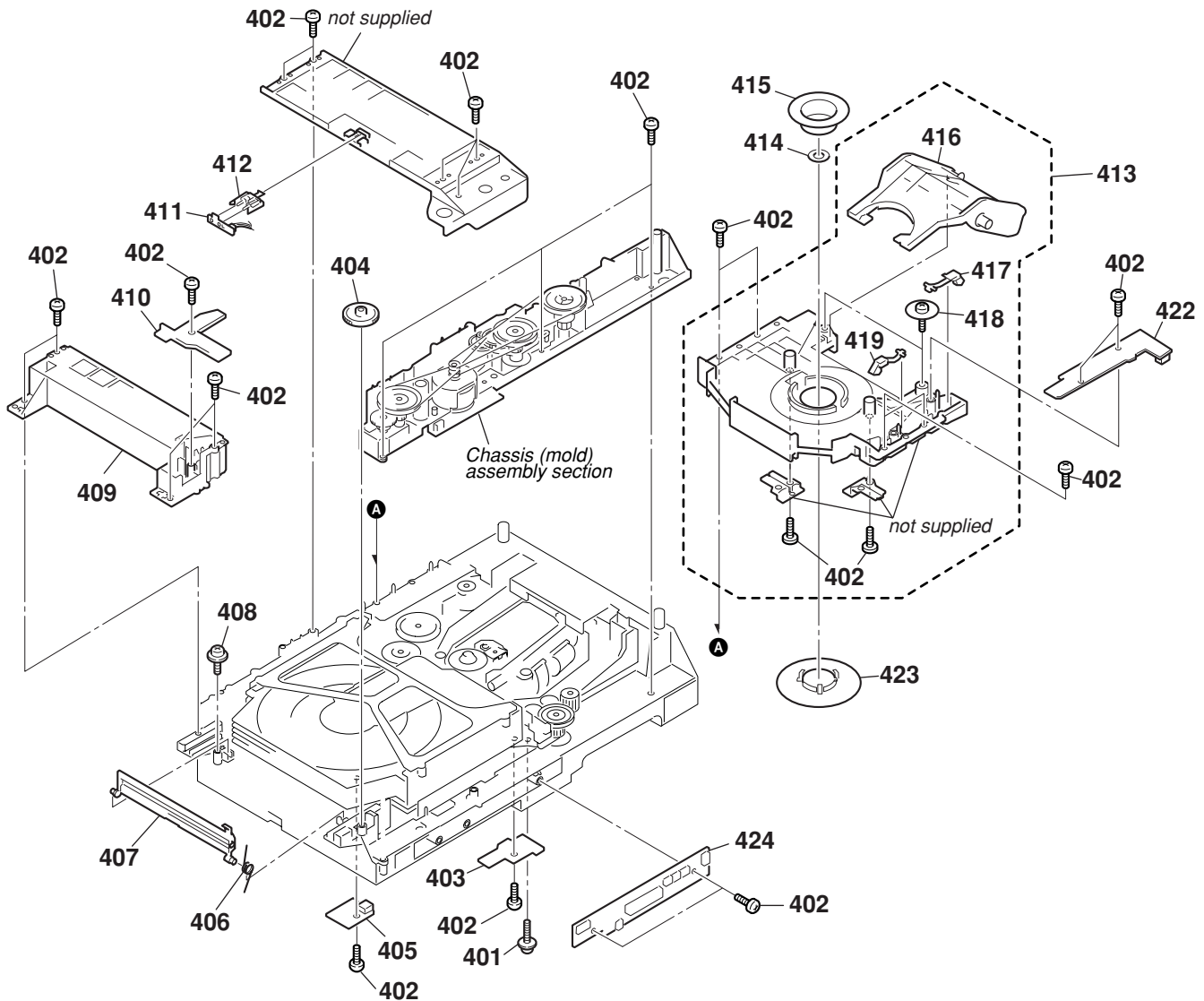
8-3. CHASSIS SECTION



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

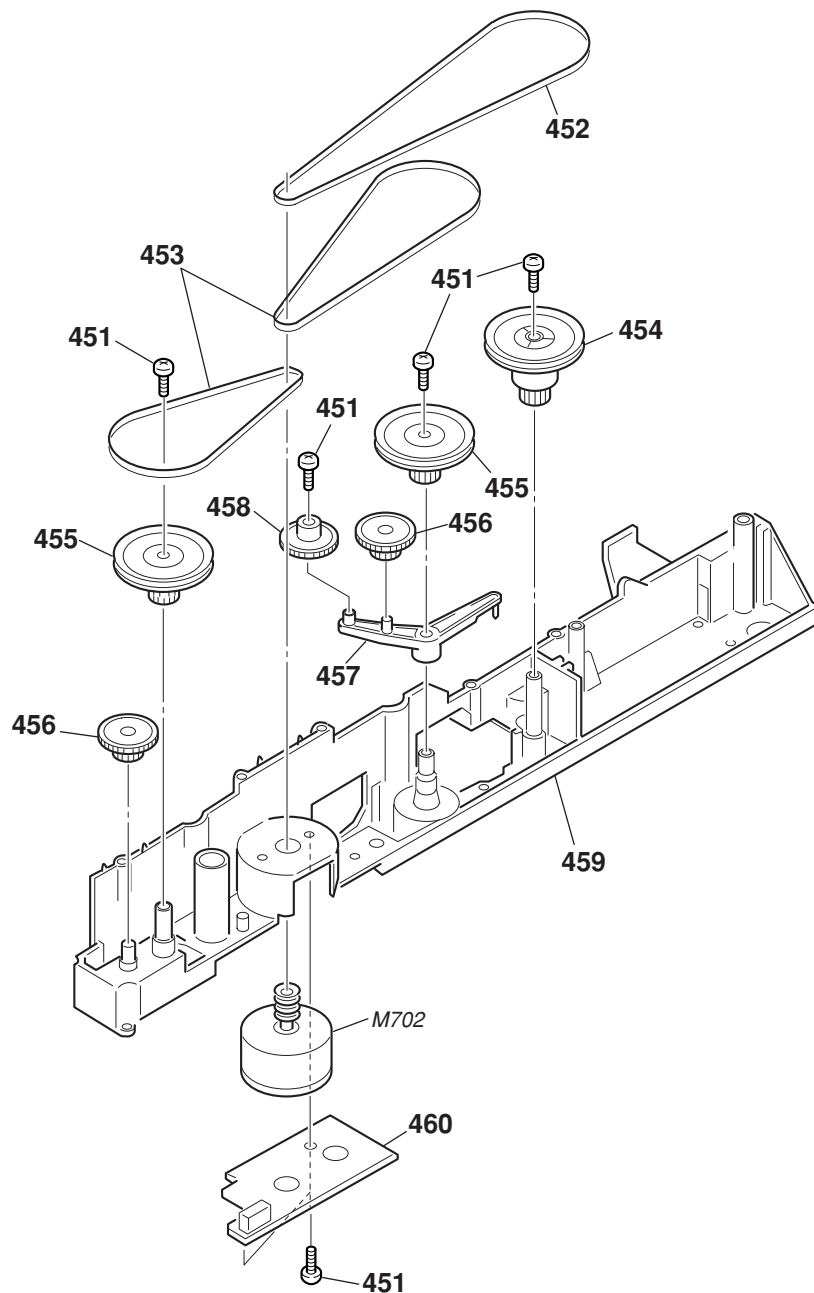
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
* 102	4-884-503-01	LABEL, CAUTION, LASER		* 109	3-703-244-00	BUSHING (2104), CORD	
103	1-823-922-11	WIRE (FLAT TYPE) (11 CORE)		110	A-4676-878-A	MAIN BOARD, COMPLETE	
* 104	4-954-051-51	HOLDER, PC BOARD		111	3-703-249-21	SCREW, S TIGHT, +PTTWH (M3X8)	
105	1-684-812-11	AC BOARD					
106	1-823-925-11	WIRE (FLAT TYPE) (17 CORE)		\triangle T901	1-437-791-11	TRANSFORMER, POWER	
107	1-823-924-11	WIRE (FLAT TYPE) (23 CORE)		\triangle T902	1-437-792-11	TRANSFORMER, POWER	
\triangle 108	1-790-154-31	CORD, POWER		#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
				#3	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3	

8-4. CD PLAY MECHANISM DECK SECTION (DECK A)-1
(CDM53L-30B61B)



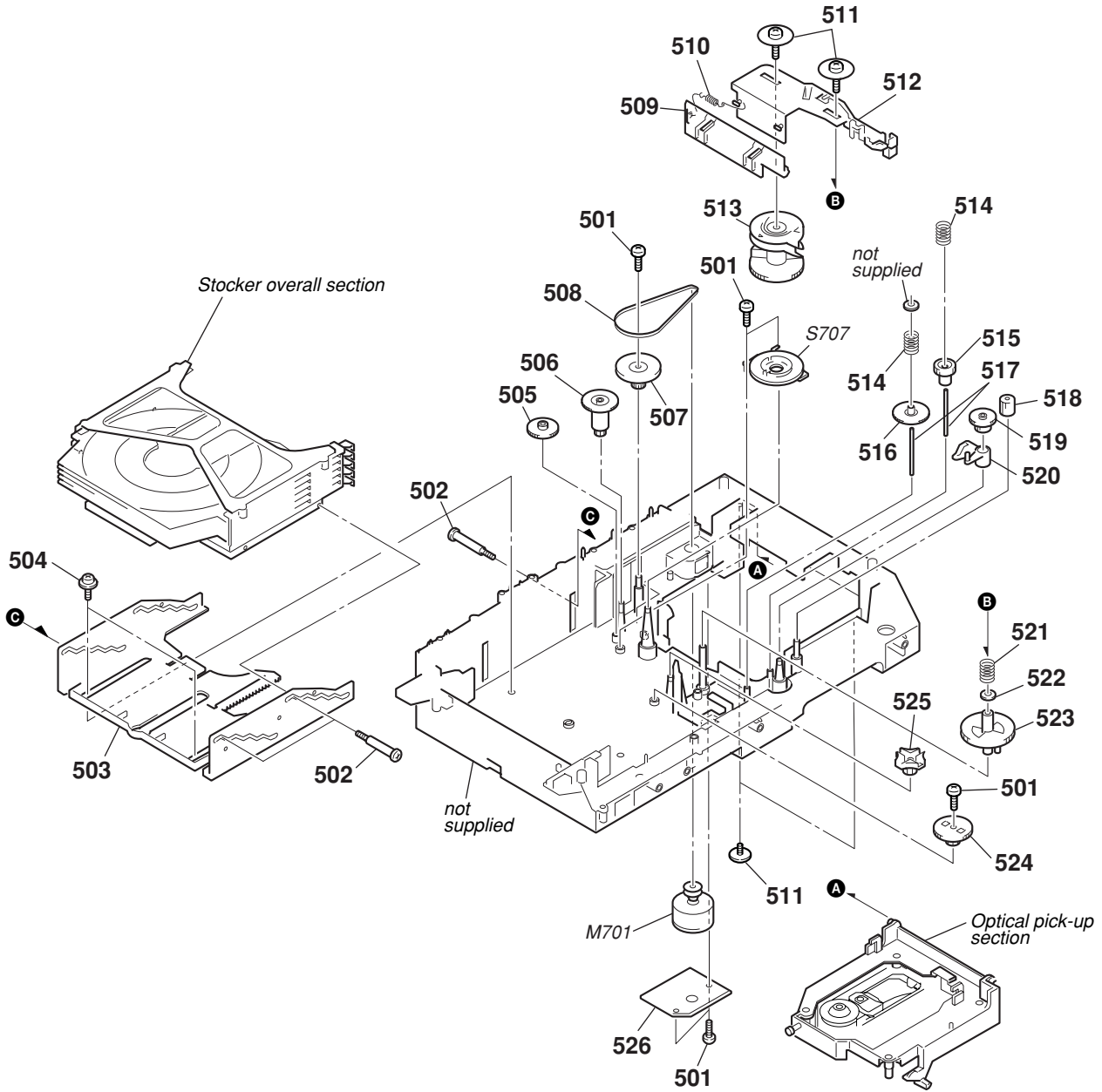
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
401	3-341-549-01	SCREW(2.6X12)(DIA.7.5),+PTP WH		413	A-4746-928-A	BASE (MAGNET) ASSY, FITTING	
402	4-951-620-01	SCREW (2.6X8), +BVTP		414	4-228-414-01	BRACKET (YOKE)	
403	1-675-724-11	INIT/COUNT SW BOARD		415	4-227-513-01	PULLEY (4SB)	
404	4-211-215-01	GEAR (EJECT)		416	4-222-783-01	LEVER (LIFTER)	
405	1-675-726-11	SENSOR BOARD		417	4-221-530-01	LEVER (DETECTION C)	
406	4-212-676-01	SPRING (LID), TORSION		418	4-985-672-01	SCREW (+PTPWH M2.6), FLOATING	
407	4-221-532-11	LID (DISC)		419	4-221-528-01	LEVER (DETECTION A)	
408	4-933-134-01	SCREW (M2.6), +PTPWH		422	1-675-723-11	IN SW BOARD	
409	A-4672-909-C	BASE (GUIDE) ASSY, FITTING		423	X-4952-916-1	PULLEY (FK) ASSY, CHUCKING	
410	1-675-725-11	OUT SW BOARD		424	1-675-722-11	CONNECTOR BOARD	
411	1-675-727-11	SENSOR 2 BOARD					
412	4-964-461-02	HOLDER (SENSOR)					

8-5. CD PLAY MECHANISM DECK SECTION (DECK A)-2
(CDM53L-30B61B)



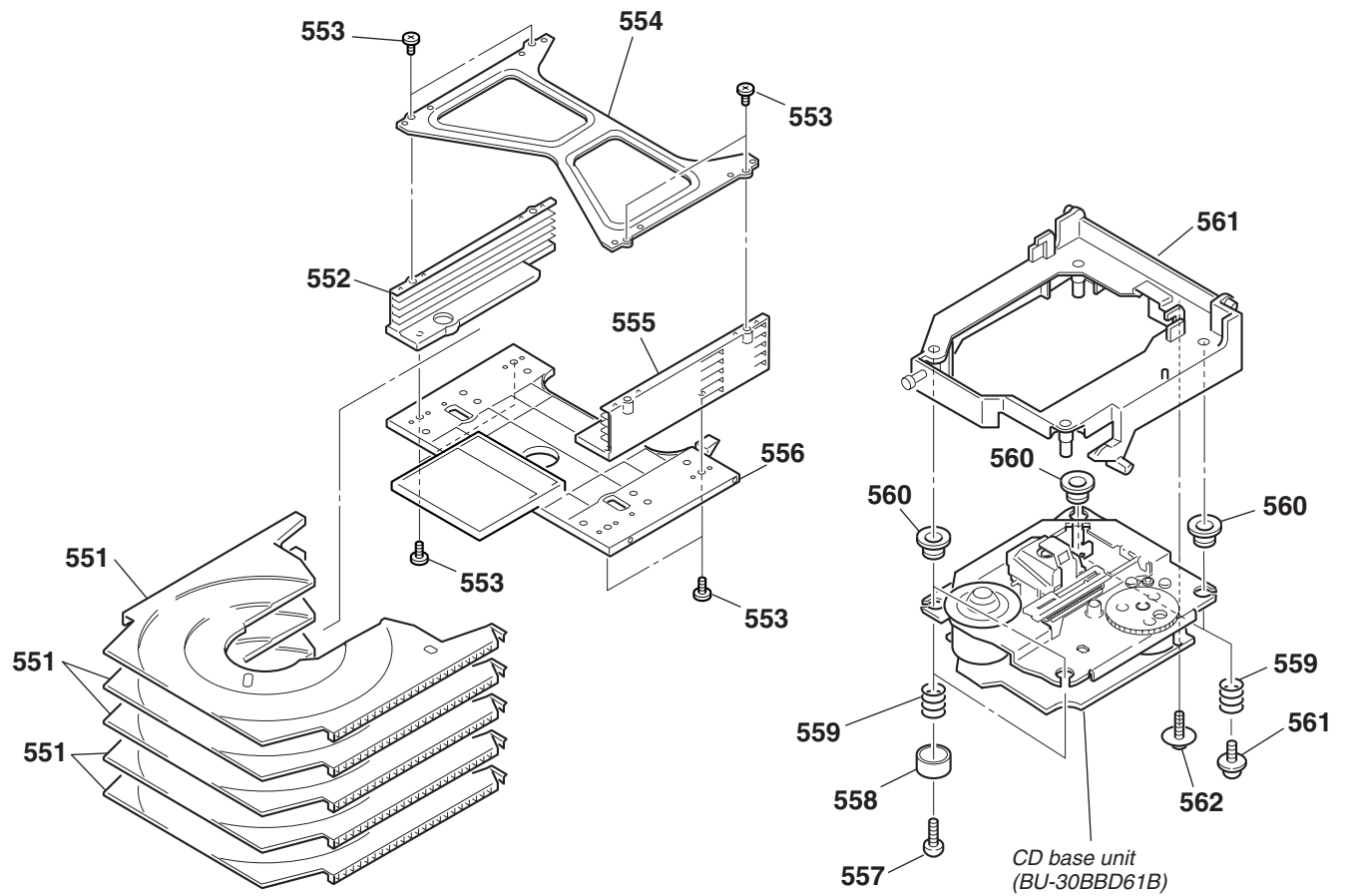
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
451	4-951-620-01	SCREW (2.6X8), +BVTP		456	4-211-232-01	GEAR (LD DECELERATION)	
452	4-211-235-01	BELT (COMMUNICATION)		457	4-211-228-01	LEVER (GOOSENECK)	
453	4-241-745-01	BELT (LOADING 1)		458	4-214-130-01	GEAR (TRAY)	
454	4-211-231-01	PULLEY (MODE)		459	4-221-505-11	CHASSIS (MOLD B)	
455	4-211-214-01	PULLEY (LD)		460	1-675-728-11	LOAD MOTOR BOARD	
				M702	X-4950-342-1	MOTOR (LOADING) ASSY	

8-6. CD PLAY MECHANISM DECK SECTION (DECK A)-3
(CDM53L-30B61B)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
501	4-951-620-01	SCREW (2.6X8), +BVTP		516	4-211-217-01	GEAR (SELECTION)	
502	4-211-244-01	SCREW, STEP		517	4-211-242-11	SHAFT (SELECTION GEAR)	
503	4-211-223-01	SLIDER (U/D)		518	4-211-240-01	GEAR (LD DECELERATION B)	
504	4-933-134-01	SCREW (M2.6), +PTPWH		519	4-211-216-01	GEAR (RELAY)	
505	4-211-215-01	GEAR (EJECT)		520	4-211-241-01	LEVER (SELECTION)	
506	4-211-232-01	GEAR (MODE DECELERATION)		521	4-216-879-01	SPRING (GEAR), COMPRESSION	
507	4-211-214-01	PULLEY (LD)		522	3-701-446-21	WASHER	
508	4-211-237-01	BELT (MODE)		523	4-211-218-01	GEAR (GEAR A)	
509	4-212-677-01	SLIDER (SHUTTER)		524	4-211-220-01	GEAR (U/D SLIDER)	
510	4-212-678-01	SPRING (SHUTTER), TENSION		525	4-211-219-01	GEAR (GEAR B)	
511	4-985-672-01	SCREW (+PTPWH M2.6), FLOATING		526	1-675-729-11	CLAMP MOTOR BOARD	
512	4-211-233-01	SLIDER (SELECTION)		M701	X-4950-341-1	MOTOR (CLAMP) ASSY (ELEVATOR UP/DOWN)	
513	4-211-230-01	GEAR (CHUCKING)		S707	1-418-045-01	ENCODER, ROTARY	
514	4-211-245-01	SPRING, COMPRESSION					
515	4-211-221-01	GEAR (LD MOVABLE)					

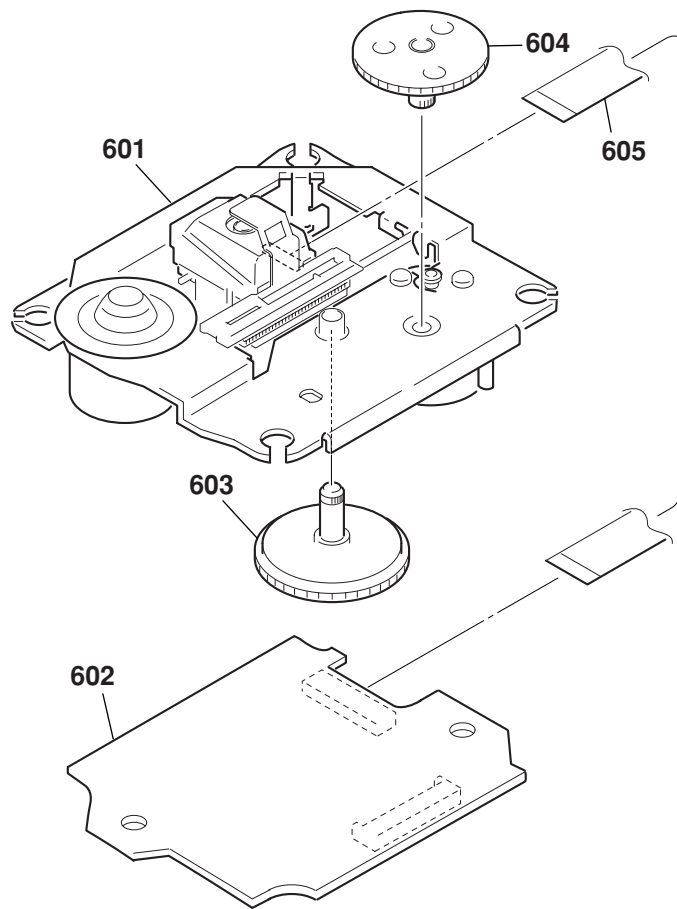
8-7. STOCKER OVERALL, OPTICAL PICK-UP SECTION (DECK A)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
551	4-211-212-51	TRAY (SUB)		557	4-218-253-11	SCREW (M2.6), +BTTP	
552	4-211-210-01	STOCKER (L)		558	4-231-151-01	STOPPER (BU)	
553	4-218-253-21	SCREW (M2.6), +BTTP		559	4-227-045-11	SPRING (INSULATOR), COIL	
554	4-211-234-01	BRACKET (STOCKER T)		560	4-240-820-01	INSULATOR (B) (BU-30B)	
555	4-211-211-01	STOCKER (R)		561	X-4954-297-2	HOLDER (BU30) ASSY	
556	4-221-504-01	BASE (STOCKER), FITTING		562	4-227-899-01	SCREW (DIA. 12), FLOATING	

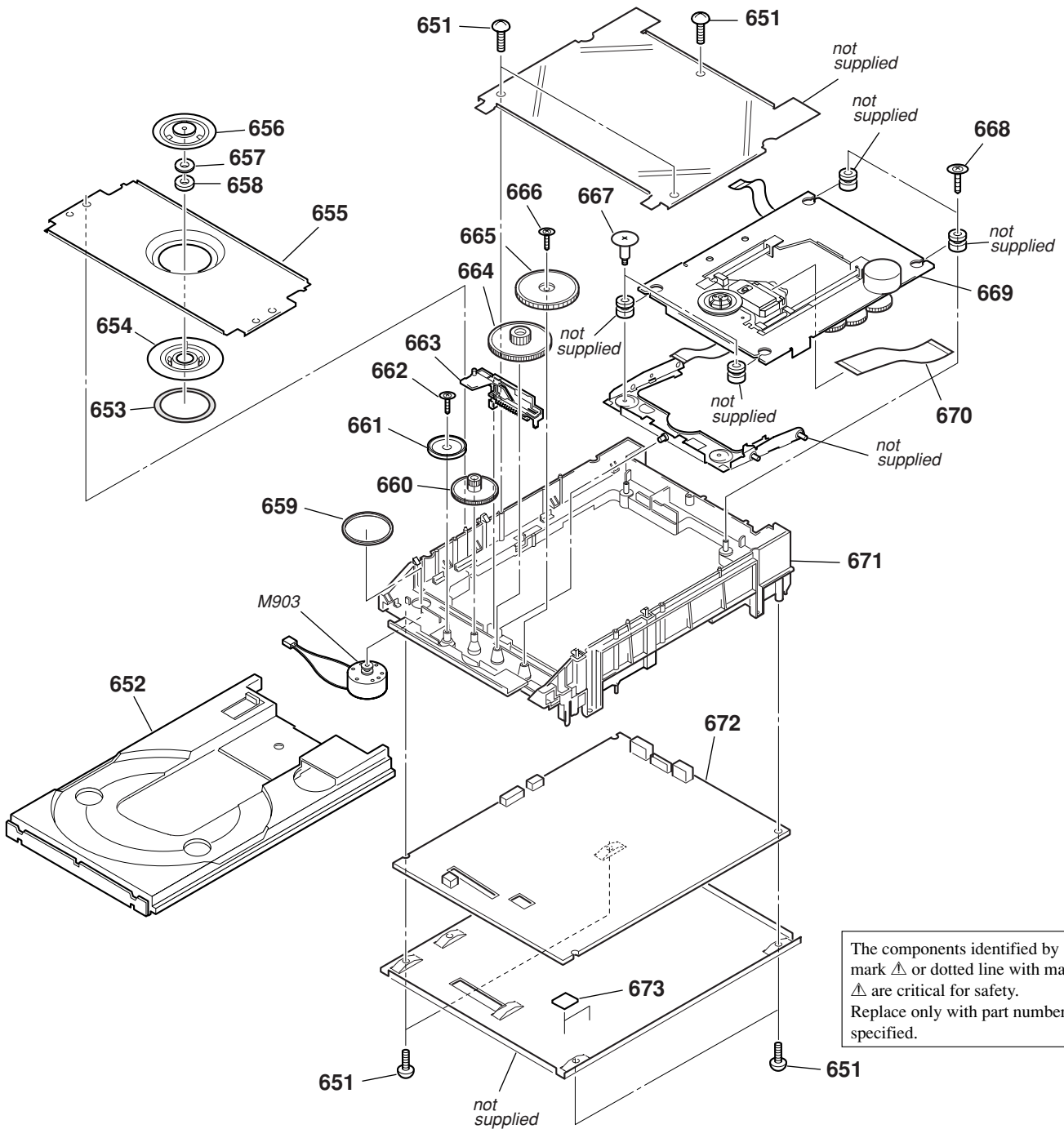
RCD-W222ES

8-8. BASE UNIT (DECK A)



<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>
601	A-4735-885-A	BU-30B ASSY	
602	A-4727-463-A	BD BOARD, COMPLETE	
603	4-233-832-01	GEAR (LB)	
604	4-233-831-01	GEAR (LA)	
605	1-782-817-11	WIRE (FLAT TYPE) (16 CORE)	

8-9. CD-R MECHANISM DECK SECTION (DECK B)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
651	4-951-620-01	SCREW (2.6X8), +BVTP		664	4-237-178-02	GEAR (B)	
652	4-237-181-01	TRAY		665	4-237-179-02	GEAR (C)	
653	4-240-987-01	SHEET (DR)		666	3-341-549-01	SCREW(2.6X8)(DIA.7.5),+ PTP WH	
654	4-240-988-02	PULLEY (UPPER), PRESS		667	4-237-168-01	SCREW, STEP	
655	4-237-172-01	HOLDER (MG)		668	4-237-167-01	SCREW (2X9) (G WITH),+P TAPPIN	
656	4-237-174-01	PULLEY (MAG)		Δ 669	8-583-104-01	OPTICAL PICK-UP KRM-220CAA	
* 657	4-974-710-11	YOKE, PULLEY		670	1-823-651-11	CABLE, FLEXIBLE FLAT (32 CORE)	
* 658	1-452-958-11	MAGNET (CHUCKING)		671	4-237-182-01	CHASSIS	
659	4-999-537-01	BELT (LOADING)		672	A-4727-459-A	CD-R BOARD, COMPLETE	
660	4-237-177-01	GEAR (A)		673	4-232-682-01	CUSHION (66)	
661	4-237-176-02	PULLEY (CG)		M903	A-4735-557-A	MOTOR ASSY	
662	4-974-711-01	SCREW (2X5)(P TYIGHT),(+)PTTWH					
663	4-237-180-01	CAM (CH)					

AC BD

SECTION 9
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: μF

- RESISTORS
All resistors are in ohms.
METAL: metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable
- COILS
uH: μH
- SEMICONDUCTORS
In each case, u: μ, for example:
uA...: μA... , uPA... , μPA... ,
uPB... , μPB... , uPC... , μPC... ,
uPD... , μPD...

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

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

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
	1-684-812-11	AC BOARD *****		C166	1-164-360-11	CERAMIC CHIP 0.1uF	16V
		< CAPACITOR >		C167	1-162-927-11	CERAMIC CHIP 100PF 5%	50V
Δ C901	1-113-925-11	CERAMIC 0.01uF 20%	250V	C168	1-164-360-11	CERAMIC CHIP 0.1uF	16V
Δ C902	1-113-925-11	CERAMIC 0.01uF 20%	250V	C169	1-164-360-11	CERAMIC CHIP 0.1uF	16V
Δ C903	1-113-920-11	CERAMIC 0.0022uF 20%	250V	C171	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
Δ C904	1-113-920-11	CERAMIC 0.0022uF 20%	250V	C178	1-164-360-11	CERAMIC CHIP 0.1uF	16V
Δ C905	1-113-920-11	CERAMIC 0.0022uF 20%	250V	C179	1-164-360-11	CERAMIC CHIP 0.1uF	16V
		< CONNECTOR >		C182	1-128-995-21	ELECT CHIP 100uF 20%	10V
CN901	1-564-321-00	PIN, CONNECTOR(3.96MM PITCH)2P		C201	1-126-246-11	ELECT CHIP 220uF 20%	4V
CN902	1-564-321-00	PIN, CONNECTOR(3.96MM PITCH)2P		C202	1-164-360-11	CERAMIC CHIP 0.1uF	16V
* CN903	1-564-321-21	PIN, CONNECTOR(3.96MM PITCH)2P		C203	1-162-915-11	CERAMIC CHIP 10PF 0.5PF	50V
		< GROUND TERMINAL >		C204	1-162-915-11	CERAMIC CHIP 10PF 0.5PF	50V
EP901	1-537-771-21	TERMINAL BOARD, GROUND		C205	1-164-360-11	CERAMIC CHIP 0.1uF	16V
		< LINE FILTER >		C207	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
Δ LF901	1-419-625-11	COIL, LINE FILTER		C209	1-164-230-11	CERAMIC CHIP 220PF 5%	50V
		*****		C210	1-115-414-11	CERAMIC CHIP 820PF 5%	25V
	A-4727-463-A	BD BOARD, COMPLETE *****		C211	1-117-863-11	CERAMIC CHIP 0.47uF 10%	6.3V
		< CAPACITOR >		C212	1-164-315-11	CERAMIC CHIP 470PF 5%	50V
C101	1-164-315-11	CERAMIC CHIP 470PF 5%	50V	C213	1-115-414-11	CERAMIC CHIP 820PF 5%	25V
C102	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V	C214	1-162-966-11	CERAMIC CHIP 0.0022uF 10%	50V
C103	1-164-315-11	CERAMIC CHIP 470PF 5%	50V	C215	1-117-863-11	CERAMIC CHIP 0.47uF 10%	6.3V
C104	1-162-967-11	CERAMIC CHIP 0.0033uF 10%	50V	C216	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C107	1-162-921-11	CERAMIC CHIP 33PF 5%	50V	C218	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C108	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C219	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C109	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C221	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C110	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V	C222	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C111	1-126-607-11	ELECT CHIP 47uF 20%	4V	C223	1-125-838-11	CERAMIC CHIP 2.2uF 10%	6.3V
C112	1-126-607-11	ELECT CHIP 47uF 20%	4V	C224	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C113	1-126-209-11	ELECT CHIP 100uF 20%	4V	C225	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C114	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V	C227	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C115	1-126-205-11	ELECT CHIP 47uF 20%	6.3V	C229	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C117	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C230	1-113-682-11	TANTAL. CHIP 33uF 20%	10V
C118	1-115-156-11	CERAMIC CHIP 1uF	10V	C231	1-128-995-21	ELECT CHIP 100uF 20%	10V
C119	1-115-156-11	CERAMIC CHIP 1uF	10V	C232	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C120	1-126-607-11	ELECT CHIP 47uF 20%	4V	C234	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V
C151	1-162-968-11	CERAMIC CHIP 0.0047uF 10%	50V	C235	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C152	1-115-416-11	CERAMIC CHIP 0.001uF 5%	25V	C236	1-109-982-11	CERAMIC CHIP 1uF 10%	10V
C153	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C252	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C163	1-117-681-11	ELECT CHIP 100uF 20%	16V	C253	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C164	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C254	1-115-156-11	CERAMIC CHIP 1uF	10V
C165	1-124-779-00	ELECT CHIP 10uF 20%	16V	C255	1-125-838-11	CERAMIC CHIP 2.2uF 10%	6.3V
		< CONNECTOR >				< FERRITE BEAD >	
				CN101	1-784-834-21	CONNECTOR, FFC(LIF(NON-ZIF))23P	
				CN102	1-794-424-11	CONNECTOR, FCC/FPC 16P	
				FB101	1-500-445-21	FERRITE 0UH	

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
		< IC >		R217	1-216-829-11	METAL CHIP 4.7K	5% 1/16W
IC101	8-752-408-73	IC CXD3068Q		R218	1-216-821-11	METAL CHIP 1K	5% 1/16W
IC102	8-759-713-71	IC AN41050		R219	1-216-821-11	METAL CHIP 1K	5% 1/16W
IC103	8-752-089-74	IC CXA2581N-T4		R226	1-216-809-11	METAL CHIP 100	5% 1/16W
IC104	8-759-833-99	IC TC74HC4052AFT(EL)		R227	1-216-839-11	METAL CHIP 33K	5% 1/16W
IC105	8-759-834-29	IC MC74VHC1G04DFT1		R228	1-216-849-11	METAL CHIP 220K	5% 1/16W
				R229	1-216-819-11	METAL CHIP 680	5% 1/16W
IC201	8-759-460-72	IC BA033FP-E2		R230	1-216-864-11	METAL CHIP 0	5% 1/16W
		< COIL >		R234	1-216-809-11	METAL CHIP 100	5% 1/16W
L171	1-412-967-31	INDUCTOR 0.1uH				< NETWORK >	
L230	1-469-981-21	FERRITE 0uH		RN201	1-233-576-11	RES, CHIP NETWORK 100	
		< TRANSISTOR >		RN202	1-233-576-11	RES, CHIP NETWORK 100	
Q101	8-729-049-31	TRANSISTOR 2SB710A-RTX				< VARIABLE RESISTOR >	
		< RESISTOR >		RV101	1-223-997-21	RES, CARBON ADJ VAR 47K (E-F BALANCE)	
R102	1-216-835-11	METAL CHIP 15K	5% 1/16W			< VIBRATOR >	
R103	1-216-845-11	METAL CHIP 100K	5% 1/16W	X201	1-767-518-11	VIBRATOR, CRYSTAL (33.8MHz)	
R104	1-216-835-11	METAL CHIP 15K	5% 1/16W	*****			
R105	1-216-821-11	METAL CHIP 1K	5% 1/16W	A-4727-459-A	CD-R BOARD, COMPLETE		
R109	1-216-846-11	METAL CHIP 120K	5% 1/16W	*****			
R111	1-216-846-11	METAL CHIP 120K	5% 1/16W			< CAPACITOR >	
R112	1-216-840-11	METAL CHIP 39K	5% 1/16W	C101	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
R113	1-218-701-11	RES-CHIP 2.4K	5% 1/10W	C102	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
R114	1-218-745-11	RES-CHIP 160K	5% 1/10W	C103	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
R115	1-216-839-11	METAL CHIP 33K	5% 1/16W	C104	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
R116	1-216-839-11	METAL CHIP 33K	5% 1/16W	C105	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
R118	1-216-864-11	METAL CHIP 0	5% 1/16W	C106	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
R120	1-216-846-11	METAL CHIP 120K	5% 1/16W	C107	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
R122	1-216-845-11	METAL CHIP 100K	5% 1/16W	C108	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
R123	1-216-797-11	METAL CHIP 10	5% 1/16W	C109	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
R124	1-216-797-11	METAL CHIP 10	5% 1/16W	C110	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
R125	1-216-839-11	METAL CHIP 33K	5% 1/16W	C111	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
R126	1-216-839-11	METAL CHIP 33K	5% 1/16W	C112	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
R151	1-216-833-11	METAL CHIP 10K	5% 1/16W	C113	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
R152	1-216-837-11	METAL CHIP 22K	5% 1/16W	C114	1-164-230-11	CERAMIC CHIP 220PF	5% 50V
R165	1-216-864-11	METAL CHIP 0	5% 1/16W	C115	1-164-230-11	CERAMIC CHIP 220PF	5% 50V
R166	1-216-864-11	METAL CHIP 0	5% 1/16W	C116	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
R167	1-216-864-11	METAL CHIP 0	5% 1/16W	C117	1-125-891-11	CERAMIC CHIP 0.47uF	10% 10V
R168	1-216-864-11	METAL CHIP 0	5% 1/16W	C118	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
R169	1-216-864-11	METAL CHIP 0	5% 1/16W	C119	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
R170	1-216-864-11	METAL CHIP 0	5% 1/16W	C120	1-127-760-11	CERAMIC CHIP 4.7uF	10% 6.3V
R177	1-216-821-11	METAL CHIP 1K	5% 1/16W	C121	1-126-392-11	ELECT CHIP 100uF	20% 6.3V
R178	1-216-864-11	METAL CHIP 0	5% 1/16W	C122	1-162-963-11	CERAMIC CHIP 680PF	10% 50V
R179	1-216-837-11	METAL CHIP 22K	5% 1/16W	C123	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V
R201	1-216-839-11	METAL CHIP 33K	5% 1/16W	C124	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V
R202	1-216-833-11	METAL CHIP 10K	5% 1/16W	C125	1-128-934-91	CERAMIC CHIP 0.33uF	20% 10V
R203	1-216-845-11	METAL CHIP 100K	5% 1/16W	C126	1-162-966-11	CERAMIC CHIP 0.0022uF	10% 50V
R204	1-216-833-11	METAL CHIP 10K	5% 1/16W	C128	1-125-891-11	CERAMIC CHIP 0.47uF	10% 10V
R205	1-216-823-11	METAL CHIP 1.5K	5% 1/16W	C129	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
R206	1-216-850-11	METAL CHIP 270K	5% 1/16W	C130	1-164-156-11	CERAMIC CHIP 0.1uF	25V
R207	1-218-917-11	RES-CHIP 820K	5% 1/10W	C131	1-164-156-11	CERAMIC CHIP 0.1uF	25V
R208	1-216-845-11	METAL CHIP 100K	5% 1/16W	C132	1-164-156-11	CERAMIC CHIP 0.1uF	25V
R209	1-216-809-11	METAL CHIP 100	5% 1/16W	C133	1-164-156-11	CERAMIC CHIP 0.1uF	25V
R212	1-216-809-11	METAL CHIP 100	5% 1/16W	C134	1-164-156-11	CERAMIC CHIP 0.1uF	25V
R213	1-216-864-11	METAL CHIP 0	5% 1/16W	C135	1-162-959-11	CERAMIC CHIP 330PF	5% 50V
R214	1-216-864-11	METAL CHIP 0	5% 1/16W	C136	1-126-391-11	ELECT CHIP 47uF	20% 6.3V
R215	1-216-864-11	METAL CHIP 0	5% 1/16W				
R216	1-216-813-11	METAL CHIP 220	5% 1/16W				

RCD-W222ES

CD-R

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
C137	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V	C230	1-162-912-11	CERAMIC CHIP	7PF 0.5PF 50V
C138	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V	C232	1-162-963-11	CERAMIC CHIP	680PF 10% 50V
C139	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V	C233	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C140	1-126-390-11	ELECT CHIP	22uF 20% 6.3V	C234	1-165-908-11	CERAMIC CHIP	1uF 10% 10V
C141	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V	C235	1-165-176-11	CERAMIC CHIP	0.047uF 10% 16V
C142	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V	C236	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C143	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V	C237	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C144	1-128-934-91	CERAMIC CHIP	0.33uF 20% 10V	C238	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C145	1-128-934-91	CERAMIC CHIP	0.33uF 20% 10V	C239	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C146	1-128-934-91	CERAMIC CHIP	0.33uF 20% 10V	C240	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C150	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C241	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C151	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C242	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C156	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C244	1-126-390-11	ELECT CHIP	22uF 20% 6.3V
C157	1-126-390-11	ELECT CHIP	22uF 20% 6.3V	C245	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V
C158	1-126-390-11	ELECT CHIP	22uF 20% 6.3V	C246	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V
C160	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C247	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V
C178	1-162-968-11	CERAMIC CHIP	0.0047uF 10% 50V	C248	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C179	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C249	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V
C180	1-126-395-11	ELECT	22uF 20% 16V	C250	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C181	1-127-573-11	CERAMIC CHIP	1uF 10% 16V	C251	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C182	1-127-573-11	CERAMIC CHIP	1uF 10% 16V	C254	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C183	1-127-573-11	CERAMIC CHIP	1uF 10% 16V	C257	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C184	1-126-395-11	ELECT	22uF 20% 16V	C258	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C185	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C259	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C186	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V	C260	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C187	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V	C262	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C188	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C263	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C189	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C268	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C190	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C269	1-126-392-11	ELECT CHIP	100uF 20% 6.3V
C191	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V	C270	1-126-396-11	ELECT CHIP	47uF 20% 16V
C192	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V	C271	1-126-392-11	ELECT CHIP	100uF 20% 6.3V
C193	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C272	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C194	1-126-395-11	ELECT	22uF 20% 16V	C273	1-126-391-11	ELECT CHIP	47uF 20% 6.3V
C200	1-126-390-11	ELECT CHIP	22uF 20% 6.3V	C275	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C201	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C289	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C202	1-126-392-11	ELECT CHIP	100uF 20% 6.3V	C301	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C203	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C302	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V
C204	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V	C303	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C205	1-126-391-11	ELECT CHIP	47uF 20% 6.3V	C304	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V
C206	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C501	1-126-396-11	ELECT CHIP	47uF 20% 16V
C207	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V	C502	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C208	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V	C506	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C209	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C508	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C210	1-126-392-11	ELECT CHIP	100uF 20% 6.3V	C509	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C212	1-126-390-11	ELECT CHIP	22uF 20% 6.3V	C510	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C213	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C511	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C214	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C512	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C216	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C513	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C217	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C514	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C218	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C517	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C219	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C518	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C220	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C519	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C221	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C520	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C222	1-164-156-11	CERAMIC CHIP	0.1uF 25V	C521	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C223	1-164-677-11	CERAMIC CHIP	0.033uF 10% 16V	C526	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C224	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V			< CONNECTOR >	
C225	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V	CN101	1-784-894-11	CONNECTOR, FFC/FPC 32P	
C226	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V	CN102	1-816-220-21	CONNECTOR, FFC/FPC 11P	
C227	1-162-912-11	CERAMIC CHIP	7PF 0.5PF 50V	CN103	1-816-220-21	CONNECTOR, FFC/FPC 11P	
C228	1-162-969-11	CERAMIC CHIP	0.0068uF 10% 25V	CN104	1-770-160-21	PIN, CONNECTOR (PC BOARD) 2P	

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
CN110	1-784-370-21	CONNECTOR, FFC/FPC 11P		R106	1-216-829-11	METAL CHIP 4.7K	5% 1/16W
* CN111	1-764-250-11	PIN, CONNECTOR (PC BOARD) 4P		R107	1-216-857-11	METAL CHIP 1M	5% 1/16W
CN112	1-784-365-21	CONNECTOR, FFC/FPC 5P		R108	1-216-809-11	METAL CHIP 100	5% 1/16W
CN115	1-770-160-21	PIN, CONNECTOR (PC BOARD) 2P		R109	1-216-809-11	METAL CHIP 100	5% 1/16W
CN121	1-774-731-21	PIN, CONNECTOR (PC BOARD) 5P		R110	1-216-809-11	METAL CHIP 100	5% 1/16W
		< DIODE >		R111	1-218-883-11	METAL CHIP 33K	0.5% 1/10W
D101	8-719-988-61	DIODE 1SS355TE-17		R112	1-218-879-11	METAL CHIP 22K	0.5% 1/10W
D102	8-719-988-61	DIODE 1SS355TE-17		R113	1-218-855-11	METAL CHIP 2.2K	0.5% 1/10W
		< FERRITE BEAD >		R114	1-218-847-11	METAL CHIP 1K	0.5% 1/10W
FB101	1-469-379-11	FERRITE OUH		R116	1-218-847-11	METAL CHIP 1K	0.5% 1/10W
FB102	1-469-379-11	FERRITE OUH		R120	1-216-809-11	METAL CHIP 100	5% 1/16W
FB103	1-469-379-11	FERRITE OUH		R121	1-216-809-11	METAL CHIP 100	5% 1/16W
		< IC >		R122	1-216-857-11	METAL CHIP 1M	5% 1/16W
IC101	6-701-749-01	IC AK8567		R123	1-216-864-11	METAL CHIP 0	5% 1/16W
IC102	8-759-058-56	IC TC7S02FU(TE85R)		R124	1-216-825-11	METAL CHIP 2.2K	5% 1/16W
IC103	8-759-337-41	IC NJM2902V-TE2		R125	1-216-797-11	METAL CHIP 10	5% 1/16W
IC104	8-759-478-92	IC TC7SET04FU(TE85R)		R126	1-216-864-11	METAL CHIP 0	5% 1/16W
IC110	8-759-594-95	IC L4931ABD33-TR		R127	1-218-883-11	METAL CHIP 33K	0.5% 1/10W
IC150	8-759-673-37	IC SN74HC00APWR		R128	1-218-879-11	METAL CHIP 22K	0.5% 1/10W
IC171	6-701-746-01	IC BA5937AFP-E2		R131	1-216-864-11	METAL CHIP 0	5% 1/16W
IC172	8-759-593-08	IC LB11698H-TE-L		R133	1-216-864-11	METAL CHIP 0	5% 1/16W
IC201	6-701-747-01	IC LC89587-UK1-E		R134	1-218-871-11	METAL CHIP 10K	0.5% 1/10W
IC202	8-759-597-78	IC MSM54V16258BSL-40TSK		R135	1-218-863-11	METAL CHIP 4.7K	0.5% 1/10W
IC204	8-759-058-60	IC TC7SU04FU(TE85R)		R136	1-218-871-11	METAL CHIP 10K	0.5% 1/10W
IC301	8-759-549-25	IC SN74LVU04APWR		R137	1-218-867-11	METAL CHIP 6.8K	0.5% 1/10W
IC302	8-759-196-96	IC TC7SH08FU-TE85R		R139	1-216-833-11	METAL CHIP 10K	5% 1/16W
IC501	6-701-748-01	IC HD64F3064BFBL25		R140	1-216-833-11	METAL CHIP 10K	5% 1/16W
IC502	6-801-552-01	IC BR93LC46RF-WE2		R141	1-216-833-11	METAL CHIP 10K	5% 1/16W
IC504	8-759-485-79	IC TC7SET08FU(TE85R)		R142	1-216-833-11	METAL CHIP 10K	5% 1/16W
IC505	8-759-599-46	IC TC7W08FK(TE85R)		R151	1-216-864-11	METAL CHIP 0	5% 1/16W
IC506	8-759-485-79	IC TC7SET08FU(TE85R)		R152	1-216-864-11	METAL CHIP 0	5% 1/16W
		< COIL >		R153	1-216-809-11	METAL CHIP 100	5% 1/16W
L101	1-414-398-11	INDUCTOR 10uH		R154	1-216-809-11	METAL CHIP 100	5% 1/16W
L102	1-414-398-11	INDUCTOR 10uH		R155	1-216-809-11	METAL CHIP 100	5% 1/16W
L103	1-414-392-41	INDUCTOR 1uH		R156	1-216-809-11	METAL CHIP 100	5% 1/16W
L202	1-414-392-41	INDUCTOR 1uH		R157	1-216-797-11	METAL CHIP 10	5% 1/16W
L203	1-414-392-41	INDUCTOR 1uH		R170	1-216-797-11	METAL CHIP 10	5% 1/16W
L204	1-414-392-41	INDUCTOR 1uH		R171	1-216-797-11	METAL CHIP 10	5% 1/16W
L205	1-414-392-41	INDUCTOR 1uH		R172	1-216-797-11	METAL CHIP 10	5% 1/16W
L207	1-414-392-41	INDUCTOR 1uH		R173	1-218-831-11	METAL CHIP 220	0.5% 1/10W
L208	1-414-392-41	INDUCTOR 1uH		R176	1-216-864-11	METAL CHIP 0	5% 1/16W
L301	1-414-392-41	INDUCTOR 1uH		R177	1-216-864-11	METAL CHIP 0	5% 1/16W
L303	1-414-392-41	INDUCTOR 1uH		R186	1-216-833-11	METAL CHIP 10K	5% 1/16W
L501	1-414-392-41	INDUCTOR 1uH		R187	1-216-833-11	METAL CHIP 10K	5% 1/16W
L503	1-414-392-41	INDUCTOR 1uH		R188	1-216-864-11	METAL CHIP 0	5% 1/16W
		< TRANSISTOR >		R189	1-216-829-11	METAL CHIP 4.7K	5% 1/16W
Q170	8-729-900-53	TRANSISTOR DTC114EK		R190	1-216-829-11	METAL CHIP 4.7K	5% 1/16W
Q501	8-729-900-53	TRANSISTOR DTC114EK		R192	1-216-864-11	METAL CHIP 0	5% 1/16W
		< RESISTOR >		R193	1-220-810-11	RES-CHIP 0.39	1% 1/2W
R101	1-216-809-11	METAL CHIP 100	5% 1/16W	R194	1-216-864-11	METAL CHIP 0	5% 1/16W
R102	1-216-809-11	METAL CHIP 100	5% 1/16W	R196	1-216-864-11	METAL CHIP 0	5% 1/16W
R103	1-216-809-11	METAL CHIP 100	5% 1/16W	R198	1-216-864-11	METAL CHIP 0	5% 1/16W
R104	1-218-871-11	METAL CHIP 10K	0.5% 1/10W	R200	1-216-829-11	METAL CHIP 4.7K	5% 1/16W
R105	1-216-864-11	METAL CHIP 0	5% 1/16W	R201	1-216-864-11	METAL CHIP 0	5% 1/16W
				R202	1-216-817-11	METAL CHIP 470	5% 1/16W
				R203	1-216-864-11	METAL CHIP 0	5% 1/16W
				R204	1-216-864-11	METAL CHIP 0	5% 1/16W
				R205	1-216-864-11	METAL CHIP 0	5% 1/16W
				R206	1-216-864-11	METAL CHIP 0	5% 1/16W
				R207	1-216-813-11	METAL CHIP 220	5% 1/16W

RCD-W222ES

CD-R

Ref. No.	Part No.	Description	Quantity	Unit	Remarks	Ref. No.	Part No.	Description	Quantity	Unit	Remarks
R208	1-216-864-11	METAL CHIP	0		5% 1/16W	R302	1-216-845-11	METAL CHIP	100K		5% 1/16W
R209	1-216-864-11	METAL CHIP	0		5% 1/16W	R303	1-216-833-11	METAL CHIP	10K		5% 1/16W
R210	1-216-864-11	METAL CHIP	0		5% 1/16W	R304	1-216-833-11	METAL CHIP	10K		5% 1/16W
R211	1-216-864-11	METAL CHIP	0		5% 1/16W	R305	1-216-864-11	METAL CHIP	0		5% 1/16W
R212	1-216-833-11	METAL CHIP	10K		5% 1/16W	R307	1-216-864-11	METAL CHIP	0		5% 1/16W
R213	1-216-817-11	METAL CHIP	470		5% 1/16W	R320	1-216-864-11	METAL CHIP	0		5% 1/16W
R215	1-216-864-11	METAL CHIP	0		5% 1/16W	R321	1-216-864-11	METAL CHIP	0		5% 1/16W
R216	1-218-875-11	METAL CHIP	15K		0.5% 1/10W	R322	1-216-864-11	METAL CHIP	0		5% 1/16W
R217	1-216-864-11	METAL CHIP	0		5% 1/16W	R323	1-216-864-11	METAL CHIP	0		5% 1/16W
R218	1-216-864-11	METAL CHIP	0		5% 1/16W	R324	1-216-864-11	METAL CHIP	0		5% 1/16W
R219	1-216-801-11	METAL CHIP	22		5% 1/16W	R325	1-216-864-11	METAL CHIP	0		5% 1/16W
R220	1-216-801-11	METAL CHIP	22		5% 1/16W	R350	1-216-821-11	METAL CHIP	1K		5% 1/16W
R221	1-216-801-11	METAL CHIP	22		5% 1/16W	R351	1-216-821-11	METAL CHIP	1K		5% 1/16W
R222	1-216-801-11	METAL CHIP	22		5% 1/16W	R353	1-216-833-11	METAL CHIP	10K		5% 1/16W
R223	1-216-864-11	METAL CHIP	0		5% 1/16W	R354	1-216-833-11	METAL CHIP	10K		5% 1/16W
R224	1-216-864-11	METAL CHIP	0		5% 1/16W	R356	1-216-789-11	METAL CHIP	2.2		5% 1/16W
R225	1-216-833-11	METAL CHIP	10K		5% 1/16W	R369	1-216-789-11	METAL CHIP	2.2		5% 1/16W
R226	1-216-864-11	METAL CHIP	0		5% 1/16W	R370	1-216-789-11	METAL CHIP	2.2		5% 1/16W
R227	1-216-797-11	METAL CHIP	10		5% 1/16W	R502	1-216-809-11	METAL CHIP	100		5% 1/16W
R228	1-216-833-11	METAL CHIP	10K		5% 1/16W	R503	1-216-809-11	METAL CHIP	100		5% 1/16W
R229	1-216-864-11	METAL CHIP	0		5% 1/16W	R504	1-216-864-11	METAL CHIP	0		5% 1/16W
R230	1-216-817-11	METAL CHIP	470		5% 1/16W	R505	1-216-841-11	METAL CHIP	47K		5% 1/16W
R231	1-216-809-11	METAL CHIP	100		5% 1/16W	R506	1-216-864-11	METAL CHIP	0		5% 1/16W
R232	1-216-864-11	METAL CHIP	0		5% 1/16W	R507	1-216-864-11	METAL CHIP	0		5% 1/16W
R239	1-216-789-11	METAL CHIP	2.2		5% 1/16W	R508	1-216-864-11	METAL CHIP	0		5% 1/16W
R240	1-216-789-11	METAL CHIP	2.2		5% 1/16W	R509	1-216-833-11	METAL CHIP	10K		5% 1/16W
R241	1-216-809-11	METAL CHIP	100		5% 1/16W	R511	1-216-864-11	METAL CHIP	0		5% 1/16W
R242	1-218-867-11	METAL CHIP	6.8K		0.5% 1/10W	R513	1-216-864-11	METAL CHIP	0		5% 1/16W
R243	1-218-867-11	METAL CHIP	6.8K		0.5% 1/10W	R515	1-216-864-11	METAL CHIP	0		5% 1/16W
R244	1-216-864-11	METAL CHIP	0		5% 1/16W	R516	1-216-864-11	METAL CHIP	0		5% 1/16W
R245	1-216-829-11	METAL CHIP	4.7K		5% 1/16W	R517	1-216-864-11	METAL CHIP	0		5% 1/16W
R246	1-216-833-11	METAL CHIP	10K		5% 1/16W	R518	1-216-864-11	METAL CHIP	0		5% 1/16W
R248	1-218-831-11	METAL CHIP	220		0.5% 1/10W	R519	1-216-864-11	METAL CHIP	0		5% 1/16W
R250	1-218-871-11	METAL CHIP	10K		0.5% 1/10W	R520	1-216-833-11	METAL CHIP	10K		5% 1/16W
R251	1-218-879-11	METAL CHIP	22K		0.5% 1/10W	R522	1-216-845-11	METAL CHIP	100K		5% 1/16W
R253	1-216-864-11	METAL CHIP	0		5% 1/16W	R523	1-216-864-11	METAL CHIP	0		5% 1/16W
R254	1-216-857-11	METAL CHIP	1M		5% 1/16W	R524	1-216-845-11	METAL CHIP	100K		5% 1/16W
R258	1-216-833-11	METAL CHIP	10K		5% 1/16W	R526	1-216-864-11	METAL CHIP	0		5% 1/16W
R260	1-216-833-11	METAL CHIP	10K		5% 1/16W	R527	1-216-864-11	METAL CHIP	0		5% 1/16W
R262	1-218-871-11	METAL CHIP	10K		0.5% 1/10W	R528	1-216-864-11	METAL CHIP	0		5% 1/16W
R263	1-218-871-11	METAL CHIP	10K		0.5% 1/10W	R529	1-216-825-11	METAL CHIP	2.2K		5% 1/16W
R264	1-216-797-11	METAL CHIP	10		5% 1/16W	R530	1-216-864-11	METAL CHIP	0		5% 1/16W
R265	1-218-833-11	METAL CHIP	270		0.5% 1/10W	R532	1-216-864-11	METAL CHIP	0		5% 1/16W
R267	1-218-883-11	METAL CHIP	33K		0.5% 1/10W	R533	1-216-864-11	METAL CHIP	0		5% 1/16W
R268	1-218-864-11	METAL CHIP	5.1K		0.5% 1/10W	R534	1-216-829-11	METAL CHIP	4.7K		5% 1/16W
R269	1-216-817-11	METAL CHIP	470		5% 1/16W	R535	1-216-864-11	METAL CHIP	0		5% 1/16W
R270	1-218-847-11	METAL CHIP	1K		0.5% 1/10W	R536	1-216-864-11	METAL CHIP	0		5% 1/16W
R271	1-218-865-11	METAL CHIP	5.6K		0.5% 1/10W	R537	1-216-864-11	METAL CHIP	0		5% 1/16W
R274	1-218-871-11	METAL CHIP	10K		0.5% 1/10W	R538	1-216-864-11	METAL CHIP	0		5% 1/16W
R276	1-218-843-11	METAL CHIP	680		0.5% 1/10W	R539	1-216-864-11	METAL CHIP	0		5% 1/16W
R277	1-218-865-11	METAL CHIP	5.6K		0.5% 1/10W	R540	1-216-833-11	METAL CHIP	10K		5% 1/16W
R278	1-218-285-11	RES-CHIP	75		5% 1/10W	R542	1-216-833-11	METAL CHIP	10K		5% 1/16W
R281	1-218-847-11	METAL CHIP	1K		0.5% 1/10W	R543	1-216-833-11	METAL CHIP	10K		5% 1/16W
R283	1-216-809-11	METAL CHIP	100		5% 1/16W	R544	1-216-864-11	METAL CHIP	0		5% 1/16W
R290	1-216-833-11	METAL CHIP	10K		5% 1/16W	R545	1-216-864-11	METAL CHIP	0		5% 1/16W
R291	1-216-811-11	METAL CHIP	150		5% 1/16W	R546	1-216-864-11	METAL CHIP	0		5% 1/16W
R292	1-216-833-11	METAL CHIP	10K		5% 1/16W	R547	1-216-864-11	METAL CHIP	0		5% 1/16W
R294	1-216-864-11	METAL CHIP	0		5% 1/16W	R548	1-216-864-11	METAL CHIP	0		5% 1/16W
R300	1-216-833-11	METAL CHIP	10K		5% 1/16W	R549	1-216-864-11	METAL CHIP	0		5% 1/16W
R301	1-216-845-11	METAL CHIP	100K		5% 1/16W	R550	1-216-864-11	METAL CHIP	0		5% 1/16W

CD-R	CD SW	CLAMP MOTOR	CONNECTOR	DISPLAY
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Ref. No.	Part No.	Description			Remarks	Ref. No.	Part No.	Description			Remarks
R555	1-216-833-11	METAL CHIP	10K	5%	1/16W			< CONNECTOR >			
R556	1-216-833-11	METAL CHIP	10K	5%	1/16W						
		< NETWORK >				* CN712	1-568-954-11	PIN, CONNECTOR 5P			
RB201	1-233-810-21	RES, NETWORK 100K (3216)						< DIODE >			
RB504	1-233-810-21	RES, NETWORK 100K (3216)				D701	8-719-983-66	DIODE MTZJ-T-72-3.6B			
RB505	1-233-810-21	RES, NETWORK 100K (3216)						< IC >			
RB506	1-233-810-21	RES, NETWORK 100K (3216)				IC701	8-759-633-65	IC M54641L			
RB508	1-233-810-21	RES, NETWORK 100K (3216)						< RESISTOR >			
RB509	1-233-810-21	RES, NETWORK 100K (3216)				R701	1-249-411-11	CARBON	330	5%	1/4W
RB510	1-233-810-21	RES, NETWORK 100K (3216)				R702	1-249-401-11	CARBON	47	5%	1/4W F
RB511	1-233-810-21	RES, NETWORK 100K (3216)				*****					
RB512	1-233-810-21	RES, NETWORK 100K (3216)					1-675-722-11	CONNECTOR BOARD			
RB513	1-233-810-21	RES, NETWORK 100K (3216)						*****			
RB514	1-233-810-21	RES, NETWORK 100K (3216)						< CONNECTOR >			
RB515	1-233-810-21	RES, NETWORK 100K (3216)				CN701	1-770-169-11	CONNECTOR, FFC/FPC 17P			
RB516	1-233-810-21	RES, NETWORK 100K (3216)						< TRANSISTOR >			
RB517	1-233-810-21	RES, NETWORK 100K (3216)				Q701	8-729-029-66	TRANSISTOR DTC114ESA			
RB518	1-233-810-21	RES, NETWORK 100K (3216)						< RESISTOR >			
RB519	1-233-810-21	RES, NETWORK 100K (3216)				R707	1-249-424-11	CARBON	3.9K	5%	1/4W F
RB520	1-233-810-21	RES, NETWORK 100K (3216)				R708	1-249-417-11	CARBON	1K	5%	1/4W F
RB521	1-233-810-21	RES, NETWORK 100K (3216)				R709	1-249-429-11	CARBON	10K	5%	1/4W
RB522	1-233-810-21	RES, NETWORK 100K (3216)				*****					
		< SWITCH >					A-4676-881-A	DISPLAY BOARD, COMPLETE			
S170	1-786-288-11	SWITCH, DETECTION (LOAD IN)						*****			
S171	1-786-288-11	SWITCH, DETECTION (LOAD OUT)					4-949-935-41	CUSHION (FL)			
		< VIBRATOR >				*	4-996-686-03	HOLDER (FL)			
X201	1-795-519-11	VIBRATOR, CRYSTAL (33.8688MHz)						< CAPACITOR >			
X501	1-795-622-21	VIBRATOR, CERAMIC (20MHZ)									

	1-684-810-11	CD SW BOARD									

		< CONNECTOR >									
CN725	1-750-194-11	CONNECTOR, BOARD TO BOARD 4P				C751	1-124-261-00	ELECT	10uF	20%	50V
		< RESISTOR >				C753	1-124-261-00	ELECT	10uF	20%	50V
R725	1-249-417-11	CARBON	1K	5%	1/4W F	C760	1-124-261-00	ELECT	10uF	20%	50V
R726	1-249-419-11	CARBON	1.5K	5%	1/4W F	C761	1-162-294-31	CERAMIC	0.001uF	10%	50V
R727	1-249-421-11	CARBON	2.2K	5%	1/4W F	C762	1-162-294-31	CERAMIC	0.001uF	10%	50V
R728	1-249-425-11	CARBON	4.7K	5%	1/4W F	C763	1-164-159-11	CERAMIC	0.1uF		50V
R729	1-249-429-11	CARBON	10K	5%	1/4W	C764	1-124-261-00	ELECT	10uF	20%	50V
		< SWITCH >				C765	1-164-159-11	CERAMIC	0.1uF		50V
S725	1-762-875-21	SWITCH, KEYBOARD (PLAY MODE)				C766	1-162-215-31	CERAMIC	47PF	5%	50V
S726	1-762-875-21	SWITCH, KEYBOARD (TIME)				C767	1-164-159-11	CERAMIC	0.1uF		50V
S727	1-762-875-21	SWITCH, KEYBOARD (▶)				C768	1-162-294-31	CERAMIC	0.001uF	10%	50V
S728	1-762-875-21	SWITCH, KEYBOARD (■)				C769	1-162-294-31	CERAMIC	0.001uF	10%	50V
S729	1-762-875-21	SWITCH, KEYBOARD (■)				C770	1-162-294-31	CERAMIC	0.001uF	10%	50V

	1-675-729-11	CLAMP MOTOR BOARD						< CONNECTOR >			
		*****				CN700	1-779-289-11	CONNECTOR, FFC(LIF(NON-ZIF))21P			
		< CAPACITOR >				* CN710	1-695-822-11	CONNECTOR, BOARD TO BOARD 8P			
C701	1-162-306-11	CERAMIC	0.01uF	30%	16V	CN720	1-750-185-11	CONNECTOR, BOARD TO BOARD 4P			
C702	1-126-964-11	ELECT	10uF	20%	50V			< DIODE >			
C706	1-162-306-11	CERAMIC	0.01uF	30%	16V	D775	8-719-046-39	DIODE SEL5821A-TP15 (SBM)			
C711	1-162-306-11	CERAMIC	0.01uF	30%	16V						

RCD-W222ES

DISPLAY **HP**

Ref. No.	Part No.	Description	Remarks
		< FLUORESCENT INDICATOR TUBE >	
FL750	1-518-789-11	INDICATOR TUBE, FLUORESCENT	
		< IC >	
IC760	8-759-680-17	IC MSM9201-04GS-K	
		< TRANSISTOR >	
Q761	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q762	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q775	8-729-900-80	TRANSISTOR DTC114ES	
		< RESISTOR >	
R701	1-249-409-11	CARBON 220 5% 1/4W F	
R702	1-249-411-11	CARBON 330 5% 1/4W	
R703	1-249-413-11	CARBON 470 5% 1/4W F	
R704	1-249-415-11	CARBON 680 5% 1/4W F	
R711	1-249-409-11	CARBON 220 5% 1/4W F	
R712	1-249-411-11	CARBON 330 5% 1/4W	
R713	1-249-413-11	CARBON 470 5% 1/4W F	
R714	1-249-415-11	CARBON 680 5% 1/4W F	
R715	1-249-417-11	CARBON 1K 5% 1/4W F	
R716	1-249-419-11	CARBON 1.5K 5% 1/4W F	
R717	1-249-421-11	CARBON 2.2K 5% 1/4W F	
R718	1-249-425-11	CARBON 4.7K 5% 1/4W F	
R719	1-249-429-11	CARBON 10K 5% 1/4W	
R721	1-249-409-11	CARBON 220 5% 1/4W F	
R722	1-249-411-11	CARBON 330 5% 1/4W	
R723	1-249-413-11	CARBON 470 5% 1/4W F	
R724	1-249-415-11	CARBON 680 5% 1/4W F	
R761	1-247-807-31	CARBON 100 5% 1/4W	
R762	1-247-807-31	CARBON 100 5% 1/4W	
R763	1-249-441-11	CARBON 100K 5% 1/4W	
R764	1-249-441-11	CARBON 100K 5% 1/4W	
R766	1-247-843-11	CARBON 3.3K 5% 1/4W	
R767	1-247-807-31	CARBON 100 5% 1/4W	
R768	1-247-807-31	CARBON 100 5% 1/4W	
R769	1-247-807-31	CARBON 100 5% 1/4W	
R770	1-247-807-31	CARBON 100 5% 1/4W	
R775	1-249-409-11	CARBON 220 5% 1/4W F	
		< VARIABLE RESISTOR >	
RV780	1-223-673-11	RES, VAR, CARBON 10K (REC LEVEL)	
		< SWITCH >	
S700	1-762-875-21	SWITCH, KEYBOARD (ERASE)	
S701	1-762-875-21	SWITCH, KEYBOARD (FINALIZE)	
S702	1-762-875-21	SWITCH, KEYBOARD (INPUT)	
S703	1-762-875-21	SWITCH, KEYBOARD (SBM)	
S704	1-762-875-21	SWITCH, KEYBOARD (REC ●)	
S710	1-762-875-21	SWITCH, KEYBOARD (▶)	
S711	1-762-875-21	SWITCH, KEYBOARD (■)	
S712	1-762-875-21	SWITCH, KEYBOARD (■)	
S713	1-762-875-21	SWITCH, KEYBOARD (PLAY MODE)	
S714	1-762-875-21	SWITCH, KEYBOARD (TIME)	
S715	1-762-875-21	SWITCH, KEYBOARD (DISPLAY)	
S716	1-762-875-21	SWITCH, KEYBOARD (YES)	
S717	1-475-235-31	ENCODER, ROTARY	
		(<<AMS>> /PUSH ENTER)	
S718	1-762-875-21	SWITCH, KEYBOARD (MENU/NO)	

Ref. No.	Part No.	Description	Remarks
S719	1-762-875-21	SWITCH, KEYBOARD (CLEAR)	
S720	1-762-875-21	SWITCH, KEYBOARD (OPEN/CLOSE)	
S721	1-762-875-21	SWITCH, KEYBOARD (NOMAL)	
S722	1-762-875-21	SWITCH, KEYBOARD (HIGH)	
S723	1-475-235-31	ENCODER, ROTARY	
		(<<AMS>> /PUSH ENTER)	
S724	1-762-875-21	SWITCH, KEYBOARD (CLEAR)	

	A-4676-885-A	HP BOARD, COMPLETE	

		< CAPACITOR >	
C811	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
C812	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C821	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
C822	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C831	1-135-835-91	ELECT 1000uF 16V	
C836	1-135-681-91	ELECT 100uF 25V	
C851	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C852	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
		< CONNECTOR >	
* CN851	1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P	
		< IC >	
IC851	8-759-359-60	IC NJM4556AD-D	
		< JACK >	
J851	1-770-307-11	JACK (LARGE TYPE) (PHONES)	
		< COIL >	
L851	1-410-397-21	FERRITE BEAD INDUCTOR	
		< TRANSISTOR >	
Q811	8-729-231-55	TRANSISTOR 2SC2878-AB	
Q821	8-729-231-55	TRANSISTOR 2SC2878-AB	
		< RESISTOR >	
R811	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R812	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R813	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R814	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R815	1-216-810-11	METAL CHIP 120 5% 1/16W	
R816	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R821	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R822	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R823	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R824	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R825	1-216-810-11	METAL CHIP 120 5% 1/16W	
R826	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
		< VARIABLE RESISTOR >	
RV851	1-225-586-11	RES, VAR, CARBON 20K/20K (PHONE LEVEL)	

	1-675-724-11	INIT/COUNT SW BOARD	

INT/COUNT SW

IN SW

LED

LOAD MOTOR

MAIN

Ref. No.	Part No.	Description	Remarks
		< SWITCH >	
S705	1-771-264-11	SWITCH, PUSH(DETECTION)(1 KEY) (INIT)	
S706	1-771-264-11	SWITCH, PUSH(DETECTION)(1 KEY) (COUNT)	

	1-675-723-11	IN SW BOARD	

		< CONNECTOR >	
* CN710	1-568-941-11	PIN, CONNECTOR 3P	
		< SWITCH >	
S703	1-771-218-11	SWITCH, MICRO (MID IN)	
S704	1-771-218-11	SWITCH, MICRO (IN)	

	A-4676-879-A	LED BOARD, COMPLETE	

		< CAPACITOR >	
C750	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C762	1-162-962-11	CERAMIC CHIP 470PF	10% 50V
		< CONNECTOR >	
* CN780	1-695-823-11	CONNECTOR, BOARD TO BOARD 8P	
		< DIODE >	
D751	8-719-057-29	DIODE SML78423C-TP15 (DISC 1)	
D752	8-719-057-29	DIODE SML78423C-TP15 (DISC 2)	
D753	8-719-057-29	DIODE SML78423C-TP15 (DISC 3)	
D754	8-719-057-29	DIODE SML78423C-TP15 (DISC 4)	
D755	8-719-057-29	DIODE SML78423C-TP15 (DISC 5)	
		< IC >	
IC750	8-759-366-45	IC NJU3713G(TE2)	
		< RESISTOR >	
R701	1-216-813-11	METAL CHIP 220	5% 1/16W
R702	1-216-815-11	METAL CHIP 330	5% 1/16W
R703	1-216-817-11	METAL CHIP 470	5% 1/16W
R704	1-216-819-11	METAL CHIP 680	5% 1/16W
R705	1-216-821-11	METAL CHIP 1K	5% 1/16W
R706	1-216-823-11	METAL CHIP 1.5K	5% 1/16W
R707	1-216-825-11	METAL CHIP 2.2K	5% 1/16W
R708	1-216-829-11	METAL CHIP 4.7K	5% 1/16W
R709	1-216-833-11	METAL CHIP 10K	5% 1/16W
R760	1-216-809-11	METAL CHIP 100	5% 1/16W
R761	1-216-809-11	METAL CHIP 100	5% 1/16W
R762	1-216-809-11	METAL CHIP 100	5% 1/16W
R763	1-216-809-11	METAL CHIP 100	5% 1/16W
R771	1-216-813-11	METAL CHIP 220	5% 1/16W
R772	1-216-813-11	METAL CHIP 220	5% 1/16W
R773	1-216-813-11	METAL CHIP 220	5% 1/16W
R774	1-216-813-11	METAL CHIP 220	5% 1/16W
R775	1-216-813-11	METAL CHIP 220	5% 1/16W
R781	1-216-813-11	METAL CHIP 220	5% 1/16W
R782	1-216-813-11	METAL CHIP 220	5% 1/16W
R783	1-216-813-11	METAL CHIP 220	5% 1/16W
R784	1-216-813-11	METAL CHIP 220	5% 1/16W
R785	1-216-813-11	METAL CHIP 220	5% 1/16W

Ref. No.	Part No.	Description	Remarks
		< SWITCH >	
S700	1-762-875-21	SWITCH, KEYBOARD (DISC 1)	
S701	1-762-875-21	SWITCH, KEYBOARD (DISC 1 ㊦)	
S702	1-762-875-21	SWITCH, KEYBOARD (DISC 2)	
S703	1-762-875-21	SWITCH, KEYBOARD (DISC 2 ㊦)	
S704	1-762-875-21	SWITCH, KEYBOARD (DISC 3)	
S705	1-762-875-21	SWITCH, KEYBOARD (DISC 3 ㊦)	
S706	1-762-875-21	SWITCH, KEYBOARD (DISC 4)	
S707	1-762-875-21	SWITCH, KEYBOARD (DISC 4 ㊦)	
S708	1-762-875-21	SWITCH, KEYBOARD (DISC 5)	
S709	1-762-875-21	SWITCH, KEYBOARD (DISC 5 ㊦)	

	1-675-728-11	LOAD MOTOR BOARD	

		< CAPACITOR >	
C703	1-162-306-11	CERAMIC 0.01uF	30% 16V
C704	1-126-964-11	ELECT 10uF	20% 50V
C705	1-162-306-11	CERAMIC 0.01uF	30% 16V
C712	1-162-306-11	CERAMIC 0.01uF	30% 16V
		< CONNECTOR >	
* CN713	1-568-954-11	PIN, CONNECTOR 5P	
		< DIODE >	
D702	8-719-109-85	DIODE RD5.1ESB2	
		< IC >	
IC702	8-759-633-65	IC M54641L	
		< RESISTOR >	
R703	1-249-411-11	CARBON 330	5% 1/4W
R704	1-249-401-11	CARBON 47	5% 1/4W F

	A-4676-878-A	MAIN BOARD, COMPLETE	

	7-685-546-19	SCREW +BTP 3X8 TYPE2 N-S	
		< CAPACITOR >	
C9	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C11	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C12	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C19	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V
C20	1-117-863-11	CERAMIC CHIP 0.47uF	10% 6.3V
C34	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C37	1-126-960-11	ELECT 1uF	20% 50V
C41	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C58	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C74	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C76	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C100	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C111	1-136-356-11	MYLAR 470PF	5% 50V
C112	1-119-800-11	ELECT 100uF	20% 25V
C113	1-119-800-11	ELECT 100uF	20% 25V
C118	1-119-800-11	ELECT 100uF	20% 25V
C170	1-119-800-11	ELECT 100uF	20% 25V
C171	1-137-503-11	MYLAR 0.0001uF	5% 50V
C172	1-136-287-11	MYLAR 0.0047uF	5% 50V

RCD-W222ES

MAIN

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
C173	1-137-365-11	MYLAR	0.0015uF 5%	50V	C492	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C174	1-128-201-11	ELECT	100uF 20%	50V	C505	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C175	1-136-356-11	MYLAR	470PF 5%	50V	C517	1-135-667-91	ELECT 220uF 10V
C211	1-136-356-11	MYLAR	470PF 5%	50V	C518	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C212	1-119-800-11	ELECT	100uF 20%	25V	C520	1-162-920-11	CERAMIC CHIP 27PF 5% 50V
C213	1-119-800-11	ELECT	100uF 20%	25V	C521	1-162-920-11	CERAMIC CHIP 27PF 5% 50V
C218	1-119-800-11	ELECT	100uF 20%	25V	C530	1-135-667-91	ELECT 220uF 10V
C270	1-119-800-11	ELECT	100uF 20%	25V	C531	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C271	1-137-503-11	MYLAR	0.0001uF 5%	50V	C534	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C272	1-136-287-11	MYLAR	0.0047uF 5%	50V	C535	1-135-667-91	ELECT 220uF 10V
C273	1-137-365-11	MYLAR	0.0015uF 5%	50V	C539	1-135-667-91	ELECT 220uF 10V
C274	1-128-201-11	ELECT	100uF 20%	50V	C541	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C275	1-136-356-11	MYLAR	470PF 5%	50V	C551	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C300	1-135-748-11	ELECT	4700uF	35V	C552	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C301	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C553	1-216-864-11	METAL CHIP 0 5% 1/16W
C303	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C554	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C310	1-135-748-11	ELECT	4700uF	35V	C555	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C311	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C556	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C313	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C602	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C321	1-135-710-91	ELECT	220uF	16V	C604	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C322	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C606	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C326	1-135-710-91	ELECT	220uF	16V	C611	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C327	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C612	1-127-718-91	ELECT 100uF 10V
C331	1-135-710-91	ELECT	220uF	16V	C613	1-136-165-00	FILM 0.1uF 5% 50V
C332	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C617	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C336	1-135-710-91	ELECT	220uF	16V	C620	1-104-645-11	CERAMIC 1uF 20% 50V
C337	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C621	1-136-165-00	FILM 0.1uF 5% 50V
C350	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C630	1-216-864-11	METAL CHIP 0 5% 1/16W
C400	1-126-939-11	ELECT	10000uF 20%	16V	C631	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C401	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C632	1-127-718-91	ELECT 100uF 10V
C403	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C641	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C404	1-126-926-11	ELECT	1000uF 20%	10V	C642	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C410	1-126-939-11	ELECT	10000uF 20%	16V	C643	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C411	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C650	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C413	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C651	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C414	1-126-926-11	ELECT	1000uF 20%	10V	C652	1-127-718-91	ELECT 100uF 10V
C420	1-135-710-91	ELECT	220uF	16V	C661	1-162-927-11	CERAMIC CHIP 100PF 5% 50V
C421	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C662	1-136-165-00	FILM 0.1uF 5% 50V
C423	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C670	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C424	1-135-667-91	ELECT	220uF	10V	C671	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C430	1-128-548-11	ELECT	4700uF 20%	25V	C672	1-127-718-91	ELECT 100uF 10V
C431	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C680	1-104-645-11	CERAMIC 1uF 20% 50V
C433	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C681	1-104-645-11	CERAMIC 1uF 20% 50V
C434	1-126-926-11	ELECT	1000uF 20%	10V	C910	1-165-319-11	CERAMIC CHIP 0.1uF 50V
C441	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C911	1-165-319-11	CERAMIC CHIP 0.1uF 50V
C443	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C912	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C444	1-126-926-11	ELECT	1000uF 20%	10V	C913	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C450	1-128-548-11	ELECT	4700uF 20%	25V	C916	1-131-679-31	FILM 0.01uF 5% 50V
C451	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C917	1-131-679-31	FILM 0.01uF 5% 50V
C453	1-164-156-11	CERAMIC CHIP	0.1uF	25V	C918	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C454	1-126-926-11	ELECT	1000uF 20%	10V	C919	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C460	1-128-576-11	ELECT	100uF 20%	63V	C920	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C463	1-165-319-11	CERAMIC CHIP	0.1uF	50V	C921	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C465	1-126-967-11	ELECT	47uF 20%	50V			< CONNECTOR >
C471	1-126-964-11	ELECT	10uF 20%	25V			
C472	1-104-657-91	ELECT	47uF 20%	25V			
C476	1-164-156-11	CERAMIC CHIP	0.1uF	25V	CN1	1-784-367-11	CONNECTOR, FFC/FPC 8P
C480	1-164-156-11	CERAMIC CHIP	0.1uF	25V	CN630	1-784-370-21	CONNECTOR, FFC/FPC 11P
C481	1-162-974-11	CERAMIC CHIP	0.01uF	50V	CN640	1-784-376-11	CONNECTOR, FFC/FPC 17P
C490	1-126-935-11	ELECT	470uF	16V	* CN641	1-568-954-11	PIN, CONNECTOR 5P
					CN660	1-793-991-11	CONNECTOR, FFC/FPC 23P

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
CN671	1-778-692-11	CONNECTOR, FFC/FPC 21P		IC470	8-759-387-77	IC TC7WU04F-TE12L	
* CN690	1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P		IC480	8-759-598-06	IC S-80942ANMP-DD6-T2	
CN910	1-691-768-11	PLUG (MICRO CONNECTOR) 6P		IC500	6-701-843-01	IC CXD9692R	
CN920	1-691-767-11	PLUG (MICRO CONNECTOR) 5P		IC611	6-600-000-01	IC GP1FA512RZB (OPTICAL IN)	
		< DIODE >		IC631	8-759-267-86	IC SN74HC00ANSR	
D111	8-719-988-61	DIODE 1SS355TE-17		IC651	6-600-001-01	IC GP1FA512TZC (OPTICAL OUT)	
D112	8-719-988-61	DIODE 1SS355TE-17		IC671	8-759-387-77	IC TC7WU04F-TE12L	
D181	8-719-820-05	DIODE 1SS181				< JACK >	
D211	8-719-988-61	DIODE 1SS355TE-17		J310	1-784-430-11	JACK, PIN 4P (ANALOG IN/OUT)	
D212	8-719-988-61	DIODE 1SS355TE-17		J621	1-784-432-11	JACK, PIN 1P (COAXIAL IN)	
D301	8-719-200-02	DIODE 10E-2		J661	1-784-689-11	JACK, PIN 1P (COAXIAL OUT)	
D302	8-719-200-02	DIODE 10E-2				< COIL >	
D303	8-719-085-36	DIODE 11EQS04-TB5		L517	1-216-295-91	SHORT CHIP 0	
D310	8-719-988-61	DIODE 1SS355TE-17		L519	1-216-295-91	SHORT CHIP 0	
D311	8-719-200-02	DIODE 10E-2		L520	1-216-295-91	SHORT CHIP 0	
D312	8-719-200-02	DIODE 10E-2		L536	1-216-295-91	SHORT CHIP 0	
D313	8-719-085-36	DIODE 11EQS04-TB5		L539	1-216-295-91	SHORT CHIP 0	
D401	8-719-085-36	DIODE 11EQS04-TB5		L605	1-216-296-11	SHORT CHIP 0	
D402	8-719-085-36	DIODE 11EQS04-TB5		L606	1-216-296-11	SHORT CHIP 0	
D403	8-719-085-36	DIODE 11EQS04-TB5		L611	1-412-056-11	INDUCTOR 4.7uH	
D404	8-719-085-36	DIODE 11EQS04-TB5		L617	1-216-296-11	SHORT CHIP 0	
D411	8-719-200-02	DIODE 10E-2		L619	1-216-295-91	SHORT CHIP 0	
D412	8-719-200-02	DIODE 10E-2		L636	1-216-295-91	SHORT CHIP 0	
D426	1-216-295-91	CONDUCTOR, CHIP (2012)		L651	1-412-056-11	INDUCTOR 4.7uH	
D431	8-719-200-02	DIODE 10E-2		L652	1-414-235-22	FERRITE 0uH	
D432	8-719-200-02	DIODE 10E-2				< TRANSISTOR >	
D433	8-719-200-02	DIODE 10E-2		Q181	8-729-231-55	TRANSISTOR 2SC2878-AB	
D434	8-719-200-02	DIODE 10E-2		Q281	8-729-231-55	TRANSISTOR 2SC2878-AB	
D451	8-719-200-02	DIODE 10E-2		Q310	8-729-922-37	TRANSISTOR 2SD2144S-UVW	
D452	8-719-200-02	DIODE 10E-2		Q380	8-729-015-74	TRANSISTOR UN5111	
D453	8-719-200-02	DIODE 10E-2				< RESISTOR >	
D454	8-719-200-02	DIODE 10E-2		R3	1-216-833-11	METAL CHIP 10K 5% 1/16W	
D461	8-719-200-02	DIODE 10E-2		R6	1-216-833-11	METAL CHIP 10K 5% 1/16W	
D462	8-719-422-23	DIODE MA8047		R12	1-216-845-11	METAL CHIP 100K 5% 1/16W	
D471	8-719-988-61	DIODE 1SS355TE-17		R13	1-216-864-11	METAL CHIP 0 5% 1/16W	
D472	8-719-988-61	DIODE 1SS355TE-17		R15	1-216-833-11	METAL CHIP 10K 5% 1/16W	
D473	8-719-988-61	DIODE 1SS355TE-17		R18	1-216-833-11	METAL CHIP 10K 5% 1/16W	
D491	8-719-200-02	DIODE 10E-2		R19	1-216-849-11	METAL CHIP 220K 5% 1/16W	
D492	8-719-200-02	DIODE 10E-2		R20	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
D493	8-719-420-92	DIODE MA8051-M-TX		R21	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
		< GROUND TERMINAL >		R25	1-216-845-11	METAL CHIP 100K 5% 1/16W	
EP910	1-537-771-21	TERMINAL BOARD, GROUND		R46	1-216-833-11	METAL CHIP 10K 5% 1/16W	
		< IC >		R63	1-216-833-11	METAL CHIP 10K 5% 1/16W	
IC1	6-802-234-01	IC uPD70F3033AYGF-M04-3BA		R64	1-216-833-11	METAL CHIP 10K 5% 1/16W	
IC100	8-759-643-31	IC BR24C02FV-WE2		R66	1-216-845-11	METAL CHIP 100K 5% 1/16W	
IC300	8-759-605-00	IC M5F78M07L		R72	1-216-833-11	METAL CHIP 10K 5% 1/16W	
IC310	8-759-604-95	IC M5F79M07L		R73	1-216-833-11	METAL CHIP 10K 5% 1/16W	
IC320	8-759-712-02	IC NJM2114D		R87	1-216-833-11	METAL CHIP 10K 5% 1/16W	
IC330	8-759-712-02	IC NJM2114D		R88	1-216-833-11	METAL CHIP 10K 5% 1/16W	
IC340	8-759-712-02	IC NJM2114D		R107	1-216-833-11	METAL CHIP 10K 5% 1/16W	
IC400	8-759-450-47	IC BA05T		R111	1-249-588-91	CARBON 33K 5% 1/4W	
IC410	8-759-450-47	IC BA05T		R112	1-249-955-11	CARBON 22K 5% 1/4W	
IC420	8-759-604-35	IC M5F78M05L		R113	1-247-887-00	CARBON 220K 5% 1/4W	
IC430	8-759-231-55	IC TA7808S		R115	1-249-891-11	CARBON 47 5% 1/4W	
IC440	8-759-071-48	IC TA7807S		R170	1-249-947-11	CARBON 10K 5% 1/4W	
IC450	8-759-231-55	IC TA7808S		R171	1-249-405-11	CARBON 100 5% 1/4W	F
IC460	8-759-633-42	IC M5293L					

RCD-W222ES

MAIN	OUT SW	POWER SW
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Ref. No.	Part No.	Description	Remarks
R172	1-249-923-11	CARBON 1K 5%	1/4W
R173	1-249-925-11	CARBON 1.2K 5%	1/4W
R174	1-249-923-11	CARBON 1K 5%	1/4W
R175	1-249-923-11	CARBON 1K 5%	1/4W
R176	1-249-469-11	CARBON 100K 5%	1/4W
R177	1-249-919-11	CARBON 680 5%	1/4W
R178	1-247-706-11	CARBON 330 5%	1/4W F
R181	1-249-947-11	CARBON 10K 5%	1/4W
R211	1-249-588-91	CARBON 33K 5%	1/4W
R212	1-249-955-11	CARBON 22K 5%	1/4W
R213	1-247-887-00	CARBON 220K 5%	1/4W
R215	1-249-891-11	CARBON 47 5%	1/4W
R270	1-249-947-11	CARBON 10K 5%	1/4W
R271	1-249-405-11	CARBON 100 5%	1/4W F
R272	1-249-923-11	CARBON 1K 5%	1/4W
R273	1-249-925-11	CARBON 1.2K 5%	1/4W
R274	1-249-923-11	CARBON 1K 5%	1/4W
R275	1-249-923-11	CARBON 1K 5%	1/4W
R276	1-249-469-11	CARBON 100K 5%	1/4W
R277	1-249-919-11	CARBON 680 5%	1/4W
R278	1-247-706-11	CARBON 330 5%	1/4W F
R281	1-249-947-11	CARBON 10K 5%	1/4W
△ R305	1-217-637-00	FUSIBLE 1 5%	1/4W
R310	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R311	1-216-841-11	METAL CHIP 47K 5%	1/16W
△ R315	1-217-639-51	FUSIBLE 2.2 5%	1/4W
R381	1-216-845-11	METAL CHIP 100K 5%	1/16W
R461	1-216-837-11	METAL CHIP 22K 5%	1/16W
R462	1-216-845-11	METAL CHIP 100K 5%	1/16W
R463	1-216-813-11	METAL CHIP 220 5%	1/16W
R464	1-216-813-11	METAL CHIP 220 5%	1/16W
R471	1-216-809-11	METAL CHIP 100 5%	1/16W
R472	1-202-925-91	RES-CHIP 1.6K 5%	1/10W
R473	1-216-821-11	METAL CHIP 1K 5%	1/16W
R474	1-216-833-11	METAL CHIP 10K 5%	1/16W
R475	1-216-840-11	METAL CHIP 39K 5%	1/16W
R476	1-216-853-11	METAL CHIP 470K 5%	1/16W
R477	1-216-821-11	METAL CHIP 1K 5%	1/16W
R480	1-216-841-11	METAL CHIP 47K 5%	1/16W
R491	1-216-821-11	METAL CHIP 1K 5%	1/16W
R500	1-216-864-11	METAL CHIP 0 5%	1/16W
R504	1-216-864-11	METAL CHIP 0 5%	1/16W
R506	1-216-809-11	METAL CHIP 100 5%	1/16W
R507	1-216-809-11	METAL CHIP 100 5%	1/16W
R508	1-216-809-11	METAL CHIP 100 5%	1/16W
R509	1-216-809-11	METAL CHIP 100 5%	1/16W
R510	1-216-809-11	METAL CHIP 100 5%	1/16W
R511	1-216-809-11	METAL CHIP 100 5%	1/16W
R513	1-414-760-21	FERRITE 0	
R514	1-216-864-11	METAL CHIP 0 5%	1/16W
R515	1-216-864-11	METAL CHIP 0 5%	1/16W
R516	1-216-864-11	METAL CHIP 0 5%	1/16W
R520	1-216-815-11	METAL CHIP 330 5%	1/16W
R521	1-216-857-11	METAL CHIP 1M 5%	1/16W
R526	1-216-833-11	METAL CHIP 10K 5%	1/16W
R540	1-216-994-11	RES-CHIP 13K 5%	1/10W
R544	1-216-864-11	METAL CHIP 0 5%	1/16W
R550	1-216-864-11	METAL CHIP 0 5%	1/16W
R611	1-216-809-11	METAL CHIP 100 5%	1/16W
R613	1-216-833-11	METAL CHIP 10K 5%	1/16W

Ref. No.	Part No.	Description	Remarks
R619	1-216-813-11	METAL CHIP 220 5%	1/16W
R620	1-218-285-11	RES-CHIP 75 5%	1/10W
R621	1-216-809-11	METAL CHIP 100 5%	1/16W
R623	1-216-845-11	METAL CHIP 100K 5%	1/16W
R626	1-216-817-11	METAL CHIP 470 5%	1/16W
R630	1-216-864-11	METAL CHIP 0 5%	1/16W
R636	1-216-81311	METAL CHIP 220 5%	1/16W
R638	1-216-864-11	METAL CHIP 0 5%	1/16W
R661	1-216-807-11	METAL CHIP 68 5%	1/16W
R662	1-216-813-11	METAL CHIP 220 5%	1/16W
R663	1-216-806-11	RES-CHIP 56 5%	1/10W
R664	1-216-809-11	METAL CHIP 100 5%	1/16W
R1087	1-216-833-11	METAL CHIP 10K 5%	1/16W
R1088	1-216-833-11	METAL CHIP 10K 5%	1/16W
< NETWORK >			
RB43	1-236-908-11	RES, CHIP NETWORK 10K (3216)	
RB47	1-236-908-11	RES, CHIP NETWORK 10K (3216)	
RB51	1-236-908-11	RES, CHIP NETWORK 10K (3216)	
RB54	1-236-908-11	RES, CHIP NETWORK 10K (3216)	
RB68	1-236-908-11	RES, CHIP NETWORK 10K (3216)	
RB77	1-233-418-11	RES, CHIP NETWORK 3.3K (3216)	
RB90	1-236-908-11	RES, CHIP NETWORK 10K (3216)	
< RELAY >			
RY310	1-515-622-11	RELAY	
< TRANSFORMER >			
T661	1-409-594-11	COIL (WITH CORE)	
< VIBRATOR >			
X38	1-795-721-21	VIBRATOR, CERAMIC (20MHz)	

	1-675-725-11	OUT SW BOARD	*****
< CONNECTOR >			
* CN709	1-568-943-11	PIN, CONNECTOR 5P	
< SWITCH >			
S701	1-771-218-11	SWITCH, MICRO (MID OUT)	
S702	1-771-218-11	SWITCH, MICRO (LID)	
S708	1-771-218-11	SWITCH, MICRO (OUT)	

	1-684-811-11	POWER SW BOARD	*****
< CAPACITOR >			
△ C921	1-113-920-11	CERAMIC 0.002uF 20% 250V	
< CONNECTOR >			
* CN920	1-580-230-31	PIN, CONNECTOR (PC BOARD) 2P	
CN921	1-769-745-21	LEAD (WITH CONNECTOR) (2 CORE)	
< SWITCH >			
△ S921	1-572-267-51	SWITCH, PUSH (AC POWER)(1 KEY) (POWER)	

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

RM

SENSOR

SENSOR 2

Ref. No.	Part No.	Description	Remarks
	1-684-813-11	RM BOARD *****	
		< CAPACITOR >	
C741	1-164-159-11	CERAMIC	0.1uF 50V
C742	1-124-584-00	ELECT	100uF 20% 10V
		< IC >	
IC740	6-600-107-01	IC GP1UM27SXX	
		< RESISTOR >	
R741	1-247-807-31	CARBON	100 5% 1/4W
R742	1-249-401-11	CARBON	47 5% 1/4W F

	1-675-726-11	SENSOR BOARD *****	
		< CONNECTOR >	
CN708	1-506-481-11	PIN, CONNECTOR 2P	
		< DIODE >	
D704	8-719-055-84	DIODE GL528VS1	
		< RESISTOR >	
R711	1-249-415-11	CARBON	680 5% 1/4W F

	1-675-727-11	SENSOR 2 BOARD *****	
	4-964-461-02	HOLDER (SENSOR)	
		< TRANSISTOR >	
Q703	8-729-921-53	PHOTO TRANSISTOR PT483F1	

		MISCELLANEOUS *****	
67	1-823-923-11	WIRE (FLAT TYPE) (21 CORE)	
103	1-823-922-11	WIRE (FLAT TYPE) (11 CORE)	
106	1-823-925-11	WIRE (FLAT TYPE) (17 CORE)	
107	1-823-924-11	WIRE (FLAT TYPE) (23 CORE)	
△108	1-790-154-31	CORD, POWER	
605	1-782-817-11	WIRE (FLAT TYPE) (16 CORE)	
* 658	1-452-958-11	MAGNET (CHUCKING)	
△669	8-583-104-01	OPTICAL PICK-UP KRM-220CAA	
670	1-823-651-11	CABLE, FLEXIBLE FLAT (32 CORE)	
M701	X-4950-341-1	MOTOR (CLAMP) ASSY (ELEVATOR UP/DOWN)	
M702	X-4950-342-1	MOTOR (LOADING) ASSY	
M903	A-4735-557-A	MOTOR ASSY	
S707	1-418-045-01	ENCODER, ROTARY (DISC TRAY ADDRESS DET)	
△T901	1-437-791-11	TRANSFORMER, POWER	
△T902	1-437-792-11	TRANSFORMER, POWER	

Ref. No.	Part No.	Description	Remarks
		ACCESSORIES *****	
	1-477-038-11	REMOTE COMMANDER (RM-R51)	
	1-791-732-11	CORD, CONNECTION	
	4-240-491-11	MANUAL, INSTRUCTION (ENGLISH)	
	4-981-643-01	COVER, BATTERY (For RM-R51)	

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

