CDP-CX240

SERVICE MANUAL

US Model
Canadian Model

Model Name Using Similar Mechanism	CDP-CX250
CD Mechanism Type	CDM-40B
Base Unit Type	KSM-213BKN/M-N
Optical Pick-up Type	KSS-213B/S-N

SPECIFICATIONS

Compact disc player

Laser Semiconductor laser (λ = 780 nm)
Emission duration: continuous

Laser output Max 44.6 µW*
* This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up block with 7 mm aperture.

Frequency response 20 Hz to 20 kHz ±0.5 dB

Signal-to-noise ratio More than 107 dB

Dynamic range More than 98 dB

Harmonic distortion Less than 0.0045 %

Channel separation More than 100 dB

Outputs

	Jack type	Maximum output level	Load impedance
LINE OUT	Phono jacks	2 V (at 50 kilohms)	Over 10 kilohms
DIGITAL OUT (OPTICAL)	Optical output connector	–18 dBm	Wave length: 660 nm

General

Power requirements 120 V AC, 60 Hz

Power consumption 12 W

Dimensions (approx.) (w/h/d) When the front cover is closed
430 × 200 × 480 mm (17 × 7 7/8 × 19 in.)
incl. projecting parts

Mass (approx.) 9.5 kg (21 lbs)

Supplied accessories

Audio cord (2 phono plugs – 2 phono plugs) (1)
Remote commander (remote) (1)
Sony SUM-3 (NS) batteries (2)
CD booklet holders (2) and label (1)

Design and specifications are subject to change without notice.

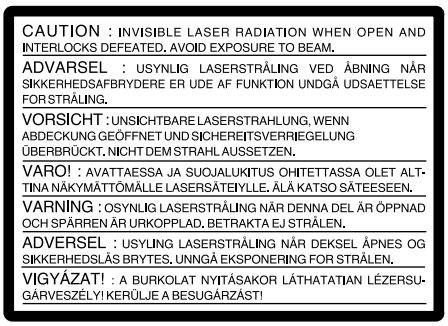
COMPACT DISC PLAYER

MICROFILM

SONY®

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

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



The following caution label is located inside of the unit.

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

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety 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 microampers). 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)

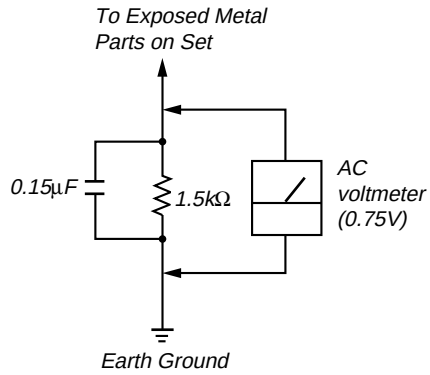


Fig. A. Using an AC voltmeter to check AC leakage.

MODEL IDENTIFICATION — BACK PANEL —

PARTS No.	MODEL
4-999-020-0☐	US
4-999-020-1☐	Canadian

SECTION 1
SERVICING NOTE

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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 repain 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.
The emission check enables continuous checking of the S curve.

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

Carry out the “S curve check” in “CD section adjustment” and check that the S curve waveform is output three times.

CD-TEXT TEST DISC

This unit is able to display the TEXT data (character information) written in the CD on its fluorescent indicator tube.
The CD-TEXT TEST DISC (TGCS-313:J-2501-126-A) is used for checking the display.
To check, perform the following procedure.

Checking Method:

1. Turn ON the power, set the disc on the disc table with the side labeled as “test disc” as the right side, close the front cover, and chuck the disc.
2. The following will be displayed on the fluorescent indicator tube. (The display switches each time the TIME/TEXT button is pressed.)
   Display : Main Artist Test or CD TEXT TEST DISC (Album Title)
3. Press the ▶ button and play back the disc.
4. The following will be displayed on the fluorescent indicator tube. (If nothing is displayed, press the TIME/TEXT button.)
   Display : 1kHz/0 dB/ L&R
5. Rotate ⏮ and ⏭ buttons to switch the track. The text data of each track will be displayed.
   For details of the displayed contents for each track, refer to “Table 1 : CD-TEXT TEST DISC TEXT Data Contents” and “Table 2 : CD-TEXT TEST DISC Recorded Contents and Display”.

Restrictions in CD-TEXT Display

In this unit, some special characters will not be displayed properly. These will be displayed as a space or a character resembling it. For details, refer to “Table 2 : CD-TEXT DISC Recorded Contents and Display”.

Table 1 : CD-TEXT TEST DISC TEXT Data Contents (TRACKS No. 1 to 41:Normal Characters)

TRACK No.	Displayed Contents	TRACK No.	Displayed Contents
1	1kHz/0dB/L&R	22	1kHz/-90dB/L&R
2	20Hz/0dB/L&R	23	Infinity Zero w/o emphasis//L&R
3	40Hz/0dB/L&R	24	Infinity Zero with emphasis//L&R
4	100Hz/0dB/L&R	25	400Hz+7kHz(4:1)/0dB/L&R
5	200Hz/0dB/L&R	26	400Hz+7kHz(4:1)/-10dB/L&R
6	500Hz/0dB/L&R	27	19kHz+20kHz(1:1)/0dB/L&R
7	1kHz/0dB/L&R	28	19kHz+20kHz(1:1)/-10dB/L&R
8	5kHz/0dB/L&R	29	100Hz/0dB/L*
9	7kHz/0dB/L&R	30	1kHz/0dB/L*
10	10kHz/0dB/L&R	31	10kHz/0dB/L*
11	16kHz/0dB/L&R	32	20kHz/0dB/L*
12	18kHz/0dB/L&R	33	100Hz/0dB/R*
13	20kHz/0dB/L&R	34	1kHz/0dB/R*
14	1kHz/0dB/L&R	35	10kHz/0dB/R*
15	1kHz/-1dB/L&R	36	20kHz/0dB/R*
16	1kHz/-3dB/L&R	37	100Hz Squer Wave//L&R
17	1kHz/-6dB/L&R	38	1kHz Squer Wave//L&R
18	1kHz/-10dB/L&R	39	1kHz w/emphasis/-0.37dB/L&R
19	1kHz/-20dB/L&R	40	5kHz w/emphasis/-4.53dB/L&R
20	1kHz/-60dB/L&R	41	16kHz w/emphasis/-9.04dB/L&R
21	1kHz/-80dB/L&R		

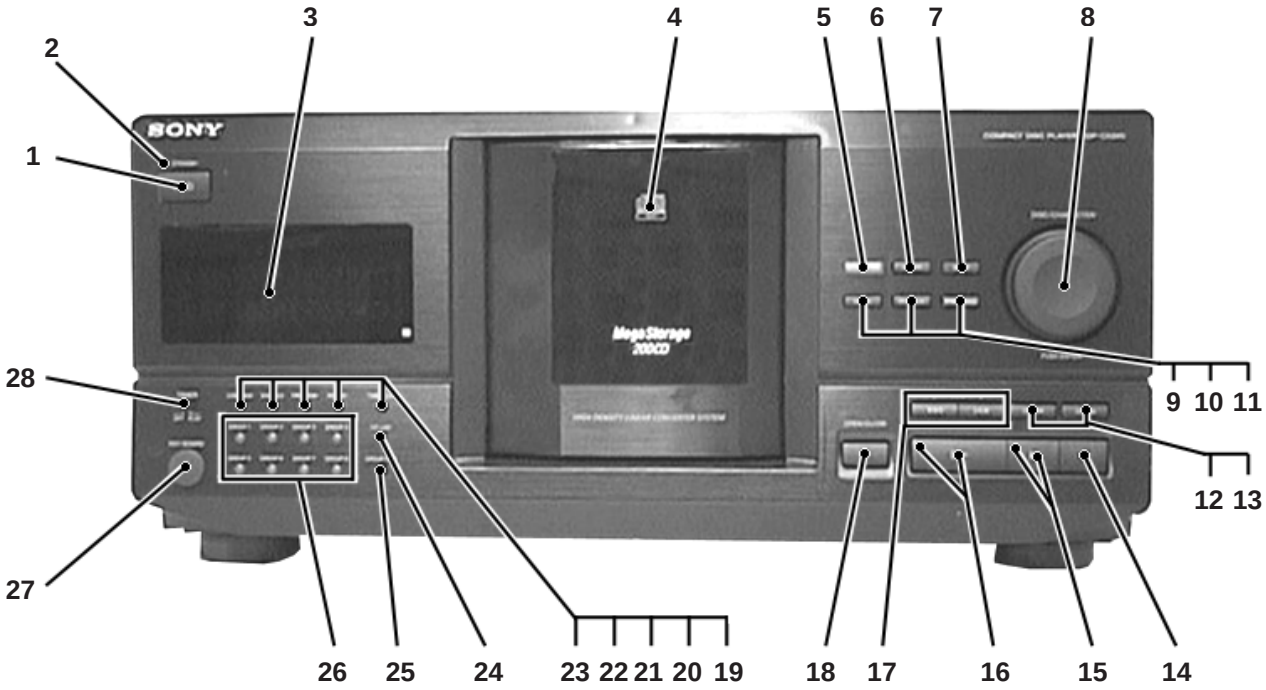
NOTE : The contents of Track No. 1 to 41 are the same as those of the current TEST DISC-their titles are displayed.

Table 2: CD-TEXT TEST DISC Recorded Contents and Display
(In this unit, some special characters cannot be displayed. This is no a fault.)

TRACK No.	Recorded contents	Display
42	! ” # $ % & ´ (21h to 27h)1kHz 0dB L&R	← All the same
43	( ) * + , – . / (28h to 2Fh)	← All the same
44	0 1 2 3 4 5 6 7 (30h to 37h)	← All the same
45	8 9 : ; < = > ? (38h to 3Fh)	← All the same
46	@A B C D E F G (40h to 47h)	← All the same
47	H I J K L M N O (48h to 4Fh)	← All the same
48	P Q R S T U V W (50h to 57h)	← All the same
49	X Y Z [¥] ^ _ (58h to 5Fh)	X Y Z [\ ] ^ _ (58····
50	` a b c d e f g (60h to 57h)	← All the same
51	h i j k l m n o (68h to 6Fh)	← All the same
52	p q r s t u v w (70h to 77h)	← All the same
53	x y z { l } ~ ▉ (78h to 7Fh)	x y z { l } ~ (78····
54	▉ ¡ ¢ £ ¤ ¥ ¦ § (A0h to A7h) 8859-1	(A0···· ▉ is not displayed
55	♪ ⓒ ª « ¬ ⓟ ⓡ ¯ (A8h to AFh)	♪ (A8···· ⓒ ª « ¬ ⓟ ⓡ ¯ are not displayed
56	· ± ² ³ ´ µ ¶ • (B0h to B7h)	´ µ • (B0···· · ± ² ³ ¶ are not displayed
57	† ¹ º » ¼ ½ ¾ ¿ (B8h to BFh)	† ¿ (B8···· ¹ º » ¼ ½ ¾ are not displayed
58	À Á Â Ã Ä Å Æ Ç (C0h to C7h)	← All the same
59	È É Ê Ë Ì Í Î Ï (C8h to CFh)	← All the same
60	Ð Ñ Ò Ó Ô Õ Ö × (D0h to D7h)	← All the same
61	Ø Ù Ú Û Ü Ý Þ ß (D8h to DFh)	Φ Ù Ú Û Ü Ý Þ ß (D8····
62	à á â ã ä å æ ç (E0h to E7h)	← All the same
63	è é ê ë ì í î ï (E8h to FFh)	← All the same
64	ð ñ ò ó ô õ ö ÷ (F0h to F7h)	ð ñ ò ó ô o ö ÷ (F0····
65	ø ù ú û ü ý þ ÿ (F8h to FFh)	← All the same
66	No.66	← All the same
67	No.67	← All the same
to	to	to
99	No.99	← All the same

SECTION 2
GENERAL

Front Panel



LOCATION OF PARTS AND CONTROLS

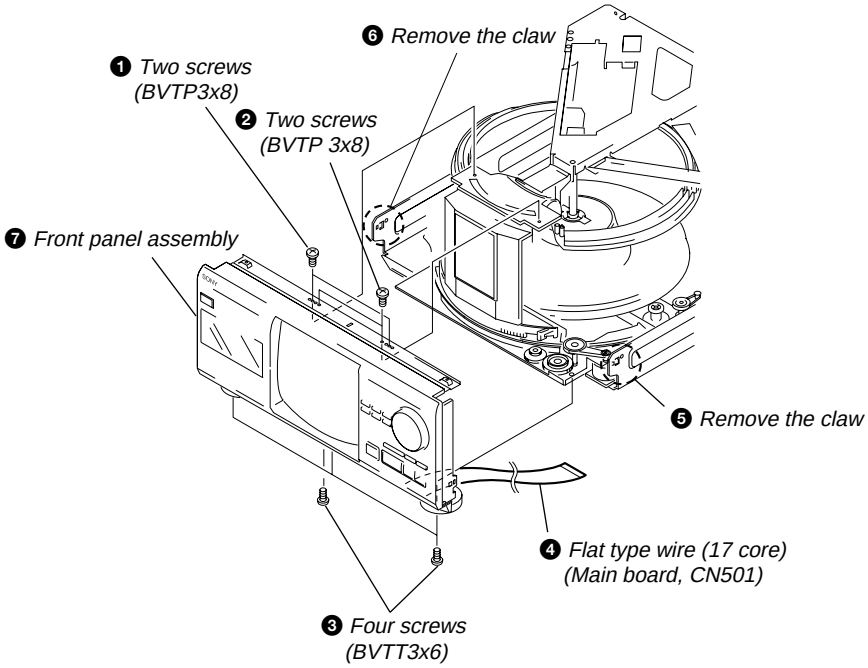
1 I/⏻ (power) button
2 STANDBY indicator
3 Display window
4 Front cover
5 MEGA control button and indicator
6 X-FADE button
7 INPUT button
8 DISC/CHARACTOR dial and PUSH ENTER button
9 FADER button
10 NO DELAY button
11 MEMO SEARCH button
12 CHECK button
13 CLEAR button
14 ■ (stop) button
15 ❚❚ (pause) button and indicator
16 ▷ (play) button and indicator
17 ⏮ AMS ⏭ button
18 ⏏ OPEN/CLOSE button
19 TIME/TEXT button
20 REPEAT button
21 PROGRAM button
22 SHUFFLE button
23 CONTINUE button
24 HIT LIST button and indicator
25 GROUP FILE button
26 GROUP 1 to 8 button and indicator
27 KEY BOARD jack
28 TIMER (OFF/PLAY) switch

* AMS is abbreviation for Automatic Music Sensor.

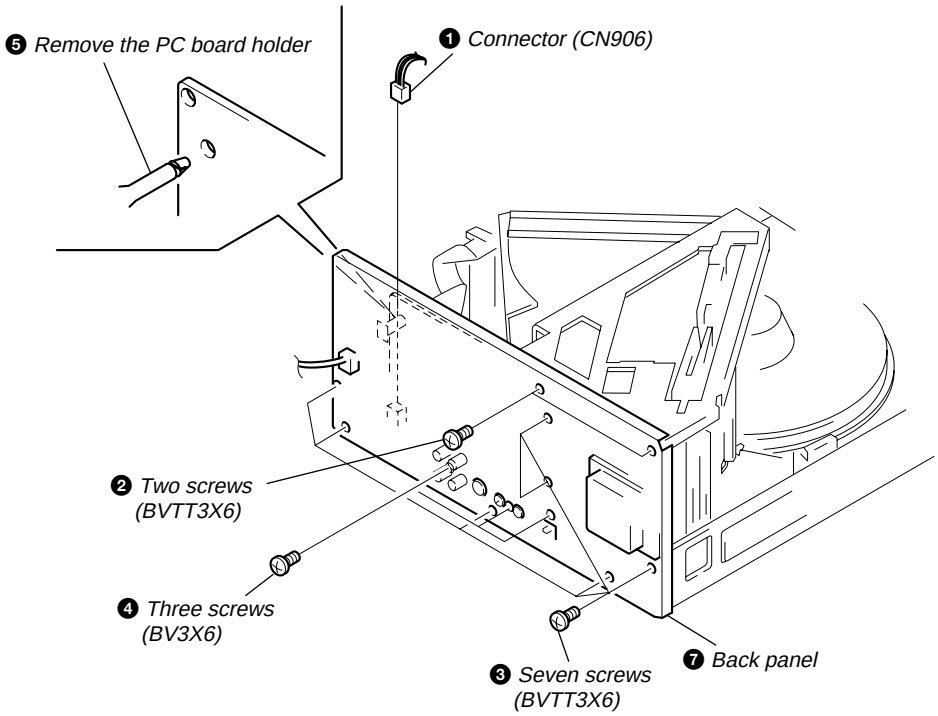
SECTION 3
DISASSEMBLY

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

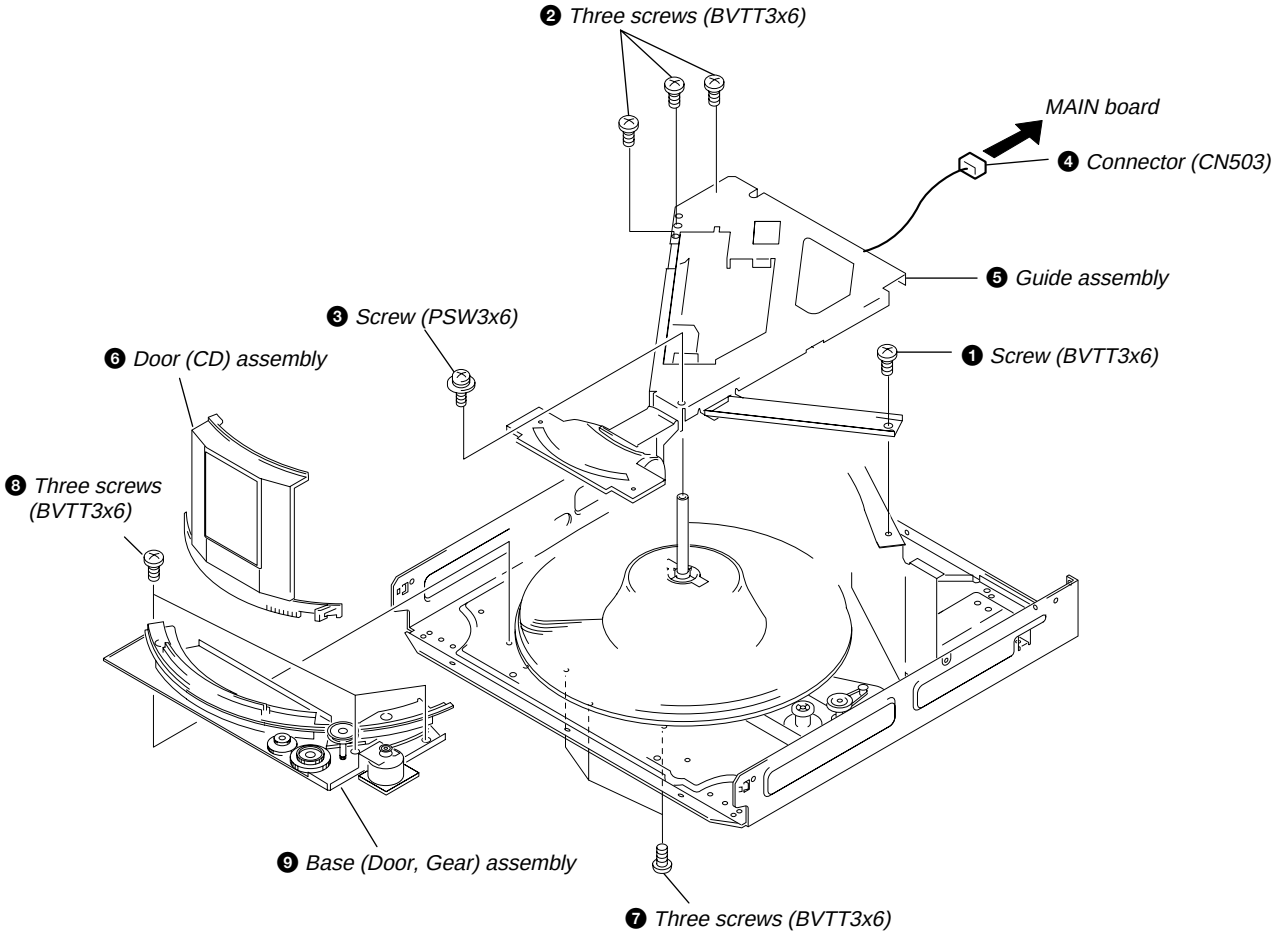
3-1. FRONT PANEL ASSEMBLY



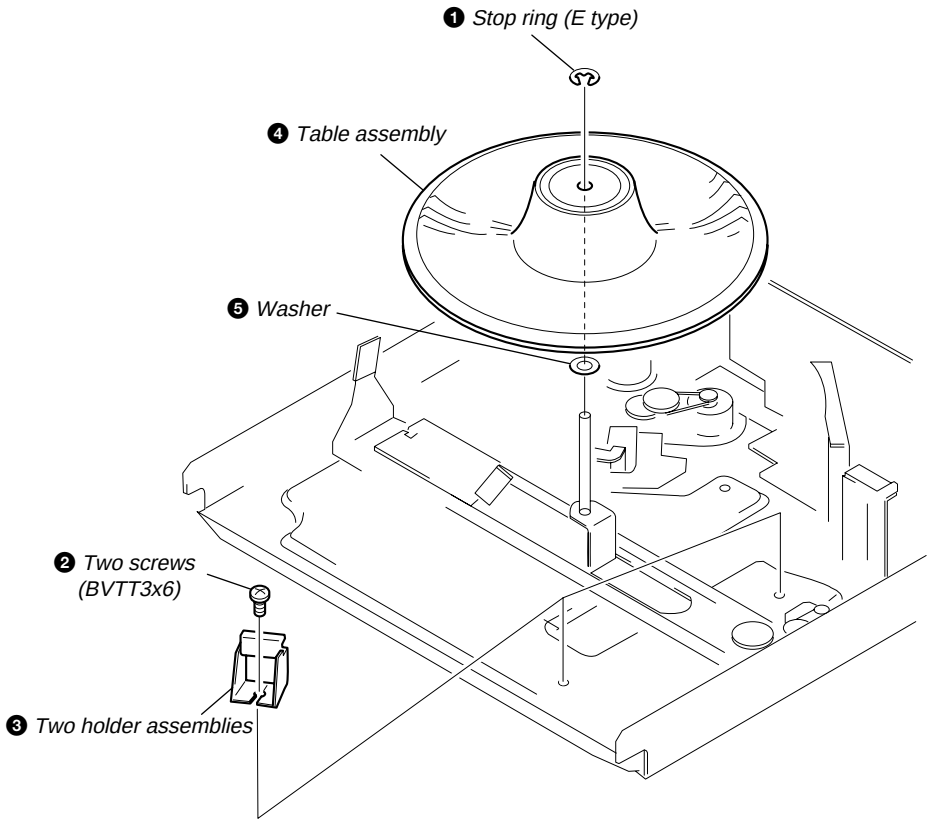
3-2. BACK PANEL ASSEMBLY



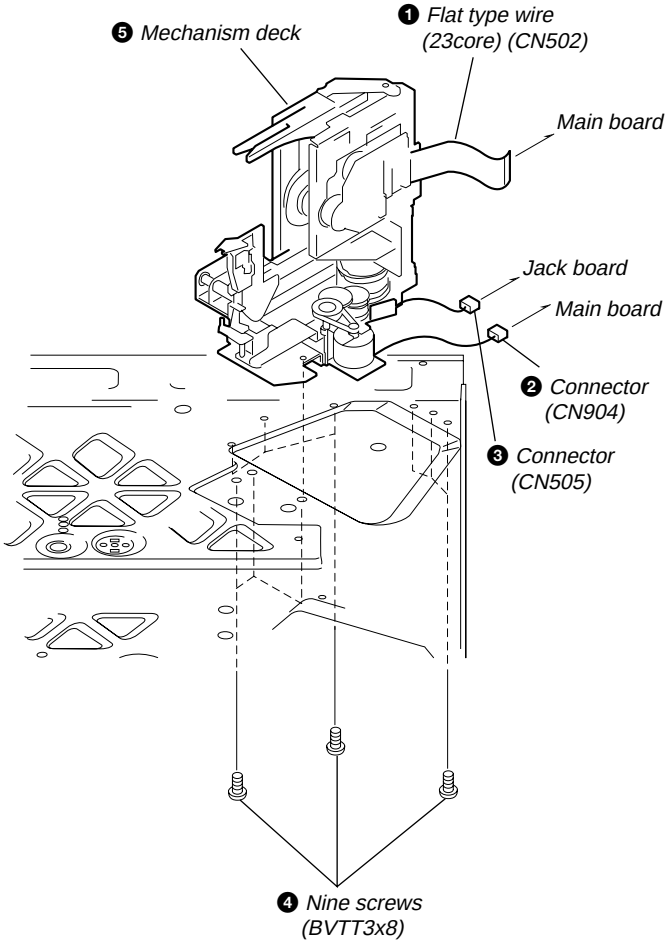
3-3. BASE (DOOR, GEAR) ASSEMBLY



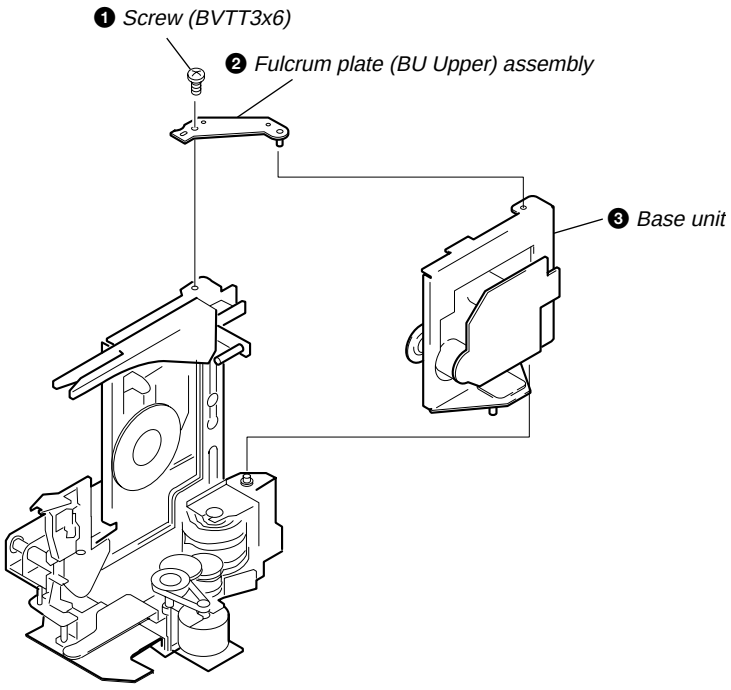
3-4. TABLE ASSEMBLY



3-5. MECHANISM DECK



3-6. BASE UNIT



SECTION 4
TEST MODE

4-1. DISPLAY CHECK MODE

With the power turned off (standby state), press the I/⏻ button while pressing the ❚❚ (pause) button.
All FL segments and grids light up together with the ▷ (play), ❚❚ (pause), and STANDBY LEDs.
At the same time, the GROUP LEDs are lights up simultaneously.

Note: To exit this mode, press the ■ (stop) button.

4-2. ADJ MODE

1. Turn ON the power of the unit, set disc to disc table, and perform chucking.
2. Disconnect the power supply plug from the outlet.
3. To set ADJ mode, connect the test point (ADJ) of the MAIN board to Ground, and connect the power supply plug to the outlet.

The power will turn on automatically, and the first track will be played.
In this mode, table rotation and loading operations are not performed because it is taken that the disc has already been chucked.

Note: The same operations are also performed in the following when the test point (ADJ) is connected to Ground after turning on the power.

- Direct search (movement of sledding motor) is not performed during accessing
- Ignored even when GFS becomes L
- Ignored even when the Q data cannot be read
- Focus gain does not decrease
- Spindle gain does not decrease
- Servo related settings can be set manually and checked (Refer to ADJ Mode Special Functions Table)

ADJ Mode Special Functions Table
(The buttons shown with ( ) function by using the supplied remote commander only)

Button	Function
CONTINUE	Servo average display Displays VC, FE, RF, TE and traverse in hexadecimal numbers
SHUFFLE	Focus bias display Each time this is pressed, the focus bias is switched between 1 and 2 (1) Bias actually set Optimum bias Minimum jitter (2) U:Upper aliasing bias L:Lower aliasing bias
PROGRAM	Auto gain display Displays focus, tracking, sledding in hexadecimal numbers
GROUP 1 (1)	Increases the focus bias in 8 steps.
GROUP 2 (2)	Sets the focus bias in the middle of aliasing.
GROUP 3 (3)	Turns off the tracking and sledding servo
GROUP 4 (4)	Returns the auto gain to the initial value (30)
GROUP 5 (5)	Turns off the focus servo
GROUP 6 (6)	Decreases the focus bias in 8 steps.
GROUP 7 (7)	Re-adjusts the focus bias
GROUP 8 (8)	Turns on the tracking and sledding servo
(9)	Switches the focus servo gain between normal and down FG. norm: normal, FG. down: down
(10/0)	Sets the focus bias to 0 (no bias) Next, displays the jitter measured at the focus bias set
CHECK	S-curve observation mode. (Exits this mode when the ■ button is pressed.)
CLEAR	Automatic eccentric measurement The results of measurement is displayed in µm directly.

4-3. KEY AND DISPLAY CHECK MODE

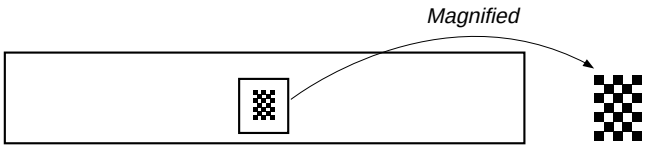
To set this mode, connect the test point (AFADJ) on the MAIN board to Ground, and connect the power supply plug to the outlet.

- All FL segments and grids will light up. (All lit check)
  When a button is pressed, the types of buttons pressed until then will be displayed on the left side and the number of the buttons will be displayed on the right side. However, these will not be displayed for the following special buttons.

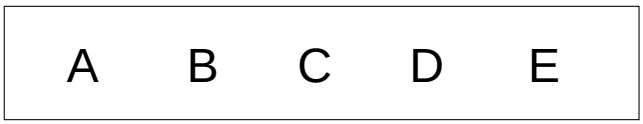
  ■ (stop) button: FL segment check
  (Refer to FL Tube Check Patterns)
  ❚❚ (pause) button: FL grid check
  (Refer to FL Tube Check Patterns)
  The pause LED also lights up simultaneously.
  ▷ (play) button: All FL segment and grid will light up.
  The play LED also lights up simultaneously.

FL Tube Check Patterns

Segment check



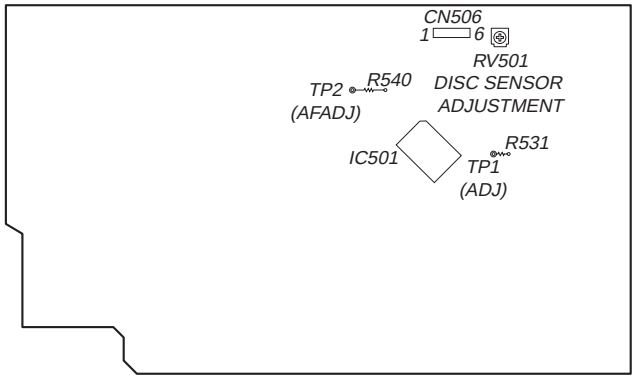
Grid check



- When the jog dial is rotated to the right, the GROUP LEDs light up in the order of 1→2..8→1.
- When the jog dial is rotated to the left, the GROUP LEDs light up in the order of 8→7..1→8.

• Abbreviation
FL: Fluorescent Indicator Tube

[MAIN BOARD] – Component Side –

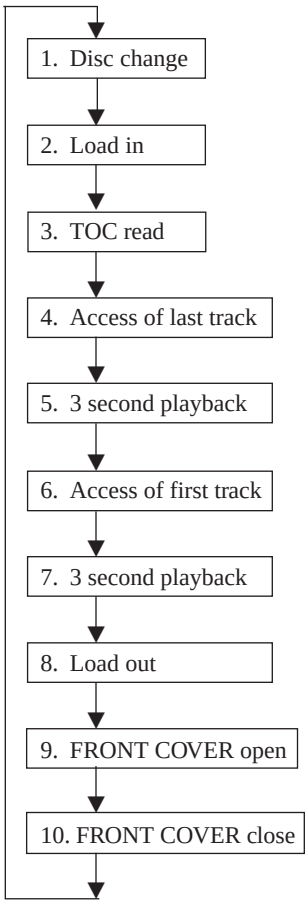


4-4. AGING MODE

Aging Mode

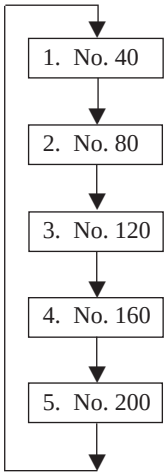
- Mode which repeatedly changes and plays back discs automatically in the unit.
- It will repeat aging as long as no errors occur.
- If an error occurs during aging, it will stop all servos, motors, etc. instantaneously, display the error number, and stop operations. However, the stopping conditions differ according to whether the unit is equipped with the “self-protection function during errors” described later.
  The function serves to maintain the state of the unit when errors occur.

Sequence of Aging Mode



Order of Disc Change

(1 cycle takes 3 minutes)



Special Aging Mode Functions

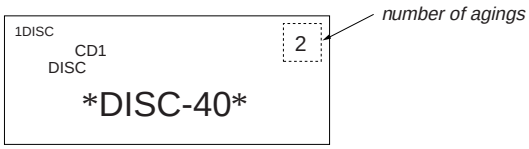
The aging mode is provided with the following convenient functions

- Disc setting mode (*1)
- Selection of presence of protection function during error (*2)
- Count function of aging cycle (*3)

*1 Disc setting mode:
5 discs are set before setting the aging mode. This mode makes the setting of these discs more easy.

*2 Self protection function during errors:
Function which voluntarily corrects errors which occur during normal operations by retries.
If this function is not provided, all operations will be stopped without retiring. It is suitable for checking errors with low reproducibility.
If this function is provided, and errors can be corrected by retries, aging will be continued without stopping.

*3 Aging cycle count function:
Functions which displays the number of agings carried out on the Fluorescent indicator tube in numbers. One aging cycle consists of five discs.



Aging Method

1. Turn ON the power of the unit. Press the ⏏ OPEN/CLOSE and open the front cover.
2. Change the COMMAND MODE switch (S901) on set to CD1.
3. Press the AGING START button of the remote commander for aging mode (J-2501-123-A).
4. When the disc set mode is set, the ► and ❚❚ LEDs blink.
5. Rotate the DISC/CHARACTER dial. The slits (No. 40, 80, 120, 160, 200) for setting the discs will come forward. Insert the discs into these slits. Do not set the discs in other slits.
6. Set whether the self-protection function during errors is equipped with the unit. Press the REPEAT button. If "REPEAT" is displayed on the Fluorescent indicator tube, it means the function is provided. If "REPEAT" is not displayed, it means the function is not provided.
7. Press the ► button.
8. The ► LED blinks, the aging mode is set, and aging is started.
9. The aging cycle lasts 3 minutes. If errors occur during aging, the error number will be displayed on the Fluorescent indicator tube. (Refer to the following table for the details of the errors.)
10. Aging will be repeated as long as no errors occur.
11. After each aging cycle, the number displayed on the Fluorescent indicator tube will increase.
12. To end aging, press the I/⏻ button.

Error Display

120 Err01

Disc number Error code

Error code

Code number	Name	Contents
Err 01	DISC sensor check 1	No disc in the specified slit
Err 02	DISC sensor check 2	Disc in other slits
Err 03	Table operation check 1	Table motor current over
Err 04	Table operation check 2	No table sensor input
Err 05	Loading operation check 1	Load in timeover
Err 06	Loading operation check 2	Load out timeover
Err *1	BU related check 1	Access timeover
Err *2	BU related check 2	High speed search NG
Err *3	BU related check 3	Q data read error
Err *4	BU related check 4	BU operation (from focus search to until signal can be read) timeover
Err *5	BU related check 5	GFS monitor error
Err *6	BU related check 6	Focus cannot be imposed by focus search
Err *7	BU related check 7	Auto focus bias adjustment cannot be performed

The * numbers mean the following according to the state of the unit during aging

2 : From chucking to end of TOC read

3 : From end of TOC read to end of last track playback

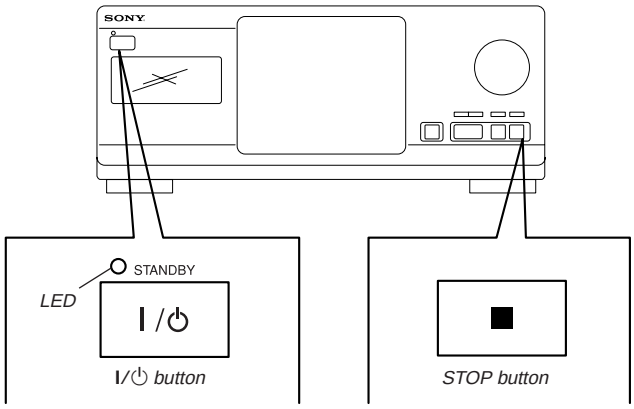
4 : From end of last track playback to end of first track playback

SECTION 5
ADJUSTMENTS

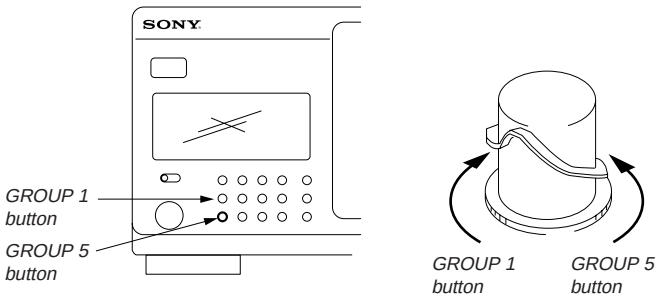
5-1. MECHANICAL ADJUSTMENT

Perform the following steps before carrying out adjustments.

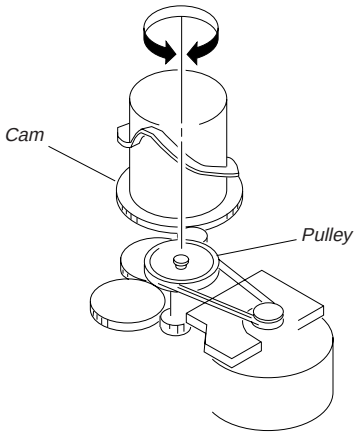
1. Turn ON the power of the unit, set disc to disc table No. 92, and perform chucking.
2. Turn OFF the power.
3. Remove the case.
4. While pressing the STOP button, turn ON the I/⏻ button. The test mode is set.
5. The POWER button LED starts blinking. (Test mode)



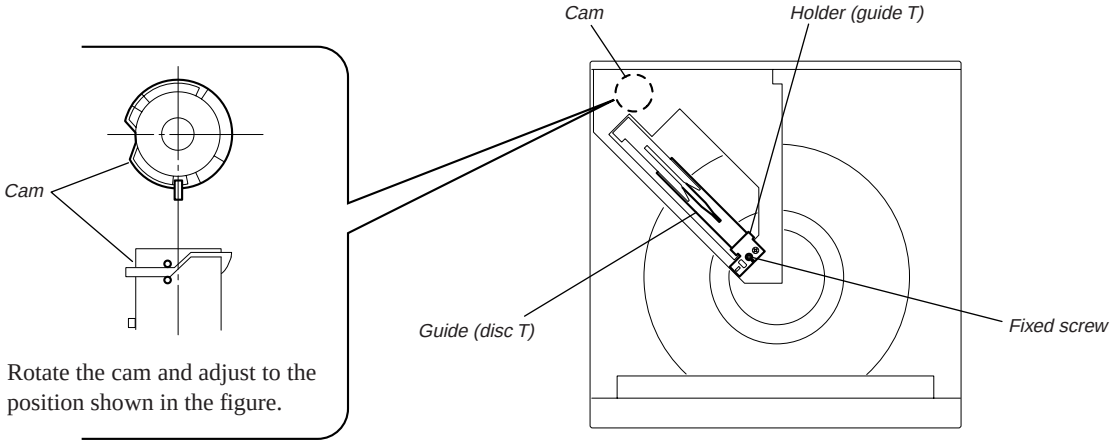
NOTE 1: The cam will start rotating when the GROUP 1 or GROUP 5 button is pressed continuously in the test mode.



NOTE 2: If the power cannot be supplied, the cam can be rotated by rotating the pulley with your finger.

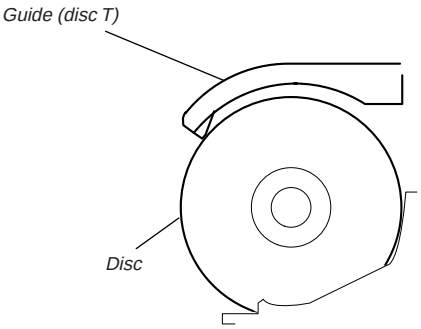


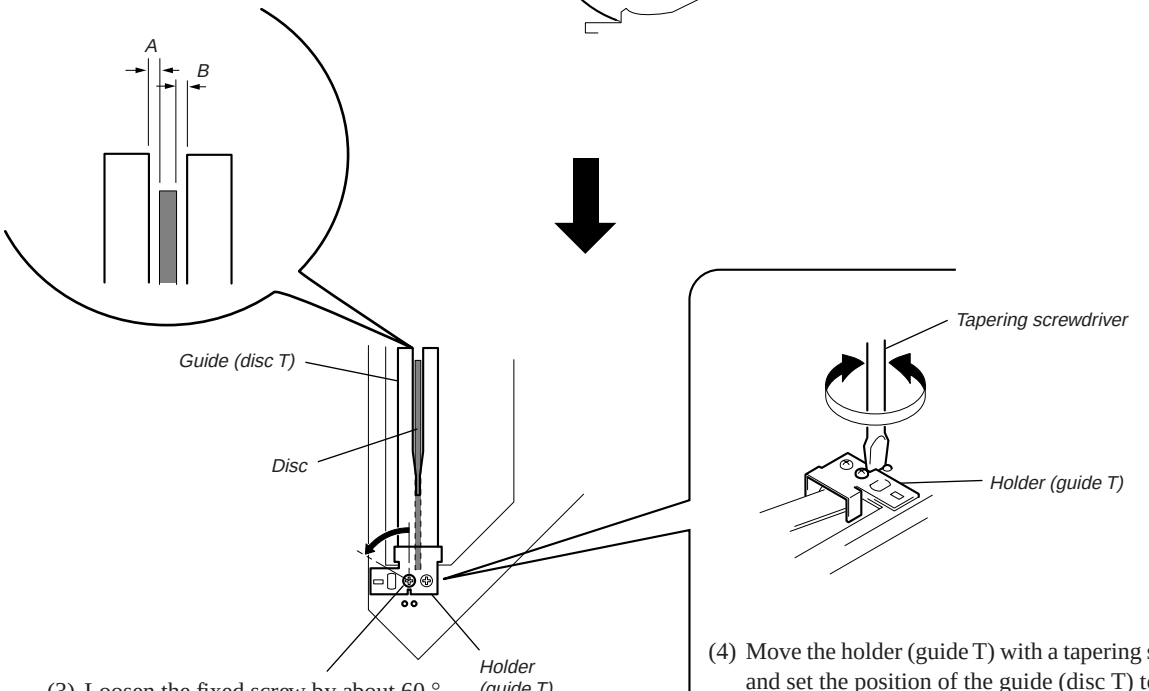
GUIDE (DISC T) ALIGNMENT



(1) Rotate the cam and adjust to the position shown in the figure.

(2) Check that the state is as shown in the figure.

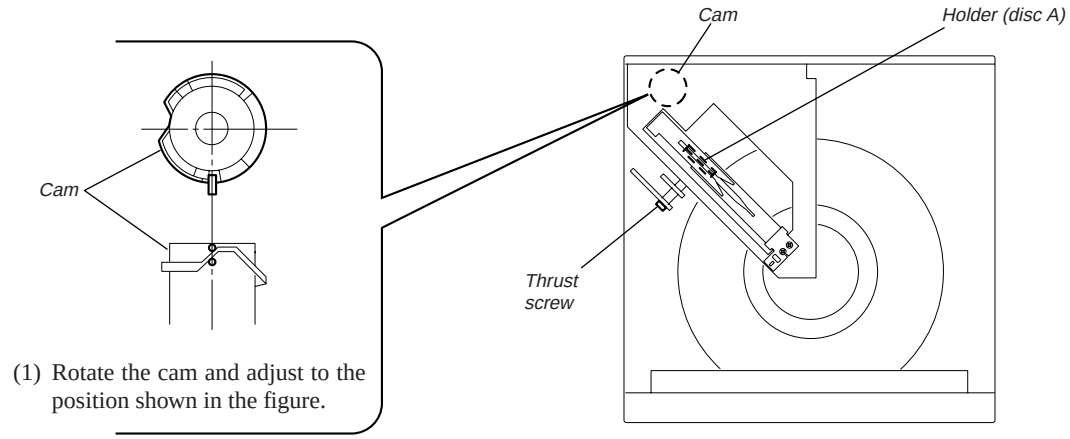




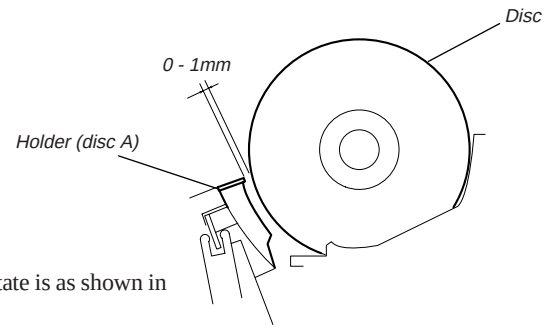
(3) Loosen the fixed screw by about 60 °.

(4) Move the holder (guide T) with a tapering screwdriver, and set the position of the guide (disc T) to A:B=1:1.

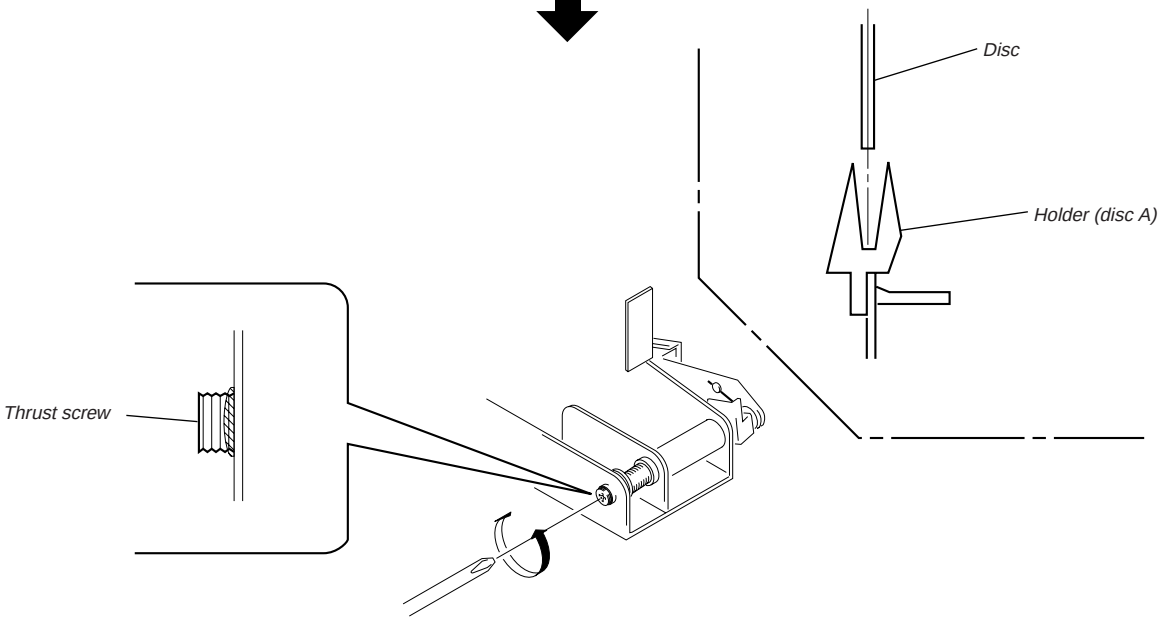
HOLDER (DISC A) ALIGNMENT



(1) Rotate the cam and adjust to the position shown in the figure.



(2) Check that the state is as shown in the figure.

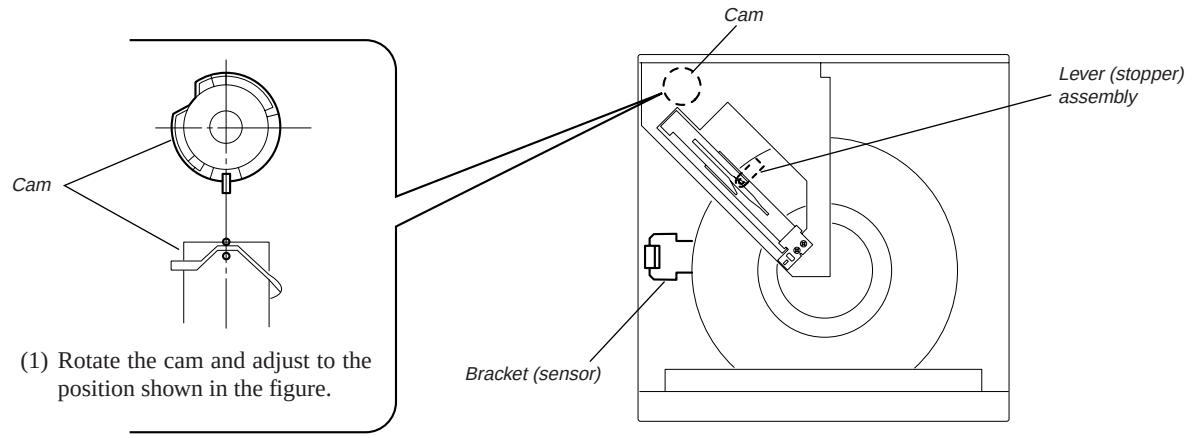


(3) After applying suitable locking compound to the ⊘ part, rotate the thrust screw until the holder (Disc A) comes to the center of the disc.

SENSOR ALIGNMENT

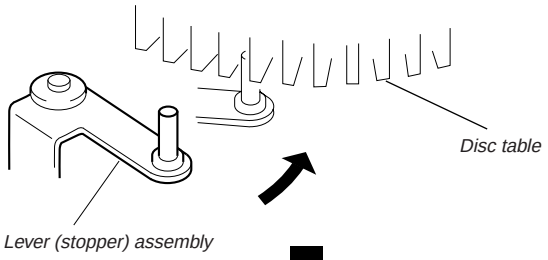
Perform this adjustment after the “holder (disc A) adjustment”.
If the disc table swings to the left and right just before the disc is chucked, perform the following adjustment.

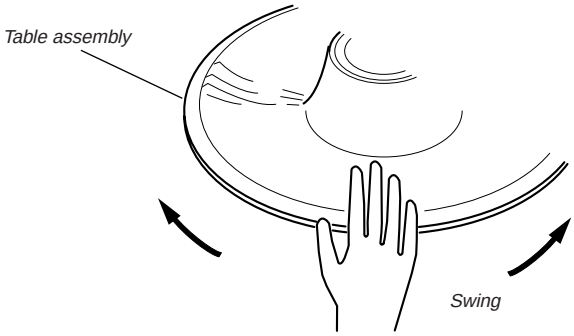
CAUTION:
The LED may not light up in steps (3) and (4) for some microprocessor versions, and consequently adjustments will not be possible.
In this case, fix the bracket (sensor) at the mechanical center.
As fine adjustments need to be performed in “Disc Sensor Adjustment” in Electrical Adjustments, sensor alignment need not be performed here.



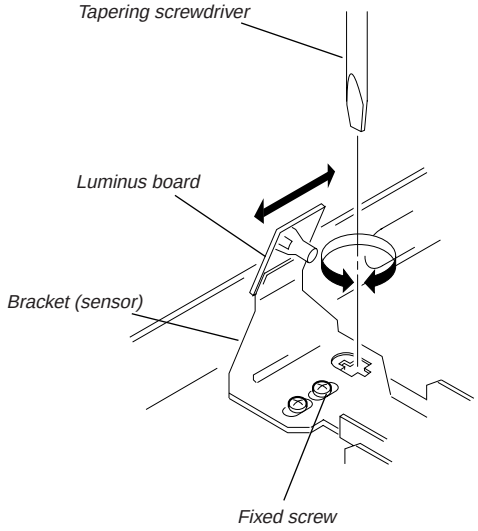
(1) Rotate the cam and adjust to the position shown in the figure.

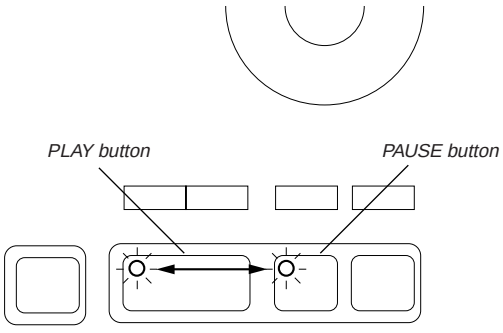
(2) Check that the lever (stopper) assembly secures the disc table as shown in the figure.





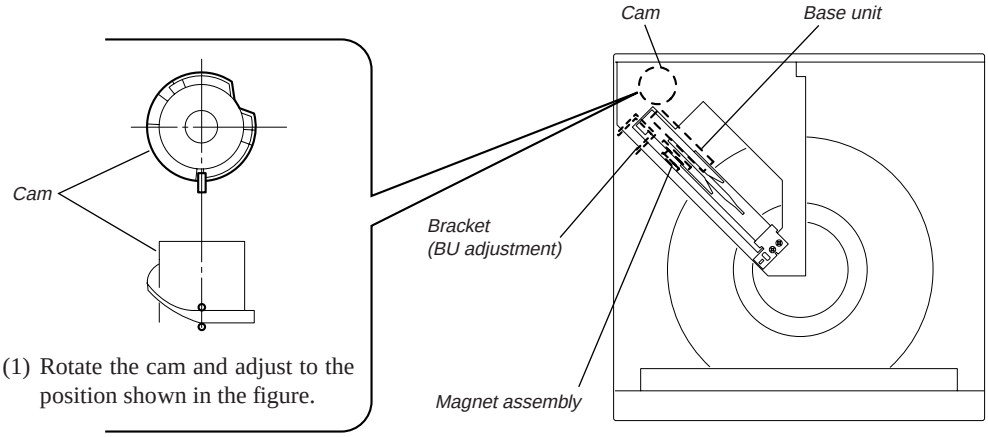
(4) Moving the disc table right and left with a hand after the screw is fixed, the table will move by the play of a disc table. If the LEDs light up alternately, the adjustment will be performed correctly.





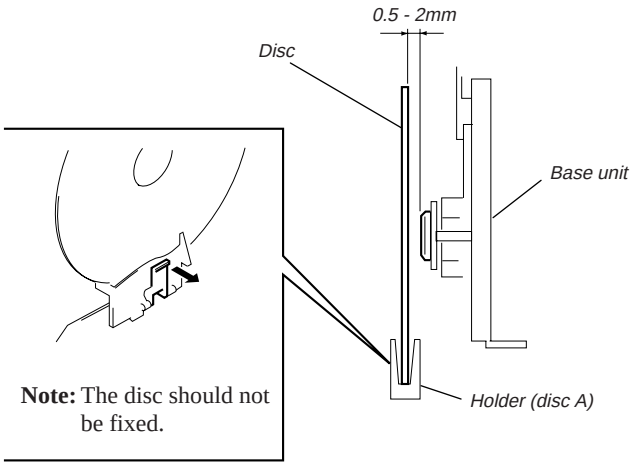
(3) Loosen the fixed screw by 60° to 90°, and use a tapering screwdriver to adjust the screw as shown in the figure.
Move the bracket (sensor) with the tapering screwdriver little by little, and fix the fixed screw at where the play button's LED (green) is switched to the pause button's LED (orange) (or its reverse).

PULLY AND DISC CENTER HOLE ALIGNMENT

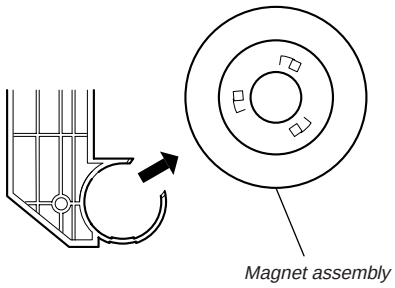


(1) Rotate the cam and adjust to the position shown in the figure.

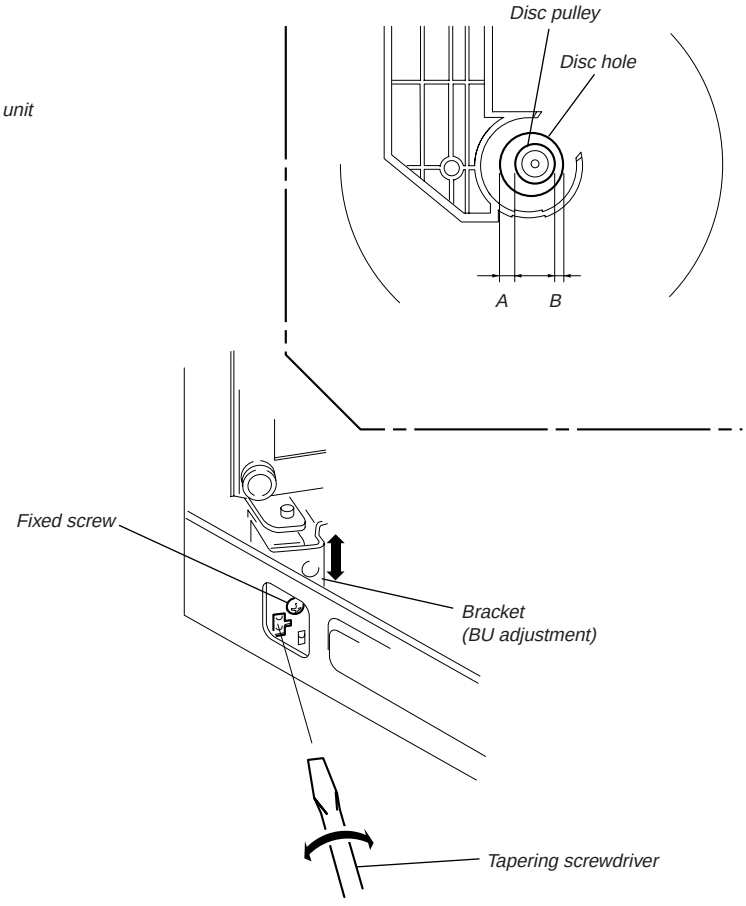
(2) Check that the state is as shown in the figure.



Note: The disc should not be fixed.

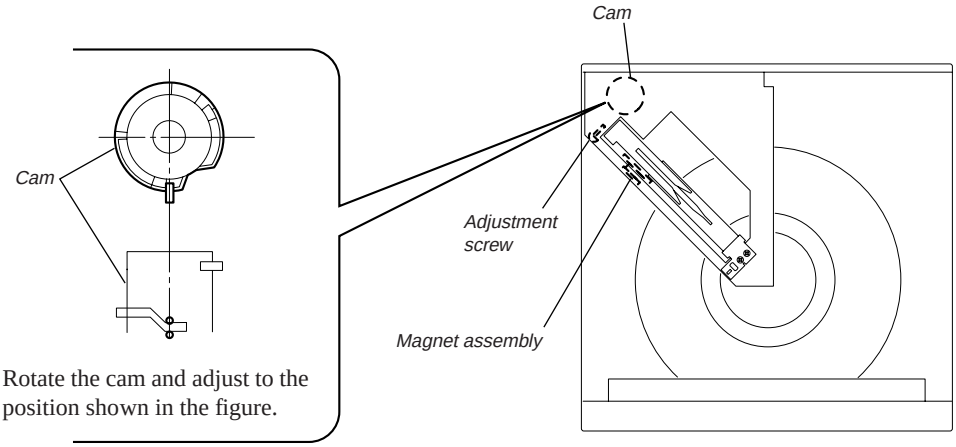


(3) Remove the Magnet assembly.

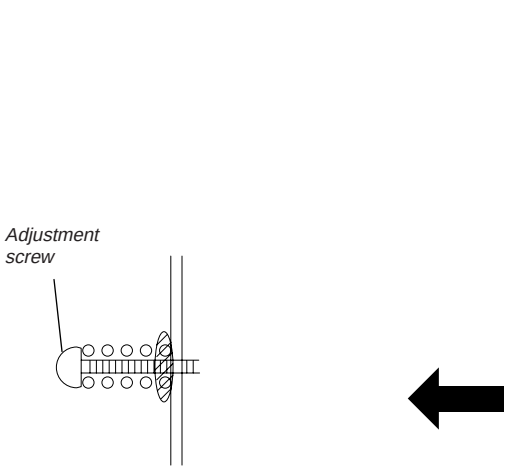


Loosen the fixed screw by 60° to 90°, and move and adjust the bracket (BU adjustment) up and down using a tapering screwdriver so that the positions of the disc hole and disc pulley become A=B or between A:B=2:1 and 1:2.

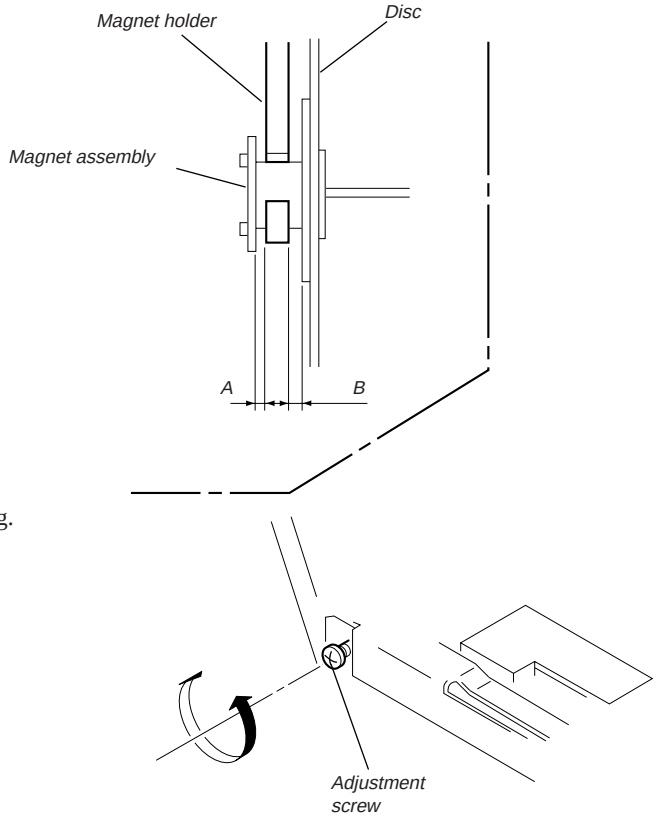
MAGNET ASSY ALIGNMENT



(1) Rotate the cam and adjust to the position shown in the figure.



(3) Apply suitable locking compaund to the ⌀ part after adjusting.



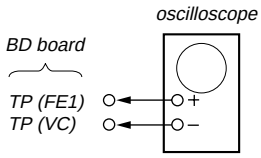
(2) Rotate the adjustment screw until A=B or between A:B=2:1 and 1:2

5-2. ELECTRICAL BLOCK CHECKING

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.

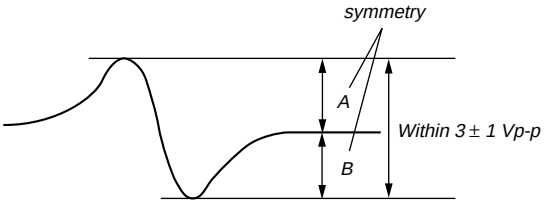
S-Curve Check



Procedure :

1. Chuck the disc (YEDS-18) beforehand, and disconnect the power cord from the outlet.
2. Connect oscilloscope to test point TP (FE1) on BD board.
3. Connect test point TP1 (ADJ) on MAIN board to ground with lead wire.
4. The ADJ mode is set when the power cord is inserted into the outlet and power is supplied.
5. The fifth track is played automatically.
6. Press the CHECK button.
7. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 3±1 Vp-p.

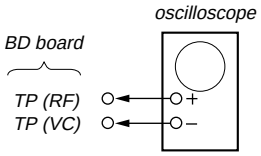
S-curve waveform



8. Pressing the ■ button stops the output of the waveform (s curve).
9. After check, remove the lead wire connected in step 3.

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

RF Level Check

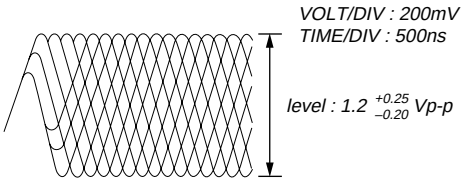


Procedure :

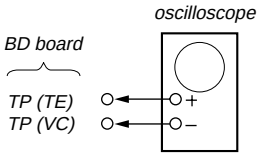
1. Connect oscilloscope to test point TP (RF) on BD board.
2. Turn Power switch on.
3. Put disc (YEDS-18) in to play the number five track.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

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

RF signal waveform



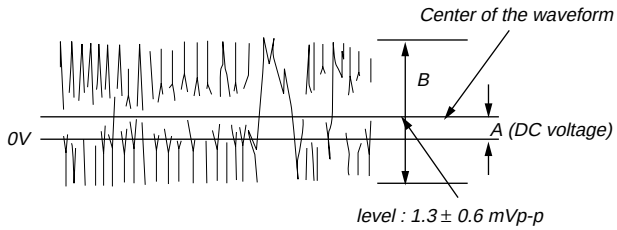
E-F Balance Check



Procedure :

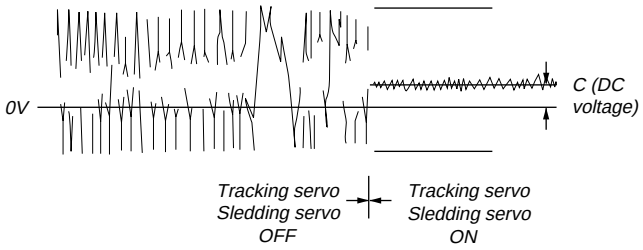
1. Chuck the disc (YEDS-18) beforehand, and disconnect the power cord from the outlet.
2. Connect oscilloscpe to test point TP (TE) on BD board.
3. Connect test point TP1 (ADJ) on MAIN board to ground with lead wire.
4. The ADJ mode is set when the power cord is inserted into the outlet and power is supplied.
5. The fifth track is played automatically.
6. Press the GROUP 3 button. (The tracking servo and the sledding servo are turned OFF.)
7. Check the level B of the oscilliscope's waveform and the A (DC voltage) of the center of the Traverse waveform.
   Confirm the following :
   A/B x 100 = less than ± 22%

Traverse waveform



8. Press the GROUP 8 button. (The tracking servo and sledding servo are turned ON.) Confirm the C (DC voltage) is almost equal to the A (DC voltage) is step 7.

Traverse waveform



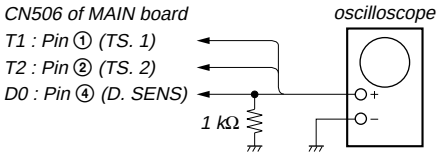
9. Disconnect the lead wire of TP1 (ADJ) connected in step 2.

Disc Sensor Adjustment

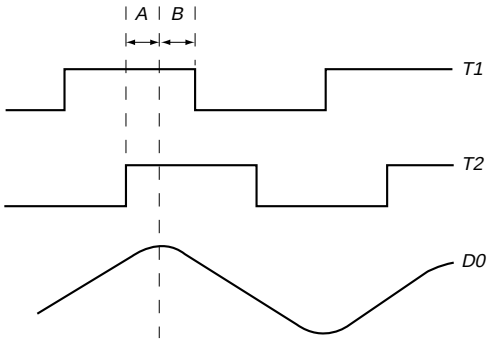
Perform this adjustment after completing all adjustments of the mechanism section.

If not performed accurately, the presence of the disc may not be detected properly.

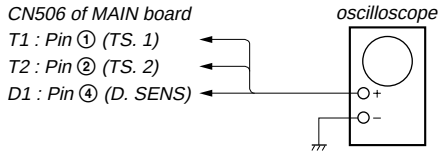
Connection 1:



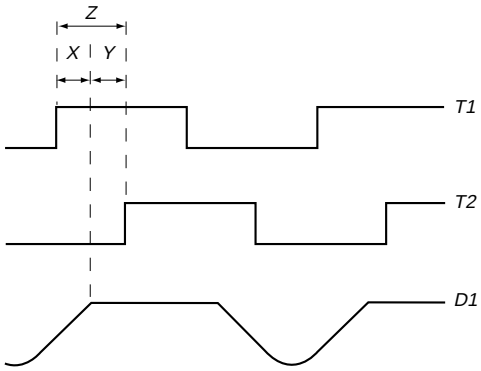
Waveform 1:



Connection 2:

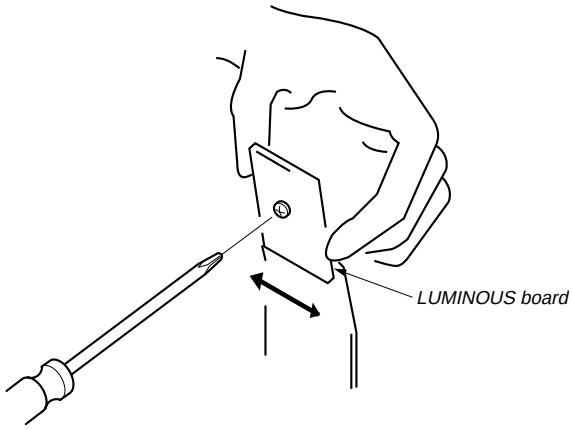


Waveform 2



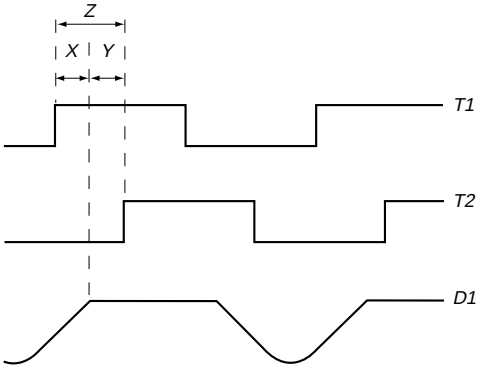
Procedure:

1. Connect the oscilloscope to Pins ①, ②, and ④ of CN506 of the MAIN board. Also connect a 1 kΩ resistor to Pin ④ at the same time. (Connection 1)
2. Check that no discs are loaded in the unit.
3. With the power OFF, press the I/⏻ button while pressing the INPUT button, and turn on the power at the same time.
4. The rotary table will continue rotating in the clockwise direction.
5. Observe the waveform at that time on the oscilloscope.
6. Loosen the screw securing the LUMINOUS board slightly.
7. Slide the LUMINOUS board to the left and right so that the peak of the D0 waveform is at the center between the descending point of the T1 waveform and ascending point of the T2 waveform. (Waveform 1) After adjusting, apply locking compound.



8. Disconnect the resistor connected to Pin ④ of CN506 of the MAIN board. (Connection 2)
9. Observe the waveform on the oscilloscope. (Waveform 2)
10. Adjust RV501 of the MAIN board so that the waveform on the oscilloscope satisfies the following adjustment value 1.
11. Press the I/⏻ button and turn OFF the power.
12. Press the I/⏻ button, turn on the power, press the OPEN/CLOSE button, and open the front cover. Next rotate the DISC/CHARACTER dial in the counterclockwise direction continuously so that the rotary table rotates continuously in the counterclockwise direction.
13. Observe the waveform on the oscilloscope and confirm that it satisfies the adjustment value 2 (waveform 3). If it does not, adjust RV501 of the MAIN board.

Waveform 3:

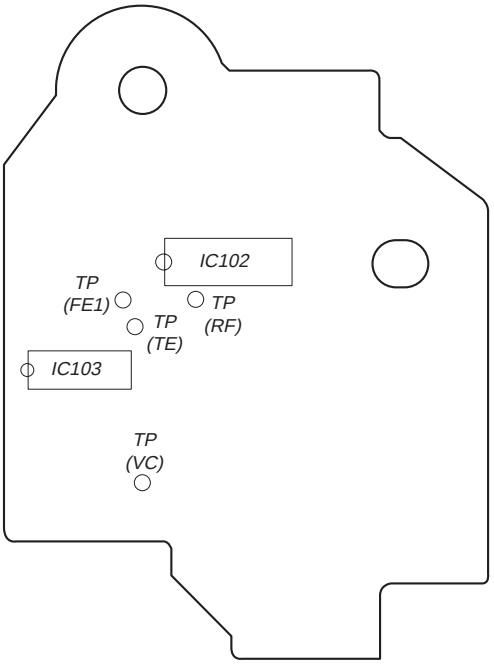


14. After the adjustment, load a disc only in slit 1, and press the I/⏻ button to turn off the power.
15. Press the I/⏻ button while pressing the PUSH ENTER button to turn on the power.
16. If the rotary table makes one round, and "YES" is displayed on the fluorescent indicator tube after it stops, it means that the adjustment has been performed properly.

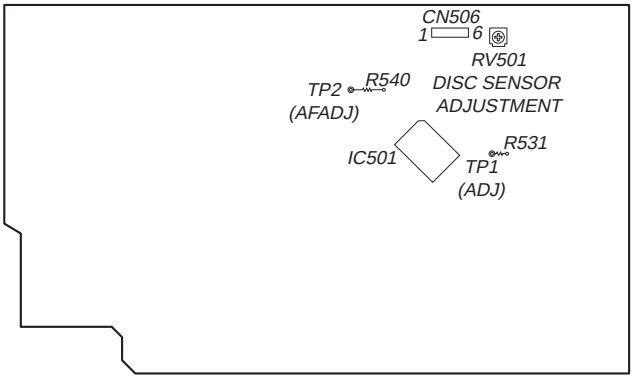
Adjustment value 1:
At the shoulder part of waveform D1, T1 becomes H and T2 becomes L, and at the same time, the Y width must not be smaller than 1/4 of the Z width.
In order to satisfy this value more easily, adjust so that X=Y approximately and observe the deviation of the waveform.
Adjustment value 2:
At the shoulder part of waveform D1, T1 becomes L and T2 becomes H, and at the same time, the Y width must not be smaller than 1/4 of the Z width.

Adjustment Location :

[BD BOARD] – Side B –

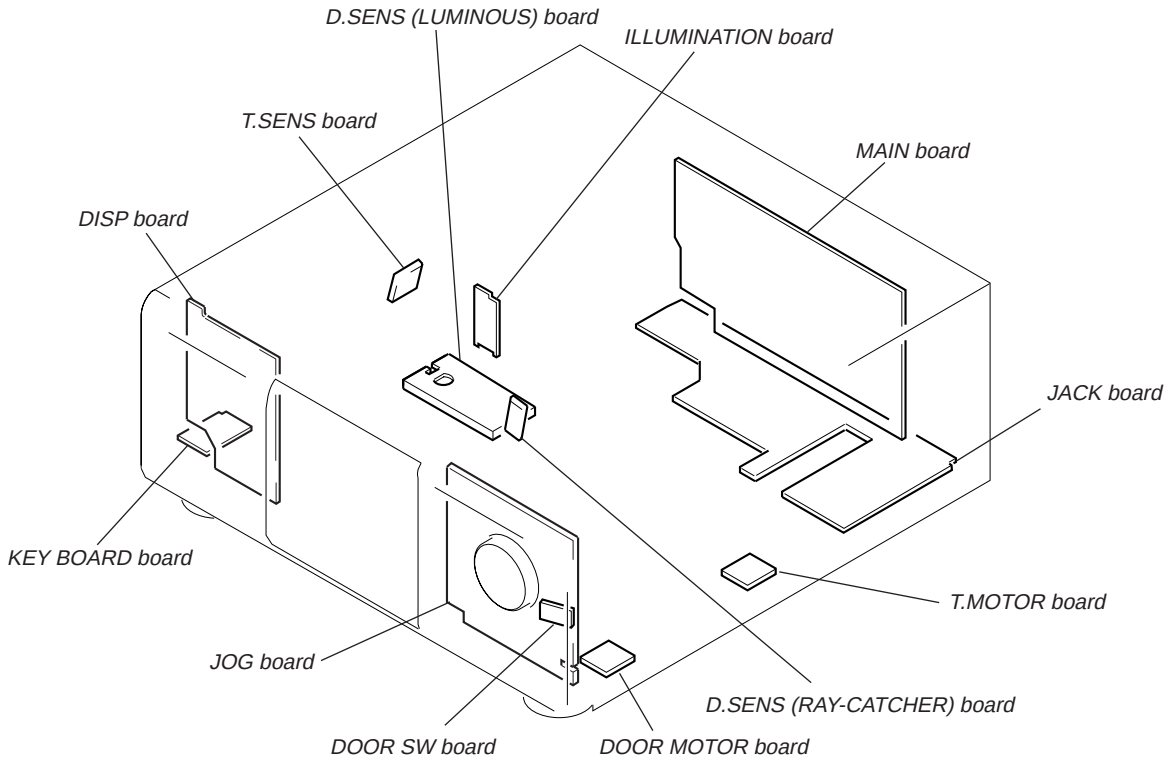


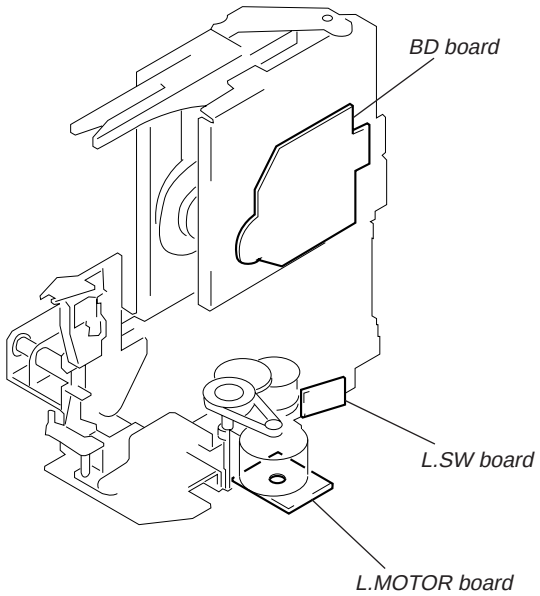
[MAIN BOARD] – Component Side –



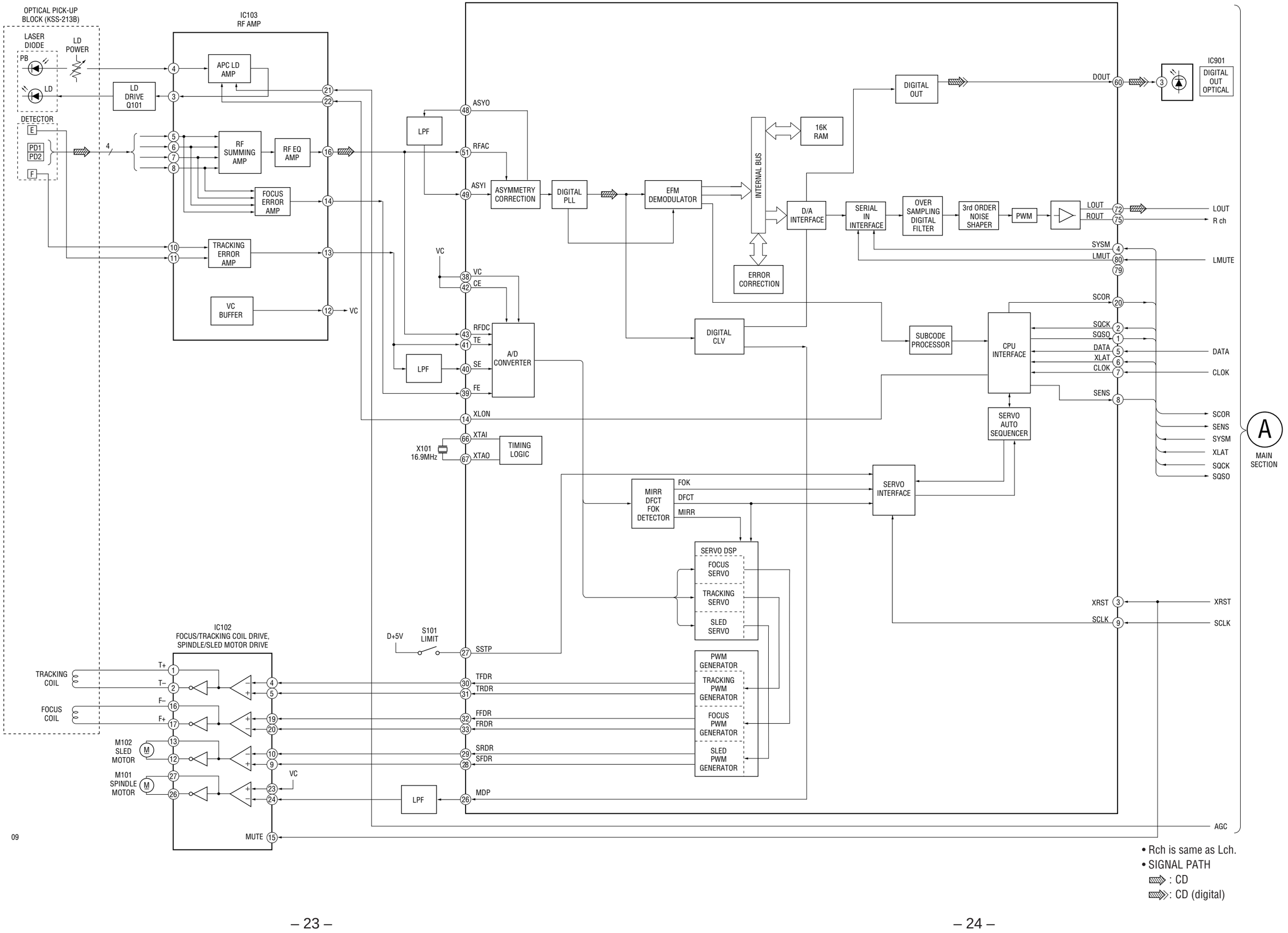
SECTION 6
DIAGRAMS

6-1. CIRCUIT BOARDS LOCATION



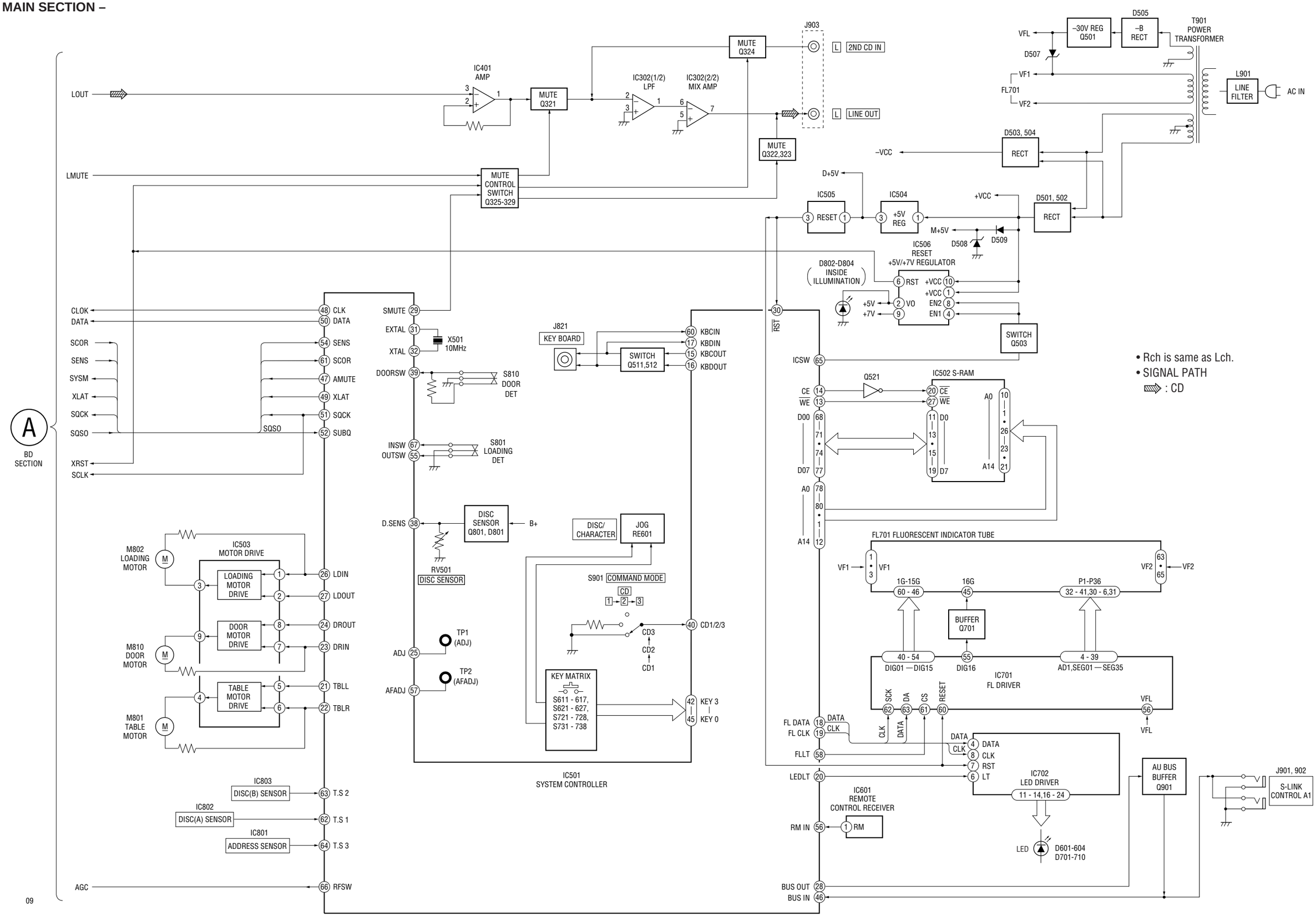


6-2. BLOCK DIAGRAMS – BD SECTION –



• Rch is same as Lch.
• SIGNAL PATH
: CD
: CD (digital)

– MAIN SECTION –



09

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: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.

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

- B+ : B+ Line.
- B– : B– Line.
- ▭ : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : STOP
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  : CD
  : digital out

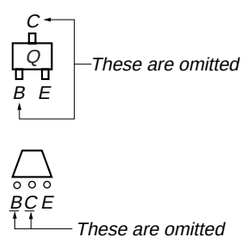
For printed wiring boards.

Note:

- ○——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- ○ : Through hole.
- ▒ : Pattern from the side which enables seeing. (The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Side B)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A)	Parts on the parts face side seen from the parts face are indicated.

- **Indication of transistor**



WAVEFORMS

① 3.1Vp-p
16.9MHz
IC101 ㊻ XTAI

② 1.2Vp-p
(PLAY)
IC101 ㊶ RF AC

③ 2.5V
APPROX 500mVp-p (PLAY)
IC101 ㊶ TE

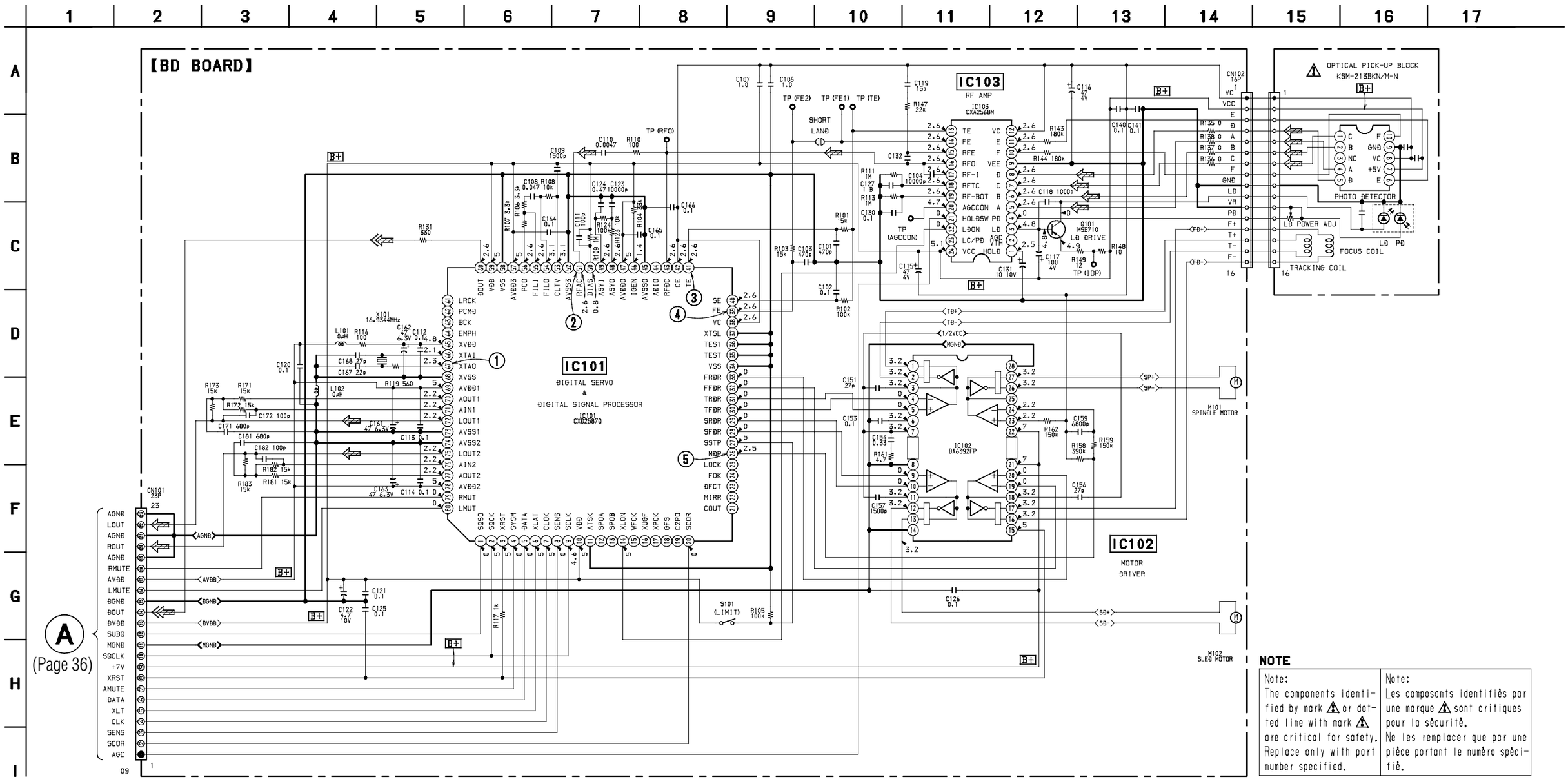
④ 2.5V
APPROX 200m Vp-p (PLAY)
IC101 ㊴ FE

⑤ 2.4Vp-p
7.5µsec
IC101 ㉖ MDP

⑥ 3.8Vp-p
10MHz
IC501 ㉛ EXTAL

6-3. SCHEMATIC DIAGRAM – BD SECTION –

- See page 28 for Waveforms.
- See page 47 for IC Block Diagrams.
- See page 50 for IC Pin Functions.



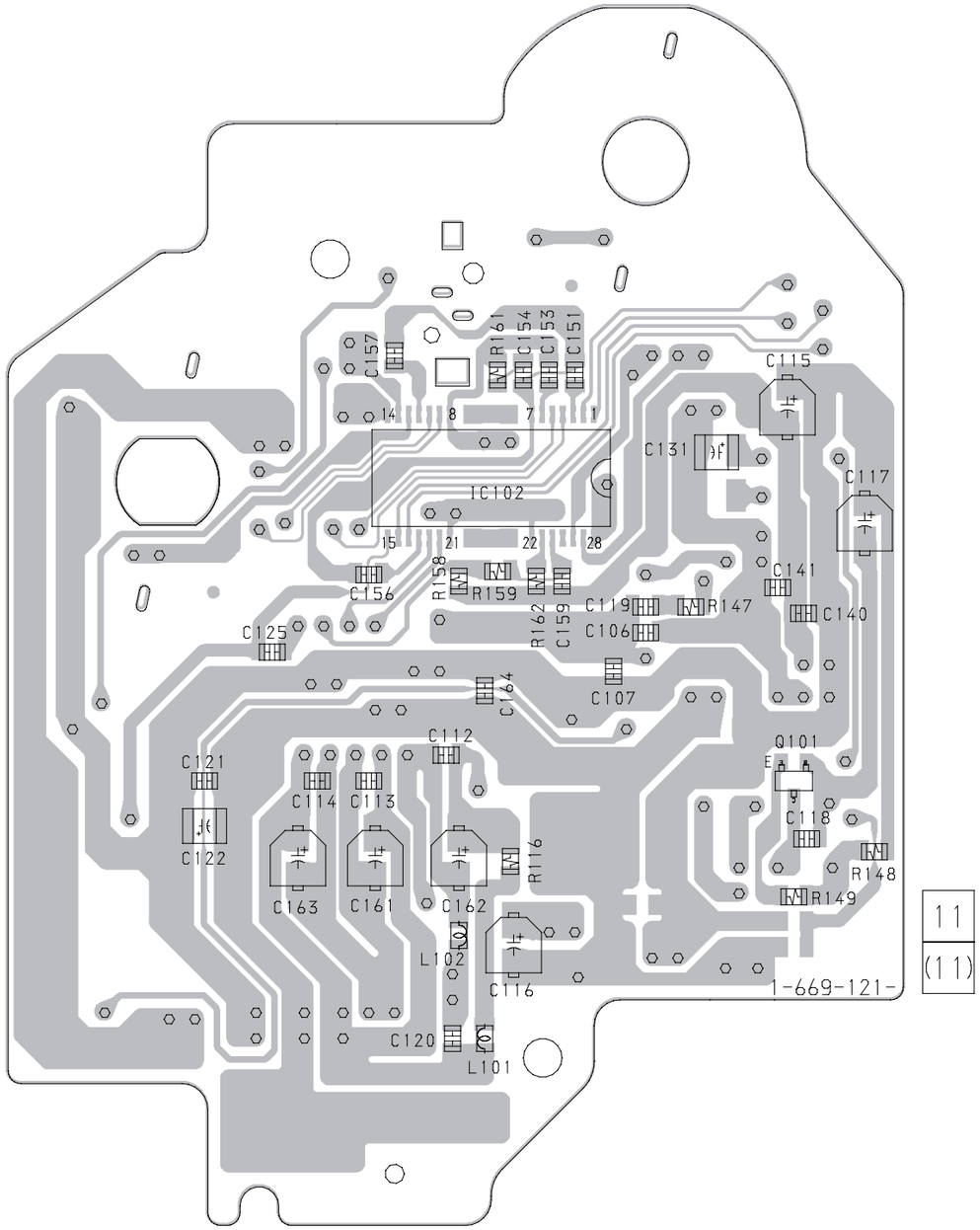
NOTE

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

6-4. PRINTED WIRING BOARD – BD SECTION –

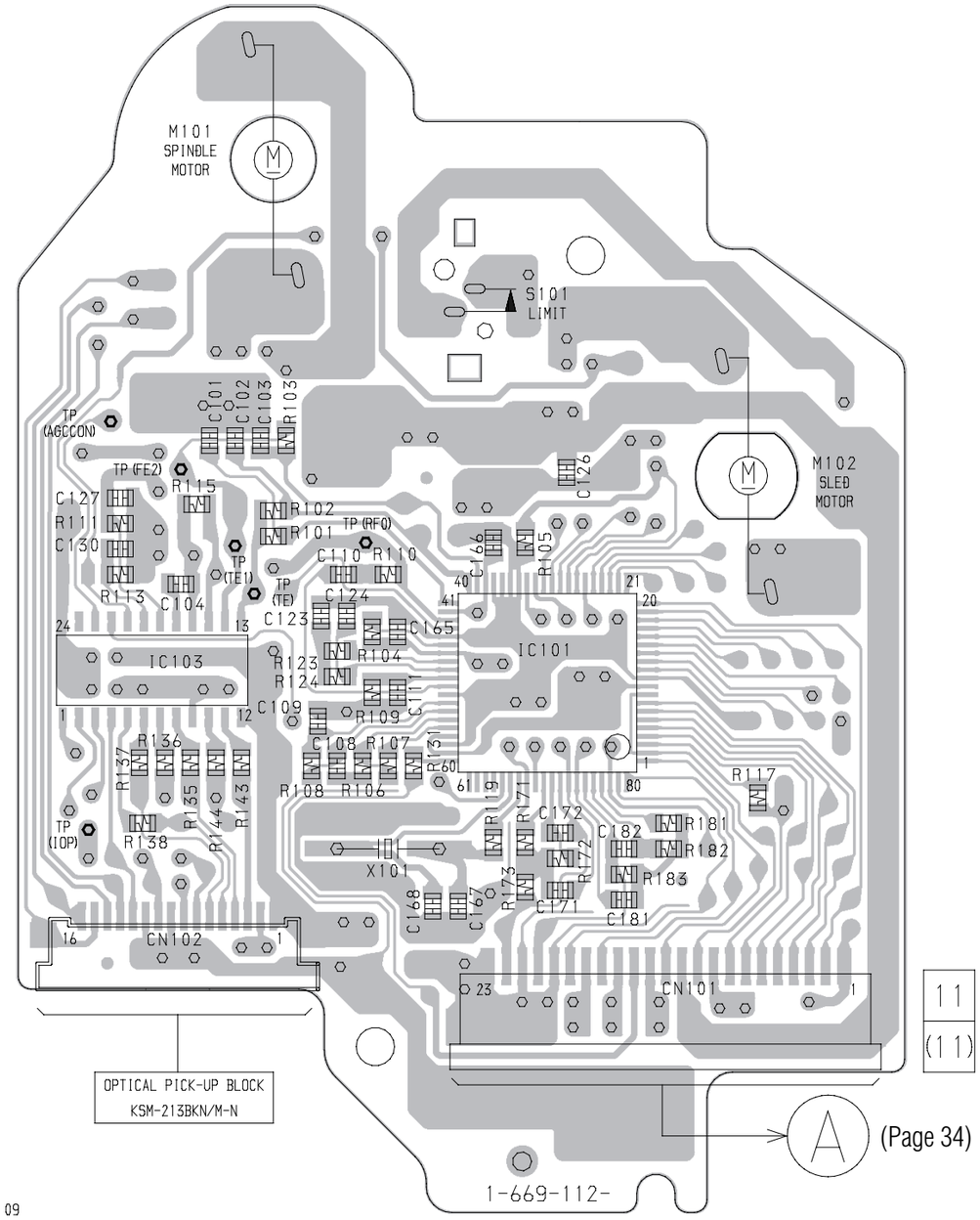
• See page 22 for Circuit Boards Location.

【BD BOARD】(SIDE A)



09

【BD BOARD】(SIDE B)



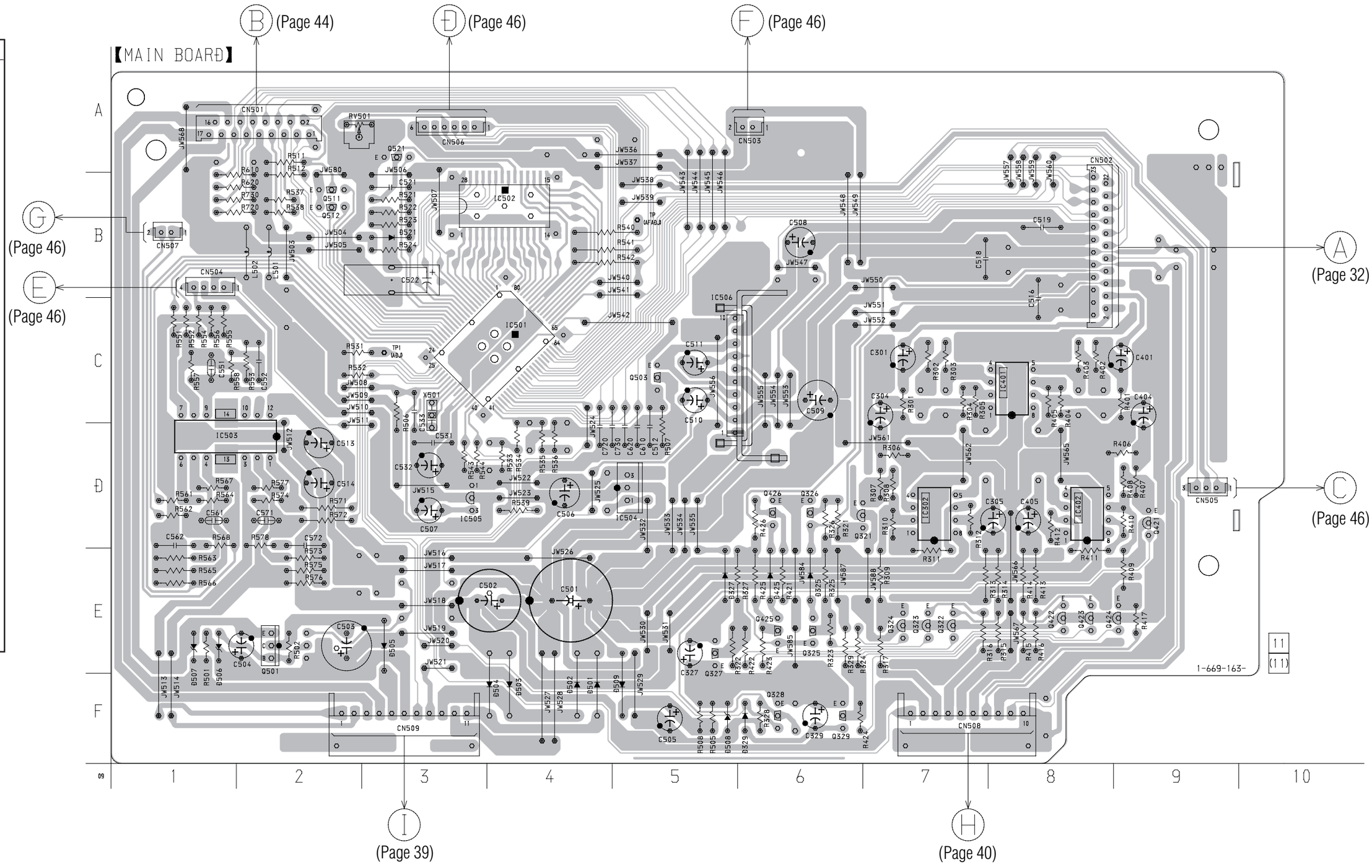
09

6-5. PRINTED WIRING BOARD – MAIN SECTION –

• See page 22 for Circuit Boards Location.

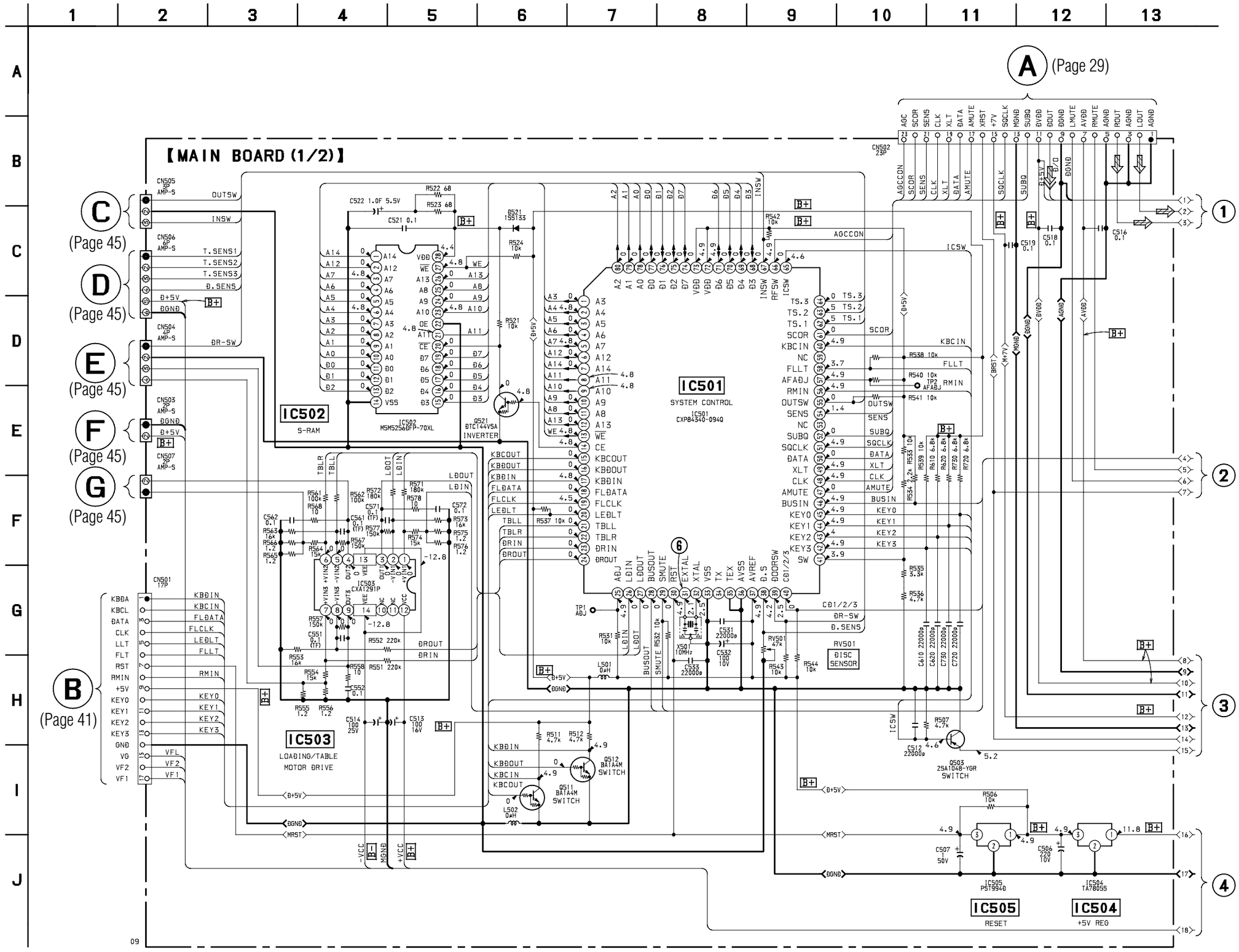
• **Semiconductor Location**

Ref. No.	Location
D325	E-6
D327	E-5
D329	F-6
D425	E-6
D501	F-4
D502	F-4
D503	F-4
D504	F-4
D505	E-3
D506	E-1
D507	E-1
D508	F-5
D509	F-5
D521	B-3
IC302	D-7
IC401	C-8
IC402	D-8
IC501	C-4
IC502	B-4
IC503	D-1
IC504	D-5
IC505	D-3
IC506	C-6
Q321	D-7
Q322	E-7
Q323	E-7
Q324	E-7
Q325	E-6
Q326	D-6
Q327	E-5
Q328	F-6
Q329	F-6
Q421	D-9
Q422	E-8
Q423	E-8
Q424	E-9
Q425	E-6
Q426	D-6
Q501	E-2
Q503	C-5
Q511	B-2
Q512	B-2
Q521	A-3



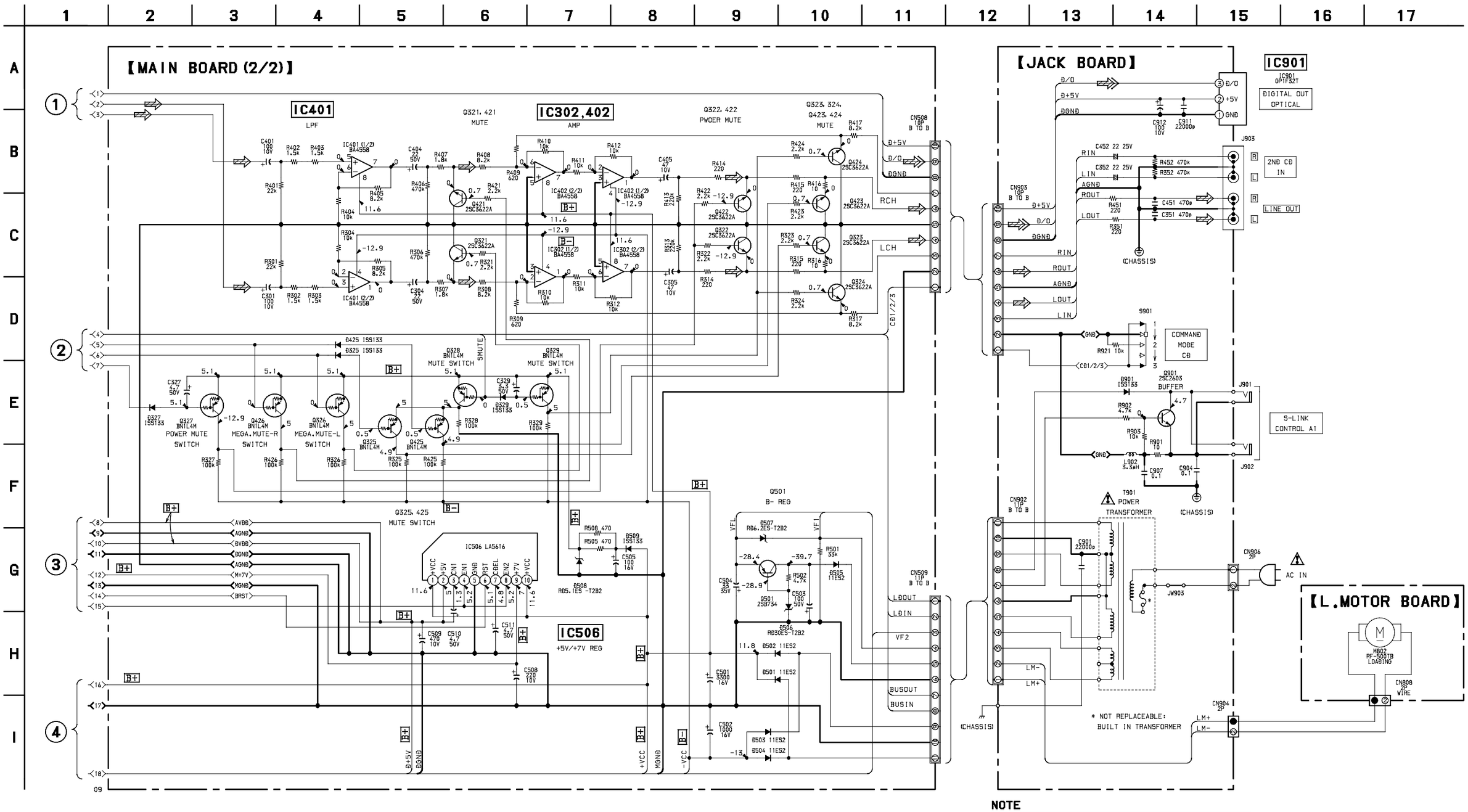
6-6. SCHEMATIC DIAGRAM – MAIN (1/2) SECTION –

- **See page 28 for Waveforms.**
- **See page 49 for IC Block Diagrams.**
- **See page 52 for IC Pin Functions.**



6-7. SCHEMATIC DIAGRAM – JACK SECTION –

- See page 22 for Waveforms.
- See page 33 for Printed Wiring Board (MAIN BOARD).
- See page 49 for IC Block Diagrams.

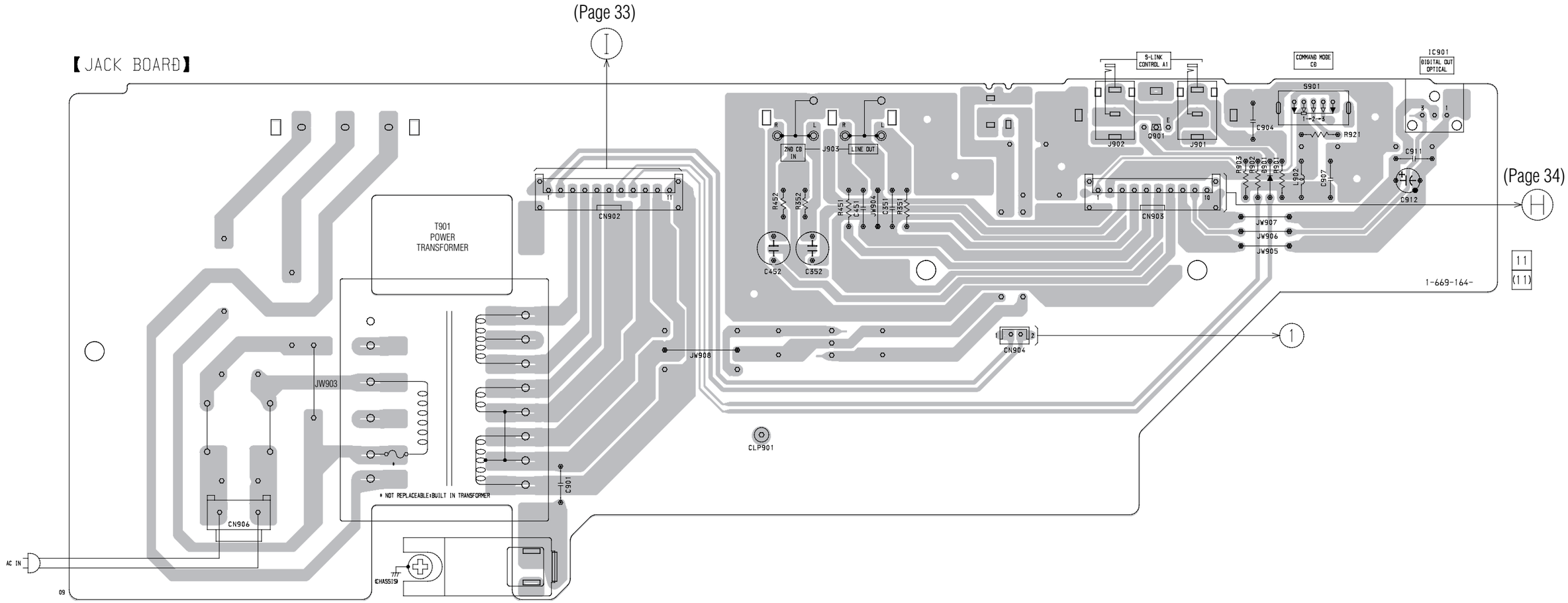


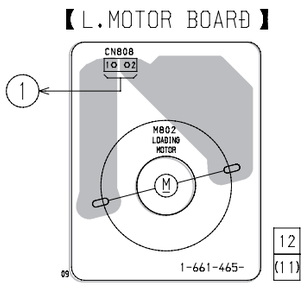
NOTE

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

6-8. PRINTED WIRING BOARD – JACK SECTION –

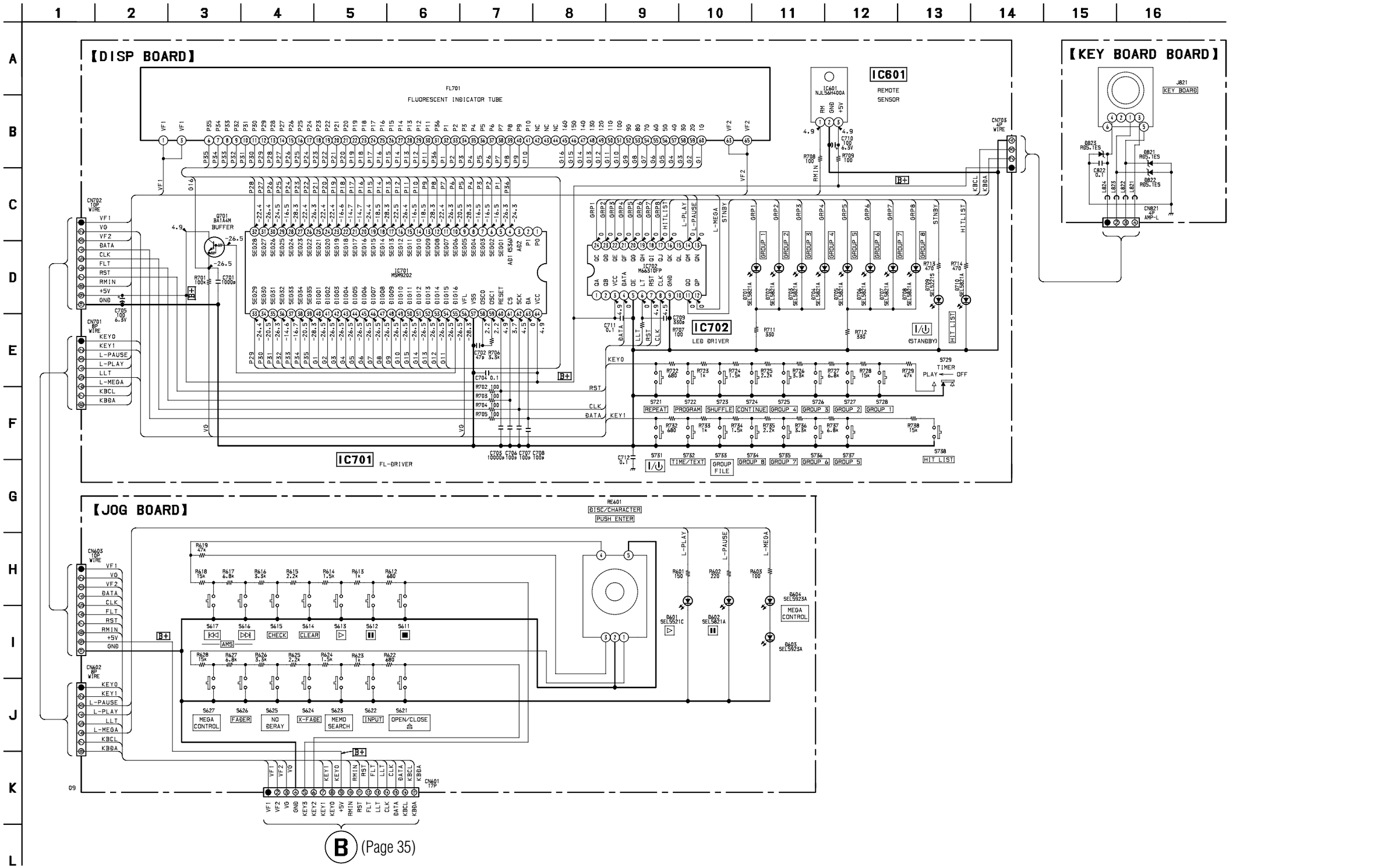
• See page 22 for Circuit Boards Location.





6-9. SCHEMATIC DIAGRAM – DISPLAY SECTION –

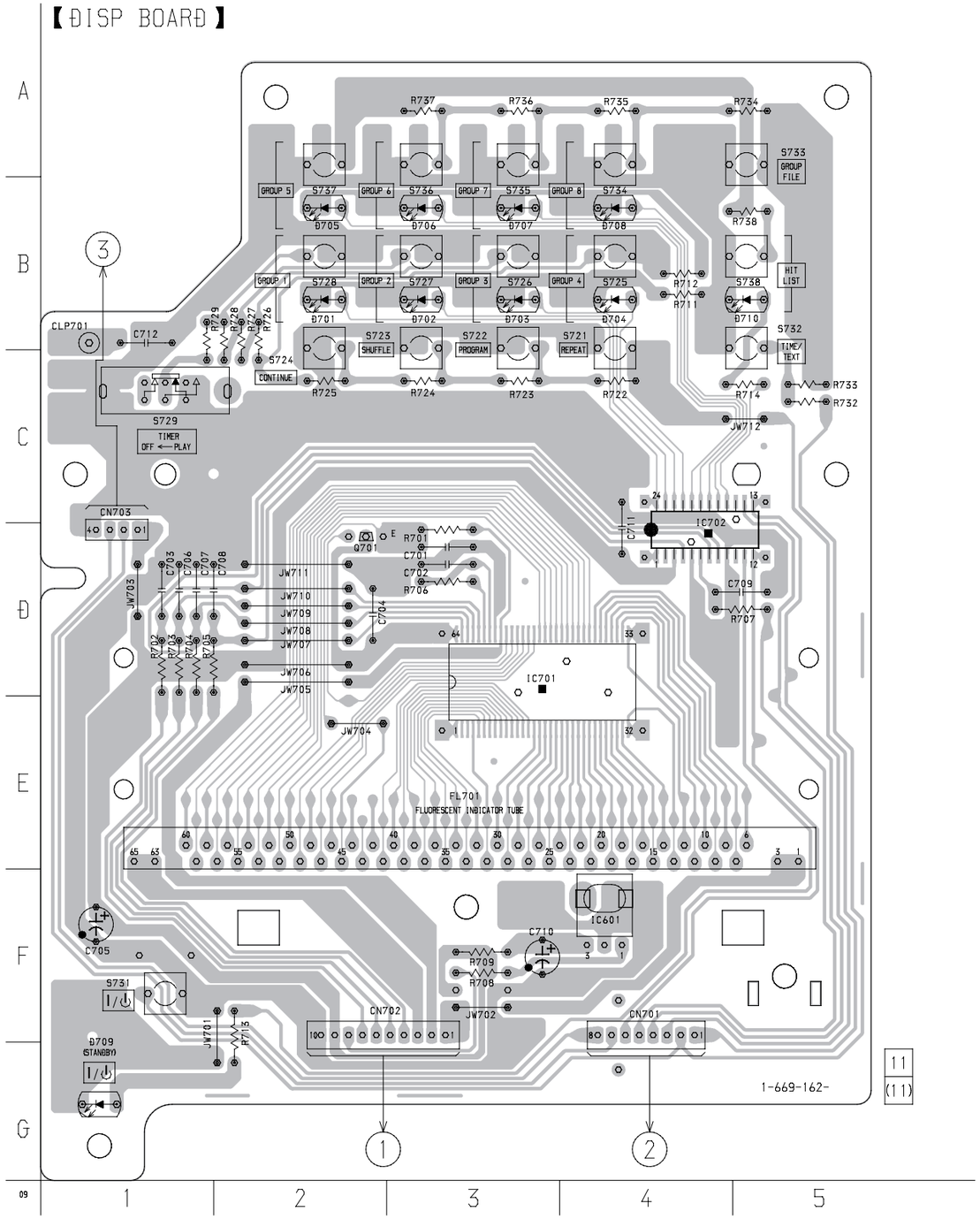
• See page 49 for IC Block Diagrams.



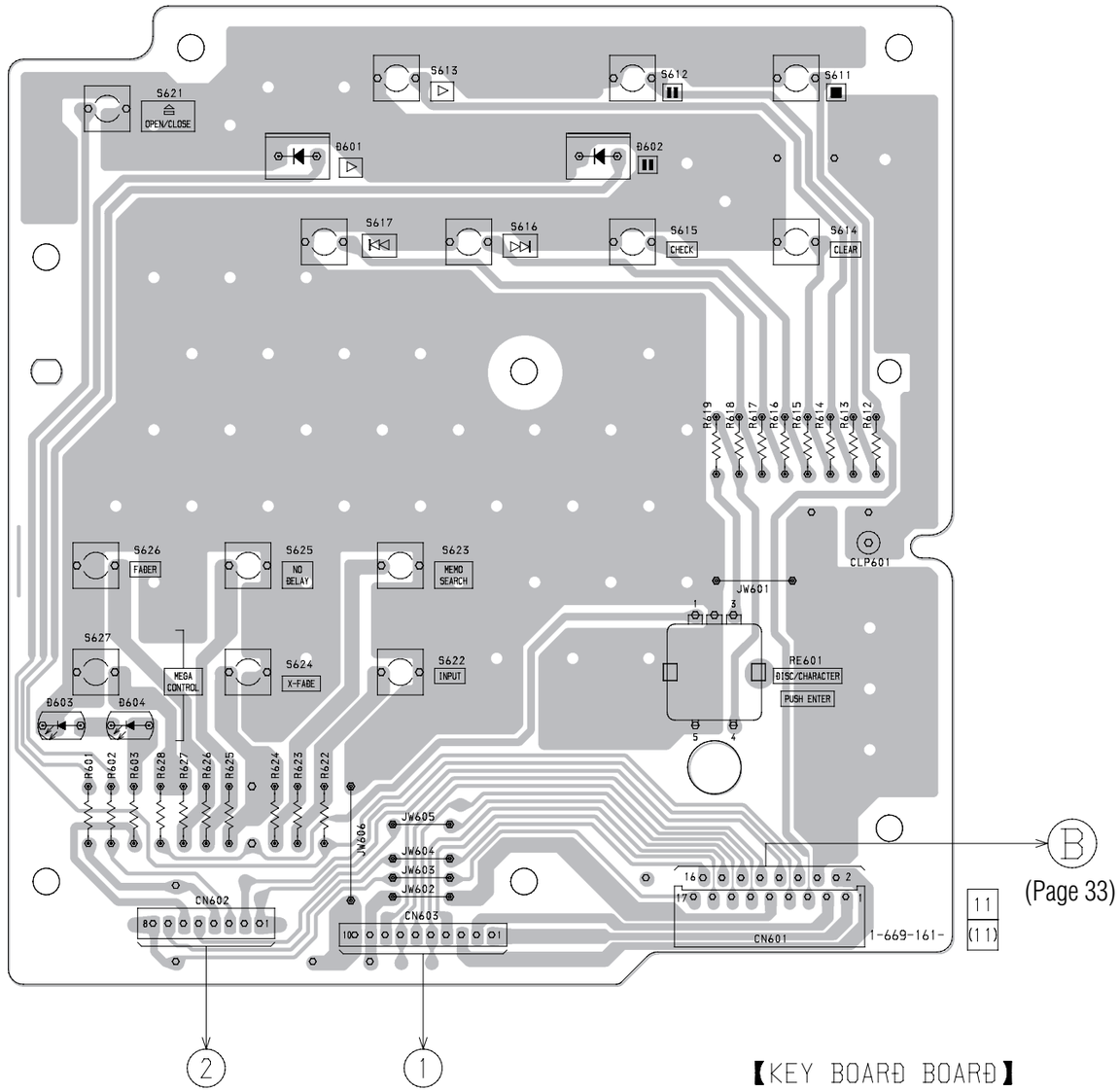
6-10. PRINTED WIRING BOARD – DISPLAY SECTION –

• See page 22 for Circuit Boards Location.

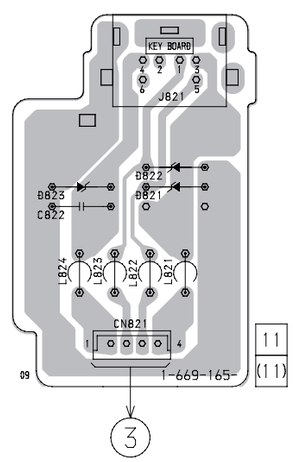
【DISP BOARD】



【JOG BOARD】



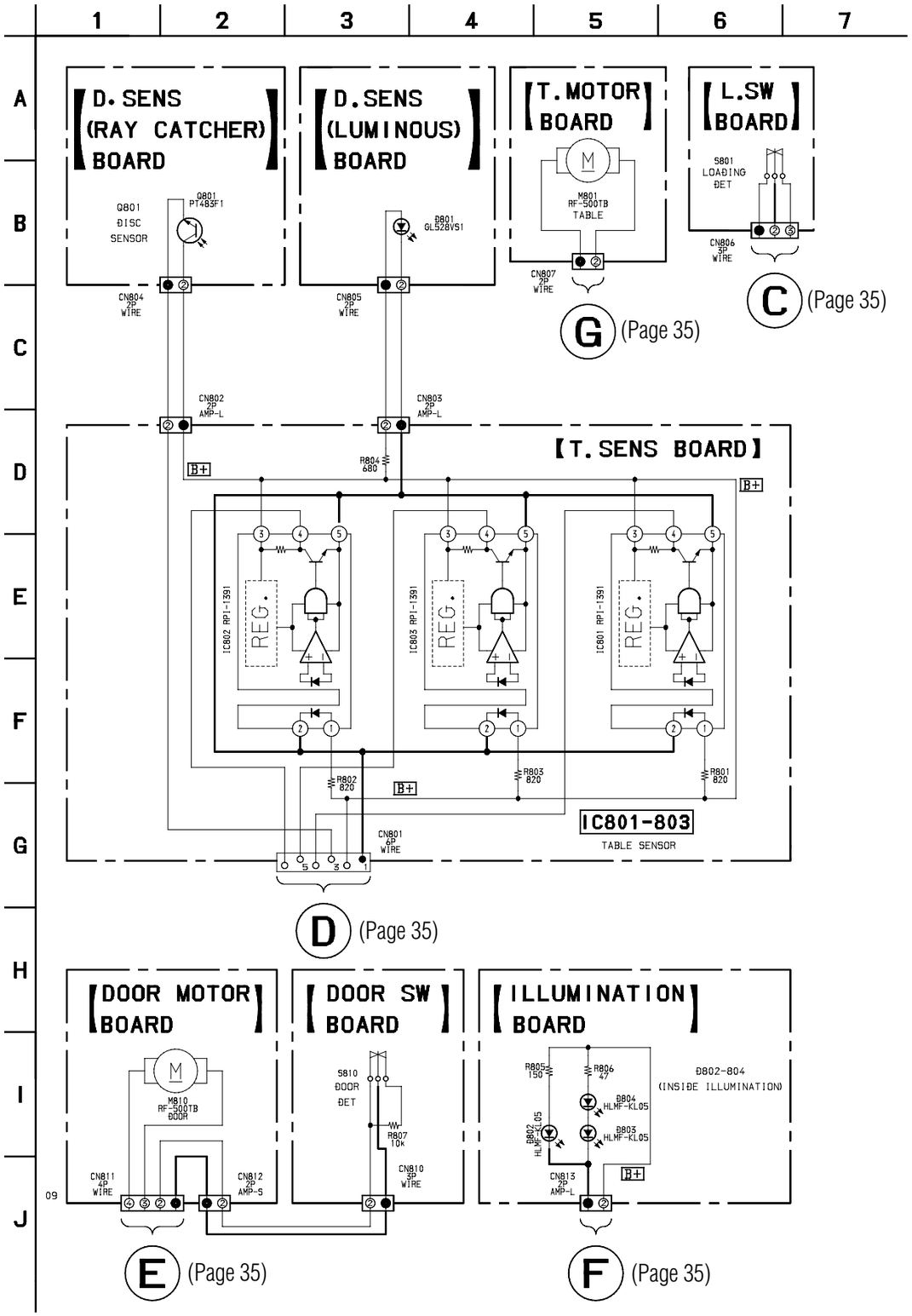
【KEY BOARD BOARD】



• **Semiconductor Location**

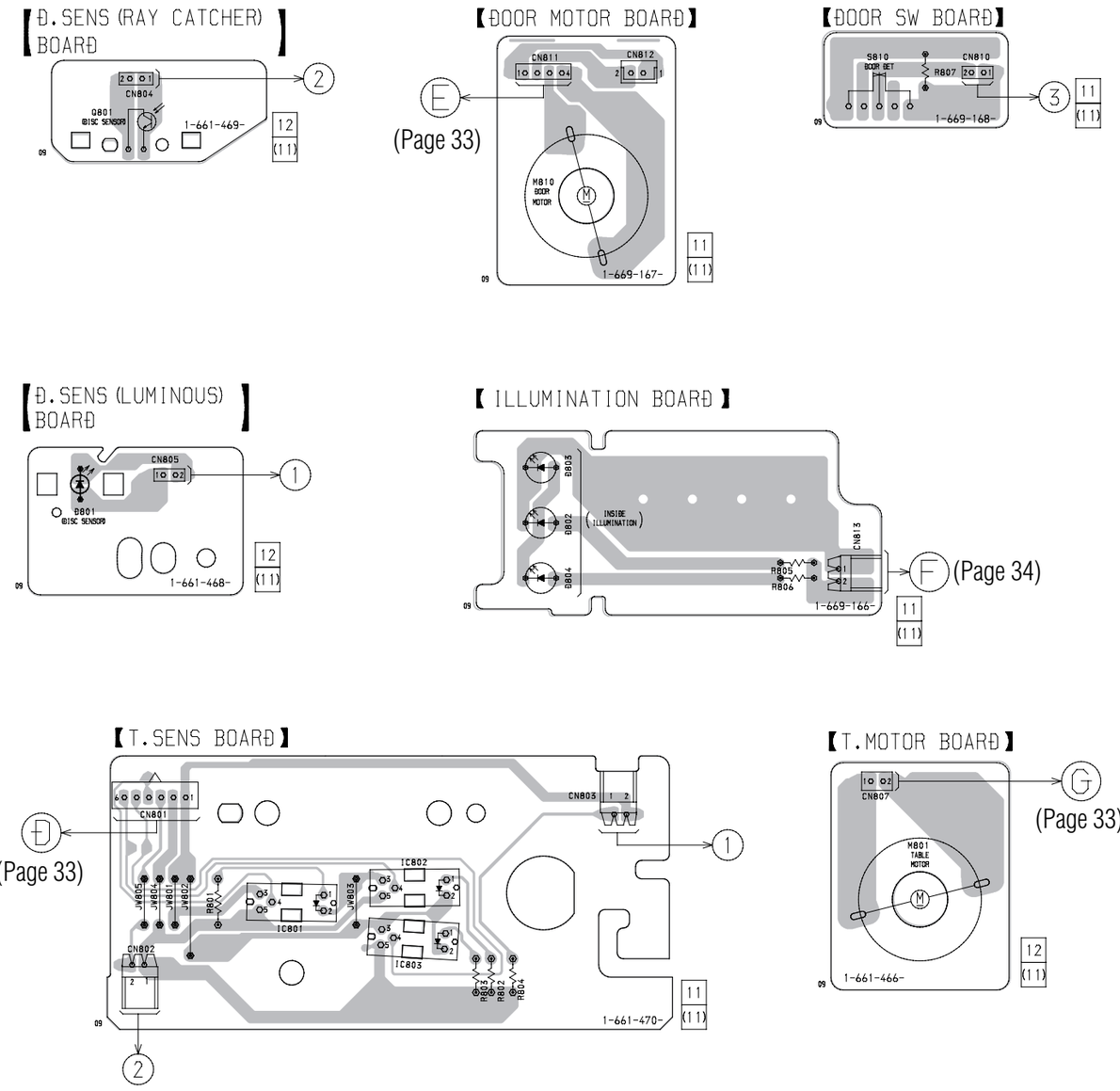
Ref. No.	Location
D701	B-2
D702	B-3
D703	B-3
D704	B-4
D705	B-2
D706	B-3
D707	B-3
D708	B-4
D709	G-1
D710	B-5
IC601	F-4
IC701	D-3
IC702	D-4
Q701	D-2

6-11. SCHEMATIC DIAGRAM – SENSOR/MOTOR SECTION –



6-12. PRINTED WIRING BOARD – SENSOR/MOTOR SECTION –

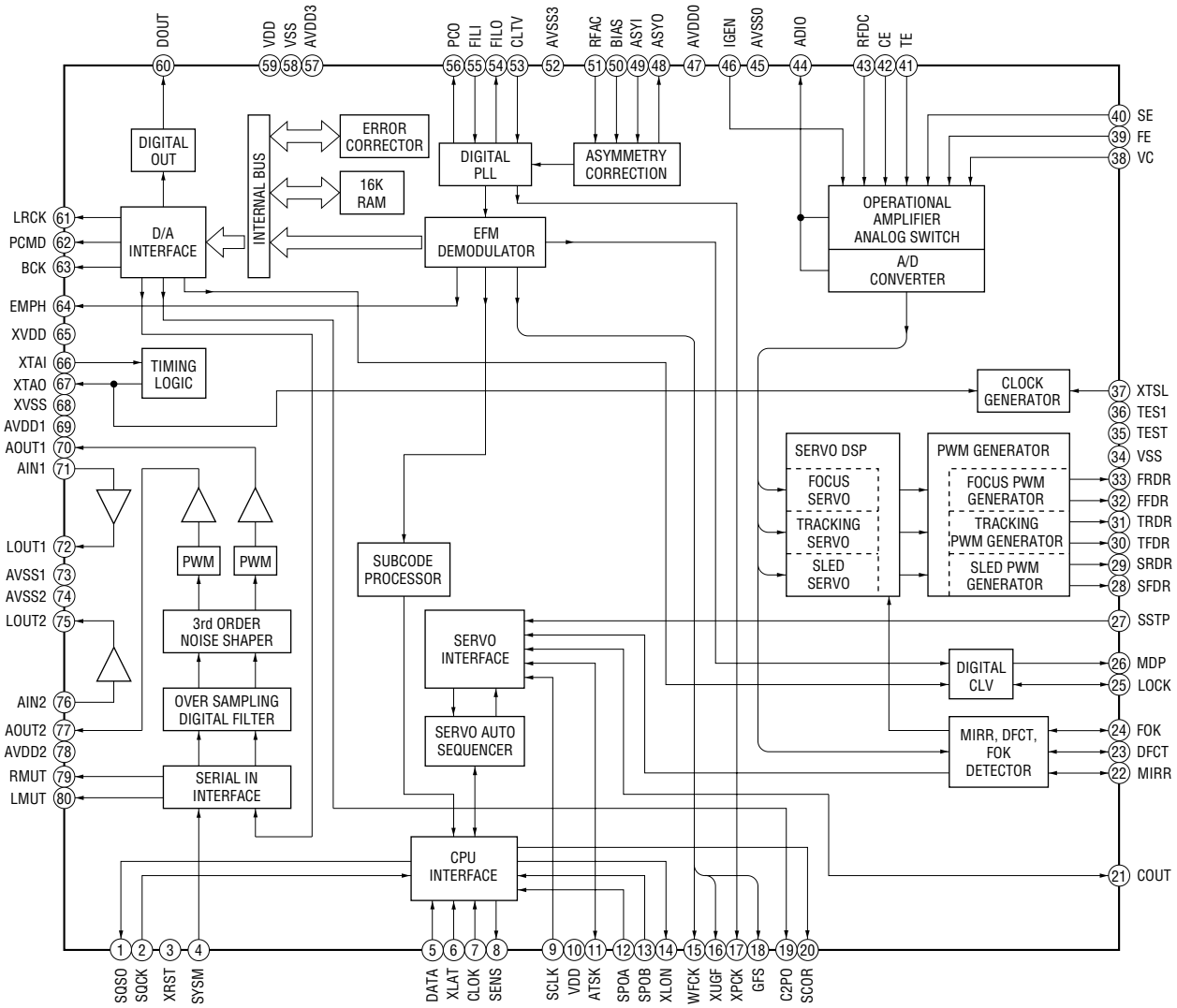
• See page 22 for Circuit Boards Location.



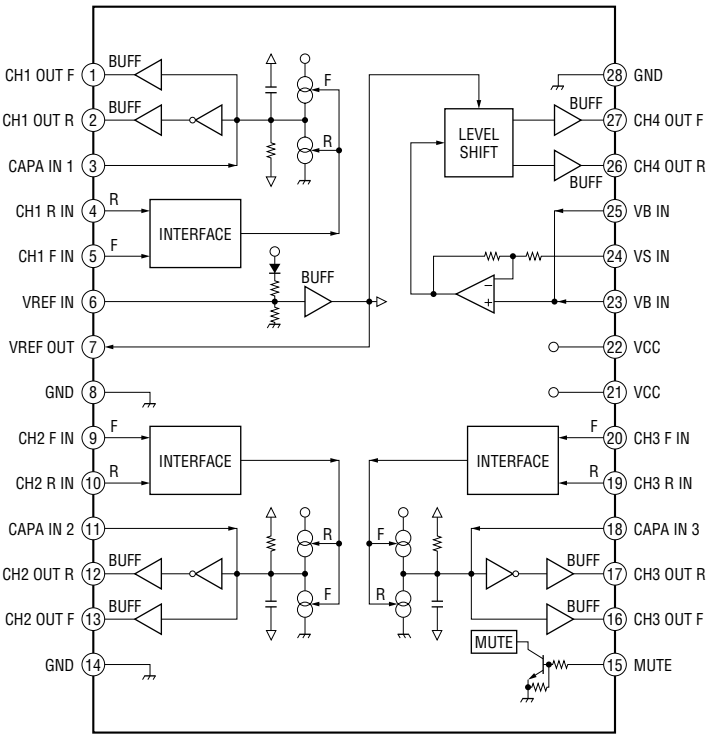
6-13. IC BLOCK DIAGRAMS

• BD section

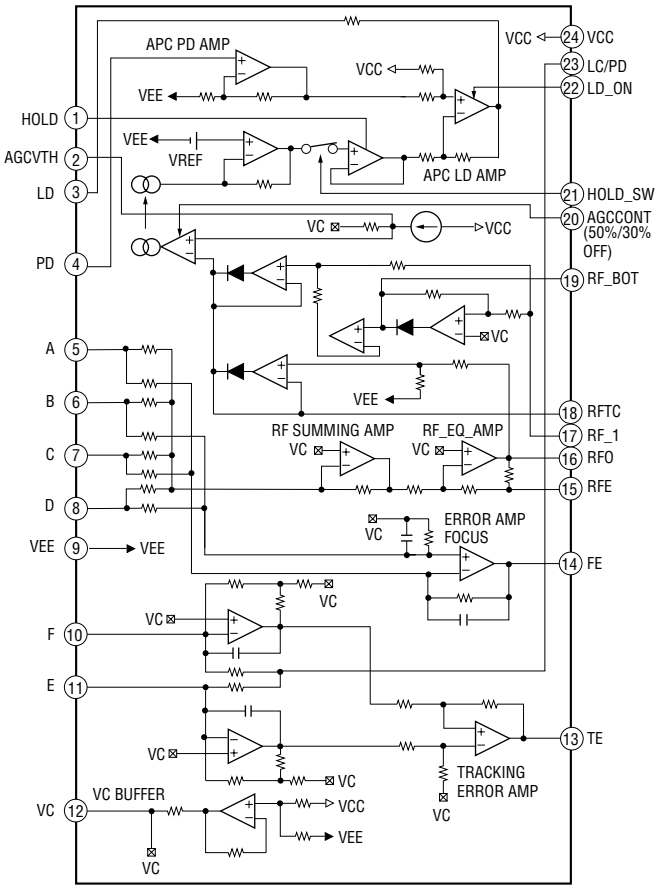
IC101 CXD2587Q



IC102 BA6392FP

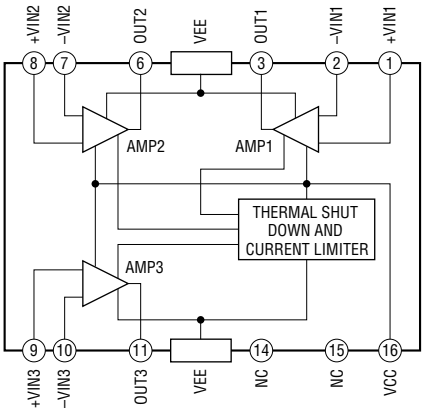


IC103 CXA2568M



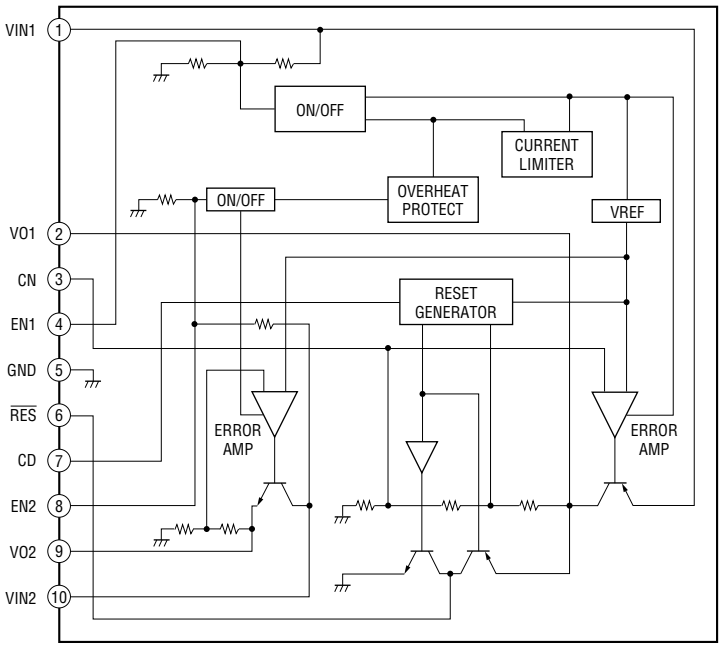
• **Main (1/2) section**

IC503 CXA1291P



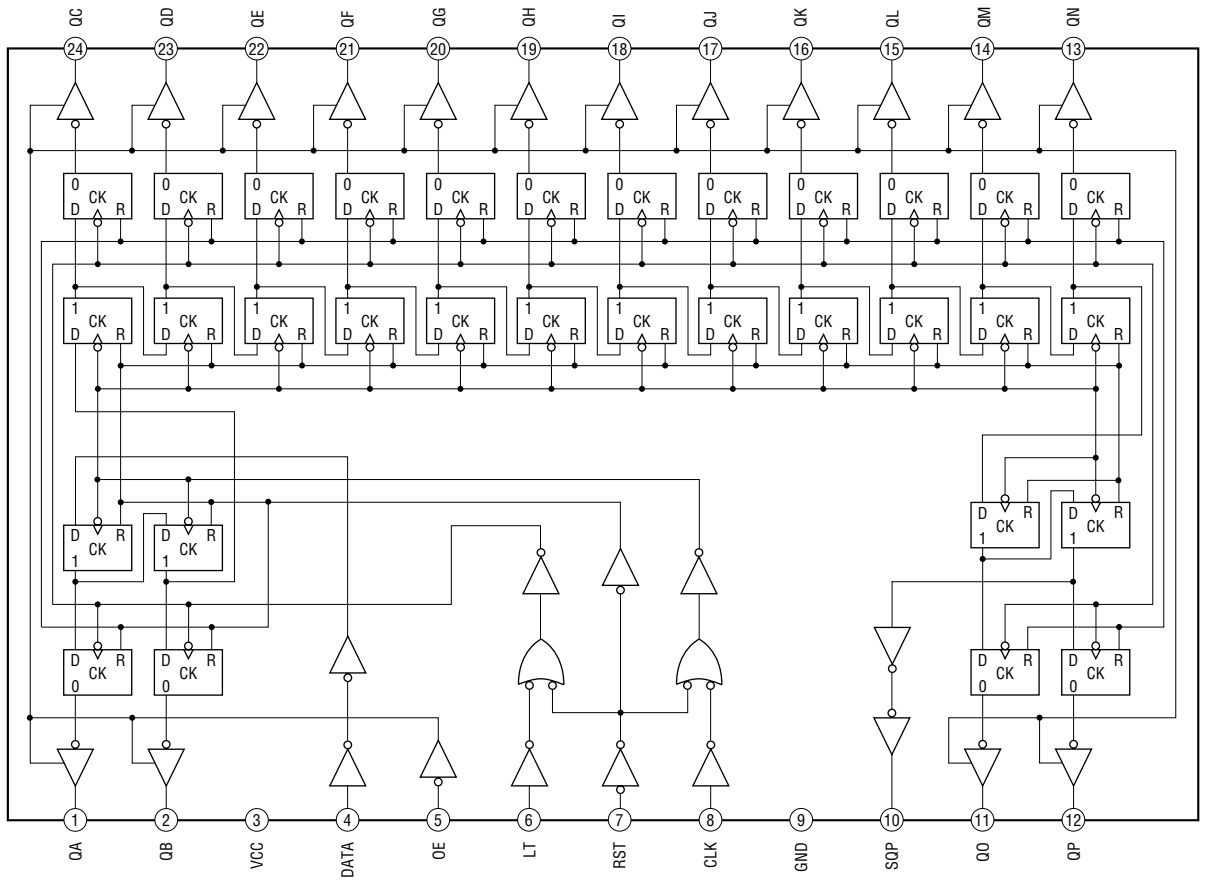
• **Main (2/2) section**

IC506 LA5616



• **Display section**

IC702 M66310FP



6-14. IC PIN FUNCTIONS

• IC101 DIGITAL SIGNAL PROCESSOR (CXD2587Q)

Pin No.	Pin Name	I/O	Function
1	SQSO	O	Sub-Q 80-bit and PCM peak level data output (CD text data output)
2	SQCK	I	Clock input for SQSO read-out
3	XRST	I	System reset "L" : reset
4	SYSM	I	Muting input "H" : mute
5	DATA	I	Serial data input, supplied from CPU
6	XLAT	I	Latch input, supplied from CPU
7	CLOK	I	Serial data transfer clock input, supplied from CPU
8	SENS	O	SENS signal output to CPU
9	SCLK	I	SENS serial data read-out clock input
10	VDD	–	Digital power supply
11	ATSK	I/O	Input pin for anti-shock (Connected to ground)
12	SPOA	I	Microcomputer escape interface input A
13	SPOB	I	Microcomputer escape interface input B
14	XLON	O	Microcomputer escape interface output
15	WFCK	O	WFCK output (Not used)
16	XUGF	O	Not used
17	XPCK	O	Not used
18	GFS	O	Not used
19	C2PO	O	Not used
20	SCOR	O	Sub-code sync output
21	COUT	I/O	Numbers of track counted signal input/output (Not used)
22	MIRR	I/O	Mirror signal input/output (Not used)
23	DFCT	I/O	Defect signal input/output (Not used)
24	FOK	I/O	Focus OK input/output (Not used)
25	LOCK	I/O	GFS is sampled by 460 Hz. H when GFS is H (Not used)
26	MDP	O	Output to control spindle motor servo
27	SSTP	I	Input signal to detect disc inner most track
28	SFDR	O	Sled drive output
29	SRDR	O	Sled drive output
30	TFDR	O	Tracking drive output
31	TRDR	O	Tracking drive output
32	FFDR	O	Focus drive output
33	FRDR	O	Focus drive output
34	VSS	–	Digital ground
35	TEST	I	TEST pin connected normally to ground
36	TES1	I	TEST pin connected normally to ground
37	XTSL	I	X'tal selection input (Connected to ground)
38	VC	I	Center voltage input pin
39	FE	I	Focus error signal input
40	SE	I	Sled error signal input

• Abbreviation
GFS : Guarded Frame Sync

Pin No.	Pin Name	I/O	Function
41	TE	I	Tracking error signal input
42	CE	I	Center servo analog input
43	RFDC	I	RF signal input
44	ADIO	O	Test pin (Not used)
45	AVSS0	–	Analog ground
46	IGEN	I	Stabilized current input for operational amplifiers
47	AVDD0	–	Analog power supply
48	ASYO	O	EFM full swing output
49	ASYI	I	Asymmetry comparate voltage input
50	BIAS	I	Asymmetry circuit constant current input
51	RFAC	I	EFM signal input
52	AVSS3	–	Analog ground
53	CLTV	I	Control voltage input for master VCO1
54	FILO	O	Filter output for master PLL
55	FILI	I	Filter input for master PLL
56	PCO	O	Charge-pump output for master PLL
57	AVDD3	–	Analog power supply
58	VSS	–	Digital ground
59	VDD	–	Digital power supply
60	DOUT	O	Digital-out output pin
61	LRCK	O	D/A interface LR clock output (f = Fs) (Not used)
62	PCMD	O	D/A interface serial data output (Not used)
63	BCK	O	D/A interface bit clock output (Not used)
64	EMPH	O	Playback disc output in emphasis mode (Not used)
65	XVDD	–	Power supply for master clock
66	XTAI	I	X'tal oscillator circuit input (16.9344MHz)
67	XTAO	O	X'tal oscillator circuit output (16.9344MHz)
68	XVSS	–	Ground for master clock
69	AVDD1	–	Analog power supply
70	AOUT1	O	L-ch analog output
71	AIN1	I	L-ch operational amplifiers input
72	LOUT1	O	L-ch line output
73	AVSS1	–	Analog ground
74	AVSS2	–	Analog ground
75	LOUT2	O	R-ch line output
76	AIN2	I	R-ch operational amplifiers input
77	AOUT2	O	R-ch analog output
78	AVDD2	–	Analog power supply
79	RMUT	O	R-ch “0” detection flag output
80	LMUT	O	L-ch “0” detection flag output

• Abbreviation
EFM : Eight to Fourteen Modulation
PLL : Phase Locked Loop

• **IC501 SYSTEM CONTROL (CXP84340-094Q)**

Pin No.	Pin Name	I/O	Function
1	A3	O	SRAM address
2	A4	O	SRAM address
3	A5	O	SRAM address
4	A6	O	SRAM address
5	A7	O	SRAM address
6	A12	O	SRAM address
7	A14	O	SRAM address
8	A11	O	SRAM address
9	A10	O	SRAM address
10	A9	O	SRAM address
11	A8	O	SRAM address
12	A13	O	SRAM address
13	$\overline{WE}$	O	SRAM writing
14	CE	O	SRAM enable
15	KBCOUT	O	Keyboard clock output
16	KBDOUT	O	Keyboard data output
17	KBDIN	I	Keyboard data input
18	FLDATA	O	Data for fluorescent indicator driver IC
19	FLCLK	O	Clock for fluorescent indicator driver IC
20	LEDLT	I	Latch for LED driver IC
21	TBLL	O	Table motor PWM output for left turn
22	TBLR	O	Table motor PWM output for right turn
23	DRIN	O	Door close output
24	DROUT	O	Door open output
25	ADJ	I	Test mode pin
26	LDIN	O	Loading motor PWM output for inside direction
27	LDOUT	O	Loading motor PWM output for outside direction
28	BUSOUT	O	CONTROL A1 out
29	SMUTE	O	Zero mute disenble output
30	$\overline{RST}$	I	Reset input L: Reset
31	EXTAL	O	X'tal Oscillation (10MHz)
32	XTAL	I	X'tal Oscillation (10MHz)
33	VSS	–	Connect to ground
34	TX	–	Not used
35	TEX	–	Connect to ground
36	AVSS	–	Connect to ground
37	AVREF	–	Connect to +5V
38	D.S	I	Disc sensor input
39	DOORSW	O	Front door switch
40	CD 1/2/3	I	Command mode switch

Pin No.	Pin Name	I/O	Function
41	SW	I	Model select switch input
42	KEY3	I	Key input
43	KEY2	I	Key input
44	KEY1	I	Key input
45	KEY0	O	Key input
46	BUSIN	I	CONTROL-A1 input L: Active
47	AMUTE	O	Audio mute driver
48	CLK	O	Clock for servo IC and digital filter IC
49	XLT	O	Latch for command
50	DATA	O	Data for command
51	CLK	O	Clock for sub code Q
52	SUBQ	I	Sub code Q data input
53	NC	–	Not used
54	SENS	I	Servo sensor signal
55	OUTSW	I	Loading out switch input L: Out
56	RMIN	I	Remote control signal
57	AFADJ	I	Test mode pin
58	FLLT	O	Latch for fluorescent indicator driver IC
59	NC	–	Not used
60	KBCIN	O	Keyboard clock output
61	SCOR	I	Sub code Q synchronous signal Start at rising edge
62	TS.1	I	Table position sensor 1 input
63	TS.2	I	Table position sensor 2 input
64	TS.3	I	Table position sensor 3 input
65	ICSW	O	Power switch control signal output for BD board
66	RFSW	O	RF automatic gain control hold output
67	INSW	I	Loading in switch input L: In
68	D3	I/O	SRAM data
69	D4	I/O	SRAM data
70	D5	I/O	SRAM data
71	D6	I/O	SRAM data
72	VDD	–	Connect to +5V
73	VDD	–	Connect to +5V
74	D7	I/O	SRAM data
75	D2	I/O	SRAM data
76	D1	I/O	SRAM data
77	D0	I/O	SRAM data
78	A0	O	SRAM address
79	A1	O	SRAM address
80	A2	O	SRAM address

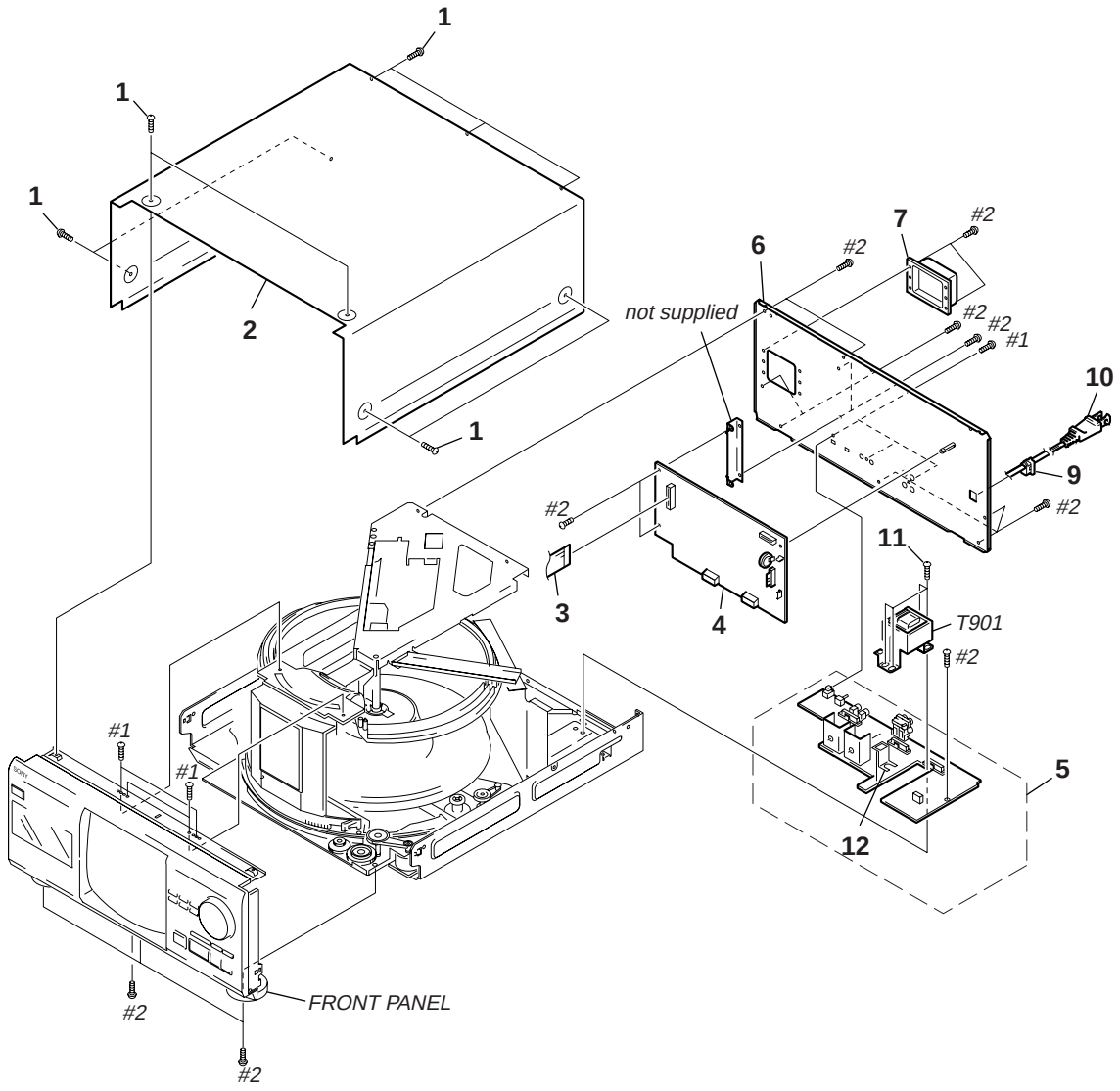
SECTION 7
EXPLODED VIEWS

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

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

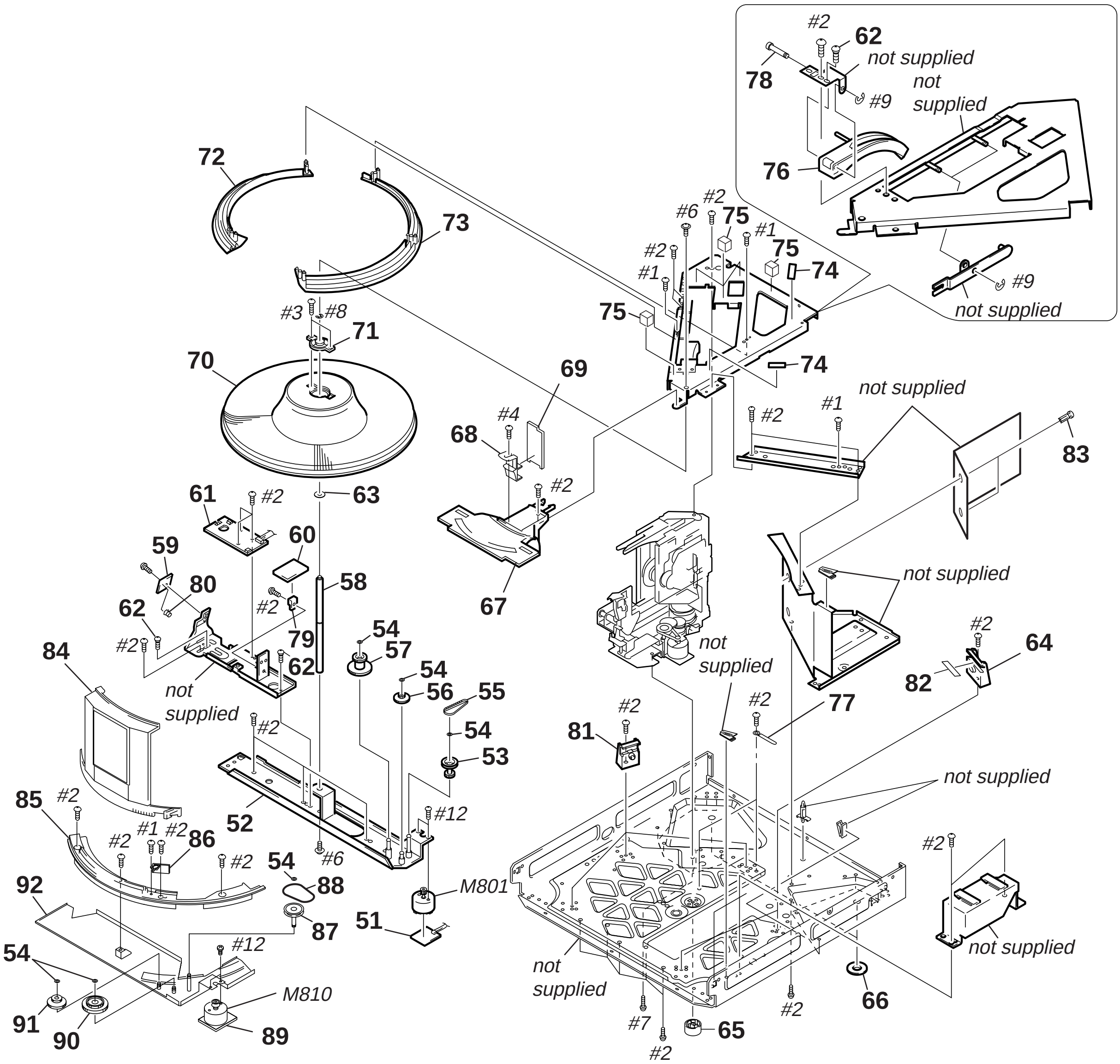
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

7-1. CASE AND BACK PANEL SECTION



Ref. No.	Part No.	Description	Remark
1	3-710-901-11	SCREW, TAPPING	
* 2	4-982-946-11	CASE	
3	1-773-183-11	WIRE (FLAT TYPE) (23 CORE)	
* 4	A-4724-058-A	MAIN BOARD, COMPLETE	
* 5	1-669-164-11	JACK BOARD, COMPLETE	
* 6	4-999-020-01	PANEL, BACK (US)	
* 6	4-999-020-11	PANEL, BACK (CND)	
* 7	4-982-807-01	COVER (FFC)	
* 9	3-703-244-00	BUSHING (2104), CORD	
⚠10	1-575-042-21	CORD, POWER	
11	4-886-821-11	SCREW, S TIGHT, +PTTWH 3X6	
* 12	4-962-200-11	PLATE (TR), GROUND	
⚠T901	1-431-759-11	TRANSFORMER, POWER	

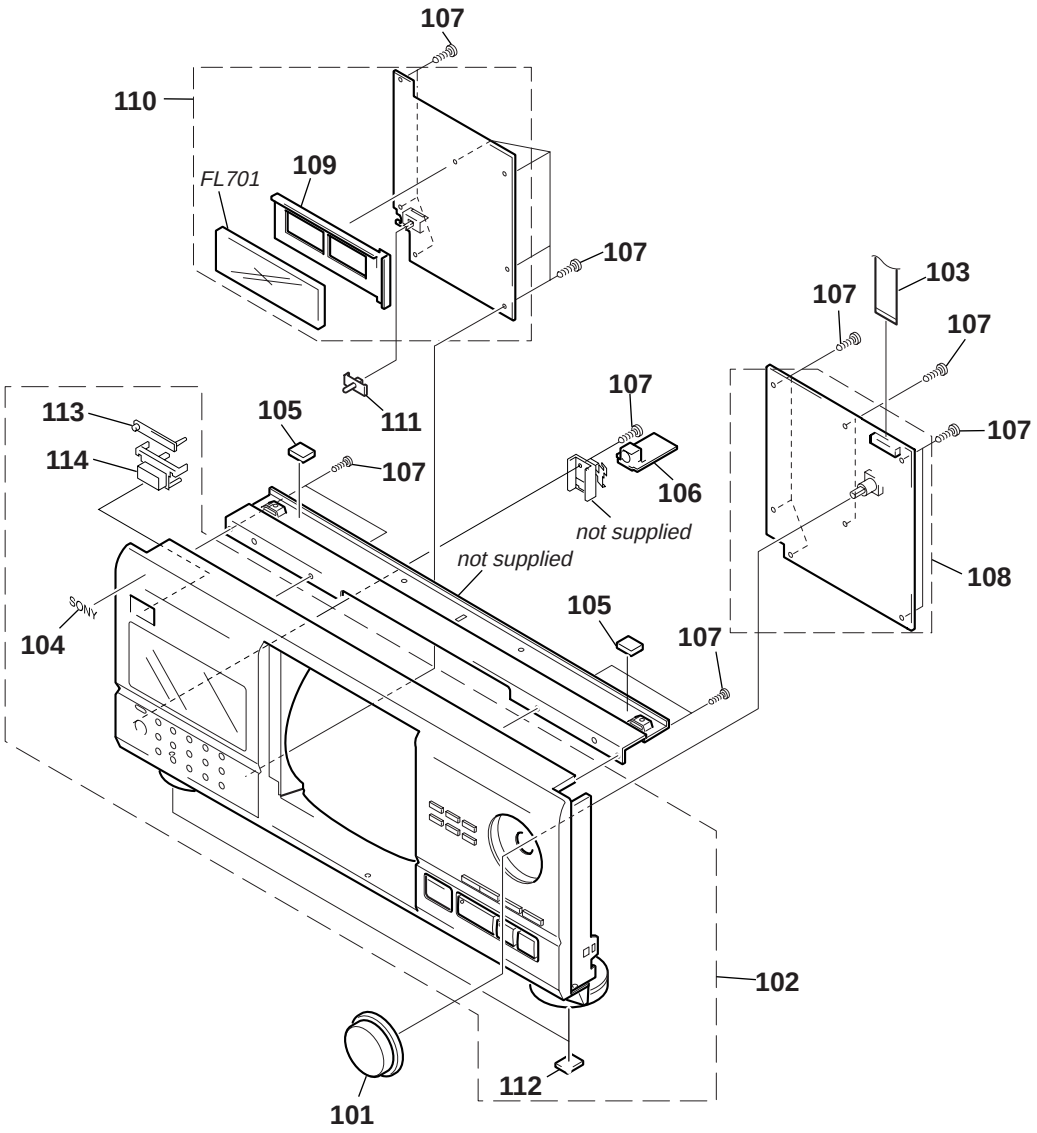
7-2. DISC TABLE SECTION



Ref. No.	Part No.	Description	Remark
* 51	1-661-466-11	T.MOTOR BOARD	
52	X-4947-230-1	BRACKET (TABLE) ASSY	
53	X-4947-607-1	GEAR (PULLEY) ASSY	
54	3-325-697-21	WASHER	
55	4-962-822-01	BELT (TIMING)	
56	4-982-893-01	GEAR (CENTER 2)	
57	4-982-891-01	GEAR (TABLE)	
58	4-982-892-01	SHAFT (CENTER)	
* 59	1-661-468-11	D.SENS (LUMINOUS) BOARD	
* 60	1-661-469-11	D.SENS (RAY CATCHER) BOARD	
* 61	1-661-470-11	T.SENS BOARD	
62	3-356-601-11	SCREW, STEP	
63	3-701-446-21	WASHER, 8	
64	X-4947-229-1	HOLDER (ROLLER) ASSY	
65	4-931-169-01	FOOT	
66	4-983-279-01	CUSHION (RF)	
67	4-998-506-01	GUIDE (DOOR.T)	
68	4-999-182-01	ILLUMINATOR	
* 69	1-669-166-11	ILLUMINATION BOARD	
70	X-4947-231-1	TABLE (200) ASSY	
71	4-976-471-01	BEARING (TABLE)	
* 72	4-982-803-01	RING (B)	

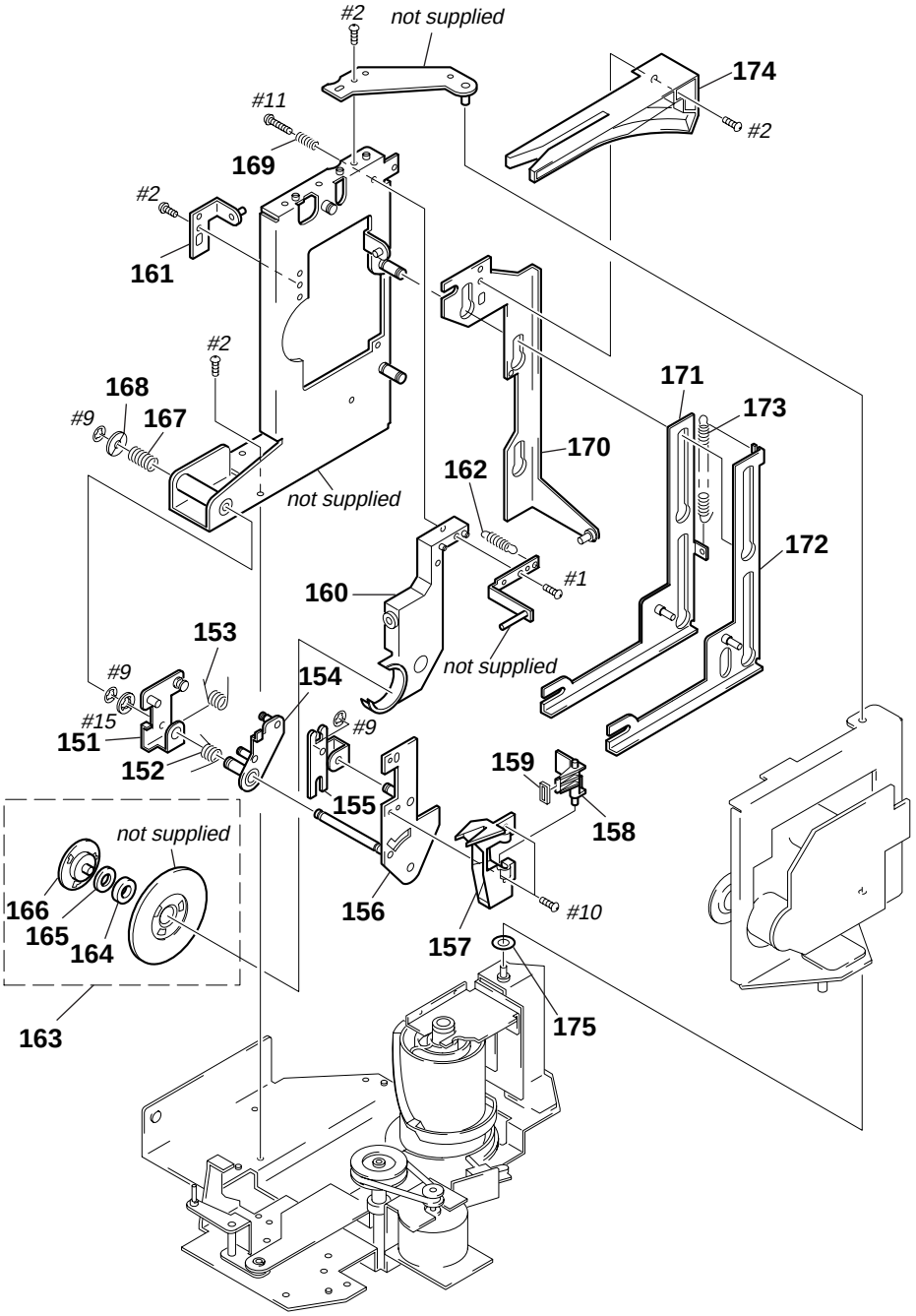
Ref. No.	Part No.	Description	Remark
* 73	4-982-802-01	RING (A)	
* 74	3-378-434-01	CUSHION, SARANET	
75	4-985-553-11	CUSHION	
76	4-982-862-01	GUIDE (DISC T)	
77	3-703-397-01	STOPPER, WIRING	
78	4-982-870-01	SHAFT (GUIDE FULCRUM)	
* 79	4-985-300-01	HOLDER (P-T)	
* 80	4-976-473-01	HOLDER (LED-S)	
81	X-4947-606-1	HOLDER (ROLLER 2) ASSY	
82	4-985-574-01	SPACER (ROLLER)	
83	4-053-543-01	RIVET, NYLON	
84	X-4949-616-1	DOOR (CD) ASSY	
85	4-998-507-01	GUIDE (DOOR.B)	
* 86	1-669-168-11	DOOR SW BOARD	
87	4-998-510-01	GEAR (PULLEY)	
88	4-210-030-01	BELT (DIA. 42X1)	
* 89	1-669-167-11	DOOR MOTOR BOARD	
90	4-998-509-01	GEAR (DOOR.CENTER)	
91	4-998-508-01	GEAR (DOOR)	
* 92	X-4949-615-1	BRACKET (GEAR) ASSY	
M801	A-4604-847-A	MOTOR ASSY (TABLE)	
M810	X-4950-062-1	MOTOR ASSY, DOOR	

7-3. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
101	4-998-523-01	KNOB (JOG)	
102	X-4949-663-1	PANEL ASSY, FRONT	
103	1-783-365-11	WIRE (FLAT TYPE) (17 CORE)	
104	4-996-698-01	EMBLEM, SONY	
105	4-985-553-21	CUSHION	
* 106	1-669-165-11	KEY BOARD BOARD	
107	4-951-620-01	SCREW (2.6X8), +BVTP	
* 108	1-669-161-11	JOG BOARD	
* 109	4-982-811-01	HOLDER (FL)	
* 110	A-4724-061-A	DISP BOARD, COMPLETE	
111	3-917-216-21	KNOB (TIMER)	
112	4-977-358-11	CUSHION	
113	4-996-682-11	INDICATOR	
114	4-996-683-21	BUTTON (POWER)	
FL701	1-517-756-11	INDICATOR TUBE, FLUORESCENT	

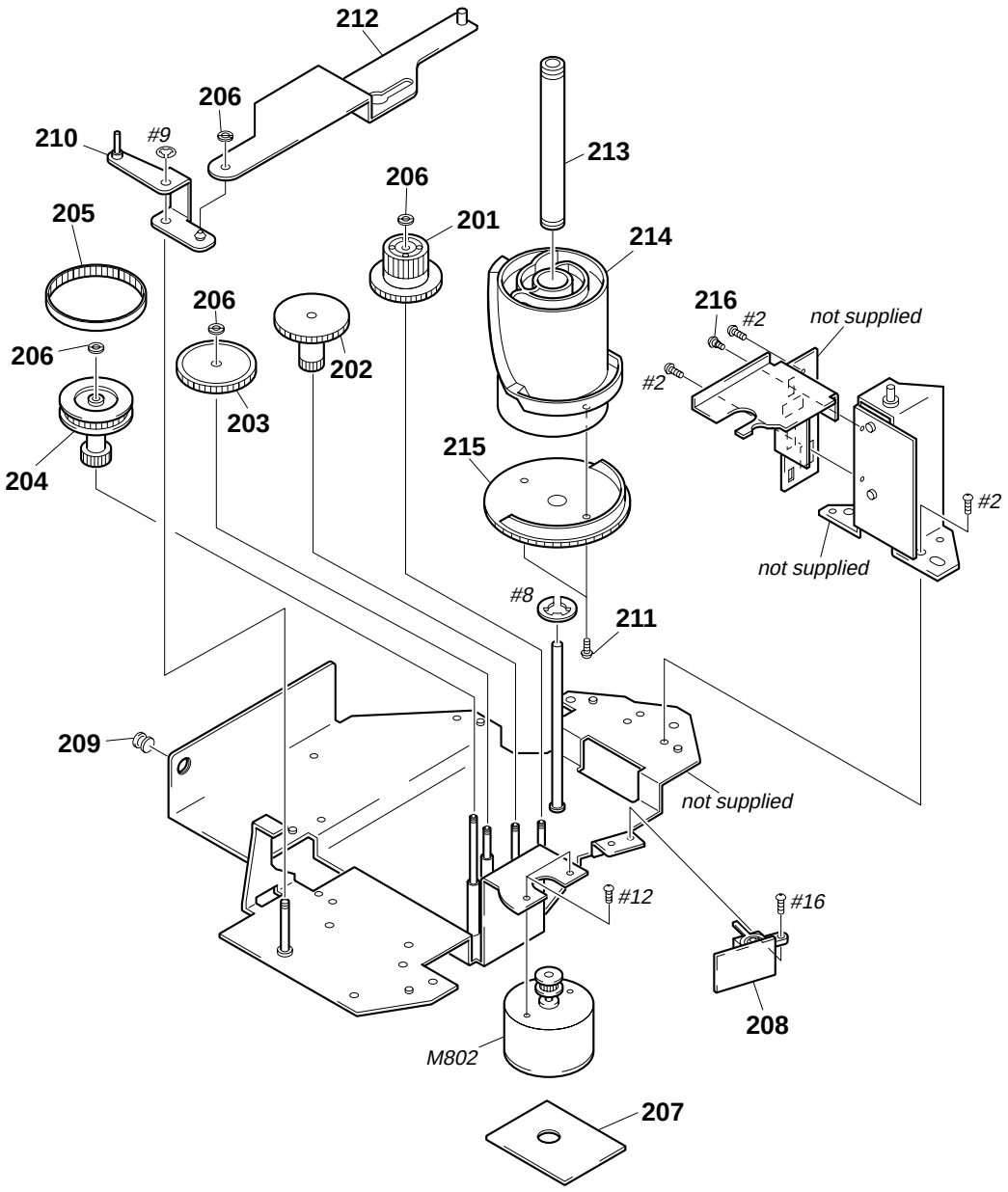
7-4. MECHANISM SECTION-1 (CDM-40B)



Ref. No.	Part No.	Description	Remark
151	X-4947-241-1	LEVER (C) ASSY	
152	4-982-882-01	SPRING (LIMITTER), TORSION	
153	4-982-881-01	SPRING (HOLDER), TORSION	
154	X-4947-239-1	LIMITTER (A) ASSY	
155	4-982-853-01	LEVER (B)	
156	X-4947-240-1	LEVER (A) ASSY	
157	4-988-143-01	HOLDER (DISC A2)	
158	4-982-855-01	HOLDER (DISC B)	
159	4-982-856-01	PAD	
160	4-976-458-01	HOLDER (MAGNET)	
161	X-4946-326-1	HOLDER (CLAMP) ASSY	
162	4-983-777-01	SPRING (MG), TENSION	

Ref. No.	Part No.	Description	Remark
163	A-4672-092-A	MAGNET ASSY	
164	3-366-559-02	MAGNET (CHUCK)	
165	4-960-633-01	YOKE (MAGNET)	
166	4-960-632-11	PULLEY (B)	
167	4-983-319-01	SPRING (THRUST), COMPRESSION	
* 168	4-976-456-01	WASHER (STOPPER)	
169	3-938-588-01	SPRING, COMPRESSION	
170	X-4947-242-1	SLIDER (C) ASSY	
171	X-4947-238-1	SLIDER (B) ASSY	
172	X-4947-237-1	SLIDER (A) ASSY	
173	4-982-880-01	SPRING (SLIDER A),TENSION	
* 174	4-982-863-01	GUIDE (DISC P)	
175	3-701-441-21	WASHER	

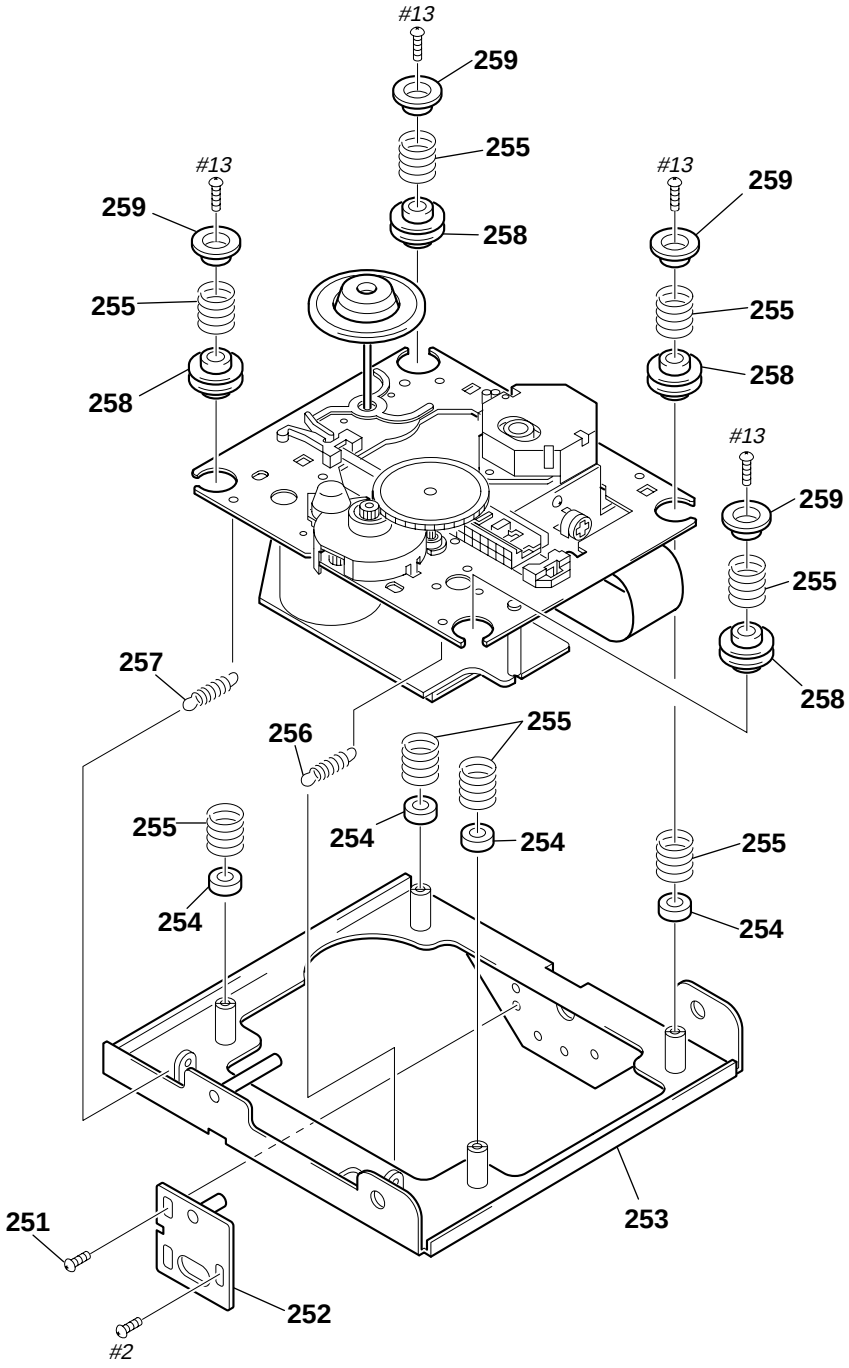
7-5. MECHANISM SECTION-2 (CDM-40B)



Ref. No.	Part No.	Description	Remark
201	4-976-465-01	GEAR (LOADING 1)	
202	4-976-466-01	GEAR (LOADING 2)	
203	4-982-893-01	GEAR (CENTER 2)	
204	X-4947-607-1	GEAR (PULLEY) ASSY	
205	4-982-867-01	BELT (TIMING)	
206	3-325-697-21	WASHER	
* 207	1-661-465-11	L.MOTOR BOARD	
* 208	1-661-467-11	L.SW BOARD	
209	3-489-073-00	SCREW, THRUST	

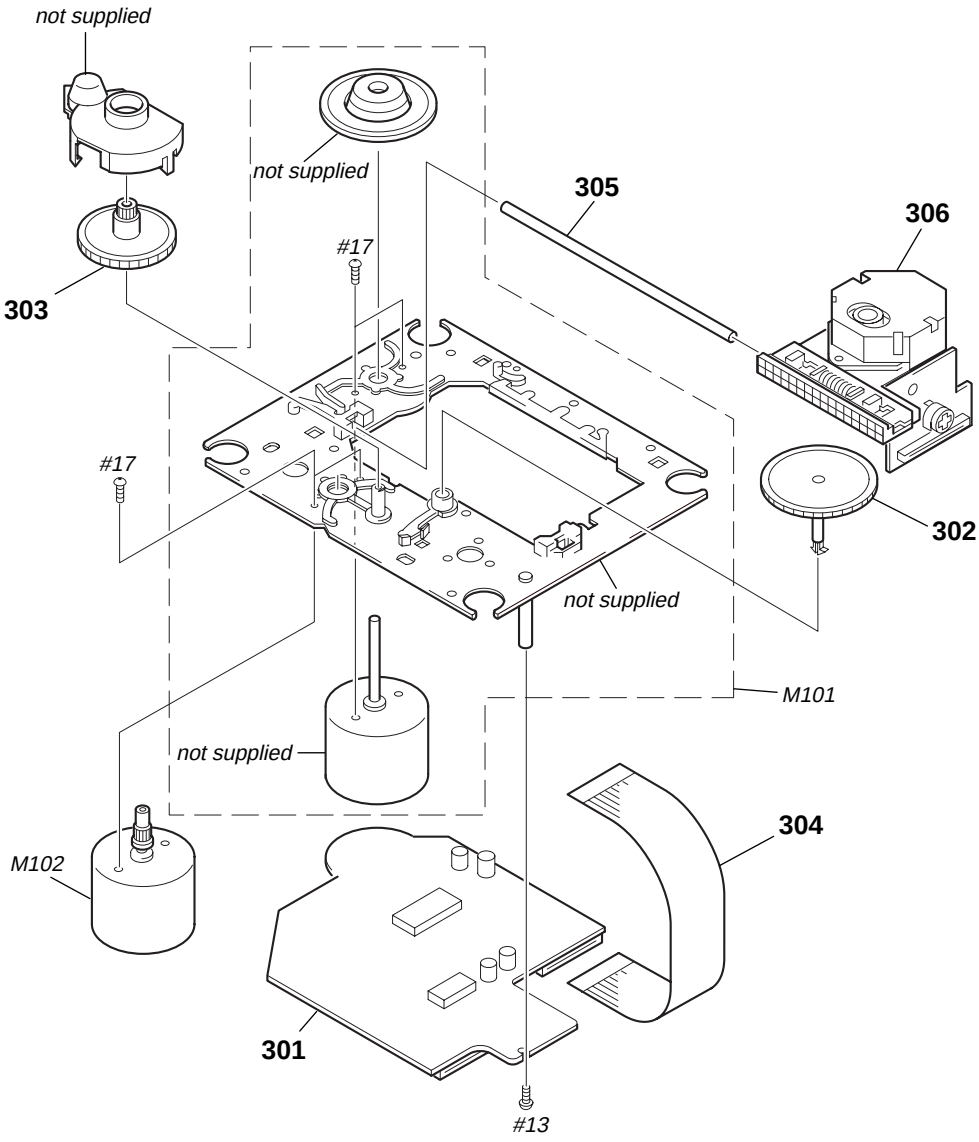
Ref. No.	Part No.	Description	Remark
210	X-4947-227-1	LEVER (STOPPER) ASSY	
211	4-951-291-01	SCREW	
212	X-4947-234-1	SLIDER (LOCK) ASSY	
213	4-982-857-01	BEARING (CAM)	
214	4-982-860-01	CAM (A)	
215	4-982-861-01	CAM (B)	
216	3-356-601-11	SCREW, STEP	
M802	A-4604-847-A	MOTOR ASSY (LOADING)	

7-6. MECHANISM SECTION-3 (CDM-40B)



Ref. No.	Part No.	Description	Remark
251	3-356-601-11	SCREW, STEP	
252	X-4947-244-1	SLIDER (BU ADJUSTMENT) ASSY	
253	X-4947-243-1	HOLDER (BU) ASSY	
254	4-982-859-01	HOLDER (DAMPER)	
255	4-982-878-01	SPRING (F), COMPRESSION	
256	4-982-872-01	SPRING (F-2), TENSION	
257	4-982-871-01	SPRING (F-1), TENSION	
258	4-982-858-01	DAMPER	
259	4-960-617-01	CAP (F)	

7-7. BASE UNIT SECTION (KSM-213BKN/M-N)



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

Ref. No.	Part No.	Description	Remark
* 301	A-4724-029-A	BD BOARD, COMPLETE	
302	2-626-907-01	GEAR (A)(S)	
303	2-627-003-01	GEAR (B)(RP)	
304	1-769-069-11	WIRE (FLAT TYPE)(16 CORE)	
305	2-626-908-01	SHAFT, SLED	
⚠306	8-848-376-01	OPTICAL PICK-UP BLOCK KSS-213B/S-N	
M101	X-2626-234-1	T.T CHAISSIS ASSY (MG)(K)(SPINDLE)	
M102	X-2625-769-1	MOTOR GEAR ASSY (MB)(RP)(SLED)	

SECTION 8
ELECTRICAL PARTS LIST

BD

Note:

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

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

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

- 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.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: µ , for example:
  uA...: µ A..., uPA...: µ PA..., uPB...: µ PB..., uPC...: µ PC..., uPD...: µ PD...
- CAPACITORS
  uF : µ F
- COILS
  uH : µ H
- Abbreviation
  CND : Canadian model

Ref. No.	Part No.	Description			Remark
*	A-4724-029-A	BD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C102	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C103	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C104	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C106	1-164-346-11	CERAMIC CHIP	1uF		16V
C107	1-164-346-11	CERAMIC CHIP	1uF		16V
C108	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C109	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C110	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C111	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C112	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C113	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C114	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C115	1-126-607-11	ELECT CHIP	47uF	20%	4V
C116	1-126-607-11	ELECT CHIP	47uF	20%	4V
C117	1-126-209-11	ELECT CHIP	100uF	20%	4V
C118	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C119	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C120	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C121	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C122	1-135-155-21	TANTALUM CHIP	4.7uF	10%	16V
C123	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C124	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C125	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C126	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C127	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C130	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C131	1-135-216-11	TANTALUM CHIP	10uF	20%	10V
C140	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C141	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C151	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C153	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C154	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C156	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C157	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C159	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C161	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C162	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C163	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C164	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C165	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C166	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C167	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C168	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C171	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C172	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C181	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C182	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
		< CONNECTOR >			
CN101	1-770-072-11	CONNECTOR,(LIF(NON-ZIF))FFC23P			
CN102	1-777-937-11	CONNECTOR, FFC/FPC 16P			
		< IC >			
IC101	8-752-386-85	IC CXD2587Q			
IC102	8-759-455-91	IC BA6392FP-E2			
IC103	8-752-085-51	IC CXA2568M-T6			
		< COIL >			
L101	1-414-234-11	INDUCTOR CHIP	0uH		
L102	1-414-234-11	INDUCTOR CHIP	0uH		
		< TRANSISTOR >			
Q101	8-729-010-08	TRANSISTOR MSB710-R			
		< RESISTOR >			
R101	1-216-077-00	METAL CHIP	15K	5%	1/10W
R102	1-216-097-91	RES,CHIP	100K	5%	1/10W
R103	1-216-077-00	METAL CHIP	15K	5%	1/10W
R104	1-216-085-00	METAL CHIP	33K	5%	1/10W
R105	1-216-097-91	RES,CHIP	100K	5%	1/10W
R106	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R107	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R108	1-216-073-00	METAL CHIP	10K	5%	1/10W
R109	1-216-121-91	RES,CHIP	1M	5%	1/10W
R110	1-216-025-91	RES,CHIP	100	5%	1/10W
R111	1-216-121-91	RES,CHIP	1M	5%	1/10W
R113	1-216-121-91	RES,CHIP	1M	5%	1/10W
R116	1-216-025-91	RES,CHIP	100	5%	1/10W
R117	1-216-049-91	RES,CHIP	1K	5%	1/10W
R119	1-216-043-91	RES,CHIP	560	5%	1/10W
R123	1-216-073-00	METAL CHIP	10K	5%	1/10W
R124	1-216-097-91	RES,CHIP	100K	5%	1/10W
R131	1-216-037-00	METAL CHIP	330	5%	1/10W
R135	1-216-295-91	SHORT	0		
R136	1-216-295-91	SHORT	0		
R137	1-216-295-91	SHORT	0		

Ref. No.	Part No.	Description			Remark
R138	1-216-295-91	SHORT	0		
R143	1-216-103-00	METAL CHIP	180K	5%	1/10W
R144	1-216-103-00	METAL CHIP	180K	5%	1/10W
R147	1-216-081-00	METAL CHIP	22K	5%	1/10W
R148	1-216-001-00	METAL CHIP	10	5%	1/10W
R149	1-216-003-11	RES,CHIP	12	5%	1/10W
R158	1-216-111-00	METAL CHIP	390K	5%	1/10W
R159	1-216-101-00	METAL CHIP	150K	5%	1/10W
R161	1-216-308-00	METAL CHIP	4.7	5%	1/10W
R162	1-216-101-00	METAL CHIP	150K	5%	1/10W
R171	1-216-077-00	METAL CHIP	15K	5%	1/10W
R172	1-216-077-00	METAL CHIP	15K	5%	1/10W
R173	1-216-077-00	METAL CHIP	15K	5%	1/10W
R181	1-216-077-00	METAL CHIP	15K	5%	1/10W
R182	1-216-077-00	METAL CHIP	15K	5%	1/10W
R183	1-216-077-00	METAL CHIP	15K	5%	1/10W
		< SWITCH >			
S101	1-572-085-11	SWITCH, LEAF (LIMIT IN SW)			
		< VIBRATOR >			
X101	1-767-408-21	VIBRATOR, CRYSTAL (16.9344MHz)			
**********					
*	1-661-468-11	D.SENS (LUMINOUS) BOARD			
		**********			
*	4-976-473-01	HOLDER (LED-S)			
	7-685-871-01	SCREW +BVTT 3X6 (S)			
		< DIODE >			
D801	8-719-055-84	DIODE GL528VS1 (DISC SENSOR)			
**********					
*	1-661-469-11	D.SENS (RAY CATCHER) BOARD			
		**********			
*	4-985-300-01	HOLDER (P-T)			
	7-685-871-01	SCREW +BVTT 3X6 (S)			
		< TRANSISTOR >			
Q801	8-729-926-31	PHOTO TRANSISTOR PT483F1S (DISC SENSOR)			
**********					
*	A-4724-061-A	DISP BOARD, COMPLETE			
		**********			
*	4-982-811-01	HOLDER (FL)			
		< CAPACITOR >			
C701	1-162-294-31	CERAMIC	0.001uF	10%	50V
C702	1-162-215-31	CERAMIC	47PF	5%	50V
C703	1-162-306-11	CERAMIC	0.01uF	20%	16V
C704	1-164-159-11	CERAMIC	0.1uF		50V
C705	1-124-584-00	ELECT	100uF	20%	10V
C706	1-162-282-31	CERAMIC	100PF	10%	50V
C707	1-162-282-31	CERAMIC	100PF	10%	50V
C708	1-162-282-31	CERAMIC	100PF	10%	50V
C709	1-162-288-31	CERAMIC	330PF	10%	50V
C710	1-124-584-00	ELECT	100uF	20%	10V
C711	1-164-159-11	CERAMIC	0.1uF		50V
C712	1-164-159-11	CERAMIC	0.1uF		50V
		< LEAD >			
* CLP701	1-690-880-31	LEAD (WITH CONNECTOR)			
		< DIODE >			
D701	8-719-046-39	DIODE SEL5821A-TP15 (GROUP1)			
D702	8-719-046-39	DIODE SEL5821A-TP15 (GROUP2)			
D703	8-719-046-39	DIODE SEL5821A-TP15 (GROUP3)			
D704	8-719-046-39	DIODE SEL5821A-TP15 (GROUP4)			
D705	8-719-046-39	DIODE SEL5821A-TP15 (GROUP5)			
D706	8-719-046-39	DIODE SEL5821A-TP15 (GROUP6)			
D707	8-719-046-39	DIODE SEL5821A-TP15 (GROUP7)			
D708	8-719-046-39	DIODE SEL5821A-TP15 (GROUP8)			
D709	8-719-046-44	DIODE SEL5221S (I/⏻)			
D710	8-719-046-39	DIODE SEL5821A-TP15 (HIT LIST)			
		< FLUORESCENT INDICATOR >			
FL701	1-517-756-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC601	8-749-014-66	IC NJL64H400A			
IC701	8-759-498-92	IC MSM9202-03GS-K			
IC702	8-759-183-47	IC M66310FP			
		< TRANSISTOR >			
Q701	8-729-900-80	TRANSISTOR DTC114ES			
		< RESISTOR >			
R701	1-249-441-11	CARBON	100K	5%	1/4W
R702	1-247-807-31	CARBON	100	5%	1/4W
R703	1-247-807-31	CARBON	100	5%	1/4W
R704	1-247-807-31	CARBON	100	5%	1/4W
R705	1-247-807-31	CARBON	100	5%	1/4W
R706	1-247-843-11	CARBON	3.3K	5%	1/4W
R707	1-247-807-31	CARBON	100	5%	1/4W
R708	1-247-807-31	CARBON	100	5%	1/4W
R709	1-247-807-31	CARBON	100	5%	1/4W
R711	1-249-411-11	CARBON	330	5%	1/4W
R712	1-249-411-11	CARBON	330	5%	1/4W
R713	1-249-413-11	CARBON	470	5%	1/4W F
R714	1-249-413-11	CARBON	470	5%	1/4W F
R722	1-249-415-11	CARBON	680	5%	1/4W F
R723	1-249-417-11	CARBON	1K	5%	1/4W F
R724	1-249-419-11	CARBON	1.5K	5%	1/4W F
R725	1-249-421-11	CARBON	2.2K	5%	1/4W F
R726	1-247-843-11	CARBON	3.3K	5%	1/4W
R727	1-249-427-11	CARBON	6.8K	5%	1/4W F
R728	1-249-431-11	CARBON	15K	5%	1/4W
R729	1-249-437-11	CARBON	47K	5%	1/4W
R732	1-249-415-11	CARBON	680	5%	1/4W F

Ref. No.	Part No.	Description			Remark
R733	1-249-417-11	CARBON	1K	5%	1/4W F
R734	1-249-419-11	CARBON	1.5K	5%	1/4W F
R735	1-249-421-11	CARBON	2.2K	5%	1/4W F
R736	1-247-843-11	CARBON	3.3K	5%	1/4W
R737	1-249-427-11	CARBON	6.8K	5%	1/4W F
R738	1-249-431-11	CARBON	15K	5%	1/4W
		< SWITCH >			
S721	1-572-184-11	SWITCH, KEYBOARD (REPEAT)			
S722	1-572-184-11	SWITCH, KEYBOARD (PROGRAM)			
S723	1-572-184-11	SWITCH, KEYBOARD (SHUFFLE)			
S724	1-572-184-11	SWITCH, KEYBOARD (CONTINUE)			
S725	1-572-184-11	SWITCH, KEYBOARD (GROUP4)			
S726	1-572-184-11	SWITCH, KEYBOARD (GROUP3)			
S727	1-572-184-11	SWITCH, KEYBOARD (GROUP2)			
S728	1-572-184-11	SWITCH, KEYBOARD (GROUP1)			
S729	1-570-157-51	SWITCH, SLIDE (TIMER)			
S731	1-572-184-11	SWITCH, KEYBOARD (I/⏻)			
S732	1-572-184-11	SWITCH, KEYBOARD (TIME/TEXT)			
S733	1-572-184-11	SWITCH, KEYBOARD (GROUP FILE)			
S734	1-572-184-11	SWITCH, KEYBOARD (GROUP 8)			
S735	1-572-184-11	SWITCH, KEYBOARD (GROUP 7)			
S736	1-572-184-11	SWITCH, KEYBOARD (GROUP 6)			
S737	1-572-184-11	SWITCH, KEYBOARD (GROUP 5)			
S738	1-572-184-11	SWITCH, KEYBOARD (HIT LIST)			

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*	1-669-167-11	DOOR MOTOR BOARD	
		**********	
		< CONNECTOR >	
* CN812	1-568-951-11	PIN, CONNECTOR 2P	
		< MOTOR >	
M810	1-541-632-11	MOTOR, DC (DOOR)	

****

*	1-669-168-11	DOOR SW BOARD	
		**********	
		< RESISTOR >	
R807	1-249-429-11	CARBON	10K 5% 1/4W
		< SWITCH >	
S810	1-571-300-21	SWITCH, ROTARY (DOOR DET)	

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*	1-669-166-11	ILLUMINATION BOARD	
		**********	
		< CONNECTOR >	
CN813	1-506-481-11	PIN, CONNECTOR 2P	
		< DIODE >	
D802	8-719-059-65	DIODE HLMF-KL05	
D803	8-719-059-65	DIODE HLMF-KL05	
D804	8-719-059-65	DIODE HLMF-KL05	
		< RESISTOR >	
R805	1-249-407-11	CARBON	150 5% 1/4W F
R806	1-249-401-11	CARBON	47 5% 1/4W F

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*	1-669-164-11	JACK BOARD	
		**********	
		< CAPACITOR >	
C351	1-162-290-31	CERAMIC	470PF 10% 50V
C352	1-124-282-00	ELECT	22uF 20% 25V
C451	1-162-290-31	CERAMIC	470PF 10% 50V
C452	1-124-282-00	ELECT	22uF 20% 25V
C901	1-161-494-00	CERAMIC	0.022uF 25V
C904	1-164-159-11	CERAMIC	0.1uF 50V
C907	1-164-159-11	CERAMIC	0.1uF 50V
C911	1-161-494-00	CERAMIC	0.022uF 25V
C912	1-126-052-11	ELECT	100uF 20% 10V
		< CONNECTOR >	
CN902	1-569-497-11	SOCKET, CONNECTOR 11P	
* CN903	1-569-496-11	SOCKET, CONNECTOR 10P	
* CN904	1-568-951-11	PIN, CONNECTOR 2P	
CN906	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P	
		< DIODE >	
D901	8-719-911-19	DIODE 1SS119-25	
		< IC >	
IC901	8-749-921-12	IC GP1F32T (DIGITAL OUT OPTICAL)	
		< JACK >	
* J901	1-764-188-11	JACK (SMALL TYPE) (DIA. 3.5) (S-LINK CONTROL A1)	
* J902	1-764-188-11	JACK (SMALL TYPE) (DIA. 3.5) (S-LINK CONTROL A1)	
J903	1-770-720-11	JACK, PIN 4P (LINE OUT, 2ND CD IN)	
		< COIL >	
L902	1-410-503-11	INDUCTOR 3.3uH	
		< TRANSISTOR >	
Q901	8-729-620-05	TRANSISTOR 2SC2603-EF	
		< RESISTOR >	
R351	1-215-405-00	METAL	220 1% 1/4W
R352	1-215-485-00	METAL	470K 1% 1/4W
R451	1-215-405-00	METAL	220 1% 1/4W
R452	1-215-485-00	METAL	470K 1% 1/4W
R901	1-249-393-11	CARBON	10 5% 1/4W F

Ref. No.	Part No.	Description			Remark
R902	1-249-425-11	CARBON	4.7K	5%	1/4W F
R903	1-249-429-11	CARBON	10K	5%	1/4W
R921	1-249-429-11	CARBON	10K	5%	1/4W
		< SWITCH >			
S901	1-762-910-11	SWITCH, SLIDE (COMMAND MODE CD)			

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*	1-669-161-11	JOG BOARD			
		*********			
		< CONNECTOR >			
CN601	1-568-438-11	SOCKET, CONNECTOR 17P			
		< DIODE >			
D601	8-719-046-40	DIODE SEL5521C-TH8F (▷)			
D602	8-719-046-38	DIODE SEL5821A-TH8F (▮▮)			
D603	8-719-057-97	DIODE SEL5923A-TP15 (MEGA CONTROL)			
D604	8-719-057-97	DIODE SEL5923A-TP15 (MEGA CONTROL)			
		< RESISTOR >			
R601	1-249-407-11	CARBON	150	5%	1/4W F
R602	1-249-409-11	CARBON	220	5%	1/4W F
R603	1-247-807-31	CARBON	100	5%	1/4W
R612	1-249-415-11	CARBON	680	5%	1/4W F
R613	1-249-417-11	CARBON	1K	5%	1/4W F
R614	1-249-419-11	CARBON	1.5K	5%	1/4W F
R615	1-249-421-11	CARBON	2.2K	5%	1/4W F
R616	1-247-843-11	CARBON	3.3K	5%	1/4W
R617	1-249-427-11	CARBON	6.8K	5%	1/4W F
R618	1-249-431-11	CARBON	15K	5%	1/4W
R619	1-249-437-11	CARBON	47K	5%	1/4W
R622	1-249-415-11	CARBON	680	5%	1/4W F
R623	1-249-417-11	CARBON	1K	5%	1/4W F
R624	1-249-419-11	CARBON	1.5K	5%	1/4W F
R625	1-249-421-11	CARBON	2.2K	5%	1/4W F
R626	1-247-843-11	CARBON	3.3K	5%	1/4W
R627	1-249-427-11	CARBON	6.8K	5%	1/4W F
R628	1-249-431-11	CARBON	15K	5%	1/4W
		< SWITCH >			
RE601	1-475-543-11	ENCODER, ROTARY (DISC/CHARACTER)			
		< SWITCH >			
S611	1-572-184-11	SWITCH, KEYBOARD (■)			
S612	1-572-184-11	SWITCH, KEYBOARD (▮▮)			
S613	1-572-184-11	SWITCH, KEYBOARD (▷)			
S614	1-572-184-11	SWITCH, KEYBOARD (CLEAR)			
S615	1-572-184-11	SWITCH, KEYBOARD (CHECK)			
S616	1-572-184-11	SWITCH, KEYBOARD (▷▷▮ AMS)			
S617	1-572-184-11	SWITCH, KEYBOARD (▮◁◁ AMS)			
S621	1-572-184-11	SWITCH, KEYBOARD (OPEN/CLOSE ⏏)			
S622	1-572-184-11	SWITCH, KEYBOARD (INPUT)			
S623	1-572-184-11	SWITCH, KEYBOARD (MEMO SEARCH)			
S624	1-572-184-11	SWITCH, KEYBOARD (X-FADE)			
S625	1-572-184-11	SWITCH, KEYBOARD (NO DELAY)			
S626	1-572-184-11	SWITCH, KEYBOARD (FADER)			
S627	1-572-184-11	SWITCH, KEYBOARD (MEGA CONTROL)			

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*	1-669-165-11	KEY BOARD BOARD			
		**********			
		< CAPACITOR >			
C822	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
CN821	1-506-469-11	PIN, CONNECTOR 4P			
		< DIODE >			
D821	8-719-109-85	DIODE RD5.1ESB2			
D822	8-719-109-85	DIODE RD5.1ESB2			
D823	8-719-109-85	DIODE RD5.1ESB2			
		< JACK >			
J821	1-778-314-11	CONNECTOR, DIN (KEY BOARD)			
		< COIL >			
L821	1-424-122-11	FILTER, NOISE			
L822	1-424-122-11	FILTER, NOISE			
L823	1-424-122-11	FILTER, NOISE			
L824	1-424-122-11	FILTER, NOISE			

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*	1-661-465-11	L.MOTOR BOARD			
		**********			
		< MOTOR >			
M802	A-4604-847-A	MOTOR ASSY, LOADING (LOADING)			

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*	1-661-467-11	L.SW BOARD			
		**********			
		< SWITCH >			
S801	1-571-300-21	SWITCH, ROTARY (LOADING DET)			

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*	A-4724-058-A	MAIN BOARD, COMPLETE			
		**********			
*	4-962-200-11	PLATE (TR), GROUND			
		< CAPACITOR >			
C301	1-126-052-11	ELECT	100uF	20%	10V
C304	1-126-233-11	ELECT	22uF	20%	50V
C305	1-126-022-11	ELECT	47uF	20%	10V
C327	1-126-163-11	ELECT	4.7uF	20%	50V
C329	1-126-162-11	ELECT	3.3uF	20%	50V
C401	1-126-052-11	ELECT	100uF	20%	10V
C404	1-126-233-11	ELECT	22uF	20%	50V

Ref. No.	Part No.	Description			Remark
C405	1-126-022-11	ELECT	47uF	20%	10V
C501	1-128-489-11	ELECT	3300uF	20%	16V
C502	1-124-360-00	ELECT	1000uF	20%	16V
C503	1-124-122-11	ELECT	100uF	20%	50V
C504	1-126-021-11	ELECT	33uF	20%	35V
C505	1-126-052-11	ELECT	100uF	20%	16V
C506	1-126-101-11	ELECT	100uF	20%	16V
C507	1-126-044-11	ELECT	1uF	20%	50V
C508	1-126-101-11	ELECT	100uF	20%	16V
C509	1-124-997-11	ELECT	470uF	20%	10V
C510	1-126-163-11	ELECT	4.7uF	20%	50V
C511	1-126-163-11	ELECT	4.7uF	20%	50V
C512	1-161-494-00	CERAMIC	0.022uF		25V
C513	1-126-052-11	ELECT	100uF	20%	16V
C514	1-126-023-11	ELECT	100uF	20%	25V
C516	1-164-159-11	CERAMIC	0.1uF		50V
C518	1-164-159-11	CERAMIC	0.1uF		50V
C519	1-164-159-11	CERAMIC	0.1uF		50V
C521	1-164-159-11	CERAMIC	0.1uF		50V
C522	1-110-489-11	CAPACITOR	1F		5.5V
C531	1-161-494-00	CERAMIC	0.022uF		25V
C532	1-126-052-11	ELECT	100uF	20%	10V
C533	1-161-494-00	CERAMIC	0.022uF		25V
C551	1-136-165-00	FILM	0.1uF	5%	50V
C552	1-164-159-11	CERAMIC	0.1uF		50V
C561	1-136-165-00	FILM	0.1uF	5%	50V
C562	1-164-159-11	CERAMIC	0.1uF		50V
C571	1-136-165-00	FILM	0.1uF	5%	50V
C572	1-164-159-11	CERAMIC	0.1uF		50V
C610	1-161-494-00	CERAMIC	0.022uF		25V
C620	1-161-494-00	CERAMIC	0.022uF		25V
C720	1-161-494-00	CERAMIC	0.022uF		25V
C730	1-161-494-00	CERAMIC	0.022uF		25V
		< CONNECTOR >			
CN501	1-568-440-11	SOCKET, CONNECTOR 17P			
CN502	1-568-742-11	SOCKET, CONNECTOR 23P			
* CN503	1-568-951-11	PIN, CONNECTOR 2P			
CN504	1-506-469-11	PIN, CONNECTOR 4P			
CN505	1-506-468-11	PIN, CONNECTOR 3P			
* CN506	1-568-955-11	PIN, CONNECTOR 6P			
* CN507	1-568-951-11	PIN, CONNECTOR 2P			
* CN508	1-569-505-11	PIN, CONNECTOR 10P			
* CN509	1-569-506-11	PIN, CONNECTOR 11P			
		< DIODE >			
D325	8-719-911-19	DIODE 1SS119-25			
D327	8-719-911-19	DIODE 1SS119-25			
D329	8-719-911-19	DIODE 1SS119-25			
D425	8-719-911-19	DIODE 1SS119-25			
D501	8-719-024-99	DIODE 11ES2-NTA2B			
D502	8-719-024-99	DIODE 11ES2-NTA2B			
D503	8-719-024-99	DIODE 11ES2-NTA2B			
D504	8-719-024-99	DIODE 11ES2-NTA2B			
D505	8-719-024-99	DIODE 11ES2-NTA2B			
D506	8-719-110-72	DIODE RD30ESB2			
D507	8-719-109-93	DIODE RD6.2ESB2			
D508	8-719-109-85	DIODE RD5.1ESB2			

Ref. No.	Part No.	Description			Remark
D509	8-719-911-19	DIODE 1SS119-25			
D521	8-719-911-19	DIODE 1SS119-25			
		< IC >			
IC302	8-759-145-58	IC UPC4558C			
IC401	8-759-145-58	IC UPC4558C			
IC402	8-759-145-58	IC UPC4558C			
IC501	8-752-897-22	IC CXP84340-094Q			
IC502	8-759-463-99	IC M5M5256DFP-70XL			
IC503	8-759-821-32	IC CXA1291P			
IC504	8-759-094-53	IC TA7805S (LBSONY)			
IC505	8-759-256-72	IC PST994D			
IC506	8-759-330-29	IC LA5616			
		< COIL >			
L501	1-412-473-21	INDUCTOR 0uH			
L502	1-412-473-21	INDUCTOR 0uH			
		< TRANSISTOR >			
Q321	8-729-141-26	TRANSISTOR 2SC3622A-LK			
Q322	8-729-141-26	TRANSISTOR 2SC3622A-LK			
Q323	8-729-141-26	TRANSISTOR 2SC3622A-LK			
Q324	8-729-141-26	TRANSISTOR 2SC3622A-LK			
Q325	8-729-900-65	TRANSISTOR DTA144ES			
Q326	8-729-900-65	TRANSISTOR DTA144ES			
Q327	8-729-900-65	TRANSISTOR DTA144ES			
Q328	8-729-900-65	TRANSISTOR DTA144ES			
Q329	8-729-900-65	TRANSISTOR DTA144ES			
Q421	8-729-141-26	TRANSISTOR 2SC3622A-LK			
Q422	8-729-141-26	TRANSISTOR 2SC3622A-LK			
Q423	8-729-141-26	TRANSISTOR 2SC3622A-LK			
Q424	8-729-141-26	TRANSISTOR 2SC3622A-LK			
Q425	8-729-900-65	TRANSISTOR DTA144ES			
Q426	8-729-900-65	TRANSISTOR DTA144ES			
Q501	8-729-140-97	TRANSISTOR 2SB734-34			
Q503	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q511	8-729-900-80	TRANSISTOR DTC114ES			
Q512	8-729-900-80	TRANSISTOR DTC114ES			
Q521	8-729-030-08	TRANSISTOR DTC144VSA			
		< RESISTOR >			
R301	1-215-453-00	METAL	22K	1%	1/4W
R302	1-215-425-00	METAL	1.5K	1%	1/4W
R303	1-215-425-00	METAL	1.5K	1%	1/4W
R304	1-215-445-00	METAL	10K	1%	1/4W
R305	1-215-443-00	METAL	8.2K	1%	1/4W
R306	1-215-485-00	METAL	470K	1%	1/4W
R307	1-215-427-00	METAL	1.8K	1%	1/4W
R308	1-215-443-00	METAL	8.2K	1%	1/4W
R309	1-215-416-00	METAL	620	1%	1/4W
R310	1-215-445-00	METAL	10K	1%	1/4W
R311	1-215-445-00	METAL	10K	1%	1/4W
R312	1-215-445-00	METAL	10K	1%	1/4W
R313	1-215-477-00	METAL	220K	1%	1/4W
R314	1-215-405-00	METAL	220	1%	1/4W
R315	1-215-405-00	METAL	220	1%	1/4W
R316	1-249-393-11	CARBON	10	5%	1/4W F
R317	1-215-443-00	METAL	8.2K	1%	1/4W

MAIN **T.MOTOR** **T.SENS**

Ref. No.	Part No.	Description			Remark
R321	1-249-421-11	CARBON	2.2K	5%	1/4W F
R322	1-249-421-11	CARBON	2.2K	5%	1/4W F
R323	1-249-421-11	CARBON	2.2K	5%	1/4W F
R324	1-249-421-11	CARBON	2.2K	5%	1/4W F
R325	1-249-441-11	CARBON	100K	5%	1/4W
R326	1-249-441-11	CARBON	100K	5%	1/4W
R327	1-249-441-11	CARBON	100K	5%	1/4W
R328	1-249-441-11	CARBON	100K	5%	1/4W
R329	1-249-441-11	CARBON	100K	5%	1/4W
R401	1-215-453-00	METAL	22K	1%	1/4W
R402	1-215-425-00	METAL	1.5K	1%	1/4W
R403	1-215-425-00	METAL	1.5K	1%	1/4W
R404	1-215-445-00	METAL	10K	1%	1/4W
R405	1-215-443-00	METAL	8.2K	1%	1/4W
R406	1-215-485-00	METAL	470K	1%	1/4W
R407	1-215-427-00	METAL	1.8K	1%	1/4W
R408	1-215-443-00	METAL	8.2K	1%	1/4W
R409	1-215-416-00	METAL	620	1%	1/4W
R410	1-215-445-00	METAL	10K	1%	1/4W
R411	1-215-445-00	METAL	10K	1%	1/4W
R412	1-215-445-00	METAL	10K	1%	1/4W
R413	1-215-477-00	METAL	220K	1%	1/4W
R414	1-215-405-00	METAL	220	1%	1/4W
R415	1-215-405-00	METAL	220	1%	1/4W
R416	1-249-393-11	CARBON	10	5%	1/4W F
R417	1-215-443-00	METAL	8.2K	1%	1/4W
R421	1-249-421-11	CARBON	2.2K	5%	1/4W F
R422	1-249-421-11	CARBON	2.2K	5%	1/4W F
R423	1-249-421-11	CARBON	2.2K	5%	1/4W F
R424	1-249-421-11	CARBON	2.2K	5%	1/4W F
R425	1-249-441-11	CARBON	100K	5%	1/4W
R426	1-249-441-11	CARBON	100K	5%	1/4W
R501	1-249-435-11	CARBON	33K	5%	1/4W
R502	1-249-425-11	CARBON	4.7K	5%	1/4W F
R505	1-249-413-11	CARBON	470	5%	1/4W F
R506	1-249-429-11	CARBON	10K	5%	1/4W
R507	1-249-425-11	CARBON	4.7K	5%	1/4W F
R508	1-249-413-11	CARBON	470	5%	1/4W F
R511	1-249-425-11	CARBON	4.7K	5%	1/4W F
R512	1-249-425-11	CARBON	4.7K	5%	1/4W F
R521	1-249-429-11	CARBON	10K	5%	1/4W
R522	1-249-403-11	CARBON	68	5%	1/4W F
R523	1-249-403-11	CARBON	68	5%	1/4W F
R524	1-249-429-11	CARBON	10K	5%	1/4W
R531	1-249-429-11	CARBON	10K	5%	1/4W
R532	1-249-429-11	CARBON	10K	5%	1/4W
R533	1-249-429-11	CARBON	10K	5%	1/4W
R534	1-249-421-11	CARBON	2.2K	5%	1/4W F
R535	1-247-843-11	CARBON	3.3K	5%	1/4W
R536	1-249-425-11	CARBON	4.7K	5%	1/4W F
R537	1-249-429-11	CARBON	10K	5%	1/4W
R538	1-249-429-11	CARBON	10K	5%	1/4W
R539	1-249-429-11	CARBON	10K	5%	1/4W
R540	1-249-429-11	CARBON	10K	5%	1/4W
R541	1-249-429-11	CARBON	10K	5%	1/4W
R542	1-249-429-11	CARBON	10K	5%	1/4W
R543	1-249-429-11	CARBON	10K	5%	1/4W
R544	1-249-429-11	CARBON	10K	5%	1/4W
R551	1-247-887-00	CARBON	220K	5%	1/4W
R552	1-247-887-00	CARBON	220K	5%	1/4W
R553	1-247-860-11	CARBON	16K	5%	1/4W
R554	1-249-431-11	CARBON	15K	5%	1/4W
R555	1-249-382-11	CARBON	1.2	5%	1/6W F
R556	1-249-382-11	CARBON	1.2	5%	1/6W F
R557	1-247-883-00	CARBON	150K	5%	1/4W
R558	1-249-393-11	CARBON	10	5%	1/4W F
R561	1-249-441-11	CARBON	100K	5%	1/4W
R562	1-249-441-11	CARBON	100K	5%	1/4W
R563	1-247-860-11	CARBON	16K	5%	1/4W
R564	1-249-431-11	CARBON	15K	5%	1/4W
R565	1-249-382-11	CARBON	1.2	5%	1/6W F
R566	1-249-382-11	CARBON	1.2	5%	1/6W F
R567	1-247-883-00	CARBON	150K	5%	1/4W
R568	1-249-393-11	CARBON	10	5%	1/4W F
R571	1-247-885-00	CARBON	180K	5%	1/4W
R572	1-247-885-00	CARBON	180K	5%	1/4W
R573	1-247-860-11	CARBON	16K	5%	1/4W
R574	1-249-431-11	CARBON	15K	5%	1/4W
R575	1-249-382-11	CARBON	1.2	5%	1/6W F
R576	1-249-382-11	CARBON	1.2	5%	1/6W F
R577	1-247-883-00	CARBON	150K	5%	1/4W
R578	1-249-393-11	CARBON	10	5%	1/4W F
R610	1-249-427-11	CARBON	6.8K	5%	1/4W F
R620	1-249-427-11	CARBON	6.8K	5%	1/4W F
R720	1-249-427-11	CARBON	6.8K	5%	1/4W F
R730	1-249-427-11	CARBON	6.8K	5%	1/4W F

< VARIABLE RESISTOR >

RV501	1-241-787-11	RES, ADJ, CARBON 47K

< VIBRATOR >

X501	1-579-175-11	VIBRATOR, CERAMIC (10MHz)

****

*	1-661-466-11	T.MOTOR BOARD
		**********

< MOTOR >

M801	A-4604-847-A	MOTOR ASSY, LOADING (TABLE)

****

*	1-661-470-11	T.SENS BOARD
		**********

< CONNECTOR >

CN802	1-506-481-11	PIN, CONNECTOR 2P
CN803	1-506-481-11	PIN, CONNECTOR 2P

< IC >

IC801	8-749-924-18	IC PHOTO INTERRUPTER RPI-1391 (TABLE SENSOR)
IC802	8-749-924-18	IC PHOTO INTERRUPTER RPI-1391 (TABLE SENSOR)

Ref. No.	Part No.	Description				Remark
IC803	8-749-924-18	IC PHOTO INTERRUPTER RPI-1391 (TABLE SENSOR)				
		< RESISTOR >				
R801	1-249-416-11	CARBON	820	5%	1/4W F	
R802	1-249-416-11	CARBON	820	5%	1/4W F	
R803	1-249-416-11	CARBON	820	5%	1/4W F	
R804	1-249-415-11	CARBON	680	5%	1/4W F	
**********						
		MISCELLANEOUS				
		**********				
3	1-773-183-11	WIRE (FLAT TYPE) (23 CORE)				
⚠10	1-575-042-21	CORD, POWER				
103	1-783-365-11	WIRE (FLAT TYPE) (17 CORE)				
304	1-769-069-11	WIRE (FLAT TYPE)(16 CORE)				
⚠306	8-848-376-01	OPTICAL PICK-UP BLOCK KSS-213B/S-N				
FL701	1-517-756-11	INDICATOR TUBE, FLUORESCENT				
M101	X-2626-234-1	T.T CHAISSIS ASSY (MG)(K)(SPINDLE)				
M102	X-2625-769-1	MOTOR GEAR ASSY (MB)(RP)(SLED)				
M801	A-4604-847-A	MOTOR ASSY (TABLE)				
M802	A-4604-847-A	MOTOR ASSY (LOADING)				
M810	X-4950-062-1	MOTOR ASSY, DOOR				
⚠T901	1-431-759-11	TRANSFORMER, POWER				
**********						
		ACCESSORIES & PACKING MATERIALS				
		**********				
	1-475-655-11	REMOTE COMMANDER (RM-DX240)				
	1-558-271-11	CORD, CONNECTION (AUDIO 108cm)				
	1-777-172-11	CORD, CONNECTION (CONTROL-A1)(CND)				
	3-810-765-11	MANUAL,COMMONNESS INSTRUCTION (FOR CONTROL-A1)(ENGLISH)(US)				
	3-810-765-21	MANUAL,COMMONNESS INSTRUCTION (FOR CONTROL-A1) (ENGLISH,FRENCH,GERMAN,SPANISH,DUTCH, SWEDISH,ITALIAN,PORTUGUESE,CHINESE)(CND)				
	3-862-563-11	MANUAL, INSTRUCTION (ENGLISH)(US)				
	3-862-563-21	MANUAL, INSTRUCTION (ENGLISH,FRENCH,SPANISH)(CND)				
	4-984-086-01	BOOKLET (100)				
	4-981-643-01	COVER, BATTERY (FOR RM-DX240)				
**********						

Ref. No.	Part No.	Description	Remark
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-685-871-01	SCREW +BVTT 3X6 (S)	
#3	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#4	7-685-134-19	SCREW +PTPWH 2.6X8 (TYPE2)	
#6	7-682-947-01	SCREW +PSW 3X6	
#7	7-685-872-09	SCREW +BVTT 3X8 (S)	
#8	7-624-111-04	STOP RING 7.0, TYPE -E	
#9	7-624-106-04	STOP RING 3.0, TYPE -E	
#10	7-621-772-20	SCREW +B 2X5	
#11	7-682-552-09	SCREW +B 3X16	
#12	7-621-775-00	SCREW +B 2.6X3	
#13	7-621-772-30	SCREW +B 2X6	
#15	7-624-109-04	STOP RING 5.0, TYPE -E	
#16	7-621-775-20	SCREW +B 2.6X5	

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

9-922-884-11

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Home A&V Products Company

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