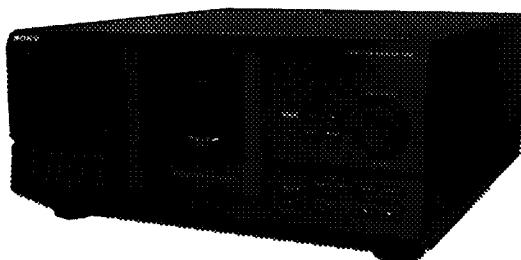


# CDP-CX260

## SERVICE MANUAL

US Model  
Canadian Model  
AEP Model  
UK Model



Model Name Using Similar Mechanism	CDP-CX200
CD Mechanism Type	CDM-40B
Base Unit Type	KSM-213BKN/M-N
Optical Pick-up Type	KSS-213B/S-N

### SPECIFICATIONS

#### Compact disc player

<b>Laser</b>	Semiconductor laser ( $\lambda = 780 \text{ nm}$ ) Emission duration: continuous
<b>Laser output</b>	Max 44.6 $\mu\text{W}^*$ * 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.
<b>Frequency response</b>	20 Hz to 20 kHz $\pm 0.5 \text{ dB}$
<b>Signal-to-noise ratio</b>	More than 108 dB
<b>Dynamic range</b>	More than 98 dB
<b>Harmonic distortion</b>	Less than 0.0045 %
<b>Channel separation</b>	More than 100 dB

#### Outputs

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

#### General

##### Power requirements

Where purchased	Power requirements
USA	120 V AC, 60 Hz
UK	220 V - 230 V AC, 50/60 Hz

**Power consumption** 13 W

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

**Mass (approx.)** 9.5 kg (21 lbs)

##### Supplied accessories

- Audio cord (1)
- CD booklet holders (2) and label (1)
- DC-cable (1)
- Monaural (2P) mini-plug cord (1)
- Remote commander (remote) (1)
- Sony LR6 batteries (3)
- Transmitter/receiver (1)

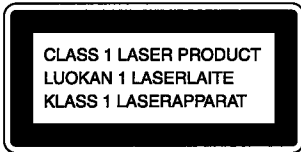
Design and specifications are subject to change without notice.

## COMPACT DISC PLAYER

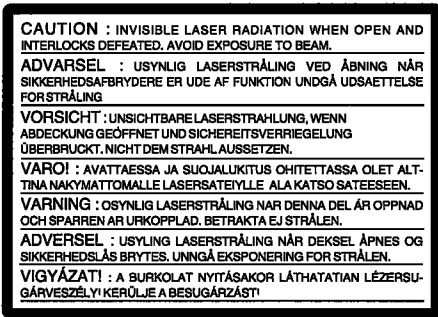
# SONY®



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  $\Delta$  OR DOTTED LINE WITH MARK  $\Delta$  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  $\Delta$  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.

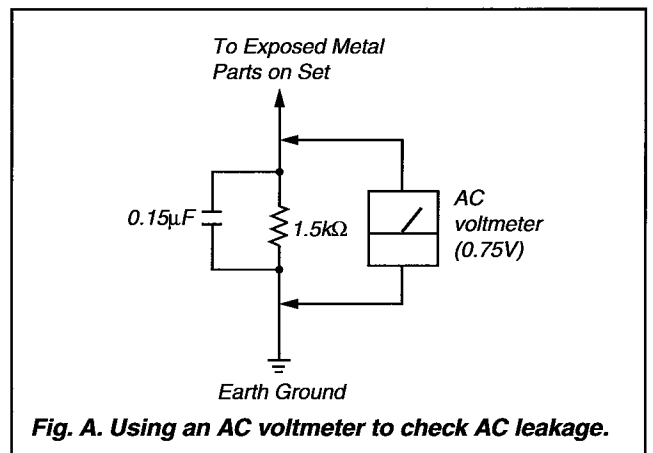
**SAFETY CHECK-OUT**

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.

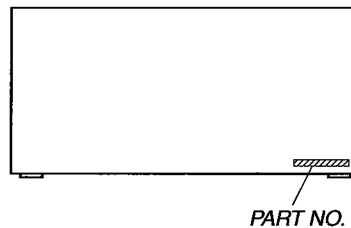
1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means 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
4-999-021-0□	US
4-999-021-1□	Canadian
4-999-021-2□	AEP
4-999-021-3□	UK

# 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 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.

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)**

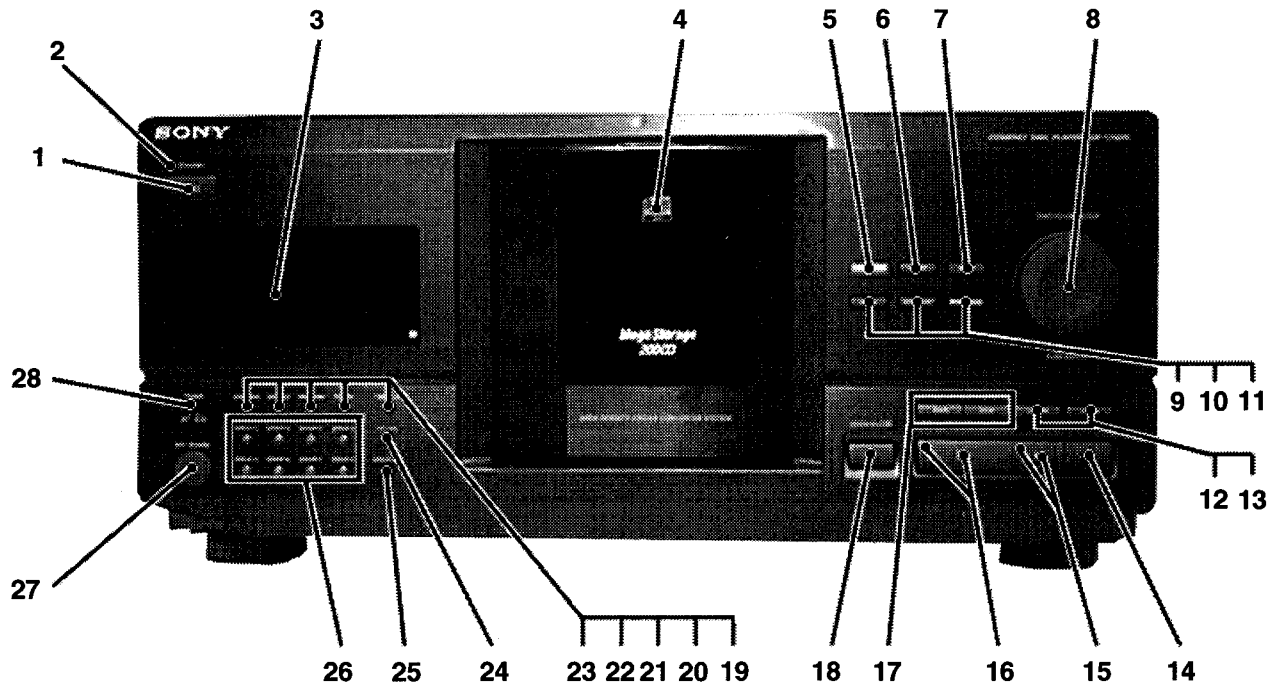
TRACK No.	Displayed Contents	TRACK No.	Displayed Contents
1	1kHz/0dB/L&R	22	1kHz/-90dB/L&R
2	20Hz/0dB/L&R	23	Infinity Zero w/o emphasis//L&R
3	40Hz/0dB/L&R	24	Infinity Zero with emphasis//L&R
4	100Hz/0dB/L&R	25	400Hz+7kHz(4:1)/0dB/L&R
5	200Hz/0dB/L&R	26	400Hz+7kHz(4:1)/-10dB/L&R
6	500Hz/0dB/L&R	27	19kHz+20kHz(1:1)/0dB/L&R
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 67h)	← 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 {   } ~ ■ (78h to 7Fh)	x y z {   } ~ (78....
54	■ i ¢ £ ¤ ¥ ¦ § (A0h to A7h) 8859-1	i ¢ £ ¤ ¥ ¦ § (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	đ ñ ò ó ô õ ö ÷ (F0h to F7h)	đ ñ ò ó ô õ 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



### 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

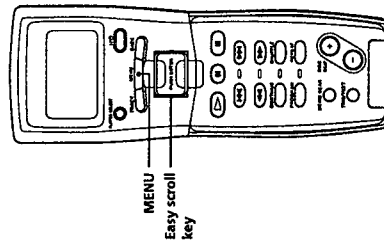
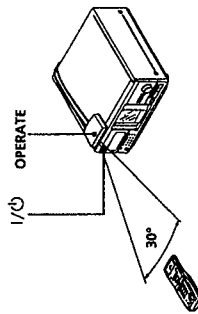
\* AMS is abbreviation for Automatic Music Sensor.

## Setting Up the Remote

This section describes how to prepare the supplied remote for operation.  
 Press OPERATE on the transmitter/receiver to turn it on and press I/O on the player to turn the player on.  
 If the following message appears in the remote's display while setting up the remote, point the remote at the player and the transmitter/receiver as illustrated below.

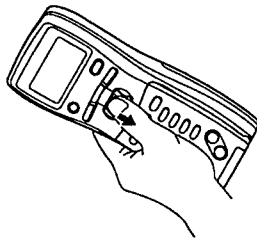
Can't receive  
 Please turn  
 this REMOTE  
 to a main unit

Note that the display disappears automatically if you don't proceed for more than a few moments.

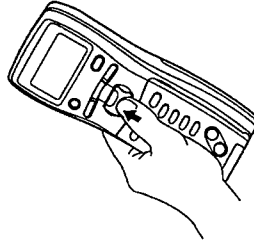


## How to move the cursor in the remote's display

To move the cursor down, push the Easy scroll key downward as illustrated below.



To move the cursor up, push the Easy scroll key upward as illustrated below.



2 Move the cursor (▶) to "Set up" by using the Easy scroll key, then press the Easy scroll key.

on  
 ▶ Player check  
 Memo loading  
 Contrast adjust  
 Memory clear

3 Move the cursor to "Player check," then press the Easy scroll key.

The display shows the disc data in the player after "Now player checking..." appears.

on  
 Master player  
 = CD1/200discs

When you connect another CD player, the disc data in the second CD player also appears.

on  
 Master player  
 = CD1/200discs  
 2nd player  
 = CD3/51discs

## Loading the Disc Memo

1 Press MENU.

on  
 ▶ Memo search  
 Program play  
 Program input  
 Group select ▼

2 Move the cursor (▶) to "Set up" by using the Easy scroll key, then press the Easy scroll key.

on  
 ▶ Player check  
 Memo loading  
 Contrast adjust  
 Memory clear

## Storing disc data in the remote

1 Press MENU.

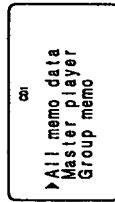
on  
 ▶ Memo search  
 Program play  
 Program input  
 Group select ▼

Note the ▼ mark indicates that the menu continues.  
 Press the Easy scroll key downward to see the next items.

This section is extracted from instruction manual.

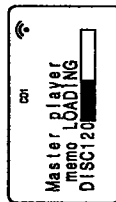
(Continued)

- 3 Move the cursor to "Memo loading," then press the Easy scroll key.



When you connect another CD player, "2nd player" also appears.

- 4 When you want to load all Disc Memos (the master player's, second CD player's, and both player's Group Memo data), move the cursor to "All memo data," then press the Easy scroll key. The remote starts reading all memo data. The loading time may take a few moments. Point the remote at the player while loading the data.
- The second CD player's Disc Memo data must be loaded to the master player before you load the data to the remote.

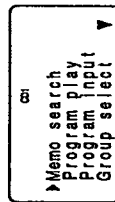


When you want to load each Disc Memo data independently, move the cursor to the data you want to load, then press the Easy scroll key.

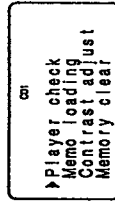
- 5 When the remote finishes reading the data, "Memo loading complete" appears in the remote's display.

### Adjusting the display contrast of the remote

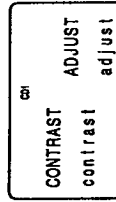
- 1 Press MENU.



- 2 Move the cursor (▶) to "Set up" by using the Easy scroll key, then press the Easy scroll key.



- 3 Move the cursor to "Contrast adjust," then press the Easy scroll key.



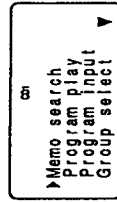
- 4 Adjust the contrast by pressing the Easy scroll key up or down and holding until the desired level of contrast is attained.

- 5 Press the Easy scroll key.

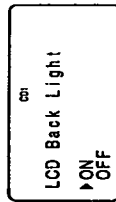
### Turning off the LCD back light

You can conserve the remote's power by turning off the LCD (Liquid Crystal Display) back light.

- 1 Press MENU.



- 2 Move the cursor (▶) to "Back light mode" by using the Easy scroll key, then press the Easy scroll key.



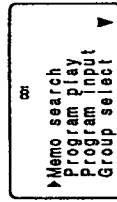
- 3 Move the cursor to "OFF," then press the Easy scroll key.

#### Note

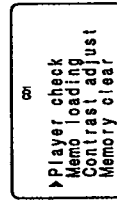
If you erase all the data stored in the remote (page 9), follow the procedure above to turn the back light off again.

### Erasing all data stored in the remote

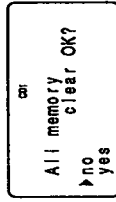
- 1 Press MENU.



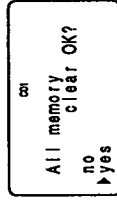
- 2 Move the cursor (▶) to "Set up" by using the Easy scroll key, then press the Easy scroll key.



- 3 Move the cursor to "Memory clear," then press the Easy scroll key.



- 4 If you want to erase all stored data, move the cursor to "yes," then press the Easy scroll key.



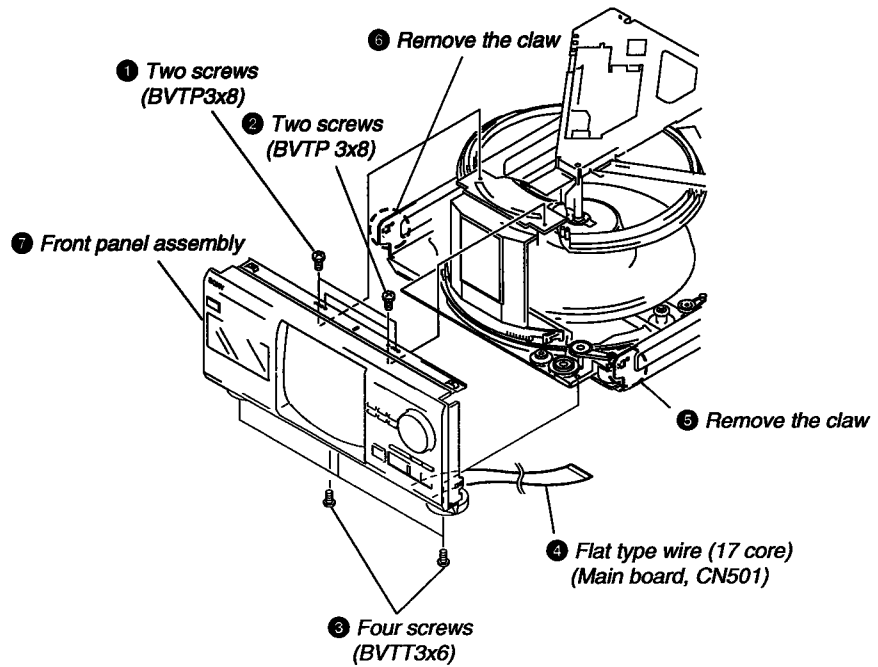
- 5 "All memory clear:" appears in the display when all data is erased.



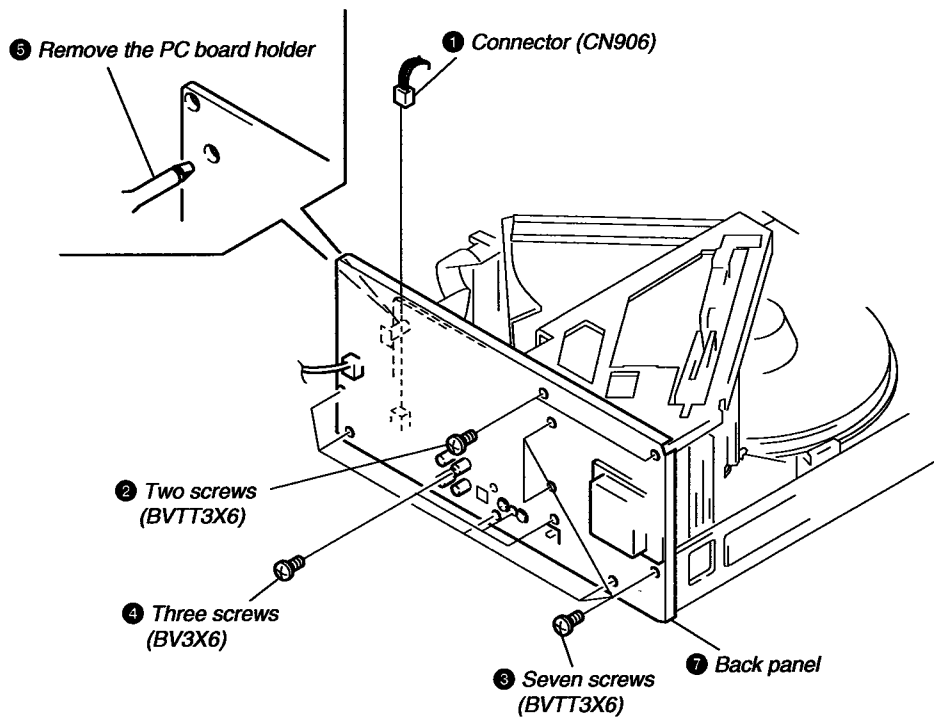
## SECTION 3 DISASSEMBLY

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

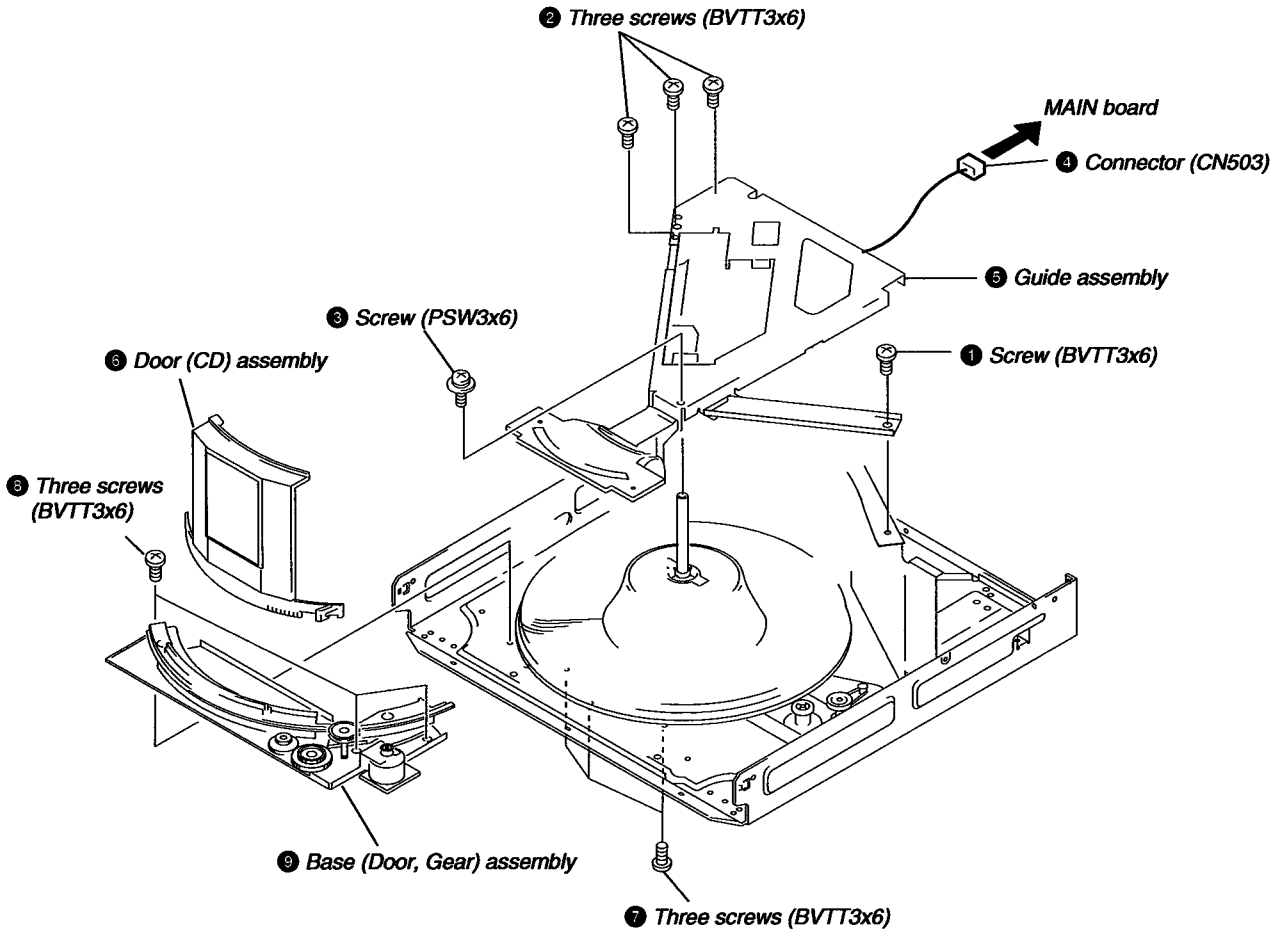
### 3-1. FRONT PANEL ASSEMBLY



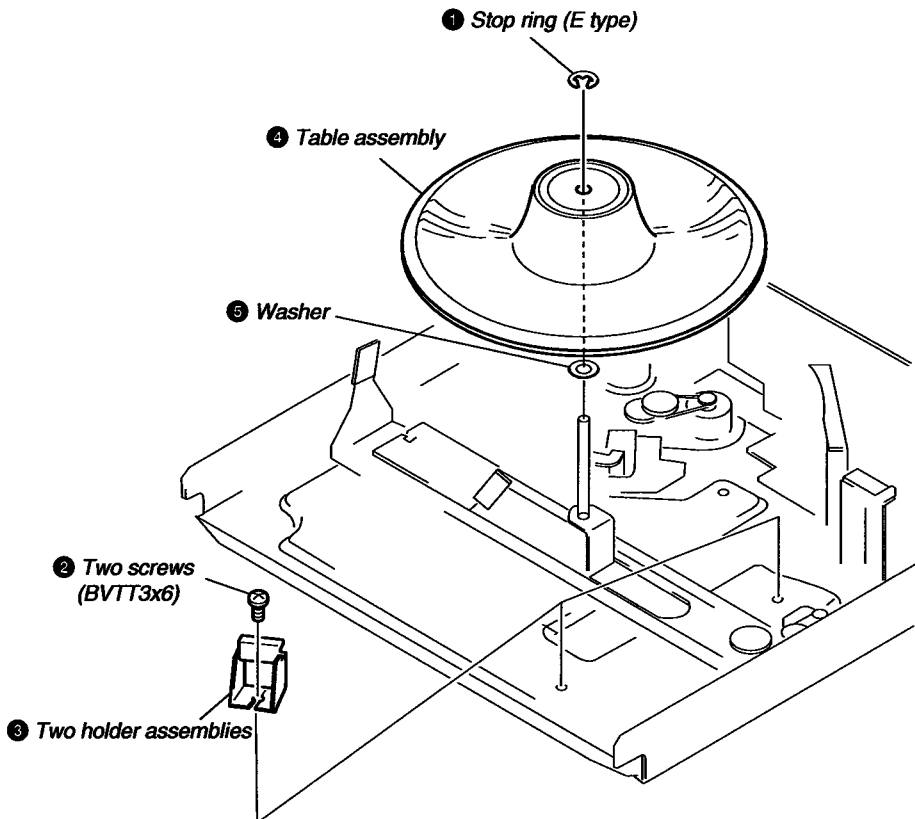
### 3-2. BACK PANEL ASSEMBLY



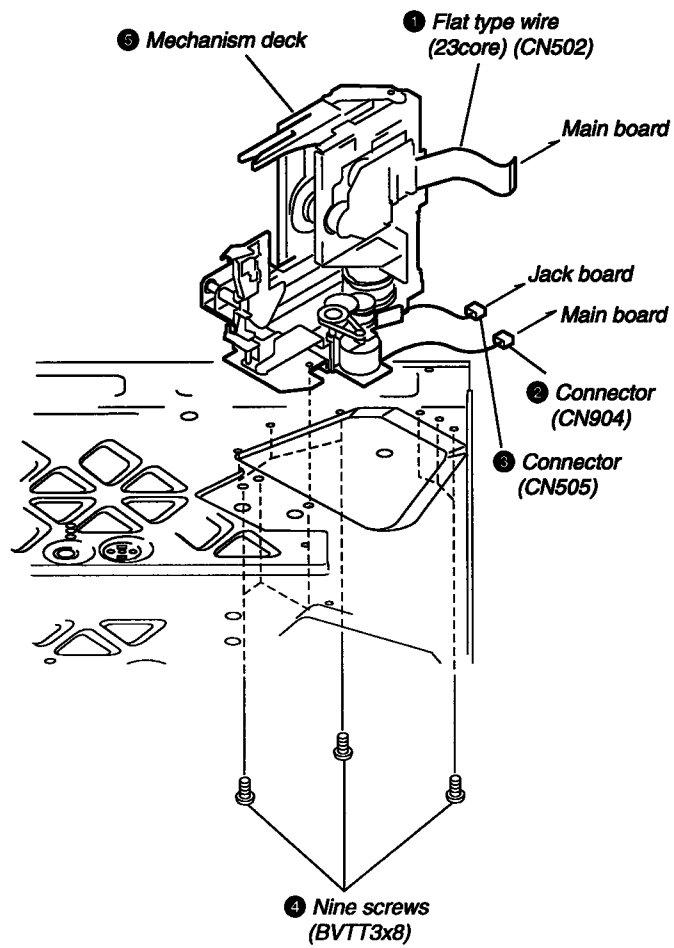
**3-3. BASE (DOOR, GEAR) ASSEMBLY**



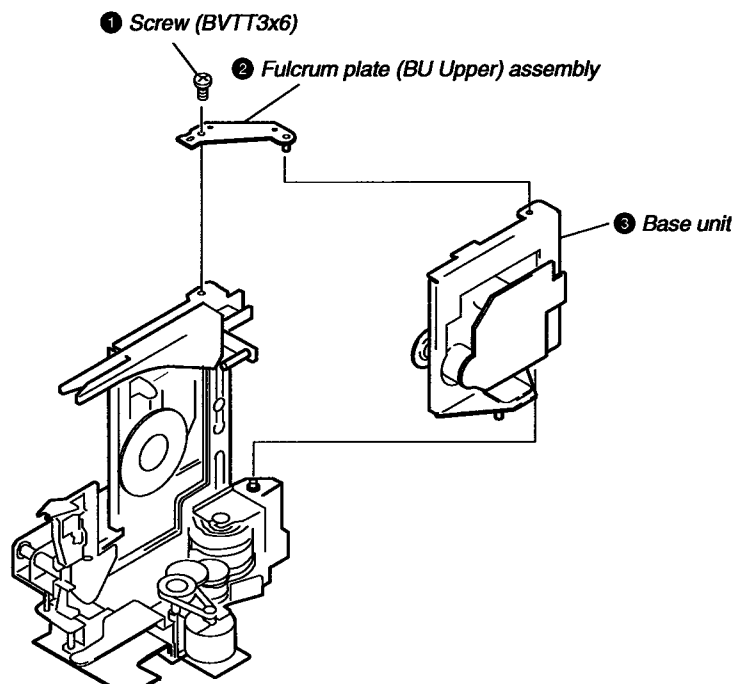
**3-4. TABLE ASSEMBLY**



### 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  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 $\mu\text{m}$ directly.

### 4-3. KEY AND DISPLAY CHECK MODE

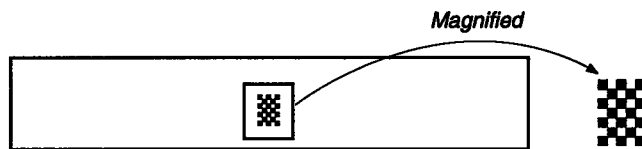
To set this mode, connect the test point (AFADJ) on the MAIN board to Ground, and connect the power supply plug to the outlet.

- 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.

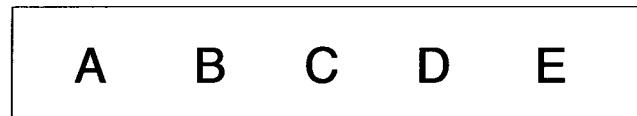
-  (stop) button: FL segment check  
(Refer to FL Tube Check Patterns)
-  (pause) button: FL grid check  
(Refer to FL Tube Check Patterns)  
The pause LED also lights up simultaneously.
-  (play) button: All FL segment and grid will light up.  
The play LED also lights up simultaneously.

#### FL Tube Check Patterns

Segment check



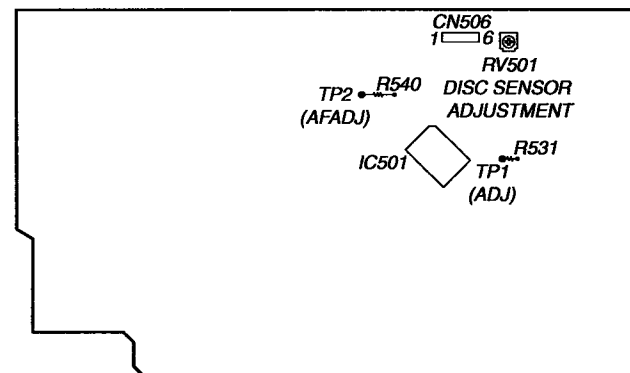
Grid check



- 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 –

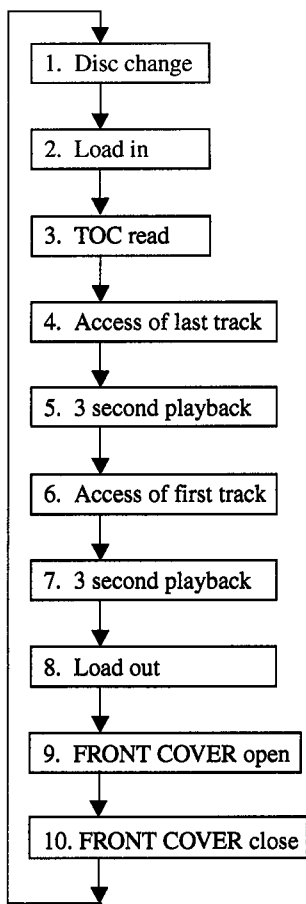


#### 4-4. AGING MODE

##### Aging Mode

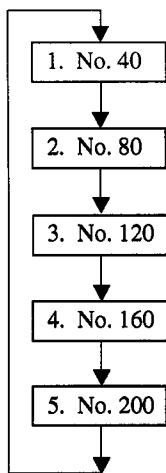
- Mode which repeatedly changes and plays back discs automatically in the unit.
  - It will repeat aging as long as no errors occur.
  - If an error occurs during aging, it will stop all servos, motors, etc. instantaneously, display the error number, and stop operations. However, the stopping conditions 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:

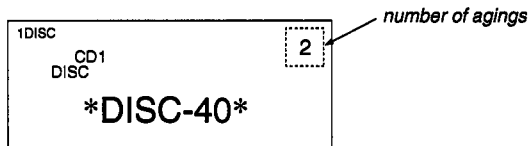
Function which voluntarily corrects errors which occur during normal operations by retries.

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

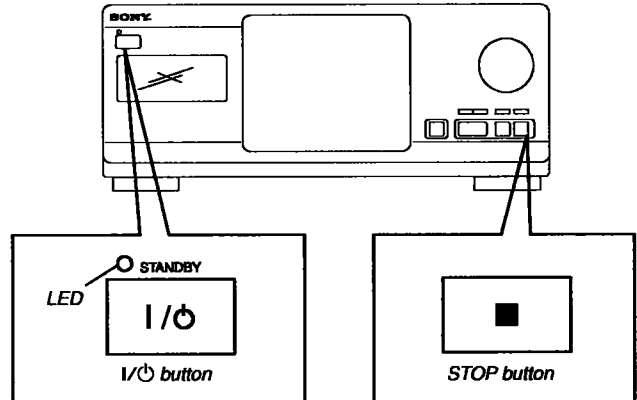
- 2 : From chucking to end of TOC read
- 3 : From end of TOC read to end of last track playback
- 4 : From end of last track playback to end of first track playback

## SECTION 5 ADJUSTMENTS

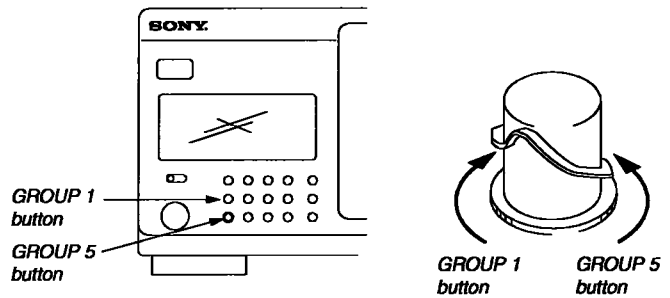
### 5-1. MECHANICAL ADJUSTMENT

Perform the following steps before carrying out adjustments.

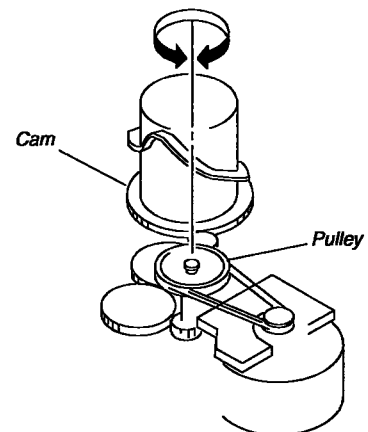
1. Turn ON the power of the unit, set disc to disc table No. 92, and perform chucking.
2. Turn OFF the power.
3. Remove the case.
4. While pressing the **STOP** button, turn ON the **I/O** button. The test mode is set.
5. The POWER button LED starts blinking. (Test mode)



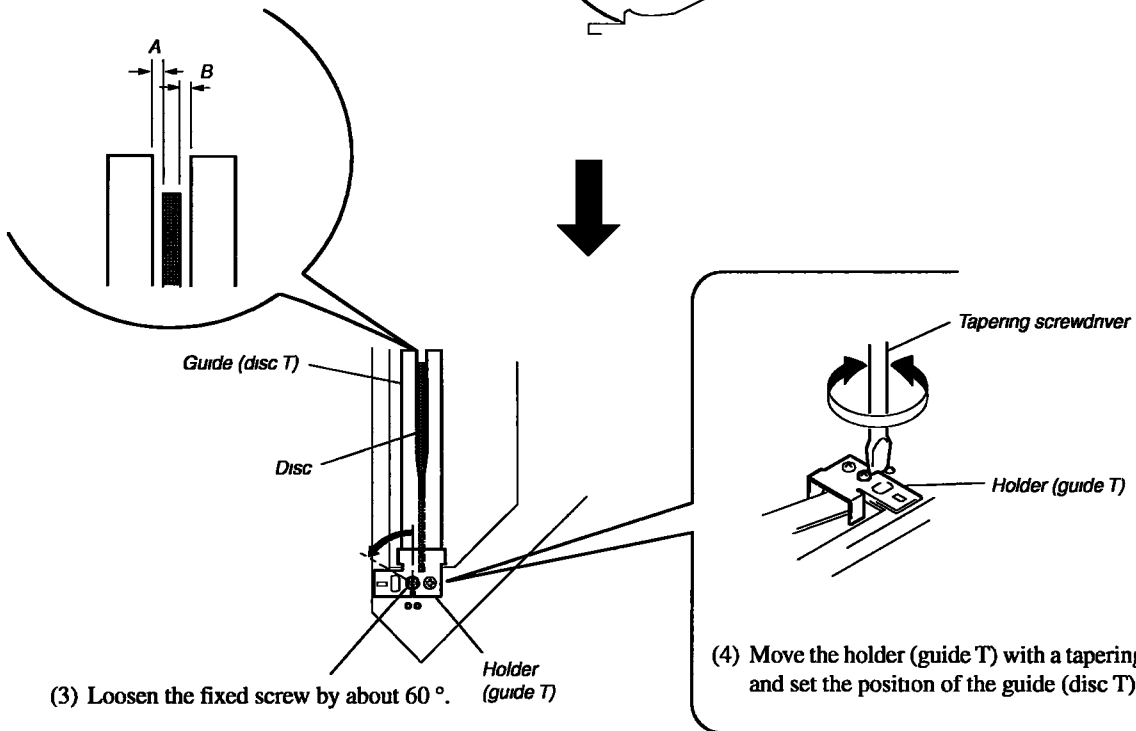
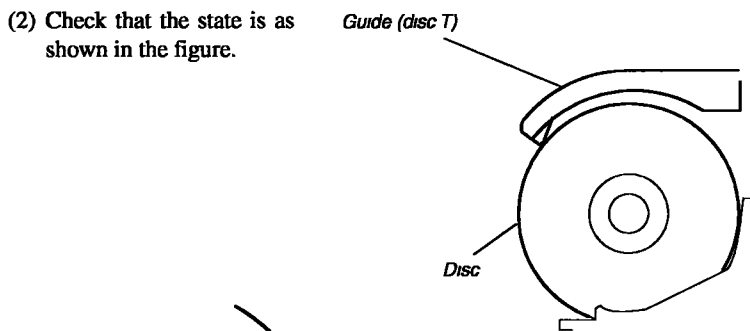
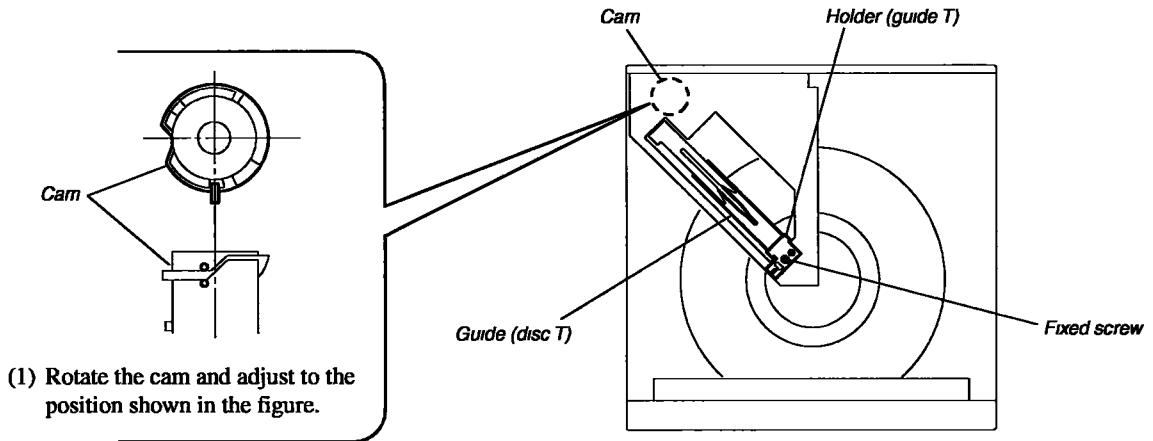
**NOTE 1:** The cam will start rotating when the GROUP 1 or GROUP 5 button is pressed continuously in the test mode.



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

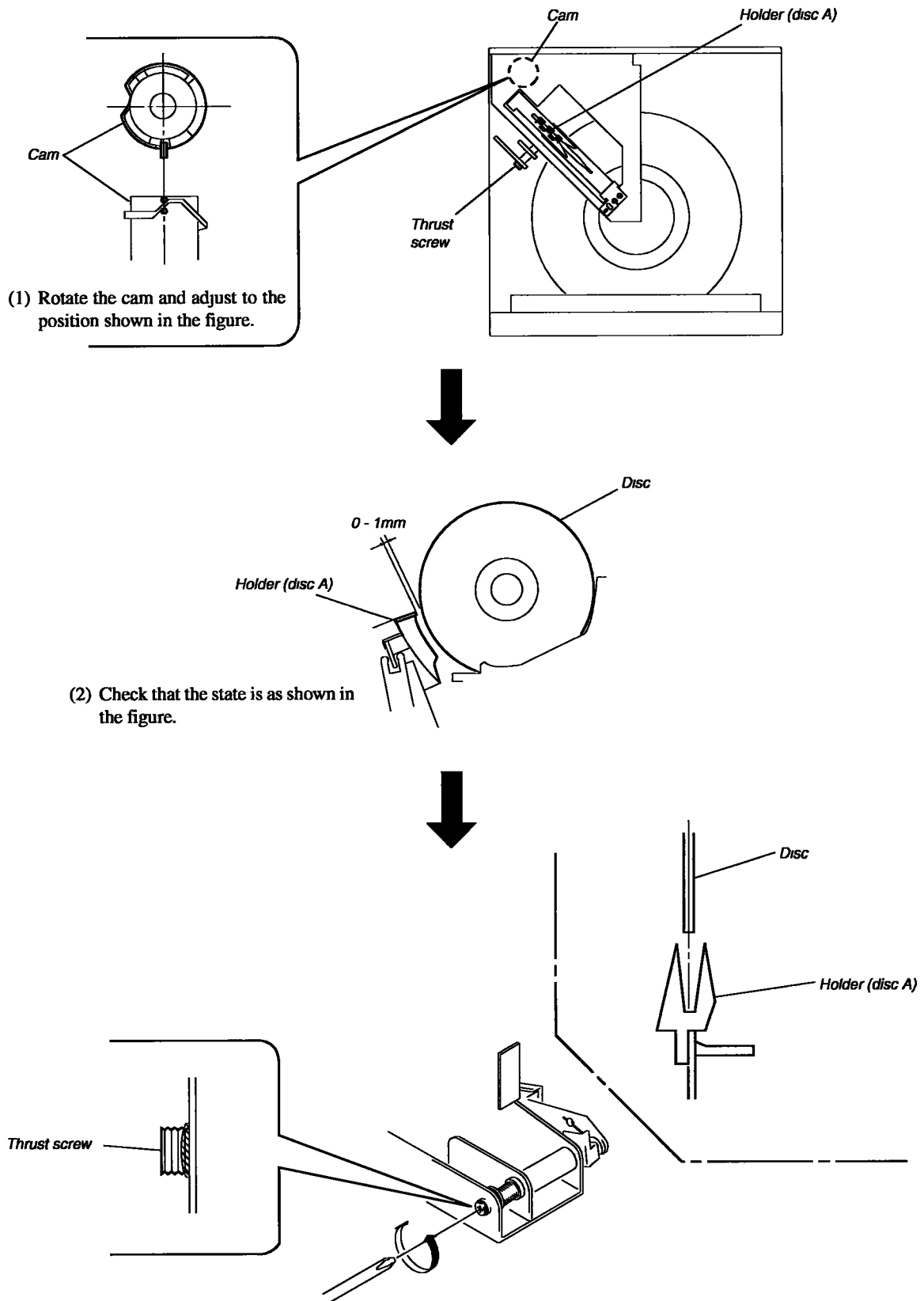


**GUIDE (DISC T) ALIGNMENT**





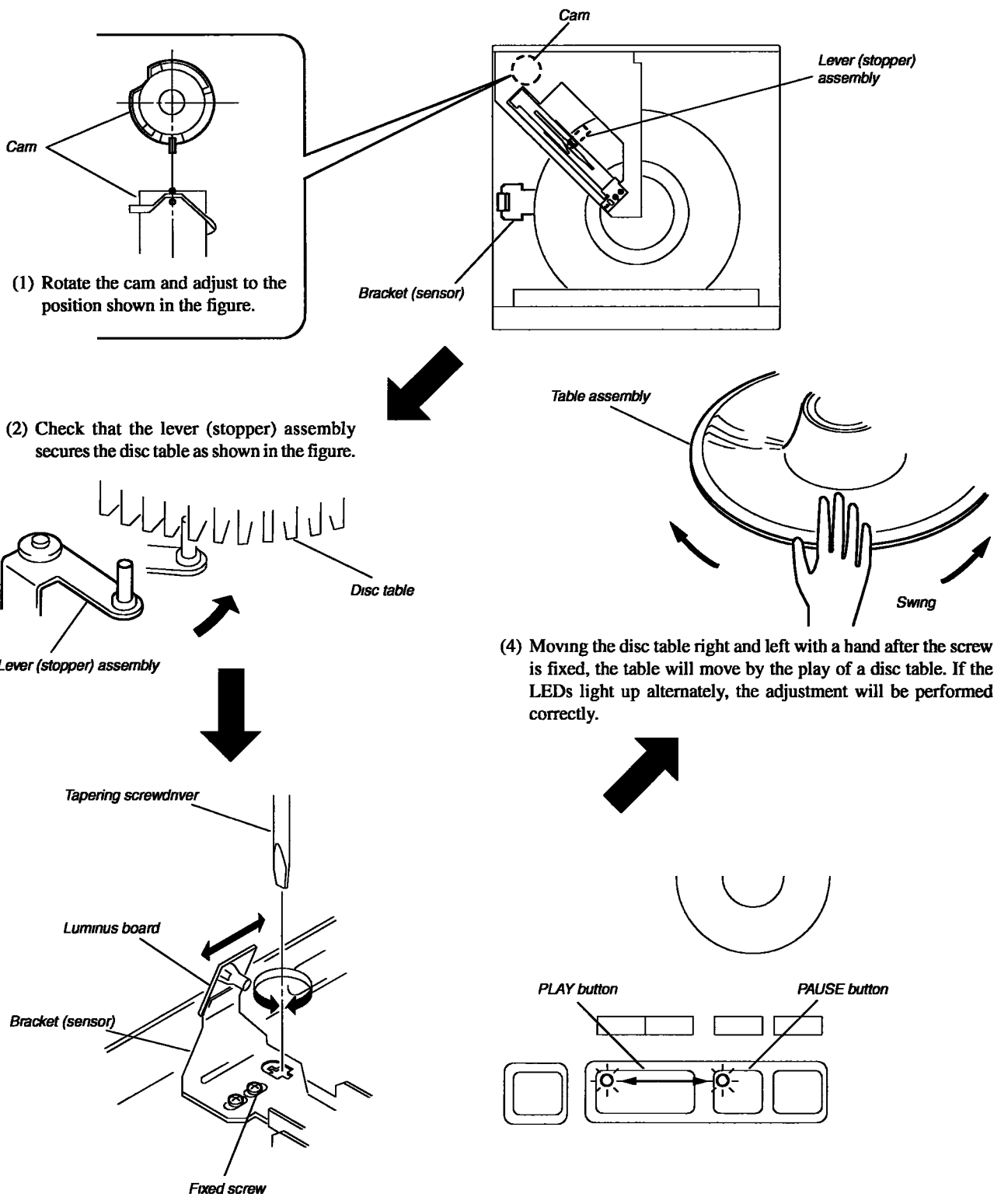
## HOLDER (DISC A) ALIGNMENT



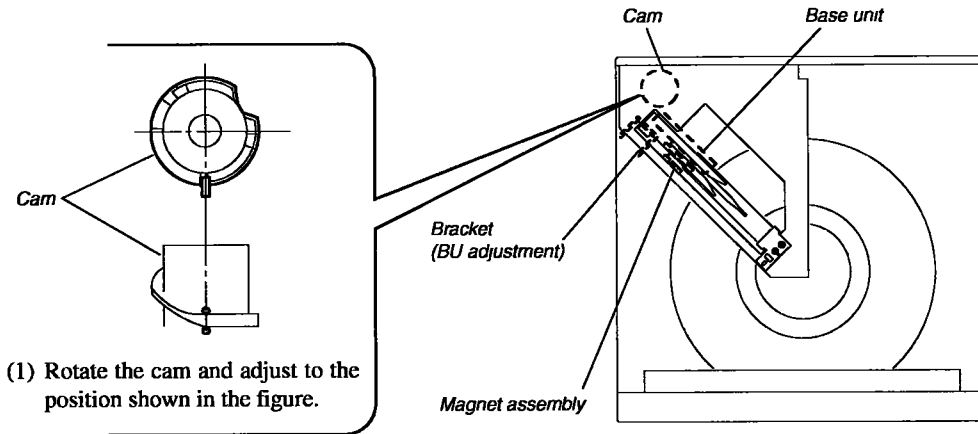
## SENSOR ALIGNMENT

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.

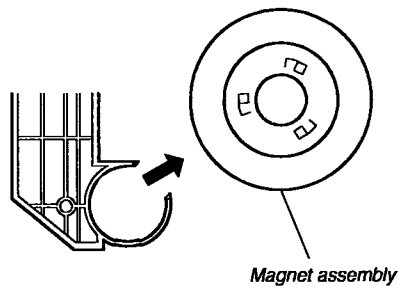
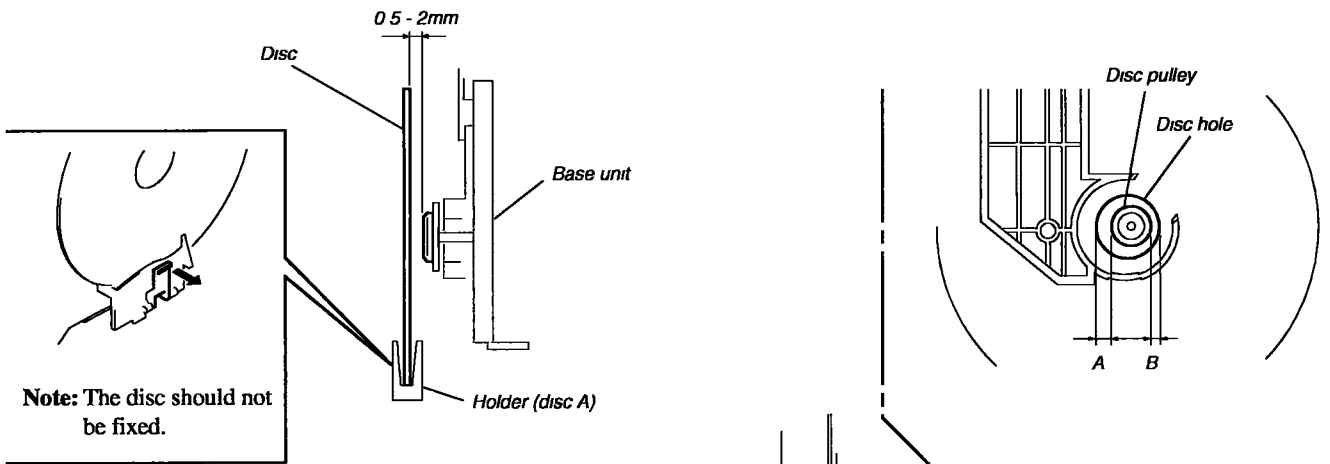
**CAUTION:**  
The LED may not light up in steps (3) and (4) for some microprocessor versions, and consequently adjustments will not be possible.  
In this case, fix the bracket (sensor) at the mechanical center.  
As fine adjustments need to be performed in "Disc Sensor Adjustment" in Electrical Adjustments,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



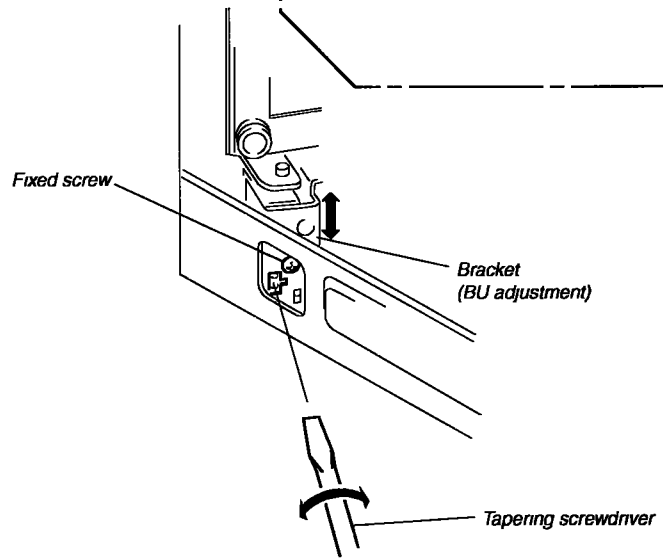
## PULLY AND DISC CENTER HOLE ALIGNMENT



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

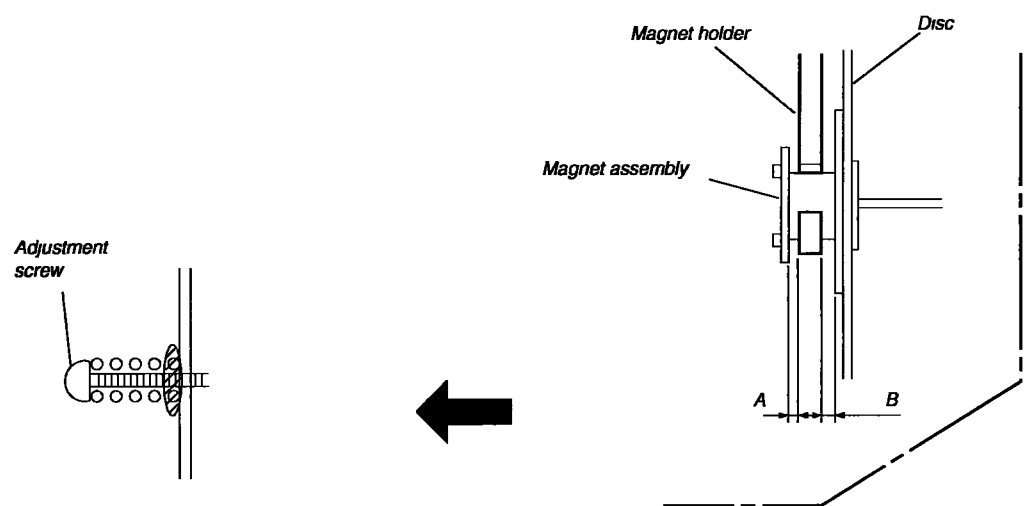
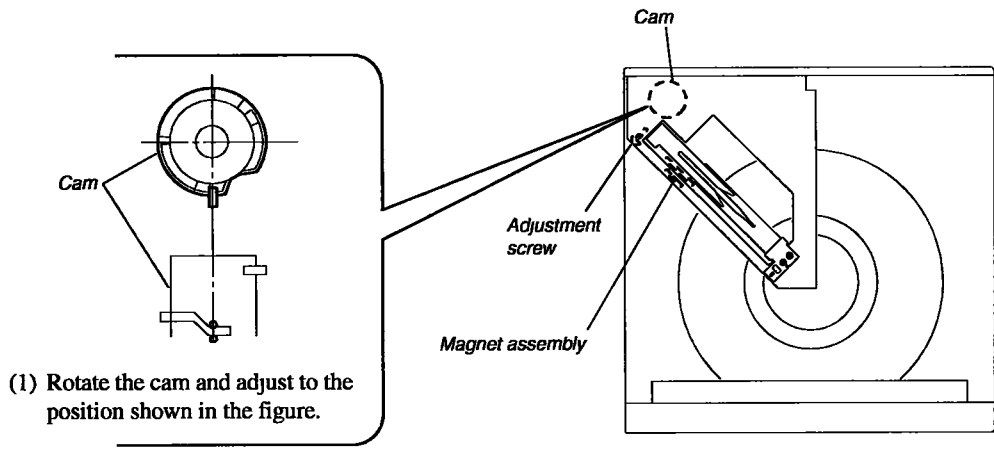


(3) Remove the Magnet assembly.

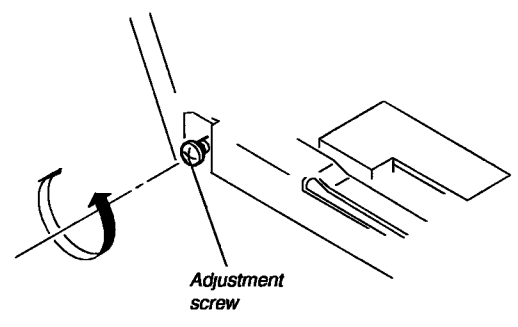


Loosen the fixed screw by  $60^\circ$  to  $90^\circ$ , and move and adjust the bracket (BU adjustment) up and down using a tapering screwdriver so that the positions of the disc hole and disc pulley become  $A=B$  or between  $A:B=2.1$  and  $1.2$ .

# MAGNET ASSY ALIGNMENT



(3) Apply suitable locking compound to the  $\odot$  part after adjusting.

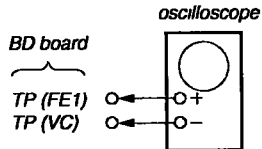


## 5-2. ELECTRICAL BLOCK ADJUSTMENT

### 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.

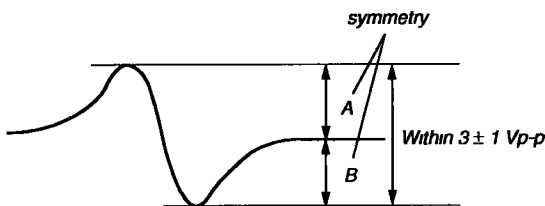
### S-Curve Check



### 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  $3 \pm 1$  Vp-p.

S-curve waveform

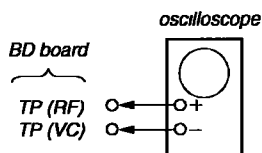


8. Pressing the **STOP** button stops the output of the waveform (s curve).
9. After check, remove the lead wire connected in step 3.

**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

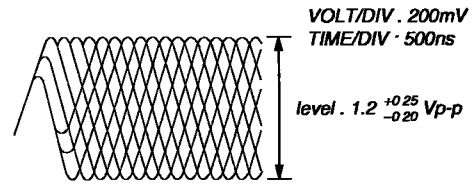


### Procedure :

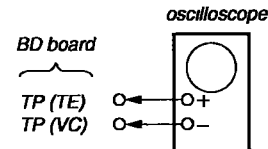
1. Connect oscilloscope to test point TP (RF) on BD board.
2. Turn Power switch on.
3. Put disc (YEDS-18) in to play the number five track.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

**Note:** A clear RF signal waveform means that the shape "0" can be clearly distinguished at the center of the waveform.

RF signal waveform



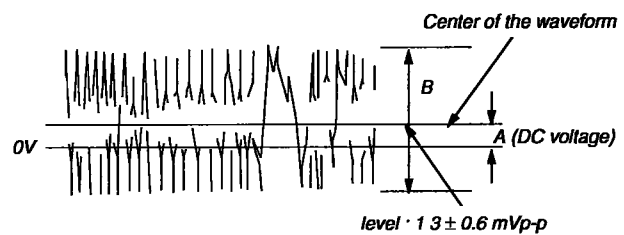
### E-F Balance Check



### Procedure :

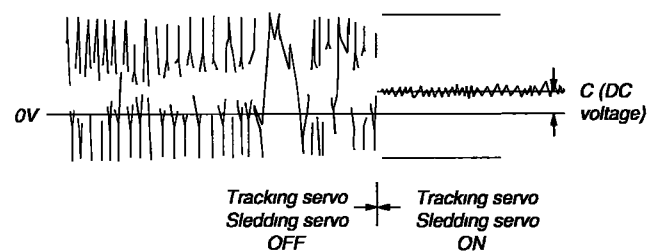
1. Chuck the disc (YEDS-18) beforehand, and disconnect the power cord from the outlet.
2. Connect oscilloscope to test point TP (TE) on BD board.
3. Connect test point TP1 (ADJ) on MAIN board to ground with lead wire.
4. The ADJ mode is set when the power cord is inserted into the outlet and power is 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 oscilloscope's waveform and the A (DC voltage) of the center of the Traverse waveform. Confirm the following :  
 $A/B \times 100 = \text{less than } \pm 22\%$

Traverse waveform



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



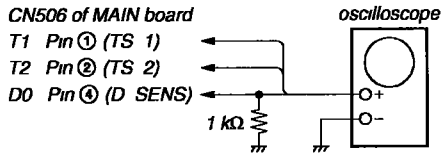
9. Disconnect the lead wire of TP1 (ADJ) connected in step 2.

### Disc Sensor Adjustment

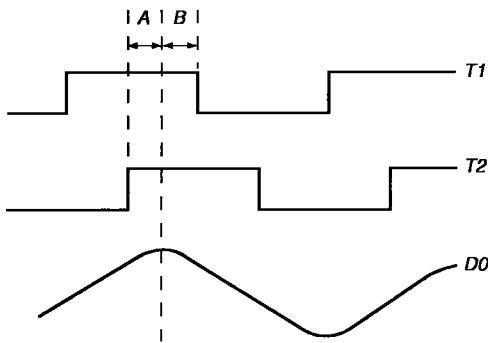
Perform this adjustment after completing all adjustments of the mechanism section.

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

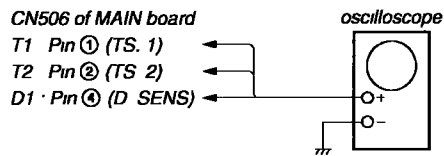
#### Connection 1:



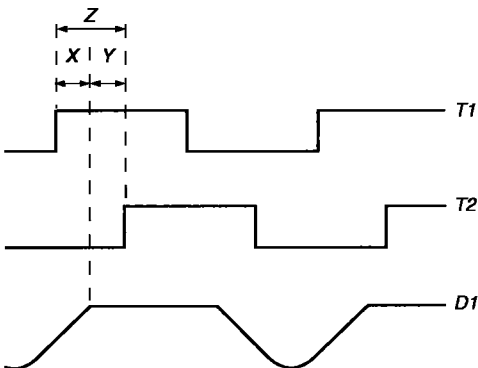
#### Waveform 1:



#### Connection 2:

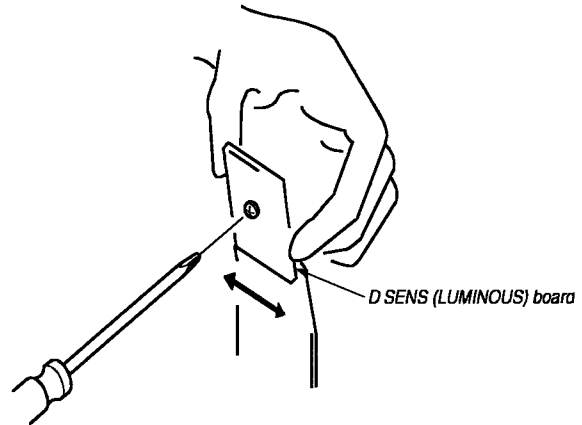


#### Waveform 2



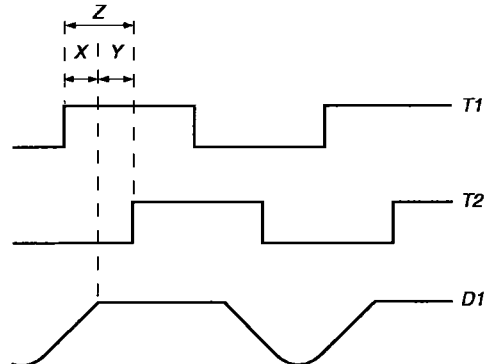
### Procedure:



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/O]** 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 D.SENS (LUMINOUS) board slightly.
7. Slide the D SENS (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/O]** button and turn OFF the power.
12. Press the **[I/O]** 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  button to turn off the power.
15. Press the  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.

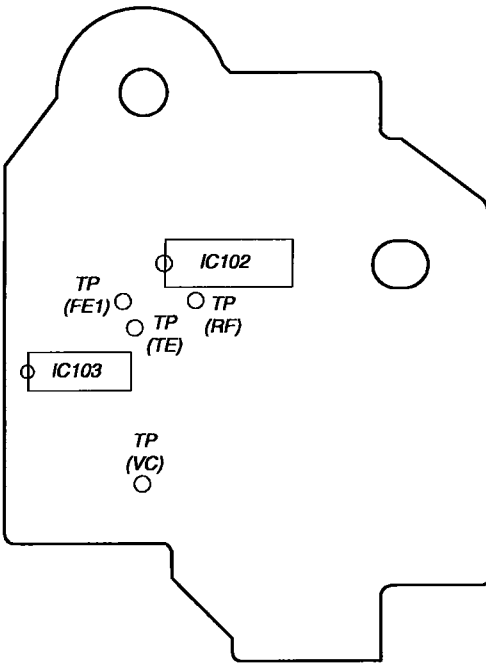
In order to satisfy this value more easily, adjust so that X=Y approximately and observe the deviation of the waveform.

**Adjustment value 2:**

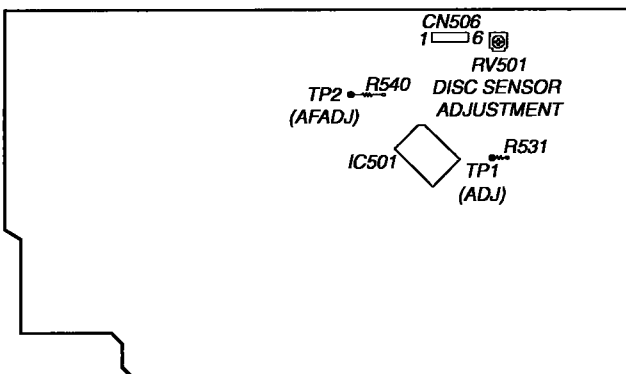
At the shoulder part of waveform D1, T1 becomes L and T2 becomes H, and at the same time, the Y width must not be smaller than 1/4 of the Z width.

**Adjustment Location :**

[ BD BOARD ] – Side B –

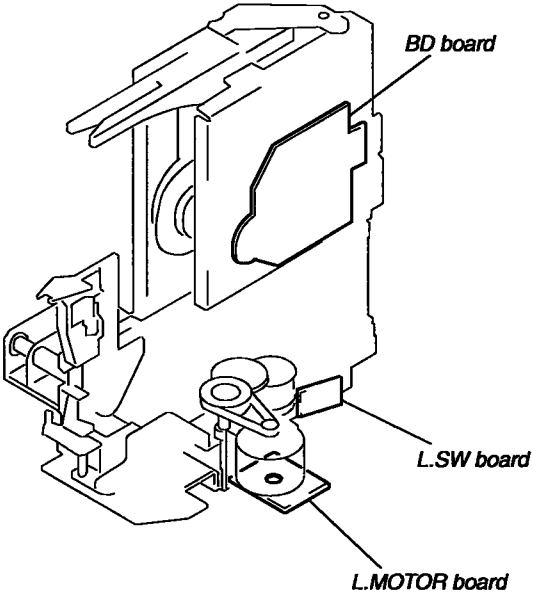
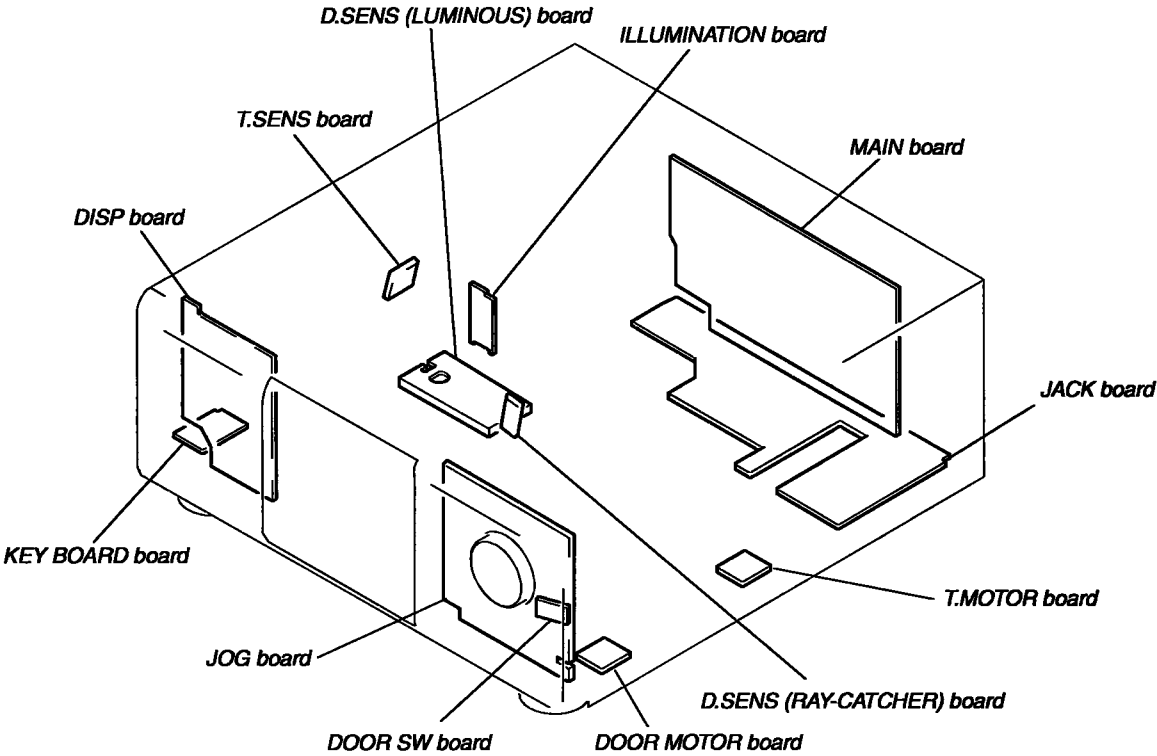


[ MAIN BOARD ] – Component Side –



# SECTION 6 DIAGRAMS

## 6-1. CIRCUIT BOARDS LOCATION





**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  $\mu\text{F}$  unless otherwise noted. pF:  $\mu\mu\text{F}$  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $1/4\text{W}$  or less unless otherwise specified.
- $\Delta$  : internal component.
- : panel designation.

**Note:**

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

**Note:**

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce 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  $10\text{M}\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.  
⇒ : CD  
⇒⇒ : digital out

**For printed wiring boards.**

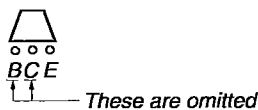
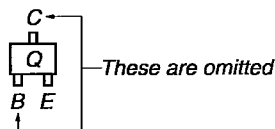
**Note:**

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

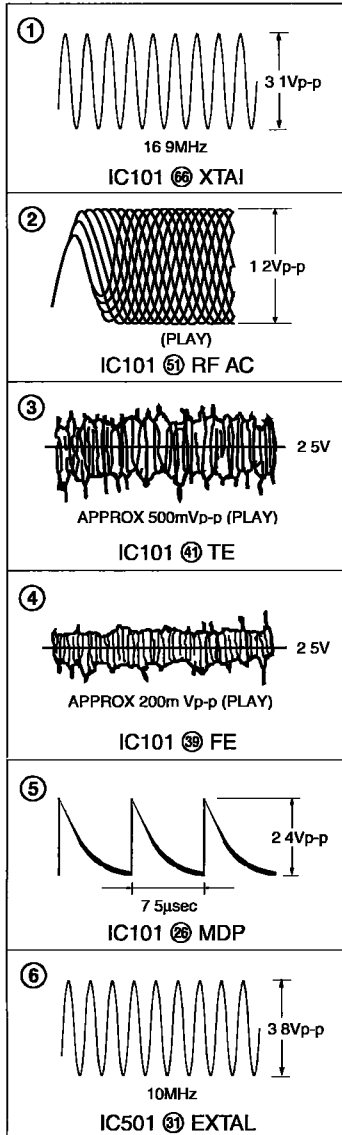
**Caution:**

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

**• Indication of transistor**

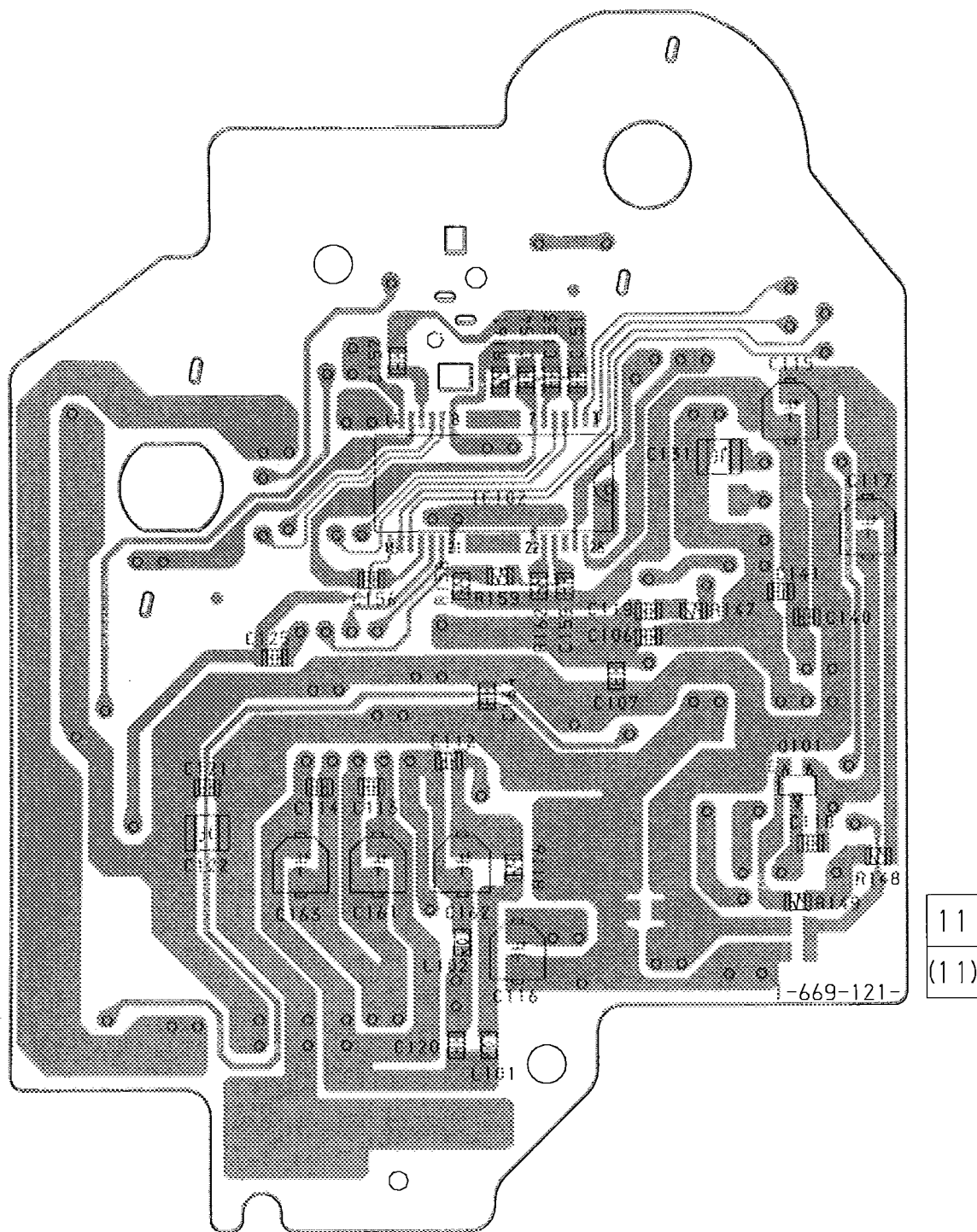


## WAVEFORMS



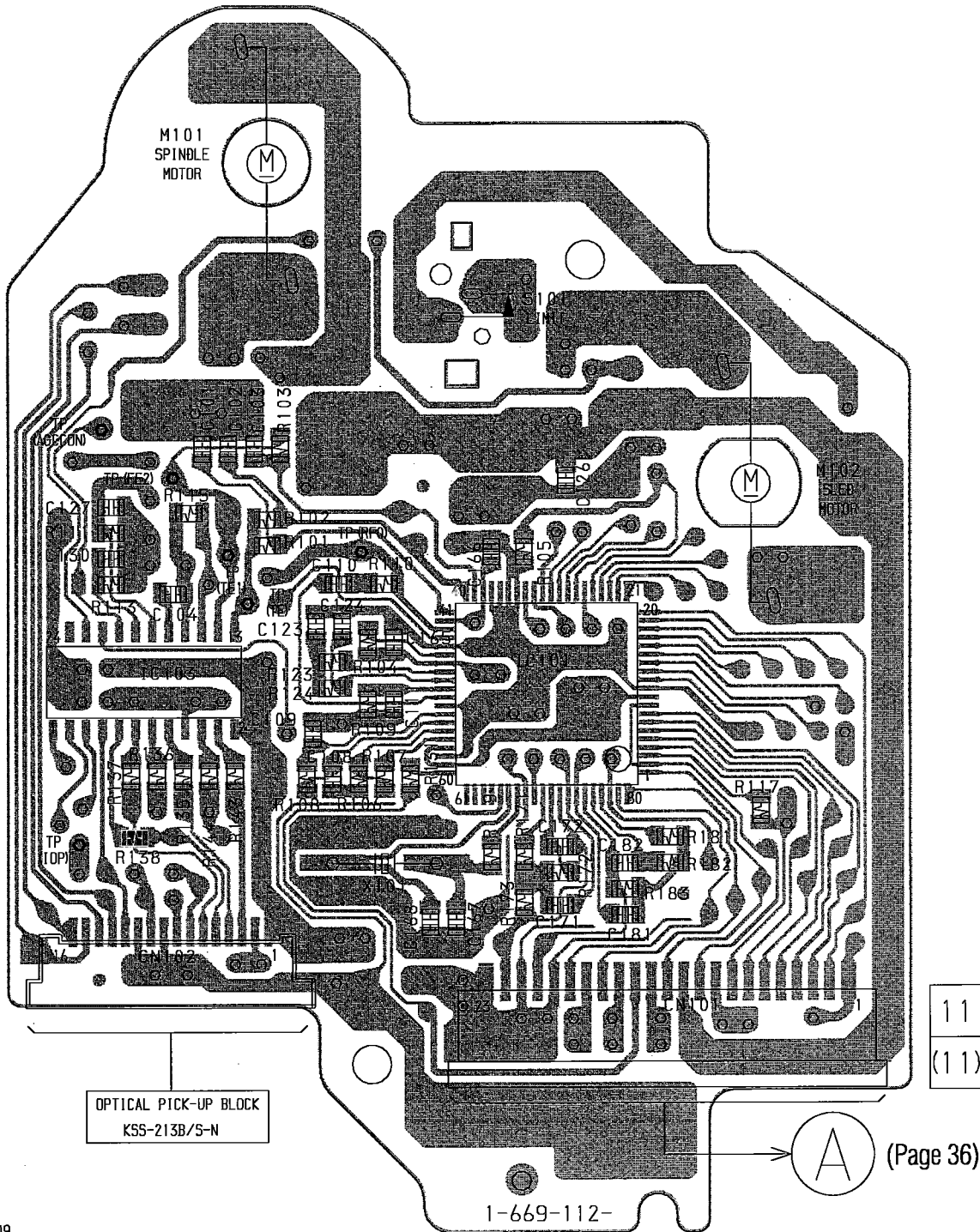
6-4. PRINTED WIRING BOARD – BD SECTION –  
• See page 24 for Circuit Boards Location.

【 BD BOARD 】(SIDE A)



09

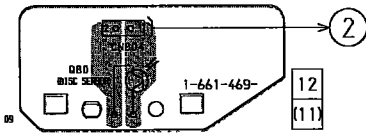
【 BD BOARD 】 (SIDE B)



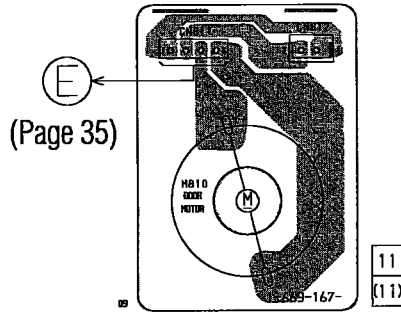
09

**6-12. PRINTED WIRING BOARD – SENSOR/MOTOR SECTION –**  
**• See page 24 for Circuit Boards Location.**

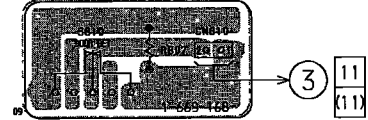
**【D. SENS (RAY CATCHER) BOARD】**



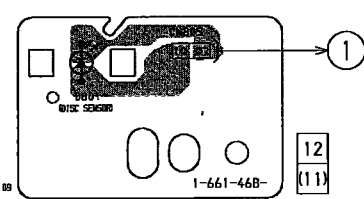
**【DOOR MOTOR BOARD】**



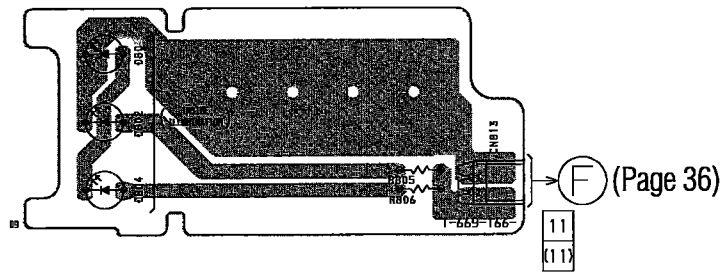
**【DOOR SW BOARD】**



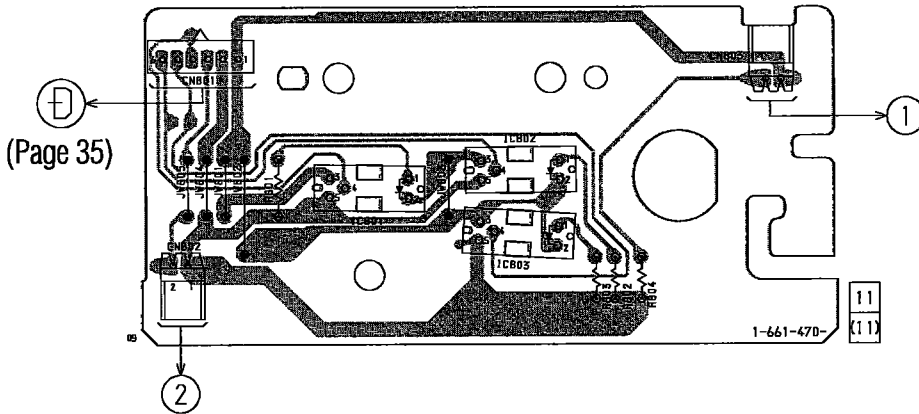
**【D. SENS (LUMINOUS) BOARD】**



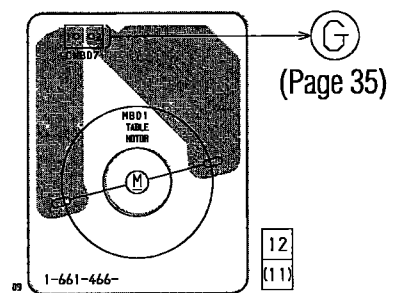
**【ILLUMINATION BOARD】**



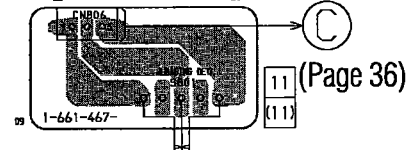
**【T. SENS BOARD】**



**【T. MOTOR BOARD】**



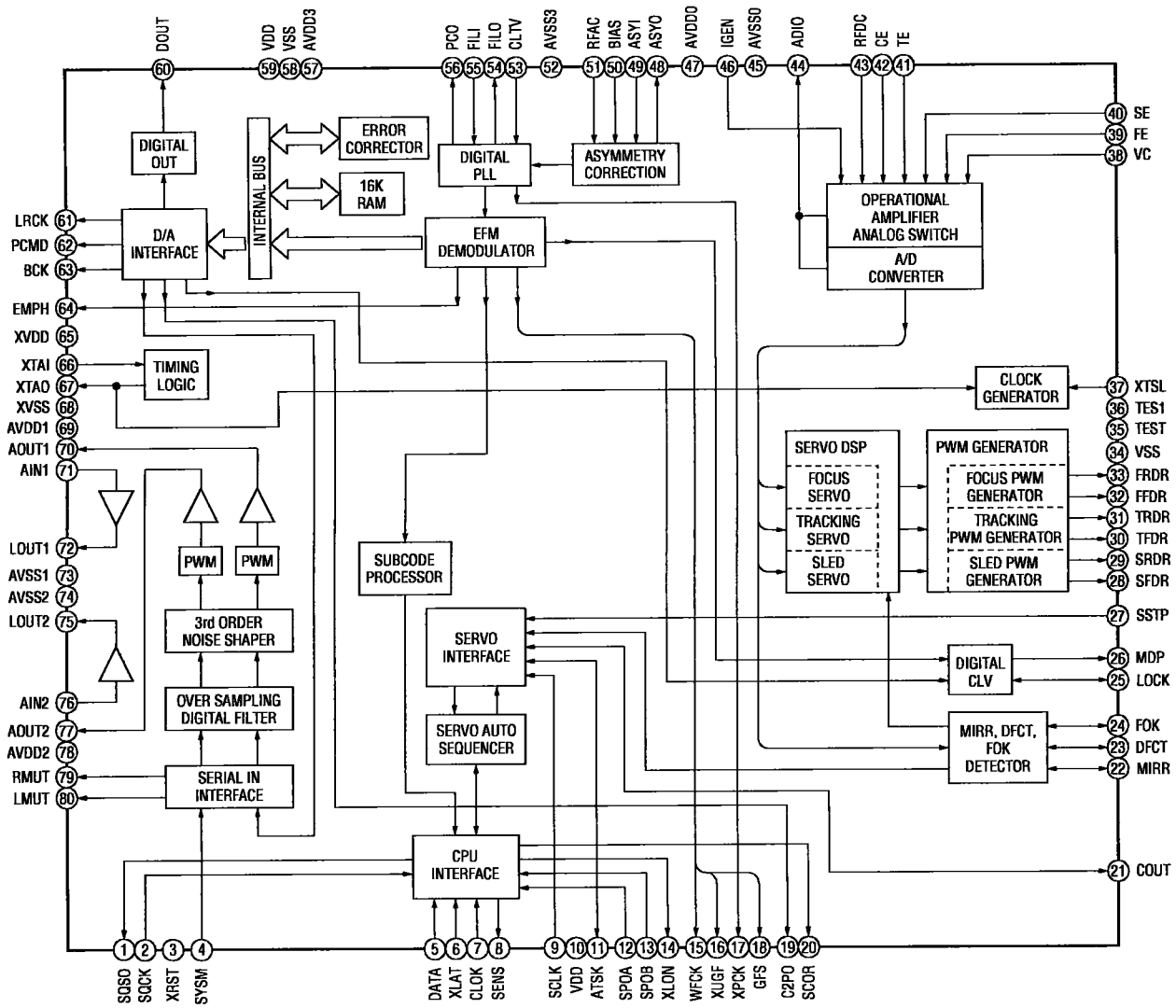
**【L. SW BOARD】**



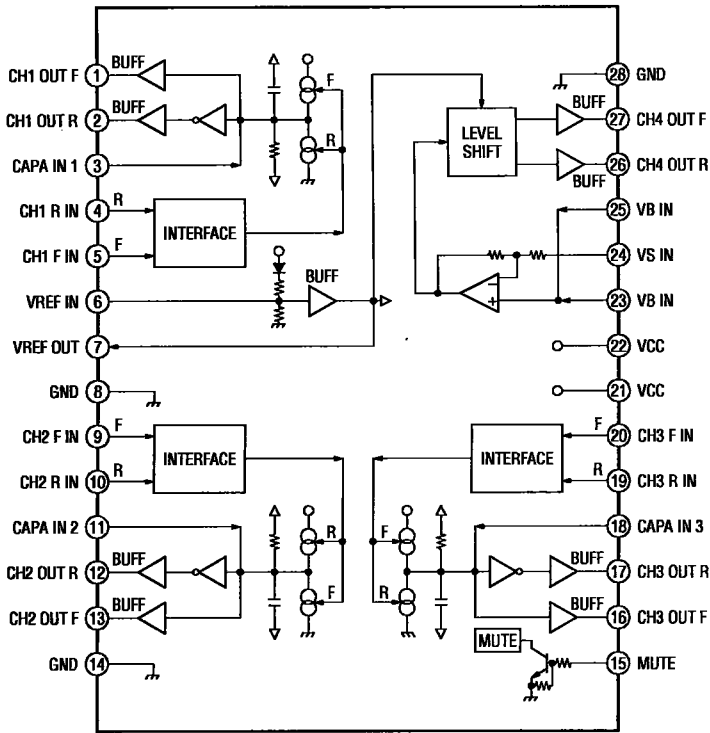
# 6-13. IC BLOCK DIAGRAMS

## • BD section

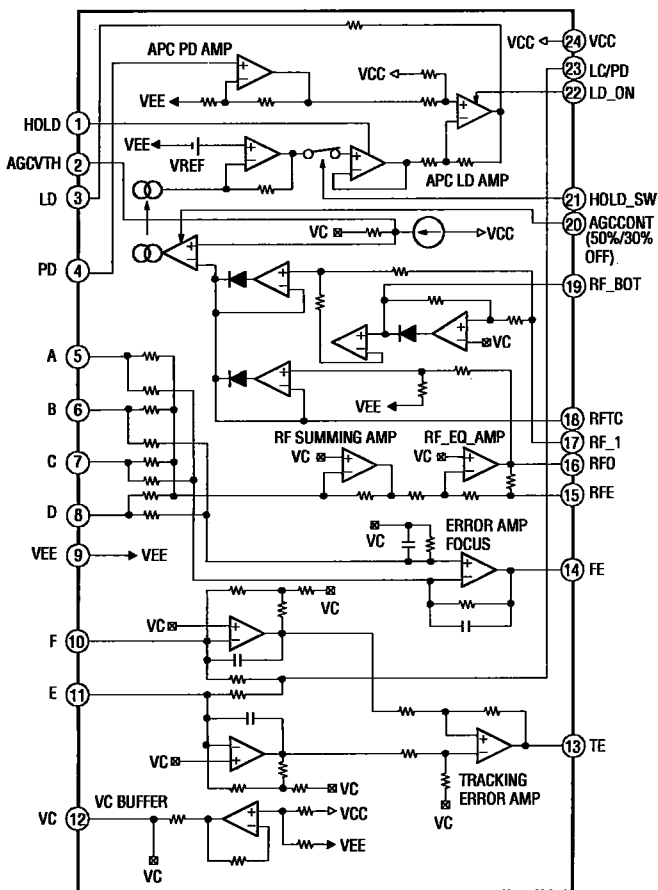
### IC101 CXD2587Q



**IC102 BA6392FP**

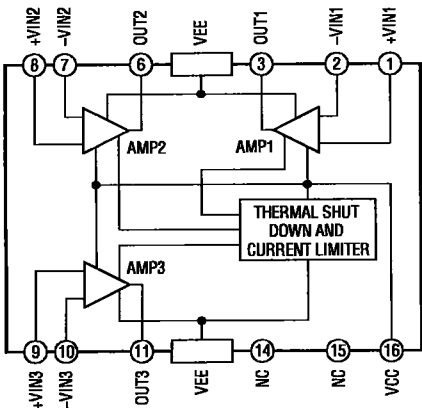


**IC103 CXA2568M**



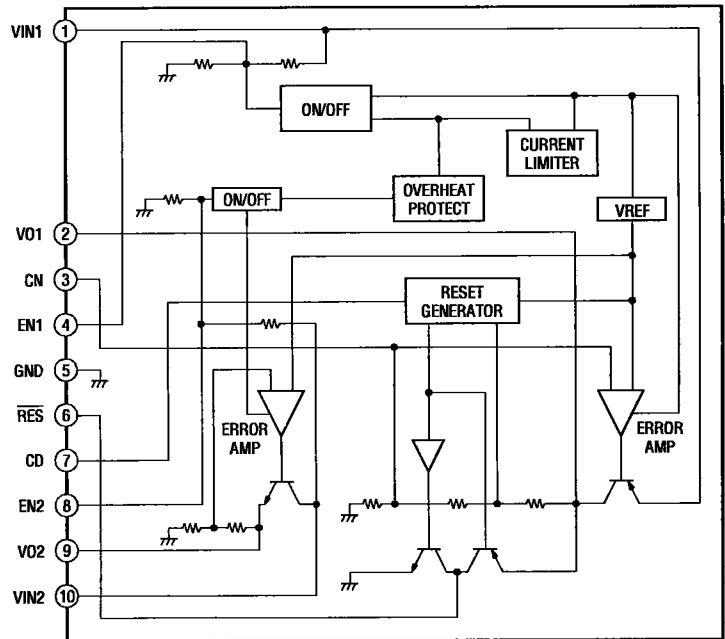
• Main (1/2) section

IC503 CXA1291P



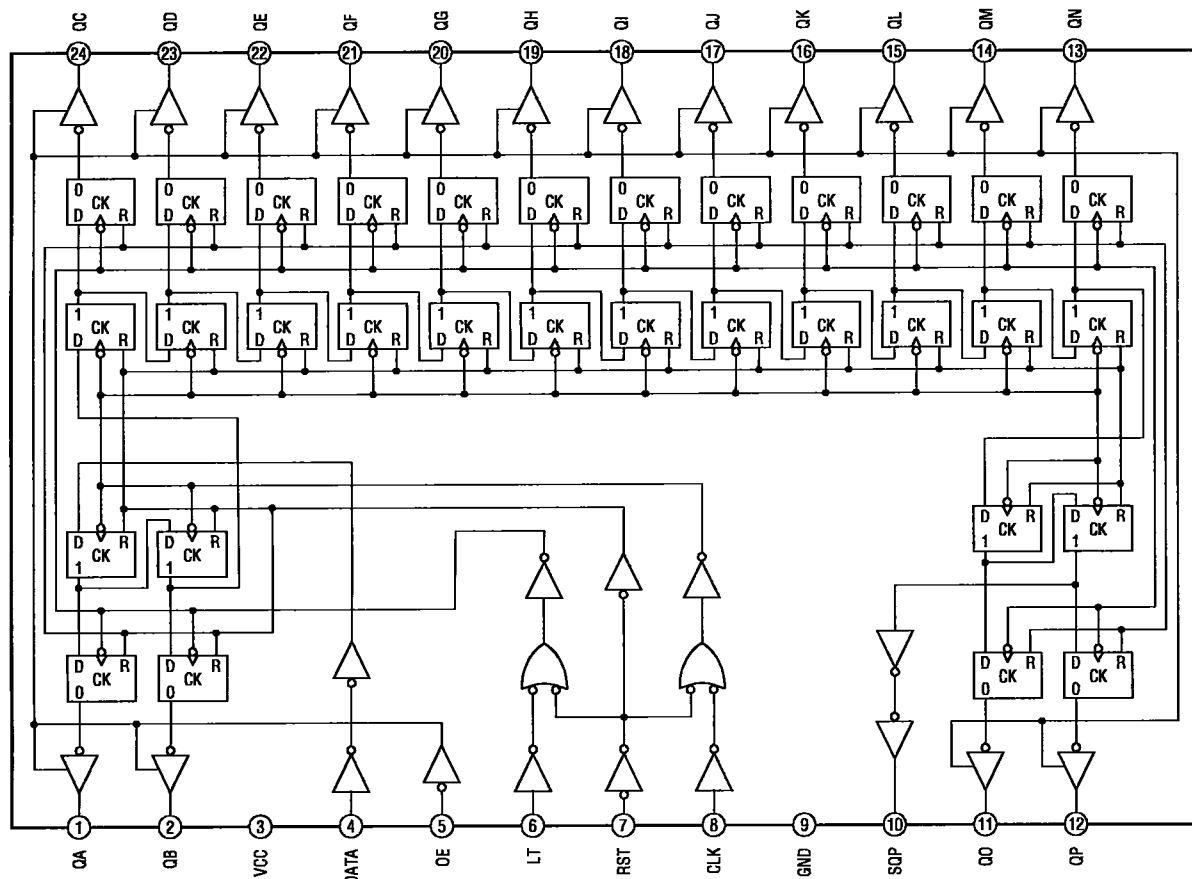
• Main (2/2) section

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 compare 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 ( $f = F_s$ ) (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	$\overline{\text{WE}}$	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	$\overline{\text{RST}}$	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.

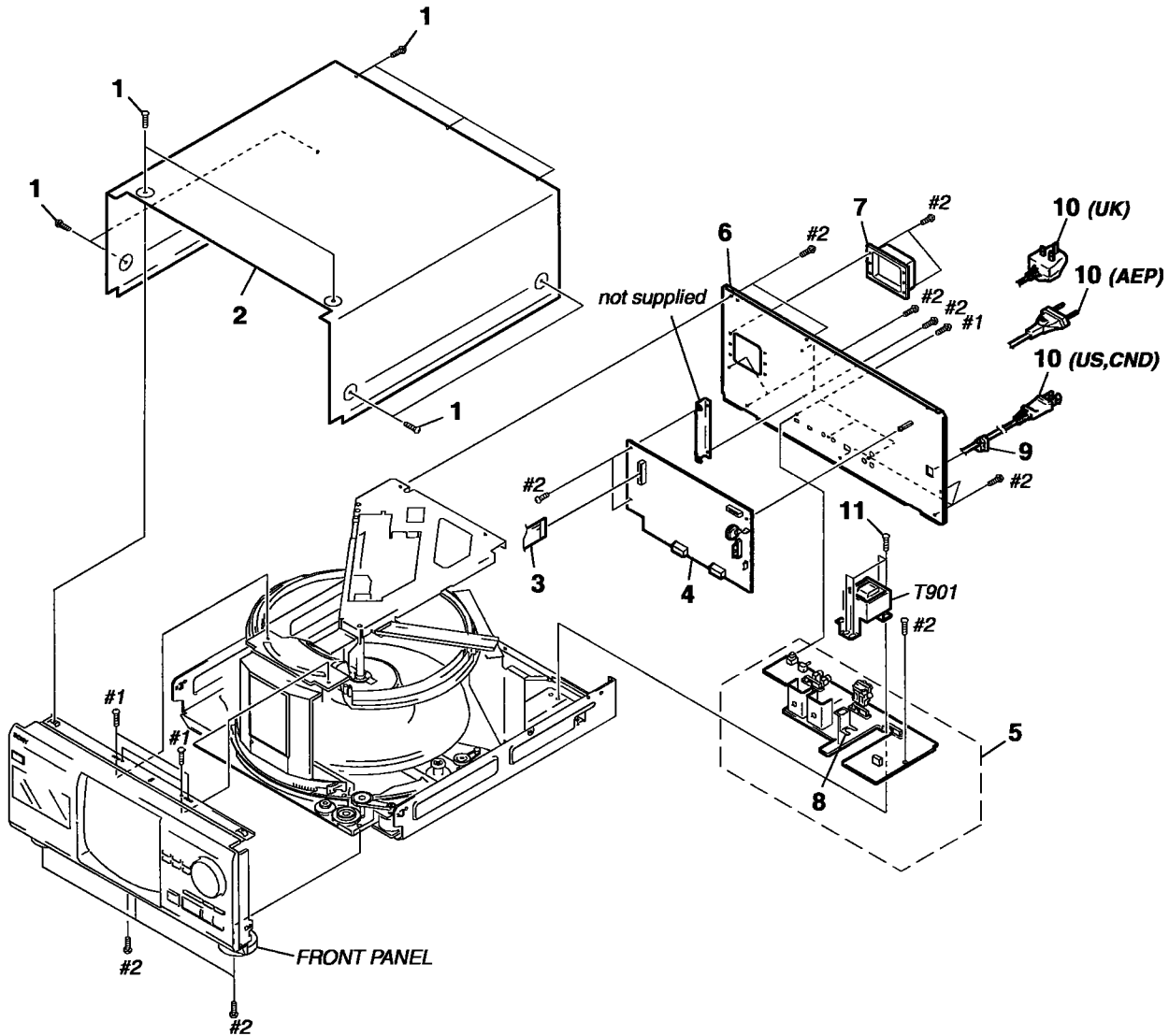
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation  
CND Canadian model

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

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité.

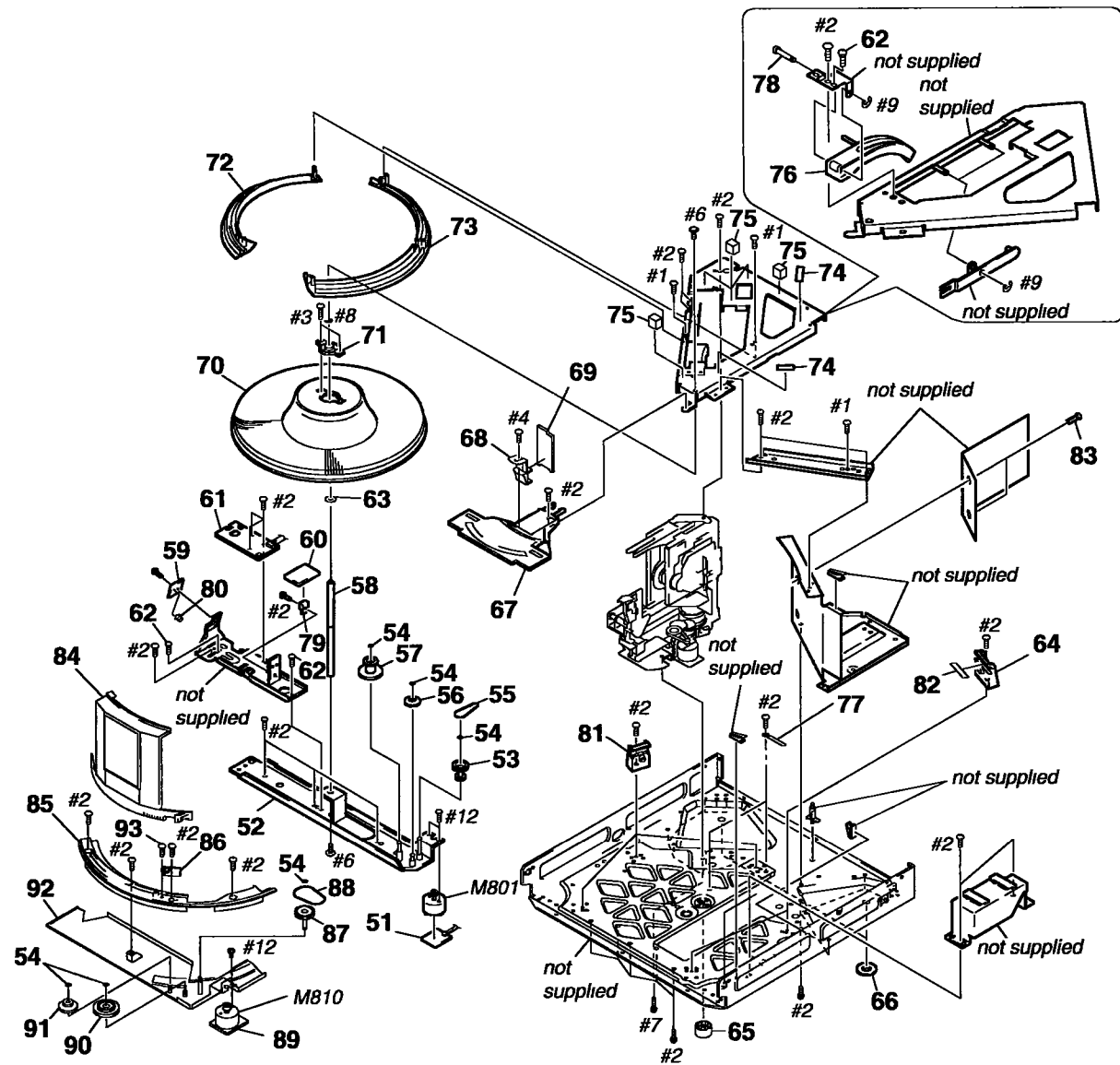
Ne les remplacer que par une pièce portant le numéro spécifié.

### 7-1. CASE AND BACK PANEL SECTION



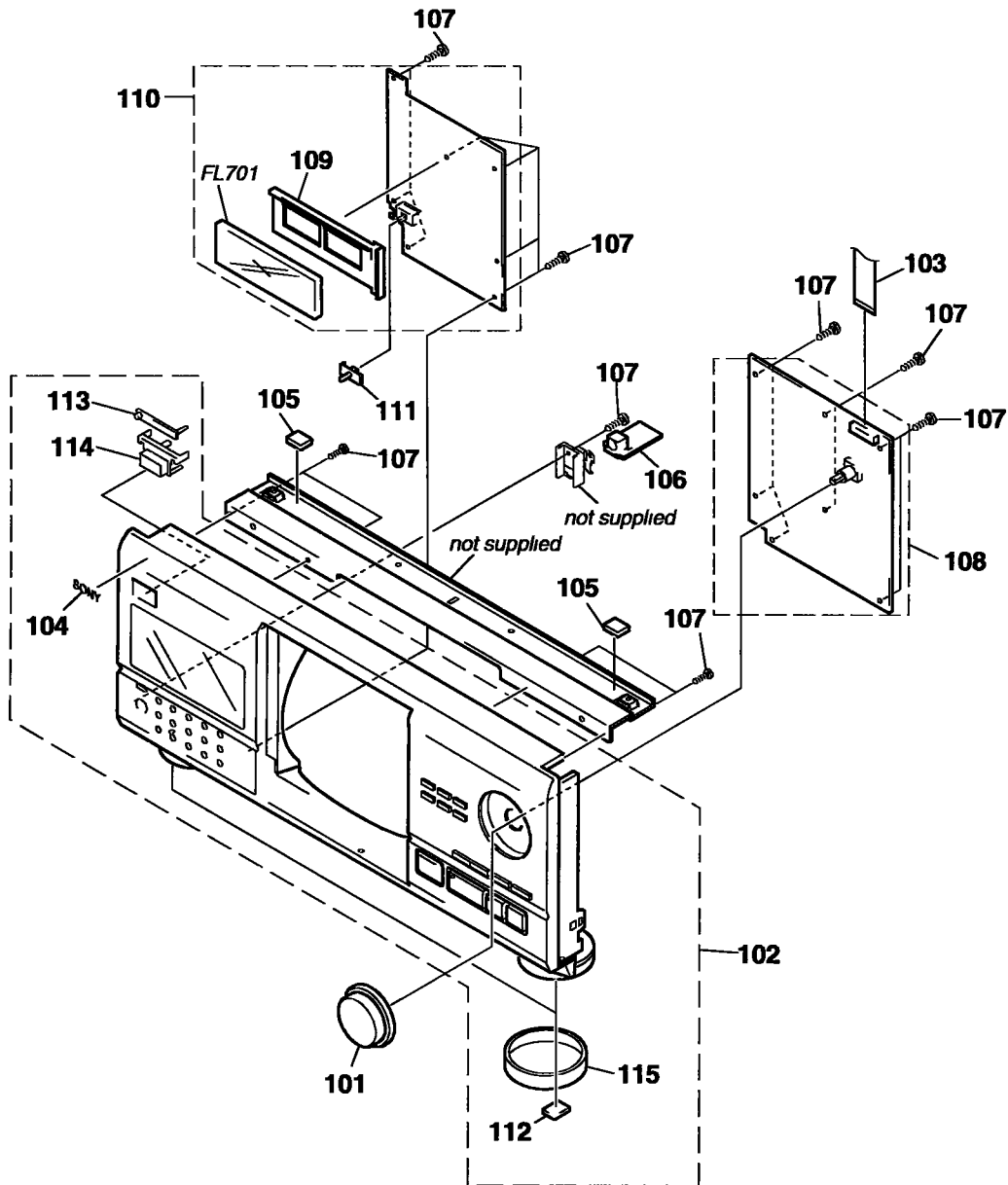
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	3-710-901-11	SCREW, TAPPING		* 7	4-982-807-01	COVER (FFC)	
* 2	4-982-946-11	CASE		* 8	4-962-200-11	PLATE (TR), GROUND	
3	1-773-183-11	WIRE (FLAT TYPE) (23 CORE)		* 9	3-703-244-00	BUSHING (2104), CORD	
* 4	A-4724-052-A	MAIN BOARD, COMPLETE (US,CND)		$\Delta$ 10	1-575-042-21	CORD, POWER (US,CND)	
* 4	A-4724-054-A	MAIN BOARD, COMPLETE (AEP,UK)		$\Delta$ 10	1-575-651-21	CORD, POWER (AEP)	
* 5	1-669-164-11	JACK BOARD, COMPLETE		$\Delta$ 10	1-751-529-11	CORD, POWER (UK)	
* 6	4-999-021-01	PANEL, BACK (US)		11	4-886-821-11	SCREW, S TIGHT, +PTTWH 3X6	
* 6	4-999-021-11	PANEL, BACK (CND)		$\Delta$ T901	1-431-759-11	TRANSFORMER, POWER (US,CND)	
* 6	4-999-021-21	PANEL, BACK (AEP)		$\Delta$ T901	1-431-760-11	TRANSFORMER, POWER (AEP,UK)	
* 6	4-999-021-31	PANEL, BACK (UK)					

## 7-2. DISC TABLE SECTION



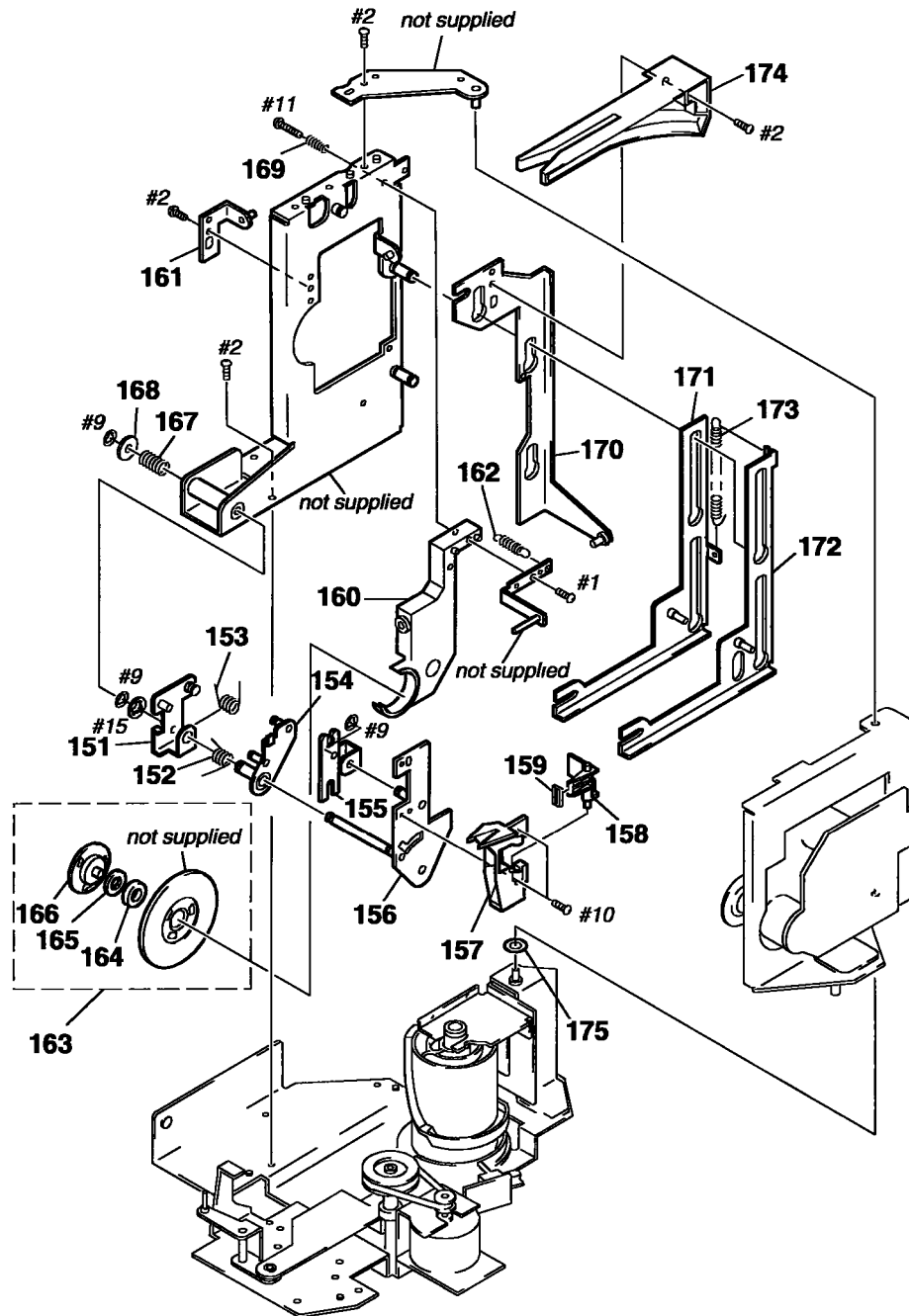
Ref. No	Part No	Description	Remark	Ref. No	Part No	Description	Remark
* 51	1-661-466-11	T.MOTOR BOARD		* 74	3-378-434-01	CUSHION, SARANET	
52	X-4947-230-1	BRACKET (TABLE) ASSY		75	4-985-553-11	CUSHION	
53	X-4947-607-1	GEAR (PULLEY) ASSY		76	4-982-862-01	GUIDE (DISC T)	
54	3-325-697-21	WASHER		77	3-703-397-01	STOPPER, WIRING	
55	4-962-822-01	BELT (TIMING)		78	4-982-870-01	SHAFT (GUIDE FULCRUM)	
56	4-982-893-01	GEAR (CENTER 2)		* 79	4-985-300-01	HOLDER (P-T)	
57	4-982-891-01	GEAR (TABLE)		* 80	4-976-473-01	HOLDER (LED-S)	
58	4-982-892-01	SHAFT (CENTER)		81	X-4947-606-1	HOLDER (ROLLER 2) ASSY	
* 59	1-661-468-11	D SENS (LUMINOUS) BOARD		82	4-985-574-01	SPACER (ROLLER)	
* 60	1-661-469-11	D.SENS (RAY CATCHER) BOARD		83	4-053-543-01	RIVET, NYLON	
* 61	1-661-470-11	T SENS BOARD		84	X-4949-616-1	DOOR (CD) ASSY	
62	3-356-601-11	SCREW, STEP		85	4-998-507-01	GUIDE (DOOR B)	
63	3-701-446-21	WASHER, 8		* 86	1-669-168-11	DOOR SW BOARD	
64	X-4947-229-1	HOLDER (ROLLER) ASSY		87	4-998-510-01	GEAR (PULLEY)	
65	4-931-169-01	FOOT		88	4-210-030-01	BELT (DIA 42X1)	
66	4-983-279-01	CUSHION (RF)		* 89	1-669-167-11	DOOR MOTOR BOARD	
67	4-998-506-01	GUIDE (DOOR T)		90	4-998-509-01	GEAR (DOOR CENTER)	
68	4-999-182-01	ILLUMINATOR		91	4-998-508-01	GEAR (DOOR)	
* 69	1-669-166-11	ILLUMINATION BOARD		* 92	X-4949-615-1	BRACKET (GEAR) ASSY	
70	X-4947-231-1	TABLE (200) ASSY		93	4-951-620-01	SCREW (2.6X8), +BVTP	
71	4-976-471-01	BEARING (TABLE)		M801	A-4604-847-A	MOTOR ASSY (TABLE)	
* 72	4-982-803-01	RING (B)		M810	X-4950-062-1	MOTOR ASSY, DOOR	
* 73	4-982-802-01	RING (A)					

### 7-3. FRONT PANEL SECTION



Ref. No	Part No	Description	Remark	Ref. No	Part No	Description	Remark
101	4-998-523-01	KNOB (JOG)		* 110	A-4724-056-A	DISP BOARD, COMPLETE (AEP,UK)	
102	X-4949-664-1	PANEL ASSY, FRONT (US,CND)		* 110	A-4724-061-A	DISP BOARD, COMPLETE (US,CND)	
102	X-4949-665-1	PANEL ASSY, FRONT (AEP,UK)		111	3-917-216-21	KNOB (TIMER)	
103	1-783-365-11	WIRE (FLAT TYPE) (17 CORE)		112	4-977-358-11	CUSHION	
104	4-996-698-01	EMBLEM, SONY		113	4-996-682-11	INDICATOR	
105	4-985-553-21	CUSHION		114	4-996-683-21	BUTTON (POWER)	
* 106	1-669-165-11	KEY BOARD BOARD		115	4-977-593-11	RING (DIA 50), ORNAMENTAL	
107	4-951-620-01	SCREW (2.6X8), +BVTP		FL701	1-517-756-11	INDICATOR TUBE, FLUORESCENT	
* 108	1-669-161-11	JOG BOARD					
* 109	4-982-811-01	HOLDER (FL)					

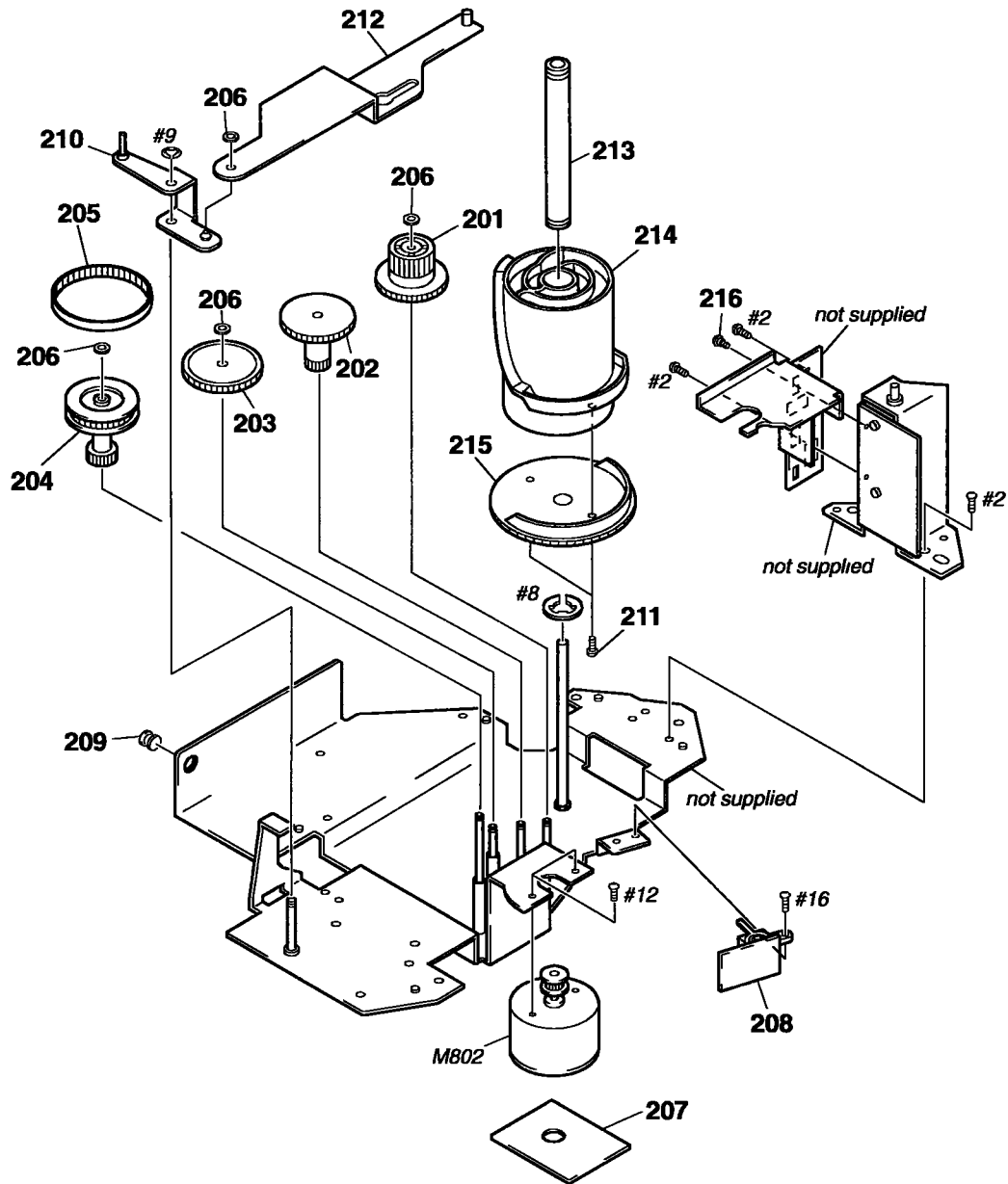
### 7-4. MECHANISM SECTION-1 (CDM-40B)



Ref. No.	Part No.	Description	Remark	Ref No.	Part No.	Description	Remark
151	X-4947-241-1	LEVER (C) ASSY		163	A-4672-092-A	MAGNET ASSY	
152	4-982-882-01	SPRING (LIMITTER), TORSION		164	3-366-559-02	MAGNET (CHUCK)	
153	4-982-881-01	SPRING (HOLDER), TORSION		165	4-960-633-01	YOKE (MAGNET)	
154	X-4947-239-1	LIMITTER (A) ASSY		166	4-960-632-11	PULLEY (B)	
155	4-982-853-01	LEVER (B)		167	4-983-319-01	SPRING (THRUST), COMPRESSION	
156	X-4947-240-1	LEVER (A) ASSY		* 168	4-976-456-01	WASHER (STOPPER)	
157	4-988-143-01	HOLDER (DISC A2)		169	3-938-588-01	SPRING, COMPRESSION	
158	4-982-855-01	HOLDER (DISC B)		170	X-4947-242-1	SLIDER (C) ASSY	
159	4-982-856-01	PAD		171	X-4947-238-1	SLIDER (B) ASSY	
160	4-976-458-01	HOLDER (MAGNET)		172	X-4947-237-1	SLIDER (A) ASSY	
161	X-4946-326-1	HOLDER (CLAMP) ASSY		173	4-982-880-01	SPRING (SLIDER A), TENSION	
162	4-983-777-01	SPRING (MG), TENSION		* 174	4-982-863-01	GUIDE (DISC P)	
				175	3-701-441-21	WASHER	

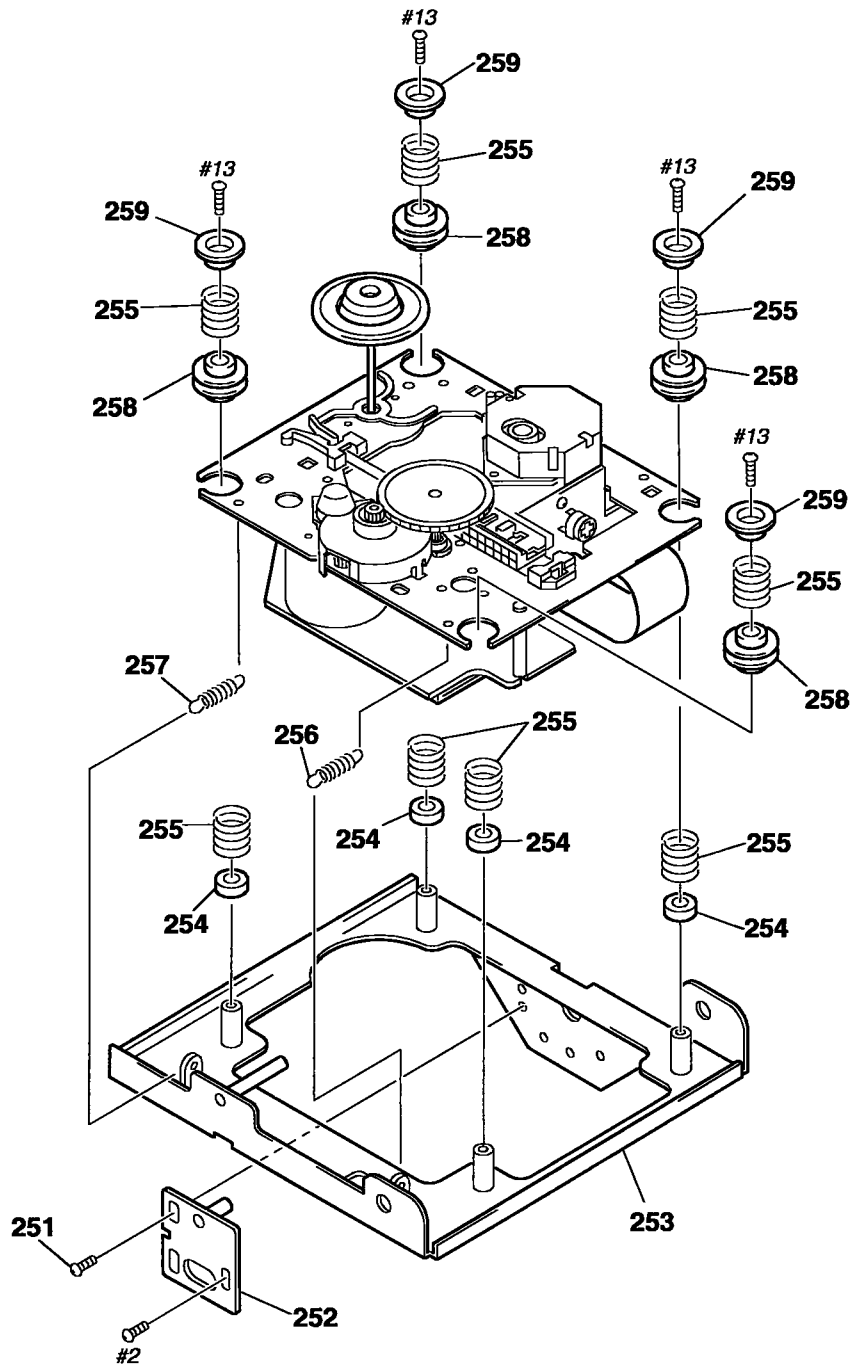


### 7-5. MECHANISM SECTION-2 (CDM-40B)



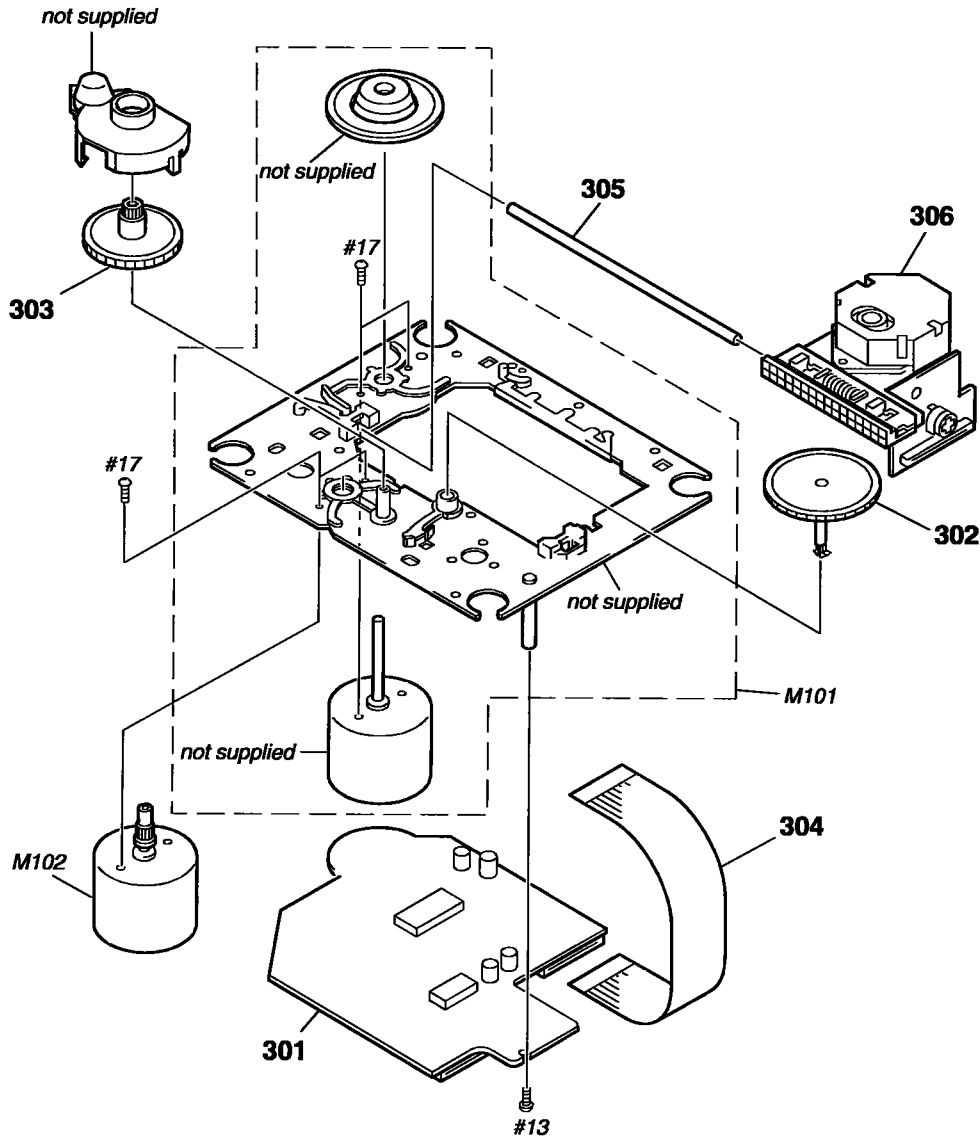
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
201	4-976-465-01	GEAR (LOADING 1)		210	X-4947-227-1	LEVER (STOPPER) ASSY	
202	4-976-466-01	GEAR (LOADING 2)		211	4-951-291-01	SCREW	
203	4-982-893-01	GEAR (CENTER 2)		212	X-4947-234-1	SLIDER (LOCK) ASSY	
204	X-4947-607-1	GEAR (PULLEY) ASSY		213	4-982-857-01	BEARING (CAM)	
205	4-982-867-01	BELT (TIMING)		214	4-982-860-01	CAM (A)	
206	3-325-697-21	WASHER		215	4-982-861-01	CAM (B)	
* 207	1-661-465-11	L MOTOR BOARD		216	3-356-601-11	SCREW, STEP	
* 208	1-661-467-11	L.SW BOARD		M802	A-4604-847-A	MOTOR ASSY (LOADING)	
209	3-489-073-00	SCREW, THRUST					

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



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

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



<p>The components identified by mark <math>\Delta</math> or dotted line with mark <math>\Delta</math> are critical for safety. Replace only with part number specified</p>	<p>Les composants identifiés par une marque <math>\Delta</math> sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
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<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
* 301	A-4724-029-A	BD BOARD, COMPLETE		$\Delta$ 306	8-848-376-01	OPTICAL PICK-UP BLOCK KSS-213B/S-N	
302	2-626-907-01	GEAR (A)(S)		M101	X-2626-234-1	T.T CHASSIS ASSY (MG)(K)(SPINDLE)	
303	2-627-003-01	GEAR (B)(RP)		M102	X-2625-769-1	MOTOR GEAR ASSY (MB)(RP)(SLED)	
304	1-769-069-11	WIRE (FLAT TYPE)(16 CORE)					
305	2-626-908-01	SHAFT, SLED					

## SECTION 8 ELECTRICAL PARTS LIST

BD

**Note:**

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

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité

Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board 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:  $\mu$ , for example:  
uA:  $\mu$  A., uPA:  $\mu$  PA., uPB:  $\mu$  PB.,  
uPC:  $\mu$  PC..., uPD:  $\mu$  PD.
- CAPACITORS  
uF:  $\mu$  F
- COILS  
uH:  $\mu$  H
- Abbreviation  
CND: Canadian model

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

<b>BD</b>	<b>D.SENS (LUMINOUS)</b>	<b>D.SENS (RAY CATCHER)</b>	<b>DISP</b>
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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-4724-056-A	DISP BOARD, COMPLETE (AEP,UK)	*****
*	A-4724-061-A	DISP BOARD, COMPLETE (US,CND)	*****
*	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

Ref No	Part No	Description	Remark
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 (L/⊕)	
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 M66310PF	
< 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

<b>DISP</b>	<b>DOOR MOTOR</b>	<b>DOOR SW</b>	<b>ILLUMINATION</b>	<b>JACK</b>
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Ref No	Part No	Description	Remark
R729	1-249-437-11	CARBON 47K 5%	1/4W
R732	1-249-415-11	CARBON 680 5%	1/4W F
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/O)	
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)	

\*\*\*\*\*

*	1-669-166-11	ILLUMINATION BOARD *****	
< CONNECTOR >			
CN813	1-506-481-11	PIN, CONNECTOR 2P	

Ref No	Part No	Description	Remark
< 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
C905	1-124-689-11	ELECT 1000uF	20% 16V
C906	1-126-012-11	ELECT 470uF	20% 16V
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
C921	1-164-159-11	CERAMIC 0 1uF	50V

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< 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	
D902	8-719-024-99	DIODE 11ES2-NTA2B	
D903	8-719-024-99	DIODE 11ES2-NTA2B	

\*\*\*\*\*

< IC >			
IC901	8-749-921-12	IC GP1F32T (DIGITAL OUT OPTICAL)	
IC902	8-759-332-39	IC TA7806S	

< 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)	
J905	1-770-443-11	JACK, DC (POLARITY UNIFIED TYPE)(DC OUT 6V)	

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< COIL >			
△ L901	1-421-915-11	COIL, LINE FILTER (AEP,UK)	
L902	1-410-503-11	INDUCTOR 3.3uH	

< TRANSISTOR >			
Q901	8-729-620-05	TRANSISTOR 2SC2603-EF	

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

Ref. No.	Part No.	Description	Remark
< 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
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)	
*****			
*	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)	

Ref. No.	Part No.	Description	Remark
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)	
*****			
*	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	
*****			
*	1-661-465-11	L MOTOR BOARD *****	
< MOTOR >			
M802	A-4604-847-A	MOTOR ASSY, LOADING (LOADING)	
*****			
*	1-661-467-11	L SW BOARD *****	
< SWITCH >			
S801	1-571-300-21	SWITCH, ROTARY (LOADING DET)	
*****			

Ref No	Part No	Description	Remark
*	A-4724-052-A	MAIN BOARD, COMPLETE (US,CND) *****	
*	A-4724-054-A	MAIN BOARD, COMPLETE (AEP,UK) *****	
*	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
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 (US,CND)
C502	1-126-027-11	ELECT	1000uF 20% 25V (AEP,UK)
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
C549	1-164-159-11	CERAMIC	0 1uF 50V (AEP,UK)
C550	1-164-159-11	CERAMIC	0.1uF 50V (AEP,UK)
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

Ref No	Part No	Description	Remark
< 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	
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	



**MAIN**

Ref No.	Part No	Description	Remark	Ref No	Part No	Description	Remark
Q426	8-729-900-65	TRANSISTOR DTA144ES		R501	1-249-435-11	CARBON 33K 5%	1/4W
Q501	8-729-140-97	TRANSISTOR 2SB734-34		R502	1-249-425-11	CARBON 4.7K 5%	1/4W F
Q503	8-729-119-76	TRANSISTOR 2SA1175-HFE		R505	1-249-413-11	CARBON 470 5%	1/4W F
Q511	8-729-900-80	TRANSISTOR DTC114ES		R506	1-249-429-11	CARBON 10K 5%	1/4W
Q512	8-729-900-80	TRANSISTOR DTC114ES		R507	1-249-425-11	CARBON 4.7K 5%	1/4W F
Q521	8-729-030-08	TRANSISTOR DTC144VSA		R508	1-249-413-11	CARBON 470 5%	1/4W F
< RESISTOR >							
R301	1-215-453-00	METAL 22K 1%	1/4W	R511	1-249-425-11	CARBON 4 7K 5%	1/4W F
R302	1-215-425-00	METAL 1.5K 1%	1/4W	R512	1-249-425-11	CARBON 4 7K 5%	1/4W F
R303	1-215-425-00	METAL 1 5K 1%	1/4W	R521	1-249-429-11	CARBON 10K 5%	1/4W
R304	1-215-445-00	METAL 10K 1%	1/4W	R522	1-249-403-11	CARBON 68 5%	1/4W F
R305	1-215-443-00	METAL 8 2K 1%	1/4W	R523	1-249-403-11	CARBON 68 5%	1/4W F
R306	1-215-485-00	METAL 470K 1%	1/4W	R524	1-249-429-11	CARBON 10K 5%	1/4W
R307	1-215-427-00	METAL 1.8K 1%	1/4W	R531	1-249-429-11	CARBON 10K 5%	1/4W
R308	1-215-443-00	METAL 8 2K 1%	1/4W	R532	1-249-429-11	CARBON 10K 5%	1/4W
R309	1-215-416-00	METAL 620 1%	1/4W	R533	1-249-429-11	CARBON 10K 5%	1/4W
R310	1-215-445-00	METAL 10K 1%	1/4W	R534	1-249-421-11	CARBON 2.2K 5%	1/4W F
R311	1-215-445-00	METAL 10K 1%	1/4W	R535	1-247-843-11	CARBON 3 3K 5%	1/4W
R312	1-215-445-00	METAL 10K 1%	1/4W	R536	1-249-425-11	CARBON 4.7K 5%	1/4W F
R313	1-215-477-00	METAL 220K 1%	1/4W	R537	1-249-429-11	CARBON 10K 5%	1/4W
R314	1-215-405-00	METAL 220 1%	1/4W	R538	1-249-429-11	CARBON 10K 5%	1/4W
R315	1-215-405-00	METAL 220 1%	1/4W	R539	1-249-429-11	CARBON 10K 5%	1/4W
R316	1-249-393-11	CARBON 10 5%	1/4W F	R540	1-249-429-11	CARBON 10K 5%	1/4W
R317	1-215-443-00	METAL 8.2K 1%	1/4W	R541	1-249-429-11	CARBON 10K 5%	1/4W
R321	1-249-421-11	CARBON 2.2K 5%	1/4W F	R542	1-249-429-11	CARBON 10K 5%	1/4W
R322	1-249-421-11	CARBON 2 2K 5%	1/4W F	R543	1-249-429-11	CARBON 10K 5%	1/4W
R323	1-249-421-11	CARBON 2 2K 5%	1/4W F	R544	1-249-429-11	CARBON 10K 5%	1/4W
R324	1-249-421-11	CARBON 2.2K 5%	1/4W F	R551	1-247-887-00	CARBON 220K 5%	1/4W
R325	1-249-441-11	CARBON 100K 5%	1/4W	R552	1-247-887-00	CARBON 220K 5%	1/4W
R326	1-249-441-11	CARBON 100K 5%	1/4W	R553	1-247-860-11	CARBON 16K 5%	1/4W
R327	1-249-441-11	CARBON 100K 5%	1/4W	R554	1-249-431-11	CARBON 15K 5%	1/4W
R328	1-249-441-11	CARBON 100K 5%	1/4W	R555	1-249-382-11	CARBON 1.2 5%	1/6W F
R329	1-249-441-11	CARBON 100K 5%	1/4W	R556	1-249-382-11	CARBON 1 2 5%	1/6W F
R401	1-215-453-00	METAL 22K 1%	1/4W	R557	1-247-883-00	CARBON 150K 5%	1/4W
R402	1-215-425-00	METAL 1.5K 1%	1/4W	R558	1-249-393-11	CARBON 10 5%	1/4W F
R403	1-215-425-00	METAL 1 5K 1%	1/4W	R561	1-249-441-11	CARBON 100K 5%	1/4W
R404	1-215-445-00	METAL 10K 1%	1/4W	R562	1-249-441-11	CARBON 100K 5%	1/4W
R405	1-215-443-00	METAL 8 2K 1%	1/4W	R563	1-247-860-11	CARBON 16K 5%	1/4W
R406	1-215-485-00	METAL 470K 1%	1/4W	R564	1-249-431-11	CARBON 15K 5%	1/4W
R407	1-215-427-00	METAL 1.8K 1%	1/4W	R565	1-249-382-11	CARBON 1.2 5%	1/6W F
R408	1-215-443-00	METAL 8 2K 1%	1/4W	R566	1-249-382-11	CARBON 1 2 5%	1/6W F
R409	1-215-416-00	METAL 620 1%	1/4W	R567	1-247-883-00	CARBON 150K 5%	1/4W
R410	1-215-445-00	METAL 10K 1%	1/4W	R568	1-249-393-11	CARBON 10 5%	1/4W F
R411	1-215-445-00	METAL 10K 1%	1/4W	R571	1-247-885-00	CARBON 180K 5%	1/4W
R412	1-215-445-00	METAL 10K 1%	1/4W	R572	1-247-885-00	CARBON 180K 5%	1/4W
R413	1-215-477-00	METAL 220K 1%	1/4W	R573	1-247-860-11	CARBON 16K 5%	1/4W
R414	1-215-405-00	METAL 220 1%	1/4W	R574	1-249-431-11	CARBON 15K 5%	1/4W
R415	1-215-405-00	METAL 220 1%	1/4W	R575	1-249-382-11	CARBON 1.2 5%	1/6W F
R416	1-249-393-11	CARBON 10 5%	1/4W F	R576	1-249-382-11	CARBON 1 2 5%	1/6W F
R417	1-215-443-00	METAL 8.2K 1%	1/4W	R577	1-247-883-00	CARBON 150K 5%	1/4W
R421	1-249-421-11	CARBON 2 2K 5%	1/4W F	R578	1-249-393-11	CARBON 10 5%	1/4W F
R422	1-249-421-11	CARBON 2.2K 5%	1/4W F	R610	1-249-427-11	CARBON 6.8K 5%	1/4W F
R423	1-249-421-11	CARBON 2.2K 5%	1/4W F	R620	1-249-427-11	CARBON 6.8K 5%	1/4W F
R424	1-249-421-11	CARBON 2 2K 5%	1/4W F	R720	1-249-427-11	CARBON 6 8K 5%	1/4W F
R425	1-249-441-11	CARBON 100K 5%	1/4W	R730	1-249-427-11	CARBON 6.8K 5%	1/4W F
R426	1-249-441-11	CARBON 100K 5%	1/4W				

Ref No	Part No	Description	Remark
		< 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)	
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 (US,CND)	
△ 10	1-575-651-21	CORD, POWER (AEP)	
△ 10	1-751-529-11	CORD, POWER (UK)	
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	TT 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 (US,CND)	
△ T901	1-431-760-11	TRANSFORMER, POWER (AEP,UK)	
*****			

Ref No	Part No	Description	Remark
		ACCESSORIES & PACKING MATERIALS *****	
	1-475-789-11	REMOTE COMMANDER (RM-LJ301)	
	1-475-790-11	RECEIVE UNIT	
	1-558-271-11	CORD, CONNECTION (AUDIO, 108cm)	
	1-777-172-11	CORD, CONNECTION (CONTROL A1, 1m)	
	1-783-640-11	CORD, CONNECTION DC (POWER)	
	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, AEP,UK)	
	3-862-564-11	MANUAL, INSTRUCTION (ENGLISH)(US,UK)	
	3-862-564-21	MANUAL, INSTRUCTION (ENGLISH,FRENCH,SPANISH)(CND,AEP)	
	3-862-564-31	MANUAL, INSTRUCTION (GERMAN,PORTUGUESE)(AEP)	
	3-862-564-41	MANUAL, INSTRUCTION (DUTCH,SWEDISH,ITALIAN)(AEP)	
	4-210-990-01	LID (RM-LJ301), BATTERY CASE	
	4-212-262-01	COVER (FRONT)(FOR RM-LJ301)	
	4-984-086-01	BOOKLET (100)	
*****			
		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 pièce portant le numéro spécifié
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