


# CDP-SP55

## SERVICE MANUAL

*AEP Model*  
*UK Model*  
*E Model*



CDP-SP55 is the CD section in CMT-SP55MD or CMT-SP55TC.

This stereo system is equipped with the Dolby\* B-type noise reduction system.  
\* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.  
"DOLBY" and the double-D symbol  are trademarks of the Dolby Laboratories Licensing Corporation.

Model Name Using Similar Mechanism	NEW
CD Mechanism Type	CDM55C-K6BD38
Base Unit Type	BU-K6BD38
Optical Pick-up Type	KSM-213DCP/Z-NP

### SPECIFICATIONS

System	Compact disc and digital audio system
Laser	Semiconductor laser ( $\lambda=780$ nm) Emission duration: continuous
Laser output	Max. 44.6 $\mu$ 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.
Frequency response	20 Hz – 20 kHz
Output	DIGITAL OPTICAL OUT: Optical

#### General

Dimensions (w/h/d)	Approx. 202 × 75 × 290 mm
Mass	Approx. 1.5 kg

Design and specifications are subject to change without notice.

MINI Hi-Fi COMPONENT SYSTEM

**SONY**<sup>®</sup>

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

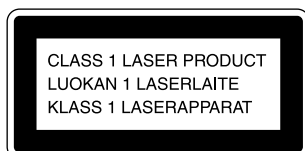
The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body. During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter 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.

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.

### CAUTION

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

### Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

### Flexible Circuit Board Repairing

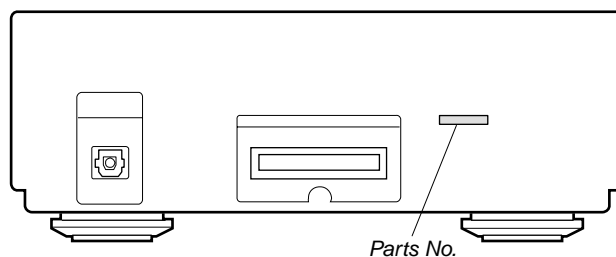
- Keep the temperature of soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

## SAFETY-RELATED COMPONENT WARNING!!

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

## MODEL IDENTIFICATION

— BACK PANEL —



MODEL	PARTS No.
AEP,UK,AED models	4-229-674-0□
HK,MY,SP models	4-229-674-2□
KR model	4-229-674-3□

- Abbreviation
  - AED : North European model
  - HK : Hong Kong model
  - MY : Malaysia model
  - SP : Singapore model
  - KR : Korea model

# SECTION 1

## SERVICING NOTE

This unit cannot be repaired by itself.

When repairing, connect the whole system except for the speaker.

### CD Text Display

- This unit displays CD text.



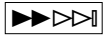
Text is displayed for the first 50 track only and will not be displayed from the 51st track onwards. Do not suspect a fault in this case.

In some cases, some special characters will not be displayed and may be replaced by other characters. Do not suspect a fault in this case.

### Cold Reset

- The cold reset clears all data including preset data stored in the RAM to initial conditions. Execute this mode when returning the set to the customer.




#### Procedure :

1. When the power ON, press the  button (TA) while pressing the  button (ST) and  buttons (CDP) together.
2. "COLD RESET" is displayed on the fluorescent indicator tube and reset is executed.

### Hot Reset




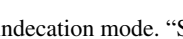



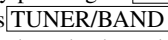
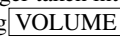
- This mode reset the preset data kept in the memory. The hot reset mode functions same as if the power cord is plugged in and out.

#### Procedure :

1. When the power ON, press the  button (TA) while pressing the  button (ST) and  buttons (CDP) together.
2. Turn off the unit and reset is executed.

### GC Test Mode

#### Procedure :

1. When the power ON, press the  button (TA) while pressing the  button (ST) and  buttons (CDP) together.
2. Fluorescent indicator tube are all turned on.
3. Press  button (ST) to enter the model destination indication mode. "SP55 CE2" appears.
4. Every pressing of  button (ST) changes the display in the following order.  
MC Version → CD Version → ST Version → TC Version → TA Version → TM Version → model destination display.
5. Press  button (ST) and the date appears as "00615a"  
Every pressing of  button (ST) changes the display in the Version display and model destination display.
6. Press  button (ST) to enter the key check mode.
7. In the key check mode, the fluorescent indicator tube displays "Key 0 Vol 0". Each time a button is pressed, "Key" value increases. However, once a button is pressed, it is no longer taken into account.  
"Vol" Value increases like "1, 2, 3 ..." if rotating  knob (TA) in the clockwise direction, or decreases like "0, 9, 8 ..." if rotating in the counterclockwise direction.
8. To exit from this mode, press three buttons in the same procedure as step 1, or disconnect the power cord.

## Aging Mode

- Mode for repeating operations of the CD player and TC deck automatically.

### When errors occur:

Aging stops and a message indicating that an error has occurred such as “CD MEC ERR” is displayed.  
(For details of errors, refer to “Error History Display Mode”.)

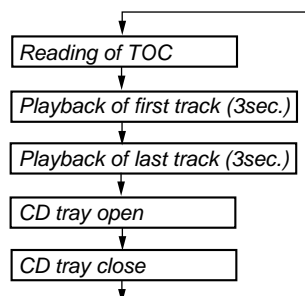
### When no errors occur:

Aging is repeatedly performed.

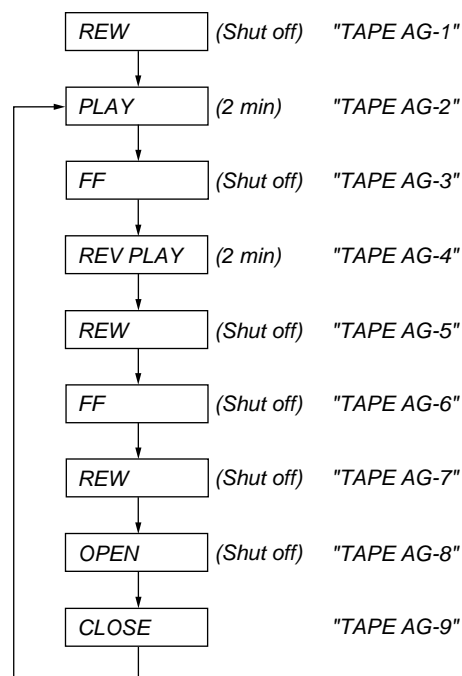
### Procedure:

1. Load any CD and a tape.
2. Select the function “CD ” using the **FUNCTION** knob (TA).
3. While pressing the **TUNING MODE** button (ST) and **▶▶▶▶▶** button (CDP), press the **I/⏻** button (TA).
4. “AGING” is displayed on the fluorescent display tube briefly.
5. Operations are performed in the following sequence during aging.  
Every pressing of **DISPLAY** button (ST) changes the display in the CD display and TAPE display.

#### CD :



#### Cassette :



6. To end aging, execute the cold reset.

## Error History Display Mode

Mode for checking the history of errors which have occurred in the CD player.  
Execute this mode after ending the aging mode.

### Procedure:

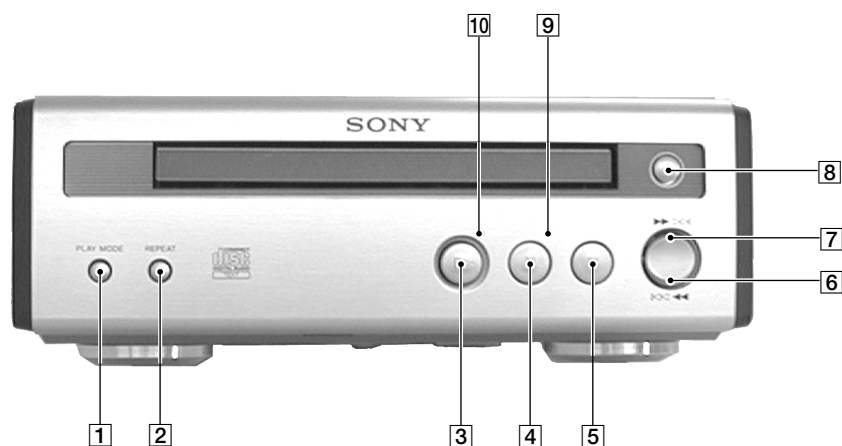
1. Select the function “CD ” using the **FUNCTION** knob (TA).
2. While pressing the **TUNING MODE** button (ST) and **□□** button (CDP), press the **I/⏻** button (TA).
3. “EMC@@EDC\*\*” id displayed.  
@@ : Number of mechanism errors (Last 3 errors)  
\*\* : Number of errors (NO DISC ERROR) which occurred after chucking (Last 3 errors)
4. To end, press the **I/⏻** button (TA) and turn OFF the power.

**Note:** To erase the error history, perform cold reset.

(While pressing the **TUNING MODE** button (ST) and **▶▶▶▶▶** button (CDP), press the **I/⏻** button (TA).)

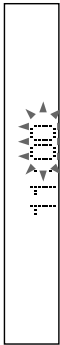
# SECTION 2 GENERAL

This section is extracted from instruction manual.



- |                                                                                                         |                                                                                                          |
|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| <p>1 PLAY MODE button</p> <p>2 REPEAT button</p> <p>3 ▷ button</p> <p>4 □□ button</p> <p>5 □ button</p> | <p>6 ◀◀▶▶ button</p> <p>7 ▶▶▶▶▶ button</p> <p>8 ⏏ button</p> <p>9 □□ indicator</p> <p>10 ▷ indicator</p> |
|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|

**2** Press ◀◀ or ▶▶ to set the hour, then press ENTER/YES.  
The minute indication flashes.



**3** Press ◀◀ or ▶▶ to set the minute, then press ENTER/YES.  
The clock starts.

## If you made a mistake

Start over from step 1.

## To change the preset time

You can change the preset time while the system is on.

- 1 Press CLOCK/TIMER SET.
- 2 Press ◀◀ or ▶▶ repeatedly until "SET CLOCK" appears, then press ENTER/YES.
- 3 Repeat steps 2 and 3.

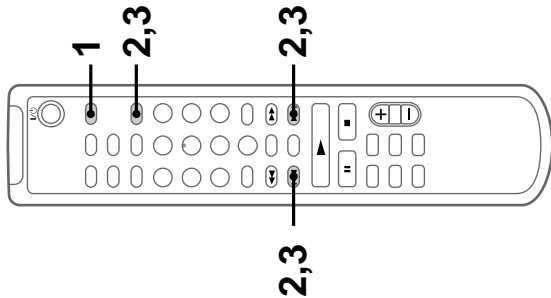
## Tips

- The built-in clock shows the time in the display while the system is off. If you press DISPLAY at this time, the display back light lights up, making the clock easier to see.
- The upper dot of the colon flashes for the first 30 seconds, and the lower dot flashes for the last 30 seconds of each minute.

## Step 2: Setting the time

You must set the time beforehand to use the timer functions.  
The clock is on a 24-hour system for the European model, and a 12-hour system for other models.  
The 24-hour system is used for illustration purposes.

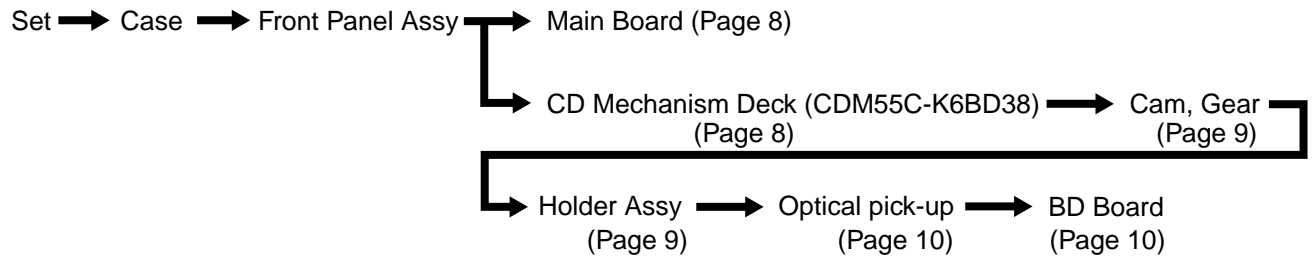
Set the time before turning on the system.



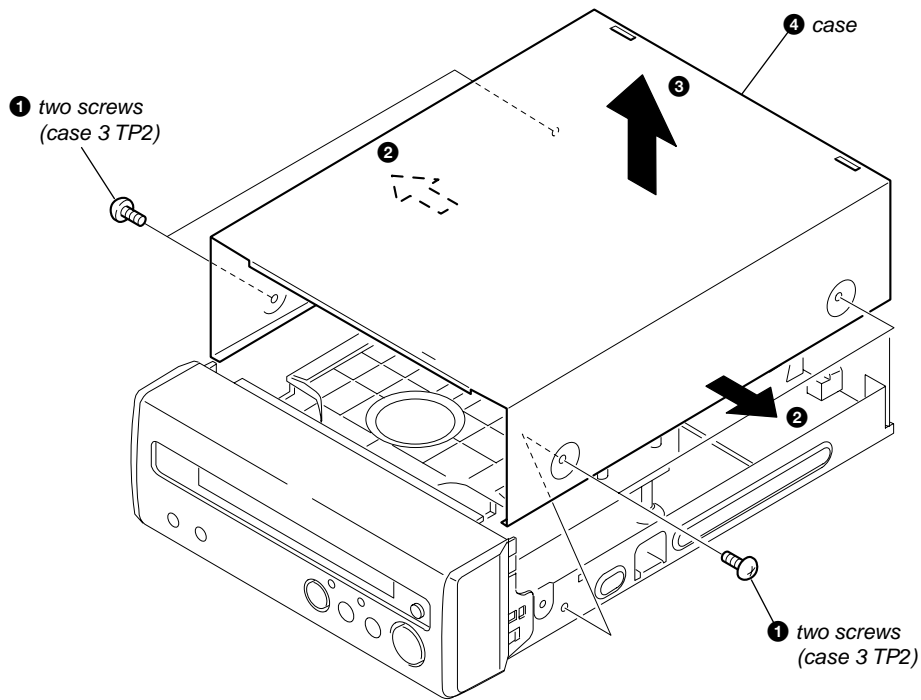
**1** Press CLOCK/TIMER SET while the system is off.  
The hour indication flashes.



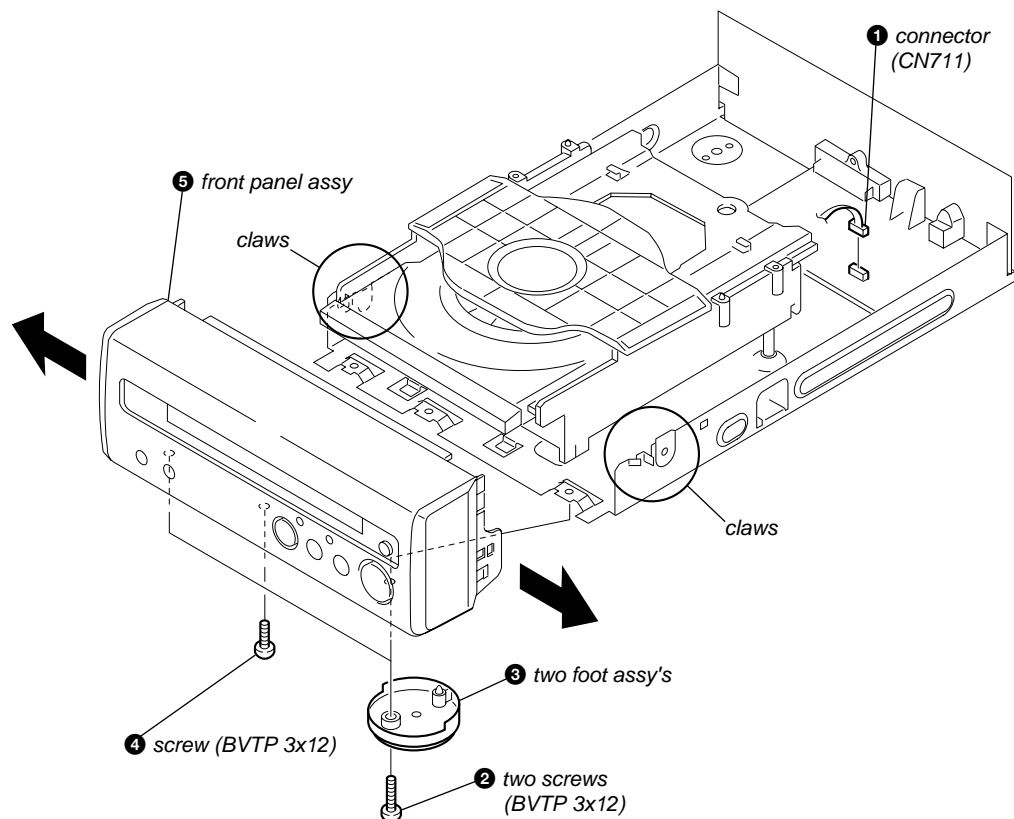
## SECTION 3 DISASSEMBLY



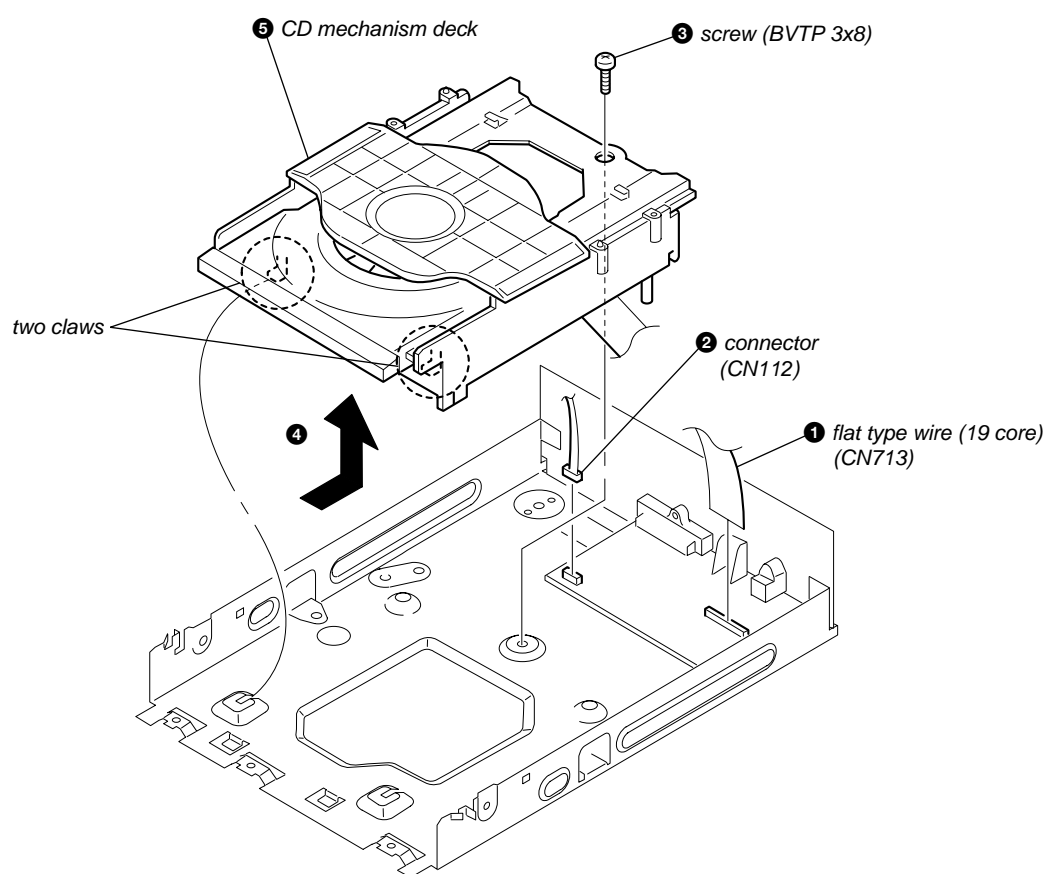
### 3-1. CASE



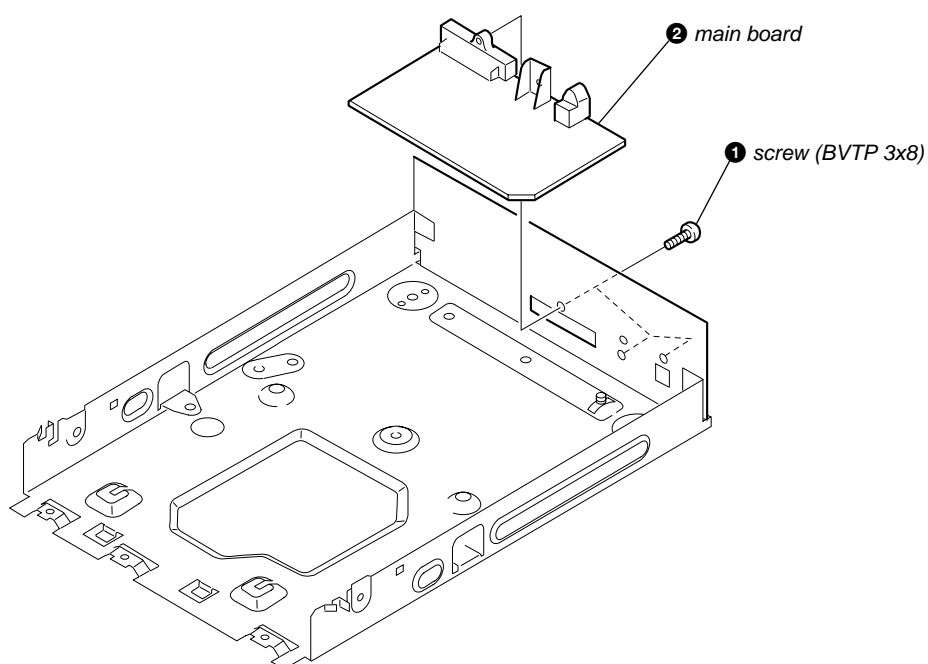
### 3-2. FRONT PANEL ASSY



### 3-3. CD MECHANISM DECK (CDM55C-K6BD38)

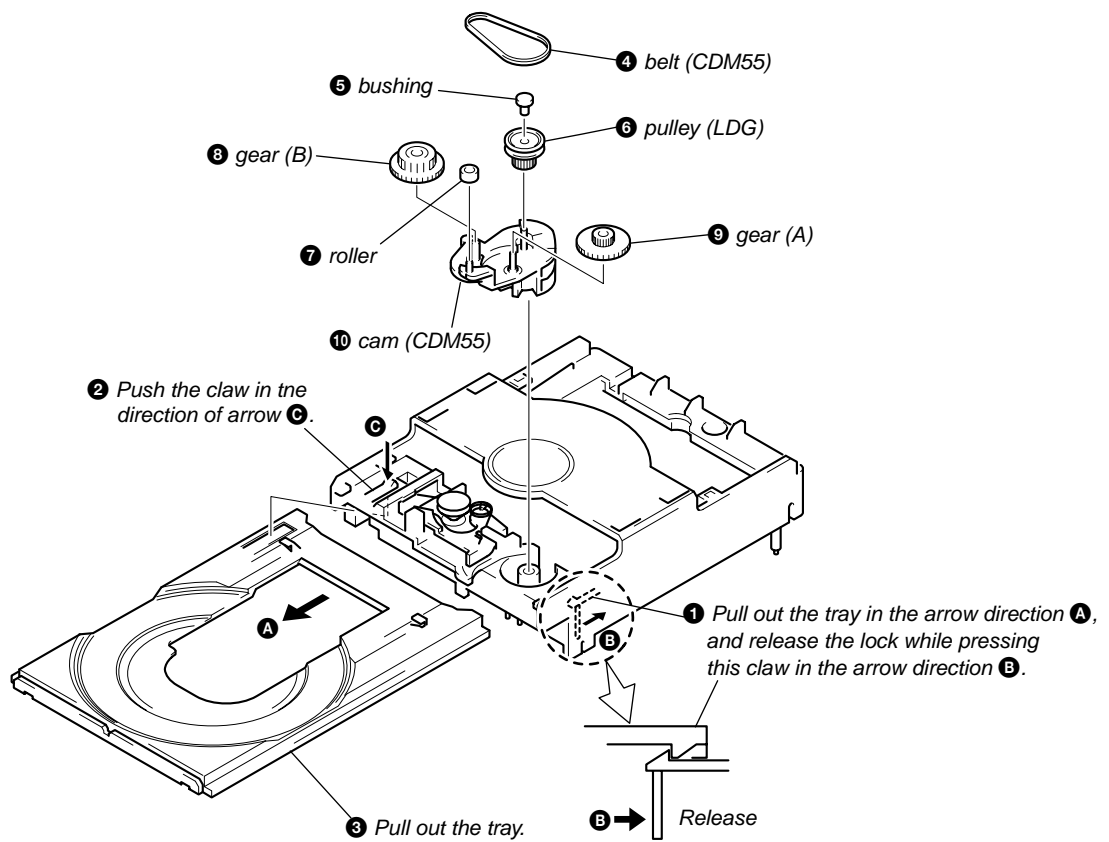


### 3-4. MAIN BOARD

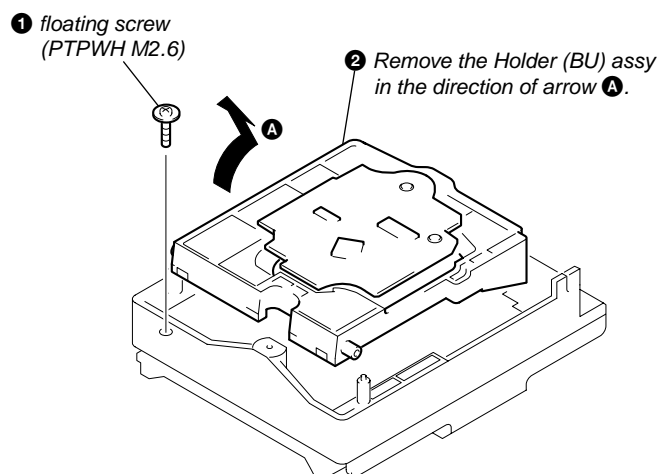




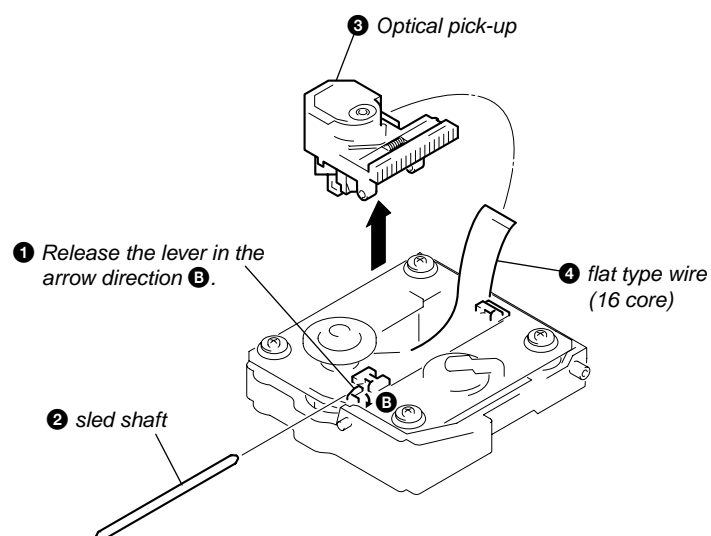
### 3-5. CAM, GEAR



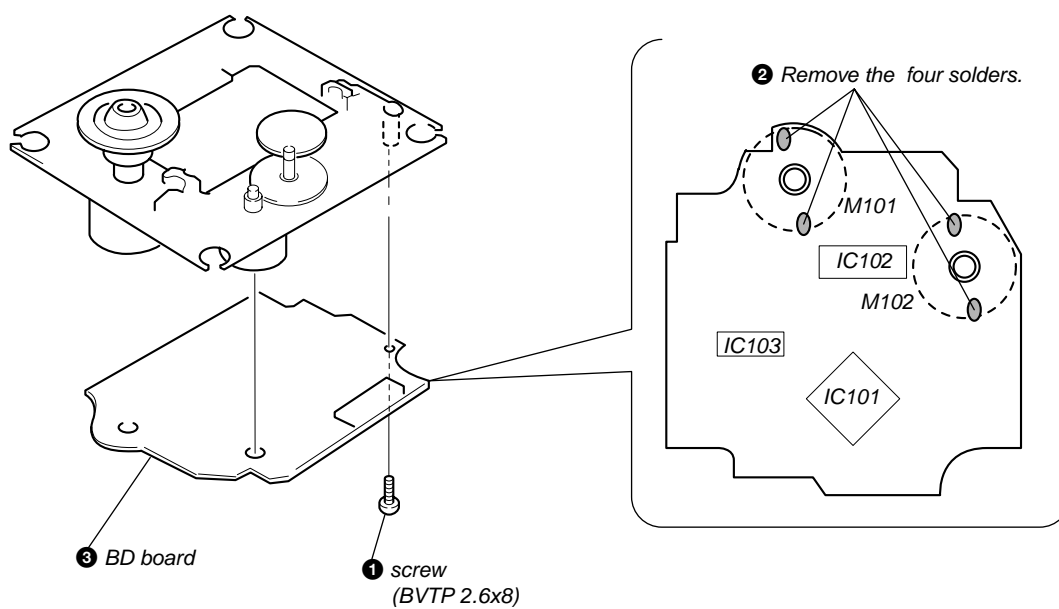
### 3-6. HOLDER ASSY



### 3-7. OPTICAL PICK-UP



### 3-8. BD BOARD

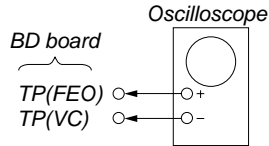


## SECTION 4 ELECTRICAL ADJUSTMENT

Note :

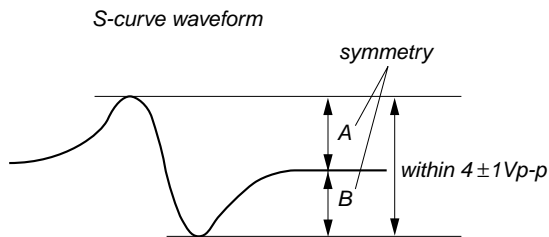
1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10M $\Omega$  impedance.
4. Clean the object lens by an applicator with neutral detergent when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

### S-Curve Check



#### Procedure :

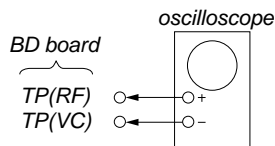
1. Connect oscilloscope to TP (FEO).
2. Connect between TP (FEI) and TP (VC) by lead wire.
3. Connect between TP (AGCCON) and TP (DGND) by lead wire.
4. Press the button (TA).
5. Load a disc (YEDS-18) and actuate the focus search. (In consequence of open and close the disc tray, actuate the focus search)
6. Confirm that the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within  $4 \pm 1$  Vp-p.



7. After check, remove the lead wire connected in step 2 and 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.

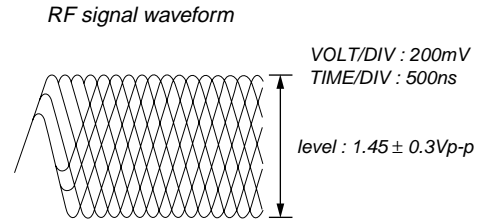
### RF Level Check



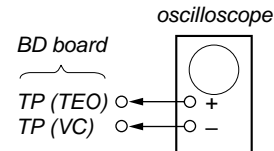
#### Procedure :

1. Connect oscilloscope to TP (RF).
2. Connect between TP (AGCCON) and TP (DGND) by lead wire.
3. Press the button (TA).
4. Load a disc (YEDS-18) and playback.
5. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.
6. After check, remove the lead wire connected in step 2.

**Note:** Clear RF signal waveform means that the shape “ $\diamond$ ” can be clearly distinguished at the center of the waveform.

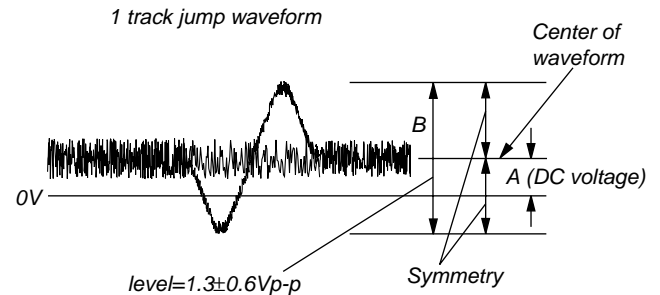


### E-F Balance (1 Track jump) Check



#### Procedure:

1. Connect oscilloscope to TP (TEO) and TP (VC) board.
2. Press the button (TA).
3. Load a disc (YEDS-18) and playback the number five track.
4. Press the button. (Becomes the 1 track jump mode.)
5. Confirm that the level B and A (DC voltage) on the oscilloscope waveform.



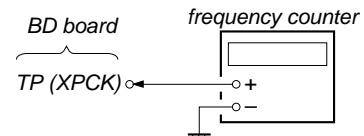
**Specification level:**  $\frac{A}{B} \times 100 = \text{less than } \pm 22\%$

6. After check, remove the lead wire connected in step 1.

### RF PLL Free-run Frequency

#### Procedure :

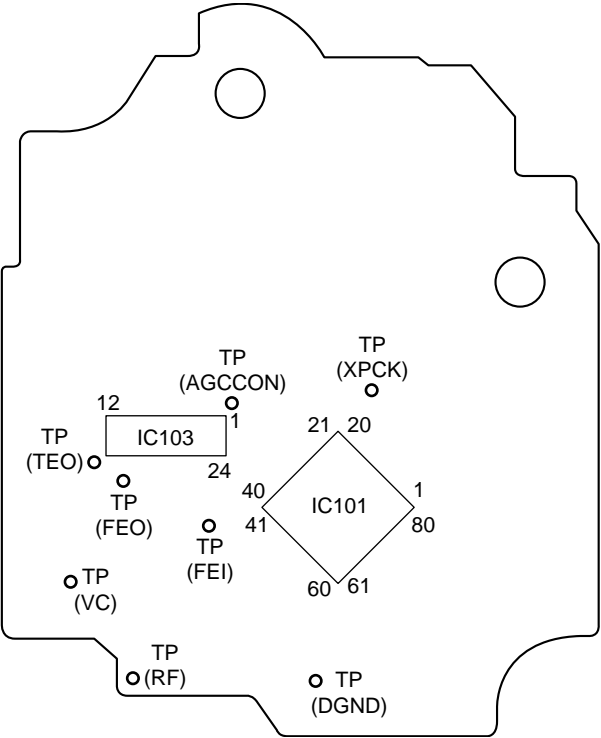
1. Connect frequency counter to test point (XPCK) with lead wire.



2. Press the button (TA).
3. Put the disc (YEDS-18) in to play the number five track.  
Confirm that reading on frequency counter is 4.3218MHz.

Adjustment Location:

[BD BOARD] (Conductor Side)






## SECTION 5 DIAGRAMS

### THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.






(In addition to this, the necessary note is printed  
in each block.)

#### For schematic diagrams.

##### Note:




- All capacitors are in  $\mu\text{F}$  unless otherwise noted. pF:  $\mu\text{F}$
- 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.
-  : nonflammable resistor.
-  : fusible resistor.
-  : 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.

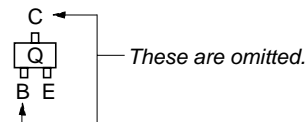
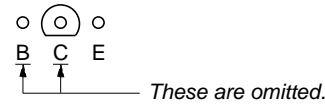
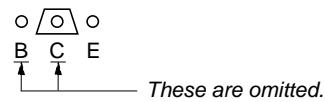
-  : B+ Line.
-  : B- Line.
-  : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input impedance 10 M $\Omega$ ).  
Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.  
Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
-  : CD (ANALOG)
-  : CD (DIGITAL)
- Abbreviation
  - AED : North European model
  - HK : Hong Kong model
  - MY : Malaysia model
  - SP : Singapore model
  - KR : Korea model

#### For printed wiring boards.

##### Note:

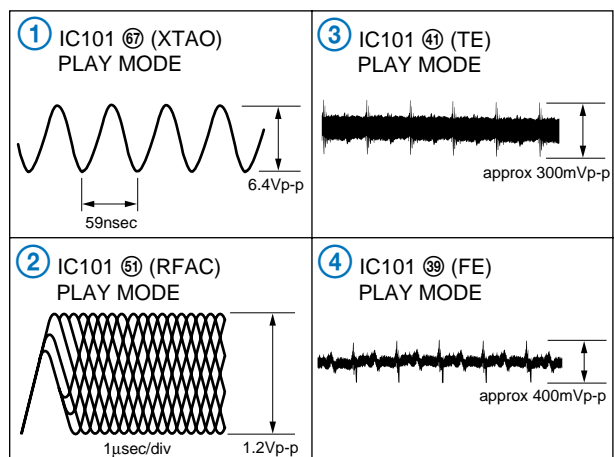
-  : parts extracted from the component side.
-  : parts extracted from the conductor side.
-  : Pattern from the side which enables seeing.  
(The other layers' patterns are not indicated.)

#### • Indication of transistor

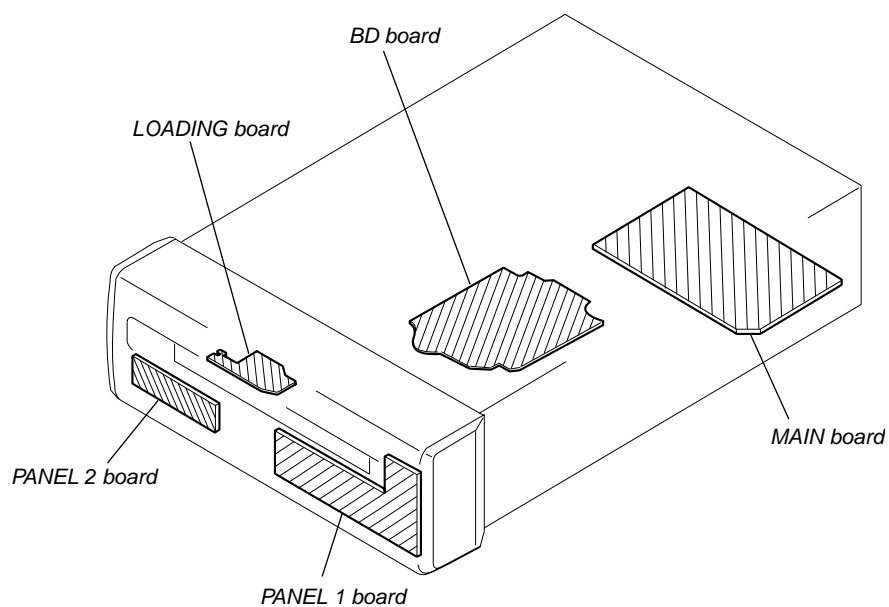


## • WAVEFORMS

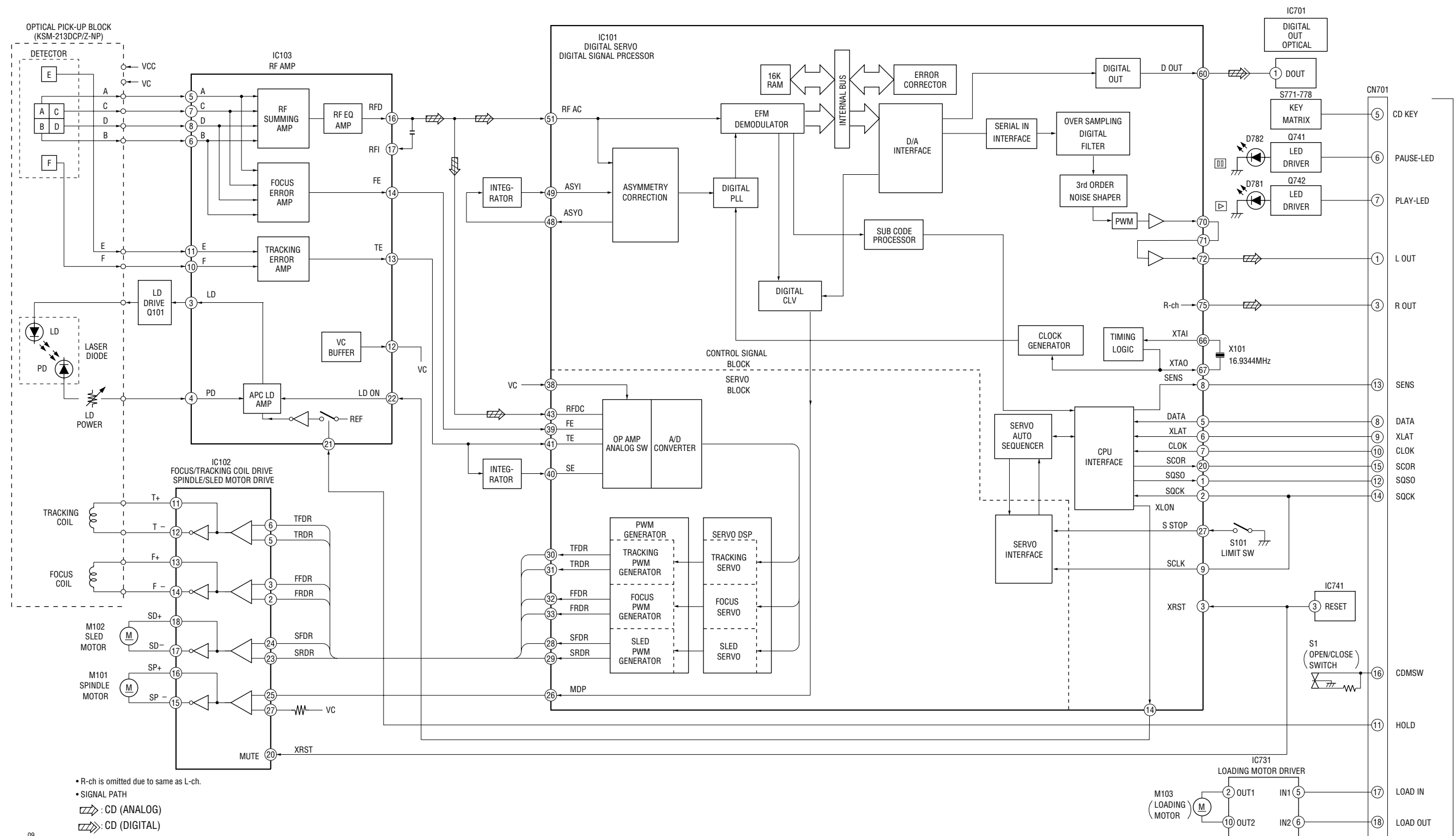
### – BD BOARD –



## 5-1. CIRCUIT BOARDS LOCATION

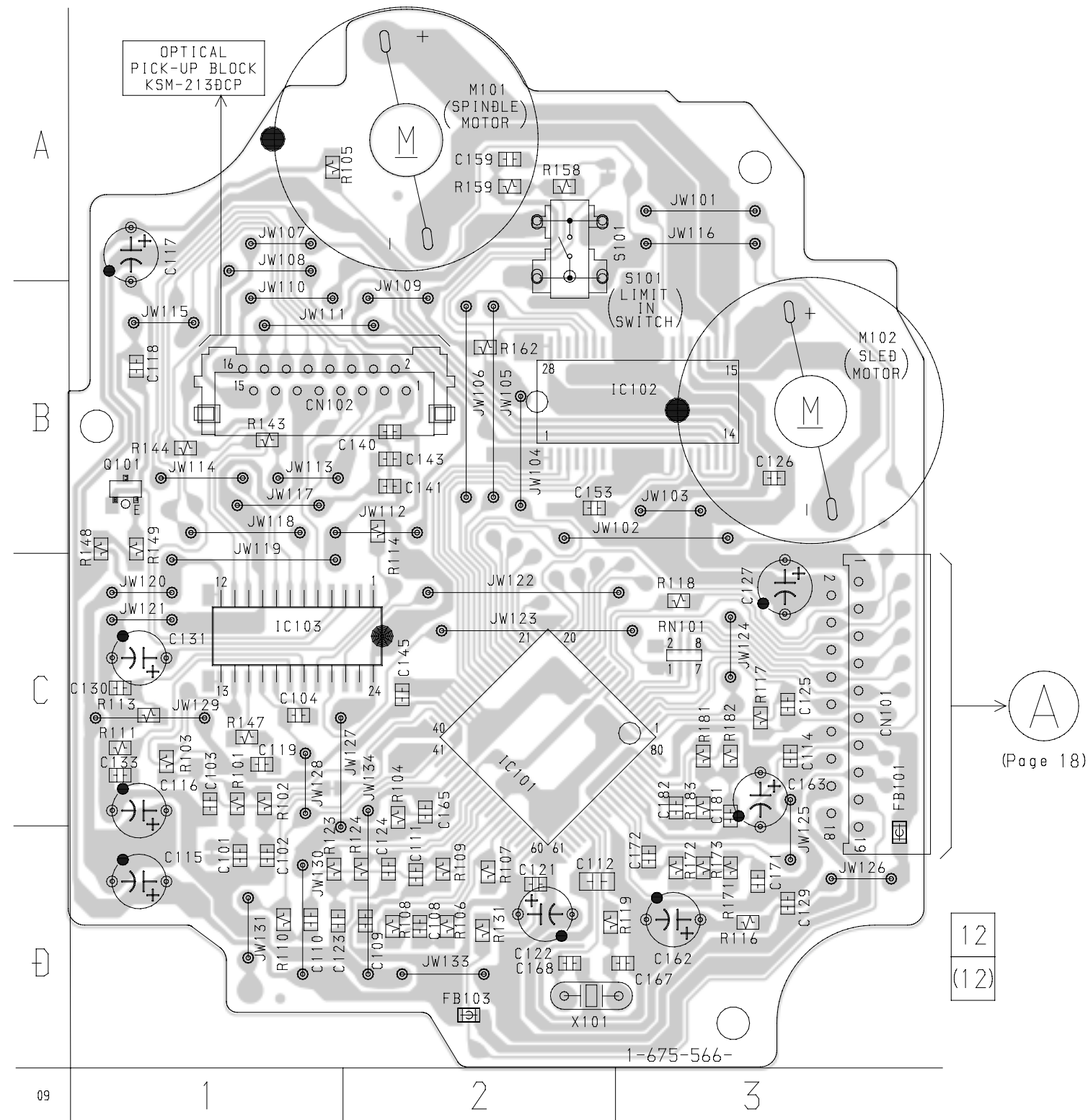


## 5-2. BLOCK DIAGRAM



5-3. PRINTED WIRING BOARD – BD SECTION – • See page 14 for Circuit Boards Location.

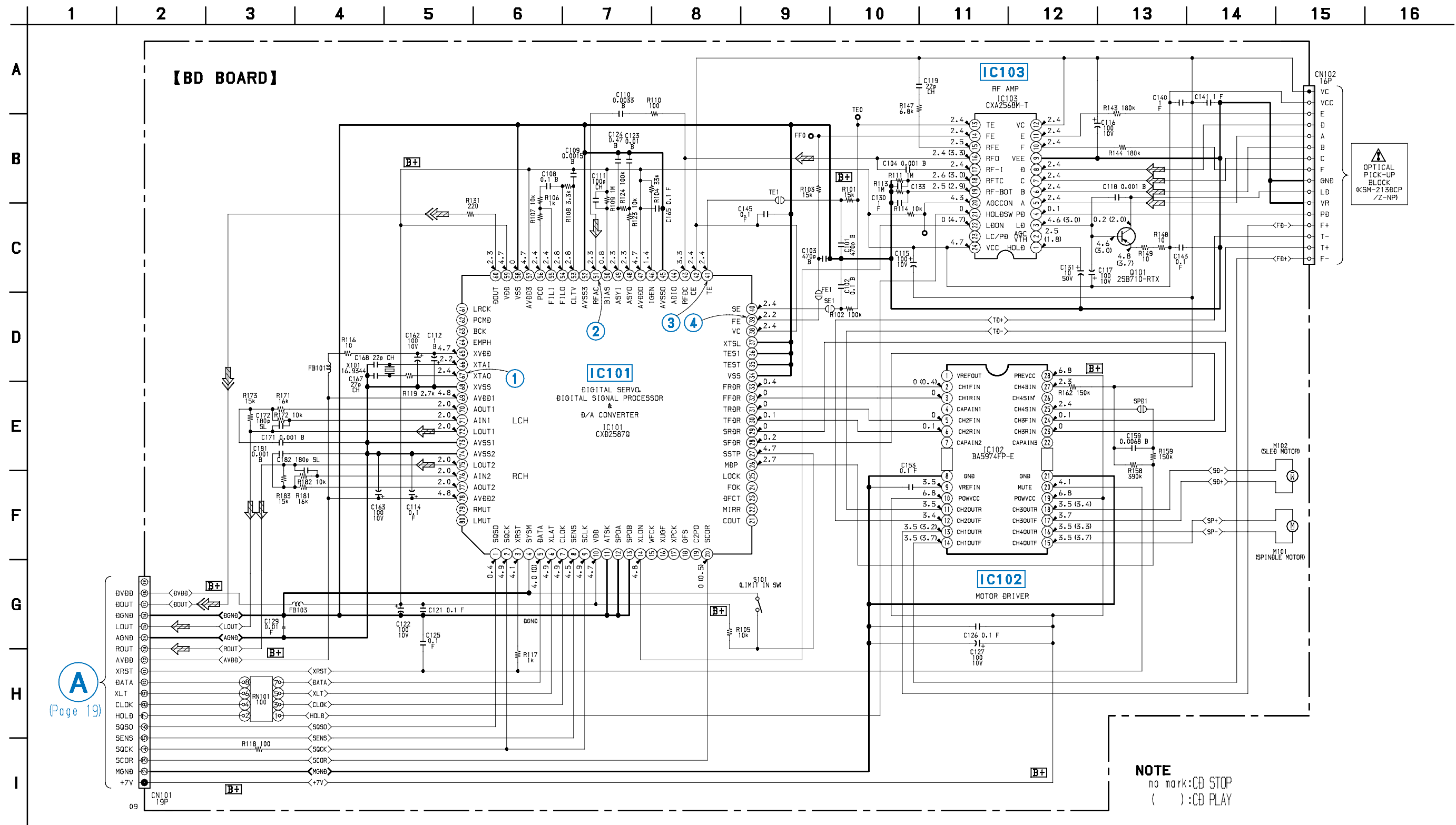
【BD BOARD】

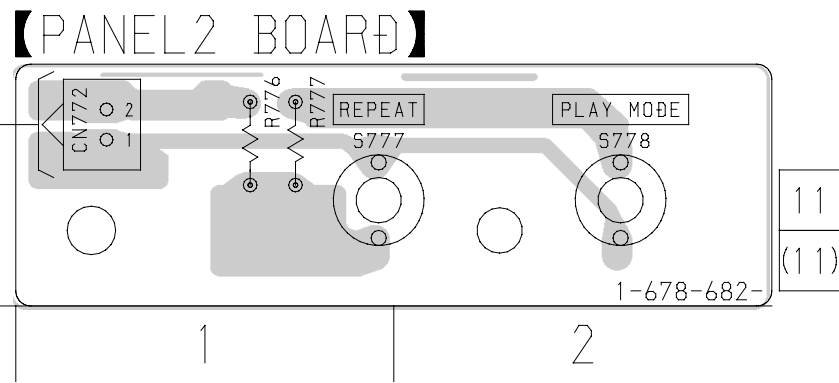
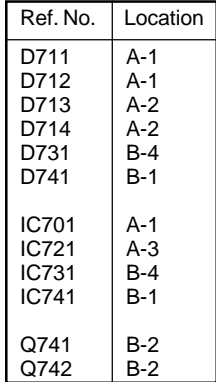


There are a few cases that the part isn't mounted in model is printed on diagram.



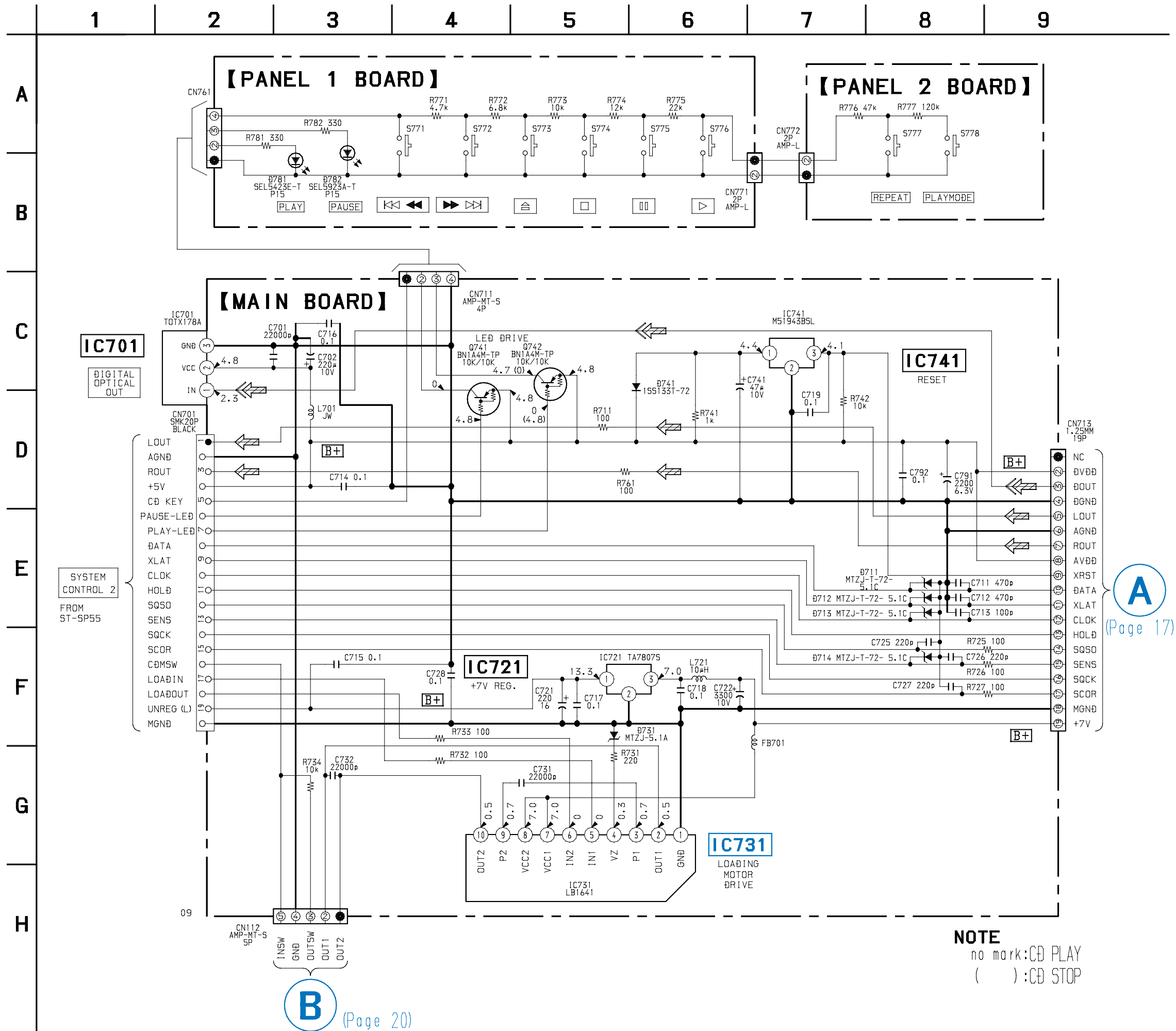
## 5-4. SCHEMATIC DIAGRAM – BD SECTION – • See page 14 for Waveforms. • See page 20 for IC Block Diagrams.



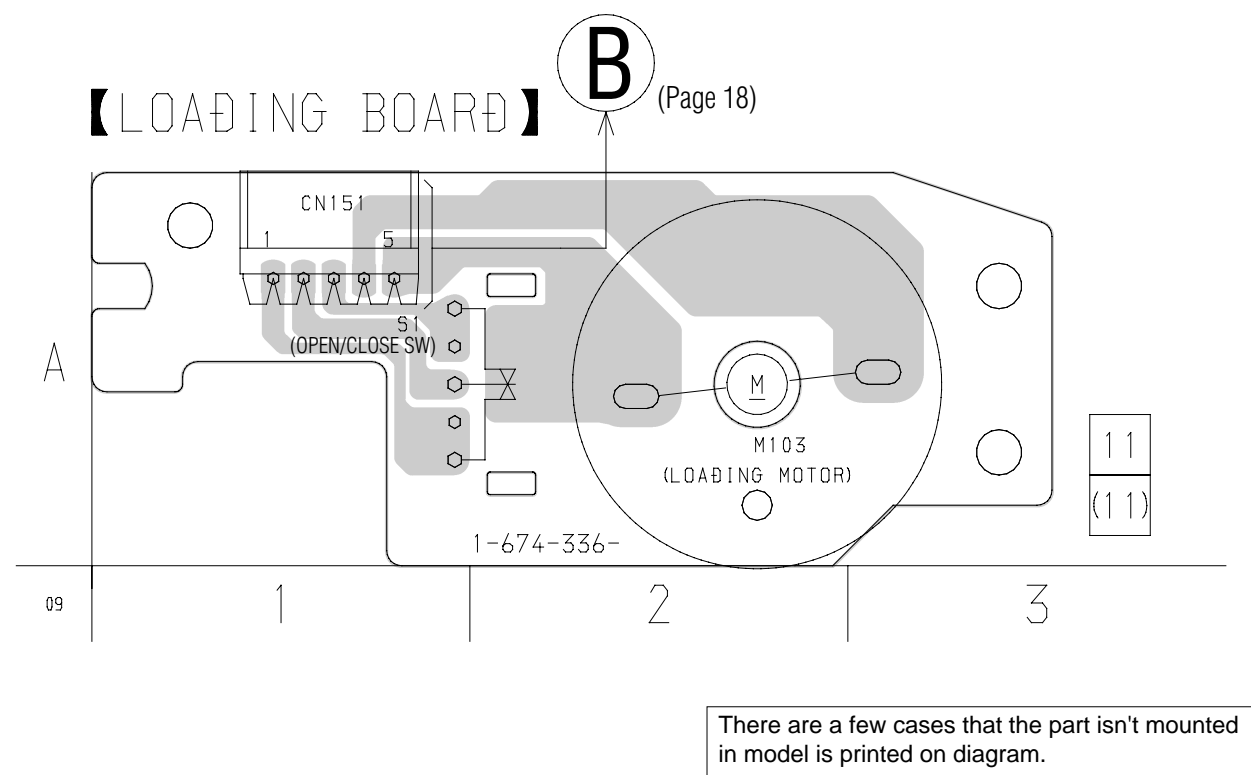


There are a few cases that the part isn't mounted in model is printed on diagram.

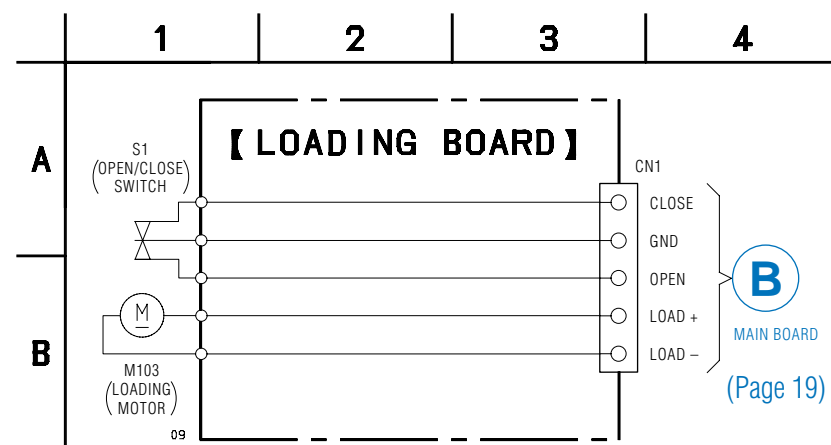
## 5-6. SCHEMATIC DIAGRAM – MAIN SECTION – • See page 21 for IC Block Diagrams.



5-7. PRINTED WIRING BOARD – LOADING SECTION –

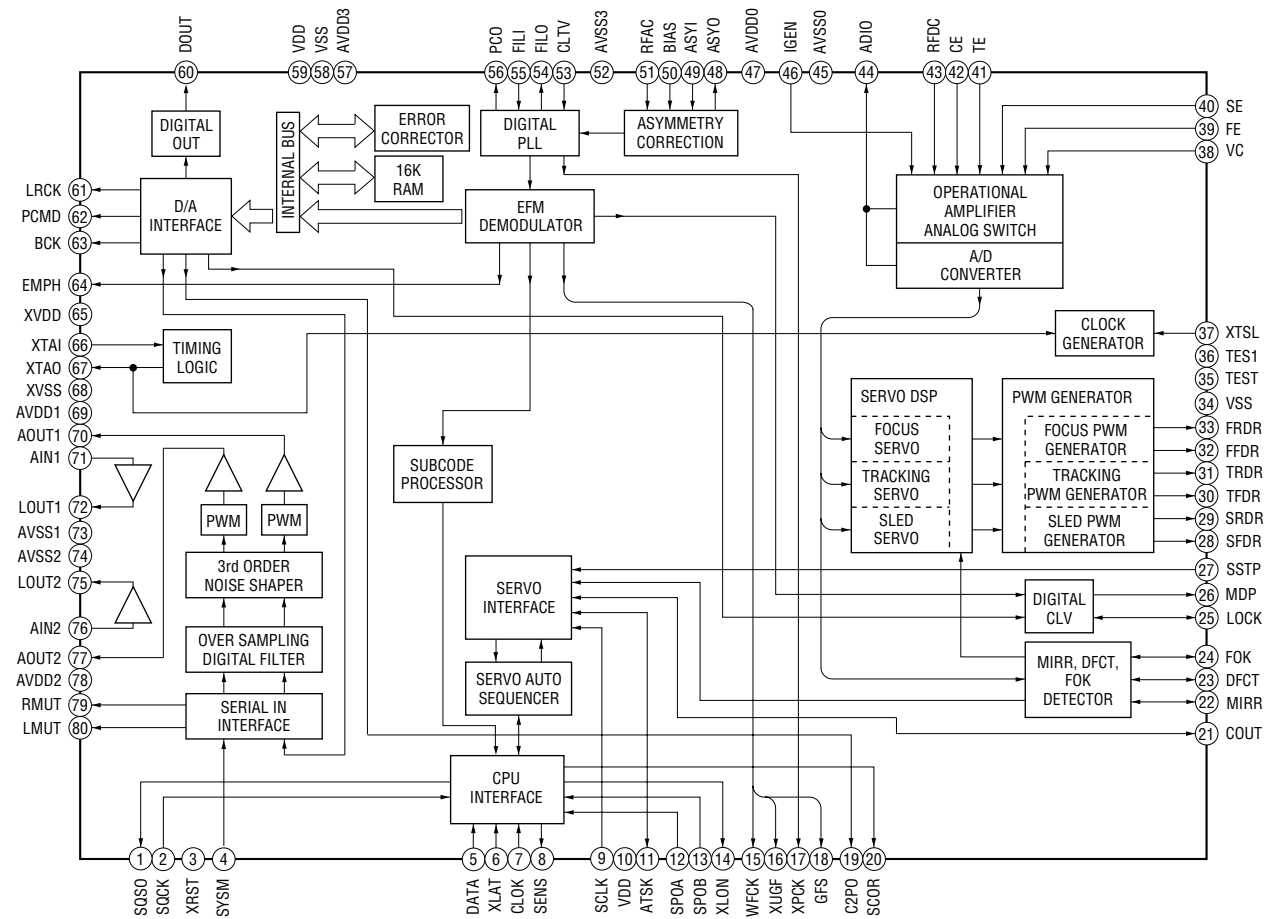


5-8. SCHEMATIC DIAGRAM – LOADING SECTION –

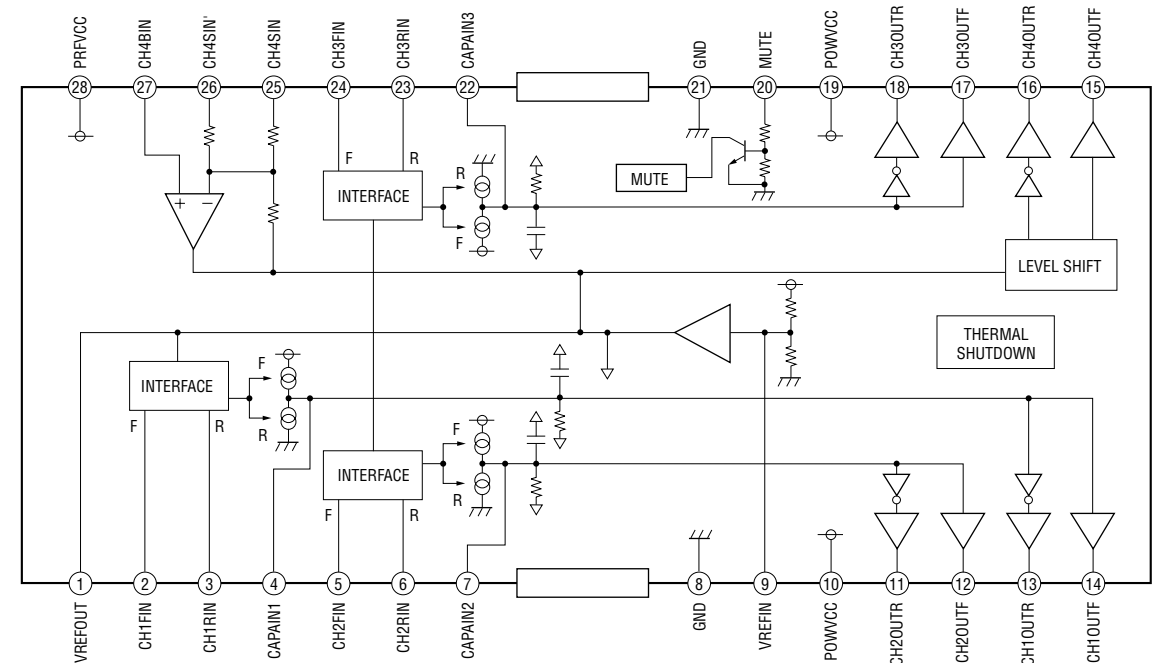


5-9. IC BLOCK DIAGRAM

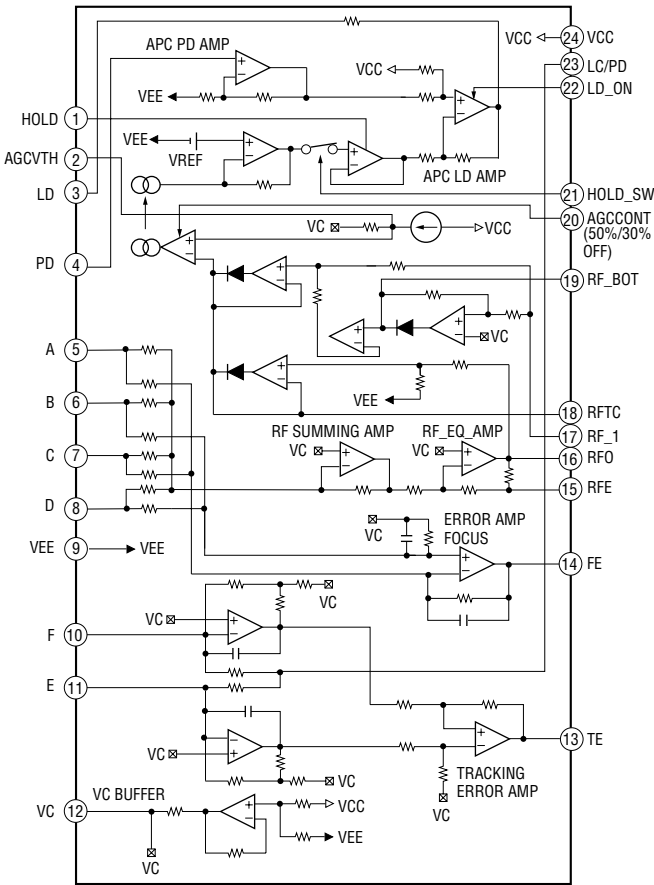
IC101 CXD2587Q (BD BOARD)



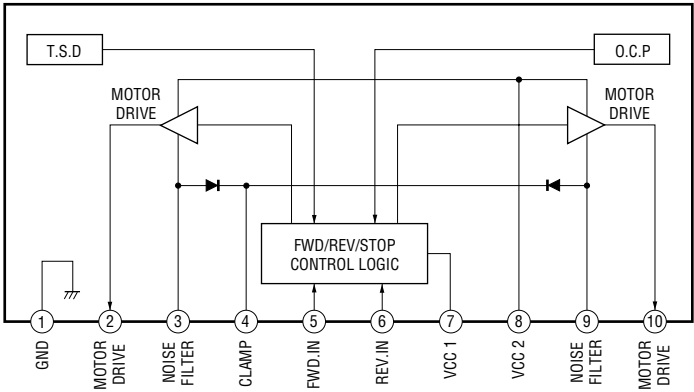
IC102 BA5974FP-E2 (BD BOARD)



IC103 CXA2568M-T6 (BD BOARD)



IC731 LB1641 (MAIN BOARD)



## SECTION 6 EXPLODED VIEWS

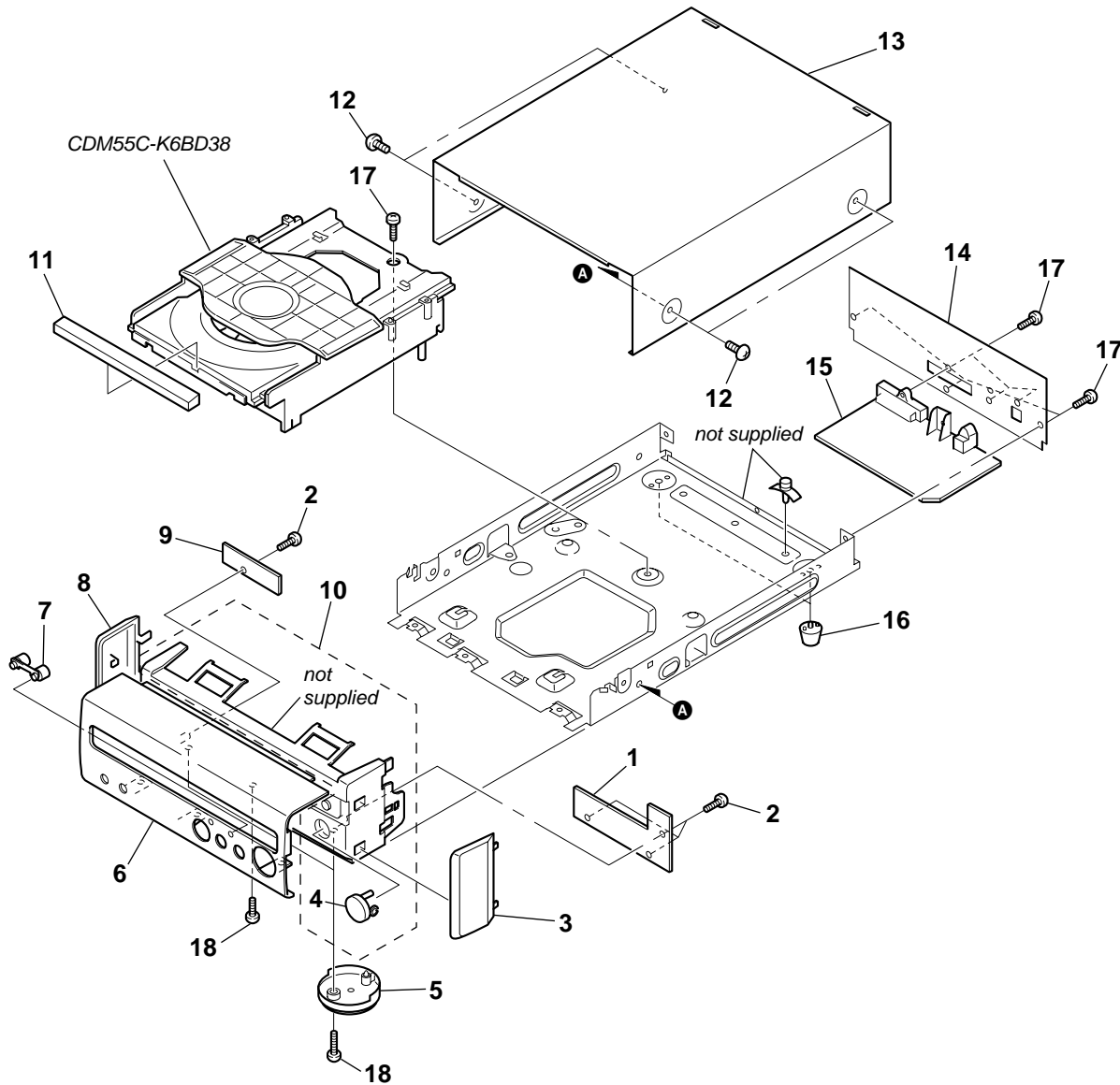
### NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation  
AED : North European model  
HK : Hong Kong model  
MY : Malaysia model  
SP : Singapore model  
KR : Korea model

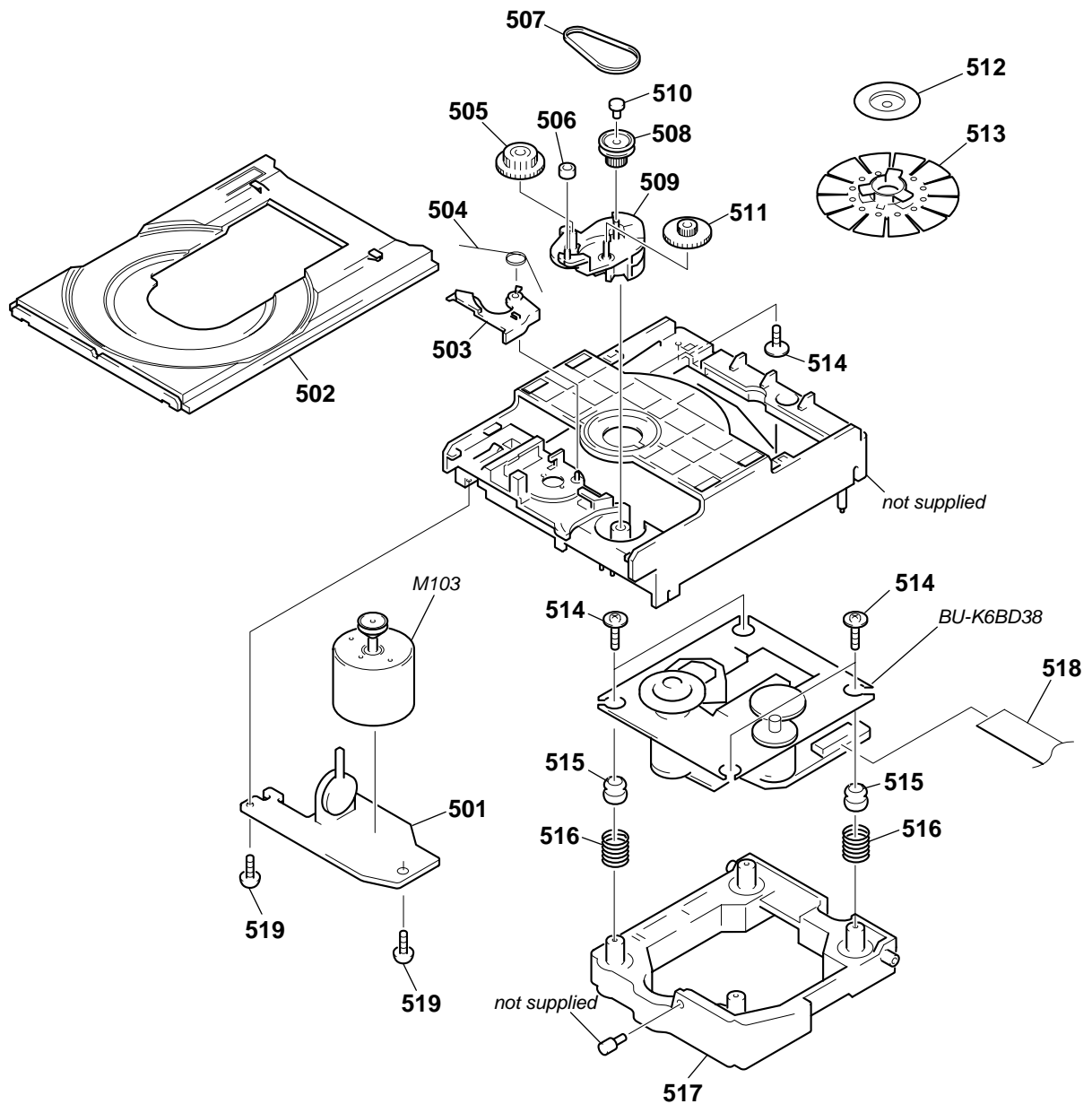
The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

### 6-1. CASE AND FRONT PANEL SECTION



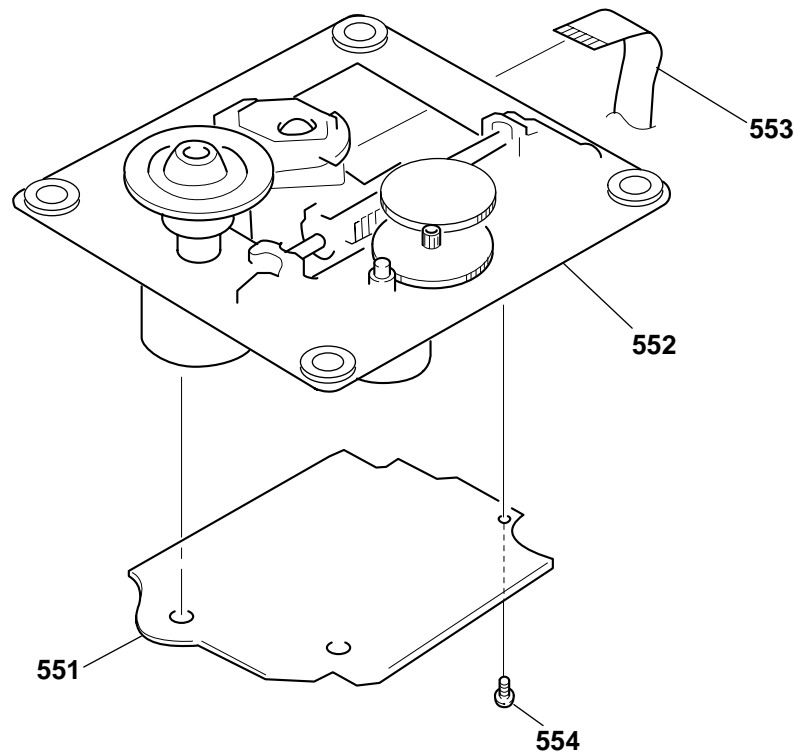
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
1	1-678-681-11	PANEL1 BOARD		11	4-229-668-01	PANEL, LOADING	
2	4-951-620-01	SCREW (2.6X8), +BVTP		12	3-363-099-51	SCREW (CASE 3 TP2)	
3	4-229-683-01	PLATE (R), SIDE		13	4-229-687-11	CASE	
4	4-229-678-01	BUTTON (U/D)		14	4-229-674-01	PANEL, BACK (AEP,UK,AED)	
5	X-4953-027-1	FOOT ASSY		14	4-229-674-21	PANEL, BACK (MY,SP,HK)	
6	4-229-667-01	PANEL (CD), FRONT		14	4-229-674-31	PANEL, BACK (KR)	
7	4-229-652-11	INDICATOR (PLAY)		15	1-678-680-11	MAIN BOARD	
8	4-229-684-01	PLATE (L), SIDE		16	4-965-822-01	FOOT	
9	1-678-682-11	PANEL2 BOARD		17	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
10	X-4953-024-1	PANEL ASSY (CD), SUB		18	7-685-648-79	SCREW +BVTP 3X12 TYPE2 N-S	

## 6-2. CD MECHANISM DECK SECTION (CDM55C-K6BD38)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
501	1-674-336-21	LOADING BOARD		511	4-220-238-01	GEAR (B)	
502	4-224-894-11	TRAY (CDM55D)		512	1-452-925-21	MAGNET ASSY	
503	4-220-229-01	LEVER (SW)		513	X-4953-195-1	PULLEY (AT) ASSY	
504	4-220-239-11	SPRING, TORSION		514	4-985-672-01	SCREW (+PTPWHM2.6), FLOATING	
505	4-220-237-01	GEAR (A)		515	4-227-679-01	INSULATOR (213)	
506	4-221-815-01	ROLLER		516	4-229-806-01	SPRING (213), COMPRESSION	
507	4-221-816-11	BELT (CDM55)		517	X-4953-169-1	HOLDER (BU) ASSY	
508	4-220-233-01	CAM (CDM55)		518	1-590-578-11	WIRE (FLAT TYPE) (19 CORE)	
509	4-220-234-01	PULLEY (LDG)		519	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S	
510	4-227-598-01	SPACER (55)		M103	A-4672-984-A	MOTOR (LD) ASSY (LOADING)	

6-3. BASE UNIT SECTION (BU-K6BD38)



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

Ref. No.	Part No.	Description	Remarks
551	A-4724-934-A	BD BOARD, COMPLETE	
$\triangle$ 552	8-820-116-01	OPTICAL PICK-UP KSM-213DCP/Z-NP	
553	1-792-024-11	WIRE (FLAT TYPE) (16 CORE)	
554	4-951-620-01	SCREW (2.6X8), +BVTP	



## SECTION 7 ELECTRICAL PARTS LIST

BD

**NOTE:**

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:  
uF:  $\mu$ F
- RESISTORS  
All resistors are in ohms.  
METAL: metal-film resistor  
METAL OXIDE: Metal Oxide-film resistor  
F: nonflammable

- COILS  
uH:  $\mu$ H
- SEMICONDUCTORS  
In each case, u:  $\mu$ , for example:  
uA...,  $\mu$ A..., uPA...,  $\mu$ PA...,  
uPB...,  $\mu$ PB..., uPC...,  $\mu$ PC...,  
uPD...,  $\mu$ PD...

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

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

Ref. No.	Part No.	Description	Remarks				Ref. No.	Part No.	Description	Remarks			
	A-4724-934-A	BD BOARD, COMPLETE *****					C181	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V			
		< CAPACITOR >					C182	1-163-123-00	CERAMIC CHIP 180PF 5%	50V			
									< CONNECTOR >				
C101	1-163-005-11	CERAMIC CHIP 470PF	10%	50V			CN101	1-784-741-11	CONNECTOR, FFC 19P				
C102	1-164-004-11	CERAMIC CHIP 0.1uF	10%	25V			CN102	1-793-907-11	CONNECTOR, FFC/FPC 16P				
C103	1-163-005-11	CERAMIC CHIP 470PF	10%	50V					< FERRITE BEAD >				
C104	1-163-009-11	CERAMIC CHIP 0.001uF	10%	50V									
C108	1-164-004-11	CERAMIC CHIP 0.1uF	10%	25V			FB101	1-500-445-21	FERRITE 0UH				
C109	1-163-011-11	CERAMIC CHIP 0.0015uF	10%	50V			FB103	1-500-445-21	FERRITE 0UH				
C110	1-164-182-11	CERAMIC CHIP 0.0033uF	10%	50V					< IC >				
C111	1-163-251-11	CERAMIC CHIP 100PF	5.00%	50V			IC101	8-752-386-85	IC CXD2587Q				
C112	1-107-682-11	CERAMIC CHIP 1uF	10.00%	16V			IC102	8-759-549-28	IC BA5974FP-E2				
C114	1-163-038-11	CERAMIC CHIP 0.1uF		25V			IC103	8-752-085-51	IC CXA2568M-T6				
C115	1-104-665-11	ELECT 100uF	20.00%	10V					< TRANSISTOR >				
C116	1-104-665-11	ELECT 100uF	20.00%	10V			Q101	8-729-049-31	TRANSISTOR 2SB710-RTX				
C117	1-104-665-11	ELECT 100uF	20.00%	10V					< RESISTOR >				
C118	1-163-009-11	CERAMIC CHIP 0.001uF	10%	50V			R101	1-216-077-91	RES-CHIP 15K 5%	1/10W			
C119	1-163-235-11	CERAMIC CHIP 22PF	5.00%	50V			R102	1-216-097-11	RES-CHIP 100K 5%	1/10W			
C121	1-163-038-11	CERAMIC CHIP 0.1uF		25V			R103	1-216-077-91	RES-CHIP 15K 5%	1/10W			
C122	1-104-665-11	ELECT 100uF	20.00%	10V			R104	1-216-085-00	METAL CHIP 33K 5%	1/10W			
C123	1-163-021-91	CERAMIC CHIP 0.01uF	10.00%	50V			R105	1-216-073-00	METAL CHIP 10K 5%	1/10W			
C124	1-107-823-11	CERAMIC CHIP 0.47uF	10.00%	16V			R106	1-216-049-11	RES-CHIP 1K 5%	1/10W			
C125	1-163-038-11	CERAMIC CHIP 0.1uF		25V			R107	1-216-073-00	METAL CHIP 10K 5%	1/10W			
C126	1-163-038-11	CERAMIC CHIP 0.1uF		25V			R108	1-216-061-00	METAL CHIP 3.3K 5%	1/10W			
C127	1-104-665-11	ELECT 100uF	20.00%	10V			R109	1-216-121-11	RES-CHIP 1M 5%	1/10W			
C129	1-163-031-11	CERAMIC CHIP 0.01uF		50V			R110	1-216-025-11	RES-CHIP 100 5%	1/10W			
C130	1-164-346-11	CERAMIC CHIP 1uF		16V			R111	1-216-121-11	RES-CHIP 1M 5%	1/10W			
C131	1-126-964-11	ELECT 10uF	20.00%	50V			R113	1-216-121-11	RES-CHIP 1M 5%	1/10W			
C133	1-164-346-11	CERAMIC CHIP 1uF		16V			R114	1-216-073-00	METAL CHIP 10K 5%	1/10W			
C140	1-164-346-11	CERAMIC CHIP 1uF		16V			R116	1-216-001-00	METAL CHIP 10 5%	1/10W			
C141	1-164-346-11	CERAMIC CHIP 1uF		16V			R117	1-216-049-11	RES-CHIP 1K 5%	1/10W			
C143	1-163-038-11	CERAMIC CHIP 0.1uF		25V			R118	1-216-025-11	RES-CHIP 100 5%	1/10W			
C145	1-163-038-11	CERAMIC CHIP 0.1uF		25V			R119	1-216-059-00	METAL CHIP 2.7K 5%	1/10W			
C153	1-163-038-11	CERAMIC CHIP 0.1uF		25V			R123	1-216-073-00	METAL CHIP 10K 5%	1/10W			
C159	1-163-019-00	CERAMIC CHIP 0.0068uF	10%	50V			R124	1-216-097-11	RES-CHIP 100K 5%	1/10W			
C162	1-104-665-11	ELECT 100uF	20.00%	10V			R131	1-216-033-00	METAL CHIP 220 5%	1/10W			
C163	1-104-665-11	ELECT 100uF	20.00%	10V			R143	1-216-103-00	METAL CHIP 180K 5%	1/10W			
C165	1-163-038-11	CERAMIC CHIP 0.1uF		25V			R144	1-216-103-00	METAL CHIP 180K 5%	1/10W			
C167	1-163-237-11	CERAMIC CHIP 27PF	5.00%	50V									
C168	1-163-235-11	CERAMIC CHIP 22PF	5.00%	50V									
C171	1-163-009-11	CERAMIC CHIP 0.001uF	10%	50V									
C172	1-163-123-00	CERAMIC CHIP 180PF	5%	50V									

Ref. No.	Part No.	Description			Remarks
R147	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R148	1-216-001-00	METAL CHIP	10	5%	1/10W
R149	1-216-001-00	METAL CHIP	10	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
R162	1-216-101-00	METAL CHIP	150K	5%	1/10W
R171	1-216-078-00	RES-CHIP	16K	5%	1/10W
R172	1-216-073-00	METAL CHIP	10K	5%	1/10W
R173	1-216-077-91	RES-CHIP	15K	5%	1/10W
R181	1-216-078-00	RES-CHIP	16K	5%	1/10W
R182	1-216-073-00	METAL CHIP	10K	5%	1/10W
R183	1-216-077-91	RES-CHIP	15K	5%	1/10W
< RESISTOR ARRAY >					
RN101	1-233-576-11	RES, CHIP NETWORK 100			
< SWITCH >					
S101	1-771-853-11	SWITCH, DETECTION (LIMIT IN)			
< VIBRATOR >					
X101	1-579-280-11	VIBRATOR, CRYSTAL (16.9344MHz)			
*****					
	1-674-336-21	LOADING BOARD			
*****					
< CONNECTOR >					
* CN1	1-568-943-11	PIN, CONNECTOR 5P			
< SWITCH >					
S1	1-771-799-11	SWITCH, LEVER (SLIDE) (OPEN/CLOSE)			
*****					
	1-678-680-11	MAIN BOARD			
*****					
< CAPACITOR >					
C701	1-161-494-00	CERAMIC	0.022uF		25V
C702	1-126-934-11	ELECT	220uF	20.00%	10V
C711	1-162-290-31	CERAMIC	470PF	10%	50V
C712	1-162-290-31	CERAMIC	470PF	10%	50V
C713	1-162-282-31	CERAMIC	100PF	10%	50V
C714	1-164-159-11	CERAMIC	0.1uF		50V
C715	1-164-159-11	CERAMIC	0.1uF		50V
C716	1-164-159-11	CERAMIC	0.1uF		50V
C717	1-164-159-11	CERAMIC	0.1uF		50V
C718	1-164-159-11	CERAMIC	0.1uF		50V
C719	1-164-159-11	CERAMIC	0.1uF		50V
C721	1-127-719-91	ELECT MELF	220uF	20%	16V
C722	1-128-837-51	ELECT	3300uF	20%	10V
C725	1-162-286-31	CERAMIC	220PF	10%	50V
C726	1-162-286-31	CERAMIC	220PF	10%	50V
C727	1-162-286-31	CERAMIC	220PF	10%	50V
C728	1-164-159-11	CERAMIC	0.1uF		50V
C731	1-161-494-00	CERAMIC	0.022uF		25V
C732	1-161-494-00	CERAMIC	0.022uF		25V
C741	1-104-664-11	ELECT	47uF	20.00%	10V
C791	1-104-656-11	ELECT	2200uF	20.00%	6.3V
C792	1-164-159-11	CERAMIC	0.1uF		50V

Ref. No.	Part No.	Description	Remarks			
< CONNECTOR >						
* CN112	1-568-954-11	PIN, CONNECTOR 5P				
CN701	1-794-498-11	SOCKET, CONNECTOR 20P				
CN711	1-506-469-11	PIN, CONNECTOR 4P				
CN713	1-784-780-11	CONNECTOR, FFC 19P				
< DIODE >						
D711	8-719-921-44	DIODE MTZJ-T-72-5.1C				
D712	8-719-921-44	DIODE MTZJ-T-72-5.1C				
D713	8-719-921-44	DIODE MTZJ-T-72-5.1C				
D714	8-719-921-44	DIODE MTZJ-T-72-5.1C				
D731	8-719-947-16	DIODE MTZJ-T-72-5.1A				
D741	8-719-911-19	DIODE 1SS133T-72				
< FERRITE BEAD >						
FB701	1-412-473-21	INDUCTOR	0UH			
< IC >						
IC701	8-749-923-04	IC TOTX178A (DIGITAL OPTICAL OUT)				
IC721	8-759-071-48	IC TA7807S				
IC731	8-759-822-09	IC LB1641				
IC741	8-759-635-63	IC M51943BSL-TP				
< COIL >						
L721	1-408-117-00	INDUCTOR	10uH			
< TRANSISTOR >						
Q741	8-729-422-57	TRANSISTOR BN1A4M-TP				
Q742	8-729-422-57	TRANSISTOR BN1A4M-TP				
< RESISTOR >						
R711	1-247-807-31	CARBON	100	5%	1/4W	
R725	1-247-807-31	CARBON	100	5%	1/4W	
R726	1-247-807-31	CARBON	100	5%	1/4W	
R727	1-247-807-31	CARBON	100	5%	1/4W	
R731	1-249-409-11	CARBON	220	5%	1/4W	F
R732	1-247-807-31	CARBON	100	5%	1/4W	
R733	1-247-807-31	CARBON	100	5%	1/4W	
R734	1-249-429-11	CARBON	10K	5%	1/4W	
R741	1-249-417-11	CARBON	1K	5%	1/4W	F
R742	1-249-429-11	CARBON	10K	5%	1/4W	
R761	1-247-807-31	CARBON	100	5%	1/4W	
*****						
	1-678-681-11	PANEL 1 BOARD				
*****						
< DIODE >						
D781	8-719-058-03	DIODE SEL5423E-TP15 (▷)				
D782	8-719-057-97	DIODE SEL5923A-TP15 (⏏)				
< RESISTOR >						
R771	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R772	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R773	1-249-429-11	CARBON	10K	5%	1/4W	
R774	1-249-430-11	CARBON	12K	5%	1/4W	
R775	1-249-433-11	CARBON	22K	5%	1/4W	
R781	1-249-411-11	CARBON	330	5%	1/4W	
R782	1-249-411-11	CARBON	330	5%	1/4W	

Ref. No.	Part No.	Description	Remarks
< SWITCH >			
S771	1-771-410-21	SWITCH, TACTILE (⏮⏪⏩⏭)	
S772	1-771-410-21	SWITCH, TACTILE (⏭⏩⏪⏮)	
S773	1-771-410-21	SWITCH, TACTILE (⏮)	
S774	1-771-410-21	SWITCH, TACTILE (⏭)	
S775	1-771-410-21	SWITCH, TACTILE (⏮)	
S776	1-771-410-21	SWITCH, TACTILE (⏭)	
*****			
1-678-682-11 PANEL 2 BOARD			
*****			
< RESISTOR >			
R776	1-249-437-11	CARBON 47K 5% 1/4W	
R777	1-247-881-00	CARBON 120K 5% 1/4W	
< SWITCH >			
S777	1-771-410-21	SWITCH, TACTILE (REPEAT)	
S778	1-771-410-21	SWITCH, TACTILE (PLAY MODE)	
*****			
MISCELLANEOUS			
*****			
512	1-452-925-21	MAGNET ASSY	
518	1-590-578-11	WIRE (FLAT TYPE) (19 CORE)	
△ 552	8-820-116-01	OPTICAL PICK-UP KSM-213DCP/Z-NP	
553	1-792-024-11	WIRE (FLAT TYPE) (16 CORE)	
M103	A-4672-984-A	MOTOR (LD) ASSY (LOADING)	

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

