

# CDP-209/309

## SERVICE MANUAL

*AEP Model*

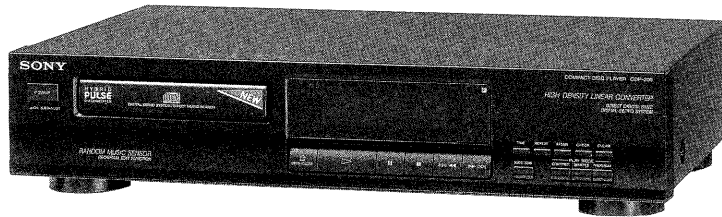


Photo: CDP-309 model

|                                    |                             |
|------------------------------------|-----------------------------|
| Model Name Using Similar Mechanism | CDP-211/311                 |
| Tape Transport Mechanism Type      | CDM14-5BD10                 |
| Optical Pickup Block Type          | BU-5BD10<br>or<br>BU-5BD10B |

### SPECIFICATIONS

#### Compact disc player

|                       |                             |
|-----------------------|-----------------------------|
| Laser:                | Semiconductor laser         |
| Wavelength:           | 780-790 nm                  |
| Frequency response    | 2 Hz to 20 kHz $\pm$ 0.5 dB |
| Signal-to-noise ratio | More than 97 dB             |
| Dynamic range         | More than 95 dB             |
| Harmonic distortion   | Less than 0.005%            |
| Channel separation    | More than 93 dB             |

#### Outputs

|                        |  |
|------------------------|--|
| LINE OUT (phono jacks) | Output level 2 V (at 50 kilohms)<br>Load impedance over 10 kilohms |
|------------------------|--|

#### General

|   |  |
|---|--|
| Power requirements                          | European model :<br>220 - 230 V AC, 50/60 Hz<br>UK model:<br>240 V AC, 50 Hz   |
| Power consumption                           | 10 W   |
| Dimensions (approx., including projections) | 430 x 100 x 295 mm (w/h/d)<br>(17 x 4 x 11 <sup>5</sup> / <sub>8</sub> inches) |
| Mass (approx.)                              | 3.0 kg (6 lbs 10 oz)   |

#### Remote commander (only for CDP-309)

|   |  |
|---|--|
| Remote control system                       | Infrared control   |
| Power requirements                          | 3 VDC with two R6 (size AA) batteries  |
| Dimensions (approx., including projections) | 40 x 20 x 175 mm (w/h/d)<br>(1 <sup>5</sup> / <sub>8</sub> x 1 <sup>1</sup> / <sub>8</sub> x 7 inches) |
| Mass (approx.)                              | 95 g (4 oz)  |

#### Supplied accessories

|  |     |
|--|-----|
| Audio connecting cord                        | (1) |
| Sony SUM-3 (NS) batteries (only for CDP-309) | (2) |
| Remote commander (only for CDP-309)          | (1) |

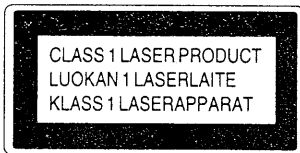
Design and specifications are subject to change without notice.



COMPACT DISC PLAYER  
**SONY**®

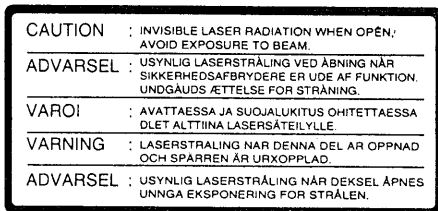
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This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

The following caution label is located inside of the unit.



### SAFETY-RELATED COMPONENT WARNING!!

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

## SERVICING NOTES

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

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

During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.

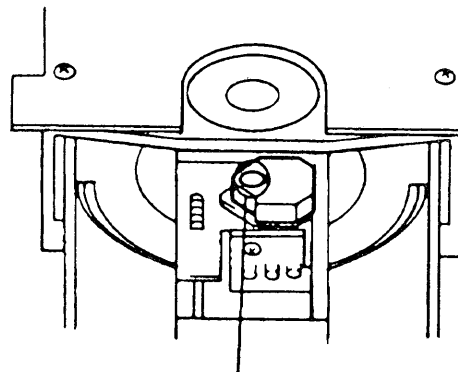
The flexible board is easily damaged and should be handled with care.

### 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 more than 30 cm away from the objective lens.

### LASER DIODE AND FOCUS SEARCH OPERATION CHECK

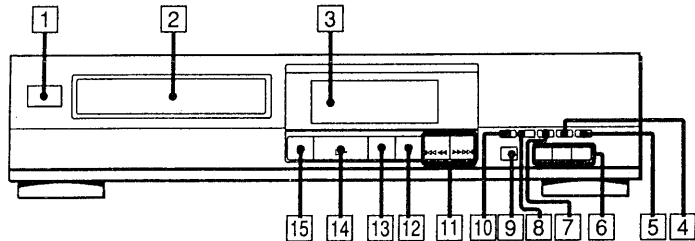
1. Turn POWER switch on with no disc inserted and disc table closed.
2. Confirm that the following operation is performed while observing the objecting lens.



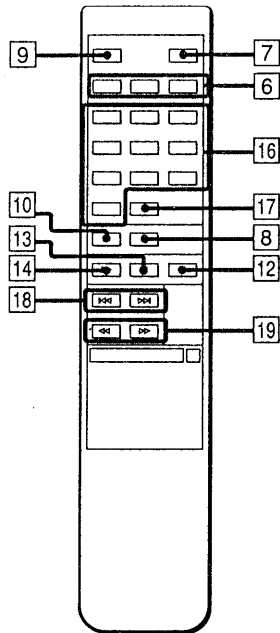
- ① Confirm that laser beam is spread.
- ② Up and down motion of the objective lens. (3 times)

# SECTION 1 GENERAL

This section is extracted from instruction manual.



RM-D295



(only for CDP-309)

## Identifying the Parts

Refer to the pages indicated in parenthesis for details.

### Front Panel / Remote Commander

- 1 POWER switch (12)
- 2 Disc tray (12)
- 3 Display window
- 4 CHECK (program check) button (22)
- 5 CLEAR (program clear) button (22)
- 6 Play Mode buttons  
CONTINUE button (18, 22)  
SHUFFLE button (18, 22)  
PROGRAM button (20)  
(PGM on the remote commander)
- 7 FADER button (14)
- 8 REPEAT button (26)
- 9 MUSIC SCAN button (24)  
(M.SCAN on the remote commander)
- 10 TIME button (14)
- 11 <◀◀◀ / ▶▶▶> (AMS\*/manual search) buttons (16, 20, 24)
- 12 ■ (stop) button (12)
- 13 || (pause) button (12)
- 14 ▶ (play) button (12)
- 15 ▲ OPEN/CLOSE button (12)
- 16 Numeric buttons (16, 20)  
(Only on the remote commander).
- 17 >10 (over 10) button (16)  
(Only on the remote commander)
- 18 <◀◀ / ▶▶> (AMS\*) buttons (16, 20)  
(Only on the remote commander)
- 19 ◀◀ / ▶▶ (manual search) buttons (16, 24)  
(Only on the remote commander)

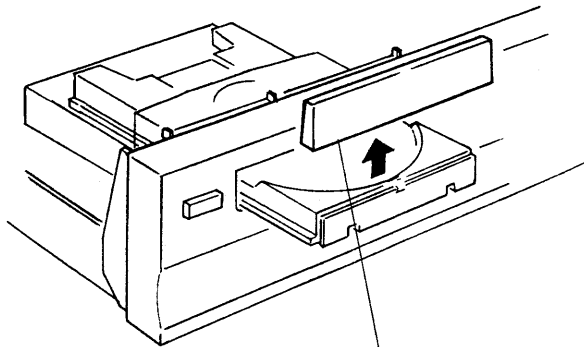
\* AMS is the abbreviation of Automatic Music Sensor.

## SECTION 2 DISASSEMBLY

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

### FRONT PANEL REMOVAL

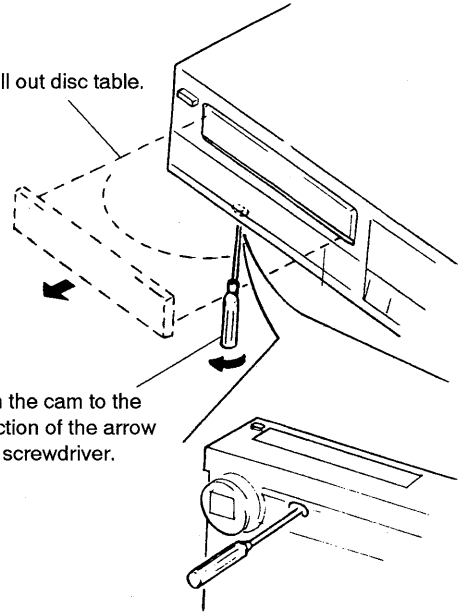
When removing the front panel assembly on electric power failure, first open the loading block by turning cam with a screwdriver as shown in the figure, next pull out the loading block with hand, and remove the loading panel as shown in the figure. Then remove the front panel assembly.



③ Remove loading panel to the direction of arrow.

② Pull out disc table.

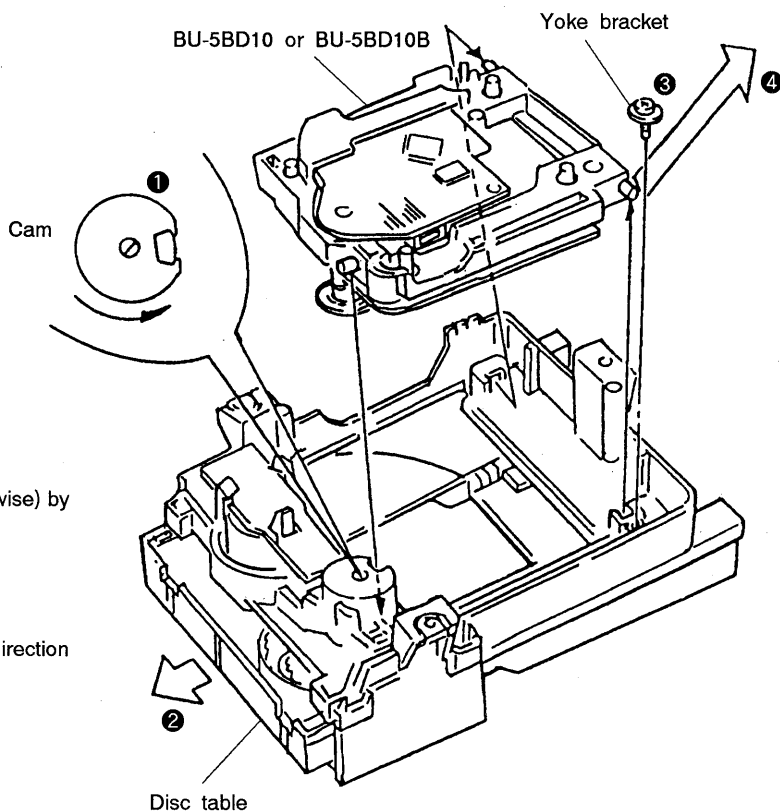
① Turn the cam to the direction of the arrow with screwdriver.



**Note:** Keep the set horizontal.

### MD (BU-5BD10)

- ① Turn the cam to the direction of arrow (Counter clock wise) by minus screw driver.
- ② Take off the disc table.
- ③ Remove the yoke bracket.
- ④ Remove the MD (BU-5BD10 or BU-5BD10B) to the direction of arrow.



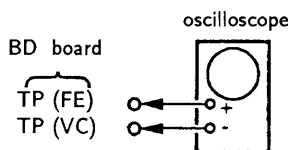
## SECTION 3

### ELECTRICAL BLOCK CHECKING

**Note :**

1. CD Block basically constructed 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 the oscilloscope with more than  $10M\Omega$  impedance.
4. Clean an object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

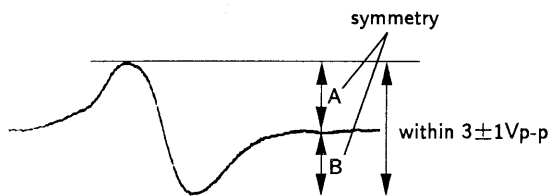
**S-Curve Check**



**Procedure :**

1. Connect oscilloscope to test point TP (FE) on BD board.
2. Connect between test point TP (FEI) and TP (VC) by lead wire.
3. Turned Power switch on and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
4. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak level within  $3\pm 1V_{p-p}$ .

S-curve waveform

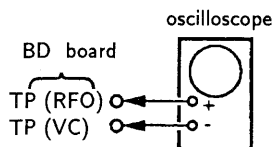


5. After check, remove the lead wire connected in step 2.

**Note :**

- Try to measure several times to make sure that 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**

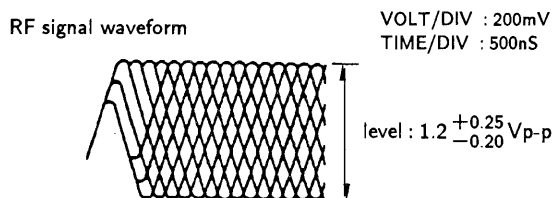


**Procedure :**

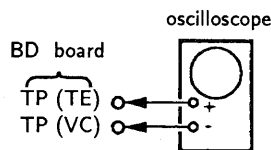
1. Connect oscilloscope to test point TP (RFO) on BD board.
2. Turn Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

**Note :**

Clear RF signal waveform means that the shape “◇” can be clearly distinguished at the center of the waveform.

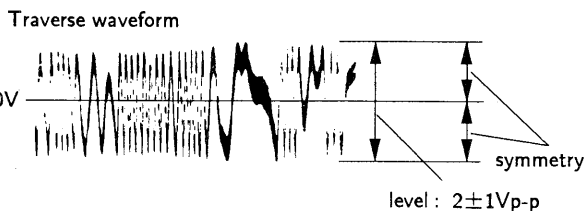


**E-F Balance Check**



**Procedure :**

1. Connect test point TP (ADJ) to ground and TP (TEI) to TP (VC) with lead wire.
2. Connect oscilloscope to test point TP (TE) on BD board.
3. Turn Power switch on.
4. Put disc (YEDS-18) in and playback.
5. Confirm that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0V, and check this level.

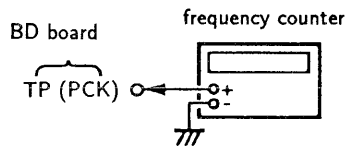


6. Remove the lead wire connected in step 1.

### RF PLL Free-run Frequency Check

#### Procedure :

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

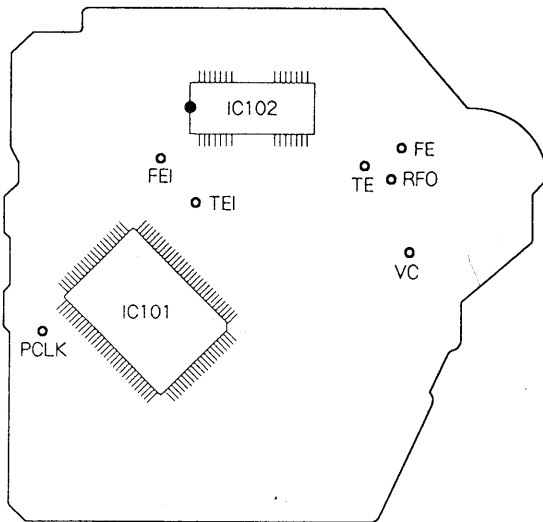


2. Turn Power switch on.
3. Confirm that reading on frequency counter is 4.3218 MHz.

#### Adjustment Location :

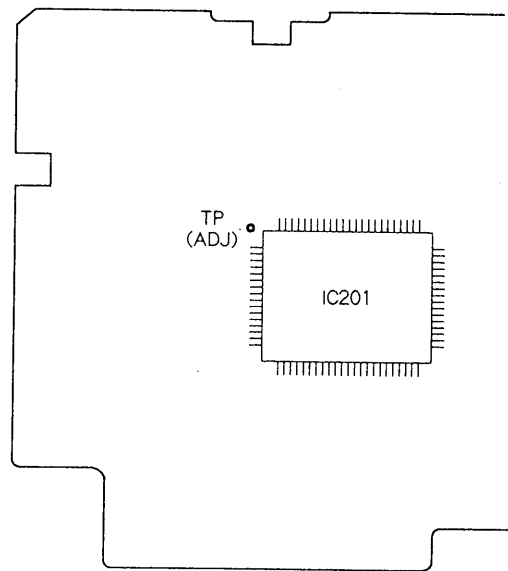
##### 【BD BOARD】

- Conductor side -



##### 【MAIN BOARD】

- Conductor side -



## SECTION 4

### IC PIN DESCRIPTION

• IC101 CXD2515Q

| No. | Pin Name | I/O | Description                                  |
|-----|----------|-----|--|
| 1   | SRON     | O   | Sled drive output                            |
| 2   | SRDR     | O   | Sled drive output                            |
| 3   | SFON     | O   | Sled drive output                            |
| 4   | TFDR     | O   | Tracking drive output                        |
| 5   | TRON     | O   | Tracking drive output                        |
| 6   | TRDR     | O   | Tracking drive output                        |
| 7   | TFON     | O   | Tracking drive output                        |
| 8   | FFDR     | O   | Focus drive output                           |
| 9   | FRON     | O   | Focus drive output                           |
| 10  | FRDR     | O   | Focus drive output                           |
| 11  | FFON     | O   | Focus drive output                           |
| 12  | VCOO     | O   | VCO output for analog EFM PLL                |
| 13  | VCOI     | I   | VCO output for analog EFM PLL                |
| 14  | TEST     | I   | TEST pin connected normally to GND           |
| 15  | DVss     | —   | Digital GND                                  |
| 16  | TES2     | I   | TEST pin connected normally to GND           |
| 17  | TES3     | I   | TEST pin connected normally to GND           |
| 18  | PDO      | O   | Charge-pump output for analog EFM PLL        |
| 19  | VPCO     | O   | Charge-pump output for variable pitch PLL    |
| 20  | VCKI     | I   | Clock input from variable pitch external VCO |
| 21  | AVD2     | —   | Analog power supply                          |
| 22  | IGEN     | I   | Power supply pin for operational amplifiers  |
| 23  | AVS2     | —   | Analog GND                                   |
| 24  | ADII     | I   | Input pin for A/D converter                  |
| 25  | ADIO     | O   | Operational amplifier output pin             |
| 26  | RFDC     | I   | RF signal input                              |
| 27  | TE       | I   | Tracking error signal input                  |
| 28  | SE       | I   | Sled error signal input                      |
| 29  | FE       | I   | Focus error signal input                     |
| 30  | VC       | I   | Center voltage input pin                     |
| 31  | FILO     | O   | Filter output for master PLL                 |
| 32  | FILI     | I   | Filter input for master PLL                  |
| 33  | PCO      | O   | Charge-pump output for master PLL            |
| 34  | CLTV     | I   | Control voltage input for master VCO         |
| 35  | AVS1     | —   | Analog GND                                   |
| 36  | RFAC     | I   | EFM signal input                             |
| 37  | BIAS     | I   | Asymmetry circuit constant current input     |
| 38  | ASYI     | I   | Asymmetry compare voltage input              |
| 39  | ASYO     | O   | EFM full swing output                        |
| 40  | AVD1     | —   | Analog power supply                          |
| 41  | DVDD     | —   | Digital power supply                         |
| 42  | ASYE     | I   | Asymmetry circuit ON/OFF                     |
| 43  | PSSL     | I   | Audio data output mode selection input       |
| 44  | WDCK     | O   | 48-bit slot D/A interface. Word clock        |

| No. | Pin Name | I/O | Description   |
|-----|----------|-----|---|
| 45  | LRCK     | O   | 48-bit slot D/A interface. LR clock                               |
| 46  | DATA     | O   | DA 16 output when PSSL = 1. 48-bit slot serial data when PSSL = 0 |
| 47  | BCLK     | O   | DA 15 output when PSSL = 1. 48-bit slot data when PSSL = 0        |
| 48  | 64DATA   | O   | DA 14 output when PSSL = 1. 64-bit slot data when PSSL = 0        |
| 49  | 64BCLK   | O   | DA 13 output when PSSL = 1. 64-bit slot data when PSSL = 0        |
| 50  | 64LRCK   | O   | DA 12 output when PSSL = 1. 64-bit slot data when PSSL = 0        |
| 51  | GTOP     | O   | DA 11 output when PSSL = 1. GTOP output when PSSL = 0             |
| 52  | XUGF     | O   | DA 10 output when PSSL = 1. XUGF output when PSSL = 0             |
| 53  | XPLCK    | O   | DA 09 output when PSSL = 1. XPLCK output when PSSL = 0            |
| 54  | GFS      | O   | DA 08 output when PSSL = 1. GFS output when PSSL = 0              |
| 55  | PFCK     | O   | DA 07 output when PSSL = 1. RFCK output when PSSL = 0             |
| 56  | C2PO     | O   | DA 06 output when PSSL = 1. C2PO output when PSSL = 0             |
| 57  | XRA0F    | O   | DA 05 output when PSSL = 1. XRA0F output when PSSL = 0            |
| 58  | MNT3     | O   | DA 04 output when PSSL = 1. MNT3 output when PSSL = 0             |
| 59  | MNT2     | O   | DA 03 output when PSSL = 1. MNT2 output when PSSL = 0             |
| 60  | MNT1     | O   | DA 02 output when PSSL = 1. MNT1 output when PSSL = 0             |
| 61  | MNT0     | O   | DA 01 output when PSSL = 1. MNT0 output when PSSL = 0             |
| 62  | XTAI     | I   | X'tal oscillator circuit input                                    |
| 63  | XTAO     | O   | X'tal oscillator circuit output                                   |
| 64  | XTSL     | I   | X'tal selection input pin   |
| 65  | DVss     | —   | Digital GND   |
| 66  | FSTI     | I   | 2/3 divider output of pins 62,63                                  |
| 67  | FSTO     | O   | 2/3 divider output of pins 62,63                                  |
| 68  | C4M      | O   | 4.2336MHz output  |
| 69  | C16M     | O   | 16.9344MHz output   |
| 70  | MD2      | I   | Digital-out ON/OFF control pin                                    |
| 71  | DOUT     | O   | Digital-out output pin  |
| 72  | EMPH     | O   | Playback disc output in emphasis mode                             |
| 73  | WFCK     | O   | WFCK output   |
| 74  | SCOR     | O   | Sub-code sync output  |
| 75  | SBSO     | O   | Sub-P through Sub-W serial output                                 |
| 76  | EXCK     | I   | Clock input for SBS0 read-out                                     |
| 77  | SUBQ     | O   | Sub-Q 80-bit output   |
| 78  | SQCK     | I   | Clock input for SQS0 read-out                                     |
| 79  | MUTE     | I   | Muting selection pin  |
| 80  | SENS     | O   | SENS output   |
| 81  | XRST     | I   | System reset  |
| 82  | DIRC     | I   | Used in 1-track jump mode   |
| 83  | SCLK     | I   | SENS serial data read-out clock                                   |
| 84  | DFSW     | I   | DFCT selection pin  |
| 85  | ATSK     | I   | Input pin for anti-shock  |
| 86  | DATA     | I   | Serial data input, supplied from CPU                              |
| 87  | XLAT     | I   | Latch input, supplied from CPU                                    |
| 88  | CLOCK    | I   | Serial data transfer clock input, supplied from CPU               |



| No. | Pin Name         | I/O | Description                                  |
|-----|------------------|-----|--|
| 89  | COUT             | O   | Numbers of track counted signal output       |
| 90  | DV <sub>DD</sub> | —   | Digital power supply                         |
| 91  | MIRR             | O   | Mirror signal output                         |
| 92  | DFCT             | O   | Defect signal output                         |
| 93  | FOK              | O   | Focus OK output                              |
| 94  | FSW              | O   | Output to select spindle motor output filter |
| 95  | MON              | O   | Output to control ON/OFF of spindle motor    |
| 96  | MDP              | O   | Output to control spindle motor servo        |
| 97  | MDS              | O   | Output to control spindle motor servo        |
| 98  | LOCK             | O   | GFS is sampled by 460Hz. H when GFS is H.    |
| 99  | SSTP             | I   | Input signal to detect disc inner most track |
| 100 | SFDR             | O   | Sled drive output                            |

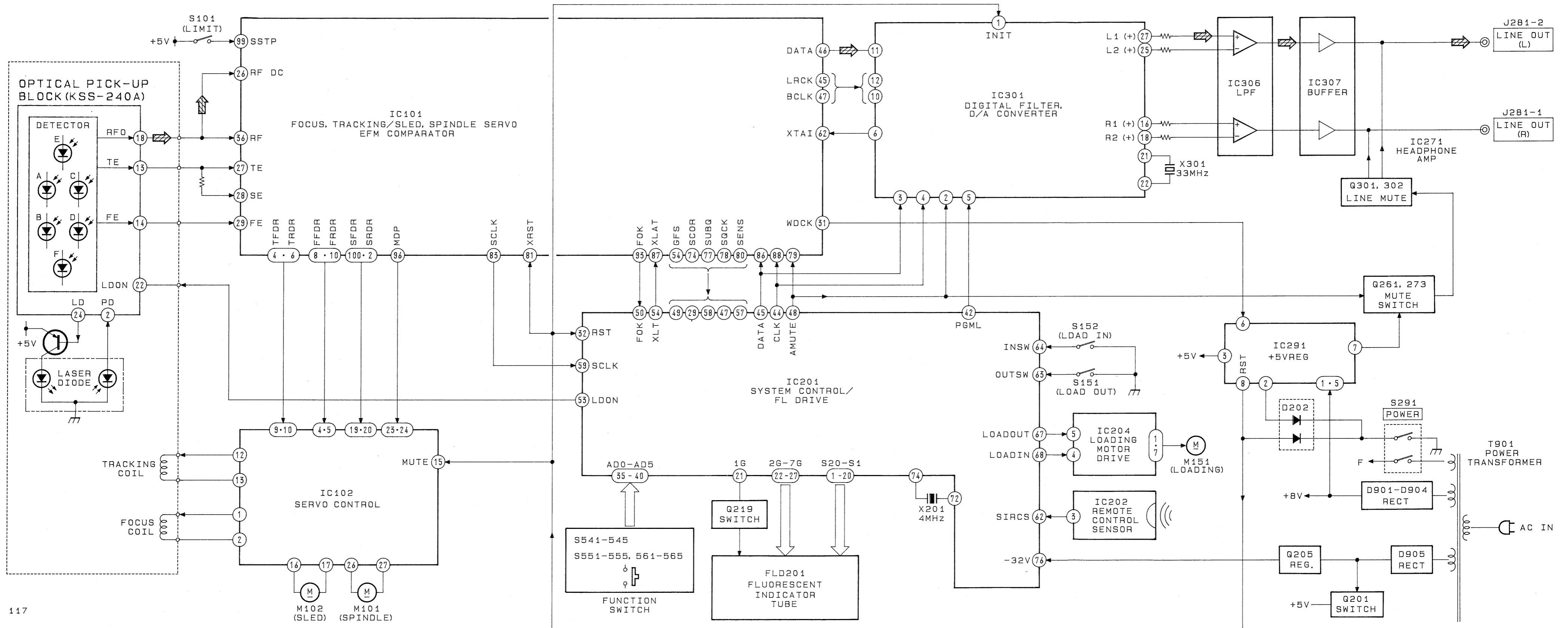
•IC201 CD System Controller (CXP50112-416Q)

| No.           | Pin Name        | I/O | Description  |
|---------------|-----------------|-----|--|
| 1<br> <br>20  | S20<br> <br>S1  | O   | Fluorescent character display tube segment output  |
| 21<br> <br>27 | 1G<br> <br>7G   | O   | Fluorescent character display tube timing output   |
| 28            | 8G              | O   | Not used in this unit (open)   |
| 29            | SCOR            | I   | Sub-code sync input from IC101 (CXD2515Q)<br>Sub-code reading begins when this signal is received. |
| 30            | OPEN            | —   | Not used in this unit (open)   |
| 31            | +5V             | I   | Not used in this unit (connected to +5V)   |
| 32            | RST             | I   | Resetting input for the microprocessor   |
| 33            | +5V             | —   | Not used in this unit (connected to +5V)   |
| 34            | VDD             | —   | +5V power supply terminal  |
| 35<br> <br>40 | AD0<br> <br>AD5 | I   | Key data input (arrangement is selected with the A/D terminal)                                     |
| 41            | GND             | I   | Not used in this unit (connected to +5V)   |
| 42            | PGML            | O   | Program latch to the digital filter (IC301)  |
| 43            | GND             |     | Not used in this unit (connected to GND)   |
| 44            | CLK             | O   | Serial data transmission clock output to IC101 (CXD2515Q)<br>(or IC301 (CXD2565M))                 |
| 45            | DATA            | O   | Serial data output to IC101 (CXD2515Q) (or IC301 (CXD2565M))                                       |
| 46            | GND             | I   | Not used in this unit (connected to GND)   |
| 47            | SQCK            | O   | Sub-code Q reading clock output to IC101 (CXD2515Q)  |
| 48            | AMUTE           | O   | Muting control output "H" : Mute   |
| 49            | GFS             | I   | GFS signal input from IC101 (CXD2515Q)   |
| 50            | FOK             | I   | Focus OK signal input from IC101 (CXD2515Q)  |
| 51            | OPEN            | O   | Not used in this unit (open)   |
| 52            | OPEN            | O   | Not used in this unit (open)   |
| 53            | LDON            | O   | Laser diode ON/OFF switching output "H" : ON   |

| No. | Pin Name | I/O | Description   |
|-----|----------|-----|---|
| 54  | XLT      | O   | Serial data latch output to IC101 (CXD2515Q)  |
| 55  | A/D      | I   | Key arrangement switching (connected to +5V)  |
| 56  | GND      | I   | Not used in this unit (connected to GND)  |
| 57  | SENSE    | I   | SENSE input from IC101 (CXD2515Q)   |
| 58  | SUBQ     | I   | Sub-code Q data input from IC101 (CXD2515Q)   |
| 59  | SCLK     | O   | Data reading clock output to IC101 (CXD2515Q)   |
| 60  | OPEN     | O   | Not used in this unit (open)  |
| 61  | TIMER    | I   | Auto start switching "H" : OFF  |
| 62  | RM       | I   | Remote control input from IC202 (GPIU58XB). L : Active  |
| 63  | OUTSW    | I   | S151 (loading out switch) input   |
| 64  | INSW     | I   | S152 (loading in switch) input  |
| 65  | ADJ      | I   | Test mode input. Normally H   |
| 66  | AFADJ    | I   | Test mode input. Normally H.<br>Keys and displays can be tested when adjusted to "L" during power on. |
| 67  | LDOUT    | O   | Output for turn the loading motor (M151) to un loading.<br>"H" : Un loading                           |
| 68  | LDIN     | O   | Output for turn the loading motor (M151) to loading.<br>"H" : Loading                                 |
| 69  | OPEN     | -   | Not used in this unit (open)  |
| 70  | OPEN     | -   | Not used in this unit (open)  |
| 71  | VSS      | -   | GND terminal  |
| 72  | XTAL     | O   | Vibrator connection terminal (4MHz)   |
| 73  | +5V      | -   | Not used in this unit (connected to +5V)  |
| 74  | EXTAL    | I   | Vibrator connection terminal (4MHz)   |
| 75  | +5V      | I   | Reference voltage input of power supply voltage resetting circuit                                     |
| 76  | -30V     | -   | Power supply for the fluorescent character display tube (-30V)  |
| 77  |          | O   | Not used in this unit   |
| 78  |          | O   | Not used in this unit   |

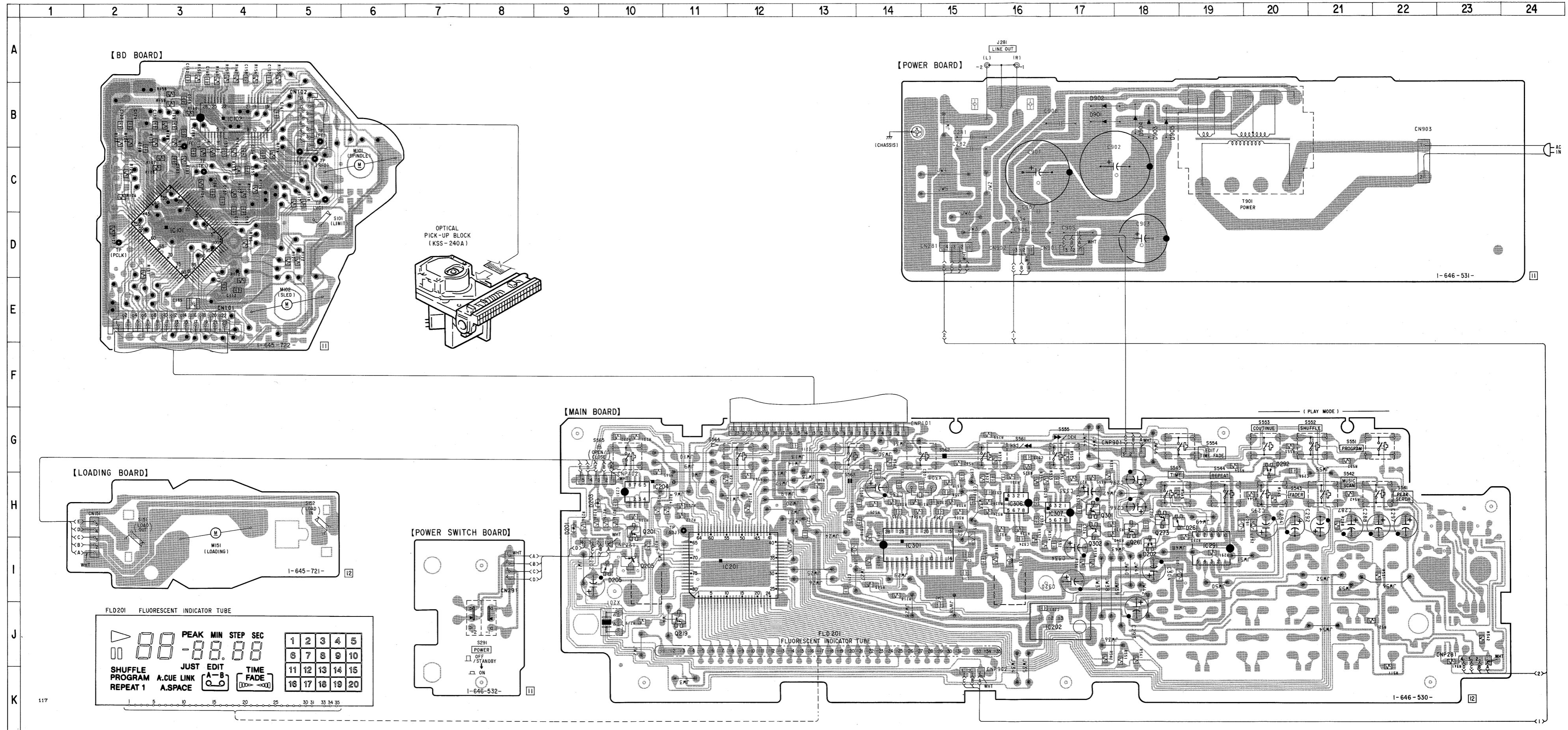
SECTION 5  
DIAGRAMS

5-1. BLOCK DIAGRAM



• Semiconductor Location

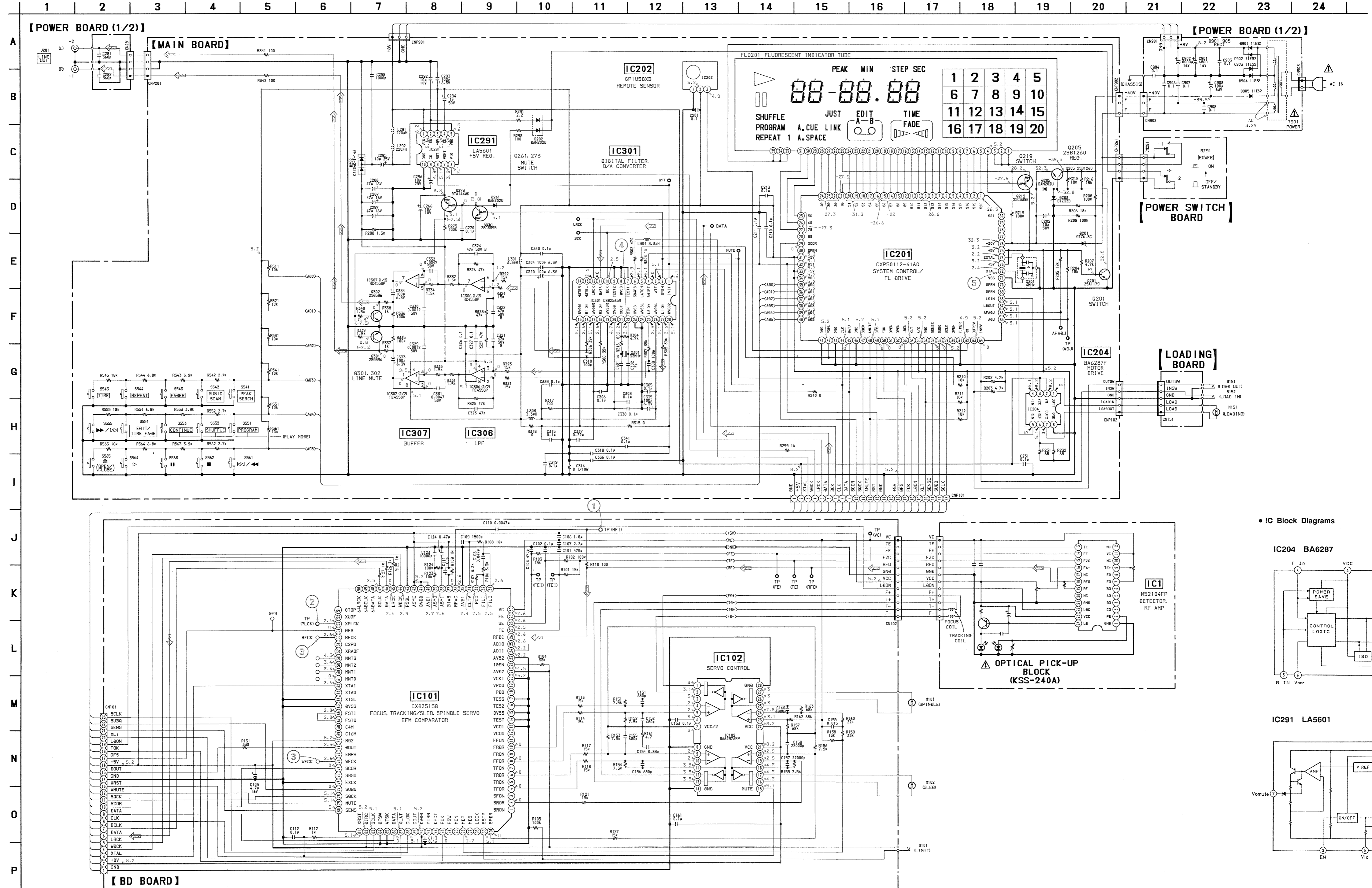
| Ref. No. | Location |
|----------|----------|
| D201     | H-9      |
| D202     | H-18     |
| D203     | H-9      |
| D205     | I-10     |
| D261     | H-18     |
| D292     | G-20     |
| D901     | B-17     |
| D902     | B-17     |
| D903     | B-18     |
| D904     | B-18     |
| D905     | B-18     |
| IC101    | D-3      |
| IC102    | B-4      |
| IC201    | I-11     |
| IC202    | J-17     |
| IC204    | H-10     |
| IC291    | H-19     |
| IC301    | H-14     |
| IC306    | H-16     |
| IC307    | H-17     |
| Q201     | H-10     |
| Q205     | I-10     |
| Q219     | J-11     |
| Q261     | H-18     |
| Q273     | H-18     |
| Q301     | H-17     |
| Q302     | H-17     |



**Note:**

- : parts mounted on the conductor side.
- : Through hole.
- ▨ : Pattern on the side which is seen.
- : Pattern of the rear side.

5-3. SCHEMATIC DIAGRAM • Refer to Page 21 for IC Block Diagrams.



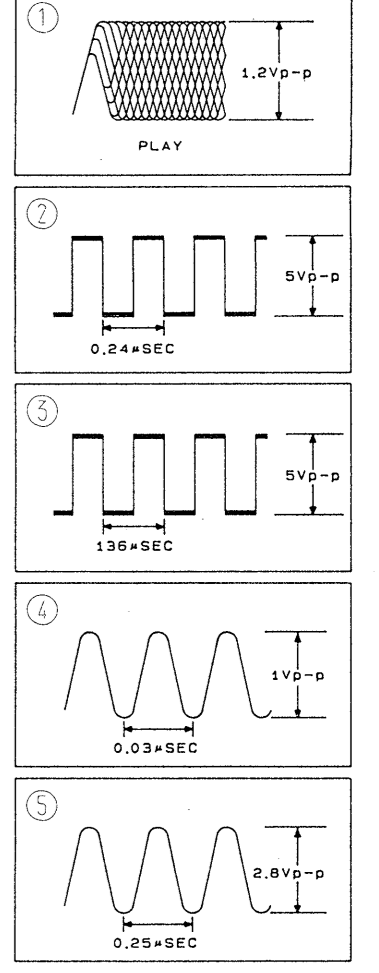
**Note:**

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

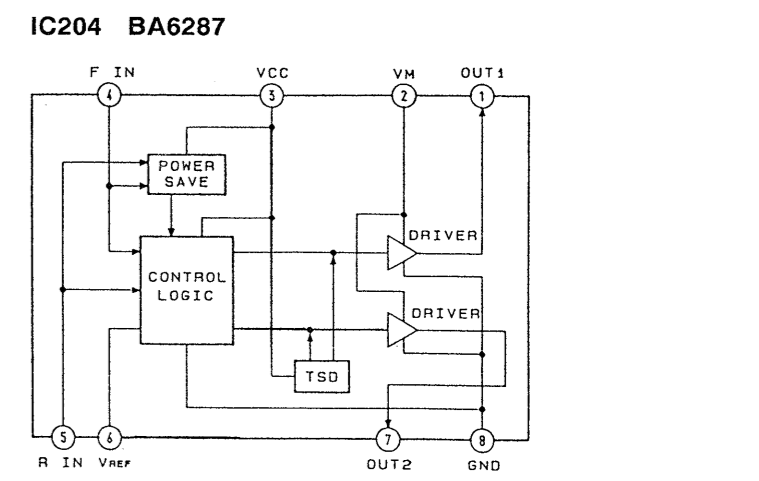
**Note:** The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

- —: B-Line.
- - - -: B-Line.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- no mark : STOP
- ( ): PLAY
- Voltages are taken with a VOM. (Input impedance 10M $\Omega$ )
- Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope.
- Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
- $\Rightarrow$ : CD

• Waveforms

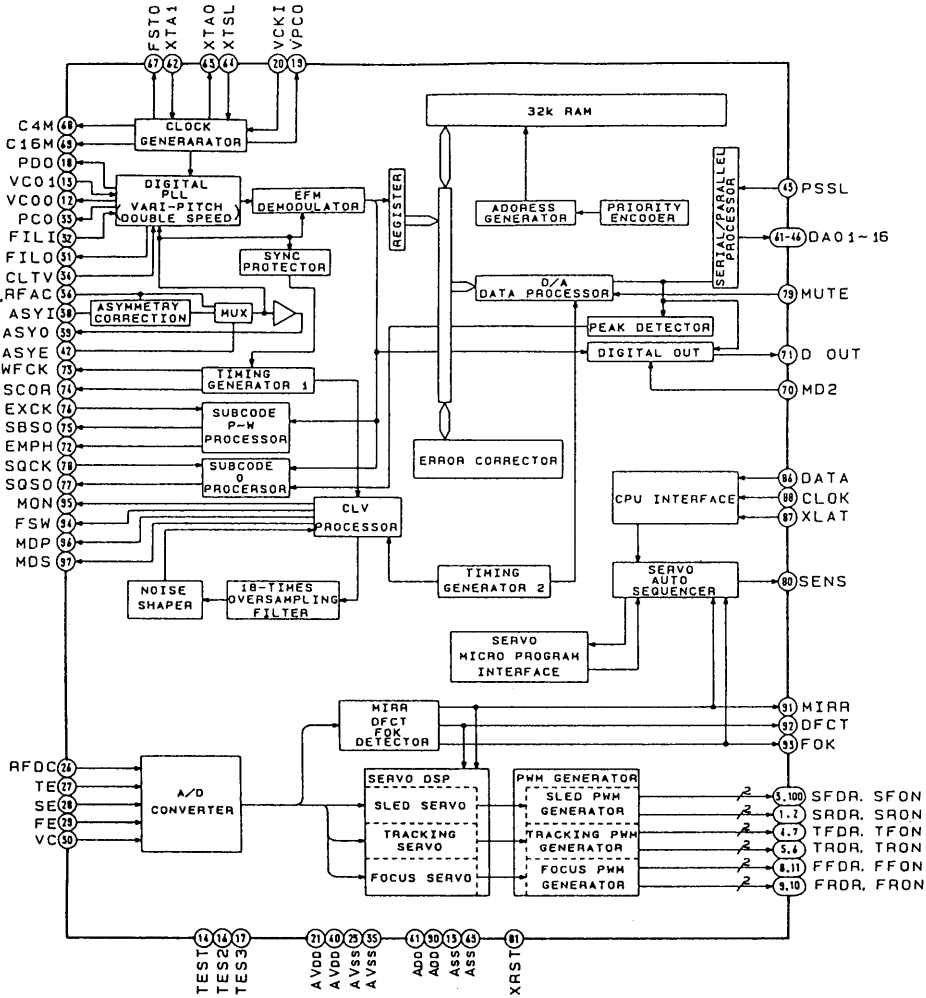


• IC Block Diagrams

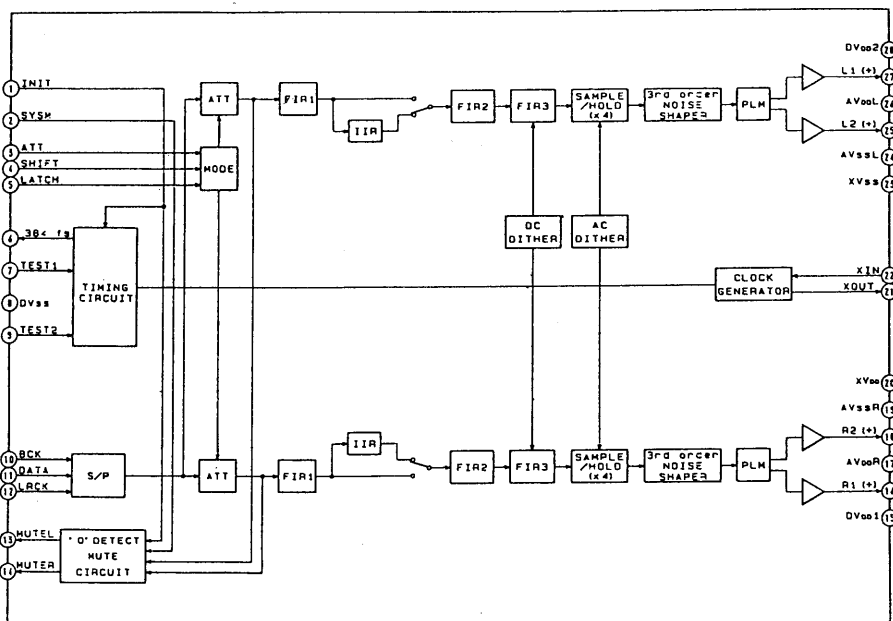


• IC Block Diagrams

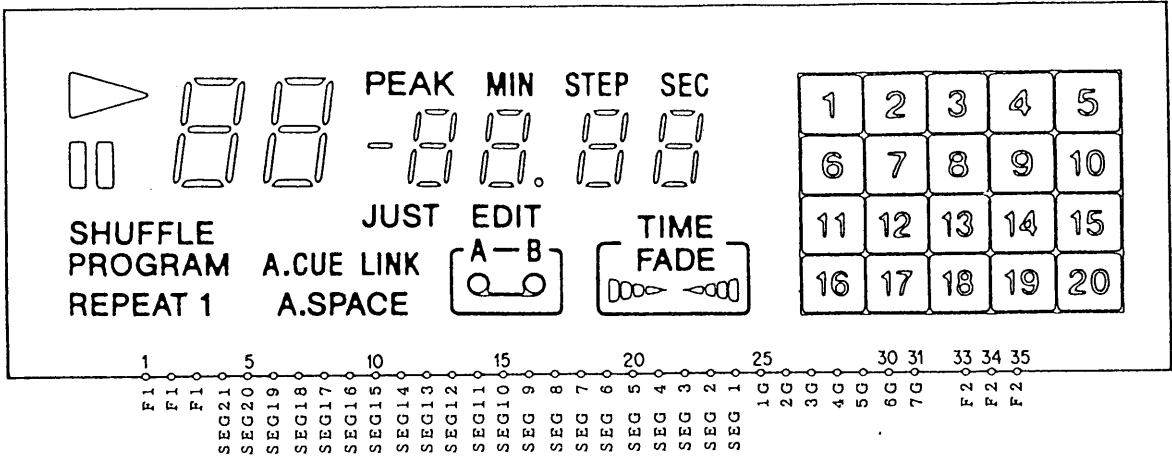
IC201 CXD2515Q



IC301 CXD2565M



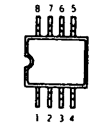
• FLD201 FLUORESCENT INDICATOR



| GRID<br>SEGMENT | 7G      | 6G | 5G       | 4G   | 3G   | 2G   | 1G |
|-----------------|---------|----|----------|------|------|------|----|
| SEG 1           |         |    | A. CUE   |      |      |      | 20 |
| SEG 2           |         |    | A. SPACE |      |      | SEC  | 19 |
| SEG 3           | SHUFFLE |    | JUST     | MIN  |      |      | 18 |
| SEG 4           | PROGRAM |    | LINK     | o    | STEP |      | 17 |
| SEG 5           |         |    |          |      |      |      | 16 |
| SEG 6           |         |    |          |      |      |      | 15 |
| SEG 7           |         |    |          |      |      |      | 14 |
| SEG 8           |         |    |          |      |      |      | 13 |
| SEG 9           |         |    |          |      |      |      | 12 |
| SEG 10          |         |    |          |      |      |      | 11 |
| SEG 11          |         |    |          |      |      |      | 10 |
| SEG 12          |         |    |          |      |      |      | 9  |
| SEG 13          |         |    |          |      |      |      | 8  |
| SEG 14          |         |    |          |      |      |      | 7  |
| SEG 15          |         |    |          |      |      |      | 6  |
| SEG 16          |         |    |          |      |      |      | 5  |
| SEG 17          | REPEAT  |    |          | A    |      |      | 4  |
| SEG 18          | 1       |    |          | B    |      |      | 3  |
| SEG 19          |         |    |          | EDIT |      | TIME | 2  |
| SEG 20          |         |    | PEAK     |      |      | FADE | 1  |
| SEG 21          |         |    |          |      |      |      |    |

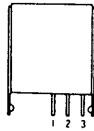
## 5-4. SEMICONDUCTOR LEAD LAYOUTS

**BA6287F**



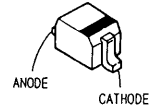
(TOP VIEW)

**CP1U52XB**

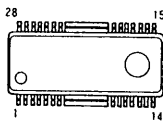


1 Vout  
2 Vcc  
3 GND

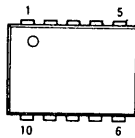
**DTZ30B**



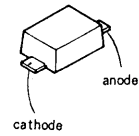
**BA6297AFP**



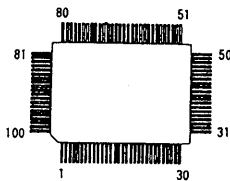
**LA5601**



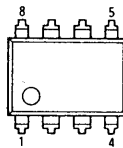
**DTZ6.8C**



**CXD2515Q**

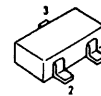


**M5218AFP  
RC4558PS**

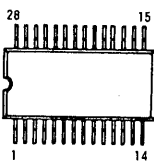


(TOP VIEW)

**1SS226**



**CXD2565M**

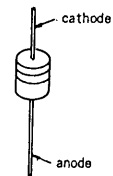


(TOP VIEW)

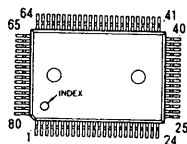
**DTA114EK  
DTC144EK  
2SA1179-M5M6  
2SB1260  
2SC3395  
2SC3398  
2SD596DV345**



**11ES2**

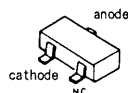


**CXP50112-416Q**



(TOP VIEW)

**DAN202U**

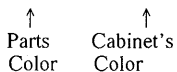




# SECTION 6 EXPLODED VIEWS

**NOTE:**

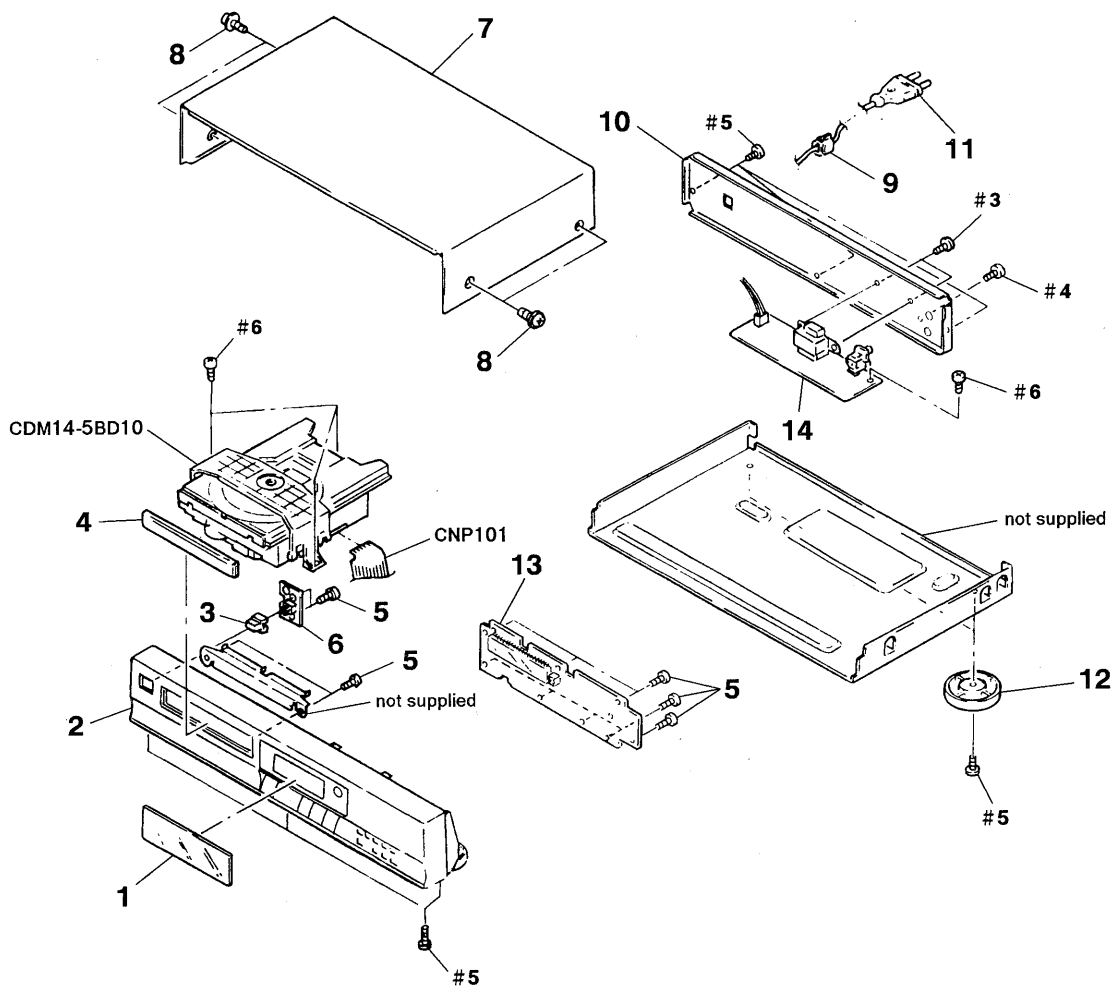
- -XX,-X mean standardized parts, so they may have some difference from the original one.
- Color indication of Appearance Parts.  
Example:  
KNOB,BALANCE (WHITE) . . . (RED)



- 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 is given in the last of this parts list.

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

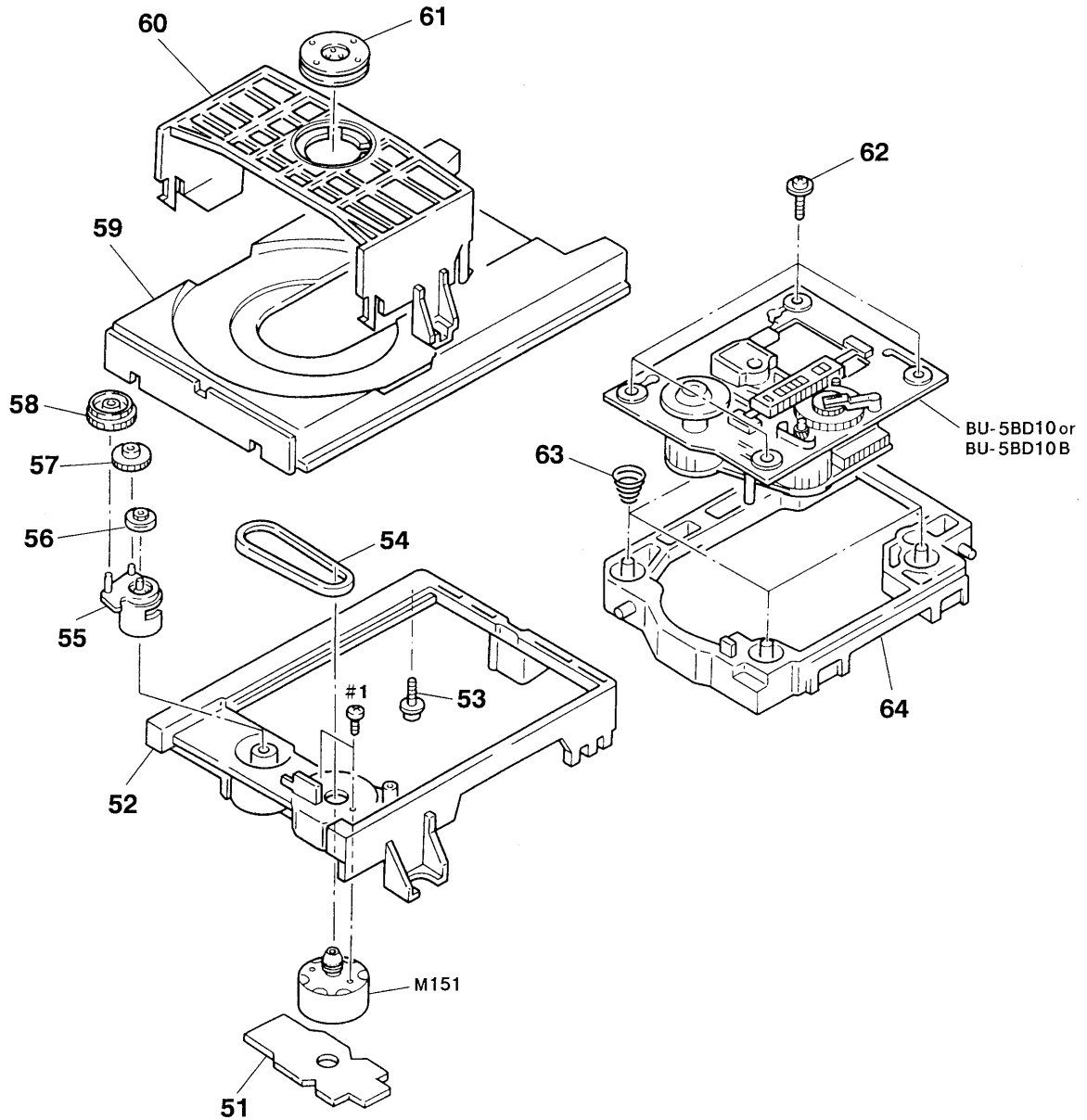
## 6-1. FRONT PANEL SECTION



| Ref. No. | Part No.     | Description             | Remark |
|----------|--------------|-------------------------|--------|
| 1        | 4-954-928-01 | PLATE, INDICATION (309) |        |
| 1        | 4-954-928-11 | PLATE, INDICATION (209) |        |
| 2        | X-4943-491-2 | PANEL ASSY, FRONT (209) |        |
| 2        | X-4943-627-1 | PANEL ASSY, FRONT (309) |        |
| 3        | 4-947-034-01 | BUTTON (POWER)          |        |
| 4        | 4-954-929-42 | PANEL, LOADING (209)    |        |
| 4        | 4-954-929-51 | PANEL, LOADING (309)    |        |
| 5        | 4-951-620-01 | SCREW (2.6X8), +BVTP    |        |
| * 6      | 1-646-532-11 | POWER SW BOARD          |        |
| * 7      | 4-929-035-31 | CASE (BAP MAE)          |        |

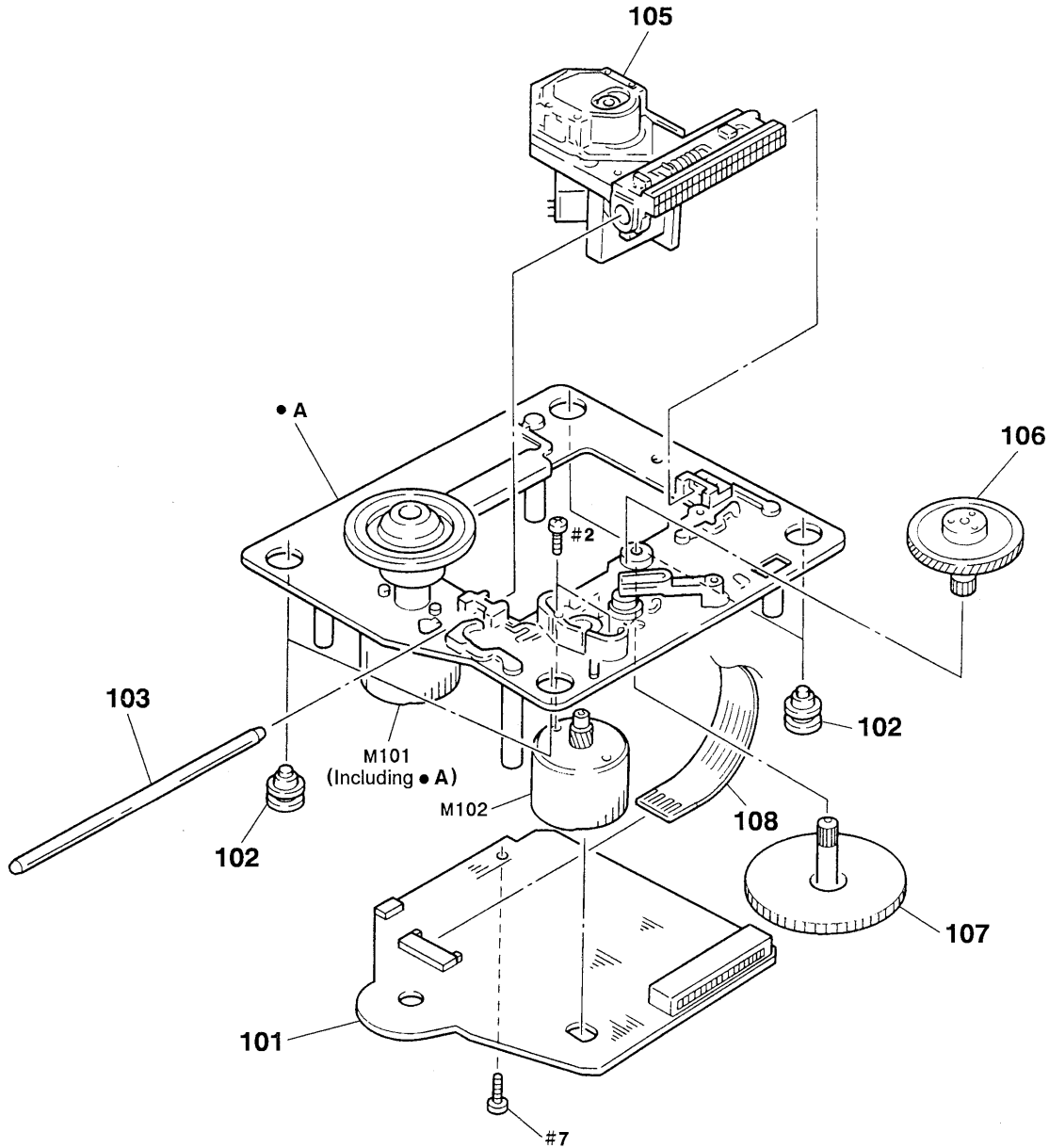
| Ref. No. | Part No.     | Description          | Remark                       |
|----------|--------------|----------------------|------------------------------|
| 8        | 3-363-099-01 | SCREW (CASE 3 TP2)   |                              |
| 9        | 3-703-244-00 | BUSHING, CORD        |                              |
| * 10     | 4-949-540-53 | PANEL, BACK (209)    |                              |
| * 10     | 4-949-540-61 | PANEL, BACK (309)    |                              |
|          | 11           | 1-575-651-21         | CORD, POWER                  |
| 12       | 4-930-848-01 | FOOT                 |                              |
| * 13     | A-4649-550-A | MAIN BOARD, COMPLETE |                              |
| * 14     | 1-646-531-11 | POWER BOARD          |                              |
|          | CNP101       | 1-537-472-21         | JUMPER, FILM (WITH TERMINAL) |

## 6-2. CD MECHANISM SECTION (CDM14-5BD10)



| Ref. No. | Part No.     | Description   | Remark | Ref. No. | Part No.     | Description               | Remark |
|----------|--------------|---------------|--------|----------|--------------|---------------------------|--------|
| * 51     | 1-645-721-12 | LOADING BOARD |        | 59       | 4-933-112-11 | TABLE, DISK               |        |
| 52       | 4-933-111-11 | CHASSIS (MD)  |        | 60       | 4-933-110-11 | HOLDER (MG)               |        |
| * 53     | 4-917-583-21 | BRACKET, YOKE |        | * 61     | 1-452-538-11 | MAGNET                    |        |
| 54       | 4-927-649-01 | BELT          |        | 62       | 4-933-134-01 | SCREW +PTPWH M2. 6X6      |        |
| 55       | 4-933-109-01 | CAM           |        | 63       | 4-959-996-01 | SPRING (932), COMPRESSION |        |
| 56       | 4-927-651-01 | PULLEY (S)    |        | 64       | 4-933-129-12 | HOLDER (BU)               |        |
| 57       | 4-927-628-01 | GEAR (C)      |        | M151     | A-4604-363-A | MOTOR (L) ASSY (LOADING)  |        |
| 58       | 4-933-107-01 | GEAR (PL)     |        |          |              |                           |        |

6-3. OPTICAL PICK-UP BLOCK (BU-5BD10 or BU-5BD10B)



| Ref. No. | Part No.     | Description              | Remark | Ref. No. | Part No.     | Description               | Remark |
|----------|--------------|--------------------------|--------|----------|--------------|---------------------------|--------|
| * 101    | A-4649-430-A | BD BOARD, COMPLETE       |        | 107      | 4-917-564-01 | GEAR (P), FLATNESS        |        |
| 102      | 4-951-940-01 | INSULATOR (BU)           |        | 108      | 1-575-001-11 | WIRE, FLAT TYPE (12 CORE) |        |
| 103      | 4-917-565-01 | SHAFT, SLED              |        | M101     | X-4917-523-3 | MOTOR ASSY (SPINDLE)      |        |
| ▲105     | 8-848-144-11 | DEVICE, OPTICAL KSS-240A |        | M102     | X-4917-504-1 | MOTOR ASSY (SLED)         |        |
| 106      | 4-917-567-01 | GEAR (M)                 |        |          |              |                           |        |

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

## SECTION 7 ELECTRICAL PARTS LIST

**NOTE:**

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms.  
METAL: Metal-film resistor.  
METAL OXIDE: Metal oxide-film resistor.  
F: nonflammable

- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- 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

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

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

| Ref. No. | Part No.     | Description           | Remark    | Ref. No. | Part No. | Description  | Remark                                |
|----------|--------------|-----------------------|-----------|----------|----------|--------------|---------------------------------------|
| *        | A-4649-430-A | BD BOARD, COMPLETE    |           |          |          | < RESISTOR > |                                       |
|          |              | *****                 |           |          |          |              |                                       |
|          |              | < CAPACITOR >         |           |          |          |              |                                       |
| C101     | 1-163-005-11 | CERAMIC CHIP          | 470PF     | 10%      | 50V      | R101         | 1-216-077-00 METAL CHIP 15K 5% 1/10W  |
| C102     | 1-163-038-00 | CERAMIC CHIP          | 0.1uF     |          | 25V      | R102         | 1-216-097-00 METAL CHIP 100K 5% 1/10W |
| C103     | 1-163-005-11 | CERAMIC CHIP          | 470PF     | 10%      | 50V      | R103         | 1-216-077-00 METAL CHIP 15K 5% 1/10W  |
| C105     | 1-135-287-91 | TANTAL. CHIP          | 4.7uF     | 20%      | 16V      | R104         | 1-216-085-00 METAL CHIP 33K 5% 1/10W  |
| C106     | 1-164-346-11 | CERAMIC CHIP          | 1uF       |          | 16V      | R105         | 1-216-097-00 METAL CHIP 100K 5% 1/10W |
| C107     | 1-164-505-11 | CERAMIC CHIP          | 2.2uF     |          | 16V      | R106         | 1-216-061-00 METAL CHIP 3.3K 5% 1/10W |
| C108     | 1-163-035-00 | CERAMIC CHIP          | 0.047uF   |          | 50V      | R107         | 1-216-061-00 METAL CHIP 3.3K 5% 1/10W |
| C109     | 1-163-011-11 | CERAMIC CHIP          | 0.0015uF  | 10%      | 50V      | R108         | 1-216-073-00 METAL CHIP 10K 5% 1/10W  |
| C110     | 1-163-017-00 | CERAMIC CHIP          | 0.0047uF  | 5%       | 50V      | R109         | 1-216-121-00 METAL CHIP 1M 5% 1/10W   |
| C111     | 1-163-251-11 | CERAMIC CHIP          | 100PF     | 5%       | 50V      | R110         | 1-216-025-00 METAL CHIP 100 5% 1/10W  |
| C112     | 1-163-038-00 | CERAMIC CHIP          | 0.1uF     |          | 25V      | R112         | 1-216-049-00 METAL CHIP 1K 5% 1/10W   |
| C113     | 1-163-038-00 | CERAMIC CHIP          | 0.1uF     |          | 25V      | R113         | 1-216-077-00 METAL CHIP 15K 5% 1/10W  |
| C123     | 1-164-232-11 | CERAMIC CHIP          | 0.01uF    |          | 50V      | R114         | 1-216-077-00 METAL CHIP 15K 5% 1/10W  |
| C124     | 1-164-005-11 | CERAMIC CHIP          | 0.47uF    |          | 25V      | R117         | 1-216-077-00 METAL CHIP 15K 5% 1/10W  |
| C151     | 1-163-007-11 | CERAMIC CHIP          | 680PF     | 10%      | 50V      | R118         | 1-216-077-00 METAL CHIP 15K 5% 1/10W  |
| C152     | 1-163-007-11 | CERAMIC CHIP          | 680PF     | 10%      | 50V      | R121         | 1-216-077-00 METAL CHIP 15K 5% 1/10W  |
| C153     | 1-163-038-00 | CERAMIC CHIP          | 0.1uF     |          | 25V      | R122         | 1-216-077-00 METAL CHIP 15K 5% 1/10W  |
| C154     | 1-164-336-11 | CERAMIC CHIP          | 0.33uF    |          | 25V      | R123         | 1-216-073-00 METAL CHIP 10K 5% 1/10W  |
| C155     | 1-163-007-11 | CERAMIC CHIP          | 680PF     | 10%      | 50V      | R124         | 1-216-097-00 METAL CHIP 100K 5% 1/10W |
| C156     | 1-163-007-11 | CERAMIC CHIP          | 680PF     | 10%      | 50V      | R125         | 1-216-049-00 METAL CHIP 1K 5% 1/10W   |
| C157     | 1-163-033-00 | CERAMIC CHIP          | 0.022uF   |          | 50V      | R126         | 1-216-049-00 METAL CHIP 1K 5% 1/10W   |
| C158     | 1-163-033-00 | CERAMIC CHIP          | 0.022uF   |          | 50V      | R127         | 1-216-049-00 METAL CHIP 1K 5% 1/10W   |
| C159     | 1-163-023-00 | CERAMIC CHIP          | 0.015uF   | 5%       | 50V      | R131         | 1-216-037-00 METAL CHIP 330 5% 1/10W  |
| C160     | 1-163-019-00 | CERAMIC CHIP          | 0.0068uF  | 10%      | 50V      | R151         | 1-216-070-00 METAL CHIP 7.5K 5% 1/10W |
| C161     | 1-163-038-00 | CERAMIC CHIP          | 0.1uF     |          | 25V      | R152         | 1-216-070-00 METAL CHIP 7.5K 5% 1/10W |
|          |              | < CONNECTOR >         |           |          |          |              |                                       |
| * CN101  | 1-568-865-11 | SOCKET, CONNECTOR 23P |           |          |          | R153         | 1-216-070-00 METAL CHIP 7.5K 5% 1/10W |
| CN102    | 1-568-795-11 | SOCKET, CONNECTOR 12P |           |          |          | R154         | 1-216-070-00 METAL CHIP 7.5K 5% 1/10W |
|          |              | < IC >                |           |          |          | R155         | 1-216-070-00 METAL CHIP 7.5K 5% 1/10W |
| IC101    | 8-752-351-94 | IC                    | CXD2515Q  |          |          | R156         | 1-216-070-00 METAL CHIP 7.5K 5% 1/10W |
| IC102    | 8-759-071-79 | IC                    | BA6297AFP |          |          | R157         | 1-216-093-00 METAL CHIP 68K 5% 1/10W  |
|          |              |                       |           |          |          |              |                                       |
|          |              |                       |           |          |          | R158         | 1-216-076-00 METAL CHIP 13K 5% 1/10W  |
|          |              |                       |           |          |          | R159         | 1-216-085-00 METAL CHIP 33K 5% 1/10W  |
|          |              |                       |           |          |          | R160         | 1-216-081-00 METAL CHIP 22K 5% 1/10W  |
|          |              |                       |           |          |          | R161         | 1-216-308-00 METAL CHIP 4.7 5% 1/10W  |
|          |              |                       |           |          |          | R162         | 1-216-093-00 METAL CHIP 68K 5% 1/10W  |
|          |              |                       |           |          |          | R163         | 1-216-093-00 METAL CHIP 68K 5% 1/10W  |
|          |              |                       |           |          |          |              |                                       |
|          |              |                       |           |          |          | < SWITCH >   |                                       |
|          |              |                       |           |          |          | S101         | 1-572-085-11 SWITCH, LEAF (LIMIT)     |

\*\*\*\*\*

# LOADING

# MAIN

| Ref. No. | Part No.     | Description                                    | Remark  |
|----------|--------------|--|---------|
| *        | 1-645-721-12 | LOADING BOARD<br>*****<br>< CONNECTOR >        |         |
| * CN151  | 1-568-943-11 | PIN, CONNECTOR 5P<br><br>< SWITCH >            |         |
| S151     | 1-572-086-11 | SWITCH, LEAF (LOAD OUT)                        |         |
| S152     | 1-572-086-11 | SWITCH, LEAF (LOAD IN)                         |         |
| *****    |              |  |         |
| *        | A-4649-550-A | MAIN BOARD, COMPLETE<br>*****<br>< CAPACITOR > |         |
| C201     | 1-163-038-00 | CERAMIC CHIP 0.1uF                             | 25V     |
| C202     | 1-124-261-00 | ELECT 10uF                                     | 20% 50V |
| C210     | 1-163-038-00 | CERAMIC CHIP 0.1uF                             | 25V     |
| C211     | 1-163-038-00 | CERAMIC CHIP 0.1uF                             | 25V     |
| C213     | 1-163-038-00 | CERAMIC CHIP 0.1uF                             | 25V     |
| C231     | 1-163-038-00 | CERAMIC CHIP 0.1uF                             | 25V     |
| C266     | 1-126-157-11 | ELECT 10uF                                     | 20% 16V |
| C270     | 1-163-038-00 | CERAMIC CHIP 0.1uF                             | 25V     |
| C287     | 1-124-589-11 | ELECT 47uF                                     | 20% 16V |
| C288     | 1-124-589-11 | ELECT 47uF                                     | 20% 16V |
| C292     | 1-126-157-11 | ELECT 10uF                                     | 20% 16V |
| C293     | 1-124-584-00 | ELECT 100uF                                    | 20% 10V |
| C294     | 1-126-160-11 | ELECT 1uF                                      | 20% 50V |
| C295     | 1-126-096-11 | ELECT 10uF                                     | 20% 35V |
| C296     | 1-126-096-11 | ELECT 10uF                                     | 20% 35V |
| C297     | 1-124-589-11 | ELECT 47uF                                     | 20% 16V |
| C298     | 1-163-275-11 | CERAMIC CHIP 0.001uF                           | 5% 50V  |
| C301     | 1-163-088-00 | CERAMIC CHIP 5PF                               | 50V     |
| C302     | 1-163-088-00 | CERAMIC CHIP 5PF                               | 50V     |
| C303     | 1-163-038-00 | CERAMIC CHIP 0.1uF                             | 25V     |
| C304     | 1-124-584-00 | ELECT 100uF                                    | 20% 10V |
| C305     | 1-163-038-00 | CERAMIC CHIP 0.1uF                             | 25V     |
| C306     | 1-163-038-00 | CERAMIC CHIP 0.1uF                             | 25V     |
| C309     | 1-163-251-11 | CERAMIC CHIP 100PF                             | 5% 50V  |
| C310     | 1-163-251-11 | CERAMIC CHIP 100PF                             | 5% 50V  |
| C315     | 1-163-038-00 | CERAMIC CHIP 0.1uF                             | 25V     |
| C318     | 1-163-038-00 | CERAMIC CHIP 0.1uF                             | 25V     |
| C319     | 1-163-038-00 | CERAMIC CHIP 0.1uF                             | 25V     |
| C320     | 1-124-584-00 | ELECT 100uF                                    | 20% 10V |
| C321     | 1-163-243-11 | CERAMIC CHIP 47PF                              | 5% 50V  |
| C322     | 1-163-243-11 | CERAMIC CHIP 47PF                              | 5% 50V  |
| C323     | 1-163-243-11 | CERAMIC CHIP 47PF                              | 5% 50V  |
| C324     | 1-163-243-11 | CERAMIC CHIP 47PF                              | 5% 50V  |

| Ref. No.                  | Part No.     | Description                  | Remark  |
|---------------------------|--------------|------------------------------|---------|
| C326                      | 1-163-038-00 | CERAMIC CHIP 0.1uF           | 25V     |
| C327                      | 1-163-038-00 | CERAMIC CHIP 0.1uF           | 25V     |
| C329                      | 1-163-143-00 | CERAMIC CHIP 0.0012uF        | 5% 50V  |
| C330                      | 1-163-143-00 | CERAMIC CHIP 0.0012uF        | 5% 50V  |
| C331                      | 1-163-017-00 | CERAMIC CHIP 0.0047uF        | 5% 50V  |
| C332                      | 1-163-017-00 | CERAMIC CHIP 0.0047uF        | 5% 50V  |
| C333                      | 1-124-584-00 | ELECT 100uF                  | 20% 10V |
| C334                      | 1-124-584-00 | ELECT 100uF                  | 20% 10V |
| C335                      | 1-124-584-00 | ELECT 100uF                  | 20% 10V |
| C336                      | 1-163-038-00 | CERAMIC CHIP 0.1uF           | 25V     |
| C337                      | 1-163-081-00 | CERAMIC CHIP 0.22uF          | 25V     |
| C338                      | 1-163-038-00 | CERAMIC CHIP 0.1uF           | 25V     |
| C339                      | 1-163-038-00 | CERAMIC CHIP 0.1uF           | 25V     |
| C340                      | 1-163-038-00 | CERAMIC CHIP 0.1uF           | 25V     |
| C341                      | 1-163-038-00 | CERAMIC CHIP 0.1uF           | 25V     |
| < RESISTOR >              |              |                              |         |
| C316                      | 1-216-295-00 | METAL CHIP 0 5% 1/10W        |         |
| < CONNECTOR >             |              |                              |         |
| CNP101                    | 1-537-472-21 | JUMPER, FILM (WITH TERMINAL) |         |
| < DIODE >                 |              |                              |         |
| D201                      | 8-719-977-13 | DIODE DTZ6.8C                |         |
| D202                      | 8-719-941-86 | DIODE DAN202U                |         |
| D203                      | 8-719-978-93 | DIODE DTZ30B-TT11            |         |
| D205                      | 8-719-941-86 | DIODE DAN202U                |         |
| D261                      | 8-719-941-86 | DIODE DAN202U                |         |
| D292                      | 8-719-800-76 | DIODE 1SS226                 |         |
| < FLUORESCENT INDICATOR > |              |                              |         |
| FLD201                    | 1-519-752-11 | INDICATOR TUBE, FLUORESCENT  |         |
| < IC >                    |              |                              |         |
| IC201                     | 8-752-838-06 | IC CXP50112-416Q             |         |
| IC202                     | 8-749-923-11 | IC GP1U58XB                  |         |
| IC204                     | 8-759-040-83 | IC BA6287F                   |         |
| IC291                     | 8-759-821-93 | IC LA5601                    |         |
| IC301                     | 8-752-355-45 | IC CXD2565M                  |         |
| IC306                     | 8-759-996-43 | IC RC4558PS                  |         |
| IC307                     | 8-759-996-43 | IC RC4558PS                  |         |
| < COIL >                  |              |                              |         |
| L291                      | 1-410-658-31 | INDUCTOR CHIP 220uH          |         |
| L292                      | 1-410-658-31 | INDUCTOR CHIP 220uH          |         |
| L301                      | 1-410-375-11 | INDUCTOR CHIP 3.3uH          |         |
| L303                      | 1-410-375-11 | INDUCTOR CHIP 3.3uH          |         |
| L304                      | 1-410-375-11 | INDUCTOR CHIP 3.3uH          |         |

| Ref. No.       | Part No.     | Description             | Remark |
|----------------|--------------|-------------------------|--------|
| < TRANSISTOR > |              |                         |        |
| Q201           | 8-729-820-76 | TRANSISTOR 2SA1179-M5M6 |        |
| Q205           | 8-729-019-72 | TRANSISTOR 2SB1260      |        |
| Q219           | 8-729-805-41 | TRANSISTOR 2SC3398      |        |
| Q261           | 8-729-901-01 | TRANSISTOR DTC144EK     |        |
| Q273           | 8-729-900-XX | TRANSISTOR DTA144WK     |        |
| Q301           | 8-729-141-75 | TRANSISTOR 2SD596DV345  |        |
| Q302           | 8-729-141-75 | TRANSISTOR 2SD596DV345  |        |
| < RESISTOR >   |              |                         |        |
| R202           | 1-216-065-00 | METAL CHIP 4.7K 5%      | 1/10W  |
| R203           | 1-216-065-00 | METAL CHIP 4.7K 5%      | 1/10W  |
| R204           | 1-216-079-00 | METAL CHIP 18K 5%       | 1/10W  |
| R205           | 1-216-079-00 | METAL CHIP 18K 5%       | 1/10W  |
| R206           | 1-216-079-00 | METAL CHIP 18K 5%       | 1/10W  |
| R207           | 1-216-065-00 | METAL CHIP 4.7K 5%      | 1/10W  |
| R208           | 1-216-097-00 | METAL CHIP 100K 5%      | 1/10W  |
| R209           | 1-216-097-00 | METAL CHIP 100K 5%      | 1/10W  |
| R210           | 1-216-079-00 | METAL CHIP 18K 5%       | 1/10W  |
| R211           | 1-216-079-00 | METAL CHIP 18K 5%       | 1/10W  |
| R212           | 1-216-079-00 | METAL CHIP 18K 5%       | 1/10W  |
| R215           | 1-216-079-00 | METAL CHIP 18K 5%       | 1/10W  |
| R216           | 1-216-079-00 | METAL CHIP 18K 5%       | 1/10W  |
| R219           | 1-216-097-00 | METAL CHIP 100K 5%      | 1/10W  |
| R231           | 1-216-021-00 | METAL CHIP 68 5%        | 1/10W  |
| R232           | 1-216-021-00 | METAL CHIP 68 5%        | 1/10W  |
| R240           | 1-216-295-00 | METAL CHIP 0 5%         | 1/10W  |
| R275           | 1-216-097-00 | METAL CHIP 100K 5%      | 1/10W  |
| R288           | 1-216-053-00 | METAL CHIP 1.5K 5%      | 1/10W  |
| R291           | 1-216-298-00 | METAL CHIP 2.2 5%       | 1/10W  |
| R293           | 1-216-025-00 | METAL CHIP 100 5%       | 1/10W  |
| R299           | 1-216-049-00 | METAL CHIP 1K 5%        | 1/10W  |
| R302           | 1-216-041-00 | METAL CHIP 470 5%       | 1/10W  |
| R303           | 1-216-049-00 | METAL CHIP 1K 5%        | 1/10W  |
| R304           | 1-216-065-00 | METAL CHIP 4.7K 5%      | 1/10W  |
| R305           | 1-216-689-11 | METAL CHIP 39K 0.5%     | 1/10W  |
| R306           | 1-216-689-11 | METAL CHIP 39K 0.5%     | 1/10W  |
| R307           | 1-216-689-11 | METAL CHIP 39K 0.5%     | 1/10W  |
| R308           | 1-216-689-11 | METAL CHIP 39K 0.5%     | 1/10W  |
| R315           | 1-216-296-00 | METAL CHIP 0 5%         | 1/8W   |
| R316           | 1-216-025-00 | METAL CHIP 100 5%       | 1/10W  |
| R317           | 1-216-025-00 | METAL CHIP 100 5%       | 1/10W  |
| R318           | 1-216-295-00 | METAL CHIP 0 5%         | 1/10W  |
| R321           | 1-216-077-00 | METAL CHIP 15K 5%       | 1/10W  |
| R322           | 1-216-077-00 | METAL CHIP 15K 5%       | 1/10W  |
| R323           | 1-216-077-00 | METAL CHIP 15K 5%       | 1/10W  |
| R324           | 1-216-077-00 | METAL CHIP 15K 5%       | 1/10W  |
| R325           | 1-216-089-00 | METAL CHIP 47K 5%       | 1/10W  |

| Ref. No.   | Part No.     | Description                      | Remark |
|------------|--------------|----------------------------------|--------|
| R326       | 1-216-089-00 | METAL CHIP 47K 5%                | 1/10W  |
| R327       | 1-216-089-00 | METAL CHIP 47K 5%                | 1/10W  |
| R328       | 1-216-089-00 | METAL CHIP 47K 5%                | 1/10W  |
| R331       | 1-216-053-00 | METAL CHIP 1.5K 5%               | 1/10W  |
| R332       | 1-216-053-00 | METAL CHIP 1.5K 5%               | 1/10W  |
| R333       | 1-216-053-00 | METAL CHIP 1.5K 5%               | 1/10W  |
| R334       | 1-216-053-00 | METAL CHIP 1.5K 5%               | 1/10W  |
| R335       | 1-216-097-00 | METAL CHIP 100K 5%               | 1/10W  |
| R336       | 1-216-097-00 | METAL CHIP 100K 5%               | 1/10W  |
| R337       | 1-216-049-00 | METAL CHIP 1K 5%                 | 1/10W  |
| R338       | 1-216-049-00 | METAL CHIP 1K 5%                 | 1/10W  |
| R339       | 1-216-053-00 | METAL CHIP 1.5K 5%               | 1/10W  |
| R340       | 1-216-053-00 | METAL CHIP 1.5K 5%               | 1/10W  |
| R341       | 1-216-025-00 | METAL CHIP 100 5%                | 1/10W  |
| R342       | 1-216-025-00 | METAL CHIP 100 5%                | 1/10W  |
| R511       | 1-216-073-00 | METAL CHIP 10K 5%                | 1/10W  |
| R521       | 1-216-073-00 | METAL CHIP 10K 5%                | 1/10W  |
| R531       | 1-216-073-00 | METAL CHIP 10K 5%                | 1/10W  |
| R541       | 1-216-073-00 | METAL CHIP 10K 5%                | 1/10W  |
| R542       | 1-216-059-00 | METAL CHIP 2.7K 5%               | 1/10W  |
| R543       | 1-216-063-00 | METAL CHIP 3.9K 5%               | 1/10W  |
| R544       | 1-216-069-00 | METAL CHIP 6.8K 5%               | 1/10W  |
| R545       | 1-216-079-00 | METAL CHIP 18K 5%                | 1/10W  |
| R551       | 1-216-073-00 | METAL CHIP 10K 5%                | 1/10W  |
| R552       | 1-216-059-00 | METAL CHIP 2.7K 5%               | 1/10W  |
| R553       | 1-216-063-00 | METAL CHIP 3.9K 5%               | 1/10W  |
| R554       | 1-216-069-00 | METAL CHIP 6.8K 5%               | 1/10W  |
| R555       | 1-216-079-00 | METAL CHIP 18K 5%                | 1/10W  |
| R561       | 1-216-073-00 | METAL CHIP 10K 5%                | 1/10W  |
| R562       | 1-216-059-00 | METAL CHIP 2.7K 5%               | 1/10W  |
| R563       | 1-216-063-00 | METAL CHIP 3.9K 5%               | 1/10W  |
| R564       | 1-216-069-00 | METAL CHIP 6.8K 5%               | 1/10W  |
| R565       | 1-216-079-00 | METAL CHIP 18K 5%                | 1/10W  |
| < SWITCH > |              |                                  |        |
| S541       | 1-554-303-21 | SWITCH, TACTILE (PEAK SEARCH)    |        |
| S542       | 1-554-303-21 | SWITCH, TACTILE (MUSIC SCAN)     |        |
| S543       | 1-554-303-21 | SWITCH, TACTILE (FADER)          |        |
| S544       | 1-554-303-21 | SWITCH, TACTILE (REPEAT)         |        |
| S545       | 1-554-303-21 | SWITCH, TACTILE (TIME)           |        |
| S551       | 1-554-303-21 | SWITCH, TACTILE (PROGRAM)        |        |
| S552       | 1-554-303-21 | SWITCH, TACTILE (SHUFFLE)        |        |
| S553       | 1-554-303-21 | SWITCH, TACTILE (CONTINUE)       |        |
| S554       | 1-554-303-21 | SWITCH, TACTILE (EDIT/TIME FADE) |        |
| S555       | 1-554-303-21 | SWITCH, TACTILE (▶▶/▶▶)          |        |

**MAIN**

**POWER**

**POWER SW**

| Ref. No.        | Part No.     | Description                    | Remark          |
|-----------------|--------------|--------------------------------|-----------------|
| S561            | 1-554-303-21 | SWITCH, TACTILE (K/◀)          |                 |
| S562            | 1-554-303-21 | SWITCH, TACTILE (■)            |                 |
| S563            | 1-554-303-21 | SWITCH, TACTILE (  )           |                 |
| S564            | 1-554-303-21 | SWITCH, TACTILE (▷)            |                 |
| S565            | 1-554-303-21 | SWITCH, TACTILE (⊞ OPEN/CLOSE) |                 |
| < VIBRATOR >    |              |                                |                 |
| X201            | 1-577-082-11 | VIBRATOR, CERAMIC (4MHz)       |                 |
| X301            | 1-579-833-21 | VIBRATOR, CRYSTAL (33MHz)      |                 |
| *****           |              |                                |                 |
| *               | 1-646-531-11 | POWER BOARD                    |                 |
| *****           |              |                                |                 |
| < CAPACITOR >   |              |                                |                 |
| C281            | 1-162-291-31 | CERAMIC                        | 560PF 10% 50V   |
| C282            | 1-162-291-31 | CERAMIC                        | 560PF 10% 50V   |
| C901            | 1-124-894-11 | ELECT                          | 6800uF 20% 16V  |
| C902            | 1-126-939-11 | ELECT                          | 10000uF 20% 16V |
| C903            | 1-128-576-11 | ELECT                          | 100uF 20% 63V   |
| C904            | 1-164-159-11 | CERAMIC                        | 0.1uF 50V       |
| C905            | 1-164-159-11 | CERAMIC                        | 0.1uF 50V       |
| C906            | 1-164-159-11 | CERAMIC                        | 0.1uF 50V       |
| C907            | 1-164-159-11 | CERAMIC                        | 0.1uF 50V       |
| C908            | 1-164-159-11 | CERAMIC                        | 0.1uF 50V       |
| < CONNECTOR >   |              |                                |                 |
| CN281           | 1-506-469-11 | PIN, CONNECTOR                 | 4P              |
| CN901           | 1-506-468-11 | PIN, CONNECTOR                 | 3P              |
| CN902           | 1-506-468-11 | PIN, CONNECTOR                 | 3P              |
| * CN903         | 1-580-230-11 | PIN, CONNECTOR (PC BOARD)      | 3P              |
| < DIODE >       |              |                                |                 |
| D901            | 8-719-200-82 | DIODE                          | 11ES2           |
| D902            | 8-719-200-82 | DIODE                          | 11ES2           |
| D903            | 8-719-200-82 | DIODE                          | 11ES2           |
| D904            | 8-719-200-82 | DIODE                          | 11ES2           |
| D905            | 8-719-200-82 | DIODE                          | 11ES2           |
| < JACK >        |              |                                |                 |
| J281            | 1-569-442-11 | JACK, PIN 2P (LINE OUT)        |                 |
| < TRANSFORMER > |              |                                |                 |
| △T901           | 1-450-213-11 | TRANSFORMER, POWER             |                 |
| *****           |              |                                |                 |

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

| Ref. No.  | Part No.     | Description                  | Remark |
|---|--------------|------------------------------|--------|
| *   | 1-646-532-11 | POWER SW BOARD               |        |
| *****   |              |                              |        |
| < CONNECTOR >   |              |                              |        |
| CN291   | 1-506-469-11 | PIN, CONNECTOR               | 4P     |
| < SWITCH >  |              |                              |        |
| S291  | 1-554-118-00 | SWITCH, PUSH (1 KEY) (POWER) |        |
| *****   |              |                              |        |
| MISCELLANEOUS   |              |                              |        |
| *****   |              |                              |        |
| △11   | 1-575-651-21 | CORD, POWER                  |        |
| * 61  | 1-452-538-11 | MAGNET                       |        |
| △105  | 8-848-144-11 | DEVICE, OPTICAL KSS-240A     |        |
| 108   | 1-575-001-11 | WIRE, FLAT TYPE (12 CORE)    |        |
| M101  | X-4917-523-3 | MOTOR ASSY (SPINDLE)         |        |
| M102  | X-4917-504-1 | MOTOR ASSY (SLED)            |        |
| M151  | A-4604-363-A | MOTOR (L) ASSY (LOADING)     |        |
| *****   |              |                              |        |
| ACCESSORIES & PACKING MATERIALS                       |              |                              |        |
| *****   |              |                              |        |
| 1-465-635-11 REMOTE COMMANDER (RM-D295) (309)         |              |                              |        |
| 1-558-271-11 CORD, CONNECTION                         |              |                              |        |
| 2-181-754-01 COVER (MLY), BATTERY (For RM-D295) (309) |              |                              |        |
| 3-756-497-51 MANUAL, INSTRUCTION                      |              |                              |        |
| (English, French, Spanish)                            |              |                              |        |
| 3-756-497-61 MANUAL, INSTRUCTION                      |              |                              |        |
| (German, Dutch, Italian, Portuguese)                  |              |                              |        |
| *   | 4-929-506-01 | CUSHION                      |        |
| *   | 4-955-659-21 | INDIVIDUAL CARTON (209)      |        |
| *   | 4-955-659-31 | INDIVIDUAL CARTON (309)      |        |
| *****   |              |                              |        |
| *****   |              |                              |        |
| HARDWARE LIST   |              |                              |        |
| *****   |              |                              |        |
| #1  | 7-621-775-10 | SCREW +B 2.6X4               |        |
| #2  | 7-621-255-15 | SCREW +P 2X3                 |        |
| #3  | 7-682-562-09 | SCREW +BVTT 4X10 (S)         |        |
| #4  | 7-685-646-79 | SCREW +BVTP 3X8 TYPE2 N-S    |        |
| #5  | 7-682-548-09 | SCREW +BVTT 3X8 (S)          |        |
| #6  | 7-685-871-01 | SCREW +BVTT 3X6 (S)          |        |
| #7  | 7-685-134-19 | SCREW +BTP 2.6X8 TYPE2 N-S   |        |