

# CDP-515

## SERVICE MANUAL

AEP Model

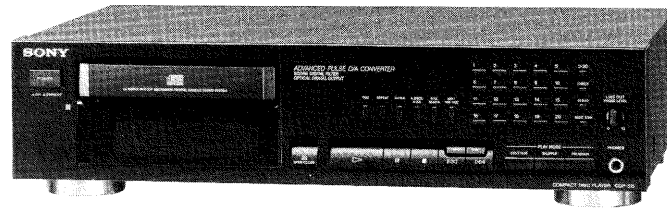


Photo : Black type

Model Name Using Similar Mechanism	NEW
CD Mechanism Type	CDM25C-5BD10B
Base Unit Type	BU-5BD10B
Optical Pick-up Type	KSS-240A

### 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 107 dB
Dynamic range	More than 99 dB
Harmonic distortion	Less than 0.0027%
Channel separation	More than 103 dB

#### Outputs

LINE OUT (FIXED) (phono jacks)	Output level 2 V (at 50 kilohms) Load impedance over 10 kilohms
LINE OUT (VARIABLE) (phono jacks)	Output level max. 2 V (at 50 kilohms) Load impedance over 50 kilohms
DIGITAL OUT (OPTICAL) (optical output connector)	Wavelength 660 nm Output level -18 dBm
PHONES (stereo phone jack)	Output level max. 10 mW Load impedance 32 ohms

#### General

Power requirements	220 V – 230 V AC, 50/60 Hz
Power consumption	12W
Dimensions (approx., including projections)	430 x 110 x 295 mm (w/h/d) (17 x 4 <sup>3</sup> / <sub>8</sub> x 11 <sup>5</sup> / <sub>8</sub> inches)
Mass (approx.)	3.8 kg (8 lb 6 oz)

#### Remote commander

Remote control system	Infrared control
Power requirements	3 V DC with two R6 (size AA) batteries
Dimensions (approx., including projections)	44 x 21 x 185 mm (w/h/d) (1 <sup>3</sup> / <sub>4</sub> x 7 <sup>7</sup> / <sub>8</sub> x 7 <sup>3</sup> / <sub>8</sub> inches)
Mass (approx.)	100 g (4 oz)

#### Supplied accessories

Audio connecting cord	(1) (2 phono plugs – 2 phono plugs)
Remote commander	(1)
Sony SUM-3 (NS) batteries	(2)

Design and specifications are subject to change without notice.

COMPACT DISC PLAYER  
**SONY**<sup>®</sup>

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

CLASS 1 LASER PRODUCT  
LUOKAN 1 LASERLAITE  
KLASS 1 LASERAPPARAT

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

The following caution label is located inside of the unit.

CAUTION	: INVISIBLE LASER RADIATION WHEN OPEN, AVOID EXPOSURE TO BEAM.
ADVARSEL	: USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSÅFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARO!	: AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTIINA LASERSÄTEILYLLE.
VARNING	: LASERSTRÅLING NÅR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD.
ADVARSEL	: USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.

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### SAFETY-RELATED COMPONENT WARNING !!

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

## SECTION 1

### SERVICING NOTE

#### 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.

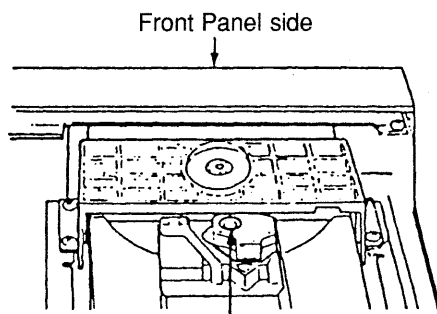
The flexible board is easily damaged and should be handled with care.

#### 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 DIODE AND FOCUS SEARCH OPERATION CHECK

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

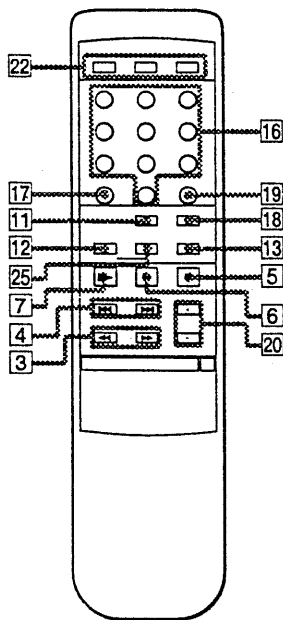
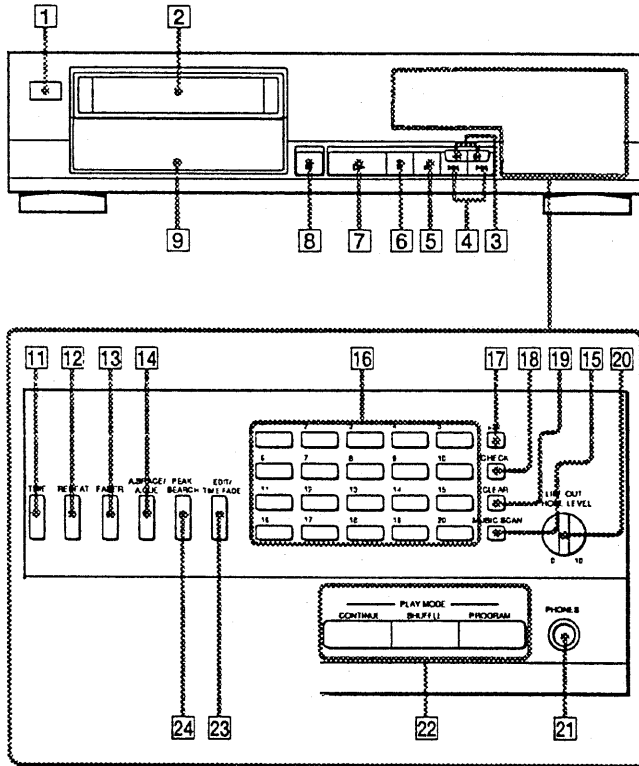


- ① Confirm that laser beam is spread.
- ② Up and down motion of the objective lens. (3 times)

How to open the DISC TRAY when POWER SWITCH turns off  
See page 5 for SECTION 3 DISASSEMBLY.

## SECTION 2 GENERAL

This section is extracted from instruction manual.



### Identifying the Parts

Refer to the pages indicated in parentheses for details.

#### Front Panel/ Remote Commander

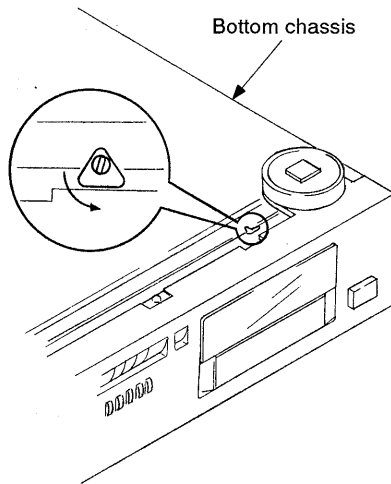
- 1 POWER switch (16)
- 2 Disc tray (16)
- 3 ◀▶ (manual search) buttons (20)
- 4 ◀◀/▶▶ (AMS\*) buttons (20, 34, 48)
- 5 ■ (stop) button (16)
- 6 || (pause) button (16)
- 7 ▷ (play) button (16)
- 8 ⏏ OPEN/CLOSE button (16)
- 9 Display (16)
- 11 TIME button (18)
- 12 REPEAT button (40)  
(CLEAR REPEAT button on the remote commander)
- 13 FADER button (44)
- 14 A.SPACE/A.CUE button (22, 24)
- 15 MUSIC SCAN button (38)
- 16 Numeric buttons (20, 28, 32, 44, 46)
- 17 >20 (over 20) button (20)  
>10 (over 10) button on the remote commander)
- 18 CHECK (program check) button (36)
- 19 CLEAR (program clear) button (28, 30, 36)
- 20 LINE OUT/PHONE LEVEL control (12, 16)  
(LINE OUT LEVEL +/- buttons on the remote commander)
- 21 PHONES jack (16)
- 22 Play mode buttons  
CONTINUE button (26, 30)  
SHUFFLE button (26, 28, 30)  
PROGRAM button (32, 34)
- 23 EDIT/TIME FADE button (46, 52)
- 24 PEAK SEARCH button (54)
- 25 A ↔ B button (42)

\* AMS is the abbreviation of Automatic Music Sensor.

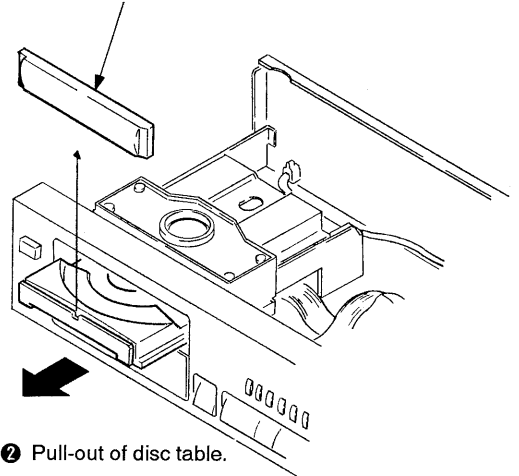
## SECTION 3 DISASSEMBLY

### 2-1. REMOVAL OF LOADING PANEL

- ① Use a minus screw driver to turn the cam by in the direction of the arrow.

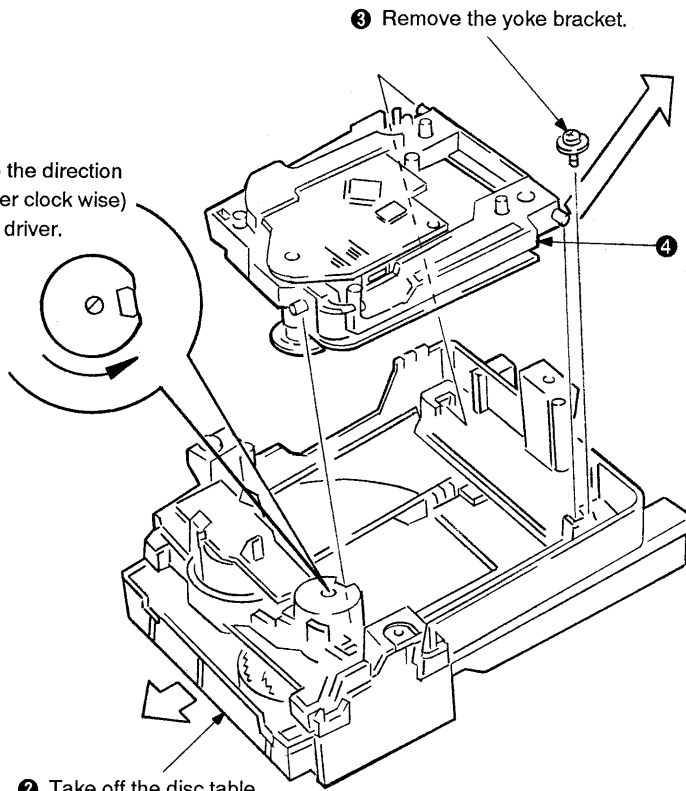


- ③ Remove the loading panel in the direction shown by the arrow.



### 2-2. REMOVAL OF MD (BU-5BD10) BLOCK

- ① Turn the cam to the direction of arrow (Counter clock wise) by minus screw driver.



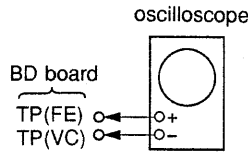
## SECTION 4

### ELECTRICAL BLOCK CHECKING

**Note :**

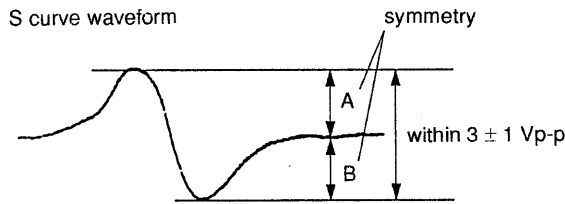
1. CD Block basically constructed to operate without adjustment. Therefore, check each in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than 10MΩ impedance.
4. Clean an object lens by an applicator with neutral detergent when the signal 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.
4. Put disc (YEDS-18) in and turned Power on again and actuate the focus search. (actuate the focus serch when disc table is moving in and out.)
5. Check the oscilloscope waveform (S curve) is symmetrical between A and B. And confirm peak to peak level within  $3 \pm 1$  Vp-p.

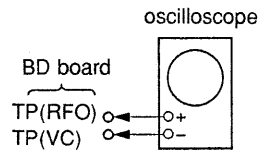


6. After check, remove the lead wire connected in step 2.

**Note :**

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

**RF Level Check**

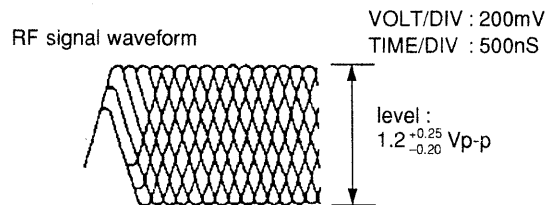


**Procedure :**

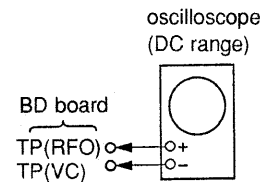
1. Connect oscilloscope to test point TP (RFO) on BD board.
2. Turned Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

**Note :**

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

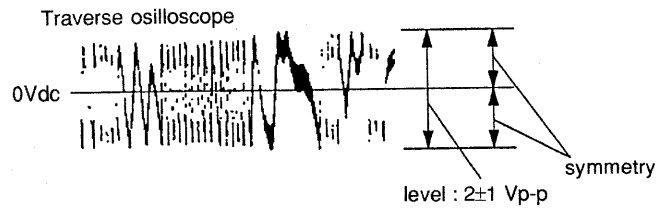


**E-F Balance Check**



**Procedure :**

1. Turned Power switch on.
2. Connect test point TP (ADJ) on MAIN board to ground and TP(TEI : IC101 ②7 PIN) to TP (VC) with lead wire.
3. Connect oscilloscope to test point TP (TEO) on BD board.
4. Put disc (YEDS-18) in and playback.
5. Confirm that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0Vdc, and check.

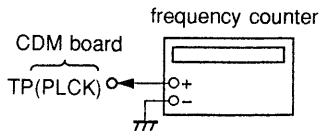


6. Remove the lead wire connected in step 1.

**RF Free-run Frequency Check**

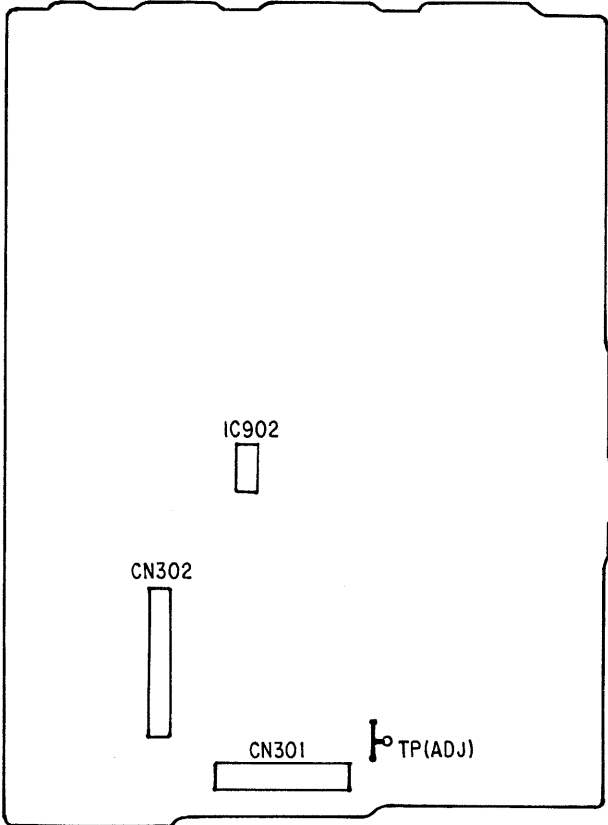
**Procedure :**

1. Connect frequency counter to test point (PLCK : IC101 (33 PIN) with lead wire.



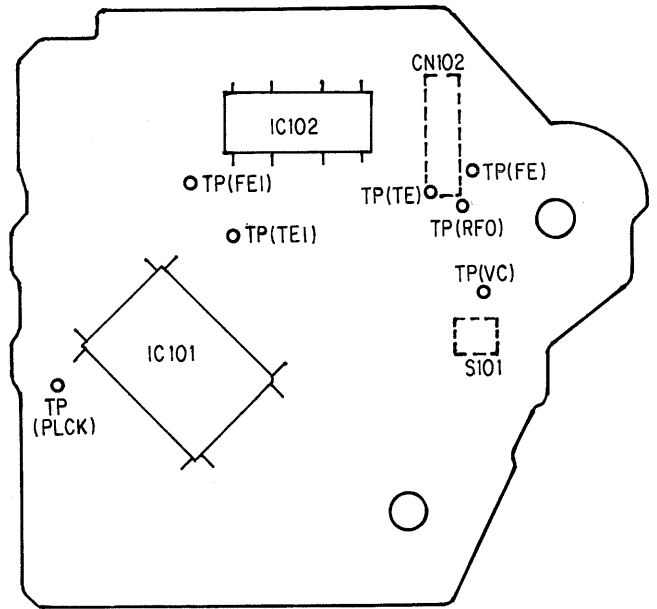
2. Turned Power switch on.
3. Confirm that reading on frequency counter is 4.3218MHz.

**[ MAIN BOARD ] — Component Side —**



**Adjustment Location :**

**[ BD BOARD ] — Conductor Side —**



## SECTION 5 DIAGRAMS

### 5-1. IC PIN FUNCTIONS

#### • 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	XRAOF	O	DA 05 output when PSSL = 1. XRAOF 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	CLOK	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	DVDD	—	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

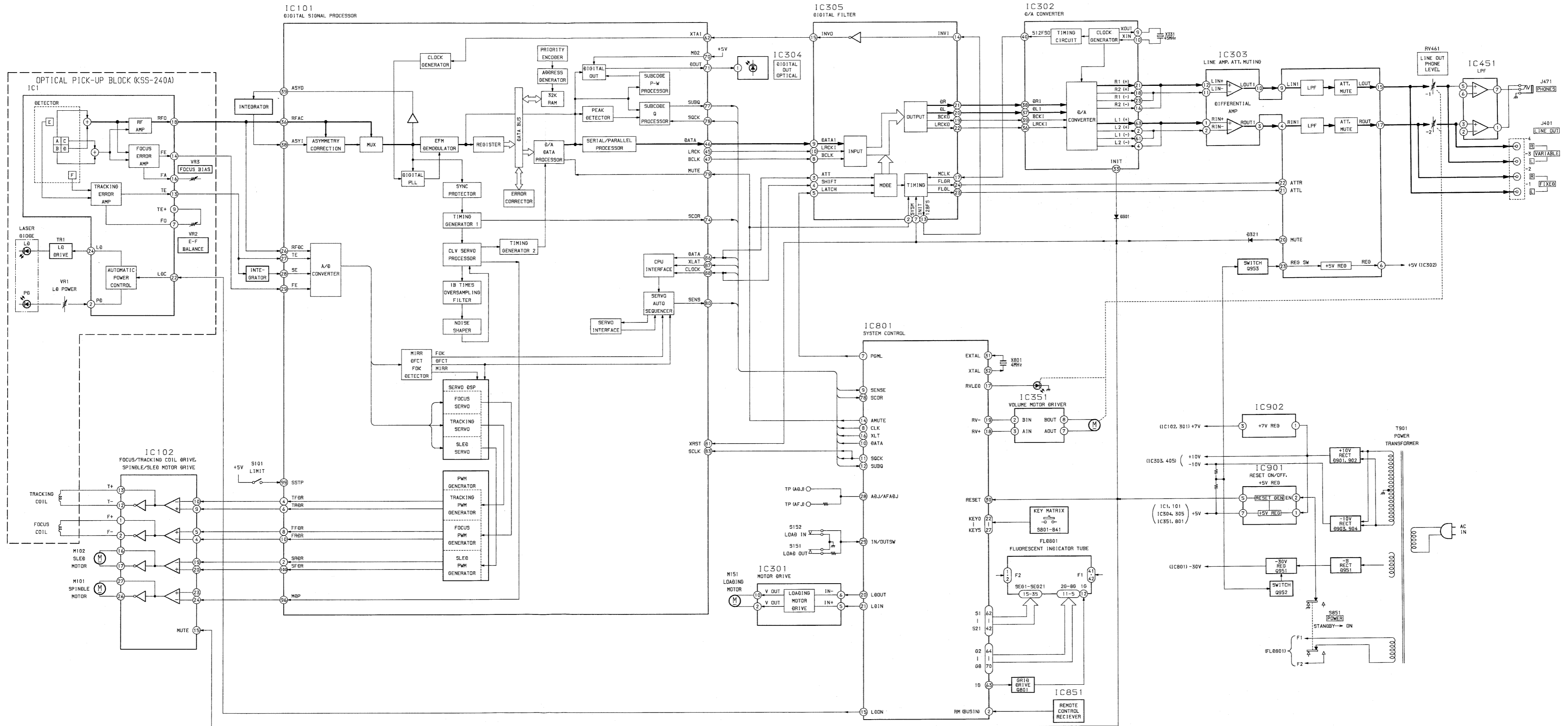
• IC305 (CXD2567M)

Pin No.	Symbol	I/O	Description
1	Vss	—	Power supply pin (GND).
2	YSM	I	System mute input. "H": active.
3	ATT	I	CTL "L": ATT data input. CTL "H": EMP input.
4	SHIFT	I	CTL "L": shift clock input. CTL "H": FS32 input.
5	LATCH	I	CTL "L": latch clock input. CTL "H": FS48 input.
6	CTL	I	Pull-down within IC. "H": direct input mode. "L": serial transfer mode.
7	INIT	I	Re-synchronizes at rising edge of this signal.
8	BCKI	I	BCK input.
9	DATAI	I	Data input.
10	LRCKI	I	LRCK input.
11	TEST	I	Test pin. Normally fixed to "L".
12	Vss	—	Power supply pin (GND).
13	128Fs	O	128 Fs clock output.
14	INVI	I	Inverter input.
15	INVO	O	Inverter output.
16	INVO2	O	Inverter output.
17	MCLK	I	Master clock input (f=512 Fs).
18	VDD	—	Power supply pin (+5V).
19	BCKO	O	BCK output.
20	DL	O	Lch data output.
21	DR	O	Rch data output.
22	LRCKO	O	LRCK output.
23	FLGL	O	Lch $\phi$ mute flag output.
24	FLGR	O	Rch $\phi$ mute flag output.

• IC801 (CXP82316-032Q)

Pin No.	Pin Name	I/O	Function
1	TIMER	—	Connected to +5V.
2	RM (BUSIN)	I	Audio bus input.
3	+5V	—	Connected to +5V.
4	OPEN	—	} Not used. (open)
5	OPEN	—	
6	(BUS-OUT)	—	
7	PRML	O	Latch signal output to digital filter (IC305).
8	CLK	O	Serial clock output.
9	SENSE	I	SENSE signal input.
10	DATA	O	Serial data output.
11	SQCK	O	Read out clock output for subcode Q data.
12	SUBQ	I	Subcode Q data input.
13	OPEN	—	Not used. (open)
14	AMUTE	O	Analog muting control signal output.
15	LDON	O	Optical pickup laser diode control output.
16	XLT	O	Serial data latch signal output.
17	RV LED	O	Remote commander volume LED.
18	RV+	O	Remote commander volume +.
19	RV-	O	Remote commander volume -.
20	LDOUT	O	} Loading motor control signal output.
21	LDIN	O	
22 to 27	KEY0 to KEY5	I	Key input. (S801 to S841)
28	ADJ/AFADJ	—	ADJ, AFJ test pin.
29	IN/OUTSW	I	Loading IN/OUT switch input.
30	RST	I	Reset signal input.
31	EXTAL	I	Clock input. (4 MHz)
32	XTAL	O	Clock output. (4 MHz)
33	Vss	—	GND
34 to 41	OPEN	—	Not used. (open)
42 to 62	SEG1 to SEG21	O	FL segment output.
63 to 70	1G to 8G	O	FL grid output.
71	VFDP (-30V)	—	-30V pin for FL display tube.
72	VDD (+5V)	—	} +5V pin.
73	—	—	
74	SEL1	—	Connected to GND.
75	IN PORT	—	} Connected to +5 V.
76	IN PORT	—	
77	IN PORT	—	
78	SCOR	I	Read out timing signal input for subcode Q data.
79	SEL2	—	Connected to GND.
80	SEL3	—	Connected to GND.

5-2. BLOCK DIAGRAM



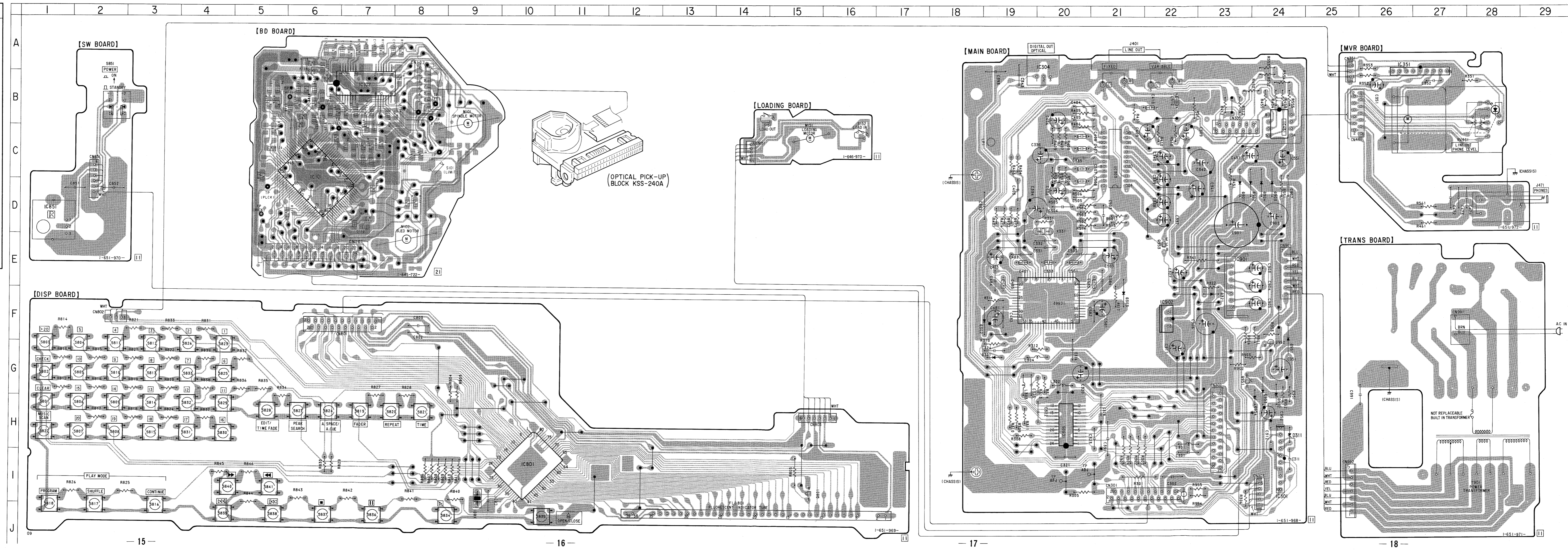
5-3. PRINTED WIRING BOARDS

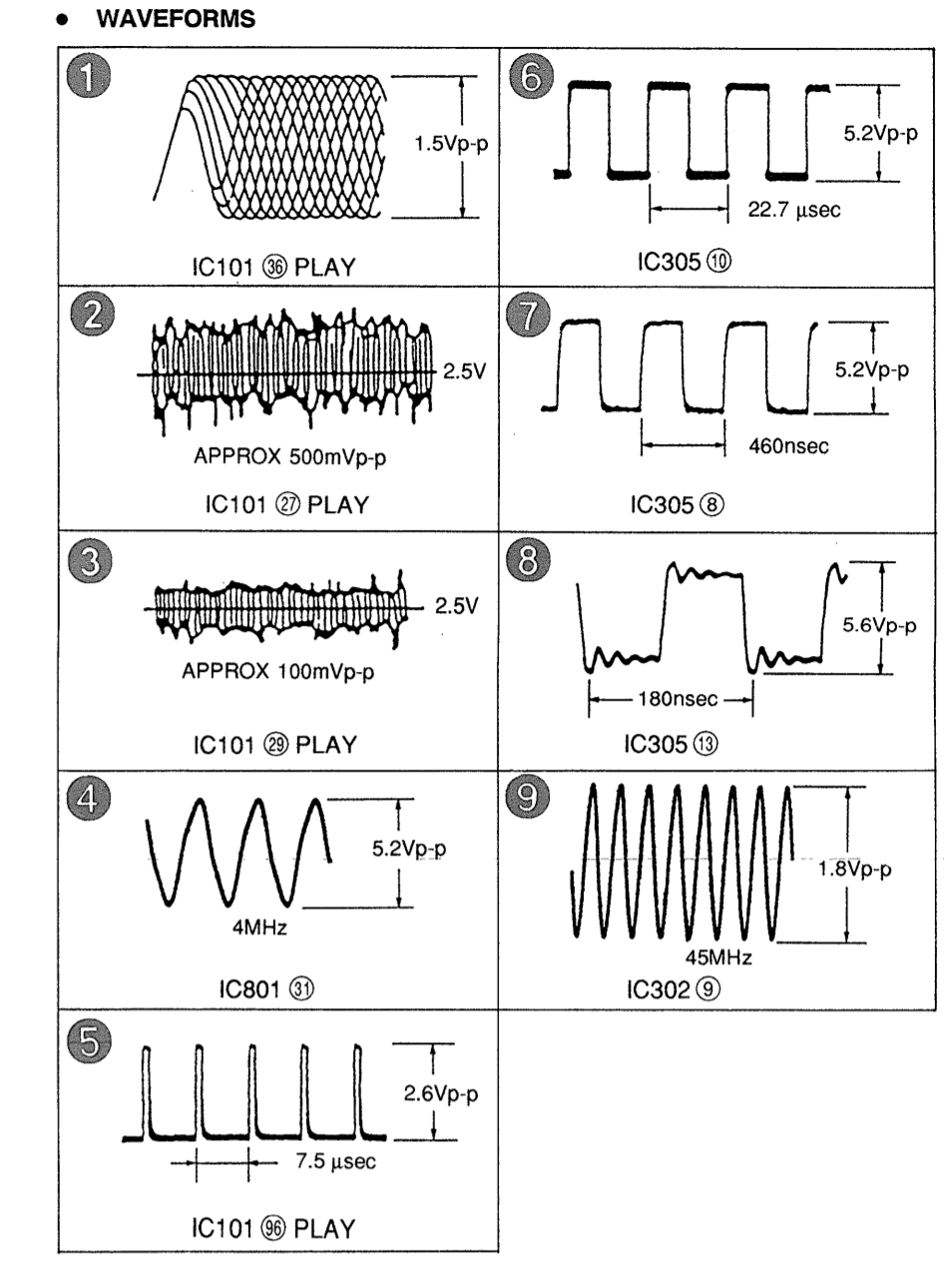
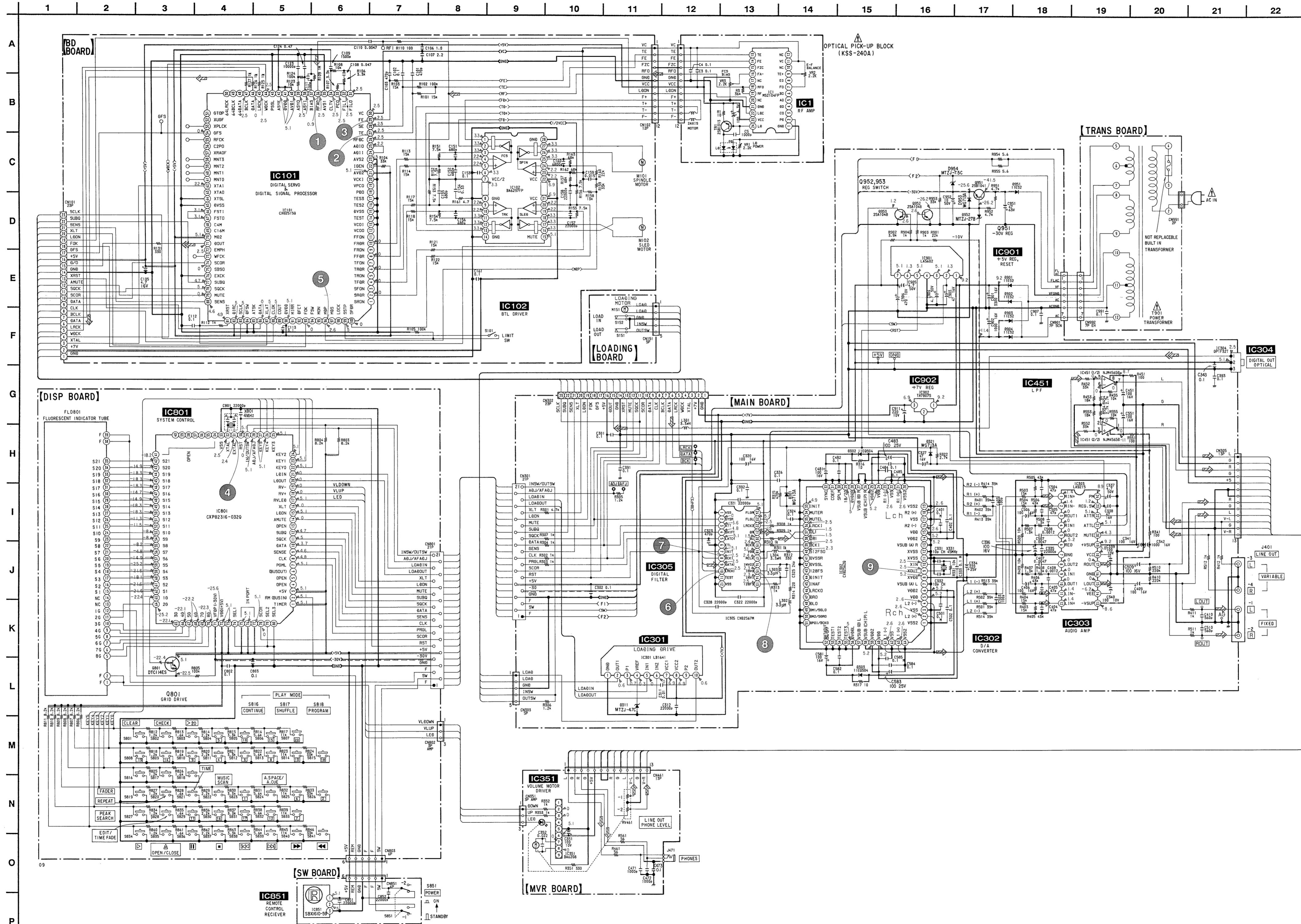
• See page 26 for Semiconductor Lead Layouts.

Note:

- : parts extracted from the components side.
- : Through hole.
- ⊥ : Denotes that Jumper wire works as Test Point.
- ▨ : Pattern from the side which enable seeing.
- ▩ : Pattern of the rear side.

Ref. No.	Location
D301	G-19
D302	F-18
D303	F-21
D311	H-24
D321	F-23
D901	D-23
D902	D-24
D903	D-24
D904	D-24
D951	G-24
D952	H-24
D953	H-24
D954	H-24
IC101	D-6
IC102	B-7
IC301	J-24
IC302	F-20
IC303	D-21
IC304	B-20
IC305	H-20
IC351	B-26
IC451	C-24
IC801	I-10
IC851	D-1
IC901	E-23
IC902	F-22
Q801	I-15
Q951	G-23
Q952	G-24
Q953	E-22





**Note:**

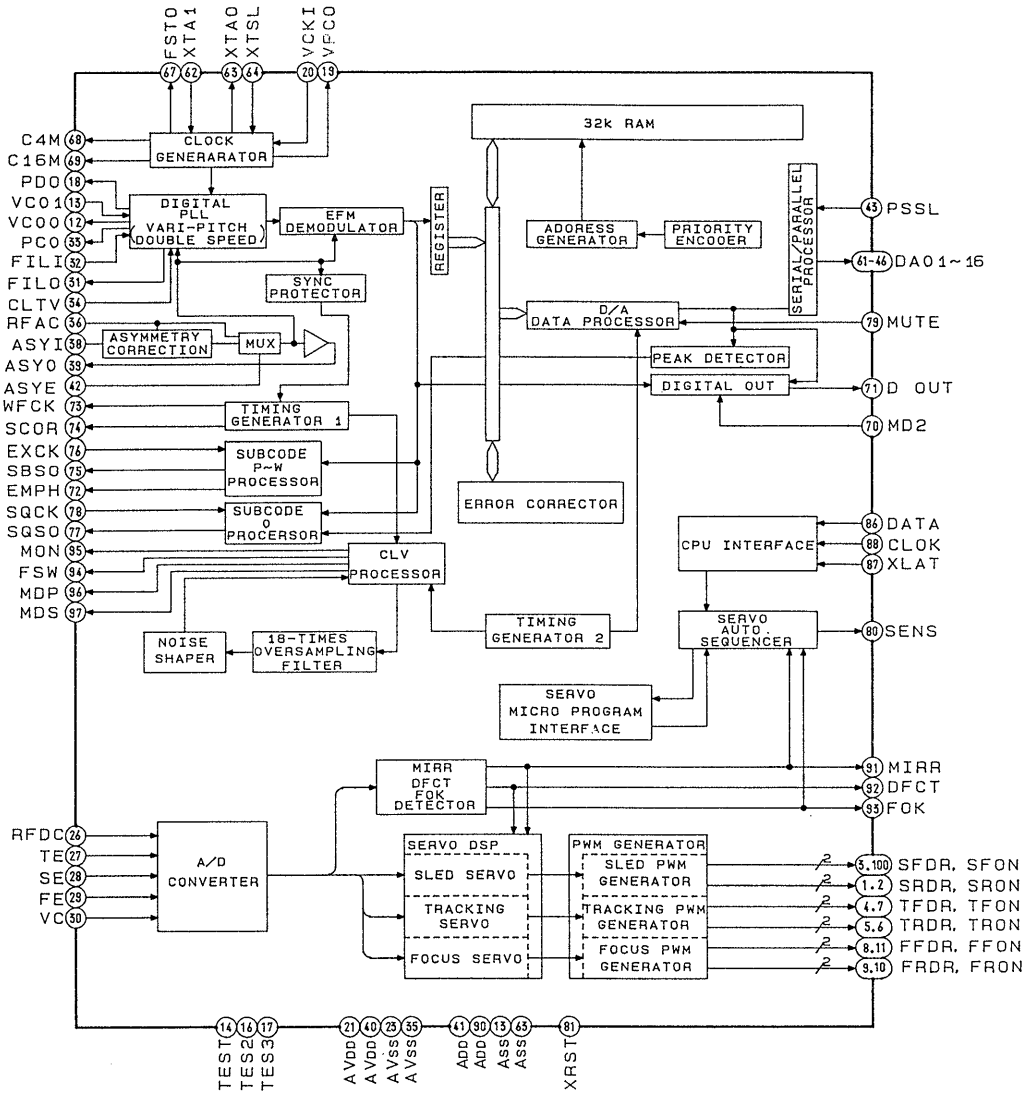
- All capacitors are in μF unless otherwise noted. pF: μμF
- 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- : panel designation.

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

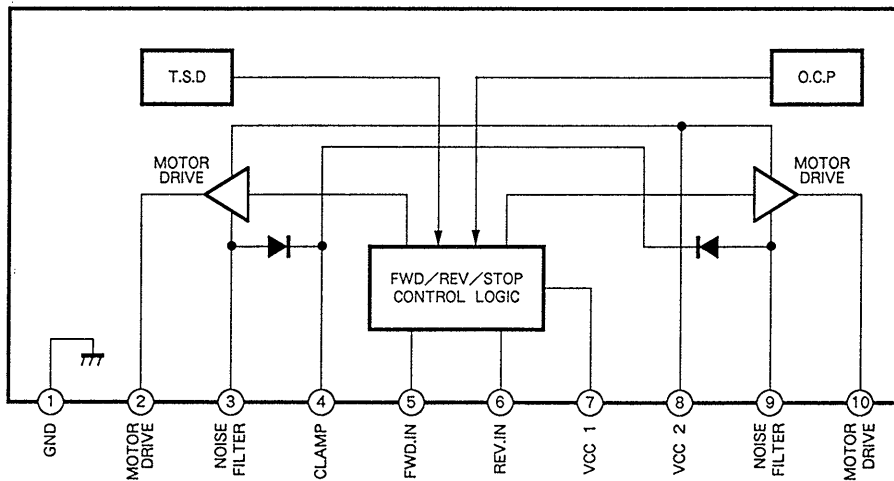
- : B+ Line
- ..... : B- Line
- Voltage and waveforms are dc with respect to ground in play mode.
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
- ⊙ : CD
- ⊞ : digital out

# 5-5. IC BLOCK DIAGRAMS

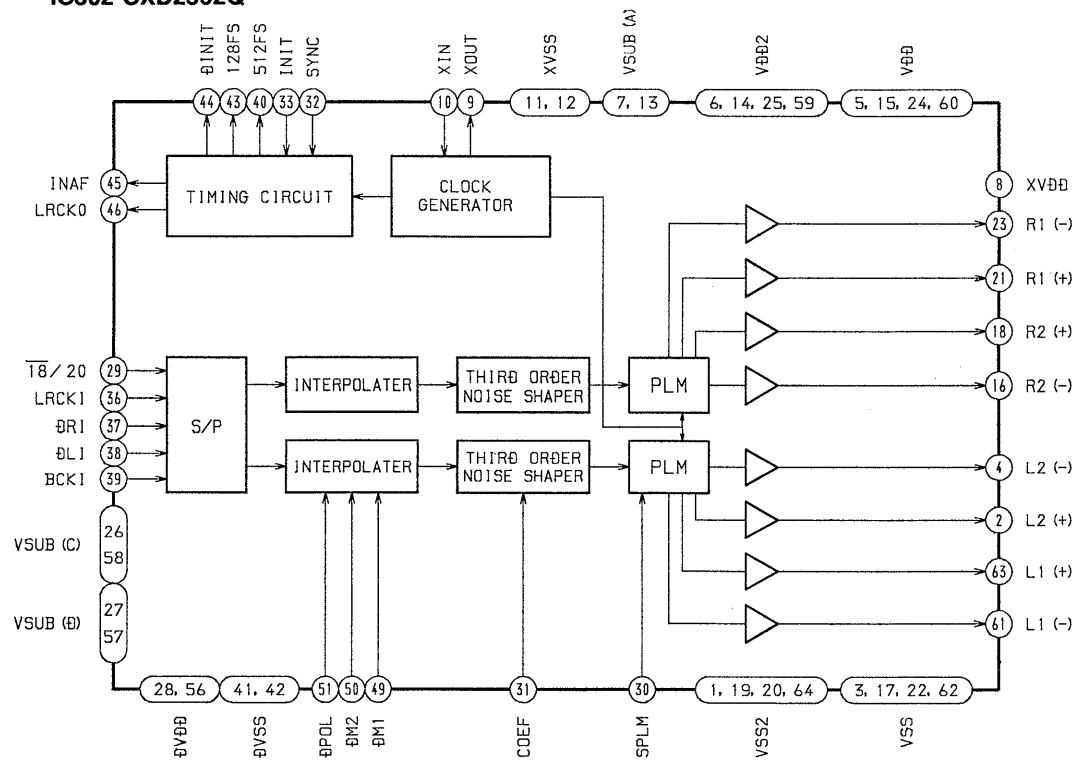
## IC101 CXD2515Q



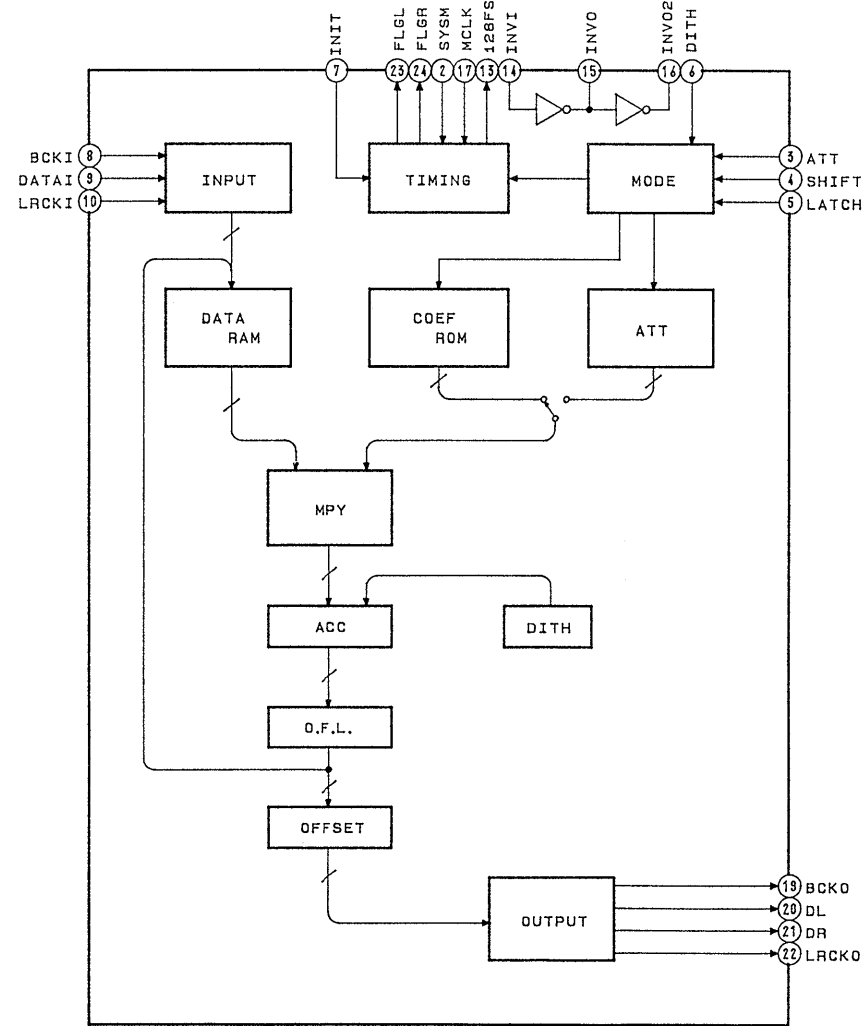
## IC301 LB1641



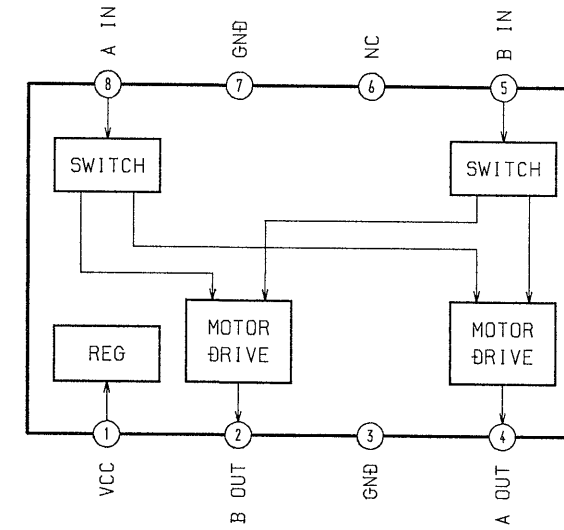
IC302 CXD2562Q



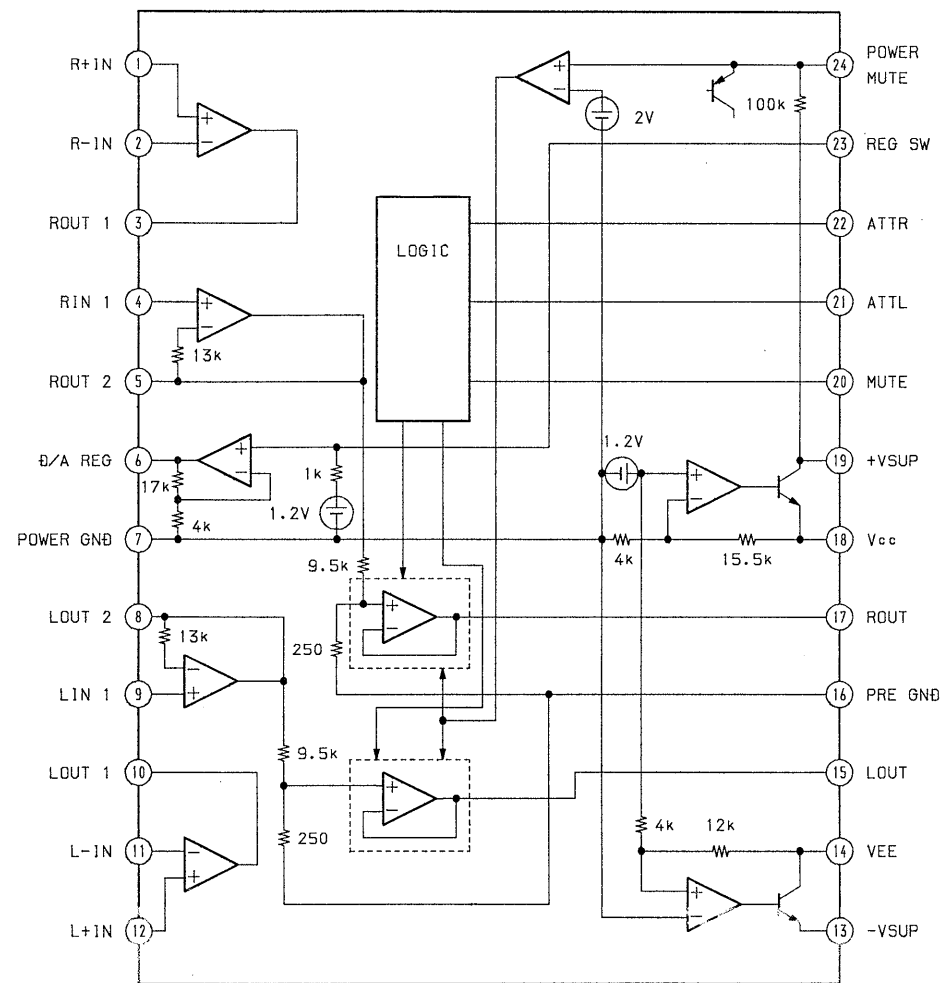
IC305 CXD2567M



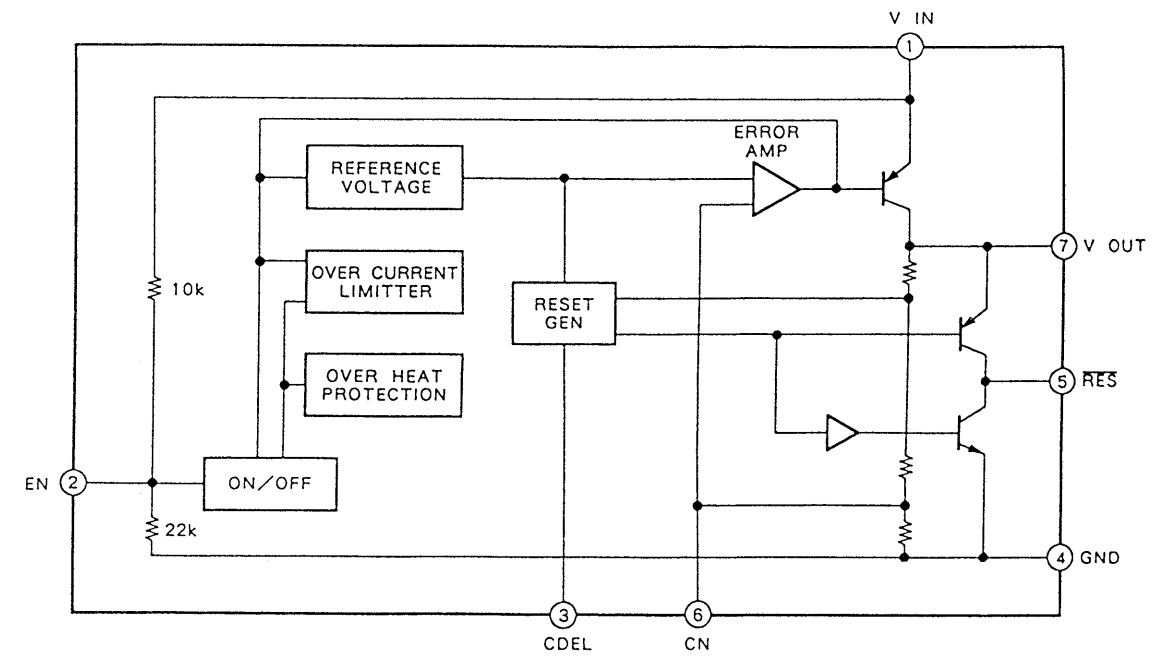
IC351 BA6208



IC303 LA9215



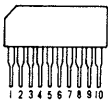
IC901 LA5602



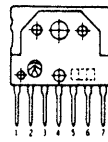


## 5-6. SEMICONDUCTOR LEAD LAYOUTS

**BA6208**



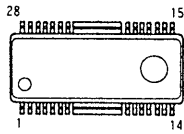
**LA5602**



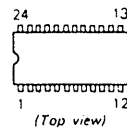
**DTC114ES**



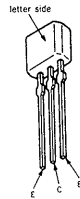
**BA6297AFP**



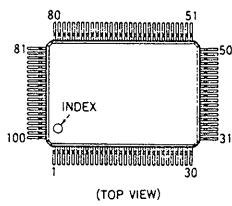
**LA9215-ST**



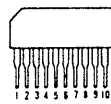
**2SA1175-HFE  
2SB1041**



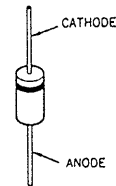
**CXD2515Q**



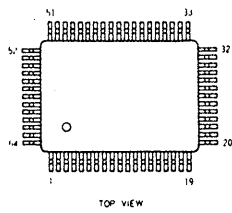
**LB1641**



**MTZJ4.7C  
MTZJ-27B  
RD7.5ESB2  
1SS119  
11EQS04**



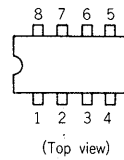
**CXD2562Q**



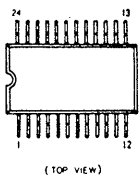
**M5F78M07L**



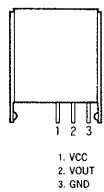
**NJM4565D**



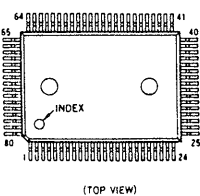
**CXD2567M**



**SBX1610-59**



**CXP82316-032Q**



## SECTION 6 EXPLODED VIEWS

**NOTE:**

- Items marked “ \* ” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Color Indication of Appearance Parts Example:  
KNOB, BALANCE (WHITE) . . . (RED)  

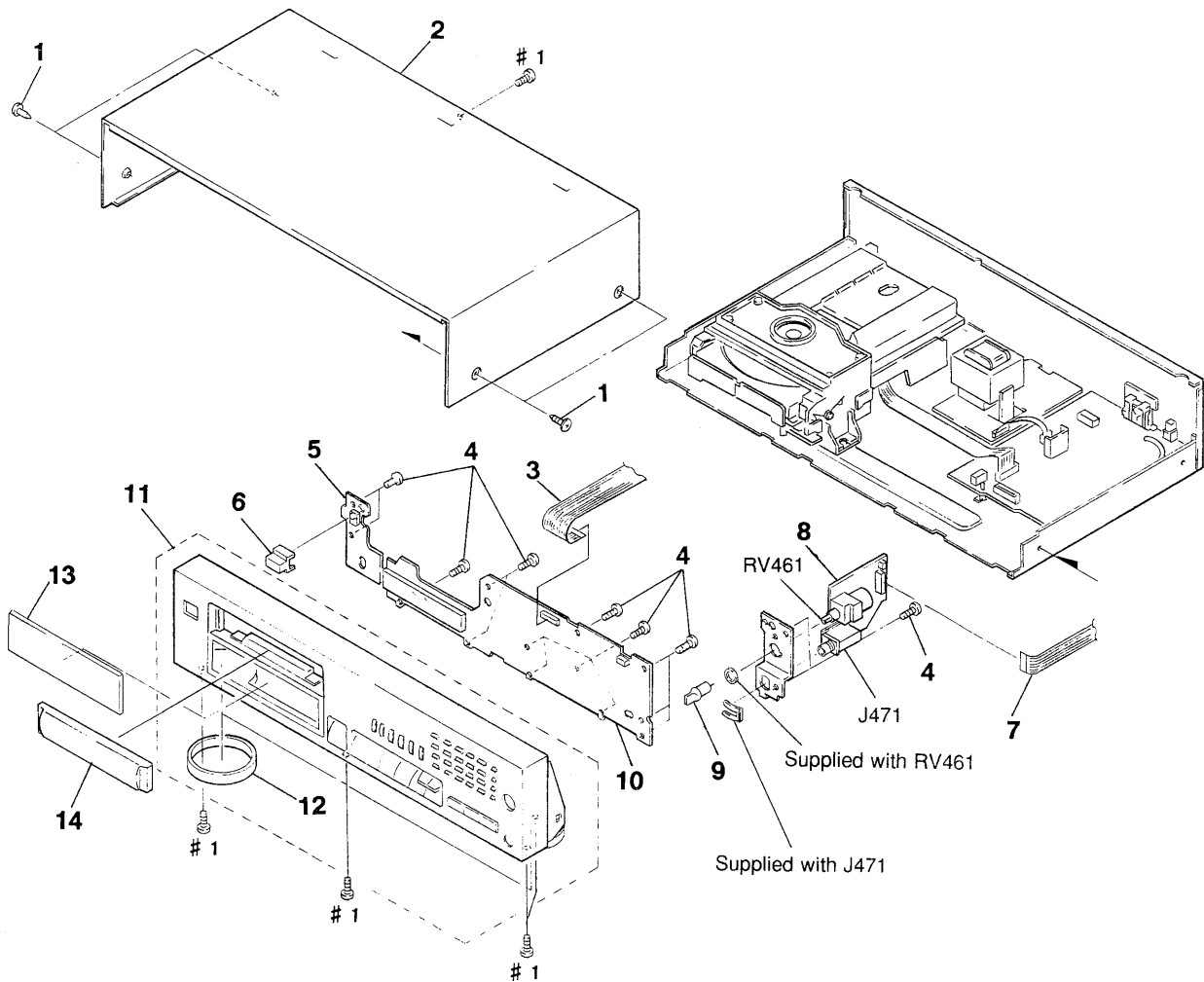
↑  
Parts color

↑  
Cabinet's color

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

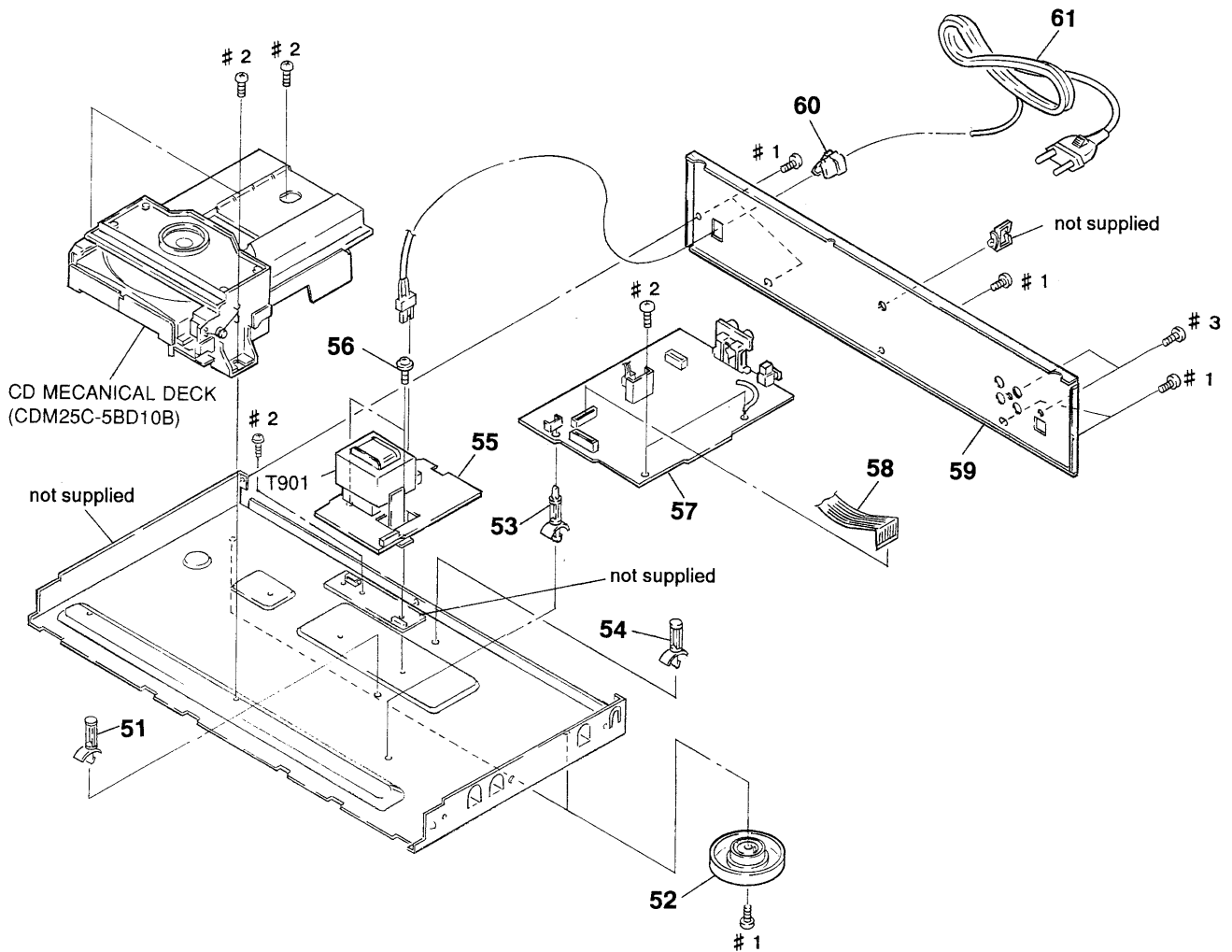
The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

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



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	3-363-099-01	SCREW (CASE 3 TP2) (Black)		* 8	1-651-972-11	MVR BOARD	
1	3-363-099-11	SCREW (CASE 3 TP2) (Silver)		9	A-4660-231-A	KNOB (HP) ASSY (Black)	
2	4-937-817-01	CASE (Black)		9	A-4660-562-A	KNOB (HP) ASSY (Silver)	
2	4-937-817-41	CASE (Silver)		* 10	A-4649-985-A	DISP BOARD, COMPLETE	
3	1-751-947-11	WIRE (FLAT TYPE) (21 CORE)		11	X-4944-284-1	PANEL ASSY, FRONT (Black)	
4	4-951-620-01	SCREW (2. 6X8), +BVTP		11	X-4944-286-1	PANEL ASSY, FRONT (Silver)	
* 5	1-651-970-11	SW BOARD		12	4-933-135-01	RING (DIA. 58A), ORNAMENTAL	
6	4-947-034-01	BUTTON (POWER) (Black)		13	4-962-199-01	PLATE, INDICATION	
6	4-947-034-11	BUTTON (POWER) (Silver)		14	4-962-733-01	PANEL, LOADING (Black)	
7	1-765-055-11	WIRE (FLAT TYPE) (13 CORE)		14	4-962-733-11	PANEL, LOADING (Silver)	

## 6-2. CHASSIS BLOCK

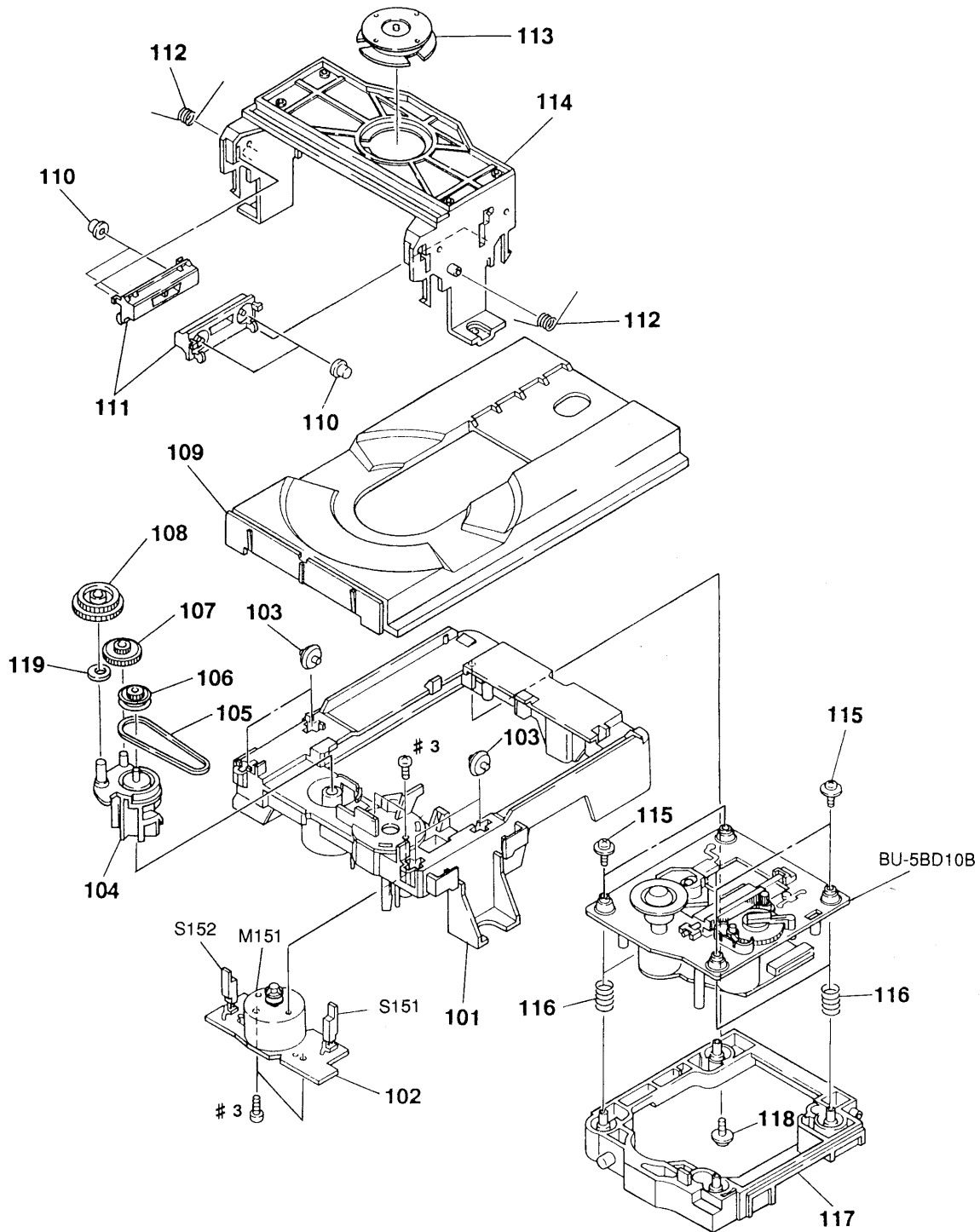


The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description
* 51	4-944-316-01	HOLDER, PC BOARD
52	4-956-885-11	FOOT (F58175S2W)
* 53	4-924-098-31	HOLDER, PC BOARD
* 54	3-349-025-41	HOLDER, PC BOARD
* 55	1-651-971-11	TRANS BOARD
56	4-886-821-11	SCREW, S TIGHT, +PTTWH 3X6

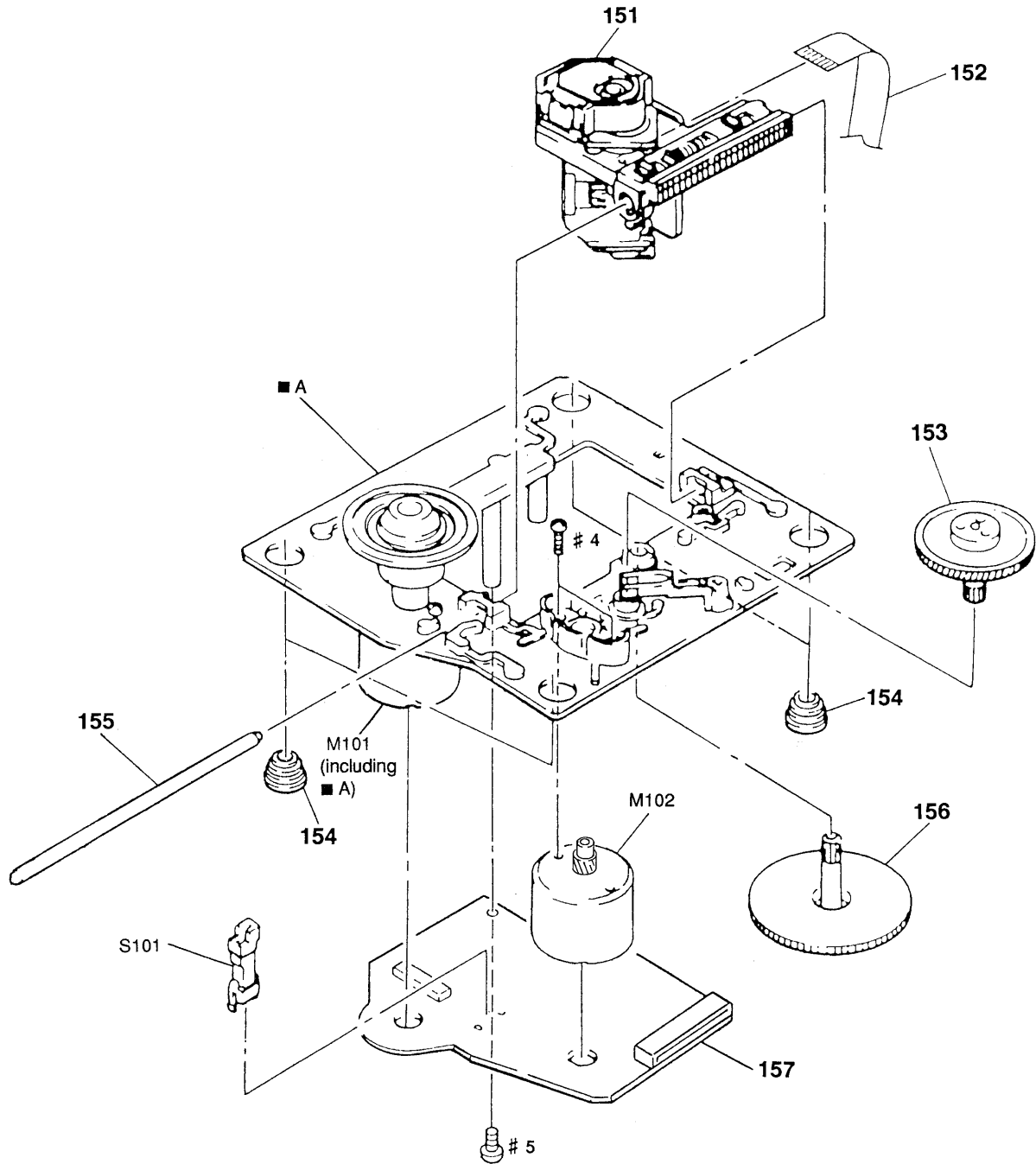
Remark	Ref. No.	Part No.	Description	Remark
	* 57	A-4649-984-A	MAIN BOARD, COMPLETE	
	58	1-696-760-11	WIRE (FLAT TYPE) (23 CORE)	
	* 59	4-962-202-22	PANEL (AL), BACK	
	60	3-703-244-00	BUSHING, CORD	
	$\triangle$ 61	1-575-651-21	CORD, POWER	
	$\triangle$ T901	1-449-925-11	TRANSFORMER, POWER	

### 6-3. MECHANISM BLOCK (CDM25C-5BD10B)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 101	4-954-190-01	BASE (MD)		112	4-954-195-01	SPRING, TORSION	
* 102	1-646-970-11	LOADING BOARD		* 113	1-452-538-11	MAGNET	
103	4-954-193-01	ROLLER (A)		* 114	4-954-192-01	HOLDER (M)	
104	4-933-109-01	CAM		115	4-933-134-01	SCREW +PTPWH M2. 6X6	
105	4-927-649-01	BELT		116	4-959-996-01	SPRING (932), COMPRESSION	
106	4-927-651-01	PULLEY (S)		117	4-933-129-01	HOLDER (BU)	
107	4-927-628-01	GEAR (C)		* 118	4-917-583-21	BRACKET, YOKE	
108	4-933-107-01	GEAR (PL)		119	3-701-443-11	WASHER	
109	4-961-794-01	TABLE, DISK		M151	A-4660-315-A	MOTOR (L) ASSY (LOADING)	
110	4-954-194-01	ROLLER (B)		S151	1-572-086-11	SWITCH, LEAF (LOAD OUT)	
111	4-954-199-01	PLATE, SLIDE		S152	1-572-086-11	SWITCH, LEAF (LOAD IN)	

**6-4. OPTICAL PICK-UP BLOCK  
(BU-5BD10B)**



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	Remark	Ref. No.	Part No.	Description	Remark
$\triangle$ 151	8-848-144-11	OPTICAL PICK-UP KSS-240A		156	4-917-564-01	GEAR (P), FLATNESS	
152	1-575-001-11	WIRE, FLAT TYPE (12 CORE)		* 157	A-4649-430-A	BD BOARD, COMPLETE	
153	4-917-567-01	GEAR (M)		M101	X-4917-523-3	MOTOR ASSY (SPINDLE)	
154	4-951-940-01	INSULATOR (BU)		M102	X-4917-504-1	MOTOR ASSY (SLED)	
155	4-917-565-01	SHAFT, SLED		S101	1-572-085-11	SWITCH, LEAF (LIMIT)	

# SECTION 7

## ELECTRICAL PARTS LIST

BD

**NOTE:**

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

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

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -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)  
                                   ↑                                  ↑  
                                   Parts color                                  Cabinet's color
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- RESISTORS  
 All resistors are in ohms  
 METAL: Metal-film resistor  
 METAL OXIDE: Metal Oxide-film resistor  
 F : nonflammable
- SEMICONDUCTORS  
 In each case, u:  $\mu$ , for example:  
 uA...:  $\mu$  A..., uPA...:  $\mu$  PA...,  
 uPB...:  $\mu$  PB..., uPC...:  $\mu$  PC...,  
 uPD...:  $\mu$  PD...
- CAPACITORS  
 uF :  $\mu$  F
- COILS  
 uH :  $\mu$  H
- G: German model

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-4649-430-A	BD BOARD, COMPLETE *****				< RESISTOR >	
		< CAPACITOR >		R101	1-216-077-00	METAL CHIP 15K 5%	1/10W
C101	1-163-005-11	CERAMIC CHIP 470PF 10%	50V	R102	1-216-097-00	METAL CHIP 100K 5%	1/10W
C102	1-163-038-00	CERAMIC CHIP 0.1uF	25V	R103	1-216-077-00	METAL CHIP 15K 5%	1/10W
C103	1-163-005-11	CERAMIC CHIP 470PF 10%	50V	R104	1-216-085-00	METAL CHIP 33K 5%	1/10W
C105	1-135-287-91	TANTAL. CHIP 4.7uF 20%	16V	R105	1-216-097-00	METAL CHIP 100K 5%	1/10W
C106	1-164-346-11	CERAMIC CHIP 1uF	16V	R106	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
C107	1-164-505-11	CERAMIC CHIP 2.2uF	16V	R107	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
C108	1-163-035-00	CERAMIC CHIP 0.047uF	50V	R108	1-216-073-00	METAL CHIP 10K 5%	1/10W
C109	1-163-011-11	CERAMIC CHIP 0.0015uF 10%	50V	R109	1-216-121-00	METAL CHIP 1M 5%	1/10W
C110	1-163-017-00	CERAMIC CHIP 0.0047uF 5%	50V	R110	1-216-025-00	METAL CHIP 100 5%	1/10W
C111	1-163-251-11	CERAMIC CHIP 100PF 5%	50V	R112	1-216-049-00	METAL CHIP 1K 5%	1/10W
C112	1-163-038-00	CERAMIC CHIP 0.1uF	25V	R113	1-216-077-00	METAL CHIP 15K 5%	1/10W
C113	1-163-038-00	CERAMIC CHIP 0.1uF	25V	R114	1-216-077-00	METAL CHIP 15K 5%	1/10W
C123	1-164-232-11	CERAMIC CHIP 0.01uF	50V	R117	1-216-077-00	METAL CHIP 15K 5%	1/10W
C124	1-164-005-11	CERAMIC CHIP 0.47uF	25V	R118	1-216-077-00	METAL CHIP 15K 5%	1/10W
C151	1-163-007-11	CERAMIC CHIP 680PF 10%	50V	R121	1-216-077-00	METAL CHIP 15K 5%	1/10W
C152	1-163-007-11	CERAMIC CHIP 680PF 10%	50V	R122	1-216-077-00	METAL CHIP 15K 5%	1/10W
C153	1-163-038-00	CERAMIC CHIP 0.1uF	25V	R123	1-216-073-00	METAL CHIP 10K 5%	1/10W
C154	1-164-336-11	CERAMIC CHIP 0.33uF	25V	R124	1-216-097-00	METAL CHIP 100K 5%	1/10W
C155	1-163-007-11	CERAMIC CHIP 680PF 10%	50V	R125	1-216-049-00	METAL CHIP 1K 5%	1/10W
C156	1-163-007-11	CERAMIC CHIP 680PF 10%	50V	R126	1-216-049-00	METAL CHIP 1K 5%	1/10W
C157	1-163-033-00	CERAMIC CHIP 0.022uF	50V	R127	1-216-049-00	METAL CHIP 1K 5%	1/10W
C158	1-163-033-00	CERAMIC CHIP 0.022uF	50V	R131	1-216-037-00	METAL CHIP 330 5%	1/10W
C159	1-163-023-00	CERAMIC CHIP 0.015uF 5%	50V	R151	1-216-070-00	METAL CHIP 7.5K 5%	1/10W
C160	1-163-019-00	CERAMIC CHIP 0.0068uF 10%	50V	R152	1-216-070-00	METAL CHIP 7.5K 5%	1/10W
C161	1-163-038-00	CERAMIC CHIP 0.1uF	25V	R153	1-216-070-00	METAL CHIP 7.5K 5%	1/10W
		< CONNECTOR >		R154	1-216-070-00	METAL CHIP 7.5K 5%	1/10W
* CN101	1-568-865-11	SOCKET, CONNECTOR 23P		R155	1-216-070-00	METAL CHIP 7.5K 5%	1/10W
CN102	1-568-795-11	SOCKET, CONNECTOR 12P		R156	1-216-070-00	METAL CHIP 7.5K 5%	1/10W
		< IC >		R157	1-216-093-00	METAL CHIP 68K 5%	1/10W
IC101	8-752-367-16	IC CXD2515Q		R158	1-216-076-00	METAL CHIP 13K 5%	1/10W
IC102	8-759-071-79	IC BA6297AFP		R159	1-216-085-00	METAL CHIP 33K 5%	1/10W
		< MOTOR >		R160	1-216-081-00	METAL CHIP 22K 5%	1/10W
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)		R161	1-216-308-00	METAL CHIP 4.7 5%	1/10W
M102	X-4917-504-1	MOTOR ASSY (SLED)		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)	

\*\*\*\*\*

# DISP

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-4649-985-A	DISP BOARD, COMPLETE *****		R831	1-249-426-11	CARBON	5.6K 5% 1/4W
		< CAPACITOR >		R832	1-247-856-00	CARBON	11K 5% 1/4W
C801	1-161-494-00	CERAMIC	0.022uF 25V	R833	1-249-435-11	CARBON	33K 5% 1/4W
C802	1-164-159-11	CERAMIC	0.1uF 50V	R834	1-249-418-11	CARBON	1.2K 5% 1/4W F
C803	1-164-159-11	CERAMIC	0.1uF 50V	R835	1-247-836-11	CARBON	1.6K 5% 1/4W
		< CONNECTOR >		R836	1-249-421-11	CARBON	2.2K 5% 1/4W F
CN801	1-568-838-11	SOCKET, CONNECTOR 21P		R837	1-249-423-11	CARBON	3.3K 5% 1/4W F
		< FLUORESCENT INDICATOR >		R838	1-249-426-11	CARBON	5.6K 5% 1/4W
FLD801	1-519-757-11	INDICATOR TUBE, FLUORESCENT		R839	1-247-856-00	CARBON	11K 5% 1/4W
		< IC >		R840	1-249-418-11	CARBON	1.2K 5% 1/4W F
IC801	8-752-851-78	IC CXP82316-032Q		R841	1-247-836-11	CARBON	1.6K 5% 1/4W
		< TRANSISTOR >		R842	1-249-421-11	CARBON	2.2K 5% 1/4W F
Q801	8-729-900-80	TRANSISTOR DTC114ES		R843	1-249-423-11	CARBON	3.3K 5% 1/4W F
		< RESISTOR >		R844	1-249-426-11	CARBON	5.6K 5% 1/4W
R803	1-249-428-11	CARBON	8.2K 5% 1/4W F	R845	1-247-856-00	CARBON	11K 5% 1/4W
R804	1-249-428-11	CARBON	8.2K 5% 1/4W F	R846	1-249-435-11	CARBON	33K 5% 1/4W
R805	1-249-441-11	CARBON	100K 5% 1/4W			< SWITCH >	
R806	1-249-428-11	CARBON	8.2K 5% 1/4W F	S801	1-554-303-21	SWITCH, TACTILE (CLEAR)	
R807	1-249-428-11	CARBON	8.2K 5% 1/4W F	S802	1-554-303-21	SWITCH, TACTILE (CHECK)	
R808	1-249-428-11	CARBON	8.2K 5% 1/4W F	S803	1-554-303-21	SWITCH, TACTILE (> 20)	
R809	1-249-428-11	CARBON	8.2K 5% 1/4W F	S804	1-554-303-21	SWITCH, TACTILE (5)	
R810	1-249-428-11	CARBON	8.2K 5% 1/4W F	S805	1-554-303-21	SWITCH, TACTILE (10)	
R811	1-249-428-11	CARBON	8.2K 5% 1/4W F	S806	1-554-303-21	SWITCH, TACTILE (15)	
R812	1-249-418-11	CARBON	1.2K 5% 1/4W F	S807	1-554-303-21	SWITCH, TACTILE (20)	
R813	1-247-836-11	CARBON	1.6K 5% 1/4W	S808	1-554-303-21	SWITCH, TACTILE (19)	
R814	1-249-421-11	CARBON	2.2K 5% 1/4W F	S809	1-554-303-21	SWITCH, TACTILE (14)	
R815	1-249-423-11	CARBON	3.3K 5% 1/4W F	S810	1-554-303-21	SWITCH, TACTILE (9)	
R816	1-249-426-11	CARBON	5.6K 5% 1/4W	S811	1-554-303-21	SWITCH, TACTILE (4)	
R817	1-247-856-00	CARBON	11K 5% 1/4W	S812	1-554-303-21	SWITCH, TACTILE (3)	
R818	1-249-418-11	CARBON	1.2K 5% 1/4W F	S813	1-554-303-21	SWITCH, TACTILE (8)	
R819	1-247-836-11	CARBON	1.6K 5% 1/4W	S814	1-554-303-21	SWITCH, TACTILE (13)	
R820	1-249-421-11	CARBON	2.2K 5% 1/4W F	S815	1-554-303-21	SWITCH, TACTILE (18)	
R821	1-249-423-11	CARBON	3.3K 5% 1/4W F	S816	1-554-303-21	SWITCH, TACTILE (CONTINUE)	
R822	1-249-426-11	CARBON	5.6K 5% 1/4W	S817	1-554-303-21	SWITCH, TACTILE (SHUFFLE)	
R823	1-247-856-00	CARBON	11K 5% 1/4W	S818	1-554-303-21	SWITCH, TACTILE (PROGRAM)	
R824	1-249-435-11	CARBON	33K 5% 1/4W	S819	1-554-303-21	SWITCH, TACTILE (FADER)	
R825	1-249-418-11	CARBON	1.2K 5% 1/4W F	S820	1-554-303-21	SWITCH, TACTILE (REPEAT)	
R826	1-247-836-11	CARBON	1.6K 5% 1/4W	S821	1-554-303-21	SWITCH, TACTILE (TIME)	
R827	1-249-418-11	CARBON	1.2K 5% 1/4W F	S822	1-554-303-21	SWITCH, TACTILE (MUSIC SCAN)	
R828	1-247-836-11	CARBON	1.6K 5% 1/4W	S823	1-554-303-21	SWITCH, TACTILE (1)	
R829	1-249-421-11	CARBON	2.2K 5% 1/4W F	S824	1-554-303-21	SWITCH, TACTILE (A. SPACE/A. CUE)	
R830	1-249-423-11	CARBON	3.3K 5% 1/4W F	S825	1-554-303-21	SWITCH, TACTILE (6)	
				S826	1-554-303-21	SWITCH, TACTILE (2)	
				S827	1-554-303-21	SWITCH, TACTILE (PEAK SEARCH)	
				S828	1-554-303-21	SWITCH, TACTILE (EDIT/TIME FADE)	
				S829	1-554-303-21	SWITCH, TACTILE (11)	
				S830	1-554-303-21	SWITCH, TACTILE (16)	
				S831	1-554-303-21	SWITCH, TACTILE (17)	
				S832	1-554-303-21	SWITCH, TACTILE (12)	

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
S833	1-554-303-21	SWITCH, TACTILE (7)		C333	1-130-495-00	MYLAR	0.1uF 5% 50V
S834	1-554-303-21	SWITCH, TACTILE (>)		C334	1-124-120-11	ELECT	220uF 20% 25V
S835	1-554-303-21	SWITCH, TACTILE (△ OPEN/CLOSE)		C335	1-161-494-00	CERAMIC	0.022uF 25V
S836	1-554-303-21	SWITCH, TACTILE (■)		C336	1-126-101-11	ELECT	100uF 20% 16V
S837	1-554-303-21	SWITCH, TACTILE (■)		C337	1-124-927-11	ELECT	4.7uF 20% 100V
S838	1-554-303-21	SWITCH, TACTILE (R<<△)		C338	1-124-477-11	ELECT	47uF 20% 25V
S839	1-554-303-21	SWITCH, TACTILE (>>R)		C339	1-124-443-00	ELECT	100uF 20% 10V
S840	1-554-303-21	SWITCH, TACTILE (▶▶)		C340	1-124-443-00	ELECT	100uF 20% 10V
S841	1-554-303-21	SWITCH, TACTILE (<<◀)		C341	1-126-101-11	ELECT	100uF 20% 16V
		< VIBRATOR >		C342	1-126-952-11	ELECT	1000uF 20% 16V
X801	1-577-082-11	VIBRATOR, CERAMIC (4MHz)		C343	1-164-159-11	CERAMIC	0.1uF 50V
*****				C391	1-164-159-11	CERAMIC	0.1uF 50V
*	1-646-970-11	LOADING BOARD		C392	1-164-159-11	CERAMIC	0.1uF 50V
		*****		C393	1-164-159-11	CERAMIC	0.1uF 50V
		< CONNECTOR >		C401	1-130-495-00	MYLAR	0.1uF 5% 50V
* CN151	1-568-943-11	PIN, CONNECTOR 5P		C402	1-164-159-11	CERAMIC	0.1uF 50V
		< MOTOR >		C403	1-162-282-31	CERAMIC	100PF 10% 50V
M151	A-4660-315-A	MOTOR (L) ASSY (LOADING)		C404	1-162-215-31	CERAMIC	47PF 5% 50V
		< SWITCH >		C405	1-162-215-31	CERAMIC	47PF 5% 50V
S151	1-572-086-11	SWITCH, LEAF (LOAD OUT)		C406	1-126-101-11	ELECT	100uF 20% 16V
S152	1-572-086-11	SWITCH, LEAF (LOAD IN)		C407	1-106-359-00	MYLAR	4700PF 5% 200V
*****				C408	1-130-472-00	MYLAR	0.0012uF 5% 50V
*	A-4649-984-A	MAIN BOARD, COMPLETE		C409	1-126-101-11	ELECT	100uF 20% 16V
		*****		C410	1-130-468-00	MYLAR	560PF 5% 50V
	7-682-547-09	SCREW +BVTT 3X6 (S)		C451	1-126-101-11	ELECT	100uF 20% 16V
		< CAPACITOR >		C481	1-126-101-11	ELECT	100uF 20% 16V
C301	1-164-159-11	CERAMIC	0.1uF 50V	C482	1-164-159-11	CERAMIC	0.1uF 50V
C302	1-164-159-11	CERAMIC	0.1uF 50V	C483	1-124-478-11	ELECT	100uF 20% 25V
C311	1-162-306-11	CERAMIC	0.01uF 20% 16V	C484	1-164-159-11	CERAMIC	0.1uF 50V
C312	1-161-494-00	CERAMIC	0.022uF 25V	C485	1-130-495-00	MYLAR	0.1uF 5% 50V
C320	1-126-101-11	ELECT	100uF 20% 16V	C501	1-130-495-00	MYLAR	0.1uF 5% 50V
C321	1-161-494-00	CERAMIC	0.022uF 25V	C502	1-164-159-11	CERAMIC	0.1uF 50V
C322	1-161-494-00	CERAMIC	0.022uF 25V	C503	1-162-282-31	CERAMIC	100PF 10% 50V
C323	1-162-290-31	CERAMIC	470PF 10% 50V	C504	1-162-215-31	CERAMIC	47PF 5% 50V
C324	1-164-159-11	CERAMIC	0.1uF 50V	C505	1-162-215-31	CERAMIC	47PF 5% 50V
C325	1-162-208-31	CERAMIC	24PF 5% 50V	C506	1-126-101-11	ELECT	100uF 20% 16V
C326	1-164-159-11	CERAMIC	0.1uF 50V	C507	1-106-359-00	MYLAR	4700PF 5% 200V
C327	1-124-477-11	ELECT	47uF 20% 25V	C508	1-130-472-00	MYLAR	0.0012uF 5% 50V
C328	1-161-494-00	CERAMIC	0.022uF 25V	C509	1-126-101-11	ELECT	100uF 20% 16V
C331	1-162-199-31	CERAMIC	10PF 5% 50V	C510	1-130-468-00	MYLAR	560PF 5% 50V
C332	1-162-199-31	CERAMIC	10PF 5% 50V	C551	1-126-101-11	ELECT	100uF 20% 16V
				C581	1-126-101-11	ELECT	100uF 20% 16V
				C582	1-164-159-11	CERAMIC	0.1uF 50V
				C583	1-124-478-11	ELECT	100uF 20% 25V
				C584	1-164-159-11	CERAMIC	0.1uF 50V
				C585	1-130-495-00	MYLAR	0.1uF 5% 50V
				C901	1-124-887-00	ELECT	3300uF 20% 16V
				C902	1-126-952-11	ELECT	1000uF 20% 16V
				C903	1-124-477-11	ELECT	47uF 20% 25V
				C904	1-124-927-11	ELECT	4.7uF 20% 100V



# MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C905	1-124-927-11	ELECT	4.7uF 20% 100V			< TRANSISTOR >	
C906	1-124-472-11	ELECT	470uF 20% 10V				
C907	1-164-159-11	CERAMIC	0.1uF 50V	Q951	8-729-019-64	TRANSISTOR 2SB1041	
C911	1-126-176-11	ELECT	220uF 20% 10V	Q952	8-729-119-76	TRANSISTOR 2SA1175-HFE	
C951	1-124-918-11	ELECT	47uF 20% 63V	Q953	8-729-119-76	TRANSISTOR 2SA1175-HFE	
C952	1-124-907-11	ELECT	10uF 20% 50V			< RESISTOR >	
		< CONNECTOR >		R301	1-249-425-11	CARBON 4.7K 5% 1/4W F	
CN301	1-568-838-11	SOCKET, CONNECTOR 21P		R302	1-249-417-11	CARBON 1K 5% 1/4W F	
* CN302	1-568-839-11	SOCKET, CONNECTOR 23P		R303	1-249-417-11	CARBON 1K 5% 1/4W F	
* CN305	1-568-832-11	SOCKET, CONNECTOR 13P		R304	1-249-417-11	CARBON 1K 5% 1/4W F	
		< DIODE >		R305	1-249-418-11	CARBON 1.2K 5% 1/4W F	
D301	8-719-911-19	DIODE 1SS119		R306	1-249-418-11	CARBON 1.2K 5% 1/4W F	
D302	8-719-210-21	DIODE 11EQS04		R307	1-249-417-11	CARBON 1K 5% 1/4W F	
D303	8-719-210-21	DIODE 11EQS04		R308	1-249-417-11	CARBON 1K 5% 1/4W F	
D311	8-719-921-40	DIODE MTZJ-4.7C		R309	1-249-417-11	CARBON 1K 5% 1/4W F	
D321	8-719-911-19	DIODE 1SS119		R310	1-249-417-11	CARBON 1K 5% 1/4W F	
D901	8-719-200-82	DIODE 11ES2		R311	1-249-417-11	CARBON 1K 5% 1/4W F	
D902	8-719-200-82	DIODE 11ES2		R312	1-249-411-11	CARBON 330 5% 1/4W	
D903	8-719-200-82	DIODE 11ES2		R313	1-249-417-11	CARBON 1K 5% 1/4W F	
D904	8-719-200-82	DIODE 11ES2		R314	1-249-409-11	CARBON 220 5% 1/4W F	
D951	8-719-200-82	DIODE 11ES2		R315	1-247-895-00	CARBON 470K 5% 1/4W	
D952	8-719-982-15	DIODE MTZJ-27B		R316	1-249-393-11	CARBON 10 5% 1/4W F	
D953	8-719-911-19	DIODE 1SS119		R317	1-249-393-11	CARBON 10 5% 1/4W F	
D954	8-719-110-03	DIODE RD7.5ESB2		R322	1-249-422-11	CARBON 2.7K 5% 1/4W F	
		< GROUND PLATE >		R331	1-249-429-11	CARBON 10K 5% 1/4W	
* EB471	4-962-201-01	PLATE (HP), GROUND		R341	1-247-807-31	CARBON 100 5% 1/4W	
* EB991	4-962-200-01	PLATE (TR), GROUND		R401	1-249-436-11	CARBON 39K 5% 1/4W	
		< IC >		R402	1-249-436-11	CARBON 39K 5% 1/4W	
IC301	8-759-822-09	IC LB1641		R403	1-249-431-11	CARBON 15K 5% 1/4W	
IC302	8-759-044-10	IC CXD2562Q		R404	1-249-431-11	CARBON 15K 5% 1/4W	
IC303	8-759-175-88	IC LA9215-ST		R405	1-247-870-11	CARBON 43K 5% 1/4W	
IC304	8-749-921-12	IC GP1F32T		R406	1-247-870-11	CARBON 43K 5% 1/4W	
IC305	8-752-356-03	IC CXD2567M (DIGITAL OUT OPTICAL)		R407	1-247-834-11	CARBON 1.3K 5% 1/4W	
IC451	8-759-167-88	IC NJM4565D		R408	1-247-834-11	CARBON 1.3K 5% 1/4W	
IC901	8-759-061-65	IC LA5602		R409	1-249-429-11	CARBON 10K 5% 1/4W	
IC902	8-759-605-00	IC M5F78M07L		R410	1-247-887-00	CARBON 220K 5% 1/4W	
		< JACK >		R411	1-249-417-11	CARBON 1K 5% 1/4W F	
* J401	1-569-443-11	JACK, PIN 4P (LINE OUT)		R412	1-249-417-11	CARBON 1K 5% 1/4W F	
		< COIL >		R413	1-249-436-11	CARBON 39K 5% 1/4W	
L301	1-410-322-11	INDUCTOR 3.3uH		R414	1-249-436-11	CARBON 39K 5% 1/4W	
L302	1-410-322-11	INDUCTOR 3.3uH		R451	1-247-807-31	CARBON 100 5% 1/4W	
L303	1-410-322-11	INDUCTOR 3.3uH		R452	1-249-435-11	CARBON 33K 5% 1/4W	
L304	1-410-322-11	INDUCTOR 3.3uH		R453	1-249-432-11	CARBON 18K 5% 1/4W	
				R454	1-249-422-11	CARBON 2.7K 5% 1/4W F	
				R455	1-249-429-11	CARBON 10K 5% 1/4W	
				R501	1-249-436-11	CARBON 39K 5% 1/4W	
				R502	1-249-436-11	CARBON 39K 5% 1/4W	
				R503	1-249-431-11	CARBON 15K 5% 1/4W	
				R504	1-249-431-11	CARBON 15K 5% 1/4W	
				R505	1-247-870-11	CARBON 43K 5% 1/4W	

**MAIN**   **MVR**   **SW**   **TRANS**

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R506	1-247-870-11	CARBON	43K 5% 1/4W			< RESISTOR >	
R507	1-247-834-11	CARBON	1.3K 5% 1/4W	R351	1-249-411-11	CARBON 330 5% 1/4W	
R508	1-247-834-11	CARBON	1.3K 5% 1/4W	R352	1-249-417-11	CARBON 1K 5% 1/4W	F
R509	1-249-429-11	CARBON	10K 5% 1/4W	R353	1-249-417-11	CARBON 1K 5% 1/4W	F
R510	1-247-887-00	CARBON	220K 5% 1/4W	R461	1-249-402-11	CARBON 56 5% 1/4W	F
R511	1-249-417-11	CARBON	1K 5% 1/4W	R561	1-249-402-11	CARBON 56 5% 1/4W	F
R512	1-249-417-11	CARBON	1K 5% 1/4W			< VARIABLE RESISTOR >	
R513	1-249-436-11	CARBON	39K 5% 1/4W	RV461	1-223-571-11	RES, VAR, CARBON 10K/10K	(LINE OUT/PHONE LEVEL)
R514	1-249-436-11	CARBON	39K 5% 1/4W			*****	
R551	1-247-807-31	CARBON	100 5% 1/4W			* 1-651-970-11	SW BOARD
R552	1-249-435-11	CARBON	33K 5% 1/4W			*****	
R553	1-249-432-11	CARBON	18K 5% 1/4W			< CAPACITOR >	
R554	1-249-422-11	CARBON	2.7K 5% 1/4W			C851	1-161-494-00 CERAMIC 0.022uF 25V
R555	1-249-429-11	CARBON	10K 5% 1/4W			C852	1-161-494-00 CERAMIC 0.022uF 25V
R901	1-249-433-11	CARBON	22K 5% 1/4W				< IC >
R902	1-249-424-11	CARBON	3.9K 5% 1/4W			IC851	8-741-100-48 IC SBX1610-59
R903	1-249-417-11	CARBON	1K 5% 1/4W				< SWITCH >
R904	1-249-417-11	CARBON	1K 5% 1/4W			S851	1-554-118-00 SWITCH, PUSH (1 KEY)(POWER)
R951	1-249-425-11	CARBON	4.7K 5% 1/4W			*****	
R952	1-249-425-11	CARBON	4.7K 5% 1/4W			* 1-651-971-11	TRANS BOARD
R953	1-249-435-11	CARBON	33K 5% 1/4W			*****	
R954	1-249-390-11	CARBON	5.6 5% 1/6W			< CAPACITOR >	
R955	1-249-390-11	CARBON	5.6 5% 1/6W			C991	1-164-159-11 CERAMIC 0.1uF 50V
		< VIBRATOR >					< CONNECTOR >
X331	1-579-161-11	VIBRATOR, CRYSTAL (45MHz)				* CN991	1-580-230-11 PIN, CONNECTOR (PC BOARD) 3P
		*****				CN992	1-564-510-11 PLUG, CONNECTOR 7P
		* 1-651-972-11	MVR BOARD				< TRANSFORMER >
		*****				△T901	1-449-925-11 TRANSFORMER, POWER
		< CAPACITOR >				*****	
C351	1-124-443-00	ELECT	100uF 20% 10V			MISCELLANEOUS	
C352	1-161-494-00	CERAMIC	0.022uF 25V			*****	
C471	1-162-294-31	CERAMIC	0.001uF 10% 50V			3	1-751-947-11 WIRE (FLAT TYPE) (21 CORE)
C472	1-162-294-31	CERAMIC	0.001uF 10% 50V			7	1-765-055-11 WIRE (FLAT TYPE) (13 CORE)
C473	1-164-159-11	CERAMIC	0.1uF 50V			58	1-696-760-11 WIRE (FLAT TYPE) (23 CORE)
		< CONNECTOR >				△61	1-575-651-21 CORD, POWER
CN351	1-506-468-11	PIN, CONNECTOR 3P				* 113	1-452-538-11 MAGNET
* CN461	1-568-832-11	SOCKET, CONNECTOR 13P					
		< IC >					
IC351	8-759-962-08	IC BA6208					
		< JACK >					
J471	1-750-162-41	JACK (LARGE TYPE)(PHONES)					

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
△151	8-848-144-11	OPTICAL PICK-UP KSS-240A	
152	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-4660-315-A	MOTOR (L) ASSY (LOADING)	
S101	1-572-085-11	SWITCH, LEAF (LIMIT)	
S151	1-572-086-11	SWITCH, LEAF (LOAD OUT)	
S152	1-572-086-11	SWITCH, LEAF (LOAD IN)	
△T901	1-449-925-11	TRANSFORMER, POWER	
*****			
ACCESSORIES & PACKING MATERIALS			
*****			
	1-467-315-11	REMOTE COMMANDER (RM-D720)	
	1-558-271-11	CORD, CONNECTION (AUDIO) (108cm)	
	3-757-601-51	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, DANISH) (AEP)	
	3-757-601-61	MANUAL, INSTRUCTION (GERMAN, ITALIAN, DUTCH, PORTUGUESE) (AEP)	
	3-757-601-71	MANUAL, INSTRUCTION (GERMAN) (G)	
*	4-942-790-01	CUSHION	
*	4-955-644-81	INDIVIDUAL CARTON	
	4-962-615-01	COVER, BATTERY (FOR RM-D720)	
*****			
*****			
HARDWARE LIST			
*****			
#1	7-682-548-09	SCREW +BVTT 3X8 (S)	
#2	7-682-547-09	SCREW +BVTT 3X6 (S)	
#3	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#4	7-621-255-15	SCREW +P 2X3	
#5	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	

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