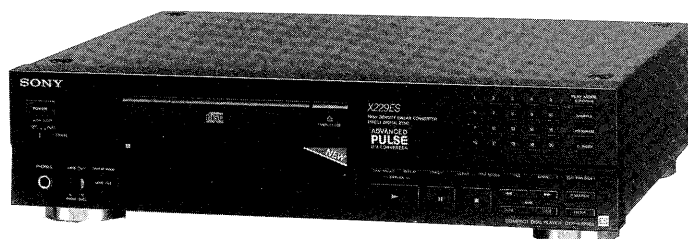


CDP-X229ES

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model



Model Name Using Similar Mechanism	NEW
CD Mechanism Type	CDM11K-5BD8B
Base Unit Name	BU-5BD8B

SPECIFICATIONS

Compact disc player

Laser

Semiconductor laser
($\lambda = 780 \text{ nm}$)

Laser output

Emission duration: continuous
Max. $44,6 \mu\text{W}$
This output is the value measured at a distance of about 200 mm from the objective lens surface on the Optical Pick-up Block.

Frequency response
Signal to noise ratio

$2 \text{ Hz} - 20 \text{ kHz} \pm 0.3 \text{ dB}$
More than 115dB

Dynamic range
Harmonic distortion

More than 100 dB
Less than 0.0023%

Channel separation

More than 110 dB

Outputs

LINE OUT (FIXED) (phon jacks)

Output level 2V (at 50 kilohms)
Load impedance over 10 kilohms
Output level max. 2V (at 50 kilohms)
Load impedance over 50 kilohms
Wave length 660 nm
Output level - 18 dBm
Output level max. 28 mW
Load impedance 32 ohms

LINE OUT (VARIABLE)
(phon jacks)
DIGITAL OUT (OPTICAL)
(optical) output connector)
HEADPHONES
(Stereo phone jack)

General

Power requirements

AEP model:
220 - 230V AC, 50/60 Hz
UK model:
240 V AC 50/60 Hz
US, Canadian model
120 V AC, 60 Hz
E model:
110 - 120 or 220 - 240 V AC
adjustable, 50/60 Hz

Power consumption

15W

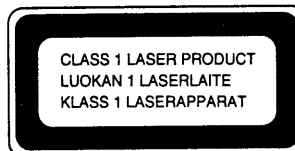
Dimensions (approx.
including projections)

Approx. 430x110x340 mm (w/h/d)
(17x4 3/8x13 1/2 inches)

Weight

Approx. 6.4kg (14 lbs 1.8oz)

- continued on next page -



This Compact Disc player is classified as a CLASS 1 LASER Product. The CLASS 1 LASER PRODUCT label is located on the rear exterior

COMPACT DISC PLAYER
SONY®



Remote commander

Remote control system	Infrared control
Power requirements	3 V DC with two batteries size AA (IEC designation R6).
Dimensions	Approx. 62 x 18 x 175 mm (w/h/d) (2 1/2 x 23/32 x 7 inches)
Weight	Approx. 130 g (4.6 oz) Including batteries

Design and specifications are subject to change without notice.

SAFETY-RELATED COMPONENT WARNING!!

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

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

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

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4-3.	Chassis Section	30
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7.	ELECTRICAL PARTS LIST	33

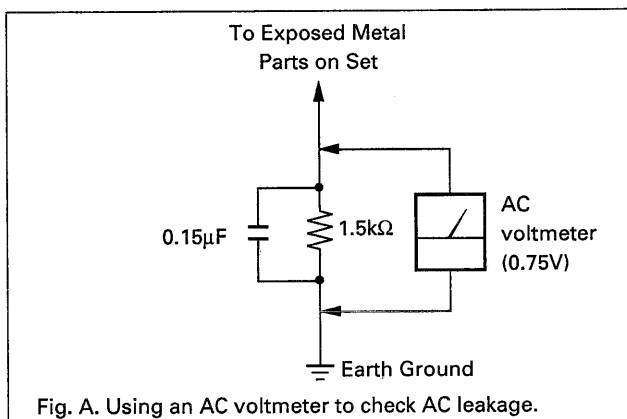
SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer: Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

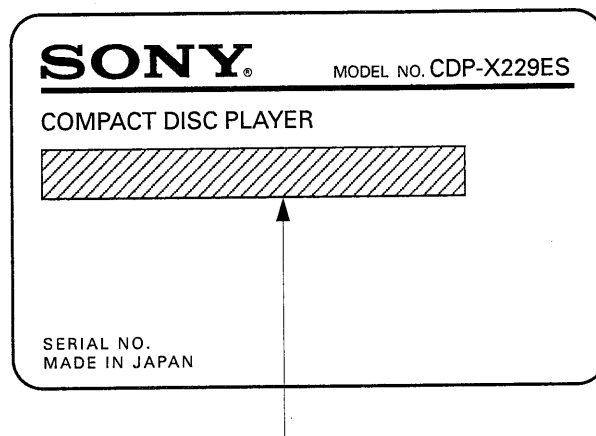
The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig.A)



MODEL IDENTIFICATION

– SPECIFICATION LABEL –



US, Canadian MODEL	: AC 120V, 60Hz, 15W
AEP MODEL	: AC220-230V, 50/60Hz, 15W
UK MODEL	: AC240V, 50/60Hz, 15W
E MODEL	: AC110-120 / 220-240V, 50/60Hz, 15W

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.

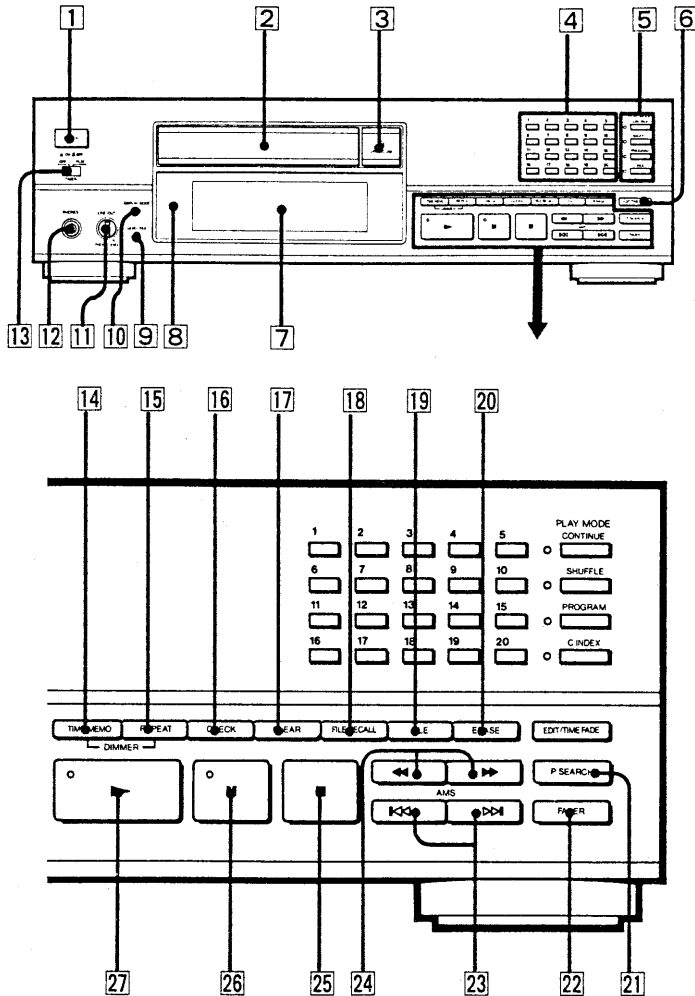
SECTION 1
GENERAL

This section is extracted from instruction manual.

Identifying the Parts

Front Panel

Refer to the pages indicated in () for details.



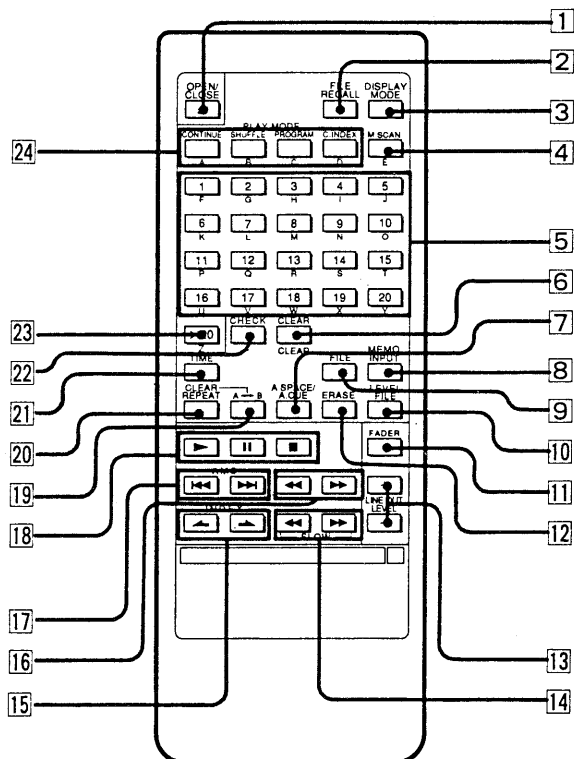
- 1 POWER switch (22)
- 2 Disc tray (22)
- 3 ▲ OPEN/CLOSE button (22)
- 4 Numeric buttons (26)
- 5 PLAY MODE buttons
CONTINUE button and indicator (22)
SHUFFLE button and indicator (32)
PROGRAM button and indicator (46)
C. (custom) INDEX button and indicator (92)
- 6 EDIT/TIME FADE button (70)
- 7 Display window (24)
- 8 Remote sensor
- 9 LEVEL FILE button (98)
- 10 DISPLAY MODE button (24)
- 11 LINE OUT/PHONE LEVEL control (22)
- 12 PHONES jack (22)
- 13 TIMER switch (100)
- 14 TIME/MEMO button (24)
- 15 REPEAT button (42)
- 16 CHECK (program check) button (46)
- 17 CLEAR (program clear) button (36, 46)
- 18 FILE RECALL button (78)
- 19 FILE (custom file) button (78)
- 20 ERASE (memory erase) button (78)
- 21 P. (peak) SEARCH button (74)
- 22 FADER (fadein/fade out) button (72)
- 23 ◀▶ AMS* buttons (26)
- 24 ◀▶ (manual search) buttons (28)
- 25 ■ (stop) button (22)
- 26 ■ (pause) button and indicator (22)
- 27 ▶ (play) button and indicator (22)

* AMS is the abbreviation of Automatic Music Sensor.

Identifying the Parts

Remote Commander

Refer to the pages indicated in () for details.



- 1 ▲ OPEN/CLOSE button (22)
- 2 FILE RECALL button (78)
- 3 DISPLAY MODE button (24)
- 4 M. SCAN button (38)
- 5 Numeric buttons (26)
- 6 CLEAR button (36, 46)
- 7 A. SPACE (auto space)/A.CUE (auto cue) button (30, 72)
- 8 MEMO INPUT button (80)
- 9 FILE (custom file) button (78)
- 10 LEVEL FILE button (98)
- 11 FADER (fade in/fade out) button (72)
- 12 ERASE button (78)
- 13 LINE OUT LEVEL (line out/headphones level) buttons (22)
- 14 ◀▶ SLOW (low speed manual search) buttons (28)
- 15 — — INDEX buttons (28)
- 16 ◀▶ (manual search) buttons (28)
- 17 ◀▶ AMS* buttons (26)
- 18 ■ (stop) button (22)
- 19 || (pause) button (22)
- 20 ▶ (play) button (22)
- 19 A ↔ B repeat button (44)
- 20 REPEAT (repeat/A-B repeat clear) button (42)
- 21 TIME button (24)
- 22 CHECK button (46)
- 23 > 20 (over 20) button (26)
- 24 PLAY MODE buttons
 CONTINUE button (22)
 SHUFFLE button (32)
 PROGRAM button (46)
 C. INDEX button (92)

Buttons with orange letters (A, B, - - - -) are for writing a disc memo (page 80).

*AMS is the abbreviation of Automatic Music Sensor.

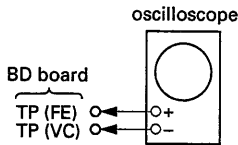
SECTION 2

ELECTRICAL BLOCK CHECKING

Note :

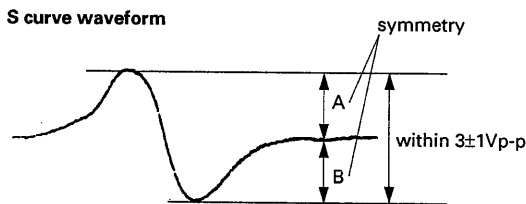
1. CD Block basically constructed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than 10MΩ impedance.
4. Clean an object lens by an applicator with neutral detergent when the signal 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 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 to peak level within $3 \pm 1V_{p-p}$.

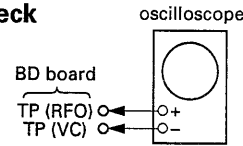


5. After check, remove the lead wire connected in step 2.

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



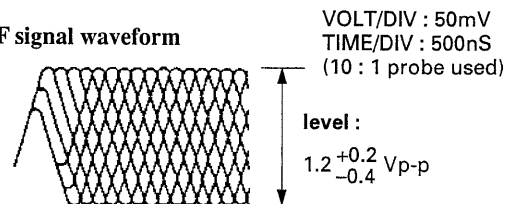
Procedure :

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.

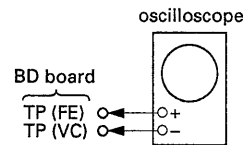
Note :

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

RF signal waveform



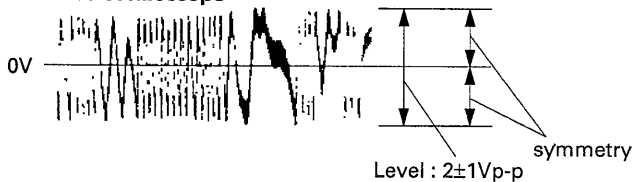
E-F Balance Check



Procedure :

1. Connect test point TP (ADJ) (on main board) 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.

Traverse oscilloscope

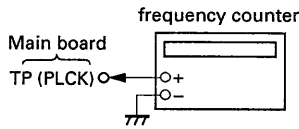


6. Remove the lead wire connected in step 1.

RF PLL Free-run Frequency Check

Procedure :

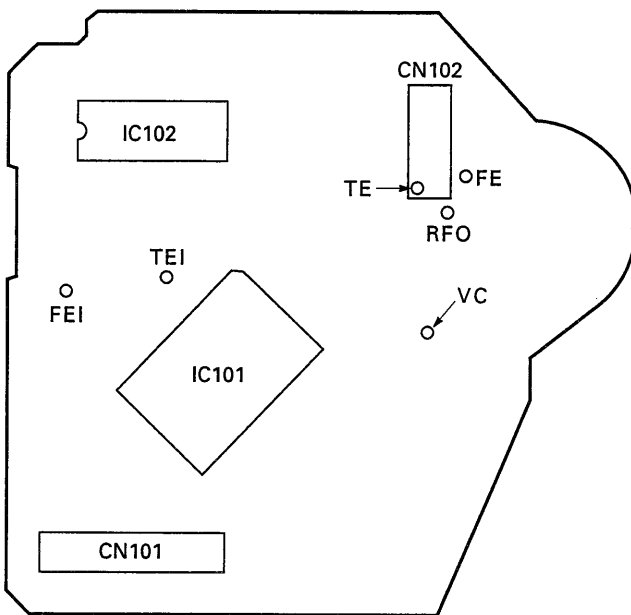
1. Connect frequency counter to test point (PLCK) with lead wire.



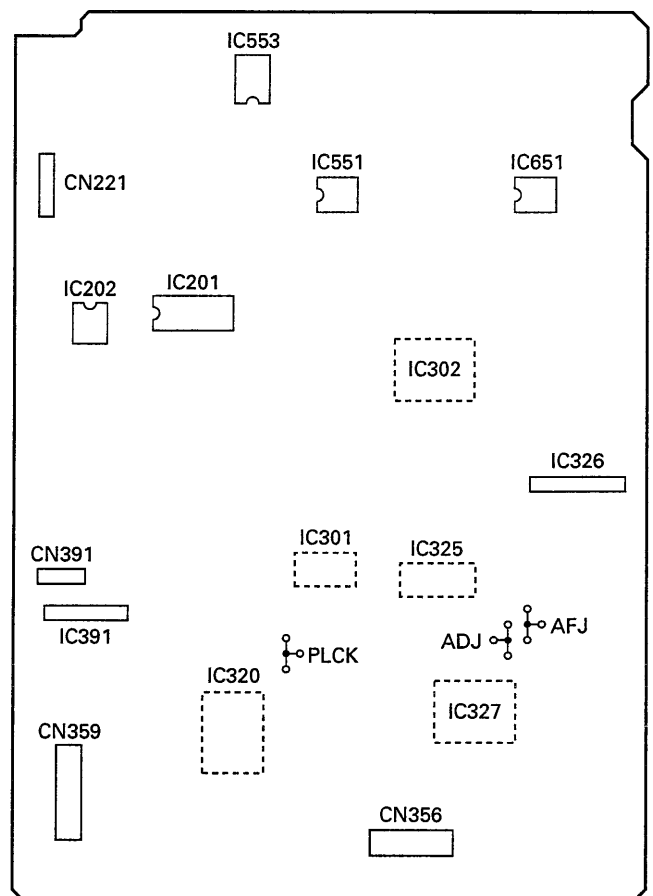
2. Turn Power switch on.
3. Confirm that reading on frequency counter is 4.3218MHz.

Checking Location :

[BD BOARD] – Conductor Side –

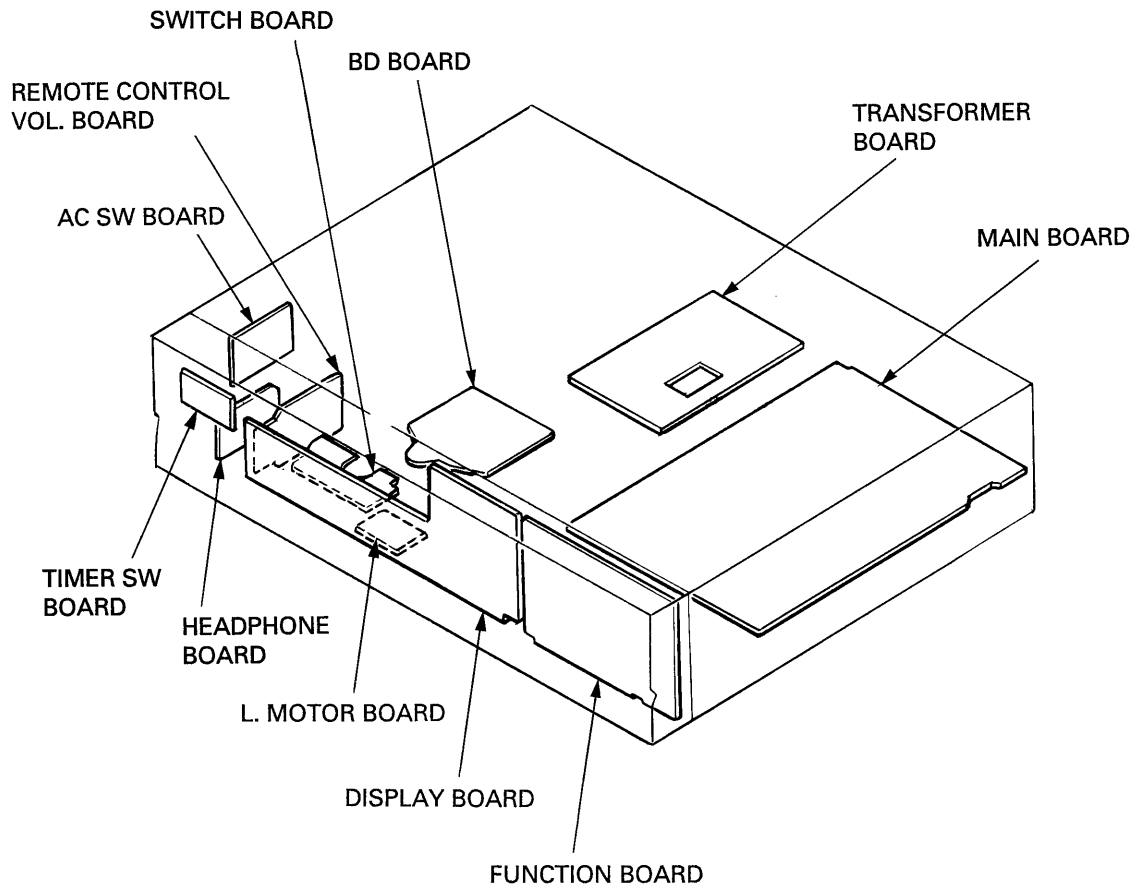


[MAIN BOARD] – Component Side –



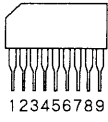
SECTION 3 DIAGRAMS

3-1. CIRCUIT BOARDS LOCATION

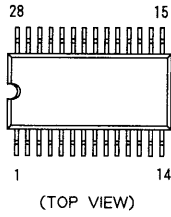


3-2. SEMICONDUCTOR LEAD LAYOUTS

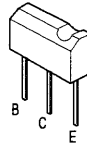
BA6208



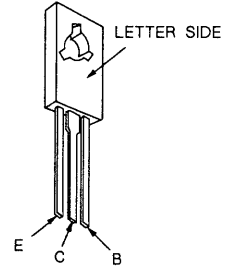
LH5160N-10L



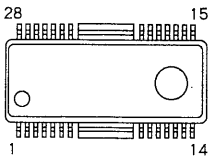
DTC114EF



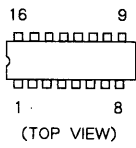
2SD774-34



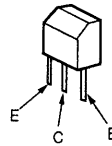
BA6297AFP



M5290P-16

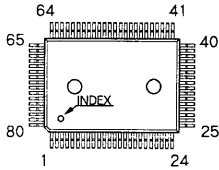


2SB734-34

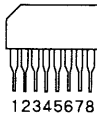


HZS36-3L
RD5.1ES-B2
RD5.6ES-B2
RD8.2ES-B2
11EQS04

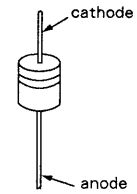
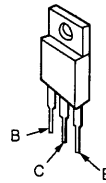
CXD2500AQ
MSC62408-034GS-V1K
M37451M8-175FP



M54641L

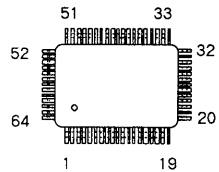


2SB1094-LK
2SD1944-K

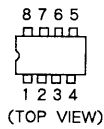


1OE2
1N4148M

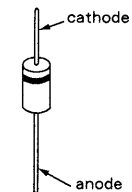
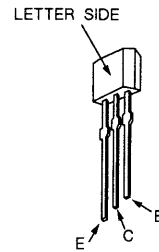
CXD2501Q
CXD2562Q



NE5532P
RC4556D
RC4558P

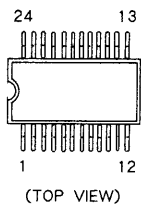


2SC2785-HFE

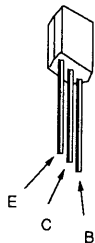


BR3371X
MAY3371X-M-177
MBG3371X-9.5
MBG3371X-177
MPY3371X-177

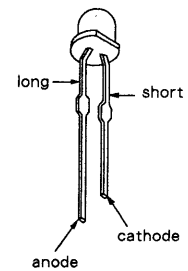
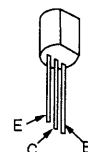
CXD2560M



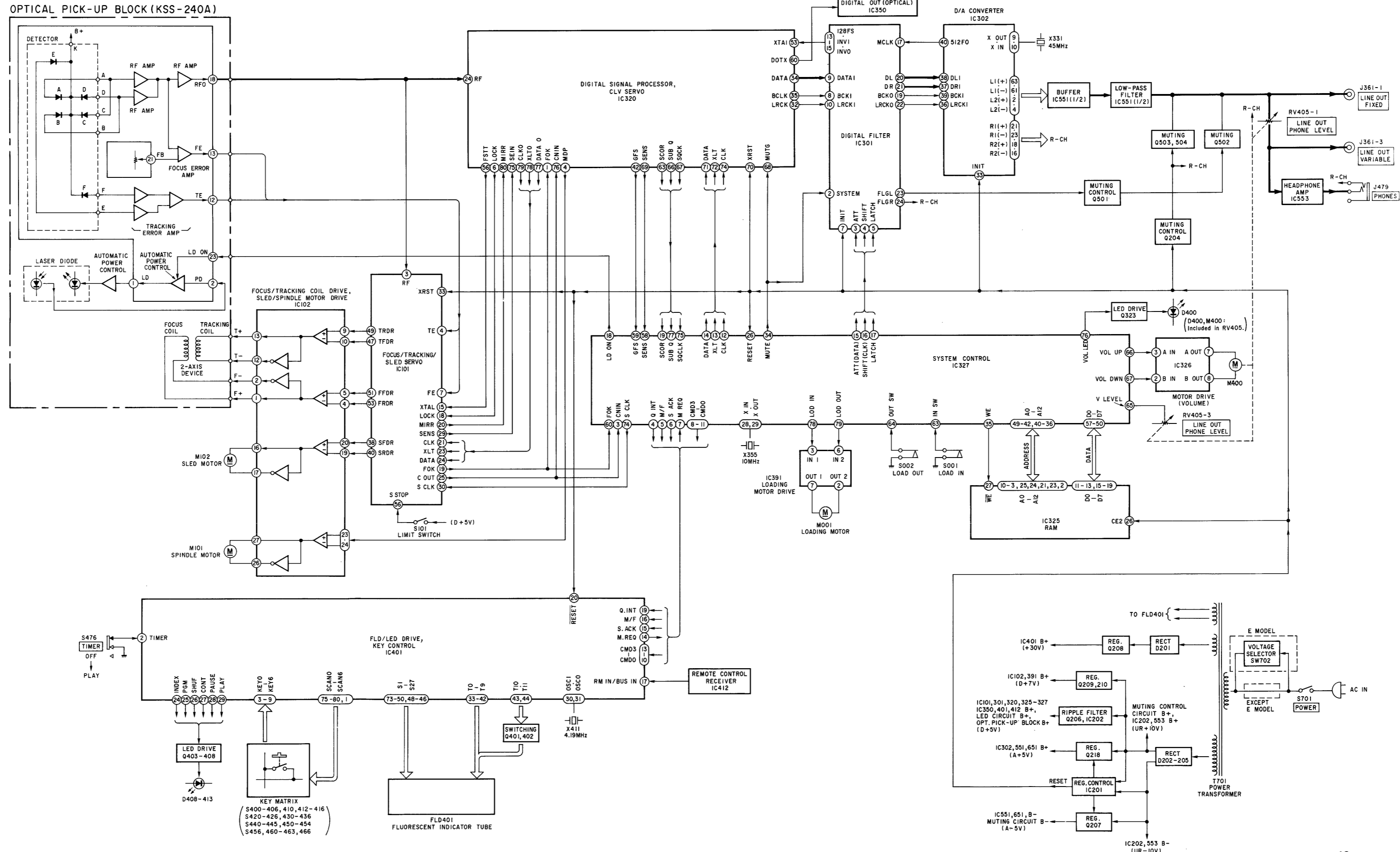
DTA114ES
DTA144ES
DTC114ES
DTC143TS



2SC2878-B



3-3. BLOCK DIAGRAM



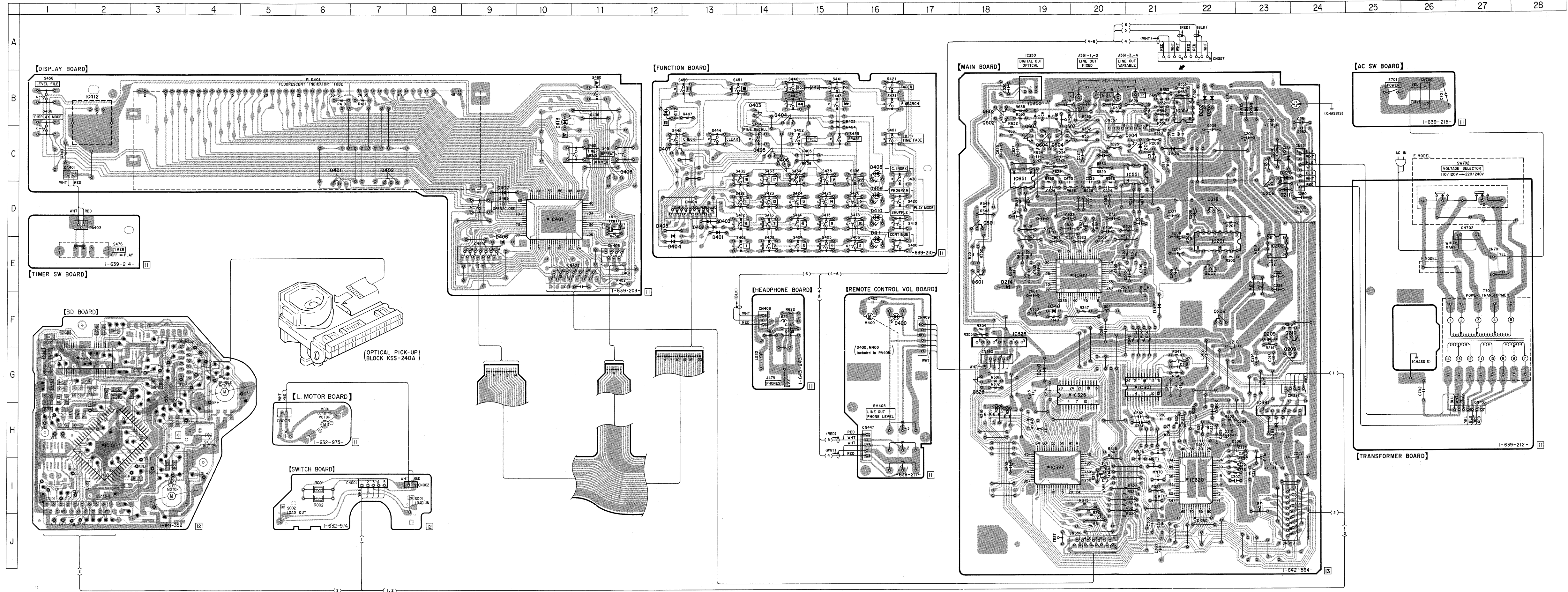
3-4. PRINTED WIRING BOARDS

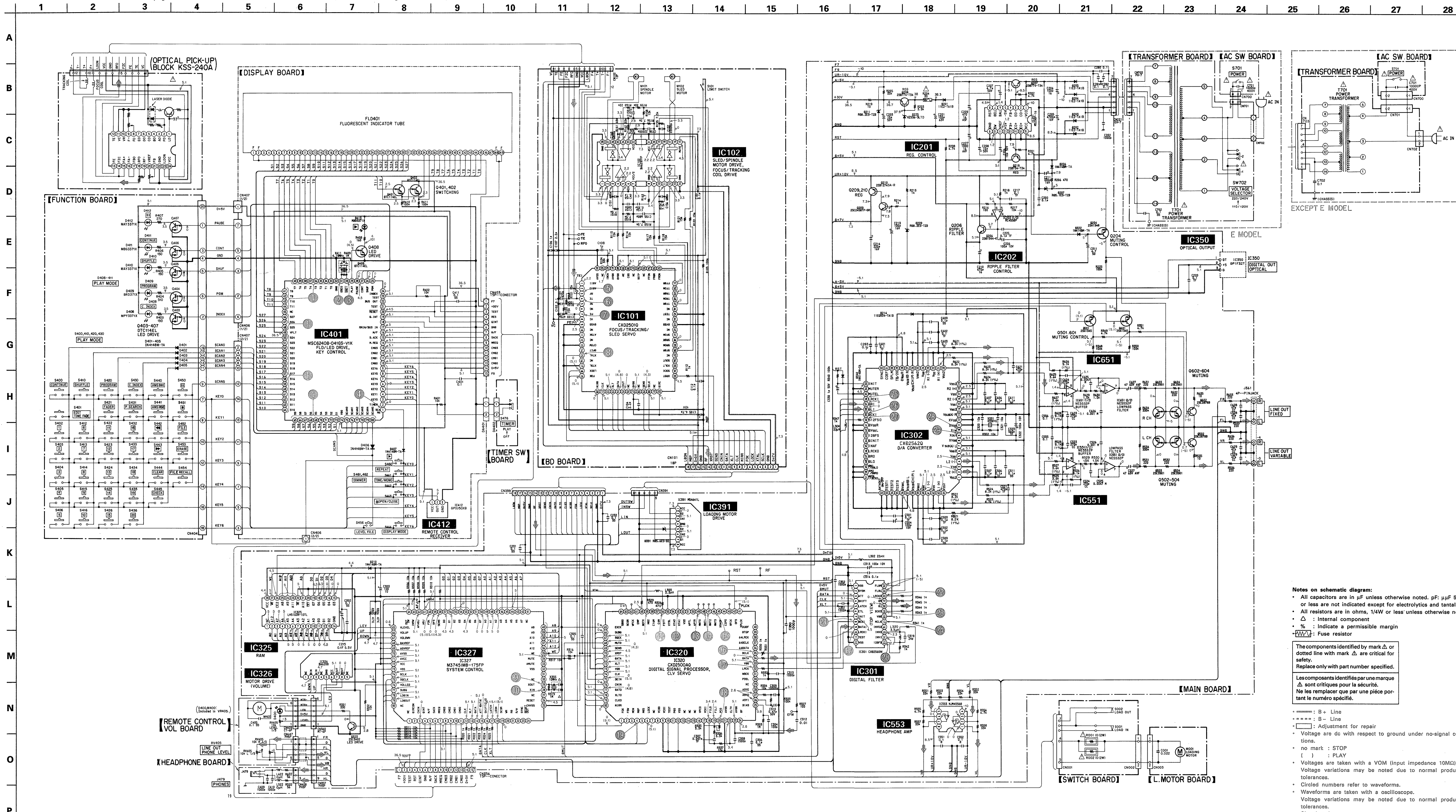
• See page 8 for circuit boards location , 9 for semiconductor lead layouts.

● SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location
D201	C-24	IC326	F-19
D202	B-22	IC327	I-19
D203	B-22	IC350	B-19
D204	B-23	IC391	H-23
D205	B-23	IC401	D-10
D206	C-21	IC412	B-2
D207	C-21	IC551	C-21
D209	F-23	IC553	B-22
D210	G-19	IC651	C-19
D211	D-23		
D214	E-18	Q204	C-21
D225	C-23	Q206	F-22
D322	F-21	Q207	E-22
D320	F-19	Q208	D-23
D391	H-23	Q209	G-24
D400	F-16	Q210	F-24
D401	D-13	Q218	D-22
D402	D-13	Q323	G-18
D403	D-13	Q401	C-6
D404	E-12	Q402	C-7
D405	D-12	Q403	B-14
D406	E-9	Q404	B-14
D407	D-9	Q405	C-14
D408	C-16	Q406	C-14
D409	D-16	Q407	C-12
D410	D-16	Q408	C-11
D411	E-16	Q501	D-18
D412	B-12	Q502	B-18
D413	B-10	Q503	C-20
		Q504	C-19
IC101	H-2	Q601	E-18
IC102	G-2	Q602	B-18
IC201	E-22	Q603	C-19
IC202	E-23	Q604	C-19
IC301			
IC302	E-20		
IC320	I-22		
IC325	G-20		

Notes on printed wiring boards:
 • : Indicated a lead wire mounted on the component side
 • : Parts mounted on the conductor side
 • : Through hole
 • : Pattern from the side which enables seeing
 • : Pattern of the rear side





Notes on schematic diagram:

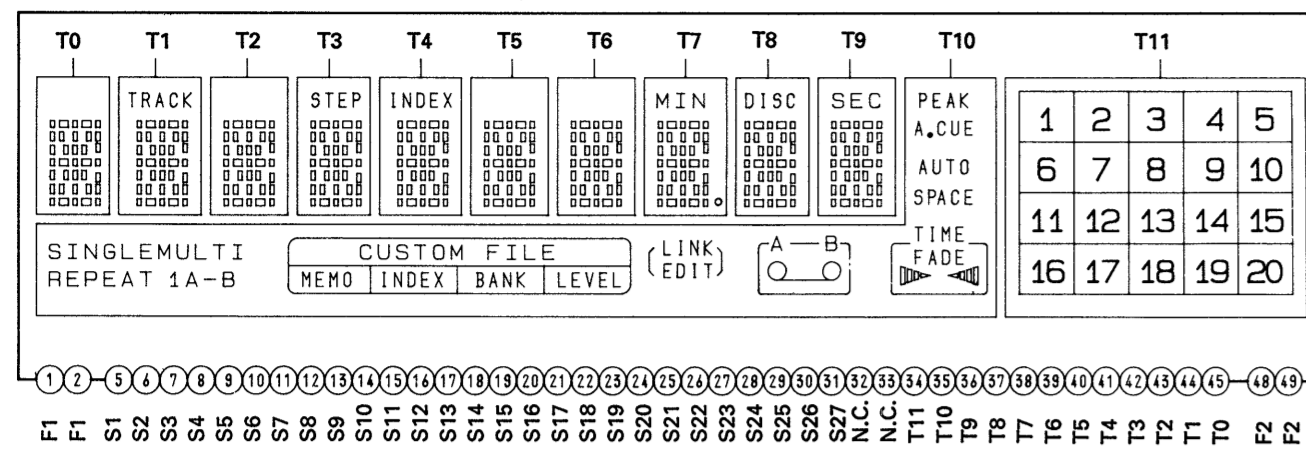
- All capacitors are in μF unless otherwise noted. pF: μF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W or less unless otherwise noted.
- Δ : Internal component
- %: Indicate a permissible margin
- W : Fuse resistor

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

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

- : B + Line
- ====: B - Line
- : Adjustment for repair
- Voltage are dc with respect to ground under no-signal conditions.
- no mark: STOP
- (): PLAY
- Voltages are taken with a VOM (input impedance 10M Ω). Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Waveforms are taken with a oscilloscope.
- Voltage variations may be noted due to normal production tolerances.
- Signal path
- CD : CD

● FLUORESCENT INDICATOR TUBE (FLD401)



(T0 - T9)

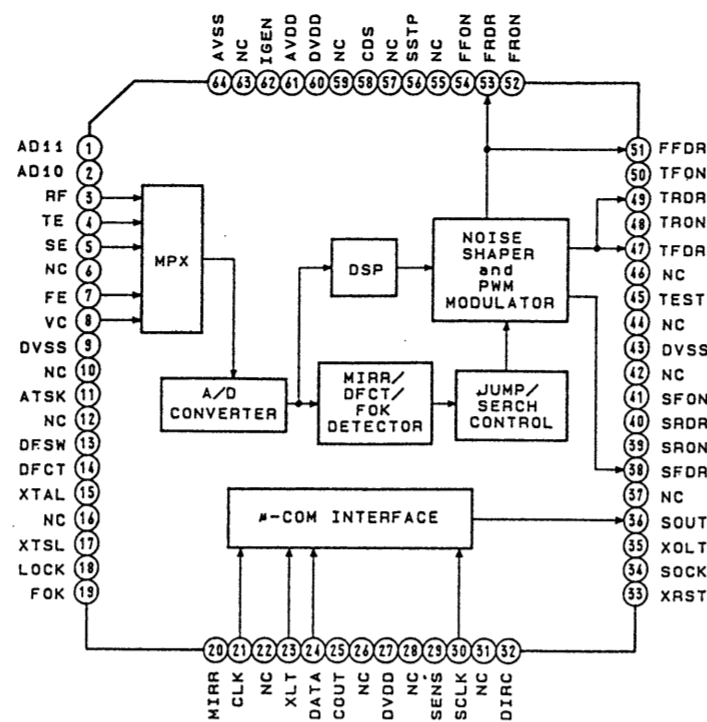
a	b	c	d	e
f	h	i	j	k
l	m	n	o	p
q	r	s	t	u
v	w	x	y	

● DISPLAY PANEL TERMINAL (FLD401)

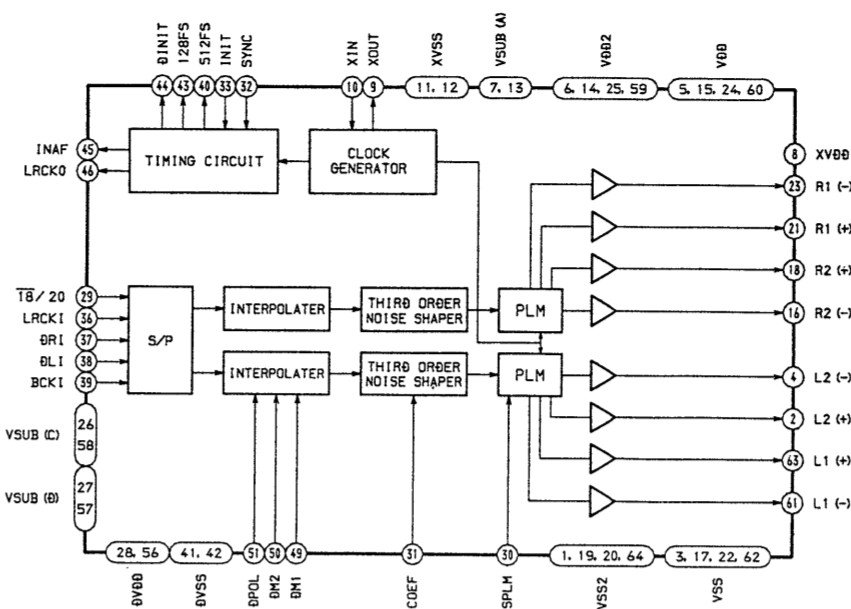
	T0	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11
S1	a	a	a	a	a	a	a	a	a	a	REPEAT	1
S2	b	b	b	b	b	b	b	b	b	b	I	2
S3	c	c	c	c	c	c	c	c	c	c	A-	3
S4	d	d	d	d	d	d	d	d	d	d	B	4
S5	e	e	e	e	e	e	e	e	e	e	A.CUE	5
S6	f	f	f	f	f	f	f	f	f	f	AUTO SPACE	6
S7	g	g	g	g	g	g	g	g	g	g	SINGLE	7
S8	h	h	h	h	h	h	h	h	h	h	MULTI	8
S9	i	i	i	i	i	i	i	i	i	i	CUSTOM FILE	9
S10	j	j	j	j	j	j	j	j	j	j	MEMO	10
S11	k	k	k	k	k	k	k	k	k	k	INDEX	11
S12	l	l	l	l	l	l	l	l	l	l	BANK	12
S13	m	m	m	m	m	m	m	m	m	m	LEVEL	13
S14	n	n	n	n	n	n	n	n	n	n	[LINK]	14
S15	o	o	o	o	o	o	o	o	o	o	EDIT	15
S16	p	p	p	p	p	p	p	p	p	p	-	16
S17	q	q	q	q	q	q	q	q	q	q	A	17
S18	r	r	r	r	r	r	r	r	r	r	B	18
S19	s	s	s	s	s	s	s	s	s	s	[O.O.]	19
S20	t	t	t	t	t	t	t	t	t	t	TIME	20
S21	u	u	u	u	u	u	u	u	u	u	FADE	-
S22	v	v	v	v	v	v	v	v	v	v	[▶]	-
S23	w	w	w	w	w	w	w	w	w	w	[◀]	-
S24	x	x	x	x	x	x	x	x	x	x	-	-
S25	y	y	y	y	y	y	y	y	y	y	[■]	-
S26	-	TRACK	-	STEP	INDEX	-	-	MIN	DISC	SEC	PEAK	▷
S27	-	-	-	-	-	-	-	-	-	-	-	-

● IC BLOCK DIAGRAMS

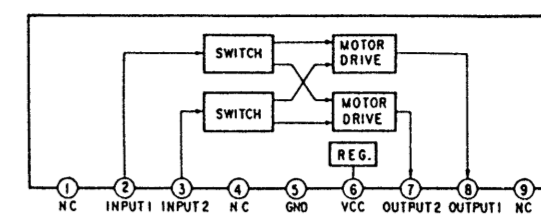
IC101 CXD2501Q



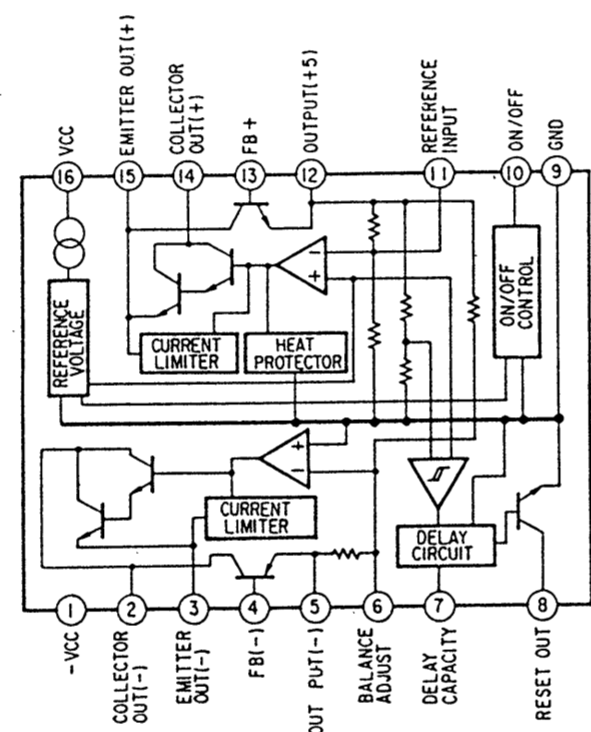
IC302 CXD2562Q



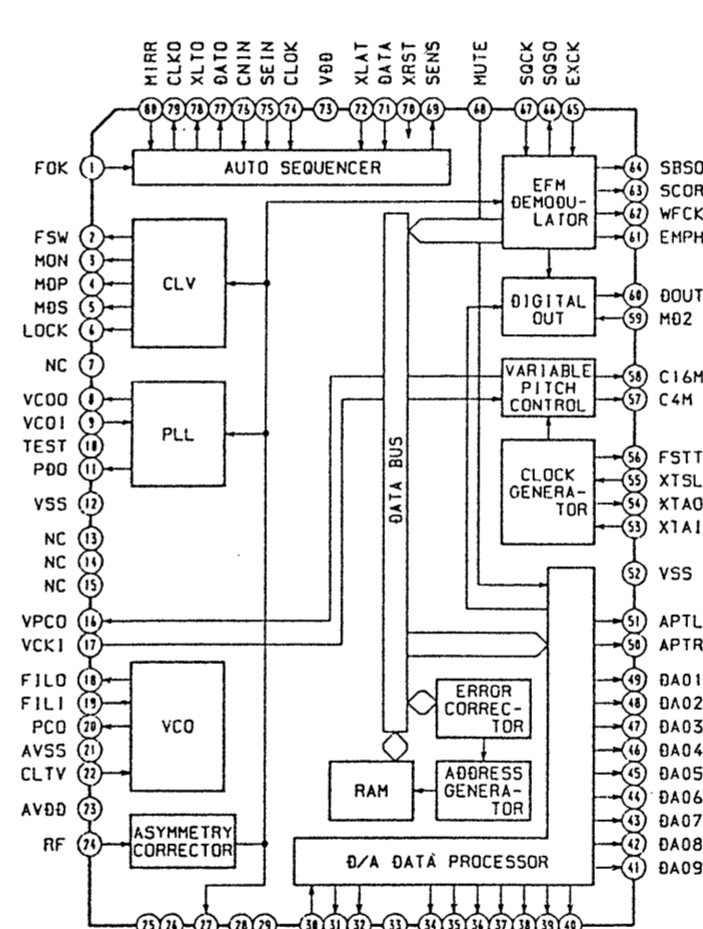
IC326 BA6208



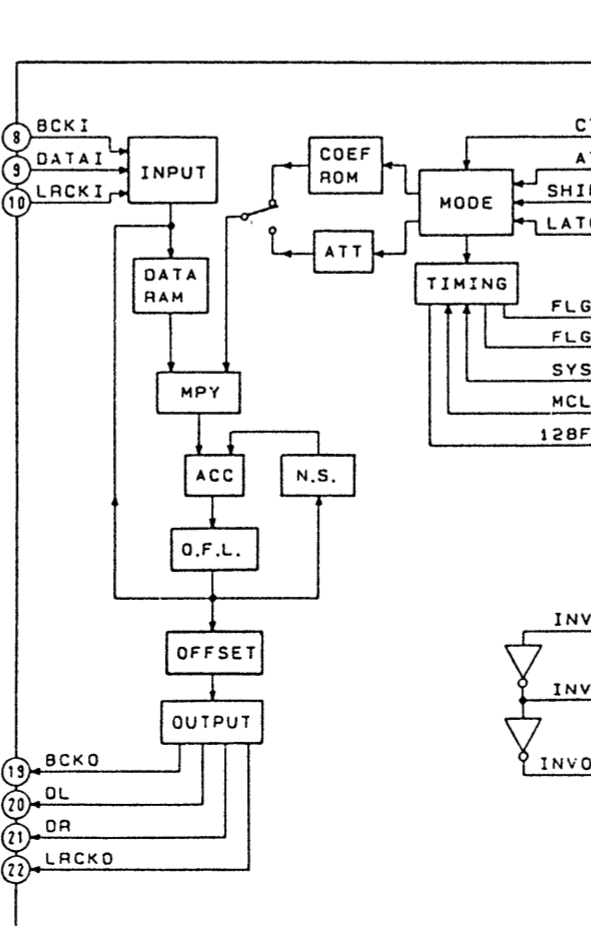
IC201 M5290P-16



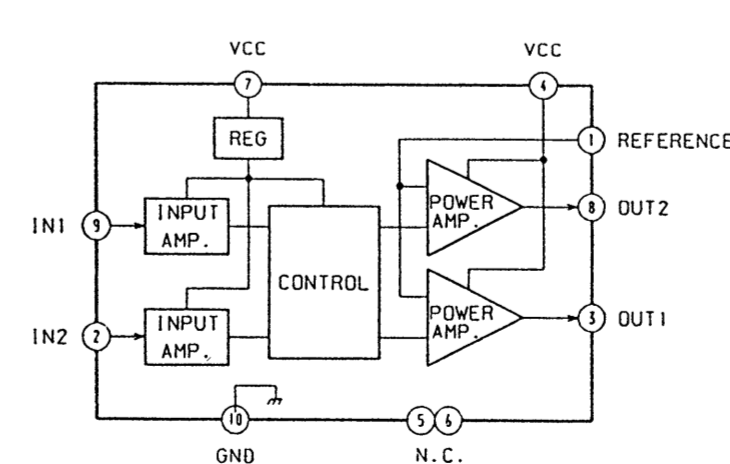
IC320 CXD2500AQ



IC301 CXD2560M



IC391 M54641L



3-6. IC PIN FUNCTIONS

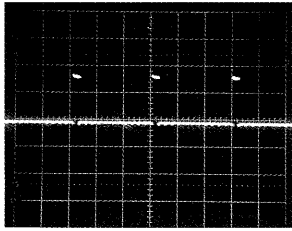
• IC327 CD system controller (M37451M8-175FP)

Functions effected by the captioned controller include IC101 (RF signal processing, servo), IC320 (DSP), and loading control in the CD unit, data exchange with IC401 (Display, key control), audio bus entry, etc.

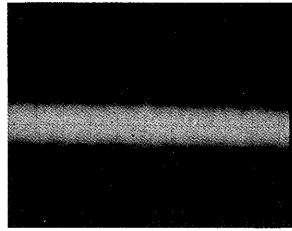
Pin No.	Pin Name	I/O	Description
1,2	N.C.	–	No connection
3	CNIN	I	Count input from CXD2501Q (IC101)
4	QINT	O	Command output pulse output terminal
5	M/F	I/O	Master/File command select input/output
6	SACK	O	Command acknowledge output
7	MREQ	I	Command request input
8 – 11	CMD3 – CMD0	I/O	Master micro-computer inter-face 3-0
12	CLK	O	Data clock signal output to CXD2500AQ (IC320), CXD2501Q (IC101)
13	XLT	O	Date latch pulse signal output to CXD2500AQ (IC320), CXD2501Q (IC101)
14	DATA	O	Data signal output to CXD2500AQ (IC320), CXD2501Q (IC101)
15	ATT	O	Attenuate data signal output to CXD2560M (IC301)
16	SHIFT	O	Attenuate data clock signal output to CXD2560M (IC301)
17	LATCH	O	Attenuate data latch pulse signal output to CXD2560M (IC301)
18	LDON	O	Laser diode ON/OFF signal output
19	SCOR	I	SCOR signal input from IC320 (CXD2500AQ)
20 – 24	N.C.	–	No connection
25	CNVSS	–	Power terminal (GND)
26	XRST	I	Reset signal input
27	N.C.	–	No connection
28	XIN	I	Clock input (10 MHz)
29	XOUT	O	Clock output
30,31	N.C.	–	No connection
32	GND	–	Power terminal (GND)
33	N.C.	–	No connection
34	MUTE	O	Muting signal output (Digital mute)
35	WE	O	Write enable output to 64k-bit static RAM (IC325)
36 – 40	A12 – A8	O	Address output to 64k-bit static RAM (IC325)
41	N.C.	–	No connection
42 – 49	A7 – A0	O	Address output to 64k-bit static RAM (IC325)
50 – 57	D7 – D0	I/O	Data input and output to 64k-bit static RAM (IC325)
58	SENSE	I	Sense signal input from CXD2500AQ (IC320), CXD2501Q (IC101)
59	GFS	I	GFS monitor input from CXD2500AQ (IC320)
60	FOK	I	FOK monitor input from CXD2501Q (IC101)
61	ADJ	I	Test mode terminal ("L": test mode)
62	AFADJ	I	Test mode terminal for adjustment ("L": test mode)
63	INSW	I	Loading-in switch input
64	OUTSW	I	Loading-out switch output
65	VLEVEL	I	Remote control volume level input
66	VOLUP	O	Remote control volume control output (Volume up)
67	VOLDWN	O	Remote control volume control output (Volume down)
68,69	VREF	–	Power terminal (+5V)
70	AVSS	–	Power terminal (GND)
71	AVCC	–	Power terminal (+5V)
72	VCC	–	Power terminal (+5V)
73	GND	–	Power terminal (GND)

Pin No.	Pin Name	I/O	Description
74	SCLK	O	Read data clock signal output to CXD2501Q (IC101)
75	SQCK	O	Read data sub code clock output to CXD2501Q (IC101)
76	VOLLED	O	Remote control volume LED output
77	SUBQ	I	Sub code data input to CXD2500AQ (IC320)
78	LODIN	O	Loading motor drive signal output (Load-in)
79	LODOUT	O	Loading motor drive signal output (Load-out)
80	N.C.	-	No connection

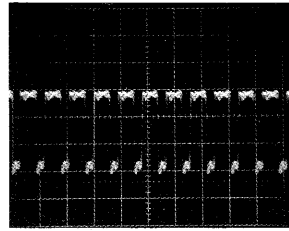
3-7. WAVEFORMS



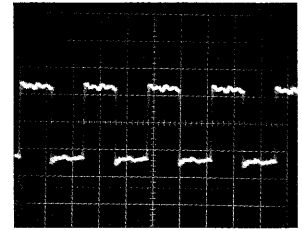
1 IC401 73-50 pin,
44-46 pin (S1-S27)
33-44 pin (T0-T11)
36Vp-p, 6msec



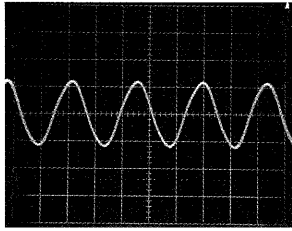
6 IC101 4 pin (TE),
PLAY MODE
Approx. 600mVp-p



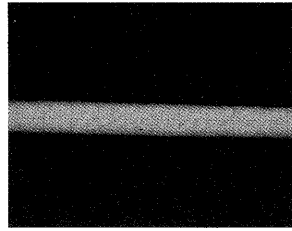
11 IC320 55 pin
(FSTT)
6Vp-p, 90nsec



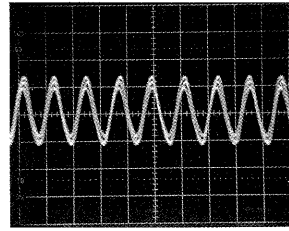
16 IC320 35 pin
(BLK)
6Vp-p, 0.48μsec



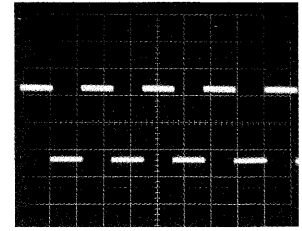
2 IC401 51 pin
(OSC 0)
5.2Vp-p, 0.24μsec



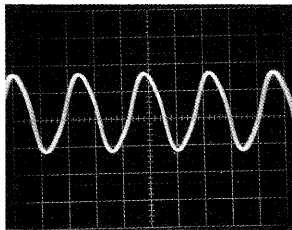
7 IC101 7 pin (FE)
PLAY MODE
Approx. 60mVp-p



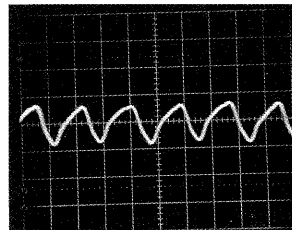
12 IC320 53 pin
(XTAL)
2.2Vp-p, 60nsec



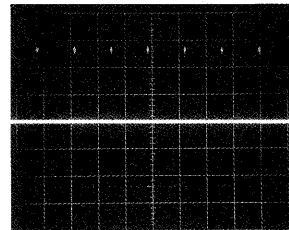
17 IC320 32 pin (LRCK)
IC301 10 pin (LRCKI)
5.2Vp-p, 23μsec



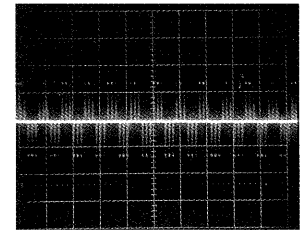
3 IC401 30 pin
(OSC 1)
6Vp-p, 0.24μsec



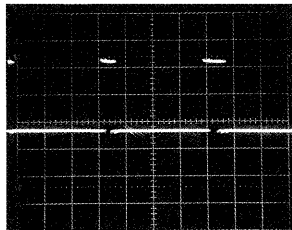
8 IC101 15 pin
(XTAL)
2.8Vp-p, 90nsec



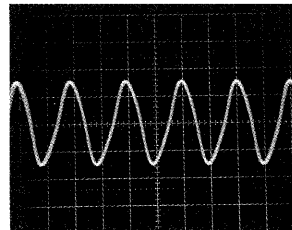
13 IC320 49 pin
(MNT0)
5.6Vp-p, 0.14msec



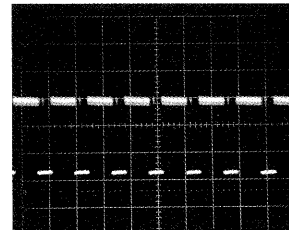
18 IC320 20 pin
(PCO)
5.6Vp-p, 17μsec



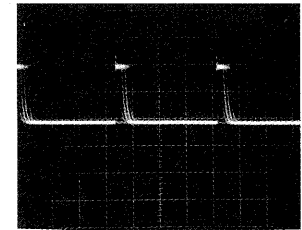
4 IC401 75-80, 1 pin
(SCAN 0-SCAN 6)
5.6Vp-p, 7.8msec



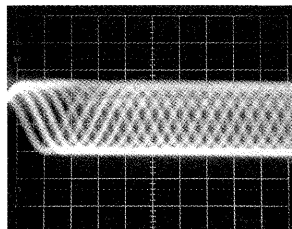
9 IC327 29 pin
(XOUT)
6Vp-p, 0.1μsec



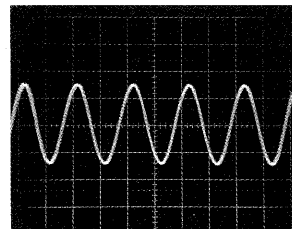
14 IC320 48, 47 pin
(MNT1, MNT2)
5.2Vp-p, 0.14msec



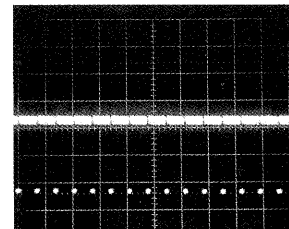
19 IC320 4 pin (MDP)
PLAY MODE
2Vp-p, 7.6μsec



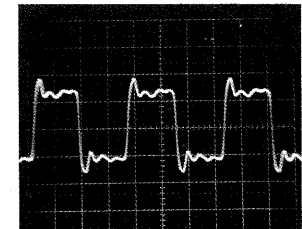
5 IC101 3 pin (RF),
PLAY MODE
Approx. 1.4Vp-p



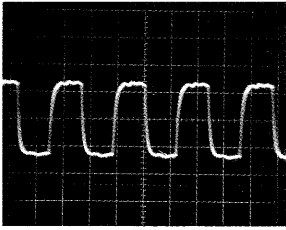
10 IC327 28 pin
(XIN)
5.8Vp-p, 0.1μsec



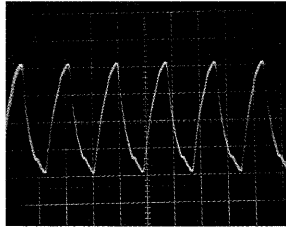
15 IC320 46 pin
(MNT3)
5.2Vp-p, 0.14msec



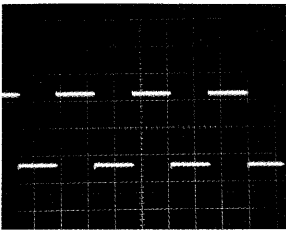
20 IC301 13 pin
(128FS)
6.4Vp-p, 0.18μsec



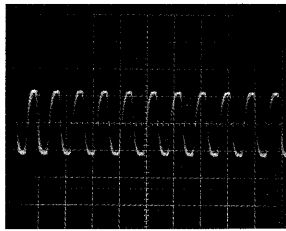
21 IC301 8pin (BCKI)
5.6Vp-p, 0.48μsec



26 IC302 39pin (BCKI)
4Vp-p, 95nsec



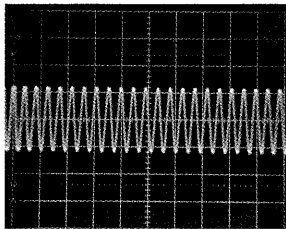
22 IC301 22pin (LRCKO)
5.6Vp-p, 2.9μsec



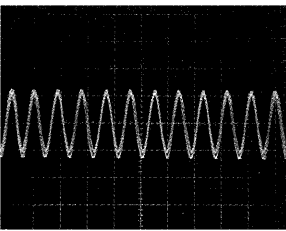
27 IC302 40pin (512FSO)
4.8Vp-p, 45nsec



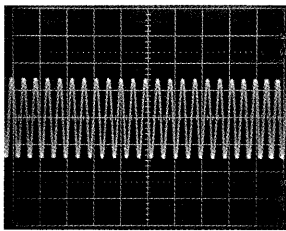
23 IC301 19pin (BCKO)
5.8μsec, 95nsec



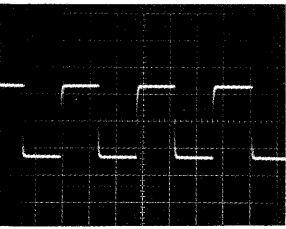
28 IC302 10pin (XIN)
2.5Vp-p, 15nsec



24 IC301 17pin (MCLK)
2.5Vp-p, 45nsec



29 IC302 9pin (XOUT)
6Vp-p, 15nsec



25 IC302 36pin (LRCKI)
5.6Vp-p, 2.9μsec

SECTION 4 EXPLODED VIEWS

NOTE:

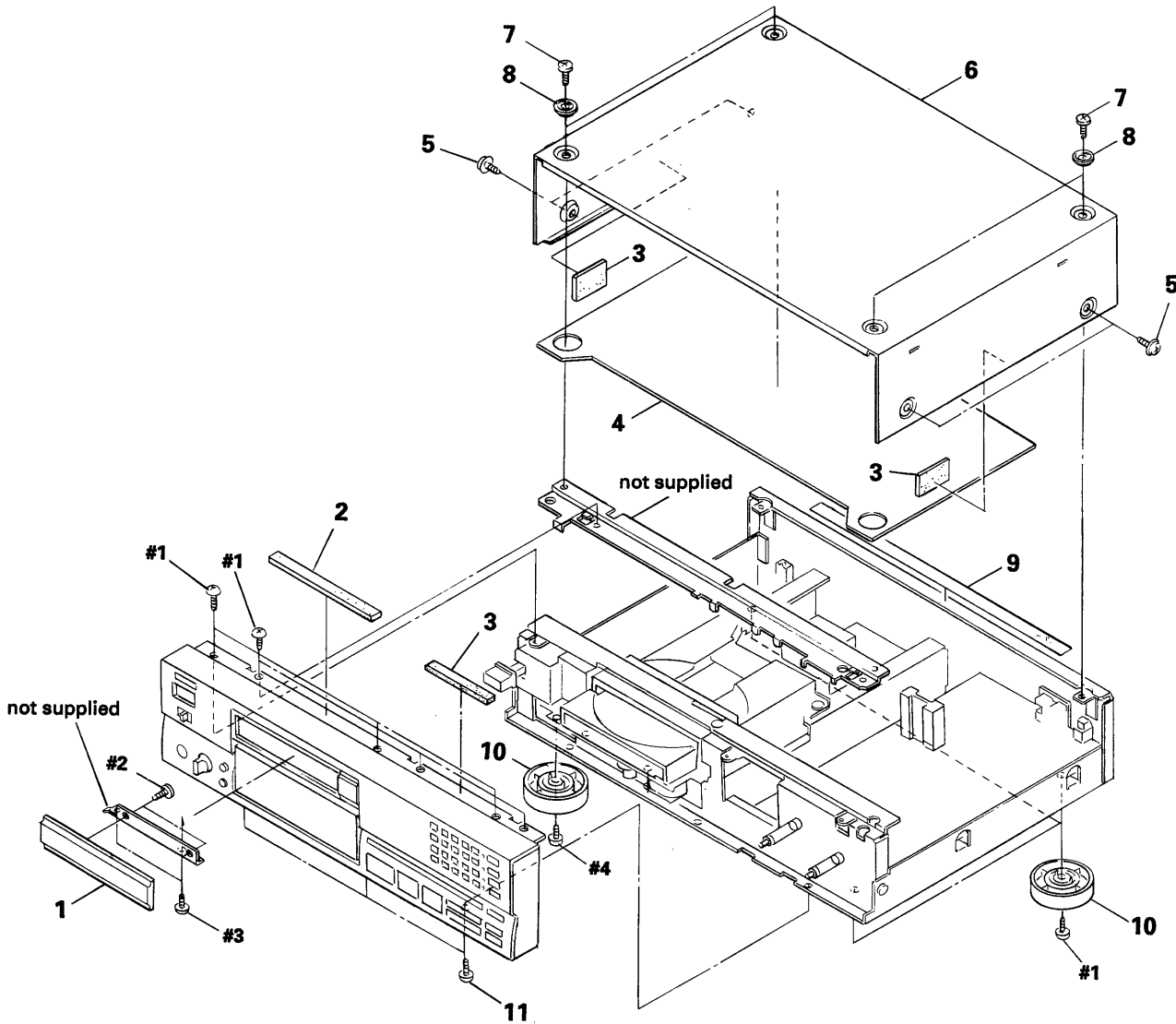
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
Example:
KNOB,BALANCE(WHITE)...(RED)
 ↑ ↑
Parts color Cabinet's color

- 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 Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

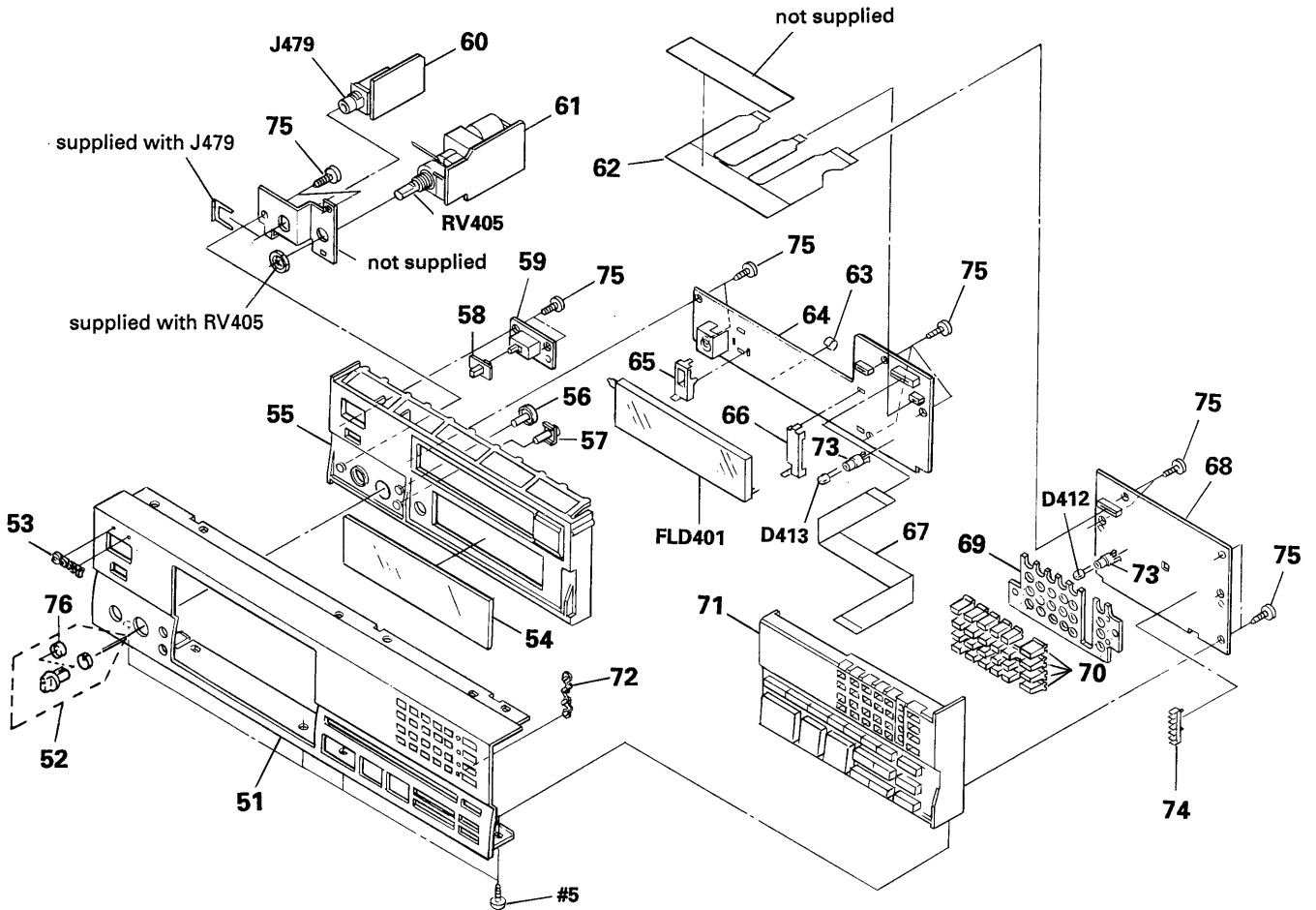
Les composants identifiés par une marque Δ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

4-1. CABINET SECTION



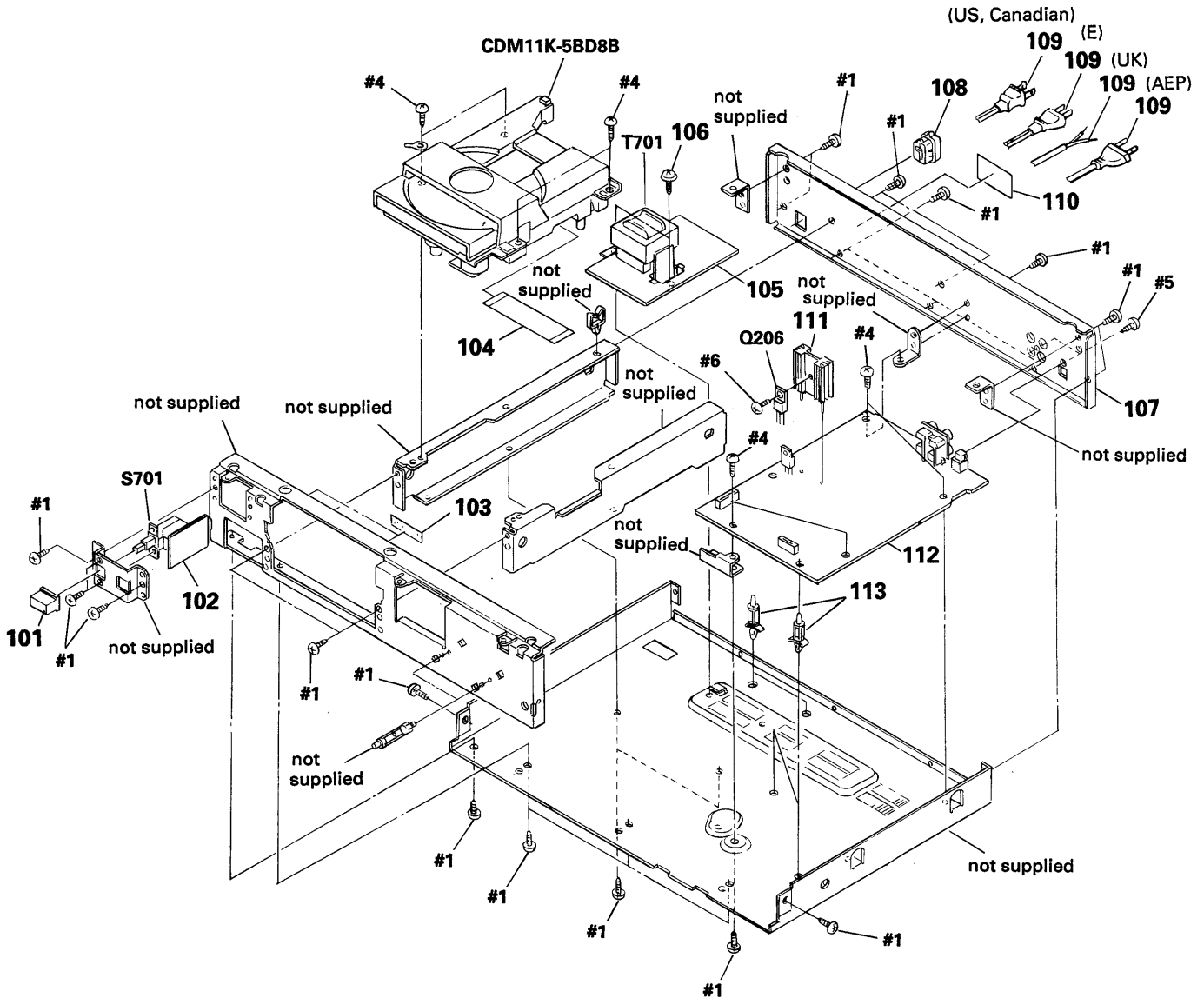
Ref.No.	Part No.	Description	Remarks	Ref.No.	Part No.	Description	Remarks
1	X-4941-991-1	PANEL ASSY, LOADING		6	4-934-008-01	CASE	
* 2	4-929-557-01	CUSHION (PANEL)		7	3-721-187-01	SCREW (3X8)	
3	9-911-845-XX	CUSHION (TOP CASE)		8	4-928-025-11	ESCUTCHEON (TOP PLATE)	
* 4	4-929-571-01	REINFORCEMENT (CASE)		* 9	4-927-653-01	SHEET (F/P)	
5	3-704-366-01	SCREW (CASE) (M3X8)		10	X-3304-944-1	FOOT ASSY	
				11	3-703-685-21	SCREW (+BV 3X8)	

4-2. FRONT PANEL SECTION



Ref.No.	Part No.	Description	Remarks	Ref.No.	Part No.	Description	Remarks
51	4-951-860-01	PANEL, FRONT (US, Canadian, UK)		* 66	4-944-284-01	HOLDER (R)	
51	4-951-860-11	PANEL, FRONT (AEP, E)		67	1-690-662-11	WIRE, FLAT TYPE (15 CORE)	
52	A-4604-901-A	KNOB (HP) ASSY		* 68	1-639-210-11	FUNCTION BOARD	
53	4-908-848-01	EMBLEM, SONY		* 69	4-944-291-01	CUSHION (20 KEY)	
54	4-944-285-01	PLATE, INDICATION		70	4-941-079-01	BUTTON (20 KEY)	
55	X-4942-381-1	PANEL (L) (SUB) ASSY		71	X-4941-492-1	PANEL (R) (SUB) ASSY	
56	4-941-085-01	BUTTON (LEVEL)		72	4-944-286-01	INDICATOR (MODE)	
57	4-941-084-01	BUTTON (DISPLAY)		* 73	4-941-258-01	HOLDER (LED/PA)	
58	4-922-518-11	KNOB (TIMER)		* 74	4-944-289-01	HOLDER (LED/M)	
* 59	1-639-214-11	TIMER SW BOARD		75	4-951-620-01	SCREW (2. 6X8), +BVTP	
* 60	1-643-943-11	HEADPHONE BOARD		76	4-948-469-01	SPRING, RING	
* 61	1-639-211-11	REMOTE CONTROL VOL BOARD		D412	8-719-971-52	LED MAY3371X-M-177 (■)	
62	1-535-896-11	JUMPER, FILM (WITH TERMINAL)		D413	8-719-987-63	LED MBG3371X-9.5 (▶)	
63	3-831-441-XX	CUSHION (B), CABINET		FLD401	1-519-622-11	INDICATOR TUBE, FLUORESCENT	
* 64	A-4649-241-A	DISP BOARD, COMPLETE		J479	1-568-519-41	JACK, LARGE TYPE (PHONES)	
* 65	4-944-290-01	HOLDER (L)		RV405	1-241-321-11	RES, VAR, CARBON 10Kx3	(LINE OUT PHONE LEVEL)

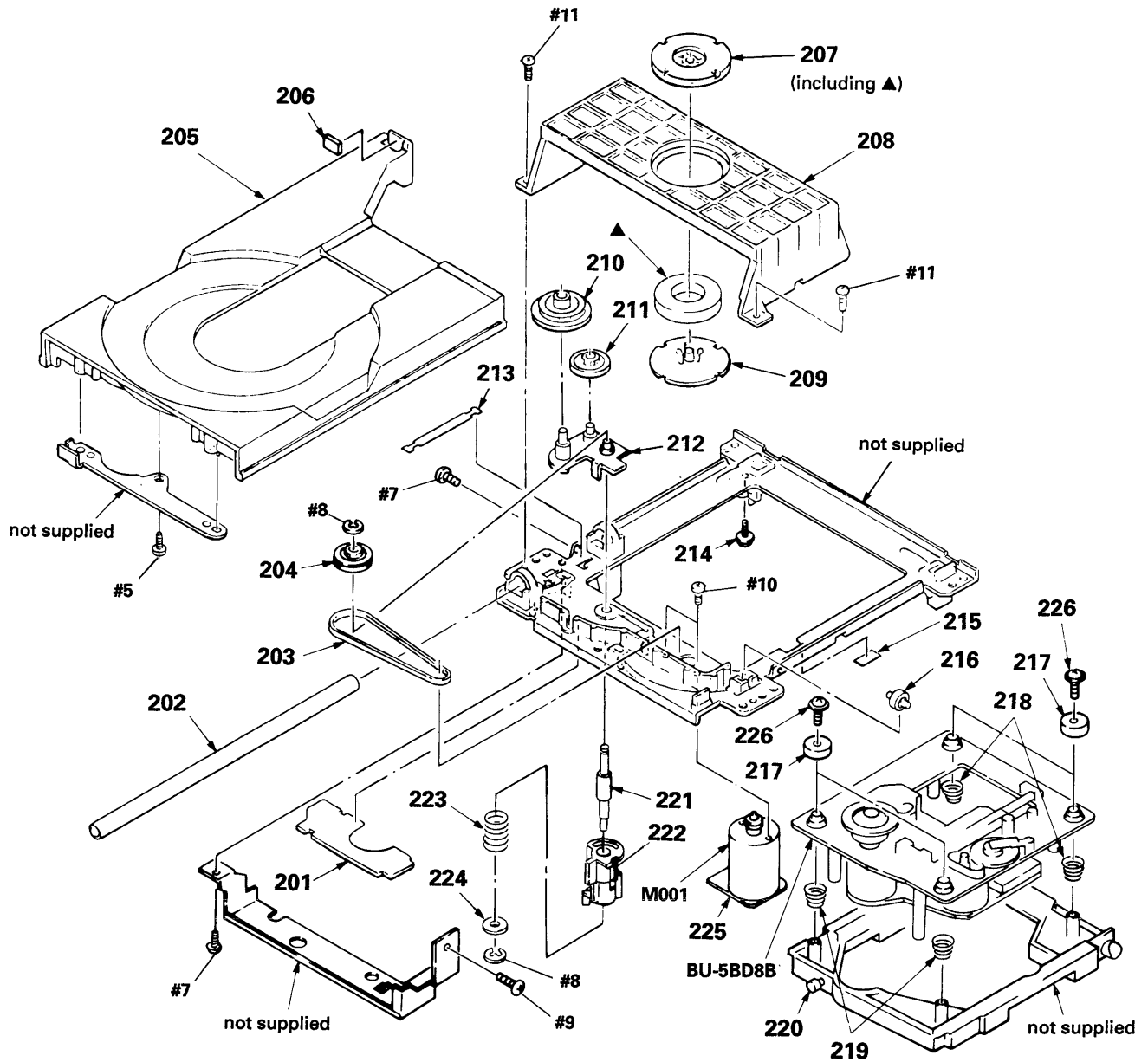
4-3. CHASSIS SECTION



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
	101	4-923-520-51 KNOB, POWER		△109	1-558-181-21 CORD, POWER (E)		
*	102	1-639-215-11 AC SW BOARD		△109	1-558-568-21 CORD, POWER (AEP)		
*	103	4-359-697-00 CUSHION (F)		△109	1-559-555-21 CORD, POWER (UK)		
	104	1-690-663-11 WIRE, FLAT TYPE (18 CORE)		△109	1-559-583-21 CORD, POWER (US, Canadian)		
*	105	1-639-212-11 TRANSFORMER BOARD					
	106	4-886-821-11 SCREW, S TIGHT, +PTTW 3X6		*	110	4-941-548-01 LABEL, CLASS1 (AEP, UK, E)	
*	107	4-949-806-02 PANEL, BACK (US)		*	111	4-908-502-01 HEAT SINK	
*	107	4-949-806-11 PANEL, BACK (AEP)		*	112	A-4649-242-A MAIN BOARD, COMPLETE	
*	107	4-949-806-21 PANEL, BACK (UK)		*	113	4-943-687-11 HOLDER, PC BOARD	
*	107	4-949-806-31 PANEL, BACK (E)					
*	107	4-949-806-41 PANEL, BACK (Canadian)		Q206	8-729-905-67 TRANSISTOR 2SD1944-K		
*	108	3-703-244-00 BUSHING (2104), CORD		△S701	1-570-156-11 SWITCH, PUSH (AC POWER) (1KEY) (POWER)		
				△T701	1-449-921-11 TRANSFORMER, POWER (US, Canadian)		
				△T701	1-449-922-11 TRANSFORMER, POWER (AEP, UK)		
				△T701	1-449-923-11 TRANSFORMER, POWER (E)		

4-4. CD MECHANISM SECTION

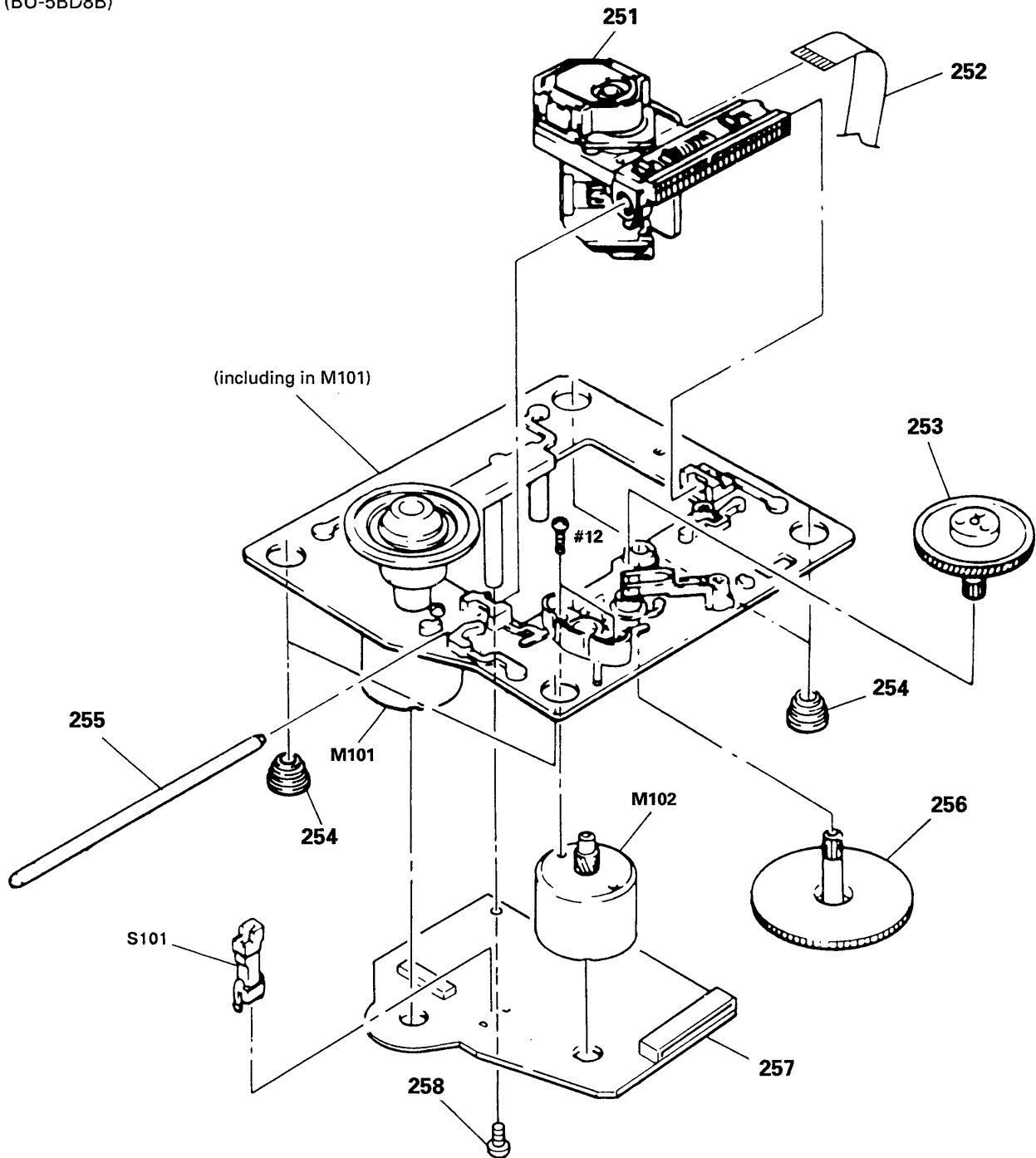
(CDM11K-5BD8B)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
* 201	1-632-974-11	SWITCH BOARD		215	3-831-441-XX	CUSHION (B), CABINET	
202	4-927-617-01	BAR, GUIDE		216	4-927-627-01	ROLLER (S, G)	
203	4-927-649-01	BELT		* 217	4-943-119-01	HOLDER (SP)	
204	4-929-724-01	PULLEY (B)		218	4-917-541-01	SPRING (B)	
205	4-948-353-01	TABLE, DISK		219	4-917-572-01	SPRING (B)	
* 206	4-927-670-01	CUSHION (MD)		220	4-927-631-01	ROLLER (L)	
207	A-4665-024-A	MAGNET ASSY		221	4-927-665-01	SHAFT (S)	
* 208	4-927-638-03	HOLDER (A, P)		* 222	4-948-371-01	CAM (BU)	
* 209	4-918-679-04	PULLEY, PRESS		223	3-659-338-00	SPRING, COMPRESSION	
210	4-927-620-01	GEAR (P)		224	4-927-654-01	WASHER (LIMITER)	
211	4-927-628-01	GEAR (C)		* 225	1-632-975-11	L. MOTOR BOARD	
212	X-4927-608-1	ARM ASSY, SWING		226	4-951-620-01	SCREW (2.6X8), +BVTP	
* 213	4-927-648-01	SLIDER (GROUND)		M001	A-4604-347-A	MOTOR (L) ASSY (LOADING)	
* 214	4-917-583-21	BRACKET, YOKE					

4-5. OPTICAL PICK-UP BLOCK SECTION

(BU-5BD8B)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
△251	8-848-144-11	DEVICE, OPTICAL KSS-240A		* 257	A-4649-199-A	BD BOARD, COMPLETE	
252	1-575-001-11	WIRE, FLAT TYPE (12 CORE)		258	4-951-620-01	SCREW (2. 6X8), +BVTP	
253	4-917-567-01	GEAR (M)		M101	X-4917-523-3	MOTOR ASSY (SPINDLE)	
254	4-951-940-01	INSULATOR (BU)		M102	X-4917-504-1	MOTOR ASSY (SLED)	
255	4-917-565-01	SHAFT, SLED		S101	1-572-085-11	SWITCH, LEAF (LIMIT)	
256	4-917-564-01	GEAR (P), FLATNESS					

SECTION 5
ELECTRICAL PARTS LIST

BD **DISP**

NOTE:

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

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

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

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- 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 : μ , for example :
uA...: μ A..., uPA...: μ PA...,
uPB...: μ PB..., uPC...: μ PC...,
uPD...: μ PD...
- CAPACITORS
uF : μ F
- COILS
uH : μ H

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
*	A-4649-199-A	BD BOARD, COMPLETE *****		R105	1-216-097-00	METAL CHIP 100K 5%	1/10W
		< CAPACITOR >		R112	1-216-049-00	METAL CHIP 1K 5%	1/10W
C101	1-163-005-11	CERAMIC CHIP 470PF	10%	100V			
C102	1-163-038-00	CERAMIC CHIP 0.1uF		25V			
C103	1-163-005-11	CERAMIC CHIP 470PF	10%	50V			
C104	1-164-505-11	CERAMIC CHIP 2.2uF		16V			
C105	1-135-155-21	TANTALUM CHIP 4.7uF	10%	16V			
C106	1-164-346-11	CERAMIC CHIP 1uF		16V			
C107	1-164-505-11	CERAMIC CHIP 2.2uF		16V			
C108	1-164-346-11	CERAMIC CHIP 1uF		16V			
C112	1-163-038-00	CERAMIC CHIP 0.1uF		25V			
C151	1-163-007-11	CERAMIC CHIP 680PF	10%	50V			
C152	1-163-007-11	CERAMIC CHIP 680PF	10%	50V			
C153	1-163-038-00	CERAMIC CHIP 0.1uF		25V			
C154	1-164-336-11	CERAMIC CHIP 0.33uF		25V			
C155	1-163-007-11	CERAMIC CHIP 680PF	10%	50V			
C156	1-163-007-11	CERAMIC CHIP 680PF	10%	50V			
C157	1-163-037-11	CERAMIC CHIP 0.022uF	10%	25V			
C158	1-163-037-11	CERAMIC CHIP 0.022uF	10%	25V			
C159	1-163-023-00	CERAMIC CHIP 0.015uF	5%	50V			
C160	1-163-019-00	CERAMIC CHIP 0.0068uF	10%	50V			
C181	1-163-038-00	CERAMIC CHIP 0.1uF		25V			
		< CONNECTOR >					
CN101	1-568-861-11	SOCKET, CONNECTOR 18P					
CN102	1-568-795-11	SOCKET, CONNECTOR 12P					
		< IC >					
IC101	8-752-344-48	IC CXD2501Q					
IC102	8-759-071-80	IC BA6297AFP					
		< RESISTOR >					
R101	1-216-077-00	METAL CHIP 15K 5%	1/10W				
R102	1-216-097-00	METAL CHIP 100K 5%	1/10W				
R103	1-216-077-00	METAL CHIP 15K 5%	1/10W				
R104	1-216-085-00	METAL CHIP 33K 5%	1/10W				
				R113	1-216-077-00	METAL CHIP 15K 5%	1/10W
				R114	1-216-077-00	METAL CHIP 15K 5%	1/10W
				R117	1-216-077-00	METAL CHIP 15K 5%	1/10W
				R118	1-216-077-00	METAL CHIP 15K 5%	1/10W
				R121	1-216-077-00	METAL CHIP 15K 5%	1/10W
				R122	1-216-077-00	METAL CHIP 15K 5%	1/10W
				R151	1-216-070-00	METAL CHIP 7.5K 5%	1/10W
				R152	1-216-070-00	METAL CHIP 7.5K 5%	1/10W
				R153	1-216-070-00	METAL CHIP 7.5K 5%	1/10W
				R154	1-216-070-00	METAL CHIP 7.5K 5%	1/10W
				R155	1-216-070-00	METAL CHIP 7.5K 5%	1/10W
				R156	1-216-070-00	METAL CHIP 7.5K 5%	1/10W
				R157	1-216-085-00	METAL CHIP 33K 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	1-216-093-00	METAL CHIP 68K 5%	1/10W
				R162	1-216-085-00	METAL CHIP 33K 5%	1/10W
				R163	1-216-308-00	METAL CHIP 4.7 5%	1/10W
						< SWITCH >	
				S101	1-572-085-11	SWITCH, LEAF (LIMIT)	

*	A-4649-241-A	DISP BOARD, COMPLETE *****					
		< CAPACITOR >					
C401	1-164-159-11	CERAMIC 0.1uF		50V			
C411	1-164-159-11	CERAMIC 0.1uF		50V			
		< CONNECTOR >					
* CN403	1-568-834-11	SOCKET, CONNECTOR 15P					
* CN406	1-580-470-11	SOCKET, CONNECTOR 7P					
* CN407	1-569-511-11	SOCKET, CONNECTOR 14P					

DISP FUNCTION

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
		< DIODE >					
D406	8-719-987-63	DIODE 1N4148M		D405	8-719-987-63	DIODE 1N4148M	
D407	8-719-987-63	DIODE 1N4148M		D408	8-719-970-98	LED MPY3371X-177 (C. INDEX)	
D413	8-719-987-93	LED MBG3371X-9.5 (▶)		D409	8-719-987-97	LED BR3371X (PROGRAM)	
		< FLUORECENT INDICATOR >		D410	8-719-971-52	LED MAY3371X-M-177 (SHUFFLE)	
FLD401	1-519-622-11	INDICATOR TUBE, FLUORESCENT					
		< IC >		D411	8-719-971-50	LED MBG3371X-177 (CONTINUE)	
IC401	8-759-040-72	IC MSC62408-034GS-V1K		D412	8-719-971-52	LED MAY3371X-M-177 (■)	
IC412	8-749-922-36	IC GPIU50XB					
		< TRANSISTOR >				< TRANSISTOR >	
Q401	8-729-900-45	TRANSISTOR DTC114EF		Q403	8-729-900-45	TRANSISTOR DTC114EF	
Q402	8-729-900-45	TRANSISTOR DTC114EF		Q404	8-729-900-45	TRANSISTOR DTC114EF	
Q408	8-729-900-45	TRANSISTOR DTC114EF		Q405	8-729-900-45	TRANSISTOR DTC114EF	
		< RESISTOR >		Q406	8-729-900-45	TRANSISTOR DTC114EF	
R401	1-249-429-11	CARBON 10K 5% 1/4W		Q407	8-729-900-45	TRANSISTOR DTC114EF	
R402	1-249-429-11	CARBON 10K 5% 1/4W				< RESISTOR >	
R408	1-247-812-11	CARBON 160 5% 1/4W		R403	1-249-407-11	CARBON 150 5% 1/4W	
R409	1-247-903-00	CARBON 1M 5% 1/4W		R404	1-249-442-11	CARBON 510 5% 1/4W	
		< SWITCH >		R405	1-249-407-11	CARBON 150 5% 1/4W	
S456	1-554-303-21	SWITCH, KEY BOARD (LEVEL FILE)		R406	1-249-407-11	CARBON 150 5% 1/4W	
S460	1-554-303-21	SWITCH, KEY BOARD (▶)		R407	1-249-410-11	CARBON 270 5% 1/4W	
S461	1-554-303-21	SWITCH, KEY BOARD (REPEAT)				< SWITCH >	
S462	1-554-303-21	SWITCH, KEY BOARD (TIME/MEMO)		S400	1-554-303-21	SWITCH, KEY BOARD (CONTINUE)	
S463	1-554-303-21	SWITCH, KEY BOARD (≡ OPEN/CLOSE)		S401	1-554-303-21	SWITCH, KEY BOARD (EDIT/TIME FADE)	
S466	1-554-303-21	SWITCH, KEY BOARD (DISPLAY MODE)		S402	1-554-303-21	SWITCH, KEY BOARD (1)	
		< VIBRATOR >		S403	1-554-303-21	SWITCH, KEY BOARD (2)	
X411	1-577-101-11	VIBRATOR, CERAMIC (4.19MHz)		S404	1-554-303-21	SWITCH, KEY BOARD (3)	
*****				S405	1-554-303-21	SWITCH, KEY BOARD (4)	
*	1-639-210-11	FUNCTION BOARD		S406	1-554-303-21	SWITCH, KEY BOARD (5)	
		*****		S410	1-554-303-21	SWITCH, KEY BOARD (SHUFFLE)	
		< CONNECTOR >		S412	1-554-303-21	SWITCH, KEY BOARD (6)	
* CN404	1-580-462-11	SOCKET, CONNECTOR 20P		S413	1-554-303-21	SWITCH, KEY BOARD (7)	
		< DIODE >		S414	1-554-303-21	SWITCH, KEY BOARD (8)	
D401	8-719-987-63	DIODE 1N4148M		S415	1-554-303-21	SWITCH, KEY BOARD (9)	
D402	8-719-987-63	DIODE 1N4148M		S416	1-554-303-21	SWITCH, KEY BOARD (10)	
D403	8-719-987-63	DIODE 1N4148M		S420	1-554-303-21	SWITCH, KEY BOARD (PROGRAM)	
D404	8-719-987-63	DIODE 1N4148M		S421	1-554-303-21	SWITCH, KEY BOARD (FADER)	
				S422	1-554-303-21	SWITCH, KEY BOARD (11)	
				S423	1-554-303-21	SWITCH, KEY BOARD (12)	
				S424	1-554-303-21	SWITCH, KEY BOARD (13)	
				S425	1-554-303-21	SWITCH, KEY BOARD (14)	
				S426	1-554-303-21	SWITCH, KEY BOARD (15)	
				S430	1-554-303-21	SWITCH, KEY BOARD (C. INDEX)	
				S431	1-554-303-21	SWITCH, KEY BOARD (P. SEARCH)	
				S432	1-554-303-21	SWITCH, KEY BOARD (16)	
				S433	1-554-303-21	SWITCH, KEY BOARD (17)	
				S434	1-554-303-21	SWITCH, KEY BOARD (18)	
				S435	1-554-303-21	SWITCH, KEY BOARD (19)	
				S436	1-554-303-21	SWITCH, KEY BOARD (20)	
				S440	1-554-303-21	SWITCH, KEY BOARD (AMS [◀◀])	

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

FUNCTION HEADPHONE L. MOTOR MAIN

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
S441	1-554-303-21	SWITCH, KEY BOARD (AMS ▷▷▷)		C206	1-126-059-11	ELECT	10uF 20% 50V
S442	1-554-303-21	SWITCH, KEY BOARD (◀◀)		C207	1-126-163-11	ELECT	4.7uF 20% 50V
S443	1-554-303-21	SWITCH, KEY BOARD (▶▶)		C208	1-126-059-11	ELECT	10uF 20% 50V
S444	1-554-303-21	SWITCH, KEY BOARD (CLEAR)		C209	1-126-012-11	ELECT	470uF 20% 16V
S445	1-554-303-21	SWITCH, KEY BOARD (CHECK)		C210	1-126-012-11	ELECT	470uF 20% 16V
S450	1-554-303-21	SWITCH, KEY BOARD (■)		C211	1-126-011-11	ELECT	330uF 20% 16V
S451	1-554-303-21	SWITCH, KEY BOARD (■)		C213	1-126-023-11	ELECT	100uF 20% 16V
S452	1-554-303-21	SWITCH, KEY BOARD (FILE)		C214	1-126-024-11	ELECT	220uF 20% 16V
S453	1-554-303-21	SWITCH, KEY BOARD (ERASE)		C215	1-125-622-11	CAP, DOUBLE LAYERS	0.1F 5.5V
S454	1-554-303-21	SWITCH, KEY BOARD (FILE RECALL)		C217	1-136-165-00	FILM	0.1uF 5% 50V

*	1-643-943-11	HEADPHONE BOARD		C220	1-136-165-00	FILM	0.1uF 5% 50V
		*****		C225	1-136-165-00	FILM	0.1uF 5% 50V
		< CAPACITOR >		C226	1-124-994-11	ELECT	100uF 20% 10V
C409	1-162-294-31	CERAMIC	0.001uF 10% 50V	C227	1-124-360-00	ELECT	1000uF 20% 16V
C410	1-162-294-31	CERAMIC	0.001uF 10% 50V	C231	1-164-159-11	CERAMIC	0.1uF 50V
		< CONNECTOR >		C232	1-164-159-11	CERAMIC	0.1uF 50V
* CN408	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P		C280	1-164-159-11	CERAMIC	0.1uF 50V
		< JACK >		C281	1-164-159-11	CERAMIC	0.1uF 50V
J479	1-568-519-41	JACK, LARGE TYPE (PHONES)		C282	1-164-159-11	CERAMIC	0.1uF 50V
		< COIL >		C283	1-164-159-11	CERAMIC	0.1uF 50V
L522	1-412-473-21	INDUCTOR	0uH	C302	1-164-159-11	CERAMIC	0.1uF 50V
L622	1-412-473-21	INDUCTOR	0uH	C303	1-124-994-11	ELECT	100uF 20% 10V
		< RESISTOR >		C304	1-162-282-31	CERAMIC	100PF 10% 50V
R522	1-249-402-11	CARBON	56 5% 1/4W	C305	1-164-159-11	CERAMIC	0.1uF 50V
R622	1-249-402-11	CARBON	56 5% 1/4W	C306	1-164-159-11	CERAMIC	0.1uF 50V

*	1-632-975-11	L. MOTOR BOARD		C307	1-136-161-00	FILM	0.047uF 5% 50V
		*****		C308	1-161-374-11	CERAMIC	0.0015uF 20% 50V
		< CAPACITOR >		C309	1-162-306-11	CERAMIC	0.01uF 20% 16V
C001	1-136-157-00	FILM	0.022uF 5% 50V	C310	1-126-043-11	ELECT	0.47uF 20% 50V

*	A-4649-242-A	MAIN BOARD, COMPLETE		C311	1-126-163-11	ELECT	4.7uF 20% 50V
		*****		C312	1-162-306-11	CERAMIC	0.01uF 20% 16V
		< CAPACITOR >		C313	1-124-994-11	ELECT	100uF 20% 10V
C200	1-164-159-11	CERAMIC	0.1uF 50V	C314	1-164-159-11	CERAMIC	0.1uF 50V
C201	1-124-572-11	ELECT	100uF 20% 63V	C315	1-162-294-31	CERAMIC	0.001uF 10% 50V
C202	1-162-294-31	CERAMIC	0.001uF 10% 50V	C319	1-162-208-31	CERAMIC	24PF 5% 50V
C203	1-126-059-11	ELECT	10uF 20% 50V	C320	1-162-199-31	CERAMIC	10PF 5% 50V
C204	1-126-013-11	ELECT	1000uF 20% 16V	C321	1-162-199-31	CERAMIC	10PF 5% 50V
C205	1-126-016-11	ELECT	4700uF 20% 16V	C322	1-124-994-11	ELECT	100uF 20% 10V
				C323	1-130-468-00	MYLAR	560PF 5% 50V
				C330	1-126-044-11	ELECT	1uF 20% 50V
				C350	1-162-294-31	CERAMIC	0.001uF 10% 50V
				C351	1-162-294-31	CERAMIC	0.001uF 10% 50V
				C352	1-162-294-31	CERAMIC	0.001uF 10% 50V
				C501	1-136-165-00	FILM	0.1uF 5% 50V
				C502	1-136-165-00	FILM	0.1uF 5% 50V
				C503	1-136-165-00	FILM	0.1uF 5% 50V
				C504	1-124-994-11	ELECT	100uF 20% 10V
				C506	1-136-165-00	FILM	0.1uF 5% 50V
				C507	1-136-165-00	FILM	0.1uF 5% 50V
				C509	1-162-806-11	CERAMIC	0.1uF 10% 50V

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

MAIN

Ref. No.	Part No.	Description	Remarks
C511	1-162-806-11	CERAMIC	0.1uF 10% 50V
C521	1-130-467-00	MYLAR	470PF 5% 50V
C523	1-162-287-31	CERAMIC	270PF 10% 50V
C524	1-162-287-31	CERAMIC	270PF 10% 50V
C525	1-106-359-00	MYLAR	4700PF 5% 200V
C526	1-106-343-00	MYLAR	1000PF 5% 200V
C527	1-126-051-11	ELECT	47uF 20% 63V
C528	1-162-215-31	CERAMIC	47PF 5% 50V
C529	1-162-215-31	CERAMIC	47PF 5% 50V
C551	1-136-165-00	FILM	0.1uF 5% 50V
C552	1-136-165-00	FILM	0.1uF 5% 50V
C555	1-136-165-00	FILM	0.1uF 5% 50V
C556	1-136-165-00	FILM	0.1uF 5% 50V
C601	1-136-165-00	FILM	0.1uF 5% 50V
C602	1-136-165-00	FILM	0.1uF 5% 50V
C603	1-136-165-00	FILM	0.1uF 5% 50V
C606	1-136-165-00	FILM	0.1uF 5% 50V
C607	1-136-165-00	FILM	0.1uF 5% 50V
C609	1-162-806-11	CERAMIC	0.1uF 10% 50V
C611	1-162-806-11	CERAMIC	0.1uF 10% 50V
C621	1-130-467-00	MYLAR	470PF 5% 50V
C623	1-162-287-31	CERAMIC	270PF 10% 50V
C624	1-162-287-31	CERAMIC	270PF 10% 50V
C625	1-106-359-00	MYLAR	4700PF 5% 200V
C626	1-106-343-00	MYLAR	1000PF 5% 200V
C627	1-126-051-11	ELECT	47uF 20% 63V
C628	1-162-215-31	CERAMIC	47PF 5% 50V
C629	1-162-215-31	CERAMIC	47PF 5% 50V
< CONNECTOR >			
* CN221	1-564-510-11	PLUG, CONNECTOR 7P	
* CN356	1-568-834-11	SOCKET, CONNECTOR 15P	
* CN357	1-564-711-11	PIN, CONNECTOR (SMALL TYPE) 9P	
CN359	1-568-468-11	SOCKET, CONNECTOR 18P	
* CN360	1-568-955-11	PIN, CONNECTOR 6P	
* CN391	1-564-339-00	PIN, CONNECTOR 5P	
< DIODE >			
D201	8-719-200-02	DIODE 10E2	
D202	8-719-200-02	DIODE 10E2	
D203	8-719-200-02	DIODE 10E2	
D204	8-719-200-02	DIODE 10E2	
D205	8-719-200-02	DIODE 10E2	
D206	8-719-987-63	DIODE 1N4148M	
D207	8-719-109-85	DIODE RD5. 1ES-B2	
D209	8-719-110-08	DIODE RD8. 2ES-B2	
D210	8-719-987-63	DIODE 1N4148M	
D211	8-719-110-08	DIODE RD8. 2ES-B2	
D214	8-719-210-21	DIODE 11EQS04	
D225	8-719-934-31	DIODE HZS36-3L	

Ref. No.	Part No.	Description	Remarks
D322	8-719-987-63	DIODE 1N4148M	
D340	8-719-987-63	DIODE 1N4148M	
D391	8-719-109-89	DIODE RD5. 6ES-B2	
< IC >			
IC201	8-759-630-21	IC M5290P-16	
IC202	8-759-945-58	IC RC4558P	
IC301	8-752-342-65	IC CXD2560M	
IC302	8-759-044-10	IC CXD2562Q	
IC320	8-752-337-26	IC CXD2500AQ	
IC325	8-759-512-81	IC LH5160N-10L	
IC326	8-759-962-08	IC BA6208	
IC327	8-759-060-92	IC M37451M8-175FP	
IC350	8-749-921-12	IC GPIF32T	
IC391	8-759-633-65	IC M54641L	
IC551	8-759-900-72	IC NE5532P	
IC553	8-759-981-85	IC RC4556D	
IC651	8-759-900-72	IC NE5532P	
< JACK >			
J361	1-569-443-21	JACK, PIN 4P (LINE OUT FIXED/VARIABLE)	
< COIL >			
L302	1-410-513-11	INDUCTOR 22uH	
L303	1-408-403-00	INDUCTOR 3. 3uH	
L304	1-408-403-00	INDUCTOR 3. 3uH	
L320	1-408-403-00	INDUCTOR 3. 3uH	
< TRANSISTOR >			
Q204	8-729-900-61	TRANSISTOR DTA114ES	
Q206	8-729-905-67	TRANSISTOR 2SD1944-K	
Q207	8-729-140-96	TRANSISTOR 2SD774-34	
Q208	8-729-140-96	TRANSISTOR 2SD774-34	
Q209	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q210	8-729-141-83	TRANSISTOR 2SB1094-LK	
Q218	8-729-140-97	TRANSISTOR 2SB734-34	
Q323	8-729-900-80	TRANSISTOR DTC114ES	
Q501	8-729-900-65	TRANSISTOR DTA144ES	
Q502	8-729-201-05	TRANSISTOR 2SC2878-B	
Q503	8-729-900-74	TRANSISTOR DTC143TS	
Q504	8-729-900-74	TRANSISTOR DTC143TS	
Q601	8-729-900-65	TRANSISTOR DTA144ES	
Q602	8-729-201-05	TRANSISTOR 2SC2878-B	
Q603	8-729-900-74	TRANSISTOR DTC143TS	
Q604	8-729-900-74	TRANSISTOR DTC143TS	
< RESISTOR >			
R201	1-249-425-11	CARBON 4. 7K 5% 1/4W	
R202	1-249-425-11	CARBON 4. 7K 5% 1/4W	

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

Ref. No.	Part No.	Description	Remarks			Ref. No.	Part No.	Description	Remarks		
R203	1-249-424-11	CARBON	3. 9K	5%	1/4W	R343	1-249-417-11	CARBON	1K	5%	1/4W
△R204	1-212-869-00	FUSIBLE	33	5%	1/4W F	R344	1-249-417-11	CARBON	1K	5%	1/4W
R205	1-249-435-11	CARBON	33K	5%	1/4W	R345	1-249-417-11	CARBON	1K	5%	1/4W
R206	1-249-413-11	CARBON	470	5%	1/4W	R346	1-249-417-11	CARBON	1K	5%	1/4W
R208	1-249-425-11	CARBON	4. 7K	5%	1/4W	R347	1-249-417-11	CARBON	1K	5%	1/4W
R213	1-249-417-11	CARBON	1K	5%	1/4W	R348	1-249-441-11	CARBON	100K	5%	1/4W
R214	1-249-417-11	CARBON	1K	5%	1/4W	R349	1-249-425-11	CARBON	4. 7K	5%	1/4W
R216	1-249-405-11	CARBON	100	5%	1/4W	R350	1-249-441-11	CARBON	100K	5%	1/4W
R217	1-249-429-11	CARBON	10K	5%	1/4W	R351	1-249-425-11	CARBON	4. 7K	5%	1/4W
R218	1-249-417-11	CARBON	1K	5%	1/4W	R352	1-249-429-11	CARBON	10K	5%	1/4W
R219	1-249-393-11	CARBON	10	5%	1/4W	R521	1-215-443-00	METAL	8. 2K	1%	1/6W
R225	1-249-441-11	CARBON	100K	5%	1/4W	R522	1-215-443-00	METAL	8. 2K	1%	1/6W
R301	1-249-411-11	CARBON	330	5%	1/4W	R523	1-215-443-00	METAL	8. 2K	1%	1/6W
R302	1-249-429-11	CARBON	10K	5%	1/4W	R524	1-215-443-00	METAL	8. 2K	1%	1/6W
R303	1-247-903-00	CARBON	1M	5%	1/4W	R525	1-215-434-00	METAL	3. 6K	1%	1/6W
R304	1-249-437-11	CARBON	47K	5%	1/4W	R526	1-215-444-00	METAL	9. 1K	1%	1/6W
R305	1-249-437-11	CARBON	47K	5%	1/4W	R527	1-215-434-00	METAL	3. 6K	1%	1/6W
R306	1-249-429-11	CARBON	10K	5%	1/4W	R528	1-215-444-00	METAL	9. 1K	1%	1/6W
R307	1-249-429-11	CARBON	10K	5%	1/4W	R529	1-249-556-11	CARBON	1. 5K	5%	1/4W
R308	1-249-429-11	CARBON	10K	5%	1/4W	R530	1-249-556-11	CARBON	1. 5K	5%	1/4W
R309	1-249-429-11	CARBON	10K	5%	1/4W	R531	1-247-704-11	CARBON	220	5%	1/4W
R310	1-249-429-11	CARBON	10K	5%	1/4W	R532	1-247-704-11	CARBON	220	5%	1/4W
R311	1-249-429-11	CARBON	10K	5%	1/4W	R533	1-247-704-11	CARBON	220	5%	1/4W
R312	1-249-429-11	CARBON	10K	5%	1/4W	R534	1-247-891-00	CARBON	330K	5%	1/4W
R313	1-249-429-11	CARBON	10K	5%	1/4W	R535	1-249-393-11	CARBON	10	5%	1/4W
R314	1-249-429-11	CARBON	10K	5%	1/4W	R536	1-249-409-11	CARBON	220	5%	1/4W
R315	1-249-429-11	CARBON	10K	5%	1/4W	R551	1-249-435-11	CARBON	33K	5%	1/4W
R316	1-249-429-11	CARBON	10K	5%	1/4W	R552	1-249-435-11	CARBON	33K	5%	1/4W
R317	1-249-429-11	CARBON	10K	5%	1/4W	R553	1-249-435-11	CARBON	33K	5%	1/4W
R319	1-247-903-00	CARBON	1M	5%	1/4W	R554	1-249-435-11	CARBON	33K	5%	1/4W
R320	1-249-417-11	CARBON	1K	5%	1/4W	R555	1-249-425-11	CARBON	4. 7K	5%	1/4W
R321	1-249-417-11	CARBON	1K	5%	1/4W	R556	1-249-425-11	CARBON	4. 7K	5%	1/4W
R322	1-249-417-11	CARBON	1K	5%	1/4W	R557	1-249-435-11	CARBON	33K	5%	1/4W
R323	1-249-417-11	CARBON	1K	5%	1/4W	R558	1-249-435-11	CARBON	33K	5%	1/4W
R324	1-249-417-11	CARBON	1K	5%	1/4W	R621	1-215-443-00	METAL	8. 2K	1%	1/6W
R325	1-249-417-11	CARBON	1K	5%	1/4W	R622	1-215-443-00	METAL	8. 2K	1%	1/6W
R326	1-249-413-11	CARBON	470	5%	1/4W	R623	1-215-443-00	METAL	8. 2K	1%	1/6W
R327	1-249-405-11	CARBON	100	5%	1/4W	R624	1-215-443-00	METAL	8. 2K	1%	1/6W
R329	1-249-413-11	CARBON	470	5%	1/4W	R625	1-215-434-00	METAL	3. 6K	1%	1/6W
R330	1-249-417-11	CARBON	1K	5%	1/4W	R626	1-215-444-00	METAL	9. 1K	1%	1/6W
R331	1-249-417-11	CARBON	1K	5%	1/4W	R627	1-215-434-00	METAL	3. 6K	1%	1/6W
R332	1-249-417-11	CARBON	1K	5%	1/4W	R628	1-215-444-00	METAL	9. 1K	1%	1/6W
R333	1-249-441-11	CARBON	100K	5%	1/4W	R629	1-249-556-11	CARBON	1. 5K	5%	1/4W
R334	1-249-429-11	CARBON	10K	5%	1/4W	R630	1-249-556-11	CARBON	1. 5K	5%	1/4W
R335	1-249-423-11	CARBON	3. 3K	5%	1/4W	R631	1-247-704-11	CARBON	220	5%	1/4W
R336	1-249-423-11	CARBON	3. 3K	5%	1/4W	R632	1-247-704-11	CARBON	220	5%	1/4W
R337	1-249-429-11	CARBON	10K	5%	1/4W	R633	1-247-704-11	CARBON	220	5%	1/4W
R340	1-249-441-11	CARBON	100K	5%	1/4W	R634	1-247-891-00	CARBON	330K	5%	1/4W
R341	1-249-417-11	CARBON	1K	5%	1/4W	R635	1-249-393-11	CARBON	10	5%	1/4W
R342	1-249-417-11	CARBON	1K	5%	1/4W	R636	1-249-409-11	CARBON	220	5%	1/4W

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

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

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

MAIN AC SW TRANSFORMER

REMOTE CONTROL VOL SWITCH TIMER SW

Ref.No.	Part No.	Description	Remarks
		< VIBRATOR >	
X331	1-579-161-11	VIBRATOR, CRYSTAL (45MHz)	
X355	1-577-377-11	VIBRATOR, CERAMIC (10MHz)	

*	1-639-215-11	AC SW BOARD	

		< CAPACITOR >	
△C701	1-161-744-00	CERAMIC 0.01MF	400V
		< CONNECTOR >	
* CN700	1-564-321-00	PIN, CONNECTOR 2P	
		< SWITCH >	
△S701	1-570-156-11	SWITCH, PUSH (AC POWER) (1 KEY) (POWER)	

*	1-639-212-11	TRANSFORMER BOARD	

		< CAPACITOR >	
C702	1-164-159-11	CERAMIC 0.1uF	50V
		< CONNECTOR >	
* CN701	1-564-321-00	PIN, CONNECTOR 2P	
* CN702	1-580-230-11	PIN, CONNECTOR (PC BOARD) 3P	
* CN703	1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P	
		< SWITCH >	
△SW702	1-571-722-11	SWITCH VOLTAGE SELECTOR (VOLTAGE SELECTOR) (E)	

*	1-639-211-11	REMOTE CONTROL VOL BOARD	

		< CAPACITOR >	
C405	1-164-159-11	CERAMIC 0.1uF	50V
		< CONNECTOR >	
* CN409	1-568-955-11	PIN, CONNECTOR 6P	
* CN447	1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P	
		< VARIABLE RESISTOR >	
RV405	1-241-321-11	RES, VAR, CARBON 10KX3 (LINE OUT PHONE LEVEL)	

Ref.No.	Part No.	Description	Remarks
*	1-632-974-11	SWITCH BOARD	

		< RESISTOR >	
△R001	1-215-880-00	METAL OXIDE 10 5% 2W F	
△R002	1-215-880-00	METAL OXIDE 10 5% 2W F	
		< SWITCH >	
S001	1-571-736-11	SWITCH, LEAF (LOAD IN)	
S002	1-571-736-11	SWITCH, LEAF (LOAD OUT)	

*	1-639-214-11	TIMER SW BOARD	

		< SWITCH >	
S476	1-570-157-51	SWITCH, SLIDE (TIMER)	

		MISCELLANEOUS	

62	1-535-896-11	JUMPER, FILM (WITH TERMINAL)	
67	1-690-662-11	WIRE, FLAT TYPE (15 CORE)	
104	1-690-663-11	WIRE, FLAT TYPE (18 CORE)	
△109	1-558-181-21	CORD, POWER (E)	
△109	1-558-568-21	CORD, POWER (AEP)	
△109	1-559-555-21	CORD, POWER (UK)	
△109	1-559-583-21	CORD, POWER (US, Canadian)	
△251	8-848-144-11	DEVICE, OPTICAL KSS-240A	
252	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
D412	8-719-971-52	LED MAY3371X-M-177 (■)	
D413	8-719-987-63	LED MBG3371X-9.5 (►)	
M001	A-4604-347-A	MOTOR (L) ASSY (LOADING)	
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
Q206	8-729-905-67	TRANSISTOR 2SD1944-K	
△T701	1-449-921-11	TRANSFORMER, POWER (US, Canadian)	
△T701	1-449-922-11	TRANSFORMER, POWER (AEP, UK)	
△T701	1-449-923-11	TRANSFORMER, POWER (E)	

<p>The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.</p>	<p>Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
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When indicating parts by reference number, please include the board name.

<u>Ref.No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>	<u>Ref.No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>
ACCESSORIES & PACKING MATERIALS				HARDWARE LIST			

	1-465-593-11	COMMANDER, REMOTE (RM-D991)		#1	7-682-548-09	SCREW +BVTT 3X8 (S)	
	1-558-271-11	CORD, CONNECTION		#2	7-685-544-19	SCREW +BTP 3X5 TYPE2 N-S	
	1-569-007-11	ADAPTER, CONVERSION 2P (E)		#3	7-685-647-79	SCREW +P 3X10 TYPE2 SLIT	
	1-590-925-31	CORD, CONNECTION		#4	7-682-547-04	SCREW (+BVTT M3S)	
	3-707-584-01	COVER, BATTERY (RM-D991)		#5	7-685-646-79	SCREW +BVTP 3X8 TYPE2 SLIT	
	3-754-118-11	MANUAL, INSTRUCTION (English, French, Spanish, Portuguese) (Canadian, AEP, UK, E)		#6	7-682-548-04	SCREW +BVTT 3X8 (S)	
	3-754-118-21	MANUAL, INSTRUCTION (English) (US)		#7	7-621-775-10	SCREW +BVTT 2.6X4 (S)	
	3-754-118-41	MANUAL, INSTRUCTION (German, Dutch, Swedish, Italian) (AEP)		#8	7-624-105-04	STOP RING 2.3, TYPE -E	
*	4-934-098-01	STOPPER, DISK TABLE (UK)		#9	7-621-770-67	SCREW +BVTT 2.6X6 (S)	
*	4-944-761-01	CUSHION		#10	7-682-544-04	SCREW +P 3X3	
*	4-948-310-21	INDIVIDUAL CARTON		#11	7-621-770-87	SCREW +BVTT 2.6X5 (S)	
				#12	7-621-255-15	SCREW +P 2X3	

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

CDP-X229ES

SONY SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model

CORRECTION- 1

Correct your service manual as shown below.

 : indicates corrected portion.

Page	INCORRECT			CORRECT	
	No.	Part No.	Description	Part No.	Description
31	227	_____	not supplied _____	4-927-641-24	CHASSIS(OUTSERT) MECHANICAL
<p>4-4. CD MECHANISM BLOCK (CDM11K-5BD8B)</p> 