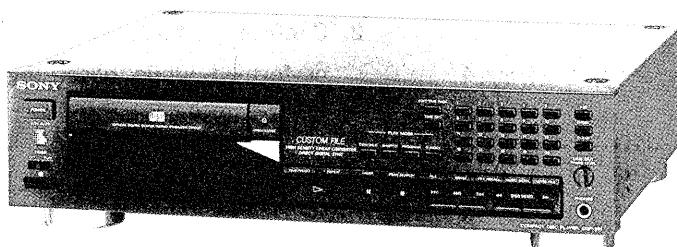


CDP-991

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model
Australian Model



SPECIFICATIONS

Model Name Using Similar Mechanism	CDP-391
CD Mechanism Name	CDM14-5BD1
Base Unit Name	BU-5BD1

Compact disc player

Frequency response	2 Hz – 20 kHz ± 0.3 dB
Signal to noise ratio	More than 113 dB
Dynamic range	More than 100 dB
Harmonic distortion	Less than 0.0025%
Channel separation	More than 105 dB

Outputs

LINE OUT (FIXED) (phono jacks)	Output level 2V (at 50 kilohms) Load impedance over 10 kilohms
LINE OUT (VARIABLE) (phono jacks)	Output level max. 2V (at 50 kilohms) Load impedance over 50 kilohms
DIGITAL OUT (OPTICAL) (optical output connector)	Wave length 660 nm Output level –18 dBm
HEADPHONES (Stereo phone jack)	Output level max. 28 mW Load impedance 32 ohms

General

Power requirements	AEP MODEL 220 – 230 V AC, 50/60 Hz UK, Australian 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	17 W
Dimensions (approx., including projections)	430×110×340 mm (w/h/d) (17×4 $\frac{3}{8}$ ×13 $\frac{3}{5}$ inches)
Weight (approx.)	4.5 kg (9 lbs 15 oz)

Remote commander

Remote control system	Infrared control
Power requirements	3 V DC with two batteries size AA (IEC designation R6)
Dimensions	62×18×175 mm (w/h/d) (2 $\frac{1}{2}$ × $\frac{29}{32}$ ×7 inches)
Weight	130 g (4.6 oz) Including batteries

Supplied accessories

Connecting cord	† (2 phono plugs → 2 phono plugs)
Remote commander	1
R6 (size AA) batteries	2

Design and specifications subject to change without notice.



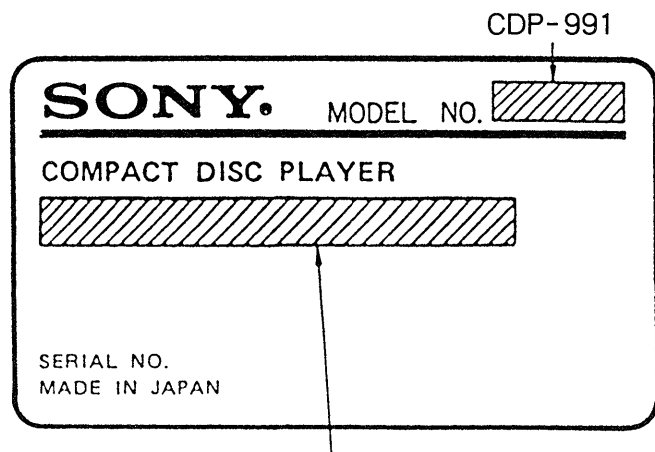
COMPACT DISC PLAYER
SONY®

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MODEL IDENTIFICATION

— Specification Labels —



US, Canadian Models : AC : 120V 60Hz 17W

AEP Model : AC : 220V – 230V ~ 50/60Hz 17W

UK, Australian Models : AC : 240V ~ 50/60Hz 17W

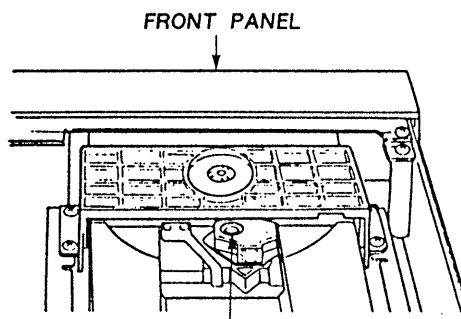
E Model : AC : 110 – 120, 220 – 240V

~ 50/60Hz 17W

— SERVICING NOTE —

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

1. Turn POWER switch on with no disc inserted and disc table closed.
2. Confirm that the operation indicated in Fig. A 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)

Fig. A

SAFETY-RELATED COMPONENT WARNING!!

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

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

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

SAFETY CHECK-OUT

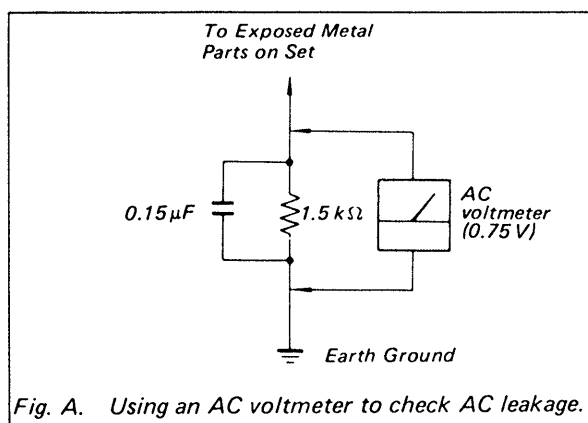
After correcting the original service problem, perform the following safety check before releasing the set to the customer:

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 0.5 mA (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 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)



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

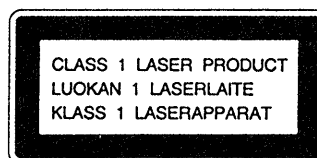
The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

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

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

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe more than 25 cm away from the objective lens.

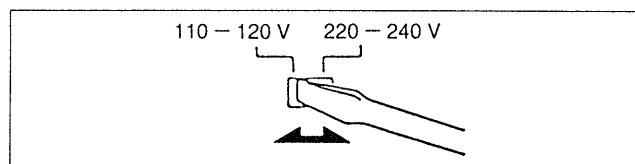


This Compact Disc player is classified as a CLASS 1 LASER Product. The CLASS 1 LASER PRODUCT label is located on the rear exterior.

E MODEL

For the customers of the model equipped with the voltage selector

Check that the voltage selector is set to the local power line voltage. If not, set the selector to the correct position before connecting the AC power cord to a wall outlet.

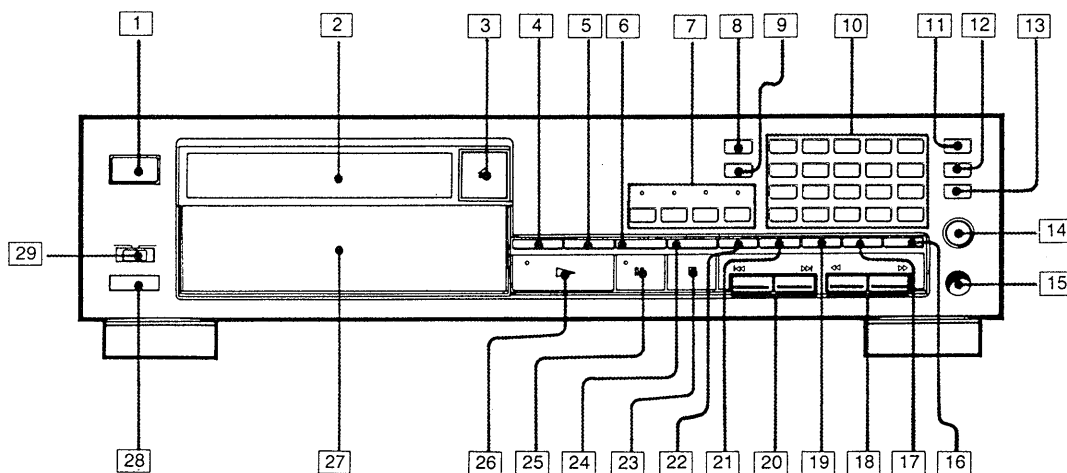


SECTION 1 GENERAL

This section is extracted from instruction manual.

Location of Controls

Front Panel



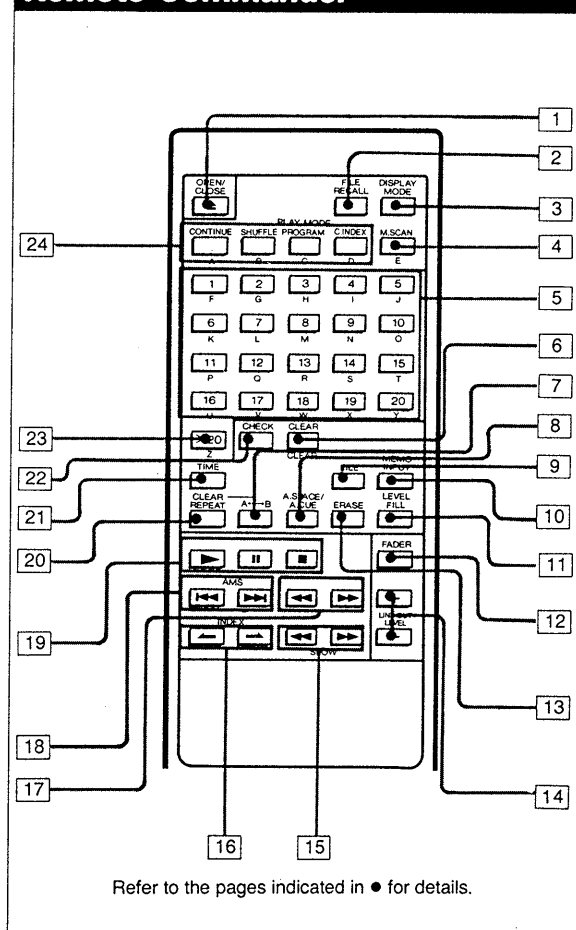
Refer to the pages indicated in • for details.

- 1 POWER switch ⑧
- 2 Disc tray
- 3 ▲ OPEN/CLOSE button ⑧
- 4 TIME/MEMO button ⑨
- 5 REPEAT button ⑩
- 6 FADER (fade in/fade out) button ⑪
- 7 PLAY MODE buttons
 - CONTINUE button and lamp ⑫
 - SHUFFLE button and lamp ⑬
 - PROGRAM button and lamp ⑭
 - C. (custom) INDEX button and lamp ⑮
- 8 EDIT/TIME FADE button ⑯
- 9 TIME SET button ⑰
- 10 Numeric buttons ⑱
- 11 > 20 (over 20) button ⑲
- 12 CHECK (program check) button ⑲
- 13 CLEAR (program clear) button ⑲, ⑲
- 14 LINE OUT/PHONE LEVEL control ⑲, ⑲

- 15 PHONES jack
- 16 LEVEL FILE button ⑳
- 17 MUSIC SCAN button ㉑
- 18 ◀▶▶▶ (manual search) DISC MEMO buttons ㉒
- 19 FILE RECALL button ㉓
- 20 ◀▶▶▶ AMS* buttons ㉔
- 21 ERASE (memory erase) button ㉕
- 22 FILE (custom file) button ㉖
- 23 ■ (stop) button ㉗
- 24 PEAK SEARCH button ㉘
- 25 || (pause) button ㉙
- 26 ▶ (play) button ㉚
- 27 Display window ㉛
- 28 Remote sensor
- 29 TIMER switch ㉜

* AMS is the abbreviation of Automatic Music Sensor.

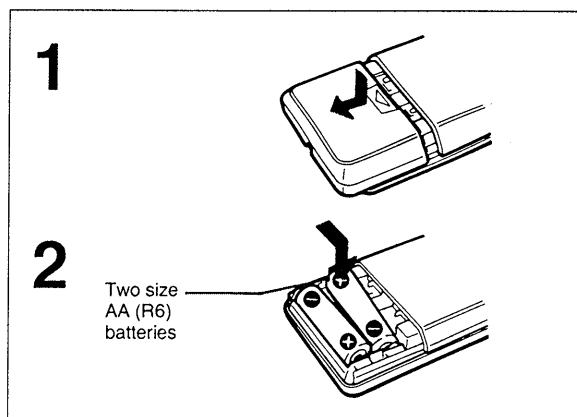
Remote Commander



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

Buttons with yellow letters (A, B, C,) are for writing a disc memo (page 26).

Installing Batteries in the Remote Commander



On battery life

- About half a year of normal operation can be expected when using the Sony SUM-3(NS) batteries.
- When the batteries are run down, the remote commander will not operate the unit. In this case, replace both batteries with new ones.

Notes on the remote commander and remote control operation

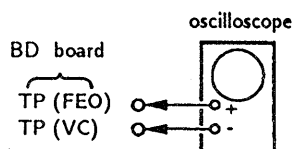
- Keep the commander away from extremely hot or humid places.
- Avoid dropping any foreign objects into the commander casing, particularly when replacing the batteries.
- Avoid exposing the remote sensor to direct sunlight or lighting apparatus. Such exposure can cause a malfunction.
- To avoid damage caused by battery leakage and corrosion, remove the batteries when the commander will not be used for a long time.

SECTION 2

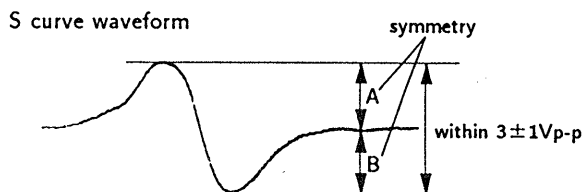
ELECTRICAL BLOCK CHECKING

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

S Curve Check**Procedure :**

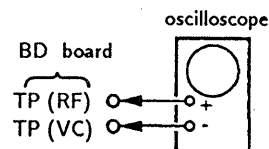
1. Connect oscilloscope to test point TP (FEO) on BD board.
2. Connect between test point TP (FES) and TP (VC) by lead wire.
3. Turned Power switch on and actuate the focus serch. (actuate the focus serch when disc table is moving in and out.)
4. Check the oscilloscope waveform (S curve) is symmetrical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



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.

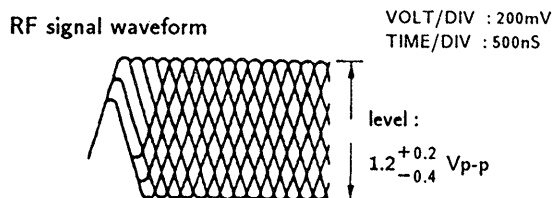
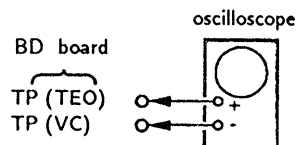
- Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check**Procedure :**

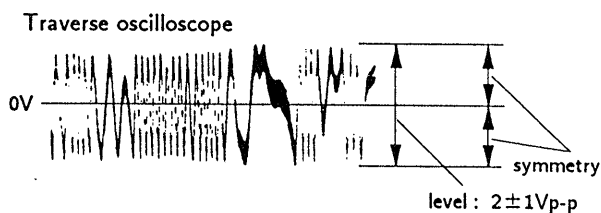
1. Connect oscilloscope to test point TP (RF) on BD board.
2. Turn Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

Note :

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

**E-F Balance Check****Procedure :**

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

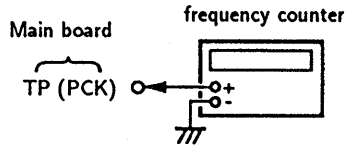


6. Remove the lead wire connected in step 1.

RF PLL Free-run Frequency Check

Procedure :

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



2. Turn Power switch on.
3. Confirm that reading on frequency counter is 4. 3218MHz.

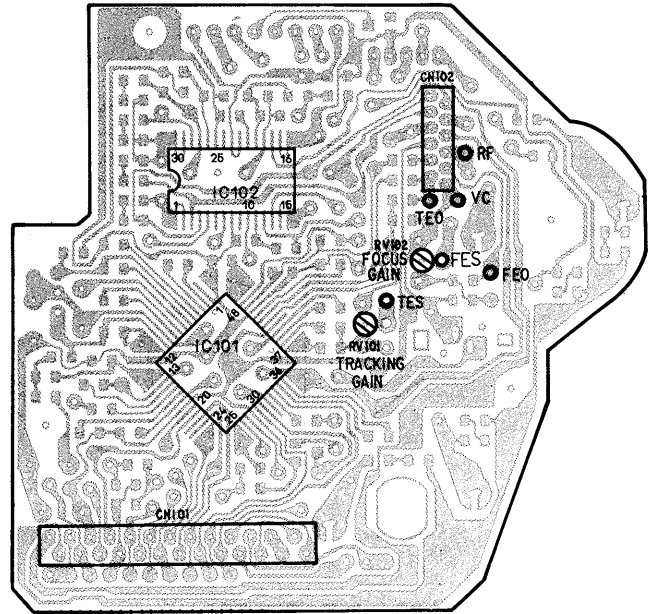
Focus/Tracking Gain

This gain has a margin, so even if it is slightly off. There is no problem.

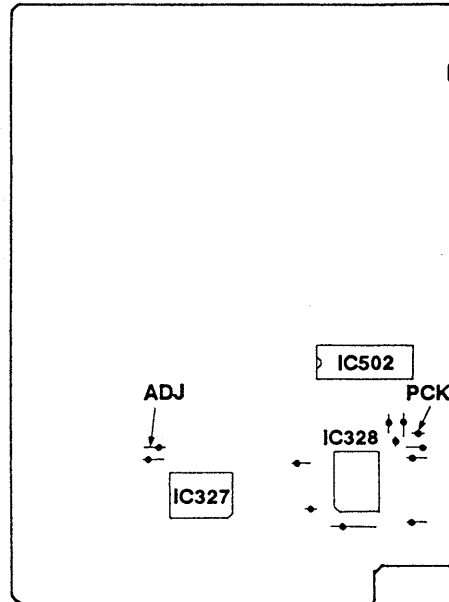
Therefore, do not perform, this adjustment.

Please note that it should be fixed to mechanical center position when you moved and do not know original position.

Test point : BD board – conductor side –



Test Location : main board – component side –

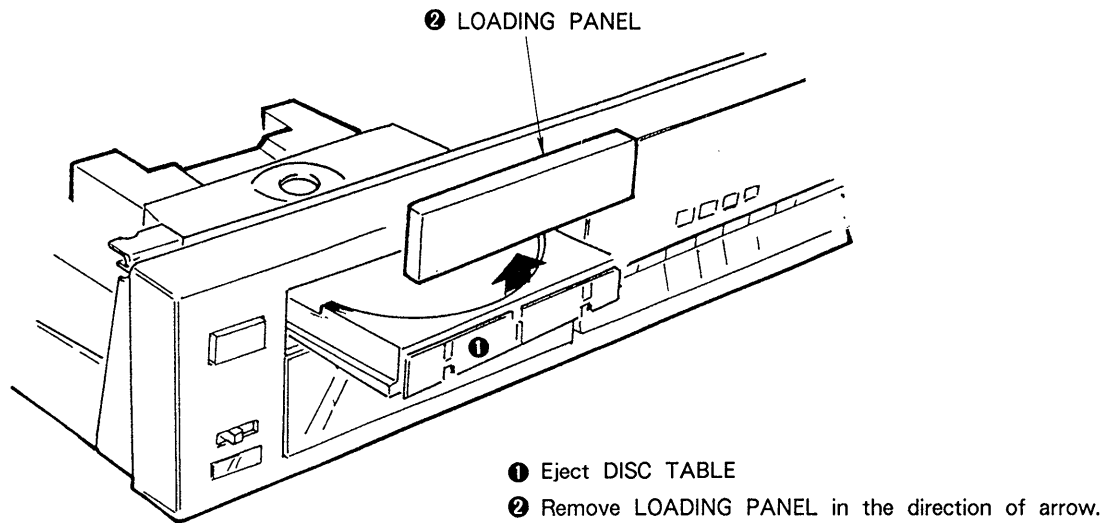


SECTION 3

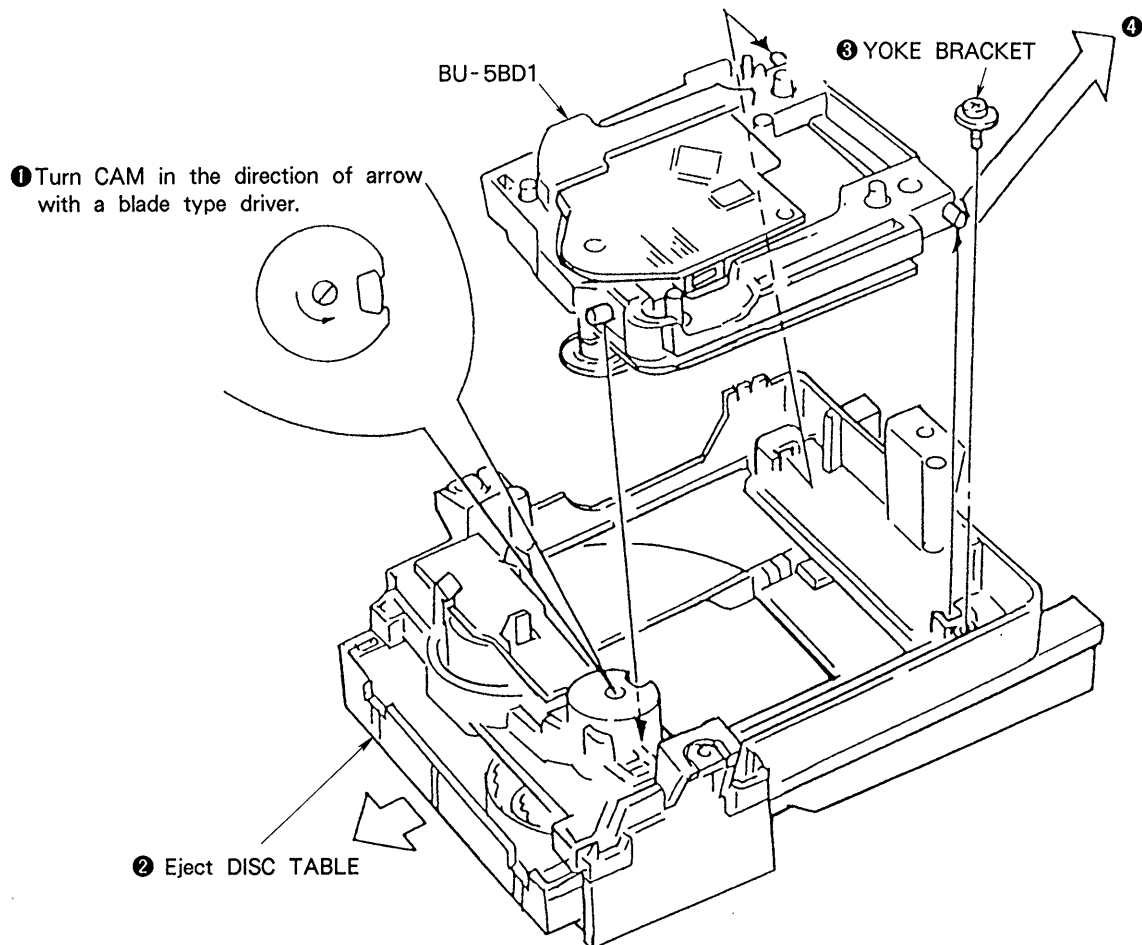
DISASSEMBLY

NOTE: Follow the disassembly procedure in the numerical order given.

REMOVAL OF LOADING PANEL



REMOVAL OF BASE UNIT (BU-5BD1)



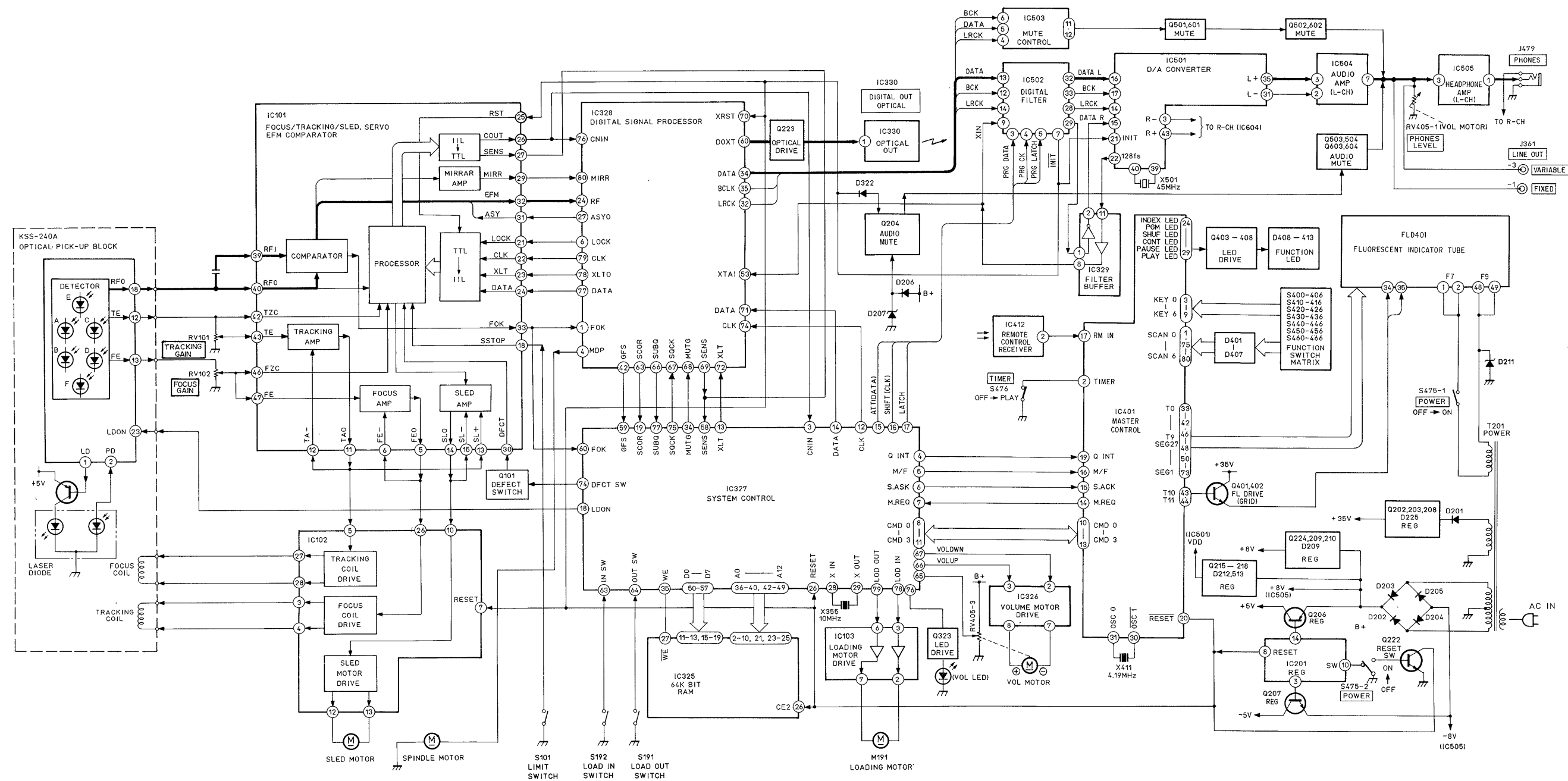
SEE ADDITIONAL
INFORMATIONSECTION 4
DIAGRAMS

4-1. Description on IC101 (CXA1372Q)

Pin No.	Pin Name	I/O	Pin Description
1	VC		GND when two ($\pm$) dual power supplies are in use, or the center voltage (2.5 V) when a single power supply is in use.
2	FGD	I	Time constants for gain switching in normal mode/down mode and for focus gain are connected between the FGD and FS3 pins.
3	FS3	I	
4	FLB	I	The capacitor for low frequency boost in the focus servo loop is connected.
5	FEO	O	Focus drive output
6	FE-	I	Inverted input to focus amplifier
7	SRCH	I	Time constants to generate the focus search waveform are connected.
8	TGU	I	Time constants for gain switching in normal mode/up mode and for tracking gain are connected between TGU pin and TG2 pin.
9	TG2	I	
10	AVCC		Analog power supply (5 V when $\pm$ dual power supplies are in use, 5 V when a single power supply is in use.)
11	TAO	O	Tracking drive output
12	TA-	I	Inverted input to tracking amplifier
13	SL+	I	Non-inverted input to sled amplifier
14	SLO	O	Sled drive output
15	SL-	I	Non-inverted input to sled amplifier
16	FSET	I	The 510-k Ω phase compensator resistor is connected to this pin.
17	ISET	I	The current setting resistor is connected to this pin.
18	SSTOP	I	The limit switch is connected to this pin.
19	AVEE		Analog power supply (-5V when $\pm$ dual power supplies are in use, or GND when a single power supply is in use.)
20	DIRC	I	Direct control pin.
21	LOCK	I	Sled run-away prevention circuit operates when this signal is "L".
22	CLK	I	Serial data transfer clock input that is supplied from CPU (or DSP).
23	XLT	I	Latch input from CPU (or DSP).
24	DATA	I	Serial data input from CPU (or DSP).
25	XRST	I	System reset. "L" to reset.
26	C.OUT	O	Output to tracking counter.
27	SENS	O	SENS output
28	DGND		Digital ground (GND). (GND when $\pm$ dual power supplies are in use. GND when a single power supply is in use.)
29	MIRR	O	Mirror output.
30	DFCT	O	Defect output. "H" when defective.
31	ASY	I	Auto-assymmetry control input.
32	EFM	O	EFM comparator output.

Pin No.	Pin Name	I/O	Pin Description
33	FOK	O	Focus OK.
34	CC2	I	Defect-bottom-hold input (input by capacitive coupling).
35	CC1	O	Defect-bottom-hold output.
36	DVCC		Digital power supply (+5 V when $\pm$ dual power supplies in use. +5 V when a single power supply is in use.)
37	CB	I	The defect-bottom-hold capacitor is connected to this pin.
38	CP	I	The mirror hold capacitor is connected to this pin.
39	RFI	I	RF signal input (input by capacitive coupling).
40	RFO	I	RF signal input (input by DC coupling).
41	DVEE		Digital power supply (-5 V when $\pm$ dual power supplies are in use. GND when a single power supply is in use.)
42	TZC	I	Tracking zero cross comparator input.
43	TE	I	Tracking error input.
44	TDFCT	I	The defect prevention hold capacitor is connected to this pin.
45	ATSC	I	Anti-shock input.
46	FZC	I	Focus zero-cross comparator input.
47	FE	I	Focus error input.
48	FDFCT	I	The defect prevention hold capacitor is connected to this pin.

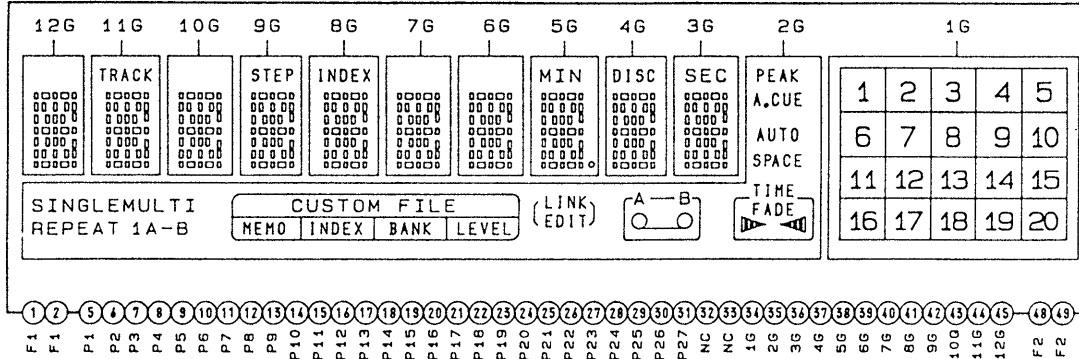
4-2. BLOCK DIAGRAM



FLUORESCENT DISPLAY TUBE FLD401 (1-519-622-11)

GRID INDICATOR

a b c d e
f g h i j
k l m n o
p q r s t
u v w x y
(12G-3G)



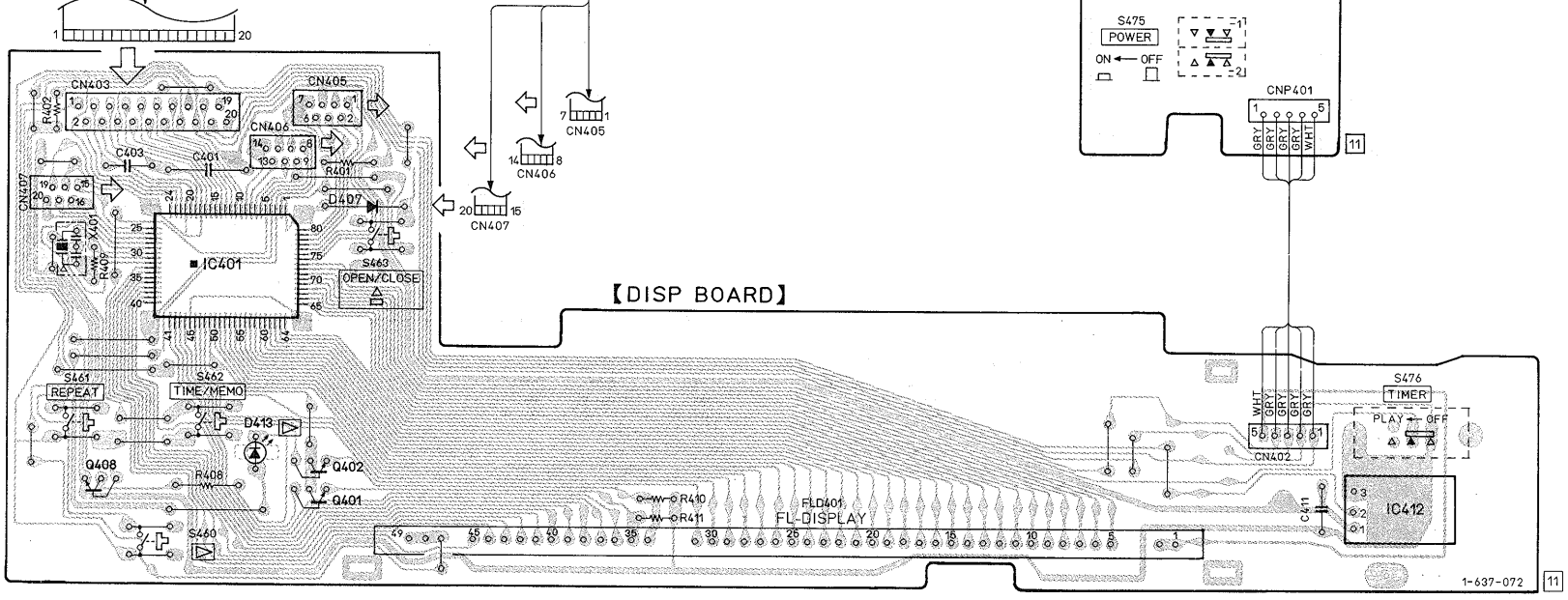
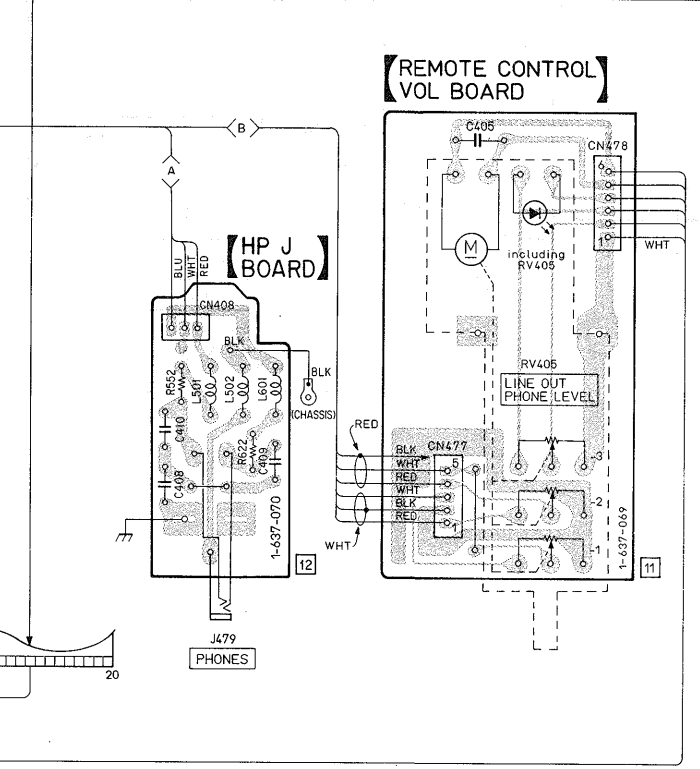
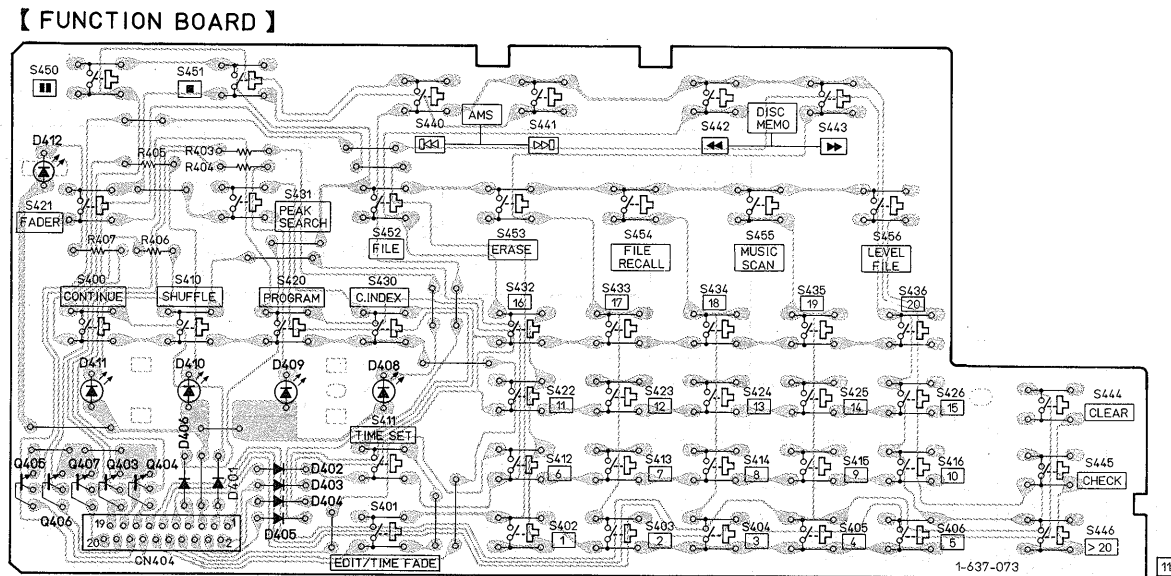
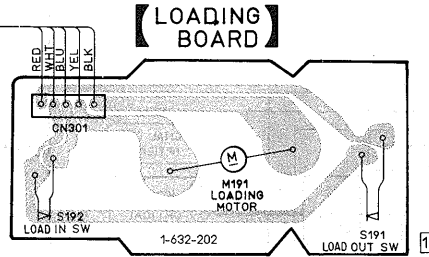
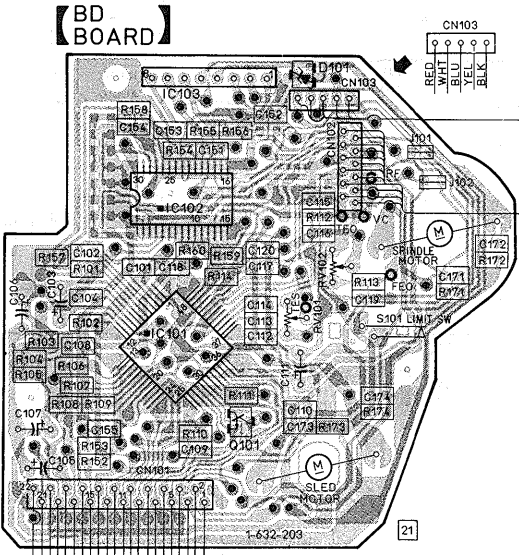
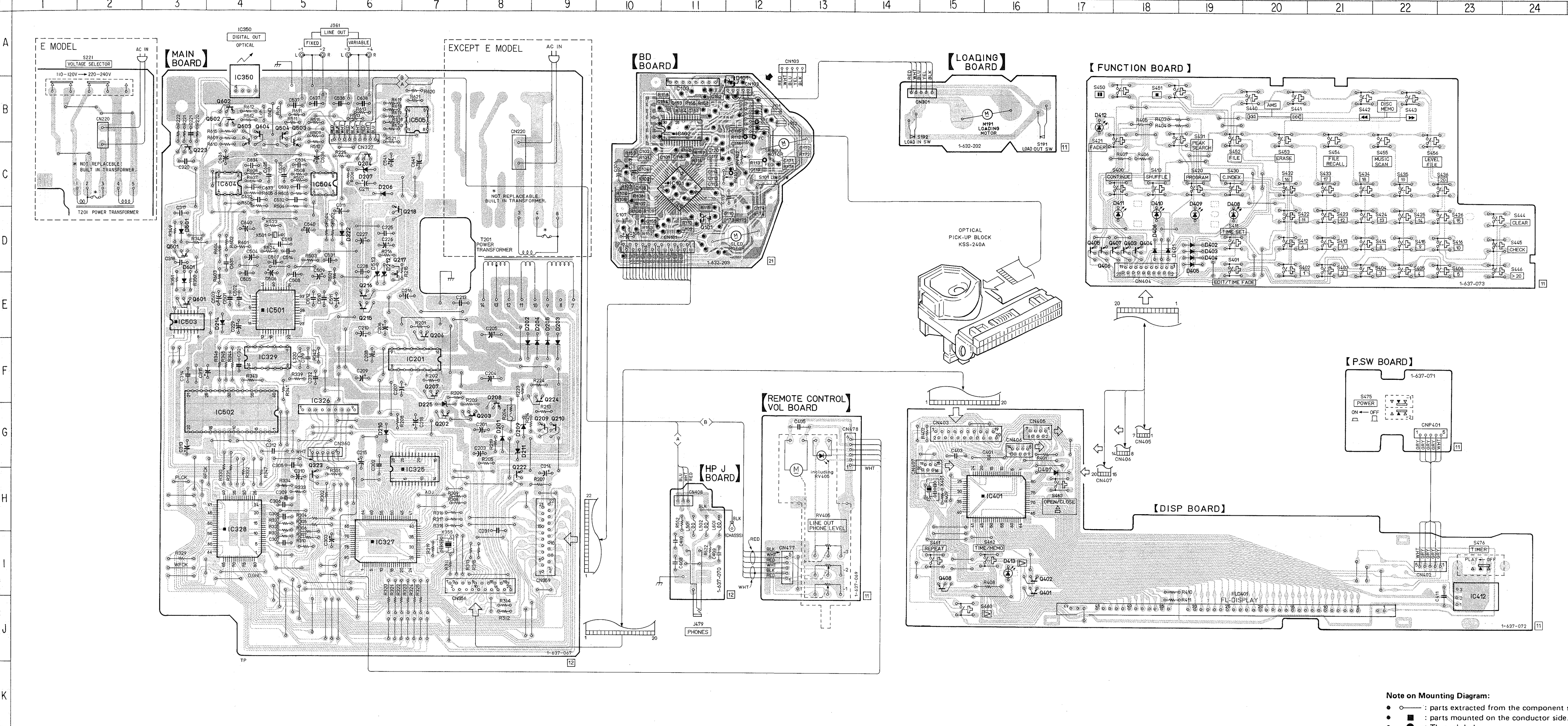
ANODE CONNECTION

	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	a	a	a	a	a	a	a	a	a	a	REPEAT	1
P2	b	b	b	b	b	b	b	b	b	b	1	2
P3	c	c	c	c	c	c	c	c	c	c	A-	3
P4	d	d	d	d	d	d	d	d	d	d	B	4
P5	e	e	e	e	e	e	e	e	e	e	A.CUE	5
P6	f	f	f	f	f	f	f	f	f	f	AUTO SPACE	6
P7	g	g	g	g	g	g	g	g	g	g	SINGLE	7
P8	h	h	h	h	h	h	h	h	h	h	MULTI	8
P9	i	i	i	i	i	i	i	i	i	i	CUSTOM FILE	9
P10	j	j	j	j	j	j	j	j	j	j	MEMO	10
P11	k	k	k	k	k	k	k	k	k	k	INDEX	11
P12	l	l	l	l	l	l	l	l	l	l	BANK	12
P13	m	m	m	m	m	m	m	m	m	m	LEVEL	13
P14	n	n	n	n	n	n	n	n	n	n	[LINK]	14
P15	o	o	o	o	o	o	o	o	o	o	EDIT	15
P16	p	p	p	p	p	p	p	p	p	p	-	16
P17	q	q	q	q	q	q	q	q	q	q	A	17
P18	r	r	r	r	r	r	r	r	r	r	B	18
P19	s	s	s	s	s	s	s	s	s	s	[O.O]	19
P20	t	t	t	t	t	t	t	t	t	t	TIME	20
P21	u	u	u	u	u	u	u	u	u	u	FADE	-
P22	v	v	v	v	v	v	v	v	v	v	▶	-
P23	w	w	w	w	w	w	w	w	w	w	◀	-
P24	x	x	x	x	x	x	x	x	x	x	-	-
P25	y	y	y	y	y	y	y	y	y	y	-	
P26	-	TRACK	-	STEP	INDEX	-	-	MIN	DISC	SEC	PEAK	▷
P27	-	-	-	-	-	-	-	O	-	-	-	-

4-3. PRINTED WIRING BOARDS • See page 22 for Semiconductor Lead Layouts.

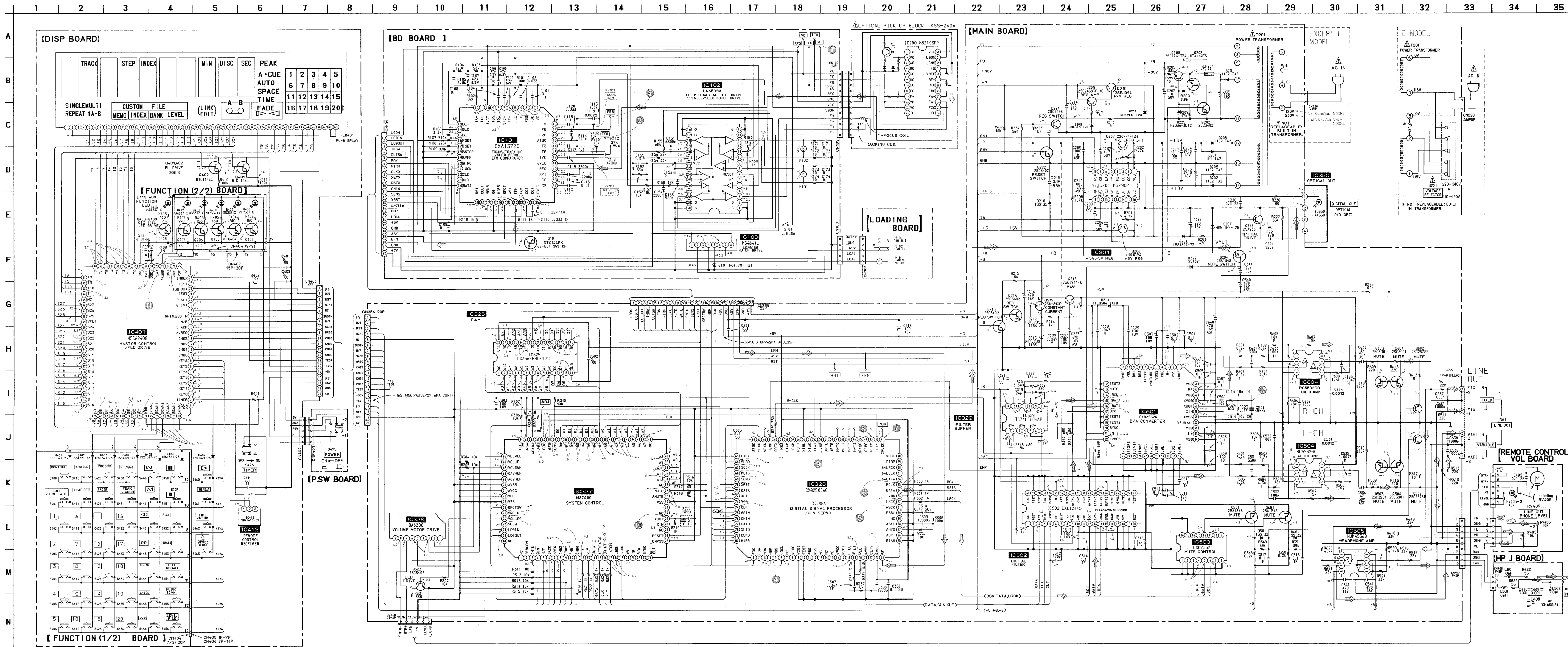
• Semiconductor Location

Ref. No.	Location
D101	B-12
D201	G-8
D202	G-9
D203	E-9
D204	E-9
D205	E-9
D206	C-6
D207	C-6
D209	G-9
D210	G-6
D211	G-8
D212	E-6
D214	E-4
D225	G-7
D322	D-6
D401	D-19
D402	D-19
D403	D-19
D404	D-19
D405	D-19
D406	D-18
D407	H-17
D408	D-20
D409	D-19
D410	D-18
D411	D-18
D412	B-18
D413	I-16
D501	D-3
D513	E-6
D601	E-3
IC101	C-11
IC102	B-11
IC103	B-11
IC201	H-7
IC325	G-5
IC326	G-5
IC327	I-6
IC328	I-4
IC329	F-5
IC350	B-4
IC401	H-16
IC412	J-23
IC501	E-5
IC502	G-4
IC503	E-3
IC504	C-5
IC505	B-7
IC604	C-4
Q101	D-11
Q202	G-7
Q203	G-8
Q204	G-8
Q206	F-7
Q207	F-7
Q208	G-8
Q209	G-9
Q210	G-9
Q215	E-6
Q216	E-6
Q217	D-7
Q218	D-7
Q222	H-8
Q223	C-3
Q224	G-9
Q323	C-7
Q401	I-17
Q402	I-17
Q403	D-18
Q404	D-18
Q405	D-17
Q406	D-18
Q407	D-18
Q408	I-15
Q501	D-3
Q502	B-4
Q503	B-5
Q504	B-5
Q601	E-3
Q602	B-4
Q603	B-4
Q604	B-4

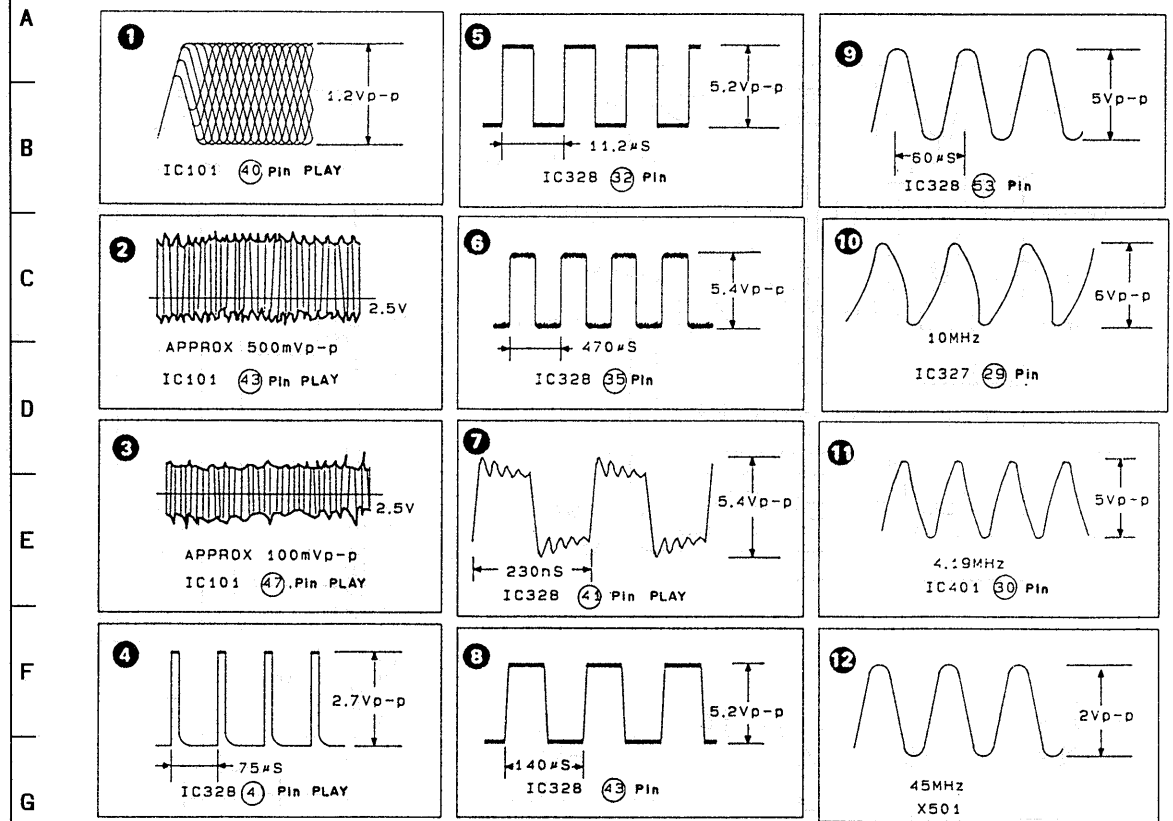


Note on Mounting Diagram:
• ○ — : parts extracted from the component side.
• ○ — : parts mounted on the conductor side.
• ● : Through hole.
• [Pattern] : Pattern on the side which is seen.
• [Pattern] : Pattern of the rear side.

4-4. SCHEMATIC DIAGRAM • See page 21 for IC Block Diagram



• WAVE FORM



Note 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 Ω and $\frac{1}{2}\text{W}$ or less unless otherwise specified.
- Δ : internal component.
- $\text{---}\text{---}\text{---}$: fusible resistor.

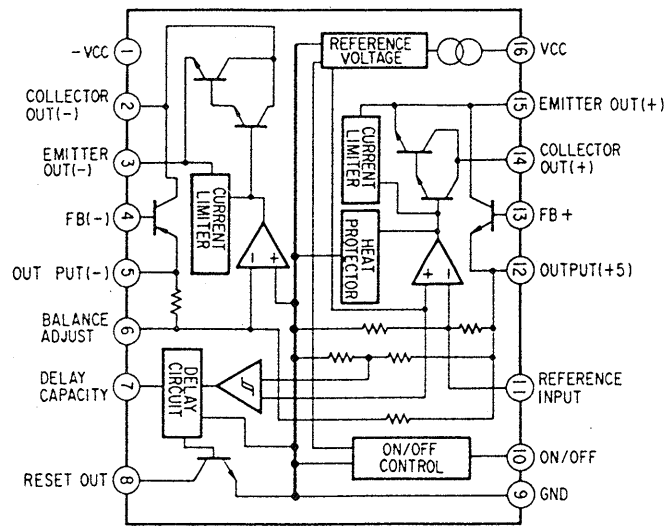
Note:
The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

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

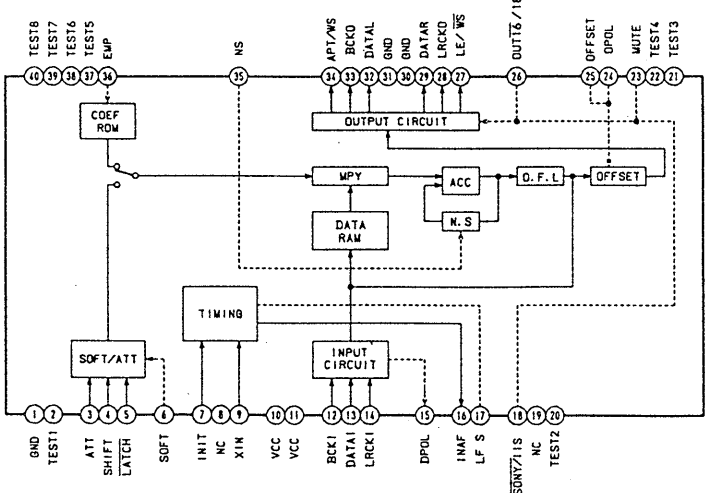
- $\text{---}\text{---}\text{---}$: B+ Line
- $\text{---}\text{---}\text{---}$: B- Line
- $\text{---}\text{---}\text{---}$: adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- no mark: PLAY
- Voltages are taken with a VOM (input impedance 10M Ω)
- 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.
- $\text{---}\text{---}\text{---}$: CD
- $\text{---}\text{---}\text{---}$: digital out

• IC BLOCK DIAGRAM

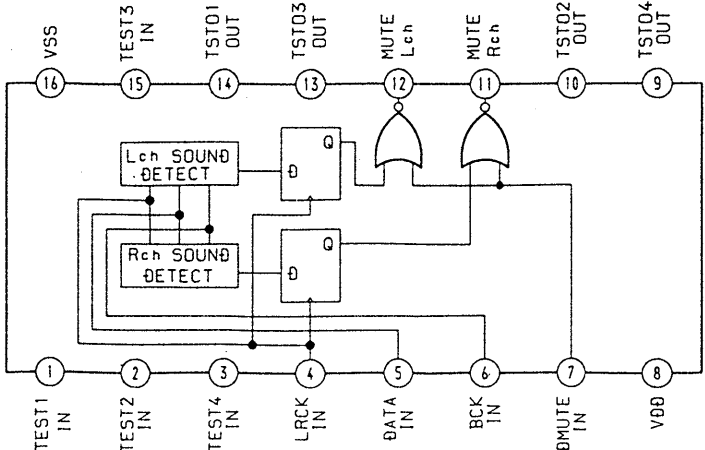
IC201 M5290P-16



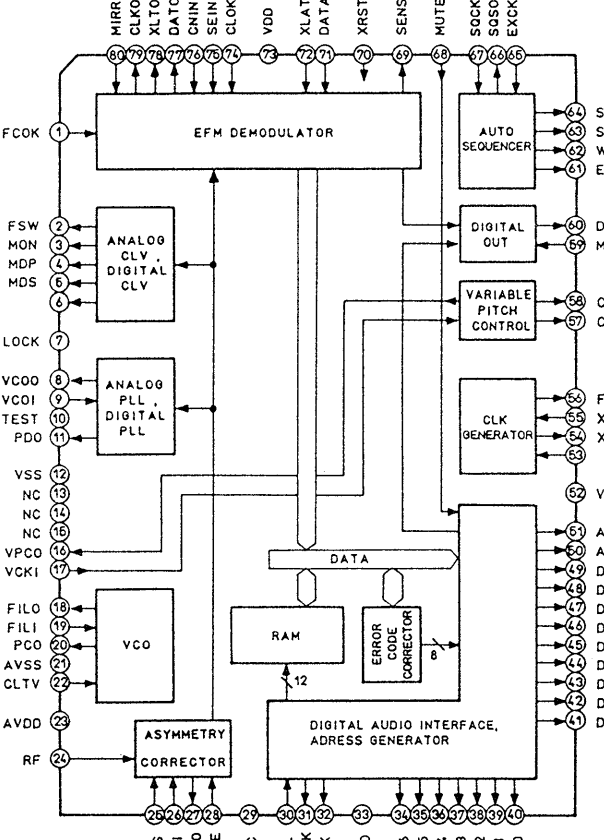
IC502 CXD1244S



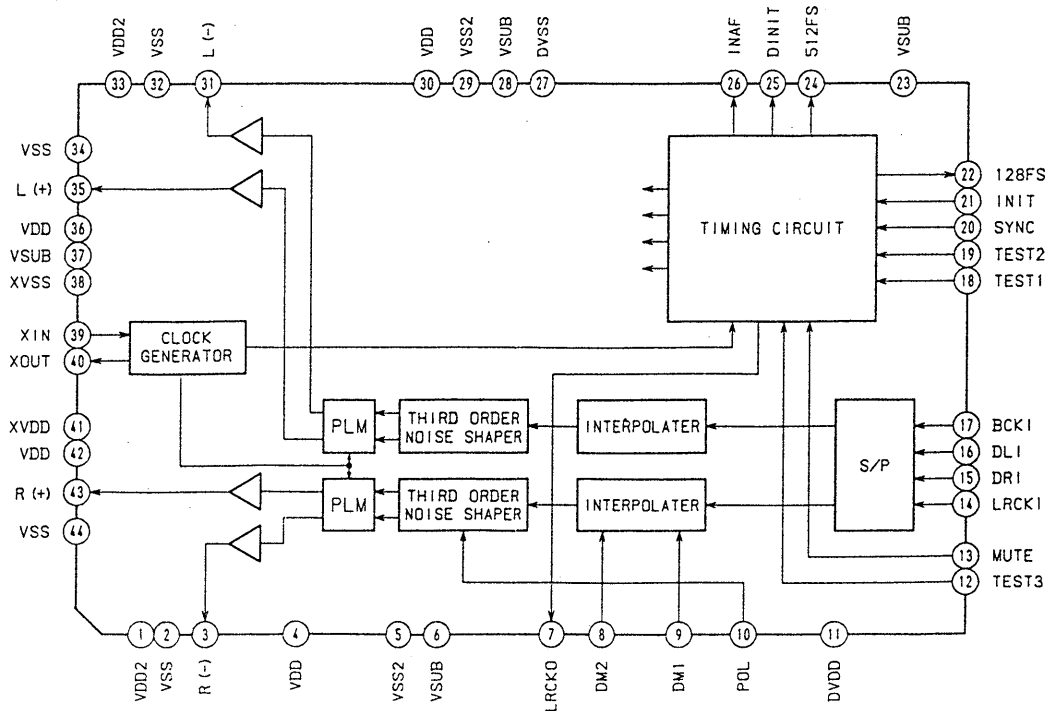
IC503 CXD2557M



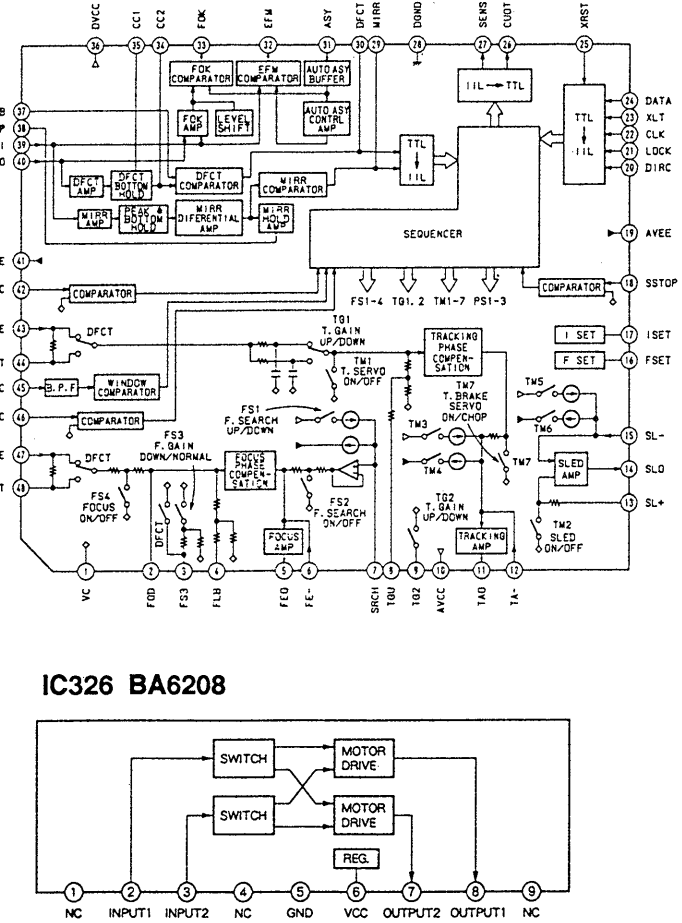
IC328 CXD2500AQ



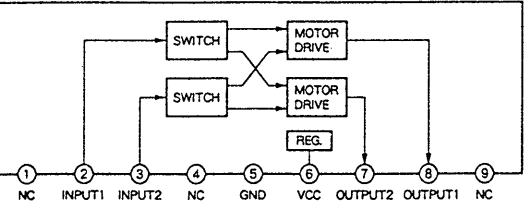
IC501 CXD2552Q-3



IC101 CXA1372Q

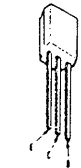


IC326 BA6208



• Semiconductor Lead Layouts

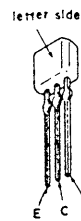
DTA114ES
DTC114EF
DTC114ES
DTC143TS



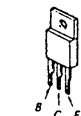
DTC144EK



2SA1175-HFE
2SC2785-HFE



2SB1094-L
2SD1944-K



S2SC2878-B



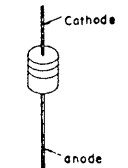
2SD774-34



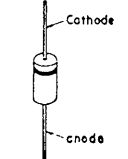
2SK161GR



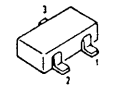
HZS36-3L
RD4.7JS-B3
RD5.1ES-B2
RD8.2ES-B2
1SS120
11EQS04



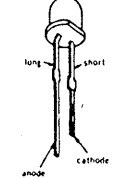
10E2



RD4.7M-B1



BR3371X
MAA3371X
MAY3371X-M-177
MBG3371X-J69K
MGB3371X-14
MPY3371X



SECTION 5

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)

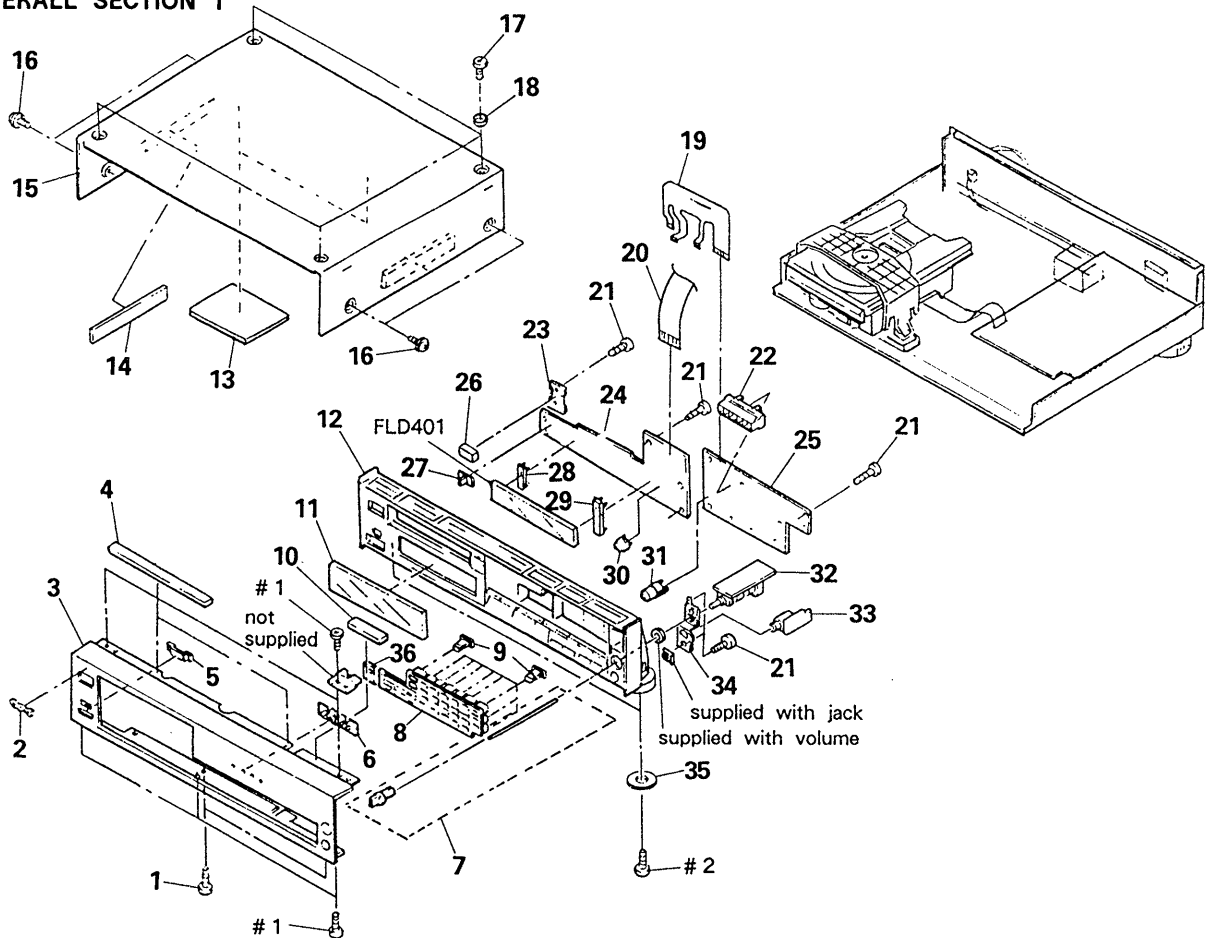
Parts color Cabinet's color

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

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

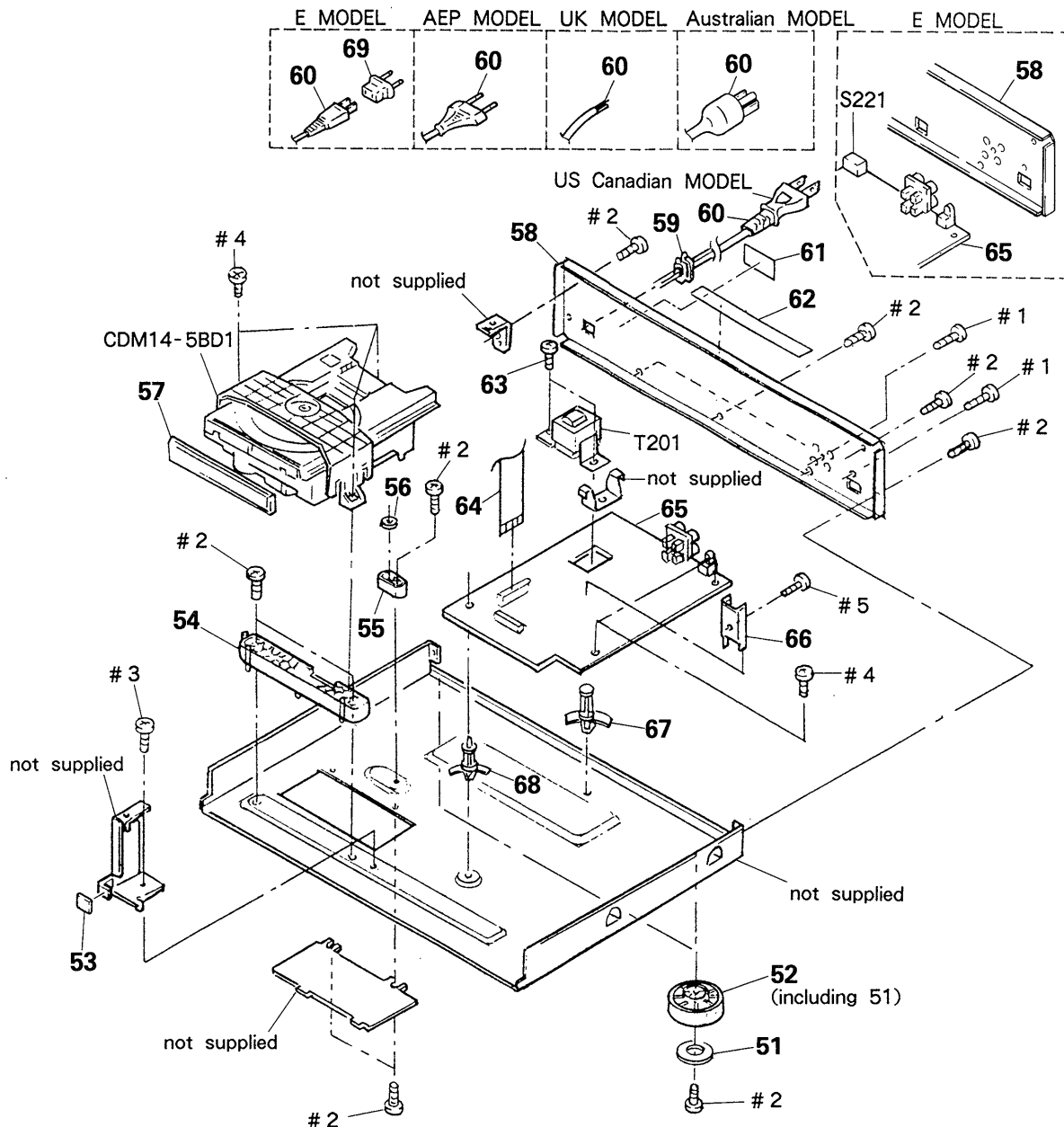
5-1. OVERALL SECTION 1



Ref. No.	Part No.	Description	Remark
1	3-703-685-21	SCREW (+BV 3X8)	
2	4-908-848-01	EMBLEM, SONY	
3	4-941-239-11	PANEL (FRONT) (AEP, UK, E, AUS)	
	4-941-239-01	PANEL (FRONT) (US, Canadian)	
4	* 4-929-557-01	CUSHION (PANEL)	
5	4-933-236-01	PLATE, RAY CATCHER	
6	4-941-254-01	INDICATOR (MODE)	
7	A-4604-698-A	KNOB (HP) ASSY	
8	* 4-941-249-01	GUIDE, KNOB	
9	4-941-250-01	BUTTON (MC/A)	
	4-941-251-01	BUTTON (MC/C)	
	4-941-252-01	BUTTON (MC/D)	
	4-941-253-01	BUTTON (MC/E)	
10	9-911-845-XX	CUSHION (25)	
11	4-941-246-01	PLATE, INDICATION	
12	X-4941-043-1	PANEL (SUB) ASSY (AEP, UK, E, AUS)	
	X-4941-342-1	PANEL (SUB) ASSY (US, Canadian)	
13	* 4-922-943-01	DUMPER	
14	* 4-929-561-01	CUSHION (CASE)	
15	4-934-008-01	CASE	

Ref. No.	Part No.	Description	Remark
16	3-704-366-01	SCREW (CASE) (M3X8)	
17	3-721-187-01	SCREW (3X8)	
18	4-928-025-11	ESCUTCHEON (TOP PLATE)	
19	1-535-874-11	JUMPER, FILM (WITH TERMINAL)	
20	1-590-217-11	WIRE, FLAT TYPE (20 CORE)	
21	4-928-635-01	SCREW, +BV (2.6X8) TAPPING	
22	* 4-941-259-01	HOLDER (LED/M)	
23	* 1-637-071-11	P. SW BOARD	
24	* 1-637-072-11	DISP BOARD	
25	* 1-637-073-11	FUNCTION BOARD	
26	4-922-921-01	BUTTON (POWER)	
27	4-922-518-11	KNOB (TIMER)	
28	* 4-941-171-01	HOLDER (L)	
29	* 4-941-256-01	HOLDER (R)	
30	* 4-941-257-01	HOLDER (LED/PL)	
31	* 4-941-258-01	HOLDER (LED/PA)	
32	* 1-637-069-11	REMOTE CONTROL BOARD	
33	* 1-637-070-11	HP BOARD	
34	4-941-255-01	BRACKET (HP)	
35	4-923-836-11	CUSHION	
36	* 4-943-086-01	GUIDE (B), KNOB	
FLD401	1-519-622-11	INDICATOR TUBE, FLUORESCENT	

5-2. OVERALL SECTION 2



Ref. No.	Part No.	Description	Remark
51	4-923-836-11	CUSHION	
52	X-3304-938-2	FOOT ASSY (AEP, UK, E, AUS)	
	X-4885-950-1	FOOT ASSY (US, Canadian)	
53	9-911-863-XX	SPACER	
54	4-941-169-01	BASE (MD/F)	
55	4-941-170-01	BASE (MD/R)	
56	3-580-722-11	WASHER, INSULATING	
57	4-941-168-01	PANEL, LOADING	
58	* 4-941-248-11	PANEL, BACK (US)	
	* 4-941-248-21	PANEL, BACK (Canadian)	
	* 4-941-248-31	PANEL, BACK (UK)	
	* 4-941-248-41	PANEL, BACK (AEP)	
	* 4-941-248-51	PANEL, BACK (E)	
	* 4-941-248-61	PANEL, BACK (AUS)	
59	* 3-703-571-11	BUSHING (S) (4516), CORD (US, Canadian, E)	
	* 3-703-244-00	BUSHING (2104), CORD (AEP, UK, AUS)	

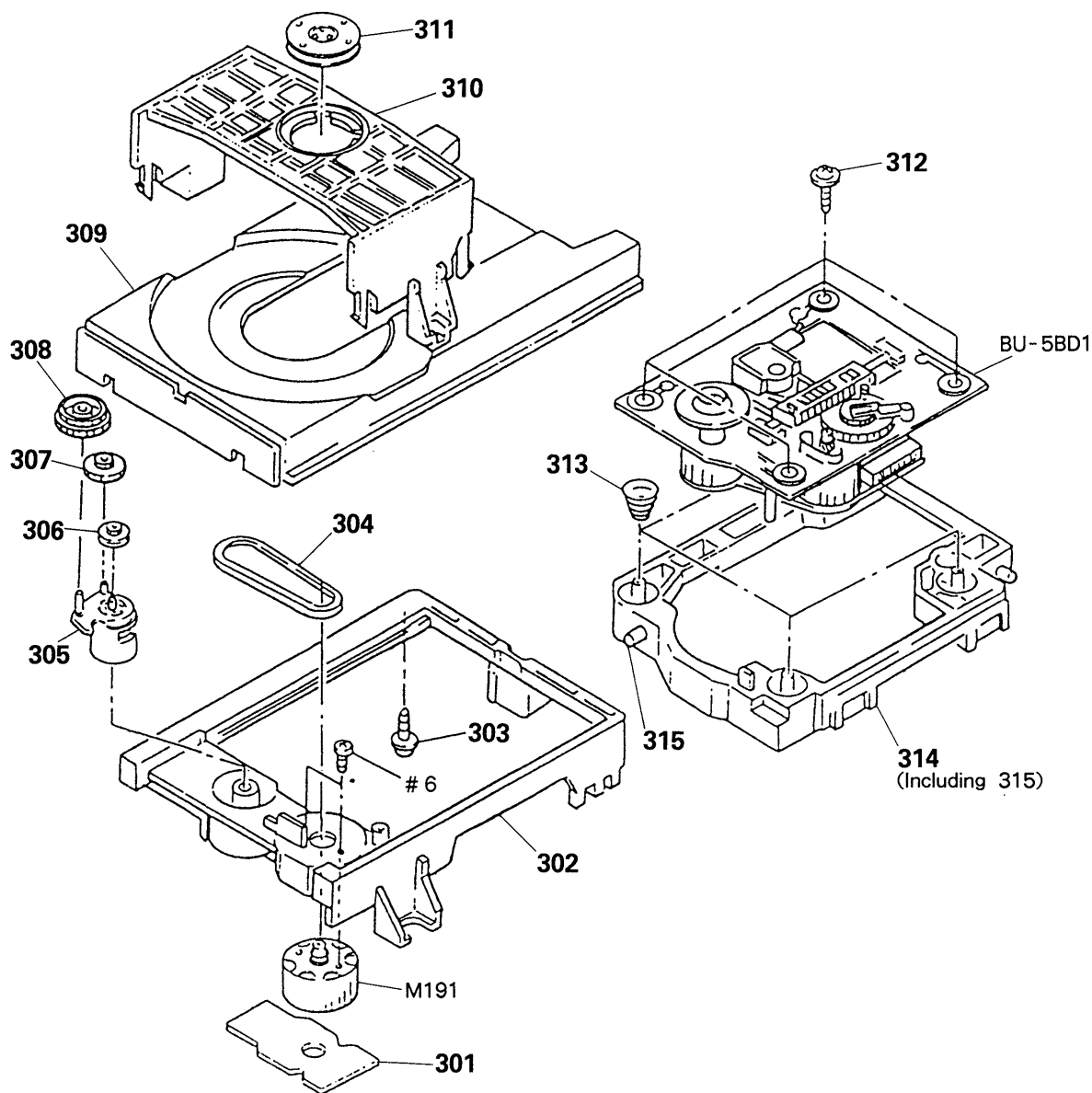
Ref. No.	Part No.	Description	Remark
60	⚠ 1-558-945-21	CORD, POWER (POLAR. SPT-1) (US, Canadian)	
	⚠ 1-558-946-21	CORD, POWER (POLAR. SPT-1) (UK)	
	⚠ 1-574-358-31	CORD, POWER (WITH CONNECTOR) (AUS)	
	⚠ 1-575-653-21	CORD, POWER (E)	
	⚠ 1-575-651-21	CORD, POWER (AEP)	
61	* 4-941-548-01	LABEL, CLASS 1 (AEP, UK, E, AUS)	
62	* 4-927-653-01	SHEET (F/P)	
63	* 4-886-821-11	SCREW, S TIGHT, +PTTWH 3X6	
64	1-575-002-11	WIRE, FLAT TYPE (22 CORE)	
65	* A-4617-567-A	MAIN BOARD, COMPLETE (EXCEPT E)	
	* A-4617-779-A	MAIN BOARD, COMPLETE (E)	
66	* 4-941-237-01	HEAT SINK	
67	* 3-349-025-41	HOLDER, PC BOARD	
68	* 4-924-098-01	HOLDER, PC BOARD	
69	⚠ 1-569-007-11	ADAPTOR, CONVERSION 2P (E)	
S221	⚠ 1-571-722-11	SWITCH, VOLTAGE SELECTION (VOLTAGE SELECTOR) (E)	

T201 ⚠ 1-449-921-11 TRANSFORMER, POWER (US, Canadian)
 ⚠ 1-449-922-11 TRANSFORMER, POWER (AEP, UK, AUS)
 ⚠ 1-449-923-11 TRANSFORMER, POWER (E)

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

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

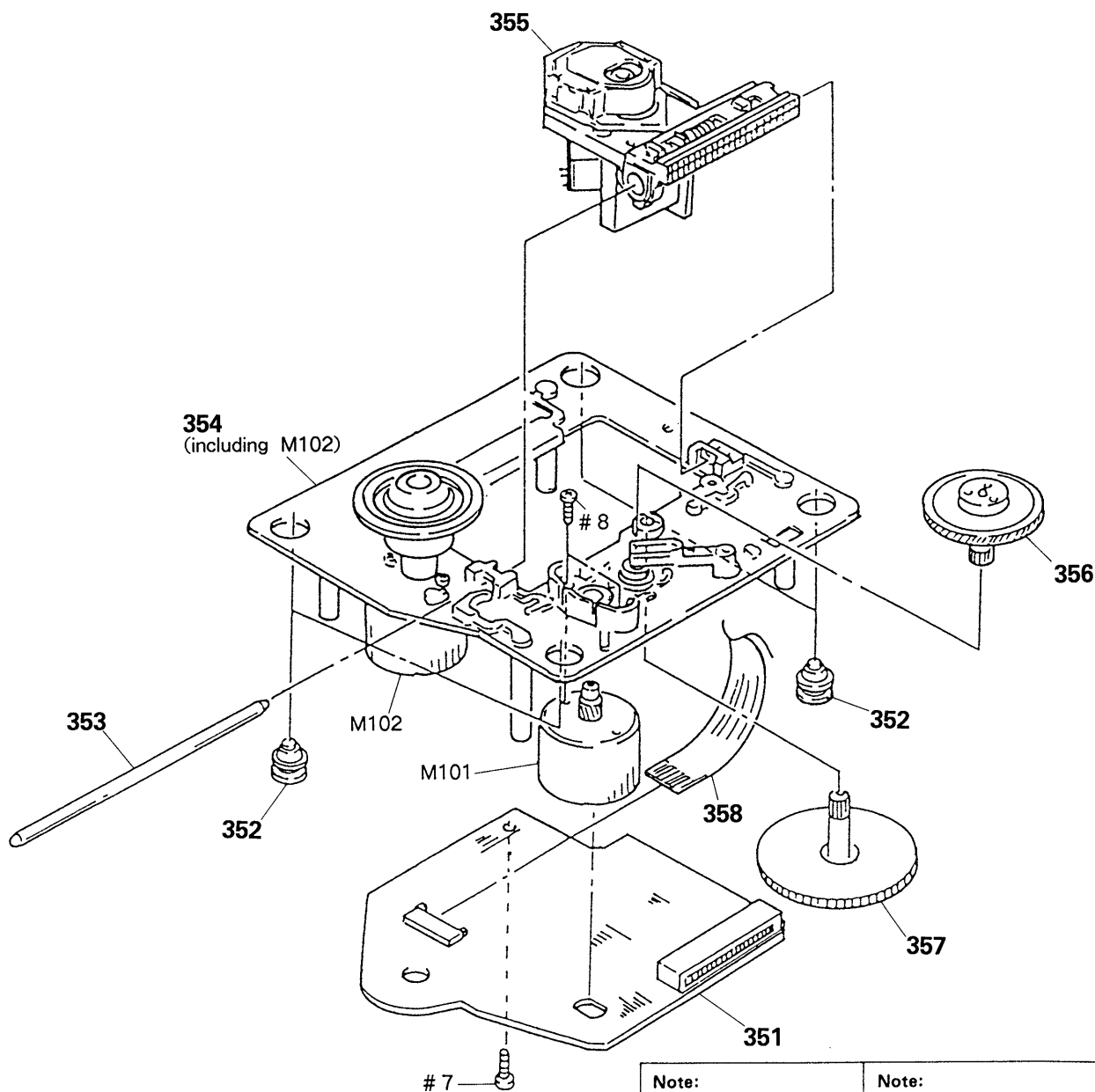
5-3. MD SECTION (CDM14-5BD1)



Ref. No.	Part No.	Description	Remark
301	* 1-632-202-11	LOADING BOARD	
302	4-933-111-01	CHASSIS (MD)	
303	* 4-917-583-21	BRACKET, YOKE	
304	4-927-649-01	BELT	
305	4-933-109-01	CAM	
306	4-927-651-01	PULLEY (S)	
307	4-927-628-01	GEAR (C)	
308	4-933-107-01	GEAR (PL)	

Ref. No.	Part No.	Description	Remark
309	4-933-112-01	TABLE, DISC	
310	4-933-110-01	HOLDER (MG)	
311	* 1-452-538-11	MAGNET	
312	4-933-134-01	SCREW (+PTPWH M2.6X6)	
313	4-917-541-01	SPRING (B)	
314	4-933-129-01	HOLDER (BU)	
315	4-933-108-01	SHAFT (CAM)	
M191	A-4604-363-A	MOTOR (L) ASSY	

5-4. OPTICAL PICK-UP BLICK (BU-5BD1)



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

Note:
Les composants identifiés par une marque $\triangle$ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
351	* A-4617-161-A	BD BOARD, COMPLETE	
352	4-933-126-01	INSULATOR (A)	
353	4-917-565-01	SHAFT, SLED	
354	X-4917-523-3	BASE (OUTSERT) ASSY (M102 INCLUDING)	
355	$\triangle$ 8-848-144-11	DEVICE, OPTICAL KSS-240A	

Ref. No.	Part No.	Description	Remark
356	4-917-567-01	GEAR (M)	
357	4-917-564-01	GEAR (P), FLATNESS	
358	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
M101	X-4917-504-1	MOTOR ASSY (SLED)	

BD

SECTION 6

ELECTRICAL PARTS LIST

NOTE :

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

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

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	Remark	Ref.No.	Part No.	Description	Remark
* A-4617-161-A BD BOARD, COMPLETE *****				< CONNECTOR >			
< CAPACITOR >				CN101	1-568-796-11	SOCKET, CONNECTOR 22P	
C101	1-163-038-00	CERAMIC CHIP	0.1uF 25V	CN102	1-568-795-11	SOCKET, CONNECTOR 12P	
C102	1-163-989-11	CERAMIC CHIP	0.033uF 10% 25V	CN103	* 1-564-721-11	PIN, CONNECTOR (SMALL TYPE) 5P	
C103	1-126-163-11	ELECT	4.7uF 20% 50V	< DIODE >			
C104	1-163-038-00	CERAMIC CHIP	0.1uF 25V	D101	8-719-105-72	DIODE RD4.7M-B1	
C105	1-126-154-11	ELECT	47uF 20% 6.3V	< IC >			
C106	1-126-154-11	ELECT	47uF 20% 6.3V	IC101	8-752-050-82	IC CXA1372Q	
C107	1-126-154-11	ELECT	47uF 20% 6.3V	IC102	8-759-822-36	IC LA6532M-T1	
C108	1-163-038-00	CERAMIC CHIP	0.1uF 25V	IC103	8-759-633-65	IC M54641L	
C109	1-163-038-00	CERAMIC CHIP	0.1uF 25V	< JUMPER >			
C110	1-163-989-11	CERAMIC CHIP	0.033uF 10% 25V	J101	1-216-295-00	METAL CHIP 0 5% 1/10W	
C111	1-131-367-00	TANTALUM	22uF 10% 20V	J102	1-216-295-00	METAL CHIP 0 5% 1/10W	
C112	1-164-232-11	CERAMIC CHIP	0.01uF 50V	< TRANSISTOR >			
C113	1-164-232-11	CERAMIC CHIP	0.01uF 50V	Q101	8-729-901-01	TRANSISTOR DTC144EX	
C114	1-164-161-11	CERAMIC CHIP	0.0022uF 10% 100V	< RESISTOR >			
C115	1-164-161-11	CERAMIC CHIP	0.0022uF 10% 100V	R101	1-216-097-00	METAL CHIP 100K 5% 1/10W	
C117	1-163-038-00	CERAMIC CHIP	0.1uF 25V	R102	1-216-095-00	METAL CHIP 82K 5% 1/10W	
C118	1-163-038-00	CERAMIC CHIP	0.1uF 25V	R103	1-216-091-00	METAL CHIP 56K 5% 1/10W	
C119	1-164-161-11	CERAMIC CHIP	0.0022uF 10% 100V	R104	1-216-099-00	METAL CHIP 120K 5% 1/10W	
C120	1-163-989-11	CERAMIC CHIP	0.033uF 10% 25V	R105	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
C151	1-163-019-00	CERAMIC CHIP	0.0068uF 10% 50V	R106	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
C152	1-163-038-00	CERAMIC CHIP	0.1uF 25V	R107	1-216-114-00	METAL GLAZE 510K 5% 1/10W	
C153	1-163-006-11	CERAMIC CHIP	560PF 10% 50V	R108	1-216-105-00	METAL CHIP 220K 5% 1/10W	
C154	1-164-161-11	CERAMIC CHIP	0.0022uF 10% 100V	R109	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
C155	1-163-023-00	CERAMIC CHIP	0.015uF 5% 50V	R110	1-216-049-00	METAL CHIP 1K 5% 1/10W	
C171	1-163-038-00	CERAMIC CHIP	0.1uF 25V				
C172	1-163-038-00	CERAMIC CHIP	0.1uF 25V				
C173	1-163-038-00	CERAMIC CHIP	0.1uF 25V				
C174	1-163-038-00	CERAMIC CHIP	0.1uF 25V				

BD	DISP	FUNCTION
----	------	----------

Ref. No.	Part No.	Description	Remark
R111	1-216-049-00	METAL CHIP 1K	5% 1/10W
R112	1-216-083-00	METAL CHIP 27K	5% 1/10W
R113	1-216-071-00	METAL CHIP 8.2K	5% 1/10W
R114	1-216-105-00	METAL CHIP 220K	5% 1/10W
R152	1-216-073-00	METAL CHIP 10K	5% 1/10W
R153	1-216-085-00	METAL CHIP 33K	5% 1/10W
R154	1-216-085-00	METAL CHIP 33K	5% 1/10W
R155	1-216-093-00	METAL CHIP 68K	5% 1/10W
R156	1-216-081-00	METAL CHIP 22K	5% 1/10W
R157	1-216-079-00	METAL CHIP 18K	5% 1/10W
R158	1-216-079-00	METAL CHIP 18K	5% 1/10W
R159	1-216-079-00	METAL CHIP 18K	5% 1/10W
R160	1-216-049-00	METAL CHIP 1K	5% 1/10W
R171	1-216-001-00	METAL CHIP 10	5% 1/10W
R172	1-216-001-00	METAL CHIP 10	5% 1/10W
R173	1-216-001-00	METAL CHIP 10	5% 1/10W
R174	1-216-001-00	METAL CHIP 10	5% 1/10W

< VARIABLE RESISTOR >

RV101	1-238-016-11	RES, ADJ, CARBON 10K
RV102	1-238-016-11	RES, ADJ, CARBON 10K

< SWITCH >

S101	1-572-085-11	SWITCH, LEAF
------	--------------	--------------

* 1-637-072-11 DISP BOARD

* 4-941-171-01 HOLDER (L)

* 4-941-256-01 HOLDER (R)

* 4-941-257-01 HOLDER (LED/PL)

< CAPACITOR >

C401	1-164-159-11	CERAMIC 0.1uF	50V
C403	1-164-159-11	CERAMIC 0.1uF	50V
C411	1-164-159-11	CERAMIC 0.1uF	50V

< CONNECTOR >

CN403	* 1-568-837-11	SOCKET, CONNECTOR 20P
CN405	* 1-580-481-11	SOCKET, CONNECTOR 8P
CN406	* 1-580-470-11	SOCKET, CONNECTOR 7P
CN407	* 1-580-471-11	SOCKET, CONNECTOR 6P

< DIODE >

D407	8-719-912-20	DIODE 1SS120
D413	8-719-987-93	LED MBG3371X-J69K (▶)

Ref. No.	Part No.	Description	Remark
		< FLUORESCENT INDICATOR >	

FLD401	1-519-622-11	INDICATOR TUBE, FLUORESCENT
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< IC >

IC401	8-759-505-50	IC MSC62408-015GS-V1K
IC412	8-741-100-48	IC SBX1610-59

< TRANSISTOR >

Q401	8-729-900-45	TRANSISTOR DTC114EF
Q402	8-729-900-45	TRANSISTOR DTC114EF
Q408	8-729-900-45	TRANSISTOR DTC114EF

< RESISTOR >

R401	1-249-429-11	CARBON 10K	5%	1/4W
R402	1-249-429-11	CARBON 10K	5%	1/4W
R408	1-247-812-11	CARBON 160	5%	1/4W
R409	1-247-903-00	CARBON 1M	5%	1/4W
R410	1-249-441-11	CARBON 100K	5%	1/4W
R411	1-249-441-11	CARBON 100K	5%	1/4W

< SWITCH >

S460	1-554-303-21	SWITCH, TACTILE (▶)
S461	1-554-303-21	SWITCH, TACTILE (REPEAT)
S462	1-554-303-21	SWITCH, TACTILE (TIME/MEMO)
S463	1-554-303-21	SWITCH, TACTILE (OPEN/CLOSE)
S476	1-554-481-00	SWITCH, SLIDE (TIMER)

< CERAMIC >

X411	1-577-101-11	VIBRATOR, CERAMIC
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* 1-637-073-11 FUNCTION BOARD

* 4-941-258-01 HOLDER (LED/PA)

* 4-941-259-01 HOLDER (LED/M)

< CONNECTOR >

CN404	* 1-580-462-11	SOCKET, CONNECTOR 20P
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< DIODE >

D401	8-719-912-20	DIODE 1SS120
D402	8-719-912-20	DIODE 1SS120
D403	8-719-912-20	DIODE 1SS120
D404	8-719-912-20	DIODE 1SS120
D405	8-719-912-20	DIODE 1SS120
D406	8-719-912-20	DIODE 1SS120

FUNCTION	HP	LOADING
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Ref. No.	Part No.	Description	Remark
D408	8-719-987-95	LED MPY3371X (C. INDEX)	
D409	8-719-987-97	LED BR3371X (PROGRAM)	
D410	8-719-971-52	LED MAY3371X-M-177 (SHUFFLE)	
D411	8-719-987-99	LED MGB3371X-14 (CONTINUE)	
D412	8-719-987-91	LED MAA3371X (FADER)	

< TRANSISTOR >

Q403	8-729-900-45	TRANSISTOR DTC114EF	
Q404	8-729-900-45	TRANSISTOR DTC114EF	
Q405	8-729-900-45	TRANSISTOR DTC114EF	
Q406	8-729-900-45	TRANSISTOR DTC114EF	
Q407	8-729-900-45	TRANSISTOR DTC114EF	

< RESISTOR >

R403	1-249-407-11	CARBON	150	5%	1/4W
R404	1-249-442-11	CARBON	510	5%	1/4W
R405	1-249-407-11	CARBON	150	5%	1/4W
R406	1-249-407-11	CARBON	150	5%	1/4W
R407	1-249-410-11	CARBON	270	5%	1/4W

< SWITCH >

S400	1-554-303-21	SWITCH, TACTILE (CONTINUE)	
S401	1-554-303-21	SWITCH, TACTILE (EDIT/TIME FADE)	
S402	1-554-303-21	SWITCH, TACTILE (1)	
S403	1-554-303-21	SWITCH, TACTILE (2)	
S404	1-554-303-21	SWITCH, TACTILE (3)	

S405	1-554-303-21	SWITCH, TACTILE (4)	
S406	1-554-303-21	SWITCH, TACTILE (5)	
S410	1-554-303-21	SWITCH, TACTILE (SHUFFLE)	
S411	1-554-303-21	SWITCH, TACTILE (TIME SET)	
S412	1-554-303-21	SWITCH, TACTILE (6)	

S413	1-554-303-21	SWITCH, TACTILE (7)	
S414	1-554-303-21	SWITCH, TACTILE (8)	
S415	1-554-303-21	SWITCH, TACTILE (9)	
S416	1-554-303-21	SWITCH, TACTILE (10)	
S420	1-554-303-21	SWITCH, TACTILE (PROGRAM)	

S421	1-554-303-21	SWITCH, TACTILE (FADER)	
S422	1-554-303-21	SWITCH, TACTILE (11)	
S423	1-554-303-21	SWITCH, TACTILE (12)	
S424	1-554-303-21	SWITCH, TACTILE (13)	
S425	1-554-303-21	SWITCH, TACTILE (14)	

S426	1-554-303-21	SWITCH, TACTILE (15)	
S430	1-554-303-21	SWITCH, TACTILE (C. INDEX)	
S431	1-554-303-21	SWITCH, TACTILE (PEAK SEARCH)	
S432	1-554-303-21	SWITCH, TACTILE (16)	
S433	1-554-303-21	SWITCH, TACTILE (17)	

S434	1-554-303-21	SWITCH, TACTILE (18)	
S435	1-554-303-21	SWITCH, TACTILE (19)	
S436	1-554-303-21	SWITCH, TACTILE (20)	
S440	1-554-303-21	SWITCH, TACTILE (18)	

Ref. No.	Part No.	Description	Remark
S441	1-554-303-21	SWITCH, TACTILE (18)	
S442	1-554-303-21	SWITCH, TACTILE (18)	
S443	1-554-303-21	SWITCH, TACTILE (18)	
S444	1-554-303-21	SWITCH, TACTILE (CLEAR)	
S445	1-554-303-21	SWITCH, TACTILE (CHECK)	

S446	1-554-303-21	SWITCH, TACTILE (>20)	
S450	1-554-303-21	SWITCH, TACTILE (18)	
S451	1-554-303-21	SWITCH, TACTILE (18)	
S452	1-554-303-21	SWITCH, TACTILE (FILE)	
S453	1-554-303-21	SWITCH, TACTILE (ERASE)	

S454	1-554-303-21	SWITCH, TACTILE (FILE RECALL)	
S455	1-554-303-21	SWITCH, TACTILE (MUSIC SCAN)	
S456	1-554-303-21	SWITCH, TACTILE (LEVEL FILE)	

* 1-637-070-11 HP BOARD

< CAPACITOR >

C408	1-164-159-11	CERAMIC	0.1uF	50V
C409	1-162-294-31	CERAMIC	0.001uF	10% 50V
C410	1-162-294-31	CERAMIC	0.001uF	10% 50V

< CONNECTOR >

CN408 * 1-564-705-11 PIN, CONNECTOR (SMALL TYPE) 3P

< JACK >

J479 1-568-519-41 JACK, LARGE TYPE

< COIL >

L501	* 1-410-858-11	INDUCTOR
L502	* 1-410-858-11	INDUCTOR
L601	* 1-410-858-11	INDUCTOR

< RESISTOR >

R522	1-249-402-11	CARBON	56	5%	1/4W
R622	1-249-402-11	CARBON	56	5%	1/4W

* 1-632-202-11 LOADING BOARD

< CONNECTOR >

CN301 * 1-564-707-11 PIN, CONNECTOR (SMALL TYPE) 5P

LOADING	MAIN
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Ref. No.	Part No.	Description	Remark
< SWITCH >			

S271	1-572-086-11	SWITCH, LEAF	
S272	1-572-086-11	SWITCH, LEAF	

* A-4617-567-A MAIN BOARD, COMPLETE

* 4-941-237-01 HEAT SINK
7-682-548-04 SCREW +BVT 3X8 (S)

< CAPACITOR >

C201	1-124-572-11	ELECT	100uF	20%	63V
C203	1-126-059-11	ELECT	10uF	20%	50V
C204	1-126-016-11	ELECT	4700uF	20%	16V
C205	1-126-016-11	ELECT	4700uF	20%	16V
C206	1-126-059-11	ELECT	10uF	20%	50V

C207	1-126-163-11	ELECT	4.7uF	20%	50V
C208	1-126-059-11	ELECT	10uF	20%	50V
C209	1-126-013-11	ELECT	1000uF	20%	16V
C210	1-126-013-11	ELECT	1000uF	20%	16V
C211	1-126-024-11	ELECT	220uF	20%	16V
C213	1-164-159-11	CERAMIC	0.1uF		50V

C214	1-126-024-11	ELECT	220uF	20%	16V
C215	1-125-622-11	CAP, DOUBLE LAYERS	0.10F		
C216	1-126-012-11	ELECT	470uF	20%	16V
C218	1-124-994-11	ELECT	100uF	20%	10V
C220	1-164-159-11	CERAMIC	0.1uF		50V

C221	1-162-286-31	CERAMIC	220PF	10%	50V
C225	1-130-491-00	MYLAR	0.047uF	5%	50V
C226	1-124-994-11	ELECT	100uF	20%	10V
C227	1-124-997-11	ELECT	470uF	20%	10V
C228	1-130-491-00	MYLAR	0.047uF	5%	50V

C229	1-124-994-11	ELECT	100uF	20%	10V
C231	1-164-159-11	CERAMIC	0.1uF		50V
C302	1-164-159-11	CERAMIC	0.1uF		50V
C303	1-124-994-11	ELECT	100uF	20%	10V
C305	1-164-159-11	CERAMIC	0.1uF		50V

C306	1-164-159-11	CERAMIC	0.1uF		50V
C307	1-136-161-00	FILM	0.047uF	5%	50V
C308	1-161-374-11	CERAMIC	0.0015uF	20%	50V
C309	1-162-306-11	CERAMIC	0.01uF	20%	16V
C310	1-126-043-11	ELECT	0.47uF	20%	50V

C311	1-126-163-11	ELECT	4.7uF	20%	50V
C312	1-162-290-31	CERAMIC	470PF	10%	50V
C313	1-124-994-11	ELECT	100uF	20%	10V
C314	1-136-165-00	FILM	0.1uF	5%	50V
C315	1-124-994-11	ELECT	100uF	20%	10V

Ref. No.	Part No.	Description	Remark
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C317	1-136-165-00	FILM	0.1uF 5% 50V
C318	1-136-165-00	FILM	0.1uF 5% 50V
C319	1-162-208-31	CERAMIC	24PF 5% 50V
C321	1-164-159-11	CERAMIC	0.1uF 50V
C332	1-162-205-31	CERAMIC	18PF 5% 50V

C501	1-136-165-00	FILM	0.1uF 5% 50V
C502	1-136-165-00	FILM	0.1uF 5% 50V
C503	1-124-994-11	ELECT	100uF 20% 10V
C504	1-124-994-11	ELECT	100uF 20% 10V
C505	1-136-165-00	FILM	0.1uF 5% 50V

C506	1-124-994-11	ELECT	100uF 20% 10V
C507	1-136-165-00	FILM	0.1uF 5% 50V
C508	1-136-165-00	FILM	0.1uF 5% 50V
C509	1-124-994-11	ELECT	100uF 20% 10V
C510	1-136-165-00	FILM	0.1uF 5% 50V

C511	1-124-994-11	ELECT	100uF 20% 10V
C512	1-136-165-00	FILM	0.1uF 5% 50V
C513	1-162-199-31	CERAMIC	10PF 5% 50V
C514	1-162-199-31	CERAMIC	10PF 5% 50V
C531	1-162-288-31	CERAMIC	330PF 10% 50V

C532	1-162-282-31	CERAMIC	100PF 10% 50V
C533	1-162-282-31	CERAMIC	100PF 10% 50V
C534	1-130-472-00	MYLAR	0.0012uF 5% 50V
C535	1-106-359-00	MYLAR	4700PF 5% 200V
C536	1-126-051-11	ELECT	47uF 20% 50V

C537	1-162-294-31	CERAMIC	0.001uF 10% 50V
C538	1-162-294-31	CERAMIC	0.001uF 10% 50V
C540	1-126-012-11	ELECT	470uF 20% 16V
C541	1-126-012-11	ELECT	470uF 20% 16V
C631	1-162-288-31	CERAMIC	330PF 10% 50V

C632	1-162-282-31	CERAMIC	100PF 10% 50V
C633	1-162-282-31	CERAMIC	100PF 10% 50V
C634	1-130-472-00	MYLAR	0.0012uF 5% 50V
C635	1-106-359-00	MYLAR	4700PF 5% 200V
C636	1-126-051-11	ELECT	47uF 20% 50V

C637	1-162-294-31	CERAMIC	0.001uF 10% 50V
C638	1-162-294-31	CERAMIC	0.001uF 10% 50V
C640	1-126-012-11	ELECT	470uF 20% 16V
C641	1-126-012-11	ELECT	470uF 20% 16V

< CONNECTOR >

CN220	* 1-580-230-11	PIN, CONNECTOR (PC BOARD) 3P
CN356	* 1-568-837-11	SOCKET, CONNECTOR 20P
CN357	* 1-564-711-11	PIN, CONNECTOR (SMALL TYPE) 9P
CN359	* 1-568-822-11	SOCKET, CONNECTOR 22P
CN360	* 1-568-955-11	PIN, CONNECTOR 6P

MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
< DIODE >							
D201	8-719-200-02	DIODE 10E2		Q208	8-729-140-96	TRANSISTOR 2SD774-34	
D202	8-719-200-02	DIODE 10E2		Q209	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D203	8-719-200-02	DIODE 10E2		Q210	8-729-111-67	TRANSISTOR 2SB1094-L	
D204	8-719-200-02	DIODE 10E2		Q215	8-729-900-80	TRANSISTOR DTC114ES	
D205	8-719-200-02	DIODE 10E2		Q216	8-729-900-80	TRANSISTOR DTC114ES	
D206	8-719-912-20	DIODE 1SS120		Q217	8-729-216-13	TRANSISTOR 2SK161GR	
D207	8-719-109-85	DIODE RD5. 1ES-B2		Q218	8-729-905-67	TRANSISTOR 2SD1944-K	
D209	8-719-110-08	DIODE RD8. 2ES-B2		Q222	8-729-900-80	TRANSISTOR DTC114ES	
D210	8-719-912-20	DIODE 1SS120		Q223	8-729-119-76	TRANSISTOR 2SA1175-HFE	
D211	8-719-110-08	DIODE RD8. 2ES-B2		Q224	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D212	8-719-114-27	DIODE RD4. 7JS-B3		Q323	8-729-900-80	TRANSISTOR DTC114ES	
D214	8-719-210-21	DIODE 11EQS04		Q501	8-729-900-61	TRANSISTOR DTA114ES	
D225	8-719-934-31	DIODE HZS36-3L		Q502	8-729-201-05	TRANSISTOR 2SC2878-B	
D322	8-719-912-20	DIODE 1SS120		Q503	8-729-900-74	TRANSISTOR DTC143TS	
D501	8-719-912-20	DIODE 1SS120		Q504	8-729-900-74	TRANSISTOR DTC143TS	
D513	8-719-114-27	DIODE RD4. 7JS-B3		Q601	8-729-900-61	TRANSISTOR DTA114ES	
D601	8-719-912-20	DIODE 1SS120		Q602	8-729-201-05	TRANSISTOR 2SC2878-B	
< IC >				Q603	8-729-900-74	TRANSISTOR DTC143TS	
IC201	8-759-630-21	IC M5290P-16		Q604	8-729-900-74	TRANSISTOR DTC143TS	
IC325	8-759-512-81	IC LH5160N-10L		< RESISTOR >			
IC326	8-759-962-08	IC BA6208		R201	1-249-425-11	CARBON 4.7K 5% 1/4W	
IC327	8-759-635-50	IC M37450M8-372FP		R202	1-249-425-11	CARBON 4.7K 5% 1/4W	
IC328	8-752-337-26	IC CXD2500AQ		R203	1-249-424-11	CARBON 3.9K 5% 1/4W	
IC329	8-759-917-18	IC SN74HCU04AN		R204	△ 1-212-869-00	FUSIBLE 33 5% 1/4W F	
IC350	8-749-921-20	IC T-1550		R205	1-249-435-11	CARBON 33K 5% 1/4W	
IC501	8-752-335-53	IC CXD2552Q-3		R206	1-249-413-11	CARBON 470 5% 1/4W	
IC502	8-752-328-61	IC CXD1244S		R207	1-249-429-11	CARBON 10K 5% 1/4W	
IC503	8-752-339-86	IC CXD2557M		R208	1-249-425-11	CARBON 4.7K 5% 1/4W	
IC504	8-759-982-03	IC RC5532DD		R209	1-249-437-11	CARBON 47K 5% 1/4W	
IC505	8-759-981-85	IC RC4556D		R213	1-249-417-11	CARBON 1K 5% 1/4W	
IC604	8-759-982-03	IC RC5532DD		R214	1-249-417-11	CARBON 1K 5% 1/4W	
< JACK >				R215	1-249-429-11	CARBON 10K 5% 1/4W	
J361	* 1-569-443-11	JACK, PIN 4P		R216	1-249-417-11	CARBON 1K 5% 1/4W	
< COIL >				R219	1-249-393-11	CARBON 10 5% 1/4W	
L320	1-408-403-00	INDUCTOR 3.3uH		R220	1-249-405-11	CARBON 100 5% 1/4W	
< TRANSISTOR >				R221	1-249-406-11	CARBON 120 5% 1/4W	
Q202	8-729-900-80	TRANSISTOR DTC114ES		R222	1-249-435-11	CARBON 33K 5% 1/4W	
Q203	8-729-900-61	TRANSISTOR DTA114ES		R223	1-249-429-11	CARBON 10K 5% 1/4W	
Q204	8-729-900-61	TRANSISTOR DTA114ES		R224	1-249-438-11	CARBON 56K 5% 1/4W	
Q206	8-729-111-67	TRANSISTOR 2SB1094-L		R225	1-249-441-11	CARBON 100K 5% 1/4W	
Q207	8-729-140-96	TRANSISTOR 2SD774-34		R301	1-249-411-11	CARBON 330 5% 1/4W	
				R302	1-249-429-11	CARBON 10K 5% 1/4W	
				R304	1-249-429-11	CARBON 10K 5% 1/4W	
				R305	1-249-429-11	CARBON 10K 5% 1/4W	
				R306	1-249-429-11	CARBON 10K 5% 1/4W	

Note:

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

Note:

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

MAIN	P.SW	REMOTE
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Ref. No.	Part No.	Description	Remark
R307	1-249-429-11	CARBON	10K 5% 1/4W
R308	1-249-429-11	CARBON	10K 5% 1/4W
R309	1-249-429-11	CARBON	10K 5% 1/4W
R310	1-249-429-11	CARBON	10K 5% 1/4W
R311	1-249-429-11	CARBON	10K 5% 1/4W
R312	1-249-429-11	CARBON	10K 5% 1/4W
R313	1-249-429-11	CARBON	10K 5% 1/4W
R314	1-249-429-11	CARBON	10K 5% 1/4W
R315	1-249-429-11	CARBON	10K 5% 1/4W
R316	1-249-429-11	CARBON	10K 5% 1/4W
R317	1-249-429-11	CARBON	10K 5% 1/4W
R318	1-249-429-11	CARBON	10K 5% 1/4W
R319	1-247-903-00	CARBON	1M 5% 1/4W
R320	1-249-417-11	CARBON	1K 5% 1/4W
R321	1-249-417-11	CARBON	1K 5% 1/4W
R322	1-249-417-11	CARBON	1K 5% 1/4W
R323	1-249-417-11	CARBON	1K 5% 1/4W
R324	1-249-417-11	CARBON	1K 5% 1/4W
R325	1-249-417-11	CARBON	1K 5% 1/4W
R329	1-249-411-11	CARBON	330 5% 1/4W
R330	1-249-417-11	CARBON	1K 5% 1/4W
R331	1-249-417-11	CARBON	1K 5% 1/4W
R332	1-249-417-11	CARBON	1K 5% 1/4W
R333	1-249-441-11	CARBON	100K 5% 1/4W
R334	1-249-429-11	CARBON	10K 5% 1/4W
R335	1-249-423-11	CARBON	3.3K 5% 1/4W
R336	1-249-423-11	CARBON	3.3K 5% 1/4W
R337	1-249-429-11	CARBON	10K 5% 1/4W
R339	1-249-409-11	CARBON	220 5% 1/4W
R341	1-249-413-11	CARBON	470 5% 1/4W
R342	1-249-417-11	CARBON	1K 5% 1/4W
R343	1-249-415-11	CARBON	680 5% 1/4W
R344	1-249-415-11	CARBON	680 5% 1/4W
R345	1-249-415-11	CARBON	680 5% 1/4W
R346	1-249-415-11	CARBON	680 5% 1/4W
R347	1-249-417-11	CARBON	1K 5% 1/4W
R348	1-249-428-11	CARBON	8.2K 5% 1/4W
R349	1-249-436-11	CARBON	39K 5% 1/4W
R350	1-249-428-11	CARBON	8.2K 5% 1/4W
R351	1-249-436-11	CARBON	39K 5% 1/4W
R501	1-215-443-00	METAL	8.2K 1% 1/6W
R502	1-215-436-00	METAL	4.3K 1% 1/6W
R503	1-215-443-00	METAL	8.2K 1% 1/6W
R504	1-215-436-00	METAL	4.3K 1% 1/6W
R505	1-215-451-00	METAL	18K 1% 1/6W
R506	1-215-451-00	METAL	18K 1% 1/6W
R507	1-249-419-11	CARBON	1.5K 5% 1/4W
R508	1-249-419-11	CARBON	1.5K 5% 1/4W
R509	1-249-409-11	CARBON	220 5% 1/4W

Ref. No.	Part No.	Description	Remark
R510	1-247-891-00	CARBON	330K 5% 1/4W
R511	1-249-409-11	CARBON	220 5% 1/4W
R512	1-249-393-11	CARBON	10 5% 1/4W
R513	1-249-409-11	CARBON	220 5% 1/4W
R515	1-249-409-11	CARBON	220 5% 1/4W
R518	1-249-435-11	CARBON	33K 5% 1/4W
R519	1-249-435-11	CARBON	33K 5% 1/4W
R520	1-249-425-11	CARBON	4.7K 5% 1/4W
R521	1-249-435-11	CARBON	33K 5% 1/4W
R523	1-247-848-11	CARBON	5.1K 5% 1/4W
R524	1-249-405-11	CARBON	100 5% 1/4W
R601	1-215-443-00	METAL	8.2K 1% 1/6W
R602	1-215-436-00	METAL	4.3K 1% 1/6W
R603	1-215-443-00	METAL	8.2K 1% 1/6W
R604	1-215-436-00	METAL	4.3K 1% 1/6W
R605	1-215-451-00	METAL	18K 1% 1/6W
R606	1-215-451-00	METAL	18K 1% 1/6W
R607	1-249-419-11	CARBON	1.5K 5% 1/4W
R608	1-249-419-11	CARBON	1.5K 5% 1/4W
R609	1-249-409-11	CARBON	220 5% 1/4W
R610	1-247-891-00	CARBON	330K 5% 1/4W
R611	1-249-409-11	CARBON	220 5% 1/4W
R612	1-249-393-11	CARBON	10 5% 1/4W
R613	1-249-409-11	CARBON	220 5% 1/4W
R615	1-249-409-11	CARBON	220 5% 1/4W
R618	1-249-435-11	CARBON	33K 5% 1/4W
R619	1-249-435-11	CARBON	33K 5% 1/4W
R620	1-249-425-11	CARBON	4.7K 5% 1/4W
R621	1-249-435-11	CARBON	33K 5% 1/4W

< CRYSTAL >

X355 1-579-175-11 VIBRATOR, CERAMIC
X501 1-579-161-11 VIBRATOR, CRYSTAL

* 1-637-071-11 P. SW BOARD

< SWITCH >

S475 1-554-118-00 SWITCH, PUSH (1 KEY) (POWER)

* 1-637-069-11 REMOTE CONTROL BOARD

< CAPACITOR >

C405 1-164-159-11 CERAMIC 0.1uF 50V

REMOTE

Ref. No.	Part No.	Description	Remark
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< CONNECTOR >

CN477	* 1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P	
CN478	* 1-568-955-11	PIN, CONNECTOR 6P	

< VARIABLE RESISTOR >

RV405	1-241-304-11	RES, VAR, CARBON 10KX3 (LINE OUT, PHONE LEVEL)	
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MISCELLANEOUS

19	1-535-874-11	JUMPER, FILM (WITH TERMINAL)	
20	1-590-217-11	WIRE, FLAT TYPE (20 CORE)	
60	△ 1-558-945-21	CORD, POWER (POLAR. SPT-1) (US, Canadian)	
	△ 1-558-946-21	CORD, POWER (POLAR. SPT-1) (UK)	
	△ 1-574-358-31	CORD, POWER (WITH CONNECTOR) (AUS)	
	△ 1-575-651-21	CORD, POWER (AEP)	
	△ 1-575-653-21	CORD, POWER (E)	
64	1-575-002-11	WIRE, FLAT TYPE (22 CORE)	
69	△ 1-569-007-11	ADAPTOR, CONVERSION 2P (E)	
311	* 1-452-538-11	MAGNET	
355	△ 8-848-144-11	DEVICE, OPTICAL KSS-240A	
358	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
M101	X-4917-504-1	MOTOR ASSY (SLED)	
M191	A-4604-363-A	MOTOR (L) ASSY	
S221	△ 1-571-722-11	SWITCH, VOLTAGE SELECTION (VOLTAGE SELECTOR) (E)	
T201	△ 1-449-921-11	TRANSFORMER, POWER (US, Canadian)	
	△ 1-449-922-11	TRANSFORMER, POWER (AEP, UK, AUS)	
	△ 1-449-923-11	TRANSFORMER, POWER (E)	

ACCESSORY & PACKING MATERIAL

	1-465-593-11	COMMANDER, REMOTE (RM-D991)	
	1-559-533-11	CORD, CONNECTION	
*	3-704-343-01	SHEET (STANDARD), PROTECTION	
	3-707-584-01	COVER, BATTERY (for RM-D991)	
	3-752-357-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, PORTUGUESE) (Canadian, AEP, UK, E)	
	3-752-357-21	MANUAL, INSTRUCTION (ENGLISH) (US, AUS)	
	3-752-357-41	MANUAL, INSTRUCTION (GERMAN, DUTCH, SWEDISH, ITALIAN) (AEP)	
*	3-795-629-11	INSTRUCTION (AEP)	
*	4-934-088-01	CUSHION	
*	4-942-117-11	INDIVIDUAL CARTON	

Ref. No.	Part No.	Description	Remark
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HARDWARE LIST

# 1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
# 2	7-682-548-09	SCREW +BVTT 3X8 (S)	
# 3	7-685-870-01	SCREW +BVTT 3X5 (S)	
# 4	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
# 5	7-682-548-04	SCREW +BVTT 3X8 (S)	
# 6	7-621-775-10	SCREW +B 2.6X4	
# 7	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	
# 8	7-621-255-15	SCREW +P 2X3	

Note:

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

Note:

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

CDP-991

SONY[®] SERVICE MANUAL

*US Model
Canadian Model
AEP Model
UK Model
E Model
Australian Model*

SUPPLEMENT-1

File this supplement with the service manual.

Pin Function

Subject : IC PIN DESCRIPTION.

IC401 MASTER CONTROLLER (MSC62408-015GS-V1K)

IC327 MECHANISM CONTROLLER (M37450M8-372FP)

COMPACT DISC PLAYER
SONY[®]

● IC401 MASTER CONTROLLER (MSC62408-015GS-V1K)

In charge of displaying the FL tube, keying in and remote control signal input, data exchanges with the IC327 (mechanism controller) in 4-bit parallel mode.

Pin No.	Pin Name	I / O	Description	Connect to the following parts.
2	TIMER	I	Timer switch input. "H" : PLAY, "L" : OFF	S476
3 - 9	KEY0 - 6	I	Key matrix input.	KEY MATRIX
10 - 13	CMD0 - 3	I/O	Control command I/O terminals	IC327
14	M. REQ	O	Command request input to mechanism controller	IC327
15	S. ACK	I	Data transfer acknowledge signal input	IC327
16	M/F	I/O	Command select I/O terminal	IC327
17	RMIN	I	Remote control signal input	IC412
18	-	-	Not used (GND)	
19	Q. INT	O	Interrupt output. The pulse proceed when mechanism controller (IC327) received the data.	IC327
20	RESET	I	Reset input. "L" : reset	IC201 (POWER)
21	TEST	I	Not used (GND)	
22	BUS OUT	O	Not used (open)	
23	TEST	I	Not used (pull up)	
24	INDEX	O	Panel LED ON/OFF control output. "H" : LED ON	Q403 - 408 (D408 - 412)
25	PGM	O		
26	SHUF	O		
27	CONT	O		
28	PAUSE	O		
29	PLAY	O		
30	OSCI	I	Clock input (4.19MHz)	X411
31	OSCO	O	Clock output	X411
32	GND	-	Ground	
33 - 44	T0 - 11	O	Output port for grid of FL tube.	FLD401
45	N. C	-	Not used (open)	
46 - 48	S1 - 3	O	Output port for segment of FL tube.	FLD401
49	VFLT	-	Power supply port for built-in FL tube controller. (+37V)	
50 - 73	S4 - 27	O	Output port for segment of FL tube.	FLD401
74	VDD	-	Power supply port (+5V)	
75 - 80	SCAN0 - 5	O	Key scan output	KEY MATRIX

● IC327 MECHANISM CONTROLLER (M37450M8-372FP)

Functions effected by the captioned controller include IC101 (RF signal processing, servo), IC328 (DSP), IC330 (digital filter, custom file), loading control and volume motor control, data exchange with IC401 (master controller).

Pin No.	Pin Name	I / O	Description	Connect to the following parts.
1	NC	—	Not used (open)	IC101 (SSP) IC401
2	DIRCON	—	Not used (open)	
3	CNIN	I	Signal input for track jump count.	
4	QINT	O	Interrupt output, the pulse output's when the data proceed to master controller	
5	M/F	I/O	Command select I/O terminal. Custom file data : "L" Subcode data : "H"	
6	SACK	O	Data transfer acknowledge signal output. The pulse output's when the data received.	IC401
7	MREQ	I	Command request input from master controller.	IC401
8 - 11	CMD3 - 0	I/O	Control command I/O.	IC401
12	CLK	O	Data transfer clock output.	IC328 (DSP), IC101 (SSP)
13	XLT	O	Serial data latch signal output.	IC328 (DSP), IC101 (SSP)
14	DATA	O	Serial data output	IC328 (DSP), IC101 (SSP)
15	ATT (DATA)	O	Serial data output for attenuate control	IC330 (D/F)
16	SHIFT (CLK)	O	Data transfer clock output	IC502
17	LATCH	O	Data latch signal output	IC502
18	LDON	O	Laser diode ON/OFF select output of optical pick-up. "H" : ON	IC101 (SSP)
19	SCOR	±	Subcode sync signal S0 + S1 detection input.	IC328 (DSP)
20	WR	O	} Not used (open)	
21	RD	O		
22	R/W	O		
23	SYNC	O		
24	RESET OUT	O	} Operation mode control signal input of processor.	IC201 (POWER)
25	CN Vss	I		
26	RESET	I		
27	NC	—		
28	XIN	I		
29	XOUT	O	Clock output	X355
30, 31	NC	—	Not used (open)	IC328 (DSP)
32	Vss	—	Power supply (GND)	
33	AMUTE	O	Analog muting control output. Not in use with this model (pull up)	
34	MUTE	O	Muting control output. "H" : Mute	
35	WE	O	Write enable output to custom file memory.	
36 - 40	A12 - 8	O	Address bus output to custom file memory.	IC325 (RAM)
41	NC	—	Not used (open)	IC325 (RAM)
42 - 49	A7 - 0	O	Address bus output to custom file memory.	

Pin No.	Pin Name	I/O	Description	Connect to the following parts.
50 - 57	D7 - 0	I/O	Address bus I/O to custom file memory.	IC325 (RAM)
58	SENS	I	SENS input	IC101 (SSP), IC328 (DSP)
59	GFS	I	Frame sync signal clock status input. "H" : OK	IC328 (DSP)
60	FOK	I	Focus OK signal input	IC101 (SSP)
61	ADJ	I	Test mode input. Upon "L", GFS checking is disabled while continuously rotating the spindle no matter whether frame sync is issued during PLAY, PAUSE or SEARCH and it is not effected the focus gain down.	
62	AFADJ	I	Test mode input. Various test operations are effected upon "L" after turning ON the POWER.	
63	INSW	I	Loading in switch input. Disc table closed : "L".	S001
64	OUT SW	I	Loading out switch input. Disc table opened : "L".	S002
65	V LEVEL	I	Location detector input (analog) of phone level volume.	RV405
66	VOL UP	O	Volume motor control output. Volume up : "H" *1	IC326 (RV405)
67	VOL DWN	O	Volume motor control output. Volume down : "L" *1	IC326 (RV405)
68	D/A Vref	I	D/A converter reference voltage input (+5V).	
69	A/D Vref	I	A/D converter reference voltage input (+5V).	
70	AVss	-	Analog power supply (GND)	
71	AVcc	-	Analog power supply (+5V)	
72	Vcc	-	Power supply (+5V)	
73	Vss	-	Power supply (GND)	
74	DFCT SW	O	ON/OFF selector output for DEFECT circuit. The disc flaw detection circuit is turned off ("H") when focus search.	IC101 (SSP)
75	SQ CLK		Subcode Q data readout clock output.	IC328 (DSP)
76	VOL LED	O	Volume LED ON/OFF control output. "H" : LED ON	Q323 (RV405)
77	SUBQ	I	Subcode Q data input.	IC328 (DSP)
78	LOD IN	O	Output to rotate the loading motor in the loading out direction. *2	IC103 (M001)
79	LOD OUT	O	Output to rotate the loading motor in the loading in direction. *2	IC103 (M001)
80	NC	-	Not used (open)	

*1 Volume motor control

	UP	DOWN	BRAKE
VOL UP ⑥⑥	H	L	H
VOL DOWN ⑥⑦	L	H	H

*2 Loading motor control

	IN	OUT	BRAKE
LOD IN ⑦⑧	H	L	H
LOD OUT ⑦⑨	L	H	H