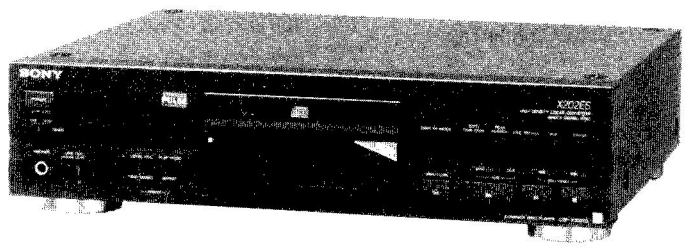
CDP-X202ES

SERVICE MANUAL

F010

US Model
Canadian Model
AEP Model
E Model
Australian Model



Model Name Using Similar Mechanism	NEW
CD Mechanism Type	CDM25-5BD10
Optical Pick-up Block Type	BU-5BD10B

SPECIFICATIONS

Compact disc player

Laser	Semiconductor laser
Wavelength	780-790 nm
Frequency response	2 Hz to 20 kHz ±0.3 dB
Signal-to-noise ratio	More than 116 dB
Dynamic range	More than 100 dB
Harmonic distortion	Less than 0.0023 %
Channel separation	More than 110 dB

Outputs

LINE OUT (FIXED)	Output level 2 V (at 50 kilo-ohms) Load impedance over 10 kilo-ohms
LINE OUT (VARIABLE)	Output level max. 2 V (at 50 kilo-ohms) Load impedance over 50 kilo-ohms
DIGITAL OUT (OPTICAL)	Wave length 660 nm Output level –18 dBm
PHONES (stereo phone jack)	Output level max. 28 mW Load impedance 32 ohms

General

Power requirements	
Continental European model:	220 V – 230 V AC, 50/60 Hz
Canadian model:	120 V AC, 60 Hz
UK and Australian model:	240 V AC, 50 Hz
Other country models:	110 – 120 or 220 – 240 V AC, 50/60 Hz
Power consumption	16 W
Dimensions (approx., including projections)	430 x 110 x 340 mm (w/h/d) (17 x 4 $^{3}/_{8}$ x 13 $^{1}/_{2}$ inches)
Mass (approx.)	5.8 kg (12 lbs 13 oz)

Remote commander

Remote control system	Infrared control
Power requirements	3 V DC with two R6 (size AA) batteries
Dimensions (approx., including projections)	62 x 17 x 175 mm (w/h/d) (2 $^{1}/_{2}$ x $^{23}/_{32}$ x 7 inches)
Mass (approx.)	135 g (5 oz)

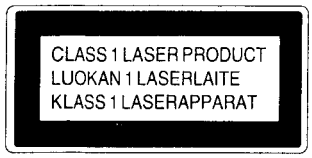
Design and specifications are subject to change without notice.

MICRO FILM

COMPACT DISC PLAYER

SONY®

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

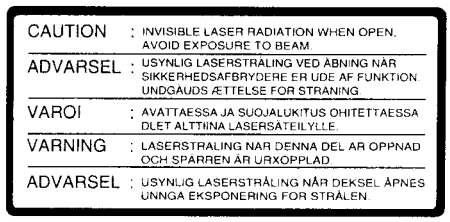


This Compact Disc player is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

The following caution label is located in the side of the unit.



For the customers in Canada

CAUTION

TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD. RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

THIS APPARATUS COMPLIES WITH THE CLASS B LIMITS FOR RADIO NOISE EMISSIONS SET OUT IN RADIO INTERFERENCE REGULATIONS.

TABLE OF CONTENTS

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 0.5mA (500 microampers). 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)

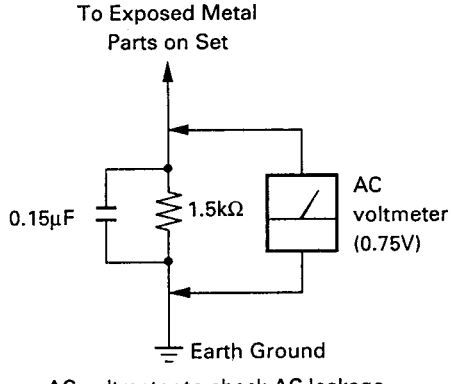
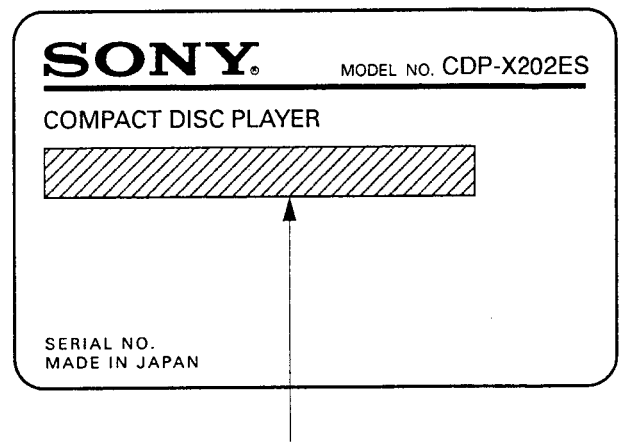


Fig. A. Using an AC voltmeter to check AC leakage.

MODEL IDENTIFICATION

– SPECIFICATION LABEL –



US, Canadian MODEL : AC120V, 60Hz, 16W
Australian MODEL : AC240V, 50Hz,
AEP Model : AC220 — 230V, 50/60Hz, 16W
E MODEL : AC110 — 120V, 220 — 240V, 50/60Hz, 16W

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.

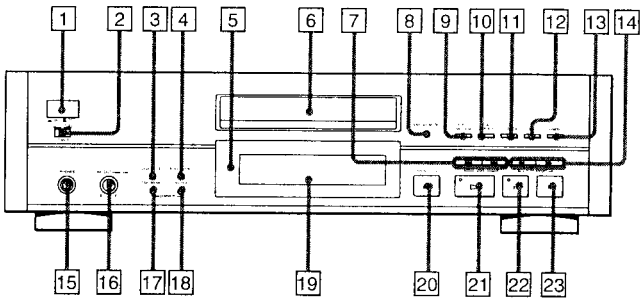
NOTES ON LASER DIODE EMISSION CHECK

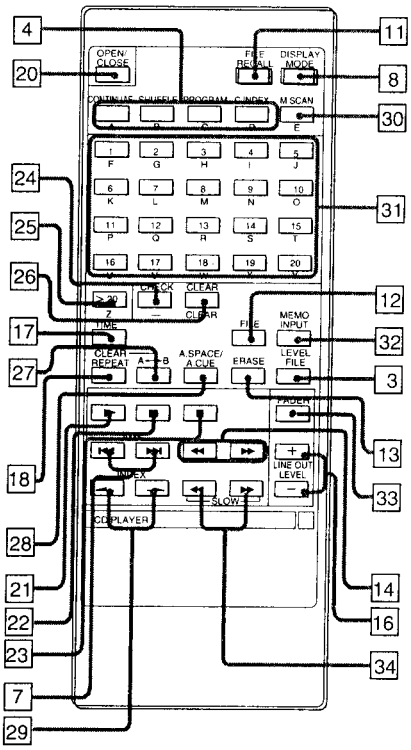
The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

SECTION 1
GENERAL

This section is extracted from instruction manual.

Identifying the Parts





Refer to the pages indicated in parentheses for details.

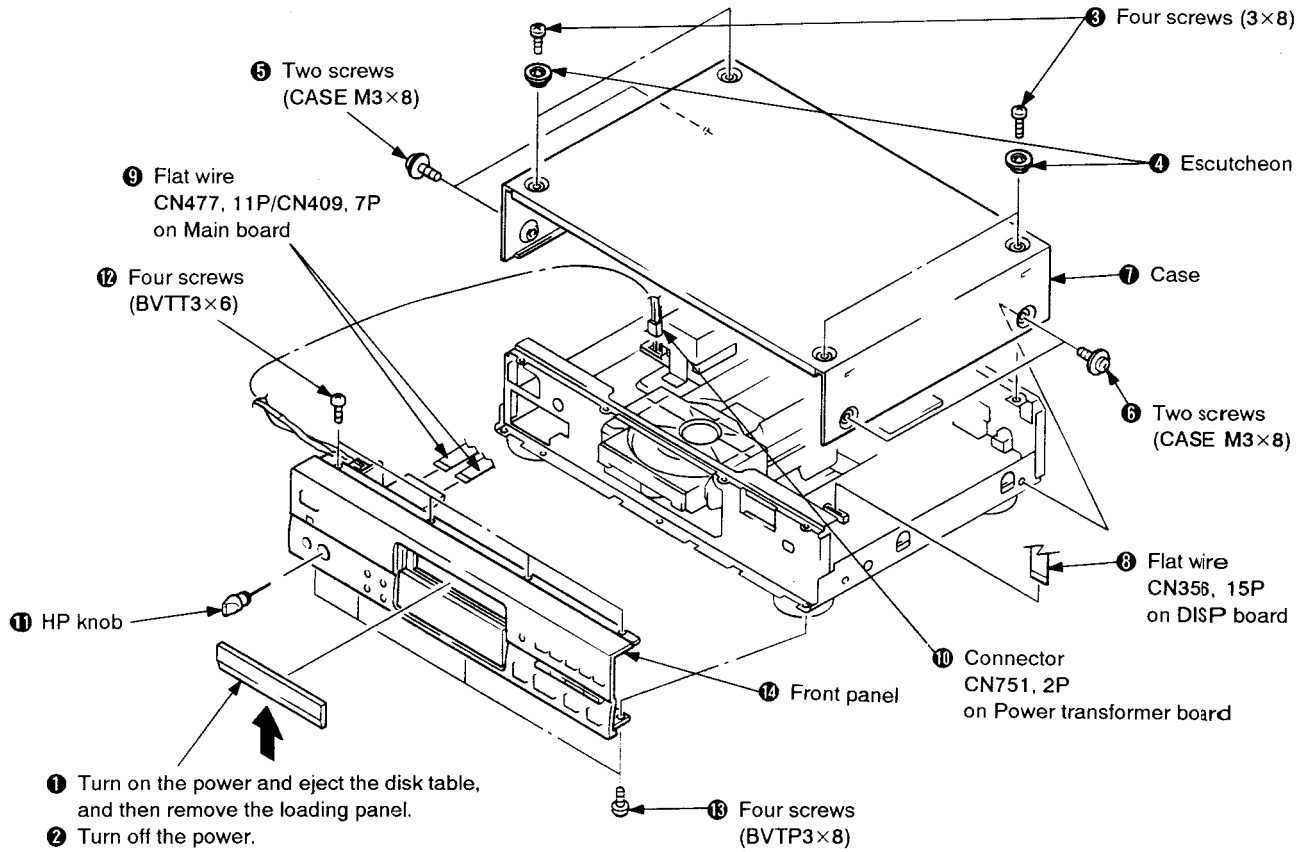
Front Panel/ Remote Commander

1 POWER switch (18)
2 TIMER switch (92)
3 LEVEL FILE button (90)
4 PLAY MODE button
On the remote commander:
CONTINUE button (18)
SHUFFLE button (28)
PROGRAM button (34, 48)
C.INDEX button (76)
5 Remote sensor
6 Disc tray
7 ⏮/⏭ (AMS*) buttons (22)
8 DISPLAY MODE button (20)
9 EDIT/TIME FADE button (58, 64)
10 PEAK SEARCH button (66)
11 FILE RECALL button (84, 88)
12 FILE (custom file) button (70, 74, 76, 82, 86)
13 ERASE button (80, 84, 88)
14 ◀◀/▶▶ (manual search) buttons (24)
15 PHONES jack (18)
16 LINE OUT/PHONE LEVEL control (18, 90)
(LINE OUT LEVEL +/– buttons on the remote commander)
17 TIME/MEMO button (20)
18 REPEAT button (40)
19 Display
20 ⏏ OPEN/CLOSE button (18)
21 ▶ (play) button and indicator (18)
22 ⏸ (pause) button and indicator (18)
23 ■ (stop) button (18)
24 CHECK (program check) button (36)
25 >20 button (22)
26 CLEAR button (30, 32, 34, 36)
27 A↔B button (42)
28 A.SPACE/A.CUE button (26)
29 ←—/—→ INDEX buttons (24, 78)
30 M.SCAN button (38)
31 Numeric buttons (22)
32 MEMO INPUT button (72)
33 FADER button (44)
34 ◀◀/▶▶ SLOW buttons (24)

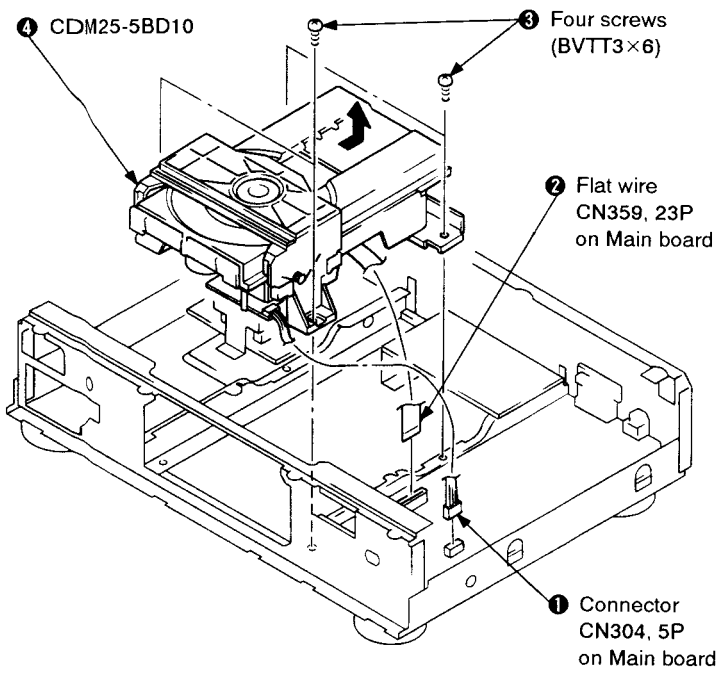
* AMS is the abbreviation of Automatic Music Sensor.

SECTION 2
DISASSEMBLY

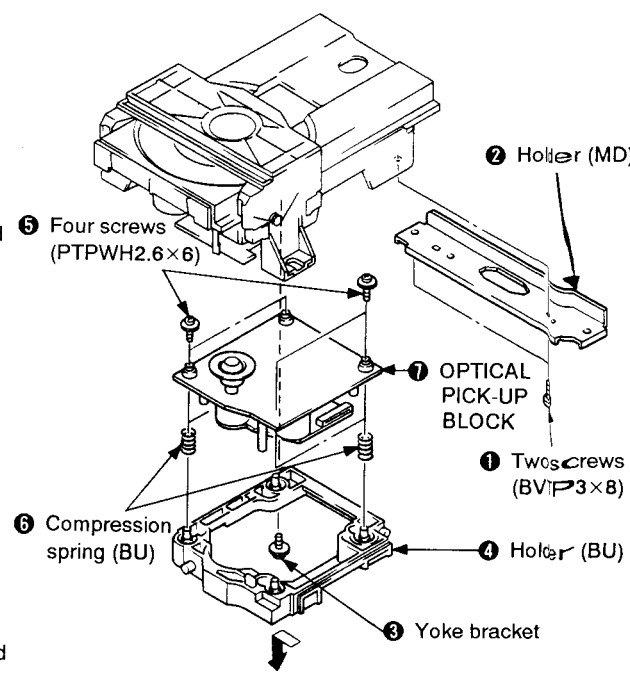
2-1. REMVAL OF FRONT PANEL AND CASE ASSEMBLIES



2-2. REMVAL OF CDM25-5BD10



2-3. REMVAL OF OPTICAL PICK-UP BLOCK ASSEMBLY

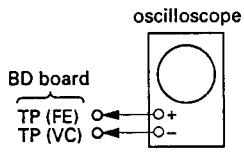


SECTION 3
ELECTRICAL BLOCK CHECKING

Note :

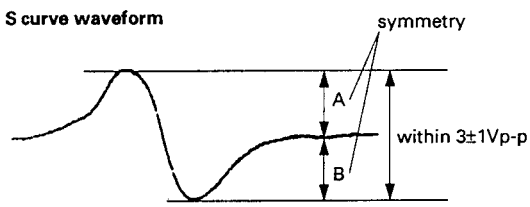
1. CD Block basically constructed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than 10MΩ impedance.
4. Clean an object lens by an applicator with neutral detergent when the signal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

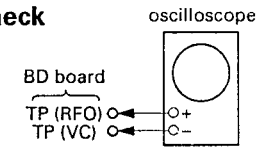


5. After check, remove the lead wire connected in step 2.

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

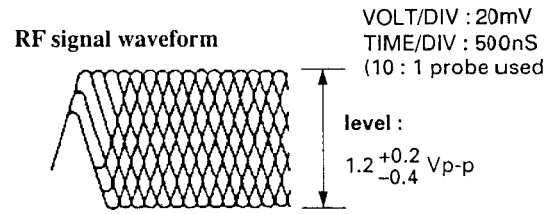


Procedure :

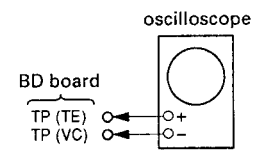
1. Connect oscilloscope to test point TP (RFO) on BD board.
2. Turn Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

Note :

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

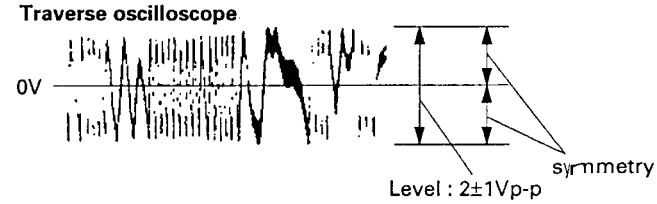


E-F Balance Check



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.

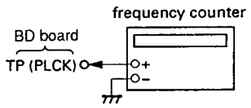


6. Remove the lead wire connected in step 1.

RF PLL Free-run Frequency Check

Procedure :

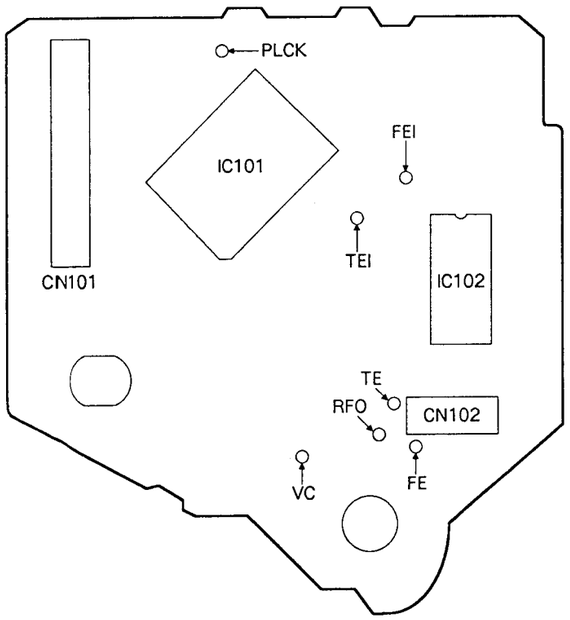
1. Connect frequency counter to test point (PLCK) with lead wire.



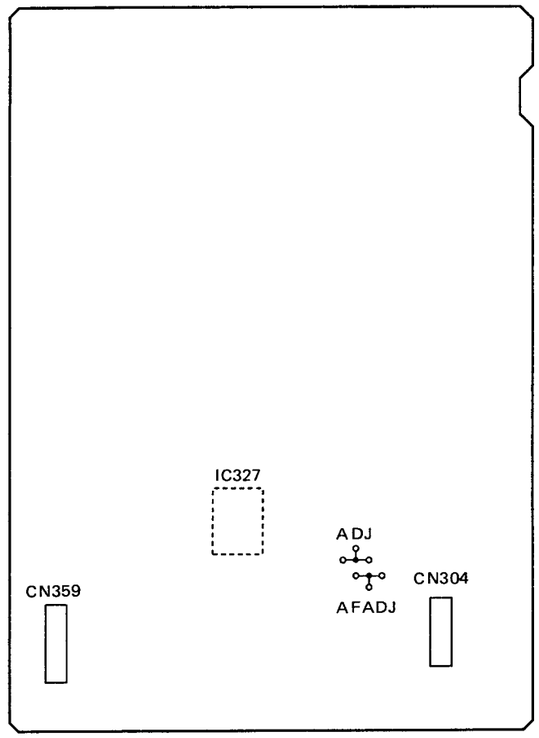
2. Turn Power switch on.
3. Confirm that reading on frequency counter is 4.3218MHz.

Checking Location :

[BD BOARD] – Conductor Side –



[MAIN BOARD] – Component Side –



SECTION 4
IC PIN FUNCTIONS

- **IC327 main system controller (M37451M8-334FP)**

Functions effected by the captioned controller include IC101 (RF signal processing, servo, DSP), and loading control in the CD unit, data exchange with IC801 (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 CXD2515Q (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 CXD2515Q (IC101)
13	XLT	O	Data latch pulse signal output to CXD2515Q (IC101)
14	DATA	O	Data signal output to CXD2515Q (IC101)
15	ATT	O	Attenuate data signal output to CXD2567M (IC301)
16	SHIFT	O	Attenuate data clock signal ouput to CXD2567M (IC301)
17	LATCH	O	Attenuate data latch pulse signal output to CXD2567M (IC301)
18	LDON	O	Laser diode ON/OFF signal output
19	SCOR	I	SCOR signal input from CXD2515Q (IC101)
20 – 24	N.C.	–	No connection
25	CNVSS	–	Power terminal (GND)
26	RESET	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 CXD2515Q (IC101)
59	GFS	I	GFS monitor input from CXD2515Q (IC101)
60	FOK	I	FOK monitor input from CXD2515Q (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 CXD2515Q (IC101)
75	SQCK	O	Read data sub code clock output to CXD2515Q (IC101)
76	VOLLED	O	Remote control volume LED output
77	SUBQ	I	Sub code data input to CXD2515Q (IC101)
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

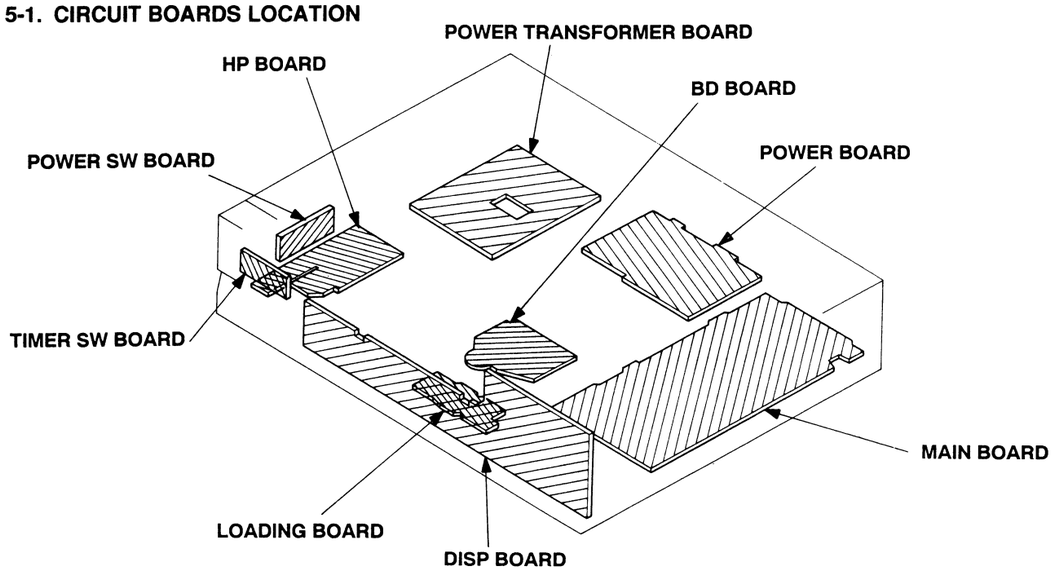
- **IC801 SUB-SYSTEM CONTROLLER (MSC62408-100GS-V1K)**

Exchanges data with IC327 (main system control microcomputer), controls display tube driving, performs key inputs/outputs, etc.

Pin No.	Pin Name	I/O	Description
1	SCAN6	O	Key scan control signal output. (No connection)
2	TIMER	I	Timer switch control input.
3 – 9	KEY0 – KEY6	I	Key inputs. (9 pin: Connected to the GND)
10 – 13	CMD0 – CMD3	I/O	Data exchange input/output pin with the main system control (IC327).
14	M.REQ	O	Command request output to the main system control (IC327)
15	S.ACK	I	Command acknowledge input from the main system control (IC327)
16	M/F	I/O	Master/file command select signal input/output pin with the main system control (IC327)
17	RMIN	I	Remote control signal input from the sensor (IC802) of the remote control.
18	997X/$\overline{ES}$	I	Model selecting port. Fixed at "H" in this unit.
19	Q.INT	I	Command pulse input from the main system control (IC327).
20	$\overline{RESET}$	I	Reset signal input. "L": RESET
21	TEST	I	Not used. Connected to the GND in this unit.
22	–	–	Non connection.
23	TEST	I	Test mode setting pin. Carries out various operation tests when "L" during POWER ON.
24 – 27	NC	–	Non connection.
28	PAUSE	O	Output for driving the PAUSE display LED.
29	PLAY	O	Output for driving the PLAY display LED.
30	OSC1	I	Clock input. (4.19MHz)
31	OSC0	O	Clock output.
32	VSS	–	GND pin.
33 – 34	T0 – T11	O	Grid driving output to the fluorescent display tube (FLD801).
45 – 48	S28 – S25	O	Segment driving output to the fluorescent display tube (FLD801).
49	VFLT	I	Voltage input pin (+35V) for the fluorescent display tube (FLD801).
50 – 73	S24 – S1	I	Segment driving output to the fluorescent display tube (FLD801).
74	VDD	–	Power supply pin. (+5V)
75 – 80	SCAN0 – SCAN5	O	Key scan control signal output. (78 to 80 pins:No connection)

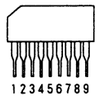
SECTION 5
DIAGRAMS

5-1. CIRCUIT BOARDS LOCATION

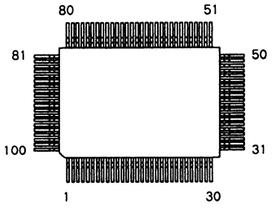


5-2. SEMICONDUCTOR LEAD LAYOUTS

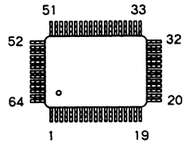
BA6208



CXD2515Q

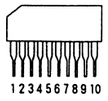


CXD2562Q

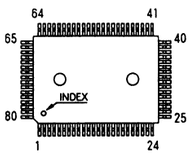


TOP VIEW

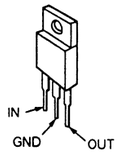
LB1641



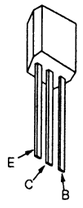
M37451M8-334FP
MSC62408-100GS-V1K



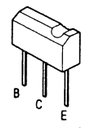
M5F78M07
TA78075-LC



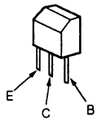
2SC2878-B
2SA1348-TP
2SA1345-TP
2SC3402-TP



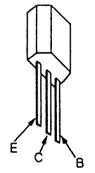
DTC114EL



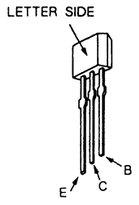
2SB734-34
2SD774-34



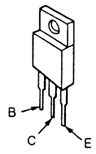
2SC2878-B



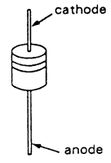
2SC3623A-LK



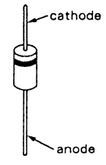
2SD1944-K



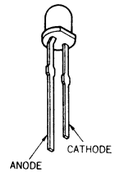
HZS36-3L
RD4.7ES-B3
RD5.1ES-B2
RD8.2ES-B2
11EQS04



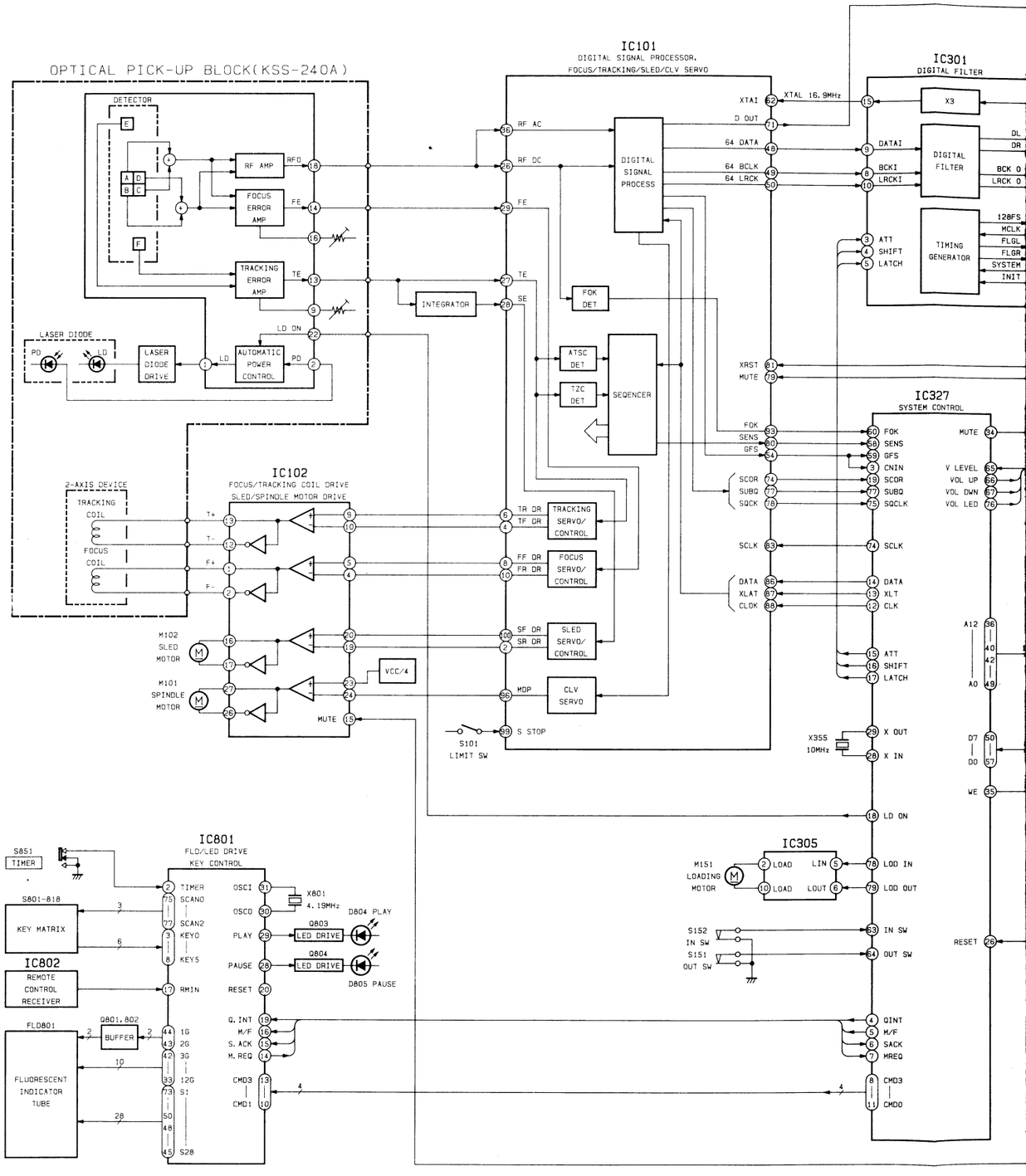
1N4148M
11E2



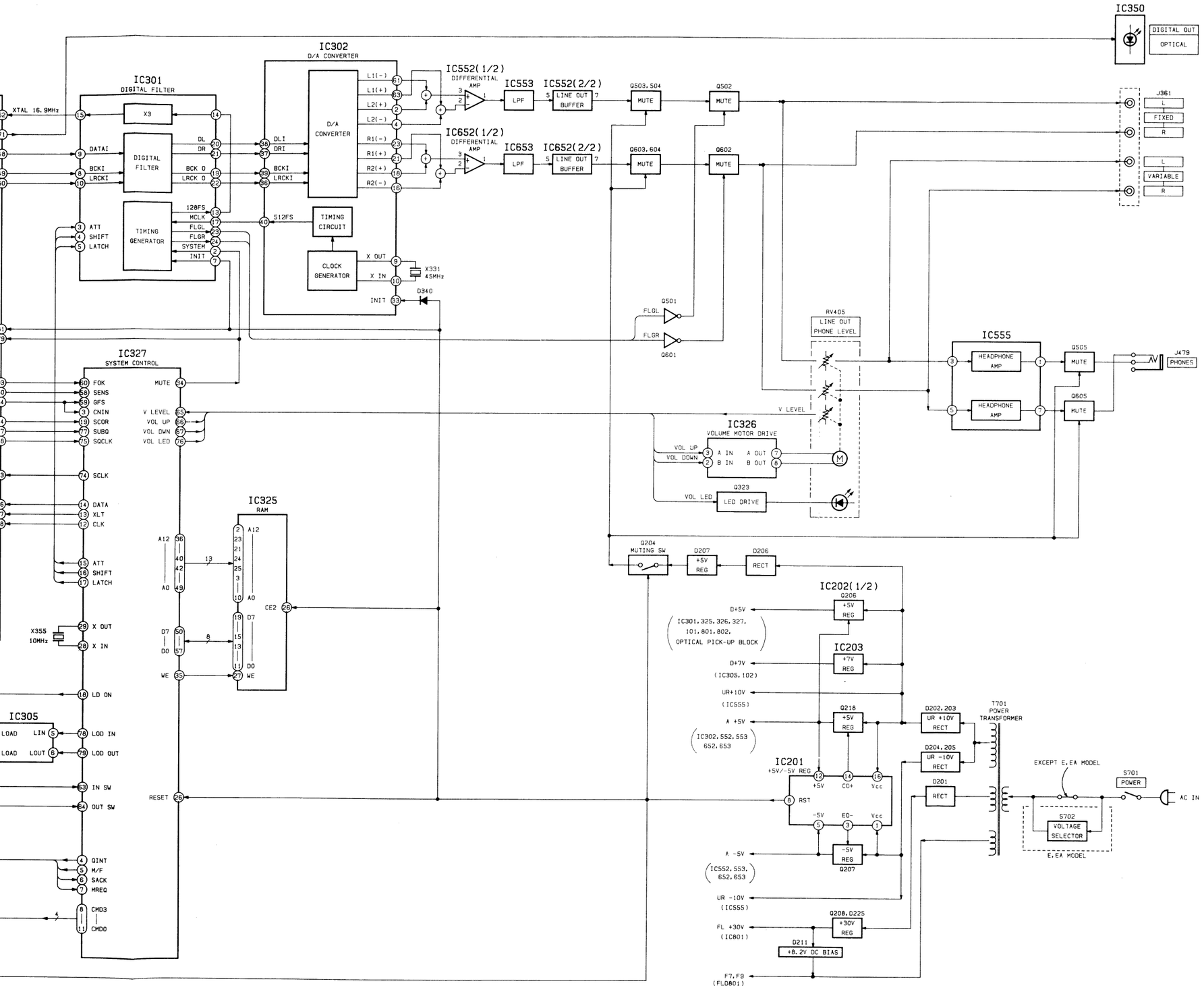
MAY3371X-M-177
MBG3371X-9.5



5-3. BLOCK DIAGRAM



09


IC350
DIGITAL OUT
OPTICAL
IC302
D/A CONVERTER
IC301
DIGITAL FILTER
XTAL 16.9MHz
X3
DATAI
BCKI
LRCKI
DIGITAL FILTER
DL
DR
BCK O
LRCK O
D/A CONVERTER
DLI
DRI
BCKI
LRCKI
L1(-)
L1(+)
L2(+)
L2(-)
R1(-)
R1(+)
R2(+)
R2(-)
IC552(1/2)
DIFFERENTIAL AMP
IC553
LPF
IC552(2/2)
LINE OUT BUFFER
Q503,504
MUTE
Q502
MUTE
IC652(1/2)
DIFFERENTIAL AMP
IC653
LPF
IC652(2/2)
LINE OUT BUFFER
Q603,604
MUTE
Q602
MUTE
J361
L
FIXED
R
L
VARIABLE
R
128FS
MCLK
FLGL
FLGR
SYSTEM
INIT
512FS
TIMING CIRCUIT
TIMING GENERATOR
ATT
SHIFT
LATCH
CLOCK GENERATOR
X OUT
X IN
X331
45MHz
INIT
D340
Q501
FLGL
FLGR
Q601
RV405
LINE OUT
PHONE LEVEL
IC555
HEADPHONE AMP
HEADPHONE AMP
Q505
MUTE
Q605
MUTE
J479
PHONES
IC327
SYSTEM CONTROL
FOK
SENS
GFS
CNIN
SCOR
SUBQ
SQCLK
MUTE
V LEVEL
VOL UP
VOL DWN
VOL LED
V LEVEL
IC326
VOLUME MOTOR DRIVE
VOL UP
VOL DOWN
A IN
B IN
A OUT
B OUT
Q323
VOL LED
LED DRIVE
SCLK
DATA
XLT
CLK
ATT
SHIFT
LATCH
X355
10MHz
X OUT
X IN
LD ON
IC305
LOAD
LIN
LOAD
LOUT
LOD IN
LOD OUT
IN SW
OUT SW
QINT
M/F
SACK
MREQ
CMD3
CMD0
IC325
RAM
A12
A0
CE2
D7
D0
WE
RESET
Q204
MUTING SW
D207
+5V REG
D206
RECT
IC202(1/2)
Q206
+5V REG
D+5V
(IC301,325,326,327, 101,801,802, OPTICAL PICK-UP BLOCK)
IC203
+7V REG
D+7V
(IC305,102)
UR+10V
(IC555)
Q218
+5V REG
A +5V
(IC302,552,553 652,653)
D202,203
UR +10V RECT
D204,205
UR -10V RECT
D201
RECT
T701
POWER TRANSFORMER
EXCEPT E,EA MODEL
S701
POWER
AC IN
S702
VOLTAGE SELECTOR
E,EA MODEL
IC201
+5V/-5V REG
+5V
CO+
Vcc
RST
-5V
EO-
Vcc
-5V REG
Q207
A -5V
(IC552,553, 652,653)
UR -10V
(IC555)
Q208,D225
+30V REG
FL +30V
(IC801)
D211
+8.2V DC BIAS
F7,F9
(FL0801)

5-4. PRINTED WIRING BOARDS

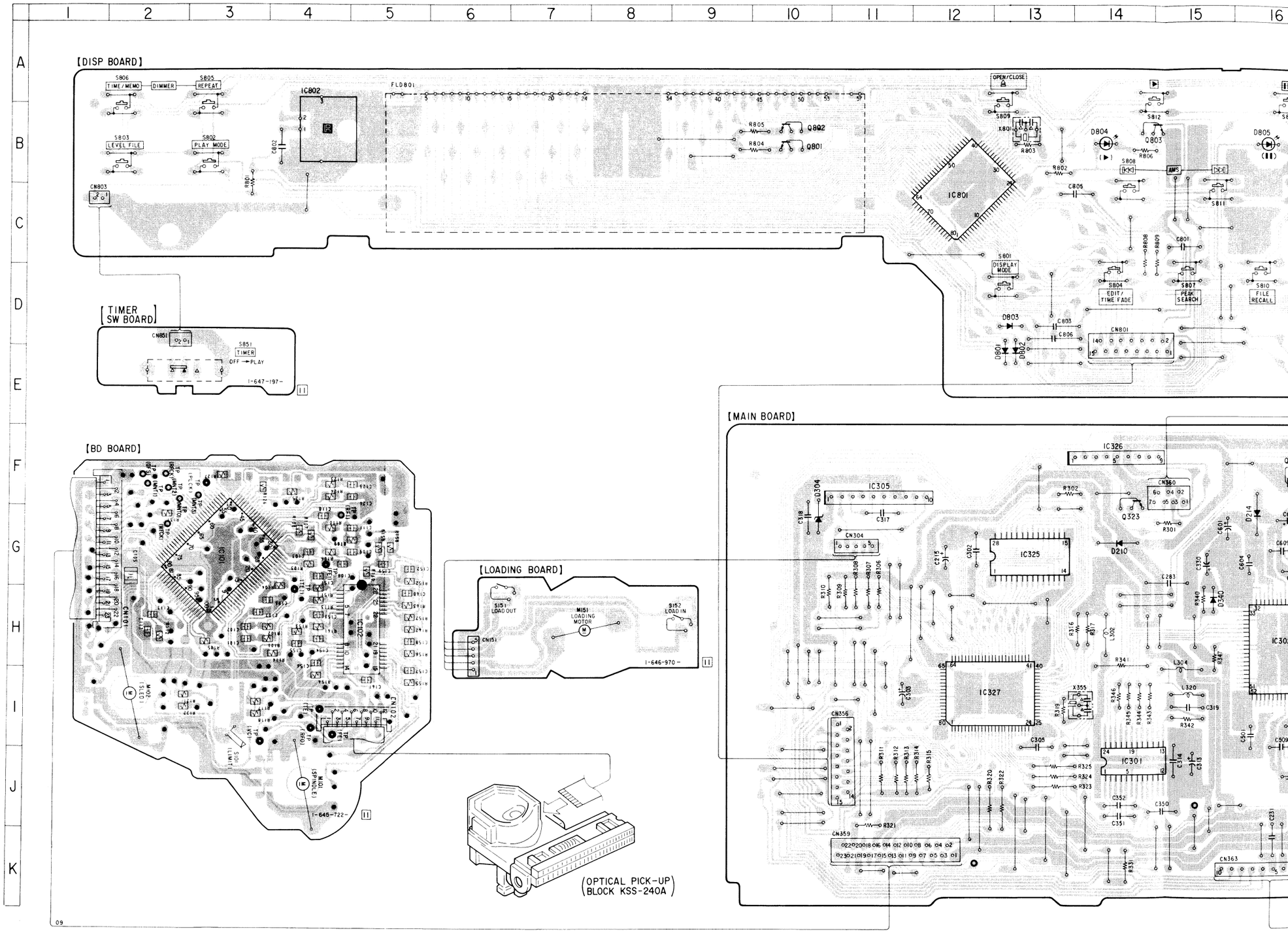
•See page 11 for Circuit Boards Location and Semiconductor Lead Layouts.

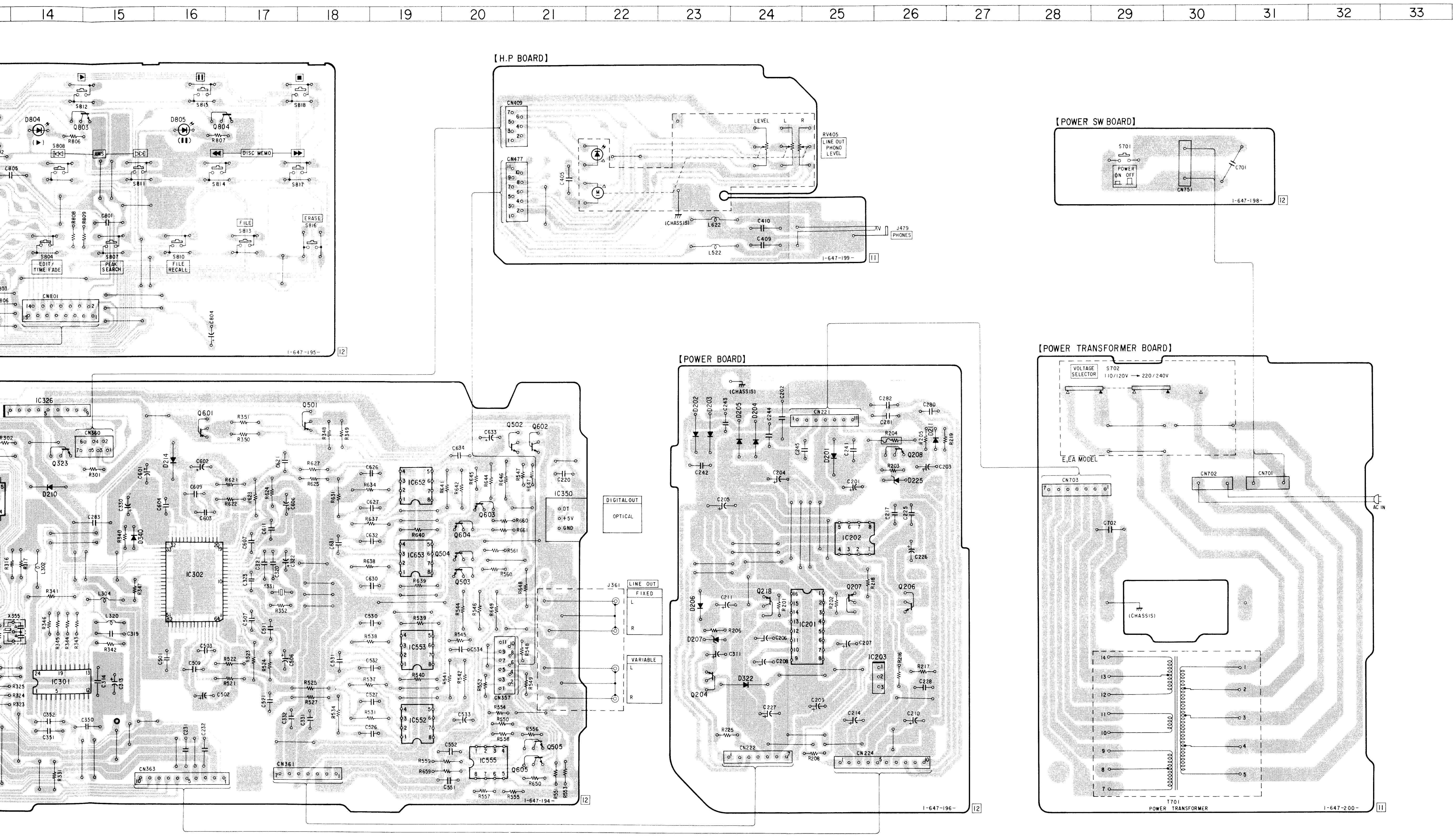
SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location
D201	G-25	Q204	J-23
D202	F-23	Q206	I-26
D203	F-23	Q207	I-25
D204	F-24	Q208	G-26
D205	F-24	Q218	I-24
D206	I-23	Q323	G-14
D207	I-23	Q501	F-18
D210	G-14	Q502	F-21
D211	F-26	Q503	H-20
D214	G-16	Q504	H-20
D225	G-26	Q505	K-21
D304	G-10	Q601	F-16
D322	J-24	Q602	F-21
D340	H-15	Q603	G-20
D801	E-13	Q604	H-20
D802	E-13	Q605	K-21
D803	D-13	Q801	B-10
D804	C-14	Q802	B-10
D805	B-16	Q803	B-15
		Q804	B-17
IC101	G-3		
IC102	H-5		
IC201	I-25		
IC202	H-25		
IC203	J-26		
IC301	J-14		
IC302	H-16		
IC305	F-11		
IC325	G-13		
IC326	F-14		
IC327	I-12		
IC350	G-21		
IC552	J-19		
IC553	I-19		
IC555	K-20		
IC652	G-19		
IC653	H-19		
IC801	C-12		
IC802	B-4		

Notes on printed wiring boards:

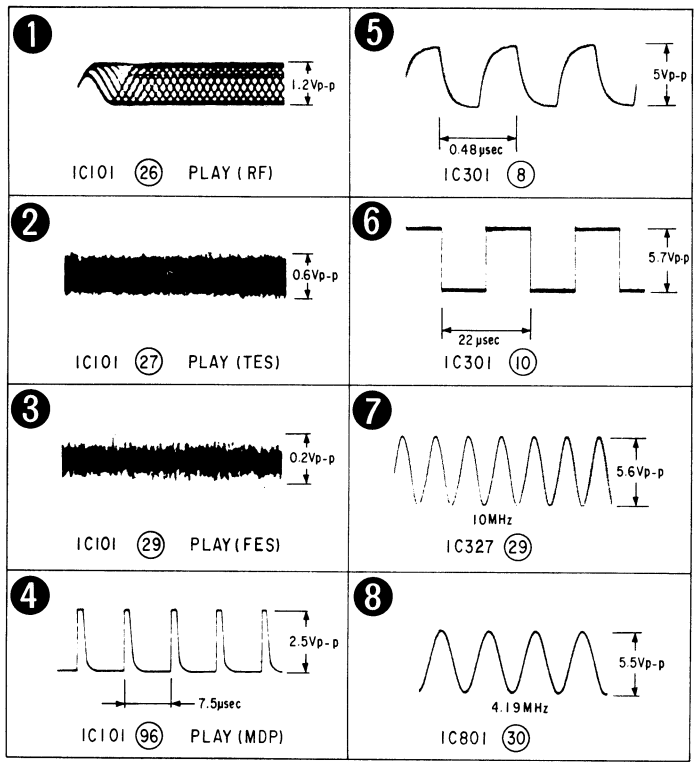
- ○— : Indicated a lead wire mounted on the component side
- ● : Through hole
- ▒▒ : Pattern from the side which enables seeing




14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
[H.P BOARD]
[POWER SW BOARD]
[POWER BOARD]
[POWER TRANSFORMER BOARD]
DISC MEMO
EDIT/TIME FADE
PEAK SEARCH
FILE RECALL
FILE
ERASE
LEVEL
RV405
LINE OUT PHONO LEVEL
(CHASSIS)
J479
PHONES
POWER ON OFF
VOLTAGE SELECTOR
S702
110/120V → 220/240V
E,EA MODEL
AC IN
DIGITAL OUT
OPTICAL
J361
LINE OUT
FIXED
VARIABLE
IC350
IC302
IC301
IC326
IC201
IC202
IC203
T701
POWER TRANSFORMER
1-647-195-
1-647-199-
1-647-198-
1-647-194
1-647-196-
1-647-200-

5-5. SCHEMATIC DIAGRAM

• See page 24 for IC Block Diagrams.



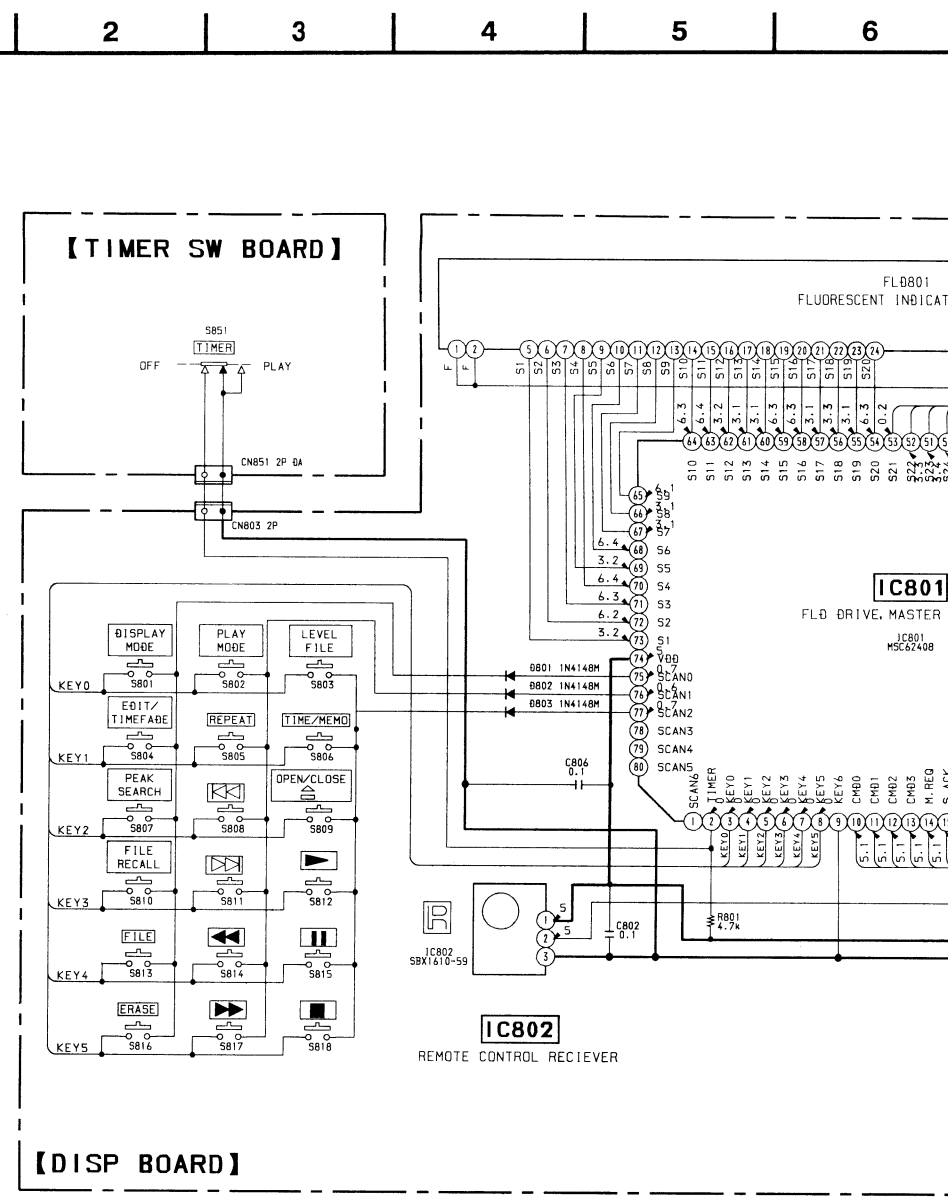
Notes on schematic diagram:

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

The components identi- fied by mark ⚠ or dot- ted line with mark ⚠ are critical for safty.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spéci- fié.

- ——— : 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 10 MΩ). 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



FLØ801
ORESCENT INØICATOR TUBE

Q801, 802
SWITCHING

IC801
Ø ØRIVE, MASTER CONTROL
IC801
M5C62408

CN801 15P
F7
F9
+30V
TEST
+5V
RST
GNØ
QINT
M/F
SACK
MREQ
CMØ3
CMØ2
CMØ1
CMØØ

X801 4.19MHz

(PLAY)
Q804
MBG3371X
Q803
ØTC114EL
(PAUSE)
Q805
MAY3371X
R807
270
Q804
ØTC114EL

Q803, 804
LEØ SWITCH

【MAIN BOARD】

M151
LOAØING
MOTOR
S152
LOAØ IN
S151
LOAØ OUT
CN151
LOAØ
LOAØ
GNØ
INSW
OUTSW
CN304 5P

【LOADING BOARD】

IC305
LOAØING MOTOR
ØRIVE
IC305 LB1641
LIN
LOUT
Ø304
RØ4.7ES
C317
0.01
C318
0.022
C231
0.1
C303
100 10V AVF
CN359 23P
SCLK
SUBQ
SENSE
XLT
LØON
FOK
GFS
Ø+5V
ØOUT
ØGNØ
XRST
AMUTE
SQCLK
SCOR
ØATA
CLK
BCLK
ØATA
LRCK
WOCK
XTAL
Ø+7V
ØGNØ

Ø210
IN4148M-TA
R302
33
IC325 LH5160N-10TL
C215
0.1F
C302
0.1

IC325
RAM

IC326
VOLUME MOTOR
ØRIVE
IC326 BA6208
R301 470
Q323
2SC3402
Q323
LEØ ØRIVE

【H.P BOARD (2/2)】
RV405 (1/3)
10K VR. MOTOR and LEØ
C405
0.1
CN409 7P
CN360 7P
LINE OUT
PHONE LEVEL

IC327
SYSTEM CONTROL
IC327
M37451
R311 10k
R312 10k
R313 10k
R314 10k
R315 10k
R320 1k
R321 1k
R322 1k
R323 1k
R324 1k

TP1 TEST
CN356 15P

VC
TE
FE
FZC
RFO
GNØ
VCC
LØON
F+
T+
T-
F-
CN102 12P
CN103 12P

IC1
ØETECTOR . RF AMP
IC1 MS2104FP
OPTICAL PICK-UP BLOCK
⚠ (KSS-240A)

M101
SPINØLE MOTOR
M102
SLEØ MOTOR

IC102
FOCUS/TRACKING
COIL ØRIVE,
SPINØLE/SLEØ
MOTOR ØRIVE
IC102
BA6297AFP
VCC/2
MUTE

14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25

IC305
LOADING MOTOR DRIVE

IC327
SYSTEM CONTROL
IC327 M37451

IC301
DIGITAL FILTER
IC301 CXD2567

IC302
D/A CONVERTER
IC302 CXD2526Q

IC555
HP AMP
IC555 NJM4556B

IC652
NJM5532D
AMP, BUFFER

Q501, Q601
MUTING CONTROL

Q505, 605
HP MUTE

IC1
DETECTOR , RF AMP
IC1 M52104FP

AL PICK-UP BLOCK
(KSS-240A)

【POWER BOARD】

IC201
+5V/-5V REG CONTROL
IC201 M5290P-16

IC203
+7V REG
IC203 TA7807

IC202
RIPPLE FILTER CONTROL
IC202 RC4558P

Q207
-5V REG

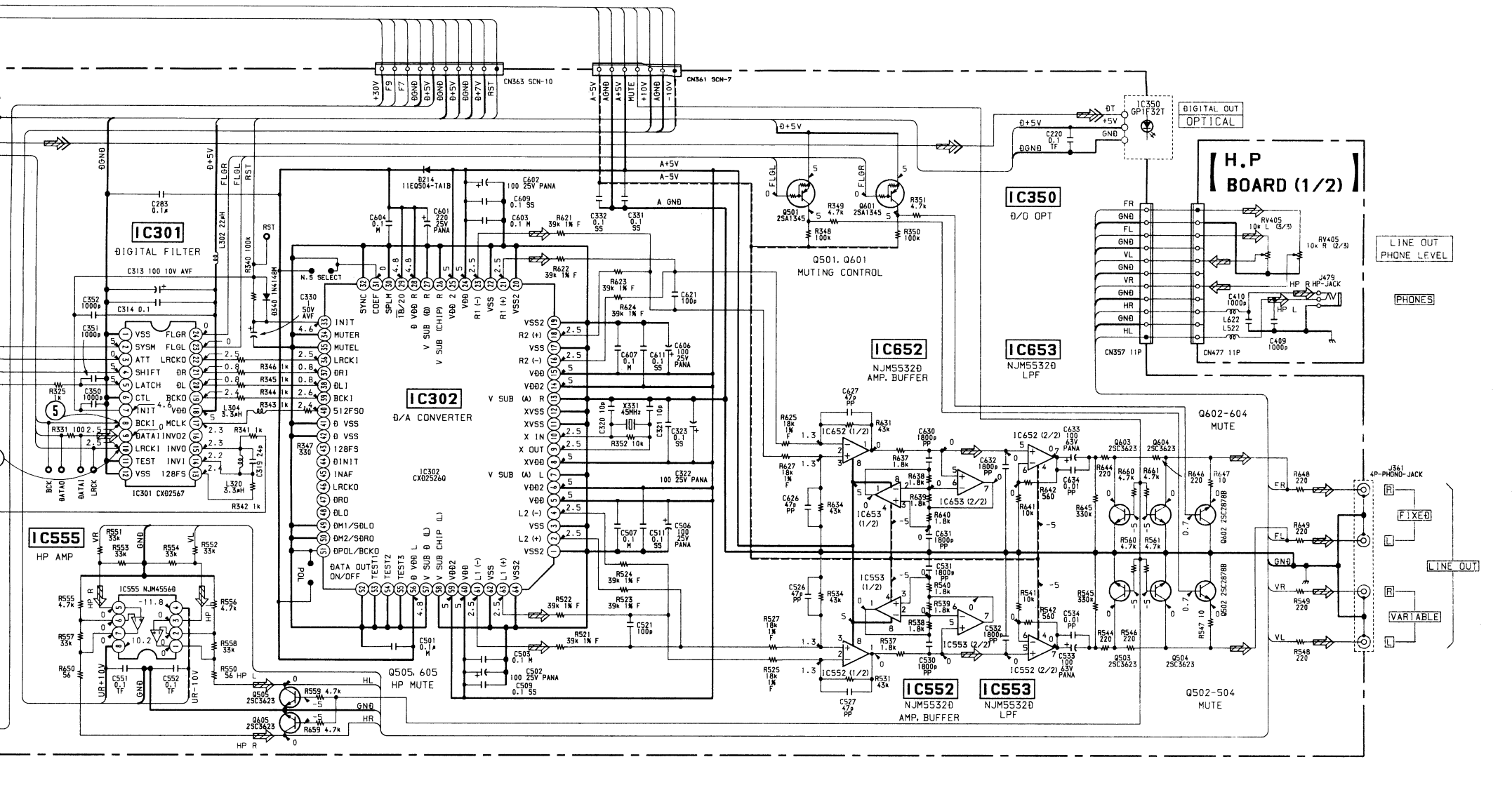
Q208
+30V REG

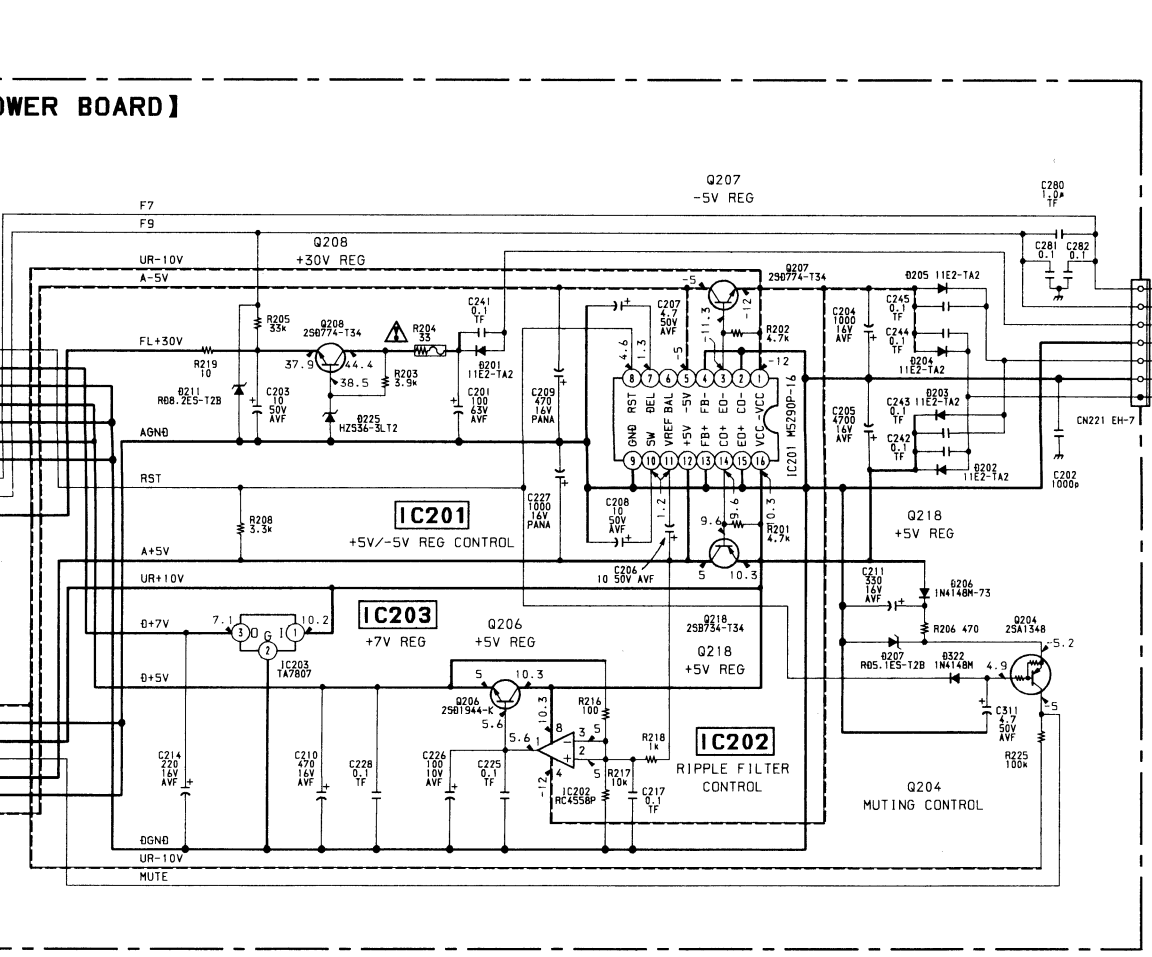
Q206
+5V REG

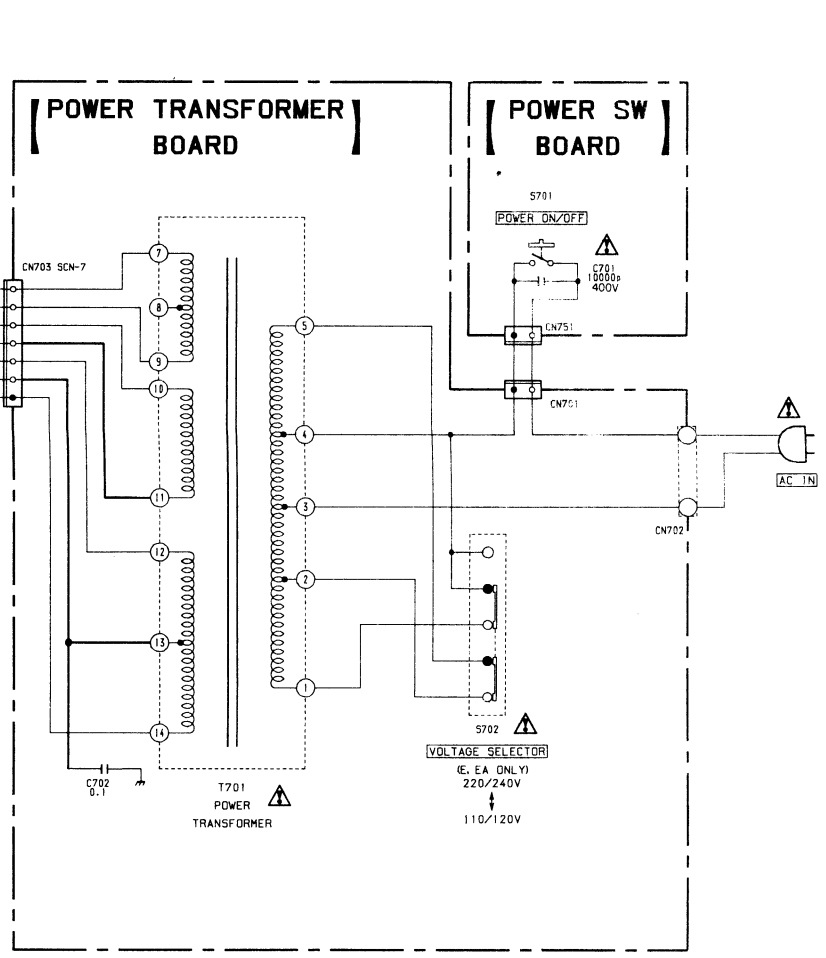
Q218
+5V REG

Q204
MUTING CONTROL

19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29

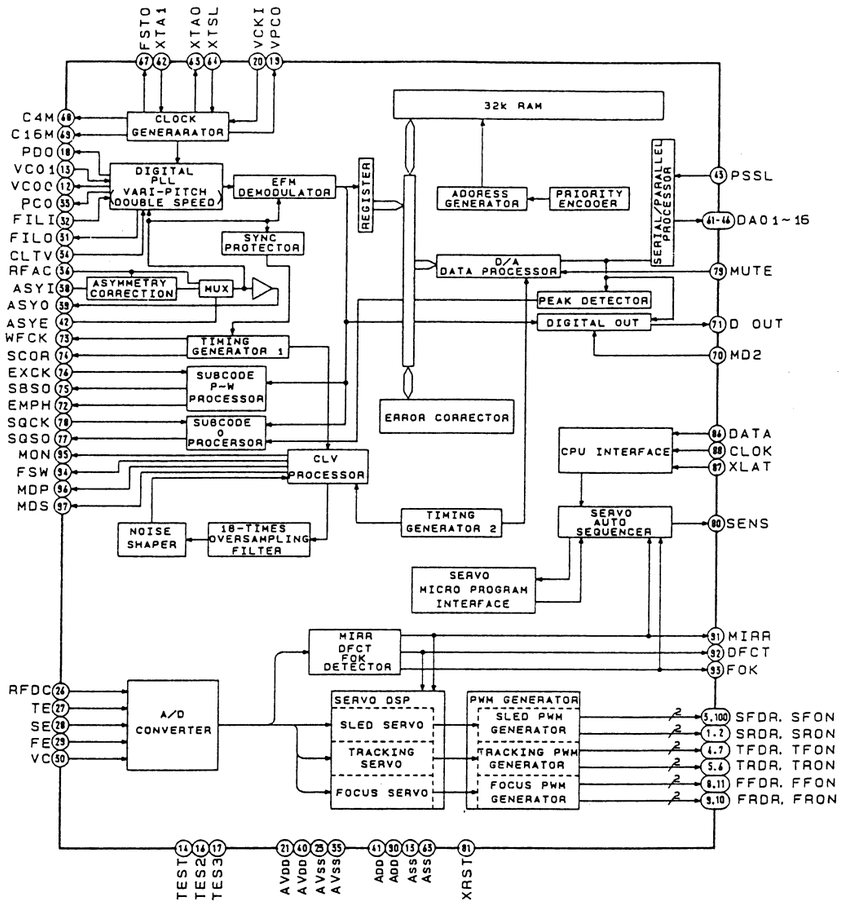




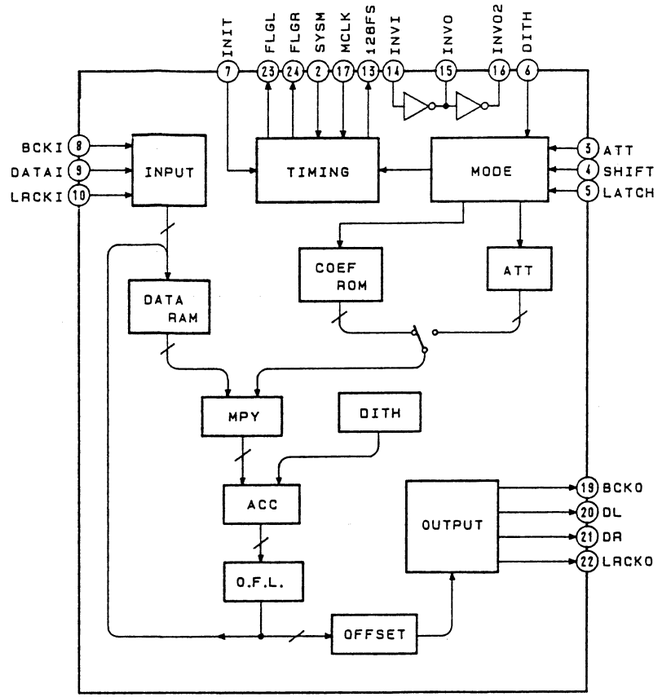


5-6. IC BLOCK DIAGRAM

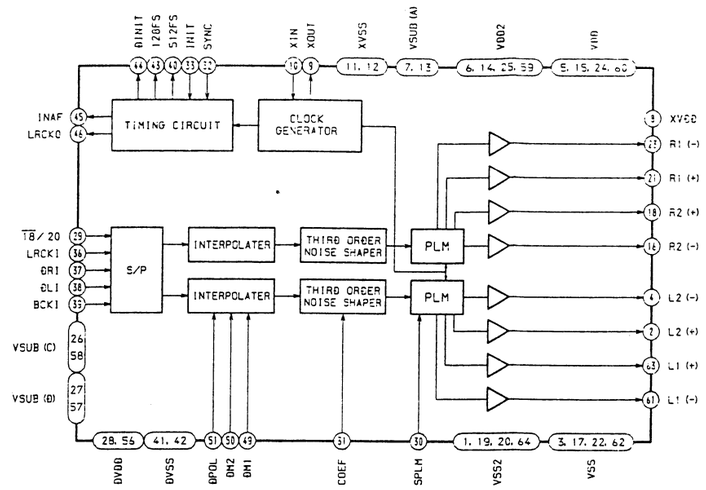
IC101 CXD2515Q



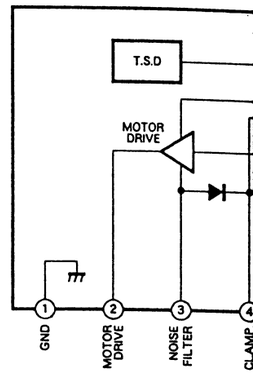
IC301 CXD2567M



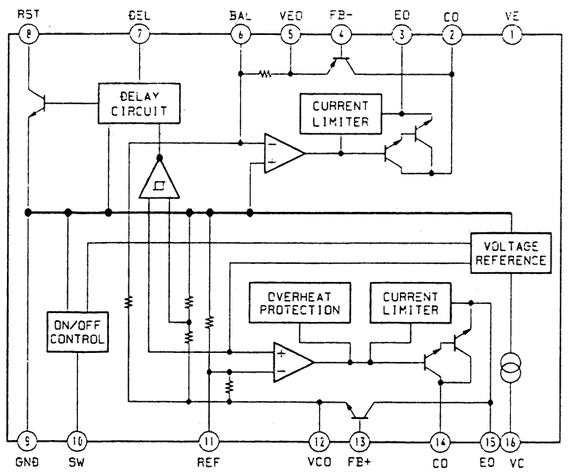
IC302 CXD2562Q



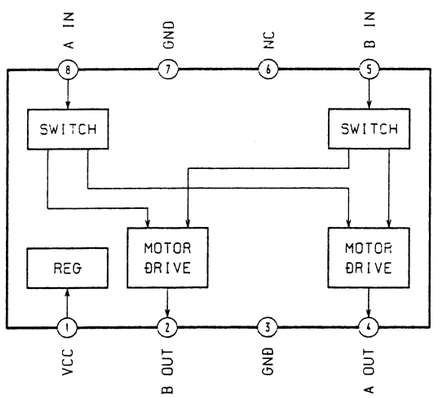
IC305 LB1641



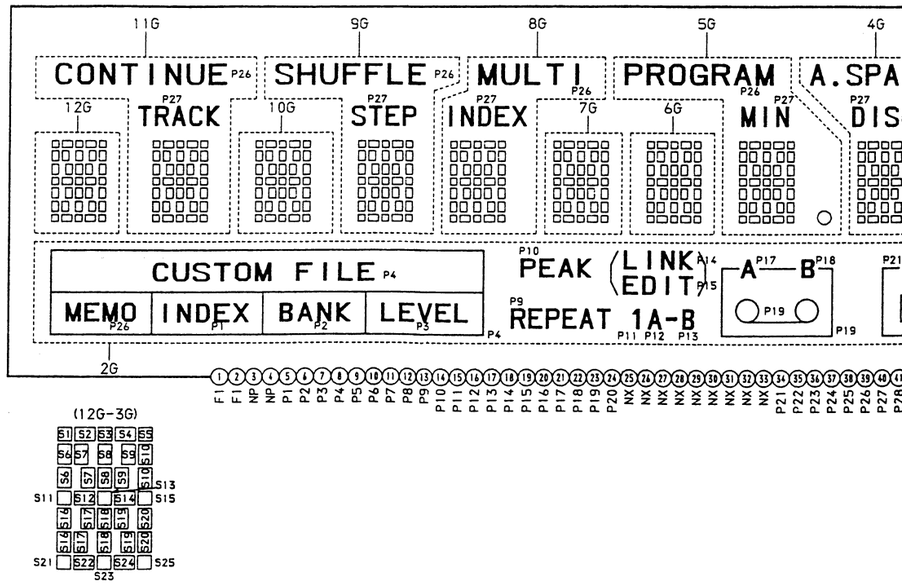
IC201 M5290P-16

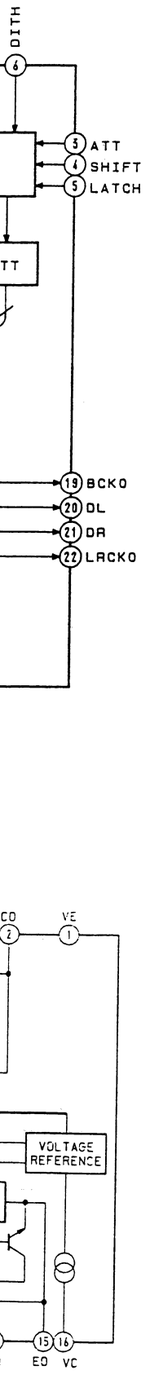


IC326 BA6208

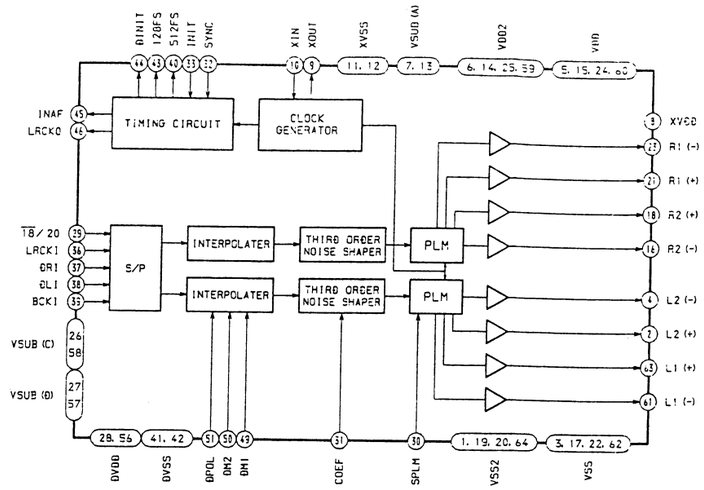


FLD801 FLUORESCENT INDICATOR TUBE

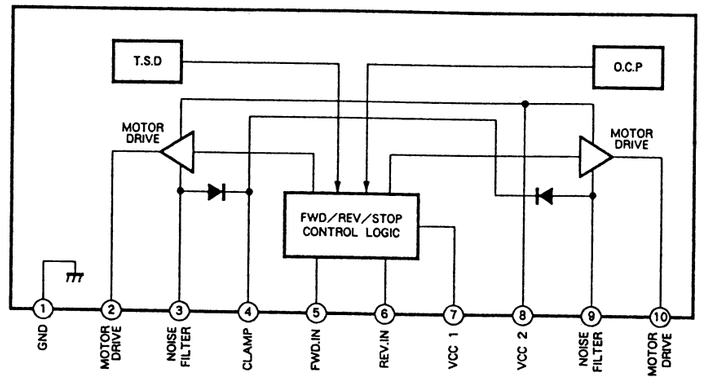




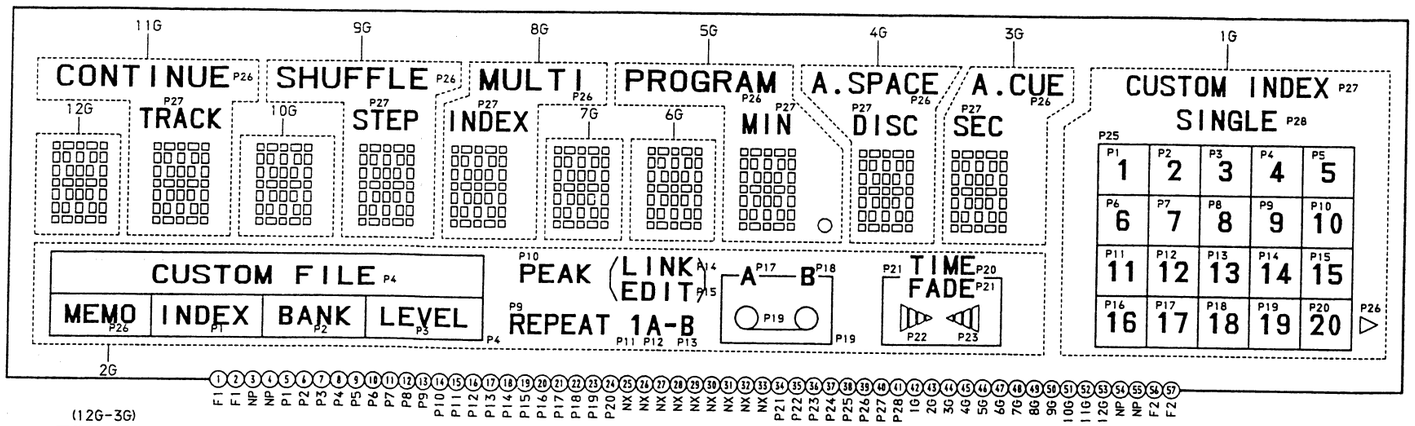
IC302 CXD2562Q

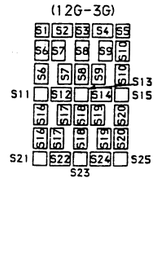


IC305 LB1641



FLD801 FLUORESCENT INDICATOR TUBE



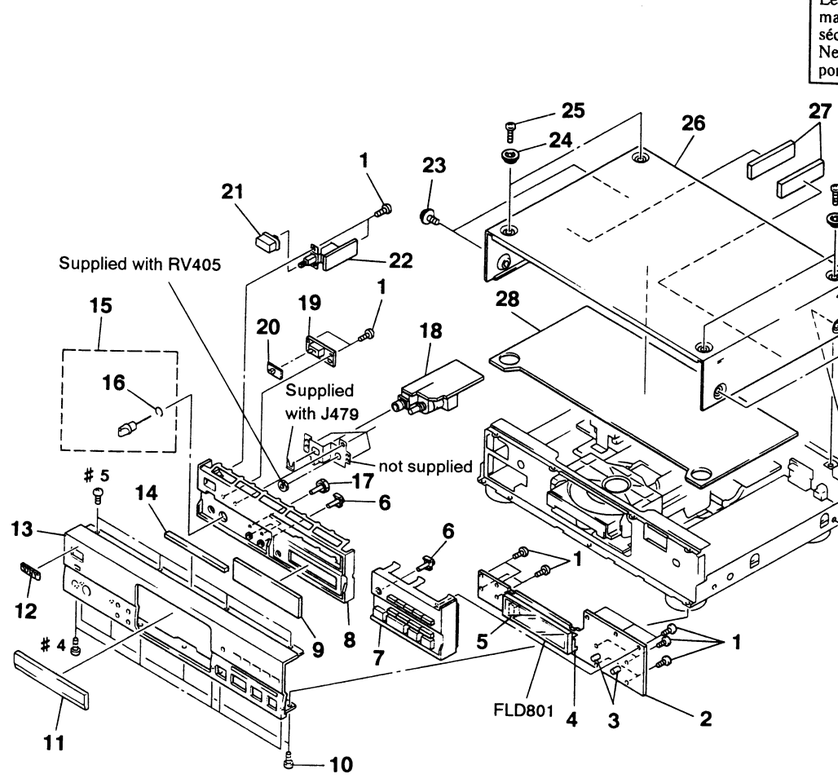


SECTION 6
EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Hardware (# mark) list is given in the last of this parts list.

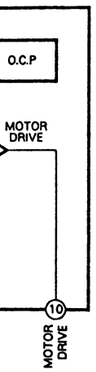
- Color Indication of Appearance Parts
Example:
KNOB, BALANCE (WHITE) . . . (RED)
↑ Parts color ↑ Cabinet's color

6-1. FRONT PANEL AND CASE ASSEMBLIES



Ref. No.	Part No.	Description	Remark
1	4-951-620-01	SCREW (2.6X8), +BVTP	
* 2	A-4649-597-A	DISP BOARD, COMPLETE	
* 3	4-941-258-01	HOLDER (LED/PA)	
* 4	4-928-052-01	HOLDER (RIGHT)	
* 5	4-928-053-01	HOLDER (LEFT)	
6	4-941-085-01	BUTTON (LEVEL)	
7	X-4943-449-1	BASE (R) ASSY, PANEL	
8	4-957-171-02	BASE (L), PANEL	
9	4-957-183-01	PLATE, INDICATION	
10	3-703-685-21	SCREW (+BV 3X8)	
11	X-4943-450-1	PANEL ASSY, LOADING	
12	4-942-568-01	EMBLEM (NO. 5), SONY	
13	4-957-170-01	PANEL, FRONT (US, Canadian, AUS)	
	4-957-170-11	PANEL, FRONT (AEP, E, G, EA)	
14	4-958-689-01	CUSHION (FP)	

Ref. No.	Part No.	Description
15	A-4604-901-A	KNOB (HP)
17	4-955-078-01	BUTTON (PL
* 18	1-647-199-11	H.P BOARD
* 19	1-647-197-11	TIMER SW B
20	4-922-518-11	KNOB (TIME
21	4-923-520-51	KNOB, POWE
* 22	1-647-198-12	POWER SW B
23	3-704-366-01	SCREW (CAS
24	4-928-025-11	ESCUTCHEON
25	3-721-187-01	SCREW (3X8
26	4-934-008-01	CASE
* 27	4-929-561-01	CUSHION (CA
* 28	4-929-571-01	REINFORCEMI
FDL801	1-517-128-11	INDICATOR T



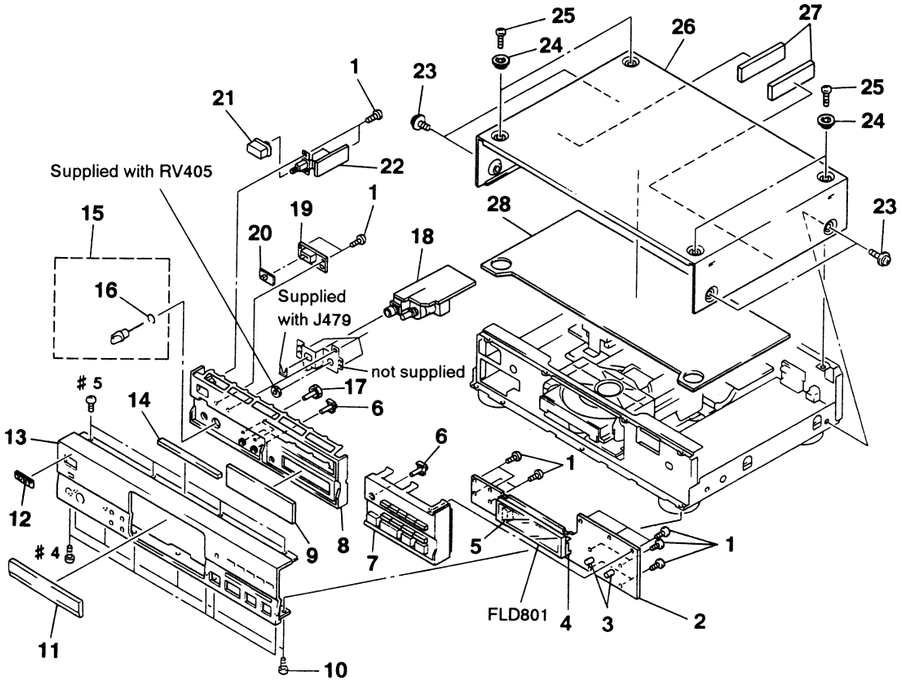
SECTION 6
EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Hardware (# mark) list is given in the last of this parts list.
- 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.

6-1. FRONT PANEL AND CASE ASSEMBLIES

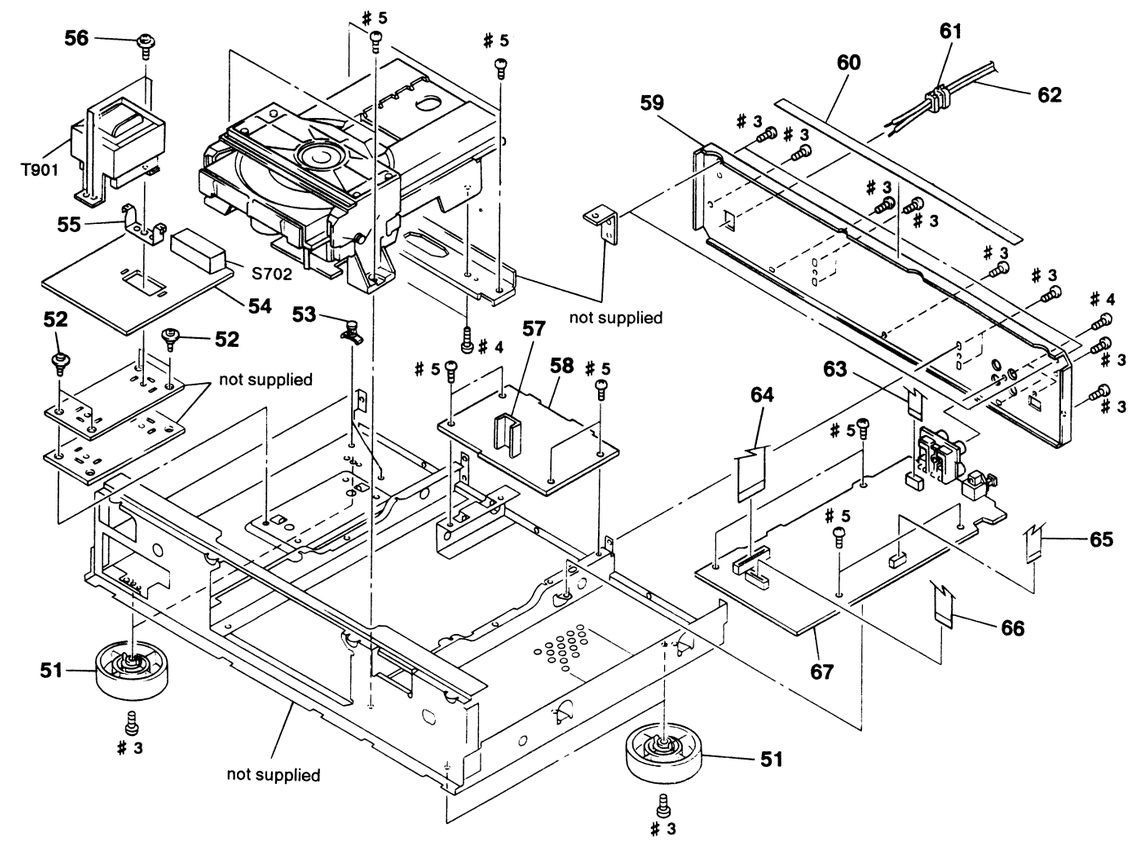
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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



Ref. No.	Part No.	Description	Remark
1	4-951-620-01	SCREW (2.6X8), +BVTP	
* 2	A-4649-597-A	DISP BOARD, COMPLETE	
* 3	4-941-258-01	HOLDER (LED/PA)	
* 4	4-928-052-01	HOLDER (RIGHT)	
* 5	4-928-053-01	HOLDER (LEFT)	
6	4-941-085-01	BUTTON (LEVEL)	
7	X-4943-449-1	BASE (R) ASSY, PANEL	
8	4-957-171-02	BASE (L), PANEL	
9	4-957-183-01	PLATE, INDICATION	
10	3-703-685-21	SCREW (+BV 3X8)	
11	X-4943-450-1	PANEL ASSY, LOADING	
12	4-942-568-01	EMBLEM (NO. 5), SONY	
13	4-957-170-01	PANEL, FRONT (US, Canadian, AUS)	
	4-957-170-11	PANEL, FRONT (AEP, E, G, EA)	
14	4-958-689-01	CUSHION (FP)	
15	A-4604-901-A	KNOB (HP) ASSY	
17	4-955-078-01	BUTTON (PLAY-M)	
* 18	1-647-199-11	H. P BOARD	
* 19	1-647-197-11	TIMER SW BOARD	
20	4-922-518-11	KNOB (TIMER)	
21	4-923-520-51	KNOB, POWER	
* 22	1-647-198-12	POWER SW BOARD	
23	3-704-366-01	SCREW (CASE) (M3X8)	
24	4-928-025-11	ESCUTCHEON (TOP PLATE)	
25	3-721-187-01	SCREW (3X8)	
26	4-934-008-01	CASE	
* 27	4-929-561-01	CUSHION (CASE)	
* 28	4-929-571-01	REINFORCEMENT (CASE)	
FDL801	1-517-128-11	INDICATOR TUBE, FLUORESCENT	

6-2. CHASSIS ASSEMBLY

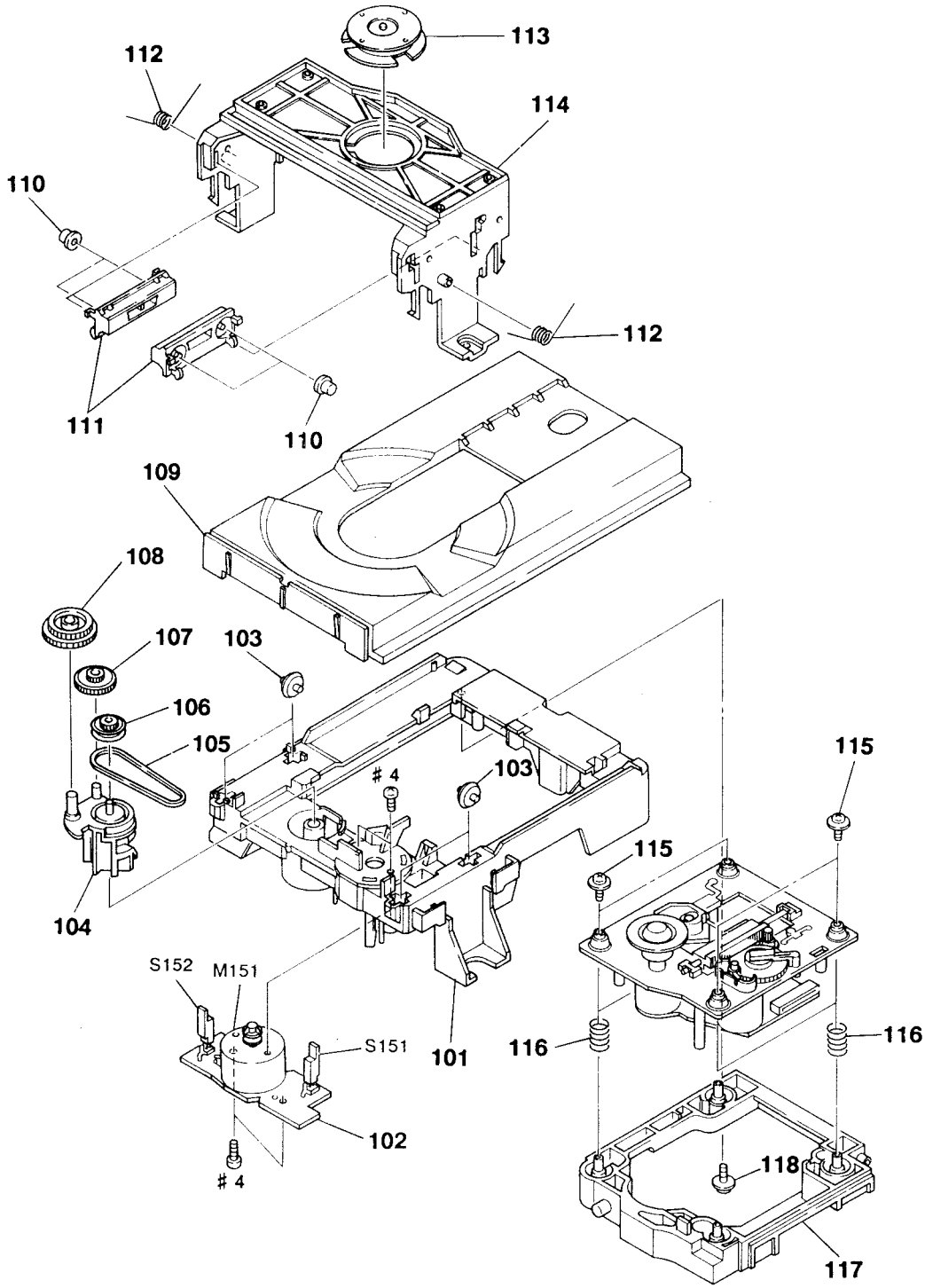


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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

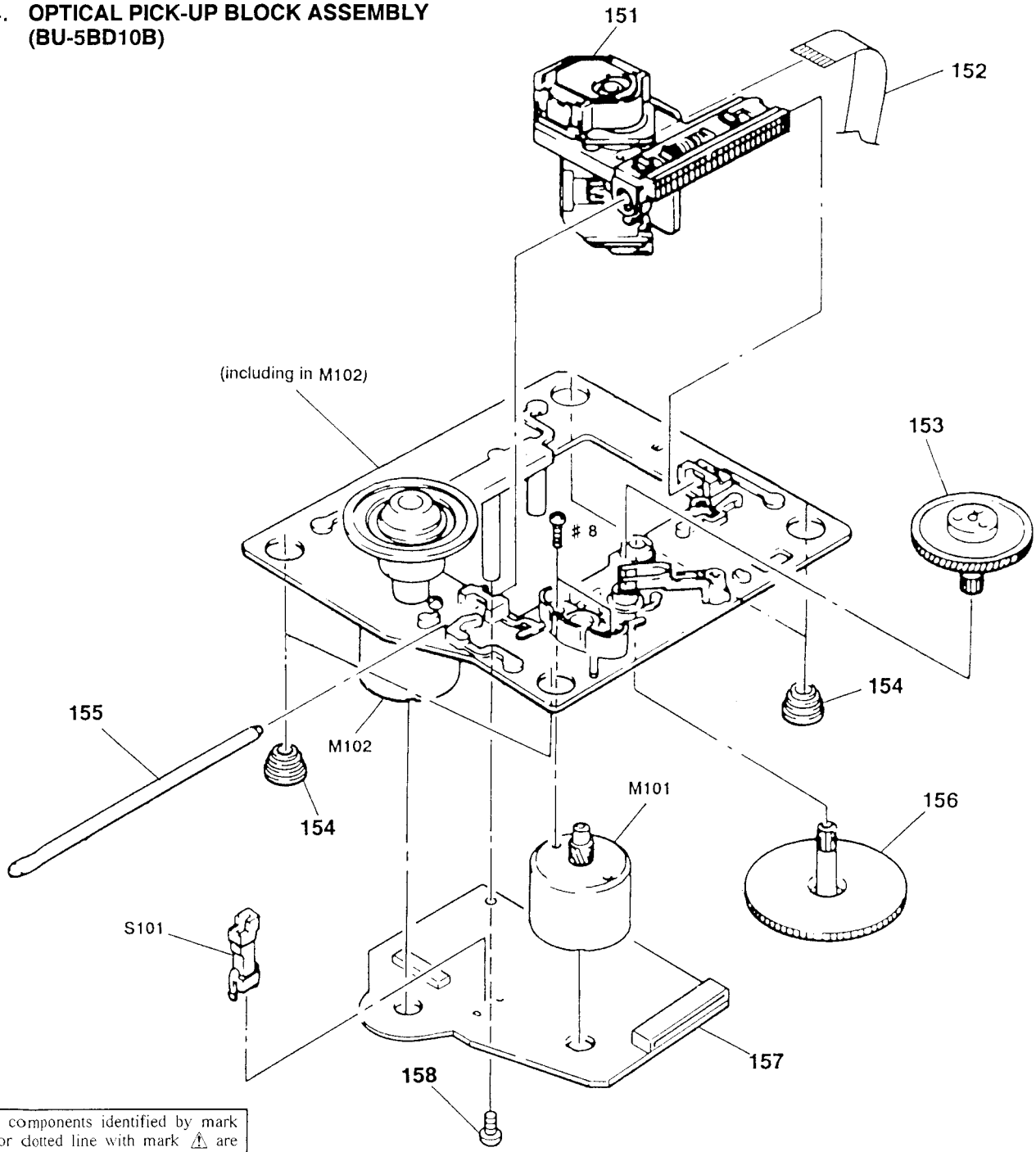
Ref. No.	Part No.	Description	Remark
51	X-3304-944-1	FOOT ASSY	
52	4-957-184-01	SCREW (TRANSFORMER), STEP	
* 53	3-349-025-41	HOLDER, PC BOARD	
* 54	1-647-200-12	POWER TRANSFORMER BOARD	
55	4-952-197-01	PLATE (TR), GROUND	
56	4-886-821-11	SCREW, S TIGHT, +PTTWH 3X6	
* 57	4-941-237-01	HEAT SINK	
* 58	A-4649-598-A	POWER BOARD, COMPLETE	
* 59	4-957-177-01	PANEL, BACK (US)	
*	4-957-177-11	PANEL, BACK (Canadian)	
*	4-957-177-22	PANEL, BACK (AEP, G)	
*	4-957-177-41	PANEL, BACK (AUS)	
*	4-957-177-51	PANEL, BACK (E, EA)	
* 60	4-927-653-01	SHEET (F/P)	
* 61	3-703-244-00	BUSHING (2104), CORD (US, Canadian, AEP, G, AUS, EA)	
* 61	3-703-571-11	BUSHING (S) (4516), CORD (E)	
⚠62	1-559-583-21	CORD, POWER (US, Canadian)	
⚠	1-575-651-21	CORD, POWER (AEP, G)	
⚠	1-696-027-11	CORD, POWER (E, EA)	
⚠	1-696-845-11	CORD, POWER (AUS)	
63	1-696-995-11	WIRE (FLAT TYPE) (11 CORE)	
64	1-696-998-11	WIRE (FLAT TYPE) (23 CORE)	
65	1-696-996-11	WIRE (FLAT TYPE) (7 CORE)	
66	1-696-997-11	WIRE (FLAT TYPE) (15 CORE)	
* 67	A-4649-599-A	MAIN BOARD, COMPLETE	
S702	1-571-722-11	SWITCH, VOLTAGE SELECTION (E, EA)	
⚠T901	1-423-491-11	TRANSFORMER, POWER (US, Canadian)	
⚠	1-423-493-11	TRANSFORMER, POWER (AEP, G, AUS)	
⚠	1-423-494-11	TRANSFORMER, POWER (E, EA)	

6-3. CDM25-5BD10



Ref. No.	Part No.	Description	Remark
* 101	4-954-190-01	BASE (MD)	
* 102	1-646-970-11	LOADING BOARD	
103	4-954-193-01	ROLLER (A)	
104	4-933-109-01	CAM	
105	4-927-649-01	BELT	
106	4-927-651-01	PULLEY (S)	
107	4-927-628-01	GEAR (C)	
108	4-933-107-01	GEAR (PL)	
109	4-954-191-01	TABLE, DISK	
110	4-954-194-01	ROLLER (B)	
111	4-954-199-01	PLATE, SLIDE	
112	4-954-195-02	SPRING, TORSION	
* 113	1-452-538-11	MAGNET	
* 114	4-954-192-01	HOLDER (M)	
115	4-933-134-01	SCREW (+PIPWH M2.6X6)	
116	4-948-503-01	SPRING (BU), COMPRESSION	
117	4-933-129-01	HOLDER (BU)	
* 118	4-917-583-21	BRACKET, YOKE	
M151	A-4604-363-A	MOTOR (L) ASSY	
S151	1-572-086-11	SWITCH, LEAF	
S152	1-572-086-11	SWITCH, LEAF	

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



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 piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
⚠151	8-848-144-11	DEVICE, OPTICAL KSS-240A	
152	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
153	4-917-567-01	GEAR (M)	
154	4-951-940-01	INSULATOR (BU)	
155	4-917-565-01	SHAFT, SLED	
156	4-917-564-01	GEAR (P), FLATNESS	
* 157	A-4649-432-A	BD BOARD, COMPLETE	
158	4-951-620-01	SCREW (2.6X8), +BVTP	
M101	X-4917-504-1	MOTOR ASSY (SLID)	
M102	X-4917-523-3	BASE (OUTSERT) ASSY (SPINDLE MOTOR)	
S101	1-572-085-11	SWITCH, LEAF (LIMIT IN)	

SECTION 7
ELECTRICAL PARTS LIST

BD **DISP**

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 piéce 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
- 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.
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- Hardware (# mark) list is given in the last of this parts list.

Ref. No.	Part No.	Description			Remark
*	A-4649-432-A	BD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-163-005-11	CERAMIC CHIP	470PF	10% 50V	
C102	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
C103	1-163-005-11	CERAMIC CHIP	470PF	10% 50V	
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	1-163-035-00	CERAMIC CHIP	0.047uF	50V	
C109	1-163-011-11	CERAMIC CHIP	0.0015uF	10% 50V	
C110	1-163-017-00	CERAMIC CHIP	0.0047uF	5% 50V	
C111	1-163-251-11	CERAMIC CHIP	100PF	5% 50V	
C112	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
C113	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
C123	1-164-232-11	CERAMIC CHIP	0.01uF	50V	
C124	1-164-005-11	CERAMIC CHIP	0.47uF	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	1-163-033-00	CERAMIC CHIP	0.022uF	50V	
C158	1-163-033-00	CERAMIC CHIP	0.022uF	50V	
C159	1-163-023-00	CERAMIC CHIP	0.015uF	5% 50V	
C160	1-163-019-00	CERAMIC CHIP	0.0068uF	10% 50V	
C161	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
		< CONNECTOR >			
* CN101	1-568-865-11	SOCKET, CONNECTOR 23P			
CN102	1-568-795-11	SOCKET, CONNECTOR 12P			
		< IC >			
IC101	8-752-351-94	IC CXD2515Q			
IC102	8-759-071-79	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	
R105	1-216-097-00	METAL CHIP	100K	5% 1/10W	
R106	1-216-061-00	METAL CHIP	3.3K	5% 1/10W	
R107	1-216-061-00	METAL CHIP	3.3K	5% 1/10W	
R108	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R109	1-216-121-00	METAL CHIP	1M	5% 1/10W	
R110	1-216-025-00	METAL CHIP	100	5% 1/10W	
R112	1-216-049-00	METAL CHIP	1K	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	
R123	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R124	1-216-097-00	METAL CHIP	100K	5% 1/10W	
R125	1-216-049-00	METAL CHIP	1K	5% 1/10W	
R126	1-216-049-00	METAL CHIP	1K	5% 1/10W	
R127	1-216-049-00	METAL CHIP	1K	5% 1/10W	
R131	1-216-037-00	METAL CHIP	330	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	1-216-093-00	METAL CHIP	68K	5% 1/10W	
R158	1-216-076-00	METAL CHIP	13K	5% 1/10W	
R159	1-216-085-00	METAL CHIP	33K	5% 1/10W	
R160	1-216-081-00	METAL CHIP	22K	5% 1/10W	
R161	1-216-308-00	METAL CHIP	4.7	5% 1/10W	
R162	1-216-093-00	METAL CHIP	68K	5% 1/10W	
R163	1-216-093-00	METAL CHIP	68K	5% 1/10W	
		< SWITCH >			
S101	1-572-085-11	SWITCH, LEAF (LIMIT)			
**********					
*	A-4649-597-A	DISP BOARD, COMPLETE			
		**********			
*	4-928-052-01	HOLDER (RIGHT)			
*	4-928-053-01	HOLDER (LEFT)			
*	4-941-258-01	HOLDER (LED/PA)			

DISP H.P LOADING

Ref. No.	Part No.	Description			Remark
		< CAPACITOR >			
C801	1-164-159-11	CERAMIC	0.1uF		50V
C802	1-164-159-11	CERAMIC	0.1uF		50V
C803	1-164-159-11	CERAMIC	0.1uF		50V
C804	1-126-177-11	ELECT	100uF	20%	10V
C805	1-164-159-11	CERAMIC	0.1uF		50V
C806	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
* CN801	1-568-858-11	SOCKET, CONNECTOR 15P			
* CN803	1-568-951-11	PIN, CONNECTOR 2P			
		< DIODE >			
D801	8-719-987-63	DIODE	1N4148M		
D802	8-719-987-63	DIODE	1N4148M		
D803	8-719-987-63	DIODE	1N4148M		
D804	8-719-987-93	LED	MBG3371X-9.5		
D805	8-719-971-52	LED	MAY3371X-M-177		
		< INDICATOR >			
FLD801	1-517-128-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC801	8-759-167-73	IC	MSC62408-100GS-V1K		
IC802	8-741-100-48	IC	SBX1610-59		
		< TRANSISTOR >			
Q801	8-729-900-45	TRANSISTOR	DTC114EF		
Q802	8-729-900-45	TRANSISTOR	DTC114EF		
Q803	8-729-900-45	TRANSISTOR	DTC114EF		
Q804	8-729-900-45	TRANSISTOR	DTC114EF		
		< RESISTOR >			
R801	1-249-425-11	CARBON	4.7K	5%	1/4W
R802	1-249-429-11	CARBON	10K	5%	1/4W
R803	1-247-903-91	CARBON	1M	5%	1/4W
R804	1-249-441-11	CARBON	100K	5%	1/4W
R805	1-249-441-11	CARBON	100K	5%	1/4W
R806	1-249-406-11	CARBON	120	5%	1/4W
R807	1-249-410-11	CARBON	270	5%	1/4W
R808	1-249-417-11	CARBON	1K	5%	1/4W
R809	1-249-417-11	CARBON	1K	5%	1/4W
		< SWITCH >			
S801	1-554-303-21	SWITCH, TACTILE (DISPLAY MODE)			
S802	1-554-303-21	SWITCH, TACTILE (PLAY MODE)			
S803	1-554-303-21	SWITCH, TACTILE (LEVEL FILE)			
S804	1-554-303-21	SWITCH, TACTILE (EDIT/TIME FADE)			
S805	1-554-303-21	SWITCH, TACTILE (REPEAT)			
S806	1-554-303-21	SWITCH, TACTILE (TIME/MEMO)			
S807	1-554-303-21	SWITCH, TACTILE (PEAK SEARCH)			
S808	1-554-303-21	SWITCH, TACTILE (⏮)			
S809	1-554-303-21	SWITCH, TACTILE (OPEN/CLOSE ⏏)			
S810	1-554-303-21	SWITCH, TACTILE (FILE RECALL)			
S811	1-554-303-21	SWITCH, TACTILE (⏭)			
S812	1-554-303-21	SWITCH, TACTILE (▶)			
S813	1-554-303-21	SWITCH, TACTILE (FILE)			
S814	1-554-303-21	SWITCH, TACTILE (◀◀)			
S815	1-554-303-21	SWITCH, TACTILE (❚❚)			
S816	1-554-303-21	SWITCH, TACTILE (ERASE)			
S817	1-554-303-21	SWITCH, TACTILE (▶▶)			
S818	1-554-303-21	SWITCH, TACTILE (■)			
		< VIBRATOR >			
X801	1-577-101-11	VIBRATOR, CERAMIC (4.19MHz)			
**********					
*	1-647-199-11	H.P BOARD			
		*********			
		< CAPACITOR >			
C405	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 >			
* CN409	1-568-850-11	SOCKET, CONNECTOR 7P			
* CN477	1-568-854-11	SOCKET, CONNECTOR 11P			
		< JACK >			
J479	1-750-162-61	JACK (LARGE TYPE) (PHONES)			
		< COIL >			
L522	1-412-473-41	INDUCTOR	0uH		
L622	1-412-473-41	INDUCTOR	0uH		
		< VARIABLE RESISTOR >			
RV405	1-241-304-12	RES, VAR, CARBON 10KX3 (LINE OUT PHONE LEVEL)			
**********					
*	1-646-970-11	LOADING BOARD			
		**********			
		< CONNECTOR >			
* CN151	1-568-943-11	PIN, CONNECTOR 5P			

Ref. No.	Part No.	Description			Remark
		< SWITCH >			
S151	1-572-086-11	SWITCH, LEAF (LOAD OUT)			
S152	1-572-086-11	SWITCH, LEAF (LOAD IN)			
**********					
*	A-4649-599-A	MAIN BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C215	1-125-622-11	CAP, DOUBLE LAYERS 0.10F			
C220	1-136-165-00	FILM	0.1uF	5%	50V
C231	1-164-159-11	CERAMIC	0.1uF		50V
C232	1-164-159-11	CERAMIC	0.1uF		50V
C283	1-164-159-11	CERAMIC	0.1uF		50V
C302	1-164-159-11	CERAMIC	0.1uF		50V
C303	1-126-101-11	ELECT	100uF	20%	16V
C305	1-164-159-11	CERAMIC	0.1uF		50V
C313	1-126-101-11	ELECT	100uF	20%	16V
C314	1-164-159-11	CERAMIC	0.1uF		50V
C317	1-162-306-11	CERAMIC	0.01uF	20%	16V
C318	1-161-494-00	CERAMIC	0.022uF		25V
C319	1-162-208-31	CERAMIC	24PF	5%	50V
C320	1-162-199-31	CERAMIC	10PF	5%	50V
C321	1-162-199-31	CERAMIC	10PF	5%	50V
C322	1-126-052-11	ELECT	100uF	20%	25V
C323	1-162-806-11	CERAMIC	0.1uF	10%	50V
C330	1-124-791-11	ELECT	1.0uF	20%	100V
C331	1-162-806-11	CERAMIC	0.1uF	10%	50V
C332	1-162-806-11	CERAMIC	0.1uF	10%	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	1-130-495-00	MYLAR	0.1uF	5%	50V
C502	1-126-052-11	ELECT	100uF	20%	25V
C503	1-130-495-00	MYLAR	0.1uF	5%	50V
C506	1-126-052-11	ELECT	100uF	20%	25V
C507	1-130-495-00	MYLAR	0.1uF	5%	50V
C509	1-162-806-11	CERAMIC	0.1uF	10%	50V
C511	1-162-806-11	CERAMIC	0.1uF	10%	50V
C521	1-110-335-11	MYLAR	100PF	5%	50V
C526	1-136-270-11	FILM	47PF	5%	630V
C527	1-136-270-11	FILM	47PF	5%	630V
C530	1-136-192-11	FILM	0.0018uF	2%	100V
C531	1-136-192-11	FILM	0.0018uF	2%	100V
C532	1-136-192-11	FILM	0.0018uF	2%	100V
C533	1-126-077-11	ELECT	100uF	20%	63V
C534	1-130-297-91	FILM	0.01uF	5%	100V
C551	1-136-165-00	FILM	0.1uF	5%	50V
C552	1-136-165-00	FILM	0.1uF	5%	50V

Ref. No.	Part No.	Description			Remark
C601	1-126-024-11	ELECT	220uF	20%	25V
C602	1-126-052-11	ELECT	100uF	20%	25V
C603	1-130-495-00	MYLAR	0.1uF	5%	50V
C604	1-130-495-00	MYLAR	0.1uF	5%	50V
C606	1-126-052-11	ELECT	100uF	20%	25V
C607	1-130-495-00	MYLAR	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	1-110-335-11	MYLAR	100PF	5%	50V
C626	1-136-270-11	FILM	47PF	5%	630V
C627	1-136-270-11	FILM	47PF	5%	630V
C630	1-136-192-11	FILM	0.0018uF	2%	100V
C631	1-136-192-11	FILM	0.0018uF	2%	100V
C632	1-136-192-11	FILM	0.0018uF	2%	100V
C633	1-126-077-11	ELECT	100uF	20%	63V
C634	1-130-297-91	FILM	0.01uF	5%	100V
		< CONNECTOR >			
* CN304	1-568-954-11	PIN, CONNECTOR 5P			
* CN356	1-568-834-11	SOCKET, CONNECTOR 15P			
* CN357	1-568-830-11	SOCKET, CONNECTOR 11P			
* CN359	1-568-839-11	SOCKET, CONNECTOR 23P			
* CN360	1-568-826-11	SOCKET, CONNECTOR 7P			
		< DIODE >			
D210	8-719-987-63	DIODE	1N4148M		
D214	8-719-210-21	DIODE	11EQS04		
D304	8-719-109-82	DIODE	RD4.7ES-B3		
D340	8-719-987-63	DIODE	1N4148M		
		< IC >			
IC301	8-752-356-03	IC	CXD2567M		
IC302	8-759-044-10	IC	CXD2562Q		
IC305	8-759-822-09	IC	LB1641		
IC325	8-759-512-81	IC	LH5160N-10L		
IC326	8-759-962-08	IC	BA6208		
IC327	8-759-176-97	IC	M37451M8-334FP		
IC350	8-749-921-12	IC	GP1F32T		
IC552	8-759-982-03	IC	RC5532D-D		
IC553	8-759-982-03	IC	RC5532D-D		
IC555	8-759-981-85	IC	RC4556D		
IC652	8-759-982-03	IC	RC5532D-D		
IC653	8-759-982-03	IC	RC5532D-D		
		< JACK >			
J361	1-569-443-21	JACK, PIN 4P (LINE OUT)			
		< COIL >			
L302	1-410-513-11	INDUCTOR	22uH		
L304	1-408-403-00	INDUCTOR	3.3uH		

MAIN

Ref. No.	Part No.	Description				Remark
L320	1-408-403-00	INDUCTOR	3.3uH			
		< TRANSISTOR >				
Q323	8-729-900-80	TRANSISTOR	DTC114ES			
Q501	8-729-900-65	TRANSISTOR	DTA144ES			
Q502	8-729-201-05	TRANSISTOR	2SC2878-B			
Q503	8-729-141-30	TRANSISTOR	2SC3623A-LK			
Q504	8-729-141-30	TRANSISTOR	2SC3623A-LK			
Q505	8-729-141-30	TRANSISTOR	2SC3623A-LK			
Q601	8-729-900-65	TRANSISTOR	DTA144ES			
Q602	8-729-201-05	TRANSISTOR	2SC2878-B			
Q603	8-729-141-30	TRANSISTOR	2SC3623A-LK			
Q604	8-729-141-30	TRANSISTOR	2SC3623A-LK			
Q605	8-729-141-30	TRANSISTOR	2SC3623A-LK			
		< RESISTOR >				
R301	1-249-413-11	CARBON	470	5%	1/4W	
R302	1-249-399-11	CARBON	33	5%	1/4W	
R306	1-249-429-11	CARBON	10K	5%	1/4W	
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	
R319	1-247-903-91	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	
R331	1-249-405-11	CARBON	100	5%	1/4W	
R340	1-249-441-11	CARBON	100K	5%	1/4W	
R341	1-249-417-11	CARBON	1K	5%	1/4W	
R342	1-249-417-11	CARBON	1K	5%	1/4W	
R343	1-249-417-11	CARBON	1K	5%	1/4W	
R344	1-249-417-11	CARBON	1K	5%	1/4W	
R345	1-249-417-11	CARBON	1K	5%	1/4W	
R346	1-249-417-11	CARBON	1K	5%	1/4W	
R347	1-249-411-11	CARBON	330	5%	1/4W	
R348	1-249-441-11	CARBON	100K	5%	1/4W	
R349	1-249-425-11	CARBON	4.7K	5%	1/4W	
R350	1-249-441-11	CARBON	100K	5%	1/4W	
R351	1-249-425-11	CARBON	4.7K	5%	1/4W	

Ref. No.	Part No.	Description				Remark
R352	1-249-429-11	CARBON	10K	5%	1/4W	
R521	1-215-459-00	METAL	39K	1%	1/6W	
R522	1-215-459-00	METAL	39K	1%	1/6W	
R523	1-215-459-00	METAL	39K	1%	1/6W	
R524	1-215-459-00	METAL	39K	1%	1/6W	
R525	1-215-451-00	METAL	18K	1%	1/6W	
R527	1-215-451-00	METAL	18K	1%	1/6W	
R531	1-259-467-11	CARBON	43K	5%	1/4W	
R534	1-259-467-11	CARBON	43K	5%	1/4W	
R537	1-247-716-11	CARBON	1.8K	5%	1/4W	
R538	1-247-716-11	CARBON	1.8K	5%	1/4W	
R539	1-247-716-11	CARBON	1.8K	5%	1/4W	
R540	1-247-716-11	CARBON	1.8K	5%	1/4W	
R541	1-247-725-11	CARBON	10K	5%	1/4W	
R542	1-247-710-11	CARBON	560	5%	1/4W	
R544	1-247-704-11	CARBON	220	5%	1/4W	
R545	1-259-488-81	CARBON	330K	5%	1/6W	
R546	1-247-704-11	CARBON	220	5%	1/4W	
R547	1-249-393-11	CARBON	10	5%	1/4W	
R548	1-249-409-11	CARBON	220	5%	1/4W	
R549	1-249-409-11	CARBON	220	5%	1/4W	
R550	1-249-402-11	CARBON	56	5%	1/4W	
R551	1-249-435-11	CARBON	33K	5%	1/4W	
R552	1-249-435-11	CARBON	33K	5%	1/4W	
R553	1-249-435-11	CARBON	33K	5%	1/4W	
R554	1-249-435-11	CARBON	33K	5%	1/4W	
R555	1-249-425-11	CARBON	4.7K	5%	1/4W	
R556	1-249-425-11	CARBON	4.7K	5%	1/4W	
R557	1-249-435-11	CARBON	33K	5%	1/4W	
R558	1-249-435-11	CARBON	33K	5%	1/4W	
R559	1-249-425-11	CARBON	4.7K	5%	1/4W	
R560	1-249-425-11	CARBON	4.7K	5%	1/4W	
R561	1-249-425-11	CARBON	4.7K	5%	1/4W	
R621	1-215-459-00	METAL	39K	1%	1/6W	
R622	1-215-459-00	METAL	39K	1%	1/6W	
R623	1-215-459-00	METAL	39K	1%	1/6W	
R624	1-215-459-00	METAL	39K	1%	1/6W	
R625	1-215-451-00	METAL	18K	1%	1/6W	
R627	1-215-451-00	METAL	18K	1%	1/6W	
R631	1-259-467-11	CARBON	43K	5%	1/4W	
R634	1-259-467-11	CARBON	43K	5%	1/4W	
R637	1-247-716-11	CARBON	1.8K	5%	1/4W	
R638	1-247-716-11	CARBON	1.8K	5%	1/4W	
R639	1-247-716-11	CARBON	1.8K	5%	1/4W	
R640	1-247-716-11	CARBON	1.8K	5%	1/4W	
R641	1-247-725-11	CARBON	10K	5%	1/4W	
R642	1-247-710-11	CARBON	560	5%	1/4W	
R644	1-247-704-11	CARBON	220	5%	1/4W	
R645	1-259-488-81	CARBON	330K	5%	1/6W	
R646	1-247-704-11	CARBON	220	5%	1/4W	

Ref. No.	Part No.	Description				Remark
R647	1-249-393-11	CARBON	10	5%	1/4W	
R648	1-247-704-11	CARBON	220	5%	1/4W	
R649	1-247-704-11	CARBON	220	5%	1/4W	
R650	1-249-402-11	CARBON	56	5%	1/4W	
R659	1-249-425-11	CARBON	4.7K	5%	1/4W	
R660	1-249-425-11	CARBON	4.7K	5%	1/4W	
R661	1-249-425-11	CARBON	4.7K	5%	1/4W	
		< VIBRATOR >				
X331	1-579-161-11	VIBRATOR, CRYSTAL (45MHz)				
X355	1-577-377-11	VIBRATOR, CERAMIC (10MHz)				
**********						
*	A-4649-598-A	POWER BOARD, COMPLETE				
		**********				
*	4-941-237-01	HEAT SINK				
		< CAPACITOR >				
C201	1-124-130-00	ELECT	100uF	20%	63V	
C202	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C203	1-126-059-11	ELECT	10uF	20%	50V	
C204	1-124-360-00	ELECT	1000uF	20%	16V	
C205	1-124-523-11	ELECT	4700uF	20%	16V	
C206	1-126-059-11	ELECT	10uF	20%	50V	
C207	1-123-369-00	ELECT	4.7uF	20%	50V	
C208	1-126-059-11	ELECT	10uF	20%	50V	
C209	1-126-026-11	ELECT	470uF	20%	16V	
C210	1-126-103-11	ELECT	470uF	20%	16V	
C211	1-126-541-11	ELECT	330uF	20%	16V	
C214	1-124-120-11	ELECT	220uF	20%	25V	
C217	1-136-165-00	FILM	0.1uF	5%	50V	
C225	1-136-165-00	FILM	0.1uF	5%	50V	
C226	1-126-101-11	ELECT	100uF	20%	16V	
C227	1-126-677-51	ELECT	1000uF	20%	16V	
C228	1-136-165-00	FILM	0.1uF	5%	50V	
C241	1-136-165-00	FILM	0.1uF	5%	50V	
C242	1-136-165-00	FILM	0.1uF	5%	50V	
C243	1-136-165-00	FILM	0.1uF	5%	50V	
C244	1-136-165-00	FILM	0.1uF	5%	50V	
C245	1-136-165-00	FILM	0.1uF	5%	50V	
C280	1-136-177-00	FILM	1uF	5%	50V	
C281	1-164-159-11	CERAMIC	0.1uF		50V	
C282	1-164-159-11	CERAMIC	0.1uF		50V	
C311	1-123-369-00	ELECT	4.7uF	20%	50V	
		< CONNECTOR >				
* CN221	1-564-510-11	PLUG, CONNECTOR 7P				
* CN222	1-564-510-21	PLUG, CONNECTOR 7P				

Ref. No.	Part No.	Description				Remark
* CN224	1-564-513-11	PLUG, CONNECTOR 10P				
		< 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			
D211	8-719-110-08	DIODE	RD8.2ES-B2			
D225	8-719-934-31	DIODE	HZS36-3L			
D322	8-719-987-63	DIODE	1N4148M			
		< IC >				
IC201	8-759-630-21	IC	M5290P-16			
IC202	8-759-145-58	IC	uPC4558C			
IC203	8-759-605-00	IC	M5F78M07L			
		< 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			
Q218	8-729-140-97	TRANSISTOR	2SB734-34			
		< RESISTOR >				
R201	1-259-444-11	CARBON	4.7K	5%	1/6W	
R202	1-259-444-11	CARBON	4.7K	5%	1/6W	
R203	1-249-424-11	CARBON	3.9K	5%	1/4W	
⚠R204	1-212-869-00	FUSIBLE	33	5%	1/4W	F
R205	1-249-435-11	CARBON	33K	5%	1/4W	
R206	1-249-413-11	CARBON	470	5%	1/4W	
R208	1-259-440-11	CARBON	3.3K	5%	1/6W	
R216	1-259-404-11	CARBON	100	5%	1/6W	
R217	1-259-452-11	CARBON	10K	5%	1/6W	
R218	1-259-428-11	CARBON	1K	5%	1/6W	
R219	1-249-393-11	CARBON	10	5%	1/4W	
R225	1-249-441-11	CARBON	100K	5%	1/4W	
**********						
*	1-647-198-12	POWER SW BOARD				
		**********				
		< CAPACITOR >				
⚠C701	1-161-744-00	CERAMIC	0.01uF		400V	
		< CONNECTOR >				
CN751	1-690-123-51	REED (WITH CONNECTOR) (2 CORE)				

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 piéce portant le numéro spécifié.

POWER SW | POWER TRANSFORMER | TIMER SW

Ref. No.	Part No.	Description	Remark
		< SWITCH >	
⚠S701	1-572-267-51	SWITCH, PUSH (AC POWER) (1 KEY) (POWER ON/OFF)	
**********			
*	1-647-200-12	POWER 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	
		< SWITCH >	
⚠S702	1-571-722-11	SWITCH, VOLTAGE SELECTION (E, EA)	
**********			
*	1-647-197-11	TIMER SW BOARD **********	
		< SWITCH >	
S851	1-570-157-51	SWITCH, SLIDE (TIMER)	
**********			
		MISCELLANEOUS **********	
⚠62	1-559-583-21	CORD, POWER (US, Canadian)	
⚠	1-575-651-21	CORD, POWER (AEP, G)	
⚠	1-696-027-11	CORD, POWER (E, EA)	
⚠	1-696-845-11	CORD, POWER (AUS)	
63	1-696-995-11	WIRE (FLAT TYPE) (11 CORE)	
64	1-696-998-11	WIRE (FLAT TYPE) (23 CORE)	
65	1-696-996-11	WIRE (FLAT TYPE) (7 CORE)	
66	1-696-997-11	WIRE (FLAT TYPE) (15 CORE)	
* 113	1-452-538-11	MAGNET	
⚠151	8-848-144-11	DEVICE, OPTICAL KSS-240A	
152	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
M101	X-4917-504-1	MOTOR ASSY (SLIDE)	
M102	X-4917-523-3	BASE (OUTSERT) ASSY (SPINDLE MOTOR)	
M151	A-4604-363-A	MOTOR (L) ASSY	
⚠T701	1-423-491-11	TRANSFORMER, POWER (US, Canadian)	
⚠	1-423-493-11	TRANSFORMER, POWER (AEP, G, AUS)	
⚠	1-423-494-11	TRANSFORMER, POWER (E, EA)	
**********			

Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS **********	
	1-465-593-11	REMOTE COMMANDER (RM-D991)	
⚠	1-569-007-11	ADAPTER, CONVERSION 2P (E)	
⚠	1-569-008-11	ADAPTER, CONVERSION 2P (EA)	
	1-558-271-11	CORD, CONNECTION	
	1-590-925-31	CORD, CONNECTION	
	3-707-584-01	COVER, BATTERY	
	3-755-832-11	MANUAL, INSTRUCTION (ENGLISH/FRENCH/SPANISH/CHINESE) (Canadian, AEP, E, EA, AUS)	
	3-755-832-21	MANUAL, INSTRUCTION (ENGLISH) (US)	
	3-755-832-41	MANUAL, INSTRUCTION (GERMAN/DUTCH/ITALIAN/PORTUGUESE) (AEP)	
	3-755-832-71	MANUAL, INSTRUCTION (GERMAN) (G)	
*	4-944-761-02	CUSHION	
	4-956-951-21	INDIVIDUAL CARTON	
	4-958-936-01	SPACER	
**********			

HARDWARE LIST

****

#1	7-621-255-15	SCREW +P 2X3
#2	7-682-547-09	SCREW +B 3X6
#3	7-682-548-09	SCREW +BVTT 3X8 (S)
#4	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S
#5	7-685-871-01	SCREW +BVTT 3X6 (S)

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